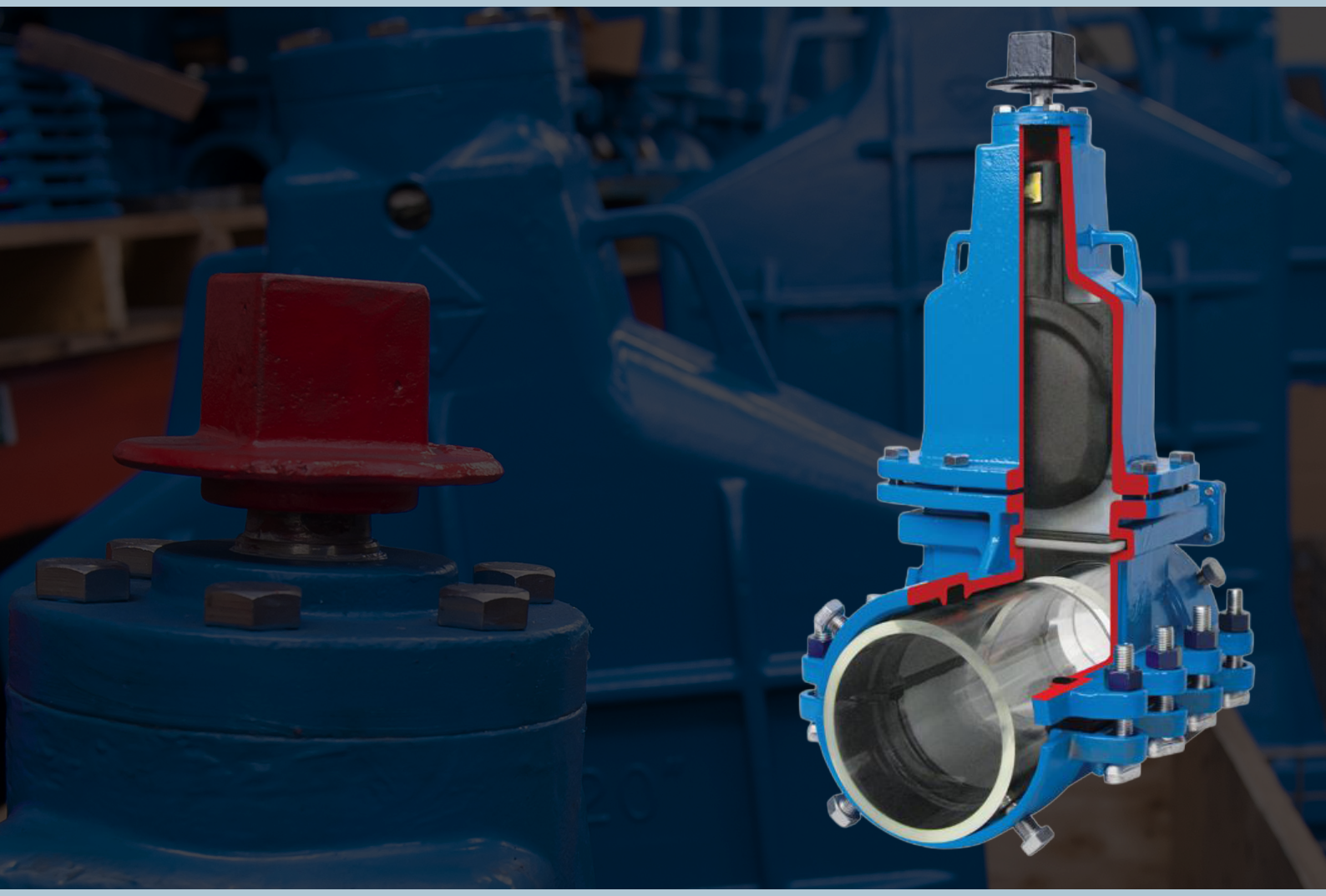
Advanced Valve Technologies



AVT EZ VALVE
PRODUCT PORTFOLIO

Henkel

Henkel Adhesive Technologies

WHO WE ARE

Advanced Valve Technologies (AVT) delivers a highly engineered solution to the challenge of installing new valves to water line without shutting off the flow. The EZ Valve is an insertion valve that can be installed on water pipelines sized from 2" to 24" (50mm to 600mm) without shutting off the water and in many cases, in under an hour. Our designs are innovative, minimize risk to the environment and reduce costly downtime. Our primary focus is on disruptions in water service that cost providers money and leave end users without service.

AVT's offering is second to none, and we are continuing to add capabilities to deliver even more superior solutions for the repair and maintenance of high-performance critical infrastructure.

Our products are supported by experienced sales, engineering and manufacturing professionals alongside a robust and all-encompassing training curriculum which means water professionals can become fully certified to install the AVT EZ Valve in just one day.

AVT holds and/or is compliant with key certifications and is a member of leading industry associations.

Achilles

WRAS APPROVED MATERIAL

American Water Works Association

UL

THE AVT PRODUCT AND SERVICES PORTFOLIO

AVT EZ Valve:

- 2" (50mm)
- 3" (80mm)
- 4" to 14" (100mm to 350mm)
- 16" to 24" (400mm to 600mm)

AVT EZ Valve Toolkit:

- Nano 2" (50mm)
- Micro - 3" (80mm)
- Small - 4" to 14" (100mm to 350mm)
- Large - 16" to 24" (400mm to 600mm)

Training:

- Online curriculum
- Face to face training
  - Customer location
  - In the field
  - At our Elk Grove Village, IL manufacturing base

RentEZ (low cost or free rental of AVT EZ Valve Toolkit):

- For 4" to 14"
- For 16" to 24"

THE AVT EZ VALVE

The EZ Valve is an inline insertion valve that can be installed on water lines and depending on the pipe material, installation takes anywhere from 45 minutes for our smaller valves to 3 hours for our larger range.

The valve uses an integral isolation gate, which when operated after the slot has been milled into the pipe, allows the EM machine to be removed and the resilient wedge installed. This process means the valve can be installed on a live line while the water is flowing. The resilient wedge needs to be lowered just 2/3 of the way into the pipe to commission the install meaning users have the choice of when to turn off their water.

AVT EZ Valve applications and pipe materials:

The AVT EZ Valve is designed for use on nearly all pipe materials including asbestos concrete, a material commonly known as difficult to cut and prone to disintegrate when worked on. The AVT EZ Valve's low weight and innovative slot milling technology means it is the ideal choice of inline insertion valve. AVT's full range of valves, from sizes 2" to 24" can be used on the below relevant pipeline applications:

- High-rise buildings
- Buildings of multiple occupancy
- Hotels
- Factories
- HVAC
- Commercial plumbing and water distribution
- Municipal water networks
- Transmission and distribution lines
- Water treatment plants
- Sewer force mains
- Refining and petrochemicals / fire suppression lines
- Ground storage tank isolation
- Offshore applications
- Commercial buildings/isolation
- Industrial process piping
- Fire hydrant repairs

The Benefits & Values of the AVT EZ Valve

- No water shut off required during installation
- No fines for water shut off
- No boil orders
- No customer notices
- No risk of plugging the line with a cut coupon
- No loss of pipe integrity
- Four times quicker to install
- Only one excavation required

Design features

- Unique, patented technology
- Low-profile design
- Integral isolation gate
- Ductile iron castings
- Corrosion resistant coatings
- Stainless steel fasteners for secure positioning
- Can be installed on PVC and most metallic pipes
- Customizable for special applications (Sleeves to meet irregular pipe ODs)
- Can be installed on Asbestos Cement pipes up to 12"
- Can be installed at any angle
- Valve bonnet can be removed after a repair or remain in place as an inline valve
- EZ Valve Components are WRAS Certified, meet AWWA C-509/C515 standards and UL Classified to NSF/ANSI Standard 61, Drinking Water System Components - Health Effects

CUT AWAY VALVE WITH KEY

AVT EZ Valve with bonnet installed and wedge gate partially lowered

Actuator
Standard number of turns to open and close valve

Resilient Wedge
A wedge gate over a ductile iron frame that e ectively seals even tuberculated host pipe

Integrated isolation valve
Provides “under pressure” installation or removal of valve bonnets or blind flanges

Insertion Slot
One narrow slot over a 120° path maintains pipe integrity and creates resilient wedge access

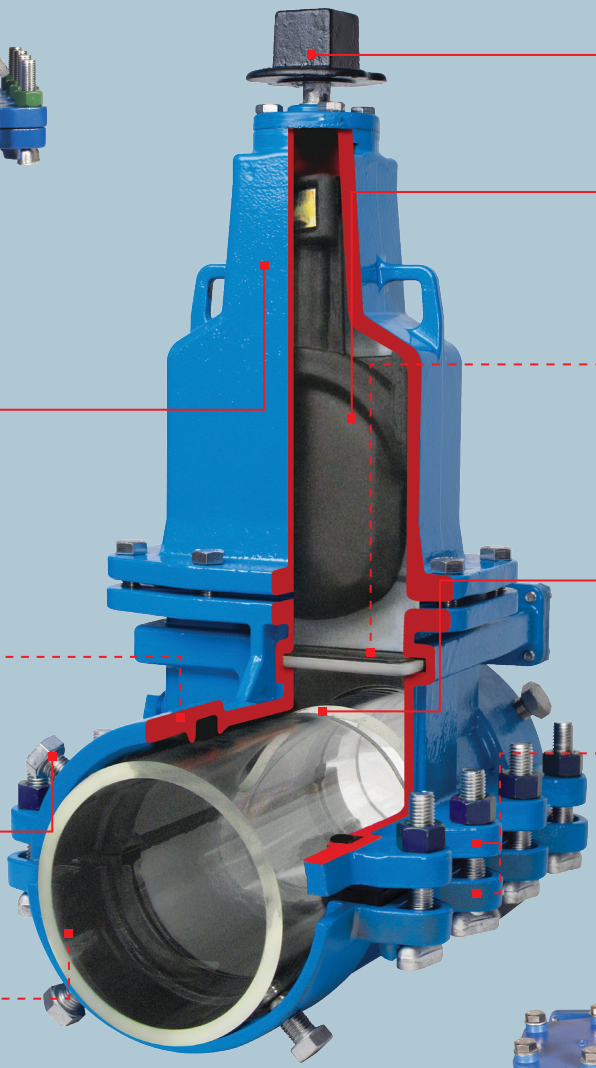
Castings
Ductile iron castings are precision machined to fit project specifications and pipe material

Removable Valve Bonnet
Resilient wedge gate and actuation mechanism are contained for fast and easy installation or removal

Gasket & Channel
Maintain system pressure while allowing rotation of casting assembly during slot-milling

Fasteners
Stainless steel components secure casting assembly and provide final positioning on pipe

Pipeline Compatibility
The EZ Valve design works with most metallic pipes, AC and PVC materials



AVT EZ Valve with bonnet removed and blind flange installed

THE AVT EZ VALVE TOOLKIT

The AVT EZ Valve Toolkit comes complete with all the tools and equipment required to install our innovative, award-winning valve, including end milling (EM) machine which mills the unique 120° slot across pipe which has no negative effect on the pipe integrity.

Sizes available:

- Nano - 1.5” to 2” (40mm to 50mm)
- Micro - 3” (80mm)
- Small - 4” to 14” (100mm to 350mm)
- Large - 16” to 24” (400mm to 600mm)

The toolkit includes:

- EM (End Milling) Machine
- Fasteners
- Cutterhead
- Spare cutterhead /teeth
- Power pack
- Measurement calipers
- Pressure test plate
- Pressure source
- End rings & U-gauge (size specific)
- Combination wrenches (various sizes)
- Allen wrenches (various sizes)
- Ratchet wrench
- Sockets
- Adjustable wrench
- AVT assembly grease and tape Level
- Other items as required

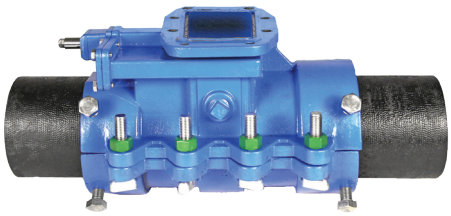
INSTALLATION PROCESS

1 Prepare **Insertion Site**

Prepare insertion site by lubricating the gasket and contact areas

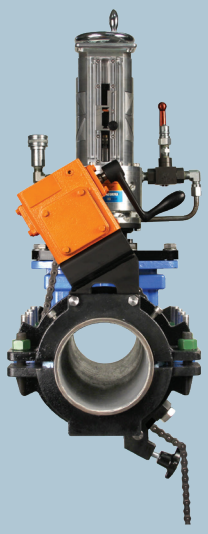
2 Lubricate **Gasket Sets & Channels**

Lubricate gasket sets and gasket channels in casting bodies



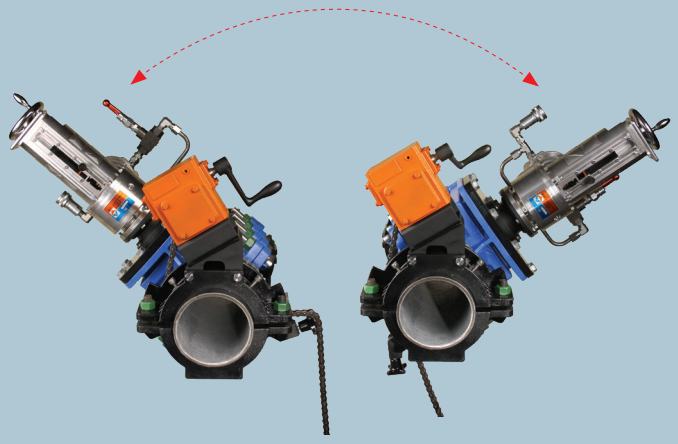
3 Assemble **Ductile Iron Castings**

Assemble ductile iron castings with ductile iron fasteners to accept a pressure test and temporarily allow rotation for milling



4 Attach **EM Machine**

Check integral isolation gate is fully open, fit rotation assembly, attach EM machine and apply pressure tests

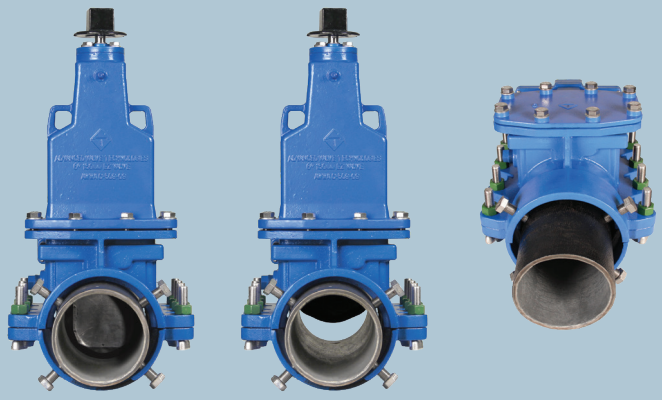


5 Mill A Slot Over **a 120° Path**

Maintaining system line pressure, mill a slot over a 120° path (Note: The slot normally is cut to provide for vertical valve alignment, but the installer can select any position.)

6 Retract The **Milling Head**

Retract the milling head, close the integral isolation gate.. Replace the EM Machine with the resilient wedge bonnet, remove the rotation assembly and tighten casting fasteners to specified torque values



7 Open **and Operate**

Open the integral isolation gate and operate the AVT EZ Valve. For line stop applications, replace the valve bonnet with a blind flange using the integral isolation gate

TRAINING

AVT has created a robust training program aimed at ensuring all AVT EZ Valve installers are fully prepared to safely and efficiently install our valves. Our training program is spilt into two sections: online curriculum and face to face training.

Online curriculum

Our online curriculum gives new installers an overview of all the materials used and actions required to install the AVT EZ Valve in order to fully prepare them for their face to face training. Trainee installers simply need to sign up via our website contact us page, or liaise with your AVT representative to gain access. The online curriculum includes:

Pre-installation:

- Parts overview
- Supplies required to install the valve
- Excavation and pipe access
- Valve placement

Installation Process:

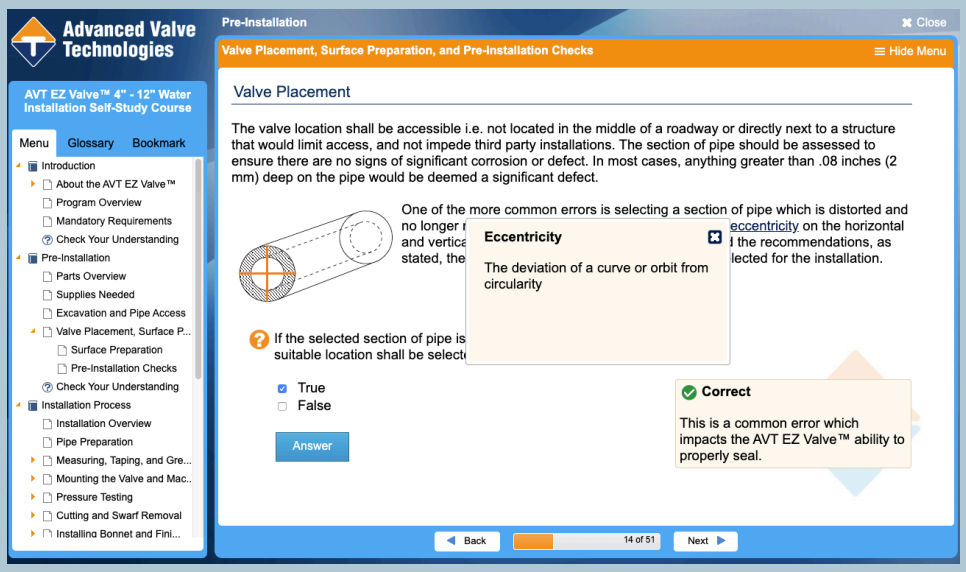
- Surface preparation
- Pre-install checks
- Pipe preparation
- Measuring, taping, and greasing
- Mounting the valve and machine equipment
- End rings
- Gear box
- Level and set
- Pressure testing
- Cutting and swarf removal
- Milling assembly
- Slot milling and swarf removal
- Installing the bonnet

Operation & Maintenance:

- Maintenance
- Storage
- Installation equipment maintenance

Process Safety and Assurance:

- Trained staff
- Risk assessment
- Safe work practices
- PPE



Face to face training

Our face to face training can take place in a number of locations: at our customer specified location, in the field or at our Elk Grove Village, IL, AVT training facility. Depending on the setting, this training includes the chance to witness an install from start to finish and hands on experience of installing an AVT EZ Valve, all delivered by members of our experienced training team.

Once installers are fully trained, they receive AVT certification which enables them to install for one year before a short recertification process takes place. This usually involves re-taking the online curriculum section of the AVT training program.

RENTEZ

AVT's RentEZ programs enables users to access the AVT EZ Valve Toolkit, either free of charge or for a low rental price. For the 4" to 14" (100mm to 350mm) AVT EZ Valve, a small, up-front investment in valves gives customers a rent-free lease of the AVT EZ Valve Toolkit with a commitment to purchase a further six valves every six weeks. For the 16" to 24" (400mm to 600mm) valves, the toolkit is available via a low-cost daily rent with no commitment to purchase further valves.

To learn more, contact your local AVT Regional Account Representative or email AVT-Info@henkel.com

THE INSTALL PROCESS IN PICTURES

1 Pipe
Preparation

2 Fitting
the bottom (part B) of the AVT EZ Valve

3 Fitting
the top (part A) of the AVT EZ Valve

4 Milling
the 120° slot across the pipe

5 Integral Isolation Gate
is closed to prevent water loss

6 Installing
the bonnet

7 Completed
Install

AVT holds and/or is compliant with key certifications and is a member of leading industry associations.

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