

Flow Control, Needle Cartridges

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Cavity Information

Series	Ports	Cavities
Series Z Cartridges	3-Port	T-382A
3/8-24 UNF Cartridge Thread		
5 mm Valve Hex Size		
1 - 14 Nm Valve Installation Torque		
Series P Cartridges	2-Port	T-8A
M16 Cartridge Thread	2-Port (Deep)	T-8DP
22.2 mm Valve Hex Size	3-Port	T-9A
27 - 33 Nm Valve Installation Torque		
Series 0 Cartridges	2-Port	T-162A
	2-Port (Deep)	T-162DP
M16 Cartridge Thread 19,1 mm Valve Hex Size	3-Port	T-150A
25,4 mm Valve Hex Size	3-Port	T-163A
27 - 33 Nm Valve Installation Torque	4-Port	T-30A
Series 1 Cartridges	2-Port	T-10A
M20 Cartridge Thread	2-Port	T-13A
vi20 Carmage Thread 22.2 mm Valve Hex Size	3-Port	T-11A
11 - 47 Nm Valve Installation Torque	4-Port	T-21A
The state installation forque	4-Port	T-31A
	6-Port	T-61A
Series 2 Cartridges	2-Port	T-3A
I"-14 UNS Cartridge Thread	2-Port	T-5A
28,6 mm Valve Hex Size	3-Port	T-2A
1 - 68 Nm Valve Installation Torque	4-Port 4-Port	T-22A
	4-Port (Dual path)	T-32A T-52AD
	6-Port	T-52AD T-52A
	6-Port	T-62A
Series 3 Cartridges	2-Port	T-16A
•	3-Port	T-17A
M36 Cartridge Thread 31,8 mm Valve Hex Size	4-Port	T-23A
203 - 217 Nm Valve Installation Torque	4-Port	T-33A
2	4-Port (Dual path)	T-53AD
	6-Port	T-53A
	6-Port	T-63A
Series 4 Cartridges	2-Port	T-18A
M48 Cartridge Thread	2-Port (Undercut)	T-18AU
11,3 mm Valve Hex Size	3-Port	T-19A T-19AU
174 - 508 Nm Valve Installation Torque	3-Port (Undercut) 4-Port	T-19AU T-24A
	4-Port (Undercut)	T-24A T-24AU
	4-Port	T-34A
	4-Port (Dual path)	T-54AD
	6-Port	T-54A
	6-Port	T-64A

CAPACITY: 20 L/min. (4 mm) / CAVITY: T-162A

L- 1.59 (40,4) K- 1.73 (43,9)





CONTROLLED FLOW

in (mm)

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

LOCATING SHOULDER

2 CONTROLLED FLOW

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	1
K Handknob			E EPDM	_	/AP Stainless Steel, Passivated	_
W Hex Wrench Adjustment			V Viton		/LH Mild Steel, Zinc-Nickel	

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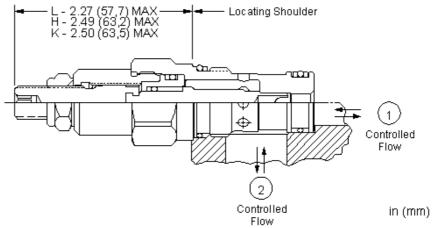
Fully adjustable needle valve

SERIES 1 / CAPACITY: 28 L/min. (4,8 mm) / CAVITY: T-13A



sunhydraulics.com/model/NFCC





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: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

NOTES

CONTROL

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

I Standard Screw Adjustment

(L) MAXIMUM ORIFICE DIAMETER

C .19 in. (4,8 mm)

(C) SEAL MATERIAL

(N) MATERIAL/COATING

H Calibrated Handknob with Detent Lock
K Handknob

D .09 in. (2,3 mm)

N Buna-N
E EPDM
V Viton

/AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel

Y Tri-Grip Handknob, Flow Control

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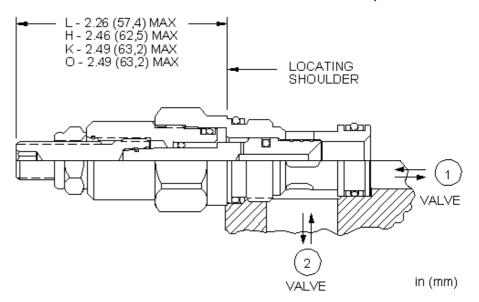


SERIES 1 / CAPACITY: 80 L/min. (8,4 mm) / CAVITY: T-13A



sunhydraulics.com/model/NFCD





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: 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 L	ock			E EPDM		/AP Stainless Steel, Passivated
K Handknob				V Viton		/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob						

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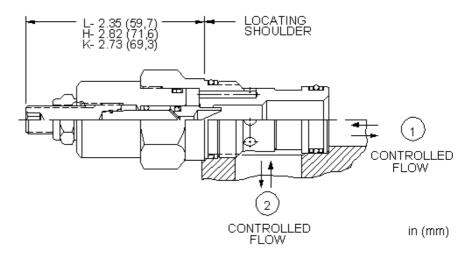


SERIES 2 / CAPACITY: 45 L/min. (6,4 mm) / CAVITY: T-5A



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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: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Viton: 990203006

NOTES

Y Tri-Grip Handknob

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	/I H Mild Steel Zinc-Nickel

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MODEL NFDD

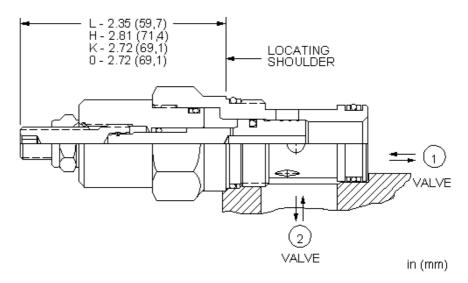
Fully adjustable needle valve

SERIES 2 / CAPACITY: 200 L/min. (12,7 mm) / CAVITY: T-5A



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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: 990203007
Seal kit - Cartridge	Polyurethane: 990203014
Seal kit - Cartridge	Viton: 990203006

For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel. **NOTES**

CONFIGURATION OPTIONS

Model Code Example: NFDDLGN

CONTROL (L) MAXIMUM ORIFICE DIAMETER (G) SEAL MATERIAL (N) MATERIAL/COATING

L Standard Screw Adjustment

H Calibrated Handknob with Detent Lock

N Buna-N E EPDM **V** Viton

Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel

K Handknob

Y Tri-Grip Handknob

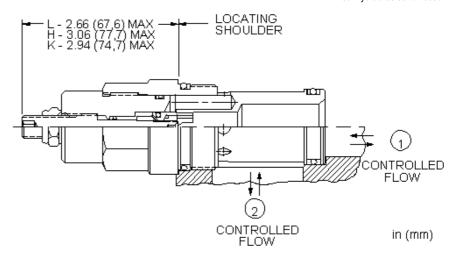
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SERIES 3 / CAPACITY: 120 L/min. (9,7 mm) / CAVITY: T-16A



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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: 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

H Calibrated Handknob with Detent Lock

E .38 in. (9,7 mm) F .28 in. (7,1 mm) N Buna-NE EPDMV Viton

Standard Material/Coating
/AP Stainless Steel, Passivated
/LH Mild Steel, Zinc-Nickel

Y Tri-Grip Handknob

K Handknob

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MODEL NFED

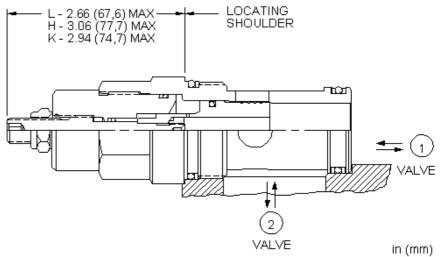
Fully adjustable needle valve

SERIES 3 / CAPACITY: 340 L/min. (17,5 mm) / CAVITY: T-16A



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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: 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 Standa	d Screw Ad	justment
----------	------------	----------

H Calibrated Handknob with Detent Lock

K Handknob

Y Tri-Grip Handknob

JEAL WATERIAL

N Buna-NE EPDMV Viton

Standard Material/Coa

/AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel

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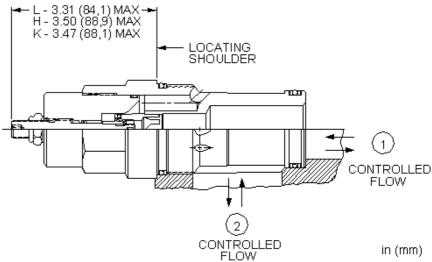


SERIES 4 / CAPACITY: 240 L/min. (14,2 mm) / CAVITY: T-18A



sunhydraulics.com/model/NFFC





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: 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 Loc	ck 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

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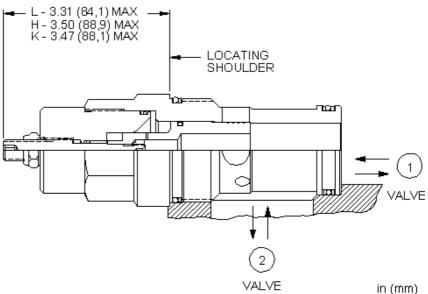


SERIES 4 / CAPACITY: 530 L/min. (21,6 mm) / CAVITY: T-18A



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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

R Capped Screw AdjustmentY Tri-Grip Handknob

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

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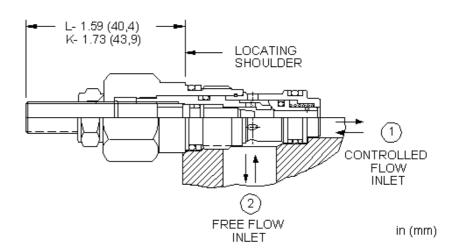


MODEL NCBB



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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	C 30 psi (2 bar)	N Buna-N	Standard Material/Coating
K Handknob		V Viton	/AP Stainless Steel, Passivated
			/LH Mild Steel, Zinc-Nickel

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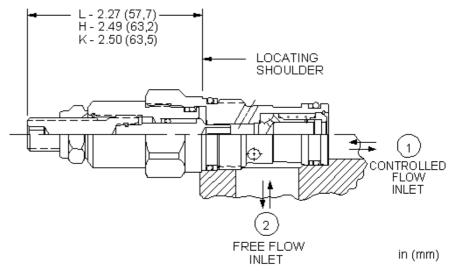
Fully adjustable needle valve with reverse flow check

SERIES 1 / CAPACITY: 28 L/min. (4,8 mm) / CAVITY: T-13A



sunhydraulics.com/model/NCCB





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

CONTROL

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

L Standard Screw Adjustment

H Calibrated Handknob with Detent Lock

K HandknobR Capped Screw AdjustmentY Tri-Grip Handknob

(L) REVERSE FLOW CHECK

C 30 psi (2 bar)

ck A 4 psi (0,3 bar)

E 75 psi (5 bar)

N Buna-N
E EPDM
V Viton

(C) SEAL MATERIAL

Standard Material/Coating
/AP Stainless Steel, Passivated
/LH Mild Steel, Zinc-Nickel

(N) MATERIAL/COATING

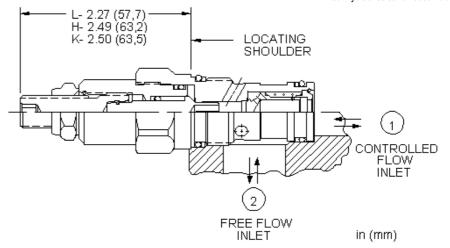
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Fully adjustable needle valve with reverse flow check SERIES 1 / CAPACITY: 8 L/min. (2,3 mm) / CAVITY: T-13A



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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

E 75 psi (5 bar)

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 N Buna-N Standard Material/Coating A 4 psi (0,3 bar) V Viton

H Calibrated Handknob with Detent Lock

K Handknob

O Handknob with Panel Mount

R Capped Screw Adjustment

Y Tri-Grip Handknob

/AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel

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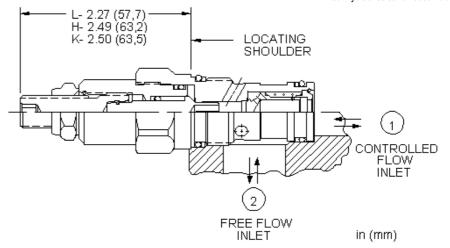


Fully adjustable needle valve with reverse flow check SERIES 1 / CAPACITY: 4 L/min. (1,5 mm) / CAVITY: T-13A



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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.

E 75 psi (5 bar)

CONFIGURATION OPTIONS

R Capped Screw Adjustment

Y Tri-Grip Handknob

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)		

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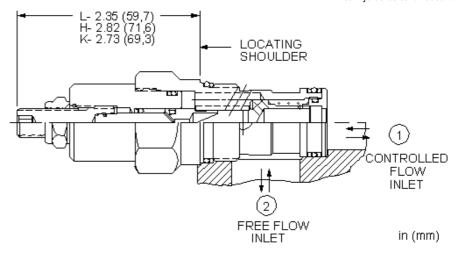


Fully adjustable needle valve with reverse flow check SERIES 2 / CAPACITY: 45 L/min. (6,4 mm) / CAVITY: T-5A



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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	<u>(L)</u>	REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N)	MATERIAL/COATING
i			• • • • • • • •				0
	L Standard Screw Adjustment		C 30 psi (2 bar)		N Buna-N		Standard Material/Coating
	H Calibrated Handknob with Detent Lo	ck	A 4 psi (0,3 bar)		E EPDM	_	/AP Stainless Steel, Passivated

Y Tri-Grip Handknob

E 75 psi (5 bar) **V** Viton /LH Mild Steel, Zinc-Nickel K Handknob

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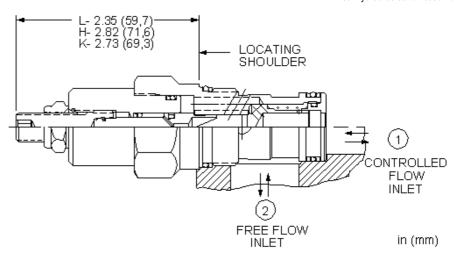


Fully adjustable needle valve with reverse flow check SERIES 2 / CAPACITY: 11 L/min. (3,3 mm) / CAVITY: T-5A



sunhydraulics.com/model/NCEC





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: NCECLCN

CONTROL	(L)	REVERSE FLOW CHECK ((C)	SEAL MATERIAL	(N)	MATERIAL/COATING

H Calibrated Handknob with Detent Lock

k A 4 psi (0,3 bar)E 75 psi (5 bar)

V Viton

Standard Material/Coa /LH Mild Steel, Zinc-Nickel

K HandknobY Tri-Grip Handknob

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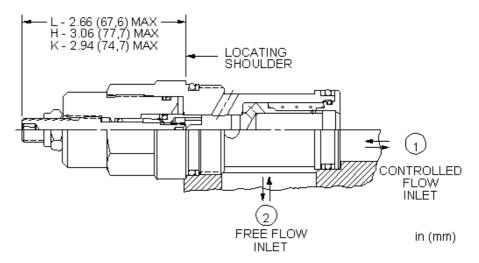


Fully adjustable needle valve with reverse flow check SERIES 3 / CAPACITY: 120 L/min. (9,7 mm) / CAVITY: T-16A



sunhydraulics.com/model/NCFB





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

Y Tri-Grip Handknob

Model Code Example: NCFBLCN

(CONTROL (L)	REVERSE FLOW CHECK	(C)	SEAL MATERIAL	N)	MATERIAL/COATING	
I	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	

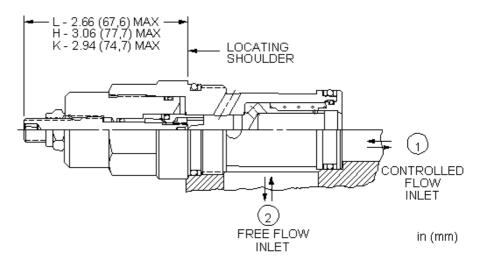
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Fully adjustable needle valve with reverse flow check SERIES 3 / CAPACITY: 60 L/min. (7,1 mm) / CAVITY: T-16A



sunhydraulics.com/model/NCFC





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

Y Tri-Grip Handknob

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

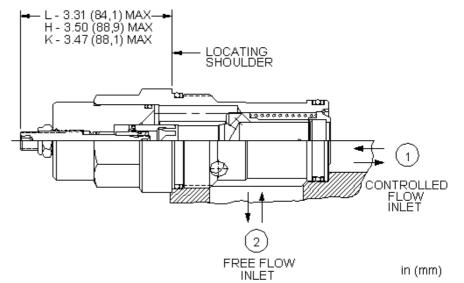
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SERIES 4 / CAPACITY: 240 L/min. (14,2 mm) / CAVITY: T-18A



sunhydraulics.com/model/NCGB





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

Y Tri-Grip Handknob

Model Code Example: NCGBLCN

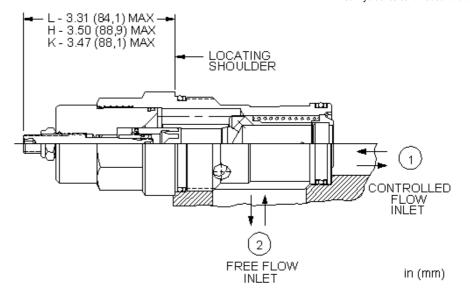
CONTROL	(L)	REVERSE FLOW CHECK	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
L Standard Screw Adjustment		C 30 psi (2 bar)		N Buna-N		Standard Material/Coating
H Calibrated Handknob with Detent Lo	ck	A 4 psi (0,3 bar)		E EPDM		/AP Stainless Steel, Passivated
K Handknob		E 75 psi (5 bar)		V Viton		/LH Mild Steel.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

© 2020 Sun Hydraulics 18 of 20 SERIES 4 / CAPACITY: 120 L/min. (9,7 mm) / CAVITY: T-18A



sunhydraulics.com/model/NCGC





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
H Calibrated Handknob with Detent Lock

C 30 psi (2 bar)
A 4 psi (0,3 bar)
E 75 psi (5 bar)

N Buna-N
V Viton

K HandknobY Tri-Grip Handknob

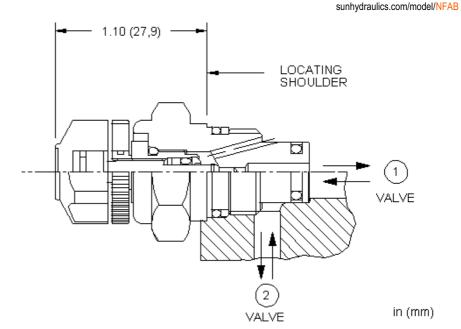
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Fully adjustable needle valve - pilot capacity

SERIES P / CAPACITY: 0,8 L/min. (0,9 mm) / CAVITY: T-8A



2



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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