VBG intech.

PASSION FOR FLOW

BR Series

ROTARY CONTROL VALVES

TECHNICAL CATALOGUE

About Us

With state-of-the-art manufacturing facilities located in Dubai, VBG Intech also has global presence with authorized service centers around the world. VBG Intech is able to provide the highest level of service to its customers.

From the beginning VBG Intech have adhered to the concept of excellence and customised service. These concepts permeate all stages of the design of our products, from the selection of materials, specification, and calculation to the manufacture of the final product, performed by an experienced and highly capable team.

VBG Intech has attained the highest degree of quality in the design and manufacture of control valves for special and severe applications such as: superheated steam, differential high pressure, volatile, corrosive, erosive and slurry fluids, in addition to solutions for cavitation and high noise levels.

VBG Intech constantly invests in new technologies, upholding the high quality of manufacturing processes and assuring high performance and durability of its products.

Expertise

PRODUCTION

Besides skilled and experienced staff and world-class machines VBG Intech also relies on a state-of-the art ERP system which provide powerful features to properly plan, procure, manufacture and deliver to customers efficiently.

ENGINEERING

VBG Intech Engineering benefits from powerful tools for in-house design and development that cater to different challenges. A sophisticated software supports the well experienced crew.

QUALITY

Modern machineries teamed with experienced and vigilant staff help VBG to maintain the highest level of quality, providing reliable and satisfactory ownership to our customers.

24/7

Whenever our customer requires support, wether site assisted or not, VBG Intech is on board to support 24/7 X 365.

Rotary Type

CONTROL VALVES

BR-EC

BR-EC ROTARY ECCENTRIC PLUG control valve is a versatile design. The robust non-crossover shaft remains out of the flow path and creates an unobstructed passage area, factors that enable to perform duties in light and slightly erosive conditions.

BR-BL

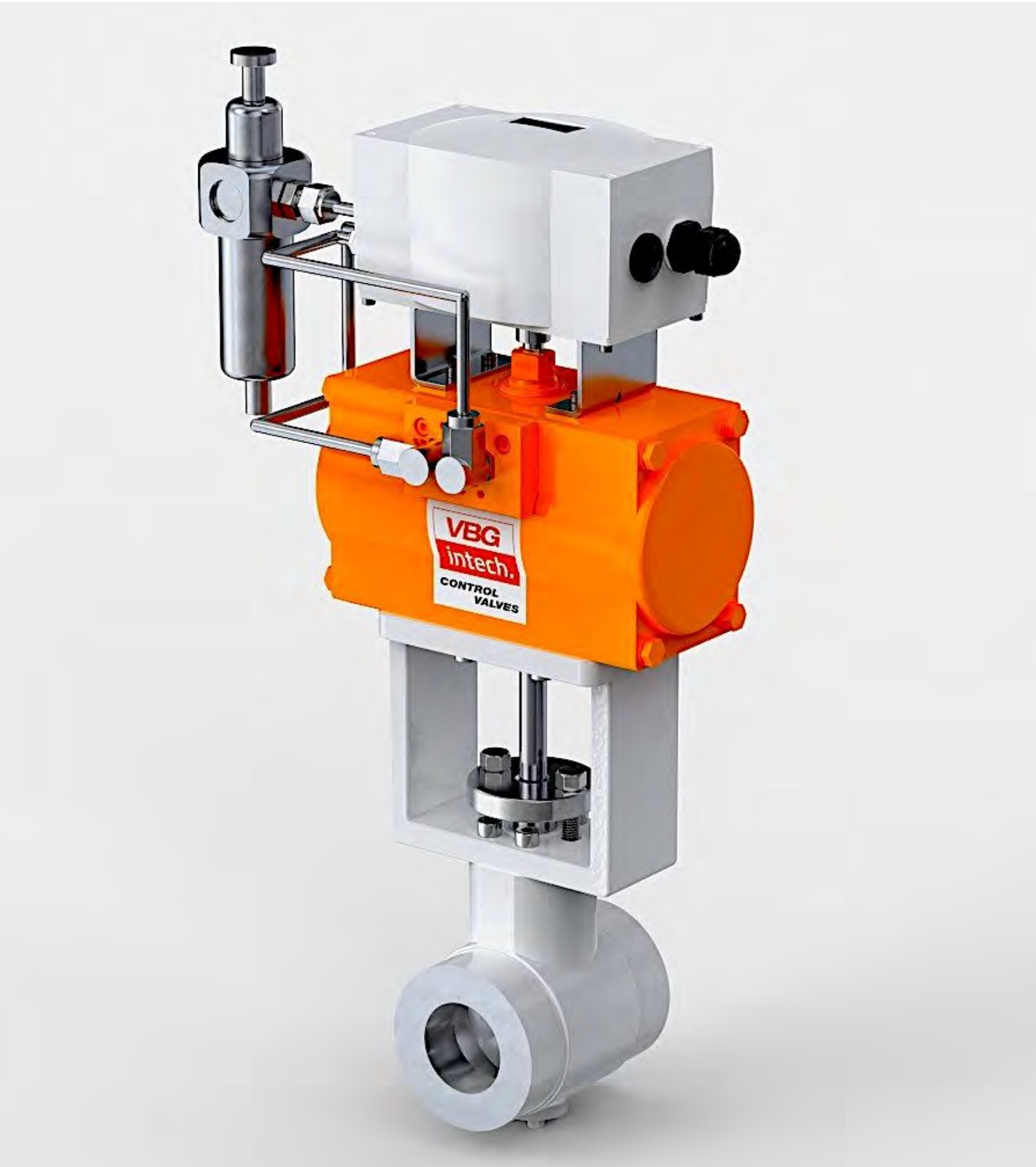
BR-BL ROTARY SEGMENTED BALL is a self-centering seat and splined drive shaft that prevent motion loss. Reliable for control application, the BR-BL is one of the most competitive and robust segmented V-notch ball valves in the market.

BR-B2

BR-B2 HIGH PERFORMANCE BUTTERFLY VALVE is state-of-the-art technology from which it uses the smart solutions as, concave disc with optimised geometry in order to assure high flow rate capacity, self-centering seat ring with soft or metal sealing, and disc stop on the body in order to avoid excess rotation. The BR-B2 stands for Double Offset .

BR-BL

SEGMENTED BALL



CONTROL VALVE

BR-BL

CHARACTERIZED V-SHAPE

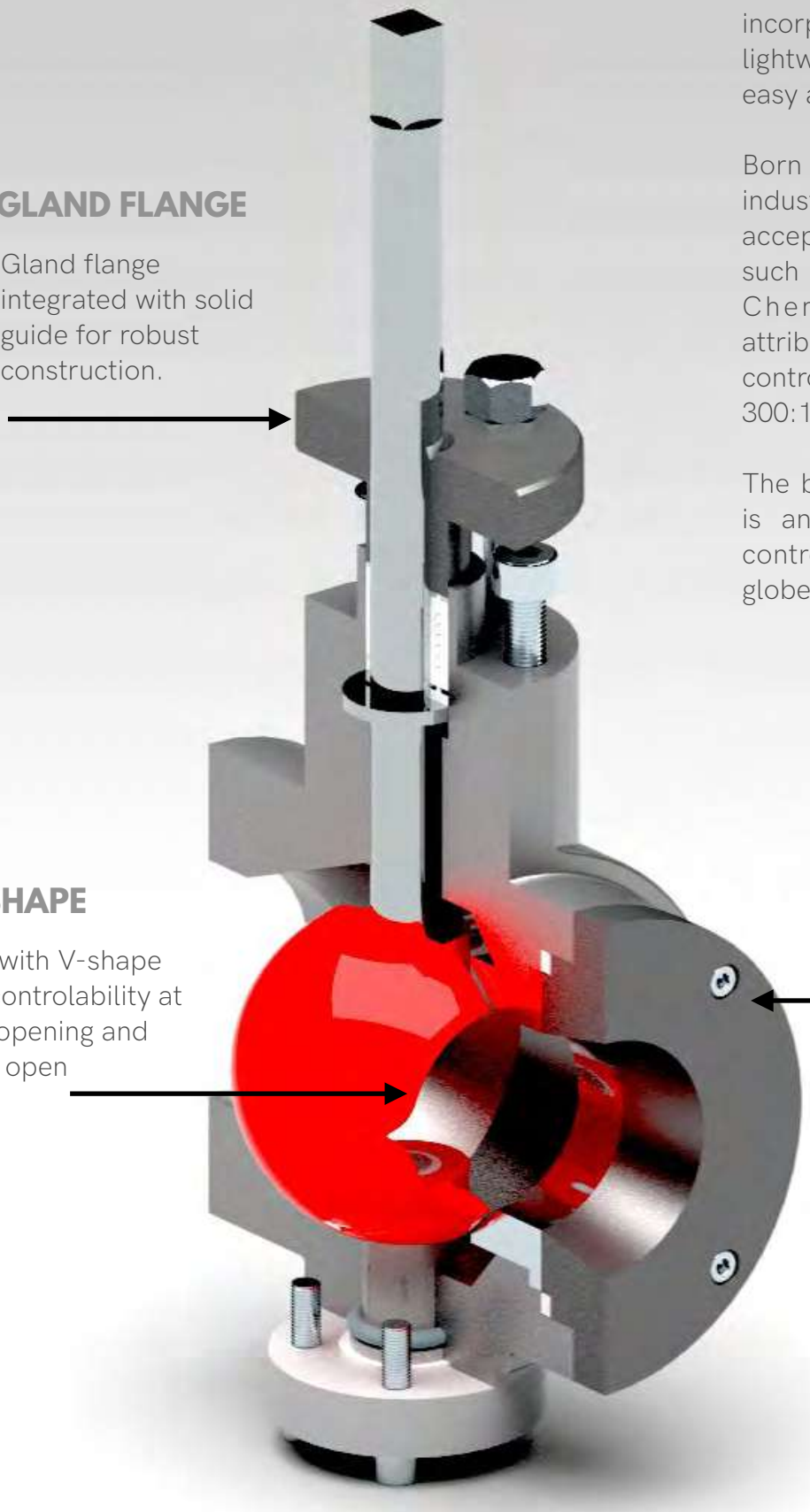
The BR-BL is the VBG Intech response to the versatile niche of the segmented ball valves market. The state-of-art product incorporates the VBG Intech expertise of lightweight construction yet a robust and easy assembly product.

Born primarily for the Pulp & Paper industries quickly became recognised and acceptable in several other segments such as Oil & Gas, Fertilizer, Mining and Chemical Plants. The success is attributed to its exceptional capability in control and notorious rangeability beyond 300:1.

The ball trim with characterised V-shape is an excellent alternative for process control in several applications where globe control valves are less tolerant.

GLAND FLANGE

Gland flange integrated with solid guide for robust construction.

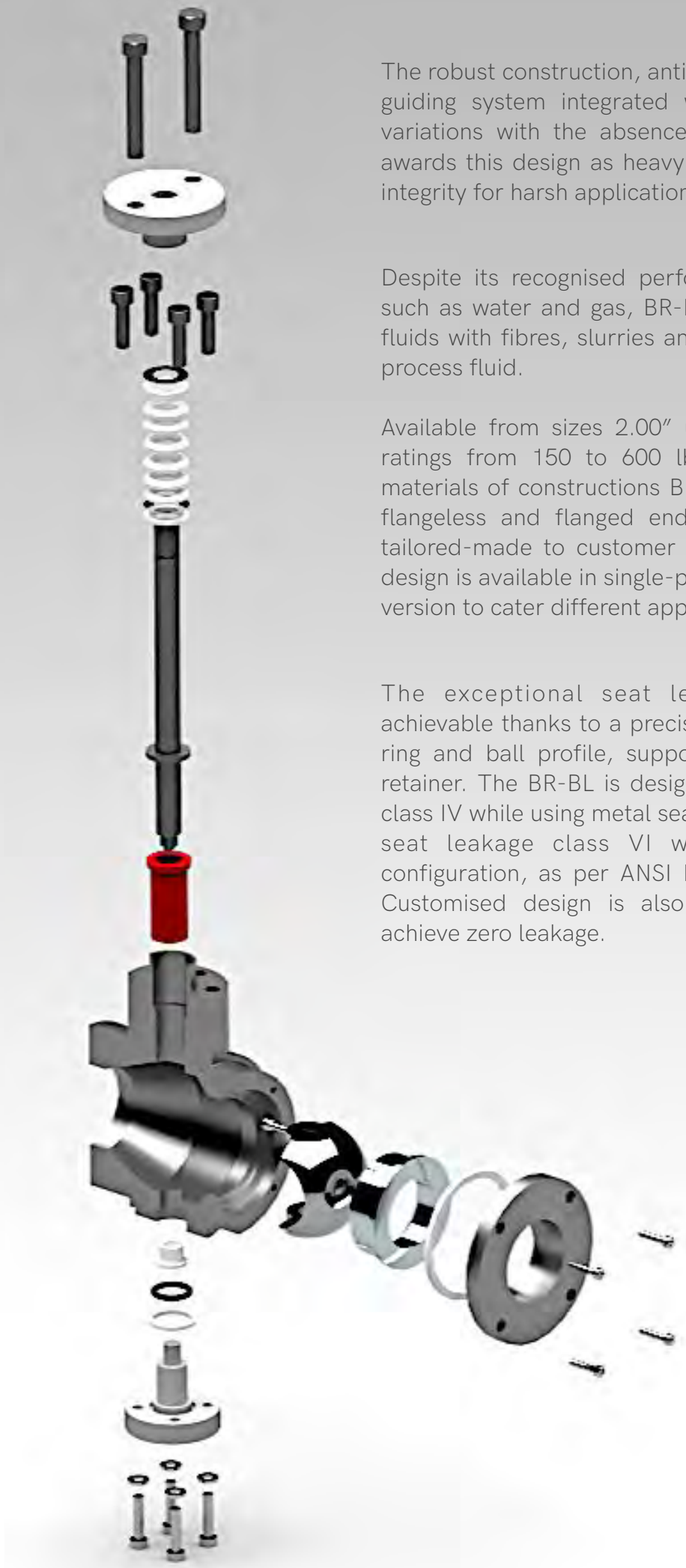


V-SHAPE

Ball with V-shape for controlability at low opening and fully open

SEAT RETAINER

The non-threaded seat retainer assure seat ring is precisely centralising the seat

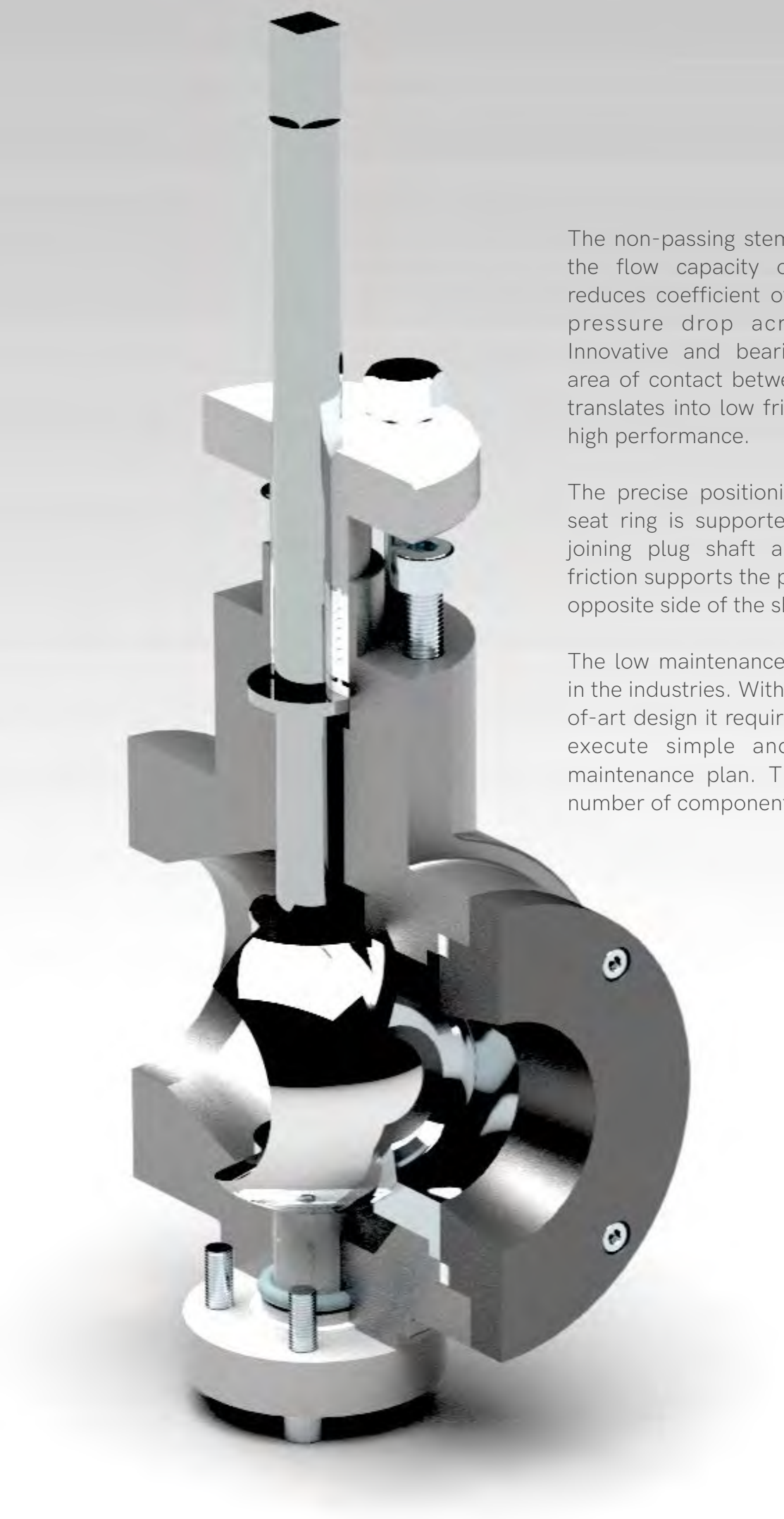


The robust construction, anti blow-out stem feature, guiding system integrated with gland flange and variations with the absence of threaded retainers awards this design as heavy duty with high level of integrity for harsh applications.

Despite its recognised performance in clean fluid such as water and gas, BR-BL is designed to cater fluids with fibres, slurries and other non-newtonian process fluid.

Available from sizes 2.00″ up to 20″.00, pressure ratings from 150 to 600 lbs and wide range of materials of constructions BR-BL can be offered as flangeless and flanged end connection types, or tailored-made to customer preferences. The body design is available in single-piece body or split-body version to cater different applications.

The exceptional seat leakage capability is achievable thanks to a precise mating between seat ring and ball profile, supported by a robust seat retainer. The BR-BL is designed to achieve leakage class IV while using metal seat-ring construction and seat leakage class VI while using soft seat configuration, as per ANSI FCI 70.2/ IEC60534-4. Customised design is also possible in order to achieve zero leakage.



The non-passing stem in the plug ball increases the flow capacity of the control valve and reduces coefficient of resistance (K factor) and pressure drop across the control valve. Innovative and bearing materials and precise area of contact between plug ball and seat ring translates into low friction during operation and high performance.

The precise positioning of the plug ball in the seat ring is supported by the splined coupling joining plug shaft and ball. A trunnion low-friction supports the plug ball as guiding purpose opposite side of the shaft.

The low maintenance cost is highly appreciated in the industries. With its simple yet robust state-of-art design it requires only basic knowledge to execute simple and quicker recommended maintenance plan. This is due to the reduced number of components.

BR-BL

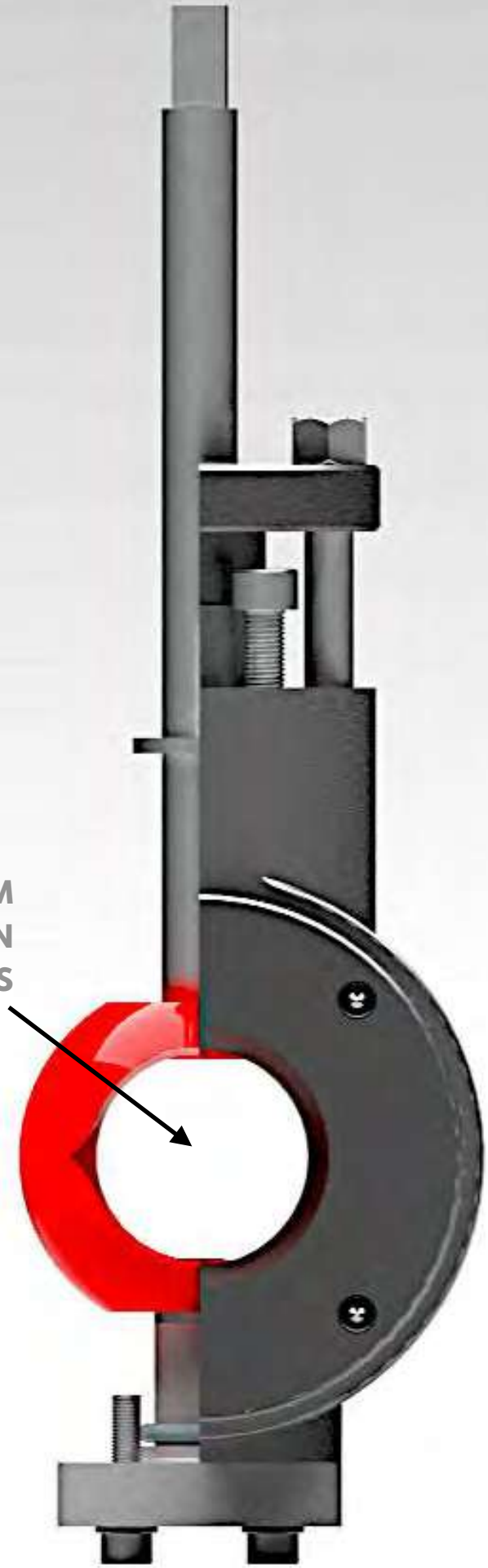
SEGMENTED BALL

Featured with an advanced packing system present in the whole BR series the BR-BL model is also certified for low fugitive emission services according to ISO 15848 and Shell MESC 77/312. As standard when the GreenSeal Supermax packing is offered the BR-BL is certified for low fugitive emission endurance class CC1, up to 200 degC, tightness class BH.

The flow direction is recommended based on the application and process fluid always taking into consideration torque needed to operated the control valve.

The VBG BR-BL is also found in its variance BR-BLX. BR-BLX is the result of intense researches and interactions with our end users at site understanding the weakness of several segmented ball valve in the market and seeking to offer a simple, low maintenance and highly resistance product. The BR-BLX can be offered with anti-cavitation trim and noise attenuation trim.

0% OPEN 50% OPEN 100% OPEN



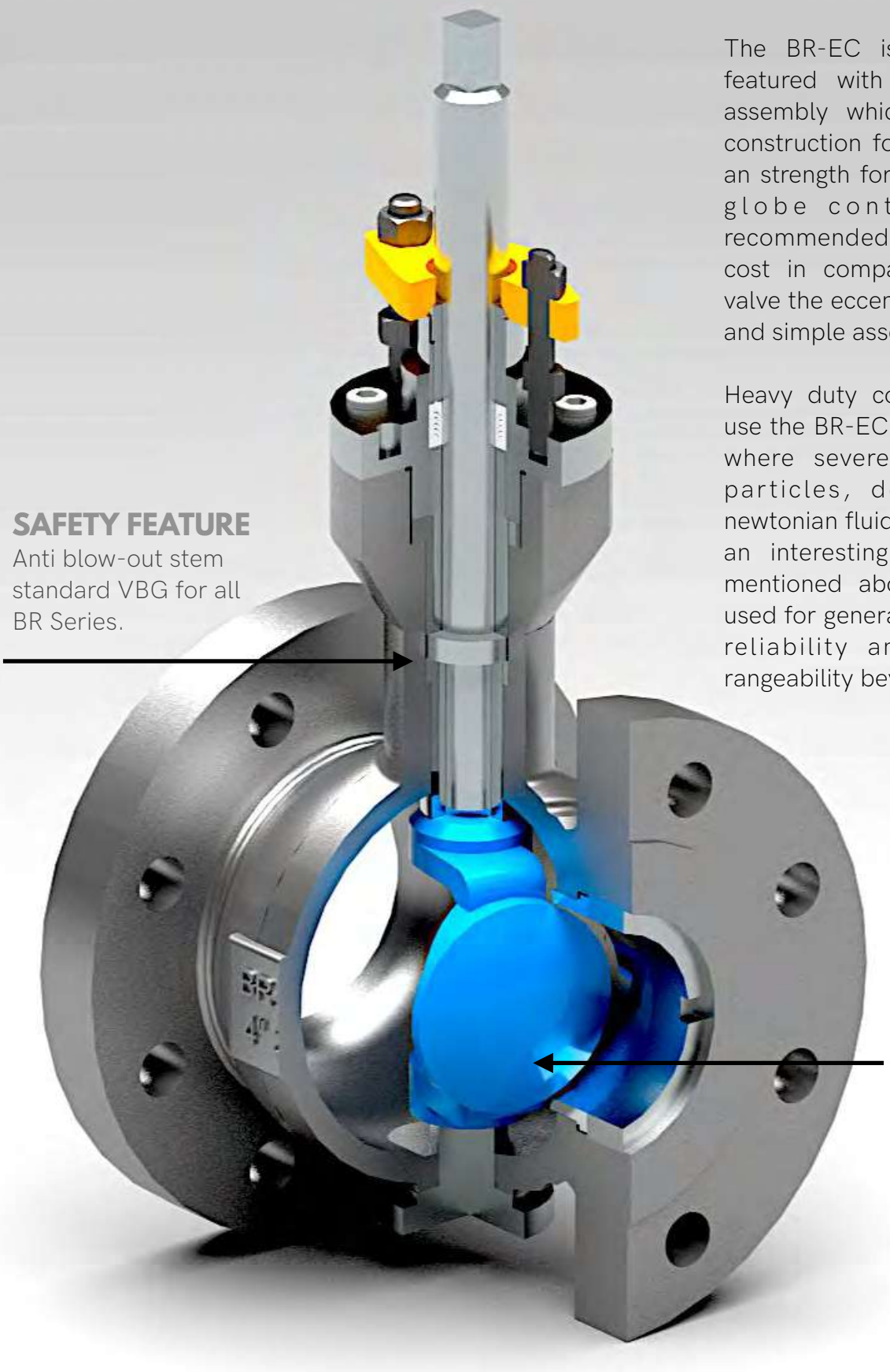
BR-EC

ECCENTRIC PLUG

CONTROL VALVE

BR-EC

ECCENTRIC PLUG



SAFETY FEATURE
Anti blow-out stem standard VBG for all BR Series.

ECCENTRIC PLUG
Non-friction with the seat ring and robust against abrasive fluids.

The BR-EC is a rotary control valve featured with eccentricity in the plug assembly which develop an optimised construction for high flow, controllability an strength for several application where globe control valves are not recommended. Besides a competitive cost in comparison with globe control valve the eccentric plug is also lightweight and simple assembly.

Heavy duty construction encourage the use the BR-EC in most severe application where severe concentration of solid particles, debris and other non-newtonian fluid are encountered. Besides an interesting choice for applications mentioned above the BR-EC is largely used for general applications thanks to its reliability and controllability with rangeability beyond 150:1.

Based on the simple but efficient concept of the eccentric plug design BR-EC is designed to offer large flow capacity, high rangeability, performance and excellent maintenance plan delivery and satisfactory ownership experience.

Available in sizes from 2″ to 26″ in the pressure rating from 150lbs to 600lbs BR-EC is also offered with several flow coefficient options. The BR-EC can also be customised to attend a wide range of application as well including flow capacity.

For those application where solidification of the fluid is expected due to crystallisation at lowering temperature the BR-EC eccentric plug control valve design can be optionally offered with available with jacketed body for steam or hot oil. The plug shaft can be also featured with hot oil or steam connection for heating of the trim to avoid incrustation of the fluid.

The BR-EC is designed according to B16.34 and others main applicable standards for control valves construction.

The valve body ends type can be offered as integral flanges according to IEC-60534-3-1 and ANSI/ ISA-75.08.02. Flangeless and customised ends type are also available optionally.

Offered with an advanced packing system The BR-EC model is also certified for low fugitive emission services according to ISO 15848 - and Shell MESC 77/312. As standard when the GreenSeal Supermax packing is offered the BR-EC is certified for low fugitive emission endurance class CC1 up to 200 degC, tightness class BH.

As a control valve the BR-EC eccentric plug is designed to achieve leakage class according to IEC 60534-4 and ANSI FCI 70.2, being class IV achieved with plug and seat ring manufactured as metallic parts and leakage class VI achieved with plug as metallic parts and seat ring as metallic part and additional in-built soft insert.

NON-CROSSING SHAFT

The absence of shaft crossing the plug increases the flow capacity, avoid clogging and entrapment of solids.

BR-EC

ECCENTRIC PLUG

The BR-EC is designed to withstand temperature range from -150 degC to 400 degC with standard bonnet, while option for temperature above 400 degC is also available with the use of extended bonnet. Consult VBG Intech engineering for temperature limit for extended bonnet.

The robust and heavy duty plug shaft is non-crossover type and is supported by solid or sealed bearings, upon application.

The plug shaft is connected to the plug through an exclusive gearing system design for safety and stable performance. The non-crossover shaft in addition to the optimised design allow flow with almost no obstruction.

The eccentricity feature benefit the seat ring and plug as the wear and as the friction existing in other rotary valve during valve opening or closing is not applicable in the BR-EC. During opening the plug moves from the seating position by distancing from the seat ring and then rotating 90 degrees.

During valve closing the plug rotates from the 90 degrees position and precisely moves almost perpendicular to the seat ring, with shut-off capability optimised one more time thanks to the eccentricity feature.

0% OPEN

50% OPEN

100% OPEN

BR-EC

ECCENTRIC PLUG

The versatile design of BR-EC also allows excellent performance with other type of actuators as well.

The robustness of the BR-EC is also in great part attributed to the oversized multi-bearing adopted in the design that supports the valve shaft is large pressure drops.

The additional of the optional seat Venturi type maximise the versatile of the BR-EC for harsh services such those commonly found in mining application for example.

The BR-EC eccentric plug control valves can be used in different application such as oil & gas, mining, pulp & paper, chemical and petrochemical.

BR-B2

BUTTERFLY VALVE

CONTROL VALVE

BR-B2

BUTTERFLY VALVE

The BR-B2 is a state-of-art bi-eccentric high performance butterfly valve designed to cater several industrial application where high flow is required.

The recognised advantages of double-eccentric on the shaft increases the performance of BR-B2 during throttling in comparison with conventional concentric butterfly valve. This is also an economical solution for special materials and relative precision of control for larger pipelines.

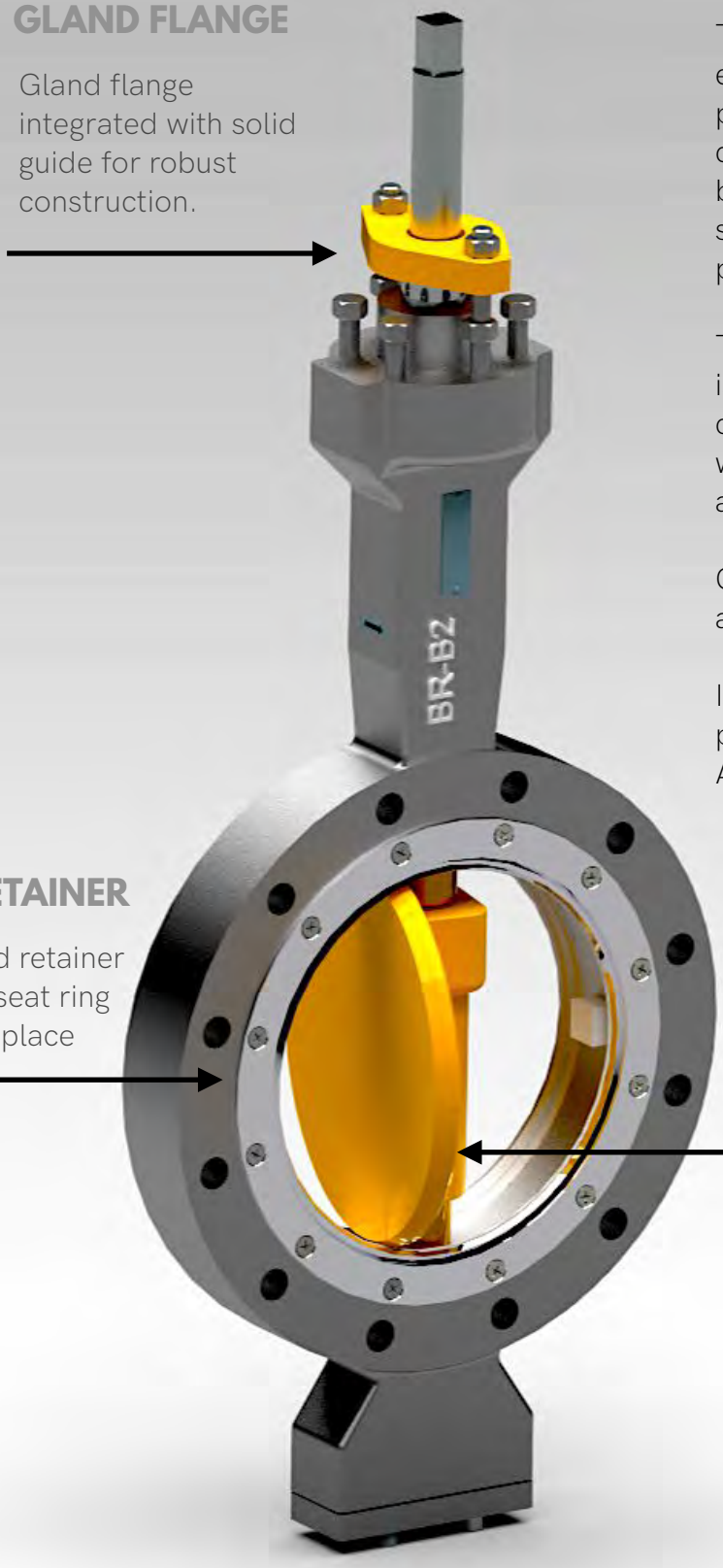
The BR-B2 high performance butterfly valve is available from 2 to 48 inches, pressure classes 150 lbs to 600. Besides ends type wafer, flanged and lug connection are available as standard.

Customized ends type and face-to-face are also available upon request.

It follows the applicable standard for high-performance butterfly valves including API609 and ASME B16.34.

GLAND FLANGE

Gland flange integrated with solid guide for robust construction.

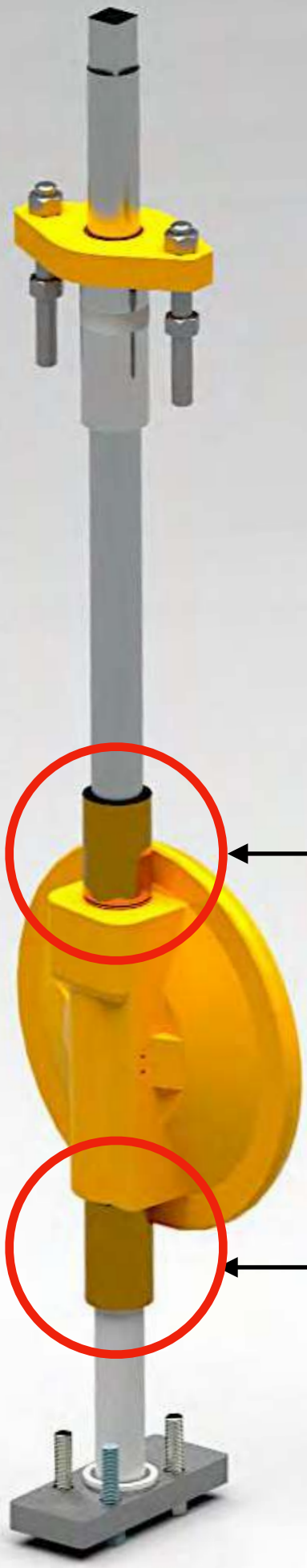


SEAT RETAINER

Reinforced retainer supports seat ring always in-place

BI-ECCENTRIC

Disc with dual centers enhance sealing capability and smooth control

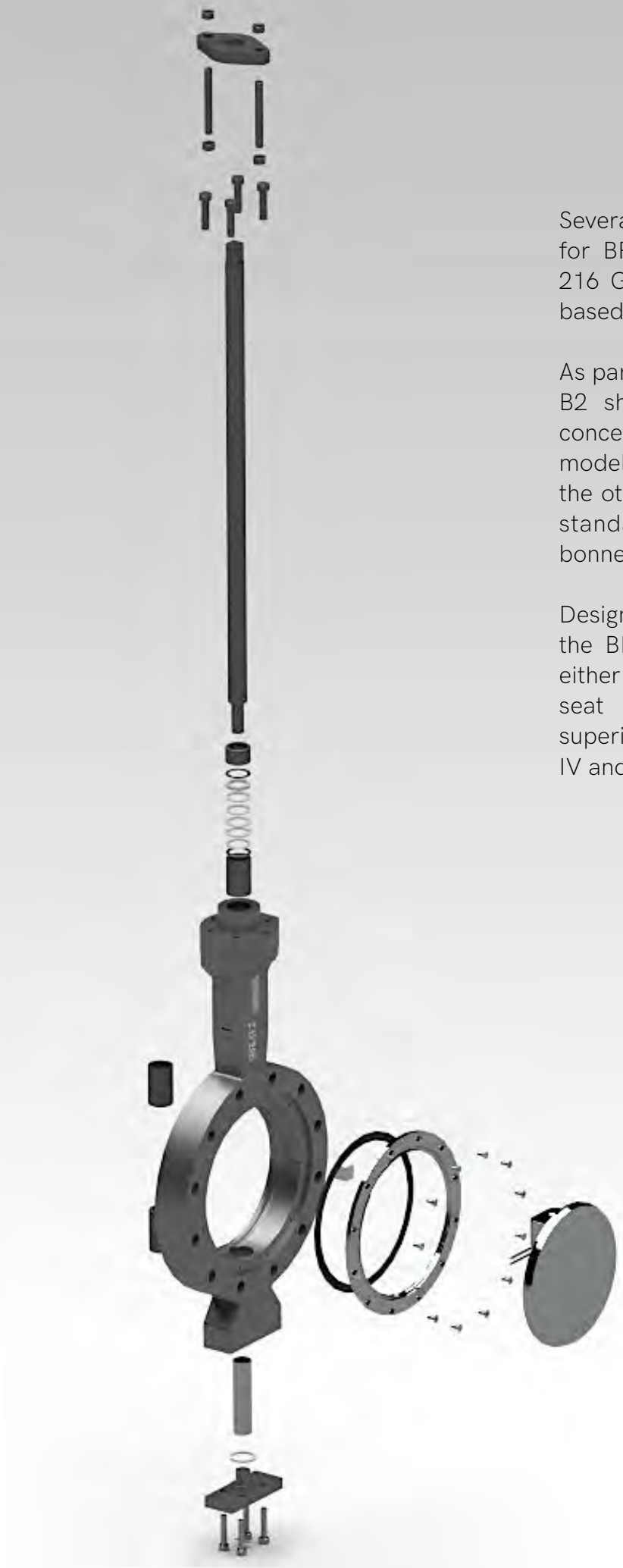


For general application to the most harsh this compact control valve is also lightweight and reliable enough to be used. Despite primarily designed for water and gaseous application the BR-B2 can be customized in other cater specific requirements such those needing of having steam jacket to avoid fluid solidification or long bodies with internal cladding to attend mining industries.

In services where high noise is expected the BR-BL may be paired with VBG SonicDark plate device for noise attenuation.
The BR-B2 is designed following the VBG Intech latest technologies for fugitive emission. The construction attend ISO 15848-1 as standards and specifically complies with Tightening class B, CC1. The packing reliable packing system is composes by PTFE or GreenSeal Supermax.

REINFORCE BEARINGS

Robust and simple the bearings have their strength improved



Several material of construction are available for BR-B2 and it ranges from Carbon Steel 216 Gr WCB to exotic Alloys such as Nickel based.

As part of VBG BR Series, the rotary type, BR-B2 shares several components and design concepts of the BR-BL (segmented ball valve) model and BR-EC (eccentric-plug) model. As the other models it can be manufactured with standard bonnet, extended or cryogenic bonnet for those specification.

Designed for control and on-off application the BR-B2 offers excellent sealing capability either with seat metal configuration or soft seat configuration, achieving seat leakage superior to IEC 60534-4/ ANSI/FCI 70.2 class IV and VI.

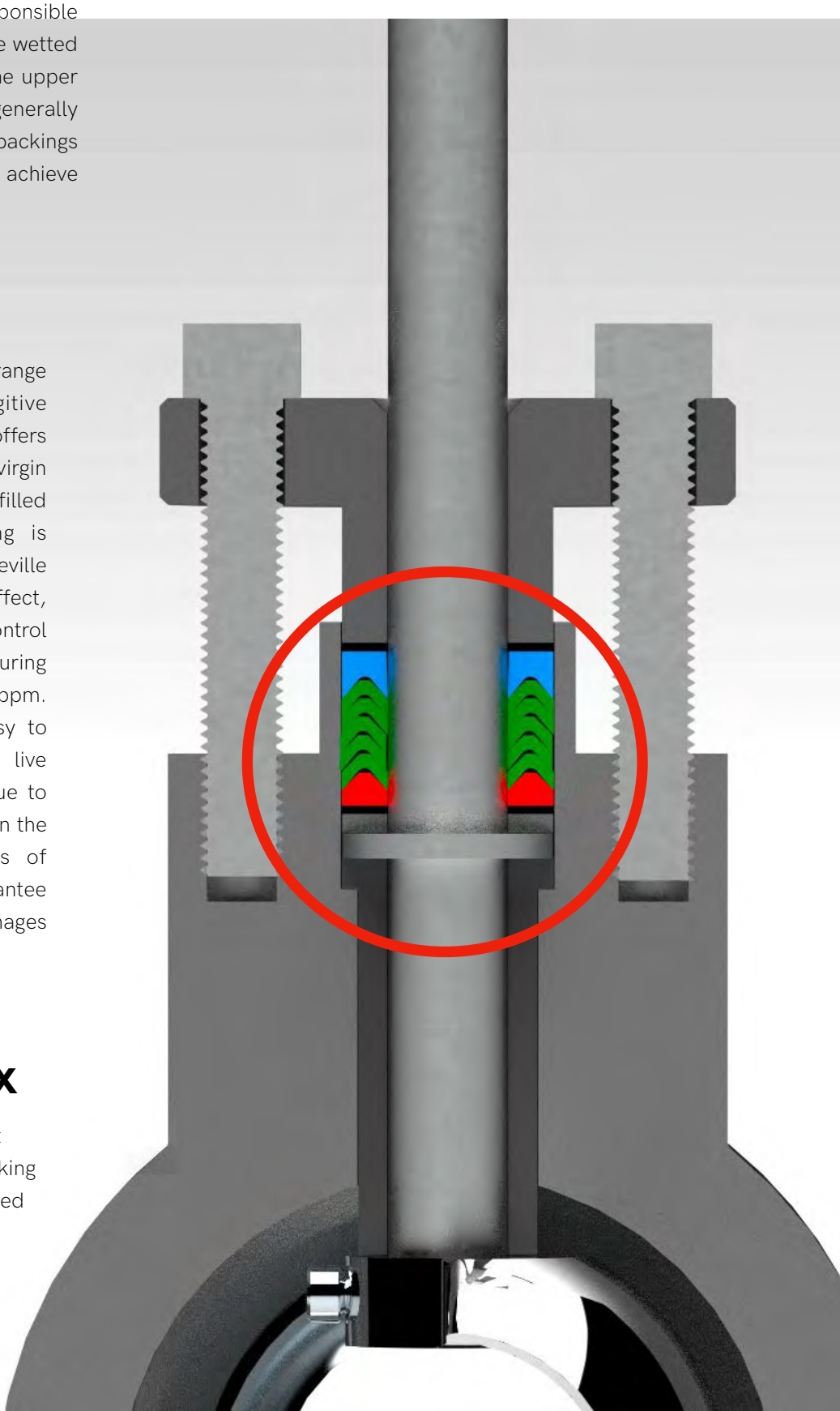
Packing System

APPLICATION

The BR Series valve packing box is deep and has an excellent surface finish, allowing the use of all packing options offered by VBG. The spacing between the lower wiper packing set and the upper packing set, which is effectively responsible for stem sealing, is designed to restrict the wetted portion of the plug stem from reaching the upper packing set. Despite control are not generally certified for Fire Safe services special packings are some of the arrangements possible to achieve such service.

BLUESEAL PACKING

The VBG Intech recommends BlueSeal range of packing is not designed for Fugitive Emissions control, for that VBG Intech offers the GreenSeal Packing. Composed of virgin PTFE V-rings combined with carbon-filled PTFE V-rings, the Blue Seal packing is optionally compressed by means of Belleville washer set that creates a "live load" effect, and is available for the majority of control valves manufactured by VBG Intech, ensuring that emissions levels are lower than 500 ppm. With a simple configuration that is easy to replace, the Blue Seal packing when live loaded does not require retightening, due to the pressure and temperature variations in the process. Optionally, fire-safe versions of Green packing are available, which guarantee no leaks through the stem, even with damages caused to V-rings by excessive heat.



GREEN SEAL & SUPERMAX

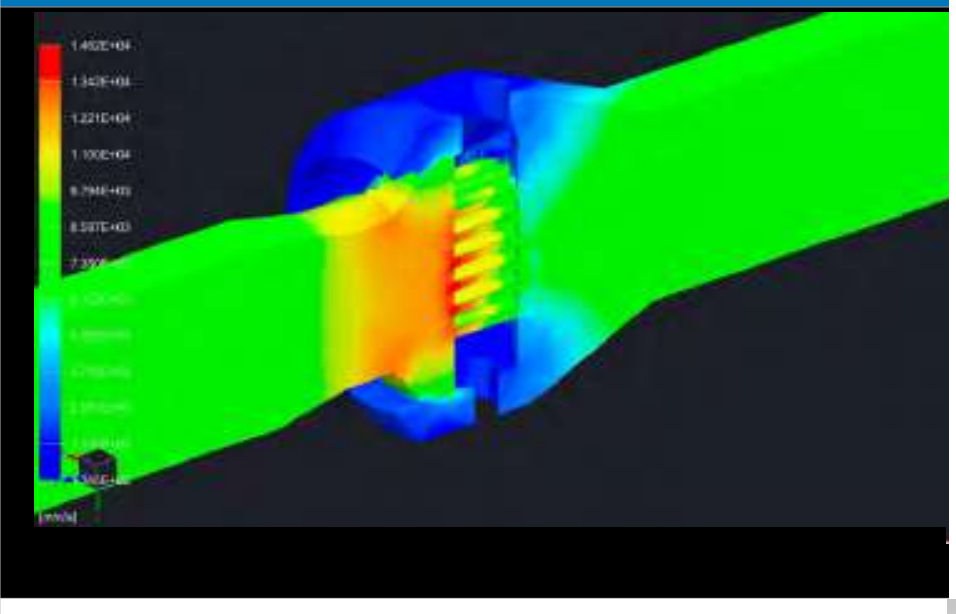
The VBG Intech's GreenSeal & SuperMax Packing are fugitive emission control packing that ensure emissions levels are maintained lower than 500 ppm.

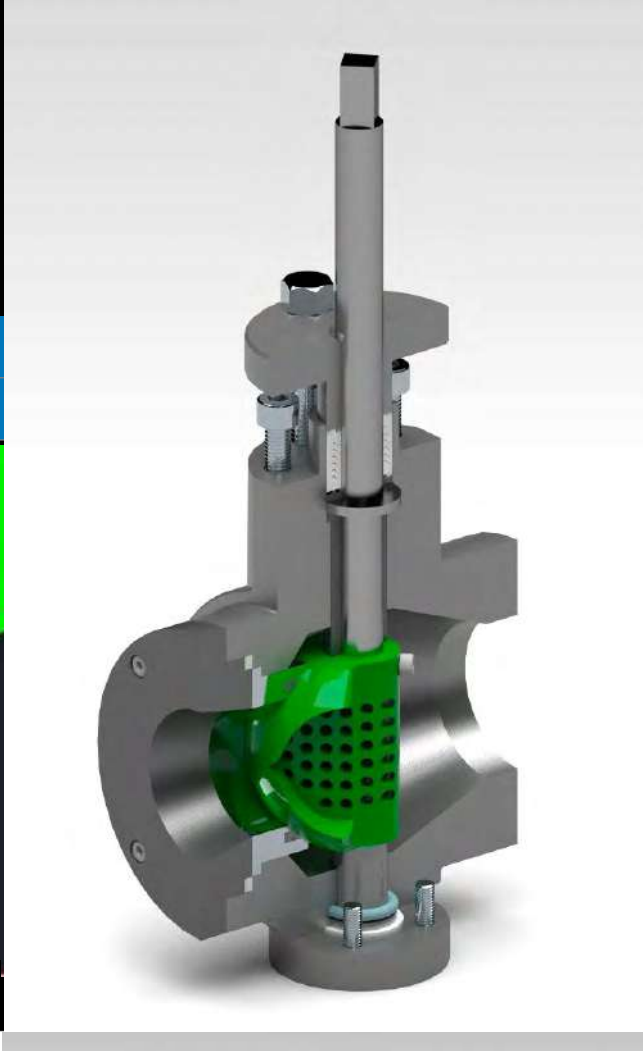
Severe Service

SPECIAL TRIM

VShock - Anti-Cavitation

Available Sizes - From 2.00” to 20.00”, Rating 150# to 600#

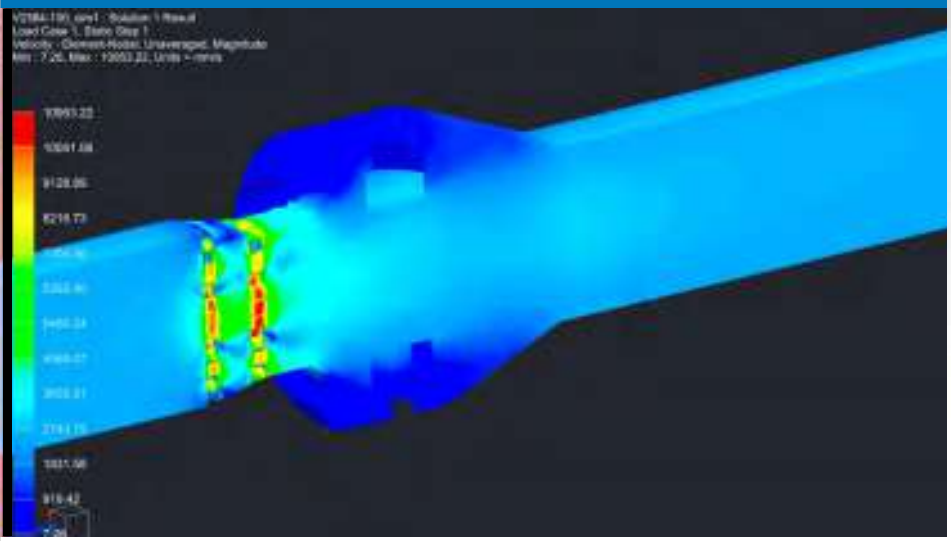




Designed to moderate cavitation the VShock is special anti-cavitation trim to be used paired with the BR-BL. The V-Shape trim have now multi-stage pressure reduction feature for application where cavitation is expected and the process fluid is relatively clean without fibres and relevant solid particles. As the segmented ball turns the in-but orifices increases the pressure reduction across. The flow configuration for the Shock is shaft down.

SonicV- Anti-Noise

Available Sizes - From 2.00” to 20.00”, Rating 150# to 600#



The versatile BR-BL design and its recognised capability for control applications encourage its use in clean service with gaseous fluid in several applications. For those application where high noise is expected anti-noise SonicV trim is the recommended choice. The multi-stage pressure reduction trim is in-built in the seat retainer and can be easily installed to upgrade a standard BR-BL. Flow capacity differs from standard trim.

Selection

DATA

BODY MATERIAL		
MATERIAL	TEMPERATURE LIMITS	
	°F	°C
Carbon Steel ASTM A216 Gr WCB/WCC	-20 / 1000	-28 / 537
Carbon Steel ASTM A352 Gr LCB/LCC	-50 / 650	-45 / 343
Chrome-Moly ASTM 217 Gr WC6	-20 / 1000	-28 / 537
Chrome-Moly ASTM 217 Gr WC9	-20 / 1050	-28 / 565
Stainless Steel ASTM A351 Gr CF8M	-425 / 1500	-253 / 815
Duplex ASTM A995 Gr 4A	-425 / 1500	-253 / 815
Super Duplex ASTM A995 Gr 5A/6A	-425 / 1500	-253 / 815
Monel ASTM A494 M35-1	-325 / 900	-198 / 482
Inconel 635, ASTM A494 CW6MC	-325 / 1200	-198 / 482
Bronze B148-C95800	-325 / 550	-198 / 482
Nickel	-325 / 500	-198 / 482
Alloy 20	-50 / 300	-45 / 148
Hastelloy C	-325 / 1000	-198 / 482

BODY CONFIGURATION		
TYPE	SIZES	PRESSURE CLASS
BR-BL - Segmented Ball Valve	1in to 20in	150# to 600#
BR-BL - Segmented Ball Valve + VShock Trim	1in to 20in	150# to 600#
BR-BL - Segmented Ball Valve + SonicV Trim	1in to 20in	150# to 600#
BR-EC - Eccentric Plug Valve	1in to 20in	150# to 600#
BR-B2 - Bi-Eccentric Butterfly Valve	1in to 48in	150# to 600#

APPLICABLE LEAKAGE CLASSES FOR CONTROL VALVES	
LEAKAGE CLASS	ALLOWABLE LEAKAGE
Class I	As agree between manufacturer and customer.
Class II	Maximum 0.5% of the rated flow capacity of the valve
Class III	Maximum 0.1% of the rated flow capacity of the valve
Class IV	Maximum 0.01% of the rated flow capacity of the valve
Class V	Maximum 10.8 x 10-6 x (seat diameter in mm) Nm3/hr
Class VI	As per IEC 60534-4, Table 3

TRIM MATERIAL CHARACTERISTIC							
TRIM MATERIALS	HARDNESS (RC)	MAXIMUM RECOMMENDED TEMPERATURE		IMPACT STRENGTH	CORROSION RESISTANCE	EROSION RESISTANCE	ABRASION RESISTANCE
		°F	°C				
316 Stainless Steel	8	600	316	Excellent	Excellent	Fair	Fair
Alloy 6	44	1500	815	Excellent	Excellent	Good	Good
416/ 420 SS Heat Treated	40	800	426	Good	Fair	Good	Good
17-4 PH (H900)	44	800	426	Good	Good to excellent	Good	Good
440C Stainless Steel	55 - 60	800	426	Fair	Fair	Excellent	Excellent
Monel K-500	32	600	316	Good	Good to excellent	Fair to Good	Good
Tungsten	72	1200	650	Fair	Good on bases, poor on acids	Excellent	Excellent
Colmonoy 5	45 - 50	1200	650	Good	Fair	Good	Good

FLOW CHARACTERISTIC	
TYPES	RECOMMENDED CONTROLLABILITY OPENING
Equal Percentage	Minimum 10%/ Maximum 85%
Linear	Minimum 10%/ Maximum 90%
Quick-Opening	Maximum opening (not recommended for control)
Modified Linear	Customized
Modified Equal Percentage	Customized
Customized	Customized

PAINTING			
PAINTING TYPE	BODY COLOR	ACTUATOR COLOR	Thickness for body only
Standard (from -29°C to 120°C)	White RAL9010	Yellow Sun RAL1037	Minimum 200 µm
Offshore (from -29°C to 120°C)	White RAL9010	Yellow Sun RAL1037	Minimum 280 µm
Onshore/ Offshore (from 120°C to 120°C)	Gray	Yellow Sun RAL1037	150 µm
Onshore/ Offshore 200 to 450)	Aluminum RAL9006	Yellow Sun RAL1037	125 µm

HYDROSTATIC PRESSURE
ANSI B16.34/ IEC 60534-4
API 598

FLOW COEFFICIENT (Cv)
Consult VBG Intech Cv Library.

Selection

FLOW CAPACITY - BR-BL	
VALVE SIZE	Cv @90 DEGRESS OPEN (100% OPEN)
	SHAFT DOWN
1.00”	25
1.50”	48
2.00”	104
3.00”	272
4.00”	448
6.00”	848
8.00”	1342
10.00”	2670
12.00”	4108
14.00”	5800
16.00”	7160
20.00”	Consult VBG

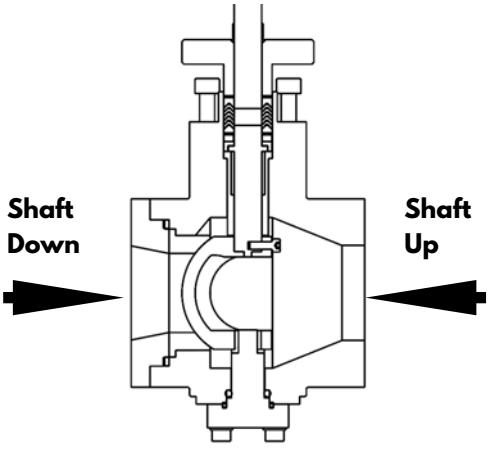
FLOW CAPACITY - BR-EC	
VALVE SIZE	Cv @90 DEGRESS OPEN (100% OPEN)
	SHAFT DOWN
1.00”	19
1.50”	46
2.00”	82
3.00”	247
4.00”	406
6.00”	948
8.00”	1702
10.00”	2440
12.00”	3510
14.00”	Consult VBG
16.00”	Consult VBG
20.00”	Consult VBG

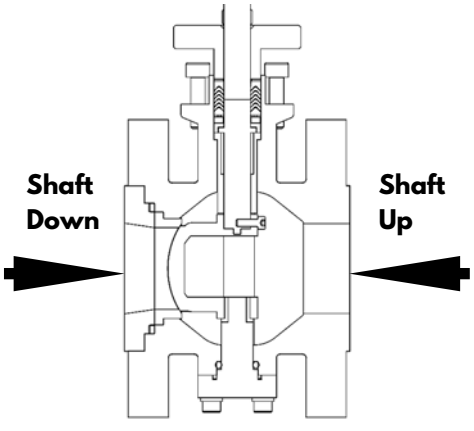
FLOW CAPACITY - BR-B2	
VALVE SIZE	Cv @90 DEGRESS OPEN (100% OPEN)
	SHAFT DOWN
1.00”	Not applicable
1.50”	Not applicable
2.00”	51
3.00”	272
4.00”	123
6.00”	975
8.00”	1580
10.00”	2341
12.00”	3890
14.00”	4820
16.00”	7102
20.00”	9000

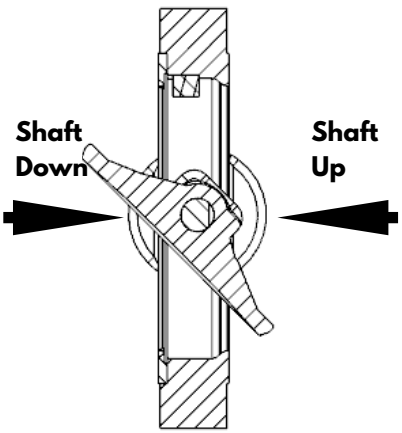
FLOW CAPACITY - BR-BL	
VALVE SIZE	Cv @90 DEGRESS OPEN (100% OPEN)
	SHAFT UP
1.00”	26
1.50”	49
2.00”	106
3.00”	273
4.00”	450
6.00”	850
8.00”	1345
10.00”	2672
12.00”	4125
14.00”	5830
16.00”	7205
20.00”	Consult VBG

FLOW CAPACITY - BR-EC	
VALVE SIZE	Cv @90 DEGRESS OPEN (100% OPEN)
	SHAFT UP
1.00”	21
1.50”	48
2.00”	77
3.00”	210
4.00”	300
6.00”	711
8.00”	1120
10.00”	1738
12.00”	2193
14.00”	Consult VBG
16.00”	Consult VBG
20.00”	Consult VBG

FLOW CAPACITY - BR-B2	
VALVE SIZE	Cv @90 DEGRESS OPEN (100% OPEN)
	SHAFT UP
1.00”	Not applicable
1.50”	Not applicable
2.00”	54
3.00”	135
4.00”	350
6.00”	890
8.00”	1650
10.00”	2790
12.00”	4010
14.00”	5200
16.00”	7305
20.00”	9220







Quality

ASSURED

VBG Intech has a complete test facility able to attend to even the most demanding customers.

Dye Penetrant
UTG
PMI (w/ Carbon)
Shell Hydrotest
Assembled Hydrotest
Seat Leak Test
Positioner Step Response
Functional Test
Actuator Leak Test

Actuator Stroke Time
Packing Leak Test
Fugitive Emission
Cryogenic Test

Raw Material Inspection

Dimension Inspection

Open & Close Time

And others...

Lloyd's Register

Current issue date: 27 April 2021
Expiry date: 3 February 2024
Certificate identity number: 10033950

Original approval(s)
ISO 14001 - 3 February 2015
ISO 9001 - 3 February 2015
ISO 45001 - 27 April 2018

Certificate of Approval

This is to certify that the Management System of:

VBG Intech Valves Manufacturing L.L.C.

Binghalib Building 24th B Street, Bin Ghalib Compound Al Qusais Industrial Area, Dubai, United Arab Emirates

has been approved by Lloyd's Register to the following standards:

ISO 14001:2015, ISO 9001:2015, ISO 45001:2018

Approval number(s): ISO 14001 – 0046195, ISO 9001 – 0046196, ISO 45001 – 0046197

The scope of this approval is applicable to:

Design ,Development, Manufacturing and Testing of Control Valves

Luis Cunha
Area Operations Manager - SAMEA
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