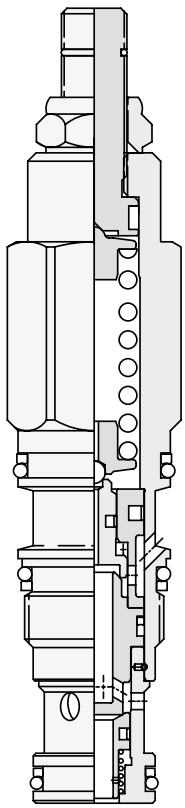
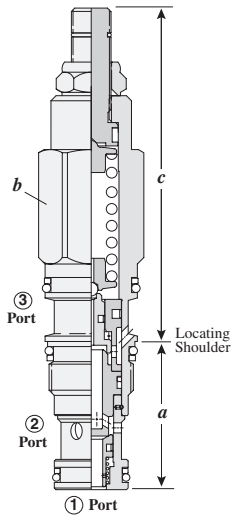
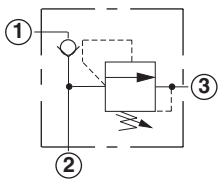
Hybrid Relief Valves



DIRECT ACTING RELIEF VALVE - BEFORE CHECK

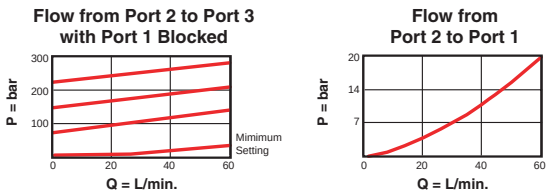




Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions a	b	c L	c C	c K	Installation Torque (Nm)
40 L/min.	**HRDA – LAN**	T - 11A	35,0	22,2	78,9	80,2	85,0	45/50

Performance Curves

HRDA



- Maximum operating pressure = 350 bar
- Maximum valve leakage at reseat = 0,3 cc/min.
- Reseat exceeds 85% of crack pressure
- Factory pressure setting established at 15 L/min.
- Free flow check cracking pressure = 1,7 bar
- Typical response = 2 ms
- The check portion of the valve has a maximum leakage rate of less than 0,07 cc/min.
- Note: This valve deviates from Sun's normal flow path for three port relief valves; port 2 is the inlet, port 1 is the system and port 3 is tank. Therefore, it is probably not useable in existing standard Sun relief manifolds.

OPTION ORDERING INFORMATION

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

HR D A – L A N

Nominal Capacity	*Control***	*Adjustment Range*	*Seal*
D 40 L/min.	**L** Standard Screw Adjustment	**A** 35 - 210 bar	**N** Buna-N
	C Tamper Resistant Factory Set	**W** 55 - 315 bar	**V** Viton
	K Handknob		

** *See page 162 for information on Control Options*

Customer may specify pressure setting.

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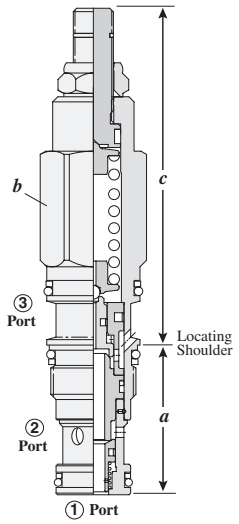
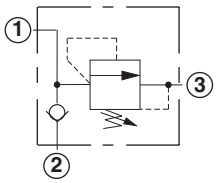
DIRECT ACTING RELIEF VALVE - AFTER CHECK

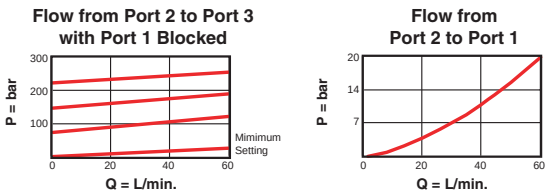




Capacity	*Typical Cartridge Model Code*	*Cavity*	*Cartridge Dimensions* *a*	*b*	*c* L	C	K	*Installation Torque (Nm)*
40 L/min.	**HRDB – LAN**	T - 11A	35,0	22,2	78,9	80,2	85,0	45/50

Performance Curves

HRDB



- Maximum operating pressure = 350 bar
- Maximum valve leakage at reseat = 0,3 cc/min.
- Reseat exceeds 85% of crack pressure
- Factory pressure setting established at 15 L/min.
- Free flow check cracking pressure = 1,7 bar
- Typical response = 2 ms
- The check portion of the valve has a maximum leakage rate of less than 0,07 cc/min.
- Note: This valve deviates from Sun's normal flow path for three port relief valves; port 2 is the inlet, port 1 is the system and port 3 is tank. Therefore, it is probably not useable in existing standard Sun relief manifolds.

OPTION ORDERING INFORMATION

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

HR D B – L A N

Nominal Capacity	*Control***	*Adjustment Range*	*Seal*
D 40 L/min.	**L** Standard Screw Adjustment	**A** 35 - 210 bar	**N** Buna-N
	C Tamper Resistant Factory Set	**W** 55 - 315 bar	**V** Viton
	K Handknob		

** *See page 162 for information on Control Options*

Customer may specify pressure setting.

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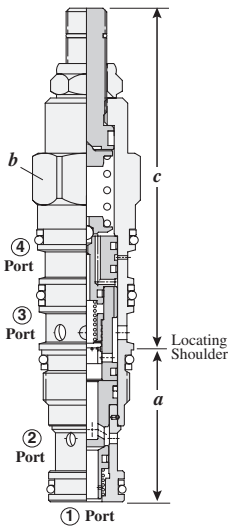
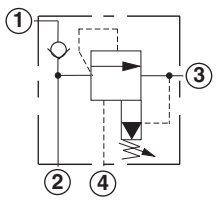
VENTABLE, PILOT OPERATED, BALANCED PISTON, RELIEF VALVE - BEFORE CHECK

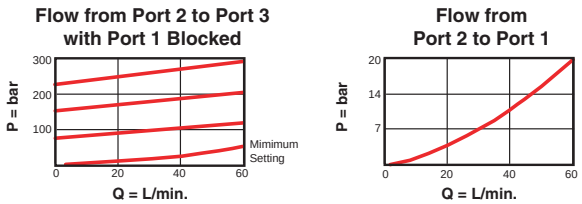




Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions a	b	c L	c C	c K	Installation Torque (Nm)
40 L/min.	**HVCA – LAN**	T - 21A	35,0	22,2	78,9	80,2	85,0	45/50

Performance Curves

HVCA



- Maximum operating pressure = 350 bar
- Maximum valve leakage (port 2 to port 3) = 32,8 cc/min. at 70 bar
- Factory pressure setting established at 15 L/min.
- Free flow check cracking pressure = 1,7 bar
- Typical response = 10 ms
- Minimum setting is 5 bar for all spring ranges.
- Back pressure at port 3 (tank) is directly additive to the valve setting at a 1:1 ratio.
- Pressure at port 4 (vent) controls the valve below its setting.
- The check portion of the valve has a maximum leakage rate of less than 0,07 cc/min.
- Note: This valve deviates from Sun's normal flow path for four port relief valves; port 2 is the inlet, port 1 is the system, port 3 is tank and port 4 is vent. Therefore, it is probably not useable in existing standard Sun relief manifolds.

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

HV C A – L A N

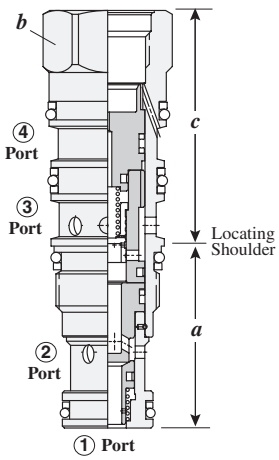
Nominal Capacity	*Control***	*Adjustment Range*	*Seal*
C 40 L/min.	**L** Standard Screw Adjustment	**A** 5 - 210 bar	**N** Buna-N
		B 5 - 105 bar	**V** Viton
	C Tamper Resistant Factory Set	**D** 5 - 55 bar	
	K Handknob	**W** 5 - 315 bar	

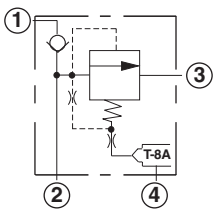
** *See page 162 for information on Control Options*

Customer may specify pressure setting.

Visit www.sunhydraulics.com for detailed and complete technical information on our full line of products.

VENTABLE, PILOT OPERATED, BALANCED PISTON, RELIEF VALVE - BEFORE CHECK WITH INTEGRAL PILOT CONTROL CAVITY



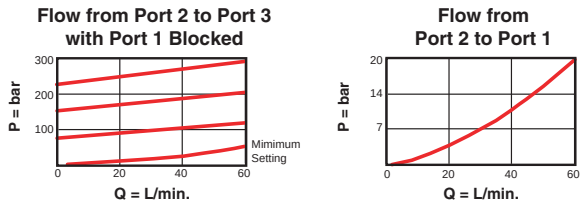


The -8 control option allows the pilot control valve to be incorporated directly into the end of the relief cartridge via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges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

Capacity	*Typical Cartridge Model Code*	*Cavity*	*Cartridge Dimensions*			*Installation Torque (Nm)*
			a	*b*	*c*	
40 L/min.	**HVCA – 8DN**	T - 21A	35,0	22,2	45,2	45/50

Performance Curves

HVCA-8



- Maximum operating pressure = 350 bar
- Maximum valve leakage (port 2 to port 3) = 32,8 cc/min. at 70 bar
- Free flow check cracking pressure = 1,7 bar
- Minimum setting is 5 bar for all spring ranges.
- Back pressure at port 4 (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 0,07 cc/min.
- Note: This valve deviates from Sun's normal flow path for four port relief valves; port 2 is the inlet, port 1 is the system, port 3 is tank and port 4 is vent. Therefore, it is probably not useable in existing standard Sun relief manifolds.
- 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

HV C A – 8 D N

Nominal Capacity	*Control*	*Adjustment Range*	*Seal*
C 40 L/min.	**8** with T-8A cavity in hex body for pilot operation (see pilot control section for alternate options)	**D** 5 bar	**N** Buna-N **V** Viton

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NOTES