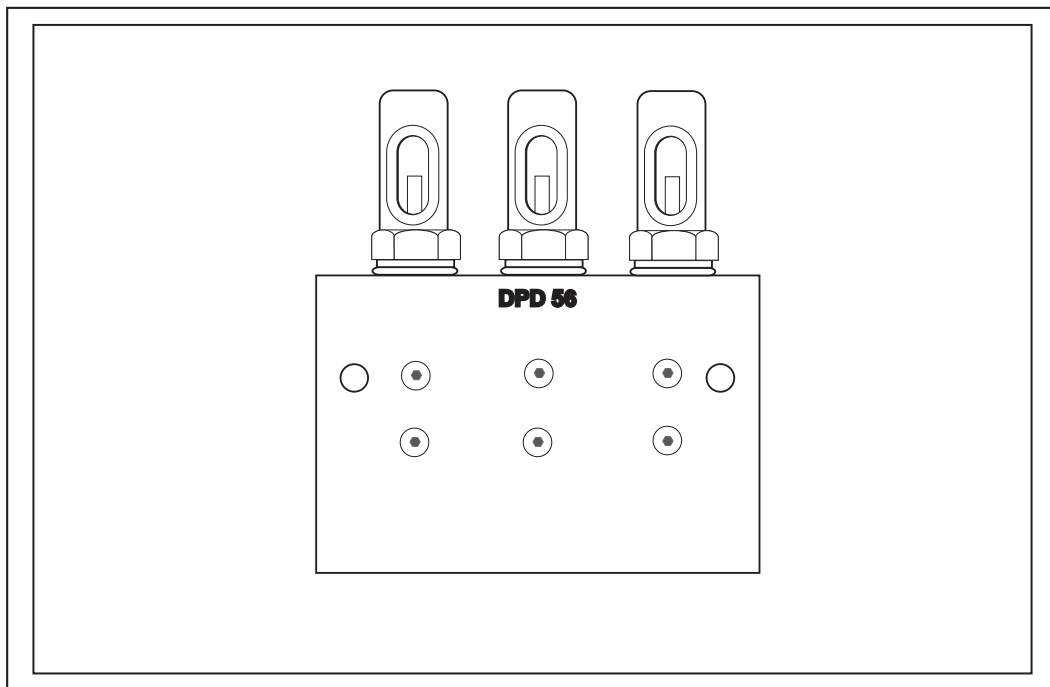


DYNA-POWER LUBRICATION

TECHNICAL BULLETIN D-01-03-2

UPDATED



DUAL LINE MEASURING VALVES



A division of
Dyna-Power Engineers, Inc.
PO Box 89 / 12809 S.Homan Ave.
Blue Island, IL 60406

January 2004

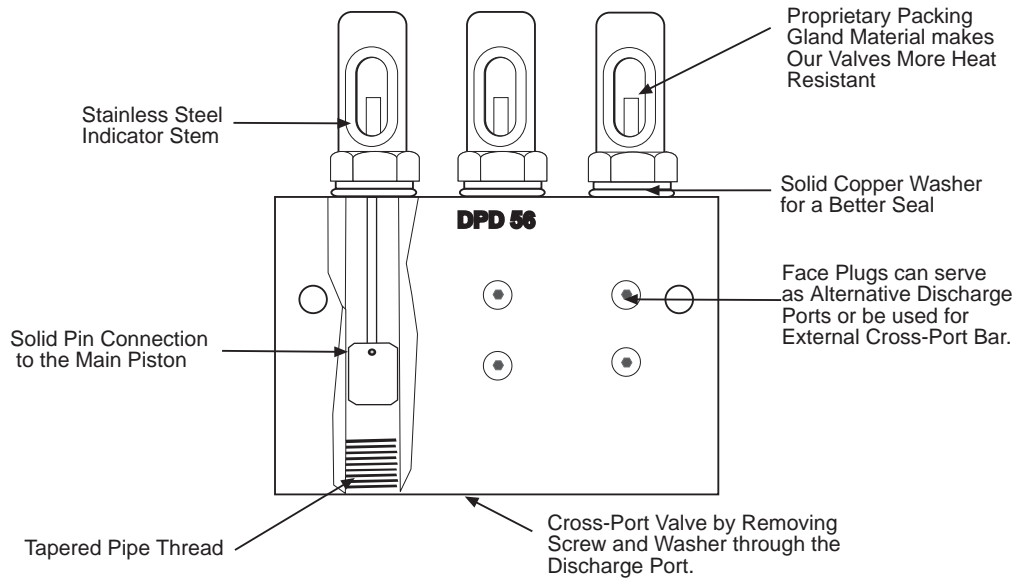
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FOR CUSTOMER SERVICE & APPLICATION HELP:

Dyna-Power Engineers
12809 South Homan Ave.
Blue Island, IL 60406

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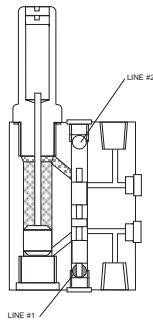


ADVANTAGES OVER THE COMPETITION

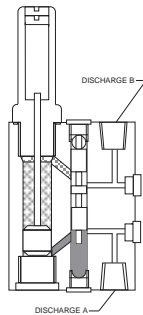
- Our dual discharge valves cross-port through the bottom of the discharge port by removing a screw and washer. No special cross-ports are required. *Special cross-port bars are available for external cross-porting in applications where the valve has been installed.*
- Because our valves are precisely manufactured, the pistons are interchangeable and replacements may be purchased for easy emergency repair. Can you replace the pistons for your current brand?
- Our valves have a tapered pipe thread. Any standard N.P.T. tapered thread will work in our valve -- leak free. The leading manufacturer uses straight pipe threads that do not provide a good seal.
- The proprietary material in the packing gland and the stainless steel indicator stem makes our **standard** valve more heat resistant. **In a recent trial at a large steel mill caster our valve was tested against the leading brand--our valves lasted significantly longer.**
- The washers in our valves are solid copper, unlike the leading brand which uses a composite compression washer. The solid copper construction makes for a better seal and ensures effective operation.
- Unlike the leading brand, the indicator stems in our valves are connected by a solid pin to the main piston -- **NOT** a roll pin. This, in addition to the precision boring of the ports and precise machining of the pistons, makes for a consistently reliable valve.

Principles of Operation

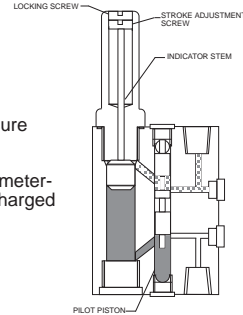
System is at a random starting position. Line#1 is selected for the next cycle.



As line #1 is pressurized, the pilot piston is pushed upwards until it seats against the plug.

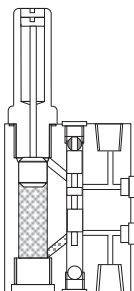


Continuing pressure pushes metering piston upwards. Lubricant above metering piston is discharged through Port B.

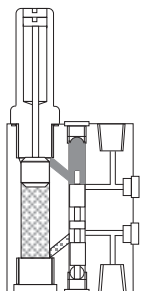


■ PRESSURIZED SUPPLY ■ DISCHARGED GREASE

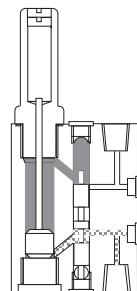
System energizes at the end of the interval time and Line#2 is now selected.



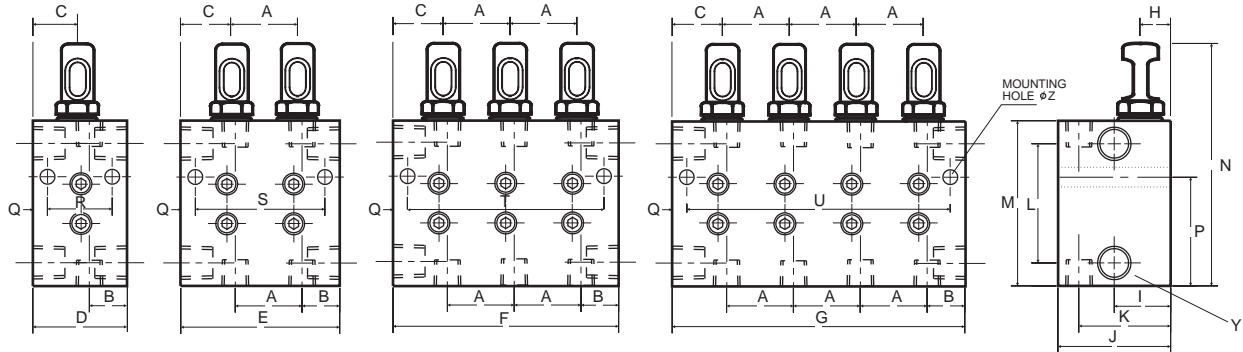
As Line#2 is pressurized, the pilot piston is pushed downwards until it seats against the bottom plug.



Continuing pressure pushes metering piston downwards. Lubricant below metering piston is discharged through Port A.



DPD SERIES



DIMENSIONS (inches)

| MODEL | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | Q | R | S | T | U | X | Y | Z |
|-------|-------|-------|-------|---------|--------|---------|---------|-------|--------|---------|---------|-------|--------|---------|--------|------|--------|--------|---------|---------|-----|-----|-------|
| DPD20 | 43/64 | 37/64 | 37/64 | 1 9/64 | 1 3/16 | 2 31/64 | 3 5/32 | 5/16 | 53/64 | 1 39/64 | 1 17/64 | 1 1/2 | 2 1/8 | 3 17/64 | 1 1/32 | 7/32 | 45/64 | 1 3/8 | 2 3/64 | 2 23/32 | 1/8 | 1/8 | 7/32 |
| DPD30 | 1 1/4 | 45/64 | 15/16 | 1 49/64 | 3 | 4 1/4 | 5 33/64 | 15/32 | 1 1/16 | 2 1/8 | 1 47/64 | 2 1/4 | 3 7/64 | 4 9/16 | 2 3/16 | 9/32 | 1 7/32 | 2 7/16 | 3 45/64 | 4 31/32 | 1/4 | 3/8 | 23/64 |
| DPD50 | 1 1/4 | 45/64 | 15/16 | 1 49/64 | 3 | 4 1/4 | 5 33/64 | 15/32 | 1 1/16 | 2 1/8 | 1 47/64 | 2 1/4 | 3 7/64 | 5 13/64 | 2 3/16 | 9/32 | 1 7/32 | 2 7/16 | 3 45/64 | 4 31/32 | 1/4 | 3/8 | 23/64 |

SPECIFICATIONS

| MODEL | discharge PORTS | max. discharge (cu.in) | min. discharge (cu.in) | cu.in. per revolution adjustment | max. working pressure (psi) grease | max. working pressure (psi) oil | min. operating pressure (psi) | operating temp. range | weight (lbs) | operating vol.-pilots (cu.in.) |
|--------|-----------------|------------------------|------------------------|----------------------------------|------------------------------------|---------------------------------|-------------------------------|-----------------------|--------------|--------------------------------|
| DPD 22 | 2 | 0.037 | 0.006 | 0.0024 | 3000 | 1420 | 140 | -5 to 160°F | 1.1 | 0.0085 |
| DPD 24 | 4 | | | | | | | | 1.8 | 0.017 |
| DPD 26 | 6 | | | | | | | | 2.4 | 0.026 |
| DPD 28 | 8 | | | | | | | | 3.1 | 0.034 |
| DPD 32 | 2 | 0.073 | 0.012 | 0.0037 | 3000 | 1420 | 140 | -5 to 160°F | 3.3 | 0.024 |
| DPD 34 | 4 | | | | | | | | 5.5 | 0.049 |
| DPD 36 | 6 | | | | | | | | 7.7 | 0.073 |
| DPD 38 | 8 | | | | | | | | 9.9 | 0.098 |
| DPD 52 | 2 | 0.305 | 0.073 | 0.0092 | 3000 | 1420 | 140 | -5 to 160°F | 3.3 | 0.024 |
| DPD 54 | 4 | | | | | | | | 5.5 | 0.049 |
| DPD 56 | 6 | | | | | | | | 7.7 | 0.073 |
| DPD 58 | 8 | | | | | | | | 9.9 | 0.098 |

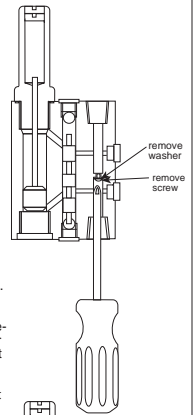
CROSS-PORTING

INSTRUCTIONS:

CONVERSION FROM DUAL TO SINGLE DISCHARGE

To convert a DPD valve from dual to single discharge, perform the following for each discharge port:

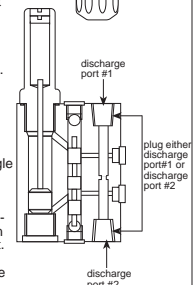
1. Turn the valve upside down and locate the phillips screw visible in the bottom of the discharge port.
2. Using an appropriately sized phillips head screw driver, remove the screw.
3. A copper washer under the screw should also be removed. Turn the valve right side up and gently tap the valve on a firm surface until it falls out. Degreaser and/or compressed air will help remove the washer. It is very important that you remove the copper washer from each discharge port. If left in, it may disrupt lubricant flow.



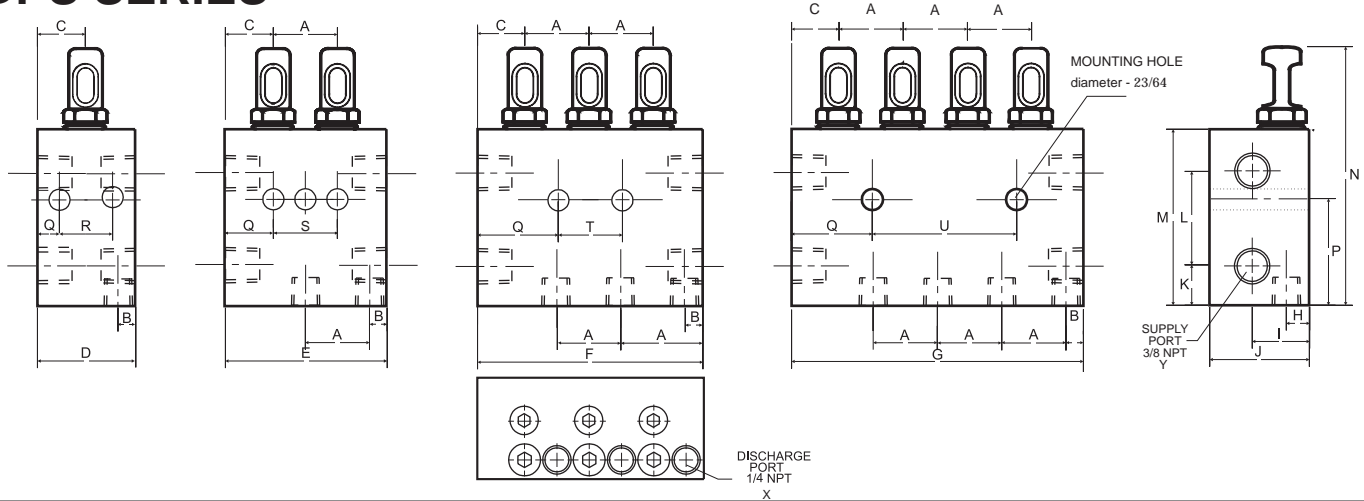
CONVERSION FROM SINGLE TO DUAL DISCHARGE

To convert a DPD valve from single to dual discharge, perform the following for each discharge port:

1. Simply place the copper washer on the screw and screw it in the appropriate discharge port.
2. Remove the pipe plug from the discharge port.



DPS SERIES



DIMENSIONS (inches)

| MODEL | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | Q | R | S | T | U | X | Y |
|--------------|---------|--------|---------|---------|---------|---------|---------|-------|---------|---------|-------|---------|--------|---------|---------|--------|---------|---------|---------|---------|-----|-----|
| DPS31 | NA | 5/16 | 27/32 | 1 47/64 | NA | NA | NA | 13/32 | 1 1/64 | 1 25/32 | 45/64 | 1 21/32 | 3 7/64 | 4 9/16 | 1 13/16 | 25/64 | 15/16 | NA | NA | NA | 1/4 | 3/8 |
| DPS 32,33,34 | 1 9/64 | 1 5/16 | 1 27/32 | NA | 2 7/8 | 4 1/64 | 5 5/32 | 13/32 | 1 1/64 | 1 25/32 | 45/64 | 1 21/32 | 3 7/64 | 4 9/16 | 1 57/64 | 1 7/16 | NA | NA | 1 9/64 | 2 9/32 | 1/4 | 3/8 |
| DPS40 | 1 17/64 | 23/64 | 15/16 | 1 15/16 | 3 3/16 | 4 29/64 | 5 45/64 | 23/64 | 1 1/8 | 1 25/32 | 1/2 | 2 1/8 | 3 7/64 | 5 5/64 | 1 61/64 | 13/32 | 1 7/64 | 2 23/64 | 3 37/64 | 4 27/32 | 1/4 | 3/8 |
| DPS50 | 1 29/64 | 3/8 | 1 | 2 3/32 | 3 35/64 | 5 | 6 29/64 | 33/64 | 1 19/64 | 1 25/32 | 7/16 | 2 1/4 | 3 7/64 | 5 13/64 | 2 | 25/64 | 1 19/64 | 2 3/4 | 4 7/32 | 5 43/64 | 1/4 | 3/8 |
| DPS60 | NA | 13/32 | 1 9/64 | 2 29/64 | 4 1/4 | NA | NA | 25/32 | 3/8 | 2 1/4 | 5/8 | 2 1/4 | 3 1/2 | 5 31/32 | 2 13/16 | 25/64 | 1 21/32 | 3 7/16 | NA | NA | 1/4 | 3/8 |

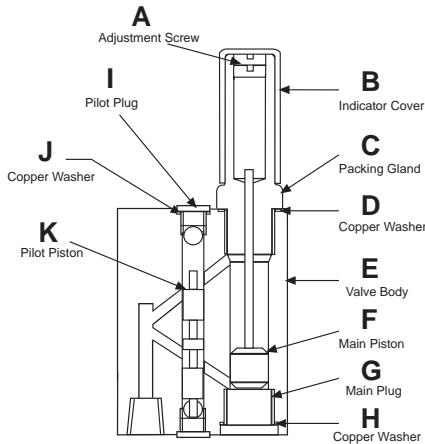
SPECIFICATIONS

| MODEL | discharge PORTS | max. discharge (cu.in) | min. discharge (cu.in) | cu.in. per revolution adjustment | max. working pressure (psi) grease | max. working pressure (psi) oil | min. operating pressure (psi) | operating temp. range | weight (lbs) | operating vol.-pilots (cu.in.) |
|--------|-----------------|------------------------|------------------------|----------------------------------|------------------------------------|---------------------------------|-------------------------------|-----------------------|--------------|--------------------------------|
| DPS 31 | 1 | 0.073 | 0.012 | 0.0037 | 3000 | 1420 | 140 | -5 to 160°F | 1.1 | 0.034 |
| DPS 32 | 2 | | | | | | | | 1.8 | 0.073 |
| DPS 33 | 3 | | | | | | | | 2.4 | 0.110 |
| DPS 34 | 4 | | | | | | | | 3.1 | 0.146 |
| DPS 41 | 1 | 0.15 | 0.037 | 0.0061 | 3000 | 1420 | 140 | -5 to 160°F | 3.3 | 0.038 |
| DPS 42 | 2 | | | | | | | | 5.5 | 0.077 |
| DPS 43 | 3 | | | | | | | | 7.7 | 0.115 |
| DPS 44 | 4 | | | | | | | | 9.9 | 0.154 |
| DPS 51 | 1 | 0.30 | 0.073 | 0.0092 | 3000 | 1420 | 140 | -5 to 160°F | 3.3 | 0.038 |
| DPS 52 | 2 | | | | | | | | 5.5 | 0.077 |
| DPS 53 | 3 | | | | | | | | 7.7 | 0.115 |
| DPS 54 | 4 | | | | | | | | 9.9 | 0.154 |
| DPS 61 | 1 | 0.91 | 0.18 | 0.055 | 3000 | 1420 | 140 | -5 to 160°F | 4.6 | 0.038 |
| DPS 62 | 2 | | | | | | | | 8.3 | 0.077 |

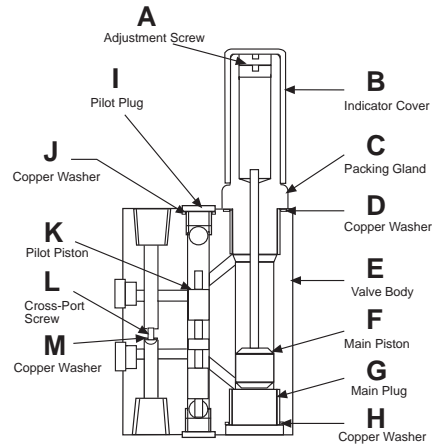
*** Please see page 8 for ordering assistance**

Parts Breakdown / Kits

DPS Series (Single Discharge)



DPD Series (Dual Discharge)



| | DPS 30 Series | DPS 40 Series | DPS 50 Series | DPS 60 Series | Qty Req. |
|----------|---------------|---------------|---------------|---------------|-----------------------|
| A | DPG20DS | DPG50DS | DPG50DS | DPG60DS | (2) per packing gland |
| B | D1732C | D1732D | D1732E | D1732F | (1) per packing gland |
| C | DPG30DG | DPG40DG | DPG50DG | DPG60DG | (1) per main piston |
| D | DPG30SW | DPG40SW | DPG50SW | DPG60SW | (1) per packing gland |
| E | DPV3xSB* | DPV4xSB* | DPV5xSB* | DPV6xSB* | (1) |
| F | DPV30DM | DPV40DM | DPV50DM | DPV60DM | (1) per packing gland |
| G | DPV30PP | DPV40PP | DPV50PP | DPV60PP | (1) per main piston |
| H | DPG30SW | DPG40SW | DPG50SW | DPG60SW | (1) per main plug |
| I | DPV50LP | DPV50LP | DPV50LP | DPV60LP | (1) per pilot piston |
| J | DPG50LW | DPG50LW | DPG50LW | DPG60LW | (1) per pilot piston |
| K | DPV30SP | DPV40SP | DPV50SP | DPV60SP | (1) per main piston |

| | DPD 20 Series | DPD 30 Series | DPD 50 Series | Qty Req. |
|----------|---------------|---------------|---------------|--------------------------|
| A | DPG20DS | DPG50DS | DPG50DS | (2) per packing gland |
| B | D1732A | D1732C | D1732E | (1) per packing gland |
| C | DPG20DG | DPG30DG | DPG50DG | (1) per main piston |
| D | DPG20SW | DPG30SW | DPG50SW | (1) per packing gland |
| E | DPV2xDB* | DPV3xDB* | DPV5xDB* | (1) |
| F | DPV20DM | DPV30DM | DPV50DM | (1) per packing gland |
| G | DPV20PP | DPV30PP | DPV50PP | (1) per main piston |
| H | DPG20SW | DPG30SW | DPG50SW | (1) per main plug |
| I | DPV20LP | DPV50LP | DPV50LP | (1) per pilot piston |
| J | DPG20LW | DPG50LW | DPG50LW | (1) per pilot piston |
| K | DPV20DP | DPV50DP | DPV50DP | (1) per main piston |
| L | DPV50CS | DPV50CS | DPV50CS | (1) per pilot piston |
| M | DPG50CW | DPG50CW | DPG50CW | (1) per cross-port screw |

KITS — Kits are packaged individually to replace only one indicator gland or piston. Therefore multiple kits may be necessary to repair one valve.

| KIT DESCRIPTION | DPS 30 Series | DPS 40 Series | DPS 50 Series | DPS 60 Series | DPD 20 Series | DPD 30 Series | DPD 50 Series |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Packing Gland Kit <i>(includes packing gland, (2) adjustment screws, and copper washer)</i> | DPG30DA | DPG40DA | DPG50DA | DPG60DA | DPG20DA | DPG30DA | DPG50DA |
| Pilot Piston Kit <i>(includes pilot piston, (2) pilot plugs and washers)</i> | DPV30SAK | DPV40SAK | DPV50SAK | DPV60SAK | DPV20DAK | DPV30DAK | DPV50DAK |
| Main Piston / Packing Gland Kit <i>(includes main piston, and complete Packing Gland Kit)</i> | DPV30SGK | DPV40SGK | DPV50SGK | DPV60SGK | DPV20DGK | DPV30DGK | DPV50DGK |

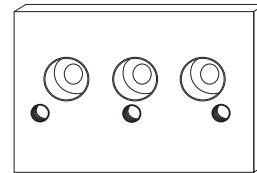
ACCESSORIES

Adapter Plates

All of our valves have been designed to fit the Farval[®] mounting dimensions with the exception of our DPD 20 series, which are slightly wider to accommodate ease of fitting installation. For the DPD 20 series, we do offer adapter plates to fit their Farval counterpart's mounting.

Ordering Information

| Model | Adapter Plate |
|-------|---------------|
| DPD22 | AP224 |
| DPD24 | AP224 |
| DPD26 | AP268 |
| DPD28 | AP268 |

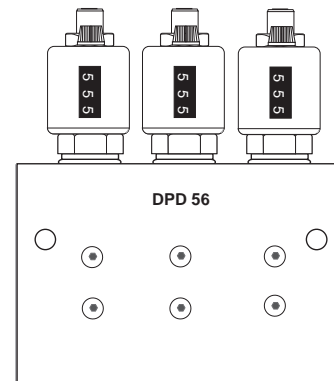


Cycle Counter

Our cycle monitor provides the user with an accurate recording of the number of complete cycles the measuring valve has performed. This allows for constant and reliable system monitoring--reducing troubleshooting time considerably.

Technical Information

| Valve Series | Overall Height (in.) | Maximum Discharge (in ³) | Minimum Discharge (in ³) |
|--------------|-------------------------|--|--|
| DPS30CM | 4.56 | 0.073 | 0.037 |
| DPS40CM | 5 | 0.150 | 0.076 |
| DPS50CM | 5.25 | 0.305 | 0.152 |
| DPD30CM | 4.56 | 0.073 | 0.048 |
| DPD50CM | 5.25 | 0.305 | 0.152 |



Ordering Information

The cycle monitor is sold as an assembly and comes pre-installed with a standard measuring valve. To order a measuring valve with cycle monitoring simply select the appropriate measuring valve and add the suffix **-CM**. For example, a DPD56 with cycle monitoring would be ordered as a DPD56CM.

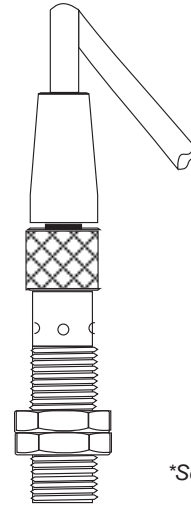
ACCESSORIES contd.

The PXS series (available in AC and DC) is an ideal choice for electronically checking lubricant delivery status for critical bearings, areas that cannot be checked by plant personnel (eg.hostile environments), and zone checking.

The PXS series has a simple, low-cost design that tolerates most environments.

Specifications:

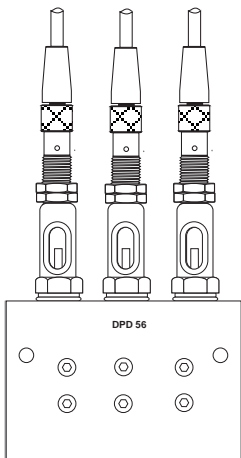
- Size: DC: 2.8" Long / AC: 2.7" Long
- Material: Nickel Plated Brass
- Connector: 4 pin
- LED Indicator: 360 degree visible
- Voltage: DC: 10-30 VDC / AC: 20-250 VAC
- Output: DC: PNP, 10-30VDC,200 mA max.,N.O.
AC:20-250 VAC, 400mA, N.O.
- Sensing Distance: 0.078"
- Temp. Rating: 13 F - 158 F
- Enclosure (including connector): IP67 (NEMA 4)



*Sensor and cable shown.

Ordering Information

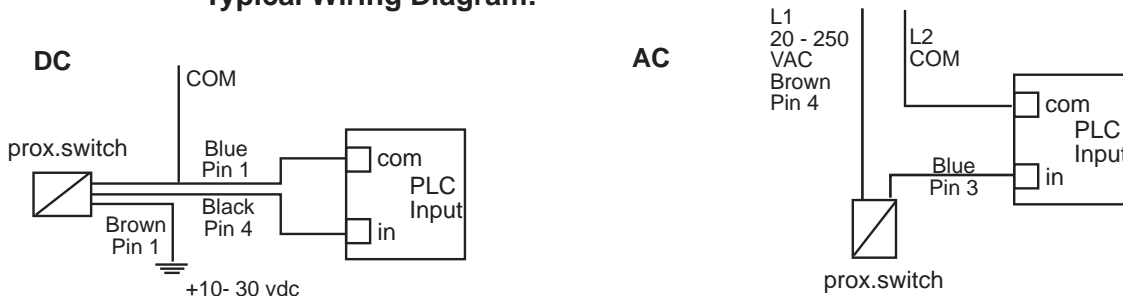
| Valve Series | Prox. Switch Only | | Prox. Switch ASM (includes 16' cable) | | Cable Only |
|----------------------------------|-------------------|-----------|---------------------------------------|-----------|------------|
| | (DC) | (AC) | (DC) | (AC) | |
| DPD 20 | n/a | n/a | n/a | n/a | n/a |
| DPD 50 / DPS 30, 40 and 50 | PXS50-1 | PXS50-1AC | PXA50-1 | PXA50-1AC | XSC-192 |
| DPS 60 | PXS60-1 | PXS60-1AC | PXA60-1 | PXA60-1AC | XSC-192 |



Installation:

1. The valve stems should be at full stroke. Check to make sure this is the case.
2. Using the proper screwdriver, remove both adjustment screws located on the top of the valve's packing gland.
3. Carefully screw in the PXS switch into the packing gland until it gently rests on top of the indicator stem.
4. Now turn the switch counterclockwise one half to one revolution and tighten the jam nuts provided.
5. The PXS is now ready to be wired into the proper PLC or multiplexer.

Typical Wiring Diagram:



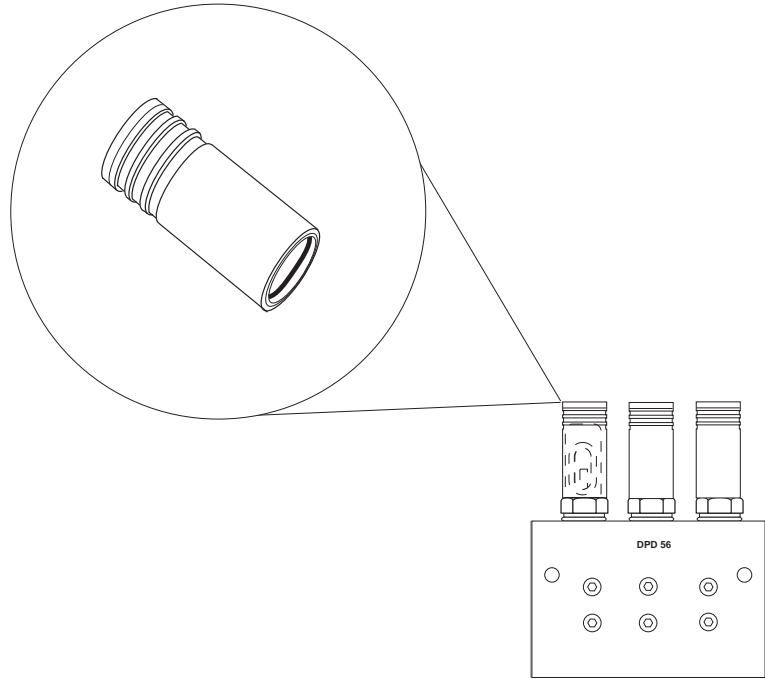
ACCESSORIES contd.

Brass Indicator Covers

The D1732E-B indicator cover is designed to protect the packing gland in areas where the standard vinyl indicator cover will not suffice.

It is constructed of solid brass and features a ridged top that enables easy removal.

To install, first remove the existing vinyl indicator cover. Place the brass indicator cover over the packing gland and press down until the brass indicator cover reaches the hex on the bottom of the packing gland.



Ordering Information

Currently, we only offer the brass indicator covers for the DPD 50 series.

| Model Series | Indicator Cover |
|--------------|-----------------|
| DPD 50 | D1732E-B |

Weld Plates

Dyna-Power offers weld plates for all of our dual line measuring valves. Valves can be mounted on these plates which then can be welded in their desired location. Custom plates can be manufactured for special applications. Please call Dyna-Power for assistance.

Ordering Information

Please refer to the table below for ordering the appropriate weld plate:

| Model No. | Weld Plate | Model No. | Weld Plate |
|-----------|------------|-----------|------------|
| DPD22 | DPV22DL | DPS31 | DPV31SL |
| DPD24 | DPV24DL | DPS32 | DPV32SL |
| DPD26 | DPV26DL | DPS33 | DPV33SL |
| DPD28 | DPV28DL | DPS34 | DPV34SL |
| DPD32 | DPV32DL | DPS41 | DPV41SL |
| DPD34 | DPV34DL | DPS42 | DPV42SL |
| DPD36 | DPV36DL | DPS43 | DPV43SL |
| DPD38 | DPV38DL | DPS44 | DPV44SL |
| DPD52 | DPV52DL | DPS51 | DPV51SL |
| DPD54 | DPV54DL | DPS52 | DPV52SL |
| DPD56 | DPV56DL | DPS53 | DPV53SL |
| DPD58 | DPV58DL | DPS54 | DPV54SL |



Part Number Conversion / Quick Order Guide

| Discharge Range* | # Outlets | Dyna-Power Part No. | Farval® Part No. | Lincoln®/ Duomatic® Part No. | |
|----------------------|-----------|---------------------|------------------|------------------------------|------------------|
| 0.006 - 0.037 cu.in. | 2 | DPD 22 | DD22-250 | NA | DUAL DISCHARGE |
| | 4 | DPD 24 | DD24-250 | NA | |
| | 6 | DPD 26 | DD26-250 | NA | |
| | 8 | DPD 28 | DD28-250 | NA | |
| 0.012 - 0.073 cu.in. | 2 | DPD 32 | NA | NA | |
| | 4 | DPD 34 | NA | NA | |
| | 6 | DPD 36 | NA | NA | |
| | 8 | DPD 38 | NA | NA | |
| 0.073 - 0.305 cu.in. | 2 | DPD 52 | DD52-250 | LD 52 (251317) | |
| | 4 | DPD 54 | DD54-250 | LD 54 (251318) | |
| | 6 | DPD 56 | DD56-250 | LD 56 (251319) | |
| | 8 | DPD 58 | DD58-250 | LD 58 (251320) | |
| 0.012 - 0.073 cu.in. | 1 | DPS 31 | DM31-100 | NA | SINGLE DISCHARGE |
| | 2 | DPS 32 | DM32-100 | NA | |
| | 3 | DPS 33 | DM33-100 | NA | |
| | 4 | DPS 34 | DM34-100 | NA | |
| 0.037 - 0.15 cu.in. | 1 | DPS 41 | DM41-100 | NA | |
| | 2 | DPS 42 | DM42-100 | NA | |
| | 3 | DPS 43 | DM43-100 | NA | |
| | 4 | DPS 44 | DM44-100 | NA | |
| 0.073 - 0.30 cu.in. | 1 | DPS 51 | DM51-100 | NA | |
| | 2 | DPS 52 | DM52-100 | NA | |
| | 3 | DPS 53 | DM53-100 | NA | |
| | 4 | DPS 54 | DM54-100 | NA | |
| 0.18 - 0.91 cu.in. | 1 | DPS 61 | DM61-100 | NA | |
| | 2 | DPS 62 | DM62-100 | NA | |

* The discharge ranges are specific to Dyna-Power's measuring valves and may slightly vary from the published discharge rates of the other manufacturers listed.

Other Ordering Options:

Crossported Valves:

Dyna-Power will, for a minimal charge, ship our measuring valves already crossported. To prevent confusion, these valves will be clearly marked by both stamp and sticker.

To order, simply add an "X" after the valve model. For example, to order a DPD56 already cross-ported, order a DPD56X.

Indicatorless Valves:

Dyna-Power offers measuring valves less indicator guide. We currently only offer this option for the DPD 50 series and only for full discharge.

For ordering information, please contact Customer Service at (708) 389-7200.