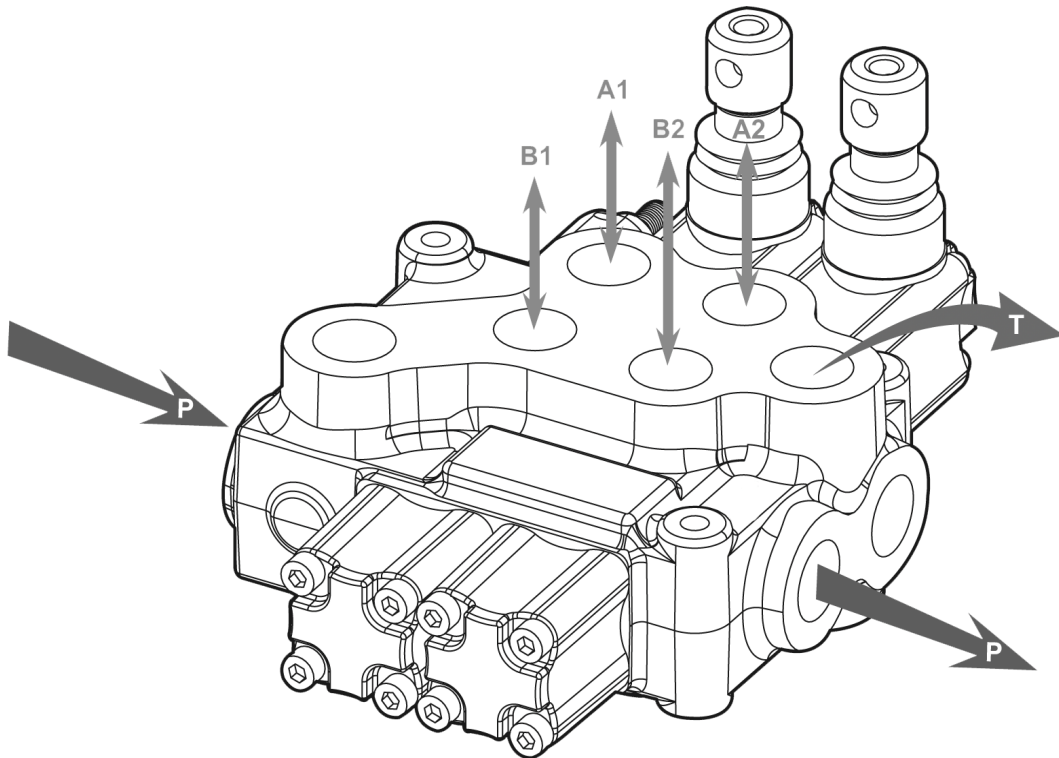


VM4

Monoblock Directional Control Valves



VM4 Specifications

Nominal flow rate		60 l/min	16 US gpm
Operating pressure (maximum)	parallel or tandem circuit	315 bar	4600 psi
	series circuit	210 bar	3050 psi
Back pressure (maximum)	on outlet port T	25 bar	360 psi
Fluid temperature range	with NBR(BUNA-N) seals	from -20°C to 80°C	from -4° to 176°F
	with FPM(VITON) seals	from -20°C to 100°C	from -4° to 212°F
Viscosity	operating range	from 15 to 75 mm ² /s	from 15 to 75 cst
	min	12 mm ² /s	12 cst
	max.	400 mm ² /s	400 cst
Ambient temperature range		from -40°C to 60°C	from -40° to 140°F

• All specifications, dimensions and design characteristics shown in this catalogue are subject to change without notice

VM4

Monoblock Directional Control Valves

VM4 / 2-S - 3 / 1 8 L / G-4 / M3
 1 2 3 4 5

- 1 Body
- 2 Inlet relief
- 3 Spool options
- 4 "B" side spool positioners
- 5 "A" side controls

1: Body		WITHOUT SERVICE PORT VALVES PREARRANGEMENT	
TYPE	DESCRIPTION		
1 - S	1 section		
2 - S	2 section		
3 - S	3 section		
4 - S	4 section		
5 - S	5 section		
6 - S	6 section		
2: Inlet Relief			
TYPE	CODE	DESCRIPTION	
MG-2	VM42002	Range 40 to 80 bar / 580 to 1150 psi, standard setting 80 bar / 1150 psi	
MG-3 63-200bar	VM42003	Range 63 to 200 bar / 900 to 2900 psi, standard setting 120 bar / 1750 psi	
MG-4 160-315bar	VM42004	Range 160 to 315 bar / 2300 to 4600 psi, standard setting 220 bar / 3200 psi	
SV	VM42100	Relief valve blanking plug	

VM4

Monoblock Directional Control Valves

3: Spool Options		
TYPE	CODE	DESCRIPTION
1	VM43001	Double acting, 3 positions, with A, B closed in neutral position
2	VM43002	Double acting, 3 positions, with A, B open to Tank in neutral position
3	VM43003	Single acting on A closed in neutral position, 3 positions, B plugged
4	VM43004	Single acting on B closed in neutral position, 3 positions, A plugged
5	VM43005	Double acting, 3 positions, with B open to Tank in neutral position
6	VM43006	Double acting, 3 positions, with A open to Tank in neutral position
7	VM43007	Single acting on A open to Tank in neutral position, 3 positions, B plugged
8	VM43008	Single acting on B open to Tank in neutral position, 3 positions, A plugged
9	VM43009	Double acting, 3 positions, with P, T, A, B closed in neutral position (Closed center)
10	VM43010	Double acting, 3 positions, with A, B open to Tank and P, T closed in neutral position (Closed center)
5DY	VM43052	Double acting, 4 positions, floating circuit in 4th position with A, B open to Tank by pulling the lever
5PYX	VM430511	Double acting, 4 positions, floating circuit in 4th position with A, B open to Tank by pushing the lever (with check valve)
5PY	VM43051	Double acting, 4 positions, floating circuit in 4th position with A, B open to Tank by pushing the lever
Z41	VM43041	Double acting, 4 positions, regenerative circuit in 4th position with P open to A, B by pulling the lever (Rest in pos.1)
Z42	VM43042	Double acting, 4 positions, regenerative circuit in 4th position with P open to A, B by pulling the lever (Rest in pos.0)
4: B Side Spool Positioners		
TYPE	CODE	DESCRIPTION
6-1	VM44061	Detent in pos. 1-0-2, without spring centered
6-2	VM44062	2 positions, detent in pos. 0-2, without spring centered
6-3	VM44063	2 positions, detent in pos. 1-0, without spring centered
8D2	VM44200	With spring return to neutral position and pin with M8 male thread for dual control
8EP3	VM44300	ON/OFF Electro-Pneumatic actuator
8P	VM44080	ON/OFF Pneumatic actuator
8MG1 (NO)	VM44801	Microswitch kit operated in pos. 1 (Normally Open)
8MG2 (NO)	VM44802	Microswitch kit operated in pos. 2 (Normally Open)
8MG3 (NO)	VM44803	Microswitch kit operated in pos. 1&2 (Normally Open)
MG (NO)	VM44804	Microswitch with NO terminal
8MG1 (NC)	VM448011	Microswitch kit operated in pos. 1 (Normally Closed)
8MG2 (NC)	VM448021	Microswitch kit operated in pos. 2 (Normally Closed)
8MG3 (NC)	VM448031	Microswitch kit operated in pos. 1&2 (Normally Closed)
MG (NC)	VM448041	Microswitch with NC terminal
8	VM44008	With spring return to neutral position
8-1	VM44081	2 positions, with spring centered from pos. 1
8-2	VM44082	2 positions, with spring centered from pos. 2
9-1	VM44091	Detent in pos. 1, 2 with spring centered
9-2	VM44092	Detent in pos. 2 with spring centered
9-3	VM44093	Detent in pos. 1 with spring centered

VM4

Monoblock Directional Control Valves

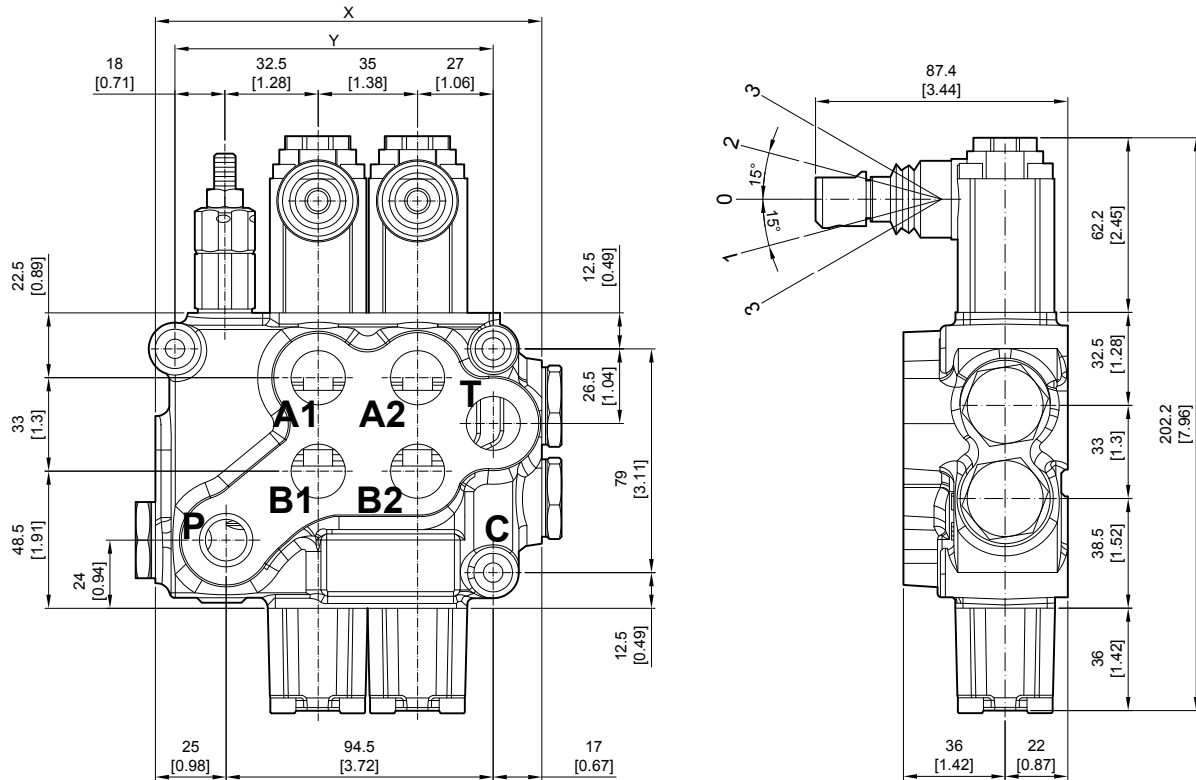
VM4 / 2-S - 3 / 1 8 L / G-4 / M3
 1 2 3 4 5

- 1 Body
- 2 Inlet relief
- 3 Spool options
- 4 "B" side spool positioners
- 5 "A" side controls

4: B Side Spool Positioners		
TYPE	CODE	DESCRIPTION
8ED3+RV-KE1R3	VM44201	1S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)
8ED3+RV-KE2R3	VM44202	2S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)
8ED3+RV-KE3R3	VM44203	3S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)
8ED3+RV-KE4R3	VM44204	4S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)
8ED3+RV-KE5R3	VM44205	5S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)
8ED3+RV-KE6R3	VM44206	6S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)
8ER3+KE1SO	VM44401	1S: ON/OFF Electro-Hydraulic control kit with collector kit for external pilot and drain
8ER3+KE2SO	VM44402	2S: ON/OFF Electro-Hydraulic control kit with collector kit for external pilot and drain
8ER3+KE3SO	VM44403	3S: ON/OFF Electro-Hydraulic control kit with collector kit for external pilot and drain
8ER3+KE4SO	VM44404	4S: ON/OFF Electro-Hydraulic control kit with collector kit for external pilot and drain
8ER3+KE5SO	VM44405	5S: ON/OFF Electro-Hydraulic control kit with collector kit for external pilot and drain
8ER3+KE6SO	VM44406	6S: ON/OFF Electro-Hydraulic control kit with collector kit for external pilot and drain
5: A Side controls		
TYPE	CODE	DESCRIPTION
L	VM45000	Standard lever box
SLP	VM45001	Without lever box, with dust-proof plate
LCB	VM45002	Joystick lever for 2 section operation
TQ	VM45003	Flexible cable connection

VM4 Dimensions

Monoblock Directional Control Valves



Standard threads

Ports	Inlet P	A and B	Outlet T and C
BSP	G1/2	G1/2	G1/2
UN-UNF	3/4-16 UNF-2B (SAE 8)	3/4-16 UNF-2B (SAE 8)	3/4-16 UNF-2B (SAE 8)
METRIC	M18x1.5	M18x1.5	M18x1.5

- G-1/2 : G4 G-3/8 : G3 G-3/4 : G6
- SAE 8 : E8 SAE 10 : E10 SAE 12 : E12 SAE 16 : E16

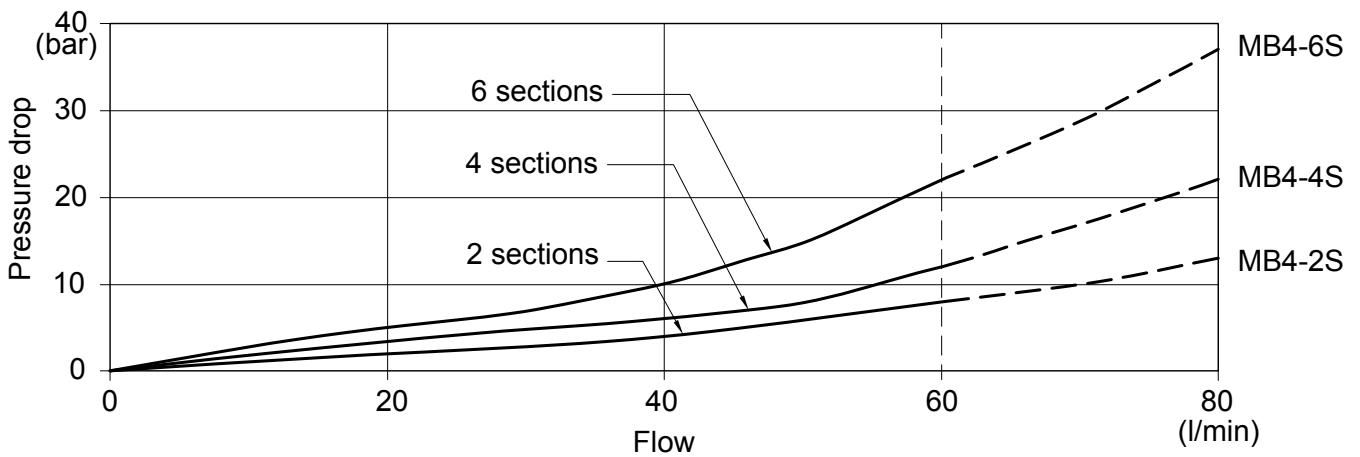
Standard dimensions

TYPE	X		Y	
	mm	in	mm	in
VM4/1S	101.5	4	77.5	3.05
VM4/2S	136.5	5.37	112.5	4.33
VM4/3S	171.5	6.75	147.5	5.81
VM4/4S	206.5	8.13	182.5	7.19
VM4/5S	241.5	9.51	217.5	8.56
VM4/6S	276.5	10.89	252.5	9.94

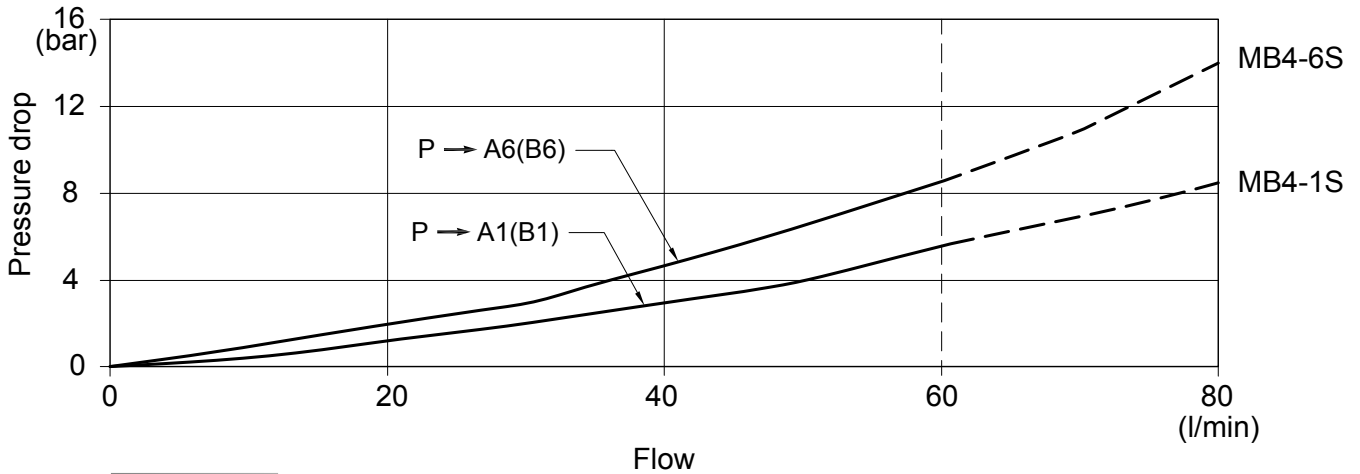
VM4 Performance curve chart

Monoblock Directional Control Valves

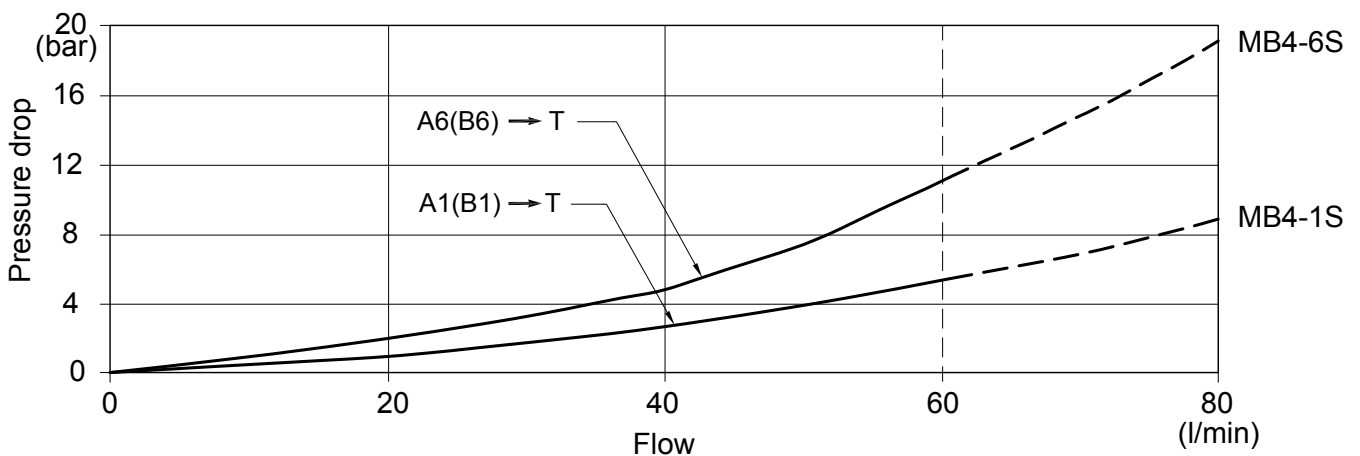
P to T



P to A (B)

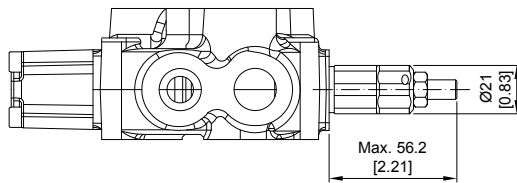


A(B) to T

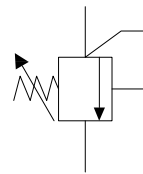


VM4 Inlet Relief (Optional) Monoblock Directional Control Valves

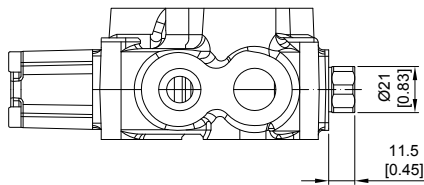
Type MG



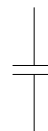
Direct pressure relief valve:



Type SV



Relief valve blanking plug:



VM4 Spool Options

Monoblock Directional Control Valves

TYPE 1		
	<p>P → B A → T C closed</p>	
	<p>P & A & B & T closed C open</p>	
	<p>P → A B → T C closed</p>	
TYPE 2		
	<p>P → B A → T C closed</p>	
	<p>A & B → T P closed C open</p>	
	<p>P → A B → T C closed</p>	

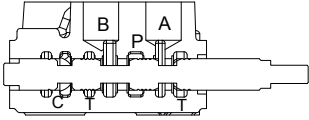
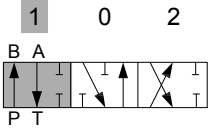
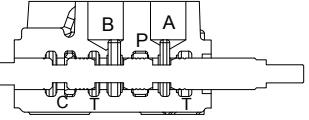
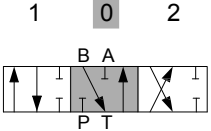
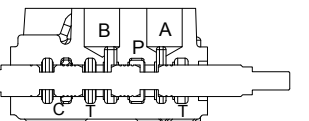
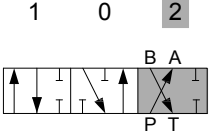
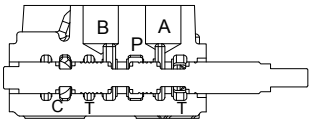
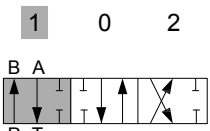
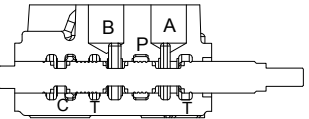
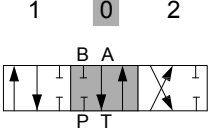
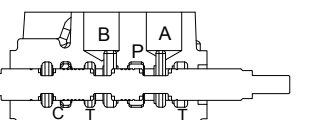
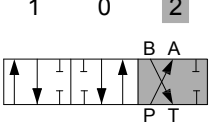
VM4 Spool Options

Monoblock Directional Control Valves

TYPE 3		
	<p>A → T P closed C open</p>	<p>1 0 2 A P T</p> <p>"B" port plugged</p>
	<p>P & A & T closed C open</p>	<p>1 0 2 A P T</p> <p>"B" port plugged</p>
	<p>P → A T & C closed</p>	<p>1 0 2 A P T</p> <p>"B" port plugged</p>
TYPE 4		
	<p>P → B T & C closed</p>	<p>1 0 2 B P T</p> <p>"A" port plugged</p>
	<p>P & B & T closed C open</p>	<p>1 0 2 B P T</p> <p>"A" port plugged</p>
	<p>B → T P closed C open</p>	<p>1 0 2 B P T</p> <p>"A" port plugged</p>

VM4 Spool Options

Monoblock Directional Control Valves

TYPE 5		
	<p>P → B A → T C closed</p>	
	<p>B → T P & A closed C open</p>	
	<p>P → A B → T C closed</p>	
TYPE 6		
	<p>P → B A → T C closed</p>	
	<p>A → T P & B closed C open</p>	
	<p>P → A B → T C closed</p>	

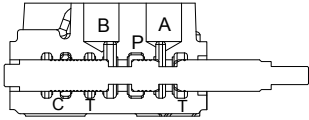
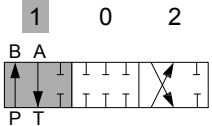
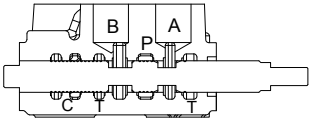
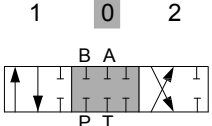
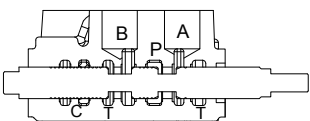
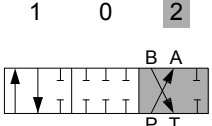
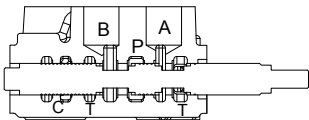
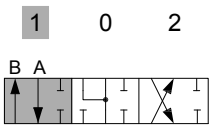
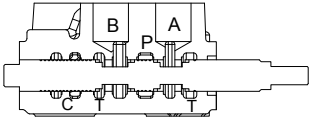
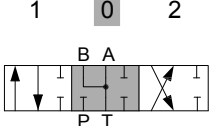
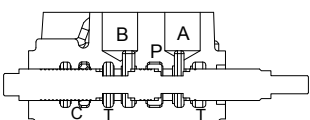
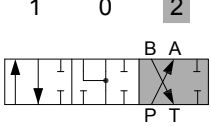
VM4 Spool Options

Monoblock Directional Control Valves

TYPE 7		
	<p>A → T C open</p>	<p>1 0 2</p> <p>"B" port plugged</p>
	<p>A → T C open</p>	<p>1 0 2</p> <p>"B" port plugged</p>
	<p>P → A C closed</p>	<p>1 0 2</p> <p>"B" port plugged</p>
TYPE 8		
	<p>P → B C closed</p>	<p>1 0 2</p> <p>"A" port plugged</p>
	<p>B → T C open</p>	<p>1 0 2</p> <p>"A" port plugged</p>
	<p>B → T C open</p>	<p>1 0 2</p> <p>"A" port plugged</p>

VM4 Spool Options

Monoblock Directional Control Valves

TYPE 9		
	<p>P → B A → T C closed</p>	
	<p>P & A & B & T closed C closed</p>	
	<p>P → A B → T C closed</p>	
TYPE 10		
	<p>P → B A → T C closed</p>	
	<p>A & B → T P & C close</p>	
	<p>P → A B → T C closed</p>	

VM4 Spool Options

Monoblock Directional Control Valves

TYPE 5DY		NOTE: WITH SPECIAL BODY AND SPECIAL POSITIONER
	<p>P → B</p> <p>A → T</p> <p>C closed</p>	
	<p>P & T & A & B closed</p> <p>C open</p>	
	<p>P → A</p> <p>B → T</p> <p>C closed</p>	
	<p>A & B → T</p> <p>P closed</p> <p>C open</p>	
TYPE 5PYX		NOTE: WITH SPECIAL BODY AND SPECIAL SPECIAL POSITIONER
	<p>A & B → T</p> <p>P closed</p> <p>C open</p>	
	<p>P → B</p> <p>A → T</p> <p>C closed</p>	
	<p>P & T & A & B closed</p> <p>C open</p>	
	<p>P → A</p> <p>B → T</p> <p>C closed</p>	

VM4 Spool Options

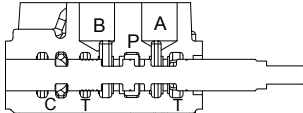
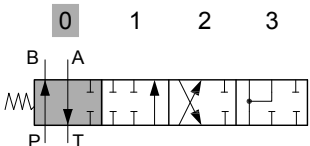
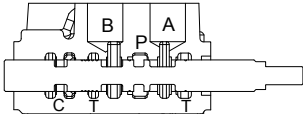
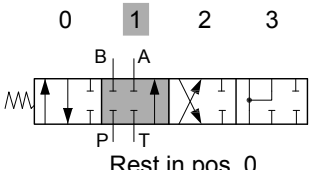
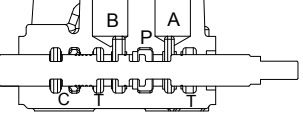
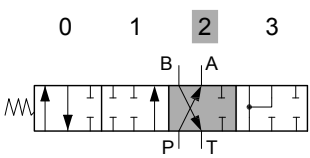
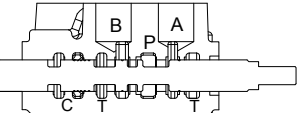
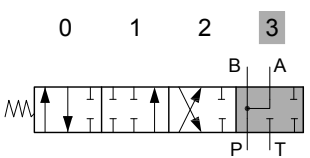
Monoblock Directional Control Valves

TYPE 5PY		NOTE: WITH SPECIAL BODY AND SPECIAL POSITIONER
	A & B → T P closed C open	
	P → B A → T C closed	
	P & T & A & B closed C open	
	P → A B → T C closed	

TYPE Z41		NOTE: WITH SPECIAL BODY AND SPECIAL POSITIONER
	P → B A → T C closed	 Rest in pos. 1
	P & A & B & T closed C open	
	P → A B → T C closed	
	P → A & B T & C closed	

VM4 Spool Options

Monoblock Directional Control Valves

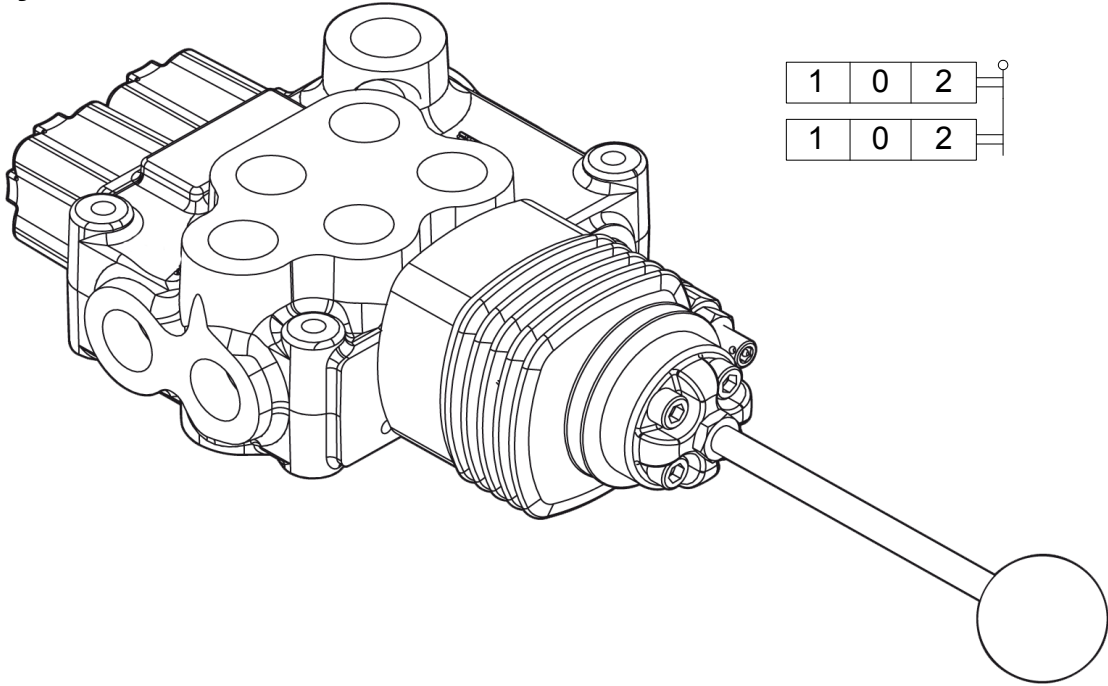
TYPE Z42		NOTE: WITH SPECIAL BODY AND SPECIAL POSITIONER
	<p>P → B A → T C closed</p>	
	<p>P & A & B & T closed C open</p>	
	<p>P → A B → T C closed</p>	
	<p>P → A & B T & C closed</p>	

VM4 A Side Monoblock Directional Control Valves

Type L		
		<p>Type L: STANDART LEVER KIT</p>
Type R		
		<p>Type R: STANDART LEVER KIT (ROTATED 180 DEGREE)</p>
Type SL		
		<p>Type SL: WITHOUT ANY COVER</p>
Type SLP		
		<p>Type SLP: WITH DUST-PROOF PLATE</p>

VM4 A Side Monoblock Directional Control Valves

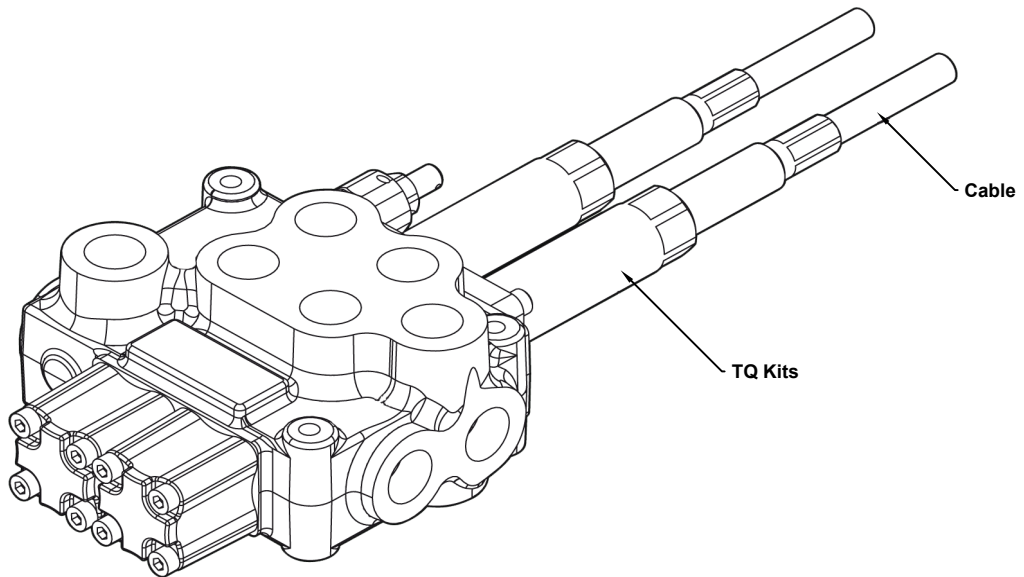
LCB: Joystick control



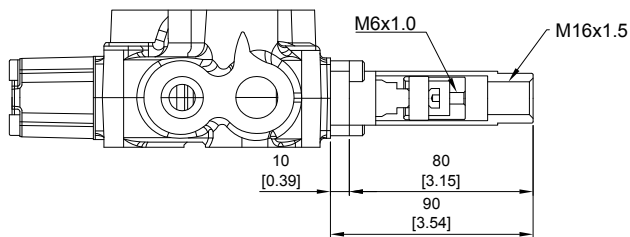
Type LCB	LCB 1	LCB 2
Type LCB	LCB 3	LCB 4

VM4 A Side Monoblock Directional Control Valves

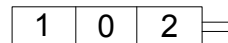
Note : CONNECTION KIT NOT INCLUDE CABLE



Type TQ

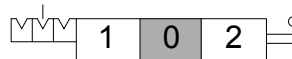
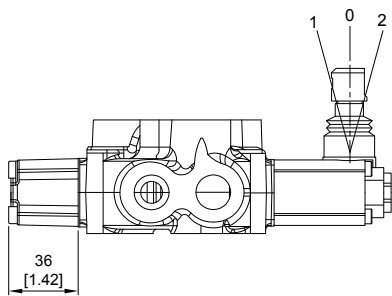


TQ Kit:



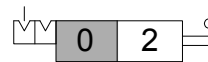
VM4 B Side Monoblock Directional Control Valves

Type 6



6-1 Kit:

DETENT IN POS. 1-0-2, WITHOUT SPRING CENTERED



6-2 Kit:

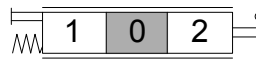
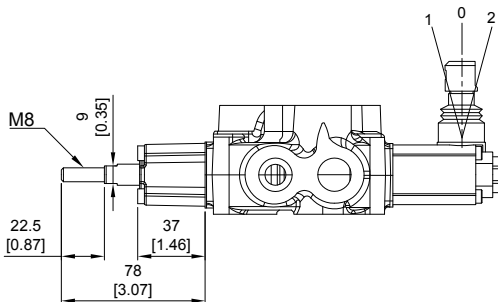
2 POSITIONS, DETENT IN POS. 0-2, WITHOUT SPRING CENTERED



6-3 Kit:

2 POSITIONS, DETENT IN POS. 1-0, WITHOUT SPRING CENTERED

Type 8D2



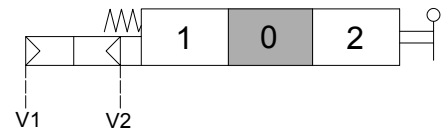
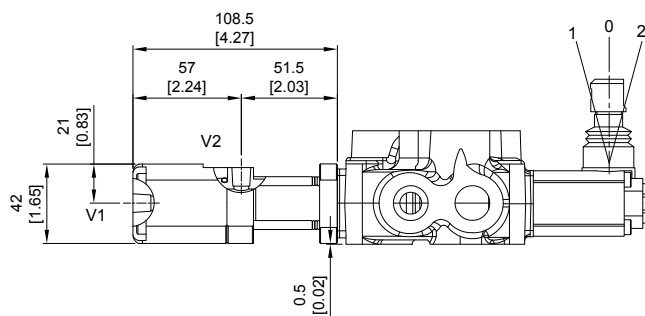
8D2 Kit:

WITH SPRING RETURN TO NEUTRAL POSITION AND PIN WITH M8 MALE THREAD FOR DUAL CONTROL

VM4 B Side Monoblock Directional Control Valves

Type 8P

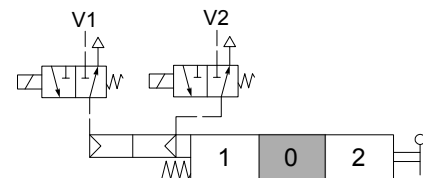
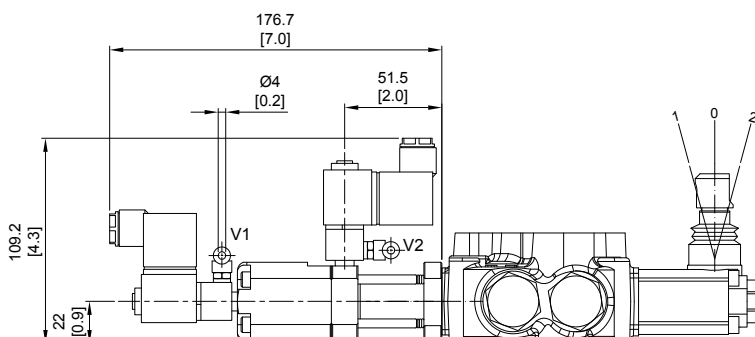
V1 & V2: NPT 1/8 - 27



Operating feature:

PILOT PRESSURE (MIN.)..... 5.5 BAR / 80 PSI
PILOT PRESSURE (MAX.)..... 10 BAR / 145 PSI

Type 8EP3

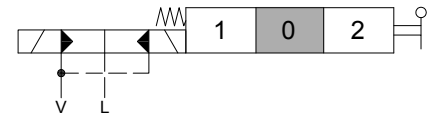
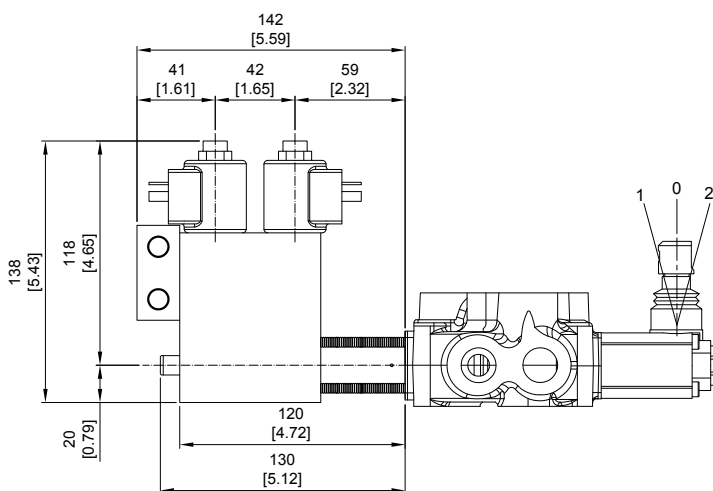
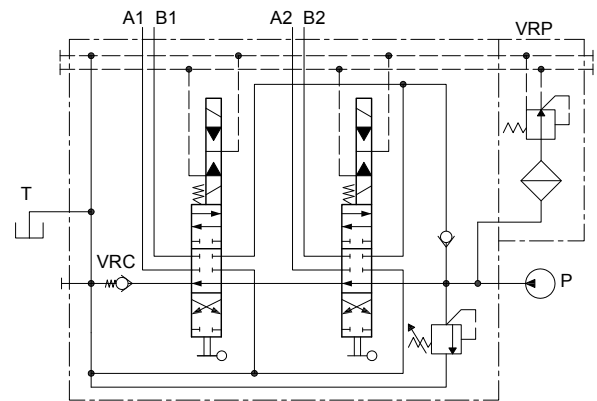
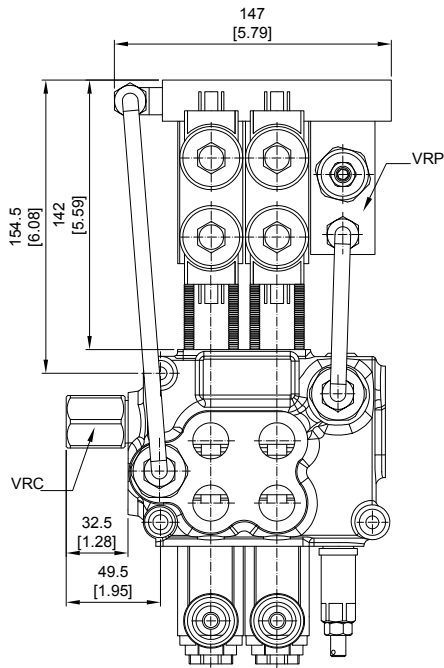


Solenoid operating features:

NOMINAL VOLTAGE: 24VDC
NOMINAL VOLTAGE TOLERANCE: $\pm 10\%$
POWER RATING: 5W

VM4 B Side Monoblock Directional Control Valves

Type 8ED3



Operating features:

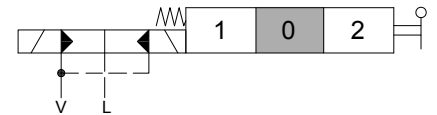
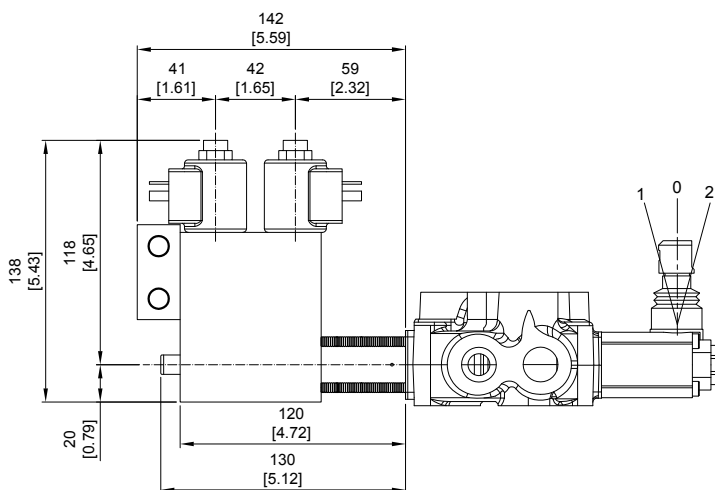
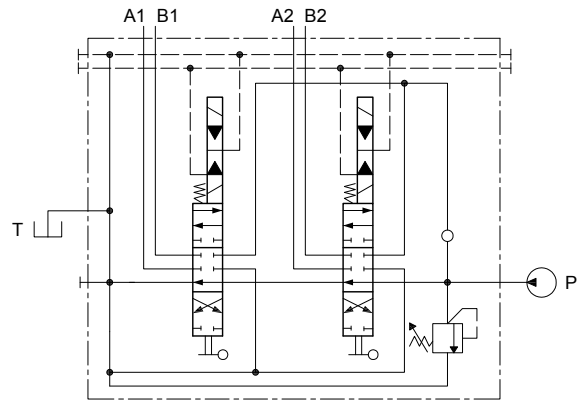
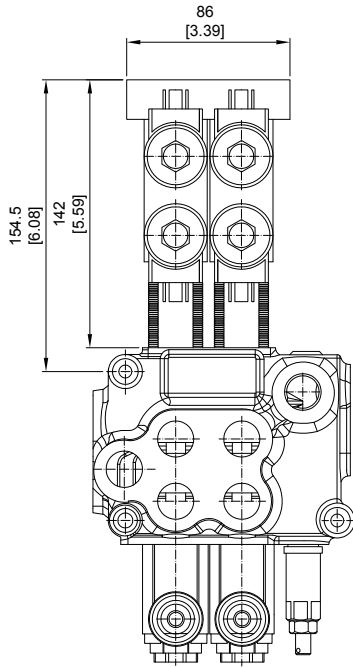
PILOT PRESSURE: • MIN. 10 BAR / 145 PSI
• MAX. 50 BAR / 725 PSI
MAX. BACKPRESSURE ON DRAIN L: 25 BAR / 360 PSI

Coil features:

NOMINAL VOLTAGE TOLERANCE: $\pm 10\%$
ELECTRIC POWER: 21 W
STANDARD VOLTAGE: 12 VDC / 24 VDC

VM4 B Side Monoblock Directional Control Valves

Type 8ER3



Operating features:

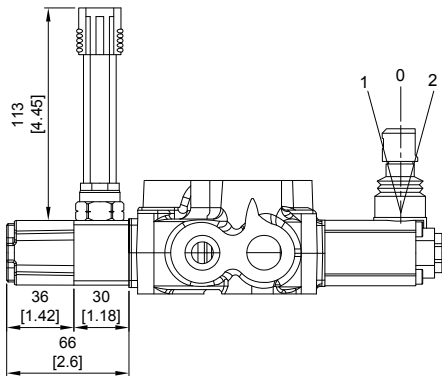
PILOT PRESSURE: • MIN. 10 BAR / 145 PSI
• MAX. 50 BAR / 725 PSI
MAX. BACKPRESSURE ON DRAIN L: 25 BAR / 360 PSI

Coil features:

NOMINAL VOLTAGE TOLERANCE: $\pm 10\%$
ELECTRIC POWER: 21 W
STANDARD VOLTAGE: 12 VDC / 24 VDC

VM4 B Side Monoblock Directional Control Valves

Type 8MG



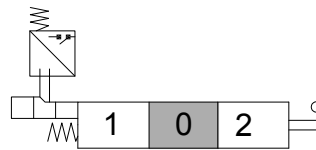
MICROSWITCH

Operating features:

MECHANICAL LITE: • 5X10⁵ OPERATIONS

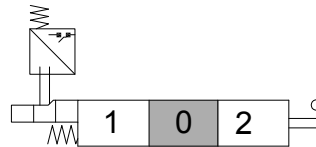
ELECTRICAL LITE (RESISTIVE LOAD):

- 10⁵ OPERATIONS - 7A / 13.5 VDC
- 5X10⁴ OPERATIONS - 10A / 12 VDC
- 5X10⁴ OPERATIONS - 3A / 28 VDC



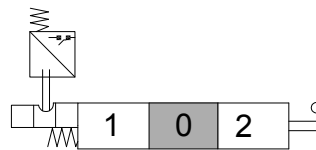
8MG1 Kit:

MICROSWITCH WITH MALE/FEMALE CONNECTOR, OPERATED IN POS. 1



8MG2 Kit:

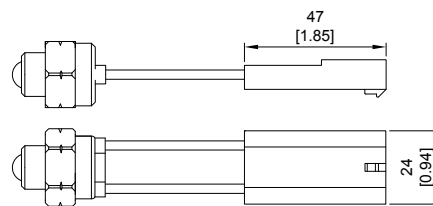
MICROSWITCH WITH MALE/FEMALE CONNECTOR, OPERATED IN POS. 2



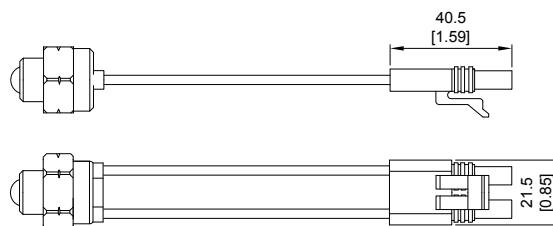
8MG3 Kit:

MICROSWITCH WITH MALE/FEMALE CONNECTOR, OPERATED IN POS. 1 AND POS. 2

With NO contact (female connector with male end)

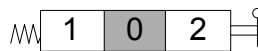
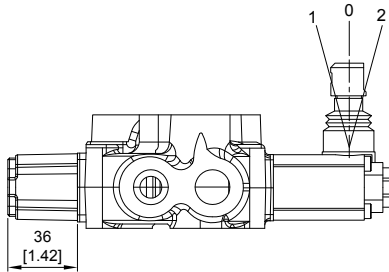


With NC contact (male connector with female end)



VM4 B Side Monoblock Directional Control Valves

Type 8



8 Kit:

SPRING RETURN TO NEUTRAL POSITION.



8-1 Kit:

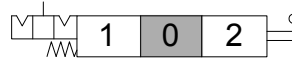
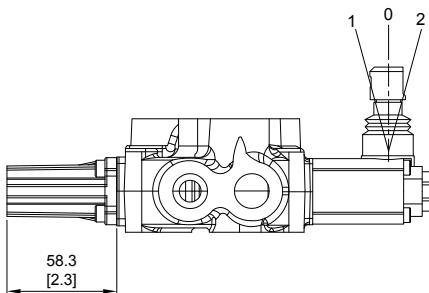
SPRING RETURN TO NEUTRAL POSITION.
(2 POSITIONS)



8-2 Kit:

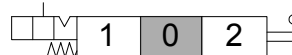
SPRING RETURN TO NEUTRAL POSITION.
(2 POSITIONS)

Type 9



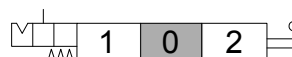
9-1 Kit:

DETENT IN POS. 1, 2 WITH SPRING CENTERED



9-2 Kit:

DETENT IN POS. 2 WITH SPRING CENTERED

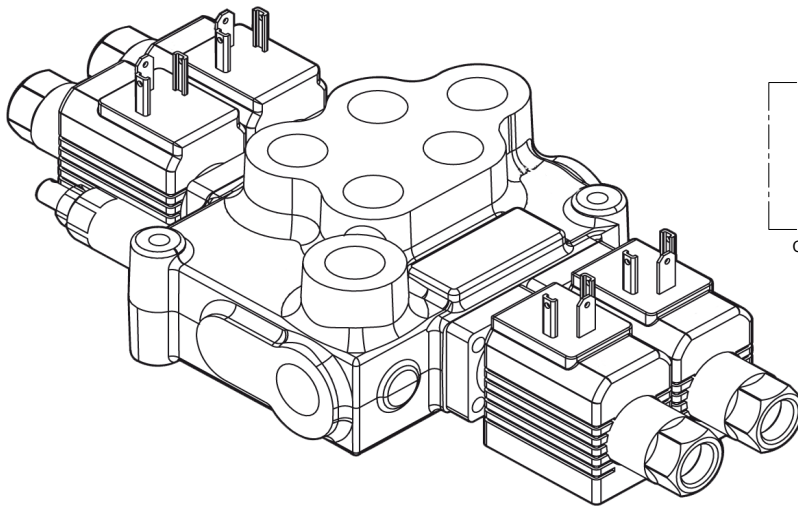


9-3 Kit:

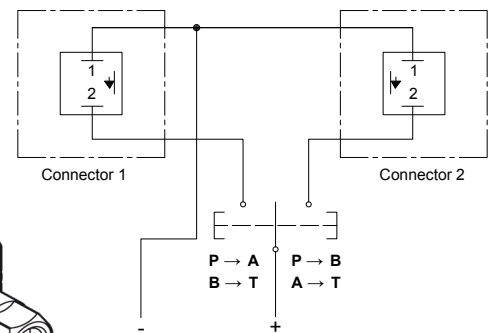
DETENT IN POS. 1 WITH SPRING CENTERED

VM4 B Side (Optional controls)

Monoblock Directional Control Valves



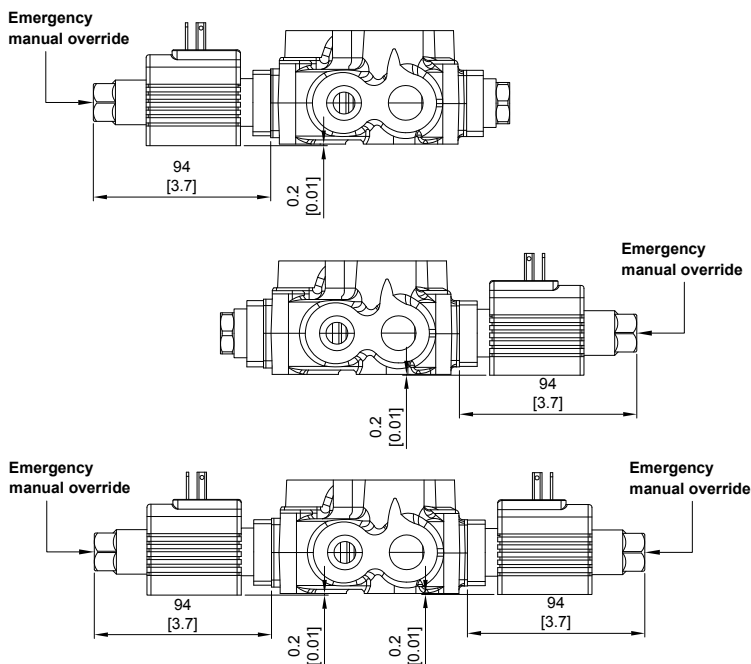
Electric wiring example



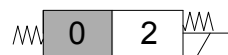
Coil features:

- NOMINAL VOLTAGE TOLERANCE: $\pm 10\%$
- ELECTRIC POWER: 36 W
- STANDARD VOLTAGE: 12 VDC / 24 VDC

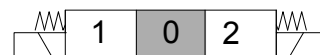
Type 8ES



8ES1 Kit:
ACTING IN 1



8ES2 Kit:
ACTING IN 2



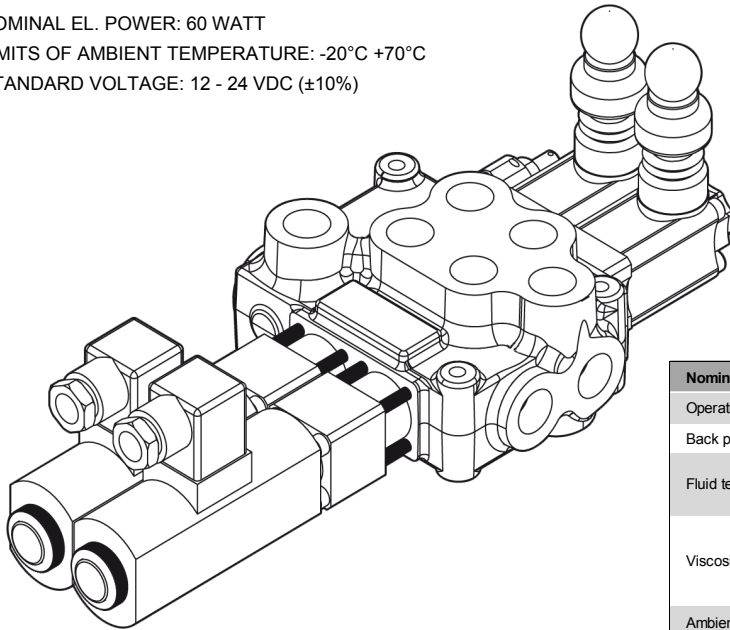
8ES3 Kit:
ACTING IN 1 & 2

VM4 B Side (Optional controls)

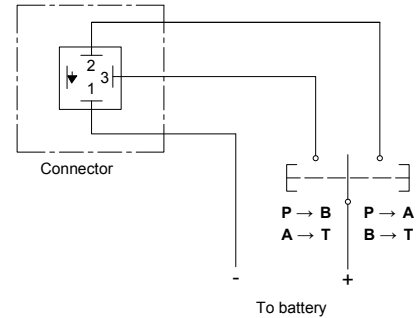
Monoblock Directional Control Valves

Coil features:

NOMINAL EL. POWER: 60 WATT
 LIMITS OF AMBIENT TEMPERATURE: -20°C +70°C
 STANDARD VOLTAGE: 12 - 24 VDC (±10%)

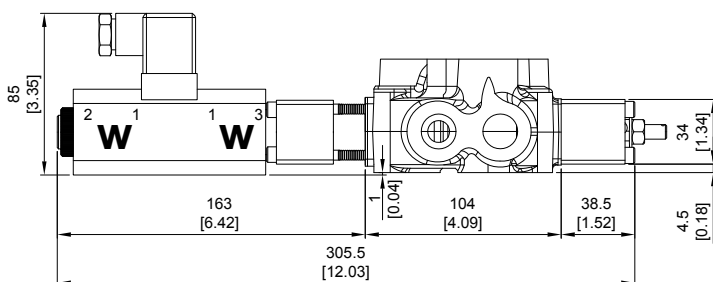
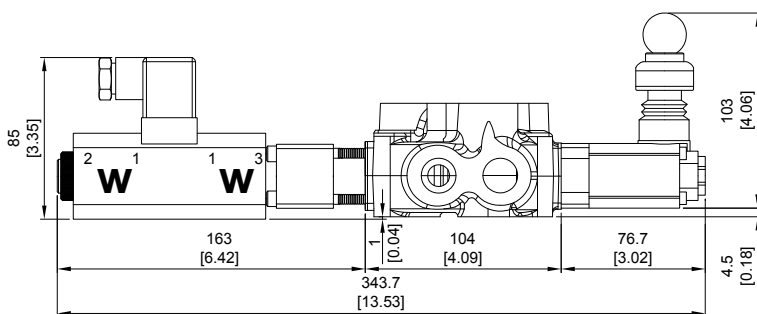


Electric wiring example

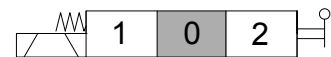


Nominal flow rating		60 l/min	16 US gpm
Operating pressure (max.)	parallel circuit	250 bar	3600 psi
Back pressure (max.)	on outlet port T	25 bar	360 psi
Fluid temperature	with NBR seals	-20°C ~ 80°C	-4° ~ 176°F
	with FPM seals	-20°C ~ 100°C	-4° ~ 212°F
Viscosity	operating range	15 ~ 75 mm ² /s	15 ~ 75 cst
	max.	400 mm ² /s	400 cst
	min.	12 mm ² /s	12 cst
Ambient temperature		-40°C ~ 60°C	-40° ~ 140°F

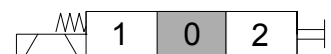
Type 8ESN



8ESNLES Kit:



8ESNCAE Kit:



VM4 Spool Options (Options for 8ES Kit)

Monoblock Directional Control Valves

Type 8ES3#1

	<p>P → B A → T C closed</p>	
	<p>P & T & A & B closed C open</p>	
	<p>P → A B → T C closed</p>	

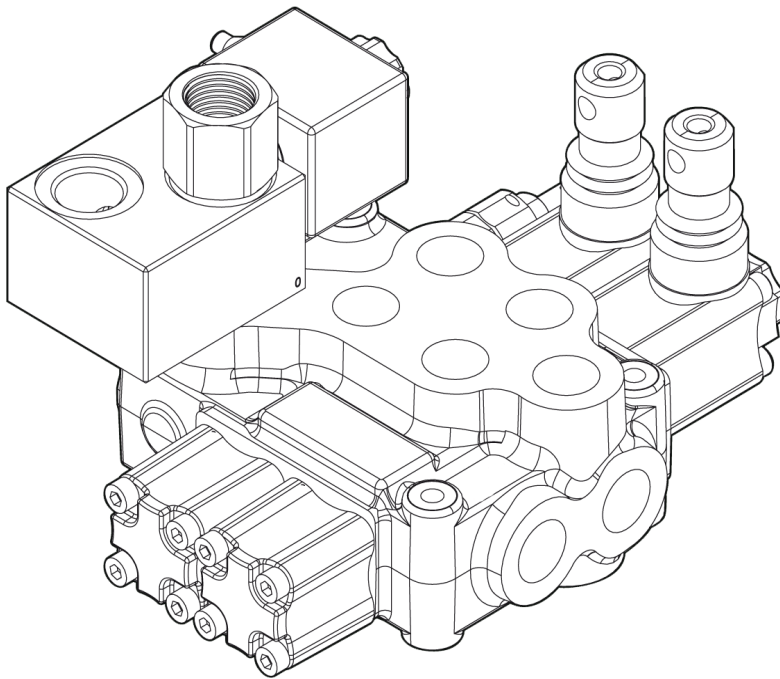
Type 8ES3#2

	<p>P → B A → T C closed</p>	
	<p>A & B → T P closed C open</p>	
	<p>P → A B → T C closed</p>	

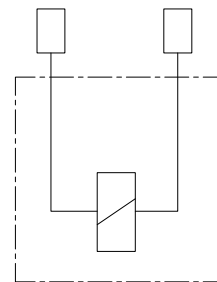
VM4 Spool Options (Options for 8ESN Kit) Monoblock Directional Control Valves

Type 8ESN#1		
	<p>P → B A → T C closed</p>	
	<p>P & T & A & B closed C open</p>	
	<p>P → A B → T C closed</p>	
Type 8ESN#2		
	<p>P → B A → T C closed</p>	
	<p>A & B → T P closed C open</p>	
	<p>P → A B → T C closed</p>	

VM4 (Option - Dump valve (Emergency stop valve)) Monoblock Directional Control Valves

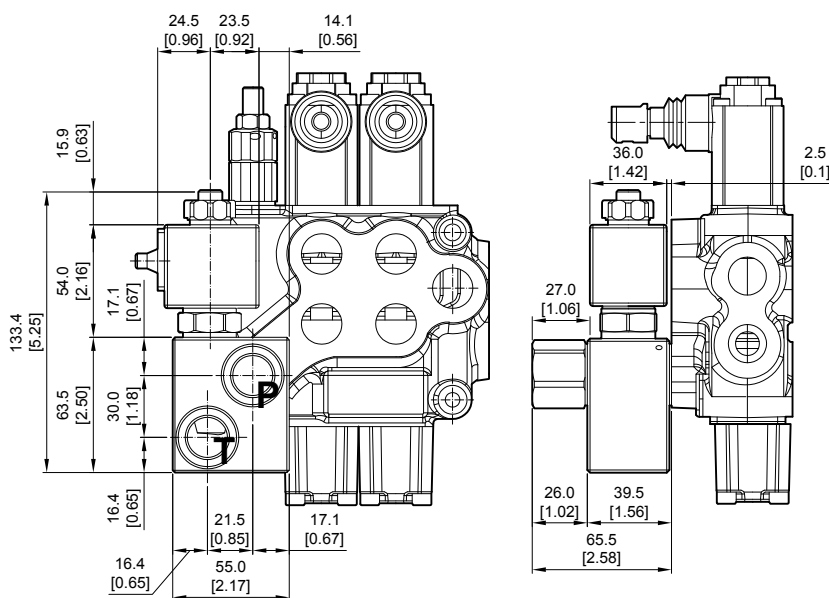


Electric wiring example

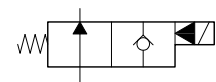


Coil features:

NOMINAL VOLTAGE TOLERANCE: $\pm 10\%$
ELECTRIC POWER: 20W
STANDARD VOLTAGE: 12VDC / 24VDC



P & T : G1/2

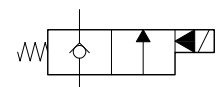


TYPE:

DUMP - G04 - 24VDC(NO)
DUMP - G04 - 12VDC(NO)

CODE:

VM45424
VM45412



TYPE:

DUMP - G04 - 24VDC(NC)
DUMP - G04 - 12VDC(NC)

CODE:

VM454241
VM454121