

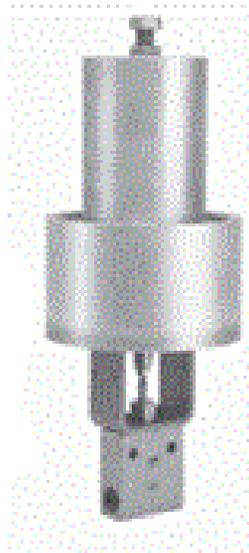


**High Pressure  
Equipment  
Company**

**Hippo Piston Operated Valve**

**Normally Closed, Air to Open**

**Operating and Maintenance Instructions**



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# Hippo Piston Operated Valve- Normally Closed

## Description:

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 inch NPT. Air pressure requirement ranges from 35 psi to 120 psi.

### 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- <b>**AF4</b>	10,000 psi	1/8"	25 in.lb.	30 psi	40 psi	MPO-NC
10- <b>**AF6</b>	10,000 psi	1/8"	25 in.lb.	30 psi	40 psi	MPO-NC
15F- <b>**NFA</b>	15,000 psi	13/64"	45 in.lb.	55 psi	75 psi	MPO-NC
15F- <b>**NFB</b>	15,000 psi	13/64"	45 in.lb.	55 psi	75 psi	MPO-NC
15F- <b>**NFC</b>	10,000 psi	5/16"	55 in.lb.	70 psi	95 psi	MPO-NC
15F- <b>**NFD</b>	10,000 psi	5/16"	55 in.lb.	70 psi	95 psi	MPO-NC
20- <b>**LF4</b>	20,000 psi	1/8"	50 in.lb.	70 psi	95 psi	MPO-NC
20- <b>**LF6</b>	20,000 psi	13/64"	55 in.lb.	70 psi	95 psi	MPO-NC
20- <b>**LF9</b>	10,000 psi	5/16"	55 in.lb.	70 psi	95 psi	MPO-NC
30- <b>**HF4</b>	30,000 psi	3/32"	50 in.lb.	60 psi	75 psi	MPO-NC
30- <b>**HF6</b>	30,000 psi	1/8"	55 in.lb.	60 psi	75 psi	MPO-NC
30- <b>**HF9</b>	30,000 psi	1/8"	55 in.lb.	60 psi	75 psi	MPO-NC
60- <b>**HF4</b>	60,000 psi	1/16"	50 in.lb.	50 psi	65 psi	MPO-NC
60- <b>**HF6</b>	60,000 psi	1/16"	50 in.lb.	50 psi	65 psi	MPO-NC
60- <b>**HF9</b>	60,000 psi	1/16"	50 in.lb.	50 psi	65 psi	MPO-NC

### Heavy Duty

15F- <b>**NFC</b>	15,000 psi	5/16"	85 in.lb.	60 psi	75 psi	HPO-NC
15F- <b>**NFD</b>	15,000 psi	5/16"	85 in.lb.	60 psi	75 psi	HPO-NC
20- <b>**LF4</b>	20,000 psi	1/8"	55 in.lb.	35 psi	50 psi	HPO-NC
20- <b>**LF6</b>	20,000 psi	13/64"	60 in.lb.	35 psi	50 psi	HPO-NC
20- <b>**LF9</b>	16,000 psi	5/16"	85 in.lb.	60 psi	75 psi	HPO-NC
20- <b>**LF12</b>	9,000 psi	7/16"	85 in.lb.	60 psi	75 psi	HPO-NC
20- <b>**LF16</b>	6,000 psi	9/16"	85 in.lb.	60 psi	75 psi	HPO-NC
30- <b>**HF4</b>	30,000 psi	3/32"	50 in.lb.	30 psi	40 psi	HPO-NC
30- <b>**HF6</b>	30,000 psi	1/8"	55 in.lb.	30 psi	40 psi	HPO-NC
30- <b>**HF9</b>	30,000 psi	1/8"	55 in.lb.	30 psi	40 psi	HPO-NC
60- <b>**HF4</b>	60,000 psi	1/16"	50 in.lb.	25 psi	35 psi	HPO-NC
60- <b>**HF6</b>	60,000 psi	1/16"	50 in.lb.	25 psi	35 psi	HPO-NC
60- <b>**HF9</b>	60,000 psi	1/16"	50 in.lb.	25 psi	35 psi	HPO-NC

### Extra Heavy Duty

20- <b>**LF12</b>	20,000 psi	7/16"	60 ft.lb.	35 psi	60 psi	EHPO-NC
10- <b>**NFF</b>	10,000 psi	11/16"	75 ft.lb.	45 psi	70 psi	EHPO-NC
10- <b>**NFH</b>	10,000 psi	11/16"	75 ft.lb.	45 psi	70 psi	EHPO-NC
10- <b>**LF16</b>	10,000 psi	11/16"	75 ft.lb.	45 psi	70 psi	EHPO-NC
20- <b>**LF16</b>	20,000 psi	9/16"	95 ft.lb.	55 psi	95 psi	EHPO-NC
30- <b>**HF16</b>	30,000 psi	7/16"	90 ft.lb.	50 psi	85 psi	EHPO-NC

## Hippo Piston Operated- Normally Closed Operating Instructions:

### Installation:

Valves are factory adjusted and seat tested to the rated pressure. The air supply connection is a 1/8 inch NPT female. Maximum recommended air pressure is stated on the operator plate.

### Spring Adjustment Instructions:

1. Springs are factory set for operation at the rated pressure. The spring adjusting screw may be loosened slightly for operation at pressures lower than the maximum.
2. To correct for normal valve wear, the adjusting screw may be tightened as required. Maximum recommended adjustment is approximately 1/2 turn at a time.

### Packing Adjustment Instructions:

1. Relieve the system pressure and remove the air line to operator. Remove the valve from the system and place it securely in a vice.
2. Note the position of the spring adjusting screw. This position will need to be reestablished after the packing adjustment.
3. Loosen the spring adjusting screw to completely relieve spring compression.
4. As the packing is designed to work with the system pressure to maintain the seal, only minimal adjustment should be necessary. Tightening the packing gland only about 1/4 to 1/2 turn should reestablish sealing integrity.
5. Retighten the spring adjusting screw to reestablish spring compression.
6. Reinstall the valve in the system

## Packing or Stem Replacement Instructions:

### Disassembly:

1. Relieve the system pressure and remove the air line to the operator. Remove the valve from the system and place it securely in a vice.
2. Note the position of the spring adjusting screw. This position will need to be reestablished at reassembly.
3. Loosen the spring adjusting screw to completely relieve spring compression.
4. Loosen the packing gland.
5. Loosen the lock nut at the top of the stem. Loosen and remove the two screws that attach the operator to the operator support.
6. While securely holding the stem to prevent rotation, turn the entire operator top works and remove it by unscrewing it from the stem.
7. Unscrew the packing gland and remove the entire stem assembly from the valve body.
8. Replace the stem or packing as required.

### Assembly:

1. Inset the stem and packing assembly into the valve body.
2. Screw the operator top works onto the stem, making sure that the stem does not rotate.
3. Reattach the operator assembly to the support using the two attachment screw.
4. Apply air pressure to the valve operator to lift the stem from the seat. Only about 10 psi is normally required for this.
5. Screw the stem all the way into the coupling rod finger tight. Tighten the lock nut to secure the attachment.
6. Tighten the packing gland finger tight, then ½ to 1 turn.
7. Relieve air pressure from the operator.
8. Retighten the spring adjusting screw to reestablish spring compression.
9. Reinstall the valve in the system.

## Hippo Piston Operated- Normally Closed Maintenance Instructions:

### Packing Gland Adjustment Instructions:

1. Relieve the system pressure. Remove the valve from the system and place it securely in a vice.
2. Loosen the lock nut at the top of the operator and loosen the set screw to relieve spring tension.
3. Tighten the packing gland to the appropriate torque for the valve. Suggested packing gland torque values are listed in the Technical Information section of the High Pressure Equipment Company catalog.
4. Retighten the set screw at the top of the operator to the required torque. Suggested set screw torque values are listed in the Technical Information section of the High Pressure Equipment Company catalog.

### Packing Replacement Instructions:

1. Relieve the system pressure. Remove the valve from the system and place it securely in a vice.
2. Loosen the lock nut at the top of the operator and loosen the set screw to relieve spring tension.
3. Remove the cap screws holding the operator mounting bracket to the body.
4. Unscrew the packing gland and remove the packing gland, stem, and top works assembly from the body. Note the packing and packing washer arrangement.
5. Replace the packing set, and place the packing and packing washers into the valve body.
6. Tighten the packing gland to the appropriate torque for the valve. Suggested packing gland torque values are listed in the Technical Information section of the High Pressure Equipment Company Catalog.
7. Refasten the operator/ mounting bracket to the body.
8. Retighten the set screw at the top of the operator to the required torque. Suggested set screw torque values are listed in the Technical Information section of the High Pressure Equipment Company Catalog.
9. Tighten the lock nut to secure the set screw.

### Stem Replacement Instructions:

1. Relieve the system pressure. Remove the valve from the system and place it securely in a vice.
2. Loosen the lock nut at the top of the operator and loosen the set screw to relieve spring tension.
3. Remove the cap screws holding the operator mounting bracket to the body.
4. Unscrew the packing gland and remove the body.
5. Loosen the stem nut.
6. Note the length that the stem projects from the shaft. Remove the old stem. Assemble the stem nut onto the new stem and insert the new stem into the shaft. Tighten the stem nut.
7. Replace the packing if required.
8. Replace the packing gland, stem, and top works assembly into the valve body.
9. Tighten the packing gland to the appropriate torque for the valve. Suggested packing gland torque values are listed in the Technical Information section of the High Pressure Equipment Company Catalog.
10. Refasten the operator/mounting bracket to the body.
11. Retighten the set screw at the top of the operator to the required torque. Suggested set screw torque values are listed in the Technical Information section of the High Pressure Equipment Company Catalog.