

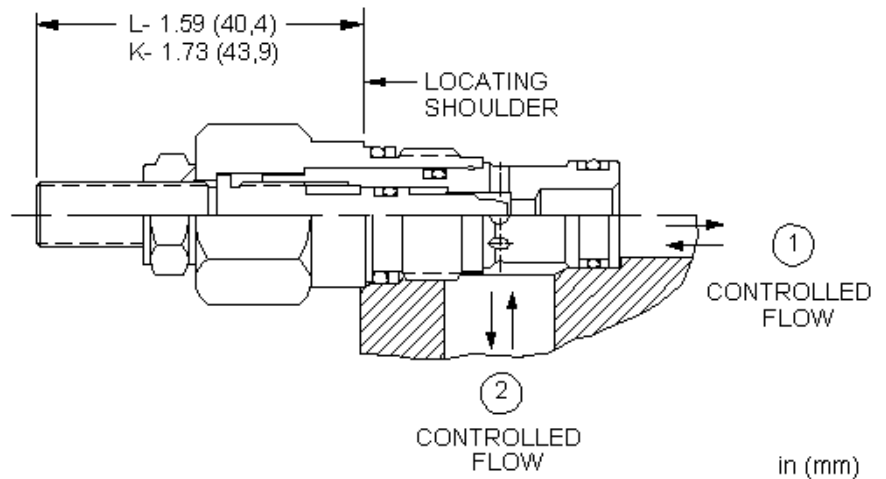
Flow Control, Needle Cartridges

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NFBC	Fully adjustable needle valve1
NFCC	Fully adjustable needle valve2
NFCD	Fully adjustable needle valve	.....3
NFDC	Fully adjustable needle valve	.....4
NFDD	Fully adjustable needle valve	.....5
NFEC	Fully adjustable needle valve	.....6
NFED	Fully adjustable needle valve	.....7
NFFC	Fully adjustable needle valve	.....8
NFFD	Fully adjustable needle valve	.....9
NCBB	Fully adjustable needle valve with reverse flow check	.....10
NCCB	Fully adjustable needle valve with reverse flow check	.....11
NCCC	Fully adjustable needle valve with reverse flow check	.....12
NCCD	Fully adjustable needle valve with reverse flow check	.....13
NCEB	Fully adjustable needle valve with reverse flow check	.....14
NCEC	Fully adjustable needle valve with reverse flow check	.....15
NCFB	Fully adjustable needle valve with reverse flow check	.....16
NCFC	Fully adjustable needle valve with reverse flow check	.....17
NCGB	Fully adjustable needle valve with reverse flow check	.....18
NCGC	Fully adjustable needle valve with reverse flow check	.....19
NFAB	Fully adjustable needle valve - pilot capacity	.....20

Series	Ports	Cavities
Series Z Cartridges 3/8-24 UNF Cartridge Thread 5 mm Valve Hex Size 11 - 14 Nm Valve Installation Torque	3-Port	T-382A
Series P Cartridges M16 Cartridge Thread 22,2 mm Valve Hex Size 27 - 33 Nm Valve Installation Torque	2-Port 2-Port (Deep) 3-Port	T-8A T-8DP T-9A
Series 0 Cartridges M16 Cartridge Thread 19,1 mm Valve Hex Size 25,4 mm Valve Hex Size 27 - 33 Nm Valve Installation Torque	2-Port 2-Port (Deep) 3-Port 3-Port 4-Port	T-162A T-162DP T-150A T-163A T-30A
Series 1 Cartridges M20 Cartridge Thread 22,2 mm Valve Hex Size 41 - 47 Nm Valve Installation Torque	2-Port 2-Port 3-Port 4-Port 4-Port 6-Port	T-10A T-13A T-11A T-21A T-31A T-61A
Series 2 Cartridges 1"-14 UNS Cartridge Thread 28,6 mm Valve Hex Size 61 - 68 Nm Valve Installation Torque	2-Port 2-Port 3-Port 4-Port 4-Port 4-Port (Dual path) 6-Port 6-Port	T-3A T-5A T-2A T-22A T-32A T-52AD T-52A T-62A
Series 3 Cartridges M36 Cartridge Thread 31,8 mm Valve Hex Size 203 - 217 Nm Valve Installation Torque	2-Port 3-Port 4-Port 4-Port 4-Port (Dual path) 6-Port 6-Port	T-16A T-17A T-23A T-33A T-53AD T-53A T-63A
Series 4 Cartridges M48 Cartridge Thread 41,3 mm Valve Hex Size 474 - 508 Nm Valve Installation Torque	2-Port 2-Port (Undercut) 3-Port 3-Port (Undercut) 4-Port 4-Port (Undercut) 4-Port 4-Port (Dual path) 6-Port 6-Port	T-18A T-18AU T-19A T-19AU T-24A T-24AU T-34A T-54AD T-54A T-64A



Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

TECHNICAL DATA

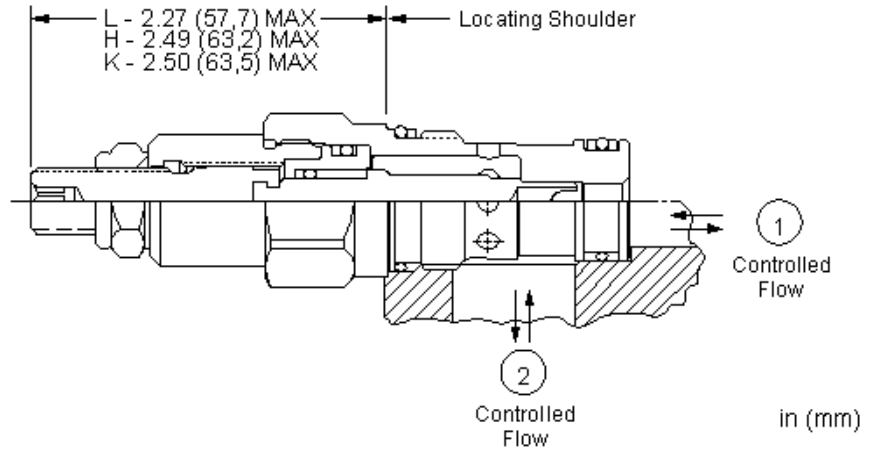
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	350 bar
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

CONFIGURATION OPTIONS

Model Code Example: NFBCLCN

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(C) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	C .16 in. (4 mm)	N Buna-N	Standard Material/Coating
K Handknob		E EPDM	/AP Stainless Steel, Passivated
W Hex Wrench Adjustment		V Viton	/LH Mild Steel, Zinc-Nickel



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TECHNICAL DATA

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

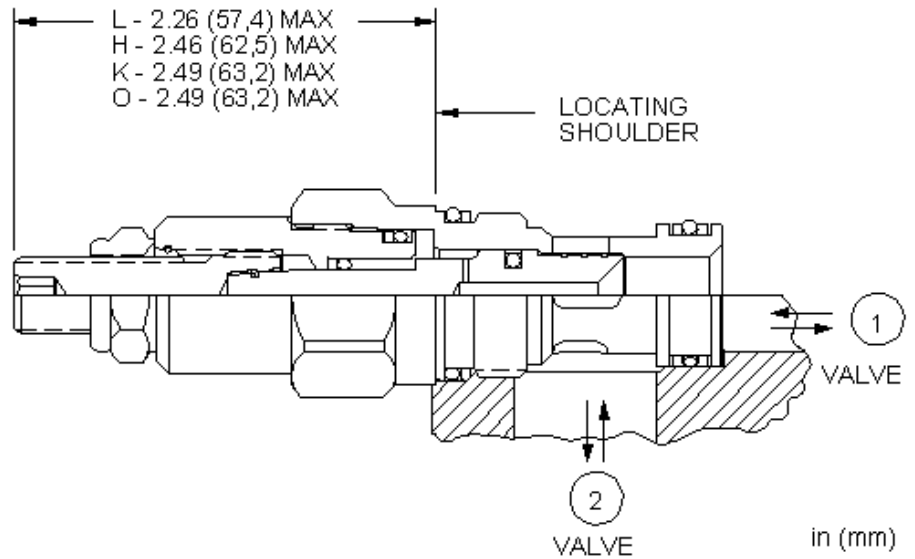
Maximum Operating Pressure	350 bar
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

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: NFCCLCN

CONTROL	(L)	MAXIMUM ORIFICE DIAMETER	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
L Standard Screw Adjustment		C .19 in. (4,8 mm)		N Buna-N		Standard Material/Coating
H Calibrated Handknob with Detent Lock		D .09 in. (2,3 mm)		E EPDM		/AP Stainless Steel, Passivated
K Handknob				V Viton		/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob, Flow Control						



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TECHNICAL DATA

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

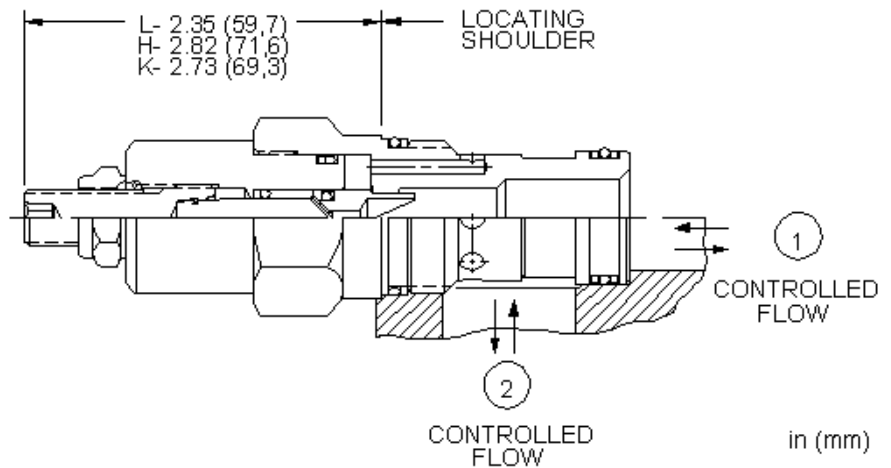
Maximum Operating Pressure	350 bar
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

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: NFCDLFN

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(F) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	F .33 in. (8,4 mm)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock		E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob			



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TECHNICAL DATA

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

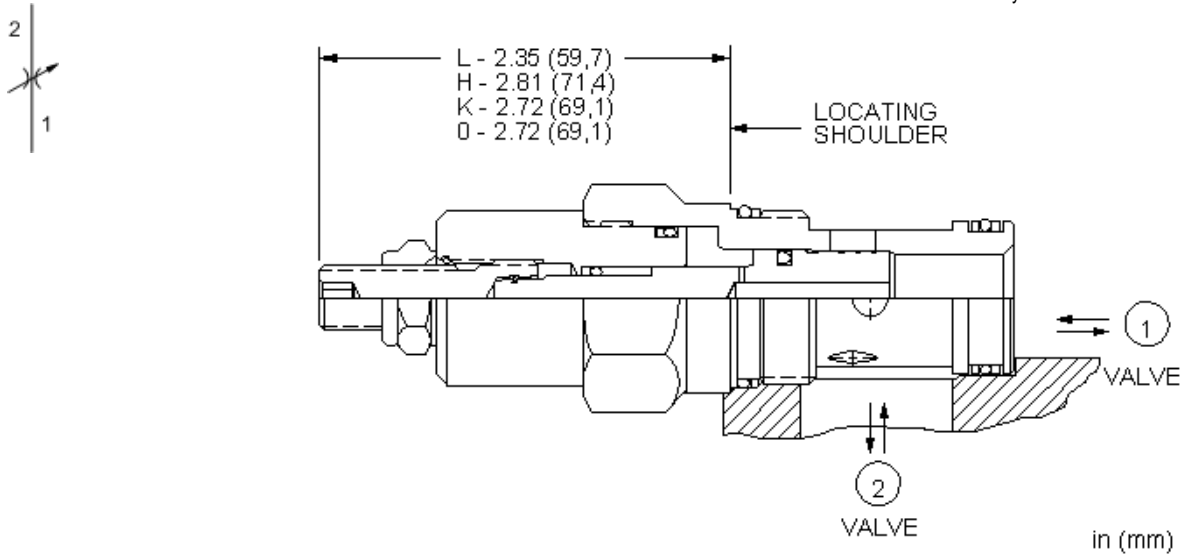
Maximum Operating Pressure	350 bar
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Viton: 990203006

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: NFDCLAN

CONTROL	(L)	MAXIMUM ORIFICE DIAMETER	(A)	SEAL MATERIAL	(N)	MATERIAL/COATING
L Standard Screw Adjustment	A	.25 in. (6,4 mm)	N	Buna-N		Standard Material/Coating
H Calibrated Handknob with Detent Lock	B	.12 in. (3,0 mm)	E	EPDM		/AP Stainless Steel, Passivated
K Handknob			V	Viton		/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob						



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TECHNICAL DATA

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

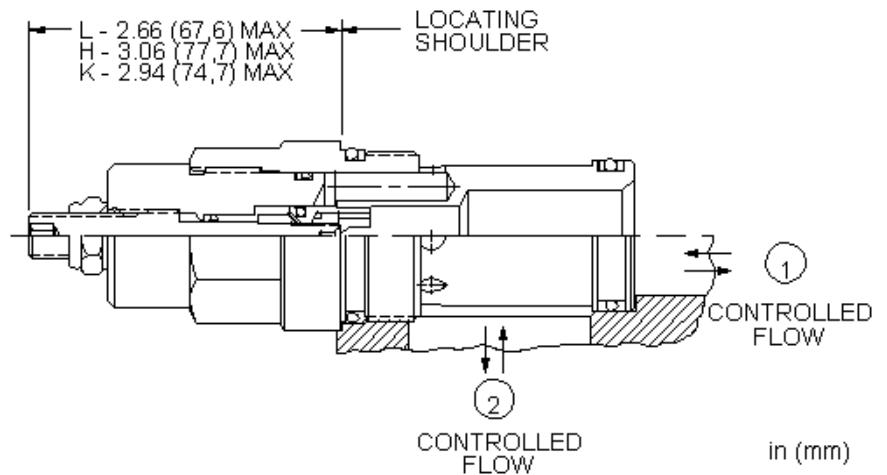
Maximum Operating Pressure	350 bar
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Polyurethane: 990203014
Seal kit - Cartridge	Viton: 990203006

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: NFDDLGN

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(G) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	G .5 in. (12,7 mm)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock		E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob			



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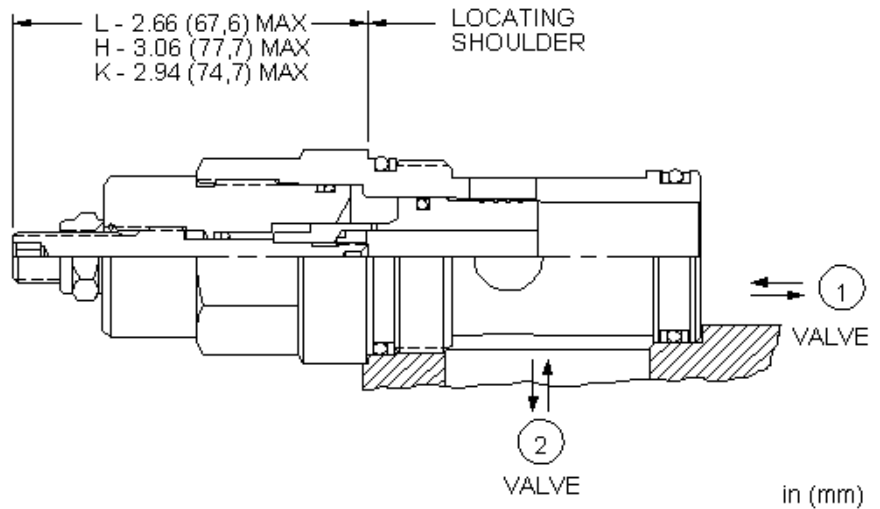
TECHNICAL DATA

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

Maximum Operating Pressure	350 bar
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

CONFIGURATION OPTIONS
Model Code Example: NFECLEN

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(E) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	E .38 in. (9,7 mm)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock	F .28 in. (7,1 mm)	E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob			



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TECHNICAL DATA

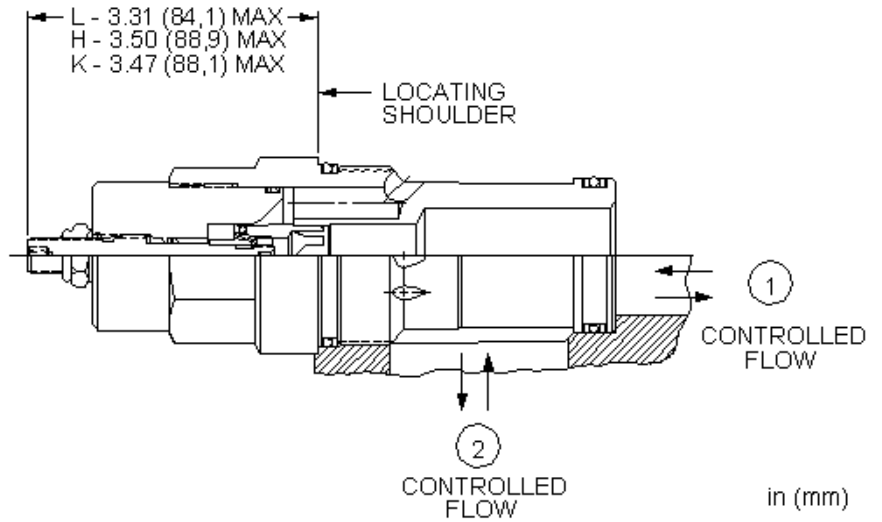
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	350 bar
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

CONFIGURATION OPTIONS

Model Code Example: NFEDLHN

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(H) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	H .69 in. (17,5 mm)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock		E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob			



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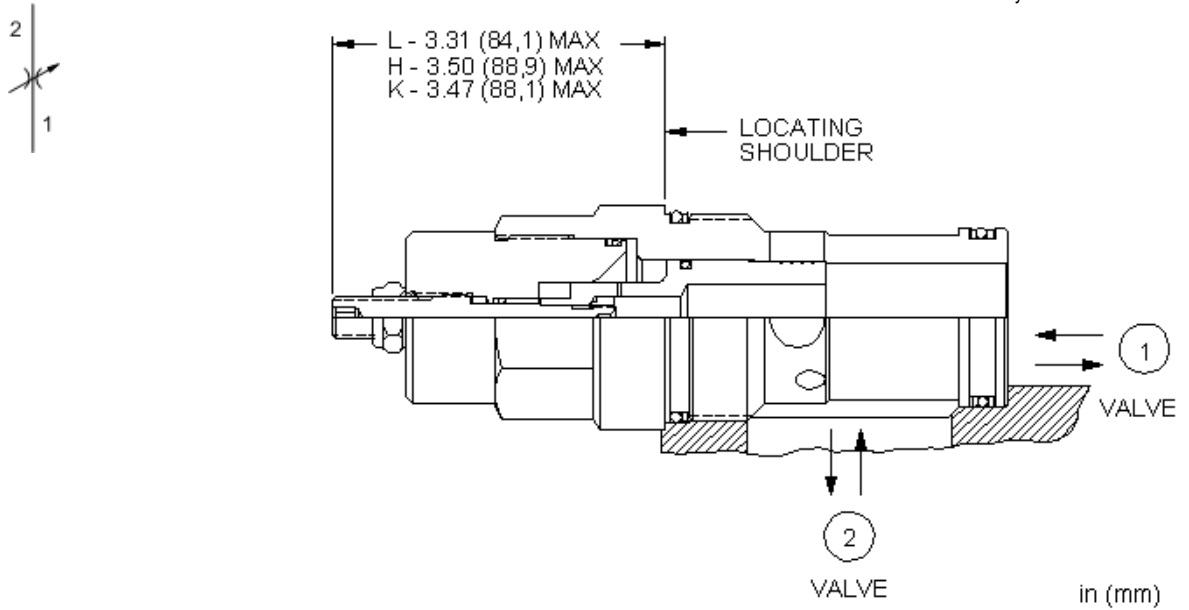
TECHNICAL DATA

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

Maximum Operating Pressure	350 bar
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

CONFIGURATION OPTIONS
Model Code Example: NFFCLGN

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(G) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	G .56 in. (14,2 mm)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock	H .38 in. (9,7 mm)	E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob, Flow Control			



Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

TECHNICAL DATA

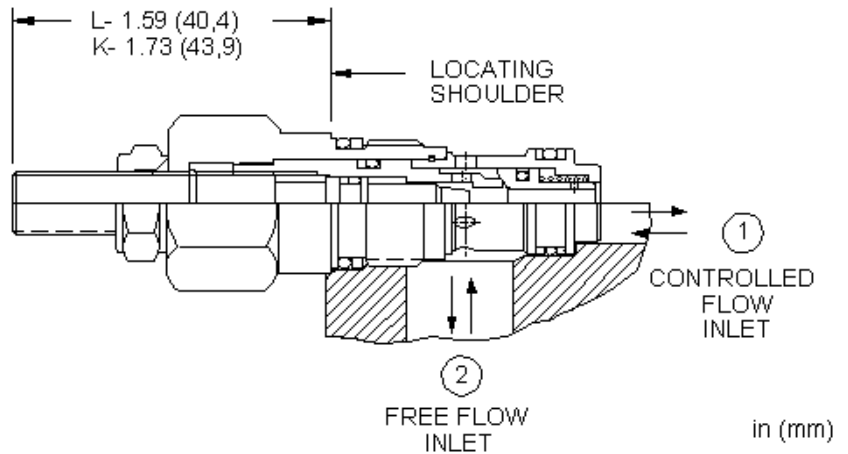
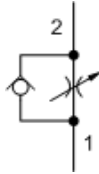
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	350 bar
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

CONFIGURATION OPTIONS

Model Code Example: NFFDLIN

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(I) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	I .85 in. (21,6 mm)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock		E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel
R Capped Screw Adjustment			
Y Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

TECHNICAL DATA

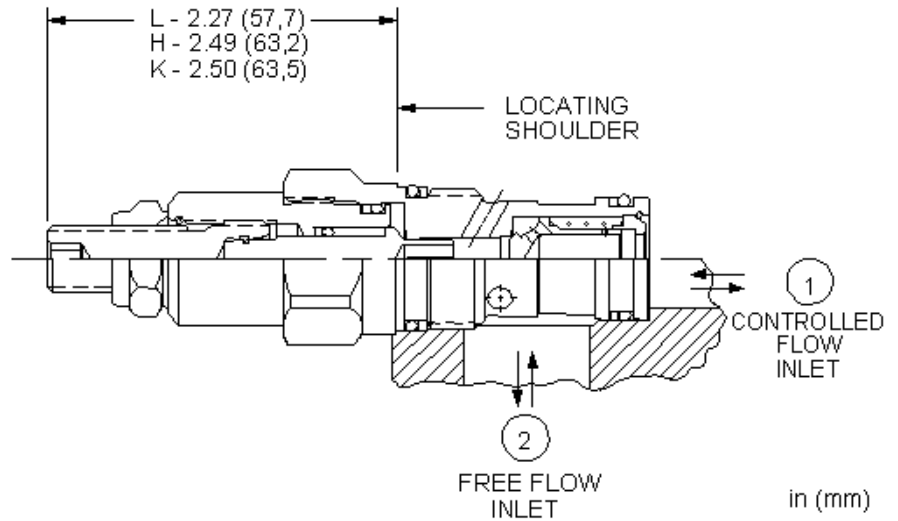
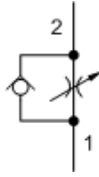
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

CONFIGURATION OPTIONS

Model Code Example: NCBBLCN

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment K Handknob	C 30 psi (2 bar)	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

TECHNICAL DATA

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

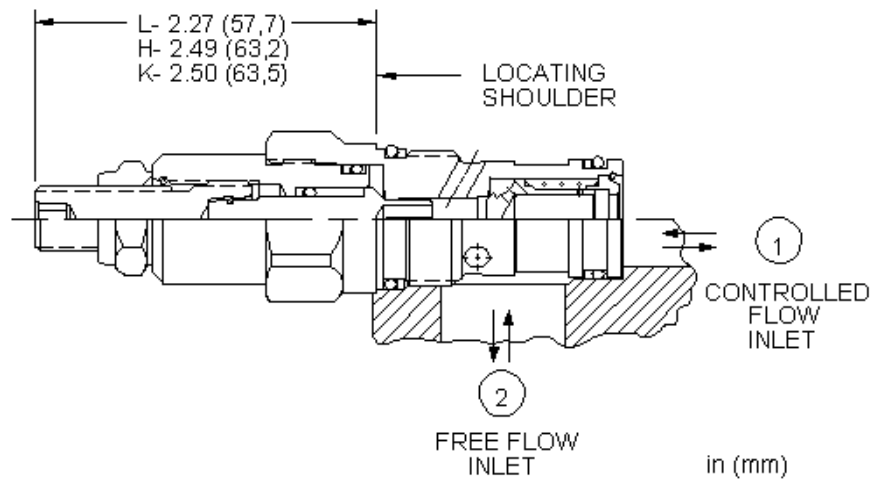
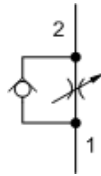
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

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: NCCBLCN

CONTROL	(L)	REVERSE FLOW CHECK	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
L Standard Screw Adjustment		C 30 psi (2 bar)		N Buna-N		Standard Material/Coating
H Calibrated Handknob with Detent Lock		A 4 psi (0,3 bar)		E EPDM		/AP Stainless Steel, Passivated
K Handknob		E 75 psi (5 bar)		V Viton		/LH Mild Steel, Zinc-Nickel
R Capped Screw Adjustment						
Y Tri-Grip Handknob						



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

TECHNICAL DATA

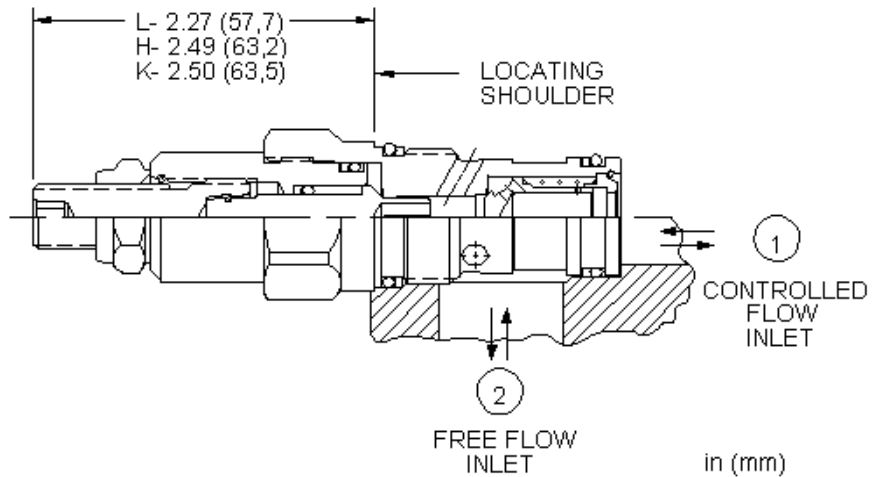
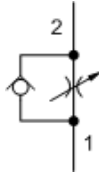
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,3 cc/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

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: NCCCLCN

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	C 30 psi (2 bar)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock	A 4 psi (0,3 bar)	V Viton	/AP Stainless Steel, Passivated
K Handknob	E 75 psi (5 bar)		/LH Mild Steel, Zinc-Nickel
O Handknob with Panel Mount			
R Capped Screw Adjustment			
Y Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

TECHNICAL DATA

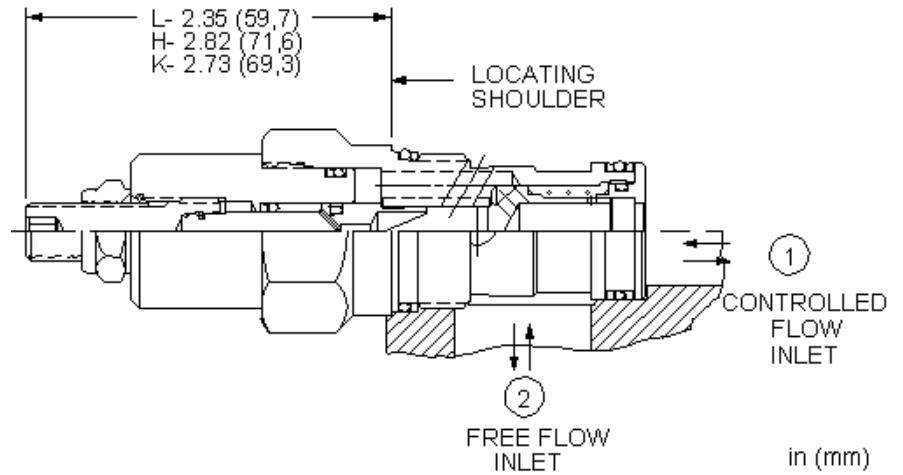
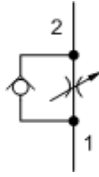
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,3 cc/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

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: NCCDLAN

CONTROL	(L) REVERSE FLOW CHECK	(A) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	A 4 psi (0,3 bar)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock	B 15 psi (1 bar)	V Viton	/AP Stainless Steel, Passivated
K Handknob	C 30 psi (2 bar)		/LH Mild Steel, Zinc-Nickel
O Handknob with Panel Mount	D 50 psi (3,5 bar)		
R Capped Screw Adjustment	E 75 psi (5 bar)		
Y Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

TECHNICAL DATA

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

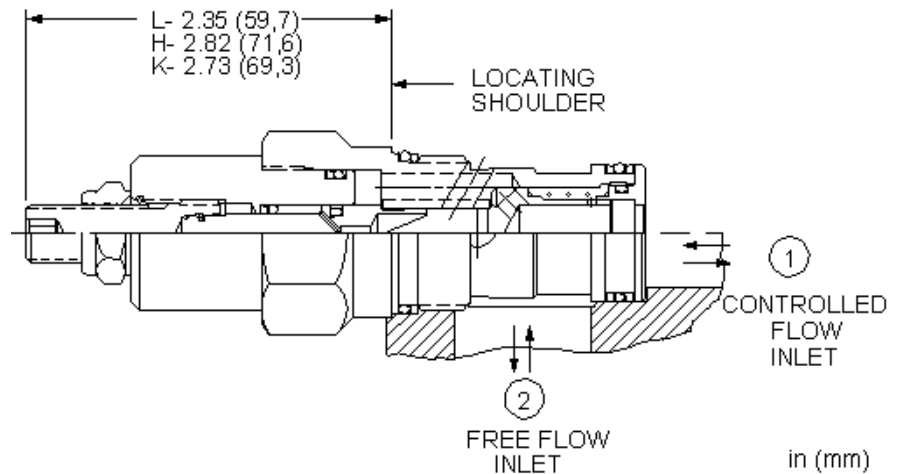
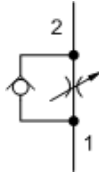
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Viton: 990203006

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: NCEBLCN

CONTROL	(L)	REVERSE FLOW CHECK	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
L Standard Screw Adjustment		C 30 psi (2 bar)		N Buna-N		Standard Material/Coating
H Calibrated Handknob with Detent Lock		A 4 psi (0,3 bar)		E EPDM		/AP Stainless Steel, Passivated
K Handknob		E 75 psi (5 bar)		V Viton		/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob						



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

TECHNICAL DATA

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

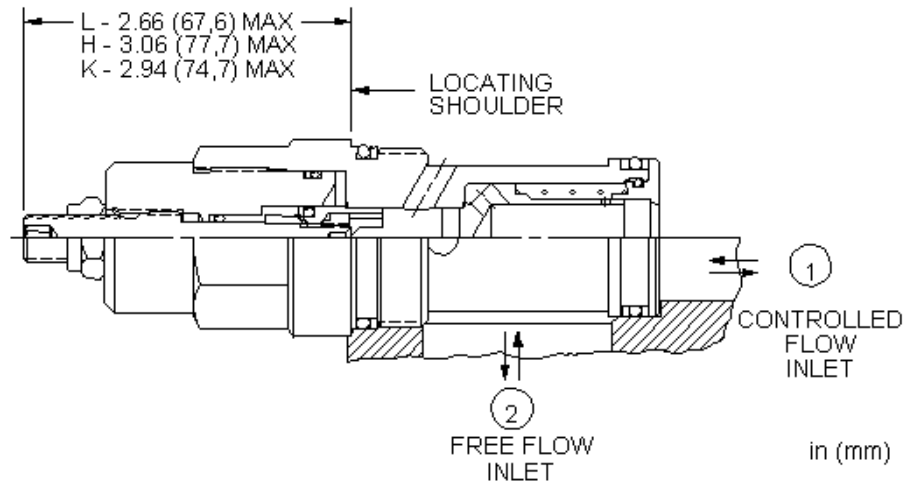
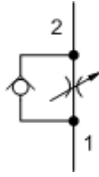
Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,3 cc/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	15 mm
Locknut Torque	9 - 10 Nm
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Viton: 990203006

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: NCELCN

CONTROL	(L)	REVERSE FLOW CHECK	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
L Standard Screw Adjustment		C 30 psi (2 bar)		N Buna-N		Standard Material/Coating
H Calibrated Handknob with Detent Lock		A 4 psi (0,3 bar)		V Viton		/LH Mild Steel, Zinc-Nickel
K Handknob		E 75 psi (5 bar)				
Y Tri-Grip Handknob						



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

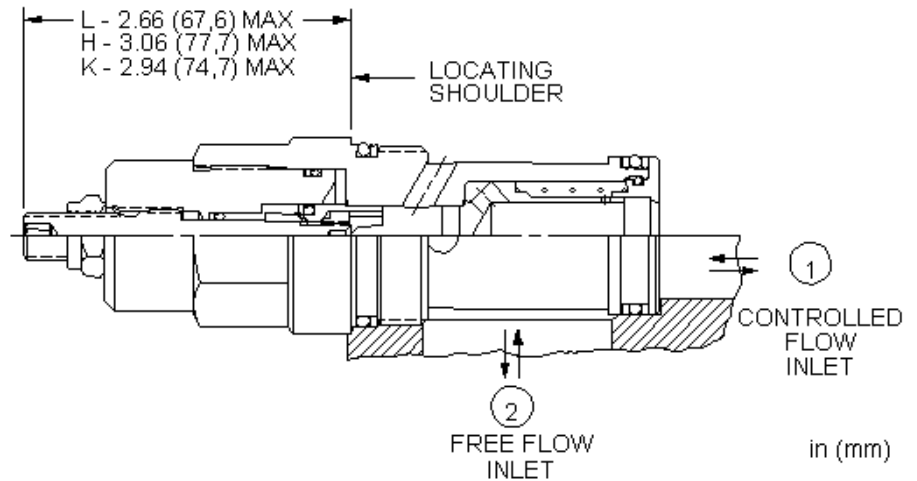
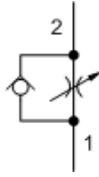
TECHNICAL DATA

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

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

CONFIGURATION OPTIONS
Model Code Example: NCFBLCN

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	C 30 psi (2 bar)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock	A 4 psi (0,3 bar)	E EPDM	/AP Stainless Steel, Passivated
K Handknob	E 75 psi (5 bar)	V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

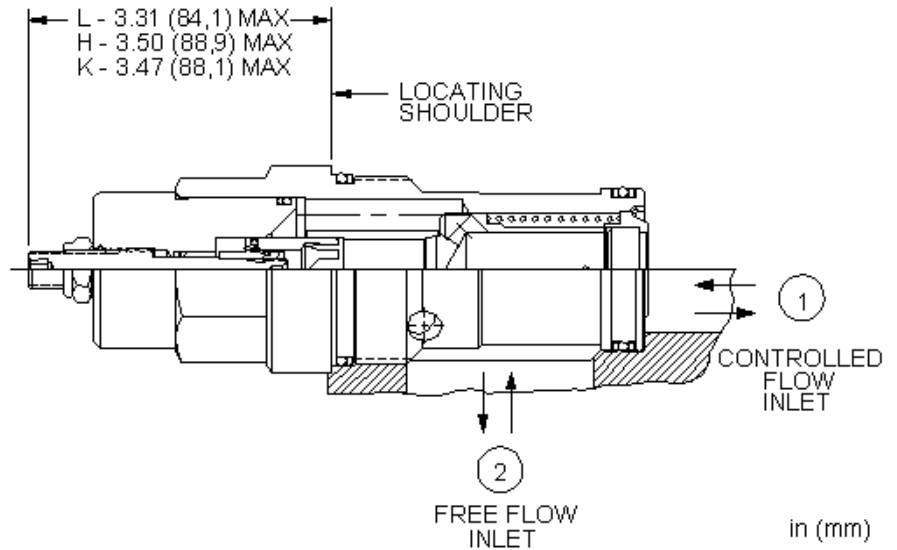
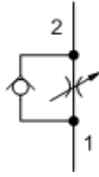
TECHNICAL DATA

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

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,3 cc/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

CONFIGURATION OPTIONS
Model Code Example: NCFCLCN

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	C 30 psi (2 bar)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock	A 4 psi (0,3 bar)	E EPDM	/AP Stainless Steel, Passivated
K Handknob	E 75 psi (5 bar)	V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

TECHNICAL DATA

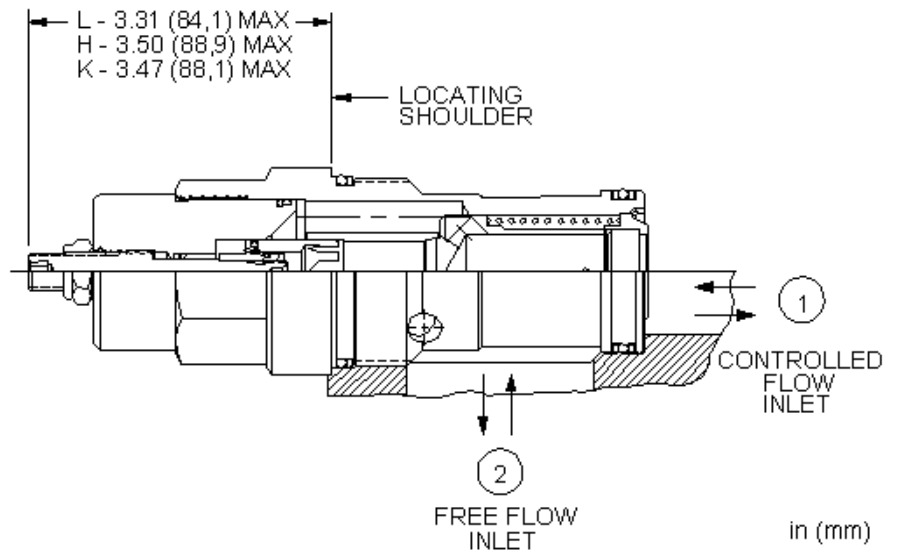
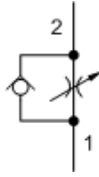
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,7 cc/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

CONFIGURATION OPTIONS

Model Code Example: **NCGBLCN**

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	C 30 psi (2 bar)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock	A 4 psi (0,3 bar)	E EPDM	/AP Stainless Steel, Passivated
K Handknob	E 75 psi (5 bar)	V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

TECHNICAL DATA

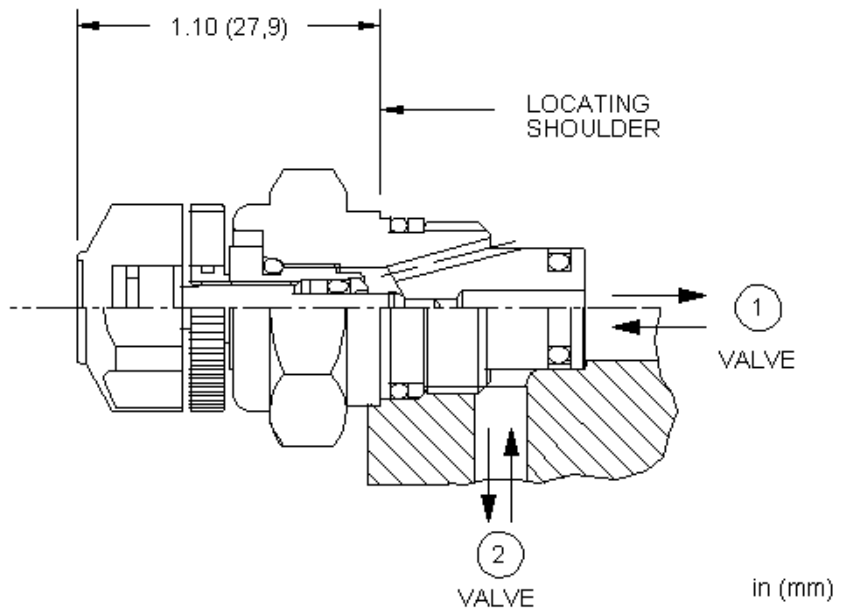
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	350 bar
Maximum Valve Leakage at 110 SUS (24 cSt)	0,3 cc/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
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

CONFIGURATION OPTIONS

Model Code Example: NCGCLCN

CONTROL	(L)	REVERSE FLOW CHECK	(C)	SEAL MATERIAL	(N)
L Standard Screw Adjustment	C 30 psi (2 bar)	N Buna-N			
H Calibrated Handknob with Detent Lock	A 4 psi (0,3 bar)	V Viton			
K Handknob	E 75 psi (5 bar)				
Y Tri-Grip Handknob					



Two-port, pilot-stage needle valves are fully adjustable devices used to regulate pilot flow in a main-stage valve or to meter in/out flow in low flow applications. 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.

Maximum Operating Pressure	350 bar
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	3
Effective Orifice Size	0,9 mm
Seal kit - Cartridge	Buna: 990008007
Seal kit - Cartridge	EPDM: 990008014
Seal kit - Cartridge	Polyurethane: 990008002
Seal kit - Cartridge	Viton: 990008006

CONFIGURATION OPTIONS

Model Code Example: **NFABKXN**

CONTROL	(K)	MAXIMUM ORIFICE DIAMETER	(X)	SEAL MATERIAL	(N)
K Handknob		X .03 in. (0,8 mm)		N Buna-N	
				E EPDM	
				V Viton	

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www.sunhydraulics.com

Sun Hydraulics Headquarters
Sarasota, Florida USA
+1 941 362 1200

Sun Hydraulics Limited
Coventry England
+44 2476 217 400
sales@sunuk.com

Sun Hydraulik GmbH
Erkelenz Germany
+49 2431 80910
sales@sunhydraulik.de

Sun Hydraulics Corp. (India)
Bangalore India
+91 8028 456325
sunindiainfo@sunhydraulics.com

Sun Hydraulics Korea Corp.
Incheon Korea
+82 3281 31350
sales@sunhydraulics.co.kr

Sun Hydraulics China Co. Ltd.
Shanghai P.R. China
+86 2162 375885
sunchinainfo@sunhydraulics.com

Sun Hydraulics Corp. (S.America)
Rosario, Argentina
+54 9 341 584 3075
ventas@sunhydraulics.com