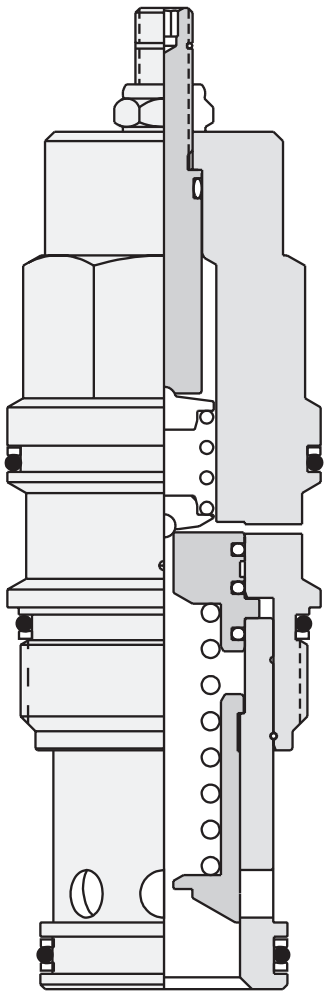
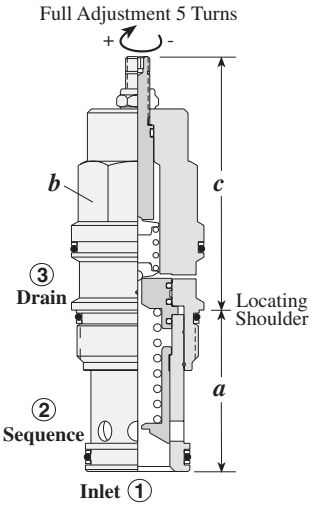
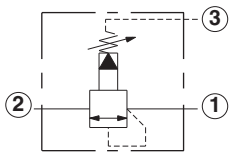
Sequence Cartridge Valves



PILOT OPERATED, BALANCED PISTON



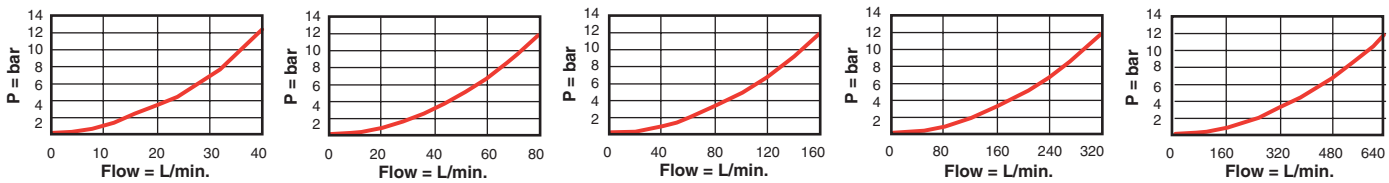


Capacity	*Typical Cartridge Model Code*	*Cavity*	*Cartridge Dimensions* *a*	*b*	*c* L	C	K	*Installation Torque (Nm)*
30 L/min.	**RSBC – LAN**	T - 163A	31,0	19,1	64,8	66,8	70,4	35 - 40
60 L/min.	**RSDC – LAN**	T - 11A	35,1	22,2	63,5	67,3	70,0	45 - 50
120 L/min.	**RSFC – LAN**	T - 2A	35,1	28,6	71,4	73,2	77,7	60 - 70
240 L/min.	**RSHC – LAN**	T - 17A	46,0	31,8	83,3	84,1	89,7	200 - 215
480 L/min.	**RSJC – LAN**	T - 19A	63,5	41,3	100,0	103,9	106,4	465 - 500

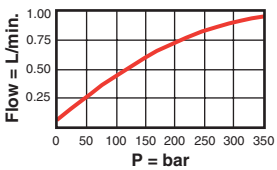
Performance Curves

RSBC **RSDC** **RSFC** **RSHC** **RSJC**

Pressure Drop Fully Sequenced



Pilot Flow after Valve Sequence for RS*C



- Maximum operating pressure = .350 bar.
- Maximum valve leakage at 24 cSt = RSBC, RSDC: 30 cc/min. at 70 bar; RSFC: 50 cc/min. at 70 bar; RSHC: 65 cc/min. at 70 bar; RSJC: 80 cc/min. at 70 bar.
- Typical response time 10 ms.
- Pressure at port 3 is directly additive to the valve setting at a 1:1 ratio and should not exceed 350 bar.
- Pilot flow continues to increase as the pressure at port 1 (inlet), relative to the pressure at port 3 (drain), rises above the valve setting.

OPTION ORDERING INFORMATION

RS ✱ C – ✱ ✱ ✱

Nominal Capacity

B 30 L/min.
D 60 L/min.
F 120 L/min.
H 240 L/min.
J 480 L/min.

Control**

L Standard Screw Adjustment
C* Tamper Resistant Factory Set
K Handknob with Lock Knob

** Special setting required. Specify at time of order.*

*** See page 178 for information on Control Options*

Customer specified special setting stamped on hex.

Adjustment Range

RSBC only:
A 5 - 210 bar
Standard set at 70 bar
B 5 - 105 bar
Standard set at 70 bar
C 5 - 420 bar
Standard set at 70 bar
N 5 - 55 bar
Standard set at 28 bar
Q 5 - 28 bar
Standard set at 14 bar
W 5 - 315 bar
Standard set at 70 bar

RSDC, RSFC, RSHC, RSJC only:
A 7 - 210 bar
Standard set at 70 bar
B 3,5 - 105 bar
Standard set at 70 bar
C 10 - 420 bar
Standard set at 70 bar
W 10 - 315 bar
Standard set at 70 bar

Seal Material

N Buna-N
V Viton

Consult the Sun website for our most recent and complete information on the full Corrosion Resistant line of products.

Adjustment Ranges (Continued)

RSDC, RSFC, RSHC only:
N 4 - 55 bar
Standard set at 28 bar

RSDC, RSFC, RSJC only:
Q 4 - 28 bar
Standard set at 14 bar

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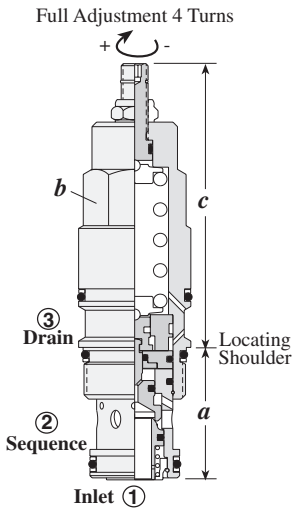
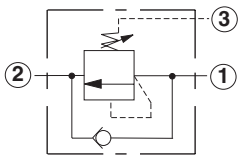
DIRECT ACTING WITH REVERSE FLOW CHECK



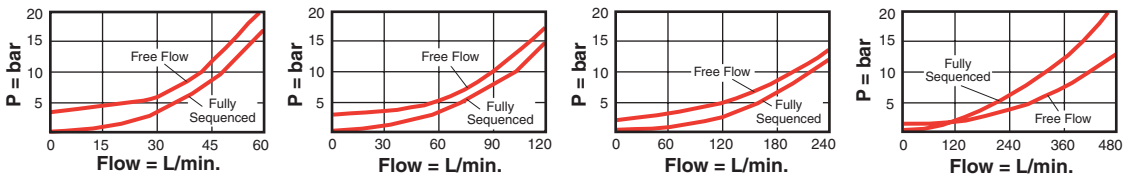


Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions a	b	c L	c C	Installation Torque (Nm)
60 L/min.	**SCCA – LAN**	T - 11A	35,1	22,2	78,5	80,0	45 - 50
120 L/min.	**SCEA – LAN**	T - 2A	35,1	28,6	88,1	89,7	60 - 70
240 L/min.	**SCGA – LAN**	T - 17A	46,0	31,8	100,0	101,6	200 - 215
480 L/min.	**SCIA – LAN**	T - 19A	63,5	41,3	122,9	128,5	465 - 500

Performance Curves

SCCA **SCEA** **SCGA** **SCIA**

Free Flow to Pressure Drop Fully Sequenced



- Maximum operating pressure = 350 bar.
- Maximum valve leakage at reseat = 0,7 cc/min.
- Reverse flow check cracking pressure = SCCA: 2,8 bar; SCEA: 1,7 bar; SCGA, SCIA: 1,5 bar.
- Typical response time 2 ms.
- Pressure at port 3 is directly additive to the valve setting at a 1:1 ratio and should not exceed 350 bar.
- Although this is a zero pilot flow valve, port 3 (drain) must be connected to maintain a pressure reference in the control chamber. If port 3 is blocked, reciprocating seal weepage will cause the valve to malfunction.

OPTION ORDERING INFORMATION

SC ✱ A – ✱ ✱ ✱

Nominal Capacity

C 60 L/min.
E 120 L/min.
G 240 L/min.
I 480 L/min.

Control**

L Standard Screw Adjustment
C* Tamper Resistant Factory Set

** Special setting required. Specify at time of order.*

*** See page 178 for information on Control Options*

Customer specified special setting stamped on hex.

Adjustment Range

A 35 - 210 bar Standard set at 70 bar
B 20 - 105 bar Standard set at 70 bar
C 140 - 420 bar Standard set at 140 bar
D 14 - 55 bar Standard set at 28 bar
W 55 - 315 bar Standard set at 70 bar

SCCA only:
E 7 - 28 bar Standard set at 14 bar

Seal Material

N Buna-N
V Viton

Consult the Sun website for our most recent and complete information on the full Corrosion Resistant line of products.

U.S. Patent #4,834,135

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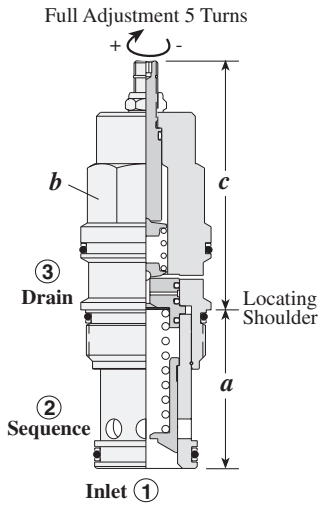
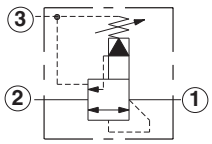
KICK-DOWN, PILOT OPERATED, BALANCED PISTON



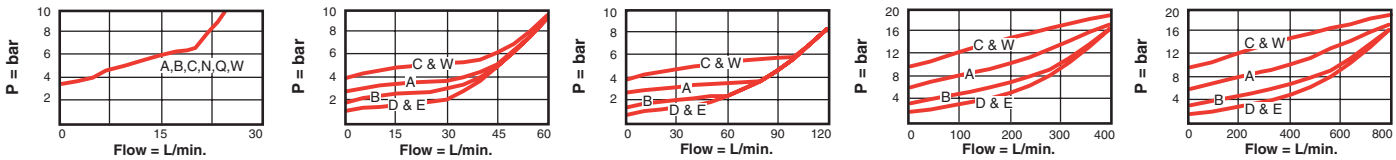


Capacity	*Typical Cartridge Model Code*	*Cavity*	*Cartridge Dimensions* *a*	*b*	*c* L	*c* C	*c* K	*Installation Torque (Nm)*
30 L/min.	**SQBB – LAN**	T - 163A	31,0	19,1	64,8	67,8	70,0	35 - 40
60 L/min.	**SQDB – LAN**	T - 11A	35,1	22,2	63,5	65,0	70,0	40 - 50
120 L/min.	**SQFB – LAN**	T - 2A	35,1	28,6	71,4	73,2	77,7	60 - 70
240 L/min.	**SQHB – LAN**	T - 17A	46,0	31,8	83,3	84,1	89,7	200 - 215
480 L/min.	**SQJB – LAN**	T - 19A	63,5	41,3	100,0	103,9	106,4	465 - 500

Performance Curves

SQBB **SQDB** **SQFB** **SQHB** **SQJB**

Pressure Drop After Opening



- Maximum operating pressure = 350 bar.
- Maximum valve leakage at 24 cSt = SQBB, SQDB: = 30 cc/min. at 70 bar; SQFB: 50 cc/min. at 70 bar; SQHB: 65 cc/min. at 70 bar; SQJB: 80 cc/min. at 70 bar.
- Typical response time 25 ms.
- Pressure at port 3 is directly additive to the valve setting at a 1:1 ratio and should not exceed 350 bar.

OPTION ORDERING INFORMATION

SQ ✱ B – ✱ ✱ ✱

Nominal Capacity

B 30 L/min.
D 60 L/min.
F 120 L/min.
H 240 L/min.
J 480 L/min.

*Control***

L Standard Screw Adjustment
C* Tamper Resistant Factory Set
K Handknob with Lock Knob

* ***Special setting required. Specify at time of order.***

** ***See page 178 for information on Control Options***

Customer specified special setting stamped on hex.

Adjustment Range

SQBB only:
A 5 - 210 bar Standard set at 70 bar
B 5 - 105 bar Standard set at 70 bar
C 5 - 420 bar Standard set at 70 bar
N 5 - 55 bar Standard set at 28 bar
Q 5 - 28 bar Standard set at 14 bar
W 5 - 315 bar Standard set at 70 bar

SQDB, SQFB, SQHB, SQJB only:
A 7 - 210 bar Standard set at 70 bar
B 3,5 - 105 bar Standard set at 70 bar
C 10,5 - 420 bar Standard set at 70 bar
D 1,7 - 55 bar Standard set at 28 bar
E 1,7 - 28 bar Standard set at 14 bar
W 10,5 - 315 bar Standard set at 70 bar

Seal Material

N Buna-N
V Viton

Consult the Sun website for our most recent and complete information on the full Corrosion Resistant line of products.

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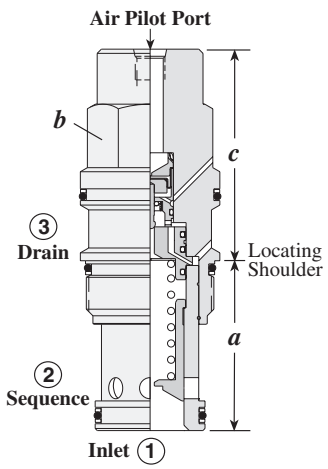
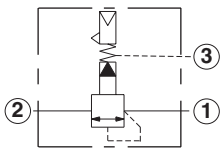
AIR CONTROLLED, PILOT OPERATED, BALANCED PISTON



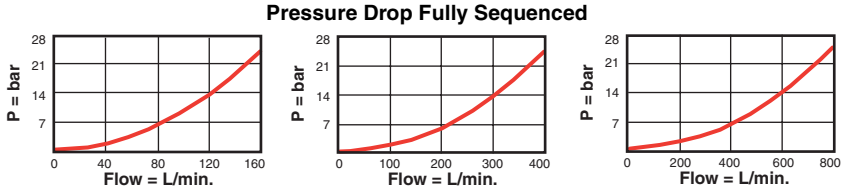


Capacity	*Typical Cartridge Model Code*	*Cavity*	*Cartridge Dimensions* *a*	*b*	*c* A	*c* B	*Installation Torque (Nm)*
120 L/min.	**RSFE – ABN**	T - 2A	35,1	28,6	50,8	-	60 - 70
240 L/min.	**RSHE – BBN**	T - 17A	46,0	31,8	-	62,7	200 - 215
480 L/min.	**RSJE – BBN**	T - 19A	63,5	41,3	-	79,2	465 - 500

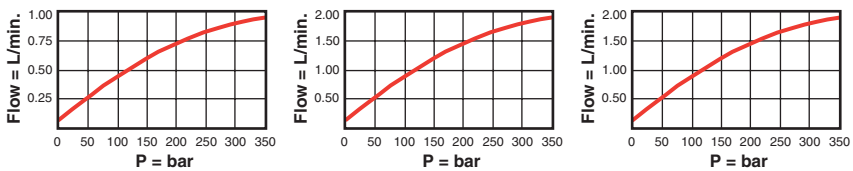
Performance Curves

RSFE **RSHE** **RSJE**

Pressure Drop Fully Sequenced



Pilot Flow after Vavle Sequence



- Pilot ratio, air to hydraulic = 20:1.
- Maximum operating pressure = 140 bar.
- Maximum air pressure = 10 bar.
- Maximum valve leakage at 24 cSt = RSFE: 50 cc/min. at 70 bar; RSHE: 65 cc/min. at 70 bar; RSJE: 80 cc/min. at 70 bar.
- Typical response time 10 ms.

OPTION ORDERING INFORMATION

RS ✱ E – ✱ B ✱

Nominal Capacity

F 120 L/min.

H 240 L/min.

J 480 L/min.

Control

Available for RSFE only

A External 1/4" NPTF Pilot Port at end of Cartridge

RSHE, RSJE only

B External SAE-4 Pilot Port at end of Cartridge

Adjustment Range

B 3,5 - 105 bar

Seal Material

N Buna-N

V Viton

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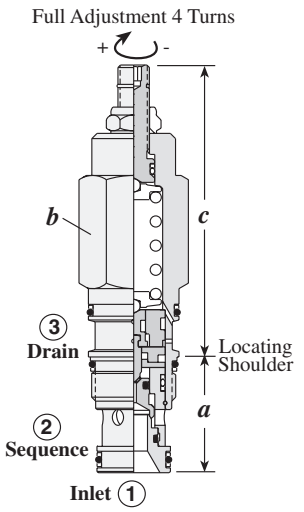
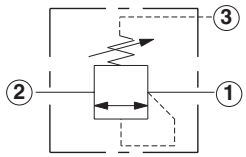
DIRECT ACTING WITHOUT REVERSE FLOW CHECK



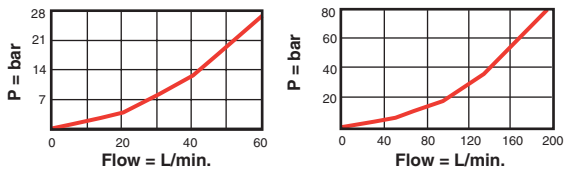


Capacity	*Typical Cartridge Model Code*	*Cavity*	*Cartridge Dimensions* *a*	*b*	*c* L	*c* C	*Installation Torque (Nm)*
60 L/min.	**SXCA – LAN**	T - 11A	35,1	22,2	78,5	80,3	45 - 50
120 L/min.	**SXEA – LAN**	T - 2A	35,1	28,6	88,1	89,9	60 - 70

Performance Curves

SXCA **SXEA**

Pressure Drop Fully Sequenced



- Maximum operating pressure = 350 bar.
- Maximum valve leakage at reseat = 0,7 cc/min. Reseat exceeds 85% of cracking pressure.
- Typical response time 2 ms.
- Pressure at port 3 is directly additive to the valve setting at a 1:1 ratio and should not exceed 350 bar.
- Although this is a zero pilot flow valve, port 3 (drain) must be connected to maintain a pressure reference in the control chamber. If port 3 is blocked, reciprocating seal weepage will cause the valve to malfunction.

OPTION ORDERING INFORMATION

SX ✱ A – ✱ ✱ ✱

Nominal Capacity

C 60 L/min.

E 120 L/min.

Control**

L Standard Screw Adjustment

C* Tamper Resistant Factory Set

** Special setting required. Specify at time of order.*

*** See page 178 for information on Control Options*

Customer specified special setting stamped on hex.

Adjustment Range

A 35 - 210 bar
Standard set at 70 bar

B 20 - 105 bar
Standard set at 70 bar

C 140 - 420 bar
Standard set at 140 bar

D 14 - 55 bar
Standard set at 28 bar

W 55 - 315 bar
Standard set at 70 bar

Seal Material

N Buna-N

V Viton

Consult the Sun website for our most recent and complete information on the full Corrosion Resistant line of products.

U.S. Patent #4,834,135.

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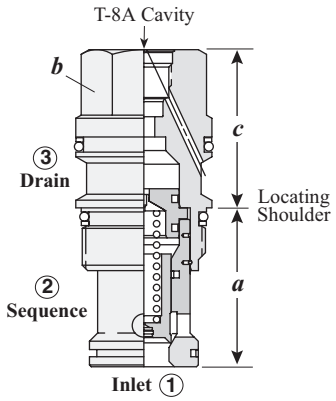
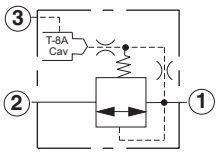
PILOT OPERATED, BALANCED PISTON, MAIN STAGE WITH INTEGRAL T-8A CONTROL CAVITY





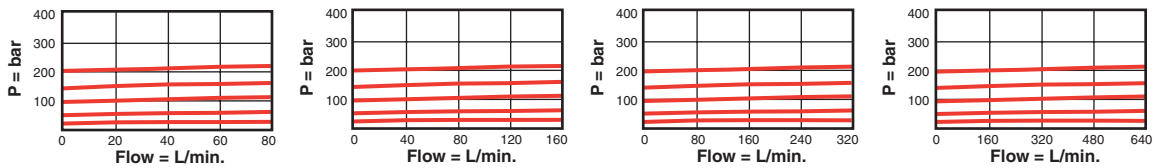
The -8 control option allows a pilot control valve to be incorporated directly into the end of the modulating element via the T-8A cavity. These pilot control cartridges are sold separately and include electro-proportional, solenoid, air pilot, and hydraulic pilot operation. See Pilot Control Cartridges on page 141.

Capacity	*Typical Cartridge Model Code*	*Cavity*	*Cartridge Dimensions*			*Installation Torque (Nm)*
			a	*b*	*c*	
60 L/min.	**RSDC – 8WN**	T - 11A	35,1	22,2	30,2	45 - 50
120 L/min.	**RSFC – 8WN**	T - 2A	35,1	28,6	35,1	60 - 70
240 L/min.	**RSHC – 8WN**	T - 17A	46,0	31,8	46,0	200 - 215
480 L/min.	**RSJC – 8WN**	T - 19A	63,5	41,3	58,7	465 - 500

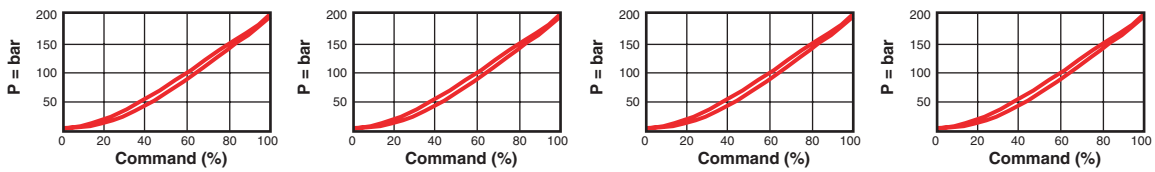
Performance Curves

RSDC-8 **RSFC-8** **RSHC-8** **RSJC-8**

Typical Pressure vs. Flow with T-8A Pilot Stage (RBAP-MAN) Installed



Pressure vs. Command



- Maximum operating pressure = 350 bar.
- Main stage leakage at 24 cSt = RSDC-8: 30 cc/min. at 70 bar; RSFC-8: 50 cc/min. at 70 bar; RSHC-8: 65 cc/min. at 70 bar; RSJC-8: 80 cc/min. at 70 bar.
- Control pilot flow = RSDC-8: 0,11 to 0,16 L/min.; RSFC-8: 0,16 to 0,25 L/min.; RSHC-8, RSJC-8: 0,25 to 0,33 L/min.
- 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.
- Pressure at port 3 is directly additive at a 1:1 ratio to the valve setting and should not exceed 350 bar.
- 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

RS ✱ C – 8 ✱ ✱

Nominal Capacity	*Control*	*Minimum Control Pressure*	*Seal Material*
D 60 L/min.	**8** T-8A Cavity in hex body for pilot operation	**D** 1,7 bar	**N** Buna-N
F 120 L/min.		**W** 7 bar	**V** Viton
H 240 L/min.	Pilot valve to be ordered separately		
J 480 L/min.			

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Differentiation in Sun Manifold Design

CUSTOM VALVE PACKAGES

Sun Hydraulics manufactures custom engineered valve packages or “valvepaks” at all of its locations around the world. Valvepaks are comprised of standard screw-in cartridge valves housed in a custom manifold. Once a customer’s hydraulic circuit has been developed, it is incorporated into a single, custom manifold designed to fit into a defined location.

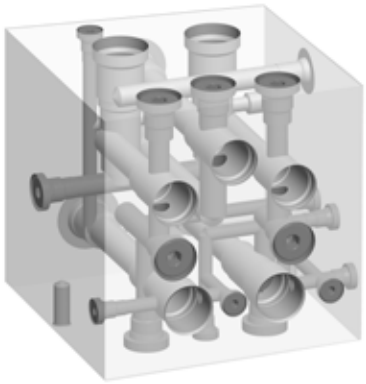
Benefits to customers:

- Creative and innovative manifold design using solid modeling.
- Rapid response for prototypes.
- Utilizing Sun cartridges with our unique floating style cartridge construction.
- Compound angle drill for extremely compact designs.
- Construction plugs are eliminated or dramatically reduced.
- Larger and more efficient flow paths.
- Manifolds available in T-6061 (210 bar) aluminium and 65-45-12 high-strength (350 bar) SG iron.

Let Sun design your manifold.

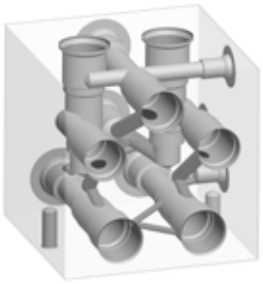
Classic Three-Axis Straight Hole Drilling

125 cubic inches (5 x 5 x 5)
2,048 cubic centimetres (12,7 x 12,7 x 12,7)
17 construction plugs.



Sun’s Five-Axis Compound Angle Drilling

64 cubic inches (4 x 4 x 4)
1,049 cubic centimetres (10,2 x 10,2 x 10,2)
0 construction plugs.



View our full range of cartridge and manifold products on the Sun website:

www.sunhydraulics.com

Products: Manifolds: Manifold Selector
Products: Product Selector
Or select your cartridge first, then select a matching manifold from menu at the top of cartridge page