HUNT VALVE

Powered by FAIRBANKS MORSE DEFENSE

VALVE & ACTUATOR
Product Catalog

Leading the World in Valve Technology

HuntValve.com

VALVE & ACTUATOR PRODUCT GUIDE BOOK

TABLE OF CONTENTS

Fairbanks Morse Defense - Valve & Actuators

We proudly support the following valve and actuator brands:

Valves
- Hunt Valve
- Montreal Bronze
- PIMA
- Union Flonetics
- Foster Engineering Company
- Aloyco
- WAECO (Western Affiliated Engineering Company)
- PJ Hydraulics / PJ Valves
- Morland Valve

Actuators
- Hunt Valve Actuators
- Precision Technology
- American Actuators

All Fairbanks Morse Defense valve and actuator defense offerings are produced in accordance with U.S. and Canadian defense supply regulations (i.e., DFARS compliant) and are fabricated and assembled in the U.S. and Canada.

FMD Valve Division – Overview

Hunt Valve Company (HVC) has been delivering fluid power engineering innovations and solutions to U.S. and Canadian defense customers for decades. With unmatched reliability, HVC specializes in severe-duty valves and complementary engineered components and system solutions mainly focused on the defense market. Specializing in harsh environments, our engineering staff designs and supports the manufacturing of durable and reliable valves that stand up to the toughest applications. Our combined expertise provides high-performance, cost-effective manufacturing and technical know-how to meet a wide range of specifications. Hunt Valve's specialized advanced manufacturing and testing capabilities include engineering and design with solid modeling flow and stress analysis, machining, welding/cladding, critical assembly, hydrostatic and nondestructive testing, and a best-in-class end to end quality inspection program.

Hunt Valve has two state-of-the-art manufacturing facilities located in Salem, OH and Terrebonne, QC with more than 130,000 square feet of manufacturing capacity and more than 150 employees with an average tenure of 8 years. Over the last 2 years, Hunt Valve has invested more than $4M in capital investments, namely new CNC equipment focused on expanding internal machining capabilities, automation, and capacity to support our customers' needs. By insourcing our manufacturing capabilities, we have reduced outsourced machining 40% while also increasing volume by more than 200% which has helped reduce our lead times and delivery times to our customers. Hunt Valve has also introduced lean principles and a rigorous practice and tracking of key performance metrics to track and measure our ability to deliver high quality products to our customers to support their critical needs.

As a top valve supplier to the U.S. and Canadian Navies, Hunt Valve has been described by customers as the "Swiss Army Knife of Valve Manufacturers" as well as "Best in Quality" amongst Navy Valve Suppliers. Hunt Valve's key products are sold to submarine, aircraft carrier, surface combatant, and auxiliary ships via the Hunt Valve, PIMA, and Montreal Bronze brands. Select products sold to the Coast Guard and Navy include ship service ball valves, engineered specialty valves, globe valves, gate valves, y-globe valves, swing check valves, relief valves and linear actuators. With extensive qualifications on U.S. Navy Valve specification standards, Hunt Valve has a strong history solving supplier needs and leveraging our internal engineering and manufacturing expertise to support a broad range of U.S. and Canadian Navy and Coast Guard valve applications with the ability to scale production quickly to meet the needs of our customers.

History of Hunt Valve

In 1984, Hunt Valve Company purchased the assets of a company that had been manufacturing severe service valves for the U.S. steel industry since 1919. With the end of World War I and the advent of assembly line manufacturing, America's heavy industrial revolution was in full swing. During that time, the company became known as a supplier of reliable, heavy-duty valves in a variety of growing U.S. industries. During the economic boom following World War II, their well-known reliability was established. While numerous American engineering firms were exporting heavy industrial machinery around the world, the predecessor company's valves were the product of choice on many of these machines because product reliability was critical in these distant, isolated locations.

The affiliation with the U.S. Navy dates back to the early days of submarine development with the supply of pneumatic valves that were used to control the periscope's up/down function. This valve was later used in similar submarine applications such as for the snorkel's up/down function. The company also supplied valves for the first nuclear-powered submarine, the USS Nautilus in the early 1950's. Today, Hunt Valve produces innovative engineering solutions that can be found in applications on all six industrialized continents. Hunt Valve specializes in severe-duty valves and complementary engineered components and system solutions for applications that include primary metals, energy, and U.S. Navy nuclear-powered vessels, including all submarines and carriers in operation as well as the Virginia Class, Ford Class and new Columbia Class. In 2021, Hunt Valve was purchased by Fairbanks Morse Defense to further enhance our support to our Navy and Coast Guard customers.

FMD – Overview

Stacking the decks with best-in-class marine technologies and service solutions. Fairbanks Morse Defense has mastered that balance over more than a century, configuring the delivery of every customer engagement to meet the needs of the moment. We deliver an advantage to the U.S. Fleet with a growing array of best-in-class marine technologies, OEM parts, and turnkey services – all from a single, trusted source.

Facilities Overview

Machinery & Equipment Highlights

Salem Facility

- Okuma/Mazak 3 or 4 axis CNC Lathes (7)'
- Okuma MBSOOO / 8000 CNC Horizontal Mills (3)
- Mazak / Haas CNC Vertical Mills (3)
- 5 Axis CNC Mill (2 w/ 2 on order)
- Magnaflux Magnetic Particle Booth
- Dedicated Weld Stations w/Various Positioner Equipment (4)
- Electromechanical Actuator Test Stands (2)
- Hydrostat ic Valve Test Stands (6)
- Coordinate Measuring Machine
- Farro Arm Inspection Tool

Key capabilities:

- Advanced Machining: Casting, forging barstock, etc.
- Welding Capabilities: Specialty metals, exotic alloys, and other dissimilar metals
- Non-Destructive Testing: Dye penetrant, magnetic particle and visual inspection
- Military Assembly and Level 1 / SUBSAFE Compliant

Montreal Facility

- Mazak CNC Lathe
- Matsuura RA2G CNC Vertical Machining Center (VMC)
- Takumi V10A CNC VMC
- Haas CNC l athe (2)
- DMG Mori NLX Series CNC Lathe (6)
- DMG Mori NHX 4000 CNC Horizontal Mill
- 5 Axis CNC Mill (3)
- Hydrostatic Valve Test Stands (2)
- Coordinate Measuring Machine (CMM)

Key capabilities:

- FEA and Thermal Analysis
- Engineering Drawings, Test Procedures, and Design Reports
- Design Spec Reviews and Analysis
- Cycle Tests, FAT and Pressure Tests
- History Docket/Material Traceability
- On-Site Witness Testing for Critical Components

Sales & Service Support

Hunt Valve is available to help identify valve and actuator products for specific applications!

Hunt Valve, and associated valve product lines, have a long history of developing new and first of a kind valve designs. We can modify all valves listed in this document with sufficient information provided by the customer/end-user.

Nearly every valve can be provided with a valve operator to support your unique application and technical need. For more information about valve operators, please inquire with our sales team below.

Valve Sales
huntvalvesales@fmdefense.com
Phone: +1 (330) 337-9535, Select “Sales” when prompted

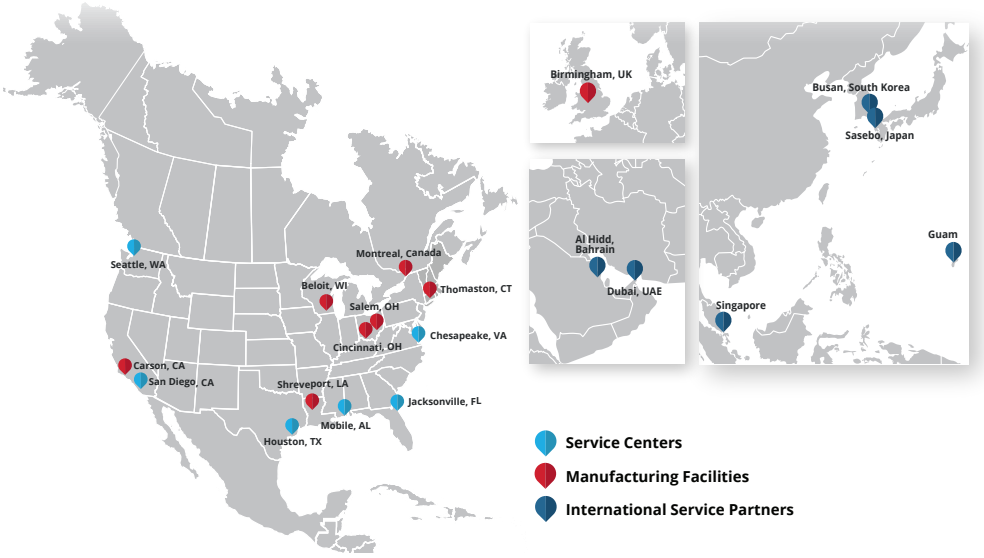
Actuator Sales
actuatorinfo@fmdefense.com

For Hunt Valve Service Department:
requestservicesupport@fmdefense.com

Please be prepared with the following information:

- Valve size/Actuator size
- System pressure
- Set pressure (relief valves)
- Valve type (globe, globe stop check, gate, ball, butterfly, swing check)
- Actuator type (rotary, rodless, hatch, vertical sliding door, dogging and sliding panel, ramp, latch)
- Valve material alloy specification and grade
- Valve trim material
- Flange specification / type
- System contents (air, water, fuel, etc.)

Our Locations



Fairbanks Morse Defense
701 White Avenue
Beloit, WI 53511
Phone: 1-800-356-6955

www.FairbanksMorseDefense.com

Federal Equipment Co.
Phone: 1-877-435-4723

Hunt Valve Company
Phone: 1-800-321-2757

Maxim Watermakers
Phone: 1-318-629-2460

Research Tool & Die Works
Phone: 1-310-639-5722

Ward Leonard
Phone: 1-860-283-5801

Welin Lambie
Phone: +44 1384-78294

Product Overview

Hunt Valve has expanded our product portfolio to support nuclear Navy, Surface Fleet, MSC, and USCG.

Navy and Industrial Valves		Surface Navy Valves
	**Ship Service Ball Valves (SSBVs)** Valves controlling intake/discharge of seawater and other fluids in submarine weapons compartments and support systems	
	**Engineered Specialty Valves (ESVs)** Critical to weapons compartment handling, weapons compartment discharge, and fluid systems in submarines and aircraft carriers	
	**Globe Valves** Designed for regulating flow in throttling applications. Also used in certain on/off applications	803-2177934 803-4384536 803-1385711 803-1385712
	**Ball Valves** Ideal for shut off and divert-flow control applications. Easily adapted to actuation	803-5001003 803-5001004 MIL-V-24509
	**Scupper Valves** Prevent seawater from entering systems in rough water. Used in sanitary piping systems with ship-side exits	803-1385707
	**Gate Valves** Used in various on/off applications. Designed for high-flow efficiency and long service applications	803-2177917 MIL-V-1189 803-1385714 MIL-V-18110
	**Y-Globe Valves** Robust globe valve seatings combined with an oblique pattern to reduce flow resistance in on-off duty applications	803-1385623
	**Relief Valves** Designed to relieve pressure within pipelines aboard Naval vessels. Proprietary design available in bronze, carbon steel, and stainless steel	MIL-V-24332

Electromechanical Actuators	
	**Ram-Style Actuators** Provide motion and force utilizing a ball, roller, or ACME screw. Capable of handling thrust loads in excess of 19,000 lbf, stroke lengths up to 60 ins, and travel speeds up to 79 in/sec.
	**Rodless Actuators** Utilize high load and moment bearing features to transport load. Capable of handling thrust loads up to 2,700 lbf, stroke lengths up to 36 ft., and travel speeds up to 33 ft./sec.
	**Custom Actuators** Available for special environmental considerations or non-standard applications. Design experience ranging from clean rooms to oil rigs, packaging machines, and steel mills

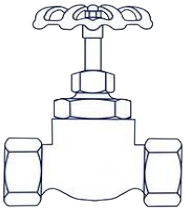
MIL-SPEC VALVES

Ensure safety, reliability, and durability while operating in some of the harshest environments.

GATE VALVES

a. **MIL-V-1189**
Brand: MB Valve
Size Range: 2.5” - 10”
Type: Gate
Material: Bronze
Pressure Rating (PSI): 100-400
Specification: MIL-V-1189

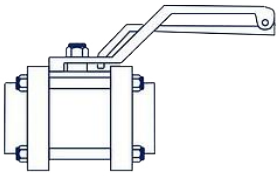
b. **803-1385714**
Brand: MB Valve
Size Range: .25” - 2”
Type: Gate
Material: Bronze
Pressure Rating (PSI): 400
Specification: Navy Standard



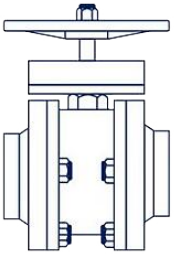
c. **803-2177917**
Brand: MB Valve
Size Range: 2.5” - 10”
Type: Gate
Material: Bronze
Pressure Rating (PSI): 250
Specification: Navy Standard

BALL VALVES

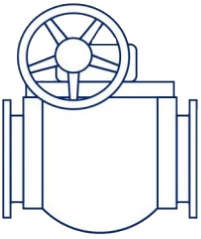
a. **803-5001003**
Brand: MB Valve
Size Range: .5” - 2”
Type: Ball
Material: Bronze, NICU, SS
Pressure Rating (PSI): 700
Specification: Navy Standard



b. **803-5001004**
Brand: MB Valve
Size Range: 2.5” - 4”
Type: Ball
Material: Bronze, NICU, SS
Pressure Rating (PSI): 700
Specification: Navy Standard

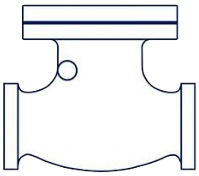


c. **MIL-V-24509**
Brand: MB Valve
Size Range: 1.5” - 8”
Type: Ball
Material: Bronze, NICU, SS
Pressure Rating (PSI): 100/150
Specification: MIL-V-24509

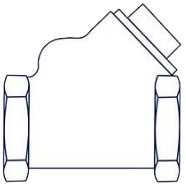


CHECK VALVES

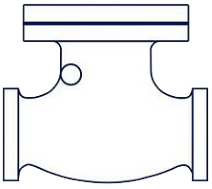
a. **803-1385637**
Brand: MB Valve
Size Range: 2.5" - 8"
Type: Swing Check
Material: Bronze
Pressure Rating (PSI): 250
Specification: Navy Standard



b. **803-1385721**
Brand: MB Valve
Size Range: .25" - 2"
Type: Swing Check
Material: Bronze
Pressure Rating (PSI): 400
Specification: Navy Standard

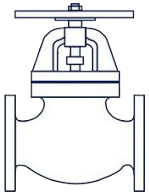


c. **MIL-V-17547**
Brand: MB Valve
Size Range: 2.5" - 8"
Type: Swing Check
Material: Bronze
Pressure Rating (PSI): 100-400
Specification: MIL-V-17547

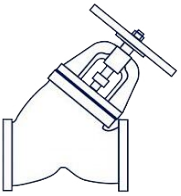


GLOBE VALVES

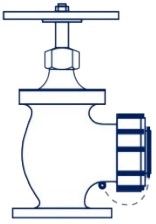
a. **803-1385541**
Brand: MB Valve
Size Range: 2.5" - 8"
Type: Globe
Material: Bronze
Pressure Rating (PSI): 100
Specification: Navy Standard



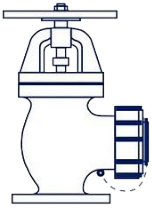
b. **803-1385623**
Brand: MB Valve
Size Range: 2.5" - 8"
Type: Y Globe
Material: Bronze
Pressure Rating (PSI): 250
Specification: Navy Standard



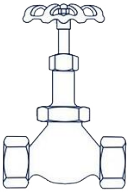
c. **803-1385711**
Brand: MB Valve
Size Range: 1.5"
Type: Hose Globe
Material: Bronze
Pressure Rating (PSI): 250
Specification: Navy Standard



d. **803-1385712**
Brand: MB Valve
Size Range: 2.5"
Type: Hose Globe
Material: Bronze
Pressure Rating (PSI): 250
Specification: Navy Standard

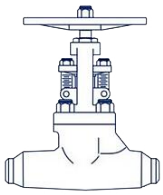


e. **803-4384536**
Brand: MB Valve
Size Range: .25" - 2"
Type: Globe
Material: Bronze
Pressure Rating (PSI): 400
Specification: Navy Standard

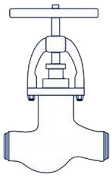


GLOBE VALVES

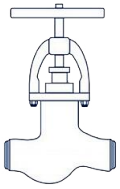
f. **803-217525**
Brand: Hunt Valve
Type: Globe
Specification: Navy Standard



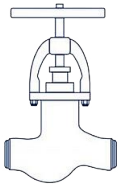
g. **803-2177140**
Brand: Hunt Valve
Size Range: 2.5”
Type: Globe
Specification: Navy Standard



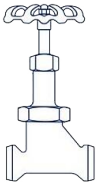
h. **803-2177141**
Brand: Hunt Valve
Size Range: 3” - 4”
Type: Globe
Specification: Navy Standard



i. **803-2177142**
Brand: Hunt Valve
Size Range: 5” - 6”
Type: Globe
Specification: Navy Standard

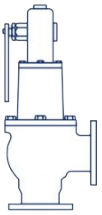


j. **803-2177934**
Brand: MB Valve
Type: Globe
Specification: Navy Standard



RELIEF VALVES

a. **MIL-V-24332**
Brand: Hunt Valve
Size Range: .25” - 8”
Type: R10A
Material: Bronze, Carbon Steel, Stainless Steel
Specification: MIL-V-24332

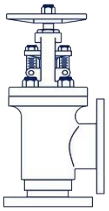


NON MIL-SPEC VALVES

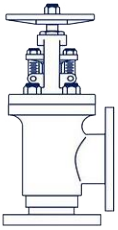
Hunt Valve manufactures a range of standard valves including gate, globe, ball and relief valves – all designed to operate in various types of media from steam to seawater.

ANGLE GLOBE VALVES

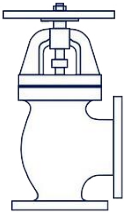
a. **AD15F**
Brand: MB Valve
Size Range: 1.5” - 8”
Type: Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial



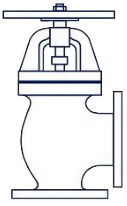
b. **AL15F**
Brand: MB Valve
Size Range: 1.5” - 8”
Type: Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial



c. **B142**
Brand: Pima Valve
Size Range: 1” - 14”
Type: Angle Stop
Material: Bronze
Pressure Rating (PSI): 300
Specification: MSS SP-80

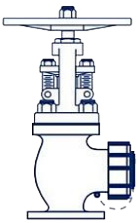


d. **B1421**
Brand: Pima Valve
Size Range: 1” - 14”
Type: Angle Stop Check
Material: Bronze
Pressure Rating (PSI): 300
Specification: MSS SP-80

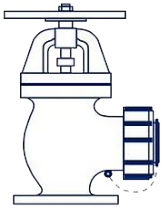


ANGLE HOSE GLOBE VALVES

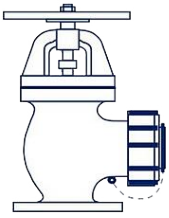
a. **AH15F**
Brand: MB Valve
Size Range: 1.5”, 2.5”
Type: Hose Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial



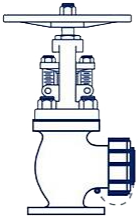
b. **B147**
Brand: Pima Valve
Size Range: 1.5” - 4”
Type: Hose Angle
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80



c. **B187**
Brand: Pima Valve
Size Range: 1.5” - 4”
Type: Hose Angle
Material: Bronze
Pressure Rating (PSI): 300
Specification: MSS SP-80

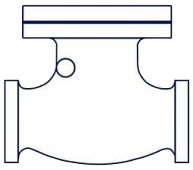


d. **H15F**
Brand: MB Valve
Size Range: 1.5”, 2.5”
Type: Hose Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial

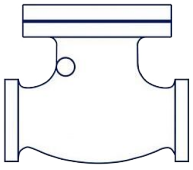


CHECK VALVES

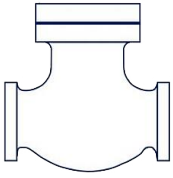
a. **B1610**
Brand: Pima Valve
Size Range: .75" - 3"
Type: Swing Check
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80



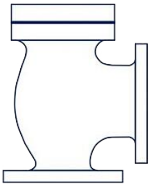
b. **B1620**
Brand: Pima Valve
Size Range: 1" - 14"
Type: Swing Check
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80



c. **B1627**
Brand: Pima Valve
Size Range: 1.5" - 8"
Type: Horizontal Lift Check
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial

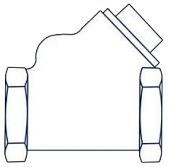


d. **B1647**
Brand: Pima Valve
Size Range: 1.5" - 8"
Type: Vertical Lift Check
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial

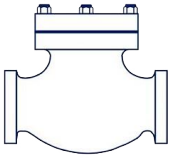


CHECK VALVES

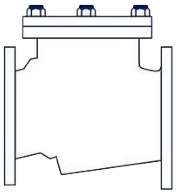
f. **LC15N**
Brand: MB Valve
Size Range: .25" - 1.25"
Type: Lift Check
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial



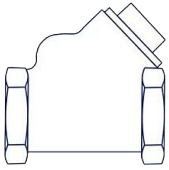
g. **LC30N**
Brand: MB Valve
Size Range: 1.5" - 8"
Type: Lift Check
Material: Bronze
Pressure Rating (PSI): 300
Specification: Commercial



h. **SW15F**
Brand: MB Valve
Size Range: 1.5" - 8"
Type: Swing Check
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial



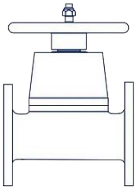
i. **SW30N**
Brand: MB Valve
Size Range: .25" - 1.25"
Type: Swing Check
Material: Bronze
Pressure Rating (PSI): 300
Specification: Commercial



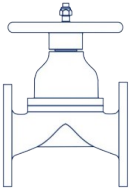
DIAPHRAGM VALVES

a. **AWFH**
Brand: MB Valve
Size Range: 1.5" , 2.5"
Type: Weir Angle Diaphragm Valve
Material: Bronze
Pressure Rating (PSI): 150

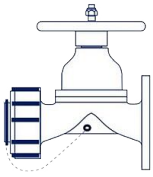
b. **DSF**
Brand: MB Valve
Size Range: 1" - 6"
Type: Straight Diaphragm Valve
Material: Bronze
Pressure Rating (PSI): 150



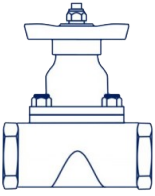
c. **DWF**
Brand: MB Valve
Size Range: 1.5" - 6"
Type: Weir Diaphragm Valve
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-88



d. **DWFH**
Brand: MB Valve
Size Range: 1.5" , 2.5"
Type: Weir Diaphragm Valve
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-88

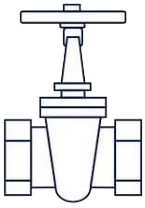


e. **DWN**
Brand: MB Valve
Size Range: .5" - 1.25"
Type: Weir Diaphragm Valve
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-88



GATE VALVES

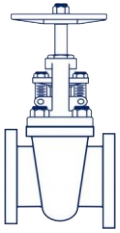
a. **B101**
Brand: Pima Valve
Size Range: .5" - 4"
Type: Gate
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80



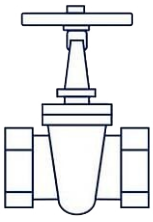
b. **B102**
Brand: Pima Valve
Size Range: .5" - 24"
Type: Gate
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80

c. **B107**
Brand: Pima Valve
Size Range: 1.5" - 4"
Type: Gate
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80

d. **B112**
Brand: Pima Valve
Size Range: 2" - 12"
Type: Gate
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80



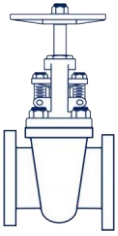
e. **B301**
Brand: Pima Valve
Size Range: .5" - 2"
Type: Gate
Material: Bronze
Pressure Rating (PSI): 300
Specification: MSS SP-80



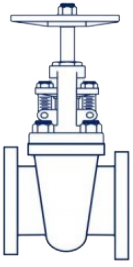
GATE VALVES

f. **B302**
Brand: Pima Valve
Size Range: 1.5" - 4"
Type: Gate
Material: Bronze
Pressure Rating (PSI): 300

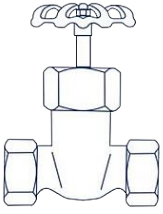
g. **NR15F**
Brand: MB Valve
Size Range: 1.5" - 8"
Type: Gate
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial



h. **NR30F**
Brand: MB Valve
Size Range: 2.5" - 8"
Type: Gate
Material: Bronze
Pressure Rating (PSI): 300
Specification: Commercial

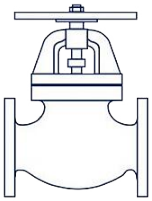


i. **NR30N**
Brand: MB Valve
Size Range: .25" - 2"
Type: Gate
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial

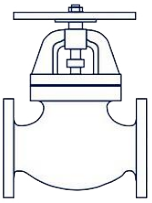


IN-LINE GLOBE VALVES

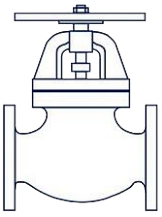
a. **B121**
Brand: Pima Valve
Size Range: .75" - 2"
Type: Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80



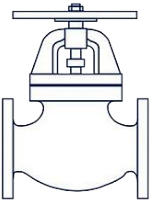
b. **B122**
Brand: Pima Valve
Size Range: .75" - 2"
Type: Globe Stop
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80



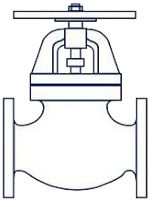
c. **B1221**
Brand: Pima Valve
Size Range: .75" - 2"
Type: Globe Stop Check
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80



d. **B322**
Brand: Pima Valve
Size Range: 1.5" - 6"
Type: Globe Stop
Material: Bronze
Pressure Rating (PSI): 300
Specification: MSS SP-80

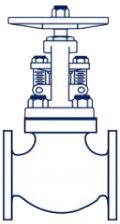


e. **B3221**
Brand: Pima Valve
Size Range: 1.5" - 6"
Type: Globe Stop Check
Material: Bronze
Pressure Rating (PSI): 300
Specification: MSS SP-80

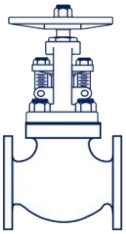


IN-LINE GLOBE VALVES

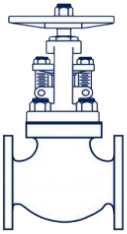
f. **SD15F**
Brand: MB Valve
Size Range: 1.5" - 8"
Type: Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial



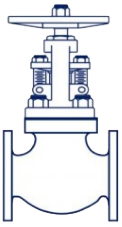
g. **SD30F**
Brand: MB Valve
Size Range: 1.5" - 8"
Type: Globe
Material: Bronze
Pressure Rating (PSI): 300
Specification: Commercial



h. **SD30N**
Brand: MB Valve
Size Range: .25" - 1.25"
Type: Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial

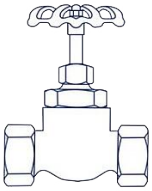


i. **SL15F**
Brand: MB Valve
Size Range: 1.5" - 8"
Type: Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial

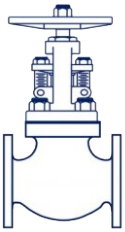


IN-LINE GLOBE VALVES

j. **SL15N**
Brand: MB Valve
Size Range: .25” - 1.25”
Type: Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial

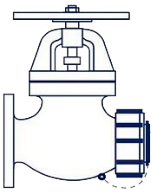


k. **SL30F**
Brand: MB Valve
Size Range: 1.5” - 8”
Type: Globe
Material: Bronze
Pressure Rating (PSI): 300
Specification: Commercial

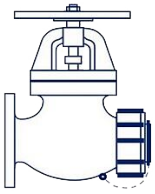


IN-LINE HOSE GLOBE VALVES

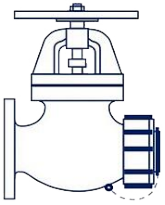
a. **B127**
Brand: Pima Valve
Size Range: 1.5" - 4"
Type: Hose Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80



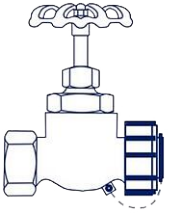
b. **B177**
Brand: Pima Valve
Size Range: 1.5" - 4"
Type: Hose Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: MSS SP-80



c. **B327**
Brand: Pima Valve
Size Range: 1.5" - 4"
Type: Hose Globe
Material: Bronze
Pressure Rating (PSI): 300
Specification: MSS SP-80

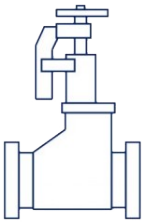


d. **H15N**
Brand: MB Valve
Size Range: .25" - 1.25"
Type: Hose Globe
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial

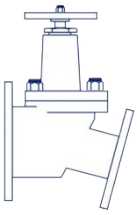


SCUPPER VALVES

a. **B1626**
Brand: Pima Valve
Size Range: 2″ - 6″
Type: Scupper
Material: Bronze
Pressure Rating (PSI): 150
Specification: Commercial



b. **SU15F**
Brand: MB Valve
Size Range: 2″ - 4″
Type: Scupper
Material: Bronze
Pressure Rating (PSI): 150x300
Specification: Commercial

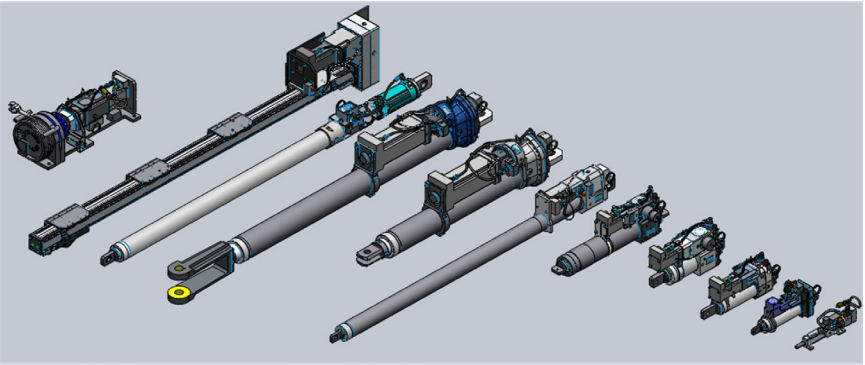


LINEAR ACTUATORS FOR DEFENSE APPLICATIONS

LINEAR ACTUATORS FOR DEFENSE APPLICATIONS

We have a line of electromechanical linear actuators (EMAs) that are highly reliable and heavy shock qualified for applications that previously would be supported by hydraulic systems. EMAs have a smaller overall footprint, avoid fire hazards associated with hydraulic fluids, and are more precisely operated and controlled.

We can provide custom linear actuators dependent on specific operational conditions. We currently supply most units for the Advanced Weapons Elevator (AWE) program for the Ford class aircraft carrier platform.



Unit types include:

- Rotary vertical sliding door actuator
- Rodless actuator for overhead and horizontal sliding use
- Hatch actuators
- Vertical sliding door actuators
- Dogging and sliding panel actuators
- Ramp actuators
- Latch actuators

We have also supplied other unique applications such as Davit application for various naval vessels.

COMMERCIAL NUCLEAR VALVES

COMMERCIAL NUCLEAR VALVES

We also provide custom-engineered nuclear valve solutions, including new design, testing, and reverse engineering, to meet all our nuclear customers' needs. We can customize valves up to a wide array of designs and technical specifications.

Valve Types

- Nuclear Valves
- Ball Valves
- Check Valves
- Diaphragm Valves
- Globe Valves
- Gate Valves
- Specialty Engineered Valves
- Actuated Valves, including:
- Electric Motor
- Solenoid
- Air
- Hydraulic

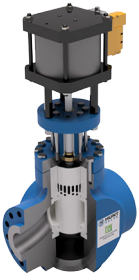
Technical Specifications

- Size: .25" - 10"
- Design Specification: ASTM 16.34, ASME Section III, MSS SP-80, MSS SP-88, MIL-SPEC, CSA N285.1-17, per request
- Process Connection: Flange, Butt Weld, Threaded, Swagelok, Greyloc
- Rating: Up to Class 2500
- Material: Stainless Steel (316L, 304, 347, etc.), CuNi, Titanium, Brass, Bronze, Carbon Steel, other on request
- Quality Certifications: ISO 9001:2000, AQAP Z299.4, MIL-STD-798
- Testing Capabilities: NDT, Leak Testing, Pressure Testing, Custom Test Capabilities
- Engineering Capabilities: Life cycle Analysis, Radiation / Environmental Analysis, Seismic Analysis, Flow Analysis
- Additional Capabilities: Hermetic Seal, Radiation-Resistant, Digital Sensors, IP 68

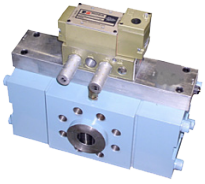
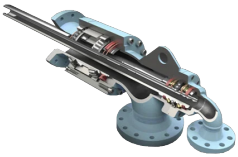
INDUSTRIAL VALVES

INDUSTRIAL VALVES

Hunt Valve designs and manufactures proprietary valve technology for critical industrial applications, including steam, high pressure, hydraulic/ water, seawater, and pneumatic.

Accumulator Safety Shut-Off Valve 	**Descale High-Pressure Strainer Valves** 
Descale Pressure Reducing Orifices 	**Descale Pump Bypass Valves** 
Descale Spray Valves 	**Isolation Valves** 

INDUSTRIAL VALVES

Pre-Fill Valves 	**Rotary Joints** 
Specialty Hydraulic Cylinders 	**Water Hydraulic Directional Control Valves** 

COMMERCIAL/INDUSTRIAL ACTUATORS

COMMERCIAL/INDUSTRIAL ACTUATORS

Fairbanks Morse Defense and Hunt Valve have been delivering unmatched reliability with field-proven severe-duty linear motion solutions to our core military and growing industrial customers for decades. We specialize in durable and precise electromechanical actuators – like the Victory, Thomson™ WH (SPEEDLINE), and WM (POWERLINE) product lines – for standard, modified, and customized solutions to meet your needs.

Specializing in a wide range of applications, we construct actuators that stand up to the toughest applications. Our electromechanical actuators save you maintenance and repair costs to offer a lower total cost of ownership.

Hunt Valve Actuators are formerly known as Precision Technology and American Actuators.

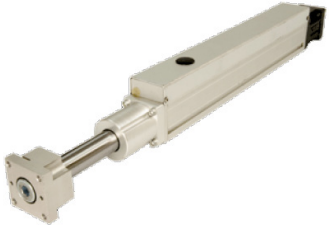
Ram-Style Electromechanical Actuators

Provide motion and force utilizing a drive screw; either a ball, roller, or ACME screw. This style of unit is exceptionally suited for providing axial loads, in either tension or compression.

a. Victory A-Series Ram-Style Electromechanical Actuators

b. Victory A-Series Food Grade Ram-Style Actuators

c. VARIOLine Ram-Style Actuators/Linear Motion Actuators



COMMERCIAL/INDUSTRIAL ACTUATORS

Rodless Electromechanical Actuators

Support and transport loads to their desired locations. With their high load and moment bearing capabilities, our rodless actuator units are guaranteed to be the optimum solution in terms of performance and affordability.

KEY FEATURES

- Standard stroke lengths up to 11 meters (~36 feet)
- Capable thrust loads up to 12kN (~2,700 lb-f)
- Capable travel speeds up to 10m/s (~33 ft/sec)
- Positional repeatability up to 0.01mm (~0.0004" in)
- Significant moment loading capabilities
- Wide variety of frame sizes, drive types, and guidance systems
- Patented self-adjusting sealing cover strip to prevent material intrusion
- Customizable designs, stroke lengths, and accessories

Belt Driven Rodless Actuators

a. WH (SPEEDLine) Linear Units - The WH (SPEEDLine) linear units are used for single-axis solutions and can be combined in two and three-dimensional systems (X-Y-Z). The light-weight design combined with the unit's small footprint allows high dynamic and static load ratings in a compact package. This makes these units particularly capable in Z-Axis applications.

AVAILABLE MODELS

- WH40
- WH50
- WH80
- WH120
- WHZ50
- WHZ80

TECHNICAL FEATURES

- Maximum speed of 10 m/s (33 ft/sec)
- Maximum acceleration 40 m/s2 (131 ft/s2)
- Repeatability of ± .05 (0.002 in.), even at high feed forces
- Maximum feed force 5000 N (1,124 lb-f)
- Maximum payload 9,300 N (2,090 lb-f)
- Maximum moment load of 930 Nm (209 lbs-f) on a carriage
- Steel-reinforced belt
- Rubber wipers to protect linear guide from debris
- Central system lubrication point
- Light-weight total construction
- Manufactured in the U.S.

COMMERCIAL/INDUSTRIAL ACTUATORS

b. **WM (POWERLine) ZRT** – (formerly Wiesel POWERLine) combines the high travel speeds of the toothed belt drive with the powerful, fully integrated ball bearing guide of the POWERLine® series. The -370 option boasts an attractive price reduction with its shorter guide system and compact power bridge.

AVAILABLE ZRT MODELS

- WM60-370 ZRT
- WM80-370 ZRT
- WM80 ZRT

TECHNICAL FEATURES

- Patented self-adjusting sealing cover strip to prevent material intrusion
- Integrated ball-bearing guide system to handle higher moment loads
- Steel reinforced toothed belt drive
- Manufactured in the U.S.

Screw Driven Rodless Actuators / Belt Screw Actuators

c. **WM (POWERLine)** - (formerly Wiesel POWERLine) utilizes an enhanced internal guide system differentiated by circulating ball bearings which travel on internal hardened steel rails. This, along with the standard precision drive screw, provides a comprehensive solution when a mix of power, speed, and precision is needed.

AVAILABLE POWERLINE FRAME SIZES

- WM40
- WM60
- WM80
- WM120

TECHNICAL FEATURES

- Maximum speed of 2.5 m/s (8.2 ft/s)
- Repeatability up to ± 0.01 mm (0.0004 inches)
- Maximum feed force of 12,000 N (2,698 lb-f)
- Maximum payload 6000 N (1,348 lbs)
- Maximum moment load of 600 Nm (134 lbs-f) on carriage
- Compact guide and carriage configuration available (-370 option)
- Self-sealing protective cover strip
- Traveling screw supports to prevent screw whip at high speeds and extended lengths
- Manufactured in the U.S.

COMMERCIAL/INDUSTRIAL ACTUATORS

d. **WV (DYNALine) Linear Guides** - In some cases, extremely high moment load capabilities are the primary application requirement. The DYNALine is an optimized version of the POWERLine (formerly Wiesel POWERLine) series of screw-driven rodless actuators designed to meet this demand by coupling the primary drive elements with external linear guides. This allows increased moment load capabilities to be realized, even at high speeds and long stroke lengths.

AVAILABLE MODELS

- WV60
- WV80
- WV120

TECHNICAL FEATURES

- Maximum travel speed of 2.5 m/s (8.2 ft/s)
- Repeatability of +-0.01mm (0.0004 inches)
- Maximum feed force of 12,000N (2,698 lb-f)
- Dual pre-tensioned ball nuts on all units
- Self-sealing protective cover strip
- Traveling screw supports to prevent screw whip at high speeds and extended lengths
- Manufactured in the U.S.

COMMERCIAL/INDUSTRIAL ACTUATORS

Cubic Screw Jacks

Boast an extensive performance range capable of both compressive and tensile loads, the innovative modular design offers complementary accessories available in both standard and customized versions.

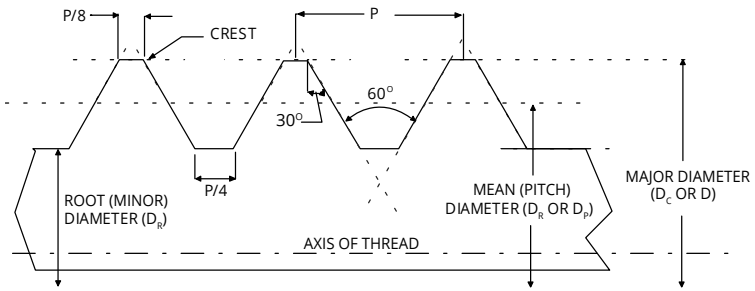
KEY FEATURES

- Load capacities from 1,100 lbs-f to 112,000 lbs-f
- High and low speed worm gear drive options
- Translating and rotating (traversing nut) configurations
- Self-locking acme screw characteristics
- Standard and custom end fittings, mounting options, and drive shaft/motor interfaces
- Anti-rotation and anti-backlash versions

RESOURCES

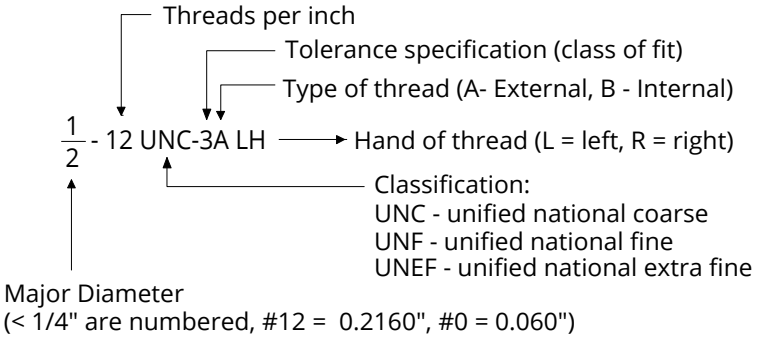
THREAD STANDARDS

UNIFIED AND ISO THREAD GEOMETRY



	UNIFIED		METRIC	
CLASS	EXTERNAL THREAD	INTERNAL THREAD	EXTERNAL THREAD	INTERNAL THREAD
LOOSE	1A	1B	8G	7H
STANDARD	2A	2B	6G	6H
CLOSE	3A	3B	4G	5H

UNIFIED NATIONAL:



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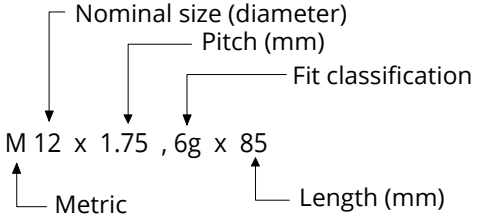

THREAD DIMENSIONS
AND TAP DRILL SIZES

Size	Threads Per Inch		Outside Diameter Inches	Pitch Diameter Inches	Root Diameter Inches	Tap Drill Approx. 75% Full Thread	Decimal Equiv. Of Tap Drill
	NC UNC	NF UNF					
0	—	80	.0600	.0519	.0438	3/64″	.0469
1	64	—	.0730	.0629	.0527	53	.0595
1	—	72	.0730	.0640	.0550	53	.0595
2	56	—	.0860	.0744	.0628	50	.0700
2	—	64	.0860	.0759	.0657	50	.0700
3	48	—	.0990	.0855	.0719	47	.0785
3	—	56	.0990	.0874	.0758	46	.0810
4	40	—	.1120	.0958	.0795	43	.0890
4	—	48	.1120	.0985	.0849	42	.0935
5	40	—	.1250	.1088	.0925	38	.1015
5	—	44	.1250	.1102	.0955	37	.1040
6	32	—	.1380	.1177	.0974	36	.1065
6	—	40	.1380	.1218	.1055	33	.1130
8	32	—	.1640	.1437	.1234	29	.1360
8	—	36	.1640	.1460	.1279	29	.1360
10	24	—	.1900	.1629	.1359	26	.1470
10	—	32	.1900	.1697	.1494	21	.1590
12	24	—	.2160	.1889	.1619	16	.1770
12	—	28	.2160	.1928	.1696	15	.1800
1/4″	20	—	.2500	.2175	.1850	7	.2010
1/4″	—	28	.2500	.2268	.2036	3	.2130
5/16″	18	—	.3125	.2764	.2403	F	.2570
5/16″	—	24	.3125	.2854	.2584	I	.2720
3/8″	16	—	.3750	.3344	.2938	5/16″	.3125
3/8″	—	24	.3750	.3479	.3209	Q	.3320
7/16″	14	—	.4375	.3911	.3447	U	.3680
7/16″	—	20	.4375	.4050	.3726	25/64″	.3906
1/2″	13	—	.5000	.4500	.4001	27/64″	.4219
1/2″	—	20	.5000	.4675	.4351	29/64″	.4531
9/16″	12		.5625	.5084	.4542	31/64″	.4844
9/16″		18	.5625	.5264	.4903	33/64″	.5156
5/8″	11	—	.6250	.5660	.5069	17/32″	.5312
5/8″	—	18	.6250	.5889	.5528	37/64″	.5781
3/4″	10	—	.7500	.6850	.6201	21/32″	.6562
3/4″	—	16	.7500	.7094	.6688	11/16″	.6875
7/8″	9	—	.8750	.8028	.7307	49/64″	.7656
7/8″	—	14	.8750	.8286	.7822	13/16″	.8125
1″	8	—	1.0000	.9188	.8376	7/8″	.8750
1″	—	12	1.0000	.9459	.8917	59/64″	.9219
1 1/8″	7		1.1250	1.0322	.9394	63/64″	.9844
1 l/8″	—	12	1.1250	1.0709	1.0168	1 3/64″	1.0469
1 1/4″	7		1.2500	1.1572	1.0644	1 7/64″	1.1094
1 1/4″	—	12	1.2500	1.1959	1.1418	1 11/64″	1.1719
1 3/8″	6	—	1.3750	1.2667	1.1585	1 7/32″	1.2187
1 3/8″	—	12	1.3750	1.3209	1.2668	1 19/64″	1.2969
1 1/2″	6	—	1.5000	1.3917	1.2835	1 11/32″	1.3437
1 1/2″	—	12	1.5000	1.4459	1.3918	1 27/64″	1.4219
1 3/4″	5	—	1.7500	1.6201	1.4902	1 9/16″	1.5625
2″	4 1/2	—	2.0000	1.8557	1.7113	1 25/32″	1.7812
2 1/4″	4 1/2	—	2.2500	2.1057	1.9613	2 1/32″	2.0313
2 1/2″	4 1/2	—	2.5000	2.3376	2.1752	2 1/4″	2.2500
2 3/4″	4	—	2.7500	2.5876	2.4252	2 1/2″	2.5000
3"	4	—	3.0000	2.8376	2.6752	2 3/4″	2.7500
3 1/4″	4	—	3.2500	3.0876	2.9252	3″	3.0000
3 1/2″	4	—	3.5000	3.3376	3.1752	3 1/4″	3.2500
3 3/4″	4	—	3.7500	3.5876	3.4252	3 1/2″	3.5000
4″	4	—	4.0000	3.3786	3.6752	3 3/4″	3.7500

PIPE DIMENSIONS

US AND METRIC

NOMINAL PIPE SIZE	OD	SCHEDULE DESIGNATIONS			WALL THICKNESS		WEIGHT		ID	
IN. MM	IN. MM	ASME			IN.	MM	LBS/ FOOT	KG/ METER	IN.	MM
1/8	0.405	10		10S	0.049	1.24	0.19	0.28	0.307	7.82
6	10.3	STD	40	40S	0.068	1.73	0.24	0.37	0.269	6.84
		XS	80	80S	0.095	2.41	0.31	0.47	0.215	5.84
1/4	0.540	10		10S	0.065	1.65	0.33	0.49	0.410	10.40
8	13.7	STD	40	40S	0.088	2.24	0.43	0.63	0.364	9.22
		XS	80	80S	0.119	3.02	0.54	0.80	0.302	7.66
3/8	0.675	10		10S	0.065	1.65	0.42	0.63	0.545	13.80
10	17.1	STD	40	40S	0.091	2.31	0.57	0.84	0.493	12.48
		XS	80	80S	0.126	3.20	0.74	1.10	0.423	10.70
1/2	0.840	5		5S	0.065	1.65	0.54	0.80	0.710	18.00
15	21.3	10		10S	0.083	2.11	0.67	1.00	0.674	17.08
		STD	40	40S	0.109	2.77	0.85	1.27	0.622	15.76
		XS	80	80S	0.147	3.73	1.09	1.62	0.546	13.84
		160			0.188	4.78	1.31	1.95	0.464	11.74
		XX			0.294	7.47	1.72	2.55	0.252	6.36
3/4	1.050	5		5S	0.065	1.65	0.69	1.03	0.920	23.40
20	26.7	10		10S	0.083	2.11	0.86	1.28	0.884	22.48
		STD	40	40S	0.113	2.87	1.13	1.69	0.824	20.96
		XS	80	80S	0.154	3.91	1.48	2.20	0.742	18.88
		160			0.219	5.56	1.95	2.90	0.612	15.58
		XX			0.308	7.82	2.44	3.64	0.434	11.06
1	1.315	5		5S	0.065	1.65	0.87	1.29	1.185	30.10
25	33.4	10		10S	0.109	2.77	1.41	2.09	1.097	27.86
		STD	40	40S	0.133	3.38	1.68	2.50	1.049	26.64
		XS	80	80S	0.179	4.55	2.17	3.24	0.957	24.30
		160			0.250	6.35	2.85	4.24	0.815	20.70
		XX			0.358	9.09	3.66	5.45	0.599	15.22
1-1/4	1.660	5		5S	0.065	1.65	1.11	1.65	1.530	38.90
32	42.2	10		10S	0.109	2.77	1.81	2.69	1.442	36.66
		STD	40	40S	0.140	3.56	2.27	3.39	1.380	35.08
		XS	80	80S	0.191	4.85	3.00	4.47	1.278	32.50
		160			0.250	6.35	3.77	5.61	1.160	29.50
		XX			0.382	9.70	5.22	7.77	0.896	22.80
1-1/2	1.900	5		5S	0.065	1.65	1.28	1.90	1.770	45.00
40	48.3	10		10S	0.109	2.77	2.09	3.11	1.682	42.76
		STD	40	40S	0.145	3.68	2.72	4.05	1.610	40.94
		XS	80	80S	0.200	5.08	3.63	5.41	1.500	38.14
		160			0.281	7.14	4.86	7.25	1.338	34.02
		XX			0.400	10.15	6.41	9.55	1.100	28.00
2	2.375	5		5S	0.065	1.65	1.61	2.39	2.245	57.00
50	60.3	10		10S	0.109	2.77	2.64	3.93	2.157	54.76
		STD	40	40S	0.154	3.91	3.66	5.44	2.067	52.48
		XS	80	80S	0.218	5.54	5.03	7.48	1.939	49.22
		160			0.344	8.74	7.47	11.11	1.687	42.82
		XX			0.436	11.07	9.04	13.44	1.503	38.16
2-1/2	2.875	5		5S	0.083	2.11	2.48	3.69	2.709	68.78
65	73.0	10		10S	0.120	3.05	3.53	5.26	2.635	66.90
		STD	40	40S	0.203	5.16	5.80	8.63	2.469	62.68
		XS	80	80S	0.276	7.01	7.67	11.41	2.323	58.98
		160			0.375	9.53	10.02	14.92	2.125	53.94
		XX			0.552	14.02	13.71	20.39	1.771	44.96
3	3.500	5		5S	0.083	2.11	3.03	4.52	3.334	84.68
80	88.9	10		10S	0.120	3.05	4.34	6.46	3.260	82.80
		STD	40	40S	0.216	5.49	7.58	11.29	3.068	77.92
		XS	80	80S	0.300	7.62	10.26	15.27	2.900	73.66
		160			0.438	11.13	14.34	21.35	2.624	66.64
		XX			0.600	15.24	18.60	27.68	2.300	58.42
3-1/2	4.000	5		5S	0.083	2.11	3.48	5.18	3.834	97.38
90	101.6	10		10S	0.120	3.05	4.98	7.41	3.760	95.50
		STD	40	40S	0.226	5.74	9.12	13.57	3.548	90.12
		XS	80	80S	0.318	8.08	12.52	18.64	3.364	85.44
		XX			0.636	16.15	22.87	34.03	2.728	69.30
4	4.500	5		5S	0.083	2.11	3.92	5.84	4.334	110.08
100	114.3	10		10S	0.120	3.05	5.62	8.37	4.260	108.20
					0.156	3.96	7.24	10.78	4.188	106.38
					0.188	4.78	8.67	12.91	4.124	104.74
		STD	40	40S	0.237	6.02	10.80	16.08	4.026	102.26
		XS	80	80S	0.337	8.56	15.00	22.32	3.826	97.18
		120			0.438	11.13	19.02	28.32	3.624	92.04
		160			0.531	13.49	22.53	33.54	3.438	87.32
		XX			0.674	17.12	27.57	41.03	3.152	80.06
4-1/2	5.000	STD	40	40S	0.247	6.27	12.55	18.67	4.506	114.46
115	127.0	XS	80	80S	0.355	9.02	17.63	26.24	4.290	108.96
		XX			0.710	18.03	32.56	48.45	3.580	90.94

AMERICAN WIRE GAUGE

CONDUCTOR SIZE TABLE

AWG	Diameter [inches]	Diameter [mm]	Area [mm2]	Resistance [Ohms/1000 ft]	Resistance [Ohms / km]	Max Current [Amperes]	Max Frequency
0000 (4/0)	0.46	11.684	107	0.049	0.16072	302	125 Hz
000 (3/0)	0.4096	10.40384	85	0.0618	0.202704	239	160 Hz
00 (2/0)	0.3648	9.26592	67.4	0.0779	0.255512	190	200 Hz
0 (1/0)	0.3249	8.25246	53.5	0.0983	0.322424	150	250 Hz
1	0.2893	7.34822	42.4	0.1239	0.406392	119	325 Hz
2	0.2576	6.54304	33.6	0.1563	0.512664	94	410 Hz
3	0.2294	5.82676	26.7	0.197	0.64616	75	500 Hz
4	0.2043	5.18922	21.2	0.2485	0.81508	60	650 Hz
5	0.1819	4.62026	16.8	0.3133	1.027624	47	810 Hz
6	0.162	4.1148	13.3	0.3951	1.295928	37	1100 Hz
7	0.1443	3.66522	10.5	0.4982	1.634096	30	1300 Hz
8	0.1285	3.2639	8.37	0.6282	2.060496	24	1650 Hz
9	0.1144	2.90576	6.63	0.7921	2.598088	19	2050 Hz
10	0.1019	2.58826	5.26	0.9989	3.276392	15	2600 Hz
11	0.0907	2.30378	4.17	1.26	4.1328	12	3200 Hz
12	0.0808	2.05232	3.31	1.588	5.20864	9.3	4150 Hz
13	0.072	1.8288	2.62	2.003	6.56984	7.4	5300 Hz
14	0.0641	1.62814	2.08	2.525	8.282	5.9	6700 Hz
15	0.0571	1.45034	1.65	3.184	10.44352	4.7	8250 Hz
16	0.0508	1.29032	1.31	4.016	13.17248	3.7	11 k Hz
17	0.0453	1.15062	1.04	5.064	16.60992	2.9	13 k Hz
18	0.0403	1.02362	0.823	6.385	20.9428	2.3	17 kHz
19	0.0359	0.91186	0.653	8.051	26.40728	1.8	21 kHz
20	0.032	0.8128	0.518	10.15	33.292	1.5	27 kHz
21	0.0285	0.7239	0.41	12.8	41.984	1.2	33 kHz
22	0.0254	0.64516	0.326	16.14	52.9392	0.92	42 kHz
23	0.0226	0.57404	0.258	20.36	66.7808	0.729	53 kHz
24	0.0201	0.51054	0.205	25.67	84.1976	0.577	68 kHz
25	0.0179	0.45466	0.162	32.37	106.1736	0.457	85 kHz
26	0.0159	0.40386	0.129	40.81	133.8568	0.361	107 kHz
27	0.0142	0.36068	0.102	51.47	168.8216	0.288	130 kHz
28	0.0126	0.32004	0.081	64.9	212.872	0.226	170 kHz
29	0.0113	0.28702	0.0642	81.83	268.4024	0.182	210 kHz
30	0.01	0.254	0.0509	103.2	338.496	0.142	270 kHz
31	0.0089	0.22606	0.0404	130.1	426.728	0.113	340 kHz
32	0.008	0.2032	0.032	164.1	538.248	0.091	430 kHz
33	0.0071	0.18034	0.0254	206.9	678.632	0.072	540 kHz
34	0.0063	0.16002	0.0201	260.9	855.752	0.056	690 kHz
35	0.0056	0.14224	0.016	329	1079.12	0.044	870 kHz
36	0.005	0.127	0.0127	414.8	1360	0.035	1100 kHz
37	0.0045	0.1143	0.01	523.1	1715	0.0289	1350 kHz
38	0.004	0.1016	0.00797	659.6	2163	0.0228	1750 kHz
39	0.0035	0.0889	0.00632	831.8	2728	0.0175	2250 kHz
40	0.0031	0.07874	0.00501	1049	3440	0.0137	2900 kHz

Current (ampacity) Notes: *The current ratings shown in the table are for power transmission and have been determined using the rule of 1 amp per 700 circular mils, which is a very conservative rating*

FRACTION - DECIMAL

CONVERSION CHART

	IN	MM
1/64	.015625	.3969
1/32	.03125	.7938
3/64	.046875	1.1906
1/16	.0625	1.5875
5/64	.078125	1.9844
3/32	.09375	2.3813
7/64	.109375	2.7781
1/8	.125	3.1750
9/64	.140625	3.5719
5/32	.15625	3.9688
11/64	.171875	4.3656
3/16	.1875	4.7625
13/64	.203125	5.1594
7/32	.21875	5.5563
15/64	.234375	5.9531
1/4	.250	6.3500
17/64	.265625	6.7469
9/32	.28125	7.1438
19/64	.296875	7.5406
5/16	.3125	7.9375
21/64	.328125	8.3344
11/32	.34375	8.7313
23/64	.359375	9.1282
3/8	.375	9.5250
25/64	.390625	9.9219
13/32	.40625	10.3188
27/64	.421875	10.7157
7/16	.4375	11.1125
29/64	.453125	11.5094
15/32	.46875	11.9063
31/64	.484375	12.3032
1/2	.500	12.7001

	IN	MM
33/64	.515625	13.096
17/32	.53125	13.493
35/64	.546875	13.890
9/16	.5625	14.287
37/64	.578125	14.684
19/32	.59375	15.081
39/64	.609375	15.478
5/8	.625	15.875
41/64	.640625	16.271
21/32	.65625	16.668
43/64	.671875	17.065
11/16	.6875	17.462
45/64	.703125	17.859
23/32	.71875	18.256
47/64	.734375	18.653
3/4	.750	19.050
49/64	.765625	19.447
25/32	.78125	19.843
51/64	.796875	20.240
13/16	.8125	20.6375
53/64	.828125	21.0345
27/32	.84375	21.431
55/64	.859375	21.8282
7/8	.875	22.2251
57/64	.890625	22.6220
29/32	.90625	23.0188
59/64	.921875	23.4157
15/16	.9375	23.8126
61/64	.953125	24.2095
31/32	.96875	24.6063
63/64	.984375	25.0032
1	1.000	25.4001

SHEET METAL
GAUGE CHART

Gauge	Steel	Galvanized Steel	Stainless Steel	Aluminium	Electrical Steel
	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)
3	0.2391 (6.07)	—	—	—	—
4	0.2242 (5.69)	—	—	—	—
5	0.2092 (5.31)	—	—	—	—
6	0.1943 (4.94)	—	—	0.162 (4.1)	—
7	0.1793 (4.55)	—	0.1875 (4.76)	0.1443 (3.67)	—
8	0.1644 (4.18)	0.1681 (4.27)	0.1719 (4.37)	0.1285 (3.26)	—
9	0.1495 (3.80)	0.1532 (3.89)	0.1563 (3.97)	0.1144 (2.91)	—
10	0.1345 (3.42)	0.1382 (3.51)	0.1406 (3.57)	0.1019 (2.59)	—
11	0.1196 (3.04)	0.1233 (3.13)	0.1250 (3.18)	0.0907 (2.30)	—
12	0.1046 (2.66)	0.1084 (2.75)	0.1094 (2.78)	0.0808 (2.05)	—
13	0.0897 (2.28)	0.0934 (2.37)	0.094 (2.4)	0.072 (1.8)	—
14	0.0747 (1.90)	0.0785 (1.99)	0.0781 (1.98)	0.0641 (1.63)	—
15	0.0673 (1.71)	0.0710 (1.80)	0.07 (1.8)	0.057 (1.4)	—
16	0.0598 (1.52)	0.0635 (1.61)	0.0625 (1.59)	0.0508 (1.29)	0.0625 (1.59)
17	0.0538 (1.37)	0.0575 (1.46)	0.056 (1.4)	0.045 (1.1)	0.0560 (1.42)
18	0.0478 (1.21)	0.0516 (1.31)	0.0500 (1.27)	0.0403 (1.02)	0.0500 (1.27)
19	0.0418 (1.06)	0.0456 (1.16)	0.044 (1.1)	0.036 (0.91)	0.0453 (1.15)
20	0.0359 (0.91)	0.0396 (1.01)	0.0375 (0.95)	0.0320 (0.81)	0.0375 (0.952)
21	0.0329 (0.84)	0.0366 (0.93)	0.034 (0.86)	0.028 (0.71)	0.0340 (0.860)
22	0.0299 (0.76)	0.0336 (0.85)	0.031 (0.79)	0.025 (0.64)	0.0310 (0.787)
23	0.0269 (0.68)	0.0306 (0.78)	0.028 (0.71)	0.023 (0.58)	0.0280 (0.711)
24	0.0239 (0.61)	0.0276 (0.70)	0.025 (0.64)	0.02 (0.51)	0.0250 (0.635)
25	0.0209 (0.53)	0.0247 (0.63)	0.022 (0.56)	0.018 (0.46)	0.0220 (0.559)
26	0.0179 (0.45)	0.0217 (0.55)	0.019 (0.48)	0.017 (0.43)	0.0185 (0.470)
27	0.0164 (0.42)	0.0202 (0.51)	0.017 (0.43)	0.014 (0.36)	0.0170 (0.432)
28	0.0149 (0.38)	0.0187 (0.47)	0.016 (0.41)	0.0126 (0.32)	0.0155 (0.394)
29	0.0135 (0.34)	0.0172 (0.44)	0.014 (0.36)	0.0113 (0.29)	0.0140 (0.356)
30	0.0120 (0.30)	0.0157 (0.40)	0.013 (0.33)	0.0100 (0.25)	0.0125 (0.318)
31	0.0105 (0.27)	0.0142 (0.36)	0.011 (0.28)	0.0089 (0.23)	0.0100 (0.254)
32	0.0097 (0.25)	—	—	—	—
33	0.0090 (0.23)	—	—	—	—
34	0.0082 (0.21)	—	—	—	—
35	0.0075 (0.19)	—	—	—	—
36	0.0067 (0.17)	—	—	—	—
37	0.0064 (0.16)	—	—	—	—
38	0.0060 (0.15)	—	—	—	—
33	0.0071	0.18034	0.0254	206.9	678.632
34	0.0063	0.16002	0.0201	260.9	855.752
35	0.0056	0.14224	0.016	329	1079.12
36	0.005	0.127	0.0127	414.8	1360
37	0.0045	0.1143	0.01	523.1	1715
38	0.004	0.1016	0.00797	659.6	2163
39	0.0035	0.0889	0.00632	831.8	2728
40	0.0031	0.07874	0.00501	1049	3440

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