



# Process to Instrument and Piping Valves Double Block and Bleed (DBB)

Monoflange and Pro-Bloc® Valves  
Including Low Emissions and API 6A Valves



ENGINEERING YOUR SUCCESS.

# Introduction

Parker's range of Process to Instrument valves has evolved and grown over the last two decades. The range has been designed to meet customer requirements for both double block and bleed and single block and bleed valves in all materials used by the industry today. It covers all the pressure requirements for ASME flange ended valves up to class 2500 and for API 6A up to 15K pressures. The bore sizes start at 10mm and are offered in increments up to 54mm (2"). Many of the valves were designed to meet specific customer needs.

One of Parker's unique advantages is the offering of an integral A-LOK® two ferrule fitting or CP1™ single

ferrule fitting connections for remote mounting of an instrument or for sample and injection valves. The specification of the world renowned and universally acceptable Parker compression type connections will improve system performance, increase safety, reduce size and weight and simplify installation which ultimately reduces overall user costs.

Continuous product development may from time to time necessitate changes in the details contained in this catalogue. Parker reserves the right to make such changes at their discretion and without prior notice. All dimensions shown in this catalogue are approximate and subject to change.

Every effort is made to provide sufficient, clear and accurate information to allow the correct selection of product from this catalogue, but ultimately it is the system designer's or user's responsibility to ensure selected product is suitable for the intended application. Should you require further information please do not hesitate to contact your local Parker support.

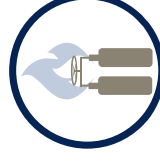
With thousands of distributor outlets and stores worldwide, and hundreds of Parker personnel and locations, Parker also offers the superior advantage of supply and support in your locale.



Upstream Oil & Gas



Downstream Oil & Gas



Industrial Gas

## Parker EHS Vision Statement:

Parker recognizes, and believes, in the importance of safeguarding natural resources and the global environment. We are committed to our employees, our communities, and our customers: their health, safety and understanding of the need for environmental stewardship.

We are committed to the concept of continuous improvement in environmental performance. Accordingly, we are committed to the following principles:

- We will seek to comply with environmental, health, and safety laws worldwide.
- We strive to minimize or eliminate the generation of waste.
- We will monitor compliance with environmental, health and safety regulations.

# General Technical Information

## Design

Parker's Process to Instrument valves are designed to meet the pressure and temperature ratings of ASME B16.34 Class 2500. Conformity to the recommendations of MSS SP-99 is also assured.

- Parker's Pro-Bloc® EP series valves conform to the EEMUA 182 specification for integral block and bleed valve manifolds for direct connection to pipework. This specification covers manifolds comprising two or more isolating valves and a vent valve, in an integral body, intended for the following applications:
- Having an inlet directly connected to the process pipework and an outlet connection not larger than DN 50 (NPS 2), whose principal use is as a replacement for individual block and bleed valves at tapping points in piping systems.
  - Arrangements having an inlet and outlet directly connected to the process pipework, whose principal use is for equipment or process isolation.

Code/Specification	Description
EEMUA 182	Specification for Integral Block and Bleed and Bleed Valve Manifolds for Direct Connection to Pipework
ASME B16.34/ ASME VIII Div. I	Valves - Flanged, Threaded and Welding End
ASME B16.5	Pipe Flanges and Flanged Fittings
NACE MR0175 / ISO 15156	Petroleum and Natural Gas Industries - Materials for use in H2S - Containing Environments in Oil and Gas Production
API 598	Valves Inspection and Testing
API 607 / ISO 10497	Fire Test of Soft-Seated Quarter Turn Valves Fire Type-Testing Requirements
MSS SP-25	Standard Marking Systems for Valves, Fittings, Flange and Unions
MSS SP-61	Pressure Testing of Valves
MSS SP-99	Instrument Valves
ISO 15848	Industrial valves— Measurement, test and qualification procedures for fugitive emissions
TA Luft	TA-Luft 2002, Absatz 5.2.6.4 und VDI 2440 (Ausgabe Nov. 2000), Absatz 3.3.1.3

## Materials of Construction

All materials are purchased from long standing reputable sources, conforming not only to recognised national/international standards, but also to additional requirements imposed by Parker to assure suitability/usability across the widest spectrum of user applications.

A range of techniques and processes including PMI (Positive Material Identification) are used to validate all incoming material supplies, segregation, storage and maintenance of product quality.

### Body material options

Material Group	Material Designator	UNS No.	ASTM Material Grade
Carbon Steel	A105 / A350-LF2	UNS 1.0482	A105
Austenitic Stainless Steel	316/316L Dual Certified	UNS S31600	A479 Gr 316
		UNS S31603	A479 Gr 316L
		UNS S31254	A479/A276
Super Austenitic Stainless Steel	6Mo	UNS S31803	A479/A276
Austenitic-Ferritic Steel (Duplexes)	Duplex 22Cr	UNS S32750	A479/A276
		UNS S32760	A479/A276
		UNS N08825	ASTM B425
Nickel Alloy	Alloy 825	UNS N06625	ASTM B446

All materials will meet (as applicable) the requirements of NACE MR0103/MR0175 and ISO 15156. They are further supplied as per Norsok M650/M630 as required.

## Flange Connections

### Pressure-temperature ratings for flanges ASME/ANSI B 16.5

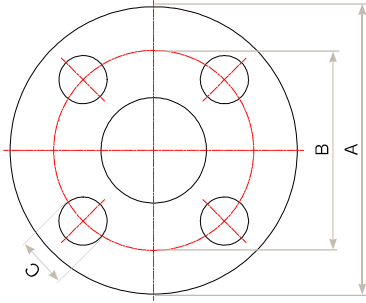
Parker's Process to Instrument valves carry the pressure-temperature ratings of their flange end interface according to ASME B16.5 dimensional specifications and pressure ratings.

Flange Material	°C	-29	38	50	100	150	200	250
	°F	-20	100	122	212	302	392	482
Working Pressure - PSI (bar)								
Class 150								
Carbon Steel		284 (19.6)	284 (19.6)	278 (19.2)	257 (17.7)	229 (15.8)	200 (13.8)	175 (12.1)
316/316L St.Steel		276 (19.0)	276 (19.0)	267 (18.4)	235 (16.2)	215 (14.8)	199 (13.7)	175 (12.1)
Duplex		290 (20.0)	290 (20.0)	283 (19.5)	257 (17.7)	229 (15.8)	200 (13.8)	175 (12.1)
Class 300								
Carbon Steel		741 (51.1)	741 (51.1)	727 (50.1)	676 (46.6)	654 (45.1)	635 (43.8)	608 (41.9)
316/316L St.Steel		719 (49.6)	719 (49.6)	698 (48.1)	612 (42.2)	558 (38.5)	518 (35.7)	484 (33.4)
Duplex		750 (51.7)	750 (51.7)	750 (51.7)	735 (50.7)	666 (45.9)	619 (42.7)	587 (40.5)
Class 600								
Carbon Steel		1481 (102.1)	1481 (102.1)	1453 (100.2)	1352 (93.2)	1308 (90.2)	1270 (87.6)	1271 (83.9)
316/316L St.Steel		1440 (99.3)	1440 (99.3)	1395 (96.2)	1224 (84.4)	1117 (77.0)	1034 (71.3)	969 (66.8)
Duplex		1500 (103.4)	1500 (103.4)	1500 (103.4)	1469 (101.3)	1333 (91.9)	1237 (85.3)	1173 (80.9)
Class 900								
Carbon Steel		2222 (153.2)	2222 (153.2)	2181 (150.4)	2028 (139.8)	1961 (135.2)	1906 (131.4)	1824 (125.8)
316/316L St.Steel		2159 (148.9)	2159 (148.9)	2093 (144.3)	1836 (126.6)	1675 (115.5)	1552 (107.0)	1452 (100.1)
Duplex		2249 (155.1)	2249 (155.1)	2249 (155.1)	2204 (152.0)	1999 (137.8)	1856 (128.0)	1761 (121.4)
Class 1500								
Carbon Steel		3703 (255.3)	3703 (255.3)	3634 (250.6)	3379 (233.0)	3269 (225.4)	3176 (219.0)	3041 (209.7)
316/316L St.Steel		3600 (248.2)	3600 (248.2)	3489 (240.6)	3060 (211.0)	2792 (192.5)	2586 (178.3)	2421 (166.9)
Duplex		3750 (258.6)	3750 (258.6)	3750 (258.6)	3674 (253.3)	3330 (229.6)	3093 (213.3)	2934 (202.3)
Class 2500								
Carbon Steel		6171 (425.5)	6171 (425.5)	6058 (417.7)	5632 (388.3)	5447 (375.6)	5294 (365.0)	5069 (349.5)
316/316L St.Steel		6000 (413.7)	6000 (413.7)	5814 (400.9)	5099 (351.6)	4653 (320.8)	4310 (297.2)	4033 (278.1)
Duplex		6249 (430.9)	6249 (430.9)	6249 (430.9)	6123 (422.2)	5550 (382.7)	5154 (355.4)	4890 (337.2)

# General Technical Information

## Flange Connections

### Flange dimensions



Nominal Pipe Size inch	Dimensions inch (mm)			Number of Mounting Holes
	A	B	C	
Class 150				
1/2	3 1/2 (88.9)	2 3/8 (60.5)	1/2	4
3/4	3 7/8 (98.6)	2 3/4 (69.8)	1/2	4
1	4 1/4 (108)	3 1/8 (79.2)	1/2	4
1 1/2	5 (127)	3 7/8 (98.6)	1/2	4
2	6 (152)	4 3/4 (121)	5/8	4
Class 300/Class 600				
1/2	3 3/5 (95.2)	2 5/8 (66.5)	1/2	4
3/4	4 5/8 (117)	3 1/4 (82.6)	5/8	4
1	4 7/8 (124)	3 1/2 (88.9)	5/8	4
1 1/2	6 1/8 (155)	4 1/2 (114)	3/4	4
2	6 1/2 (165)	5 (127)	5/8	8
Class 900/Class 1500				
1/2	4 3/4 (121)	3 1/4 (82.6)	3/4	4
3/4	5 1/8 (130)	3 1/2 (88.9)	3/4	4
1	5 7/8 (149)	4 (102)	7/8	4
1 1/2	7 (178)	4 7/8 (124)	1	4
2	8 1/2 (216)	6 1/2 (165)	7/8	8
Class 2500				
1/2	5 1/4 (134)	3 1/2 (88.9)	3/4	4
3/4	5 1/2 (140)	3 3/4 (95.2)	3/4	4
1	6 1/4 (159)	4 1/4 (108)	7/8	4
1 1/2	8 (203)	5 3/4 (156)	1 1/8	4
2	9 1/4 (235)	6 3/4 (171)	1	8

Note: Dimensions are for reference only and are subject to change.

## Meeting the ISO Standard

From 2007 EU's IPPC directive 96/61/EC legislates for the minimisation of pollution from industrial sources (Many other regions and countries have similar legislation). An important part of this legislation is reducing Ultra-Low emissions, which will have significant consequences for all processes. According to the IPPS all plants and factories which fail to comply with the standards set by the directive may be closed from this point.

To put the scale of the challenge into perspective, a typical European refinery loses between 600 and 10,000 tonnes of emissions per annum. Around 70% of these losses are estimated to be caused by plant equipment such as pipe flanges, pumps, valves and vessels. Leakage from valves is often the biggest culprit, reportedly accounting for around 50% of the Ultra-Low emissions within the chemical and petrochemical industries.

Irrespective of the environmental impact, there is a tremendous financial burden on industry because it represents a huge loss of product, and cause of plant inefficiency. However, the true costs to industry are not always appreciated, as many of the costs associated with Ultra-Low emissions are hidden, such as labour and materials to repair leaks, wasted energy, environmental fines and clean up costs. Lost sales due to a poor green image, claims for personal injury and more. In this way, reducing Ultra-Low emissions not only protects the environment, but can save companies time and money.

With the above in mind, the legislation introduces a concept of Best Available Technique (BAT), urging plants to find the best available solution for reducing Ultra-Low emissions throughout the process, from areas such as design, product selection, fitting and fitter training, to maintenance, site monitoring, and so on.

With regard to the design and site monitoring of Ultra-Low emissions ISO 15848 parts 1 and 2 have been developed respectively.

Part 1 covers the classification system and qualification procedure for type testing of valves. The standard specifies three tightness classes of leakage with respect to stem sealing diameter. These classes are class A, B and C. Class A having the smallest environmental leakage. Each class level is one hundred fold lower than the class above i.e. a class B product may have a leakage of 100 times that of a class A product. The standard also specifies the duty that the valve has been tested to.

Parker Hannifin is now able to offer our full range of

flanged products with a class A approval to ISO 15848-1. These products are identified as the Ultra-Low Emissions range and are certified as ISO FE AH-C01-SSA1-t (RT,180°C)-ANSI2500-ISO 15848-1. This states that the product has been classified as meeting the ISO 15848-1 standard with the following criteria;

- Class A tested with Helium
- Endurance class C01 – a mechanical valve which has been tested throughout 500 mechanical actuations with two thermal cycles
- Temperature class RT-180°C – Fully thermal cycled and tested from -29°C to +180°C Pressure class ANSI 2500 – 6000 psi in 316 st.st.

Part 2 of the standard covers production acceptance testing of valves. This production testing can only be carried out to product which has already been approved to part 1 of the standard. Production testing can be carried out to and sampling percentage specified by the purchaser with a minimum of one per lot. The production testing is a simpler helium sniffer test which is carried out at room temperature with no mechanical actuations.







## ISO 15848 standard

ISO 15848 parts 1&2 (defining a classification system and qualification procedures, and production acceptance test of industrial valves, respectively) specify new Ultra-Low standards for emissions. This standard is becoming the requirement for oil and gas and petrochemical organisations worldwide. The standard was originally created for process valves and control valves but is now being applied to Instrumentation valves which include primary isolation valves, especially on environmentally sensitive projects.

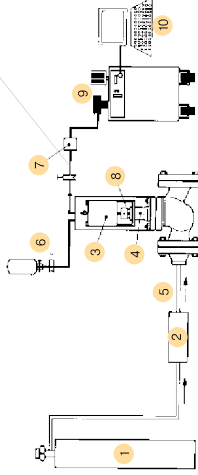
Meeting these low levels is a challenge, which Parker Instrumentation has solved with the new ball and needle valve designs used in these Double Block and Bleed valves and monoflanges. These designs meet the highest class 'A' level over the temperature range -29°C to +180°C celsius, alongside the standard instrumentation manifold pressure ranges.

Production testing and certification is available upon request. Please specify sample quantity required for production testing with your order.

O-ring material grade is a fluoroelastomer FKM tetrapolymer, specially formulated for explosive decompression (ED) resistance. The seals are qualified to the stringent Norsok M-710 standard that covers both ED resistance and sour gas (H<sub>2</sub>S) ageing tests.

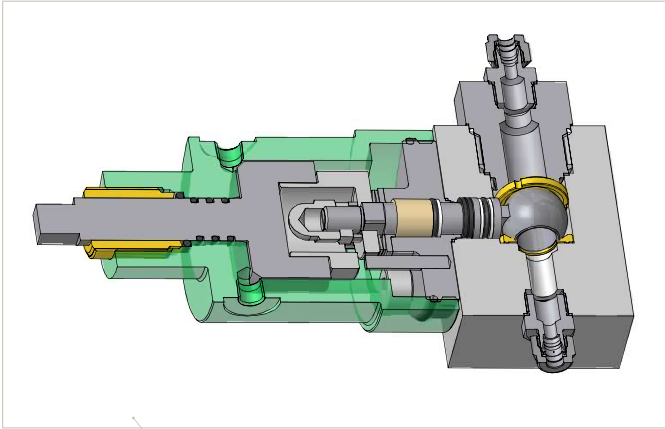
### Features

- Class 'A' leakage rates achieved
- Bolted ball valve bonnet assembly
- All threads sealed from the media
- All ball valves are bi-directional
- Firesafe design available



Prototype testing schematic as per ISO 15848-1

Reference	Description
1	Helium at 97% purity
2	Pressure control
3	Actuator
4	Vacuum
5	Helium
6	Standard calibrated leak
7	Vacuum safety
8	Tested stem sealing
9	Helium mass spectrometer
10	Data acquisition



Ball valve ISO 15848-1  
Prototype testing assembly

# Pro-Bloc® - Modular Single Piece DBB Valve API 6A

## API 6A Standard - Introduction

### Offshore and Onshore Safety Measures

API valves are lightweight and compact, which is essential for both offshore and onshore installations. They can be easily installed to existing designs and offer low cost fabrication.

One concern on platforms, is the pressure in the voids between the annulus casing strings of a well – any sudden increase or change could indicate leaks in the casing strings or cement bonding.

There is consequently now a growing trend to monitor the pressure in each void, so that operators can gain early warning of impending problems and implement emergency shutdown procedures to avoid disaster.

The need for improved annular casing pressure management is becoming more acute as operators of onshore and offshore oil and gas platforms move into deeper environments and encounter higher reservoir pressures and temperatures – and it is one of the reasons why the UK's Health and Safety Executive is urging operators to adopt its guidelines for well integrity.

## API 6A Codes and Practises

### Ball Valve Design Compliance

- Single piece, close to shape forging - API 6A minimum yield material compliance - PSL 3/3G tested
- Hub ended single piece forged body - API 6A minimum yield material compliance - PSL 3/3G tested
- Body and enclosure items NDE tested to API 6A - PSL 3/3G
- Valve assemblies tested to PSL 3/3G with serialization
- Firesafe designed and tested to API 6FA / API 607 at 15,000 psi
- PSL 4 - Material and valve testing compliance upon request. Contact Factory.
- API 6A PR2 Qualification on 15K Ball Valve PAI Seats. -46°C to +121°C
- Anti-static design

### Design Codes

- API 6A / ISO 10423 - Allowable stress  $S_m = 2/3 S_y$  where  $S_y$  is the material minimum yield strength
- API 6A / ISO 10423 - (Flange Dimensions)
- ISO 17292
- Firesafe designed and tested to API 6FA / API 607 at 10,000 psi - (10K Ball Valve)
- Firesafe designed and tested to API 6FA at 10,000 psi.

The issue is not just confined to the offshore sector. Energy companies are being forced to drill to greater depths at many onshore exploration sites now that the shallow layers of oil and gas reservoirs have been substantially exploited, which again involves higher operating pressures.

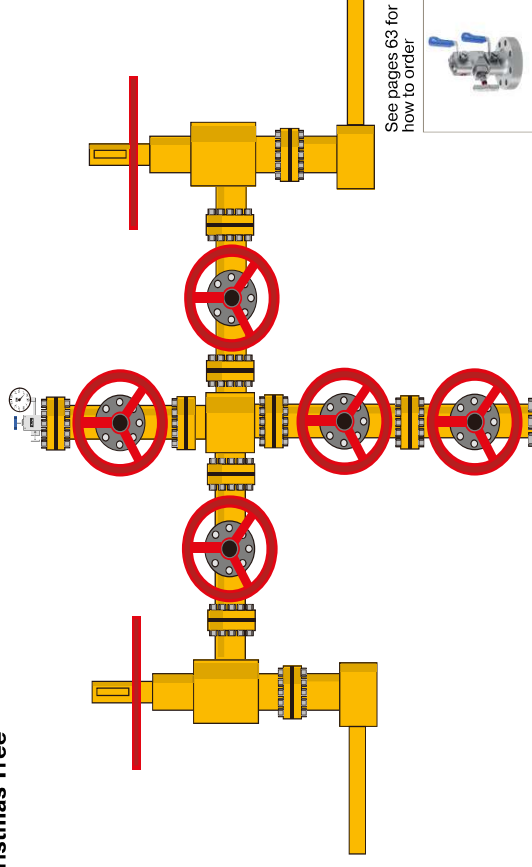
### Testing

Parker's double block and bleed valves have been tested for conformance to API 6A specifications by an independent test house, as well as by the internal test laboratory that Parker operates at its European design and manufacturing facility in Barnstaple, UK.

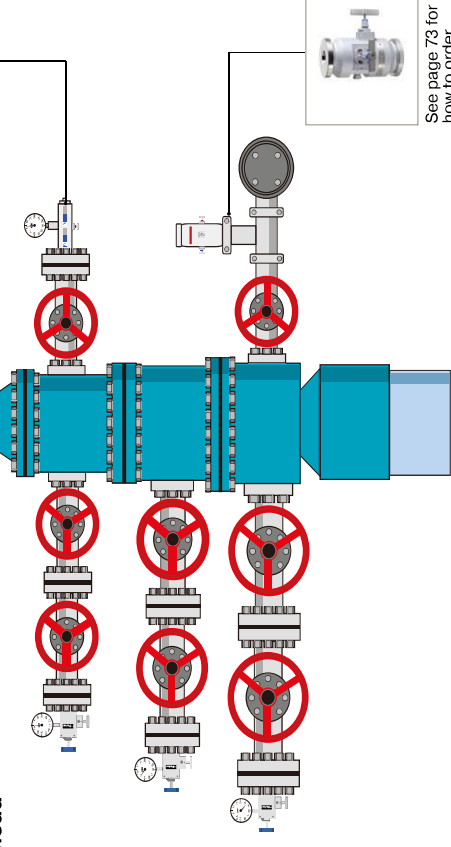
### Applications

- Christmas tree and wellhead (see illustration on opposite page)
- HIPPS (High Integrity Pressure Protection System) for use in wellhead flowline pressure protection

Christmas Tree



Wellhead



# Pro-Bloc® - Modular Single Piece DBB Valve

## API 6A

### API 6A Codes and Practises

Parker's API valves have been designed in partnership with many of the world's leading energy companies. Pictured here, are just a few of the designs that we have innovated for projects around the world.



### API 6A - Quality control for bodies, bonnets, end and outlet connections

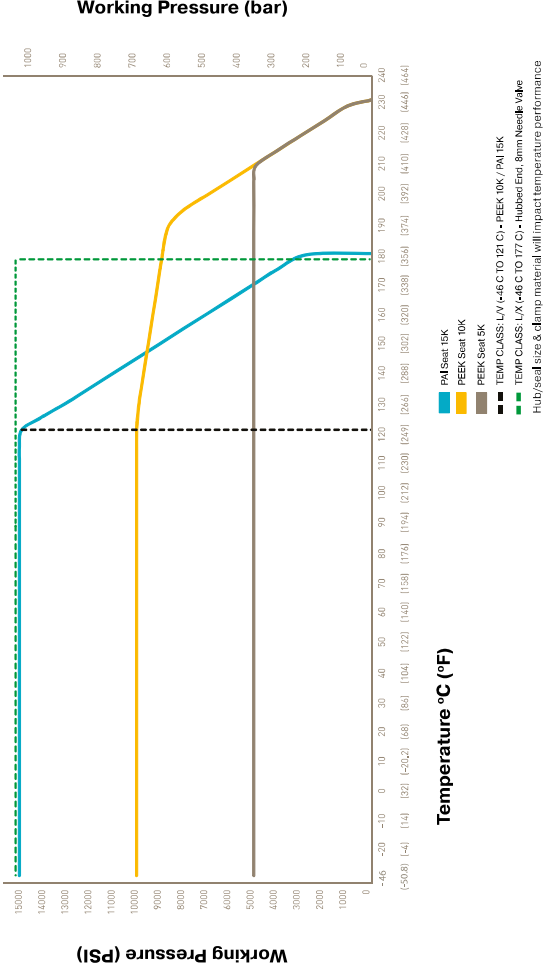
#### PSL 3/3G - Parker Compliance

	API Product Specification Level	Additional Industry Codes
PSL3/3G material testing includes:	Tensile testing	PSL 3/3G
	Impact testing	PSL 3/3G
	Dimensional inspection	To Parker standard
	Traceability	PSL 3/3G
PSL3/3G NDE includes:	Chemical analysis	PSL 3/3G
	Volumetric NDE	PSL 3/3G
	Surface NDE	PSL 3/3G
	Serialization	PSL 3/3G
	On request	To Parker standard
NORSOK M630 Additional testing Includes*:	Corrosion testing	
	Micrographic examination	ASTM G48
	Ferrite counting	ASTM A923
	* (Duplex and Super Duplex materials only)	ASTM E562

### Typical Raw Material Specifications

Material	Product	Industry Codes	NORSOK	NACE	API Product Specification Level
Duplex	Close Shape Flanged Design	ASTM A182 Grade F51	NORSOK M650/M630	NACE MR0175	PSL3
	Hubbed Design	ASTM A182 Grade F51	NORSOK M650/M630	NACE MR0175	PSL3
	Trims such as Bonnets, end and outlet connections	ASTM A479/A276 UNS S31803	NORSOK M650/M630	NACE MR0175	PSL3
Super Duplex	Close Shape Flanged Design	ASTM A182 Grades F53/F55		NACE MR0175	PSL3
	Hubbed Design	ASTM A182 Grades F53/F55	NORSOK M650/M630	NACE MR0175	PSL3
	Trims such as Bonnets, end and outlet connections	ASTM A479/A276 UNS S32750/S32760	NORSOK M650/M630	NACE MR0175	PSL3
	15K Ball Valve OSY Bridge	ASTM A995 Grade 6A – UNS J93380		NACE MR0175	PSL3
Alloy 725	Close Shape Flanged Design	ASTM B637 Grade UNS N07725		NACE MR0175	PSL3
Alloy 625	Close Shape Flanged Design	ASTM B564 Grade UNS N06625		NACE MR0175	PSL3
	Hubbed Design	ASTM B564 Grade UNS N06625		NACE MR0175	PSL3
	Trims such as Bonnets, end and outlet connections	ASTM B446 Grade UNS N06625		NACE MR0175	PSL3
Alloy 718	Trims such as Bonnets, end and outlet connections	API 6A UNS N07718		NACE MR0175	PSL3

### Pressure / Temperature Chart





# Pro-Bloc® - Modular Single Piece DBB Valve

## API 6A

5K and 10K - API 6A

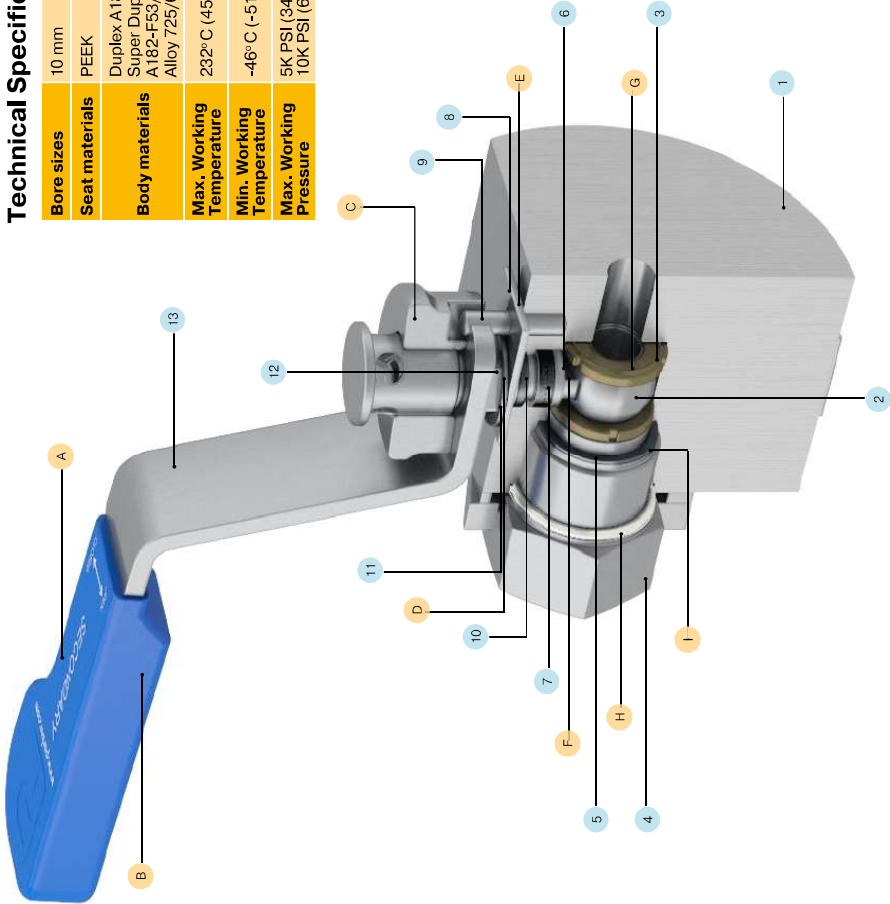
### Overview

Parker's uni directional quarter turn ball valve anti-static design is based on the Hi-Pro® ball valves series which has been used in the field on many services over a twenty-year time span. Just like the Hi-Pro®, the API 6A design incorporates slotted seats. This gives inherent cavity relief preventing over pressure occurring within the ball/seat cavity when the valve is in the closed position. The stem itself is a blow-out proof design. The valves are a straight through bore that helps to prevent "plugging" of the bore.



### Technical Specifications

Bore sizes	10 mm
Seat materials	PEEK
Body materials	Duplex A182-F51 Super Duplex ASTM A182-F53/F55 Alloy 725/625
Max. Working Temperature	232°C (450°F)
Min. Working Temperature	-46°C (-51°F)
Max. Working Pressure	5K PSI (345 bar), 10K PSI (690 bar)



### Bill of Materials

Reference	Description	Duplex	Super Duplex	Alloy 625	PSL 3/3G
1	Body (Hub)	A182-F51	A182-F53/F55	ASTM B564 Gr. N06625	YES
1	Body (Flange)	A182-F51	A182-F53/F55	Alloy 725 - ASTM B637 Gr. N07725 with 625 Trim	YES
2	Ball	A479-UNS S31803	A479-UNS S32750/S32760	ASTM B446 Gr. N06625	YES
3	Seats	PEEK	PEEK	PEEK	
4	End Adaptor	A479-UNS S31803	A479-UNS S32750/S32760	ASTM B446 Gr. N06625	YES
5	Joint Seal	6mo	ASTM B446 Gr. N06625	ASTM B446 Gr. N06625	
6	Stem	A479-UNS S31803	A479-UNS S32750/S32760	ASTM B446 Gr. N06625	YES
7	Packing	Graphite	Graphite	Graphite	
8	Ant-torque plate	316 St.Stl	316 St.Stl	316 St.Stl	
9	Stop Pin	316 St.Stl	316 St.Stl	316 St.Stl	
10	Thrust Bush	316 St.Stl	316 St.Stl	316 St.Stl	
11	Spring Washer	X12CrNi17 7 (DIN 1.4310)	X12CrNi17 7 (DIN 1.4310)	X12CrNi17 7 (DIN 1.4310)	
12	Spindle Nuts	A4. St.Stl	A4. St.Stl	A4. St.Stl	
13	Handle	316 St.Stl	316 St.Stl	316 St.Stl	

Note: NPT & Autoclave plugs/glands are not PSL3 tested as standard.

### Features, Benefits and Values

Reference	Feature	Benefit	Value
A	Identification of primary and secondary valves	Removes possibility of operating error	Safety
B	Ergonomic vinyl sleeve	Easy to grip	Ease of operation
C	Handle locking mechanism	Enables the valve to be locked in either the open or closed position	Safety
D	EEMUA 182 Locking Nut	Ensures packing integrity if handle needs to be removed	Performance and reliability
E	Torque plate	Reduces operational torque on packing	Ease of operation
F	Anti blow out stem	Prevents stem blow out	Safety
G	Slotted seats	Inherent cavity relief	Safety
H	Environmental seal	Preventing aggressive dirt and moisture	Performance and reliability
I	Primary metallic atmospheric seal	No elastomers, therefore no seal deterioration	Performance and reliability





# Pro-Bloc® - Modular Single Piece DBB Valve API 6A

Ordering Information - 5K and 10K

APB

Y

1

00

E33T10K

9C

L

FN

Series

API Pro-Bloc

APB

Style

Flange x Screw

1

Flange x Flange

2

Outlet / Vent Connection

1/2" FNPT

9/16" MP Autodrive

3/8" MP Autodrive

6C

Condition

Fire Safe

NACE

Fire Safe & NACE

F

N

FN

Ball Valve Bore Size

10 mm

Y

Arrangement

Block Bleed Block

00

Block and Bleed

30

Valve Handle Options

Padlock Handle Locking

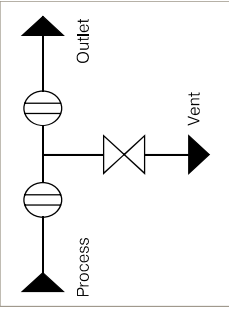
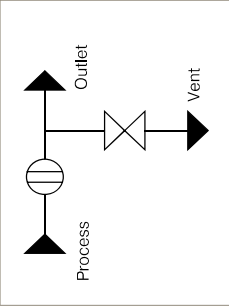
Primary and Secondary Ball Type

L

Process / Instrument Connection			Flange Class	
Material	Flange Size	Face Style	5,000 PSI (6B)	10,000 PSI (6BX)
Duplex	2 - 1/16"	33	5K	
	1 - 13/16"	29		10K
	2 - 9/16"	33		
	2 - 9/16"	41		
Super Duplex	2 - 1/16"	33	5K	
	1 - 13/16"	29		10K
	2 - 1/16"	33		
	2 - 9/16"	41		
725/625	2 - 1/16"	33	5K	
	1 - 13/16"	29		10K
	2 - 1/16"	33		
	2 - 9/16"	41		

Notes:

- PEEK seat as standard
- If 1/2" Female NPT outlet is selected then vent connection is 1/2"Female NPT only. No connection designator required



# Complementary Products for Complete Installation Solutions

## Flushing Rings (Spoofs)

Flushing Rings, historically referred to as drip rings are used between an isolation valve and the diaphragm seal of a pressure transmitter. Side ports on the rings allow media to be injected/ejected so that the diaphragm seal can be flushed free of deposits that affect transmitter measurement accuracy.

Parker offers a bespoke range of flushing rings in number of different styles and configurations. Historically, drip rings are secured between the two raised faces **only** and held in position by the force exerted through the bolts. The Parker Flushing Ring solution is held in place by the through bolting, this allows for ease of installation and give positive locating. Options with this range of flushing rings include captive studs. This gives the added benefit of the flushing ring staying in place if either the process valve side or diaphragm side require removal.

For full details see Data Sheet ref. 4190-FR.



## ProSpool

The Parker ProSpool feature a combined, single-piece valve consisting of a double block and bleed configuration with an integral flushing spool. It can be easily installed and, having fewer component parts, reduces inventory and purchase orders.

With the captive stud option torquing of the nuts is simplified. Extremely useful in restricted spaces.

For full details see Data Sheet ref. 4190-PSV.



## Ball Valves and Manifolds Hi-Pro Series

These high performance bi-directional Ball Valves & Manifolds offer the user full cold working pressure ratings up to 10,000 psi (689 bar), giving 100% bubble tight shut off and continuous repeatable performance. These products are suitable for the most demanding applications in the oil, gas and process control industries. All valves also meet the requirements of ANSI B31.1 for use in power plants. The design reduces potential body leakage paths to a minimum. With the added opportunity to select Parker Superior Advantage integral compression ends the user can eliminate the use of taper threads and thread sealant, thus avoiding system contamination, reducing leakage paths, installation costs, weight and space.

For full details see Catalogues ref. 4190-HBV and 4190-HBM.



## Air Header Distribution Manifolds - LPAHM Series

These air header distribution manifolds are designed to distribute air from the compressor to the actuators on pneumatic instruments, such as steam flow meters, pressure controllers and valve positioners. They are widely used in industrial chemical processing, plastic processing and energy industries and are approved for low pressure applications up to 275 psi. Manufactured from AISI 316 Stainless Steel material, the air header distribution manifolds offer complete customer system compatibility that reduces installation time and potential leak paths. The coded welded construction with non-destructive tested design minimises the number of potential leak paths, rather than fabricating with instrumentation connections with tubing, therefore reducing labour costs. These manifolds are designed for use with air only and are supplied with a number of lockable ball valves on opposite sides, right side or left side only to prevent unauthorized access.

For full details see Catalogue ref. 4190-DM.



## Air Header Distribution Manifolds - HPAHM Series

These distribution manifolds are designed for applications that use liquid or gas, low temperature steam and hydraulic actuation. The pressure rating of these manifolds is dictated by the inlet/outlet Flange Class or the thread connection. These distribution manifolds feature an ergonomic vinyl sleeve on the valve handle to provide positive grip and to ensure ease of operation. Each nut has an innovative domed design, which prevents ingress of moisture and contamination of the thread, therefore preventing corrosion. They feature a part-welded construction, with all welds carried out by coded welders, providing assurance of their robustness and performance. These manifolds are NDT (Non-Destructive Testing) applied, giving the customer greater assurance.

For full details see Catalogue ref. 4190-DM.



## Hi-Pro Modular Distribution Manifold

Unique to Parker, these manifolds are the ideal choice when ultimate flexibility is required within a distribution manifold. They are approved to operate at pressures up to 6,000 psi and are used extensively in the oil, gas, chemical and petrochemical industries to provide safety and performance. These innovative Hi-Pro modular distribution manifolds can be easily arranged in a layout to suit a wide range of different applications to distribute liquid or gas. They use standard components, therefore making it more affordable for the customer. The Hi-Pro modular distribution manifolds feature an ergonomic vinyl sleeve on the valve handle to provide positive grip and to ensure ease of operation. Each nut is domed in shape, which prevents ingress of moisture and contamination of the thread, which could cause corrosion. This manifold is available with up to 20 valves (even numbers only - spare valves can be blanked off). Temperature range is up to 232°C with PEEK seats.

For full details see Catalogue ref. 4190-DM.



## Lapped Joint Tube Adaptor

Available in the full range of fitting materials and sizes up to 1/2" (M12) as standard, these lapped joint tube adaptors are suitable for applications involving small flanged process valves and offer a simple, safe and effective conversion to instrument lines.



## Flange Connector - Flange to Parker Tube Fittings

Offered in a range of materials and with either A-LOK® or CP1™ tube fitting technology, these flange connectors deliver huge flexibility in terms of offering. Tube connections up to 1" (25mm), flange connections up to 2" NB and pressures to ANSI Class 2500 (6,000 PSI Nom.). The one-piece integral connection adaptors allow the safe, easy and efficient transition from process to instrumentation in just one step.

