

General Description

Series ZDR pilot operated pressure reducing valves are designed for maximum flow rates.

The reducing function can be located in the ports P, A or B. The sizes NG06 and NG10 are equipped with an integral return flow check valve (reducing function in A or B).

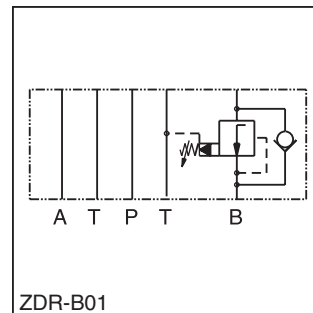
B

Features

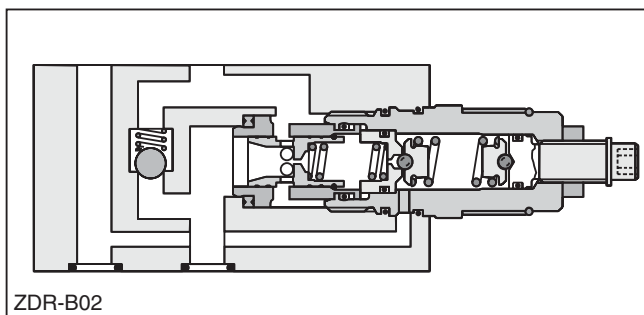
- High flow capacity.
- Sizes::
 - ZDR01 – NFPA D03 / NG6 / CETOP 3
 - ZDR02 – NFPA D05 / NG10 / CETOP 5
- With integral return flow check valve.



ZDR-P01



ZDR-B01



ZDR-B02

Specifications

General			
Size		NG6	NG10
Mounting Interface		DIN 24340 A6 ISO 4401 NFPA D03 CETOP RP 121	DIN 24340 A10 ISO 4401 NFPA D05 CETOP RP 121
Mounting Position		Unrestricted	
Ambient Temperature Range		-20°C to +50°C (-4°F to +122°F)	
Hydraulic			
Maximum Operating Pressure		up to 350 Bar (5075 PSI); ZDR-AR / BR up to 315 Bar (4568 PSI)	
Nominal Flow		80 LPM (21.2 GPM)	120 LPM (31.7 GPM)
Pilot Oil		0.2 LPM (0.1 GPM)	0.3 LPM (0.1 GPM)
Fluid		Hydraulic oil as per DIN 51524 ... 51525	
Fluid Temperature		-20°C to +80°C (-4°F to +176°F)	
Viscosity	Permitted Recommended	10 to 650 cSt / mm ² /s (46 to 3013 SSU) 30 cSt / mm ² /s (139 SSU)	
Filtration		ISO Class 4406 (1999) 18/16/13 (acc. NAS 1638: 7)	

Ordering Information

ZDR Pressure Reducing Valve	Port Option	Size	Pressure Range	S0 Hexagon Screw with Lock Nut	D Design Series	Seal
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Code	Description
01	NFPA D03 / NG6
02	NFPA D05 / NG10

Code	Description
1	up to 100 Bar (1450 PSI)
5*	up to 350 Bar (5075 PSI)

* AR/BR 325 Bar (4568 PSI)

Code	Size	Description
P	01/02	Pressure reducing in P with pressure gauge port M
AR	01/02	Pressure reducing in A with check valve
BR	01/02	Pressure reducing in B with check valve

Weight:	ZDR-P	ZDR-AR/BR
ZDR*01	1.6 kg (3.5 lbs.)	1.8 kg (4.0 lbs.)
ZDR*02	2.9 kg (6.4 lbs.)	3.0 kg (6.6 lbs.)



ZDR01

Pressure reducing in P with pressure gauge port M

Series
ZDRP011S0D1
ZDRP015S0D1

Pressure reducing in A with check valve

Series
ZDRAR011S0-D1
ZDRAR015S0-D1

Pressure reducing in B with check valve

Series
ZDRBR011S0D1
ZDRBR015S0D1

1 = 7 ... 140 Bar (102 ... 1450 PSI)
 5 = 7 ... 315 Bar (102 ... 4568 PSI)

ZDR02

Pressure reducing at P with pressure gauge port M

Series
ZDRP021S0D1
ZDRP025S0D1

Pressure reducing at A (with check valve)

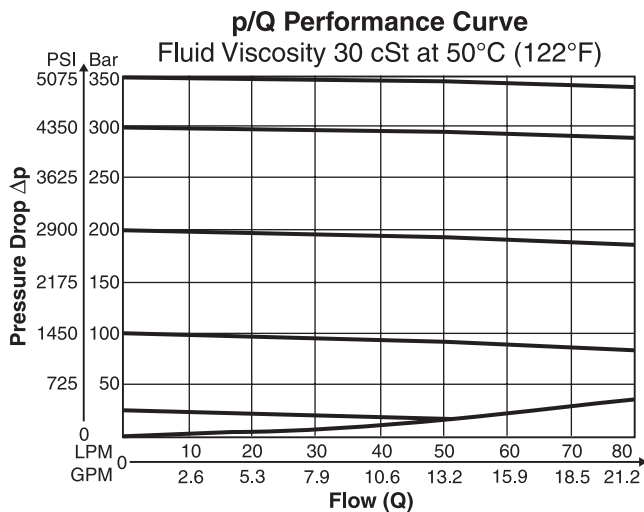
Series
ZDRAR021S0D1
ZDRAR025S0D1

Pressure reducing at B (with check valve)

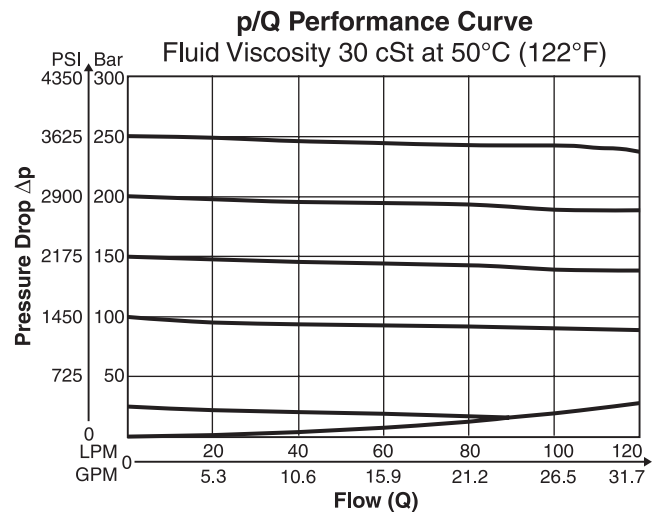
Series
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ZDRBR025S0D1

Performance Curves

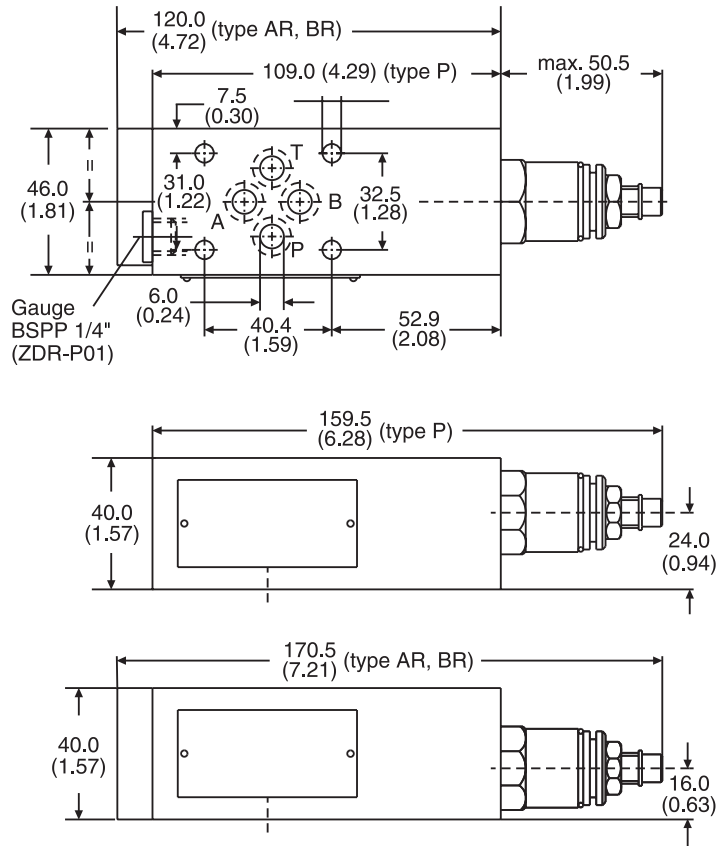
ZDR-P/AR/BR01



ZDR-P/AR/BR02

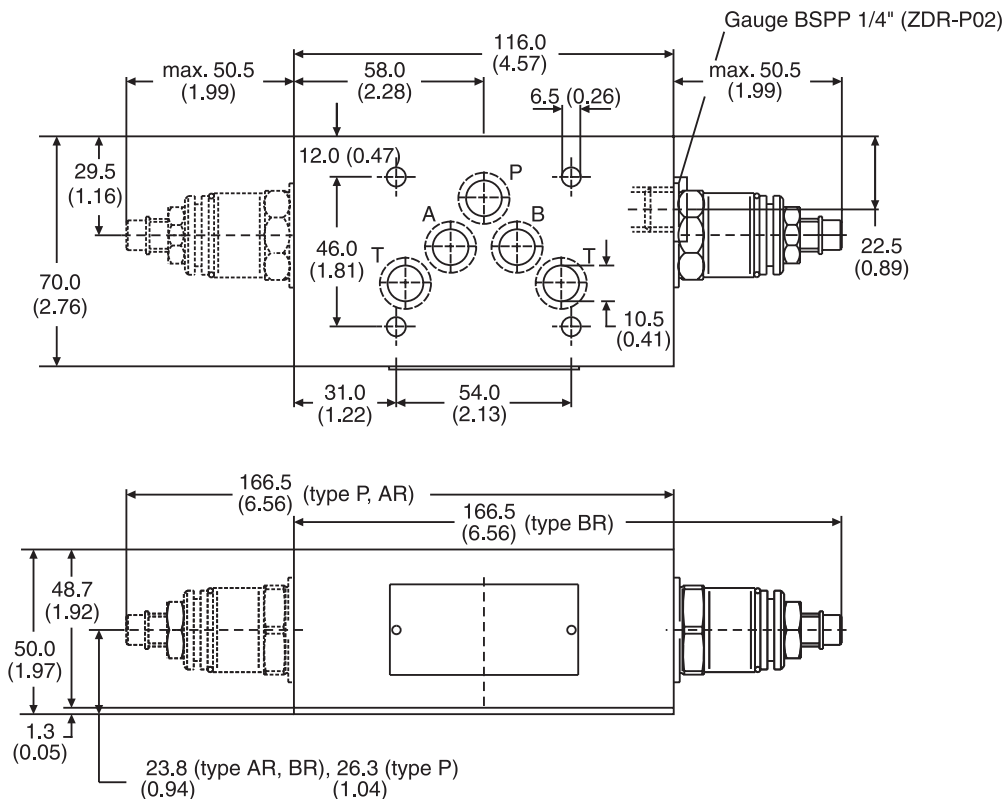


ZDR01 – Inch equivalents for millimeter dimensions are shown in (**)



Seal Kit	
Seal	Order Code
1	098-91184-0
5	098-91185-0
Complete Cartridge	
Seal	Order Code
1	098-91102-0
5	098-91103-0

ZDR02 – Inch equivalents for millimeter dimensions are shown in (**)



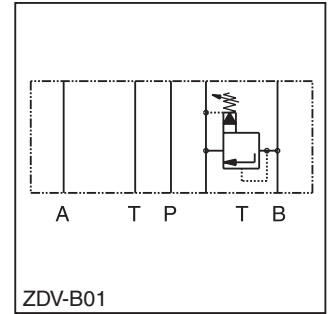
Seal Kit	
Seal	Order Code
1	098-91182-0
5	098-91183-0
Complete Cartridge	
Seal	Order Code
1	098-91102-0
5	098-91103-0

General Description

Series ZDV pilot operated pressure relief valves are designed for maximum flow rates.

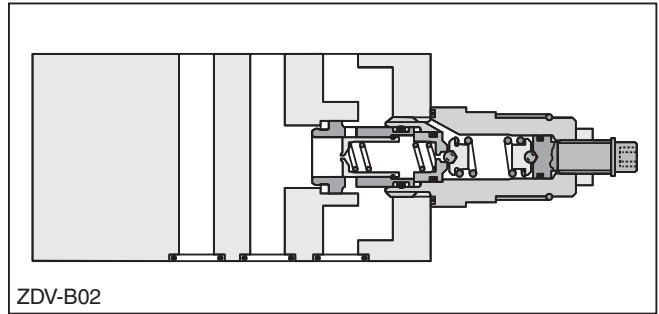
The relief function can be located between P and T, A and T, B and T or A and T + B and T for typical pressure relief functions.

For a pre-charge function the ZDV can be ordered with pressure function between A and B + B and A.



Features

- High flow capacity.
- Pressure function in P, A, B or A + B.
- Sizes:
 - ZDV01 – NFPA D03 / NG6 / CETOP 3
 - ZDV02 – NFPA D05 / NG10 / CETOP 5



Ordering Information

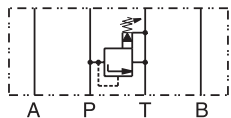
ZDV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S0	D	<input type="checkbox"/>																										
Pressure Relief Valve	Port Option	Size	Pressure Range	Hexagon Screw with Lock Nut	Design Series	Seal																										
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>NFPA D03 / NG6</td> </tr> <tr> <td>02</td> <td>NFPA D05 / NG10</td> </tr> </tbody> </table>	Code	Description	01	NFPA D03 / NG6	02	NFPA D05 / NG10	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>up to 70 Bar (1015 PSI)</td> </tr> <tr> <td>5*</td> <td>up to 350 Bar (5075 PSI)</td> </tr> </tbody> </table> <p>* ABS 315 Bar (4568 PSI)</p>	Code	Description	1	up to 70 Bar (1015 PSI)	5*	up to 350 Bar (5075 PSI)			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Nitrile</td> </tr> <tr> <td>5</td> <td>Fluorocarbon</td> </tr> </tbody> </table>	Code	Description	1	Nitrile	5	Fluorocarbon								
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	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Size</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>P</td> <td>01/02</td> <td>P – T</td> </tr> <tr> <td>A</td> <td>01/02</td> <td>A – T</td> </tr> <tr> <td>B</td> <td>01/02</td> <td>B – T</td> </tr> <tr> <td>AB</td> <td>01/02</td> <td>A – T & B – T</td> </tr> <tr> <td>ABS</td> <td>01/02</td> <td>A – B & B – A</td> </tr> </tbody> </table>	Code	Size	Description	P	01/02	P – T	A	01/02	A – T	B	01/02	B – T	AB	01/02	A – T & B – T	ABS	01/02	A – B & B – A				<table style="width: 100%;"> <tr> <td style="width: 30%;">Weight:</td> <td style="width: 30%;">One Cartridge</td> <td style="width: 30%;">Two Cartridges</td> </tr> <tr> <td>ZDV*01</td> <td>1.6 kg (3.5 lbs.)</td> <td>2.5 kg (5.5 lbs.)</td> </tr> <tr> <td>ZDV*02</td> <td>3.0 kg (6.6 lbs.)</td> <td>3.7 kg (8.2 lbs.)</td> </tr> </table>	Weight:	One Cartridge	Two Cartridges	ZDV*01	1.6 kg (3.5 lbs.)	2.5 kg (5.5 lbs.)	ZDV*02	3.0 kg (6.6 lbs.)	3.7 kg (8.2 lbs.)
Code	Size	Description																														
P	01/02	P – T																														
A	01/02	A – T																														
B	01/02	B – T																														
AB	01/02	A – T & B – T																														
ABS	01/02	A – B & B – A																														
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ZDV*02	3.0 kg (6.6 lbs.)	3.7 kg (8.2 lbs.)																														



Ordering Information

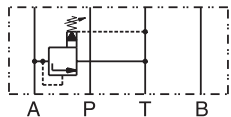
ZDV01

Pressure control P-T



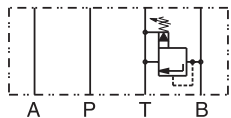
Series
 ZDVP011S0D1
 ZDVP015S0D1

Pressure control A-T



Series
 ZDVA011S0D1
 ZDVA015S0D1

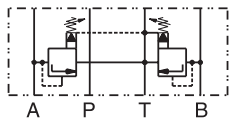
Pressure control B-T



Series
 ZDVB011S0D1
 ZDVB015S0D1

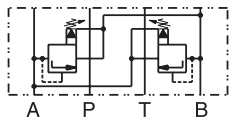
1 = 7 ... 70 Bar (102 ... 1015 PSI)
 5 = 7 ... 350 Bar (102 ... 5075 PSI)

Pressure control A-T & B-T



Series
 ZDVAB011S0D1
 ZDVAB015S0D1

Pressure control A-B & B-A



Series
 ZDVABS011S0D1
 ZDVABS015S0D1

1 = 7 ... 70 Bar (102 ... 1015 PSI)
 5 = 7 ... 315 Bar (102 ... 4568 PSI)

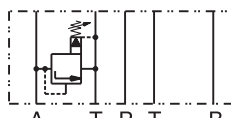
ZDV02

Pressure control P-T



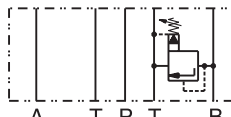
Series
 ZDVP021S0D1
 ZDVP025S0D1

Pressure control A-T



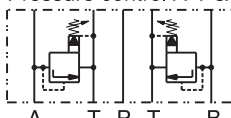
Series
 ZDVA021S0D1
 ZDVA025S0D1

Pressure control B-T



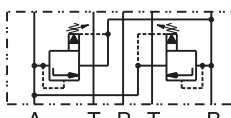
Series
 ZDVB021S0D1
 ZDVB025S0D1

Pressure control A-T & B-T



Series
 ZDVAB021S0D1
 ZDVAB025S0D1

Pressure control A-B & B-A



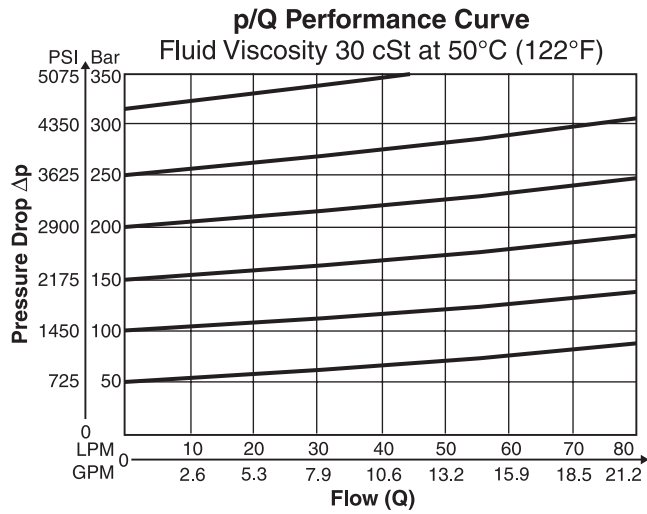
Series
 ZDVABS021S0D1
 ZDVABS025S0D1

Specifications

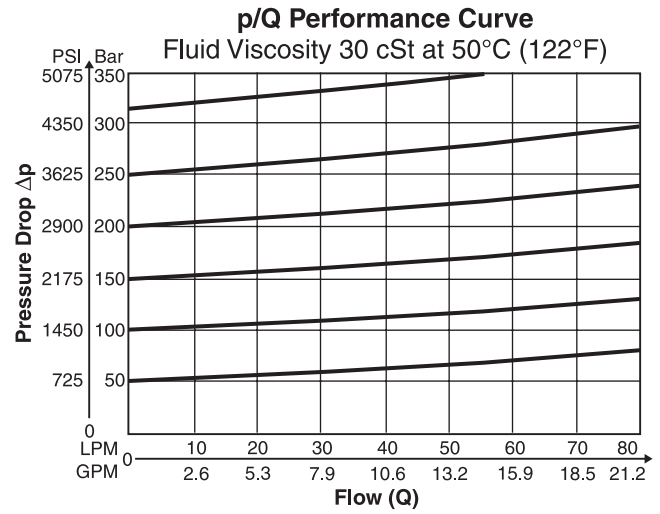
General		NG6	NG10
Size			
Mounting		DIN 24340 A6 ISO 4401 NFPA D03 CETOP RP 121	DIN 24340 A10 ISO 4401 NFPA D05 CETOP RP 121
Mounting Position		Unrestricted	
Ambient Temperature Range		-20° to +50°C (-4°F to +122°F)	
Hydraulic			
Maximum Operating Pressure		up to 350 Bar (5075 PSI); ZDV*ABS up to 315 Bar (4568 PSI)	
Nominal Flow		80 LPM (21.2 GPM)	140 LPM (37.0 GPM)
Fluid		Hydraulic oil as per DIN 51524 ... 51525	
Fluid Temperature		-20° to +80°C (-4°F to +176°F)	
Viscosity	Permitted Recommended	10 to 650 cSt / mm ² /s (46 to 3013 SSU) 30 cSt / mm ² /s (139 SSU)	
Filtration		ISO Class 4406 (1999) 18/16/13 (acc. NAS 1638: 7)	

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ZDV-P/A/B/ABS01

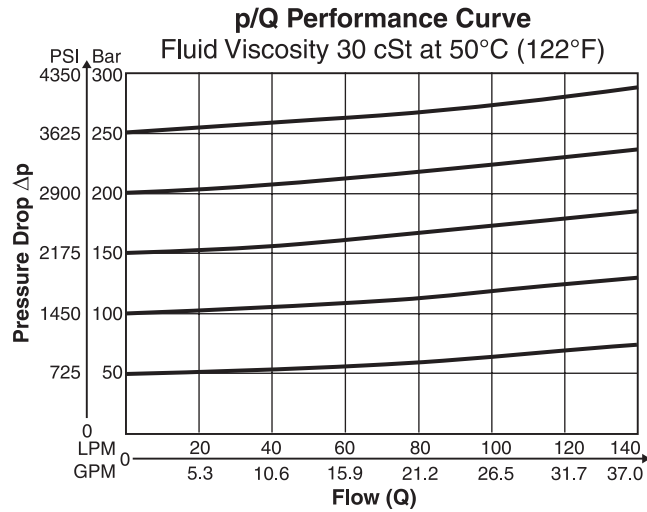


ZDV-AB01

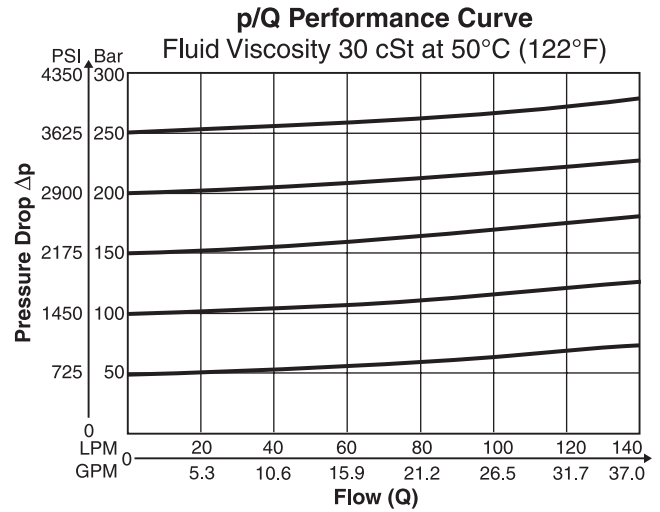


B

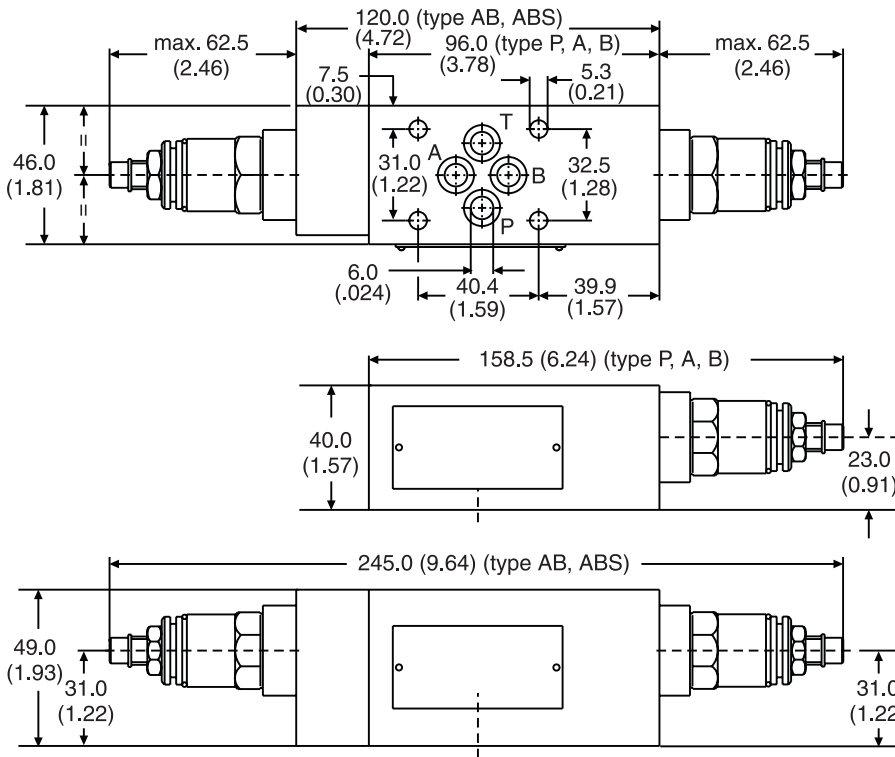
ZDV-P/A/B/AB02



ZDV-ASB02

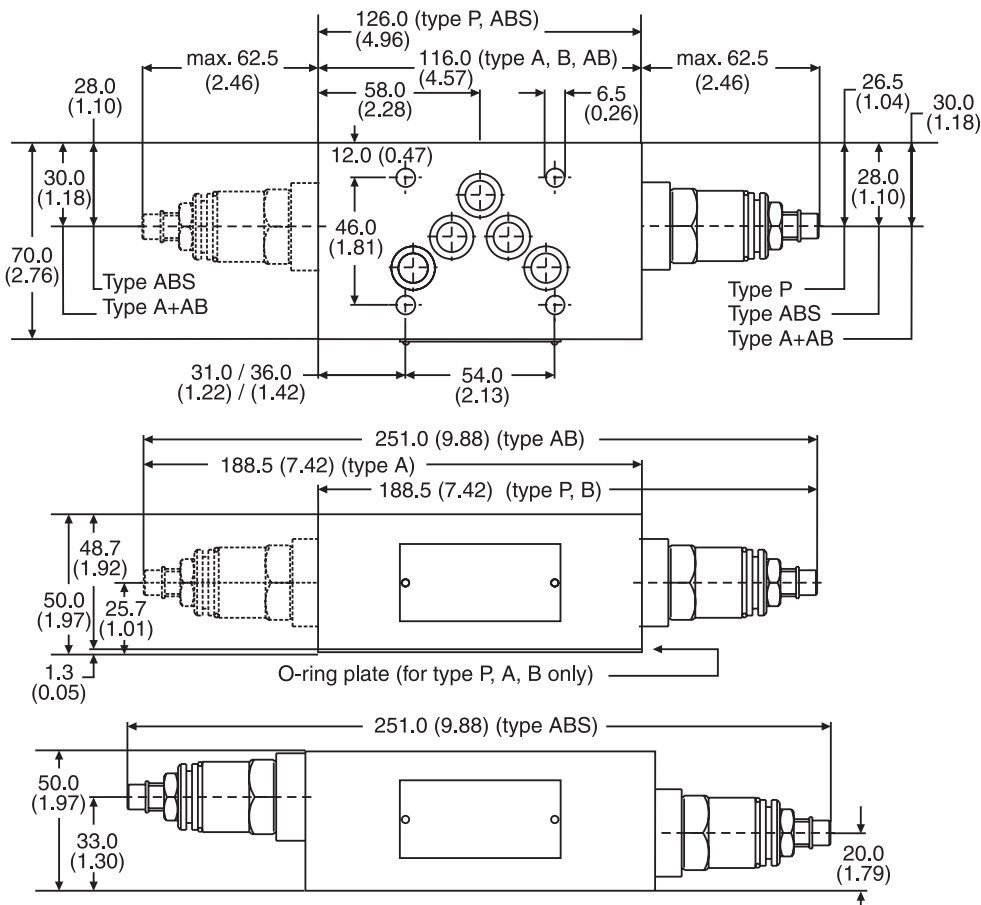


ZDV01 — Inch equivalents for millimeter dimensions are shown in (**)



Seal Kit	
Seal	Order Code
1	098-91182-0
5	098-91183-0
Complete Cartridge	
Seal	Order Code
1	098-91116-0
5	098-91117-0

ZDV02 — Inch equivalents for millimeter dimensions are shown in (**)



Seal Kit	
Seal	Order Code
1	098-91076-0
5	098-91077-0
Complete Cartridge	
Seal	Order Code
1	098-91116-0
5	098-91117-0

General Description

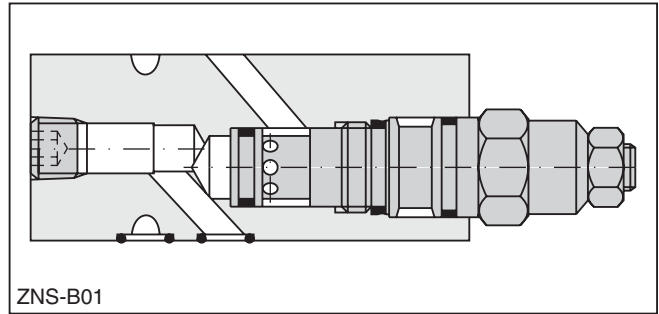
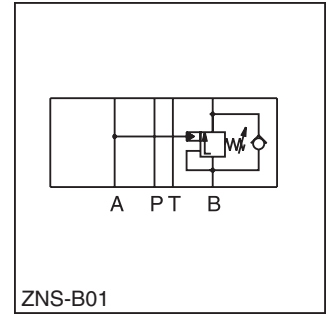
Series ZNS counterbalance valve controls the actuator movement at overrunning loads.

The return flow from the actuator is piloted and controlled by the inlet flow to the actuator, ensuring a cavitation-free lowering of the load.

The counterbalance valve operates as a pressure relief valve. The setting pressure is lowered by the pressure in the inlet line. To ensure safe load holding the setting pressure should be approximately 30% higher than the max. load pressure.

Features

- Controlled movement loads.
- Load holding via leak-free poppet valve.
- Secondary relief protection for the actuator.
- Sizes:
 ZNS*01 – NFPA D03 / NG6 / CETOP 3
 ZNS*02 – NFPA D05 / NG10 / CETOP 5



B

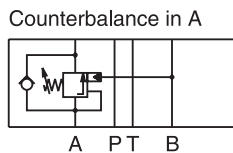
Ordering Information

ZNS					S0	D		
Counterbalance Valve		Port Option	Size	Pressure Range	Hexagon Screw with Lock Nut	Design Series	Seal	
Code	Description	Code	Description	Code	Description	Code	Description	
A	in A	01	NFPA D03 / NG6	2	70 to 175 Bar (1015 to 2538 PSI)		1	Nitrile
B	in B	02	NFPA D05 / NG10	5 ¹⁾	140 to 350 Bar (2030 to 5075 PSI)		5	Fluorocarbon
AB	in A and B							

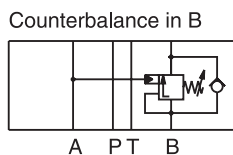
¹⁾ ZNS02 to 315 Bar (4568 PSI)

Weight:	1 cartridge	2 cartridges
ZNS*01	1.3 kg (2.9 lbs.)	3.0 kg (6.6 lbs.)
ZNS*02	1.6 kg (3.5 lbs.)	3.9 kg (8.6 lbs.)

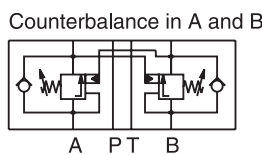
ZNS01



Series
 ZNSA012S0D1
 ZNSA015S0D1



Series
 ZNSB011S0D1
 ZNSB015S0D1



Series
 ZNSAB011S0D1
 ZNSAB015S0D1

2 = 70 ... 175 Bar (1015 ... 2538 PSI)
 5 = 140 ... 350 Bar (2030 ... 5075 PSI)

ZNS02

Series
 ZNSA022S0D1
 ZNSA025S0D1

Series
 ZNSB021S0D1
 ZNSB025S0D1

Series
 ZNSAB021S0D1
 ZNSAB025S0D1

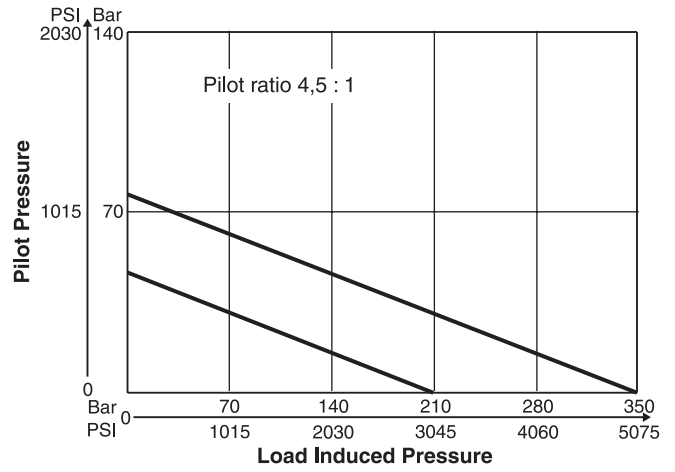
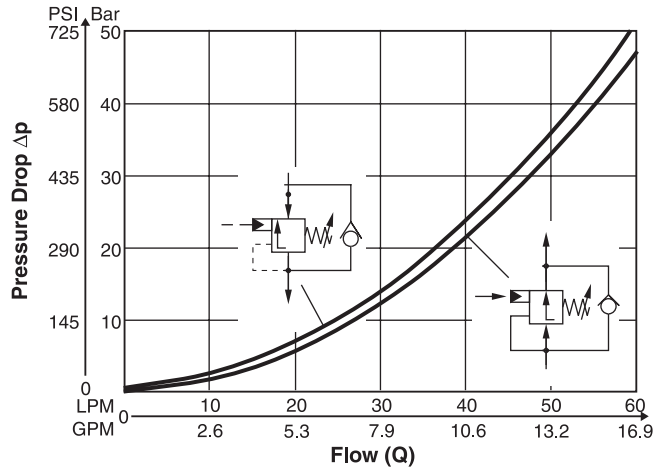
2 = 70 ... 175 Bar (1015 ... 2538 PSI)
 5 = 140 ... 315 Bar (2030 ... 4568 PSI)

Specifications

General		
Size	NG6	NG10
Mounting Interface	DIN 24340 A6 ISO 4401 NFFPA D03	DIN 24340 A10 ISO 4401 NFFPA D05
Mounting Position	Unrestricted	
Ambient Temperature Range	-20°C to +50°C (-4°F to +122°F)	
Hydraulic		
Maximum Operating Pressure	350 Bar (5075 PSI)	315 Bar (4568 PSI)
Pressure Range	175 Bar (2538 PSI), 350 Bar (5075 PSI)	
Pilot Ratio	4.5 : 1	
Leakage	On request	
Nominal Flow	60 LPM (15.9 GPM)	120 LPM (31.7 GPM)
Opening Pressure	0.3 LPM (0.1 GPM)	0.3 LPM (0.1 GPM)
Fluid	Hydraulic oil as per DIN 51524 ... 51525	
Fluid Temperature	-20°C to +80°C (-4°F to +176°F)	
Viscosity	Permitted	10 to 650 cSt / mm ² /s (46 to 3013 SSU)
	Recommended	30 cSt / mm ² /s (139 SSU)
Filtration	ISO Class 4406 (1999) 18/16/13 (acc. NAS 1638: 7)	

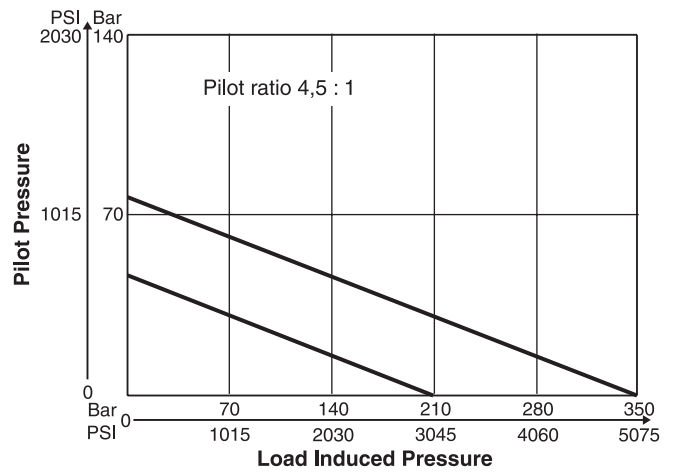
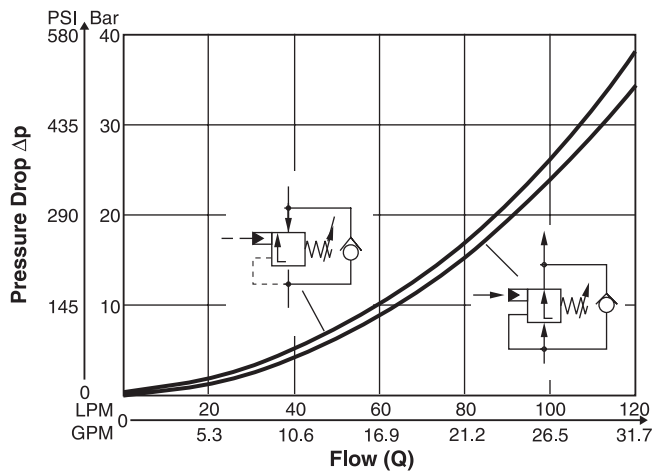
B

ZNS01



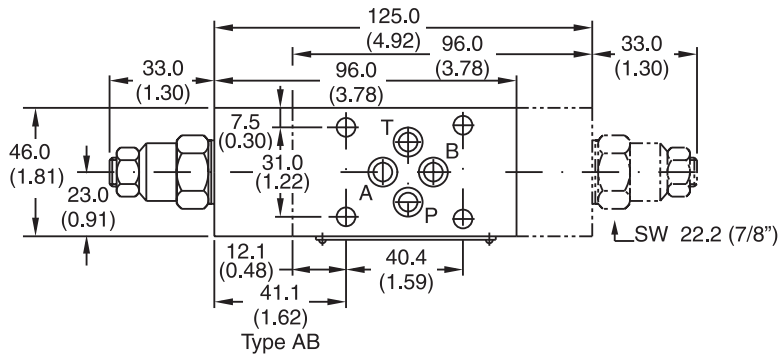
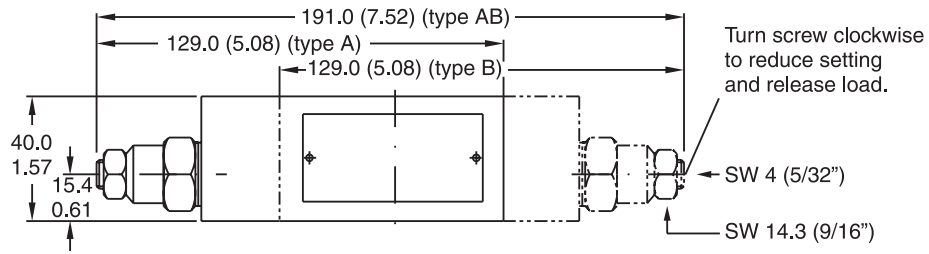
B

ZNS02



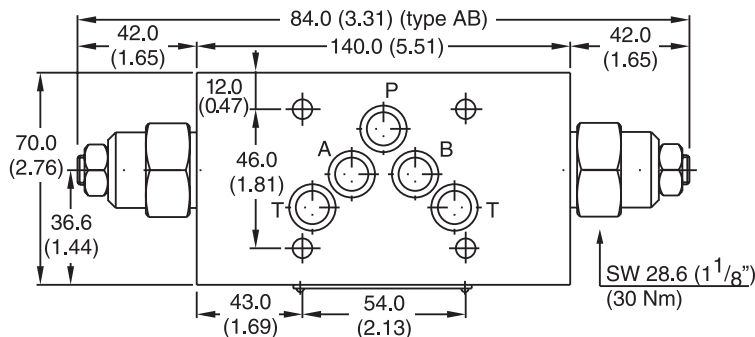
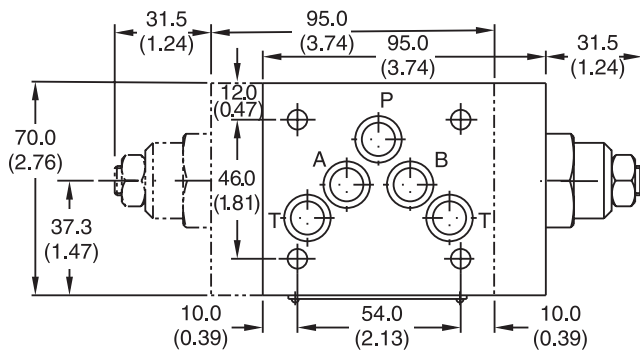
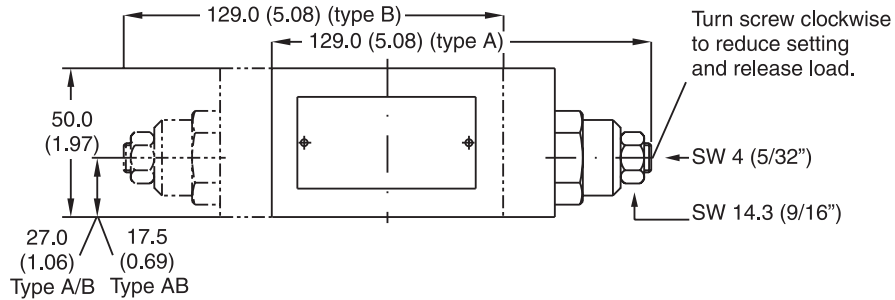
All characteristic curves measured with HLP46 at 50°C (122°F).

ZNS01 – Inch equivalents for millimeter dimensions are shown in (**)



Seal Kit	
Seal	Order Code
1	098-91153-0
5	098-91154-0
Complete Cartridge	
Seal	Order Code
1	517-01017-2
5	517-00448-8

ZNS02 – Inch equivalents for millimeter dimensions are shown in (**)



Seal Kit	
Seal	Order Code
1	098-91155-0
5	098-91183-0
Complete Cartridge	
Seal	Order Code
1	517-00449-8
5	517-00450-8

General Description

Series ZRD throttle check valves are designed for maximum flow rates.

The throttle check function can be located in port A or B as well as in A + B. Meter-in or meter-out functionality can be selected by model code.

A low flow / high resolution version in NFPA 03 / NG6 for sensitive shifting time adjustment of pilot operated directional control valves is available on request.

Features

- High flow capacity.
- Various functional arrangements.
- Sizes:
 - ZRD01 – NFPA D03 / NG6 / CETOP 3
 - ZRD02 – NFPA D05 / NG10 / CETOP 5

Ordering Information

ZRD
 Throttle Valve with Check

Meter Option

Size

S0
 Hexagon Screw with Lock Nut

—

D
 Design Series

Seal

Code	Description
AA	Meter-out Control in A
AZ	Meter-in Control in A
BA	Meter-out Control in B
BZ	Meter-in Control in B
ABA	Meter-out Control in A and B
ABZ	Meter-in Control in A and B

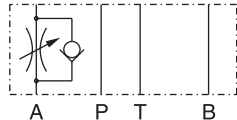
Code	Description
01	NFPA D03 / NG6
02	NFPA D05 / NG10

Code	Description
1	Nitrile
5	Fluorocarbon

Weight:	1 Cartridge	2 Cartridges
ZRD*01	1.2 kg (2.6 lbs)	1.3 kg (2.9 lbs)
ZRD*02	2.8 kg (6.2 lbs.)	2.9 kg (6.4 lbs.)

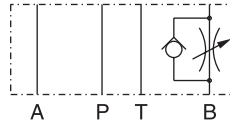
ZRD01

Meter-in control in A



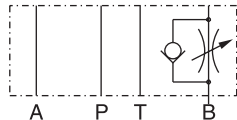
Series ZRDZA01S0D1

Meter-out control in B



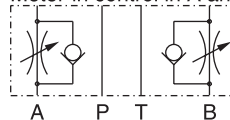
Series ZRDBA01S0D1

Meter-in control in B



Series ZRDBZ01S0D1

Meter-in control in A and B



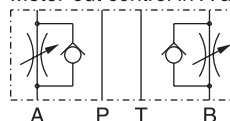
Series ZRDABZ01S0D1

Meter-out control in A



Series ZRDAA01S0D1

Meter-out control in A and B



Series ZRDABA01S0D1

ZRD02
 (continued on next page)

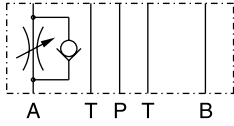
Denison Sandwich.indd, dd



Ordering Information

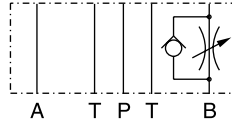
ZRD02

Meter-in control in A



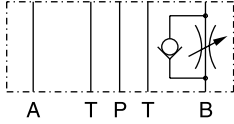
Series
ZRDAZ02S0D1

Meter-out control in B



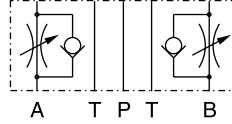
Series
ZRDBA02S0D1

Meter-in control in B



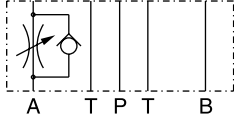
Series
ZRDBZ02S0D1

Meter-in control in A and B



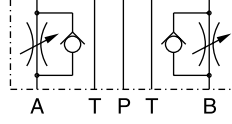
Series
ZRDABZ02S0D1

Meter-out control in A



Series
ZRDAA02S0D1

Meter-out control in A and B



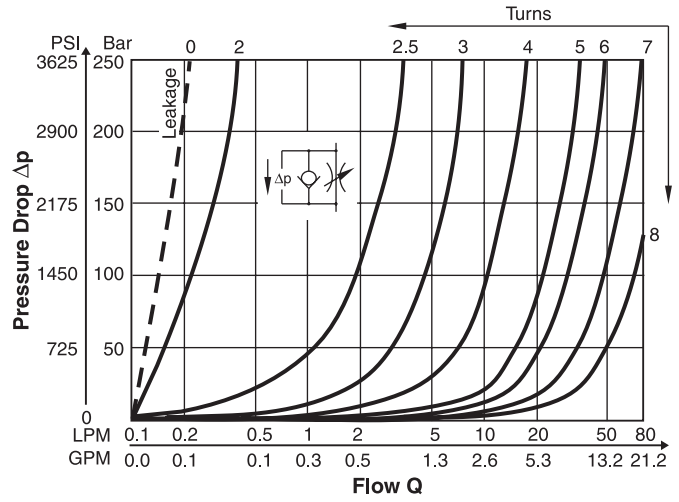
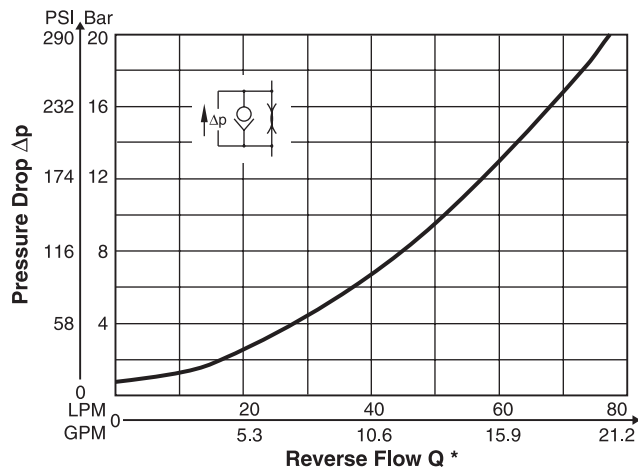
Series
ZRDABA02S0D1

Specifications

General		
Size	NG6	NG10
Mounting	DIN 24340 A6 ISO 4401 NFPA D03 CETOP RP 121	DIN 24340 A10 ISO 4401 NFPA D05 CETOP RP 121 5
Mounting Position	Unrestricted	
Ambient Temperature	-20°C to +50°C (-4°F to +122°F)	
Hydraulic		
Max. Operating Pressure	350 Bar (5075 PSI)	
Nominal Flow	80 LPM (21.2 GPM)	160 LPM (42.3 GPM)
Leakage	—	—
Cracking Pressure	—	—
Fluid	Hydraulic oil as per DIN 51524 ... 51525	
Fluid Temperature	-20°C to +80°C (-4°F to +176°F)	
Viscosity	10 to 650 cSt / mm ² /s (46 to 3013 SSU)	
Permitted Recommended	30 cSt / mm ² /s (139 SSU)	
Filtration	ISO 4406 (1999) 18/16/13 (acc. NAS 1638: 7)	

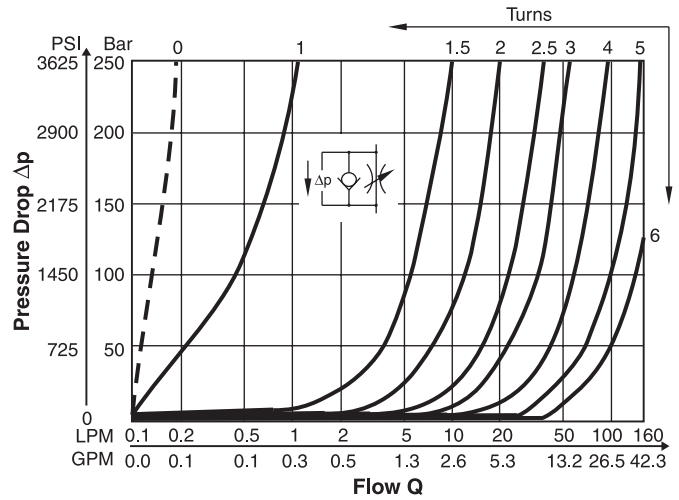
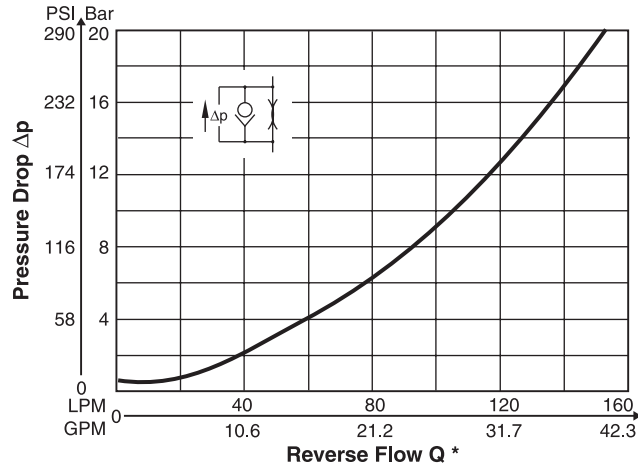
p/Q Performance Curves

ZRD01



B

ZRD02



* Throttle closed

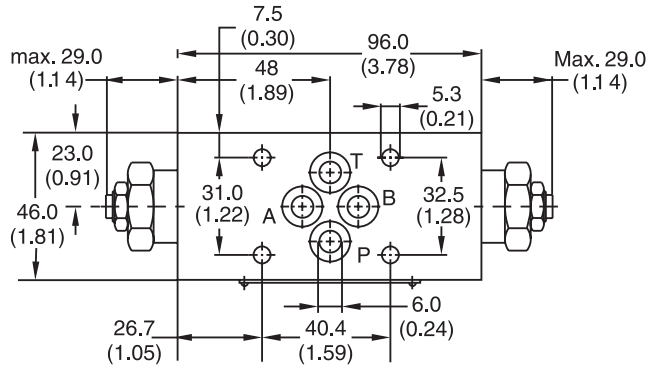
Fluid Viscosity 30 cSt @ 50°C (122°F)

ZRD01

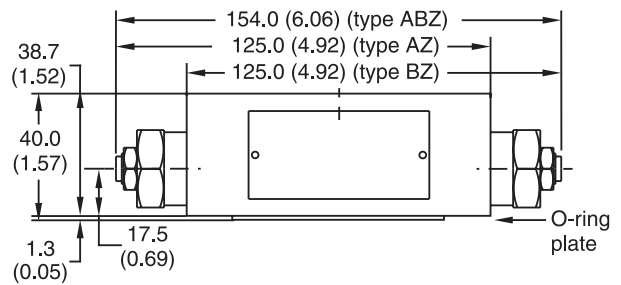
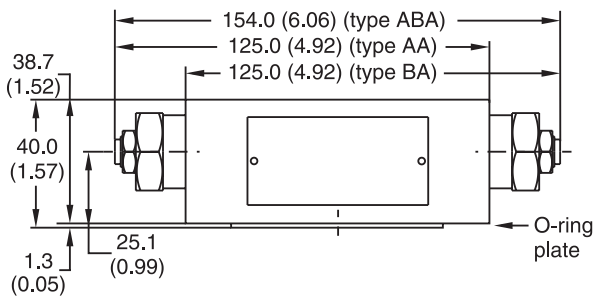
Inch equivalents for millimeter dimensions are shown in (**)



B

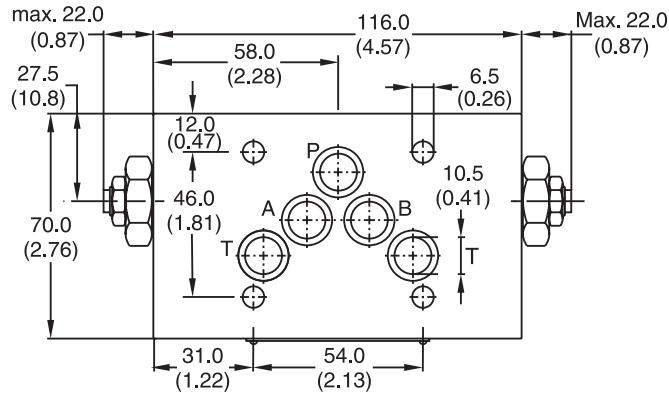


Seal Kit	
Seal	Order Code
1	098-91096-0
5	098-91097-0
Complete Cartridge	
Order Code	
098-91119-0	
O-ring Plate	
Order Code	
S26-27553-0	

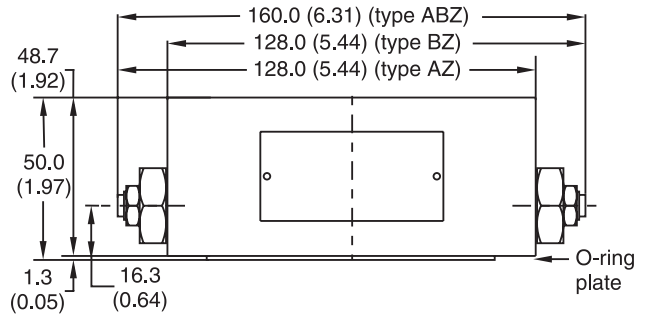
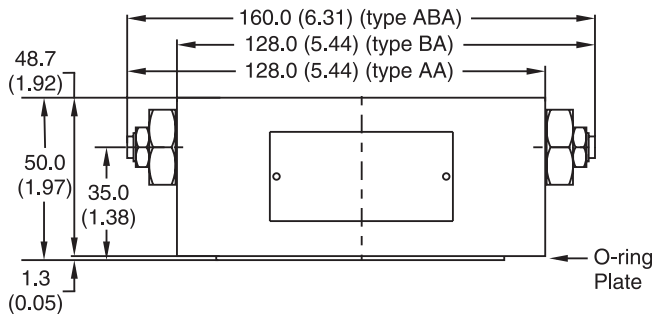


ZRD02

Inch equivalents for millimeter dimensions are shown in (**)



Seal Kit	
Seal	Order Code
1	098-91098-0
5	098-91099-0
Complete Cartridge	
Order Code	
098-91120-0	
O-ring Plate	
Order Code	
S16-85742-0	



General Description.

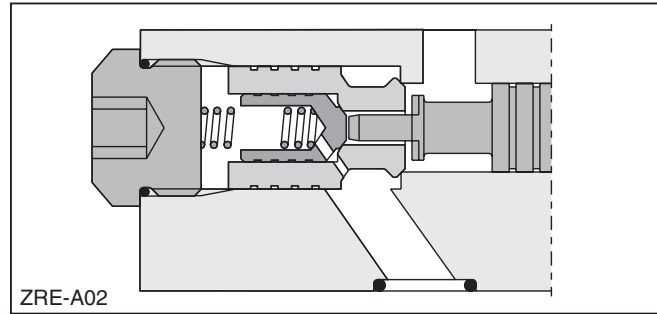
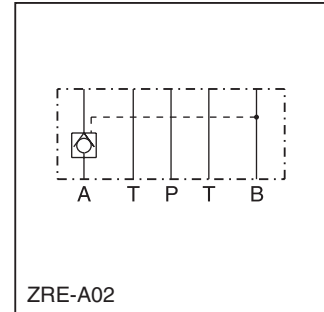
Series ZRE pilot operated check valves are designed for maximum flow rates and long life time.

The valves are typically used in combination with spool type directional control valves to ensure leak free positioning of the actuator.

The inlet flow is free while the outlet flow is blocked. Pressure in the inlet line opens the check valve and allows free outlet flow.

Features

- High life time.
- Check function in A, B or A + B.
- Sizes:
 - ZRE01 – NFPA D03 / NG6 / CETOP 3
 - ZRE02 – NFPA D05 / NG10 / CETOP 5



B

Ordering Information



Code	Description
A	Blocked in A
B	Blocked in B
AB	Blocked in A and B

Code	Description
01	NFPA D03 / NG6
02	NFPA D05 / NG10

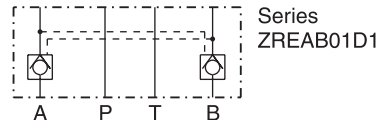
Code	Description
D	Size 01
E	Size 02

Code	Description
1	Nitrile
5	Fluorocarbon

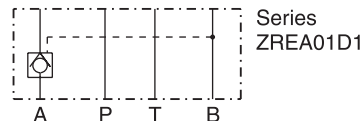
Weight:
 ZRE*01 1.2 kg (2.6 lbs)
 ZRE*02 3.1 kg (6.8 lbs.)

ZRE01

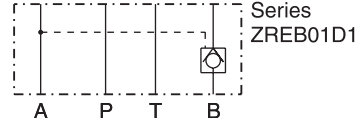
blocked in A and B



blocked in A

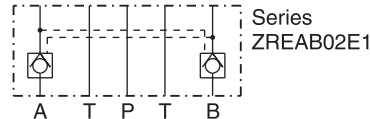


blocked in B

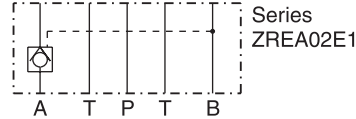


ZRE02

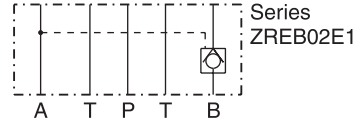
blocked in A and B



blocked in A



blocked in B



Denison Sandwich.indd, dd

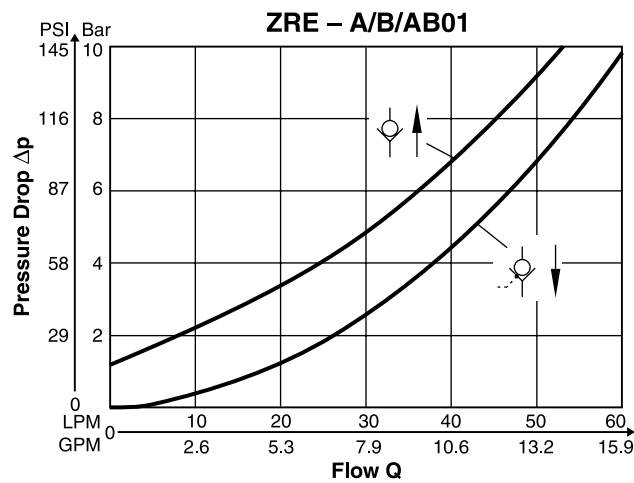
Specifications

General		
Size	NG6	NG10
Mounting Interface	DIN 24340 A6 ISO 4401 NFPA D03 CETOP RP 121	DIN 24340 A10 ISO 4401 NFPA D05 CETOP RP 121 5
Mounting Position	Unrestricted	
Ambient Temperature	-20°C to +50°C (-4°F to +122°F)	
Hydraulic		
Max. Operating Pressure	350 Bar (5075 PSI)	
Nominal Flow	60 LPM (15.9 GPM)	120 LPM (31.7 GPM)
Opening Ratio (Pilot Cone/Main Cone)	1:6	1:6
Cracking Pressure	1.2 Bar (17.4 PSI)	2.0 Bar (29.0 PSI)
Fluid	Hydraulic oil in accordance with DIN 51524 ... 51525	
Fluid Temperature	-20°C to +80°C (-4°F to +176°F)	
Viscosity	10 to 650 cSt / mm ² /s (46 to 3013 SSU)	
Permitted	30 cSt / mm ² /s (139 SSU)	
Recommended		
Filtration	ISO 4406 (1999) 18/16/13 (acc. NAS 1638: 7)	

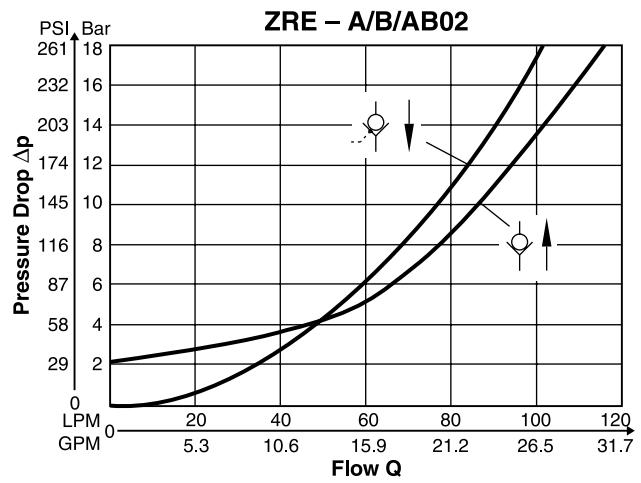
Performance Curves

p/Q

ZRE01



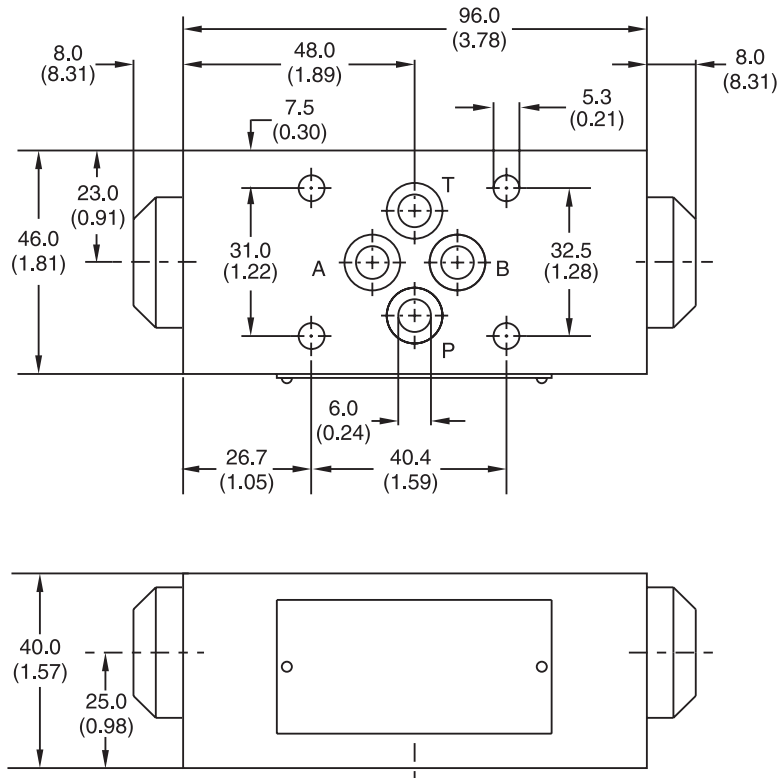
ZRE02



Fluid Viscosity 30 cSt at 50°C (122°F).

ZRE01

Inch equivalents for millimeter dimensions are shown in (**)

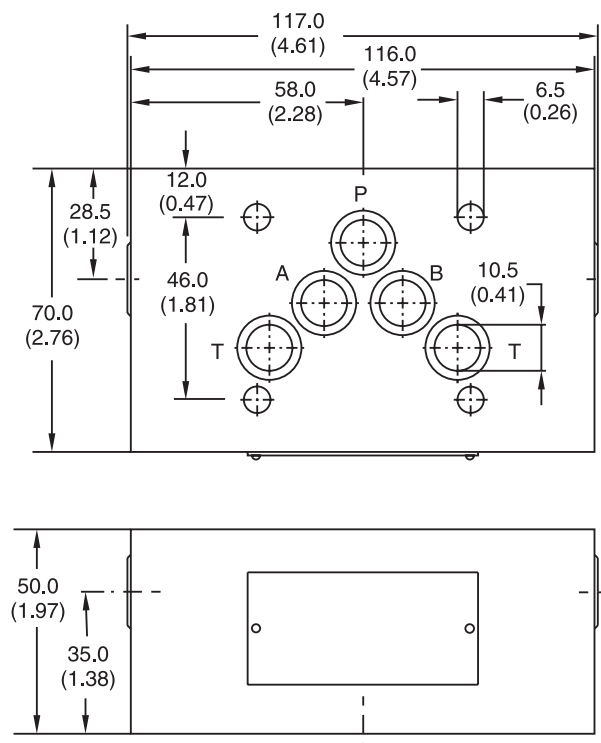


Seal Kit	
Seal	Order Code
1	098-91088-0
5	098-91089-0

B

ZRE02

Inch equivalents for millimeter dimensions are shown in (**)



Seal Kit	
Seal	Order Code
1	098-91090-0
5	098-91091-0



General Description

Series ZRV direct operated check valves have a cartridge type insert to provide zero leakage and high life time.

The check function can be located in the P-port or in the T-port.

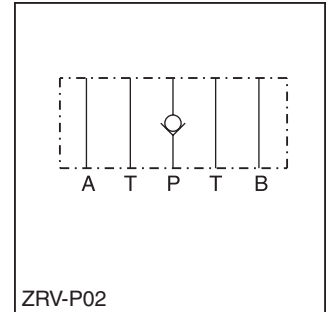
B

Features

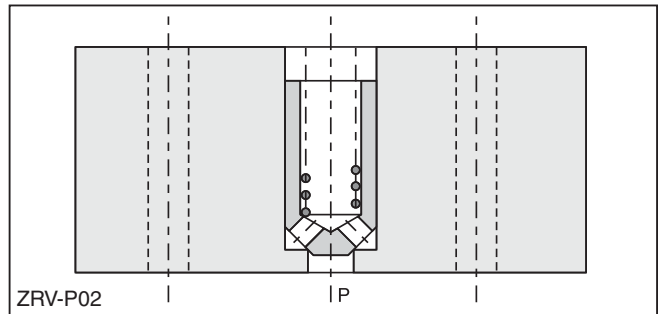
- Leakage-free seat.
- High life time.
- Cracking pressure 0.5 Bar (7.25 PSI).
- Sizes:
 - ZRV01 – NFPA D03 / NG6 / CETOP 3
 - ZRV02 – NFPA D05 / NG10 / CETOP 5



ZRV-P02

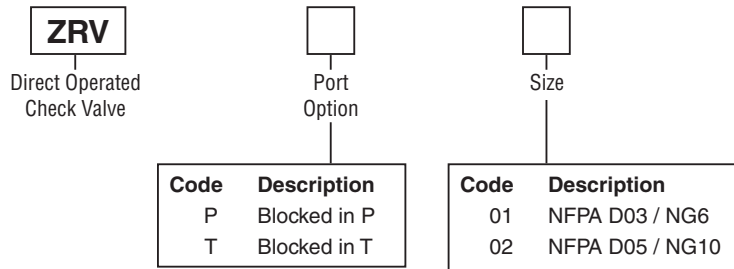


ZRV-P02



ZRV-P02

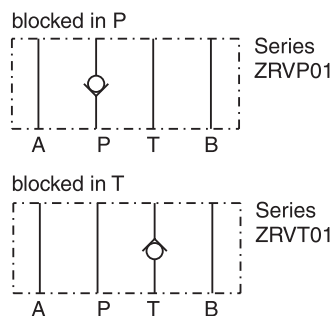
Ordering Information



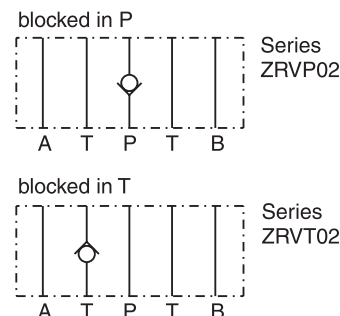
Weight:

ZRV*01 0.7 kg (1.5 lbs)
 ZRV*02 2.0 kg (4.4 lbs.)

ZRV01



ZRV02



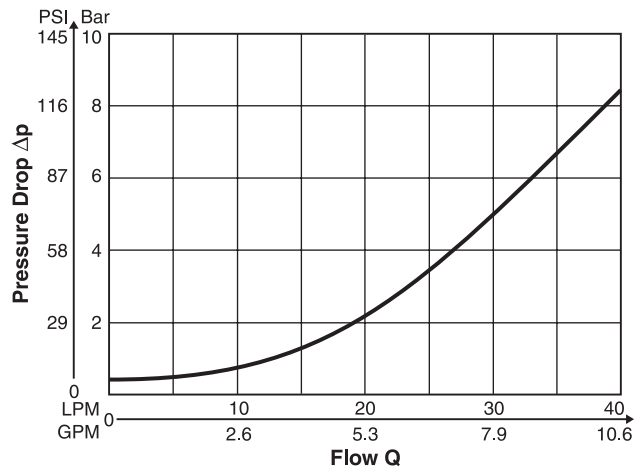
Specifications

General		
Size	NG6	NG10
Mounting Interface	DIN 24340 A6 ISO 4401 NFFPA D03 CETOP RP 121	DIN 24340 A10 ISO 4401 NFFPA D05 CETOP RP 121 5
Mounting Position	Unrestricted	
Ambient Temperature	-20°C to +50°C (-4°F to +122°F)	
Hydraulic		
Max. Operating Pressure	350 Bar (5075 PSI)	
Nominal Flow	40 LPM (10.6 GPM)	100 LPM (26.5 GPM)
Cracking Pressure	0.5 Bar (7.25 PSI)	0.5 Bar (7.25 PSI)
Fluid	Hydraulic oil as per DIN 51524 ... 51525	
Fluid Temperature	-20°C to +80°C (-4°F to +176°F)	
Viscosity	10 to 650 cSt / mm ² /s (46 to 3013 SSU)	
Permitted Recommended	30 cSt / mm ² /s (139 SSU)	
Filtration	ISO 4406 (1999) 18/16/13 (acc. NAS 1638: 7)	

B

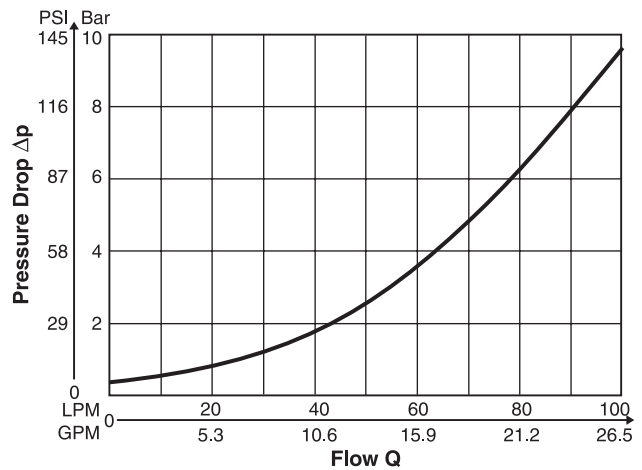
p/Q Performance Curves

ZRV P/T01



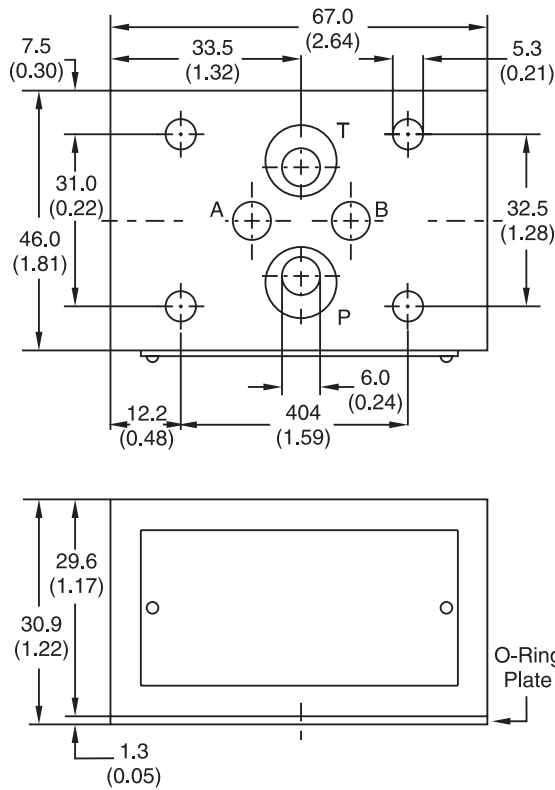
Fluid Viscosity 30 cSt at 50°C (122°F)

ZRV P/T02

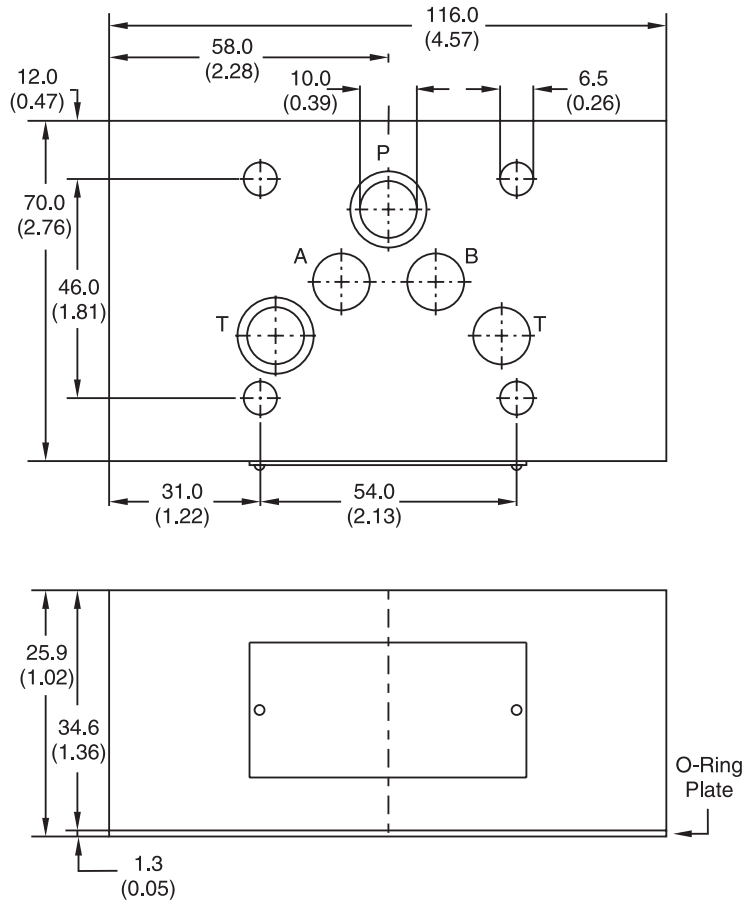


Fluid Viscosity 30 cSt at 50°C (122°F)

ZRV01 – Inch equivalents for millimeter dimensions are shown in (**)

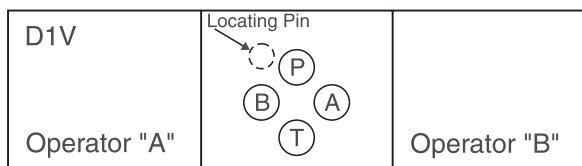


ZRV02 – Inch equivalents for millimeter dimensions are shown in (**)



CAUTION:
Sandwich Installation

Prior to installation of Sandwich valves, please review flow paths. Due to the reversibility of the DO3 size, incorrect installation will alter the hydraulic circuit. Care must be taken during installation to insure that the Sandwich is installed in compliance with the hydraulic schematic. Please consult with your Parker representative with any questions that may arise.



Pressure Ratings

Unless otherwise specified, all Parker Sandwich valves have continuous duty pressure rating as shown in this catalog.

Special Requirements

Consult your Parker representative for factory recommendations on such situations as:

- Installations that will operate at pressures higher than published catalog ratings.
- Use of hydraulic fluids which do not meet our recommended specifications.
- Operations where fluid temperature will exceed 121°C (250°F).

Recommended Mounting Surface

Surface must be flat within .0004 inch T.I.R. and smooth with 32 micro-inch.

System Cleanliness

Any hydraulic system that includes Parker valves should be carefully protected against dirt and fluid contamination. Life of the valves, as well as of all other components, will be greatly lengthened. Operation will be smoother and more precise. Maintenance and repairs will be reduced. Lost production because of low pressure and flow will be minimized. Fluid contamination should be maintained to less than 500 particles larger than 10 micrometers per milliliter of fluid (SAE class 4 or better/ISO Code 16/13).

Hydraulic Fluids

Parker recommends using top-quality hydraulic fluids having a viscosity range of 32 to 54 cSt (150 to 250 SSU) at 38°C (100°F). The absolute viscosity range should be 16 to 220 cSt (80 to 1000 SSU). Fluids should have highest anti-wear characteristics and be treated to avoid rust and oxidation.

Seals

When used with water-glycol, water/oil emulsions, and high-grade petroleum base hydraulic fluids, Parker standard nitrile seals are suitable.

When using phosphate ester fluids or their blends, specify Parker optional seals made of fluorocarbon. Synthetic fire-resistant fluids require special seal materials which your Parker representative can recommend.

Torque Specifications

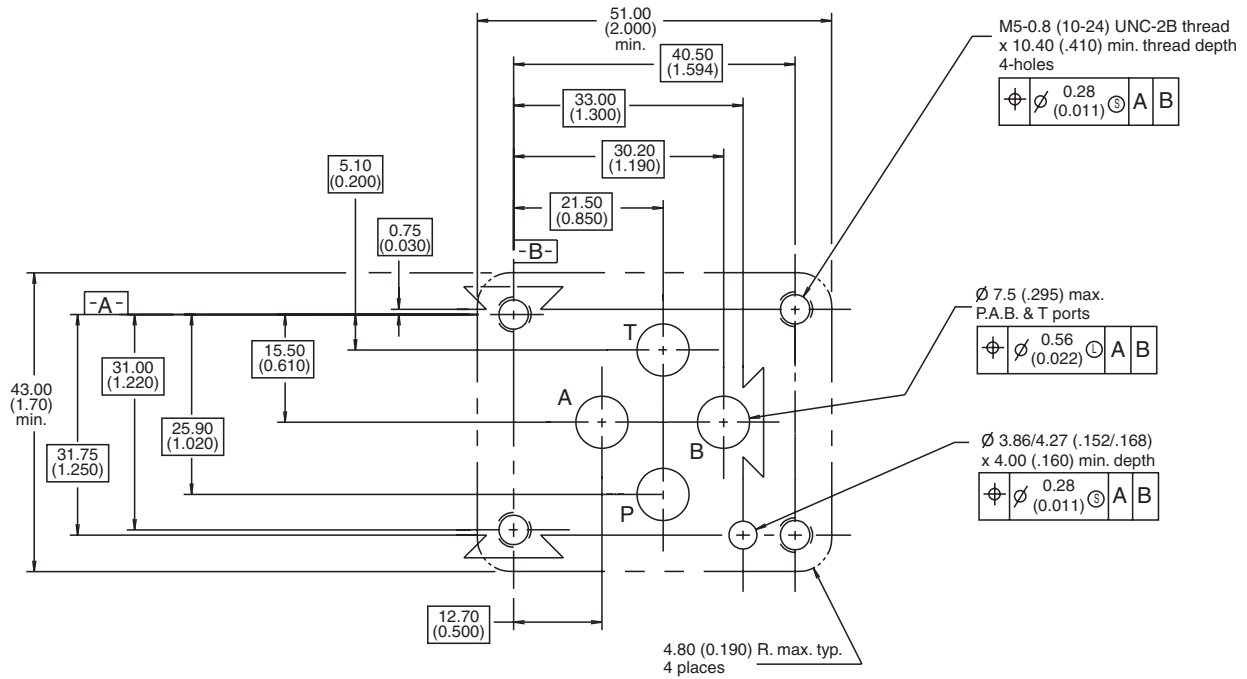
The recommended torque valves are for the bolts which mount the valve to the manifold or subplate are as follows:

Size	Torque Valve
D03	5.7 N.m. (50 in.-lbs.)
D05	16.3 N.m. (12 ft.-lbs.)
D07	63.0 N.m. (46.5 ft.-lbs.)
D08	108.5 N.m. (80 ft.-lbs.)



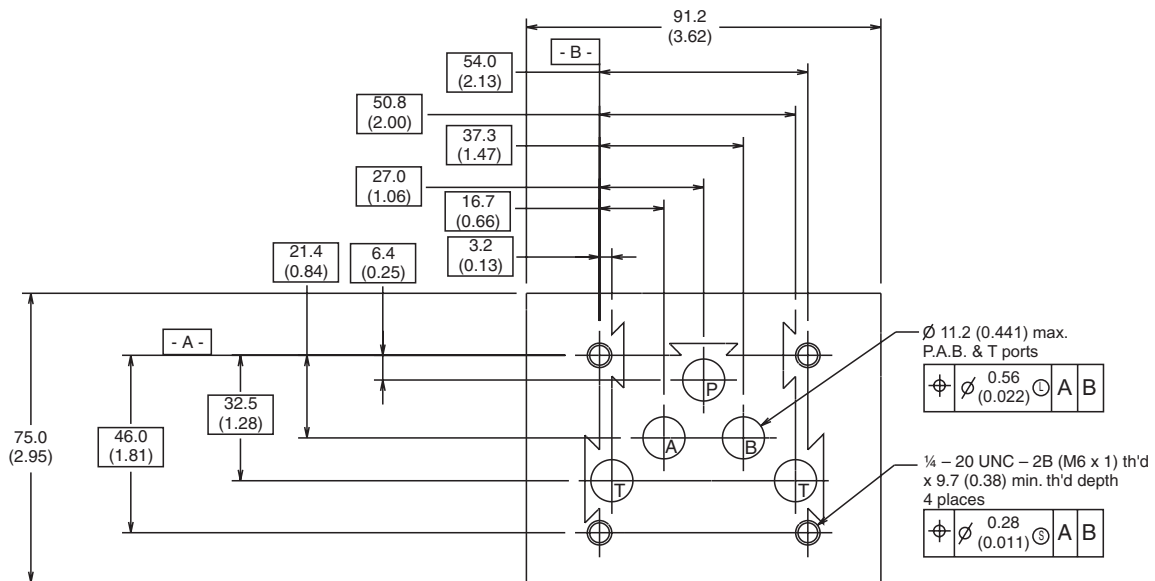
Mounting Pattern – NFPA D03, CETOP 3 & NG6

Inch equivalents for millimeter dimensions are shown in (**)



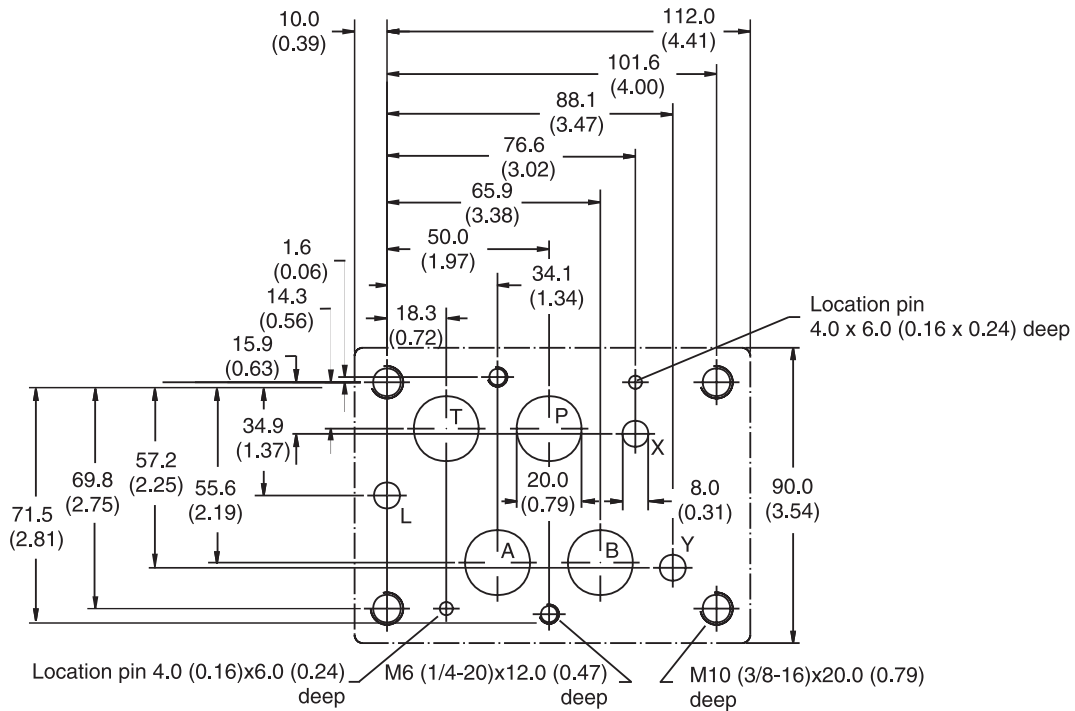
Mounting Pattern – NFPA D05, CETOP 5 & NG10

Inch equivalents for millimeter dimensions are shown in (**)



Mounting Pattern – NFPA D07, CETOP 7 & NG16

Inch equivalents for millimeter dimensions are shown in (**)



Mounting Pattern – NFPA D08, CETOP 8 & NG25

Inch equivalents for millimeter dimensions are shown in (**)

