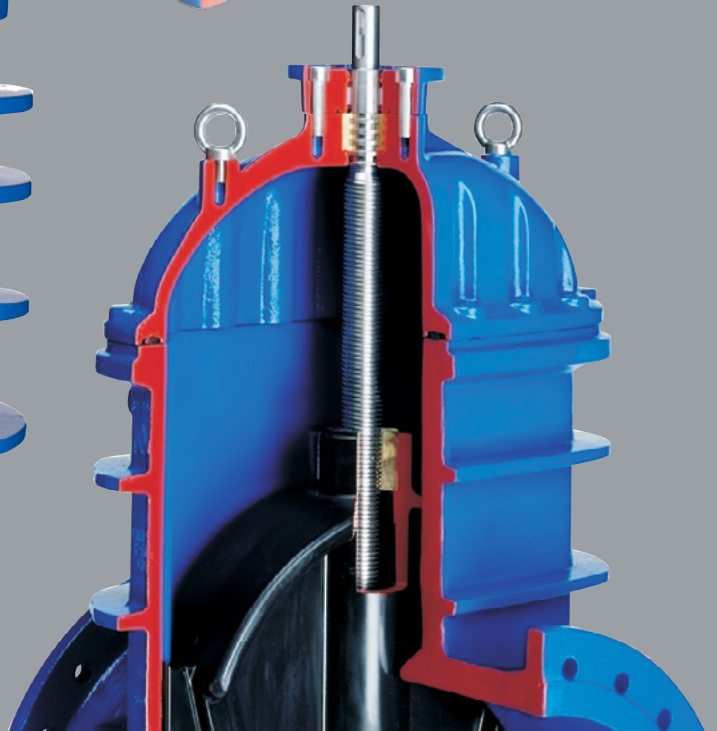
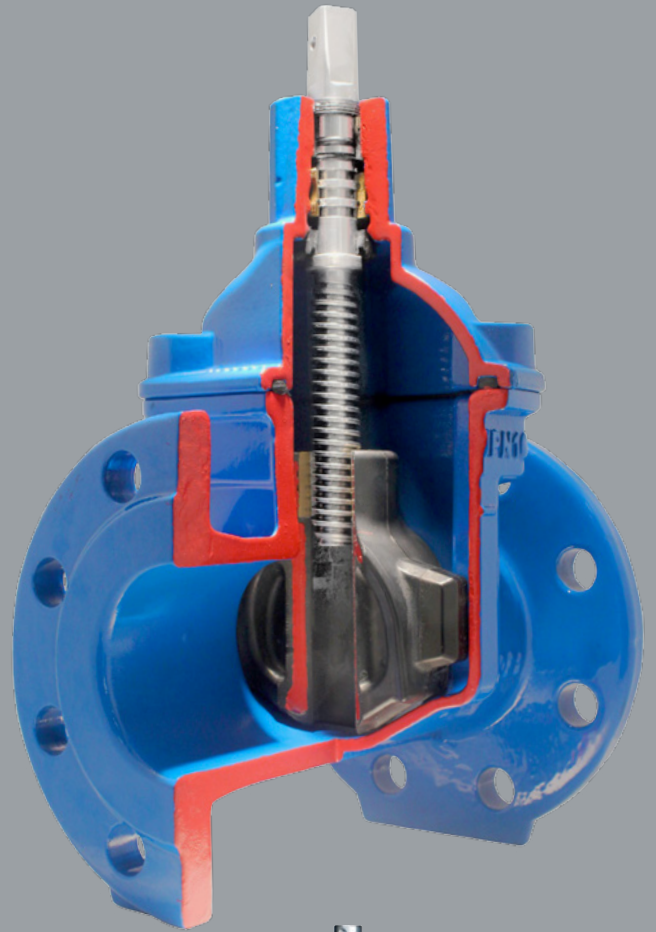


AVK RESILIENT SEATED GATE VALVES



EXPECT
SUPERIOR
QUALITY

Expect... **AVR**

AVK RENOWNED FOR SUPERIOR QUALITY



IN BUSINESS FOR MORE THAN 40 YEARS

In 1969 AVK introduced the very first gate valve for water. We have developed a complete range of valves and accessories with quality approvals secured from all the leading national and international testing institutions. Our dedication to high quality and continuous product development is widely recognized by customers around the world.

As an advanced manufacturing base in China, AVK Valves (Anhui) Co. Ltd. was established in 2001 in Hexian, Anhui Province, facilitated with high level standard as it is in Europe. The product series are including gate valves, butterfly valves, air valves, check valves, control valves, hydrants and fittings etc., which are all produced according to domestic and international standards.

AVK resilient seated gate valves are designed with built-in safety in every detail. The wedge is fully vulcanized with AVK's own drinking water approved EPDM rubber compound. It features an outstanding durability due to the ability of the rubber to regain its original shape, the double bonding vulcanization process and the sturdy wedge design. The triple safety stem sealing system, the high strength stem and the thorough corrosion protection safeguard the unmatched reliability.



WE CARE ABOUT THE ENVIRONMENT



To us, sustainability means undertaking initiatives to promote greater environmental responsibility and encourage the development and diffusion of environmentally friendly technologies, such as those which reduce water waste.

For AVK sustainability and sound economics go hand-in-hand. By reducing water waste you not only save money, you actively help reduce electricity consumption and protect one of our most valuable resources. Our high-quality solutions minimize environmental impacts caused by excavation, repair or replacement. This ensures that your business is based on a sustainable foundation living up to the requirements of social responsibility and environmental conscience.

Lasting solutions

Sustainability is about creating a sustainable business. Our solutions reduce water loss, electricity consumption and CO2 emissions in production facilities all over the world, and are financially tenable.

Optimization for better results

Today our innovative solutions significantly reduce water wastage simply because we have put a lot of effort into optimizing every design detail. Innovation is a central part of a modern business, and we are dedicated to finding new ways to reduce water waste and optimize your business.

International standard for environmental management (ISO 14001)

AVK complies with the internationally accepted ISO 14001 standard, which provides a foundation for eco-management in companies. We work hard to fulfil local environmental standards and minimise our environmental impacts, both in terms of production processes and materials.

We expect more from ourselves

The AVK Group has set stringent requirements to its production companies

regarding energy and water consumption.

We are aware of the importance of reducing electricity consumption as this contributes to the CO2 emission problem.

We also know that pure water is a scarce resource and, consequently, oblige our companies to make a great effort to reduce their use.

APPLICATION

Water Supply



WATER DISTRIBUTION



WATER PLANT WORK



WATER TRANSMISSION

Waste Water Treatment



COLLECTION



OUTLET



TREATMENT

QUALITY VALVES FOR VITAL SYSTEMS



Advanced technology in products and processes

For nearly two decades, AVK Anhui has successfully been meeting and exceeding the strict safety demands from water companies. Our valves are manufactured in the modern and highly automated factories in Anhui, China. We are entirely committed to ensuring that quality remains a naturally integrated part of our production flow. AVK Anhui's quality assurance system is certified according to ISO 9001, ISO 14001 the international standard for environmental management.

Part of vital infrastructures

The majority of our gate valves are installed underground and must therefore be maintenance free and remain fully functional for many years. All our gate valves are part of vital infrastructures delivering clean drinking water, efficient handling of wastewater, as well as crucial fire protection systems. Compromise on quality is not an option in AVK.

Advanced lost foam technology for casting foundry

From strategic vision of future, AVK established a lost foam casting foundry in Anhui in 2014. Compared with a traditional sand casting process, this casting process is advantageous for very complex castings that would regularly require cores. It is also dimensionally accurate, maintains an excellent surface finish, requires no draft, and has no parting lines so no flash is formed. Besides, it's much more environmental friendly as the working conditions are much cleaner and very limited solid waste is produced all through the manufacturing process.



SUPERIOR CORROSION PROTECTION

AVK gate valves are as standard with internal and external epoxy coating according to DIN 30677-2 and GSK.

The epoxy is applied electrostatically in a closed booth, either manually or in our automatic fluidized bed system.

Thorough control of the coating

We control each batch of epoxy coated components to ensure a layer thickness of minimum 250 μ and a pore-free surface. The impact resistance is tested by dropping a steel cylinder on the coating surface through a one meter long tube. The curing of the epoxy coating is checked in an adhesive disbondment (v cut) test. The coating of all internal surfaces are 100% holiday free tested to ensure that there are no pin hole cavities exposing raw material. In addition to our own tests, the independent GSK authorities control the adhesion and cathodic disbonding of the epoxy coating six times a year.

Efficient packaging

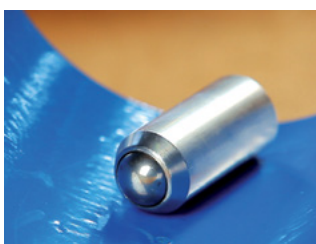
Our dedication to superior corrosion protection is continued following production. Each valve is packaged to avoid damage during transit to ensure that our products reach our customers in perfect condition.



AVK valves are blast-cleaned according to ISO 12944-4



Epoxy coating according to DIN 30677-2 and GSK requirements



The impact resistance is tested with a steel cylinder



The epoxy layer thickness must be min. 250 μ on all surfaces



Each valve is 100% holiday tested



THE COST OF GETTING IT WRONG...

Examples of competitor's valves demonstrating poor coating material, poor application and adhesion and inevitably becoming rusty.



THE WEDGE IS THE HEART OF A GATE VALVE



Unique features and benefits of the AVK wedge

- Fixed, integral wedge nut sealed with rubber prevents corrosion (1).
- Double bonding vulcanization process ensures maximum adhesion of the rubber.
- Guide rails with integrated wedge shoes ensure low friction and smooth operation (2).
- Rubber vulcanized to the core with min. 1.5 mm on all pressure bearing surfaces and 4 mm on all sealing surfaces gives optimum corrosion protection.
- Large rubber volume in the sealing area provides optimum sealing (3).
- Large plain and conical stem hole (4) prevents stagnant water and accumulation of impurities.
- AVK's rubber compound features an outstanding compression set value, resistance to water treatment chemicals and ensures minimized biofilm formation.

Fixed, integral wedge nut prevents corrosion

AVK's wedge nut design is superior to the traditional loose wedge nut design as it prevents vibration, corrosion, malfunction and water hammer. The wedge nut is made of dezincification resistant brass with lubricating abilities.

Integrated wedge shoes for smooth operation

The fixed wedge nut, combined with the guide rails with integrated wedge shoes, secures a smooth operation of the valve and low operating torques. The wedge shoes protect the rubber against wear which otherwise would arise caused by the friction during operation.

Efficient bonding is the key to durability

The wedge core is immersed in two different baths providing:

- a primer to prevent corrosion
- bonding between rubber and ductile iron core

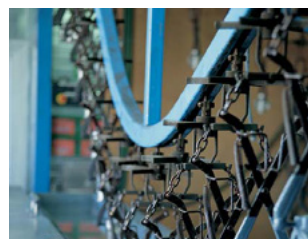
We offer the best rubber adhesion and corrosion protection on the market.



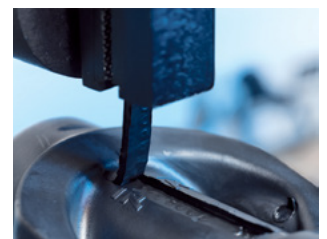
DN 40-400: Integrated wedge shoes in internal guide rails



DN 450-600: External wedge shoes on reversed guide rails



The double bonding process prevents creeping corrosion



A thin layer of rubber must remain after the peeling test

STATE OF THE ART RUBBER TECHNOLOGY



Unlike most manufacturers of resilient seat gate valves, AVK has its own in house manufacturer of rubber components, AVK GUMMI A/S. AVK Gummi develops and manufactures the rubber compound for wedges and gaskets using highly advanced technologies. Data is collected throughout the entire manufacturing process which provides traceability of every individual ingredient, each compound and the finalized components.

AVK GUMMI carries out a number of tests to ensure that the compression set values, the adhesion and the tensile strength meet the predefined requirements

Excellent ability to regain original shape

AVK GUMMI A/S has an extensive knowledge of a rubber's compression set (its ability to regain original shape). Even after many years of service where the wedge rubber has been compressed numerous times, the rubber will regain its original shape and ensure a tight sealing.

Impurities in the medium being carried will not affect the rubber surface or the tightness of the valve, as they will be absorbed in the rubber when the valve is in closed position. When the valve is reopened, the impurities will be flushed away and the rubber will regain its shape.

No contamination of drinking water

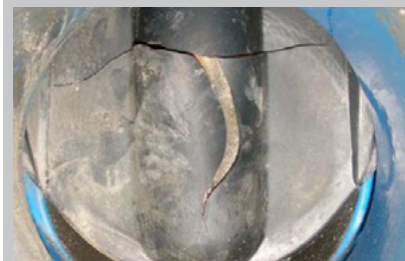
The EPDM rubber composition is designed to minimize the formation of biofilm. The rubber will therefore not provide a breeding ground for bacteria.

High resistance

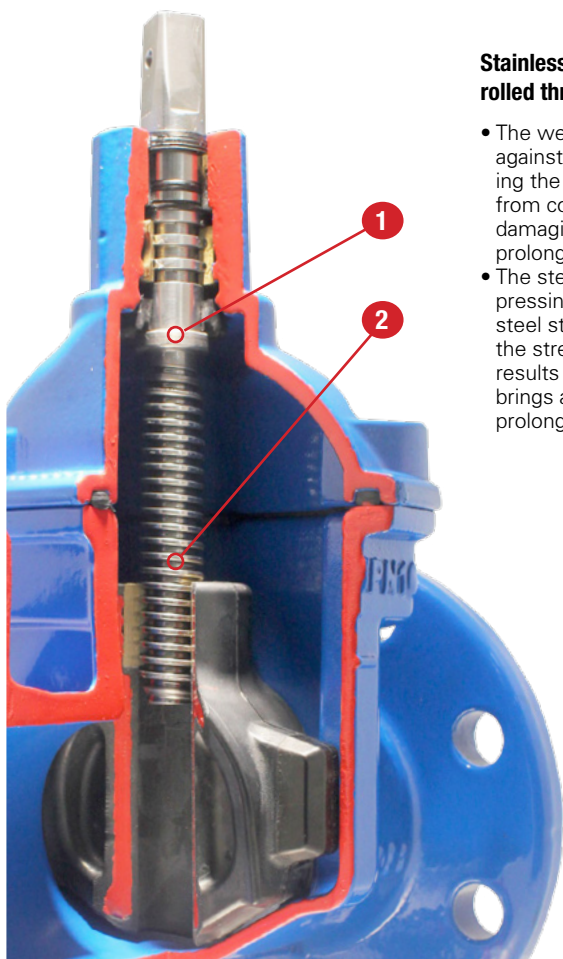
The drinking water approved EPDM compounds are resistant to ozone and water treatment chemicals such as sodium hypochlorite solutions, and are taste, smell and colour neutral. The NBR rubber is resistant to oil and gas, and holds an approval according to EN 682.

THE COST OF GETTING IT WRONG...

Competitor wedges - totally destroyed due to lack of bonding and incorrect vulcanisation.



HIGH STRENGTH AND LOW OPERATING TORQUES



Stainless steel stems with wedge stop and rolled threads

- The wedge stop (1) provides a firm stop against the wedge nut when opening the valve. This prevents the wedge from compressing the stem seals and damaging the coating inside the bonnet prolonging the durability of the valve.
- The stem threads (2) are rolled in a cold pressing process which maintains the steel structure and therefore increases the strength of the stem. This method results in smooth thread surfaces and brings about low operating torques and prolonged durability.

THE COST OF GETTING IT WRONG...

Competitor's spindles and wedge nut damaged due to low quality materials and processes.

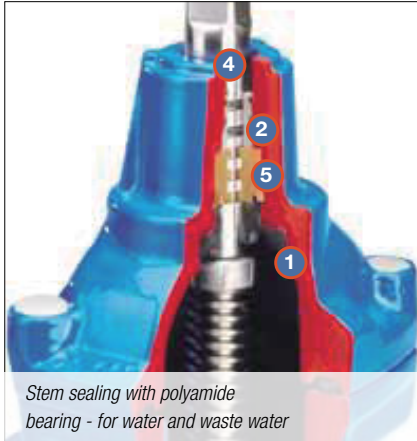


Broken wedge nut

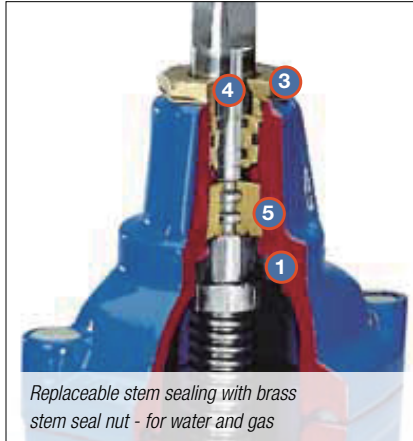


Damaged spindle thread and O-ring

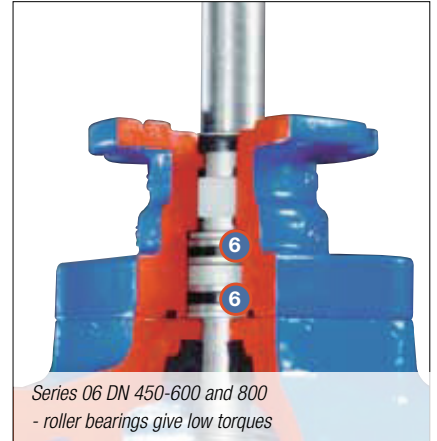
NO COMPROMISE ON LEAKAGE



Stem sealing with polyamide bearing - for water and waste water



Replaceable stem sealing with brass stem seal nut - for water and gas



Series 06 DN 450-600 and 800 - roller bearings give low torques

Triple safety stem sealing system

- An EPDM manchette (1) is the main seal to the flow.
- Four NBR O-rings in a polyamide bearing (2) provide tightness around the stem. Alternatively, in a brass stem seal nut (3) replaceable under pressure.
- An NBR wiper ring (4) protects against impurities from the outside.

The full circle thrust collar (5) of dezincification resistant brass provides a low free running torque.

Our gate valves in DN 450-600 and 800 are designed with two roller bearings (6) and a thrust collar of stainless steel offering low operating torques. Hot melt seal.

Secure assembly of valve body and bonnet

A round bonnet gasket fits into a recess between the valve body and the bonnet, which prevents it from being blown out in the event of a pressure surge. The stainless steel bonnet bolts are encircled by the bonnet gasket, countersunk in the bonnet and finally sealed with hot melt to prevent corrosion.

The recessed bonnet gasket encircles the bonnet bolts ensuring no fluid contact with bolts.



THE COST OF GETTING IT WRONG...

Competitor valves completely destroyed due to the low quality castings used and poor corrosion resistance.



Competitors valve on arrival at site.

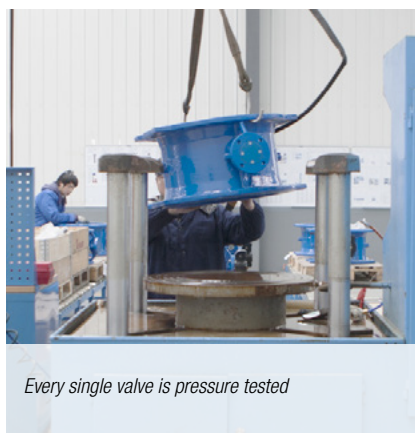


100 % pressure test

Every single valve is pressure tested according to BS EN 1074-1& 2 and EN 12266 before leaving the factory.



An infrared eye controls the pressure test automatically



Every single valve is pressure tested

AVK RESILIENT SEATED GATE VALVES



Series 02/20

Double flanged
FTF to EN558 table 2 Ser.3
new generation
Non-rising stem
DN50-400
PN10/16
Ductile iron

- Options:
- Handwheel
 - Stemcap

- Datasheets:
- 02/20-021 (A2 bolts)
 - 02/20-022 (FZV bolts)



Series 06/30

Double flanged
FTF to EN558 table 2
Ser.14
Non-rising stem
DN50-400
PN10/16
Ductile iron

- Options:
- Handwheel
 - Stemcap

- Datasheets:
- 06/30-003



Series 06/30

Double flanged
FTF to EN558 table 2
Ser.14
new generation
Non-rising stem
ISO flange
DN800
PN10/16
Ductile iron

- Options:
- Gearbox
 - Electric actuator
 - Bypass

- Datasheets:
- 06/30-026 (Without bypass)
 - 06/30-027 (With bypass)



Series 06/89

Double flanged
FTF to EN558 table 2
Ser.14
OS&Y
DN50-400
PN10/16
Ductile iron

- Datasheets:
- 06/89-003



Series 15/92

Double flanged
FTF to EN558 table 2 Ser.3
Non-rising stem
ISO flange
DN50-400
PN10/16
Ductile iron

- Options:
- Gearbox
 - Electric actuator

- Datasheets:
- 15/92-001



Series 21/36

Double flanged
FTF to EN558 table 2
Ser.3
new generation
Non-rising stem
DN50-400
PN10/16
Ductile iron

- Options:
- Handwheel
 - Stemcap

- Datasheets:
- 21/36-001 ("Without stemcap FZV bolts")
 - 21/36-012 ("With stemcap A2 bolts")



Series 21/38

Double flanged
FTF to EN558 table 2
Ser.3
new generation
Non-rising stem
ISO flange
DN50-200
PN10/16
Ductile iron

- Options:
- Gearbox
 - Electric actuator

- Datasheets:
- 21/38-001



Series 21/50

Double flanged
FTF to EN558 table 2
Ser.3
Non-rising stem
DN50-400
PN10/16
Ductile iron

- Options:
- Handwheel
 - Stemcap
 - PN25

- Datasheets:
- 21/50-003 ("1.4021 stem FZV bolts")
 - 21/50-007 ("1.4401 stem A4 bolts")



Series 21/46

Double flanged
FTF to EN558 table 2 Ser.3
OS&Y
DN50-400
PN10/16
Ductile iron

- Options:
- PN25

- Datasheets:
- 21/46-001 ("1.4021 stem FZV bolts")
 - 21/46-002 ("1.4401 stem A4 bolts")
 - 21/46-003 ("1.4021 stem A2 bolts")



Series 716/50

Double flanged
FTF to ASTM B16.10 table
1 Cl.150
new generation
Non-rising stem
2"-16"
Cl.150
Ductile iron

Datasheets:
• 716/50-001



Series 55/66

Double flanged
FTF to EN558 table 2 Ser.3
new generation
Non-rising stem
ISO flange
DN450-600
PN10/16
Ductile iron

Options:
• Gearbox
• Electric actuator
• Bypass

Datasheets:
• 55/66-001 ("1.4021 stem without bypass")
• 55/66-002 ("1.4021 stem with bypass")



Series 55/00

MJ X MJ
new generation
Non-rising stem
ISO flange
30"
Ductile iron

Options:
• Gearbox
• Electric actuator
• Bypass

Datasheets:
• 55/00-001 (without bypass)
• 55/00-002 (with bypass)



Series 55/10

MJ X FL
new generation
Non-rising stem
ISO flange
30"
Ductile iron

Options:
• Gearbox
• Electric actuator
• Bypass

Datasheets:
• 55/10-001 (without bypass)
• 55/10-002 (with bypass)



Series 55/30

Double flanged
FTF to EN558 table 2
Ser.15
new generation
Non-rising stem
ISO flange
DN800
PN10/16
Ductile iron

Options:
• Gearbox
• Electric actuator
• Bypass

Datasheets:
• 55/30-021 (without bypass)
• 55/30-022 (with bypass)



Series 55/50

Double flanged
new generation
Non-rising stem
ISO flange
30"
Cl.150
Ductile iron

Options:
• Gearbox
• Electric actuator
• Bypass

Datasheets:
• 55/50-005 (without bypass)
• 55/50-006 (with bypass)



Series 55/80

Double flanged
FTF to AS2638.2
new generation
Non-rising stem
ISO flange
DN750-800
AS4087 B5
Ductile iron

Options:
• Gearbox
• Electric actuator
• Bypass

Datasheets:
• 55/80-005 (without bypass)
• 55/80-006 (with bypass)

Note: Datasheets only show part of variants. More variants are available, please contact AVK if required.

TECHNICAL APPENDIX - COATING

Blast cleaning

All cast components are blast cleaned according to ISO 12944-4, SA 2@.

The components are cleaned in a shot-blasting plant. The cleaned parts are held with fibre-free gloves and are transported to the oven without delay according to GSK specifications.

When viewed, the surface shall be visibly free from oil, grease, dirt, mill scale, rust, paint and foreign objects. Any remaining traces of contamination shall show only as slight stains in the form of spots or stripes. The surface shall have a uniform metallic colour, visually and compared with test plates. The process ensures an optimum bonding of the coating, which is essential for corrosion resistance.

Epoxy coating

The valve bodies and bonnets are epoxy coated according to DIN 30677-2 and GSK requirements.

The epoxy coating is electrostatically applied in a closed coating booth, max. 4 hours after the valve components were blast cleaned. The epoxy powder melts between 200-230°C, and cures when in contact with the cleaned and preheated component, ensuring an optimal bonding.

Test procedure:

- Coating thickness

The layer thickness shall be no less than 250 µ.

- Pore-free coating

The coating must be completely free of penetrating pores to avoid subsequent corrosion of the casting underneath. A 3V holiday detector with a brush electrode is used to electrically reveal and locate any pores in the coating.

- Impact resistance

The impact resistance test is carried out at least 24 hours after the coating process by means of a stainless steel cylinder dropped on the coating surface through a one meter long tube corresponding to an impact energy of 5 Nm. After each impact the component is electrically tested, and no electrical breakthrough shall occur.

- Cross linkage (MIB test)

Several drops of methyl isobutyl ketone are put on a horizontal epoxy resin coated surface of the test piece at room temperature. After 30 seconds the test area is wiped with a clean white cloth. It is checked that the test surface has not become neither matt nor smeared, and that the cloth remains clean. The test is carried out 24 hours after the coating process.

- Adhesion

The adhesion of the powder coating on one of each type of component is tested at least four times a year using the punch separation method according to DIN 24624. The coating thickness over a dispersed area of the test item shall be within the

range 250 µ to 400 µ. The test pieces are immersed for seven days in deionised water at 90°C, and then dried in an oven for 3 hours. A conditioning phase of 3 to 5 days in normal atmosphere is then allowed to elapse. No blisters may arise during the period immersed in the water bath. The surface of the test piece is degreased and then roughened with abrasive paper. The roughened surface is cleaned from dust with oil-free compressed

air and recleaned. The adhesion on both the core and the moulding sand sides is tested with a minimum pulling force of >12 N/mm².

Cathodic disbonding

Cathodic disbonding tests are carried out on one of each type of component at least twice a year.

No bubbles in the coating may develop during the test for cathodic disbonding.

For this test, the coating thickness over a dispersed area of the test item shall be within the range 250 µ to 400 µ.

Approvals:

The coating is approved for use in drinking water systems, meeting all specified toxicological conditions, by the following institutes:

- Hygiene-Institute, Germany
- KIWA, the Netherlands
- WRC, UK
- CRECEP, France

TECHNICAL APPENDIX - RUBBER

Rubber specifications:

Rubber quality	EUW-70	EUW-75	EUW-80	EAW-70	EAW-75	EDK-55	EDK-70	EDK-80
Rubber type	EPDM	EPDM	EPDM	EPDM	EPDM	EPDM	EPDM	EPDM
Hardness (ShA)	70	76	80	70	76	56	70	80
Tensile strength (Mpa)	14.0	15.0	13.0	12.0	10.1	10.0	13.0	13.0
Elongation at break (%)	370	353	350	400	361	500	300	290
Density (g/cm ³)	1.10	1.18	1.21	1.23	1.31	1.19	1.12	1.17
Temperature range in dry atmospheric air:								
Minimum temperature (°C *)	-40	-40	-40	-40	-40	-40	-40	-40
Maximum temperature (°C *)	+120	+120	+120	+120	+120	+120	+120	+120
Compression set DIN 53517, 24 hours /70°C (%)	15.0	12.0	15.0	15.0	12.5	12.0	8.0	17.0
<u>Characteristics:</u>								
Wear resistance	3	3	3	2	2	2	3	3
Tear resistance	4	4	4	3	3	2	3	3
Resistance to weather and ozone	4	4	4	4	4	4	4	4
Resistance to hydrolysis (water and steam)	4	4	4	4	4	4	4	4
Resistance to chemicals (acids/bases)	3	3	3	3	3	3	3	3
Resistance to mineral oil and gas	0	0	0	0	0	0	0	0
Permeability	1	1	1	1	1	1	1	1

0: Low 1: Limited 2: Medium 3: Considerable 4: High

Rubber quality	NDG-80	NGW-70	SAK-70
Rubber type	NBR	NBR	SBR
Hardness (ShA)	80	70	70
Tensile strength (Mpa)	18.0	15.0	15.0
Elongation at break (%)	220	320	300
Density (g/cm ³)	1.26	1.23	1.17
Temperature range in dry atmospheric air:			
Minimum temperature (°C *)	-35	-40	-50
Maximum temperature (°C *)	+110	+110	+100
Compression set DIN 53517, 24 hours /70°C (%)	8.0	8.0	13.0
<u>Characteristics:</u>			
Wear resistance	3	3	4
Tear resistance	3	3	3
Resistance to weather and ozone	3	3	3
Resistance to hydrolysis - water/steam	3	3	3
Resistance to chemicals - acids/bases	2-3	2-3	2
Resistance to mineral oil and gas	4	4	0
Permeability	4	4	2

0: Low 1: Limited 2: Medium 3: Considerable 4: High

Approvals/remarks:

EUW-70:	KTW D1/D2, W270, WRAS (60 °C), ACS XP P 41-250, AS/NZS 4020, NSF-61, EN 681-1, AS 1646-2007, Önorm B5014
EUW-75:	KTW D1/D2, W270, WRAS (50 °C), ACS XP P 41-250, EN 681-1
EUW-80:	KTW D1/D2, W270, WRAS, ACS XP P 41-250, EN 681-1
EAW-70:	KTW D1/D2 (warm 60 °C), W270
EAW-75:	KTW D1/D2, W270
EDK-55:	ACS XP P41-250
EDK-70:	KTW D1/D2 (60 °C), ACS XP P 41-250, CSN 75 7111, NBN S 29003, Hydrochek
EDK-80:	KTW D1/D2
NGW-70:	EN 682 type GBL, KTW D2
SAK-70:	UL-listed 22.06.1993

Above mentioned results are based on laboratory tests and must be evaluated for specific articles and applications.

Fire may create small amounts of hydrogen sulphide, and carbon dioxide. Disposal by incineration in compliance with local regulations.

*) Different temperature restrictions may apply to valves due to bonding between metal and rubber

TECHNICAL APPENDIX - PRESSURE TEST AND FLANGE DRILLINGS

Pressure tests:

Gate valves/Fire hydrants for water

Hydraulic test according to EN 1074-1 and 2 / EN 12266

Shell test with water: Valves PN 10 tested at 17 Bar
Valves PN 16 tested at 25 Bar
Valves PN 25 tested at 37.5 Bar

Shell test for AWWA valves: 2 x PN

Seat test with water: Valve PN x 1.1

Seat test for AWWA valves: 1.0 x PN

Seat tests are done from both sides and with one end open.

Gate valves for gas

According to EN 13774, class 2

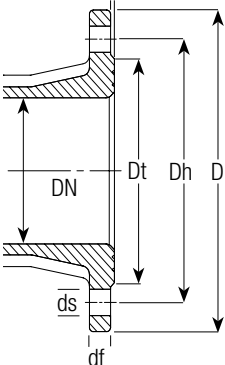
The product shall pass the above specified test for water first.

Shell test: 1.5 x PN water
1.1 x PN air

Seat test: 0.5 bar air
1.1 x PN air

Seat tests are done from both sides and with one end open.

Standard flange drillings:



DN	D	Dt mm	Dh mm		df mm	dr mm	ds mm		Number of holes		Bolt size	
			PN10	PN16			PN10	PN16	PN10	PN16	PN10	PN 16
40	150	83	110	110	16	3	19	19	4		M16	
50	165	102	125	125	16	3	19	19	4		M16	
65	185	122	145	145	16	3	19	19	4		M16	
80	200	138	160	160	16	3	19	19	8		M16	
100	220	158	180	180	16	3	19	19	8		M16	
125	250	188	210	210	16	3	19	19	8		M16	
150	285	212	240	240	16	3	23	23	8		M20	
200	340	268	295	295	17	3	23	23	8	12	M20	
250	400	320	350	355	19	3	23	28	12	12	M20	M24
300	455	370	400	410	21	4	23	28	12	12	M20	M24
350	520	430	460	470	23	4	23	28	16	16	M20	M24
400	575	482	515	525	28	4	28	31	16	16	M24	M27
450	640	535	565	585	28	4	28	31	20	20	M24	M27
500	715	590	620	650	28	4	28	34	20	20	M24	M30
600	840	685/725*	725	770	29	5	34	37	20	20	M27	M33

*Series 55/30 / series 06

TECHNICAL APPENDIX - OPERATION

Field of application:

Fields of application are stated in the data sheet of each valve series.

If the solids of the medium make up more than 10 % the AVK knife gate valve is recommended.

If the medium contains special substances, information of the chemical designation, concentration, and the temperature of the medium must be given on inquiry of the valves.

Operation:

To avoid a seizure of the internal parts, it is recommended to operate the valves with the following minimum intervals, which at the same time ensures a long durability:

- valves for water and gas: every year
- valves for sewage and industry: every third month

After operation the valve must be:

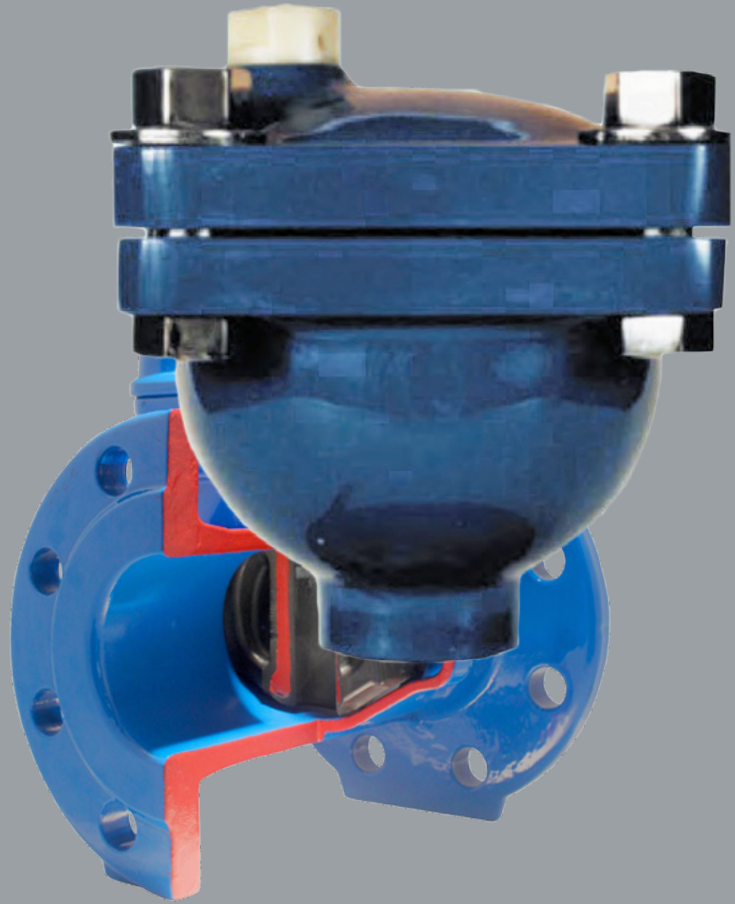
- fully open and the stem released from stress or
- closed with the closing torque stated in the table

Max. temperature: For water and waste water max. 70°C, for gas max. 60°C. For valves with PE ends max. 20°C. The valve must not be exposed to low temperatures, causing the medium to freeze.

Torques and number of turns to open:

Valve dimension DN mm	Valves according to EN 1074-1 and 2 / EN 1171, Type A (DIN 3352 part 4)					Valves according to EN 1074-1 and 2 / EN 1171, Type B (BS 5163)			Actuated valves Series 15, 06 and 55 Electric actuator	
	Closing torque Nm	Free running torque Nm		Rupture torque Nm	Turns to open	Closing torque Nm	Rupture torque Nm	Turns to open	Closing torque Nm	Turns to open Nm
		Water	Gas							
40	40	6	9	250	11	90	500	4	40	11
50	40	6	9	250	11	90	550	5	40	11
65	60	6	9	250	14	90	625	7	60	14
80	60	6	9	400	17	120	700	8	60	17
100	80	6	9	400	21	135	800	9	80	21
125	80	6	9	400	26	155	925	12	80	26
150	80	12	18	500	26	180	1050	14	80	26
200	120	12	18	600	35	210	1300	18	100	35
250	180	12	18	750	37	210	1550	22	180	37
300	200	16	18	1050	44	210	1800	26	200	44
350	300	24	24	1050	51	300	2050	31	300	59
400	300	24	24	1050	59	450	2300	35	300	59
450	300*/450**	25	25	1050	59*/43**	500***	2550	39	450**/500***	43**/39***
500	300*/450**	25	25	1050	59*/43**	500***	2800	43	450**/500***	43**/43***
600	500**	25	25	3200	59*/52**	700***	3300	53	500**/700***	52**/53***

*Series 02 and 20, **Series 06, ***Series 55/30



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