Uniwat®



Gate Valves

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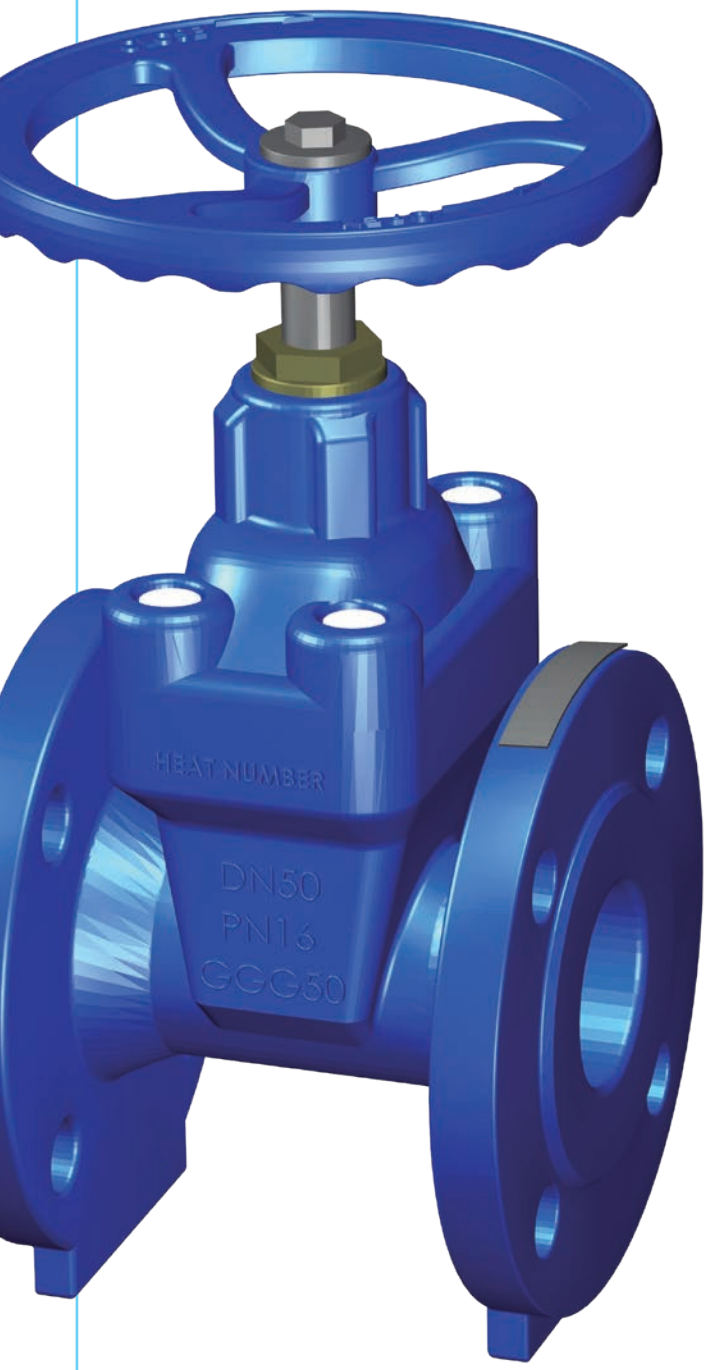


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General Design Considerations



Gate Valves are devices to start or stop flow in a pipe system. They offer a straight-line flow of fluid with minimum flow restriction. In service, these valves generally work as On/Off, that is to say, either fully open or fully closed.
Gate Valves are featured by the movement of the stem guiding the closure element downwards to get the valve closed and upwards to get it open. The closing and opening actions are featured by a slow movement and usually governed either by a multi turn handwheel or any other manual device or by a multi turn actuator.

The closure element of a Gate Valve is called wedge or disc and it is completely removed from the valve passage when the valve is fully open; the wedge is fully drawn up into the valve bonnet. This leaves an opening for flow through the valve at the same inside diameter as the pipe system in which the valve is installed. A gate valve can be used for a wide range of liquids and provides a tight seal when closed.

Gate Valves consists of three main parts: body, bonnet, and trim. The body is generally connected to pipe system by means of flanged, screwed or welded connections. The bonnet, which containing the moving parts, is attached to the body, usually with bolts, to permit maintenance. The valve trim consists of the stem, the gate, the wedge or disc and the seat rings. Resilient seat valves have normally integral seat area with the body, having a rubber coated wedge that directly contacts the valve body. Gate Valves are available with different wedges or discs, being the most common ones.

The stem, which connects the handwheel and wedge with each other, is responsible for the proper positioning of the wedge. To prevent leakage, in the area of the seal, a fine surface finish of the stem is necessary.

Regarding the stem motion, Gate Valves are classified as either rising stem or non rising stem. For a valve of the rising stem type, the stem will rise above the handwheel if the valve is opened. This happens, because the stem is threaded and mated with the bushing threads of a yoke. A yoke is an integral part from a rising stem valve and is mounted to the bonnet. For a valve of the non rising stem type, there is no upward stem movement if the valve is opened. The stem is threaded into the wedge. As the handwheel on the stem is rotated, the wedge travels up or down the stem on the threads while the stem remains vertically stationary.

The main advantages of using Gate Valves is a good closing performance, they are bidirectional (they can be used in two directions) and they offer a large capacity (minimal pressure loss across the valve). The mayor drawbacks are the slow operation (sometimes and advantage to prevent water hammers), and they are not suitable for throttling duties, with non-regulating characteristic and problems of vibrations.
This Data Sheets Manual is comprehensive of the two main manufacturing lines of the COMEVAL range: Resilient Gate Valves (Series 504-507) for a wide application field of Water Works and Irrigation

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Codification

1	2	3	4	5	6	7	8	9	10	11	12	13	14
5	0	4	N	0	0	0	0	1	6	0	0	5	0

1-2-3	504	Gate valve inner screw / non-rising stem & handwheel
	507	Gate valve rising stem

4	N	Wedge coated in NBR
	E	Wedge coated in EPDM
	B	Metal seating in brass
	I	Metal seating in st. steel 304
	J	Metal seating in st. steel 316

5	0	Face to face EN 558 S14 (DIN 3202 F4)
	5	Face to face EN 558 S15 (DIN 3202 F5)
	3	Face to face BS5163 (EN558 S3)

6	0	Operated by handwheel
	W	Operated by wrench nut
	F	ISO top flange for actuator
	R	Operated by gear

7-8	00	Without top flange
	07	with ISO F07 top flange (digit 5=F)
	12	with ISO F12 top flange (digit 5=F)
	14	with ISO F14 top flange (digit 5=F)
	16	with ISO F16 top flange (digit 5=F)

9-10	16	PN16
	06	PN6
	10	PN10
	25	PN25
	SP	SPIGOT ENDS

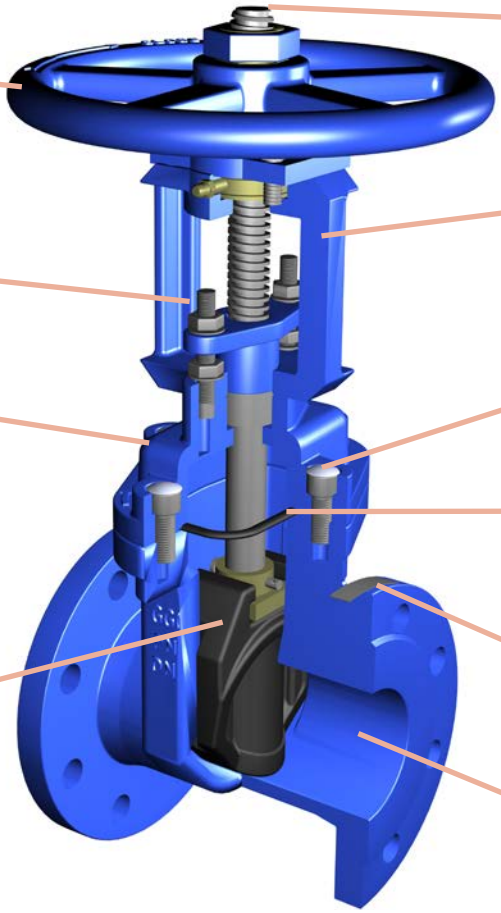
11	0	No special features
	C	Valve closes counterclockwise

12-13-14	040	DN40
	050	DN50
	065	DN65
	080	DN80
	100	DN100

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SERIES 507

Resilient Seated Gate Valves are linear motion valves, bidirectional, with rubber vulcanised wedge, devised for stopping the flow of the service fluid when necessary, not being suitable for regulation purposes. Valves close by turning the handwheel clockwise. Valves are bolted bonnet, outside screw and yoke, rising stem, and can be operated by handwheel, gear, etc. The valves are provided with epoxy protection against environmental or media aggression. Through their accurate design and production, they offer a reliable performance and full seat tightness, even with certain presence of sediments, being widely used mainly in water works service.



Main Features

Valve design: EN 12516
Nominal pressure: PN16
Face to face length: EN 558 S14 (DIN 3202 F4)
Valve end connections: Flanged to EN 1092-2 type 21/B, PN16 (*valves DN65 with 4 holes as accepted variant in standard)*
Marking: EN 19
Pressure Tests: EN 12266-1
Seat leakage rate: Rate A (full seat tightness in both directions)
Inside and outside epoxy coating protection blue color similar to RAL5005. Min. average thickness 250 microns
Product compliant with Directive 2014/68/EU on Pressure Equipment (PED) and Machinery Directive 2006/42/EC

Main Duties / Limits of use

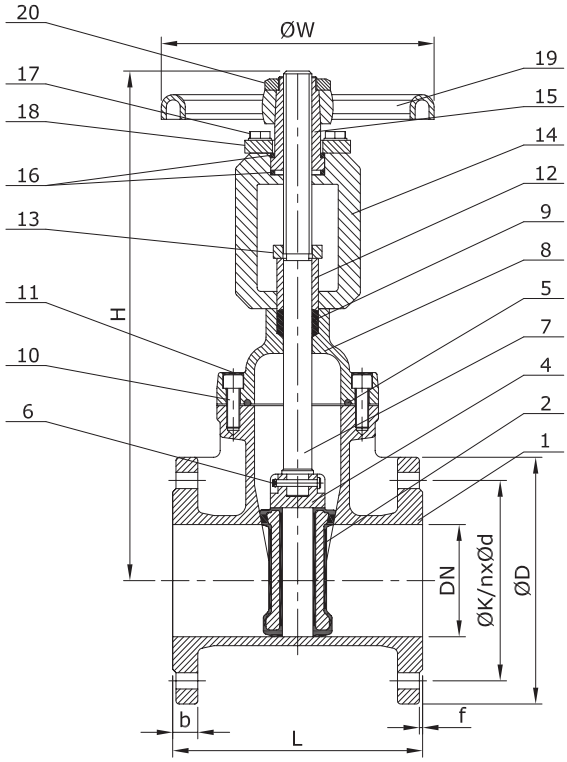
Fresh water and neutral liquids of group 2*, acc. to Directive 2014/68/EU Annex II table 9 up to category I
Table 9: PS 16 bar DN50-DN700 (Art.4-Parr.3 DN50-DN300)
TS: -10ºC/80ºC
Questions referring to chemical resistance, please consult us
**Classification of fluids (group 2) acc. to Directive 2014/68/EU, Article 13*

Options

WRAS approval & compliance with EN 1171, EN 1074-1/2, higher service temperatures, other designs and approvals, limit switches, different actuation. Please consult us

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Main Parts and Materials



Nº	PART	MATERIAL 507E	MATERIAL 507N
1	BODY	EN-JS1050 (GGG50)	
2	WEDGE	EN-JS1050 (GGG50)-EPDM (507E)	EN-JS1050 (GGG50)-NBR (507N)
4	DISC NUT	BRASS 38-2-2	
5	GASKET	EPDM (507E)	NBR (507N)
6	PIN	Stainless steel 410	
7	STEM	Stainless steel 420	
8	BONNET	EN-JS1050 (GGG50)	
9	PACKING	Grafoil	
10	BONNET SCREWS	A194 2H	
11	PLUGS	Wax	
12	GLAND FOLLOWER	EN-JS1050 (GGG50)	
13	GLAND	EN-JS1050 (GGG50)	
14	YOKE	EN-JS1050 (GGG50)	
15	STEM NUT	BRASS 38-2-2	
16	WASHER	BRASS 38-2-2	
17	STUDS	A194 2H	
18	COVER	EN-JS1050 (GGG50)	
19	HANDWHEEL	EN-JS1050 (GGG50)	
20	HANDWHEEL NUT	EN-JS1050 (GGG50)	

Main Valve Parameters

DN	50	65	80	100	125	150	200	250
L	150	170	180	190	200	210	230	250
H	350	370	380	405	455	490	540	720
ØW	180	180	200	250	250	300	350	400
ØD	165	185	200	220	250	285	340	405
ØK	125	145	160	180	210	240	295	355
n-Ød	4-19	4-19	8-19	8-19	8-19	8-23	12-23	12-28
f	3	3	3	3	3	3	3	3
b	19	19	19	19	19	19	20	22
Kvs-value	220	370	560	880	1380	2300	4090	6390
Recomm. closing torque	35	35	40	45	70	75	120	180
Max. closing torque	90	100	150	190	190	190	240	240
No. of turns	13	17	16,5	20,5	25,5	30,5	34,0	43
Approx. weight	15	17	24	32	43	63	92	135

DN	300	350	400	450	500	600	700
L	270	290	310	330	350	390	430
H	860	1185	1355	1570	1830	2010	2260
ØW	500	500	600	600	750	750	960
ØD	460	520	580	640	715	840	910
ØK	410	470	525	585	650	770	840
n-Ød	12-28	16-28	16-31	20-31	20-34	20-37	24-37
f	3	4	4	4	4	5	5
b	25	27	28	30	32	36	38
Kvs-value	9200	11591	16350	20455	25560	37153	53190
Recomm. closing torque	260	270	310	340	350	720	-
Max. closing torque	300	300	390	390	390	-	-
No. of turns	51	44,5	50,5	57	63,5	75,5	88
Approx. weight	198	304	343	482	588	-	-

Dimensions in mm subject to manufacturing tolerance / Kvs-values in m^3/h / Torques in Nm / Weights in kg

Information / restriction of technical rules need to be observed!
Installation, Operating and Maintenance Manual can be downloaded at www.comeval.es

The engineer, designing a system or a plant, is responsable for the selection of the correct valve
Product suitability must be verified, contact manufacturer for information

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Sizing Gate Valves



A valve flow coefficient represents the standard flow rate which flows through the valve at a given opening, referred to pre-established conditions:

* Kv value is the volume of water at 20ºC, in cubic meters per hour (m3/h), that will flow through the valve at a static pressure drop of 1 bar across the valve.
* Cv value is the volume of water at 60ºF, in gallons per minute (gpm), that will flow through the valve at a static pressure drop of 1 psi across the valve.

Conversion from Kv to Cv can be roughly calculated by means of the following expression:
Cv = Kv x 1,17

Flow rate through the valve with other liquids can be calculated with the following expressions *(for gases please consult us):*

$$Kv = q\ (SG / dp)^{1/2}$$
where
q = water flow (m3/h)
SG = specific gravity (1 for water)
dp = pressure drop (bar)

$$Cv = q\ (SG / dp)^{1/2}$$
where
q = water flow (US gallons per minute)
SG = specific gravity (1 for water)
dp = pressure drop (psi)

It is common practice to size the Gate Valves on the basis of pipe DN for on off application.

COMEVAL Technical Department is at your disposal to help you sizing your system.

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Actuation Solutions - Control Accesories

COMEVAL Gate Valves can be provided with a wide range of solutions on actuation and control accessories which is all packaged at our works according to customer specifications. The modular system permits to distributors and plant users to assemble or replace the diverse options in site. Virtually most applications that may be encountered on the industry today are covered with the standard range of actuation and accessories, nevertheless, other customer tailored solutions can be provided by our R&D Section.

Handwheel



Electric Actuator



Squares



Gear box





Level wrench



Limit switches



Simple extension

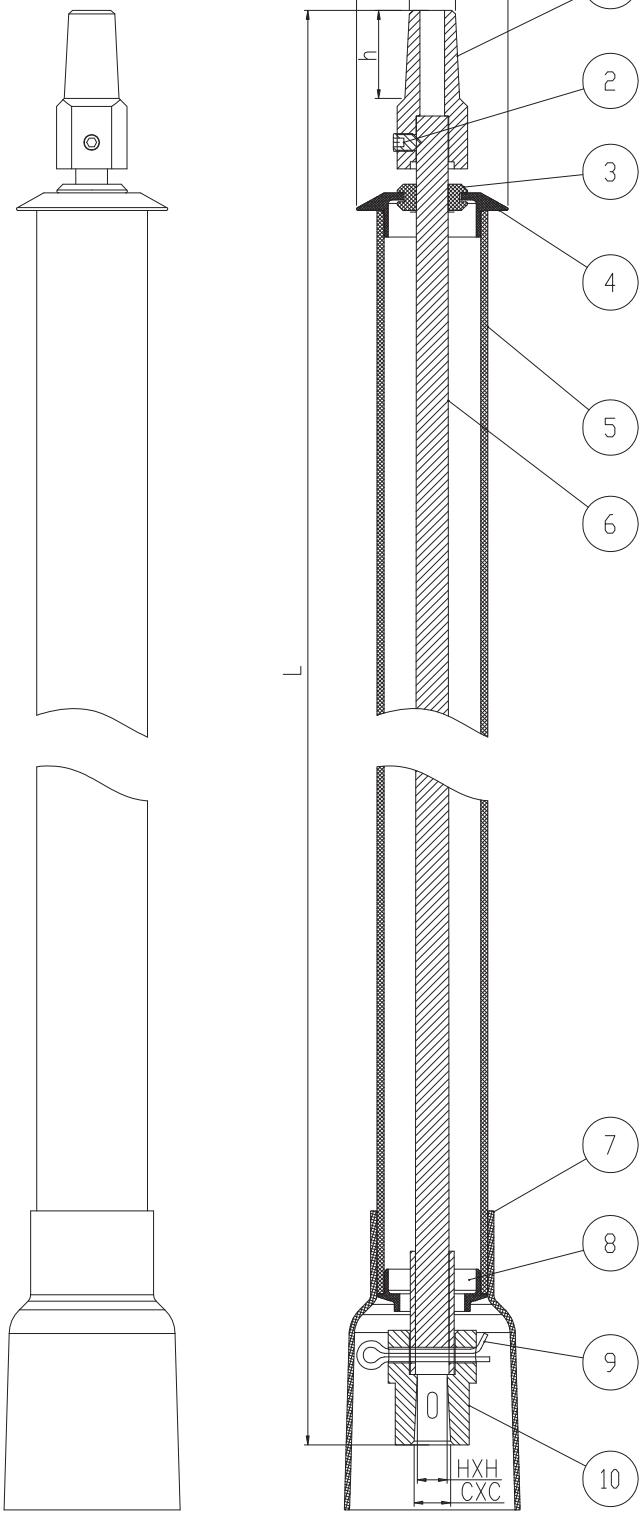


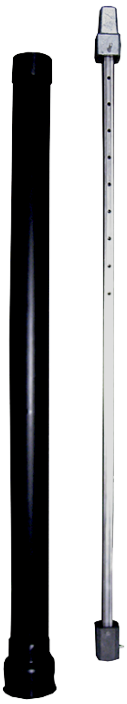
Telescopic extension



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STEM EXTENSION





NO.	PART	MATERIAL
1	Square cap	GGG
2	Screw	SS201
3	Anti-dusp ring	NBR
4	Top cover	PVC
5	Pipe	PVC
6	Spindle	Carbon steel
7	Bottom cover	PVC
8	End plate	PVC
9	Pin	Carbon steel
10	Coupling	GGG

DN	**40**	**50**	**65**	**80**	**100**	**150**	**200**	**250**	**300**
A	86	86	86	86	86	86	86	86	86
B	27	27	27	27	27	27	27	27	27
CXC	14x14	17x17	21x21	21x21	23x23	23x23	28x28	32x32	32x32
HXH	12x12	14x14	17x17	17x17	19x19	19x19	23x23	27x27	27x27
h	50	50	50	50	50	50	50	50	50

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Valves Assembling Sets



	Bolts with nuts		Flanges PN10	Gaskets
DN	Quantity	Size	Quantity	Quantity
15	8	M12x45	2	2
20	8	M12x50	2	2
25	8	M12x50	2	2
32	8	M16x55	2	2
40	8	M16x55	2	2
50	8	M16x60	2	2
65	8	M16x60	2	2
80	16	M16x65	2	2
100	16	M16x65	2	2
125	16	M16x70	2	2
150	16	M20x75	2	2
200	16	M20x80	2	2
250	24	M20x80	2	2
300	24	M20x80	2	2
350	32	M20x90	2	2
400	32	M24x90	2	2
450	40	M24x100	2	2
500	40	M24x100	2	2

	Bolts with nuts		Flanges PN16	Gaskets
DN	Quantity	Size	Quantity	Quantity
15	8	M12x45	2	2
20	8	M12x50	2	2
25	8	M12x50	2	2
32	8	M16x55	2	2
40	8	M16x55	2	2
50	8	M16x60	2	2
65	8	M16x60	2	2
80	16	M16x65	2	2
100	16	M16x65	2	2
125	16	M16x70	2	2
150	16	M20x80	2	2
200	24	M20x80	2	2
250	24	M24x90	2	2
300	24	M24x90	2	2
350	32	M24x100	2	2
400	32	M27x100	2	2
450	40	M27x100	2	2
500	40	M30x110	2	2
600	40	M33x140	2	2

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Valves Assembling Sets



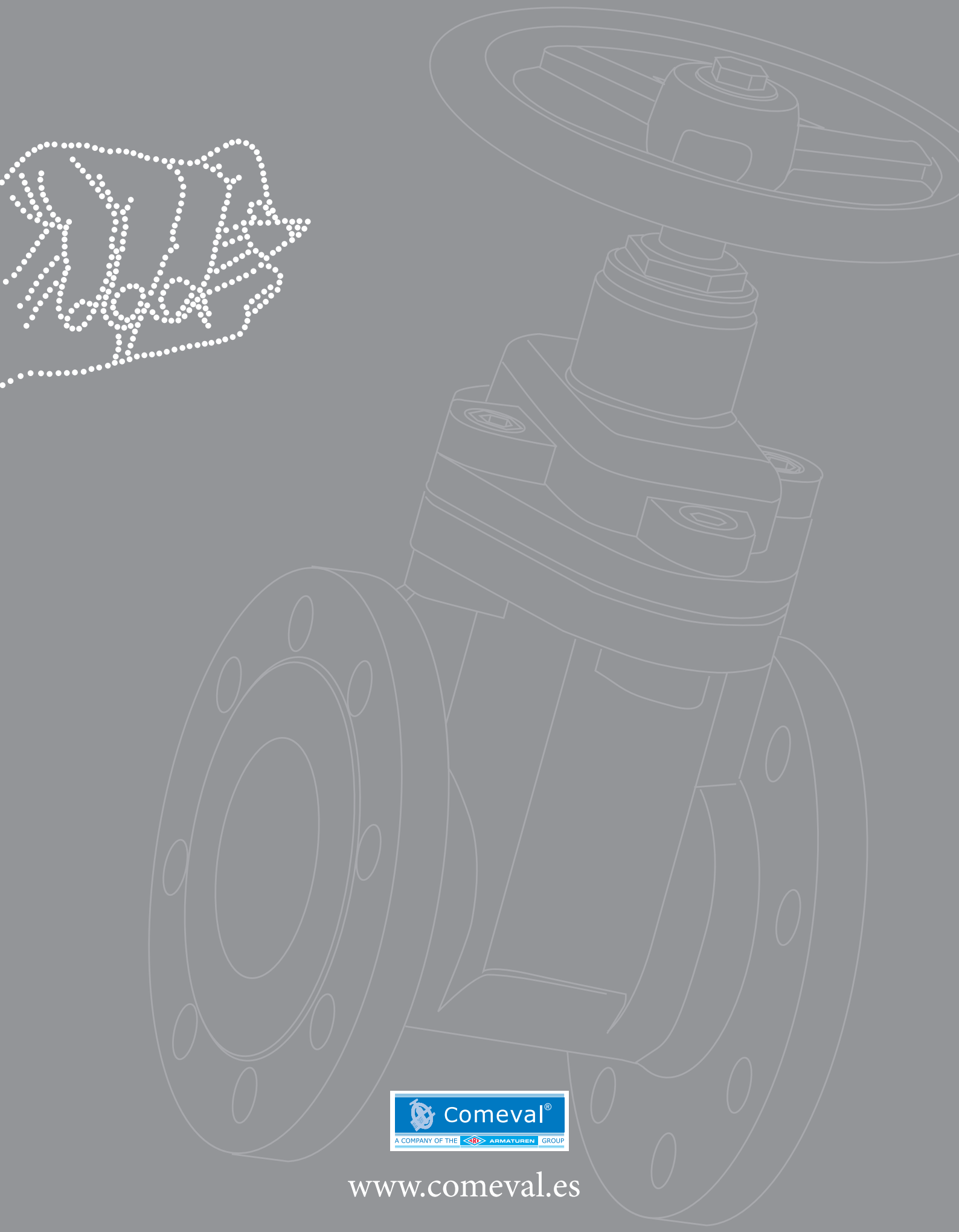
	Bolts with nuts		Flanges PN25	Gaskets
DN	Quantity	Size	Quantity	Quantity
15	8	M12x50	2	2
20	8	M12x55	2	2
25	8	M12x55	2	2
32	8	M16x55	2	2
40	8	M16x55	2	2
50	8	M16x60	2	2
65	16	M16x65	2	2
80	16	M16x70	2	2
100	16	M20x70	2	2
125	16	M24x80	2	2
150	16	M24x90	2	2
200	24	M24x90	2	2
250	24	M27x100	2	2
300	32	M27x100	2	2
350	32	M30x110	2	2
400	32	M33x120	2	2
450	40	M33x130	2	2
500	40	M33x130	2	2
600	40	M36x150	2	2

	Bolts with nuts		Flanges PN40	Gaskets
DN	Quantity	Size	Quantity	Quantity
15	8	M12x50	2	2
20	8	M12x55	2	2
25	8	M12x55	2	2
32	8	M16x55	2	2
40	8	M16x55	2	2
50	8	M16x60	2	2
65	16	M16x65	2	2
80	16	M16x70	2	2
100	16	M20x70	2	2
125	16	M24x80	2	2
150	16	M24x90	2	2
200	24	M27x100	2	2
250	24	M30x110	2	2
300	32	M30x120	2	2
350	32	M33x130	2	2
400	32	M36x140	2	2
450	40	M36x150	2	2
500	40	M39x150	2	2
600	40	M45x190	2	2

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