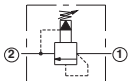
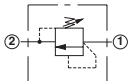
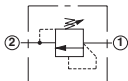
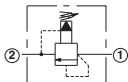
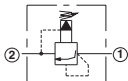
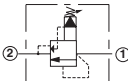
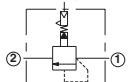
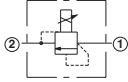
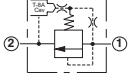
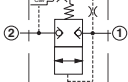
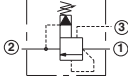
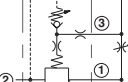
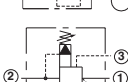
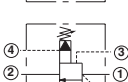
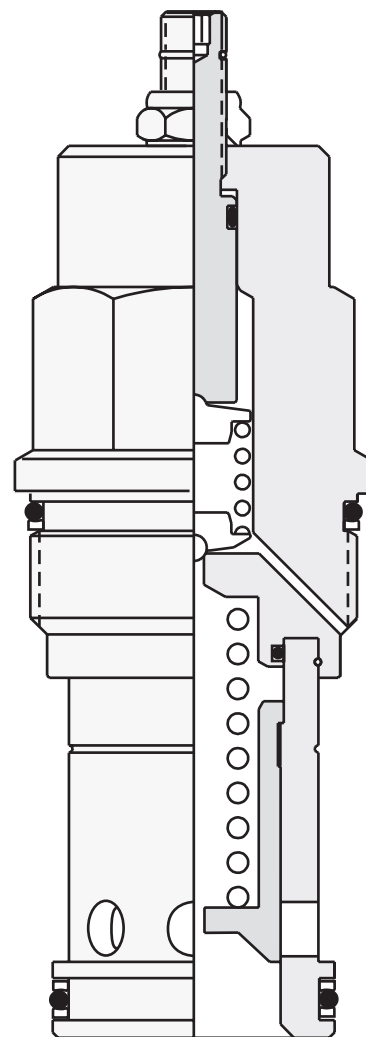


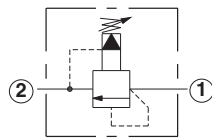
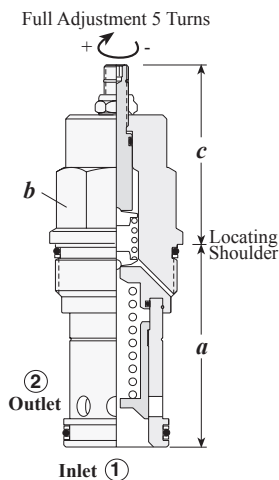
Relief Cartridge Valves

<i>Cartridge Type</i>	<i>Page</i>
	Pilot Operated, Balanced Piston 6
	Direct Acting 7
	Direct Acting, Pilot Stage 8
	Pilot Operated, Balanced Poppet 9
	Pilot Operated, Balanced Poppet, Soft Start 10
	Pilot Operated, Kick-down 11
	Pilot Operated, Balanced Piston, Air Controlled 12
	Electro-proportional Pilot 13
	Balanced Piston, Modulating Element with Integral Pilot Control Cavity 14
	Balanced Poppet, Modulating Element with Integral Pilot Control Cavity 15
	Ventable, Pilot Operated, Balanced Piston 16
	Modulating Element with Relief Function 17
	Ventable, Pilot Operated, Balanced Poppet 18
	Ventable, Pilot Operated, Balanced Piston with External Drain 19
	Ventable, Balanced Piston, Modulating Element with External Drain and Integral Pilot Control Element 20



Relief Valves

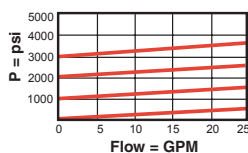
PILOT OPERATED BALANCED PISTON,



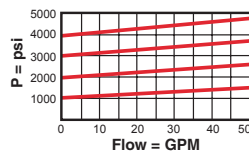
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions					Installation Torque (lb. ft.)
			a	b	L	C	K	
12 GPM	RPCC – LAN	T - 162A	1.22	3/4"	2.11	2.17	2.31	25/30
25 GPM	RPEC – LAN	T - 10A	1.56	7/8"	2.00	2.06	2.25	30/35
50 GPM	RPGC – LAN	T - 3A	1.88	1 1/8"	2.12	2.18	2.38	45/50
100 GPM	RPIC – LAN	T - 16A	2.44	1 1/4"	2.44	2.47	2.69	150/160
200 GPM	RPKC – LAN	T - 18A	3.13	1 5/8"	2.81	2.94	3.06	350/375

Performance Curves

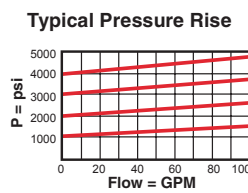
RPCC



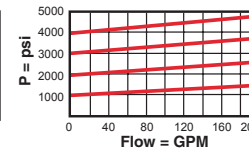
RPEC



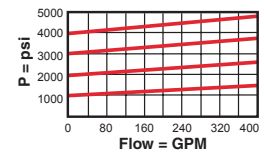
RPGC



RPIC



RPKC



- Maximum operating pressure = 5000 psi
- Will accept maximum pressure at Port 2.
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to the valve setting.
- Factory pressure settings established at 4 GPM
- Typical response time 10 ms.
- Maximum leakage = RPCC, RPEC: 2 in³/min./1000 psi, RPGC: 3 in³/min./1000 psi, RPIC: 4 in³/min./1000 psi, RPKC: 5 in³/min./1000 psi.
- RPCC minimum setting for all spring ranges is 75 psi

OPTION ORDERING INFORMATION **Model Codes printed in Red are Preferred Versions and most readily available**

RP ★ C – ★ ★ ★			
Nominal Capacity	Control**	Adjustment Range	Seal
C 12 GPM*	L Standard Screw	A 100 - 3000 psi	N Buna-N
E 25 GPM	C Tamper Resistant	B 50 - 1500 psi	V Viton
G 50 GPM	K Handknob	C 150 - 6000 psi	
I 100 GPM		N 60 - 800 psi	
K 200 GPM		Q 60 - 400 psi	
		W 150 - 4500 psi	

Adjustment Range Options:

A, B, C, and W are standard set at 1000 psi.

N Option is standard set at 400 psi.

Q Option is standard set at 200 psi.

* Minimum setting 75 psi on all ranges.

Customer may specify pressure setting.

** See page 162 for information on Control Options

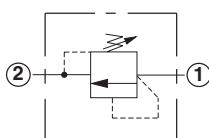
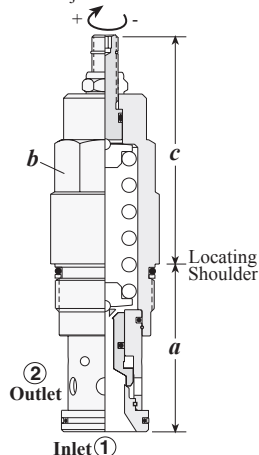
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Relief Valves

DIRECT ACTING

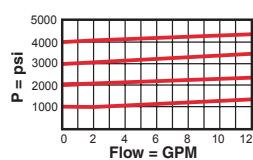
Full Adjustment 5 Turns



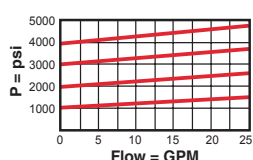
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions				Installation Torque (lb. ft.)
			a	b	L	C	
12 GPM	RDBA – LAN	T - 162A	1.22	3/4"	2.11	2.17	25/30
25 GPM	RDDA – LAN	T - 10A	1.56	7/8"	2.38	2.44	30/35
50 GPM	RDFA – LAN	T - 3A	1.88	1 1/8"	2.50	2.56	45/50
100 GPM	RDHA – LAN	T - 16A	2.44	1 1/4"	3.25	3.31	150/160
200 GPM	RDJA – LAN	T - 18A	3.13	1 5/8"	3.94	4.07	350/375

Performance Curves

RDBA

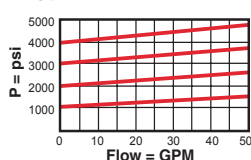


RDDA

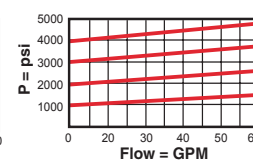


RDFA

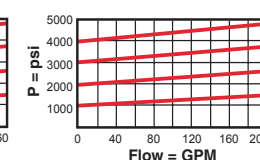
Typical Pressure Rise



RDHA



RDJA



- Maximum operating pressure = 5000 psi
- Cannot be adjusted with pressure at Port 1.
- Will accept maximum pressure at Port 2.
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to the valve setting.
- Factory pressure settings established at 4 GPM
- Typical response time 2 ms.
- Maximum leakage = 10 drops/min. at reseal.
- Reseat exceeds 90% of cracking pressure.

OPTION ORDERING INFORMATION **Model Codes printed in Red are Preferred Versions and most readily available**

RD ★ A – ★ ★ ★

Nominal Capacity	Control**	Adjustment Range	Seal
B 12 GPM	L Standard Screw	A 500 - 3000 psi	N Buna-N
D 25 GPM	C Tamper Resistant	B 300 - 1500 psi	V Viton
F 50 GPM		C 1000 - 6000 psi	
H 100 GPM		D 200 - 800 psi	
J 200 GPM		E 100 - 400 psi	
		S 50-200 psi	
		W 1000 - 4500 psi	

Adjustment Range Options:

A, B, C, and W are standard set at 1000 psi.

D Option is standard set at 400 psi.

E Option is standard set at 200 psi.

S Option is standard set at 100 psi.

Customer may specify pressure setting.

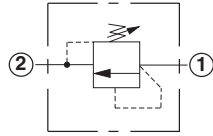
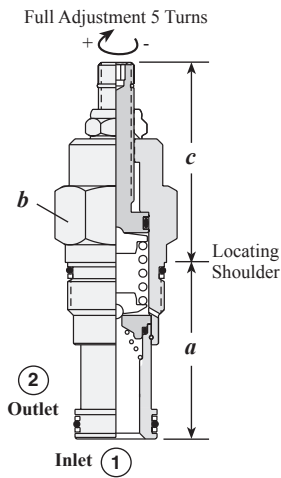
U.S. Patent #4,742,846
European Patent Pending

** See page 162 for information
on Control Options

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Relief Valves

DIRECT ACTING, PILOT STAGE



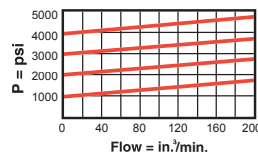
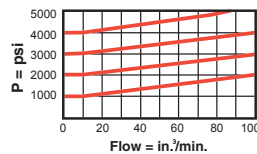
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions					Installation Torque (lb. ft.)
			a	b	c			
					L	C	K	
60 in. ³ /min.	RBAC – LAN	T - 10A	1.56	7/8"	2.00	2.06	2.25	30/35
120 in. ³ /min.	RBAA – LAN	T - 3A	1.88	1 1/8"	2.12	2.18	2.38	45/50

Performance Curves

RBAC

RBAA

Typical Pressure Rise



- Maximum operating pressure = 5000 psi
- Typical response time 2 ms.
- Maximum leakage less than 5 drops/min.
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to the valve setting

OPTION ORDERING INFORMATION **Model Codes printed in Red are Preferred Versions and most readily available**

RB A ★ – ★ ★ ★

Nominal Capacity	Control**	Adjustment Range	Seal
C 60 in. ³ /min.	L Standard Screw	A 25 - 3000 psi	N Buna-N
A 120 in. ³ /min.	C Tamper Resistant	B 25 - 1500 psi	V Viton
	K Handknob	C 25 - 6000 psi	
		D 25 - 800 psi	
		E 25 - 400 psi	
		W 25 - 4500 psi	

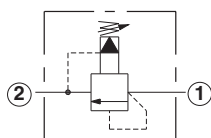
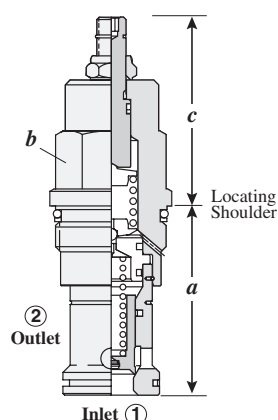
** See page 162 for information on Control Options

Adjustment Range Options:
A, B, C, and W are standard set at 1000 psi.
D Option is standard set at 400 psi.
E Option is standard set at 200 psi.
Customer may specify pressure setting.

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Relief Valves

PILOT OPERATED, BALANCED POPPET



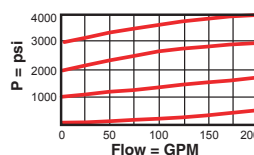
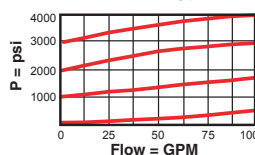
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions				Installation Torque (lb. ft.)
			a	b	L	C	
50 GPM	RPGS – LAN	T - 3A	1.88	1 1/8"	2.12	2.18	45/50
100 GPM	RPIS – LAN	T - 16A	2.44	1 1/4"	2.44	2.47	150/160

Performance Curves

RPGS

RPIS

Typical Pressure Rise



- Maximum operating pressure = 5000 psi
- Maximum leakage 10 drops/min. at reseal
- Reseat exceeds 90% of cracking pressure.
- Factory pressure settings established at 4 GPM
- Typical response time 10 ms.
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to the valve setting

OPTION ORDERING INFORMATION

RP ★ S – ★ ★ ★

Nominal Capacity	Control**	Adjustment Range	Seal
G 50 GPM	C Tamper Resistant Factory Set	A 100 - 3000 psi	N Buna-N
I 100 GPM	K Handknob	B 50 - 1500 psi	V Viton
	L Standard Screw Adjustment	C 150 - 6000 psi	
		N 60 - 800 psi	
		Q 60 - 400 psi	
		W 100 - 4500 psi	

Adjustment Range Options:

A, B, C, and W are standard set at 1000 psi.

N Option is standard set at 400 psi.

Q Option is standard set at 200 psi.

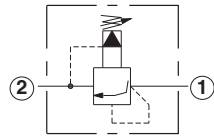
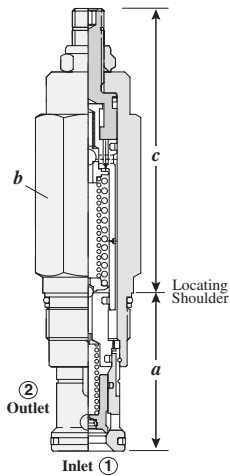
Customer may specify pressure setting.

** See page 162 for information on Control Options

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Relief Valves

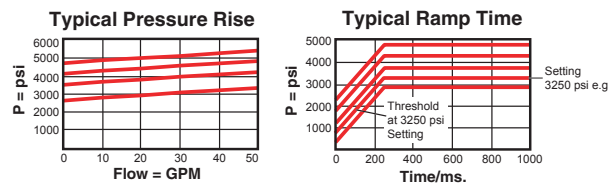
PILOT OPERATED, BALANCED POPPET, SOFT START



Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions				Installation Torque (lb. ft.)
			a	b	c		
					L	C	
50 GPM	RPQT - LAN	T - 3A	1.88	1 1/8"	3.38	3.47	45/50

Performance Curves

RP GT



- Maximum operating pressure = 5000 psi
- Will accept maximum pressure at Port 2.
- Factory pressure settings established at 4 GPM
- Shifting time from minimum to maximum setting 250 ms.
- Control pilot flow = 10 to 25 in³/min.

OPTION ORDERING INFORMATION

RP GT - ★ ★ ★			
Nominal Capacity	Control**	Adjustment Range	Seal
G 50 GPM	C Tamper Resistant Factory Set	A 2000 - 3000 psi	N Buna-N
	L Standard Screw Adjustment	C 4500 - 6000 psi	V Viton
		W 3000 - 4500 psi	

Patents:

U.S. #6,039,070;

Germany EP 1 001 197;

Japan #3,119,230

** See page 162 for information on Control Options

Adjustment Range Options:

A is standard set at 2000 psi.

C is standard set at 4500 psi.

W is standard set at 3000 psi.

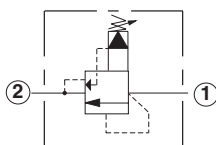
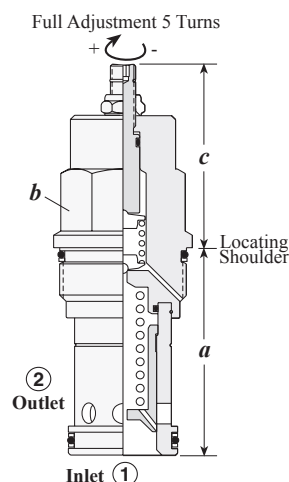
Customer may specify pressure setting.

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Relief Valves

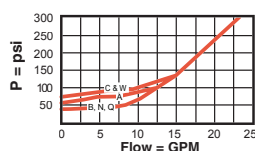
PILOT OPERATED, KICK-DOWN



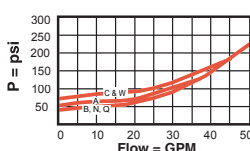
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions					Installation Torque (lb. ft.)
			a	b	c			
					L	C	K	
25 GPM	RQEB – LAN	T - 10A	1.56	7/8”	2.00	2.06	2.25	30/35
50 GPM	RQGB – LAN	T - 3A	1.88	1 1/8”	2.12	2.18	2.38	45/50
100 GPM	RQIB – LAN	T - 16A	2.44	1 1/4”	2.44	2.47	2.69	150/160
200 GPM	RQKB – LAN	T - 18A	3.13	1 5/8”	2.81	2.94	3.06	350/375

Performance Curves

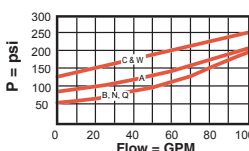
RQEB



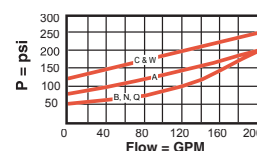
RQGB



RQIB



RQKB



Unloaded Pressure Drop

- Maximum operating pressure = 5000 psi
- Will accept maximum pressure at Port 2.
- Flow through cartridge must cease to reset valve.
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to the valve setting.
- Factory pressure settings established at kick down point.
- Typical response time 25 ms.
- Maximum leakage = RQEB: 2 in³/min./1000 psi; RQGB: 3 in³/min./1000 psi, RQIB: 4 in³/min./1000 psi, RQKB: 5 in³/min./1000 psi

OPTION ORDERING INFORMATION

RQ ★ B - ★ ★ ★

Nominal Capacity	Control**	Adjustment Range	Seal
E 25 GPM	L Standard Screw	A 100 - 3000 psi	N Buna-N
G 50 GPM	C Tamper Resistant	B 50 - 1500 psi	V Viton
I 100 GPM	K Handknob	C 150 - 6000 psi	
K 200 GPM		N 60 - 800 psi	
		Q 60 - 400 psi	
		W 150 - 4500 psi	

Adjustment Range Options:

A, B, C, and W are standard set at 1000 psi.

N Option is standard set at 400 psi.

Q Option is standard set at 200 psi.

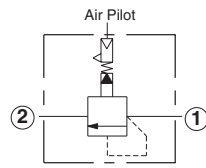
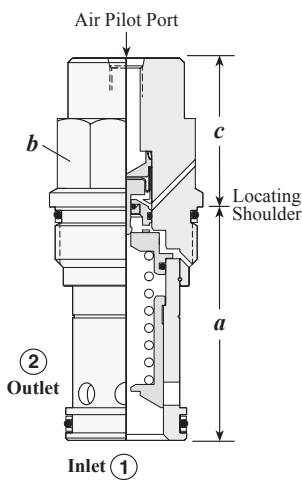
Customer may specify pressure setting.

** See page 162 for information on Control Options

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Relief Valves

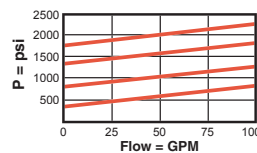
PILOT OPERATED, BALANCED PISTON, AIR CONTROLLED



Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions				Installation Torque (lb. ft.)
			a	b	c		
					A	B	
50 GPM	RPGD – ABN	T - 3A	1.88	1 1/8"	1.31	-	45/50
100 GPM	RPID – BBN	T - 16A	2.44	1 1/4"	-	1.62	150/160
200 GPM	RPKD – BBN	T - 18A	3.13	1 5/8"	-	2.00	350/375

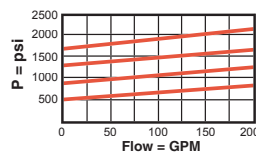
Performance Curves

RPGD

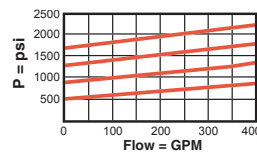


RPID

Typical Pressure Rise



RPKD



- Maximum operating pressure = 2000 psi
- Will accept maximum pressure at Port 2.
- Maximum air pressure should not exceed 150 psi.
- Pilot ratio, air to hydraulic = 1:20
- Typical response time 10 ms.
- Maximum leakage = RPGD: 3 in³/min./1000, RPID: 4 in³/min./1000 psi, RPKD: 5 in³/min./1000 psi.

OPTION ORDERING INFORMATION

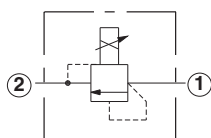
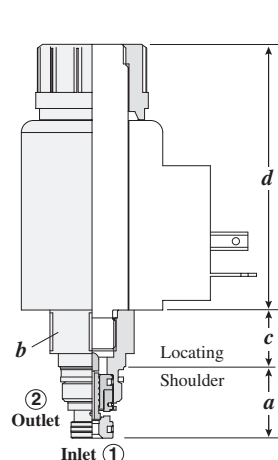
RP ★ D – ★ ★ ★			
Nominal Capacity	Control	Adjustment Range	Seal
G 50 GPM	Available for RPGD only	B 50 - 1500 psi	N Buna-N
I 100 GPM	A 1/4" NPTF Pilot Port at end of Cartridge*		V Viton
K 200 GPM	Available for RPID, RPKD only		
	B SAE-4 Pilot Port at end of Cartridge*		
	* Maximum air pilot pressure should not exceed 150 psi.		

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Relief Valves

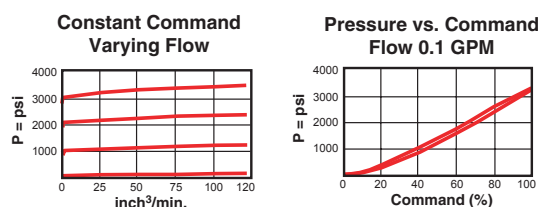
ELECTRO-PROPORTIONAL PILOT



Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions				Installation Torque (lb. ft.)
			a	b	c	d	
.25 GPM	RBAP – MAN	T - 8A	.75	7/8	.59	2.76	25/30

Performance Curves

RBAP



- Maximum operating pressure = 5000 psi
- Maximum leakage = 1.5 in³/min at reseal
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to valve setting
- Reseat exceeds 85% of cracking pressure.
- Hysteresis with dither <4%
- Hysteresis with DC input <8%
- Linearity with dither <2%
- For optimum performance, an amplifier with current sensing and adjustable dither should be used. Dither should be adjustable between 100 - 250 Hz.

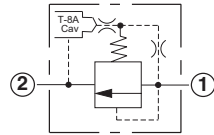
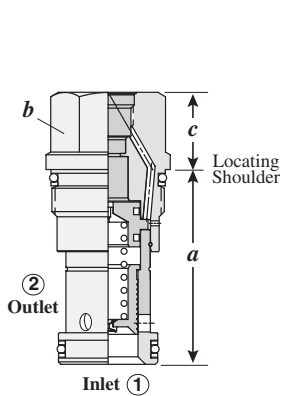
OPTION ORDERING INFORMATION Model Codes printed in Red are Preferred Versions and most readily available

RB A P – ★ ★ ★			
Nominal Capacity	Control	Adjustment Range	Seal
A .25 GPM	M Manual Override (Standard)	A 300 - 3000 psi	N Buna-N
	NOTE: Coil must be ordered separately. Use 12V DC or 24V DC (Series 770-***) coils only. See page 167.	B 150 - 1500 psi	V Viton
		W 500 - 5000 psi	

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Relief Valves

BALANCED PISTON, MODULATING ELEMENT WITH INTEGRAL PILOT CONTROL CAVITY

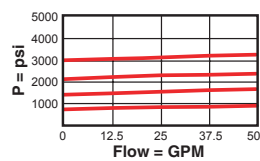


The -8 control option allows a pilot control valve to be incorporated directly into the end of the modulating element via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges on page 121.

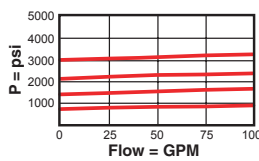
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions			Installation Torque (lb. ft.)
			a	b	c	
25 GPM	RPEC - 8WN	T - 10A	1.56	7/8	.75	30/35
50 GPM	RPGC - 8WN	T - 3A	1.88	1 1/8"	.69	45/50
100 GPM	RPIC - 8WN	T - 16A	2.44	1 1/4"	.97	150/160
200 GPM	RPKC - 8WN	T - 18A	3.13	1 5/8"	1.18	350/375

Performance Curves

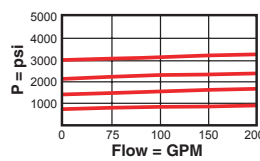
RPEC-8



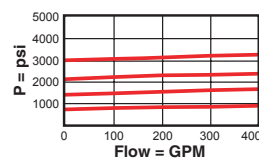
RPGC-8



RPIC-8



RPKC-8



- Maximum operating pressure = 5000 psi
- Will accept maximum pressure at Port 2.
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to the valve setting
- Control pilot flow = RPEC-8: 7 to 10 in³/min., RPGC-8: 10 to 15 in³/min., RPIC, RPKC-8: 15 to 20 in³/min.
- Maximum leakage = RPEC-8: 2 in³/min./1000 psi; RPGC-8: 3 in³/min./1000 psi; RPIC-8: 4 in³/min./1000 psi; RPKC-8: 5 in³/min./1000 psi.
- 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.

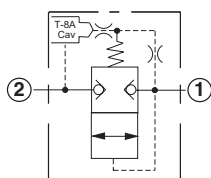
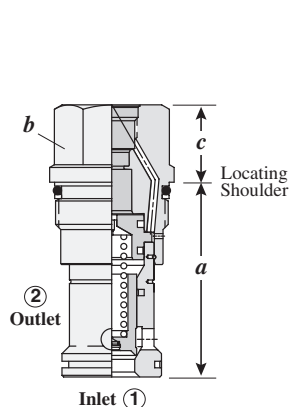
OPTION ORDERING INFORMATION **Model Codes printed in Red are Preferred Versions and most readily available**

RP ★ C - 8 ★ ★			
Nominal Capacity	Control	Minimum Control Pressure	Seal
E 25 GPM	8 T-8A Cavity in hex body for pilot operation (Pilot valve to be ordered separately)	D 25 psi	N Buna-N
G 50 GPM		W 100 psi	V Viton
I 100 GPM			
K 200 GPM			

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Relief Valves

BALANCED POPPET, MODULATING ELEMENT WITH INTEGRAL PILOT CONTROL CAVITY



The -8 control option allows a pilot control valve to be incorporated directly into the end of the modulating element 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 on page 121.

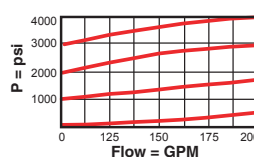
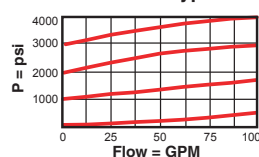
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions			Installation Torque (lb. ft.)
			a	b	c	
50 GPM	RPGS - 8WN	T - 3A	1.88	1 1/8"	.69"	45/50
100 GPM	RPIS - 8WN	T - 16A	2.44	1 1/4"	.97	150/160

Performance Curves

RPGS-8

RPIS-8

Typical Pressure Rise



- Maximum operating pressure = 5000 psi
- Will accept maximum pressure at Port 2.
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to the valve setting.
- Typical response time 10 ms
- Control pilot flow = RPGS-8: 10 to 15 in³/min., RPIS-8: 15 to 20 in³/min.
- Maximum leakage = 10 drops/min. at reseal
- Reseat exceeds 90% of cracking pressure.
- 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.

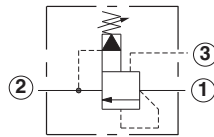
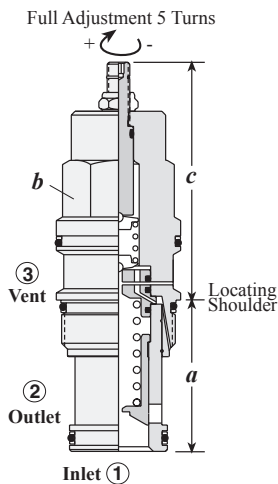
OPTION ORDERING INFORMATION

RP ★ S - 8 ★ ★			
Nominal Capacity	Control**	Minimum Control Pressure	Seal
G 50 GPM	8 T-8A Cavity in hex body for pilot operation (Pilot valve to be ordered separately)	B 50 psi	N Buna-N
I 100 GPM		W 100 psi	V Viton

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Relief Valves

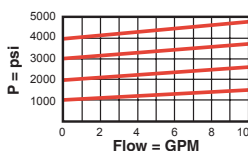
VENTABLE, PILOT OPERATED, BALANCED PISTON



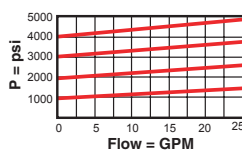
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions					Installation Torque (lb. ft.)
			a	b	c			
					L	C	K	
7.5 GPM	RVBA – LAN	T - 163A	1.22	3/4”	2.55	2.63	2.77	25/30
15 GPM	RVCA – LAN	T - 11A	1.38	7/8”	2.50	2.56	2.75	30/35
30 GPM	RVEA – LAN	T - 2A	1.38	1 1/8”	2.81	2.88	3.06	45/50
60 GPM	RVGA – LAN	T - 17A	1.81	1 1/4”	3.28	3.31	3.53	150/160
120 GPM	RVIA – LAN	T - 19A	2.50	1 5/8”	3.94	4.09	4.19	350/375

Performance Curves

RVBA

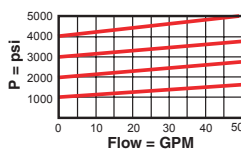


RVCA

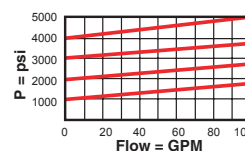


RVEA

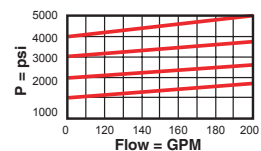
Typical Pressure Rise



RVGA



RVIA



- Maximum operating pressure = 5000 psi
- Pressure at port 3 (vent) controls the valve below its setting.
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to the valve setting.
- Control pilot flow = RVBA, RVCA: 7 to 10 in³/min.; RVEA: 10 to 15 in³/min.; RVGA, RVIA: 15 to 20 in³/min.
- Factory pressure setting established at 4 GPM
- Typical response time 10 ms.
- Maximum leakage = RVBA, RVCA: 2 in³/min./1000 psi, RVEA: 3 in³/min./1000 psi, RVGA: 4 in³/min./1000 psi, RVIA: 5 in³/min./1000 psi
- RVBA minimum setting for all spring ranges is 75 psi
- Will accept maximum pressure at port 2.

OPTION ORDERING INFORMATION **Model Codes printed in Red are Preferred Versions and most readily available**

RV ★ A – ★ ★ ★			
Nominal Capacity	Control**	Adjustment Range	Seal
B 7.5 GPM*	L Standard Screw	A 100 - 3000 psi	N Buna-N
C 15 GPM	C Tamper Resistant	B 50 - 1500 psi	V Viton
E 30 GPM	K Handknob	C 150 - 6000 psi	
G 60 GPM		N 60 - 800 psi	
I 120 GPM		Q 60 - 400 psi	
		W 150 - 4500 psi	

Adjustment Range Options:

A, B, C, and W are standard set at 1000 psi.

N Option is standard set at 400 psi.

Q Option is standard set at 200 psi.

* Minimum setting 75 psi on all ranges.

Customer may specify pressure setting.

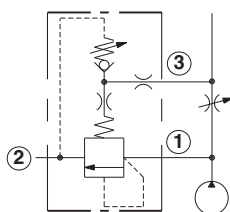
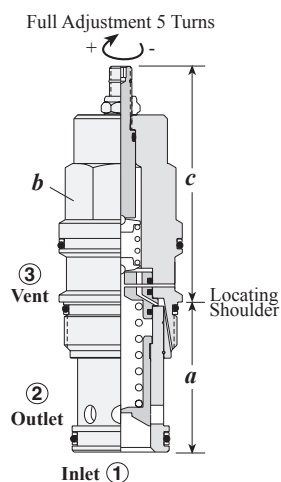
** See page 162 for information on Control Options

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Relief Valves

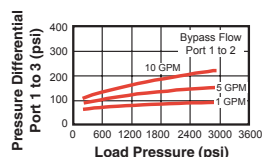
MODULATING ELEMENT WITH RELIEF FUNCTION



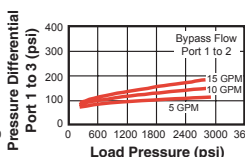
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions					Installation Torque (lb. ft.)
			a	b	c			
					L	C	K	
2.5 GPM	RVBB – LAN	T - 163A	1.22	3/4"	2.55	2.63	2.77	25/30
5 GPM	RVCB – LAN	T - 11A	1.38	7/8"	2.50	2.56	2.75	30/35
10 GPM	RVEB – LAN	T - 2A	1.38	1 1/8"	2.81	2.88	3.06	45/50
20 GPM	RVGB – LAN	T - 17A	1.81	1 1/4"	3.28	3.31	3.53	150/160
40 GPM	RVIB – LAN	T - 19A	2.50	1 5/8"	3.94	4.09	4.19	350/375

Performance Curves

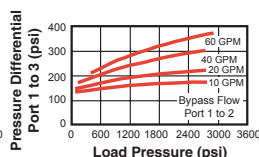
RVBB



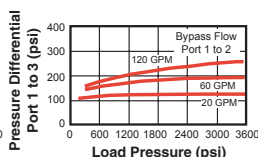
RVCB



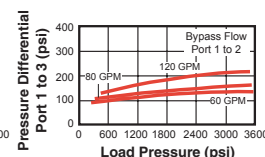
RVEB



RVGB



RVIB



Typical Compensator Differentials

- Maximum operating pressure = 5000 psi
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to the valve setting.
- Factory pressure setting established at 4 GPM
- Typical response time 10 ms.
- Maximum leakage = RVBB, RVCB: 2 in³/min./1000 psi, RVEB: 3 in³/min./ 1000 psi, RVGB: 4 in³/min./1000 psi, RVIB: 5 in³/min./1000 psi

OPTION ORDERING INFORMATION

RV ★ B – ★ ★ ★			
Nominal Capacity	Control**	Adjustment Range	Seal
B 2.5 GPM*	L Standard Screw	A 100 - 3000 psi	N Buna-N
C 5 GPM	C Tamper Resistant	B 100 - 1500 psi*	V Viton
E 10 GPM	K Handknob	C 100 - 6000 psi	
G 20 GPM			
I 40 GPM			

* For RVCB, the bias pressure is 60 psi.

Adjustment Range Options:

A, B, and C are standard set at 1000 psi.

* Minimum setting 100 psi on all ranges.

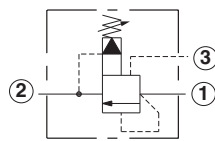
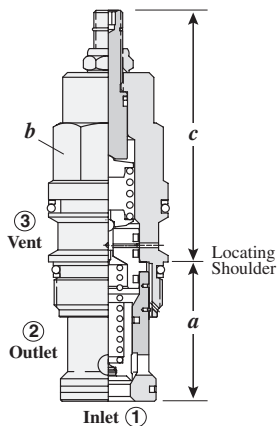
Customer may specify pressure setting.

** See page 162 for information on Control Options

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Relief Valves

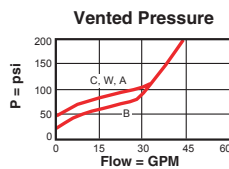
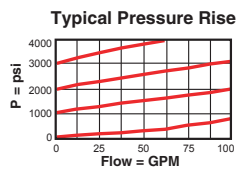
VENTABLE, PILOT OPERATED, BALANCED POPPET



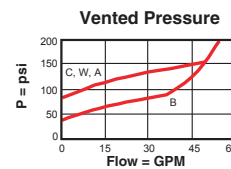
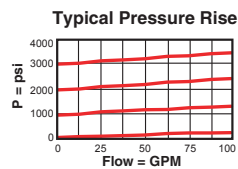
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions					Installation Torque (lb. ft.)
			a	b	c			
					L	C	K	
30 GPM	RVES – LAN	T - 2A	1.38	1 1/8"	2.81	2.88	3.06	45/50
50 GPM	RVGS – LAN	T - 17A	1.81	1 1/4"	3.28	3.31	3.53	150/175

Performance Curves

RVES



RVGS



- Maximum operating pressure = 5000 psi.
- Will accept maximum pressure at port 2
- Pressure at port 3 (vent) controls the valve below its setting.
- Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to the valve setting.
- Factory pressure setting established at 4 GPM
- Maximum leakage at reseal = 10 drops/min.
- Reseat exceeds 90% of cracking pressure.
- Typical response 10 ms
- Control pilot flow = RVES: 10 to 15 in³/min, RVGS: 15 to 20 in³/min.

OPTION ORDERING INFORMATION

RV ★ S - ★ ★ ★			
Nominal Capacity	Control**	Adjustment Range	Seal
E 30 GPM	C Tamper Resistant Factory Set	A 100 - 3000 psi	N Buna-N
G 50 GPM	K Handknob	B 50 - 1500 psi	V Viton
	L Standard Screw Adjustment	C 150 - 6000 psi	
		N 60 - 800 psi	
		Q 60 - 400 psi	
		W 100 - 4500 psi	

Adjustment Range Options:

- A, B, C and W are standard set at 1000 psi.
- N Option is standard set at 400 psi.
- Q option is standard set at 200 psi.

** See page 162 for information on Control Options

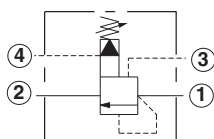
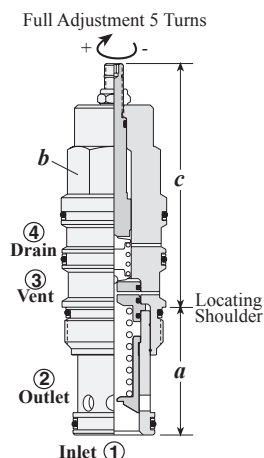
Customer may specify pressure settings.

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Relief Valves

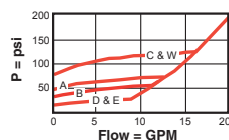
VENTABLE, PILOT OPERATED, BALANCED PISTON WITH EXTERNAL DRAIN



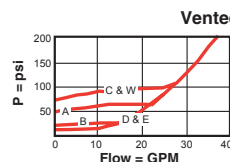
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions					Installation Torque (lb. ft.)
			a	b	c			
					L	C	K	
15 GPM	RVCD – LAN	T - 21A	1.38	7/8"	3.09	3.15	3.34	30/35
30 GPM	RVED – LAN	T - 22A	1.38	1 1/8"	3.44	3.50	3.69	45/50
60 GPM	RVGD – LAN	T - 23A	1.81	1 1/4"	3.93	3.99	4.19	150/160
120 GPM	RVID – LAN	T - 24A	2.50	1 5/8"	4.78	4.90	5.03	350/375

Performance Curves

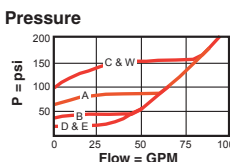
RVCD



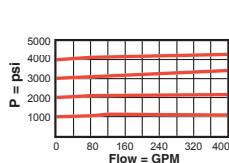
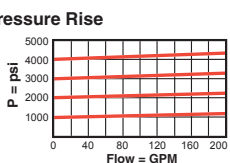
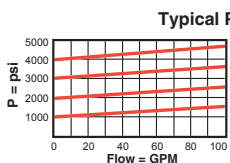
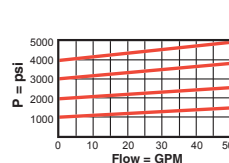
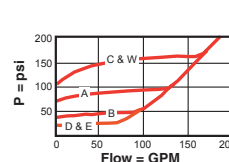
RVED



RVGD



RVID



- Maximum operating pressure = 5000 psi
- Pressure at port 4 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi
- Pressure at port 3 (vent) controls the valve below its setting.
- Control pilot flow = RVCD: 7 to 10 in³/min.; RVED: 10 to 15 in³/min.; RVGD, RVID: 15 to 20 in³/min.
- Factory pressure setting established at 4 GPM
- Typical response time 10 ms.
- Maximum leakage = RVCD: 2 in³/min./1000 psi, RVED: 3 in³/min./1000 psi, RVGD: 4 in³/min./1000 psi, RVID: 5 in³/min./1000 psi.

OPTION ORDERING INFORMATION

RV ★ D – ★ ★ ★

Nominal Capacity	Control**	Adjustment Range	Seal
C 15 GPM	L Standard Screw	A 100 - 3000 psi	N Buna-N
E 30 GPM	C Tamper Resistant	B 50 - 1500 psi	V Viton
G 60 GPM	K Handknob	C 150 - 6000 psi	
I 120 GPM		D 25 - 800 psi	
		E 25 - 400 psi	
		W 150 - 4500 psi	

Adjustment Range Options:

A, B, C, and W are standard set at 1000 psi.

D Option is standard set at 400 psi.

E Option is standard set at 200 psi.

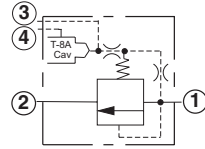
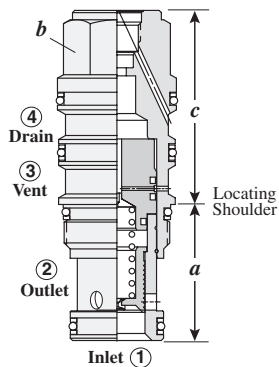
Customer may specify pressure setting.

**See page 162 for information on Control Options

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Relief Valves

VENTABLE, BALANCED PISTON, MODULATING ELEMENT WITH EXTERNAL DRAIN AND INTEGRAL PILOT CONTROL ELEMENT

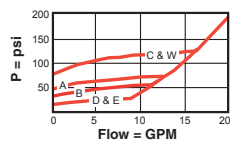


The -8 control option allows a pilot control valve to be incorporated directly into the end of the modulating element via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges on page 121.

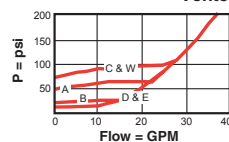
Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions			Installation Torque (lb. ft.)
			a	b	c	
15 GPM	RVCD - 8WN	T - 21A	1.38	7/8	1.78	30/35
30 GPM	RVED - 8WN	T - 22A	1.38	1 1/8	2.00	45/50
60 GPM	RVGD - 8WN	T - 23A	1.814	1 1/4	2.59	150/160
120 GPM	RVID - 8WN	T - 24A	2.50	1 5/8	3.16	350/375

Performance Curves

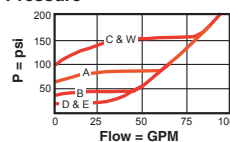
RVCD-8



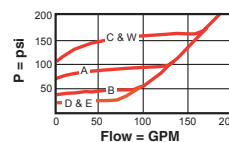
RVED-8



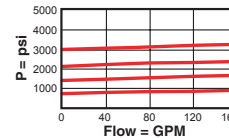
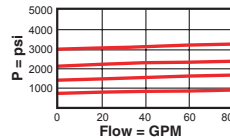
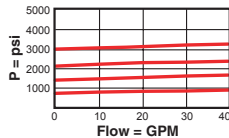
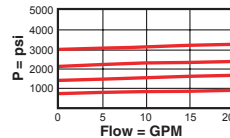
RVGD-8



RVID-8



Typical Pressure Rise



- Maximum operating pressure = 5000 psi
- Pressure at port 4 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi
- Pressure at port 3 (vent) controls the valve below its setting.
- Control pilot flow = RVCD: 7 to 10 in³/min.; RVED: 10 to 15 in³/min.; RVGD, RVID: 15 to 20 in³/min.
- Factory pressure setting established at 4 GPM
- Typical response time 10 ms.
- Maximum leakage = RVCD: 2 in³/min./1000 psi, RVED: 3 in³/min./1000 psi, RVGD: 4 in³/min./1000 psi, RVID: 5 in³/min./1000 psi.

OPTION ORDERING INFORMATION

RV ★ D - 8 ★ ★			
Nominal Capacity	Control	Minimum Control Pressure	Seal
C 15 GPM	8 T-8A Cavity in hex body for pilot operation (Pilot valve to be ordered separately)	D 27 psi	N Buna-N
E 30 GPM		W 100 psi	V Viton
G 60 GPM			
I 120 GPM			

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