G10

Resilient Seated Gate Valve
Non-Rising Stem F4

Product Description

DENZ-G10 Resilient Seat Non-Rising Stem Gate Valves are suitable for use with water and waste water for both above ground and underground applications. The valve is designed with a bolted cover connection. It is made of premium materials and has a special coating that can be rotated clockwise or counter-clockwise. Suitable for domestic water system, water supply and drainage system, sewage treatment system, chemical fluid transportation systems. It can be used as a cut-off device on fluid pipelines in construction, urban environmental protection, petrochemical, pharmaceutical, food, metallurgy, textile, power and other industries.

WRAS APPROVED PRODUCT

Application Areas

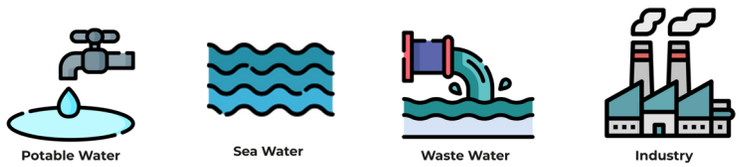
- Potable water
- Waste water
- Water treatment and distribution systems
- Food and chemical enterprises
- HVAC
- Power plants

Operation Versions

- Handwheel
- Bare shaft
- Operation cap
- ISO top flange
- Gearbox and hanwheel
- Gearbox and top flange
- Electrical actuator

Production References

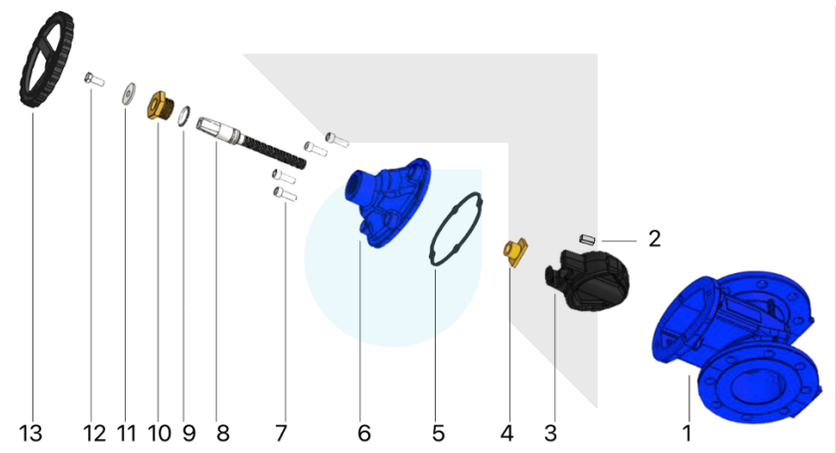
Size Range	DN50 - DN800
Pressure Range	PN10/16/25
Temperature	EPDM: +80°C NBR: 60°C VITON: 120°C
Face to face	EN558 Series 14 / DIN 3202 F4
Design	EN 1171 / EN 1074
Connection	Flanged - EN1092-2
Coating	Electrostatic Powder Epoxy
Testing	EN 12266-1
Marking	EN 19



Product Features

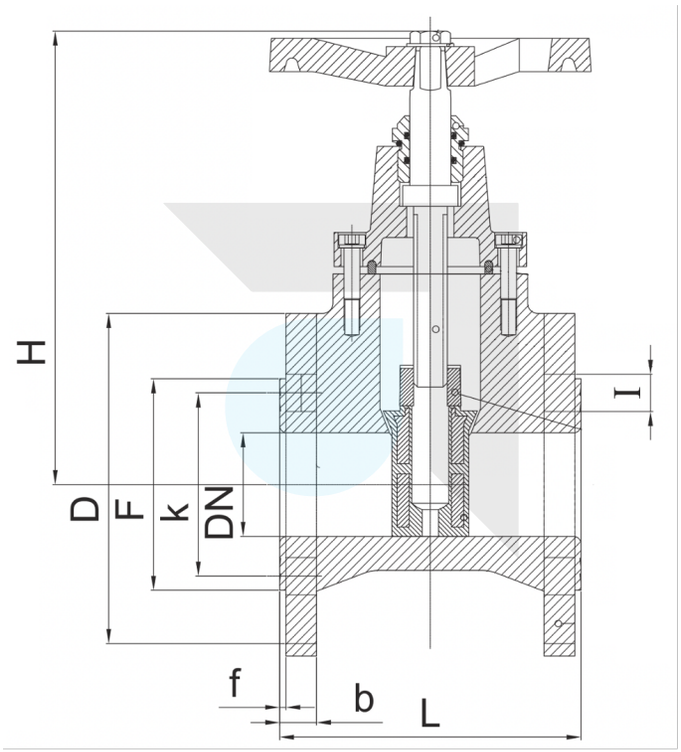
- Ductile iron body and bonnet for high strength and impact resistance
- Ductile iron gate fully encapsulated in EPDM to ensure drop tight sealing
- Fully EPDM or NBR vulcanised wedge maintains a complete block of flow and can absorb small particles in the flow.
- Higher durability is ensured by multi-stem O-rings that do not require maintenance and are corrosion-resistant.
- There is no corrosion risk associated with isolated bonnet nuts
- It is possible to use it in both directions. The valve can be installed horizontally or vertically with a variety of flow directions
- AISI420 stainless steel spindle for high strength and corrosion resistance
- Design of a valve that does not require maintenance
- Back seal facility to allow for replacement of seals under full operating pressure
- The precise machined stem ensures a low torque requirement during operation due to the precision of the stem.
- Potable water applications are available with WRAS-approved coating upon request.
- It is easier to transport and install large valves with balanced lifting holes on the body.
- Fusion bonded epoxy coating for long life corrosion protection
- Straight through full bore to avoid debris traps
- Isolated fasteners for corrosion protection
- Anti-friction thrust washer for low operating torques
- Integral cast-in feet for safe and easy storage
- Direction of closure
  - Anticlockwise closing or clockwise closing available
  - Clockwise closing available
- Hydrostatic test pressure for seat: PN x 1.1 , for shell: PN x 1.5 according to EN 12266-1.

Materials



#	Part	Material
1	Body	Ductile Iron EN-GJS-400/500 (GGG40/50)
2	Guide	Polyamide
3	Wedge	EPDM/NBR Coated Ductile Iron
4	Wedge Nut	Brass / Bronze
5	Bonnet Sealing	Rubber EPDM / NBR
6	Bonnet	Ductile Iron EN-GJS-400/500 (GGG40/50)
7	Bonnet Bolts	Galvanized Steel 8.8 / Stainless Steel A2 - A4
8	Stem	Stainless Steel AISI 420 / 304 / 316
9	O-Ring	EPDM/NBR
10	Stem Nut	Galvanized Steel / Brass MS58 / Bronze
11	Washer	Galvanized Steel 8.8 / Stainless Steel A2 - A4
12	Bolt	Galvanized Steel 8.8 / Stainless Steel A2 - A4
13	Handwheel	ST37 Steel / Ductile Iron

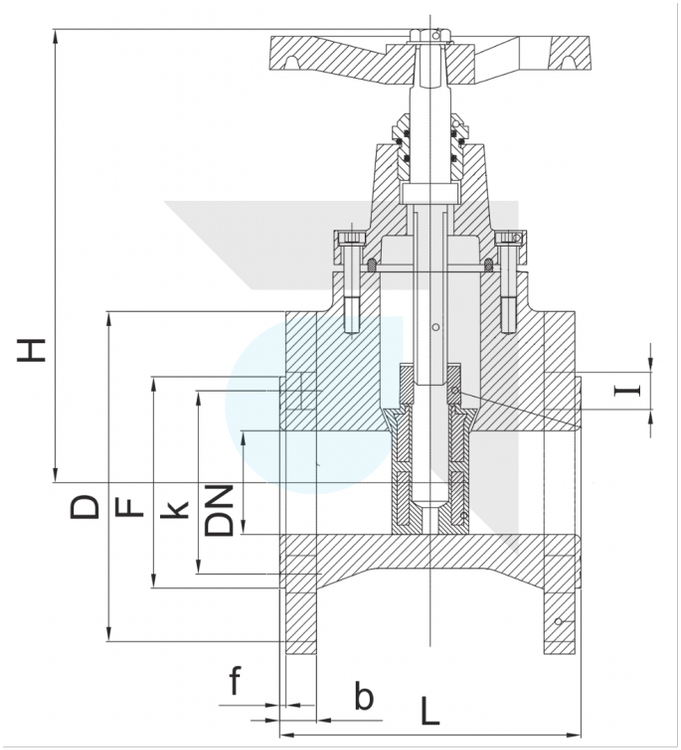
Dimensions



PN10										
DN	f	D	K	d	C	l*n	L	H	D1	KG
50	3	165	125	99	19	19*4	150	300	180	9
65	3	185	145	118	19	19*4	170	340	180	11
80	3	200	160	132	19	19*8	180	380	180	14
100	3	220	180	156	19	19*8	190	420	220	21
125	3	250	210	184	19	19*8	200	480	220	24
150	3	285	240	211	19	23*8	210	550	250	31
200	3	340	295	266	20	23*8	230	640	250	53
250	3	405	350	319	22	23*12	250	780	350	98
300	4	460	400	370	24,5	23*12	270	850	350	129
350	4	505	460	429	24,5	23*16	290	910	400	203
400	4	565	515	480	24,5	28*16	310	960	400	298
450	4	640	565	530	26,5	28*20	330	1010	500	382
500	4	670	620	582	26,5	28*20	350	1120	500	532
600	5	780	725	682	30	31*20	390	1200	600	662

Units: mm / indicative dimensions & weights

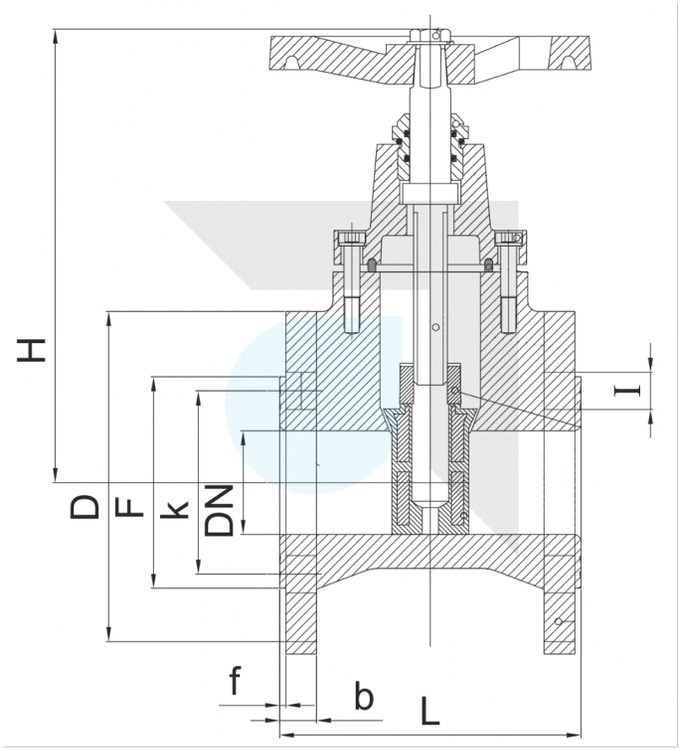
Dimensions



PN16										
DN	f	D	K	d	C	l*n	L	H	D1	KG
50	3	165	125	99	19	19*4	150	300	180	9
65	3	185	145	118	19	19*4	170	340	180	11
80	3	200	160	132	19	19*8	180	380	180	14
100	3	220	180	156	19	19*8	190	420	220	21
125	3	250	210	184	19	19*8	200	480	220	24
150	3	285	240	211	19	23*8	210	550	250	31
200	3	340	295	266	20	23*12	230	640	250	52
250	3	405	355	319	22	28*12	250	780	350	95
300	4	460	410	370	24,5	28*12	270	850	350	130
350	4	520	470	429	26,5	28*16	290	910	400	223
400	4	580	525	480	28	31*16	310	960	400	328
450	4	640	585	548	30	31*20	330	1010	500	420
500	4	715	650	609	31,5	34*20	350	1120	500	585
600	5	840	770	720	36	37*20	390	1200	600	728

Units: mm / indicative dimensions & weights

Dimensions Table



PN25										
DN	f	D	K	d	C	l*n	L	H	D1	KG
50	3	165	125	99	19	19*4	150	300	180	12
65	3	185	145	118	19	19*4	170	340	180	14
80	3	200	160	132	19	19*4	180	380	180	18
100	3	235	190	156	19	23*8	190	420	220	27
125	3	270	220	184	19	28*8	200	480	250	31
150	3	300	250	211	20	28*8	210	550	250	40
200	3	360	310	274	22	28*12	230	640	350	68
250	3	450	370	330	24,5	31*12	250	780	400	124
300	4	485	430	389	27,5	31*12	270	850	400	169
350	4	555	490	448	30	34*16	290	910	400	290
400	4	620	550	503	20	37*16	310	970	400	426
450	4	670	600	548	34,5	37*20	330	1020	500	546
500	4	730	660	609	36,5	37*20	350	1140	500	761
600	5	845	770	720	42	41*20	390	1220	600	947

Units: mm / indicative dimensions & weights

The Advantages of Resilient Seated Gate Valves

It is well known that resilient-seated gate valves are used for the reliable and safe supply of hot and cold water, potable water, waste water management, and also for the supply of fire water as well.

In comparison to metal-seated gate valves, resilient-seated gate valves are well known for their many advantages over metal-seated gate valves.

Considering the body is relatively simple, a good casting process can be used to produce a wide range of products. When the sealing surface is fully open, the sealing surface has a much less tendency to be eroded, because of the very good sealing performance. These resilient-seated gate valves have good shutoff characteristics and can be used in both directions. The valve loses a minimal amount of pressure through the process of opening and closing.

DENZ-G10 is more durable, and has a reduced carbon footprint as a result.

Principle of Operation

The DENZ Series-G Gate Valve is designed for full open or full closed service in pipelines as an isolating valve, and should not be used for regulating or controlling.

According to the datasheet for the relevant product, the valves can be installed in potable water, wastewater, or neutral liquids. According to the datasheet, working conditions must be limited by temperature and pressure. Temperatures should normally range between -20 °C and +70 °C, flow velocity should be maximum 5 m/s and differential pressure should not exceed 25 bar.

Installation and use of DENZ gate valves as anchor points is not recommended, and they should be kept free of any stress caused by the pipeline or installation at all times.

The gate valve is operated by rotating the stem either clockwise or counterclockwise. Wedge movements occur on the threaded part of the valve stem when operating the valve stem. As a result of the full and straight bore, DENZ gate valves are designed to be self-cleaning. DENZ recommends installing the valve in an upright position or at an angle of 45 degrees. Installation upside down is not recommended. For valves with ISO flanges for mounting gearboxes or actuators, there may be specific operating conditions. Refer to the instructions provided by the actuator manufacturer.

Transportation

a) The valve and the actuator can be integrated or separated to be placed in the wooden cases or pallets which are suitable for transportation. Each box or pallet will be marked with gross weight, net weight, case number and other related information.
b) While loading or unloading, check for and adhere to any markings or arrows on the box which may be present to indicate upward orientation.
c) The user should select proper tools and lifting equipment to transport the goods to avoid damages to it after transported to the warehouse or outdoor storage of the installation site.

Health and Safety

Ensure that all relevant health and safety regulations are followed before and during installation and maintenance work on this product. End users are responsible for ensuring safe working practices.

When installing, operating, or maintaining DENZ products, the inherent dangers of pressurised liquids and gases must be recognized. Prior to performing work on valves or other piping components, which may involve releasing internal pressure, the valve or line must be completely isolated, depressurised, and drained. Severe injury or death may result from failure to comply.

In the course of installation and maintenance, all workers handling the product must be aware of its weight. End users are responsible for ensuring that only trained and competent staff are undertaking these operations.

Despite its intention, this manual cannot replace quality workplace training. If you have questions related to specific problems not covered by this manual, please contact the DENZ technical or sales staff.

It is DENZ's policy to design products that are fit for purpose and meet a high reliability standard. When used correctly, this provides a safe, low-risk product for its intended purpose. The user is advised to study this manual and to make it available to all employees who may need to consult it, but it assumes the equipment is used and maintained according to this manual. No responsibility can be taken by DENZ for incidents resulting from incorrect installation, operation, or maintenance. End users are solely responsible for this.

Storage of DENZ Gate Valves

The process of unloading must be carried out carefully in order to avoid any damage. It is important to place the load gently on the ground without letting it drop. Lifting is only accomplished by using shackles in the flange bolt holes or by slings around the body casting. There should be a valid inspection certificate on the forklift if one is used and the capacity of the forklift must be sufficient to lift the required weight.

The unloading workers must all be able to perform their duties. During the course of the work, they are required to wear safety boots, safety vests, safety goggles and hard hats.

There should be sufficient strength in all the slings used to lift the material. They should be stored in a cool, dry place away from sunlight and chemical elements, and they should perform as expected.

It is important to inspect the item immediately after unloading for compliance with specifications and for damage that may have occurred in shipment. As a minimum, the specification check should include size, pressure class, and so on. There are at least the following components that should be checked for damage in shipment: coating, seating and sealing surfaces, accessories, or any other evidence of mishandling during shipment. In the position in which each item will be installed, each item should be opened and closed one time.

DENZ Valves should be stored in a dry, cool environment, free from direct sunlight and any corrosive or chemically active atmosphere. It is very important that the valves are stored in an upright position and in an almost closed position in order to prevent long-term compression of the wedge rubber on the valve. In the event that valves are stored in cold storage, they must be protected from freezing. It is recommended to follow the rule of "first in, first out".

Markings on DENZ Gate Valves

- DENZ Logo (or the logo of the OEM client)
- Product dimension (DN)
- Pressure class (PN)
- Material standard
- Design standard
- Casting batch number (Date of the casting)

Operation

An extension spindle is typically used to operate gate valves in below-ground installations. Handwheels or electric actuators may be used in manholes or above ground installations. Make sure the handwheels, extension spindles, and actuators are sized appropriately.

In order to install gate valves mounted with electric actuators, pay attention to the closing torque and the number of turns on the datasheet. Ensure that the valve stem is not directly pressed down by the extension spindle when the valve is installed in a chamber that has an extension spindle above ground level. The extension spindle must be supported by wall mounts or similar devices in order to prevent vertical forces and support the weight of the extension spindle.

You can find out more about options/solutions for reducing or eliminating excessive opening torque by contacting the DENZ sales team.

Maintenance

Before performing any maintenance that requires disassembly, isolate, depressurize, and drain the pressurized line involved.

We are proud to offer a wide range of gate valves designed with a stem seal that can be replaced as part of the DENZ product range. The stem sealing can be replaced regardless of the position in which the valve is positioned. It is possible to replace the stem seal under pressure at any time.

The stem seal nut should be unscrewed in a counterclockwise direction. The stem seal nut needs to be removed.

Order a new stem seal nut unit from DENZ Water Technologies, including O-rings. Locking liquid medium strength should be applied to the nut threads. Tighten the new stem seal nut clockwise with a torque of approximately 80 Nm.

As the gate valve is designed to be installed directly in the ground, it will require no maintenance during its expected lifetime. Therefore, spare parts are not required and the valve will not need to be repaired if it malfunctions.

In the event that spare parts are needed for maintenance or repair, only DENZ spare parts should be used. In the event that non-DENZ parts fail or fail to function properly, DENZ can not be held responsible for this.

Storage

a) The valves should be kept in a dry and airy environment indoors and valve both ends should be blocked.
b) Valves should be checked regularly in long-term storage, to remove the dirt. Pay attention to keep the sealing surface clean and avoid sealing surface be damaged.
c) Valves stored for extended periods should be prepare in the following manner: The gate should be moved to the open position. This will prevent foreign debris and water from damaging the closed wedge.
If it impossible to move the valve to the open position, a coating of grease should be applied to help protect the gate surface. Flange protectors or end caps should be securely fastened in place.

A protective cover should be applied to the exposed stem and exposed open areas, if the valve is awaiting an operator or has an open yoke for any reason. This will prevent moisture damage.

Before Installation

Ensure working conditions are within the specified capacity of the product being installed. Refer to the certified Engineering drawings to assist in determining these values.

Make sure that the construction material of the Gate Valve is chemically compatible with the media flowing in the pipeline

Before installation, rotate the handwheel to check whether valve rotation is flexible and positioning accuracy.

Make sure valve inside and the pipeline are clean. Any foreign material such as pipe scale, metal chips etc. can obstruct disc movement or damage the valve.

Make sure packing seals, the packing should be compressed tightly before installation, meanwhile do not prevent the stem rotation.

The distance between pipe flanges should be checked to assure sufficient clearance for valve.
Wedge should be full opened or closed when under pressure. Can't use the wedge to regulate the flow rate.

At usage, stem screw should be in-pouring lubrication usually.
Regular check on valve's seals surface, stem and gasket, packing etc. parts. If any parts broken, should repair or replace in time.

Installation

Check that the existing pipe sizes match the inlet and outlet sizes of the unit being installed.

If pipeline strain is a concern with larger DENZ G-Series Gate Valves and accessories, additional support may be necessary.

In the installation process, pay attention don't let the foreign matter enters the valve and don't strike the valve surface with the tool, to prevent valve from defect.

Valve shall be horizontally installed, keep the valve stem perpendicular to floor.

For NPT ends valves, it is recommended that the valve is mounted in the closed position. Gently thread valve to mating pipe by hand until resistance is felt. Using a wrench tighten the valve using hex flats at the joint being tightened.

Do not tighten through the valve body using hex flats on opposite end of joint being tightened.

At the installation of DENZ Flanged Gate Valves, use lubricated flange bolts and hand tighten. Flange bolts should then be tightened, using a star or crisscross pattern to evenly load the bolts, in accordance with established piping standards.

The using temperature and pressure conditions of valve should not exceed the maximum limited temperature and pressure.

Inspect flange connections for leaks. If leaking occurs, check for piping misalignment, that the flange bolts if are properly tightened, and that the cover is properly seated.

Working condition do not exceed the valve performance limitations.

Adjusting flow from 0° (closed) to 90° (full flow) can be done manually or automatically depending on the type of gate valve installed. Manual operators are available in a 10 position handle, an infinite handle, and a gear operator.

Valves should be opened and closed slowly to avoid hammering effect on the valve.