

SEMPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

FIGURE 6012 - 6015

High pressure forged valves provide the ideal solution to harsh service conditions, like elevated temperature and pressures.



FEATURES

- High quality forged materials to guarantee a superior performance and to sensibly decrease operating costs and delivery times.
- Valve design in accordance with ASME B16.34, API 600, ISO, DIN, TRD, VGB, TRB, PED standards.
- Applicable for high pressure ratings (PN 720) and for temperature up to 650°C.
- In full compliance with the Health, Safety and Environment requirements to avoid any risk of fugitive emissions.
- Conforms with the European Pressure Equipment Directive n°2014/68/EU (CE mark 100% compliance).
- Extraordinary tightness obtained by a specific gasket design and packing in pure graphite.
- Technologically advanced pressure seal bonnet design is offered as standard to ensure a perfect body-bonnet tightness and to facilitate any maintenance operation.
- Standard configuration: flexible split wedge. The wedge guide is welding-free as integral to the valve body.
- Parallel slide configuration available upon request.
- Special constructions and materials available to suit customers' request.
- Stellite Gr.6 overlay on seats and wedge or disc; 13% Chrome on backseat.
- Valves are offered as standard with manual operators (Hand wheel or bevel gear depending on size). Actuated options such as electric, pneumatic or hydraulic are available.

GENERAL APPLICATION

These high pressure forged gate valves have been designed and manufactured to suit most application in power plants - including the 'new generation' plants which involve temperatures up to 650°C. Due to their excellent performance, these valves are also recommended for applications requiring resistance to high pressures and elevated temperatures, such as in chemical, petrochemical and offshore plants.

TECHNICAL DATA

Sizes: DN 50 - DN 750
NPS 2 - NPS 30

Pressure ratings: ASME Class 900 to 4500
DIN PN 160 to PN 720

Body materials: Forged carbon steels, alloys steels and stainless steels
All in compliance with ASME and DIN standards

Temperature [°C]: -46 to + 650

Connections standards

Flanges: ASME B16.5.
Buttweld: ASME B16.25, DIN 2448
Other connections on request.

SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

FIGURE 6012 - 6015

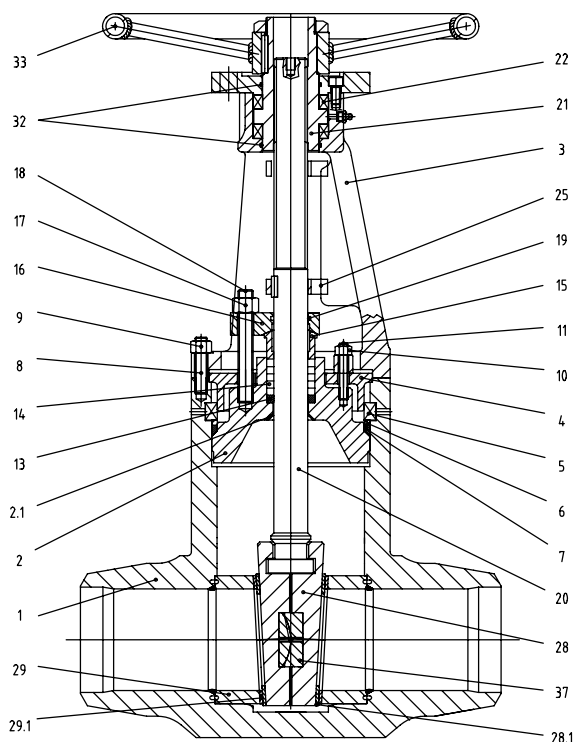


FIGURE 6012 - 6015

Figure	Range Class	PN
6012	601 - 900	(09) 110 - 160
6013	901 - 1500	(15) 161 - 250
6014	1501 - 2500	(25) 251 - 500
6015	2501 - 4500	(45) 501 - 720

MATERIAL TO API 600

Trim no	Body seat surface part no 29.1	Wedge seating surface part no 28.1	Stem part no 20	Back seat part no 21
1	13%Cr	13 % Cr	13 % Cr	13% Cr
5	Stellite	Stellite	13% Cr 17% Cr*	13% Cr
8	Stellite	13 % Cr	13% Cr	13% Cr
12	F 316 / Stellite	F 316/ Stellite	F 316 or 17 4 PH below 450°C	F 316

* Over 450°C

MATERIAL SPECIFICATIONS

Item	11	12	13	14	15	16	17	18	19
	-20°C- 425°C A105 1.0460	-46°C- 425°C LF2 TT5 1.0411	200°C- 540°C F1 15Mo3 1.5415	250°C- 550°C F12 13CrMo44 1.7335	400°C- 575°C F22 10CrMo910 1.7380	500°C- 650°C F91 P91 1.4903	38°C- 450°C 15NiCuMoNb5 1.6368	130°C- 650°C F316 X6CrNiNb1810 1.4550	500°C- 650°C F92 P92 1.4901
1 Body	A105 1.0460	LF2 TT5	F1 15Mo3	F12 13CrMo44	F22 10CrMo910	F91	15NiCuMoNb5	F316 X6CrNiNb1810	F92
2 Bonnet	A105 1.0460	LF2 TT5	F1 15Mo3	F12 13CrMo44	F22 10CrMo910	F91	15NiCuMoNb5	F316 X6CrNiNb1810	F92
3 Yoke	A105	A105	A105	A105	A105	A105	A105	A105	A105
4 Safety ring	A105	A105	A105	A105	A105	A105	A105	A105	A105
5 Segment ring	A105 1.0460	LF2 TT5	F1 15Mo3	F12 13CrMo44	F22 10CrMo910	F91	15NiCuMoNb5	F316 X6CrNiNb1810	F92
6 Ring	A105 1.0460	LF2 TT5	F1 15Mo3	F12 13CrMo44	F22 10CrMo910	F91	15NiCuMoNb5	F316 X6CrNiNb1810	F92
7 Gasket	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite
8 Bolts	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7
9 Nuts	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H
10 Nuts	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H
11 Bolts	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7	A193 B7
13 Ground ring	17Cr 1.4122	17Cr 1.4122	17Cr 1.4122	17Cr 1.4122	17Cr 1.4122	17Cr 1.4122	17Cr 1.4122	17Cr 1.4122	17Cr 1.4122
14 Packing	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite
15 Gland	F6	F6	F6	F6	F6	F6	F6	F6	F6
16 Gland flange	A105	A105	A105	A105	A105	A105	A105	A105	A105
17 Gland nuts	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194.8	A194 2H
18 Bolts	A193 B7	A193 B7	A193 B7	A193 B8	A193 B8	A193 B8	A193 B7	A193 B8	A193 B7
19 Cut ring	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite	Pure graphite
21 Yoke nut	Bronze B 148 gr.B or Ni-resist D2	Bronze B 148 gr.B or Ni-resist D2	Bronze B 148 gr.B or Ni-resist D2	Bronze B 148 gr.B or Ni-resist D2	Bronze B 148 gr.B or Ni-resist D2	Bronze B 148 gr.B or Ni-resist D2	Bronze B 148 gr.B or Ni-resist D2	Bronze B 148 gr.B or Ni-resist D2	Bronze B 148 gr.B or Ni- resist D2
22 Bearings	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
25 Indicator	A105	A105	A105	A105	A105	A105	A105	F316	A105
28 Wedge	A105 1.0460	LF2 TT5	F1 15Mo3	F12 13CrMo44	F22 10CrMo910	F91	15NiCuMoNb5	F316 X6CrNiNb1810	F92
29 Seat ring	A105 1.0460	LF2 TT5	F1 15Mo3	F12 13CrMo44	F22 10CrMo910	F91	15NiCuMoNb5	F316 X6CrNiNb1810	F92
32 O-ring	FKM	FKM	FKM	FKM	FKM	FKM	FKM	FKM	FKM
33 Handwheel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
37 Distance wedge	F6	F6	F6	F6	F6	F6	F6	F6	F6

SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

FIGURE 6012 - 6015

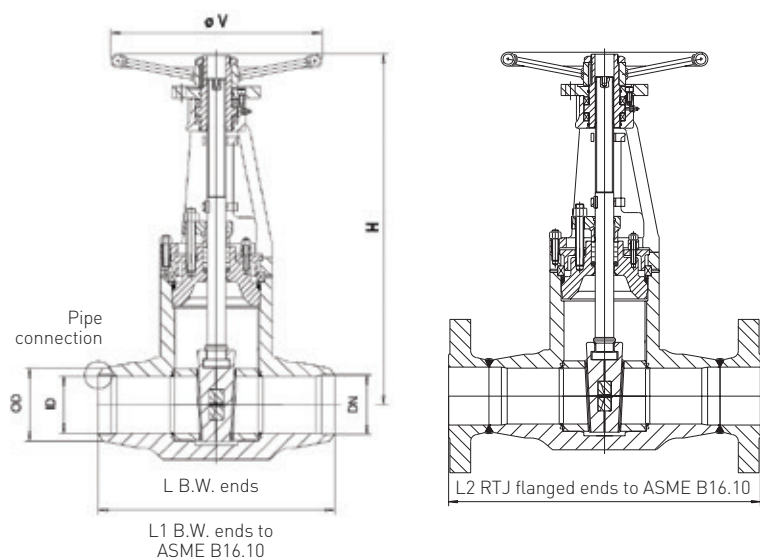


FIG. 6012 RANGE ASME CL. 601 - 900 / PRESSURE RATING PN 110 - 160

DN	NPS	L	L ₁	L ₂	H	ØV	Pipe conn.		Weight (kg)		
							OD max	ID min	BW	BW2	FL
50	2	216	216	-	515	300	95	55	45	45	65
65 x 50	2½ x 2	216	254	384	515	300	95	55	45	45	65
65	2½	216	254	384	515	300	95	55	45	45	65
80 x 65	3 x 2½	305	305	384	590	400	135	72	70	70	85
80	3	305	305	384	590	400	135	72	70	70	85
100 x 80	4 x 3	325	356	460	700	500	170	96	105	100	145
100	4	325	356	460	700	500	170	96	105	100	145
125 x 100	5 x 4	375	432	R	770	450	190	121	162	R	R
125	5	375	432	R	770	450	190	121	162	R	R
150 x 125	6 x 5	450	508	613	850	450	225	146	220	235	275
150	6	450	508	613	850	450	225	146	220	235	275
200 x 150	8 x 6	525	660	R	950	500	280	167	320	R	420
175	7	525	660	R	950	500	280	167	320	R	420
200 x 175	8 x 7	575	660	740	1050	500	280	188	390	415	560
200	8	575	660	740	1050	500	280	188	390	415	560
250 x 200	10 x 8	650	787	841	1460	750	332	236	695	735	810
250	10	650	787	841	1460	750	332	236	695	735	810
300 x 250	12 x 10	750	914	968	1650	750	365	280	1000	1160	1200
300	12	750	914	968	1650	750	365	280	1000	1160	1200
350 x 300	14 x 12	850	991	1038	1880	850	420	306	1280	1280	1500
350	14	850	991	1038	1880	850	420	306	1280	1280	1500
400 x 350	16 x 14	950	1092	1140	2100	850	475	342	1700	1700	1950
400	16	950	1092	1140	2100	850	475	342	1700	1700	1950
450 x 400	18 x 16	1050	R	R	2320	960	525	380	R	R	R
450	18	1050	R	R	2320	960	525	380	R	R	R
500 x 450	20 x 18	1100	R	R	R	R	580	425	R	R	R
500	20	1100	R	R	R	R	580	425	R	R	R
600 x 500	24 x 20										

NOTES

1. All dimensions are in mm.
2. BW: weight for buttweld ends type (Sempell standard).
3. BW2: weight for buttweld ASME ends type.
4. FL: weight for flanged ends type.
5. R: available on request.
6. dN = connection pipe size.
7. d1N = MAX connection pipe size using same project.

SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

FIGURE 6012 - 6015

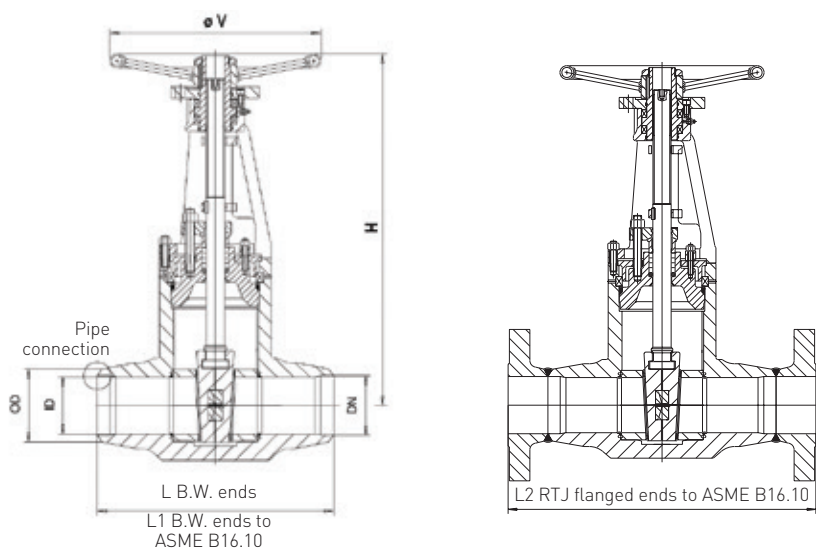


FIG. 6013 RANGE ASME CL. 901 - 1500 / PRESSURE RATING PN 161 - 250

DN	NPS	L	L ₁	L ₂	H	ØV	Pipe conn.		Weight (kg)		
							OD max	ID min	BW	BW2	FL
50	2	216	216	371	515	300	95	52	45	45	60
65 x 50	2½ x 2	216	254	422	515	300	95	52	45	45	82
65	2½	216	254	422	515	300	95	52	45	45	82
80 x 65	3 x 2½	305	305	473	590	400	135	68	70	70	115
80	3	305	305	473	590	400	135	68	70	70	115
100 x 80	4 x 3	350	406	549	700	500	170	92	135	150	170
100	4	350	406	549	700	500	170	92	135	150	170
125 x 100	5 x 4	400	559	R	770	500	190	118	220	R	R
125	5	400	559	R	770	500	190	118	220	R	R
150 x 125	6 x 5	475	559	711	850	750	225	135	250	280	400
150	6	475	559	711	850	750	225	135	250	280	400
200 x 150	8 x 6	600	711	R	950	750	280	155	380	420	630
175	7	600	711	R	950	750	280	155	380	420	630
200 x 175	8 x 7	625	711	841	1050	750	280	175	480	520	795
200	8	625	711	841	1050	750	280	175	480	520	795
250 x 200	10 x 8	725	864	1000	1500	BGR	332	215	890	945	1200
250	10	725	864	1000	1500	BGR	332	215	890	945	1200
300 x 250	12 x 10	800	991	1146	1680	BGR	365	255	1170	1298	1800
300	12	800	991	1146	1680	BGR	365	255	1170	1298	1800
350 x 300	14 x 12	950	1067	1276	1900	BGR	420	280	1330	1420	2300
350	14	950	1067	1276	1900	BGR	420	280	1330	1420	2300
400 x 350	16 x 14	1000	1194	1407	2200	BGR	475	322	1850	1990	3250
400	16	1000	1194	1407	2200	BGR	475	322	1850	1990	3250
450 x 400	18 x 16	1050	1346	1559	2500	BGR	525	352	R	R	R
450	18	1050	1346	1559	2500	BGR	525	352	R	R	R
500 x 450	20 x 18	1100	1473	R	R	R	580	380	R	R	R
500	20	1100	1473	R	R	R	580	380	R	R	R
600 x 500	24 x 20										

NOTES

1. All dimensions are in mm.
2. BW: weight for buttweld ends type [Sempell standard].
3. BW2: weight for buttweld ASME ends type.
4. FL: weight for flanged ends type.
5. R: available on request.
6. BGR: bevel gear on request.
7. dN = connection pipe size.
8. d1N = MAX connection pipe size using same project.

SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

FIGURE 6012 - 6015

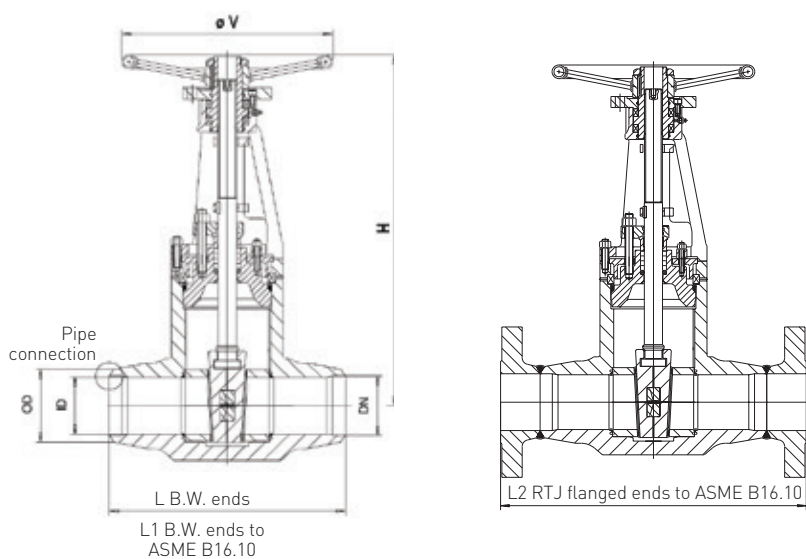


FIG. 6014 RANGE ASME CL. 1501 - 2500 / PRESSURE RATING PN 251 - 500

DN	NPS	Pipe conn.					Weight (kg)				
							BW	BW2	FL		
d1N x dN	d1N x dN	L	L1	L2	H	ØV	OD max	ID min	BW	BW2	FL
50	2	216	279.4	454	515	300	95	48	45	45	80
65 x 50	2½ x 2	216	330	514	515	300	95	48	45	45	160
65	2½	216	330	514	515	300	95	48	45	45	160
80 x 65	3 x 2½	350	368	584	590	400	135	65	110	125	168
80	3	350	368	584	590	400	135	65	110	125	168
100 x 80	4 x 3	425	457	683	700	500	170	85	170	185	260
100	4	425	457	683	700	500	170	85	170	185	260
125 x 100	5 x 4	450	533	R	770	500	190	102	280	R	R
125	5	450	533	R	770	500	190	102	280	R	R
150 x 125	6 x 5	559	610	927	850	750	225	122	370	405	670
150	6	559	610	927	850	750	225	122	370	405	670
200 x 150	8 x 6	711	762	R	970	750	280	144	450	550	890
175	7	711	762	R	970	750	280	144	450	550	890
200 x 175	8 x 7	725	762	1038	1070	750	280	160	750	795	1480
200	8	725	762	1038	1070	750	280	160	750	795	1480
250 x 200	10 x 8	800	914	1292	1550	BGR	332	198	1120	1245	2000
250	10	800	914	1292	1550	BGR	332	198	1120	1245	2000
300 x 250	12 x 10	900	1041	1445	1730	BGR	365	236	1500	1600	3000
300	12	900	1041	1445	1730	BGR	365	236	1500	1600	3000
350 x 300	14 x 12	1000	1118	R	1980	BGR	420	260	1850	1970	R
350	14	1000	1118	R	1980	BGR	420	260	1850	1970	R
400 x 350	16 x 14	1100	1245	R	2230	BGR	475	310	2200	2450	R
400	16	1100	1245	R	2230	BGR	475	310	2200	2450	R
450 x 400	18 x 16	R	R	R	2600	BGR	525	334	R	R	R
450	18	R	R	R	2600	BGR	525	334	R	R	R
500 x 450	20 x 18	R	R	R	R	R	580	365	R	R	R
500	20	R	R	R	R	R	580	365	R	R	R
600 x 500	24 x 20	R	R	R	R	R	580	365	R	R	R

NOTES

1. All dimensions are in mm.
2. BW: weight for butt-welded ends type (Sempell standard).
3. BW2: weight for butt-welded ASME ends type.
4. FL: weight for flanged ends type.
5. R: available on request.
6. BGR: bevel gear on request.
7. dN = connection pipe size.
8. d1N = MAX connection pipe size using same project.

SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

FIGURE 6012 - 6015

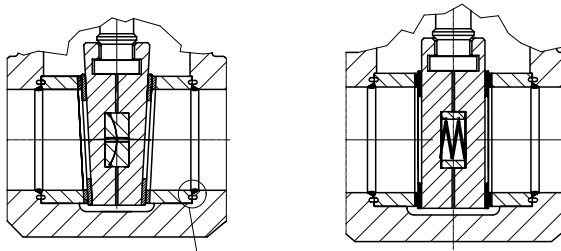


FIGURE A
Seatrings are welded in

STANDARD CHARACTERISTICS

A. Wedge

We have designed a new tee-head connection of the wedge. The wedge is now closed around the stem. Flexible split wedge is standard on Forged Valves and wedge's guide is integral to the body without any welding. During the stroke, the contact area between wedge and seat rings is wide. The design gives the following coefficients or friction for torque calculation:

- $\mu = 0.4$ for wedge or parallel slides
- $\mu = 0.15$ for lubricated stem threads

B. Yoke

Standard Sempell materials for yoke nut are ductile iron Ni-Resist D2 or Bronze B148 Gr.B. All yoke nuts are provided with two needle bearings. Every yoke has a lubrication nipple. The yokes are equipped with a connecting flange on the top, ready to assemble gear, motor devices and other accessories.

C. Bonnet

Advanced Pressure Seal design is such that the bonnet is easy to be dismantled.

Important:

The bonnet must not be dropped into the body cavity.

The segment ring is kept in the right position by the safety ring.

High tightness is achieved with pure graphite gasket rings, covered with a layer of 18.8 on both sides.

D. Packing

The new design of packing ensures high tightness with pure graphite pressed rings (min. density 1.8 g/cm^3) with a ground ring for guiding.

The packing chamber is shorter and narrower because the sealing effectiveness improves as overall packing dimensions decrease. The chamber wall surface roughness is $R_z < 5 \mu\text{m}$ and the surface roughness of the stem running through the stuffing box is $R_z < 1.6 \mu\text{m}$.

The new design of pure graphite packing also allows vacuum service and protection against fugitive emissions.

E. Position Indicator

The mechanical indicator for open and closed position is standard on high pressure forged valves.

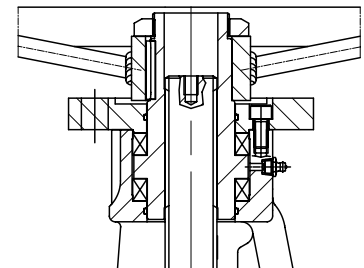
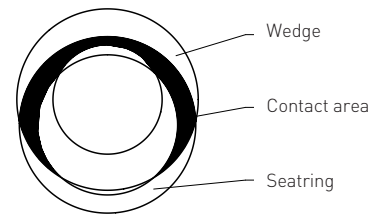


FIGURE B

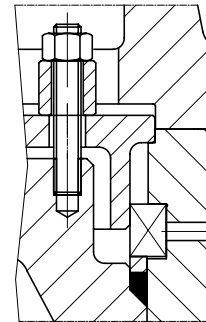


FIGURE C

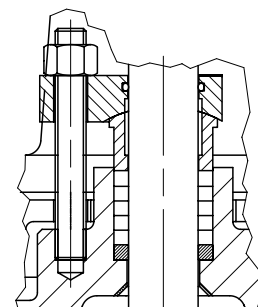


FIGURE D

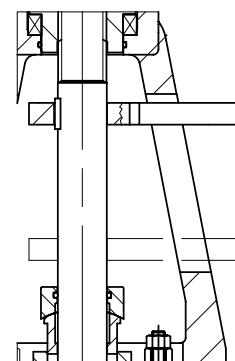
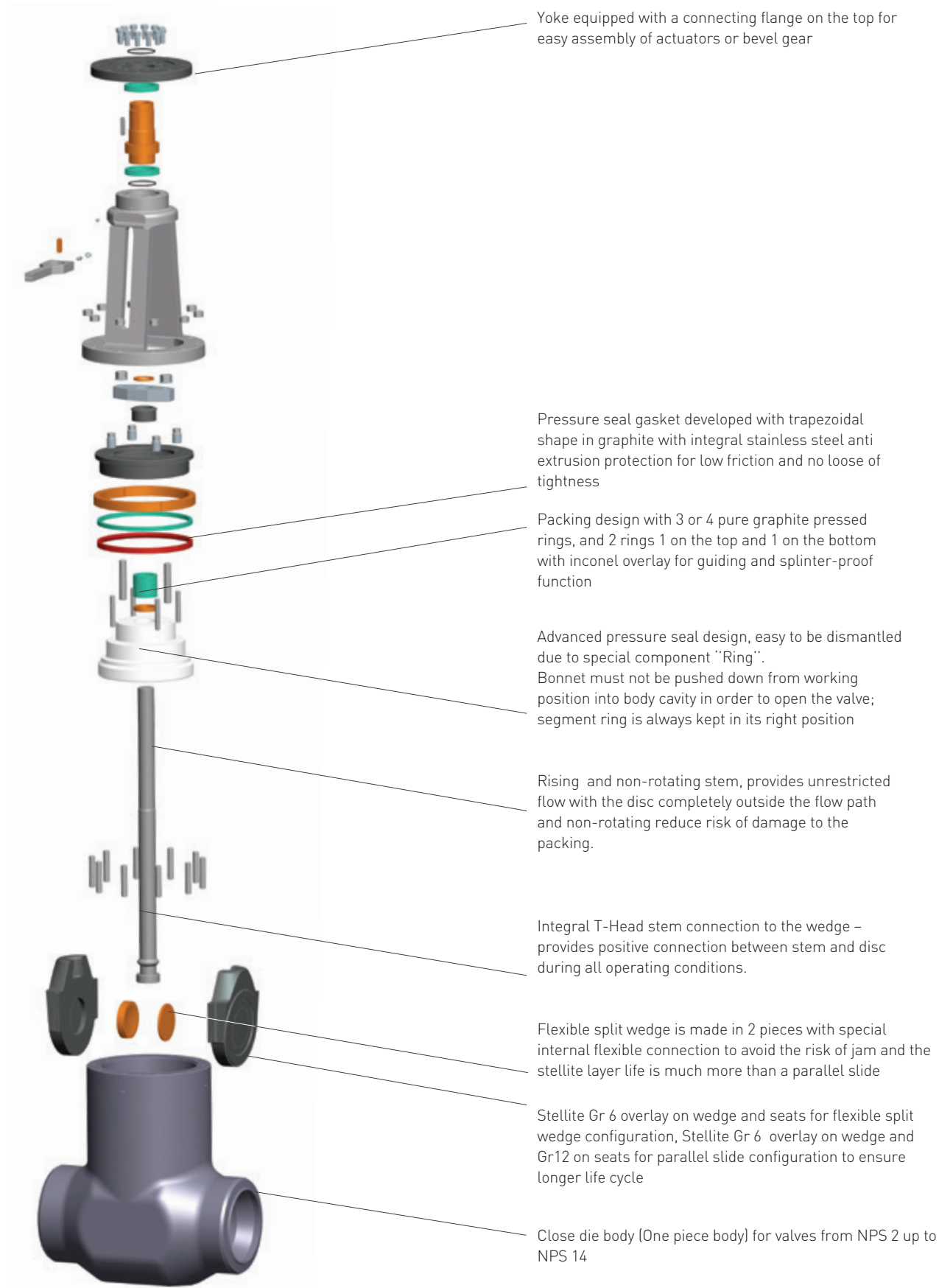


FIGURE E

SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

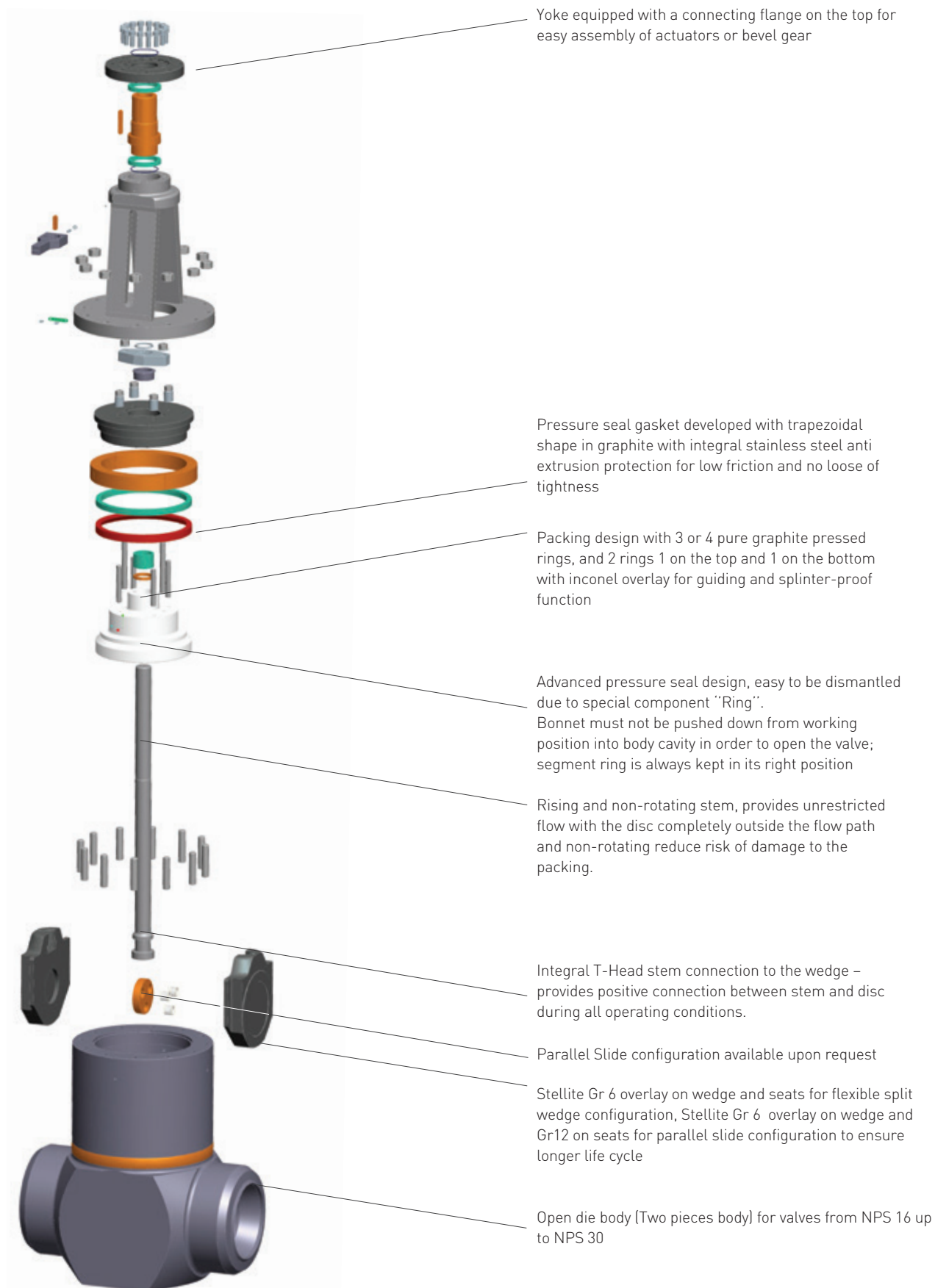
FIGURE 6012 - 6015



DN 250 (NPS 10) Valve illustrated

SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

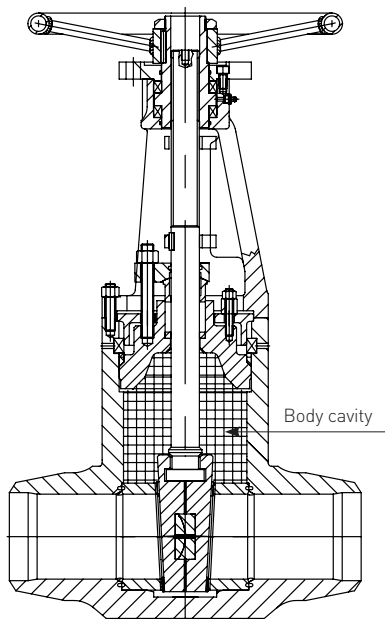
FIGURE 6012 - 6015



DN 500 (NPS 20) Valve Illustrated

SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

FIGURE 6012 - 6015



Important note

Standard Sempell pressure seal valves will not be furnished with safety device, unless required by the user.

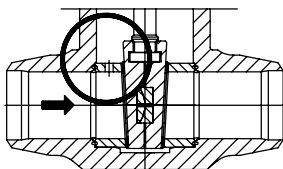
It is the responsibility of the purchaser to require to supply a safety device, depending on the function on the gate valve.

A gate valve in close position can retain a volume of water in the body cavity. An increase of the temperature will consequently increase the pressure in the body cavity with the risk of relevant damages of the body and the bonnet. To eliminate this risk, Sempell offers you 4 possible solutions.

ACCESSORIES

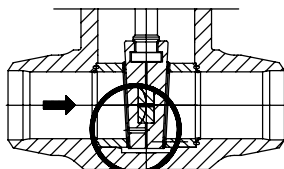
1. Solution: Acc. 5

Hole in the seat ring



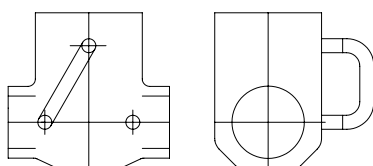
2. Solution: Acc. 6

Hole in the wedge



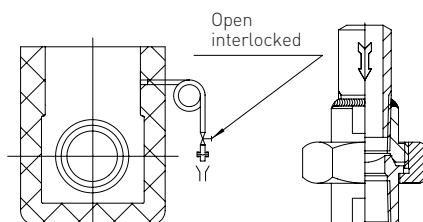
3. Solution: Acc. 7

3 nozzles with caps
In the plant the client can connect 2 of them depending on the flow direction



4. Solution: Acc. 8

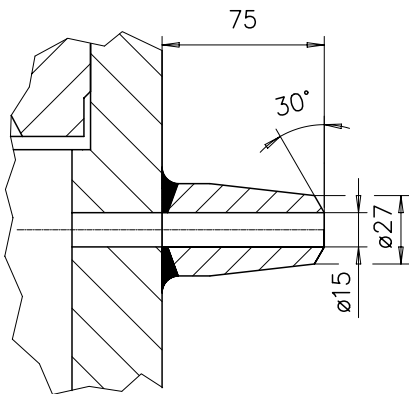
With over-pressure protection for two directions



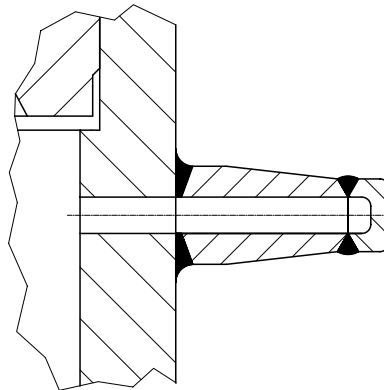
SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

FIGURE 6012 - 6015

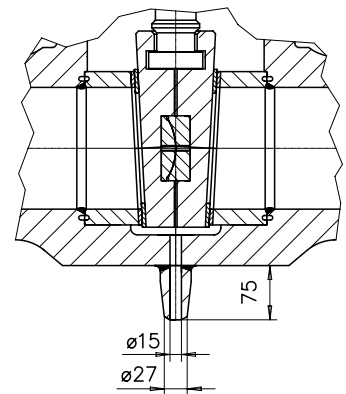
Acc. 9
Nozzle



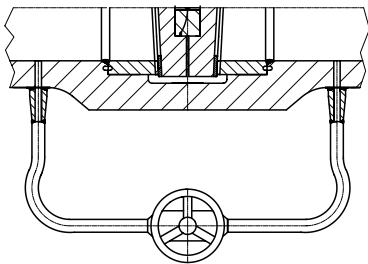
Acc. 10
Nozzle with cap



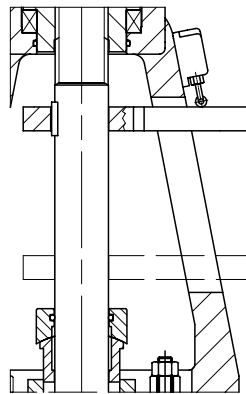
Acc. 11
Nozzle/Connection of drain



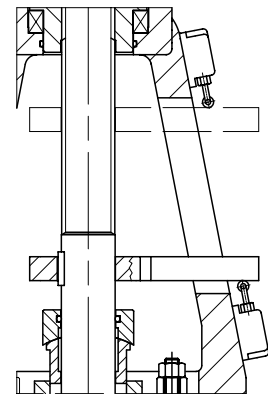
Acc. 12
By-pass



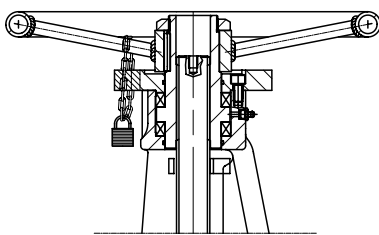
Acc. 13
Limit switch for open or closed position



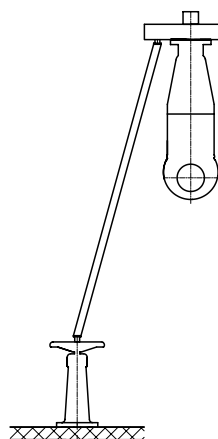
Acc. 14
Limit switch for open and closed position



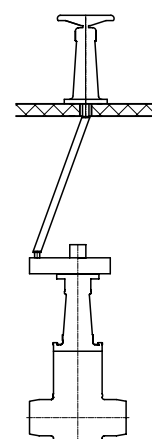
Acc. 15
Locking device



Acc. 16
Floor stands with extension stems below the valve



Acc. 17
Floor stands with extension stems above the valve



SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

FIGURE 6012 - 6015

ORDERING GUIDE

Example	3B	0	09	12	21	AA	H	D
Valve type								
3B	Gate wedge valve							
3D	Gate parallel valve							
Valve configuration								
0	Basic							
Valve rating								
09	Range ASME 601 - 900 / PN 110 - 160							
15	Range ASME 901 - 1500 / PN 161 - 250							
25	Range ASME 1501 - 2500 / PN 251 - 500							
45	Range ASME 2501 - 4500 / PN 501 - 720							
Nominal valve size DN - (NPS)								
02	50 - (2)							
25	65 - (2½)							
03	80 - (3)							
04	100 - (4)							
05	125 - (5)							
06	150 - (6)							
07	175 - (7)							
08	200 - (8)							
10	250 - (10)							
12	300 - (12)							
14	350 - (14)							
16	400 - (16)							
18	450 - (18)							
20	500 - (20)							
22	550 - (22)							
24	600 - (24)							
26	650 - (26)							
28	700 - (28)							
30	750 - (30)							
32	800 - (32)							
Body material								
00	A105							
DC	1.0460							
DQ	1.6368/15NiCuMoNb5							
D4	1.5415							
07	A182 F12/1.7335							
08	A182 F22/1.7380							
21	A182 F91/1.4903							
22	A182 F92							
11	A182 F316/1.4550							
Trim								
AA	Stellite/Stellite							
Pipe connection								
A	Flanged per ASME B16.5							
B	Flanged per ASME B16.47 "A"							
D	Flanged per ASME B16.47 "B"							
H	Weld end ASME B16.25							
J	Weld end EN 12267							
K	Weld end ISO 9692							
Standard valve operation								
A	Handwheel							
B	Bevel gear							
D	Bare shaft (Coupling type B)							
E	Bare shaft for linear actuator							

SEPELL RAISTEAM PRESSURE SEAL FORGED STEEL GATE VALVES

FIGURE 6012 - 6015

FIGURE NUMBER

Example	I	II	III	IV	V	VI	VII	VIII
To ASME	6	01	3	8"	6"	14	5	BW
To ISO	6	01	3	200	150	14	5	BW
I	6	High pressure forged valve						
II	Type of valve							
	01	Gate valve						
III	Range class							
	2	601 - 900 / Pressure rating (PN 110 - 160)						
	3	901 - 1500 / Pressure rating (PN 161 - 250)						
	4	1501 - 2500 / Pressure rating (PN 251 - 500)						
	5	2501 - 4500 / Pressure rating (PN 501 - 720)						
IV	Connection pipe ends inches (mm)							
V	Material specification, please refer to page 2 & 6							
VI	Type of trim, refer to separate page for every valve type according to point V							
VII	BW	Butt weld ends						
	FR	Flanges RTJ						
	BWS	Butt weld ends special						