

## PN 16 FLANGED BALL VALVE (FAF 1220)



**RINA QUACER**  
ISO 9001:2000

### PRODUCT FEATURES

- EN GJL 250 (GG25) cast iron or EN GJS 400 18 RT (GGG 40) ductile iron body and flange.
- Stainless steel sphere.
- Stainless steel belleville spring reinforcement.
- PTFE, sphere sealing ring and stem ring.
- Silicone, outer sealing ring.
- Additional sealing quality is achieved by mounting the stem internally, supported by PTFE and O-Ring system.
- Flanges are according to EN 1092 - 2 / ISO 7005 - 2.
- Valve mounting dimensions conform to EN-558 – 1 Basic Series 27 and DIN 3202 F4.
- Easy to use.
- Longer service life.

### APPLICATIONS

Low pressure steam, gas, cold and hot and pressurized water systems, any fluid without acidity or alkalinity.

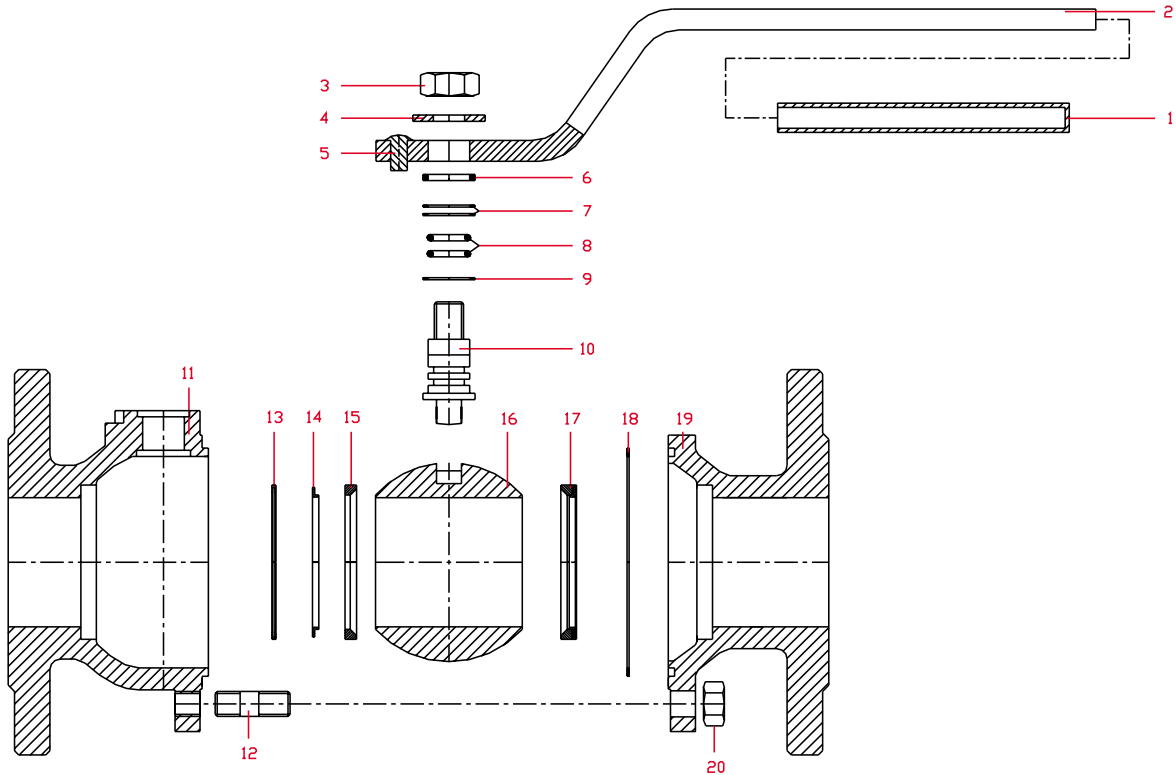
### OPERATING TEMPERATURE

Max + 200°C 392°F

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# PN 16 FLANGED BALL VALVE (FAF 1220)

## TECHNICAL DRAWING AND MATERIALS



## PARTS AND MATERIALS

1. Handle coat / Plastic
2. Handle / St 37 steel
3. Nut / DIN 985
4. Washer / Steel
5. Limiting Flange / Steel
6. Compression Ring / Steel
7. PTFE Ring / PTFE
8. O-Ring / EPDM
9. PTFE Ring / PTFE
10. Stem / Stainless steel SAE – 304
11. Body / Ductile or cast iron
12. Stud / Steel
13. Sphere outer sealing ring / Silicone
14. Inner Belleville spring / Stainless steel SAE 304
15. Sphere inner sealing / PTFE
16. Sphere / Stainless steel SAE 304 or DIN 1-4086
17. Packing set / Consist of inner – outer sealing rings and Belleville springs
18. Sealing ring / PTFE
19. Flange / Ductile cast iron
20. Nut / DIN 934

## MATERIAL PROPERTIES

MATERIAL TYPE	MATERIAL PROPERTY
GG 25 Cast Iron	Tensile strength = 250-350 N/mm <sup>2</sup> Hardness = Max. 250 Brinell (BHN)
GGG 40 Ductile Iron	Tensile strength = 400-550 N/mm <sup>2</sup> Hardness = 135 - 185 Brinell (BHN)
Stainless Steel DIN 1-4086	C = 0.9 - 1.3    Si Max.=2    Mn Max.= 1    Cr = 27 - 30
Stainless Steel SAE-304	C max = 0.08    Si Max.=1    Mn Max.=2    Cr = 18-20    Ni = 8 - 10.5
Stainless Steel SAE-316	C max = 0.08    Si Max.=1    Mn Max.=2    Cr = 16-18    Ni = 10- 14
PTFE	Density= 2.13-2.23 gr/cm <sup>3</sup> Tensile strength = 250-300 kg/cm <sup>2</sup> Operating Temperature =-85°C / +200°C 392°F
PTFE (25 % Carbon)	Density= 2.1-2.2 gr/cm <sup>3</sup> Tensile strength = 165-170 kg/cm <sup>2</sup>
Graphitic Ring	Graphite purity = %98      Density= min. 1.6 gr/cm <sup>3</sup>
St 37	C = <= 0.2    P Max.= 0.06    S Max.= 0.05    Tensile strength = 360-440 N/mm <sup>2</sup>
Steel (Ç1030)	C = 0.30    P Max.= 0.06    S Max.= 0.06    Tensile strength = 490 N/mm <sup>2</sup>

## PN 16 FLANGED BALL VALVE MAINTENANCE INSTRUCTIONS

Follow the instructions below to perform maintenance and cleaning of PN 16 Flanged Ball Valves.

### DISMOUNTING

- Make sure that there is no fluid supply on the line where the valve is detached.
- Unscrewing the connection bolts and nuts in opposite pairs, detach the valve from the line.
- Unscrew the plug over the body with the help of the pins from the body.
- PN 16 flanged ball valves are made of flange (19) and body (11). Unscrewing in opposite pairs of nuts (20) take the nuts out and remove the flange.
- Turn the handle (2) to closed position and pull the sphere (16) out of the body by turning it slightly.
- Unscrew the nut on the handle. Remove the washer (4), handle (2), and the compression ring (6) in written order.
- Remove the PTFE rings (7) over the stem (10).
- Remove the stem (10) pressing on it to drop inside the body (11).
- Remove the PTFE sealing cord (18) from the flange.
- Remove the O-rings over the stem (8).

### INSPECTION AND CLEANING

- Replace the sphere if excessive scratches and nicks are noted. If lime stains are observed on the sphere, clean the sphere in water with wet sandpaper (400). While maintenance processes, avoid damaging the sphere processed in 0,01mm sensitive CNC machines.
- The package of gasket set (17), consists of Inner belleville spring (14) and Sphere inner sealing (15), is on the flange and body side. The inner and outer rings of the gasket package should not have any cracks, tears or cuts observed, or the angled surfaces of the inner ring that meet with the ball should not involve any deep scratches or collapses. The stainless rings should not be deformed. If any of these above exists, demount the gasket package set from the flange and the body and request a new one from our company.
- You may request a new cover gaskets (14) from our company or you may have 1,5 mm Klingerit gasket material cut according to the gasket seat.
- PTFE rings over the stem and O-rings must be replaced with new ones.
- Epoxy couler priming coat is applied on the inner surfaces of the body and the flanges, however, if there exists oxidations, these regions must be cleaned and repainted with similar coatings.
- Do not paint the stem hole and the flange-packing set compression surface.
- Do not paint the stem hole and flange-packing gasket surface.
- Inspect stud threads and nuts. Replace deformed or rusty parts.
- Clean all materials carefully and proceed to mounting.

### MOUNTING

- Place the PTFE ring of the stem and the O-rings. Lightly grease the surfaces of the O-rings. Mount the stem through body cavity without damaging O-rings.
- On the upper side, mount the PTFE rings, compression ring, handle, washer and the nut respectively.
- Mount the packing set on the body as the inner rings will face the sphere.
- Turn the handle to closed position; place the sphere inside the body as the canal on the sphere will be parallel to the stem key. Check if the sphere can freely move forward, back, up and down inside the body cavity.
- Mount the packing set (as the inner rings will face the sphere) and the PTFE ring on the flange. Position the mounted body between two flanges, place studs, nuts and washers and tighten the nut in opposite pairs to eliminate the gaps.

**Note: It is highly recommended to open and close our valves once in 15 days for a longer service life after installation.**

PRESSURE / TEMPERATURE RATINGS FOR CAST IRON (GG 25) FLANGES  
(REFERENCE ISO 7005-2 TABLE 16)

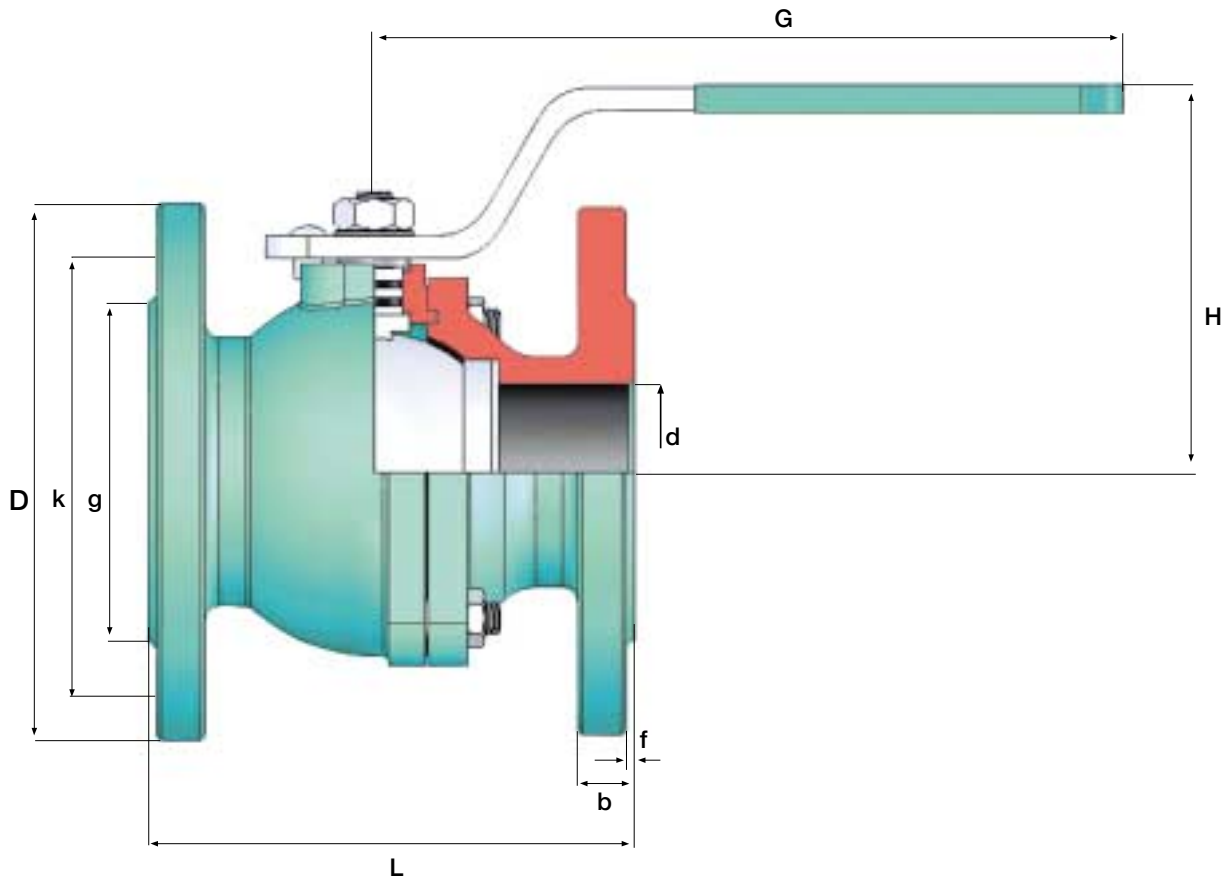
Pressure ISO PN	TEMPERATURE °C					
	-10 to 120	150	200	250	300	350
	Maximum operating pressure (bar)					
10	10	9,5	9	8	7	5,5
16	16	15,2	14,4	12,8	11,2	8,8
20	15,5	14,8	13,9	12,1	10,2	8,6
25	25	23,8	22,5	20	17,5	13,8
40	40	38	36	32	28	22
50	40,2	39	36	35	33	31

PRESSURE / TEMPERATURE RATINGS FOR DUCTILE IRON (GGG 40) FLANGES  
(REFERENCE ISO 7005-2 TABLE 17)

Pressure ISO PN	TEMPERATURE °C						
	-10 to 40	120	150	200	250	300	350
	Maximum operating pressure (bar)						
10	10	10	9,7	9,2	8,7	8	7
16	16	16	15,5	14,7	13,9	12,8	11,2
20	17,5	15,5	14,8	13,9	12,1	10,2	8,6
25	25	25	24,3	23	21,8	20	17,5
40	40	40	38,8	36,8	34,8	32	28
50	44	40,2	39	36	35	33	31

# PN 16 FLANGED BALL VALVE (FAF 1220)

## DIMENSIONS AND PRODUCT DATA



### FAF 1000

#### PN 16 FULL - BORE FLANGED BALL VALVES

DN	DIMENSIONS TS 3148 EN558-1			FLANGE ACC TO ISO 7005 - 2 / EN 1092-2								PRODUCT DATA		
	Ømm	L	H	G	d	g	k	D	Hole diameter	b	f	Number of Holes	KVS m³/h	Torque Nm
20	120	110	160	19	56	75	105	14	16	2	4	35	6	2.67
25	125	115	160	24	65	85	115	14	16	3	4	65	10	3.21
32	130	120	200	30	76	100	140	19	18	3	4	115	18	4.87
40	140	125	250	38	84	110	150	19	18	3	4	190	24	6.24
50	150	135	250	47	99	125	165	19	20	3	4	310	30	9.28
65	170	155	250	62	118	145	185	19	20	3	4	600	60	13.86
80	180	160	320	80	132	160	200	19	22	3	8	950	90	17.53
100	190	185	320	96	156	180	220	19	24	3	8	1630	150	25.99
125	200	205	450	119	184	210	250	19	26	3	8	2700	210	37.71
150	210	225	500	142	211	240	285	23	26	3	8	5000	220	50.52
200	400	292	700	190	266	295	340	23	30	3	12	8000	300	123.6