

Section 06-A

Test Bench #4 Hydraulic Schematic

Section 06- B

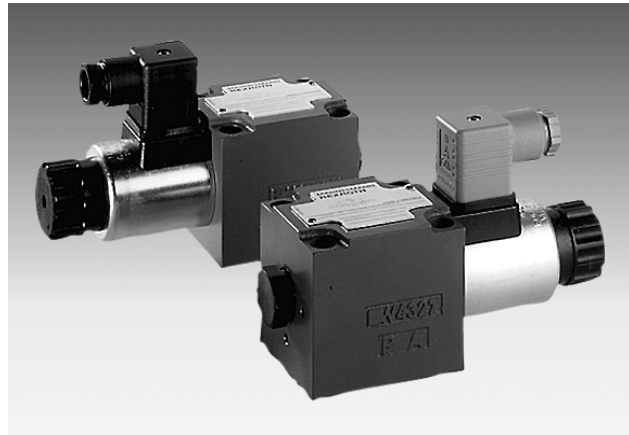
New Component Catalogue Sheets

MANNESMANN REXROTH	3/2 and 4/2-way Directional Poppet Valves with Solenoid Operation Model M-.SED 10, Series 1X			RA 22 045/06.98 Replaces: 02.96
	Size 10	... 5000 PSI (350 bar)	... 10.6 GPM (40 L/min)	

Features:

- Direct operated directional poppet valves with solenoid operation
- Mounts on standard ISO 4401-3, NFPA T3.5.1 M R1 and ANSI B 93.7 D 03 interface
- 1/4-20 UNC (M6) mounting bolts
- Leak-free closure in checked position
- Resists silting, even during extended pressure periods
- Wet pin DC solenoids with built-in rectifier for AC operation, independent of frequency
- Solenoids with removable coils
- Coils can be changed without engaging pressure chamber of valve body

H/A 4668/95

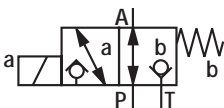


Model M-3SED 10 ^{UK}_{CK} 1X/315CG24N9K4 with plug-in connector

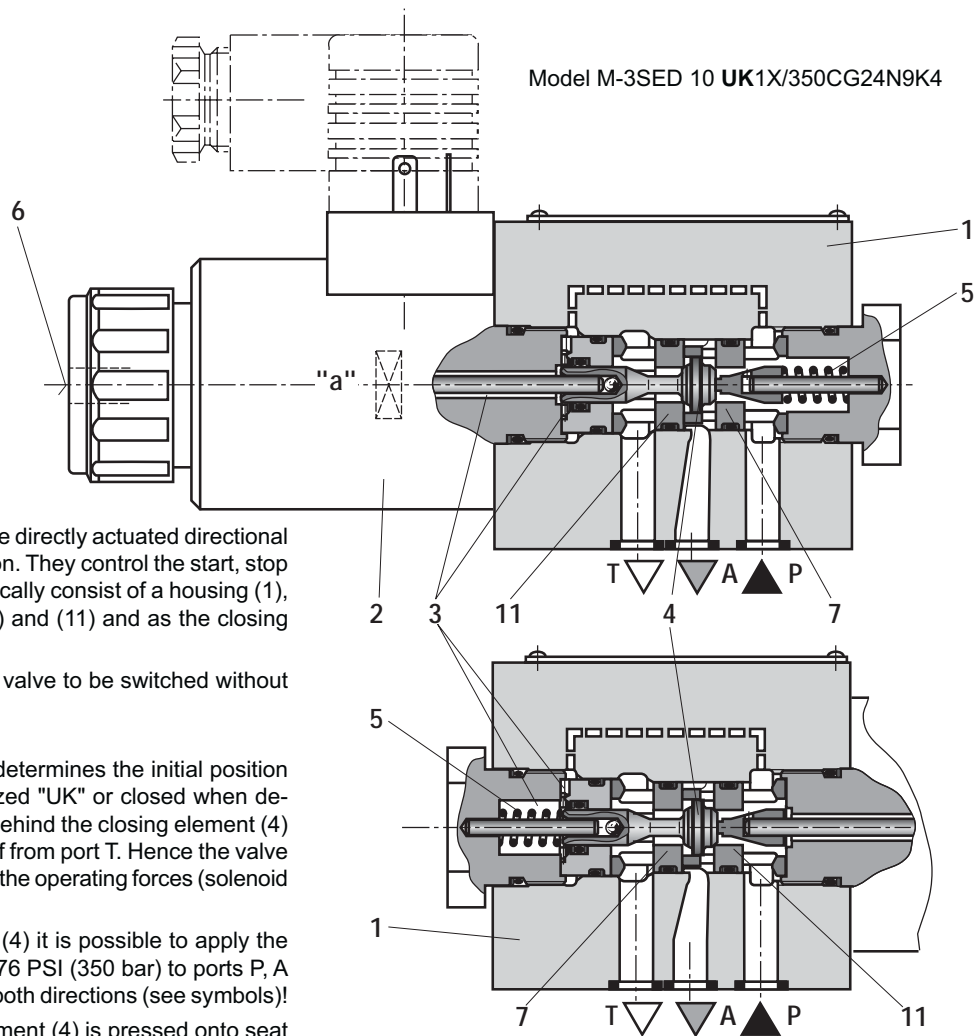
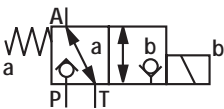


Functional description, section, symbols: 3/2-way directional poppet valve

Symbol "UK"



Symbol "CK"



Model M-3SED 10 **UK**1X/350CG24N9K4

General:

Directional valves model M-.SED are directly actuated directional poppet valves with solenoid actuation. They control the start, stop and direction of a fluid flow and basically consist of a housing (1), the solenoid (2), the valve seats (7) and (11) and as the closing device (4).

The manual override (6) allows the valve to be switched without energizing the solenoid.

Basic function:

The arrangement of the spring (5) determines the initial position of the valve (open when de-energized "UK" or closed when de-energized "CK"). The chamber (3) behind the closing element (4) is connected to port P and sealed off from port T. Hence the valve is pressure-balanced with respect to the operating forces (solenoid and spring).

Due to the special closing element (4) it is possible to apply the maximum operating pressure of 5076 PSI (350 bar) to ports P, A and T and the flow can also pass in both directions (see symbols)!

In the initial position the closing element (4) is pressed onto seat (11) by the spring (5), in the switched position it is pushed onto seat (7) by the solenoid (2). This results in leak-free closure.

Model M-3SED 10 **CK**1X/350CG24N9K4

Functional description, section, schematic illustration: 4/2-way directional poppet valves

In conjunction with a sandwich plate, a **plus-1 plate** under the 3/2-way directional poppet valve enables this valve to be used as 4/2-way directional poppet valve.

Function of the plus-1 plate:

Initial position:

The main valve is not actuated. The spring (5) holds the closing element (4) on its seat (11). Port P is closed, and port A is connected to T. In addition, a control line runs from A to the large area of the control piston (8) so that it is unloaded to tank. The pressure applied via P now moves ball (9) onto seat (10). P is now connected to B, and A to T.

Transition position:

When the main valve is operated, the closing element (4) is pushed against the spring (5) and hence onto seat (7). Port T is, therefore, closed and, P, A and B are briefly connected.

Snifted position:

P is connected to A. As the pump pressure acts via A on the large area of the control piston (8), ball (9) is pushed onto seat (12). Thus, B is connected to T and P to A. The ball (9) in the plus-1 plate has a "positive shifting overlap".

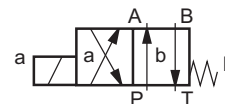
In order to avoid pressure intensification when single rod cylinders are used, the annulus area of the cylinder must be connected at A.

H/A 5285/95

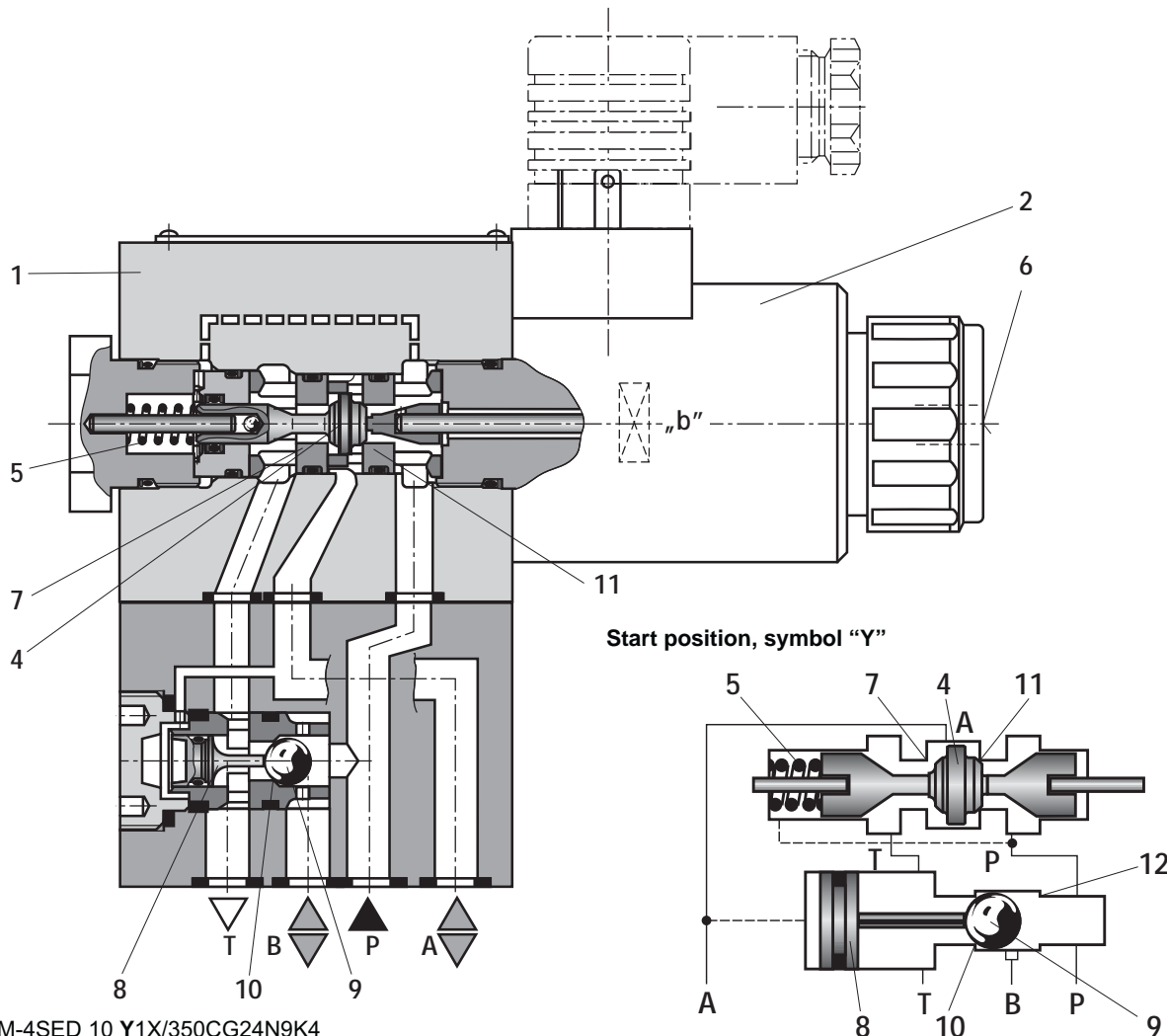
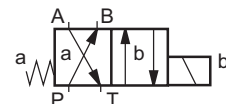


Model M-4SED 10 D1X/350CG24N9Z45

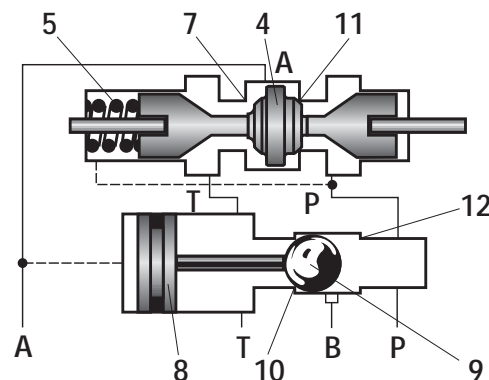
Symbol "D"



Symbol "Y"



Start position, symbol "Y"



General notes

Flow is only possible in the direction of the arrow, and within the corresponding pressure limitations (see power limits on page 4).

In order to operate the valve safely, please note the following points:

- 3/2-way directional poppet valves have a negative overlap. This means that during shift, some leakage occurs as ports P, A and T are connected together. This process occurs rapidly and is not a concern in most applications.
- When using the base plate (4/2-way function) the following values must be complied with $p_{\min} = 116 \text{ PSI (8 bar)}$, $q_v > 0.8 \text{ GPM (3 L/min)}$.
- Ports P, A, B and T are arranged according to function. They must not be plugged or used in any other manner!
- Port T must be connected to tank.
- Pay attention to pressure peaks and pressure distribution!
- Flow is only permissible in the direction of the arrow!
- The maximum flow must not be exceeded (if necessary, use an orifice insert to limit flow)!



Orifice insert

To limit maximum flow, orifice inserts are optionally available. The orifice insert is required when, due to operating conditions during switching, flow rates occur that exceed the performance limits of the valve. For this purpose, the insert installs in Port P.

Examples:

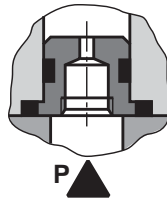
- accumulator circuits,
- application as a pilot valve with internal pilot drain.

3/2-way directional poppet valve

The cartridge throttle is inserted in port P of the poppet valve.

4/2-way directional poppet valve

The cartridge throttle is inserted in port P of the base plate.



Cartridge check valve insert

Cartridge check valves allow free flow from P to A and provide leakfree closure from A to P.

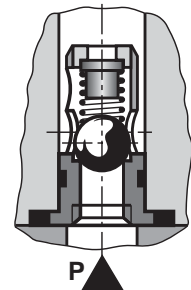
For examples, see page 10.

3/2-way directional poppet valves

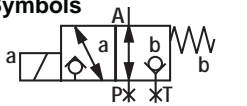
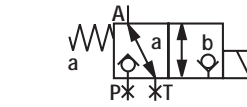
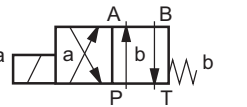
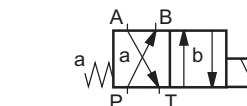
The cartridge check valve is inserted in the P port of the valve.

4/2-way directional poppet valves

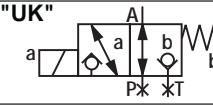
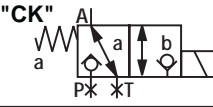
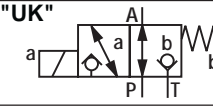
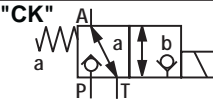
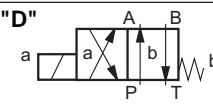
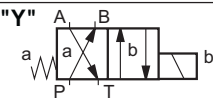
The cartridge check valve is inserted in the P port of the base plate.



Ordering code

Petroleum oil (HL, HM, HLP) = M Phosphate ester fluids (HFD-R) 3 service ports = 3 4 service ports = 4 Poppet valve Size 10 = 10		M SED 10 1X/350 C K4 *		Further details to be written in clear text no code = NBR seals, suitable for petroleum oils (HM, HL, HLP) V = FPM seals, suitable for phosphate ester fluids (HFD-R) no code = without cartridge check or orifice insert P = with cartridge check valve insert B12 = Orifice 0.047" (1.2 mm) dia. B15 = Orifice 0.059" (1.5 mm) dia. B18 = Orifice 0.071" (1.8 mm) dia. B20 = Orifice 0.079" (2.0 mm) dia. B22 = Orifice 0.087" (2.2 mm) dia. Orifice used when flow volume exceeds the power limit of the valve; inserted in the P port Electrical connector K4 = without angled plug connector(s) Z45 = angled plug Z55 = large angled plug Z55L = large angled plug with light N9 = with manual override no code = without manual override G24 = 24 V DC W110R = { 96/196 V DC solenoid with built-in rectifier in plug-in connector, for 110 V/220 V AC, independent of frequency (only possible with plug Z55) W220R = {	
Service ports 3 4 Symbols  = UK  = CK  = D  = Y ● = available		Series 10 to 19 (10 to 19: externally interchangeable) = 1X Operating pressure 5000 PSI (350 bar) = 350 Wet pin solenoid with removable coil = C			

Power Limits, measured at $n = 190$ SUS (41 mm²/s) and $t = 122$ °F (50°C)

	Symbol		Operating pressure in PSI (bar)				Flow in GPM (L/min)
			P	A	B	T	
2-way circuit (unloading function only)	"UK" 	With a 2/2-way circuit, port P or T has to be plugged by the customer!	5000 (350)	5000 (350)		5000 (350)	10.60 (40)
	"CK" 		5000 (350)	5000 (350)		5000 (350)	10.60 (40)
3-way switching	"UK" 		5000 (350)	5000 (350)		5000 (350)	10.60 (40)
	"CK" 		5000 (350)	5000 (350)		5000 (350)	10.60 (40)
4-way switching	"D" 	3/2-way valve (symbol "U") with plus-1 plate. $P \geq A \geq B \geq T$	5000 (350)	5000 (350)	5000 (350)	P/A/B – 580 (40)	10.60 (40)
	"Y" 	3/2-way valve (symbol "C") with plus-1 plate. $P \geq A \geq B \geq T$	5000 (350)	5000 (350)	5000 (350)	P/A/B – 580 (40)	10.60 (40)

The power limit was determined with solenoids at operating temperature, 10% under voltage, and no tank pressure.

Technical data (For applications outside these parameters, please consult us!)

General			
Installation position			optional
Ambient temperature range		°F (°C)	–22 ... +122 (–30 ... +50)
Weight	3/2-way directional poppet valve	lbs (kg)	5.7 (2.6)
	4/2-way directional poppet valve	lbs (kg)	8.6 (3.9)
Hydraulic			
Flow, max. (higher flows on request)		GPM (L/min)	10.60 (40)
Hydraulic fluid		Petroleum oils (HM, HL, HLP) Phosphate ester fluids (HFD-R)	
Fluid temperature range		°F (°C)	–22 ... +176 (–30 ... +80) (with NBR seals)
			–4 ... +176 (–20 ... +80) (with FPM seals)
Viscosity range		SUS (mm²/s)	35 ... 2320 (2.8 ... 500)
Maximum degree of contamination		Class 18/15 according to ISO 4406. Therefore, we recommend a filter with a retention rate of $\beta_{10} \geq 75$.	
Electrical			
Type of voltage		DC	AC
Available voltages ¹⁾		V	12, 24 , 42, 96, 110, 205, 220 (AC + rectifier) 96, 110 , 205
Power requirements		W	30
Duty cycle		continuous	
Shifting frequency		cycles/h	up to 15000 operations per hour, see table below
Insulation		exceeds NEMA class B	
Coil temperature range		°F (°C)	... 302 (150)

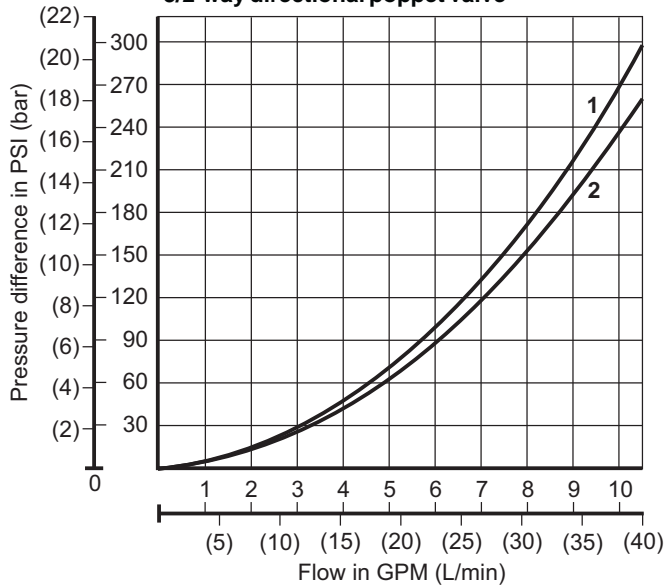
AC supply (permissible voltage tolerance $\pm 10\%$)	Nominal voltage of the DC solenoids when used with AC voltages	Order code
110 V - 50/60 Hz	96 V	G96
120 V - 60 Hz	110 V	G110
230 V - 50/60 Hz	205 V	G205

Operating time t in ms (Installation position: horizontal, solenoid on top)

Pressure <i>p</i> in PSI (bar)	Flow <i>q_v</i> in GPM (L/min)	DC solenoid						AC solenoid + rectifier					
		Symbols UK, CK, D, Y						Symbols UK, CK, D, Y					
		<i>t</i> _{ON}				<i>t</i> _{OFF}		<i>t</i> _{ON}				<i>t</i> _{OFF}	
		Without tank pressure				UK	D	Without tank pressure				UK	D
		UK	CK	D	Y	CK	Y	UK	CK	D	Y	CK	Y
1000 (70)	10.60 (40)	40	30	40	35	10	10	35	30	40	35	40	40
2000 (140)		40	45	35				45		40			
3000 (210)		45						45	45				
4000 (280)		50	45	50	45			50	45				
4600 (315)										50	50		
5000 (350)		50	45	50	45								

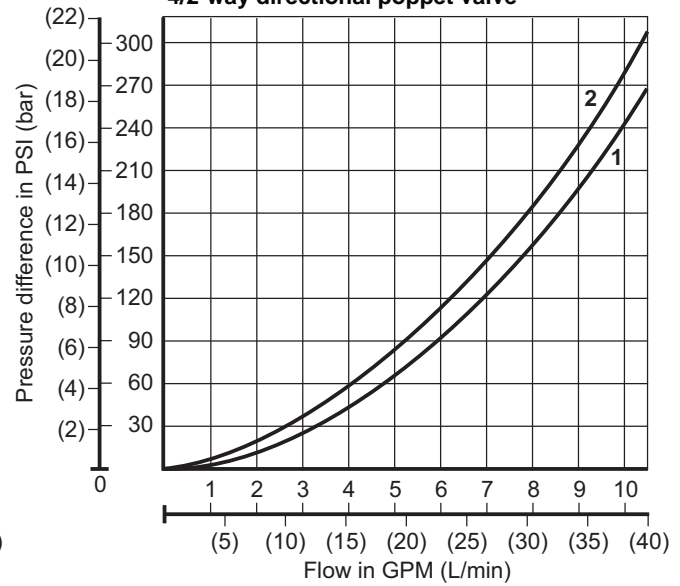
Performance curves; measured at $v = 190$ SUS ($41 \text{ mm}^2/\text{s}$) and $t = 122^\circ\text{F}$ (50°C)

$\Delta p/q_v$ characteristic curve
3/2-way directional poppet valve



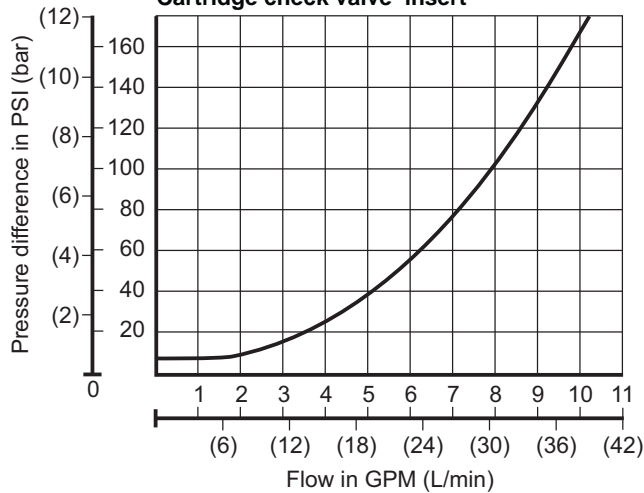
- 1 M-3SED 10 $\frac{UK}{CK}$..., P to A
2 M-3SED 10 $\frac{UK}{CK}$..., A to T

$\Delta p/q_v$ characteristic curve
4/2-way directional poppet valve

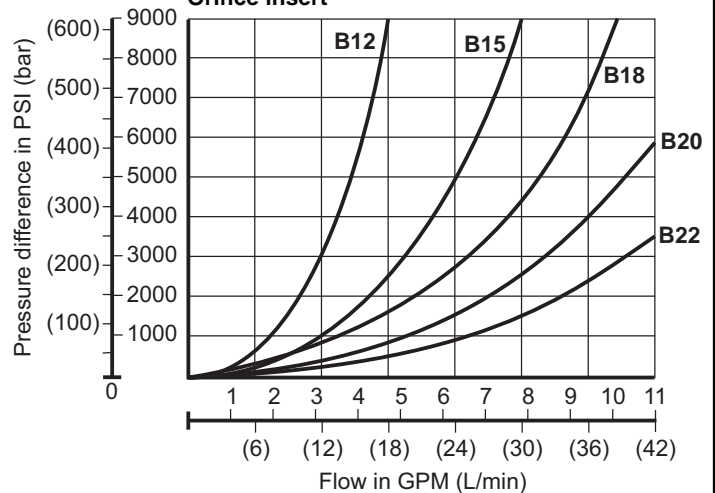


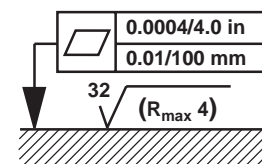
- 1 M-4SED 10 $\frac{D}{Y}$..., P to B, A to T
2 M-4SED 10 $\frac{D}{Y}$..., B to T, P to A

$\Delta p/q_v$ characteristic curve
Cartridge check valve insert



$\Delta p/q_v$ characteristic curve
Orifice insert

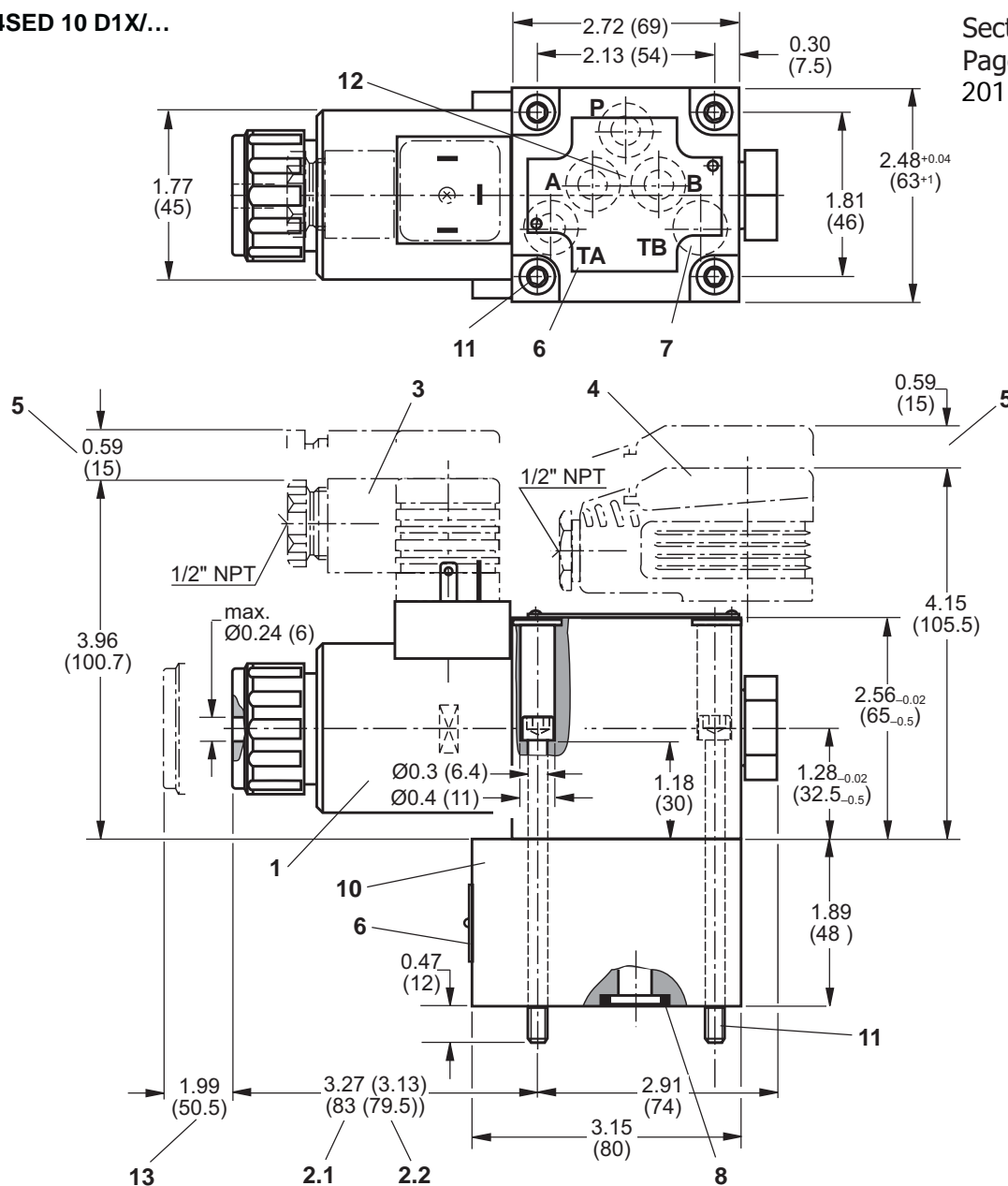




7/12

Unit dimensions, 4/2-way directional poppet valves (version "D"): dimensions in inches (mm)

Section 06-B
Page 9
2011-08-12

Model M-4SED 10 D1X/...

1 Solenoid "a"

2.1 Protected manual override "N9"

2.2 Without manual override

3 Plug-in connector
(can be rotated 90°)4 Large plug-in connector
(can be rotated 90°)5 Space required to remove plug-in
connector

6 Nameplate

7 **Warning!**On 4/2-way directional valves,
port TB is a spot face only8 R-ring 13 mm x 1.6 mm x 2 mm
ports A, B and TR-ring 14.6 mm x 1.6 mm x 1.78 mm
port P

10 Base plate, 4/2 function

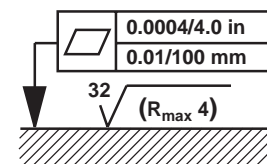
11 **Valve mounting bolts**

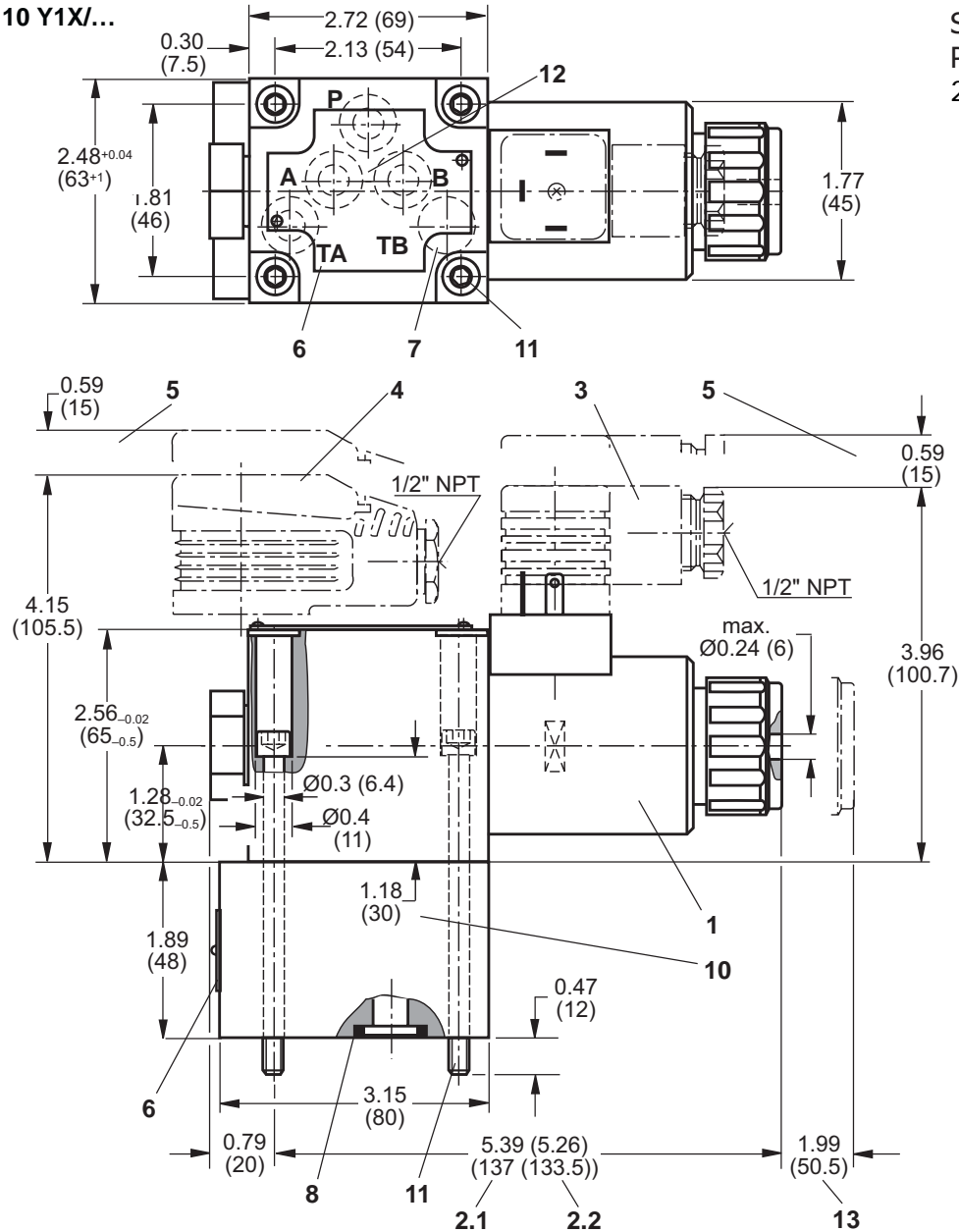
4) 1/4-20 UNC x 3-1/2"

(M6 x 90 DIN 912-10.9)

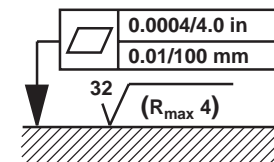
Tightening torque
 $M_A = 11.43 \text{ lb. ft (15.5 Nm)}$
included in supply12 **Subplates** G66/01 (SAE-6)
G67/01 (SAE-8)see to data sheet RA 45 054
must be ordered separately.

13 Space required to remove coil

Required surface finish of the
mating piece.

Unit dimensions, 4/2-way directional poppet valves (version "Y"): dimensions in inches (mm)**Model M-4SED 10 Y1X/...**Section 06-B
Page 10
2011-08-12

- 1 Solenoid "b"
- 2.1 Protected manual override "N9"
- 2.2 Without manual override
- 3 Plug-in connector (can be rotated 90°)
- 4 Large plug-in connector (can be rotated 90°)
- 5 Space required to remove plug-in connector
- 6 Nameplate
- 7 **Warning!**
On 4/2-way directional valves, port TB is a spot face only
- 8 R-ring 13 mm x 1.6 mm x 2 mm ports A, B and T
R-ring 14.6 mm x 1.6 mm x 1.78 mm port P
- 10 Base plate, 4/2 function
- 11 **Valve mounting bolts**
4) 1/4-20 UNC x 3-1/2" (M6 x 90 DIN 912-10.9)
Tightening torque
 $M_A = 11.43 \text{ lb. ft (15.5 Nm)}$
included in supply
- 12 **Subplates** G66/01 (SAE-6)
G67/01 (SAE-8)
see to data sheet RA 45 054
must be ordered separately.
- 13 Space required to remove coil

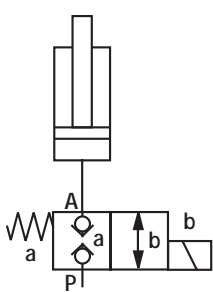
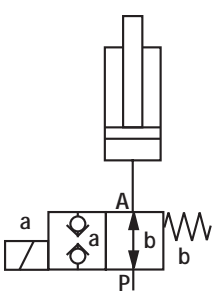
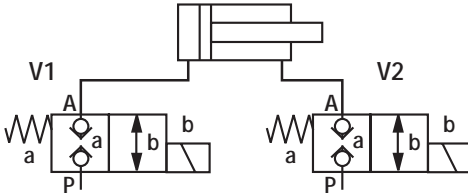
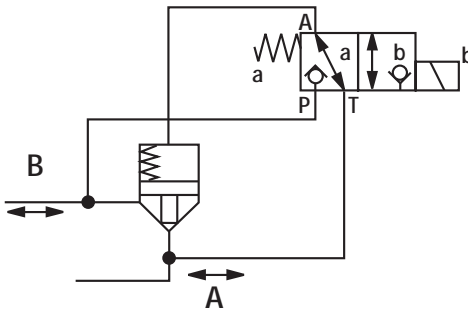
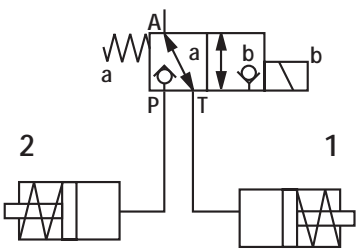
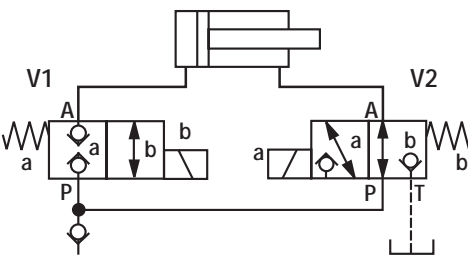


32 $\sqrt{\text{R}_{\text{max}} 4}$

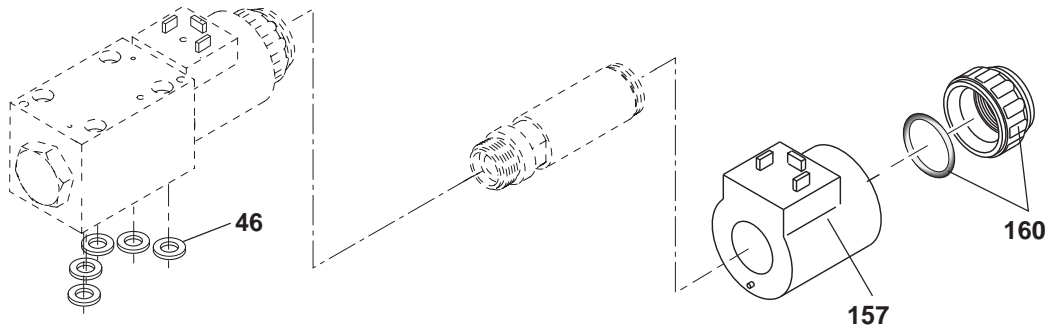
Required surface finish of the mating piece.

Application examples:

These examples serve only to explain the possibilities offered by the poppet valve. They do not include all of the functions.

	<p>2/2-way circuit</p> <p>Initial position: Flow path is blocked, maximum pressure is permissible. The pressure at the actuator is held constant even when the pump is switched off.</p> <p>Shifted position: Flow path is open, maximum pressure is permissible.</p>		<p>2/2-way circuit</p> <p>Initial position: Lifting Holding only due to limitation of travel and pressure in port P.</p> <p>Shifted position: Closed</p>
	<p>2/2- way circuit with 2 valves</p> <p>Initial position: Hold cylinder.</p> <p>Shifted position: Flow path in both directions. The travel direction is determined by actuating V1 and V2.</p>		
	<p>3/2- way circuit</p> <p>Initial position: Logic held closed from side A.</p> <p>Shifted position: Logic held closed from side B.</p>		
<p>Symbol "CK"</p> 	<p>3/2-way circuit</p> <p>Initial position: P closed, pressure at A and T. Cylinder 1 moves to the right, unloaded at A. Cylinder 1 moves to the left.</p> <p>Shifted position: T closed, pressure at A and P. Cylinder 2 moves to the left, unloaded at A. Cylinder 2 moves to the right.</p>		
<p>Symbol "2/2" + "UK"</p> 	<p>4/2-way circuit with a 2/2- and a 3/2-way poppet valve</p> <p>V1 and V2 are in the initial position: piston is externally locked in position.</p> <p>V1 and V2 in their shifted position: piston moves to the right.</p> <p>V1 in its shifted position and V2 is in its initial position: cylinder moves to the left, both sides of the cylinder are connected to the pump connection.</p> <p>⚠ Attention! When using differential cylinders, the performance limits (double flow) and the maximum operating pressure (pressure intensification) of the valve have to be taken into account!</p>		

Ordering code: Spare parts and seals



Spare parts – Solenoid

Item	Designation	DC	
		Voltage	Order no.
157	Coil for individual connection	12 V	RR00 021388
		24 V	RR00 021389
		96 V	RR00 021392
		205 V	RR00 071036
160	Seal kit – nut for solenoid tube without manual override		RR00 838168
	Seal kit – nut for solenoid tube with protected manual override		RR00 838254

Seal kit – Valve: Individual connection

Item	Sealing material	Order number
46	NBR seals	RR00 074153
	FPM seals	RR00 074157

Notes

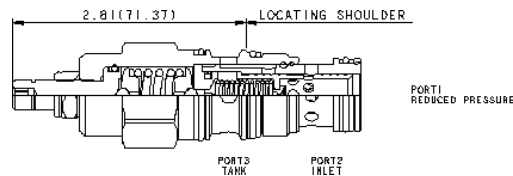
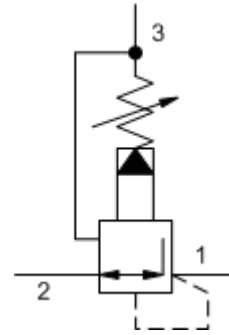
Mannesmann Rexroth Corporation
Rexroth Hydraulics Div., Industrial, 2315 City Line Road, Bethlehem, PA 18017-2131 Tel. (610) 694-8300 Fax: (610) 694-8467
Rexroth Hydraulics Div., Mobile, 1700 Old Mansfield Road, Wooster, OH 44691-0394 Tel. (330) 263-3400 Fax: (330) 263-3333

Model: PPFB-LWN

Capacity: 20 gpm (80 L/min.)

Pilot operated, pressure reducing/relieving valve

Pilot-operated, pressure reducing/relieving valves reduce a high primary pressure at the inlet (port 2) to a constant reduced pressure at port 1, with a full-flow relief function from port 1 to tank (port 3).



Technical Data

	U.S. Units	Metric Units
Cavity	T-2A	
Capacity	20 gpm	80 L/min.
Adjustment - Number of Clockwise Turns to Increase Setting	5	
Control Pilot Flow	10 - 15 in ³ /min.	0,16 - 0,25 L/min.
Factory Pressure Settings Established at	blocked control port (dead headed)	
Maximum Operating Pressure	5000 psi	350 bar
Series (from Cavity)	Series 2	
Valve Hex Size	1 1/8 in.	28,6 mm
Valve Installation Torque	45 - 50 lbf ft	60 - 70 Nm
Adjustment Screw Internal Hex Size	5/32 in.	4 mm
Adjustment Locknut Hex Size	9/16 in.	15 mm
Adjustment Nut Torque	108 lbf in.	12 Nm
Model Weight	.60 lb	0,30 kg
Seal Kits - Cartridge	Buna: 990-202-007	
Seal Kits - Cartridge	Viton: 990-202-006	

Control

L Standard Screw Adjustment

Adjustment Range

150 - 4500 psi (10,5 - 315 W bar), 200 psi (14 bar) Standard Setting

External Material/Seal Material

N Buna-N

<http://www.sunhydraulics.com>

Date Created: 10/23/2009

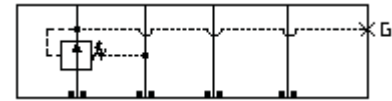
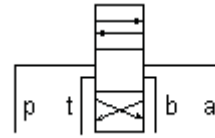
Copyright © 2008-2009 Sun Hydraulics Corporation. All rights reserved.

Model: BBP/S

T-2A cavity ISO 05 sandwich manifold

Aluminum Body Pressure Rating: 3000 psi (210 bar)

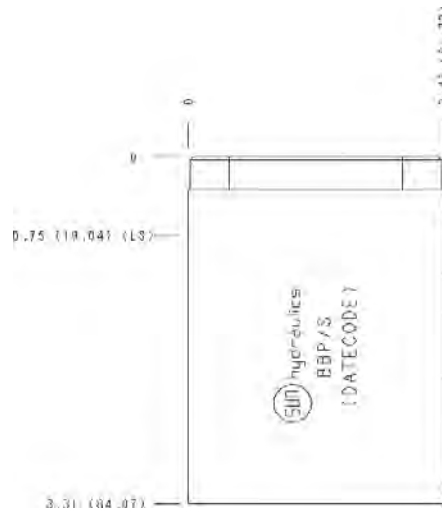
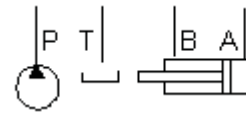
Ductile Iron Body Pressure Rating: 5000 psi (350 bar)



Reducing, On P, drain to T



Reducing/Relieving, On P tank to T



Technical Data

	U.S. Units	Metric Units
Cavity		T-2A
Body Features	On P, port 3 to T	
Body Type	Sandwich	
Interface	ISO 05	
Open Cavity Quantity	1	
Stack Height	2.44 in.	62 mm

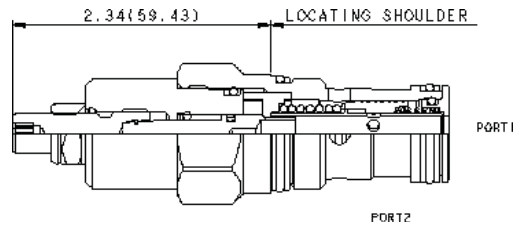
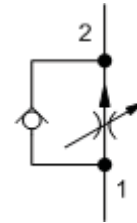
Display Components

Model: FDCB-LAN

Capacity: 12 gpm (45 L/min.)

Fully adjustable pressure compensated flow control valve with reverse flow check

Fully adjustable, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. They are infinitely adjustable from nearly closed up to the maximum flow. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1.



Technical Data

	U.S. Units	Metric Units
Cavity		T-5A
Capacity	12 gpm	45 L/min.
Adjustment - Number of Counterclockwise Turns - Fully Closed to Fully Open		5
Maximum Operating Pressure	5000 psi	350 bar
Series (from Cavity)		Series 2
U.S. Patent #		4,630,640
Valve Hex Size	1 1/8 in.	28,6 mm
Valve Installation Torque	45 - 50 lbf ft	60 - 70 Nm
Adjustment Screw Internal Hex Size	5/32 in.	4 mm
Adjustment Locknut Hex Size	9/16 in.	15 mm
Adjustment Nut Torque	108 lbf in.	12 Nm
Model Weight	.60 lb	0,30 kg
Seal Kits - Cartridge		Buna: 990-203-007
Seal Kits - Cartridge		Viton: 990-203-006

Control

L Standard Screw Adjustment

Adjustment Range

A .1 - 12 gpm (0,4 - 45 L/min.)

External Material/Seal Material

N Buna-N

<http://www.sunhydraulics.com>

Date Created: 10/23/2009

Copyright © 2008-2009 Sun Hydraulics Corporation. All rights reserved.

Part		Description	Quantity	Section 06-B
BBP		Body - Aluminum	1	Page 17
- 340-003		Pipe Plug	1	2011-08-12
- 500-001-014		O-Ring	5	

Port Headings and Sizes

BBP/M	Gage Port (Plugged)	1/4" BSPP
BBP	Gage Port (Plugged)	1/4" NPTF

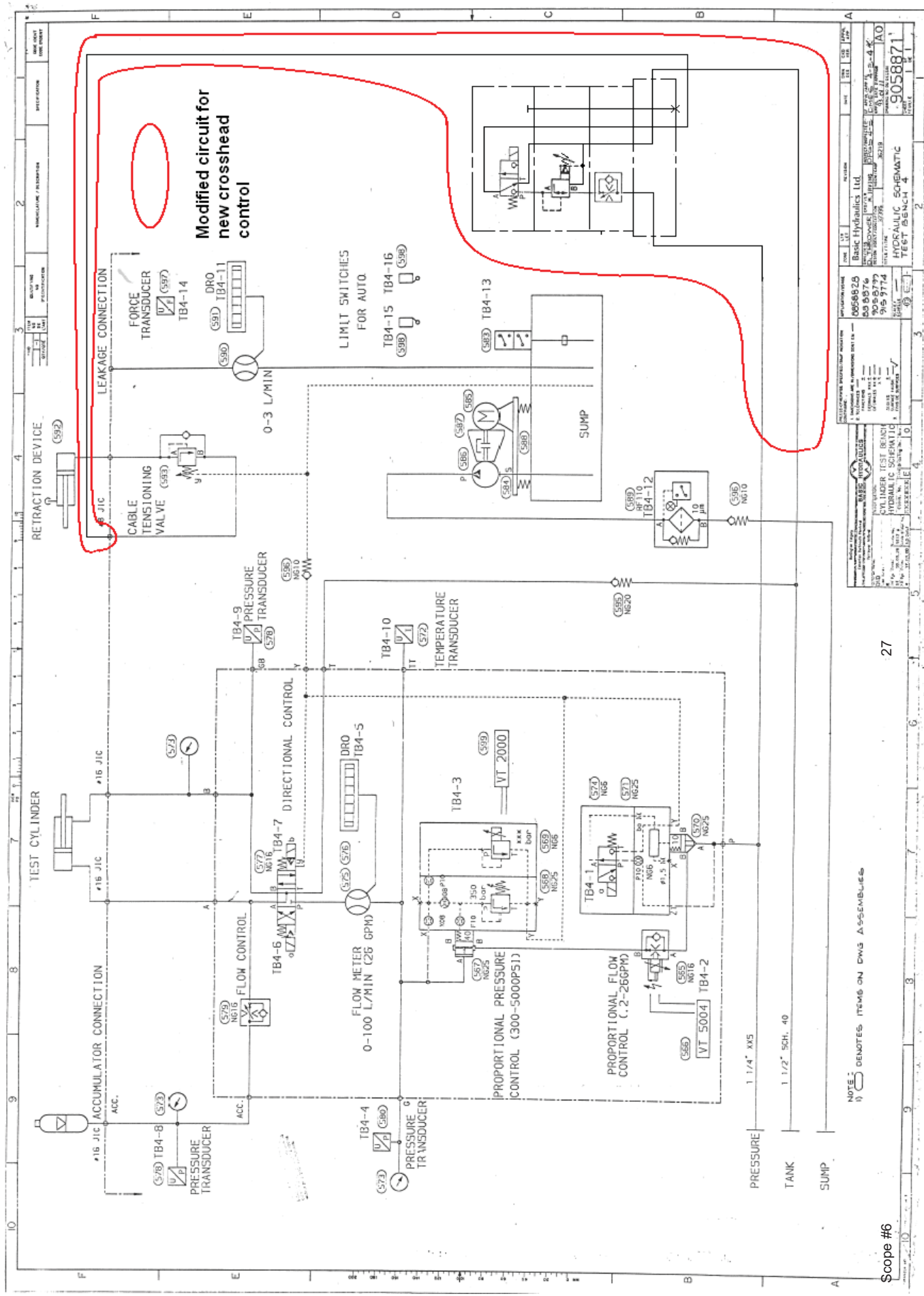
<http://www.sunhydraulics.com>

Date Created: 10/23/2009

Copyright © 2008-2009 Sun Hydraulics Corporation. All rights reserved.

Section 06-C

Modified Hydraulic Schematic



Basic Hydraulics Ltd. 9058876 9058796 9058797 9058798 9058799 9058800 9058801 9058802 9058803 9058804 9058805 9058806 9058807 9058808 9058809 9058810 9058811 9058812 9058813 9058814 9058815 9058816 9058817 9058818 9058819 9058820 9058821 9058822 9058823 9058824 9058825 9058826 9058827 9058828 9058829 9058830 9058831 9058832 9058833 9058834 9058835 9058836 9058837 9058838 9058839 9058840 9058841 9058842 9058843 9058844 9058845 9058846 9058847 9058848 9058849 9058850 9058851 9058852 9058853 9058854 9058855 9058856 9058857 9058858 9058859 9058860 9058861 9058862 9058863 9058864 9058865 9058866 9058867 9058868 9058869 9058870 9058871 9058872 9058873 9058874 9058875 9058876 9058877 9058878 9058879 9058880 9058881 9058882 9058883 9058884 9058885 9058886 9058887 9058888 9058889 9058890 9058891 9058892 9058893 9058894 9058895 9058896 9058897 9058898 9058899 9058900 9058901 9058902 9058903 9058904 9058905 9058906 9058907 9058908 9058909 9058910 9058911 9058912 9058913 9058914 9058915 9058916 9058917 9058918 9058919 9058920 9058921 9058922 9058923 9058924 9058925 9058926 9058927 9058928 9058929 9058930 9058931 9058932 9058933 9058934 9058935 9058936 9058937 9058938 9058939 9058940 9058941 9058942 9058943 9058944 9058945 9058946 9058947 9058948 9058949 9058950 9058951 9058952 9058953 9058954 9058955 9058956 9058957 9058958 9058959 9058960 9058961 9058962 9058963 9058964 9058965 9058966 9058967 9058968 9058969 9058970 9058971 9058972 9058973 9058974 9058975 9058976 9058977 9058978 9058979 9058980 9058981 9058982 9058983 9058984 9058985 9058986 9058987 9058988 9058989 9058990 9058991 9058992 9058993 9058994 9058995 9058996 9058997 9058998 9058999 9059000		HYDRAULIC SCHEMATIC TEST BENCH 4 9058871
---	--	--

Section 06-D

Code 61 and 62 Flange Tee Fittings

Catalogue Info.

Tee Junction Block

Section 06-D

Page 2

2011-08-12



Figure 1

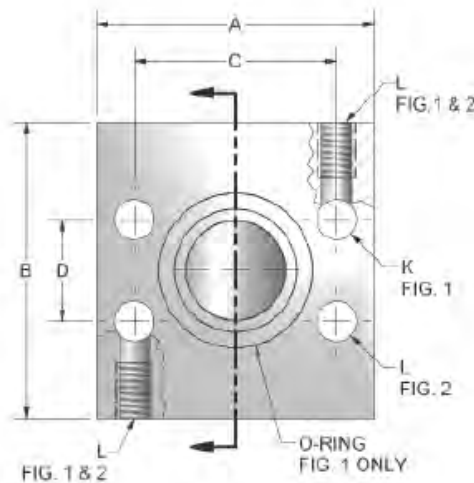


Figure 2

CODE 61 TEE JUNCTION BLOCK

PART NO. O-RING FIG. 1	PART NO. FLAT FACE FIG. 2	PAD SIZE	A	B	C	D	E	F	G	H	J	K	L UNC-2B	MOUNTING HARDWARE	
														O-RING	SHCS
W17-12	W16-12	.75	2.62	2.75	1.875	.875	1.38	2.25	1.22	1.250	.75	.406	3/8-16	214	3/8-16X3.00
W17-16	W16-16	1.00	2.82	3.00	2.062	1.031	1.50	2.50	1.34	1.560	1.00	.406	3/8-16	219	3/8-16X3.25
W17-20	W16-20	1.25	3.19	3.50	2.312	1.188	1.75	3.00	1.56	1.750	1.25	.469	7/16-14	222	7/16-14X4.00
W17-24	W16-24	1.50	3.75	4.00	2.750	1.406	2.00	3.50	1.88	2.115	1.50	.531	1/2-13	225	1/2-13X4.50
W17-32	W16-32	2.00	4.00	4.25	3.062	1.688	2.12	4.00	2.09	2.490	2.00	.531	1/2-13	228	1/2-13X5.00

CODE 62 TEE JUNCTION BLOCK

PART NO. O-RING FIG. 1	PART NO. FLAT FACE FIG. 2	PAD SIZE	A	B	C	D	E	F	G	H	J	K	L UNC-2B	MOUNTING HARDWARE	
														O-RING	SHCS
W19-12	W18-12	.75	2.81	3.00	2.00	.937	1.50	2.50	1.310	1.250	.750	.406	3/8-16	214	3/8-16X3.25
W19-16	W18-16	1.00	3.19	3.50	2.25	1.093	1.75	3.00	1.620	1.560	1.000	.492	7/16-14	219	7/16-14X4.00
W19-20	W18-20	1.25	3.75	4.00	2.625	1.250	2.00	3.50	1.880	1.750	1.250	.531	1/2-13	222	1/2-13X4.50
W19-24	W18-24	1.50	4.50	4.50	3.125	1.437	2.25	4.00	2.120	2.115	1.500	.656	5/8-11	225	5/8-11X5.00
W19-32	W18-32	2.00	5.25	5.00	3.812	1.750	2.50	5.00	2.750	2.490	1.940	.781	3/4-10	228	3/4-10X6.00

Scope #6

END OF SECTION