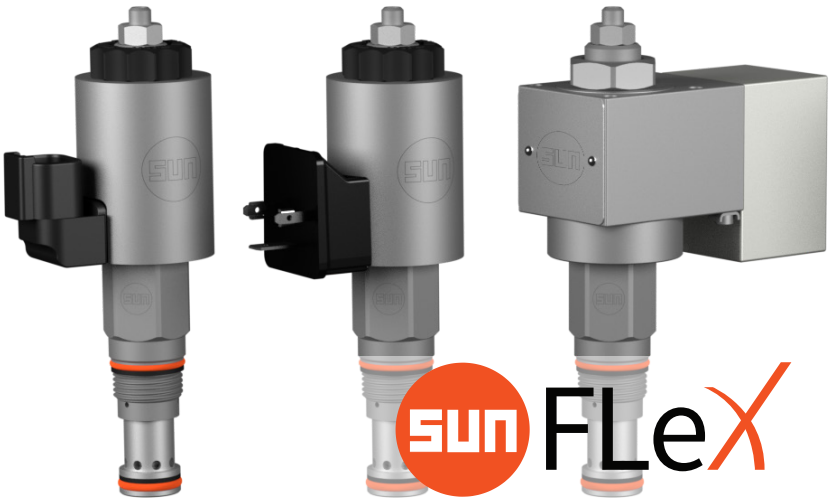
Sun FLeX Series Solenoid Valves

HIGH RELIABILITY
Designed & tested to 10-million operational cycles at full rated pressure

ADJUSTABLE RELIEF FUNCTIONS
Ideal for use in fixed-displacement pump applications

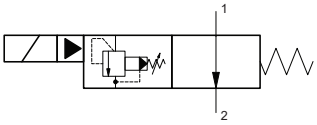
USES 740 & 747 SERIES COILS
High-power & hazardous location coils

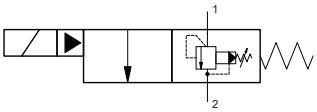


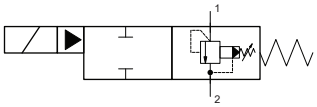
RVC*
5000 psi (350 bar)
T-10A cavity

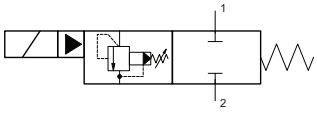
2-STAGE, SOLENOID-OPERATED ADJUSTABLE RELIEF VALVES

PATENT PENDING


RVCK-LJ*
5000 psi (350 bar)


RVCL-LJ*
5000 psi (350 bar)


RVCM-LJ*
5000 psi (350 bar)


RVCN-LJ*
5000 psi (350 bar)

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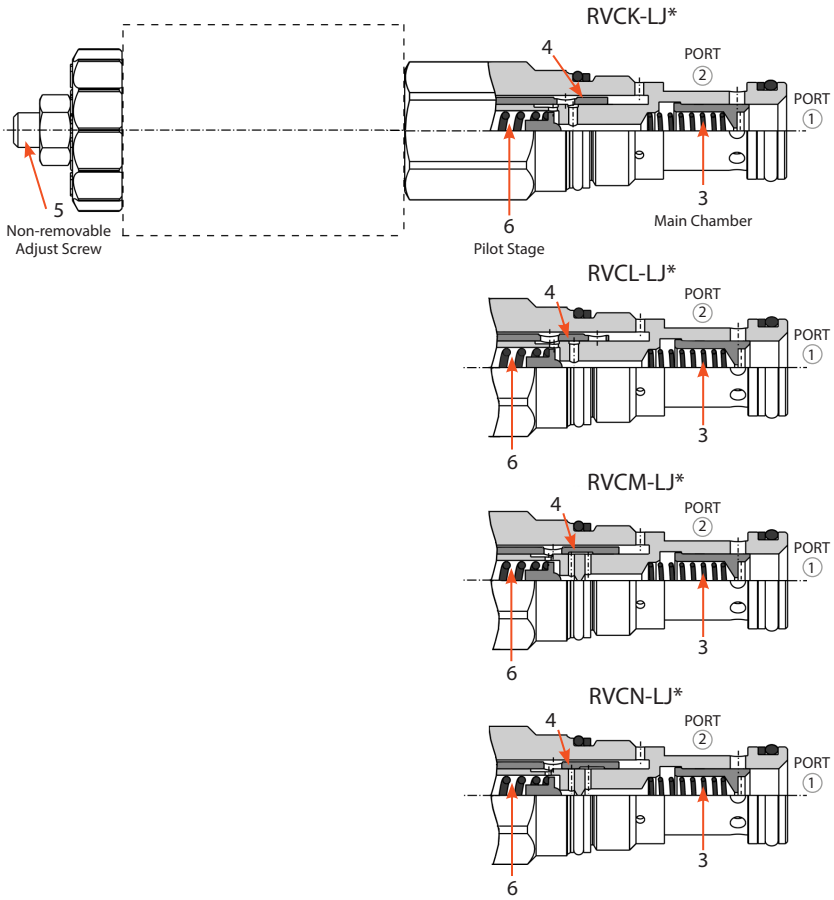
sunhydraulics.com/model/RVC*

Pub.#999-901-715

RVC* 2-STAGE, SOLENOID-OPERATED ADJUSTABLE RELIEF VALVE

SERIES 1, CAVITY: T-10A

Solenoid-operated, 2-stage, adjustable balanced piston relief cartridges are pressure regulating valves. Energizing the solenoid activates or deactivates the relief function. Four versions are available.



RVCK-LJ*

Function: The RVCK is normally vented. The pressure drop from port 1 (supply, pump) to port 2 (tank) is typically 100 psi (see performance curves). When the solenoid is energized, the tube (4) moves and blocks the direct connection between main chamber (3) and tank (port 2). Pilot flow can no longer flow to tank directly. The valve is in relief mode. The pressure setting is adjustable (5).

RVCL-LJ*

Function: The RVCL is normally in relief mode. The pressure setting is adjustable (5). When the solenoid is energized, the tube moves and opens a direct connection between main chamber (3) and tank (port 2). The valve is now vented. Pressure drop from port 1 (supply, pump) to port 2 (tank) is typically 100 psi (see performance curves).

RVCM-LJ*

Function: The RVCM is normally in relief mode. The pressure setting is adjustable (5). When the solenoid is energized, the tube (4) moves and blocks the connection between main chamber (3) and pilot stage (6). Without pilot flow, the main chamber is closed. The valve blocks the flow path from port 1 to port 2 like a spool-type directional valve.

RVCN-LJ*

Function: The RVCN is normally blocked. De-energized, the valve blocks the flow path from port 1 to port 2 like a spool-type directional valve. When the solenoid is energized, the tube (4) moves and allows flow through the main chamber (3) to the pilot stage (6). The valve is in relief mode. The pressure setting is adjustable (5).

TECHNICAL FEATURES

- All FLeX Series valves incorporate the Sun floating-style construction.
- Designed and tested to 10-million operational cycles at full rated pressure.
- Exceeds the new NFPA test standard T2.6.1 R2014 for fatigue and burst pressure ratings.
- A 150-micron stainless steel screen protects the main stage orifice of all valves.
- Zinc-nickel plating standard for 1000-hour salt fog protection.
- All RVC* valves are adjustable under pressure, featuring a leak-free adjustment screw with a mechanical stop to prevent the screw from backing out.
- All valves in the RVC* family use the high-power (25-W) and hazardous location coils. See table on P 3.
- Coil connector options offer ratings up to IP69K. See individual coil product pages for details.
- Includes high flow rates of 15 gpm (60 L/min) and 25 gpm (100 L/min).
- FLeX Series solenoid valves are compatible with the XMD Mobile Drivers from Sun.
- All four valves are patent pending.

MODEL CODE EXPLANATION

Sun cartridges have a base seven-digit part number. Each of the digits in the sequence has significance as shown in the model code explanation below. Available options and modifiers for specific cartridges, manifolds, and valve packages are shown on the individual product pages and data sheets. Not all modifiers are applicable for every model.

VALVE

BASE MODEL CODE CONFIGURATIONS

R V C * – L J *

- R: Relief
- V: Ventable/Blockable
- C: Series 1
- *: K = normally vented; L = energize-to-vent; M = energize-to-block; N = normally blocked
- L: L = adjustable
- J: J = pressure range 300-5000 psi
- *: N = Buna-N; V = Viton

COIL

COIL TYPE CONFIGURATIONS

74* – * * * * * *

- 740: High-power coils; DIN or Deutsch connector; 12, 14, 24, or 28 Vdc; 115, 230 Vac; With or without TVS diode
- 747: Hazardous location coils; Explosion-proof; CSA, ATEX, IECEx certified; 12, 24 Vdc; 115, 230 Vac

Important Note:
When performing model code searches on www.sunhydraulics.com, do not include setting(s). When ordering, no spaces or dashes are used.

See individual coil data sheets for full coil configuration.

COMPATIBLE COILS

The RVC*-LJ* valves use the 740 Series high-power (25-W) and 747 Series hazardous location coils.

High-Power (25-W) Coils

Voltage	DIN 43650 Form A (IP65/IP67)	Deutsch DT04-2P (IP69K)	Resistance @20°C (ohms) ±10% (with diode*)	TVS Diode (Nominal) Breakdown Voltage (with diode*)
	High-Power	High-Power	High-Power	
12 Vdc	740-212	740-912	5.8 Ω	68 Vdc
14 Vdc	740-214	740-914	7.8 Ω	68 Vdc
24 Vdc	740-224	740-924	23.0 Ω	68 Vdc
28 Vdc	740-228	740-928	31.4 Ω	68 Vdc
115 Vac	740-211	N/A	416 Ω	250 Vac
230 Vac	740-223	N/A	1686 Ω	400 Vac

* Above model codes are shown without transient voltage suppression (TVS) diodes.
To order 740 series coils with a TVS diode, append model code with "D" (Example: 740-212D).

Hazardous Location, Explosion-Proof (30-W) Coils

Voltage	M20 x 1.5 180°	M20 x 1.5 90°	1/2" NPT 180°	1/2" NPT 90°	Wattage @ 20°C	Circuitry
12 Vdc	747-JM12BD	747-JM12CD	747-JN12BD	747-JN12CD	29.6 W	With diode
24 Vdc	747-JM24BD	747-JM24CD	747-JN24BD	747-JN24CD	29.9 W	With diode
115 Vac	747-JM11BD	747-JM11CD	747-JN11BD	747-JN11CD	29.7 W	Rectified
230 Vac	747-JM23BD	747-JM23CD	747-JN23BD	747-JN23CD	28.9 W	Rectified

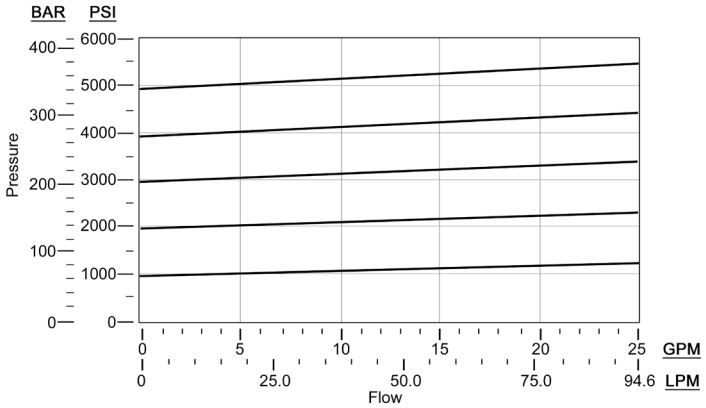
RVC* 2-STAGE, SOLENOID-OPERATED ADJUSTABLE RELIEF VALVE

SERIES 1, CAVITY: T-10A

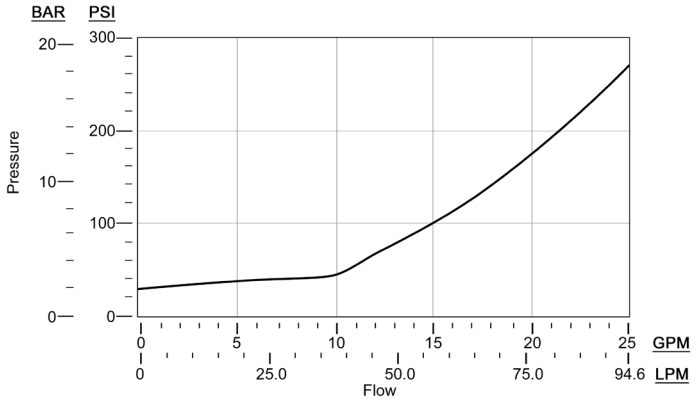
TECHNICAL SPECIFICATIONS	RVCK	RVCL	RVCM	RVCN
Nominal Flow Rate/Capacity	15 gpm (60 L/min)	15 gpm (60 L/min)	25 gpm (100 L/min)	25 gpm (100 L/min)
Maximum Internal Leakage at 110 SUS (24 cSt)	5.0 in^3/min (80 cc/min) at 2000 psi (140 bar)		5.0 in^3/min (80 cc/min) at 3000 psi (210 bar) when blocked	
Maximum Operating Pressure	5000 psi (350 bar)			
Sun Cavity	T-10A			
Sun Cartridge Series	Series 1			
Factory Pressure Setting Established	4 gpm (15 L/min)			
Response Time - Typical Relief	10 ms			
Response Time - Typical Solenoid	50 ms			
Adjustment - No. of CW turns from Min. to Max. setting	3.5			
Valve Hex Size	7/8 in (22,2 mm)			
Valve Installation Torque	30 - 35 lbf ft (41 - 47 N-m)			
Adjustment Screw Internal Hex Size	1/8 in (3,2 mm)			
Locknut Hex Size	7/16 in (11,1 mm)			
Locknut Torque	45 - 55 lbf in (5 - 6 N-m)			
Valve Weight (excluding coil)	6.4 oz (181 g)			
Seal Kit - Buna N	990-010-007			
Seal Kit - Viton	990-010-006			

PERFORMANCE CURVES

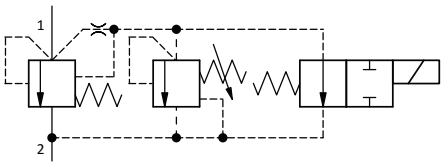
RVC* - TYPICAL PRESSURE DIFFERENTIAL VS. FLOW



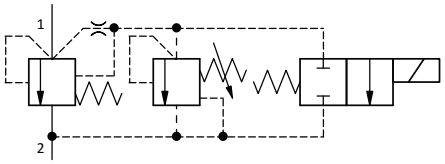
RVCK & RVCL - VENTED PRESSURE DIFFERENTIAL



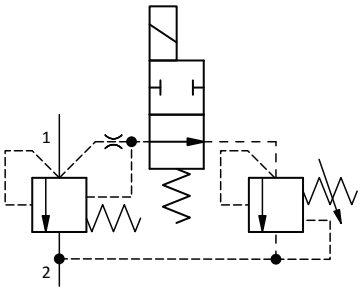
DETAILED SYMBOLS



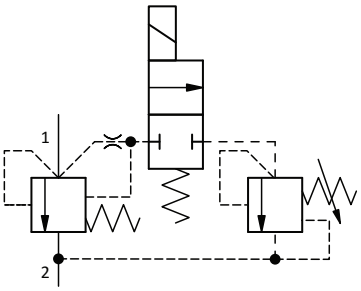
RVCK-LJ*
5000 psi (350 bar)



RVCL-LJ*
5000 psi (350 bar)



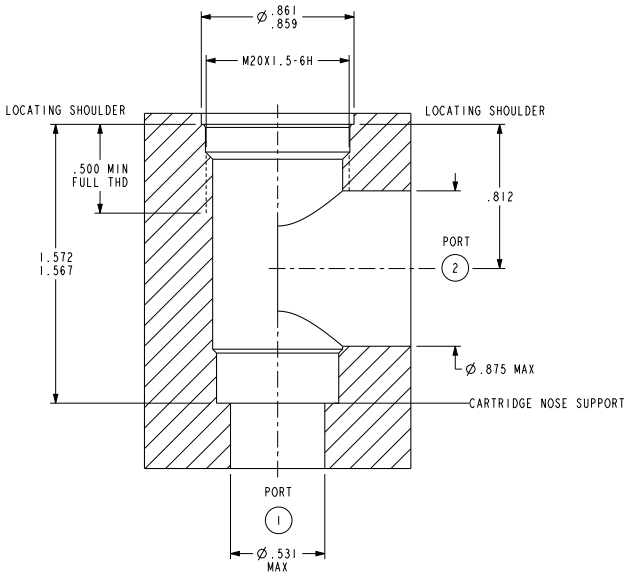
RVCM-LJ*
5000 psi (350 bar)



RVCN-LJ*
5000 psi (350 bar)

NOTE: Back pressure on the tank port (2) is additive to the valve setting at a 1:1 ratio.

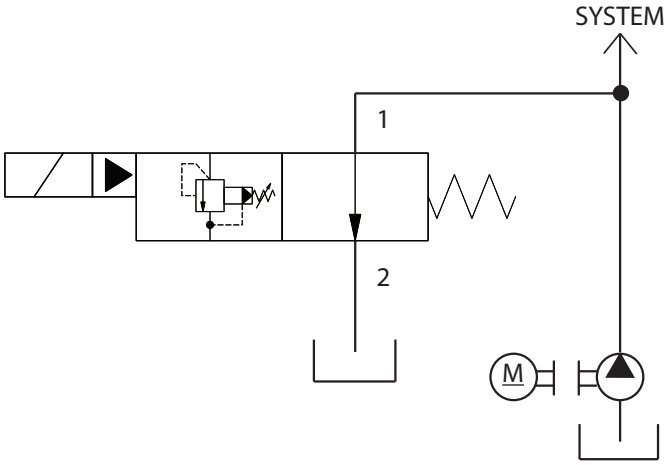
T-10A CAVITY DIMENSIONAL DRAWING & TOOLING



NOTE: For cavity tooling, see table below.

For full cavity detail, download the latest drawings from our website.
https://www.sunhydraulics.com/cavity/T-10A

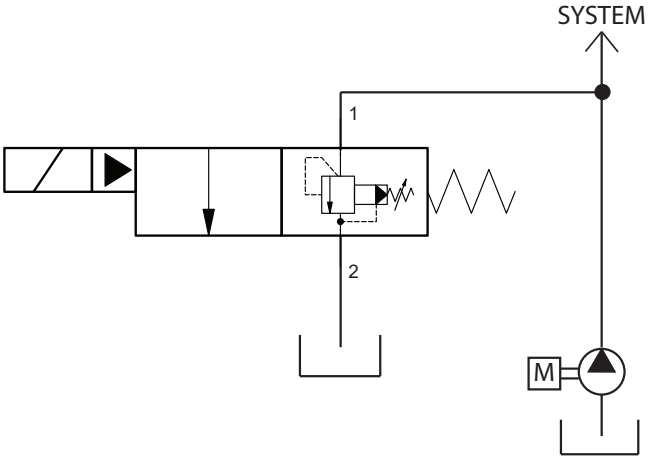
DESCRIPTION	HIGH-SPEED STEEL	TITANIUM COATED
M20 X 1.5-6H tap, straight shank	998998	998998101
Series 1 deep hex socket	998100001	
T-10A cavity form drill, morse taper	994010001	994010101
T-10A cavity form drill, straight shank	994010002	994010102
T-10A cavity form reamer, morse taper	995010001	995010101
T-10A cavity form reamer, straight shank	995010002	995110102



RVCK-LJ*

PUMP START-UP CIRCUIT

The normally open ventable relief RVCK is the ideal valve to use in a system when starting up a prime mover connected to a large pump with load. Unloading the pump is good practice and will be less stressful on the system. Since these valves can be switched at pressure, once the prime mover is up to full speed, the relief valve can be energized to build up system pressure. The pressure is user adjustable up to 5000 psi.



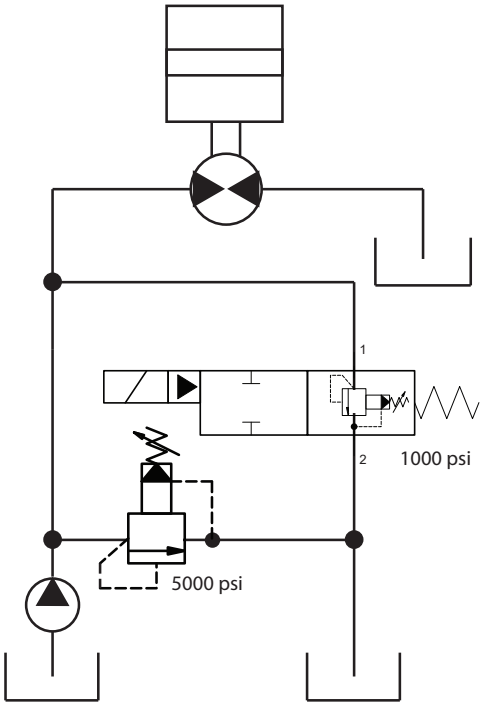
RVCL-LJ*

PUMP START-UP FOR ON/OFF FAN DRIVE CONTROL

The ventable relief RVCL is normally in relief mode. It is another option for pump start-up. Unlike the normally open RVCK, the RVCL is in relief mode when de-energized for more energy savings during normal system operation.

Because the RVCL is in relief mode when de-energized, it is only necessary to power the solenoid when the valve needs to unload during prime mover start up.

This makes the valve an obvious choice for a simple hydraulic on-off fan drive circuit as shown here and is a better choice when safety requires system pressure in the event of electric power loss.



RVCM-LJ*

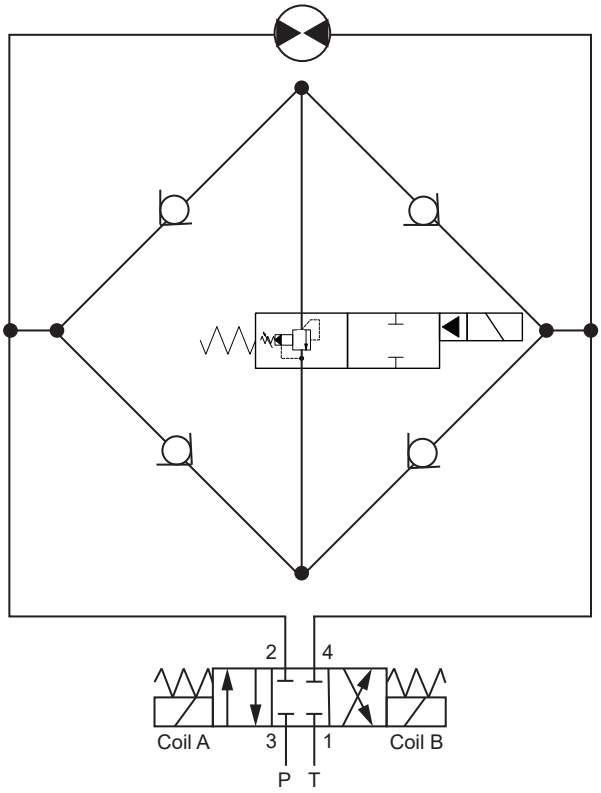
CONVEYOR BELT MOTOR CONTROL

The blockable relief RVCM is normally in relief mode. When energized the valve blocks flow like a spool type 2-position, 2-way valve. The valve is ideal for circuits that require two pressure setting.

In the example of a conveyor belt, the high inertia load requires a high pressure to accelerate from stop. When the conveyor is in motion and motor speed is constant, a lower relief setting maintains motion at a lower pressure.

Compared to a circuit with two relief valves and one solenoid-operated directional valve, the blockable RVCM eliminates the need for the directional valve, creating a much simpler two-valve solution instead of three.

NOTE: Sample circuits are shown for application illustration only and are not intended as circuit designs.

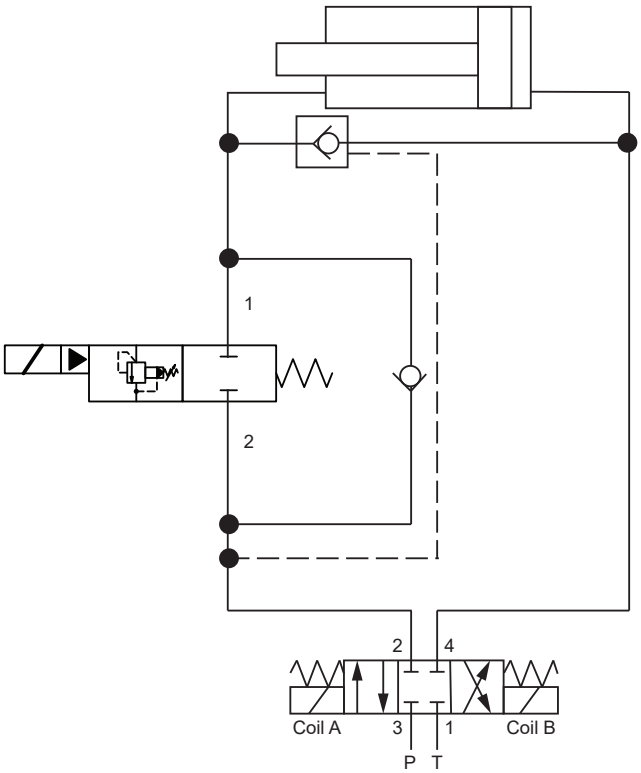


RVCM-LJ*

BI-DIRECTIONAL PUMP PRESSURE DIFFERENTIAL LIMIT

The blockable relief RVCM is normally in relief mode. The valve can be used to limit the pressure differential across the motor. The relief valve setting then allows the motor to accelerate with a limited torque using the controlled pressure, smoothing out the load movement.

In a rectifier circuit, the RVCM limits the torque of the motor in both directions.



RVCN-LJ*

ADJUSTABLE COMPRESSION FOR MATERIAL COMPACTORS & BAILING PRESSES

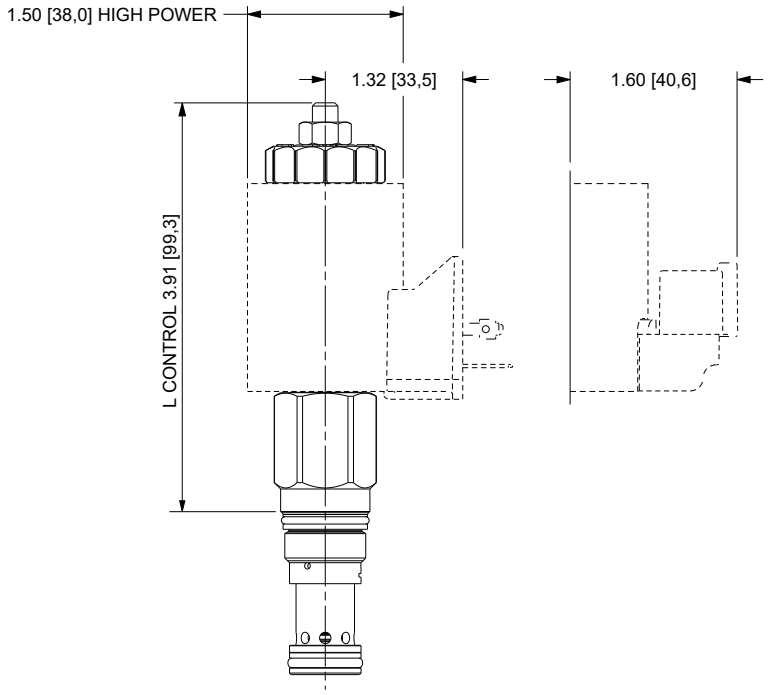
The RVCN is normally blocked and, when energized, turns into an adjustable relief valve.

The valve can be used as a pilot-operated 2-position, 2-way valve with high capacity. When energized, the relief function of the valve can be used to avoid decompression shock. In a continuous regeneration circuit, the valve can unload the rod end side of the cylinder. Preloading the cylinder avoids the decompression shock. And because the valve is adjustable, it can be adjusted to control the amount of compression in the compactor or press when the cylinder goes from regen to normal mode.

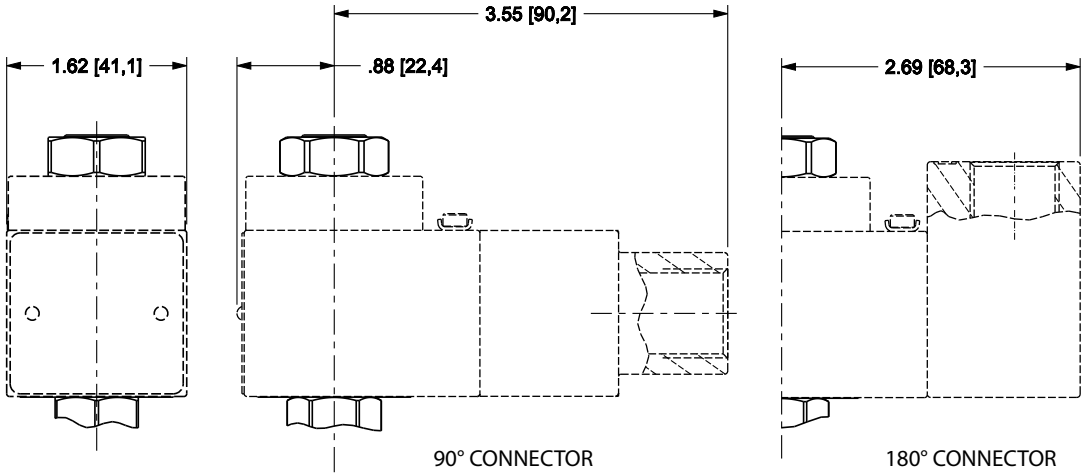
NOTE: Sample circuits are shown for application illustration only and are not intended as circuit designs.

DIMENSIONAL DRAWINGS

RVC* FAMILY WITH 740 SERIES HIGH-POWER COILS



747 SERIES HAZARDOUS LOCATION COILS



NOTE: Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances. An additional minimum 2.0 in. (50,8 mm) beyond the valve extension is needed for coil installation and removal.

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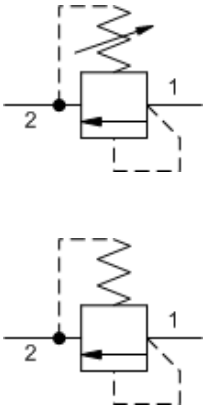
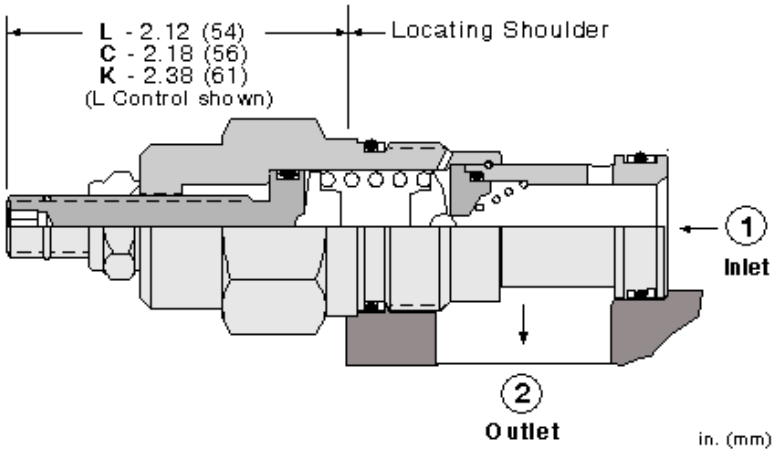
October 2018





Direct-acting, pilot relief cartridges are used to remotely control the pressure setting of other pilot-operated valves. Because capacity is limited to pilot flow, these valves should be used with other higher flow valves.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	2 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,3 cc/min.
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Polyurethane: 990003002
Seal kit - Cartridge	Viton: 990203006
Model Weight	0.26 kg.

NOTES

For Series 2 cartridges configured with an O control (panel mount handknob), a 1.00 in. (25,4 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

Model Code Example: RBAALAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **J** Capped Screw Adjustment
- **K** Handknob
- **O** Handknob with Panel Mount
- **Y** Tri-Grip Handknob

ADJUSTMENT RANGE (A)

- **A** 25 - 3000 psi (1,7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 25 - 1500 psi (1,7 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 25 - 6000 psi (1,7 - 420 bar), 1000 psi (70 bar) Standard Setting
- **D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting
- **E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 25 - 4500 psi (1,7 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

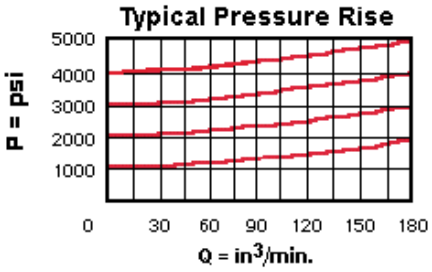
MATERIAL/COATING

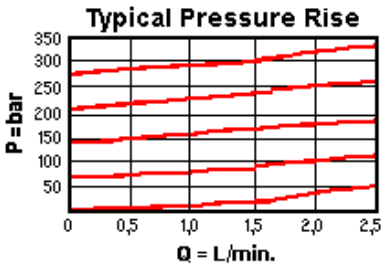
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Main stage orifice is protected by a 150-micron stainless steel screen.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

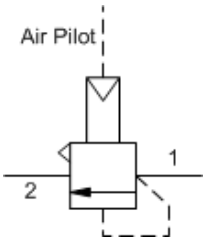
PERFORMANCE CURVES

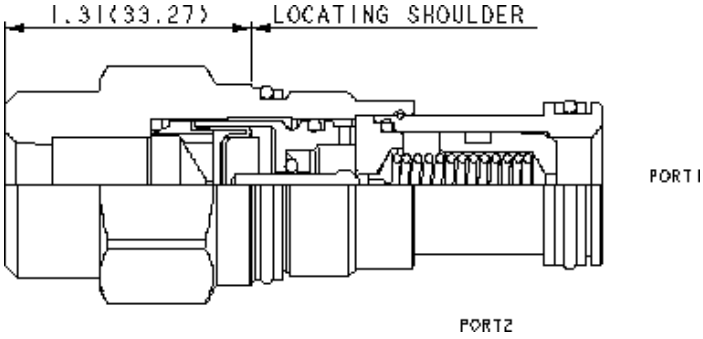




Air-controlled, direct-acting relief valve - pilot capacity
SERIES 2 / CAPACITY: 2 L/min. / CAVITY: T-3A

snhy.com/RBAB





Air-controlled, pilot relief cartridges are used to remotely control the pressure setting of other pilot operated valves. Because capacity is limited to pilot flow, these valves should be used with valves with compatable pilot flows. They use compressed air over a diaphragm instead of an adjustable spring to control pressure setting, the air signal is supplied through a port in the hex-end of the cartridge.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	2 L/min.
Pilot Ratio	20:1
Maximum Operating Pressure	140 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,3 cc/min.
Response Time - Typical	2 ms
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Viton: 990203006
Model Weight	0.24 kg.

CONFIGURATION OPTIONS

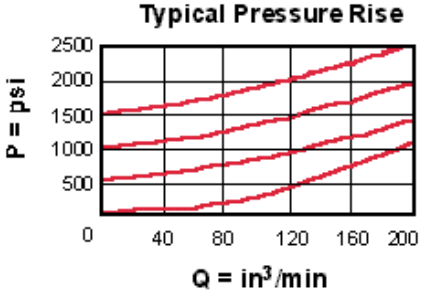
Model Code Example: RBABABN

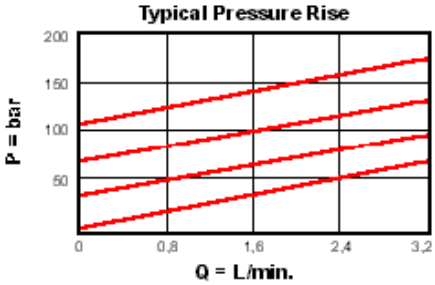
CONTROL (A)	OPERATING RANGE (B)	SEAL MATERIAL (N)
A External 1/4 NPTF Port	**B** 50 - 1500 psi (3,5 - 105 bar)	**N** Buna-N
		V Viton

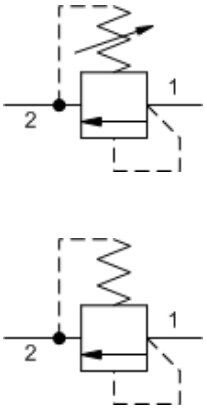
TECHNICAL FEATURES

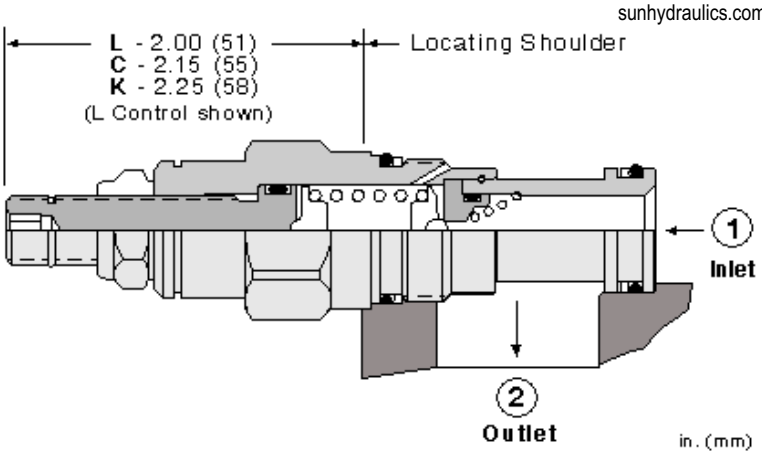
- Maximum air pressure should not exceed 150 psi (10 bar).
- Pressure settings are insensitive to back pressure at the tank port (port 2). Back pressure should not exceed 1000 psi (70 bar).
- Capable of providing explosion proof remote control of the pressure setting, the hydraulic setting is directly porportional to the air setting at a ratio of 20:1 (hydraulic:air).
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES









Direct-acting, pilot relief cartridges are used to remotely control the pressure setting of other pilot-operated valves. Because capacity is limited to pilot flow, these valves should be used with other higher flow valves.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-10A
Series	1
Capacity	1 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,3 cc/min.
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006
Model Weight	0.14 kg.

NOTES

For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

Model Code Example: RBACLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **J** Capped Screw Adjustment
- **K** Handknob
- **O** Handknob with Panel Mount

ADJUSTMENT RANGE (A)

- **A** 25 - 3000 psi (1,7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **W** 25 - 4500 psi (1,7 - 315 bar), 1000 psi (70 bar) Standard Setting
- **B** 25 - 1500 psi (1,7 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 25 - 6000 psi (1,7 - 420 bar), 1000 psi (70 bar) Standard Setting
- **D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting
- **E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

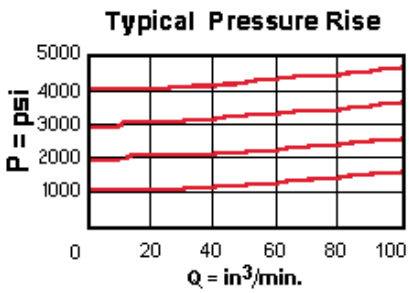
MATERIAL/COATING

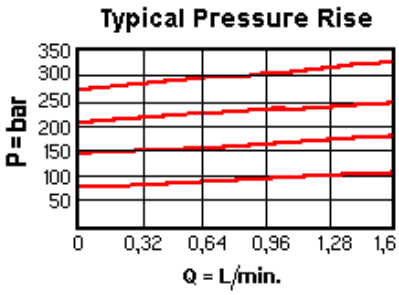
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

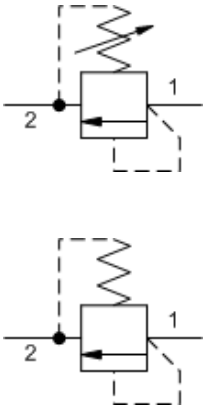
TECHNICAL FEATURES

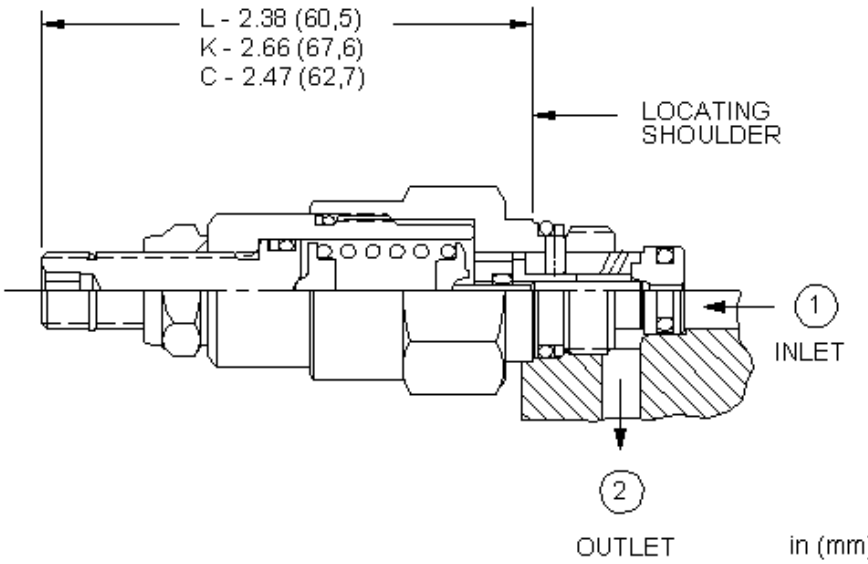
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES









Two-port, pilot-stage, direct-acting relief cartridges are fully adjustable, normally closed pressure regulating valves. When the pressure at port 1 (inlet) is sufficient to overcome the spring force (valve setting), a flow path is opened from port 1 to port 2 (tank).

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-8A
Series	P
Capacity	10 L/min.
Factory Pressure Settings Established at	30 cc/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	1 cc/min.
Response Time - Typical	2 ms
Valve Hex Size	22,2 mm
Valve Installation Torque	27 - 33 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990608007
Seal kit - Cartridge	EPDM: 990608014
Seal kit - Cartridge	Polyurethane: 990008002
Seal kit - Cartridge	Viton: 990608006
Model Weight	0.13 kg.

NOTES

For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

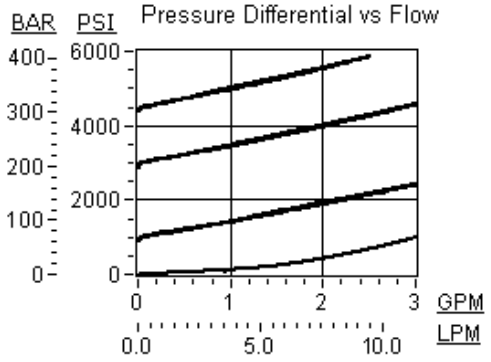
Model Code Example: RBAELAN

CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 25 - 3000 psi (1,7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**B** 25 - 1500 psi (1,7 - 105 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**C** 25 - 6000 psi (1,7 - 420 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
O Handknob with Panel Mount	**D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
Y Tri-Grip Handknob	**E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	W 25 - 4500 psi (1,7 - 315 bar), 1000 psi (70 bar) Standard Setting		

TECHNICAL FEATURES

- Utilizes the Sun T-8A 2-port cavity making it the ideal choice to use in conjunction with Sun's main stage pilot or vent-to-operate cartridges. Separate pilot lines are eliminated and only one cavity needs to be machined to accommodate both the control and primary function. Note: All 2-position, 2-way pilot stage control cartridges utilize the same cavity and are physically interchangeable. Functionality is the only consideration.
- Note: The main stage valve should first be installed to the correct torque value followed by the T-8A pilot control section into the main stage valve to its required torque value.
- Ports 1 and 2 may be pressured to 5000 psi (350 bar).
- Hardened poppet and seat provide consistent operation, low leakage rates and superior wear characteristics.
- Backpressure at port 2 (outlet) is directly additive to the pressure setting at port 1 (inlet).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

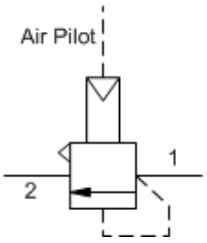
PERFORMANCE CURVES

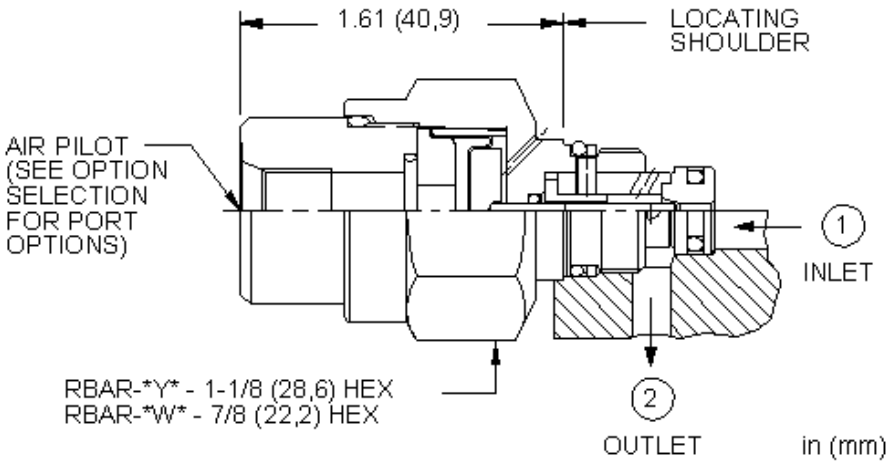


MODEL
RBAR

Air-controlled, direct-acting relief valve - pilot capacity
SERIES P / CAPACITY: 10 L/min. / CAVITY: T-8A

sunhydraulics.com/model/RBAR





Two-port, pilot-stage, air-controlled, direct-acting relief cartridges are normally closed pressure regulating valves. When the pressure at port 1 (inlet) is sufficient to overcome the force due to the air signal, a flow path is opened from port 1 to port 2 (tank). These cartridges are designed for pilot flow applications and utilize Sun's T-8A cavity so they can be used in conjunction with Sun's pilot-operated, main-stage valves.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-8A
Series	P
Capacity	10 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	1 cc/min.
Maximum Pilot Pressure	10,5 bar
Pilot Control Port	See Control Options
Valve Installation Torque	27 - 33 Nm
Seal kit - Cartridge	Buna: 990608007
Seal kit - Cartridge	EPDM: 990608014
Seal kit - Cartridge	Polyurethane: 990008002
Seal kit - Cartridge	Viton: 990608006
Model Weight	0.11 kg.

CONFIGURATION OPTIONS

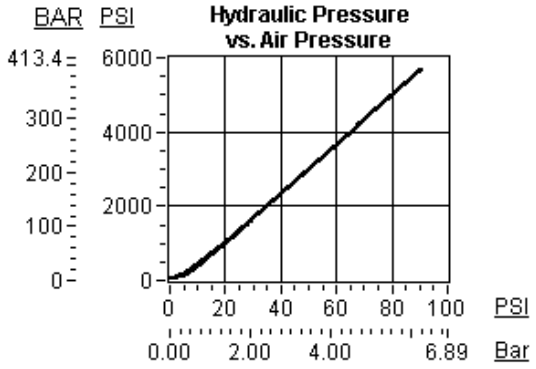
Model Code Example: RBARBWN

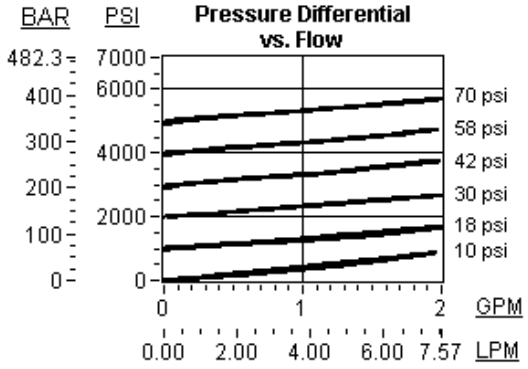
CONTROL (B)	AIR PILOT RATIO (W)	SEAL MATERIAL (N)
B External 4-SAE Port	**W** 50:1	**N** Buna-N
A External 1/8 NPTF Port	**Y** 75:1	**E** EPDM
D External 1/8 BSPP Port		**V** Viton

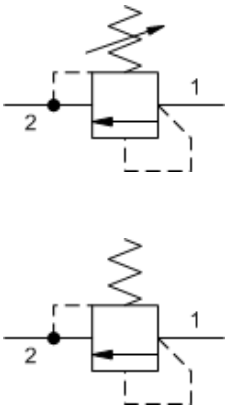
TECHNICAL FEATURES

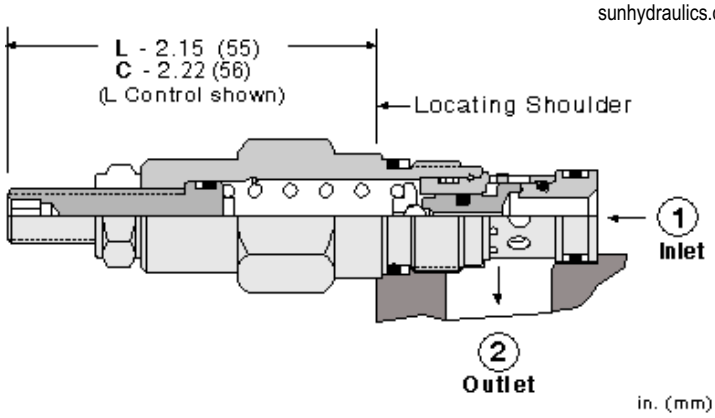
- Utilizes the Sun T-8A 2-port cavity making it the ideal choice to use in conjunction with Sun's main stage pilot or vent-to-operate cartridges. Separate pilot lines are eliminated and only one cavity needs to be machined to accommodate both the control and primary function. Note: All 2-position, 2-way pilot stage control cartridges utilize the same cavity and are physically interchangeable. Functionality is the only consideration.
- Note: The main stage valve should first be installed to the correct torque value followed by the T-8A pilot control section into the main stage valve to its required torque value.
- Different pilot control port options are available. See Option Selection for details.
- Ports 1 and 2 may be pressured to 5000 psi (350 bar).
- Hardened poppet and seat provide consistent operation, low leakage rates and superior wear characteristics.
- Two different oil-to-air pilot ratios are available; 50:1 and 75:1. See Option Selection.
- Maximum pilot control port pressure is 150 psi (10 bar).
- Backpressure at port 2 increases the relief setting by a .43 multiplier.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES









Direct-acting relief cartridges are normally closed, pressure-limiting valves used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-162A
Series	0
Capacity	45 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Reseat	>85% of crack setting
Adjustment - No. of CW Turns from Min. to Max. setting	6
Valve Hex Size	19,1 mm
Valve Installation Torque	27 - 33 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	12,7 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	EPDM: 990162014
Seal kit - Cartridge	Polyurethane: 990162002
Seal kit - Cartridge	Viton: 990162006
Model Weight	0.10 kg.

NOTES

U.S. Patent #4,742,846; European Patent Pending

CONFIGURATION OPTIONS

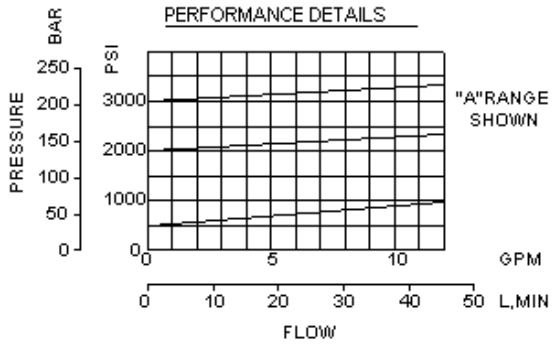
Model Code Example: RDBALAN

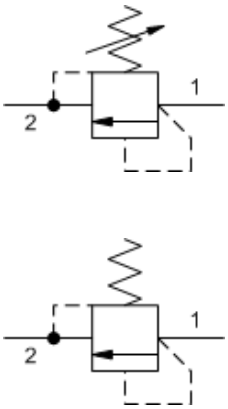
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 500 - 3000 psi (35 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 800 - 4500 psi (55 - 315 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**B** 300 - 1500 psi (20 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
	C 1000 - 6000 psi (70 - 420 bar), 1000 psi (70 bar) Standard Setting		
	D 200 - 800 psi (14 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 100 - 400 psi (7 - 28 bar), 200 psi (14 bar) Standard Setting		
	S 50 - 200 psi (3,5 - 14 bar), 100 psi (7 bar) Standard Setting		

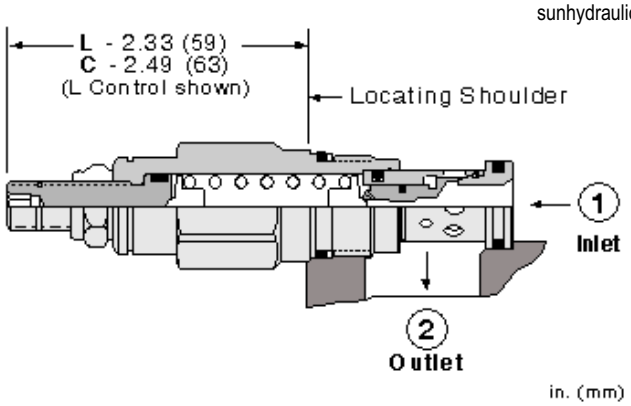
TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Select a spring range where the desired relief setting is approximately mid-range to high between the minimum and maximum pressure to ensure maximum valve repeatability.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Test pressure for each range is as follows: A range - 2000 psi (138 bar), B range - 1000 psi (69 bar), C range - 4000 psi (276 bar), D range - 800 psi (55 bar), E range - 400 psi (28 bar), S range - 150 psi (10 bar), W range - 3000 psi (207 bar).
- Reseat meets or exceeds 85% of crack pressure at test setting. Settings lower than the test pressure may result in lower reseat percentages.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES







in. (mm)

Direct-acting relief cartridges are normally closed, pressure-limiting valves used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-10A
Series	1
Capacity	95 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Reseat	>90% of setting
Adjustment - No. of CW Turns from Min. to Max. setting	6
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990310007
Seal kit - Cartridge	EPDM: 990310014
Seal kit - Cartridge	Viton: 990310006
Model Weight	0.17 kg.

CONFIGURATION OPTIONS

Model Code Example: RDDALCN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **Y** Tri-Grip Handknob

ADJUSTMENT RANGE (C)

- **C** 1000 - 6000 psi (70 - 420 bar), 1000 psi (70 bar) Standard Setting
- **A** 500 - 3000 psi (35 - 210 bar), 1000 psi (70 bar) Standard Setting
- **W** 800 - 4500 psi (55 - 315 bar), 1000 psi (70 bar) Standard Setting
- **B** 300 - 1500 psi (20 - 105 bar), 1000 psi (70 bar) Standard Setting
- **D** 200 - 800 psi (14 - 55 bar), 400 psi (28 bar) Standard Setting
- **E** 100 - 400 psi (7 - 28 bar), 200 psi (14 bar) Standard Setting
- **S** 50 - 200 psi (3,5 - 14 bar), 100 psi (7 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

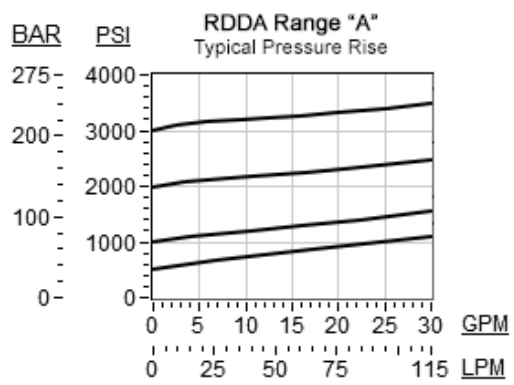
MATERIAL/COATING

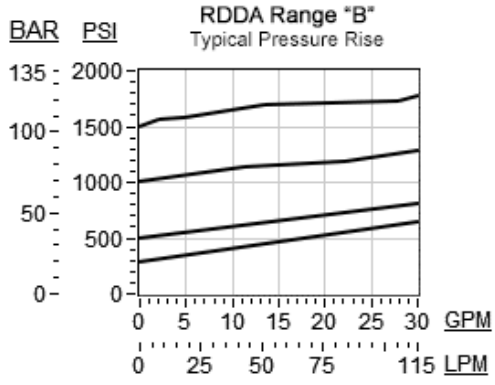
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

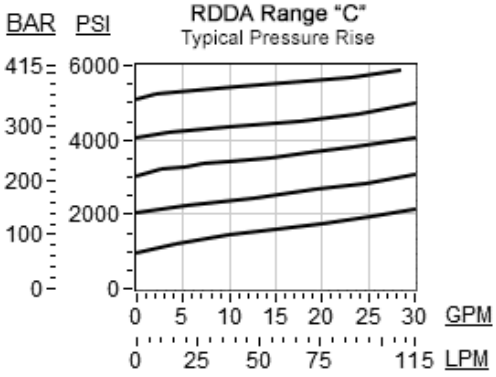
TECHNICAL FEATURES

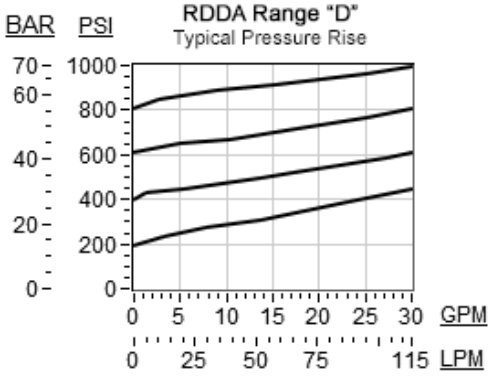
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Select a spring range where the desired relief setting is approximately mid-range to high between the minimum and maximum pressure to ensure maximum valve repeatability.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Test pressure for each range is as follows: A range - 2000 psi (138 bar), B range - 1000 psi (69 bar), C range - 4000 psi (276 bar), D range - 800 psi (55 bar), E range - 400 psi (28 bar), S range - 150 psi (10 bar), W range - 3000 psi (207 bar).
- Reseat meets or exceeds 90% of crack pressure at test setting. Settings lower than the test pressure may result in lower reseat percentages.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

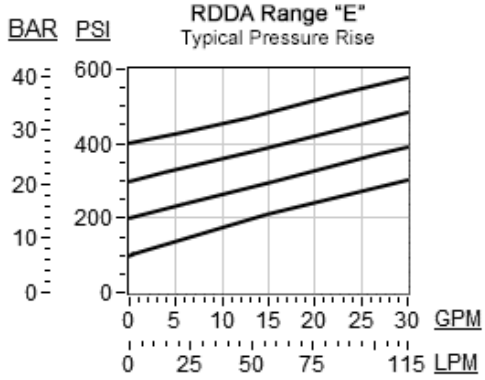
PERFORMANCE CURVES

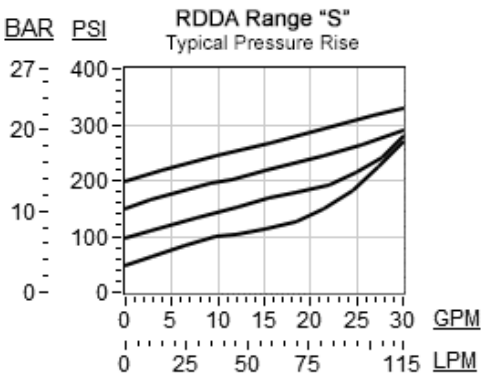


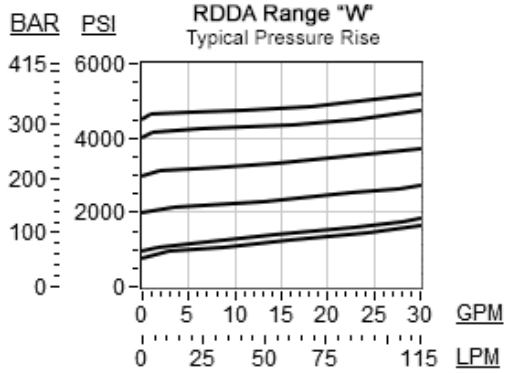












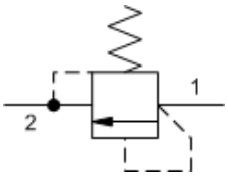
RELATED MODELS

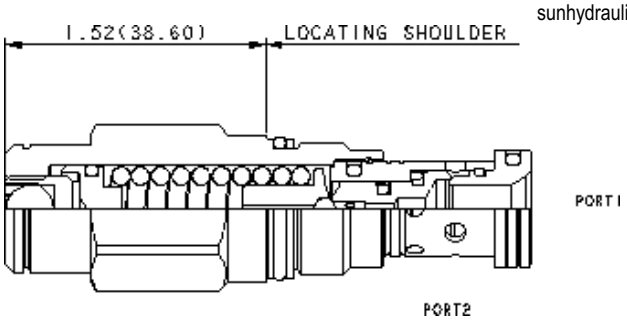
- RDDA3 Non-adjustable direct-acting relief valve

MODEL
RDDA3

Non-adjustable direct-acting relief valve
SERIES 1 / CAPACITY: 95 L/min. / CAVITY: T-10A

sunhydraulics.com/model/RDDA3





Non-adjustable direct-acting relief cartridges are normally closed, pressure-limiting valves used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-10A
Series	1
Capacity	95 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Reseat	>90% of setting
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990310007
Seal kit - Cartridge	Viton: 990310006
Model Weight	0.15 kg.

CONFIGURATION OPTIONS

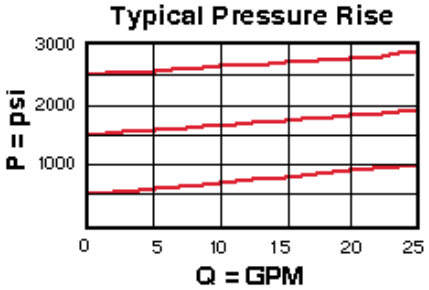
Model Code Example: RDDA3AN

ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
A 500 - 3000 psi (35 - 210 bar)	**N** Buna-N	Standard Material/Coating
C 1000 - 6000 psi (70 - 420 bar)	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
D 200 - 800 psi (14 - 55 bar)		

TECHNICAL FEATURES

- Customer must specfy setting. The valve will be factory set and is tamper proof.
- Test pressure for each range is as follows: A range - 2000 psi (138 bar), B range - 1000 psi (69 bar), C range - 4000 psi (276 bar), D range - 800 psi (55 bar), E range - 400 psi (28 bar), S range - 150 psi (10 bar), W range - 3000 psi (207 bar).
- Reseat meets or exceeds 90% of crack pressure at test setting. Settings lower than the test pressure may result in lower reseat percentages.
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Select a spring range where the desired relief setting is approximately mid-range to high between the minimum and maximum pressure to ensure maximum valve repeatability.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



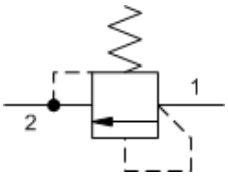
RELATED MODELS

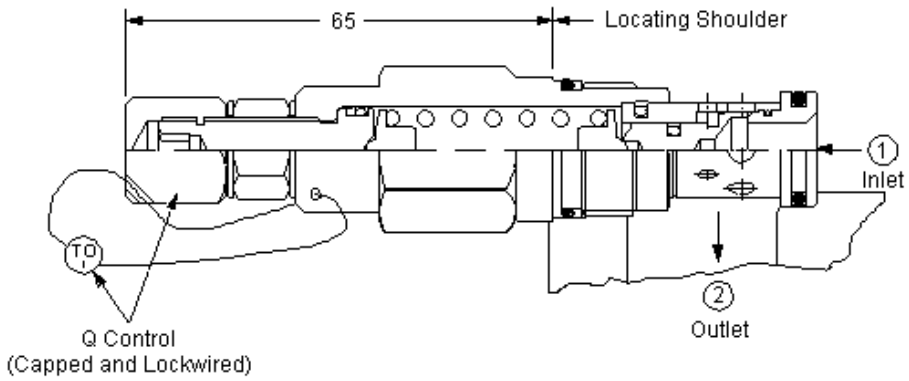
- RDDA Direct-acting relief valve

MODEL
RDDT

Direct-acting relief valve, CE marked
SERIES 1 / CAPACITY: 75 L/min. / CAVITY: T-10A

sunhydraulics.com/model/RDDT





Dimensions in mm

Direct-acting relief cartridges are normally closed, pressure-limiting valves used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

The CE marked valve is a safety valve that meets the requirements of the European Directive for Pressurized Devices (PED) 2014/68/EU. The valve setting represents the excess operating pressure at which the valve opens. Valve capacity can be determined from the performance curve. It shows an approved flow which depends on the excess operating pressure. As a requirement of the PED, the system pressure at the maximum approved flow is a maximum of 10% above the excess operating pressure.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-10A
Series	1
Capacity	75 L/min.
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Reseat	>90% of setting
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990310007
Seal kit - Cartridge	Viton: 990310006
Model Weight	0.19 kg.

CONFIGURATION OPTIONS

Model Code Example: RDDTQAN

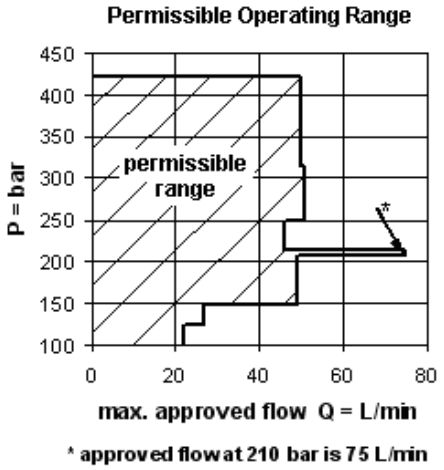
CONTROL (Q)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)
Q Capped and Lockwired	**A** 100 - 210 bar (100 - 210 bar)	**N** Buna-N
	B 90 - 99 bar (90 - 99 bar)	**V** Viton
	C 315 - 422 bar (315 - 422 bar)	
	W 211 - 314 bar (211 - 314 bar)	

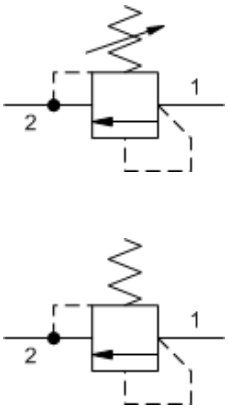
TECHNICAL FEATURES

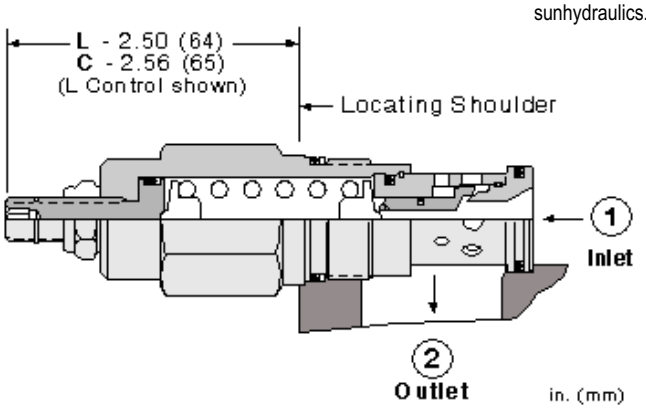
- Standard settings for preset valves include:
    - A adjustment range: 100 bar, 140 bar, 160 bar and 210 bar
    - W adjustment range: 250 bar
    - C adjustment range: 330 bar

  Other settings are available upon request.
- At this time RDDT and RDFT are the only Sun relief valves that are CE marked.
- Each delivery contains a TÜV-Approval, which is a certification of the excess operating pressure and the approved flow, an EC Declaration of conformity and an instructional manual.
- Pressure settings from 90 bar up to 422 bar are approved and certified by TÜV
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES







Direct-acting relief cartridges are normally closed, pressure-limiting valves used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Reseat	>90% of setting
Adjustment - No. of CW Turns from Min. to Max. setting	6
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990303007
Seal kit - Cartridge	EPDM: 990303014
Seal kit - Cartridge	Polyurethane: 990303002
Seal kit - Cartridge	Viton: 990303006
Model Weight	0.30 kg.

NOTES U.S. Patent #4,742,846; European Patent Pending

CONFIGURATION OPTIONS

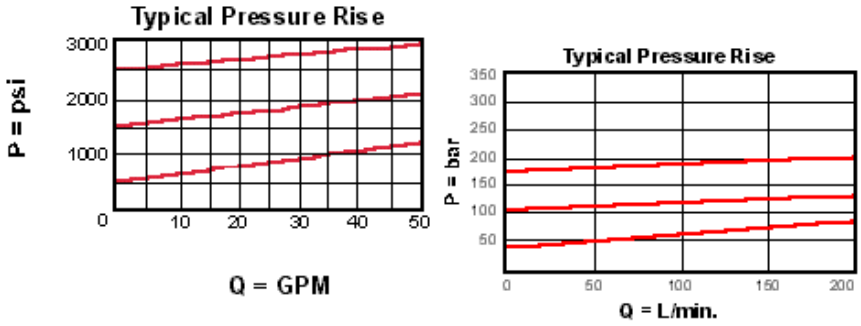
Model Code Example: RDFALAN

CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 500 - 3000 psi (35 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 800 - 4500 psi (55 - 315 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
Q Capped and Lockwired	**B** 300 - 1500 psi (20 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
	C 1000 - 6000 psi (70 - 420 bar), 1000 psi (70 bar) Standard Setting		
	D 200 - 800 psi (14 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 100 - 400 psi (7 - 28 bar), 200 psi (14 bar) Standard Setting		
	S 50 - 200 psi (3,5 - 14 bar), 100 psi (7 bar) Standard Setting		

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Select a spring range where the desired relief setting is approximately mid-range to high between the minimum and maximum pressure to ensure maximum valve repeatability.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Test pressure for each range is as follows: A range - 2000 psi (138 bar), B range - 1000 psi (69 bar), C range - 4000 psi (276 bar), D range - 800 psi (55 bar), E range - 400 psi (28 bar), S range - 150 psi (10 bar), W range - 3000 psi (207 bar).
- Reseat meets or exceeds 90% of crack pressure at test setting. Settings lower than the test pressure may result in lower reseat percentages.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



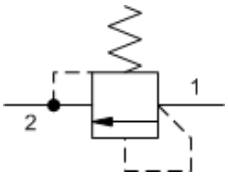
RELATED MODELS

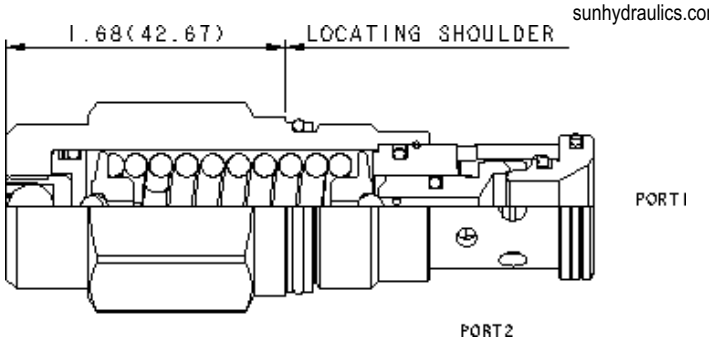
- RDFA3 Non-adjustable direct-acting relief valve

MODEL
RDFA3

Non-adjustable direct-acting relief valve
SERIES 2 / CAPACITY: 200 L/min. / CAVITY: T-3A

sunhydraulics.com/model/RDFA3





Non-adjustable direct-acting relief cartridges are normally closed, pressure-limiting valves used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Reseat	>90% of setting
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990303007
Seal kit - Cartridge	EPDM: 990303014
Seal kit - Cartridge	Polyurethane: 990303002
Seal kit - Cartridge	Viton: 990303006
Model Weight	0.28 kg.

CONFIGURATION OPTIONS

Model Code Example: RDFA3AN

ADJUSTMENT RANGE (A)

- **A** 500 - 3000 psi (35 - 210 bar)
- **C** 1000 - 6000 psi (70 - 420 bar)
- **D** 200 - 800 psi (14 - 55 bar)

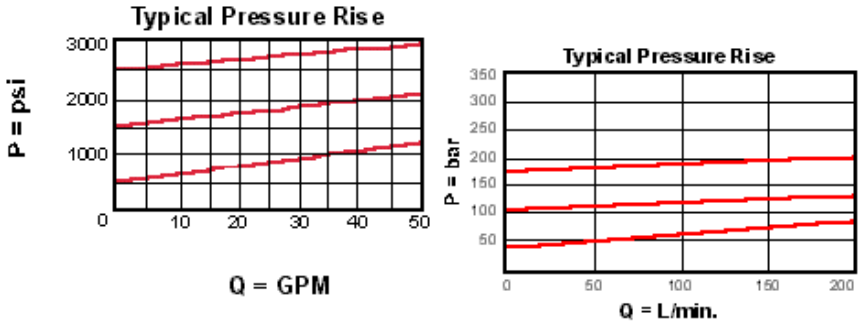
SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

TECHNICAL FEATURES

- Customer must specfy setting. The valve will be factory set and is tamper proof.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Test pressure for each range is as follows: A range - 2000 psi (138 bar), B range - 1000 psi (69 bar), C range - 4000 psi (276 bar), D range - 800 psi (55 bar), E range - 400 psi (28 bar), S range - 150 psi (10 bar), W range - 3000 psi (207 bar).
- Reseat meets or exceeds 90% of crack pressure at test setting. Settings lower than the test pressure may result in lower reseat percentages.
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Select a spring range where the desired relief setting is approximately mid-range to high between the minimum and maximum pressure to ensure maximum valve repeatability.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



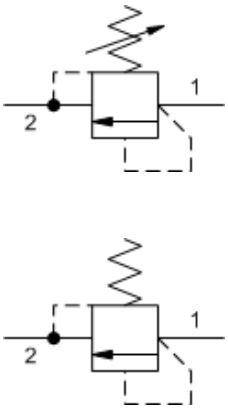
RELATED MODELS

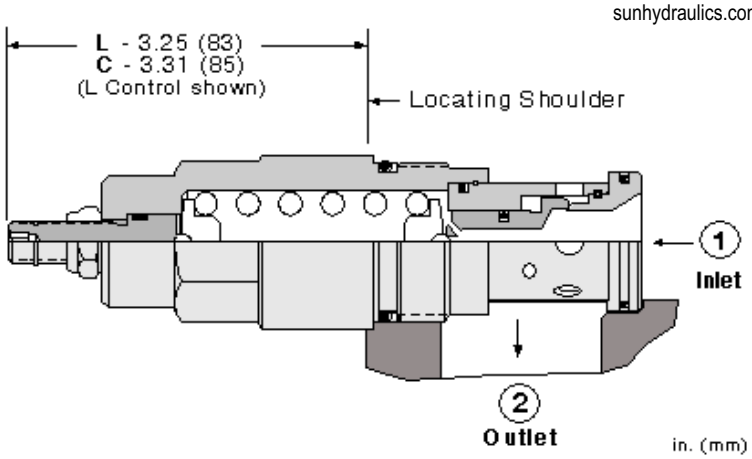
- RDFA Direct-acting relief valve

MODEL
RDHA

Direct-acting relief valve
SERIES 3 / CAPACITY: 380 L/min. / CAVITY: T-16A

sunhydraulics.com/model/RDHA





Direct-acting relief cartridges are normally closed, pressure-limiting valves used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-16A
Series	3
Capacity	380 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Reseat	>90% of setting
Adjustment - No. of CW Turns from Min. to Max. setting	6
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990316007
Seal kit - Cartridge	Viton: 990316006
Model Weight	0.68 kg.

NOTES

U.S. Patent #4,742,846; European Patent Pending

CONFIGURATION OPTIONS

Model Code Example: RDHALAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set

ADJUSTMENT RANGE (A)

- **A** 500 - 3000 psi (35 - 210 bar), 1000 psi (70 bar) Standard Setting
- **W** 800 - 4500 psi (55 - 315 bar), 1000 psi (70 bar) Standard Setting
- **B** 300 - 1500 psi (20 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 1000 - 6000 psi (70 - 420 bar), 1000 psi (70 bar) Standard Setting
- **D** 200 - 800 psi (14 - 55 bar), 400 psi (28 bar) Standard Setting
- **E** 100 - 400 psi (7 - 28 bar), 200 psi (14 bar) Standard Setting
- **S** 50 - 200 psi (3,5 - 14 bar), 100 psi (7 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

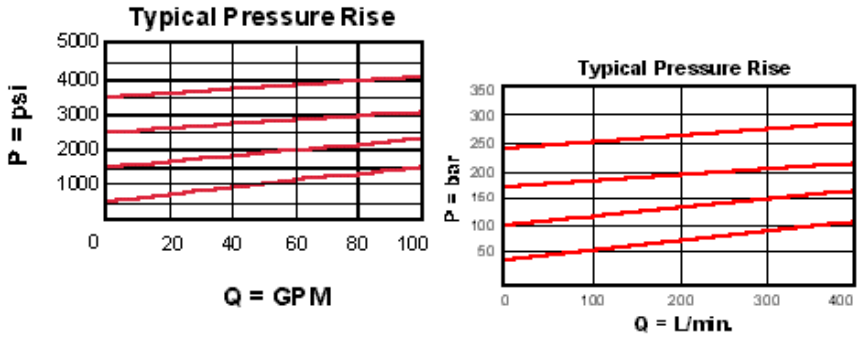
MATERIAL/COATING

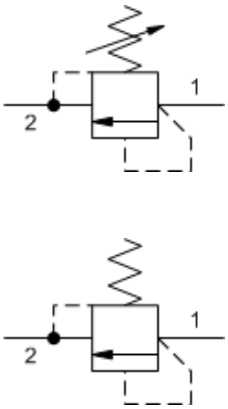
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

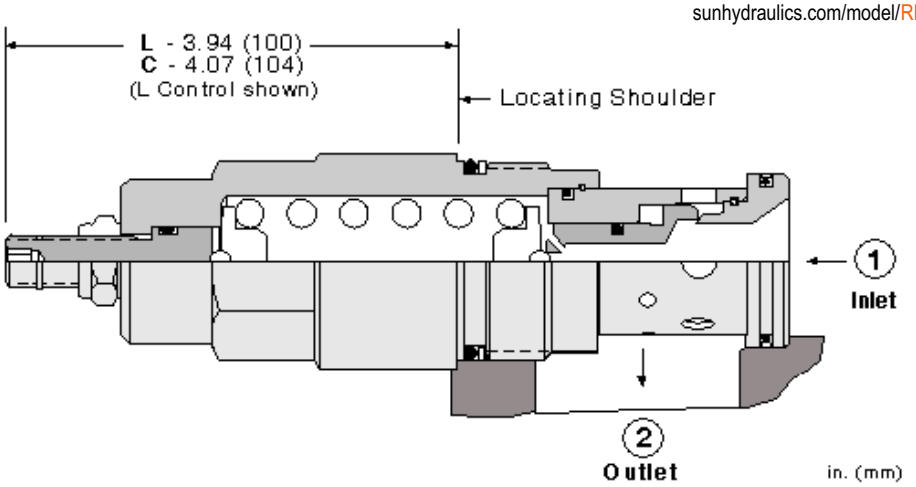
TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Select a spring range where the desired relief setting is approximately mid-range to high between the minimum and maximum pressure to ensure maximum valve repeatability.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Test pressure for each range is as follows: A range - 2000 psi (138 bar), B range - 1000 psi (69 bar), C range - 4000 psi (276 bar), D range - 800 psi (55 bar), E range - 400 psi (28 bar), S range - 150 psi (10 bar), W range - 3000 psi (207 bar).
- Reseat meets or exceeds 90% of crack pressure at test setting. Settings lower than the test pressure may result in lower reseat percentages.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES







Direct-acting relief cartridges are normally closed, pressure-limiting valves used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-18A
Series	4
Capacity	760 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Reseat	>90% of setting
Adjustment - No. of CW Turns from Min. to Max. setting	6
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990318007
Seal kit - Cartridge	EPDM: 990318014
Seal kit - Cartridge	Viton: 990318006
Model Weight	1.50 kg.

NOTES U.S. Patent #4,742,846; European Patent Pending

CONFIGURATION OPTIONS

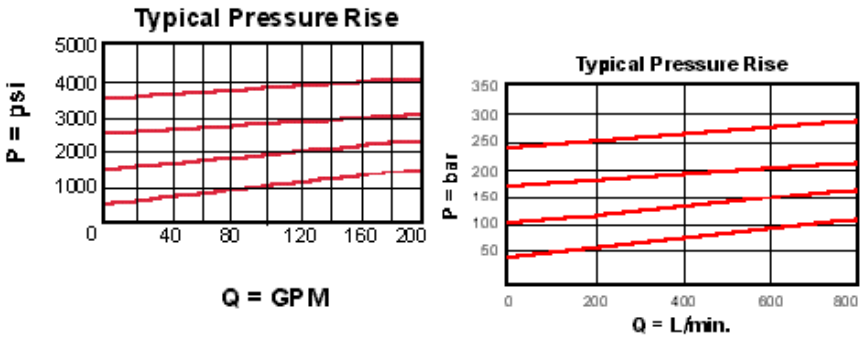
Model Code Example: RDJALAN

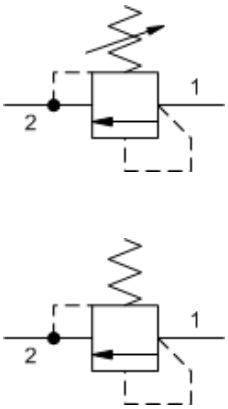
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 500 - 3000 psi (35 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 800 - 4500 psi (55 - 315 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
Q Capped and Lockwired	**B** 300 - 1500 psi (20 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
	C 1000 - 6000 psi (70 - 420 bar), 1000 psi (70 bar) Standard Setting		
	D 200 - 800 psi (14 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 100 - 400 psi (7 - 28 bar), 200 psi (14 bar) Standard Setting		
	S 50 - 200 psi (3,5 - 14 bar), 100 psi (7 bar) Standard Setting		

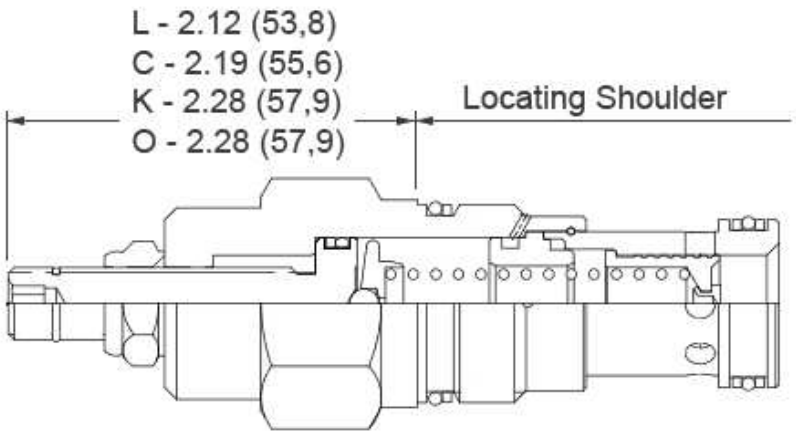
TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Select a spring range where the desired relief setting is approximately mid-range to high between the minimum and maximum pressure to ensure maximum valve repeatability.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Test pressure for each range is as follows: A range - 2000 psi (138 bar), B range - 1000 psi (69 bar), C range - 4000 psi (276 bar), D range - 800 psi (55 bar), E range - 400 psi (28 bar), S range - 150 psi (10 bar), W range - 3000 psi (207 bar).
- Reseat meets or exceeds 90% of crack pressure at test setting. Settings lower than the test pressure may result in lower reseat percentages.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES







in (mm)

Direct-acting relief cartridges are normally closed, pressure-limiting valves used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	50 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	6
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Polyurethane: 990003002
Seal kit - Cartridge	Viton: 990203006
Model Weight	0.25 kg.

NOTES

For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

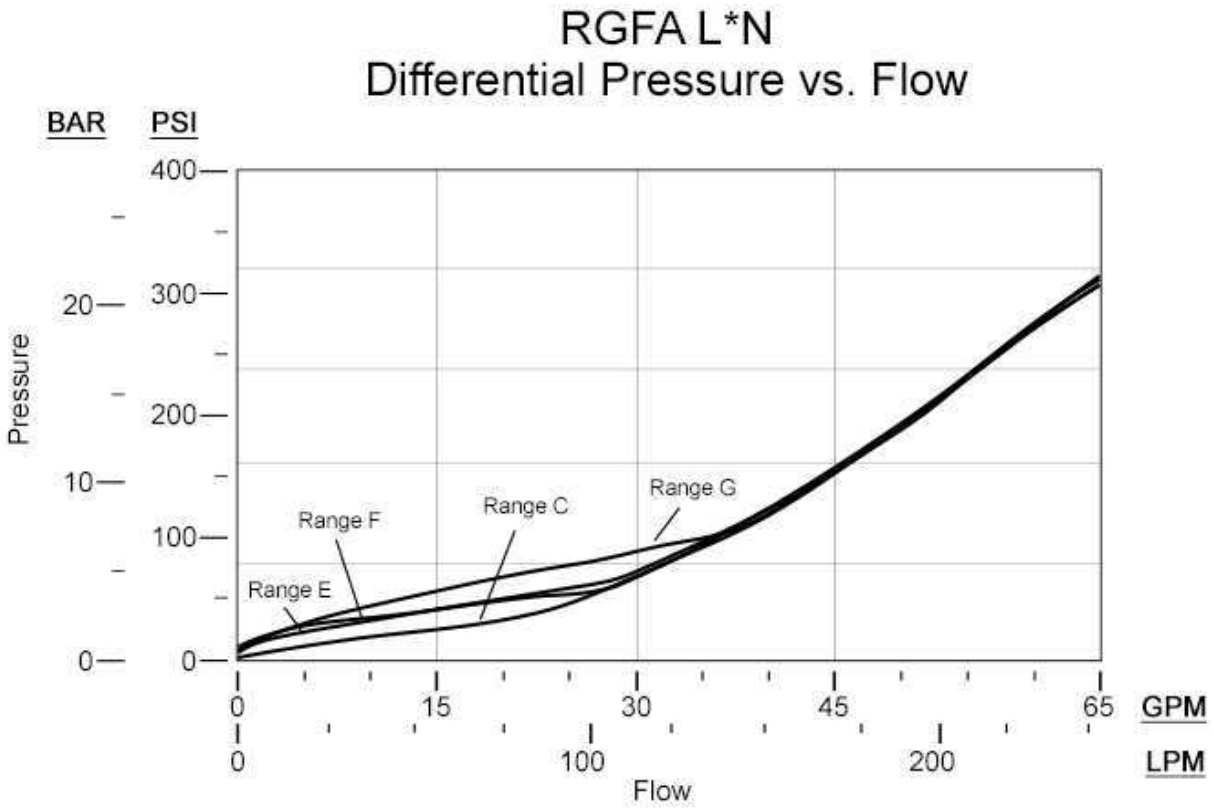
Model Code Example: RGFALCN

CONTROL (L)	ADJUSTMENT RANGE (C)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**C** 18 - 50 psi (1,2 - 3,5 bar), 50 psi (3,5 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**E** 20 - 75 psi (1,4 - 5 bar), 75 psi (5 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**F** 35 - 80 psi (2,4 -5,5 bar), 80 psi (5,5 bar) Standard Setting	**V** Viton	
O Handknob with Panel Mount	**G** 30 - 150 psi (2 - 10,5 bar), 150 psi (10,5 bar) Standard Setting		

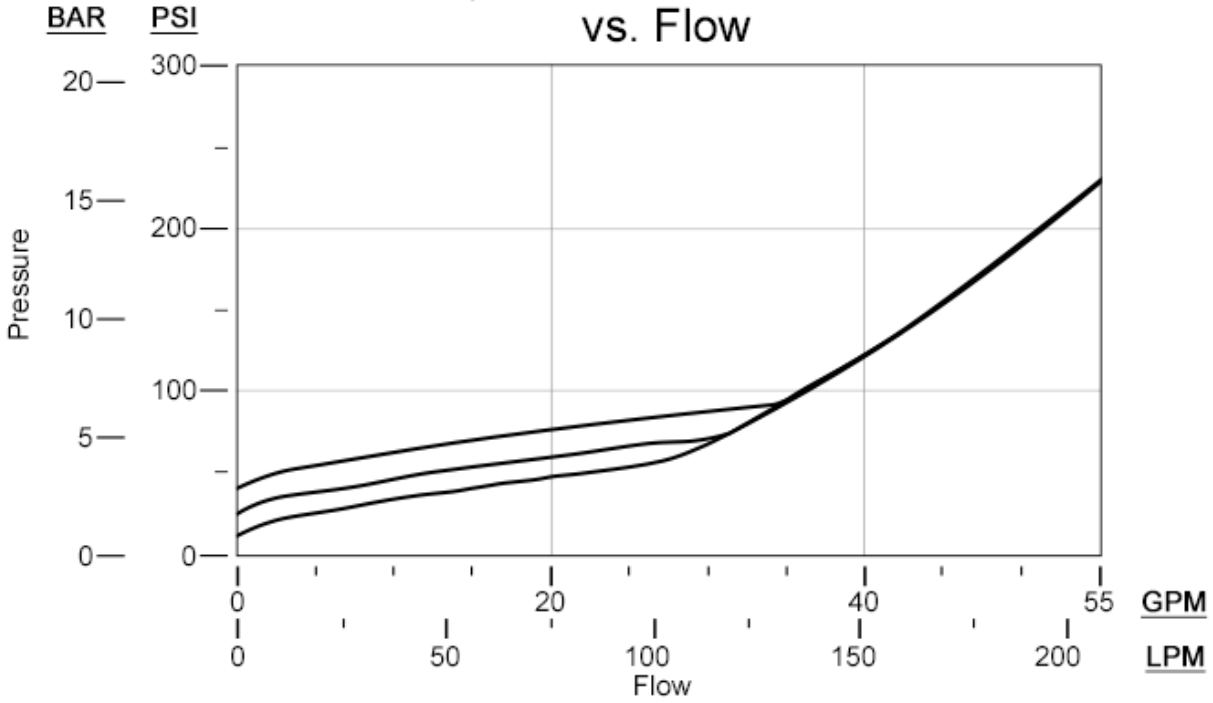
TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

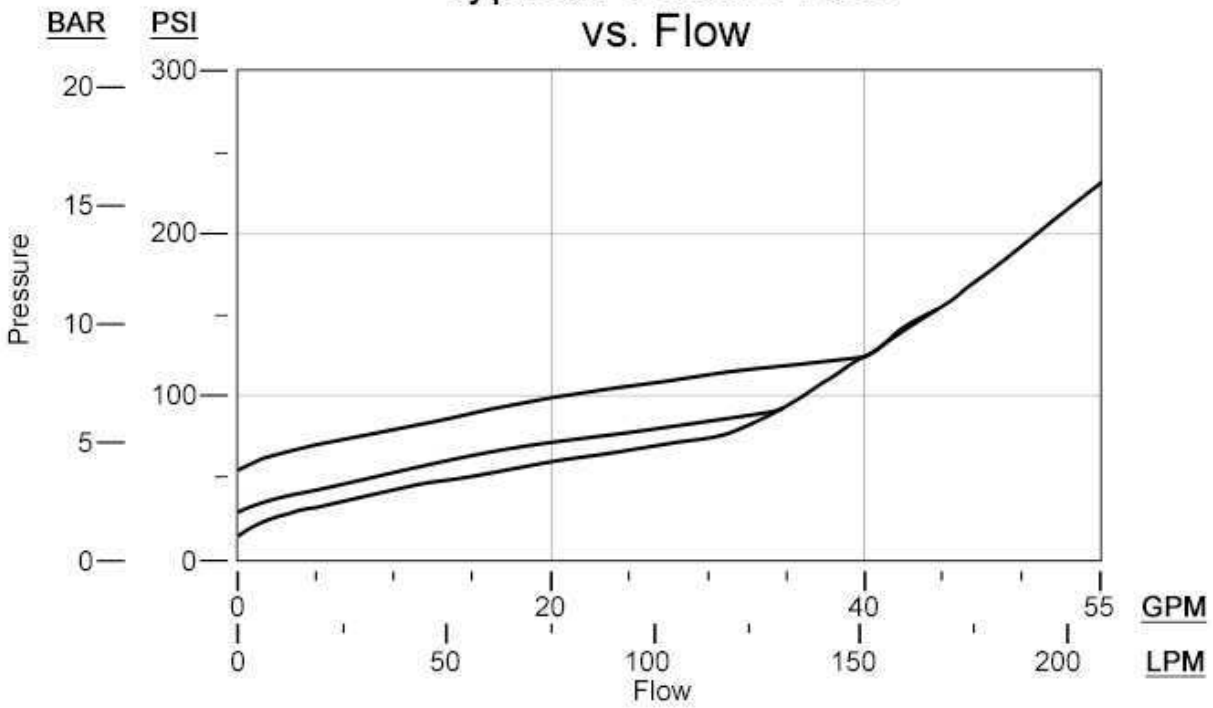
PERFORMANCE CURVES



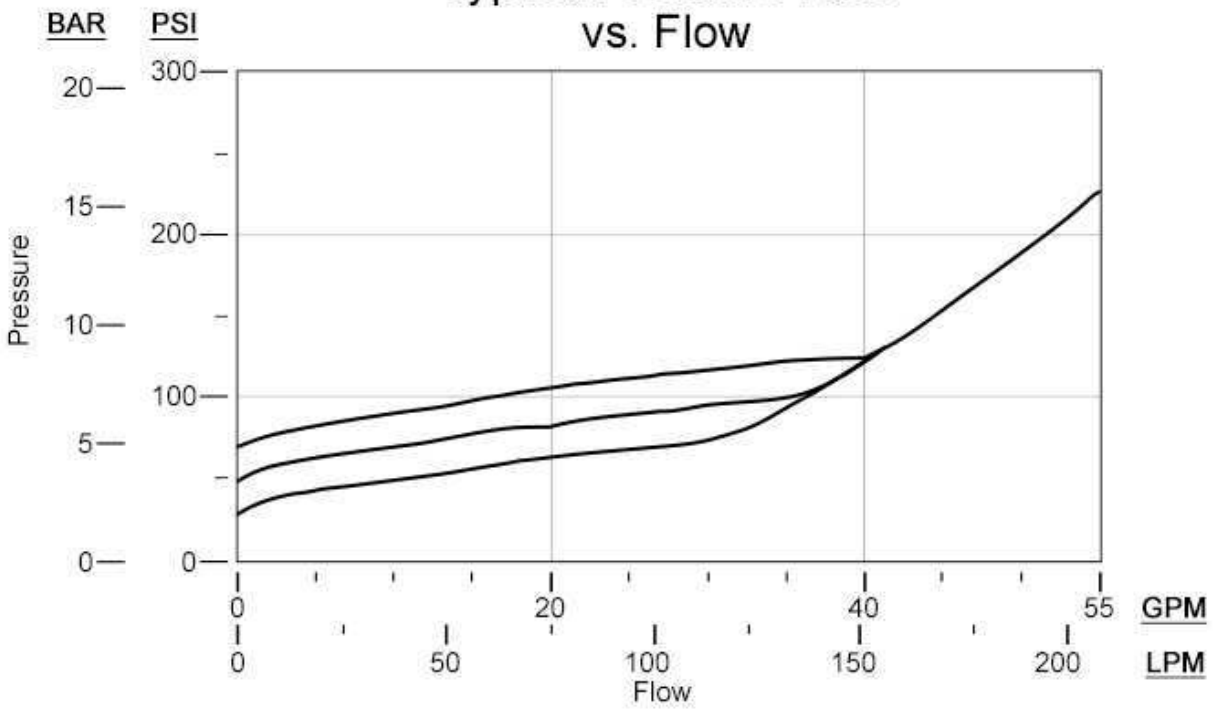
RGFA LCN
Typical Pressure Rise vs. Flow



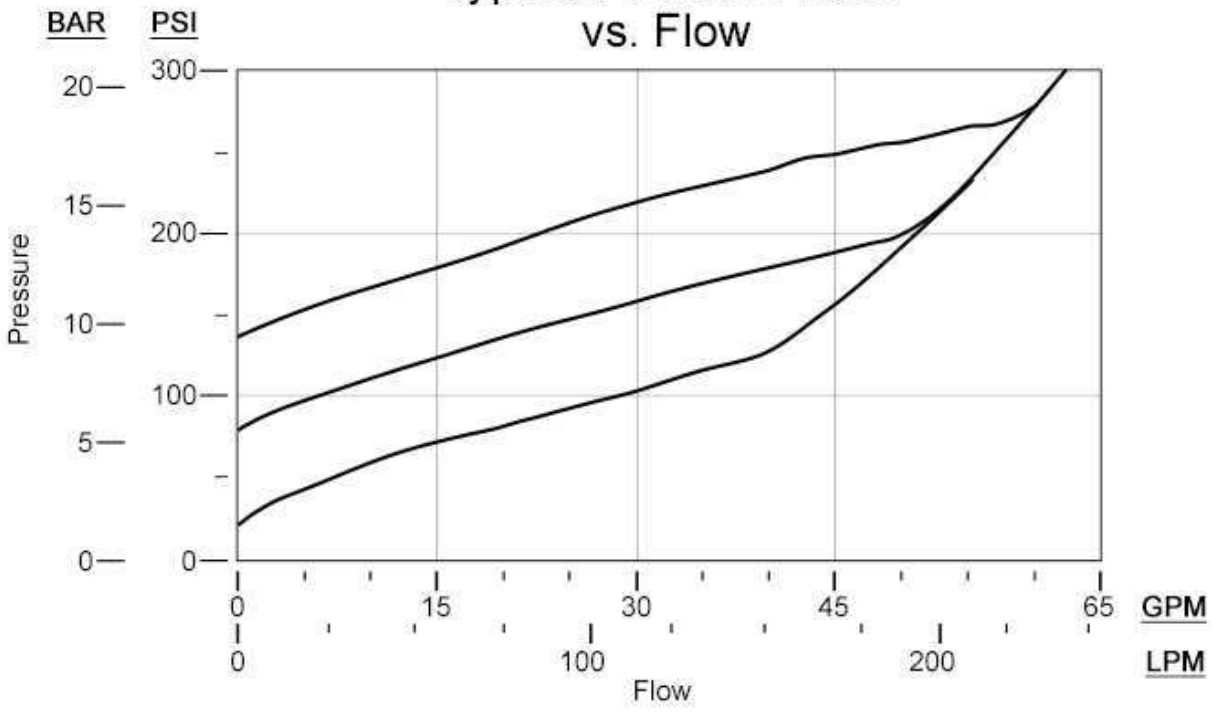
RGFA LEN
Typical Pressure Rise vs. Flow



RGFA LFN
Typical Pressure Rise vs. Flow



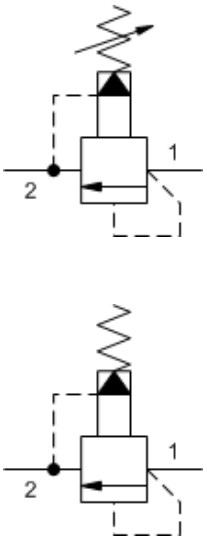
RGFA LGN
Typical Pressure Rise vs. Flow

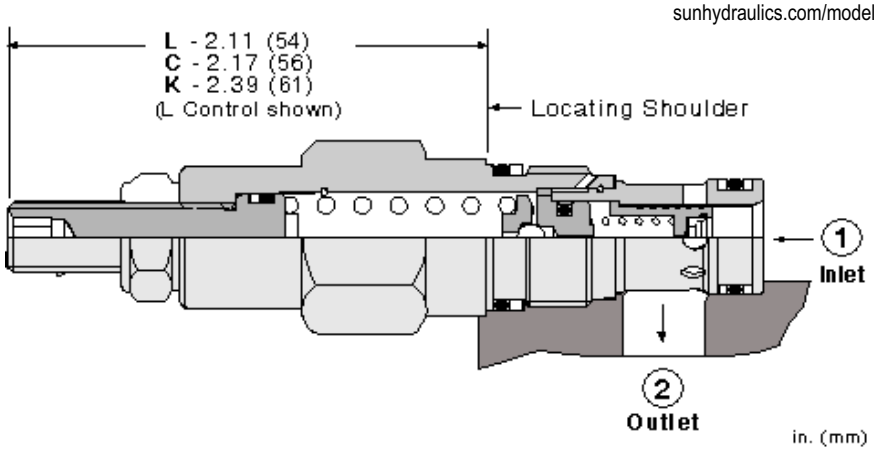


MODEL
RPCC

Pilot-operated, balanced piston relief valve
CAPACITY: 45 L/min. / CAVITY: T-162A

sunhydraulics.com/model/RPCC





Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-162A
Series	0
Capacity	45 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	19,1 mm
Valve Installation Torque	27 - 33 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	12,7 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	EPDM: 990162014
Seal kit - Cartridge	Polyurethane: 990162002
Seal kit - Cartridge	Viton: 990162006
Model Weight	0.10 kg.

CONFIGURATION OPTIONS

Model Code Example: RPCCLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 75 - 3000 psi (5 - 210 bar), 1000 psi (70 bar) Standard Setting
- **W** 75 - 4500 psi (5 - 315 bar), 1000 psi (70 bar) Standard Setting
- **B** 75 - 1500 psi (5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 75 - 6000 psi (5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **N** 75 - 800 psi (5 - 55 bar), 400 psi (28 bar) Standard Setting
- **Q** 75 - 400 psi (5 - 28 bar), 200 psi (14 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

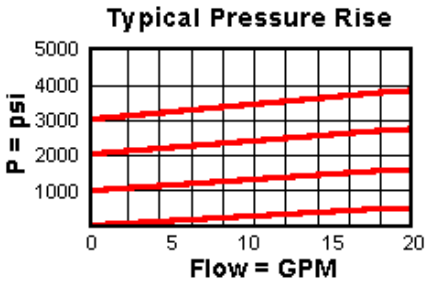
MATERIAL/COATING

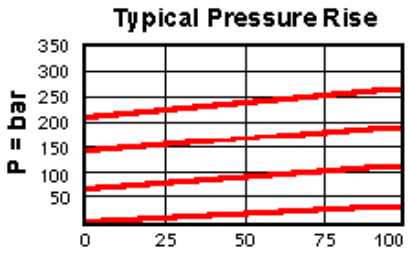
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Minimum setting is 75 psi (5 bar) for all spring ranges.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- The main stage orifice is protected against contamination.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

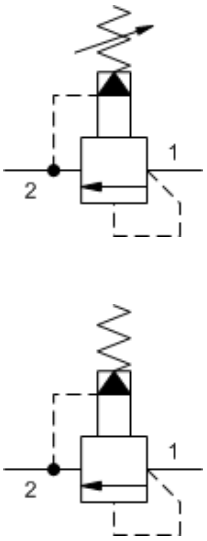
PERFORMANCE CURVES

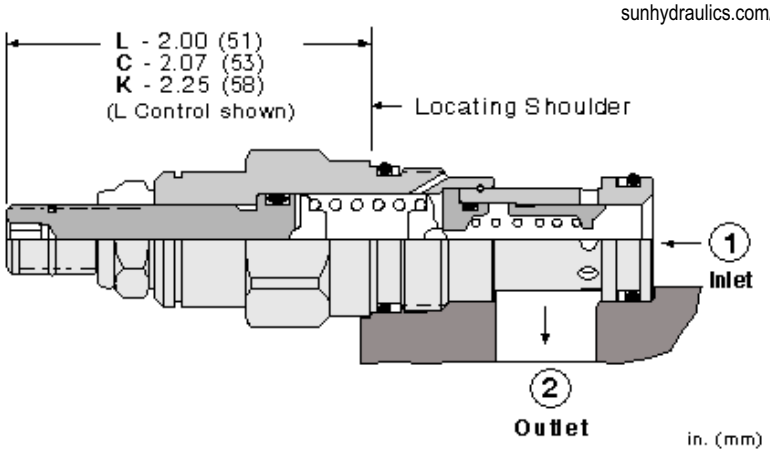




Pilot-operated, balanced piston relief valve
SERIES 1 / CAPACITY: 95 L/min. / CAVITY: T-10A

sunhydraulics.com/model/RPEC





Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-10A
Series	1
Capacity	95 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006
Model Weight	0.14 kg.

NOTES

For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

Model Code Example: RPECLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob
- **O** Handknob with Panel Mount
- **W** Hex Wrench Adjustment
- **Y** Tri-Grip Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **N** 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting
- **Q** 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

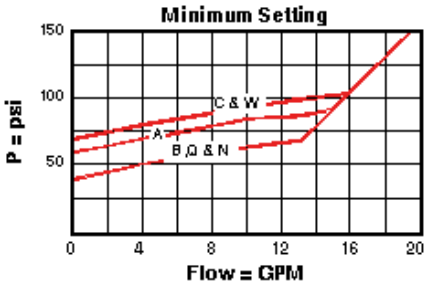
MATERIAL/COATING

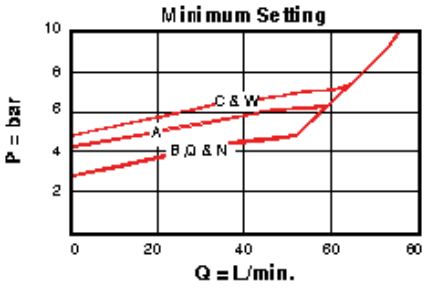
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

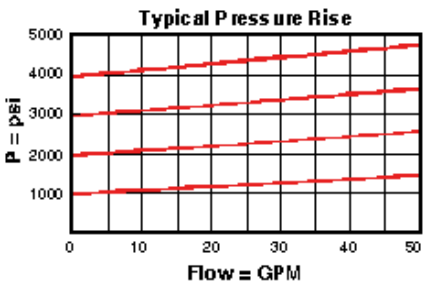
TECHNICAL FEATURES

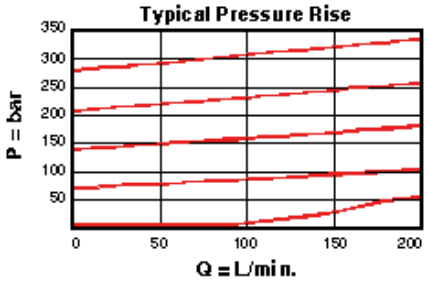
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



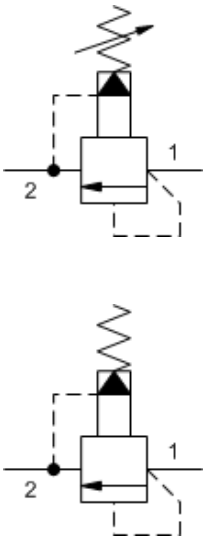


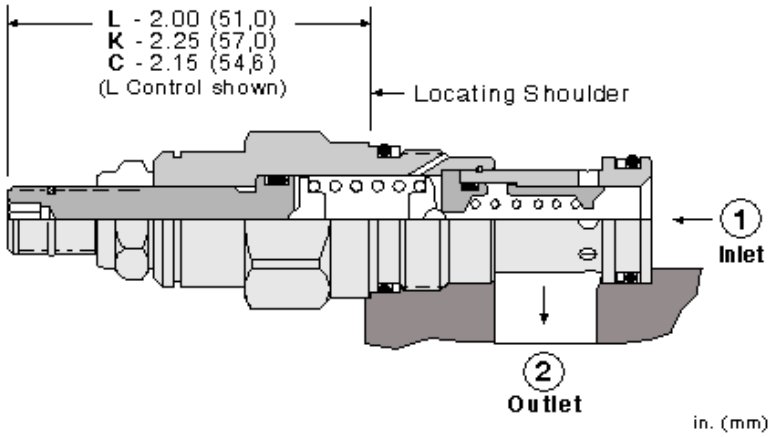




RELATED MODELS

- RPEC8 Pilot-operated, balanced piston relief main stage with integral T-8A control cavity





in. (mm)

Fast-acting, pilot-operated, balanced piston relief cartridges are normally closed, pressure-limiting valves used to protect hydraulics components from pressure transients. Fast opening and closing is gained at the expense of smoothness. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves have low pressure rise vs. flow and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-10A
Series	1
Capacity	95 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006
Model Weight	0.14 kg.

NOTES

For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

Model Code Example: RPEELAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob
- **O** Handknob with Panel Mount
- **Y** Tri-Grip Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting
- **E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

MATERIAL/COATING

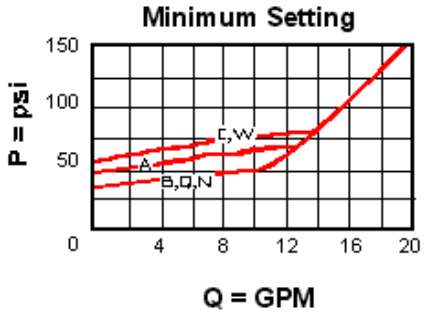
Standard Material/Coating

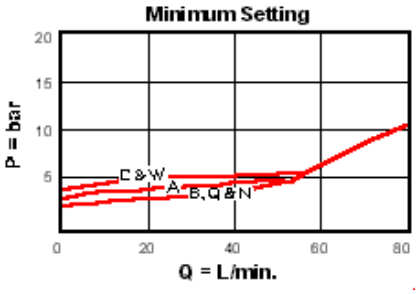
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

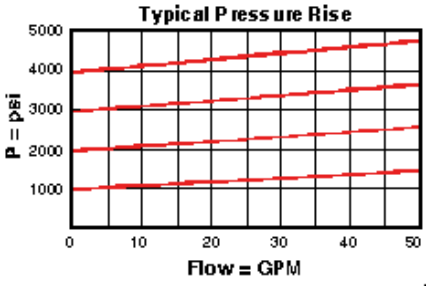
TECHNICAL FEATURES

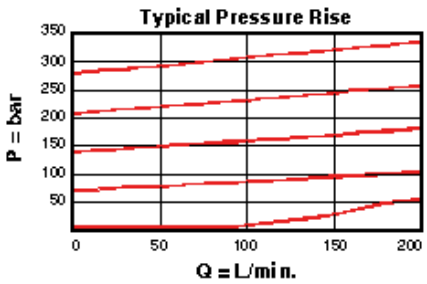
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





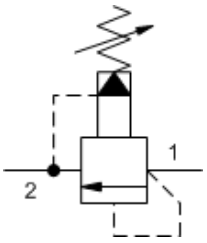


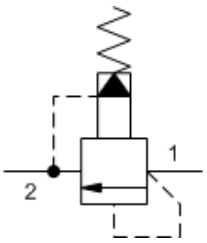


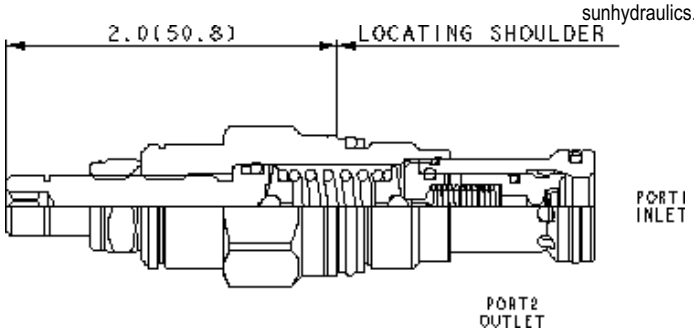
MODEL
RPES

Pilot-operated, balanced poppet relief valve
SERIES 1 / CAPACITY: 95 L/min. / CAVITY: T-10A

sunhydraulics.com/model/RPES







Pilot-operated, balanced-poppet relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, smooth, quiet, fast, and have low pressure rise vs. flow.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-10A
Series	1
Capacity	95 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.
Response Time - Typical	7 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990310007
Seal kit - Cartridge	Viton: 990310006
Model Weight	0.14 kg.

CONFIGURATION OPTIONS

Model Code Example: RPESLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob
- **Y** Tri-Grip Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **N** 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting
- **Q** 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 100 - 4500 psi (7 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

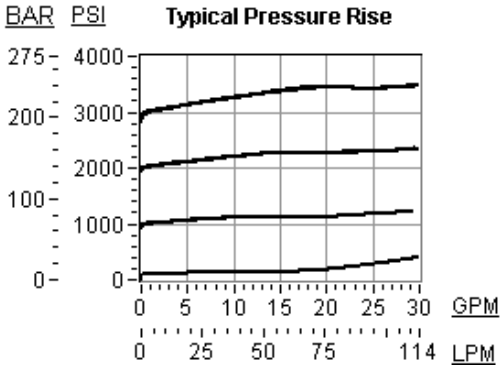
MATERIAL/COATING

- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



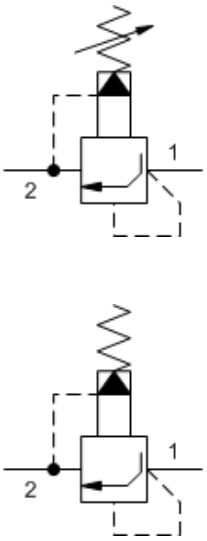
RELATED MODELS

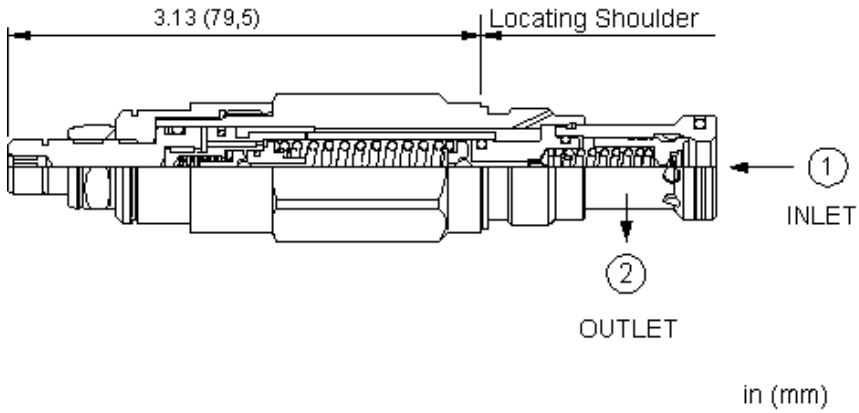
- RPES8 Pilot-operated, balanced poppet relief main stage with integral T-8A control cavity

MODEL
RPET

Anti-Shock, pilot-operated, balanced poppet relief valve
SERIES 1 / CAPACITY: 95 L/min. / CAVITY: T-10A

snhy.com/RPET





in (mm)

Pilot-operated, anti shock relief cartridges limit maximum system pressure and also limit the rate of pressure rise. The valve opens and then ramps closed at a constant speed, independent of settings and flows. The adjust screw determines the maximum (relief) setting and the minimum (threshold) setting.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-10A
Series	1
Capacity	95 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,16 - 0,41 L/min.
Pressure Ramp Up Time	100 - 300 ms
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	4.5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
U.S. Patent #	6,039,070
Seal kit - Cartridge	Buna: 990310007
Seal kit - Cartridge	Viton: 990310006
Model Weight	0.22 kg.

CONFIGURATION OPTIONS

Model Code Example: RPETLWN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set

ADJUSTMENT RANGE (W)

- **W** 3000 - 4500 psi (210 - 315 bar), 3000 psi (210 bar) Standard Setting
- **A** 2000 - 3000 psi (140 - 210 bar), 2000 psi (140 bar) Standard Setting
- **C** 4500 - 6000 psi (315 - 420 bar), 4500 psi (315 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

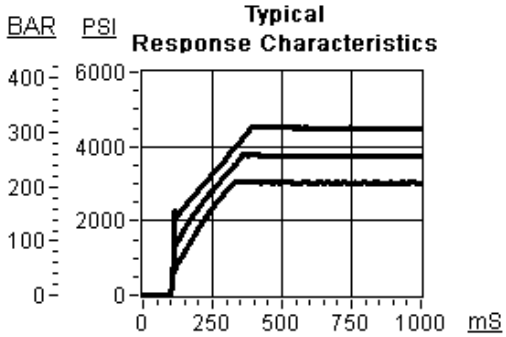
MATERIAL/COATING

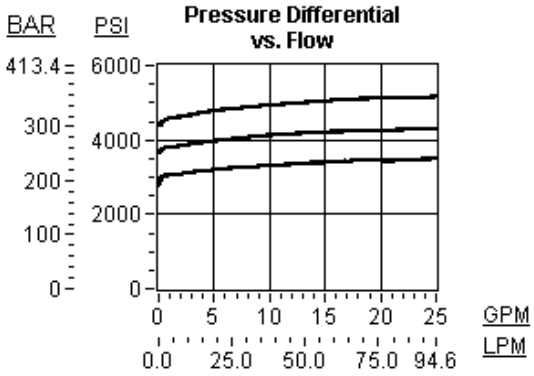
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Not suitable for use in load holding applications.
- When pressure at the inlet (port 1) exceeds the threshold setting, the valve opens to tank (port 2). The pilot section moves forward at a steady rate, increasing the setting by compressing the pilot spring. Maximum setting is achieved when the pilot section reaches a mechanical stop.
- Valve provides protection for pumps and motors from pressure transients due to sudden load changes, especially variable displacement pumps, since the displacement mechanism is sometimes too slow to catch these pressure transients.
- Valve provides protection for hydrostatic drives by reducing the jerk caused by sudden reversals. The valve is suitable for cross-port applications.
- When used with a switching device, the valve can provide the ramp characteristic typically provided by proportional valves.
- Small power units can be started against an anti shock relief to provide longer pump life.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES

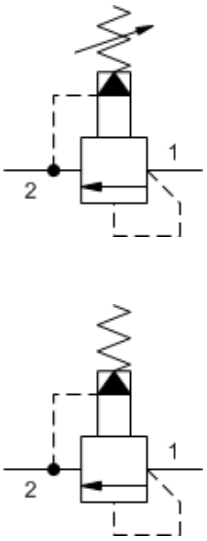


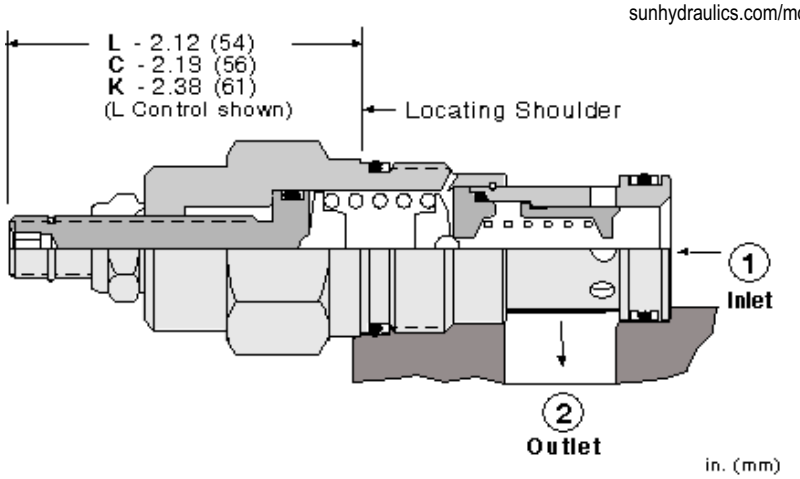


MODEL
RPGC

Pilot-operated, balanced piston relief valve
SERIES 2 / CAPACITY: 200 L/min. / CAVITY: T-3A

sunhydraulics.com/model/RPGC





Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	50 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Polyurethane: 990003002
Seal kit - Cartridge	Viton: 990203006
Model Weight	0.26 kg.

NOTES

For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

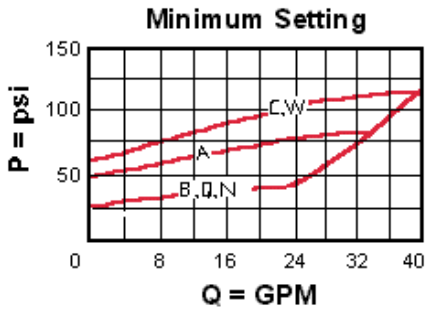
Model Code Example: RPGCLAN

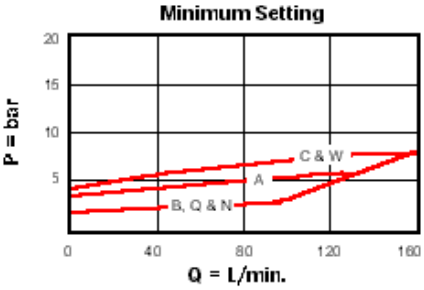
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
J Capped Screw Adjustment	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
K Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		
O Handknob with Panel Mount	**D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
W Hex Wrench Adjustment	**E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
Y Tri-Grip Handknob	**N** 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting		
	Q 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting		

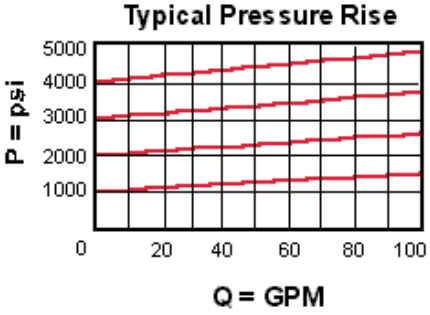
TECHNICAL FEATURES

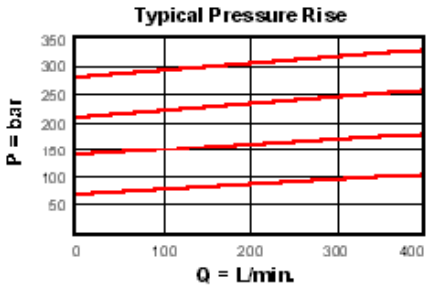
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES









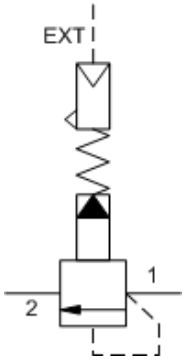
RELATED MODELS

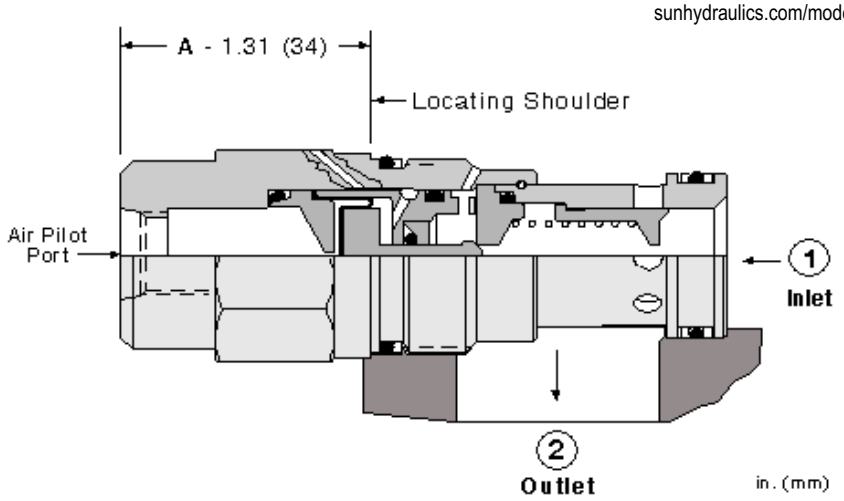
- RPGC3 Non-adjustable pilot-operated, balanced piston relief valve
- RPGC8 Pilot-operated, balanced piston relief main stage with integral T-8A control cavity

MODEL
RPGD

Air-controlled, pilot-operated, balanced piston relief valve
SERIES 2 / CAPACITY: 200 L/min. / CAVITY: T-3A

sunhydraulics.com/model/RPGD





Air-controlled, pilot-operated, balanced piston relief cartridges use compressed air over a diaphragm instead of an adjustable spring to control pressure setting. The air signal is supplied through a port in the hex-end of the cartridge. They are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Pilot Ratio	20:1
Maximum Operating Pressure	140 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	50 cc/min.@70 bar
Maximum Air Pressure	10,5 bar
Response Time - Typical	10 ms
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Polyurethane: 990003002
Seal kit - Cartridge	Viton: 990203006
Model Weight	0.24 kg.

CONFIGURATION OPTIONS

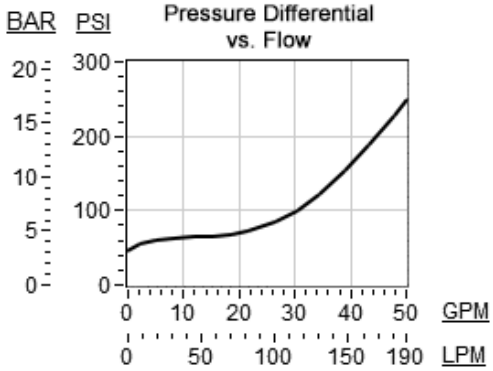
Model Code Example: RPGDABN

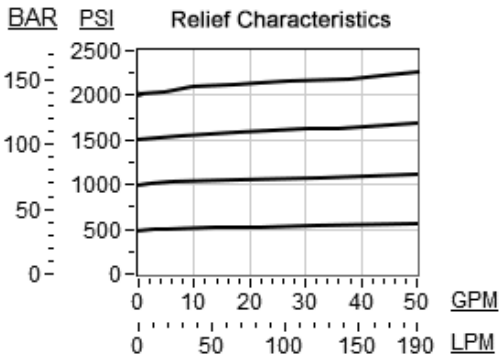
CONTROL (A)	OPERATING RANGE (B)	SEAL MATERIAL (N)
A External 1/4 NPTF Port	**B** 50 - 1500 psi (3,5 - 105 bar)	**N** Buna-N
		V Viton

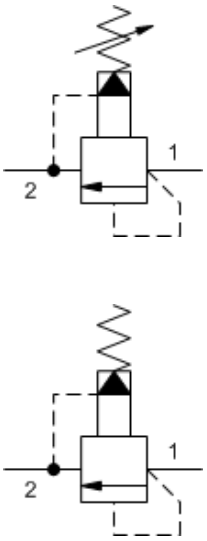
TECHNICAL FEATURES

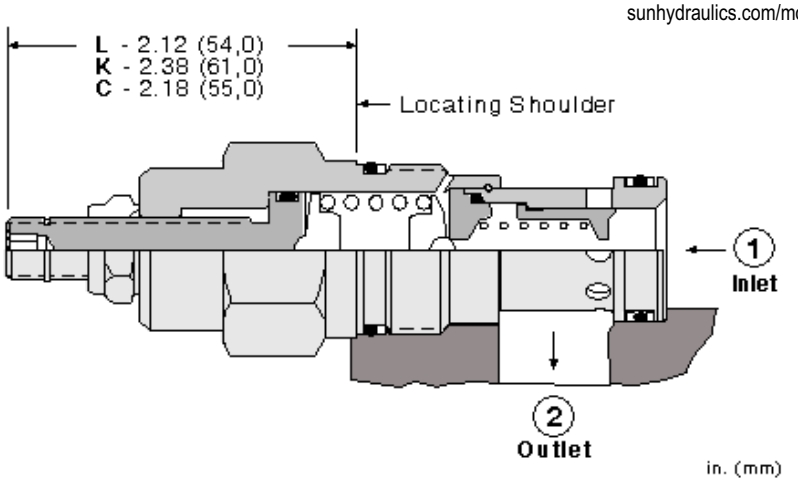
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Maximum air pressure should not exceed 150 psi (10 bar).
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES









Fast-acting, pilot-operated, balanced piston relief cartridges are normally closed, pressure-limiting valves used to protect hydraulics components from pressure transients. Fast opening and closing is gained at the expense of smoothness. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves have low pressure rise vs. flow and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	50 cc/min.@70 bar
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Polyurethane: 990003002
Seal kit - Cartridge	Viton: 990203006
Model Weight	0.26 kg.

NOTES

For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

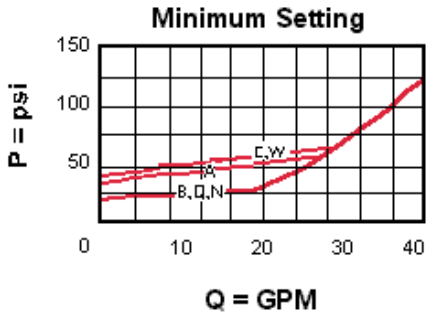
Model Code Example: RPGELAN

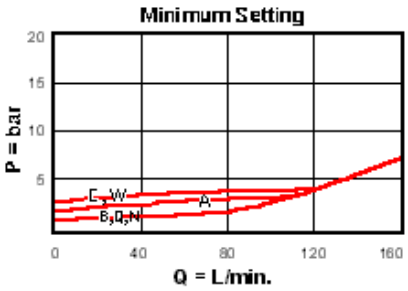
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	
O Handknob with Panel Mount	**D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	W 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting		

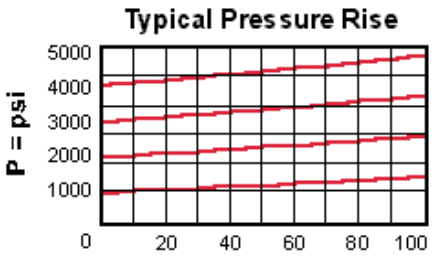
TECHNICAL FEATURES

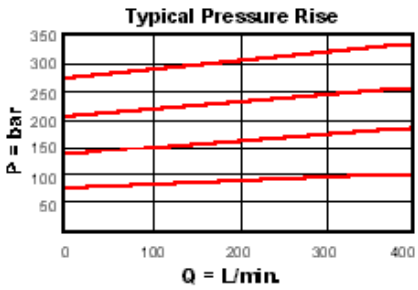
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





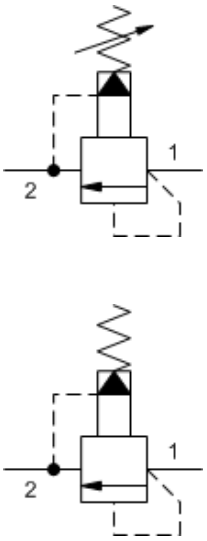


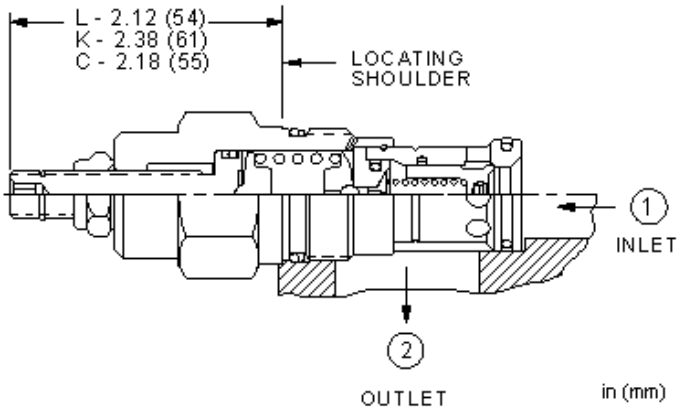


MODEL
RPGS

Pilot-operated, balanced poppet relief valve
SERIES 2 / CAPACITY: 200 L/min. / CAVITY: T-3A

sunhydraulics.com/model/RPGS





Pilot-operated, balanced-poppet relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, smooth, quiet, fast, and have low pressure rise vs. flow.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	7 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990303007
Seal kit - Cartridge	EPDM: 990303014
Seal kit - Cartridge	Polyurethane: 990303002
Seal kit - Cartridge	Viton: 990303006
Model Weight	0.26 kg.

CONFIGURATION OPTIONS

Model Code Example: RPGSLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob
- **Y** Tri-Grip Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **N** 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting
- **Q** 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 100 - 4500 psi (7 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

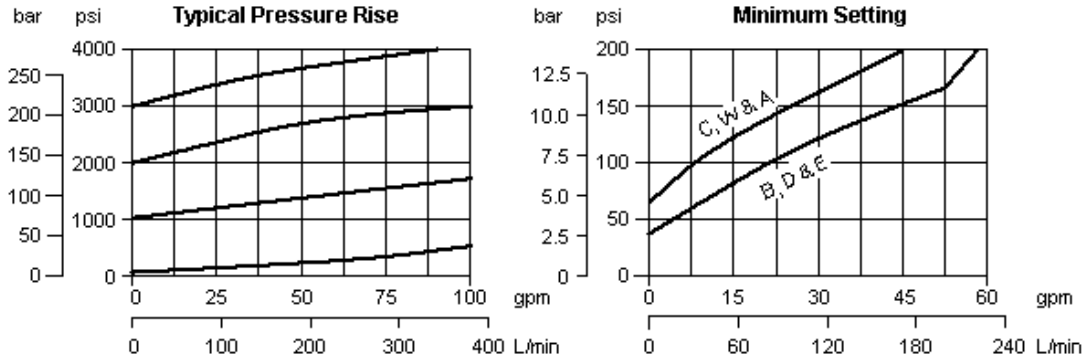
MATERIAL/COATING

- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



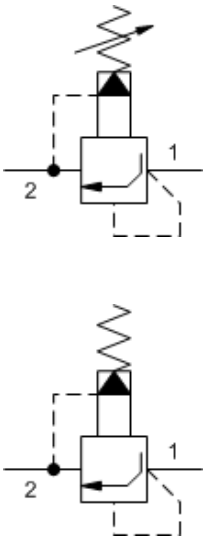
RELATED MODELS

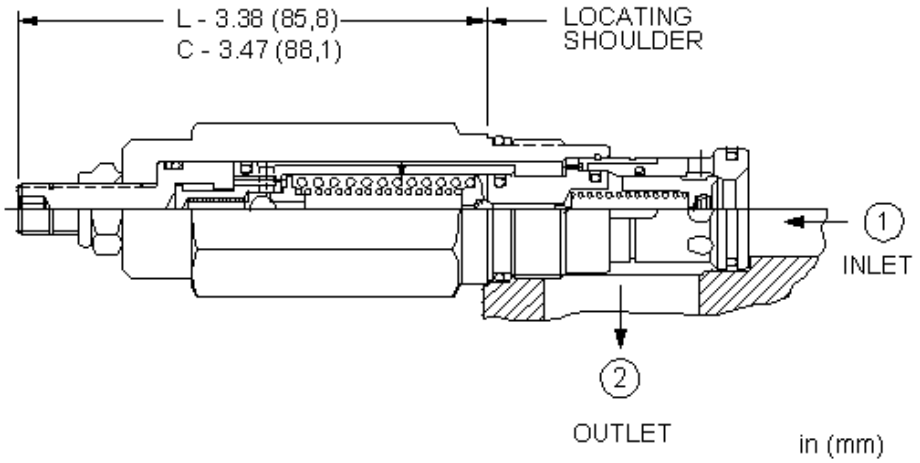
- RPGS8 Pilot-operated, balanced poppet relief main stage with integral T-8A control cavity

MODEL
RPGT

Anti-Shock, pilot-operated, balanced poppet relief valve
SERIES 2 / CAPACITY: 200 L/min. / CAVITY: T-3A

sunhydraulics.com/model/RPGT





Pilot-operated, anti shock relief cartridges limit maximum system pressure and also limit the rate of pressure rise. The valve opens and then ramps closed at a constant speed, independent of settings and flows. The adjust screw determines the maximum (relief) setting and the minimum (threshold) setting.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,16 - 0,41 L/min.
Pressure Ramp Up Time	200 - 400 ms
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	4.5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
U.S. Patent #	6,039,070
Seal kit - Cartridge	Buna: 990303007
Seal kit - Cartridge	Polyurethane: 990303002
Seal kit - Cartridge	Viton: 990303006
Model Weight	0.40 kg.

NOTES

Patents: US#6,039,070; Germany EP 1 001 197; Japan #3,119,230

CONFIGURATION OPTIONS

Model Code Example: RPGTLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set

ADJUSTMENT RANGE (A)

- **A** 2000 - 3000 psi (140 - 210 bar), 2000 psi (140 bar) Standard Setting
- **C** 4500 - 6000 psi (315 - 420 bar), 4500 psi (315 bar) Standard Setting
- **W** 3000 - 4500 psi (210 - 315 bar), 3000 psi (210 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

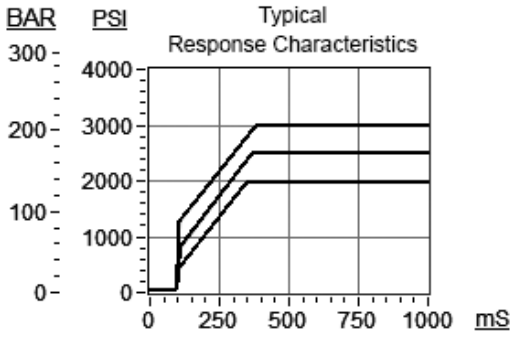
MATERIAL/COATING

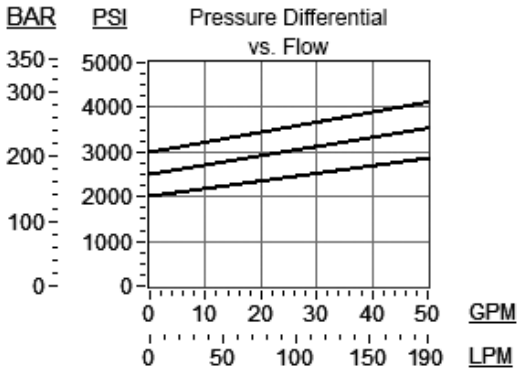
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Not suitable for use in load holding applications.
- When pressure at the inlet (port 1) exceeds the threshold setting, the valve opens to tank (port 2). The pilot section moves forward at a steady rate, increasing the setting by compressing the pilot spring. Maximum setting is achieved when the pilot section reaches a mechanical stop.
- Valve provides protection for pumps and motors from pressure transients due to sudden load changes, especially variable displacement pumps, since the displacement mechanism is sometimes too slow to catch these pressure transients.
- Valve provides protection for hydrostatic drives by reducing the jerk caused by sudden reversals. The valve is suitable for cross-port applications.
- When used with a switching device, the valve can provide the ramp characteristic typically provided by proportional valves.
- Small power units can be started against an anti shock relief to provide longer pump life.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

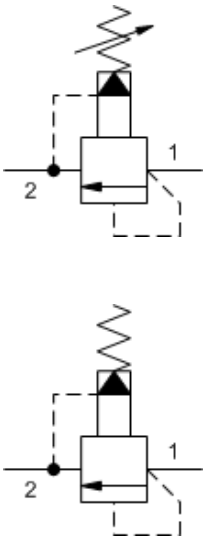
PERFORMANCE CURVES

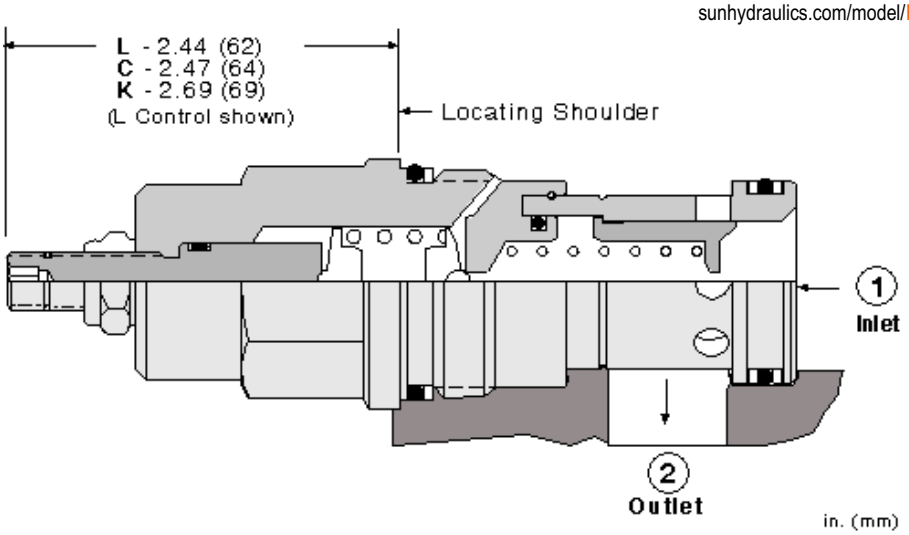




Pilot-operated, balanced piston relief valve
SERIES 3 / CAPACITY: 380 L/min. / CAVITY: T-16A

sunhydraulics.com/model/RPIC





Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-16A
Series	3
Capacity	380 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	65 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	EPDM: 990016014
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006
Model Weight	0.54 kg.

CONFIGURATION OPTIONS

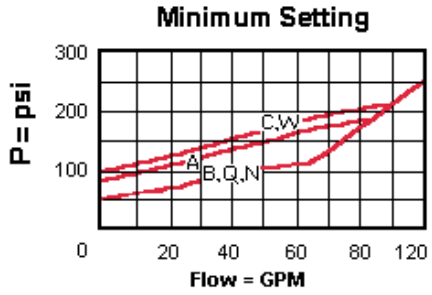
Model Code Example: RPICLAN

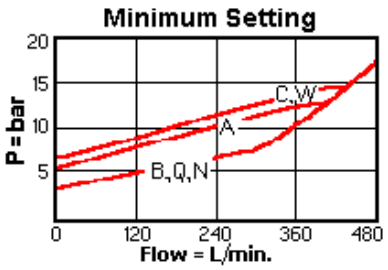
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
W Hex Wrench Adjustment	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		
	D 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	N 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting		
	Q 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting		

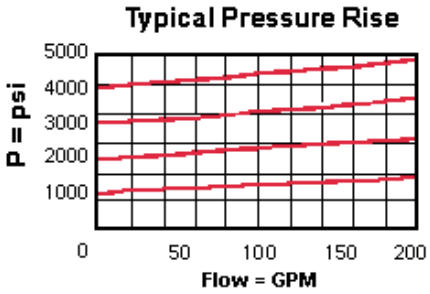
TECHNICAL FEATURES

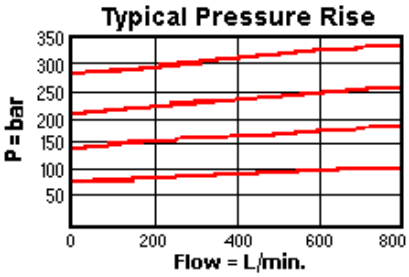
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES









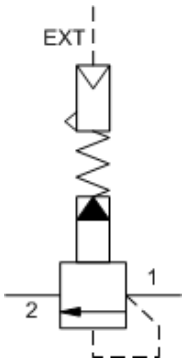
RELATED MODELS

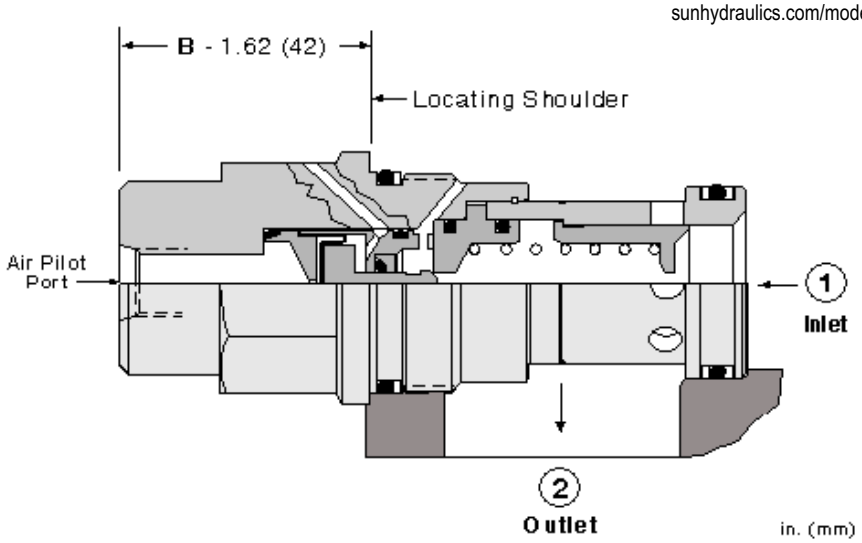
- RPIC8 Pilot-operated, balanced piston relief main stage with integral T-8A control cavity

MODEL
RPID

Air-controlled, pilot-operated, balanced piston relief valve
SERIES 3 / CAPACITY: 380 L/min. / CAVITY: T-16A

sunhydraulics.com/model/RPID





Air-controlled, pilot-operated, balanced piston relief cartridges use compressed air over a diaphragm instead of an adjustable spring to control pressure setting. The air signal is supplied through a port in the hex-end of the cartridge. They are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-16A
Series	3
Capacity	380 L/min.
Pilot Ratio	20:1
Hysteresis (with dither)	<4%
Maximum Operating Pressure	140 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	65 cc/min.@70 bar
Maximum Air Pressure	10,5 bar
Response Time - Typical	10 ms
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

CONFIGURATION OPTIONS

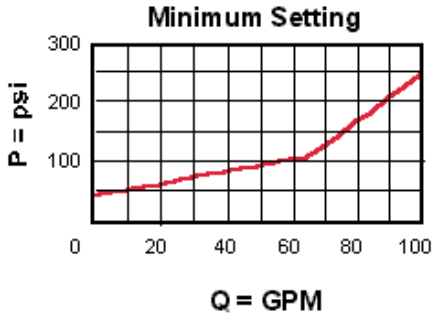
Model Code Example: RPIDBBN

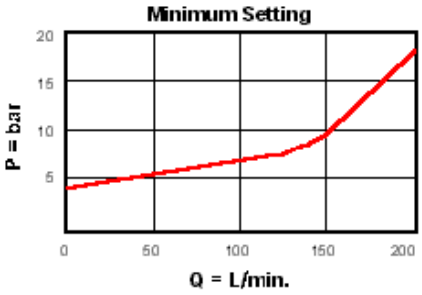
CONTROL (B)	OPERATING RANGE (B)	SEAL MATERIAL (N)
B External 4-SAE Port	**B** 50 - 1500 psi (3,5 - 105 bar)	**N** Buna-N
		V Viton

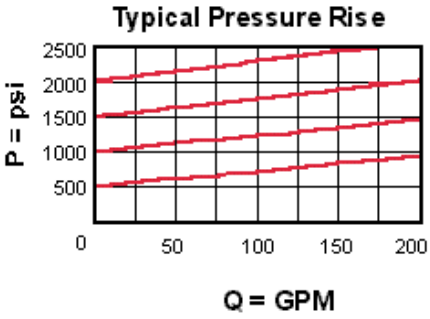
TECHNICAL FEATURES

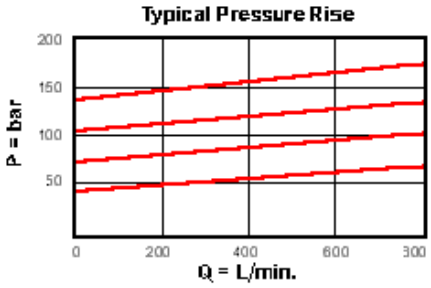
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Maximum air pressure should not exceed 150 psi (10 bar).
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





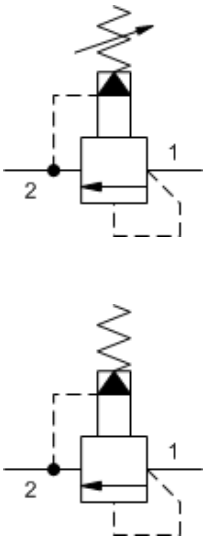


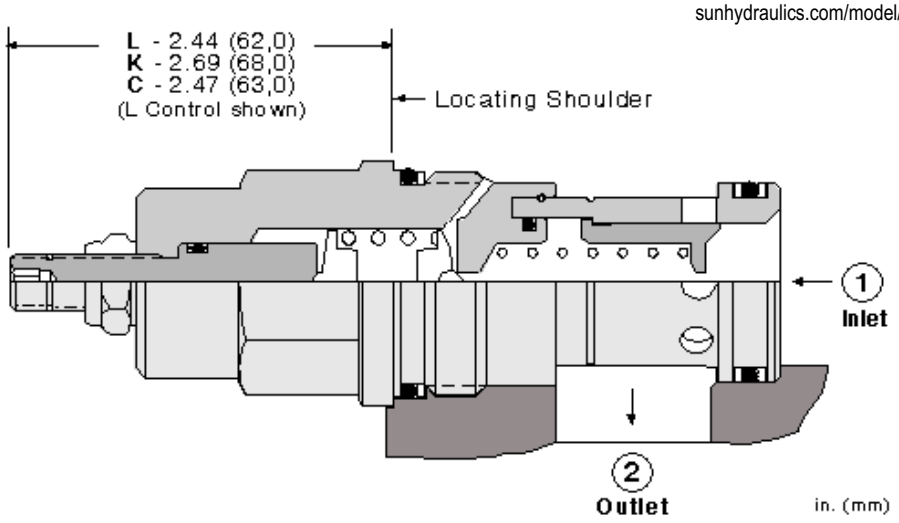


MODEL
RPIE

Fast-acting, pilot-operated, balanced piston relief valve
SERIES 3 / CAPACITY: 380 L/min. / CAVITY: T-16A

sunhydraulics.com/model/RPIE





Fast-acting, pilot-operated, balanced piston relief cartridges are normally closed, pressure-limiting valves used to protect hydraulics components from pressure transients. Fast opening and closing is gained at the expense of smoothness. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves have low pressure rise vs. flow and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-16A
Series	3
Capacity	380 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	65 cc/min.@70 bar
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006
Model Weight	0.54 kg.

CONFIGURATION OPTIONS

Model Code Example: RPIELAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting
- **E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

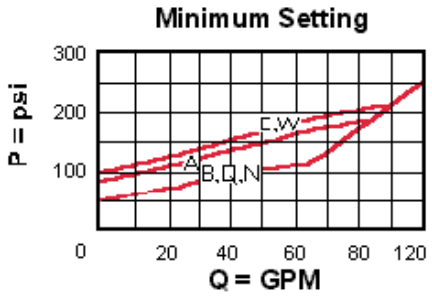
MATERIAL/COATING

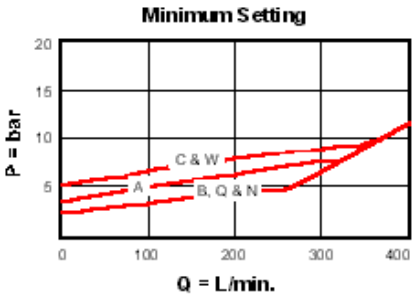
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated

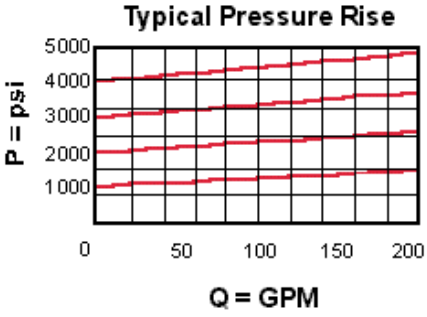
TECHNICAL FEATURES

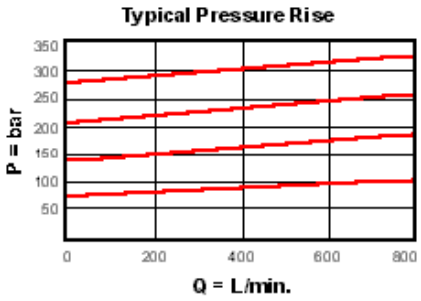
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





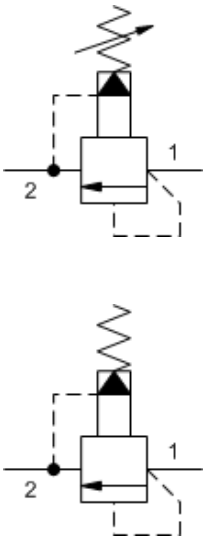


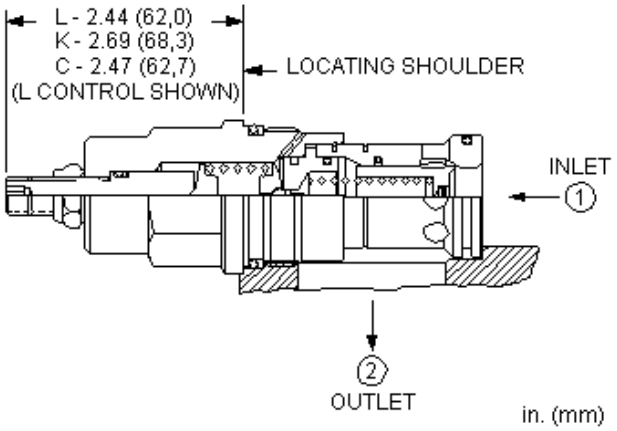


MODEL
RPIS

Pilot-operated, balanced poppet relief valve
SERIES 3 / CAPACITY: 380 L/min. / CAVITY: T-16A

sunhydraulics.com/model/RPIS





in. (mm)

Pilot-operated, balanced-poppet relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, smooth, quiet, fast, and have low pressure rise vs. flow.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-16A
Series	3
Capacity	380 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	7 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990316007
Seal kit - Cartridge	EPDM: 990316014
Seal kit - Cartridge	Viton: 990316006
Model Weight	0.55 kg.

CONFIGURATION OPTIONS

Model Code Example: RPISLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob
- **Y** Tri-Grip Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **N** 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting
- **Q** 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

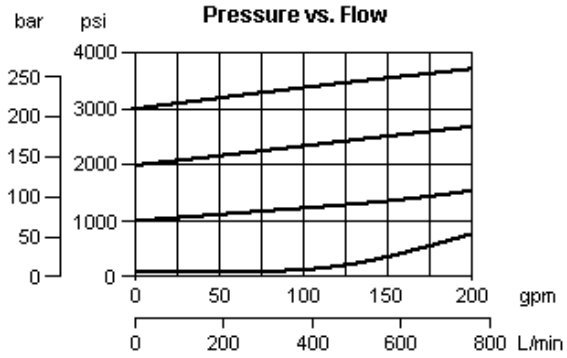
MATERIAL/COATING

- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



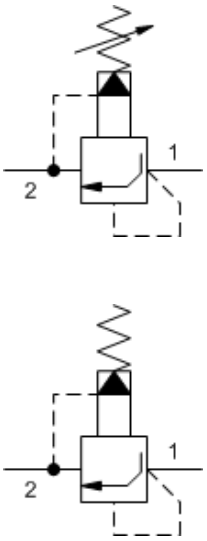
RELATED MODELS

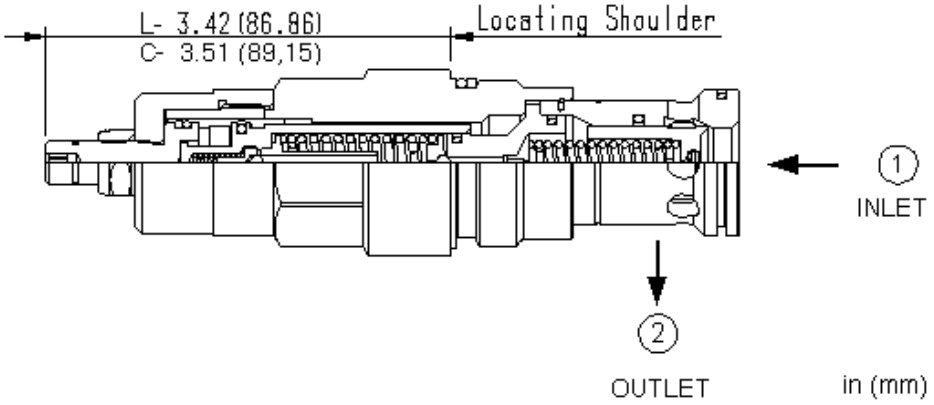
- RPIS8 Pilot-operated, balanced poppet relief main stage with integral T-8A control cavity

MODEL
RPIT

Anti-Shock, pilot-operated, balanced poppet relief valve
SERIES 3 / CAPACITY: 380 L/min. / CAVITY: T-16A

sunhydraulics.com/model/RPIT





Pilot-operated, anti shock relief cartridges limit maximum system pressure and also limit the rate of pressure rise. The valve opens and then ramps closed at a constant speed, independent of settings and flows. The adjust screw determines the maximum (relief) setting and the minimum (threshold) setting.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-16A
Series	3
Capacity	380 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,16 - 0,41 L/min.
Pressure Ramp Up Time	300 - 500 ms
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	4.5
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
U.S. Patent #	6,039,070
Seal kit - Cartridge	Buna: 990316007
Seal kit - Cartridge	Viton: 990316006
Model Weight	0.73 kg.

NOTES

- Patents: US#6,039,070; Germany EP 1 001 197; Japan #3,119,230
- Patents: US#6,039,070; Germany EP 1 001 197; Japan #3,119,230

CONFIGURATION OPTIONS

Model Code Example: RPITLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set

ADJUSTMENT RANGE (A)

- **A** 2000 - 3000 psi (140 - 210 bar), 2000 psi (140 bar) Standard Setting
- **C** 4500 - 6000 psi (315 - 420 bar), 4500 psi (315 bar) Standard Setting
- **W** 3000 - 4500 psi (210 - 315 bar), 3000 psi (210 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

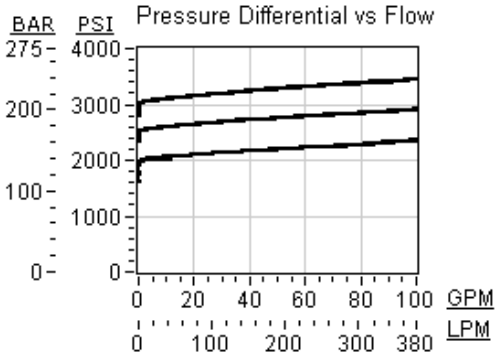
MATERIAL/COATING

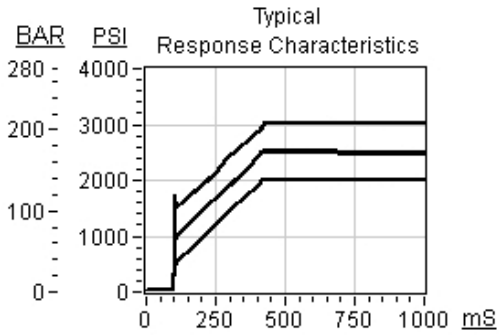
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Not suitable for use in load holding applications.
- When pressure at the inlet (port 1) exceeds the threshold setting, the valve opens to tank (port 2). The pilot section moves forward at a steady rate, increasing the setting by compressing the pilot spring. Maximum setting is achieved when the pilot section reaches a mechanical stop.
- Valve provides protection for pumps and motors from pressure transients due to sudden load changes, especially variable displacement pumps, since the displacement mechanism is sometimes too slow to catch these pressure transients.
- Valve provides protection for hydrostatic drives by reducing the jerk caused by sudden reversals. The valve is suitable for cross-port applications.
- When used with a switching device, the valve can provide the ramp characteristic typically provided by proportional valves.
- Small power units can be started against an anti shock relief to provide longer pump life.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES

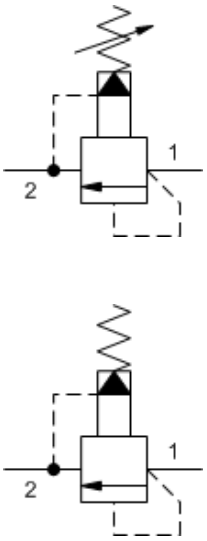


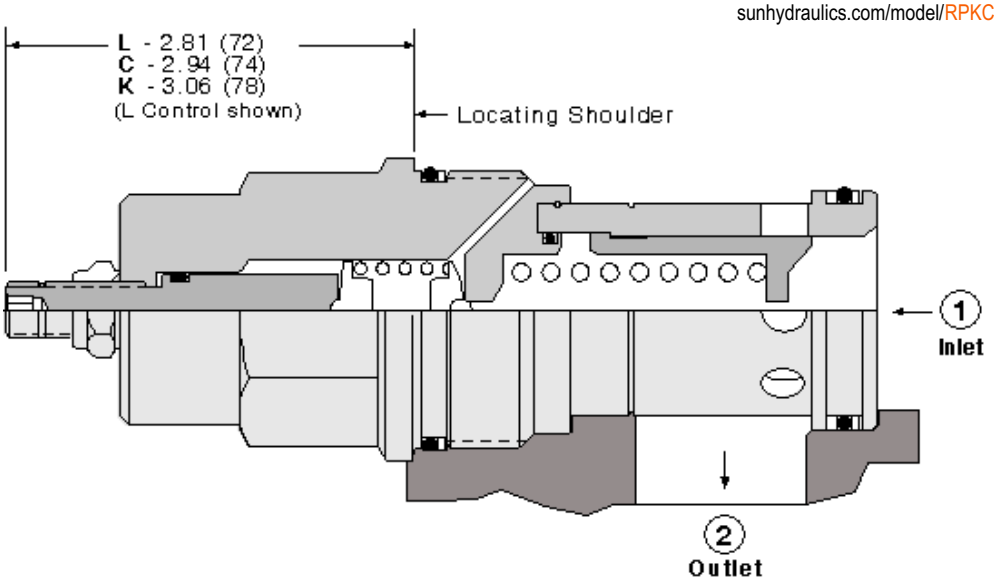


MODEL
RPKC

Pilot-operated, balanced piston relief valve
SERIES 4 / CAPACITY: 760 L/min. / CAVITY: T-18A

sunhydraulics.com/model/RPKC





in. (mm)

Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-18A
Series	4
Capacity	760 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	EPDM: 990018014
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006
Model Weight	1.18 kg.

CONFIGURATION OPTIONS

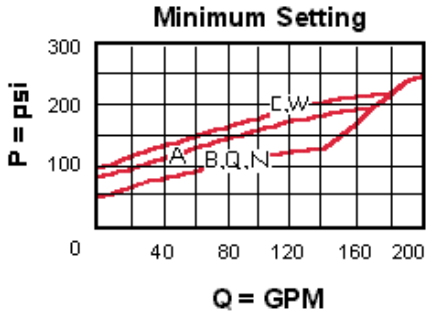
Model Code Example: RPKCLAN

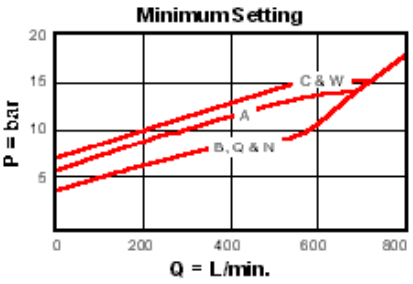
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
W Hex Wrench Adjustment	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		
Y Tri-Grip Handknob	**D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	N 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting		
	Q 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting		

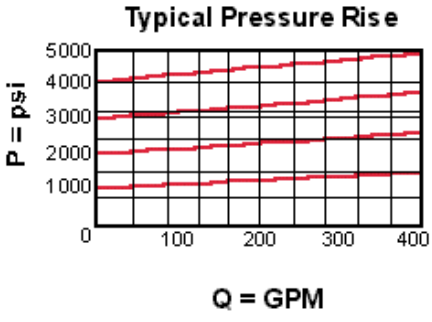
TECHNICAL FEATURES

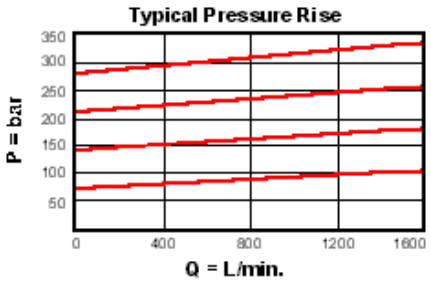
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES







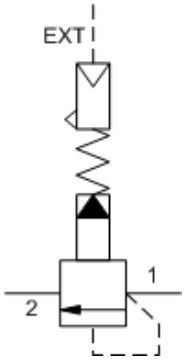


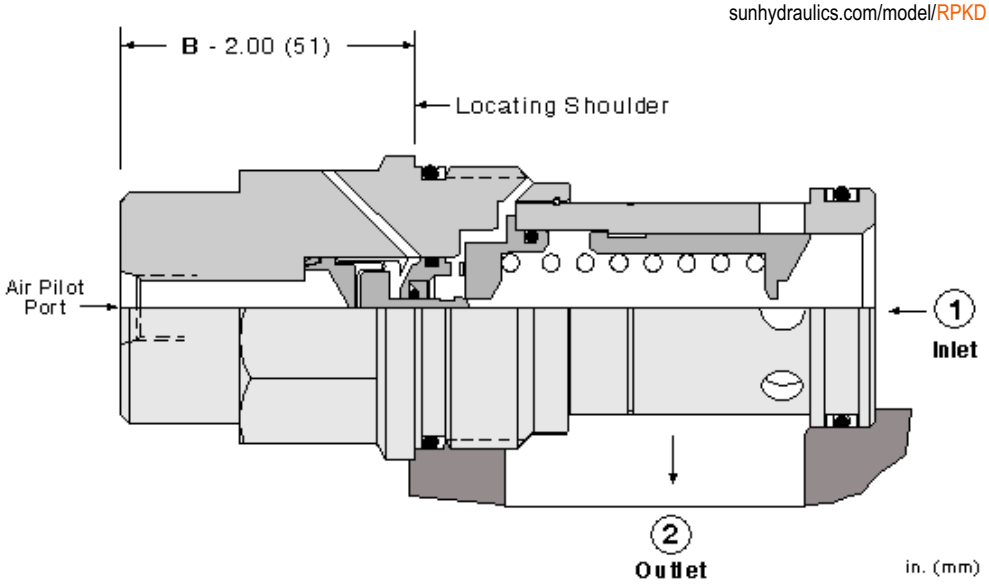
RELATED MODELS

- RPKC8 Pilot-operated, balanced piston relief main stage with integral T-8A control cavity

Air-controlled, pilot-operated, balanced piston relief valve
SERIES 4 / CAPACITY: 760 L/min. / CAVITY: T-18A

sunhydraulics.com/model/RPKD





Air-controlled, pilot-operated, balanced piston relief cartridges use compressed air over a diaphragm instead of an adjustable spring to control pressure setting. The air signal is supplied through a port in the hex-end of the cartridge. They are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-18A
Series	4
Capacity	760 L/min.
Pilot Ratio	20:1
Maximum Operating Pressure	140 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@70 bar
Maximum Air Pressure	10,5 bar
Response Time - Typical	10 ms
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006

CONFIGURATION OPTIONS

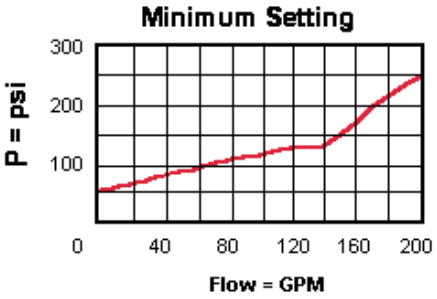
Model Code Example: RPKDBBN

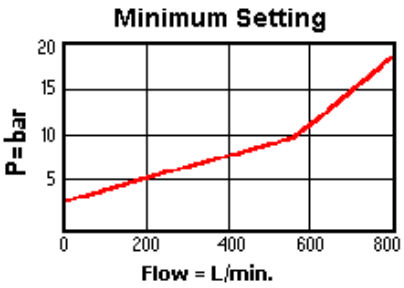
CONTROL (B)	OPERATING RANGE (B)	SEAL MATERIAL (N)
B External 4-SAE Port	**B** 50 - 1500 psi (3,5 - 105 bar)	**N** Buna-N
		V Viton

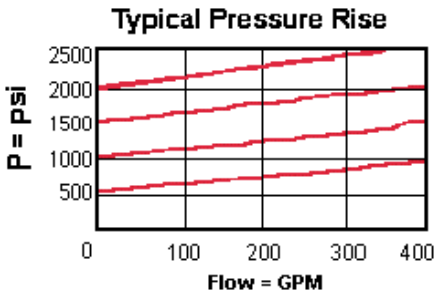
TECHNICAL FEATURES

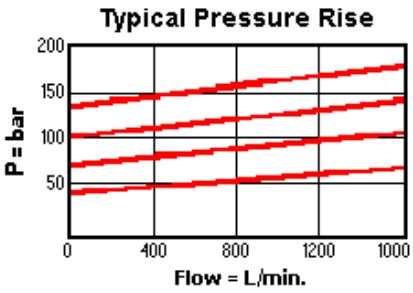
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Maximum air pressure should not exceed 150 psi (10 bar).
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

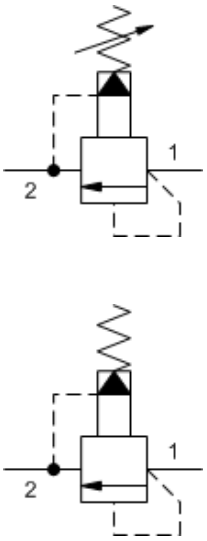
PERFORMANCE CURVES

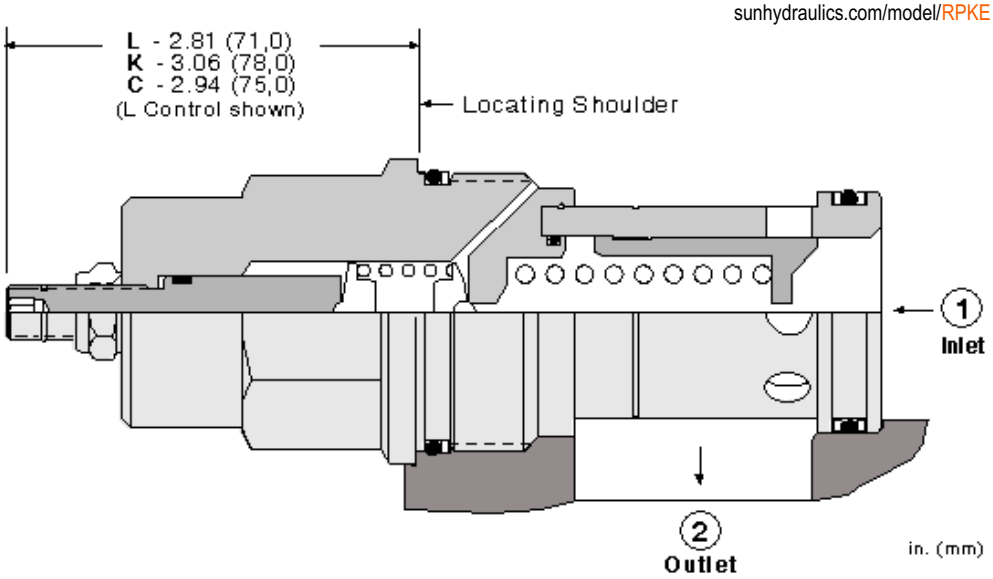












Fast-acting, pilot-operated, balanced piston relief cartridges are normally closed, pressure-limiting valves used to protect hydraulics components from pressure transients. Fast opening and closing is gained at the expense of smoothness. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These valves have low pressure rise vs. flow and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-18A
Series	4
Capacity	760 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@70 bar
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006
Model Weight	1.17 kg.

CONFIGURATION OPTIONS

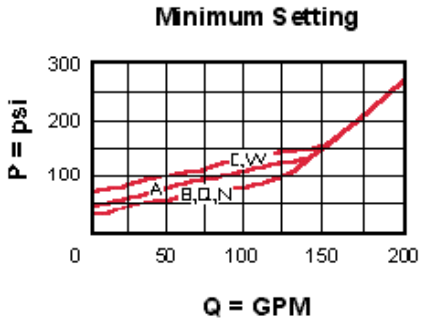
Model Code Example: RPKELAN

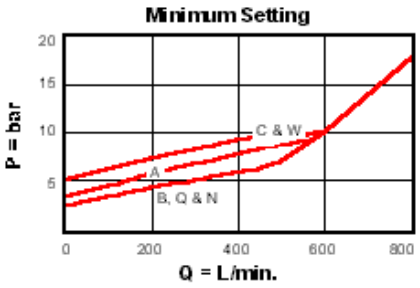
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/AP** Stainless Steel, Passivated
K Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		**/LH** Mild Steel, Zinc-Nickel
	D 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	W 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting		

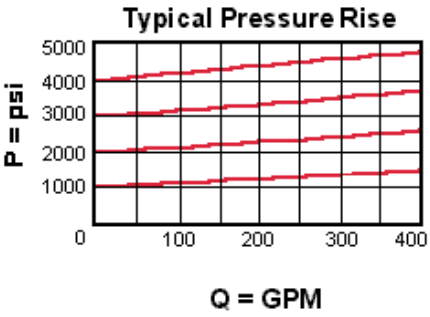
TECHNICAL FEATURES

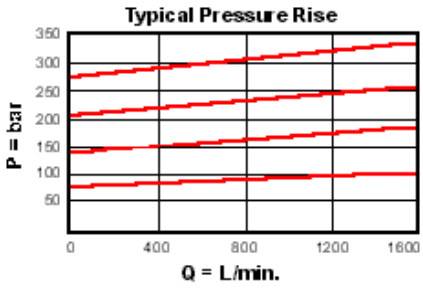
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





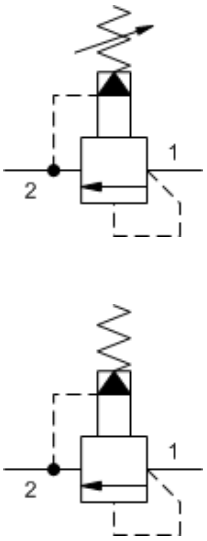


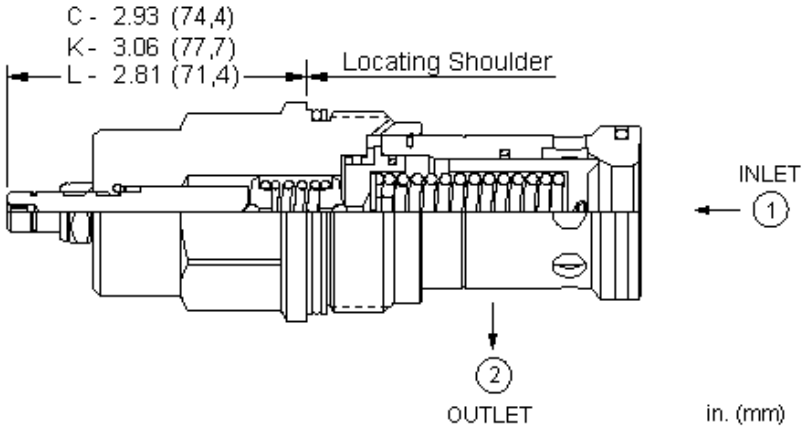


MODEL
RPKS

Pilot-operated, balanced poppet relief valve
SERIES 4 / CAPACITY: 760 L/min. / CAVITY: T-18A

sunhydraulics.com/model/RPKS





Pilot-operated, balanced-poppet relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These valves are accurate, smooth, quiet, fast, and have low pressure rise vs. flow.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-18A
Series	4
Capacity	760 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	7 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990318007
Seal kit - Cartridge	EPDM: 990318014
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990318006
Model Weight	1.17 kg.

CONFIGURATION OPTIONS

Model Code Example: RPKSLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob
- **W** Hex Wrench Adjustment
- **Y** Tri-Grip Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **N** 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting
- **Q** 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

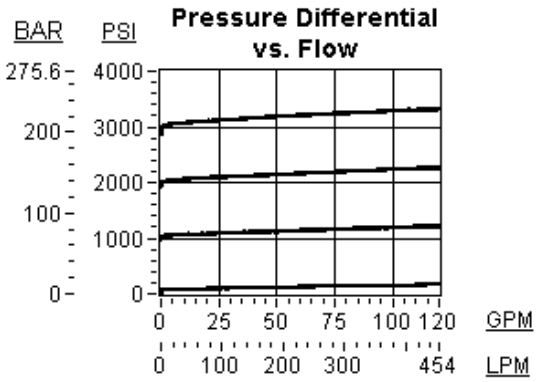
MATERIAL/COATING

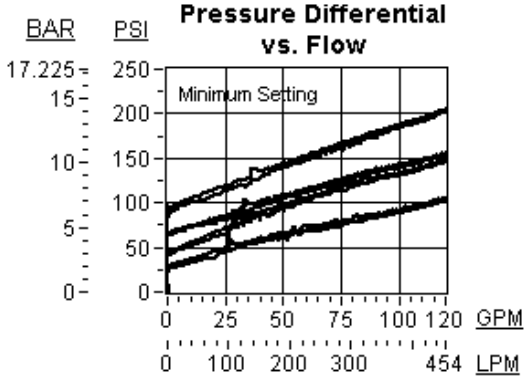
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





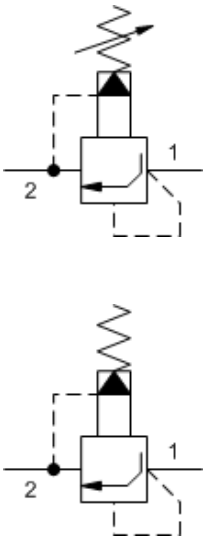
RELATED MODELS

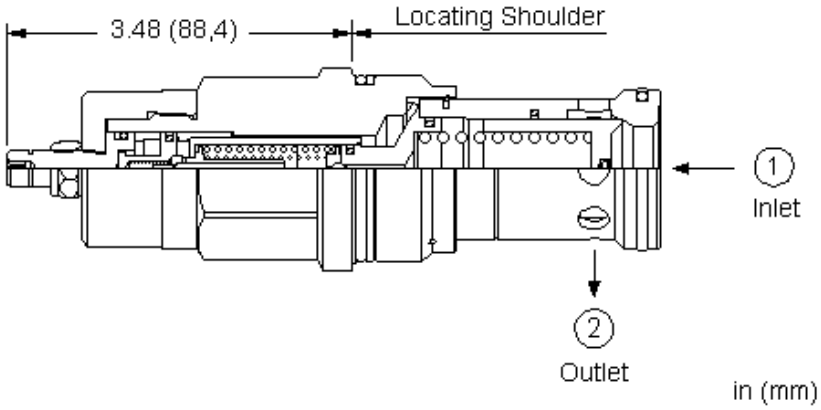
- RPKS8 Pilot-operated, balanced poppet relief main stage with integral T-8A control cavity

MODEL
RPKT

Anti-Shock, pilot-operated, balanced poppet relief valve
SERIES 4 / CAPACITY: 760 L/min. / CAVITY: T-18A

sunhydraulics.com/model/RPKT





in (mm)

Pilot-operated, anti shock relief cartridges limit maximum system pressure and also limit the rate of pressure rise. The valve opens and then ramps closed at a constant speed, independent of settings and flows. The adjust screw determines the maximum (relief) setting and the minimum (threshold) setting.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-18A
Series	4
Capacity	760 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,16 - 0,41 L/min.
Pressure Ramp Up Time	400 - 600 ms
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	4.5
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
U.S. Patent #	6,039,070
Seal kit - Cartridge	Buna: 990318007
Seal kit - Cartridge	Viton: 990318006
Model Weight	1.36 kg.

CONFIGURATION OPTIONS

Model Code Example: RPKTLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set

ADJUSTMENT RANGE (A)

- **A** 2000 - 3000 psi (140 - 210 bar), 2000 psi (140 bar) Standard Setting
- **C** 4500 - 6000 psi (315 - 420 bar), 4500 psi (315 bar) Standard Setting
- **W** 3000 - 4500 psi (210 - 315 bar), 3000 psi (210 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

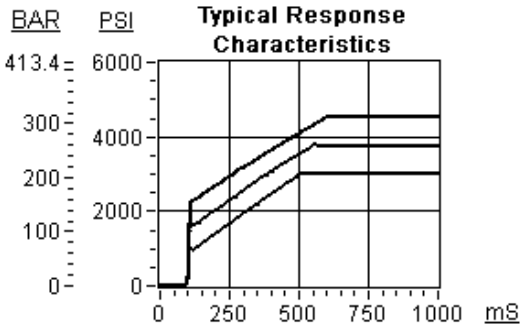
MATERIAL/COATING

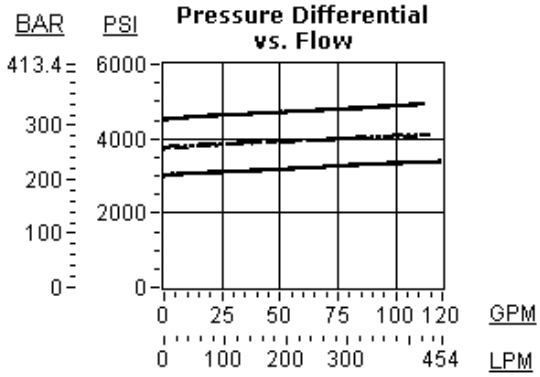
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Not suitable for use in load holding applications.
- When pressure at the inlet (port 1) exceeds the threshold setting, the valve opens to tank (port 2). The pilot section moves forward at a steady rate, increasing the setting by compressing the pilot spring. Maximum setting is achieved when the pilot section reaches a mechanical stop.
- Valve provides protection for pumps and motors from pressure transients due to sudden load changes, especially variable displacement pumps, since the displacement mechanism is sometimes too slow to catch these pressure transients.
- Valve provides protection for hydrostatic drives by reducing the jerk caused by sudden reversals. The valve is suitable for cross-port applications.
- When used with a switching device, the valve can provide the ramp characteristic typically provided by proportional valves.
- Small power units can be started against an anti shock relief to provide longer pump life.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES

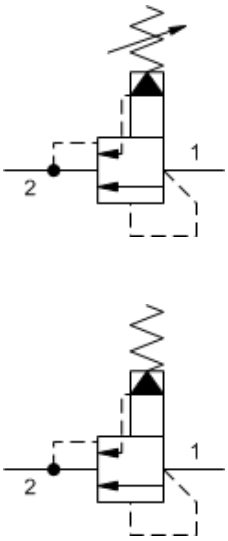


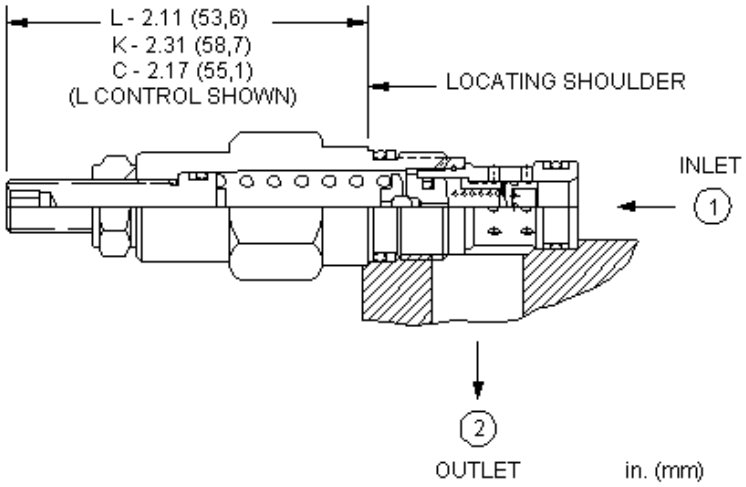


MODEL
RQCB

Kick-down, pilot-operated, balanced piston relief valve
CAPACITY: 45 L/min. / CAVITY: T-162A

sunhydraulics.com/model/RQCB





Kick-down relief cartridges act similar to a circuit breaker in an electrical system. The valves will kick completely open and remain open once the pressure at the inlet (port 1) exceeds the valve settting, creating an unrestricted flow path from port 1 to tank (port 2). The valve remains open as long as the pressure at port 1 exceeds the pressure at port 2. To reset the valve, flow from port 1 to port 2 must cease and pressure at port 2 must be equal to or greater than the pressure at port 1.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-162A
Series	0
Capacity	45 L/min.
Factory Pressure Settings Established at	Kick down point
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	25 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	19,1 mm
Valve Installation Torque	27 - 33 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Polyurethane: 990162002
Seal kit - Cartridge	Viton: 990162006
Model Weight	0.10 kg.

NOTES

Do not use in load holding applications.

CONFIGURATION OPTIONS

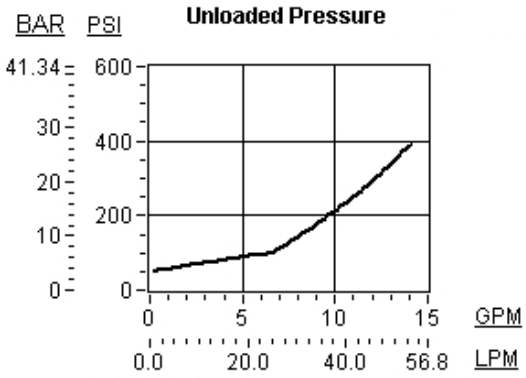
Model Code Example: RQCBLAN

CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)
L Standard Screw Adjustment	**A** 75 - 3000 psi (5 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N
C Tamper Resistant - Factory Set	**B** 75 - 1500 psi (5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton
K Handknob	**C** 75 - 6000 psi (5 - 420 bar), 1000 psi (70 bar) Standard Setting	
	N 75 - 800 psi (5 - 55 bar), 400 psi (28 bar) Standard Setting	
	Q 75 - 400 psi (5 - 28 bar), 200 psi (14 bar) Standard Setting	
	W 75 - 4500 psi (5 - 315 bar), 1000 psi (70 bar) Standard Setting	

TECHNICAL FEATURES

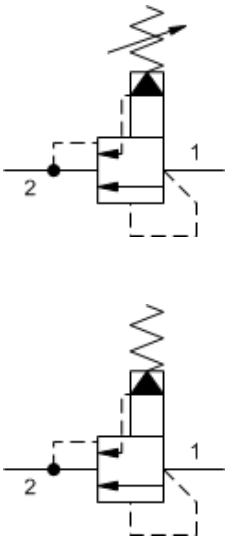
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- To reset valve, flow through the cartridge must cease.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications.
- Intended for use on the actuator side of the system as flow through the valve must cease for the valve to reset. If used on the pump side of a system, pump flow must be shut off for the valve to reset.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

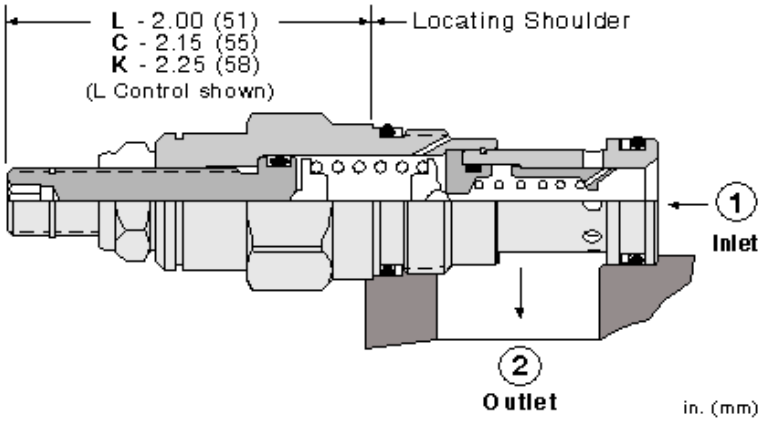
PERFORMANCE CURVES



Kick-down, pilot-operated, balanced piston relief valve
SERIES 1 / CAPACITY: 95 L/min. / CAVITY: T-10A

snhy.com/RQEB





Kick-down relief cartridges act similar to a circuit breaker in an electrical system. The valves will kick completely open and remain open once the pressure at the inlet (port 1) exceeds the valve settting, creating an unrestricted flow path from port 1 to tank (port 2). The valve remains open as long as the pressure at port 1 exceeds the pressure at port 2. To reset the valve, flow from port 1 to port 2 must cease and pressure at port 2 must be equal to or greater than the pressure at port 1.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-10A
Series	1
Capacity	95 L/min.
Factory Pressure Settings Established at	Kick down point
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	25 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006
Model Weight	0.14 kg.

NOTES

- Do not use in load holding applications.
- For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

Model Code Example: RQEBLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob
- **O** Handknob with Panel Mount

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting
- **E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

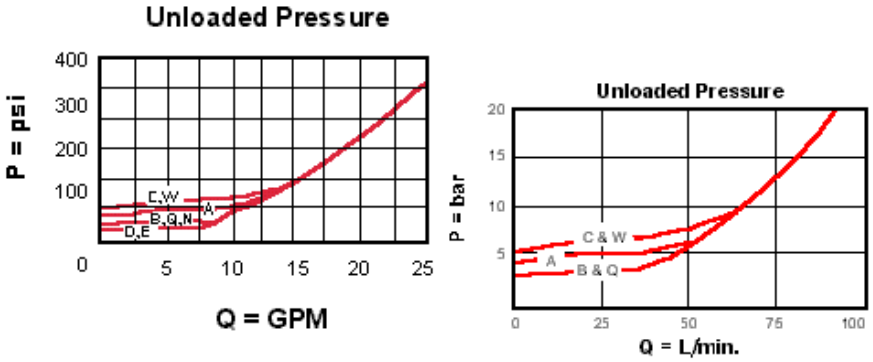
MATERIAL/COATING

- Standard Material/Coating
- **/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

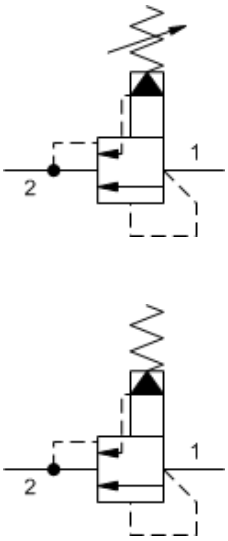
- To reset valve, flow through the cartridge must cease.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications.
- Intended for use on the actuator side of the system as flow through the valve must cease for the valve to reset. If used on the pump side of a system, pump flow must be shut off for the valve to reset.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

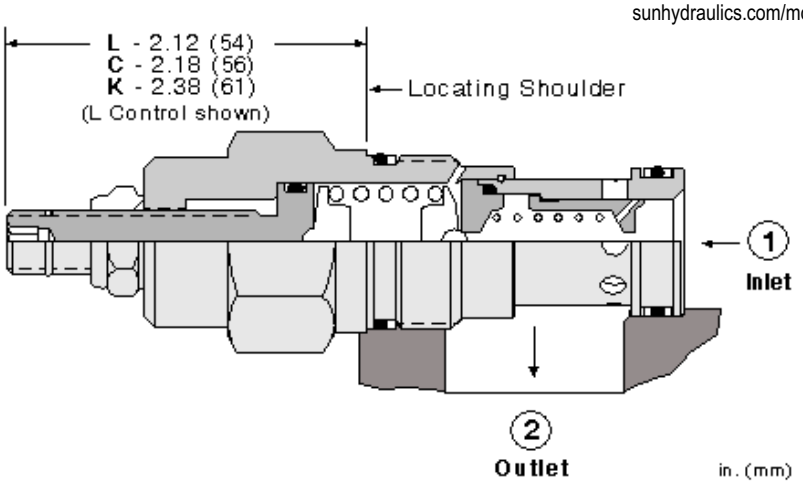
PERFORMANCE CURVES



Kick-down, pilot-operated, balanced piston relief valve
SERIES 2 / CAPACITY: 200 L/min. / CAVITY: T-3A

sunhydraulics.com/model/RQGB





Kick-down relief cartridges act similar to a circuit breaker in an electrical system. The valves will kick completely open and remain open once the pressure at the inlet (port 1) exceeds the valve settting, creating an unrestricted flow path from port 1 to tank (port 2). The valve remains open as long as the pressure at port 1 exceeds the pressure at port 2. To reset the valve, flow from port 1 to port 2 must cease and pressure at port 2 must be equal to or greater than the pressure at port 1.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Factory Pressure Settings Established at	Kick down point
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	50 cc/min.@70 bar
Response Time - Typical	25 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Polyurethane: 990003002
Seal kit - Cartridge	Viton: 990203006
Model Weight	0.26 kg.

NOTES

- Do not use in load holding applications.
- For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

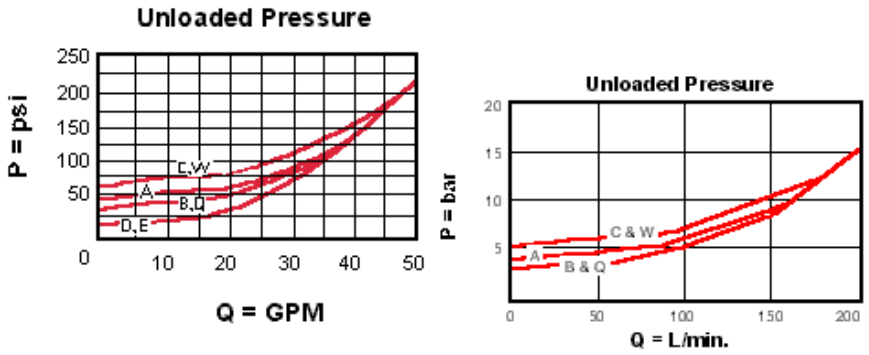
Model Code Example: RQGBLAN

CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/AP** Stainless Steel, Passivated
K Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		**/LH** Mild Steel, Zinc-Nickel
O Handknob with Panel Mount	**D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
W Hex Wrench Adjustment	**E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	W 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting		

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- To reset valve, flow through the cartridge must cease.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications.
- Intended for use on the actuator side of the system as flow through the valve must cease for the valve to reset. If used on the pump side of a system, pump flow must be shut off for the valve to reset.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

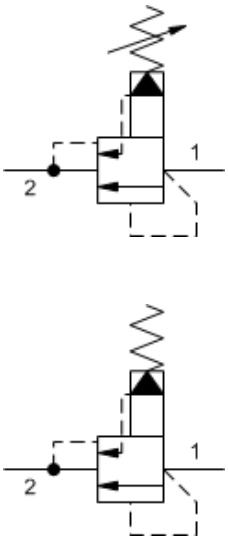
PERFORMANCE CURVES

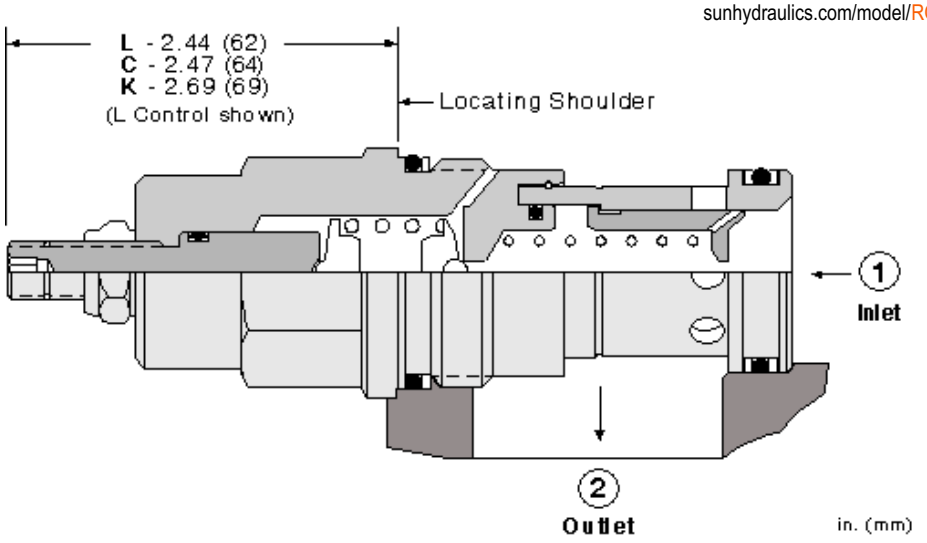


MODEL
RQIB

Kick-down, pilot-operated, balanced piston relief valve
SERIES 3 / CAPACITY: 380 L/min. / CAVITY: T-16A

sunhydraulics.com/model/RQIB





Kick-down relief cartridges act similar to a circuit breaker in an electrical system. The valves will kick completely open and remain open once the pressure at the inlet (port 1) exceeds the valve settting, creating an unrestricted flow path from port 1 to tank (port 2). The valve remains open as long as the pressure at port 1 exceeds the pressure at port 2. To reset the valve, flow from port 1 to port 2 must cease and pressure at port 2 must be equal to or greater than the pressure at port 1.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-16A
Series	3
Capacity	380 L/min.
Factory Pressure Settings Established at	Kick down point
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	65 cc/min.@70 bar
Response Time - Typical	25 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006
Model Weight	0.54 kg.

NOTES

Do not use in load holding applications.

CONFIGURATION OPTIONS

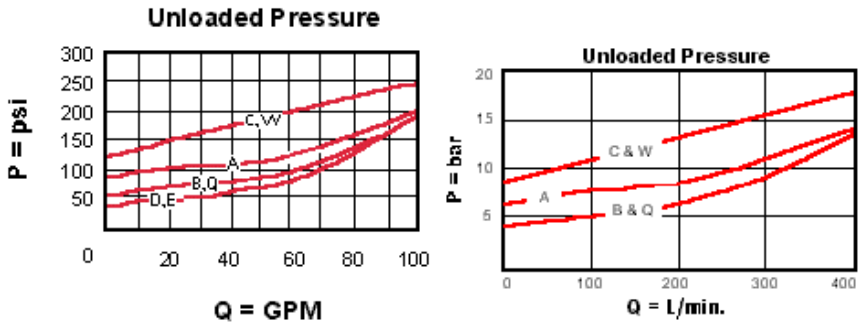
Model Code Example: RQIBLAN

CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/AP** Stainless Steel, Passivated
K Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		
	D 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	W 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting		

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- To reset valve, flow through the cartridge must cease.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications.
- Intended for use on the actuator side of the system as flow through the valve must cease for the valve to reset. If used on the pump side of a system, pump flow must be shut off for the valve to reset.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

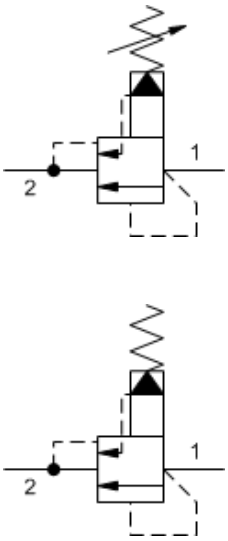
PERFORMANCE CURVES

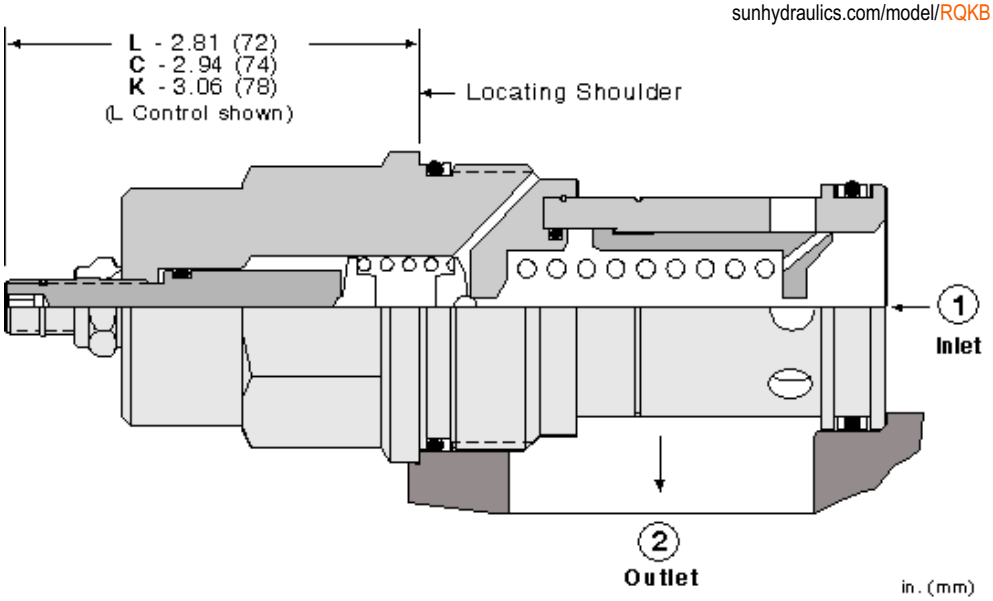


MODEL
RQKB

Kick-down, pilot-operated, balanced piston relief valve
SERIES 4 / CAPACITY: 760 L/min. / CAVITY: T-18A

sunhydraulics.com/model/RQKB





Kick-down relief cartridges act similar to a circuit breaker in an electrical system. The valves will kick completely open and remain open once the pressure at the inlet (port 1) exceeds the valve settting, creating an unrestricted flow path from port 1 to tank (port 2). The valve remains open as long as the pressure at port 1 exceeds the pressure at port 2. To reset the valve, flow from port 1 to port 2 must cease and pressure at port 2 must be equal to or greater than the pressure at port 1.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-18A
Series	4
Capacity	760 L/min.
Factory Pressure Settings Established at	Kick down point
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@70 bar
Response Time - Typical	25 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006
Model Weight	1.17 kg.

NOTES

Do not use in load holding applications.

CONFIGURATION OPTIONS

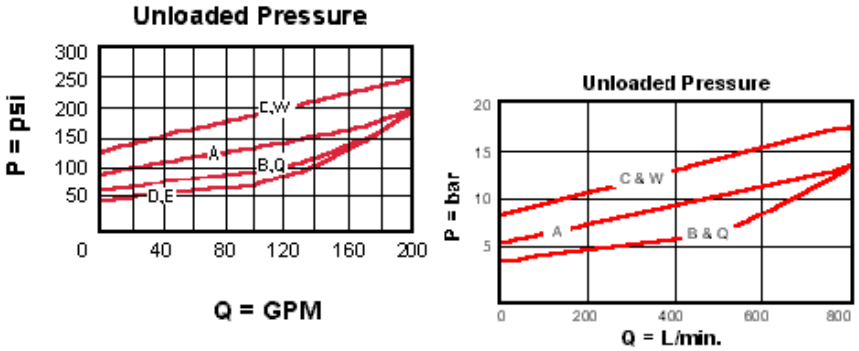
Model Code Example: RQKBLAN

CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/AP** Stainless Steel, Passivated
K Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		
	D 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	W 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting		

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- To reset valve, flow through the cartridge must cease.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications.
- Intended for use on the actuator side of the system as flow through the valve must cease for the valve to reset. If used on the pump side of a system, pump flow must be shut off for the valve to reset.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP for external stainless steel components, or /LH for external zinc-nickel plated components. See the CONFIGURATION section for all options. For further details, please see the Materials of Construction page located under TECH RESOURCES.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

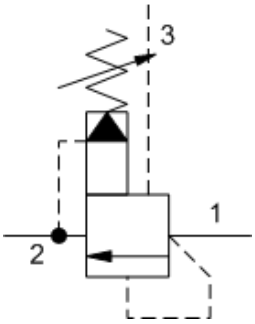
PERFORMANCE CURVES

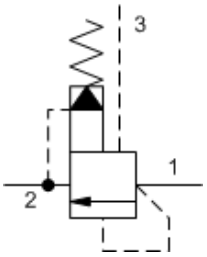


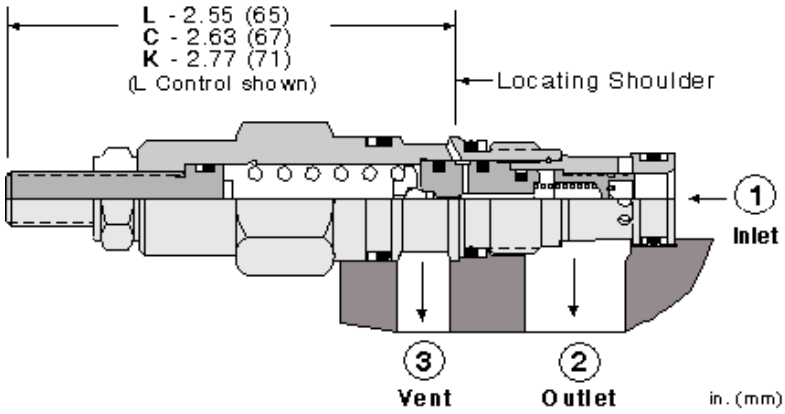
MODEL
RVBA

Ventable, pilot-operated, balanced piston relief valve
CAPACITY: 30 L/min. / CAVITY: T-163A

snhy.com/RVBA







Ventable, pilot-operated, balanced piston relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-163A
Series	0
Capacity	30 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,11 - 0,16 L/min.
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	19,1 mm
Valve Installation Torque	27 - 33 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	EPDM: 990163014
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006
Model Weight	0.11 kg.

CONFIGURATION OPTIONS

Model Code Example: RVBALAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 75 - 3000 psi (5 - 210 bar), 1000 psi (70 bar) Standard Setting
- **W** 75 - 4500 psi (5 - 315 bar), 1000 psi (70 bar) Standard Setting
- **B** 75 - 1500 psi (5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 75 - 6000 psi (5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **N** 75 - 800 psi (5 - 55 bar), 400 psi (28 bar) Standard Setting
- **Q** 75 - 400 psi (5 - 28 bar), 200 psi (14 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

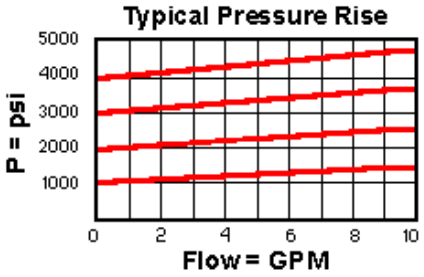
MATERIAL/COATING

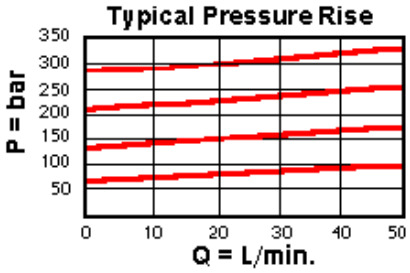
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated

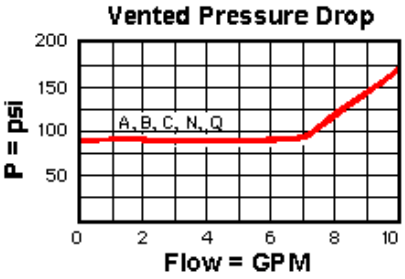
TECHNICAL FEATURES

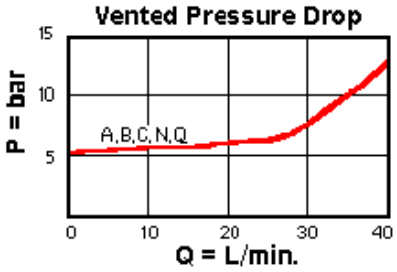
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Minimum setting is 75 psi (5 bar) for all spring ranges.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- The main stage orifice is protected against contamination.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



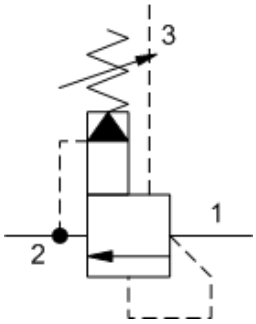


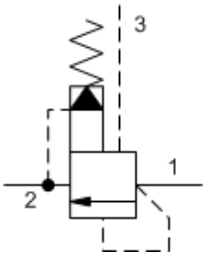


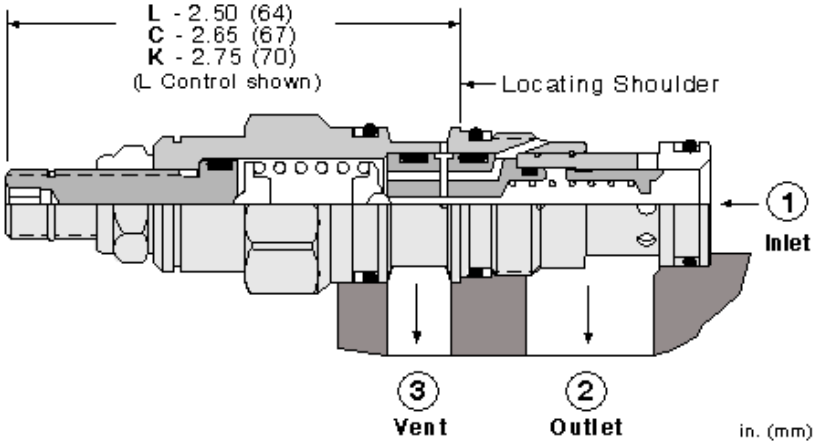


Ventable, pilot-operated, balanced piston relief valve
SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-11A

sunhydraulics.com/model/RVCA







Ventable, pilot-operated, balanced piston relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	60 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,11 - 0,16 L/min.
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	EPDM: 990011014
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.16 kg.

NOTES

For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

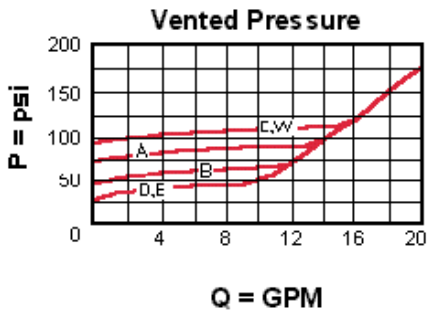
Model Code Example: RVCALAN

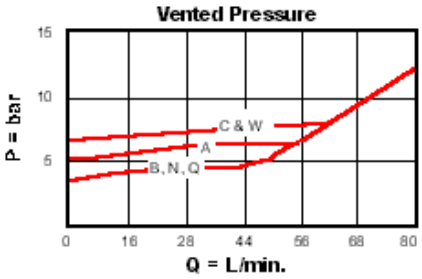
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
O Handknob with Panel Mount	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		
	D 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		

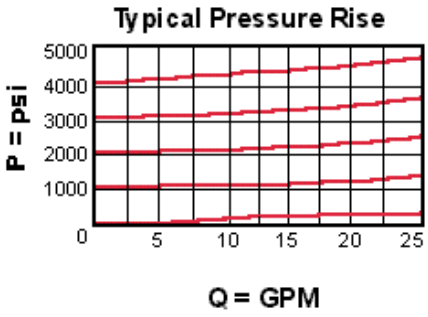
TECHNICAL FEATURES

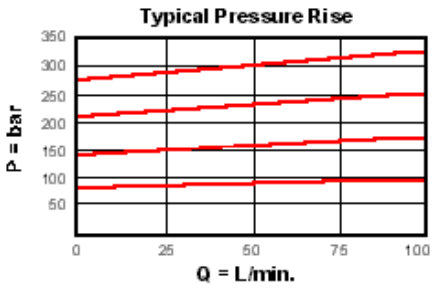
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



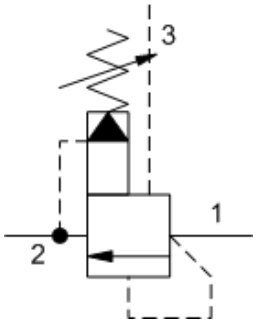


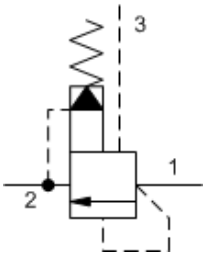


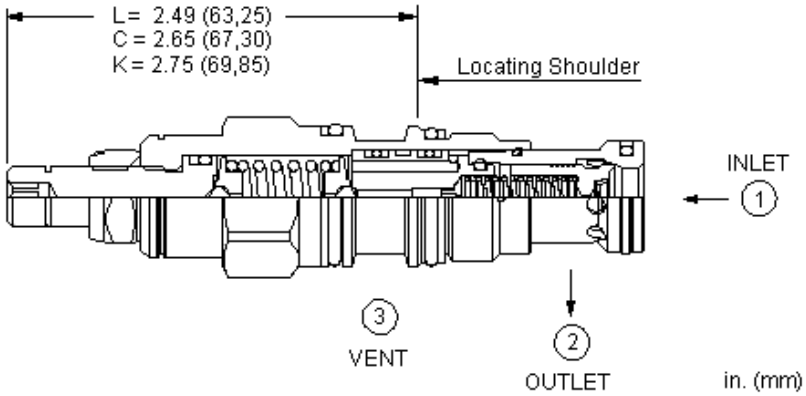


Ventable, pilot-operated, balanced poppet relief valve
SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-11A

sunhydraulics.com/model/RVCS







Ventable, pilot-operated, balanced-poppet relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	60 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,11 - 0,16 L/min.
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990611007
Seal kit - Cartridge	Viton: 990611006
Model Weight	0.16 kg.

CONFIGURATION OPTIONS

Model Code Example: RVCSLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **N** 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting
- **Q** 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

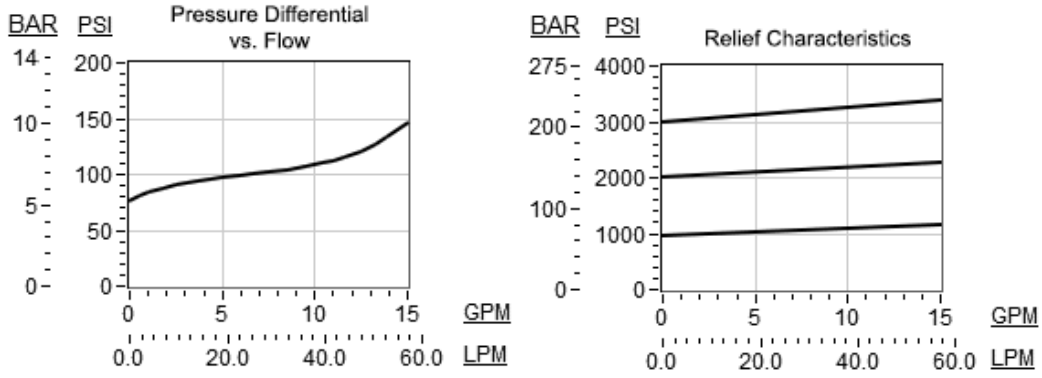
MATERIAL/COATING

- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Suitable for use in load holding applications.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

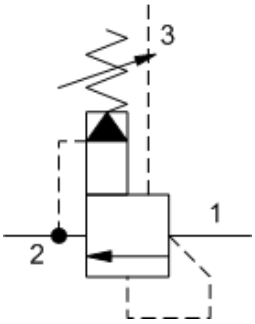
PERFORMANCE CURVES

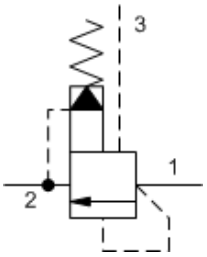


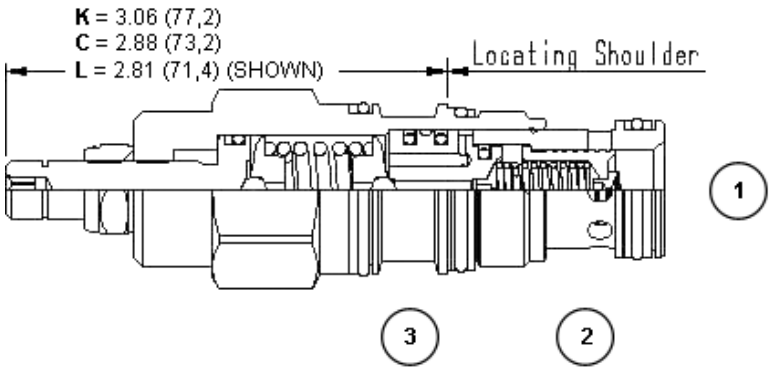
MODEL
RVEA

Ventable, pilot-operated, balanced piston relief valve
SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-2A

sunhydraulics.com/model/RVEA







Ventable, pilot-operated, balanced piston relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	120 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,16 - 0,25 L/min.
Maximum Valve Leakage at 110 SUS (24 cSt)	50 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	EPDM: 990202014
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006
Model Weight	0.29 kg.

NOTES For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

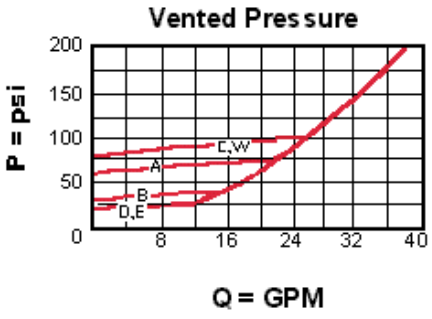
Model Code Example: RVEALAN

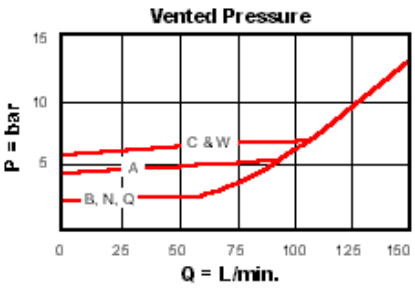
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
O Handknob with Panel Mount	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		
W Hex Wrench Adjustment	**D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
Y Tri-Grip Handknob	**E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		

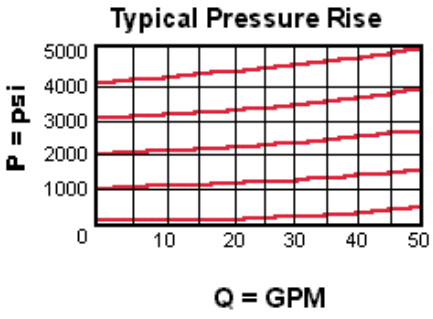
TECHNICAL FEATURES

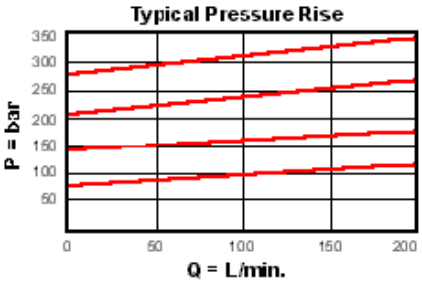
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





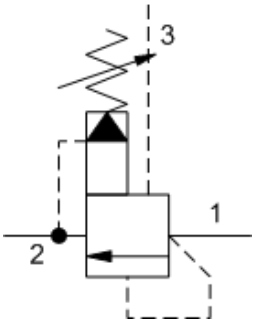


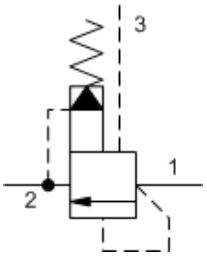


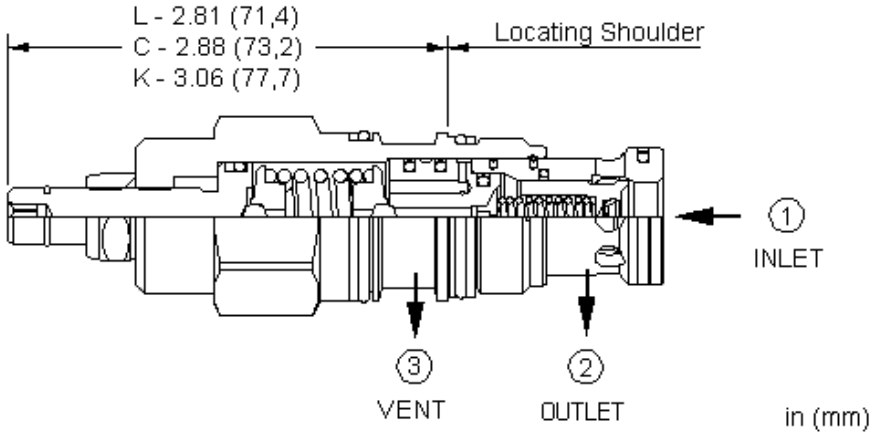
MODEL
RVES

Ventable, pilot-operated, balanced poppet relief valve
SERIES 2 / CAPACITY: 95 L/min. / CAVITY: T-2A

sunhydraulics.com/model/RVES







Ventable, pilot-operated, balanced-poppet relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	95 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990402007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990402006
Model Weight	0.29 kg.

CONFIGURATION OPTIONS

Model Code Example: RVESLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **N** 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting
- **Q** 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

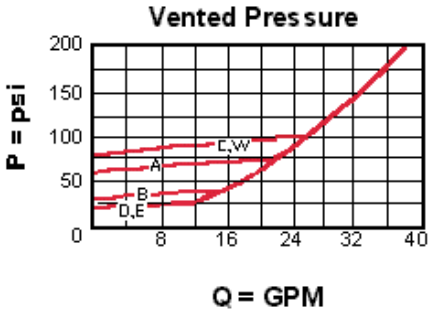
MATERIAL/COATING

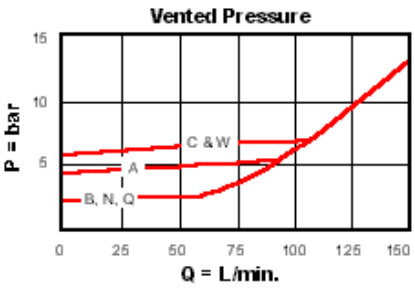
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

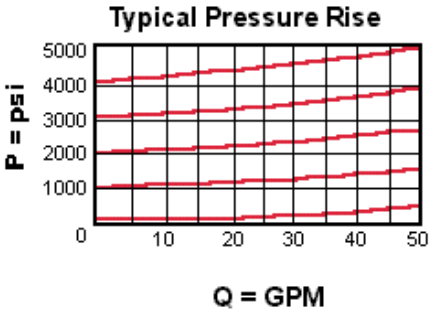
TECHNICAL FEATURES

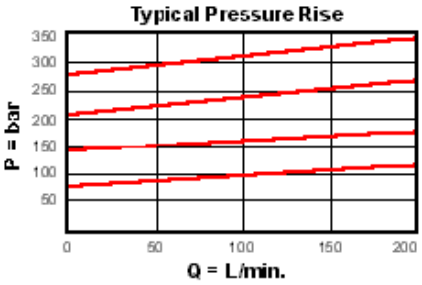
- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Suitable for use in load holding applications, providing that any valving on the vent port (port 3) is zero leak.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





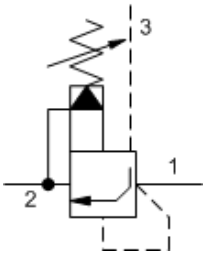


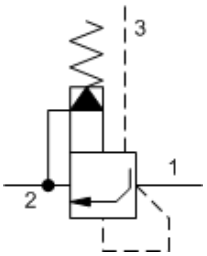


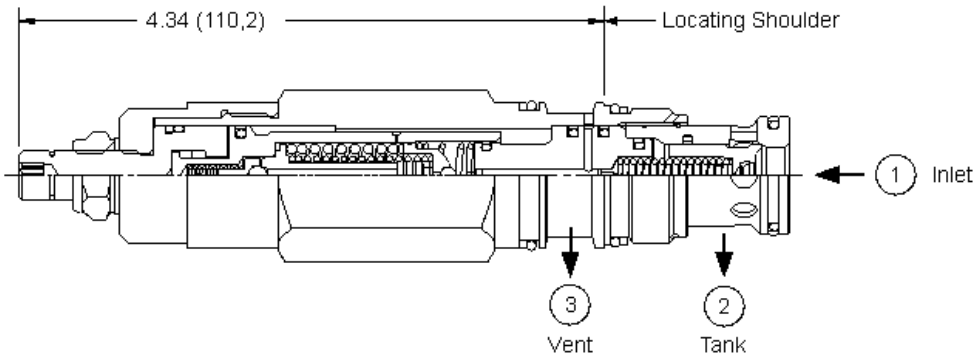
MODEL
RVET

Anti-Shock, ventable, pilot-operated, balanced poppet relief valve
SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-2A

sunhydraulics.com/model/RVET







Ventable, pilot-operated, anti shock relief cartridges limit maximum system pressure and also limit the rate of pressure rise. The valve opens and then ramps closed at a constant speed, independent of settings and flows. These 3 port valves include a vent port (port 3) that connects between the main piston and the pilot stage to provide for remote control by other pilot or 2-way valves. The adjust screw determines the maximum (relief) setting and the minimum (threshold) setting.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-2A
Series	2
Capacity	120 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,16 - 0,41 L/min.
Pressure Ramp Up Time	200 - 400 ms
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	4.5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
U.S. Patent #	6,039,070
Seal kit - Cartridge	Buna: 990402007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990402006
Model Weight	0.47 kg.

NOTES

Patents are pending for this product.

CONFIGURATION OPTIONS

Model Code Example: RVETLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set

ADJUSTMENT RANGE (A)

- **A** 500 - 3000 psi (35 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 500 - 1500 psi (35 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 1000 - 6000 psi (70 - 420 bar), 1000 psi (70 bar) Standard Setting
- **W** 1000 - 4500 psi (70 - 315 bar), 1000 psi (70 bar) Standard Setting

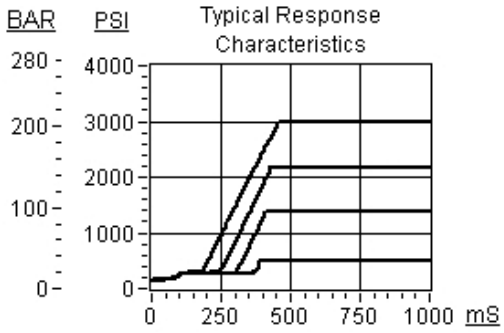
SEAL MATERIAL (N)

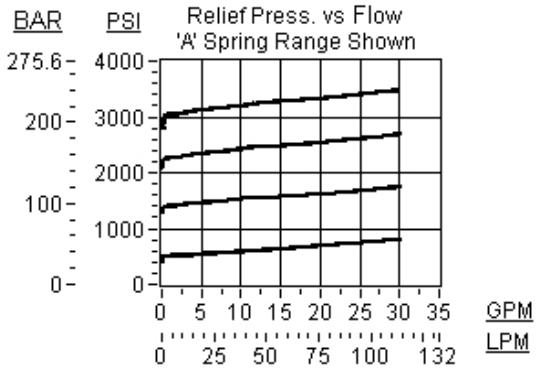
- **N** Buna-N
- **V** Viton

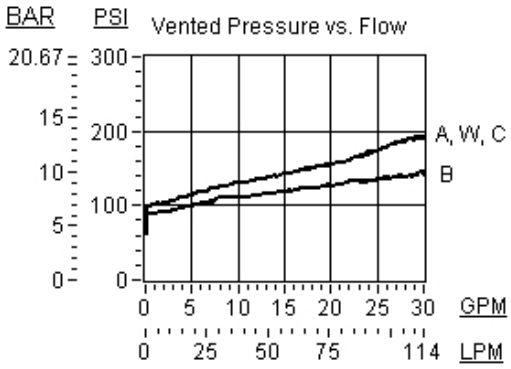
TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Not suitable for use in load holding applications.
- When pressure at the inlet (port 1) exceeds the threshold setting, the valve opens to tank (port 2). The pilot section moves forward at a steady rate, increasing the setting by compressing the pilot spring. Maximum setting is achieved when the pilot section reaches a mechanical stop.
- Valve provides protection for hydrostatic drives by reducing the jerk caused by sudden reversals. The valve is suitable for cross-port applications.
- When used with a switching device, the valve can provide the ramp characteristic typically provided by proportional valves.
- Small power units can be started against an anti shock relief to provide longer pump life.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- The main stage orifice is protected against contamination.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



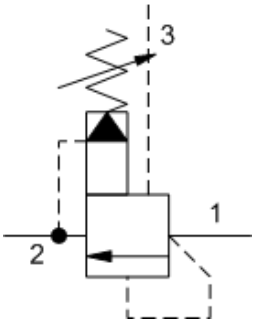


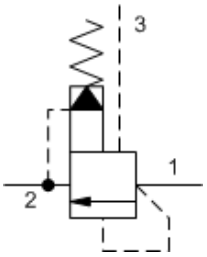


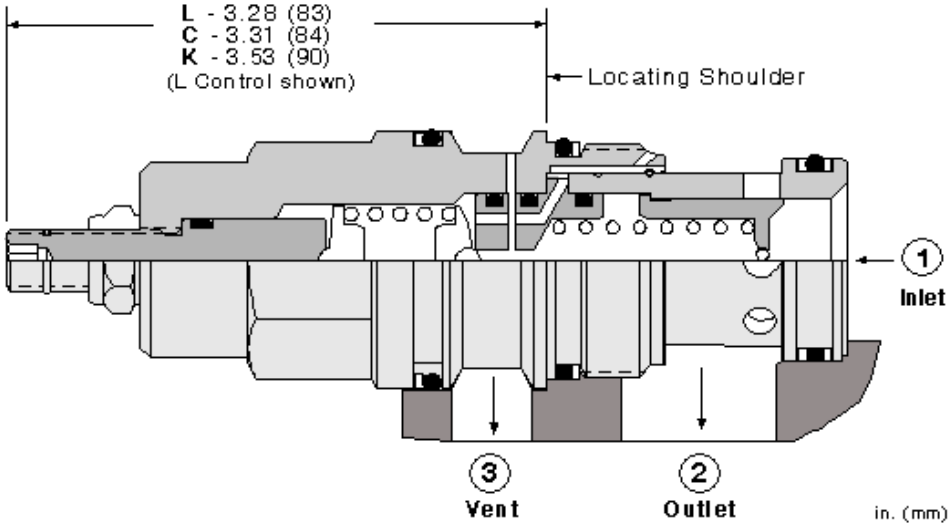
MODEL
RVGA

Ventable, pilot-operated, balanced piston relief valve
SERIES 3 / CAPACITY: 240 L/min. / CAVITY: T-17A

sunhydraulics.com/model/RVGA







Ventable, pilot-operated, balanced piston relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	240 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Maximum Valve Leakage at 110 SUS (24 cSt)	65 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006
Model Weight	0.62 kg.

CONFIGURATION OPTIONS

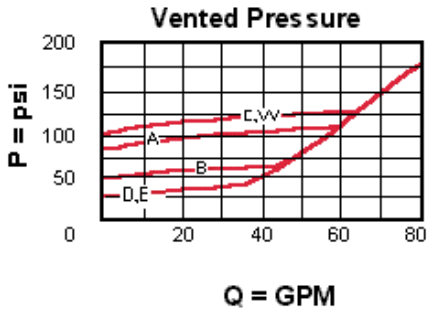
Model Code Example: RVGALAN

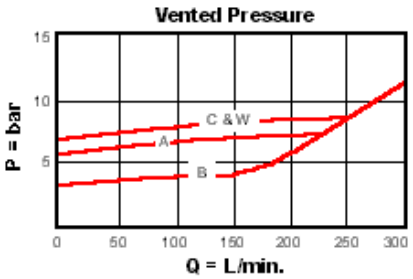
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
	C 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		
	D 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		

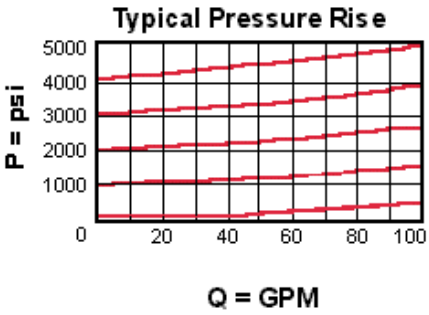
TECHNICAL FEATURES

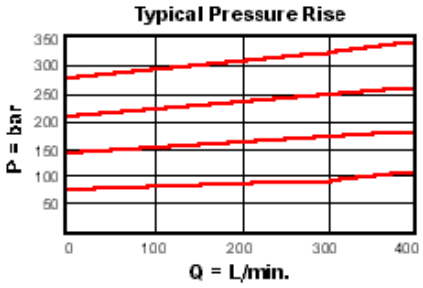
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



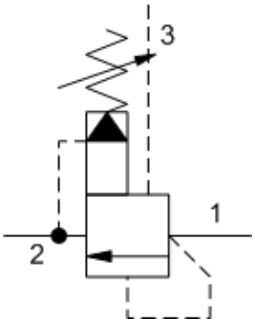


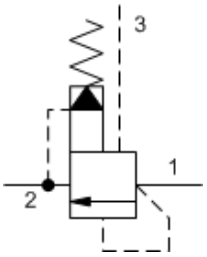


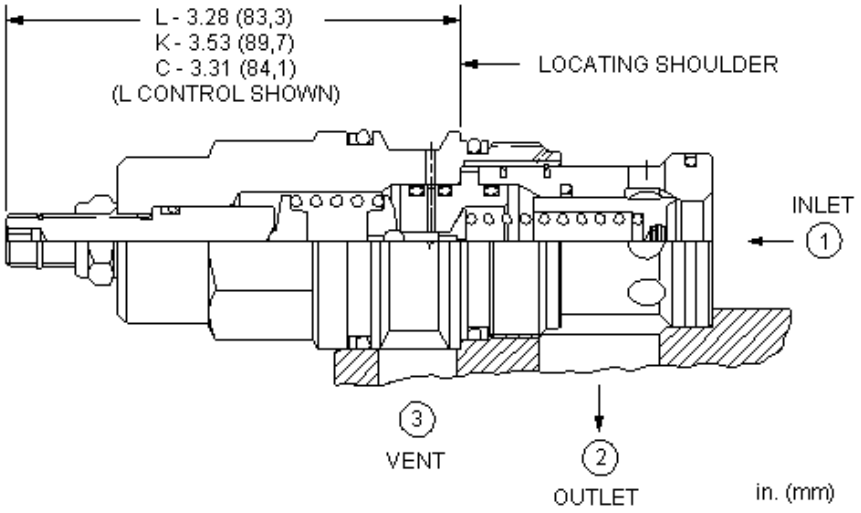


Ventable, pilot-operated, balanced poppet relief valve
SERIES 3 / CAPACITY: 200 L/min. / CAVITY: T-17A

sunhydraulics.com/model/RVGS







Ventable, pilot-operated, balanced-poppet relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	200 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990217007
Seal kit - Cartridge	Polyurethane: 990217002
Seal kit - Cartridge	Viton: 990217006
Model Weight	0.63 kg.

CONFIGURATION OPTIONS

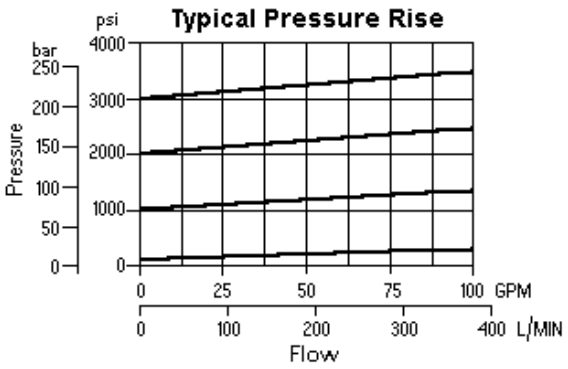
Model Code Example: RVGSLAN

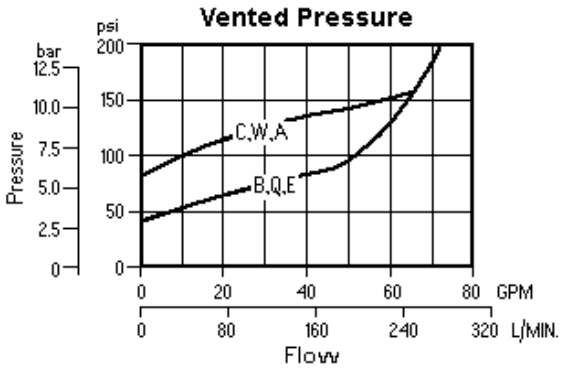
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
	N 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting		
	Q 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting		
	W 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting		

TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Suitable for use in load holding applications, providing that any valving on the vent port (port 3) is zero leak.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

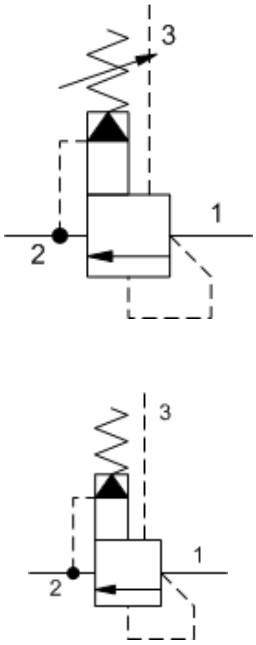
PERFORMANCE CURVES

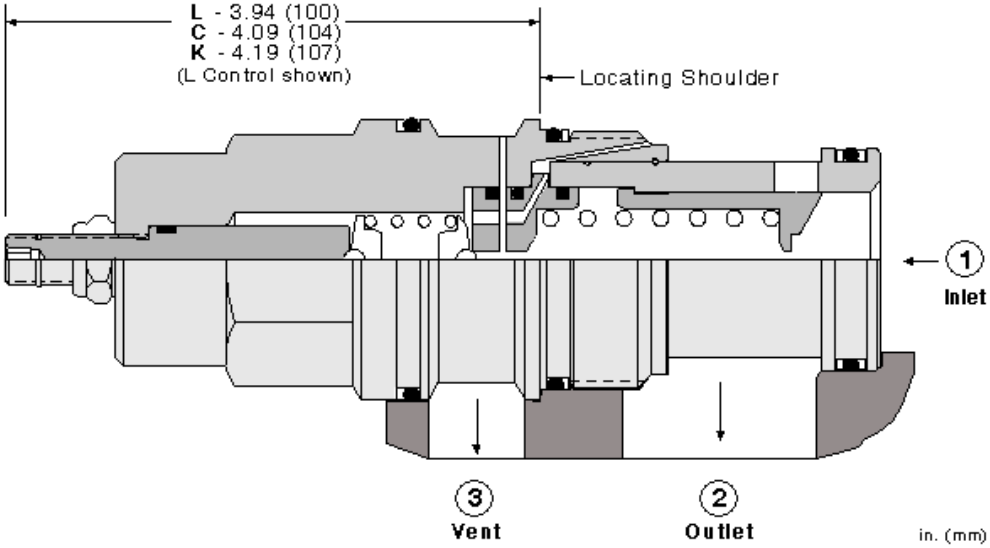




Ventable, pilot-operated, balanced piston relief valve
SERIES 4 / CAPACITY: 480 L/min. / CAVITY: T-19A

sunhydraulics.com/model/RVIA





Ventable, pilot-operated, balanced piston relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	480 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	EPDM: 990019014
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006
Model Weight	1.43 kg.

CONFIGURATION OPTIONS

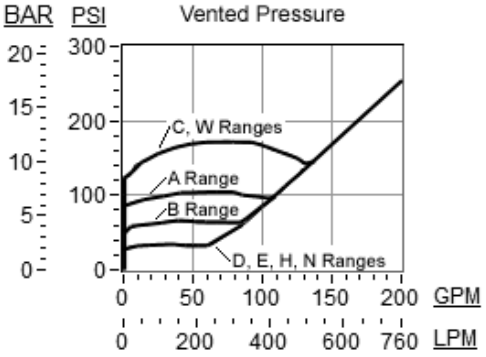
Model Code Example: RVIALAN

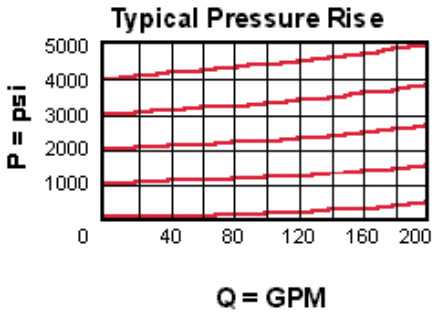
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
	C 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		
	D 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	N 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting		

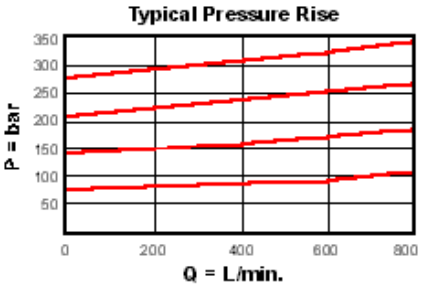
TECHNICAL FEATURES

- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Relief valve setting must always be higher than pilot valve setting.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES

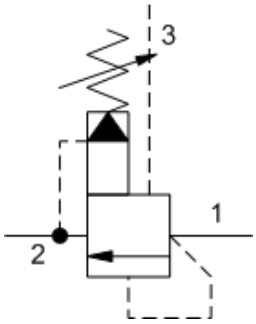


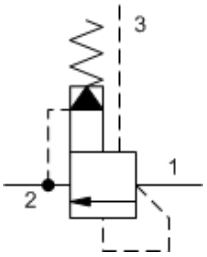


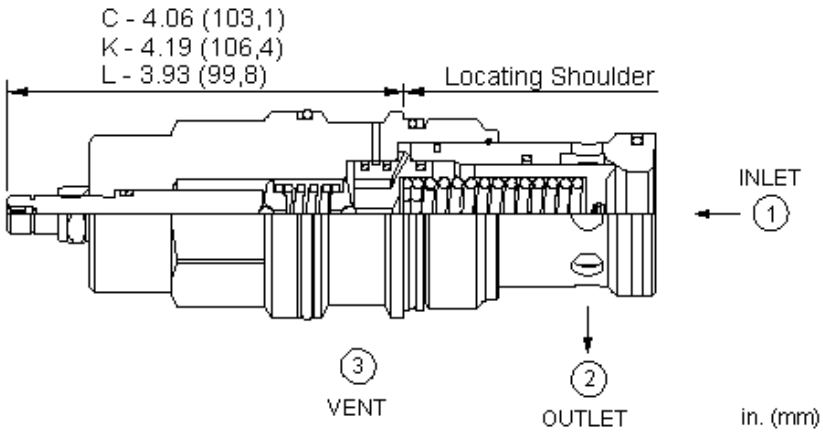


Ventable, pilot-operated, balanced poppet relief valve
SERIES 4 / CAPACITY: 480 L/min. / CAVITY: T-19A

sunhydraulics.com/model/RVIS







Ventable, pilot-operated, balanced-poppet relief cartridges are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	480 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Maximum Valve Leakage at Reseat	0,7 cc/min.
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990219007
Seal kit - Cartridge	Viton: 990219006
Model Weight	1.43 kg.

CONFIGURATION OPTIONS

Model Code Example: RVISLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **N** 60 - 800 psi (4 - 55 bar), 400 psi (28 bar) Standard Setting
- **Q** 60 - 400 psi (4 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

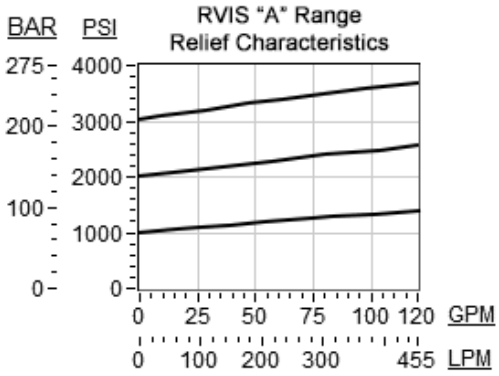
MATERIAL/COATING

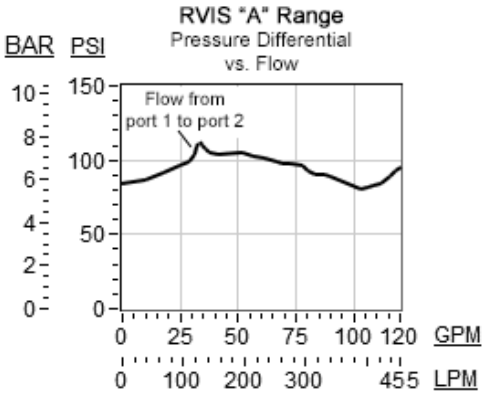
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Suitable for use in load holding applications, providing that any valving on the vent port (port 3) is zero leak.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

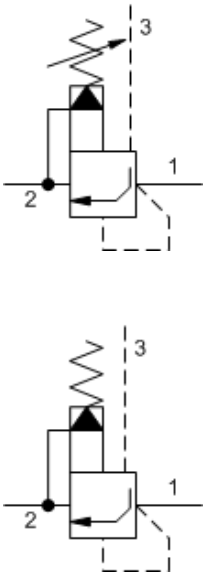
PERFORMANCE CURVES

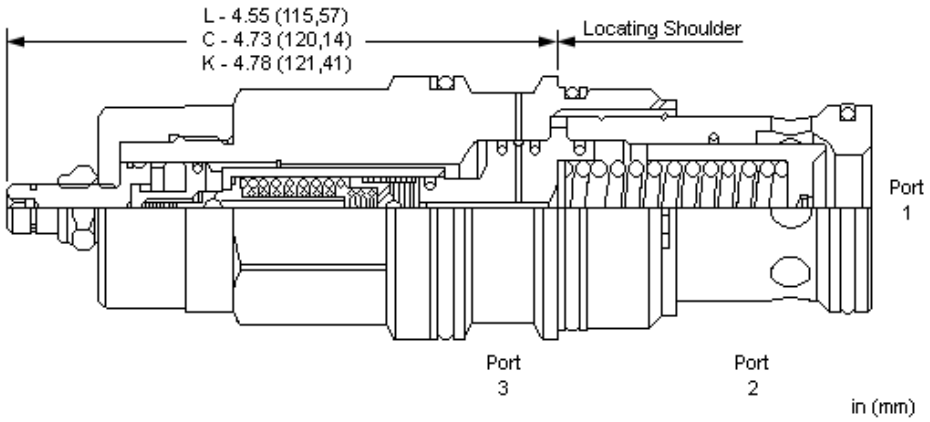




Anti-Shock, ventable, pilot-operated, balanced poppet relief valve
SERIES 4 / CAPACITY: 480 L/min. / CAVITY: T-19A

sunhydraulics.com/model/RVIT





Ventable, pilot-operated, anti shock relief cartridges limit maximum system pressure and also limit the rate of pressure rise. The valve opens and then ramps closed at a constant speed, independent of settings and flows. These 3 port valves include a vent port (port 3) that connects between the main piston and the pilot stage to provide for remote control by other pilot or 2-way valves. The adjust screw determines the maximum (relief) setting and the minimum (threshold) setting.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-19A
Series	4
Capacity	480 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Pressure Ramp Up Time	400 - 850 ms
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990219007
Seal kit - Cartridge	Viton: 990219006
Model Weight	1.60 kg.

CONFIGURATION OPTIONS

Model Code Example: RVITLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 500 - 3000 psi (35 - 210 bar), 1000 psi (70 bar) Standard Setting
- **C** 1000 - 6000 psi (70 - 420 bar), 1000 psi (70 bar) Standard Setting
- **W** 1000 - 4500 psi (70 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

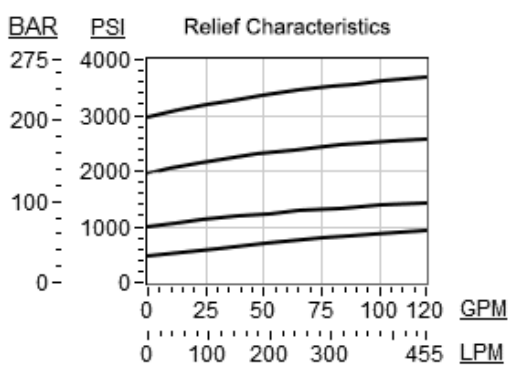
MATERIAL/COATING

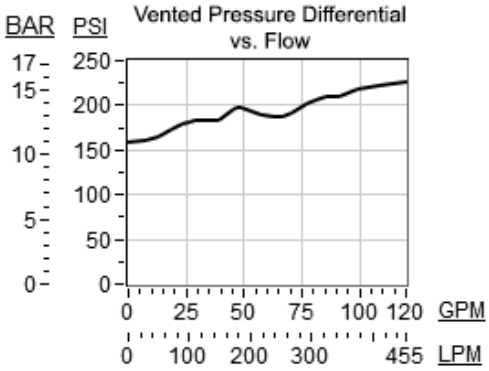
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated

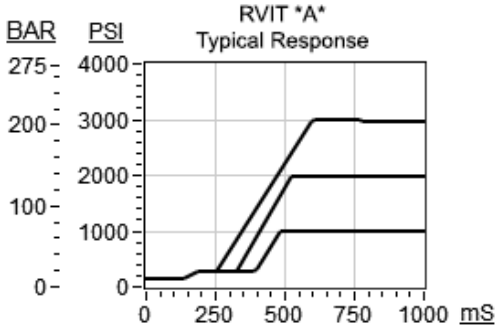
TECHNICAL FEATURES

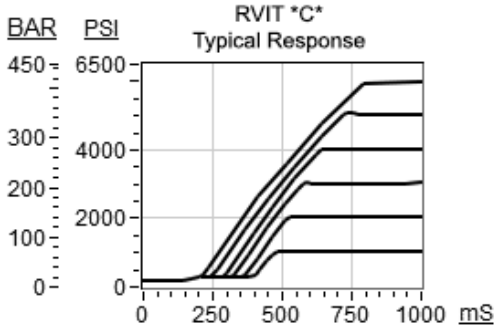
- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Not suitable for use in load holding applications.
- When pressure at the inlet (port 1) exceeds the threshold setting, the valve opens to tank (port 2). The pilot section moves forward at a steady rate, increasing the setting by compressing the pilot spring. Maximum setting is achieved when the pilot section reaches a mechanical stop.
- Valve provides protection for hydrostatic drives by reducing the jerk caused by sudden reversals. The valve is suitable for cross-port applications.
- When used with a switching device, the valve can provide the ramp characteristic typically provided by proportional valves.
- Small power units can be started against an anti shock relief to provide longer pump life.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- The main stage orifice is protected against contamination.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES







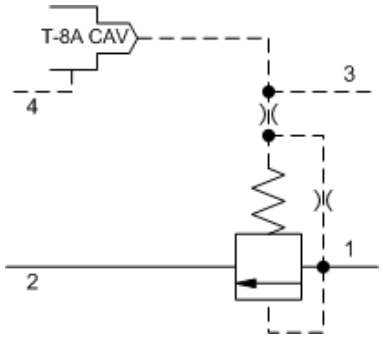


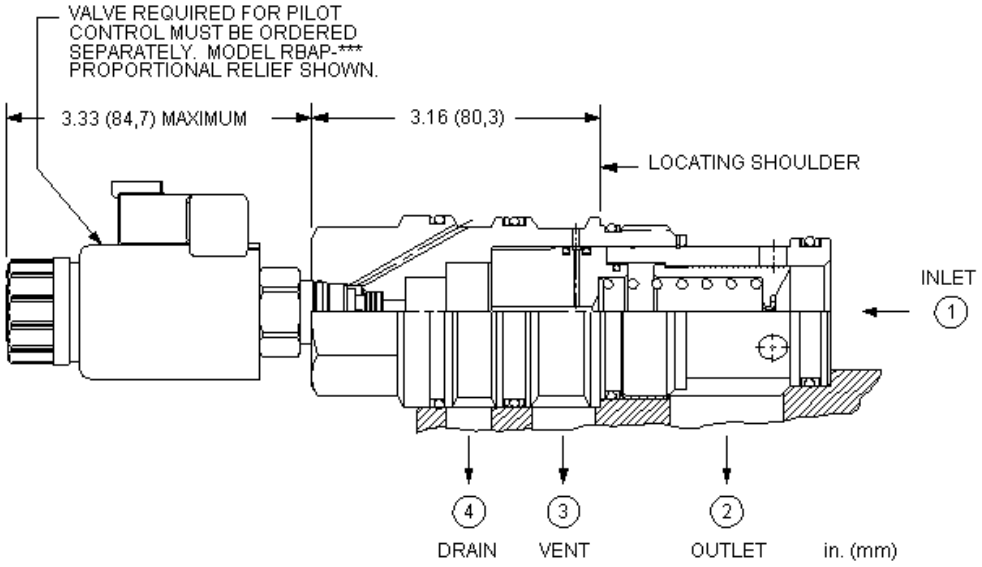
MODEL
RVID8

Ventable, pilot-operated, balanced piston relief main stage with integral T-8A control cavity and drain to port 4

SERIES 4 / CAPACITY: 480 L/min. / CAVITY: T-24A

sunhydraulics.com/model/RVID8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is ventable, externally drained, and is a balanced piston design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge setting, the modulating element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between the inlet (port 1) and the drain (port 4). The vent port (port 3) that tees in between the main piston and pilot control cartridge, allows the modulating element to also be controlled by remote pilot or 2-way valves.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-24A
Series	4
Capacity	480 L/min.
Maximum Operating Pressure	350 bar
Pilot Control Cavity	T-8A
Pilot Control Valve Installation Torque	27 - 33 Nm
Pilot Control Valve Hex Size	22,2 mm
Main stage leakage at 110 SUS (24 cSt)	80 cc/min.@70 bar
Response Time - Typical	10 ms
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006
Model Weight	1.48 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RVID8WN

MINIMUM CONTROL PRESSURE (W)

- **W** 100 psi (7 bar)
- **D** 25 psi (1,7 bar)

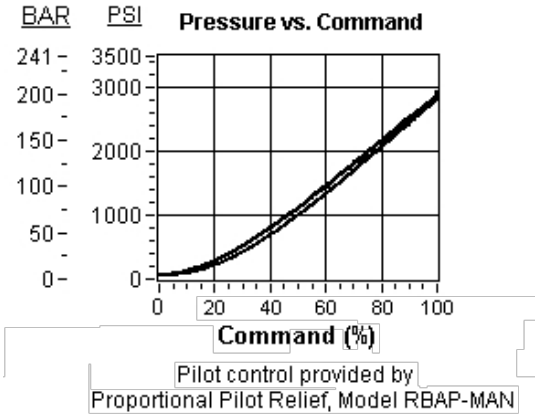
SEAL MATERIAL (N)

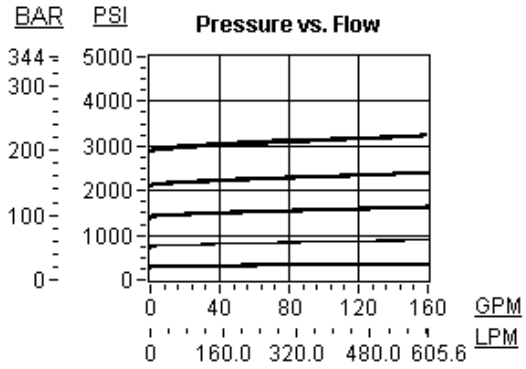
- **N** Buna-N
- **V** Viton

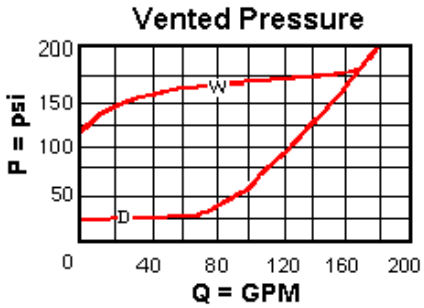
TECHNICAL FEATURES

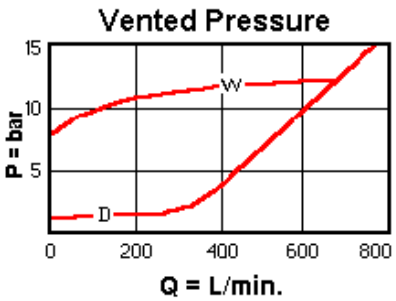
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Pressure at port 4 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar).
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

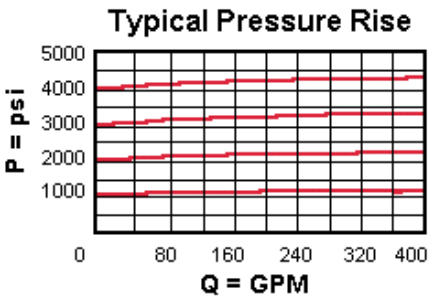
PERFORMANCE CURVES

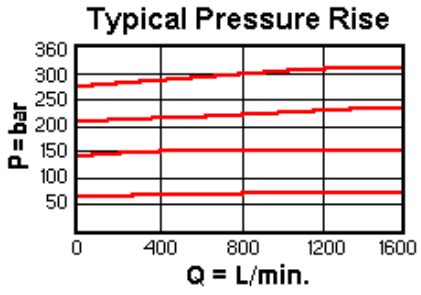












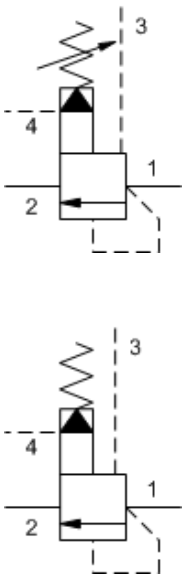
RELATED MODELS

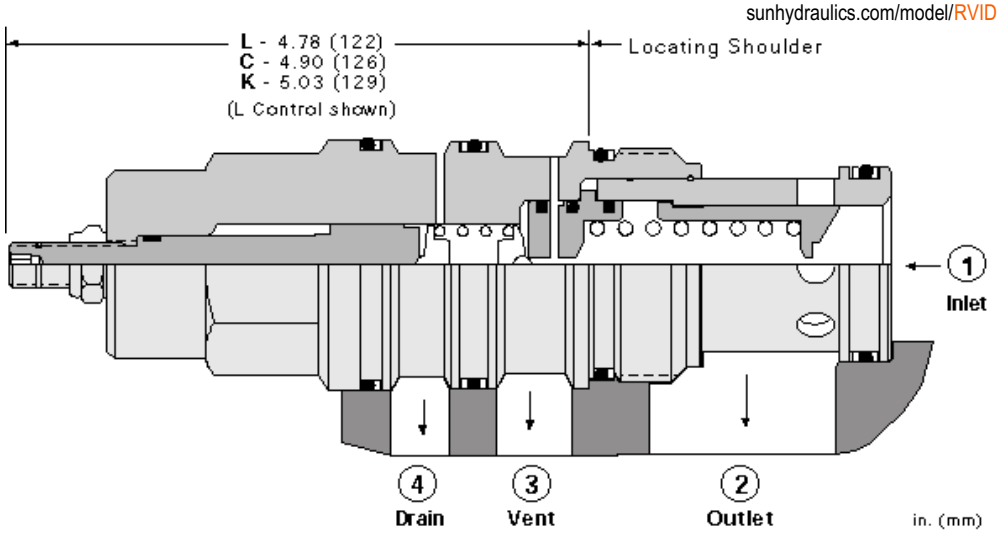
- RVID Ventable, pilot-operated, balanced piston relief valve with drain to port 4

MODEL
RVID

Ventable, pilot-operated, balanced piston relief valve with drain to port 4
SERIES 4 / CAPACITY: 480 L/min. / CAVITY: T-24A

sunhydraulics.com/model/RVID





Ventable, pilot-operated, balanced piston relief cartridges with external drain are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves and a drain (port 4) that makes them insensitive to back pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-24A
Series	4
Capacity	480 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Maximum Valve Leakage at 110 SUS (24 cSt)	80 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	EPDM: 990024014
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006
Model Weight	1.75 kg.

CONFIGURATION OPTIONS

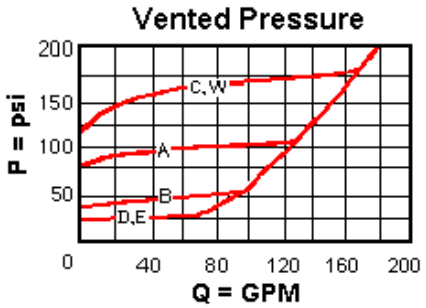
Model Code Example: RVIDLAN

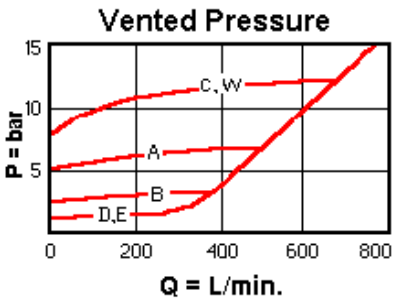
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**E** EPDM	**/AP** Stainless Steel, Passivated
K Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/LH** Mild Steel, Zinc-Nickel
	D 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	W 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting		

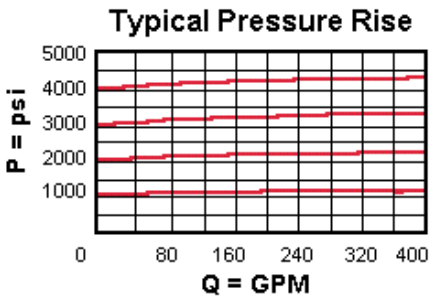
TECHNICAL FEATURES

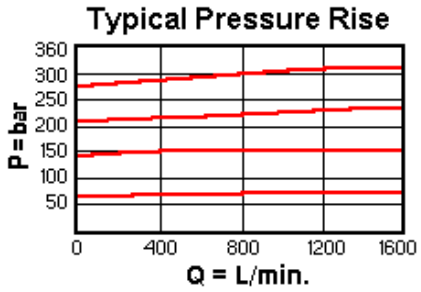
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Pressure at port 4 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES









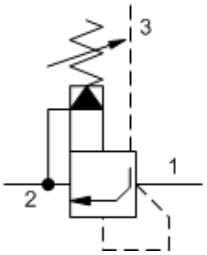
RELATED MODELS

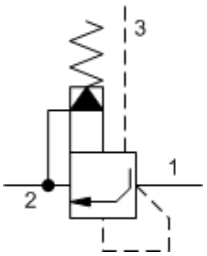
- RVID8 Ventable, pilot-operated, balanced piston relief main stage with integral T-8A control cavity and drain to port 4

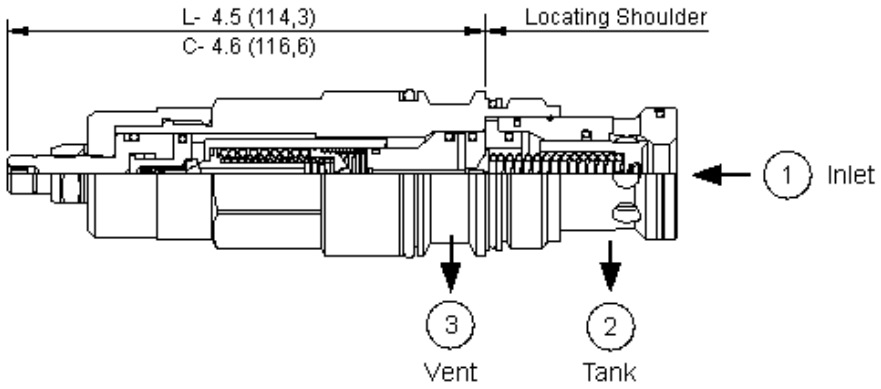
MODEL
RVGT

Anti-Shock, ventable, pilot-operated, balanced poppet relief valve
SERIES 3 / CAPACITY: 240 L/min. / CAVITY: T-17A

sunhydraulics.com/model/RVGT







Ventable, pilot-operated, anti shock relief cartridges limit maximum system pressure and also limit the rate of pressure rise. The valve opens and then ramps closed at a constant speed, independent of settings and flows. These 3 port valves include a vent port (port 3) that connects between the main piston and the pilot stage to provide for remote control by other pilot or 2-way valves. The adjust screw determines the maximum (relief) setting and the minimum (threshold) setting.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-17A
Series	3
Capacity	240 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Pressure Ramp Up Time	300 - 500 ms
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	4.5
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
U.S. Patent #	6,039,070
Seal kit - Cartridge	Buna: 990217007
Seal kit - Cartridge	Polyurethane: 990217002
Seal kit - Cartridge	Viton: 990217006
Model Weight	0.85 kg.

NOTES

Patents are pending for this product.

CONFIGURATION OPTIONS

Model Code Example: RVGTLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set

ADJUSTMENT RANGE (A)

- **A** 500 - 3000 psi (35 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 500 - 1500 psi (35 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 1000 - 6000 psi (70 - 420 bar), 1000 psi (70 bar) Standard Setting
- **W** 1000 - 4500 psi (70 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

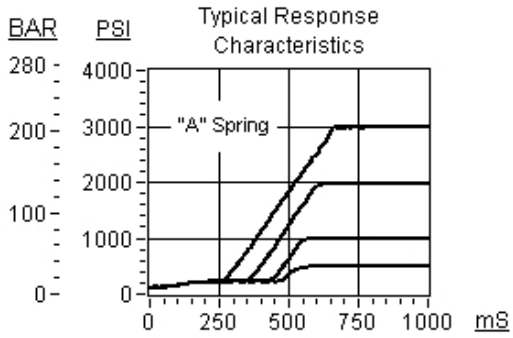
MATERIAL/COATING

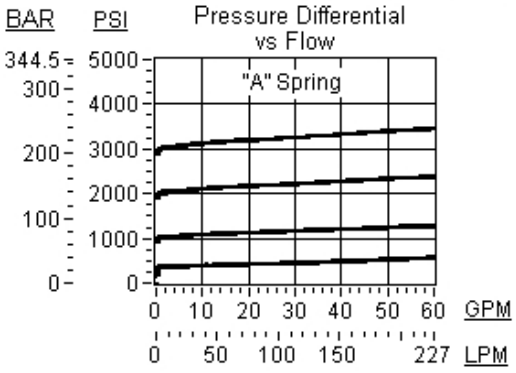
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated

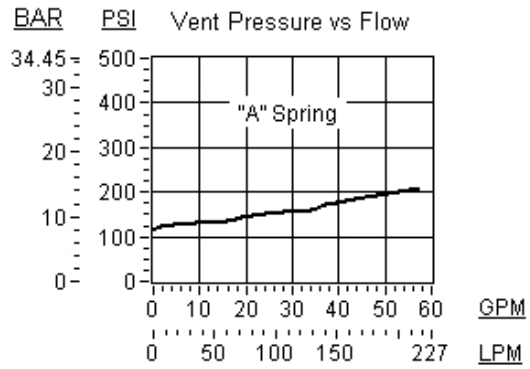
TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Not suitable for use in load holding applications.
- When pressure at the inlet (port 1) exceeds the threshold setting, the valve opens to tank (port 2). The pilot section moves forward at a steady rate, increasing the setting by compressing the pilot spring. Maximum setting is achieved when the pilot section reaches a mechanical stop.
- Valve provides protection for hydrostatic drives by reducing the jerk caused by sudden reversals. The valve is suitable for cross-port applications.
- When used with a switching device, the valve can provide the ramp characteristic typically provided by proportional valves.
- Small power units can be started against an anti shock relief to provide longer pump life.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- The main stage orifice is protected against contamination.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





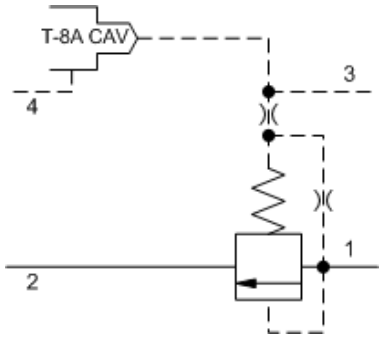


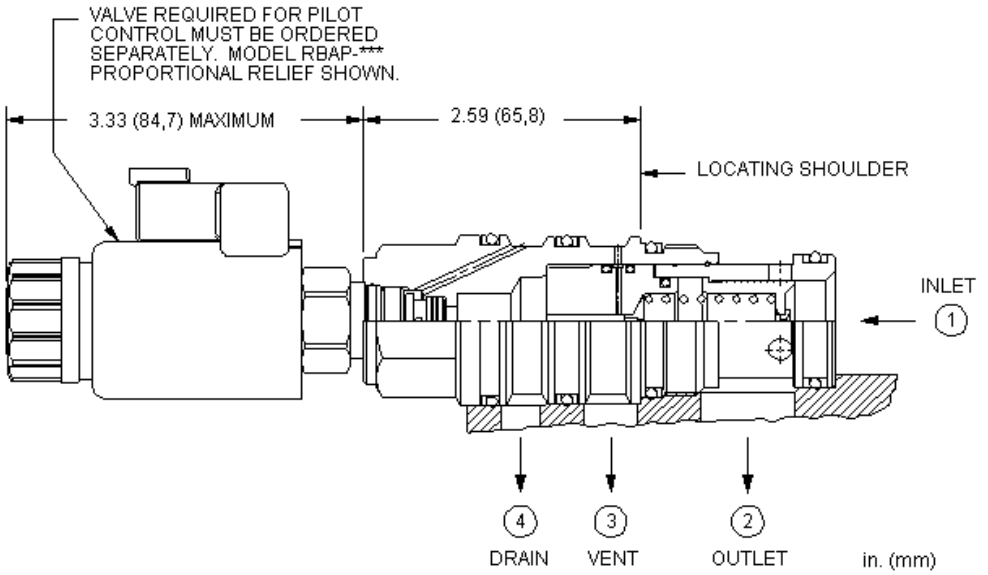
MODEL
RVGD8

Ventable, pilot-operated, balanced piston relief main stage with integral T-8A control cavity and drain to port 4

SERIES 3 / CAPACITY: 240 L/min. / CAVITY: T-23A

sunhydraulics.com/model/RVGD8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is ventable, externally drained, and is a balanced piston design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge setting, the modulating element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between the inlet (port 1) and the drain (port 4). The vent port (port 3) that tees in between the main piston and pilot control cartridge, allows the modulating element to also be controlled by remote pilot or 2-way valves.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-23A
Series	3
Capacity	240 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Pilot Control Cavity	T-8A
Main stage leakage at 110 SUS (24 cSt)	65 cc/min.@70 bar
Response Time - Typical	10 ms
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	EPDM: 990023014
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006
Model Weight	0.64 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RVGD8WN

MINIMUM CONTROL PRESSURE (W)

- **W** 100 psi (7 bar)
- **D** 25 psi (1,7 bar)

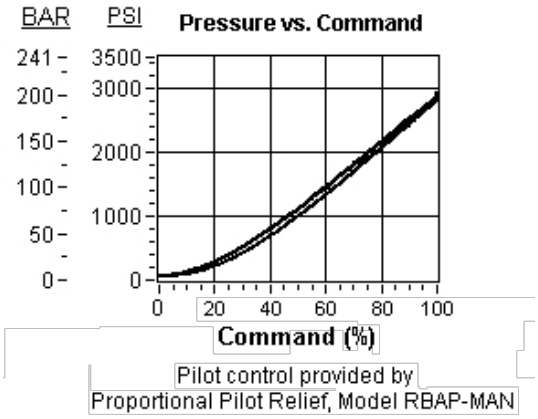
SEAL MATERIAL (N)

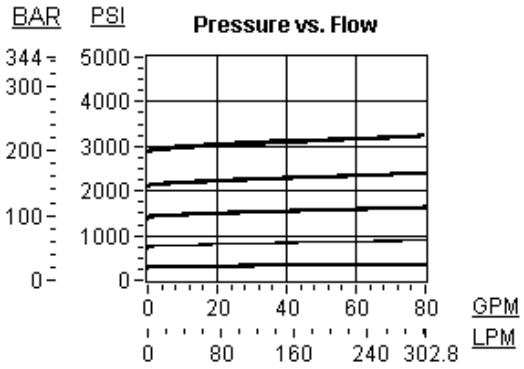
- **N** Buna-N
- **E** EPDM
- **V** Viton

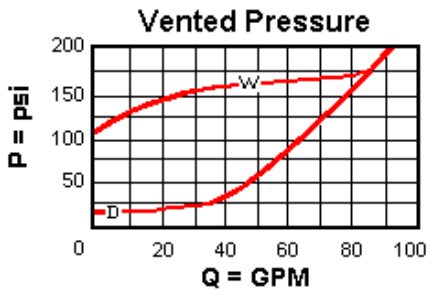
TECHNICAL FEATURES

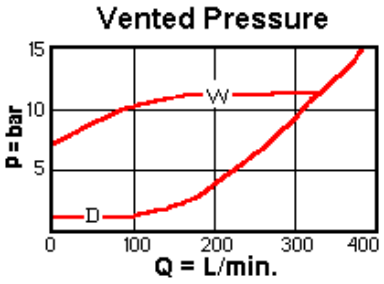
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Pressure at port 4 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar).
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

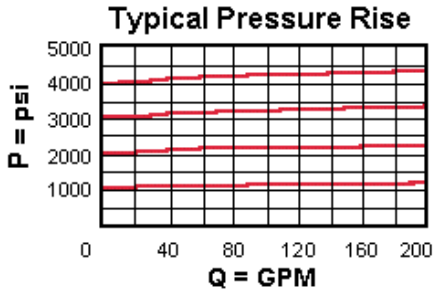
PERFORMANCE CURVES

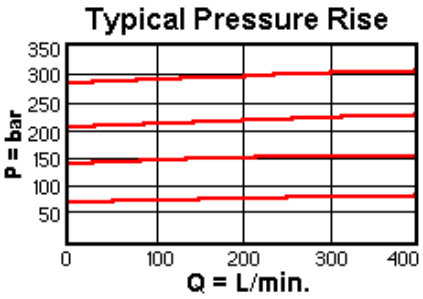












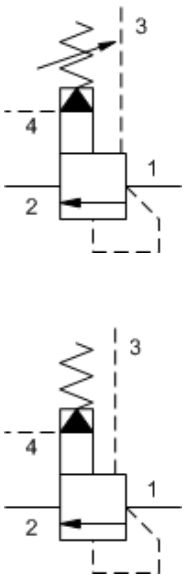
RELATED MODELS

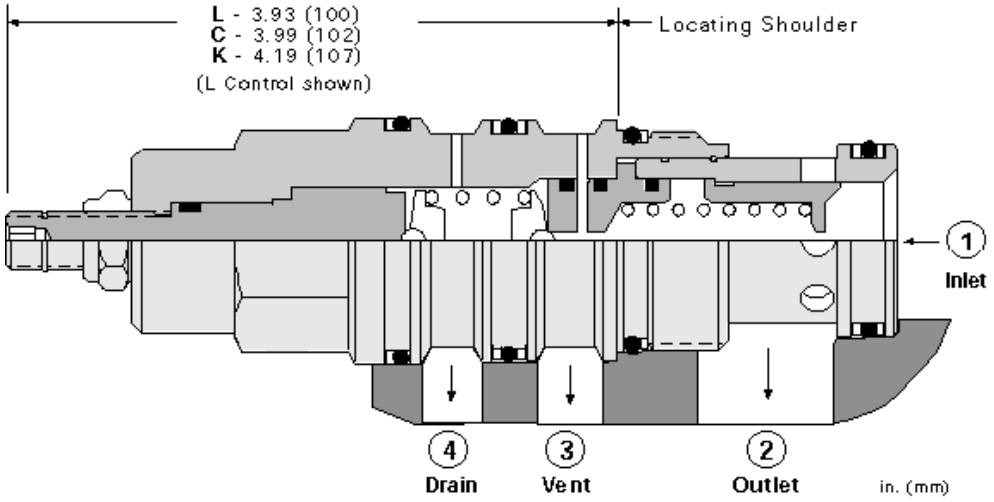
- RVGD Ventable, pilot-operated, balanced piston relief valve with drain to port 4

MODEL
RVGD

Ventable, pilot-operated, balanced piston relief valve with drain to port 4
SERIES 3 / CAPACITY: 240 L/min. / CAVITY: T-23A

sunhydraulics.com/model/RVGD





Ventable, pilot-operated, balanced piston relief cartridges with external drain are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves and a drain (port 4) that makes them insensitive to back pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-23A
Series	3
Capacity	240 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Maximum Valve Leakage at 110 SUS (24 cSt)	65 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006
Model Weight	0.75 kg.

CONFIGURATION OPTIONS

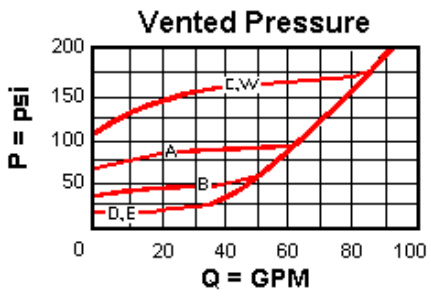
Model Code Example: RVGDLAN

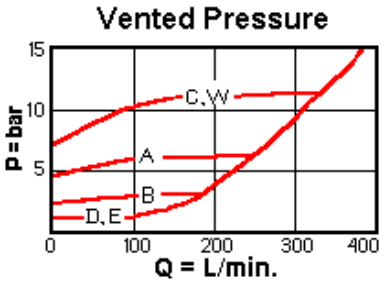
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/AP** Stainless Steel, Passivated
K Handknob	**C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		
	D 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting		
	E 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting		
	W 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting		

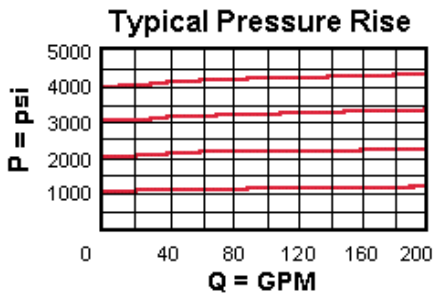
TECHNICAL FEATURES

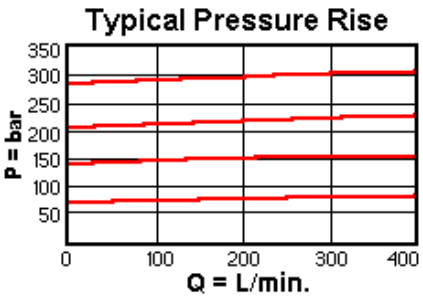
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Pressure at port 4 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar).
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES









RELATED MODELS

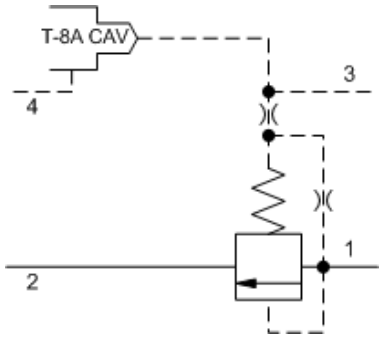
- RVGD8 Ventable, pilot-operated, balanced piston relief main stage with integral T-8A control cavity and drain to port 4

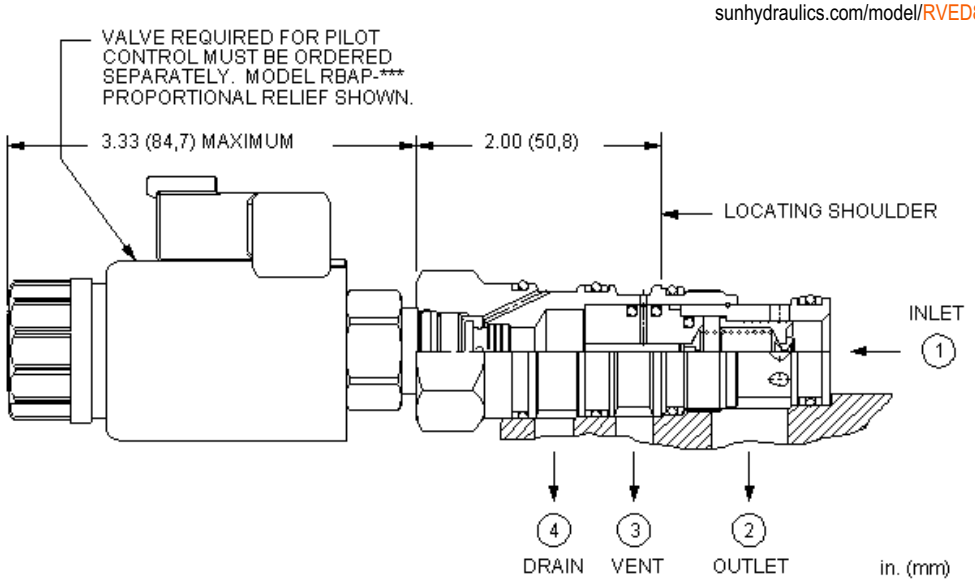
MODEL
RVED8

Ventable, pilot-operated, balanced piston relief main stage with integral T-8A control cavity and drain to port 4

SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-22A

sunhydraulics.com/model/RVED8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is ventable, externally drained, and is a balanced piston design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge setting, the modulating element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between the inlet (port 1) and the drain (port 4). The vent port (port 3) that tees in between the main piston and pilot control cartridge, allows the modulating element to also be controlled by remote pilot or 2-way valves.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-22A
Series	2
Capacity	120 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,16 - 0,25 L/min.
Pilot Control Cavity	T-8A
Pilot Control Valve Installation Torque	27 - 33 Nm
Pilot Control Valve Hex Size	22,2 mm
Main stage leakage at 110 SUS (24 cSt)	50 cc/min.@70 bar
Response Time - Typical	10 ms
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990022007
Seal kit - Cartridge	EPDM: 990022014
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006
Model Weight	0.26 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RVED8WN

MINIMUM CONTROL PRESSURE (W)

- **W** 100 psi (7 bar)
- **D** 25 psi (1,7 bar)

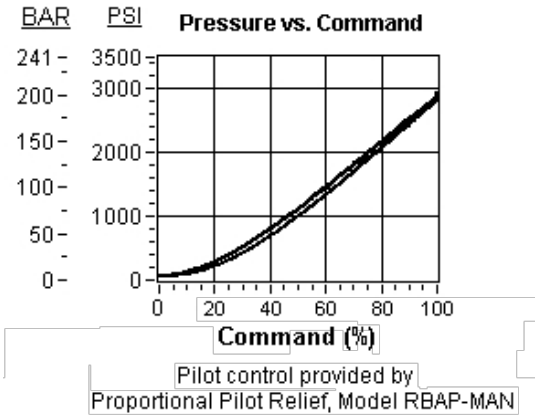
SEAL MATERIAL (N)

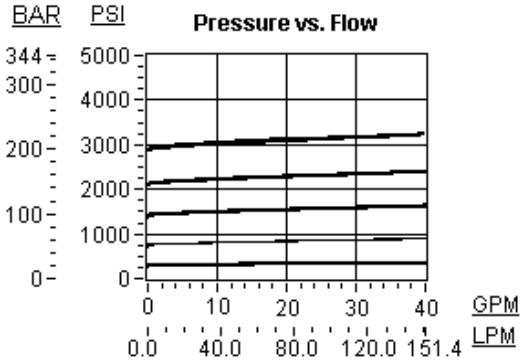
- **N** Buna-N
- **E** EPDM
- **V** Viton

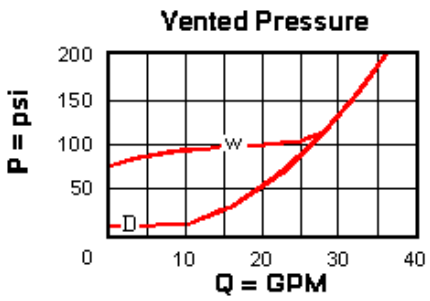
TECHNICAL FEATURES

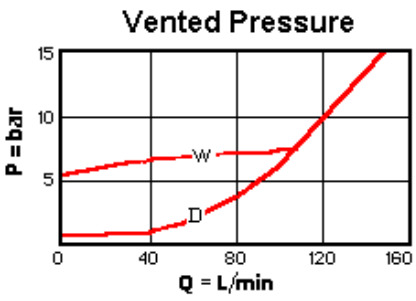
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Pressure at port 4 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar).
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

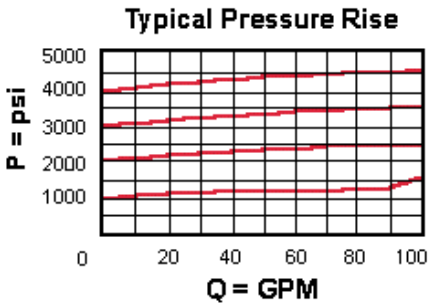
PERFORMANCE CURVES

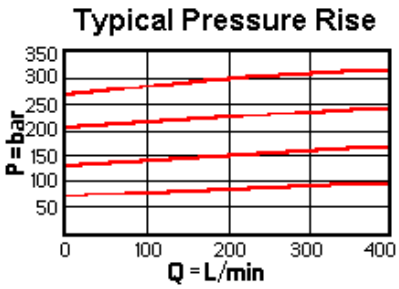












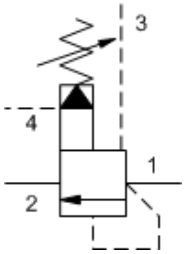
RELATED MODELS

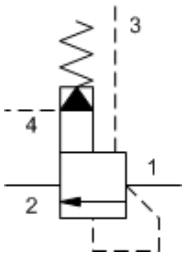
- RVED Ventable, pilot-operated, balanced piston relief valve with drain to port 4

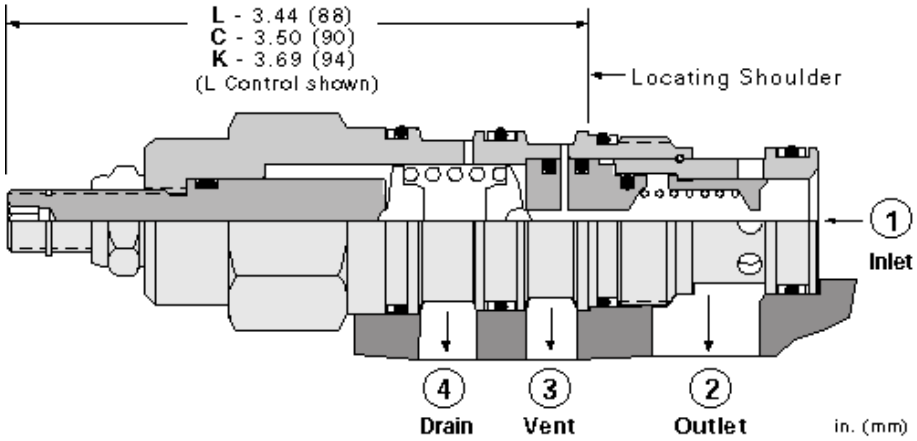
MODEL
RVED

Ventable, pilot-operated, balanced piston relief valve with drain to port 4
SERIES 2 / CAPACITY: 120 L/min. / CAVITY: T-22A

sunhydraulics.com/model/RVED







Ventable, pilot-operated, balanced piston relief cartridges with external drain are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves and a drain (port 4) that makes them insensitive to back pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-22A
Series	2
Capacity	120 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,16 - 0,25 L/min.
Maximum Valve Leakage at 110 SUS (24 cSt)	50 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990022007
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006
Model Weight	0.35 kg.

CONFIGURATION OPTIONS

Model Code Example: RVEDLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob
- **W** Hex Wrench Adjustment
- **Y** Tri-Grip Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting
- **E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting

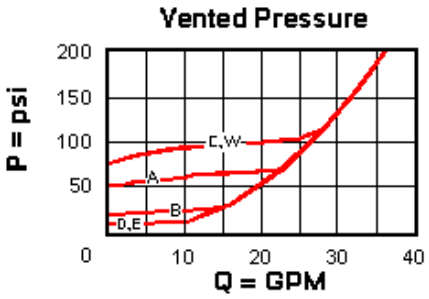
SEAL MATERIAL (N)

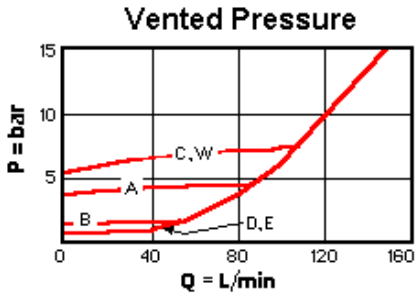
- **N** Buna-N
- **E** EPDM
- **V** Viton

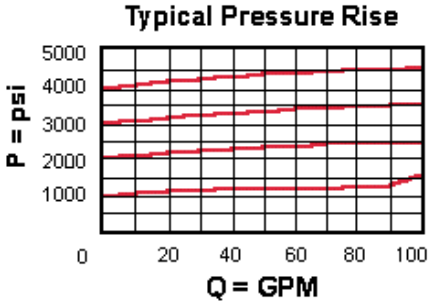
TECHNICAL FEATURES

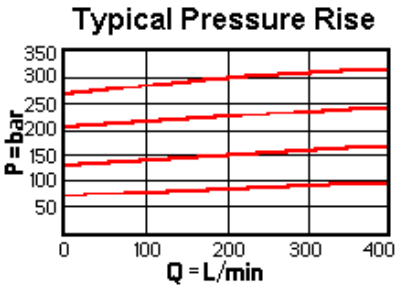
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Pressure at port 4 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES









RELATED MODELS

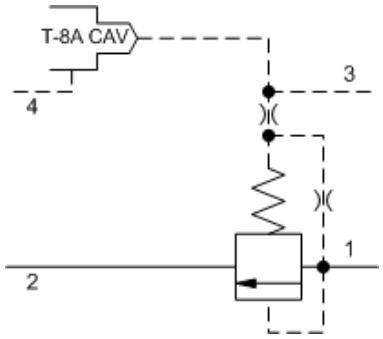
- RVED8 Ventable, pilot-operated, balanced piston relief main stage with integral T-8A control cavity and drain to port 4

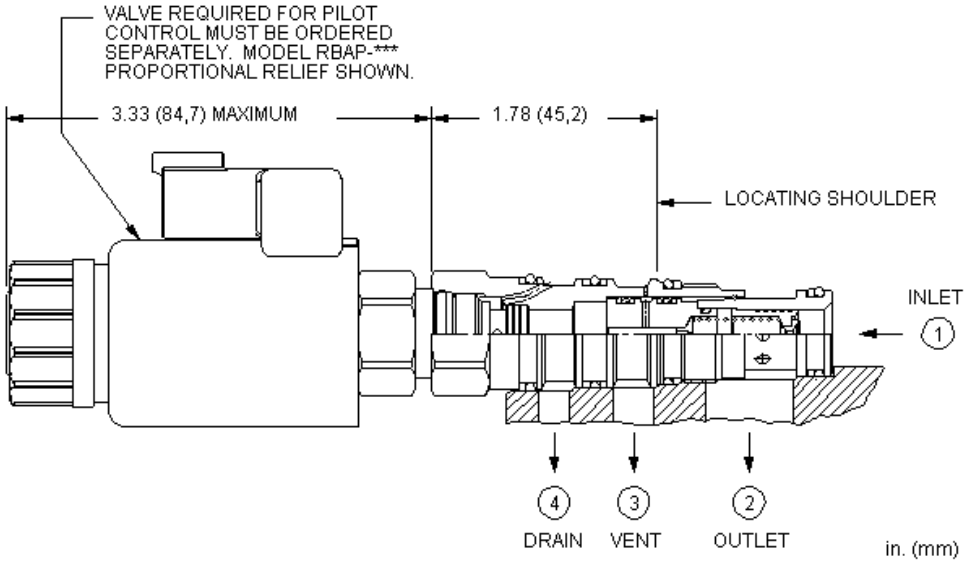
MODEL
RVCD8

Ventable, pilot-operated, balanced piston relief main stage with integral T-8A control cavity and drain to port 4

SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-21A

snhy.com/RVCD8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is ventable, externally drained, and is a balanced piston design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge setting, the modulating element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between the inlet (port 1) and the drain (port 4). The vent port (port 3) that tees in between the main piston and pilot control cartridge, allows the modulating element to also be controlled by remote pilot or 2-way valves.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-21A
Series	1
Capacity	60 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,11 - 0,16 L/min.
Pilot Control Cavity	T-8A
Main stage leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	10 ms
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	EPDM: 990021014
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Model Weight	0.13 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RVCD8WN

MINIMUM CONTROL PRESSURE (W)

- **W** 100 psi (7 bar)
- **D** 25 psi (1,7 bar)

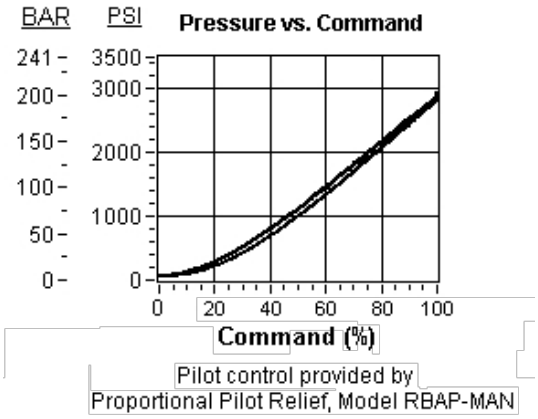
SEAL MATERIAL (N)

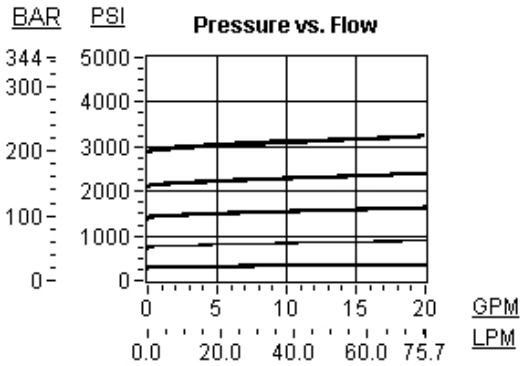
- **N** Buna-N
- **E** EPDM
- **V** Viton

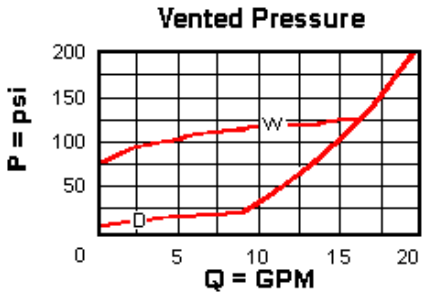
TECHNICAL FEATURES

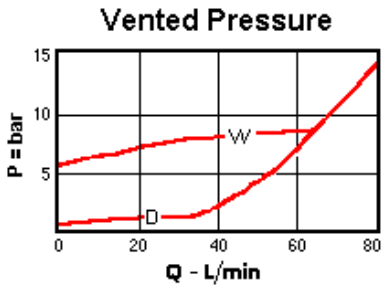
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Pressure at port 4 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar).
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

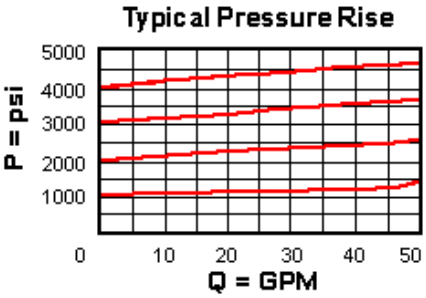
PERFORMANCE CURVES

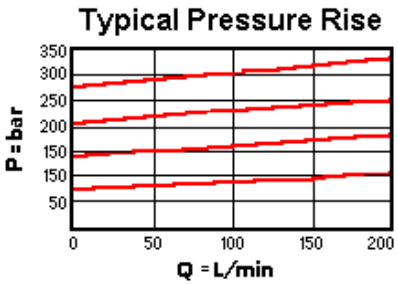












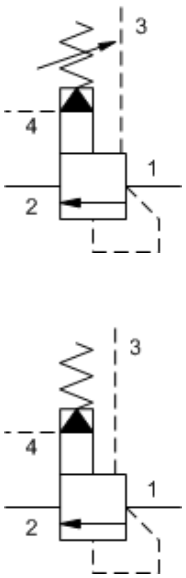
RELATED MODELS

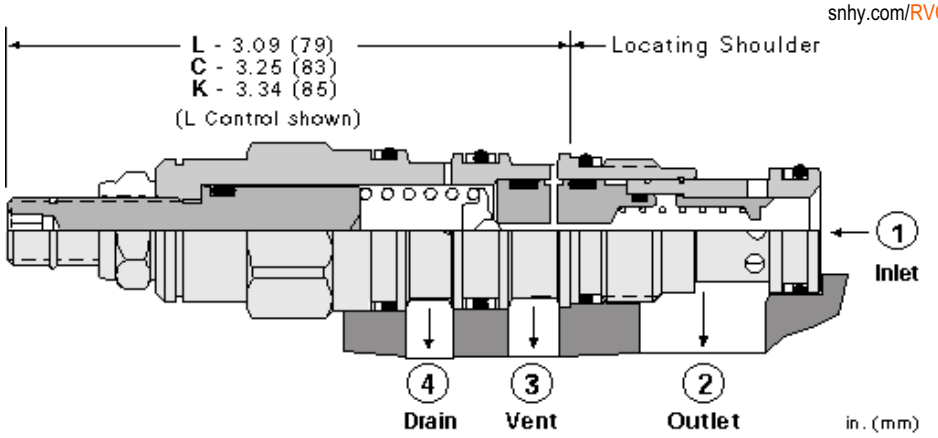
- RVCD Ventable, pilot-operated, balanced piston relief valve with drain to port 4

MODEL
RVCD

Ventable, pilot-operated, balanced piston relief valve with drain to port 4
SERIES 1 / CAPACITY: 60 L/min. / CAVITY: T-21A

snhy.com/RVCD





Ventable, pilot-operated, balanced piston relief cartridges with external drain are normally closed pressure regulating valves. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. They provide a vent port (port 3) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves and a drain (port 4) that makes them insensitive to back pressure. These valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-21A
Series	1
Capacity	60 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,11 - 0,16 L/min.
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	EPDM: 990021014
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Model Weight	0.20 kg.

CONFIGURATION OPTIONS

Model Code Example: RVCDLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob
- **Y** Tri-Grip Handknob

ADJUSTMENT RANGE (A)

- **A** 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting
- **D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting
- **E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 150 - 4500 psi (10,5 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

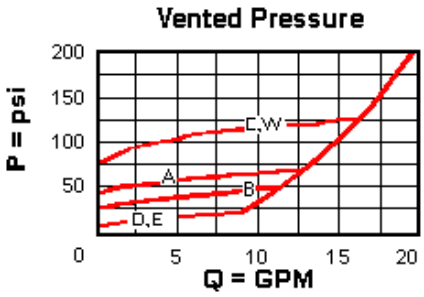
MATERIAL/COATING

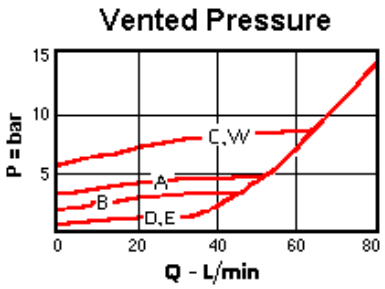
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

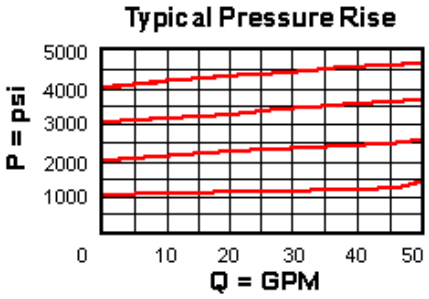
TECHNICAL FEATURES

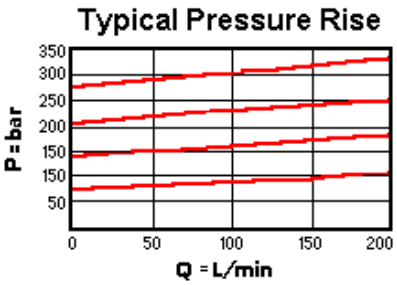
- A remote pilot relief on port 3 (vent) will control the valve below its own setting.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Pressure at port 4 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- W and Y controls (where applicable) can be specified with or without a special setting. When no special setting is specified, the valve is adjustable throughout its full range using the W or Y control. When a special setting is specified, this setting represents the maximum setting of the valve.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES









RELATED MODELS

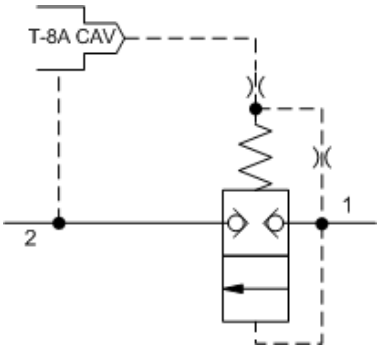
- RVCD8 Ventable, pilot-operated, balanced piston relief main stage with integral T-8A control cavity and drain to port 4

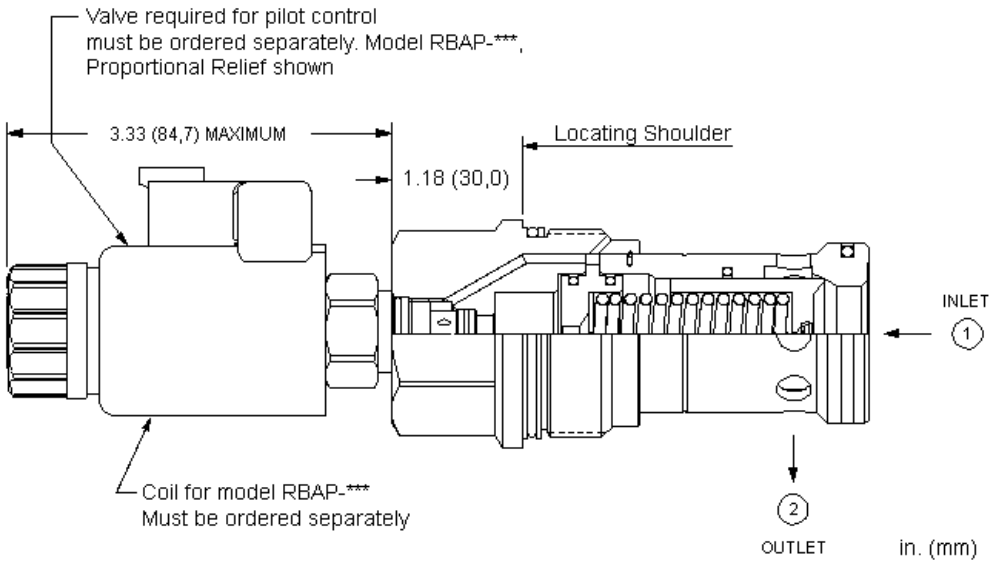
MODEL
RPKS8

Pilot-operated, balanced poppet relief main stage with integral T-8A control cavity

SERIES 4 / CAPACITY: 760 L/min. / CAVITY: T-18A

sunhydraulics.com/model/RPKS8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is a balanced poppet design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge's setting, the poppet element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between port 1 and port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-18A
Series	4
Capacity	760 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Pilot Control Cavity	T-8A
Pilot Control Valve Installation Torque	27 - 33 Nm
Pilot Control Valve Hex Size	22,2 mm
Main stage leakage at reseat	0,7 cc/min.
Response Time - Typical	2 ms
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Seal kit - Cartridge	Buna: 990318007
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990318006
Model Weight	0.90 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RPKS8BN

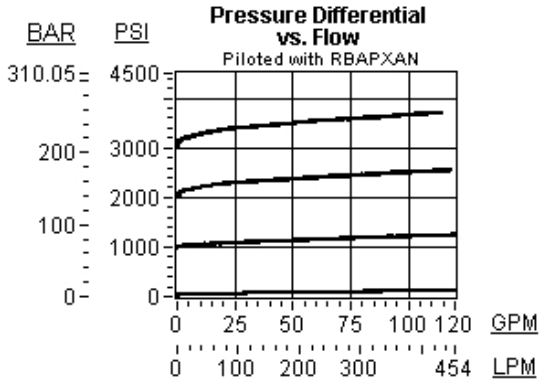
ADJUSTMENT RANGE	(B)
B 50 - 1500 psi (3,5 - 105 bar)	
W 100 - 5000 psi (7 - 350 bar)	

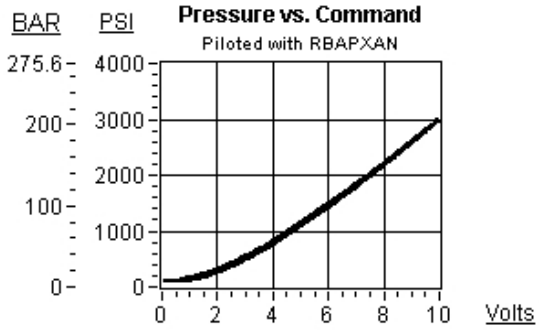
SEAL MATERIAL	(N)
N Buna-N	
V Viton	

TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





RELATED MODELS

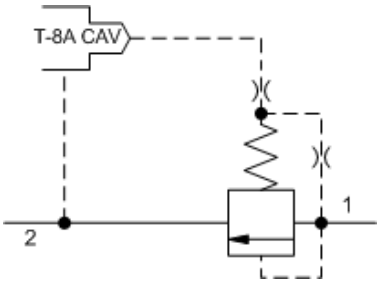
- RPKS Pilot-operated, balanced poppet relief valve

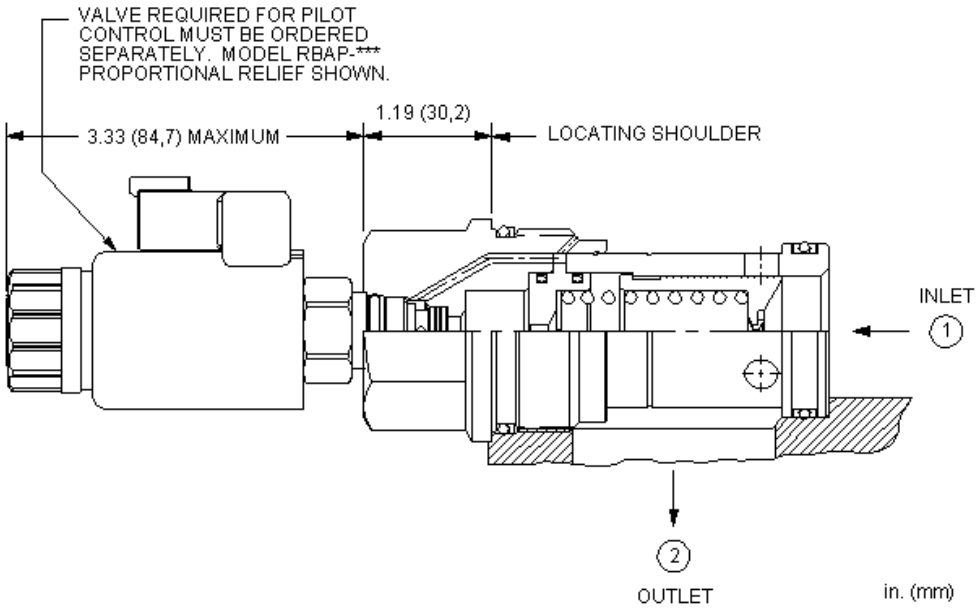
MODEL
RPKC8

Pilot-operated, balanced piston relief main stage with integral T-8A control cavity

SERIES 4 / CAPACITY: 760 L/min. / CAVITY: T-18A

sunhydraulics.com/model/RPKC8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is a balanced piston design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge's setting, the modulating element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between port 1 and port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-18A
Series	4
Capacity	760 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Pilot Control Cavity	T-8A
Main stage leakage at 110 SUS (24 cSt)	80 cc/min.@70 bar
Valve Hex Size	41,3 mm
Valve Installation Torque	474 - 508 Nm
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	EPDM: 990018014
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006
Model Weight	0.59 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RPKC8WN

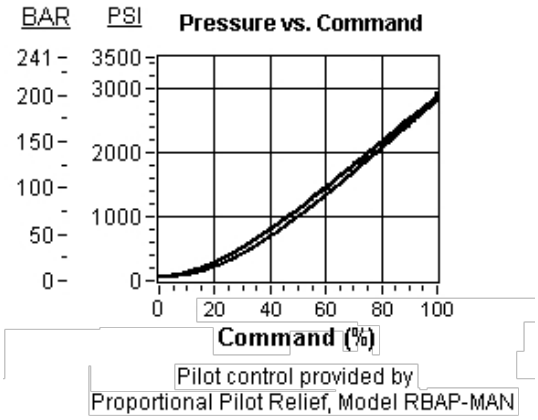
ADJUSTMENT RANGE	(W)
W 100 - 5000 psi (7 - 350 bar)	
D 25 - 3000 psi (1,7 - 210 bar)	

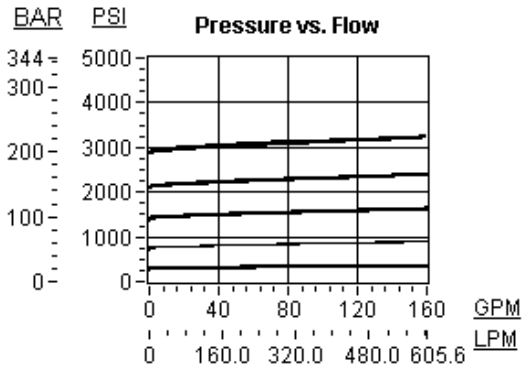
SEAL MATERIAL	(N)
N Buna-N	
E EPDM	
V Viton	

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





RELATED MODELS

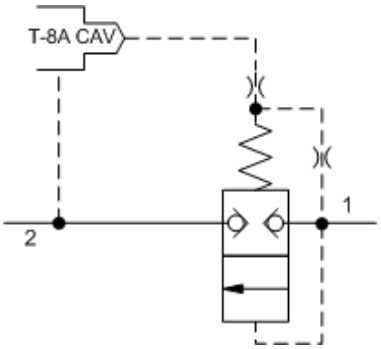
- RPKC Pilot-operated, balanced piston relief valve

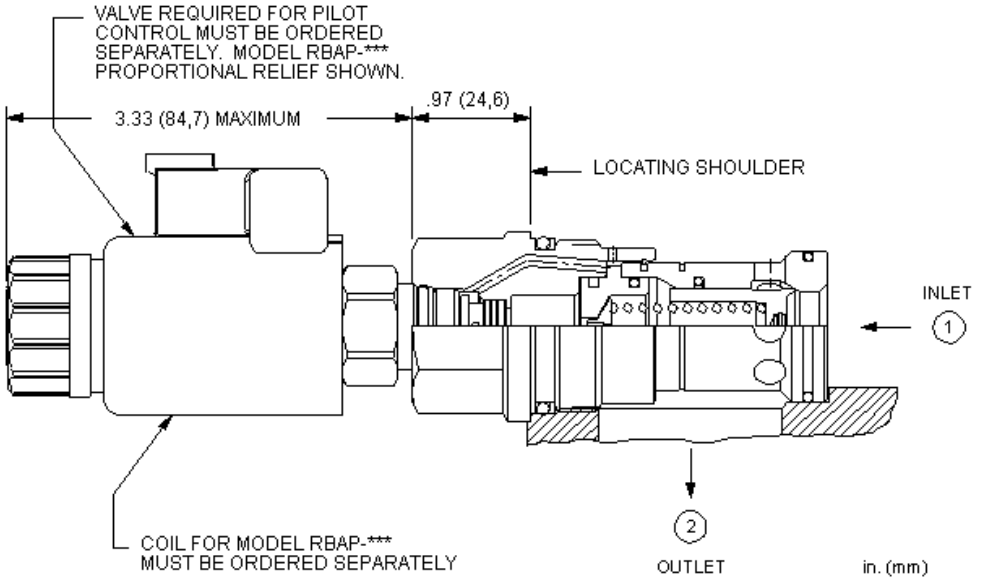
MODEL
RPIS8

Pilot-operated, balanced poppet relief main stage with integral T-8A control cavity

SERIES 3 / CAPACITY: 380 L/min. / CAVITY: T-16A

sunhydraulics.com/model/RPIS8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is a balanced poppet design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge's setting, the poppet element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between port 1 and port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-16A
Series	3
Capacity	380 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Pilot Control Cavity	T-8A
Main stage leakage at reseat	0,7 cc/min.
Response Time - Typical	2 ms
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990316007
Seal kit - Cartridge	EPDM: 990316014
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990316006
Model Weight	0.43 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RPIS8BN

ADJUSTMENT RANGE (B)

- **B** 50 - 1500 psi (3,5 - 105 bar)
- **W** 100 - 5000 psi (7 - 350 bar)

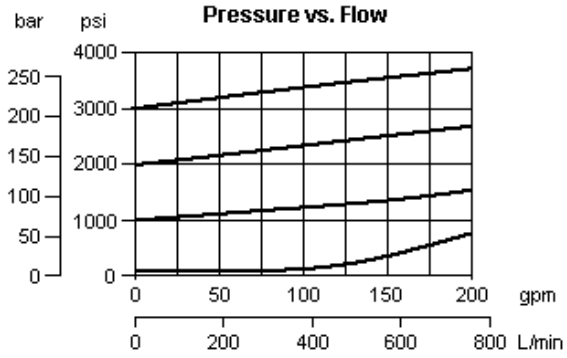
SEAL MATERIAL (N)

- **N** Buna-N
- **E** EPDM
- **V** Viton

TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



RELATED MODELS

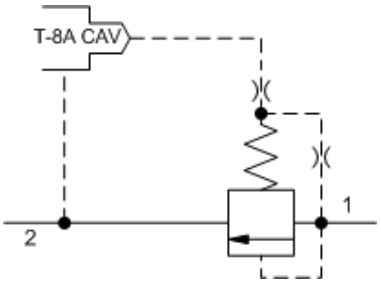
- RPIS Pilot-operated, balanced poppet relief valve

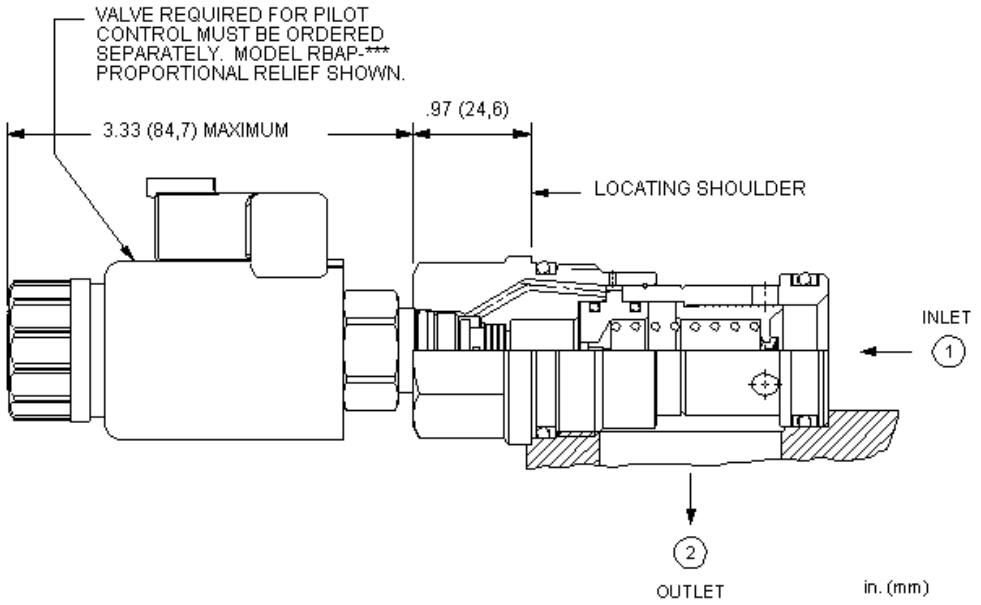
MODEL
RPIC8

Pilot-operated, balanced piston relief main stage with integral T-8A control cavity

SERIES 3 / CAPACITY: 380 L/min. / CAVITY: T-16A

sunhydraulics.com/model/RPIC8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is a balanced piston design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge's setting, the modulating element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between port 1 and port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-16A
Series	3
Capacity	380 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,25 - 0,33 L/min.
Pilot Control Cavity	T-8A
Main stage leakage at 110 SUS (24 cSt)	65 cc/min.@70 bar
Valve Hex Size	31,8 mm
Valve Installation Torque	203 - 217 Nm
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	EPDM: 990016014
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006
Model Weight	0.30 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RPIC8WN

ADJUSTMENT RANGE (W)

W 100 - 5000 psi (7 - 350 bar)
D 25 - 3000 psi (1,7 - 210 bar)

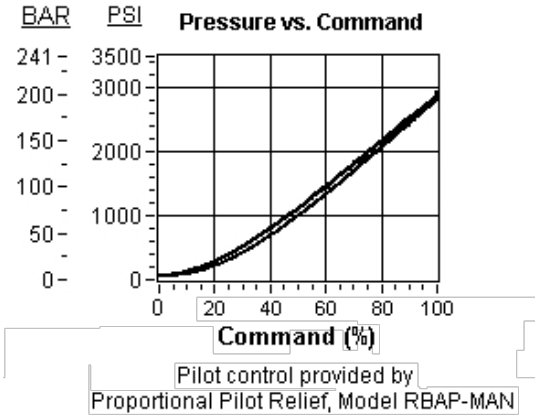
SEAL MATERIAL (N)

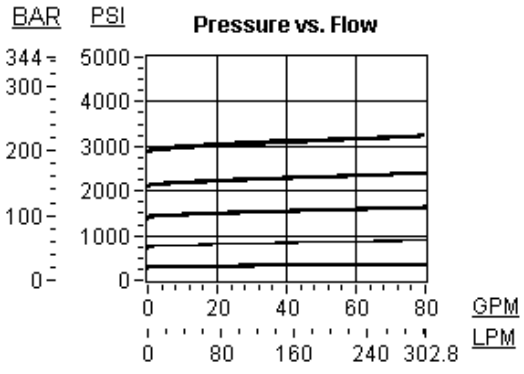
N Buna-N
E EPDM
V Viton

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





RELATED MODELS

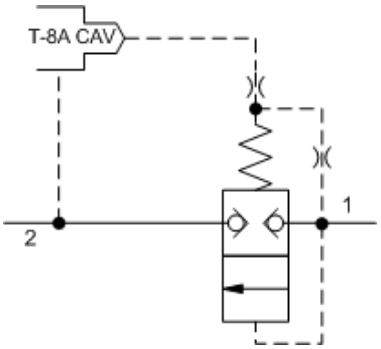
- RPIC Pilot-operated, balanced piston relief valve

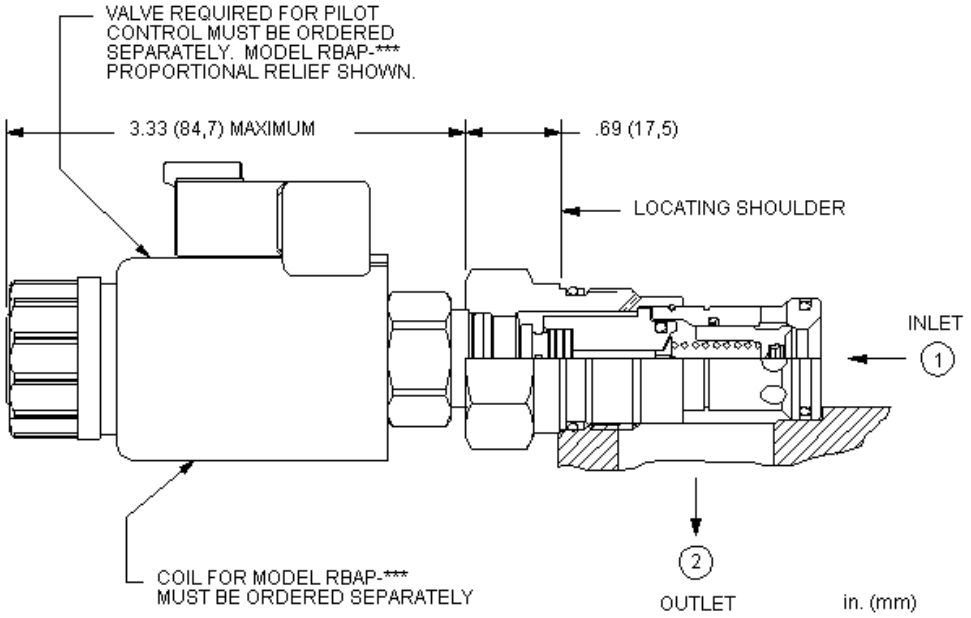
MODEL
RPGS8

Pilot-operated, balanced poppet relief main stage with integral T-8A control cavity

SERIES 2 / CAPACITY: 200 L/min. / CAVITY: T-3A

sunhydraulics.com/model/RPGS8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is a balanced poppet design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge's setting, the poppet element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between port 1 and port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,16 - 0,25 L/min.
Pilot Control Cavity	T-8A
Pilot Control Valve Installation Torque	27 - 33 Nm
Pilot Control Valve Hex Size	22,2 mm
Main stage leakage at reseat	0,7 cc/min.
Response Time - Typical	2 ms
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990303007
Seal kit - Cartridge	EPDM: 990303014
Seal kit - Cartridge	Polyurethane: 990303002
Seal kit - Cartridge	Viton: 990303006
Model Weight	0.18 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RPGS8BN

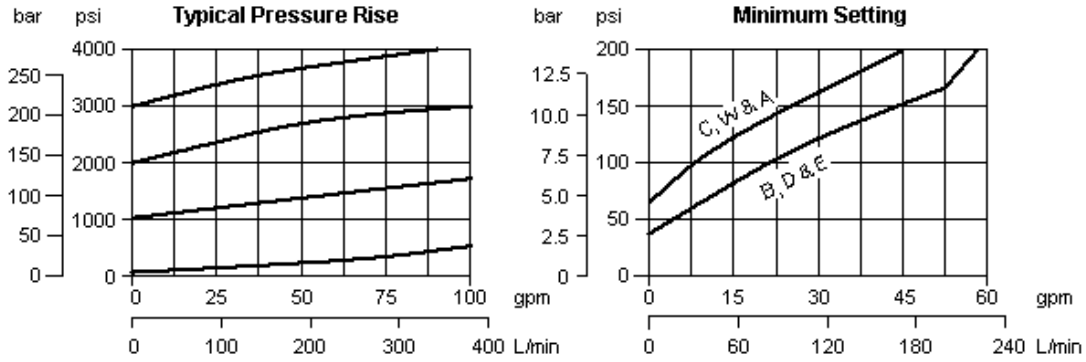
ADJUSTMENT RANGE	(B)
B 50 - 1500 psi (3,5 - 105 bar)	
W 100 - 5000 psi (7 - 350 bar)	

SEAL MATERIAL	(N)
N Buna-N	
E EPDM	
V Viton	

TECHNICAL FEATURES

- Because the modulating occurs inside the cartridge, these valves are immune to most of the problems associated with cavitation, namely noise and manifold erosion.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Valve is relatively insensitive to varying oil temperatures and oil borne contamination.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



RELATED MODELS

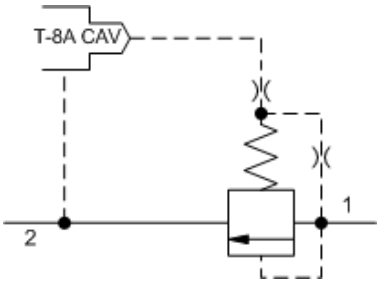
- RPGS Pilot-operated, balanced poppet relief valve

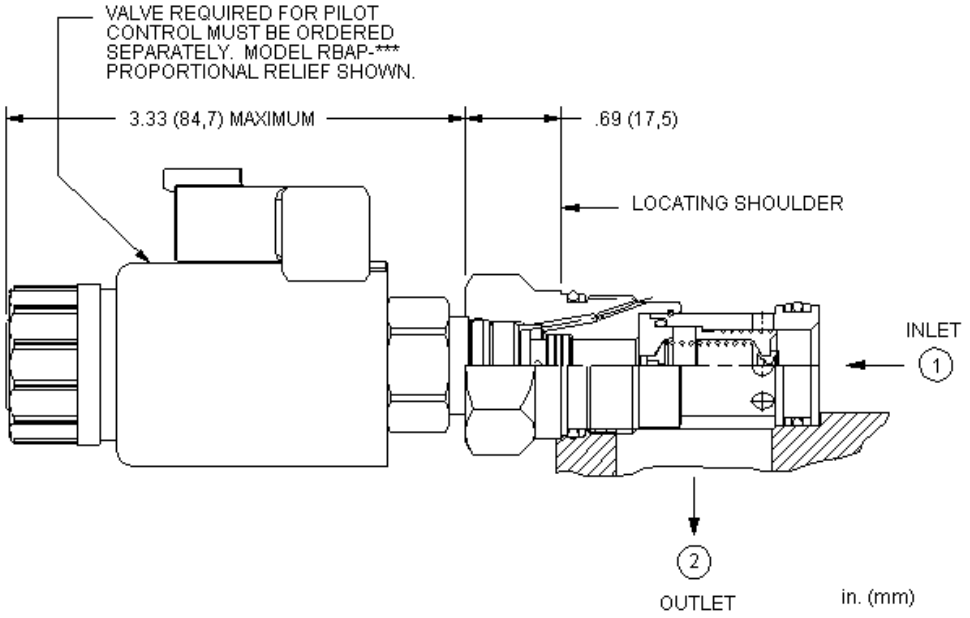
MODEL
RPGC8

Pilot-operated, balanced piston relief main stage with integral T-8A control cavity

SERIES 2 / CAPACITY: 200 L/min. / CAVITY: T-3A

sunhydraulics.com/model/RPGC8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is a balanced piston design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge's setting, the modulating element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between port 1 and port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-3A
Series	2
Capacity	200 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,16 - 0,25 L/min.
Pilot Control Cavity	T-8A
Main stage leakage at 110 SUS (24 cSt)	50 cc/min.@70 bar
Valve Hex Size	28,6 mm
Valve Installation Torque	61 - 68 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Polyurethane: 990003002
Seal kit - Cartridge	Viton: 990203006
Model Weight	0.13 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RPGC8WN

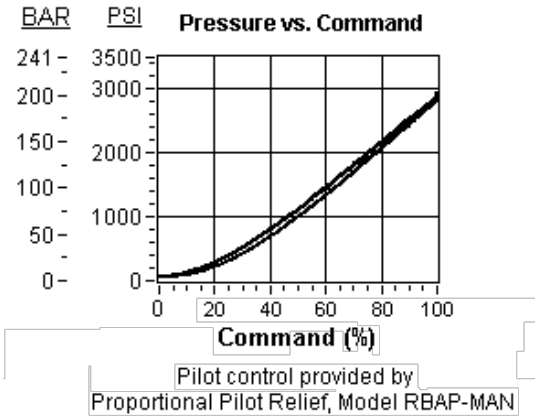
ADJUSTMENT RANGE	(W)
W 100 - 5000 psi (7 - 350 bar)	
D 25 - 3000 psi (1,7 - 210 bar)	

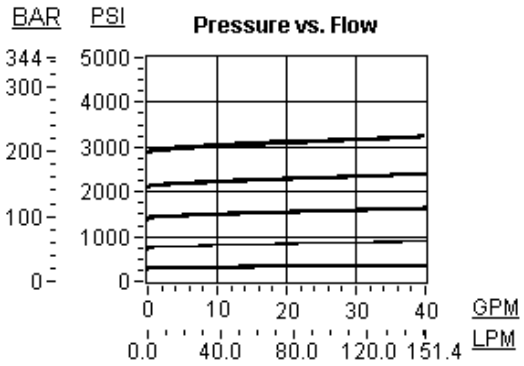
SEAL MATERIAL	(N)
N Buna-N	
E EPDM	
V Viton	

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





RELATED MODELS

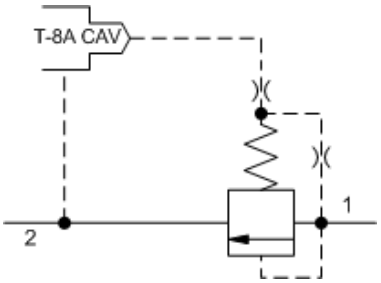
- RPGC Pilot-operated, balanced piston relief valve
- RPGC3 Non-adjustable pilot-operated, balanced piston relief valve

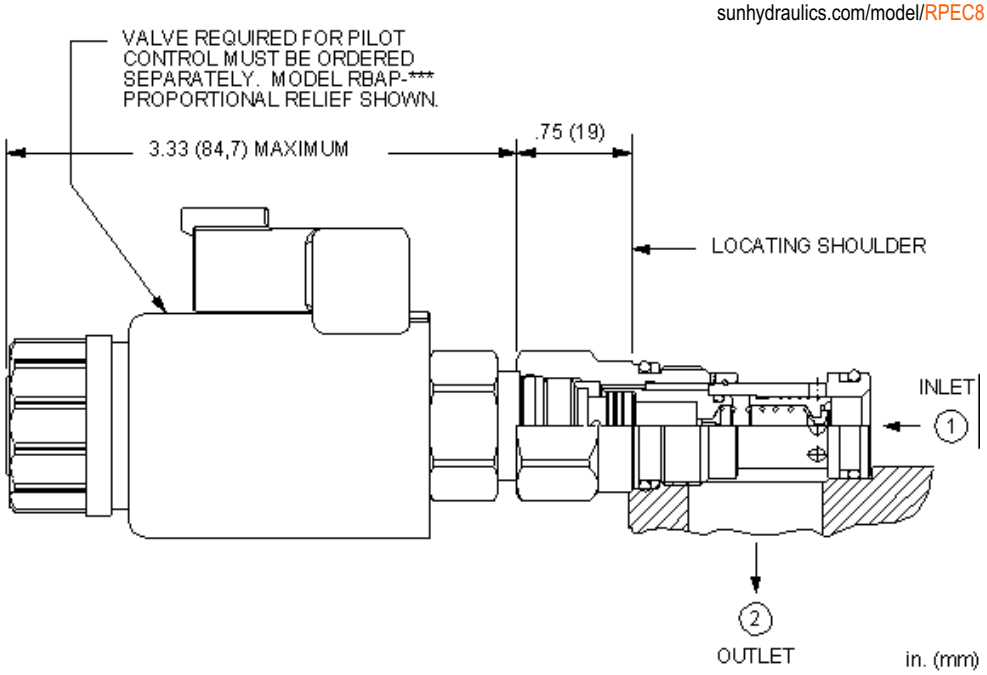
MODEL
RPEC8

Pilot-operated, balanced piston relief main stage with integral T-8A control cavity

SERIES 1 / CAPACITY: 95 L/min. / CAVITY: T-10A

sunhydraulics.com/model/RPEC8





This valve is a normally closed modulating element that incorporates an integral pilot control cavity. It is a balanced piston design. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 1) reaches the pilot control cartridge's setting, the modulating element starts to open to tank (port 2), throttling flow to regulate the pressure. The pilot cartridge's setting determines the difference in pressure between port 1 and port 2.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-10A
Series	1
Capacity	95 L/min.
Maximum Operating Pressure	350 bar
Control Pilot Flow	0,11 - 0,16 L/min.
Pilot Control Cavity	T-8A
Pilot Control Valve Installation Torque	27 - 33 Nm
Pilot Control Valve Hex Size	22,2 mm
Main stage leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006
Model Weight	0.09 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: RPEC8WN

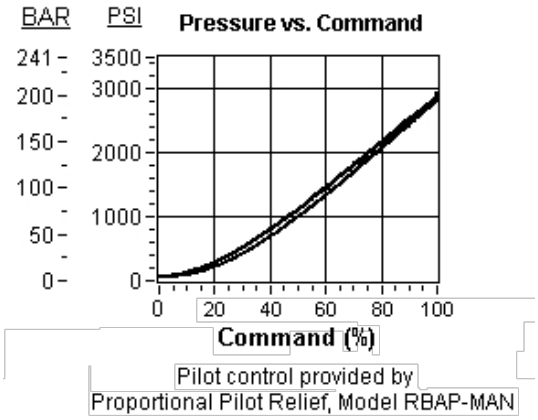
ADJUSTMENT RANGE	(W)
W 100 - 5000 psi (7 - 350 bar)	
D 25 - 3000 psi (1,7 - 210 bar)	

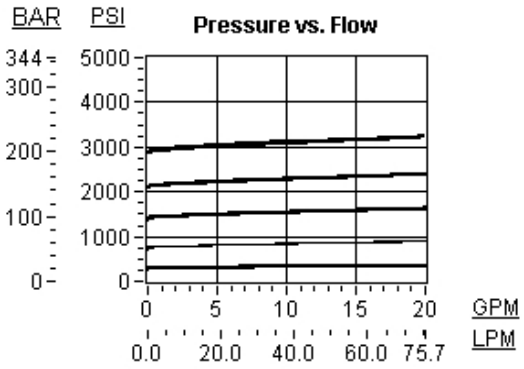
SEAL MATERIAL	(N)
N Buna-N	
E EPDM	
V Viton	

TECHNICAL FEATURES

- All 2-port relief cartridges (except pilot reliefs) are physically and functionally interchangeable (same flow path, same cavity for a given frame size).
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Not suitable for use in load holding applications due to spool leakage.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

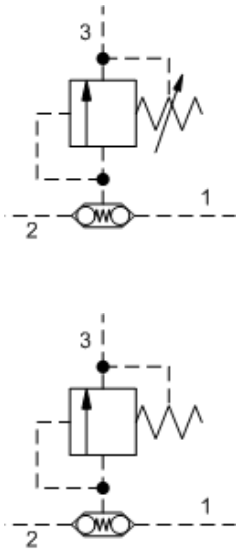
PERFORMANCE CURVES

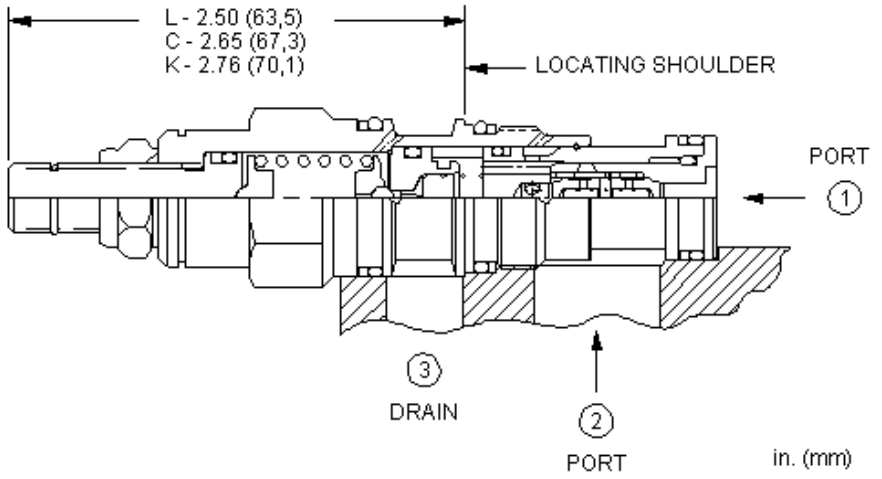




RELATED MODELS

- RPEC Pilot-operated, balanced piston relief valve





This direct-acting, pilot relief cartridge incorporates back-to-back check valves. This allows it to remotely control 2 other pilot-operated valves or act as a thermal relief for both ends of an actuator. Because capacity is limited to pilot flow, this valve should be used with other valves with comparable pilot flows.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	1 L/min.
Maximum Valve Leakage at 110 SUS (24 cSt)	0,3 cc/min.
Response Time - Typical	2 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.16 kg.

NOTES

For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

CONFIGURATION OPTIONS

Model Code Example: RBADLAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob
- **O** Handknob with Panel Mount

ADJUSTMENT RANGE (A)

- **A** 25 - 3000 psi (1,7 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 25 - 1500 psi (1,7 - 105 bar), 1000 psi (70 bar) Standard Setting
- **C** 25 - 6000 psi (1,7 - 420 bar), 1000 psi (70 bar) Standard Setting
- **D** 25 - 800 psi (1,7 - 55 bar), 400 psi (28 bar) Standard Setting
- **E** 25 - 400 psi (1,7 - 28 bar), 200 psi (14 bar) Standard Setting
- **W** 25 - 4500 psi (1,7 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

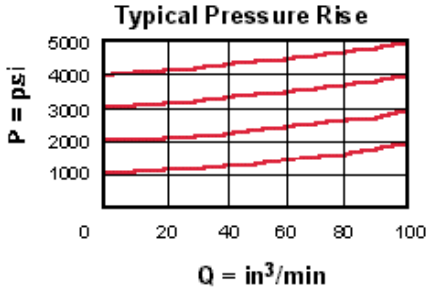
MATERIAL/COATING

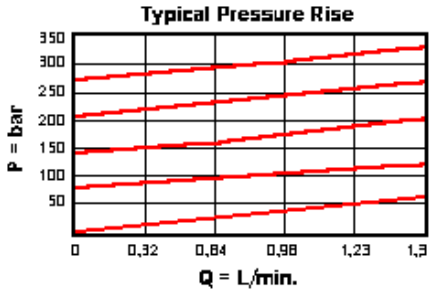
- Standard Material/Coating
- **/AP** Stainless Steel, Passivated
- **/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- The back-to-back check valves prevent cross talk between the two valves that are being remote controlled.
- One adjustment controls two valves.
- Check cracking pressure is 15 psi (1 bar).
- Pressure at port 3 is directly additive to the valve setting.
- Suitable for load holding applications
- The term thermal relief means it prevents overpressure due to thermal expansion of the fluid.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES



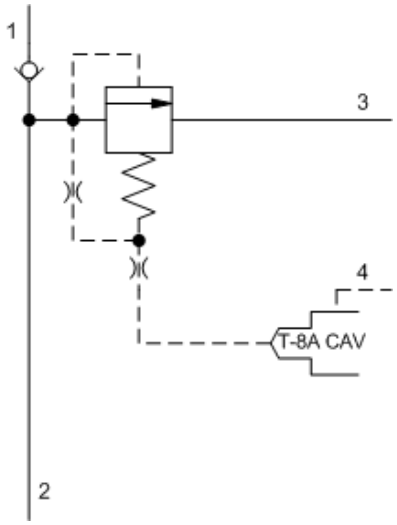


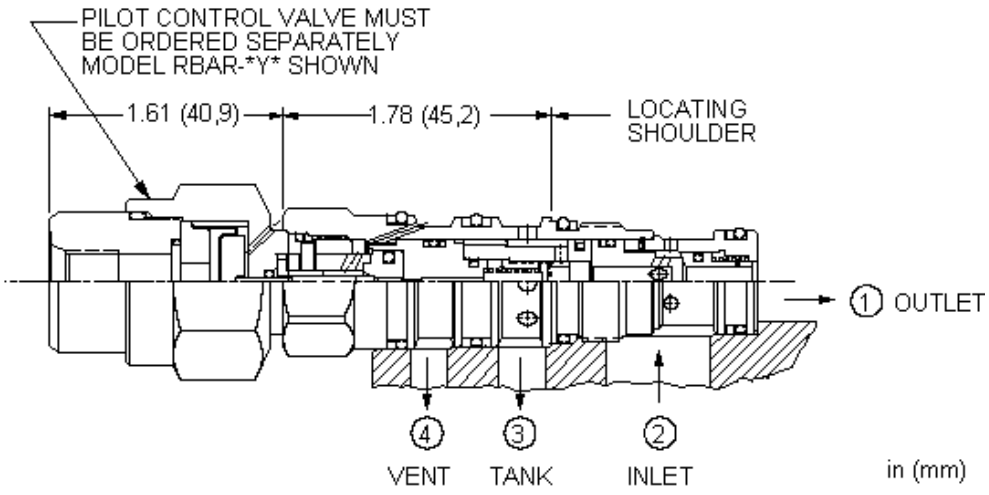
MODEL
HVCA8

Ventable, pilot-operated, balanced piston relief main stage with integral T-8A control cavity - before check

SERIES 1 / CAPACITY: 40 L/min. / CAVITY: T-21A

sunhydraulics.com/model/HVCA8





The relief-before-check cartridge is a CavitySaver™ (multi-function) valve incorporating a normally closed, balanced piston modulating element tee'd in before a check function. The valve incorporates an integral pilot control cavity. The pilot control cavity will accept any T-8A pressure control cartridge. When the pressure at the inlet (port 2) reaches the pilot control valve setting, the modulating element starts to open to tank (port 3), throttling flow to regulate the pressure. The T-8A pilot section is drained to port 4. The check valve flow is from the inlet (port 2) to the system port (port1).

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-21A
Series	1
Capacity	40 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Check Cracking Pressure	1,7 bar
Pilot Control Cavity	T-8A
Pilot Control Valve Installation Torque	27 - 33 Nm
Response Time - Typical	10 ms
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	EPDM: 990021014
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Model Weight	0.14 kg.

NOTES

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

CONFIGURATION OPTIONS

Model Code Example: HVCA8DN

BIAS PRESSURE (D)

D 75 psi (5 bar)

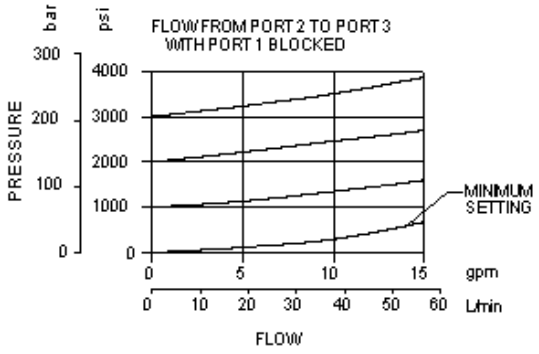
SEAL MATERIAL (N)

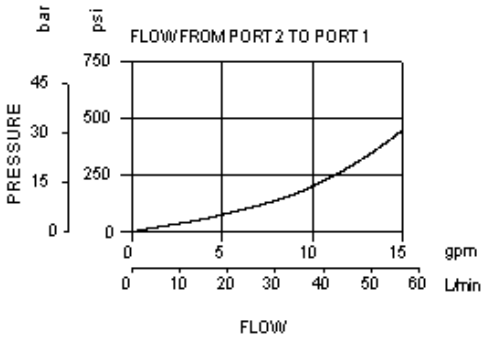
N Buna-N
E EPDM
V Viton

TECHNICAL FEATURES

- Note! This valve deviates from Sun's normal flow path for relief valves. It is probably not useable in current Sun relief manifolds.
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids, greases and lubricants will damage the seals.
- The main stage orifice is protected against contamination.
- The check portion of the valve has a maximum leakage rate of less than 1 drop/minute (0,07 cc/min).
- One purpose of this dual function cartridge is to offer pump isolation and relief protection in single and/or multiple pump circuits. Another purpose is to act as a main stage in an accumulator sense, pump unload circuit.
- NOTE: With the -8 control option, the main stage valve should first be installed to the correct torque value. The T-8A pilot control valve should then be installed into the main stage valve to its required torque value.
- The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





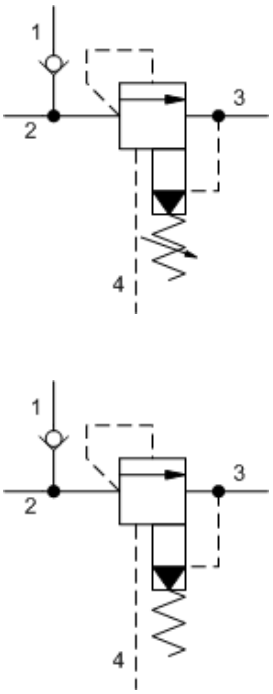
RELATED MODELS

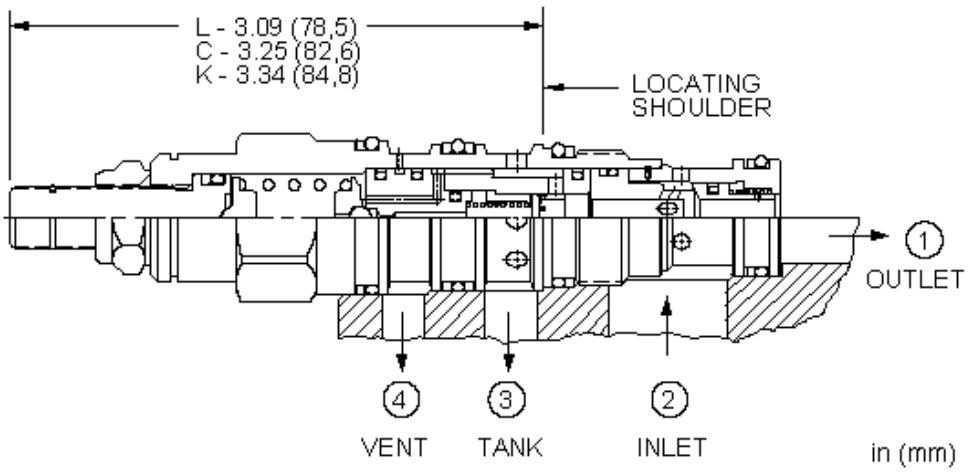
- HVCA Ventable, pilot-operated, balanced piston relief valve - before check

MODEL
HVCA

Ventable, pilot-operated, balanced piston relief valve - before check
SERIES 1 / CAPACITY: 40 L/min. / CAVITY: T-21A

sunhydraulics.com/model/HVCA





The ventable relief-before-check cartridge is a CavitySaver™ (multi-function) valve incorporating a ventable, pilot-operated, balanced piston relief tee'd in before a check function. When the pressure at the inlet (port 2) reaches the relief valve setting, the valve starts to open to tank (port 3), throttling flow to regulate the pressure. The check valve flow is from the inlet (port 2) to the system port (port1). The valve includes a vent port (port 4) that connects between the main piston and pilot stage to provide for remote control by other pilot or 2-way valves.

These valves are accurate, have low pressure rise vs. flow, are smooth, quiet, and are moderately fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-21A
Series	1
Capacity	40 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	30 cc/min.@70 bar
Check Cracking Pressure	1,7 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006
Model Weight	0.19 kg.

CONFIGURATION OPTIONS

Model Code Example: HVCALAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 75 - 3000 psi (5 - 210 bar), 1000 psi (70 bar) Standard Setting
- **B** 75 - 1500 psi (5 - 105 bar), 1000 psi (70 bar) Standard Setting
- **D** 75 - 800 psi (5 - 55 bar), 400 psi (28 bar) Standard Setting
- **W** 75 - 4500 psi (5 - 315 bar), 1000 psi (70 bar) Standard Setting

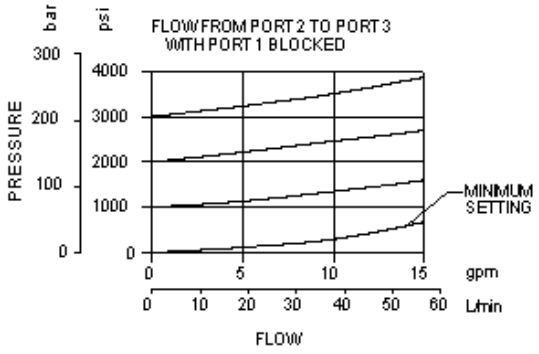
SEAL MATERIAL (N)

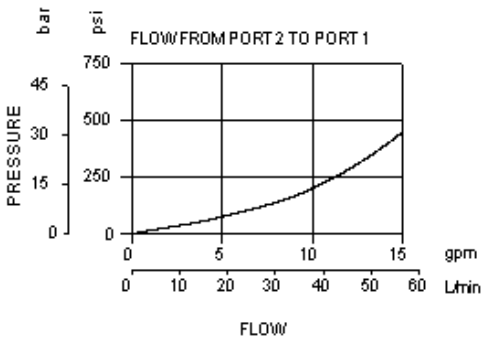
- **N** Buna-N
- **V** Viton

TECHNICAL FEATURES

- Note! This valve deviates from Sun's normal flow path for relief valves. It is probably not useable in current Sun relief manifolds.
- Minimum setting is 75 psi (5 bar) for all spring ranges.
- Back pressure at port 3 (tank) is directly additive to the valve setting at a 1:1 ratio.
- The check portion of the valve has a maximum leakage rate of less than 1 drop/minute (0,07 cc/min).
- One purpose of this dual function cartridge is to offer pump isolation and relief protection in single and/or multiple pump circuits. Another purpose is to act as a main stage in an accumulator sense, pump unload circuit.
- A remote pilot relief on port 4 (vent) will control the valve below its own setting.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES





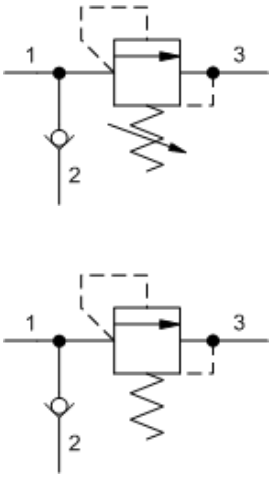
RELATED MODELS

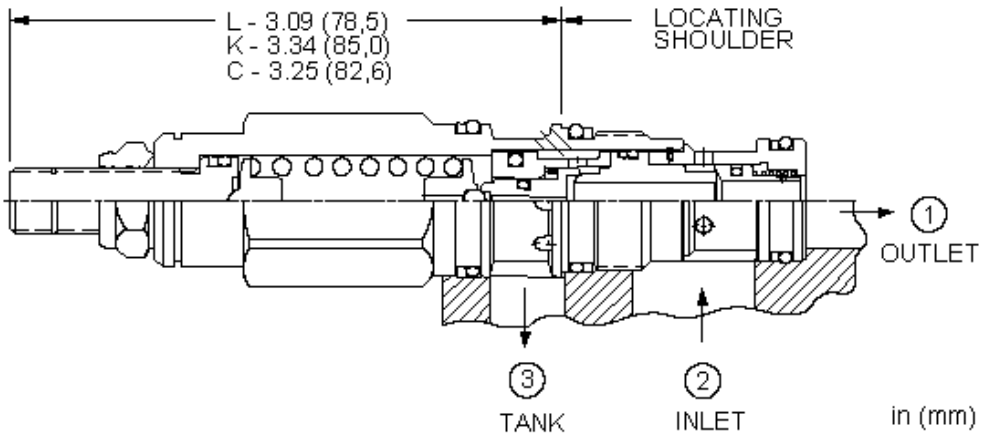
- HVCA8 Ventable, pilot-operated, balanced piston relief main stage with integral T-8A control cavity - before check

MODEL
HRDB

Direct-acting relief valve - after check
SERIES 1 / CAPACITY: 40 L/min. / CAVITY: T-11A

sunhydraulics.com/model/HRDB





The relief-after-check cartridge is a CavitySaver™ (multi-function) valve incorporating a direct-acting relief tee'd in after a check function. The check valve flow is from the inlet (port 2) to the system port (port1). When the pressure in the system (port 1) reaches the relief valve setting, the valve starts to open to tank (port 3), throttling flow to limit the pressure rise. These valves are smooth and quiet, essentially zero-leak, dirt-tolerant, immune to silting and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	40 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,3 cc/min.
Check Cracking Pressure	1,7 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	6
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.20 kg.

CONFIGURATION OPTIONS

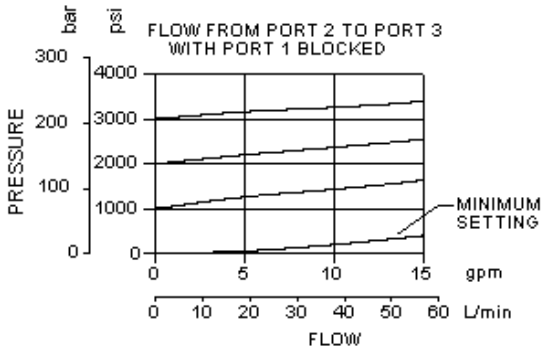
Model Code Example: HRDBLAN

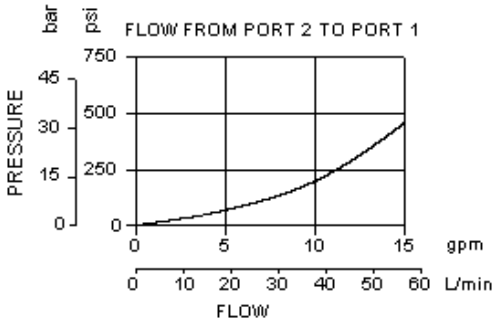
CONTROL (L)	ADJUSTMENT RANGE (A)	SEAL MATERIAL (N)	MATERIAL/COATING
L Standard Screw Adjustment	**A** 500 - 3000 psi (35 - 210 bar), 1000 psi (70 bar) Standard Setting	**N** Buna-N	Standard Material/Coating
C Tamper Resistant - Factory Set	**W** 800 - 4500 psi (55 - 315 bar), 1000 psi (70 bar) Standard Setting	**V** Viton	**/AP** Stainless Steel, Passivated
K Handknob			**/LH** Mild Steel, Zinc-Nickel

TECHNICAL FEATURES

- Note! This valve deviates from Sun's normal flow path for relief valves. It is probably not useable in current Sun relief manifolds.
- This cartridge can be used to provide relief protection on the system side of the circuit.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Select a spring range where the desired relief setting is approximately mid-range to high between the minimum and maximum pressure to ensure maximum valve repeatability.
- Suitable for use in load holding applications.
- The check portion of the valve has a maximum leakage rate of less than 1 drop/minute (0,07 cc/min).
- The direct acting relief exhibits rapid response characteristics that minimize pressure overshoot and also provides low reseat leakage (less than 5 drops/min (0,3 cc/min) @ 85% of cracking pressure), check valve leackage is less than 1 drop/min (0,07 cc/min).
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES

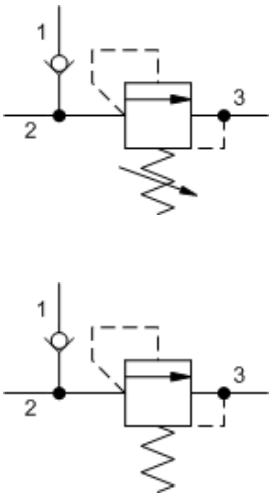


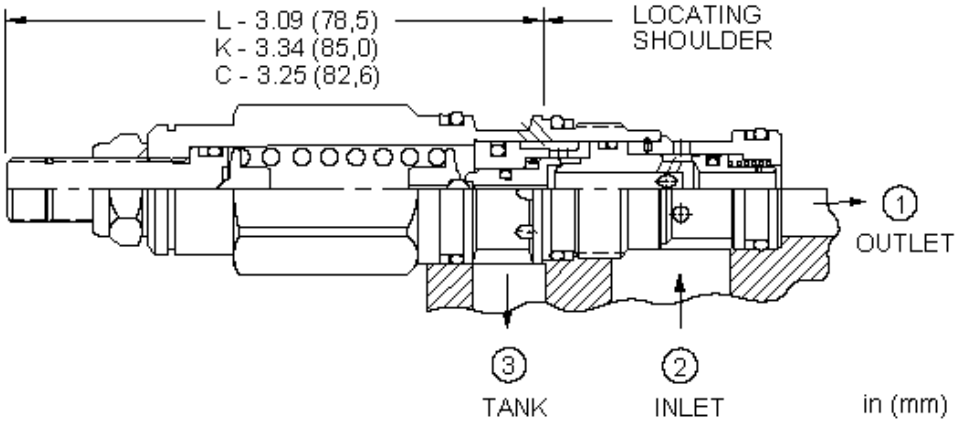


MODEL
HRDA

Direct-acting relief valve - before check
SERIES 1 / CAPACITY: 40 L/min. / CAVITY: T-11A

sunhydraulics.com/model/HRDA





The relief-before-check cartridge is a CavitySaver™ (multi-function) valve incorporating a direct-acting relief tee'd in before a check function. When the pressure at the inlet (port 2) reaches the relief valve setting, the valve starts to open to tank (port 3), throttling flow to limit the pressure rise. The check valve flow is from the inlet (port 2) to the system port (port1). These valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-11A
Series	1
Capacity	40 L/min.
Factory Pressure Settings Established at	15 L/min.
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at Reseat	0,3 cc/min.
Check Cracking Pressure	1,7 bar
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	6
Valve Hex Size	22,2 mm
Valve Installation Torque	41 - 47 Nm
Adjustment Screw Internal Hex Size	4 mm
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006
Model Weight	0.20 kg.

CONFIGURATION OPTIONS

Model Code Example: HRDALAN

CONTROL (L)

- **L** Standard Screw Adjustment
- **C** Tamper Resistant - Factory Set
- **K** Handknob

ADJUSTMENT RANGE (A)

- **A** 500 - 3000 psi (35 - 210 bar), 1000 psi (70 bar) Standard Setting
- **D** 200 - 700 psi (14 - 50 bar), 400 psi (28 bar) Standard Setting
- **W** 800 - 4500 psi (55 - 315 bar), 1000 psi (70 bar) Standard Setting

SEAL MATERIAL (N)

- **N** Buna-N
- **V** Viton

MATERIAL/COATING

- Standard Material/Coating
- **/AP** Stainless Steel, Passivated

TECHNICAL FEATURES

- Note! This valve deviates from Sun's normal flow path for relief valves. It is probably not useable in current Sun relief manifolds.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Select a spring range where the desired relief setting is approximately mid-range to high between the minimum and maximum pressure to ensure maximum valve repeatability.
- Suitable for use in load holding applications.
- The check portion of the valve has a maximum leakage rate of less than 1 drop/minute (0,07 cc/min).
- One purpose of this dual function cartridge is to offer pump isolation and relief protection in single and/or multiple pump circuits. Another purpose is to act as a main stage in an accumulator sense, pump unload circuit.
- The direct acting relief exhibits rapid response characteristics that minimize pressure overshoot and also provides low reseat leakage (less than 5 drops/min (0,3 cc/min) @ 85% of cracking pressure), check valve leackage is less than 1 drop/min (0,07 cc/min).
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES