MV1
TOP-ENTRY
BALL VALVE

MV3
SIDE-ENTRY
BALL VALVE

MV5
FULLY-WELDED
BALL VALVE

API 6D BALL VALVES
FOR UPSTREAM / MIDSTREAM / DOWNSTREAM

ONE BRAND ∞ INFINITE TRUST

MIR VALVE is a top-tier manufacturer offering the complete range of **ball, gate and swing check valves** serving the international oil & gas, petrochemical, refining and power industry. Since 2008, we have manufactured **13,000 MIR ball and gate valves** which are today **in service** in **onshore, offshore and subsea** installations worldwide. Our technology and quality are proven in service.

We employ 150 staff worldwide; our **HQ and plant** are located in **Kuala Lumpur** (Shah Alam, Malaysia) and we have **sales offices in Miri, Jakarta, Seoul, Shanghai, Dubai** and a **Rep office** in **Milan**.

Our Quality Management System and products are certified to all standards including **ISO 9001, ISO 14001, OHSAS 18001, API 6D, API 6DSS, API 6A, API 17D, API Spec Q1, API QR, CE-PED, CE-ATEX, EN 14141, IEC 61508**. We are an approved manufacturer with most of all major oil and gas companies.

We comply and meet the most stringent customer requirements for the qualification of our products through extensive testing, such as firesafe, low temperature and cryogenic down to -196°C, high temperature up to 500°C, fugitive emission, endurance, high pressure gas, TAT and others. We perform QC inspection at our supply sources and 100% incoming inspection for all components and materials arriving to our plant.

We have extensive coverage and representation in the global markets through **our sales and rep network in over 30 locations worldwide** and growing, and are **culturally in-tune with all markets.**

Managed by a highly experienced management team, with continued investment, customer focus and continuous alignment to the dynamics driving the global markets, **MIR VALVE delivers world-class quality products.**

WE LISTEN AND LEARN FROM OUR CUSTOMERS, EMPLOYEES AND EXPERIENCE.

HQ & Plant, Shah Alam, Kuala Lumpur, 140,000 sq.ft.

INDUSTRIES AND APPLICATIONS

OUR BALL VALVES ARE SUITABLE FOR ONSHORE, OFFSHORE AND SUBSEA APPLICATIONS

INDUSTRIES

- Oil & Gas
- Exploration & Production
- Oil and Gas Transmission Pipelines
- Gas Processing Plants
- Refining & Petrochemical
- LNG/LPG/GTL Facilities
- Power Plants
- Gas Metering and Regulating Gate Stations
- FPSO & Shipbuilding
- Onshore Receiving Terminals
- Compressors and Pump Stations
- Storage and tank farms

APPLICATIONS

- Blow-down
- ESD
- Riser
- Isolation
- Turrets
- HIPPS
- Subsea (API 6DSS)
- High Temperature <500°C
- Low Temperature down to -110°C
- Cryogenic (liquid and gas) -196°C
- Severe service
- Abrasive fluids

UPSTREAM/MIDSTREAM/DOWNSTREAM

ONSHORE

OFFSHORE

SUBSEA

PRODUCT RANGE **MV1 - MV3 - MV5**

MV1 TOP-ENTRY BALL VALVE

SERVICE	ASME CL. 150-600	ASME CL. 900	ASME CL. 1500	ASME CL. 2500
Standard (above and below ground)	2″-60″	2″-48″	2″-36″	2″-20″
Subsea (API 6DSS)	2″-48″	2″-36″	2″-36″	2″-20″
Low temperature / cryogenic down to -196°C	2″-24″	2″-24″	2″-20″	2″-12″
High temperature < 500°C	2″-20″	2″-16″	2″-12″	2″-8″

Other sizes and pressure classes available upon request

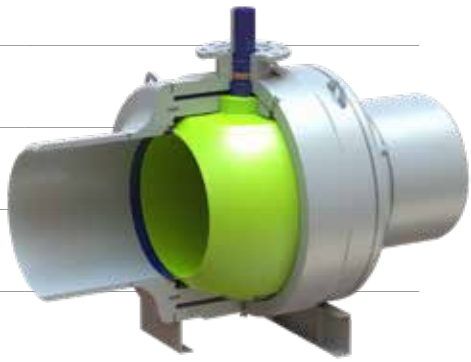
MV3 SIDE-ENTRY BALL VALVE

SERVICE	ASME CL. 150-600	ASME CL. 900	ASME CL. 1500	ASME CL. 2500
Standard (above and below ground)	1″-60″	1″-48″	1″-36″	1″-20″
Subsea (API 6DSS)	1″-48″	1″-36″	1″-36″	1″-20″
Low temperature / cryogenic down to -196°C	1″-24″	1″-24″	1″-20″	1″-12″
High temperature < 500°C	1″-20″	1″-16″	1″-12″	1″-8″

Other sizes and pressure classes available upon request

MV5 FULLY-WELDED BALL VALVE

SERVICE	ASME CL. 150-600	ASME CL. 900	ASME CL. 1500	ASME CL. 2500
Standard (above and below ground)	2″-60″	2″-48″	2″-36″	2″-16″
Subsea (API 6DSS)	2″-48″	2″-36″	2″-24″	2″-16″
Low temperature / cryogenic down to -196°C	N/A	N/A	N/A	N/A
High temperature < 500°C	N/A	N/A	N/A	N/A



Other sizes and pressure classes available upon request

DESIGN FEATURES

DESIGN FEATURES	MV1 TOP-ENTRY BALL VALVE	MV3 SIDE-ENTRY BALL VALVE	MV5 FULLY-WELDED BALL VALVE
› API 6D Design and Construction (API 6DSS for subsea)	STANDARD	STANDARD	STANDARD
› Face-To-Face Dimensions to API 6D and ANSI B16.10	STANDARD	STANDARD	STANDARD
› Face-To-Face Short Pattern	N/A	N/A	OPTIONAL
› Trunnion Mounted	STANDARD	STANDARD	STANDARD
› Independent Stem and Ball	STANDARD	STANDARD	STANDARD
› Floating Seats	STANDARD	STANDARD	STANDARD
› Soft Seat Insert	STANDARD	STANDARD	STANDARD
› Primary Metal – Secondary Soft Seat	OPTIONAL	OPTIONAL	OPTIONAL
› Metal-To-Metal Seats	OPTIONAL	OPTIONAL	OPTIONAL
› O-Ring Type Seals	STANDARD	STANDARD	STANDARD
› Polymeric Lip-Seals	OPTIONAL	OPTIONAL	OPTIONAL
› Self-Relieving Seats (SR)	STANDARD	STANDARD	STANDARD
› Double Isolation and Bleed (DIB-1)(Double Piston Effect)(DPE Seats)	OPTIONAL	OPTIONAL	OPTIONAL
› Double Isolation and Bleed (DIB-2)(Dual Seat)(SR+DPE)	OPTIONAL	OPTIONAL	OPTIONAL
› Double Block & Bleed (DBB)	STANDARD	STANDARD	STANDARD
› Full or Reduced Bore	AS REQUESTED	AS REQUESTED	AS REQUESTED
› Flanged Ends / Welded Ends / Hub Ends	AS REQUESTED	AS REQUESTED	AS REQUESTED
› Transition Pups For Welded Ends Valves	OPTIONAL	OPTIONAL	OPTIONAL
› Antistatic Device	STANDARD	STANDARD	STANDARD
› Anti Blowout Stem	STANDARD	STANDARD	STANDARD
› Double Body Barrier	STANDARD	STANDARD	STANDARD
› Triple Stem Barrier	STANDARD	STANDARD	STANDARD
› Vent Plug	STANDARD	STANDARD	STANDARD
› Bleed Valve	OPTIONAL	OPTIONAL	OPTIONAL
› Drain Plug	STANDARD	STANDARD	STANDARD
› Stem Injection Fitting	STANDARD	STANDARD	STANDARD
› Seat Injection Fitting	OPTIONAL	OPTIONAL	OPTIONAL
› Seat Pocket Overlay	OPTIONAL	OPTIONAL	OPTIONAL
› Seal Areas Overlay	OPTIONAL	OPTIONAL	OPTIONAL
› Wetted Parts Overlay	OPTIONAL	OPTIONAL	OPTIONAL
› Body Internal Lining	OPTIONAL	OPTIONAL	N/A
› Extended Stem for Underground Installation	OPTIONAL	OPTIONAL	OPTIONAL
› Extended Bonnet for Low or High Temperature	OPTIONAL	OPTIONAL	OPTIONAL
› Locking Device	OPTIONAL	OPTIONAL	OPTIONAL
› Lifting Lugs/Valve Support	STANDARD	STANDARD	STANDARD
› Manual or Actuated Operation	AS REQUESTED	AS REQUESTED	AS REQUESTED
› Firesafe Design	STANDARD	STANDARD	STANDARD
› In-Line Maintenance	YES	NO	NO
› On-Site Disassembly for Repairs and Maintenance	YES	YES	YES (FOR STEM SEALS ONLY)

MV1 TOP-ENTRY BALL VALVE

BENEFITS OF THE TOP-ENTRY DESIGN

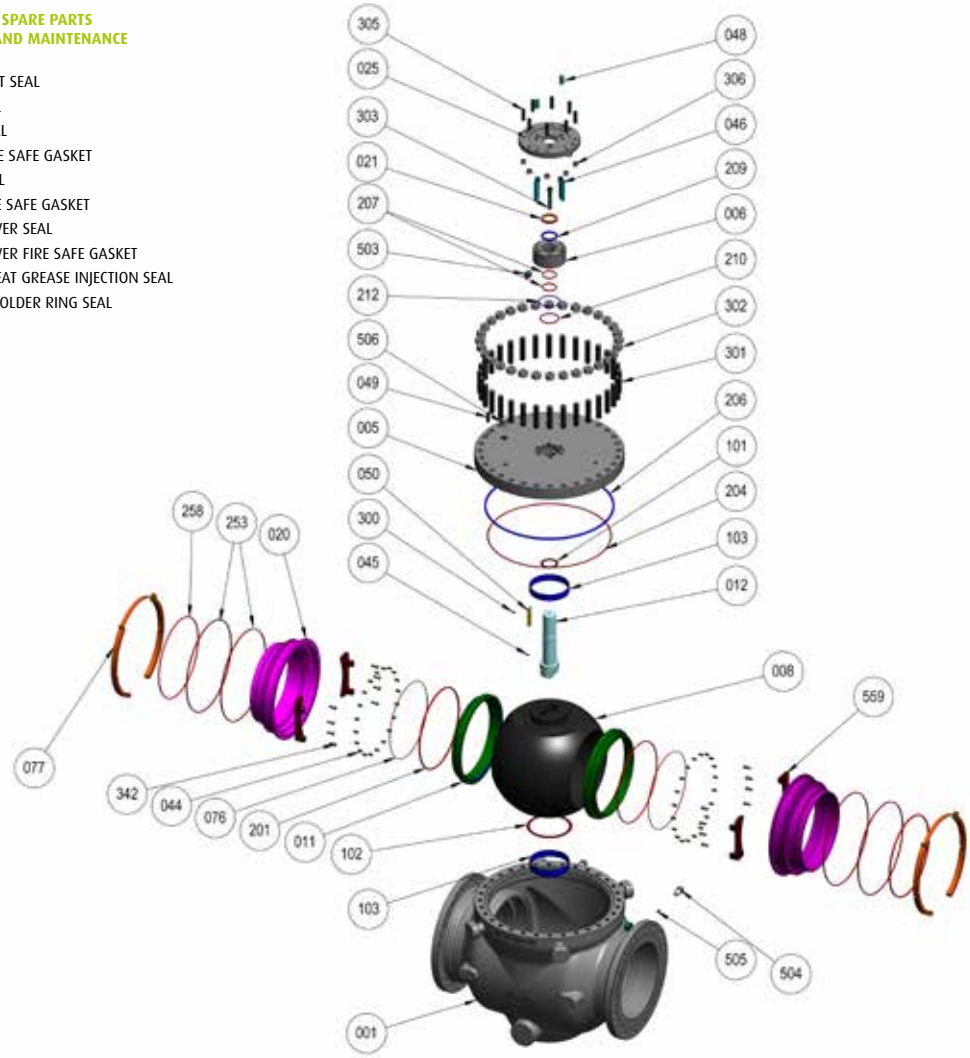
- Established engineered product design, well-known in the industry.
- Fully in-line repairable whether in vertical or horizontal position; the bolted construction consisting of a single-piece body with a bonnet, allows disassembly on site in-line for inspections and repairs.
- After repairs are completed, the valve is re-assembled; to validate the integrity of the repair work, an on-line body cavity line test can be performed to confirm the seats are sealing as required (this test can be done only when the seat design is DIB-1 / DPE).
- Manufactured with forged or cast materials in various grades of CS, SS, Duplex and all other high alloys, ensuring this design can meet all our customer material requirements.
- Designed and manufactured to withstand external loads from the pipeline to prevent any deformation of the body when the internal parts are fully removed for repairs and new parts are installed.
- Finite Element Analysis (FEA) is routinely carried out during the design phase of the body and ball & seat configuration.
- Delivery of spare parts from stock up to max.16 weeks.
- Engineered products typically having a long lead time delivery of 24 weeks and longer.
- Suitable for all industries and applications onshore, offshore and subsea.

BILL OF MATERIALS

001	BODY
005	BONNET
006	BODY COVER
008	BALL
011	SEAT RING w/INSERT
012	STEM
020	SPRING HOLDER RING
021	SPACER RING
025	OPERATOR FLANGE
044	SEAT SPRING
045	ANTI STATIC DEVICE
046	DOWEL PIN
048	OPERATOR FLANGE PIN
049	BONNET PIN
050	STEM KEY
076	BACK SEAT SEAL
077	SPACER
101	STEM WASHER
102	TRUNNION WASHER
103	LOW FRICTION BEARING
201	SEAT SEAL
204	BODY SEAL
206	BODY FIRE SAFE GASKET
207	STEM SEAL
209	STEM FIRE SAFE GASKET
210	BODY COVER SEAL
212	BODY COVER FIRE SAFE GASKET
253	PISTON SEAT GREASE INJECTION SEAL
258	SPRING HOLDER RING SEAL
300	STEM KEY CAPSCREW
301	BODY STUD
302	BODY NUT
303	BODY COVER BOLT
305	OPERATOR FLANGE STUD
306	GEAR MOUNTING NUT
342	SEAT PLATE BOLT
503	STEM GREASE FITTING
504	SEAT GREASE FITTING
505	CHECK VALVE
506	SAFETY RELIEF VALVE
559	SEAT PLATE

RECOMMENDED SPARE PARTS FOR START-UP AND MAINTENANCE

076	BACK SEAT SEAL
201	SEAT SEAL
204	BODY SEAL
206	BODY FIRE SAFE GASKET
207	STEM SEAL
209	STEM FIRE SAFE GASKET
210	BODY COVER SEAL
212	BODY COVER FIRE SAFE GASKET
253	PISTON SEAT GREASE INJECTION SEAL
258	SPRING HOLDER RING SEAL



MV1 TOP-ENTRY BALL VALVE

Welding of pup pieces
on top-entry ball valve

6″ to 18″ CL. 600, c/w Hydraulic Actuator, fugitive emission testing,
high-pressure gas testing to MESC Spec.
Onshore Oman

20″ CL. 2500 RTJ Body/Trim: CS / Duplex, PEEK, High pressure gas testing
Onshore Algeria

BENEFITS OF THE SIDE-ENTRY DESIGN

- Most commonly specified due to the bolted body construction, allowing for disassembly once removed from the pipeline for repairs to be carried out.
- Most competitive design of all the ball valves in terms of cost and delivery.
- Available also in compact design (MV3-CP) (See pag 12).
- Manufactured with forged materials in various grades of CS, SS, Duplex and all other high alloys, ensuring the design can meet all customer material requirements.
- Large inventory of parts kept available in-house.
- Available for short delivery 16 weeks or less.
- Delivery of spare parts from stock up to max.16 weeks.
- Engineered products typically having a long lead time delivery of 24 weeks and longer.

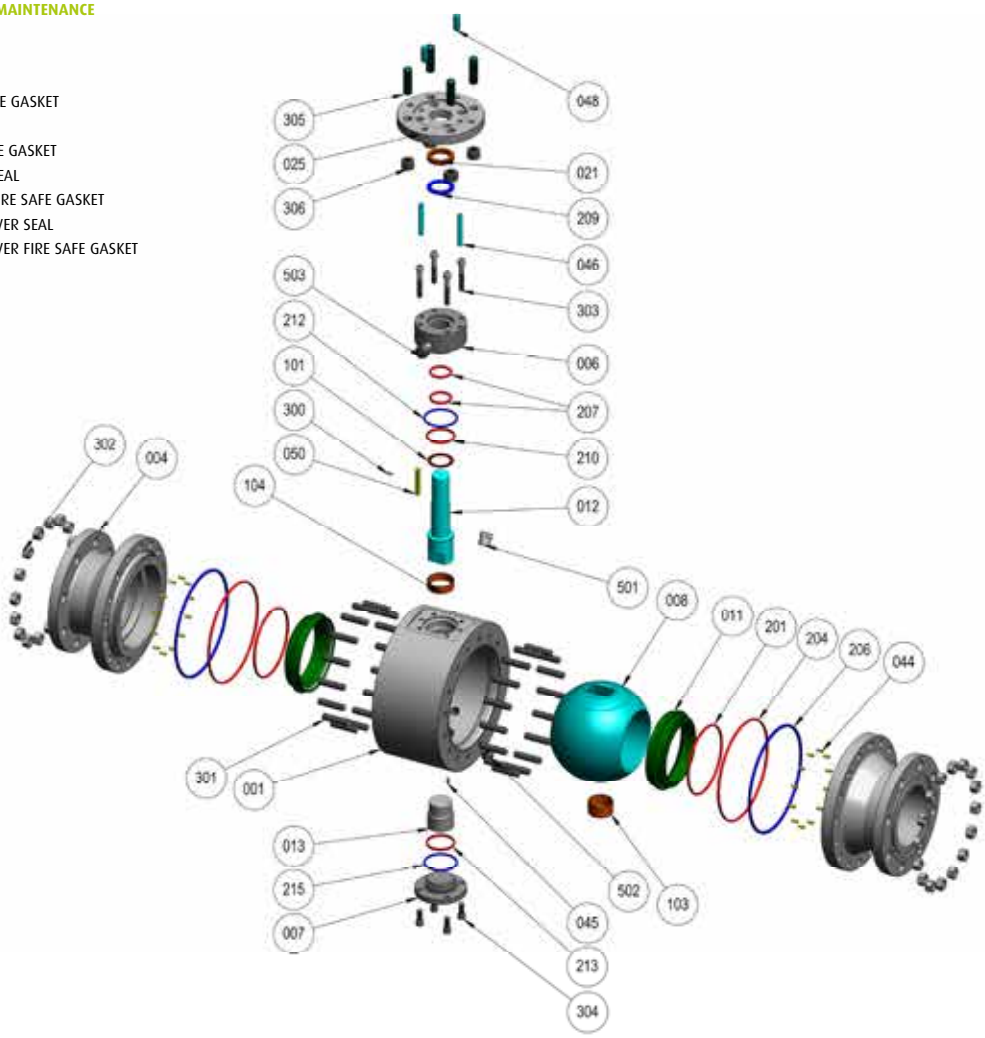
BILL OF MATERIALS

001	BODY
004	CLOSURE
006	BODY COVER
007	TRUNNION COVER
008	BALL
011	SEAT RING w/ INSERT
012	STEM
013	TRUNNION
021	SPACER RING
025	OPERATOR FLANGE
044	SEAT SPRING
045	ANTI STATIC DEVICE
046	DOWEL PIN
048	OPERATOR FLANGE PIN
050	STEM KEY
101	STEM WASHER
103	LOW FRICTION BEARING
104	LOW FRICTION STEM BEARING
201	SEAT SEAL
204	BODY SEAL
206	BODY FIRE SAFE GASKET
207	STEM SEAL
209	STEM FIRE SAFE GASKET
210	BODY COVER SEAL
212	BODY COVER FIRE SAFE GASKET
213	TRUNNION COVER SEAL
215	TRUNNION COVER FIRE SAFE GASKET
300	STEM KEY CAPSCREW
301	BODY STUD
302	BODY NUT
303	BODY COVER BOLT
304	TRUNNION COVER BOLT
305	OPERATOR MOUNTING STUD
306	OPERATOR MOUNTING NUT
501	VENT PLUG
502	BLEED VALVE
503	STEM GREASE FITTING

≥12″ USING BEARING RETAINER

RECOMMENDED SPARE PARTS FOR START-UP AND MAINTENANCE

201	SEAT SEAL
204	BODY SEAL
206	BODY FIRE SAFE GASKET
207	STEM SEAL
209	STEM FIRE SAFE GASKET
210	BODY COVER SEAL
212	BODY COVER FIRE SAFE GASKET
213	TRUNNION COVER SEAL
215	TRUNNION COVER FIRE SAFE GASKET



6D • API 6DSS • API 6A • API 17D • BALL VALVES • TOP–ENTRY • SIDE–ENTRY • FULLY-WELDED • THROUGH-CO
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-ENTRY • SIDE–ENTRY • FULLY-WELDED • THROUGH-CONDUIT GATE VALVES • DBB BALL VALVES • CRYOGENIC • HIG
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UIT GATE VALVES • DBB BALL VALVES • CRYOGENIC • HIGH TEMPERATURE • ESDV • SIL • HIPPS • ONSHORE • OFFSHOR
N • API 6D • API 6DSS • API 6A • API 17D • BALL VALVES • TOP–ENTRY • SIDE–ENTRY • FULLY-WELDED • THROUGH-C

MV3 SIDE-ENTRY BALL VALVE

26″, 30″, 38″ CL.900/1500, Body/Trim: CS/F60 with Weld Overlay Inconel 625, Metal-seated+TCC or Soft-seated with PEEK Insert, Lipseals, Fugitive Emission Test, c/w Electric Actuator, Shell Mesc Specifications
Offshore Malaysia

14″, 16″, 22″, 24″ CL.1500, FB, RTJ, CS/Duplex, DPE
Onshore Brazil

24″ CL. 900, Total specification, Extensive high-pressure hydro and gas testing
Onshore Myanmar

MV5 FULLY-WELDED BALL VALVE

BENEFITS OF THE FULLY-WELDED DESIGN

› Established product design, well-known in the pipeline industry.

› Offers a reduced overall weight, especially in larger sizes 24" and above with the welded ends.

› Manufactured with forged materials in the various grades of CS, SS, Duplex and all other high alloys, thus ensuring this design can meet all our customer material requirements.

› Compact body design available in large sizes 24" and above, with weld end/weld end connections.

› Alternative option to the side-entry bolted body (MV3) for specific design applications.

› Typically used in underground service gas transmission pipelines or subsea. These are the most commonly used applications.

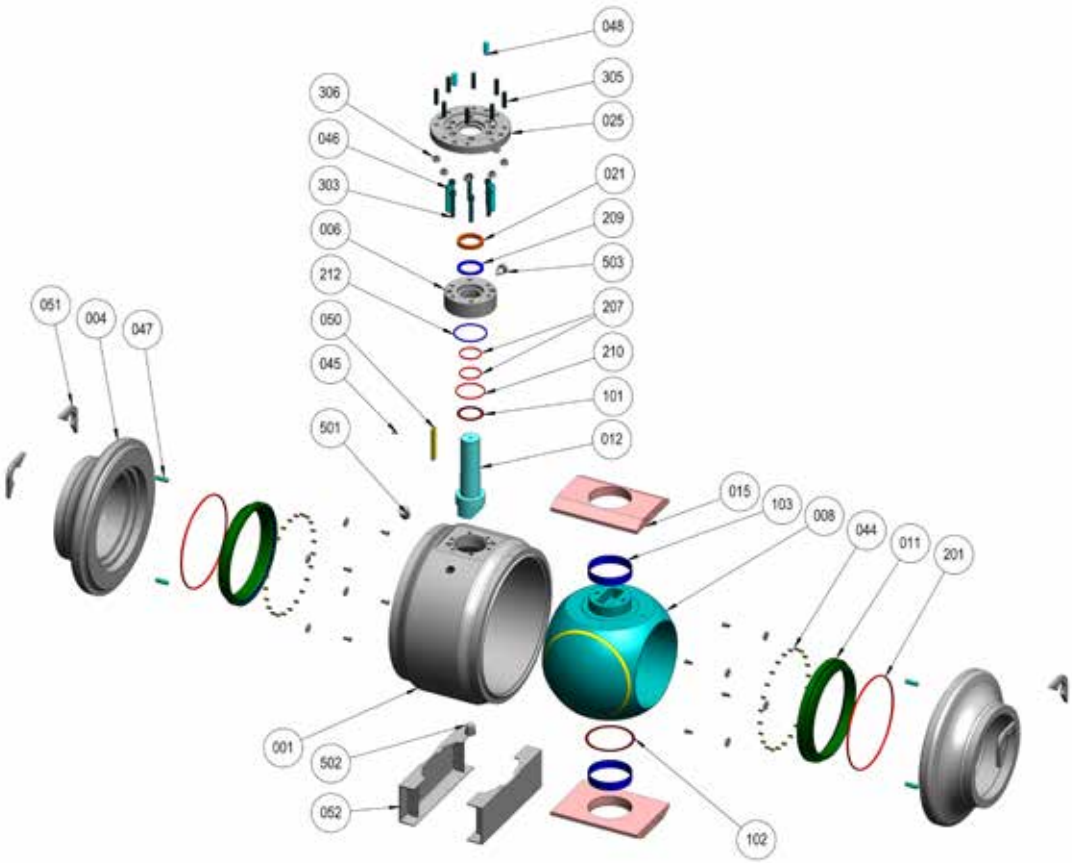
› The body is welded together, if repairs are required, it is a major exercise, which can only be performed at manufacturer's plant.

BILL OF MATERIALS

001	BODY
004	CLOSURE
006	BODY COVER
008	BALL
011	SEAT RING w/INSERT
012	STEM
015	BEARING RETAINER
021	SPACER RING
025	OPERATOR FLANGE
044	SEAT SPRING
045	ANTI STATIC DEVICE
046	DOWEL PIN
047	BEARING RETAINER PIN
048	OPERATOR FLANGE PIN
050	STEM KEY
051	LIFTING LUG
052	VALVE SUPPORT
101	STEM WASHER
102	TRUNNION WASHER
103	LOW FRICTION BEARING
201	SEAT SEAL
207	STEM SEAL
209	STEM FIRE SAFE GASKET
210	BODY COVER SEAL
212	BODY FIRE SAFE GASKET
303	BODY COVER BOLT
305	OPERATOR MOUNTING STUD
306	GEAR MOUNTING NUT
501	VENT PLUG
502	DRAIN PLUG
503	STEM GREASE FITTING

RECOMMENDED SPARE PARTS FOR START-UP AND MAINTENANCE

207	STEM SEAL
209	STEM FIRE SAFE GASKET
210	BODY COVER SEAL
212	BODY FIRE SAFE GASKET



6D • API 6DSS • API 6A • API 17D • BALL VALVES • TOP–ENTRY • SIDE–ENTRY • FULLY-WELDED • THROUGH-CO
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MV5 FULLY-WELDED BALL VALVE

8″-16″, 20″, 28″ CL. 300-900 CS/SS
Onshore UAE

40″ Cl. 600 BW for gas pipeline
Onshore

12″, 16″, 20″, 30″ CL. 600 FB/RB, CS+ENP+500 mm. pups, c/w Gas Over Oil Actuator
Onshore Malaysia

MV3-CP COMPACT BALL VALVES

BENEFITS OF THE COMPACT DESIGN

- Shorter and lighter than the standard MV3 model side-entry ball valve.
- Main advantage are the reduced face-to-face dimensions (non API 6D).
- The bolted body construction allows for disassembly once removed from the pipeline for repairs to be carried out.
- Manufactured with forged materials in various grades of CS, SS, Duplex and all other high alloys, ensuring the design can meet all customer material requirements.
- Design and construction as per API 6D standard. Special face-to-face dimensions, non API 6D. These valves are not covered by the API 6D standard and do not carry the API 6D monogram.
- Available for short delivery 16-24 weeks.
- Delivery of spare parts from stock up to max.16 weeks.
- Most common applications are offshore in flowlines and turrets (FPSO's).

SIZES AND PRESSURE CLASSES

SERVICE	ASME CL. 150-600	ASME CL. 900	ASME CL. 1500	ASME CL. 2500
Standard (above ground)	2"-16"	2"-16"	2"-16"	2"-16"

DESIGN FEATURES

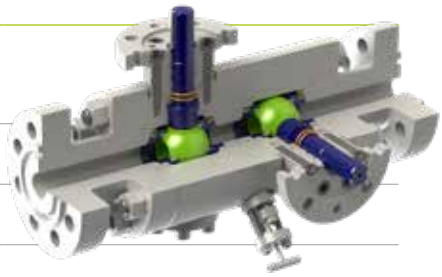
› Special Face-to-Face Dimensions	NON API 6D	› Double Body Barrier	STANDARD
› Trunnion Mounted	STANDARD	› Triple Stem Barrier	STANDARD
› Independent Stem and Ball	STANDARD	› Vent Plug	STANDARD
› Floating Seats	STANDARD	› Bleed Valve	OPTIONAL
› Soft Seat Insert	STANDARD	› Drain Plug	STANDARD
› Primary Metal – Secondary Soft Seat	OPTIONAL	› Stem Injection Fitting	STANDARD
› Metal-To-Metal Seats	OPTIONAL	› Seat Injection Fitting	OPTIONAL
› O-Ring Type Seals	STANDARD	› Seat Pocket Overlay	OPTIONAL
› Polymeric Lip-Seals	OPTIONAL	› Seal Areas Overlay	OPTIONAL
› Self-Relieving Seats (SR)	STANDARD	› Wetted Parts Overlay	OPTIONAL
› Double Isolation And Bleed (DIB-1) (Double Piston Effect) (DPE Seats)	OPTIONAL	› Body Internal Lining	OPTIONAL
› Double Isolation And Bleed (DIB-2) (Dual Seat) (SR+DPE)	OPTIONAL	› Locking Device	OPTIONAL
› Double Block & Bleed (DBB)	OPTIONAL	› Lifting Lugs / Valve Support	STANDARD
› Full or Reduced Bore	AS REQUESTED	› Antistatic Device	STANDARD
› Flanged Ends / Welded Ends	AS REQUESTED	› Manual or Actuated Operation	AS REQUESTED
› Transition Pups for Welded Ends Valves	OPTIONAL	› Manual or Actuated Operation	AS REQUESTED
› Anti Blowout Stem	STANDARD	› In-Line Maintenance	NO
		› On-Site Disassembly for Repairs and Maintenance	YES

MV4 DBB BALL VALVE

BENEFITS OF THE DBB DESIGN

- Established engineered product design, well-known in the industry for subsea, offshore and onshore applications.
- Space and weight saving, compared to the option of two independent ball valves.
- Flanged, WE/WE or flangeless design.
- Selected typically for applications where the customer is looking for more reliability in the seats performing with zero leakage, where common failures occur due to foreign particles in the media. This product with a single body with two balls and four seats offers this increased performance capability.
- A proven and reliable ball valve design.
- Manufactured using forged materials in various grades CS, SS, Duplex and all other high alloys ensuring this design can meet all our customer material requirements.
- Manual and/or actuated configuration.
- Engineered products typically having a long lead time delivery of 24 weeks or longer.
- Design and construction as per API 6D standard. Special face-to-face dimensions, non API 6D. These valves are not covered by the API 6D standard and do not carry the API 6D monogram.

SIZES AND PRESSURE CLASSES



SERVICE	ASME CL. 150-600	ASME CL. 900	ASME CL. 1500	ASME CL. 2500
Standard	1″-36″	1″-36″	1″-20″	1″-12″
Subsea	1″-24″	1″-24″	1″-20″	1″-12″

Other sizes and pressure classes available upon request

DESIGN FEATURES

Special Face-To-Face Dimensions	NON API 6D	Double Body Barrier	STANDARD
Trunnion Mounted	STANDARD	Triple Stem Barrier	STANDARD
Independent Stem and Ball	STANDARD	Vent Plug	STANDARD
Floating Seats	STANDARD	Bleed Valve	OPTIONAL
Soft Seat Insert	STANDARD	Drain Plug	OPTIONAL
Metal-To-Metal Seats	OPTIONAL	Stem Injection Fitting	STANDARD
O-Ring Type Seals	STANDARD	Seat Injection Fitting	OPTIONAL
Polymeric Lip-Seals	OPTIONAL	Seat Pocket Overlay	OPTIONAL
Self-Relieving Seats (SR)	STANDARD	Wetted Parts Overlay	OPTIONAL
Double Isolation and Bleed (DIB-1) (Double Piston Effect) (DPE Seats)	OPTIONAL	Extended Bonnet for Low or High Temperature	OPTIONAL
Double Isolation and Bleed (DIB-2) (Dual Seat) (SR+DPE)	OPTIONAL	Locking Device	OPTIONAL
Double Block & Bleed (DBB)	STANDARD	Lifting Lugs / Valve Support	STANDARD
Seal Areas Overlay	OPTIONAL	Manual or Actuated Operation	AS REQUESTED
Full or Reduced Bore	AS REQUESTED	Firesafe Design	STANDARD
Flanged Ends / Welded Ends / Hub Ends	AS REQUESTED	In-Line Maintenance	NO
Antistatic Device	STANDARD	On-Site Disassembly for Repairs and Maintenance	YES
Anti Blowout Stem	STANDARD		

LOW TEMPERATURE / CRYOGENIC BALL VALVES (-196°C)

- Extended bonnet with vapor space to maintain the stem packing within the suitable temperature range
- More stringent requirements for material selection
- Supplementary inspection and testing (i.e. Fugitive Emission (FE), Low temperature testing
- Lip seal design
- Available in MV1 top-entry and MV3 side-entry design (bolted body)

MODELS, SIZES AND PRESSURE CLASSES

ASME CLASS	MV1 (Top-entry)	MV3 (Side-entry)
CL. 150-600	2″-24″	1″-24″
CL. 900	2″-24″	1″-24″
CL. 1500	2″-20″	1″-20″
CL. 2500	2″-12″	1″-12″

MV1 Cryogenic Top-Entry Ball Valves 1.5″ - 8″ CL. 150 – 1500 RB/FB BW, Metal-seated+TCC, Lipseals / Graphoil, Pup piece, Extended Bonnet. Body: SS / Trim: Nitronic, c/w Pneumatic Actuators, Fugitive Emission and Cryogenic Testing (-196 deg C). Onshore Malaysia.

HIGH TEMPERATURE BALL VALVES (<500°C)

- Extended bonnet
- Metal and graphite seals
- Inherently firesafe design
- Adjustable stem packing for easy maintenance which guarantees performance throughout the operational life
- Advanced selection of hard facing technologies suitable for various services
- Available in MV1 top-entry and MV3 side-entry design (bolted body)

MODELS, SIZES AND PRESSURE CLASSES

ASME CLASS	MV1 (Top-entry)	MV3 (Side-entry)
CL. 150-600	2″-20″	1″-20″
CL. 900	2″-16″	1″-16″
CL. 1500	2″-12″	1″-12″
CL. 2500	2″-8″	1″-8″

MV3-HT High Temperature Side-Entry Ball Valves 2″- 24″ CL.300/600, Body: CS/SS, Trim: SS/SS+CCC/Duplex/XM-19+CCC, Metal-Seated, High Temperature Service (350-450 Deg C) c/w Pneumatic Actuator, SIL 2&3, ESDV Onshore Refinery, Malaysia

SUBSEA BALL VALVES (API 6DSS)

DESIGN FEATURES

- API 6DSS design and construction
- Additional environmental sealing at body to closure and body to stem
- CRA overlay on sealing or process wetted areas
- ROV interface to API 17H/ISO 13628-8 (optional)
- More stringent requirements for material selection
- Advanced inspection and testing requirements (i.e. hyperbaric testing, cycling)
- Multiple stem barrier
- Available in all designs

MV1-SS Top-Entry Subsea Ball Valves to MESC Spec. 12", 4"x3", 3"x2", 2"x1.5" CL. 900, Forged Body, Welded ends + pup pieces, Metal seated + TCC, Soft seated + ENP on ball and seats, Self-relieving seats, Body & bonnet: Forged Low Temp. CS, Inc. 625; Trim: F51 Duplex, Inc. 625 + TCC, A694 F60 + ENP 0.025 mm, Cladding: Inc. 625 on all wetted areas, NACE 0175 Subsea gear + ROV CL.2 Interface; High pressure hydro and gas shell and seat test, Hyperbaric test at 120m water depth
Subsea Malaysia

MODELS, SIZES AND PRESSURE CLASSES

MODEL N° (Valve design)	CL. 150-600	CL. 900	CL. 1500	CL. 2500
MV1-SS Subsea Top-Entry Ball Valve	2"-48"	2"-36"	2"-36"	2"-20"
MV3-SS Subsea Side-Entry Ball Valve	1"-48"	1"-36"	1"-36"	1"-20"
MV5-SS Subsea Fully-Welded Ball Valve	2"-48"	2"-36"	2"-24"	2"-16"
MV4-SS Subsea DBB Valve (non API 6DSS)	1"-24"	1"-24"	1"-20"	1"-12"

COMPLETE SYSTEM OF SSIV SUBSEA BALL VALVES C/W WITH CONTROL SYSTEMS CONSISTING OF:

1. Subsea Ball Valves
2. SSIV Hydraulic Actuator
3. HPU and control panel
4. Hydraulic manual override pump (in case of power loss)
5. Accumulators and back-up power system
6. Solar panel and batteries
7. Umbilical
8. ABS Certification
9. System Integration and FAT of complete subsea system is done at our MIR VALVE plant

MV3-SS Side-Entry Ball Valves 12" CL.1500, RTJ Full Solid Duplex, Soft Seated, Peek, c/w Subsea Gear Operator & ROV Interface, 70m depth
Subsea Malaysia

MV3-SS Subsea Side-Entry Ball Valve 10" CL. 900 FB RTJ Body F65+Inconel Overlay, Inconel Trim, PEEK, Gear+ROV, Gas, PR2 Class 1 qualification and hyperbaric chamber testing, 100 m water depth
Subsea Malaysia

METAL-SEATED BALL VALVES

- Suitable for severe service (dirty, abrasive), high temperature, low maintenance (i.e. subsea), high demand (frequent cycling)
- Hard facing on ball and seats (TCC, CCC, NiSic)
- Higher torque, more robust topwork design, more powerful actuator
- Longer life cycle, low maintenance, low spare parts consumption
- Leakage rates to API 598 or ISO 5208:1993
- Finite element analysis (FEA) for seat to ball contact
- Applicable to all designs MV1 (top-entry), MV3 (side-entry), MV5 (fully-welded), all sizes and classes

16″ CL. 1500 full duplex, metal-seated +150µ TCC, PMI
High-pressure gas testing as per API 598 Exxonmobil Specification
Offshore Malaysia

CLADDED BALL VALVES (WELD OVERLAY)

- Suitable for sour service, harsh and hostile environment, low maintenance
- Corrosion resistant, long life, high reliability
- Overlay in Inconel 625 or Stainless Steel, mostly applied on Carbon Steel base material
- Cladding options: dynamic seal areas, all sealing areas, all wetted areas (fully cladded)
- Final overlay thickness of 3 mm min.
- Applicable to all designs MV1 (top-entry), MV3 (side-entry), MV5 (fully-welded), all sizes and classes

Cladded ball under machining

DESIGN SPECIFICATIONS

DESIGN STANDARDS

DESIGN	BODY THICKNESS	BOLTING	FACE-TO-FACE DIMENSIONS	DRIVE TRAIN SIZING (MAST)	FIRESAFE
API 6D/ISO 14313 API 6DSS/ISO 14723 Customer Specifications (Shell, Total, Exxonmobil and other customer specs)	ASME VIII-1, VIII-2 ASME B16.34	ASME VIII-1, VIII-2 ASME B16.34	API 6D/ISO 14313 API 6DSS/ISO 14723 ANSI B16.10	ASME VIII-1, VIII-2	ISO 10497/API 607 API 6FA
OTHERS	Materials: ASME II-D Flanges: ASME B16.5	NDT: ASME V Weld ends: B16.25	Welding: ASME IX Gas pipeline: ISO 14141	Sour service: NACE MR-0175/ISO 15156	

MATERIAL SPECIFICATIONS

BODY	BALL/SEATS	STEM	SEATING/SEALS	BOLTING
CARBON STEEL › A105 › WCB › LCC › LF2 › LF3 › F60/F65 **STAINLESS STEEL** › 316 › 321 › 347 **DUPLEX SS** **SUPERDUPLEX SS** **NICKEL ALLOYS** › Incoloy › Monel **TITANIUM** **OTHERS**	**CARBON STEEL** › A105 › LF2 › LF3 › F60/F65 **STAINLESS STEEL** › 316 › 321 › 347 › 13 Cr › 13 Cr4Ni › 17-4PH › Nitronic **DUPLEX SS** **SUPERDUPLEX SS** **NICKEL ALLOYS** › Inconel › Incoloy › Monel **TITANIUM** **OTHERS**	**CARBON STEEL** › 4140 › LF3 **STAINLESS STEEL** › 316 › 13 Cr › 13 Cr4Ni › 17-4PH › Nitronic **DUPLEX SS** **SUPERDUPLEX SS** **NICKEL ALLOYS** › Inconel › Monel **TITANIUM** **OTHERS**	**SOFT SEATING** › RPTFE › NYLON › PEEK › FKM › HNBR › FFKM › PCTFE **METAL SEATING** › TCC › CCC › Ni-SiC	**CARBON STEEL** › B7/2H › L7/7 › B7M/2HM › L7M/7M › L43 **STAINLESS STEEL** › B8/8 › B8M/8M › 660 **DUPLEX SS** **SUPERDUPLEX SS** **NICKEL ALLOYS** › Inconel **TITANIUM** **OTHERS** **COATING** › Zinc › PFTE › HDG (Hot Dip Galvanizing)

COATING

ENP	Electroless Nickel Plating (25µ, 75µ)
TCC	Tungsten Carbide Coating (150µ, 200µ, 400µ)
CCC	Chromium Carbide Coating (150µ, 200µ)
Weld Overlay	AISI 316 / 316L, ALLOY 625 / DUPLEX
Stellite	Gr. 6, Gr. 12
Ni-SiC	Nickel-Silicon Carbide Plating (25µ, 50µ)

SEALING

O-Rings	Lip-Seals	Metal/Graphoil Gasket
-46°C /+200°C	-196°C /+220°C	Over +220°C

Estimate temperatures as per the recommendation of the seal manufacturer.
Seal selection is based on a combination of criteria and is not limited to temperature only.

MV3 Side-Entry Ball Valve 16"x14" CL.2500 Hub Ends, Full Superduplex, Gas Tested, Offshore Malaysia

TESTING CAPABILITY

AS PER DESIGN STANDARDS AND CUSTOMER REQUIREMENTS

STANDARD TESTS

- Hydrostatic Body Test
- Hydrostatic Seat Test
- Low Pressure Air Seat Test
- Cavity Safety Relief Test
- Functional Test
- Anti-static Device Test

ALL STANDARD AND SPECIAL TESTS ARE PERFORMED IN HOUSE
(Except for hyperbaric test which is subcontracted nearby our plant)

SPECIAL TESTS (UPON REQUEST)

- Stall Test
- Endurance Test (cycling)
- Drift Tool Test
- Double Isolation and Bleed Test (DIB-1, DIB-2)
- DB&B Test
- High Pressure Gas Test
- Fugitive Emission Test acc. to ISO15848 or MESC SPE 77/312
- Low Temperature Test acc. to MESC SPE 77/306
- Cryogenic Test
- High Temperature Test
- TAT Testing to MESC 77/300A
- Firesafe Test
- Hyperbaric Test
- Submerged Tank Test
- Customer PQ test programms

QUALITY ASSURANCE CERTIFICATION

- API 6D for Ball Valves
- API 6DSS for Subsea Ball Valves
- CE-PED 97/23/EC
- CE-ATEX 94/9/EC
- Firesafe ISO 10497/API 607
- ISO 9001/API Q1/API QR1
- IEC 61508 (up to SIL 3)
- ISO/IEC 17025

High-pressure Gas Test

Submerged Water Test

Fugitive Emission Test

Cryogenic testing (-196°C)

HIPPS (HIGH INTEGRITY PIPELINE PROTECTION SYSTEM)

This is a business segment in which MIR VALVE actively pursues and takes the lead to tender and package complete HIPPS Systems together with PrACSI, our global partner for the offering of HIPPS systems.

PrACSI Group is a UAE-based technology integration company with over 25 years experience in providing integrated instrumentation automation and control solutions for oil and gas production, refining, petrochemical and associated utilities. PrACSI specializes in the design and assembly of logic solvers for HIPPS and USS (Ultimate Shutdown Systems). The logic solvers built by PrACSI use HIMA technology; HIMA is a German company, world leader in process safety solutions.

A HIPPS system is an automated integrated system that is installed in pressure critical applications and enables superfast-acting depressurization of a process, hence protecting assets, life and environment from the effects of sudden pressure built up in hydrocarbon and chemical based process plants. The safety system is designed based on and fully complies to IEC 61508 and IEC 61511 standards.

The HIPPS system acts to an unsafe event within the defined process safety time, on critical applications it could achieve 2 seconds closing time, safety availability that meets figures of 99.9% - 99.99% and compliant to IEC 61511 standards of SIL4 and SIL3 for various elements.

HIPPS IS A COMPLETE LOOP CONSISTING OF

PRESSURE TRANSMITTERS **DETECTION**	DETECTS THE HIGH PRESSURE THRESHOLD. A TYPICAL HIPPS LOOP HAS 2 OR 3 PRESSURE TRANSMITTERS IN 1002 OR 2003. (OPTIONALLY) 2003 PT COULD BE ASSEMBLED IN SIL4 RATED MANIFOLD.
LOGIC SOLVER **DECISION**	PROCESSES INPUT FROM THE PRESSURE TRANSMITTERS AND GENERATES OUTPUT TO THE FINAL ELEMENTS. A TYPICAL HIPPS LOOP HAS 1 (HARDWIRED) LOGIC SOLVER IN FULL REDUNDANT CONFIGURATION. (OPTIONALLY) PERFORMS PARTIAL STROKE TESTING (PST).
FINAL ELEMENTS **EXECUTION**	EXECUTES THE CORRECTIVE ACTION IN THE FIELD BY BRINGING THE PROCESS TO A SAFE STATE. A TYPICAL HIPPS LOOP CONSISTS OF 2X BALL VALVES COMPLETE WITH ACTUATOR AND CONTROL SYSTEM. (OPTIONALLY) PERFORMS PARTIAL STROKE TESTING (PST).

SCOPE OF SUPPLY

1. PRESSURE TRANSMITTERS	→	AS PER CUSTOMER AVL
2. LOGIC SOLVER	→	PrACSI (HIMA)
3. VALVE	→	MIR VALVE
4. ACTUATOR	→	AS PER CUSTOMER AVL
5. PSD (PARTIAL STROKE DEVICE)	→	AS PER CUSTOMER AVL
SYSTEM INTEGRATOR	→	MIR VALVE
SIL LOOP CERTIFICATION	→	TÜV
DESIGN CERTIFICATION	→	TÜV
SITE COMMISSIONING SERVICES	→	MIR VALVE & PrACSI

MV3 Side-Entry Ball Valves 10", 18" CL. 1500 FB/ RF Metal-seated, CS/SS/Duplex, high pressure gas test, hydraulic actuator, onshore Iraq HIPPS application

Find your local MIR Sales Representative at www.mirvalve.com

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