Ventable, Pilot operated, balanced piston, Relief valve - before check

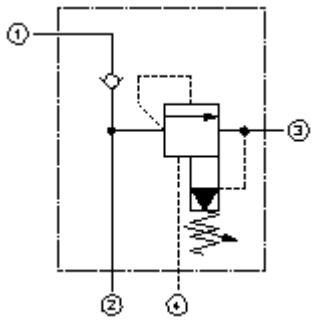
Capacity:
10 gpm (40 L/min.)

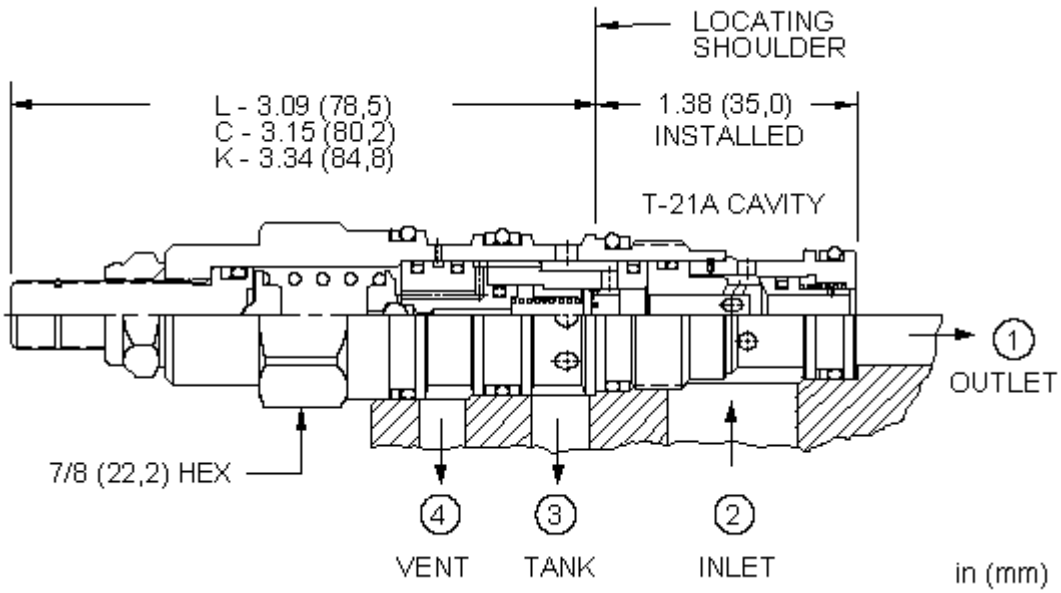
Functional Group:
Products : Cartridges : Relief - Before Check : 4 Port : Pilot Operated, Balanced Piston, Ventable

Model:
HVCA

Product Description

The ventable relief-before-check cartridge is a hybrid 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 function is after the relief function, allowing flow from the inlet (port 2) to the system (port 1). 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 and quiet, and are moderately fast.





Technical Features

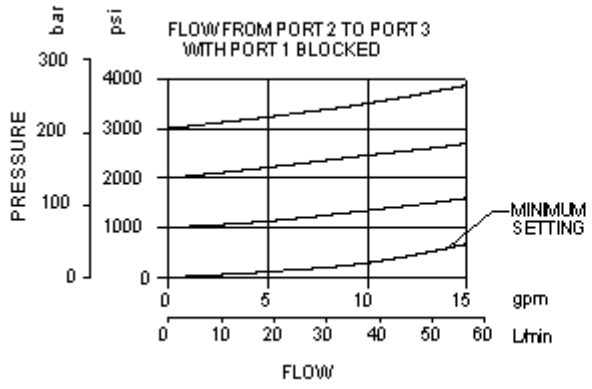
- Incorporates the Sun floating style construction to eliminate the effects of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.
- Back pressure at port 3 (tank) is directly additive to the valve setting at a 1:1 ratio.
- One purpose of this dual 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! 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.
- The check portion of the valve has a maximum leakage rate of less than 1 drop/minute.
- Pressure at port 4 (vent) controls the valve below its setting.

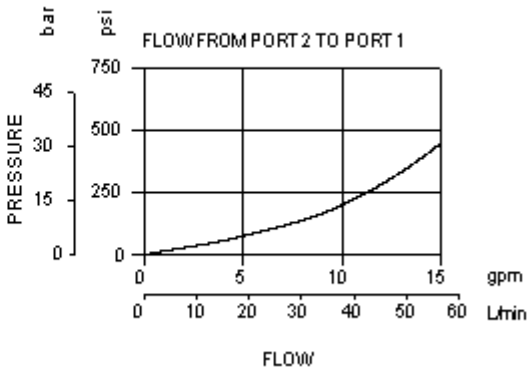
Technical Data

	US Units	Metric Units
Cavity	T-21A	
Model Weight	.35 lb	0,15 kg
Capacity	10 gpm	40 L/min.
Typical Response Time	10 ms	10 ms
Adjustment Nut Torque	108 lbf in.	12 Nm
Maximum Valve Leakage	2 in^3/min.@1000 psi	32,8 cc/min.@70 bar
Free Flow Check Cracking Pressure	25 psi	1,7 bar
Valve Installation Torque	30 - 35 lbf ft	45 - 50 Nm
Factory Pressure Settings Established at	4 gpm	15 L/min.
Full Adjustment-Number of Clockwise Turns to Increase Setting	5	5
Allen Wrench Hex Size	5/32 in.	4 mm
Maximum Operating Pressure	5000 psi	350 bar
Valve Hex Size	7/8 in.	22,2 mm
Adjustment Nut Hex Size	9/16 in.	15 mm

Seal Kits

Buna	990-021-007
Viton	990-021-006





Option Selection

HVCA - L A N

Preferred Options

Control

Adjustment Range

Seal

Additional Options

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

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 (30 bar) Standard Setting
W 75 - 4500 psi (5 - 315 bar), 1000 psi (70 bar) Standard Setting

N Buna-N
V Viton

Ventable, Pilot operated, balanced piston, Relief valve - before check

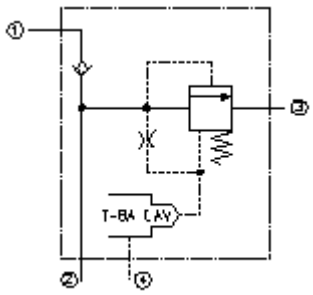
Capacity:
10 gpm (40 L/min.)

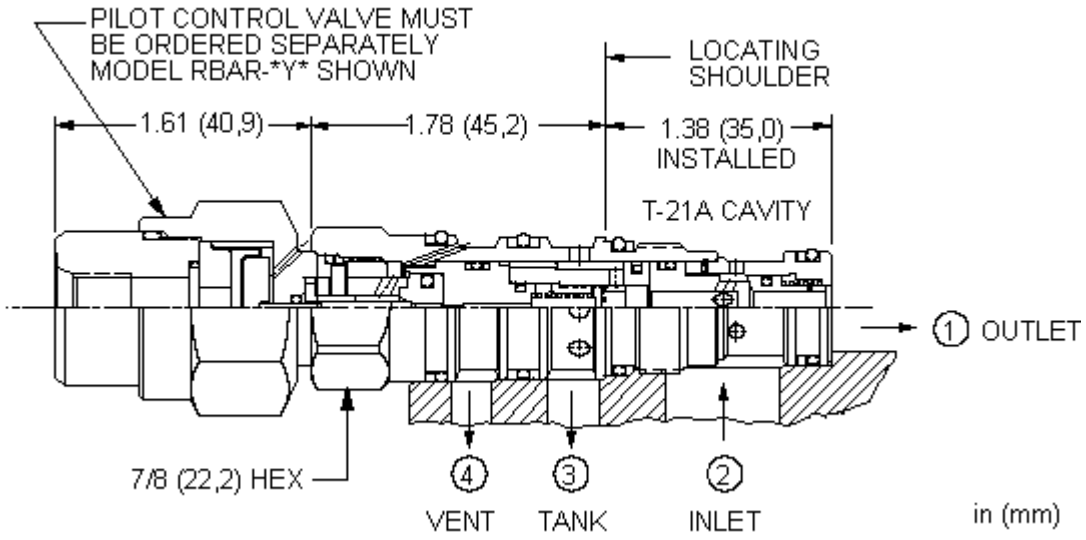
Functional Group:
Products : Cartridges : Relief - Before Check : 4 Port : Normally Closed, Balanced Piston Modulating Element w/ Integral Pilot Control Cavity

Model:
HVCA-8

Product Description

The relief-before-check cartridge is a hybrid valve incorporating a normally closed, balanced piston modulating element tee'd in before a check function. The valve incorporates an integral pilot control cavity, that accepts any T-8A pilot control cartridge. When the pressure at the inlet (port 2) reaches the pilot relief valve setting, the modulating element starts to open to tank (port 3), throttling flow to regulate the pressure. The check valve function is after the relief function, allowing flow from the inlet (port 2) to the system (port 1). These valves have low pressure rise vs. flow, are smooth and quiet, and are moderately fast.





Technical Features

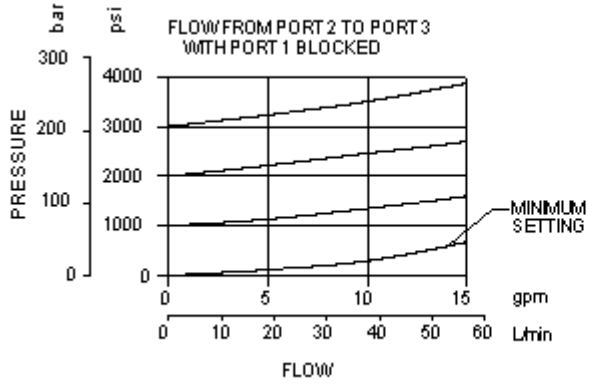
- Incorporates the Sun floating style construction to eliminate the effects of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.
- The check portion of the valve has a maximum leakage rate of less than 1 drop/minute.
- NOTE: With the -8 control 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.
- Note! This valve deviates from Sun's normal flow path for relief valves. It is probably not useable in current Sun relief manifolds.
- The main stage orifice is protected against contamination.
- 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 -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 solenoid operation, air pilot operation, and hydraulic pilot operation. See Pilot Control Cartridges.

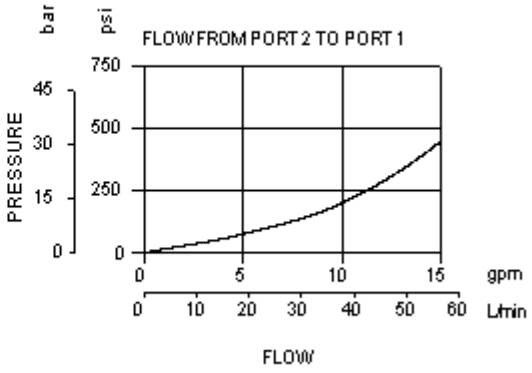
Technical Data

	US Units	Metric Units
Cavity	T-21A	
Pilot Control Valve Installation Torque	25-30 lbf ft	25-30
Pilot Control Cavity	T-8A	T-8A
Capacity	10 gpm	40 L/min.
Typical Response Time	10 ms	10 ms
Maximum Valve Leakage	2 in^3/min.@1000 psi	32,8 cc/min.@70 bar
Free Flow Check Cracking Pressure	25 psi	1,7 bar
Valve Installation Torque	30 - 35 lbf ft	45 - 50 Nm
Factory Pressure Settings Established at	4 gpm	15 L/min.
Maximum Operating Pressure	5000 psi	350 bar
Valve Hex Size	7/8 in.	22,2 mm

Seal Kits

Buna	990-021-007
Viton	990-021-006





Option Selection

HVCA - 8 D N

Preferred Options

	Bias Pressure	Seal

Additional Options

	D 75 psi (5 bar)	N Buna-N V Viton

Model Code : HVCA-8 **PrintDate :** 9 August 2002

Direct acting, Relief valve - before check

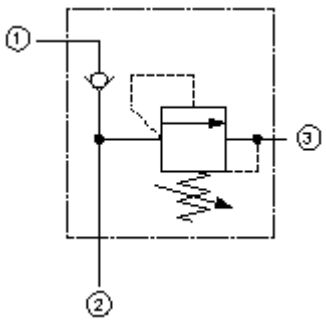
Capacity:
10 gpm (40 L/min.)

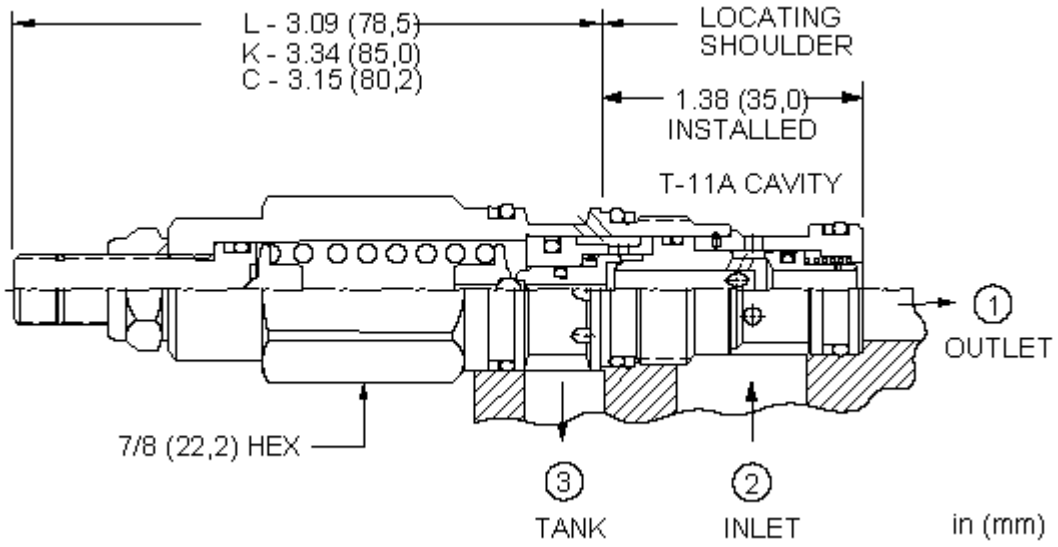
Functional Group:
Products : Cartridges : Relief - Before Check : 3 Port : Direct Acting

Model:
HRDA

Product Description

The relief-before-check cartridge is a hybrid 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 function is after the relief function, allowing flow from the inlet (port 2) to the system (port 1). These valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.





Technical Features

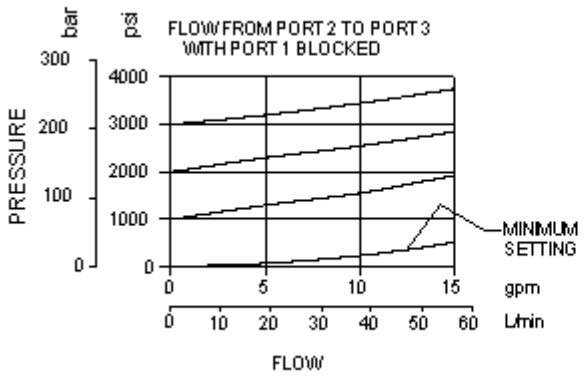
- Incorporates the Sun floating style construction to eliminate the effects of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.
- Select a spring range where the desired relief setting is approximately mid-range between the minimum and maximum pressure to ensure maximum valve repeatability.
- The check portion of the valve has a maximum leakage rate of less than 1 drop/minute.
- The direct acting relief exhibits rapid response characteristics that minimize pressure overshoot and also provides low reseat leakage (less than 5 drops/min @ 85% of cracking pressure).
- 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.
- Suitable for use in load holding applications.
- 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! This valve deviates from Sun's normal flow path for relief valves. It is probably not useable in current Sun relief manifolds.

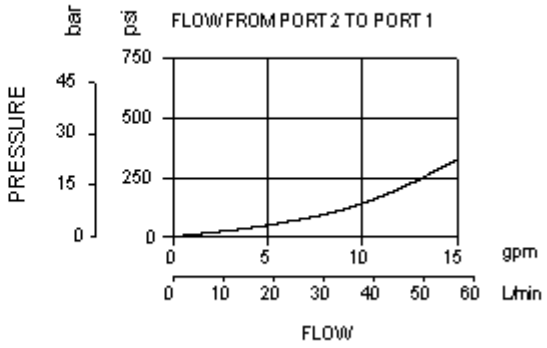
Technical Data

	US Units	Metric Units
Cavity	T-11A	
Model Weight	.35 lb	0,15 kg
Capacity	10 gpm	40 L/min.
Typical Response Time	10 ms	10 ms
Adjustment Nut Torque	108 lbf in.	12 Nm
Free Flow Check Cracking Pressure	25 psi	1,7 bar
Valve Installation Torque	30 - 35 lbf ft	45 - 50 Nm
Factory Pressure Settings Established at	4 gpm	15 L/min.
Maximum Valve Leakage at Reseat	5 drops/min.	0,4 cc/min.
Allen Wrench Hex Size	5/32 in.	4 mm
Maximum Operating Pressure	5000 psi	350 bar
Full Adjustment-Number of Clockwise Turns to Increase Setting	6	6
Valve Hex Size	7/8 in.	22,2 mm
Adjustment Nut Hex Size	9/16 in.	15 mm

Seal Kits

Buna	990-011-007
Viton	990-011-006





Option Selection

HRDA - L A N

Preferred Options

Control

Adjustment Range

Seal

Additional Options

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

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

N Buna-N
V Viton

Direct acting, Relief valve - after check

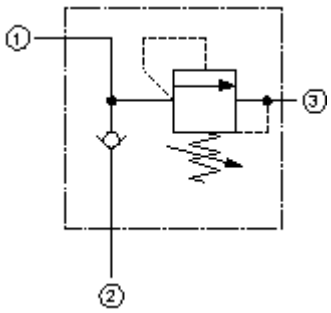
Capacity:
10 gpm (40 L/min.)

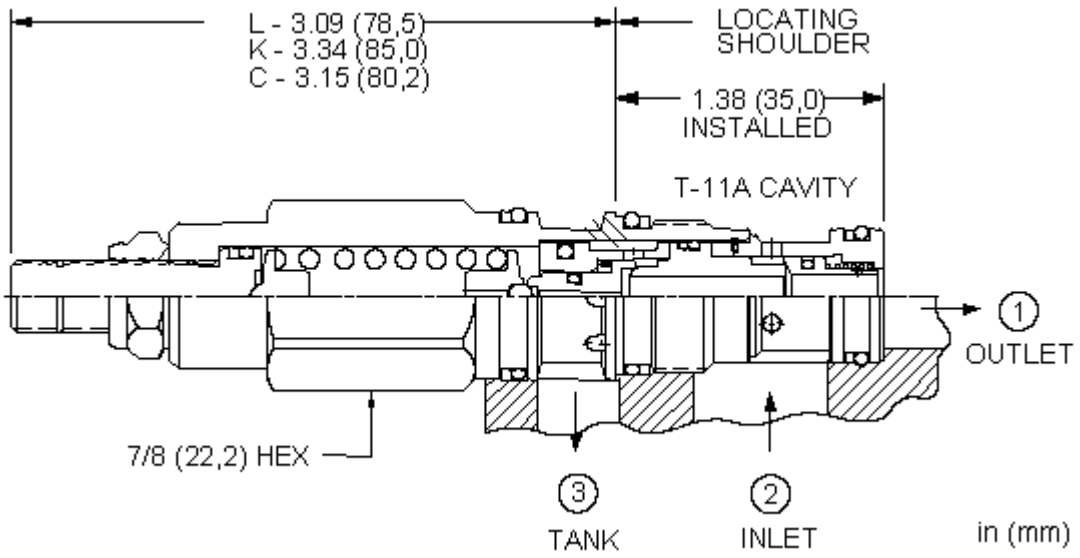
Functional Group:
Products : Cartridges : Relief - After Check : 3 Port : Direct Acting

Model:
HRDB

Product Description

The relief-after-check cartridge is a hybrid valve incorporating a direct-acting relief tee'd in after a check function. The check valve function is before the relief function, allowing flow from the inlet (port 2) to the system (port 1). 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 Features

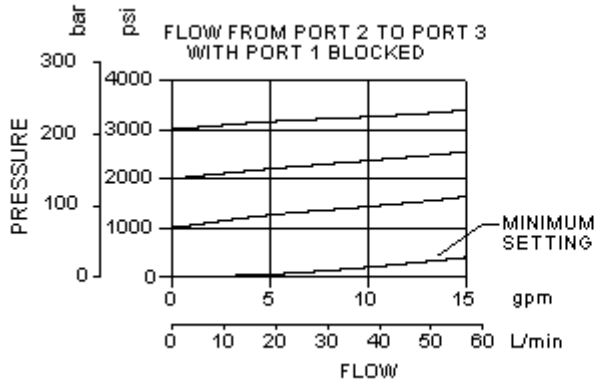
- Incorporates the Sun floating style construction to eliminate the effects of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.
- Select a spring range where the desired relief setting is approximately mid-range between the minimum and maximum pressure to ensure maximum valve repeatability.
- The check portion of the valve has a maximum leakage rate of less than 1 drop/minute.
- 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.
- Suitable for use in load holding applications.
- The direct acting relief exhibits rapid response characteristics that minimize pressure overshoot and also provides low reseat leakage (less than 5 drops/min @ 85% of cracking pressure).
- This cartridge can be used to provide relief protection on the system side of the circuit.

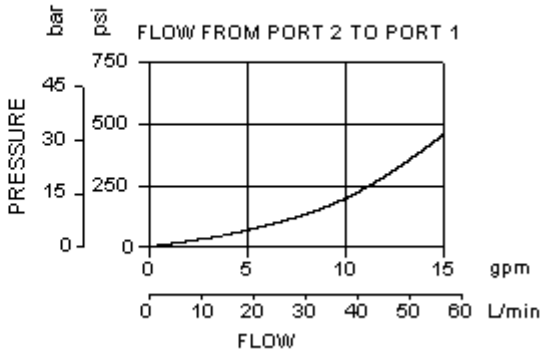
Technical Data

	US Units	Metric Units
Cavity	T-11A	
Capacity	10 gpm	40 L/min.
Typical Response Time	10 ms	10 ms
Adjustment Nut Torque	108 lbf in.	12 Nm
Free Flow Check Cracking Pressure	25 psi	1,7 bar
Valve Installation Torque	30 - 35 lbf ft	45 - 50 Nm
Factory Pressure Settings Established at	4 gpm	15 L/min.
Maximum Valve Leakage at Reseat	5 drops/min.	0,4 cc/min.
Allen Wrench Hex Size	5/32 in.	4 mm
Maximum Operating Pressure	5000 psi	350 bar
Full Adjustment-Number of Clockwise Turns to Increase Setting	6	6
Valve Hex Size	7/8 in.	22,2 mm
Adjustment Nut Hex Size	9/16 in.	15 mm

Seal Kits

Buna	990-011-007
Viton	990-011-006





Option Selection

HRDB - L A N

Preferred Options

Control

Adjustment Range

Seal

Additional Options

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

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

N Buna-N
V Viton