

Needle Valves / Plug Valves / Angle Pattern / Miniature Valves

N Series

Needle valves 6,000 psi & 10,000 psi rated

Tube Ended N Series

Compression ended needle valves

UNV Series

Problem solver - unrivalled flexibility of end connections 6,000 psi rated

PV Series

Soft seated plug valves 6,000 psi and 10,000 psi rated

MN Series

Economical mini series 6,000 psi rated

The Alco Midget™ Valve

Compact soft tip needle valve 3,000 psi rated

OB Series

Oblique needle valve 6,000 psi and 10,000 psi rated

AV Series

Angle pattern needle valve 6,000 psi and 10,000 psi rated

FN Series

Compact forged body needle valves

How to order the above

An explanation of the part numbering system

N Series

General Information

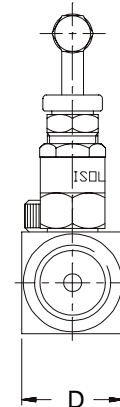
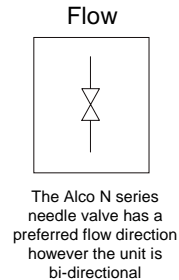
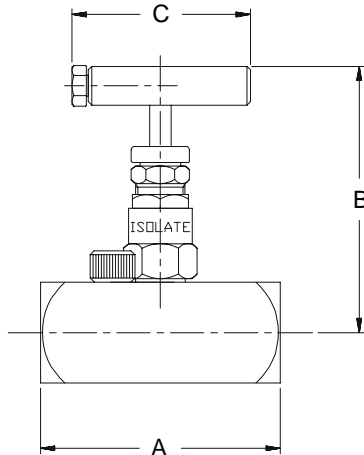
Needle Valves 6,000 psi & 10,000 psi

The precision made 'N' series, single isolation hand valve utilising metal to metal seat and body to bonnet connection for superior, bubble tight sealing capabilities at both extreme pressures and temperatures. The "N" series also offers non-rotating hardened (17-4PH) tip for first time seal and long service life. The "N" series also offers non-vibration cam locking device at the body bonnet connection is for extra safety. Working pressures are 6,000 psi and 10,000 psi. Maximum working temperature up to 230°C and up to 570°C with GP option at reduced pressure.



Design Features

- Bubble tight metal to metal seat for positive shut off.
- 2 piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing.
- Metal to metal body bonnet seal for high pressure and high temperature sealing.
- Unique bonnet locking cam. No accidental removal of head unit, or loosening due to vibration.
- Positive no slack stem action.
- Bi-directional flow, with preferred flow indicated.
- Back sealing stem to extend packing life.
- Available NPT, BSPP, BSPT threaded.
- Temperature rating -50°C to 230°C (570°C with GP option).
- Repair / service kits available to extend field life further.
- Actuating threads are above the packings to prevent contamination by the process medium.
- Body to bonnet ingress seal fitted as standard to prevent crevice corrosion.
- Full material traceability of major components.
- 100 % Hydrostatic testing.
- Available fire safe to BS6755 Part 2 API 607.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75 latest revision.



Part Numbers

St / St Part No.	Connections Size	A	B (Open)	Orifice size	C	D	CV	KV	Weight (Kgs)
N2NS	1/4" NPT	61	73	5	50	26	0.3	0.26	0.35
N3NS	3/8" NPT	61	73	5	50	26	0.75	0.65	0.35
N4NS	1/2" NPT	68	75	5	50	28	0.75	0.65	0.38
N6NS	3/4" NPT	76	77	5	50	38	0.75	0.65	0.7
N8NS	1" NPT	85	85	8	50	45	1.8	1.6	1.1

For 10,000 psi version add "U" i.e. UN4NS
 For BSPP threads change "N" to "P" i.e. N2PS
 For BSPT threads change "N" to "T" i.e. N2TS
 Packing materials: RTFE (standard) graphoil high temperature option -GP
 Orifice may vary with rating

Dims are in mm (Appx)

See technical section for important additional valve data.

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REF: AVCAT2K072

REV: 00

Tube Ended N Series

General Information

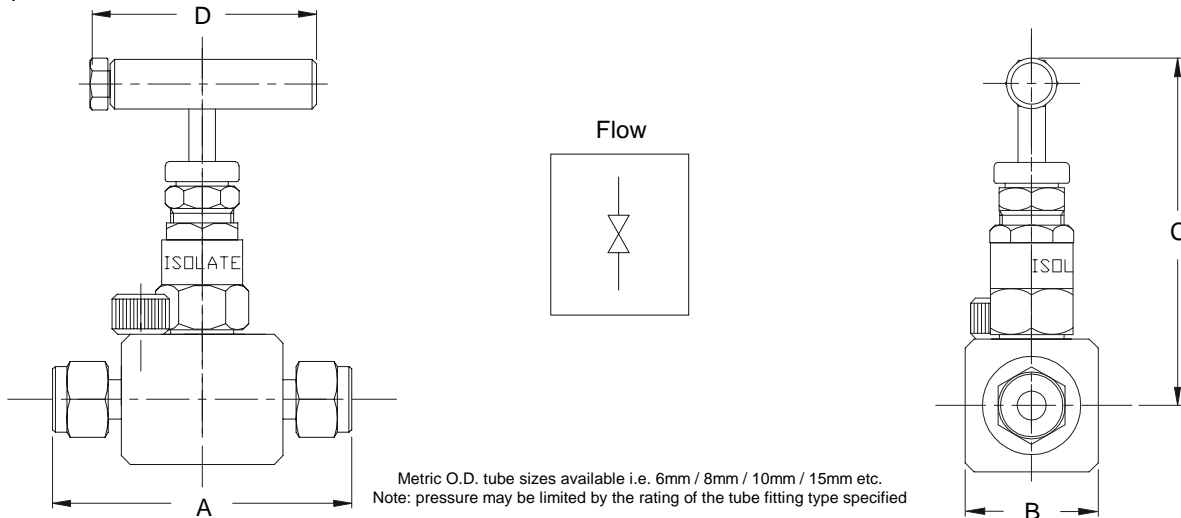
Compression Ended Needle Valve

The standard 'N' series with compression type tube fitting ends. Single isolation hand valve utilising metal to metal seat and body to bonnet connection for superior, bubble tight sealing capabilities at both extreme pressures and temperatures. The N series also offers non-rotating hardened tip for extended service life. The unique anti-vibration cam locking device at the body bonnet connection is for extra safety. Working pressures are 6,000 psi and 10,000 psi. Maximum working temperature up to 230°C and up to 570°C with GP option at reduced pressure.



Design Features

- Twin or single ferrule, quick & easy to install compression end connectors.
- Bubble tight metal to metal seat for positive shut off.
- 2 piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Rated 6,000 psi as standard.
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing.
- Metal to metal body bonnet seal for high pressure and high temperature sealing.
- Positive no slack stem action.
- Bi-directional flow, with preferred flow indicated.
- Back sealing stem to extend packing life.
- Repair / Service kit available to extend field life further.
- Temperature rating -50°C to 230°C (570°C with GP option).
- Unique bonnet locking cam. No accidental removal of head unit, or loosening due to vibration.
- Actuating threads are above the packings to prevent contamination by the process medium.
- Body to bonnet ingress seal fitted as standard to prevent crevice corrosion of bonnet threads.
- Available fire safe to BS 6755 Part 2 API 607.
- Full material traceability of major components.
- 100 % Hydrostatic testing.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75 latest revision.



Part Numbers

St / St Part No.	Connections Size	A	B	C	D	CV	KV	Weight (Kgs)
N2KS	1/4" O.D. x 1/4" O.D.	77	25	74	50	0.3	0.26	0.3
N3KS	3/8" O.D. x 3/8" O.D.	77	25	74	50	0.75	0.65	0.3
N4KS	1/2" O.D. x 1/2" O.D.	90	29	76	50	0.75	0.65	0.35
N6KS	3/4" O.D. x 3/4" O.D.	104	29	76	50	0.75	0.65	0.4
N8KS	1" O.D. x 1" O.D.	120	38	81	50	1.8	1.6	0.9

Packing materials: RTFE (standard) graphoil option -GP
For 10,000 psi version add "U" i.e. UN2KS

Dims are in mm (Appx)
See technical section for important additional valve data.

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REF: AVCAT2K073

REV: 00

UNV Series



Note: The above has 1/2" O.D. standpipe end (suitable for direct connection to a compression fitting) x 1/2" NPT male thread all with the same valve.

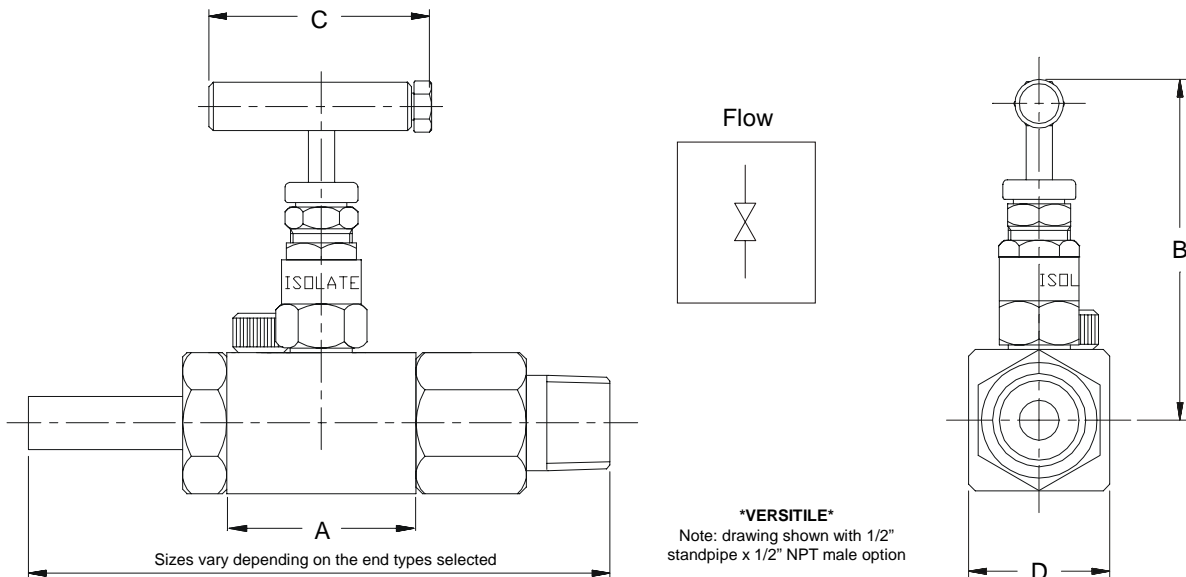
General Information

Problem solver - unrivalled flexibility of end connections 6000 psi rated

The unique range of universal body needle valves offers the ultimate in instrument valve flexibility, any combination of end types i.e. 1/2" socket weld x 1/8" compression end or 1/2" NPT x 3/8" BSPP male. The combinations from 1/8" to 1/2" are limitless, why use reducers, male studs or adapters when you can now buy custom made valves. Less fittings used at the time of installation means more money is saved and the safer it will be. All joints are pre-tested at our factory. Available in straight or angle pattern body style. Available in straight or angle pattern body format the UNV is a compact problem solver - and its available in small quantities.

Design Features

- Absolute flexibility - any end type combination
- 2 piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Metal to metal body bonnet seal for high pressure and high temperature sealing.
- Bubble tight shut off.
- Positive no slack stem action.
- Unique bonnet locking cam.
- Ingress seal fitted as standard.
- Temperature rating -50°C to 230°C
- Actuating threads are above the packings to prevent contamination by the process medium.
- Available in straight or 90° angle pattern body style.
- Repair / service kit available to extend field life further.
- 100 % Hydrostatic testing
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75 latest revision.



Part Numbers

St/St Part No.	Connections Size	A	B Open	C	D	CV	KV	Weight (KGs)
UNV4NS-13PS	1/2" NPT (F) X 3/8" BSPP (F)	44	76	50	28	0.75	0.65	0.35
UNV2PS-14S	1/4" BSPP (F) X 1/2" Socket Weld	44	76	50	28	0.75	0.65	0.45
UNV3TS-1M4P	3/8" BSPP (F) X 1/2" BSPP (M)	44	76	50	28	0.75	0.65	0.3

For angle pattern add "A" i.e. UNAV4NS-13P
Packing materials: RTFE (standard) graphoil option -GP

See technical section for important additional valve data.

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REF: AVCAT2K074

REV: 00

PV Series

General Information

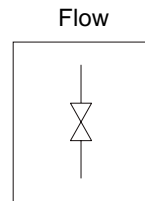
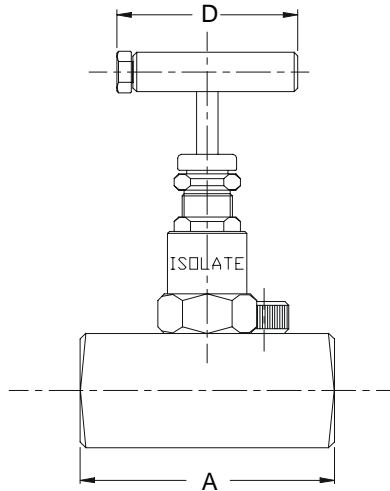
Soft Seated Plug Valves 6,000 psi & 10,000 psi



The rising plug valve offers bubble tight isolation with a renewable soft seat. It is also roddable with 7mm clear bore, high flow with accurate control. Excellent for use with viscous materials at high pressure. The "PV" series, single isolation plug type hand valve utilises soft seat and metal to metal body to bonnet connection for superior, bubble tight sealing capabilities at extreme pressures. The "PV" series also offers non-rotating spindle for extended service life. The unique anti-vibration cam locking safety device at the body bonnet connection is for extra safety. Working pressures are 6,000 psi and 10,000 psi. Maximum working temperature up to 110°C and 250°C with Peek® seat option (at reduced pressure).

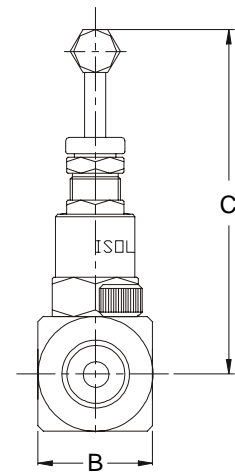
Design Features

- Isolation valves have 2-piece non-rotating plug.
- Soft seat for bubble tight shut off.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Replaceable seat.
- Ingress seal fitted as standard.
- Full material traceability.
- Large clear 7mm roddable bore.
- Repair / service kit available to extend field life further.
- Temperature rating -60°C to 110°C
- Delrin seats as standard & various other seat materials available to suit your application including Peek®, RTFE®, Devol®, KEL-F® and PVDF®.
- Actuating threads are above the packings to prevent contamination by the process medium.
- 100% Hydrostatic testing.
- High flow rate with fine control.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75 latest revision.



Viscous fluid no problem with large 7mm bore.

option -HW For hand wheel
option -PS for Peek® seat to increase max working temperature to 250°C (at reduced pressure)



Part Numbers

St / St Part No.	Connections Size	A	B	C	D	CV	KV	Weight (kgs)
PV2NS	1/4" NPT female x female	71	32	96	50	1.2	1.1	0.60
PV3NS	3/8" NPT female x female	71	32	96	50	1.5	1.3	0.55
PV4NS	1/2" NPT female x female	71	32	96	50	1.8	1.6	0.50
PV6NS	3/4" NPT female x female	76	38	99	50	1.8	1.6	0.8
PV8NS	1" NPT female x female	85	44	102	50	1.8	1.6	1.2

For BSP threads change "N" to "P" i.e. PV2PS
Packing materials: PTFE (standard) - Peek® option -PS
For 10,000 psi version add 'U' i.e. UPV2NS

Dims are in mm (Appx)

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REF: AVCAT2K075

REV: 00

MN Series



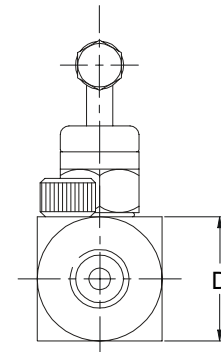
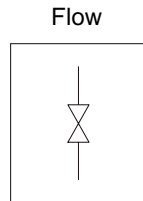
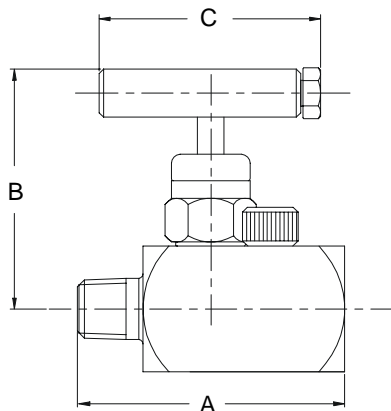
General Information

Economical mini series 6,000 psi

The compact economical mini series needle valve is manufactured to the highest standards. The Mini design is lightweight and easy to operate due to the low torque, dynamic packing seal arrangement, thus reducing cost and installation space required. The mini series is rated up to 6,000 psi (408 bar). The mini series has a high integrity metal to metal body bonnet seal suitable for high pressure use and is fitted with the cam locking device for extra safety.

Design Features

- Compact and lightweight.
- Solid one-piece hardened 17/4 PH tip to ensure bubble tight shut-off.
- Unique bonnet locking cam for safety.
- Pressure responsive Viton® packing seal arrangement.
- Metal to metal body bonnet seal for high pressure use up to 6,000 psi.
- Packing seal below actuating threads to prevent thread contamination by the process medium.
- Positive no slack stem action.
- Bi-directional flow, with preferred flow indicated.
- Temperature rating -15°C to 170°C
- Unique body locking cam. No accidental removal of head unit, or loosening due to vibration.
- Ingress seal fitted as standard.
- Repair / service kit available to extend field life further.
- Full material traceability of major components.
- 100% Hydrostatic testing.
- Back sealing stem to extend packing life.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75 latest revision.



Note: M x F & F x F threaded versions are equal in length

Part Numbers

St/St Part No.	Connections Size	A	B	C	D	CV	KV	Weight (kgs)
MN2NS	1/4" NPT	47	51	50	19	0.3	0.26	0.3
MN3NS	3/8" NPT	61	54	50	25	0.75	0.65	0.3
MN4NS	1/2" NPT	68	55	50	28	0.75	0.65	0.35
COMPRESSION ENDS (IMPERIAL) APPROX WHEN TIGHTENED								
MN2KS	1/4" OD	77	54	50	25	0.3	0.26	0.25
MN3KS	3/8" OD	77	54	50	25	0.75	0.65	0.25
MN4KS	1/2" OD	90	55	50	28	0.75	0.65	0.3
COMPRESSION ENDS (METRIC)								
MNM6KS	6mm OD	77	54	50	23	0.3	0.26	0.25
MNM10KS	10mm OD	77	54	50	25	0.75	0.65	0.25
MNM12KS	12mm OD	90	55	50	28	0.75	0.65	0.3

For BSPP change 'N' for 'P' i.e. MN4PS

For BSPT change 'N' for 'T' i.e. MN4TS

Packing materials: Viton® (standard) - PTFE coated option -PV - EPDM option -EPDM

Dims are in mm (Appx)

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REF: AVCAT2K076

REV: 00

The Alco Midget™ Valve



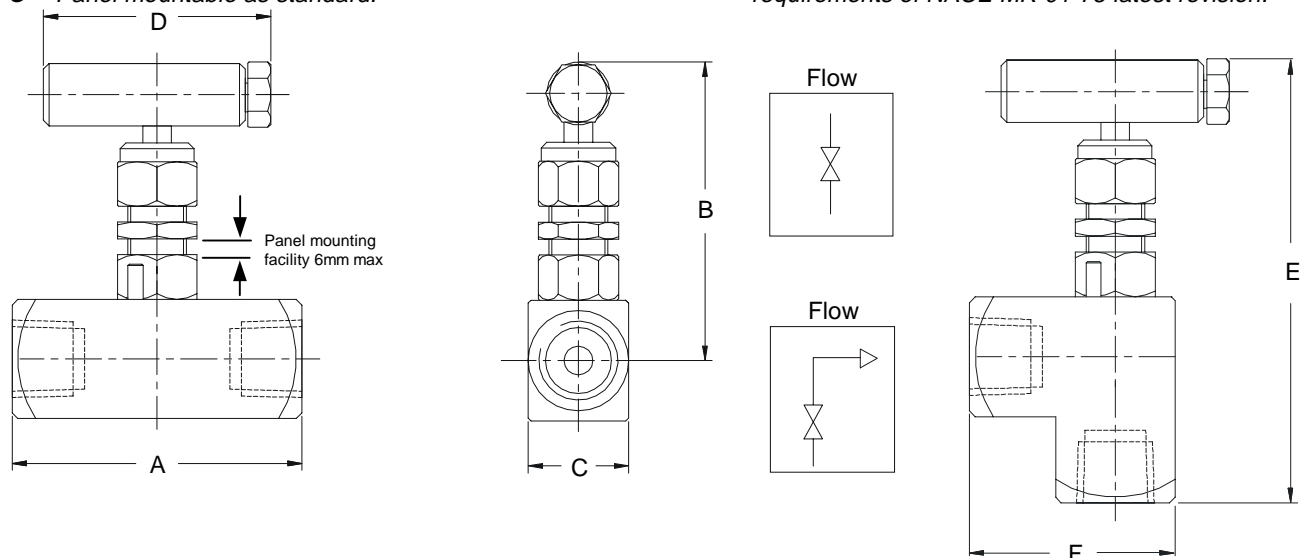
General Information

Compact, 3,000 psi, Soft Tip

The Alco Midget™ needle valve is an economical and compact solution for medium or low pressure applications. The Alco Midget™ has a soft tip for low pressure sealing on gas applications. Rated up to 3,000 psi the Midget is the baby of our needle valve range. It has significant applications in most industries where medium and high pressure gases are used. PTFE and Viton® packings are used -50°C up to +170°C (see temperature curve) options such as hand wheels or locking devices are also available.

Design Features

- The Alco Midget™ needle valve is a compact solution for medium pressure liquid or gas applications.
- Soft, bubble tight tip for first time sealing.
- Various end connections available, FxF, MxF, MxM or even quick and easy to fit twin ferrule compression ends.
- Available straight or angle type body format.
- 3,000 psi rated and up to 100°C.
- 2 piece non-rotating tip.
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing.
- Positive no slack stem action.
- Panel mountable as standard.
- Temperature rating -50°C to 170°C
- Body to bonnet ingress seal fitted as standard to prevent crevice corrosion.
- Full material traceability of major components.
- No slip bolted handle arrangement.
- Back sealing stem to extend packing life.
- Repair / service kit available to extend field life further.
- 100 % Hydrostatic testing.
- Bonnet locking interference pin to prevent loosening caused by vibration or accidental removal by operator.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75 latest revision.



Note: the midget uses a bonnet locking pin

Part Numbers

St/St Part No.	Connections Size	A	B (OPEN)	C	D	E	F	CV	KV	Weight (KGs)
MGN2NS	1/4" NPT Female x Female	46	52	18	40	75	35	0.3	0.26	0.13
MGN2NS-1M	1/4" NPT Male x Female	46	52	18	40	75	35	0.3	0.26	0.13
MGN2NS-2M	1/4" NPT Male x Male	46	52	18	40	75	35	0.3	0.26	0.13
MGN2KS	1/4" O.D x 1/4" O.D compression ended	60	52	18	40	85	40	0.3	0.26	0.15

For angle style version add "A" i.e. MGAN2NS

For hand wheel add HW i.e. MGN2NS-HW

Packing materials: Viton (standard) - PTFE coated option -PV - EPDM option -EPDM

See technical section for important additional valve data.

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REF: AVCAT2K077

REV: 00

OB series

General Information

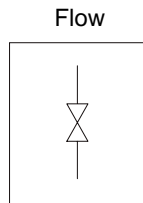
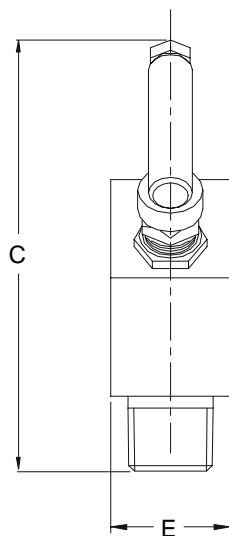
Oblique Needle Valve 6,000 and 10,000 psi rated

The in-line oblique needle valve, 6,000 psi and 10,000 psi versions. Far less pressure drop and flow restriction than a standard needle valve due to the near-straight bore through the valve. Operator friendly due to the angled head unit and handle. Particularly good for use with heavy or viscous fluids. Available in male x female and female x female versions. Options such as hand wheel and locking device available.

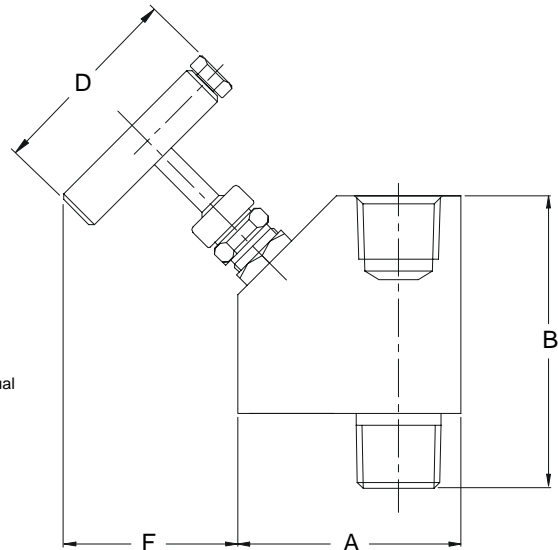


Design Features

- Bubble tight metal to metal seat for positive shut off.
- 2 piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing.
- Positive no slack stem action.
- Bi-directional flow, with preferred flow indicated.
- Oblique style for high flow and ease of operation.
- Repair / service kit available to extend field life further.
- Temperature rating -50°C to 230°C
- Can be fitted with graphoil packings for high temperature use (570°C).
- Available male x female, female x female formats
- Available NPT, BSPP, BSPT.
- Full material traceability.
- 100% Hydrostatic testing.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75



Note: male x female and female x female dimensions are equal



Part Numbers

St/St Part No.	Connections Size	A	B	C	D	E	F	Cv	Kv	Weight (Kgs)
OBN2NS	1/4" NPT male x female	50	63	103	50	25	44	0.3	0.26	0.6
OBN3NS	3/8" NPT male x female	56	70	108	50	28	44	0.75	0.65	0.8
OBN4NS	1/2" NPT male x female	56	80	113	50	30	44	0.75	0.65	1
OBN6NS	3/4" NPT male x female	63	80	113	50	38	44	0.75	0.65	1.4
OBN8NS	1" NPT male x female	75	95	125	50	44	44	1.8	1.6	2.2

For male inlet add -1M i.e. OBN4NS-1M.
Packing materials: RTFE (standard) graphoil option -GP
For 10,000 psi version add 'U' i.e. UOBN4NS

Dims are in mm (Appx)

See technical section for important additional valve data.

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REF: AVCAT2K078

REV: 00

AV series



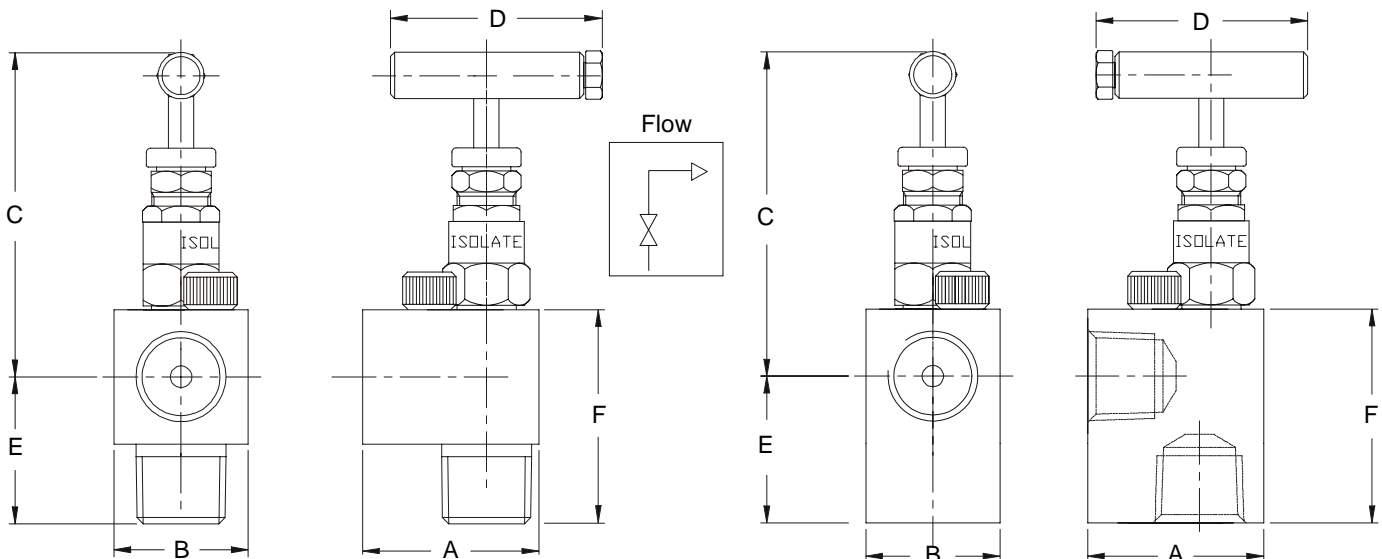
General Information

6,000 and 10,000 psi Angle Pattern Needle Valve

The 90° angle pattern needle valve offers high pressure bubble tight sealing in a compact body allowing pipe work origination to change by 90° at the valve. The "AV" offers many different connections, male x male, male x female, threaded and even compression type tube ends. Pressure ratings 6,000 psi and 10,000 psi. Sizes from 1/4" to 1". Several options such as locking device and hand wheel operator are available. The "AV" series is made in 316 stainless steel as standard and various super alloys.

Design Features

- 2-piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Bubble tight shut off.
- Positive no slack stem action.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Temperature rating -50°C to 230°C (570°C with GP option).
- Ingress seal fitted as standard.
- Full material traceability.
- 100% Hydrostatic testing.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75



Part Numbers

St / St Part No.	Connections Size	A	B	C	D	E	F	CV	KV	Weight Kgs
AV2NS	1/4" NPT female x female	38	25	76	50	29	44	0.3	0.26	0.3
AV3NS	3/8" NPT female x female	38	25	77	50	33	48	0.75	0.65	0.35
AV4NS	1/2" NPT female x female	42	28	77	50	35	51	0.75	0.65	0.4
AV6NS	3/4" NPT female x female	45	38	83	50	41	63	0.75	1.65	0.7
AV8NS	1" NPT female x female	50	45	86	50	45	70	1.8	1.6	1.1

Dim's are in mm (Appx)

For male inlet add -1M i.e. AV4NS-1M
Packing materials: RTFE (standard) graphoil option -GP
For 10,000 psi version add "U" i.e. UAV4NS-1M

See technical section for important additional valve data.

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REF: AVCAT2K079

REV: 00

FN Series

General Information

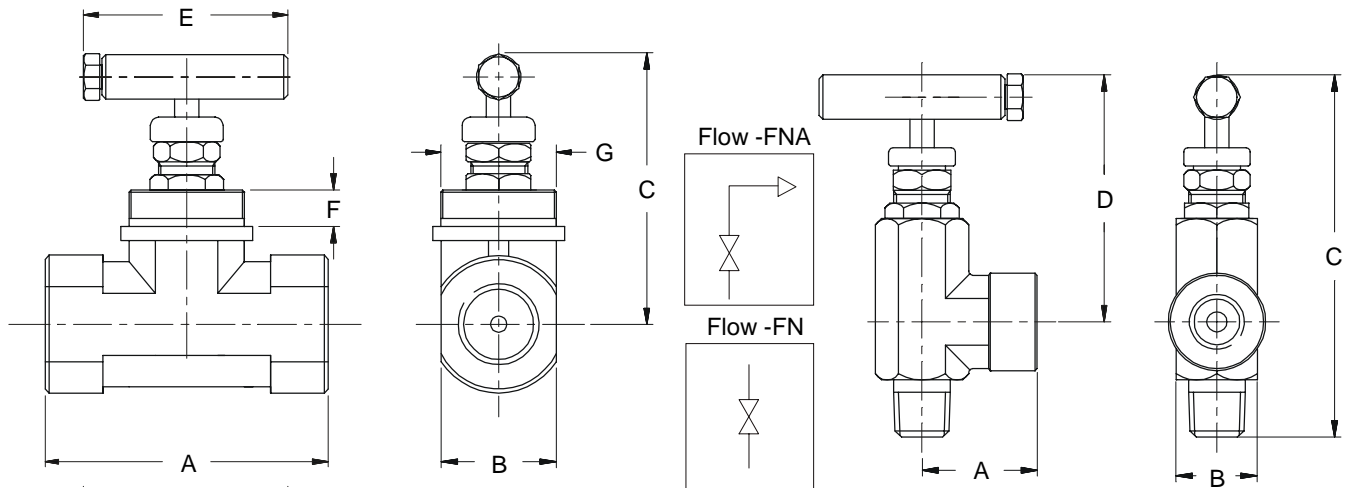
Compact, Forged Body Needle Valves

The 'FN' series, forged body valve range utilising a one piece high strength forged 316 stainless steel body. The 'FN' series also offers non-rotating hardened tip for extended service life. Working pressures are 6,000 psi and 10,000 psi. Maximum working temperature up to 230°C and up to 570°C with GP option (at reduced pressure). The FN series is available in straight or 90° angle pattern body version with many other standard options available such as single nut style panel mounting facility, hand wheel and locking device.



Design Features

- Compact, one piece high strength forged body as standard.
- Bubble tight 2 piece non-rotating hardened (17-4PH) tip.
- Pressure responsive multi-ring / piston packing with compression and pressure dynamic sealing.
- Available with single nut panel mounting facility.
- Available in straight or angle pattern body format.
- Various end connections available f x f, m x f, m x m and compression ends.
- Temperature rating -50°C to 230°C (570°C with GP option).
- Positive no slack stem action.
- Repair / service kit available to extend field life further.
- Full material traceability of major components.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75 latest revision.
- 100 % Hydrostatic testing.



Shown with panel mount option

Note: pressure rating may be limited by the rating of the tube fitting type specified

Part Numbers

St / St Pt No.	Connections Size	A		B (Open)		C		D		E	F Max Panel Thickness	G	Cv	Kv	Weight (Kgs)
		Straight	Angle	Straight	Angle	Straight	Angle	Straight	Angle						
FN2NS	1/4" NPT	58	28	20	20	75	89	63	61	50	7	20	0.3	0.26	0.25
FN3NS	3/8" NPT	58	28	20	28	75	112	63	74	50	7	20	0.75	0.65	0.25
FN4NS	1/2" NPT	74	38	28	28	90	112	73	74	50	9	29	0.75	0.65	0.4
FN6NS	3/4" NPT	80	41	38	38	94	118	73	77	50	9	29	0.75	0.65	0.8

Dim's are in mm (Appx)

For angle pattern add 'A' i.e. FNA4NS

For twin ferrule compression end connections change 'N' to 'K' i.e. FN4KS

Packing materials: RTFE (standard) graphoil option -GP

For panel mounting facility add 'PM' i.e. FN4NS-PM

See technical section for important additional valve data.

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REF: AVCAT2K080

REV: 00

How to order Needle & Plug Valves

Our part number system is made up of alphanumeric / generic code system as explained below.
An example is :-

**1/2" NPT female x female needle valve constructed in 316 stainless steel.
Fitted RTFE (25% glass fibre filled) packing, complete with Monel K500® tip
and hand wheel operator, rated 10,000 psi (690 Bar).**

The part number shown below is made up using the system :-

Rated pressure	Valve series	Valve size	End connections	Material of construction/ body parts	Trim material (stem)	Options
U	N	4	N	S	-5-	H W
Blank = Std Rating U = 10,000 psi	N = Needle Valve FN = Forged Needle Valve PV = Plug Valve MGN = Midget™ Range OB = Oblique Pattern XN = High Pressure Range AV = Angle Pattern MN = Mini Series	2 = 1/4" 3 = 3/8" 4 = 1/2" 6 = 3/4" 8 = 1"	B = Butt weld F = Flanged K = Twin ferrule (compression ends) N = NPT Female threads P = BSPP Female threads (compression ends) Q = Single ferrule (compression ends) S = Socket weld T = BSPT Female threads	B = Brass C = C/Steel D = Ali-Bronze H = Hastalloy C I = Incoloy 625 M = Monel 400 N = Cupro-Nickel S = 316 St. St. U = Duplex Note: Other specialist material such as 6MO®, Super Duplex, Zirconium® are available	-U = Duplex -5 = Monel 400 -8 = Hastalloy -P = peek® tip -D = Delrin tip -MT = Metering tip -C = Ceramic tip	No digit = T Bar HW = Hand wheel NLK = Locking device with indicator & key PM = Panel mount DG = degreased & cleaned Pad = Pad lock & keys FS = Fire safe to BS6755 Part 2 V = Internal vent facility 1M = Male thread - one side 2M = Double male thread

Socket weld and butt weld end connectors may be extended for thermal protection of the valve internals.
Note: Pressure ratings may vary dependant upon the material of construction i.e. brass construction limited up to 3,000 psi.

NOTE 1: The pressure ratings quoted within our literature are maximum hydrostatic pressure ratings for the valves. Certain options available are the products / designs of other manufacturers, Alco valves cannot accept any responsibility for these products unsuitability or failure in service.

NOTE 2: It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary.

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