83A-140 Series
3-Piece Full Port Carbon Steel 1500 CWP
NPT Ball Valve

**Standard Compliance** - Valve design: MSS SP-110, End Connections: NPT per ASME B1.20.1,

**Features**
- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE “V” style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam

**Standard Material List**

<table>
<thead>
<tr>
<th>Standard Material</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>ASTM A216-WCB</td>
</tr>
<tr>
<td>End Caps</td>
<td>ASTM A216-WCB</td>
</tr>
<tr>
<td>Ball</td>
<td>ASTM A276-316SS</td>
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<tr>
<td>Stem</td>
<td>ASTM A276-316SS</td>
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<tr>
<td>Seat</td>
<td>Multi-Seal</td>
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<tr>
<td>Packing</td>
<td>PTFE</td>
</tr>
<tr>
<td>Stem Bearing</td>
<td>PEEK/PTFE</td>
</tr>
<tr>
<td>Body Gasket</td>
<td>RPTFE</td>
</tr>
<tr>
<td>Body Bolts</td>
<td>18-8 Stainless Steel</td>
</tr>
<tr>
<td>Body Nuts</td>
<td>18-8 Stainless Steel</td>
</tr>
<tr>
<td>Stop Bolts</td>
<td>18-8 Stainless Steel</td>
</tr>
<tr>
<td>Gland Bolts</td>
<td>18-8 Stainless Steel</td>
</tr>
<tr>
<td>Handle Nut/Screw</td>
<td>300 Series Stainless Steel</td>
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<tr>
<td>Packing Gland</td>
<td>ASTM A276-316SS</td>
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<tr>
<td>Gland Plate</td>
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<tr>
<td>Lever Handle</td>
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<td>Lock Plate</td>
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<tr>
<td>Stops</td>
<td>300 Series Stainless Steel</td>
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</tbody>
</table>

**Options Available:**
- **54-** 2-1/4" Stem Extension 3 3/8" to 2"
- **14-** Vented Ball (see page 74) 3 3/8" to 2"
- **15-** Round Handle 3 3/8" to 2"
- **49-** Assembled Dry 3 3/8" to 2"
- **60-** Static Grounding 3 3/8" to 2"
- **62-** Center Section Only 3 3/8" to 2"
- **63-** NPT x Socketweld 3 3/8" to 2"
- **67-** Cleared for Industrial Gases 3 3/8" to 2"
- **69-** Drilled & Tapped Purge & Drains 3 3/8" to 2"
- **70-** Extended Bonnet 3 3/8" to 2"
- **75-** Live Loaded (Lever Operated) 3 3/8" to 2"
- **77-** Live Loaded (Actuated) 3 3/8" to 2"
- **90-** Extended Bonnet w/ Double Packing 3 3/8" to 2"
- **85-** Spring Return Handle 3 3/8" to 1"
- **901-** BSPP (Parallel) Thread Connection 3 3/8" to 2"
- **901-** BPT (Tapered) Thread Connection 3 3/8" to 2"

For Pressure/Temperature Ratings, Refer to Page M-17, Graph No. 23
FLOW DATA

For Apollo® and Saturn® Ball Valves

The listed Cv “factors” are derived from actual flow testing, in the Apollo® Ball Valve Division, Conbraco Industries, Inc., Pageland, South Carolina. These tests were completed using standard “off the shelf” valves with no special preparation and utilizing standard schedule 40 pipe. It should be understood that these factors are for the valve only and also include the connection configuration. The flow testing is done utilizing water as a fluid media and is a direct statement of the gallons of water flowed per minute with a 1 psig pressure differential across the valve/connection unit. Line pressure is not a factor. Because the Cv is a factor, the formula can be used to estimate flow of most media for valve sizing.

Flow of Liquid

\[ Q = \text{Cv} \sqrt{\frac{\Delta P}{\text{SpGr}}} \]

Where:
- \(Q\) = flow in US gpm
- \(\Delta P\) = pressure drop (psig)
- \(\text{SpGr}\) = specific gravity at flowing temperature
- \(\text{Cv}\) = valve constant

or

\[ \Delta P = \left(\frac{Q}{\text{Cv}}\right)^2 (\text{SpGr}) \]

Flow of Gas

\[ Q = 1360 \text{Cv} \left(\frac{\Delta P}{(P_1)(\text{SpGr})^T}\right) \]

Where:
- \(Q\) = flow in SCFH
- \(\Delta P\) = pressure drop (psi g)
- \(\text{SpGr}\) = specific gravity
- \(P_1\) = outlet pressure-psia
- \(T\) = (temp. °F + 460)

or

\[ \Delta P = 5.4 \times 10^{-7} (\text{SpGr}) \]

Where:
- \(Q\) = flow in US gpm
- \(\Delta P\) = pressure drop (psig)
- \(\text{SpGr}\) = specific gravity at flowing temperature
- \(\text{Cv}\) = valve constant

Cv FACTORS

SERIES:
70-100, 71-100, 71AR, 73A-100,
74-100, 76-100, 76AR, 80-100
81-100, 89-100

<table>
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<tr>
<th>SIZE</th>
<th>1/4”</th>
<th>3/8”</th>
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Cv FACTORS

76F, 77, 77AR, 77C, 77D SERIES

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Cv FACTORS

82-100/200, 83R-100/200/700,86R-100/200/700,83-500/600,86-500/600/900 SERIES

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Cv FACTORS

83A/83B, 86A/86B SERIES

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