PBM VALVE SOLUTIONS

# Metal Seated Ball Valves

- *Chemical*
- *Petrochemical*
- *Mining*
- *Oil & Gas*
- *Power Generation*
- *Pulp & Paper*
- *Refining*

# Metal Seated Ball Valves

for high temperature, abrasive, and severe service applications

***The seat is coated and lapped to match ball, creating a positive seal.***

## *Design Features:*

- 1/2” through 10”, 150# through 1500# class available
- Design capabilities to provide custom valve configurations to address severe service applications including thermal expansion
- Quick ship 1/2” through 4” split body ANSI Class 150/300 and 3-piece design 2-Way and 3-Way Diverter Valves
- Temps up to 1000˚F/538˚C
- Class V shut-off, Class VI available as an option with limited cycle life
- Live-loaded packing assures long maintenance-free operation
- PBM’s metal seated valves are fundamentally firesafe
- Valves with weld end fittings can be welded without disassembly
- Optional patented locking lever handle or gear operator and complete line of automation and controls
- Complete repair services available - fast turn around on valve repair
- SIL-3 capable per IEC 61508
- Extended handles and automation brackets available for higher temperature services
- Optional API622 packing design available to address Low-E requirements up to 800˚F
- Stem design, sizing torque, and pinned rigid actuator linkage per application eliminate stem twist and ensure alignment in high torque applications

## *PBM’s Metal Seated Valve Applications Include:*

Metal Seated Valve Applications include steam service, high temperature/pressure service, abrasion resistance and modulating service.

- *High Temperature Up To 1,000˚F*
- *Corrosive Medias*
- *Erosive Medias*
- *Steam Service*
- *Abrasive Medias*
- *Modulation Service (for specific applications)*

Specially designed carbide and/or ceramic thermal spray coatings are a valve industry standard. All of the coatings are applied robotically in the USA, using the Accuraspray Plume Sensor System, to insure consistently high quality coatings.

## *Coating Options:*

### *Chrome Carbide, 20% Nickel/Chrome*

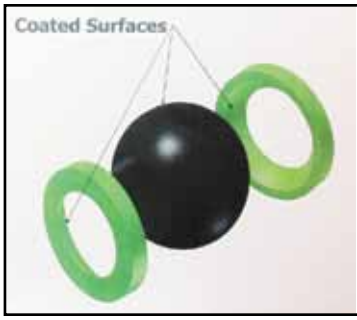
A hard coating that does not oxidize at high temperatures. Provides good abrasion, particle erosion cavitation and fretting resistance in high temperature environments. Good corrosion resistance and sliding properties.

### *Tungsten Carbide, 10% Nickel*

A hard, dense coating to resist high abrasive conditions, as well as particle erosion and fretting while providing the corrosion resistance of nickel with minimal loss of heat resistance.

| CHROME CARBIDE | |
|---|---|
| **TYPICAL COMPOSITION, WT%** | |
| Nickel Chrome | 20% |
| Chrome Carbide | Balance |
| | |
| | |
| **COATING CHARACTERISTICS** | |
| Bond Strength, PSI | >10,000/ 690 bar |
| Hardness | 67 |
| Porosity | 2% |
| Max. Service Temperature | 1000˚F/538˚C |

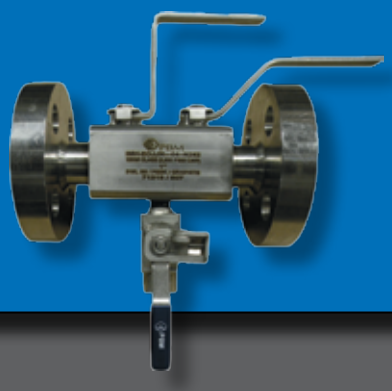
| TUNGSTEN CARBIDE | |
|---|---|
| **TYPICAL COMPOSITION, WT%** | |
| Carbon | 3.7% |
| Iron | 0.5% |
| Nickel | 10.0% |
| Tungsten Carbide | Balance |
| **COATING CHARACTERISTICS** | |
| Bond Strength, PSI | >10,000/ 690 bar |
| Hardness | 65-58 RC |
| Porosity | <1% |
| Max. Service Temperature | 800˚F/427˚C |




- Thermal Spray Coating applied to noted surfaces
- Ground & lapped surfaces
- Excellent sealing between ball and seats
- Anti-galling coating

## *Special Applications*

PBM's ***Special Application Valves*** can solve unique or challenging processing problems.

## Coating Testing

- *Bond Strength Tensile Test*
- *Shear Strength Tensile Test*
- *Macro Hardness Rockwell Test*
- *Porosity Determination*
- *Bond Line Contamination*
- *Abrasion Wear Testing*

## Thermal Spray Coatings

We can offer **various thermal spray coatings for your corrosion and wear resistance** needs. The fully automated thermal spray system offers high level consistency in the thermal spray process. We also utilize a large amount of exotic alloys.

## How To Order:

*Request a PBM application inquiry sheet to ensure the right valve for your applications. Find this sheet on our website:www.pbmvalve.com/metal-seated-ball-valves or scan the QR Code below.*

| POS 1 & 2 | POS 3 & 4 | POS 5 | POS 6 | POS 7-8 | POS 9 |
|---|---|---|---|---|---|
| PRODUCT | MATERIAL* | SIZE* | SERIES | END CONNECTION* | SEAT & SEAL |
| AN = ANSI | C- = Hastelloy® 276 | C = 1/2 inch | 5 | B- = Sch 40 Buttweld | F = Metal Seats/ |
| DP = Three-Way Diverter Port | E- = Carbon Steel | D = 3/4 inch | | L- = 150# Flange | Graphite Seals |
| SP = Two-Way | H- = 316 Stainless Steel | E = 1 inch | | M- = 300# Flange | |
| TN = Trunnion | HC = Alloy 20 | G = 1-1/2 inch | | Q- = Female FPT | |
| | | H = 2 inch | | U- = Socket Weld | |
| | | J = 2-1/2 inch | | | |
| | | K = 3 inch | | | |
| | | L = 4 inch | | | |

IM Valves are also available with metal seats.
*Consult factory for additional sizes, pressure classes, end connections, materials, and other configurations including double block and bleed valves.

| POS 10 & 11 | POS 12 | POS 13 & 14 | POS 15 |
|---|---|---|---|
| FLOW PATTERN | BALL/STEM | OPERATOR** | POLISH |
| Positions used for DP with 2-digit flow pattern # | 1 = Chrome Carbide (standard) | -- = with manual lever operator | - = no polish |
| | 2 = Tungsten Carbide | 00 = Stainless locking oval handle | A = 20 RA ID polish |
| | | 02 = Bare stem (prep for automation) | F = 20 RA ID polish EP |
| | | 04 = Locking ever handle | |
| | | 08 = with manual gear operator | |
| | | 20 = 80 psig supply double acting | |
| | | 27 = 60 psig supply double acting | |
| | | 34 = 80 psig supply spring return | |
| | | 41 = 60 psig supply spring return | |

**Full line of automation & controls are available. Consult PBM for solenoid, limit switch, and other optional codes.


Sil-3 Certification

PBM Valve Solutions

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