ΒΑΝΕΣ ΣΥΡΤΗ ΕΛΑΣΤΙΚΗΣ ΕΜΦΡΑΞΗΣ

Product brochure

INFINITY resilient seated gate valve

CHRYSSAFIDIS

WHO WE ARE

TALIS is a leading global provider of premium valves, hydrants and other solutions for water flow control.

With a varied range of products, we offer comprehensive solutions for the entire water cycle, from hydrants to butterfly valves, from knife-gate valves to needle valves. Our experience, innovative technology, global expertise and individual consultation process, form the basis for developing sustainable solutions for the efficient handling of the vital resource "water".

With over nine strong brands and 28 entities in Germany, France, Spain, Portugal, Italy, Great Britain, the Netherlands, Russia, Poland, Israel, China, the Middle East, Mexico, India, South Africa, Singapore, Peru and Brazil, TALIS is the largest supplier of valve technology and first choice when it comes to water valves and services for the whole water cycle.

1871 — Foundation of ERHARD (D)
Water taps

1874 — Foundation of SCHMIEDING (D)
Modern and market orientated solutions

1880 — Foundation of BAYARD (FR)
Beer taps and water fountains

1945 — Foundation of LUDWIG FRISCHHUT (D)
« in-house » foundry

1949 — Foundation of RAPHAEL (ISR)
Control valves

1949 — Foundation of STRATE (D)
Product and problem-solving competence Sewage industry

1957 — Foundation of BELGICAST (ES)
Valve manufacturer for the naval industry

CHRYSSAFIDIS

« **WE PROVIDE SOLUTIONS.** BELGICAST, as a company of TALIS Group, offers the widest range of technical solutions for water control. The aim is to offer a complete range of products and solutions for the efficient handling of the vital resource "water". »

Ignacio Ispizua
SE Managing Director

29 000
DIFFERENT PRODUCTS IN CATALOGUE

Over 50
SALES PARTNERS

SALES IN
186
COUNTRIES

13
FACTORIES WORLDWIDE

19 000
CUSTOMERS

1300
EMPLOYEES

1974	1992	2001	2010	2011/13	2014	2015/16
Foundation of ATLANTIC PLASTIC (UK)	Foundation of UNIJOINT (NL)	Acquisition by Tyco Waterworks	Acquisition by Triton and creation of TALIS	Russia (2011) China (2012) Brazil (2013) Middle East (2013)	Launch of « Smart-Inside » solutions to make our products smarter - South Africa	Peru (2015) Mexico (2015) Joint-Venture with Kc-Val (2016) India (2016) Singapore (2016)
Plastic fittings	Adapters and extensions, pipe couplings, flange adapters and dismantling joints					

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OUR VISION OF SUSTAINABLE DEVELOPMENT

780 M

PEOPLE WORLDWIDE CURRENTLY DO NOT HAVE ACCESS TO DRINKING WATER

80 %

OF WASTEWATER ON THE PLANET IS NOT RETREATED

A COMPANY COMMITTED TO WATER

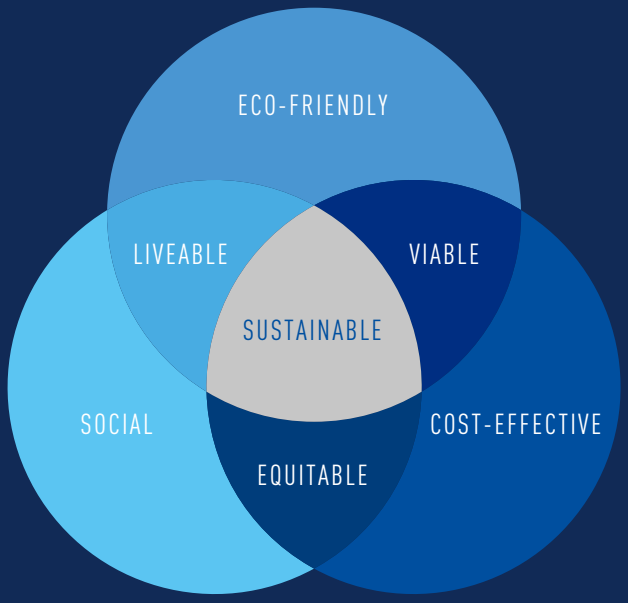
BELGICAST has supported the United Nations Global Compact since 2012. The UN Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption.

THE GLOBAL COMPACT
WE SUPPORT

There is not enough water to go round, and yet it is one of our most essential resources.

At TALIS we strive to develop highly reliable solutions incorporating the smartest technologies available to improve network performance and save water resources. Beyond this commitment to the excellence of our products, we are also responsible for upholding the highest standards with regard to safety and respect for people and the environment.

This is how we can make the world a better place.



HOW WE WORK

We achieve results by bringing together teams of experts and specialists who travel and encourage the acquisition of knowledge by all stakeholders and interested parties.

We establish research programs to accelerate progress in R&D. We enhance the technical expertise of our employees and customers in the various product ranges we offer, while encouraging networking between specialists and our own customers.

LONG-TERM SUPPORT

BEFORE SALES

- Specification
- Custom solutions
- Design
- Technical studies

AFTER SALES

- Commissioning
- Technical assistance
- Manufacturer warranty
- Asset management
- Maintenance contract
- Spare parts

WE

share and cultivate trust, respect for transparency and honesty in all our actions worldwide.

YOU

are our customers, our partners, the inspiration behind our innovations and the drivers of our performance.

TOGETHER

we develop and support the talent that invents and deploys cutting-edge solutions, with a view to improving quality of life for all.

RESILIENT SEATED GATE VALVES

CHRYSSAFIDIS

INFINITY

The latest in TALIS's proven range of valves, the INFINITY represents a new generation of resilient seated gate valves [DN40-700]. As well as boasting of the latest technological advances and unique technical features, INFINITY has been 100% designed and manufactured in Europe using high quality materials and the latest manufacturing technologies, to guarantee, to our valuable customers, an extraordinary lifetime, outstanding operability and unique safety features.

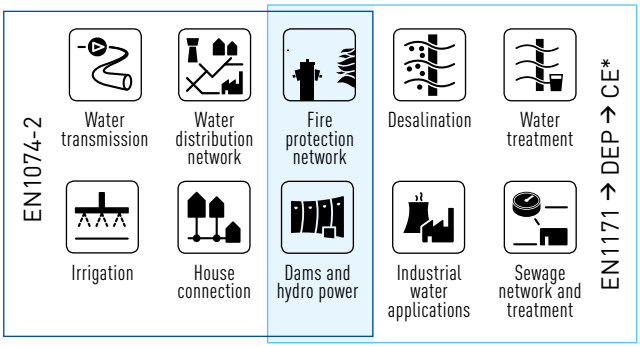
FUNCTIONS

Isolation resilient seated gate valves, with wedge fully encapsulated in elastomer, for ON/OFF duty.

ADVANTAGES

- **Low torque:** INFINITY and its new wedge and stem technology ensures smooth functionality with outstanding low torque values.
- **Longer service life:** new guiding system for the wedge with male composite sliding skate in order to easily achieve the 2500 cycles endurance test required by European standards.
- **Corrosion resistance:** high quality materials. Wide range of coatings available. Threadless bonnet up to DN300 that allows continuous coating.
- **Low head loss:** clear way and straight bore design from DN40 up to DN600 in order to allow a free path without restriction of the fluid.
- **Bubble tight shut off:** new wedge design with increased thickness of the elastomer at the sealing areas to improve tightness.

APPLICATIONS



* See page 18 for gate valves which are subjected to CE marking according to the European "Pressure Equipment Directive" 2014/68/EU (PED).

USES

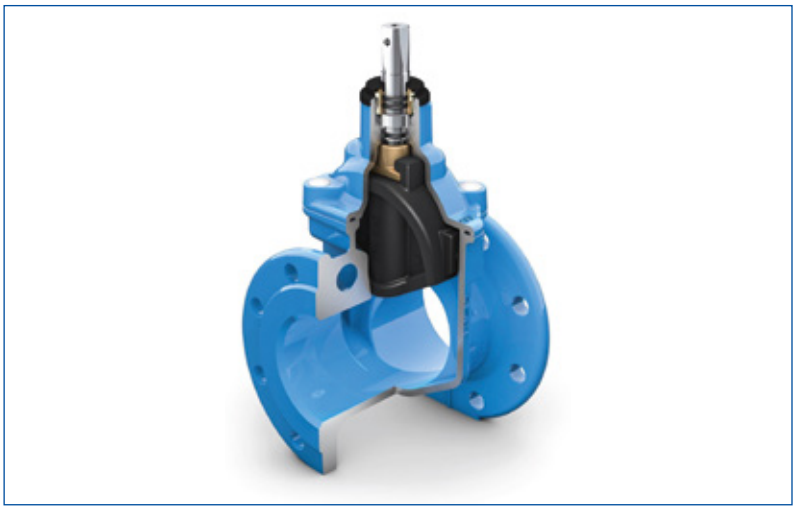
- **On networks, gate valves can be:**
  - Used both as part of new works and renovations.
  - Installed outside, buried in the ground, in valves' room, or in buildings.

- **The use of gate valves allows user:**
  - To balance the distribution of water at all points in the mesh network (in open or closed position).
  - To isolate control valves, fire hydrants, air valves, pumps, etc. for their maintenance.
  - To perform maintenance on the network (isolation of part of the network).
  - To stop the flow in the case of failure or pipe incident.
  - To drain water tanks or sections of the water network.

CHARACTERISTICS

- Made of **high quality materials** according to the relevant standards.
- **Clear way and straight bore,** so the flow is optimum with minimum head losses.
- **Replaceable packing** under pressure.
- **Bayonet** stuffing nut with three O-rings to guarantee the tightness throughout the stem (up to DN300).
- **Patented* three locking tab for bayonet system** up to DN300 to avoid self dismantling, leakage and blow up risk.
- **Innovative dust guard** made of three O-rings integrated into one single piece that protects the valve from floods, salt spray and dust, and ensures full isolation (up to DN300).
- Wedge **fully encapsulated** in EPDM for a better resistance to corrosion.
- Integral male composite sliding skate as guiding system for **easy operation** under maximum differential pressure.
- Body bonnet bolts are protected with hot melt glue.
- **Rounded surfaces** of the body ensure a uniform coating and protection of the highest quality.
- **Excellent corrosion resistance** thanks to the fully coated bonnet (not threads) and the epoxy powder coating.
- Stem in stainless steel.
- Shell designed to withstand **64 bar** (VdS type).
- **Maintenance free.**
- **Prepared for actuator** version available.
- **Approved** by major organizations worldwide for drinking water.
- In conformity with **European standard** EN 1074-2 and EN 1171.
- **100% tested** acc. to EN 12166-1 standard.

(*) List of the countries on request.



TECHNICAL DATA

- **Nominal Diameter (DN):** DN40 to DN700.
- **Body length to EN558:** Series 14: short body (F4). Series 15: long body (F5).
- **Closing direction:** Clockwise closing (CC). Anticlockwise closing (ACC).
- **Nominal Pressure (PN):** PN16.
- **Flange Drilling:** PN10 or PN16 according to EN 1092-2.
- **Medium Temperature (EN1074-2):**
  - Epoxy coating: -10 to 50°C
  - Enamel coating: -10 to 50°C (up to 70°C under request, in the case of EN1171).
- **Water tightness:** Rate A according to EN 12266-1.
- **Maximum Velocity:**

PFA/PS	EN1074-2	EN1171
10 bar	3 m/s	5 m/s
16 bar	4 m/s	5 m/s

APPROVALS

- DVGW, NF, ACS, KIWA, OVGW, WRAS, VdS, ...

OPTIONS/VARIANTS

- GSK approved, epoxy 300 microns mini, others ...
- Full enamel coating.
- Electric actuator, Pneumatic/ Hydraulic cylinder, others ...
- Visual mechanical position indicator with optional electrical limit switch.
- Configuration for sea water, sewage water and hot water.
- Valve complying to BS5163 type A or B.
- Wedge fully encapsulated in NBR or hot potable water approved EPDM (up to 70°C).
- Bolts in stainless steel A2 or A4.
- Accessories (handwheel, captop, stem extension, others ...).

TECHNICAL ADVANTAGES

- DURABILITY
- OPERABILITY
- SAFETY

FOR ENAMELED VERSION, THE VALVE INTEGRATES AN EDGE PROTECTION (1) PLACED ALL AROUND BETWEEN THE BODY AND THE BONNET.

01: Due to our PATENTED* three locking tab bayonet system, The INFINITY gate valve has no threads, enabling a **continuous coating** and therefore avoiding corrosion problems.

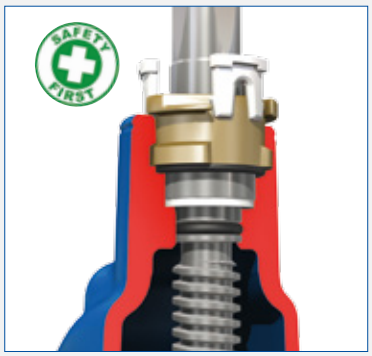
Moreover, it is easy to remove the stuffing nut, with the valve under pressure and fully open, in order to change the O-ring.

* List of the countries on request.

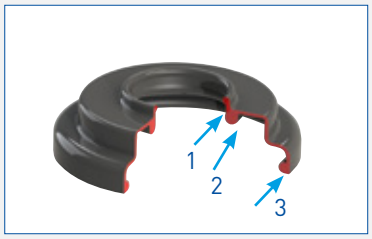
02: Free wedge nut, **reduces the stem bending forces** and at the same time enables it to be easily replaced.

03: The more compact new cap, reduces the water retention areas in order **to reduce the risk of bacterial growth.**

04: Stem and collar made in one piece in stainless steel for **better resistance to axial load and to withstand higher operating torques.** A polyamid washer (1) placed under the collar allows to reduce friction torque and protect coating inside the Bonnet.

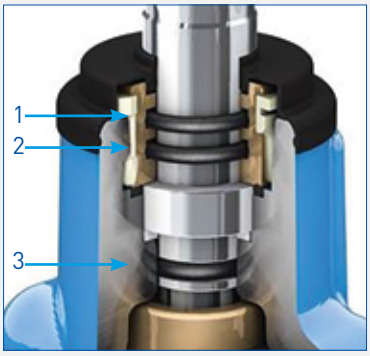


05: Our three locking tab for bayonet system prevents self-dismantling, caused mainly by over-torque, and therefore avoids leakage. Also **prevents incidents and ensures the safety of all personnel on site.**



06: Dust guard integrating three O-ring shape, **prohibiting the introduction of foreign** bodies at the stem.

07: Male guiding system with composite sliding skate (1) reduces the wear of the wedge against the body, allowing a smooth functionality and a longer life time of the valve. Furthermore, the increased thickness of the elastomer at the sealing areas improves product resilience to the usual small impurities encountered in networks.



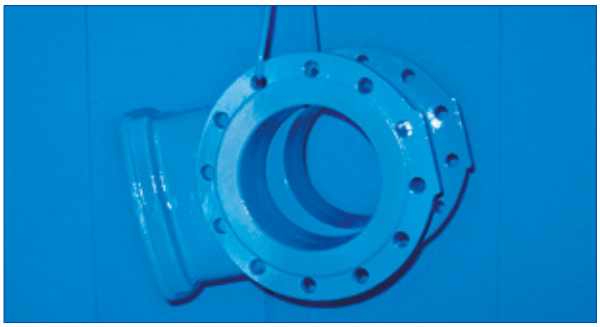
08: Triple seal at the operating stem to ensure tightness with the test of time (2500 cycles).

09: Our **new male composite sliding skate technology** minimizes the wedge friction against the body ensuring a low operating torque even under high differential pressure and preventing damage or corrosion generated by the friction.

COATING

OPTIMUM PROTECTION

The INFINITY resilient seated gate valve has been designed with even more rounded surfaces and more ergonomic shapes that allow more uniform coating and ensure protection of the highest quality.



Corrosion protection with powder epoxy

BELGICAST valves are protected with epoxy powder both internally and externally, both the bonnet and the body in a continuous manner, as the model INFINITY with patented bayonet nut has no threads, thus ensuring complete corrosion protection.

The epoxy powder used by BELGICAST is approved for use with potable water by the most prestigious institutions worldwide. Moreover, BELGICAST painting facilities are approved according to GSK standard (RAL Quality Mark). If you need your valves coated according to this process, please do not hesitate to enquire.

Permanent protection with enamel

Optionally, BELGICAST can manufacture gate valves completely enamelled. Vitreous enamel is highly resistant to corrosion, abrasion, sunlight and sedimentation due to its low porosity and smooth surface. The enamel is vitrified at 720° C and forms a perfect and permanent bond at the foundry.

BELGICAST's extensive experience in the manufacture of gate valves, together with modern enamel equipment, allows production of the highest quality.

TEMPERATURES

Depending on the applied anticorrosive coating, the INFINITY gate valve is suitable for the following continuous operating temperatures:

- Epoxy powder protection: –10 °C to 50°C.
- Enamel protection: –10 °C to 50°C (70°C under request).

VERSION WITH ENAMEL COATING

QUALITY & TESTING

VALVE TESTING ACCORDING TO EN 12266-1 - EN 1074

Testing pressures

- Shell tightness: 1.5 times the allowable pressure at room temperature.
- Seat tightness: 1.1 times the allowable pressure at room temperature.

Minimum test duration (in seconds)

Nominal diameter DN	Shell	Seat
Up to DN50 included	15	15
From DN65 up to DN150 included	60	60
From DN200 up to DN300 included	120	120
DN350 and above	300	120

Maximum allowable seat leakage

The criterion for seat leakage of BELGICAST resilient seated gate valves is
Rate A: no visually detectable leakage for the duration of the test ("zero drops").

Quality control

- 100% of BELGICAST resilient seated gate valves are tested according to EN 12266-1, DIN 3230, or as per customer requirements.
- According to EN 1074 (2,500 cycles endurance resistance).

MATERIALS & DIMENSIONS

F4/F5 - DN40/300 - PN10/16

Item	Description	N°	Material	Standard
1	Body	1	EN-GJS-500-7 [2]	EN 1563
2	Bonnet	1	EN-GJS-500-7 [2]	EN 1563
3	Wedge	1	EN-GJS-500-7	EN 1563
4	Wedge coating	1	EPDM [1]	EN 681-1
5	Stem	1	1.4021	EN 10088
6	Wedge lock nut	1	Copper alloy CW617N	EN 12165
7	Body-bonnet gasket	1	EPDM [1]	EN 681-1
8	Stem washer	1	POM	-
9	O-ring (stem)	1	EPDM [1]	EN 681-1
10	Stuffing nut (bayonet)	1	Al-br CW307G	EN 12165
11	O-ring (stuffung nut)	2	NBR	ASTM D2000
12	O-ring (stuffing nut/bonnet)	1	NBR	ASTM D2000
13	Body bonnet bolting	acc/DN	Steel 12.9 Geomet coated	EN ISO898-1
14	Dust guard	1	EPDM	EN 681-1
15	Handwheel	1	Stamped steel [3]	-
16	Handwheel bolting	1	1.4301	EN 10088
17	Handwheel washer	1	1.4301	EN 10088
18	Square cap	1	EN-GJS-500-7 [3]	EN 1563
19	Square cap bolting	1	Steel 8.8 Geomet coated	EN ISO898-1
20	Square cap plug	1	Lupolen	-
21	Wedge sliding skate [4]	2	PPS+40%GF	-
22	Locking tabs	3	Pa6+30%GF	-

1) or NBR, depending on the approval and on the application. 2) blue coating (Ral 5015) with epoxy powder. 3) black epoxy coating. 4) DN40/50 without wedge sliding skates.

DN	øD (mm)	EN 1092-2 PN10			EN 1092-2 PN16			EN 558 (DIN 3202)		H (mm)	L (mm)	øD1 (mm)	No. of turns for closing	Weight (kg)	
		øK (mm)	øG (mm)	n°xd	øK (mm)	øG (mm)	n°xd	S14 (F4) (mm)	S15 (F5) (mm)					S14 (F4)	S15 (F5)
40	150	110	84	4x19	110	84	4x19	140	240	170	75	150	11,5	6,7	7,3
50	165	125	99	4x19	125	99	4x19	150	250	184,5	83	150	14	8,3	8,8
65*	185	145	118	4x19	145	118	4x19	170	270	227	93	150	15	12,3	13
80**	200	160	132	8x19	160	132	8x19	180	280	250	100	200	18	13,7	14,9
100	220	180	156	8x19	180	156	8x19	190	300	287	110	200	21,5	16,4	17,9
125	250	210	184	8x19	210	184	8x19	200	325	324	125	300	27	22,5	25,2
150	285	240	211	8x23	240	211	8x23	210	350	368	143	300	32	27,2	30,6
200	340	295	266	8x23	295	266	12x23	230	400	450	170	400	41,5	46,9	54,2
250	400	350	319	12x23	355	319	12x28	250	450	546	200	400	43	69,5	78,8
300	455	400	370	12x23	410	370	12x28	270	500	621	228	500	51	96,5	114,5

* DN60 drilling on request. ** DN80 with 4 holes drilling on request.

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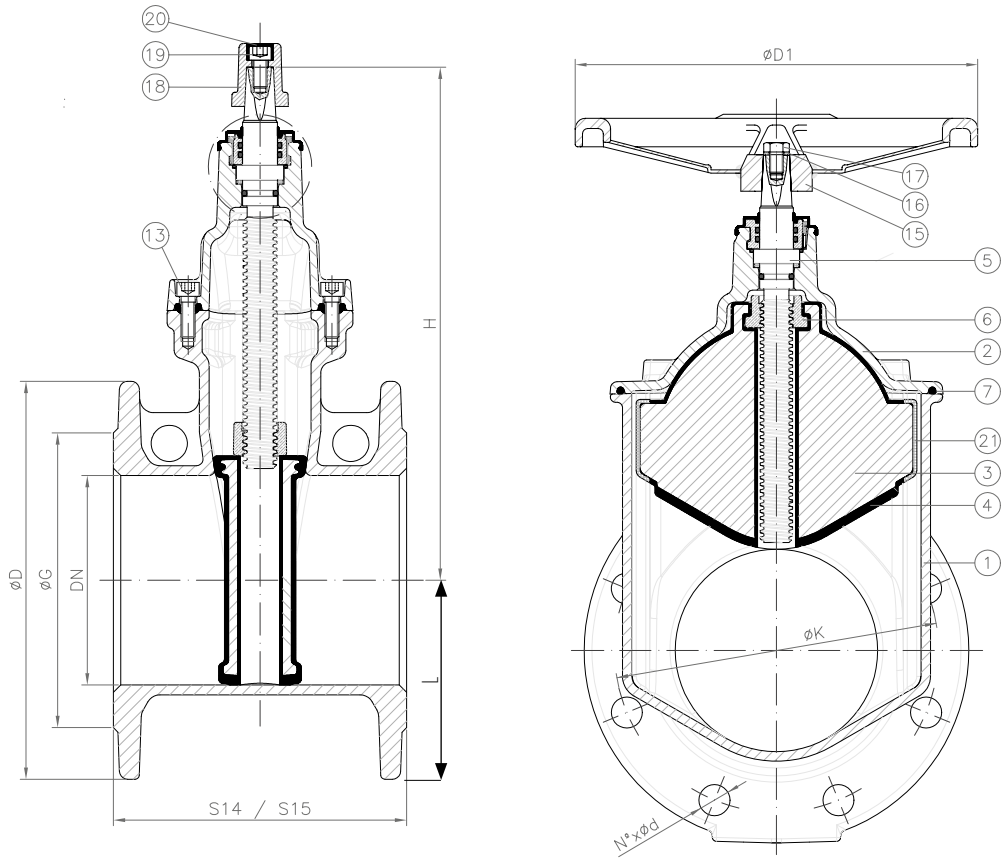
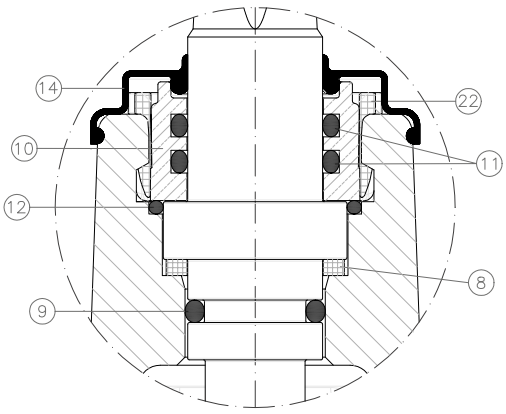
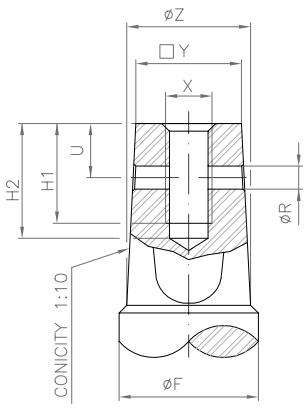
F4/F5 - DN40/300 - PN10/16







DN	□Y	ØZ	ØR	U	X	H1	H2	ØF
40/50	14.3	17	5	10	M8	15	18	20
65/80	17.3	21	6	12	M8	15	18	24
100	19.3	23	6	13	M10	15	18	24
125/150	19.3	25	6	13	M10	15	18	26
200	24.3	28.5	6	16	M12	15	18	28.5
250/300	27.3	32	6	14	M12	15	18	32

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MATERIALS & DIMENSIONS

F4/F5 - DN350/700 - PN10/16

Item	Description	N°	Material	Standard
1	Body	1	EN-GJS-500-7 [2]	EN 1563
2	Bonnet	1	EN-GJS-500-7 [2]	EN 1563
3	Wedge	1	EN-GJS-500-7	EN 1563
4	Wedge coating	1	EPDM [1]	EN 681-1
5	Stem	1	1.4021	EN 10088
6	Wedge lock nut	1	Copper alloy CW617N	EN 12165
7	Body bonnet gasket	1	EPDM [1]	EN 681-1
8	Lower packing bushing	1	POM	-
9	O-ring (stem)	2	EPDM [1]	EN 681-1
10	Upper packing bushing	1	POM	-
11	O-ring int (upper packing bushing)	2	NBR	ASTM D2000
12	O-ring ext (upper packing bushing)	2	NBR	ASTM D2000
13	Body bonnet bolt	acc/DN	Steel 10.9 Geomet coated	EN ISO898-1
14	Dust guard	1	EPDM	EN 681-1
15	Handwheel	1	Stamped steel [3]	-
16	Handwheel bolt	1	1.4301	EN 10088
17	Handwheel washer	1	1.4301	EN 10088
18	Square cap	1	EN-GJS-500-7 [3]	EN 1563
19	Square cap bolt	1	Steel 8.8 Geomet coated	EN ISO898-1
20	Square cap plug	1	Lupolen	-
21	Wedge sliding skate	2	PPS+40%GF	-
22	Upper bonnet	1	EN-GJS-500-7 [2]	EN 1563
23	O-ring (lower packing bushing)	1	EPDM [1]	EN 681-1
24	Axial ball bearing	2	-	-
25	Bonnet-upper bonnet O-ring	1	NBR	ASTM D2000
26	Bonnet-upper bonnet bolt	4	Steel 8.8 Geomet coated	EN ISO898-1
27	Eyebolt	2	Steel 8.8 JS500 coated	EN ISO898-1
28	Cotter	1	Steel 8.8	EN ISO898-1

1) or NBR, depending on the approval and on the application. 2) blue coating (Ral 5015) with epoxy powder. 3) black epoxy coating.

DN	EN 1092-2 PN 10				EN 1092-2 PN 16				EN 558 (DIN 3202)		H (mm)	L (mm)	B (mm)	øD1 (mm)	No. of turns for closing	Weight kg			
																S14 (F4)		S15 (F5)	
	øD (mm)	øK (mm)	øG (mm)	no. x d	øD (mm)	øK (mm)	øG (mm)	no. x d	S14 (F4) (mm)	S15 (F5) (mm)						PN10	PN16	PN10	PN16
350	520	460	429	16x23	520	470	429	16x28	290	550	812	260	506	600	51	190	190	213	213
400	580	515	480	16x28	580	525	480	16x31	310	600	905	290	606	800	58	274	274	311	311
450	640	565	530	20x28	640	585	548	20x31	330	650	1002	320	672	800	65	310	309	363	362
500	715	620	582	20x28	715	650	609	20x34	350	700	1054	358	748	800	72	398	396	445	443
600	780	725	682	20x31	840	770	720	20x37	390	800	1285	420**	955	800	87	553	669	660	775
700*	895	840	794	24x31	910	840	794	24x37	-	900	1285	455***	955	800	87	-	-	815	975

* Reduced bore of 600 mm. Valves produced from DN600/S14 with flanged conical adapters bolted on each side.
** L = 390 mm for DN600 PN10.
*** L = 448 mm for DN700 PN10.

The technical data and performance may be modified without prior notice depending on the technical advances.

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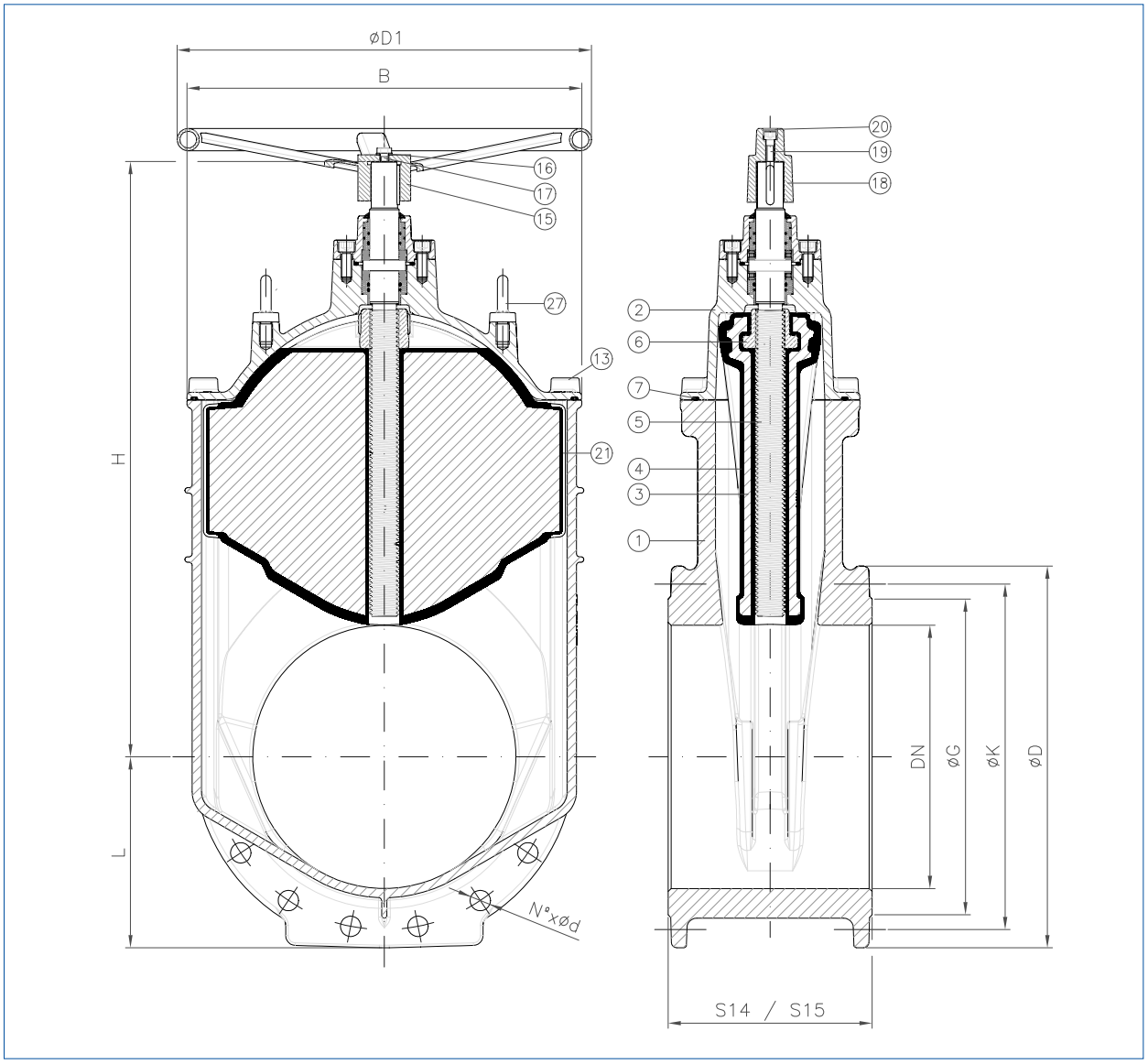
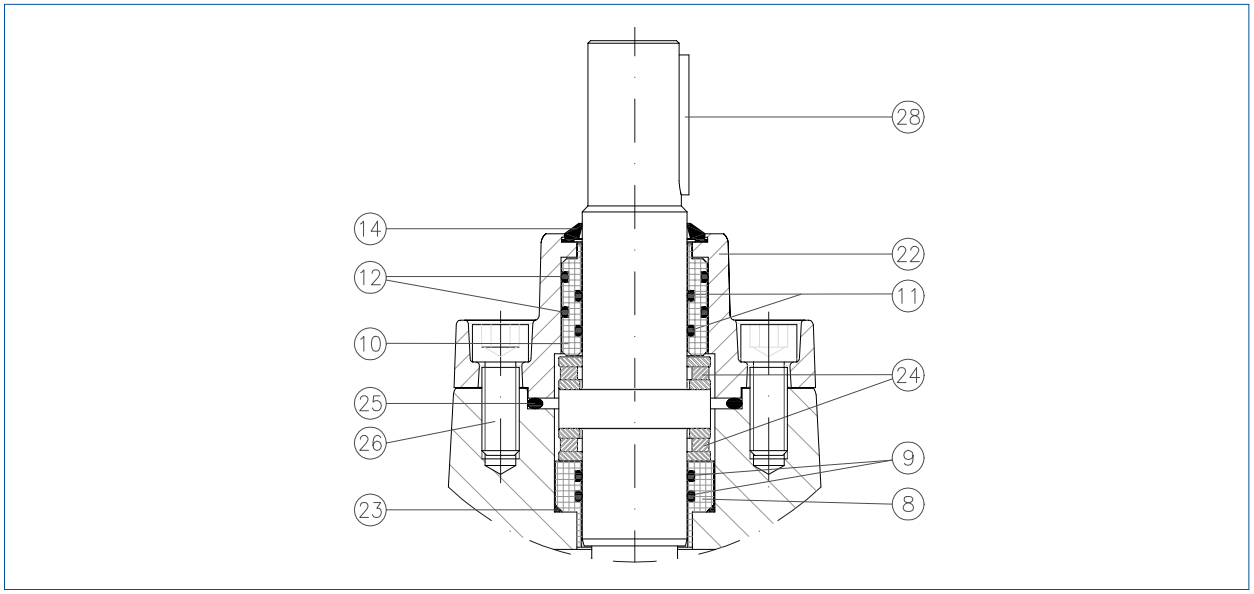
F4/F5 - DN350/600 - PN10/16





ACTUATION METHODS

TALIS offers a wide variety of actuation methods that will allow to choose the best option for each installation. The actuation can be made manually or by means of an electrical actuator with or without a gearbox. Also, we offer solutions for buried installations. Pneumatically actuated gate valves with a special design are also available for those installations where speed of actuation is a priority.

MANUAL ACTUATION

In most cases, resilient seated gate valves are operated manually by means of a handwheel or a square cap top, using a T-key. TALIS offers handwheels with the right dimensions, according to the DN and operating torque. Our standard handwheels are made of pressed steel and we also offer ductile iron as an option. Regarding square cap tops, our products comply with the different national practices and standards.

A cap plug (1), inserted inside, indicates the closing direction. Blue color for clockwise closing direction, red color for anti-clockwise closing direction.

ELECTRICAL ACTUATION

Another option is to operate the gate valve by means of an electric actuator. This solution also offers the possibility of installing a remote control, that allows the final user to monitor the operations of the valves. Special versions of the gate valves prepared for the actuator are equipped with top flanges according to ISO 5210. Actuators from different suppliers can be installed on this standard flange, which gives the customer the freedom to choose their actuator. TALIS can provide the operating torques of the gate valves as well as guidance in choosing the right actuator for each DN.

BURIED INSTALLATIONS

One special case of manual actuation occurs when the valve is buried and the actuation has to be done from the surface. For those cases special stem extensions, fixed or telescopic, are offered to fit with different national practices and standards. We can offer customised solutions for each country when requested. For example, TALIS offers adapters to fit plastic or casting pipes for the French market and stem extensions according to GW 336 for the German market.

DN	From DN40 to DN200 included	From DN250 to DN500 included	DN600
Connecting flange ISO 5210	F10	F14	F16

INSTALLATION AND OPERATION INSTRUCTIONS

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GOOD TO KNOW BEFORE INSTALLATION

Storage

- Leave the rubber wedge slightly open: if it is closed completely, the rubber suffers unnecessary compression. Remove the flange cover just before the installation.
- The gate valves should preferably be stored under cover. A long storage under extreme weather conditions can cause alterations of the coating and seals.

Assembly in pipe

- The assembly of the valve in the pipe is independent of the flow direction.
- When connecting the valve to the pipe, avoid the transmission of stress from the pipe to the valve body. For that, any pipe or pipe sections or valve not yet finally clamped in place must be provisionally supported to prevent abnormal stress on one or both sides of the valve.
- Tighten screws gradually in a star-shaped pattern, respecting the tightening torques.
- Once the valve is assembled, the threads of the bolts/rods should be greased with a graphite based waterproof grease (MOLYCOTE or similar) to prevent corrosion and facilitate subsequent dismantling operations.

Operation

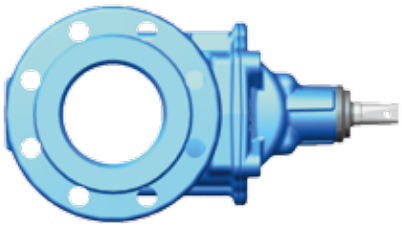
- Each valve must be operated in respect of the operating torque by means of a handwheel or a square cap top, in the latter case a purpose-designed operating key must be used. Do not use the valves for regulating mode.
- Do not use the valves with EPDM rubber with gaseous fluids such as propane, butane, natural gas and also with hydrocarbons fluids like petrol, diesel, ...

RECOMMENDED POSITIONS

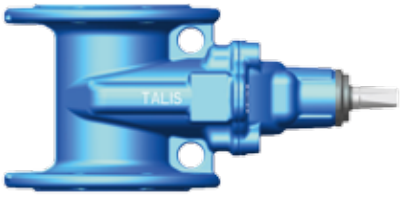
From DN40 up to DN300:

1) Ideal position: vertical stem, horizontal flow

2) Horizontal stem, horizontal flow



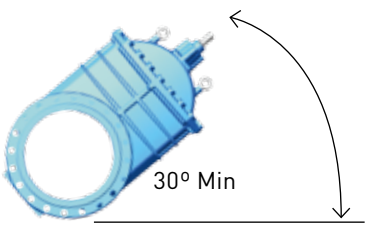
3) Horizontal stem, vertical flow



From DN350 up to DN700:

1) Ideal position: vertical stem, horizontal flow

2) Oblique stem, horizontal flow



EUROPEAN DIRECTIVE

European directive 2014/68/EU (PED) must be respected in all the countries of the European Union for all equipment under pressure. Valves which are subjected to this European directive are the object of a «CE» marking and also a CE declaration of conformity.

Are excluded from the scope of this directive the networks for the supply, distribution and discharge of water and associated equipment and headraces such as penstocks, pressure tunnels, pressure shafts for hydroelectric installations and their related specific accessories. In this context:

- "water" means: potable water, waste water and effluent, and sewage,
- "Networks and associated equipment" means: complete systems for the supply distribution and discharge of water. They extend up to the point of use in buildings, industrial sites and plants, and include equipment closely related to these networks such as water meter and line valves. Pressure vessels, such as expansion vessels, however are not considered to be part of such 'networks and associated equipment' and are therefore not excluded.

Within the scope of the directive, the requirements on resilient seated gate valves are given in the table beside in the case of liquid from group 2.
For the gate valves which are subjected to "CE" marking (see table beside), the document of "CE" declaration of conformity is available on request.

DN	PS MAX (bar)	Fluid group	Fluid Type	CATEGORY	CE MARKING
40	16	2	Liquid having vapor pressure max at 1513 mbar, at 70°C max.	Art 4, Par 3	n.a.*
50	16	2		Art 4, Par 3	n.a.*
60	16	2		Art 4, Par 3	n.a.*
65	16	2		Art 4, Par 3	n.a.*
80	16	2		Art 4, Par 3	n.a.*
100	16	2		Art 4, Par 3	n.a.*
125	16	2		Art 4, Par 3	n.a.*
150	16	2		Art 4, Par 3	n.a.*
200	16	2		Art 4, Par 3	n.a.*
250	16	2		Art 4, Par 3	n.a.*
300	16	2		Art 4, Par 3	n.a.*
350	16	2		Cat 1	Yes
400	16	2		Cat 1	Yes
450	16	2		Cat 1	Yes
500	16	2		Cat 1	Yes
600	16	2		Cat 1	Yes
700	16	2		Cat 1	Yes

(*): according to the max working pressure defined, max temperature defined, and fluid group defined, the "CE marking" is not necessary for DN40 to 300 in the present case.

REFERENCE LIST

WATER SUPPLY DISTRIBUTION

Project	Country	Year
The reconstruction of Entuziastov highway – Moscow	Russia	2012-2013
Ruwais Housing Complex (Abu Dhabi)	UAE	2012
Khalifa port	UAE	2012
Pal Tree at Jebel Ali	UAE	2012
New Sanitary Waste Lift Station	Saudi Arabia	2012
Peravia Acueducto / aqueduct	Dominic Rep	2012
Dynamo Stadium – Moscow	Russia	2012
Olympic objects in Imerety lowland - Sochi	Russia	2011-2012
Abu Dhabi International airport	UAE	2011
Vodokanal – Taraza	Kazakhstan	2011
Mokry Dwor proejct	Poland	2011
Main water pipelines . Irkutsk	Russia	2010-2012
Sochi, main pipeline Dn500 near Mzyta river	Russia	2010
Tifert (Tunisian Indian fertiliser)	Tunisia	2010
Pushkin deposit – Vkadivostok (i.Russkiy)	Russia	2010
National Water Annual Contract	Saudi Arabia	2010
Kamala-1 pumping station and distr. Network – Krasnoyarsk	Russia	2010
Jebel Ali Airport	UAE	2009
Dubai Crescent	UAE	2009
The Palm Deira (Dubai)	UAE	2009

REFERENCE LIST

SEWAGE & TREATMENT

Project	Country	Year
PTAR El Bello / Wastewater Treatment Plant	Colombia	2014
Makkah Project	KSA	2013
Darsait Waste Water Treatment Plant	Oman	2013
Atotonilco Planta Tratamiento / Water Treatment Plant	Mexico	2012
6th October WTP	Egypt	2012
Arroyo Valenoso Waste Water Treatment Plant	Spain	2012
Najmat Abu Dhabi Sewage Lifting Station	UAE	2012
Sanitary Waste Water Pumping Station	Saudi Arabia	2012
Sewage pumping station Lubertsy-2 – Moscow -	Russia	2012
Vodokanal (Astana SU Arnasy) - Main sewage pumping station-	Kazakhstan	2011-2012
Arroyo Culebro Waste Water treatment Plant	Spain	2011
Ciudad Real Waste Water Treatment Plant	Spain	2011
Madrid-Valmayor Planta Tratamiento	Spain	2010
Arroyo Quiñones Waste Water treatment Plant	Spain	2010
Tomelloso Waste Water Treatment Plant	Spain	2010
Gava Waste Water Treatment Plant	Spain	2010
Nopwasd II Waste Water Treatment Plant (CAPW)	Egypt	2010
Cairo Airport New Terminal 3	Egypt	2009
Rejas- Madrid Waste Water Treatment Plant	Spain	2009
Alejandria East Waste Water Treatment Plant (CAPW)	Egypt	2009
Ibiza Waste Water treatment Plant	Spain	2009
Madrid-Almoguera Planta de Tratamiento	Spain	2008
Benquerencia Water treatment Plant	Spain	2008
Paterna Water treatment Plant	Spain	2008
La Gavia-Madrid Waste Water Treatment Plant	Spain	2008
Epele Water treatment Plant	Spain	2007
MGUP "Mosvodokanal" Cherkizovskaya sewage pumping st	Russia	2007
Gabal El Asfar Waste Water Treatment Plant (CAPW)	Egypt	2006
La Ranilla- Waste Water Treatment Plant	Spain	2006
Saint Petersburg South-west sewage treatment plant	Russia	2005

IRRIGATION

Project	Country	Year
Al Ain Irrigation Project	UAE	2011
Upgrading of Salam Street – Irrigation works	UAE	2010
Lleida-Segarra Garrigues Regadío / Irrigation	Spain	2008
Canal de Navarra / Navarra Channel	Spain	2008
Castejón Regadío / Irrigation project	Spain	2005
La Rioja-Najerilla Regadío / Irrigation Project	Spain	2005
Bozova (45,000 ha) Regadío / Irrigation	Turkey	2002

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