



# Bulletin 2537-M1/USA Service Bulletin Series RM

Effective: November 11, 1996

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**Series RM2**

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**Series RM3**

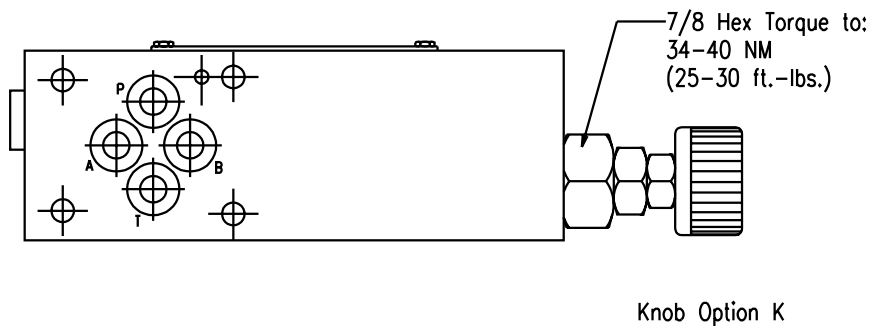
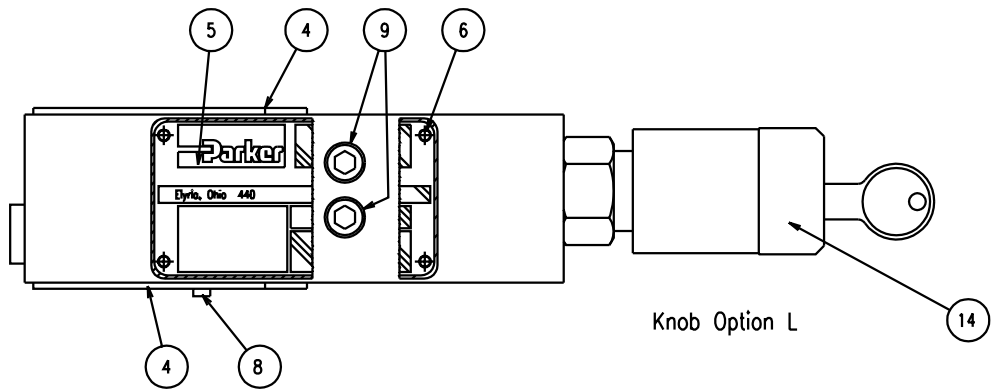
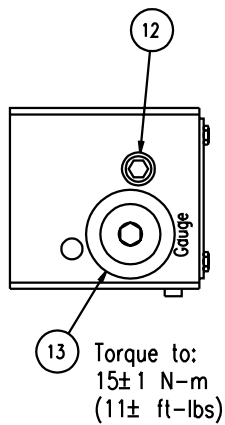
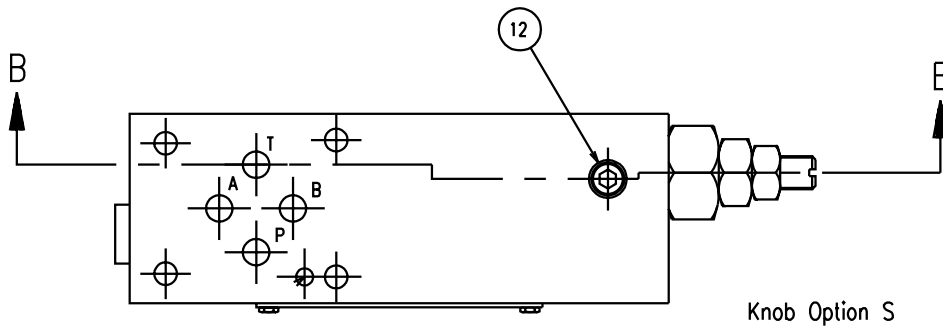
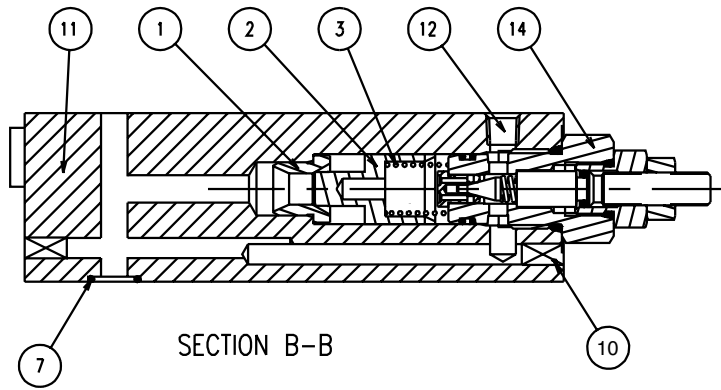
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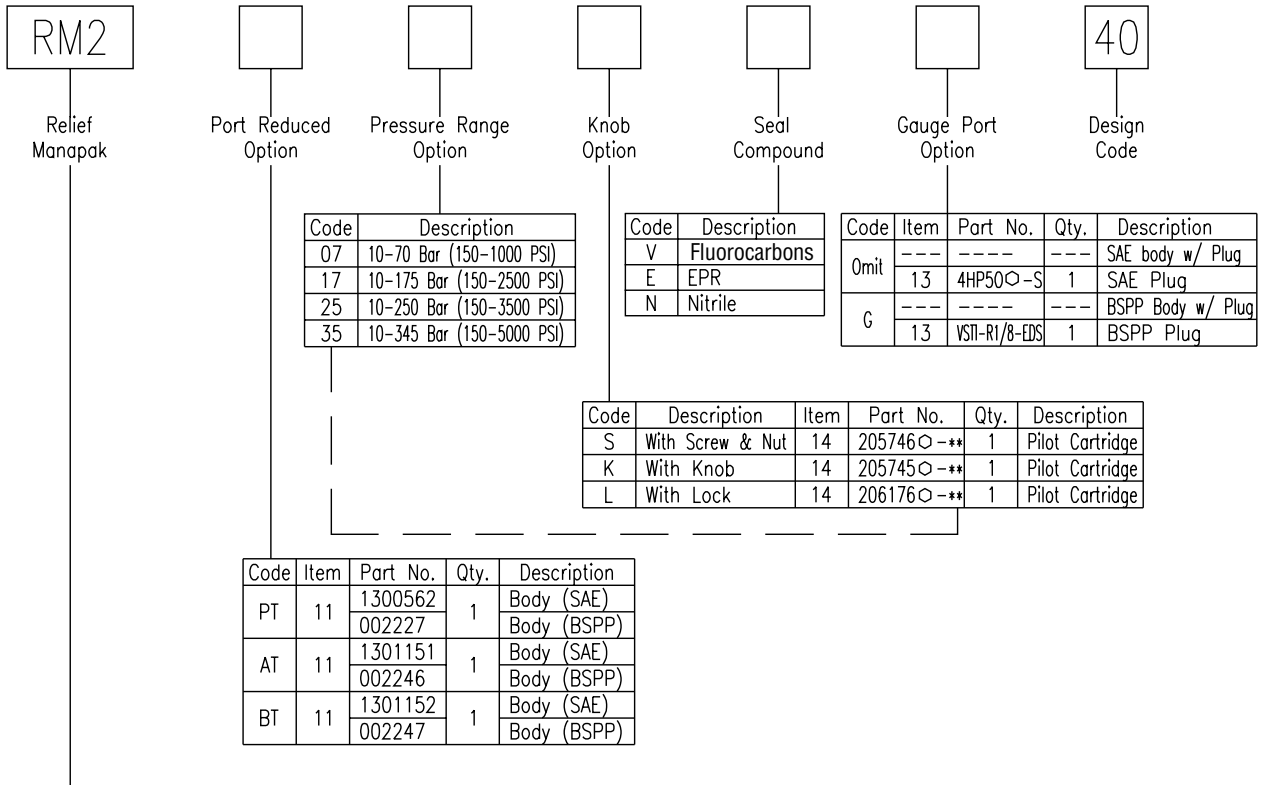
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**Ordering Information**

**Manapak Relief Valves  
Series RM2**



Item	Part No.	Quantities			Description
		PT	AT	BT	
1	701263	1	1	1	Seat
2	702974	1	1	1	Poppet
3	701265	1	1	1	Spring
4	697628	2	2	2	Shipping Plate
5	1300448	1	1	1	Nameplate
6	1301066	4	4	4	Stick Screw
7	2-012O-9	4	4	4	O-Ring
8	99X37	1	1	1	Roll Pin
9	102X2	2	2	2	Pipe Plug
10	1300538-50	2	2	2	Koenig Plug
12	102X1	2	5	5	Pipe Plug

○ Denotes Seal Compound.

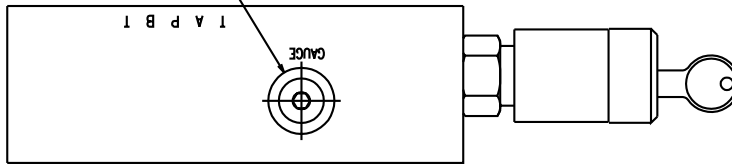
Bolt Kits				
Manapak & Valve Combination	Bolt Kit	Description	Qty./Kit	Torque in-lbs.
D1V* Valve (Non-explosion proof)	BK209	10-24 X 1.25	4	50
1 Manapak & D1V* Valve	BK243	10-24 X 2.88	4	50
2 Manapak & D1V* Valve	BK225	10-24 X 4.38	4	50
3 Manapak & D1V* Valve	BK244	10-24 X 6.00	4	50
4 Manapak & D1V* Valve	BK245	10-24 X 7.50	4	50

Note: Bolt kits must be ordered separately.

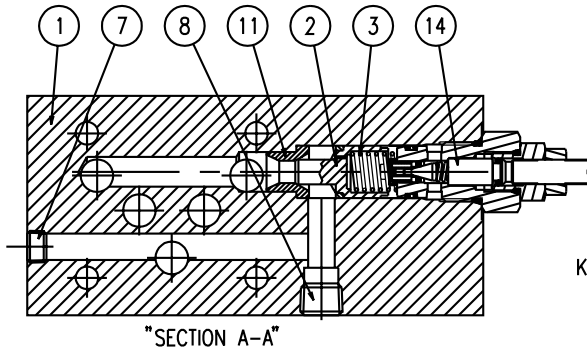
Metric Bolt Kits				
Manapak & Valve Combination	Bolt Kit	Description	Qty./Kit	Torque NM
D1V* Valve (Non-explosion proof)	BK375	M5-0.8 X 30	4	5.7
1 Manapak & D1V* Valve	BK400	M5-0.8 X 70	4	5.7
2 Manapak & D1V* Valve	BK405	M5-0.8 X 110	4	5.7
3 Manapak & D1V* Valve	BK429	M5-0.8 X 150	4	5.7
4 Manapak & D1V* Valve	TK400	M5-0.8 X 205	4	5.7

Note: Bolt kits must be ordered separately.

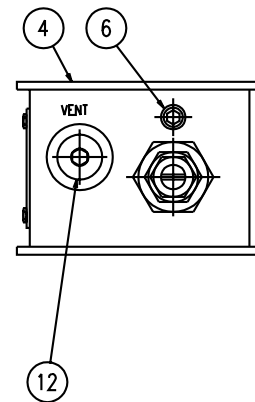
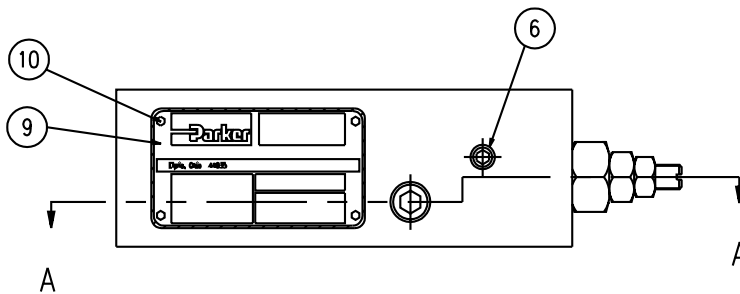
12 Torque to:  
15±1 N-m  
(11±1 ft-lbs)



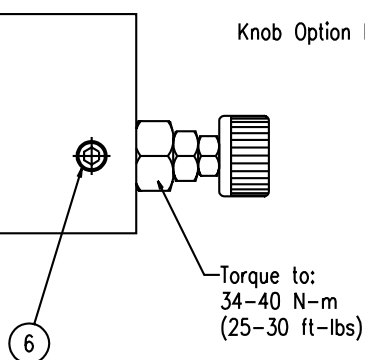
Knob Option L



Knob Option S

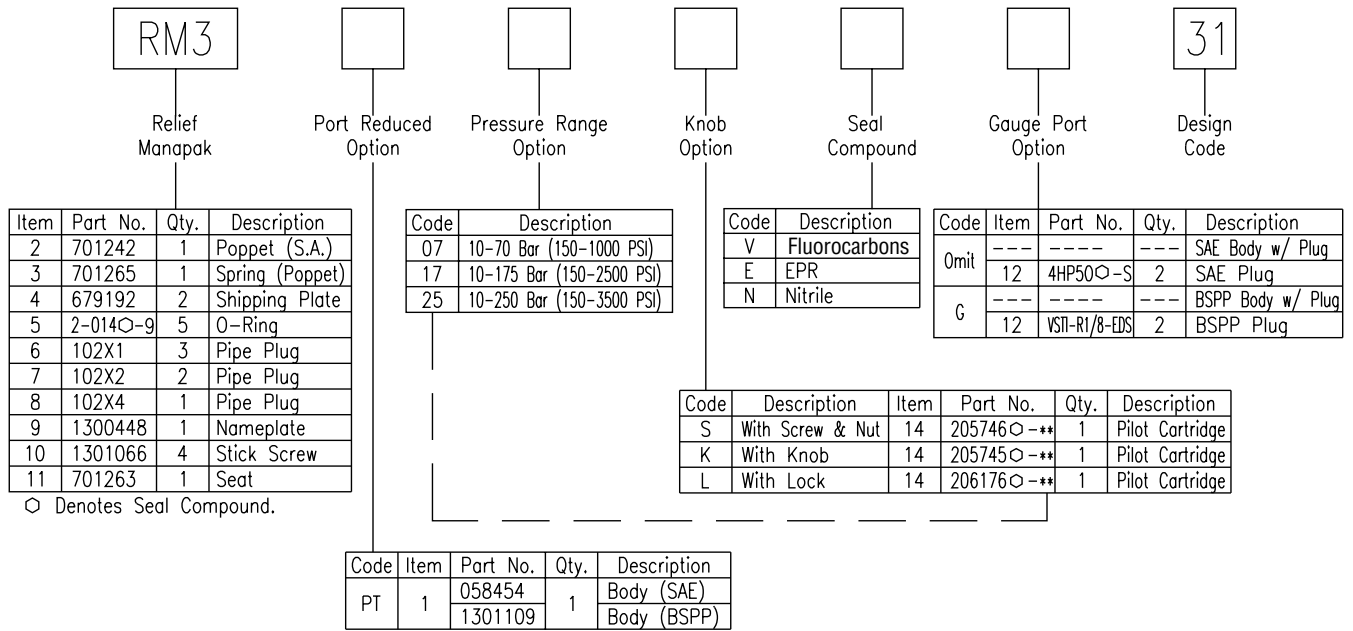


Knob Option K



**Ordering Information**

**Manapak Relief Valves  
Series RM3**

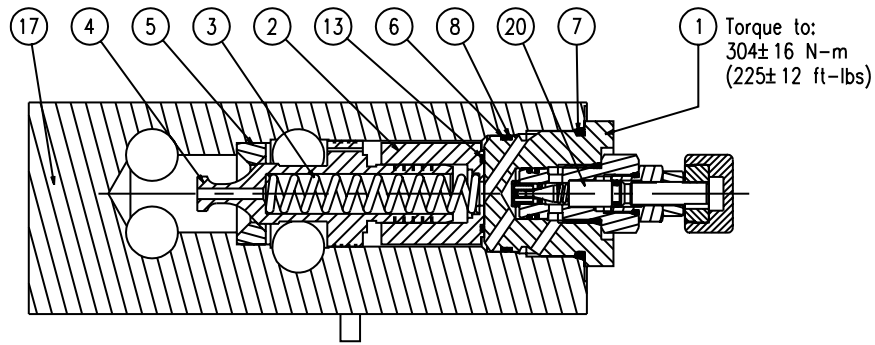


Bolt Kits					
Manapak/Valve Combination	D3W	D3 Manaplug w/ Extension	Bolt length Inch (mm)	D3DW & D31VW	Bolt length Inch (mm)
D3 (Non-explosion proof)	*BK226	*BK80	2.25*(57.2)	BK98	1.625*(41.275)
1 Manapak +D3	*BK61	*BK91	4.25*(108.0)	*BK141	3.5*(88.9)
2 Manapak +D3	*BK62	*BK94	6.25*(158.8)	*BK142	5.5*(139.7)
3 Manapak +D3	*BK63	*BK95	8.25*(209.6)	*BK33	7.5*(190.5)

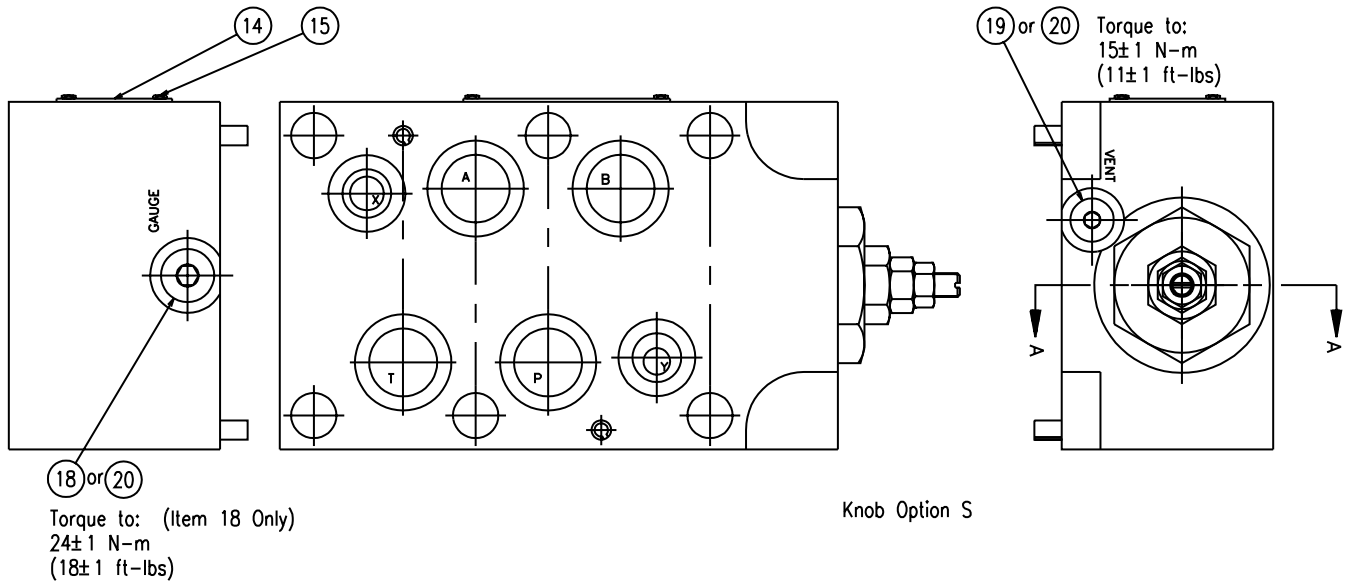
-Bolt kits are ordered separately.  
 -All bolts for the D3 are 1/4-20 and grade 8.  
 -Torque for all D3 bolts: 12 ft-lbs. (16.3 ).  
 -Size 3 Manapaks are 2.0" (50.0) thick.  
 \*-For 3000 PSI applications only.

Metric Bolt Kits					
Manapak/Valve Combination	D3W	D3 Manaplug w/ Extension	Bolt length MM	D3DW & D31VW	Bolt length MM
D3 (Non-explosion proof)	*BK310	*BKM80	55	BKM98	40
1 Manapak +D3	*BK311	*BKM91	105	*BKM141	90
2 Manapak +D3	*BK312	*BKM94	169	*BKM142	140
3 Manapak +D3	*BK313	*BKM95	219	*BKM33	190

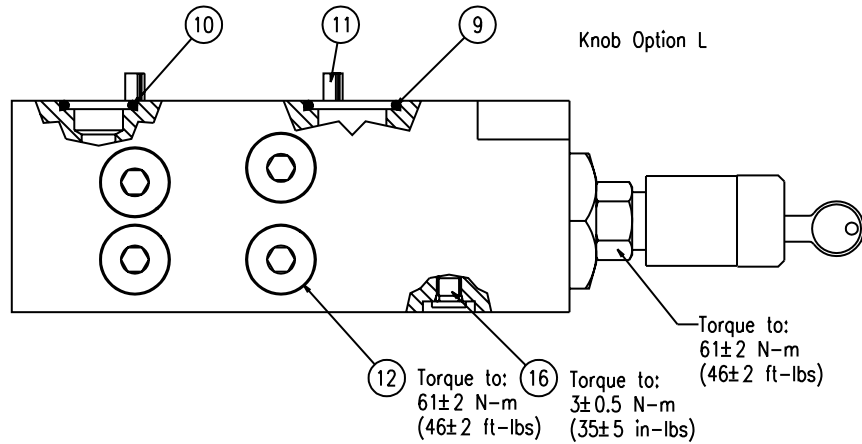
-Bolt kits are ordered separately.  
 -All bolts are M6-1 and grade 12.9.  
 -Torque for all D3 bolts: 16.3 NM.  
 -Size 3 Manapaks are 50.0 thick.  
 \*-For 3000 PSI applications only.



Knob Option K



Knob Option S

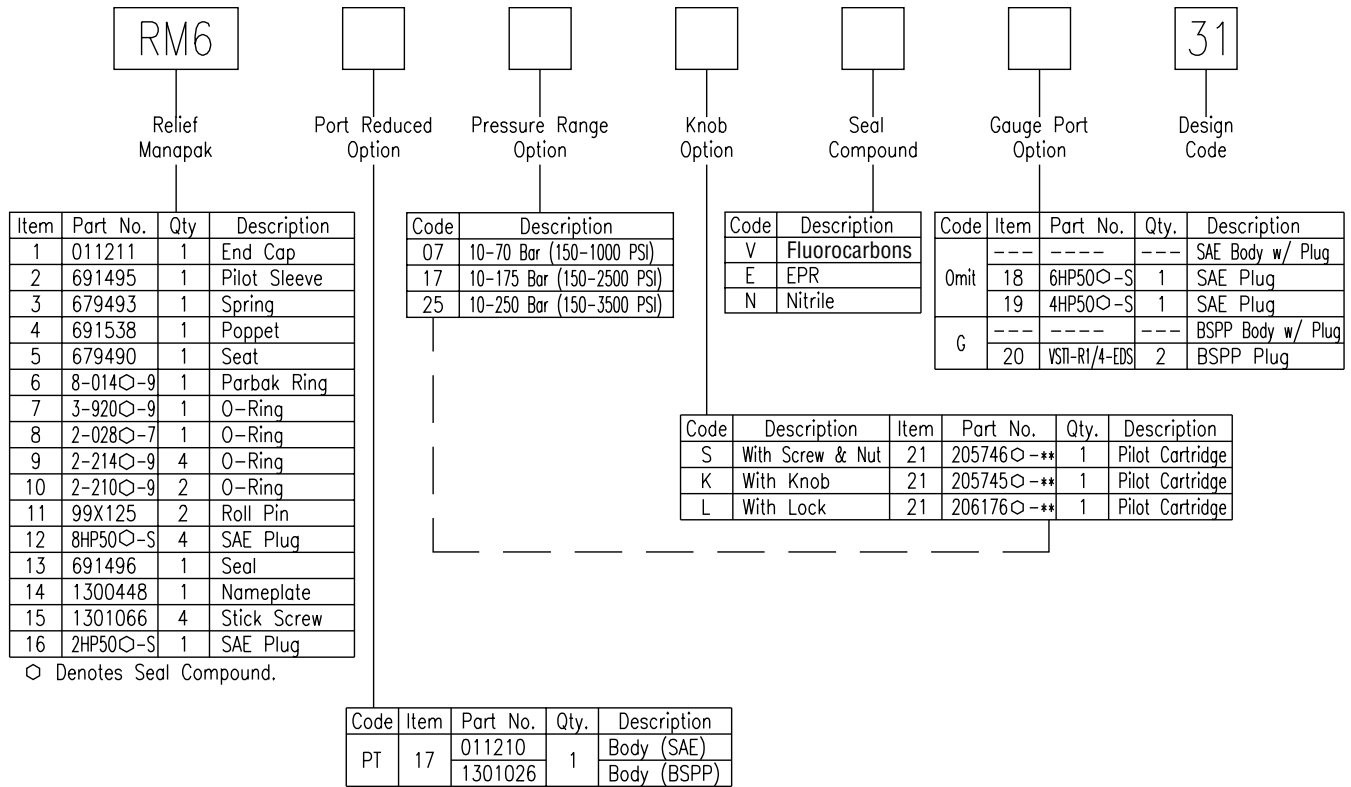


Knob Option L



**Ordering Information**

**Manapak Relief Valves  
Series RM6**



**Bolt Kits**

Manapak & Valve Combination	Part Number	Description	Qty./Kit	Torque to:
D6W Valve	BK120	1/2-13 UNC X 2.50	6	80 ft-lbs.
1 Manapak & D6W Valve	BK121	1/2-13 UNC X 5.25	6	80 ft-lbs.
2 Manapak & D6W Valve	BK122	1/2-13 UNC X 8	6	80 ft-lbs.
3 Manapak & D6W Valve	BK123	1/2-13 UNC X 10.75	6	80 ft-lbs.
4 Manapak & D6W Valve	BK124	1/2-13 UNC X 13.50	6	80 ft-lbs.

Note: Bolt kits must be ordered separately.

## Operation

A pilot operated relief valve is a normally closed valve designed to open at a specific pressure determined by the pilot adjustment. The normal installation of the valve is to connect the inlet port to the point in the hydraulic circuit that is to be pressure limited. The outlet of the valve should be connected directly to the tank return line. The drain of the pilot is connected internally to the outlet of the valve and thus no external drain is required.

When the inlet pressure is less than the pilot setting the pilot dart is closed and the bias spring holds the

main poppet in the closed position. When the inlet pressure attempts to exceed the pilot setting, the pilot dart will open. A pressure drop will occur between the inlet pressure and the pressure on top of the main poppet due to the pilot flow through the control orifice in the poppet. The difference in pressures creates a force that overcomes the force of the bias spring and allows the poppet to open, relieving the inlet flow to the outlet (tank) and thus limiting the inlet pressure to the pilot setting.

## Trouble-Shooting

Symptom	Cause	Solution
<b>System won't build desired pressure</b>	<i>Flow path is open down stream from Relief valve</i>	Check that pump is not being diverted via alternate flow path.
	<i>Pilot incorrectly adjusted</i>	Install pressure gage and readjust.
	<i>Pilot dart is held open</i>	Inspect for contamination.
	<i>Control orifices plugged</i>	Inspect for blockage of orifices (2).
	<i>Main poppet blocked open</i>	Check for free operation of main poppet — may be done through inlet port.
<b>Excessive valve leakage</b>	<i>Damaged main seat/poppet</i>	Inspect for score marks/wear — replace as required.
	<i>Pilot dart does not seat</i>	Inspect for score marks — replace as required.
	<i>Internal seal leakage</i>	Inspect insert cartridge pilot cartridge o-rings.
<b>Excessive pressure</b>	<i>Pilot incorrectly adjusted</i>	Install pressure gage and readjust.
	<i>Main poppet stuck</i>	Check for free operation through inlet port.
	<i>Inlet/outlet lines reversed</i>	Verify proper installation.
<b>Excessive noise/ chatter</b>	<i>Interaction with other pressure controls or remote pilots</i>	Readjust pressure of main control and/or remote control.
	<i>Worn seat or poppet</i>	Check main seat/poppet and pilot slot/dart. Replace if worn or damaged.





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