

# Specifications For Valve Insertion System

Equipment For Valve Insertion  
Pipe Sizes: 4" (100mm) Through 12" (300mm)

## 1.0 **SCOPE**

This specification covers the furnishing, complete EZ Valve insertion system.

## 1.1 **Equipment Capability:**

The equipment shall be capable of installation, without shutdown, at one location, of pipe sizes, in the range of 4" to 12" diameters. The capabilities specified herein are minimum mandatory requirements that must be met by any Insertion Equipment or Insertion Valve offered.

## 1.2 **Valve Insertion Equipment**

### Quantity Description

1 each	End Mill Machine (4" – 12" Capability)
1 each	Drive Motor: Hydraulic, Pneumatic, or Electric
1 each	Temporary Valve (4" – 8")
1 each	Temporary Valve (10" – 12")
1 each	Plug Insertion Tool
1 each	End Mill Cutter
1 each	Central Drill Hexagonal Screw Drive
1 each	Replaceable teeth
1 each	Rotating Feed Apparatus (4")
2 each	End Rings (4")
1 each	Rotating Feed Apparatus (6")
2 each	End Rings (6")
1 each	Rotating Feed Apparatus (8")
2 each	End Rings (8")
1 each	Rotating Feed Apparatus (10")
2 each	End Rings (10")
1 each	Rotating Feed Apparatus (12")
2 each	End Rings (12")
1 each	Drive Chain
1 each	Hand Crank
1 each	Export Hose
1 each	Debris Collection Bag
1 each	Misc. Tool Kit

2.0 **Valve For Use With Specified Equipment**

Unless specified by purchaser, valves are not a bid item. However, the specified equipment shall be compatible with the valve below.

- 2.1.1 The EZ Valve shall be capable of pressure-tight assembly to exterior of the pipe in which flow is to be stopped at a working pressure not to exceed 250 PSI.
- 2.1.2 The EZ Valve assembly shall be designed as to be easily rotated 120 degrees, perpendicular across the top of the pipe, while riding on two (2) separate rubber gaskets, constructed of (EPDM or SBR), by using a perpendicular rotary feed mechanism, driven by a chain.
- 2.1.3 The EZ Valve shall be constructed of a two (2) piece, Ductile Iron casting (Top & bottom), to be bolted together, using Ductile Iron bolts with zinc alloy anodes (Corrosion protection), manufactured to the ductile iron specification of ASTM 536 65-45-12.
- 2.1.4 The EZ Valve shall meet or exceed AWWA Specification C509 for Resilient Seal Valves suitable for Potable water service.
- 2.1.5 The Ductile Iron Gate shall have a resilient rubber seal 360 degrees around the gate and is expandable to the ID (Inside Diameter) of the pipe.
- 2.1.6 The valve stem shall be made of Stainless Steel 1 CR 12, with a tensile strength of 60,000psi.
- 2.1.7 The valve body shall have an epoxy/ E Coating of no less than 8 mills.
- 2.1.8 The EZ Valve shall use Stainless Steel fasteners joining the Valve Bonnet to the Valve top casting, unless otherwise noted in assembly drawings.
- 2.1.9 The final Restraint Fasteners (360 Degree) around the Valve Casting shall be constructed of Stainless Steel 304.

**2.1.10** Design of valve shall be such that the valve shall have a satisfactory seal against the pipe exteriors in the following ranges, by using multiple gaskets if necessary:

<u>PIPE SIZE</u>	<u>DIAMETRICAL RANGE</u>
4"	4.40 – 4.60
4"	4.80 – 5.00
6"	6.40 – 6.80
6"	6.70 – 7.10
8"	8.35 – 8.75
8"	8.95 – 9.35
10"	10.65 – 10.85
10"	11.10 – 11.50
12"	12.65 – 12.85
12"	13.20 – 13.50

**3.0 Equipment**

The size and weights of each (4" though 12") EZ Valve insertion unit shall be, once lowered into an excavation hole, two (2) employees can mount the equipment onto the valve. The Insertion Equipment is designed as to be easily transported in the trunk of a midsized car.

- 3.1.1** This equipment shall consist of tapping unit, and a detachable rotary chain drive feed.
- 3.1.2** The End Mill cutting system shall have a positive "Stop" Mechanism located on the opposite end of the Valve casting, from the rotary chain feed drive, to prevent under or over rotation of the 120 Degree slotting operation.
- 3.1.3** The End Mill cutting unit shall be able to cut size (4" – 12") pipe with one (1) size end mill cutter 45 MM (4", 6", & 8") and one (1) size end mill cutter 60 MM (10" – 12"). NOTE: New designs of the EZ Valve may incorporate the use of only one size end mill cutter for sizes 4"-12".
- 3.1.4** Drive motor shall be electric, hydraulic, or pneumatic (specified by purchaser) interchangeable and capable of installation and removable from tapping machine without any modification.
- 3.1.5** The end mill cutter shall be manually advanced laterally by the work person to prevent cutter damage due to inclusions (hard spots, etc.) in the pipe. The cutter teeth shall be able to be field replaceable if necessary.

- 3.1.6 The End Mill process shall constitute a rotary End Mi, that through the rotation of the Valve casting, cuts a slot, 120 degrees across the top of the pipe only. This allows for the insertion of the Gate mechanism.
- 3.1.7 The End Mill operation shall take place through a 2” Temporary Valve.
- 3.1.8 During the End Mill operation, the “Chips” created by the End Mill Cutter shall be flushed outside of the pipe, through the Chip Flushing Hose attached to the Valve body port located 180 degrees from the End Mill.

4.0 **Equivalent Equipment And Materials**

Whenever a material or article is specified or described by using the name of proprietary product or the name of a particular manufacturer or vendor, the specific item mentioned shall be understood as establishing the type, function, and quality desired.

5.0 **Operating And Maintenance Materials**

The two (2) complete sets of operation and maintenance shall be furnished for system.

6.0 **Delivery**

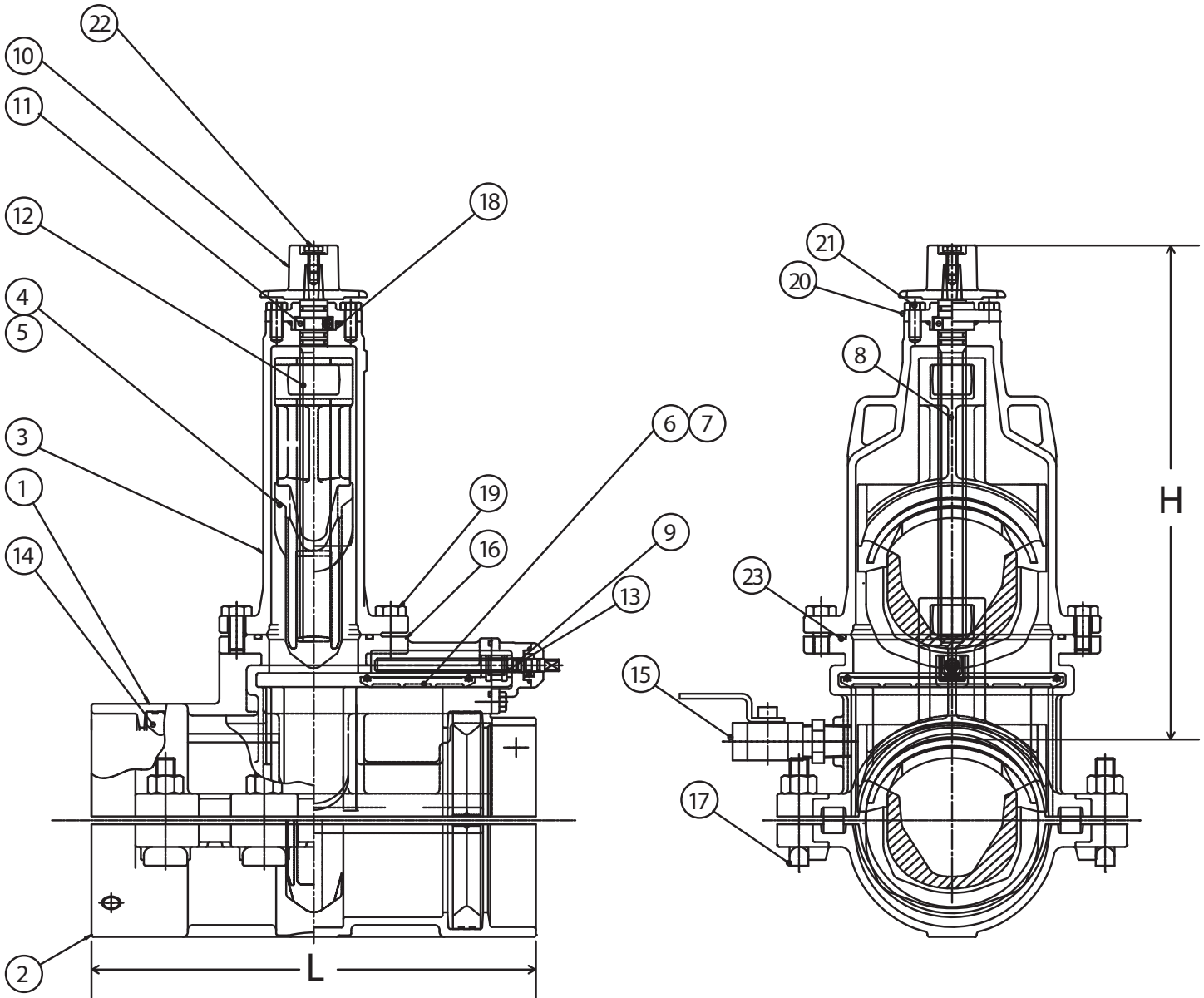
All equipment shall be bid F.O.B. with freight allowed to the purchaser. When delivered the equipment shall be complete as bid and ready to operate.

7.0 **Demonstration**

A qualified representative of the manufacturer shall provide eight (8) hours of demonstration and training in the use of equipment specified. The demonstration and training shall be conducted under actual job conditions. All cost for this training shall be included in the prices bid for the equipment.

8.0 **Warranty**

A One Year warranty shall cover parts and labor for Equipment and Valves (Excluding Perishable Tooling and O-Rings) barring misuse or lack of routine maintenance. s



Item No.	Description	Material	Part Number	SIZE	HEIGHT	LENGTH
1	Upper Half of Body	DUCTILE IRON	SGU-0XX-001	4"	18"	17 3/4"
2	Bottom Half of Body	DUCTILE IRON	SGU-0XX-002			
3	Bonnet Body	DUCTILE IRON	SGU-0XX-005			
4	Gate	DUCTILE IRON	SGU-0XX-003	6"	21"	17 3/4"
5	Gate Rubber	EPDM	SGU-0XX-004			
6	Isolation Gate	DUCTILE IRON	SGU-0XX-014	8"	24"	17 3/4"
7	Isolation Gate Rubber	EPDM	--			
8	Stem (Feed Screw)	STAINLESS STEEL	SGU-0XX-006			
9	Isolation Gate Stem	STAINLESS STEEL	SGU-0XX-015	10"	27"	19 3/4"
10	Wrench Nut	DUCTILE IRON	SGU-0XX-011			
11	Set Collar	BRASS	SGU-0XX-008	12"	29"	19 3/4"
12	Stem Nut	BRONZE	SGU-0XX-010			
13	Isolation Gate Stem Nut	BRONZE	SGU-0XX-016			
14	Gasket	EPDM	SGU-0XX-007			
15	Chip Flushing Port	--	--			
16	EM Cutting Port	--	--			
17	Sacrificial Anode Bolts/ Nuts	DUCTILE IRON WITH ZINC ANODES	--			
18	O-Rings	BUNA-N	--			
19	Bonnet Bolts	STAINLESS STEEL	--			
20	Packing Gland	DUCTILE IRON	SGU-0XX-009			
21	Packing Gland Bolts	STAINLESS STEEL	--			
22	Bolt for Wrench Nut	STAINLESS STEEL	--			
23	Bonnet O-Ring	EPDM	--			

\*XX is Valve Size



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## EZ Valve Specifications For Nominal Sizes 4" – 12"

- 1.) **Bottom Half Body:** DI. ASTM A536 65-45-12 (AWWA C-509-01)
  
- 2.) **Upper Half Body:** DI. ASTM A536 65-45-12 (AWWA C-509-01)
  
- 3.) **Bonnet:** DI. ASTM A536 65-45-12 (AWWA C-509-01)
  
- 4.) **Gate:** DI. ASTM A536 65-45-12 (AWWA C-509-01)
  
- 5.) **Gate Rubber Coated:** ASTM 10429 (AWWA C-509-01)
  
- 6.) **Stem:** Stainless Steel 1 CR 12 (AWWA C-509-01)
  
- 7.) **Gasket:** EPDM (AWWA C-509-01)
  
- 8.) **Set Collar:** Brass ASTM C519100 (AWWA C-509-01)
  
- 9.) **Stem Nut:** Bronze ASTM C90300 (AWWA C-509-01)
  
- 10.) **Wrench Nut:** DI. ASTM A536 65-45-12 (AWWA C-509-01)