

Fixed Cone Discharge

- Rugged construction.
- Wide range of sizes and pressure ratings.
- To be used in wide range of applications.
- Various materials options available.
- Low cavitation
- Simple and robust design
- Streamlined contours
- Low head loss
- Large flow rate, discharge coefficient can reach to 0.75 - 0.86
- Various operating gears and actuators
- Different corrosion resistant coatings are available.
- Optional hood offers flow discharge into confined areas.
- Maintenance can be performed while the valve is in line.

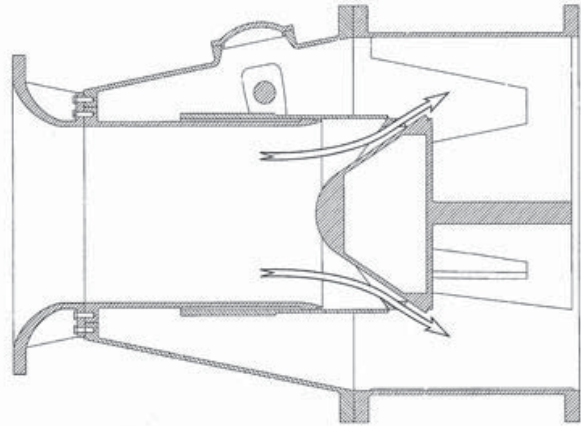
FEATURES



Contoured Rib

Fixed cone valves are mostly used to regulate flow from dams, clear-water reservoirs, barrages or storages basins. It is also a free discharge valve that is commonly used as a turbine bypass valve, reservoir drain or continuous discharge flow control valve.

Discharges of large water flow rates under high pressure conditions demands an efficient conversion of energy. Any damages due to cavitation and any risk to the structure due to vibrations and oscillations have to be avoided. Fixed cone valve has a fixed cone with contoured ribs that eliminate the vibration problems associated with other fixed cone designs. Flow is controlled by movement of an external stainless steel gate which has a drip tight metal to metal



Free discharge of continuous flow

shut off. When discharging into the atmosphere, the jet spreads out in a wide cone angle and breaks up into a fine spray. If containment of the jet is desired, a hood can be installed which concentrates the flow.



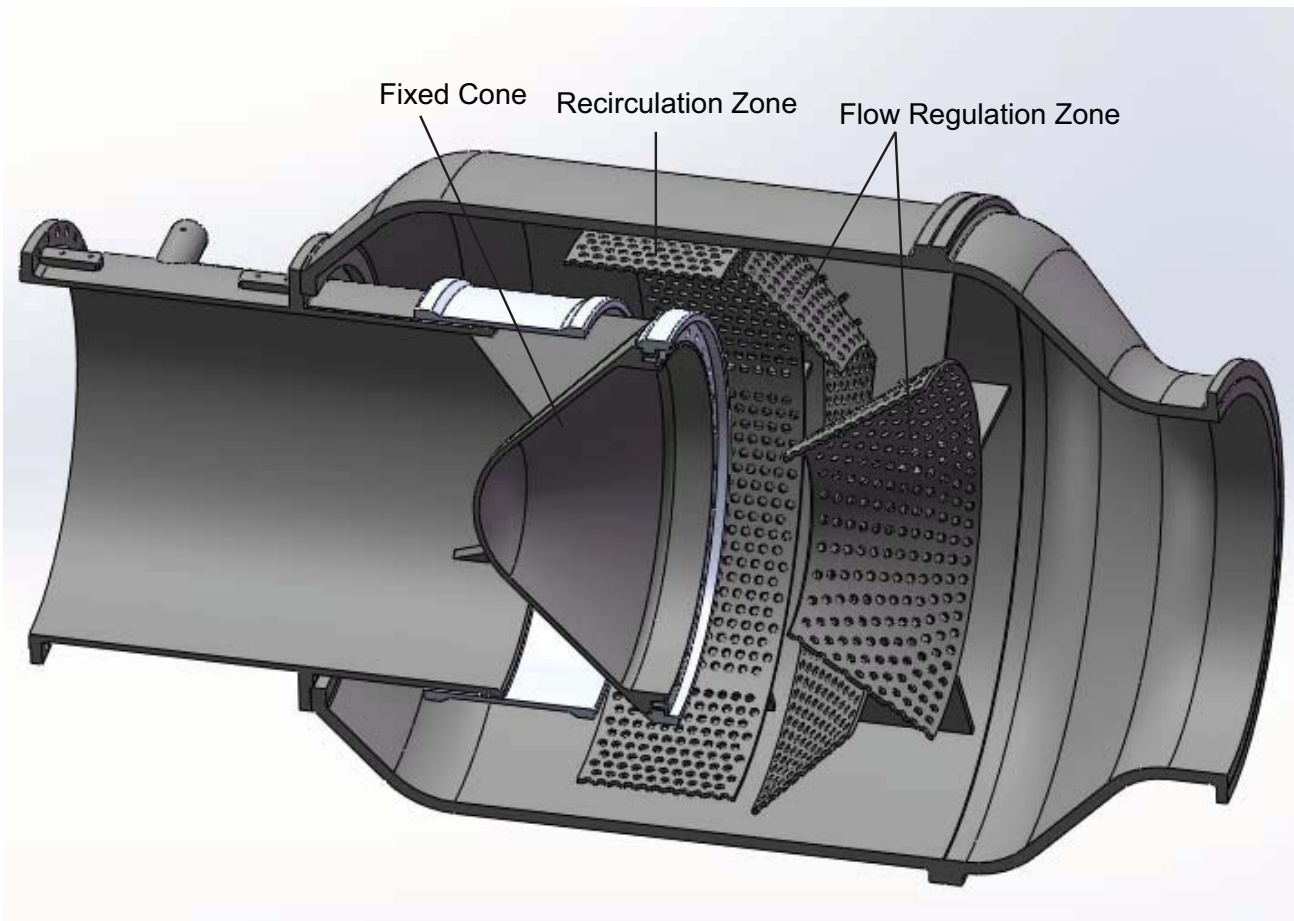
Without hood, flow spray out evenly to a large area.



Optional hood discharges flow into confined areas

Fixed cone valve is composed of Actuator units, drive mechanism, welded steel construction with Nitronic 60 pads, sleeve gate, rubber seal, Nitronic 60 seat, contour ribs and optional hood. Spray piece is supported and connected by the fixed cone and the contour ribs. There is an open section between the spray piece and the welded steel body. Sleeve gate is installed outside of the spray piece and the movement of the sleeve gate can change

the free discharge (free spray) area. A hood can be installed for some application needs and this hood can confine the flow to a smaller area which can avoid the spray of the flow and cavitation damage to the line. Hooded fixed cone valves are mostly used in inline installation applications. Unhooded fixed cone valves are mostly used as discharge valves to release pressure, retain pressure or control the flow in the pipe line.



How to select size and design of a fixed cone valve

$$D = \left(\frac{Q_{max}}{C_d (2gH)^{0.5} \Pi} \right)^{0.5}$$

D - Valve Size in mm

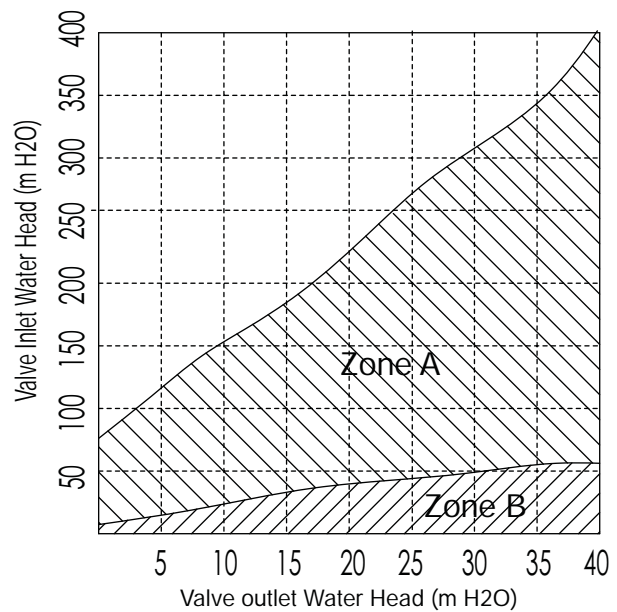
Q_{max} - Valve max flow rate m³/s

C_d - Flow factor, without hood=0.87, with hood=0.79

g - Acceleration of gravity=9.8m/s²

H - inlet and outlet differential pressure

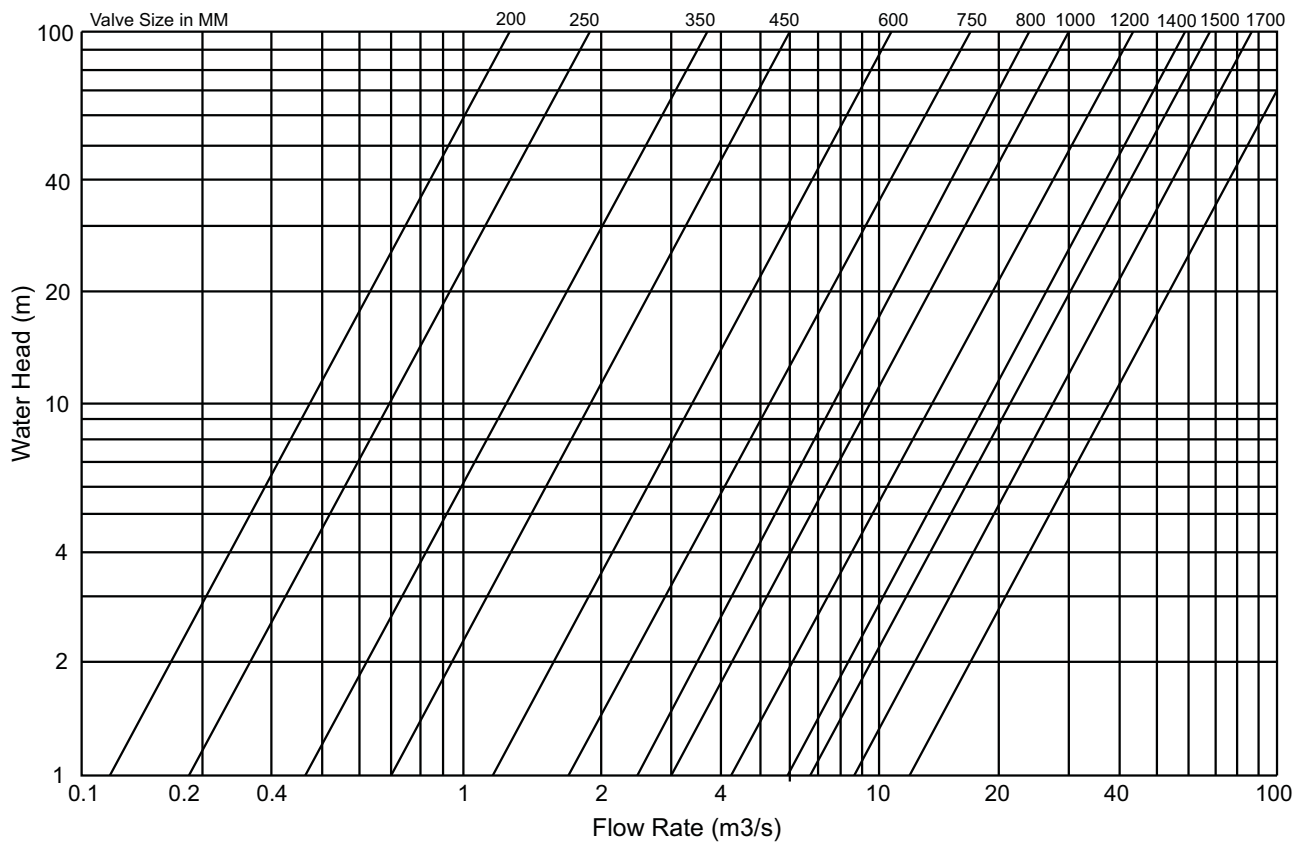
Π - pi=3.14



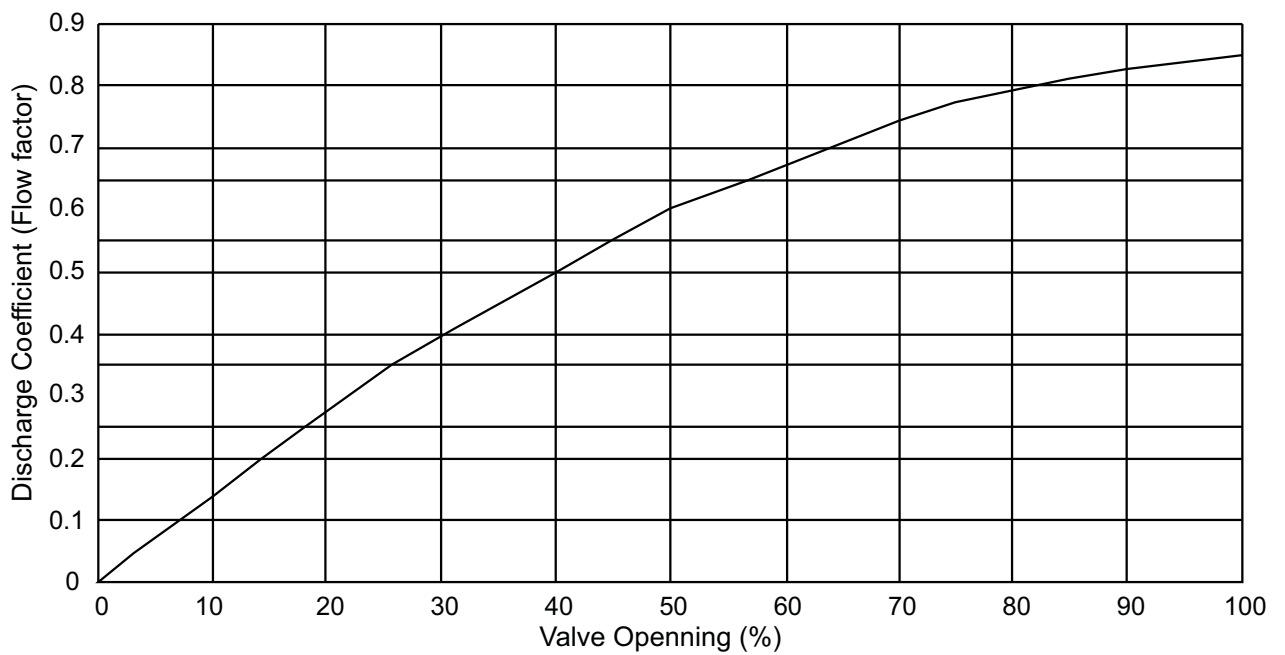
To select the right size and design for your application, it's suggested to contact factory to help.

If inlet and outlet water head falls into Zone A, it suggests to use a hood. If falls into Zone B, the hood is optional.

Flow ability of the Fixed Cone Valve



Flow Rate Characteristic



WIDE RANGE OF SIZES, PRESSURES, MATERIALS

We offer from DN100 (4inch) to DN2000 (80inch) Fixed Cone Valves in pressure rating PN10, PN16, PN25 and larger, and various materials to choose upon customers' requests or applications.



Installation of our DN1400 Fixed Cone Valve

SUITABLE FOR VARIOUS APPLICATIONS



1 Water Treatment Plant



2 Water Distribution System



3 Dam



4 Reservoir

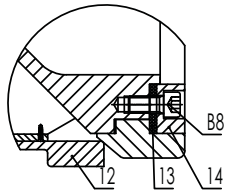
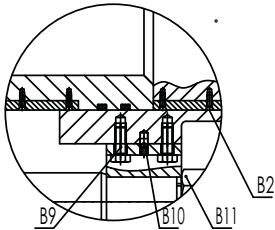
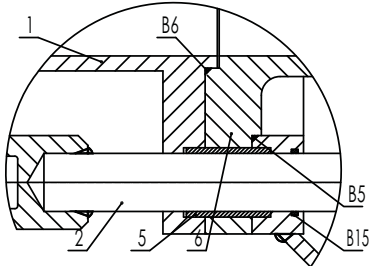
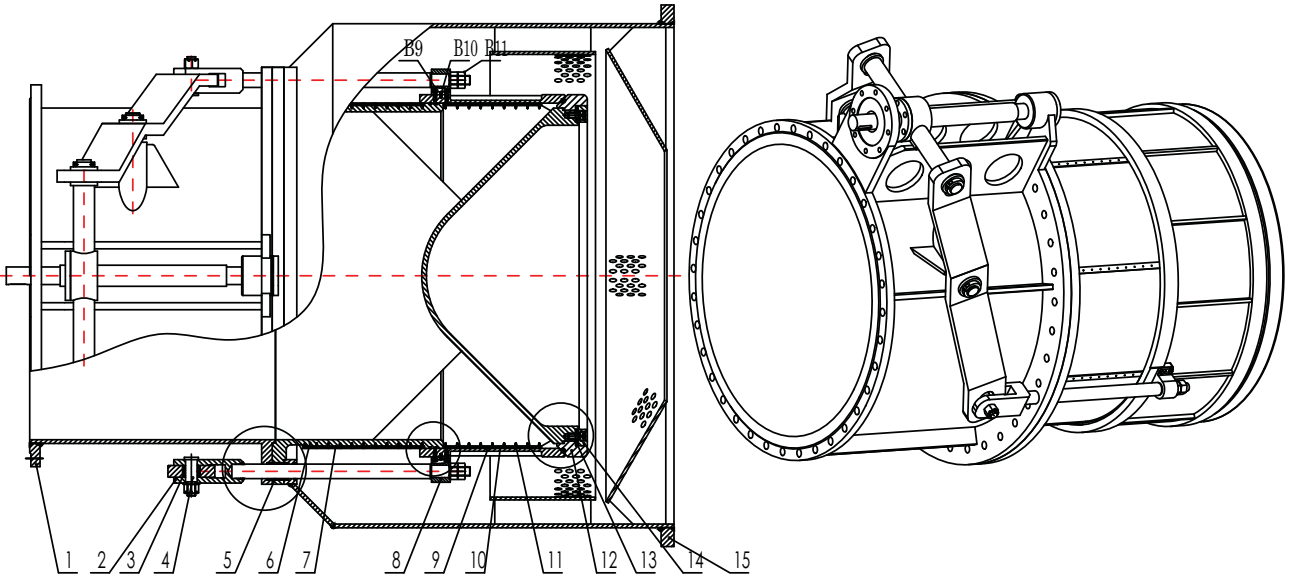
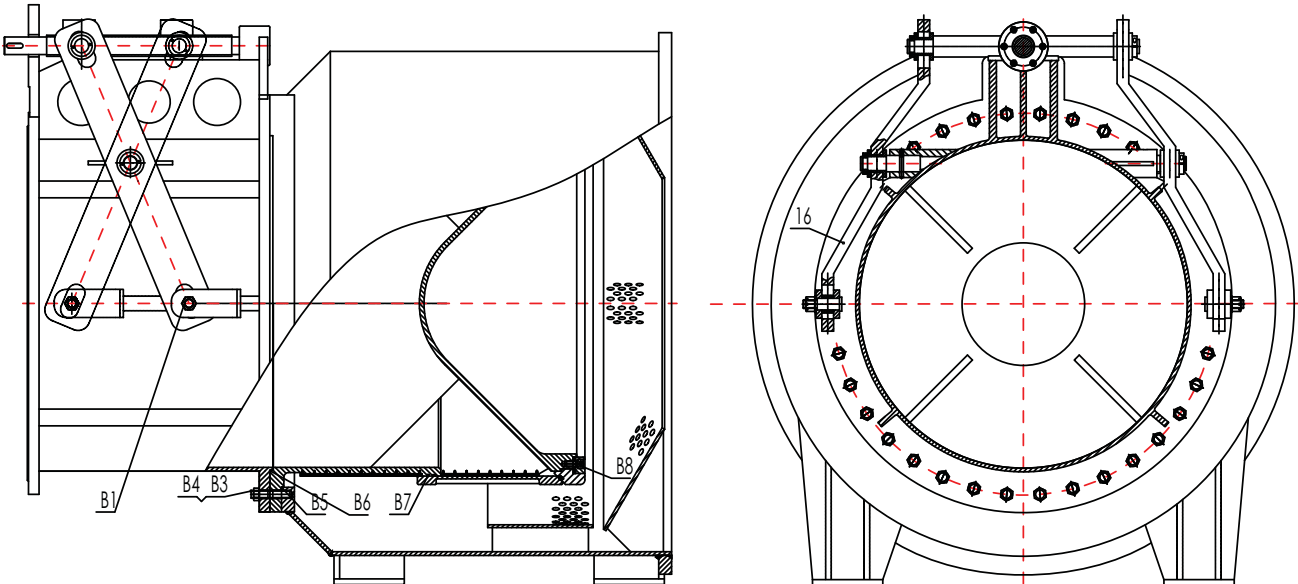


5 Petro-Chemical



6 Power Plant

PRODUCT DRAWING

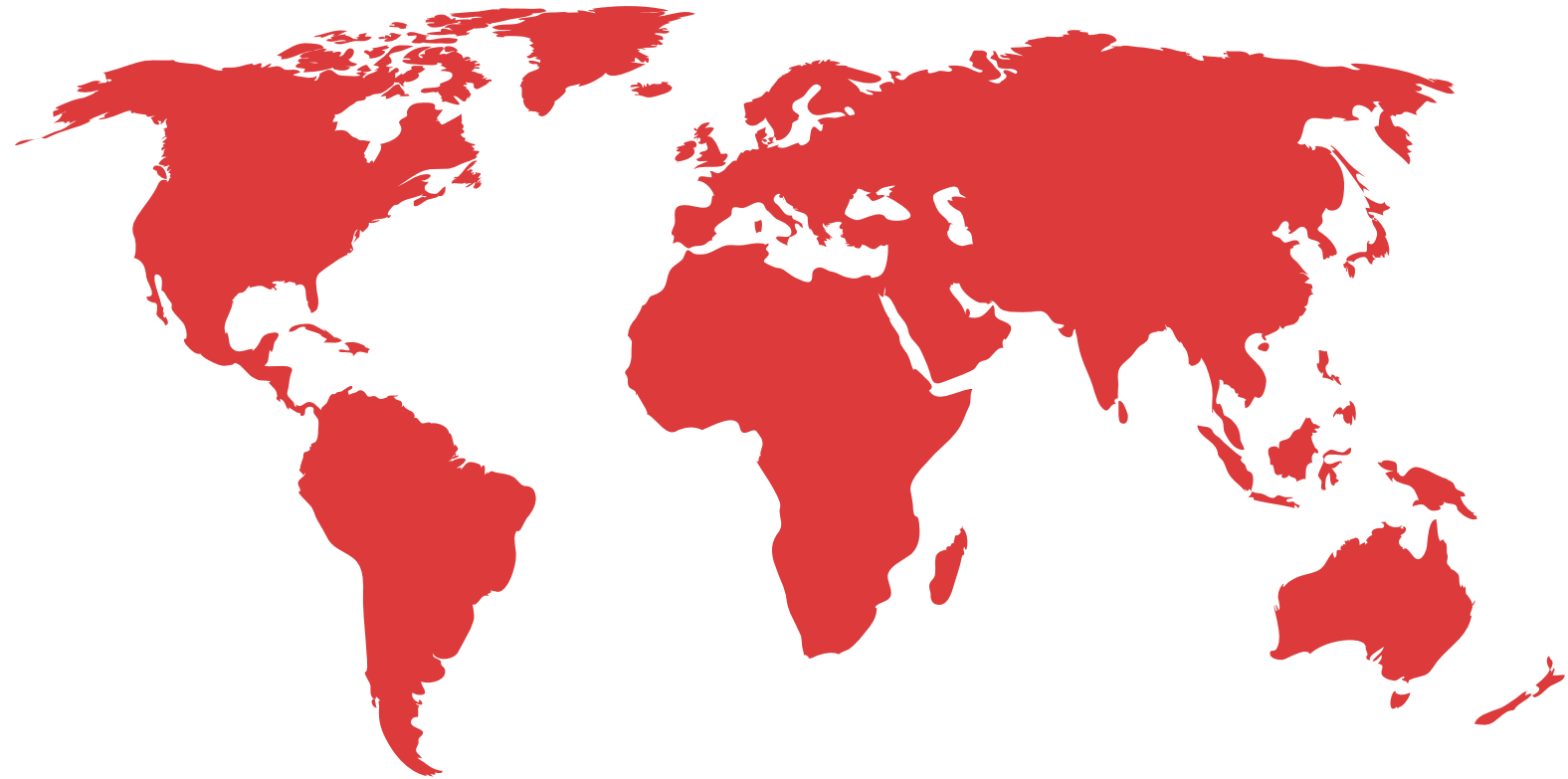


MATERIAL OF CONSTRUCTION

| Bill of Material | | |
|------------------|----------------|-----------------------------|
| Item | Description | Material |
| 1 | Front Body | Steel |
| 2 | Drive Stem | Stainless Steel + Bronze |
| 3 | Lever | Ductile Iron |
| 4 | Pin | Stainless Steel |
| 5 | Bushing | Bronze |
| 6 | Spray Piece | Ductile Iron |
| 7 | Tracks | Bronze |
| 8 | Drive Lug | Steel |
| 9 | Sleeve Gate | Stainless Steel |
| 10 | Tracks | Bronze |
| 11 | Track Fastener | Stainless Steel |
| 12 | Seat | Stainless Steel/Nitronic 60 |
| 13 | Seal | Buna-N |
| 14 | Retaining Ring | Stainless Steel |
| 15 | Hood | Ductile Iron |
| 16 | Lever | Ductile Iron |
| B1 | Hex Nut | Stainless Steel |
| B2 | Fastener | Stainless Steel |
| B3 | Stud | Stainless Steel |
| B4 | Hex Nut | Stainless Steel |
| B5 | O ring | NBR |
| B6 | O ring | NBR |
| B7 | O ring | NBR |
| B8 | Inner Hex Bolt | Stainless Steel |
| B9 | Hex Bolt | Stainless Steel |
| B10 | Fastener | Stainless Steel |
| B11 | Hex Nut | Stainless Steel |

Note: Other materials are available upon request.

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