

Specifications For Valve Insertion System

Equipment For Valve Insertion
Pipe Size: 14" (350mm), 16" (400mm),
20" (500mm) and 24" (600mm)

1.0 **SCOPE**

This specification covers the 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 16" diameter. 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**

<u>Quantity</u>	<u>Description</u>
1 each	End Mill Machine (14" - 24" Capability)
1 each	Drive Motor: Hydraulic
1 each	End Mill Cutter
1 each	Central Drill Hexagonal Screw Drive
1 each	Replaceable teeth
1 each	Rotating Feed Apparatus (14", 16", 20" or 24")
2 each	End Rings (14", 16", 20" or 24")
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 around the 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 three (3) 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 three pieces (one top and two bottoms) of Ductile Iron castings. These pieces are to be bolted together using Ductile Iron bolts with zinc alloy anodes for corrosion protection. All Ductile Iron is to be manufactured to the Ductile Iron specification of ASTM 536 65-45-12.
- 2.1.4 The EZ Valve shall meet or exceed AWWA Specification C509-09 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 that 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 E coating. A revolutionary process which allows the corrosion inhibitor to penetrate the host metal (ductile iron) NSF 61 as well as seal the ductile iron. Internal and external threads are completely penetrated and covered, unlike fusion bonded epoxy which can chip.
- 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>
14"	15.30 - 15.65
16"	17.40 - 17.80
20"	21.60 - 22.06
24"	25.80 - 26.32

3.0 Equipment

The size and weights of each EZ Valve insertion unit shall be, once lowered into an excavation hole, light enough so that two (2) workers can mount the equipment onto the valve. The insertion equipment is designed as to be easily transported in a standard steel jobsite box.

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 same end of the Valve casting from the rotary chain feed drive, to prevent under or over rotation of the 120 Degree milling operation.

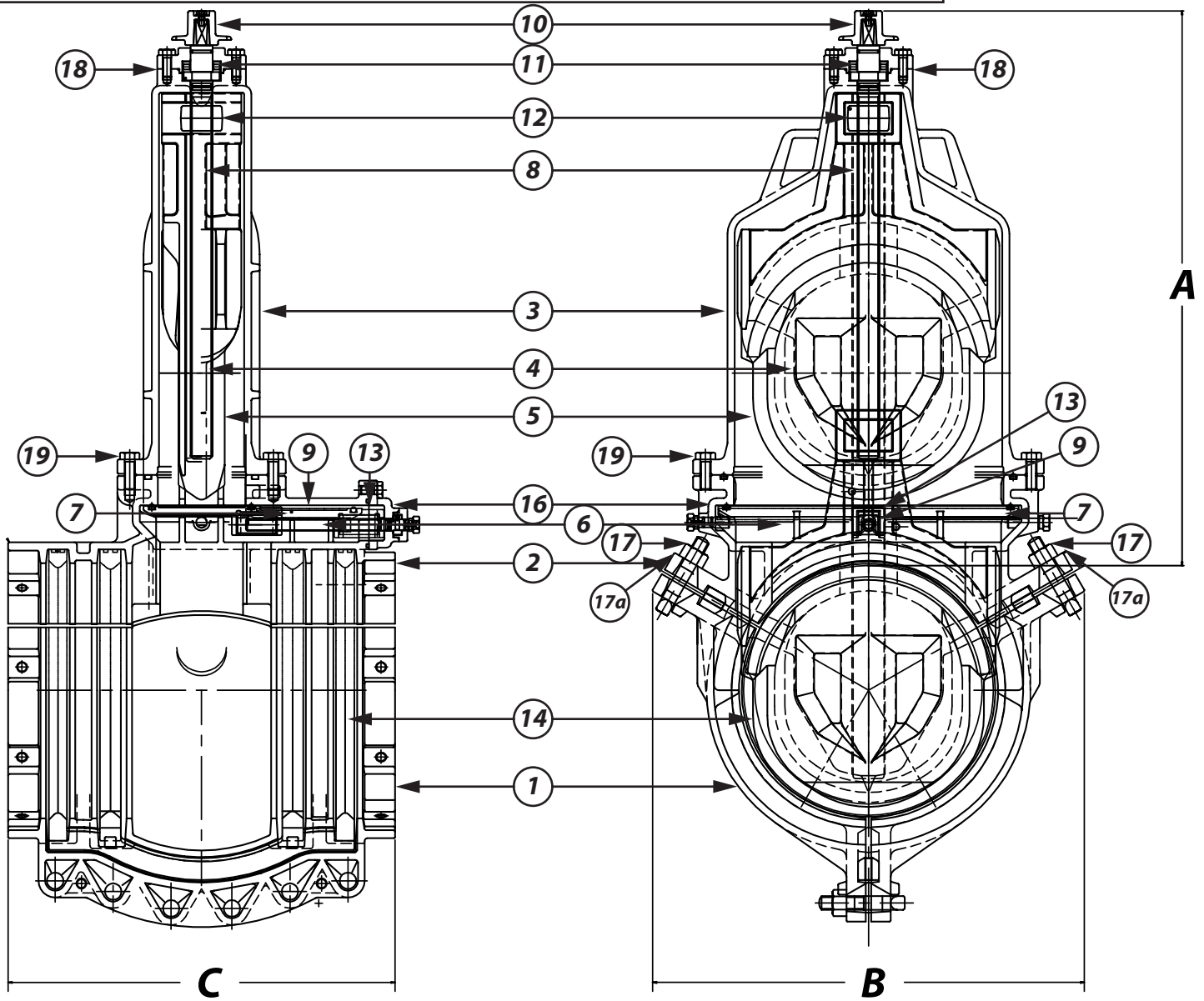
3.1.3 The End Mill cutting unit shall be able to cut size 14", 16", 20" or 24" pipe with three (3) sizes of end mill cutter 60 MM for 14", 90 MM for 16" and 20", and 100 MM for 24".

3.1.4 Drive motor shall be electric 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 worker 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 Mill, which through the rotation of the Valve casting, cuts a slot, 140 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 an isolation 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 90 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**
A comprehensive instruction and maintenance manual shall be provided for the 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.

14" ~ 24" EZ VALVES DIMENSIONS AND SPECIFICATIONS



Item No.	Description	Material
1	Bottom Half of Body	DUCTILE IRON
2	Upper Half of Body	DUCTILE IRON
3	Bonnet Body	DUCTILE IRON
4	Gate	DUCTILE IRON
5	Gate Rubber	EPDM
6	Isolation Gate	DUCTILE IRON
7	Isolation Gate Rubber	EPDM
8	Stem (Feed Screw)	STAINLESS STEEL
9	Isolation Gate Stem	STAINLESS STEEL
10	Wrench Nut	DUCTILE IRON
11	Set Collar	BRASS
12	Stem Nut	BRONZE
13	Isolation Gate Stem Nut	BRONZE
14	Gasket	EPDM
15	Chip Flushing Port	
16	EM Cutting Port	
17	Bolts/ Nuts	DUCTILE IRON
17a	Sacrificial Anodes	ZINC
18	O-Rings	EPDM
19	Bonnet Bolts	STAINLESS STEEL



	RATED at 250 PSI		MEETS AWWA C-509-01
	A	B	C
14 Inch	38	29	26
16 Inch	43	31	28
20 Inch	46	36	34
24 Inch	53	41	44



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EZ Valve Specifications For Nominal Size 14" - 24"

- 1.) **Bottom Pieces of Body:** DI. ASTM A536 65-45-12 (AWWA C-509-01)

- 2.) **Upper Piece 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)