

FITTINGS AND VALVES



Ductile Cast Iron Gate Valves

for water and gas supply

Reliable, Dependable and Economical

Ductile cast iron valves

In Germany alone, thousands of kilometers of pipes ensure a reliable supply of water, anytime and anywhere.

The piping used needs to meet the highest requirements:

- Resistance to intense soil movement
- Reliability even after many service years
- Securing of perfect hygiene
- Safe transport of our drinking water without loss

Cast iron is a natural material and forms the basis of the Düker valves. Due to its outstanding material properties, it complies 100% with the following requirements:

- Long service life
- High density
- Excellent corrosion resistance
- Economic efficiency
- 100% recyclable

Ductile cast iron

Ductile cast iron is a special form of cast iron which is also known as nodular or spheroidal graphite iron. This material withstands both internal and external pressure as well as virtually all soil and traffic loads. It is therefore reliable and ideally suited to meet the requirements of our supply pipelines.



The right coating is what matters

In the end, however, it is the coating that reliably guarantees permanent hygiene in our drinking water supply system. This is why the surface protection is just as important as the base material.

All Düker valves receive a seamless and pore-free epoxy powder coating or are completely enamelled. This procedure offers permanent corrosion and encrustation protection, and additionally makes the valves extremely adhesion and shock resistant.

The epoxy powder is applied onto the clean blasted casting at 200 °C with a layer thickness of at least 250 µm. As a member of the "Gütegemeinschaft Schwerer Korrosionsschutz" (GSK) association, Düker is entitled to carry the RAL quality seal.

Enamel, on the other hand, is a sign for integral corrosion protection. The perfectly smooth surface prevents potential bacteria build-up. Biofilm adhesion is actively prevented, thus ensuring a hygienically and physiologically safe drinking water supply.



Materials of Düker gate valves

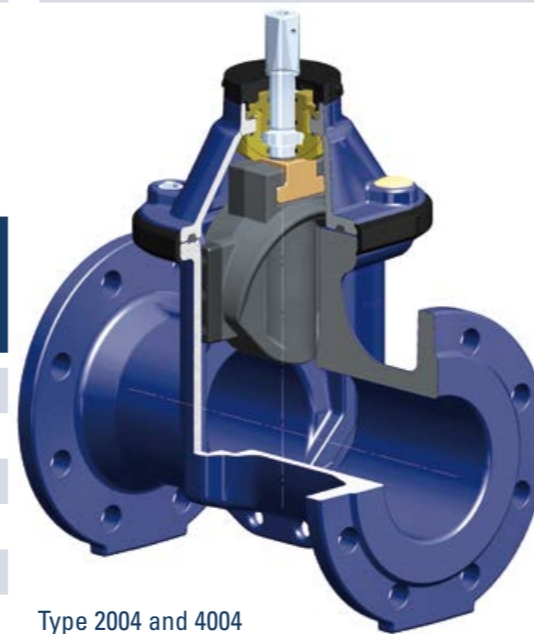
Material Type 2004/4004 DN 80 – 200			
Description	for water	for gas	for waste water
Body	EN-GJS-500-7	EN-GJS-500-7	EN-GJS-500-7
Bonnet	EN-GJS-500-7	EN-GJS-500-7	EN-GJS-500-7
Sealing wedge	EPDM W270*	NBR	
Stem	1.4021 (X20Cr13)	1.4021 (X20Cr13)	1.4571*
Stem nut	CuZn36Pb2As / CuZn33Pb1,5AlAs		bronze*
Lock nut	CuZn35-NiMn2AlPb	CuZn35-NiMn2AlPb	CuZn35-NiMn2AlPb
Cylinder head screws	A2-70	A2-70	A2-70
Gasket	EPDM W270	NBR*	NBR*
O-rings	EPDM W270/NBR*	NBR*	NBR*
Clamping piece	CuZn35-NiMn2AlPb	CuZn35-NiMn2AlPb	CuZn35-NiMn2AlPb
Retaining ring	1.4541 (X6CrNiTi1810)	1.4541 (X6CrNiTi1810)	1.4541 (X6CrNiTi1810)
Adapter cap	EPDM	EPDM	EPDM
Edge protection	PVC	PVC	PVC

Material Type 2004/4004 DN 40 – 65 & DN 250 – 300			
Description	for water	for gas	for waste water
Body	EN-GJS-500-7	EN-GJS-500-7	EN-GJS-500-7
Bonnet	EN-GJS-500-7	EN-GJS-500-7	EN-GJS-500-7
Sealing wedge	EPDM W 270	NBR	NBR
Stem	1.4021 (X 20Cr13)	1.4021 (X20Cr13)	1.4571
Stem nut	CuZn35-NiMn2AlPb	CuZn35-NiMn2AlPb	bronze
Lock nut	CuZn35-NiMn2AlPb	CuZn35-NiMn2AlPb	CuZn35-NiMn2AlPb
Cylinder head screws	A2-70	A2-70	A2-70
Bonnet seal	EPDM W 270	EPDM W270	NBR
O-rings	EPDM W 270	EPDM W270	NBR
Screening ring	TPE	TPE	TPE
Sliding ring	red brass	red brass	red brass
Grooved cylindrical pin	A2-70	A2-70	A2-70

Material Type 4014 DN 80 – 200	
Description	for water
Body	EN-GJS-500-7
Bonnet	EN-GJS-500-7
Sealing wedge	EPDM W270
Stem	1.4021 (X20Cr13)
Stem nut	CuZn33Pb1,5AlAs
Lock nut	CuZn35-NiMn2AlPb
Cylinder head screws	A2-70
Bonnet seal	EPDM W270
O-rings	EPDM W270
Screening ring	Neoprene
Sliding disc	CuZn39Pb2
Cover cap	EPDM
Edge protection	PVC

Operating media and test pressures

medium	DN	nominal pressure PN	test pressure in bar			
			test medium water body	test medium water seat	test medium air/gas seat PG 2	test medium air/gas seat PG 3
water/sewerage	40 - 300	16	24	17,6		
water/sewerage	80 - 300	10	15	11		
gas	40 - 300	0,5/16	24		0,5	0,5 and 17,6
gas	80 - 200	10	24			0,5 and 11
gas	80 - 200	16	24			0,5 and 6



Type 2004 and 4004
DN 80 – 200



Type 2004 and 4004
DN 40 – 65 & DN 250 – 300



Type 4014
DN 80 – 200

A safe connection living up to its promise

Another important element for a safe and above all leak-proof pipeline is its connections.

In addition to the tried and tested flange connections, Düker also offers, depending on the application area, socket systems with the corresponding thrust resisting joints for an axial-restraint connection.

- Düker SMU and
- Düker SPEZIAL for screwed sockets
- TYTON® SIT® and
- TYTON SIT PLUS® for TYTON® sockets
- NOVO-SIT® and
- NOVO-Grip® III for Novo sockets



Etec enamel – the special surface protection for valves

Etec enamel is a composite material which enters a permanent chemical connection with the cast iron pipeline component. Its main strengths are:

- Inside and outside corrosion protection including soil class III
- High degree of resistance to mechanical stress (friction, impact, pressure, push)
- Ageing resistance
- Prevention of blistering between the base material and coating caused by diffusion of water through the coating
- No sub-surface corrosion migration even in the case of local damage to the surface
- Climate and medium resistance (UV radiation, humidity, temperature, organic solvents)

Düker[®]
*e*tec

Gate Valves 2004, 4004 and 4014

Completely with shock-resistant enamelling for best possible corrosion protection and 100% hygiene

Area of application: Drinking water

- as per EN 1171 and EN 1074 part 1+2
- EPDM vulcanized wedge and gasket

Area of application: Gas/waste water

- NBR vulcanized wedge and gasket

Corrosion protection

- body inside and outside with complete and seamless shock-resistant enamelling as per the DEV guideline (soil class III, DIN 51178)
- or with complete epoxy powder coating as per GSK directives in blue (RAL 5005) for potable water or yellow (RAL 1023) for gas



Type 4004



Alternative for gas
DN 40–300, PN 10–16
as per EN 13774

Medium temperature range for gas and drinking water from -10 °C to +60 °C.

Long service life of the valve

- Coating-optimized bonnet and body
- Highly corrosion-resistant to class III soils following the requirements of the DVGW publication GW 9

Operator-friendly

- Low torques due to sophisticated design
- Low operating torque and high drive reserves
- New wedge guidance with vulcanized plastic sliding shoes

Maintenance-free operation

- New stem bearing design

No restrictions in ground installation

- Connection screws countersunk in the bonnet, with a protective plastic cap against dirt and humidity
- No additional measures required for the installation in highly aggressive soils
- Easy handling in all installation situations

Universal application options

- Interface stem extension set - without adapter as per GW 336

Optimal protection

- Medium-free stem bearing
- Full corrosion protection with etec enamel

Full protection during transport and storage

- Edge protection between bonnet and body, passage flanges with plastic cap protection

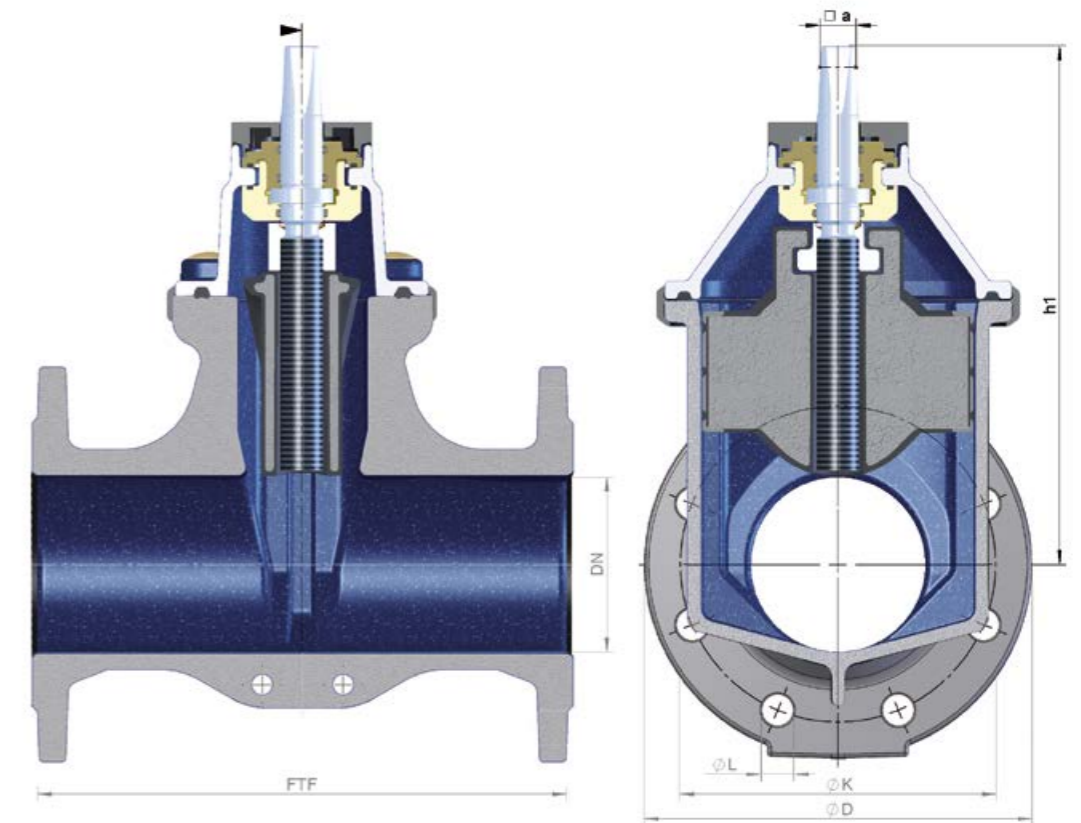
Extensive accessory program

- GW 336 compliant stem extension sets
- Adjustable/rigid telescope with clip pins
- Uni-Clip stem extension sets
- Height-adjustable and rigid street caps
- Operating keys
- Hand wheels

Versions

- With flange connection
- With socket connection

Type 2004 and 4004

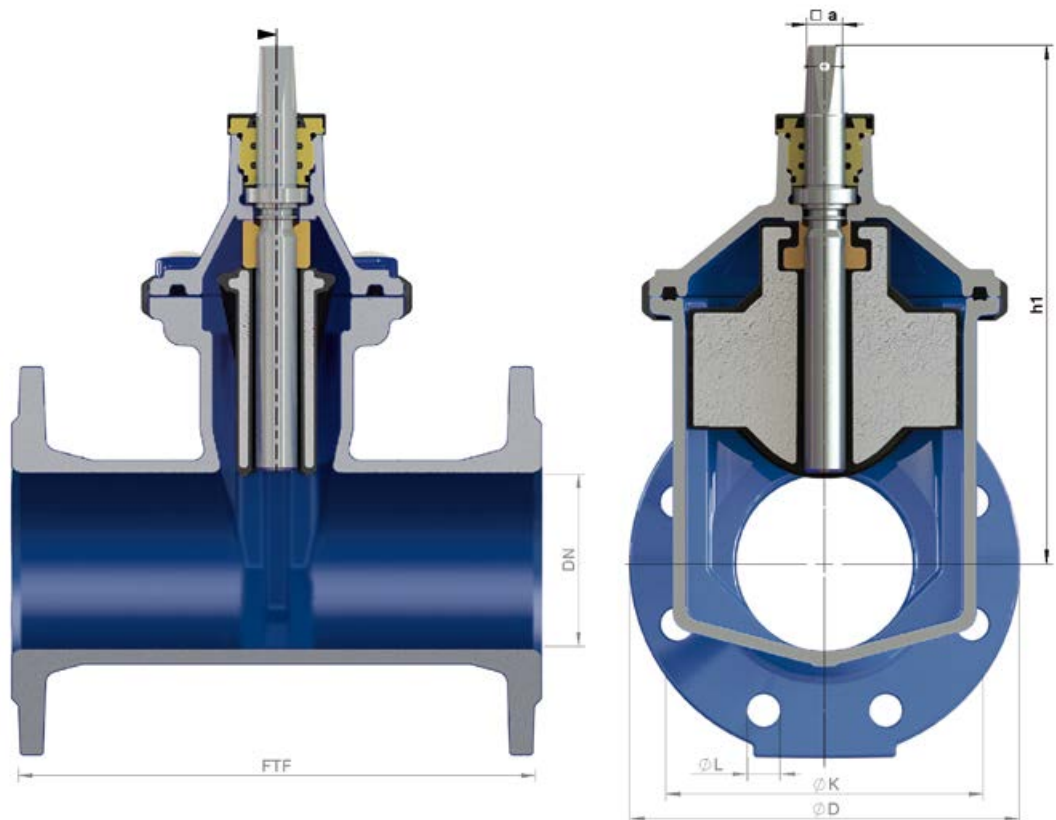


Dimensions and weights

DN	PN bar	FTF mm 2004	FTF mm 4004	h ₁ mm	D mm	K mm	no. of bolts	L mm	a mm	turns open/close	torque Nm	weight kg 2004	weight kg 4004
40	10 / 16	140	240	207	150	110	4	19	14	11	30	11.2	12.5
50	10 / 16	150	250	233	165	125	4	19	14	14,5	40	13.3	14.7
65	10 / 16	170	265	270	185	145	4	19	17	14	60	17.0	18.8
80	10 / 16	180	280	270	200	160	8	19	17	16	35	17.8	17.5
100	10 / 16	190	300	295	220	180	8	19	19	20	45	22.5	24.6
125	10 / 16	200	325	330	250	210	8	19	19	25	45	27.8	31.0
150	10 / 16	210	350	373	285	240	8	23	19	31	45	36.0	40.6
200	10	230	400	462	340	295	8	23	24	34	60	54.8	61.5
200	16	230	400	462	340	295	12	23	24	34	60	54.4	61.0
250	10	250	450	648	400	350	12	23	27	42	150	104.4	113.6
250	16	250	450	648	400	355	12	28	27	42	150	104.0	113.0
300	10	270	500	723	445	400	12	23	27	51	150	146.7	161.0
300	16	270	500	723	445	410	12	28	27	51	150	146.0	160.0

Gate valve face-to-face dimension according to EN 558 basic series 14 (Type 2004) and 15 (Type 4004)

Type 4014



Dimensions and weights

DN	PN bar	FTF mm	h_1 mm	D mm	K mm	no. of bolts	L mm	$\square a$ mm	turns open/close	torque Nm	weight kg
80	16	280	266	200	160	8	19	17	16	35	18
100	16	300	297	220	180	8	19	29	20	45	21
125	16	325	330	250	210	8	19	29	25	45	27
150	16	350	373	285	240	8	23	29	31	45	36
200	10	400	462	340	295	8	23	24	34	60	55
200	16	400	462	340	295	12	23	24	34	60	55

Gate valve face-to-face dimension according to EN 558 basic series 15

Gate Valve 4004 with PE 100 Pipe Ends

for welding – area of application water

The innovative valve series for the application with plastic pipes

Area of application water

- As per EN 1171 and EN 1074 part 1+2
- For temperatures up to +40 °C

EPDM vulcanized wedge and gaskets are KTW and W 270 tested. Pipes according to DIN 8074, inspection report Engler-Bunte-Institute regarding connection technology on the basis of DVGW-VP600, melting index group MFI 005 and 010, according to the guidelines of the DVGW publication G 477 and bulletin DVS 2207.

As an option, the gate valve 4004 with PE 100 pipe ends for welding may be equipped with a hand wheel, a stem extension set for underground installation, electric or pneumatic drive and clear shaft end.

The PE pipe ends for welding are extruded and machined pipe spigots. These PE pipe ends for welding are mounted tension-free and friction-locked as plug-in connection in the TYTON® socket. Locking and axial restraint is ensured through a thrust resisting joint ring on the outside.

During the welding process, the advantage of this design is that it enables the valve to remain rotatable without impairing the axial restraint and tightness.



Long service life of the valve

- Coating-optimized bonnet and body
- Highly corrosion-resistant to class III soils following the requirements of the DVGW publication GW 9

Operator-friendly

- Low torques due to sophisticated design
- Low operating torque and high actuator reserves
- New wedge guidance with vulcanized plastic sliding shoes

Optimal protection

- Medium-free stem bearing
- Full corrosion protection

Gate Valve 4004 with PE 100 Pipe Ends

for welding – area of application gas

The innovative valve series for the application with plastic pipes

Area of application gas

- as per EN 1171 and EN 13774
- For all gases according to DVGW publication G 260/I

Inspection report Engler-Bunte-Institute regarding connection technology on the basis of DVGW-VP 600, melting index group MFI 005 and MFI 010, according to the guidelines of the DVGW publication G 477 and bulletin DVS 2207. Gas PN 10 in case of transition couplings.

As an option, the gate valve 4004 may be equipped with a hand wheel, a stem extension set for underground installation, electric or pneumatic drive and clear shaft end.



Corrosion protection

The standard version of the gate valve is equipped with a high quality epoxy powder coating according to the RAL-GZ 662 quality assurance of the "Gütegemeinschaft schwerer Korrosionsschutz (GSK)", the German quality association for Corrosion Protection of Powder Coated Valves and Fittings.

Maintenance-free operation

- New stem bearing design

No restrictions in underground installation

- Connection screws countersunk in the bonnet, with a protective plastic cap against dirt and humidity
- No additional measures required for the installation in highly aggressive soils
- Easy handling in all installation situations

Universal application options

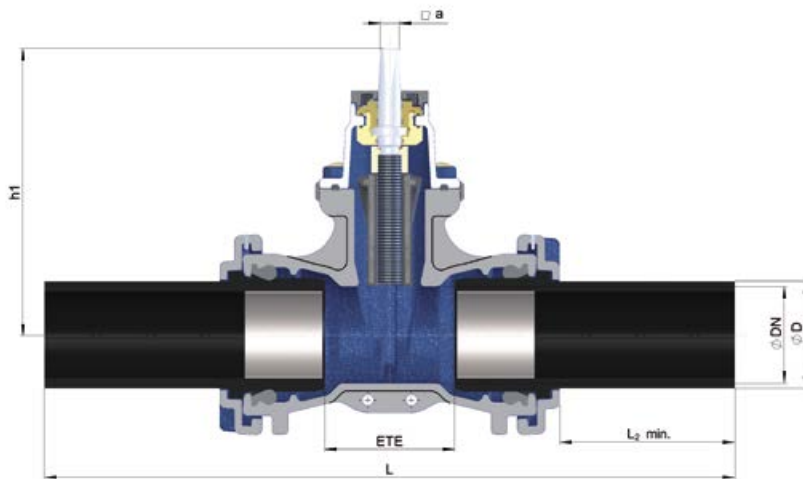
- Interface stem extension set - without adapter as per GW 336

Full protection during transport and storage

- Edge protection between bonnet and body, PE ends secured against impact

Further Versions

- Type 4004 PE 100 on one side, TYTON® or Novo socket on the other side
- Type 2004 PE 100 end on one side, flange on the other side
- Also refer to service connection valve type 1004 DN 25 – 50 with PE 100 welding pipe ends



PE 100 pipe welding studs (black for water and gas) with stainless steel support sleeve.

For welding in PE pipelines applying the heating element butt welding method. Pipe length laid out for two welding processes. Testing according to DIN 3230-5 PG 2 or PG 3; including 3.1 B certificate according to EN 10204.

Dimensions and weights

D mm	PN bar	D mm	L mm	h ₁ mm	ETE mm	a mm	L ₂ min. mm	weight kg
80	16	90	680	270	120	17	175	24
100	16	110	710	295	134	19	180	30
100	16	125	736	295	136	19	190	31
125	16	125	790	330	152	19	203	40
125	16	140	790	330	152	19	203	40
150	16	160	840	373	162	19	220	55
150	16	180	860	373	160	19	231	55
200	16	200	970	462	170	24	265	87
200	16	225	954	462	170	24	257	88
200	16	250	1185	462	170	24	373	93

Wall thicknesses of PE pipes as per DIN 8074

DN gate valve	d mm	wall tickness SDR 11 mm	wall tickness SDR 17 mm
80	90	8.2	5.4
100	110	10	6.6
100	125	11.4	7.4
125	140	12.7	8.3
150	160	14.6	9.5
150	180	16.4	10.7
200	200	18.2	11.9
200	225	20.5	13.4

Replacement and Repair Gate Valve 2004 and 4004

The perfect valve for the application in pipe trenches

Area of application water

- as per EN 1171 and EN 1074 part 1+2
- For drinking and untreated water up to PN 10/16
- Ambient temperature up to +60 °C
- For all plant and pipeline network operators

Corrosion protection

Shock-resistant enamelling inside and outside. Loose flanges with axial restraint with black epoxy powder coating.

The basis of this valve is the tried and tested Düker repair valve concept. This series has undergone continuous innovations and improvements and is now available with the nominal diameters DN 80–200.

The proven concept allows operators cost-efficient utilization of their resources – either for new construction projects or as a replacement valve in the course of facilities and public water supply redevelopment measures. Depending on the material choice of the dismantling joints, the savings potential for new investments is between 5 and 20%.

Long service life of the valve

- Coating-optimized bonnet and body
- Highly corrosion-resistant to class III soils following the requirements of the DVGW publication GW 9
- Loose flanges with axial restraint on both sides

Operator-friendly

- Low torques due to sophisticated design
- Low operating torque and high drive reserves
- New wedge guidance with vulcanized plastic sliding shoes

Maintenance-free operation

- Newly designed stem bearing

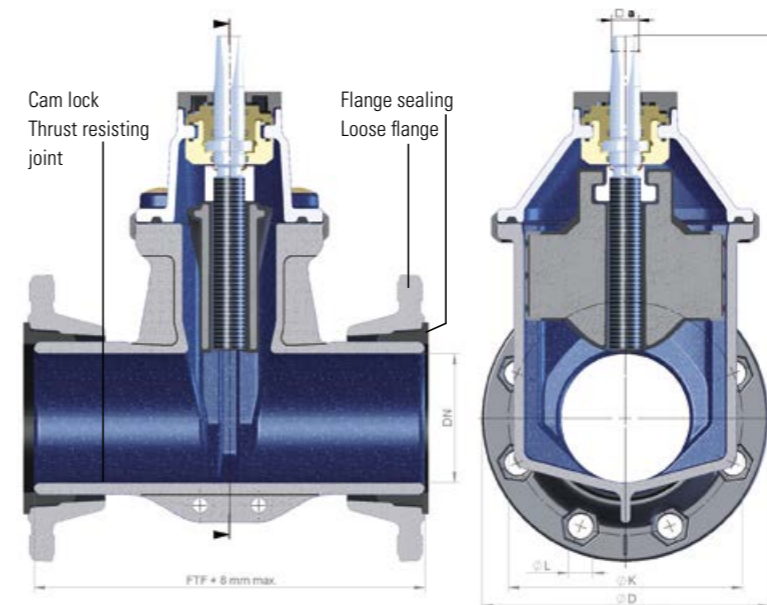


No restrictions in underground installation

- Connection screws countersunk in the bonnet, with a protective plastic cap against dirt and humidity
- No additional measures required for the installation in highly aggressive soils
- Easy handling in all installation situations

Quick replacement as and when required

- Even in case of dismantling joints with immovable stems, it is sufficient to replace the valve
- Ability to even out misalignments on the existing pipeline
- No necessity to spread pipeline and valve in order to install the flange gasket



The loose flanges can be drawn out within a tolerance range of 4 mm on each side. In addition, their connection to the valve body is fully restrained.

The elimination of the old flange gaskets provides an additional tolerance, which is compensated for by sliding and adjusting the loose flanges.

available with long and short face-to-face length!

Dimensions and weights type 2004 and 4004

DN mm	PN bar	FTF mm 4004	FTF mm 2004	D mm	K mm	h ₁ mm	□ a mm	L mm	weight kg 4004	weight kg 2004
80	10 / 16	280	180	200	160	270	17	19	20	18
100	10 / 16	300	190	220	180	295	19	19	25	22
125	10 / 16	325	200	250	210	330	19	19	33	28
150	10 / 16	350	210	285	240	373	19	23	44	36
200	10	400	230	340	295	462	24	23	65	55
200	16	400	230	340	295	462	24	23	65	55

Gate valve face-to-face dimensions as per EN 558 basic series 14 (type 2004) and 15 (type 4004)

Universal application options

- No changes necessary. Ready for use in facilities and underground installation
- Universal interface stem extension set - without adapter as per GW 336
- Use of complete flanges with EN 1092-2 complying connections

Optimal protection

- Medium-free stem bearing

- Full corrosion protection with etec enamel
- Saving time and materials
- No need for dismantling joints
- Minimizing labor time as a result of integrated, axially restrained loose flanges with sealing elements.

Full protection during transport and storage

- Edge protection between bonnet and body

Gate Valve 4004 with Blow-off Pipes

The perfect valve for modern gas distribution systems – with simple and fast gas ventilation

Area of application gas

- For all gases according to DVGW publication G 260/I

Inspection report: Engler-Bunte-Institute regarding connection technology on the basis of DVGW-VP 600, melting index group MFI 005 and 010, according to the guidelines of the DVGW publication G 477 and bulletin DVS 2207. Gas PN 5

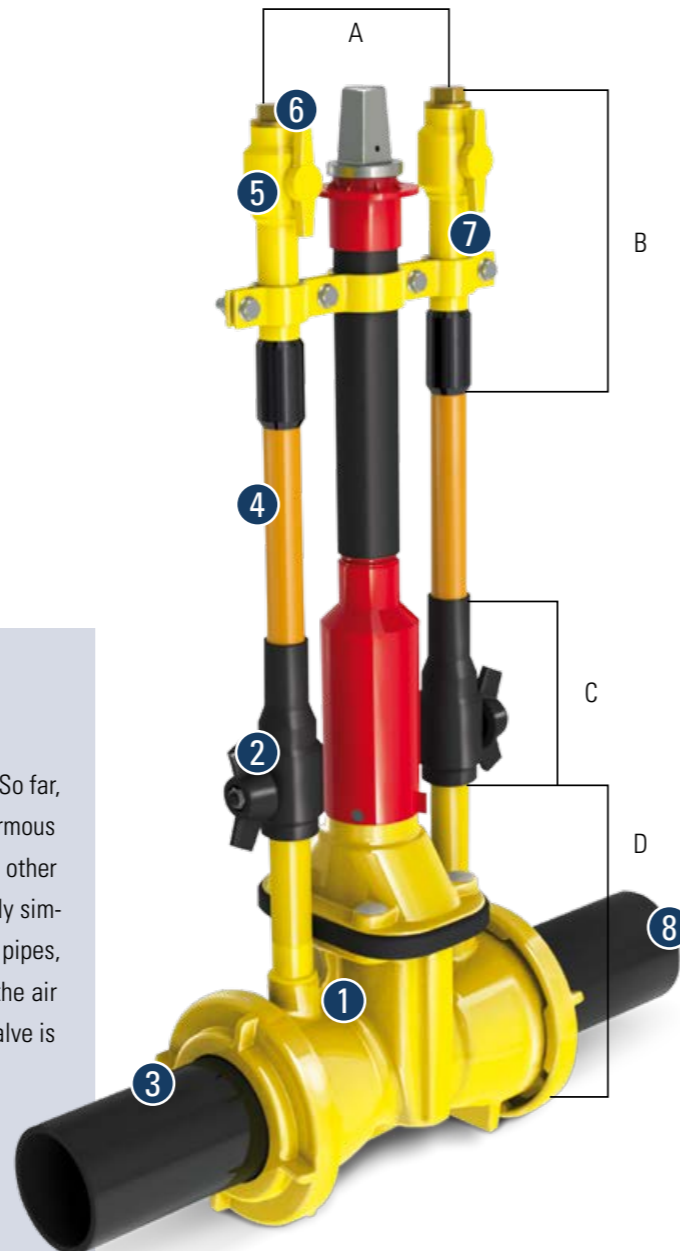
- It is used for retrofits or new construction of PE gas pipelines in the pressure range \leq PN 4

The gate valve with blow-off pipes is equipped with PE 100 pipe ends for welding.

Functions of the ventilation pipes

The filling up of gas pipes also leads to the formation of air pockets. So far, the removal of these air pockets has been associated with an enormous effort, often accompanied by the installation of additional valves or other ventilating devices. Using the Düker gate valve 4004 will significantly simplify the ventilation process. After the filling procedure of the gas pipes, only the ball valves mounted on the blow-off pipes are opened for the air pocket to escape. Once the air has been entirely removed, the ball valve is closed. The system is then ready to operate.

Also during gas pipe repair work, where parts of the gas distribution system needs to be shut down, the gate valve 4004 renders work much easier. First, the gas is discharged through the attached ventilating pipes. Then, the system is flushed with nitrogen. This ensures the removal of all remaining gas and enables risk-free gas pipe work. After repairing or retrofitting the part of the system in question, the pipe is immediately ready for operation again, because the gate valve 4004 also facilitates ventilating during the refill process.



Dimensions in mm	
A	190
B	min. 400
C	min. 110
D	approx. 350 at DN 80
	approx. 370 at DN 100
	approx. 450 at DN 150 / 200

The most important elements

- 1 = Welded transition
- 2 = Ball valve
- 3 = PE welding pipe end
- 4 = Blow-off pipe in DN 32 PE
- 5 = Ball valve with temperature-resistant pipe end
- 6 = Plug with relief drilling
- 7 = For all sizes with the same blow-off ball valve
- 8 = Two weldings possible

Dimensions and weights

of the valve, please refer to page 11.

Type

- Identical with the 4004 series
- The PE pipe ends for welding are extruded and machined pipe spigots. They are mounted tension-free and friction-locked as plug-in connection in the TYTON® socket. Locking and axial restraint is ensured through a thrust resisting joint locking ring on the outside
- The length of the PE pipe ends enables double socket welding. The PE pipes are available pursuant to DIN 8074 in SDR 11 and alternatively in SDR 17
- The exhaust pipes are welded on the casing with steel pipes up to the first ball valve (DN 80-200 = 1")
- The height depends on the pipe coverage or the customer's request. One ball valve each is welded to the upper end of the blow out pipes for shut-off. Both blow-out pipes are locked with the Düker gate valve by means of a triple clamp via the stem extension set.

Gate Valve 3004 with Steel Pipe Ends for Welding

Shock-resistant enamel on the inside and "PUR" polyurethane coating on the outside – the perfect solution for gas supply

Area of application gas

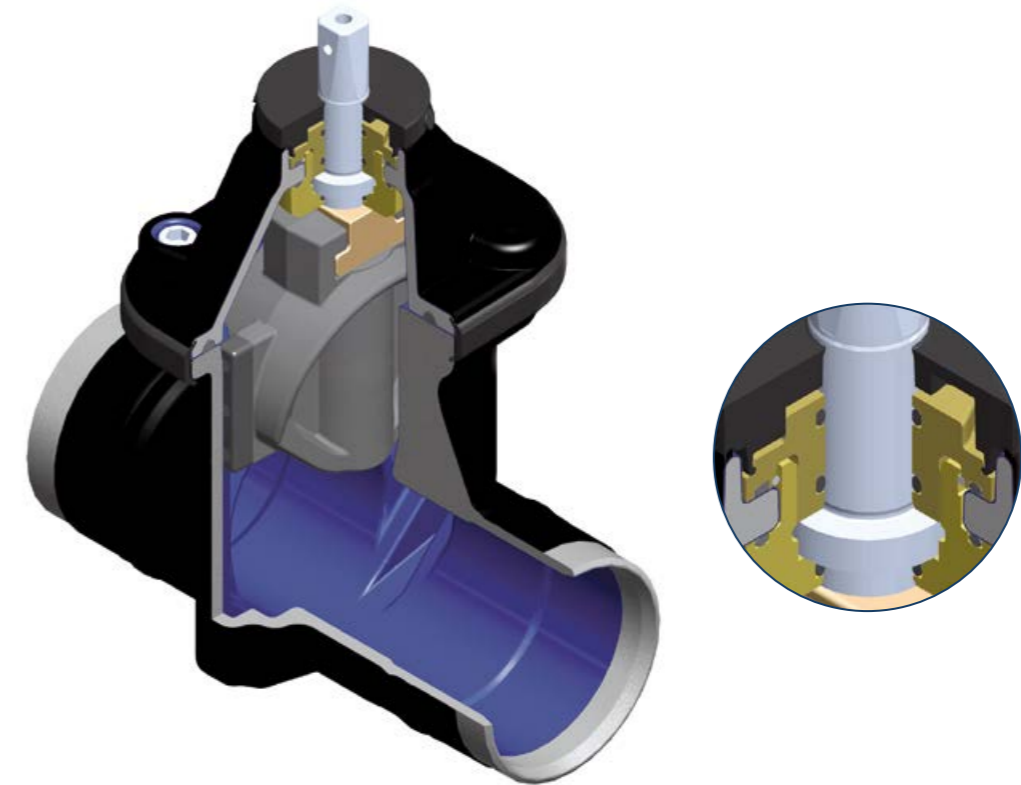
- For all gases according to DVGW publication G 260/I with PG 3 pressure test

Corrosion protection

Enamel on the inside pursuant to the DEV guideline (except for the welding area). Outside coating "PUR" polyurethane. The inspection is carried out as per DIN 30677 part two and with 15 kV.

Gate valve type 3004

Resilient seated with a smooth passage according to EN 13774. Body and bonnet in EN-GJS-400-18 with shod ends from St. 35.8 edge form 22. Wedge with new guidance, vulcanized plastic sliding shoes. Stem made of stainless austenitic chromium steel, material no. 1.4021, with rolled thread. Medium-free stem bearing. Stem sealing with two O-rings and back seal.



The 3004 gate valve is also available as "blow-out unit" in two versions, either steel ends or PE ends.

More than 500 Years of Experience in Iron Casting

Our know-how for your benefit

The Düker name has been synonymous for premium quality iron casting for more than 500 years. We are today among the leading manufacturers of valves and pressure pipe fittings for drinking water and gas supply as well as for pipes and fittings for drainage technology.

To be "very good" is setting a high standard. Every day, we try to achieve just a little bit more. This is why many developments made by Düker are recognized as quality standard among experts today. And we keep on learning and growing.

Our long-standing tradition is what you can benefit from. All of our qualified teams in engineering, sales, production and service are happy to assist you with all questions regarding "drinking water and gas supply". From planning to logistics and finally to installation. On top of that, we are able to give you advice on more complex pipeline projects also for as long as our valves and pipes are in use.



Düker valves are used all over the world and are subject to very high requirements, especially when it comes to drinking water. This is why all valves are developed and manufactured applying the greatest possible care and attention to detail. Needless to say, before any product leaves Düker, it is thoroughly put to the test.

It also goes without saying that our valves are in line with the latest:

- KTW recommendations
- Guidelines of the German Federal Environment Agency for the hygienic evaluation of organic materials that come in contact with drinking water
- Requirements of the DVGW publication W 270 "Microbial enhancement on materials to come into contact with drinking water - Testing and assessment"

Quality on the highest possible level

We are the first to set the highest requirements for the quality of our products. And, as a result, we have introduced a certified modern quality management system according to EN ISO 9001 already in 1993.

In addition, Düker products have undergone other tests and approval procedures in line with product or market specific standards and regulations.

It is not unusual that quality criteria are met within the context of quality assurance associations that are way beyond the standard requirements.






CERTIFICATE

This is to certify that

Düker

Düker GmbH & Co. KGaA
 Würzburger Straße 10-16
 97753 Karlstadt
 Germany

with the organizational units/sites as listed in the annex
 has implemented and maintains a **Quality Management System**.

Scope:
 Development, manufacture, supply and service of cast iron drainage pipe systems, castings made to specification, ductile iron shut-off valves and pressure pipe fittings, highly acid-resistant, glass-lined components.

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2008

Certificate registration no.	511876 QM08
Valid from	2015-03-24
Valid until	2018-03-23
Date of certification	2015-03-21




DQS GmbH
G. Blechschmidt
 Götz Blechschmidt
 Managing Director

Accredited Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main

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FITTINGS AND VALVES

DRAINAGE TECHNOLOGY

GLASS LINING TECHNOLOGIES

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