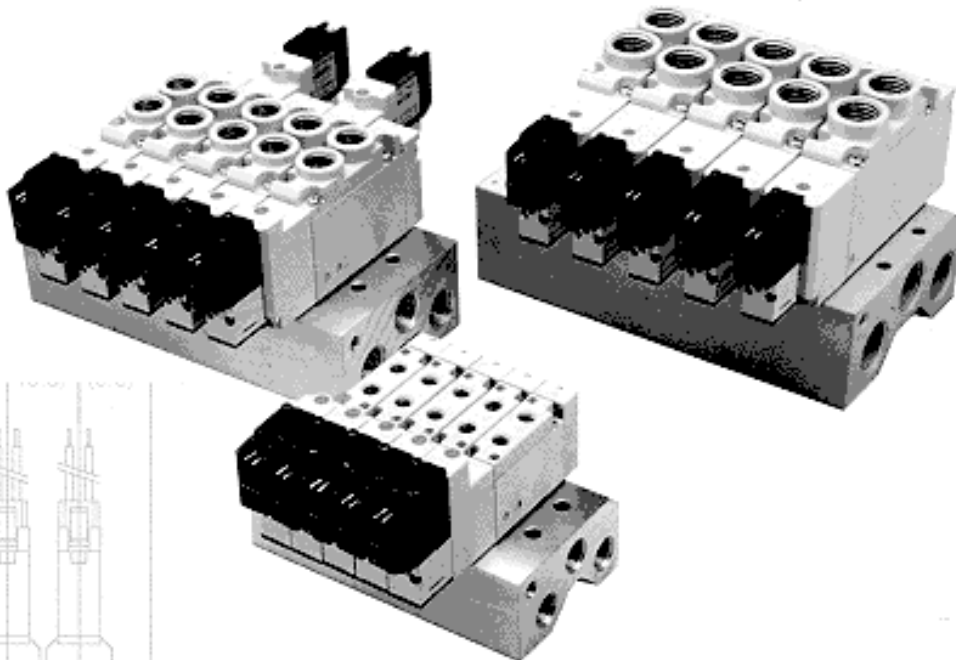
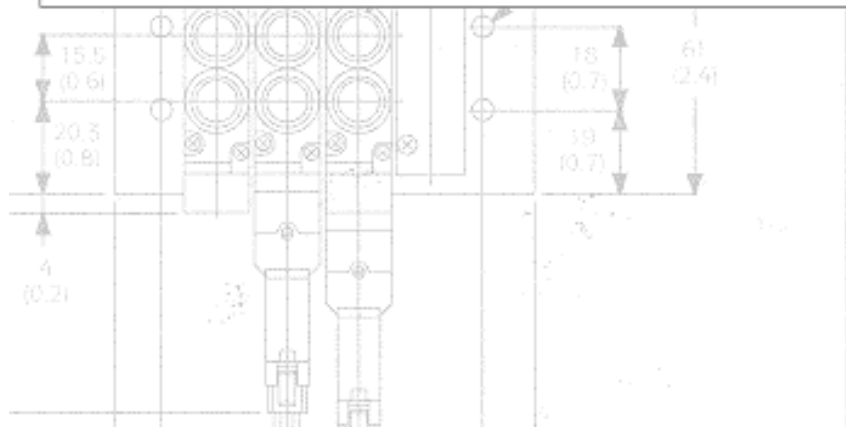


**HUMPHREY HGF SERIES PNEUMATIC CONTROL VALVES**



- Two or three position, four way valves
- Compact size
- Three flow rates (Cv = 0.28, 0.56, 1.00)
- Low power consumption (0.5w on DC, 1.0w on AC)
- Long life
- LED standard
- Locking and non locking override standard
- Externally piloted valves or vacuum valves also available

## HGF SERIES

The new HGF Series Pneumatic Solenoid Valves offer the OEM or end user a combination of a simple, reliable valve design and state of the art performance, outstanding versatility and long life.

Two or three position 4-way valves in three sizes are available with overrides, LEDs as standard and inline or manifold mounting.



## HIGH FLOW

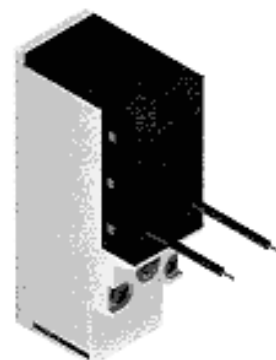
High flow design. The HGF Series has more than twice the flow of comparably sized valves.

The flow path has been maximized to achieve a Cv of 0.28 in a 10mm body, 0.56 in 15mm, and 1.0 in 18mm.



## LOW POWER

Power consumption on the HGF Series is 0.5 watts for DC operation and 1.0 watts for AC operation. Low power consumption provides for smaller, more economical power supplies, or more solenoids operated off of the same power supply. Battery operated, portable devices are also possible.



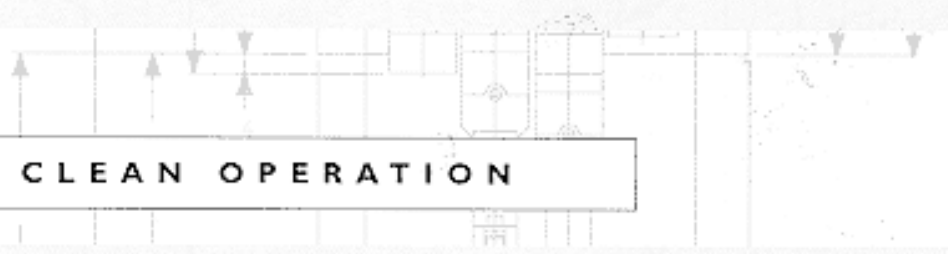
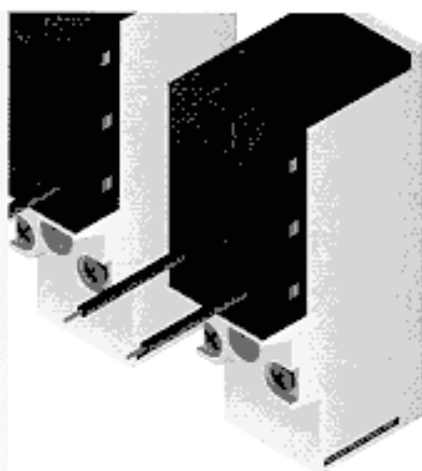


## SET UP AND TROUBLESHOOTING

Every HGF valve is offered with two manual overrides on different surfaces for easy manual operation during machine set up or troubleshooting.

LEDs are standard equipment and act as visual indicators of solenoid actuation.

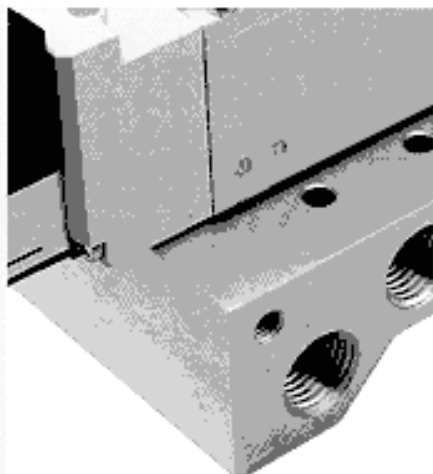
Pneumatic tubing connections do not have to be disturbed if valves are changed.



## CLEAN OPERATION

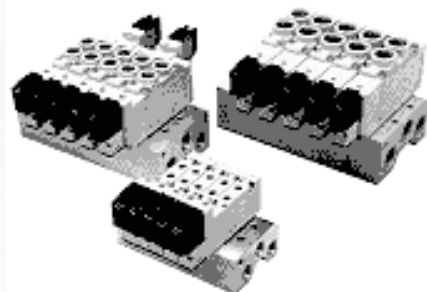
More manufacturing facilities are demanding cleaner pneumatic products and complete control of the exhausting compressed air . . . . including facilities such as clean rooms.

Exhausting air from the primary exhaust, *and from the pilot exhaust*, on HGF Series manifold or subbase mounted valves can be piped away.

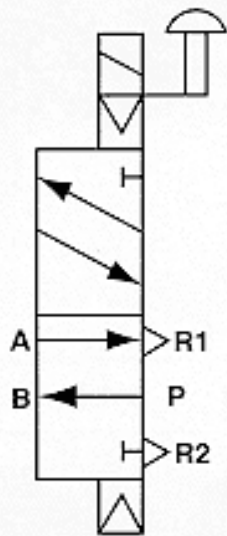


## THE TOTAL PACKAGE

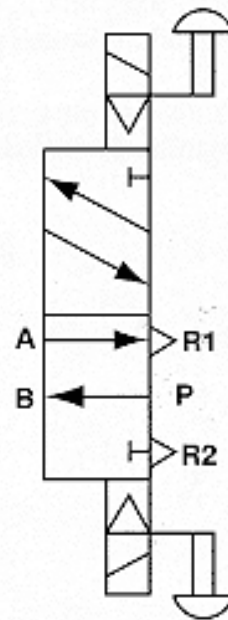
- State of the art performance: high flow, low power, small size, low cost.
- Clean lines and a lighter, attractive appearance enhance the look of your finished product.
- Many mounting and function options to choose from.



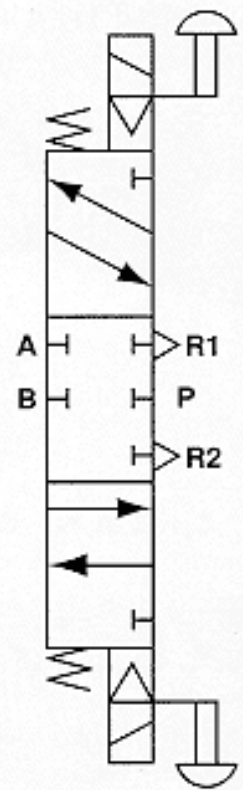
### SINGLE SOLENOID



### DOUBLE SOLENOID



### THREE POSITION, DOUBLE SOLENOID



### MANIFOLD MOUNT

Both two and three position valves can be mounted onto manifolds that are available in two through twenty stations. All exhausting air from the valves through the manifold can be captured and piped away.

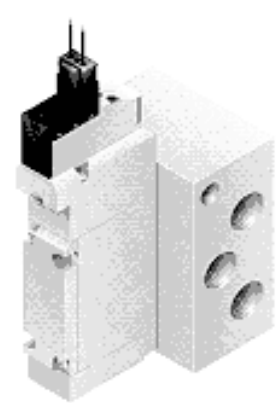
Delivery port plates and blocking plates on the valves and on the manifolds are interchangeable, adding to the versatility of the HGF Series.

- Purchase delivery port plates on the manifold as standard, and select manifold mount valves (all piping ports in manifold) to achieve easy serviceability, and horizontal piping.
- Or exchange blocking plates on the manifold and delivery port plates on the valves for vertical piping and space saving.



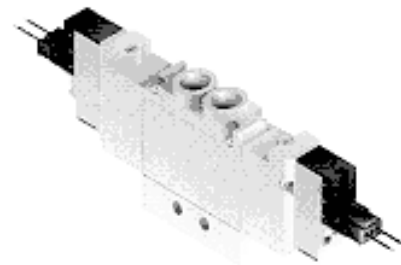
### SUBBASE MOUNTED VALVES

Mounting the manifold type valve to a single station subbase provides manifold benefits in single valve applications.



### INLINE VALVES

The base valve can be ordered with an input port block for inline valve functions.

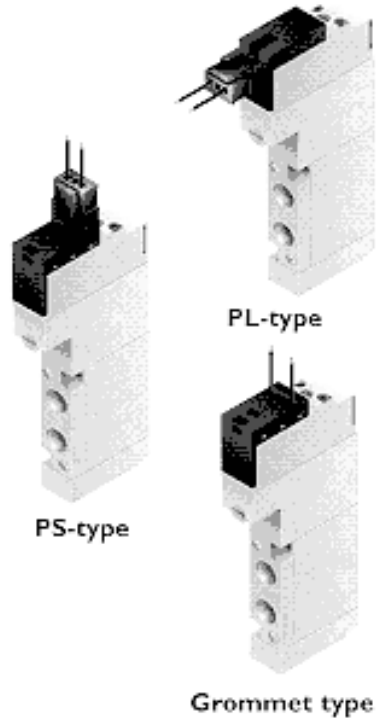


### ELECTRICAL OPTIONS

There are three electrical connection options:

- PS-type: straight connector (300 mm or 3000 mm lead wires).
- PL-type: vertical connector (300 mm or 3000 mm lead wires).
- Grommet type: lead wires (300 mm length).

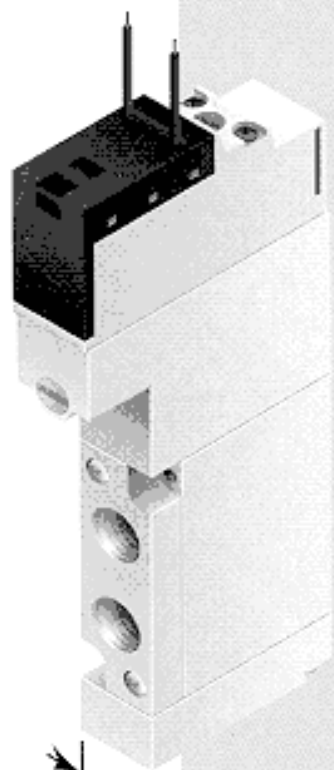
All three have LED, standard.



# HGF SERIES

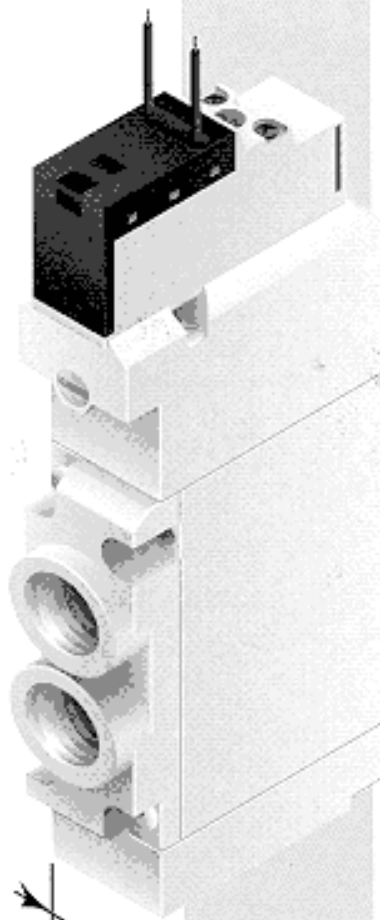
HGF Series . . . State of the Art size, flow, power consumption and value, in the operation of air cylinders and actuators in bore sizes to 4 inches.

Model  
HGF10T1



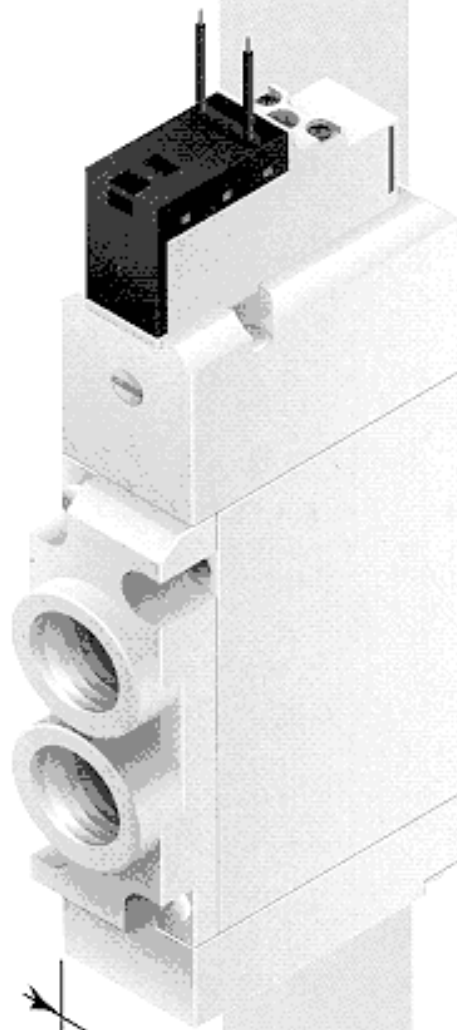
Size 10 mm

Model  
HGF15T1



Size 15 mm

Model  
HGF18T1



Size 18 mm

Flow 0.28 Cv

Flow 0.56 Cv

Flow 1.00 Cv

Power 0.5 watt

Power 0.5 watt

Power 0.5 watt

**Basic mode**

**HGF□T1**

**HGF□T2**

**HGF□T3**

Type  
Number of positions  
Number of ports  
Valve function

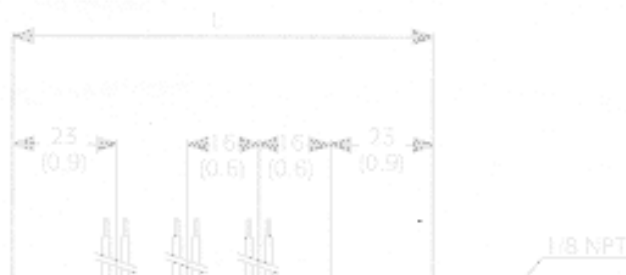
4-way  
2  
5  
single solenoid

4-way  
2  
5  
double solenoid

4-way  
3  
5  
double solenoid  
block center

□ = Specify 10, 15, or 18 mm size.

manual override



## Specifications

	HGF10			Models HGF15			HGF18		
	T1	T2	T3	T1	T2	T3	T1	T2	T3
<b>Media</b>	Air or Inert Gases (for vacuum see note)								
<b>Flow - Cv</b>	0.28	0.28	0.25	0.56			1.00		
<b>On/Off Response time - ms:</b>									
<b>DC</b>	15/20	15/20	15/30	20/35	20/35	15/50	30/50	30/50	20/70
<b>AC</b>	15/15	15/15	15/25	20/25	20/25	15/40	25/40	25/40	20/60
<b>Port threads</b>	10-32			1/8 NPT			1/4 NPT		
<b>Pressure range PSI</b>	30 - 100			20 - 100			20 - 100		
<b>Maximum cycles/second</b>	5								
<b>Operating temperature F° (C°)</b>	40 - 122 (5 - 50)								
<b>Mounting direction</b>	Unrestricted								
<b>Operation (see notes)</b>	Internal pilot								
<b>Shock resistance G</b>	60, or in stem direction 30.0								
<b>Filtration</b>	40 micron recommended								
<b>Lubrication</b>	Not required, but if needed, use turbine oil type 1 (ISO VG32 or equivalent, or lithium grease)								
<b>Major materials</b>	Plastic, Diecast aluminum, buna, magnetic stainless steel, aluminum								

**Note:** For low body pressure applications, specify external pilot option (code G, ex HGF10T1G). Body pressure range is 0 - 100 psi and external pilot pressure range is 30 - 100 psi.

**Note:** For vacuum pressure applications, specify vacuum option (code V, ex HGF10T1V). Body pressure range is 28"Hg - 20 psi and external pilot pressure range is 30 - 100 psi.

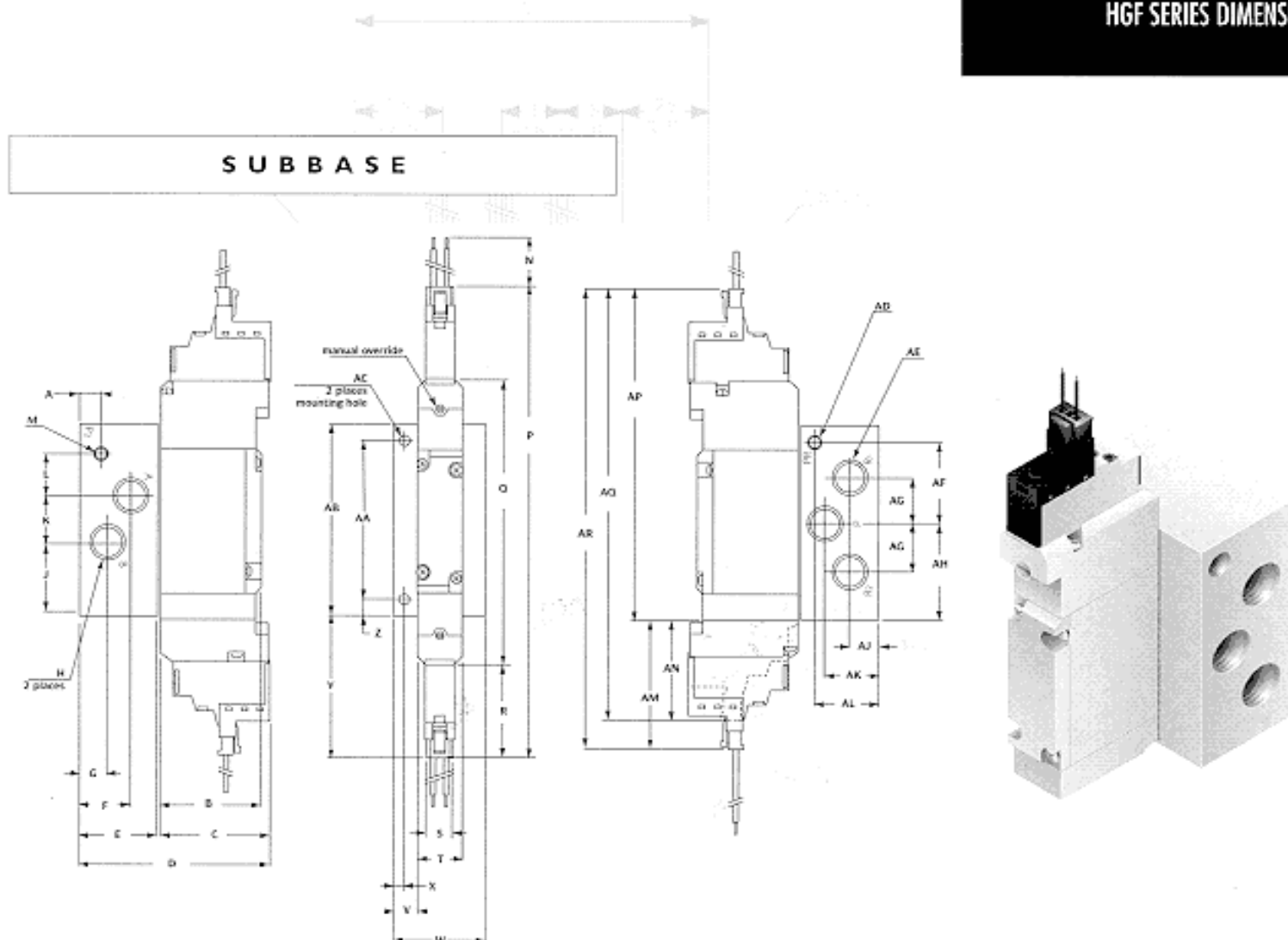


## Electrical specifications

	12VDC	24VDC	120 VAC*	240 VAC*
<b>Operating voltage range (V)</b>	10.8 - 13.2 (12 ± 10%)	21.6 - 26.4 (24 ± 10%)	108 - 132 (120 ± 10%)	216 - 264 (240 ± 10%)
<b>Rated frequency (Hz)</b>	-	-	50	60
<b>Current (at rated voltage) (mA (r.m.s.))</b>	42	21	11	8
<b>Power consumption</b>	0.5W		1.1VA	1.6VA
<b>Allowable circuit current leak (mA)</b>	1.0		1.0	
<b>Lead wire color</b>	Red (+), Black (-)		Yellow	White
<b>Surge suppressor</b>	Flywheel diode		Full wave bridge rectifier	
<b>LED indicator color</b>	Red			
<b>Insulation resistance (MΩ)</b>	Minimum 100			
<b>Wiring method and lead wire length</b>	Grommet type: 300 mm Plug connector type: 300 mm, 3000 mm			

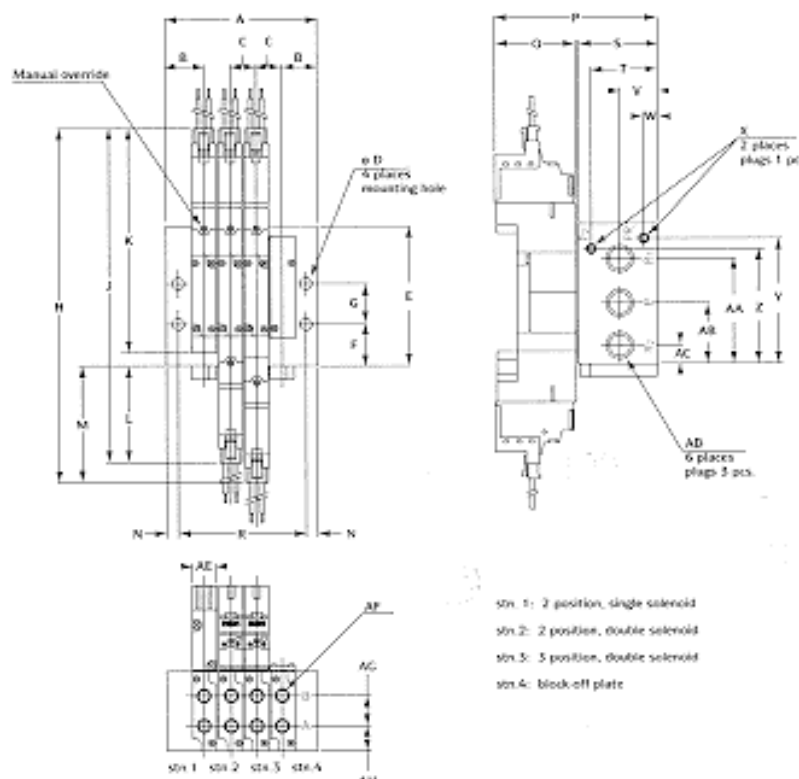
**\*Note:** Valves with AC voltages have full wave bridge rectifier. Therefore, inrush current and holding current are identical. When valves with AC voltages are energized for long periods of time, please contact the factory. When valves with AC voltages are in operation, make sure to maintain ambient temperatures within catalog specifications.



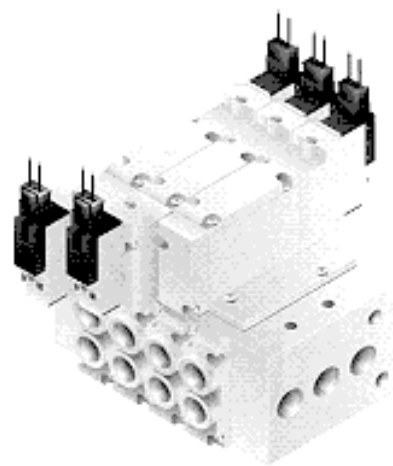


mm (in)	A	B	C	D	E	F
HGF10	6 (0.23)	24 (0.94)	33 (1.30)	57.5 (2.26)	24 (0.94)	14.5 (0.57)
HGF15	7.5 (0.30)	32 (1.26)	35 (1.38)	60.5 (2.38)	25 (0.98)	17 (0.67)
HGF18	19 (0.75)	35.5 (1.40)	37 (1.46)	67.5 (2.66)	30 (1.18)	24 (0.94)
	G	H	I	K	L	M
HGF10	7.5 (0.30)	1/8 NPT	18.8 (0.74)	12.4 (0.49)	9.7 (0.38)	10-32
HGF15	9 (0.35)	1/8 NPT	23.5 (0.93)	12 (0.47)	12 (0.47)	10-32
HGF18	10 (0.39)	1/4 NPT	23.5 (0.93)	20 (0.79)	16.5 (0.65)	10-32
	N	P	Q	R	S	T
HGF10	300 (11.81)	138.4 (5.45)	78 (3.07)	30.2 (1.19)	10 (0.39)	10 (0.39)
HGF15	300 (11.81)	158.4 (5.84)	89 (3.50)	29.7 (1.17)	10 (0.39)	15 (0.59)
HGF18	300 (11.81)	171.4 (6.75)	112 (4.41)	29.7 (1.17)	10 (0.39)	18 (0.71)
	V	W	X	Y	Z	AA
HGF10	8 (0.32)	25 (0.98)	3 (0.12)	48.2 (1.90)	3 (0.12)	44 (1.73)
HGF15	7.5 (0.30)	30 (1.18)	3.5 (0.14)	43.2 (1.70)	6 (0.24)	50 (1.97)
HGF18	8 (0.32)	34 (1.34)	3.5 (0.14)	55.7 (2.19)	6 (0.24)	60 (2.36)
	AB	AC	AD	AE	AF	AG
HGF10	50 (1.97)	3.2 (0.13)	10-32	1/8 NPT	19.5 (0.77)	11 (0.43)
HGF15	62 (2.44)	3.4 (0.13)	10-32	1/8 NPT	26 (1.02)	15 (0.59)
HGF18	72 (2.83)	4.5 (0.18)	10-32	1/4 NPT	31 (1.22)	20 (0.79)
	AH	AJ	AK	AL	AM	AN
HGF10	25 (0.98)	7.5 (0.30)	16.5 (0.65)	19 (0.75)	48.2 (1.90)	40.2 (1.58)
HGF15	31 (1.22)	9 (0.35)	17 (0.67)	20 (0.79)	53.2 (2.09)	43.2 (1.70)
HGF18	36 (1.42)	15 (0.59)	20 (0.79)	25 (0.98)	55.7 (2.19)	43.7 (1.72)
	AP	AQ	AR			
HGF10	88.2 (3.47)	130.4 (5.13)	138.4 (5.45)			
HGF15	106.2 (4.18)	148.4 (5.83)	158.4 (6.24)			
HGF18	117.2 (4.61)	159.4 (6.28)	171.4 (6.75)			

## A TYPE MANIFOLD



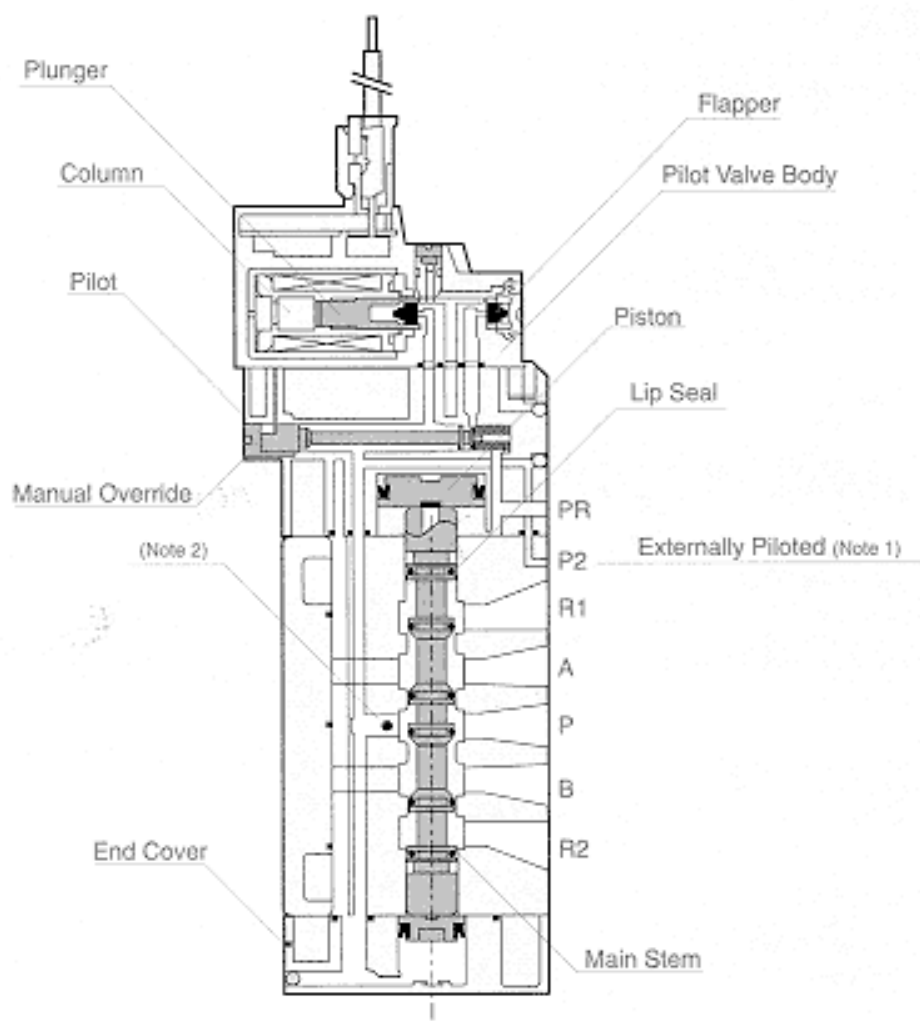
- Sta 1: 2 position, single solenoid
- Sta 2: 2 position, double solenoid
- Sta 3: 3 position, double solenoid
- Sta 4: block-off plate



mm (in)	B	C	D	E	F	G
HGF10	14 (0.55)	10.5 (0.41)	4.5 (0.18)	56 (2.20)	16.5 (0.65)	16 (0.63)
HGF15	16 (0.63)	16 (0.63)	4.5 (0.18)	64 (2.52)	22.5 (0.89)	18 (0.71)
HGF18	19 (0.75)	19 (0.75)	4.5 (0.18)	77 (3.03)	25 (0.98)	23 (0.91)
	H	I	K	L	M	N
HGF10	138.4 (5.45)	130.4 (5.13)	88.2 (3.47)	36.7 (1.44)	44.7 (1.76)	4 (0.16)
HGF15	158.4 (6.24)	148.4 (5.83)	106.2 (4.18)	42.7 (1.68)	52.7 (2.07)	4 (0.16)
HGF18	171.4 (6.75)	159.4 (6.28)	117.2 (4.61)	42.7 (1.68)	54.7 (2.15)	5 (0.19)
	P	Q	S	T	V	W
HGF10	65.5 (2.58)	33 (1.30)	32 (1.26)	26 (1.02)	16 (0.63)	6 (0.24)
HGF15	81.5 (3.21)	35 (1.38)	46 (1.81)	38 (1.50)	23 (0.91)	9 (0.35)
HGF18	89 (3.50)	35.5 (1.40)	53 (2.09)	40 (1.57)	25 (0.98)	11 (0.43)
	X	Y	Z	AA	AB	AC
HGF10	10-32 UNF	50 (1.97)	50 (1.97)	41 (1.61)	24.5 (0.96)	8 (0.32)
HGF15	10-32 UNF	58 (2.28)	54.5 (2.15)	50 (1.97)	30 (1.18)	10 (0.39)
HGF18	10-32 UNF	70 (2.76)	65 (2.56)	61 (2.40)	36.5 (1.44)	12 (0.47)
	AD	AE	AF	AG	AH	
HGF10	1/8 NPT	10 (0.39)	10-32 UNF	11.8 (0.46)	10.1 (0.40)	
HGF15	1/4 NPT	15 (0.59)	1/8 NPT	15.5 (0.61)	15.3 (0.60)	
HGF18	3/8 NPT	18 (0.71)	1/4 NPT	19 (0.75)	17 (0.67)	

Number of Stations	HGF10		HGF15		HGF18	
	A	R	A	R	A	R
2	38.5 (1.52)	30.5 (1.20)	48 (1.89)	40 (1.57)	57 (2.24)	47 (1.85)
3	49 (1.93)	41 (1.61)	64 (2.52)	56 (2.20)	76 (2.99)	66 (2.60)
4	59.5 (2.34)	51.5 (2.03)	80 (3.15)	72 (2.80)	95 (3.74)	85 (3.35)
5	70 (2.76)	62 (2.44)	96 (3.78)	88 (3.46)	114 (4.49)	104 (4.09)
6	80.5 (3.17)	72.5 (2.85)	112 (4.41)	104 (4.09)	133 (5.24)	123 (4.84)
7	91 (3.58)	83 (3.27)	128 (5.04)	120 (4.72)	152 (5.98)	142 (5.59)
8	101.5 (4.00)	93.5 (3.68)	144 (5.67)	136 (5.35)	171 (6.73)	161 (6.34)
9	112 (4.41)	104 (4.09)	160 (6.30)	152 (5.98)	190 (7.48)	180 (7.09)
10	122.5 (4.82)	114.5 (4.51)	176 (6.93)	168 (6.61)	209 (8.23)	199 (7.83)
11	133 (5.24)	125 (4.92)	192 (7.56)	184 (7.24)	228 (8.98)	218 (8.58)
12	143.5 (5.65)	135.5 (5.33)	208 (8.19)	200 (7.87)	247 (9.72)	237 (9.33)
13	154 (6.06)	146 (5.75)	224 (8.82)	216 (8.50)	266 (10.47)	256 (10.08)
14	164.5 (6.48)	156.5 (6.16)	240 (9.45)	232 (9.13)	285 (11.22)	275 (10.83)
15	175 (6.89)	167 (6.57)	256 (10.08)	248 (9.76)	304 (11.97)	294 (11.57)
16	185.5 (7.30)	177.5 (7.00)	272 (10.71)	264 (10.39)	323 (12.72)	313 (12.32)
17	196 (7.72)	188 (7.40)	288 (11.34)	280 (11.02)	342 (13.46)	332 (13.07)
18	206.5 (8.13)	198.5 (7.81)	304 (11.97)	296 (11.65)	361 (14.21)	351 (13.82)
19	217 (8.54)	209 (8.23)	320 (12.60)	312 (12.28)	380 (14.96)	370 (14.57)
20	227.5 (8.96)	219.5 (8.64)	336 (13.23)	328 (12.91)	399 (15.71)	389 (15.31)

## PARTS IDENTIFICATION



Note 1: For externally piloted type only.

Note 2: Externally piloted type does not contain this portion.

### Material

#### Valve

Part name	Part material
Valve body	Aluminum die cast
Pilot valve body	Plastic
Main stem	Aluminum alloy
Lip seal	Synthetic rubber
Flapper	Synthetic rubber
Plunger	Electro-magnet stainless steel
Column	Electro-magnet stainless steel
Piston	Plastic
Manual override	Plastic
Pilot	Plastic
End cover	Plastic

#### Manifold

Part name	Part material
Solid body type	Aluminum alloy (Almite treated)
Separate body type	Plastic
Block off plate	Soft steel (Nickel plated)
Packing	Synthetic rubber

# HGF SERIES HOW TO ORDER

## ORDER CODE, HGF VALVES

HGF 10 T1 G - 80 - FM - PS - 24VDC (order example)

AVAILABLE VOLTAGES  
12VDC, 24VDC,  
120VAC, 240VAC

### ELECTRICAL CONNECTIONS

No Code: Greenet w/LED  
PS: Straight Type Plug-In w/LED, 300 mm lead length  
PL: L-Type Plug-In w/LED, 300 mm lead length  
PS3: Straight Plug-In w/LED, 3000 mm lead length  
PL3: L-Type Plug-In w/LED, 3000 mm lead length

### PORT OPTIONS

No code: Basic valve  
F4: Inline valve mount (with input port block)  
A1: A-Type manifold mount

### OVERRIDE

80: Non-Locking recessed

### BASIC OPTIONS

No code: Standard valve  
G: Externally piloted valve (low pressure)  
V: Vacuum

### BODY TYPE

T1: Two position, single solenoid  
T2: Two position, double solenoid  
T3: Three position, double solenoid, closed center position

### VALVE SIZE

10: 10mm width, 0.28 Cv flow  
15: 15mm width, 0.56 Cv flow  
18: 18mm width, 1.00 Cv flow

## ORDER CODE, HGF BLOCK OFF PLATE

HGF 10 BP (order example)

### VALVE SIZE

10: 10mm width, 0.28 Cv flow  
15: 15mm width, 0.56 Cv flow  
18: 18mm width, 1.00 Cv flow

Underlined and bold option codes = delivery from stock

## ORDER CODE, HGF MANIFOLDS

HGF 10 M 6 AM G (order example)

VALVE PILOT CONNECTION  
No code: Internal Pilot  
G: External Pilot

MANIFOLD TYPE: AM

### NUMBER OF STATIONS

Choose from 2 thru 20 stations.  
**(4, 6, 8, 10, and 12 in stock)**

M: Manifold

### CORRESPONDING VALVE SIZE

10: 10mm width, 0.28 Cv flow  
15: 15mm width, 0.56 Cv flow  
18: 18mm width, 1.00 Cv flow

## ORDER CODE, HGF PARTS

HGF 10Z G - 25 (order example)

### PART

25: Single station subbase  
P: Blank valve plate  
M: Ported valve plate  
MP: Inline input port block  
GS1: Valve to manifold gasket

### VALVE PILOT CONNECTION

No code: Internal pilot  
G: External Pilot

### CORRESPONDING VALVE SIZE

10: 10mm width, 0.28 Cv flow  
15: 15mm width, 0.56 Cv flow  
18: 18mm width, 1.00 Cv flow

