NEEDLE VALVE

- Sizes: 1/4” to 1”
- Pressure Ratings: 6,000 PSI, 10,000 PSI, 15,000 PSI
- NPT, ISO/BSP, Threads
- Stainless Steel (316L, 316, 304, 304L), Monel K400, Monel K500
- NACE MR-01-75 & NACE MR-01-03

A Trusted Name in Instrumentation Valves, Fittings & Accessories

Catalogue No.: PMT-NV

www.pmtvalvesfittings.com
PMT Needle valves have a slender, tapered point at the end of the valve stem that is lowered through the seat to restrict or block flow. Fluid flowing through the Needle valve turns 90 degrees and passes through an orifice that is the seat for a rod with a cone shaped tip. Needle valves are widely used to accurately regulate the flow of liquids and gases at low flow rates. The fine threading of the stem and the large seat area allow for precise resistance to flow. Needle valves are used to control flow into delicate gauges, which might be damaged by sudden surges of fluid under pressure. Needle valves are also used in situations where the flow must be gradually brought to a halt, and at other points where precise adjustments of flow are necessary or where a small flow rate is desired. They can be used as both on/off valves and for throttling service.

PMT Needle valves are often designed with a metal needle (generally brass, bronze, or stainless or other alloys of steel) and an elastomeric seat (generally PVC, CPVC, PTFE, or a wide range of brand name plastics and thermoplastics). While this is the most common form, valves are available that have metal - metal, plastic – plastic, or plastic- metal needles and seats. These variations are usually designed with specific applications in mind, especially situations where corrosion, high or low temperatures or extensive wear are possible. In such cases, it is best to consult with the manufacturer to find which type of valve is best for the application at hand.

PMT Needle valves are used in almost every industry in an incredibly wide range of applications - anywhere control or metering of steam, air, gas, oil, water or other non-viscous liquids is required. They can be found in every industry from aerospace to zoological sciences, every service from gas and liquid dispensation to instrumentation control and cooling to power generation. However, Needle valves should be avoided in applications where the media is viscous, or in the dispensation of slurries. The small flow orifice can easily trap thick materials or solids and become blocked.

PMT Brand Make Needle valves are available in materials like - Steel, Stainless Steel, Brass, Monel , & various Alloy & Non Alloy steel.

Features:-

- Materials include high tensile type 316 stainless steel.
- The location of packing is under the thread of valve stem.
- Non-rotating stem and bar stock body design.
- Easy to assemble and replace packing.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Bonnet lock pin to prevent accidental loosening.
- Dust caps are fitted to contain stem lubricant and prevent the ingress of contaminants.
- One piece bonnet with a metal to metal seat to the valve body below the bonnet threads.
- All bonnets are assembled with a locking pin to prevent accidental removal while in service.
- The stem threads are rolled and lubricated to prevent galling and reduce operating torque.
- Panel mounting options available.
- Variety of end configurations includes PMT Tube Fittings, Male/Female NPT, BSPT, BSPP pipe and tube socket weld connections.
- Hardened Stem Tip
- Flow Coefficients (Cv) From 0.31 to 1.40
- Orifice Size : 0.138" (3.5mm) to 0.250" (6.4mm)
- Every valves is factory tested.

Formulas :-

**Liquids**

\[ Q_L = C_V \sqrt{\frac{(P_1 - P_2)(62.4)}{r}} \]

**Gases (Where \( P_2 > 0.5P_1 \))**

\[ Q_V = (23.18) C_V \sqrt{\frac{(P_1 - P_2)P_2}{(S.G.) T}} \]

**Gases (Where \( P_2 < 0.5P_1 \))**

\[ Q_V = \frac{(11.59) P_1 C_V}{\sqrt{S.G. (T)}} \]

Where:

- \( Q_L \) = Flow (gpm)
- \( r \) = Density of Liquid (lb/ft³)
- \( T \) = Flowing Temperature (°R)
- \( \text{S.G.} = \) Specific Gravity of Gas (M.W. of Air/28.96)

- \( S.G. \) = Air = 1,000
- \( S.G. \) = Nitrogen = 0.967
- \( S.G. \) = Oxygen = 1.105
- \( S.G. \) = Helium = 0.138
- \( S.G. \) = Hydrogen = 0.0696

- \( Q_V \) = Flow (scfm)
- \( P_1 \) = Upstream Pressure (psia)
- \( P_2 \) = Downstream Pressure (psia)
- \( r \) (Water) = 62.4 lb/ft³@60°F [16°C]

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Different types of Spindle tip :-

- **Hard seat Spindle Design :-**
  - Spindle is standard for pressure tightness even at elevated temperatures. Regulating Spindle & Soft-seat Spindle are optional.

- **Soft seat Spindle Design :-**

**Non-rotating Metal Vee Tip :-**
- A non-rotating Vee tip is typically used in high cycle applications to extend the service life of the valve. When the valve is closed, the Vee tip contacts the valve seat, and is driven straight into it without rotating.

**Non-rotating Metal Ball Tip :-**
- A non-rotating Ball tip operates in the same fashion as the non-rotating metal Vee tip but requires less seating torque.

**Pressure temperature rating :-**

![Pressure temperature chart]

**Applications :-**
- General Plant Service
- Hydraulic and Pneumatic
- Pressure measurement devices
- Instrument isolation
- Condensates
- Venting

**Available Options**
- High Temperature
- High Pressure
- NACE
- Tube End Connection
- Alternates Connection Sizes

**Pressure Rating :-**

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Orifice</th>
<th>Cv</th>
<th>Max. Working Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot;</td>
<td>3.5mm</td>
<td>0.31</td>
<td>10,000 psi (690 kg/cm²)</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>3.5mm</td>
<td>0.31</td>
<td>6,000 psi (413 kg/cm²)</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>4.8mm</td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>6.4mm</td>
<td>1.40</td>
<td></td>
</tr>
</tbody>
</table>

**How to mount the valve on panel :-**

**Disassembly**
1. Un-tighten the handle set screw using an allen key and remove the handle.
2. Remove the packing nut & panel nut and set aside for later use.
3. Place the valve bonnet in the panel hole.

**Reassembly**
4. Tighten the panel nut onto the valve bonnet. Keep the panel nut always on the external portion of the panel.
5. Finger tighten the packing nut onto the valve body.
6. Place the round handle on the stem. Align the set screw with the groove on the side of the stem. Tighten the set screw.
7. Fully close the valve and retract the stem two or three turns before torque the packing nut to the torque below.

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Design & Materials of Construction:

HARD SEAT DESIGN

- **BODY**: Forged one piece body construction (no welding) for high strength.
- **GLAND BODY**: For maximum packing stability and performance.
- **GLAND RETAINER**: Standard Construction For maximum pressure rating.
- **SPINDLE**: Designed for low torque operating with high quality micro mirror stem finish for positive gland sealing.
- **LOCK NUT**: A secure anti vibration locking mechanism to prevent inadvertent gland adjuster loosening.
- **PACKING**: PTFE stem packing seals the system fluid to atmosphere.
- **WASHER PACKING (OPTIONAL)**: Annealed sealing washer to ensure complete atmospheric leakage and allowing on site retro-fit of bonnet with 100% re-sealing assurance.
- **WASHER (OPTIONAL)**: Metal to metal seal with body suitable for high pressure temperature applications.
- **HANDLE**: Removable T-bar handle aids low torque operation.
- **VEE TIP**: Self centering, non-rotational VEE tip gives successive positive bubble tight shut off assuring the user of leakage free performance and downstream functional safety.
- **LOCK PIN**: Safety bonnet lock pin prevents accidental disassembly.
- **DUST CAP**: Prevents contamination and lubricant washout of bonnet assembly.
- **SOFT SEAT**: PTFE & Delrin Seat to ensure a tight-shut off even in abrasive process conditions.
- **GRUB SCREW**: For locking the handle.

**MATERIALS OF CONSTRUCTION**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NAME</th>
<th>MATERIALS</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BODY</td>
<td>A479-316L/A-105</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>GLAND BODY</td>
<td>A479-316L/A-105</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>GLAND RETAINER</td>
<td>A479-316L/A-105</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>SPINDLE</td>
<td>A479-316L/304L</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>WASHER (OPTIONAL)</td>
<td>A479-316L/304L</td>
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<tr>
<td>6</td>
<td>PACKING</td>
<td>PTFE/GRAPHOIL</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>PACKING WASHER</td>
<td>SS 316/304</td>
<td>1</td>
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<tr>
<td>8</td>
<td>LOCK NUT</td>
<td>A479-316L/A-105</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>HANDLE</td>
<td>SS 304/CS</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>GRUB SCREW</td>
<td>STEEL</td>
<td>1</td>
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<tr>
<td>11</td>
<td>DUST CAP</td>
<td>PLASTIC LD</td>
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<tr>
<td>12</td>
<td>VEE TIP (OPTIONAL)</td>
<td>A564-630</td>
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</tr>
<tr>
<td>13</td>
<td>LOCK PIN</td>
<td>SS 304/CS</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>VENT PLUG (OPTIONAL)</td>
<td>A479-316L/A-105</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>SOFT SEAT (OPTIONAL)</td>
<td>POM</td>
<td>1</td>
</tr>
</tbody>
</table>

**Factory test**:

- **Standard Test**: Each valve is factory tested with nitrogen at 1000 psig (69 bar) for leakage at the seat and packing, the maximum allowable leak rate of 0.1 sccm.
- **Optional Hydrostatic test**: This test is performed with pure water at 1.5 times the working pressure. Other tests like vibration, temperatures, helium etc are available upon requests.

**Packaging**:

All exposed threads of the product are protected with plastic caps to prevent damage and each assembly is packed in sealed and clear polyethylene bag for cleanliness and carefully packed in cardboard boxes to prevent transit damage. Each and every package is labeled for proper and easy identification.

sales@pmtvalvesfittings.com
PMT Hex type Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolation or throttling of the media and for high pressure instrument lines. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4" to 3/4".

**Specifications :-**

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>T (MALE x FEMALE)</th>
<th>LENGTH</th>
<th>HEX</th>
<th>HT OPEN</th>
<th>HANDLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HXV-SS-4MF</td>
<td>1/4&quot;</td>
<td>60</td>
<td>25</td>
<td>96</td>
<td>50</td>
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<tr>
<td>HXV-SS-6MF</td>
<td>3/8&quot;</td>
<td>60</td>
<td>25</td>
<td>96</td>
<td>50</td>
</tr>
<tr>
<td>HXV-SS-8MF</td>
<td>1/2&quot;</td>
<td>80</td>
<td>32</td>
<td>103</td>
<td>50</td>
</tr>
<tr>
<td>HXV-SS-12MF</td>
<td>3/4&quot;</td>
<td>80</td>
<td>36</td>
<td>107</td>
<td>50</td>
</tr>
<tr>
<td>HXV-SS-16MF</td>
<td>1&quot;</td>
<td>95</td>
<td>45</td>
<td>120</td>
<td>60</td>
</tr>
</tbody>
</table>

**Max. Pressure**
- 6,000 psi (413 bar)
  - @100°F (38°C)
  - 10,000 psi (789 bar)
  - @77°F (25°C)

**Seat Type**
- Soft Seat / Hard Seat

**Gland packing**
- PTFE: For temp. -73°C (-99.4°F) to 210°C (410°C)
- Graphoil: For temp. (180°C 356°F) to 540°C (1001°F)

**Materials**
- Stainless Steel (316L, 316, 304, 304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03
  (For Sour gas Service)

**Service Medium**
- Liquid Gas or Vapor Service

**Steam**
- Needle (Standard)
  - Ball tip (optional)

**Connection**
- Screwed / Welded

**Handle**
- Removable

**Note :-**
- Other combination sizes available on request. Please contact factory for more details.

*Dimensions are for reference only and are subjected to change.*

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PMT Hex type Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4" to 3/4".

**Specifications :-**

- **Max. Pressure** : 6,000 psi (413 bar) @100°F (38°C)
  10,000 psi (789 bar) @77°F (25°C)

- **Seat Type** : Soft Seat / Hard Seat

- **Gland packing** : PTFE : For temp. -73°C (-99.4°F) to 210°C(410°C) Graphoil : For temp. (180°C 356°F) to 540°C (1001°F)

- **Materials** : Stainless Steel (316L, 316, 304,304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)

- **Service Medium** : Liquid Gas or Vapor Service

- **Steam** : Needle (Standard) Ball tip (optional)

- **Connection** : Screwed / Welded

- **Handle** : Removable

---

**Note :-**

- Other combination sizes available on request. Please contact factory for more details.

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**Dimensions are for reference only and are subjected to change.**

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PMT Square type Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4” to 3/4”.

**Specifications :-**

- **Max. Pressure**: 6,000 psi (413 bar) @100°F (38°C)
  10,000 psi (789 bar) @77°F (25°C)
- **Seat Type**: Soft Seat / Hard Seat
- **Gland packing**: PTFE : For temp. -73°C (-99.4°F) to 210°C(410°C)
  Graphoil : For temp. (180°C 356°F) to 540°C (1001°F)
- **Materials**: Stainless Steel (316L, 316, 304, 304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)
- **Service Medium**: Liquid Gas or Vapor Service
- **Steam**: Needle (Standard)
  Ball tip (optional)
- **Connection**: Screwed / Welded
- **Handle**: Removable

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>T (FEMALE x FEMALE)</th>
<th>LENGTH</th>
<th>SQUARE</th>
<th>HT OPEN</th>
<th>HANDLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQV-SS-4FF</td>
<td>1/4&quot;</td>
<td>55</td>
<td>25</td>
<td>96</td>
<td>50</td>
</tr>
<tr>
<td>SQV-SS-6FF</td>
<td>3/8&quot;</td>
<td>55</td>
<td>25</td>
<td>96</td>
<td>50</td>
</tr>
<tr>
<td>SQV-SS-8FF</td>
<td>1/2&quot;</td>
<td>65</td>
<td>28</td>
<td>103</td>
<td>50</td>
</tr>
<tr>
<td>SQV-SS-12FF</td>
<td>3/4&quot;</td>
<td>70</td>
<td>38</td>
<td>109</td>
<td>50</td>
</tr>
<tr>
<td>SQV-SS-16FF</td>
<td>1&quot;</td>
<td>80</td>
<td>45</td>
<td>120</td>
<td>60</td>
</tr>
</tbody>
</table>

**Note :-**

- Other combination sizes available on request. Please contact factory for more details.

Dimensions are for reference only and are subject to change.
MALE x MALE

PMT Square type Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4" to 3/4".

Specifications:

Max. Pressure: 6,000 psi (413 bar) @100°F (38°C)
10,000 psi (789 bar) @77°F (25°C)

Seat Type: Soft Seat/Hard Seat

Gland packing: PTFE: For temp. -73°C (-99.4°F) to 210°C(410°C)
Graphoil: For temp. (180°C 356°F) to 540°C (1001°F)

Materials: Stainless Steel (316L, 316, 304,304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)

Service Medium: Liquid Gas or Vapor Service
Steam: Needle (Standard) Ball tip (optional)
Connection: Screwed / Welded
Handle: Removable

Note:
* Other combination sizes available on request. Please contact factory for more details.

Dimensions are for reference only and are subjected to change.

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PMT Square type Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4” to 3/4”.

### Specifications :-

- **Max. Pressure**: 6,000 psi (413 bar)
  - @100°F (38°C)
  - 10,000 psi (789 bar)
  - @77°F (25°C)
- **Seat Type**: Soft Seat / Hard Seat
- **Gland packing**: PTFE : For temp. -73°C (-99.4°F) to 210°C(410°C)
  - Graphoil : For temp. (180°C 356°F) to 540°C (1001°F)
- **Materials**: Stainless Steel (316L,316, 304,304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03
  - (For Sour gas Service)
- **Service Medium**: Liquid or Gas or Vapor Service
- **Steam**: Needle (Standard)
  - Ball tip (optional)
- **Connection**: Screwed / Welded
- **Handle**: Removable

### Note :-

- Other combination sizes available on request. Please contact factory for more details.

**Dimensions are for reference only and are subjected to change.**

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PMT Angle type Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolation or throttling of the media and for high pressure instrument lines. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4” to 3/4”.

### Specifications :-

- **Max. Pressure**: 6,000 psi (413 bar) @ 100°F (38°C) 10,000 psi (789 bar) @ 77°F (25°C)
- **Seat Type**: Soft Seat / Hard Seat
- **Gland Packing**: PTFE: For temp. -73°C (-99.4°F) to 210°C (410°C) Graphoil: For temp. (180°C 356°F) to 540°C (1001°F)
- **Materials**: Stainless Steel (316L, 316, 304, 304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)
- **Service Medium**: Liquid Gas or Vapor Service
- **Steam**: Needle (Standard) Ball tip (optional)
- **Connection**: Screwed / Welded
- **Handle**: Removable

### Dimensions are for reference only and are subjected to change.

- Other combination sizes available on request. Please contact factory for more details.

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PMT Angle type Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4” to 3/4”.

### Specifications :-

- **Max. Pressure**: 6,000 psi (413 bar) @100°F (38°C)
  10,000 psi (789 bar) @77°F (25°C)
- **Seat Type**: Soft Seat / Hard Seat
- **Gland packing**: PTFE : For temp. -73°C (-99.4°F) to 210°C(410°C)
  Graphoil : For temp. (180°C 356°F) to 540°C (1001°F)
- **Materials**: Stainless Steel (316L,316, 304,304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)
- **Service Medium**: Liquid Gas or Vapor Service
- **Steam**: Needle (Standard)
  Ball tip (optional)
- **Connection**: Screwed / Welded
- **Handle**: Removable

### Note :-

- Other combination sizes available on request. Please contact factory for more details.

*Dimensions are for reference only and are subjected to change.*

sales@pmtvalvesfittings.com
High pressure Needle valve :-

PMT High Pressure Needle Valve 15,000 PSI is designed for leak free closure, regulation and management of fluids in process systems. With a wide variety of port sizes, end connections, style, temperature and pressure tolerance PMT Needle Valve are critical for instrumentation, fluid and process control system.

PMT High Pressure Needle valve can be Manufacture up to Working Pressure 15,000 psi & Burst pressure up to 15,000 psi. High Pressure Needle valves are widely used for Severe Service Operation as regulating and shut off type in critical High pressure up to 10,000 psi.

PMT High Pressure Needle valves are available in Steel, Stainless Steel, Brass Materials & can be applicable for Fluids like water, Oil, Petrol, Grease, chemicals, viscous gases. Needle valves can be made in Forged body & also in Solid bar stock body.

PMT Brand Make Needle valves are available in materials like – Steel, Stainless Steel, Steel Phosphatised / Yellow chromatize / trivalent Zinc Blue Passivation.

High Pressure Needle valve special features :-

- Valve bodies through 10,000 psi are high tensile Type 316 stainless steel, 15,000 psi valve bodies are 17-4 PH stainless steel.
- Their rugged construction provides assurance of fail-safe operation at pressures ranging to 15,000 PSI (1030 bar).
- Available in a variety of Body styles, the valves are designed for operation at temperatures ranging from -100° to +600°F (-73° to +315°C).
- Stem packing below the threads prevents thread galling & contamination.
- Easy handling even at high pressure (switching through 90°)
- Low torque operating T bar handle..

Features :-

- Materials include high tensile type 316 stainless steel.
- One piece bonnet with a metal to metal seal to the valve body below the bonnet threads.
- Non-rotating stem and bar stock body design.
- Easy to assemble and replace packing.
- Bonnet lock pin to prevent accidental loosening.
- Dust caps are fitted to contain stem lubricant and prevent the ingress of contaminants.
- The stem threads are rolled and lubricated to prevent galling and reduce operating torque.
- The material of packing gland and upper stem have been selected to achieve reduced handle torque and extended thread cycle life.
- 100% factory test. Every valve is tested with nitrogen for leak-tight performance at its maximum working pressure.
Design & Materials of Construction:

**BODY**: Forged one piece body construction (no welding) for high strength.

**GLAND RETAINER**: Standard Construction For maximum pressure rating.

**SPINDLE**: Designed for low torque operating with high quality micro mirror stem finish for positive gland sealing.

**LOCK NUT**: A secure anti vibration locking mechanism to prevent inadvertent gland adjuster loosening.

**PACKING**: PTFE stem packing seals the system fluid to atmosphere.

**HANDLE**: Removable T-bar handle aids low torque operation.

**VEE TIP (FLOATING CONICAL TIP)**: Self centering, non-rotational VEE tip gives successive positive bubble tight shut off assuring the user of leakage free performance and down stream functional safety.

**DUST CAP**: Prevents contamination and lubricant washout of bonnet assembly.

**GRUB SCREW**: For locking the handle.

### Testing :-

Each valve is Hydrostatically tested in accordance with MSS-SP-99. This procedure includes testing of the body cavity. Hydrostatic test is performed with pure water or other liquid of similar or lower viscosity at 1.5 times and seat leakage test at 1.1 times of the maximum working pressure. Other tests like vibration, temperatures, helium etc are available upon requests.

### Packaging :-

All exposed threads of the product are Protected with plastic caps to prevent damage and each assembly is packed in sealed and clear polyethylene bag for cleanliness and carefully packed in cardboard boxes to prevent transit damage. Each and every package is labeled for proper and easy identification.

---

**MATERIALS OF CONSTRUCTION**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NAME</th>
<th>MATERIALS</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BODY</td>
<td>A479-316L/A-105</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>SPINDLE (STEM)</td>
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</tr>
<tr>
<td>3</td>
<td>GLAND RETAINER</td>
<td>A479-316L/A-105</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
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<td>PACKING WASHER</td>
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<td>GRUB SCREW</td>
<td>STEEL</td>
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<td>DUST CAP</td>
<td>PLASTIC</td>
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PMT High pressure Needle valve with hard seat and are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4" to 1".

**Specifications :-**

- **Max. Pressure**
  - 10,000 psi (789 bar) @100°F (38°C)
  - 15,000 psi (1034 bar) @77°F (25°C)

- **Seat Type**
  - Hard Seat

- **Gland packing**
  - PTFE: For temp. -73°C (-99.4°F) to 210°C (410°C)
  - Graphoil: For temp. (180°C 356°F) to 540°C (1001°F)

- **Materials**
  - Stainless Steel (316L,316, 304,304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)

- **Service Medium**
  - Liquid Gas or Vapor Service

- **Steam**
  - Needle (Standard)
  - Ball tip (optional)

- **Connection**
  - Screwed / Welded

- **Handle**
  - Removable

**Note :-**

- Other combination sizes available on request. Please contact factory for more details.

Dimensions are for reference only and are subjected to change.

sales@pmtvalvesfittings.com
LOW TEMPERATURE NEEDLE VALVE

BODY: Forged one piece body construction (no welding) for high strength.
GLAND BODY: For maximum packing stability and performance.
SPINDLE: Designed for low torque operating with high quality micro mirror stem finish for positive gland sealing.
GLAND NUT: A secure anti vibration locking mechanism to prevent inadvertent gland adjuster loosening.
GLAND BUSH: Annealed sealing washer to ensure complete atmospheric leakage and allowing on site retro-fit of bonnet with 100% re-sealing assurance.
Packing: PTFE stem packing seals the system fluid to atmosphere.
HANDLE: Removable T-bar handle aid low torque operation.
LOCK PIN: Safety bonnet lock pin prevents accidental disassembly.
DUST CAP: Prevents contamination and lubricant washout of bonnet assembly.
SOFT SEAT: PTFE & Delrin Seat to ensure a tight-shut off even in abrasive process conditions.
GRUB SCREW: For locking the handle.

Features:

- Upper packing provides secondary containment system above the bellows
- Hydraulic-formed multilayer bellows enhanced cycle life
- Non-rotating stem tip eliminates galling within the seat area
- Strictly controlled bellows stroke to improve safety and cycle life
- Suitable to working temperature °F (°C) -321 (-196) to 176 (80)
- Suitable to working Pressure, psig (bar) 8000 (413)

Dimensions are for reference only and are subjected to change.
HIGH TEMPERATURE NEEDLE VALVE

BODY : Forged one piece body construction (no welding) for high strength.

GLAND BODY : For maximum packing stability and performance.

GLAND NUT : Standard Construction For maximum pressure rating.

STEM : Designed for low torque operating with high quality micro mirror stem finish for positive gland sealing.

PANEL NUT : A secure anti-vibration locking mechanism to prevent inadvertent gland adjuster loosening.

PACKING : PTFE stem packing seals the system fluid to atmosphere.

WASHER PACKING : Annealed sealing washer to ensure complete atmospheric leakage and allowing on site retro-fit of bonnet with 100% re-sealing assurance.

GLAND BUSH : Metal to metal seal with body suitable for high pressure temperature applications.

HANDLE : Removable T-bar handle aids low torque operation.

GRUB SCREW : For locking the handle.

Features :-

- Material: 316SS, Titanium, Other Material on request.
- Working Pressure: up to 10000 psi (689 bar)
- Working Temperature: -65°F to 1200°F (-53°C to 648°C)
- End Connection Type: Metric and Fractional tube fittings, NPT threads, ISO/BSP threads, Weldend
- End Connection Size: 1/8" to 3/4" and 3mm to 20mm

Order info

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<tr>
<th>A</th>
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<td>F = Fractional Tube Fitting</td>
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<tr>
<td>MTB = Metric Butt Weld</td>
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<td>TB = Fractional Butt Weld</td>
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<td>MTS = Metric Socket Weld</td>
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<td>TS = Fractional Socket Weld</td>
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<td>Metric</td>
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Straight 2-way type is standard for N4 series Needle valve add A as a suffix if angle type is required e.g.: 316-N4 10-F8-A
### Straight and Angle Dimensions

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<th>CV</th>
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<th>A</th>
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<th>C</th>
<th>D</th>
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</table>

Dimensions are for reference only and are subjected to change.

sales@pmtvalvesfittings.com
MINI NEEDLE VALVE - SOFT SEAT

PRESSURE RATING :- 6,000 PSI /10,000 PSI

PMT Mini Needle Valves are specially designed and ruggedly manufactured for use in corrosive & hazardous environment. These valves are excellent for both throttling and straight isolation in process and flow control application. These Valves are precision machined, designer durability and maximum efficiency to provide high quality and low cost alternatives in fluid and gaseous control systems of different applications, to meet the exacting standards of our growing and demanding customers.

Standard features for hard seat & soft seat valves :-

- Stem and bonnet threads are rolled for greater strength and smoother operation.
- All 316SS stems (even in steel valves) for longer life.
- Viton® O-Ring & Teflon® back-up ring stem seals.
- Stem packing below the threads prevents thread galling and contamination.
- One piece bonnet with a metal to metal seal to the valve body below the bonnet threads.
- Bonnet lock pin to prevent accidental loosening.
- Dust caps are fitted to contain stem lubricant and prevent the ingress of contaminants.
- Replaceable Graphoii/PTFE seat.
- Low torque operating T bar handle.
- The stem threads are rolled and lubricated to prevent galling and reduce operating torque.
- Stem packing below the threads prevents thread galling & contamination.
- Patented body-to-bonnet, metal-to-metal seal is designed to significantly increase the pressure range of the valve without compromising the flow, and help maintain the integrity of the bonnet threads by segregating them from the process media.
- 100% factory test. Every valve is tested with nitrogen for leak-tight performance at its maximum working pressure.

Soft Seat valve feature :-

- Soft seat design is 100% Helium leak tested to 1 x 10-4 ml/s at 200 psi.
- 6,000 psi pressure rating (@ 100°F maximum)
- Replaceable Delrin seat.
- Straight through porting for bi-directional, high capacity flow and easy roddable cleaning.

Hard Seat valve feature :-

- Metal to metal hard seat design is 100% Helium leak tested to 1 x 10-4 ml/s at 200 psi.
- 10,000 psi pressure rating (@ 100°F maximum)
- Replaceable Delrin seat.
MINI NEEDLE VALVE - SOFT SEAT

PRESSURE RATING :: 6,000 PSI

**BODY** : Forged one piece body construction (no-welding) for high strength.

**GLAND BODY** : For maximum packing stability and performance.

**SPINDLE** : Designed for low torque operating with high quality micro mirror stem finish for positive gland sealing.

**PACKING** : PTFE stem packing seals the system fluid to atmosphere.

**“O” RING** : Viton O-Ring & Teflon back-up ring stem seals.

**HANDLE** : Removable T-bar handle aids low torque operation.

**SOFT SEAT** : PTFE & Delrin Seat to ensure a tight shut off even in abrasive process conditions.

**DUST CAP** : Prevents contamination and lubricant washout of bonnet assembly.

**GRUB SCREW** : For locking the handle.

---

**Testing:**

Soft seat design is 100% Helium leak tested to 1 x 10⁻⁴ ml/s at 200 psi, 6,000 psi pressure rating (@ 100°F maximum) Other tests like vibration, temperatures, helium etc are available upon requests.

**Packaging :-**

All exposed threads of the product s are Protected with plastic caps to prevent damage and each assembly is packed in sealed and clear polyethylene bag for cleanliness and carefully packed in cardboard boxes to prevent transit damage. Each and every package is labeled for proper and easy identification.
PMT Square type Mini Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines in small diameter piping systems. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4" to 3/4".

**Specifications :-**

- **Max. Pressure**: 6,000 psi (413 bar) @100°F (38°C)
  10,000 psi (789 bar) @77°F (25°C)
- **Seat Type**: Soft Seat / Hard Seat
- **Gland packing**: PTFE : For temp. -73°C (-99.4°F) to 210°C(410°C)
  Graphoil : For temp. (180°C 356°F) to 540°C (1001°F)
- **Materials**: Stainless Steel (316L, 316, 304,304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)
- **Service Medium**: Liquid Gas or Vapor Service
- **Steam**: Needle (Standard)
  Ball tip (optional)
- **Connection**: Screwed / Welded
- **Handle**: Removable

*Dimensions are for reference only and are subjected to change.*

sales@pmtvalvesfittings.com

- Other combination sizes available on request. Please contact factory for more details.
PMT Square type Mini Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines in small diameter piping systems. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4" to 3/4".

**Specifications :-**

Max. Pressure : 6,000 psi (413 bar) 
@100°F (38°C) 
10,000 psi (789 bar) 
@77°F (25°C)

Seat Type : Soft Seat / Hard Seat

Gland packing : PTFE : For temp. -73°C (-99.4°F) to 210°C (410°F) 
Graphoil : For temp. (180°C 356°F) to 540°C (1001°F)

Materials : Stainless Steel (316L, 316, 304, 304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)

Service Medium : Liquid Gas or Vapor Service

Steam : Needle (Standard) 
Ball tip (optional)

Connection : Screwed / Welded

Handle : Removable

**Note :-**
- Other combination sizes available on request. Please contact factory for more details.

Dimensions are for reference only and are subjected to change.

sales@pmtvalvesfittings.com
PMT Hex type Mini Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines in small diameter piping systems. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4" to 3/4".

**Specifications:**

**Max. Pressure:**
- 6,000 psi (413 bar) @100°F (38°C)
- 10,000 psi (789 bar) @77°F (25°C)

**Seat Type:** Soft Seat / Hard Seat

**Gland packing:**
- **PTFE:** For temp. -73°C (-99.4°F) to 210°C(410°C)
- **Graphoil:** For temp. (180°C 356°F) to 540°C (1001°F)

**Materials:** Stainless Steel (316L,316, 304,304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)

**Service Medium:** Liquid Gas or Vapor Service

**Steam:** Needle (Standard) Ball tip (optional)

**Connection:** Screwed / Welded

**Handle:** Removable

*Other combination sizes available on request. Please contact factory for more details.*

---

**Dimensions are for reference only and are subjected to change.**

sales@pmtvalvesfittings.com
PMT Hex type Mini Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines in small diameter piping systems. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4" to 3/4".

### Specifications:

- **Max. Pressure**
  - 6,000 psi (413 bar)
  - @100°F (38°C)
  - 10,000 psi (789 bar)
  - @77°F (25°C)

- **Seat Type**: Soft Seat / Hard Seat

- **Gland packing**: PTFE: For temp. -73°C (-99.4°F) to 210°C (410°F)
  - Graphoil: For temp. (180°C 356°F) to 540°C (1001°F)

- **Materials**: Stainless Steel (316L, 316, 304, 304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)

- **Service Medium**: Liquid Gas or Vapor Service

- **Steam**: Needle (Standard)
  - Ball tip (optional)

- **Connection**: Screwed / Welded

- **Handle**: Removable

### Note:

- Other combination sizes available on request. Please contact factory for more details.

*Dimensions are for reference only and are subjected to change.*

sales@pmtvalvesfittings.com
PMT Angle type Mini Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines in small diameter piping systems. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4" to 1/2".

**Specifications:**

- **Max. Pressure**: 6,000 psi (413 bar) @100°F (38°C) 10,000 psi (729 bar) @77°F (25°C)
- **Seat Type**: Soft Seat/Hard Seat
- **Gland packing**: PTFE: For temp. -73°C (-99.4°F) to 210°C (410°C) Graphoil: For temp. (180°C 356°F) to 540°C (1001°F)
- **Materials**: Stainless Steel (316L, 316, 304, 304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)
- **Service Medium**: Liquid Gas or Vapor Service
- **Steam**: Needle (Standard) Ball tip (optional)
- **Connection**: Screwed / Welded
- **Handle**: Removable

**Note:**

- Other combination sizes available on request. Please contact factory for more details.

**Dimensions are for reference only and are subject to change.**
PMT Angle type Mini Needle valve with hard seat and soft seat are designed for use on applications requiring complete isolate or throttling of the media and for high pressure instrument lines in small diameter piping systems. Ideal for use on gas service and some liquid applications. Available with end connections in size 1/4" to 1/2".

**Specifications:**

- **Max. Pressure:** 6,000 psi (413 bar) @100°F (38°C)
  10,000 psi (789 bar) @77°F (25°C)
- **Seat Type:** Soft Seat / Hard Seat
- **Gland packing:** PTFE: For temp. -73°C (-99.4°F) to 210°C(410°C)
  Graphite: For temp. (180°C 356°F) to 540°C (1001°F)
- **Materials:** Stainless Steel (316L, 316, 304, 304L), Monel K400, Monel K500, Inconel-718, carbon Steel, NACE MR-01-75 & NACE MR-01-03 (For Sour gas Service)
- **Service Medium:** Liquid Gas or Vapor Service
- **Steam:** Needle (Standard)
  Ball tip (optional)
- **Connection:** Screwed / Welded
- **Handle:** Removable

**Note:**
- Other combination sizes available on request. Please contact factory for more details.

Dimensions are for reference only and are subjected to change.

sales@pmtvalvesfittings.com
HOW TO ORDER

SERIES TYPE
HXV = Hex type needle valve
SQV = Square type needle valve
ANV = Angle type needle valve
HPV = High pressure needle valve
HXMNV = Mini needle valve Hex type
SQMNV = Mini needel valve Square type
ANMNV = Mini needle valve Angle type

BODY MATERIAL
CS = Carbon Steel
SS = 316 Stainless Steel
BR = Brass
MN = Monel

BODY PATTERN
S = Straight
A = Angle

CONNECTION SIZE
4 = 1/4" NPT
6 = 3/8" NPT
8 = 1/2" NPT
12 = 3/4" NPT

EXAMPLE: “HXV-SS-S-4MF”
HXV = Hex type needle valve
SS = 316 Stainless Steel
S = Straight
4 = 1/4" NPT
M = Male Inlet
F = Female Outlet
SF * = Soft Seat/6,000 psi
SN * = Nace MR0175

SPECIAL CONSTRUCTION OPTIONS
SN = Nace MR0175
SG = Gaseous oxygen cleaned
SA = Alternate Connection Size
ST = Tube end connection
SC = Other Special requirements consult factory

SEAT/PRESSURE RATING
SF = Soft Seat/6,000 psi
HS = Hard Seat/10,000 psi

OUTLET CONNECTION
F = Female
M = Male

INLET CONNECTION
F = Female
M = Male

For more information please contact our factory.

sales@pmtvalvesfittings.com
Valves
- Needle Valves
- Manifold Valves
- In Line Check Valve
- Proportional Relief Valves
- Instrument Ball Valves
- Mono Flange Valves
- Integral Block & Bleed Valves
- Bleed & Purge Valves
- Thermowells
- Pressure gauge Accessories

Forged Steel Valves
- Forged Steel Globe Valves (Cryogenic Available)
- Forged Steel Gate Valves (Cryogenic Available)
- Forged Steel Lift check Valves
- Forged Steel Ball Valves (Cryogenic Available)

Fittings
- Tube Fittings
- Pipe Fittings
- High Pressure- Pipe Fittings
- Hydraulic Fittings
  (DIN 2353, JIC Fittings, ORFS Fittings)