





BROEN is part of the stock listed company Aalberts N.V. Since the inception in 1975, Aalberts is where technology matters and real progress can be made - humanly, financially and environmentally. At Aalberts, we create mission-critical technologies for ground-breaking industries and everyday life. Technologies that enhance our clients' businesses and keep our planet in good shape.

WHO WE ARE

Large and small, high or low pressure, BROEN always has the valve you need.

Founded in 1948 by Denmark's Poul **BROEN**, **BROEN** today is a global valve manufacturing group of companies. For more than 70 years, **BROEN** has been the leader in the development and production of valve technology for water, air and gas. Our goal is to build long-lasting and trust-based partnerships with our valued Customers, through the local presence of our companies and our capillary sales and service network.

BROEN employs more than 600 employees in five manufacturing facilities worldwide, producing more than three million valves per year.

ISO 9001 certified since 2001, **BROEN** is committed to ensuring our Customers receive high-quality products that exceed expectations.

The BROEN BALLOMAX Valves Floating ball valves Trunnion and API-6D monogrammed ball valves Polyethylene (PE) valves

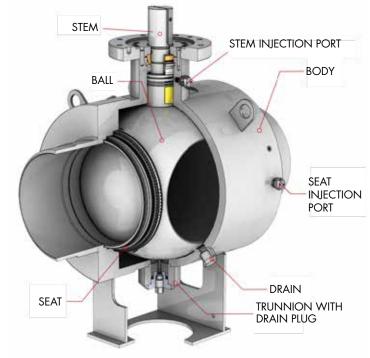
BROEN has a strong focus on innovation, continuously improving our product range to offer state-of-the-art solutions and technologies, including BROEN BALLOMAX®, the industries' best ball valves for natural gas service.

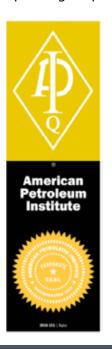


TRUNNION MOUNTED AND API 6D BALL VALVES DEFINITIONS

TRUNNION MOUNTED BALL VALVE

Compared to floating ball valves, trunnion mounted ball valves feature an additional support for the ball from the bottom. This support is called trunnion. The trunnion absorbs any pressure from the flow and keeps the ball constantly in the same position. The sealing is provided by spring-loaded seats. This design reduces the stress on the ball and seats of the valve and makes the sealing performance more stable and consistent, independently from the flow pressure. Trunnion mounted ball valves are ideal in high-pressure services, while allowing for low operating torque requirements.





API 6D AND ITS MONOGRAM

API 6D is the globally recognized specification that defines the requirements for the design, manufacturing, assembly, testing, and documentation of ball valves and other types of valves for application in pipeline and piping systems for the petroleum and natural gas industries.

The API Monogram Program identifies the finest organizations in the world that have demonstrated their ability to manufacture new equipment that conforms to API product specifications. The API approval also requires a Quality Management System that is compliant with API Spec Q1. A thorough audit by API is periodically required to maintain the Monogram.

We are pleased to announce that for decades **BROEN** has maintained the API 6D Monogram (6D-0378).

DEFINITIONS

BODY OPTIONS

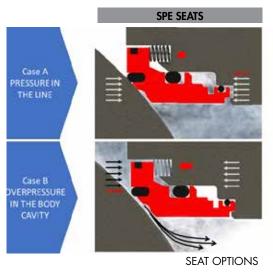
The **BROEN** BALLOMAX API 6D monogrammed valves can be made with two body options:

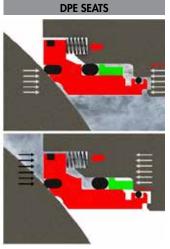
- **All welded body.** This design eliminates any leak paths. It is the preferred option for valves for buried service.
- Three-piece bolted body. Valves with this configuration allow for repair, when cost-effective.



ALL WELDED BODY VALVE

BOLTED BODY VALVE





SEAT OPTIONS

BROEN BALLOMAX API 6D monogrammed valves come with two seat options. They have different features based on how the seat reacts to an over-pressure within the body cavity (i.e. inside the valve):

Self-relieving seat (Single Piston Effect seat, SPE): the seat releases any over-pressure in the body cavity to the side of lower pressure, granting no excessive pressure within body cavity.

Double Piston Effect seat (DPE): any pressure is contained within the body cavity. An external relief device is recommended to avoid excessive pressure within the body cavity.

DOUBLE BLOCK AND BLEED (DBB) AND **DOUBLE ISOLATION AND BLEED (DIB)**

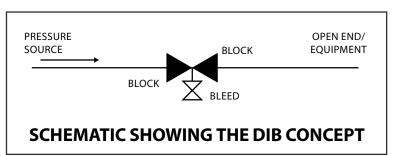
The DBB feature of the valve is the ability to segregate two pressure sources and to bleed/vent pressure in the void between the two sealing elements (blocks). All BROEN BALLOMAX trunnion mounted valves ensure DBB feature.

The DIB feature of the valve is the ability to provide two sealing elements to a single pressure source and to bleed/vent between the two sealing elements.

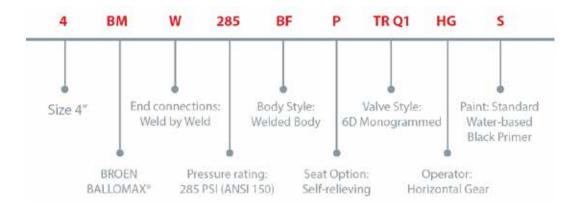
The **BROEN** BALLOMAX API 6D Monogrammed valves with DPE seats ensure DIB feature.

BROEN reserves the right to change any information included in this catalog without notice.

SCHEMATIC SHOWING THE DBB CONCEPT PRESSURE **BLOCK SOURCE**



CATALOG NUMBERING SYSTEM



- 1. Size [inch]
- 2. BM: BROEN BALLOMAX°
- 3. End Configuration

W: weld end by weld end

F: flange end by flange end

WF: weld by flange

SW: socket weld by socket weld

4. Pressure rating [PSI]

285 (CLASS 150)

740 (CLASS 300)

1480 (CLASS 600)

5. Body Style

BF: welded body

BB: bolted body

6. Seat Option

P: self-relieving/single piston effect

D: double piston effect

7. Valve Style

TR SB: std trunnion

TR Q1: API 6D Monogrammed

8. Operator

00: bare stem

01: lever

HG: horizontal gear

VG: vertical gear

AC: actuator (to be defined)

14: 2" square nut

HW: handwheel

9. Paint

S: standard water-based black primer

3M: 3M 323 epoxy coating

B: coal tar enamel

10. Available field for additional information

FF: flat face flanges (as standard, flanges are RF type)

EXT: injection line and drain/vent extended

STE: stem extension



BROEN reserves the right to change any information included in this catalog without notice.

BROEN BALLOMAX API 6D MONOGRAMMED VALVES

Full fledged valve solution for your most demanding applications

DESIGN FEATURES

- Reliable ball valves design fully compliant with API 6D and CSA Z245.15-17 requirements.
- Valve size range: 1" to 36". More sizes available upon request.
- Pressure rating: CLASS 150, CLASS 300, CLASS 600
- Port size: Full port

Body options:

- All welded body: no leak paths, preferred for under ground valves.
- Three-piece bolted body: can be repaired as needed, preferred for above ground valves.

Seat options:

- Self-relieving seats (Single Piston Effect)
- Double Piston Effect DIB feature

Seats feature an injection system for lubrication, flushing or emergency sealing (for valves 4" and larger).

Temperature range for standard valves: -40°F (-40°C) up to +212°F (+100°C).

Anti-blow out stem design.

Primary Metal Secondary Soft (PMSS) seats, with HNBR seal for zero leakage and extended lifespan.

Stem seal: four level barrier with o-rings and chevron packing, with Injection ports for lubrication, flushing or emergency sealing (for valves 6" and larger).

All valves allow Double Block and Bleed according to API 6D.

Fire safe design.

Anti-static device.

Valves can be customized with actuators or gear operators.

Standard coating is a non-toxic water based black primer, user friendly and environmentally safe. Specialty coatings available and applied in-house.

Key materials:

- Ball: A350 LF2 with ENP coating for extra hardness
- Stem: AISI 420 Stainless Steel
- Body: A105 / A350 LF2







UNIQUE SEAT

Valves are generally classified as soft-seated and metal-seated.

Soft seats ensure bubble tight sealing performance, but they are constrained in their service range.

Metal-seated valves are more expensive, and their sealing performance is limited.

The **BROEN** engineers designed an advanced Primary Metal Secondary Soft Seat (PMSS) for the BROEN BALLOMAX valves that provides the best of both worlds:

- The primary metal seat protects the soft seal and ensures fire safe feature.
- The soft seat ensures bubble tight sealing.

Moreover **BROEN** designed a balance system of springs to load the seats, with a high number of small size springs that ensure uniform performance and reduced torque requirements.

The selection of the soft material (HNBR) was accurately made together with top quality suppliers to provide a broad temperature range and extra-long lifecycle.

The seats of the BROEN BALLOMAX API 6D monogrammed ball valves can be either Self-relieving or Double Piston Effect (DPE).

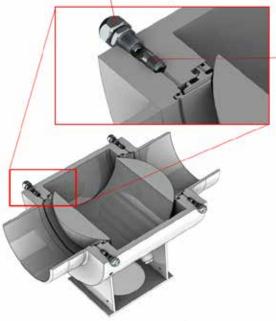
SECONDARY SOFT SEALING (HNBR); ENSURES CLASS "A" SEALING ACCORDING TO ISO 5208



PRIMARY METAL SEALING:

- PROTECTS THE SOFT SEAL
- ENSURES CLASS "D" SEALING ACCORDING TO ISO 5208
- ENSURES FIRE SAFETY

SEAT INJECTION PORT WITH GIANT BUTTON HEAD GREASE FITTINGS (ON VALVES 3"+)



INNER CHECK VALVE (STANDARD ON VALVES 12"+)

INJECTION SYSTEM

The **BROEN** BALLOMAX API 6D Monogrammed valves feature an injection system in the seat area and the stem area that allows to inject:

- Flushing agent, to clean the sealing surfaces
- Lubricant, to reduce the torque required to operate the valve
- Sealant, to stop any leaks that result from a damage to the sealing areas.

The injection ports are equipped with giant button head grease fitting.

On valves 12" and larger the system is equipped also with an inner check valve for additional safety.

STEM DESIGN

The **BROEN** BALLOMAX API 6D Monogrammed valves have a four-level stem barrier to prevent any external leaks, with:

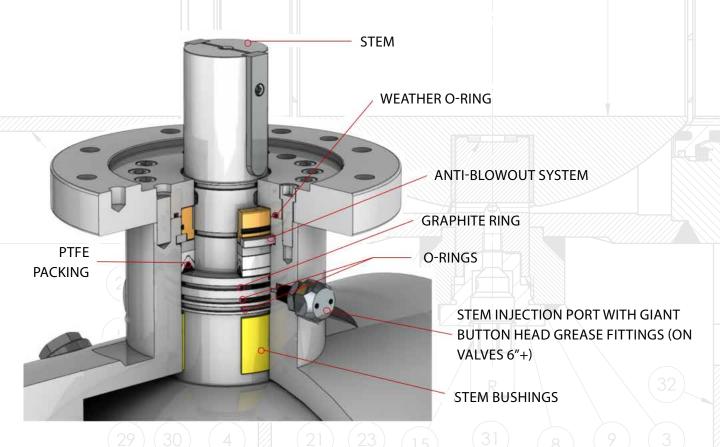
- Three HNBR o-rings
- A PTFE "chevron style" packing

An additional graphite ring provides an additional layer of sealing and it also grants the fire safe protection.

The **BROEN** valves are designed for maximum safety, thus featuring anti-static devices to protect against static electric discharge.

The anti-blowout stem design prevents the stem to be pushed out by the pressure in the line if the top cover is removed.

For valves 6" and larger the stem features an injection port with giant button-head fitting, for flushing, lubrication, emergency sealing.



WELD x WELD – 285 PSI – CLASS 150						
Size	Catalog number	Port	Length	Wall	Weight	
2"	2 BMW 285 BFP TRQ1 14S	1.94	8.5	0.154	24	
3"	3 BMW 285 BFP TRQ1 14S	2.94	11.13	0.216	44	
4"	4 BMW 285 BFP TRQ1 00S	3.94	12	0.237	79	
6"	6 BMW 285 BFP TRQ1 00S	5.94	18	0.280	256	
8"	8 BMW 285 BFP TRQ1 00S	7.94	20.5	0.322	429	
10"	10 BMW 285 BFP TRQ1 00S	9.94	22	0.365	815	
12"	12 BMW 285 BFP TRQ1 00S	11.94	25	0.375	1,193	
16"	16 BMW 285 BFP TRQ1 00S	15.19	33	0.375	2,053	
20"	20 BMW 285 BFP TRQ1 00S	19.19	39	0.375	3,802	
24"	24 BMW 285 BFP TRQ1 00S	23.19	45	0.375	6,173	
30"	30 BMW 285 BFP TRQ1 00S	29	55	0.375	11,246	
36"	36 BMW 285 BFPTRQ1 00S	34.5	68	0.375	17,750	

FLANGE x FLANGE – 285 PSI – CLASS 150						
Size	Catalog number	Port	Length	CLASS	Weight	
2"	2 BMF 285 BFP TRQ1 14S	1.94	7.00	150	31	
3"	3 BMF 285 BFP TRQ1 14S	2.94	8.00	150	53	
4"	4 BMF 285 BFP TRQ1 00S	3.94	9.00	150	110	
6"	6 BMF 285 BFP TRQ1 00S	5.94	18.00	150	330	
8"	8 BMF 285 BFP TR 1 00S	7.94	18.00	150	551	
10"	10 BMF 285 BFP TRQ1 00S	10.00	21.00	150	1,168	
12"	12 BMF 285 BFP TRQ1 00S	11.94	24.00	150	1,433	
16"	16 BMF 285 BFP TRQ1 00S	15.19	30.00	150	2,645	
20"	20 BMF 285 BFP TR 1 00S	19.19	36.00	150	5,070	
24"	24 BMF 285 BFP TRQ1 00S	23.19	42.00	150	8,157	
30"	30 BMF 285 BFP TRQ1 00S	29.00	55.00	150	11,687	
36"	36 BMF 285 BFP TRQ1 00S	34.50	68.00	150	18,963	

WELD x WELD – 740 PSI – CLASS 300					
Size	Catalog number	Port	Length	Wall	Weight
2"	2 BMW 740 BFP TRQ1 14S	1.94	8.50	0.281	24
3"	3 BMW 740 BFP TRQ1 14S	2.94	11.13	0.281	50
4"	4 BMW 740 BFP TRQ1 00S	3.94	12.00	0.281	79
6"	6 BMW 740 BFP TRQ1 00S	5.94	18.00	0.312	256
8"	8 BMW 740 BFP TRQ1 00S	7.94	20.50	0.344	429
10"	10 BMW 740 BFP TRQ1 00S	9.94	22.00	0.375	815
12"	12 BMW 740 BFP TRQ1 00S	11.94	25.00	0.375	1,193
16"	16 BMW 740 BFP TRQ1 00S	15.19	33.00	0.500	2,068
20"	20 BMW 740 BFP TRQ1 00S	19.19	39.00	0.500	3,802
24"	24 BMW740 BFP TRQ1 00S	23.19	45.00	0.500	6,173
30"	30 BMW 740 BFP TRQ1 00S	29.00	55.00	0.500	11,246
36"	36 BMW 740 BFP TRQ1 00S	34.5	68.00	0.500	17,750

	FLANGE x FLANGE – 740 PSI – CLASS 300							
Size	Catalog number	Port	Length	CLASS	Weight			
2"	2 BMF 740 BFP TRQ114S	1.94	8.50	300	35			
3"	3 BMF740 BFP TRQ1 14S	2.94	11.13	300	55			
4"	4 BMF 740 BFP TRQ1 00S	3.94	12.00	300	121			
6"	6 BMF 740 BFP TRQ1 00S	5.94	15.88	300	353			
8"	8 BMF 740 BFP TRQ1 00S	7.94	19.75	300	573			
10"	10 BMF 740 BFP TRQ1 00S	9.94	22.38	300	1,212			
12"	12 BMF 740 BFP TRQ1 00S	11.94	25.50	300	1,543			
16"	16 BMF 740 BFP TRQ1 00S	15.19	33.00	300	2,866			
20"	20 BMF 740 BFP TRQ1 00S	19.19	39.00	300	5,512			
24"	24 BMF 740 BFP TRQ1 00S	23.19	45.00	300	8,818			
30"	30 BMF 740 BFP TRQ1 00S	29.00	55.00	300	12,569			
36"	36 BMF 740 BFP TRQ1 00S	34.50	68.00	300	20,066			

Dimensions listed in inch and pound.

Weld x Flange option available upon request.

Valves 4" and larger are usually sold with horizontal gear or vertical gear. Check Catalog Numbering System.

Information on valve with bolted body available upon request.

Valves with DPE seats available upon request.

SOCKET WELD ENDS – 1480 PSI – CLASS 600							
Size	Catalog number	Port	Length	Weight			
3/4" (1)	3/4 BMSW 1480 BFPTRQ1 01S	0.75	7.48	3.5			
1" (1)	1 BMSW 1480 BFP TRQ1 01S	0.98	8.50	7.7			
1" (2)	1 BMSW 1480 BFP TRQ1 14S	0.98	8.50	8.5			
1 1/4"	5/4 BMSW 1480 BFPTRQ1 14S	1.22	9.02	20.3			

WELD x WELD – 1480 PSI – CLASS 600							
Size	Catalog number	Port	Length	Wall	Weight		
1"	1 BMW 1480 BFP TRQ1 14S	0.98	8.50	0.179	6.8		
2"	2 BMW 1480 BFP TRQ1 14S	1.94	11.50	0.218	24		
3"	3 BMW1480 BFP TRQ1 14S	2.94	14.00	0.281	53		
4'	4 BMW 1480 BFP TRQ1 00S	3.94	17.00	0.281	84		
6"	6 BMW 1480 BFP TRQ1 00S	5.94	22.00	0.344	309		
8"	8 BMW 1480 BFP TRQ1 00S	7.94	26.00	0.344	452		
10"	10 BMW 1480 BFP TRQ1 00S	9.94	31.00	0.375	926		
12"	12 BMW 1480 BFP TRQ1 00S	11.94	33.00	0.406	1,276		
16"	16 BMW 1480 BFP TRQ1 00S	15.19	39.00	0.562	2,998		
20"	20 BMW 1480 BFP TRQ1 00S	19.19	47.00	0.594	4,531		
24"	24 BMW 1480 BFP TRQ1 00S	23.19	55.00	0.688	6,885		
30"	30 BMW 1480 BFP TRQ1 00S	29.00	65.00	0.75	14,333		
36"	36 BMW 1480 BFP TRQ1 00S	34.5	82.00	0.75	24,255		

FLANGE x FLANGE – 1480 PSI – CLASS 600							
Size	Catalog number	Port	Length	CLASS	Weight		
2"	2 BMF 1480 BFP TRQ1 14S	1.94	11.5	600	40		
3"	3 BMF 1480 BFP TRQ1 14S	2.94	14	600	73		
4"	4 BMF 1480 BFP TRQ1 00S	3.94	17	600	176		
6"	6 BMF 1480 BFP TRQ1 00S	5.94	22	600	419		
8"	8 BMF 1480 BFP TRQ1 00S	7.94	26	600	728		
10"	10 BMF 1480 BFP TRQ1 00S	9.94	31	600	1,400		
12"	12 BMF 1480 BFP TRQ1 00S	11.94	33	600	1,764		
16"	16 BMF 1480 BFP TRQ1 00S	15.94	39	600	3,307		
20"	20 BMF 1480 BFP TRQ1 00S	19.19	47	600	5,825		
24"	24 BMF 1480 BFP TRQ1 00S	23.19	55	600	9,260		
30"	30 BMF 1480 BFP TRQ1 00S	29	65	600	15,656		
36"	36 BMF 1480 BFP TRQ1 00S	34.5	82	600	27,563		

Weld x Flange option available upon request.

Valves with DPE seats available upon request.

Information on valve with bolted body available upon request.

Valves 4" and larger are usually sold with horizontal gear or vertical gear. Check Catalog Numbering System.

⁽¹⁾ with lever

⁽²⁾ w/2" square nut

Dimensions listed in inch and pound.

STANDARD TRUNNION BALL VALVES

The most cost-effective valve for large size pipelines.

Maintenance-free.

BROEN BALLOMAX Standard Trunnion Valves – Design features

Valve size range: 4" to 24".

Pressure rating: CLASS 150, CLASS 300.

Port size: Full port.

Anti-blow out stem design.

Carbon filled PTFE seats for zero leakage.

Maintenance-free design.

Redundant stem sealing to minimize risk of stem leaks.

Valves can be customized for valve automation or gear operators.

All valves allow Double Block and Bleed according to API 6D.

Anti-static device.

Each valve features a unique serial number permanently stamped on the nameplate, allowing for full traceability.

All valves are hydrostatically tested per API-6D: shell test and seat test. Additional low-pressure air test is performed to ensure tight sealing performance. Additional testing is available at Customer's request. Test certificates are available for each valve.

Valves body is all welded, with no path for potential leak when compared to threaded body valves. Valve body is from forged pipes, with no risk of porosity and defects when compared to cast steel.

Standard coating is a non-toxic water based black primer, user friendly and environmentally safe. Special coatings available and applied in-house.

- Key materials:
 - Ball: A350 LF2 with ENP coating for extra hardness
 - Stem: AISI 420 Stainless Steel
 - Body: A105







STANDARD TRUNNION BALL VALVES

	WELD x WELD - 285 PSI - CLASS 150							
Size	Catalog number	Port	Length	Wall	Weight			
4"	4 BMW 285 BFP TRSB 00S	3.98	12.00	0.280	67			
6"	6 BMW 285 BFP TRSB 00S	5.98	18.00	0.312	179			
8"	8 BMW 285 BFP TRSB 00S	7.93	20.51	0.344	287			
10"	10 BMW 285 BFP TRSB 00S	9.96	22.00	0.375	518			
12"	12 BMW 285 BFP TRSB 00S	11.97	25.00	0.375	904			
16"	16 BMW 285 BFP TRSB 00S	15.20	33.00	0.375	1,971			
20"	20 BMW 285 BFP TRSB 00S	19.21	39.00	0.500	3,530			
24"	24 BMW 285 BFP TRSB 00S	23.27	45.00	0.500	5,644			

FLANGE x FLANGE - 285 PSI - CLASS 150						
Size	Catalog number	Port	Length	CLASS	Weight	
4"	4 BMF 285 BFP TRSB 00S	3.98	9.00	150	74	
6"	6 BMF 285 BFP TRSB 00S	5.98	15.50	150	200	
8"	8 BMF 285 BFP TRSB 00S	7.93	18.00	150	327	
10"	10 BMF 285 BFP TRSB 00S	9.96	21.00	150	578	
12"	12 BMF 285 BFPTRSB 00S	11.97	24.00	150	979	
16'	16 BMF 285 BFP TRSB 00S	15.20	30.00	150	2,130	
20"	20 BMF 285 BFP TRSB 00S	19.21	36.00	150	3,748	
24"	24 BMF 285 BFPTRSB 00S	23.27	42.00	150	6,041	

	WELD x WELD - 740 PSI - CLASS 300							
Size	Catalog number	Port	Length	Wall	Weight			
4"	4 BMW 740 BFP TRSB 00S	3.98	12.00	0.280	67			
6"	6 BMW 740 BFP TRSB 00S	5.98	18.00	0.312	179			
8"	8 BMW 740 BFP TRSB 00S	7.93	20.51	0.344	287			
10"	10 BMW 740 BFP TRSB 00S	9.96	22.00	0.375	518			
12"	12 BMW 740 BFP TRSB 00S	11.97	25.00	0.375	904			
16"	16 BMW 740 BFP TRSB 00S	15.20	33.00	0.375	1,971			
20"	20 BMW 740 BFP TRSB 00S	19.21	39.00	0.500	3,530			
24"	24 BMW 740 BFP TRSB 00S	23.27	45.00	0.500	5,644			

	FLANGE x FLANGE - 740 PSI - CLASS 300							
Size	Catalog number	Port	Length	CLASS	Weight			
4"	4 BMF 740 BFP TRSB 00S	3.98	12.00	300	127			
6"	6 BMF 740 BFP TRSB 00S	5.98	15.87	300	250			
8"	8 BMF 740 BFP TRSB 00S	7.93	19.76	300	386			
10"	10 BMF 740 BFPTRSB 00S	9.96	22.36	300	684			
12"	12 BMF 740 BFP TRSB 00S	11.97	25.50	300	1,138			
16'	16 BMF 740 BFP TRSB 00S	15.20	33.00	300	2,380			
20"	20 BMF 740 BFP TRSB 00S	19.21	39.00	300	4,112			
24"	24 BMF 740 BFP TRSB 00S	23.27	45.00	300	6,592			

Dimensions listed in inch and pound.

Weld x Flange option available upon request.

Valves 4" and larger are usually sold with horizontal gear or vertical gear. Check Catalog Numbering System.

IN-HOUSE VALVE MODIFICATIONS



SPECIALTY COATINGS



STEM EXTENSIONS



VALVE AUTOMATION







At **BROEN** we offer a wide variety of inhouse valve modifications to provide our Customers with virtually endless solutions.

- Valves with special length
- Valves with welded pups
- Special and standard coatings
- Gearboxes
- Valve automation
- Stem extensions
- Special test
- Drafting capabilities and 3D models available (SolidWorks)





OUR VALUES

We achieve our goals by doing what we say we will do. Our strong values are the foundation for our business and join us together as one company across borders, time zones and continents.

Be an entrepreneur. We explore and make dreams happen. We adapt, innovate and focus on our Customers' requirements and give them back so much more than they expect.

Take ownership. We are responsible for achieving our own commitments. Proactive, accountable and empowered to perform.

Go for excellence. We are passionate, self-critical and persistent in everything we do. We challenge the status quo, push boundaries and think outside the box. And we deliver results.

Share and learn. We learn from each other by being professional and open-minded. We get better every day. We are not afraid of failure. In fact, we embrace it as a valuable stop on the route to success.

Act with integrity. We lead by example, act transparently and speak up. We are professional at all times and in everything we do.

We know that proven valve technology is something we must earn. To us quality is not just a key to market access – it goes far beyond that. It is the foundation of our house. We focus our approach and strive to continuously improve our customer offerings. Ever since BROEN was established our passion for valve technology has been a major part of our core competences.

Our brand is our promise.





BROEN VALVE TECHNOLOGIES



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