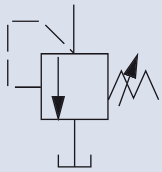
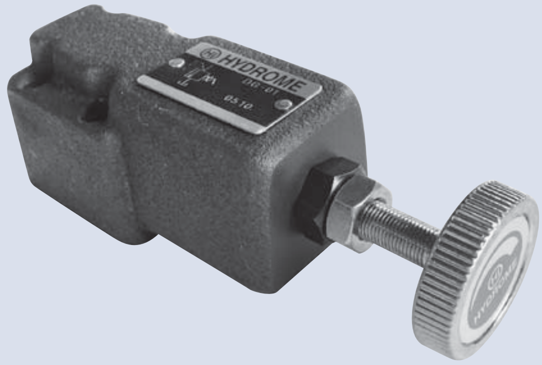
Chapters

Chapters

DIRECT OPERATED TYPE RELIEF VALVE





A

How to order

D G - 01 - H
1 2 3 4

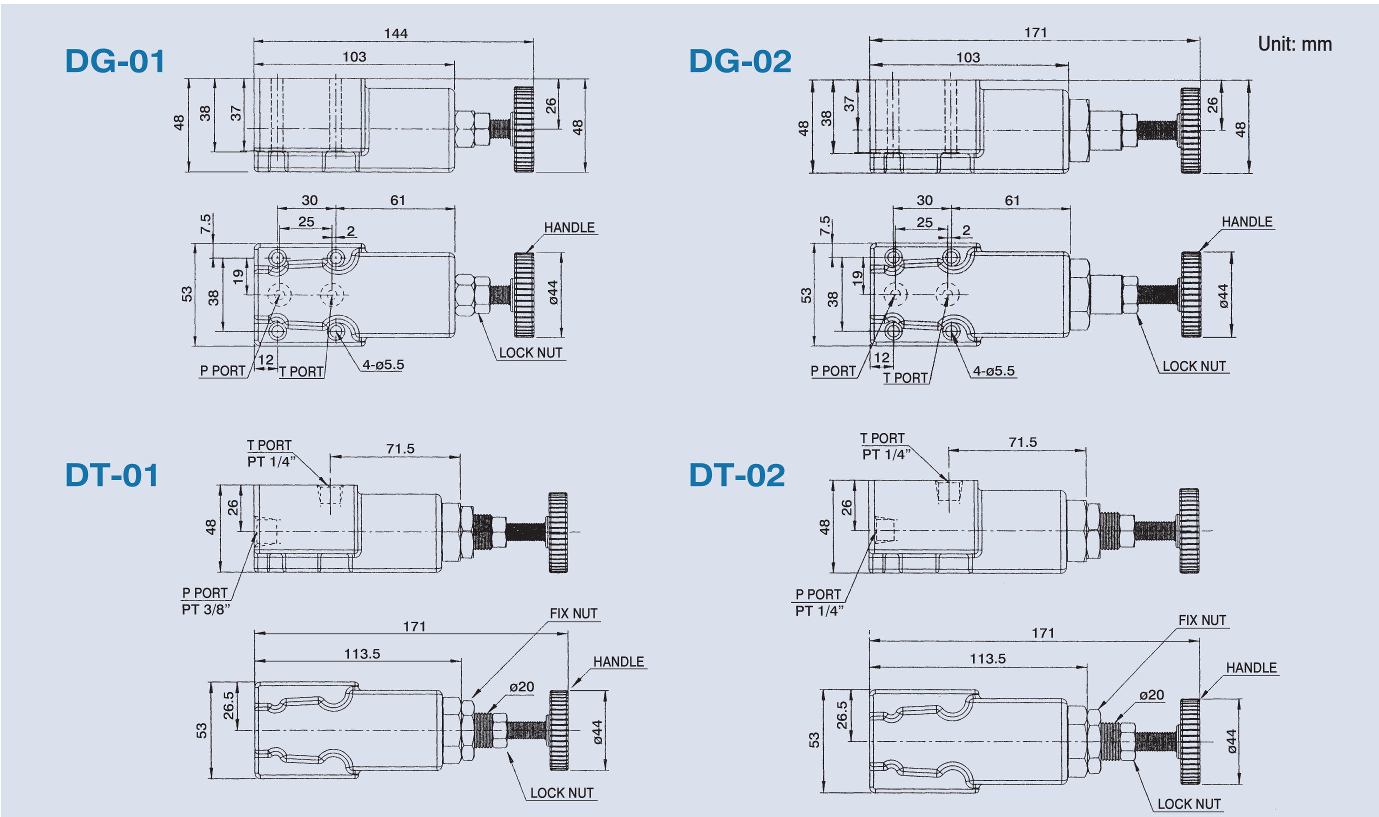
1	Model
2	Mounting type G: Sub-plate mounting T: Thread connection
3	Valve size 01: 1/8" remote control 02: 1/4" relief valve
4	Pressure adjusting range B: 5~70 bar C: 10~140 bar H: 35~230 bar 2H: 140~320 bar (for 01)

Specifications

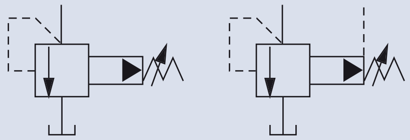
Model		Max. Operating Pressure(bar)	Pressure Adj. Range (bar)	Max. Flow (ipm)	Weight (kg)	Bolt Size DG-※※
Sub-Plate Mounting	Thread Connection					
DG-01	DT-01	300	B: 5~70, C: 10~140, H: 35~230, 2H: 140~320	2	1.5	M5 x 40L
DG-02	DT-02	250	B: 5~70, C: 10~140, H: 35~230	16	1.6	M5 x 45L

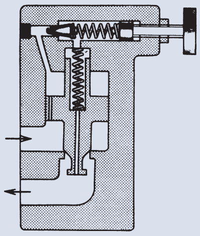
DG-01-※-K Is linked type remote control relief valve for low backpressure using.

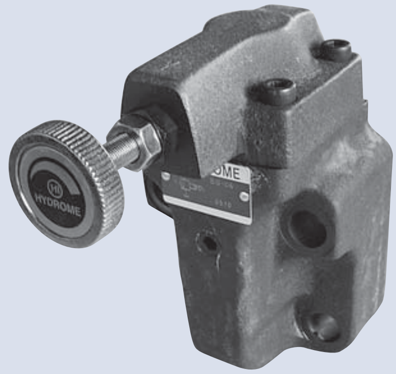
Dimensions



BALANCE PISTON TYPE PILOT OPERATED RELIEF VALVE







A

How to order

B G - 06 - H
1 2 3 4

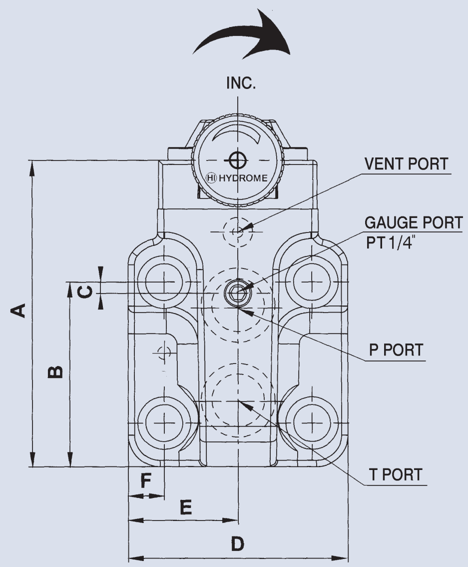
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Valve size	03: 3/8" 06: 3/4" 10: 1-1/4"
4	Pressure adjusting range	B: 5~70 bar C: 10~140 bar H: 35~230 bar 2H: 140~320 bar

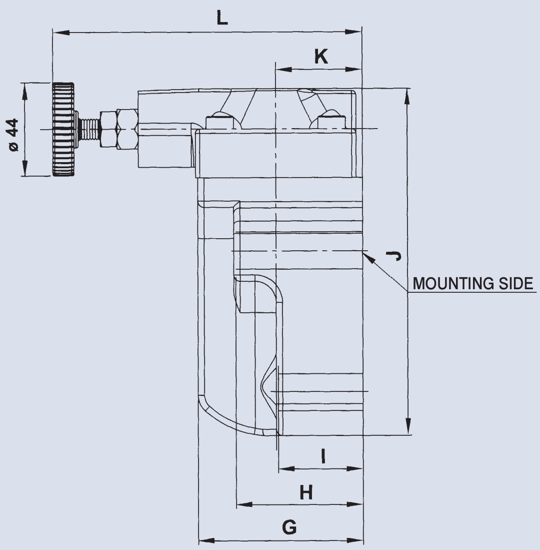
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)	Bolt Size
BG-03	300	B: 5~70 C: 10~140 H: 35~230 2H: 140~320	100	5	M12 x 70L x 2pcs M12 x 90L x 2pcs
BG-06			200	6.2	M16 x 55L x 2pcs M16 x 75L x 2pcs
BG-10			400	10	M20 x 70L x 2pcs M20 x 90L x 2pcs

Dimensions

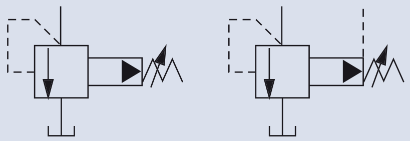
Unit: mm

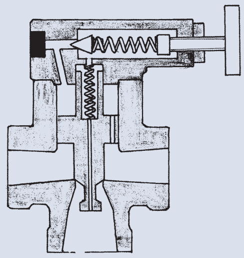




Model	A	B	C	D	E	F	G	H	I	J	K	L
BG-03	117	75.5	21.5	83	41.5	14.5	78	77.5	58.5	136	41	146
BG-06	145	87.5	5.5	104	52	17	78	60	40	164	41	146
BG-10	175	106	8	125	62.5	21.2	90	69.5	49.5	195	46	155

BALANCE PISTON TYPE PILOT OPERATED RELIEF VALVE





How to order

B T - 06 - H
1 2 3 4

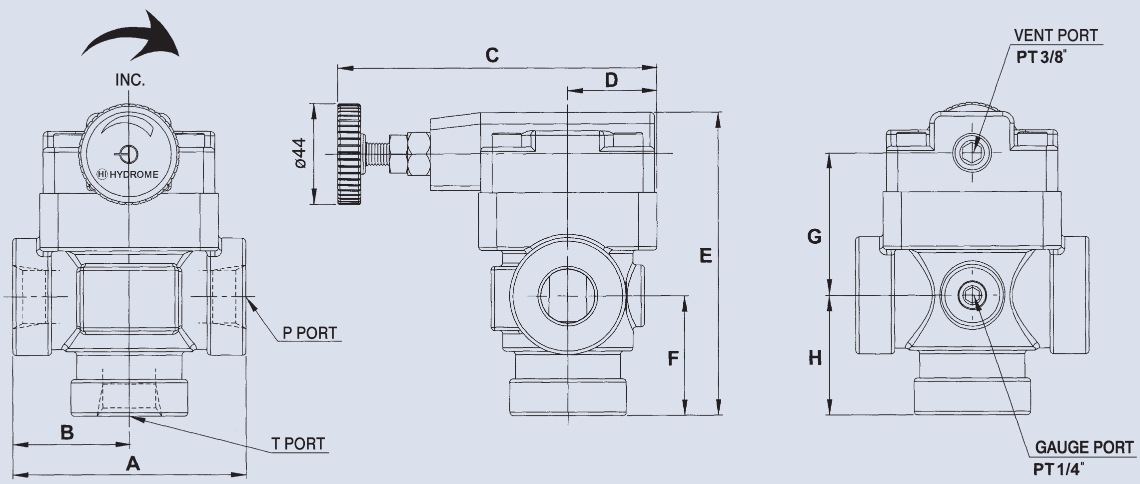
1	Model	
2	Mounting type	T: Thread connection
3	Valve size	03: 3/8" 04: 1/2" 06: 3/4" 10: 1-1/4"
4	Pressure adjusting range	B: 5~70 bar C: 10~140 bar H: 35~230 bar 2H: 140~320 bar

Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
BT-03	300	B: 5~70	60	2.5
BT-04		C: 10~140	100	2.5
BT-06		H: 35~230	200	4
BT-10		2H: 140~320	400	8.5

Dimensions

Unit: mm



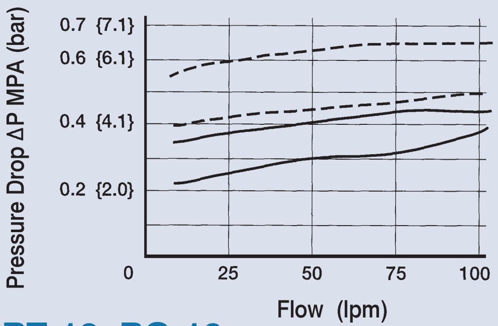
Model	A	B	C	D	E	F	G	H
BT-03	77	38.5	132	31.5	123	42	65	42
BT-06	102	51	140	39	132	52	62	52
BT-10	140	70	152	48	191	84	86	82

BALANCE PISTON TYPE PILOT OPERATED RELIEF VALVE

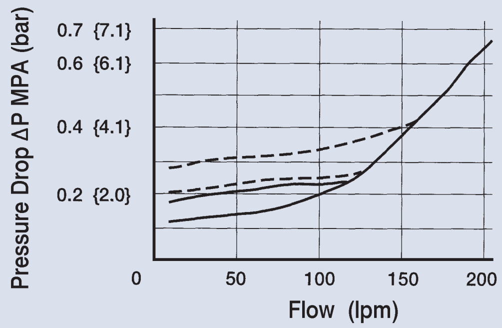
Performance curves

BT / BG series   Test Fluid Viscosity: 35 CST

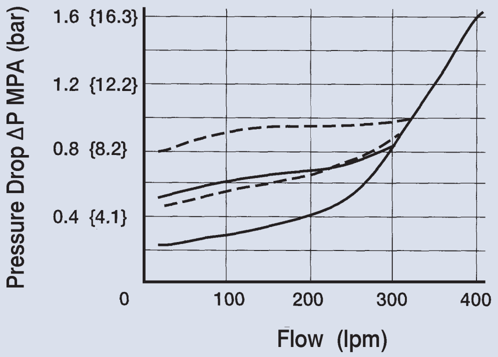
BT-03, BG-03



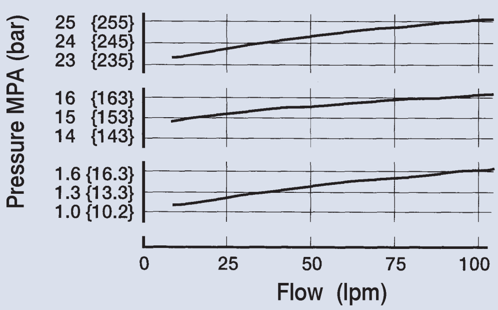
BT-06, BG-06



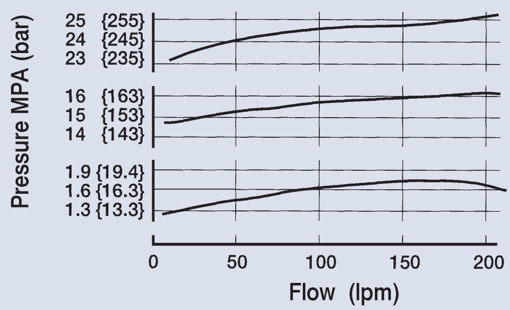
BT-10, BG-10



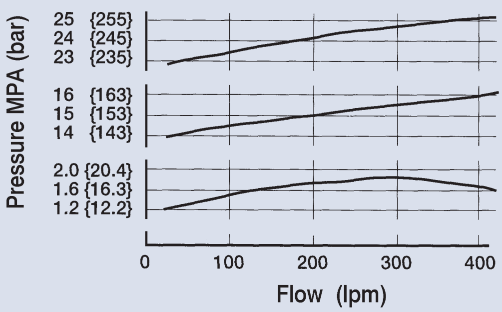
BT-03, BG-03



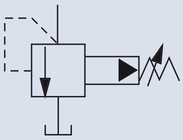
BT-06, BG-06

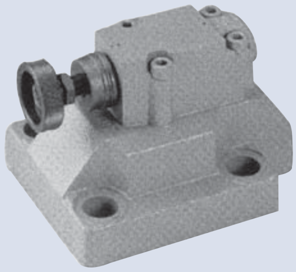


BT-10, BG-10



BALANCE PISTON TYPE PILOT OPERATED RELIEF VALVE





A

How to order

DB - 10 - ※
1 2 3

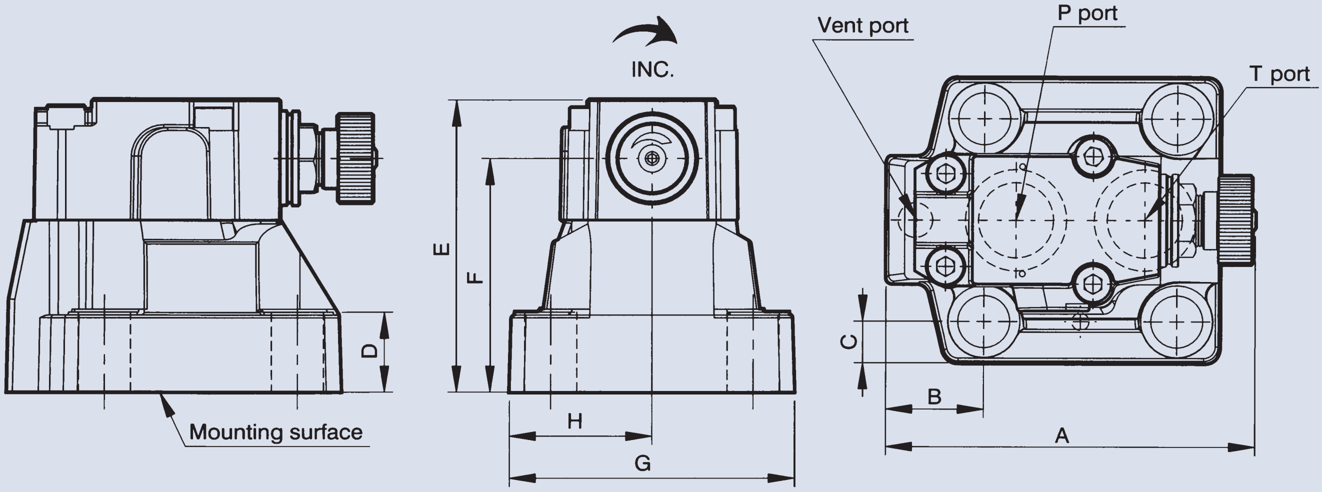
1	Model	Sub-plate mounting
2	Valve size	10: 3/8" 20: 3/4" 30: 1-1/4"
3	Pressure adjusting range	B: 5~70 bar C: 7~140 bar H: 35~230 bar 2H: 140~330 bar

Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)	Bolt Size
DB-10	350	B: 5~70 C: 7~140 H: 35~230 2H: 140~330	150	3.5	M12 x 40L
DB-20			250	4.5	M16 x 45L
DB-30			500	6	M20 x 55L

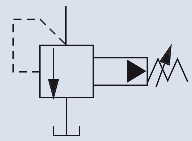
Dimensions

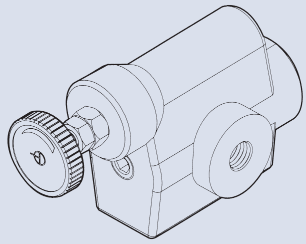
Unit: mm

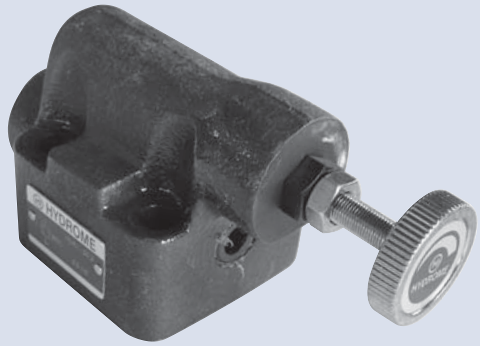


Model	A	B	C	D	E	F	G	H
DB-10	120	27.2	12.1	27	103.6	83.5	78	39
DB-20	126.5	33.8	14.25	27.5	100.6	80.5	98.5	49.25
DB-30	150	42	15.9	29	103.6	83.5	114.5	57.25

BALANCE PISTON TYPE PILOT OPERATED RELIEF VALVE







A

How to order

HDRI - G 03 - ※

1 2 3 4

1	Model	
2	Mounting type	G: Sub-plate mounting T: Thread connection
3	Valve size	3/8"
4	Pressure adjusting range	1: 5~70 bar 2: 35~230 bar

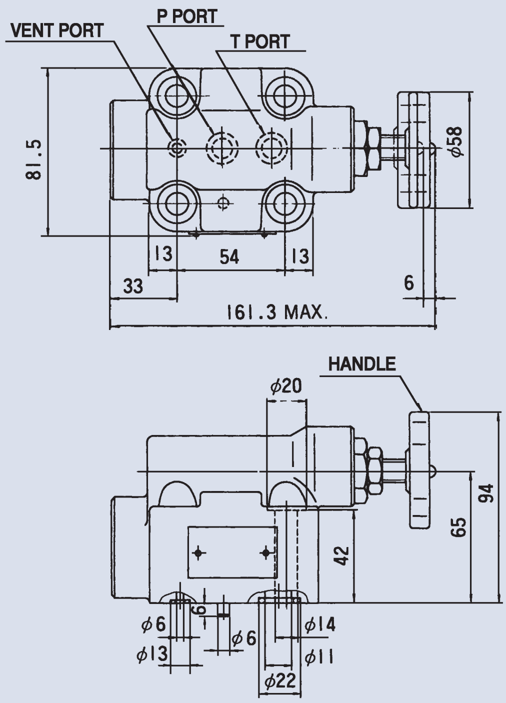
Specifications

Model		Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (ipm)	Weight (kg)		Bolt Size HDRI-G03
Sub-Plate Mounting	Thread Connection				G Type	T Type	
HDRI-G03	HDRI-T03	250	1: 5~70 2: 35~230	100	3.5	3	M10 x 55L

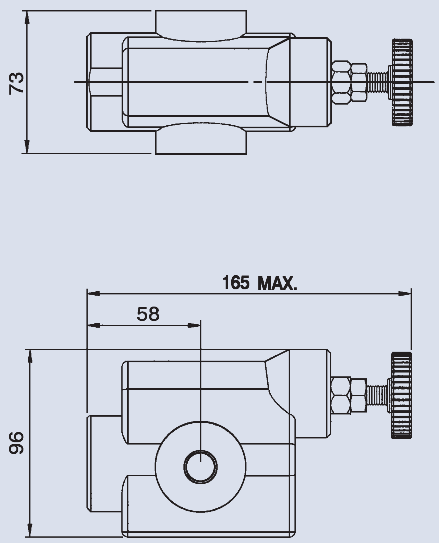
Dimensions

Unit: mm

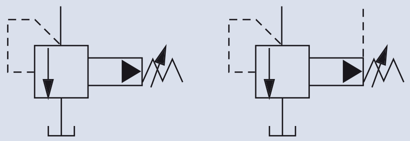
HDRI-G03

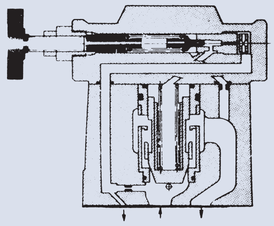


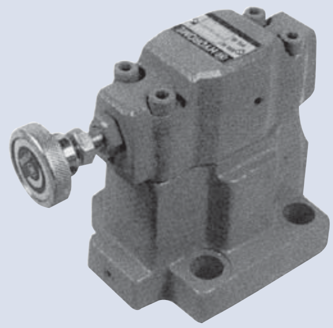
HDRI-T03



LOW NOISE TYPE PILOT OPERATED RELIEF VALVE







How to order

SB G - 06 - H - R
1 2 3 4 5

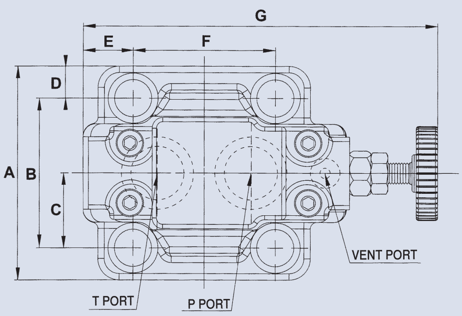
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Valve size	03: 3/8" 06: 3/4" 10: 1-1/4"
4	Pressure adjusting range	B: 5~70 bar C: 10~140 bar H: 35~230 bar 2H: 140~320 bar
5	Handle position	R: Handle at P port (standard, no remarking) L: Handle at T port

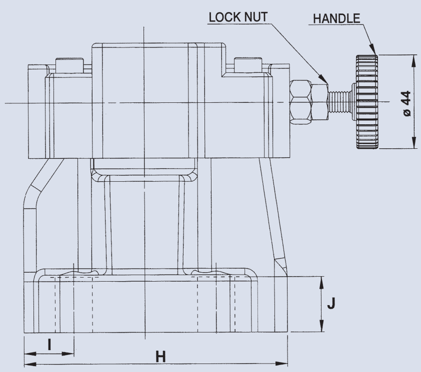
Specifications

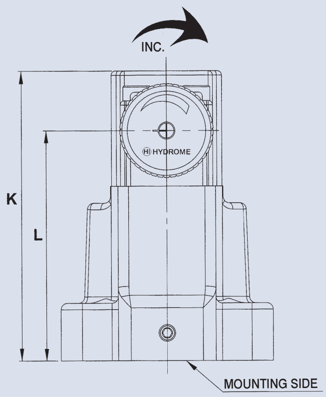
Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)	Bolt Size
SBG-03	300	B: 5~70 C: 10~140 H: 35~230 2H: 140~320	100	4.7	M12 x 40L
SBG-06			200	6	M16 x 45L
SBG-10			400	9.5	M20 x 60L

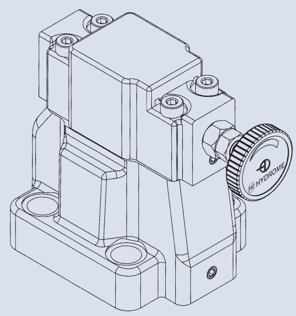
Dimensions

Unit: mm









Model	A	B	C	D	E	F
SBG-03	78	54	27	12	34.5	54
SBG-06	100	70	35	15	23.5	67
SBG-10	127	82.6	41.3	22.2	20.5	89

Model	G	H	I	J	K	L
SBG-03	165	107	26.5	23	134	106
SBG-06	167	124	23.5	26	136	108
SBG-10	185	155	20.5	36	145	120

LOW NOISE TYPE PILOT OPERATED RELIEF VALVE

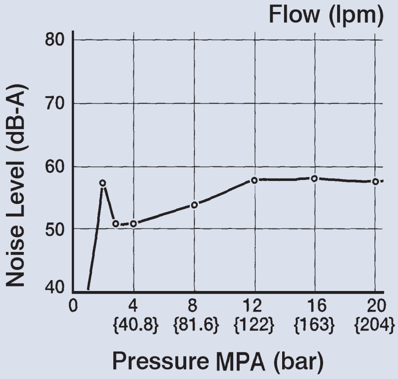
Performance curves

SBG series **Test Fluid Viscosity: 35 CST**

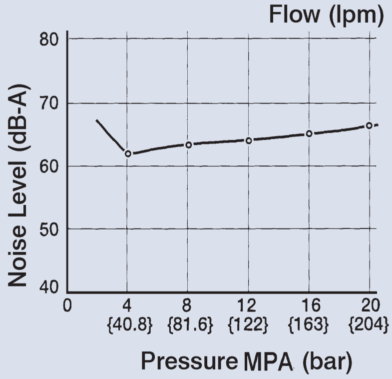
Unit: mm

A

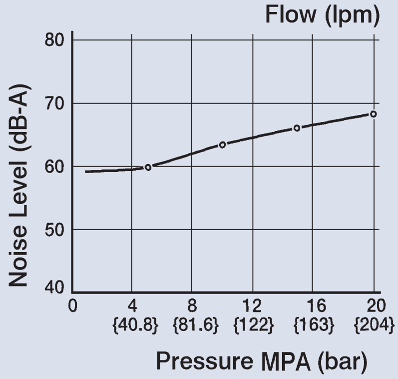
SBG-03



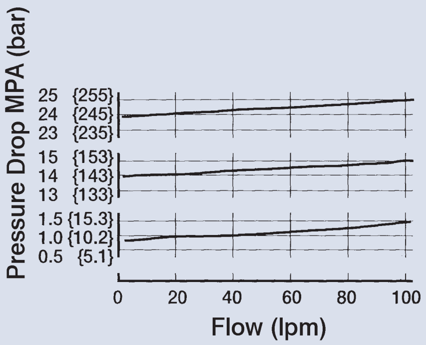
SBG-06



SBG-10



SBG-03



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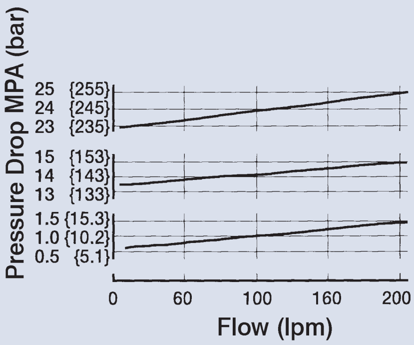
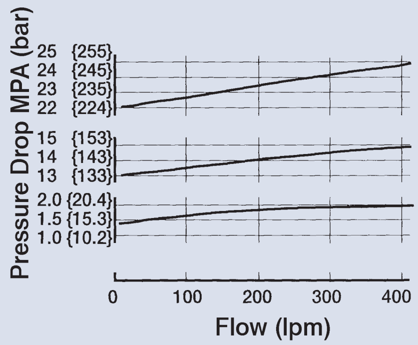
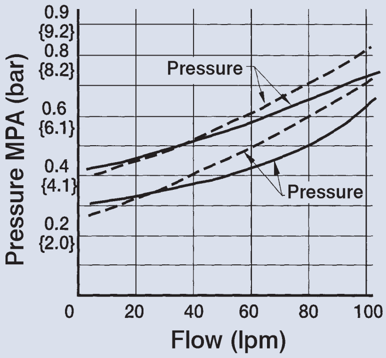


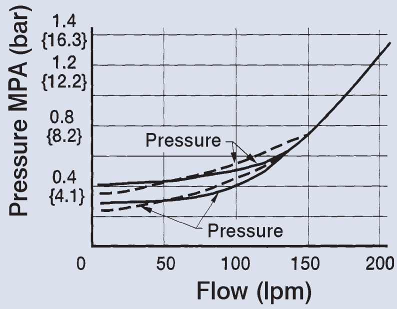
SBG-10



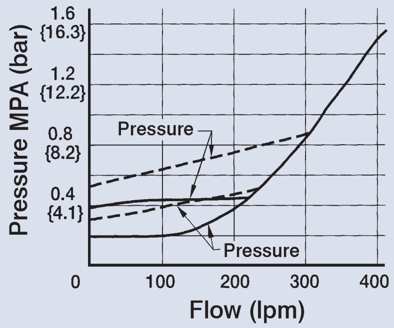
SBG-03



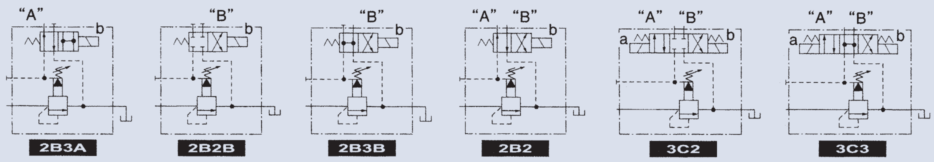
SBG-06

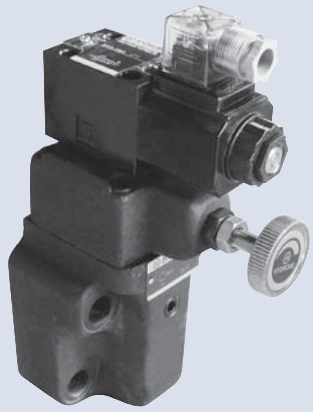


SBG-10



SOLENOID CONTROLLED PILOT OPERATED RELIEF VALVE





A

How to order

BS G - 06 - H - 2B2 - A22

1 2 3 4 5 6

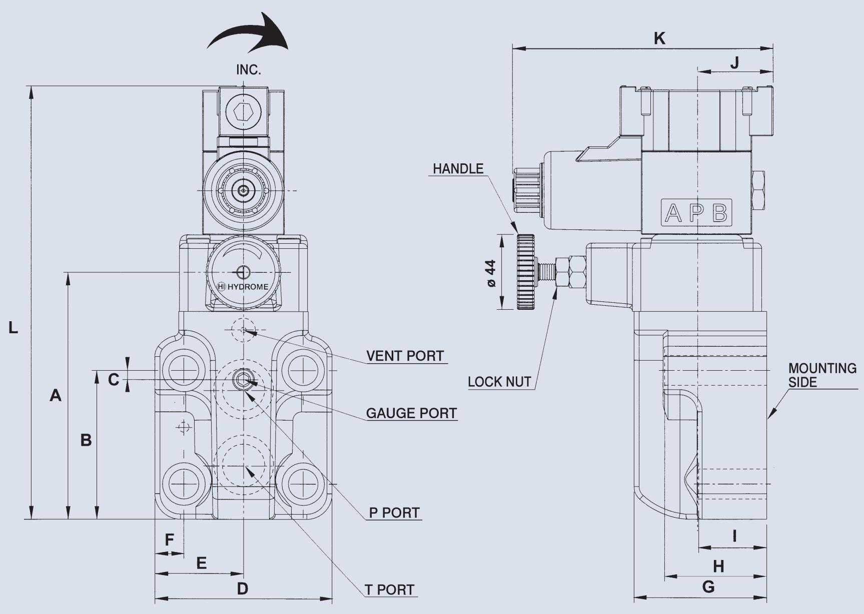
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Valve size	03: 3/8" 06: 3/4" 10: 1-1/4"
4	Pressure adjusting range	B: 5~70 bar C: 10~140 bar H: 35~230 bar 2H: 140~320 bar
5	Vent type	
6	Voltage	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) A24: AC240V (50HZ) A38: AC380V (50HZ) D1: DC12V D2: DC24V

Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)	Bolt Size
BSG-03	300	B: 5~70 C: 10~140 H: 35~230 2H: 140~320	100	5.6	M12 x 70L x 2pcs M12 x 90L x 2pcs
BSG-06			200	7	M16 x 55L x 2pcs M16 x 75L x 2pcs
BSG-10			400	10.8	M20 x 70L x 2pcs M20 x 90L x 2pcs

Dimensions

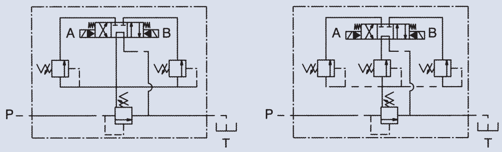
Unit: mm



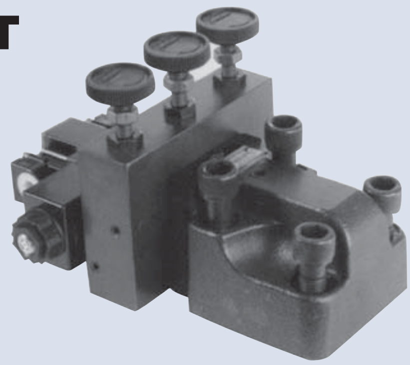
Model	A	B	C	D	E	F
BSG-03	117	75.5	21.5	83	41.5	14.5
BSG-06	145	87.5	5.5	104	52	17
BSG-10	175	106	8	125	62.5	21.2

Model	G	H	I	J	K	L
BSG-03	78	77.5	58.5	45	153	226
BSG-06	78	60	40	45	153	255
BSG-10	90	69.5	49.5	50	153	285

SOLENOID CONTROLLED PILOT OPERATED RELIEF VALVE



BSG-2P BSG-3P



How to order

BS G - 06 - H - 2P - 3C60 - A22

1 2 3 4 5 6 7

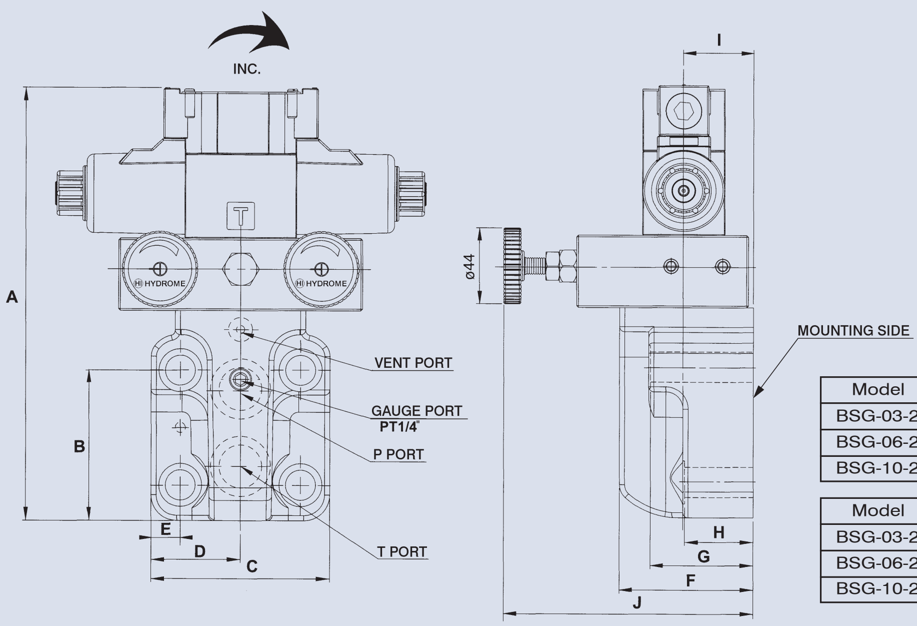
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Valve size	03: 3/8" 06: 3/4" 10: 1-1/4"
4	Pressure adjusting range	B: 5~70 bar C: 10~140 bar H: 35~230 bar 2H: 140~320 bar
5	2P: Dual pressure adjusting ranges 3P: Three pressure adjusting ranges	
6	Vent type	3C3 3C60
7	Voltage	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) A24: AC240V (50HZ) A38: AC380V (50HZ) D1: DC12V D2: DC24V

Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)	Bolt Size
BSG-03	300	B: 5~70 C: 10~140 H: 35~230 2H: 140~320	100	7.5	M12 x 70L x 2pcs M12 x 90L x 2pcs
BSG-06			200	8.7	M16 x 55L x 2pcs M16 x 75L x 2pcs
BSG-10			400	12.5	M20 x 70L x 2pcs M20 x 90L x 2pcs

Dimensions

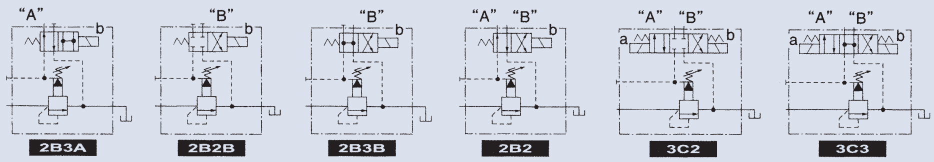
Unit: mm

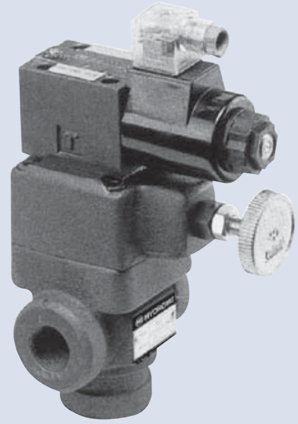


Model	A	B	C	D	E
BSG-03-2P	224	75.5	83	41.5	14.5
BSG-06-2P	251.5	87.5	104	52	17
BSG-10-2P	289.5	106	125	62.5	21.2

Model	F	G	H	I	J
BSG-03-2P	70	77.5	40	41	146
BSG-06-2P	78	60	40	41	146
BSG-10-2P	83	69.5	49.5	46	280

SOLENOID CONTROLLED PILOT OPERATED RELIEF VALVE





A

How to order

BS T - 06 - H - 2B2 - A22
1 2 3 4 5 6

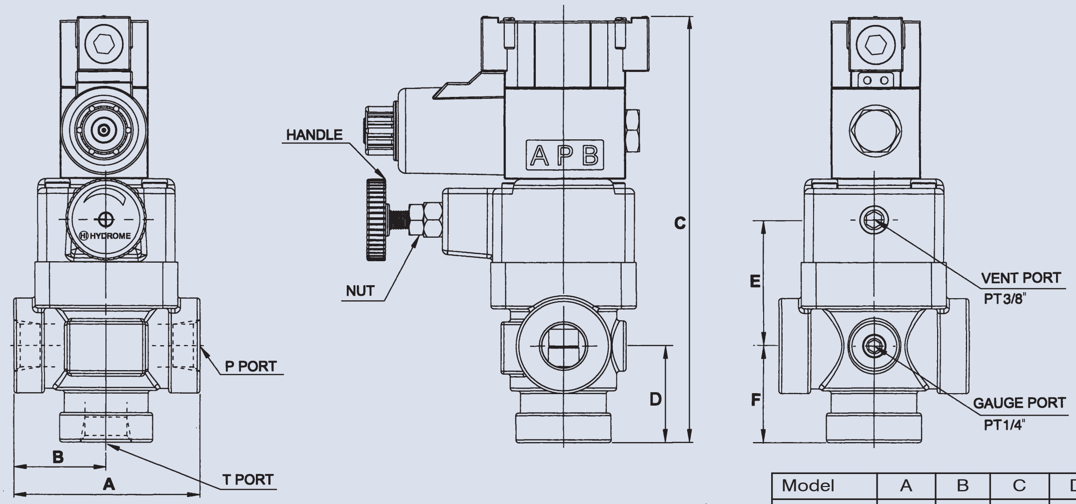
1	Model	
2	Mounting type	T: Thread connection
3	Valve size	03: 3/8" 04: 1/2" 06: 3/4" 10: 1-1/4"
4	Pressure adjusting range	B: 5~70 bar C: 10~140 bar H: 35~230 bar 2H: 140~320 bar
5	Vent type	
6	Voltage	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) A24: AC240V (50HZ) A38: AC380V (50HZ) D1: DC12V D2: DC24V

Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
BST-03	300	B: 5~70	60	4.6
BST-04		C: 10~140	100	4.6
BST-06		H: 35~230	200	4.6
BST-10		2H: 140~320	400	9.4

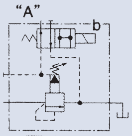
Dimensions

Unit: mm



Model	A	B	C	D	E	F
BST-03,04	102	51	230	52	68	52
BST-06	120	51	230	52	68	52
BST-10	140	70	284	84	86	82

SOLENOID CONTROLLED PILOT OPERATED RELIEF VALVE



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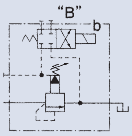

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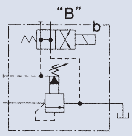
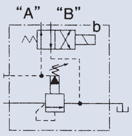
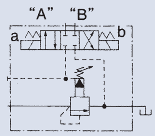


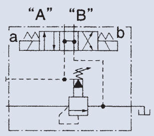
2B3B



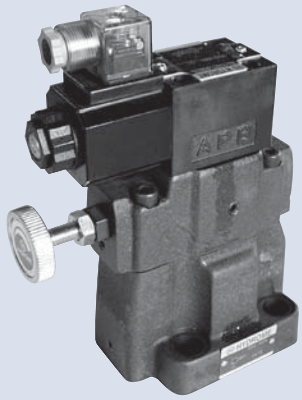
2B2



3C2



3C3



How to order

SBS G - 06 - H - 2B2 - A22

1 2 3 4 5 6

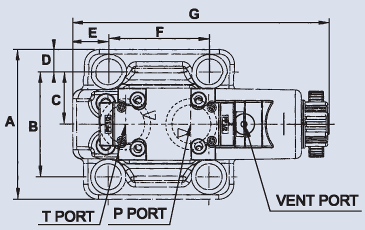
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Valve size	03: 3/8" 06: 3/4" 10: 1-1/4"
4	Pressure adjusting range	B: 5~70 bar C: 10~140 bar H: 35~230 bar 2H: 140~320 bar
5	Vent type	
6	Voltage	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) A24: AC240V (50HZ) A38: AC380V (50HZ) D1: DC12V D2: DC24V

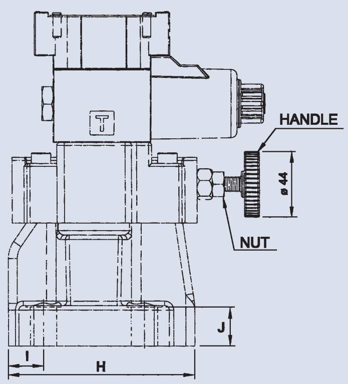
Specifications

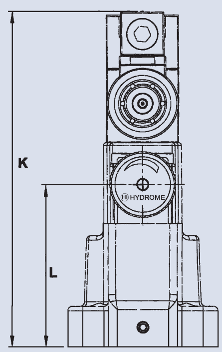
Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)	Bolt Size
SBSG-03	300	B: 5~70 C: 10~140 H: 35~230 2H: 140~320	100	5	M12 x 40L
SBSG-06			200	6.2	M16 x 45L
SBSG-10			400	9.5	M20 x 60L

Dimensions

Unit: mm



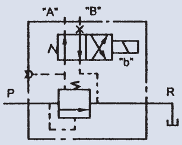


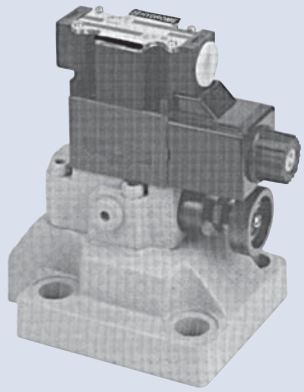


Model	A	B	C	D	E	F
SBSG-03	78	54	27	12	34.5	54
SBSG-06	100	70	35	15	23.5	67
SBSG-10	127	82.6	41.3	22.2	20.5	89

Model	G	H	I	J	K	L
SBSG-03	169	107	26.5	23	222	106
SBSG-06	171	124	23.5	26	224	108
SBSG-10	190	155	20.5	36	273	120

SOLENOID CONTROLLED PILOT OPERATED RELIEF VALVE





How to order

DBW - 10 - H - A22
1 2 3 4

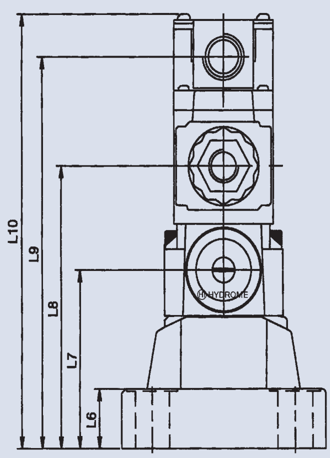
1	Model	Sub-plate mounting
2	Valve size	10: 3/8" 20: 3/4" 30: 1-1/4"
3	Pressure adjusting range	B: 5~70 bar C: 7~140 bar H: 35~230 bar 2H: 140~330 bar
4	Voltage	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) A24: AC240V (50HZ) A38: AC380V (50HZ) D1: DC12V D2: DC24V

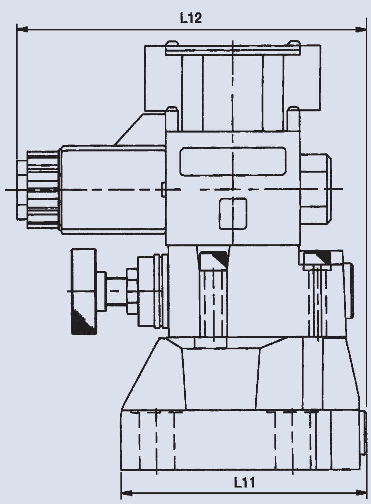
Specifications

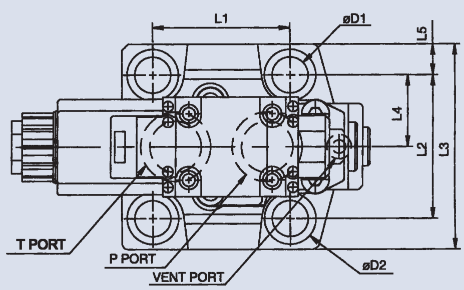
Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)	Bolt Size
DBW-10	350	B: 5~70 C: 7~140 H: 35~230 2H: 140~330	150	3.5	M12 x 40L
DBW-20			250	4.5	M16 x 45L
DBW-30			500	6	M20 x 60L

Dimensions

Unit: mm



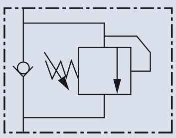


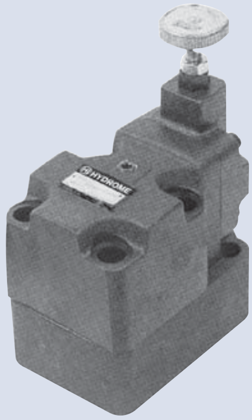


Model	L1	L2	L3	L4	L5	L6	L7
DBW-10	53.8	53.8	78	26.9	12	26	78
DBW-20	66.7	70	100	35	15	26	78
DBW-30	88.9	82.6	114	41.3	15.7	26	78

Model	L8	L9	L10	L11	L12	D1	D2
DBW-10	123	171	190	96	164	13	20
DBW-20	123	171	190	120.5	171	17.5	25
DBW-30	123	171	190	151	183	21.5	30

BACK PRESSURE CONTROL VALVE





How to order

BR - 06 - B
1 2 3

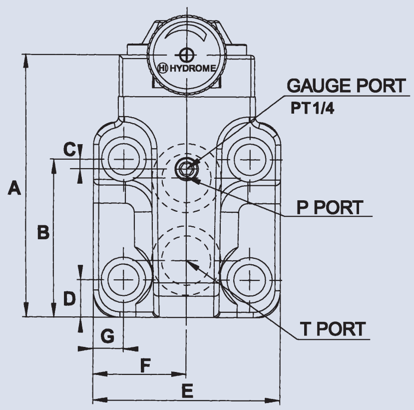
1	Model
2	Valve size 03: 3/8" 06: 3/4" 10: 1-1/4"
3	Pressure adjusting range B: 5~70 bar C: 10~140 bar

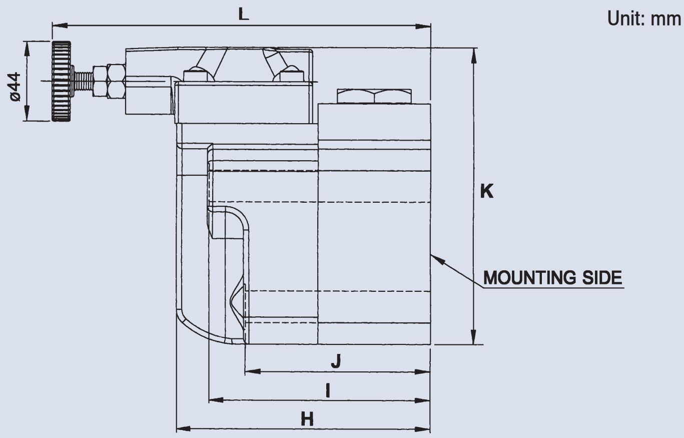
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)	Bolt Size
BR-03	250	B: 5~70 C: 10~140	100	7.5	M12 x 110L x 2pcs M12 x 130L x 2pcs
BR-06			200	11	M16 x 120L x 2pcs M16 x 140L x 2pcs
BR-10			400	19	M20 x 140L x 2pcs M20 x 160L x 2pcs

Dimensions

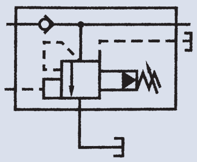
Unit: mm

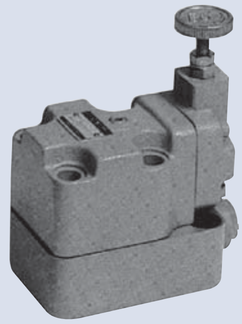




Model	A	B	C	D	E	F	G	H	I	J	K	L
BR-03	120.5	79.5	22	25.7	83	41.5	14.6	117	116.5	97.5	139.5	190.3
BR-06	148	86	1	19.3	104	52	17	118	97	87	167	186.4
BR-10	181	112.7	8	23.8	125	62.5	21.2	163	142.5	122.5	201.7	230

UNLOADING RELIEF VALVE





How to order

BUC G - 06 - H
1 2 3 4

1	Model	
2	Mounting type	G: Sub-plate mounting
3	Valve size	03: 3/8" 06: 3/4" 10: 1-1/4"
4	Pressure adjusting range	B: 5~70 bar C: 10~140 bar H: 35~230 bar

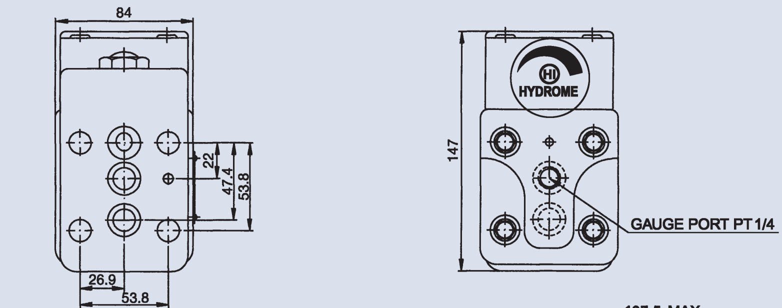
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
BUCG-03	250	B: 5~70	90	8.5
BUCG-06		C: 10~140	200	12.5
BUCG-10		H: 35~230	400	19.5

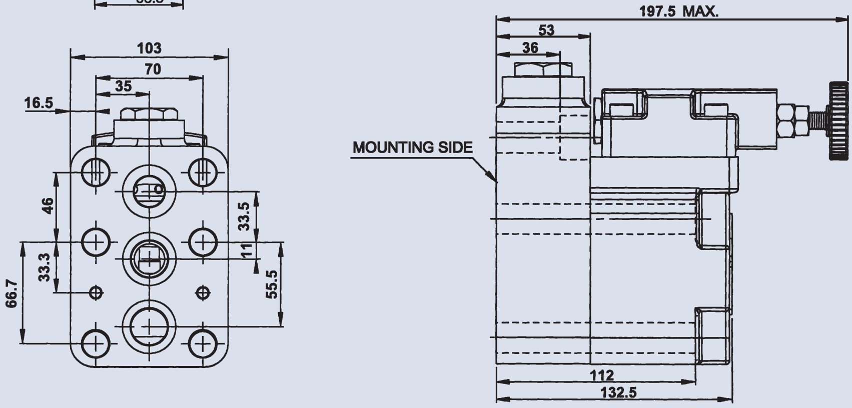
Dimensions

Unit: mm

BUCG-03



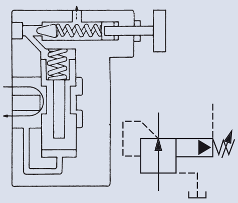
BUCG-06

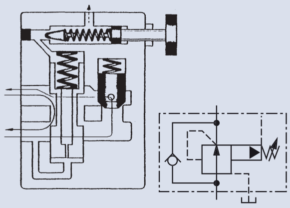


PRESSURE REDUCING VALVE

FEATURES:

- Pressure reducing valve is used in a branch of circuitry where a constant reduced pressure than the main relief setting is required. It can also be remote controlled by connecting form its remote control port(RC).
- Pressure reducing valve when combined with a built-in check valve, the free reverse flow can be accomplished. Pressure reducing valve without built-in check valve can be used in P line of a circuit. With a built-in check valve, it can be used in either A or B line of an actuator.





A

How to order

RC G - 03 - B
1 2 3 4

1	Model	R: Pressure reducing valve RC: Pressure reducing with check valve
2	Mounting type	G: Sub-plate mounting T: Thread connection
3	Valve size	03: 3/8" 06: 3/4" 10: 1-1/4"
4	Pressure adjusting range	B: 5~70 bar C: 10~140 bar H: 35~230 bar

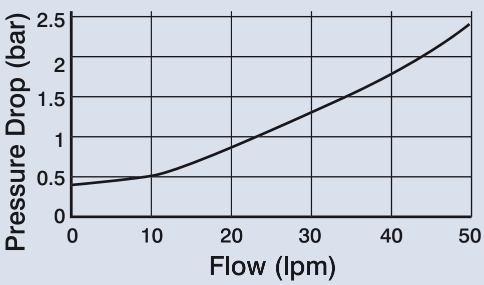
Specifications

Model		Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)		Bolt Size
Sub-Plate Mounting	Thread Connection				RG, RCG	RT, RCT	RG, RCG
RG-03 / RCG-03	RT-03,04 / RCT-03,04	250	B: 5~70 C: 10~140 H: 35~230	50	4.6 / 5.5	4.2 / 4.5	M10 x 55L x 4pcs M10 x 70L x 4pcs
RG-06 / RCG-06	RT-06 / RCT-06			125	7.2 / 8.2	7.4 / 7.8	M10 x 55L x 4pcs M10 x 80L x 4pcs
RG-10 / RCG-10	RT-10 / RCT-10			250	12 / 14.8	12 / 16.4	M10 x 55L x 6pcs M10 x 95L x 6pcs

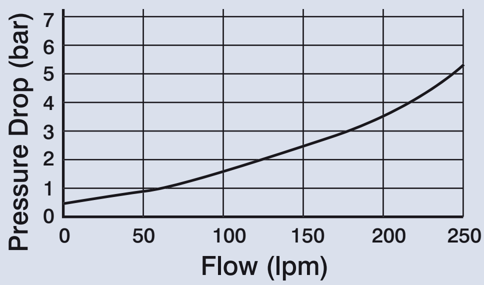
Performance curves

Unit: mm

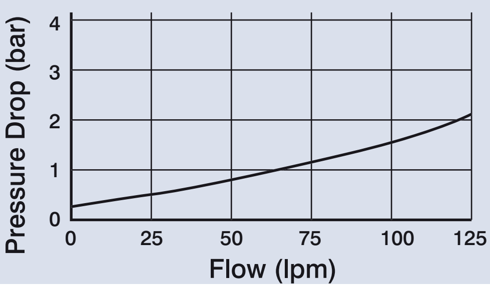
RG-03, RCG-03, RT-03, RCT-03



RG-10, RCG-10, RT-10, RCT-10



RG-06, RCG-06, RT-06, RCT-06

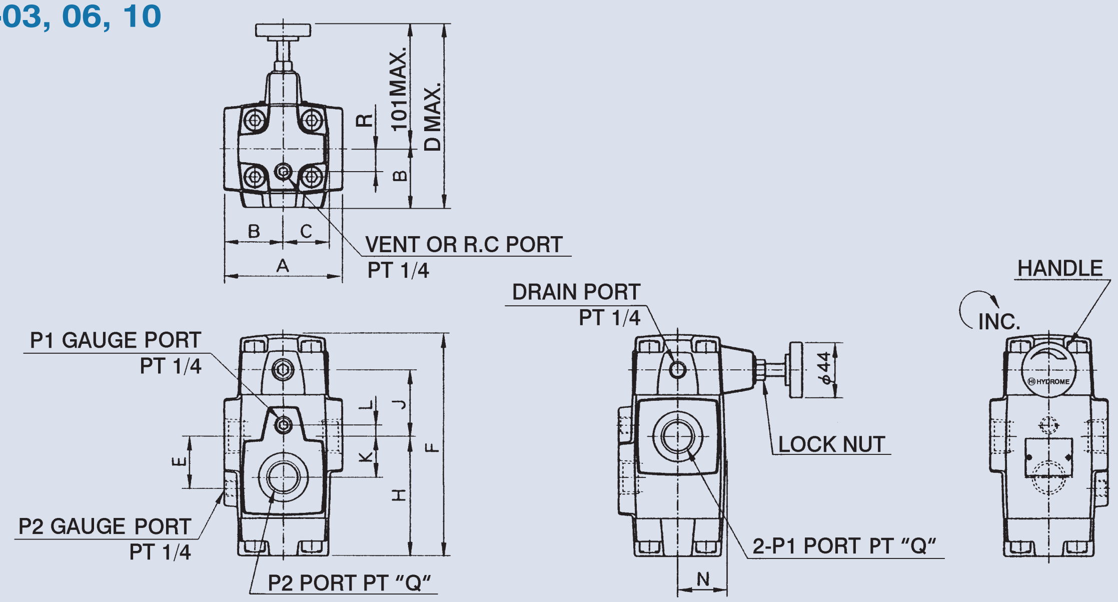


PRESSURE REDUCING VALVE

Dimensions

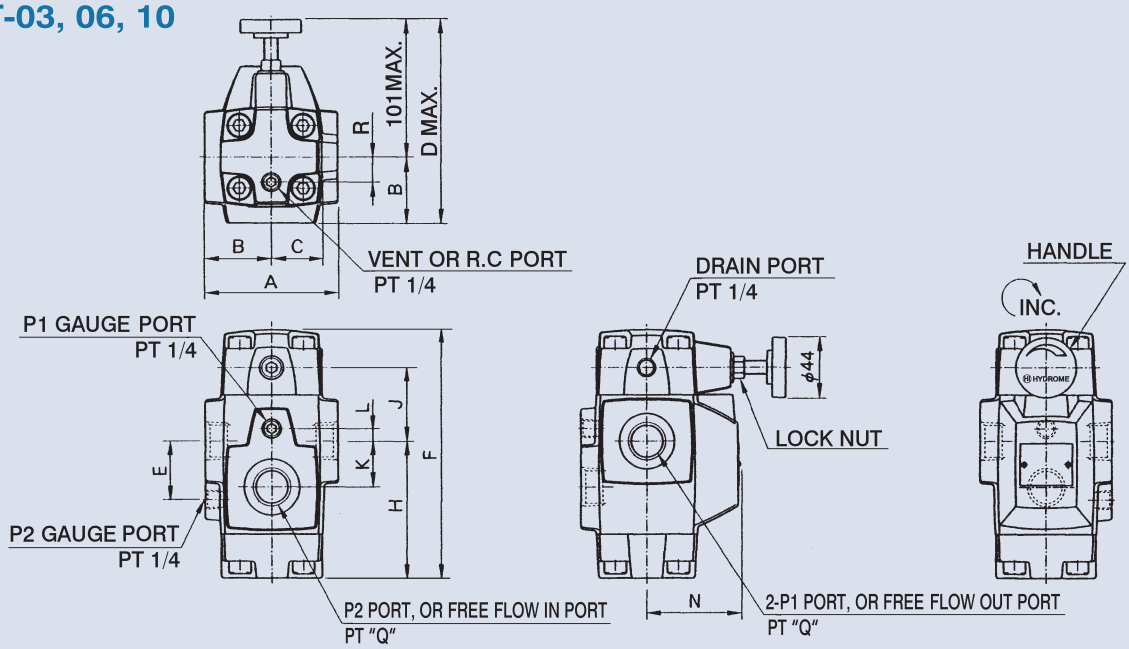
RT-03, 06, 10

Unit: mm



Model	A	B	C	D	E	F	H	J	K	L	N	Q	R
RT-03	82	41	33	148	28	155	85	48	28		32	3/8	10
RT-06	96	48	36.5	149	42	179	97.5	53.5	33	9	39	3/4	18.5
RT-10	132	66	43	167	52	216	124	64	40	12	46	1-1/4	18.5

RCT-03, 06, 10



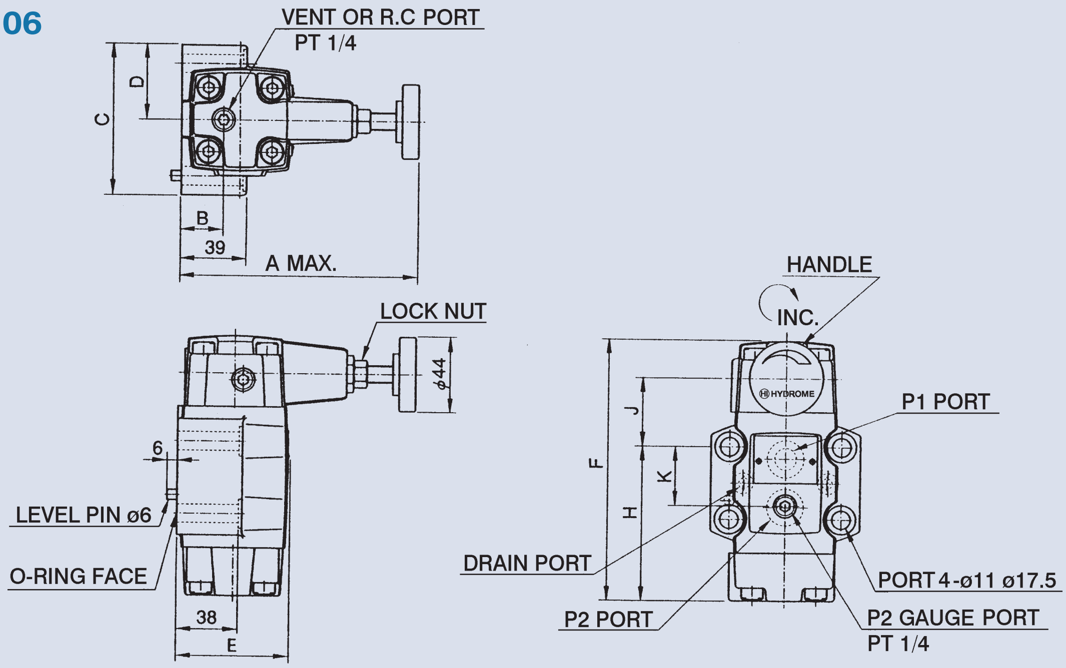
Model	A	B	C	D	E	F	H	J	K	L	N	Q	R
RCT-03	82	41	30	148	28	155	85	48	28		55	3/8	10
RCT-06	96	48	36.5	149	42	179	97.5	53.5	33	9	68	3/4	18.5
RCT-10	132	66	43	167	52	216	124	64	40	12	86	1-1/4	18.5

PRESSURE REDUCING VALVE

Dimensions

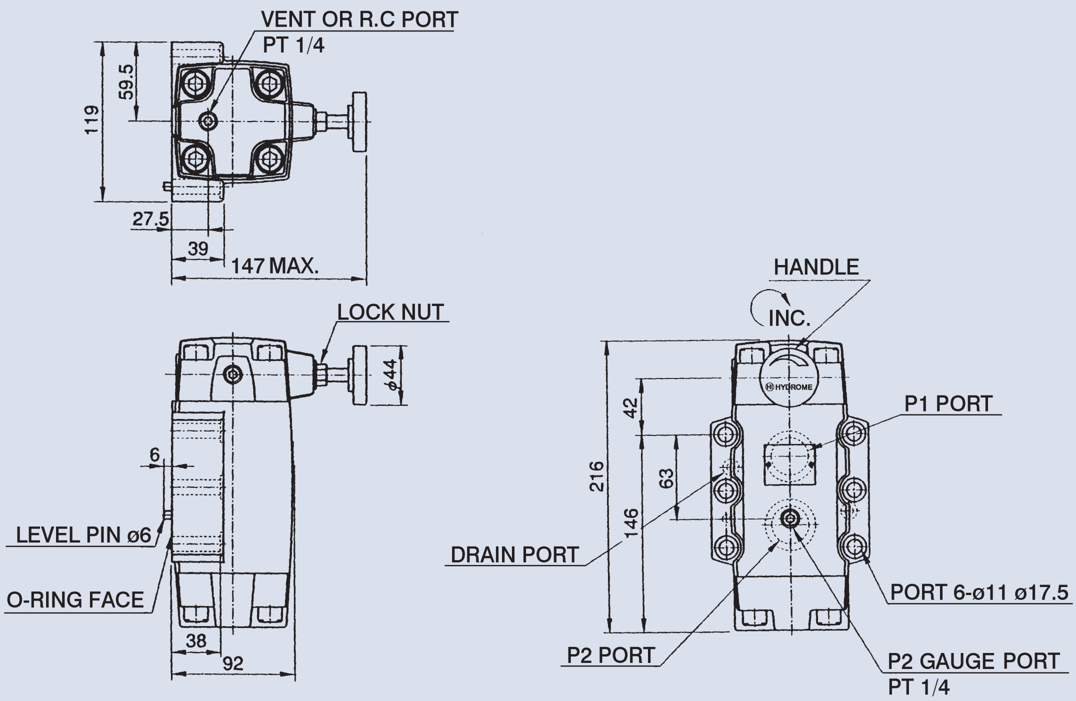
RG-03, 06

Unit: mm



Model	A	B	C	D	E	F	H	J	K
RG-03	142	25	89	44.5	67	155.5	92.4	40.6	34.9
RG-06	141	21.5	102	51	79	179	111	40	48

RG-10



A

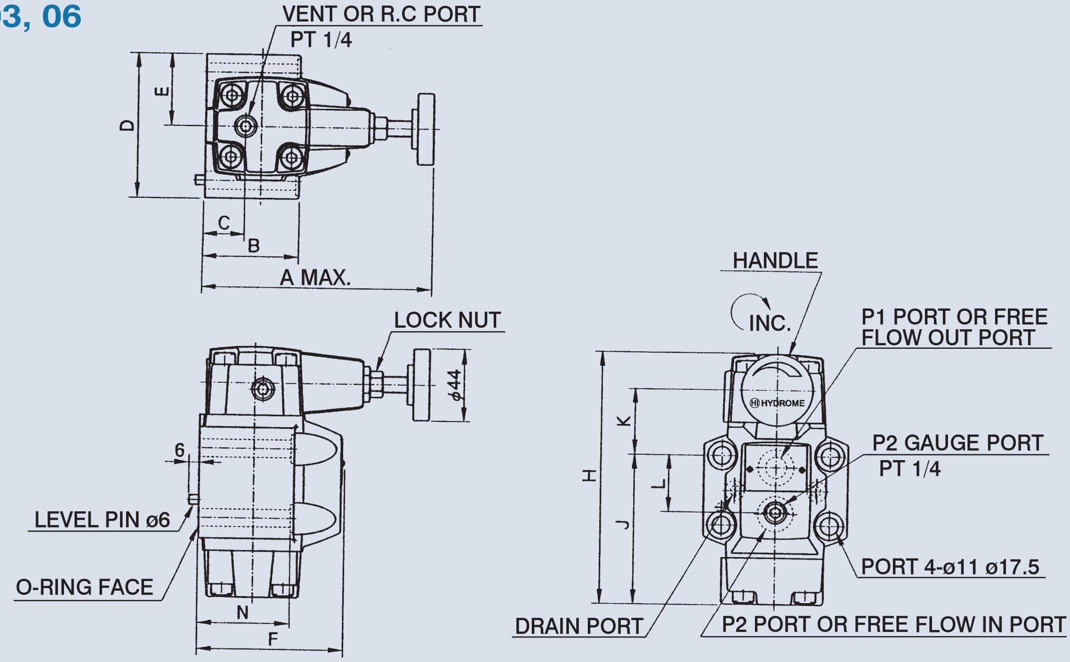
PRESSURE REDUCING VALVE

Dimensions

A

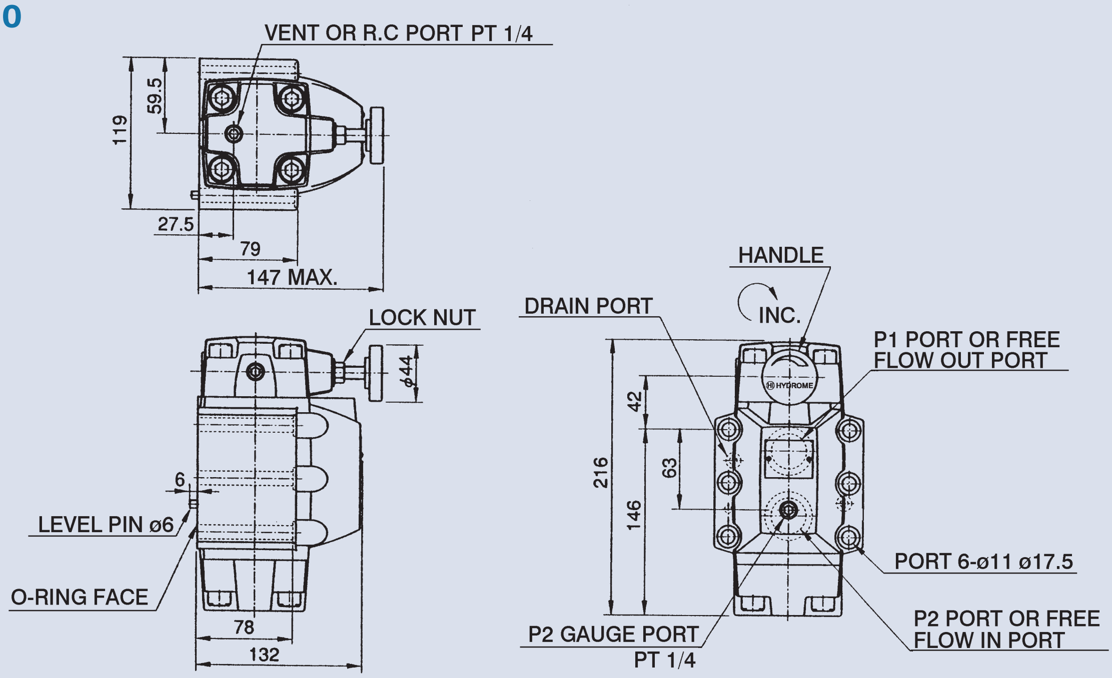
Unit: mm

RCG-03, 06



Model	A	B	C	D	E	F	H	J	K	L	N
RCG-03	142	59	25	89	44.5	90	155	92.4	40.6	34.9	58
RCG-06	141	69	21.5	102	51	108	179	111	40	48	68

RCG-10



SEQUENCE VALVE AND COUNTERBALANCE VALVE

FEATURES:

- HG series is the direct acting type pressure control valve which uses either internal or external pilot pressure to make the valve operate. By the different way of assembly, the valve can be functioned as low pressure relief valve, sequence valve, or unloading valve.
- HCG series valve is HG valve with a check valve built-in, so that free revers flow can be accomplished. The valve can then be served as sequence valve or counterbalance valve. HCG valve can use either internal pilot, or external pilot. When it is used as sequence valve, it should be externally drained; and if used as counterbalance valve, it should be internally drained.
- Remarks: NPT ports for HCT series can be made by special order.

A

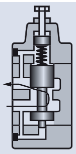
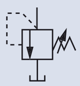
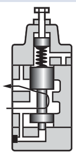
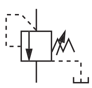
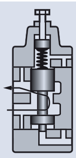
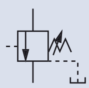
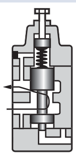
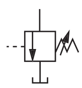
How to order

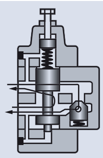
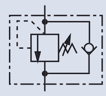
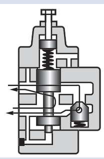
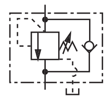
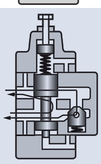
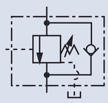
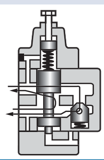
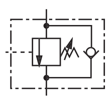
H C G - 03 - B - 4

1	Model
2	C: With check
3	Mounting type G: Sub-plate mounting T: Thread connection
4	Valve size
5	Pressure adjusting range
6	Valve type

Specifications

Model		Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)	
Sub-Plate Mounting	Thread Connection			HG, HCG	HT, HCT
HG-03 / HCG-03	HT-03 / HCT-03	A: 18~35 B: 35~70 C: 70~140 H: 140~210	60	4 / 5	3.7 / 4.1
HG-06 / HCG-06	HT-06 / HCT-06		130	6.1 / 7.4	6.2 / 7.1
HG-10 / HCG-10	HT-10 / HCT-10		250	11.0 / 13.8	12.0 / 13.8

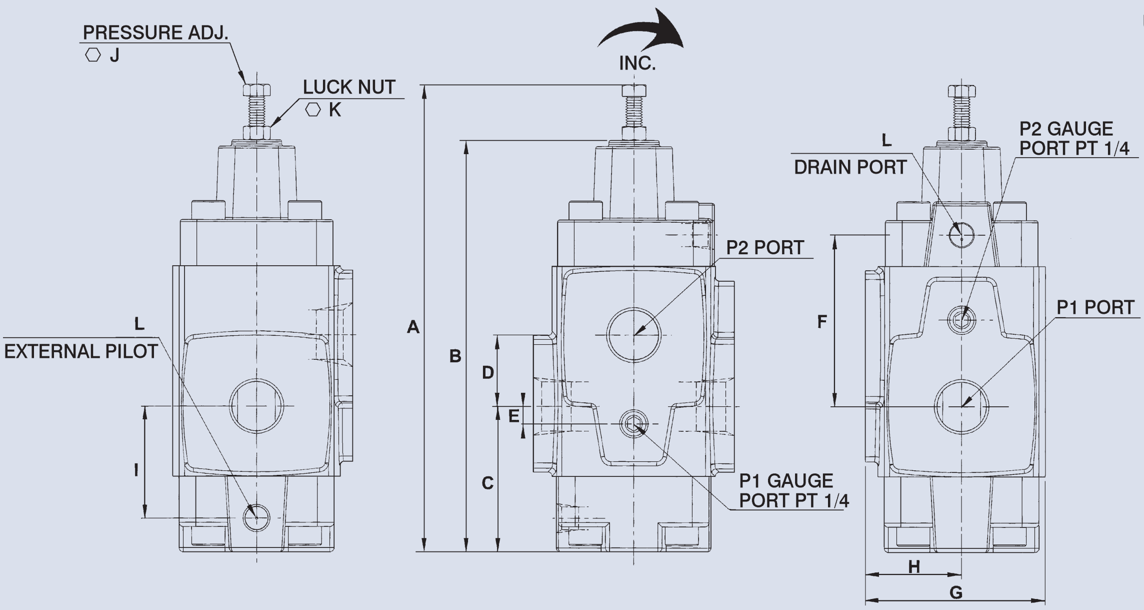
Without check	The type of pilot, drain	Function drawing	Symbol
1.Low pressure relief	Internal pilot internal drain		
2.Sequence valve	Internal pilot external drain		
3.Sequence valve	External pilot external drain		
4.Unloading relief	External pilot internal drain		

With check	The type of pilot, drain	Function drawing	Symbol
1.Counter balance valve	Internal pilot internal drain		
2.Sequence & check valve	Internal pilot external drain		
3.Sequence & check valve	External pilot external drain		
4.Counter balance valve	External pilot internal drain		

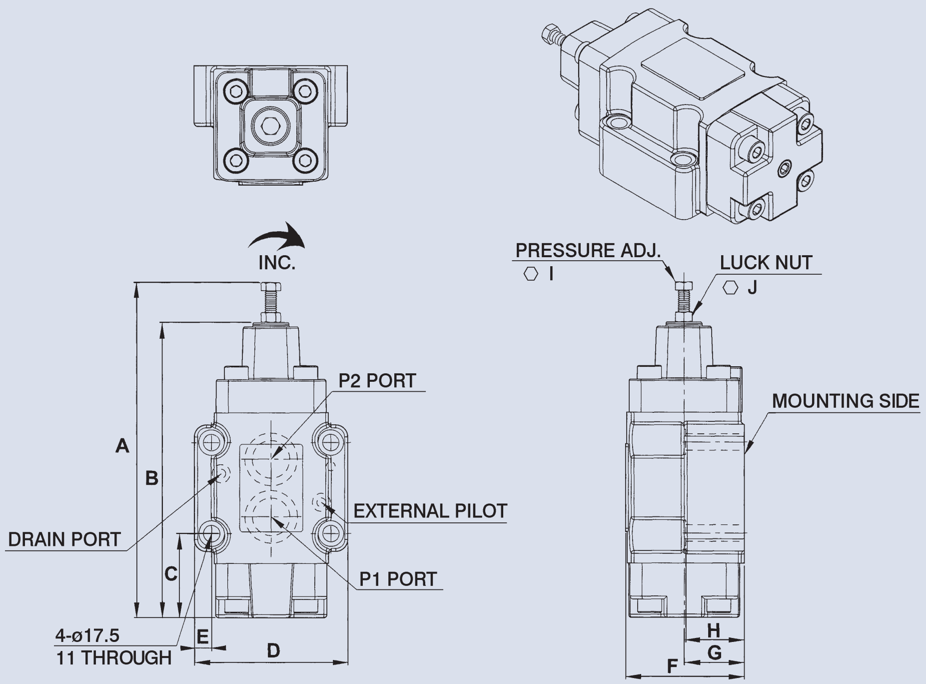
SEQUENCE VALVE AND COUNTERBALANCE VALVE

Dimensions

Unit: mm



Model	A	B	C	D	E	F	G	H	I	J	K	L
HT-03	192	167.5	58	30	0	69	74	41.5	45	10	13	1/8
HT-06	223	196	69	34	8	82	86	46	53	10	13	1/4
HT-10	266	239	87	41	11	98	110	65	68	10	17	1/4

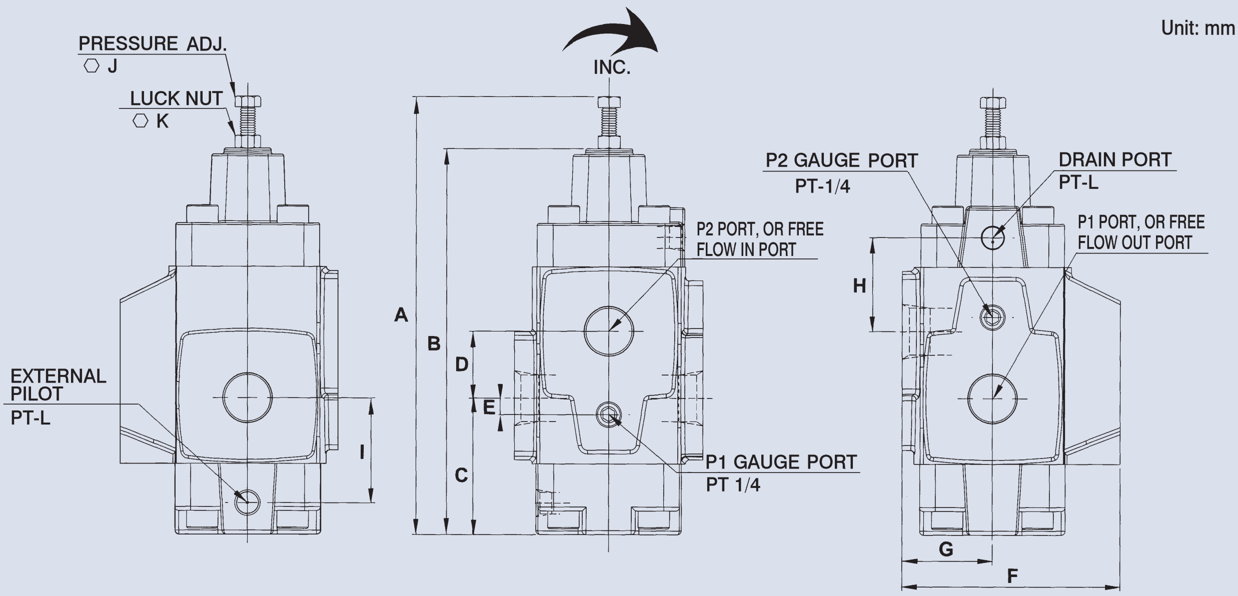


Model	A	B	C	D	E	F	G	H	I	J	Bolt size
HG-03	192	168	50.6	89	11.2	69	42	35	10	13	M10 x 50L x 4pcs
HG-06	223	196	60	102	11.3	79	46	39	10	13	M10 x 55L x 4pcs
HG-10	266	239	65	119	11	96	48.5	40	10	17	M10 x 60L x 6pcs

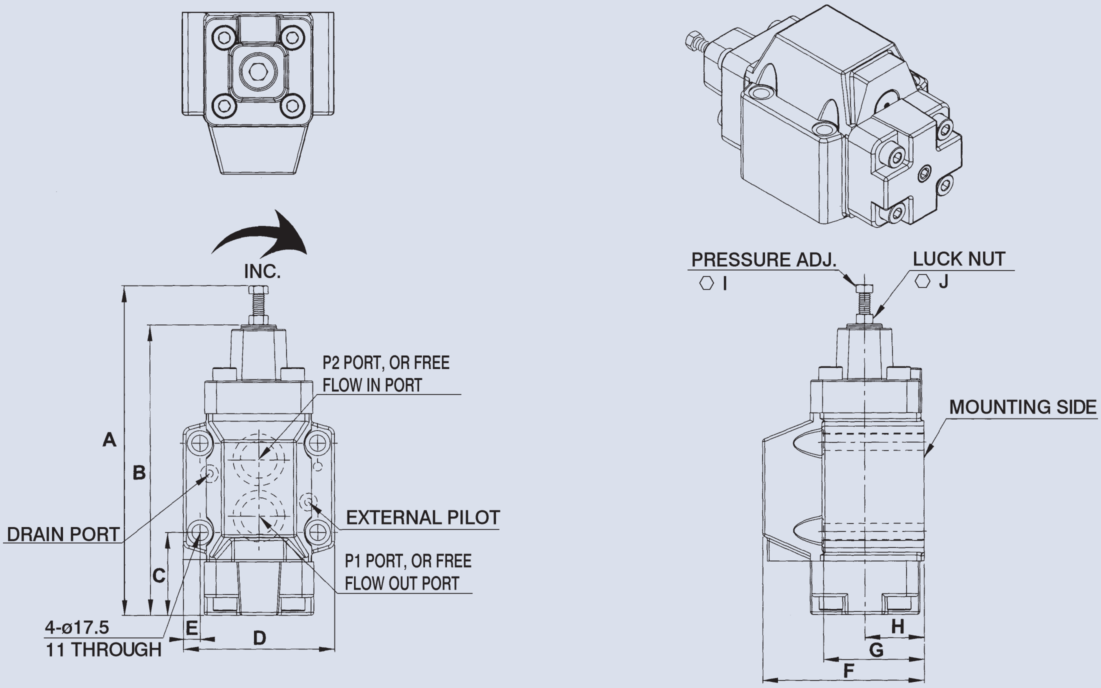
SEQUENCE VALVE AND COUNTERBALANCE VALVE

Dimensions

Unit: mm



Model	A	B	C	D	E	F	G	H	I	J	K	L
HCT-03	195	170.5	59.5	28	0	95	41.5	39	45	10	13	1/8
HCT-06	213.5	189.5	66	34	8.3	111	46	46.5	53.5	10	13	1/4
HCT-10	267.5	237	87	40	15	154	64	59	68	10	17	1/4



Model	A	B	C	D	E	F	G	H	I	J	Bolt size
HCG-03	192	167.5	50.6	89	11.2	90	58	35	10	13	M10 x 70L x 4pcs
HCG-06	222	196	60	102	11.3	109	68	40	10	13	M10 x 80L x 4pcs
HCG-10	266	239	65	119	11.5	131	80	48	10	17	M10 x 95L x 6pcs

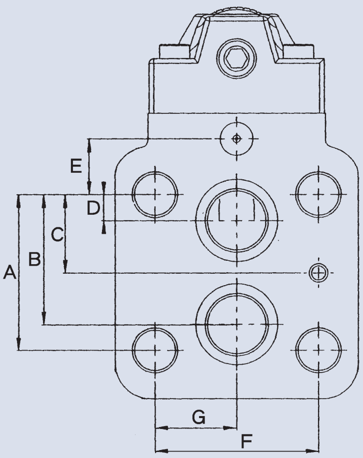
SUBPLATE FOR VALVES BG, DB, SBG, BR, RCG, HCG, CPDG

A

Dimensions

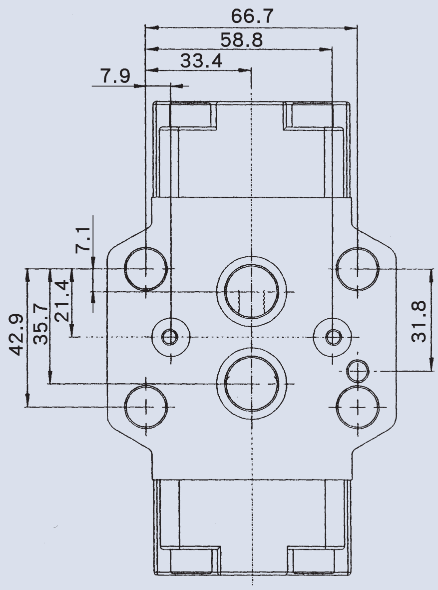
Unit: mm

BGM, DBM, SBGM, BRM

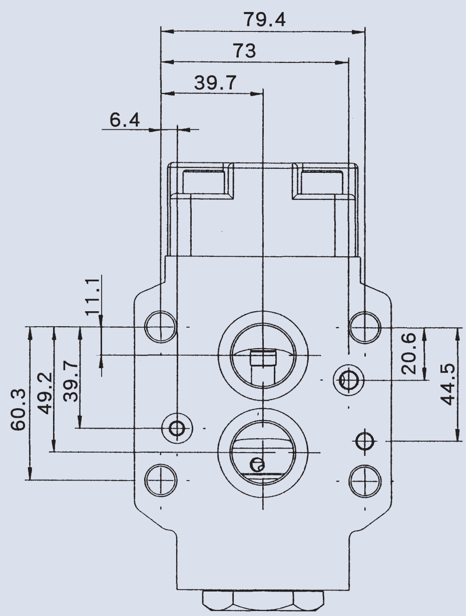


Port size	A	B	C	D	E	F	G
03	53.8	47.4	22	22	0	53.8	26.9
06	66.7	55.5	33.4	11	23.8	70	35
10	88.9	76.2	44.5	12.7	31.8	82.6	41.3

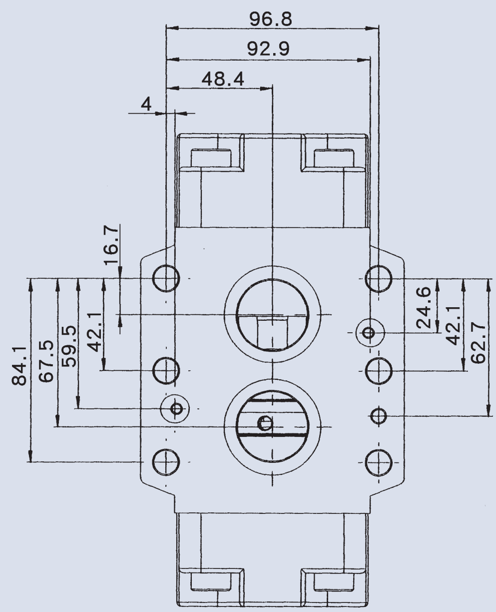
RGM-03, RCGM-03, HGM-03, HCGM-03, CPDGM-03



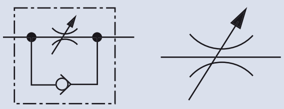
RGM-06, RCGM-06, HGM-06, HCGM-06, CPDGM-06

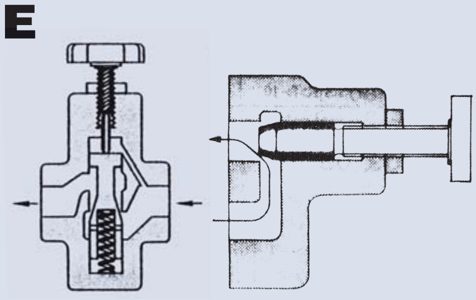


RGM-10, RCGM-10, HGM-10, HCGM-10, CPDGM-10



THROTTLE VALVE AND THROTTLE WITH CHECK VALVE





How to order

SR C G - 03
1 2 3 4

1	Model
2	With check
3	Mounting type G: Sub-plate mounting T: Thread connection
4	Valve size 03: 3/8" 04: 1/2" 06: 3/4" 10: 1-1/4"

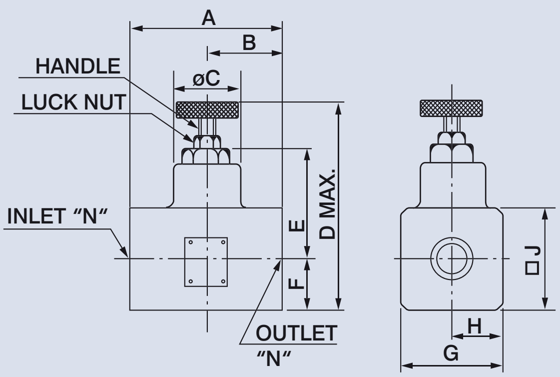
Specifications

Model		Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)	
Sub-Plate Mounting	Thread Connection			SRG, SRCG	SRT, SRCT
SRG-03 / SRCG-03	SRT-03,04 / SRCT-03, 04	250	30	1.2 / 2.1	1.1 / 1.2
SRG-06 / SRCG-06	SRT-06 / SRCT-06		80	2.4 / 4.0	2.3 / 3.2
SRG-10 / SRCG-10	SRT-10 / SRCT-10		200	4.9 / 8.1	5.8 / 7.2

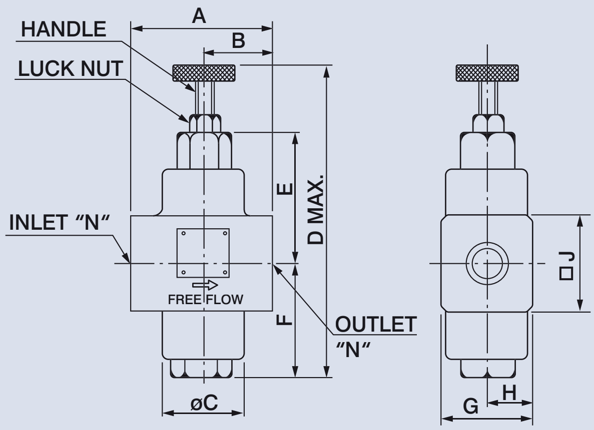
Dimensions

Unit: mm

SRT-03, 04, 06, 10



SRCT-03, 04, 06, 10



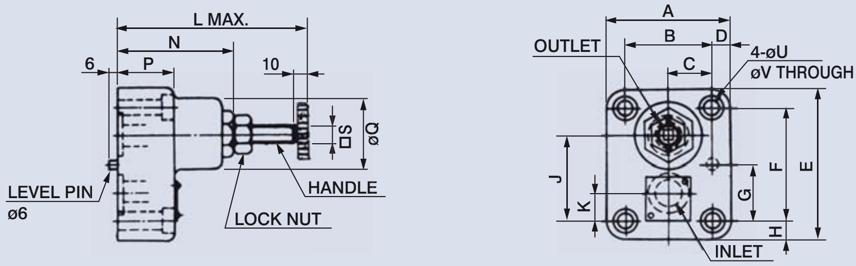
Model	A	B	C	D	E	F	G	H	J	K	L	N
SRT-03, 04	70	35	40	116	54	23	42	20	40	8	19	3/8, 1/2
SRT-06	100	50	40	136.5	62	30	62	30	60	8	19	3/4
SRT-10	130	65	56	173	73	40	82	40	80	10	22	1-1/4
SRCT-03, 04	70	35	40	151	60	58	42	20	40	8	19	3/8, 1/2
SRCT-06	100	50	56	186	83	65	62	30	60	8	19	3/4
SRCT-10	130	65	70	228	106	77	82	40	80	10	22	1-1/4

THROTTLE VALVE AND THROTTLE WITH CHECK VALVE

Dimensions

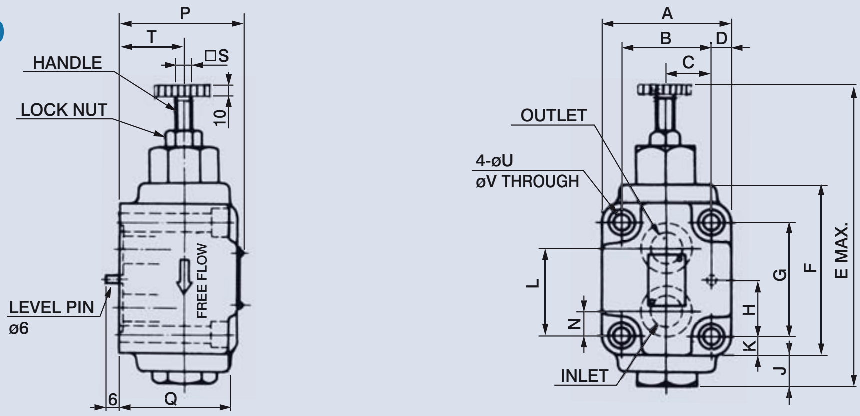
SRG-03, 06, 10

Unit: mm



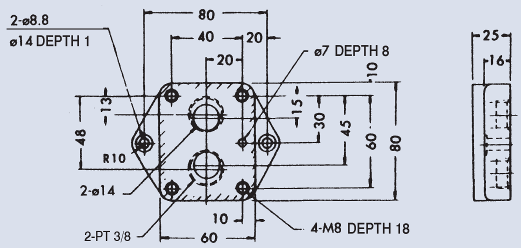
Model	A	B	C	D	E	F	G	H	J	K	L	N	P	Q	S	U	V
SRG-03	60	40	20	10	80	60	30	10	45	15	100	61	30	40	8	14	8.8
SRG-06	80	58	29	11	92	70	35	11	54	16	117.5	73	42	40	8	17.5	11
SRG-10	100	72	36	14	120	92	46	14	71	21	145	93	55	56	10	21	13.5

SRCG-03, 06, 10

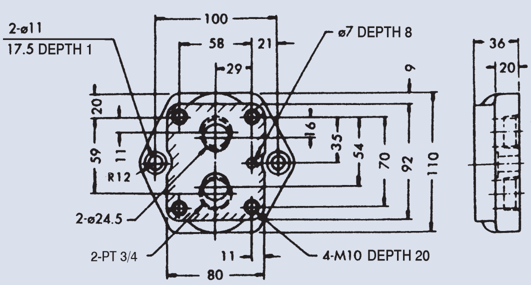


Model	A	B	C	D	E	F	G	H	J	K	L	N	P	Q	S	T	U	V
SRCG-03	60	40	20	10	151	80	60	30	28	10	45	15	62	55	8	35	14	8.8
SRCG-06	80	58	29	11	186	92	70	35	30	11	54	16	74	68	8	40	17.5	11
SRCG-10	100	72	36	14	228	120	92	46	31	14	71	21	97	82	10	50	21	13.5

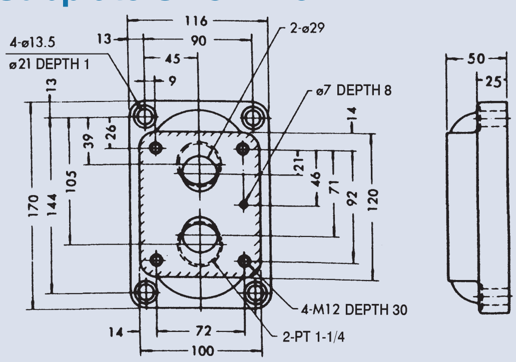
Subplate SRGM-03



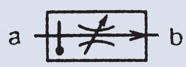
Subplate SRGM-06



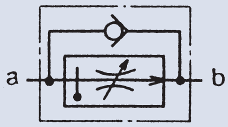
Subplate SRGM-10



FLOW CONTROL VALVE-PRESSURE AND TEMPERATURE COMPENSATED



FG

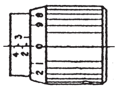


FCG

How to order

FG
FCG - 02 - 30 - N - 50
1 2 3 4 5

1	Model	FG: Without check FCG: With check
2	Valve size	01, 02
3	Max. flow	01: 8 lpm 02: 30 lpm
4	N: Pressure conpensation-fine adjustable	OMIT: None
5	Design No.	50: Scaled adjusting knob



Specifications

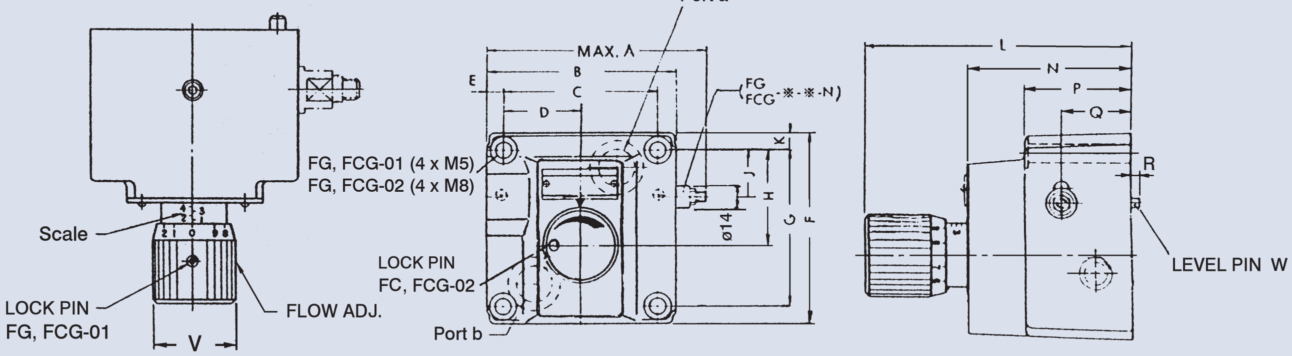
Model	Max. Pressure (bar)	Max. Flow (lpm)	Flow Adj. Range (lpm)	Port a	Port b	Weight (kg)
FG-01-8-※	160	8	0.02~8	Oil inlet	Controlled oil outlet	1.4
FCG-01-8-※				Oil inlet or free flow outlet	Free flow inlet or controlled oil outlet	
FG-02-30-※	210	30	0.05~30	Oil inlet	Controlled oil outlet	4.1
FCG-02-30-※				Oil inlet or free flow outlet	Free flow inlet or controlled oil outlet	

Dimensions

Mounting Bolt

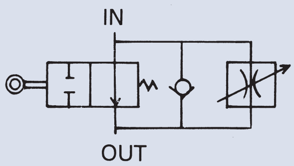
Model	Hexagon	PCS
FG, FCG-01	M5 x 55 L	4
FG, FCG-02	M8 x 50 L	4

Unit: mm



Model	A	B	C	D	E	F	G	H	J	K	L	N	P	Q	R	V	W
FG, FCG-01	81.5	66	51	22.5	7.5	58	43	31	16.5	7.5	84	53.5	45	17	5	22.5	ø4 x 1
FG, FCG-02	116	96	76.2	38.1	9.9	104.5	82.6	44.3	24	9.9	123	69	40	23	6	46	ø6 x 1

DECELERATION VALVE



B

How to order

FKC - G - 2 - 02
1 2 3 4

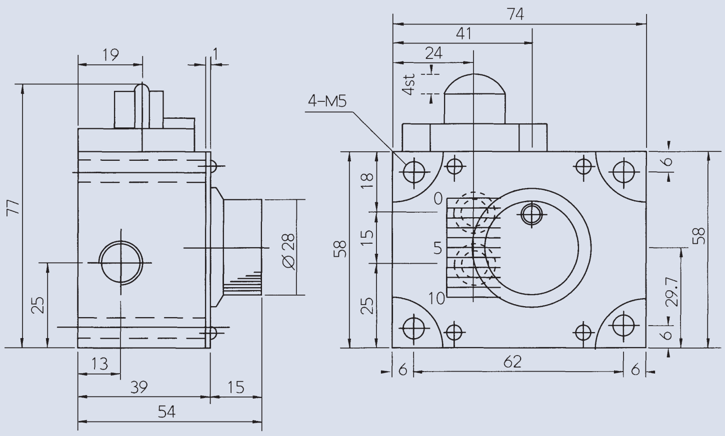
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Flow adjusting range (lpm)	1: 0.1~1 2: 0.1~2 4: 0.1~4
4	Valve size	1/4"

Specifications

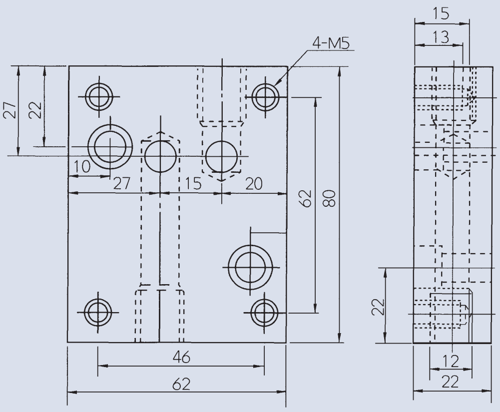
Model	Connection Port (pt)	Flow Adj. Range (lpm)	Free Flow (lpm)	Max. Operating Pressure (bar)	Weight (kg)
FKC-G-1-02	1/4	0.1~1	20	70	1.1
FKC-G-2-02		0.1~2			
FKC-G-4-02		0.1~4			

Dimensions

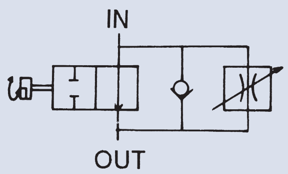
Unit: mm



SUBPLATE



DECELERATION VALVE



B

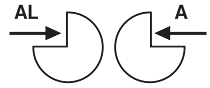
How to order

FKC - G - 2 - 02 A※
1 2 3 4 5

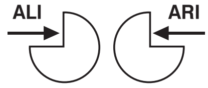
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Flow adjusting range	
4	Valve size	02: 1/4" 03: 3/8"
5	Valve type, port position, cam's notch position	

Model	In-Out port position
FKC-G-※-02A (AL)	Left-Hand side
FKC-G-※-03 ARI	Right-Hand side
FKC-G-※-03 ALI	Left-Hand side

FKC-G-※-02-※



FKC-G-※-03-※



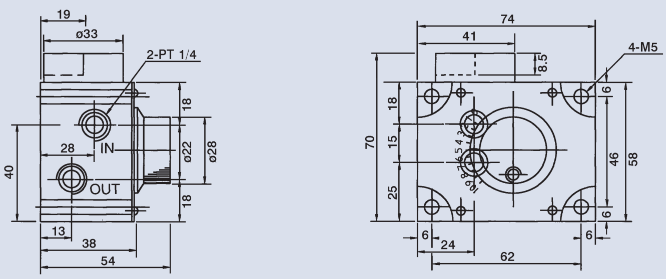
Specifications

Model	Connection Port (pt)	Flow Adj. Range (lpm)	Free Flow (lpm)	Max. Operating Pressure (bar)	Weight (kg)
FKC-G-1-02A	1/4"	0.1~1	20	70	1.16
FKC-G-2-02A		0.1~2			
FKC-G-4-02A		0.1~4			
FKC-G-2-03A	3/8"	0.1~2	30		1.96
FKC-G-4-03A		0.1~4			
FKC-G-8-03A		0.1~8			

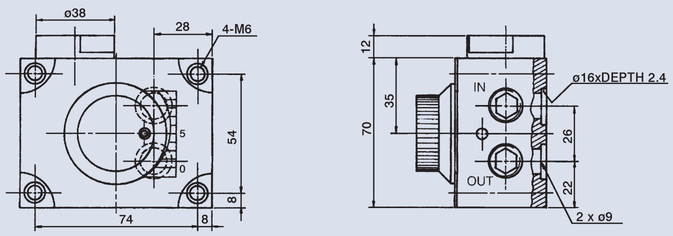
Dimensions

Unit: mm

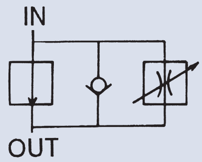
FKC-G02-02A(AL)



FKC-G03-03ARI



DECELERATION VALVE



B

How to order

FKC - G - 2 - 02 B
1 2 3 4 5

1	Model	
2	Mounting type	G: Sub-plate mounting
3	Flow adjusting range	
4	Valve size	02: 1/4" 03: 3/8"
5	Valve type	

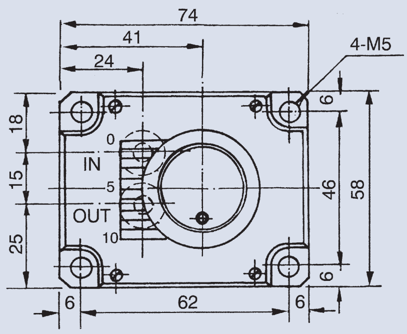
Specifications

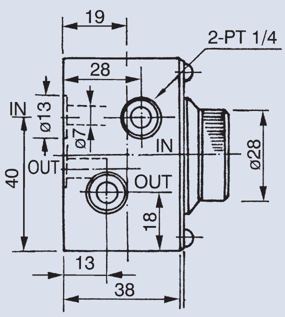
Model	Connection Port (pt)	Flow Adj. Range (lpm)	Free Flow (lpm)	Max. Operating Pressure (bar)	Weight (kg)
FKC-G-1-02B		0.1~1			
FKC-G-2-02B	1/4"	0.1~2	20		1
FKC-G-4-02B		0.1~4			
FKC-G-2-03B		0.1~2		70	
FKC-G-4-03B	3/8"	0.1~4	30		1.9
FKC-G-8-03B		0.1~8			

Dimensions

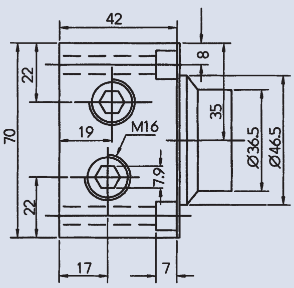
Unit: mm

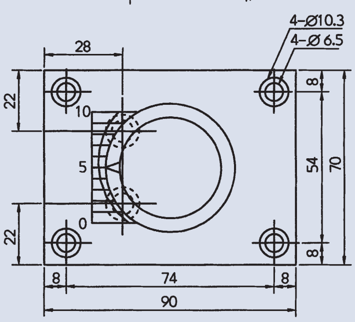
FKC-G02-02B



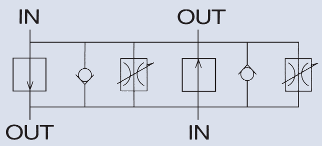


FKC-G03-03B





DOUBLE DECELERATION VALVE



How to order

FKC - G - 2 - 02 B 2

1 2 3 4 5 6

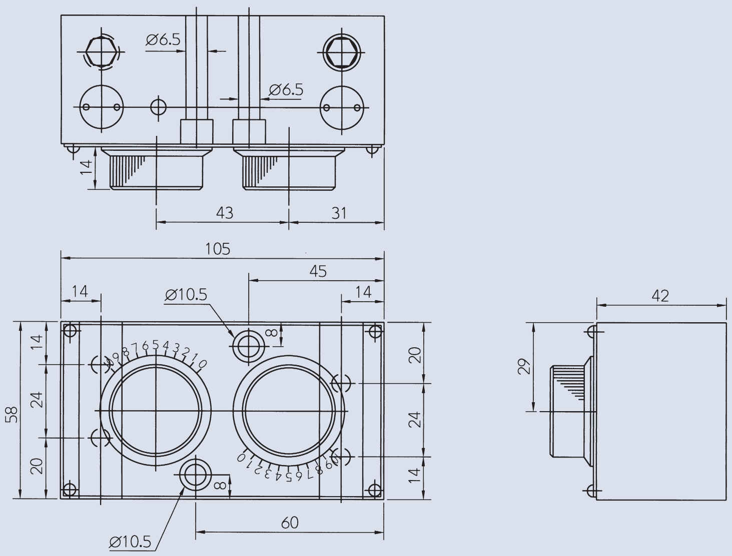
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Flow adjusting range (lpm)	1: 0.1~1 2: 0.1~2 4: 0.1~4
4	Valve size	1/4"
5	Valve type	
6	Double type	

Specifications

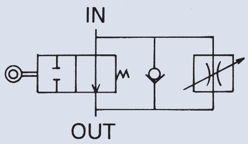
Model	Connection Port (pt)	Flow Adj. Range (lpm)	Free Flow (lpm)	Max. Operating Pressure (bar)	Weight (kg)
FKC-G-1-02B2	1/4"	0.1~1	20	70	1.32
FKC-G-2-02B2		0.1~2			
FKC-G-4-02B2		0.1~4			

Dimensions

Unit: mm



DECELERATION VALVE



How to order

FPR-MGK - 8 - 03
1 2 3

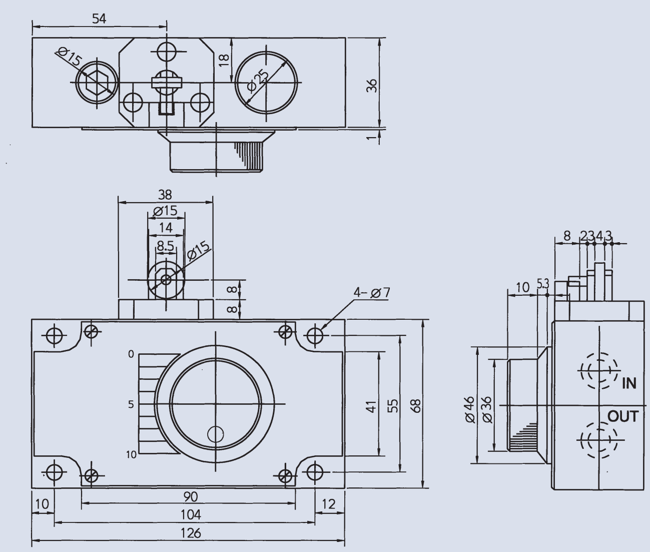
1	Model	Sub-plate mounting
2	Flow adjusting range (lpm)	2: 0.1~2 4: 0.1~4 8: 0.1~8 12: 0.1~12
3	Valve size	3/8"

Specifications

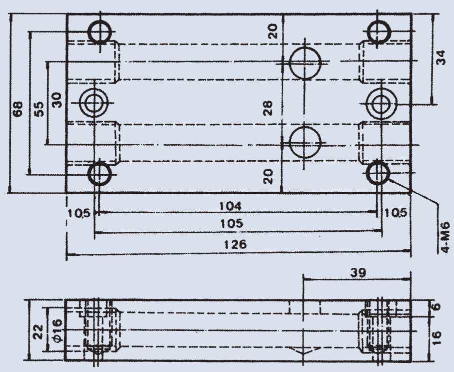
Model	Connection Port (pt)	Flow Adj. Range (lpm)	Free Flow (lpm)	Max. Operating Pressure (bar)	Weight (kg)
FPR-MGK-2-03	3/8"	0.1~2	30	70	2.16
FPR-MGK-4-03		0.1~4			2.16
FPR-MGK-8-03		0.1~8			2.16
FPR-MGK-12-03		0.1~12			2.16

Dimensions

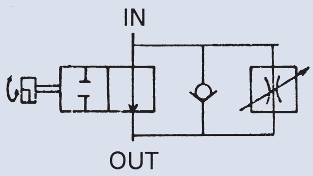
Unit: mm



SUBPLATE



DECELERATION VALVE



B

How to order

FPR-MGK - 8 - 03 AR

1 2 3 4

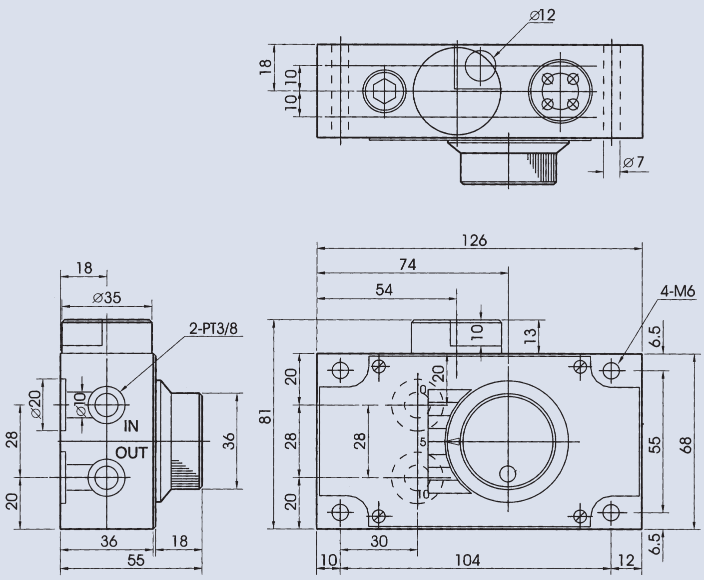
1	Model	Sub-plate mounting
2	Flow adjusting range (lpm)	2: 0.1~2 4: 0.1~4 8: 0.1~8 12: 0.1~12
3	Valve size	3/8"
4	Valve type	

Specifications

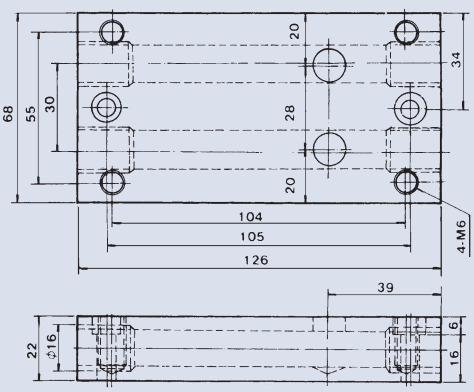
Model	Connection Port (pt)	Flow Adj. Range (lpm)	Free Flow (lpm)	Max. Operating Pressure (bar)	Weight (kg)
FPR-MGK-2-03AR	3/8"	0.1~2	30	70	2.21
FPR-MGK-4-03AR		0.1~4			2.21
FPR-MGK-8-03AR		0.1~8			2.21
FPR-MGK-12-03AR		0.1~12			2.21

Dimensions

Unit: mm

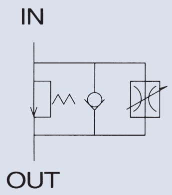


SUBPLATE



B

DECELERATION VALVE



How to order

FPR-MGK - 8 - 03 B
1 2 3 4

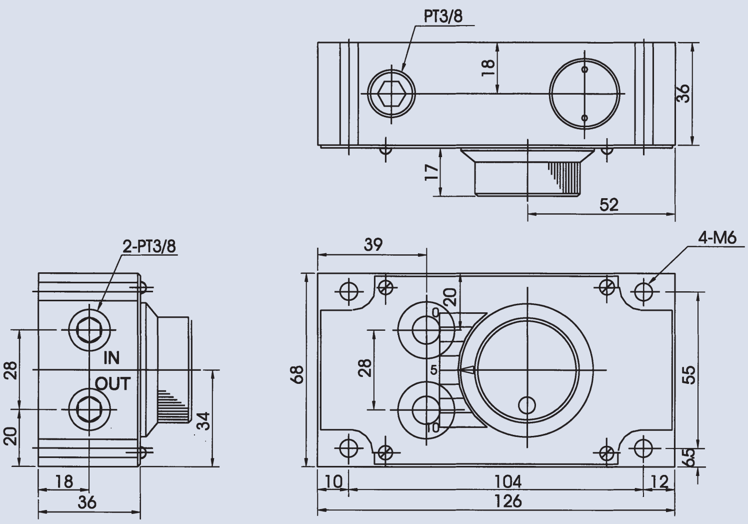
1	Model	Sub-plate mounting
2	Flow adjusting range (lpm)	2: 0.1~2 4: 0.1~4 8: 0.1~8 12: 0.1~12
3	Valve size	3/8"
4	Valve type	

Specifications

Model	Connection Port (pt)	Flow Adj. Range (lpm)	Free Flow (lpm)	Max. Operating Pressure (bar)	Weight (kg)
FPR-MGK-2-03B	3/8"	0.1~2	30	70	2.16
FPR-MGK-4-03B		0.1~4			2.16
FPR-MGK-8-03B		0.1~8			2.16
FPR-MGK-12-03B		0.1~12			2.16

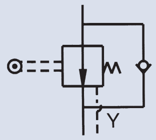
Dimensions

Unit: mm

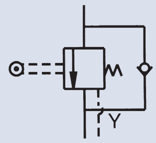


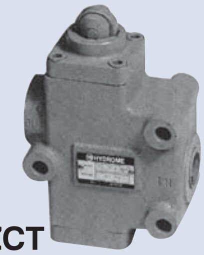
DECELERATION CHECK VALVE

NORMALLY OPEN



NORMALLY CLOSED





ZCT

ZCG

How to order

ZC - T 03 - ※
1 2 3 4

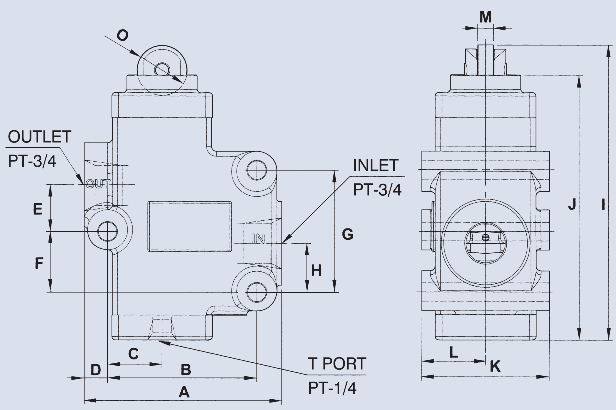
1	Model
2	Mounting type G: Sub-plate mounting T: Thread connection
3	Valve size 03: 3/8" 06: 3/4"
4	Omit: Normal open C: Normal closed

Specifications

Model		Max. Operating Pressure (bar)	Max. Flow (lpm)	Weight (kg)		Bolt size ZC-G※※
Sub-Plate Mounting	Thread Connection					
ZC-G03	ZC-T03	230	30	5.4	5	M8 x 75L
ZC-G06	ZC-T06		85	9	5.4	M10 x 100L

Dimensions

ZC-T03, 06

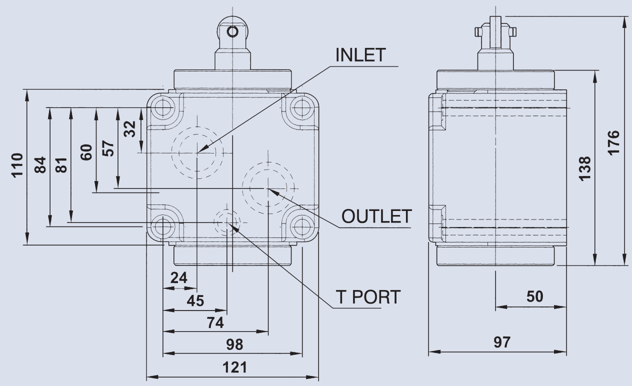


Model	A	B	C	D	E	F	G
ZC-T03	116	84	31	16	34	16	68
ZC-T06	118	90	33	13.5	28	35	73

Model	H	I	J	K	L	M	O
ZC-T03	26	161	144.5	68	34	8	27
ZC-T06	29	176.5	158.5	76	38	9.5	30

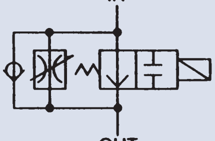
ZC-G06

Unit: mm

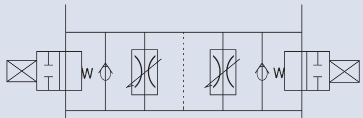


SOLENOID OPERATED DECELERATION VALVE

SINGLE TYPE



DUBLE TYPE



B

How to order

FKCS - 6 - 03 - S2 - ※
1 2 3 4 5

1	Model	Sub-plate mounting
2	Flow adjusting range	
3	Valve size	02: 1/4" 03: 3/8"
4	Omit: Single type	S2: Double type
5	Voltage	A1: AC110V (60HZ) A2: AC220V (60HZ) A3: AC110V (50HZ) A4: AC220V (50HZ) D1: DC12V D2: DC24V

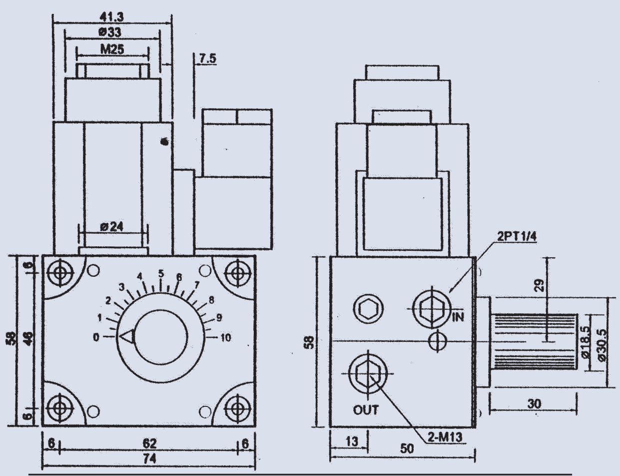
Specifications

Model	Flow Adj. Range (lpm)		Free Flow (lpm)	Max. Operating Pressure (bar)	Weight (kg)
	1 st feed	2nd feed			
FKCS-4-03S2	0.1~4	0.1~2	30	70	8.52
FKCS-6-03S2	0.1~6	0.1~4			
FKCS-2-03	0.1~2				2.84
FKCS-4-03	0.1~4				
FKCS-6-03	0.1~6				
FKCS-2-02	0.1~2		20		1.9
FKCS-4-02	0.1~4				
FKCS-6-02	0.1~6				

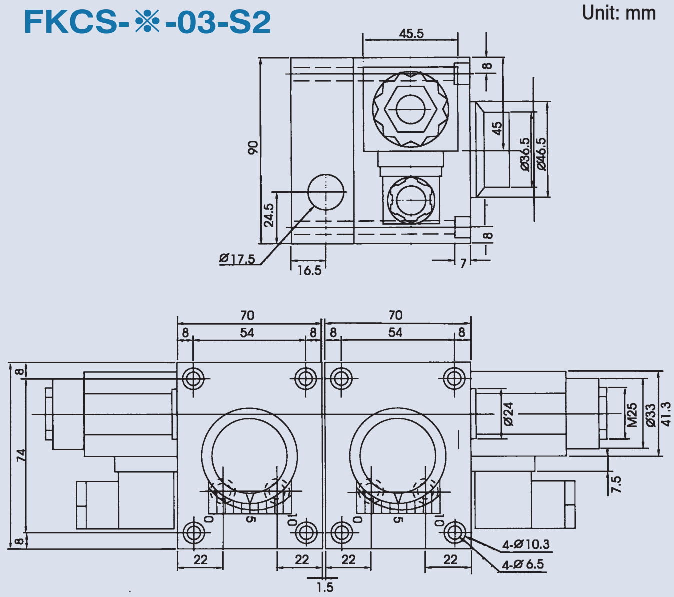
Dimensions

Unit: mm

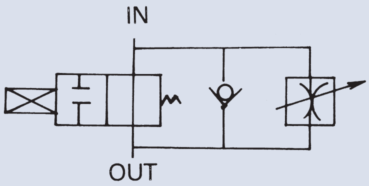
FKCS-※-02



FKCS-※-03-S2



SOLENOID OPERATED DECELERATION VALVE



B

How to order

FPR-MGKS - 8 - 03 - ※
1 2 3 4

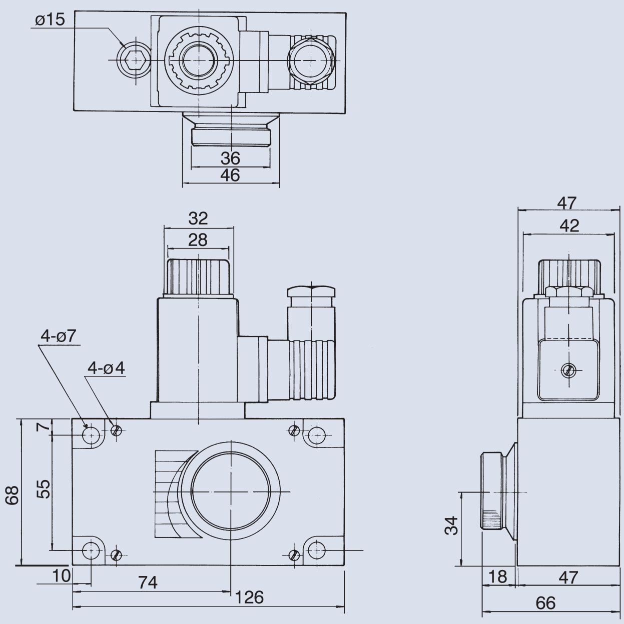
1	Model	Sub-plate mounting
2	Flow adjusting range (lpm)	2: 0.1~2 4: 0.1~4 8: 0.1~8 12: 0.1~12
3	Valve size	3/8"
4	Voltage	A1: AC110V (60HZ) A2: AC220V (60HZ) A3: AC110V (50HZ) A4: AC220V (50HZ) D1: DC12V D2: DC24V

Specifications

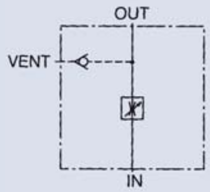
Model	Flow Adj. Range (lpm)	Free Flow (lpm)	Max. Operating Pressure (bar)	Weight (kg)
FPR-MGKS-2-03	0.1~2	30~60	70~140	3.2
FPR-MGKS-4-03	0.1~4			3.2
FPR-MGKS-8-03	0.1~8			3.2
FPR-MGKS-12-03	0.1~12			3.2

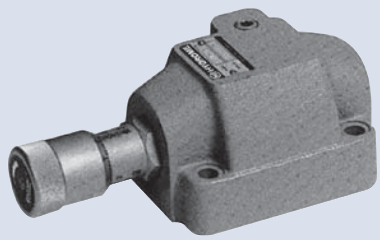
Dimensions

Unit: mm



FLOW CONTROL VALVE





B

How to order

THF - G 06
1 2 3

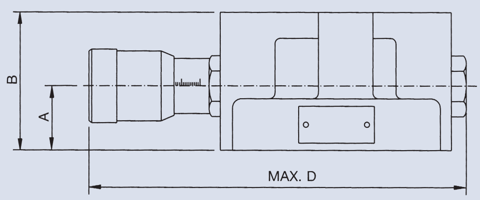
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Valve size	06: 3/4" 10: 1-1/4"

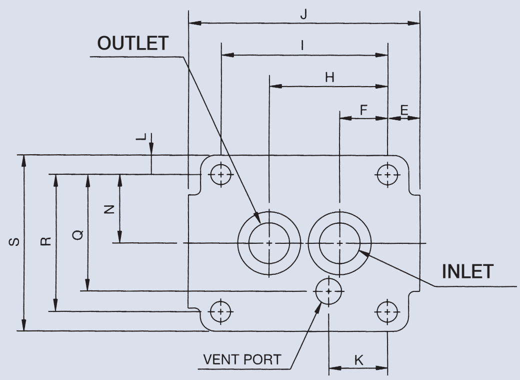
Specifications

Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Weight (kg)	Bolt size
THF-G06	250	125	5.5	M10 x 45L
THF-G10		240	8.4	M12 x 45L

Dimensions

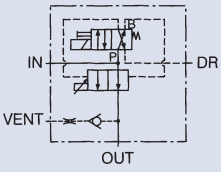
Unit: mm



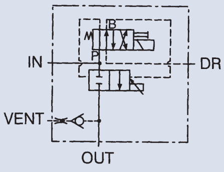


Model	A	B	C	D	E	F	H	I	J	K	L	N	Q	R	S
THF-G06	35	75	ø26	209	17.5	26	64	90	125	31.7	10.5	37	63	74	95
THF-G10	40	86	ø29	248	19	34	78	112	150	37.9	14.5	43	76	86	115

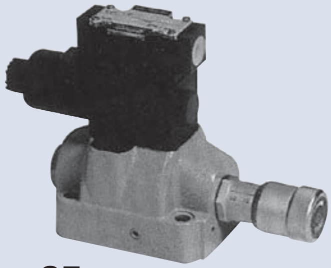
SOLENOID OPERATED FLOW CONTROL VALVE

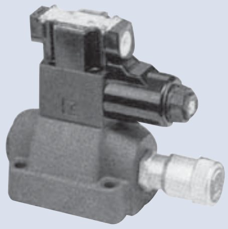


SF



SDF


SF


SDF

B

How to order

SF, SDF - 06
1 2

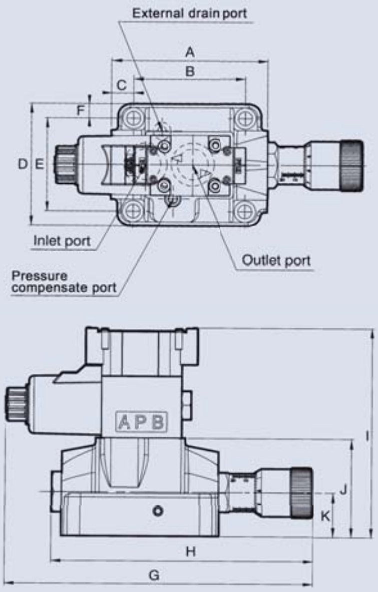
1	Model	
2	Valve size	03: 3/8" 06: 3/4" 10: 1-1/4"

Specifications

Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Weight (kg)	Bolt size
SF-03	250	120	2.9	M6 x 65L
SF-06		150	5.7	M10 x 45L
SF-10		240	8.7	M12 x 55L
SDF-03		120	2.9	M6 x 65L
SDF-06		150	5.7	M10 x 45L
SDF-10		240	8.7	M12 x 55L

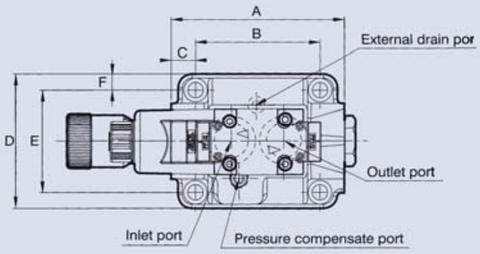
Dimensions

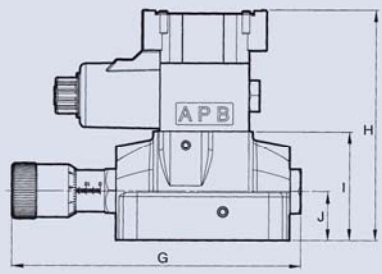
SF



SDF

Unit: mm

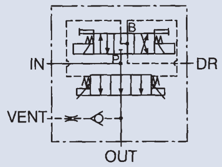




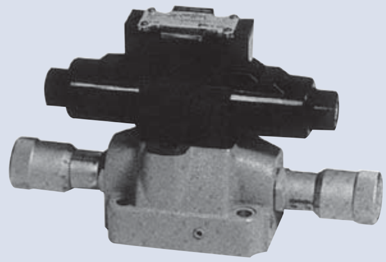
Model	A	B	C	D	E	F	G	H	I	J	K
SF-03	108	60	24	70	40	15	237	168	149	62	31
SF-06	125	90	17.5	97	74	11.5	245	208	166	78	35
SF-10	150	112	19	116	86	15	281	246	176	88	42

Model	A	B	C	D	E	F	G	H	I	J
SDF-03	108	60	24	70	40	15	168	149	62	31
SDF-06	125	90	17.5	97	74	11.5	208	166	78	35
SDF-10	150	112	19	116	86	15	246	176	88	42

SOLENOID OPERATED FLOW CONTROL VALVE



SKFG



How to order

SKFG - 06

1 2

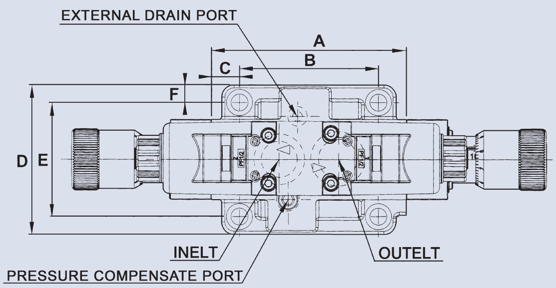
1	Model	
2	Valve size	06: 3/4" 10: 1-1/4"

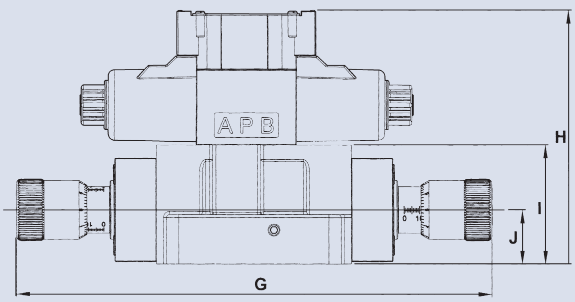
Specifications

Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Weight (kg)	Bolt size
SKFG-06	230	125	7.2	M10 x 45L
SKFG-10		240	11	M12 x 55L

Dimensions

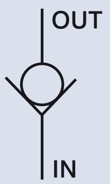
Unit: mm

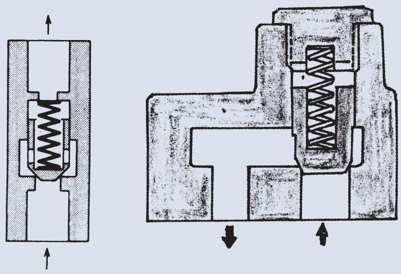




Model	A	B	C	D	E	F	G	H	I	J
SKFG-06	126	90	18	97	74	11.5	308	164	77	35
SKFG-10	150	112	19	116	86	15	406	175	88	42

CHECK VALVE





How to order

CRG - 06 - 5
1 2 3

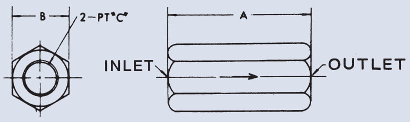
1	Model	CRG: Sub-plate mounting CIT: Thread connection
2	Valve size	03: 3/8" 04: 1/2" 06: 3/4" 08: 1" 10: 1-1/4" 12: 1-1/2" 16: 2"
3	Cracking pressure (bar)	5: 0.5 50: 5

Specifications

Model		Rated Flow (lpm)	Max. Operating Pressure(bar)	Cracking Pressure (bar)	Weight (kg)	
Sub-Plate Mounting	Thread Connection					
CRG-03	CIT-03	40	230	05: 0.5 50: 5	2	0.18
-	CIT-04	60			-	0.32
CRG-06	CIT-06	125			4	0.49
-	CIT-08	180			-	1.1
CRG-10	CIT-10	300			8	1.8
-	CIT-12	420			-	2.7
-	CIT-16	600			-	3.62

Dimensions

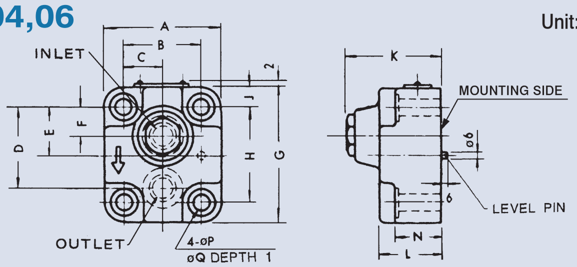
CIT-03,04,06,08,10,12,16



Model	A	B	C
CIT-03	70	23	3/8
CIT-04	74	29	1/2
CIT-06	95	35	3/4
CIT-08	112	46	1
CIT-10	132	55	1-1/4
CIT-12	140	65	1-1/2
CIT-16	156	80	2

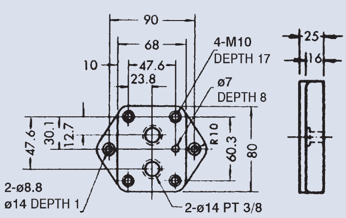
CRG-03,04,06

Unit: mm

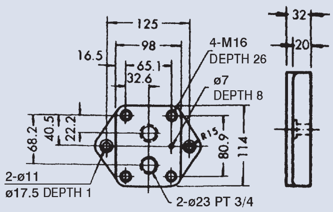


Model	A	B	C	D	E	F	G	H	J	K	L	N	P	Q	Bolt size
CRG-03	68	47.6	23.8	47.6	30.1	12.7	80	60.3	10	72	55	46	11	17.5	M10 x 60L x 4pcs
CRG-06	98	65.1	32.6	68.2	40.5	22.2	114	80.9	16.5	81	53	38	17.5	26	M16 x 60L x 4pcs
CRG-10	130	92.1	46.1	71.4	46	20.6	130	92.1	19	96	65	47	21.5	32	M20 x 75L x 4pcs

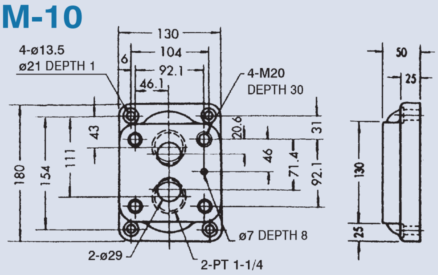
CRGM-03



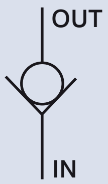
CRGM-06



CRGM-10



CHECK VALVE



C

How to order

CRG - 06 - 5 - 50
1 2 3 4

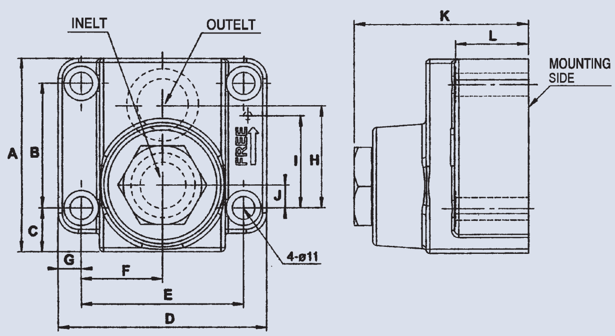
1	Model	Sub-plate mounting
2	Valve size	03: 3/8" (ISO 5781-AG-06-2-A) 06: 3/4" (ISO 5781-AH-08-2-A) 10: 1-1/4" (ISO 5781-AJ-10-2-A)
3	Cracking pressure (bar)	5: 0.5 50: 5
4	ISO standard	

Specifications

Model	Rated Flow (lpm)	Max. Operating Pressure (bar)	Cracking Pressure (bar)	Weight (kg)
CRG-03	40	250	5: 0.5 50: 5	2.2
CRG-06	125			3.2
CRG-10	300			6.5

Dimensions

CRG-03-※-50, CRG-06-※-50

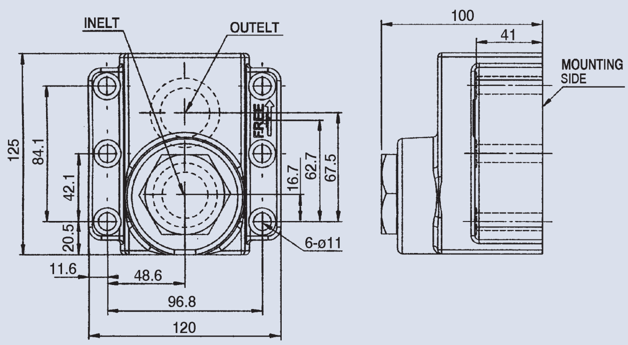


Model	A	B	C	D	E	F
CRG-03-※-50	73	42.9	18	89	66.7	33.4
CRG-06-※-50	94	60.3	21.5	102	79.4	39.7

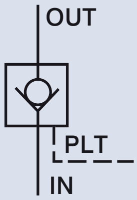
Model	G	H	I	J	K	L
CRG-03-※-50	11.2	35.7	31.8	7	68	33
CRG-06-※-50	11.3	49.2	44.5	11.1	85	35

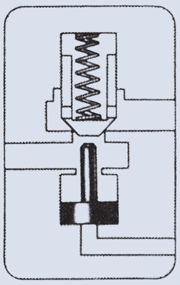
CRG-10-※-50

Unit: mm



PILOT OPERATED CHECK VALVE





C

How to order

CPD - T - 06 - E - 50
1 2 3 4 5

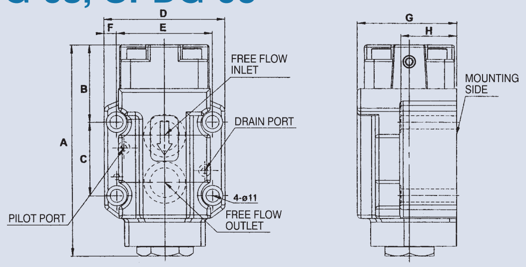
1	Model
2	Mounting type G: Sub-plate mounting T: Thread connection F: Flange connection
3	Valve size 03: 3/8" 06: 3/4" 10: 1-1/4" 16: 2"
4	E: External drain Omit: Internal drain
5	Cracking pressure

Specifications

Model			Max. Operating Pressure (bar)	Cracking Pressure (bar)	Rated Flow (lpm)	Weight(kg)		
Sub-Plate Mounting	Thread Connection	Flange Connection				G type	T type	F type
CPDG-03	CPDT-03	-	250	5: 0.5 35: 3.5 50: 5	50	5	3	-
CPDG-06	CPDT-06	-			125	6.5	5.8	-
CPDG-10	CPDT-10	CPDF-10			320	12	11.4	11.4
-	-	CPDF-16			500	-	-	30

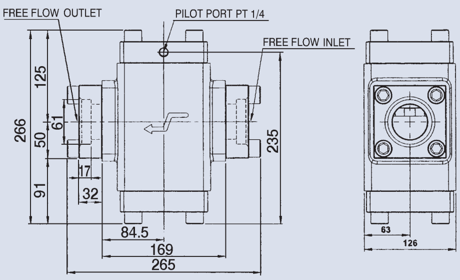
Dimensions

CPDG-03, CPDG-06



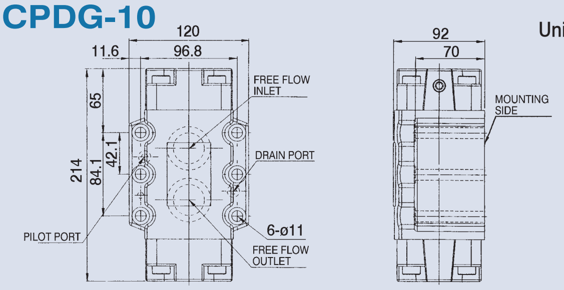
Model	A	B	C	D	E	F	G	H
CPDG-03	148	52.6	42.9	91	66.7	12.2	70	61
CPDG-06	174	63.4	60.3	100	79.4	10.3	82	46

CPDF-16

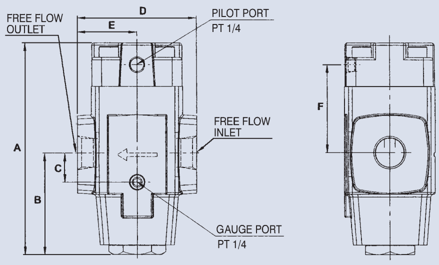


CPDG-10

Unit: mm

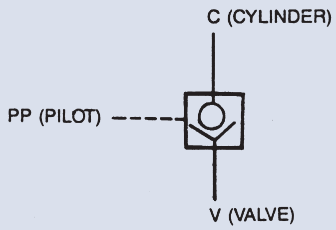


CPDT-03,06,10



Model	A	B	C	D	E	F	G	H
CPDT-03	148	74	19	80	40	59	62	31
CPDT-06	174	84	24	98	49	72	75	37.5
CPDT-10	200	90.5	22.5	140	70	92.5	92	46

IN-LINE PILOT OPERATED CHECK VALVE



C

How to order

PCVI - 03 - T
1 2 3

1	Model
2	Valve size 03: 3/8" 04: 1/2"
3	Mounting type T: Thread connection

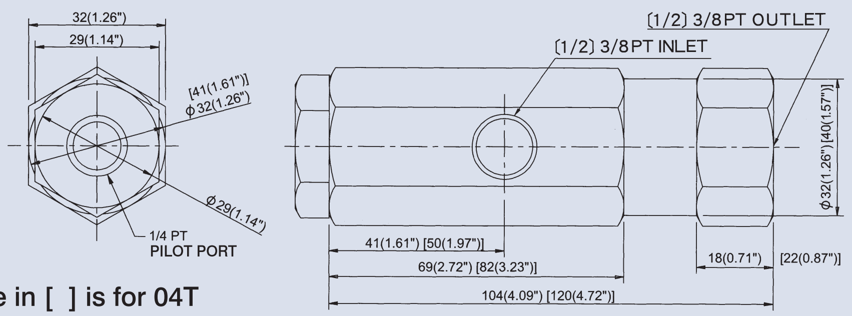
Specifications

Model	Max. Operating Pressure (bar)	Cracking Pressure(bar)	Max. Flow (lpm)	Weight (kg)
PCVI-03T	250	0.5	30	0.76
PCVI-04T			40	1.2

Dimensions

PCVI-03,04T

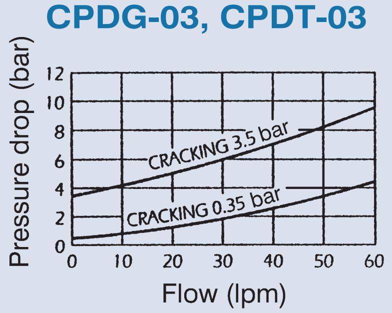
Unit: mm
(inch)



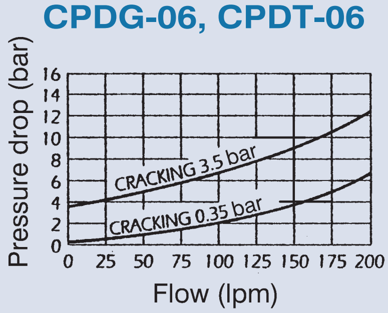
Remark: The size in [ ] is for 04T

Performance curves

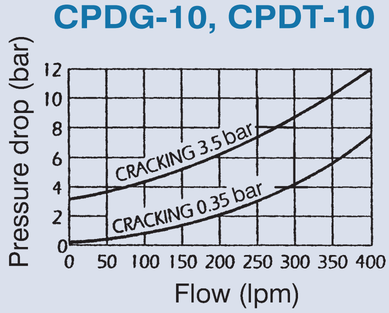
CPDG-03, CPDT-03



CPDG-06, CPDT-06

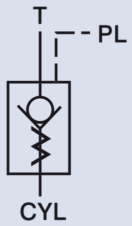


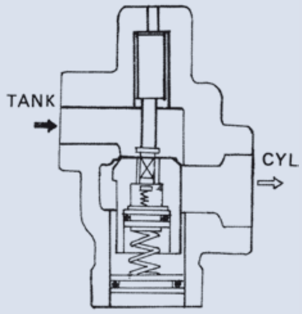
CPDG-10, CPDT-10

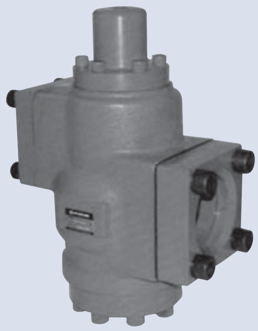


PREFILL VALVE

FEATURES:
- Material is FC30, Max. working pressure 3400psi.
- Both 180 and 90 degrees connection available.
- Min. pilot pressure required is 1/3 working pressure.
- Check operated in two stages to preclude shock.







How to order

SG - 24 - ※
1 2 3

1	Model	
2	Valve size	16: 2" 24: 3" 32: 4" 48: 6"
3	None: 180˚ L: 90˚	

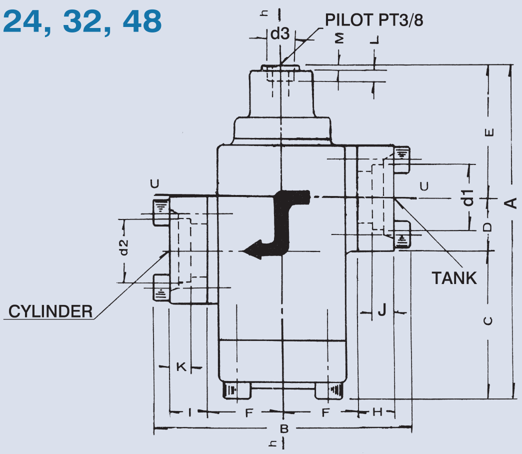
Specifications

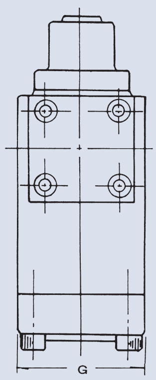
Model	Maximum Pressure (bar)	Max. Flow(lpm)		Operating Flow(lpm)		Cracking Pressure (bar)	Weight (kg)
		No Pilot	Pilot	No Pilot	Pilot		
SG-16	250	300	450	300±70M	450±70M	0.12	30
SG-24		600	900	600±150M	900±150M	0.14	55
SG-32		1100	1600	1100±300M	1600±300M	0.16	100
SG-48		2200	3200	2200±600M	3200±600M	0.16	240

Dimensions

SG-16, 24, 32, 48

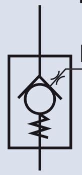
Unit: mm

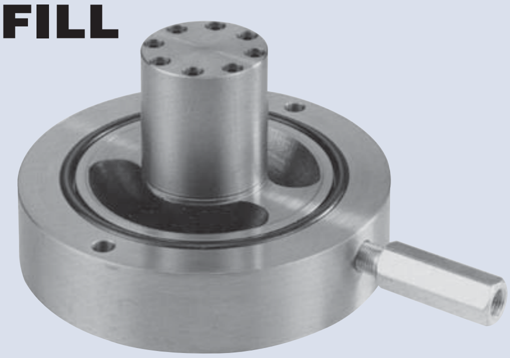




Model	A	B	C	D	E	F	G	H	I	J	K	L	M	d1	d2	d3
SG-16	322	242	136	53	133	70	120	35	24	20	20	21	12	61	61	PT 3/8
SG-24	396	294	168	90	160	92	150	30	44	13	21	28	12	95	95	PT 3/8
SG-32	556	358	215	96	255	120	194	30	44	28	28	25	12	116	138	28
SG-48	727	478	285	145	296	165	310	67	37	40	18	21	12	24	167	28

FLANGE-CLAMPED TYPE PREFILL VALVE





C

How to order

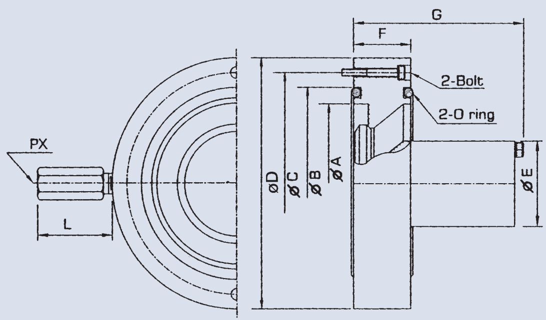
SVF - 100
1 2

1	Model	SVF: Steel body SCM4 (Max. 400 bar) SCF: Ductile iron body FCD50 (Max. 250 bar)
2	Valve size	

Specifications

Model	Port size Inch	Max. Flow (lpm)	Max. Operating Pressure (bar)	Pilot Ratio	Flange Bolts		Pipe size	Weight (kg)
					Number	Nor. Diamater		
SVF-32	2	160	400	3.6	4	M16	2B	1.3
SVF-40	2-1/2	250		3.3	4	M20	2.5B	2.2
SVF-50	3	400		3.8	6	M16	3B	2.9
SVF-63	3-1/2	630		4.2	8	M16	3.5B	4.5
SVF-80	4	1000		4.3	8	M20	4B	6.2
SVF-100	5	1600		4.3	10	M25	5B	12.3
SVF-125	8	2500		4.3	16	M25	8B	23
SVF-160	10	4000		4.2	16	M30	10B	50
SVF-200	12	7000		4.1	20	M30	12B	85
SVF-250	15	15000		4.4	24	M30	16B	156
SCF-32	2	160	250	3.6	4	M16	2B	1.3
SCF-50	3	400		3.8	6	M16	3B	2.9
SCF-63	3-1/2	630		4.2	8	M16	3.5B	4.5
SCF-80	4	1000		4.3	8	M20	4B	6.2
SCF-100	5	1600		4.3	10	M25	5B	12.3
SCF-125	8	2500		4.3	16	M25	8B	23

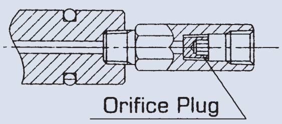
Dimensions / Performance curves



Model	øA	øB	øC	øD	øE	F	G	L	PX	Fixed bolt	O-ring
SVF-32, SCF32	48	63	-	82	33	28	70	62	PT 1/4"	-	1517-6
SVF-40	56.5	73	91	108	39	28	71.5			M4 x 30	1517-9
SVF-50, SCF50	72	90	112	128	42	29	91			M4 x 30	1517-14
SVF-63, SCF63	87	105	125	143	50	33.5	106			M5 x 35	P95
SVF-80, SCF80	108	130.5	150	169	57	38.5	115			M5 x 40	P120
SVF-100, SCF100	130	155	185	210	70	44	150			M6 x 45	P145
SVF-125, SCF125	170	200	226	248	89	51	195			M6 x 60	P185
SVF-160	218	250	284	310	120	70	230	70	PT 3/8"	M8 x 70	P235
SVF-200	272	310	355	390	145	95	300	85	PT 1/2"	M10 x 95	P295
SVF-250	350	398	445	490	176	110	390	85	PT 1/2"	M12 x 115	P375

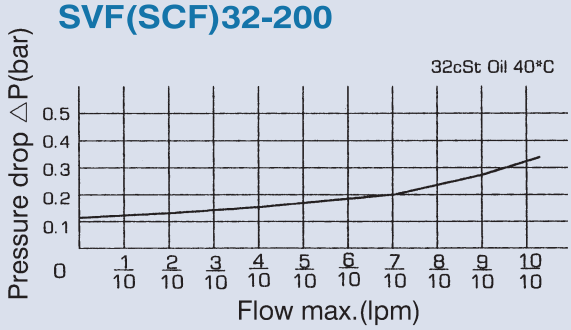
Pilot port adaptor

Unit: mm

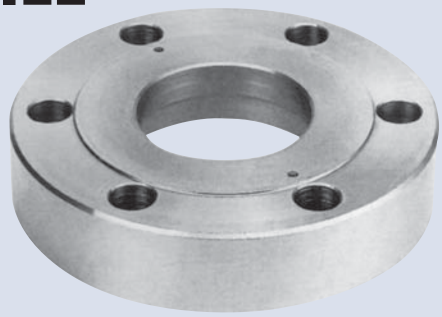


Model	Orifice	Plug
SVF (SCF)-32, 40, 50	0.7mm	PT1/8"
SVF (SCF)-63	0.8mm	
SVF (SCF)-80	1.0mm	
SVF (SCF)-100	1.2mm	
SVF (SCF)-125, 160	1.5mm	
SVF-200	1.8mm	PT1/4"

SVF(SCF)32-200



FLANGE-CLAMPED TYPE PREFILL VALVE



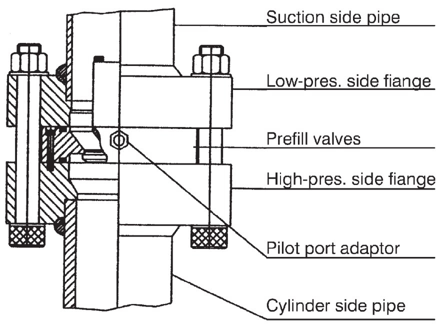
C

How to order

FGP - 100 - 2 - M25 - 5B

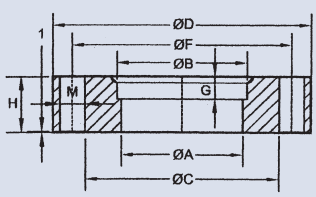
1 2 3 4 5

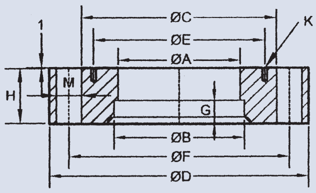
1	Model FGP: High-pres. Side flange FGT: Low-pres. Side flange
2	Valve size
3	Pressure range 2: 250 bar 4: 400 bar
4	Normal bolt size
5	Normal pipe diameter

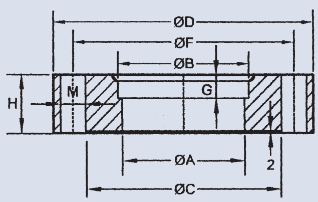


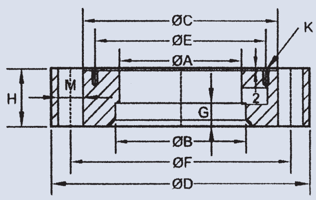
Dimensions

FGT **FGP** **FGT** **FGP** Unit: mm





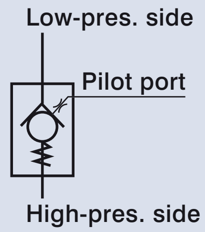




Model	øD	øF	øB	øA	øE	øC	H	G	K	M
FGP-32-M16/2B FGT-32-M16/2B	135	103.2	60.25	48	-	82	33	15	-	4-ø18
FGP-40-M20/2.5B FGT-40-M20/2.5B	165	130	77	57	91	107	42	15	2-M4	4-ø22
FGP-50-M16/3B FGT-50-M16/3B	180	146	90	72	112	128	42	15	2-M4	6-ø18
FGP-63-M16/3.5B FGT-63-M16/3.5B	195	161	102.2	87	125	143	52/47	15	2-M5	8-ø18
FGP-80-M20/4B FGT-80-M20/4B	230	192	115.2	108	150	169	52/47	15	2-M5	8-ø22
FGP-100-M25/5B FGT-100-M25/5B	280	239	141	130	185	210	68/62	25	2-M6	10-ø27

Model	øD	øF	øB	øA	øE	øC	H	G	K	M
FGP-125-M25/8B FGT-125-M25/8B	352	300	219.2	168	226	249	77/67	25	2-M6	16-ø27
FGP-160-M30/10B FGT-160-M30/10B	422	367	273.1	218	284	311	87/77	30	2-M6	16-ø33
FGP-200-M30/12B FGT-200-M30/12B	510	442	324	270	355	391	97/87	30	2-M10	20-ø33
FGP-250-M30/16B FGT-250-M30/16B	630	555	407	350	445	492	107/97	30	2-M12	24-ø33

FLANGE-CLAMPED TYPE PREFILL VALVE



PF-80

PF-80F

How to order

PF - 80 - F - W
1 2 3 4

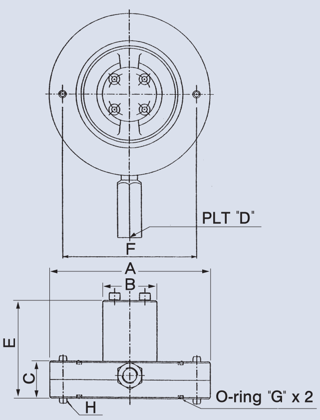
1	Model	
2	Valve size	
3	Mounting type	F: Flange None: Standard
4	Flange type	None: No flange P: P port flange T: T port flange W: P&T port flange

Specifications

Model	Port Size (Inch)	Max. Operating Pressure (bar)	Max. Flow (lpm)	Cracking Pressure (bar)	Weight (kg)
PF-80 / PF-80F	3	250	400	0.12	2.8 / 8
PF-90 / PF-90F	3-1/2	250	630	0.12	3.8 / 11.3
PF-100 / PF-100F	4	250	1000	0.12	6 / 14.5
PF-125 / PF-125F	5	250	1600	0.12	10.8 / 23.8
PF-150 / PF-150F	6	250	2500	0.13	23.5 / 37
PF-200	8	250	4000	3	50

Dimensions

Unit: mm

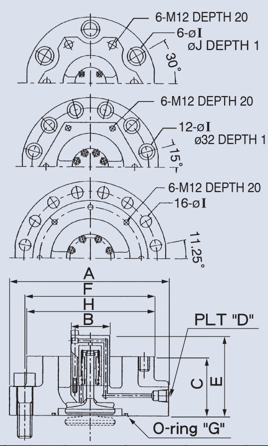


Model	A	B	C	D	E	F	G	H
PF-80	128	43	29	PT1/4	78	106	G80	6
PF-90	143	50	35	PT1/4	87	125	G100	6
PF-100	169	56	38.5	PT1/4	103	145	G115	6
PF-125	212	69	44	PT1/4	118	180	G140	6
PF-150	248	89	72	PT3/8	181	220	G180	10
PF-200	310	115	70	PT1/2	233	284	P235	10

PF-80,90,100F

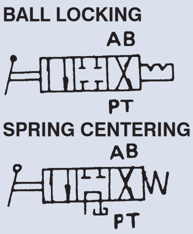
PF-125F

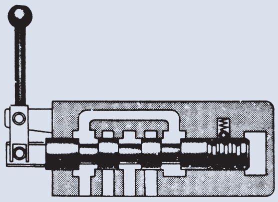
PF-150F



Model	A	B	C	D	E	F	G	H	I	J
PF-80F	180	43	65	PT1/4	94	146	G80	142	18	26
PF-90F	200	50	70	PT1/4	119	165	G100	160	20	29
PF-100F	230	56	71	PT1/4	132.5	191	G115	170	22	32
PF-125F	270	69	85	PT1/4	165	230	G140	200	22	-
PF-150F	300	91	105	PT3/8	204	260	G180	225	22	-

MANUALLY OPERATED DIRECTIONAL VALVE





How to order

DM G - 02 - 3C6 - W
1 2 3 4 5

1	Model	
2	Mounting type	G: Sub-plate mounting T: Thread connection
3	Valve size	
4	Valve function	Same as solenoidvalve DSG series
5	Centered locking	W: Spring centering O: Ball locking

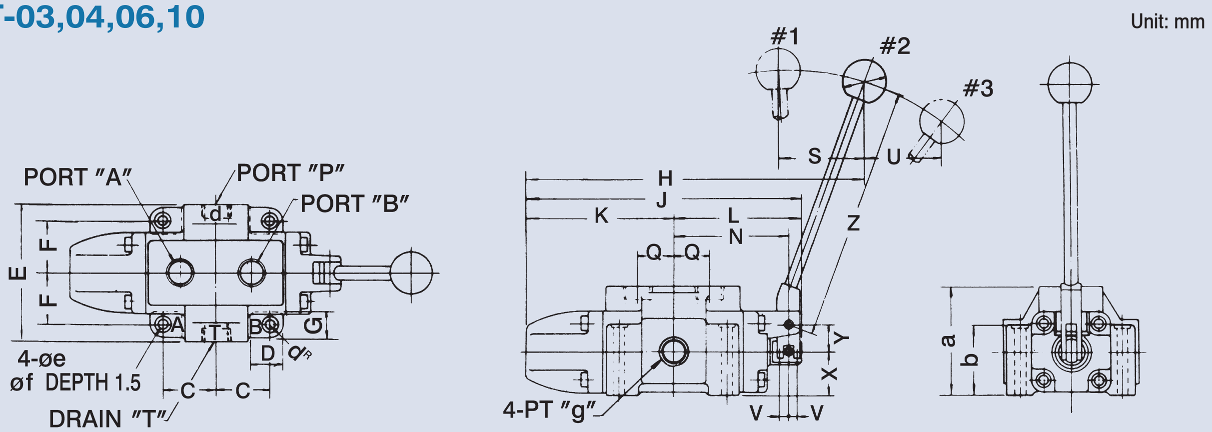
Specifications

Model		Max. Operating Pressure(bar)	Max. Back Pressure (bar)	Max. Flow (lpm)	Weight (kg)		Bolt size DMG
Sub-Plate Mounting	Thread Connection				DMG	DMT	
DMG-02	-	250	140	40	1.5	1.5	M5 x 45L
DMG-03	DMT-03		100	70	3.3	4	M6 x 35L
-	DMT-04		140	120	-	7.5	-
DMG-06	DMT-06			350	12.5	12	M12 x 55L
-	DMT-10			500	-	23	-

Dimensions

DMT-03,04,06,10

Unit: mm



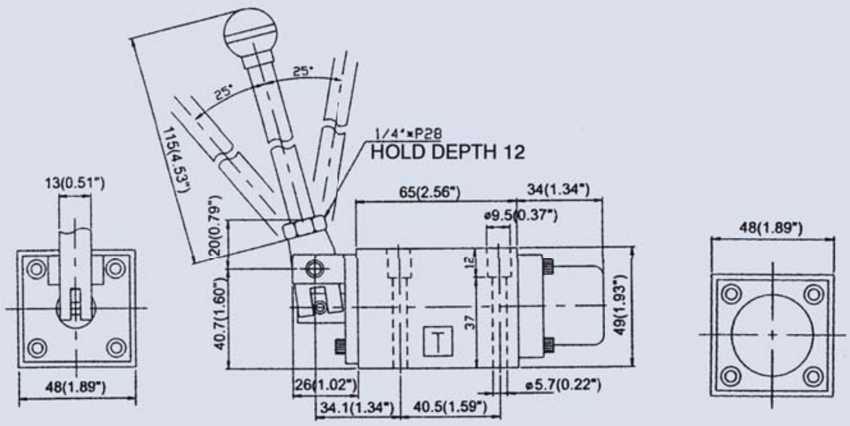
Model	C	D	E	F	G	H	J	K	L	N	Q	S	U	V	X	Y	Z	a	b	d	e	f	g(PT)
DMT-03	27	18	74	23	10	246	170	90	80	73.5	23	46	42	5	41	22	200	84.5	74	6	6M	-	3/8
DMT-04	45	33	109	40.5	18	280	222	116	106	96	25	75	60	10	37	19	240	90	55	9	9	14	1/2
DMT-06	50	30	130	49	20	320	255	137	118	107	33.5	86	76	9	40	25	250	100	65	12	11	17.5	3/4
DMT-10	67	40	162	62.5	33	402	320	173	147	135	40	102	90	12.5	50	35	270	124	82	15	13.5	21	1-1/4

MANUALLY OPERATED DIRECTIONAL VALVE

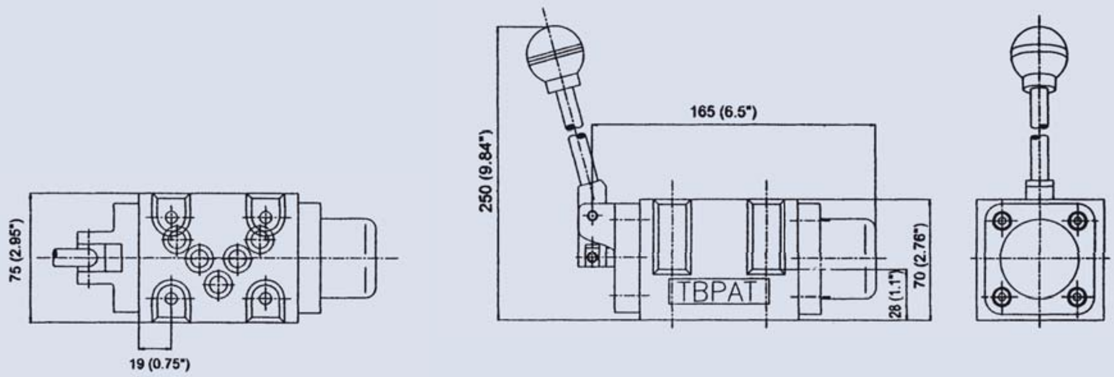
Dimensions

Unit: mm
(inch)

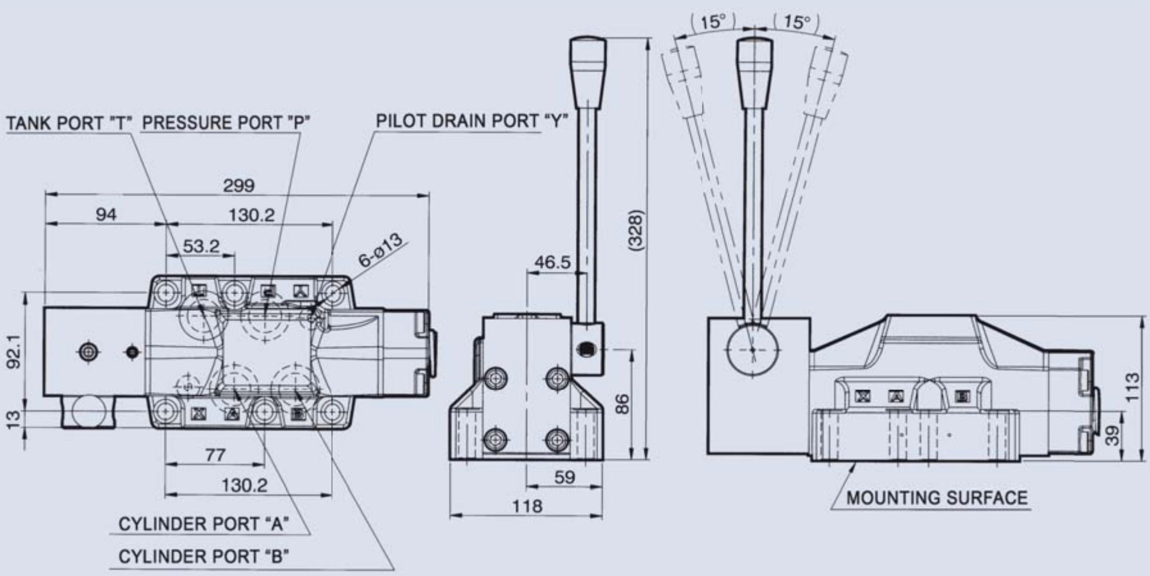
DMG-02 (ISO CETOP 3, NFPA D03, DIN NG 6)



DMG-03G (ISO CETOP 5, NFPA D05, DIN NG 10)

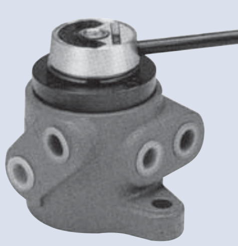


DMG-06 (ISO CETOP 8, NFPA D08, DIN NG 25)



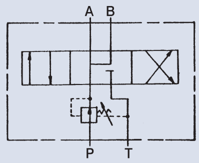
MANUALLY OPERATED DIRECTIONAL VALVE

HV-03T



HV-03QT

DGH-T03



C

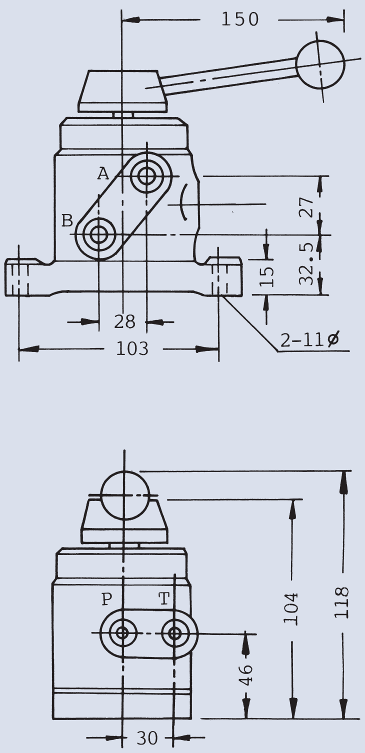
Specifications

Model	Port size (PT)	Max. Pressure (bar)	Flow rated (lpm)	Weight (kg)
HV-03T	3/8"	100	50	3.1
HV-03QT	3/8"	100	30	2.62
DGH-T03	1/4"	70	20	2.8

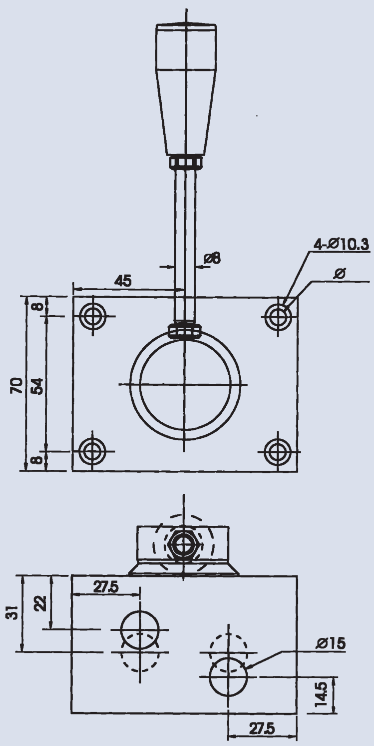
Dimensions

Unit: mm

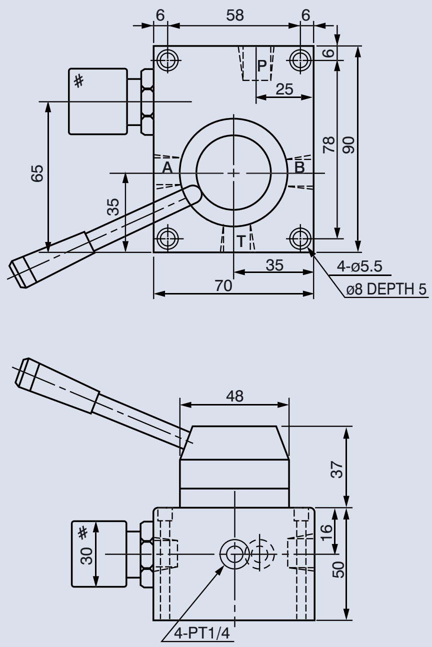
HV-03T



HV-03QT

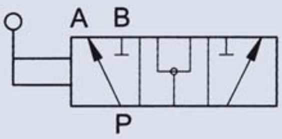


DGH-T03

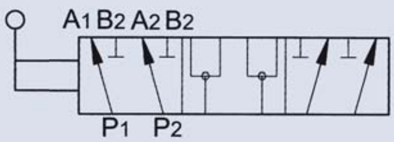


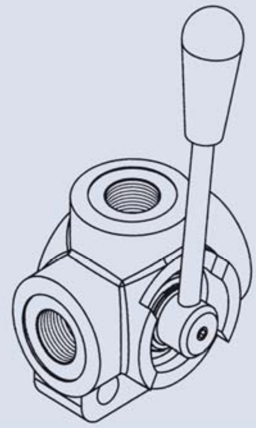
MANUALLY OPERATED DIRECTIONAL VALVE

HV-※



HVW-※





C

How to order

HV
HVW - 380
1 2

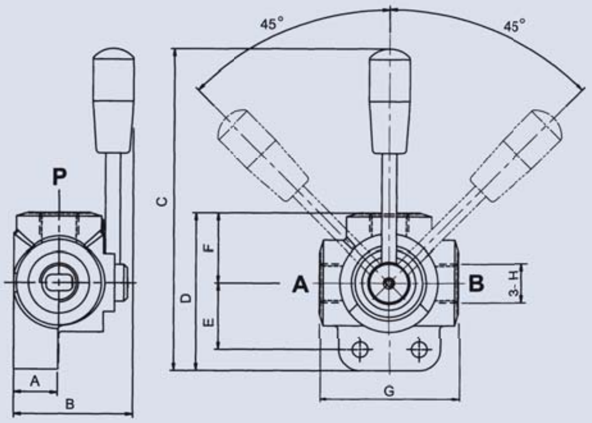
1	Model	HV single lever HVW double lever
2	Valve size	380: G3/8" 120: G1/2" 340: G3/4" 100: G1"

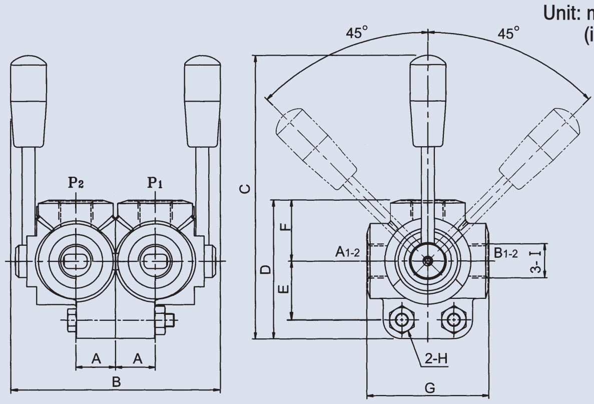
Specifications

Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)	
			HV	HVW
HV / HVW -380	315	50	1.4	2.8
HV / HVW -120	280	80		
HV / HVW -340	220	120	1.8	3.6
HV / HVW -100	220	180		

Dimensions

Unit: mm (inch)





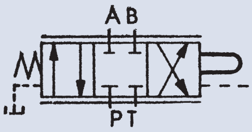
Size \ Model	HV-380	HV-120	HV-340	HV-100
A	24 (0.95")		26.5 (1.04")	
B	64.5 (2.54")		68.1 (2.68")	
C	173.4 (6.83")		180.7 (7.11")	
D	85 (3.35")		99.4 (3.91")	
E	36 (1.42")		42 (1.65")	
F	37.5 (1.47")		44.6 (1.77")	
G	75 (2.95")		90 (3.54")	
H	G3/8	G1/2	G3/4	G1

Size \ Model	HVW-380	HVW-120	HVW-340	HVW-100
A	24 (0.95")		26.5 (1.04")	
B	128.9 (5.08")		136.3 (5.37")	
C	173.4 (6.83")		180.7 (7.11")	
D	85 (3.35")		99.4 (3.91")	
E	36 (1.42")		42 (1.65")	
F	37.5 (1.47")		44.6 (1.76")	
G	75 (2.95")		90 (3.54")	
H	M8		M10	
I	G3/8	G1/2	G3/4	G1

SERVO CONTROL VALVE

FEATURES:

- Servo control accuracy up to ±0.005mm.
- Actuated by hydraulic system.
- The unit is applicable for plano-miller, milling machine, etc.
- Precision structure. Long service life.
- Various models for choice.



C

How to order

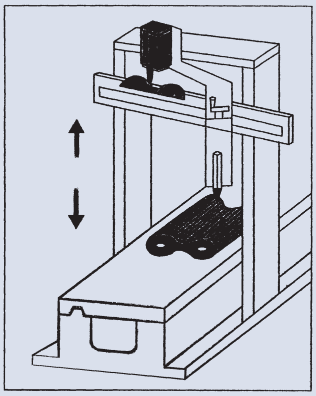
SA - G 03
1 2 3

1	Model	SA: With cover and long shaft SB: Without cover and short shaft
2	Mounting type	G: Sub-plate mounting
3	Valve size	

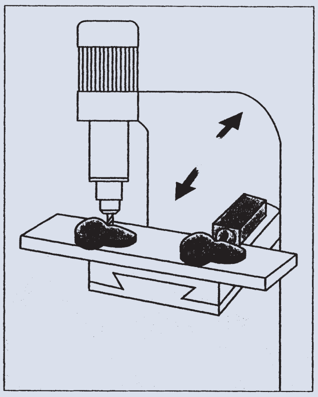
Specifications

Model	Max. Pressure (bar)	Oper. Pressure (bar)	Max. Back Pressure (bar)	Spool Shift mm	Max. Flow (lpm)	Weight (kg)
SA, SB-G02	70	12~15	20	±2	70	2.5
SA, SB-G03					90	3.5
SA, SB-G04					110	4.5

Examples of copy machining

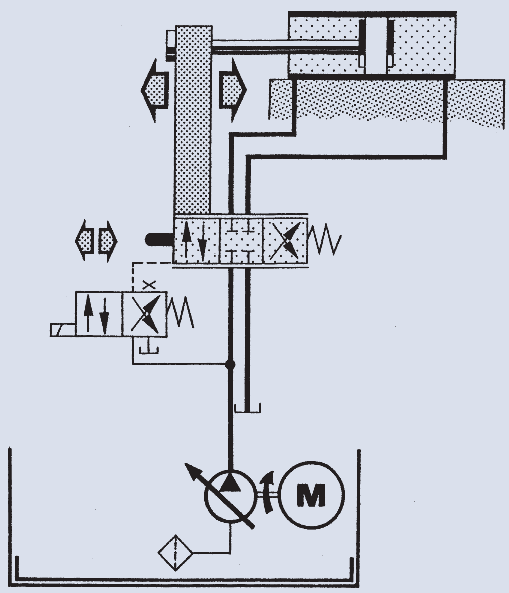


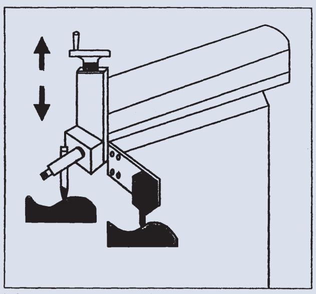
The servo control valve operated on a planomiller.



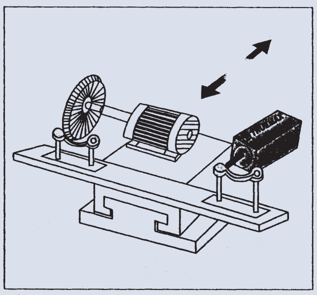
The servo control valve operated on a milling machine.

Basic hydraulic circuit





The servo control valve operated on a shaping machine.



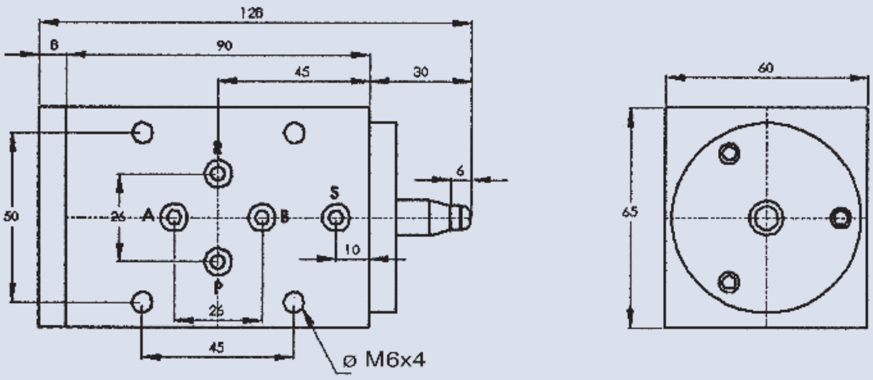
The servo control valve operated on a special purpose polishing machine.

SERVO CONTROL VALVE

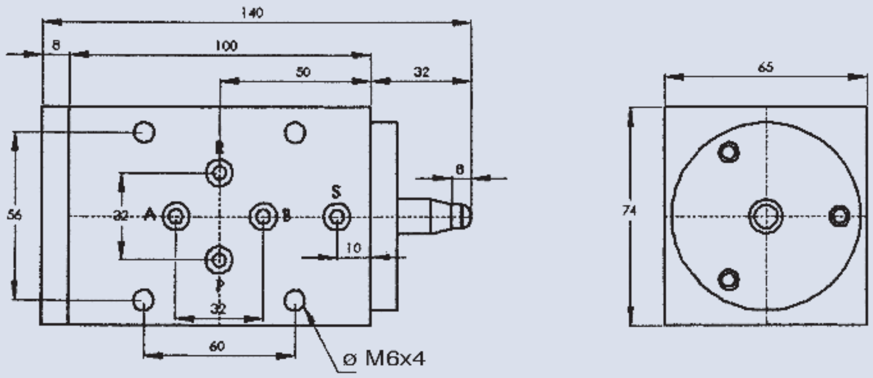
Dimensions

Unit: mm

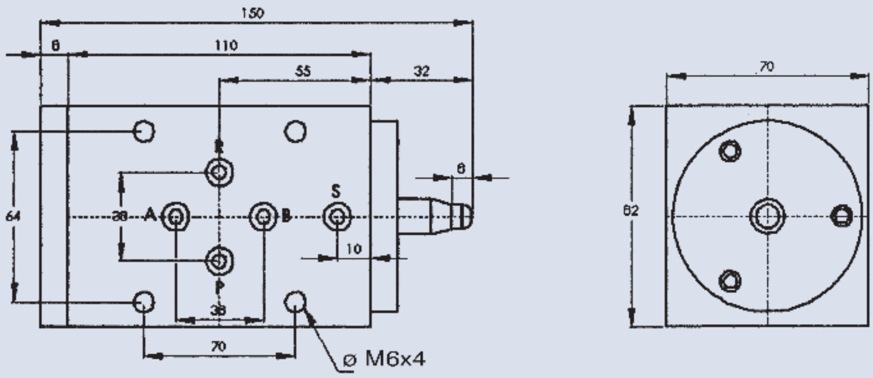
SA-02



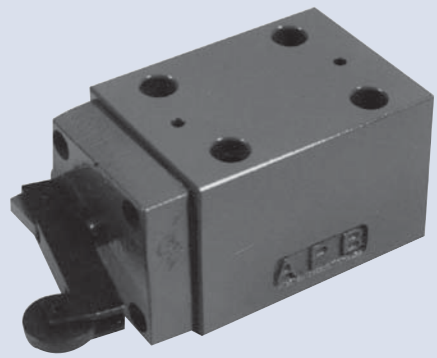
SA-03



SA-04



CAM OPERATED DIRECTIONAL VALVE



How to order

DC G - 01 - 2B2
1 2 3 4

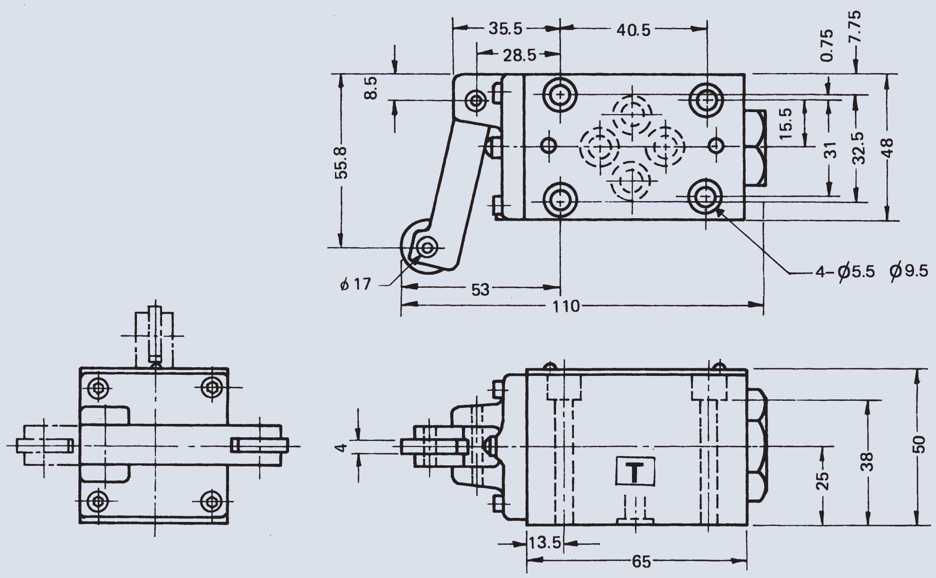
1	Model
2	Mounting type G: Sub-plate mounting T: Thread connection
3	Valve size DCG-01: 1/8" (ISO CETOP 3, NFPA D03, DIN NG 6) DCT-01: PT 1/8"
4	Spool type 2B2 2B3 2B8

Specifications

Model		Max. Operating Pressure(bar)	Rated Flow (lpm)	Weight (kg)	Bolt Size
Sub-Plate Mounting	Thread Connection				
DCG-01	DCT-01	250	30	1.2	M5 x 50L

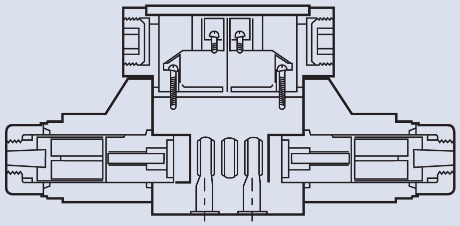
Dimensions

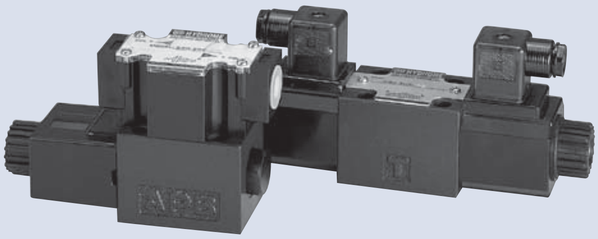
Unit: mm



C

SOLENOID OPERATED DIRECTIONAL VALVE





C

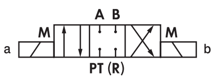
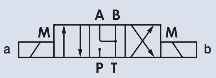
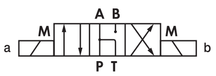
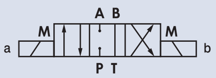
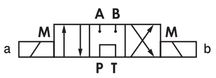
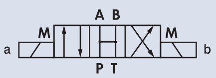
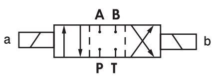
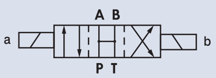
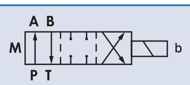
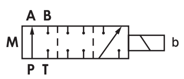
How to order

DSG - 02 - 3C2 - A2 - N

1 2 3 4 5

1	Model	
2	Nominal valve size	1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
3	Spool type	
4	Coil voltage	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) A24: AC240V (50HZ) A38: AC380V (50HZ) D1: DC12V D2: DC24V R1: R110V (50/60HZ) R2: R220V (50/60HZ)
5	No symbol: Joint box type N: Din connector type	

Specifications

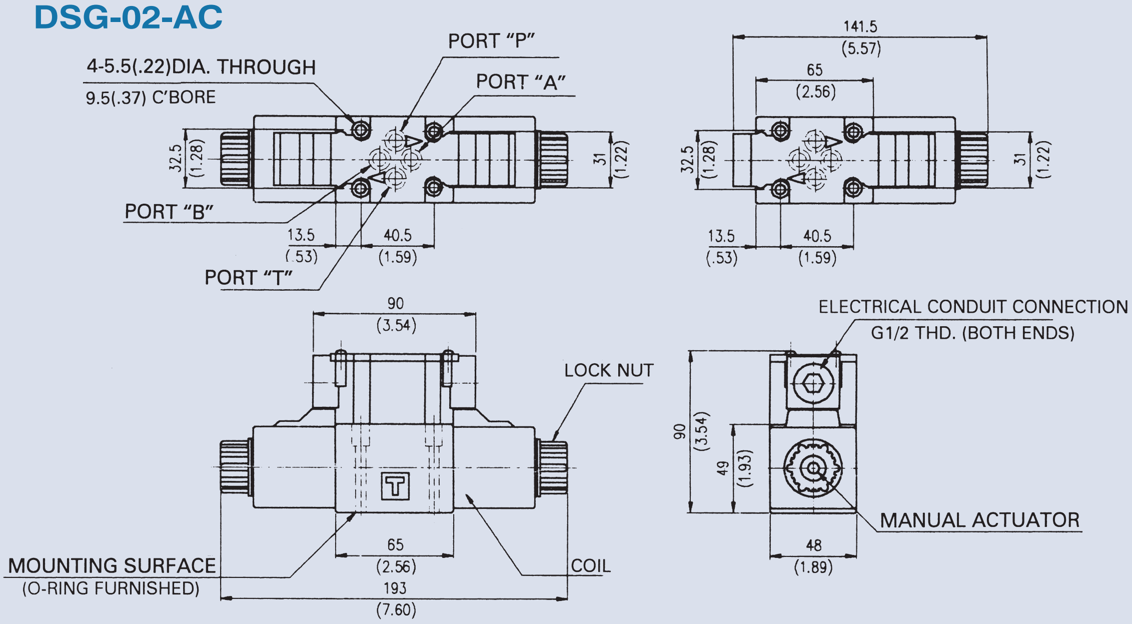
ITEM	Model Numbers	Spool Type	Rated Flow lpm (gpm)	Max. Flow lpm (gpm)
			AC / DC / R	
1	DSG-3C2		50 (13.2)	70 (18.5)
2	DSG-3C4		30 (7.9)	70 (18.5)
3	DSG-3C5			
4	DSG-3C10			
5	DSG-3C60		30 (7.9)	50 (13.2)
6	DSG-3C3			
7	DSG-2D2		40 (10.6)	50 (13.2)
8	DSG-2D3			
9	DSG-2B3			
10	DSG-2B2		40 (10.6)	70 (18.5)
11	DSG-2B8			

SOLENOID OPERATED DIRECTIONAL VALVE

Dimensions

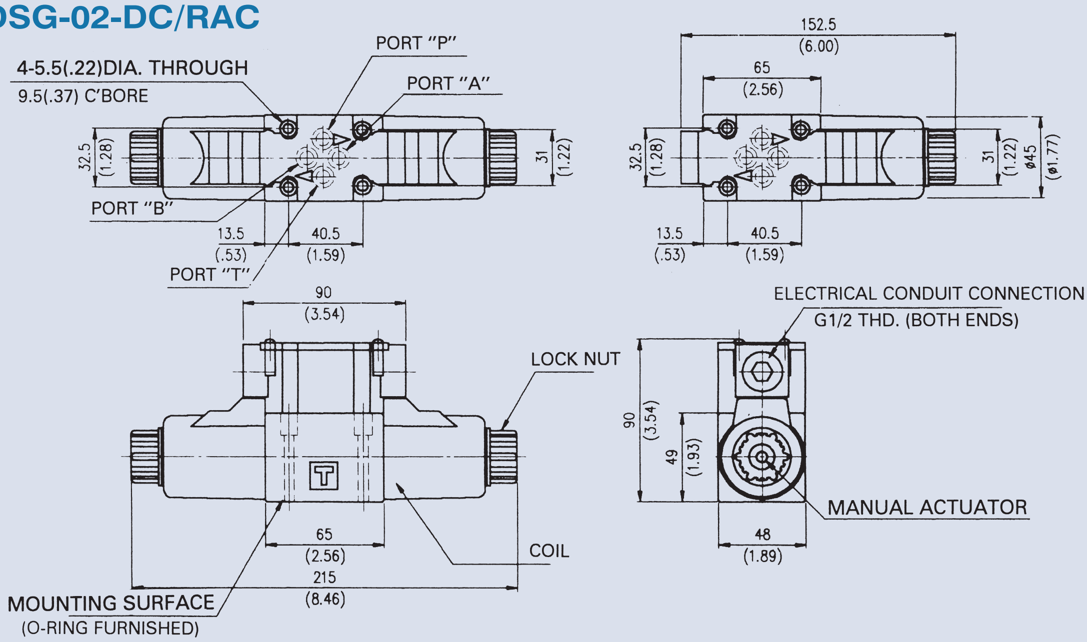
DSG-02-AC

Unit: mm (inch)



Parts name	Description	Tightening torque
Attachment SOC. HD. cap screw	M5 x 45Lg x 4pcs	5~7Nm
Attachment SOC. HD. cap screw	10-24UNC x 1-3/4"Lg x 4pcs	43~60in. lbs

DSG-02-DC/RAC



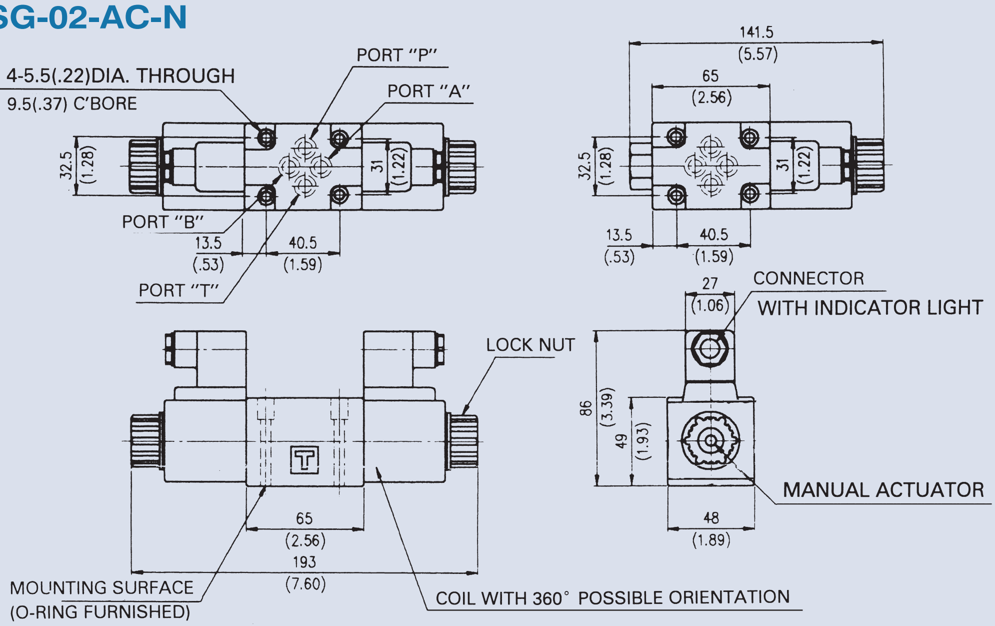
Parts name	Description	Tightening torque
Attachment SOC. HD. cap screw	M5 x 45Lg x 4pcs	5~7Nm
Attachment SOC. HD. cap screw	10-24UNC x 1-3/4"Lg x 4pcs	43~60in. lbs

SOLENOID OPERATED DIRECTIONAL VALVE

Dimensions

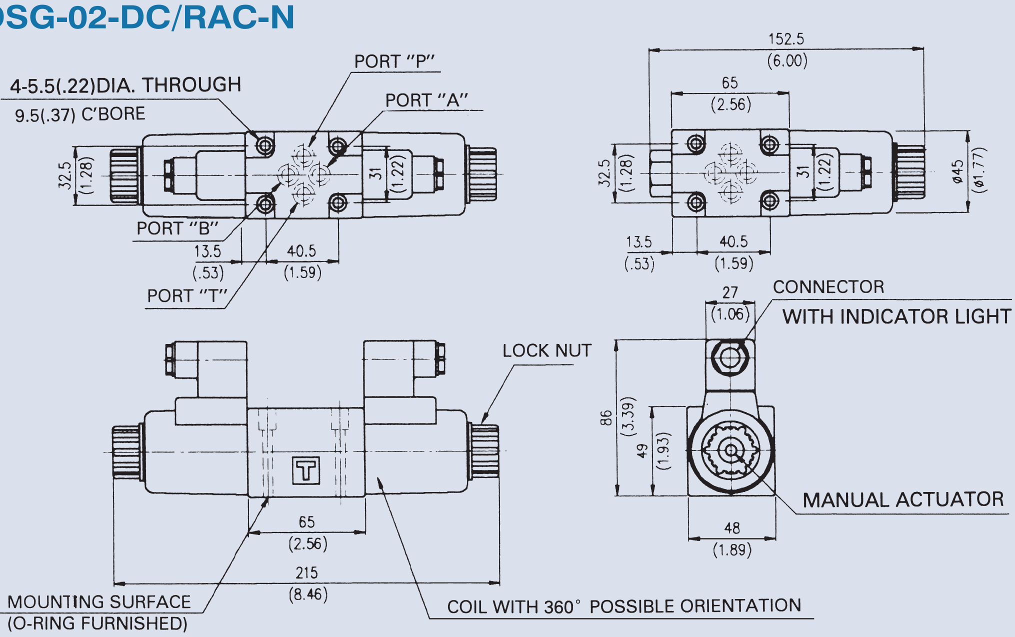
DSG-02-AC-N

Unit: mm
(inch)



Parts name	Description	Tightening torque
Attachment SOC. HD. cap screw	M5 x 45Lg x 4pcs	5~7Nm
Attachment SOC. HD. cap screw	10-24UNC x 1-3/4"Lg x 4pcs	43~60in. lbs

DSG-02-DC/RAC-N



Parts name	Description	Tightening torque
Attachment SOC. HD. cap screw	M5 x 45Lg x 4pcs	5~7Nm
Attachment SOC. HD. cap screw	10-24UNC x 1-3/4"Lg x 4pcs	43~60in. lbs

SOLENOID OPERATED DIRECTIONAL VALVE

FEATURES:

- Plug-in solenoids for easier to change to coils.
- Easier maintenance with all spools and bodies are interchangeable by keeping the same limitation of internal leakage.
- Low noise level while all the movable parts are submerged in the working oil cushion impact reduces the operation noise.
- High voltage test up to 1500 v/min.
- Insulation resistance exceeds 100MΩ.
- Momnentary signal for shifting action at approx. 0.1 second.
- Longer service life for durability to 30,000,000 spool shifts.
- High class insulation coil for high temperature resistance up to 180 ˚C.

C

Specifications

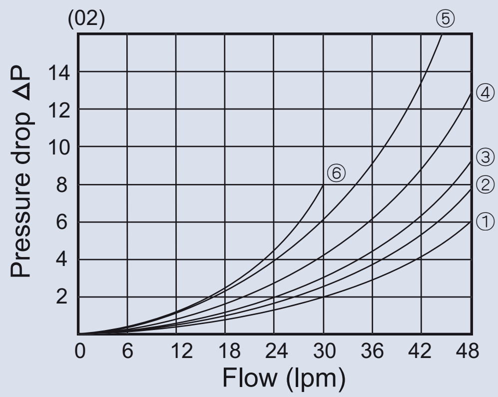
Max. pressure	**P.A.B.**	**315 bar (4600psi)**	
Max. back pressure	**T**	**70~160 bar (1400~2300psi)**	
Weight kg (lb)	**Single solenoid**	**AC 1.5 (3.3)**	**DC(R) 1.6 (3.5)**
	Double solenoid	**AC 1.85 (4)**	**DC(R) 2 (4.4)**
Maximum frequency of operation (cycle/min)		**150**	
Ambient temperature range recommended		**5~60 ˚C (67~166 ˚F)**	
Using oil (cst)		**20~300**	
Filtration (micron)		**25**	

Performance curves

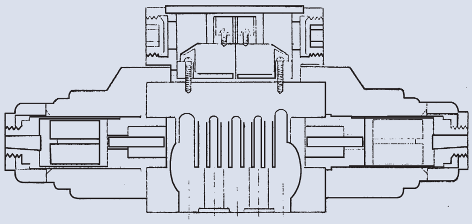
Performance chart

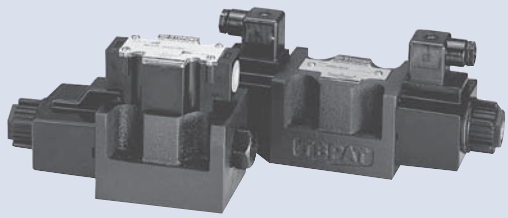
Test fluid viscosity: 35 cst
Test temperature: 50 ˚C (122 ˚F)

	P→A	P→B	A→T	B→T	P→T
3C2	③	③	③	③	—
3C3	①	①	③	③	④
3C4	③	③	①	①	—
3C5	①	⑥	③	⑤	④
3C60	⑥	⑥	⑤	⑤	④
3C10	③	③	③	①	—
2D2	②	②	⑤	⑤	—
2D3	①	①	③	③	—
2B2	②	②	⑤	⑤	—
2B3	④	③	①	④	—



SOLENOID OPERATED DIRECTIONAL VALVE



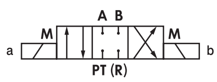
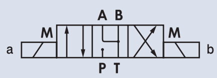
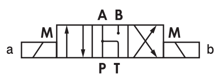
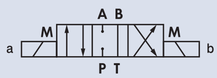
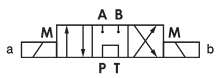
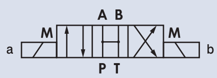
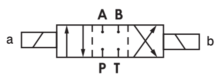
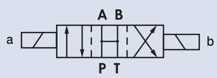
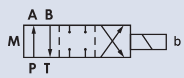
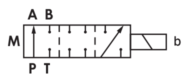


How to order

DSG - 03 - 3C2 - A2 - N

1 2 3 4 5

1	Model	
2	Nominal valve size	3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
3	Spool type	
4	Coil voltage	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) A24: AC240V (50HZ) A38: AC380V (50HZ) D1: DC12V D2: DC24V R1: R110V (50/60HZ) R2: R220V (50/60HZ)
5	No symbol: joint box type N: Din connector type	

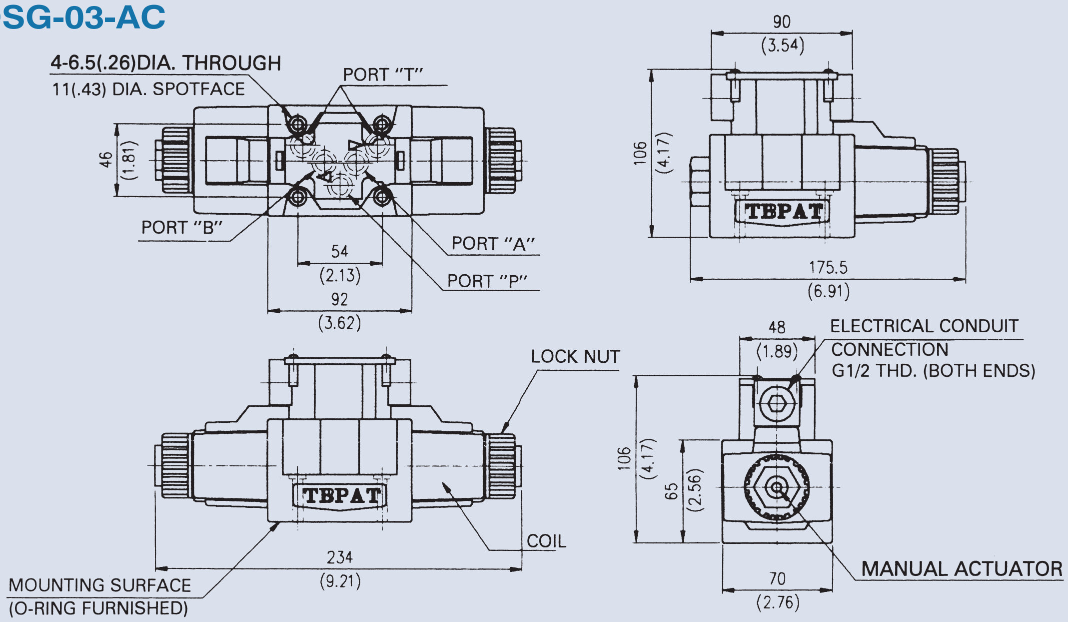
ITEM	Model Numbers	Spool Type	Rated Flow lpm (gpm)	Max. Flow lpm (gpm)
			AC / DC / R	
1	DSG-3C2		70 (18.5)	120 (31.7)
2	DSG-3C4			
3	DSG-3C5			
4	DSG-3C10			
5	DSG-3C60		50 (13.2)	80 (21.1)
6	DSG-3C3			
7	DSG-2D2			
8	DSG-2D3			
9	DSG-2B3			
10	DSG-2B2		70 (18.5)	120 (31.7)
11	DSG-2B8			

SOLENOID OPERATED DIRECTIONAL VALVE

Dimensions

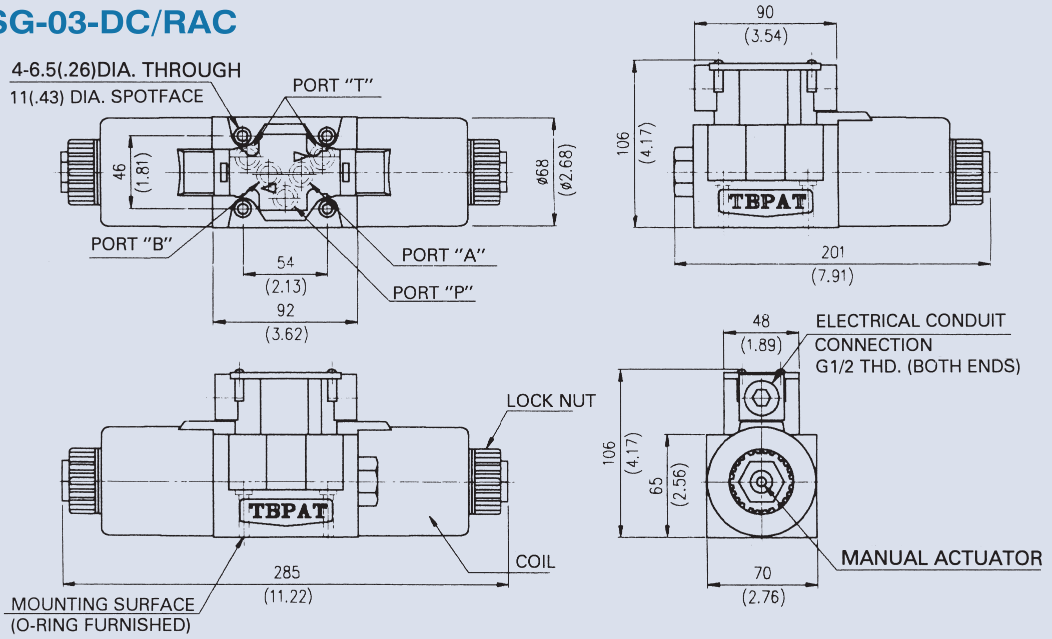
DSG-03-AC

Unit: mm
(inch)



Parts name	Description	Tightening torque
Attachment SOC. HD. cap screw	M6 x 35Lg x 4pcs	12~15Nm
Attachment SOC. HD. cap screw	1/4-20UNC x 1-1/2"Lg x 4pcs	105~130in. lbs

DSG-03-DC/RAC



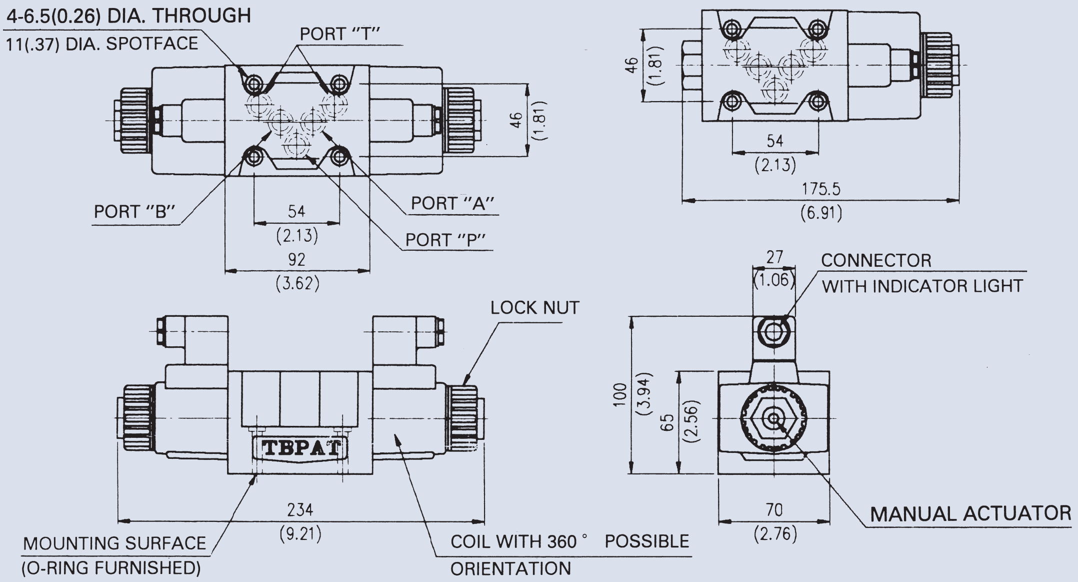
Parts name	Description	Tightening torque
Attachment SOC. HD. cap screw	M6 x 35Lg x 4pcs	12~15Nm
Attachment SOC. HD. cap screw	1/4-20UNC x 1-1/2"Lg x 4pcs	105~130in. lbs

SOLENOID OPERATED DIRECTIONAL VALVE

Dimensions

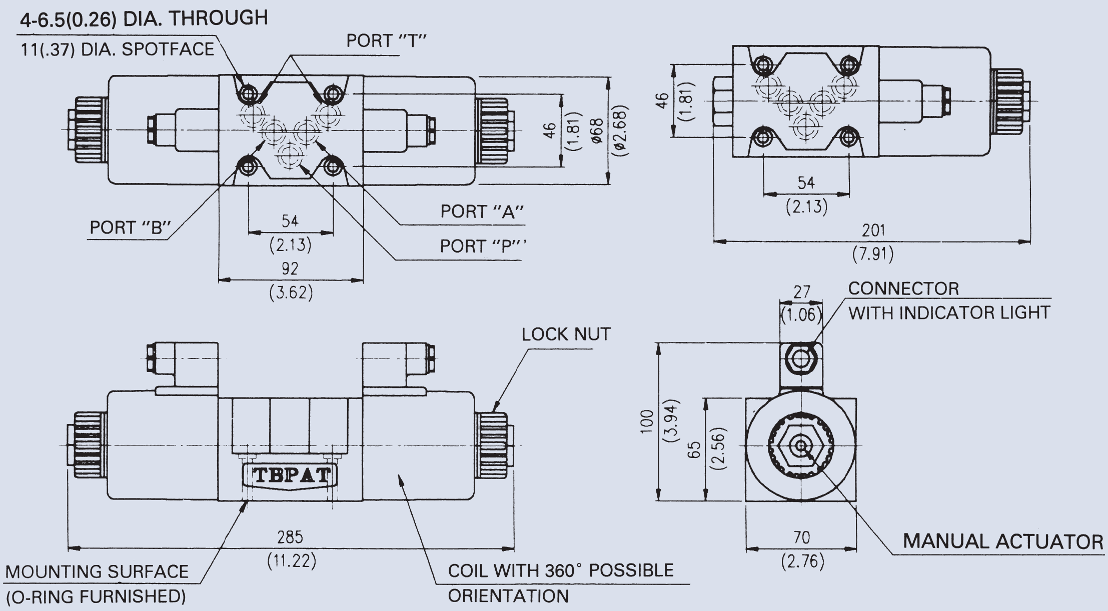
Unit: mm
(inch)

DSG-03-AC-N



Parts name	Description	Tightening torque
Attachment SOC. HD. cap screw	M6 x 35Lg x 4pcs	12~15Nm
Attachment SOC. HD. cap screw	1/4-20UNC x 1-1/2"Lg x 4pcs	105~130in. lbs

DSG-03-DC/RAC-N



Parts name	Description	Tightening torque
Attachment SOC. HD. cap screw	M6 x 35Lg x 4pcs	12~15Nm
Attachment SOC. HD. cap screw	1/4-20UNC x 1-1/2"Lg x 4pcs	105~130in. lbs

SOLENOID OPERATED DIRECTIONAL VALVE

Specifications

Max. pressure	P.A.B.	315 bar (4600psi)	
Max. back pressure	T	70~160 bar (1400~2300psi)	
Weight kg (lb)	Single solenoid	AC 3.3 (7.3)	DC (R) 3.7 (8.2)
	Double solenoid	AC 4 (8.8)	DC (R) 4.8 (10.6)
Maximum frequency of operation (cycle/min)		150	
Ambient temperature range recommended		5~60 ˚C (67~166 ˚F)	
Using oil (cst)		20~300	
Filtration (micron)		25	

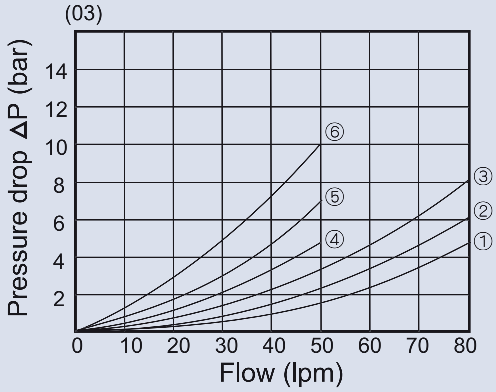
C

Performance curves

Performance chart

	P→A	P→B	A→T	B→T	P→T
3C2	③	③	③	③	—
3C3	①	①	③	③	④
3C4	③	③	①	①	—
3C5	①	⑥	③	⑤	④
3C60	⑥	⑥	⑤	⑤	④
3C10	③	③	③	①	—
2D2	②	②	⑤	⑤	—
2D3	①	①	③	③	—
2B2	②	②	⑤	⑤	—
2B3	④	③	①	④	—

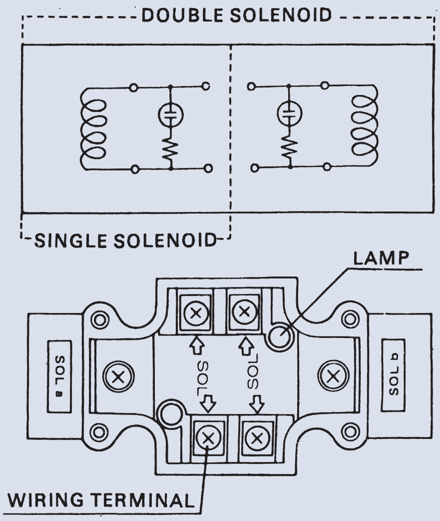
Test fluid viscosity: 35 cst
Test temperature: 50 ˚C (122 ˚F)



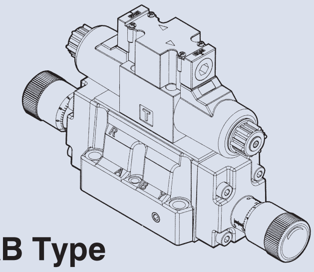
Technical data

Current AC/DC		AC				DC	
Frequency (Hz)		50	60	50	60	—	—
Rating voltage (V)		110	110	220	220	12	24
(01) 1/4	In-rush current	2.7	2.3	1.4	1.2	2	1
	Holding current	0.45	0.38	0.23	0.19		
(03) 3/8"	In-rush current	4.8	4.4	2.4	2.1	3.0	1.5
	Holding current	0.79	0.72	0.39	0.34		
DSG 01R	In-rush current	0.5	0.5	0.25	0.25	—	—
	Holding current	0.35	0.35	0.18	0.18	—	—
DSG 03R	In-rush current	0.66	0.66	0.33	0.33	—	—
	Holding current	0.45	0.45	0.28	0.28	—	—
Permissible voltage (V)		Rating voltage +10% or -15%					
Insulation resistance (MΩ)		More than 100MΩ (DC 500V insulation tester)					

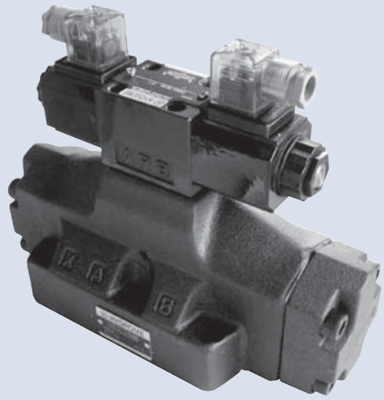
Electrical wirings



PILOT OPERATED DIRECTIONAL VALVE



AB Type



C

How to order

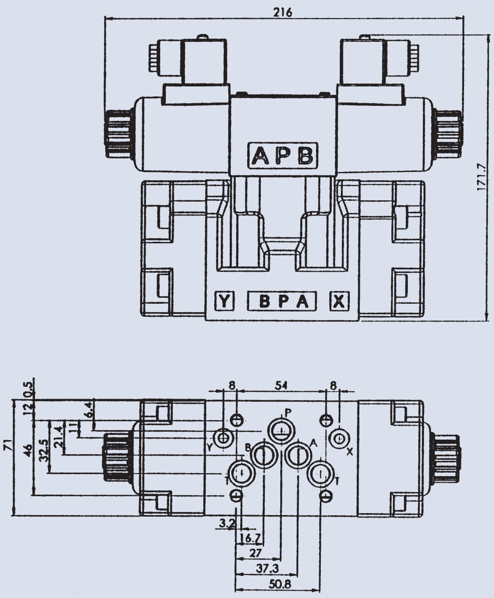
DSHG - 06 - 3C2 - AB - E - T - A1
1 2 3 4 5 6 7

1	Model	
2	Nominal valve size	03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10) 04: 1/2"(ISO CETOP 7, NFPA D07, DIN NG 16) 06: 3/4" (ISO CETOP 8, NFPA D08, DIN NG 25) 10: 1-1/4" (ISO CETOP 10, NFPA D10, DIN NG 32)
3	Spool type	
4	AB: With stroke adjusting both ends A: With stroke adjusting port A B: With stroke adjusting port B	
5	E: External pilot Omit: Internal pilot	
6	T: Internal drain Omit: External drain	
7	Voltage	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) A24: AC240V (50HZ) A38: AC380V (50HZ) D1: DC12V D2: DC24V R1: R110V (50/60HZ) R2: R220V (50/60HZ)

Dimensions

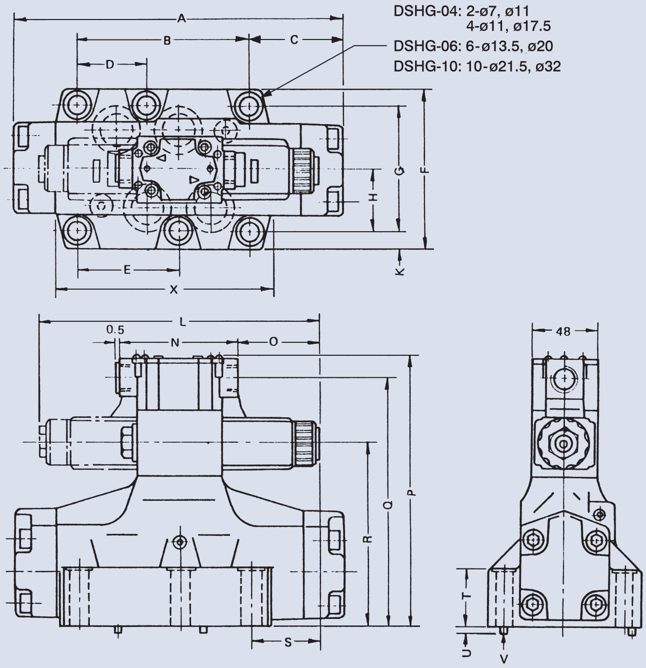
Unit: mm

DSHG-03



DSHG-04, 06, 10

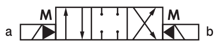
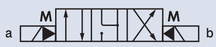
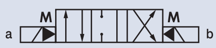
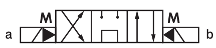
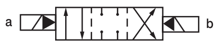
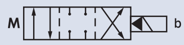
DSHG-04: 2-ø7, ø11
4-ø11, ø17.5
DSHG-06: 6-ø13.5, ø20
DSHG-10: 10-ø21.5, ø32



Model	A	B	C	D	E	F	G	H	K	L	N	O	P	Q	R	S	T	U	V	X
DSHG-04	204	101.6	50.4	34	50	91	69.8	-	9	215	90	60	180.3	163	116	53.4	35	4	2-ø3	-
DSHG-06	255	130.2	74.3	53.2	77	118	92.1	46.1	13	215	90	60	201.5	184	137	51.3	41	6	2-ø6	156
DSHG-10	384	190.5	116	76.2	114.3	198	158.8	79.4	19.6	215	90	60	264.5	247	200	28.5	45	6	2-ø6	233.8

PILOT OPERATED DIRECTIONAL VALVE

Specifications

Model Numbers			DSHG-03		DSHG-04		DSHG-06		DSHG-10	
ITEM	Model Numbers	Spool Type	Rated Flow (lpm)	Max. Flow (lpm)	Rated Flow (lpm)	Max. Flow (lpm)	Rated Flow (lpm)	Max. Flow (lpm)	Rated Flow (lpm)	Max. Flow (lpm)
1	DSHG-3C2		90	160	135	300	310	500	570	1100
2	DSHG-3C4		90	160	135	300	310	500	570	1100
3	DSHG-3C5		90	160	245	280	230	450	570	950
4	DSHG-3C10		90	160	135	300	310	500	570	1100
5	DSHG-3C6		90	160	245	280	230	450	570	950
6	DSHG-3C3		90	160	135	300	230	450	570	950
7	DSHG-2D2		90	160	135	300	310	500	570	1100
8	DSHG-2D3		90	160	135	300	310	500	570	1100
9	DSHG-2B3		90	160	245	280	230	450	570	950
10	DSHG-2B2		90	160	245	280	230	450	570	950
11	DSHG-3C9		90	160	245	280	230	450	570	950
Max. pressure		P.A.B.	315 bar (4600 psi)							
Max. back pressure		T	70~160 bar (1400~2300 psi)							
Weight kg (lb)		Single solenoid	6.4 (14.08)		7.6 (16.72)		13.3 (29.26)		51.6 (113.52)	
		Double solenoid	6.9 (15.18)		8 (17.6)		13.7 (30.14)		52 (114.40)	
Maximum frequency of operation (cycle/min)			120							
Ambient temperature range recommended			5~60 ˚C (67~166 ˚F)							
Using oil (cst)			20~300							
Filtration (micron)			25							

C

C

SPOOL FUNCTION TABLE

Specifications

Three Position Spring Center	Standard Type	Two Position No Spring	Standard Type	Two Position No Spring	Standard Type
3C2		2D2		2D2A	
3C3		2D3		2D3A	
3C4		2D7		2D4A	
3C40		2D8		2D40A	
3C5		Spring Offset	Standard Type	2D5A	
3C60				2D7A	
3C7				2D9A	
3C8		2B2		2D10A	
3C9		2B3		2D11A	
3C10		2B8		2D12A	
3C11					
3C12					

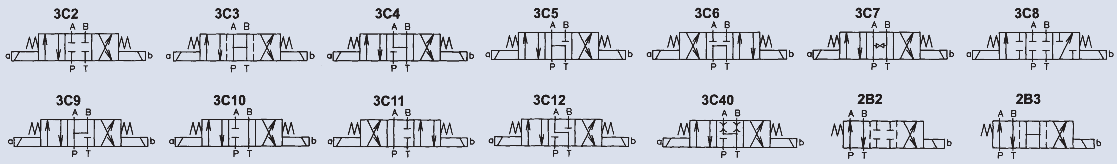
Two Position Spring Offset	Standard Type	Opposite Type	Two Position Spring Offset	Standard Type	Opposite Type
2B2A			2B2B		
2B3A			2B3B		
2B4A			2B4B		
2B40A			2B40B		
2B5A			2B5B		
2B60A			2B60B		
2B7A			2B7B		
2B8A			2B8B		
2B9A			2B9B		
2B10A			2B10B		
2B11A			2B11B		
2B12A			2B12B		

SOLENOID OPERATED STACK VALVE (SECTIONAL)

C

How to order

DMW - ※ - 02 T - ※ - ※ - ※ - ※
1 2 3 4 5 6 7 8

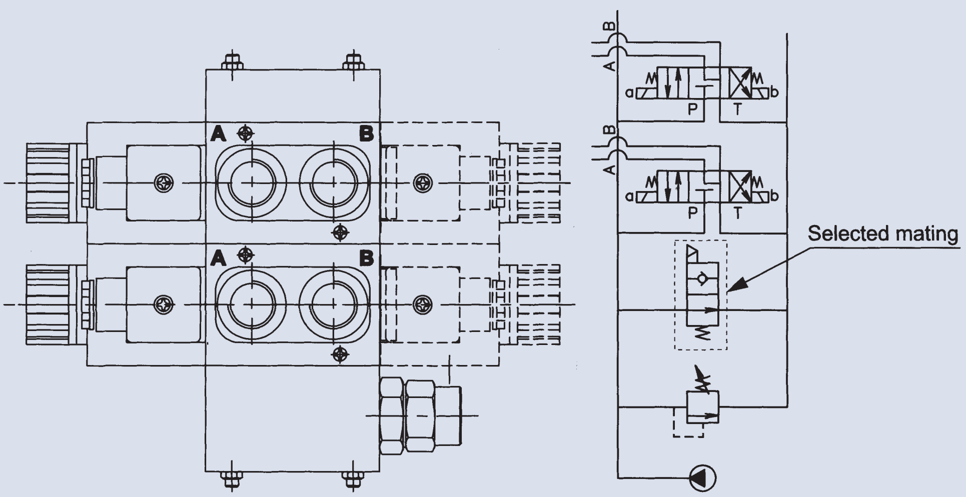
1	Model	
2	Spool type	
3	Norminal valve size 1/4"	
4	Mounting type	T: Thread connection
5	Voltage	A1: AC110V (60HZ) A115: AC115V (50HZ) A230: AC230V (50HZ) A2: AC220V (60HZ) D1: DC12V D2: DC24V
6	Wiring type	None: Din type X: Double lead
7	Number of valve block	1N~7N: 1~7 blocks
8	Release valve (selected mating) for inlet section	S1: DC12V S2: DC24V S3: RAC110V S4: RAC220V NC: Normal closed NO: Normal open

Specifications

Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
DMW-※-02T	250	70	

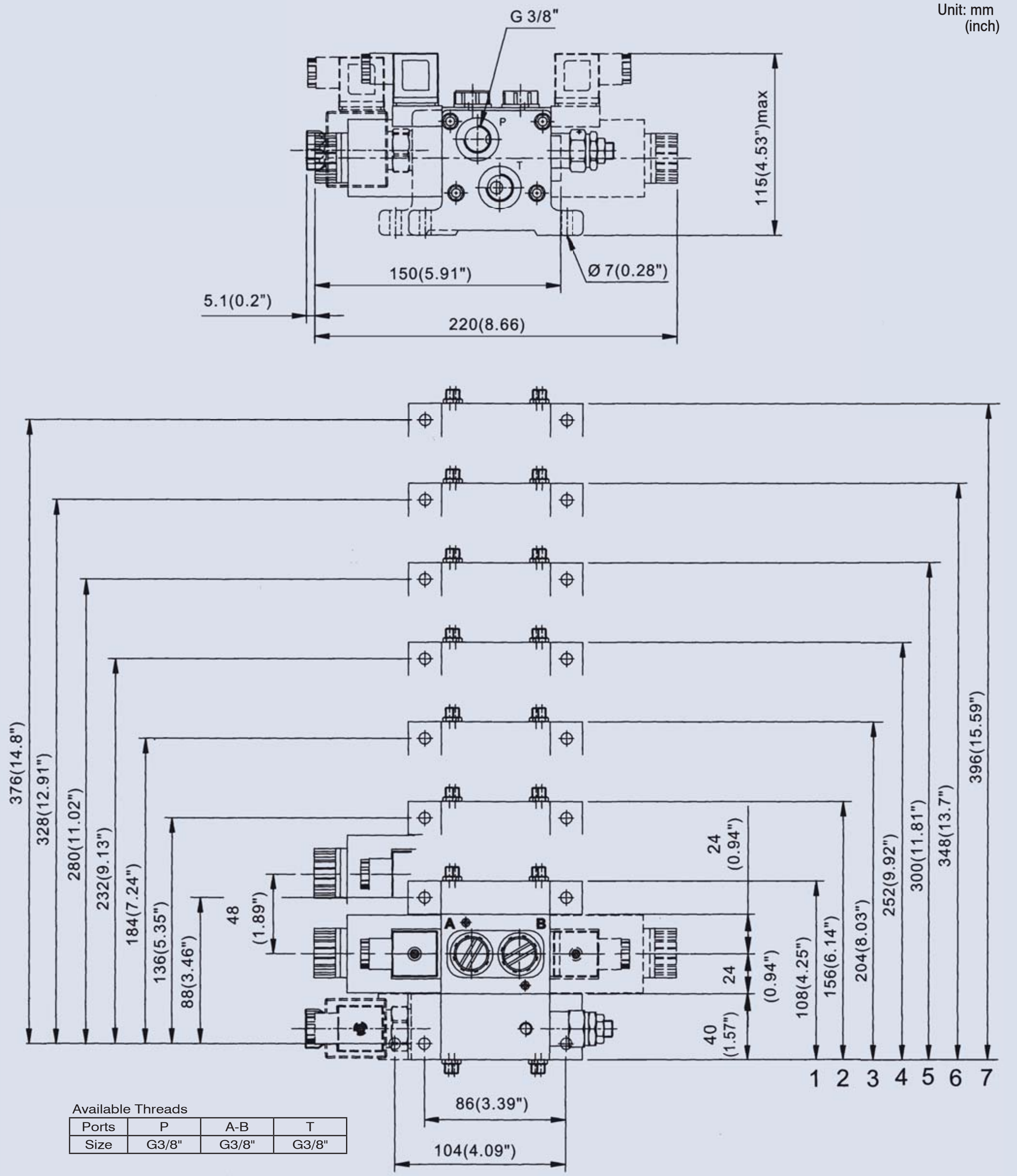
Dimensions

Unit: mm



SOLENOID OPERATED STACK VALVE (SECTIONAL)

Dimensions



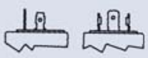
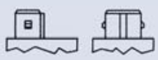
Available Threads

Ports	P	A-B	T
Size	G3/8"	G3/8"	G3/8"

SOLENOID MANUAL OPERATED DIRECTIONAL VALVE

How to order

WED - ※ - 02 G - ※ - 30
1 2 3 4 5 6

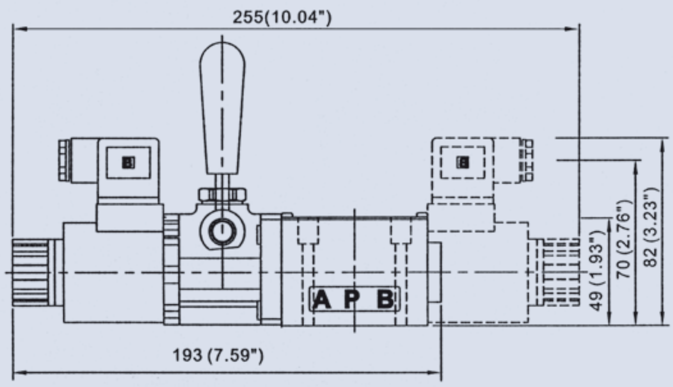
1	Model	
2	Spool type (refer to page 66)	
3	Norminal valve size 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)	
4	Mounting type	G: Sub-plate mounting
5	Voltage	A1: AC110V (60HZ) AC115: AC115V (50HZ) A230: AC230V (50HZ) A2: AC220V (60HZ) D1: DC12V D2: DC24V R1: RF110V (50/60HZ) R2: RF220V (50/60HZ)
6	Wiring type	30: Din type  40: Amp type 

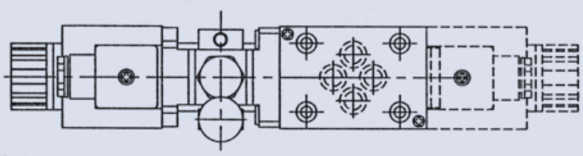
Specifications

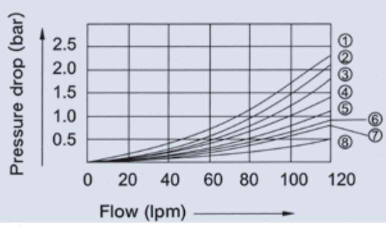
Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)			
			AC		DC (RF)	
			Single Sol.	Double Sol.	Single Sol.	Double Sol.
WED-※-02G	315	100	2	2.35	2.1	2.5

Dimensions / Performance curve

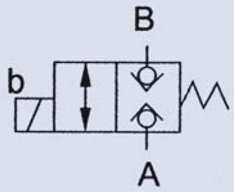
Unit: mm
(inch)







SOLENOID OPERATED CHECK VALVE



How to order

LVS - 02 G - A2
1 2 3 4

1	Model	
2	Norminal valve size	02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6) 03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
3	Control type	
4	Voltage	A1: AC115V (50HZ) A2: AC230V (50HZ) D1: DC12V D2: DC24V

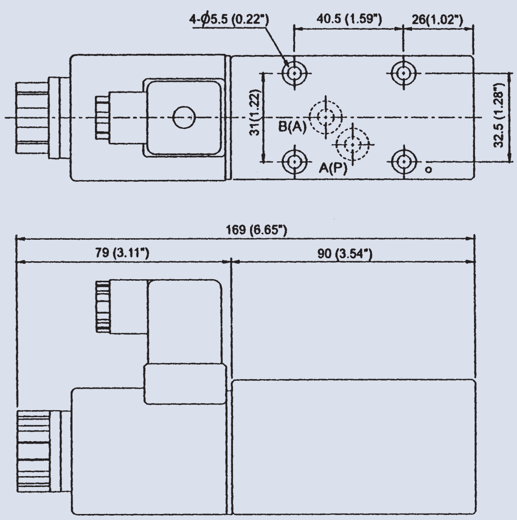
Specifications

Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Weight (kg)
LVS-02G	250	35	1.6
LVS-03G		50	3.5

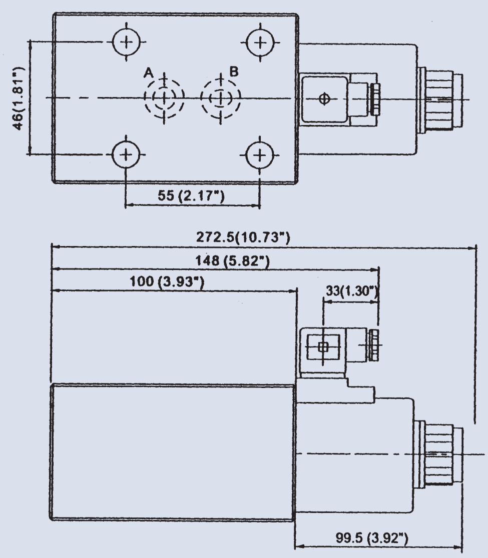
Dimensions

Unit: mm
(inch)

LVS-02G

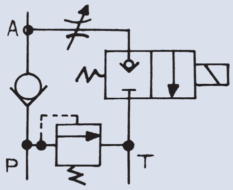


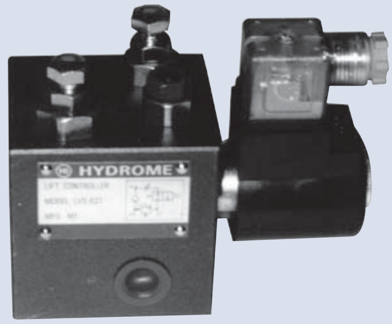
LVS-03G



LIFT VALVE

Normal closed





How to order

LVS - 03 T - NC - A22
1 2 3 4 5

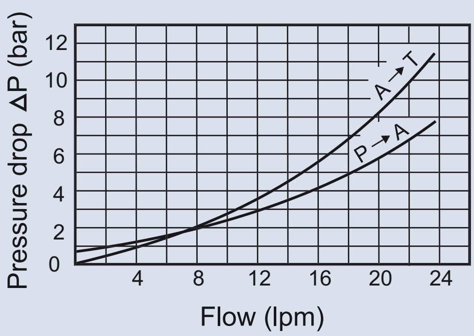
1	Model	LVS: Ductile iron body
2	Valve size	03: 3/8"
3	Mounting type	T: Thread connection
4	NC: Normal closed	NO: Normal open
5	Voltage	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

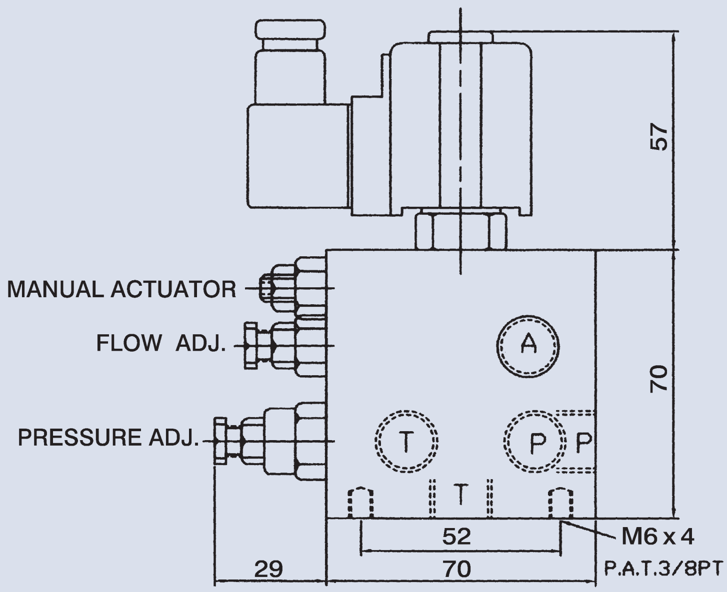
Specifications

Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Max. Frequency (cpm)	Weight (kg)
LVS-03T	250	25	120	2.8

Dimensions / Performance curves

Unit: mm

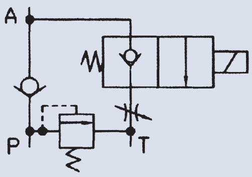


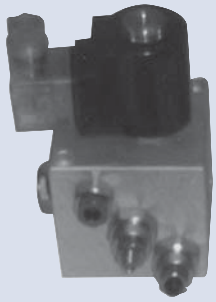


C

LIFT VALVE

Normal closed





How to order

KVS - 03 TL - NC - A22

1 2 3 4 5

1	Model Aluminum alloy body
2	Valve size 03: 3/8" 04: 1/2"
3	Mounting type TL: Thread connection
4	NC: Normal closed NO: Normal open
5	Voltage A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

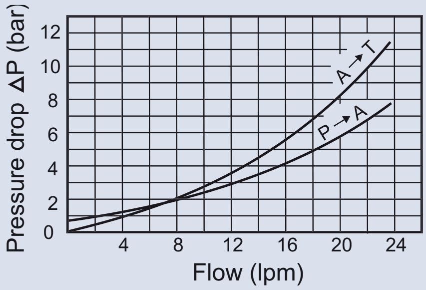
Specifications

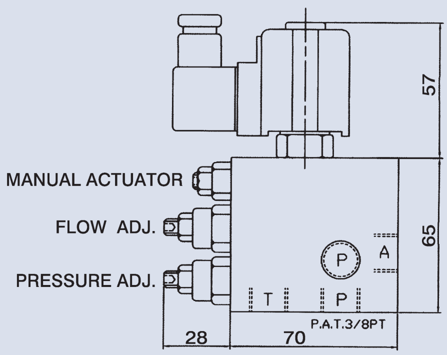
Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Rated Flow (lpm)	Weight (kg)
KVS-03TL	250	25	20	1.25
KVS-04TL		50	40	1.5

Dimensions / Performance curves

Unit: mm

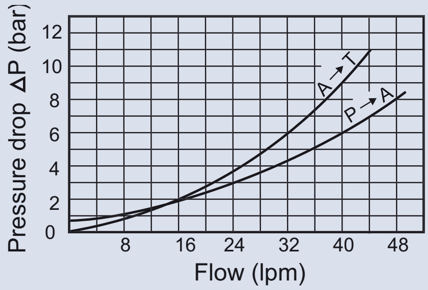
KVS-03TL

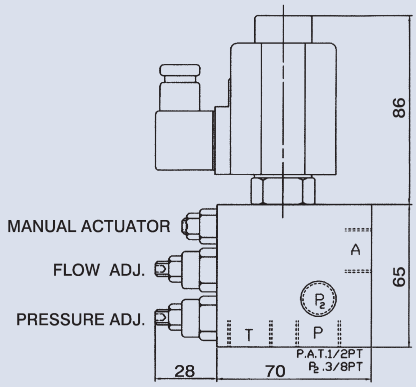




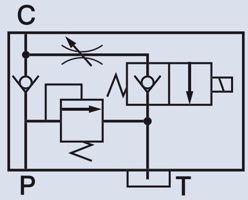
※Holes for bolt fixing: 2-ø7 Through

KVS-04TL





LIFT VALVE



How to order

HV2073 - T 03 - NC - ※ - A22

1 2 3 4 5 6

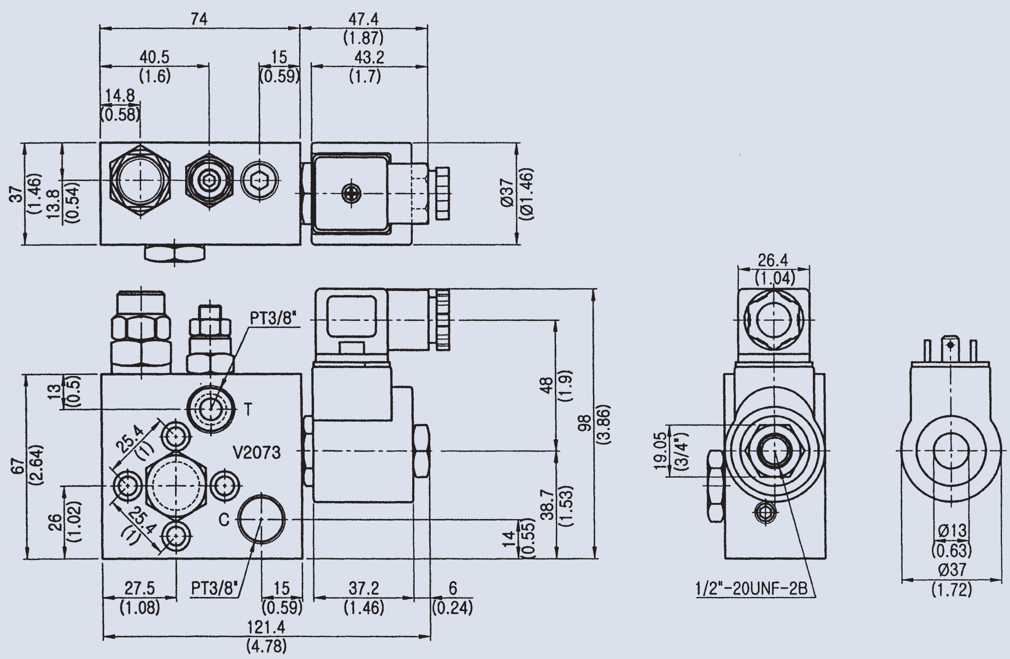
1	Model Aluminum alloy body Can be mounted on gear pump HGP-2A
2	Thread connection type
3	Port size 03: PT 3/8"
4	NC: Normal closed NO: Normal open
5	None: General use OM: With manual actuator
6	Voltage A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

Specifications

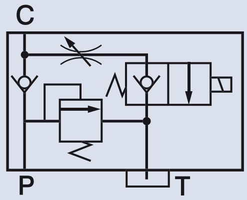
Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Rated Flow (lpm)	Weight (kg)
HV2073	250	20	15	0.93

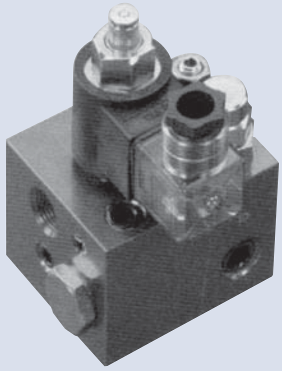
Dimensions

Unit: mm
(inch)



LIFT VALVE





How to order

HV2074 - T 03 - NC - ※ - A22

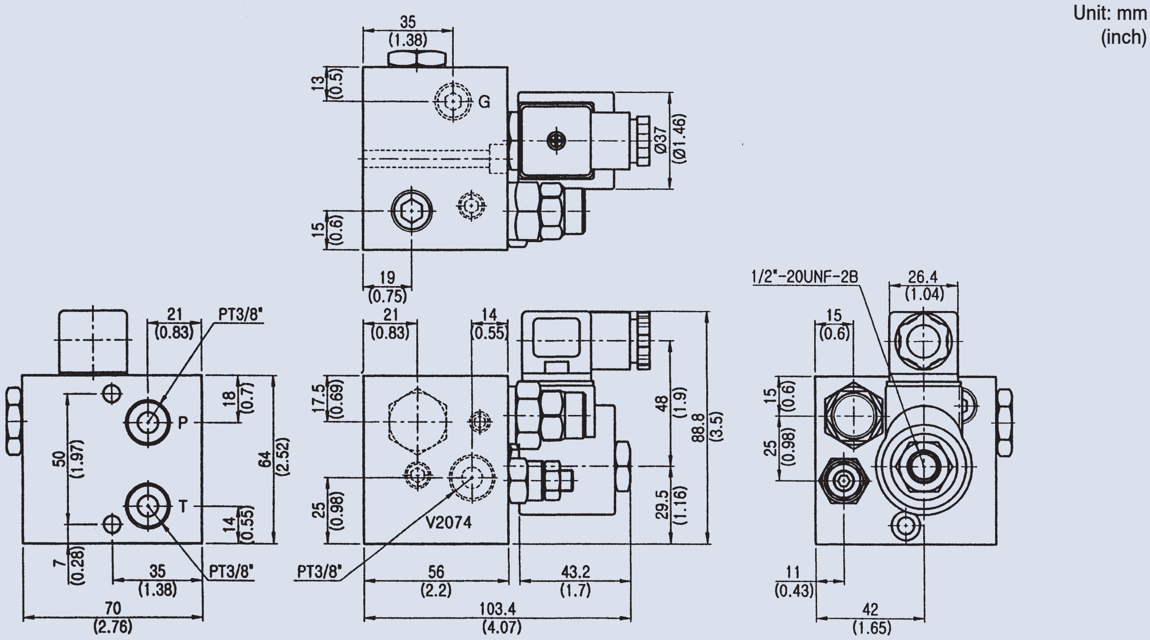
1 2 3 4 5 6

1	Model Aluminum alloy body
2	Thread connection type
3	Port size 03: PT 3/8"
4	NC: Normal closed NO: Normal open
5	None: General use OM: With manual actuator
6	Voltage A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

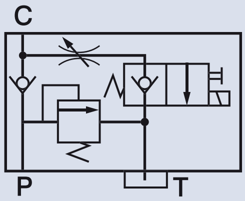
Specifications

Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Rated Flow (lpm)	Weight (kg)
HV2074	250	20	15	1.05

Dimensions



LIFT VALVE



How to order

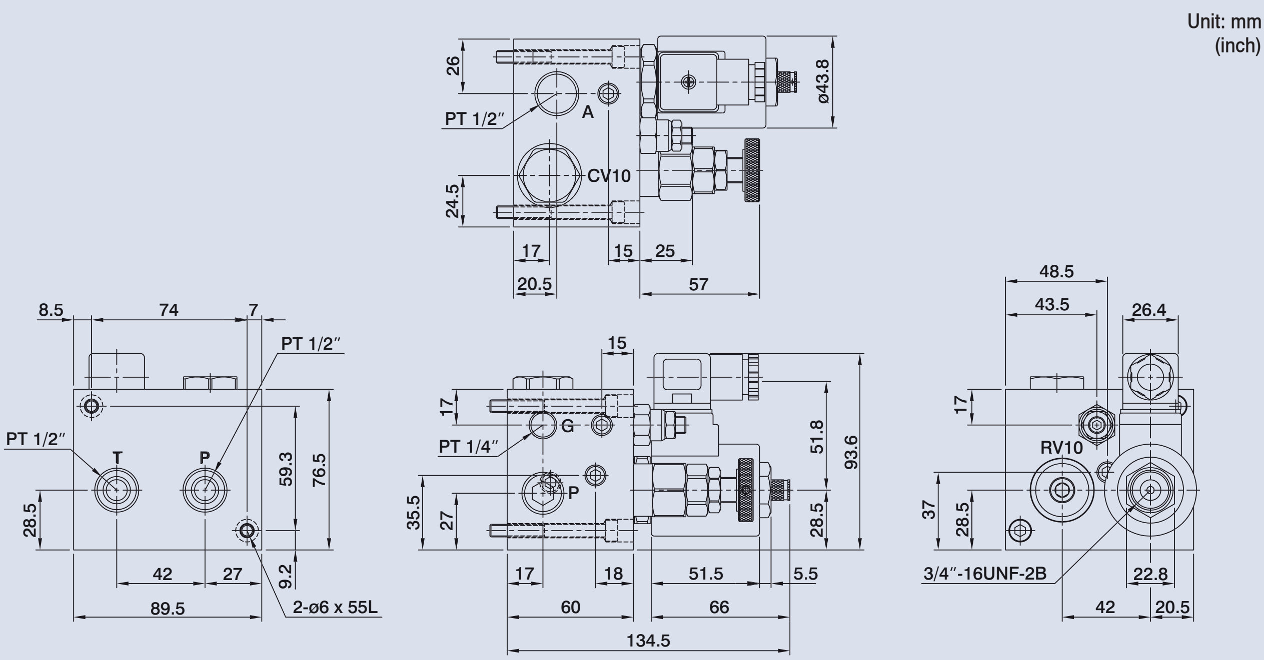
HV3074 - T 04 - NC - ※ - A22

1	Model Aluminum alloy body
2	Thread connection type
3	Port size 04: PT 1/2"
4	NC: Normal closed NO: Normal open
5	None: General use OM: With manual actuator
6	Voltage A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

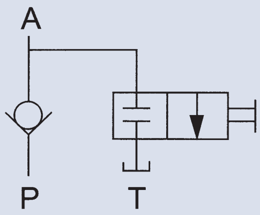
Specifications

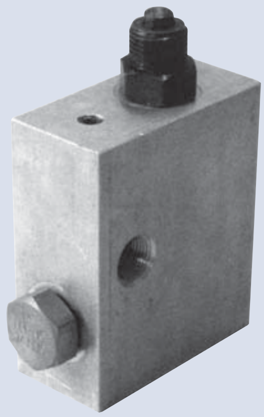
Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Rated Flow (lpm)	Weight (kg)
HV3074	250	50	45	1.6

Dimensions



LIFT VALVE





How to order

VLT - 03
1 2

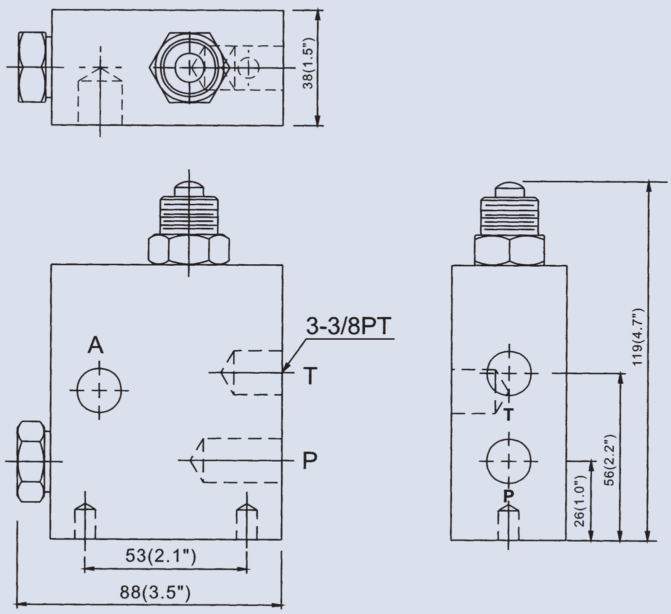
1	Model	Manual actuating
2	Port size	03: 3/8"

Specifications

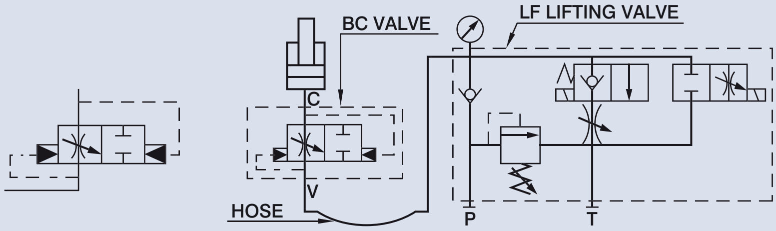
Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Rated Flow (lpm)	Weight (kg)
VLT-03	250	20	15	1

Dimensions

Unit: mm
(inch)



HOSE BURST PROTECTION VALVE



FUNCTION:

Under normal operation conditions, this valve is normally open. When the system flow going through this valve has a sudden increase over the preset flow velocity level due to system failure, hose burst, or over-load, this valve will shut off automatically to provide safety for operators.

FEATURES:

- The desired flow rate is adjustable and can be preset.
- Compact design provides ease for installation. If C port is mounted directly to T cylinder, the result is even better.

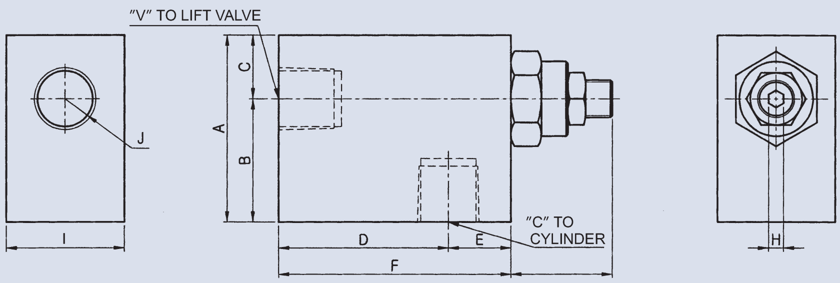
Specifications

Model	A	B	C	D	E	F	G	H	I	J	Max. Operating Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VF-30	38	25	13	36	15	51	25	4	25	PT3/8"	210	30	0.15
VF-80	50	33	17	46	17	63	31	4	32	PT1/2"	210	60	0.31
VF-120	63	42	21	52	20	72	30	4	44	PT3/4"	210	90	0.53
VF-160	50.8	25.4	25.4	53.5	29	82.5	25	6	50.8	PT1"	210	250	0.75

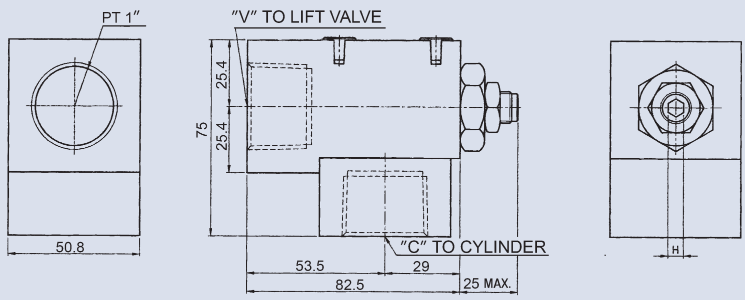
Dimensions

Unit: mm

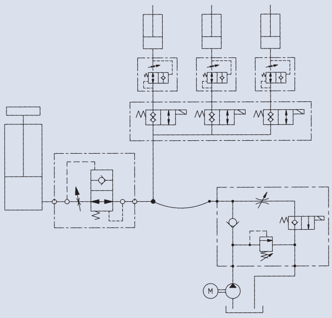
VF-30, 80, 120

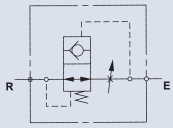


VF-160



HOSE BURST PROTECTION VALVE





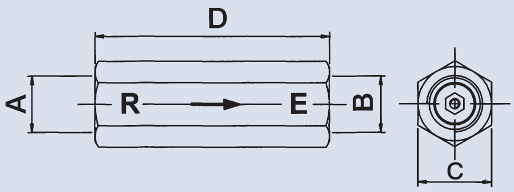
C

Specifications

Model	Popt Size	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VAS-02	G 1/4"		25	0.12
VAS-03	G 3/8"		50	0.15
VAS-04	G 1/2"	350	80	0.23
VAS-06	G 3/4"		150	0.36
VAS-08	G 1"		220	1.05

Dimensions / Performance curves

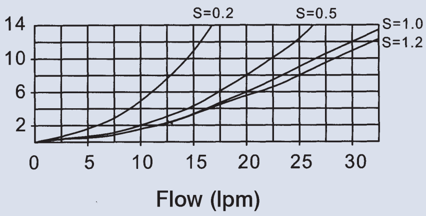
Unit: mm (inch)



Model	A	B	C	D
VAS-02	G 1/4"	G 1/4"	19 (0.75")	66 (2.6")
VAS-03	G 3/8"	G 3/8"	22 (0.86")	70 (2.76")
VAS-04	G 1/2"	G 1/2"	27 (1.06")	80 (3.15")
VAS-06	G 3/4"	G 3/4"	32 (1.26")	100 (3.94")
VAS-08	G 1"	G 1"	46 (1.81")	115 (4.53")

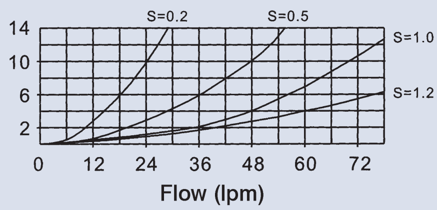
VAS-02

Pressure Drop (bar) **R-E**



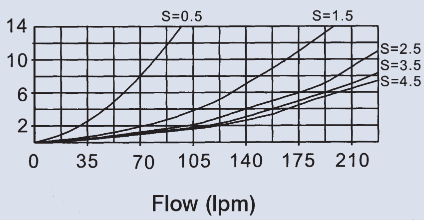
VAS-04

Pressure Drop (bar) **R-E**



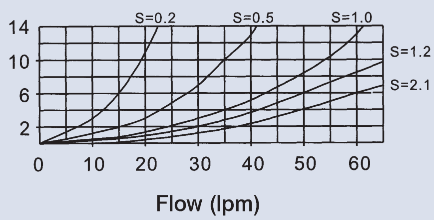
VAS-08

Pressure Drop (bar) **R-E**



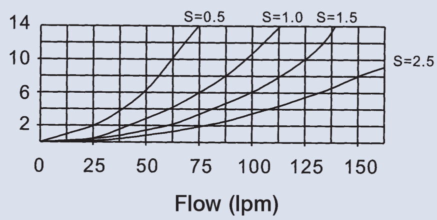
VAS-03

Pressure Drop (bar) **R-E**



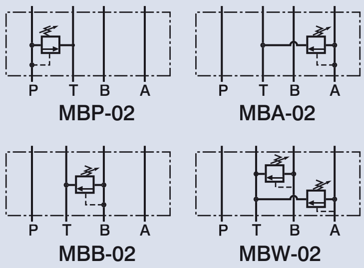
VAS-06

Pressure Drop (bar) **R-E**



MODULAR RELIEF VALVE

FEATURES:
- Back pressure in tank port should be as low as possible. (under 5 bar)
- In case the valves are used as safety valves, pressure setting should be higher than max. circuit pressure by 10~15 bar.



How to order

MB P - 02 - ※ - ※
1 2 3 4 5

1	Model
2	Control port P: P port A: A port B: B port W: A and B ports
3	Nominal valve size 02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
4	Pressure adjusting range B: 7~70 bar C: 7~140 bar H: 10~230 bar
5	Adjustment option None: Tool adjustment K: Hand-bar adjustment

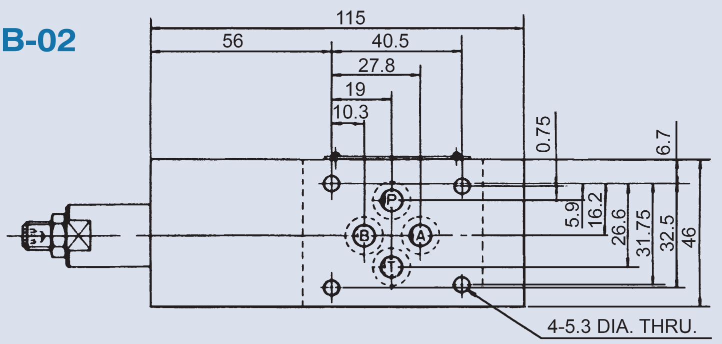
Specifications

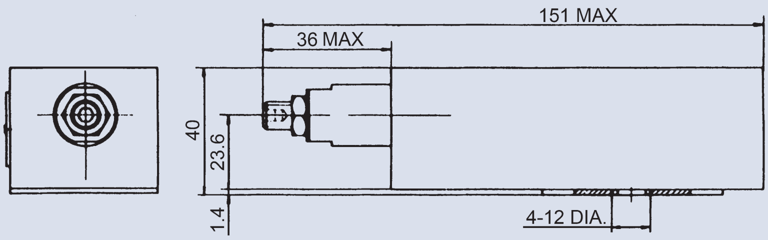
Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MBP-02	250	B: 7~70 C: 7~140 H: 10~230	35	1.4
MBA-02				1.4
MBB-02				1.4
MBW-02				2

Dimensions

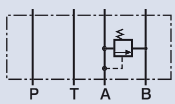
MBP-02, MBA-02, MBB-02

Unit: mm

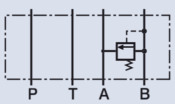




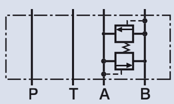
MODULAR BRAKE VALVE



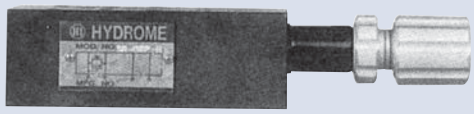
MRV-02-AD



MRV-02-BD



MRV-02-D



How to order

MRV - 02 - AD - ※ - ※

1 2 3 4 5

1	Model	
2	Nominal valve size	02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
3	Control port	
4	Pressure adjusting range	B: 10~70 bar H: 10~210 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

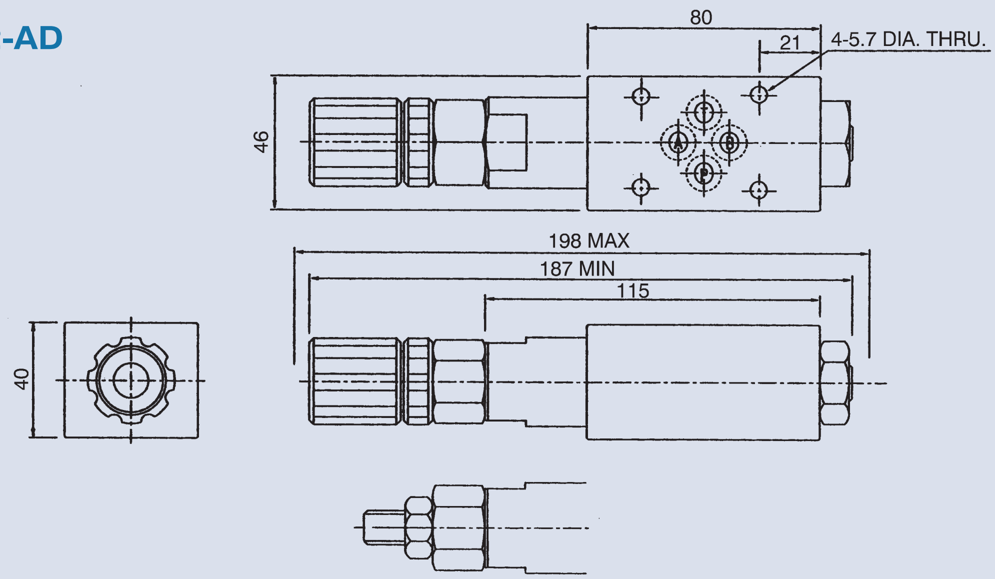
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MRV-02-AD	315	B: 10~70 H: 10~210	30	1.8
MRV-02-BD				1.8
MRV-02-D				2.0

Dimensions

MRV-02-AD

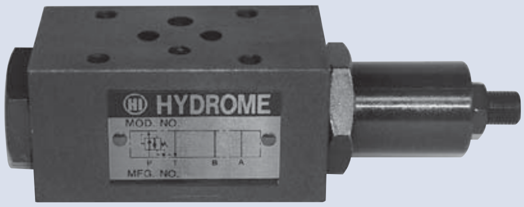
Unit: mm

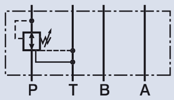


MODULAR PRESSURE REDUCING VALVE

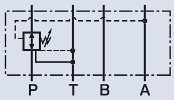
FEATURES:

- Drain port should be connected to tank.
- Pressure difference between primary pressure and secondary pressure should be maintained over 10 bar for good pressure reduction.
- Pressure cannot be adjusted if a certain flow rate cannot be obtained.

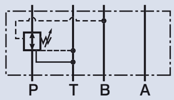




MRP-02



MRA-02



MRB-02

D

How to order

MR P - 02 - ※ - ※
1 2 3 4 5

1	Model
2	Control port P: P port A: A port B: B port
3	Nominal valve size 02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
4	Pressure adjustment range S: 3~35 bar B: 7~70 bar C: 35~140 bar
5	Adjustment option None: Tool adjustment K: Hand-bar adjustment

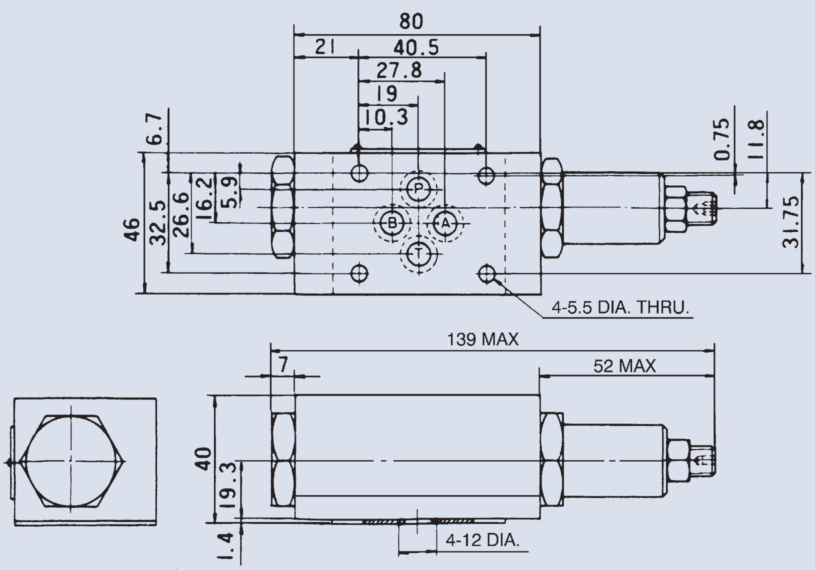
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MRP-02	210	S: 3~35	35	1.1
MRA-02		B: 7~70		1.1
MRB-02		C: 35~140		1.1

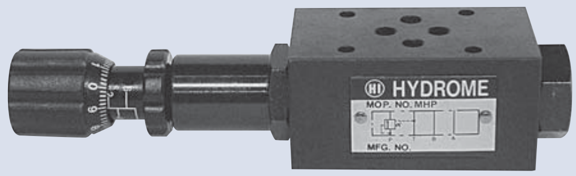
Dimensions

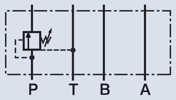
MRB-02

Unit: mm



MODULAR SEQUENCE VALVE





MHP-02

How to order

MH P - 02 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	P: P port
3	Nominal valve size	02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
4	Pressure adjusting range	C: 8~140 bar H: 10~210 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

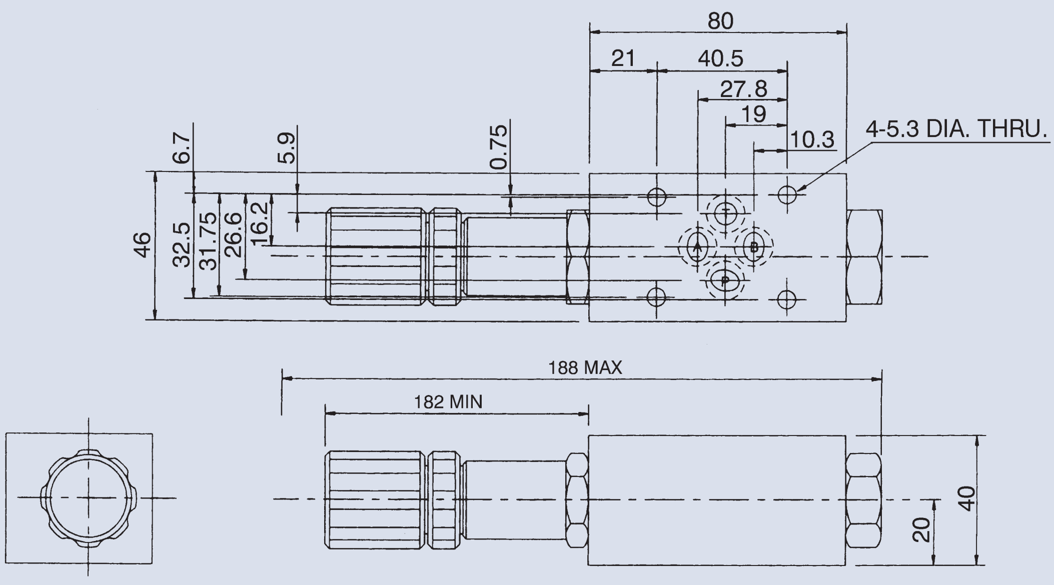
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MHP-02	230	C: 8~140 H: 10~210	40	1.2

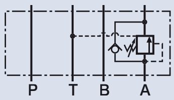
Dimensions

MHP-02

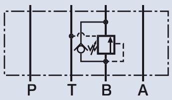
Unit: mm



MODULAR COUNTERBALANCE VALVE



MHA-02



MHB-02

D

How to order

MH A - 02 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	A: A port B: B port
3	Nominal valve size	02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
4	Pressure adjusting range	C: 7~140 bar H: 10~210 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

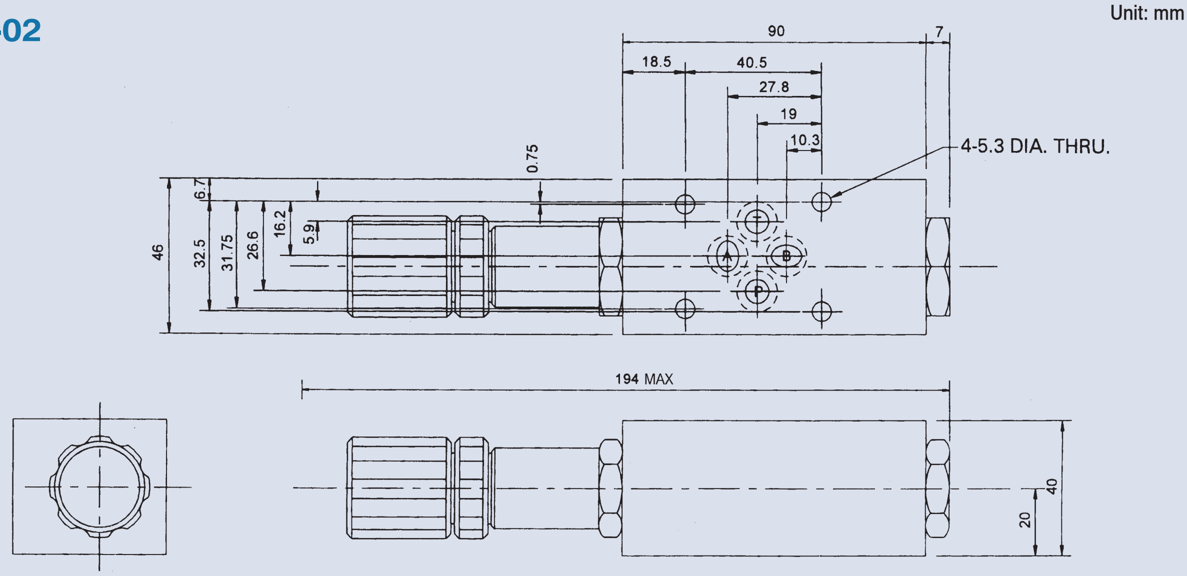
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MHA-02	230	C: 7~140 H: 10~210	40	1.4
MHB-02				1.4

Dimensions

MHB-02

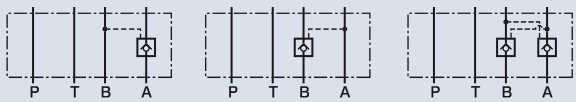
Unit: mm



MODULAR PILOT OPERATED CHECK VALVE

FEATURES:

- Area ratio: 2.5:1
- Cracking pressure of check valve is 2 bar.
- The valve is the internal drain type.



MPA-02 MPB-02 MPW-02

How to order

MP W - 02

1 2 3

1	Model	
2	Control port	A: A port B: B port W: A and B ports
3	Nominal valve size	02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)

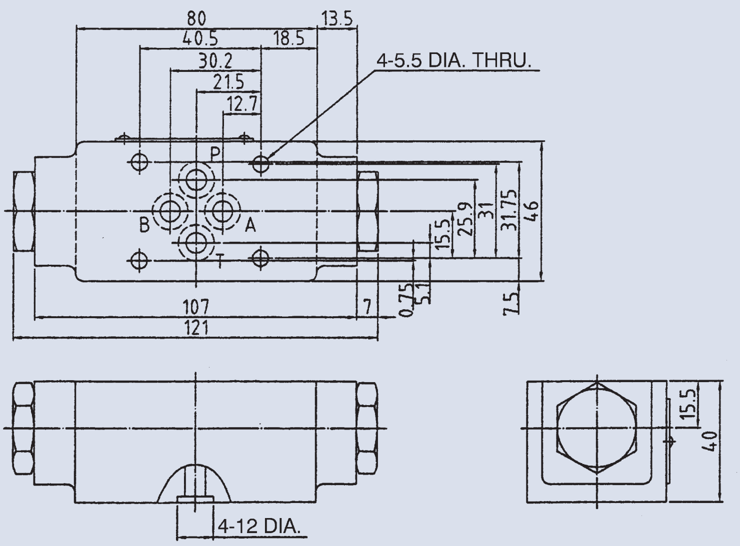
Specifications

Model	Max. Operating Pressure (bar)	Cracking Pressure (bar)	Max. Flow (lpm)	Weight (kg)
MPA-02				1.0
MPB-02	280	2: 2 4: 4	35	1.0
MPW-02				1.1

Dimensions

MPW-02

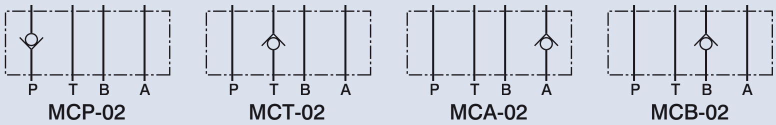
Unit: mm



MODULAR CHECK VALVE

FEATURES:

- When the valve is installed upside down by means of the gasket plate, P port check type is changed to T port check type and T port check type to P port check type.



How to order

MC P - 02 - ※
1 2 3 4

1	Model	
2	Control port	P: P port T: T port A: A port B: B port
3	Nominal valve size	02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
4	Cracking pressure	0: 0.35 bar 2: 2 bar

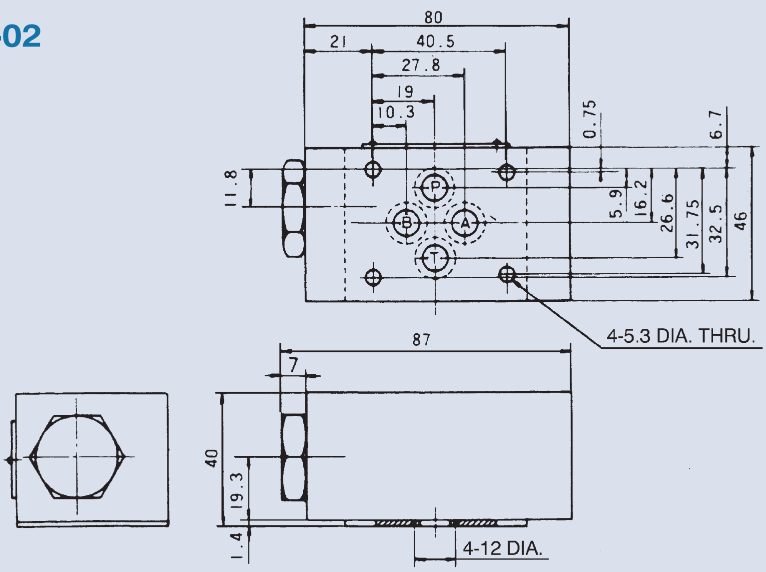
Specifications

Model	Max. Operating Pressure (bar)	Cracking Pressure (bar)	Max. Flow (lpm)	Weight (kg)
MCP-02	280	0: 0.35 2: 2	35	0.9
MCT-02				0.9
MCA-02				1.0
MCB-02				1.0

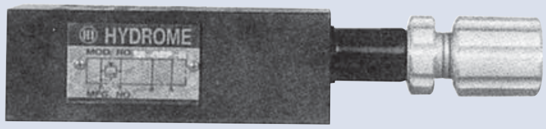
Dimensions

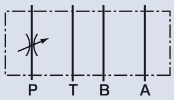
MCP-02, MCT-02

Unit: mm

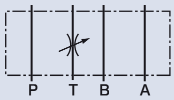


MODULAR THROTTLE VALVE





MSP-02



MST-02

How to order

MS P - 02 - ※
(1: MS, 2: P, 3: 02, 4: ※)

1	Model	
2	Control port	P: P port T: T port
3	Nominal valve size	02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
4	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

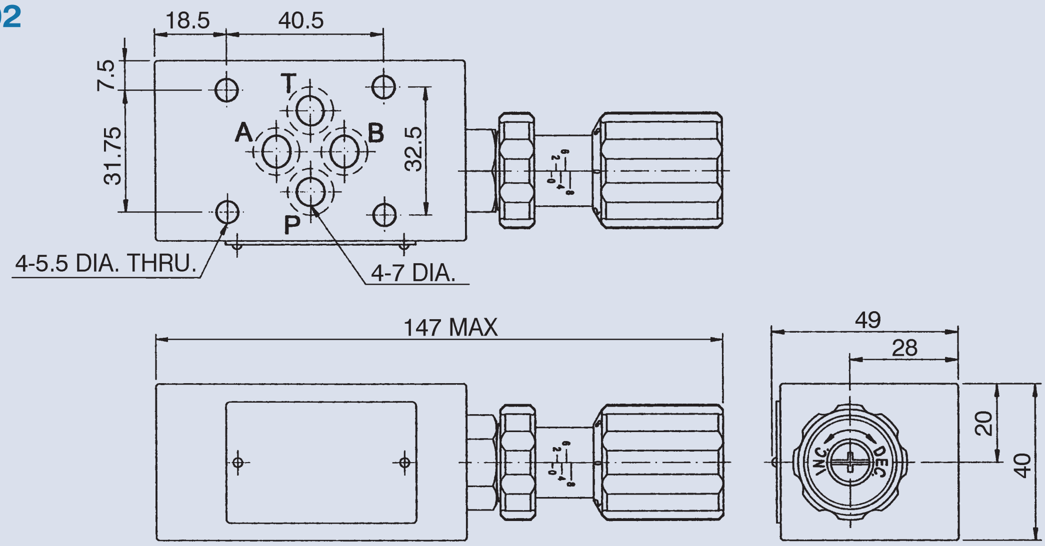
Specifications

Model	Max. Operating Pressure (bar)	Flow Adj. Range (lpm)	Max. Flow (lpm)	Weight (kg)
MSP-02	280	0.3~25	50	1.2
MST-02				1.2

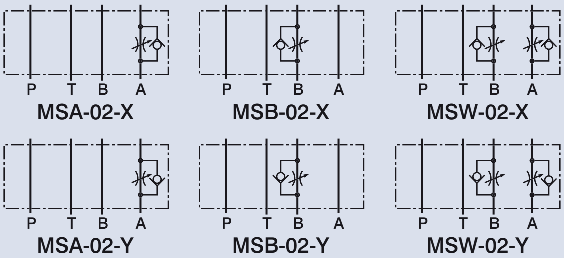
Dimensions

MSP-02

Unit: mm



MODULAR THROTTLE AND CHECK VALVE



D

How to order

MS W - 02 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	A: A port B: B port W: A and B ports
3	Nominal valve size	02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
4	Control type	X: Meter-out Y: Meter-in
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

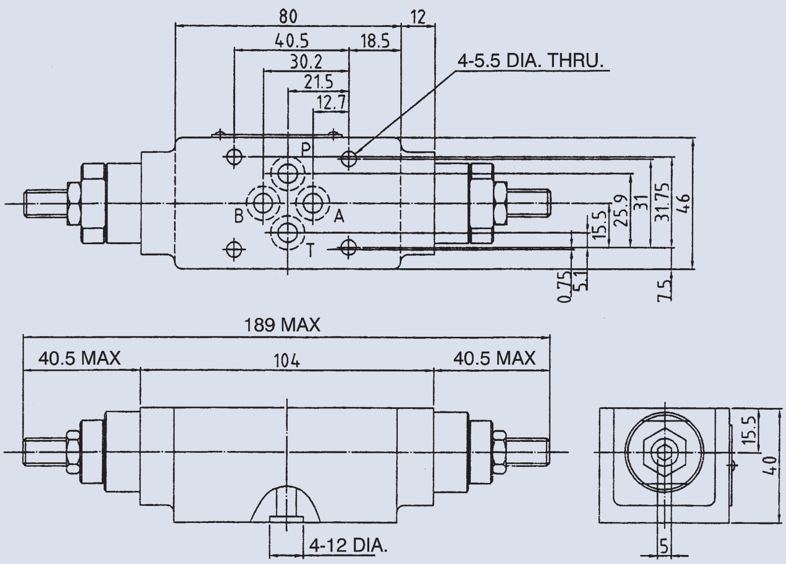
Specifications

Model	Max. Operating Pressure (bar)	Flow Adj. Range (lpm)	Max. Flow (lpm)	Weight (kg)
MSA-02	280	0.3~25	50	1.1
MSB-02				1.1
MSW-02				1.3

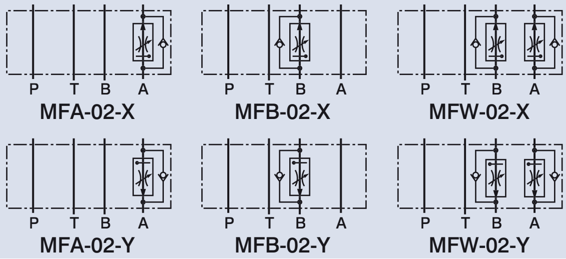
Dimensions

MSW-02

Unit: mm



MODULAR PRESSURE AND TEMPERATURE COMPENSATED FLOW CONTROL VALVE



D

How to order

MF W - 02 - ※
1 2 3 4

1	Model	
2	Control port	A: A port B: B port W: A and B ports
3	Nominal valve size	02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
4	Control type	X: Meter-out Y: Meter-in

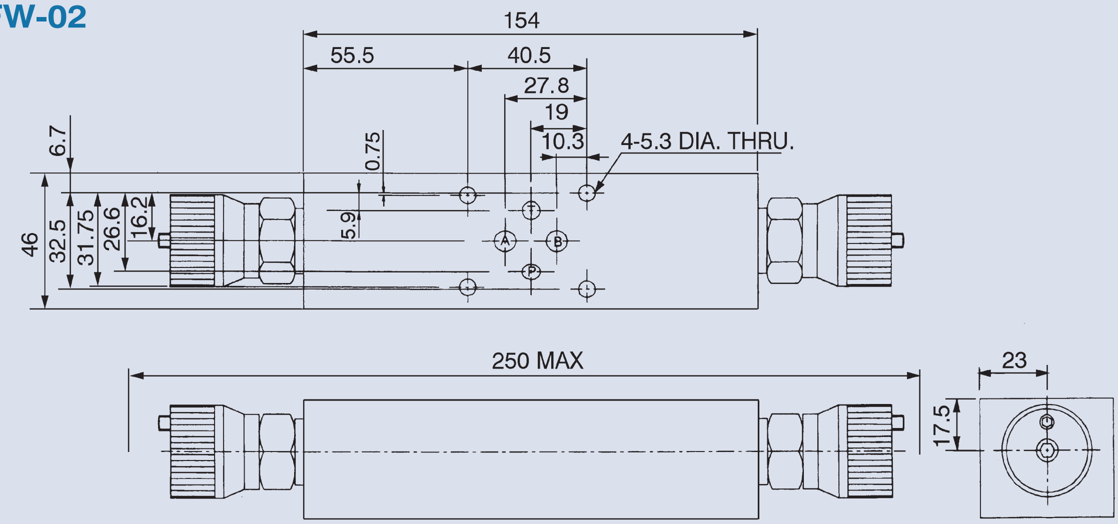
Specifications

Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Weight (kg)
MFA-02	210	35	2.0
MFB-02			2.0
MFW-02			2.2

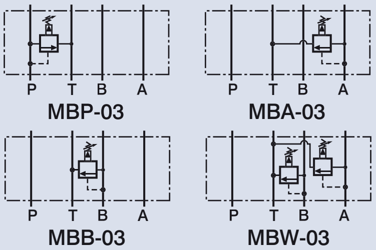
Dimensions

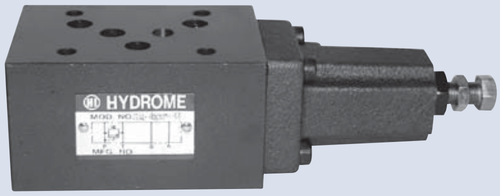
MFW-02

Unit: mm



MODULAR RELIEF VALVE





D

How to order

MB P - 03 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	P: P port A: A port B: B port W: A and B ports
3	Nominal valve size	03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
4	Pressure adjusting range	B: 7~70 bar H: 10~230 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

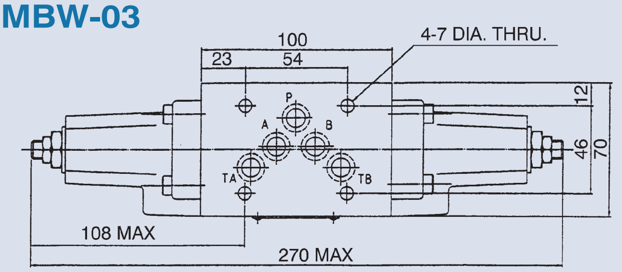
Specifications

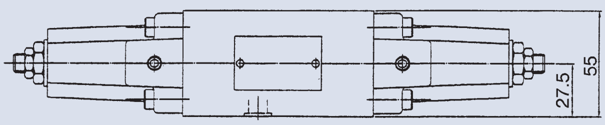
Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MBP-03	250	B: 7~70 H: 10~230	70	3.5
MBA-03				3.5
MBB-03				3.5
MBW-03				4.3

Dimensions

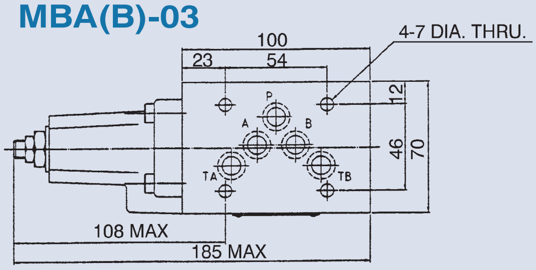
Unit: mm

MBW-03

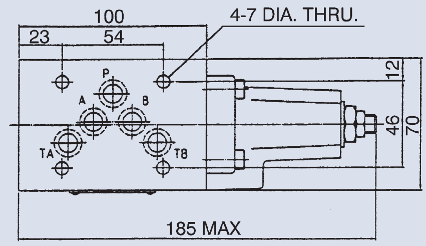




MBA(B)-03



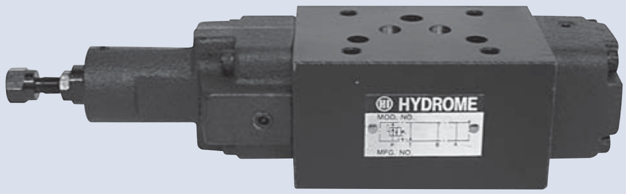
MBP-03

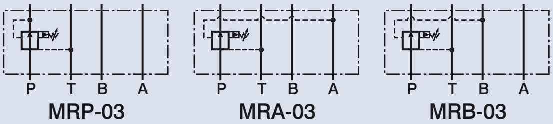


MODULAR PRESSURE REDUCING VALVE

FEATURES:

- Drain port should be connected to tank.
- Pressure difference between primary pressure and secondary pressure should be maintained over 10 bar for good pressure reduction.





D

How to order

MR P - 03 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	P: P port A: A port B: B port
3	Nominal valve size	03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
4	Pressure adjusting range	S: 3~35 bar B: 7~70 bar C: 35~140 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

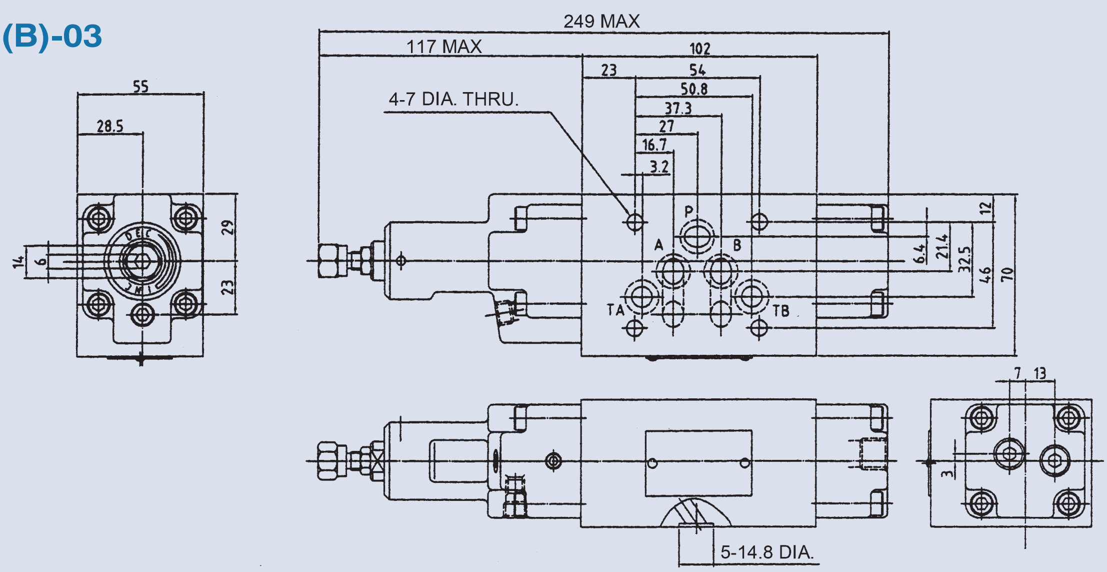
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MRP-03	210	S: 3~35	70	4.0
MRA-03		B: 7~70		4.0
MRB-03		C: 35~140		4.0

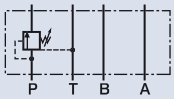
Dimensions

MRP(B)-03

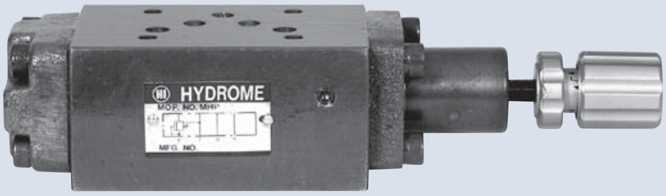
Unit: mm



MODULAR SEQUENCE VALVE



MHP-03



D

How to order

MHP - 03 - ※ - ※
1 2 3 4

1	Model	
2	Nominal valve size	03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
3	Pressure adjusting range	B: 10~70 bar H: 20~210 bar
4	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

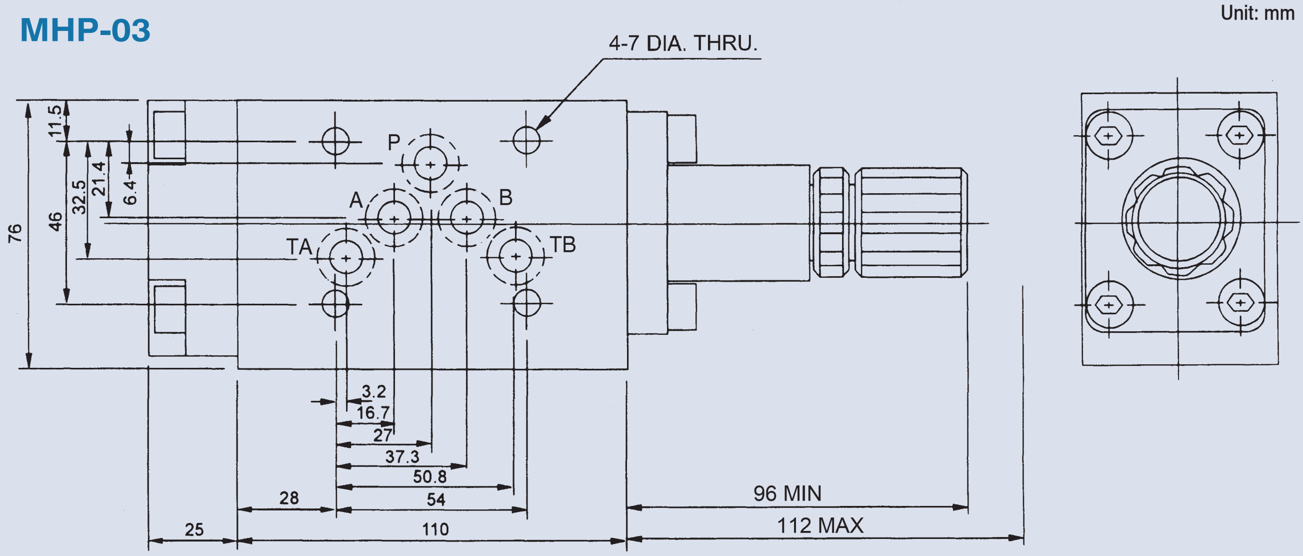
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MHP-03	230	B: 10~70 H: 20~210	80	4.2

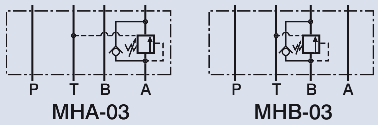
Dimensions

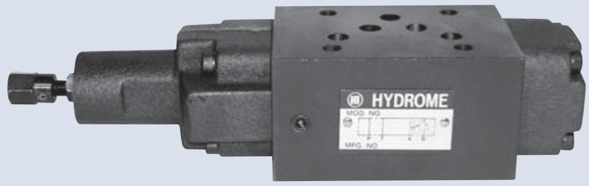
MHP-03

Unit: mm



MODULAR COUNTERBALANCE VALVE





How to order

MH A - 03 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	A: A port B: B port
3	Nominal valve size	03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
4	Pressure adjustment range	B: 8~70 bar H: 20~210 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

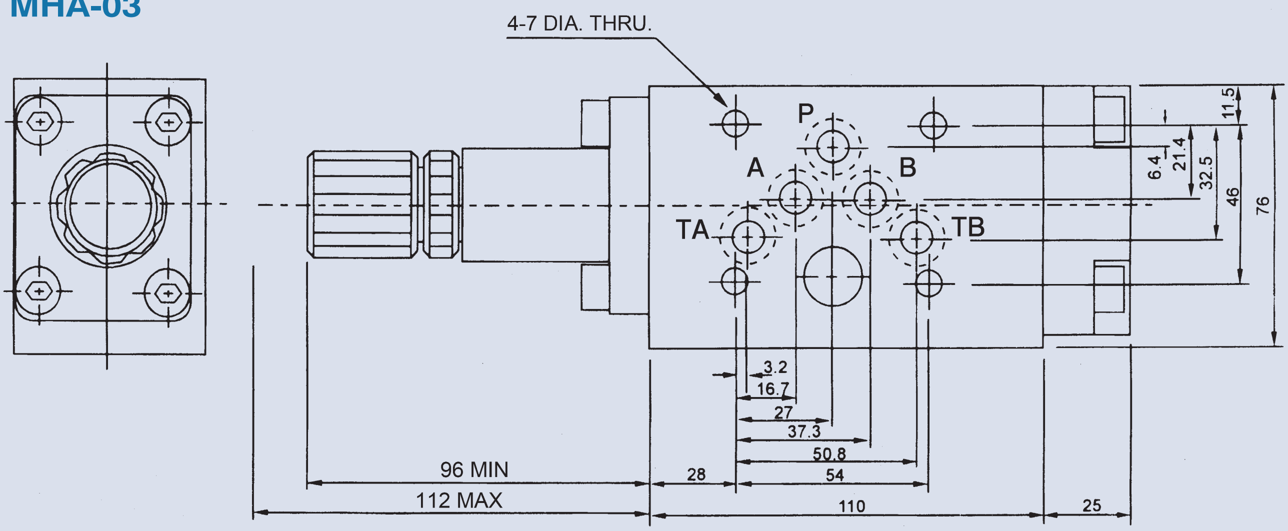
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MHA-03	230	B: 8~70 H: 20~210	70	4.2
MHB-03				4.2

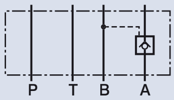
Dimensions

MHA-03

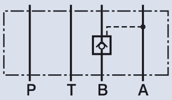
Unit: mm



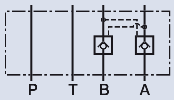
MODULAR PILOT OPERATED CHECK VALVE



MPA-03



MPB-03



MPW-03

D

How to order

MP W - 03
1 2 3

1	Model	
2	Control port	A: A port B: B port W: A and B ports
3	Nominal valve size	03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)

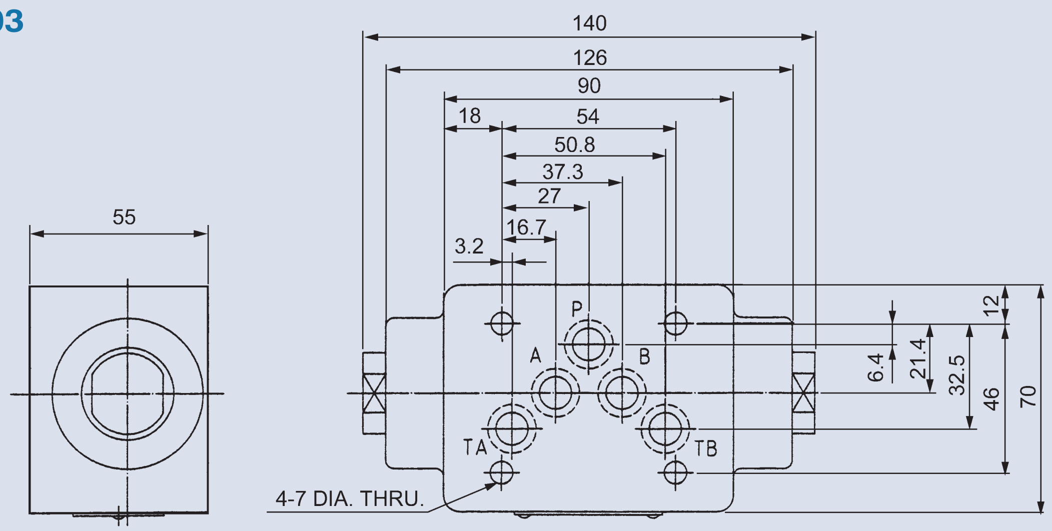
Specifications

Model	Max. Operating Pressure (bar)	Cracking Pressure (bar)	Max. Flow (lpm)	Weight (kg)
MPA-03				3.0
MPB-03	250	2: 2 4: 4	70	3.0
MPW-03				3.2

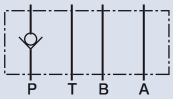
Dimensions

MPW-03

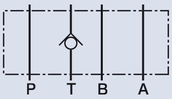
Unit: mm



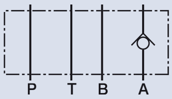
MODULAR CHECK VALVE



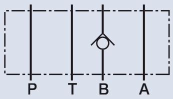
MCP-03



MCT-03



MCA-03



MCB-03

How to order

MC P - 03 - ※
1 2 3 4

1	Model	
2	Control port	P: P port T: T port A: A port B: B port
3	Nominal valve size	03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
4	Cracking pressure	0: 0.35 bar 2: 2 bar

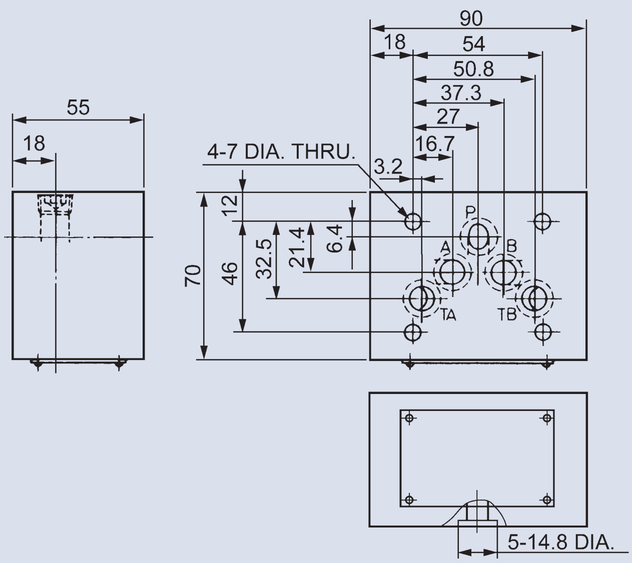
Specifications

Model	Max. Operating Pressure (bar)	Cracking Pressure (bar)	Max. Flow (lpm)	Weight (kg)
MCP-03	250	0: 0.35 2: 2	70	2.1
MCT-03				2.1
MCA-03				2.8
MCB-03				2.8

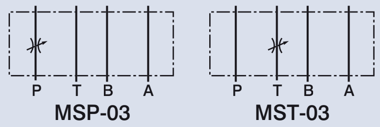
Dimensions

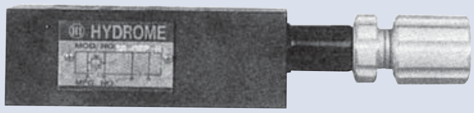
MCP-03

Unit: mm



MODULAR THROTTLE VALVE





D

How to order

MS P - 03 - ※
1 2 3 4

1	Model	
2	Control port	P: P port T: T port
3	Nominal valve size	03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
4	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

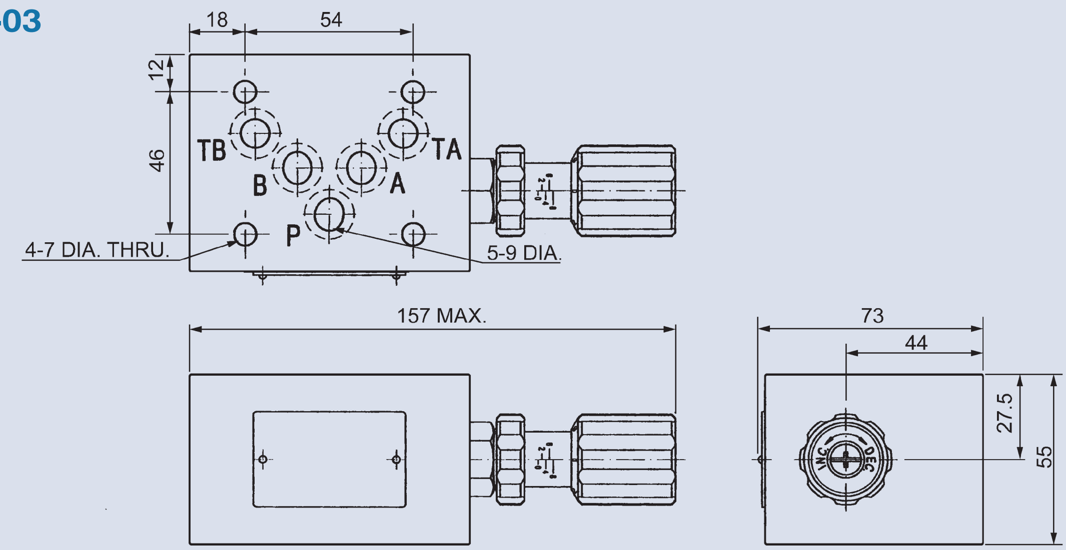
Specifications

Model	Max. Operating Pressure (bar)	Flow Adj. Range (lpm)	Max. Flow (lpm)	Weight (kg)
MSP-03	250	0.5~60	70	2.5
MST-03				2.5

Dimensions

MSP-03

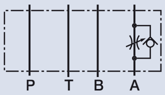
Unit: mm



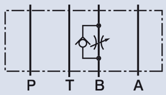
MODULAR THROTTLE AND CHECK VALVE

FEATURES:

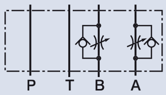
- Clockwise rotation of the adjusting screw reduces flow rate and counterclockwise rotation increases it.
- Since the valve is of the spool type, oil flow cannot be shut off completely.



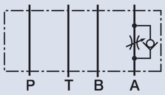
MSA-03-X



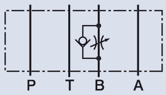
MSB-03-X



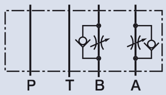
MSW-03-X



MSA-03-Y



MSB-03-Y



MSW-03-Y

D

How to order

MS W - 03 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	A: A port B: B port W: A and B ports
3	Nominal valve size	03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
4	Control type	X: Meter-out Y: Meter-in
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

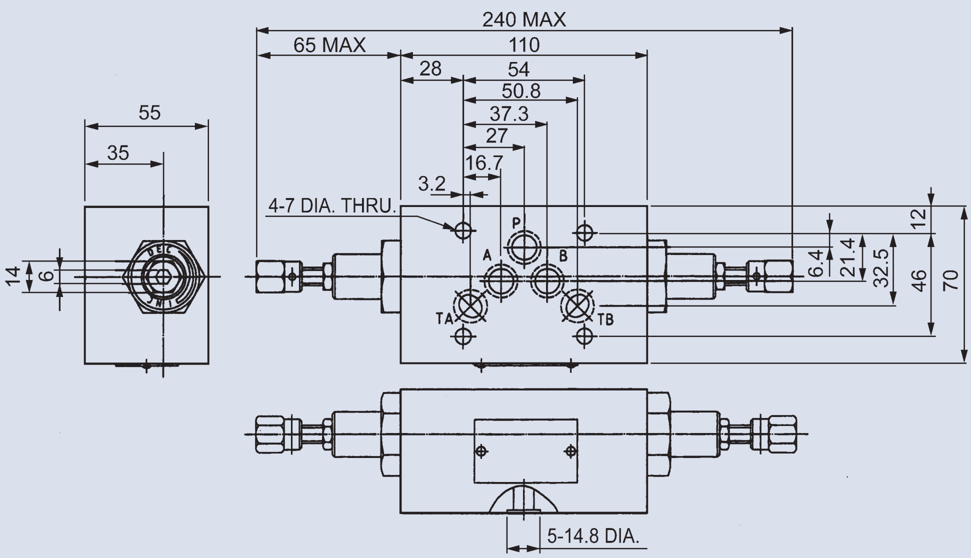
Specifications

Model	Max. Operating Pressure (bar)	Flow Adj. Range (lpm)	Max. Flow (lpm)	Weight (kg)
MSA-03	250	0.5~60	70	2.3
MSB-03				2.3
MSW-03				3.1

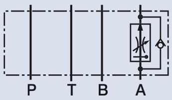
Dimensions

MSA-03

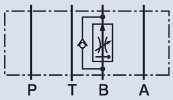
Unit: mm



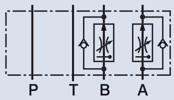
MODULAR PRESSURE AND TEMPERATURE COMPENSATED FLOW CONTROL VALVE



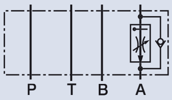
MFA-03-X



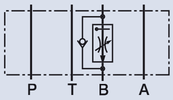
MFB-03-X



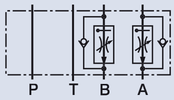
MFW-03-X



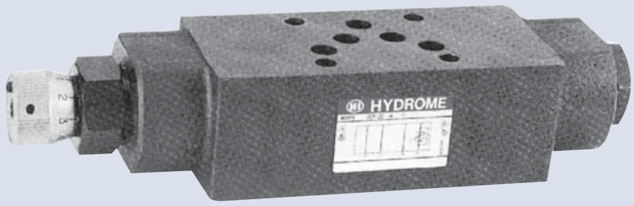
MFA-03-Y



MFB-03-Y



MFW-03-Y



How to order

MF W - 03 - ※
1 2 3 4

1	Model	
2	Control port	A: A port B: B port W: A and B ports
3	Nominal valve size	03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
4	Control type	X: Meter-out Y: Meter-in

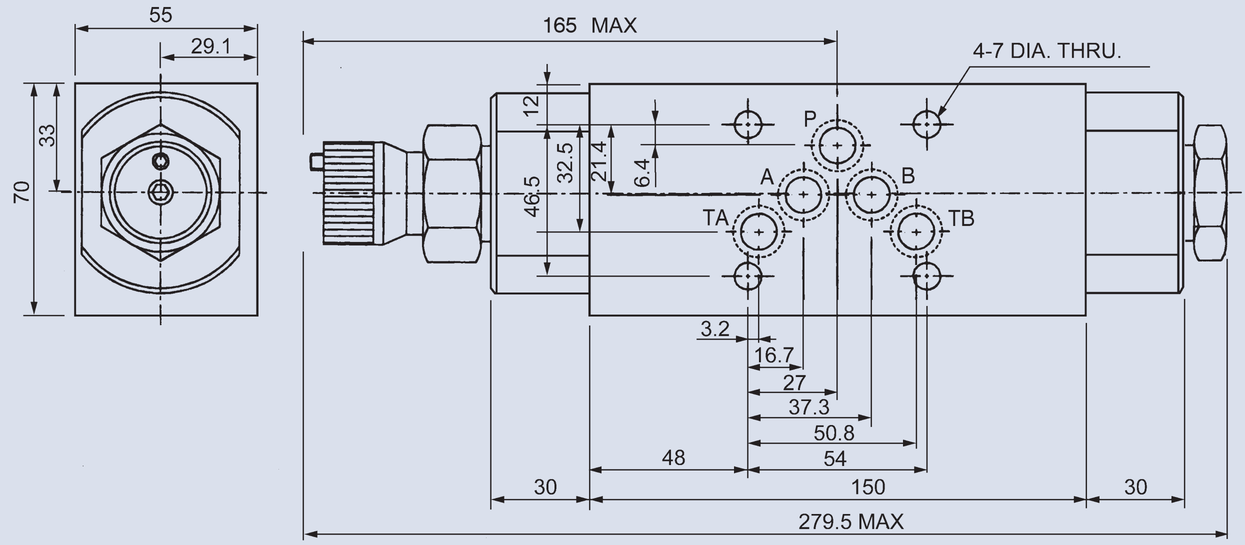
Specifications

Model	Max. Operating Pressure (bar)	Max. Flow (lpm)	Weight (kg)
MFA-03	210	80	5.0
MFB-03			5.0
MFW-03			5.5

Dimensions

MFA-03

Unit: mm



D

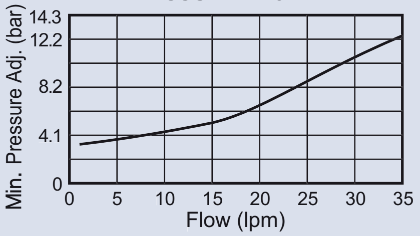
PERFORMANCE CURVES FOR MODULAR VALVES-MBP(A,B)-02, MRP(A,B)-02, MHA(B)-02

Performance curves

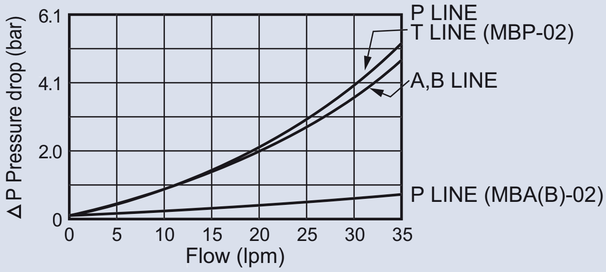
Test fluid viscosity: 35 cst
Test temperature: 50 ˚C

MBP(A,B)-02

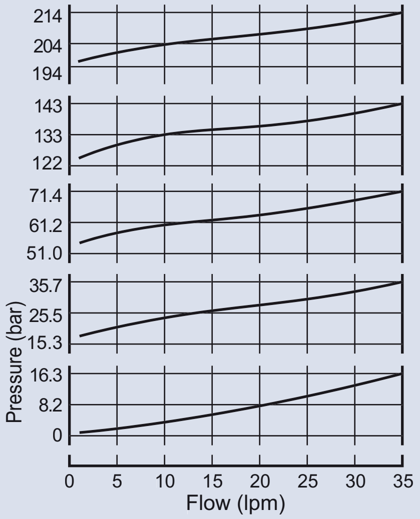
MIN. PRESSURE ADJ.



PRESSURE DROP

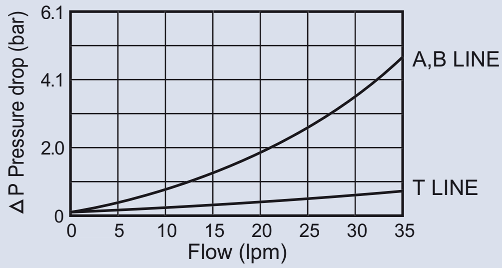


NOMINAL OVERRIDE

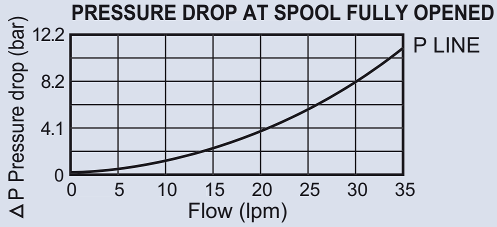


MRP(A,B)-02

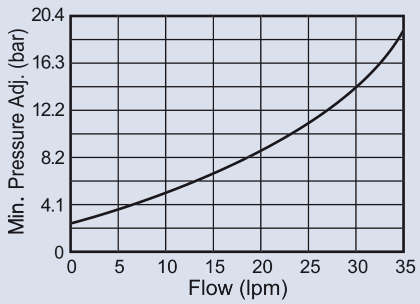
PRESSURE DROP



PRESSURE DROP AT SPOOL FULLY OPENED

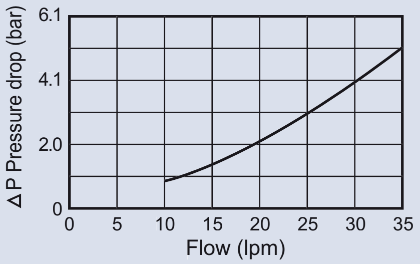


MIN. PRESSURE ADJ. V.S MAX. FLOW

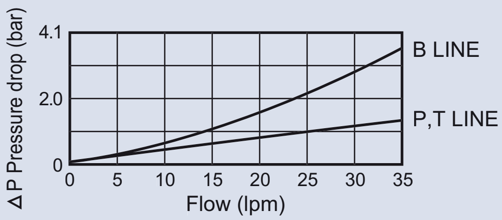


MHA(B)-02

PRESSURE DROP FOR FREE FLOW



PRESSURE DROP



PERFORMANCE CURVES FOR MODULAR VALVES-MSW(A,B)-02, MPW(A,B)-02, MCP(T,A,B)-02

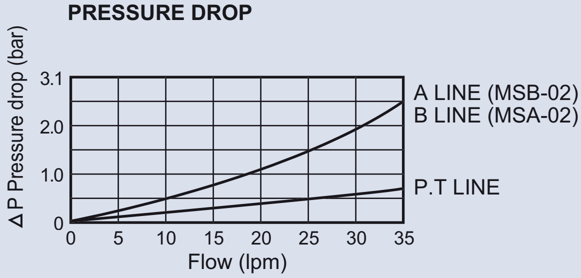
D

Performance curves

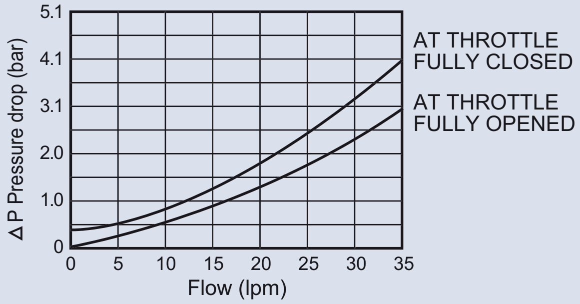
Test fluid viscosity: 35 cst
Test temperature: 50 ˚C

MSW(A,B)-02

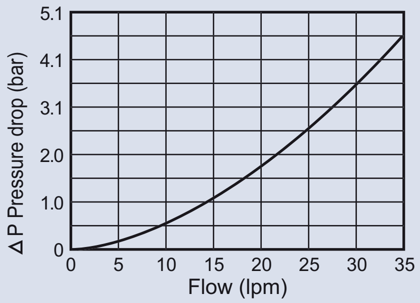
PRESSURE DROP



PRESSURE DROP FOR FREE FLOW

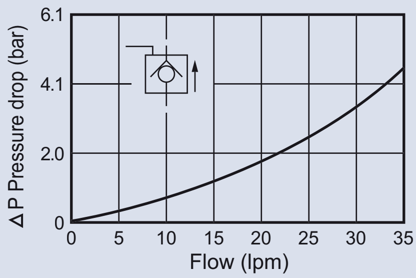


PRESSURE DROP AT THROTTLE FULLY OPENED

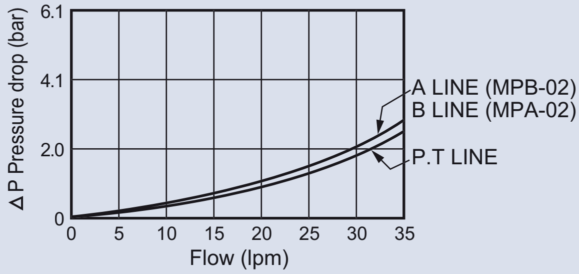


MPW(A,B)-02

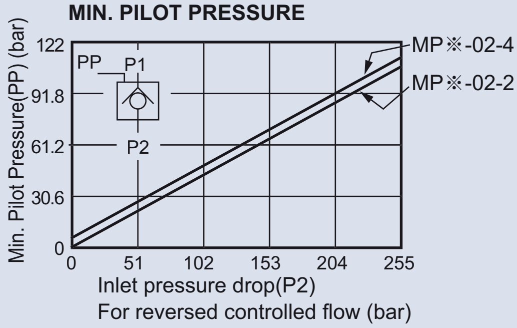
PRESSURE DROP FOR REVERSE CONTROLLED FLOW



PRESSURE DROP

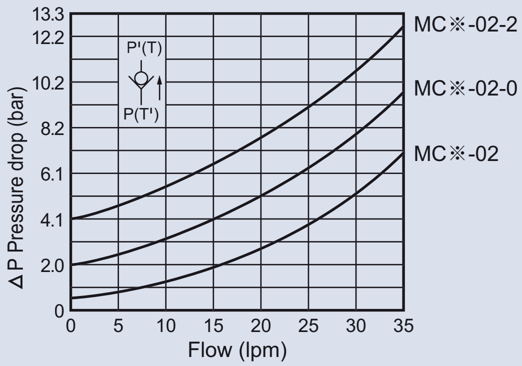


MIN. PILOT PRESSURE

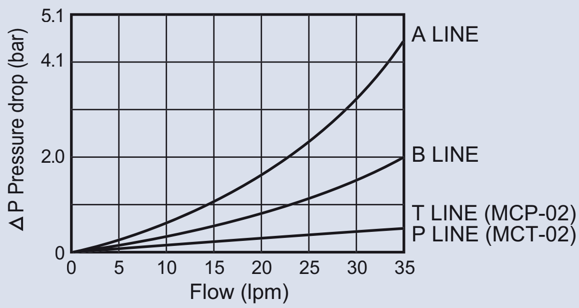


MCP(T,A,B)-02

PRESSURE DROP FOR FREE FLOW



PRESSURE DROP



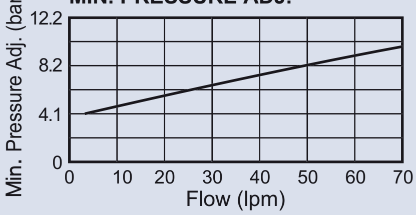
PERFORMANCE CURVES FOR MODULAR VALVES-MBP(A,B)-03, MRP(A,B)-03, MHA(B)-03

Performance curves

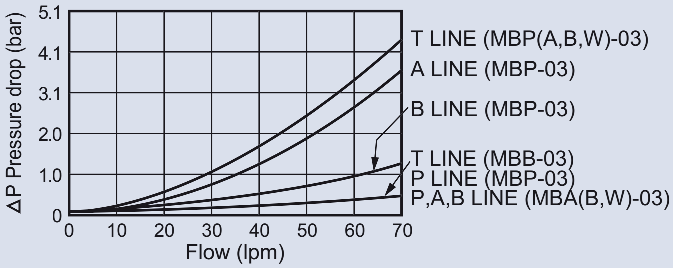
Test fluid viscosity: 35 cst
Test temperature: 50 ˚C

MBP(A,B)-03

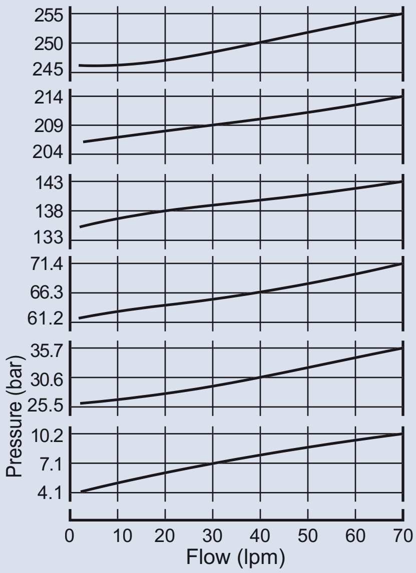
MIN. PRESSURE ADJ.



PRESSURE DROP

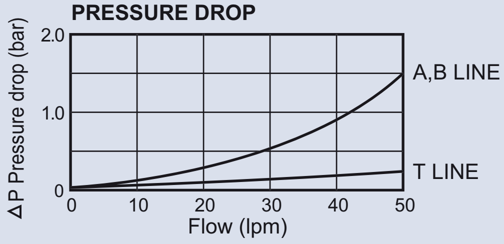


NOMINAL OVERRIDE

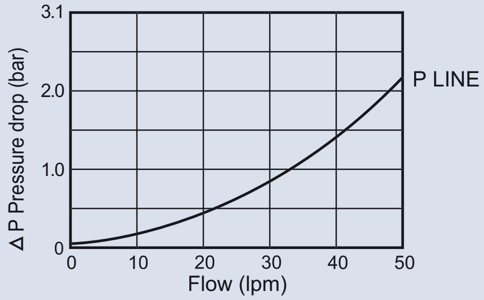


MRP(A,B)-03

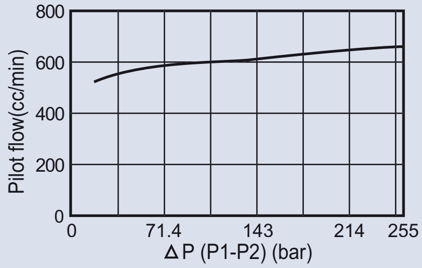
PRESSURE DROP



PRESSURE DROP AT SPOOL FULLY OPENED

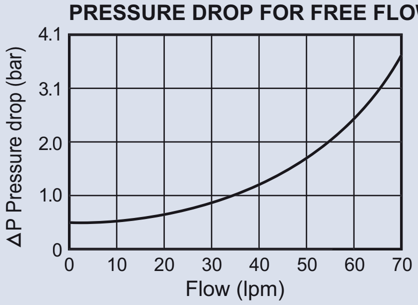


PILOT FLOW

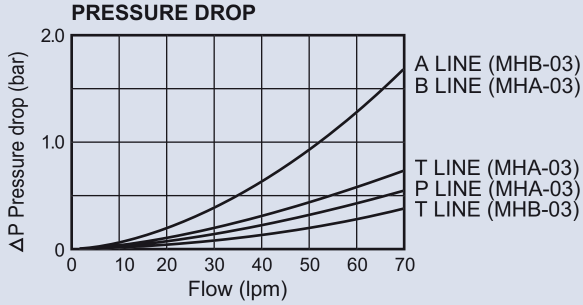


MHA(B)-03

PRESSURE DROP FOR FREE FLOW



PRESSURE DROP

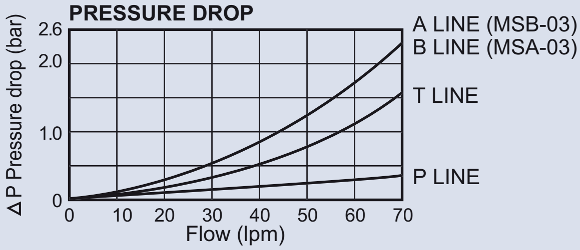


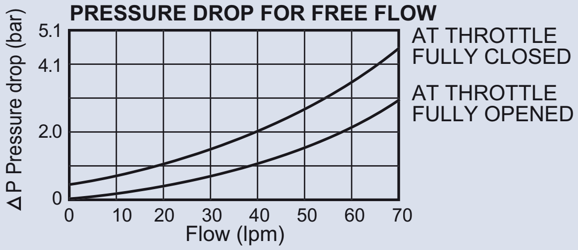
PERFORMANCE CURVES FOR MODULAR VALVES-MSW(A,B)-03, MPW(A,B)-03, MCP(T,A,B)-03

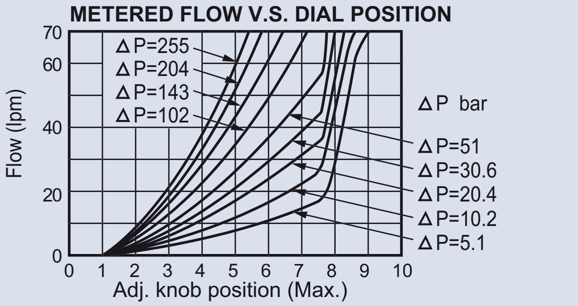
Performance curves

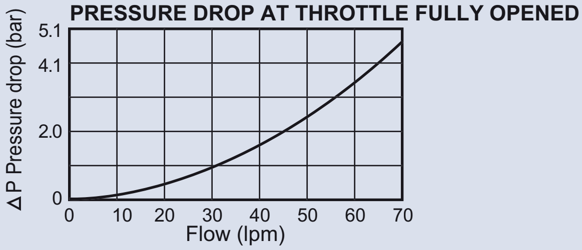
Test fluid viscosity: 35 cst
Test temperature: 50 ˚C

MSW(A,B)-03

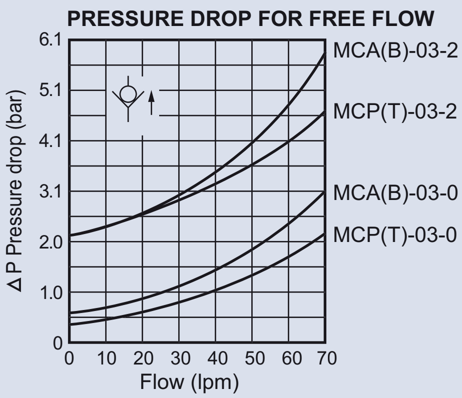




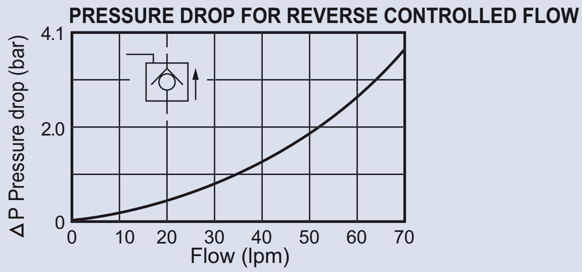


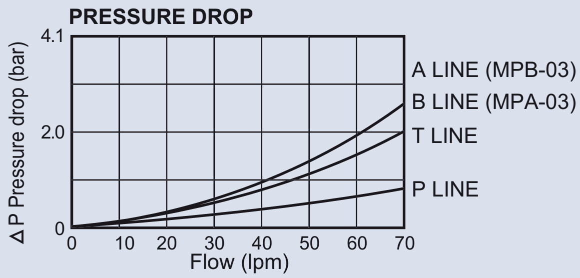


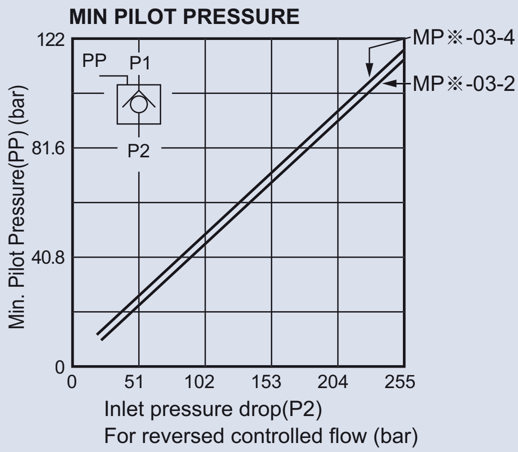
MCP(T,A,B)-03

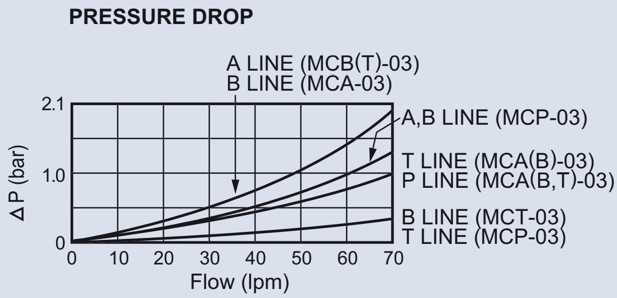


MPW(A,B)-03

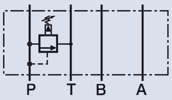




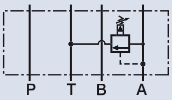




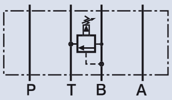
MODULAR RELIEF VALVE



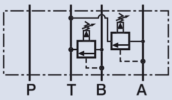
MBP-04



MBA-04



MBB-04



MBW-04

How to order

MB P - 04 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	P: P port A: A port B: B port W: A and B ports
3	Nominal valve size	04: 1/2" (ISO CETOP 7, NFPA D07, DIN NG 16)
4	Pressure adjusting range	B: 3~100 bar H: 7~315 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

Specifications

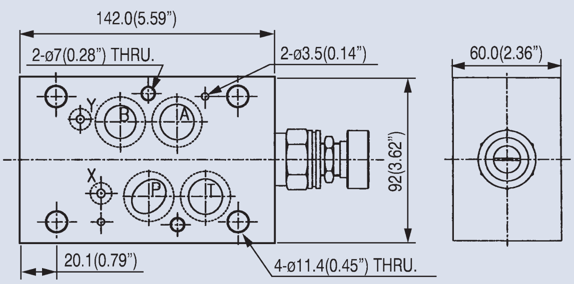
Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MBP-04	315	B: 3~100 H: 7~315	200	6.0
MBA-04				6.0
MBB-04				6.0
MBW-04				7.0

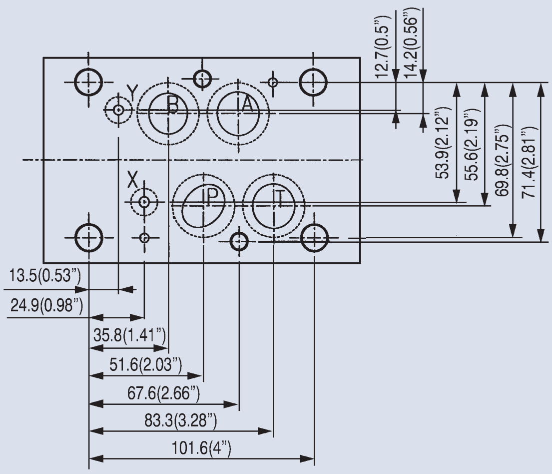
Dimensions

MBP-04

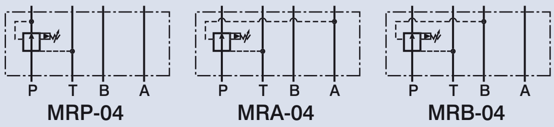
Mounting interface
ISO 4401-AD-07-4-A

Unit: mm
(inch)





MODULAR PRESSURE REDUCING VALVE



D

How to order

MR P - 04 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	P: P port A: A port B: B port
3	Nominal valve size	04: 1/2" (ISO CETOP 7, NFPA D07, DIN NG 16)
4	Pressure adjusting range	B: 8~70 bar C: 8~140 bar H: 10~250 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

Specifications

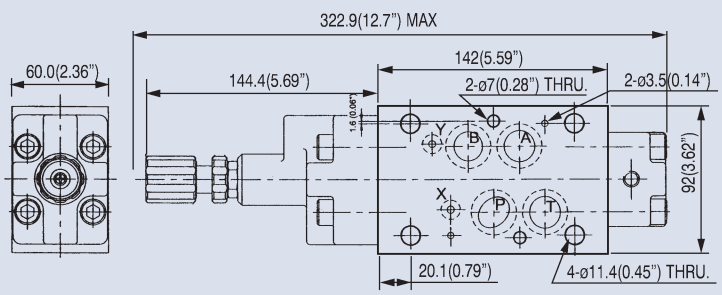
Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MRP-04	350	B: 8~70	300	7.5
MRA-04		C: 8~140		7.5
MRB-04		H: 10~250		7.5

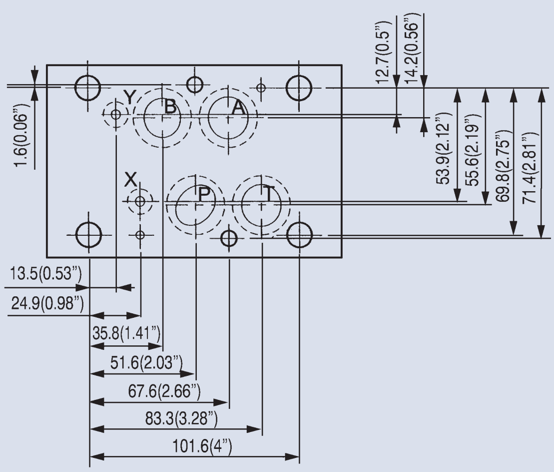
Dimensions

MRP-04

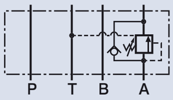
Mounting interface
ISO 4401-AD-07-4-A

Unit: mm
(inch)

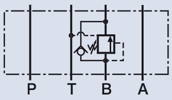




MODULAR COUNTERBALANCE VALVE



MHA-04



MHB-04

D

How to order

MH A - 04 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	A: A port B: B port
3	Nominal valve size	04: 1/2" (ISO CETOP 7, NFPA D07, DIN NG 16)
4	Pressure adjusting range	B: 8~70 bar C: 10~140 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

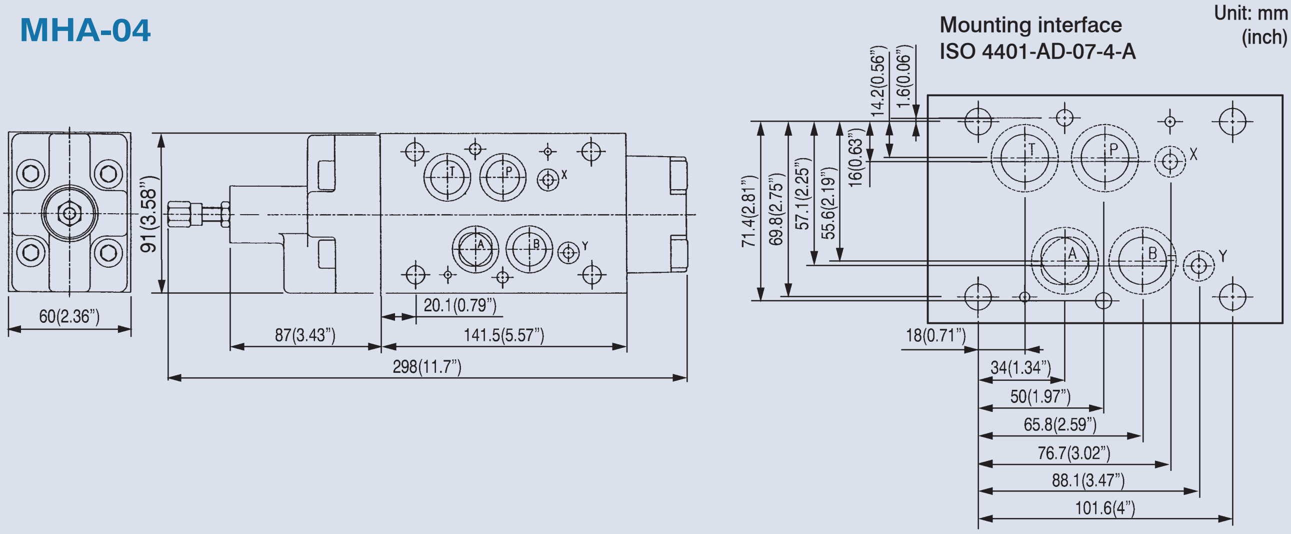
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MHA-04	315	B: 8~70 C: 10~140	300	7.5
MHB-04				7.5

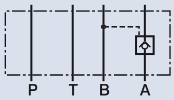
Dimensions

MHA-04

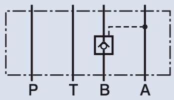
Unit: mm (inch)



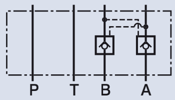
MODULAR PILOT OPERATED CHECK VALVE



MPA-04



MPB-04



MPW-04

How to order

MP W - 04
1 2 3

1	Model
2	Control port A: A port B: B port W: A and B ports
3	Nominal valve size 04: 1/2" (ISO CETOP 7, NFPA D07, DIN NG 16)

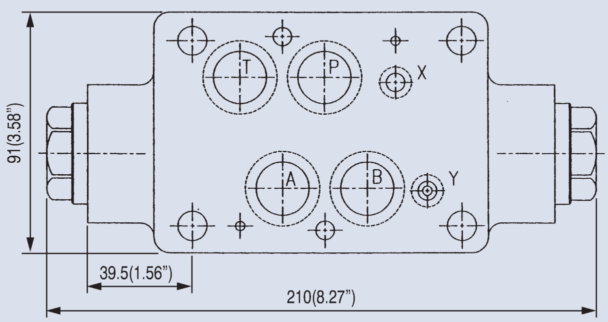
Specifications

Model	Max. Operating Pressure (bar)	Cracking Pressure (bar)	Max. Flow (lpm)	Weight (kg)
MPA-04	315	2	300	5.0
MPB-04				5.0
MPW-04				5.5

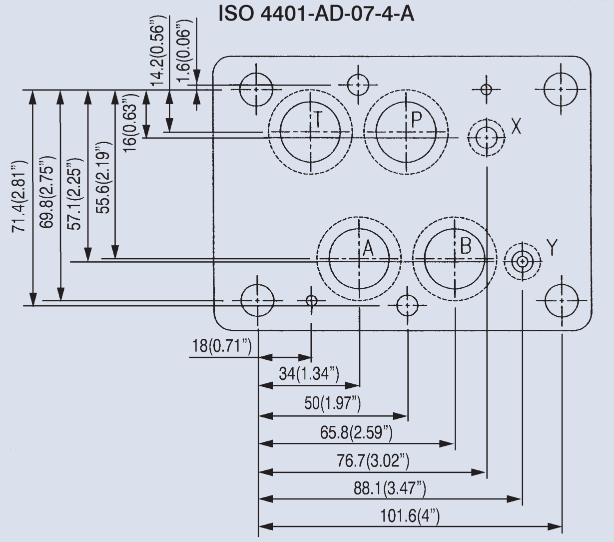
Dimensions

MPW-04

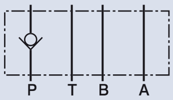
Unit: mm (inch)



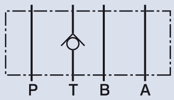
Mounting interface
ISO 4401-AD-07-4-A



MODULAR CHECK VALVE



MCP-04



MCT-04

D

How to order

MC P - 04 - ※
1 2 3 4

1	Model	
2	Control port	P: P port T: T port
3	Nominal valve size	04: 1/2" (ISO CETOP 7, NFPA D07, DIN NG 16)
4	Cracking pressure	0: 0.5 bar 5: 5 bar

Specifications

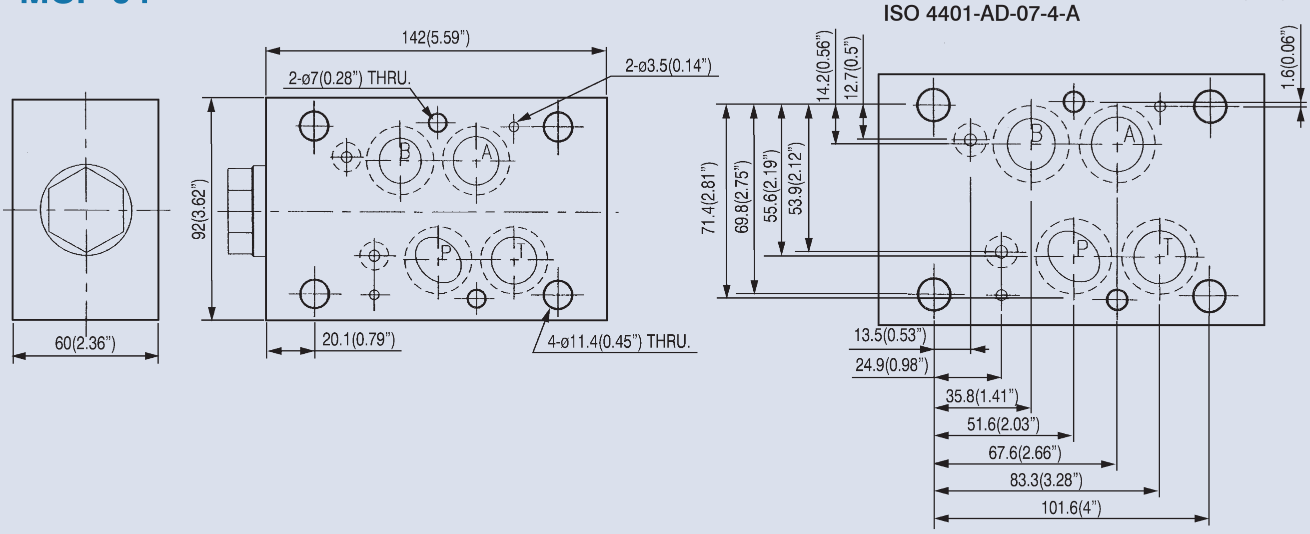
Model	Max. Operating Pressure (bar)	Cracking Pressure (bar)	Max. Flow (lpm)	Weight (kg)
MCP-04	315	0: 0.5 5: 5	300	4.8
MCT-04				4.8

Dimensions

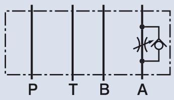
MCP-04

Mounting interface
ISO 4401-AD-07-4-A

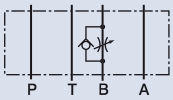
Unit: mm
(inch)



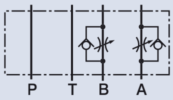
MODULAR THROTTLE AND CHECK VALVE



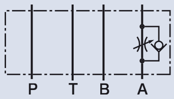
MSA-04-X



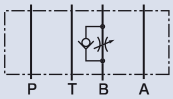
MSB-04-X



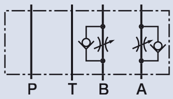
MSW-04-X



MSA-04-Y



MSB-04-Y



MSW-04-Y

D

How to order

MS W - 04 - ※ - ※
1 2 3 4 5

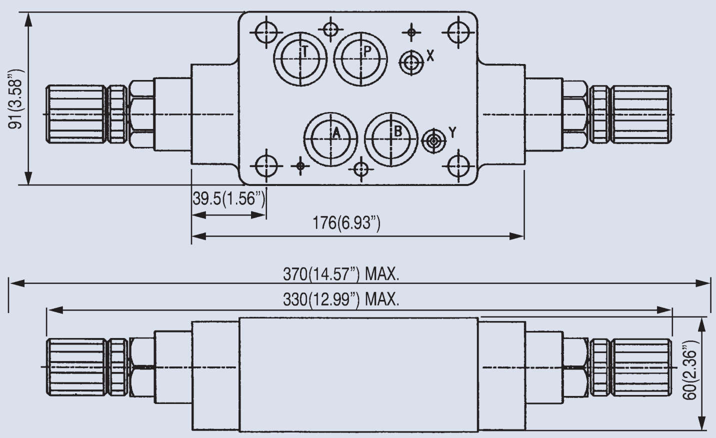
1	Model
2	Control port A: A port B: B port W: A and B ports
3	Nominal valve size 04: 1/2" (ISO CETOP 7, NFPA D07, DIN NG 16)
4	Control type X: Meter-out Y: Meter-in
5	Adjustment option None: Tool adjustment K: Hand-bar adjustment

Specifications

Model	Max. Operating Pressure (bar)	Flow Adj. Range (lpm)	Max. Flow (lpm)	Weight (kg)
MSA-04	315	0.8~300	320	5.0
MSB-04				5.0
MSW-04				5.5

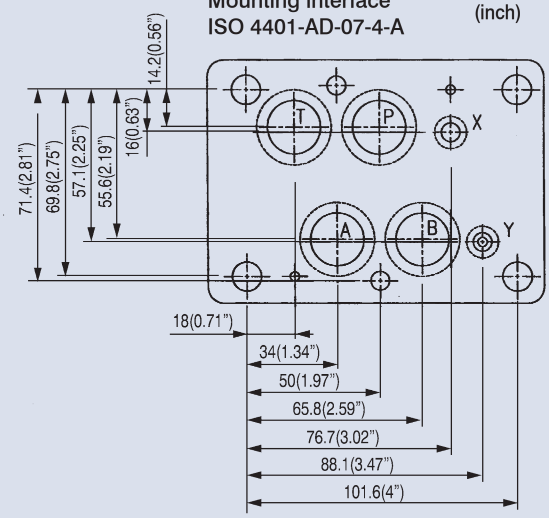
Dimensions

MSW-04

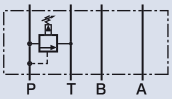


Mounting interface
ISO 4401-AD-07-4-A

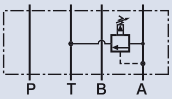
Unit: mm
(inch)



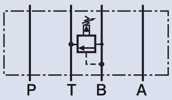
MODULAR RELIEF VALVE



MBP-06



MBA-06



MBB-06

D

How to order

MB P - 06 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	P: P port A: A port B: B port
3	Nominal valve size	06: 3/4" (ISO CETOP 8, NFPA D08, DIN NG 25)
4	Pressure adjusting range	B: 7~70 bar H: 10~230 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

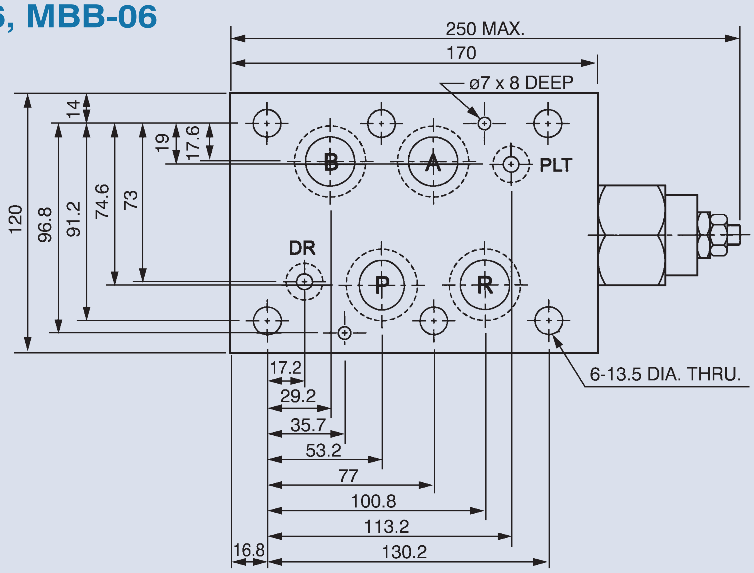
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MBP-06		B: 7~70		11.5
MBA-06	250		250	11.5
MBB-06		H: 10~230		11.5

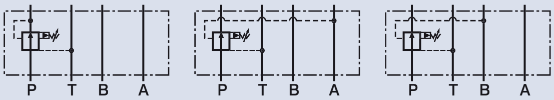
Dimensions

MBP-06, MBA-06, MBB-06

Unit: mm



MODULAR PRESSURE REDUCING VALVE



MRP-06 MRA-06 MRB-06

D

How to order

MR P - 06 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	P: P port A: A port B: B port
3	Nominal valve size	06: 3/4" (ISO CETOP 8, NFPA D08, DIN NG 25)
4	Pressure adjusting range	B: 7~70 bar H: 10~230 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

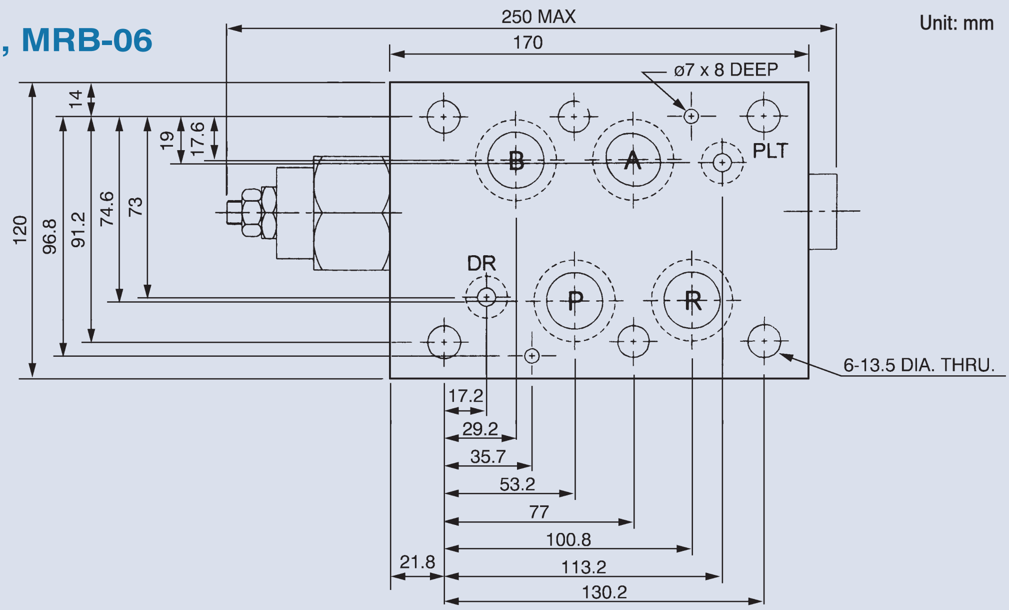
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MRP-06	250	B: 7~70 H: 10~230	250	11.6
MRA-06				11.6
MRB-06				11.6

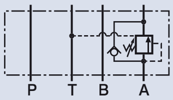
Dimensions

MRP-06, MRA-06, MRB-06

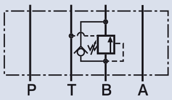
Unit: mm



MODULAR COUNTERBALANCE VALVE



MHA-06



MHB-06

D

How to order

MH A - 06 - ※ - ※
1 2 3 4 5

1	Model	
2	Control port	A: A port B: B port
3	Nominal valve size	06: 3/4" (ISO CETOP 8, NFPA D08, DIN NG 25)
4	Pressure adjusting range	B: 7~70 bar H: 10~230 bar
5	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

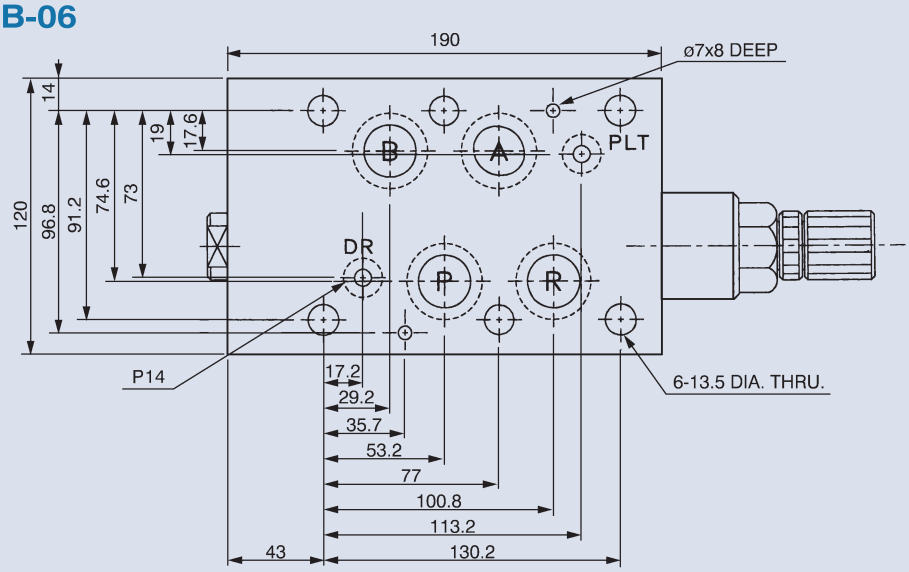
Specifications

Model	Max. Operating Pressure (bar)	Pressure Adj. Range (bar)	Max. Flow (lpm)	Weight (kg)
MHA-06	250	B: 7~70 H: 10~230	250	12.5
MHB-06				12.5

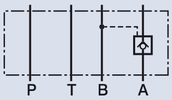
Dimensions

Unit: mm

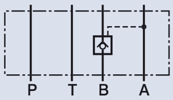
MHA-06, MHB-06



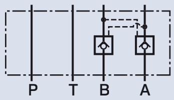
MODULAR PILOT OPERATED CHECK VALVE



MPA-06



MPB-06



MPW-06

How to order

MP W - 06
1 2 3

1	Model	
2	Control port	A: A port B: B port W: A and B ports
3	Nominal valve size	06: 3/4" (ISO CETOP 8, NFPA D08, DIN NG 25)

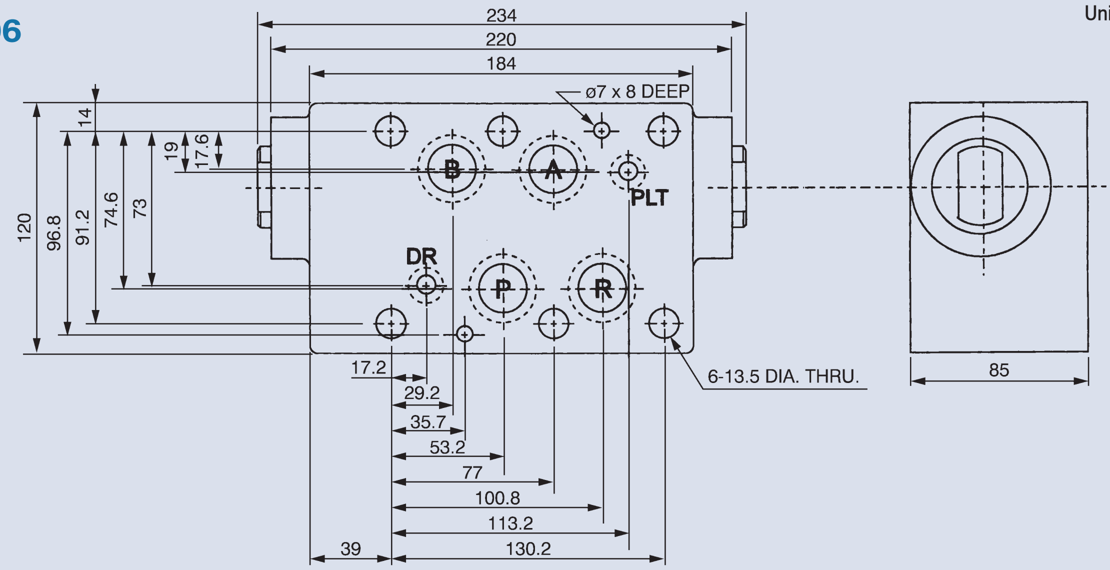
Specifications

Model	Max. Operating Pressure (bar)	Cracking Pressure (bar)	Max. Flow (lpm)	Weight (kg)
MPA-06	250	2	250	12.6
MPB-06				12.6
MPW-06				13

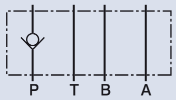
Dimensions

MPW-06

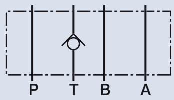
Unit: mm



MODULAR CHECK VALVE



MCP-06



MCT-06

How to order

MC P - 06 - ※
1 2 3 4

1	Model	
2	Control port	P: P port T: T port
3	Nominal valve size	06: 3/4" (ISO CETOP 8, NFPA D08, DIN NG 25)
4	Cracking pressure	0: 0.5 bar 5: 5 bar

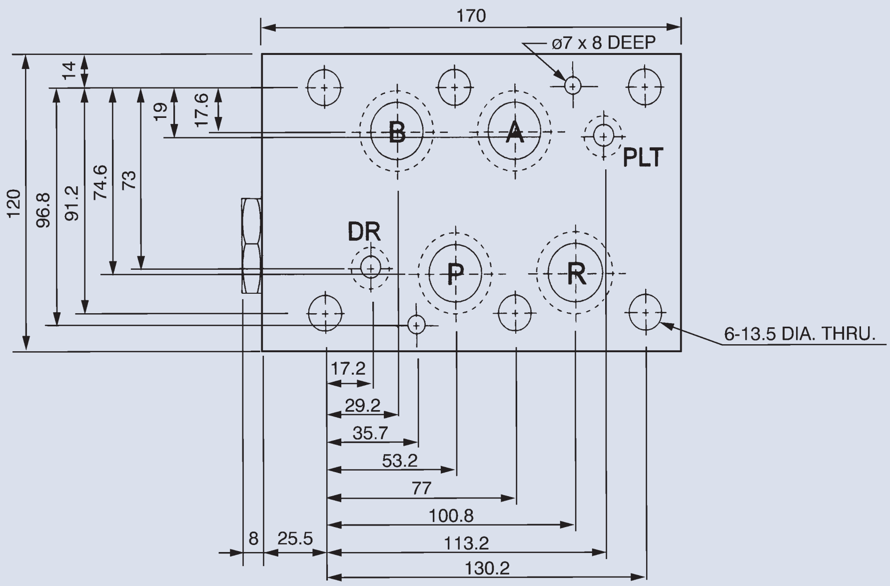
Specifications

Model	Max. Operating Pressure (bar)	Cracking Pressure (bar)	Max. Flow (lpm)	Weight (kg)
MCP-06	250	0: 0.5	250	10.5
MCT-06		5: 5		10.5

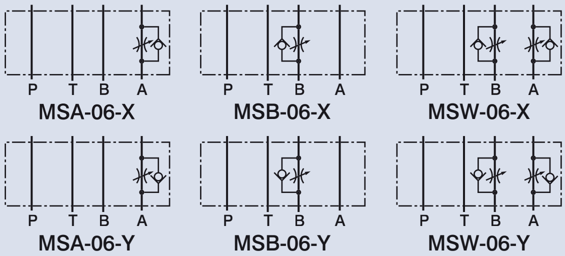
Dimensions

MCP-06

Unit: mm



MODULAR THROTTLE AND CHECK VALVE



D

How to order

MS W - 06 - ※ - ※

1 2 3 4 5

1	Model	
2	Control port	A: A port B: B port W: A and B ports
3	Nominal valve size	06: 3/4" (ISO CETOP 8, NFPA D08, DIN NG 25)
4	Control type	X: Meter-out Y: Meter-in
5	Adjustment option	None: Tool adjustment

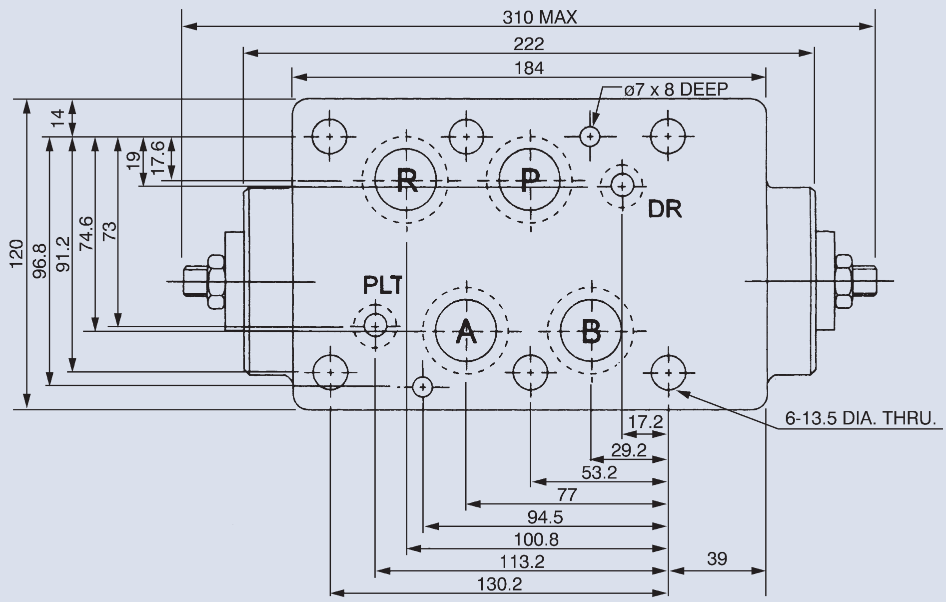
Specifications

Model	Max. Operating Pressure (bar)	Flow Adj. Range (lpm)	Max. Flow (lpm)	Weight (kg)
MSA-06	250	0.8~200	250	12.2
MSB-06				12.2
MSW-06				12.6

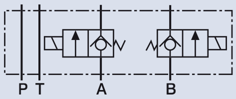
Dimensions

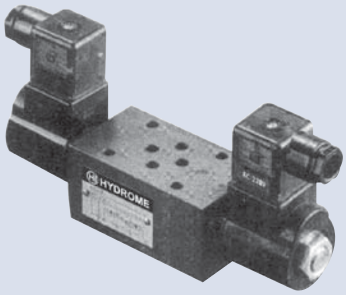
MSW-06

Unit: mm



MODULAR SOLENOID CHECK VALVE





How to order

SMC W - 02 - NC - A11
1 2 3 4 5

1	Model
2	Control port A: A port B: B port W: A and B ports
3	Nominal valve size 02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6)
4	NC: Normal closed NO: Normal open
5	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

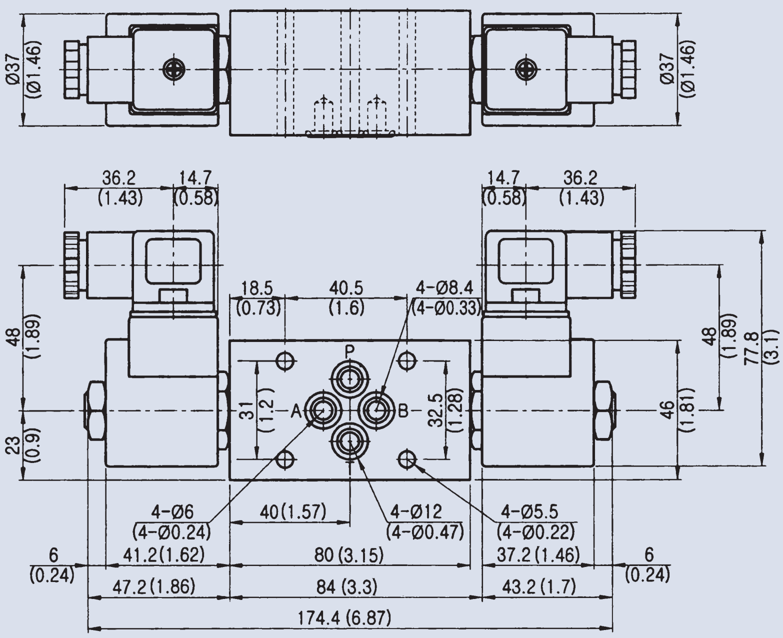
Specifications

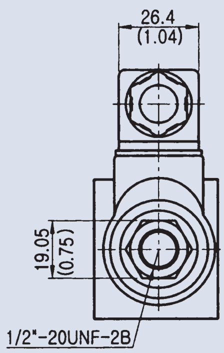
Model	Max. Operating Pressure (bar)	Rated Flow (lpm)	Weight (kg)
SMCA-02	250	20	1.08
SMCB-02			1.08
SMCW-02			1.15

Dimensions

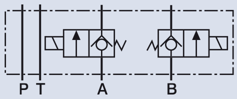
SMCW-02

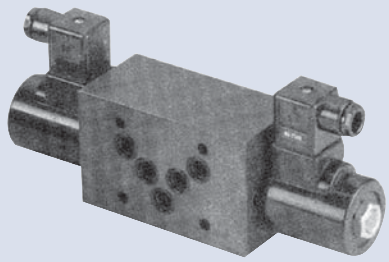
Unit: mm
(inch)





MODULAR SOLENOID CHECK VALVE





D

How to order

SMC W - 03 - NC - A11
1 2 3 4 5

1	Model
2	Control port A: A port B: B port W: A and B ports
3	Nominal valve size 03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
4	NC: Normal closed NO: Normal open
5	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: 12V D2: 24V

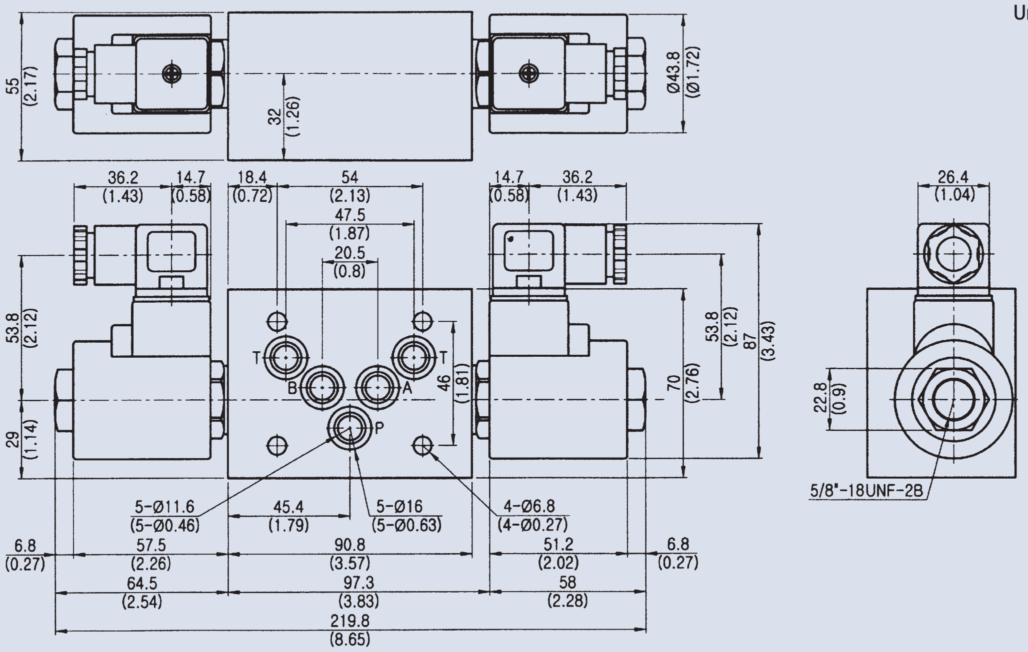
Specifications

Model	Max. Operating Pressure (bar)	Rated Flow (lpm)	Weight (kg)
SMCA-03	250	40	2.8
SMCB-03			2.8
SMCW-03			3.0

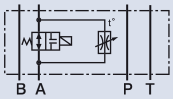
Dimensions

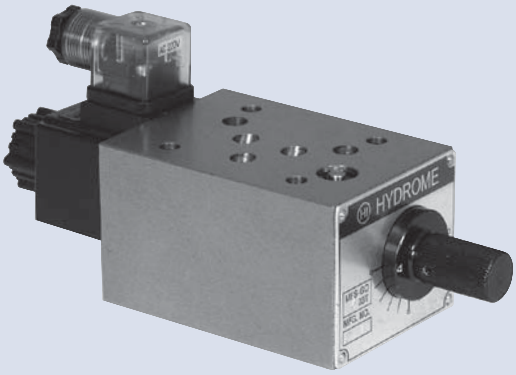
SMCW-03

Unit: mm
(inch)



MODULAR SOLENOID FLOW CONTROL VALVE





How to order

MFS - GO - 02 - 02 - T - A1

1 2 3 4 5

1	Model
2	Flow adjusting range
3	Nominal valve size 02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6) 03: 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10)
4	Control port P: P port T: T port A: A port
5	A1: AC110V (60HZ) A2: AC220V (60HZ) A3: AC110V (50HZ) A4: AC220V (50HZ) D1: DC12V D2: DC24V

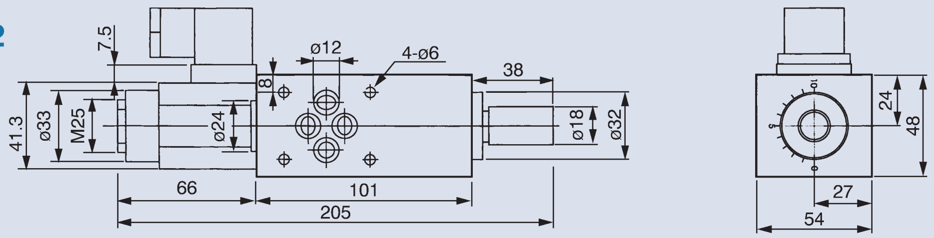
Specifications

Model	Flow Rate Adj. (l/min)	Free Flow (l/min)	Max. Pressure (bar)	Weight (kg)
MFS-GO-02-02	0.1~2	20	140	2.42
MFS-GO-04-02	0.1~4			
MFS-GO-06-02	0.1~6			
MFS-GO-02-03	0.1~2	30~60		3.3
MFS-GO-04-03	0.1~4			
MFS-GO-08-03	0.1~8			
MFS-GO-12-03	0.1~12			

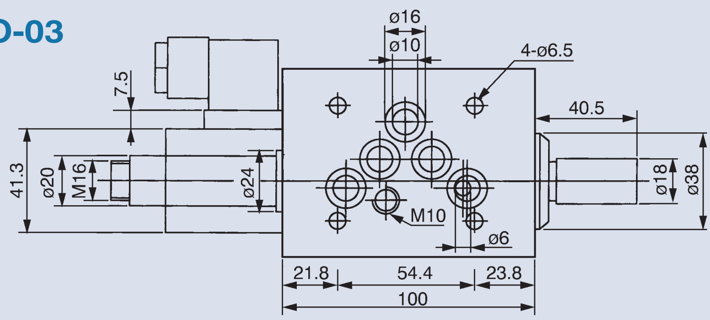
Dimensions

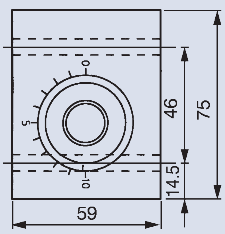
Unit: mm

MFS-GO-02

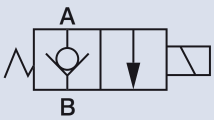


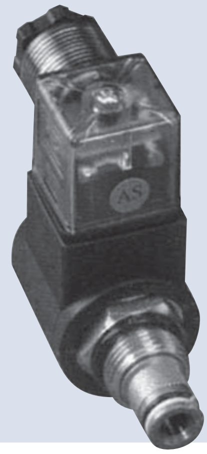
MFS-GO-03





CARTRIDGE SOLENOID OPERATED CHECK VALVE





How to order

HV2066, HV3066 - NC - ※ - A22

1 2 3 4

1	Model HV2066: Size 08 HV3066: Size 10
2	NC: Normal closed NO: Normal open
3	None: Standard OM: With manual
4	Voltage A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

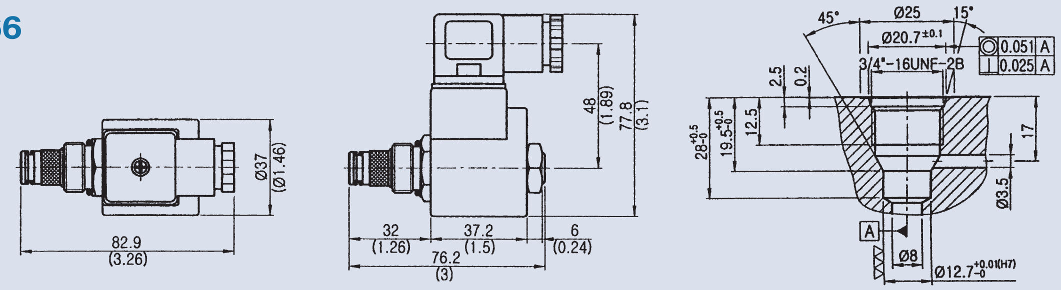
Specifications

Model	Max. Pressure (bar)	Rated Flow (lpm)	Max. Flow (lpm)	Weight (kg)
HV2066	250	15	20	0.28
HV3066		30	40	0.53

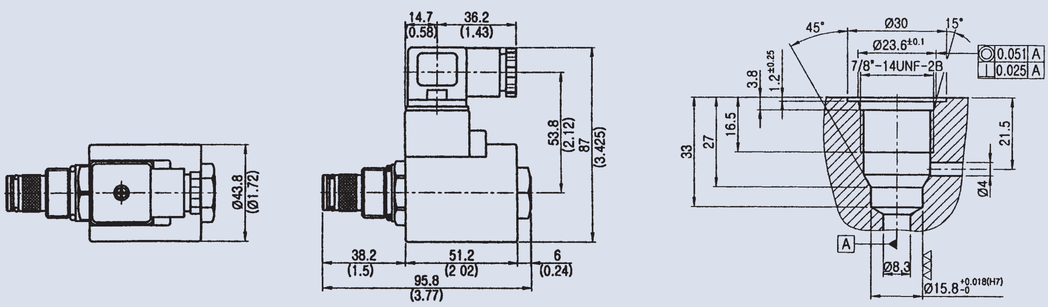
Dimensions

Unit: mm
(inch)

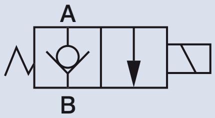
HV2066

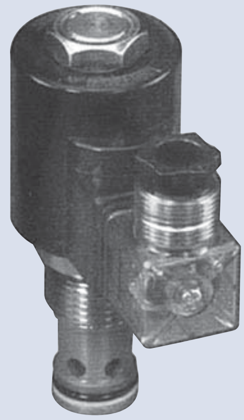


HV3066



CARTRIDGE SOLENOID OPERATED CHECK VALVE





E

How to order

HV6066, HV8066 - NC - ※ - A22

1 2 3 4

1	Model HV6066: Size 12 HV8066: Size 16
2	NC: Normal closed NO: Normal open
3	None: Standard OM: With manual
4	Voltage A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

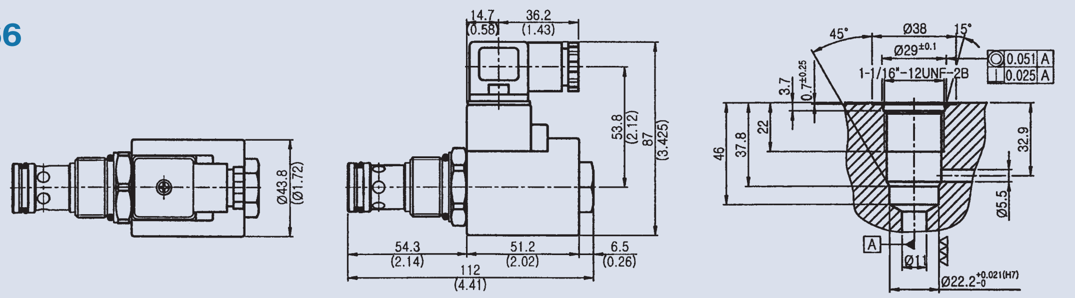
Specifications

Model	Max. Pressure (bar)	Rated Flow (lpm)	Max. Flow (lpm)	Weight (kg)
HV6066	250	80	80	0.58
HV8066		150	150	0.68

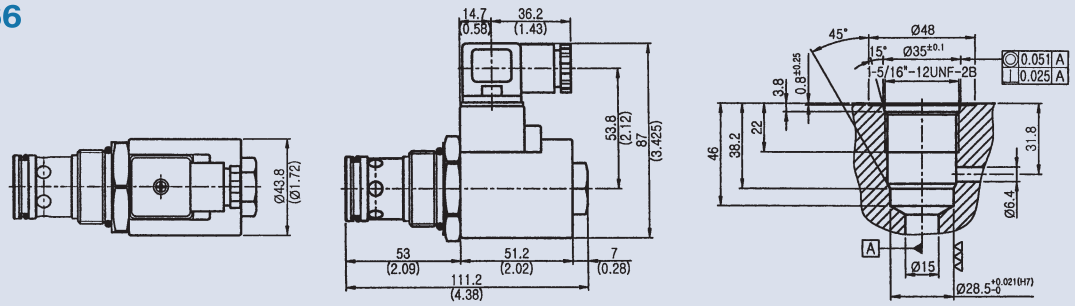
Dimensions

Unit: mm (inch)

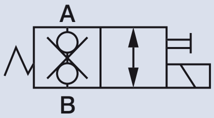
HV6066

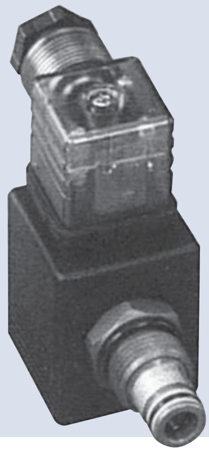


HV8066



CARTRIDGE SOLENOID OPERATED DOUBLE CHECK VALVE





E

How to order

HV2070, HV3070 - NC - ※ - A22

1 2 3 4

1	Model
2	NC: Normal closed NO: Normal open
3	None: Standard OM: With manual
4	Voltage A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

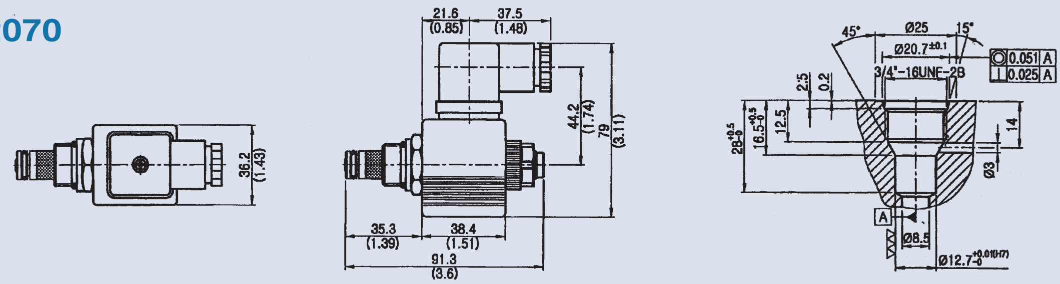
Specifications

Model	Max. Pressure (bar)	Rated Flow (lpm)	Max. Flow (lpm)	Weight (kg)
HV2070	250	15	20	0.34
HV3070		20	30	0.5

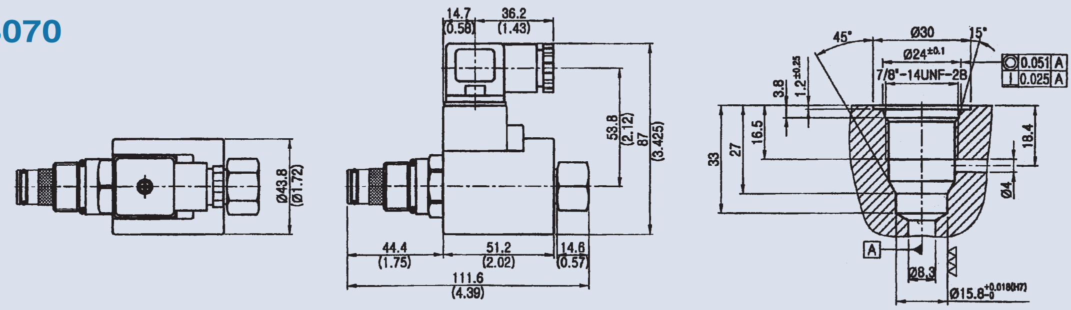
Dimensions

Unit: mm (inch)

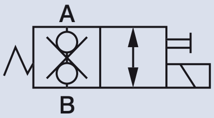
HV2070

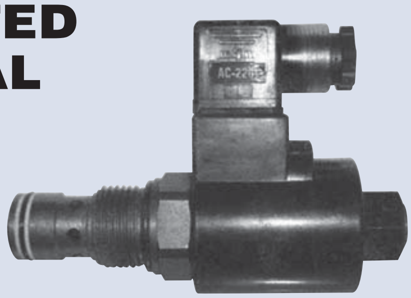


HV3070



CARTRIDGE SOLENOID OPERATED DOUBLE CHECK VALVE, MANUAL CHECK VALVE





How to order

HV3570, HV6070 - NC - ※ - A22

1 2 3 4

1	Model
2	NC: Normal closed NO: Normal open
3	None: Standard OM: With manual
4	Voltage A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

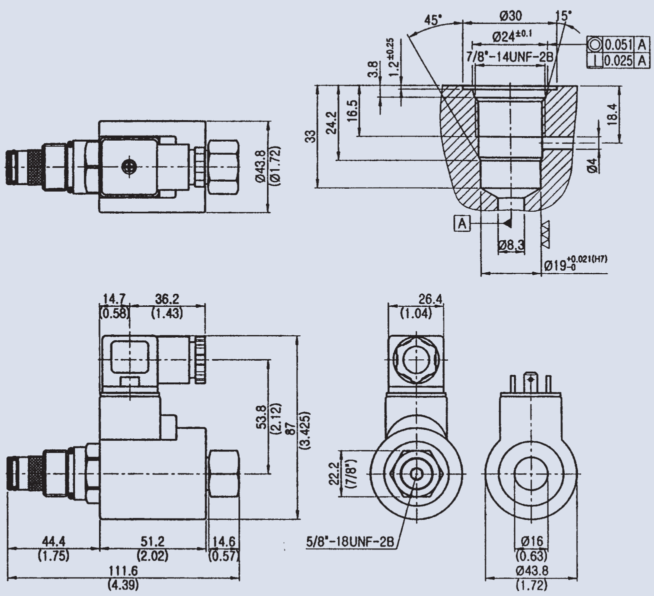
Specifications

Model	Max. Pressure (bar)	Rated Flow (lpm)	Max. Flow (lpm)	Weight (kg)
HV3570	250	25	35	0.51
HV6070		50	60	0.62

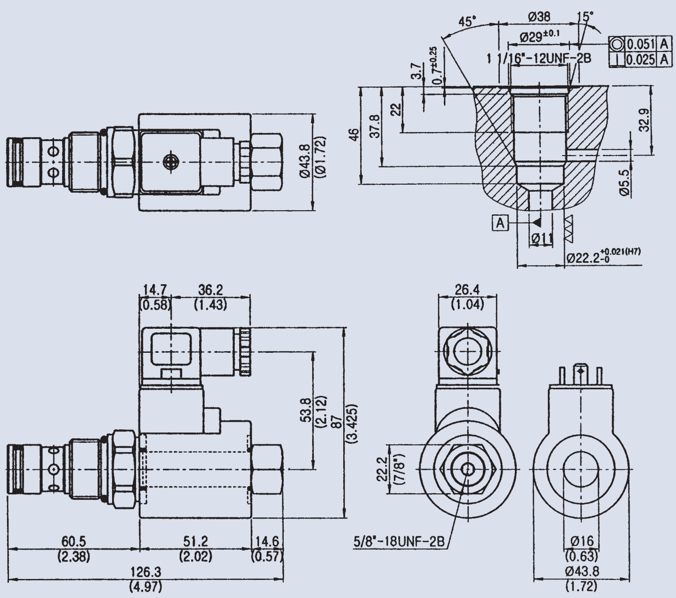
Dimensions

Unit: mm (inch)

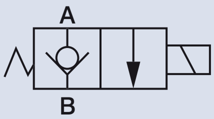
HV3570

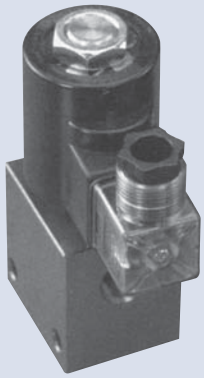


HV6070



CARTRIDGE SOLENOID OPERATED CHECK VALVE WITH BODY





How to order

HV 2068-02, HV 3068-03 - NC - ※ - A22

1 2 1 2 3 4 5

1	Model HV2068: HV2066+body HV3068: HV3066+body
2	Port size 2068-02: 1/4" (normal) 2068-03: 3/8" 3068-03: 3/8" (normal) 3068-04: 1/2"
3	NC: Normal closed NO: Normal open
4	None: Standard OM: With manual
5	Voltage A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

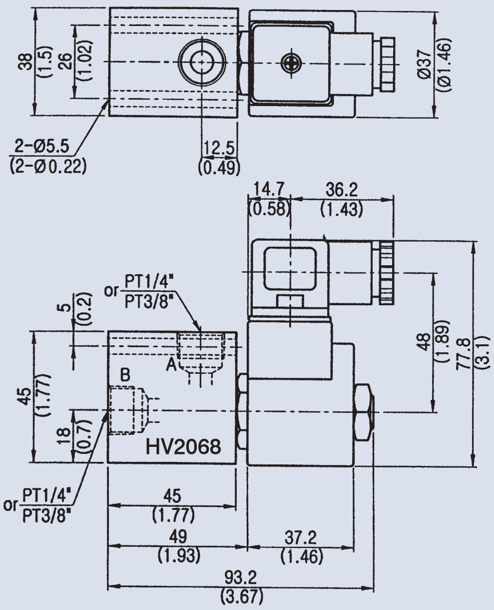
Specifications

Model	Max. Pressure (bar)	Rated Flow (lpm)	Max. Flow (lpm)	Weight (kg)
HV2068	250	15	20	0.46
HV3068		30	40	0.74

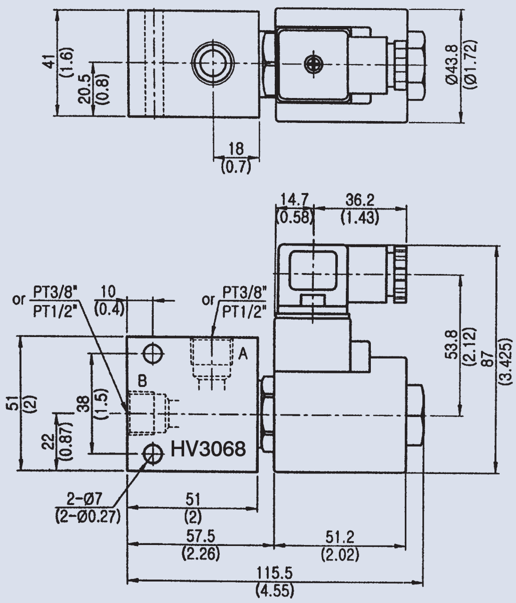
Dimensions

Unit: mm (inch)

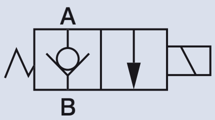
HV2068



HV3068



CARTRIDGE SOLENOID OPERATED CHECK VALVE WITH BODY



E

How to order

HV 6068, HV 8068 - NC - ※ - A22

1 2 1 2 3 4 5

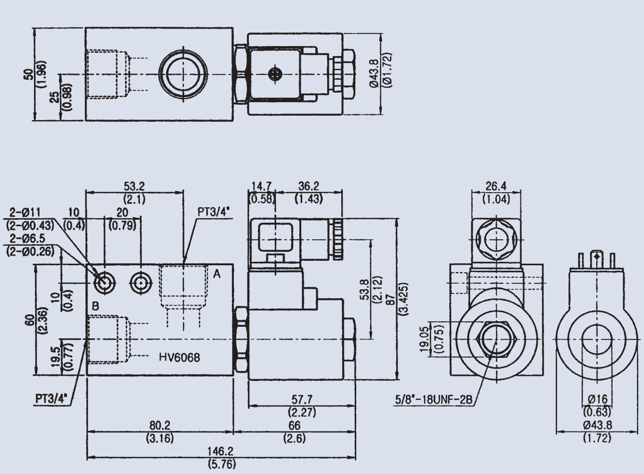
1	Model	HV6068: HV6066+body HV8068: HV8066+body
2	Port size	6068: PT3/4" 8068: PT1"
3	NC: Normal closed	NO: Normal open
4	None: Standard	OM: With manual
5	Voltage	A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

Specifications

Model	Max. Pressure (bar)	Rated Flow (lpm)	Max. Flow (lpm)	Weight (kg)
HV6068	250	80	80	1.08
HV8068		150	150	2.5

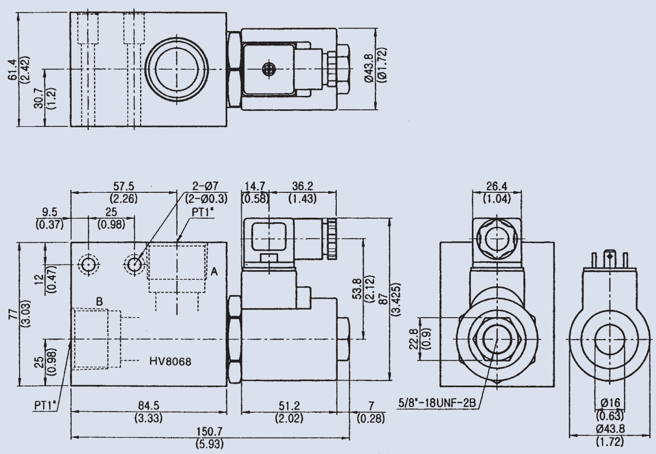
Dimensions

HV6068

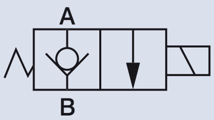


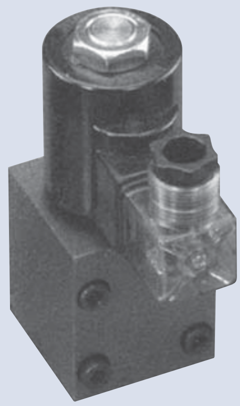
HV8068

Unit: mm
(inch)



CARTRIDGE SOLENOID OPERATED CHECK VALVE WITH BODY





How to order

HV2067, HV3067 - G 02 - NC - ※ - A11

1 2 3 4 5 6

1	Model HV2067: HV2066+body HV3067: HV3066+body
2	Sub-plate mounting type
3	Norminal valve size 02: 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6) for HV2067 03: 3/8" for HV3067
4	NC: Normal closed NO: Normal open
5	None: Standard OM: With manual
6	Voltage A11: AC110V (50/60HZ) A22: AC220V (50/60HZ) D1: DC12V D2: DC24V

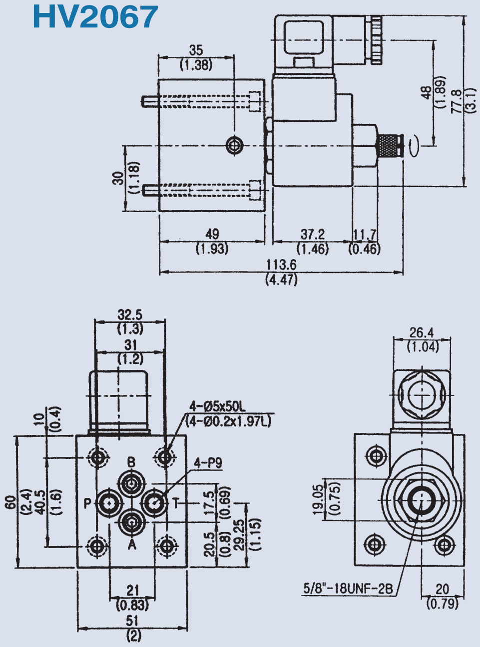
Specifications

Model	Max. Pressure (bar)	Rated Flow (lpm)	Max. Flow (lpm)	Weight (kg)
HV2067	250	15	20	0.69
HV3067		30	40	0.87

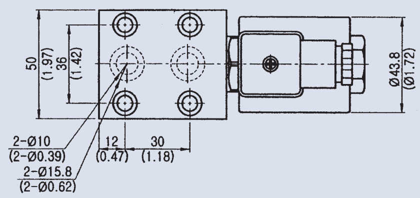
Dimensions

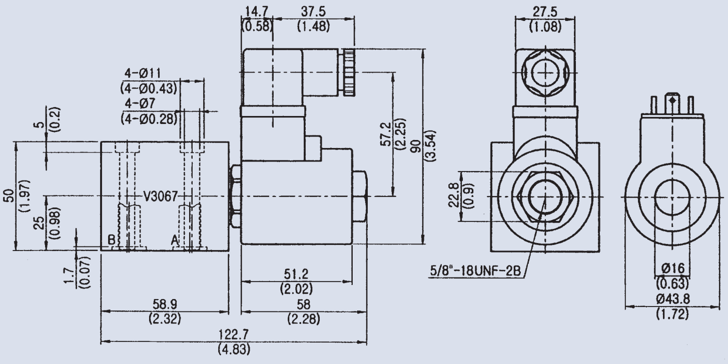
Unit: mm (inch)

HV2067

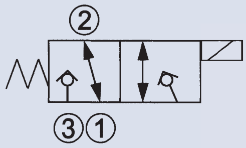


HV3067



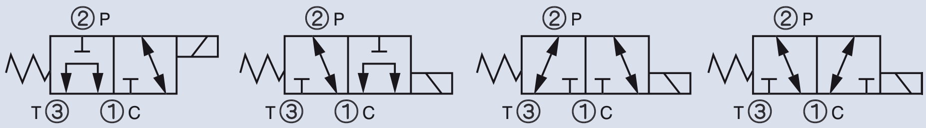


CARTRIDGE SOLENOID OPERATED VALVE SPOOL 3-WAY 2-POSITION



VWE-※-50 (poppet)

CONTROL PORTS



VWE-※-10 VWE-※-20 VWE-※-30 VWE-※-40

E

How to order

VWE - 08 - 10 - A1 - ※

1 2 3 4 5

1	Model
2	Mounting size 08: 08W-3 Cavity: CS08-3N (see page 163) 10: 10W-3 Cavity: CS10-3N (see page 163)
3	Control port
4	Voltage A1: RAC110V (50/60HZ) A2: RAC220V (50/60HZ) D1: DC12V D2: DC24V
5	Wiring type None: DIN plug X: Double lead

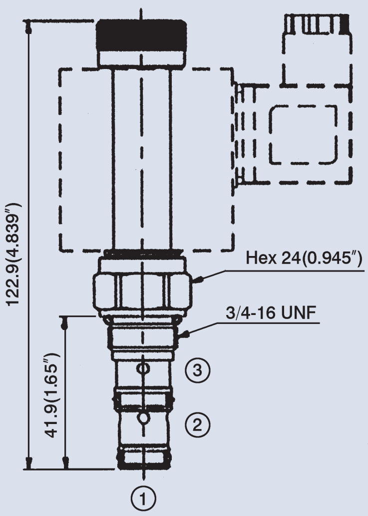
Specifications

Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VWE-08-10	210	10	0.31
VWE-08-20			
VWE-08-30			
VWE-08-40			
VWE-08-50			
VWE-10-20		20	0.2
VWE-10-30			
VWE-10-40			

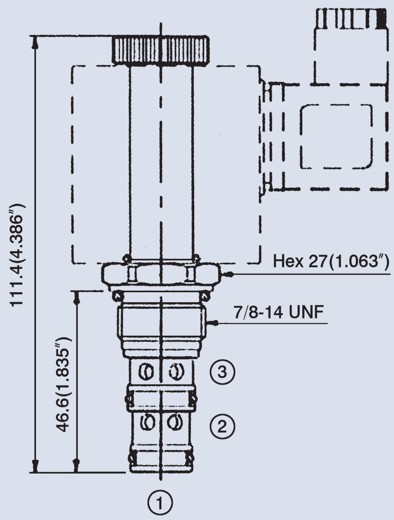
Dimensions

Unit: mm (inch)

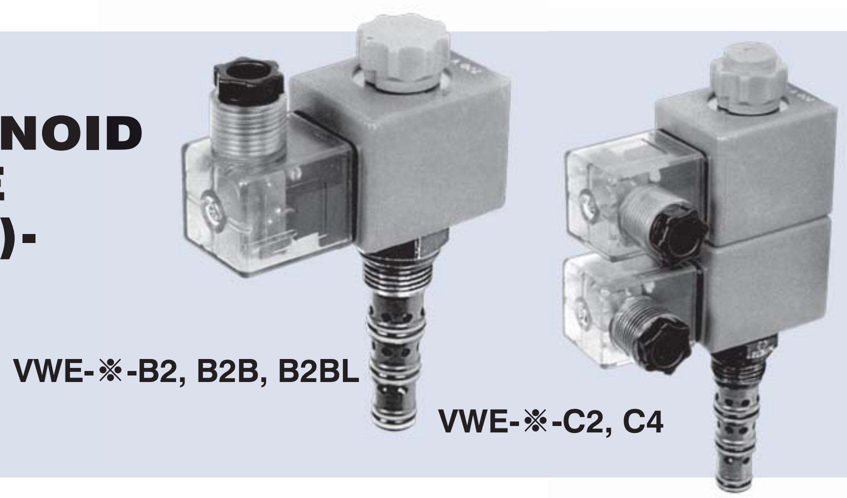
VWE-08



VWE-10



CARTRIDGE SOLENOID OPERATED VALVE SPOOL 4-WAY 2(3)-POSITION

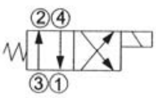


How to order

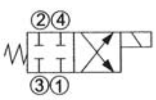
VWE - 08 - B2 - A1 - ※

1 2 3 4 5

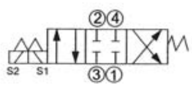
1	Model	
2	Mounting Size	08:08W-4 Cavity: CS08-4N (see page 164) 10:10W-4 Cavity: CS10-4N (see page 164)
3	Control port	
4	Voltage	A1: RAC110V (50/60HZ) A2: RAC220V (50/60HZ) D1: DC12V D2: DC24V
5	Wiring type	None: DIN plug X: Double lead



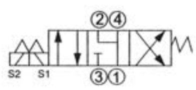
VWE-※-B2



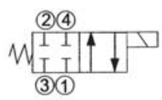
VWE-※-B2B



VWE-※-C2



VWE-※-C4



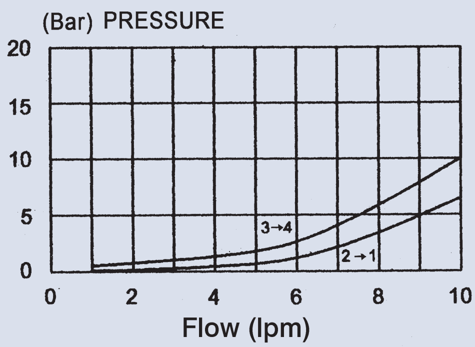
VWE-※-B2BL

Specifications

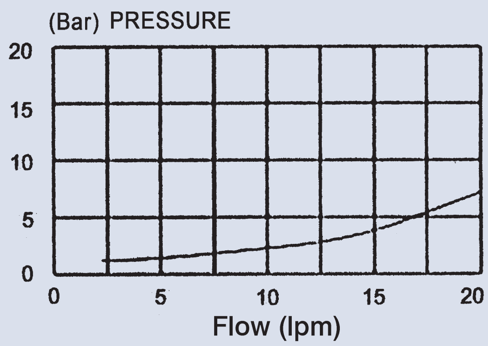
Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VWE-08-B2	210	10	0.45
VWE-08-B2B			
VWE-08-B2BL			
VWE-08-C2			0.75
VWE-08-C4			
VWE-10-B2		20	0.45

Performance

VWE-08



VWE-10



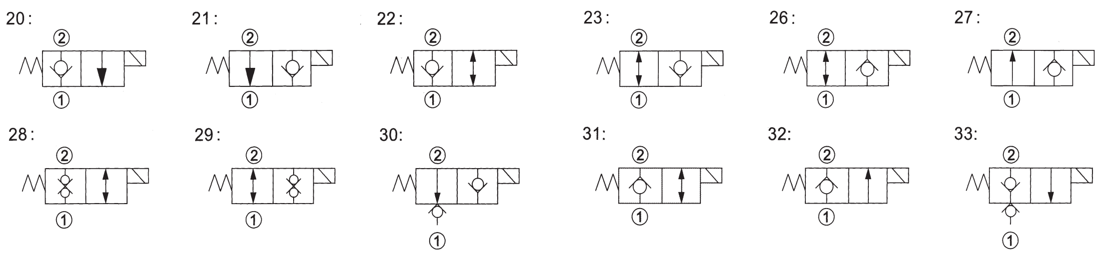
CARTRIDGE SOLENOID OPERATED CHECK VALVE

E

How to order

VSE - 10 - ※ - A2 - X - Y

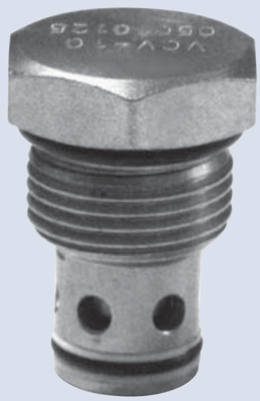
1	2	3	4	5	6
VSE	10	※	A2	X	Y

1	Model	
2	Mounting size	10: Cavity tooling E-017 Size CSE 017-2N (see page 165) 12: Cavity tooling E-021 Size CSE 021-2N (see page 166)
3	Control port	
4	Voltage	A1: RAC110V (50/60HZ) A2: RAC220V (50/60HZ) D1: DC12V D2: DC24V
5	Wiring type	None: DIN plug X: Double lead
6	Adjustment option	None: Standard Y: Twist style manual override (for control ports 20, 22, 28, 31, 32, 33) Push style manual override (for control ports 21, 23, 26, 27, 29, 30)

Specifications

Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VSE-10-※	350	70	0.4
VSE-12-※		150	0.63

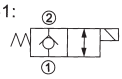
CARTRIDGE SOLENOID OPERATED CHECK VALVE



E

How to order

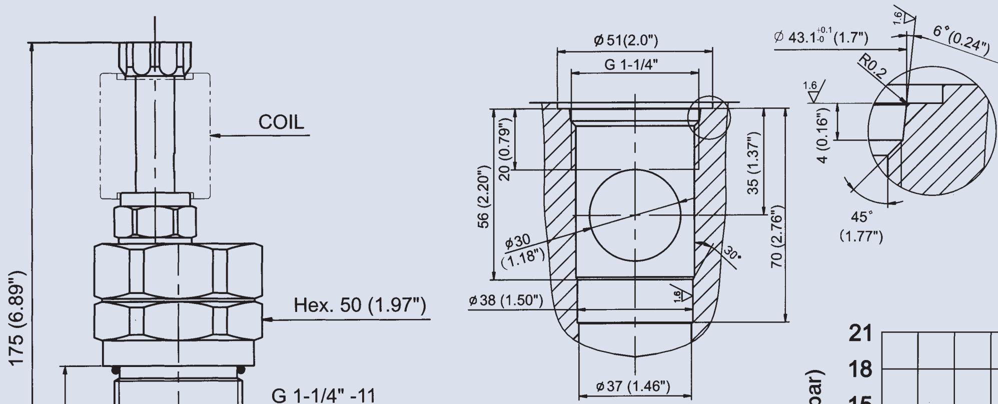
VSE - 20 - 31 - A2 - X - Y
1 2 3 4 5 6

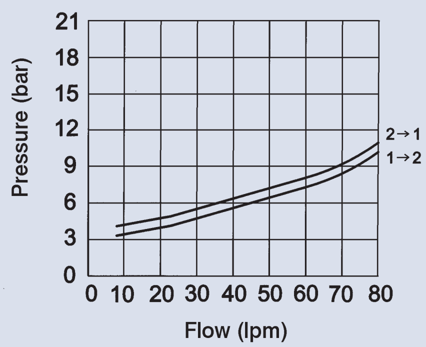
1	Model	
2	Mounting size	20: Size Cavity: E-04
3	Control port	31: 
4	Voltage	A1: RAC110V (50/60HZ) A2: RAC220V (50/60HZ) D1: DC12V D2: DC24V
5	Wiring type	None: DIN plug X: Double lead
6	Adjustment option	None: Standard Y: Twist style manual override

Specifications

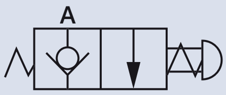
Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VSE-20-31	350	260	1.14

Dimensions/Performance curve

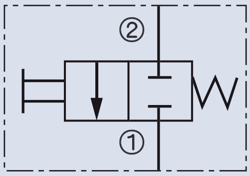




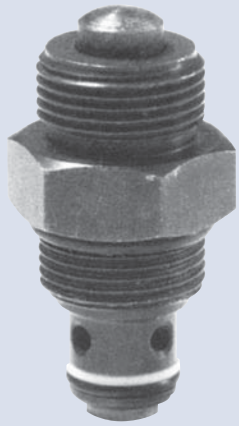
CARTRIDGE MANUAL RELEASE VALVE



HV2069



VMV-08



E

Specifications

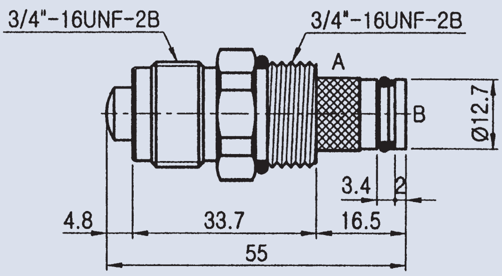
Model	Max. Pressure (bar)	Rated Flow (lpm)	Max. Flow (lpm)	Weight (kg)
HV2069	250	15	20	0.17

Model	Max. Pressure (bar)	Rated Flow (lpm)	Weight (kg)
VMV-08	250	15	0.35

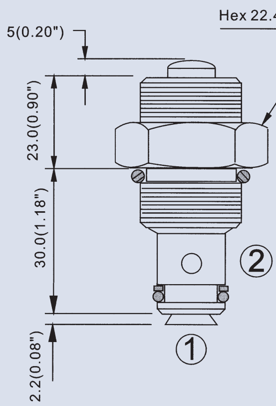
Dimensions / Performance curves

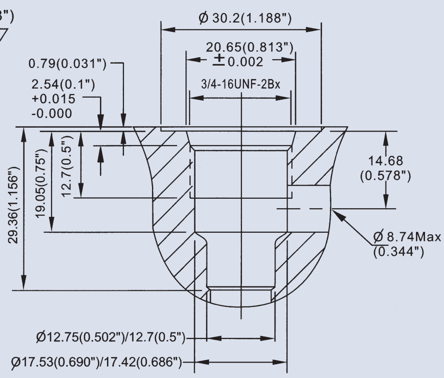
HV2069

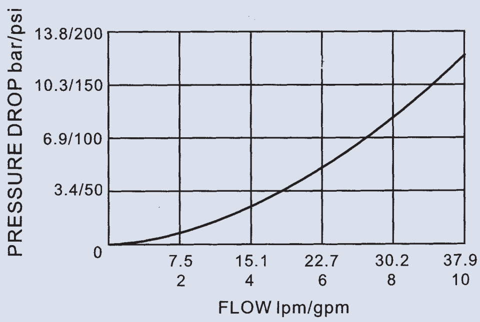
Unit: mm
(inch)



VMV-08







CARTRIDGE RELIEF VALVE

E

How to order

VNE - 04 - 20 - K
1 2 3 4

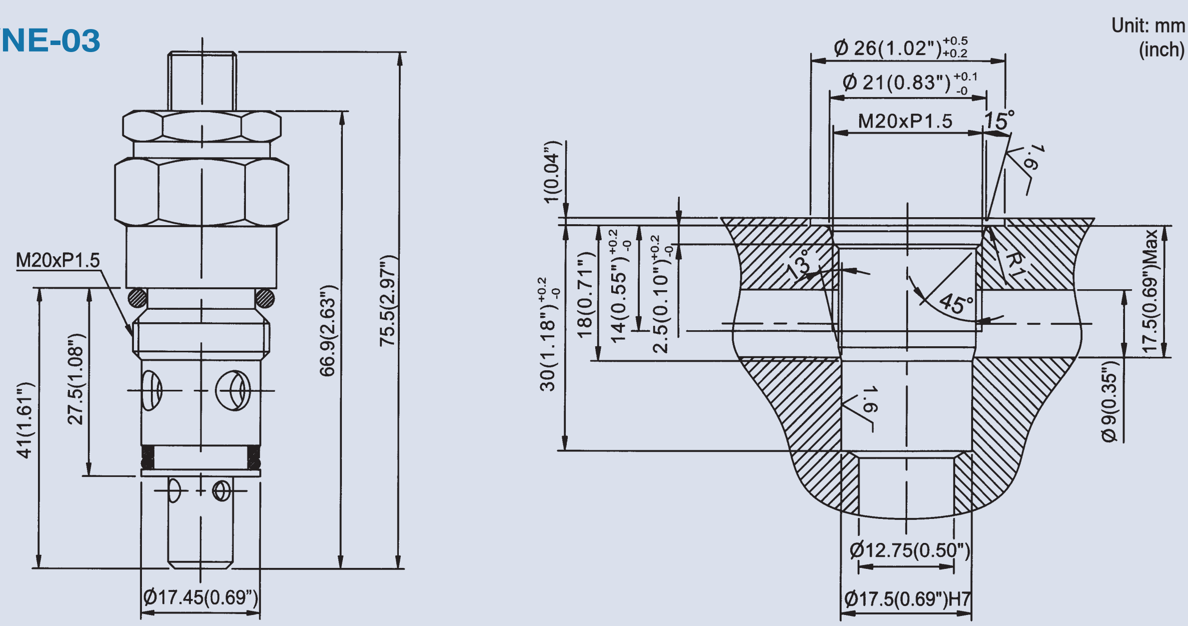
1	Model	Direct type
2	Mounting size	04, 05: Size 08 Cavity CS08-2N (see page 163)
3	Pressure adjusting range	
4	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

Specifications

Model	Max. Pressure (bar)	Pressure Adjusting Range (bar)	Max. Flow (lpm)	Weight (kg)
VNE-03	315	28: 30~280 35: 80~350	60	0.18
VNE-04	315	03: ※~30 10: ※~100 20: 30~200 30: 40~300	20	0.1
VNE-05	250	10: ※~100 20: 30~250 35: 100~350	20	0.2
VNE-07	420	1: ※~100 2: ※~250 3: ※~400	60	1.8
VNE-08	315	1: ※~100 2: ※~315	120	1.8

Dimensions

VNE-03

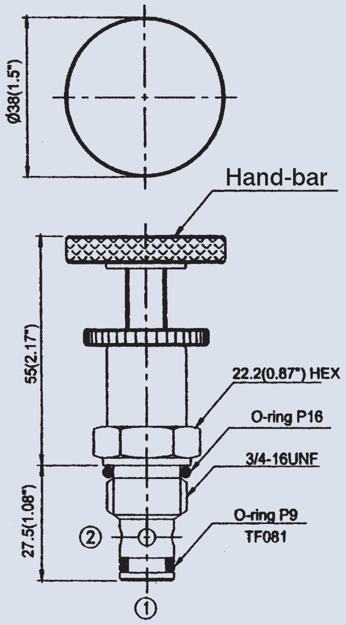


CARTRIDGE RELIEF VALVE

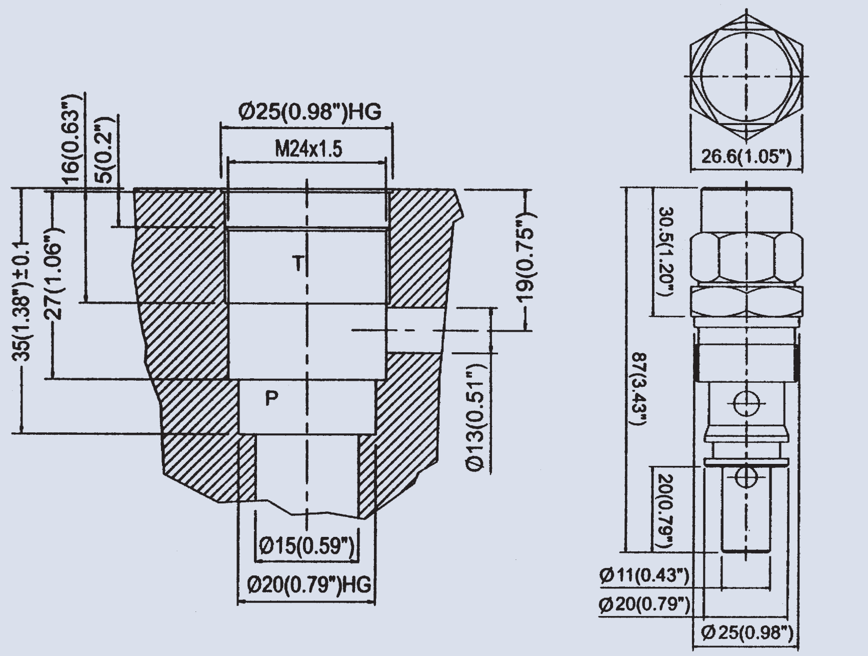
Dimensions

Unit: mm
(inch)

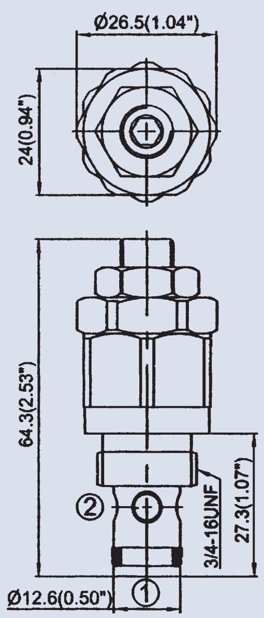
VNE-04



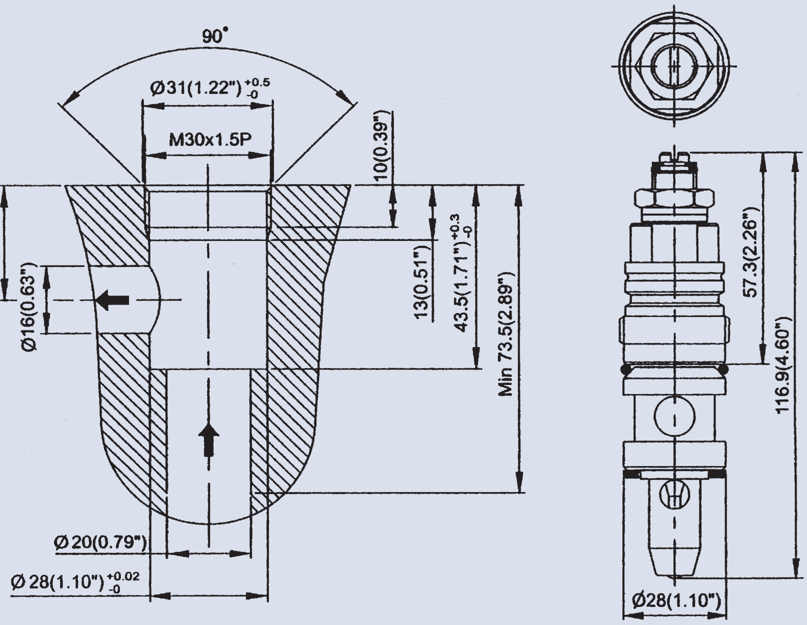
VNE-07



VNE-05

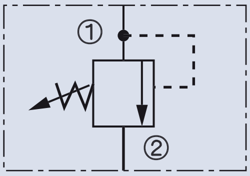


VNE-08

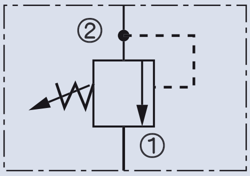


CARTRIDGE RELIEF VALVE

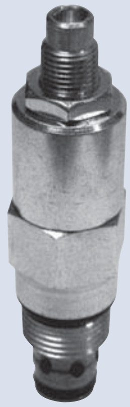
CONTROL PORTS



NO: 20, 26



NO: 22



How to order

VRV - 10 - 24 - ※ - 20
1 2 3 4 5

1 Model Direct type: VRV-01-※-※-20, VRV-03 (04)-※-※-20, VRV-08-※-※-20 (22), VRV-10-※-※-20 (22)

2 Mounting size

Model	Size	Cavity	See Page
VRV-01	08	CS08-2N	163
VRV-03	E019	CSE019-2N	165
VRV-04	E019	CSE019-2N	165
VRV-08	08	CS08-2N	163

Model	Size	Cavity	See Page
VRV-10	10	CS10-2N	163
VRV-12	12	CS12-2N	163
VRV-16	16	CS16-2N	163

3 Pressure adjusting range

4 Adjustment option None: Tool adjustment K: Hand-bar adjustment

5 Control port 20, 22, 26

Specifications

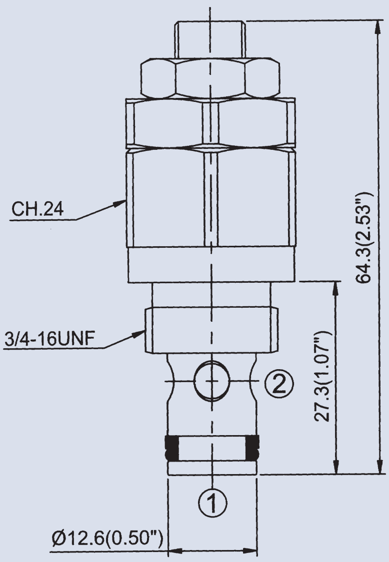
Model	Max. Pressure (bar)	Pressure Adjusting Range (bar)	Max. Flow (lpm)	Weight (kg)
VRV-01-※-※-20	250	10: ※~100 20: ※~250	2	0.15
VRV-03-※-※-20	315	28: 30~280 38: 38~380	60	0.18
VRV-04-※-※-20	420	30: 150~300 40: 300~420	15	0.18
VRV-08-※-※-20	320	06: 4~60 12: 7~120 24: 7~220 31: 27~315	20	0.23
VRV-08-※-※-22			30	0.22
VRV-10-※-※-20	340	08: 10~80 15: 17~150 24: 20~220 34: 34~340	35	0.23
VRV-10-※-※-22			70	0.23
VRV-10-※-※-26		02: ※~25 10: 10~100 24: 20~240 34: 20~340	110	0.25
VRV-12-※-※-26			180	0.34
VRV-16-※-※-26			265	0.73

CARTRIDGE RELIEF VALVE

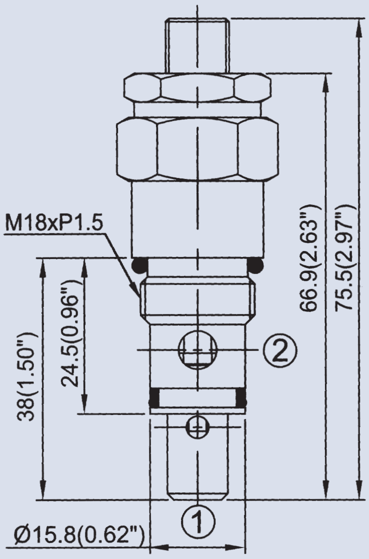
Dimensions

Unit: mm
(inch)

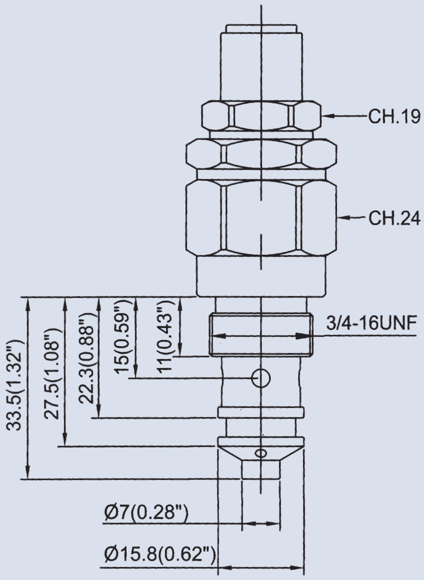
VRV-01



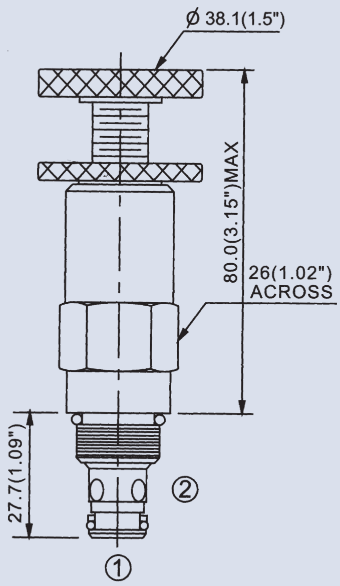
VRV-03



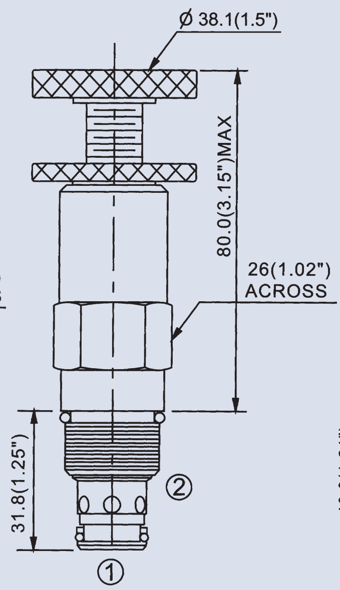
VRV-04



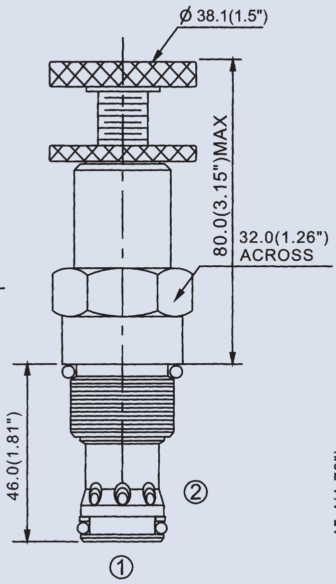
VRV-08



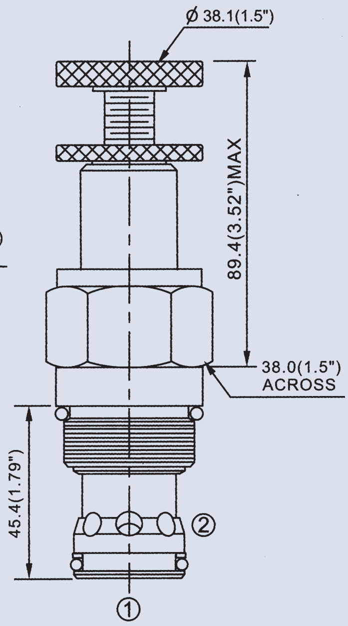
VRV-10



VRV-12

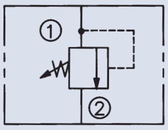


VRV-16

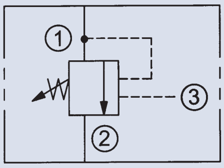


E

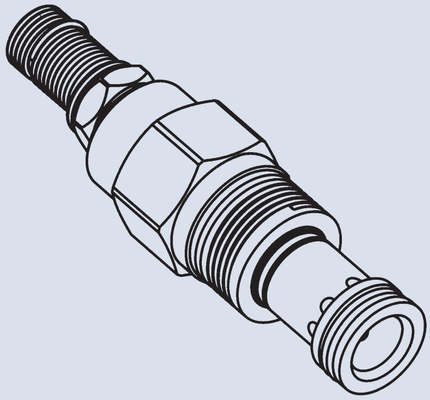
CARTRIDGE RELIEF VALVE



VRC



VRA



E

How to order

VRC
VRA - 02 - 20 - ※

1 2 3 4

1	Model	VRA: Remote control included
2	Mounting size	
3	Pressure adjusting range	
4	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

Mounting size:

Model	Size	Cavity	See Page
VRC-02	T-10A	CST-10A	166
VRC-03	T-3A	CST-3A	166
VRC-06	T-16A	CST-16A	167
VRC-10	T-18A	CST-18A	167

Model	Size	Cavity	See Page
VRA-02	T-11A	CST-11A	167
VRA-03	T-2A	CST-2A	166
VRA-06	T-17A	CST-17A	167
VRA-10	T-19A	CST-19A	167

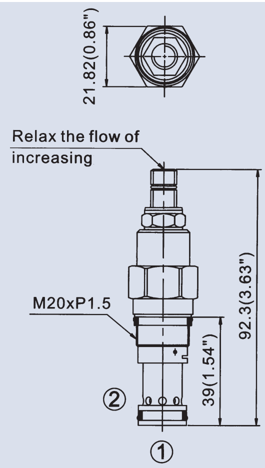
Specifications

Model	Max. Pressure (bar)	Pressure Adjusting Range (bar)	Max. Flow (lpm)	Weight (kg)
VRC-02	420	06: ※~60 10: ※~100 20: 8~210 40: 12~420	100	0.15
VRC-03			200	0.27
VRC-06			380	0.55
VRC-10			760	0.9
VRA-02			60	0.18
VRA-03			120	0.3
VRA-06			240	0.7
VRA-10			480	1.1

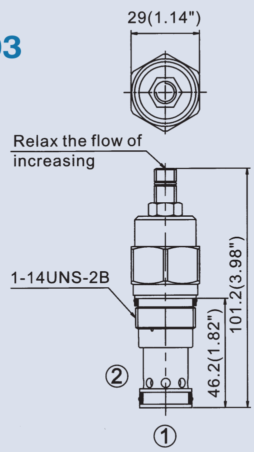
Dimensions

Unit: mm (inch)

VRC-02



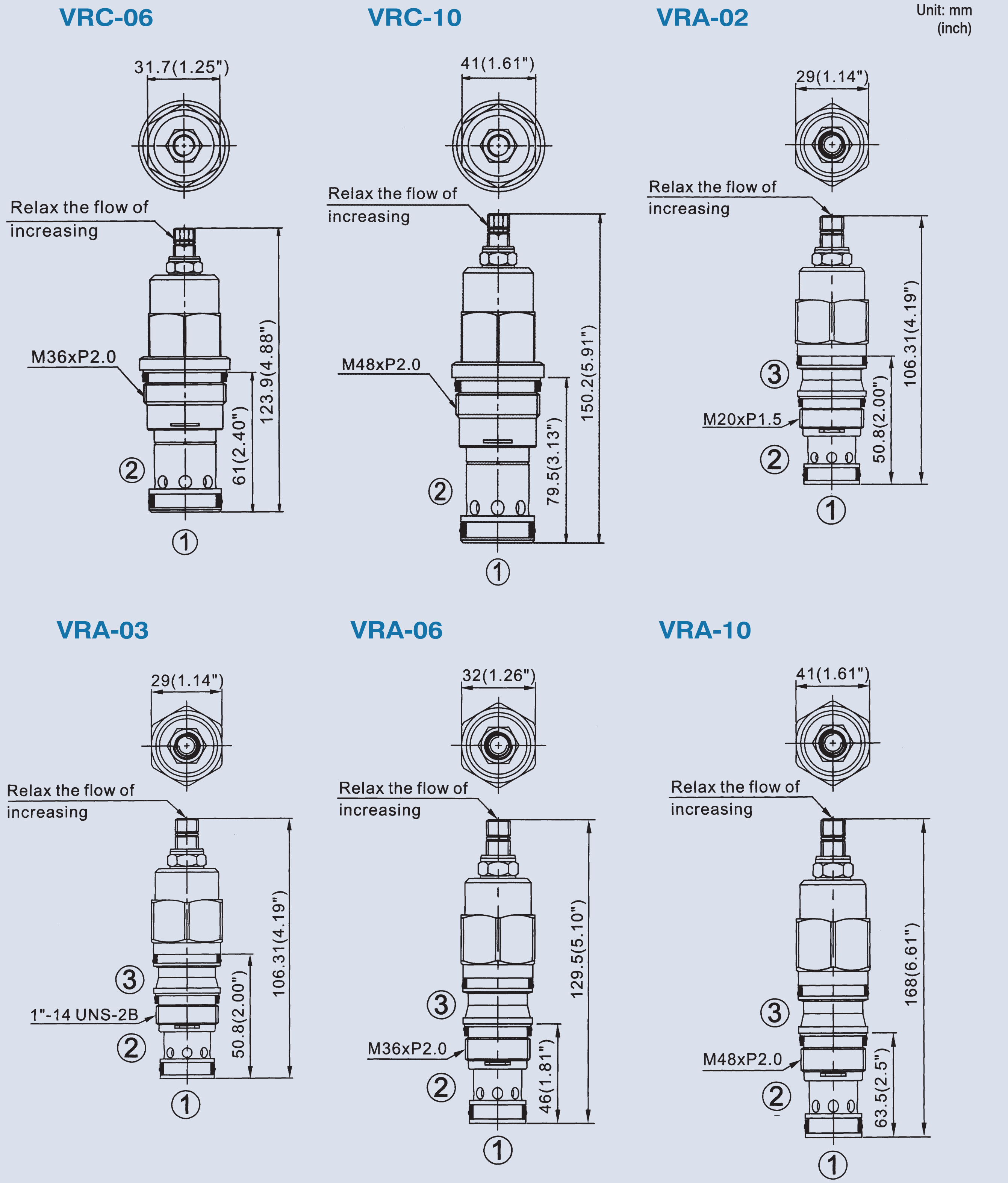
VRC-03



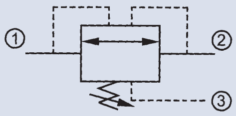
CARTRIDGE RELIEF VALVE

Dimensions

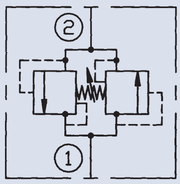
Unit: mm (inch)



CARTRIDGE BRAKE VALVE



VDR-08



VDR-10

E

How to order

VRD - 08 - 09 - ※
1 2 3 4

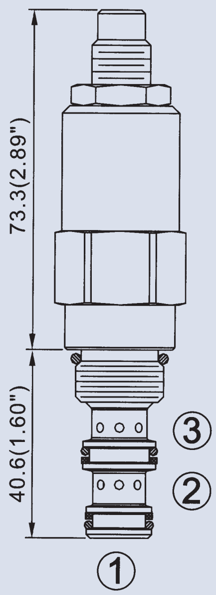
1	Model	
2	Mounting size	08: Size 08 Cavity: CS08-3N (see page 163) 10: Size 10 Cavity: CS10-2N (see page 163)
3	Pressure adjusting range	
4	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

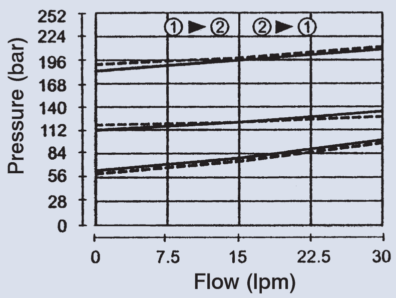
Specifications

Model	Max. Pressure (bar)	Pressure Adjusting Range (bar)	Max. Flow (lpm)	Weight (kg)
VRD-08	240	02: 4~20 04: 7~40 09: 11~89 16: 21~165	18	0.3
VRD-10	340	16: 14~168 20: 160~210	60	0.27

Dimensions/Performance curves

VRD-08

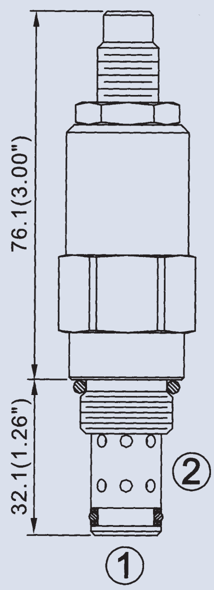


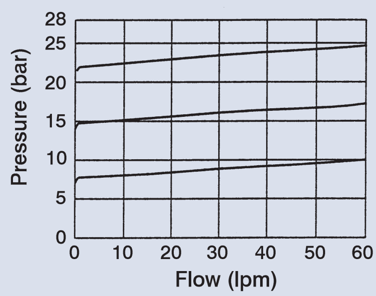


VRD-10

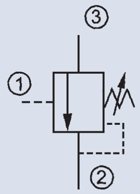
Test Conditions
Oil Temperature: 50 °C (122 °F)
Viscosity: 35 cSt (163 SSU)

Unit: mm
(inch)





CARTRIDGE UNLOADING VALVE



E

How to order

VSQ - 08 - 16 - ※
1 2 3 4

1	Model	
2	Mounting size	08: Size 08 Cavity: CS08-3N (see page 163) 10: Size 10 Cavity: CS10-3N (see page 163)
3	Pressure adjusting range	
4	Adjustment option	None: Tool adjustment K: Hand-Bar adjustment

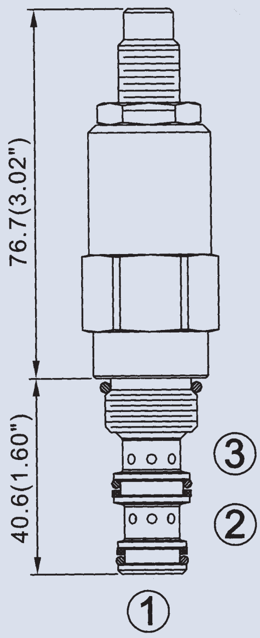
Specifications

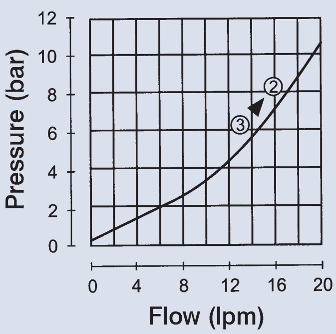
Model	Max. Pressure (bar)	Pressure Adjusting Range (bar)	Max. Flow (lpm)	Weight (kg)
VSQ-08	350	02: 4～20 04: 7～40 09: 11～89 16: 21～165	18	0.3
VSQ-10		02: 6～27 04: 14～55 10: 21～103 14: 28～145	38	0.3

Dimensions / Performance curves

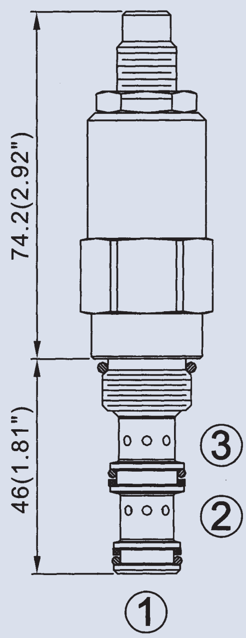
Unit: mm
(inch)

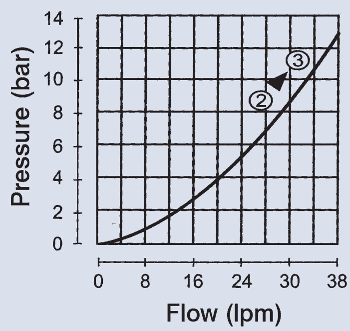
VSQ-08



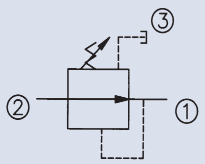


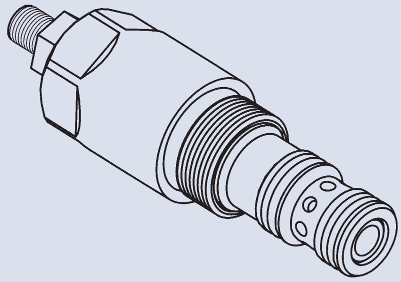
VSQ-10





CARTRIDGE PRESSURE REDUCING VALVE





How to order

VBP
VBR - 10 - ※ - ※
1 2 3 4

1	Model	
2	Mounting size	
3	Pressure adjusting range	
4	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

Model	Size	Cavity	See Page
VBP-10	10	CS10-3N	163
VBP-12	12	CS12-3N	164

Model	Size	Cavity	See Page
VBR-02	T-11A	CST-11A	167
VBR-03	T-2A	CST-2A	166
VBR-06	T-17A	CST-17A	167
VBR-10	T-19A	CST-19A	167

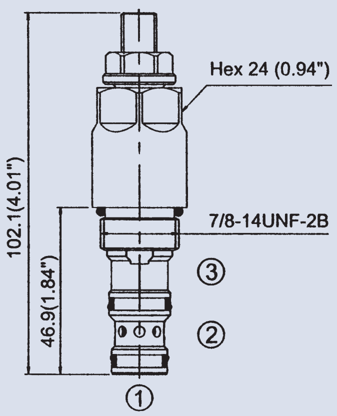
Specifications

<table>
<tr><th>Model</th><th>Max. Pressure (bar)</th><th>Pressure Adjusting Range (bar)</th><th>Max. Flow (lpm)</th><th>Weight (kg)</th></tr>
<tr><td>VBP-10</td><td rowspan="6">350</td><td rowspan="2">07: 6~70 14: 10~140
28: 70~280 35: 140~350</td><td>60</td><td>0.22</td></tr>
<tr><td>VBP-12</td><td>120</td><td>0.29</td></tr>
<tr><td>VBR-02</td><td rowspan="3">02: 4~20 04: 4~60
09: 4~100 20: 7~210</td><td>40</td><td>0.2</td></tr>
<tr><td>VBR-03</td><td>80</td><td>0.33</td></tr>
<tr><td>VBR-06</td><td>160</td><td>0.6</td></tr>
<tr><td>VBR-10</td><td>04: 4~60 09: 4~100
20: 7~210 31: 10~315</td><td>320</td><td>1.3</td></tr>
</table>

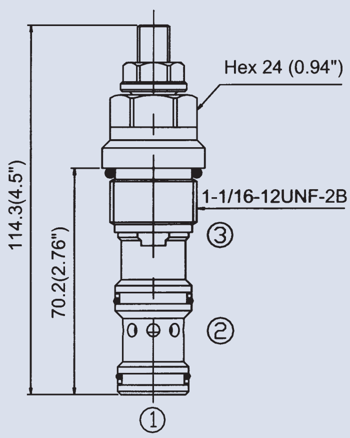
Dimensions

Unit: mm
(inch)

VBP-10



VBP-12

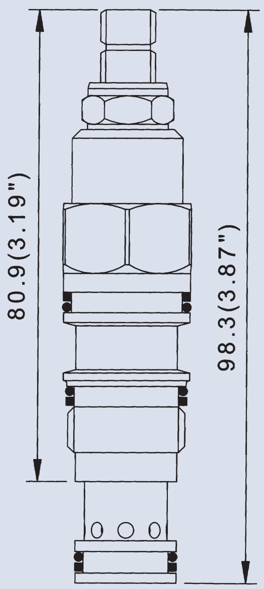


CARTRIDGE PRESSURE REDUCING VALVE

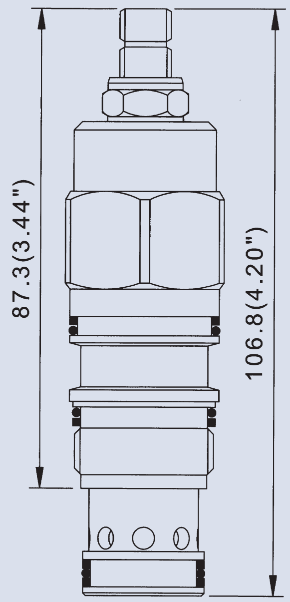
Dimensions

Unit: mm
(inch)

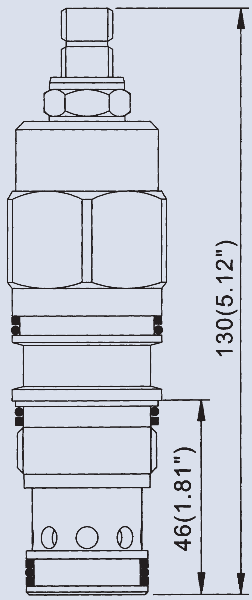
VBR-02



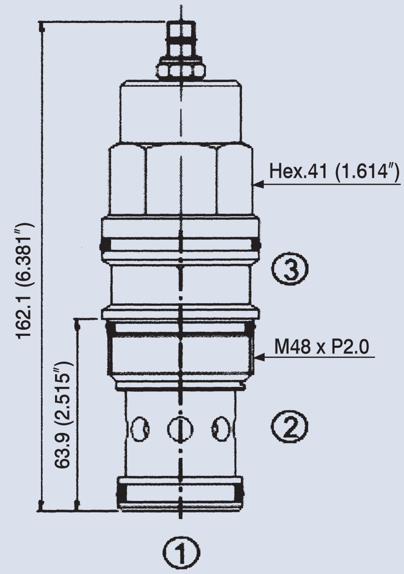
VBR-03



VBR-06

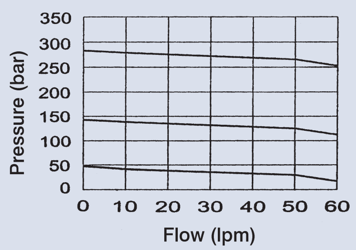


VBR-10

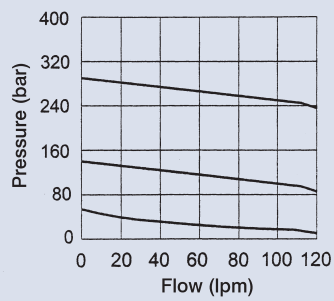


Performance curves

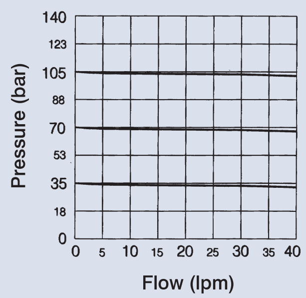
VBP-10



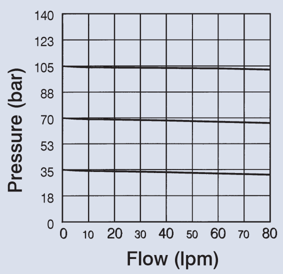
VBP-12



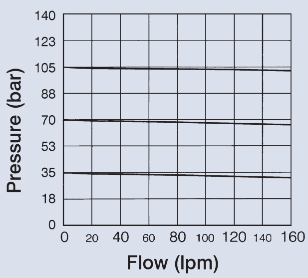
VBR-02



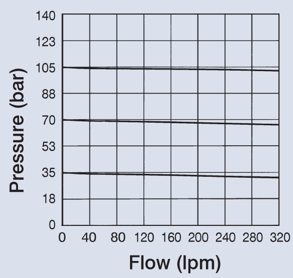
VBR-03



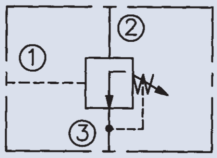
VBR-06



VBR-10



CARTRIDGE SEQUENCE VALVE



How to order

VS - 08 - 16 - ※
1 2 3 4

1	Model	
2	Mounting size	08: Size 08 Cavity: CS08-3N (see page 163) 10: Size 10 Cavity: CS10-3N (see page 163)
3	Pressure adjusting range	
4	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

Specifications

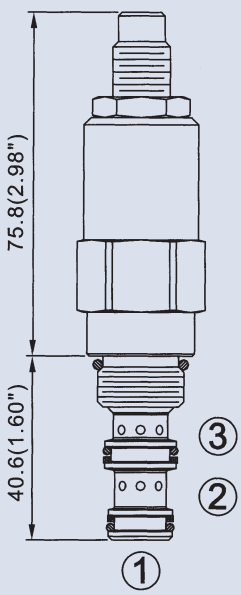
Model	Max. Pressure (bar)	Pressure Adjusting Range (bar)	Max. Flow (lpm)	Weight (kg)
VS-08	240	02: 4~20 04: 7~40 09: 11~89 16: 21~165	18	0.3
VS-10			37	0.35

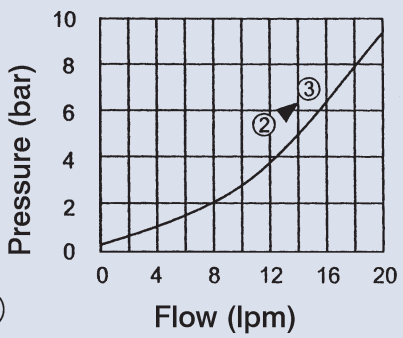
Dimensions/Performance curves

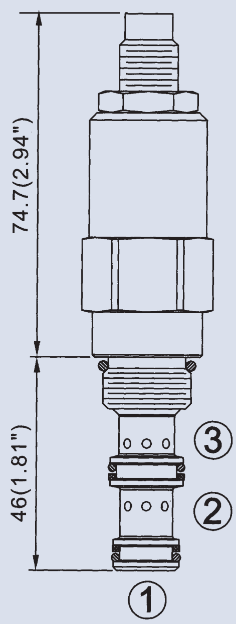
VS-08

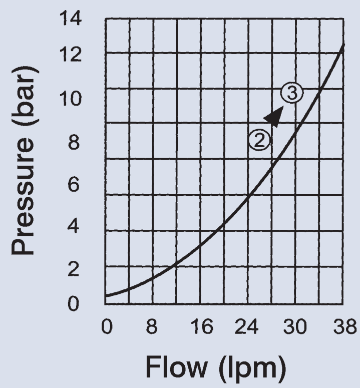
VS-10

Unit: mm
(inch)

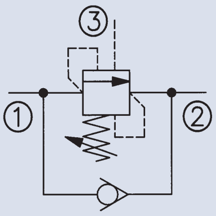


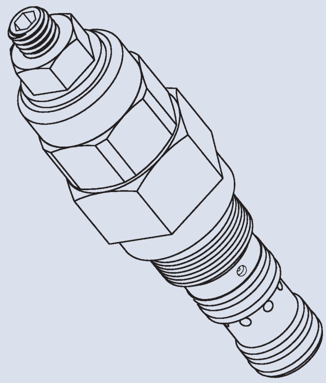






CARTRIDGE COUNTERBALANCE VALVE





How to order

VCQ - 08 - 20 - ※ - 4A

1 2 3 4 5

1 Model

2 Mounting size

Model	Size	Cavity	See Page
VCQ-08	08	CS08-3S	164
VCQ-08N	08	CS08-3N	163
VCQ-10	10	CS10-3S	165
VCQ-12	12	CS12-3S	165
VCQ-16	16	CS16-3S	165
VCQ-20	20	CS20-3S	165

3 Pressure adjusting range

Model	Pilot Ratio	Code	Pressure Adjusting Range (bar)
VCQ-08 VCQ-08N	4: 1	20	100~210
		35	200~350
VCQ-10	3: 1 8: 1	20	70~210
		35	140~350

Model	Pilot Ratio	Code	Pressure Adjusting Range (bar)
VCQ-12	4: 1 8: 1	20	70~210
		35	140~350
VCQ-16 VCQ-20	4: 1 8: 1	20	70~210
		35	140~350
		40	140~420

4 Adjustment option None: Tool adjustment K: Hand-bar adjustment

5 Pilot ratio 3A: 3:1 4A: 4:1 8A: 8:1

Specifications

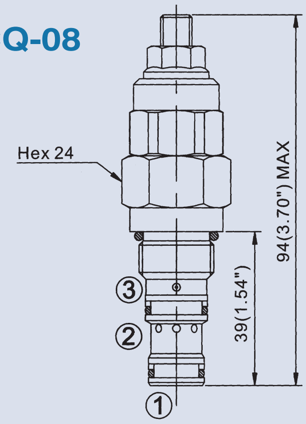
Model	Max. Pressure (bar)	Pressure Adj. Range (bar)	Pilot Ratio	Max. Flow (lpm)	Weight (kg)
VCQ-08	350	20: 100~210 35: 200~350	4: 1	30	0.19
VCQ-08N	350	20: 100~210 35: 200~350	4: 1	30	0.19
VCQ-10	350	20: 70~210 35: 140~350	3: 1 8: 1	60	0.22
VCQ-12	350	20: 70~210 35: 140~350	4: 1 8: 1	120	0.38
VCQ-16	420	20: 70~210 35: 140~350 40: 140~420	4: 1 8: 1	200	0.6
VCQ-20	420	20: 70~210 35: 140~350 40: 140~420	4: 1 8: 1	320	0.87

CARTRIDGE COUNTERBALANCE VALVE

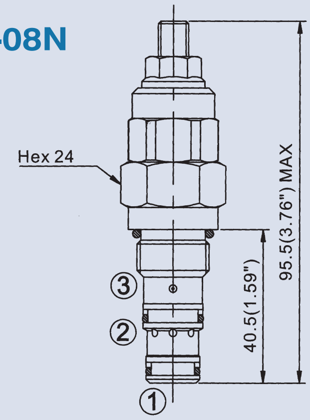
Dimensions

Unit: mm
(inch)

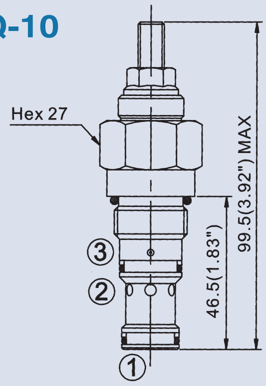
VCQ-08



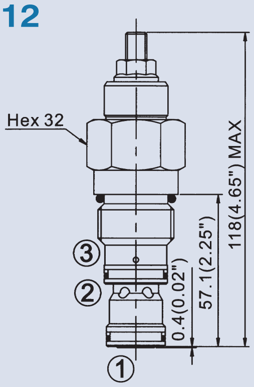
VCQ-08N



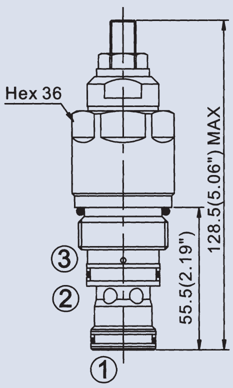
VCQ-10



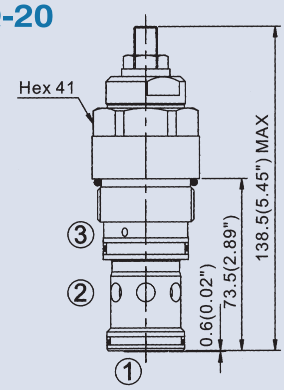
VCQ-12



VCQ-16

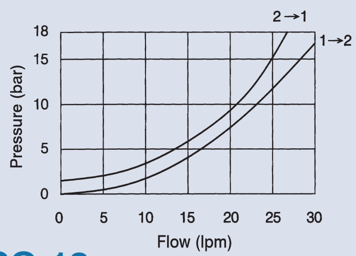


VCQ-20

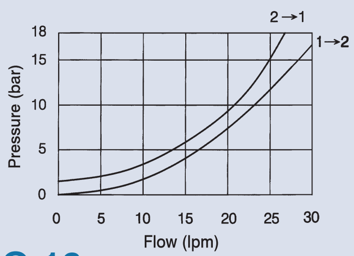


Performance curves

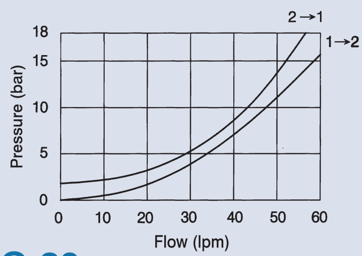
VCQ-08



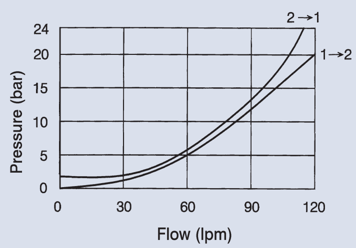
VCQ-08N



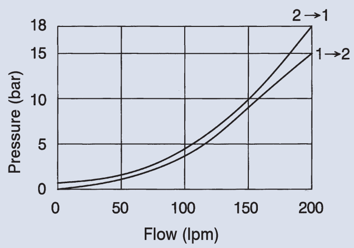
VCQ-10



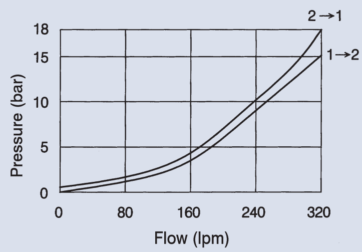
VCQ-12



VCQ-16

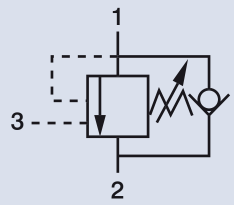


VCQ-20



CARTRIDGE COUNTERBALANCE VALVE

CONTROL PORT



E

How to order

VCB - 02 - 28 - 3A

1 2 3 4

1 Model VCB: Overcentre valve pilot assisted relief with check

2 Mounting size

Model	Size	Cavity	See Page
VCB-02	T-11A	CST-11A	167
VCB-03	T-2A	CST-2A	166
VCB-06	T-17A	CST-17A	167
VCB-10	T-19A	CST-19A	167

3 Pressure adjusting range

Check Spring Pressure 1.8 bar

Pilot Ratio	Code	Pressure Adjusting Range (bar)
3: 1	10	30~105
	28	70~280
4.5: 1	17	70~175
10: 1	35	140~350

Check Spring Pressure 0.3 bar

Pilot Ratio	Code	Pressure Adjusting Range (bar)
3: 1	25	25~105
	70	70~280
4.5: 1	80	70~175
10: 1	14	140~350

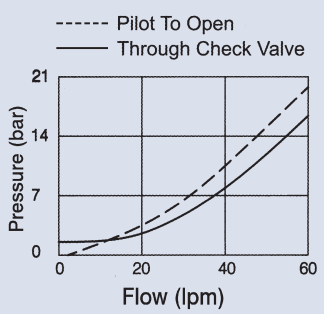
4 Pilot ratio 3A: 3:1 4A: 4.5:1 10A: 10:1

Specifications

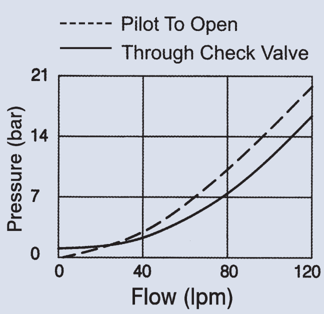
Model	Max. Pressure (bar)	Pressure Adj. Range (bar)	Pilot Ratio	Max. Flow (lpm)	Weight (kg)
VCB-02	350	10: 30~105 14: 140~350	3: 1	60	0.2
VCB-03		17: 70~175 25: 25~105	4.5: 1	120	0.3
VCB-06		28: 70~280 35: 140~350	10: 1	240	0.61
VCB-10		70: 70~280 80: 70~175		480	1.6

Performance curves

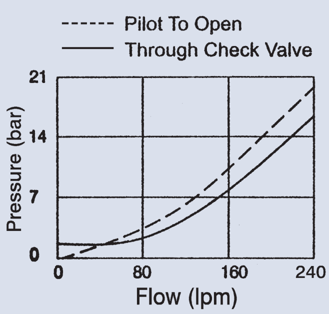
VCB-02



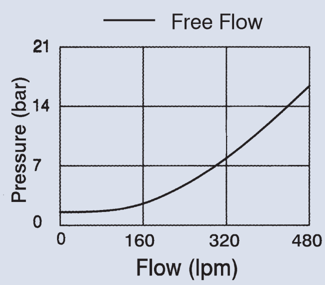
VCB-03



VCB-06



VCB-10

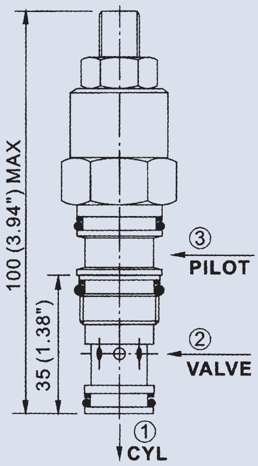


CARTRIDGE COUNTERBALANCE VALVE

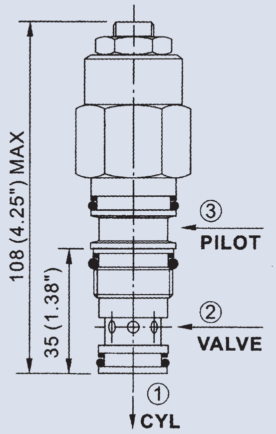
Dimensions

Unit: mm
(inch)

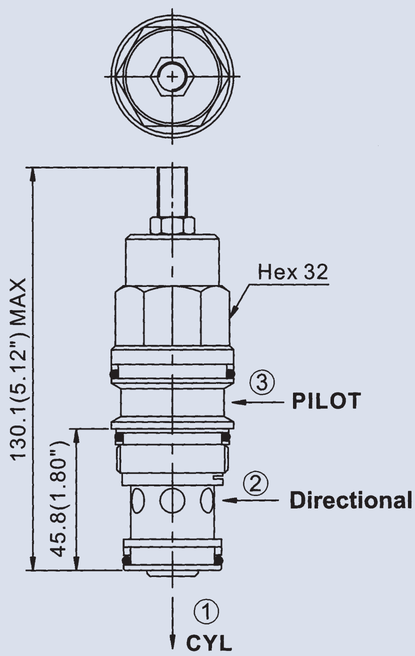
VCB-02



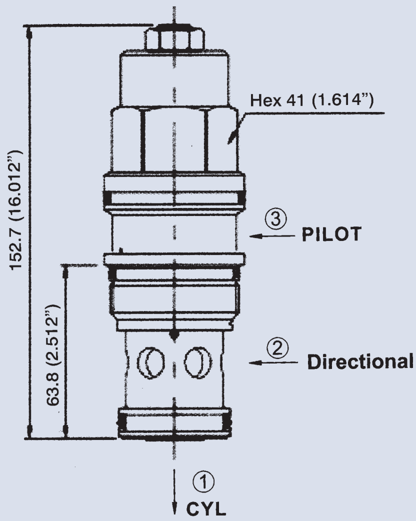
VCB-03



VCB-06



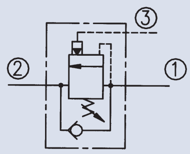
VCB-10

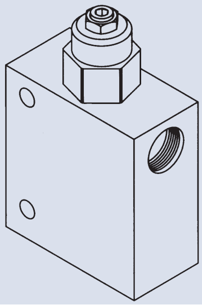


E

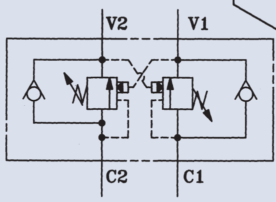
CARTRIDGE COUNTERBALANCE VALVE WITH BODY

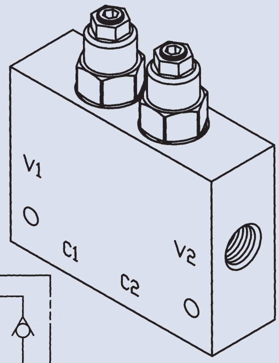
VCBD





VCBL





E

How to order

VCBD
VCBL - 02 - 28 - A - 1P - 3A - AL
1 2 3 4 5 6 7

1 Model VCBD: Single valve VCBL: Double valve

2 Valve size (see model VCB)

3 Pressure adjusting range

Check Spring Pressure 1.8 bar

Pilot Ratio	Code	Pressure Adjusting Range (bar)
3: 1	10	30~105
	28	70~280
4.5: 1	17	70~175
10: 1	35	140~350

Check Spring Pressure 0.3 bar

Pilot Ratio	Code	Pressure Adjusting Range (bar)
3: 1	25	25~105
	70	70~280
4.5: 1	80	70~175
10: 1	14	140~350

4 Port size VCBD-02 A: 1/4, B: 3/8 VCBD-03 A: 3/8, B: 1/2 VCBD-06 A: 3/4, B: 1
VCBL-02 A: 3/8, B: 1/2 VCBL-03 A: 3/4, B: 1/2 VCBL-06 A: 1, B: 3/4

5 Port thread 1P: PT 2N: NPT 3G: PF (G) 4A: SAE

6 Pilot ratio 3A: 3:1 4A: 4.5:1 10A: 10:1

7 Body material AL: Aluminum (normal) S: Steel

Specifications

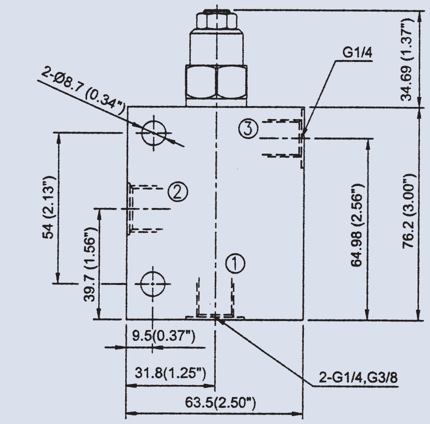
Model	Max. Pressure (bar)		Adjusting Pressure Range (bar)	Pilot Ratio	Max. Flow (lpm)	Weight (kg)	
	Aluminum Body	Steel Body				Aluminum Body	Steel Body
VCBD-02-※-AL (S)	240	350	10: 30~105 14: 140~350 17: 70~175 25: 25~105 28: 70~280 35: 140~350 70: 70~280 80: 70~175	3: 1 4.5: 1 10: 1	60	0.63	1.35
VCBD-03-※-AL (S)					120	0.93	2.1
VCBD-06-※-AL (S)					240	2.37	5.32
VCBL-02-※-AL (S)					60	1.09	2.2
VCBL-03-※-AL (S)					120	1.61	3
VCBL-06※-AL (S)					240	3.91	7.3

CARTRIDGE COUNTERBALANCE VALVE WITH BODY

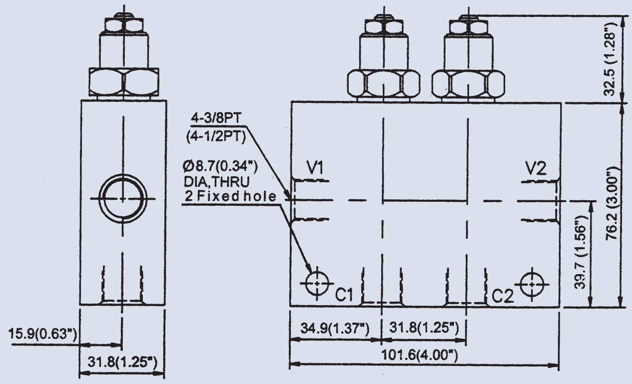
Dimensions

Unit: mm
(inch)

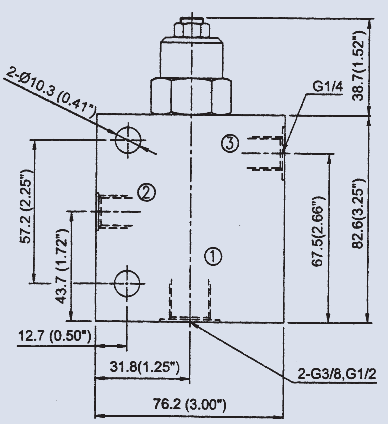
VCBD-02



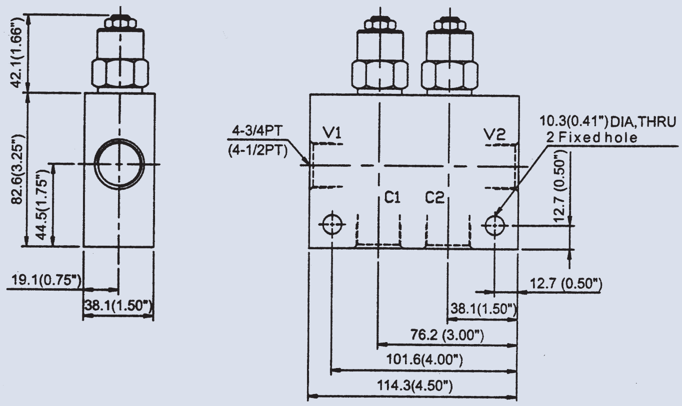
VCBL-02



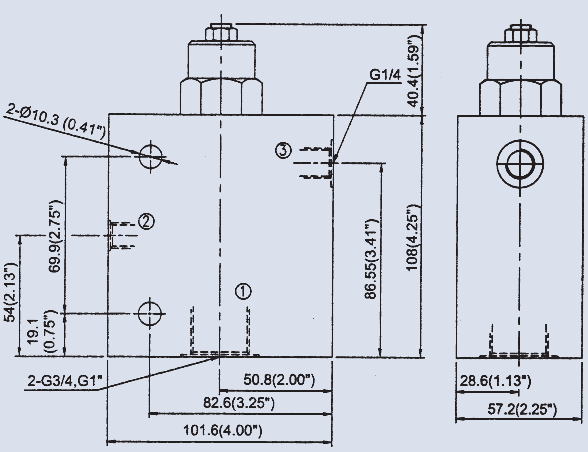
VCBD-03



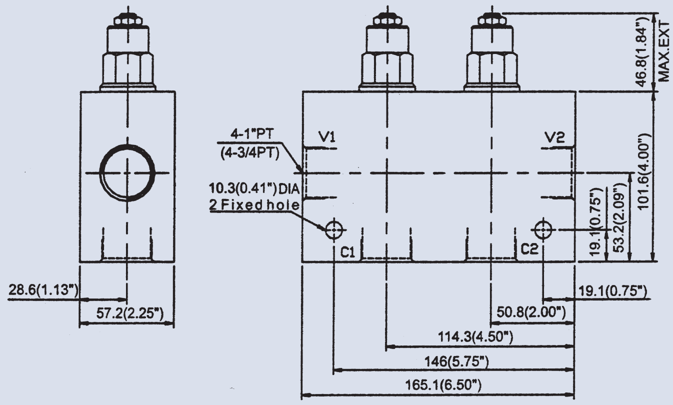
VCBL-03



VCBD-06

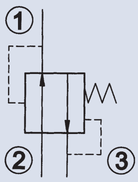


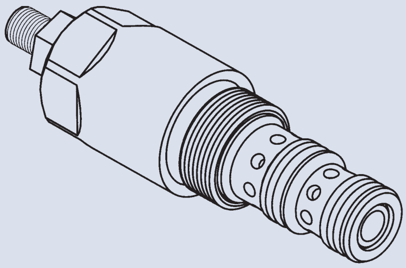
VCBL-06



E

CARTRIDGE BALANCE VALVE





How to order

VGR - 10 - 28 - ※
1 2 3 4

1	Model	
2	Mounting size	10: Size 10 Cavity: CS10-3N (see page 163) 12: Size 12 Cavity: CS12-3N (see page 164)
3	Pressure adjusting range	
4	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

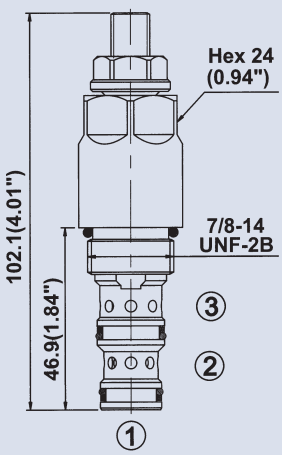
Specifications

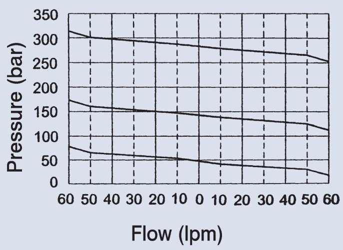
Model	Max. Pressure (bar)	Pressure Adjusting Range (bar)	Max. Flow (lpm)	Weight (kg)
VGR-10	350	07: 6~70 14: 10~140	60	0.22
VGR-12		28: 70~280 35: 140~350	120	0.29

Dimensions / Performance curves

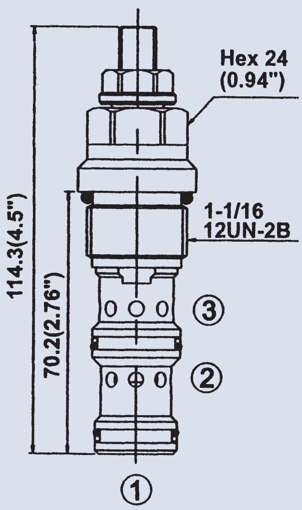
Unit: mm
(inch)

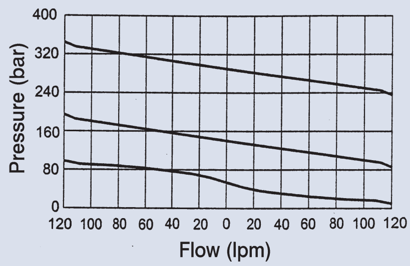
VGR-10



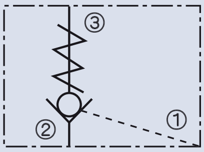


VGR-12





CARTRIDGE CHECK, PILOT TO OPEN



How to order

VPN - 08 - 30
1 2 3

1	Model	
2	Mounting size	08: Size 08 Cavity CS08-3N (see page 163) 10: Size 10 Cavity CS10-3N (see page 163)
3	Design no	

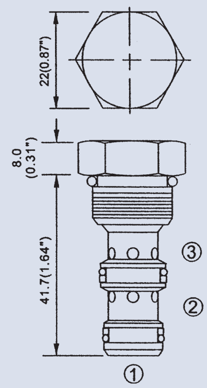
Specifications

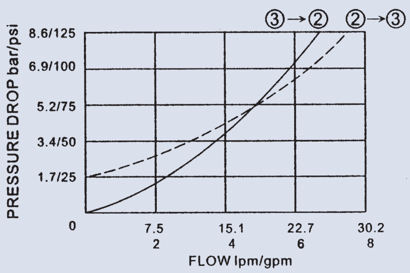
Model	Max. Pressure (bar)	Flow (lpm)	Weight (kg)
VPN-08	250	23	0.1
VPN-10		25	0.1

Dimensions / Performance curves

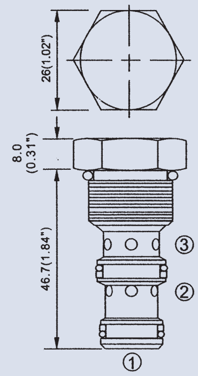
Unit: mm (inch)

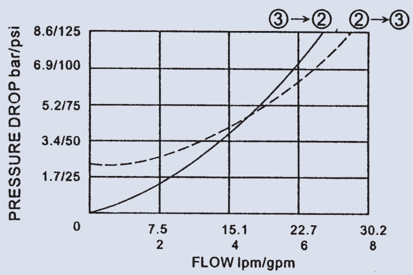
VPN-08



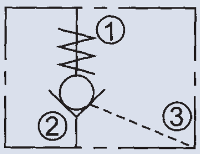


VPN-10





CARTRIDGE CHECK, PILOT TO OPEN



How to order

VCK - 03

1 2

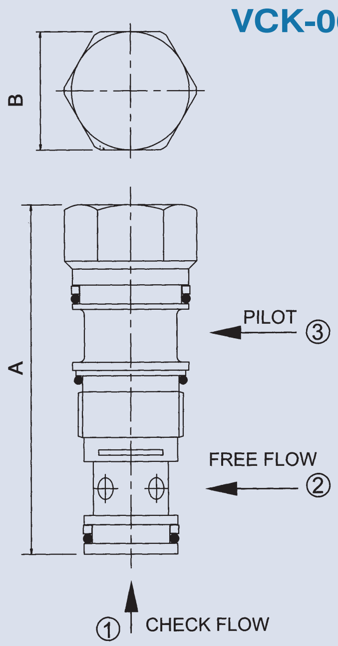
1	Model								
2	Mounting size	Model	Size	Cavity	See Page	Model	Size	Cavity	See Page
		VCK-02	T-11A	CST-11A	167	VCK-06	T-17A	CST-17A	167
		VCK-03	T-2A	CST-2A	166	VCK-10	T-19A	CST-19A	167

Specifications

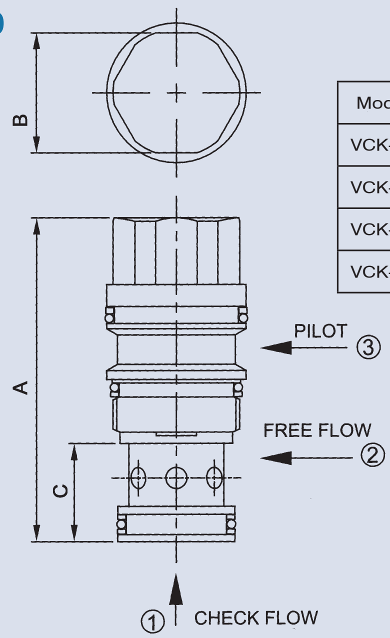
Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VCK-02	315	60	0.13
VCK-03		120	0.23
VCK-06	350	200	0.53
VCK-10		460	1.18

Dimensions

VCK-02, 03



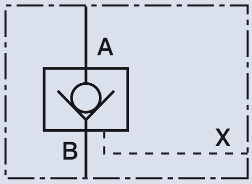
VCK-06, 10

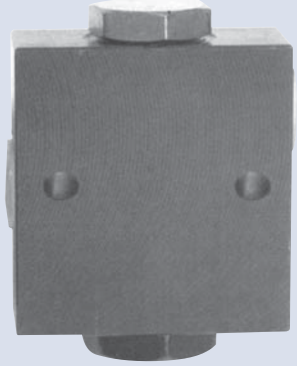


Unit: mm (inch)

Model	A	B	C
VCK-02	65 (2.56")	22 (0.87")	-
VCK-03	70 (2.76")	29 (1.14")	-
VCK-06	91.8 (3.61")	34 (1.34")	27.8 (1.09")
VCK-10	121.7 (4.79")	42 (1.65")	39.7 (1.56")

CARTRIDGE CHECK, PILOT TO OPEN WITH BODY





How to order

VPC - 10 - ※ - 10
1 2 3 4

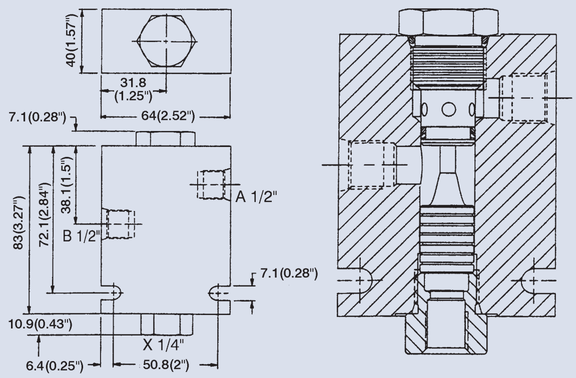
1	Model
2	Port size 10: 1/2" 16: 1"
3	Port thread 1: PT 2: NPT 3: SAE 4: BSP
4	Design no

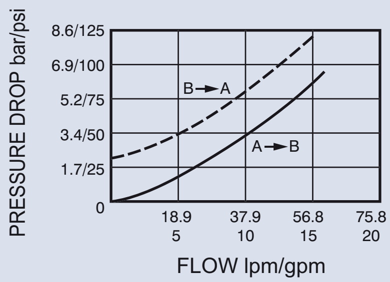
Specifications

Model	Max. Pressure (bar)	Flow (lpm)	Weight (kg)
VPC-10	350	70	2.2
VPC-16		150	5.8

Dimensions / Performance curves

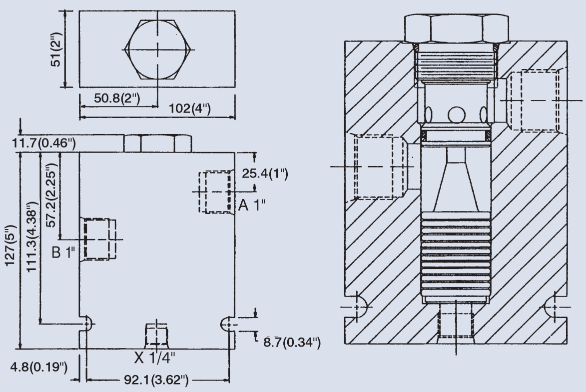
VPC-10

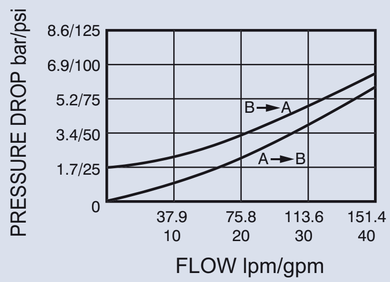




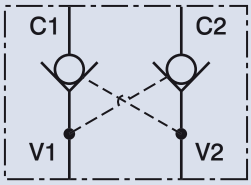
VPC-16

Unit: mm (inch)





CARTRIDGE DOUBLE PILOT OPERATED CHECK VALVE WITH BODY



E

How to order

VPCL - 08 - ※
1 2 3

1	Model	
2	Port size	08: 3/8" 10: 1/2" 12: 3/4"
3	Port thread	1: PT 2: NPT 3: SAE 4: BSP

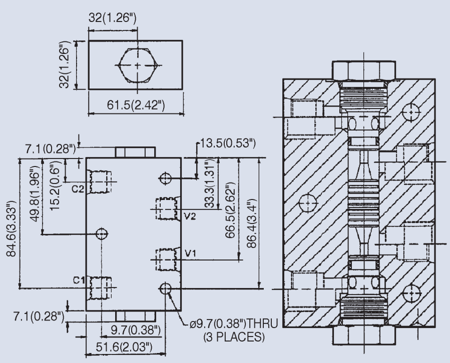
Specifications

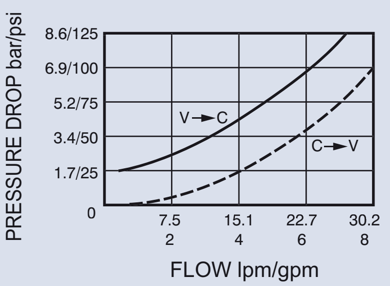
Model	Max. Pressure (bar)	Flow (lpm)	Weight (kg)
VPCL-08	350	30	2.5
VPCL-10		75	3.0
VPCL-12		95	7.5

Dimensions / Performance curves

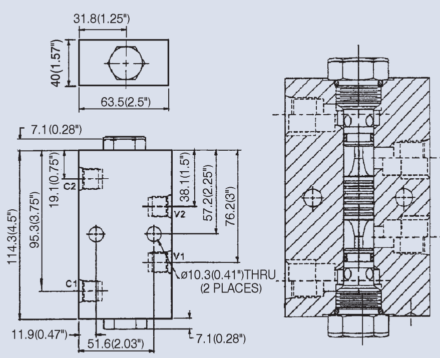
Unit: mm (inch)

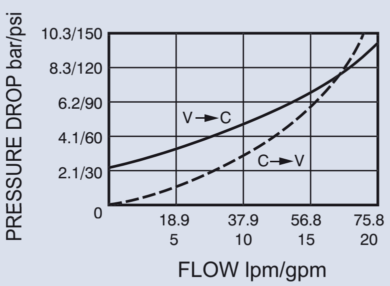
VPCL-08



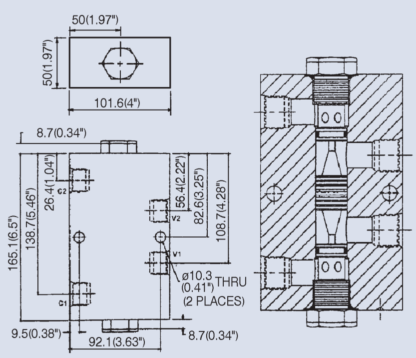


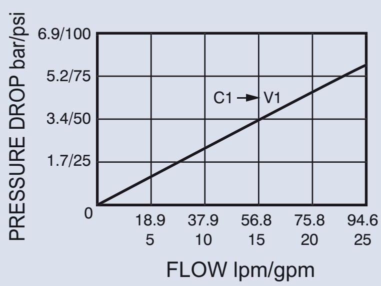
VPCL-10





VPCL-12





CARTRIDGE CHECK VALVE

How to order

VCV - 08 - 05 - 10

1 2 3 4

1 Model

2 Mounting size

Model	Size	Cavity	See Page
VCV-08	08	CS08-2N	163
VCV-10	10	CS10-2N	163
VCV-12	12	CS12-2N	163
VCV-16	16	CS16-2N	163
VCV-42	42	CS42-2N	163

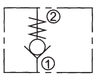
3 Cracking pressure

Model	Cracking Pressure	
VCV-08-※-10	0.5: 0.5 bar	50: 4 bar
VCV-10-※-10	0.5: 0.3 bar	50: 4 bar
VCV-12-※-10	0.5: 0.5 bar	50: 4 bar
VCV-16-※-10	0.5: 0.35 bar	50: 4 bar
VCV-42-※-10	0.5: 0.35 bar	50: 4 bar

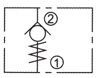
Model	Cracking Pressure
VCV-08-※-21	20: 2 bar
VCV-10-※-21	0.5: 0.3 bar 20: 1.7 bar 50: 3.9 bar
VCV-12-※-21	0.5: 0.5 bar 20: 1.8 bar 50: 3.8 bar

4 Control port

10 :



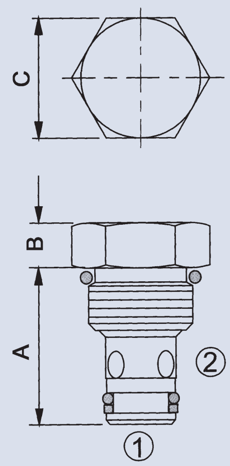
21 :



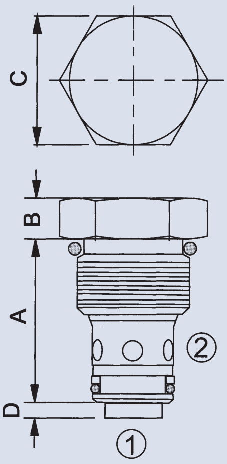
Specifications

Model	Max. Pressure (bar)	Flow (lpm)	Weight (kg)
VCV-08-※-10	350	30	0.06
VCV-10-※-10		75	0.08
VCV-12-※-10		94	0.18
VCV-16-※-10		150	0.26
VCV-42-※-10		380	0.43
VCV-08-※-21	250	30	0.06
VCV-10-※-21		50	0.1
VCV-12-※-21		100	0.2

Dimensions



Model	A	B	C
VCV-08-※-10	27.7 (1.09")	8 (0.31")	22 (0.87")
VCV-10-※-10	31.8 (1.25")	8 (0.31")	26 (1.02")
VCV-12-※-10	46 (1.81")	10 (0.39")	32 (1.26")
VCV-16-※-10	44.5 (1.75")	13 (0.51")	38 (1.5")
VCV-42-※-10	55.6 (2.19")	20.3 (0.83")	48 (1.89")
VCV-08-※-21	27.7 (1.09")	8 (0.31")	22.4 (0.88")



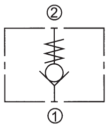
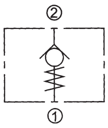
Unit: mm
(inch)

Model	A	B	C	D
VCV-10-※-21	34.5 (1.36")	8 (0.31")	26 (1.02")	2.3 (0.9)
VCV-12-※-21	48 (1.89")	10 (0.39")	32 (1.26")	4 (0.16")

CARTRIDGE CHECK VALVE

How to order

VCX
VCXE - 02 - 05
1 2 3

1	Model	VCX  VCXE 
2	Mounting size	see table below
3	Cracking pressure	0.5: 0.35 bar 50: 5 bar

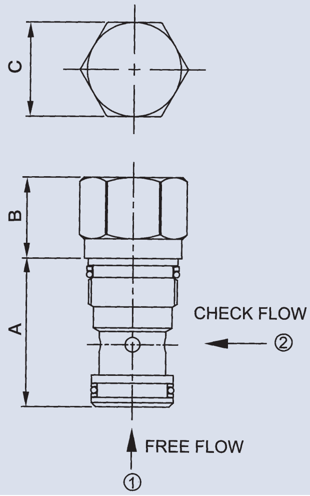
Model	Size	Cavity	See Page
VCX (VCXE)-02	T-13A	CST-13A	167
VCX (VCXE)-03	T-5A	CST-5A	166
VCX (VCXE)-06	T-16A	CST-16A	167
VCX (VCXE)-10	T-18A	CST-18A	167

Specifications

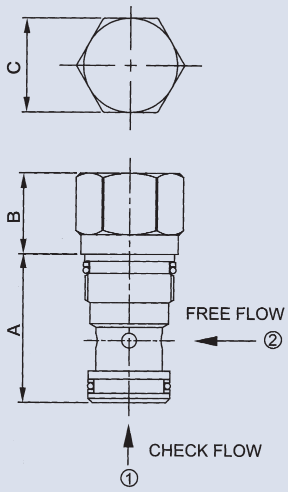
Model	Max. Pressure (bar)	Flow (lpm)	Weight (kg)
VCX-02	350	80	0.15
VCX-03		140	0.19
VCX-06		320	0.63
VCX-10		640	1.3
VCXE-02		60	0.15
VCXE-03		100	0.19
VCXE-06		210	0.63
VCXE-10		420	1.3

Dimensions

VCX



VCXE

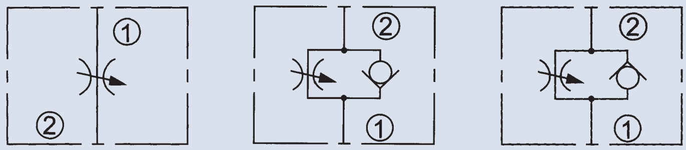


Unit: mm (inch)

Model	A	B	C
VCX-02	34.9 (1.37")	19.1 (0.75")	22.2 (0.87")
VCX-03	41.3 (1.63")	17.5 (0.69")	28.6 (1.13")
VCX-06	61.9 (2.44")	24.6 (0.97")	31.8 (1.25")
VCX-10	79.5 (3.13")	30.2 (1.19")	41 (1.61")
VCXE-02	34.9 (1.37")	19.1 (0.75")	22.2 (0.87")
VCXE-03	41.3 (1.63")	17.5 (0.69")	28.6 (1.13")
VCXE-06	61.9 (2.44")	24.6 (0.97")	31.8 (1.25")
VCXE-10	79.5 (3.13")	30.2 (1.19")	41 (1.61")

CARTRIDGE FLOW CONTROL VALVE

Control Port



VTV-※-※ VTC-※-※-20 VTC-※-※-22

How to order

VTV
VTC - 08 - ※ - ※
1 2 3 4

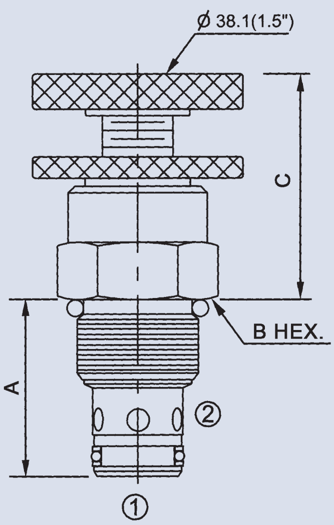
1	Model	VTV: Without check	VTC: With check		
2	Mounting size	Model	Size	Cavity	See Page
		VTV (VTC)-08	08	CS08-2N	163
		VTV (VTC)-10	10	CS10-2N	163
		VTV (VTC)-12	12	CS12-2N	163
3	Adjustment option	None: Tool adjustment	K: Hand-bar adjustment		
4	Control port	20, 22: For model VTC only			

Specifications

Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VTV-08	350	45	0.13
VTV-10		56	0.18
VTV-12		128	0.32
VTC-08-※-20		45	0.14
VTC-10-※-20	240	45	0.17
VTC-10-※-22		57	0.17
VTC-12-※-20		130	0.2

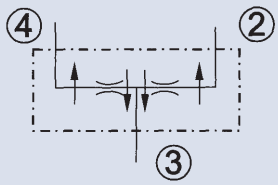
Dimensions

Unit: mm
(inch)



Model	A	B	C
VTV-08	27.7 (1.09")	22 (0.87")	40 (1.57")
VTV-10	31.8 (1.25")	25 (0.98")	40 (1.57")
VTV-12	46 (1.81")	32 (1.26")	49 (1.93")
VTC-08-※-20	27.7 (1.09")	22 (0.87")	40 (1.57")
VTC-10-※-20	31.8 (1.25")	26 (1.02")	40.1 (1.58")
VTC-10-※-22	34.5 (1.36")	26 (1.02")	40.1 (1.58")
VTC-12-※-20	46 (1.81")	32 (1.26")	47.9 (1.89")

CARTRIDGE FLOW DIVIDER



How to order

VFD - 10 - 45
1 2 3

1	Model	
2	Mounting size	10: Size 10 Cavity: CS10-4N (see page 164) 12: Size 12 Cavity: CS12-4N (see page 164) 16: Size 16 Cavity: CS16-4N (see page 164)
3	Flow range	see table below

Model	Flow Range (lpm)
VFD-10-※	07: 2.3~7.6 15: 4.5~15 22: 6.8~22.7 30: 9~30 37: 11~37 45: 13.5~45
VFD-12-※	60: 30~60 70: 43~74 90: 53~90
VFD-16-※	90: 90 110: 110 150: 150 190: 194

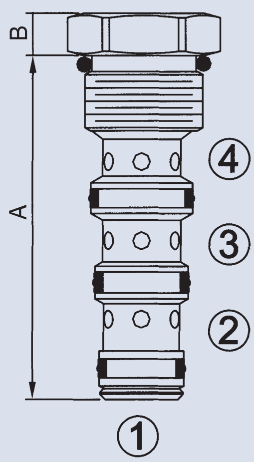
Division or combination ratio 50%-50%

Specifications

Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VFD-10	350	45	0.15
VFD-12		90	0.3
VFD-16		194	0.4

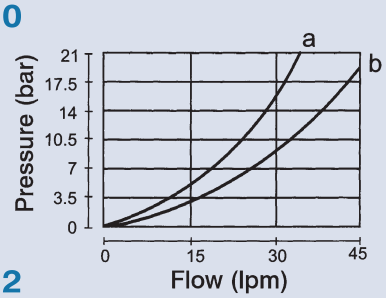
Dimensions / Performance curves

Unit: mm (inch)

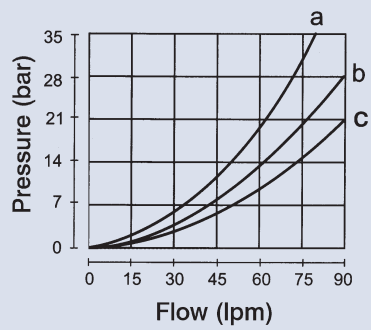


Model	A	B
VFD-10	64 (2.52")	7.9 (0.31")
VFD-12	98.6 (3.88")	9.5 (0.37")
VFD-16	104.6 (4.12")	12.5 (0.49")

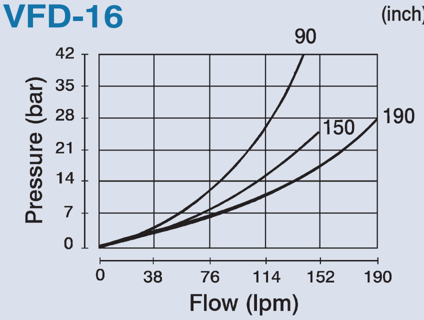
VFD-10



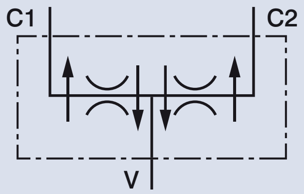
VFD-12

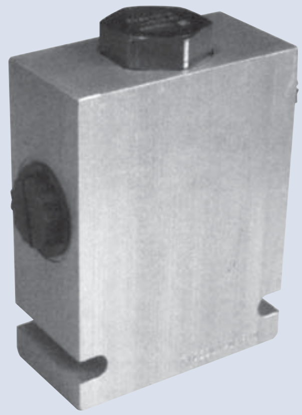


VFD-16



CARTRIDGE FLOW DIVIDER WITH BODY





E

How to order

VFD - 04 - 11 - ※
1 2 3 4

1	Model	
2	Port size	03: 3/8" 04: 1/2" 05: 3/4" 06: 3/4" 08: 1"
3	Flow range	see table below
4	Port thread	1P: PT 2N: NPT 3G: PF (G) 4A: SAE

Model	Flow Range (lpm)					
VFD-03	07: 2.3~7.6	15: 4.5~15	22: 6.8~22.7	30: 9~30	37: 11~37	45: 13.5~45
VFD-04	11: 6.5~11	25: 10~25	38: 25~38			
VFD-05	60: 30~60	70: 43~74	90: 53~90			
VFD-06	90: 90	110: 110	150: 150			
VFD-08	90: 90	110: 110	150: 150	190: 194		

Division or combination ratio 50%-50%

Specifications

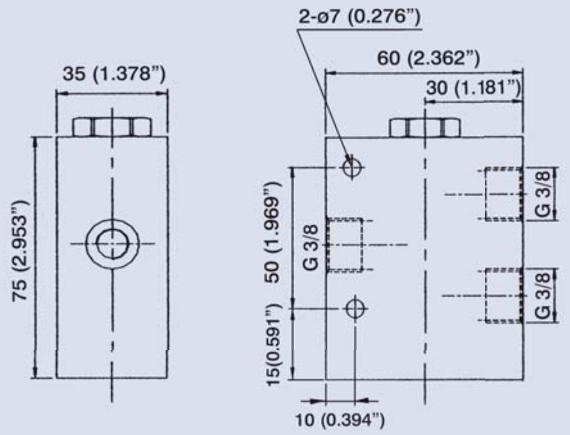
Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VFD-03	250	45	0.6
VFD-04	210	38	0.8
VFD-05	250	90	2.05
VFD-06		150	2
VFD-08		194	2

CARTRIDGE FLOW DIVIDER WITH BODY

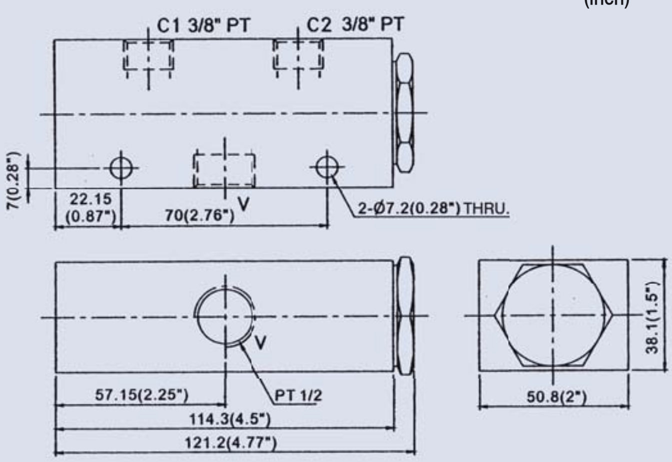
Dimensions

Unit: mm
(inch)

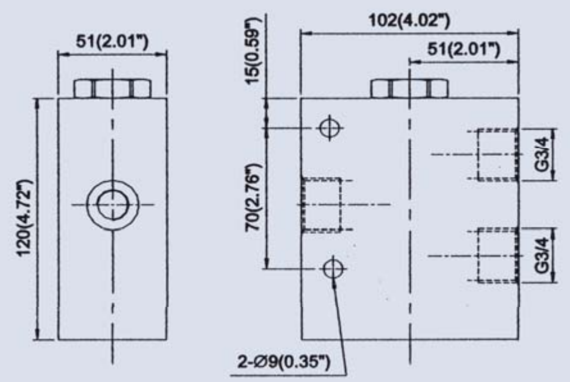
VFD-03



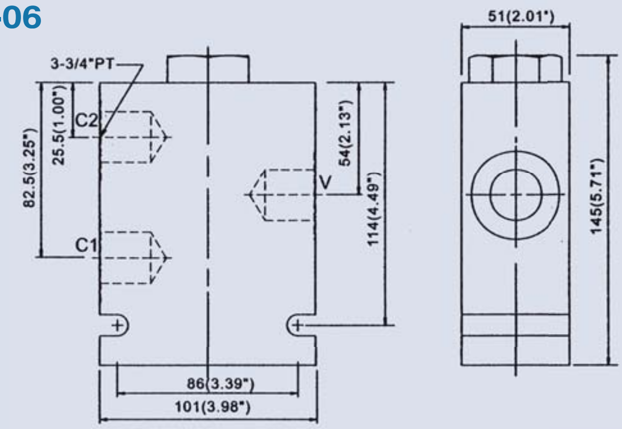
VFD-04



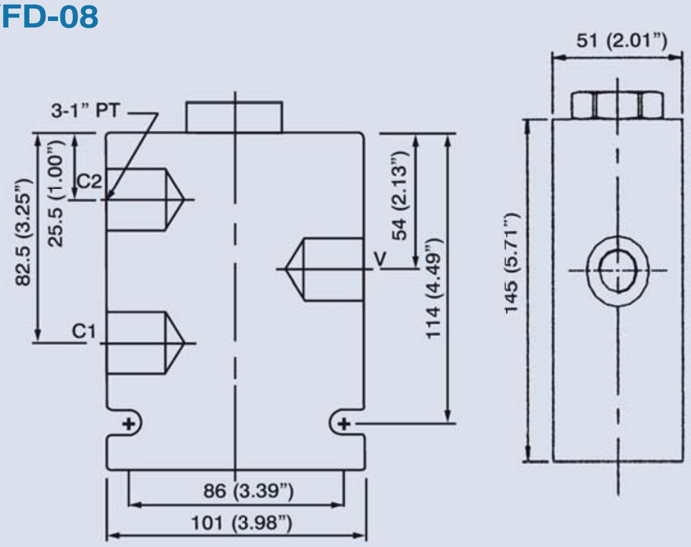
VFD-05



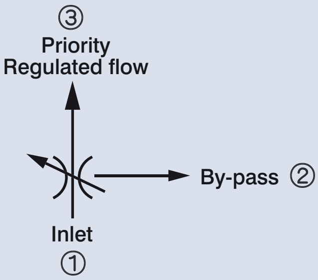
VFD-06



VFD-08



CARTRIDGE PRIORITY FLOW DIVIDER



E

How to order

VF - 10 - ※
1 2 3

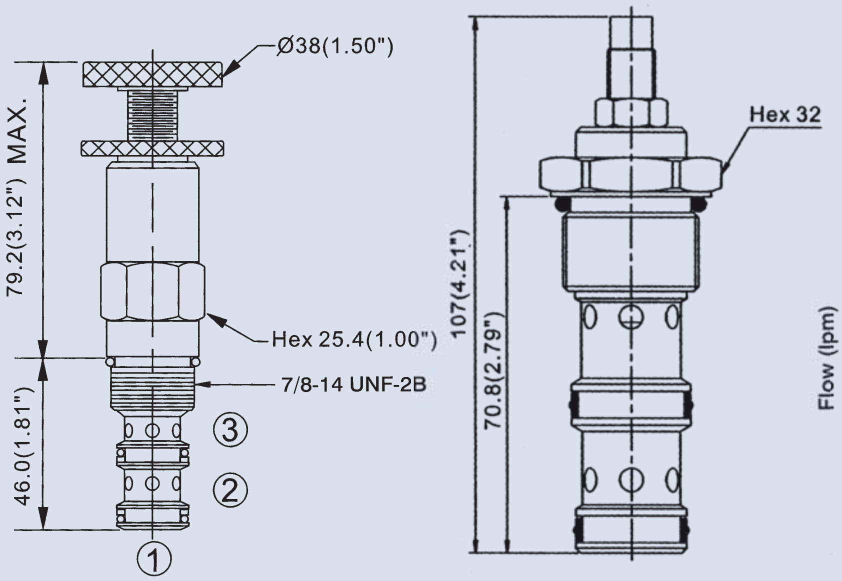
1	Model	
2	Mounting size	10: Size 10 Cavity CS10-3N (see page 163) 12: Size 12 Cavity CS12-3N (see page 164)
3	Adjustment option	None: Tool adjustment K: Hand-bar adjustment

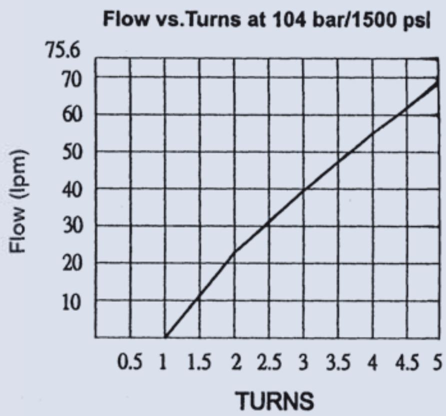
Specifications

Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VF-10	210	57	0.24
VF-12	240	75	0.4

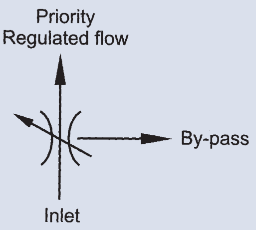
Dimensions

Unit: mm
(inch)





CARTRIDGE PRIORITY FLOW DIVIDER



How to order

VF - 50 - 30 - T
1 2 3

1	Model	
2	Flow adjusting range	15: 0~16 lpm 30: 0~32 lpm
3	Mounting type	T: Thread connecting G: Sub-plate mounting

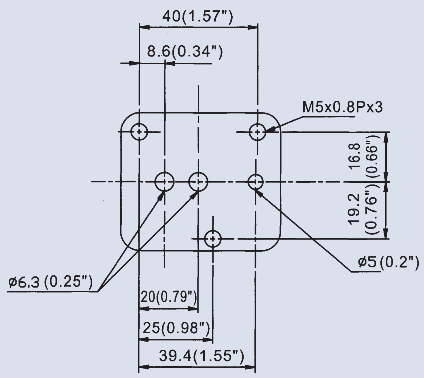
Specifications

Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VF-50	248	49	0.75

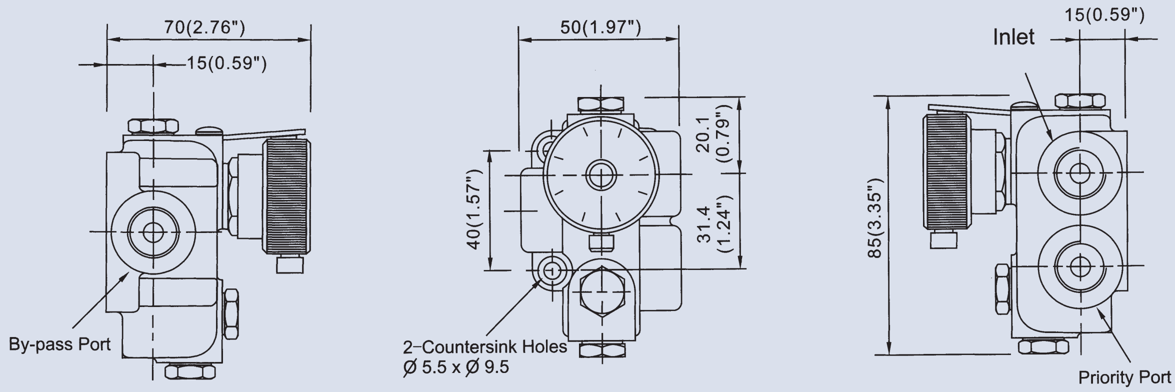
Dimensions

SUBPLATE

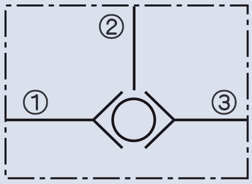
Unit: mm
(inch)



DIMENSIONS



CARTRIDGE SHUTTLE VALVE



How to order

VLS - 04
1 2

1	Model	
2	Mounting size	04: Size 04 Cavity CS04 (see page 163) 08: Size 08 Cavity CS08-3N (see page 163) 10: Size 10 Cavity CS10-3N (see page 163)

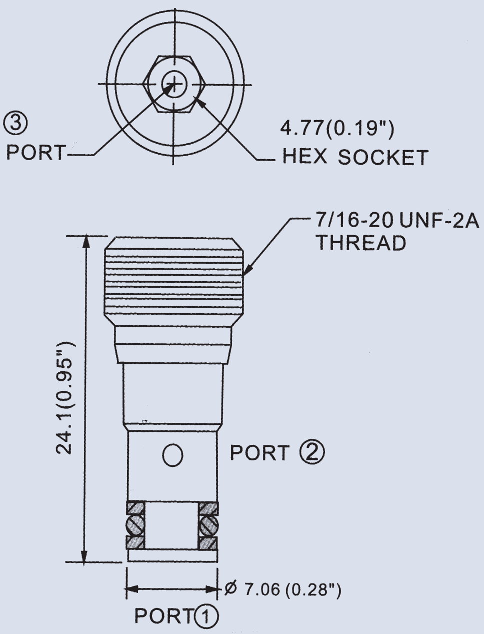
Specifications

Model	Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)
VLS-04	350	6	0.01
VLS-08		19	0.07
VLS-10		30	0.09

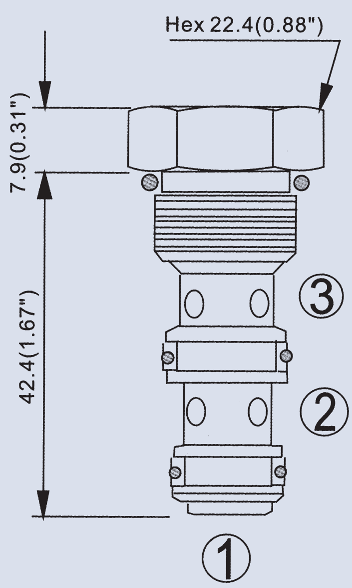
Dimensions

Unit: mm
(inch)

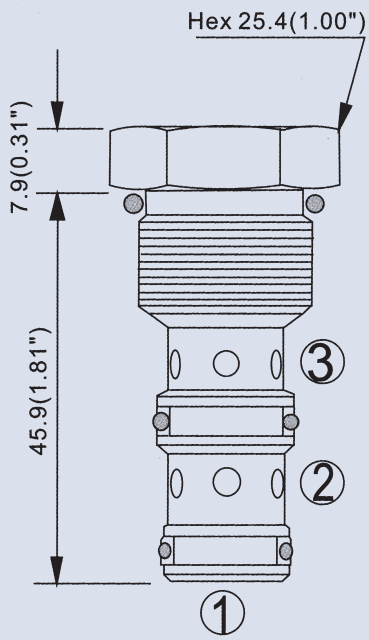
VLS-04



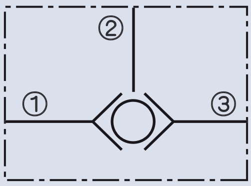
VLS-08



VLS-10



SHUTTLE VALVE



E

How to order

SH - 02 G
1 2 3

1	Model	
2	Valve size	02: 1/4" 03: 3/8"
3	Mounting type	G: Sub-plate mounting T: Thread connection

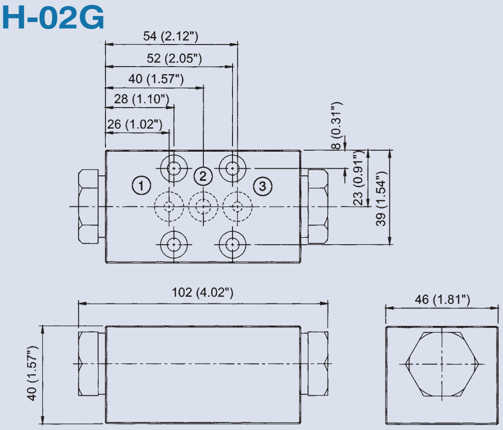
Specifications

Model		Max. Pressure (bar)	Max. Flow (lpm)	Weight (kg)	
Sub-Plate Mounting	Thread Connection			SH-02G	SH-02T / SH-03T
SH-02G	SH-02T	250	20	1.08	0.2
	SH-03T		25		0.8

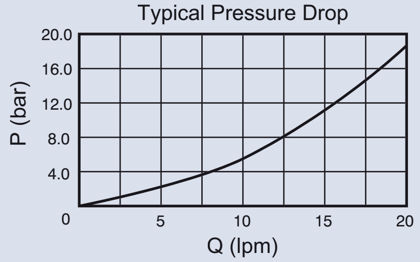
Dimensions / Performance curves

Unit: mm (inch)

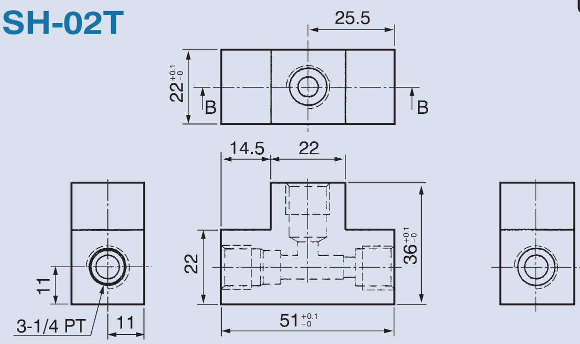
SH-02G



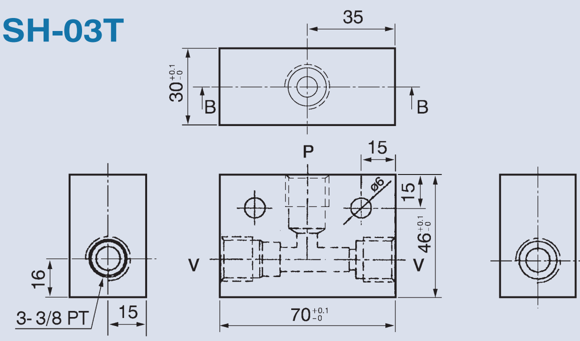
Typical Pressure Drop



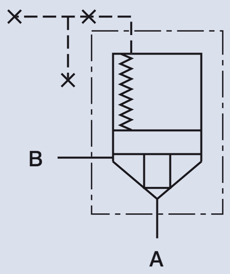
SH-02T



SH-03T



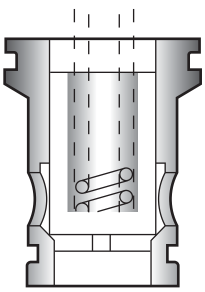
LOGIC VALVE



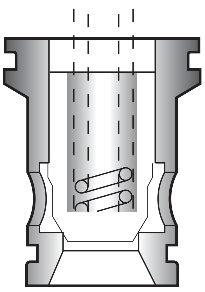
How to order

LCV - 16 - 05 - E - NC
1 2 3 4 5

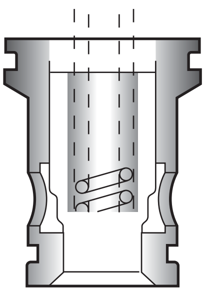
1	Model	
2	Valve size	
3	Cracking pressure	05: 0.5 bar 20: 2 bar 50: 5 bar
4	Valve type	B: Pressure control E: Directional / flow control D: Directional / flow control with cushion
5	Control type	NC: Normal closed NO: Normal open



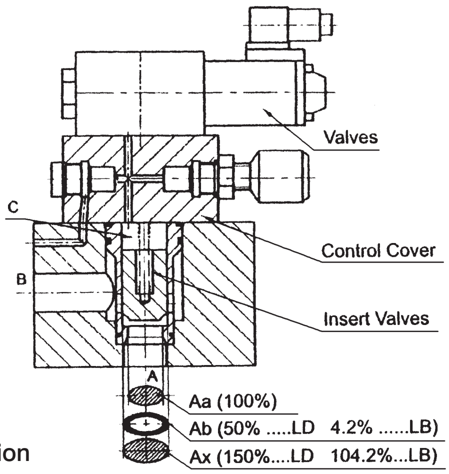
B: Pressure

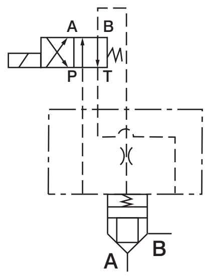


E: Directional / Flow



D: Directional / Flow With Cushion





Specifications

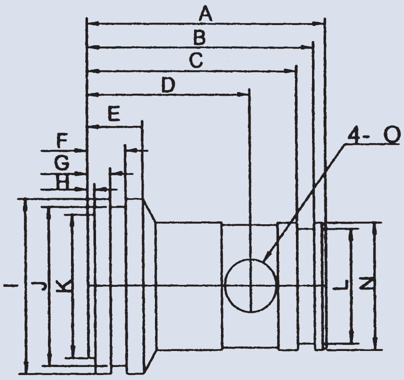
Model	Max. Flow (lpm)	Rated Flow (lpm)	Max. Pressure (bar)	Cracking Pressure (bar)	Ratio of Poppet Area	Weight (kg)
LCV-16	200	130				0.18
LCV-20	310	230				0.32
LCV-25	450	350		05: 0.5		0.43
LCV-32	700	500	315	20: 2	2 : 1	0.87
LCV-40	1100	850		50: 5		1.59
LCV-50	1700	1400				2.74
LCV-63	2800	2100				5.80

LOGIC VALVE

Dimensions / Performance curves

LCV

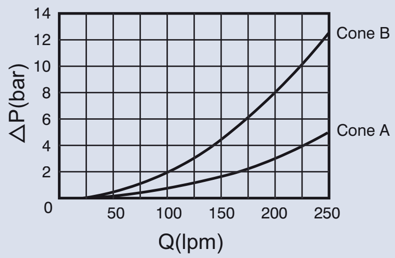
Unit: mm
(inch)



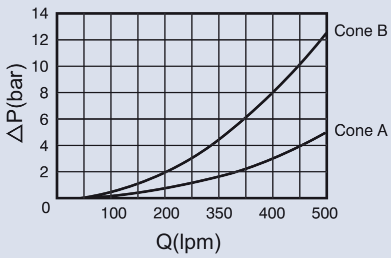
Size	A	B	C	D	E	F	G	H	I	J	K	L	N	O
16	56 (2.20")	52 (2.05")	46.5 (1.83")	37 (1.46")	16 (0.63")	10.5 (0.41")	7 (0.28")	2.4 (0.09")	32 (1.26")	29.2 (1.15")	23.7 (0.93")	22.2 (0.87")	25 (0.98")	10 (0.39")
20	64 (2.52")	61 (2.40")	53.5 (2.11")	40 (1.57")	14 (0.55")	11.4 (0.45")	6 (0.24")	2.3 (0.09")	40 (1.57")	35 (1.38")	26 (1.02")	25 (0.98")	30 (1.18")	11 (0.43")
25	72 (2.83")	69 (2.72")	62.6 (2.46")	43 (1.69")	16 (0.63")	13.5 (0.53")	8.8 (0.35")	1.8 (0.07")	45 (1.77")	40.8 (1.61")	37 (1.46")	29.8 (1.17")	34 (1.34")	14 (0.55")
32	85 (3.35")	81 (3.19")	74.6 (2.94")	58 (2.28")	20 (0.79")	13.6 (0.54")	8 (0.31")	2.4 (0.09")	60 (2.36")	55 (2.17")	47.5 (1.87")	40.8 (1.61")	45 (1.77")	18 (0.71")
40	105 (4.13")	97 (3.82")	90.6 (3.57")	66.5 (2.62")	24 (0.94")	15.6 (0.61")	10 (0.39")	2.4 (0.09")	75 (2.95")	70 (2.76")	62 (2.44")	50.8 (2")	55 (2.17")	23.5 (0.93")
50	122 (4.8")	114 (4.49")	107.6 (4.24")	83 (3.27")	20 (0.79")	14.6 (0.57")	9 (0.35")	2.4 (0.09")	90 (3.54")	85 (3.35")	76.8 (3.02")	63.8 (2.51")	68 (2.68")	28 (1.10")
63	155 (6.10")	145.5 (5.73")	134 (5.28")	115 (4.53")	27 (1.06")	21 (0.83")	12 (0.47")	4.6 (0.18")	120 (4.72")	110 (4.33")	94 (3.7")	80 (3.15")	90 (3.54")	25 (0.98")

Test conditions: Without spring
Oil temperature: 50° Viscosity: 35 cst

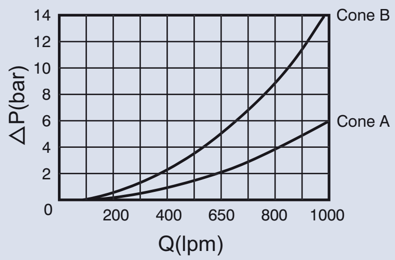
LCV-16



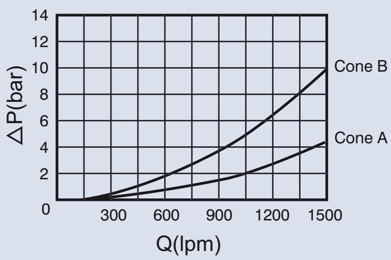
LCV-25



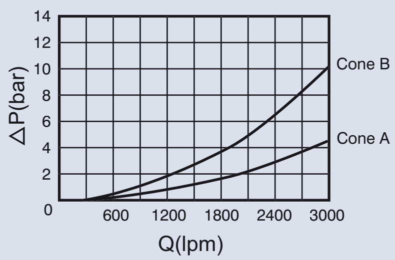
LCV-32



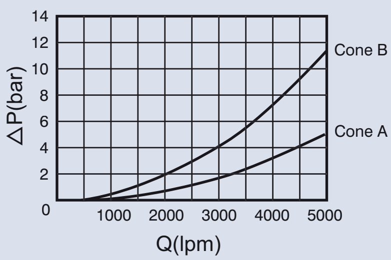
LCV-40



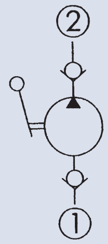
LCV-50

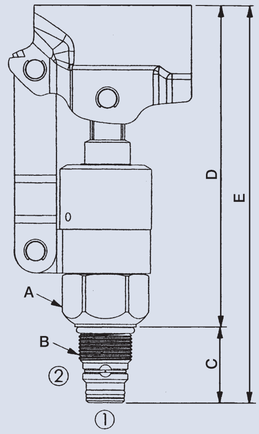


LCV-63



CARTRIDGE HAND PUMP





How to order

HP - 10W - 20 - A - N
1 2 3 4 5

1	Model
2	Mounting size 10W: 10W-2 Cavity CS10-2N (see page 163) 16W: 16W-2 Cavity CS16-2N (see page 163)
3	Operation 20: Push to pressurize
4	Output cc/stroke 10W A: 7.4 B: 10.6 16W A: 21.3
5	N: Non-adjustable

※ Lever must be ordered separately. Code no: 7G YAG001 Length: 405 mm

Specifications

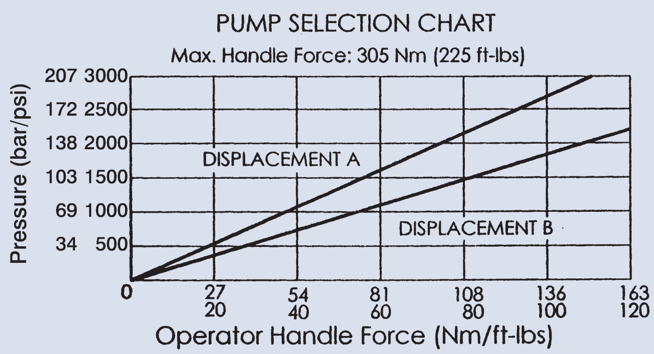
Model	Max. Pressure (bar)	Displacement Per Stroke (cc)		Installation Torque (nm)	Weight (kg)
		A	B		
HP-10W	210	7.4	10.6	35~45	0.83
HP-16W		21.3	-	60~70	1.35

Dimensions

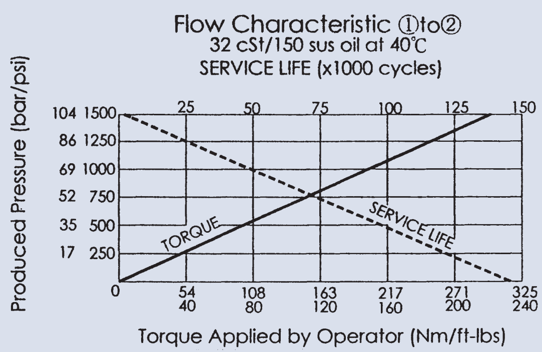
Model	Dimensions (mm)	B	Dimensions (mm)		
	A		C	D	E
HP-10W	25.4 Hex.	7/8"-14 UNF-2A	32	130	162
HP-16W	38 Hex.	1-5/16"-12 UNF-2A	44.5	144	189

Performance curves

HP-10W



HP-16W

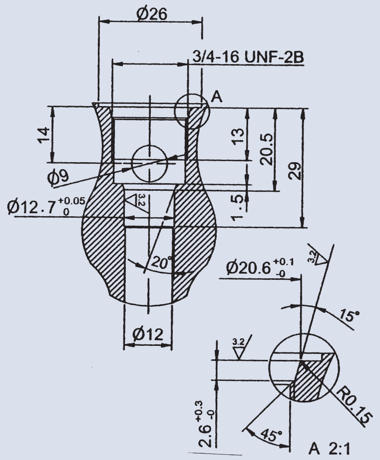


CAVITY DIMENSIONS FOR CARTRIDGE VALVE

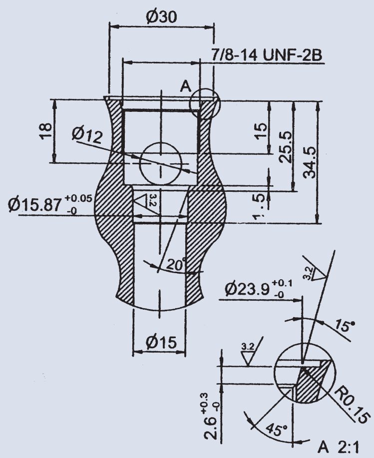
Dimensions

Unit: mm
(inch)

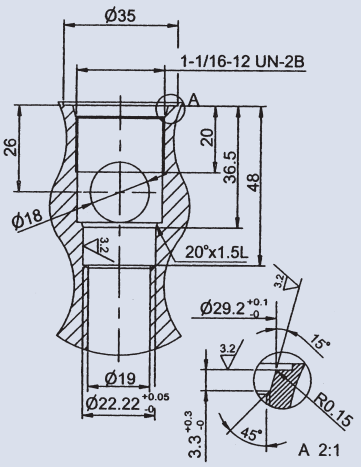
CS08-2N



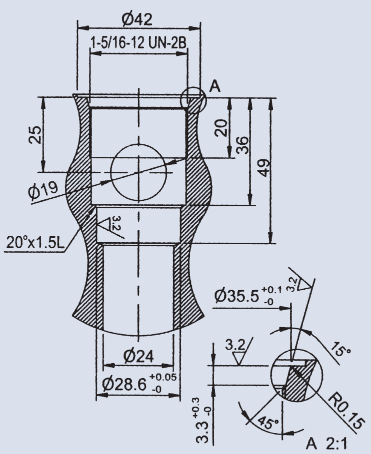
CS10-2N



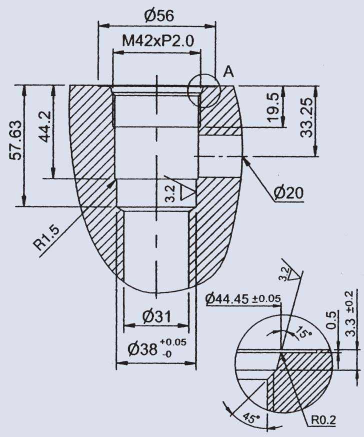
CS12-2N



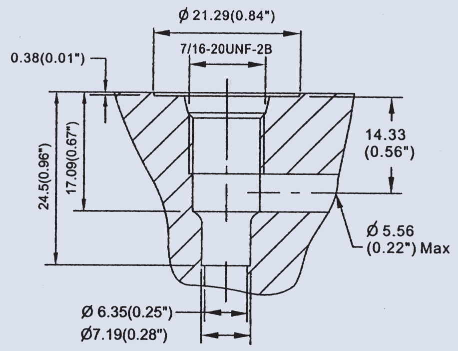
CS16-2N



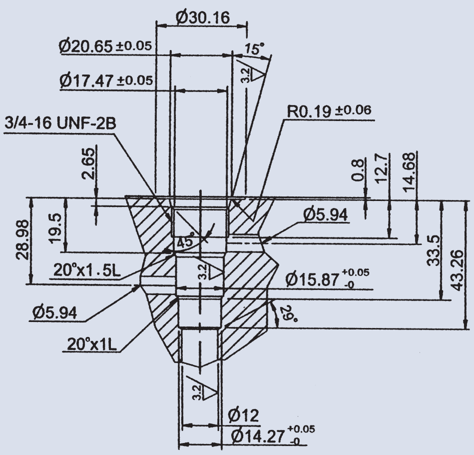
CS42-2N



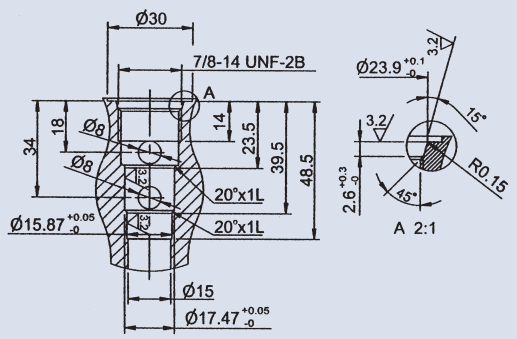
CS04



CS08-3N



CS10-3N

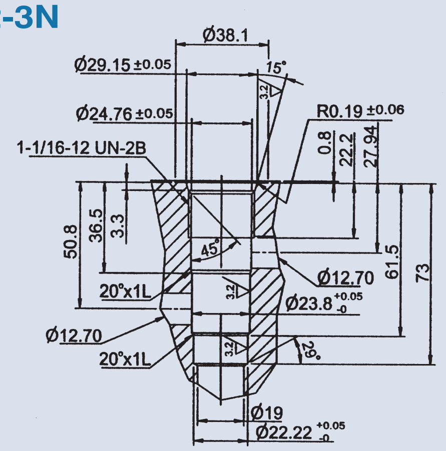


CAVITY DIMENSIONS FOR CARTRIDGE VALVE

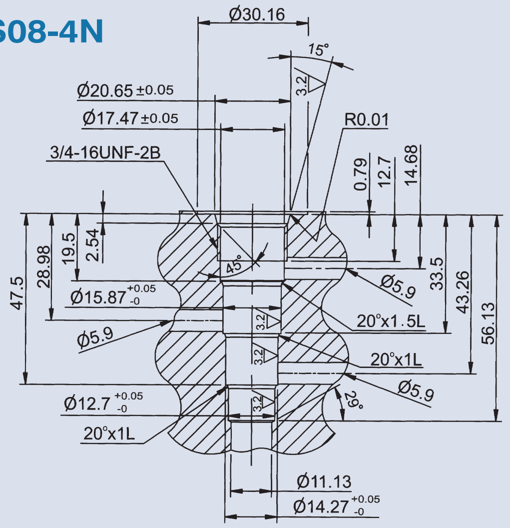
Dimensions

Unit: mm

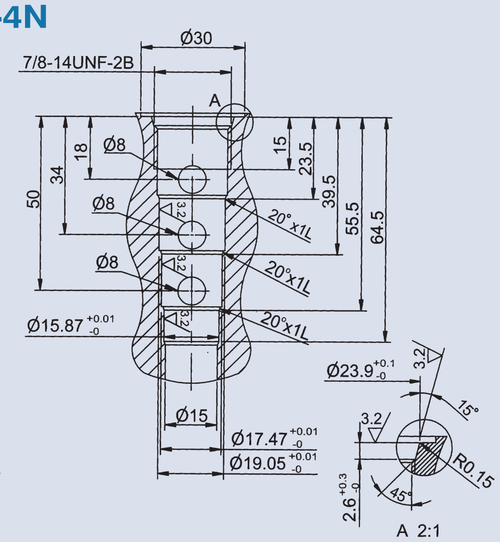
CS12-3N



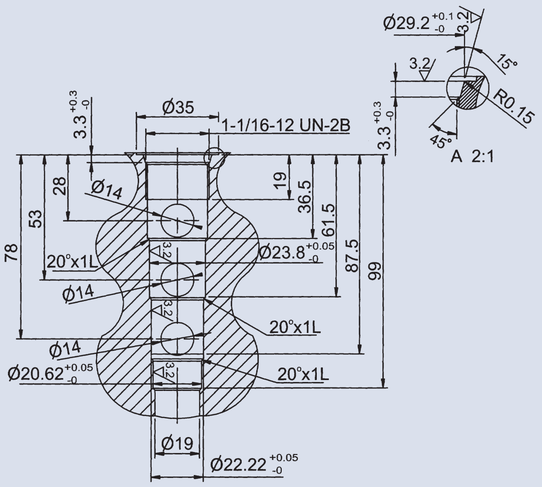
CS08-4N



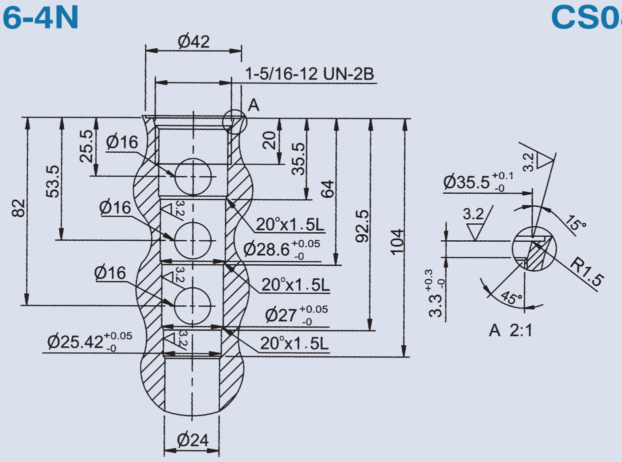
CS10-4N



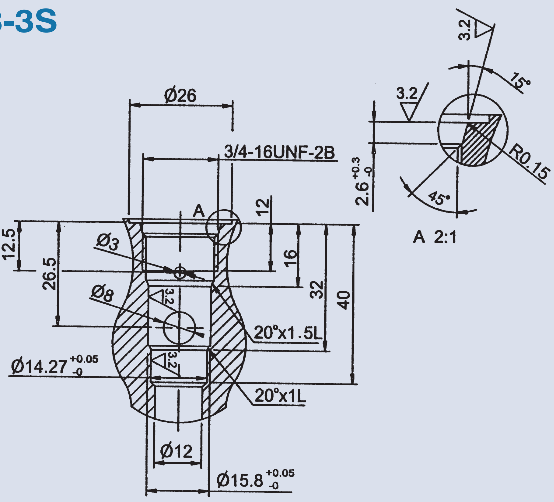
CS12-4N



CS16-4N



CS08-3S

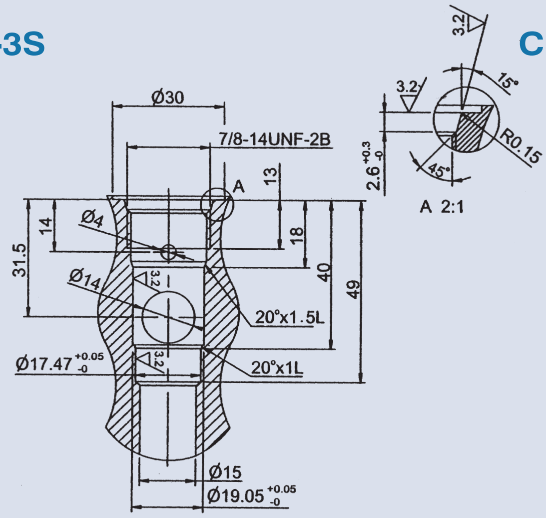


CAVITY DIMENSIONS FOR CARTRIDGE VALVE

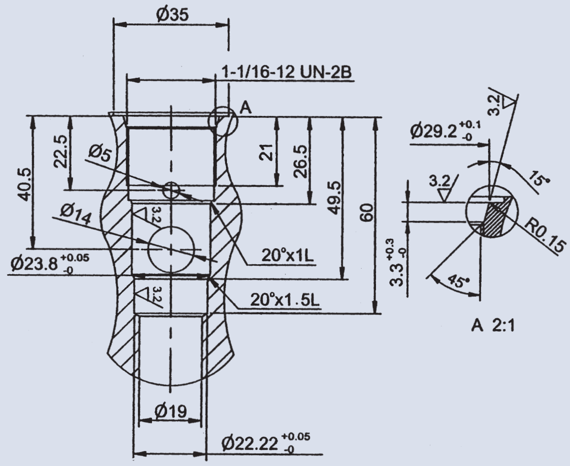
Dimensions

Unit: mm

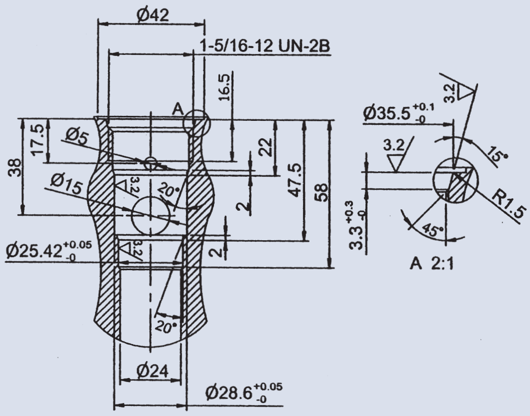
CS10-3S



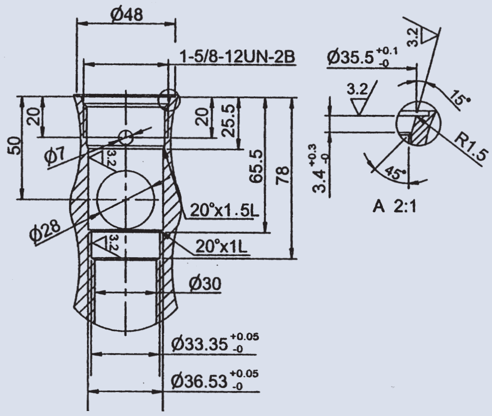
CS12-3S



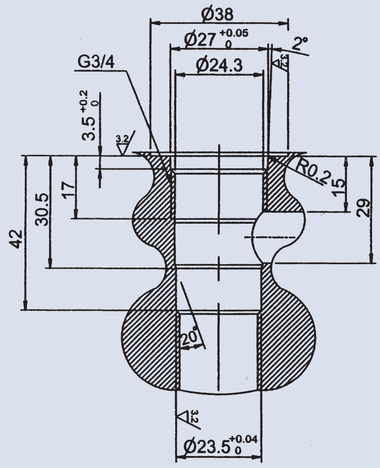
CS16-3S



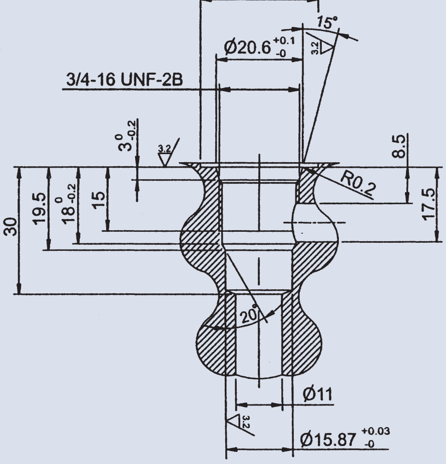
CS20-3S



CSE017-2N



CSE019-2N

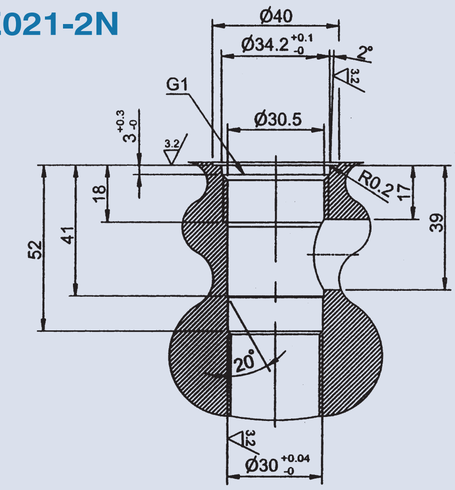


CAVITY DIMENSIONS FOR CARTRIDGE VALVE

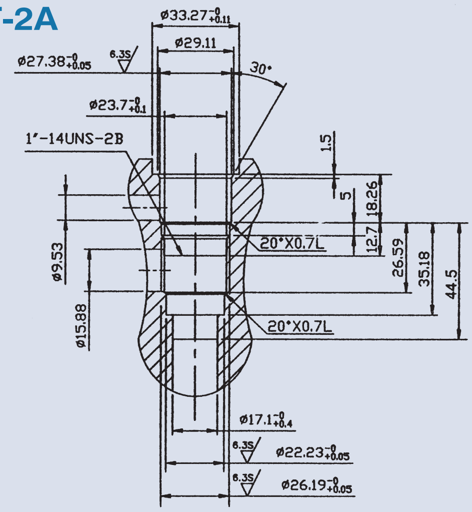
Dimensions

Unit: mm

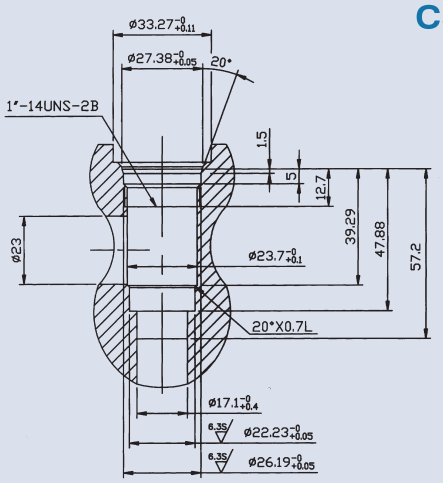
CSE021-2N



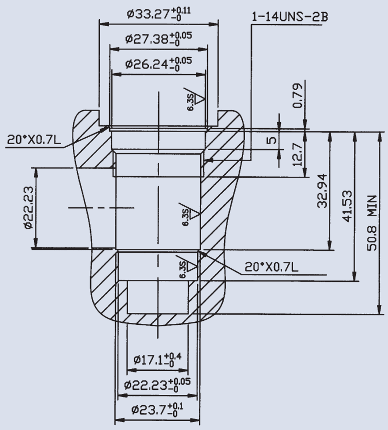
CST-2A



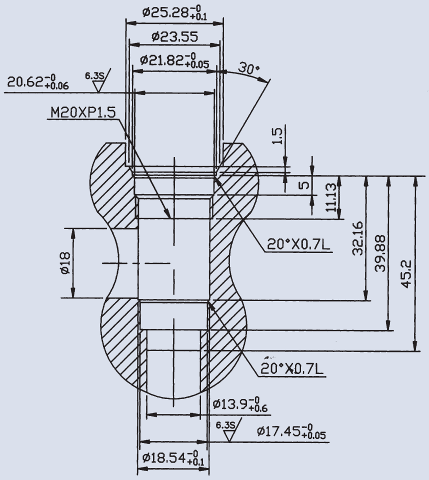
CST-3A



CST-5A



CST-10A

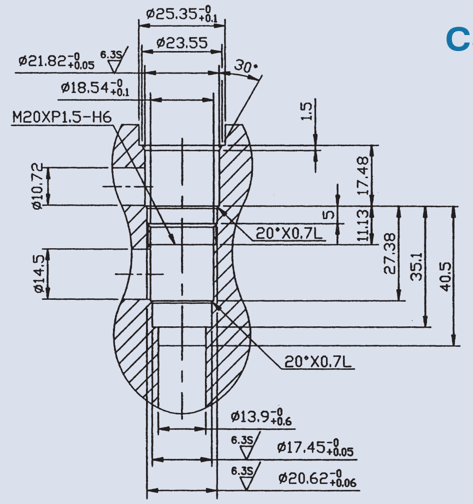


CAVITY DIMENSIONS FOR CARTRIDGE VALVE

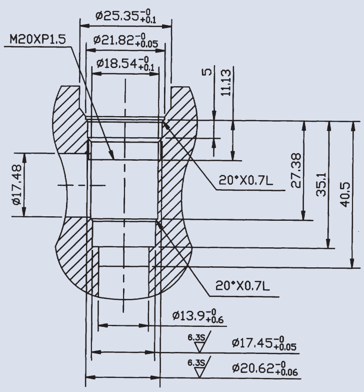
Dimensions

Unit: mm

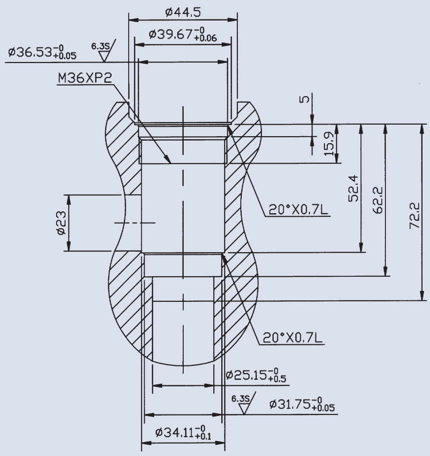
CST-11A



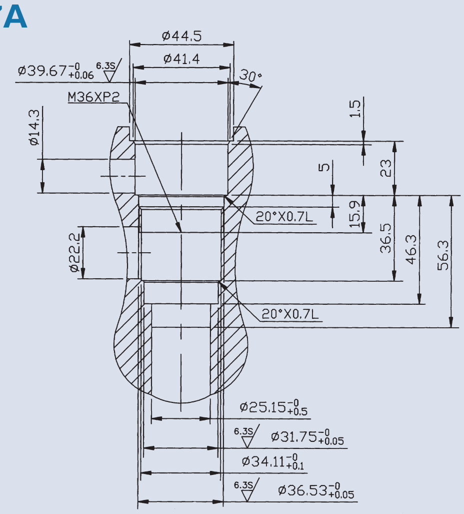
CST-13A



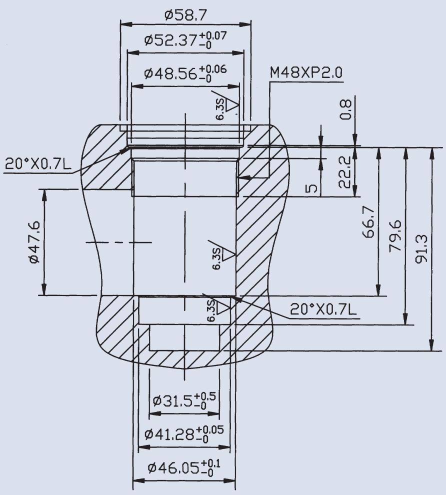
CST-16A



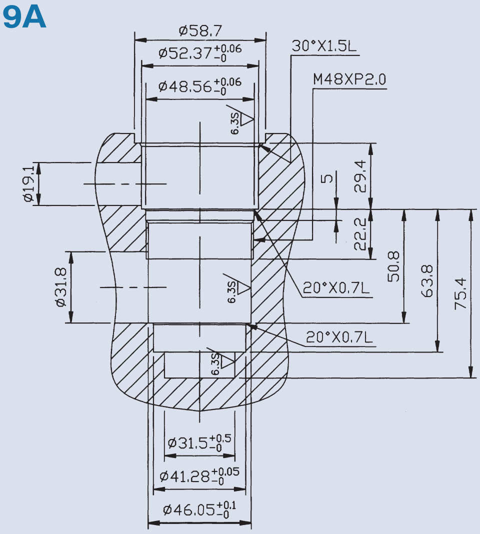
CST-17A



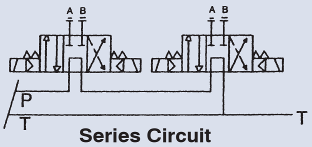
CST-18A



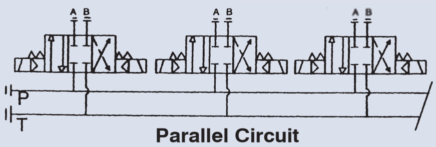
CST-19A



BASE PLATE FOR MODULAR VALVE



Series Circuit



Parallel Circuit

How to order

MMC - 02 - 3W - 1 - 03 - P

1 2 3 4 5 6

1	Model	
2	Norminal valve size	02: Size 1/4" (ISO CETOP 3, NFPA D03, DIN NG 6) 03: Size 3/8" (ISO CETOP 5, NFPA D05, DIN NG 10) 04: Size 1/2" (ISO CETOP 7, NFPA D07, DIN NG 16) 06: Size 3/4" (ISO CETOP 8, NFPA D08, DIN NG 25)
3	Quantity of valve station	
4	Code of port thread	1: PT 2: NPT
5	Port size	For MMC-02 02: 1/4" 03: 3/8" (normal) For MMC-03 03: 3/8" 04: 1/2" (normal) For MMC-04 04: 1/2" 06: 3/4" For MMC-06 06: 3/4" 08: 1"
6	Hydraulic circuit	P: Parallel circuit (normal) S: Series circuit

Specifications

Model	Quantity Of Valve Station	Code Of Port Thread	Port Size	Tie Bolt	Dimensions			Weight (kg)
					L1	L2	L3	
MMC-02-2W	2	1	PT 3/8"	M5 x 0.8P	130	110	65	4.1
		2	NPT 3/8"	#10-24UNC				
MMC-02-3W	3	1	PT 3/8"	M5 x 0.8P	180	160	65	5.9
		2	NPT 3/8"	#10-24UNC				
MMC-02-4W	4	1	PT 3/8"	M5 x 0.8P	230	210	115	7.7
		2	NPT 3/8"	#10-24UNC				
MMC-02-5W	5	1	PT 3/8"	M5 x 0.8P	280	260	115	9.5
		2	NPT 3/8"	#10-24UNC				
MMC-02-6W	6	1	PT 3/8"	M5 x 0.8P	330	310	165	11.3
		2	NPT 3/8"	#10-24UNC				
MMC-03-2W	2	1	PT 1/2"	M6 x 1P	170	156	85	7.3
		2	NPT 1/2"	1/4-20UNC				
MMC-03-3W	3	1	PT 1/2"	M6 x 1P	245	231	85	11
		2	NPT 1/2"	1/4-20UNC				
MMC-03-4W	4	1	PT 1/2"	M6 x 1P	320	306	160	14.7
		2	NPT 1/2"	1/4-20UNC				
MMC-03-5W	5	1	PT 1/2"	M6 x 1P	395	381	160	18.4
		2	NPT 1/2"	1/4-20UNC				
MMC-03-6W	6	1	PT 1/2"	M6 x 1P	470	456	235	22.1
		2	NPT 1/2"	1/4-20UNC				

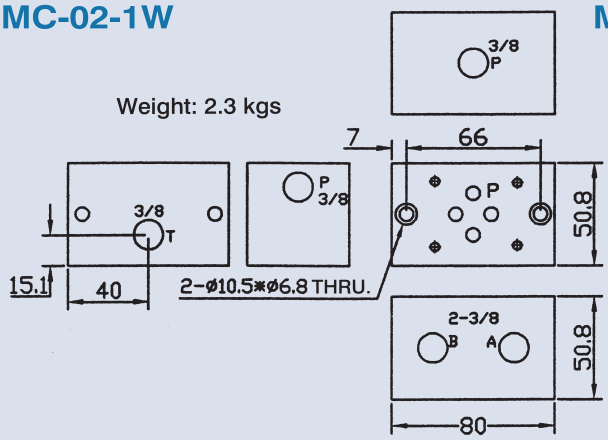
BASE PLATE FOR MODULAR VALVE

Dimensions

Unit: mm

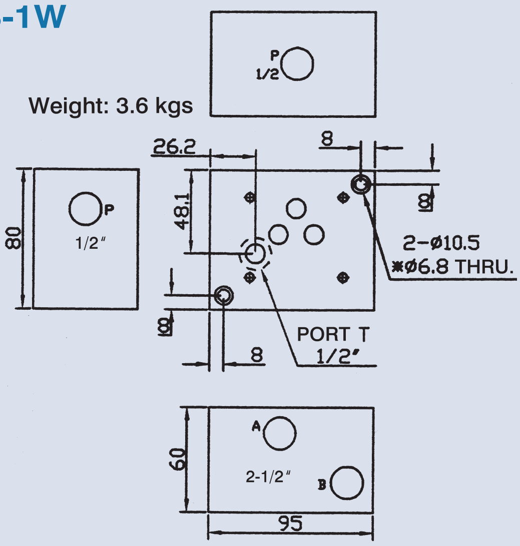
MMC-02-1W

Weight: 2.3 kgs

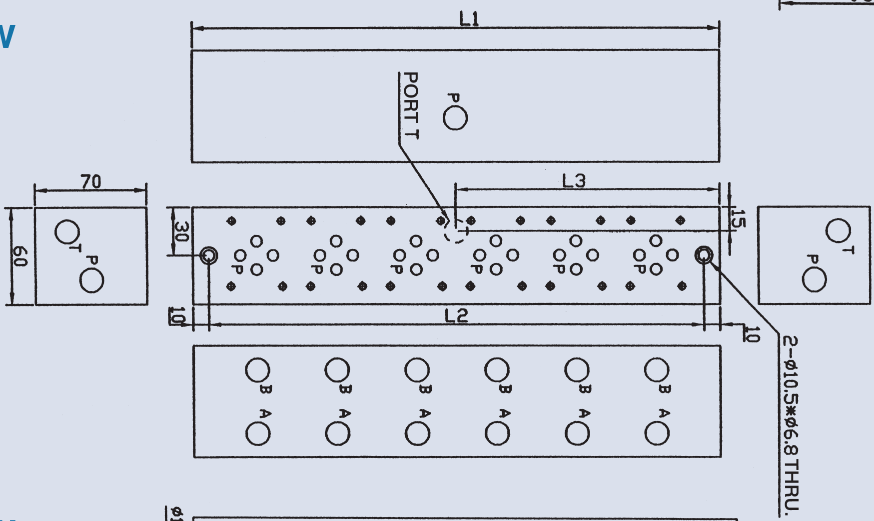


MMC-03-1W

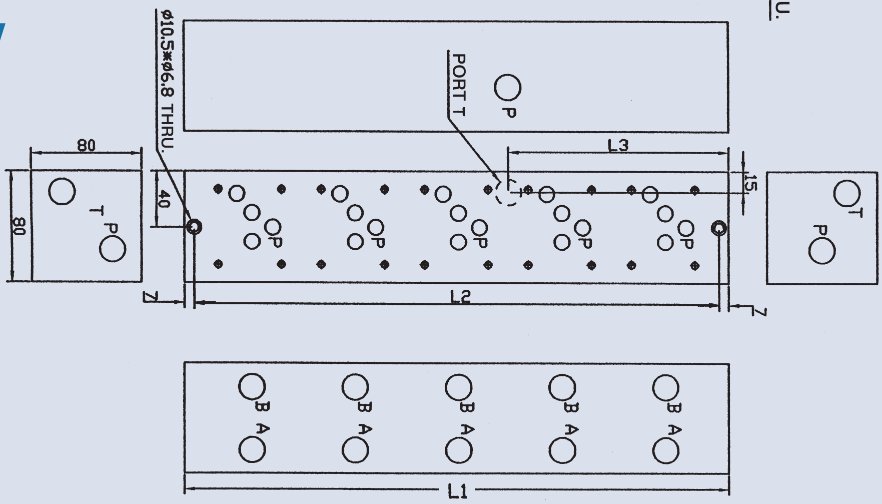
Weight: 3.6 kgs



MMC-02-6W



MMC-03-5W



MANIFOLD FOR CARTRIDGE VALVE

Specifications

Ordering Code	Ports	Weight kg (lbs)
CS08-2N-3G-A	G 1/4	0.2
CS08-2N-3G-B	G 3/8	(0.44)
CS10-2N-3G-A	G 1/2	0.37
CS10-2N-3G-B	G 3/8	(0.82)
CS12-2N-3G-A	G 1/2	0.66
CS12-2N-3G-B	G 3/4	(1.46)

Cavity CS08-2N / CS10-2N / CS12-2N

Piping Threads

1P: PT 2N: NPT 3G: PF (G) 4A: SAE 5B: BSP

Max. Pressure 3600 psi (250 bar)

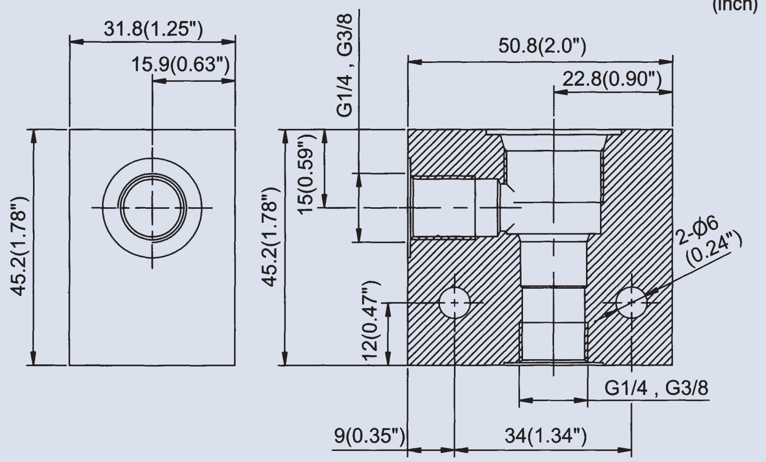
Features

Note: The maximum allowable pressure for the standard aluminum-alloy bodies is 250 bar; we also supply the ductile iron and steel bodies for higher pressure need.

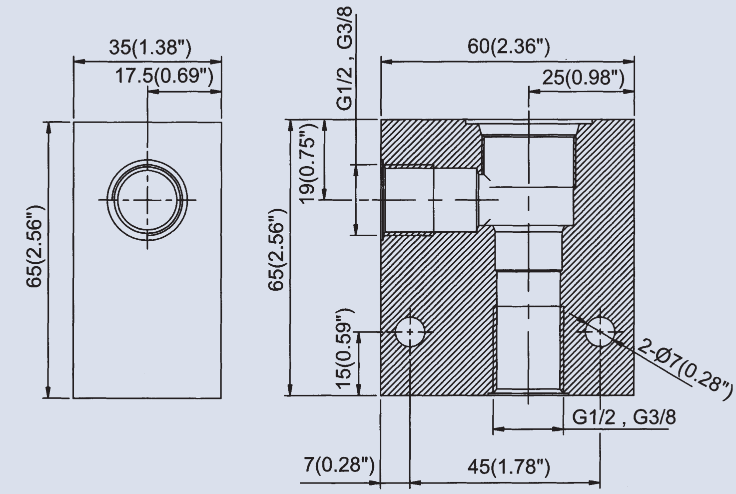
Dimensions

CS08-2N

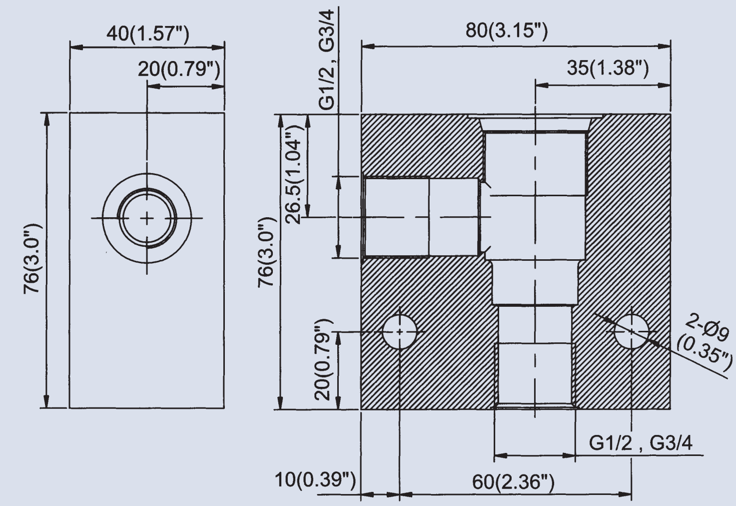
Unit: mm (inch)



CS10-2N



CS12-2N



MANIFOLD FOR CARTRIDGE VALVE

F

Specifications

Ordering Code	Ports	Weight kg (lbs)
CS16-2N-3G-A	G 3/4	0.86 (1.90)
CS16-2N-3G-B	G 1	
CS20-2N-3G-A	G 1-1/4	1.56 (3.44)
CS20-2N-3G-B	G 1	
CS42-2N-3G-A	G 1-1/4	2.10 (4.63)

Cavity CS16-2N / CS20-2N / CS42-2N

Piping Threads
1P: PT 2N: NPT 3G: PF (G) 4A: SAE 5B: BSP

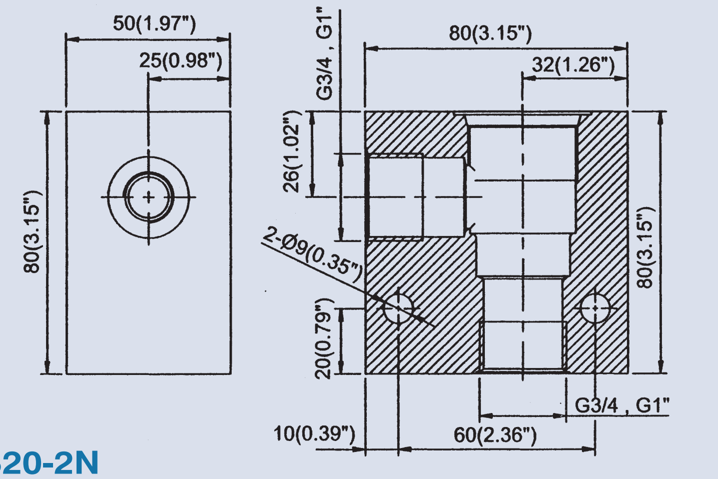
Max. Pressure 3600 psi (250 bar)

Features
Note: The maximum allowable pressure for the standard aluminum-alloy bodies is 250 bar; we also supply the ductile iron and steel bodies for higher pressure need.

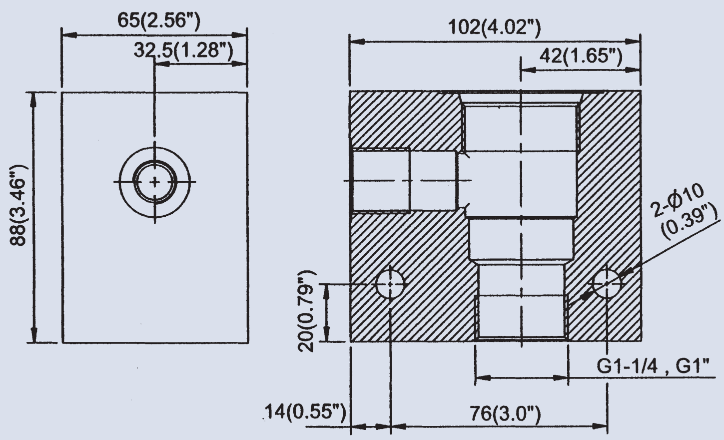
Dimensions

CS16-2N

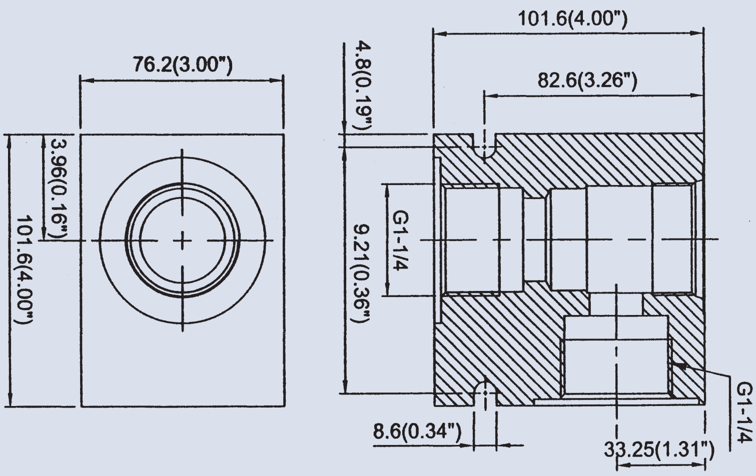
Unit: mm
(inch)



CS20-2N



CS42-2N



MANIFOLD FOR CARTRIDGE VALVE

Specifications

Ordering Code	Ports	Weight kg (lbs)
CS08-3N-3G-A	G 3/8	0.35 (0.77)
CS10-3N-3G-A	G 3/8	0.40 (0.88)
CS12-3N-3G-A	G 1/2	0.81 (1.79)

Cavity CS08-3N / CS10-3N / CS12-3N

Piping Threads

1P: PT   2N: NPT   3G: PF (G)   4A: SAE   5B: BSP

Max. Pressure 3600 psi (250 bar)

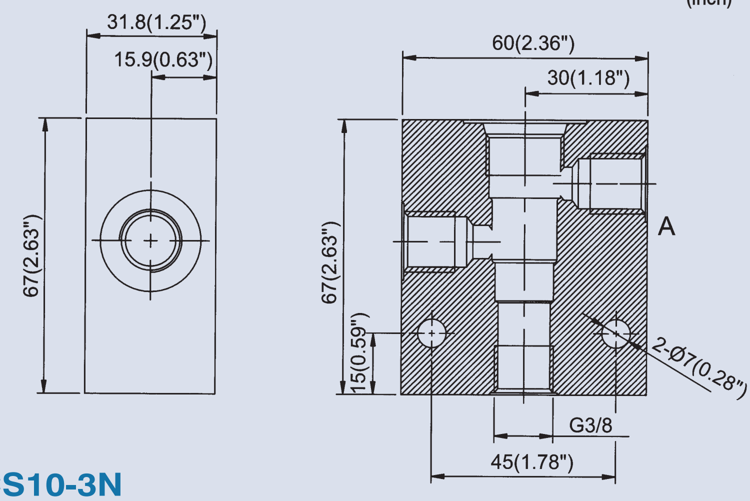
Features

Note: The maximum allowable pressure for the standard aluminum-alloy bodies is 250 bar; we also supply the ductile iron and steel bodies for higher pressure need.

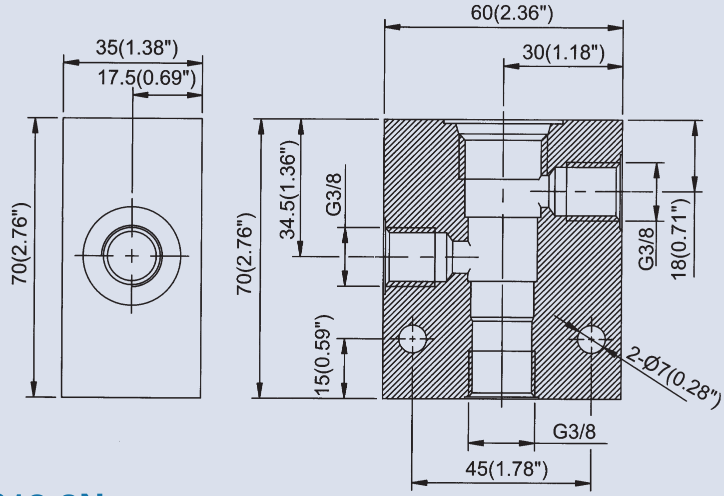
Dimensions

Unit: mm (inch)

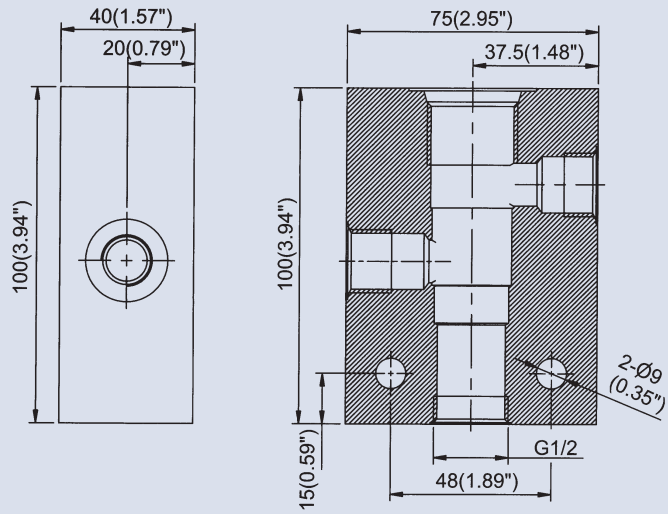
CS08-3N



CS10-3N



CS12-3N



MANIFOLD FOR CARTRIDGE VALVE

Specifications

Ordering Code	Ports	Weight kg (lbs)
CS08-3S-3G-A	G 3/8	0.31 (0.68)
CS10-3S-3G-A	G 1/2	0.40 (0.88)
CS12-3S-3G-A	G 3/4	0.81 (1.79)

Cavity CS08-3S / CS10-3S / CS12-3S

Piping Threads

1P: PT 2N: NPT 3G: PF (G) 4A: SAE 5B: BSP

Max. Pressure 3600 psi (250 bar)

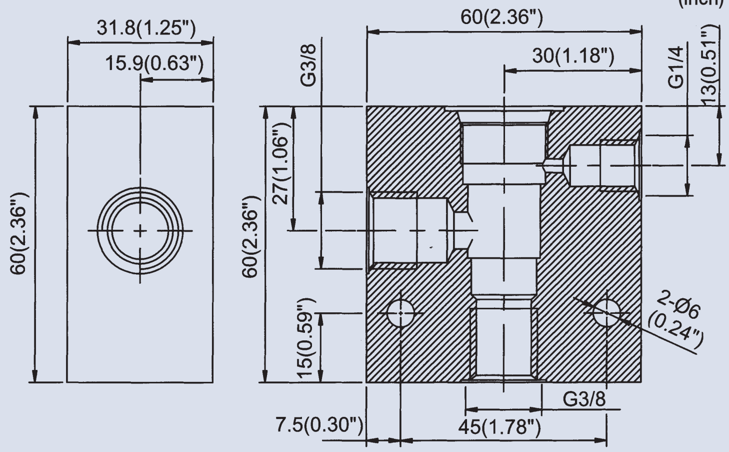
Features

Note: The maximum allowable pressure for the standard aluminum-alloy bodies is 250 bar; we also supply the ductile iron and steel bodies for higher pressure need.

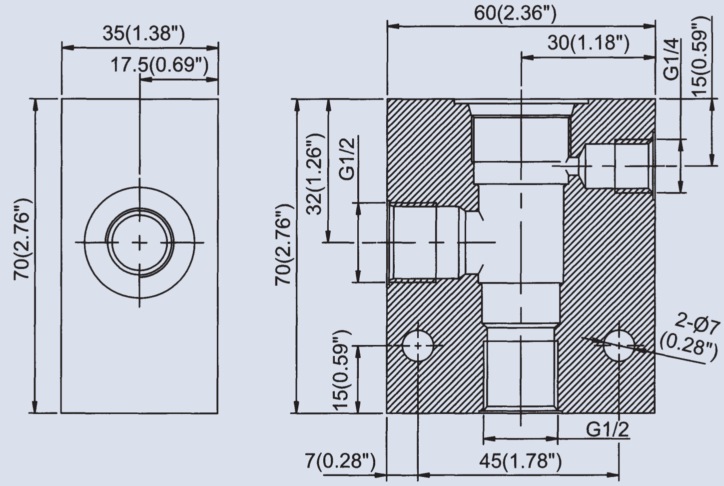
Dimensions

CS08-3S

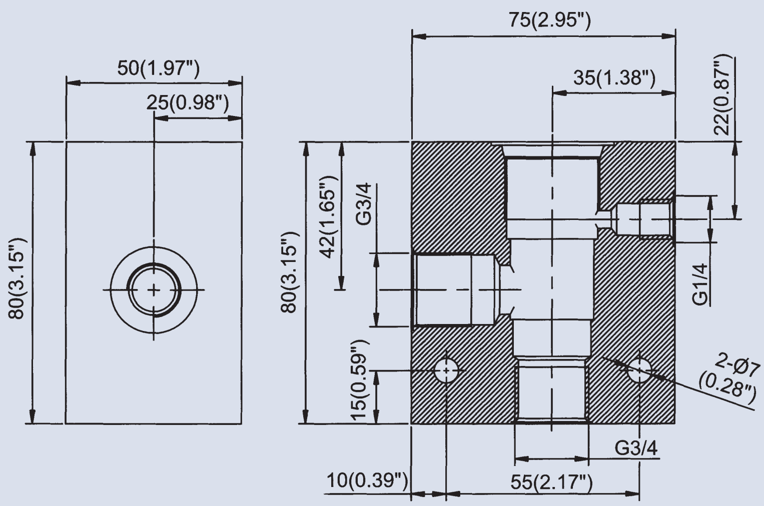
Unit: mm (inch)



CS10-3S



CS12-3S



MANIFOLD FOR CARTRIDGE VALVE

Specifications

Ordering Code	Ports	Weight kg (lbs)
CS08-4N-3G-A	G 3/8	0.42 (0.93)
CS10-4N-3G-A	G 1/2	0.48 (1.06)
CS10-4N-3G-B	G 3/8	
CS12-4N-3G-A	G 3/4	1.78 (3.92)

Cavity CS08-4N / CS10-4N / CS12-4N

Piping Threads

1P: PT   2N: NPT   3G: PF (G)   4A: SAE   5B: BSP

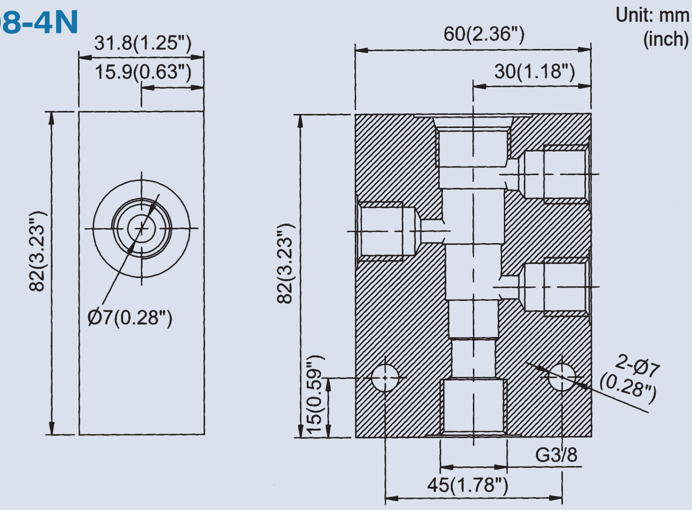
Max. Pressure 3600 psi (250 bar)

Features

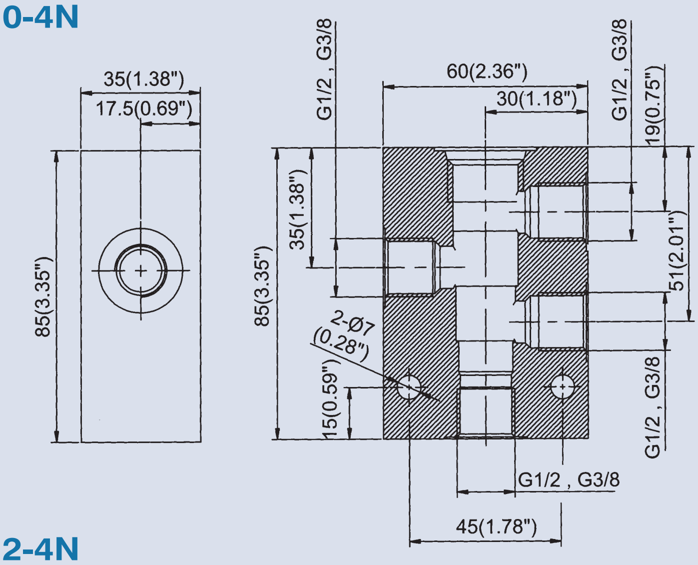
Note: The maximum allowable pressure for the standard aluminum-alloy bodies is 250 bar; we also supply the ductile iron and steel bodies for higher pressure need.

Dimensions

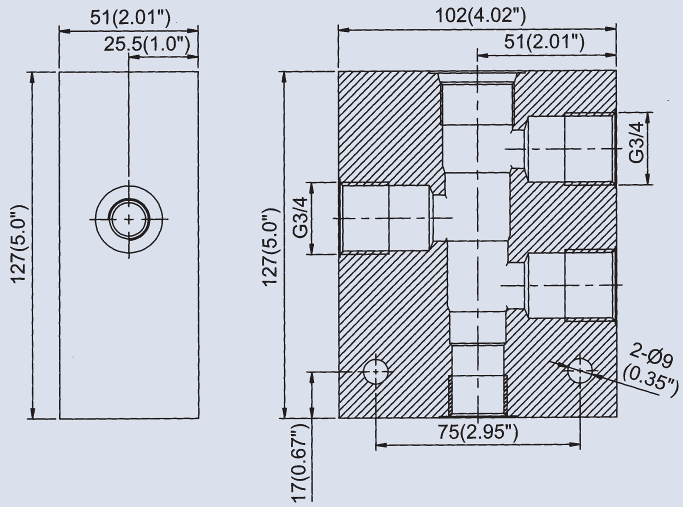
CS08-4N



CS10-4N



CS12-4N



MANIFOLD FOR CARTRIDGE VALVE

F

Specifications

Ordering Code	Ports	Weight kg (lbs)
CST-2A-3G-A	G 3/8	0.65 (1.43)
CST-2A-3G-B	G 1/2	
CST-3A-3G-A	G 3/8	0.40 (0.88)
CST-3A-3G-B	G 1/2	
CST-3A-3G-C	G 3/4	
CST-5A-3G-A	G 3/8	0.35 (0.77)
CST-5A-3G-B	G 1/2	

Cavity CST-2A / CST-3A / CST-5A

Piping Threads

1P: PT 2N: NPT 3G: PF (G) 4A: SAE 5B: BSP

Max. Pressure 3600 psi (250 bar)

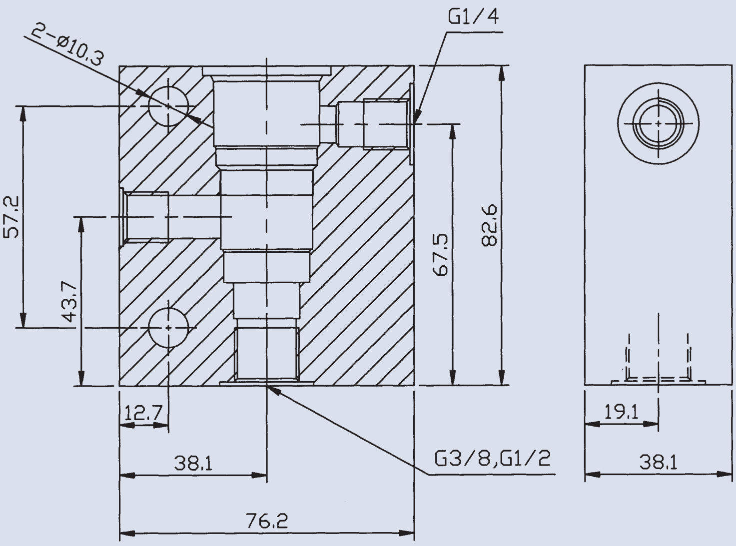
Features

Note: The maximum allowable pressure for the standard aluminum-alloy bodies is 250 bar; we also supply the ductile iron and steel bodies for higher pressure need.

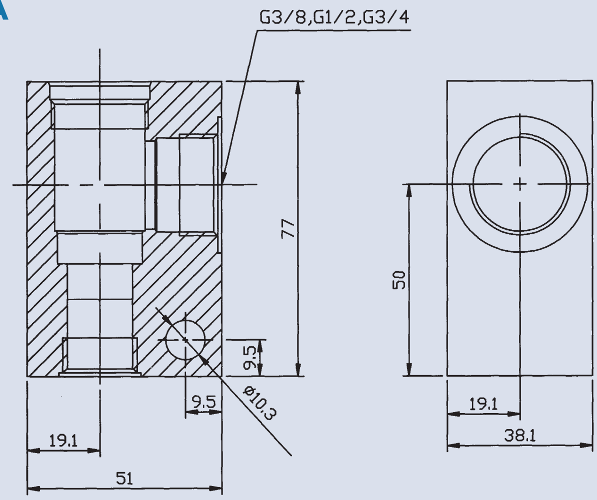
Dimensions

CST-2A

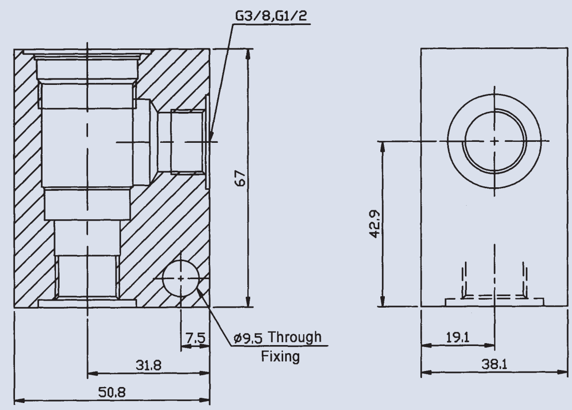
Unit: mm



CST-3A



CST-5A



MANIFOLD FOR CARTRIDGE VALVE

Specifications

Ordering Code	Ports	Weight kg (lbs)
CST-10A-3G-A	G 3/8	0.27
CST-10A-3G-B	G 1/2	(0.60)
CST-11A-3G-A	G 1/4	0.50
CST-11A-3G-B	G 3/8	(1.10)
CST-13A-3G-A	G 1/4	0.23
CST-13A-3G-B	G 3/8	(0.51)

Cavity CST-10A / CST-11A / CST-13A

Piping Threads

1P: PT 2N: NPT 3G: PF (G) 4A: SAE 5B: BSP

Max. Pressure 3600 psi (250 bar)

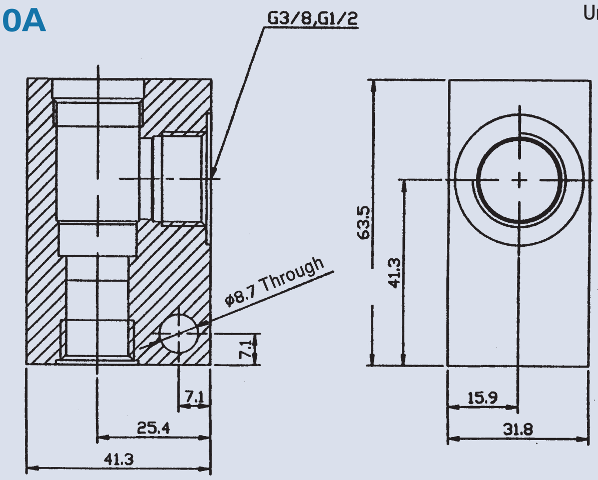
Features

Note: The maximum allowable pressure for the standard aluminum-alloy bodies is 250 bar; we also supply the ductile iron and steel bodies for higher pressure need.

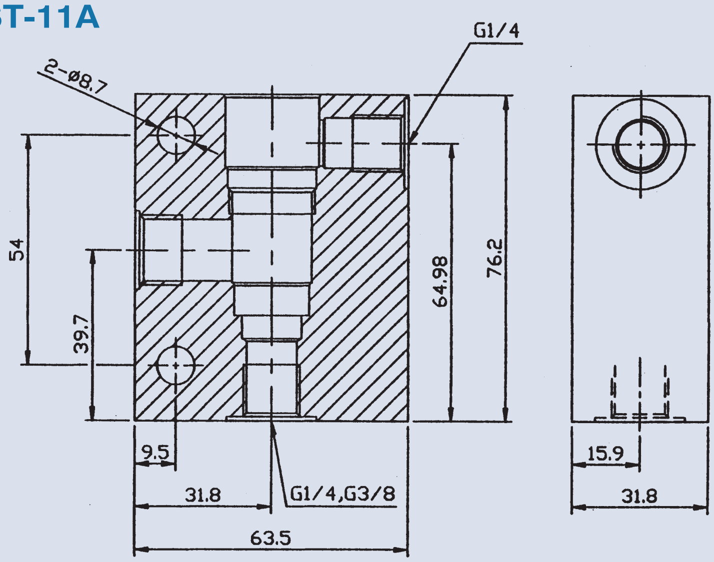
Dimensions

Unit: mm

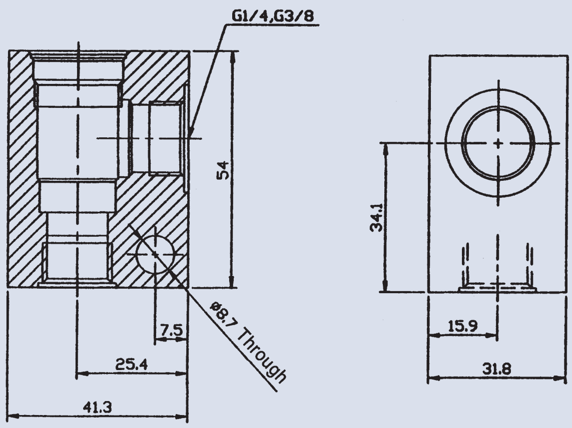
CST-10A



CST-11A



CST-13A



MANIFOLD FOR CARTRIDGE VALVE

Specifications

Ordering Code	Ports	Weight kg (lbs)
CST-16A-3G-A	G 3/4	1.21
CST-16A-3G-B	G 1	(2.67)
CST-17A-3G-A	G 3/4	1.69
CST-17A-3G-B	G 1	(3.73)
CST-18A-3G-A	G 1/4	2.83
CST-18A-3G-B	G 3/8	(6.24)

Cavity CST-16A / CST-17A / CST-18A

Piping Threads

1P: PT 2N: NPT 3G: PF (G) 4A: SAE 5B: BSP

Max. Pressure 3600 psi (250 bar)

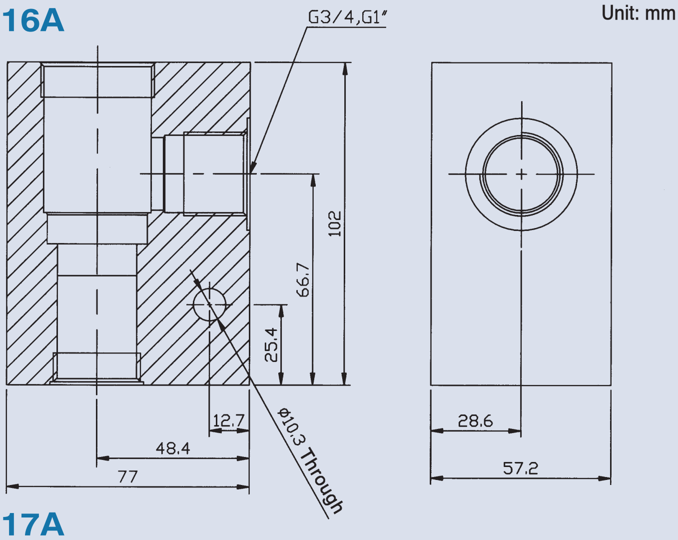
Features

Note: The maximum allowable pressure for the standard aluminum-alloy bodies is 250 bar; we also supply the ductile iron and steel bodies for higher pressure need.

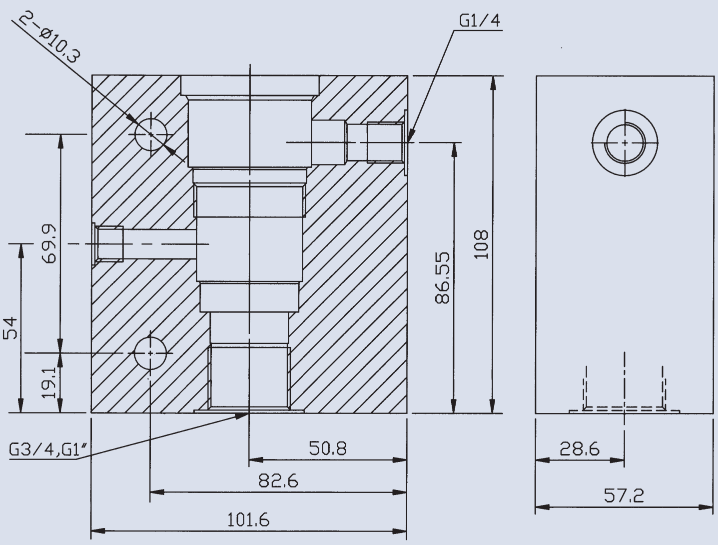
Dimensions

Unit: mm

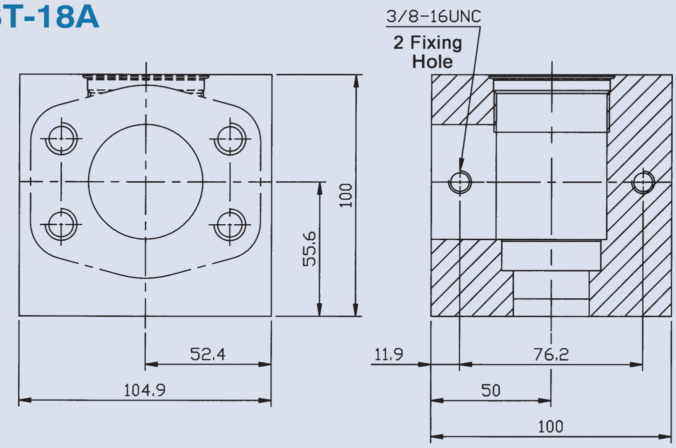
CST-16A



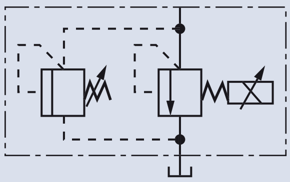
CST-17A



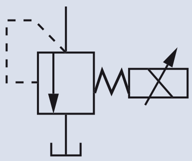
CST-18A



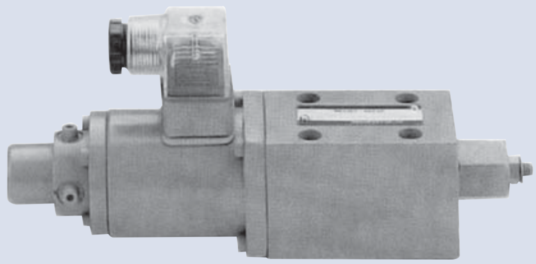
PROPORTIONAL ELECTRO-HYDRAULIC PILOT RELIEF VALVE



With Safety valve



Without Safety valve



G

How to order

ED G - 01 V - H - ※

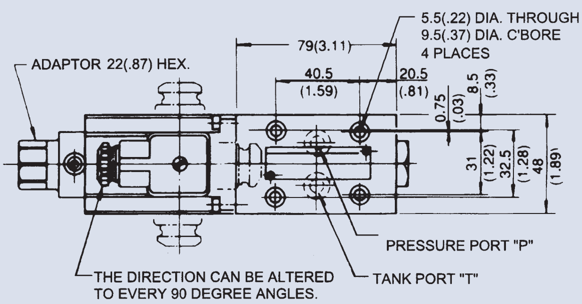
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Valve size	01
4	Omit: General use	V: Vent control of relief valve
5	Pressure adjusting range	B: 5~70 bar C: 10~160 bar H: 12~250 bar
6	Omit: Without safety valve (general use)	1: With safety valve

Specifications

Model	Max. Pressure (bar)	Flow (lpm)		Pressure Adj. Range (bar)	Rated current (mA)	Coil Resistance (Ω)	Weight (kg)
		Max.	Min.				
EDG-01	250	2	0.3	B: 5~70 C: 10~160 H: 12~250	B: 800 C: 900 H: 950	10	2

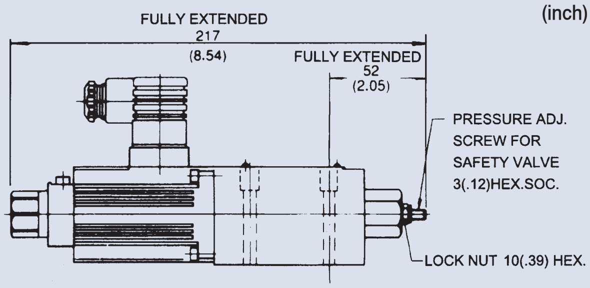
Dimensions

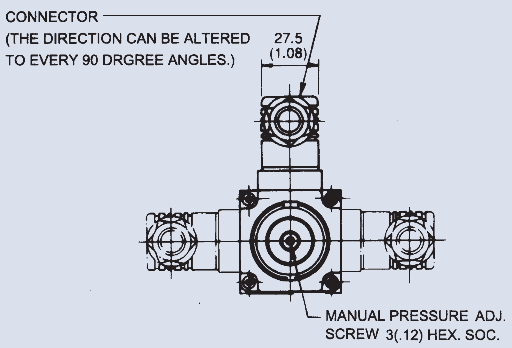
WITHOUT SAFETY VALVE

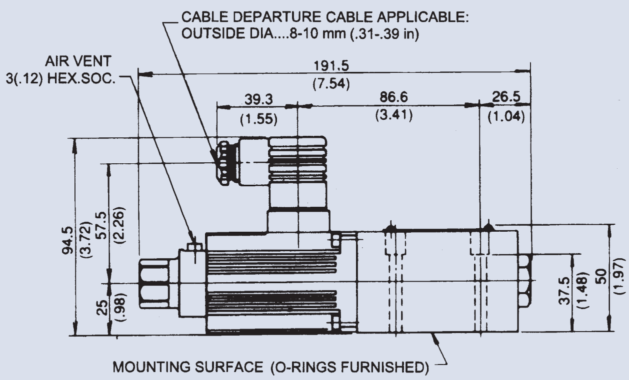


WITH SAFETY VALVE

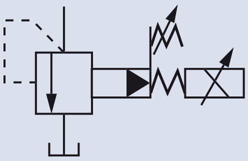
Unit: mm (inch)



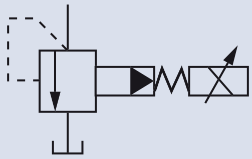




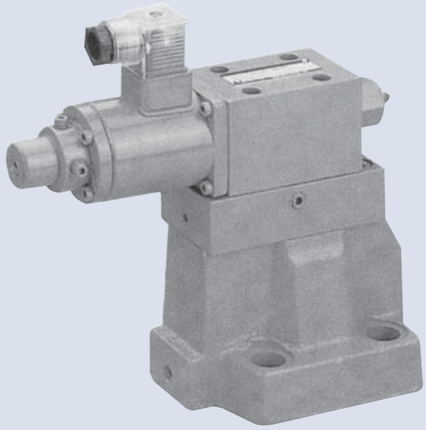
PROPORTIONAL ELECTRO-HYDRAULIC RELIEF VALVE



With Safety valve



Without Safety valve



How to order

EB G - 03 - C - T
1 2 3 4 5

1	Model
2	Mounting type G: Sub-plate mounting
3	Valve size 03, 06
4	Pressure adjusting range C: 10~160 bar H: 12~250 bar
5	T: Without safety valve (general use) Omit: With safety valve

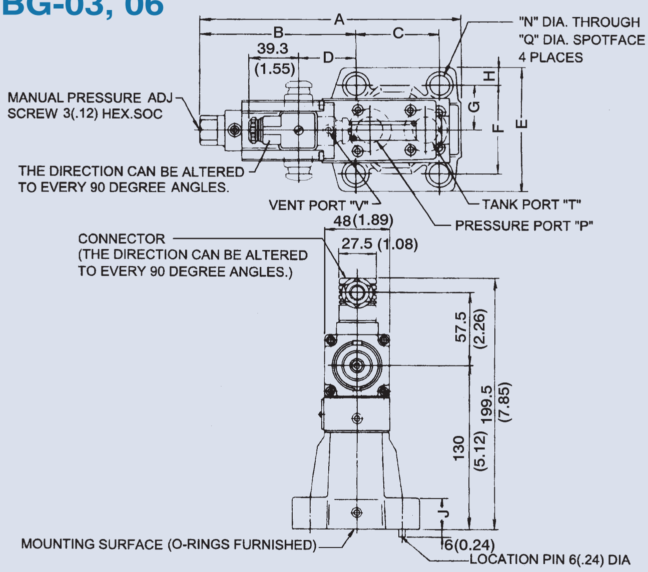
Specifications

Model	Max. Pressure (bar)	Flow (lpm)		Pressure Adj. Range (bar)	Rated current (mA)	Coil Resistance (Ω)	Weight (kg)
		Max.	Min.				
EBG-03	250	100	3	C: 10~160	C: 770 H: 820	10	7.1
EBG-06		200	3	H: 12~250	C: 750 H: 800		8.3

Dimensions

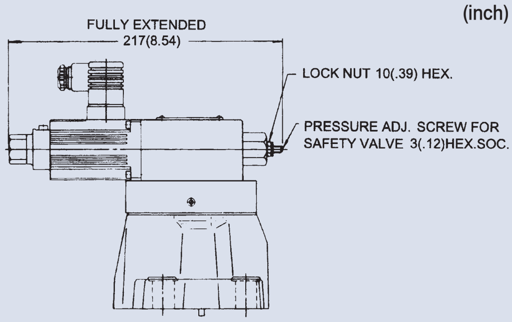
EBG-03, 06

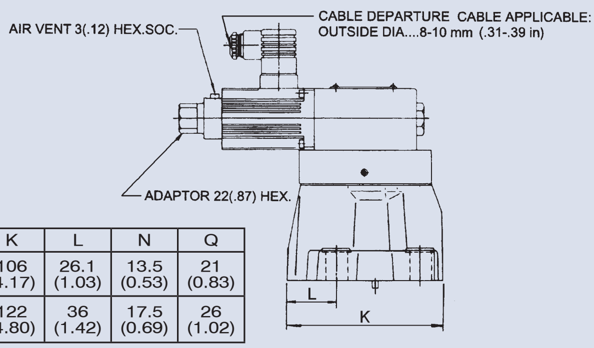
WITHOUT SAFETY VALVE



WITH SAFETY VALVE

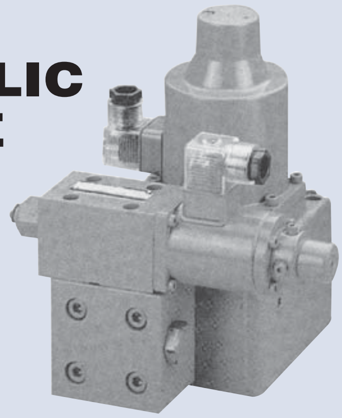
Unit: mm (inch)





Model	A	B	C	D	E	F	G	H	J	K	L	N	Q
EBG-03	198.5 (7.81)	118.6 (4.67)	53.8 (2.12)	40.2 (1.58)	76 (2.99)	53.8 (2.12)	26.9 (1.06)	11.1 (0.44)	21.5 (0.85)	106 (4.17)	26.1 (1.03)	13.5 (0.53)	21 (0.83)
EBG-06	206.5 (8.13	120.5 (4.74)	66.7 (2.63)	42.1 (1.66)	98 (3.86)	70 (2.76)	35 (1.38)	14 (0.55)	26 (1.02)	122 (4.80)	36 (1.42)	17.5 (0.69)	26 (1.02)

PROPORTIONAL ELECTRO-HYDRAULIC RELIEF AND FLOW CONTROL VALVE



FEATURES:

This relief and flow control valve is an energy-saving valve that supplies the minimum pressure and flow necessary for actuator drive.

Since this valve controls the pump pressure by following the load pressure while keeping the differential pressure minimized, it serves as a low power-consumption energy-saving, metre-in, controlled flow control valve.

Further, since a temperature compensation function is incorporated, this valve provides consistent flow control without respect to the fluid temperature.

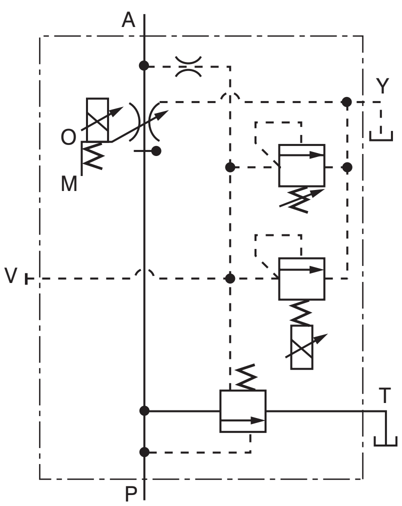
How to order

EFB G - 03 - 125 - C
1 2 3 4 5

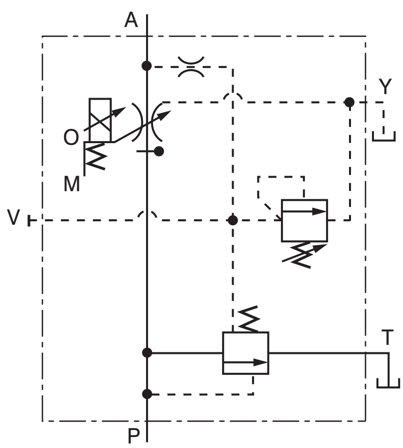
1	Model	
2	Mounting type	G: Sub-plate mounting
3	Valve size	03, 06, 10
4	Flow Adj. range (lpm)	03: 1~60, 1~125 (standard), 1~160 06: 2.5~250 (standard), 2.5~320, 2.5~350 10: 5~500
5	With proportional relief valve pressure adjusting range	C: 14~140 bar H: 14~210 bar Omit: Without proportional relief valve

Specifications

Model	Flow Adj. Range (lpm)	Flow Controls			Pressure Controls			Weight (kg)
		Rated current (mA)	Coil Res. (Ω)	Diff. Press (bar)	Pressure Adj. Range (bar)	Rated current (mA)	Coil Res. (Ω)	
EFBG-03	1~60 1~125 1~160	680		6	C: 14~140 H: 14~210	C: 710 H: 770		18
EFBG-06	2.5~250 2.5~320 2.5~350	580	43.5	7	C: 15~140 H: 15~210	C: 690 H: 730	10	33
EFBG-10	5~500	700		9	C: 16~140 H: 16~210	C: 690 H: 690		58



WITH PROPORTIONAL PILOT RELIEF VALVE



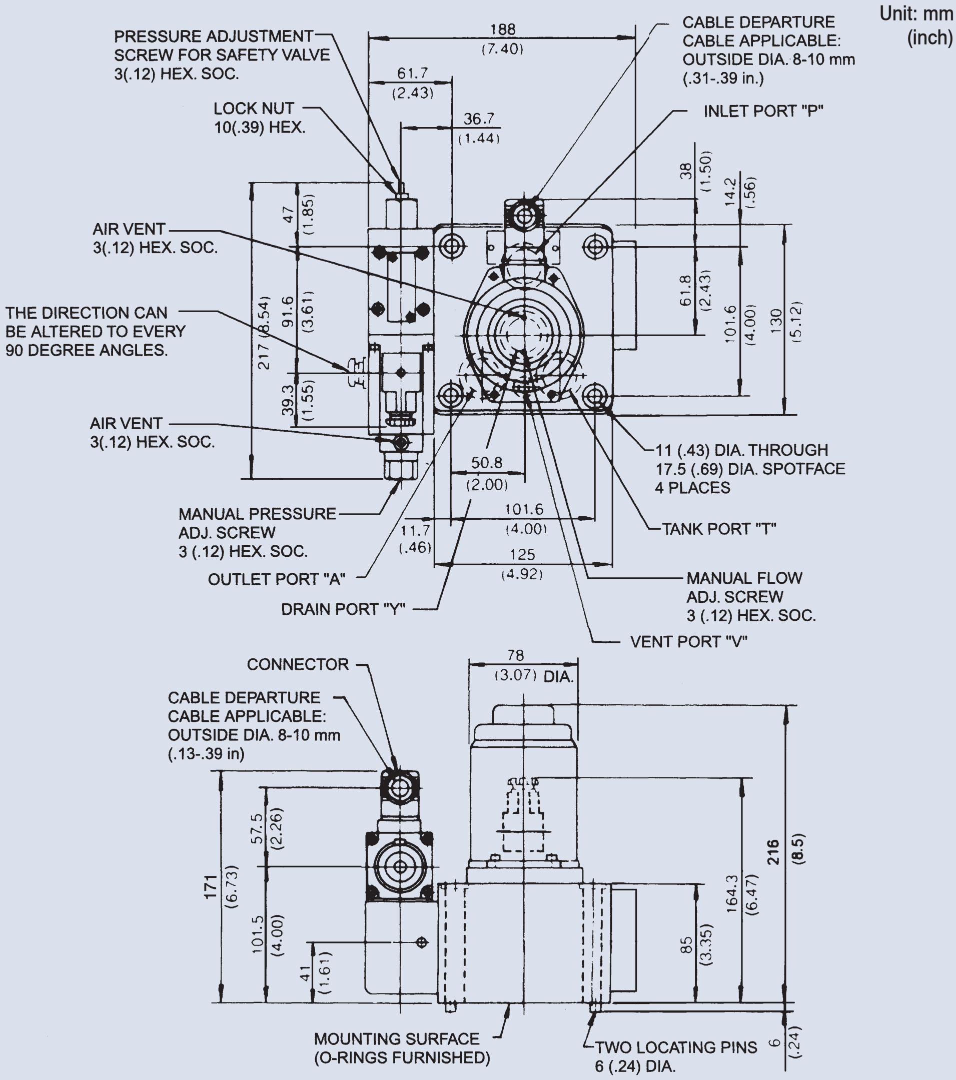
WITHOUT PROPORTIONAL PILOT RELIEF VALVE

PROPORTIONAL ELECTRO-HYDRAULIC RELIEF AND FLOW CONTROL VALVE

Dimensions

EFBG-03-125- C/H

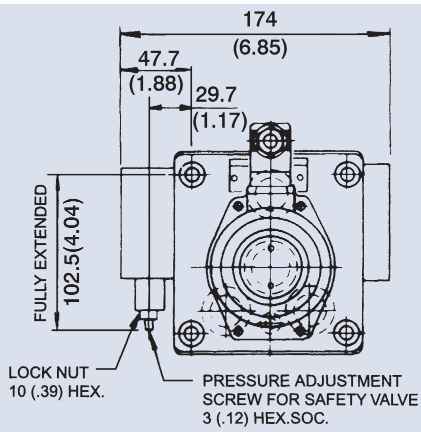
(With proportional pilot relief valve)
WEIGHT: 16 kg



EFBG-03-125

(Without proportional pilot relief valve)
WEIGHT: 14 kg

For other dimensions, please refer to the model above.



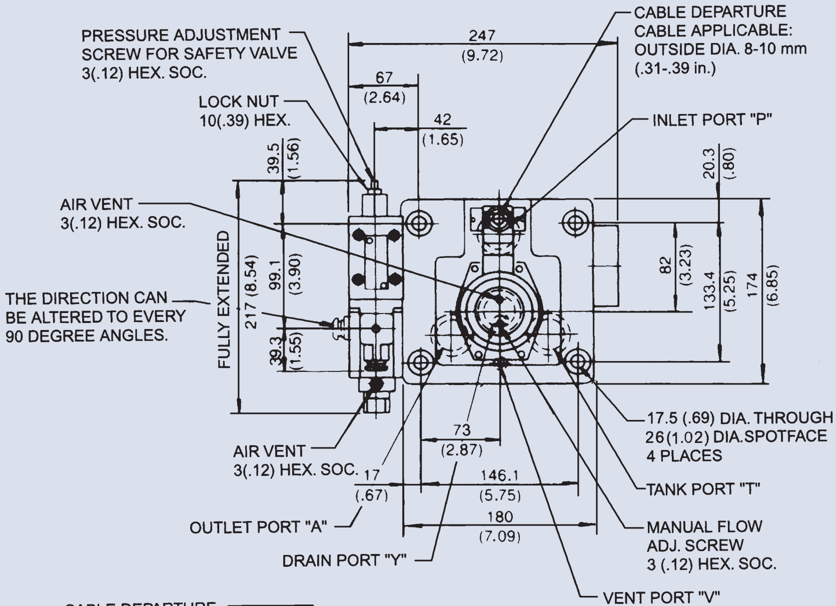
PROPORTIONAL ELECTRO-HYDRAULIC RELIEF AND FLOW CONTROL VALVE

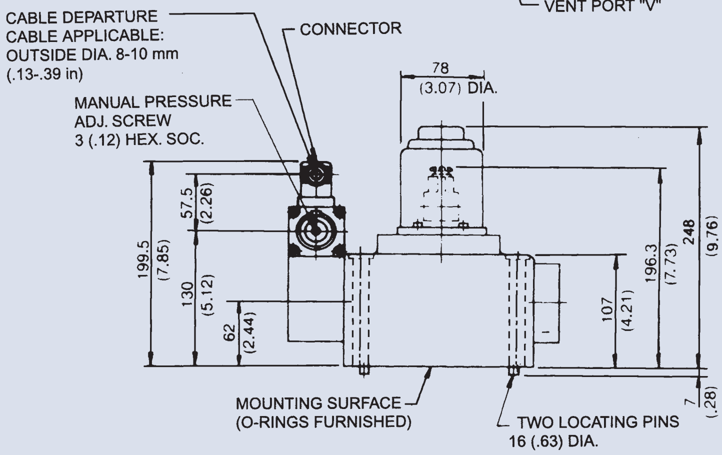
Dimensions

Unit: mm (inch)

EFBG-06-250-C/H

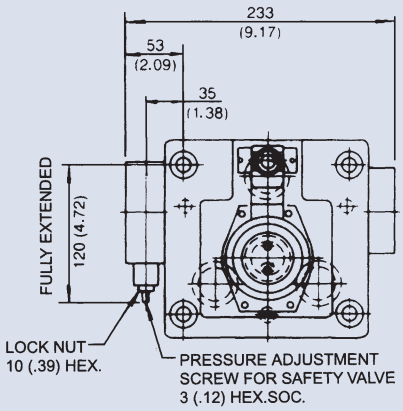
(With proportional pilot relief valve)
WEIGHT: 30 kg





EFBG-06-250

(Without proportional pilot relief valve)
WEIGHT: 28 kg



For other dimensions, please refer to the model above.

PROPORTIONAL ELECTRO-HYDRAULIC RELIEF AND FLOW CONTROL VALVE

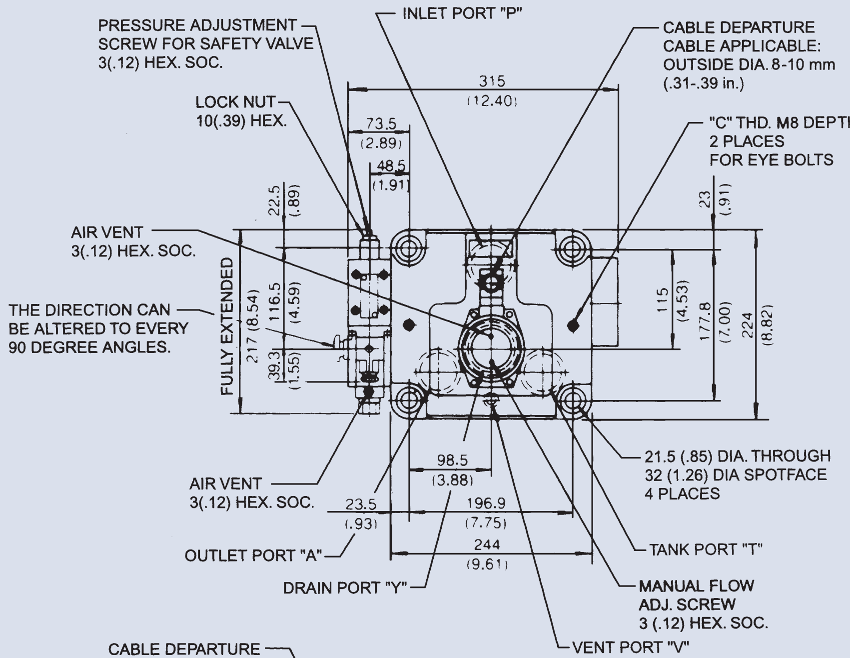
G

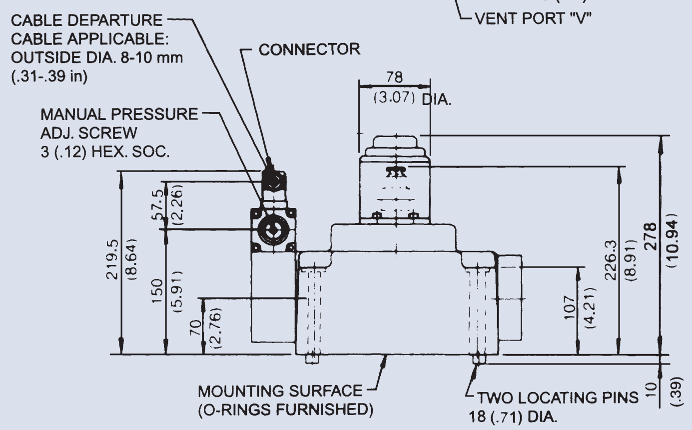
Dimensions

EFBG-10-500-C/H

(With proportional pilot relief valve)
WEIGHT: 60 kg

Unit: mm (inch)

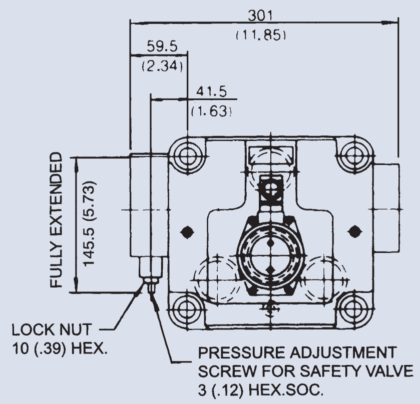




Model	"C" THD.
EFBG-10-500-※-15	M8
EFBG-10-500-※-16	5/16-18 UNC

EFBG-10-500

(Without proportional pilot relief valve)
WEIGHT: 58 kg

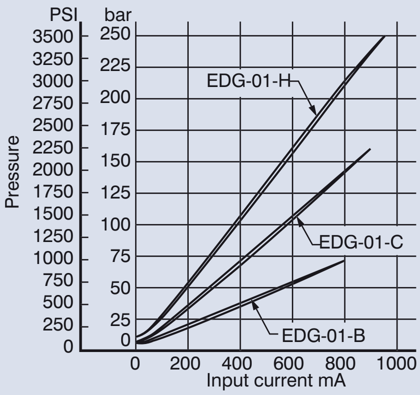


For other dimensions, please refer to the model above.

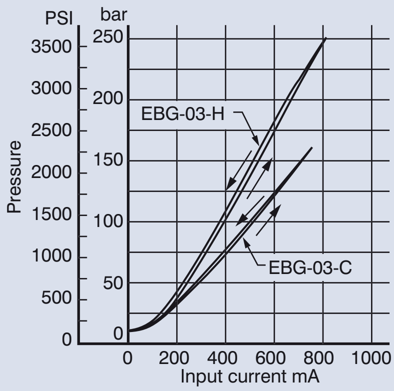
PROPORTIONAL ELECTRO-HYDRAULIC RELIEF VALVE, RELIEF AND FLOW CONTROL VALVE

Performance curves

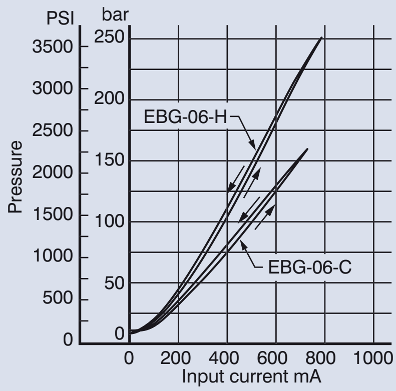
EDG-01



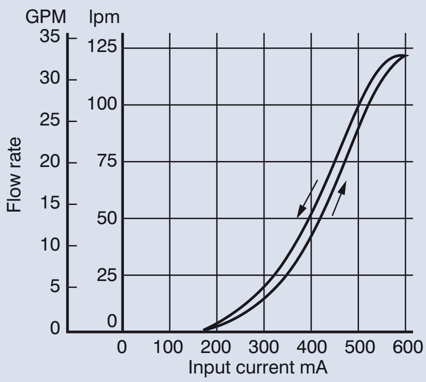
EBG-03



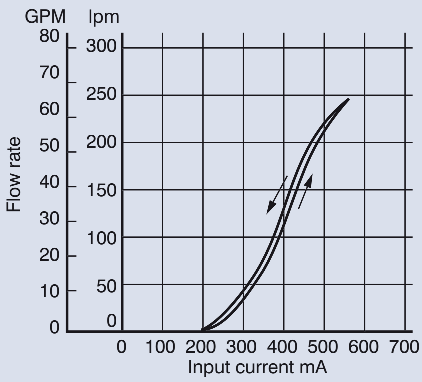
EBG-06



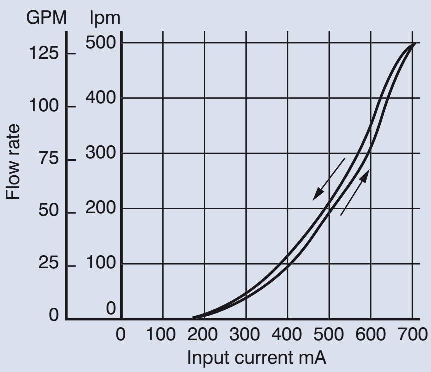
EFBG-03



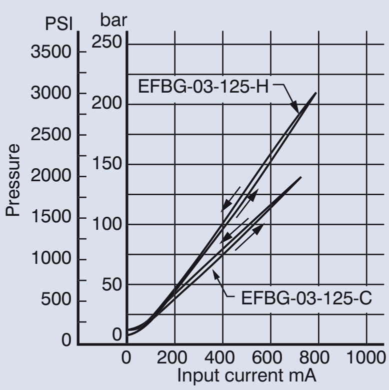
EFBG-06



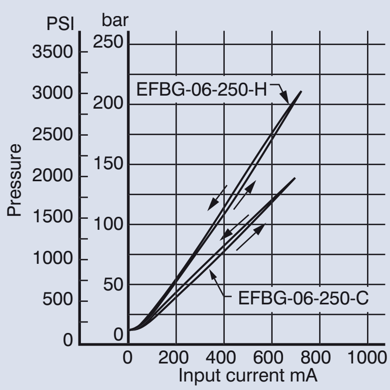
EFBG-10



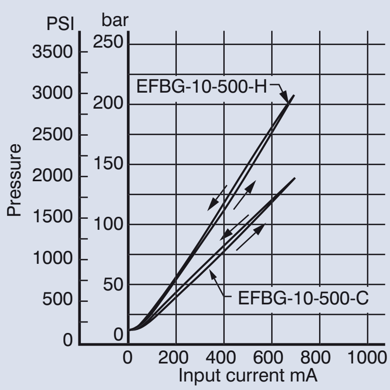
EFBG-03



EFBG-06



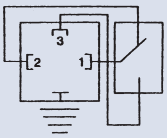
EFBG-10



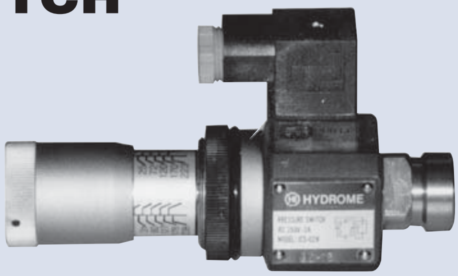
G

H

PRESSURE SWITCH



USED CURRENT
AC 250V 3A



JCS-02N, 02NL, 02NLL

JPS-02HM, 02L, 02LL

How to order

JCS - 02 - N
(1 = JCS, 2 = 02, 3 = N)

1	Model	Body: Cast iron
2	Port size	PT1/4"
3	Pressure adjusting range	N: 30~230 bar NL: 15~60 bar NLL: 5~60 bar

JPS - 02 - HM
(1 = JPS, 2 = 02, 3 = HM)

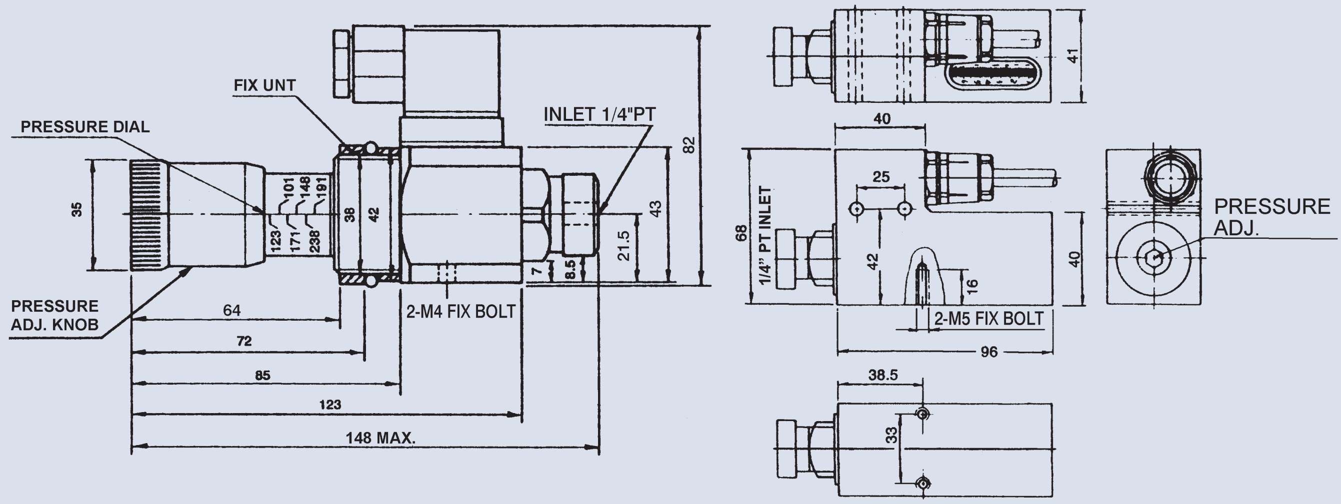
1	Model	Body: cast iron
2	Port size	PT1/4"
3	Pressure adjusting range	HM: 30~230 bar L: 15~60 bar LL: 5~60 bar

Specifications

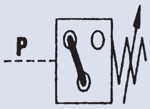
Model	Pressure Adj. Range (bar)	Max. Pressure (bar)	Weight (kg)
JCS-02N	30~230	230	0.9
JCS-02NL	15~60	230	0.9
JCS-02NLL	5~60	230	0.9
JPS-02HM	30~230	230	1.45
JPS-02L	15~60	230	1.45
JPS-02LL	5~60	230	1.45

Dimensions

Unit: mm



PRESSURE SWITCH



APSA

APSB

APSC

APSG

APSH

How to order

APSA,APSB,APSC - 230 - 1
(1) (2) (3)

1	Model	Pipe connection type Body: Aluminum alloy
2	Pressure adjusting range (bar)	
3	Port size	1: 1/4"PT 2: 1/4"NPT 3: 1/4"SAE 4: 1/4"BSP

APSH,APSG - 60
(1) (2)

1	Model	Sub-plate mounting type Body: AL6061-T6
2	Pressure adjusting range (bar)	

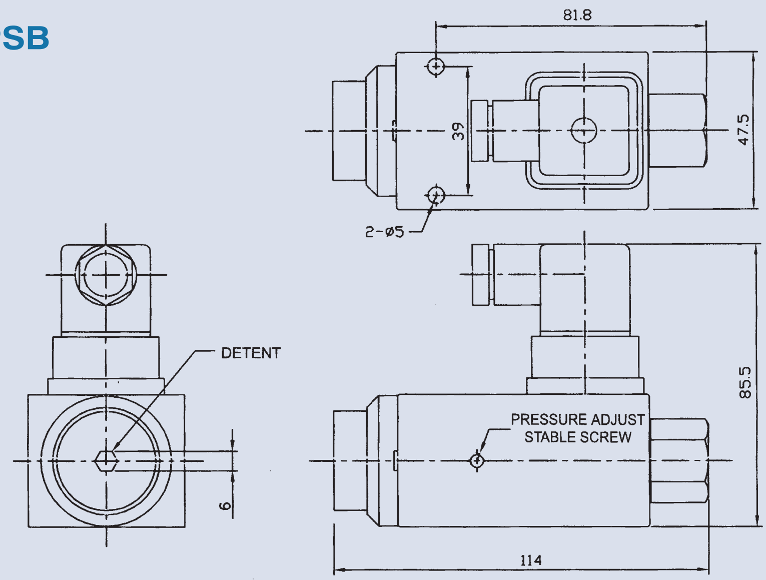
Specifications

Model	Pressure Adj. Range (bar)	Max. Overpressure (bar)	Repetition Accuracy	Max. Voltage Current	Weight (kg)
APSA	35: 5~35 70: 10~70 150: 30~150 230: 50~230 420: 90~420				0.75
APSB					0.67
APSC	60: 5~60 125: 10~125 275: 25~275 400: 30~400	600	±1%	250 VAC (3A) 30 VDC (4A)	0.6
APSG	60: 5~60 125: 10~125 275: 25~275				0.6
APSH					0.57

Dimensions

APSB

Unit: mm

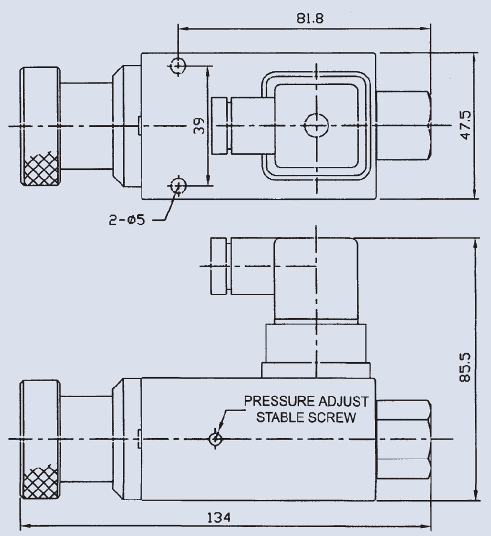


PRESSURE SWITCH

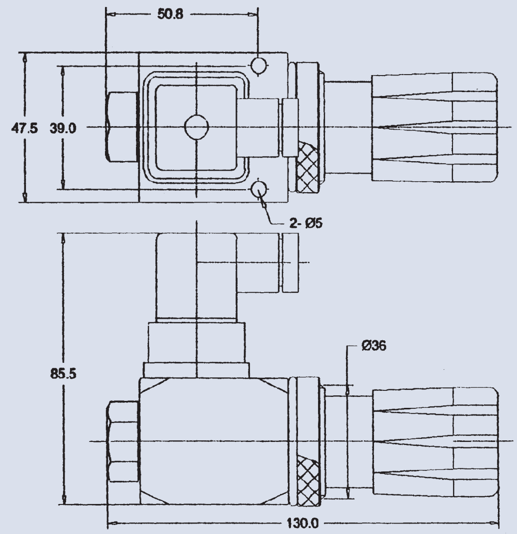
Dimensions

Unit: mm

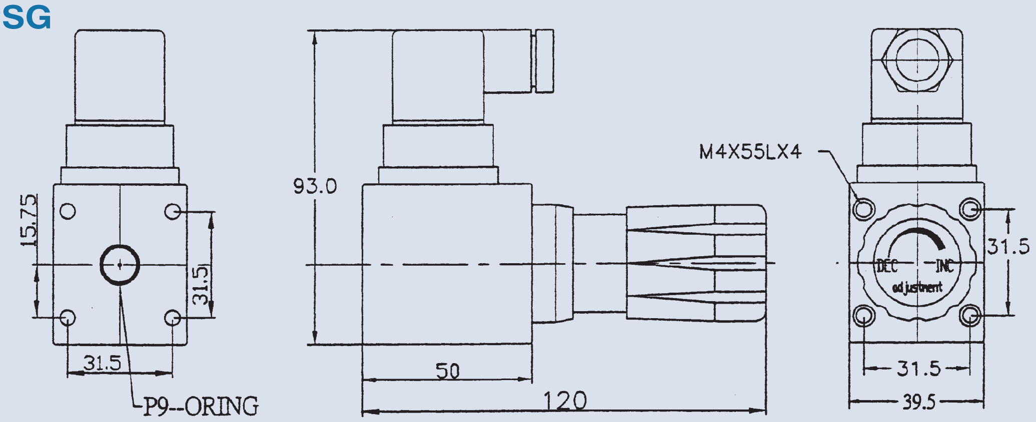
APSA



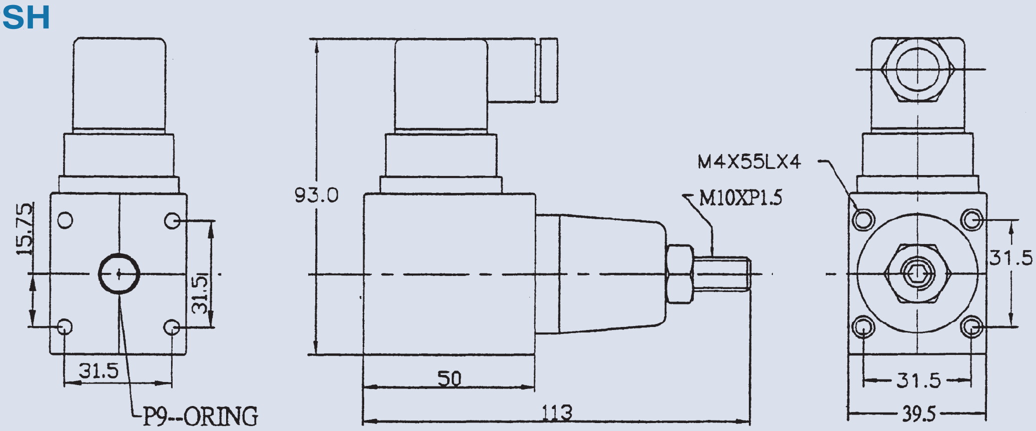
APSC



APSG



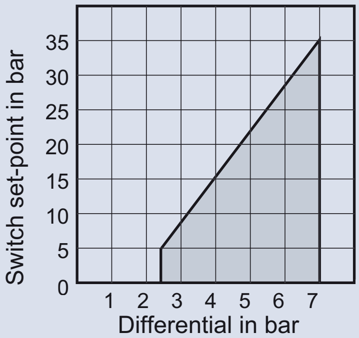
APSH



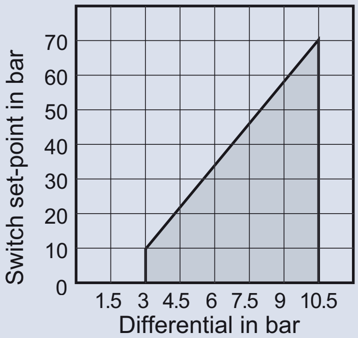
PRESSURE SWITCH

Performance curves

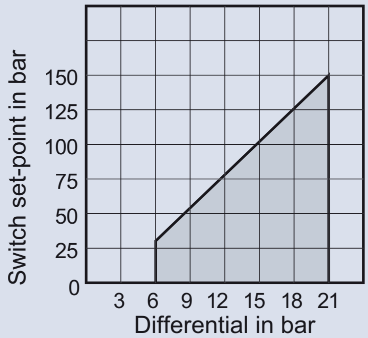
APSA, APSB-35



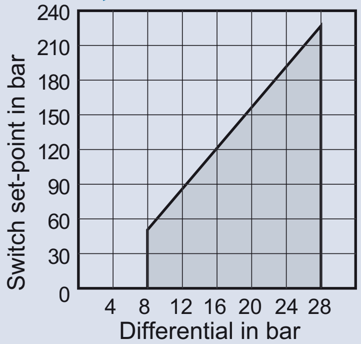
APSA, APSB-70



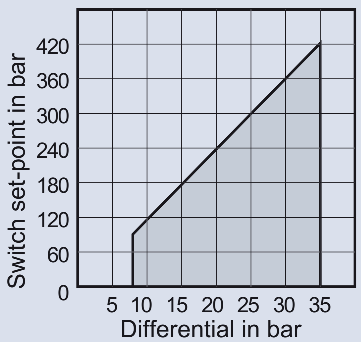
APSA, APSB-150



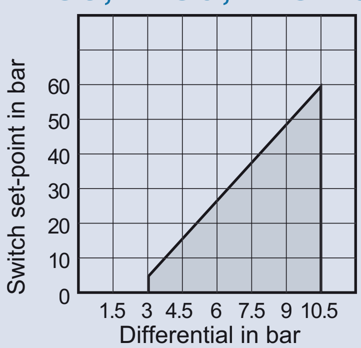
APSA, APSB-230



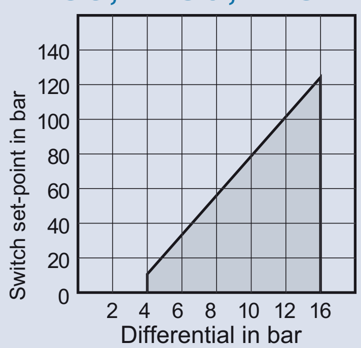
APSA, APSB-420



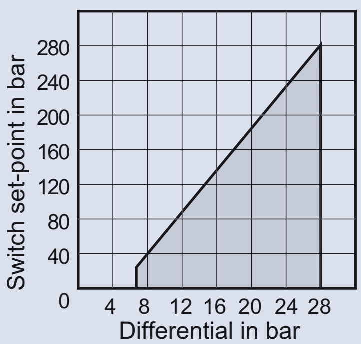
APSC, APSG, APSH-60



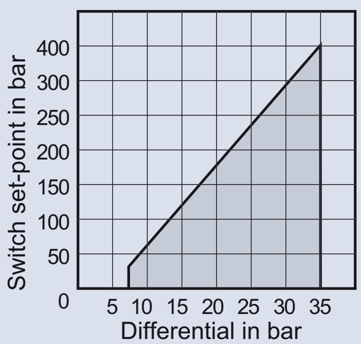
APSC, APSG, APSH-125



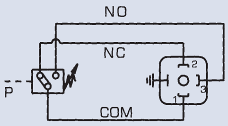
APSC, APSG, APSH-275



APSC-400



PRESSURE SWITCH



NO=Normally open
NC=Normally closed

DNF

DNA

DNB

How to order

DNF - 100 - 22B - 1
1 2 3 4

1	Model	DNF: Panel mounting type DNA: Standard type DNB: Tool adjustment type
2	Pressure adjusting range (bar)	
3	22B: Without indicator led 06I: With indicator led	
4	Port size	1: 1/4"PT 2: 1/4"NPT 3: 1/4"PF (G)

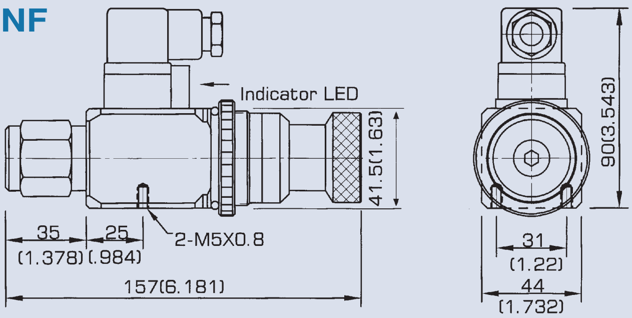
Specifications

Model	Pressure Adj. Range (bar)	Max. Pressure (bar)	Max. Voltage Current (lpm)	Weight (kg)
DNF	40: 6~40 70: 10~70 100: 15~100 150: 20~150 250: 40~250 360: 50~360	40: 150 70: 150 100: 250 150: 250 250: 400 360: 400	22B: 250 VAC (3A) 30 VDC (2A) 06I: 250 VAC (<0.6A) 24 VDC (<0.6A)	1.2
DNA				1
DNB	40: 6~40 70: 10~70 150: 20~150 250: 40~250	40: 150 70: 150 150: 250 250: 400		0.6

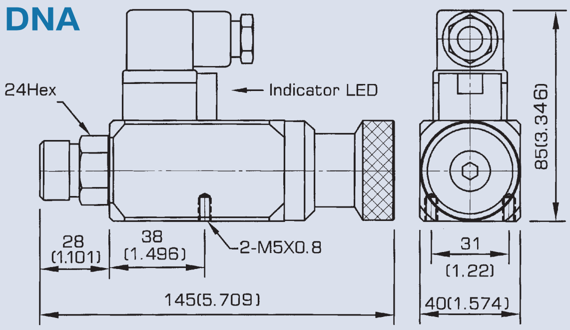
Dimensions

Unit: mm
(inch)

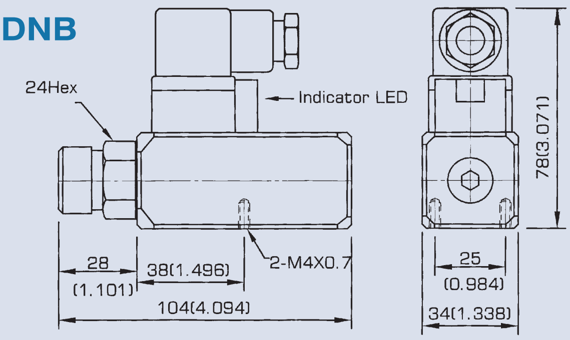
DNF



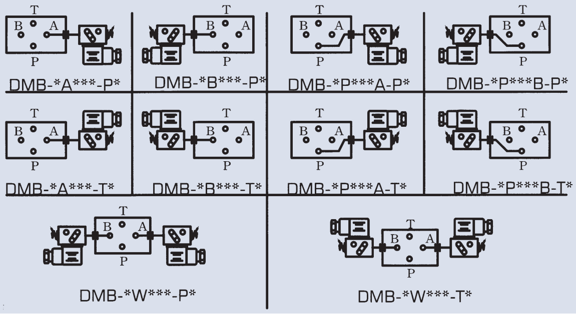
DNA

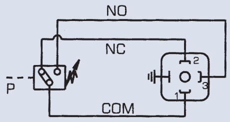


DNB

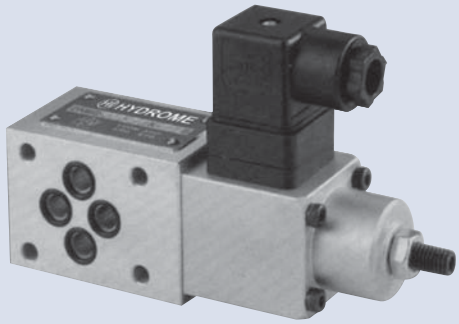


MODULAR PRESSURE SWITCH





NO=Normally open
NC=Normally closed



How to order

DMB - 02 P 250 A - P B
1 2 3 4 5 6 7

1	Model	DMB: Modular type
2	For valve size	02: ISO CETOP 3, NFPA D03, DIN NG 6 03: ISO CETOP 5, NFPA D05, DIN NG 10
3	Control port	A: A port B: B port P: P port W: A and B ports
4	Pressure adjusting range	40: 6~40 bar 70: 8~70 bar 150: 15~150 bar 250: 40~250 bar
5	Position of the pressure adjustment	
6	Position of the electrical connector	
7	B: Without indicator led I: With indicator led	

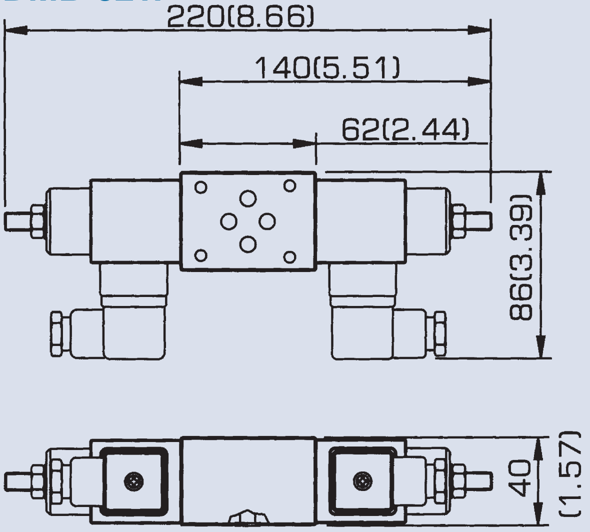
Specifications

Model	Pressure Adj. Range (bar)	Max. Pressure (bar)	Max. Voltage Current (lpm)	Weight (kg)
DMB-02P (A,B)	40: 6~40 70: 8~70 150: 15~150 250: 40~250	40: 150 70: 150 150: 250 250: 400	B: 250 VAC (3A) 30 VDC (2A) I: 250 VAC (<0.6A) 24 VDC (<0.6A)	0.55
DMB-02W				0.80
DMB-03P (A,B)				0.90
DMB-03W				1.5

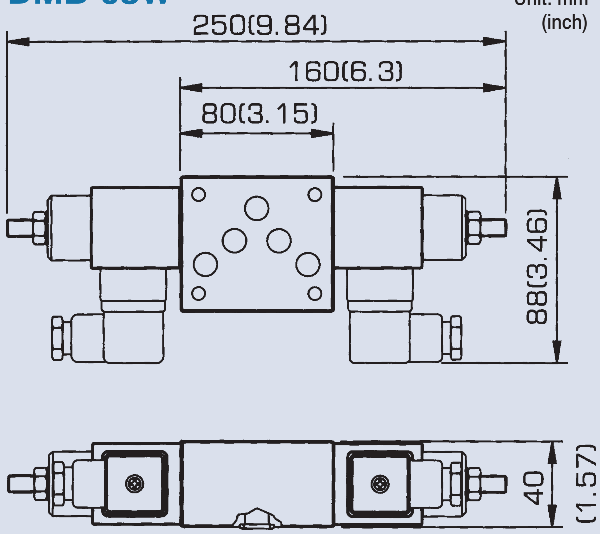
Dimensions

Unit: mm (inch)

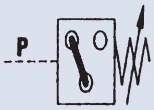
DMB-02W



DMB-03W



MINIATURE PRESSURE SWITCH



APSI

APSL

H

How to order

APSI, APSL - 250 - 1

1 2 3

1	Model	Body: Aluminum alloy
2	Pressure adjusting range (bar)	
3	Port size	1: 1/4"PT

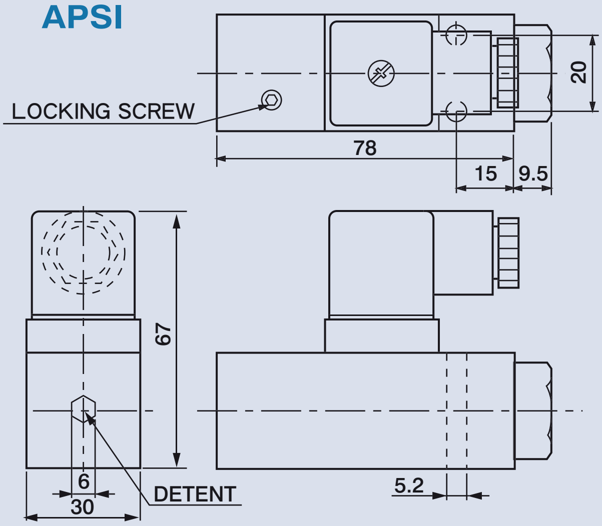
Specifications

Model	Pressure Adj. Range (bar)	Max. Overpressure (bar)	Repetition Accuracy	Max. Voltage Current	Weight (kg)
APSI	70: 5~70 150: 10~150 250: 25~250 400: 30~400	500	±1%	250 VAC (3A) 30 VDC (4A)	0.3
APSL	35: 5~35 70: 10~70 250: 25~250	400			0.26

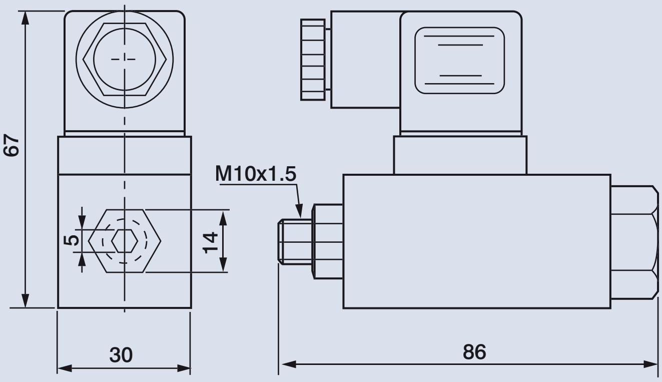
Dimensions

Unit: mm

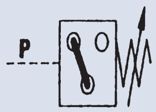
APSI

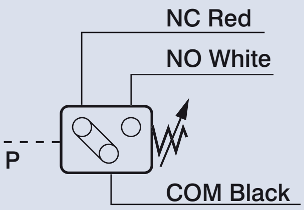


APSL



MINIATURE PRESSURE SWITCH





NO=Normally open
NC=Normally closed

H

How to order

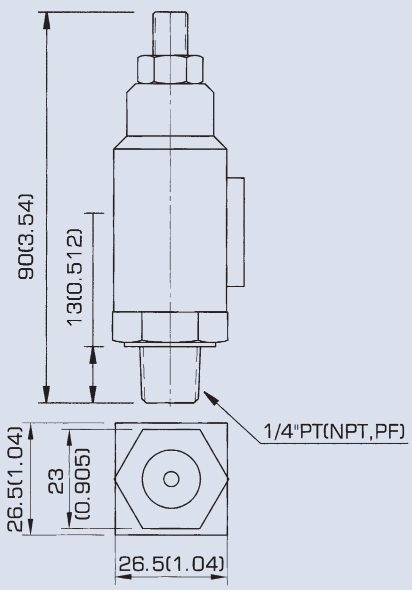
TC - 250 - 1
1 2 3

1	Model
2	Pressure adjusting range (bar)
3	Port size 1: 1/4"PT (RC) 2: 1/4"NPT 3: 1/4"PF (G)

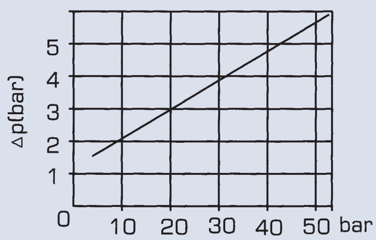
Specifications

Model	Pressure Adj. Range (bar)	Max. Pressure (bar)	Max. Voltage Current	Weight (kg)
TC-050	6~50	150	250 VAC (3A) 30 VDC (2A)	0.15
TC-100	10~100	300		0.15
TC-150	20~150	300		0.15
TC-250	30~250	350		0.15
TC-350	40~350	400		0.15

Dimensions / Performance curves

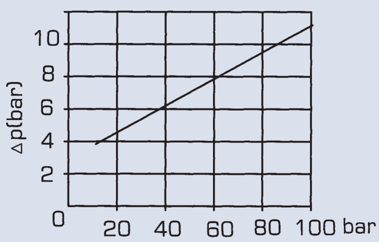


TC-050-1

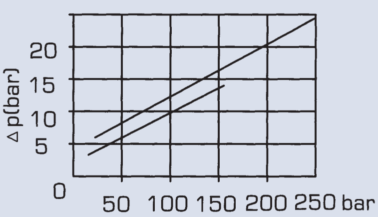


TC-100-1

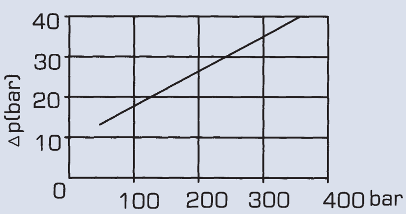
Unit: mm
(inch)



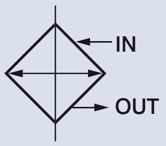
TC-150-1,TC-250-1

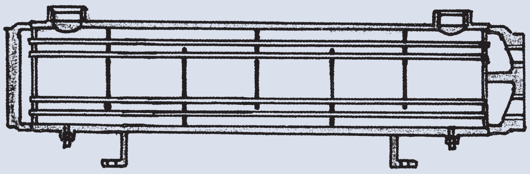


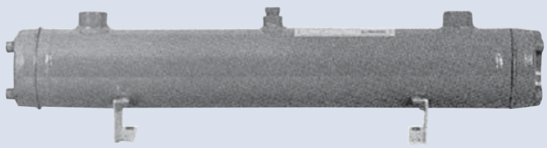
TC-350-1



FIN TUBE TYPE OIL COOLER
NO-FIN TUBE TYPE OIL COOLER







How to order

HT, HH - 14 05 - ※
1 2 3 4

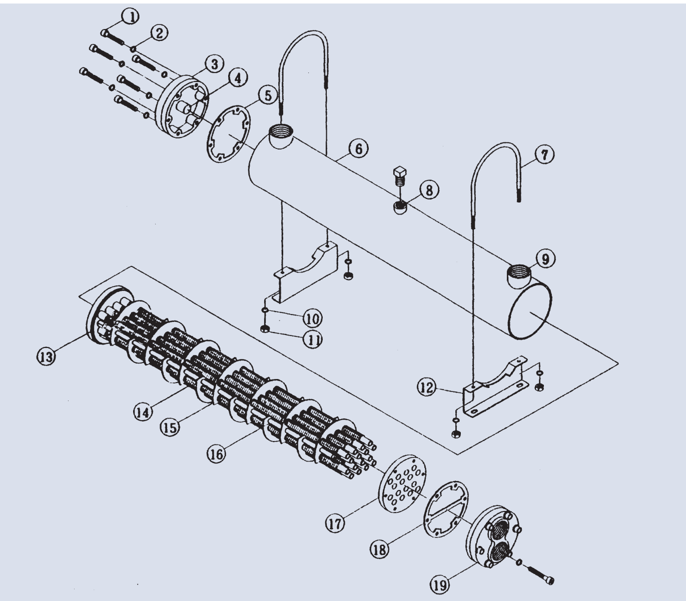
1	Model	HT: Fin tube type HH: No-Fin tube type HTF: Fin tube type HHF: No-Fin tube type
2	Shell outside diameter	
3	Tube length	
4	Cooling water	None: Water (standard type) B: Brine water

Specifications

Model	Heat Diffusion Area(m^2)		Flow (lpm)	Weight(kg)	
	HT(F)	HH(F)		HT(F)	HH(F)
HT,HH-0905	0.41	0.24	60	10	10
HT,HH-0908	0.7	0.39	100	14	14
HT,HH-1405	1.1	0.54	150	20	20
HT,HH-1408	1.9	0.84	250	25	26
HT,HH-1412	2.9	1.28	350	37	35
HT,HH-1712	4.6	2.17	600	48	50
HT,HH-1716	6.5	2.89	840	56	60
HT,HH-1722	7.2	3.63	1000	72	72
HTF,HHF-2208	5.6	2.61	800	72	78
HTF,HHF-2212	8.6	4.02	1200	93	110
HTF,HHF-2216	11.6	5.39	1500	118	130
HTF,HHF-2222	14.6	7.15	1800	260	290

Model	Heat Diffusion Area(m^2)		Flow (lpm)	Weight(kg)	
	HTF	HHF		HTF	HHF
HTF,HHF-2508	8	3.55	1000	100	130
HTF,HHF-2512	12.2	5.41	1600	146	170
HTF,HHF-2516	16.4	7.21	1800	168	190
HTF,HHF-2522	20.8	9.08	2200	260	300
HTF-3208	13.3	-	1400	167	-
HTF-3212	20	-	2100	204	-
HTF-3216	26.6	-	2800	241	-
HTF-3222	33.4	-	3500	280	-
HTF-3508	15.5	-	1640	222	-
HTF-3512	23.6	-	2500	264	-
HTF-3516	31.5	-	3300	306	-
HTF-3522	39.6	-	4400	348	-

Dimensions

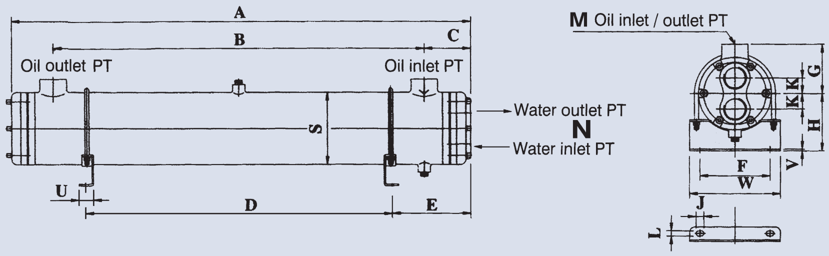


Item	Part name	Material
1	Socket cap screws	SCM (435)
2	Washers	SPM
3	Cast iron end cover	FC20
4	Anti-corrosion zinc bar	ZnB
5	Oil seal	NBR
6	Shell	BPE
7	Supporting hangers	AISI (1006)
8	Air vent	SS41
9	Oil port	STPG (370)
10	Vibration absorber	FWL
11	Nut	STEEL
12	Supporting legs	SS41
13	Tube end plate	SS41
14	Copper tubes	JIS (H3300) (1220T)
15	Buffle plates	SS41
16	Supporting rod	SS41
17	Tube bundle end plate	SS41
18	Oil seal	NBR
19	Cast Iron end cover	FC20

FIN TUBE TYPE OIL COOLER
NO-FIN TUBE TYPE OIL COOLER

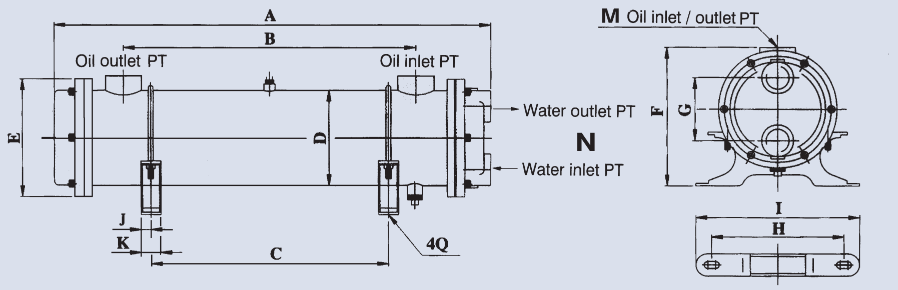
Dimensions

Unit: mm



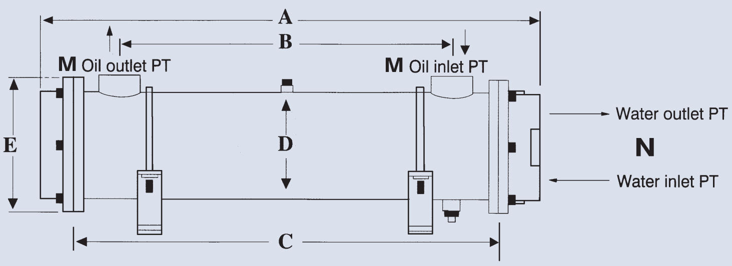
Model	A	B	C	D	E	F	J	G	H	K	L	M	N	S	U	V	W
HT,HH-0905	590	408	88	270	150	80	25	63	80	22	10	3/4"	3/4"	89.5	30	2.3	115
HT,HH-0908	880	720	78	500	190	80	25	63	80	22	10	3/4"	3/4"	89.5	30	2.3	115
HT,HH-1405	600	398	100	270	162	140	32	90	110	28	12	1-1/4"	1/1/4"	140.8	40	3.2	176
HT,HH-1408	890	710	85	500	202	140	32	90	110	28	12	1-1/4"	1-1/4"	140.8	40	3.2	176
HT,HH-1412	1310	1110	100	700	303	140	32	90	110	28	12	1-1/2"	1-1/4"	140.8	40	3.2	176
HT,HH-1712	1335	1060	138	700	310	145	32	115	125	32	12	2"	1-1/4"	166.5	40	3.2	200
HT,HH-1716	1745	1510	118	850	460	145	32	115	125	32	12	2"	1-1/4"	166.5	40	3.2	200
HT,HH-1722	2200	1850	160	1650	270	145	32	115	125	32	12	2	1-1/4"	166.5	40	3.2	200

Unit: mm



Model	A	B	C	D	E	F	G	H	I	J	K	M	N	Q
HTF,HHF-2208	950	640	ADJ.	219	265	323	137	290	360	38	50	2"~2-1/2"	1-1/2"~2"	5/8"
HTF,HHF-2212	1370	1060	ADJ.	219	265	323	-	-	-	-	-	2"~2-1/2"	1-1/2"~2"	5/8"
HTF,HHF-2216	1780	1490	ADJ.	219	265	323	-	-	-	-	-	2"~2-1/2"	1-1/2"~2"	5/8"
HTF,HHF-2222	2210	1860	ADJ.	219	265	323	-	-	-	-	-	2"~2-1/2"	1-1/2"~2"	5/8"
HTF,HHF-2508	980	640	ADJ.	270	325	385	160	345	405	38	50	2"~3"	2"	5/8"
HTF,HHF-2512	1400	1060	ADJ.	270	325	385	160	345	-	-	-	2"~3"	2"	5/8"
HTF,HHF-2516	1810	1470	ADJ.	270	325	385	160	345	-	-	-	2"~3"	2"	5/8"
HTF,HHF-2522	2240	1860	ADJ.	270	325	385	160	345	-	-	-	2"~3"	2"	5/8"

Unit: mm



Model	A	B	C	D	E	M	N
HTF-3208	975	635	810	12"	390	3"~4"	3"~4"
HTF-3212	1400	1060	1235	12"	390	3"~4"	3"~4"
HTF-3216	1810	1470	1645	12"	390	3"~4"	3"~4"
HTF-3222	2235	1895	2070	12"	390	3"~4"	3"~4"

Model	A	B	C	D	E	M	N
HTF-3508	975	635	810	14"	448	3"~4"	3"~4"
HTF-3512	1400	1060	1235	14"	448	3"~4"	3"~4"
HTF-3516	1810	1470	1645	14"	448	3"~4"	3"~4"
HTF-3522	2235	1890	2070	14"	448	3"~4"	3"~4"

FIN TUBE TYPE OIL COOLER

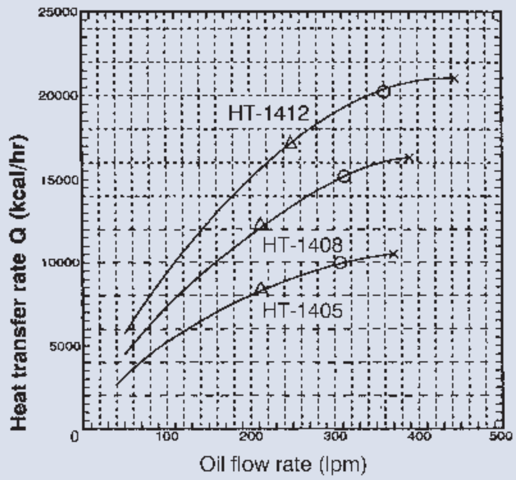
Performance curves

Test conditions:

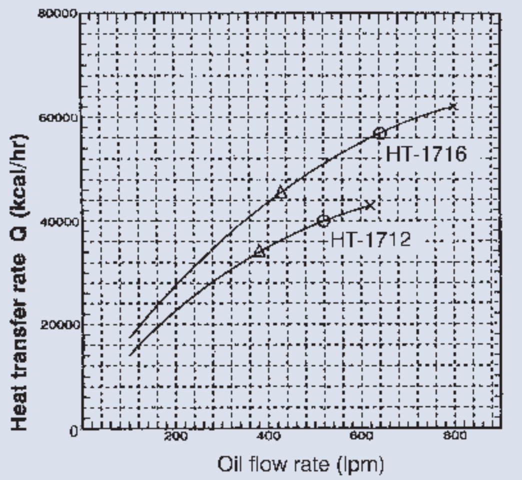
1. The flow rate of oil is twice as water
2. The outlet temperature of oil: 50 °C
3. The inlet temperature of water: 30 °C
4. The viscosity of oil: ISO-68 (68CST)

Pressure drop of oil:
Δ:ΔP=0.5 bar O: ΔP=1.0 bar X:ΔP=1.5 bar

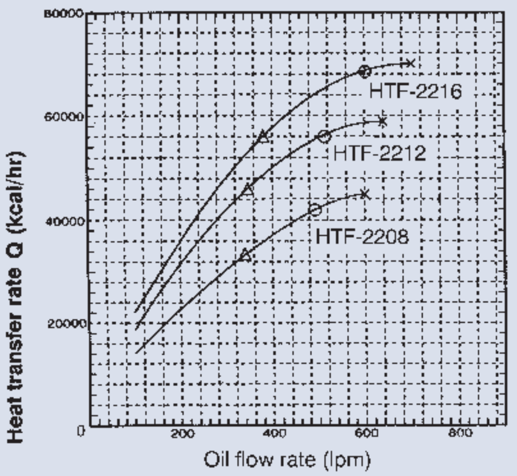
HT-1405, HT-1408, HT-1412



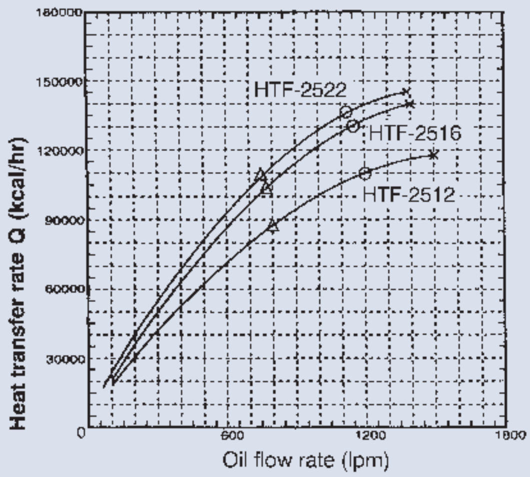
HT-1712, HT-1716



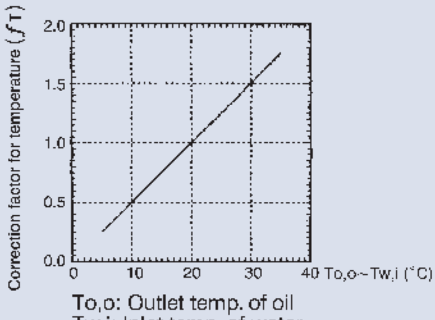
HTF-2208, HTF-2212, HTF-2216



HTF-2512, HTF-2516, HTF-2522

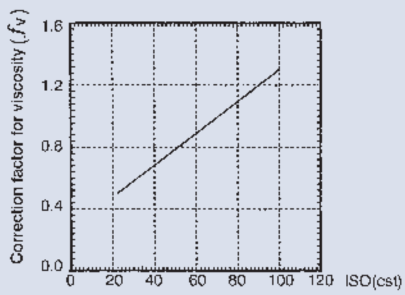


OIL TEMPERATURE CORRECTION



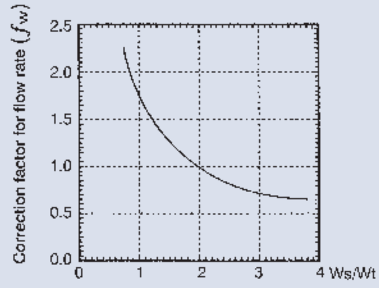
To,o: Outlet temp. of oil
Tw,i: Inlet temp. of water

OIL VISCOSITY CORRECTION



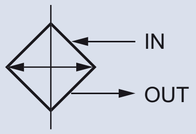
cst: The viscosity of oil

OIL FLOW CORRECTION



Ws: Flow rate of oil
Wt: Flow rate of water

MULTI-TUBE TYPE OIL COOLER



How to order

OR - 60
1 2

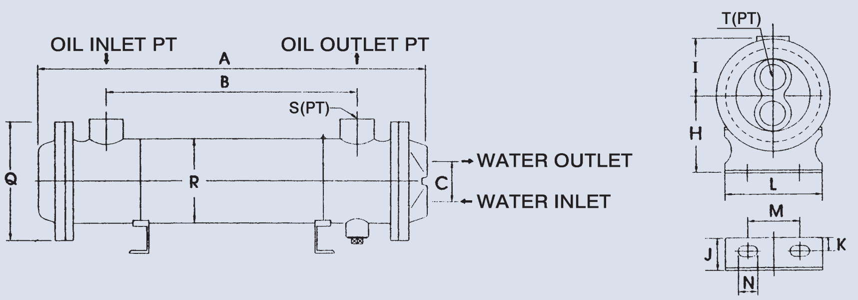
1	Model
2	Flow (lpm)

Specifications

Model	Heat Diffusion Area (m²)	Nos. of Tube	Flow (lpm)	Weight (kg)	Model	Heat Diffusion Area (m²)	Nos. of Tube	Flow (lpm)	Weight (kg)
OR-30	0.17	22	30	6.5	**OR-800**	2.9	58	800	48.6
OR-60	0.3	22	60	7.7	**OR-1000**	3.7	58	1000	57.4
OR-100	0.4	26	100	10.2	**OR-1200**	6.1	124	1200	103
OR-150	0.63	42	150	17.5	**OR-1400**	6.9	124	1400	111
OR-250	1.26	58	250	22.10	**OR-1800**	8.1	124	1800	118
OR-350	1.75	58	350	29.80	**OR-2500**	10.1	200	2500	160
OR-600	2	58	600	36.8	**OR-3000**	12.56	200	3000	200

Dimensions

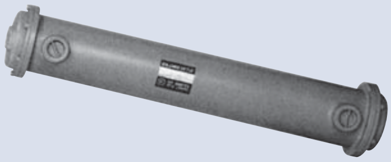
Unit: mm

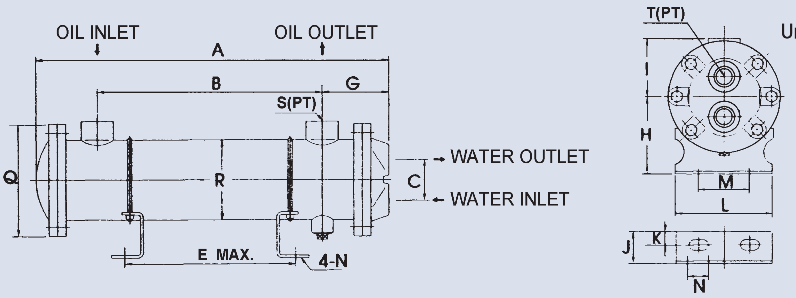


<table>
<tr><th>Model</th><th>A</th><th>B</th><th>C</th><th>H</th><th>I</th><th>J</th><th>K</th><th>L</th><th>M</th><th>N</th><th>Q</th><th>R</th><th>S</th><th>T</th></tr>
<tr><td>OR-30</td><td>299</td><td>150</td><td rowspan="2">46</td><td rowspan="2">77</td><td rowspan="2">63</td><td rowspan="2">23</td><td rowspan="2">11</td><td rowspan="2">115.5</td><td rowspan="2">95</td><td rowspan="2">7x10</td><td rowspan="2">121</td><td rowspan="2">89.1</td><td rowspan="2">3/4"</td><td rowspan="2">3/4"</td></tr>
<tr><td>60</td><td>450</td><td>305</td></tr>
<tr><td>100</td><td>555</td><td>403</td><td>57</td><td>95</td><td>70</td><td>33</td><td>12.5</td><td>145.5</td><td>106.5</td><td>10x20</td><td>134</td><td>101.6</td><td>3/4"</td><td>3/4"</td></tr>
<tr><td>150</td><td>575</td><td>385</td><td rowspan="3">76</td><td rowspan="3">118</td><td rowspan="3">95</td><td rowspan="3">30</td><td rowspan="3">12.5</td><td rowspan="3">175</td><td rowspan="3">130</td><td rowspan="3">13x16</td><td rowspan="3">175</td><td rowspan="3">139.8</td><td rowspan="3">1-1/4"</td><td rowspan="3">1"</td></tr>
<tr><td>250</td><td>780</td><td>585</td></tr>
<tr><td>350</td><td>1180</td><td>990</td></tr>
<tr><td>600</td><td>1175</td><td>950</td><td rowspan="3">87</td><td rowspan="3">136</td><td rowspan="3">107</td><td rowspan="3">34</td><td rowspan="3">12.5</td><td rowspan="3">205</td><td rowspan="3">161</td><td rowspan="3">13x16</td><td rowspan="3">207</td><td rowspan="3">165.2</td><td rowspan="3">2"</td><td rowspan="3">1-1/4"</td></tr>
<tr><td>800</td><td>1700</td><td>1490</td></tr>
<tr><td>1000</td><td>2135</td><td>1910</td></tr>
<tr><td>1200</td><td>1690</td><td>1380</td><td rowspan="3">114</td><td rowspan="3">184</td><td rowspan="3">150</td><td rowspan="3">50</td><td rowspan="3">25</td><td rowspan="3">333</td><td rowspan="3">229</td><td rowspan="3">16x33</td><td rowspan="3">269</td><td rowspan="3">217</td><td rowspan="3">2-1/2"</td><td rowspan="3">2"</td></tr>
<tr><td>1400</td><td>1840</td><td>1530</td></tr>
<tr><td>1800</td><td>2150</td><td>1840</td></tr>
<tr><td>2500</td><td>1815</td><td>1435</td><td rowspan="2">154</td><td rowspan="2">218</td><td rowspan="2">178</td><td rowspan="2">50</td><td rowspan="2">25</td><td rowspan="2">352</td><td rowspan="2">247</td><td rowspan="2">16x33</td><td rowspan="2">302</td><td rowspan="2">273</td><td rowspan="2">3"</td><td rowspan="2">2"</td></tr>
<tr><td>3000</td><td>2150</td><td>1800</td></tr>
</table>

THREADED-TUBE TYPE OIL COOLER

Dimensions



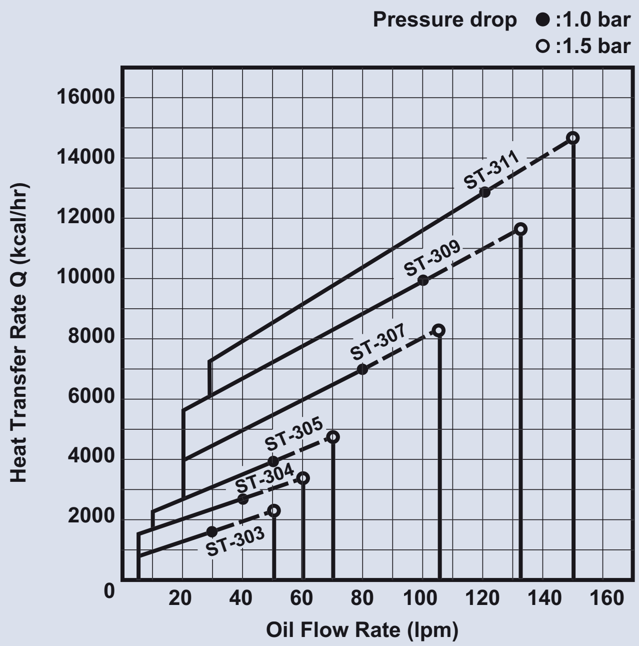


Unit: mm

Model	A	B	C	E	G	H	I	J	K	L	M	N	Q	R	S	T	H.D.A m²	Flow(lpm)	Weight(kg)
ST-303	300	150	46	100	90	77	63	23	11	115.5	95	7x10	121	89.1	3/4"	3/4"	0.3	50	6.5
304	390	225		175													0.4	60	7.5
305	450	305		235													0.5	70	9.0
307	600	440		380			66								1"		0.7	110	10.5
309	755	584		525													0.9	130	12.0
311	900	728		675													1.1	150	13.5
ST-408	470	284	70	215	102	103	77	33	12.5	145.5	106.5	10x20	150	114.3	1-1/4"	1"	0.8	130	14
411	610	428		360													1.1	140	16
415	765	572		500													1.5	150	18
418	910	716		650													1.8	160	21
421	1050	860		790													2.1	180	22
ST-518	615	406	76	328	110	118	95	30	12.5	175	130	13x16	174.8	139.8	1-1/2"	1"	1.8	210	21
522	770	558		480													2.2	260	26
526	820	622		540													2.6	300	28
530	915	702		620													3	330	30
534	1075	838		760													3.4	370	33
542	1255	1055		975													4.2	410	37
ST-649	1090	836	98	735	134	136	107	34	12.5	205	161	13x16	207	165.2	2"	1-1/4"	4.9	600	47
657	1275	1000		900													5.7	800	53
668	1475	1218		1120													6.8	1000	60
682	1745	1490		1390													8.2	1200	67

Performance curves

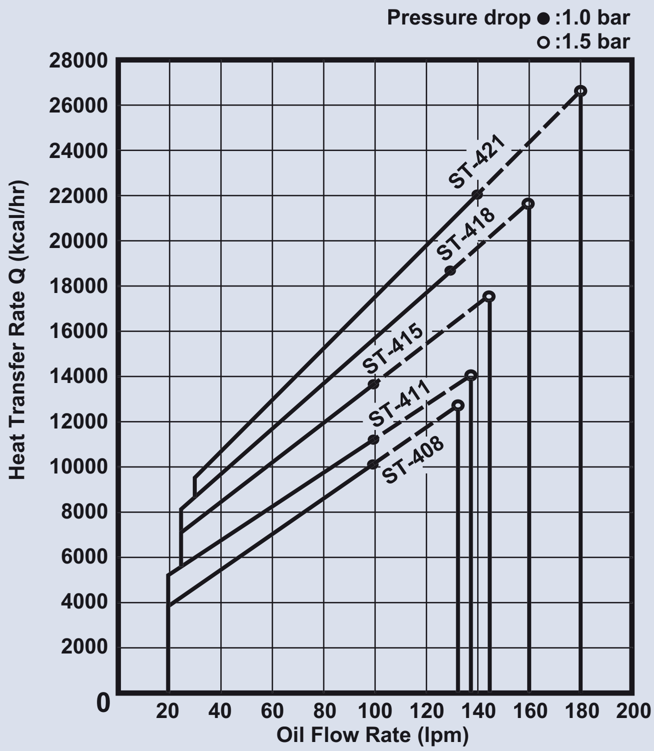
Test condition:
1. The flow rate of water: 20 lpm
2. The inlet temperature of oil: 55 °C
3. The inlet temperature of water: 28 °C
4. The viscosity of oil: ISO-68 cst



THREADED-TUBE TYPE OIL COOLER

Performance curves

Test condition:
1. The flow rate of water: 40 lpm
2. The inlet temperature of oil: 55 °C
3. The inlet temperature of water: 28 °C
4. The viscosity of oil: ISO-68 cst



Test condition:
1. The flow rate of water: 50 lpm
2. The inlet temperature of oil: 55 °C
3. The inlet temperature of water: 28 °C
4. The viscosity of oil: ISO-68 cst

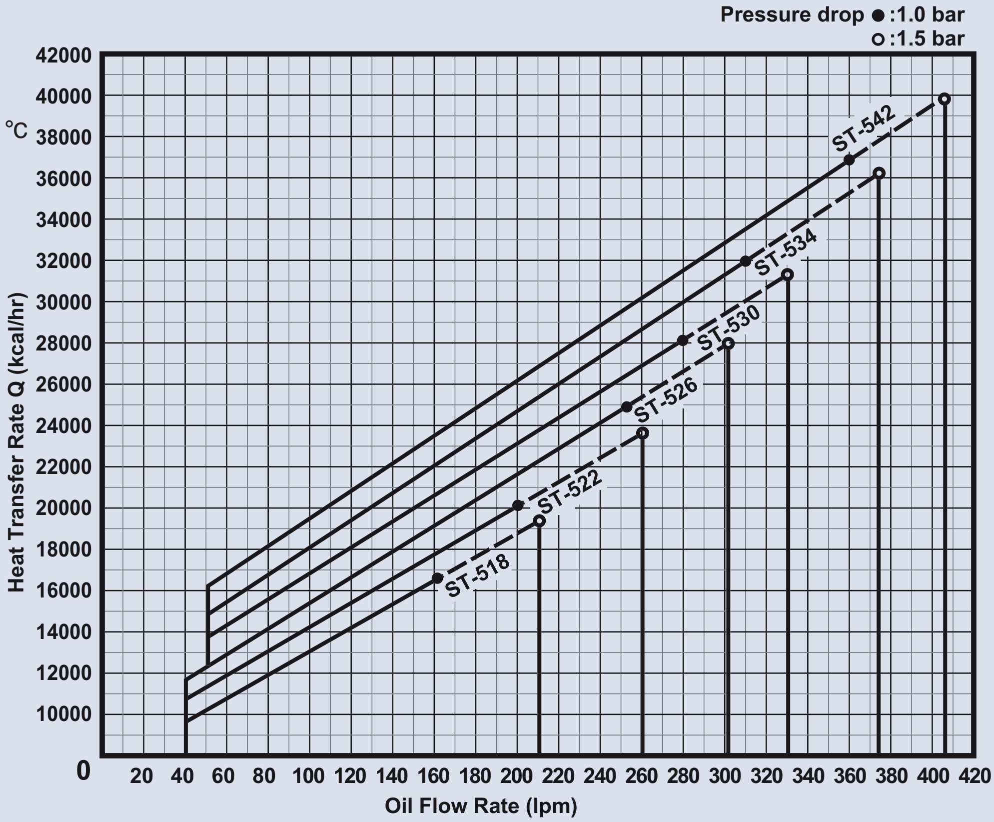


PLATE-FIN HEAT EXCHANGER

To avoid the leakage caused by peak pressure, an Anti-Burst Valve or By-Pass Valve should be always mounted. Off-Line cooling is strongly recommended. Pumping the oil from the tank to the heat exchanger with a separated cooling pump. Please refer to page 218.

How to order

AH0608T - C A(D)※
1 2 3

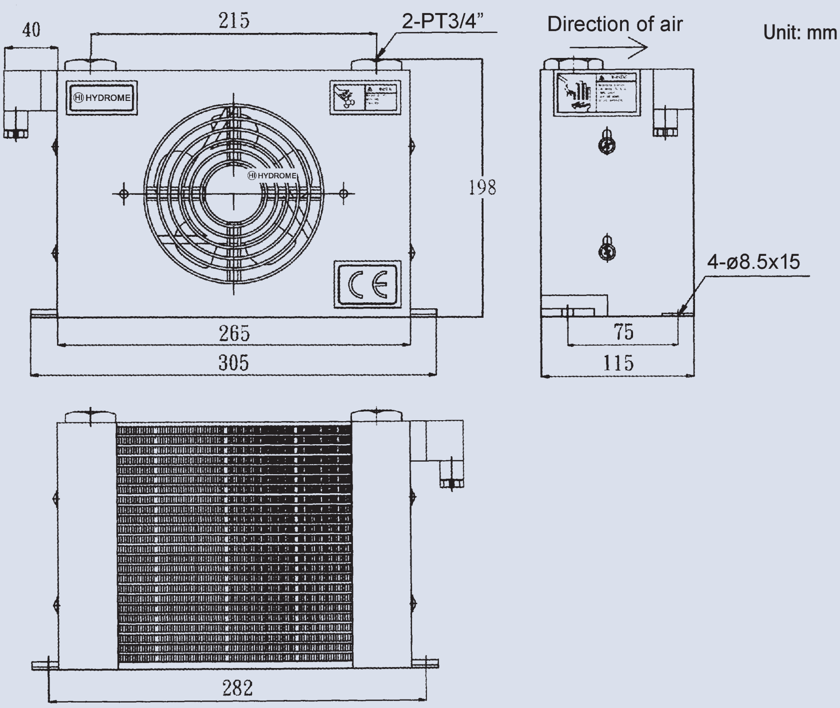
1	Model	Fan dia: 6"x1 with temperature protection switch
2	With fan case	
3	Voltage	A1: AC115V A2: AC230V A3: AC380V D1: DC12V D2: DC24V

Specifications

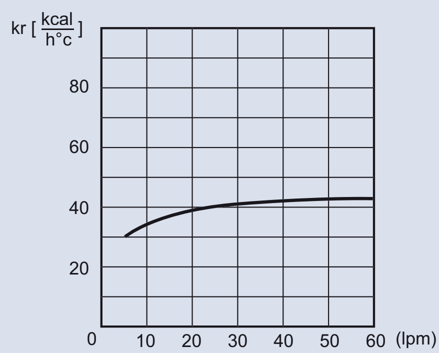
Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH0608T	3/4"	3~60	20	1200	1~2	4.2

Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AH0608T	Single	54	AC115	50/60	45/37	0.6/0.5	2850/3450	457/553	42/48
			AC230			0.27/0.23			
			AC380		30/25	0.16/0.14			
	-	-	DC12	-	-	1.6	3350	500	51
			DC24			0.8		420	

Dimensions



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

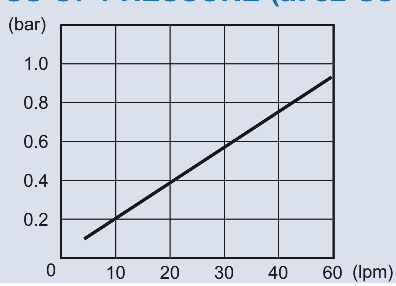


PLATE-FIN HEAT EXCHANGER

To avoid the leakage caused by peak pressure, an Anti-Burst Valve or By-Pass Valve should be always mounted. Off-Line cooling is strongly recommended. Pumping the oil from the tank to the heat exchanger with a separated cooling pump. Please refer to page 218.

How to order

AH0608LT - C A(D)※

1 2 3

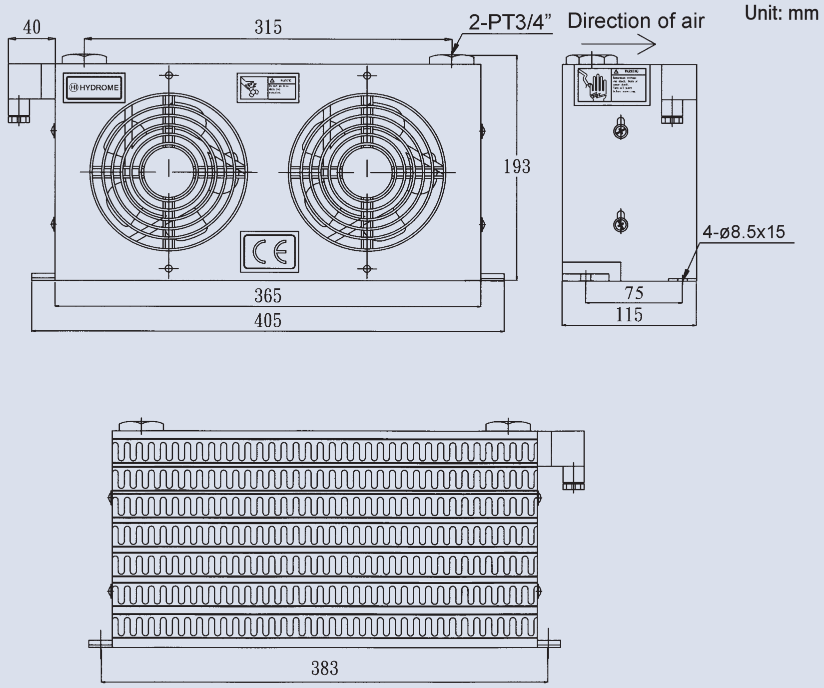
1	Model	Fan dia: 6"x2 with temperature protection switch
2	With fan case	
3	Voltage	A1: AC115V A2: AC230V A3: AC380V D1: DC12V D2: DC24V

Specifications

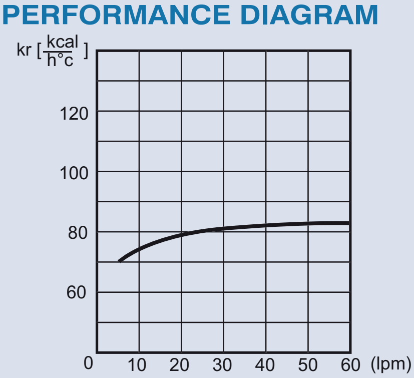
Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH0608LT	3/4"	3~60	20	2400	2~3	6

Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AH0608LT	Single	54	AC115	50/60	90/74	1.2/1	2850/3450	914/1106	42/48
			AC230			0.54/0.46			
			AC380		60/50	0.32/0.28			
	-	-	DC12	-	-	3.2	3350	1000	51
			DC24			1.6		840	

Dimensions



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

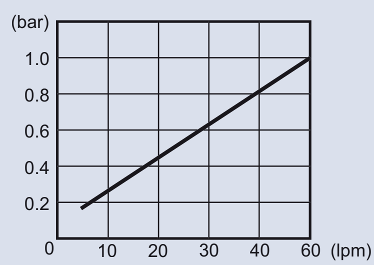


PLATE-FIN HEAT EXCHANGER

To avoid the leakage caused by peak pressure, an Anti-Burst Valve or By-Pass Valve should be always mounted. Off-Line cooling is strongly recommended. Pumping the oil from the tank to the heat echanger with a separated cooling pump. Please refer to page 218.

The motor of DC fan is carbon brush type, which means the life-span was limited 2000 hours of service.

How to order

AH1012 - (3P) - C A(D)※

1 2 3 4

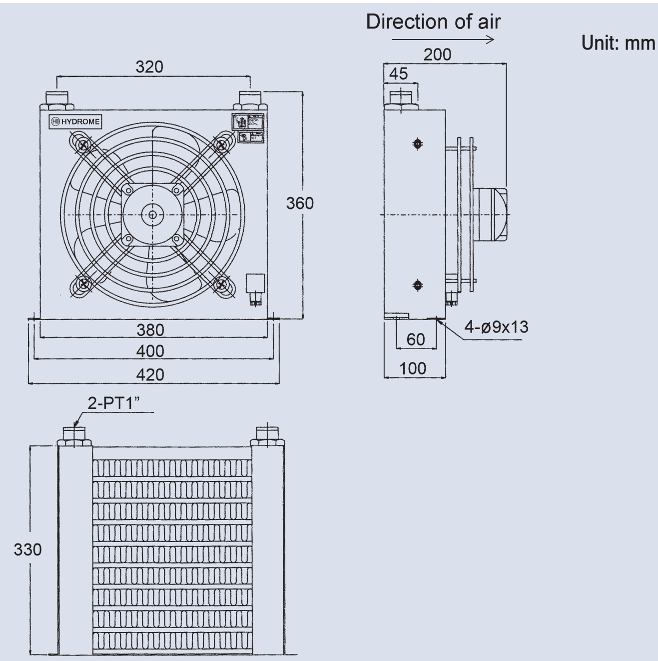
1	Model	Fan dia: 10"x1
2	3P: 3 Phase double voltage 230 (400V)	
3	With fan case	
4	Voltage	A1: AC115V A2: AC230V D1: DC12V D2: DC24V

Specifications

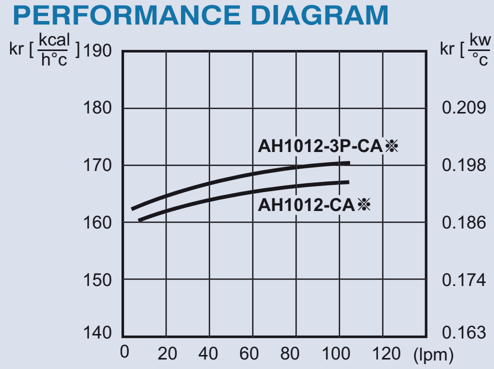
Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH1012/AH1012-3P	1"	20~100	20	5000/5200	3~5	10

Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AH1012	Single	54	AC115	50/60	60/58	0.8/0.74	1300/1550	1500	55
			AC230			0.42/0.36			
	-	-	DC12	-	192	16	2000		60
			DC24			8	2400		
AH1012-3P	3	54	AC230	50/60	88/80	0.45/0.36	1430/1670		
			AC400			0.22/0.2			

Dimensions



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

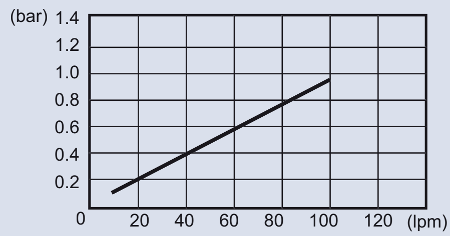
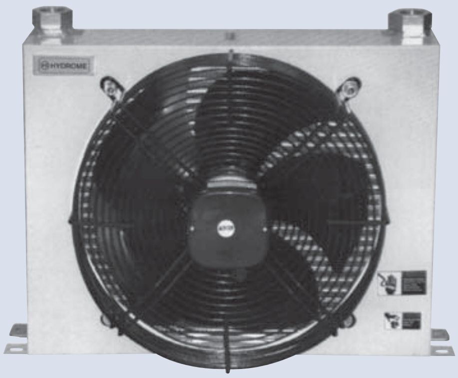


PLATE-FIN HEAT EXCHANGER

To avoid the leakage caused by peak pressure, an Anti-Burst Valve or By-Pass Valve should be always mounted. Off-Line cooling is strongly recommended. Pumping the oil from the tank to the heat exchanger with a separated cooling pump. Please refer to page 218.

The motor of DC fan is carbon brush type, which means the life-span was limited 2000 hours of service.



How to order

AH1215 - C A(D)※

1 2 3

1	Model	Fan dia: 12"x1
2	With fan case	
3	Voltage	A2: 230 (400V) D1: DC12V D2: DC24V

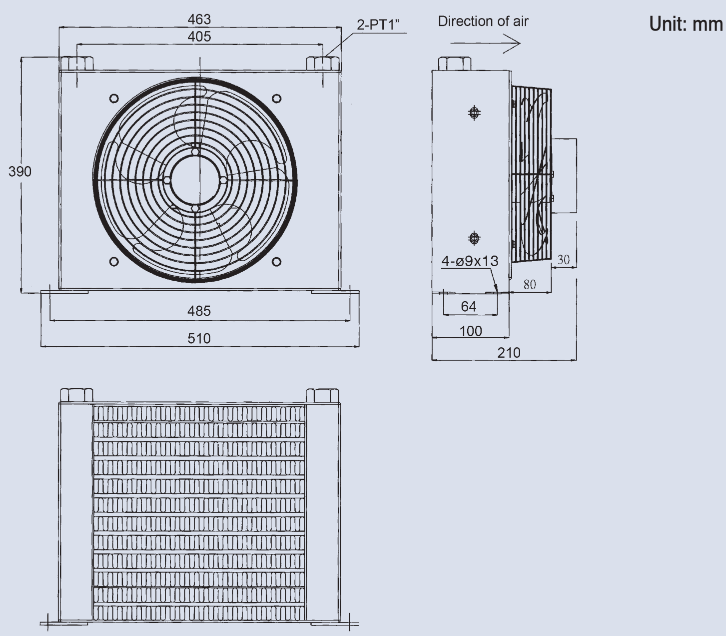
Specifications

Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH1215	1"	20~100	20	7200	5~7.5	15

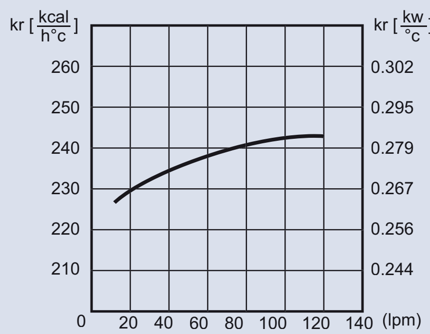
Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AH1215	3	54	AC230	50/60	130	0.45/0.5	2420/2510	1800/1900	60
			AC400			0.26/0.29			
	-	-	DC12	-	192	16	2000	2000	65
			DC24			8	2400		

Dimensions

Unit: mm



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

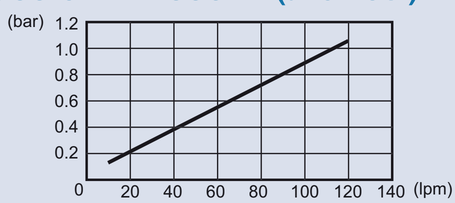
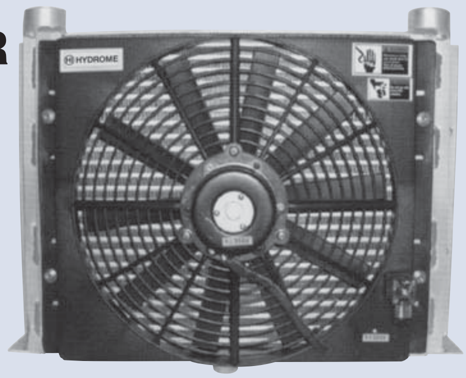


PLATE-FIN HEAT EXCHANGER



To avoid the leakage caused by peak pressure, an Anti-Burst Valve or By-Pass Valve should be always mounted. Off-Line cooling is strongly recommended. Pumping the oil from the tank to the heat exchanger with a separated cooling pump. Please refer to page 218.

The motor of DC fan is carbon brush type, which means the life-span was limited 2000 hours of service.

How to order

AH14 17, AH14 70 - A(D)※

1 2 1 2 3

1	Model	Fan dia: 14"x1
2	Size of A	17: 45mm 70: 70mm
3	Voltage	A1: AC115V A2: AC230V D1: DC12V D2: DC24V

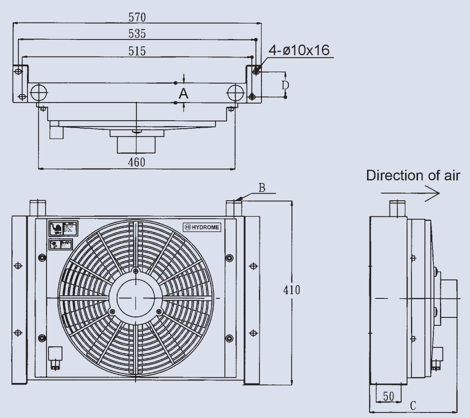
Specifications

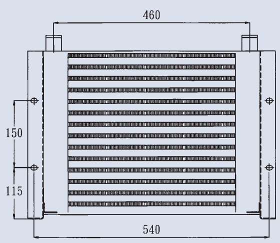
Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH1417/AH1470	See B	30~100	20	10000/11300	7.5~10/10~15	11/17

Model	Motor		Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m^3/h	Noise dB (A)
	Phase	IP							
AH1417	Single	54	AC115	50/60	40/50	0.46/0.35	1450/1650	2300/2760	60
			AC230			0.23/0.18			
AH1470	-	-	DC12	-	90	7.5	2000	2800	
			DC24		108	4.5	2200		

Dimensions

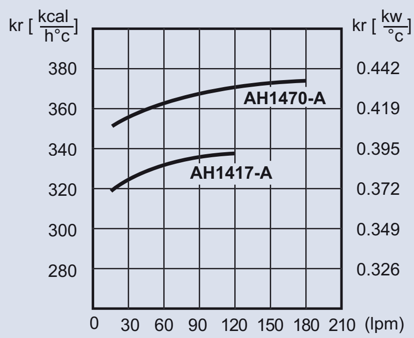
Unit: mm





Model	A	B	C	D
AH1417-A	45	2-PT1"	196	48
AH1470-A	70	2-PT1-1/4"	212	50

PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

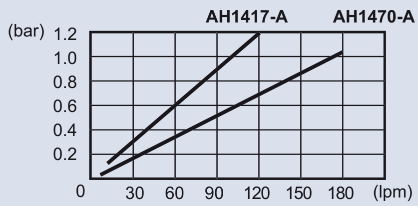
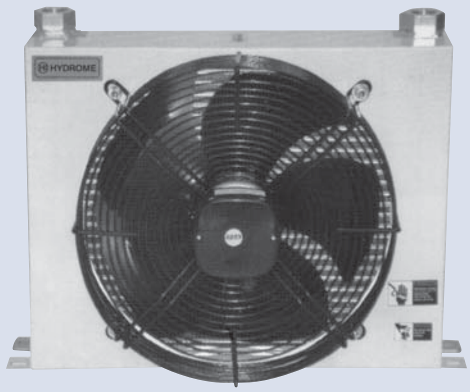


PLATE-FIN HEAT EXCHANGER

To avoid the leakage caused by peak pressure, an Anti-Burst Valve or By-Pass Valve should be always mounted. Off-Line cooling is strongly recommended. Pumping the oil from the tank to the heat exchanger with a separated cooling pump. Pease refer to page 218.



How to order

AH1418 - C A※

1 2 3

1	Model	Fan dia: 14"x1
2	With fan case	
3	Voltage	A2: AC230 / 400V A4: AC440V

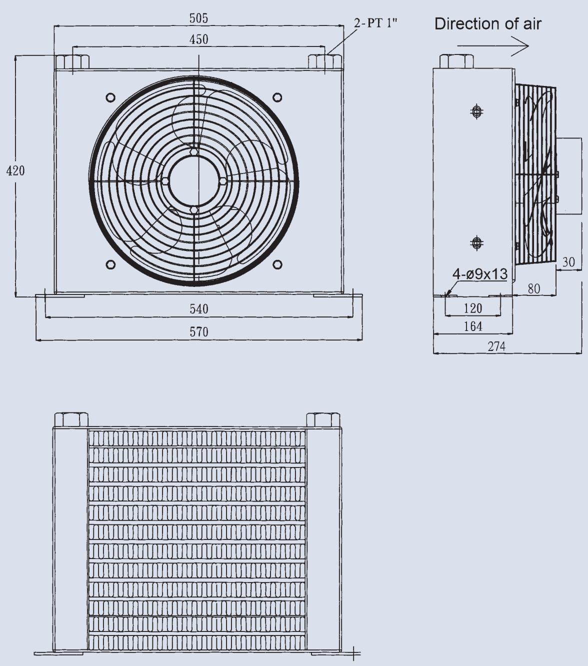
Specifications

Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH1418	1"	30~100	20	10000	7.5~10	17

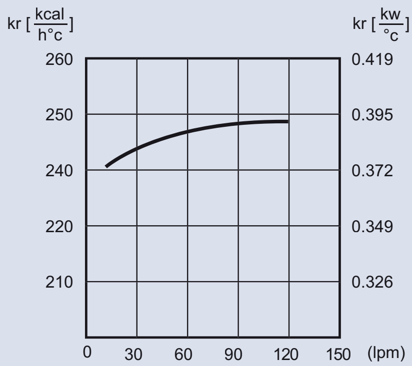
Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AH1418	3	54	AC230	50/60	150/180	0.8/0.7	1380/1550	3200/3800	62
			AC400		150/180	0.4/0.36			
			AC440		200/260	0.4/0.43			

Dimensions

Unit: mm



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

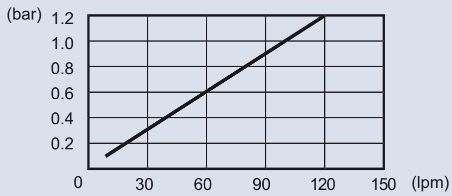


PLATE-FIN HEAT EXCHANGER

To avoid the leakage caused by peak pressure, an Anti-Burst Valve or By-Pass Valve should be always mounted. Off-Line cooling is strongly recommended. Pumping the oil from the tank to the heat exchanger with a separated cooling pump. Please refer to page 218.

How to order

AH1428 - C A※
1 2 3

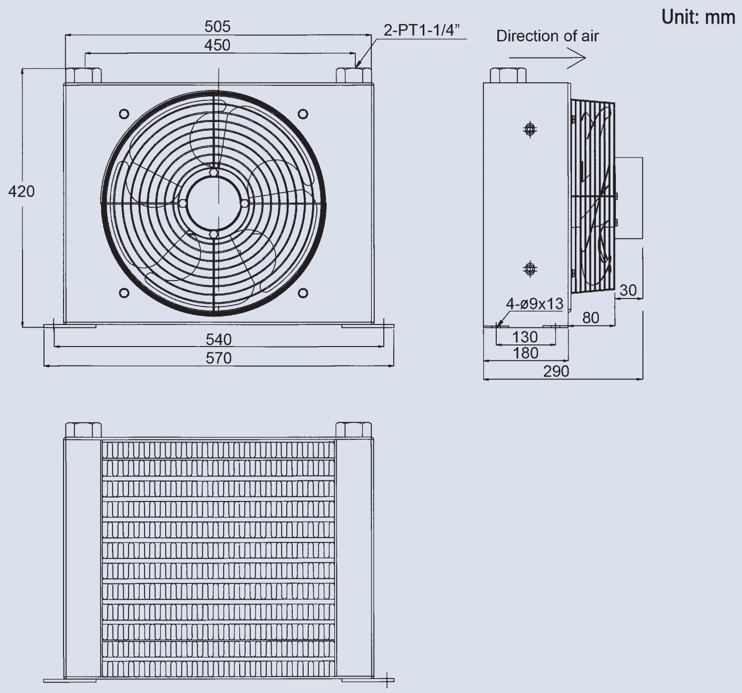
1	Model	Fan dia: 14"x1
2	With fan case	
3	Voltage	A2: AC230 / 400V A4: AC440V

Specifications

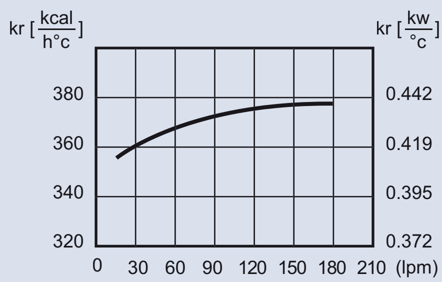
Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH1428	1-1/4"	30~200	20	13000	15~20	21

Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AH1428	3	54	AC230	50/60	150/180	0.8/0.7	1380/1550	3200/3800	62
			AC400		150/180	0.4/0.36			
			AC440		200/260	0.4/0.43			

Dimensions



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

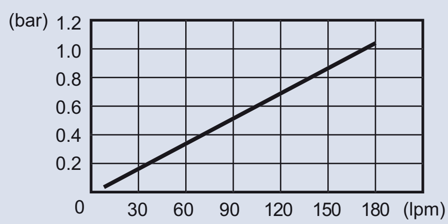


PLATE-FIN HEAT EXCHANGER

To avoid the leakage caused by peak pressure, an Anti-Burst Valve or By-Pass Valve should be always mounted. Off-Line cooling is strongly recommended. Pumping the oil from the tank to the heat exchanger with a separated cooling pump. Please refer to page 218.

The motor of DC fan is carbon brush type, which means the life-span was limited 2000 hours of service.

How to order

AH1490 - C A(D)※
1 2 3

1	Model	Fan dia: 14"x1
2	With fan case	
3	Voltage	A2: AC230 / 400V A4: AC440V D1: DC12V D2: DC24V

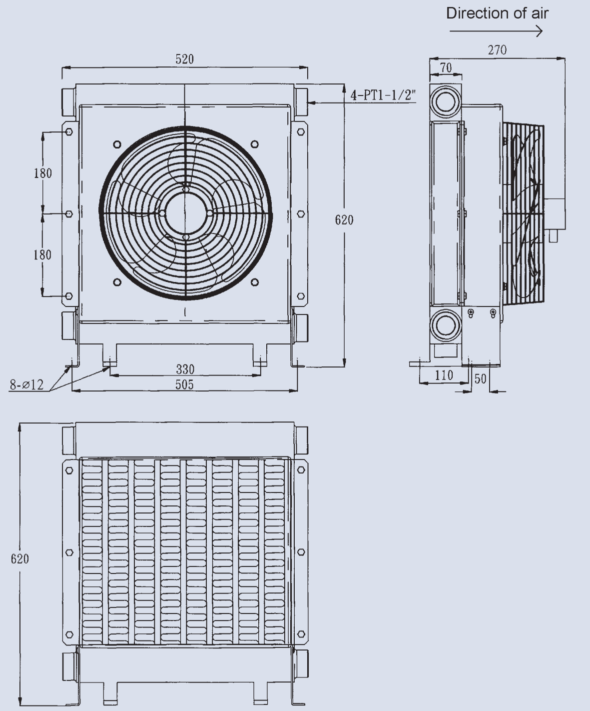
Specifications

Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH1490	1-1/2"	30~200	20	18000	20~25	30

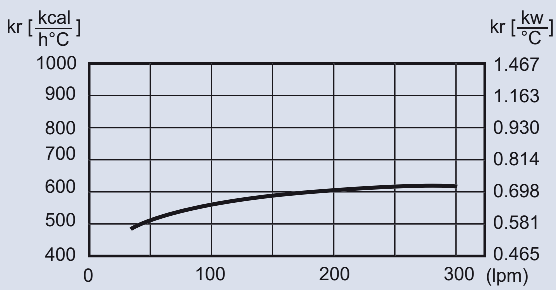
Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AH1490	3	54	AC230	50/60	150/180	0.8/0.7	1380/1550	3200/3800	62
			AC400		150/180	0.4/0.36			
			AC440		200/260	0.4/0.43			

Dimensions

Unit: mm



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

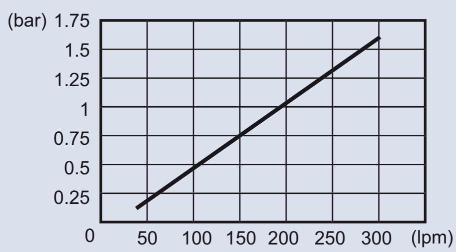


PLATE-FIN HEAT EXCHANGER

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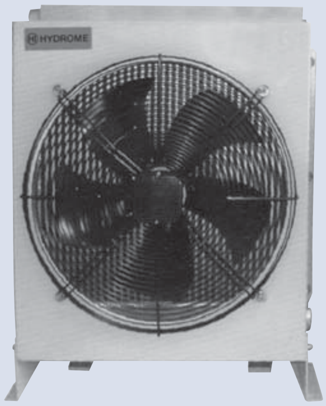
The motor of DC fan is carbon brush type, which means the life-span was limited 2000 hours of service.



How to order

AH1680 - C A(D)※
1 2 3

1	Model	Fan dia: 16"x1
2	With fan case	
3	Voltage	A2: AC230 / 400V A4: AC440V D1: DC12V D2: DC24V

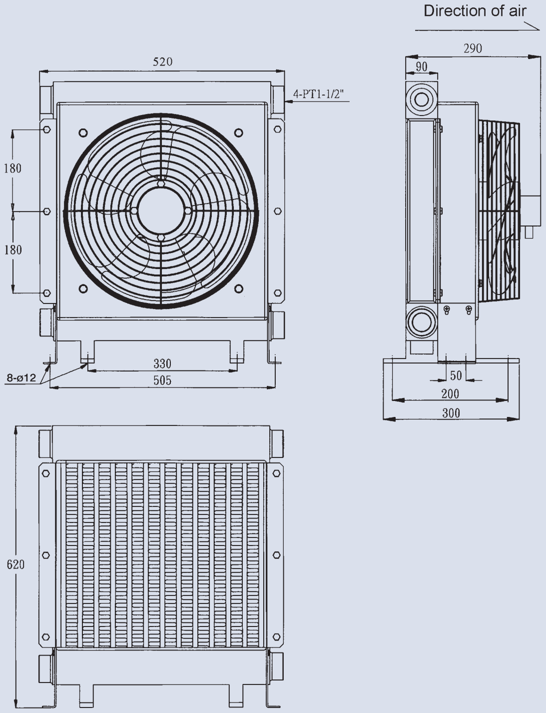
Specifications

Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH1680	1-1/2"	30~250	20	22000	25~40	35

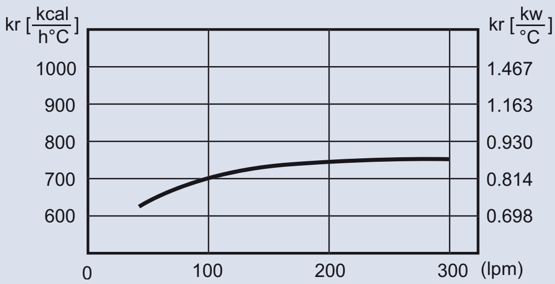
Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AH1680	3	54	AC230	50/60	145/250	0.90/1.00	1380/1550	4000/4800	68
			AC400		145/250	0.50/0.52			
			AC440		135/175	0.42/0.45			

Dimensions

Unit: mm



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

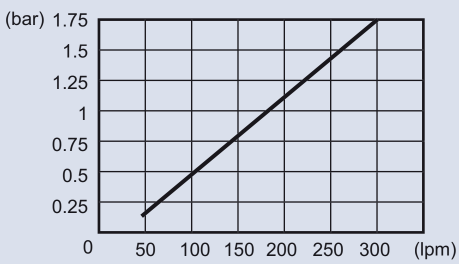


PLATE-FIN HEAT EXCHANGER

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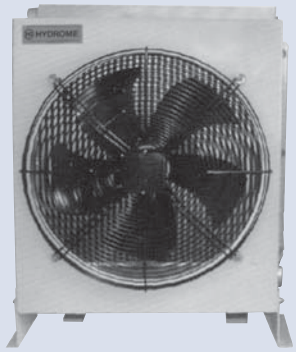


How to order

AH1890 - C A※
1 2 3

1	Model	Fan dia: 18"x1
2	With fan case	
3	Voltage	A2: AC230 / 400V A4: AC440V

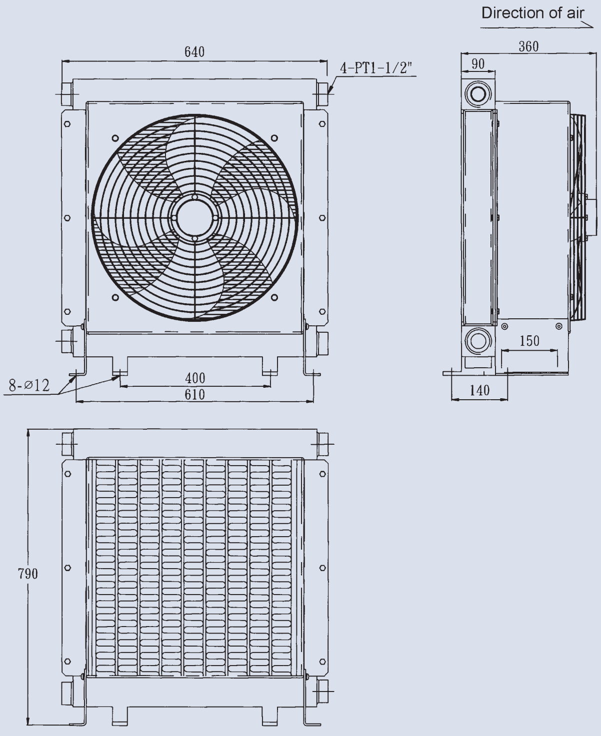
Specifications

Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH1890	1-1/2"	30~250	20	26000	30~50	52

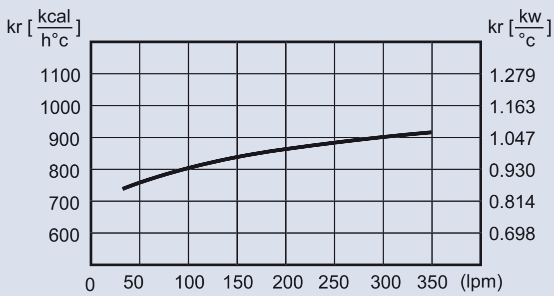
Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AH1890	3	54	AC230	50/60	250/350	1.10/1.20	1380/1550	5200/6200	72
			AC400		250/350	0.65/0.70			
			AC440		210/300	0.45/0.51			

Dimensions

Unit: mm



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

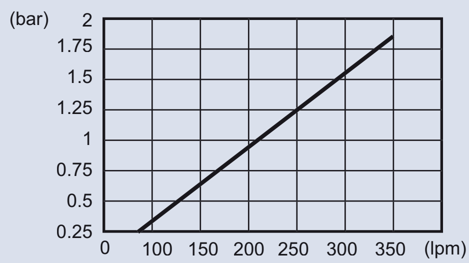


PLATE-FIN HEAT EXCHANGER

To avoid the leakage caused by peak pressure, an Anti-Burst Valve or By-Pass Valve should be always mounted. Off-Line cooling is strongly recommended. Pumping the oil from the tank to the heat exchanger with a separated cooling pump. Please refer to page 218.

How to order

AH2342 - C A※

1 2 3

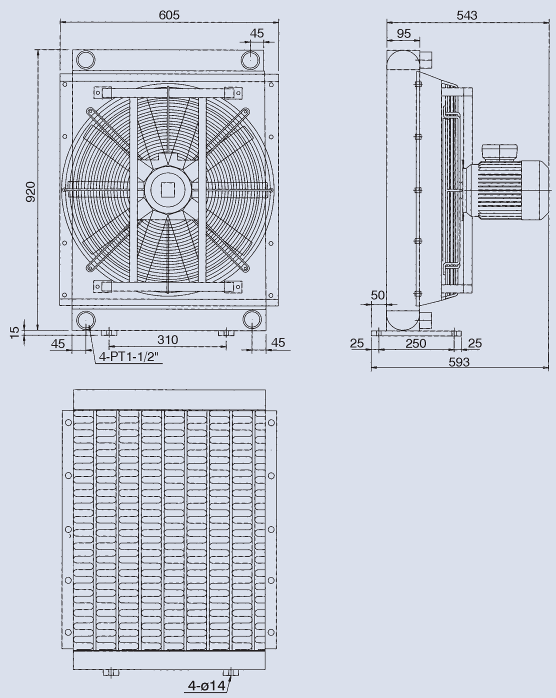
1	Model	Fan dia: 23"x1
2	With fan case	
3	Voltage	AC210~230 / 360~400 (50Hz) AC240~270 / 420~460 (60Hz)

Specifications

Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Hydraulic System (HP)	Weight (kg)
AH2342	1-1/2"	50~250	20	37000	50~75	80

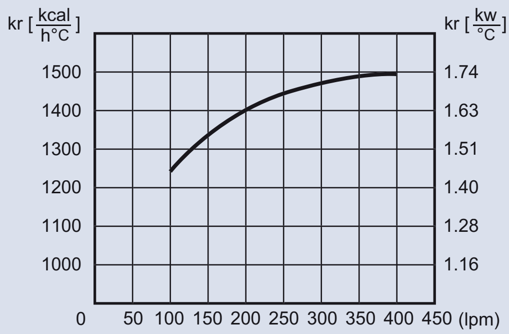
Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AH2342	3	55	AC210~230 / 360~400	50	1500	6.2~6.3 / 2.6~3.8	1400	7600	90
			AC240~270 / 420~460	60	17500	6.2~6.3 / 2.6~3.8	1680	9120	

Dimensions



Unit: mm

PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

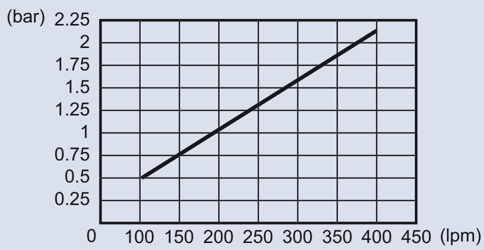
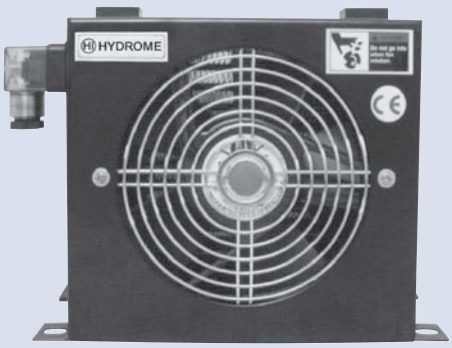


PLATE-FIN HEAT EXCHANGER



Suitable for the drain port in high-pressure variable
piston pump and vane pump. Or off-line circuit.

How to order

AW0607 - C A(D)※

1 2 3

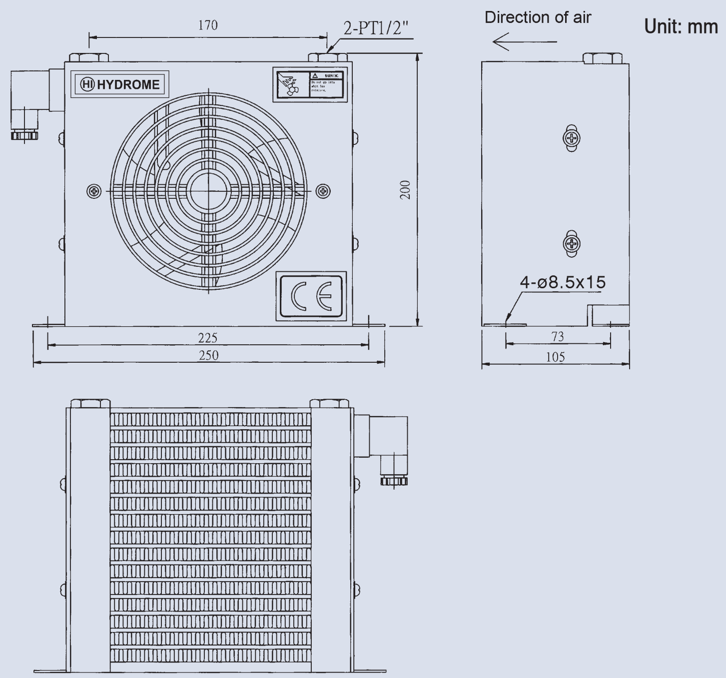
1	Model	Fan dia: 6"x1 with temperature protection switch
2	With fan case	
3	Voltage	A1: AC115V A2: AC230V A3: AC380V D1: DC12V D2: DC24V

Specifications

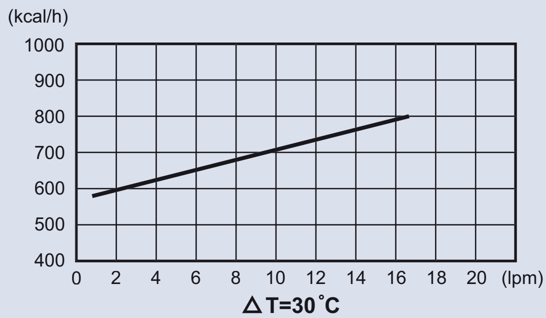
Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Weight (kg)
AW0607	1/2"	1~20	15	800	3.3

Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AW0607	Single	54	AC115	50/60	45/37	0.6/0.5	2850/3450	457/553	42/48
			AC230			0.27/0.23			
			AC380		30/25	0.16/0.14			
	-	-	DC12	-	19.2	1.6	3350	500	51
			DC24			0.8		420	

Dimensions



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

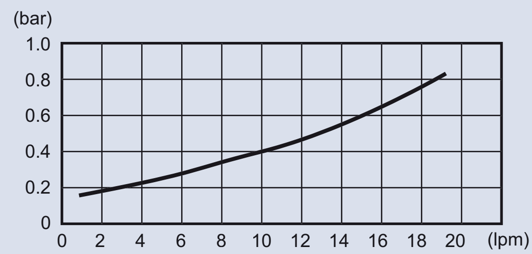
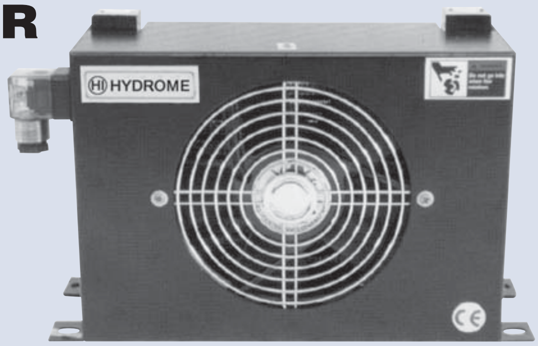


PLATE-FIN HEAT EXCHANGER

Suitable for the drain port in high-pressure variable piston pump and vane pump. Or off-line circuit.



How to order

AW0608 - C A(D)※
1 2 3

1	Model	Fan dia: 6"x1 with temperature protection switch
2	With fan case	
3	Voltage	A1: AC115V A2: AC230V A3: AC380V D1: DC12V D2: DC24V

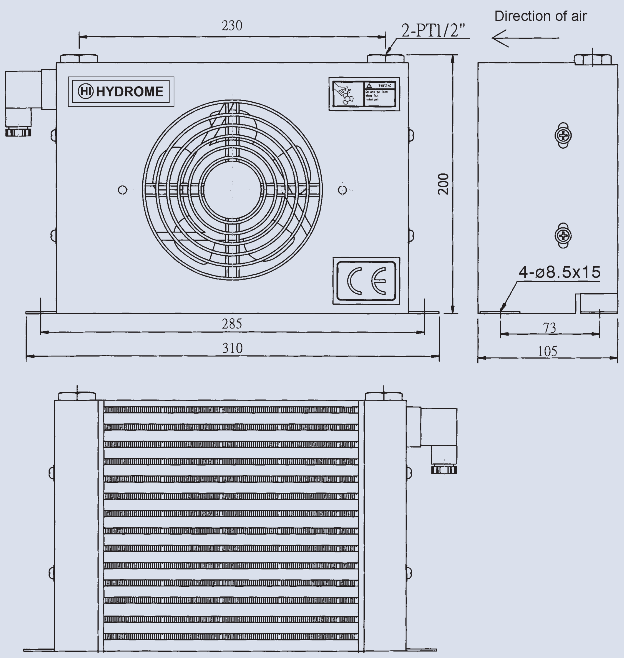
Specifications

Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Weight (kg)
AW0608	1/2"	1~20	15	900	3.7

Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AW0608	Single	54	AC115	50/60	45/37	0.6/0.5	2850/3450	457/553	42/48
			AC230			0.27/0.23			
			AC380		30/25	0.16/0.14			
	-	-	DC12	-	19.2	1.6	3350	500	51
			DC24			0.8		420	

Dimensions

Unit: mm



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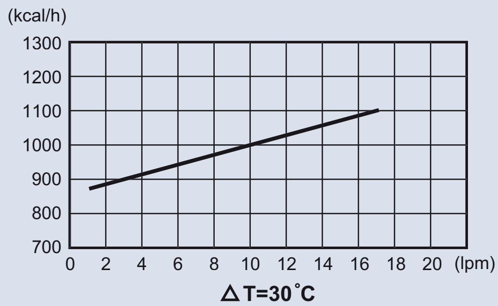


LOSS OF PRESSURE (at 32 Cst)

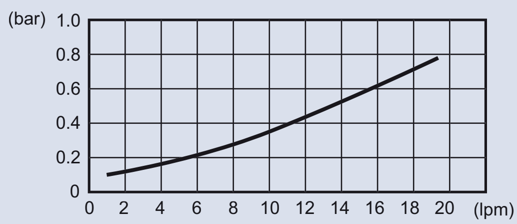


PLATE-FIN HEAT EXCHANGER

Suitable for the drain port in high-pressure variable piston pump and vane pump. Or off-line circuit.

How to order

AW0608L - C A(D)※
1 2 3

1	Model	Fan dia: 6"x2 with temperature protection switch
2	With fan case	
3	Voltage	A1: AC115V A2: AC230V A3: AC380V D1: DC12V D2: DC24V

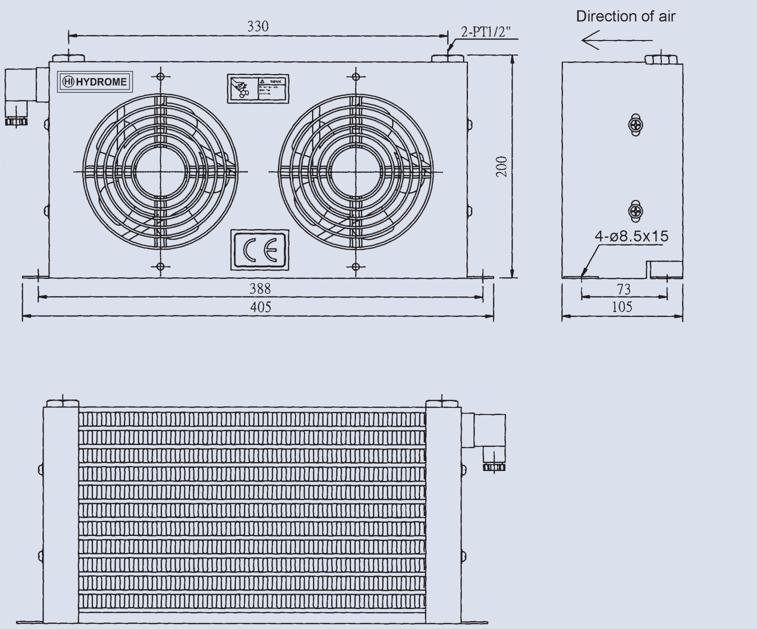
Specifications

Model	Port Size (PT)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity kcal/h (Δt=30 °C)	Weight (kg)
AW0608L	1/2"	1~20	15	1550	5.2

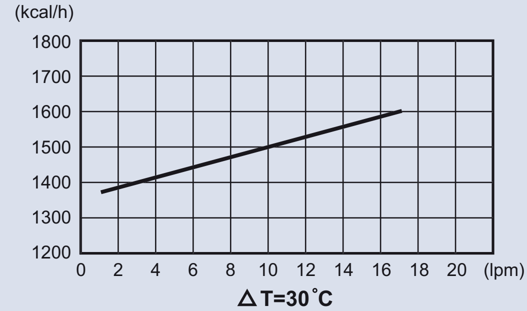
Model	Motor Phase	Motor IP	Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)
AW0608L	Single	54	AC115	50/60	90/74	1.2/1	2580/3450	914/1106	42/48
			AC230			0.54/0.46			
			AC380		60/50	0.32/0.28			
	-	-	DC12	-	38.4	3.2	3350	1000	51
			DC24			1.6		840	

Dimensions

Unit: mm



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

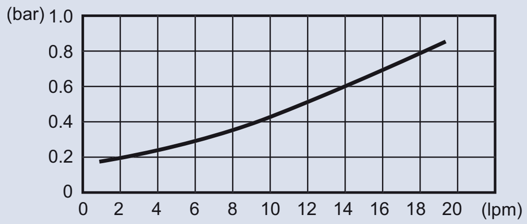
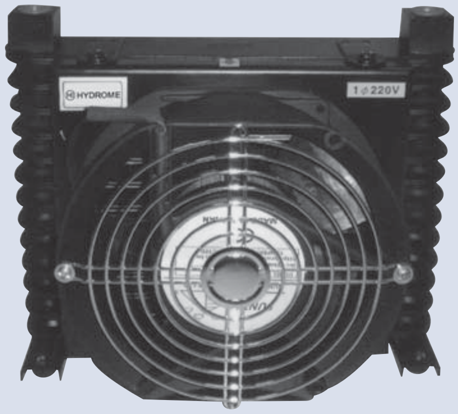


PLATE-FIN HEAT EXCHANGER

Only suitable for the drain port in variable vane pump
which working pressure is under 70 bar. (drain only)



How to order

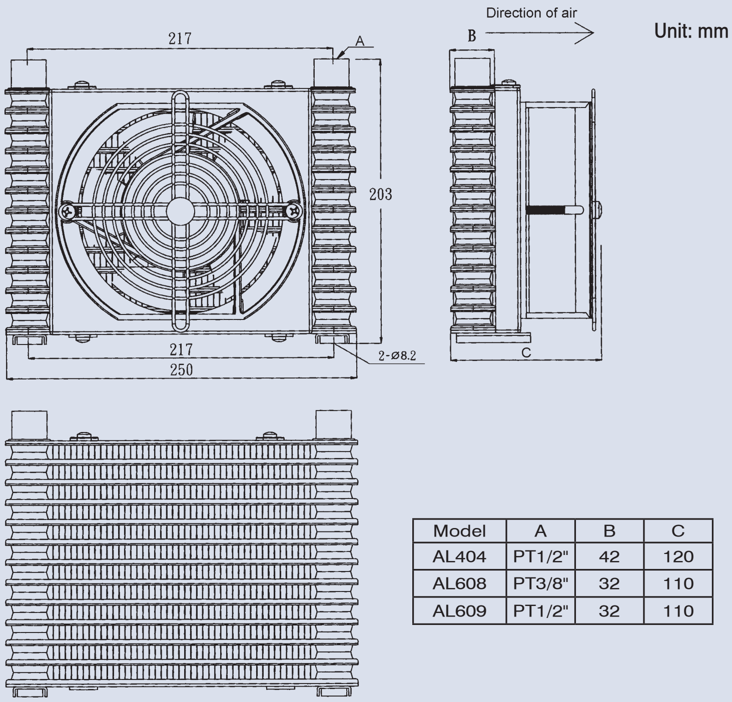
AL※ - A(D)※
1 2

1	Model	Fan dia: 6"x1 with temperature protection switch AL404 PT1/2" AL608 PT3/8" AL609 PT1/2"
2	Voltage	A1: AC115V A2: AC230V A3: AC380V D1: DC12V D2: DC24V

Specifications

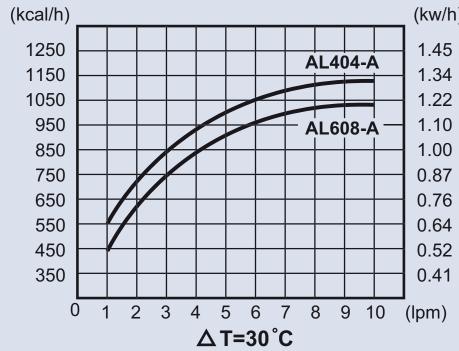
Model	Motor		Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity (kcal/h) Δt=30 °C	Weight (kg)
	Phase	IP											
AL404	Single	54	AC115	50/60	45/37	0.6/0.5	2850/3450	457/553	42/48	1~10	10	1100	2.25
			AC230			0.27/0.23							
AL608			AC380		30/25	0.16/0.14						950	2
AL609	-	-	DC12	-	19.2	1.6	3350	500	51			950	2
			DC24			0.8		420					

Dimensions



Model	A	B	C
AL404	PT1/2"	42	120
AL608	PT3/8"	32	110
AL609	PT1/2"	32	110

PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

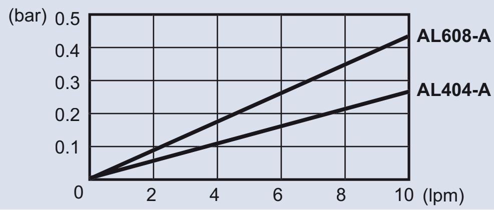


PLATE-FIN HEAT EXCHANGER

Only suitable for the drain port in variable vane pump
which working pressure is under 70 bar. (drain only)

How to order

AL※ - C A(D)※
1 2 3

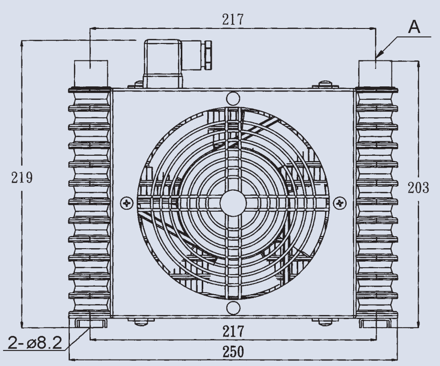
1	Model	Fan dia: 6"x1 with temperature protection switch AL404 PT1/2" AL608 PT3/8" AL609 PT1/2"
2	With fan case	
3	Voltage	A1: AC115V A2: AC230V A3: AC380V D1: DC12V D2: DC24V

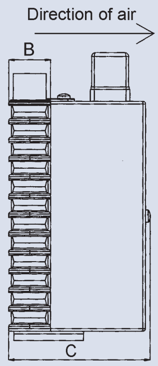
Specifications

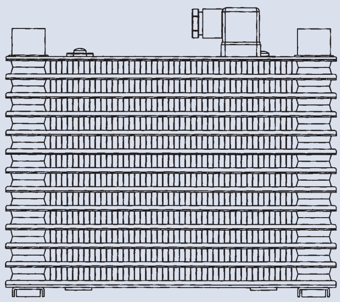
Model	Motor		Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity (kcal/h) Δt=30 °C	Weight (kg)
	Phase	IP											
AL404-C	Single	54	AC115	50/60	45/37	0.6/0.5	2850/3450	457/553	42/48	1~10	10	1200	2.6
			AC230			0.27/0.23							
AL608-C			AC380		30/25	0.16/0.14						1050	2.25
AL609-C	-	-	DC12	-	19.2	1.6	3350	500	51			1050	2.25
			DC24			0.8		420					

Dimensions

Unit: mm

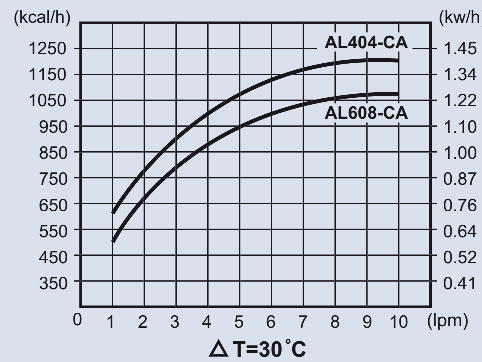






Model	A	B	C
AL404-C	PT1/2"	42	120
AL608-C	PT3/8"	32	110
AL609-C	PT1/2"	32	110

PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

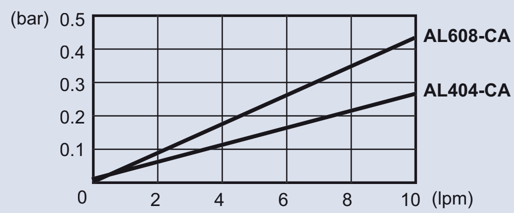


PLATE-FIN HEAT EXCHANGER

Only suitable for the drain port in variable vane pump
which working pressure is under 70 bar. (drain only)

How to order

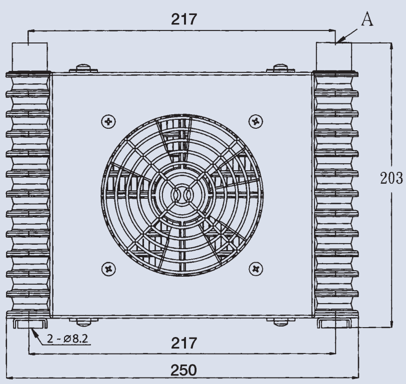
AL※ - 4 A※
1 2 3

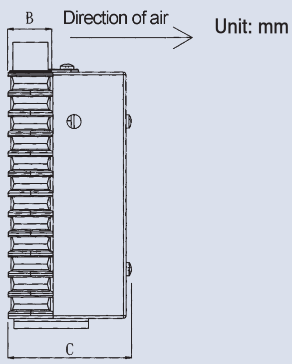
1	Model	With temperature protection switch AL404 PT1/2" AL608 PT3/8" AL609 PT1/2"
2	Fan dia: 4: 4"	
3	Voltage	A1: AC115V A2: AC230V

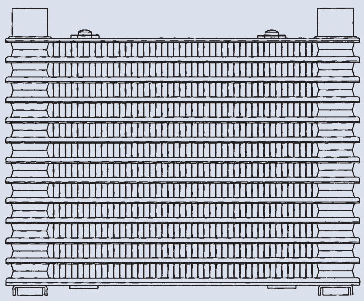
Specifications

Model	Motor		Voltage (V)	Frequency (Hz)	Power (W)	Current (A)	Rated Speed (r.p.m)	Air Flow m³/h	Noise dB (A)	Oil Flow (lpm)	Max. Pressure (bar)	Capacity (kcal/h) Δt=30 °C	Weight (kg)
	Phase	IP											
AL404-4	Single	54	AC115	50/60	14/12	0.26/0.22	2600/2800	248/252	35	1~10	10	900	1.75
			AC230			0.13/0.11							
AL608-4												800	1.5
AL609-4	-	-	-	-	-	-	-	-	-			800	1.5

Dimensions

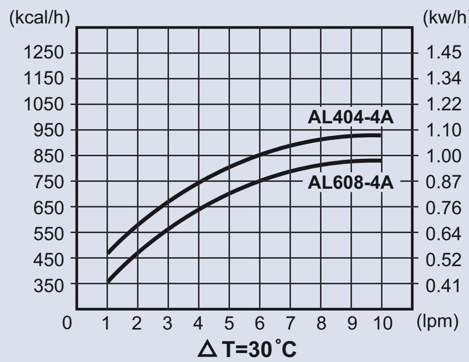






Model	A	B	C
AL404-4	PT1/2"	42	98
AL608-4	PT3/8"	32	88
AL609-4	PT1/2"	32	88

PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

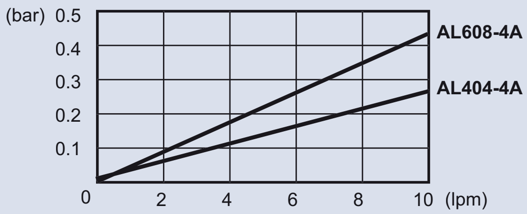


PLATE-FIN HEAT EXCHANGER

Only suitable for the drain port in variable vane pump which working pressure is under 70 bar. (drain only)

How to order

AL ※
1 2

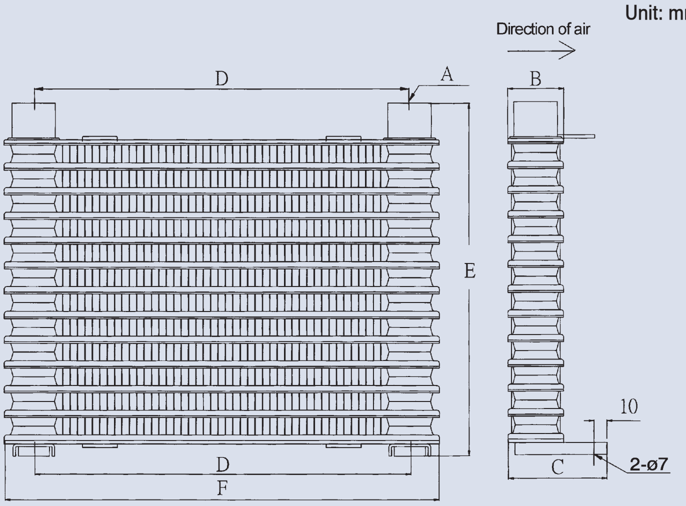
1	Model
2	404 PT1/2" 608 PT3/8" 609 PT 1/2"

Specifications

Model	Oil Flow (lpm)	Max. Pressure (bar)	Weight (kg)
AL404	1~10	10	1
AL608			0.75
AL609			0.75

Dimensions

Unit: mm



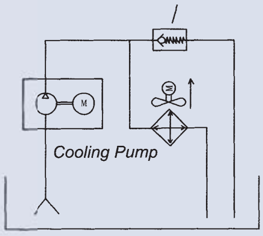
Model	A	B	C	D	E	F
AL404	PT1/2"	42	66	217	203	250
AL608	PT3/8"	32	56	217	203	250
AL609	PT1/2"	32	56	217	203	250

LOSS OF PRESSURE (at 32 Cst)

COOLING PUMP & ANTI-BURST VALVE

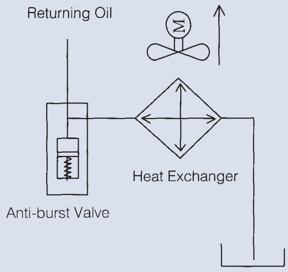
Dimensions

Cooling pump-for off-line circuit



Model	Motor (HP)	Flow Rate (lpm)	L	LA	DA	H	HA	EA	Port (Rc/PT)
TC-6130	1/6	20	275	130	90	124	160	128	1/2"
TC-6180	1/6	20	325	180	90	124	160	128	1/2"
TC-4155	1/4	50	341	155	126	160	191	158	3/4"
TC-4220	1/4	50	406	220	126	160	191	158	3/4"
TC-4350	1/4	50	536	350	126	160	191	158	3/4"
TC-2180	1/2	80	385	180	126	170	196	171	1"
TC-2290	1/2	80	495	290	126	170	196	171	1"
TC-1180	1	120	400	180	151	180	191	185	1"
TC-1240	1	120	460	240	151	180	196	185	1"
TC-1380	1	120	600	380	151	180	196	185	1"

Anti-burst valve - effictive for peak pressure



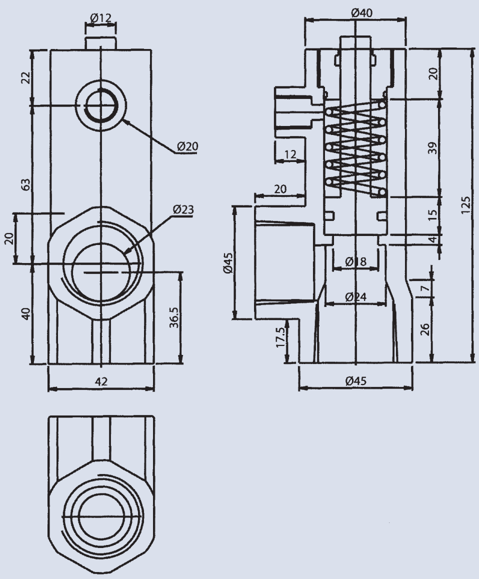


PLATE-FIN HEAT EXCHANGER

INSTALLATION & MAINTENANCE

AH cooler fittings

Option 1. Off-line circuit is strongly recommended
Option 2. Use patent product anti-burst Valve Fig.1 / Fig.2
Option 3. By-pass with check valve (not recommend) Fig.3 / Fig.4

Fig. 1

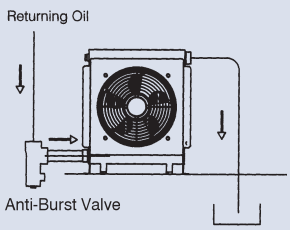
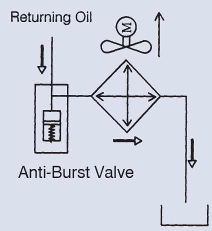


Fig. 2



Special notes for option 3

1. The working pressure for AH series is 20 bar.
2. Be carefully the hammering and pulsations pressure which may cause irreversible damage to the cooler.
3. The spring of check valve may crack after a long period of working.

Fig. 3

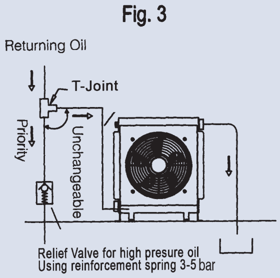
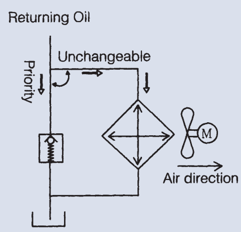


Fig. 4

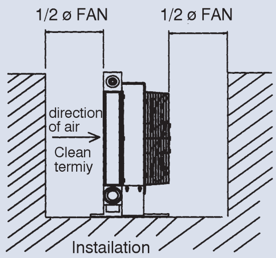


Piping caution

1. Outlet pipe's diameter must match with diameter of the port, and cannot be shrank.
2. Using straight joint or flexible pipe to reduce the feedback resistance.
3. More less of curve and curve angles should be better.

Conclusion: The feedkback oil goes as smooth or fast as possible, to get a better heat rejection.

Installation



The cooler should be mounted at clean environment where is well ventilated area, keep fan diameter free from both cooling side and hot side.

Avoid locating the cooler at areas where can cause obstruction of air intake or exhaust vent.

Avoid locating the cooler at environment with atmosphere contactining corrosive or flammable dusts, oil mist, conductive power (such as carbon or metal).

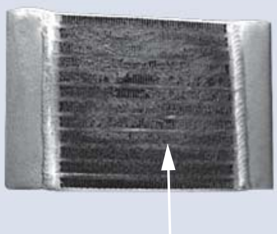
If mounted in a closed area, sufficient ventilation must be provided. Heat transfer from the cooling system to ambient air may not increase room temperature, if these conditions are not met, air ducts have to be installed between cooling system and the outside to provide sufficient ventilation.

Check the supply voltage and frequency correspond to the rating plate.

Maintenance

Before maintenance, please make sure to keep the power off.

Ensure that there are no obstacles to the flow of air, either at the intake or at the outlet from the core, please maintain the cooler termly for a longer life.



Dust on cooling air inlet side

External cleaning of air side

This can be done by either washing the cooler with a mild cleaner (compatible with aluminum), or with compressed air. A power spray washer works well. Care should be taken not to damage the fins. The direction of stream shall be parallel to the fins in order not to damage it. The cooler needs to be dried completely before restarting operation.

Internal cleaning of cooler side

The cooler should be disconnected, and a suitable cleaning agent used for removing the type of deposit, yet safe on aluminum should be circulated through the cooler until clean. After cleaning procedure, the cleaning medium shall be completely drained and blown out by means of compressed air.

CALCULATION OF AIR-OIL HEAT EXCHANGER INSTALLED ON HYDRAULIC SYSTEM

Introduction:

First of all, the choice of cooling system needs finding out the heat quantity of the hydraulic system, and furthermore we can design the appropriate cooling mode and ability for the requirements of clients.

The quantity of producing heat on hydraulic system can not be estimated by calculation, because of the different of components and elements, using frequency and the design of circuit make this impossible.

1. Choosing the cooler rely on flow rate is only a basic condition, because we choose the input motor horse power by considering the pressure of pump and flow rate in the meantime.
2. The selecting of cooler depended on the quantity of producing heat matches up with the cooling capability on the system.
3. According to the actuality experience, we could count up the appraised value by inputting 70% electricity energy into the heat quantity. (different engineer and elements make this different.)
4. If we are using more delicate components and less heat quantity product, then the 70% heat quantity could be lower to 60% or much lower. Please confirm to your distributor.
5. If there is hydraulic motor in the circuit, then we should calculate the heat quantity up to 100%.

Data required

1. Simplify

Contrast the input horse power with hydraulic horse power in the performance table, and you could find out the applicable cooler.

2. Calculate

N=installed power in the system (kW)
Q=heat to be dissipated (kcal/h)
To=maximum allowed oil temperature (°C)
Tamb=ambient temperature (°C)
Kr: Means the required specific performance of the heat exchanger
Kr=Q/ΔT, ΔT is the difference between oil inlet temperature and summer ambient temperature, while Q is the quantity of heat to be dissipated which can be easily calculated considering 60~100% of installed power.

Example (hydraulic):

N=20 kW To=50 °C Tamb=35 °C
Q=70% x 20 kw=14 kW=12040 kcal/h (1kW=860 kcal/h)
ΔT=50-35=15 °C
Kr=12040 kcal/h÷15 °C=802 kcal/h °C=0.93 kW/°C
The choice of the correct cooler is made by using the diagrams.
You will find in our technical catalogues.

Equivalents among main units

1HP=635kcal/h 1kW=860kcal/h 1cSt=1 mm^2/sec 1BTU=0.25 kcal/h 1bar=100kpa

PLATE-FIN HEAT EXCHANGER

How to order

S1 - 20 - 3T/4T 4(6) C A※(D※) P E
1 2 3 4 5 6 7 8

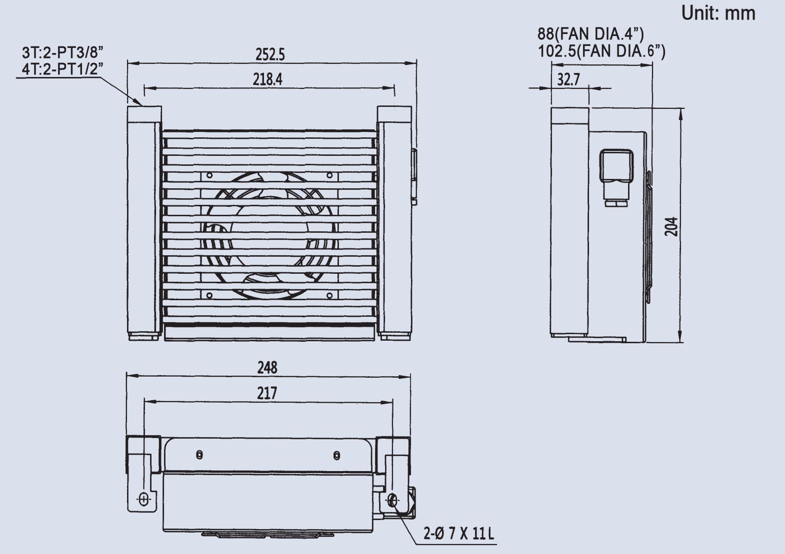
1	Series no.	**5**	None: Without fan case C: With fan case
2	Model	**6**	Voltage D1: DC12V D2: DC24V A1: AC110V A2: AC220V A3: AC380V (50/60HZ)
3	Port size 3T: PT 3/8" 4T: PT 1/2"	**7**	Motor phase P: Single phase
4	Fan diameter 4: 4" 6: 6"	**8**	E: CE approved

Specifications

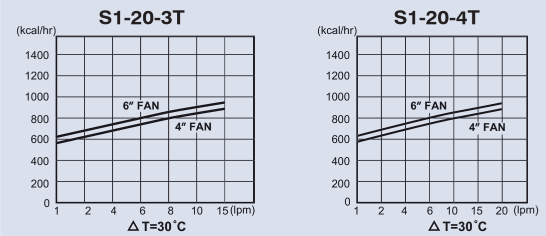
Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m)	Air Flow (m^3/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
1~15	No fan	15	-	-	-	-	-	-	-	-	1.2
	830 (4" fan)		DC12	-	0.6	7.2	2600	187	54	40	2.4
			DC24	-	0.3	7.2	2600	187		40	
			110	50/60	0.24/0.27	19/23	2700/3100	142.8/178.5		45/51	
			220	50/60	0.12/0.14	20/24	2700/3100	142.8/178.5		45/51	
	950 (6" fan)		DC12	-	0.96	11.5	3000	384.2		51	2.8
			DC24	-	0.48	11.5	3000	384.2		51	
			110	50/60	0.48/0.55	45/52	2800/3100	323/374		53/59	
			220	50/60	0.28/0.35	44/51	2800/3100	323/374		53/59	
			380	50/60	0.12/0.15	46/57	2800/3100	323/374		53/59	

Dimensions/Performance curves

Unit: mm



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

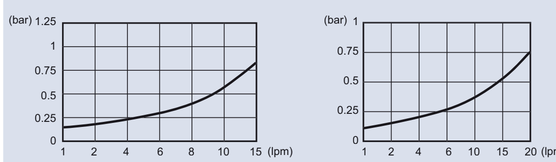
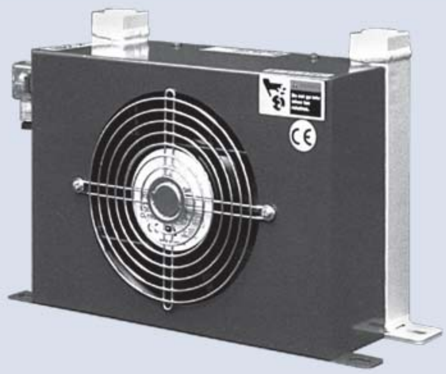


PLATE-FIN HEAT EXCHANGER



How to order

S1 - 21 - 4T 6 C A※(D※) P E

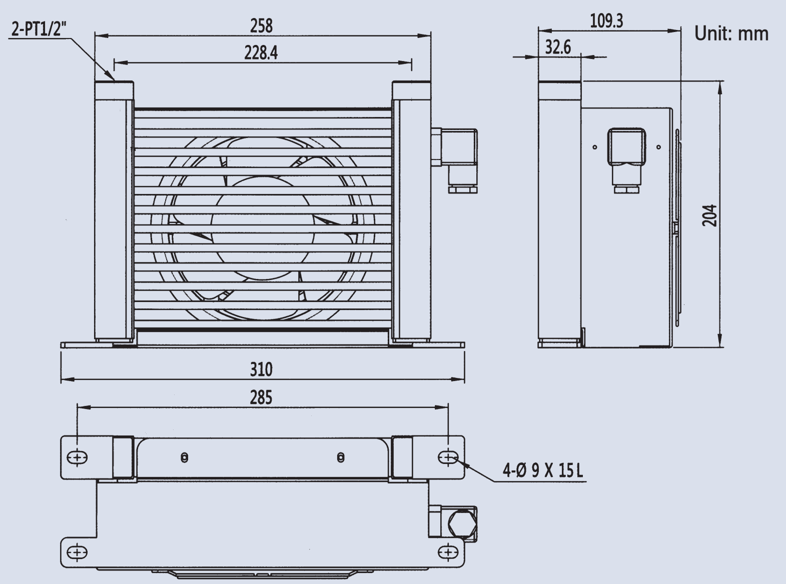
1 2 3 4 5 6 7 8

1	Series no.
2	Model
3	Port size 4T: PT 1/2"
4	Fan diameter 6: 6"
5	C: With fan case
6	Voltage D1: DC12V D2: DC24V A1: AC110V A2: AC220V A3: AC380V (50/60HZ)
7	Motor phase P: Single phase
8	E: CE approved

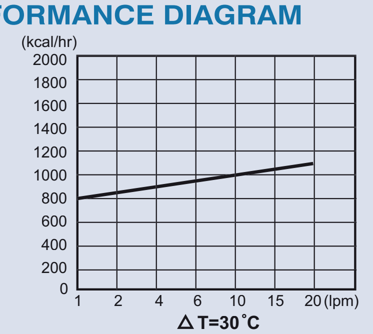
Specifications

Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m)	Air Flow (m³/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
1~20	1100	15	DC12	-	0.96	11.5	3000	384.2	54	51	3.3
			DC24	-	0.48	11.5	3000	384.2		51	
			110	50/60	0.48/0.55	45/52	2800/3100	323/374		53/59	
			220	50/60	0.28/0.35	44/51	2800/3100	323/374		53/59	
			380	50/60	0.12/0.15	46/57	2800/3100	323/374		53/59	

Dimensions/Performance curves



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

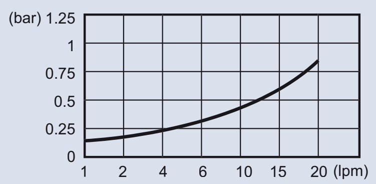


PLATE-FIN HEAT EXCHANGER

How to order

S1 - 31 - 4T 6 C A※(D※) P E

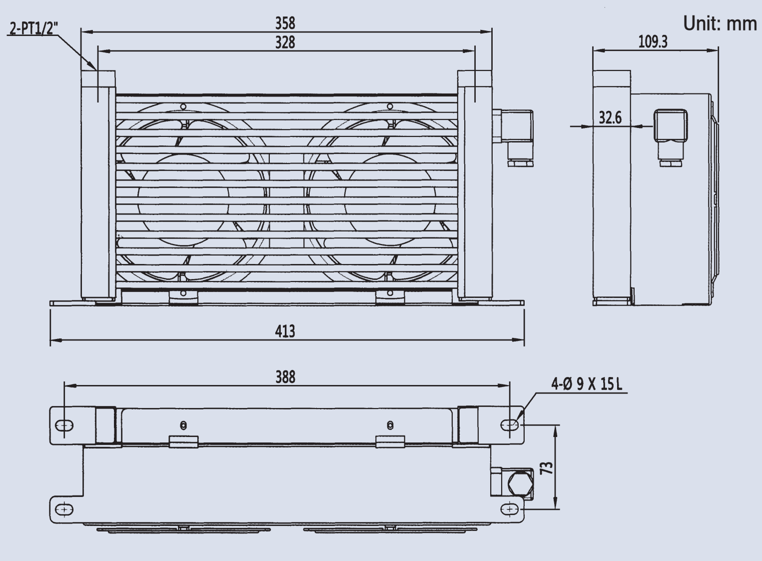
1 2 3 4 5 6 7 8

1	Series no.
2	Model
3	Port size 4T: PT 1/2"
4	Fan diameter 6: 6"
5	C: With fan case
6	Voltage D1: DC12V D2: DC24V A1: AC110V A2: AC220V A3: AC380V (50/60HZ)
7	Motor phase P: Single phase
8	E: CE approved

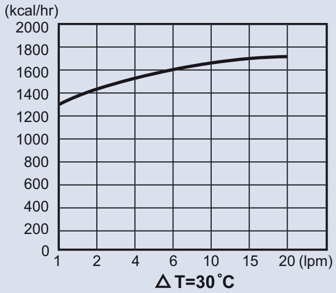
Specifications

Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m)	Air Flow (m³/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
1~20	1750	15	DC12	-	1.92	23	3000	768.4	54	51	4.7
			DC24	-	0.96	23	3000	768.4		51	
			110	50/60	0.96/1.10	90/104	2800/3100	646/748		53/59	
			220	50/60	0.56/0.70	88/102	2800/3100	646/748		53/59	
			380	50/60	0.24/0.30	70/82	2800/3100	646/748		53/59	

Dimensions/Performance curves



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

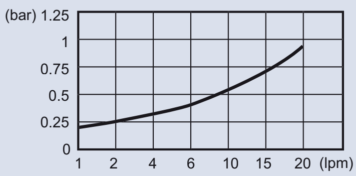


PLATE-FIN HEAT EXCHANGER

How to order

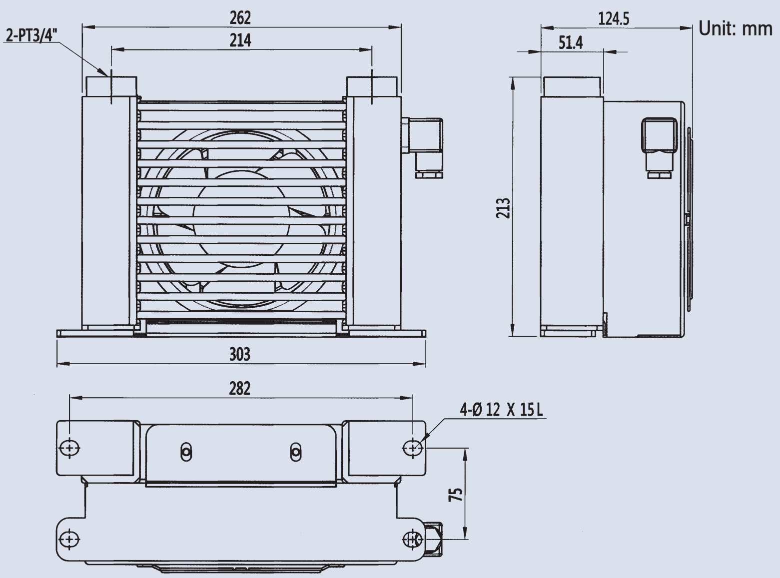
S2 - 15 - 6T 6 C A※(D※) P E
1 2 3 4 5 6 7 8

1	Series no.
2	Model
3	Port size 6T: PT 3/4"
4	Fan diameter 6: 6"
5	C: With fan case
6	Voltage D1: DC12V D2: DC24V A1: AC110V A2: AC220V A3: AC380V (50/60HZ)
7	Motor phase P: Single phase
8	E: CE approved

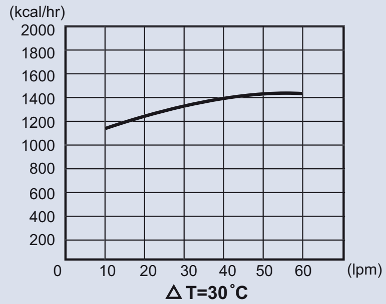
Specifications

Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m)	Air Flow (m³/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
3~60	1500	15	DC12	-	0.96	11.5	3000	384.2	54	51	4
			DC24	-	0.48	11.5	3000	384.2		51	
			110	50/60	0.48/0.55	45/52	2800/3100	323/374		53/59	
			220	50/60	0.28/0.35	44/51	2800/3100	323/374		53/59	
			380	50/60	0.12/0.15	46/57	2800/3100	323/374		53/59	

Dimensions/Performance curves



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

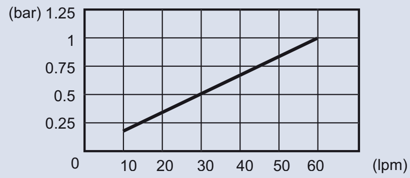


PLATE-FIN HEAT EXCHANGER

How to order

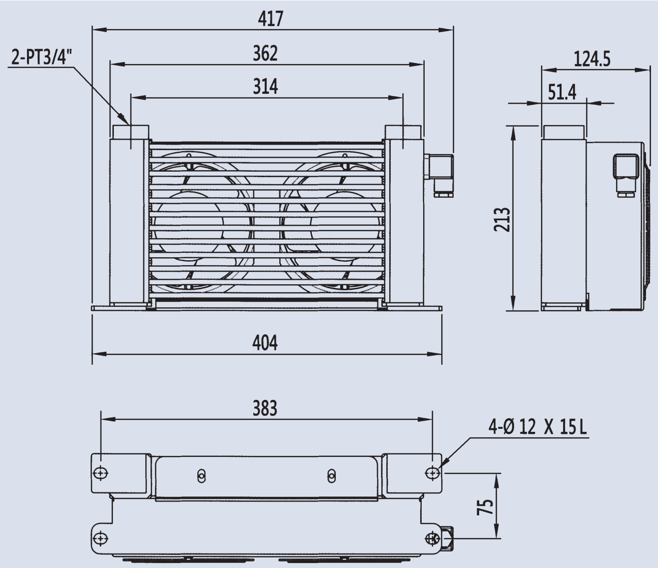
S2	-	25	-	6T	6	C	A※(D※)	P	E
1		2		3	4	5	6	7	8

1	Series no.
2	Model
3	Port size 6T: PT 3/4"
4	Fan diameter 6: 6"
5	C: With fan case
6	Voltage D1: DC12V D2: DC24V A1: AC110V A2: AC220V A3: AC380V (50/60HZ)
7	Motor phase P: Single phase
8	E: CE approved

Specifications

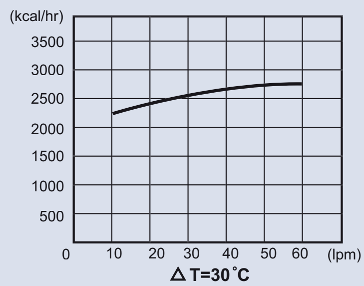
Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m)	Air Flow (m³/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
3~60	2700	15	DC12	-	1.92	23	3000	768.4	54	51	6
			DC24	-	0.96	23	3000	768.4		51	
			110	50/60	0.96/1.10	90/104	2800/3100	646/748		53/59	
			220	50/60	0.56/0.70	88/102	2800/3100	646/748		53/59	
			380	50/60	0.24/0.30	70/82	2800/3100	646/748		53/59	

Dimensions/Performance curves



Unit: mm

PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

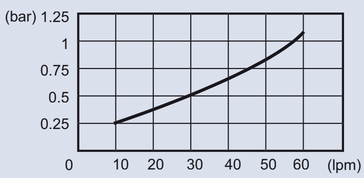


PLATE-FIN HEAT EXCHANGER

How to order

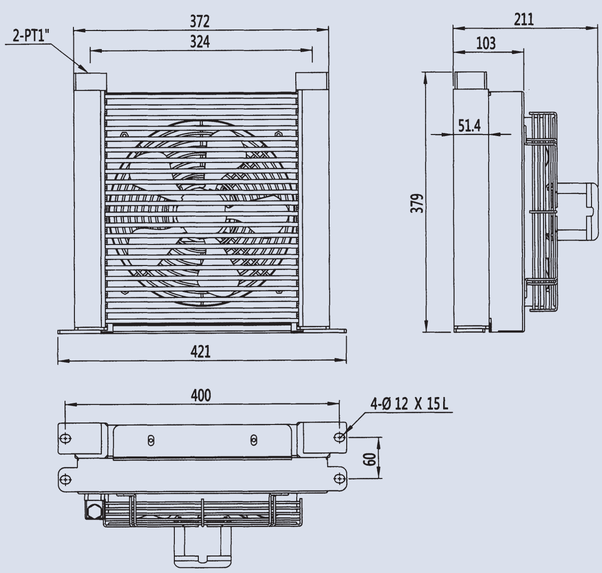
S2	- 26 -	8T	10	C	A※(D※)	P / PP	E
1	2	3	4	5	6	7	8

1	Series no.	
2	Model	
3	Port size	8T: PT 1"
4	Fan diameter	10: 10"
5	C: With fan case	
6	Voltage	D1: DC12V D2: DC24V A1: AC110V A2: AC220V A3: AC380V A23: AC220/380V (50/60HZ)
7	Motor phase	P: Single phase PP: 3 phase
8	E: CE approved	

Specifications

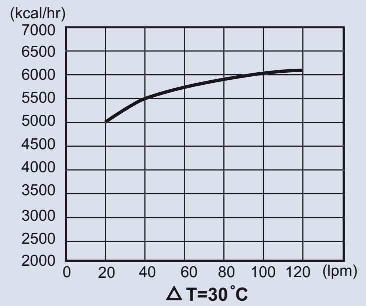
Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m±5%)	Air Flow (m³/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
20~100	6000	15	DC12	-	7.9	94.8	2325	2160	54	74.5	7.5
			DC24	-	3.95	94.8	2313	2642		74.5	
			110	50/60	0.56/0.55	62/61	1400/1600	1460/1600		55/57	9.1
			220	50/60	0.30/0.25	62/61	1400/1600	1460/1600		55/57	
			380	50/60	0.18/0.14	62/61	1400/1600	1460/1600		55/57	

Dimensions/Performance curves



Unit: mm

PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

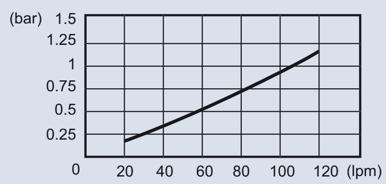


PLATE-FIN HEAT EXCHANGER

How to order

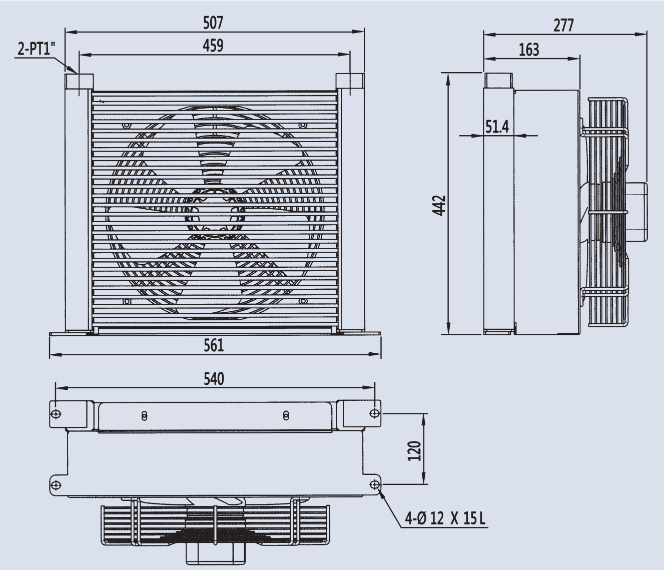
S2	-	40	-	8T	14	C	A※(D※)	P / PP	E
1		2		3	4	5	6	7	8

1	Series no.
2	Model
3	Port size 8T: PT 1"
4	Fan diameter 14: 14"
5	C: With fan case
6	Voltage D1: DC12V D2: DC24V A1: AC110V A2: AC220V A3: AC380V A23: AC220/380V (50/60HZ)
7	Motor phase P: Single phase PP: 3 phase
8	E: CE approved

Specifications

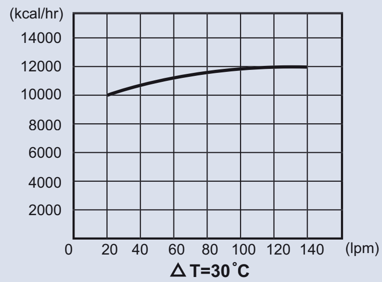
Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m±5%)	Air Flow (m³/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
30~110	12000	15	DC12	-	4.5	54	2495	1360	54	70.6	12.5
			DC24	-	2.25	54	2272	1097		74.3	
			110	50/60	1.36/1.63	150/180	1380/1550	3170/3420		62/65	15.3
			220	50/60	0.80/0.70	150/180	1380/1550	3170/3420		62/65	
			380	50/60	0.40/0.47	150/180	1380/1550	3170/3420		62/65	

Dimensions/Performance curves



Unit: mm

PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

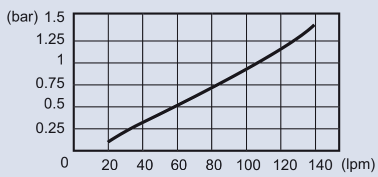


PLATE-FIN HEAT EXCHANGER

How to order

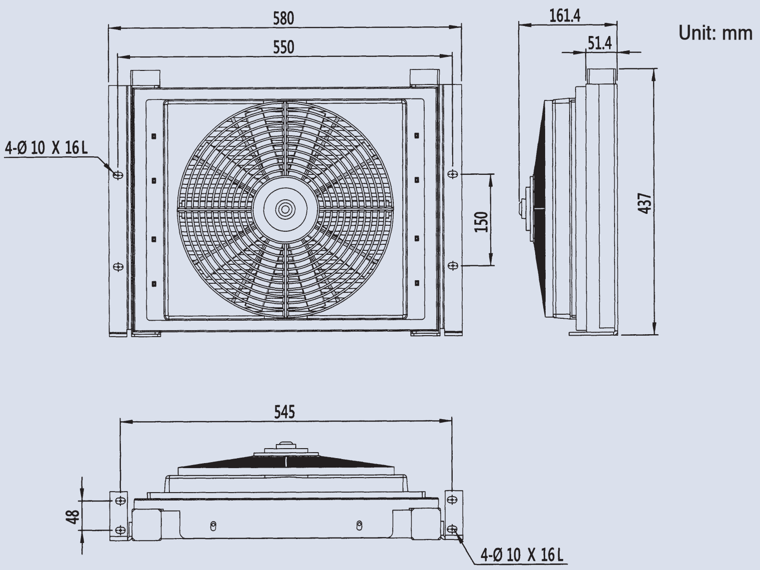
S2 - 40 - 8T 14 D A※(D※) P E
1 2 3 4 5 6 7 8

1	Series no.
2	Model
3	Port size 8T: PT 1"
4	Fan diameter 14: 14"
5	D: With small fan case
6	Voltage D1: DC12V D2: DC24V A1: AC110V A2: AC220V (50/60HZ)
7	Motor phase P: Single phase
8	E: CE approved

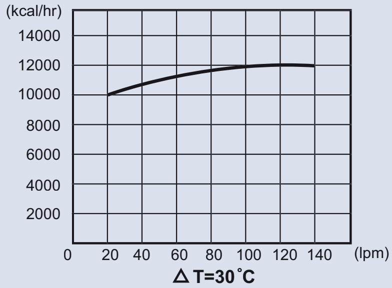
Specifications

Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m±5%)	Air Flow (m^3/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
30~110	12000	15	DC12	-	4.5	54	2495	1360	54	70.6	10
			DC24	-	2.25	54	2272	1097		74.3	
			110	50/60	0.36/0.45	40/50	1450/1650	2700/3300		62/65	
			220	50/60	0.18/0.23	40/50	1450/1650	2700/3300		62/65	

Dimensions/Performance curves



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

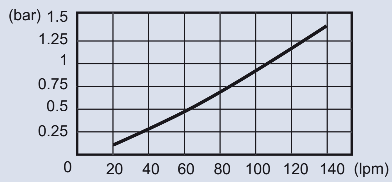


PLATE-FIN HEAT EXCHANGER

How to order

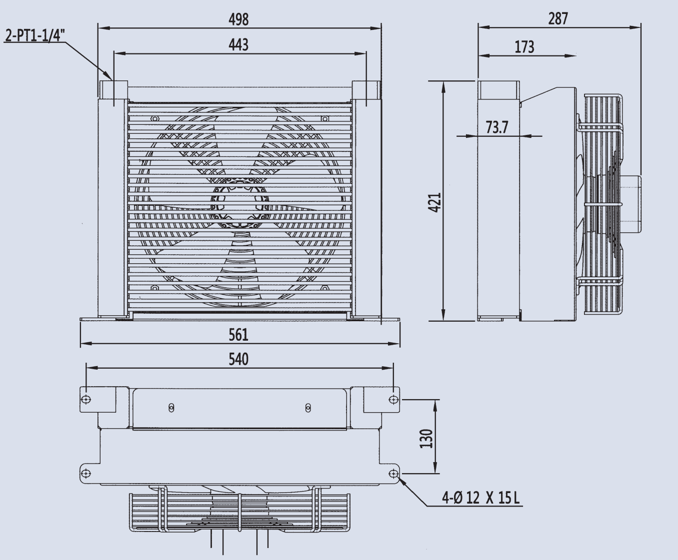
S3 - 39 - 10T 14 C A※ P/PP E
1 2 3 4 5 6 7 8

1	Series no.
2	Model
3	Port size 10T: PT 1-1/4"
4	Fan diameter 14: 14"
5	C: With fan case
6	Voltage A1: AC110V A2: AC220V A3: AC380V A23: AC220/380V (50/60HZ)
7	Motor phase P: Single phase PP: 3 phase
8	E: CE approved

Specifications

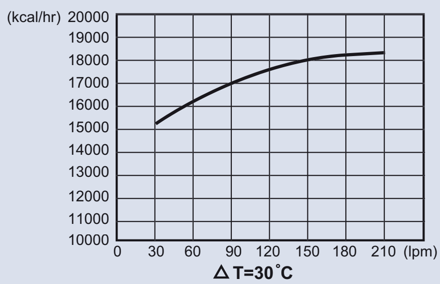
Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m±5%)	Air Flow (m^3/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
30~150	18000	20	220	50/60	0.80/0.70	150/180	1380/1550	3170/3420	54	62/65	18.3
			380	50/60	0.40/0.36	150/180	1380/1550	3170/3420		62/65	

Dimensions/Performance curves



Unit: mm

PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

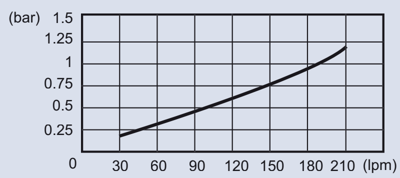


PLATE-FIN HEAT EXCHANGER

How to order

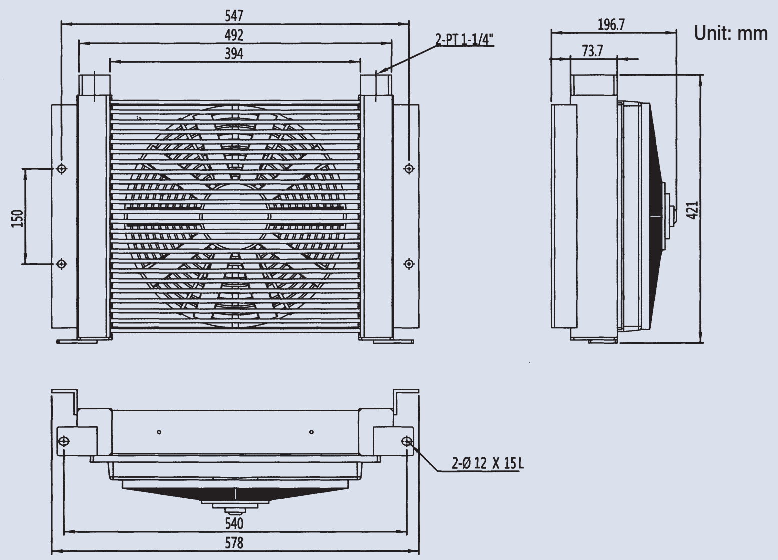
S3 - 39 - 10T 14 D A※(D※) P E
1 2 3 4 5 6 7 8

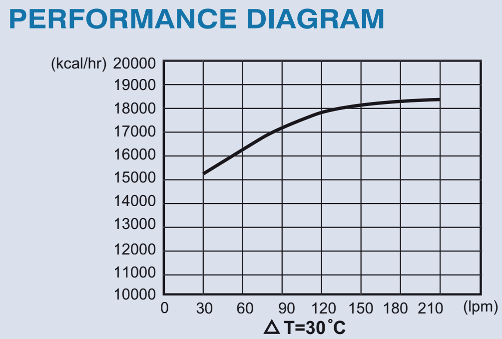
1	Series no.
2	Model
3	Port size 10T: PT 1-1/4"
4	Fan diameter 14: 14"
5	D: With small fan case
6	Voltage D1: DC12V D2: DC24V A1: AC110V A2: AC220V (50/60HZ)
7	Motor phase P: Single phase
8	E: CE approved

Specifications

Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m±5%)	Air Flow (m³/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
30~150	18000	20	DC12	-	4.5	54	2495	1360	54	70.6	12.4
			DC24	-	2.25	54	2272	1097		74.3	
			110	50/60	0.36/0.45	40/50	1450/1650	2700/3300		62/65	
			220	50/60	0.18/0.23	40/50	1450/1650	2700/3300		62/65	

Dimensions/Performance curves





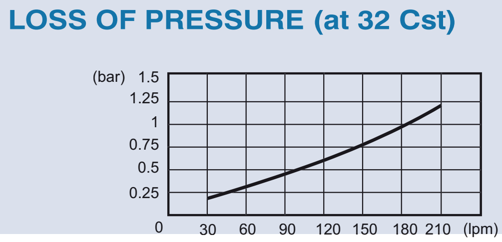


PLATE-FIN HEAT EXCHANGER

How to order

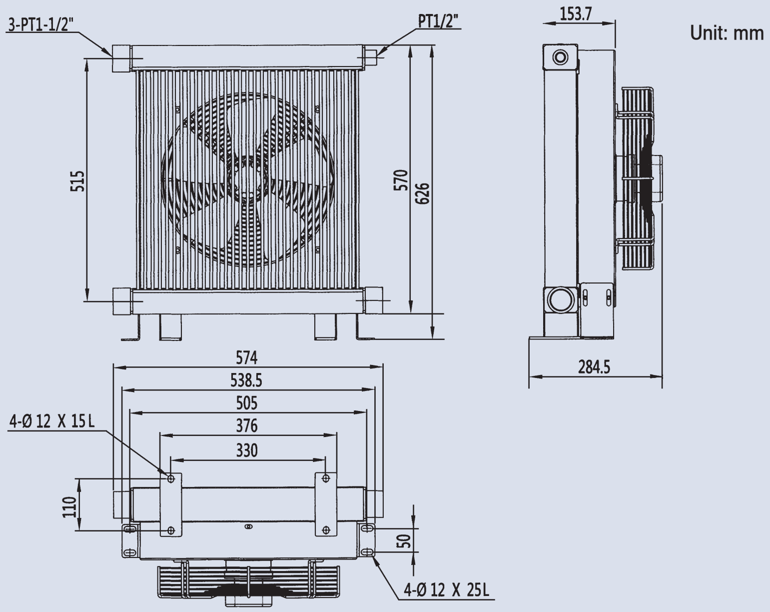
S3 - 47 - 12T 14 C A※ P/PP E
1 2 3 4 5 6 7 8

1	Series no.
2	Model
3	Port size	12T: PT 1-1/2"
4	Fan diameter	14: 14"
5	C: With fan case	
6	Voltage	A2: AC220V A3: AC380V A23: AC220/380V (50/60HZ)
7	Motor phase	P: Single phase PP: 3 phase
8	E: CE approved	

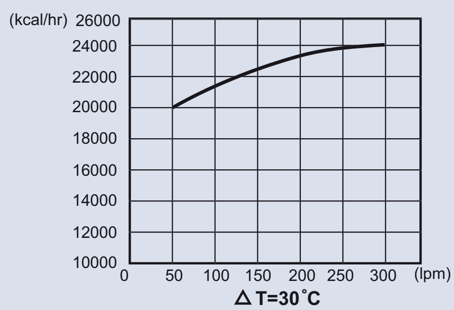
Specifications

Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m±5%)	Air Flow (m^3/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
30~200	23000	20	220	50/60	0.80/0.70	150/180	1380/1550	3200/3800	54	62/64	24.2
			380		0.40/0.36						

Dimensions/Performance curves



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

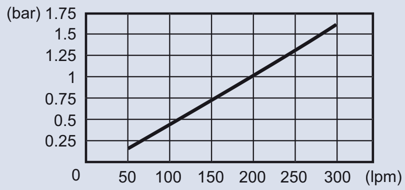


PLATE-FIN HEAT EXCHANGER

How to order

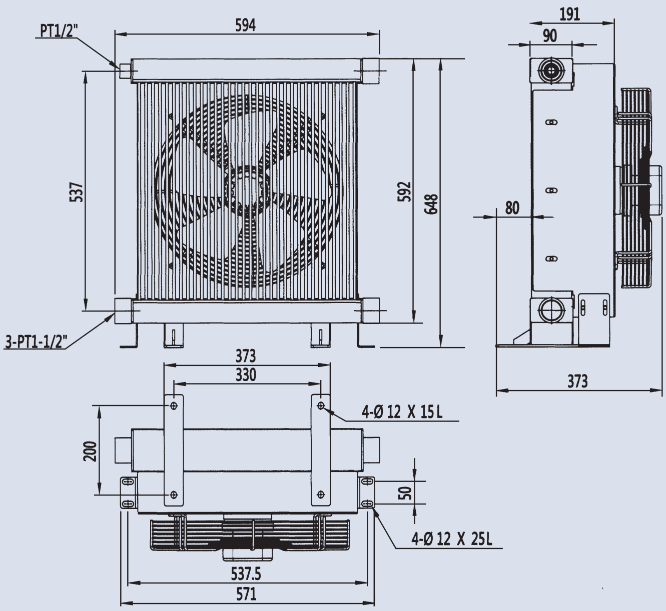
S4 -	48 -	12T	16	C	A※	P PP	E
1	2	3	4	5	6	7	8

1	Series no.
2	Model
3	Port size 12T: PT 1-1/2"
4	Fan diameter 16: 16"
5	C: With fan case
6	Voltage A2: AC220V A3: AC380V A23: AC220/380V (50/60HZ)
7	Motor phase P: Single phase PP: 3 phase
8	E: CE approved

Specifications

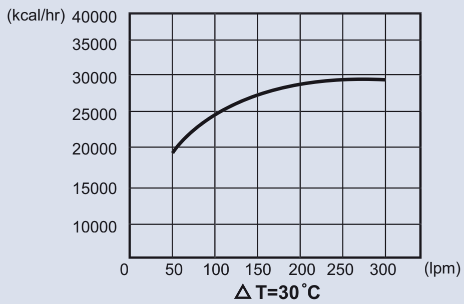
Oil Flow (lpm)	Capacity Δt=30 °C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (Watt)	Rated Speed (r.p.m±5%)	Air Flow (m³/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
30~250	28000	20	220	50/60	0.90/1.0	145/250	1380/1550	4000/4800	54	62/64	29.4
			380		0.50/0.53						

Dimensions/Performance curves



Unit: mm

PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)

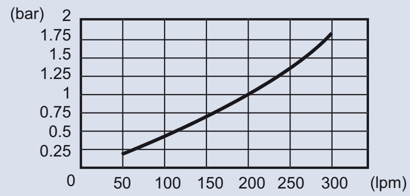


PLATE-FIN HEAT EXCHANGER

How to order

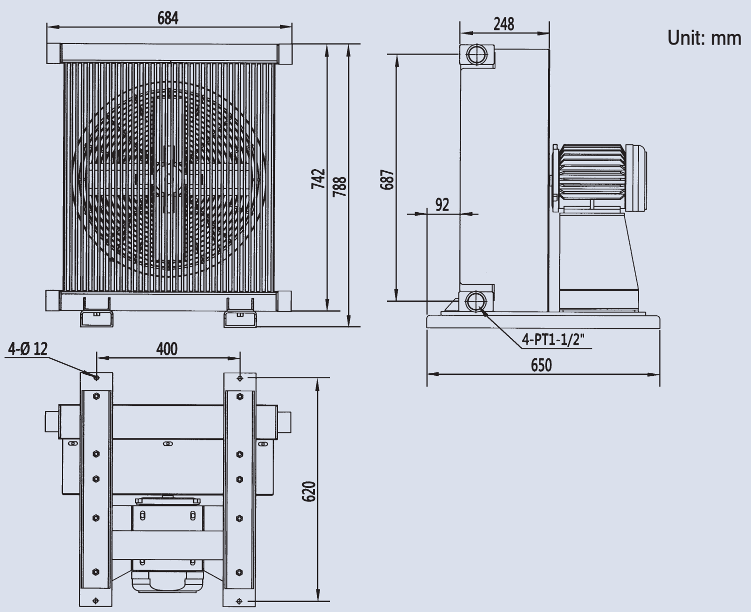
S4 - 63 - 12T 18 C A23 PP E
1 2 3 4 5 6 7 8

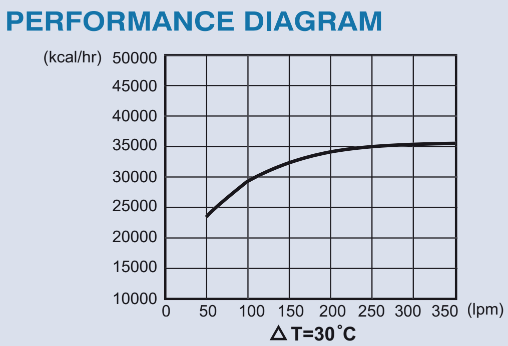
1	Series no.
2	Model
3	Port size 12T: PT 1-1/2"
4	Fan diameter 18:18"
5	C: With fan case
6	Voltage A23: AC220V/380V (50/60HZ)
7	Motor phase PP: 3 phase
8	E: CE approved

Specifications

Oil Flow (lpm)	Capacity Δt=30°C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (kw)	Rated Speed (r.p.m±5%)	Air Flow (m^3/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
50~300	35000	20	220 380	60	5.7 3.3	1.25	1720	7600	55	78	52

Dimensions/Performance curves





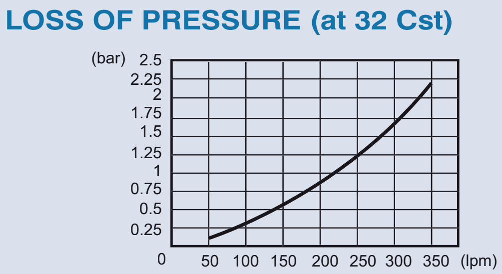


PLATE-FIN HEAT EXCHANGER

How to order

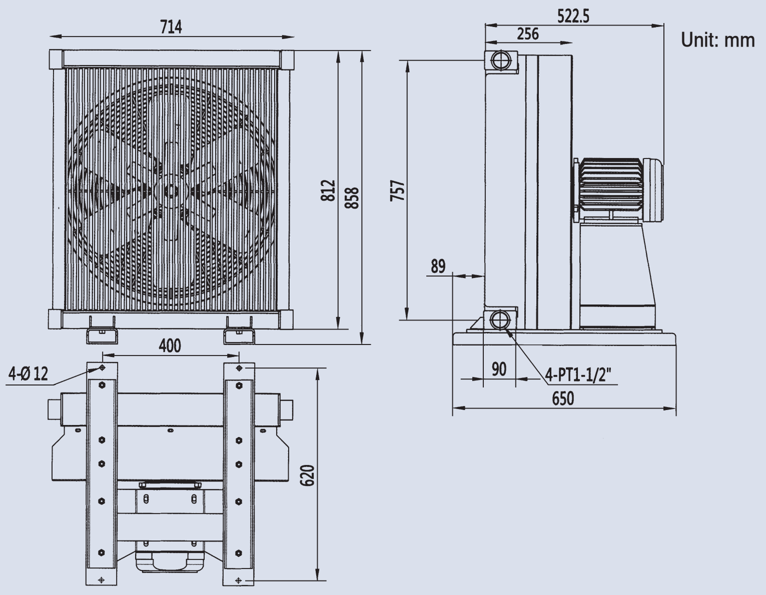
S4 - 70 - 12T 23 C A23 PP E
1 2 3 4 5 6 7 8

1	Series no.
2	Model
3	Port size 12T: PT 1-1/2"
4	Fan diameter 23: 23"
5	C: With fan case
6	Voltage A23: AC220V/380V (50/60HZ)
7	Motor phase PP: 3 phase
8	E: CE approved

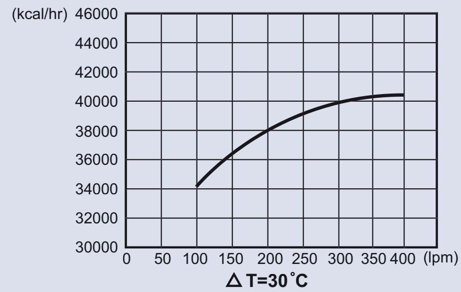
Specifications

Oil Flow (lpm)	Capacity Δt=30°C (Kcal/hr)	MAX. Pressure (bar)	Voltage (V±10%)	Frequence (Hz)	Current (A)	Power (kw)	Rated Speed (r.p.m±5%)	Air Flow (m³/hr)	Motor (IP)	Noise (dB (A))	Weight (kg)
50~350	40000	20	220	60	5.7	1.25	1720	8560	55	90	80
			380		3.3						

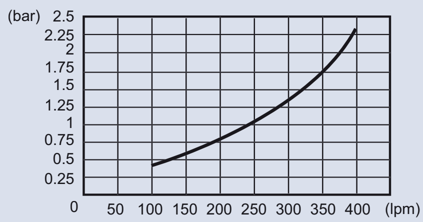
Dimensions/Performance curves



PERFORMANCE DIAGRAM



LOSS OF PRESSURE (at 32 Cst)



HYDRAULIC CYLINDER

How to order

HOB - 63※ 35※ 100ST - LB + Y + ※ + ※

1 2 3 4 5 6 7 8

1 Model

HOB : Standard type	HOD : Double rod	HOBR : HOB with magnet	HODR : HOD with magnet

2 Bore DIA. **3** Rod DIA.

Bore DIA. (mm)		40	50	63	80	100	125	150	180	200
Rod DIA. (mm)	Standard-heavy duty (Max.)	25	30-35	35-40	40-50	50-60	60-80	80-100	100-120	
	With cushion	18	25	35	40	50	60	80	100	

4 Stroke Carbon steel tube: For bore ø40-200 stroke Max. 4 meters Stainless steel tube: For bore ø40-100 stroke Max. 2.8 meters

5 Mounting type

6 Mounting accessory

FA	: Front flange	FB	: Rear flange	LA	: Side lugs	LB	: Foot stand
TC	: Center trunnion	CA	: Male clevis	CB	: Female clevis	CBP	: CB clevis with pin
Y	: Adaptor	YP	: Y adaptor with pin	I	: Adaptor	KG	: Compensating joint
PHS	: Rod end	A	: Adjustable nut	T	: T rod end	H	: H rod end

7 Cushion None: Without cushion PPV: With cushion

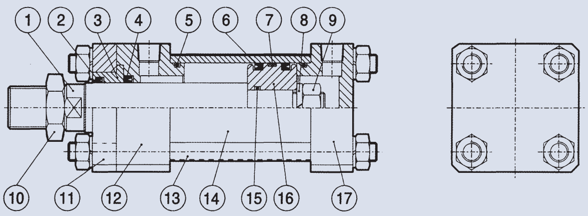
8 Sensor switch None: Without sensor switch ES1: 1pc of sensor switch ES2: 2 pcs of sensor switch

Specifications

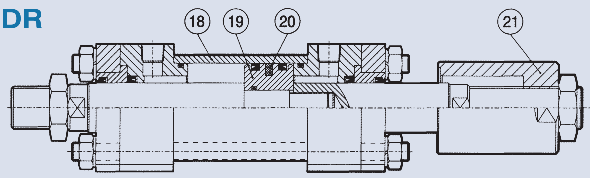
Bore Size of Cylinder (mm)	Power Fluid	Material of Cylinder tube	The range of pressure (bar)	The range of temperature (°C)	The range of speed (mm/sec)	Cushion Stroke (mm)	Piston length (PM) For Stroke 1501~2500 mm	Piston length (PM) For Stroke 2501~4000 mm
ø40	Filtered oil	Carbon steel STKM-13C/ stainless steel SUS 304	3~160	-10°~+60°	8~300	20	60	120
ø50						25	70	140
ø63						25	70	140
ø80						30	80	150
ø100						35	100	180
ø125						40	100	180
ø150						45	100	180
ø180						50	140	200
ø200						55	140	200

Parts list

HOB



HODR



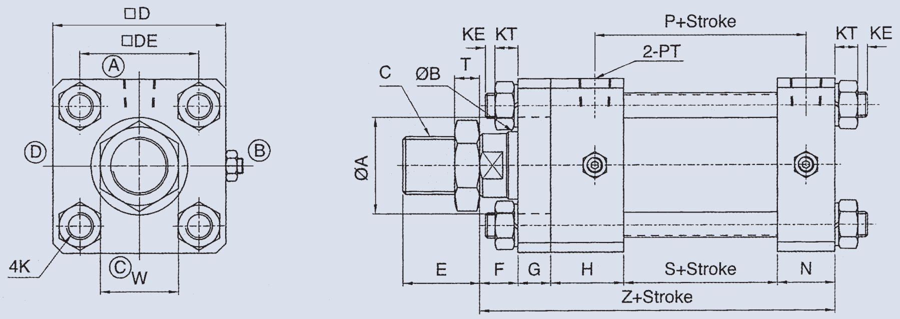
No.	Part Name	Quantity	No.	Part Name	Quantity	No.	Part Name	Quantity	No.	Part Name	Quantity
1	Piston rod	1	7	Wearing ring	1	13	Tie bolt	4	19	Piston	1
2	Dust wiper	1	8	Spring washer	1	14	Cylinder tube	1	20	Magnet ring	1
3	Rod bush	1	9	Nut	1	15	O-Ring	1	21	Adjustable nut	1
4	Rod packing	1	10	Rod nut	1	16	Piston	1			
5	O-Ring	2	11	End plate	1	17	Rear cover	1			
6	Piston packing	2	12	Rod cover	1	18	Cylinder tube	1			

HYDRAULIC CYLINDER

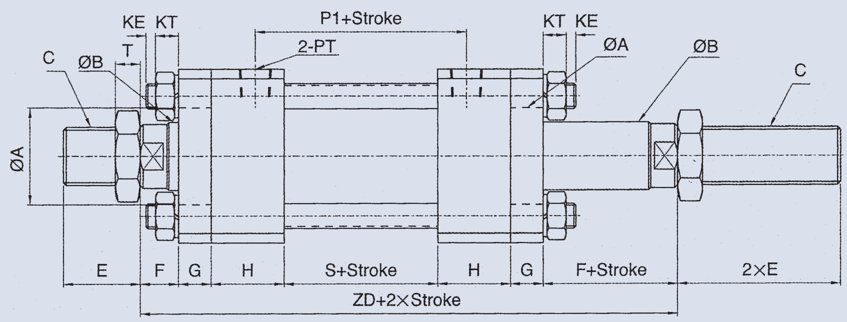
J

Dimensions

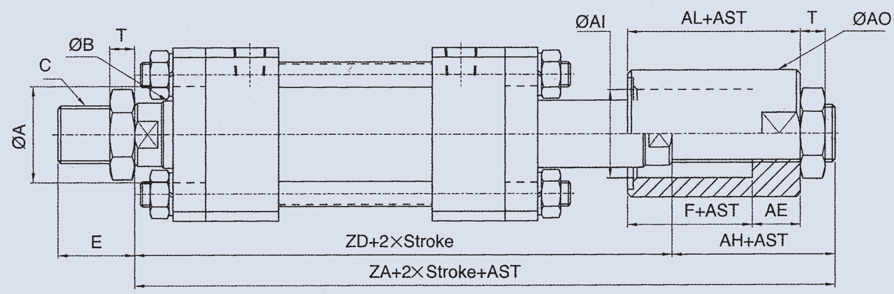
HOB
HO+B
(Standard Type)



HOD
HO+D
(Double rod Type)



HOD
HOD+AST
(With adjustable nut)



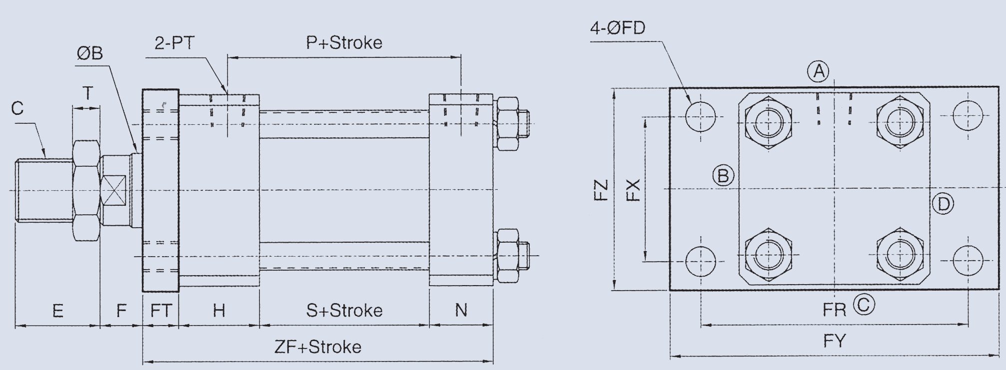
HOB-HOD Type																									Adjustable Type			
Size / Bore	øA	øB	C	□D	□DE	E	F	G	H	N	P	P1	PM	PT	K	KE	KT	S	T	W	Z	ZD	ZA	AH	AE	øAI	øAO	AL
ø40	40	25	M22xP1.5	65	45	40	20	17	33	28	76	74	30	3/8	M10xP1.25	10	10.5	50	13	32	148	190	225	35	20	30	45	40
ø50	45	30	M26xP1.5	80	56	40	20	17	38	30	85	85	35	3/8	M12xP1.5	10	13	55	13	35	160	205	245	40	25	37	55	45
ø63	50	35	M30xP1.5	90	62	45	20	17	38	30	85	85	35	3/8	M14xP1.5	10	14.5	55	13	41	160	205	245	40	25	42	60	45
ø80	55	40	M30xP1.5	110	80	45	20	20	38	35	107	105	50	1/2	M16xP1.5	10	17	75	13	41	188	231	276	45	30	47	70	50
ø100	65	50	M40xP2.0	131	95	55	25	20	41	37	123.5	120	60	1/2	M18xP1.5	10	19.5	90	15	55	213	262	307	45	30	57	90	55
ø125	80	60	M50xP2.0	162	122	70	35	30	57	47	143	140	70	3/4	M22xP1.5	10	23.5	100	15	65	269	344	394	50	35	68	100	70
ø150	100	80	M70xP2.0	195	144	80	35	30	60	50	135	130	60	3/4	1"-8 UNC	5	30	90	20	90	265	340	400	60	40	90	120	75
ø180	120	100	M90xP2.0	235	175	100	35	40	65	55	172	170	70	1	1,1/4"-8 UNC	10	35	120	20	110	315	400	465	65	40	110	150	75
ø200	120	100	M90xP2.0	262	193	100	40	40	65	60	175	170	70	1	1,1/4"-8 UNC	10	35	120	20	110	325	410	475	65	40	110	150	80

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1501 mm, see the specifications table for the length of the piston. Within 1500 mm (included) see the (PM) length of piston in the dimensions table.
3. When the stroke exceeds (includes) 2000 mm, the fixed base for the tie rod must be added in the middle.
4. The screw nut for piston rod over M50 is round shape.
5. AST is the custom-made adjustable stroke.

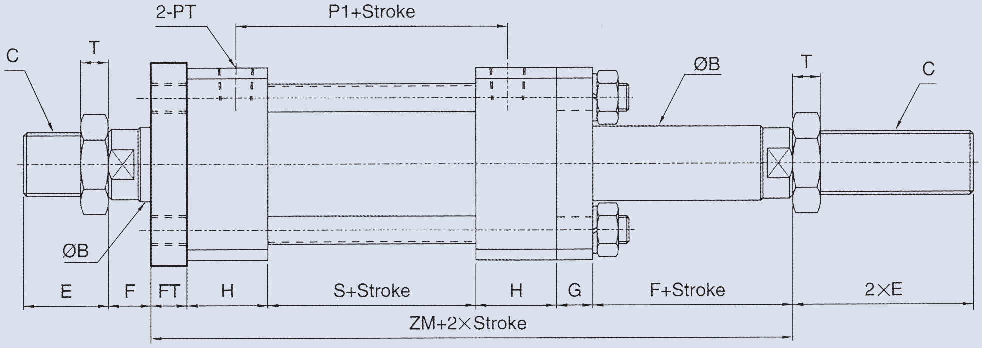
HYDRAULIC CYLINDER

Dimensions

HOB
HOB+FA Type



HOD
HOD+FA Type



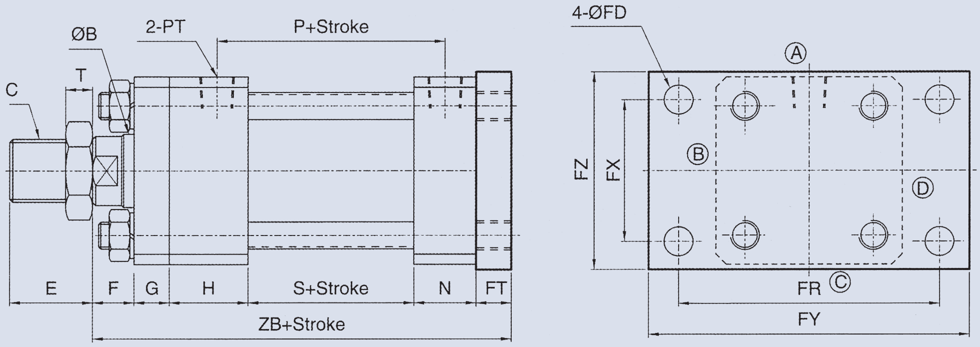
HOB-HOD Type																FA Type					
Size / Bore	øB	C	E	F	G	H	N	P	P1	PM	PT	S	T	ZF	ZM	øFD	FT	FR	FX	FY	FZ
ø40	25	M22 x P1.5	40	20	17	33	28	76	74	30	3/8	50	13	128	170	12	17	93	50	115	75
ø50	30	M26 x P1.5	40	20	17	38	30	85	85	35	3/8	55	13	140	185	14	17	110	56	150	85
ø63	35	M30 x P1.5	45	20	17	38	30	85	85	35	3/8	55	13	140	185	14	17	126	68	155	95
ø80	40	M30 x P1.5	45	20	20	38	35	107	105	50	1/2	75	13	168	211	18	20	152	75	190	120
ø100	50	M40 x P2.0	55	25	20	41	37	123.5	120	60	1/2	90	15	188	237	20	20	180	100	220	140
ø125	60	M50 x P2.0	70	35	30	57	47	143	140	70	3/4	100	15	234	309	24	30	222	122	280	170
ø150	80	M70 x P2.0	80	35	30	60	50	135	130	60	3/4	90	20	230	305	28	30	260	155	310	206
ø180	100	M90 x P2.0	100	35	40	65	55	172	170	70	1	120	20	280	365	35	40	315	188	375	250
ø200	100	M90 x P2.0	100	40	40	65	60	175	170	70	1	120	20	285	370	35	40	355	207	425	272

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1501 mm, see the specifications table for the length of the piston. Within 1500 mm (included) see the (PM) length of piston in the dimensions table.
3. The screw nut for piston rod over M50 is round shape.

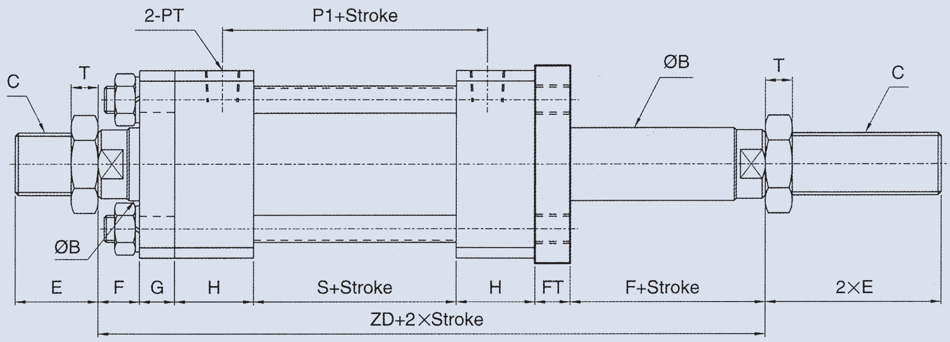
J

Dimensions

HOB
HOB+FB Type



HOD
HOD+FB Type



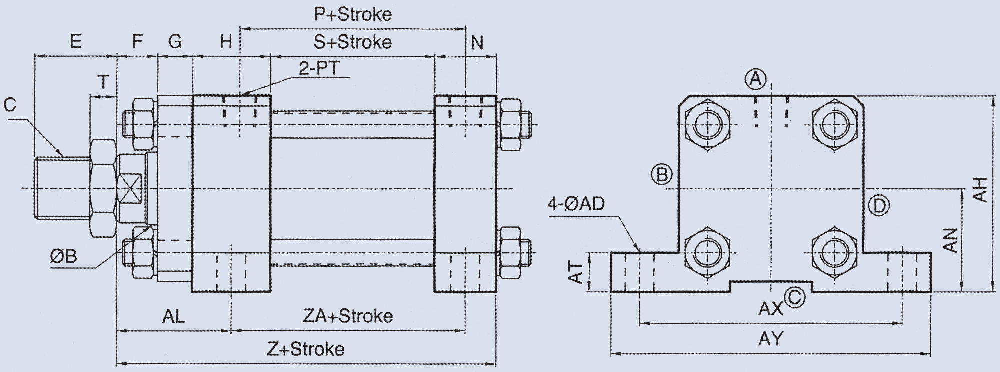
Bore \ Size	øB	C	E	F	G	H	N	P	P1	PM	PT	S	T	ZB	ZD	øFD	FT	FR	FX	FY	FZ
	HOB-HOD Type															FB Type					
ø40	25	M22 x P1.5	40	20	17	33	28	76	74	30	3/8	50	13	165	190	12	17	93	50	115	75
ø50	30	M26 x P1.5	40	20	17	38	30	85	85	35	3/8	55	13	177	205	14	17	110	56	150	85
ø63	35	M30 x P1.5	45	20	17	38	30	85	85	35	3/8	55	13	177	205	14	17	126	68	155	95
ø80	40	M30 x P1.5	45	20	20	38	35	107	105	50	1/2	75	13	208	231	18	20	152	75	190	120
ø100	50	M40 x P2.0	55	25	20	41	37	123.5	120	60	1/2	90	15	233	262	20	20	180	100	220	140
ø125	60	M50 x P2.0	70	35	30	57	47	143	140	70	3/4	100	15	299	344	24	30	222	122	280	170
ø150	80	M70 x P2.0	80	35	30	60	50	135	130	60	3/4	90	20	295	340	28	30	260	155	310	206
ø180	100	M90 x P2.0	100	35	40	65	55	172	170	70	1	120	20	355	400	35	40	315	188	375	250
ø200	100	M90 x P2.0	100	40	40	65	60	175	170	70	1	120	20	365	410	35	40	355	207	425	272

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1501 mm, see the specifications table for the length of the piston. Within 1500 mm (included) see the (PM) length of piston in the dimensions table.
3. The screw nut for piston rod over M50 is round shape.

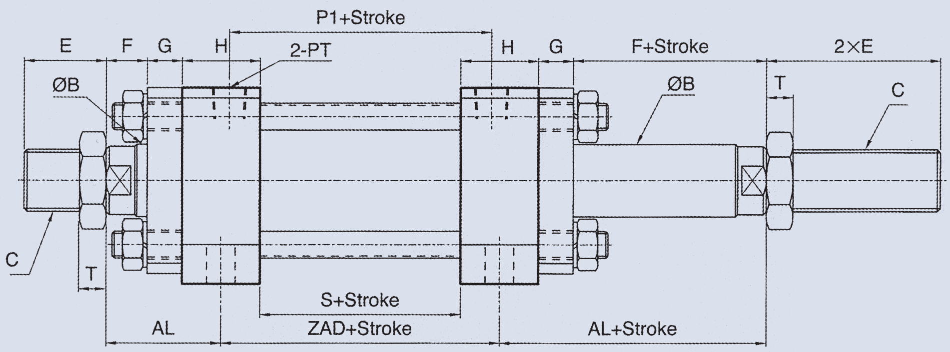
HYDRAULIC CYLINDER

Dimensions

HOB
HOB+LA Type



HOD
HOD+LA Type



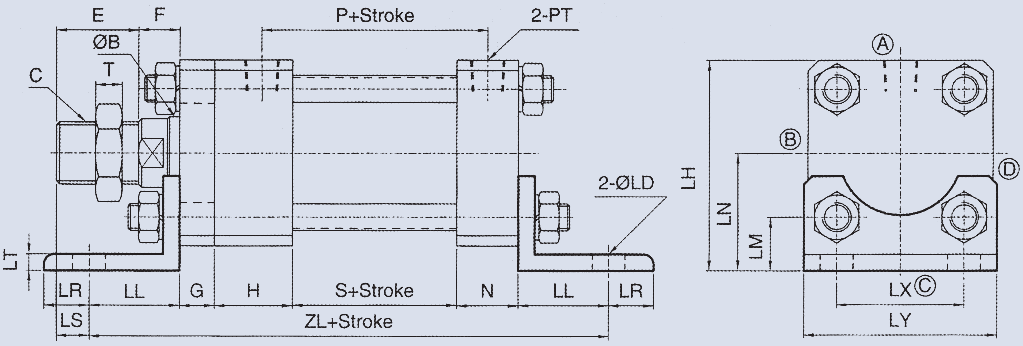
Size / Bore	HOB-HOD Type																			LA Type			
	øB	C	E	F	G	H	N	AH	AL	AN	P	P1	PM	PT	S	T	ZA	ZAD	Z	øAD	AT	AX	AY
ø40	25	M22 x P1.5	40	20	17	33	28	69.5	53.5	37	76	74	30	3/8	50	13	80.5	83	148	12	14	90	112
ø50	30	M26 x P1.5	40	20	17	38	30	85	56	45	85	85	35	3/8	55	13	89	93	160	14	17	115	140
ø63	35	M30 x P1.5	45	20	17	38	30	95	56	50	85	85	35	3/8	55	13	89	93	160	14	19	128	156
ø80	40	M30 x P1.5	45	20	20	38	35	115	59	60	107	105	50	1/2	75	13	111.5	113	188	18	25	152	184
ø100	50	M40 x P2.0	55	25	20	41	37	135.5	65.5	70	123.5	120	60	1/2	90	15	129	131	213	21	27	178	210
ø125	60	M50 x P2.0	70	35	30	57	47	171	93.5	90	143	140	70	3/4	100	15	152	157	269	24	30	230	280
ø150	80	M70 x P2.0	80	35	30	60	50	208	95	113	135	130	60	3/4	90	20	145	150	265	28	35	270	325
ø180	100	M90 x P2.0	100	35	40	65	55	260.5	107.5	143	172	170	70	1	120	20	180	185	315	35	45	330	395
ø200	100	M90 x P2.0	100	40	40	65	60	292	112.5	161	175	170	70	1	120	20	182.5	185	325	35	50	360	430

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1501 mm, see the specifications table for the length of the piston. Within 1500 mm (included) see the (PM) length of piston in the dimensions table.
3. When the stroke exceeds (includes) 2000 mm, the fixed base for the tie rod must be added in the middle.
4. The screw nut for piston rod over M50 is round shape.

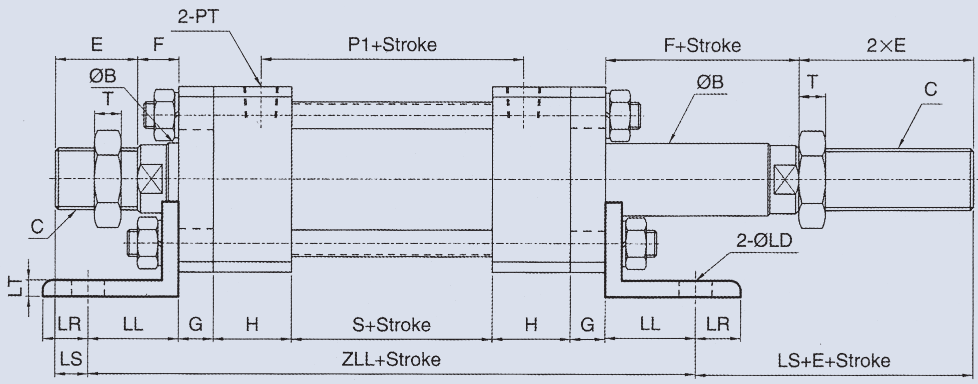
HYDRAULIC CYLINDER

Dimensions

HOB
HOB+LB Type



HOD
HOD+LB Type



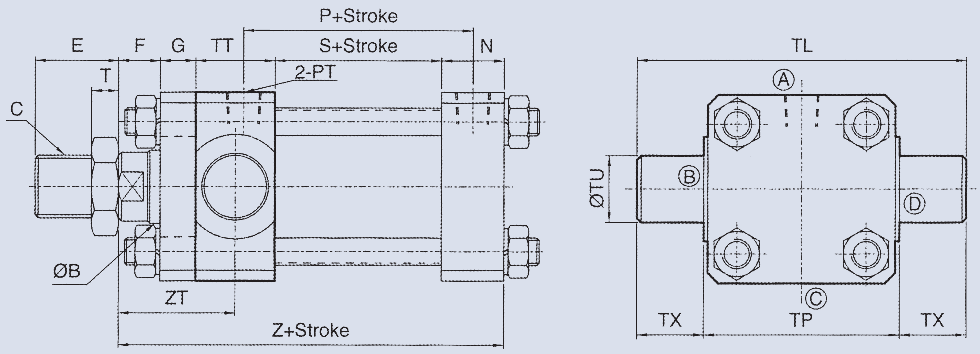
Size / Bore	HOB-HOD Type																	LB Type						
	øB	C	E	F	G	H	N	LH	LN	LS	P	P1	PM	PT	S	T	ZL	ZLL	øLD	LL	LM	LR	LT	LX	LY
ø40	25	M22 x P1.5	40	20	17	33	28	78.5	46	22.5	76	74	30	3/8	50	13	203	225	11	37.5	23.5	12.5	6	45	68
ø50	30	M26 x P1.5	40	20	17	38	30	94	54	18	85	85	35	3/8	55	13	224	249	14	42	26	22	8	56	85
ø63	35	M30 x P1.5	45	20	17	38	30	102	57	21	85	85	35	3/8	55	13	228	253	16	44	26	22	8	62	95
ø80	40	M30 x P1.5	45	20	20	38	35	131	76	2	107	105	50	1/2	75	13	294	317	18	63	36	27	13	80	120
ø100	50	M40 x P2.0	55	25	20	41	37	158.5	93	14	123.5	120	60	1/2	90	15	320	344	20	66	45.5	24	15	100	140
ø125	60	M50 x P2.0	70	35	30	57	47	195	114	25	143	140	70	3/4	100	15	394	434	24	80	53	30	15	122	169
ø150	80	M70 x P2.0	80	35	30	60	50	220	125	35	135	130	60	3/4	90	20	390	430	28	80	53	30	20	144	200
ø180	100	M90 x P2.0	100	35	40	65	55	267.5	150	45	172	170	70	1	120	20	460	510	35	90	62.5	40	20	175	240
ø200	100	M90 x P2.0	100	40	40	65	60	301	170	45	175	170	70	1	120	20	475	520	35	95	73.5	40	25	193	265

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1501 mm, see the specifications table for the length of the piston. Within 1500 mm (included) see the (PM) length of piston in the dimensions table.
3. When the stroke exceeds (includes) 2000 mm, the fixed base for the tie rod must be added in the middle.
4. The screw nut for piston rod over M50 is round shape.

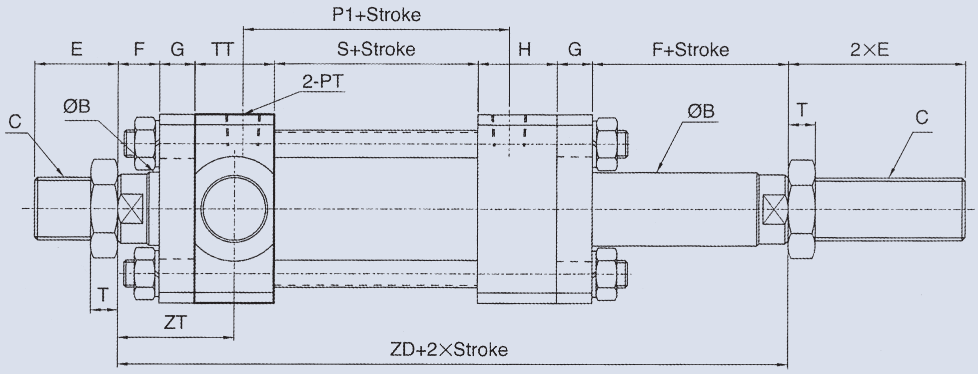
HYDRAULIC CYLINDER

Dimensions

HOB
HOB+TA Type



HOD
HOD+TA Type



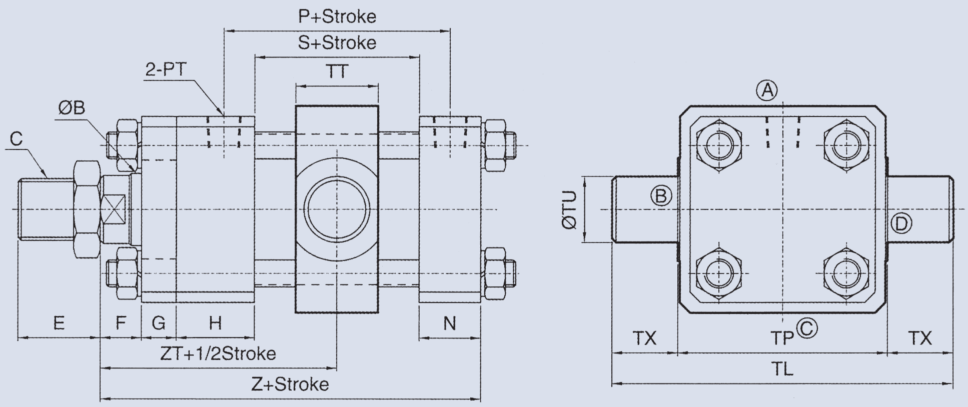
HOB-HOD Type																TA Type				
Size / Bore	øB	C	E	F	G	H	N	P	P1	PM	PT	S	T	Z	ZD	ZT	øTU	TL	TP	TT	TX
ø40	25	M22 x P1.5	40	20	17	33	28	76	74	30	3/8	50	13	148	190	53.5	20	109	69	33	20
ø50	30	M26 x P1.5	40	20	17	38	30	85	85	35	3/8	55	13	160	205	56	25	134	84	38	25
ø63	35	M30 x P1.5	45	20	17	38	30	85	85	35	3/8	55	13	160	205	56	32	154	94	38	30
ø80	40	M30 x P1.5	45	20	20	38	35	107	105	50	1/2	75	13	188	231	59	32	174	114	38	30
ø100	50	M40 x P2.0	55	25	20	41	37	123.5	120	60	1/2	90	15	213	262	65.5	35	205	135	41	35
ø125	60	M50 x P2.0	70	35	30	57	47	143	140	70	3/4	100	15	269	344	93.5	45	258	168	57	45
ø150	80	M70 x P2.0	80	35	30	60	50	135	130	60	3/4	90	20	265	340	95	50	300	200	60	50

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1501 mm, see the specifications table for the length of the piston. Within 1500 mm (included) see the (PM) length of piston in the dimensions table.
3. When the stroke exceeds (includes) 2000 mm, the fixed base for the tie rod must be added in the middle.
4. The screw nut for piston rod over M50 is round shape.

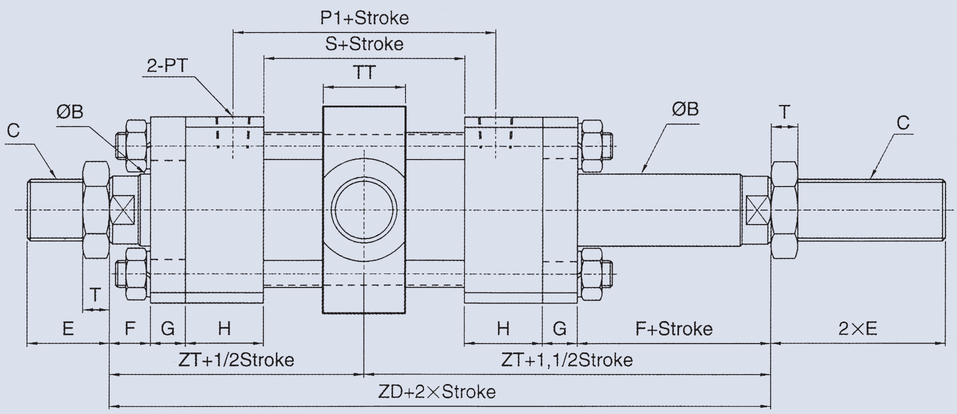
HYDRAULIC CYLINDER

Dimensions

HOB
HOB+TC Type



HOD
HOD+TC Type

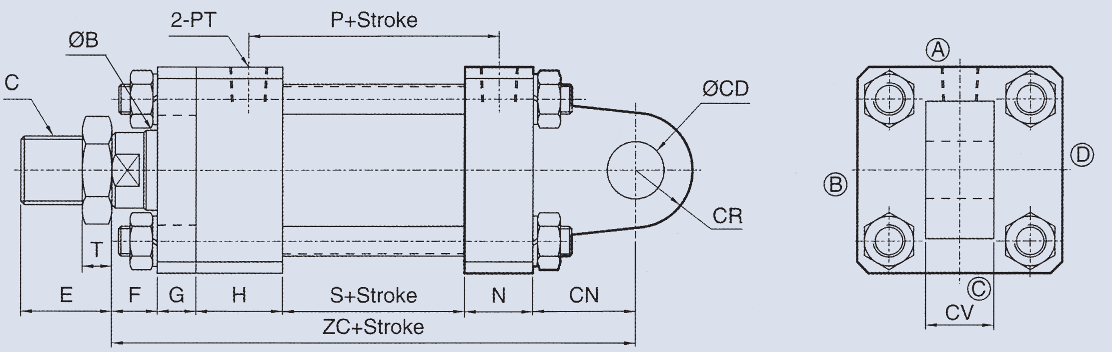


	HOB-HOD Type																TC Type				
Size / Bore	øB	C	E	F	G	H	N	P	P1	PM	PT	S	T	Z	ZD	ZT	øTU	TL	TP	TT	TX
ø40	25	M22 x P1.5	40	20	17	33	28	76	74	30	3/8	50	13	148	190	95	20	115	75	28	20
ø50	30	M26 x P1.5	40	20	17	38	30	85	85	35	3/8	55	13	160	205	102.5	25	140	90	33	25
ø63	35	M30 x P1.5	45	20	17	38	30	85	85	35	3/8	55	13	160	205	102.5	32	166	102	40	32
ø80	40	M30 x P1.5	45	20	20	38	35	107	105	50	1/2	75	13	188	231	115.5	32	184	120	43	32
ø100	50	M40 x P2.0	55	25	20	41	37	123.5	120	60	1/2	90	15	213	262	131	40	220	140	53	40
ø125	60	M50 x P2.0	70	35	30	57	47	143	140	70	3/4	100	15	269	344	172	50	275	175	58	50
ø150	80	M70 x P2.0	80	35	30	60	50	135	130	60	3/4	90	20	265	340	170	60	326	206	73	60
ø180	100	M90 x P2.0	100	35	40	65	55	172	170	70	1	120	20	315	400	200	80	403	243	98	80
ø200	100	M90 x P2.0	100	40	40	65	60	175	170	70	1	120	20	325	410	205	90	452	272	108	90

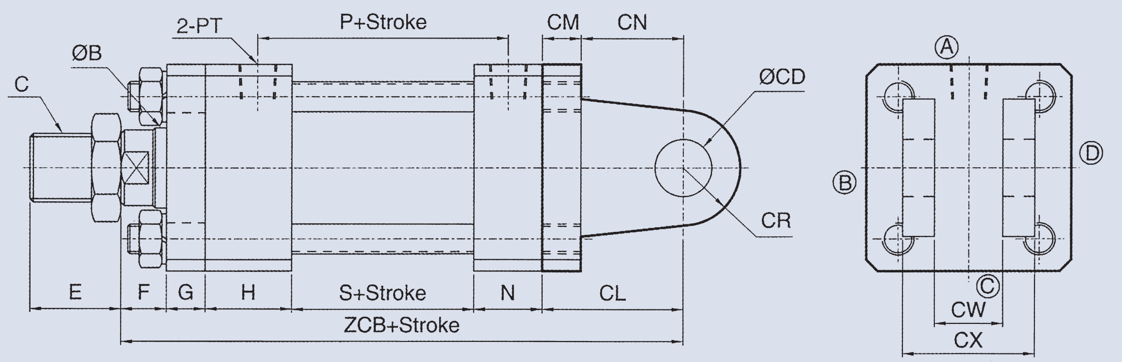
1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1501 mm, see the specifications table for the length of the piston. Within 1500 mm (included) see the (PM) length of piston in the dimensions table.
3. The screw nut for piston rod over M50 is round shape.

Dimensions

HOB
HOB+CA Type



HOB
HOB+CB Type



	HOB Type														CA-CB Type							
Size / Bore	øB	C	E	F	G	H	N	P	PM	PT	S	T	ZC	ZCB	øCD	CL	CM	CN	CR	CV	CW	CX
ø40	25	M22 x P1.5	40	20	17	33	28	76	30	3/8	50	13	173	190	16	42	17	25	15	22	23	47
ø50	30	M26 x P1.5	40	20	17	38	30	85	35	3/8	55	13	195	212	20	52	17	35	20	22	23	47
ø63	35	M30 x P1.5	45	20	17	38	30	85	35	3/8	55	13	205	222	25	62	17	45	25	30	31	59
ø80	40	M30 x P1.5	45	20	20	38	35	107	50	1/2	75	13	238	258	30	70	20	50	30	35	36	76
ø100	50	M40 x P2.0	55	25	20	41	37	123.5	60	1/2	90	15	273	293	35	80	20	60	35	40	41	81
ø125	60	M50 x P2.0	70	35	30	57	47	143	70	3/4	100	15	339	369	50	100	30	70	50	55	56	106
ø150	80	M70 x P2.0	80	35	30	60	50	135	60	3/4	90	20	345	375	60	110	30	80	60	60	61	121
ø180	100	M90 x P2.0	100	35	40	65	55	172	70	1	120	20	415	455	80	140	40	100	80	80	81	161
ø200	100	M90 x P2.0	100	40	40	65	60	175	70	1	120	20	435	475	90	150	40	110	90	90	91	171

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1501 mm, see the specifications table for the length of the piston. Within 1500 mm (included) see the (PM) length of piston in the dimensions table.
3. When the stroke exceeds (includes) 2000 mm, the fixed base for the tie rod must be added in the middle.
4. The screw nut for piston rod over M50 is round shape.

HYDRAULIC CYLINDER

How to order

CROC - 63※ 35※ 100ST - LB + Y

1 2 3 4 5 6

1	Model	
	CROB : LB type	CROC : CA type	CROA : FLAT type

2 Bore DIA.	**3** Rod DIA.					
Bore DIA. (mm)		50	63	80	100	125
Rod DIA.(mm)	Standard-heavy duty (Max.)	30	35-45	40-55	50-70	60-80

4 Stroke

5 Mounting type

FA : Front flange | FB : Rear flange | TC : Center trunnion

6 Mounting accessory

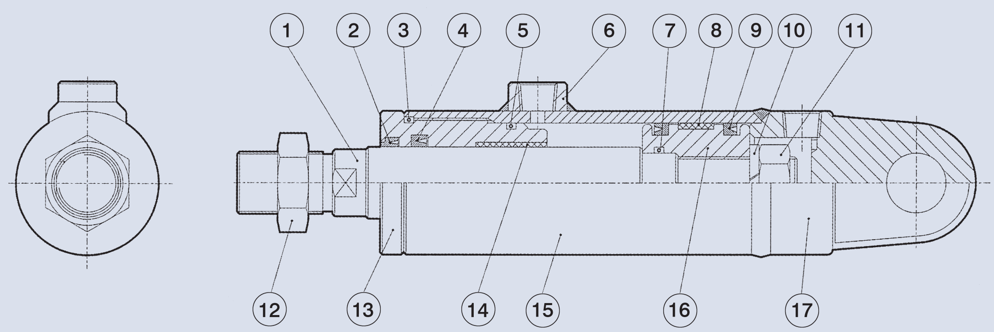
Y : Adaptor	YP : Y adaptor with pin	I : Adaptor	H : H rod end
KG : Compensating joint	PHS : Rod end	T : T rod end	

Specifications

Bore Size of Cylinder (mm)	Power Fluid	Material of Cylinder tube	The range of pressure (bar)	The range of temperature (°C)	The range of speed (mm/sec)	Piston length (PM) For Stroke 1500~3500 mm	Piston length (PM) For Stroke 3501~6000 mm
ø50	Filtered oil	Carbon steel STKM-13C	3~160	-10°~+60°	8~300	90	120
ø63						100	150
ø80						100	150
ø100						120	180
ø125						140	200

Parts list

CROC

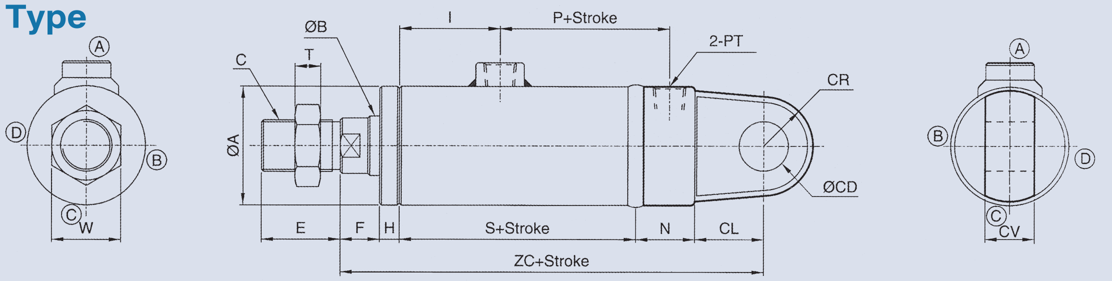


No.	Part Name	Quantity	No.	Part Name	Quantity	No.	Part Name	Quantity	No.	Part Name	Quantity
1	Piston rod	1	6	PT connectors	1	11	Nut	1	16	Piston	1
2	Dust wiper	1	7	O-Ring	1	12	Rod nut	1	17	Rear cover	1
3	O-Ring	1	8	Wearing ring	1	13	Rod cover	1			
4	Rod packing	1	9	Piston packing	2	14	Drymet bush	1			
5	O-Ring	1	10	Spring washer	1	15	Cylinder tube	1			

HYDRAULIC CYLINDER

Dimensions

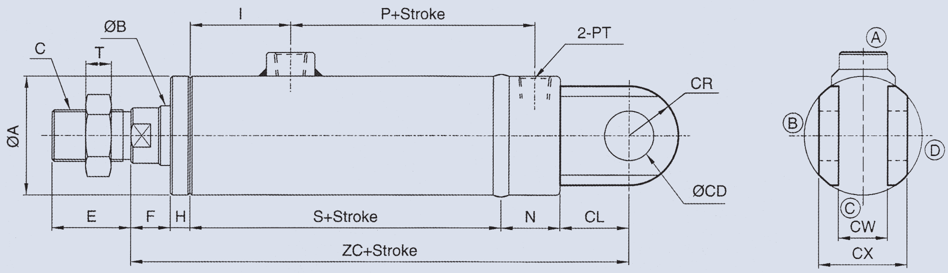
CROC
CRO+CA Type



Size / Bore	CRO Type															CA Type			
	øA	**øB**	**C**	**E**	**F**	**H**	**I**	**N**	**P**	**PM**	**PT**	**S**	**W**	**T**	**ZC**	**øCD**	**CL**	**CV**	**CR**
ø50	60	30	M26 x P1.5	40	20	10	56	30	71	45	3/8	110	35	13	205	25	35	25	25
ø63	73	35	M30 x P1.5	45	25	10	56	35	79	50	3/8	115	41	13	230	30	45	30	30
ø80	95	40	M30 x P1.5	50	25	15	64	40	83	50	3/8	125	41	13	255	30	50	35	30
ø100	114	50	M40 x P2.0	55	25	20	78	40	94	60	1/2	150	55	15	295	35	60	40	35
ø125	140	60	M50 x P2.0	70	35	20	78	50	109	70	1/2	160	65	15	335	50	70	55	50

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1500 mm, see the specifications table for the length of the piston. Within 1499 mm (included) see the (PM) length of piston in the dimensions table.
3. The position of øCD and øPT on CA clevis showing on the drawing is for normal type and on the same direction is for optional type.

CROCB
CRO+CB Type



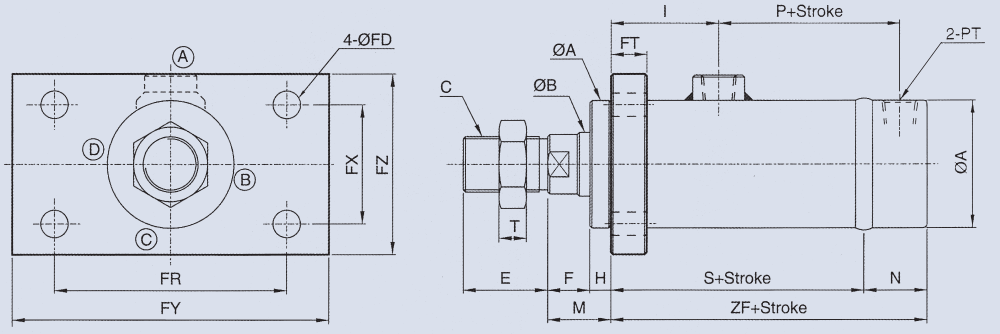
Size / Bore	CRO Type														CB Type				
	øA	**øB**	**C**	**E**	**F**	**H**	**I**	**N**	**P**	**PM**	**PT**	**S**	**T**	**ZC**	**øCD**	**CL**	**CR**	**CW**	**CX**
ø50	60	30	M26 x P1.5	40	20	10	56	30	71	45	3/8	110	13	205	25	35	25	26	46
ø63	73	35	M30 x P1.5	45	25	10	56	35	79	50	3/8	115	13	230	30	45	30	31	56
ø80	95	40	M30 x P1.5	50	25	15	64	40	83	50	3/8	125	13	255	30	50	30	36	66
ø100	114	50	M40 x P2.0	55	25	20	78	40	94	60	1/2	150	15	295	35	60	35	41	81
ø125	140	60	M50 x P2.0	70	35	20	78	50	109	70	1/2	160	15	335	50	70	50	56	106

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1500 mm, see the specifications table for the length of the piston. Within 1499 mm (included) see the (PM) length of piston in the dimensions table.
3. The position of øCD and øPT on CB clevis showing on the drawing is for normal type and on the same direction is for optional type.

HYDRAULIC CYLINDER

Dimensions

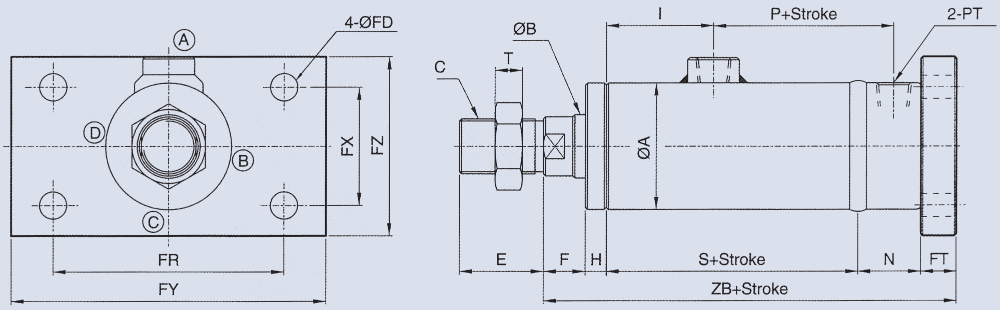
CROA
CROA+FA Type



Size / Bore	CROA Type															FA Type					
	øA	øB	C	E	F	H	I	M	N	P	PM	PT	S	T	ZF	øFD	FT	FR	FX	FY	FZ
ø50	60	30	M26 x P1.5	40	20	10	56	30	30	71	45	3/8	110	13	140	14	17	110	56	150	85
ø63	73	35	M30 x P1.5	45	25	10	56	35	35	79	50	3/8	115	13	150	14	17	126	68	155	95
ø80	95	40	M30 x P1.5	50	25	15	64	40	40	83	50	3/8	125	13	165	18	20	152	75	190	120
ø100	114	50	M40 x P2.0	55	25	20	78	45	40	94	60	1/2	150	15	190	20	20	180	100	220	140
ø125	140	60	M50 x P2.0	70	35	20	78	55	50	109	70	1/2	160	15	210	24	30	222	122	280	170

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1500 mm, see the specifications table for the length of the piston. Within 1499 mm (included) see the (PM) length of piston in the dimensions table.

CROB
CROB+FB Type



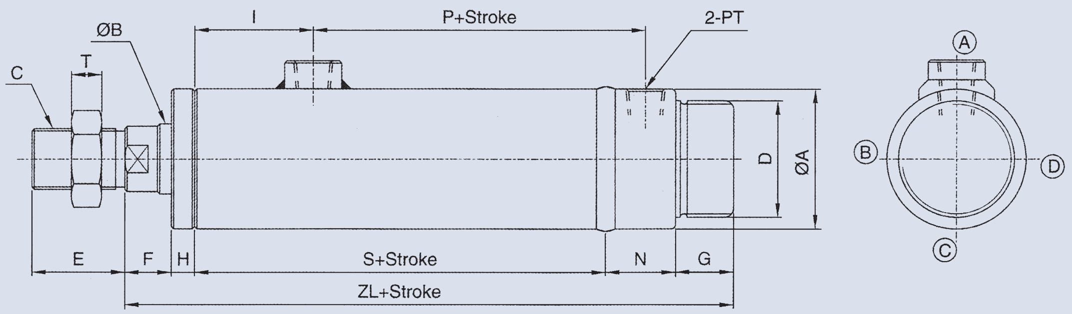
Size / Bore	CRO Type														FB Type					
	øA	øB	C	E	F	H	I	N	P	PM	PT	S	T	ZB	øFD	FT	FR	FX	FY	FZ
ø50	60	30	M26 x P1.5	40	20	10	56	30	71	45	3/8	110	13	187	14	17	110	56	150	85
ø63	73	35	M30 x P1.5	45	25	10	56	35	79	50	3/8	115	13	202	14	17	126	68	155	95
ø80	95	40	M30 x P1.5	50	25	15	64	40	83	50	3/8	125	13	225	18	20	152	75	190	120
ø100	114	50	M40 x P2.0	55	25	20	78	40	94	60	1/2	150	15	255	20	20	180	100	220	140
ø125	140	60	M50 x P2.0	70	35	20	78	50	109	70	1/2	160	15	295	24	30	222	122	280	170

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1500 mm, see the specifications table for the length of the piston. Within 1499 mm (included) see the (PM) length of piston in the dimensions table.

HYDRAULIC CYLINDER

Dimensions

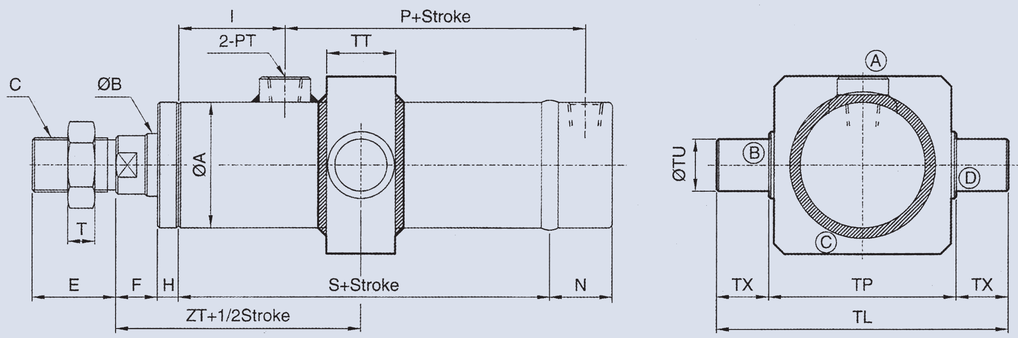
CROB
CROB Type



Size / Bore	øA	øB	C	D	E	F	G	H	I	N	P	PM	PT	S	T	ZL
CROB Type																
ø50	60	30	M26 x P1.5	M50 x P2.0	40	20	25	10	56	30	71	45	3/8	110	13	195
ø63	73	35	M30 x P1.5	M60 x P2.0	45	25	30	10	56	35	79	50	3/8	115	13	215
ø80	95	40	M30 x P1.5	M70 x P2.0	50	25	30	15	64	40	83	50	3/8	125	13	235
ø100	114	50	M40 x P2.0	M90 x P2.0	55	25	30	20	78	40	94	60	1/2	150	15	265
ø125	140	60	M50 x P2.0	M120 x P2.0	70	35	30	20	78	50	109	70	1/2	160	15	295

1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1500 mm, see the specifications table for the length of the piston. Within 1499 mm (included) see the (PM) length of piston in the dimensions table.

CROA
CROA+TC Type



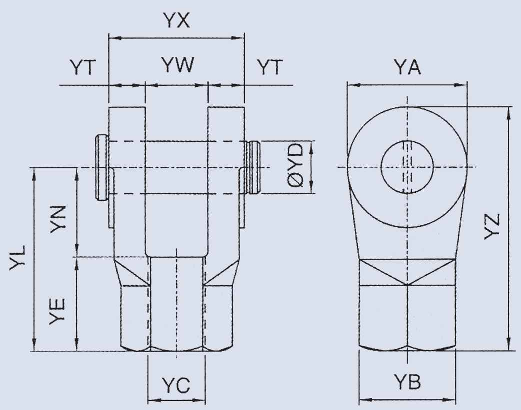
CROA Type															TC Type				
Size / Bore	**øA**	**øB**	**C**	**E**	**F**	**H**	**I**	**N**	**P**	**PM**	**PT**	**S**	**T**	**ZT**	**øTU**	**TP**	**TL**	**TT**	**TX**
ø50	60	30	M26 x P1.5	40	20	10	56	30	71	45	3/8	110	13	85	25	90	140	33	25
ø63	73	35	M30 x P1.5	45	25	10	56	35	79	50	3/8	115	13	92.5	32	102	166	40	32
ø80	95	40	M30 x P1.5	50	25	15	64	40	83	50	3/8	125	13	102.5	32	120	184	43	32
ø100	114	50	M40 x P2.0	55	25	20	78	40	94	60	1/2	150	15	120	40	140	220	53	40
ø125	140	60	M50 x P2.0	70	35	20	78	50	109	70	1/2	160	15	135	50	175	275	58	50

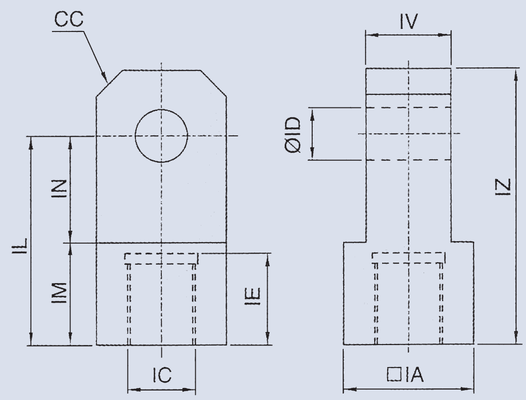
1. The length and size of the piston rod were not specified when being enlarged or reduced, the size will be constructed according to the dimensions table.
2. When the stroke exceeds (includes) 1500 mm, see the specifications table for the length of the piston. Within 1499 mm (included) see the (PM) length of piston in the dimensions table.

HYDRAULIC CYLINDER-ACCESSORIES

Dimensions

Adaptor I, Y



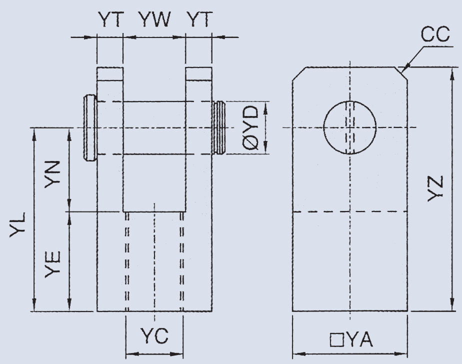


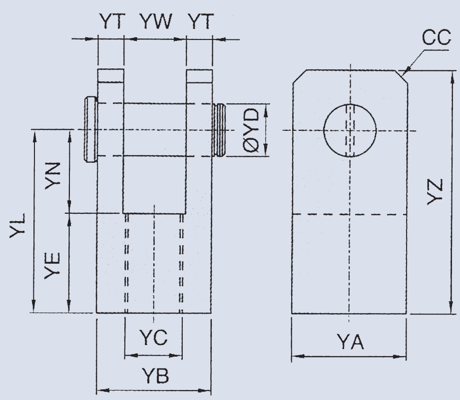
Y type adaptor with pin Material: FCD45 (ductile iron body)

Type	YA	YB	YC	YD	YE	YL	YN	YT	YW	YX	YZ
MY-014	29	27.5	M14 x P1.5	12	35	56	21	14	16	44	70
MY-016	29	27.5	M16 x P1.5	12	35	56	21	14	16	44	70
MY-018	29	27.5	M18 x P1.5	12	35	56	21	14	16	44	70
MY-022	46	37	M22 x P1.5	20	36	70	34	14	24	52	93
MY-026	52	42	M26 x P1.5	20	35	70	35	15	28	58	96
MY-030	55	42	M30 x P1.5	20	41	80	39	20	32	72	107
MY-030A	55	47	M30 x P1.5	25	41	80	39	22	40	84	107

I type adaptor Material: SS41 (steel)

Type	IA	IC	ID	IE	IL	IM	IN	IV	IZ	CC
FI-018	32	M18 x P1.5	16	23	50	25	25	18	70	8
FI-022	40	M22 x P1.5	20	23	55	25	30	20	80	10
FI-026	50	M26 x P1.5	25	28	60	30	30	25	90	10
FI-036	60	M36 x P1.5	30	32	75	35	40	35	110	10
FI-045	70	M45 x P2.0	35	38	90	40	50	40	130	10





Y type adaptor with pin Material: SS41 (steel)

Type	YA	YC	YD	YE	YN	YL	YT	YW	YZ	CC
HY-014	32	M14 x P1.5	12	36	20	56	8	16	70	6
HY-016	32	M16 x P1.5	12	36	20	56	8	16	70	6
HY-018	38	M18 x P1.5	16	36	20	56	8	16	70	6
HY-022	44	M22 x P1.5	20	38	32	70	10	24	93	10
HY-026	50	M26 x P1.5	20	37	33	70	11.5	27	96	10
HY-030	60	M30 x P1.5	30	40	48	88	15	30	115	10
HY-040	70	M40 x P2.0	35	47	46	93	20	30	127	15
HY-050	80	M50 x P2.0	40	50	50	100	22.5	35	140	15
HY-070	115	M70 x P2.0	50	60	60	120	27.5	60	170	25
HY-090	150	M90 x P2.0	70	85	85	170	40	70	240	30

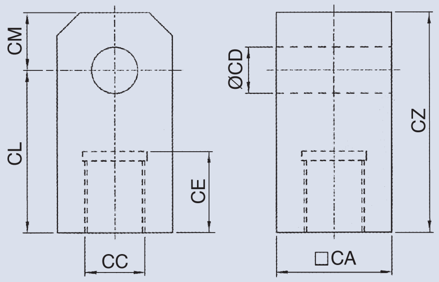
Y type adaptor with pin Material: SS41 (steel)

Type	YA	YB	YC	YD	YE	YN	YL	YT	YW	YZ	CC
FY-018	32	38	M18 x P1.5	16	25	25	50	10	18	70	8
FY-022	40	44	M22 x P1.5	20	25	30	55	12	20	80	10
FY-026	50	55	M26 x P1.5	25	30	30	60	15	25	90	15
FY-036	60	65	M36 x P1.5	30	35	40	75	15	35	110	15
FY-045	70	80	M45 x P2.0	35	40	50	90	20	40	135	15

HYDRAULIC CYLINDER-ACCESSORIES

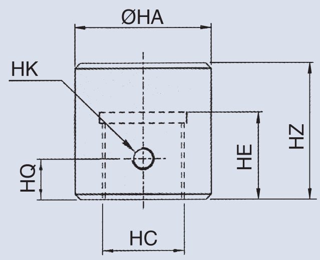
Dimensions

Adaptor I, H, T



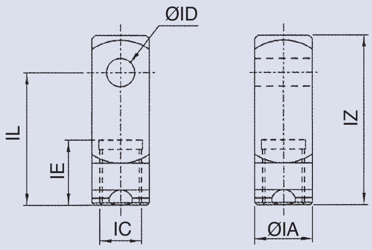
I type adaptor — Material: SS41 (steel)

Type	□CA	CC	CD	CE	CL	CM	CZ
CI-026	44.5	M26 x P1.5	25	40	60	25	85
CI-030	50.8	M30 x P1.5	30	45	70	30	100
CI-040	60	M40 x P2.0	30	50	75	30	105
CI-050	70	M50 x P2.0	35	55	85	35	120
CI-060	90	M60 x P2.0	50	70	105	50	155



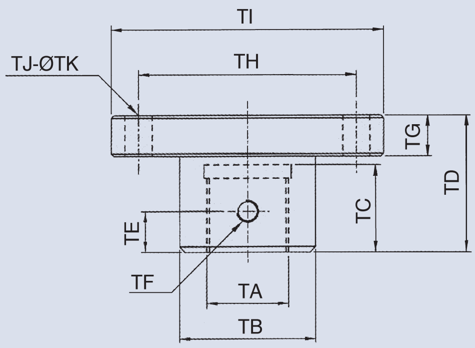
H type adaptor for welding — Material: SS41 (steel)

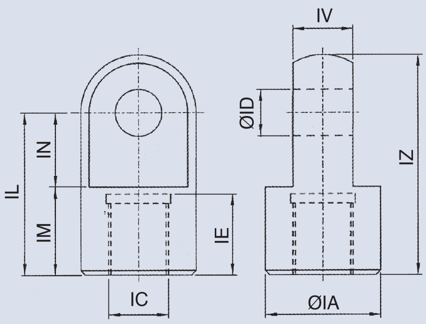
Type	øHA	HC	HE	HK	HQ	HZ
HH-010	20	M10 x P1.25	20	M6 x P1.0	10	30
HH-014	35	M14 x P1.5	25	M8 x P1.25	12	40
HH-016	35	M16 x P1.5	25	M8 x P1.25	12	40
HH-018	35	M18 x P1.5	25	M8 x P1.25	12	40
HH-022	40	M22 x P1.5	32	M8 x P1.25	15	50
HH-026	45	M26 x P1.5	32	M8 x P1.25	15	50
HH-030	50	M30 x P1.5	35	M8 x P1.25	20	55
HH-036	55	M36 x P2.0	40	M8 x P1.25	20	60
HH-040	60	M40 x P2.0	48	M10 x P1.5	25	65
HH-045	70	M45 x P2.0	52	M10 x P1.5	25	70
HH-050	80	M50 x P2.0	55	M10 x P1.5	25	75
HH-060	90	M60 x P2.0	55	M10 x P1.5	30	80
HH-070	100	M70 x P2.0	65	M12 x P1.75	30	100
HH-090	140	M90 x P2.0	85	M12 x P1.75	40	120



I type adaptor — Material: SS41 (steel)

Type	IA	IC	ID	IE	IL	IZ
SI-014	25.4	M14 x P1.5	12	40	57	73
SI-016	25.4	M16 x P1.5	12	40	57	73
SI-018	25.4	M18 x P1.5	12	40	57	73
SI-022	31.75	M22 x P1.5	16	40	59	76





I type adaptor — Material: SS41 (steel)

Type	IA	IC	øID	IE	IL	IM	IN	IV	IZ
HI-026	50	M26 x P1.5	25	40	85	45	40	30	110
HI-030	55	M30 x P1.5	25	40	83	45	38	35	110
HI-040	75	M40 x P2.0	35	50	90	40	50	45	130
HI-050	90	M50 x P2.0	50	60	105	50	55	55	150
HI-070	115	M70 x P2.0	60	65	120	65	55	60	177
HI-090	150	M90 x P2.0	70	82	180	90	90	70	250

T type adaptor — Material: SS41 (steel)

Type	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK
HT-010	M10 x P1.25	20	20	30	10	M6 x P1.0	8	40	60	4	8
HT-014	M14 x P1.5	30	25	40	12	M8 x P1.25	10	55	80	4	10
HT-016	M16 x P1.5	30	25	40	12	M8 x P1.25	10	55	80	4	10
HT-018	M18 x P1.5	30	25	40	12	M8 x P1.25	10	55	80	4	10
HT-022	M22 x P1.5	35	32	50	15	M8 x P1.25	15	65	85	4	10
HT-026	M26 x P1.5	40	32	50	15	M8 x P1.25	15	70	90	4	10
HT-030	M30 x P1.5	55	35	55	20	M8 x P1.25	20	75	100	4	12
HT-036	M36 x P2.0	50	48	55	20	M8 x P1.25	20	80	105	4	12
HT-040	M40 x P2.0	60	48	65	25	M10 x P1.5	25	90	115	6	12
HT-045	M45 x P2.0	70	55	65	25	M10 x P1.5	25	100	125	6	12
HT-050	M50 x P2.0	80	55	75	25	M10 x P1.5	25	110	140	6	14
HT-060	M60 x P2.0	90	55	80	30	M10 x P1.5	30	120	150	6	14
HT-070	M70 x P2.0	100	65	100	30	M12 x P1.75	30	140	180	6	18
HT-090	M90 x P2.0	140	85	120	40	M12 x P1.75	40	180	220	6	18

GAUGE COCK, GAUGE DAMPER, STOP VALVE

K

How to order

GCT, SB, ST - 02
1 2

1	Model	GCT, SB, ST: 180° GCLT: 90°
2	Port size	02: 1/4" 03: 3/8" 04: 1/2" 06: 3/4" 08: 1"

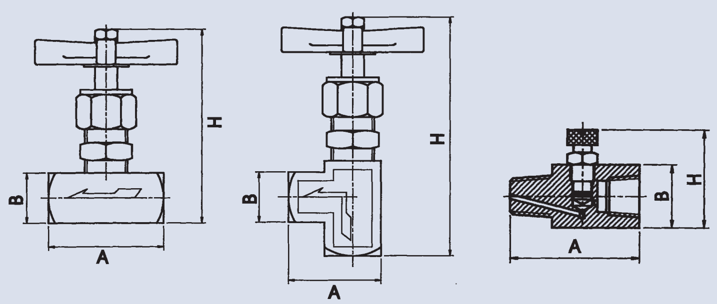
Specifications

Model	Type	Port Size (PT)	Max. Pressure (bar)	Flow (lpm)	Weight (kg)
GCT-02	180 °	1/4"	250	3	0.35
GCT-03		3/8"		21	0.39
GCLT-02	90 °	1/4"		3	0.34
GCLT-03		3/8"		21	0.38
SB-02	180 °	1/4"	100	0.5	0.1
SB-03		3/8"		0.7	0.12
SB-04		1/2"		1.5	0.19

Model	Port Size (pt)	Max. Pressure (bar)	Flow (lpm)	Orifice (inch)	Weight (kg)
ST-02	1/4"	350	20	3/16	0.33
ST-03	3/8"		40	9/32	0.43
ST-04	1/2"		80	11/32	0.65
ST-06	3/4"		120	7/16	1.46
ST-08	1"		300	9/16	2.50

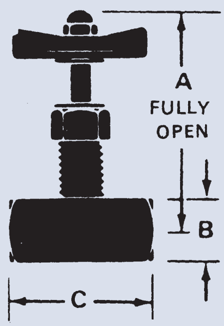
Dimensions

Unit: mm



Model	A	B	H
GCT-02	52.5	26	95.5
GCT-03	52.5	26	95.5
GCLT-02	44.5	26	109
GCLT-03	44.5	26	109
SB-02	43	21	32
SB-03	45	23	34
SB-04	52	27	38

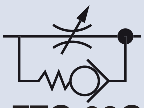
Unit: inch



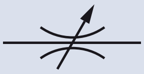
Model	A	B	C
ST-02	3-1/16	7/8	2
ST-03	4-1/32	1	3-2/8
ST-04	3-15/16	1-1/4	2-7/8
ST-06	4-15/16	1-1/2	3-5/8
ST-08	5-5/16	2	4-1/16

FLOW CONTROL VALVE

SUB-PLATE MOUNTING TYPE

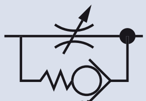


FTC-02G

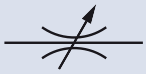


FT-02G

PIPE CONNECTION TYPE



F-02~06, TLC-02~03



F-02N~03N

K

How to order

FTC - 02 G - 21A
1 2 3 4

1	Model	FTC: Throttle and check valve FT: Throttle valve only
2	Valve size	
3	Mounting type	G: Sub-plate mounting
4	Design no.	

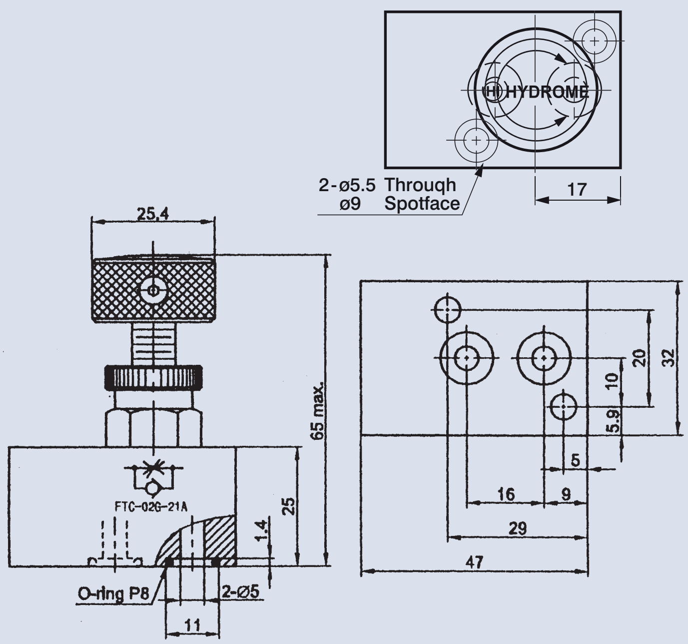
Specifications

Model	Max. Pressure (bar)	Flow (lpm)	Weight (kg)	Bolt size
FTC-02G	230	10	0.36	M5x25L
FT-02G				

Dimensions

Sub-plate mounting type

Unit: mm

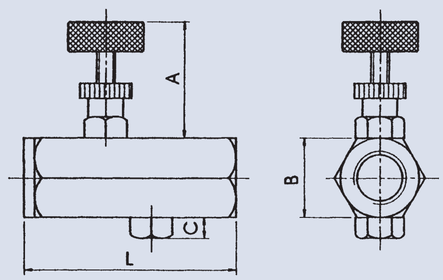


Specifications / Dimensions

Pipe connection type

Unit: mm

F-02~06, TLC-02~03: Throttle and check valve
F-02N~03N: Throttle valve only



Model	Port size (PT)	A	B	C	L	Flow (lpm)	Material	Max. Pressure (bar)	Weight (kg)
F-02	1/4"	40	23	7	62	12	Steel	280	0.24
F-03	3/8"	38	26	7	70	20	Steel	280	0.30
F-04	1/2"	43	32	10	81	30	Steel	280	0.50
F-06	3/4"	47	41	12	92	48	Steel	280	0.92
F-02N	1/4"	40	23	-	62	12	Steel	280	0.24
F-03N	3/8"	38	26	-	70	20	Steel	280	0.30
TLC-02	1/4"	40	23	7	62	12	Copper	150	0.24
TLC-03	3/8"	38	26	7	70	20	Copper	150	0.30

OIL FILLER BREATHER

How to order

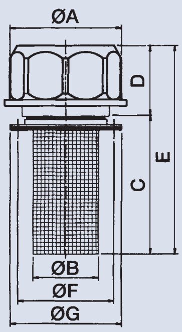
AB - 1163 S
1 2 3

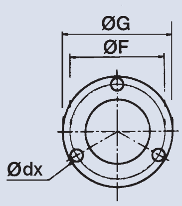
1	Model
2	1163: General use 1162: Miniature type
3	Omit: Plastic strainer S: Stainless steel screen

Dimensions

AB-1162(S), AB-1163(S), SY-10, HY-24, CB-16, CB-16B

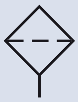
Unit: mm

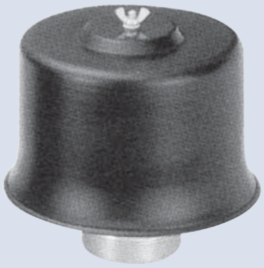




Model	Port	A	B	C	D	E	F	G	d x Hole	Filtration Micron		Weight (kg)
										Air	Oil	
AB-1162	32	53	31	65	34	99	46.5	53	ø6 x 3	40	400	0.09
AB-1162S												
AB-1163	50	80	48	95	50	147	71	82	ø6 x 3			0.26
AB-1163S												
SY-10	50	80	49	150	52	187	78	88	ø6 x 4		500	0.3
HY-24	88	137	85	213	56	269	120	141	ø8 x 4			1.34
CB-16	53	85	46	120	38	158	Welding type	-			400	0.61
CB-16B								For tank side using				0.60

AIR FILTER





AB-02~32

AB-02A~04A

AB-04B~08B

K

How to order

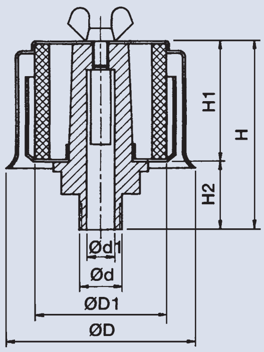
AB - 02
1 2

1	Model	
2	Port size	Thread connection

Dimensions

AB-02~32

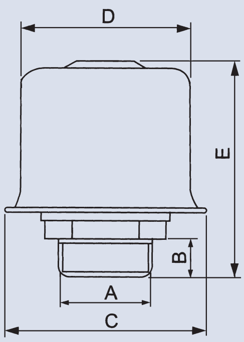
Unit: mm



Model	Port Size d (PT)	d1	D	D1	H1	H2	H	Filtration Micron	Weight (kg)
AB-02	1/4"	8	52	41	36	22	58	40	0.2
AB-03	3/8"								0.2
AB-04	1/2"	19	67	51	41	27	68		0.3
AB-06	3/4"								0.3
AB-08	1"	25	100	65	45	26	74		0.4
AB-12	1-1/2"	48	130	92	90	37	130		0.65
AB-16	2"								0.65
AB-20	2-1/2"	61	187	150	115	59	174		1.5
AB-24	3"								1.5
AB-32	4"	113	210	165	140	50	193		2.3

AB02A~04A
AB04B~08B

Unit: mm

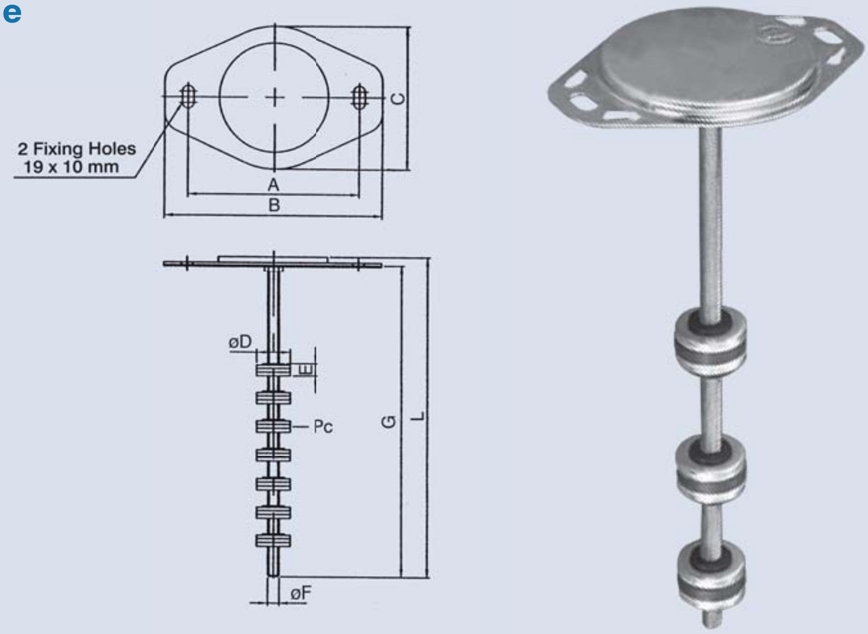


Model	Port Size A (PT)	B	C	D	E	Weight (kg)
AB-02A	1/4"	16	57.5	52	56	0.08
AB-03A	3/8"	16	57.5	52	56	0.08
AB-04A	1/2"	18	57.5	52	63	0.1
AB-04B	1/2"	18	86	79.5	75.5	0.18
AB-06B	3/4"	21	86	79.5	76.5	0.21
AB-08B	1"	23	86	79.5	82.5	0.28

MAGNET FLANGE FOR TANK, TANK END COVER

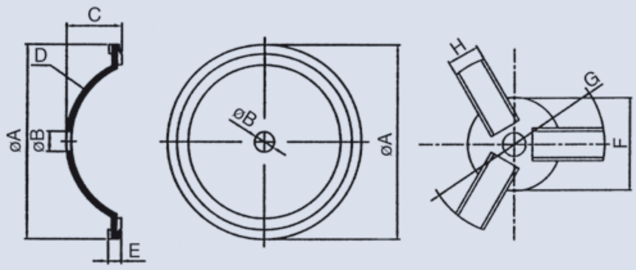
Dimensions

Magnet Flange



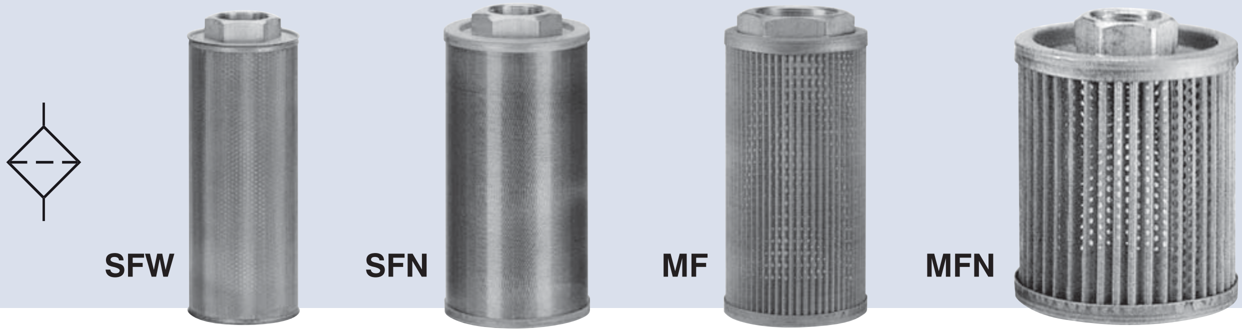
Model	Dimensions (mm)								Qt'y of Magnet (PC)
	A	B	C	øD	E	øF	G	L	
FJ-200-2P	120	142	102	32	26	8	200	209	2
FJ-300-3P	120	142	102	32	26	8	300	309	3
FJ-400-5P	120	142	102	32	26	8	400	409	5
FJ-500-6P	120	142	102	32	26	8	500	509	6
FJ-600-7P	120	142	102	32	26	8	600	609	7
FJ-700-8P	120	142	102	32	26	8	700	709	8
FJ-800-10P	120	142	102	32	26	8	800	809	10
FJ-1000-13P	120	142	102	32	26	8	1000	1009	13

Tank End Cover



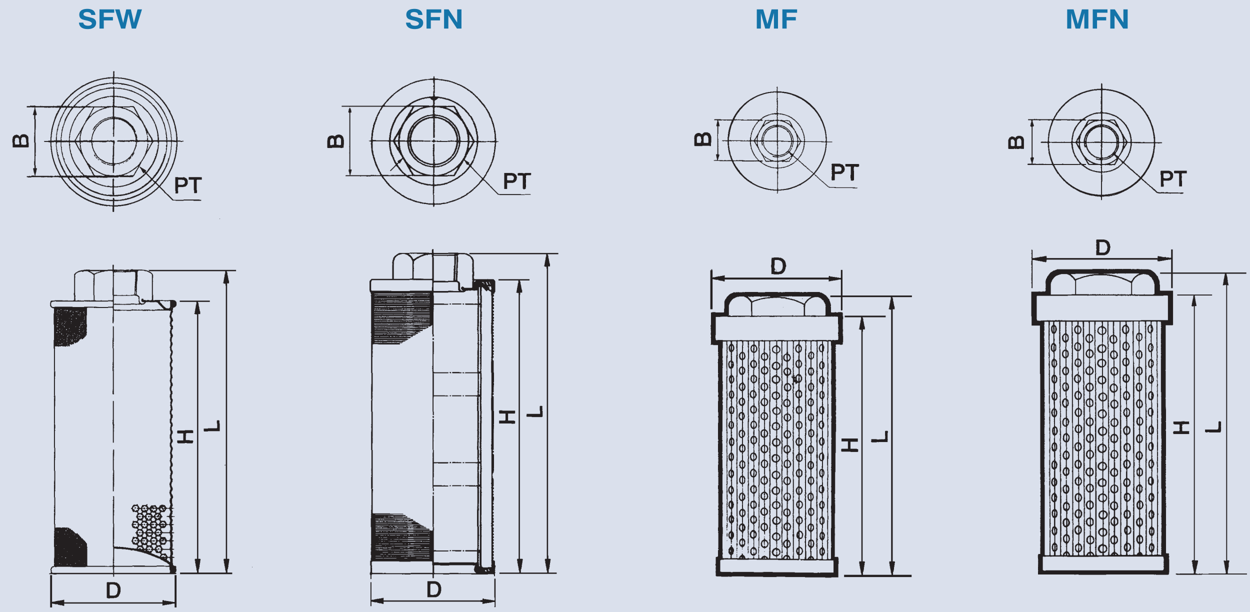
Model	Dimensions (mm)								Tank Cutting DIA. (mm)	Weight (kg)
	øA	B	C	D	E	øF	G	H		
THY-08	210	16	40	4.5	17	115	182	26.5	160	2.88
THY-10	260	16	41	4.5	17	115	248	26.5	210	3.70
THY-12	310	16	47	4.5	17	140	316	26.5	250	5.12
THY-14	367	16	47	4.5	17	140	368	26.5	300	6.28
THY-18	465	16	68	4.5	17	140	452	26.5	400	9.12

SUCTION STRAINER



Specifications / Dimensions

Unit: mm



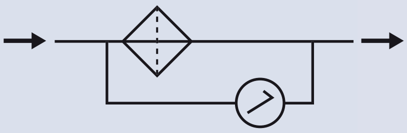
Model	Port (PT)	Flow (lpm)	D	L	H	B	Filtration Mesh	Weight (kg)
SFW-02	1/4	14	55	109	100	22		0.13
SFW-03	3/8	17	55	109	100	22		0.13
SFW-04S	1/2	20	55	113	100	30		0.14
SFW-04	1/2	30	55	145	132	30		0.16
SFW-06	3/4	50	65	163	145	34		0.19
SFW-08	1	100	87	208	188	42	120	0.35
SFW-10	1-1/4	180	106	230	208	54		0.50
SFW-12	1-1/2	246	126	247	228	65		0.70
SFW-16	2	384	126	330	300	75		0.82
SFW-20	2-1/2	700	157	414	390	97		1.36
SFW-24	3	800	157	458	435	110		1.47
SFW-32	4	1000	208	380	357	142		2.45
SFN-04	1/2	35	64	160	153	30		0.27
SFN-06	3/4	46	64	166	153	34		0.28
SFN-08	1	90	85	210	198	42	150	0.48
SFN-10	1-1/4	150	103	231	215	54		0.77
SFN-12	1-1/2	205	120	246	232	65		0.96
SFN-16	2	320	120	332	317	75		1.27
SFN-20	2-1/2	550	148	434	419	97		2.00
SFN-24	3	600	148	434	419	110		2.68

Model	Port (PT)	Flow (lpm)	D	L	H	B	Filtration Micron	Weight (kg)
MF-03	3/8	24	58	96	90	22		0.10
MF-04	1/2	32	58	100	90	29		0.14
MF-06	3/4	56	58	137	124	34		0.18
MF-08	1	110	58	170	155	42		0.2
MF-10	1-1/4	210	71	186	170	54	100	0.35
MF-12	1-1/2	285	85	196	182	61		0.49
MF-16	2	395	103	215	202	72		0.65
MF-20	2-1/2	750	148	274	252	97		1.20
MF-24	3	800	148	274	252	110		1.21
MF-32	4	1000	208	380	357	142		2.45
MFN-02	1/4	25	64	90	85	22		0.11
MFN-03	3/8	30	64	90	85	22		0.11
MFN-04	1/2	50	64	115	103	30		0.15
MFN-06	3/4	90	64	145	131	34		0.18
MFN-08	1	160	85	175	162	42		0.35
MFN-10	1-1/4	280	103	200	187	54	100	0.50
MFN-12	1-1/2	420	120	205	190	65		0.80
MFN-16	2	550	120	225	208	75		1.00
MFN-20	2-1/2	850	148	309	292	97		1.30
MFN-24	3	1000	148	309	292	110		1.45
MFN-32	4	1200	208	380	357	142		2.45

PRESSURE LINE FILTER

FEATURES:

- The body's material is aluminum alloy code A356.
- The O-Ring is NBR for temperature Max. 100 °C.
- The indicator is a difference pressure switch with pressure more than 2.5 bar.
- The resistance of filter element should be lower than 5.5 bar to keep it life long, its life is normally 300~400 working hours.



How to order

TF - 06 - ※ - ※
1 2 3 4

1 Model Material: Aluminum alloy A356

2 Port size 06: PT 3/4" 08: PT 1"

3 Filter element

Code	Element	Code	Element
A3	Fiber 3μ B≧200	M60	60 mesh/cm
A10	Fiber 10μ B≧200	M100	100 mesh/cm
A25	Fiber 25μ B≧200	M150	150 mesh/cm

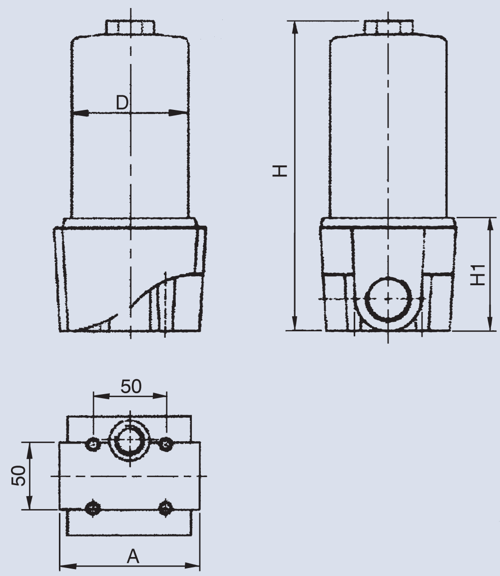
4 Indicator

Code	Indicator
N	Plug
V	Visual
E	Visual-electrical

Specifications / Dimensions

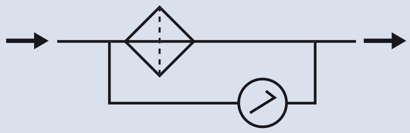
Model	Port Size (PT)	Max. Pressure (bar)	Element Code	Flow (lpm)	Weight (kg)
TF-06	3/4"	100	A3	30	1.7
			A10	45	
			A25	60	
			M60	180	
			M100	160	
			M150	140	
TF-08	1"		A3	35	
			A10	50	
			A25	70	
			M60	200	
			M100	180	
			M150	150	

Unit: mm



A	D	H	H1
100	85	236	86
100	85	236	86

PRESSURE LINE FILTER



How to order

HP-06 - 1 - ※ - ※ - ※ - ※

1 2 3 4 5 6

1 Model Material: Steel

2 H length

HP-06-※	H Length	HP-08-※	H length	HP-10-※	H length
1	175 mm	1	225 mm	1	282 mm
2	198 mm	2	335 mm	2	373 mm
3	298 mm			3	492 mm

3 Element

Code	Element	Code	Element
A3	Fiber 3μ B≧200	A25	Fiber 25μ B≧200
A6	Fiber 6μ B≧200	T40	Metal 40μ
A10	Fiber 10μ B≧200		

4 Indicator

Code	Indicator
N	Plug
V	Visual
E	Visual-electrical

5 Seal

Code	Material
N	Nbr
V	Viton

6 Port thread PT BSP NPT SAE

Specifications

Model	Element Code	Port Size	Max. Pressure (bar)	Flow (lpm)	Weight (kg)
HP-06-1	A03			20	3.6
	A06			25	
	A10			35	
	A25			50	
	T40			75	
HP-06-2	A03	3/4"		25	3.9
	A06			35	
	A10			50	
	A25			80	
	T40			90	
HP-06-3	A03		350	35	5
	A06			60	
	A10			80	
	A25			100	
	T40			120	
HP-08-1	A03	1"		35	6.8
	A06			60	
	A10			80	
	A25			100	
	T40			120	

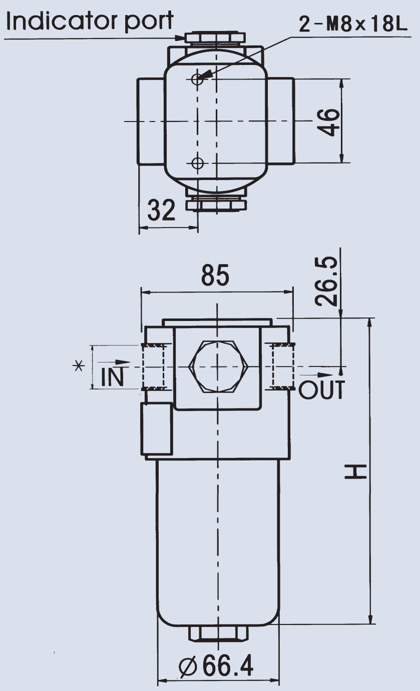
Model	Element Code	Port Size	Max. Pressure (bar)	Flow (lpm)	Weight (kg)
HP-08-2	A03	1"		70	8.3
	A06			90	
	A10			120	
	A25			150	
	T40			200	
HP-10-1	A03	1"		70	15.5
	A06			90	
	A10			120	
	A25			150	
	T40			200	
HP-10-2	A03	1-1/4"	350	140	21.2
	A06			240	
	A10			290	
	A25			360	
	T40			400	
HP-10-3	A03	1-1/2"		180	25.5
	A06			300	
	A10			360	
	A25			450	
	T40			500	

PRESSURE LINE FILTER, INDICATOR

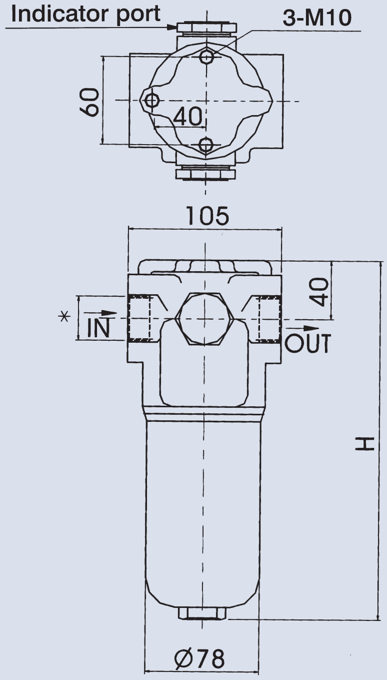
Dimensions

Unit: mm

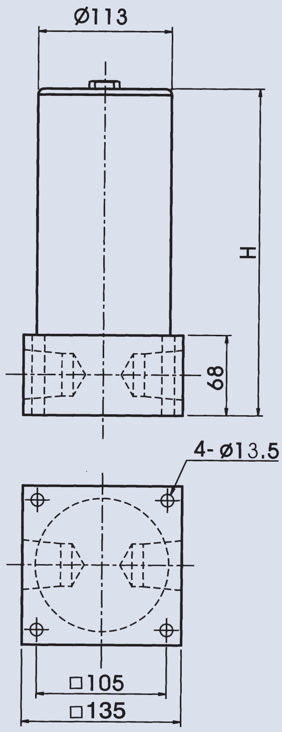
HP-06



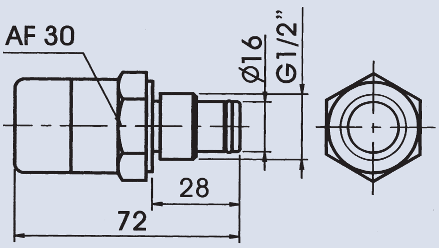
HP-08



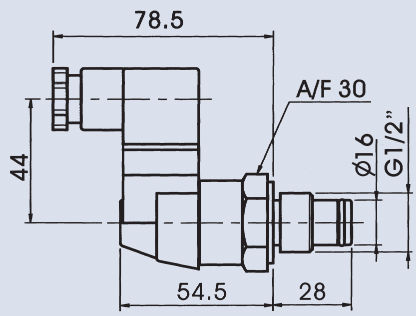
HP-10



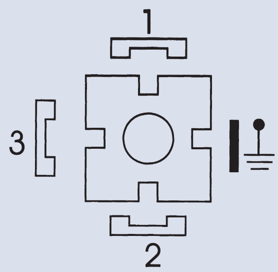
Visual



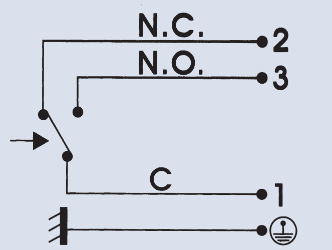
Visual-electrical



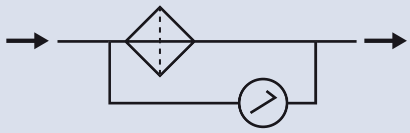
CONNECTOR



ELECTRICAL CONNECTION



PRESSURE LINE FILTER



How to order

DHP - 06 - ※ - ※ - ※ - ※

1 2 3 4 5 6

1 Model Material: Aluminum alloy

2 Port size 06: 3/4" 08: 1" 10: 1 1/4"

3 Element

Code	Element
A3	Fiber 3μ B≧200
A6	Fiber 6μ B≧200
A10	Fiber 10μ B≧200
A25	Fiber 25μ B≧200
T40	Metal 40μ

4 Indicator

Code	Indicator
N	Plug
V	Visual
E	Visual-electrical

5 Seal

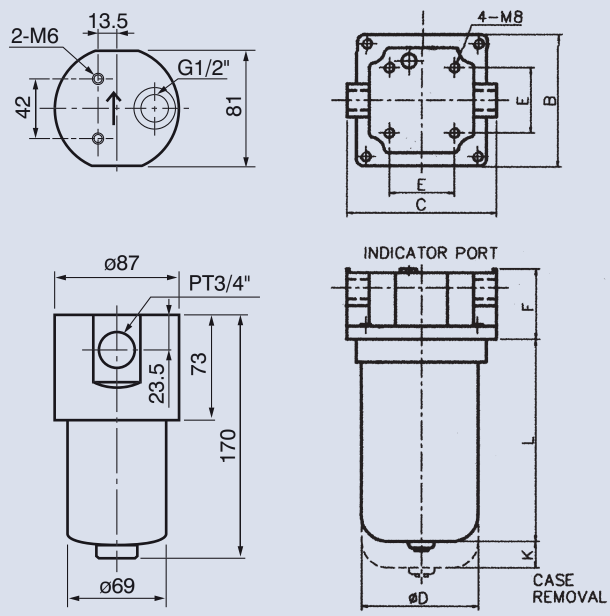
Code	Material
N	Nbr
V	Viton

6 Port thread BSP NPT SAE

Specifications / Dimensions

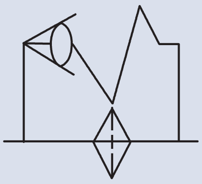
Model	Element Code	Port Size	Max. Pressure (bar)	Flow (lpm)	Weight (kg)
DHP-06	A03	3/4"	250	20	1.6
	A06			25	
	A10			35	
	A25			50	
	T40			75	
DHP-08	A03	1"	120	70	2.5
	A06			120	
	A10			150	
	A25			180	
	T40			200	
DHP-10	A03	1 1/4"		140	5.2
	A06			240	
	A10			290	
	A25			360	
	T40			400	

DHP-06 **DHP-08, 10** Unit: mm



Port size	B	C	øD	E	F	K	L
08	100	115	90	50	54	20	155
10	134	140	115	68	67	25	236

PIPING TYPE RETURN, SUCTION FILTER



How to order

PRI - 10 - ※ - ※ - ※

1 2 3 4 5

1	Model
2	Port size (PT) 06: 3/4" 06L: 3/4" (long size) 08: 1" 08L: 1" (long size) 10: 1-1/4" 12: 1-1/2" 16: 2"
3	Flow type N: Suction line Y: Return line
4	Filter element

Wire Mesh (mesh/cm)		Fiber Micron (μ) for return line
M100	M300	FC3
M120	M400	
M150	M600	FC10
M200	M800	
M250	-	FC25

5	Indicator None: Plug With inldicator (see page 262)

For Suction Line

Code	Description
1	Vacuum gauge 2" V-AD
2	Vacuum switch PS 82

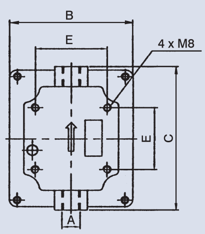
For Return Line

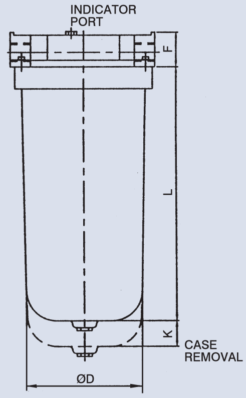
Code	Description
3	Presssure gauge TT-12
4	Pressure switch PS 41
5	Difference pressure switch

Specifications

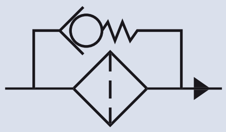
Model	Port Size (PT) øA	Max. Pressure (bar)	Flow (lpm)	Dimensions (mm)							Weight (kg)
				B	C	øD	E	F	K	L	
PRI-06	3/4	70	110	114	131	100	45 x 80	48	25	166	2.8
PRI-06L			160	114	131	100	45 x 80	48	25	226	3.3
PRI-08	1		120	114	131	100	45 x 80	48	25	166	2.8
PRI-08L			180	114	131	100	45 x 80	48	25	226	3.3
PRI-10	1- 1/4		320	134	140	112	68	67	25	236	4.5
PRI-12	1 -1/2		350	134	140	112	68	67	25	236	4.5
PRI-16	2		500	140	170	135	80	90	40	290	6.6

Dimensions





SPIN-ON RETURN FILTER



CF-06, 08 ,10

CFG-06

How to order

CF - 06 - ※ - ※
1 2 3 4

1	Model	CF: Pipe connection CFG: Mounted on tank
2	Port size	06: 3/4" 08: 1" 10: 1-1/4" 12: 1-1/2"
3	Filtration	None: 10μ (general use)
4	Indicator (see page 262)	None: With pressure gauge TT-12 (normal) O: Without pressure gauge TT-12

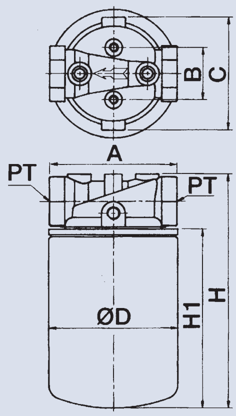
Specifications

Model	Port size (PT)	Max. Pressure (bar)	Flow (lpm)	Filtration (μ)	Weight (kg)
CF-06	3/4"		60 (10μ)		0.62
CF-08	1"		80 (10μ)		0.62
CF-10	1-1/4"	12	144 (10μ), 160 (25μ)	10: 10μ 25: 25μ	1.84
CF-12	1-1/2"		344 (10μ)		5.20
CFG-06	3/4"		60 (10μ)		0.87

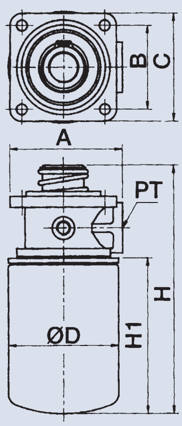
Dimensions

Unit: mm

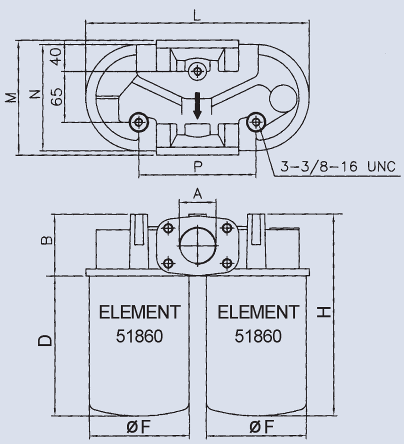
CF-06, 08, 10



CFG-06



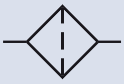
CF-12



Model	A	B	C	D	H1	H	Mounted
CF-06	92	38	82	93	127	170	
CF-08	92	38	82	93	127	170	Piping
CF-10	137	48	136	128	167	236	
CFG-06	97	70	90	93	127	207	Tank

Model	A	B	D	F	H	L	M	N	P	Mounted
CF-12	PT 1-1/2"	77	230	127	307	284	165	146	171	Piping

SUCTION OR RETURN LINE FILTER



For side of tank

For up-side of tank

How to order

FSS - 10 - ※ - ※
1 2 3 4

1	Model	2	Port size
3	None: For suction line B: For return line	4	Filter media

Wire Mesh (mesh/cm) for suction line			Fiber Micron (μ) for return line
M100	M200	M800	FC3
M120	M400	-	FC10
M150	M600	-	FC25

Specifications

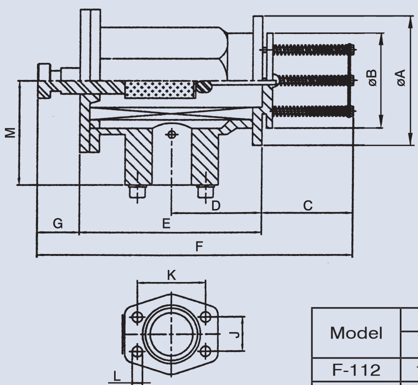
Model	Port Size	Flow (lpm)		Dimensions (mm)													Fix. Bolt	Weight (kg)
		Suction	Return	A	B	C	D	E	F	G	H	I	J	K	L	M		
FSS-10-(B)	1-1/4"	250	160															6.5
FSS-12-(B)	1-1/2"	300	210	166	112	120	110	215	335	45	10	130	43	78	13	87	M8 x 25 x 6pcs	6.4
FSS-1602-(B)	2"	320	250															6.3
FSS-16-(B)	2"	400	300															10.6
FSS-20-(B)	2-1/2"	550	400	220	150	120	120	235	355	45	13	180	62	106	18	112	M10 x 35 x 6pcs	10.2
FSS-24-(B)	3"	700	520															9.6
FSS-28-(B)	3-1/2"	760	570	242	180	120	120	262	382	45	15	210	78	130	18	125	M12 x 35 x 6pcs	13.8
FSS-32-(B)	4"	820	630															13

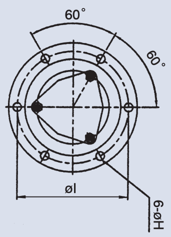
Dimensions

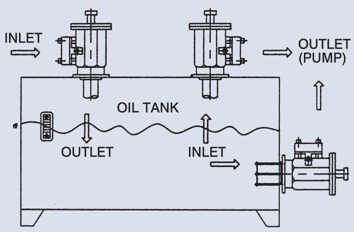
FSS-※

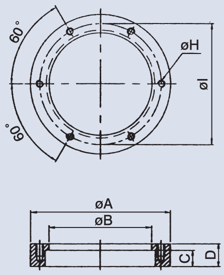
F-112-180

Unit: mm



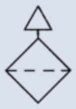






Model	Dimensions (mm)				H Screw thd.	I Type of Fixing P.C.D.	Used For	Weight (kg)
	A	B	C	D				
F-112	150	112	15	20	M8	6 Hole x ø130	FSS10 (B)-1602 (B)	1.1
F-150	210	150	22	28	M10	6 Hole x ø180	FSS16 (B)-24 (B)	3.48
F-180	242	180	22	28	M12	6 Hole x ø210	FSS28 (B)-32 (B)	4.22

SUCTION OR RETURN LINE FILTER



2" V-AD

TT-12

PS-41

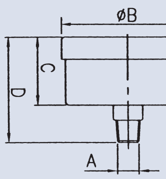
PS-82

Specifications

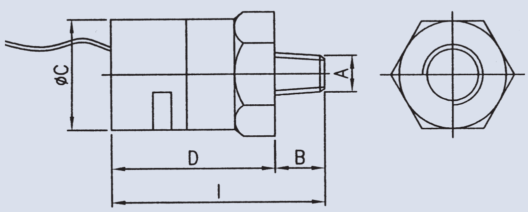
Model	Description	Prot Size A	Dimensions (mm) B	C	D	I	Used For Filter		Weight (kg)
2" V-AD	Vacuum Gauge	PT 1/4	53	28	44	-	Suction line	PRI FSS	0.1
PS82	Vacuum Switch	PT 1/4	14	28	38	52			0.08
TT-12	Pressure Gauge	PT 1/8	42	23	38	-	Return line	PRI-※-Y FSS-※-B CF	0.06
PS41	Pressure Switch	PT 1/8	13	31	48	88			0.1
TK-K2	Difference Presure Switch-visual type	M18 x 1.5	-					PRI-※-Y	0.08
TK-5E		M20 x 1.5						-	
TK-Y2	Difference pressure switch-visual with electrical	M18 x 1.5						PRI-※-Y	0.1
TK-T2		M20 x 1.5						-	

Dimensions

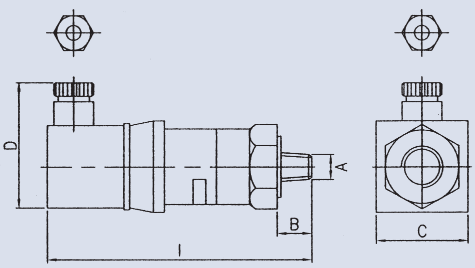
2"V-AD
TT-12



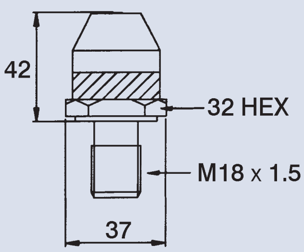
PS82



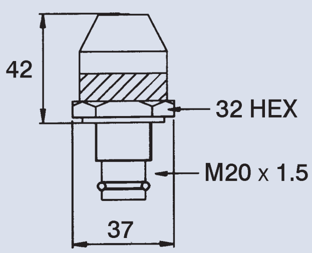
PS41



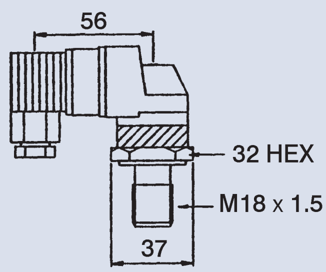
TK-K2



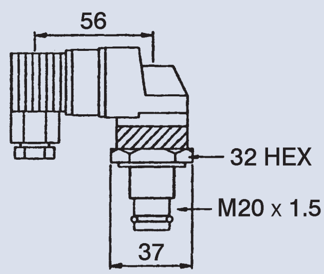
TK-5E



TK-Y2

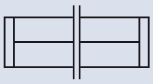


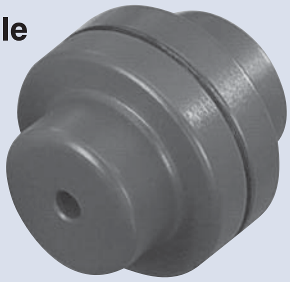
TK-T2



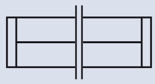
COUPLING

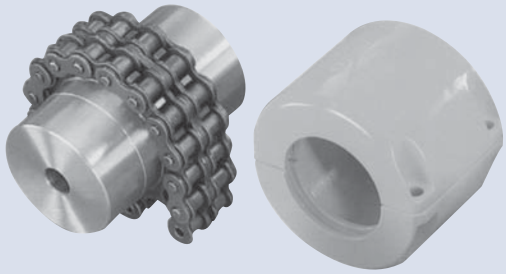
NM-Super flexible coupling





HT-Roller chain flexible coupling





K

Specifications / Dimensions

NM-Super flexible coupling

Model	Torque Normal Kg-m	Torque Max. Kg-m	Max. Speed (rpm)	Bore Diameter Min.	Bore Diameter Max.	Boss Dia. D	Outside Dia. OD	Distance Through boss L	Spare & Perm. Tolerance	Weight (kg)
NM-50	1.3	2.3	13500	7	19	33	50	25	2.5±0.5	0.48
NM-67	2.2	4	10000	9	28	46	67	30	2.5±0.5	1.02
NM-82	5.0	9	8000	10	32	53	82	40	3.0±1.0	1.88
NM-97	10.5	19	7000	12	42	69	97	50	3.0±1.0	3.54
NM-112	16.7	30	6000	14	48	79	112	60	3.5±1.0	5.40
NM-128	26.7	48	5000	18	55	90	128	70	3.5±1.0	8.10
NM-148	41.7	75	4500	22	65	107	148	80	3.5±1.0	13.5
NM-168	69.5	125	4000	28	75	126	168	90	3.5±1.0	19.3
NM-194	112	200	3500	32	85	140	194	100	3.5±1.0	26.3
NM-214	167	300	3000	45	95	157	214	110	4.0±2.0	35.7
NM-240	267	480	2750	60	110	179	240	120	4.0±2.0	46.7
NM-265	417	750	2500	70	120	198	265	140	5.5±2.0	66.3

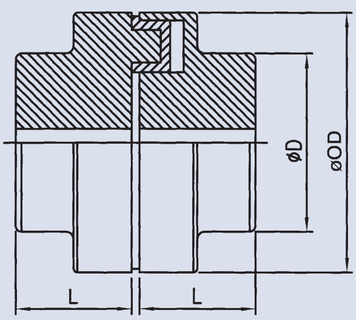
HT-Roller chain flexible coupling

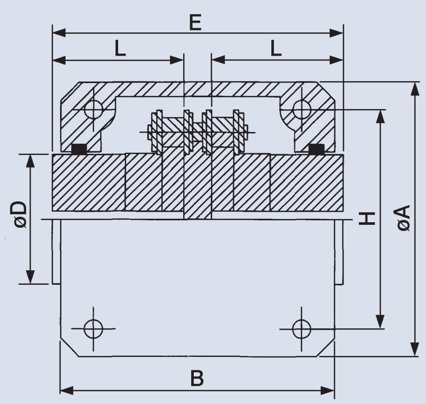
Model	Bore Diameter Min.	Bore Diameter Max.	E	L	D	H	Weight (kg)	Case	A	B	Weight (kg)
HT4012	11	22	80	36	35	61	0.8	HT4012	75	75	0.3
HT4016	15	30	80	36	50	77	1.4	HT4016	92	75	0.4
HT5016	15	40	100	45	60	96	2.6	HT5016	111	85	0.6
HT5018	19	45	100	45	70	106	3.5	HT5018	122	85	0.7
HT6018	22	55	120	54	85	128	6.2	HT6018	142	106	1.0
HT6022	25	75	120	54	110	152	9.8	HT6022	167	106	1.2
HT8018	30	78	150	67	115	170	13.9	HT8018	186	130	2.3
HT8022	35	95	150	67	140	202	20.2	HT8022	220	130	2.4
HT10020	35	110	201	91	160	228	34	HT10020	248	152	3.2
HT12018	48	120	261	119	170	252	51	HT12018	305	180	5.6
HT12022	58	150	261	119	210	300	66	HT12022	355	180	7.1

NM-Super flexible coupling

HT-Roller chain flexible coupling

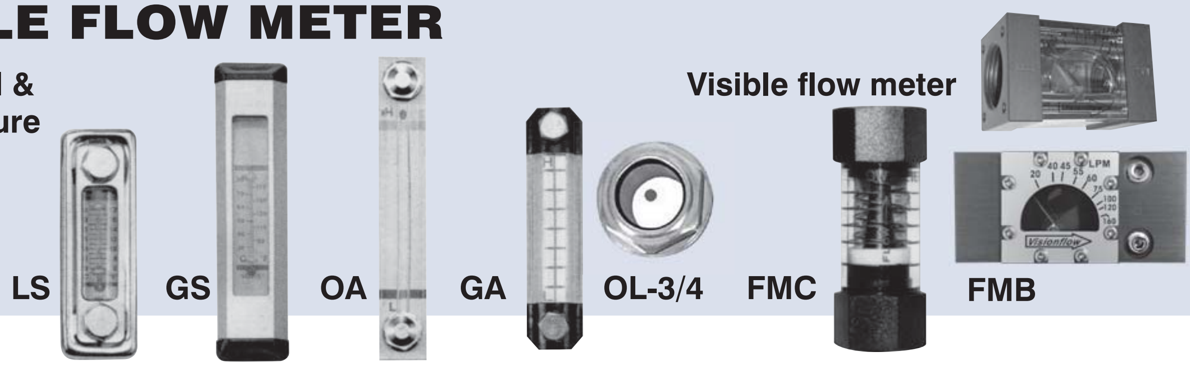
Unit: mm





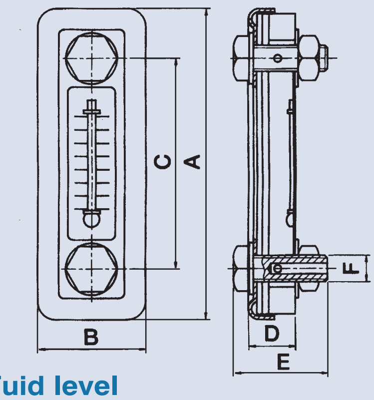
FLUID LEVEL & TEMPERATURE GAUGE, VISIBLE FLOW METER

Fluid level & Temperature gauge

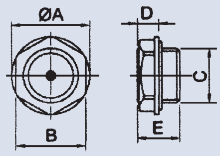


Dimensions

Fluid level & Temperature gauge



Fuid level

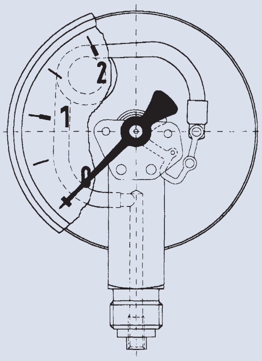


Model	Dimensions (mm)					Bolt Size	Weight
	A	B	C	D	E	F	(kg)
LS-3"	118	41	80	18	37	M10	0.20
LS-5"	180	52	127	19.5	46	M12	0.35
GS-3"	102	38	76	20	39	3/8"	0.11
GS-5"	153	38	127	20	39	3/8"	0.15
OA-3"	105	25	76	13	46.5	M10	0.12
OA-4"	129	25	100	13	46.5	M10	0.13
OA-5"	155	25	127	13	46.5	M10	0.14
OA-68 mm	96	25	68	13	33	3/8"	0.11
OA-80 mm	109	25	80	12.5	46	M10	0.12
OA-120 mm	148	25	120	15	46.5	M10	0.14
OA-140 mm	170	25	140	20	46.5	M10	0.15
OA-148 mm	179	25	148	13	33	M10	0.17
OA-200 mm	230	28	200	25	54	M12	0.29
OA-230 mm	270	30	230	25	55	M12	0.34
OA-300 mm	330	28	300	25	63	M12	0.38
OA-400 mm	430	28	400	25	54	M12	0.44
OA-500 mm	530	28	500	25	54	M12	0.52
GA-60 mm	94	30	60	13	31	3/8"	0.07
GA-100 mm	126	30	100	13	31	3/8"	0.08
OL-3/4"	35	29	26	8	18	-	0.005

Specifications and Dimensions **Visible flow meter**

Model	Port Size	Max. Pressure (bar)	Flow (lpm)	Max. Temp. °C	Dimension WxHxL (mm)	Weight (kg)
FMC-18	PT 3/8"	10	18	115	Hex.22 x 67L	-
FMB-3A10L	NPT 3/8"		10		39 x 39 x 62	0.3
FMB-3A30L	NPT 3/8"		30			0.3
FMB-4A10L	NPT 1/2"		10			0.27
FMB-4A30L	NPT 1/2"		30			0.27
FMB-6A60L	NPT 3/4"		60		50.8 x 50.8 x 76.5	0.26
FMB-6A80L	NPT 3/4"		80			0.26
FMB-8A60L	NPT 1"		60			0.24
FMB-8A80L	NPT 1"		80			0.24
FMB-8A160L	PF 1"		160		57 x 64 x 120	0.79
FMB-10A160L	PF 1-1/4"		160			0.67
FMB-12A400L	PF 1-1/2"		400		76 x 83 x 140	1.3
FMB-16A400L	PF 2"		400			1.2

GLYCERINE BOURDON TUBE PRESSURE GAUGE



K

How to order

A - 2-1/2 - ※
1 2 3

1	Type	A: Bottom connection D: Back connection W/O flange AD: Back connection W/O flange with U-clamp BD: Back connection with flange
2	Dial diameter	
3	Pressure range	

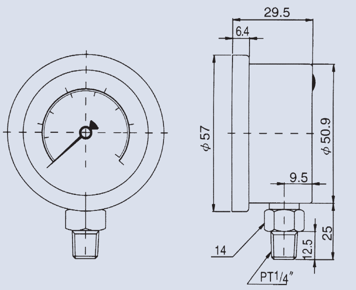
Specifications

Dial Size	Case, Bezel	Thread	Socket	Bourdon Tube	Movement	Single, Dual Scale	Accuracy (% F.S.)	Ambient Temperature	Weight(kg) A	Weight(kg) BD
1-1/2"	SUS 304	1/8" PT, BSP, NPT	Brass or sus 316	Brass or sus 316	Brass or sus 304	psi, kpa, kg/cm², bar	1~2	-50 °F to 160 °F	0.1	0.1
2"		1/4" PT, BSP, NPT							0.18	0.16
2-1/2"									0.25	0.32
4"		3/8", 1/2" PT, BSP, NPT							0.73	0.80

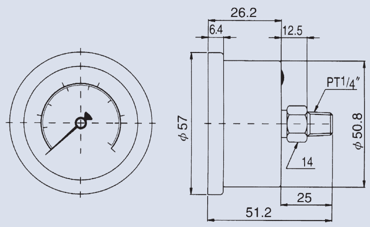
Dimensions

Unit: mm

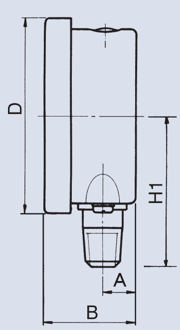
A-Type Dia. 2"



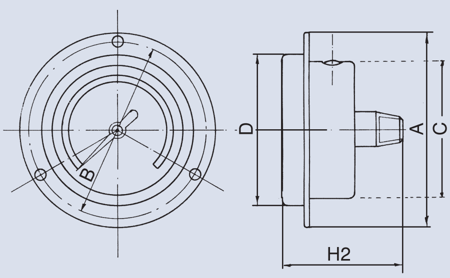
D-Type Dia. 2"



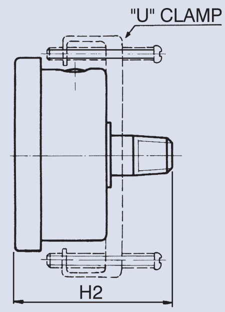
A-Type Dia. 2-1/2", 4"



BD-Type Dia. 2-1/2", 4"

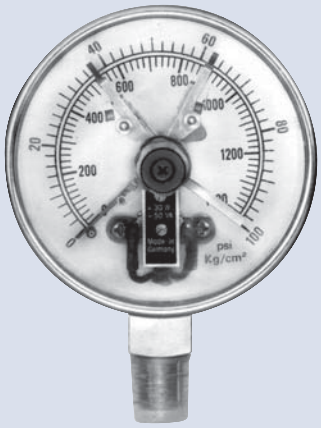


AD-Type



Type	Dia	D	A	B	C	Connector H1	Connector H2
A	2- 1/2"	70	11	33	-	58	-
	4"	107	11	33	-	80	-
BD	2- 1/2"	70	88	-	62	-	63
	4"	107	128	-	99	-	63

PRESSURE GAUGE WITH ELECTRIC CONTACT



How to order

EPG - 75 - A - ※ - ※ - ※ - ※

1 2 3 4 5 6 7

1 Model EPG: Electrical contact type IPG: Explode-proof type EEPG: No-contact type, Sensor control type

Model: EPG, IPG

Operating voltag	DC24~AC250	Carrying current	0.6 A max.
Switching power	30W~50VA max.	Contact pin material	Ag80 Ni20
Making current	1.0 A max.	Ambient temp.	-20 °C to +70 °C
Breaking current	1.0 A max.		

Model: EEPG

Operating voltag	DC24~AC250	Operating time	1.0 millisecond
Switching power	50VA	Releasing time	0.2 millisecond
Breaking current	0.7A DC/AC	Operating Temperature	-40 °C to +125 °C
Carrying current	1.5A DC/AC	Storage Temperature	-50 °C to +155 °C

2 Dial diameter 75: 3" with 1/4" connect thread 100: 4" with 1/2" connect thread

3 Mounting type A: Bottom connection A1: Bottom connection with PC case cover B: Bottom connection with flange D: Low back connection with flange

4 Pressure range (kg/cm²)

76cmHg~0	76cmHg~6
76cmHg~1	76cmHg~10
76cmHg~2	76cmHg~15
76cmHg~3	76cmHg~20
76cmHg~4	

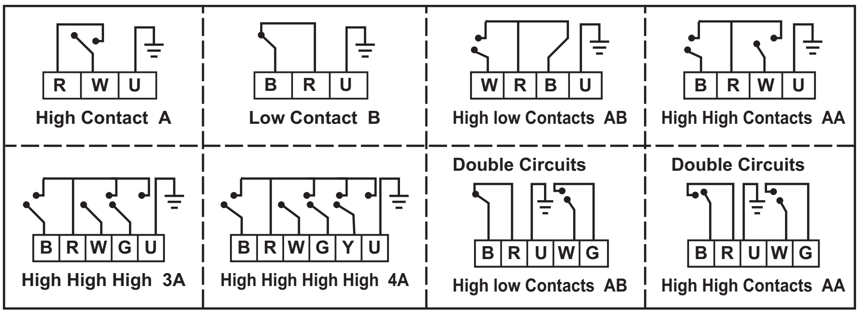
0~1	0~10	0~50	0~350
0~2	0~15	0~70	0~400
0~3	0~20	0~100	0~500
0~4	0~25	0~150	0~700
0~7	0~35	0~250	0~1000

5 Contact type A: High contact-normal open B: Low contact-normal closed

6 Thread type PT, NPT, PF

7 Voltage DC24~AC250V

Circuit diagrams of contact devices



Coloring system of electric wires

B: Black	Y: Yellow
W: White	R: Red (common)
G: Green	U: Gray (earth)

Contact wires

A: W & R	AA: B (A1), W (A2) & R
B: B & R	3A: B (A1), W (A2), G (A3) & R
AB: W (A), B (B) & R	4A: B (A1), W (A2), G (A3), Y (A4) & R

Specifications

Gauge type: Pressure gauge, Vacuum gauge, Compound gauge

Scale: kg/cm², bar, kpa, mpa, psi

Case: chrome-plated steel

Lens: Acrylic

Pointer: Aluminum

Tubing: Brass or stainless steel AISI 316

Movement: Stainless steel AISI 304

Connection: Brass or stainless steel 304, 316

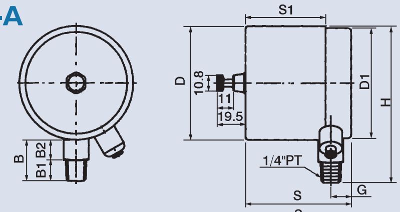
Accuracy: ±1.5% F.S

PRESSURE GAUGE WITH ELECTRIC CONTACT

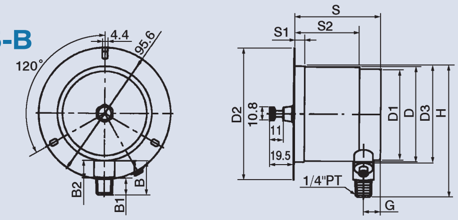
Dimensions

Unit: mm

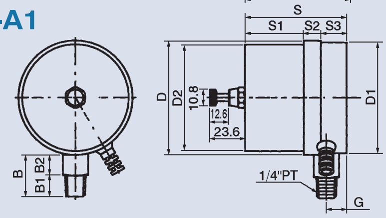
EPG-75-A



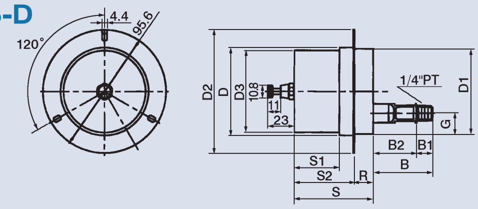
EPG-75-B



EPG-75-A1

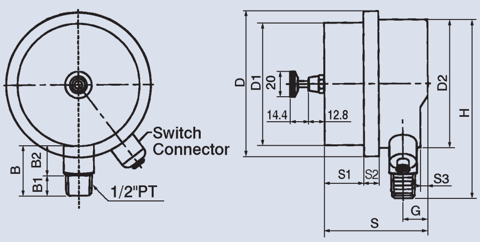


EPG-75-D

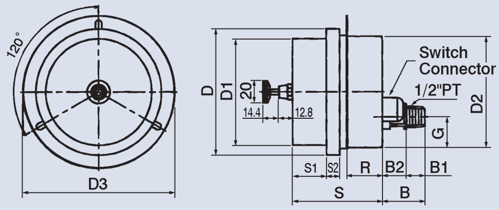


Model	D	D1	D2	D3	B	B1	B2	S	S1	S2	S3	R	G	H	Weight (kg)
EPG-75-A	77.6	74.8	-	-	28	14	14	71.5	54.1	-	-	-	13.8	106.2	0.5
EPG-75-A1	77.2	74.8	71.6	-	28	14	14	69.4	39.5	11.5	17.4	18.0	13.7	-	0.6
EPG-75-B	77.6	74.8	108	78.6	28.2	14	14.2	71	8.2	53	-	-	13.8	106.2	0.6
EPG-75-D	77.6	74.8	108	72	46	14	32.5	69.3	39.5	52.7	-	16.6	18.2	-	0.6

EPG / IPG-100-A

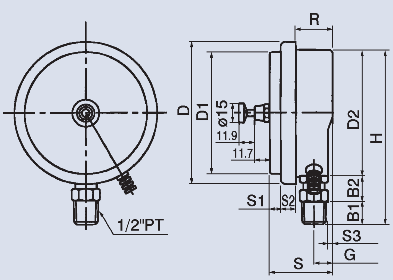


EPG / IPG-100-D

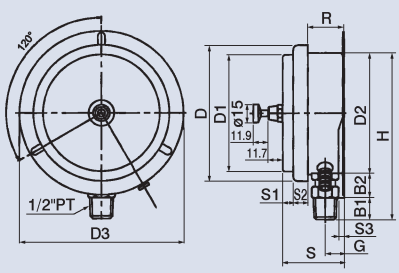


Model	D	D1	D2	D3	B	B1	B2	S	S1	S2	S3	R	G	H	Weight (kg)
EPG-100-A IPG-100-A	115	97	101.6	-	34	16	18	82	31	12	6	-	20	141.5	0.86
EPG-100-D IPG-100-D	115	97	101.6	138.8	39	17	22	82	31	12	-	31.8	28	-	1

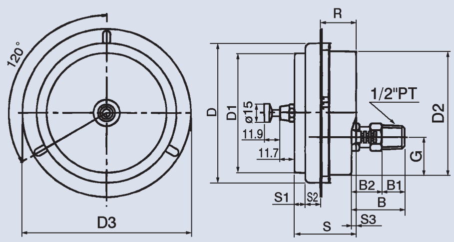
EEPG-100-A



EEPG-100-B

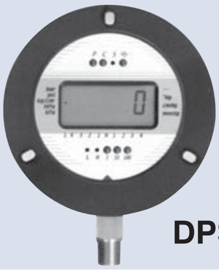


EEPG-100-D

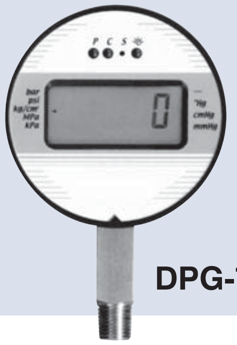


Model	D	D1	D2	D3	B	B1	B2	S	S1	S2	S3	R	G	H	Weight(kg)
EEPG-100-A	111	95.2	98.4	-	-	18	24	49	8.5	12	3.5	28.5	14.5	136	0.8
EEPG-100-B	111	95.2	98.4	133.8	-	18	24	49	8.5	12	3.5	28.5	14.5	136	0.8
EEPG-100-D	111	95.2	98.4	133.8	42	18	24	49	8.5	12	3.5	28.5	30	-	0.8

DIGITAL PRESSURE GAUGE / SWITCH / TRANSDUCER



DPS-75



DPG-75

PT-75

How to order

DPG	75	A120	(200) or 15	N	L	N	B	1(DPS/PT)	1(DPS only)
1	2	3	4	5	6	7	8	9	10

1 Model DPG: Digital pressure gauge DPS: Digital pressure switch PT: Pressure transducer / transmitter (using D24 power only)

2 Dial diameter 75: 3"

3 Power

D24: 5~24 Volts DC input (2-wire wiring / 1.5 meters)

A120: 100~120 Volts AC adapter (included) + D24

A240: 220~240 Volts AC adapter (included) + D24

4 Pressure ranges (psi) / kg/cm^2 V: Vacuum

0~15: (15) / 1	0~30: (30) / 2	0~40: (40) / 3	0~60: (60) / 4	0~100: (100) / 7	0~140: (140) / 10
0~200: (200) / 15	0~280: (280) / 20	0~350: (350) / 25	0~500: (500) / 35	0~570: (570) / 40	0~700: (700) / 50
0~1000: (1.0K) / 70	0~1400: (1.4K) / 100	0~2100: (2.1K) / 150	0~2800: (2.8K) / 200	0~3500: (3.5K) / 250	0~4200: (4.2K) / 300
0~5000: (5.0K) / 350	0~5700: (5.7K) / 400	0~7000: (7.0K) / 500	0~8500: (8.5K) / 600	0~10000: (10K) / 700	0~15000: (15K) / 1000

5 Type of connection Standard: PT1/4" N: NPT P: PT (BSPT) B: BSP (PF)

6 Type of mounting L: Lower mount B: Lower back mount

7 Flange N: Without front flange F: With front flange

8 Default engineering unit

B: bar	P: psi	K: kg/cm^2	M: MPa	A: kPa
1: "Hg	2: cmHg	3: mmHg		

9 Output signal (PT only) High setting points/contacts (DPS only)

1: 4~20 mA	2: 0~5 VDC	0: None	1: 1 High	2: 2 Highs
3: 0~10 VDC		3: 3 Highs	4: 4 Highs	

10 Low setting points/contacts (DPS only)

0: None	1: 1 Low	2: 2 Lows	3: 3 Lows	4: 4 Lows

DIGITAL PRESSURE GAUGE / SWITCH / TRANSDUCER

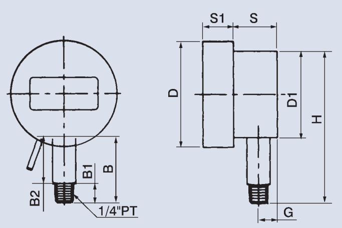
Specifications

Model	DPG-75	DPS-75	PT-75
Accuracy	±1% Full scale		
Diameter	3 inches (78mm)		
Temperature Ranges	Operating/Medium: 14° ~ 392 °F / -10°~200 °C Storage: 14° ~ 122 °F / -10° ~ 50 °C Ambient: 14° ~ 167 °F / -10° ~ 75 °C		
Pressure Ranges	Negative (Vacuum) and Positive through 0~15000PSI		
Burst Pressure	30% Full scale		
Engineering Units	Vacuum bar, "Hg, cmHg, mmHg Positive bar, psi, kg/cm², MPa, kPa		
LCD Display	5-1/2 Digits LCD, Blue backlit-0.5 inches high		
Connection	Standard 1/4" PT		
Rower Requirement	1.Input 100~120 VAC Adapter @ 60 Hz with output 5 VDC @ 1000 mA (included), or 2.Input 220~240 VAC Adapter @ 50 Hz with output 5 VDC @ 1000 mA (included), or 3.Input 5~24 VDC 2-wire wiring (1.5 meters)		Input 24 VDC 3-wire
Wetted parts	Standard brass or optional stainless steel AISI 304/316		
Case Material	ABS Plastic with black lacquered		
High Pressure Capture	Standard		
Face Membrane	Tactile feedback raised buttons		
Field Calibration	Zero adjustment		
Output Signal	N / A	5 VDC, 3~9 wires wiring (1.5 meters) depending on numbers of setting points/contacts purchased	1. Analog 4~20mA, 3-wire, or 2. 0~5 VDC, 3-wire, or 3. 0~10 VDC, 3-wire
Functional Relay	N / A	1~8 Setting points/contacts depending on numbers of setting points/contacts purchased input 24 VDC required	N / A
Pressure Setting Points Contacts	N / A	1~4 Highs 1~4 Lows Standard 1 High or low	N / A

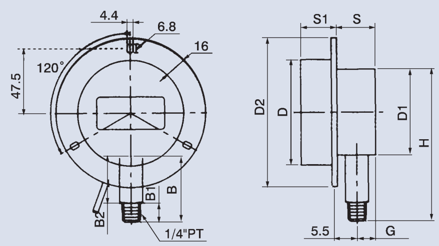
Dimensions

Unit: mm

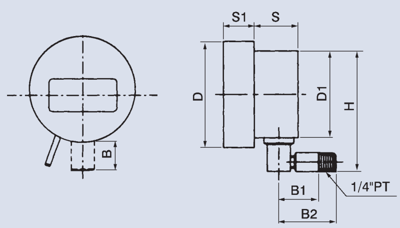
DPG/DPS/PT-75 Lower Mount



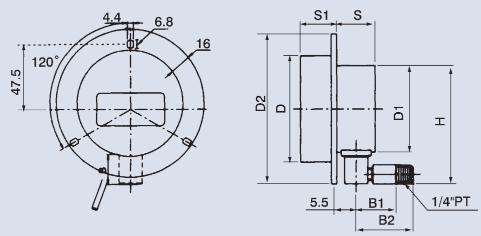
DPG/DPS/PT-75 Lower Mount With Flange



DPG/DPS/PT-75 Lower Back Mount



DPG/DPS/PT-75 Lower Back Mount With Flange



Model	D	D1	D2	B	B1	B2	S	S1	G	H	Weight (kg)		
											DPG-75	DPS-75	PT-75
DPG/DPS/PT-75 Lower Mount	78	63.7	-	49	14	35	32.2	22.6	14	112.4	0.4	0.5	0.4
DPG/DPS/PT-75 Lower Mount With Flange	78	63.5	110	49	14	35	28.3	26.7	14	112.3	0.41	0.51	0.41
DPG/DPS/PT-75 Lower Back Mount	78	63.5	-	22	29.5	42	32.2	22.6	14	112.4	0.4	0.5	0.4
DPG/DPS/PT-75 Lower Back Mount With Flange	78	63.5	110	22	29.5	42	28.3	26.7	14	112.3	0.41	0.51	0.41