High Pressure Equipment

Air Operated Valves

High Pressure Equipment Company offers five lines of air operators to accommodate remote operation of pressure valves up to 100,000 psi. Various models of diaphragm and piston operated valves are available in both normally open and normally closed models, and can be controlled by air regulator, electrical solenoid or low pressure manual valve. The Remetco line of air operated metering valves provides remote operation for fine metering applications.



Index

	Page
Mini-Hippo Piston Air Operators	7.1.5
Hipco Diaphragm Air Operators	7.2
Remarco Diaphragm Air Operators	7.3
Hippo Piston Air Operators	7.3.5
Remetco Piston Air Operated Fine Metering Valves	7.4

Mini-Hippo Piston Air Operators for Remote Operation

To 6,000 psi

Mini-Hippo Air Operators are available for both normally open service (spring to open/air to close) and for normally closed service (air to open/spring to close). These piston air operators provide remote automatic on/off operation of valves and can be controlled by means of an air regulator, an electrical solenoid, or a manual low pressure valve in the user's air supply line. Air inlet is $^1/_8$" NPT. Air pressure requirement ranges from 50 to 90 psi.

The Mini-Hippo air operators may be supplied with the valves and operating pressures shown in table.

To order simply specify catalog number of valve and type operation required.

EXAMPLES: Mini-Hippo 30-11HF4 (normally closed)
Mini-Hippo 10-12AF6 (normally open)
Mini-Hippo 10-15AF4 (normally open/ normally closed)

Normally Open (Spring To Open/Air To Close)

Valve Series	Maximum Operating Pressure	Approximate Air Pressure to Seat Valve
10-**AF2	6,000 psi	55 psi
10-**AF4	6,000 psi	55 psi
10-**AF6	6,000 psi	55 psi
30-**HF4	6,000 psi	55 psi
30-**HF6	6,000 psi	55 psi
30-**HF9	6,000 psi	55 psi

Normally Closed (Air To Open/Spring To Close)

Valve Series	Maximum Operating Pressure	Minimum Adjusting Screw Torque	Approximate Air Pressure to Unseat Valve	Approximate Air Pressure to Fully Open Valve
10-**AF4	6,000 psi	15 in. lb.	50 psi	90 psi
10-**AF6	6,000 psi	15 in. lb.	50 psi	90 psi
30-**HF4	6,000 psi	15 in. lb.	50 psi	90 psi
30-**HF6	6,000 psi	15 in. lb.	50 psi	90 psi
30-**HF9	6,000 psi	15 in. lb.	50 psi	90 psi

** Standard Valve Patterns (reference Page 1.4)

OPTIONS:

Stems & Seats . . . Carbide (for cyclic service)
Stellite (for cyclic service)
17-4 (for cyclic service)

Valve Bodies . . . . . Hastelloy C, Hastelloy B
Inconel 600, Inconel 625
Incoloy 800, Incoloy 825
Titanium Grade 2, Titanium 6AL4V
Nickel
Monel

Packing . . . . . PolyPak

Temperature Considerations . . . Extended stuffing box for temperatures from -423°F to 1,200°F (medium and high pressure connections only)

3" Diameter Piston Air Operators



Normally Open



Normally Closed

Hipco Diaphragm Air Operators for Remote Operation

To 60,000 psi

Hipco Air Operators are available for both normally open service (spring to open/air to close) and for normally closed service (air to open/spring to close). These diaphragm air operators provide remote automatic on/off operation of valves and can be controlled by means of an air regulator, an electrical solenoid, or a manual low pressure valve in the user's air supply line. Air inlet is ¼" NPT.

The Hipco air operators may be supplied with the valves and operating pressures shown in table.

To order simply specify catalog number of valve and type operation required.

EXAMPLES: Hipco 30-11HF4 (normally closed)
Hipco 10-12NFB (normally open)
Hipco 10-15AF4 (normally open/normally closed)

OPTIONS:

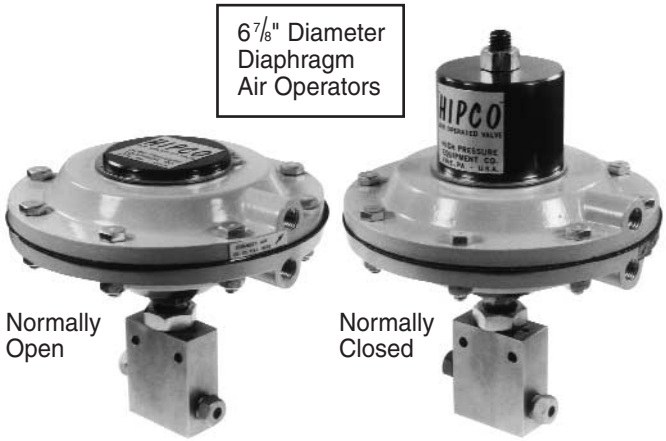
Stems & Seats . . . Carbide (for cyclic service)
Stellite (for cyclic service)
17-4 (for cyclic service)

Valve Bodies . . . . . Hastelloy C, Hastelloy B
Inconel 600, Inconel 625
Incoloy 800, Incoloy 825
Titanium Grade 2,
Titanium 6AL4V
Nickel
Monel

Packing . . . . . PolyPak

Temperature Considerations . . . Extended stuffing box for temperatures from -423°F to 1,200°F (medium and high pressure connections only)

6⅞" Diameter Diaphragm Air Operators



Normally Open (Spring To Open/Air To Close)

Valve Series	Maximum Operating Pressure	Approximate Air Pressure to Seat Valve
10-**AF4	10,000 psi	35 psi
10-**AF6	10,000 psi	35 psi
10-**NFA	10,000 psi	35 psi
10-**NFB	10,000 psi	35 psi
10-**NFC	10,000 psi	35 psi
15F-**NFA	15,000 psi	85 psi
15F-**NFB	15,000 psi	85 psi
15F-**NFC	10,000 psi	100 psi
15F-**NFD	10,000 psi	100 psi
20-**LF4	20,000 psi	60 psi
20-**LF6	15,000 psi	85 psi
20-**LF9	10,000 psi	100 psi
30-**HF4	30,000 psi	60 psi
30-**HF6	30,000 psi	85 psi
30-**HF9	30,000 psi	85 psi
40-**HF9	30,000 psi	85 psi
60-**HF4	60,000 psi	70 psi
60-**HF6	60,000 psi	70 psi
60-**HF9	60,000 psi	70 psi

Normally Closed (Air To Open/Spring To Close)

Valve Series	Maximum Operating Pressure	Minimum Adjusting Screw Torque	Approximate Air Pressure to Unseat Valve	Approximate Air Pressure to Fully Open Valve
10-**AF4	10,000 psi	20 in. lb.	30 psi	45 psi
10-**AF6	10,000 psi	20 in. lb.	30 psi	45 psi
10-**NFA	10,000 psi	20 in. lb.	30 psi	45 psi
10-**NFB	10,000 psi	20 in. lb.	30 psi	45 psi
10-**NFC	10,000 psi	20 in. lb.	30 psi	45 psi
15F-**NFA	15,000 psi	60 in. lb.	80 psi	100 psi
15F-**NFB	15,000 psi	60 in. lb.	80 psi	100 psi
15F-**NFC	10,000 psi	75 in. lb.	95 psi	100 psi
15F-**NFD	10,000 psi	75 in. lb.	95 psi	100 psi
20-**LF4	20,000 psi	40 in. lb.	55 psi	90 psi
20-**LF6	15,000 psi	60 in. lb.	80 psi	100 psi
20-**LF9	10,000 psi	75 in. lb.	95 psi	100 psi
30-**HF4	30,000 psi	40 in. lb.	55 psi	75 psi
30-**HF6	30,000 psi	60 in. lb.	80 psi	100 psi
30-**HF9	30,000 psi	60 in. lb.	80 psi	100 psi
40-**HF9	30,000 psi	60 in. lb.	80 psi	100 psi
60-**HF4	60,000 psi	50 in. lb.	65 psi	85 psi
60-**HF6	60,000 psi	50 in. lb.	65 psi	85 psi
60-**HF9	60,000 psi	50 in. lb.	65 psi	85 psi

** Standard Valve Patterns (reference Page 1.4)

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R4 2/02

Remarco Diaphragm Operated Valves for Remote Operation

To 100,000 psi

Remarco air operated valves are available for both normally open service (spring to open/air to close) and for normally closed service (air to open/spring to close). These diaphragm operated valves provide remote operation up to 100,000 psi by means of an air input supply ranging from 25 to 90 psi to the air actuator.

An electrical solenoid valve for the air supply is provided with all Remarco valves and is mounted directly to the valve. The standard solenoid is 120 volt, 60 cycle, 11 watts with 1/8" NPT air inlet. (Other voltages available at additional charge—consult factory). The solenoid is normally closed and when energized allows air into the diaphragm casing to activate the valve. In the event of an electrical or air line failure, the valve will return to its "normal" position.

The Remarco valve features removable stem seats. Valve bodies are 316 stainless steel. Valve stems are hardened 17-4PH stainless steel. Standard packing on the 30,000 psi and 60,000 psi Remarco valves is Teflon O-ring with Buna-N, Viton, or Silicone, available at no additional cost.

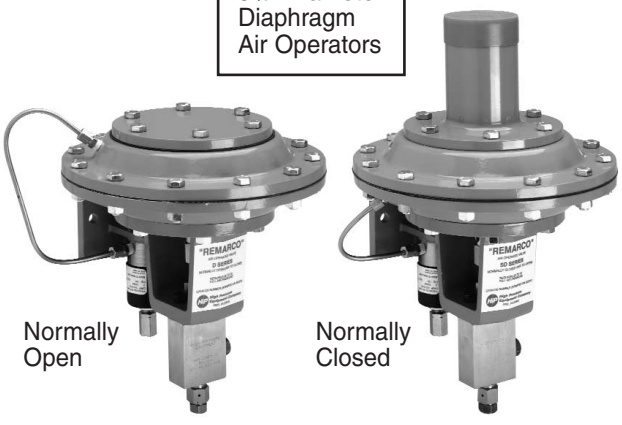
Normally Open (Spring To Open/Air To Close)

Valve Series	Maximum Operating Pressure	Approximate Air Pressure to Seat Valve	Orifice	Connections	Tubing Size	
					O.D.	I.D.
D10R12LF9R	10,000 psi	60 psi	1/4"	LF9	9/16"	5/16"
D20R12LF9R	20,000 psi	75 psi	1/4"	LF9	9/16"	5/16"
D30R12HF4R	30,000 psi	65 psi	1/8"	HF4	1/4"	.083"
D30R12HF6R	30,000 psi	65 psi	1/8"	HF6	3/8"	1/8"
D30R12HF9R	30,000 psi	65 psi	1/8"	HF9	9/16"	3/16"
D10R12HF9R	10,000 psi	60 psi	1/4"	HF9	9/16"	5/16"
D60R12HF4R	60,000 psi	55 psi	1/16"	HF4	1/4"	1/16"
D60R12HF6R	60,000 psi	55 psi	1/16"	HF6	3/8"	1/8"
D60R12HF9R	60,000 psi	55 psi	1/16"	HF9	9/16"	3/16"
D100R12XF4R	100,000 psi	90 psi	1/16"	XF4	1/4"	1/16"
D100R12XF6R	100,000 psi	90 psi	1/16"	XF6	3/8"	1/16"

Normally Closed (Air To Open/Spring To Close)

Valve Series	Maximum Operating Pressure	Lock Nut Torque Setting	Approximate Air Pressure to Unseat Valve	Approximate Air Pressure to Fully Open Valve	Orifice	Connections	Tubing Size	
							O.D.	I.D.
SD10R12LF9R	10,000 psi	20 ft. lb.	55 psi	90 psi	1/4"	LF9	9/16"	5/16"
SD20R12LF9R	20,000 psi	40 ft. lb.	70 psi	90 psi	1/4"	LF9	9/16"	5/16"
SD30R12HF4R	30,000 psi	20 ft. lb.	60 psi	75 psi	1/8"	HF4	1/4"	.083"
SD30R12HF6R	30,000 psi	20 ft. lb.	60 psi	75 psi	1/8"	HF6	3/8"	1/8"
SD30R12HF9R	30,000 psi	20 ft. lb.	60 psi	75 psi	1/8"	HF9	9/16"	3/16"
SD10R12HF9R	10,000 psi	20 ft. lb.	55 psi	90 psi	1/4"	HF9	9/16"	5/16"
SD60R12HF4R	60,000 psi	20 ft. lb.	50 psi	65 psi	1/16"	HF4	1/4"	1/16"
SD60R12HF6R	60,000 psi	20 ft. lb.	50 psi	65 psi	1/16"	HF6	3/8"	1/8"
SD60R12HF9R	60,000 psi	20 ft. lb.	50 psi	65 psi	1/16"	HF9	9/16"	3/16"
SD100R12XF4R	100,000 psi	30 ft. lb.	85 psi	100 psi	1/16"	XF4	1/4"	1/16"
SD100R12XF6R	100,000 psi	30 ft. lb.	85 psi	100 psi	1/16"	XF6	3/8"	1/16"

9 7/8" Diameter Diaphragm Air Operators



Normally Open

Normally Closed

OPTIONS:

Stems & Seats . . . Carbide (for cyclic service)
Stellite (for cyclic service)

Valve Bodies . . . . . Hastelloy C, Hastelloy B
Inconel 600, Inconel 625
Incoloy 800, Incoloy 825
Titanium Grade 2, Titanium 6AL4V
Nickel
Monel

Packing . . . . . PolyPak

Temperature Considerations . . . Extended stuffing box for temperatures from -423°F to 1,200°F (medium and high pressure connections only)



Hippo Piston Air Operators for Remote Operation

To 60,000 psi

Hippo Piston Air Operators are available for both normally open service (spring to open/air to close) and for normally closed service (air to open/spring to close). These piston air operators provide remote automatic on/off operation of valves and can be controlled by means of an air regulator, an electrical solenoid, or a manual low pressure valve in the user's air supply line. Air inlet is 1/8" NPT. Air pressure requirement ranges from 35 psi to 120 psi.

These operators may be supplied with the valves and operating pressures shown in table.

To order simply specify catalog number of valve and appropriate suffix of operator required.

EXAMPLES: Hippo 20-11LF4-MPO-NC (normally closed)
Hippo 20-12LF6-HPO-NO (normally open)

OPTIONS:

Stems & Seat . . . . . Carbide, ceramic or Stellite (for cyclic service)

Valve Bodies . . . . . Hastelloy C, Hastelloy B
Inconel 600, Inconel 625
Incoloy 800, Incoloy 825
Titanium Grade 2, Titanium 6AL4V
Nickel
Monel

Packing . . . . . PolyPak

Temperature Consideration . . . . . Extended stuffing box for temperatures from -423°F to 1,200°F (medium and high pressure connections only)

Normally Closed
(Air To Open/Spring To Close)

Medium Duty

Valve Series	Maximum Operating Pressure	Orifice Size	Minimum Adjusting Screw Torque	Approximate Air Pressure to Unseat Valve	Approximate Air Pressure to Fully Open	Part Number Suffix
10-**AF4	10,000 psi	1/8"	25 in.lb.	30 psi	40 psi	MPO-NC
10-**AF6	10,000 psi	1/8"	25 in.lb.	30 psi	40 psi	MPO-NC
15F-**NFA	15,000 psi	13/64"	45 in.lb.	55 psi	75 psi	MPO-NC
15F-**NFB	15,000 psi	13/64"	45 in.lb.	55 psi	75 psi	MPO-NC
15F-**NFC	10,000 psi	5/16"	55 in.lb.	70 psi	95 psi	MPO-NC
15F-**NFD	10,000 psi	5/16"	55 in.lb.	70 psi	95 psi	MPO-NC
20-**LF4	20,000 psi	1/8"	50 in.lb.	70 psi	95 psi	MPO-NC
20-**LF6	20,000 psi	13/64"	55 in.lb.	70 psi	95 psi	MPO-NC
20-**LF9	10,000 psi	5/16"	55 in.lb.	70 psi	95 psi	MPO-NC
30-**HF4	30,000 psi	3/32"	50 in.lb.	60 psi	75 psi	MPO-NC
30-**HF6	30,000 psi	1/8"	55 in.lb.	60 psi	75 psi	MPO-NC
30-**HF9	30,000 psi	1/8"	55 in.lb.	60 psi	75 psi	MPO-NC
60-**HF4	60,000 psi	1/16"	50 in.lb.	50 psi	65 psi	MPO-NC
60-**HF6	60,000 psi	1/16"	50 in.lb.	50 psi	65 psi	MPO-NC
60-**HF9	60,000 psi	1/16"	50 in.lb.	50 psi	65 psi	MPO-NC
Heavy Duty						
15F-**NFC	15,000 psi	5/16"	85 in.lb.	60 psi	75 psi	HPO-NC
15F-**NFD	15,000 psi	5/16"	85 in.lb.	60 psi	75 psi	HPO-NC
20-**LF4	20,000 psi	1/8"	55 in.lb.	35 psi	50 psi	HPO-NC
20-**LF6	20,000 psi	13/64"	60 in.lb.	35 psi	50 psi	HPO-NC
20-**LF9	16,000 psi	5/16"	85 in.lb.	60 psi	75 psi	HPO-NC
20-**LF12	9,000 psi	7/16"	85 in.lb.	60 psi	75 psi	HPO-NC
20-**LF16	6,000 psi	9/16"	85 in.lb.	60 psi	75 psi	HPO-NC
30-**HF4	30,000 psi	3/32"	50 in.lb.	30 psi	40 psi	HPO-NC
30-**HF6	30,000 psi	1/8"	55 in.lb.	30 psi	40 psi	HPO-NC
30-**HF9	30,000 psi	1/8"	55 in.lb.	30 psi	40 psi	HPO-NC
60-**HF4	60,000 psi	1/16"	50 in.lb.	25 psi	35 psi	HPO-NC
60-**HF6	60,000 psi	1/16"	50 in.lb.	25 psi	35 psi	HPO-NC
60-**HF9	60,000 psi	1/16"	50 in.lb.	25 psi	35 psi	HPO-NC
Extra Heavy Duty						
20-**LF12	20,000 psi	7/16"	60 ft.lb.	35 psi	60 psi	EHPO-NC
10-**NFF	10,000 psi	11/16"	75 ft.lb.	45 psi	70 psi	EHPO-NC
10-**NFH	10,000 psi	11/16"	75 ft.lb.	45 psi	70 psi	EHPO-NC
10-**LF16	10,000 psi	11/16"	75 ft.lb.	45 psi	70 psi	EHPO-NC
20-**LF16	20,000 psi	9/16"	95 ft.lb.	55 psi	95 psi	EHPO-NC
30-**LF16	30,000 psi	7/16"	90 ft.lb.	50 psi	85 psi	EHPO-NC

Normally Open
(Spring To Open/Air To Close)

Medium Duty

Valve Series	Maximum Operating Pressure	Orifice Size	Approximate Air Pressure to Seat Valve	Part Number Suffix
10-**AF4	10,000 psi	1/8"	35 psi	MPO-NO
10-**AF6	10,000 psi	1/8"	35 psi	MPO-NO
15F-**NFA	15,000 psi	13/64"	75 psi	MPO-NO
15F-**NFB	15,000 psi	13/64"	75 psi	MPO-NO
15F-**NFC	10,000 psi	5/16"	100 psi	MPO-NO
15F-**NFD	10,000 psi	5/16"	100 psi	MPO-NO
20-**LF4	20,000 psi	1/8"	95 psi	MPO-NO
20-**LF6	20,000 psi	13/64"	100 psi	MPO-NO
20-**LF9	10,000 psi	5/16"	100 psi	MPO-NO
20-**LF12	6,000 psi	7/16"	100 psi	MPO-NO
30-**HF4	30,000 psi	3/32"	60 psi	MPO-NO
30-**HF6	30,000 psi	1/8"	60 psi	MPO-NO
30-**HF9	30,000 psi	1/8"	60 psi	MPO-NO
60-**HF4	60,000 psi	1/16"	55 psi	MPO-NO
60-**HF6	60,000 psi	1/16"	55 psi	MPO-NO
60-**HF9	60,000 psi	1/16"	55 psi	MPO-NO
Heavy Duty				
15F-**NFC	15,000 psi	5/16"	75 psi	HPO-NO
15F-**NFD	15,000 psi	5/16"	75 psi	HPO-NO
20-**LF4	20,000 psi	1/8"	55 psi	HPO-NO
20-**LF6	20,000 psi	13/64"	55 psi	HPO-NO
20-**LF9	20,000 psi	5/16"	95 psi	HPO-NO
20-**LF12	13,000 psi	7/16"	100 psi	HPO-NO
20-**LF16	8,800 psi	9/16"	100 psi	HPO-NO
30-**HF4	30,000 psi	3/32"	35 psi	HPO-NO
30-**HF6	30,000 psi	1/8"	35 psi	HPO-NO
30-**HF9	30,000 psi	1/8"	35 psi	HPO-NO
60-**HF4	60,000 psi	1/16"	30 psi	HPO-NO
60-**HF6	60,000 psi	1/16"	30 psi	HPO-NO
60-**HF9	60,000 psi	1/16"	30 psi	HPO-NO
Extra Heavy Duty				
20-**LF12	20,000 psi	7/16"	55 psi	EHPO-NO
10-**NFF	10,000 psi	11/16"	45 psi	EHPO-NO
10-**NFH	10,000 psi	11/16"	45 psi	EHPO-NO
10-**LF16	10,000 psi	11/16"	45 psi	EHPO-NO
20-**LF16	20,000 psi	9/16"	55 psi	EHPO-NO
30-**LF16	30,000 psi	7/16"	50 psi	EHPO-NO

** Standard Valve Patterns (reference Page 1.4)

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Remetco Piston Operated Fine Metering Valves

For Liquids or Gases

Precise control with fast response is possible in fine metering applications to 60,000 psi with Remetco Valves. Pinpoint accuracy and repeatability are assured by a unique stem travel control device working in concert with a Conoflow operator, which is actuated by an input air pressure on only 15 psi.

Body material is Type 316 stainless steel, with both stem and removable seat of 17-4PH. The stem tip is ground to a 9° included taper, with orifice sizes as listed in the ordering table.

Installation requires only connection to an air supply of 20 to 100 psi. This is connected both to the supply air connection and to the instrument air inlet. The latter is regulated between 3 and 15 psi to actuate the valve to the desired position.

Regulation is effected by the user's instrument or by the optional instrument panel at lower left. Thus the valve is in its full open position with a 3 psi air input and in the closed position with a 15 psi air input.

Failsafe operation. In standard configuration, the valve OPENS upon failure of the air supply. It may also be supplied to close upon air failure, to open upon an increase in air signal, or any combination of these specifications.

Remote Valve Positioner "RVP." Optional instrument panel shown at bottom can be ordered as an accessory. It is a manually operated remote air signal valve positioner which permits positioning the stem at any desired point within the $1\frac{1}{8}$" travel of the stem. The dial indicator is graduated into 100 increments; thus each dial increment moves the stem 0.0112".

Standard inlet and outlet connections to the Remetco Valve are for $\frac{9}{16}$" OD coned and threaded tubing. Adapters may be supplied for other tubing sizes upon request.

Shutoff not recommended. While this valve is capable of on-off operation, it is designed as a fine metering instrument. To assure maximum stem life, a manual on-off valve should be used in the line upstream of the Remetco Valve.

To order, use assembly number in table and specify if operation is to be other than the standard closure upon air failure. Add "RVP" as suffix if remote air signal valve positioner is desired.

Ordering Table

Assembly Number	Pressure Rating	Orifice Size
10M-12HF9R	10,000 psi	$\frac{1}{4}$"
30M-12HF9R	30,000 psi	$\frac{1}{8}$"
60M-12HF9R	60,000 psi	$\frac{1}{16}$"

OPTIONS:

Stems & Seats . . . Carbide (for cyclic service)
Stellite (for cyclic service)

Valve Bodies . . . . . Hastelloy-C, Hastelloy B
Inconel 600, Inconel 625
Incoloy 800, Incoloy 825
Titanium Grade 2, Titanium GAL4V
Nickel
Monel

Packing . . . . . PolyPak

Temperature Considerations . . . Extended stuffing box for temperatures from -423°F to 1,200°F (medium and high pressure connections only)





Remote Valve Stem Positioner "RVP" above permits remote positioning of valve stem in increments of 0.0112". To order, add suffix "RVP" to base order number.