

# IRON PLUG VALVES CATALOG



www.walworth.com



## **INDEX**

#### INTRODUCTION

| ENGINEERING CONTROL       | . 5 |
|---------------------------|-----|
| QUALITY SYSTEM            | . 5 |
| QUALITY CONTROL EQUIPMENT | . 9 |

#### SHORT, REGULAR & VENTURI PATTERN IRON PLUG VALVES

| IRON PLUG VALVES  | 11 |
|---|----|
| SHORT PATTERN IRON PLUG VALVES CLASS 200 CWP (SINGLE GLAND)       | 12 |
| SHORT PATTERN IRON PLUG VALVES CLASS 200 CWP (REGULAR TYPE GLAND) | 15 |
| REGULAR PATTERN IRON VALVES CLASS 200 CWP                         | 20 |
| VENTURI PATTERN IRON VALVES CLASS 175 CWP                         | 25 |
| VENTURI PATTERN IRON VALVES CLASS 500 CWP                         |    |
| PLUG VALVE WRENCHES   |    |
| WALSEAL PLUG VALVES SEALANT                                       | 34 |
| LUBRICANT ACCESORIES  |    |
| PRESSURE-TEMPERATURE RATINGS                                      |    |
| FLANGE DIMENSIONS AND TEMPLATES                                   | 39 |
| DESIGN BASIS  |    |
| HOW TO ORDER  |    |
| GENERAL TERMS AND CONDITIONS                                      | 42 |
|   |    |



YARMOUTH RESEARCH AND TECHNOLOGY





# WALWORTH

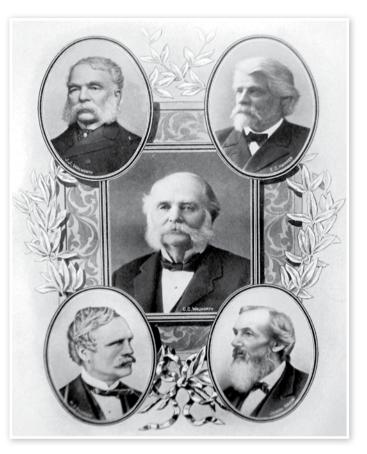
WALWORTH is one of the world's most comprehensive industrial valve manufacturers. Founded in 19th century by James WALWORTH, the Company has consistently dedicated itself to improvements in design and manufacturing of an array of valves exceptionally suited for the world's fluid control sector. We satisfy all end use industries and comprehensive customer requirements by adhering to the most demanding quality standards.

WALWORTH relies on its broad experience in supplying valves to the petrochemical, oil & gas, petroleum, power generation, pulp and paper, cryogenic and geothermal industries, among others.

Over the years, WALWORTH has produced over 40,000 different types of products and serves as a global supplier to various markets utilizing the expertise of over 500 trained employees.

Our manufacturing system includes: utilization of Company directed raw material warehouses; modern and newly acquired specialized machinery; welding processes such as SMAW, GMAW, SAW, PAW; assembly testing for all low pressure, high pressure, and at low or high temperatures; painting and coating processes; export crating and shipment.

WALWORTH is capable of providing the world's most comprehensive industrial valve line to the North American, Central American, South American, European and African markets. WALWORTH is proud to meet and satisfy the precise demands of our customers throughout the world by providing a quality product, competitive cost, and excellent service.



### WALWORTH VALUES

#### MISSION

WALWORTH manufactures and supplies world-class valves and components for the flow control industry through exceptional service, competitive pricing, and consistently, on-time deliveries.



#### VISION

To be the world leader of unparalleled valve manufacturing and supply, WALWORTH:

- Set the standard for product quality in the flow control industry.
- Exceed the service expectations of our customers.
- Forge enduring relationships with customers, team members, and community.
- Hire, develop, and retain experienced and dedicated team members.





## WALWORTH ENGINEERING CONTROL

WALWORTH products are manufactured following the strict international standards recognized all over the world, such as API, ANSI, ASME, ASTM, MSS, NACE, AWWA, BSI, CSA, among others. Our Engineering team consistently monitors updates to these standards and incorporates any applicable changes that affect the design, regulations and/or performance of our products.

Our designs are made using the most advanced technology and equipment, finite elements, and CAD system programs to ensure proper assembly and performance. From conception to calculation to detailed drawings for manufacturers, WALWORTH is a leader in development of new products that meet the needs of the current valve market."



## WALWORTH QUALITY SYSTEM

Throughout the years, WALWORTH has developed its Quality System which is an integral part of our manufacturing policy. Our primary goal is to provide products that meet and exceed market standards. In this sense, WALWORTH is an ISO-9001 Audited and Certified Company that has achieved major certifications worldwide. Our system includes the selection of raw materials from approved vendors, and rigorous oversight of our manufacturing process that is vital to quality control. The use of serial numbers allows WALWORTH the ability to not only ensure the quality of components used but to monitor and trace the fabrication process as well.

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#### Certificate API-6D No. 6D-0097

Issued by American Petroleum Institute to apply on Gate valves, Plug valves, Ball valves and Check valves manufactured in accordance with API-6D specification.

#### Certificate API-6A No. 6A-0234

From American Petroleum Institute to apply on valves at PSI, 1 through 4.





#### Certificate API-594 No. 594-0007

Issued by American Petroleum Institute to apply on Check Valves-Type A; Check Valves Type B manufactured in accordance with API-594 specification.



#### API-600 Certificate No. 600-0109

Issued by American Petroleum Institute to apply on Bolted Bonnet Steel Gate Valves manufactured in accordance with API-600 specification.



#### API-602 Certificate No. 602-0024

Issued by American Petroleum Institute to apply on Compact Steel Gate Valves, Compact Steel Globe Valves, and Compact Steel Check Valves manufactured in accordance with API-602 specification.



#### Certificate ISO-9001 No. 0038

Issued by American Petroleum Institute since April 1999.

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|  | Quality-Assurance System   |
|  | acc. to Directive 97/23/EC   |
| Certificate no.  | 01 302 USA/G-10 0013   |
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| Audit report As:   | USA/D-10 0013  |
| Area of validity   | Overge, Manufacturing and testing of industrial valves, see<br>annex to certificate  |
| Manufacturing plant  | Walworth - Inval Facility<br>Industrial de Valvalas, S.A. de C.V.<br>Avansida de la Industrial Lote 19<br>Praccionamiento Industrial El Tribol<br>C.P. 54400, Tepotordina, Elitado de Mexico   |
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Certificate NMX-CC-9001 (Mexican Standards ISO-9001) No. 0552/2007 Issued by PEMEX in accordance with ISO-9001 Quality Assurance System.

#### Issued by the Equipment and Materials Testing Laboratory, CFE

Supplier Qualification Certificate NO. 279/13

(LAPEM in Spanish)



#### Emissions after 500 cycles at ambient and 350 °F

Issued by Yarmouth Research and Technology Lab for 3 inch Class 300 Gate Valve After 500 cycles the measurement result was less than 50 ppm.



Emissions after 500 cycles at ambient and 350 °F Issued by Yarmouth Research and Technology Lab for 16 inch Class 150 Gate Valve After 500 cycles the measurement result was less than 50 ppm.



#### Emissions after 500 cycles at ambient and 350 °F

Issued by Yarmouth Research and Technology Lab for 8 inch Class 300 Gate Valve After 500 cycles the measurement result was less than 50 ppm.



## **PRODUCT** CERTIFICATIONS



|                    | PROJECT SUMMARY   |
|--------------------|---|
| Project Numbers    | BROOM   |
| Deputiement PT     | The Walworth Company  |
| Context            | David Cortectors  |
| late(a) of Test-   | 13999-122398  |
| freduction Trenedi | One 6" Class 200 Gate Valve with Empsk 5los EAP 100.001 pseking   |
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|                    | At cycle mancher 3500, the packing backage was 25–29 PP3/s<br>with the storm static. The packing muts were tightened from<br>12/18 fb.8 back to 28 fb.9s and leakage decremand to about 1<br>PP3/s.   |
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Certificates of Ultra Low Fugitive Emissions No. 20985-3, 8 & 16 in accordance with ISO-15848-1 "Industrial Valves" Measurement, Test and Qualification Procedures for Fugitive Emissions "Part 1: Classification System and Qualification Procedures for Type Testing of Valves".





In accordance with API-6FA and API Standard API-607 for Trunnion Ball Valves in accordance with API-6D.



#### TÜV Rheinland Certificate No. TRASA 700-13-0019

API-6D Trunnion mounted bolted body ball valves, carbon steel (A105-WCB) construction, double block and bleed service, primarily used but not limited to the oil and gas standard and severe applications.

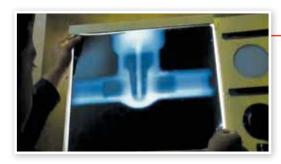
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**TA Luft Certificate (Fugitive Emission) Approval** ISO-5211 Top Flange, Anti-Static Device.



# **QUALITY CONTROL EQUIPMENT**

In order to assure that WALWORTH products comply with international quality standards, in-house equipment is kept for monitoring control. Some of this equipment includes:



**X-Ray Examination Equipment**. WALWORTH has its own Ir-92 source in-house for the radiographic examination (RT) of castings from 0.100" up to 2 1/2" wall thickness to verify the soundness of the casting raw material.

**PMI Equipment**. A new generation of Positive Material Identification Equipment gives WALWORTH the capability to perform quick chemical analysis on incoming raw materials and on pieces after assembly, to certify that materials used were produced and assembled in accordance with WALWORTH's and our Customer's specifications.





**Magnetic Particle Test**. On a random basis for standard products or when a Customer requests MT Certification, WALWORTH has Magnetic Particle Test Equipment to perform on ferromagnetic materials.

**Penetrant Test Examination**. WALWORTH has the personnel and materials to perform PT examination by solvent removable or water washable techniques. NDT personnel are ASNT Certified.





**Test Loop.** A complete Laboratory Test loop exists for design validation of WALWORTH products. The test is performed at maximum design pressure, advances the valves from 3000 to 5000 cycles, and requires more than four months to complete.

**Pressure Gradient Test Loop**. This test exposes Plug valves to the extremes of both positive and negative pressure gradients to verify that the plug in a balanced plug design will prevent lock-up in the body.

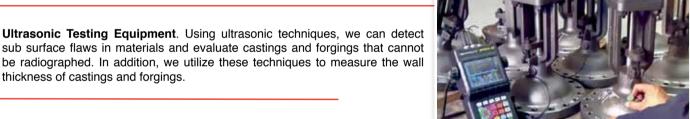


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Hardness Test Equipments.- In both lab and shop tests, WALWORTH uses

hardness tester equipment, such as Rockwell B, C Brinell or Vickers, to ensure compliance with specifications.





thickness of castings and forgings.

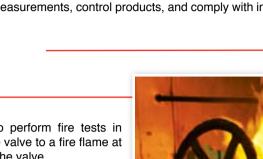
Low Fugitive Emissions Test. This test is performed when a Customer requires low fugitive emissions certification. Our Lab has its own LFE test equipment that is capable of measuring less than 20 ppm in both static and mechanical conditions at either ambient temperature or thermal cycle operations.

Tensile Test Equipment. We use this equipment to verify the mechanical properties of materials used for manufacturing. WALWORTH tests samples on a random basis even though we receive MTRs from our suppliers and foundries.

Fire Test Facilities. WALWORTH has the facilities to perform fire tests in accordance with API requirements. The test exposes the valve to a fire flame at 1400 to 1800 °F (761 to 980 °C) to verify proper seal of the valve.

Metrology Laboratory. WALWORTH developed a calibration and/or verification system in all of the equipment used in its facilities. This ensures our ability to trace measurements, control products, and comply with international standards.







# **WALWORTH IRON PLUG VALVES**

**WALWORTH** Cast Iron Lubricated Plug Valves are designed to meet the demand for an inexpensive product that incorporates the principal features of the Lubricated Plug Valves.

The Top Entry design is offered in three different patterns: Short, Regular and Venturi from 1/2" (12.7 mm) to 18" (450 mm) - Iron Body and Plug Classes 175, 200 & 500 CWP.

#### **DESIGN FEATURES**

- · Design in accordance with MSS SP-78.
- Mechanical Balance spring to avoid jamming of the plug.
- Lever or gear operated.
- · Bi-directional.
- Locking devices are available as an option
- Tamper proof bolting is available as an option
- Operating extensions and elevations.
- Additional Walseal sealants are available for different applications.

• Sealant Grooves. this system permits sealant injection while the valve is under full line pressure.

#### **PRODUCT RANGE**

| PATTERN | SIZE        | PRESSURE<br>CLASS AS<br>PER API | ENDS              |
|---------|-------------|---------------------------------|-------------------|
| Short   | 1/2" to 12" | 200 CWP                         | Threaded or<br>RF |
| Regular | 1/2" to 12" | 200 CWP                         | Threaded or<br>RF |
| Venturi | 14" to 18"  | 175 CWP                         | Threaded or<br>RF |
| Venturi | 6" to 8"    | 500 CWP                         | Threaded or<br>RF |





SHORT PATTERN Provides face to face dimensions that match gate valves.



**REGULAR PATTERN** Offers the largest port opening in a trapezoidal configuration – close to a full pipe size.



VENTURI PATTERN Has a smaller port than the other two patterns. Is lower in cost and flow contours maximize hydraulic efficiency.



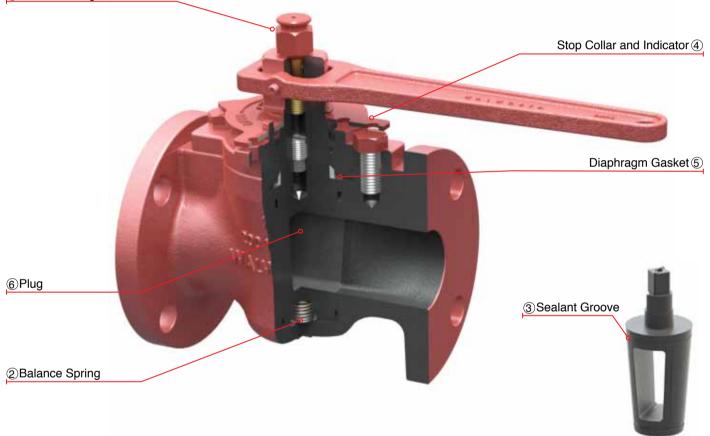
# IRON PLUG VALVE SHORT PATTERN CLASS 200 CWP Single Gland

#### **DESIGN FEATURES**

Short Pattern WALWORTH design offers big oppening port and end to end dimensions same as a Gate Valve.

As in other types of WALWORTH Lubricated Plug Valves, the surfaces of the Single Gland Lubricated Plug Valve are "Pressure Sealed". When the valve is in either the open or closed position, this seal is renewed by forcing lubricant under high pressure into a grooving system which completely encircles the ports.

(1)Sealant Fitting



#### **Design** Features

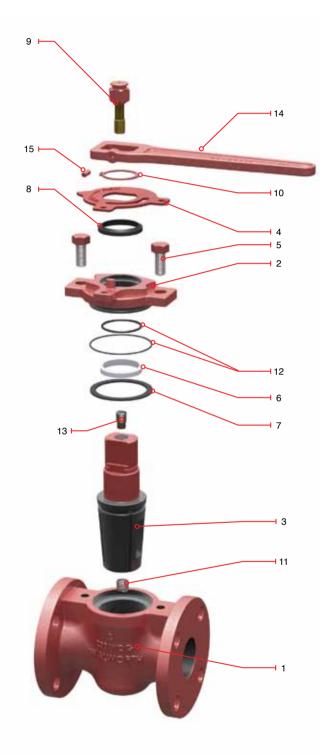
- (1) Sealant Fitting. Fast Sealant Injection that can be removed under pressure. The system includes Ball Check valves in order to prevent the back pressure and maintain the pressure in the sealant cavity.
- (2) **Balancing Spring.** the mechanical spring type grade SS-304 washer is under compression and holds the plug in an equalized pressure position, thus eliminating the possibility of plug taper lock.
- (3) Sealant Grooves. this system permits sealant injection while the valve is under full line pressure. WALWORTH recommends that the valves be lubricated with plug in the fully opened or fully closed position for optimum valve performance.
- (4) **Open/Closed Indicator.** quarter turn stop collar also functions as an indicator of the plug's position.
- (5) **Diaphragm Gasket.** ensures a complete sealing of the valve against leakage.
- (6) **Plug.** WALWORTH Plugs are designed with an specific coating material that reduces the coefficient of friction making the valve to operate with low torque.



## IRON PLUG VALVE SHORT PATTERN CLASS 200 CWP Single Gland (Lever Operated)

#### **Regular Bill of Materials**

| No. | Description         | Material                   |
|-----|---------------------|----------------------------|
| 1   | BODY                | ASTM A-126 CLASS B         |
| 2   | GLAND               | ASTM A-126 CLASS B         |
| 3   | PLUG                | ASTM A-126 CLASS B         |
| 4   | COLLAR RETAINER     | CARBON STEEL               |
| 5   | GLAND SCREW         | ASTM A 307 Gr. B           |
| 6   | PRESSURE RING       | REINFORCE TEFLON           |
| 7   | GASKET              | STAINLESS STEEL + GRAPHITE |
| 8   | WEATHER SEAL        | NITRILE BUTADIENE RUBBER   |
| 9   | GREASE FITTING      | COMMERCIAL STEEL           |
| 10  | RING RETAINER       | COMMERCIAL STEEL           |
| 11  | BALANCE SPRING      | STAINLESS STEEL            |
| 12  | O-RING              | NITRILE BUTADIENE RUBBER   |
| 13  | SEALANT CHECK VALVE | COMMERCIAL STEEL           |
| 14  | WRENCH              | GRAY IRON                  |
| 15  | SET SCREW           | ALLOY STEEL                |



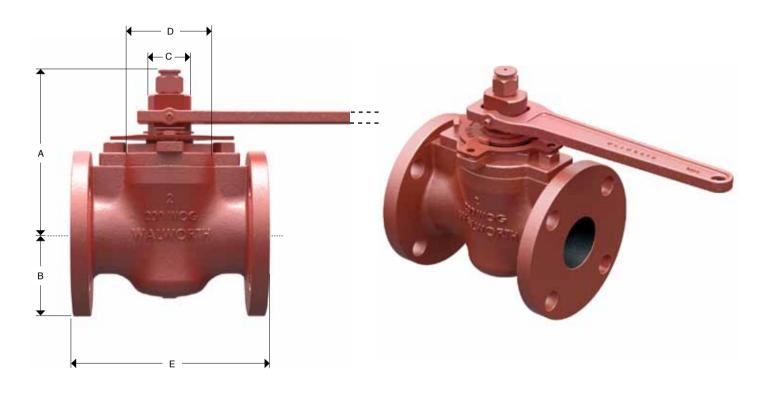


### IRON PLUG VALVE SHORT PATTERN CLASS 200 CWP Single Gland Type (Lever Operated)

#### **Design Features**

- Threaded ends in accordance with ASME B1.20.1
- Flat Face Flanged ends in accordance with ASME B16.1
- Design in accordance with MSS SP-78
- Test in accordance with API 598 & MSS SP 78

| Figure no. | Operation      | Type of ends      |
|------------|----------------|-------------------|
| 1796       | Lever operated | THREADED          |
| 1797F      | Lever operated | FLAT FACE FLANGED |



#### **Dimensions and Weights**

| Nom   | vinal |      |     | Ge   | neral D | imensio | ons |      |     | End  | to End |      | ions |      | Approx. | Weiah | t    | Ŧ        |
|-------|-------|------|-----|------|---------|---------|-----|------|-----|------|--------|------|------|------|---------|-------|------|----------|
| Si    |       |      |     |      | _       |         |     |      | _   |      | E      | -    |      |      |         | -     |      | WRENCH   |
|       |       |      | 4   | 1    | 3       | (       | 2   | L    | כ   | FLAI | FACE   | IH   | RD   | FLAI | FACE    | IH    | RD   | Ë        |
| in    | mm    | in   | mm  | in   | mm      | in      | mm  | in   | mm  | in   | mm     | in   | mm   | Kg   | lb      | Kg    | lb   | 5        |
| 1/2   | 15    | 3.87 | 98  | 1.62 | 41      | 0.81    | 21  | 2.56 | 65  | -    | -      | 4.5  | 114  | -    | -       | 2.2   | 4.8  | DB D-4   |
| 3/4   | 20    | 3.87 | 98  | 1.62 | 41      | 0.81    | 21  | 2.56 | 65  | -    | -      | 4.5  | 114  | -    | -       | 2.2   | 4.8  | DB D-4   |
| 1     | 25    | 3.87 | 98  | 1.62 | 41      | 0.81    | 21  | 2.56 | 65  | 5.5  | 140    | 4.5  | 114  | 3.5  | 7.7     | 2.2   | 4.8  | DB D-4   |
| 1 1/4 | 32    | 4.56 | 116 | 2    | 51      | 0.9     | 23  | 3.12 | 79  | 6.5  | 165    | 5    | 127  | 5.9  | 13.0    | 4.2   | 9.3  | DB E-1   |
| 1 1/2 | 40    | 4.56 | 116 | 2    | 51      | 0.9     | 23  | 3.12 | 79  | 6.5  | 165    | 5    | 127  | 6.1  | 13.4    | 3.9   | 8.5  | DB E-1   |
| 2     | 50    | 4.81 | 122 | 2.37 | 60      | 1.06    | 27  | 3.62 | 92  | 7    | 178    | 5.87 | 149  | 9.9  | 21.7    | 6.2   | 13.7 | DB G-1   |
| 2 1/2 | 65    | 5.62 | 143 | 2.37 | 60      | 1.25    | 32  | 4.12 | 105 | 7.5  | 191    | 6.75 | 171  | 15.1 | 33.2    | 10.2  | 22.5 | DB G-1   |
| 3     | 75    | 6.31 | 160 | 3.25 | 83      | 1.37    | 35  | 4.75 | 121 | 8    | 203    | 7.62 | 194  | 22.2 | 49.0    | 15.6  | 34.3 | DB M-1   |
| 4     | 100   | 7.37 | 187 | 4.06 | 103     | 1.5     | 38  | 5.75 | 146 | 9    | 229    | 9    | 229  | 30.0 | 66.0    | 24.5  | 54.0 | DB P-1   |
| 5     | 125   | 7.68 | 195 | 4.5  | 114     | 1.5     | 38  | 6.5  | 165 | 10   | 254    | -    | -    | 40.0 | 88.0    | -     | -    | DB P-1.1 |

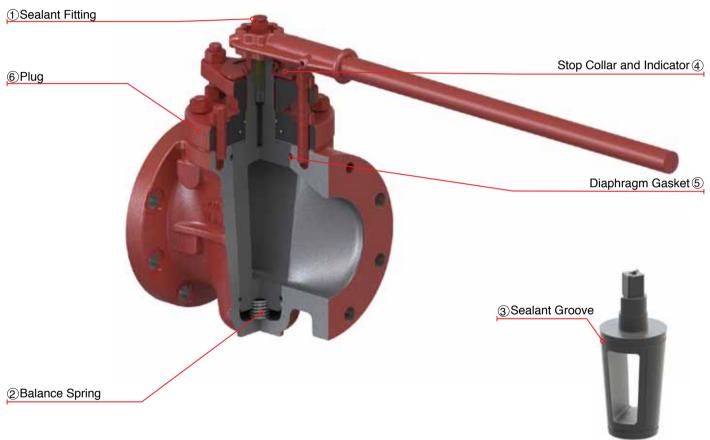


## IRON PLUG VALVE SHORT PATTERN CLASS 200 CWP Regular Gland Type

#### **DESIGN FEATURES**

WALWORTH Regular Gland type Lubricated Plug Valves are designed to control plug adjustment tightening the gland, requesting only a very low maintenance in the field.

These Valves are all provided with separate retainers (cover plate) and adjusting glands; generally sizes 3" and smaller have four-bolt square retainers, while 4 inches and large sizes have round retainers. They all incorporate the Pressure Sealed Lubrication features.



#### **Design Features**

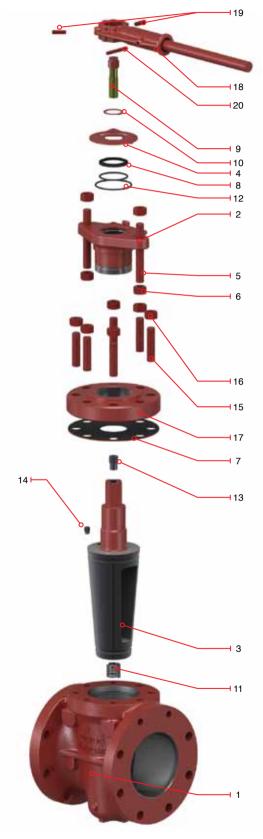
- (1) Sealant Fitting. Fast Sealant Injection that can be removed under pressure. The system includes Ball Check valves in order to prevent the back pressure and maintain the pressure in the sealant cavity.
- (2) **Balancing Spring.** the mechanical spring type grade SS-304 washer is under compression and holds the plug in an equalized pressure position, thus eliminating the possibility of plug taper lock.
- (3) Sealant Grooves. this system permits sealant injection while the valve is under full line pressure. WALWORTH recommends that the valves be lubricated with plug in the fully opened or fully closed position for optimum valve performance.
- (④ **Open/Closed Indicator.** quarter turn stop collar also functions as an indicator of the plug's position.
- (5) **Diaphragm Gasket.** ensures a complete sealing of the valve against leakage.
- (6) **Plug.** WALWORTH Plugs are designed with an specific coating material that reduces the coefficient of friction making the valve to operate with low torque.



## IRON PLUG VALVE SHORT PATTERN CLASS 200 CWP Regular Gland Type (Lever Operated)

#### **Regular Bill of Materials**

| No. | Description         | Material                   |  |  |  |  |  |  |  |
|-----|---------------------|----------------------------|--|--|--|--|--|--|--|
| 1   | BODY                | ASTM A-126 CLASS B         |  |  |  |  |  |  |  |
| 2   | GLAND               | ASTM A-126 CLASS B         |  |  |  |  |  |  |  |
| 3   | PLUG                | ASTM A-126 CLASS B         |  |  |  |  |  |  |  |
| 4   | COLLAR RETAINER     | CARBON STEEL               |  |  |  |  |  |  |  |
| 5   | GLAND SCREW         | ASTM A 307 Gr. B           |  |  |  |  |  |  |  |
| 6   | GLAND NUT           | ASTM A 194 Gr. 2H          |  |  |  |  |  |  |  |
| 7   | GASKET              | STAINLESS STEEL + GRAPHITE |  |  |  |  |  |  |  |
| 8   | WEATHER SEAL        | NITRILE BUTADIENE RUBBER   |  |  |  |  |  |  |  |
| 9   | GREASE FITTING      | COMMERCIAL STEEL           |  |  |  |  |  |  |  |
| 10  | RING RETAINER       | COMMERCIAL STEEL           |  |  |  |  |  |  |  |
| 11  | BALANCE SPRING      | STAINLESS STEEL            |  |  |  |  |  |  |  |
| 12  | O-RING              | NITRILE BUTADIENE RUBBER   |  |  |  |  |  |  |  |
| 13  | SEALANT CHECK VALVE | COMMERCIAL STEEL           |  |  |  |  |  |  |  |
| 14  | PLUG CHECK VALVE    | COMMERCIAL STEEL           |  |  |  |  |  |  |  |
| 15  | COVER SCREW         | ASTM A 307 GRADE B         |  |  |  |  |  |  |  |
| 16  | COVER NUT           | ASTM A 194 Gr. 2H          |  |  |  |  |  |  |  |
| 17  | COVER               | ASTM A-126 CLASE B         |  |  |  |  |  |  |  |
| 18  | WRENCH              | GRAY IRON                  |  |  |  |  |  |  |  |
| 19  | SET SCREW           | ALLOY STEEL                |  |  |  |  |  |  |  |
| 20  | WRENCH PIN          | ASTM A568                  |  |  |  |  |  |  |  |





### IRON PLUG VALVE SHORT PATTERN CLASS 200 CWP (ANSI 150) Regular Gland Type (Lever Operated)

#### **Design Features**

- Flat Face Flanged ends in accordance with ASME B16.1
- Design in accordance with MSS SP-78
- Test in accordance with API 598 & MSS SP 78

| Figure no. | Operation      | Type of ends |  |  |  |  |
|------------|----------------|--------------|--|--|--|--|
| 1718F      | Lever operated | THREADED     |  |  |  |  |



#### **Dimensions and Weights**

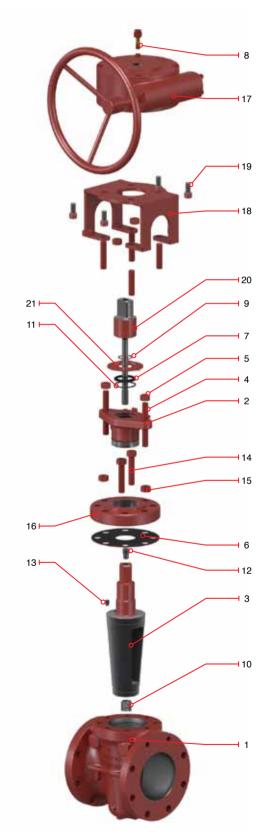
| Non | ninal |       |     |       | o End<br>Isions | Approx |          |           |     |        |      |       |       |     |  |
|-----|-------|-------|-----|-------|-----------------|--------|----------|-----------|-----|--------|------|-------|-------|-----|--|
| -   | ze    |       |     |       |                 | E      | E        | FLAT FACE |     | Wrench |      |       |       |     |  |
|     |       | 4     | 4   | E     | 3               | (      | <b>)</b> | E         | כ   | FLAT   | FACE | FLAI  | FACE  | No. |  |
| in  | mm    | in    | mm  | in    | mm              | in     | mm       | in        | mm  | in     | mm   | Kg    | lb    |     |  |
| 6   | 150   | 11.75 | 298 | 6.12  | 155             | 1.5    | 38       | 8.37      | 213 | 10.5   | 267  | 69.9  | 154.0 | P-1 |  |
| 8   | 200   | 13.5  | 343 | 7.56  | 192             | 1.75   | 44       | 9.62      | 244 | 11.5   | 292  | 107.6 | 237.0 | R-3 |  |
| 10  | 250   | 14.5  | 368 | 9.12  | 232             | 2      | 51       | 10.87     | 276 | 13     | 330  | 151.6 | 334.0 | T-3 |  |
| 12  | 300   | 18.18 | 462 | 10.68 | 271             | 2.43   | 62       | 13.5      | 343 | 14     | 356  | 263.3 | 580.0 | V-3 |  |



# IRON PLUG VALVE SHORT PATTERN CLASS 200 CWP (Gear Operated)

#### **Regular Bill of Materials**

| No. | Description           | Material                   |
|-----|-----------------------|----------------------------|
| 1   | BODY                  | ASTM A-126 CLASS B         |
| 2   | GLAND                 | ASTM A-126 CLASS B         |
| 3   | PLUG                  | ASTM A-126 CLASS B         |
| 4   | GLAND SCREW           | ASTM A 307 Gr. B           |
| 5   | GLAND NUT             | ASTM A 194 Gr. 2H          |
| 6   | GASKET                | STAINLESS STEEL + GRAPHITE |
| 7   | WEATHER SEAL          | NITRILE BUTADIENE RUBBER   |
| 8   | GREASE FITTING        | COMMERCIAL STEEL           |
| 9   | RING RETAINER         | COMMERCIAL STEEL           |
| 10  | BALANCE SPRING        | STAINLESS STEEL            |
| 11  | O-RING                | NITRILE BUTADIENE RUBBER   |
| 12  | SEALANT CHECK VALVE   | COMMERCIAL STEEL           |
| 13  | PLUG CHECK VALVE      | COMMERCIAL STEEL           |
| 14  | COVER SCREW           | ASTM A 307 GRADE B         |
| 15  | COVER NUT             | ASTM A 194 Gr. 2H          |
| 16  | COVER                 | ASTM A-126 CLASE B         |
| 17  | GEAR OPERATOR         | COMERCIAL STEEL            |
| 18  | GEAR OPERATOR SUPPORT | CARBON STEEL               |
| 19  | GEAR OPERATOR BOLTING | ASTM A 307 Gr. B           |
| 20  | STEM EXTENSION        | ASTM A 322 GRADE 4140      |
| 21  | COLLAR RETAINER       | CARBON STEEL               |



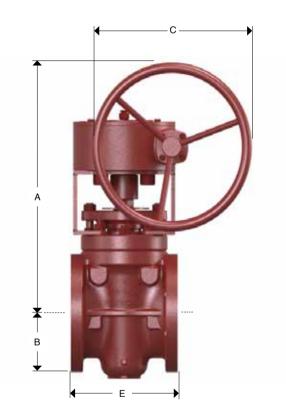


### **IRON PLUG VALVE SHORT PATTERN CLASS 200 CWP** (Gear Operated)

#### **Design Features**

- Flat Face Flanged ends in accordance with ASME B16.1
  Design in accordance with MSS SP-78
  Test in accordance with API 598 & MSS SP 78

| Figure no. | Operation     | Type of ends      |  |  |  |  |
|------------|---------------|-------------------|--|--|--|--|
| 1727       | Gear Operated | FLANGED FLAT FACE |  |  |  |  |





#### **Dimensions and Weights**

| Nom | ninal |       |     | (     |     |    | o End<br>nsions | Approx Weight |     |           |     |           |       |
|-----|-------|-------|-----|-------|-----|----|-----------------|---------------|-----|-----------|-----|-----------|-------|
| Si  |       |       |     |       |     | E  |                 | FLAT FACE     |     |           |     |           |       |
|     |       | A     | 4   | E     | 3   | С  |                 | D             |     | FLAT FACE |     | FLAT FACE |       |
| in  | mm    | in    | mm  | in    | mm  | in | mm              | in            | mm  | in        | mm  | Kg        | lb    |
| 6   | 150   | 18.68 | 474 | 6.12  | 155 | 23 | 584             | 18            | 457 | 10.5      | 267 | 99.9      | 220.0 |
| 8   | 200   | 18    | 457 | 7.56  | 192 | 23 | 584             | 21            | 533 | 11.5      | 292 | 131.7     | 290.0 |
| 10  | 250   | 20.06 | 510 | 9.12  | 232 | 23 | 584             | 27            | 685 | 13        | 330 | 204.3     | 450.0 |
| 12  | 300   | 22.68 | 576 | 10.68 | 271 | 23 | 584             | 31            | 787 | 14        | 356 | 263.3     | 580.0 |

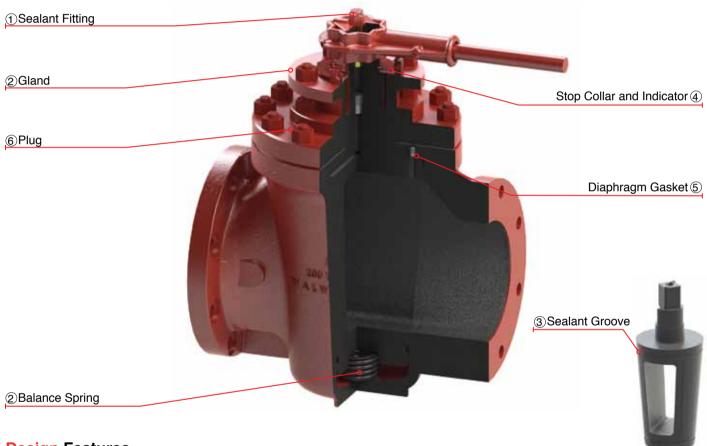


## IRON PLUG VALVE REGULAR PATTERN CLASS 200 CWP Regular Gland Type (Lever Operated)

#### **DESIGN FEATURES**

WALWORTH Regular Pattern Plug Valve provide largest port opening in a trapezoidal configuration with the close dimensions to a full pipe size.

These Valves are all provided with separate retainers (cover plate) and adjusting glands; generally sizes 3" and smaller have four-bolt square retainers, while 4 inches and large sizes have round retainers. They all incorporate the Pressure Sealed Lubrication features.



#### **Design** Features

- (1) Sealant Fitting. Fast Sealant Injection that can be removed under pressure. The system includes Ball Check valves in order to prevent the back pressure and maintain the pressure in the sealant cavity.
- (2) **Balancing Spring.** the mechanical spring type grade SS-304 washer is under compression and holds the plug in an equalized pressure position, thus eliminating the possibility of plug taper lock.
- (3) Sealant Grooves. this system permits sealant injection while the valve is under full line pressure. WALWORTH recommends that the valves be lubricated with plug in the fully opened or fully closed position for optimum valve performance.
- (4) **Open/Closed Indicator.** quarter turn stop collar also functions as an indicator of the plug's position.
- (5) **Diaphragm Gasket.** ensures a complete sealing of the valve against leakage.
- (6) **Plug.** WALWORTH Plugs are designed with an specific coating material that reduces the coefficient of friction making the valve to operate with low torque.



# IRON PLUG VALVE REGULAR PATTERN CLASS 200 CWP (Lever Operated)

#### **Regular Bill of Materials**

| No. | Description         | Material                   |
|-----|---------------------|----------------------------|
| 1   | BODY                | ASTM A-126 CLASS B         |
| 2   | GLAND               | ASTM A-126 CLASS B         |
| 3   | PLUG                | ASTM A-126 CLASS B         |
| 4   | COLLAR RETAINER     | CARBON STEEL               |
| 5   | GLAND SCREW         | ASTM A 307 Gr. B           |
| 6   | GLAND NUT           | ASTM A 194 Gr. 2H          |
| 7   | GASKET              | STAINLESS STEEL + GRAPHITE |
| 8   | WRENCH PIN          | ASTM A568                  |
| 9   | GREASE FITTING      | COMMERCIAL STEEL           |
| 10  | RING RETAINER       | COMMERCIAL STEEL           |
| 11  | BALANCE SPRING      | STAINLESS STEEL            |
| 12  | O-RING              | NITRILE BUTADIENE RUBBER   |
| 13  | SEALANT CHECK VALVE | COMMERCIAL STEEL           |
| 14  | PLUG CHECK VALVE    | COMMERCIAL STEEL           |
| 15  | COVER SCREW         | ASTM A 307 GRADE B         |
| 16  | COVER NUT           | ASTM A 194 Gr. 2H          |
| 17  | COVER               | ASTM A-126 CLASE B         |
| 18  | WRENCH              | GRAY IRON                  |
| 19  | SET SCREW           | ALLOY STEEL                |
|     |                     |                            |



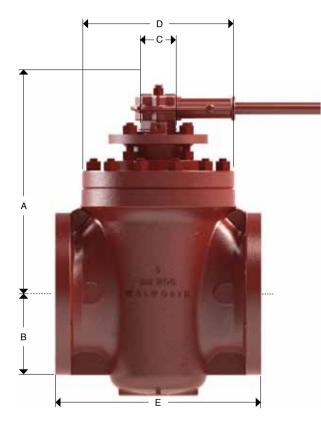


# IRON PLUG VALVE REGULAR PATTERN CLASS 200 CWP (Lever Operated)

#### **Design Features**

- Threaded ends in accordance with ASME B1.20.1
- Flat Face Flanged ends in accordance with ASME B16.1
- Design in accordance with MSS SP-78
- Test in accordance with API 598 & MSS SP 78

| Figure no. | Operation      | Type of ends      |
|------------|----------------|-------------------|
| 1700       | Lever Operated | THREADED          |
| 1700 F     | Lever Operated | FLANGED FLAT FACE |





#### **Dimensions and Weights**

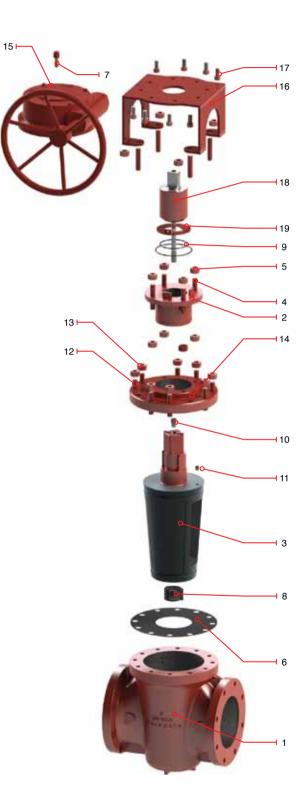
|     |     |       |     | 0-   |         | imensio |     |       |     | End  | to End | Dimens | sions |           |       |      |      |               |
|-----|-----|-------|-----|------|---------|---------|-----|-------|-----|------|--------|--------|-------|-----------|-------|------|------|---------------|
| Non |     |       |     | Ge   | neral D | imensio | ons |       |     |      | E      | Ξ      |       | -         | FACE  | THRD |      | o.            |
|     | 20  | 4     | ۱   | E    | 3       | (       | C   | [     | כ   | FLAT | FACE   | TH     | RD    | FLAT FACE |       | IARD |      | Wrench<br>No. |
| in  | mm  | in    | mm  | in   | mm      | in      | mm  | in    | mm  | in   | mm     | in     | mm    | Kg        | lb    | Kg   | lb   | -             |
| 2   | 50  | 7.37  | 187 | 3.25 | 83      | 1.25    | 32  | 4.31  | 109 | 7.5  | 191    | 6.5    | 165   | 14.1      | 31.0  | 11.8 | 26.0 | DB G-1        |
| 3   | 75  | 9     | 229 | 4.18 | 106     | 1.37    | 35  | 5.5   | 140 | 9    | 229    | 8.06   | 205   | 26.8      | 59.0  | 25.9 | 57.0 | DB M-1        |
| 4   | 100 | 10.81 | 275 | 5.18 | 132     | 1.5     | 38  | 8.37  | 213 | 12   | 305    | -      | -     | 58.1      | 128.0 | -    | -    | DB P-1        |
| 6   | 150 | 13.12 | 333 | 7.12 | 181     | 2       | 51  | 10.87 | 276 | 15.5 | 394    | -      | -     | 115.8     | 255.0 | -    | -    | Т-З           |
| 8   | 200 | 16.5  | 419 | 8.43 | 214     | 2.43    | 62  | 13.5  | 343 | 18   | 457    | -      | -     | 207.5     | 457.0 | -    | -    | V-3           |



# IRON PLUG VALVE REGULAR PATTERN CLASS 200 CWP (Gear Operated)

#### **Regular Bill of Materials**

| 1BODYASTM A-126 CLASS B2GLANDASTM A-126 CLASS B3PLUGASTM A-126 CLASS B4GLAND SCREWASTM A 307 Gr. B5GLAND NUTASTM A 194 Gr. 2H6GASKETSTAINLESS STEEL + GRAPHITE7GREASE FITTINGCOMMERCIAL STEEL |
|---|
| <ul> <li>3 PLUG ASTM A-126 CLASS B</li> <li>4 GLAND SCREW ASTM A 307 Gr. B</li> <li>5 GLAND NUT ASTM A 194 Gr. 2H</li> <li>6 GASKET STAINLESS STEEL + GRAPHITE</li> </ul>                     |
| 4GLAND SCREWASTM A 307 Gr. B5GLAND NUTASTM A 194 Gr. 2H6GASKETSTAINLESS STEEL + GRAPHITE  |
| 5     GLAND NUT     ASTM A 194 Gr. 2H       6     GASKET     STAINLESS STEEL + GRAPHITE   |
| 6 GASKET STAINLESS STEEL + GRAPHITE   |
|   |
|   |
| 7 GREASETTTTING COMMENCIAE STELE  |
| 8 BALANCE SPRING STAINLESS STEEL  |
| 9 O-RING NITRILE BUTADIENE RUBBER   |
| 10 SEALANT CHECK VALVE COMMERCIAL STEEL   |
| 11 PLUG CHECK VALVE COMMERCIAL STEEL  |
| 12 COVER SCREW ASTM A 307 GRADE B   |
| 13 COVER NUT ASTM A 194 Gr. 2H  |
| 14 COVER ASTM A-126 CLASE B   |
| 15 GEAR OPERATOR COMERCIAL STEEL  |
| 16 GEAR OPERATOR SUPPORT CARBON STEEL   |
| 17 GEAR OPERATOR BOLTING ASTM A 307 Gr. B   |
| 18 STEM EXTENSION ASTM A 322 GRADE 4140   |
| 19 COLLAR RETAINER CARBON STEEL   |





## **IRON PLUG VALVE REGULAR PATTERN CLASS 200 CWP** (Gear Operated)

#### **Design Features**

- Flat Face Flanged ends in accordance with ASME B16.1
  Design in accordance with MSS SP-78
- Test in accordance with API 598 & MSS SP 78

| Figure no. | Operation     | Type of ends      |
|------------|---------------|-------------------|
| 1707 F     | Gear Operated | Flanged Flat Face |





#### **Dimensions and Weights**

| Nom | ninal |       |     | ,    |     |    | o End<br>Isions | Approx Weight |     |      |     |       |        |
|-----|-------|-------|-----|------|-----|----|-----------------|---------------|-----|------|-----|-------|--------|
| Si  | ze    |       |     |      |     | E  | E               | FLAT FACE     |     |      |     |       |        |
|     |       | A     | ۱.  | I    | В   |    | С               |               |     | D    |     | FACE  |        |
| in  | mm    | in    | mm  | in   | mm  | in | mm              | in            | mm  | in   | mm  | Kg    | lb     |
| 6   | 150   | 18.68 | 474 | 6.81 | 173 | 23 | 584             | 20            | 508 | 15.5 | 394 | 149.8 | 330.0  |
| 8   | 200   | 21    | 533 | 8.43 | 214 | 23 | 584             | 22            | 559 | 18   | 457 | 245.2 | 540.0  |
| 10  | 250   | 23.56 | 598 | 10   | 254 | 23 | 584             | 26            | 660 | 21   | 533 | 419.5 | 924.0  |
| 12  | 300   | 27.87 | 708 | 11.5 | 292 | 23 | 584             | 31            | 787 | 24   | 610 | 594.7 | 1310.0 |

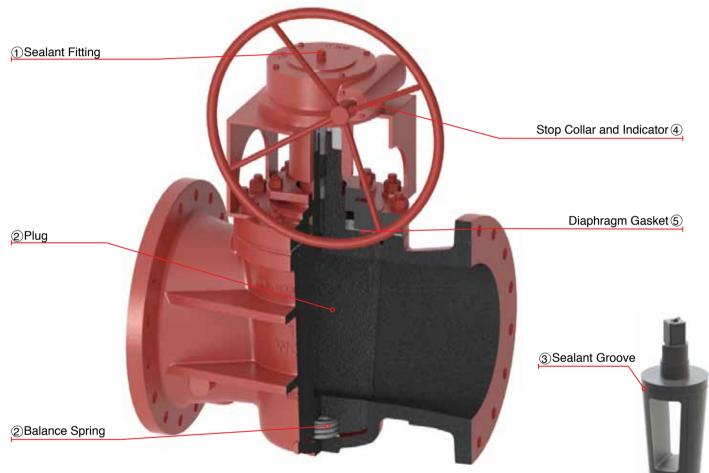


## IRON PLUG VALVE VENTURI PATTERN CLASS 175 CWP Regular Gland Type

#### **DESIGN FEATURES**

WALWORTH Regular Gland type Lubricated Venturi Plug Valves has a smaller port than the other two patterns. Is lower in cost, flow contours maximize hydraulic efficiency.

These Valves are all provided with separate retainers (cover plate) and adjusting glands; generally sizes 3" and smaller have four-bolt square retainers, while 4 inches and large sizes have round retainers. They all incorporate the Pressure Sealed Lubrication features.



#### **Design** Features

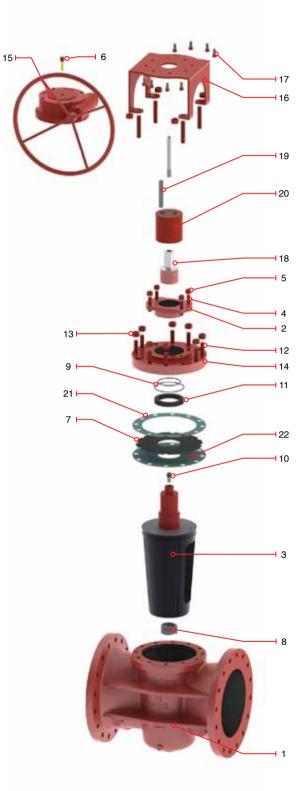
- (1) Sealant Fitting. Fast Sealant Injection that can be removed under pressure. The system includes Ball Check valves in order to prevent the back pressure and maintain the pressure in the sealant cavity.
- (2) **Balancing Spring.** the mechanical spring type grade SS-304 washer is under compression and holds the plug in an equalized pressure position, thus eliminating the possibility of plug taper lock.
- (3) Sealant Grooves. this system permits sealant injection while the valve is under full line pressure. WALWORTH recommends that the valves be lubricated with plug in the fully opened or fully closed position for optimum valve performance.
- (4) **Open/Closed Indicator.** quarter turn stop collar also functions as an indicator of the plug's position.
- (5) **Diaphragm Gasket.** ensures a complete sealing of the valve against leakage.
- (6) **Plug.** WALWORTH Plugs are designed with an specific coating material that reduces the coefficient of friction making the valve to operate with low torque.



# IRON PLUG VALVE VENTURI PATTERN CLASS 175 CWP (Gear Operated)

#### **Regular Bill of Materials**

| No. | Description           | Material                 |
|-----|-----------------------|--------------------------|
| 1   | BODY                  | ASTM A-126 CLASS B       |
| 2   | GLAND                 | ASTM A-126 CLASS B       |
| 3   | PLUG                  | ASTM A-126 CLASS B       |
| 4   | GLAND SCREW           | ASTM A 307 Gr. B         |
| 5   | GLAND NUT             | ASTM A 194 Gr. 2H        |
| 6   | GREASE FITTING        | COMMERCIAL STEEL         |
| 7   | DIAPHRAGM             | ASTM A240 TIPO 304       |
| 8   | BALANCE SPRING        | STAINLESS STEEL          |
| 9   | O-RING                | NITRILE BUTADIENE RUBBER |
| 10  | SEALANT CHECK VALVE   | COMMERCIAL STEEL         |
| 11  | PACKING RETAINER      | STEEL                    |
| 12  | COVER SCREW           | ASTM A 307 GRADE B       |
| 13  | COVER NUT             | ASTM A 194 Gr. 2H        |
| 14  | COVER                 | ASTM A-126 CLASE B       |
| 15  | GEAR OPERATOR         | COMERCIAL STEEL          |
| 16  | GEAR OPERATOR SUPPORT | CARBON STEEL             |
| 17  | GEAR OPERATOR BOLTING | ASTM A 307 Gr. B         |
| 18  | STEM EXTENSION        | ASTM A 322 GRADE 4140    |
| 19  | KEY                   | ASTM A 108 GRADE 1020    |
| 20  | BUSHING               | ASTM A 322 GRADE 4140    |
| 21  | COVER GASKET          | BLUE GUARD               |
| 22  | GASKET                | BLUE GUARD               |

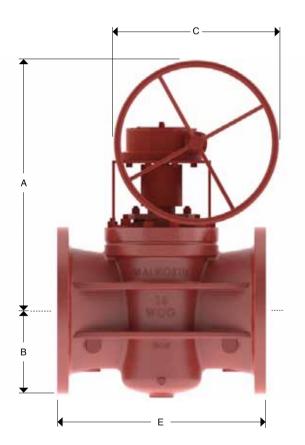




### IRON PLUG VALVE VENTURI PATTERN CLASS 175 CWP (Gear Operated)

- Design Features
- Flat Face Flanged ends in accordance with ASME B16.1
- Design in accordance with MSS SP-78
- Test in accordance with API 598 & MSS SP 78

| Figure no. | Operation     | Type of ends      |
|------------|---------------|-------------------|
| 1703       | Gear Operated | FLANGED FLAT FACE |





#### **Dimensions and Weights**

| Nom   | ninal |       |     |       | General D | imensions | 3   |                |     |           | o End<br>Isions | Approx | Weight |
|-------|-------|-------|-----|-------|-----------|-----------|-----|----------------|-----|-----------|-----------------|--------|--------|
| SizeA |       |       | I   | B C D |           |           |     | E<br>FLAT FACE |     | FLAT FACE |                 |        |        |
| in    | mm    | in    | mm  | in    | mm        | in        | mm  | in             | mm  | in        | mm              | Kg     | lb     |
| 14    | 350   | 20.37 | 517 | 11.87 | 301       | 26        | 660 | 29             | 737 | 27        | 686             | 570.2  | 1256.0 |
| 16    | 400   | 21.62 | 549 | 13.37 | 340       | 26        | 660 | 32             | 812 | 30        | 762             | 660.6  | 1455.0 |
| 18    | 450   | 23.37 | 594 | 14.75 | 375       | 30        | 762 | 35             | 889 | 34        | 864             | 858.1  | 1890.0 |

D

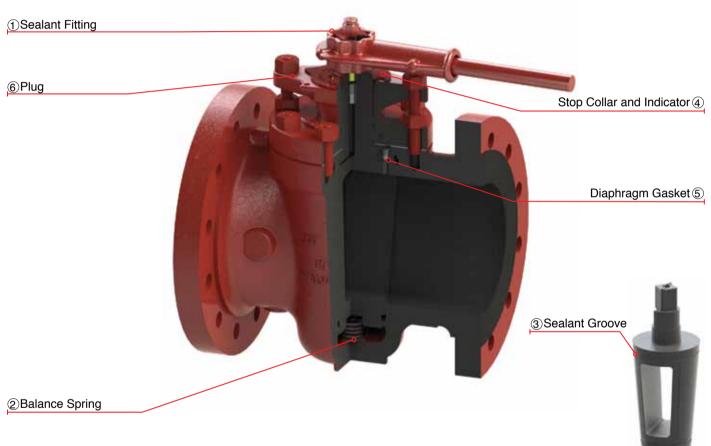


## IRON PLUG VALVE VENTURI PATTERN CLASS 500 CWP Regular Gland Type

#### **DESIGN FEATURES**

WALWORTH Regular Gland type Lubricated Plug Valves are designed to control plug adjustment tightening the gland, requesting only a very low maintenance in the field.

These Valves are all provided with separate retainers (cover plate) and adjusting glands; generally sizes 3" and smaller have four-bolt square retainers, while 4 inches and large sizes have round retainers. They all incorporate the Pressure Sealed Lubrication features.



#### **Design Features**

- (1) Sealant Fitting. Fast Sealant Injection that can be removed under pressure. The system includes Ball Check valves in order to prevent the back pressure and maintain the pressure in the sealant cavity.
- (2) **Balancing Spring.** the mechanical spring type grade SS-304 washer is under compression and holds the plug in an equalized pressure position, thus eliminating the possibility of plug taper lock.
- (3) Sealant Grooves. this system permits sealant injection while the valve is under full line pressure. WALWORTH recommends that the valves be lubricated with plug in the fully opened or fully closed position for optimum valve performance.
- (4) **Open/Closed Indicator.** quarter turn stop collar also functions as an indicator of the plug's position.
- (5) **Diaphragm Gasket.** ensures a complete sealing of the valve against leakage.
- (6) **Plug.** WALWORTH Plugs are designed with an specific coating material that reduces the coefficient of friction making the valve to operate with low torque.



# IRON PLUG VALVE VENTURI PATTERN CLASS 500 CWP (Lever Operated)

#### **Regular Bill of Materials**

| 1BODYASTM A-126 CLASS B2GLANDASTM A-126 CLASS B3PLUGASTM A-126 CLASS B |  |
|--|--|
|  |  |
| 3 PLUG ASTM A-126 CLASS B  |  |
|  |  |
| 4 COLLAR RETAINER CARBON STEEL   |  |
| 5 GLAND SCREW ASTM A 307 Gr. B   |  |
| 6 GLAND NUT ASTM A 194 Gr. 2H  |  |
| 7 GASKET STAINLESS STEEL + GRAPHITE                                    |  |
| 8 WEATHER SEAL NITRILE BUTADIENE RUBBER                                |  |
| 9 GREASE FITTING COMMERCIAL STEEL                                      |  |
| 10 RING RETAINER COMMERCIAL STEEL                                      |  |
| 11 BALANCE SPRING STAINLESS STEEL                                      |  |
| 12 O-RING NITRILE BUTADIENE RUBBER                                     |  |
| 13 SEALANT CHECK VALVE COMMERCIAL STEEL                                |  |
| 14 PLUG CHECK VALVE COMMERCIAL STEEL                                   |  |
| 15 COVER SCREW ASTM A 307 GRADE B                                      |  |
| 16 COVER NUT ASTM A 194 Gr. 2H   |  |
| 17 COVER ASTM A-126 CLASE B  |  |
| 18 WRENCH GRAY IRON  |  |
| 19 SET SCREW ALLOY STEEL   |  |
| 20 WRENCH PIN ASTM A568  |  |



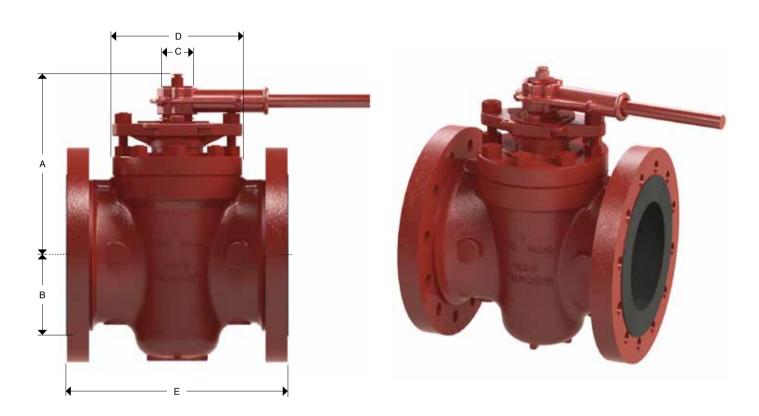


## **IRON PLUG VALVE VENTURI PATTERN CLASS 500 CWP** (Lever Operated)

#### **Design Features**

- Flat Face Flanged ends in accordance with ASME B16.1
  Design in accordance with MSS SP-78
- Test in accordance with API 598 & MSS SP 78

| Figure no. | Operation      | Type of ends      |
|------------|----------------|-------------------|
| 2721       | Lever Operated | FLANGED FLAT FACE |



#### **Dimensions and Weights**

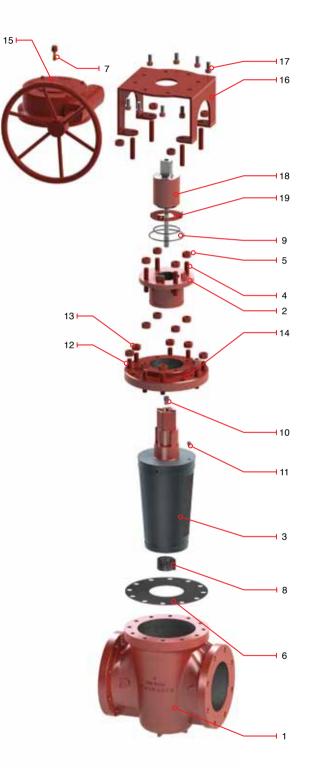
| -  | ninal<br>ize |       | General Dimensions |      |     |      |    |      |           | End to<br>Dimer |           |       | Weight | Wrench<br>No. |
|----|--------------|-------|--------------------|------|-----|------|----|------|-----------|-----------------|-----------|-------|--------|---------------|
|    |              |       | A B                |      | 3   | C D  |    |      | FLAT FACE |                 | FLAT FACE |       | N N    |               |
| in | mm           | in    | mm                 | in   | mm  | in   | mm | in   | mm        | in              | mm        | Kg    | lb     |               |
| 6  | 150          | 10.56 | 268                | 6.18 | 157 | 1.5  | 38 | 8.37 | 213       | 15.87           | 99.4      | 219.0 | 219.0  | P-1           |
| 8  | 200          | 12.25 | 311                | 7.62 | 194 | 1.75 | 44 | 9.62 | 244       | 16.5            | 153.0     | 337.0 | 337.0  | R-3           |



# IRON PLUG VALVE VENTURI PATTERN CLASS 500 CWP (Gear Operated)

#### **Regular Bill of Materials**

| No. | Description           | Material                   |
|-----|-----------------------|----------------------------|
| 1   | BODY                  | ASTM A-126 CLASS B         |
| 2   | GLAND                 | ASTM A-126 CLASS B         |
| 3   | PLUG                  | ASTM A-126 CLASS B         |
| 4   | GLAND SCREW           | ASTM A 307 Gr. B           |
| 5   | GLAND NUT             | ASTM A 194 Gr. 2H          |
| 6   | GASKET                | STAINLESS STEEL + GRAPHITE |
| 7   | GREASE FITTING        | COMMERCIAL STEEL           |
| 8   | BALANCE SPRING        | STAINLESS STEEL            |
| 9   | O-RING                | NITRILE BUTADIENE RUBBER   |
| 10  | SEALANT CHECK VALVE   | COMMERCIAL STEEL           |
| 11  | PLUG CHECK VALVE      | COMMERCIAL STEEL           |
| 12  | COVER SCREW           | ASTM A 307 GRADE B         |
| 13  | COVER NUT             | ASTM A 194 Gr. 2H          |
| 14  | COVER                 | ASTM A-126 CLASE B         |
| 15  | GEAR OPERATOR         | COMERCIAL STEEL            |
| 16  | GEAR OPERATOR SUPPORT | CARBON STEEL               |
| 17  | GEAR OPERATOR BOLTING | ASTM A 307 Gr. B           |
| 18  | STEM EXTENSION        | ASTM A 322 GRADE 4140      |
| 19  | COLLAR RETAINER       | CARBON STEEL               |



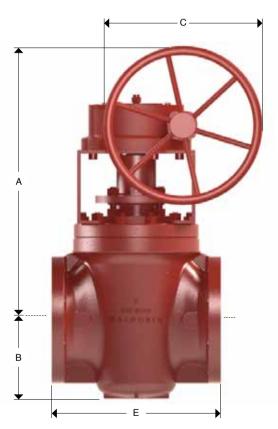


## **IRON PLUG VALVE VENTURI PATTERN CLASS 500 CWP** (Gear Operated)

#### **Design Features**

- Flat Face Flanged ends in accordance with ASME B16.1
  Design in accordance with MSS SP-78
- Test in accordance with API 598 & MSS SP 78

| Figure no. | Operation     | Type of ends      |
|------------|---------------|-------------------|
| 2723F      | Gear Operated | FLANGED FLAT FACE |





#### **Dimensions and Weights**

| Nom | ninal | General Dimensions |     |      |     |    |     |    |     | General Dimensions |           |       |       | End to<br>Dimer |  | Approx | Weight |
|-----|-------|--------------------|-----|------|-----|----|-----|----|-----|--------------------|-----------|-------|-------|-----------------|--|--------|--------|
| Si  | ze    |                    |     |      |     |    |     |    | E   |                    | FLAT FACE |       |       |                 |  |        |        |
|     |       | Α                  |     | В    |     | С  |     | D  |     | FLAT FACE          |           |       |       |                 |  |        |        |
| in  | mm    | in                 | mm  | in   | mm  | in | mm  | in | mm  | in                 | mm        | Kg    | lb    |                 |  |        |        |
| 6   | 150   | 10.56              | 268 | 6.18 | 157 | 26 | 660 | 11 | 279 | 15.87              | 403       | 133.5 | 294.0 |                 |  |        |        |
| 8   | 200   | 12.25              | 311 | 7.62 | 194 | 26 | 660 | 13 | 330 | 16.5               | 419       | 190.7 | 420.0 |                 |  |        |        |



# TECHNICAL INFORMATION PLUG VALVES WRENCHES

#### TOP ENTRY IRON PLUG VALVES WRENCHES

| WRENCH<br>NUMBER | OPENING<br>DIMENSION (B) | HANDLE<br>LENGTH (A) | FOR USE WITH VALVES SIZE, CLASS OR FIGURE NUMBER                |
|------------------|--------------------------|----------------------|---|
| DB D – 4         | 13/16"                   | 9"                   | 1/2", 3/4" & 1" 1796 and 1" 1797F, 3/4" & 1 1/4" 1966 *         |
| DB E – 1         | 29/32"                   | 9"                   | 1 1/4", 1 1/2" 1796 & 1797F                                     |
| DB G – 1         | 1 1/16"                  | 9"                   | 2" 1796, 2" 1797F, 2" 1700, 2" 1700F, 2 1/2" 1796, 2 1/2" 1797F |
| DB M – 1         | 1 3/8"                   | 15"                  | 3" 1700, 1700F, 1796, & 1797F                                   |
| DB P – 1         | 1 1/2"                   | 17"                  | 4" 1796 & 1797F, 4" 1700F                                       |
| R – 3            | 1 3/4"                   | 36"                  | 8" 1718F & 2721F  |
| T-3              | 2 1/16"                  | 36"                  | 6" 1700F, 10" 1718F   |
| V – 3            | 2 7/16"                  | 48"                  | 12" 1718F   |
| P-1              | 1 1/2"                   | 17"                  | 6" Fig. 1718 Fig. 2721  |
| DB P – 1.1       | 1 1/2"                   | 17"                  | 5" Fig. 1797  |



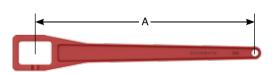


#### 2" SQUARE OPERATING NUTS USED IN TOP ENTRY IRON PLUG VALVES

| OPERATING<br>No.         VALVE<br>SIZE         FOR USE WITH VALVES<br>SIZE, CLASS OR FIGURE NUMBER           DB LN-1         1/2", 3/4", 1"         1/2", 3/4" & 1 "1796 and<br>1" 1797F, 3/4" & 1 1/4" 1966 *           DB LN-2         1 1/4", 1 1/2"         1 1/4", 1 1/2" 1796 & 1797F           DB LN-3         2", 2.5"         2" 1796, 2" 1797F,<br>2.5" 1796F & 1797F           DB LN-5         3"         3" 1700, 1700F, 1796, & 1797F           DB LN-6         4"         4" 1796 & 1797F, 4" 1700F           DB LN-6.1         5"         5" 1797F           LN-7         8"         8" 1718F, 2721F, 2723 & 1727           LN-6         6"         6" 1718F, 2721F, 2723 & 1727 |           |                |                               |
|---|-----------|----------------|-------------------------------|
| DB LN-1         1/2", 3/4", 1"         1" 1797F, 3/4" & 1 1/4" 1966 *           DB LN-2         1 1/4", 1 1/2"         1 1/4", 1 1/2" 1796 & 1797F           DB LN-3         2", 2.5"         2" 1796, 2" 1797F, 2.5" 1796F & 1797F           DB LN-5         3"         3" 1700, 1700F, 1796, & 1797F           DB LN-6         4"         4" 1796 & 1797F, 4" 1700F           DB LN-6.1         5"         5" 1797F           LN-7         8"         8" 1718F, 2721F, 2723 & 1727  |           |                |                               |
| DB LN-3         2", 2.5"         2" 1796, 2" 1797F,<br>2.5" 1796F & 1797F           DB LN-5         3"         3" 1700, 1700F, 1796, & 1797F           DB LN-6         4"         4" 1796 & 1797F, 4" 1700F           DB LN-6.1         5"         5" 1797F           LN-7         8"         8" 1718F, 2721F, 2723 & 1727  | DB LN-1   | 1/2", 3/4", 1" |                               |
| DB LN-3         2", 2.5"         2.5" 1796F & 1797F           DB LN-5         3"         3" 1700, 1700F, 1796, & 1797F           DB LN-6         4"         4" 1796 & 1797F, 4" 1700F           DB LN-6.1         5"         5" 1797F           LN-7         8"         8" 1718F, 2721F, 2723 & 1727  | DB LN-2   | 1 1/4", 1 1/2" | 1 1/4", 1 1/2" 1796 & 1797F   |
| DB LN-6         4"         4" 1796 & 1797F, 4" 1700F           DB LN-6.1         5"         5" 1797F           LN-7         8"         8" 1718F, 2721F, 2723 & 1727   | DB LN-3   | 2", 2.5"       |                               |
| DB LN-6.1         5"         5" 1797F           LN-7         8"         8" 1718F, 2721F, 2723 & 1727  | DB LN-5   | 3"             | 3" 1700, 1700F, 1796, & 1797F |
| LN-7 8" 8" 1718F, 2721F, 2723 & 1727  | DB LN-6   | 4"             | 4" 1796 & 1797F, 4" 1700F     |
|   | DB LN-6.1 | 5"             | 5" 1797F                      |
| LN-6 6" 6" 1718F, 2721F, 2723 & 1727  | LN-7      | 8"             | 8" 1718F, 2721F, 2723 & 1727  |
|   | LN-6      | 6"             | 6" 1718F, 2721F, 2723 & 1727  |

#### CORRESPONDING OPERATING NUT AND RECTANGLE OPENING SIZE

| OPERATING NUT    | OPENING DIMENSIONS (B) |
|------------------|------------------------|
| ON.1 DB LN - 1   | Ø 1.250" x .907"       |
| ON.2 DB LN - 2   | Ø 1.5" x 1.000"        |
| ON.3 DB LN - 3   | Ø 1.6" x 1.120"        |
| ON.4 DB LN - 5   | Ø 2.00" x 1.356"       |
| ON.7 DB LN - 6   | Ø 2.2" x 1.375"        |
| ON.8 DB LN - 6.1 | Ø 2.4" x 1.750"        |
| ON.9 LN - 6      | Ø 1.532" square        |
| ON.10 LN - 7     | Ø 1.760" square        |
|                  |                        |





# TECHNICAL INFORMATION WALSEAL PLUG VALVES SEALANT

# FUNCTION AND PROPERTIES OF WALSEAL SEALANTS

To assure thoroughly satisfactory service, WALWORTH Walseal Sealants should always be used with WALWORTH Plug Valves.

Function: The sealant minimizes friction during operation of the valve and protects seating surfaces from corrosion. Because the ports of valves are completely encircled with sealant grooves, leakage is prevented by the Walseal sealant.

Properties: Walseal sealants have the necessary properties to serve a variety of purposes.

- 1. Have lubricating value to allow the valve to turn easily.
- Have sufficient body to resist dilution by line fluids and still assure tight sealing.
- 3. Are chemically inert in the fluids for which they are specified and have the ability to adhere to the metal of the finished seating surfaces to protect from corrosion.
- 4. Remains in a plastic state over a wide range of temperature conditions to act as a hydraulic medium, and provide for lubrication and corrosion protection.
- 5. Contain a minimum of Ingredients that might solidify from temperature or chemical reactions and clog the groove system.

# SELECTION AND MAINTENANCE OF WALSEAL SEALANT

#### How to select a sealant:

1. Line Contents - Select a sealant recommended for the particular service requirements.

- 2. Color.- Where discoloration of the line contents must be guarded against, select a white sealant If available. In special cases consult a WALWORTH representative.
- 3. Contamination Sealant for use with foodstuffs or pharmaceuticals must be non-toxic, taste and color-free and chemically inert.
- 4. Temperature As a general rule, choose the sealant with the lowest maximum temperature rating. Such a sealant will usually have greater lubricating value at normal temperatures than one with a higher limit. This is important as it affects the ease of operation of the valve.
- 5. Compromise If a sealant is required for a mixed service condition, a good practical rule is to select the sealant recommended to the predominating part of the pipe-line contents.
- 6. Nitrating Acids It is dangerous to use certain sealants on nitrating acids. Please contact your WALWORTH representative for this application.

#### Proper sealant maintenance:

The amount of maintenance required depends upon the frequency of operation of the valve.

Regular maintenance: Preserves the seating surfaces and prevents leakage. Definite periodic service gives the best results. Any valve not regularly operated should be serviced at least every six months.

#### **Ordering Information:**

- 1. State whether jumbo, stick or bulk sealant is desired.
- 2. For bulk sealant give Walseal number and container size.

| STICK                            | STICK SIZE                             | AVAILABLE IN WALSEAL NO. |
|----------------------------------|--|--------------------------|
| B (24/box)                       | 318' X 1 1/2' (Box approx. 1.2 lb.)    | 10, 20, 40 and 60        |
| C (24/box)                       | 7/16' X 2 1/8' (Box approx. 1.2 lb.)   | 10, 20, 40 and 60        |
| D (24/box)                       | 1/2' X 2 1/4' (Box approx. 1.2 lb.)    | 10, 20, 40 and 60        |
| G (24/box)                       | 518' X 3 1/2' (Box approx. 1.2 lb.)    | 10, 20, 40 and 60        |
| CARTRIDGE - (Box of 4 - 1 lb. ea | All TYPES                              |                          |
| BULK                             |  |                          |
| J-Jumbo Jr. (6)                  | 1 3/8' X 8 1/2' (Box approx. 3.2 lb.)  | 10, 20, 40 and 60        |
| K-Jumbo (12)                     | 1 1/2' X 10 1/2' (Box approx. 9.2 lb.) | 10, 20,40 and 60         |
| Gun Pack (Box-6 GP)              |  |                          |
| 10 pound (5 quart can)           | AII TYPES                              |                          |
| 40 pound (5 gallon can)          | AILTTPES                               |                          |
| 400 pound (55 gallon drum)       |  |                          |



# TECHNICAL INFORMATION WALSEAL PLUG VALVES SEALANT

#### WALSEAL #10

Temperature range from -20F to 500F Stick / -40F to 500F Bulk

#### Dark Gray

Service: General purpose sealant intended for use in natural gas and liquid petroleum services including crude distillates, combustible fuels such as gasoline, jet fuel. and heating oils. Used as assembly sealant in all WALWORTH plug valves unless otherwise specified.

Not intended for use in: Solvents (aromatic). strong acids and alkalies. and steam.

#### WALSEAL #20

Temperature range from OF to 650F Bulk / 30F to 690F Stick

Color red

Service: High temperature general purpose sealant for use in acids, alkalies, alcohols, amines, asphalt, aqueous solutions, fats, glycerine glycols, soap, steam, and water service having continuous exposure to temperatures above 400F.

Not intended for use in: Aromatic solvent light liquid hydrocarbons. nitrating acids.

#### WALSEAL #40

Temperature range from 1 OF to 350F Stick / -10F to 350F Bulk

Color light brown

Service: Specifically formulated for resistance to all octane gasolines, aviation and jet fuels, kerosene, fuel blending ingredients. and water. Approved for government use per MIL-G-6032.

Not intended for use in: Strong acids and alkalies.

#### WALSEAL #50

Temperature range from -50F to 300F

Color beige

Service: Low temperature general purpose sealant for use in services similar to Walseal #10. Recommended for continuous exposure to temperatures below 0°F.

Not intended for use in: Solvents (aromatic and chlorinated), strong acids and alkalies.

#### WALSEAL #60

Temperature range from 1 OF to 350F Stick / 0F to 300F Bulk Service: Suitable for water, acids, alkalies, alcohols, and amines. May be used in food or pharmaceutical applications if approved by user. Certified by the National Sanitary Foundation.

Not intended for use in: Hydrocarbon solvents.

Continued use of any sealant at either the low or high temperature limit is not recommended.

For more information concerning these sealants or recommendations for a particular service contact your WALWORTH representative.

### WALWORTH VALVE FLUSH

For hard-to-operate valves

-20°F to 400°F

(-28°C) (204°C) BLACK

VALVE FLUSH is not a sealant; however, it is compatible with any lubricant or sealant. It contains molybdenum disulfide for added lubricity. VALVE FLUSH may be applied with conventional lubricating equipment.

VALVE FLUSH will work through any fitting that is not completely plugged. In other words, if VALVE FLUSH cannot be injected past the fitting, it will not free the valve. If the fitting is plugged, then it is recommended that fitting be removed and replaced with the appropriate WALWORTH fitting.

WALWORTH "VALVE FLUSH" JUMBO, JR. BAG 6/BX WALWORTH "VALVE FLUSH" JUMBO, BAG 6/BX WALWORTH "VALVE FLUSH" 1 CARTRIDGE 12/CTN WALWORTH "VALVE FLUSH" 10LB. (5QT.) CAN. WALWORTH "VALVE FLUSH" 20 LB. (3GAL.) PAIL WALWORTH "VALVE FLUSH" 40 LB. (6GAL.) PAIL



# **TECHNICAL INFORMATION LUBRICANT** ACCESORIES

## 1002 WALSEAL HYDRAULIC DELTA STICK SEALANT GUN, FOR USE WITH "K" SIZED SEALANT.

#### **1699 HIGH PRESSURE LUBRICANT GUN**

#### 1699 G HIGH PRESSURE LUBRICANT GUN WITH GAUGE

Where a number of valves are installed under the same, or related, service conditions it is advantageous to lubricate them with a **WALWORTH High Pressure Lubricant Gun.** 

The WALWORTH High Pressure Lubricant Gun is the only portable gun that can handle lull-bodied valve lubricants in stick form.

The gun is self-priming and may be used in any position. The pump handle is detachable and has a hole drilled near one end.

By detaching the handle and placing the hole over the protruding button on the charging cap, the cap can readily be removed and replaced.

The handle is also used as a pusher for returning the piston to the bottom of the cylinder for the purpose of charging the gun.

To charge the gun the by-pass is opened and the piston pushed down as far as it will go. The by-pass valve is then closed and two sticks of WALWORTH Jumbo Size Lubricant inserted. Then the charging cap is replaced, using the pump handle and protruding button on the cap to tighten it, and the gun is ready for use. The lever handle is then pumped until sealant appears at the end of the hose.

During operation of the gun, should the pressure created lock the coupling to the button-head filling, the pressure can be relieved and the coupling disconnected by opening the bypass valve. Relief fittings are provided on the hose and within the gun to prevent valve damage should the lubricating system be clogged, or prevent damage to the gun itself in the event it is operated when empty.

#### **HIGH PRESSURE GAUGE**

For use with Sealant hand guns and pumps. An essential accessory to indicate when sufficient Sealant pressure has been developed.

Gauge needle pulsation goes up by steps until valve is completely filled with Sealant. When Sealant pressure reaches a certain point, the gauge needle begins to drop showing that the valve is lull. Gauge also indicates valve adjustment and other service required.





# TECHNICAL INFORMATION WALWORTH LUBRICANT FITTINGS

Most types of WALWORTH Lubricated Plug Valves are regularly provided with the WALWORTH Lubricant Fitting illustrated. It is a Giant Button-Head Fitting to which the lubricant gun may be coupled easily for a leakproof connection. These fittings may also be used as regular lubricant screws with standard size lubricant sticks. One size of Button-Head Fitting is used for all Compensator Plug Valves. The Button-Head figure number for other WALWORTH Plug Valves is the same as the "Sealant Stick Size" listed on the catalog page for each valve type and size.







| WALWORTH BUTTON-HEAD<br>LUBRICANT FITTINGS | LUBRICANT<br>FITTING SIZE | WALWORTH<br>LUBRICANT<br>FITTING<br>NUMBER |
|--|---------------------------|--|
| For Standard Compensators                  | 1⁄4"                      | BH1  |
| For NACE MR0-01-75 Compensators            | 1⁄4"                      | BH1-N                                      |
| For valves with Sealant Stick Size: B      | 1⁄4"                      | BH2  |
| C  |                           | BH3  |
| D  | 1⁄2                       | BH4  |
| G  | 3⁄4                       | BH5  |

| DOUBLE BALL CHECK VALVE ASSEMBLIES |            |  |  |  |
|------------------------------------|------------|--|--|--|
| No.                                | Valve Size |  |  |  |
| В                                  | ½ to 2"    |  |  |  |
| С                                  | 2½ to 3"   |  |  |  |
| D                                  | 4 & 5"     |  |  |  |
| G                                  | 6" & up    |  |  |  |



# **TECHNICAL INFORMATION PRESSURE** AND TEMPERATURE RAITINGS

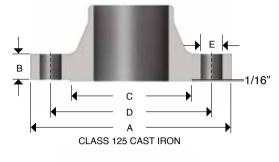
|                           | CAST IRON PLUG VALVES ASTM A-126 CLASS B |         |         |  |  |  |
|---------------------------|--|---------|---------|--|--|--|
| FLUID TEMPERATURE °F      | 175 CWP                                  | 200 CWP | 500 CWP |  |  |  |
| -20 to 150                | 175                                      | 200     | 500     |  |  |  |
| 200                       | 165                                      | 190     | 460     |  |  |  |
| 225                       | 155                                      | 180     | 440     |  |  |  |
| 250                       | 150                                      | 175     | 415     |  |  |  |
| 275                       | -  | 170     | 395     |  |  |  |
| 300                       | -  | 165     | 375     |  |  |  |
| 325                       | -  | 155     | 355     |  |  |  |
| 350                       | -  | 150     | 335     |  |  |  |
| 375                       | -  | 145     | 315     |  |  |  |
| 400                       | -  | 140     | 290     |  |  |  |
| 425                       | -  | 130     | 270     |  |  |  |
| 450                       | -  | 125     | 250     |  |  |  |
| TEST PRESSURES PSI, MIN.  |  |         |         |  |  |  |
| HYDROSTATIC SHELL<br>TEST | 350                                      | 400     | 1000    |  |  |  |
| SEAT (CLOSURE) TEST       | 275                                      | 300     | 750     |  |  |  |

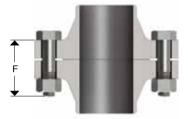
Maximum allowable working pressures, derived from API 599, API 6D, ANSI B16.34 and/or MSS SP-78 are shown. For intermediate temperatures, linear interpolation may be used. Ratings for threaded valves smaller than 1" and for 175 CWP valves are manufacturer's. Application of ratings is subject to the temperature limitations of the sealants used. Applicable Codes and Standards should be consulted for restriccions on pressure, temperature and usage of the valves. Further reference should be made to individual descripton pages for additional comments or restrictions.



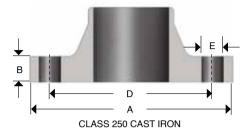
## **TECHNICAL INFORMATION FLANGE DIMENSIONS AND TEMPLATES**

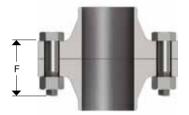
**CAST IRON FLANGE DIMENSIONS AND DRILLING TEMPLATES ANSI B 16.1** 





LENGHT OF MACHINE BOLT





LENGHT OF MACHINE BOLT

#### **CLASS 125**

| NOMINAL      | FLANGES              |                             | DRILLING                        |                                | BOLTING            |                      | LENGHT OF             |
|--------------|----------------------|-----------------------------|---------------------------------|--------------------------------|--------------------|----------------------|-----------------------|
| PIPE<br>SIZE | FLANGE<br>DIAMETER A | FLANGE<br>THIKNESS MIN<br>B | DIAMETER OF<br>VOLT CIRCLE<br>D | DIAMETER OF<br>BOLT HOLES<br>E | NUMBER OF<br>BOLTS | DIAMETER OF<br>BOLTS | MACHINE<br>BOLTS<br>F |
| 1            | 4 1/4                | 7/16                        | 3 1/8                           | 5/8                            | 4                  | 1/2                  | 1 3/4                 |
| 1 1/4        | 4 5/8                | 1/2                         | 3 1/2                           | 5/8                            | 4                  | 1/2                  | 2                     |
| 1 1/2        | 5                    | 9/16                        | 3 7/8                           | 5/8                            | 4                  | 1/2                  | 2                     |
| 2            | 6                    | 5/8                         | 4 3/4                           | 3/4                            | 4                  | 5/8                  | 2 1/4                 |
| 2 1/2        | 7                    | 3/4                         | 5 1/2                           | 3/4                            | 4                  | 5/8                  | 2 1/2                 |
| 3            | 7 1/2                | 15/16                       | 6                               | 3/4                            | 4                  | 5/8                  | 2 1/2                 |
| 4            | 9                    | 15/16                       | 7 1/2                           | 3/4                            | 8                  | 5/8                  | 3                     |
| 5            | 10                   | 15/16                       | 8 1/2                           | 7/8                            | 8                  | 3/4                  | 3                     |
| 6            | 11                   | 1                           | 9 1/2                           | 7/8                            | 8                  | 3/4                  | 3 1/4                 |
| 8            | 13 1/2               | 1 1/8                       | 11 3/4                          | 7/8                            | 8                  | 3/4                  | 3 1/2                 |
| 10           | 16                   | 1 3/16                      | 14 3/4                          | 1                              | 12                 | 7/8                  | 3 3/4                 |
| 12           | 19                   | 1 1/4                       | 17                              | 1                              | 12                 | 7/8                  | 3 3/4                 |

Bolt lengths are for flanges of thickness shown herein. Bolt lengths should be checked for the thicker flanges shown in some individual valve description pages. When flanges integral with valves or fittings, the bolt holes, which are in multiples of four, are drilled to straddle the center lines unless otherwise ordered. Class 125 cast iron flanges have plain faces.

#### **CLASS 250**

| NOMINAL      | FLANGE THICKNESS        |                             |                                 | DRILLING                        |                                | BOLTING            |                      | LENGHT OF             |
|--------------|-------------------------|-----------------------------|---------------------------------|---------------------------------|--------------------------------|--------------------|----------------------|-----------------------|
| PIPE<br>SIZE | FLANGE<br>DIAMETER<br>A | FLANGE<br>THIKNESS MIN<br>B | DIAMETER OF<br>RAISED FACE<br>C | DIAMETER OF<br>VOLT CIRCLE<br>D | DIAMETER OF<br>BOLT HOLES<br>E | NUMBER OF<br>BOLTS | DIAMETER OF<br>BOLTS | MACHINE<br>BOLTS<br>F |
| 1            | 4 7/8                   | 1 1/16                      | 2 11/15                         | 3 1/2                           | 3/4                            | 4                  | 5/8                  | 2 1/2                 |
| 2            | 6 1/2                   | 7/8                         | 4 3/16                          | 5                               | 3/4                            | 8                  | 5/8                  | 2 3/4                 |
| 3            | 8 1/4                   | 1 1/8                       | 5 11/16                         | 6 5/8                           | 7/8                            | 8                  | 3/4                  | 3 1/2                 |
| 4            | 10                      | 1 1/4                       | 6 15/16                         | 7 7/8                           | 7/8                            | 8                  | 3                    | 3 3/4                 |

The 1/16-inch raised face on the Class 250 cast iron flanges is included in the dimension B for thickness of flange.

Bolt lengths are for flanges of thickness shown herein. Bolt lengths should be checked for the thicker flanges shown in some individual valve description pages.



# **DESIGN BASIS**

All of WALWORTH's Valve Designs, when applicable, follow one or more of the following standards.

| API Standards      | American Petroleum Institue          |  |  |  |  |  |
|--------------------|--------------------------------------|--|--|--|--|--|
|                    | • API-598                            | Valve inspection and testing.  |  |  |  |  |
|                    | • API-599                            | Metal Plug Valves - Flanged, Threaded and Welding.   |  |  |  |  |
|                    |                                      |  |  |  |  |  |
| ANSI Standards     | National Standards Institute         |  |  |  |  |  |
|                    | • B16.1                              | Cast Iron Pipe Flanged and Flanged Fittings  |  |  |  |  |
|                    | • B16.10                             | Length of ferrous flanged and welding end valves   |  |  |  |  |
|                    | • B1.20.1                            | Pipe Threads, General Purpose.   |  |  |  |  |
|                    | • B16.34                             | Valves -Flad, Threaded and Welding End.  |  |  |  |  |
| ASTM Standards     | American Society for                 | or Testing and Materials   |  |  |  |  |
|                    | • ASTM A126                          | Gray Iron Castings For valves, flanges and pipe fittings.  |  |  |  |  |
|                    | • ASTM A193                          | Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service                                 |  |  |  |  |
|                    | <ul> <li>ASTM A194</li> </ul>        | Carbon and Alloy Steel nuts for bolts for High-Pressure and High-Temperature Service                           |  |  |  |  |
|                    | • ASTM A216                          | Steel Castings, Carbon, suitable for Fusion Welding for High-Temperature Service                               |  |  |  |  |
|                    | • ASTM A276                          | Stainles and Heat-Resisting Steel Bars and Shapes  |  |  |  |  |
|                    |                                      | •  |  |  |  |  |
|                    | • ASTM A307                          | Carbon Stell bolts and studs, 60,000 psi Tensile   |  |  |  |  |
|                    | <ul> <li>ASTM A320</li> </ul>        | Alloys - Steel bolting materials for Low-Temperature Service.  |  |  |  |  |
|                    | • ASTM A352                          | Steel Castings, Ferritic and Martensitic, for Pressure-Containing Parts. Suitable for Low-Temperature Service. |  |  |  |  |
|                    | <ul> <li>ASTM A487</li> </ul>        | Steel Castings Suitable for Pressure Service   |  |  |  |  |
|                    | • ASTM A515                          | Pressure Vessel Plates, Carbon Steel, for intermediate and High-Temperature Service.                           |  |  |  |  |
| MSS Standards      | Manufacturers Standarization Society |  |  |  |  |  |
|                    |                                      | Standard Finishes for Contact Faces of Pipe Flanges and Connecting-end Flanges of Valves and                   |  |  |  |  |
|                    | <ul> <li>MSS SP-6</li> </ul>         | Fittings.  |  |  |  |  |
|                    | <ul> <li>MSS SP-9</li> </ul>         | Spot Facing Bronze, Iron and Steel Flanges   |  |  |  |  |
|                    | <ul> <li>MSS SP-25</li> </ul>        | Standard Marking System for Valves, Fittings, Flanges and Unions.  |  |  |  |  |
|                    | <ul> <li>MSS SP-44</li> </ul>        | Steel Pipe Line Flanges  |  |  |  |  |
|                    | <ul> <li>MSS SP-55</li> </ul>        | Visual Method  |  |  |  |  |
|                    | <ul> <li>MSS SP-61</li> </ul>        | Pressure Testing of Steel Valves   |  |  |  |  |
|                    | <ul> <li>MSS SP-78</li> </ul>        | Cast Iron Plug Valves, Flanged and Threaded Ends   |  |  |  |  |
| NACE Standards     | National Associatio                  | n of Corrosion Engineers   |  |  |  |  |
|                    |                                      | Standard material requirements sulfide stress cracking resistant metallic materials for oilfield equipment     |  |  |  |  |
|                    |                                      |  |  |  |  |  |
| ASME Codes         | American Society o                   | f Mechanical Engineers   |  |  |  |  |
|                    | <ul> <li>ANSI/ASME B31.</li> </ul>   | 1 Power Piping   |  |  |  |  |
|                    | ANSI/ASME B31.3                      | 2 Fuel Gas Piping  |  |  |  |  |
|                    | ANSI/ASME B31.3                      | 3 Process Piping   |  |  |  |  |
|                    | ANSI/ASME B31.4                      | 4 Liquid Transportation Systems for Hydrocarbons   |  |  |  |  |
|                    | ANSI/ASME B31.3                      | 8 Gas Transmission and Distribution Piping Systems   |  |  |  |  |
|                    | ANSI/ASME B31.                       |  |  |  |  |  |
| Boiler and Presure | Vessel Code:                         |  |  |  |  |  |
|                    |                                      | Material Specifications - Part A, B and C  |  |  |  |  |
|                    | Section II                           |  |  |  |  |  |
|                    | Section V                            | Non-Destructive Examination.   |  |  |  |  |
|                    | Section VIII                         | Rules for construction of Pressure vessels, divisions 1 and 2  |  |  |  |  |
|                    | <ul> <li>Section IX</li> </ul>       | Welding and Brazing Qualifications   |  |  |  |  |
|                    |                                      |  |  |  |  |  |



# **HOW TO ORDER**

| SIZE<br>(INCH) | DESCRIPTION BY FIGURE NUMBER  | BASE MATERIAL               | SUPPLEMENTARY REQUIREMENTS                       |
|----------------|---|-----------------------------|--|
| 1/2"           | 1796= SINGLE GLAND TYPE; CWP<br>200, SHORT PATTERN, WRENCH                                    | CAST IRON ASTM A126 GRADE B | BS= Bare stem prepared for actuator.             |
| 3/4"           | OPERATED,<br>THREADED ENDS.   |                             | MOV= Motor operated valve.                       |
| 1"             | 1797F= SINGLE GLAND TYPE; CWP<br>200, SHORT PATTERN, WRENCH                                   |                             | POV= Pneumatic operated valve.                   |
| 1 1/4"         | OPERATED,<br>FLANGED RF ENDS.   |                             | LD= Locking device.                              |
| 1 1/2"         | 1718F= REGULAR GLAND TYPE; CWP  |                             | SP= Special Paint.                               |
| 2"             | 200, SHORT PATTERN, WRENCH<br>OPERATED, FLANGED RF ENDS.                                      |                             | SPK= Special packing.                            |
| 2 1/2"         | 1727F= REGULAR GLAND TYPE; CWP<br>200, SHORT PATTERN, WORM GEAR<br>OPERATED, FLANGED RF ENDS. |                             | XX= Additional requirements.                     |
| 4"             | 1700= REGULAR GLAND TYPE; CWP   |                             |  |
| 5"             | 200, REGULAR PATTERN, WRENCH<br>OPERATED, THREADED ENDS.                                      |                             |  |
| 6"             | 1700F= REGULAR GLAND TYPE; CWP  |                             |  |
| 8"             | 200, REGULAR PATTERN, WORM GEAR<br>OPERATED, FLANGED RF ENDS.                                 |                             |  |
| 10"            | 1703F= REGULAR GLAND TYPE; CWP  |                             |  |
| 12"            | 175, VENTURI PATTERN, WORM GEAR<br>OPERATED, FLANGED RF ENDS.                                 |                             |  |
| 14"            | 1707F= REGULAR GLAND TYPE; CWP  | 10"- 1796 - X               |  |
| 16"            | 200, VENTURI PATTERN, WORM GEAR<br>OPERATED, FLANGED RF ENDS.                                 |                             | SUPPLEMENTARY REQUIREMENTS.                      |
| 18"            | 2721F= CWP 500, VENTURI PATTERN,  |                             | GLAND TYPE, PRESSURE CLASS,                      |
|                | WRENCH OPERATED,<br>FLANGED RF ENDS.  |                             | PATTERN STYLE,<br>TYPE OF ENDS & PRESSURE CLASS. |
|                | 2723F= CWP 500, VENTURI PATTERN,<br>WORM GEAR OPERATED,<br>FLANGED RF ENDS.                   |                             | SIZE OF THE VALVE IN INCHES                      |



### **THE WALWORTH COMPANY GENERAL TERMS AND CONDITIONS**

ACCEPTANCE: All quotations are for acceptance within 30 days from date of quotation unless extended in writing. In the event a purchase order is placed after this period of time, the WALWORTH Company reserves the right to requote base prices of all valves offered. All orders and contracts are subject to credit approval and acceptance by the WALWORTH Company.

FREIGHT: When prices are f.o.b. point of shipment - no freight allowance - we will attempt to route shipments in the method which will result in the lowest cost unless otherwise instructed. All shipments will be freight charges collect except when stipulated on the purchase order, in which case you will be invoiced for all transportation charges. Delivery of material to a common carrier shall be considered to be delivery to Buyer and shall be at Buyer's risk thereafter. Claims of loss of or damage to material in transit shall be filed by the Buyer directly with the carrier.

PRICES: There will be added to all prices quoted sales, use, occupation or any other excise or similar tax which Seller may be required to pay or collect on or in connection with the sale. Seller shall be established by Federal, State or other government regulation with respect to the product(s) topped by the order which shall be lower than the price(s) specified in the order.

ESCALATION TERMS: Prices shown in this price schedule reflect the costs in effect at the time of publication. These prices will remain firm on all products with a quoted delivery of twenty–six (26) weeks or less. On products which have a scheduled delivery of more than twenty-six (26) weeks, the goods will be invoiced based on the applicable price sheet in effect at the time of shipment. In no event will the invoiced price be less than the price originally quoted.

PURCHASED COMPONENTS: (i.e. motors, gearing, etc.) Prices are quoted on the supplier's price in effect at the time of quotation. Actual invoice price will be adjusted in accordance with the supplier's escalation policy.

DIFFERED SHIPMENTS: If for any reason the customer desires to delay shipments more than 30 days after manufacturing is complete, or to place a on hold or stop to the order during the manufacturing cycle, The WALWORTH Company reserves the right to consider the order cancelled and to invoke cancellation charges per the schedule bellow.

CANCELLATION: After order acceptance by WALWORTH, items or completed orders may be cancelled and Buyer will be charged for work performed, based on the following schedule:

- Five percent (5%) of prices of stock items.

- Ten percent (10%) of price of stock items ordered in quantities which exceed normal inventory levels.

- Five percent (5%) of prices prior to drawing submittal on made-to-order items.

- 15% after drawing approval, but prior to the start of castings.

- 30% to 50% during casting cycle, depending on the state of completion.

- 55% to 75% during machining and assembly operations, depending on the state of completion.

-100% after final assembly and test.

REMITTANCES: Remittances must be made to the address indicated on the invoice.

CREDIT TERMS: As quoted. Invoices on balances overdue will be subject to a service charge of 1 1/2 % per month on such indebtedness.

DELIVERIES: Shipments and deliveries shall at all times be subject to the approval of Seller's Credit Department. If the Buyer shall fail to make any

payments according to the terms of the contract, Seller may, in addition to and not in limitation of its other rights and remedies, at its option, cancel all or any part of Buyer's incomplete contracts with Seller, or may defer shipments of deliveries under Buyer's contracts with Seller except upon receipt of satisfactory security or for cash shipment.

All schedule of shipments are estimated as closely as possible and Seller will use its best efforts to ship within the time scheduled, but does not guarantee to do so. Schedules commence with the date Seller receives authorization to proceed with the order, subject to the provisions of the next sentence. The order will not be released for manufacture until complete specifications and approved drawings (if drawing approval is required) are received at the plant of manufacturer and the estimated schedule of shipment will commence with the date of such receipt.

Seller shall not be liable for any direct, indirect or consequential damage or loss caused by any delay in delivery, regardless of the cause of delay.

Without limiting the generality of the foregoing, Seller assumes no responsibility for delays in delivery resulting from fire, flood, accidents, riots, strikes, transportation delays, labor or material shortages, existing or future laws, acts of any governmental authority, or any other cause beyond Seller's control. Items offered from stock are subject to prior sale.

INSPECTION: Final inspection and acceptance of products must be made at the plant of manufacture, unless otherwise provided in the order and/ or in agreed upon specifications. Prices do not include charges for special tests or inspections performed at the request of the Buyer, unless called for in the order and/or in agreed upon specifications.

RETURNS: Permission in writing and return tagging instructions must be obtained from Seller before any goods returned for credit or adjustment will be accepted. Where returned goods are accepted, a minimum charge of 25% of the invoice price will be made, plus freight from both directions and costs of reconditioning the material for resale as new.

WARRANTY: Seller will replace without charge or refund the purchase price of products manufactured by Seller which prove to be defective in the material or workmanship, provided in each case that the product is properly installed and is used in the service for which Seller recommends it and that a written claim, specifying the alleged defect, is presented to Seller. Seller shall in no event be responsible for (a) claims for labor, expenses or other damages occasioned by defective products or (b) for consequences or secondary damages. THE WARRANTY STATED IN THIS PARAGRAPH IS IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED. WITH RESPECT TO WARRANTIES, THIS PARAGRAPH STATES BUYER'S EXCLUSIVE REMEDY AND SELLER'S EXCLUSIVE LIABILITY.

DESIGN, ETC: Seller reserves the right to change design, materials or specifications without notice. There will be a charge for modifying an order after it has been entered when such change or modification results in additional engineering or clerical work for either The WALWORTH Company or our suppliers.

MINIMUM CHARGE: Orders totaling less than \$100.00 net will be billed at a minimum charge of \$100.00. Repair parts will be billed at a minimum charge of \$50.00.

NOTE: We reserve the right to correct obvious clerical errors in quotations, invoices, and other contracts.







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