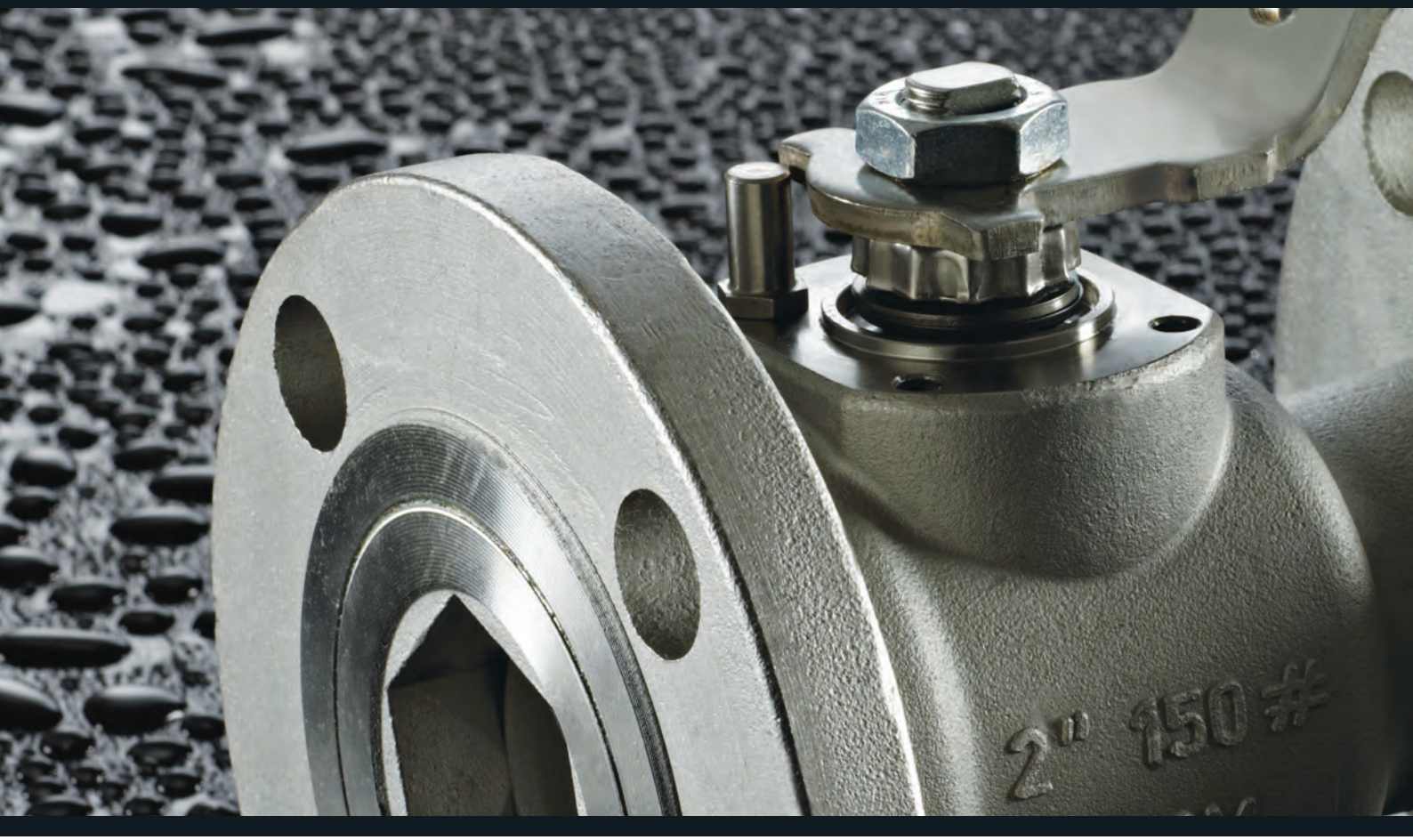
Valves with a leading edge

VAAS

31/32 SERIES



31/32 SERIES (ANSI CLASS 150 & 300)
FLANGED STANDARD BORE BALL VALVE
FOR INDUSTRIAL AND PROCESS APPLICATIONS

DESIGNED BY MASTERS ALLEN

VAAS INTERNATIONAL

A WORLD OF EXPERIENCE

VAAS International is one of the World's premier suppliers of valves and related products within the chemical, pharmaceutical, water, food and power generation industries.

Our extensive product range encompasses the latest technology in valve, actuation and control.

IN THE BEGINNING

VAAS International was established in 1984, by an esteemed valve technocrat with a vision of becoming one of the World's leading 'complete supply' valve manufacturers.

The vision was quickly realised via the immediate installation of a purpose-built high-technology manufacturing facility, with VAAS supplying engineered valve solutions to market leaders in critical industries, such as rocket testing, nuclear power generation and pharmaceutical research & development.

TODAY

As an ISO 9001 accredited company, furnished with high-technology design and manufacturing facilities, VAAS have succeeded in supplying cost-effective and innovative engineered solutions throughout the World.

With local offices in Europe, USA, Australasia and the Far East, VAAS have installed a support base that can efficiently accommodate all of your requirements in a friendly and informative manner.

VAAS HEAD OFFICE

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VAAS PACIFIC

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31/32 SERIES

OVERVIEW

The 31/32 Series by VAAS is for the user who requires high flow capacity and tight shutoff under demanding process conditions, who demands high reliability and flexibility, and who must adhere to the tough standards and requirements that must be met within their Industry.

STANDARDS OF COMPLIANCE	
Flanges:	ANSI B16.5 raised face BS 1560 Class 150,300
Face-to-face:	ANSI B16.10 short pattern
Anti-static:	BS 5351
Design:	LR rype app. BS 5351 & API 6D ANSI B16.34, BS 5159
Pressure testing:	API 598 ISO 5208, BS EN 12266 Pt. 1 & 2
Fire testing:	API 607 4th Edt. API 6FA BS 6755 Pt. 2
Quality Assurance:	ISO 9001-2008
Certification:	PED 97/23/EC ISO - 10474 DIN EN 10204 3.1.B ATEX directive 94/9/EC

The 31/32 Series with rigid one-piece body construction is designed in compliance with ANSI B16.5 and BS 1560.

The top mounting flange conforms to ISO 5211, incorporating a raised location ring to ensure accurate fitment of actuators, limit switches, or VAAS ancillaries such as spring-return handles, fugitive emission bonnets and extended handles. Pressure-containing components are stamped with heat numbers, which enable full material and process test traceability from foundry to assembly.

SPECIALIST APPLICATIONS

The 31/32 Series is supplied with the High Performance trim as standard. When specialist applications are required, alternative materials of construction are available with colour-coded handle sleeves for simple valve specification and service duty identification. If you require an alternative colour to those indicated below, VAAS are able to source and supply accordingly.

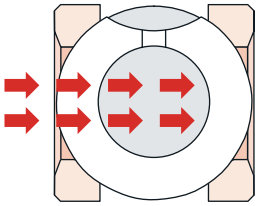
HIGH PERFORMANCE SERVICE	VAAS
THERMAL SERVICE	VAAS
CRYOGENIC SERVICE	VAAS
WATER TREATMENT SERVICE	VAAS
CHLORINE SERVICE	VAAS
UTILITY SERVICE	VAAS
SPECIALIST (COLOUR TO CLIENT SPEC)	VAAS

31/32 SERIES
FEATURES

The 31/32 Series is an extremely versatile valve that boasts a variety of safety and design features that enables it to be used in a wide range of applications.

FLOATING BALL

The VAAS 'floating ball' provides superior ball-seat shutoff, whilst offering reduced seat wear and decreased torque figures. Under pressure, the closed ball is pushed into the downstream seat, thereby creating a bubble-tight shutoff. Meanwhile, the upstream seat utilises line pressure to float towards the ball and away from the body, thereby equalising cavity pressure with upstream pressure via equalising slots at the perimeter of the seat. Operating torque is reduced by the ball sealing against one seat at a time, and also due to the lack of stem side-loading. Seat wear is reduced thanks to the seat only being fully loaded upon complete closure of the valve.



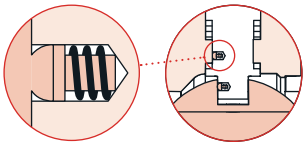
FLOATING BALL
DOWNSTREAM SEAL

ADDITIONAL DESIGNS

For increased flow control, VAAS offer a range of profiled ball orifices that can be sized specifically to the users given parameters. The range of V-orifice balls offer linear or exponential flow control rates, whilst the L-port configurations offer side-entry or bottom-entry directional control. Other options include P250 pressure relief holes and surface-treatments such as Hard-Chrome plating and Nickel Nitriding.

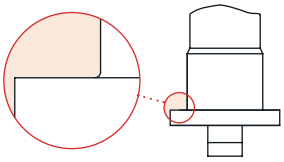
ANTI-STATIC DEVICE

Continual electrical contact between all metallic components, as per BS 5351, is present within all VAAS 31/32 Series valves. This is achieved by means of an energised insert within the stem assembly, which is in constant contact with the valve body stem cavity. For valves above 2" bore, a similar arrangement is adopted between the valve stem and floating ball.

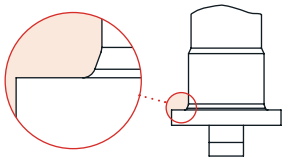


STEM ASSEMBLIES

All VAAS ball valves are fitted with blowout-proof stem assemblies. All stems are live-loaded through Bellville spring washers, thereby compensating for temperature & pressure fluctuations as well as thrust washer wear. The stem retaining nut is encapsulated within a castellated washer, in order to eliminate unwanted nut movement through rotational operation of the valve assembly.



STANDARD STEM



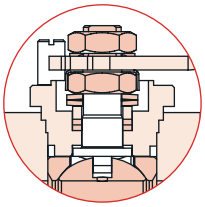
FIRESAFE STEM

Standard (½"-2 ½")
Body-stem seal achieved through a single thrust washer, with stem-centering achieved through stem packing rings, followed by a stainless steel centering gland. All components held in place by stem nut fitted with anti-loose washer, with rigid operating handle retained by additional stem nut.

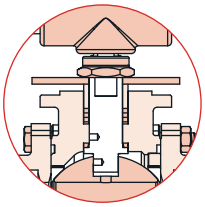
Standard (3"-6")
As above, except operating handle replaced by top-loaded stem boss, through which a pipe wrench is inserted.

O-Ring Assembly
O-ring seals are fitted instead of standard stem glands, when valves are handling searching gas, high-vacuum processes, or 'special' media such as ammonia. The O-ring design is based on a radial-seal principal, and is secured in position by a bearing with stainless steel location washer.

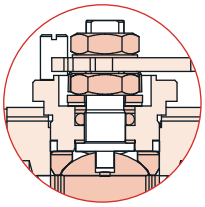
High-Cycle
High-Cycle applications which involve unusually high operation rates require higher stem assembly specifications. VAAS are able to offer all ball valves with surface-treated special-alloy stems and high-wear stem thrust seals. The assembly may also be complemented with the O-ring gland arrangement mentioned above.



STANDARD



O-RING ASSEMBLY



HIGH-CYCLE

31/32 SERIES

SEAT VARIATIONS

TYPES AND MATERIALS

Maintaining bubble-tight shut off throughout the valve's operating range, whilst offering reductions in both seat wear and torque figures, is achieved by offering a seat design with external pressure equalising slots in the perimeter.

The flexible seat works in conjunction with the floating ball principal to ensure that whilst downstream sealing friction is increased with line pressure, upstream friction is considerably reduced.

Pressure equalising slots allow the ball cavity pressure to be equalised with the upstream line pressure, further reducing the loads exerted upon the upstream seat.

Where reduced dead volume is required, VAAS offer a cavity-filler design that encapsulates the floating ball.

Abrasive and/or corrosive media often restricts the use of soft-seat ball valves. VAAS have engineered a revolutionary metal seat design, which is provided with a specially matched floating ball to offer both long service life and high shut-off.

T **PTFE** WHITE

When a process demands a seat with high durability, low coefficient of friction, excellent thermal resistance and fantastic chemical inertness, PTFE is the material of choice. Highly recommended for water, foodstuff or corrosive chemical duty.

A **TFM™ (MODIFIED PTFE)** WHITE + BROWN STRIPE

TFM™, as a chemically modified PTFE, retains all of the favourable features of PTFE, whilst offering reduced creep under high-load / low-cycle applications.

J **R** **GLASS FILLED PTFE** J: WHITE + BLUE STRIPE / R: WHITE + RED STRIPE

Glass-Filled PTFE retains the chemical inertness of PTFE, with extensions to both working pressure and temperature ranges. High compression resistance under high loads makes Glass-filled PTFE a good option for low cycle applications, as well as Steam duty.

Available with 15% and 25% Glass Fibre content.

P **CARBON FILLED PTFE (NRG)** CHARCOAL + WHITE STRIPE

Carbon-Filled PTFE seats are suitable for elevated temperatures, have a low coefficient of friction and can be used for many corrosive applications. The availability of two different profiles enable NRG to be used in both High-Temperature and Cryogenic applications.

H **GLASS & METAL OXIDE FILLED PTFE** BLUE

Glass & Metal Oxide-filled PTFE offers extended Pressure & Temperature ranges over Glass-Filled PTFE. Not recommended for use on Foodstuff duty.

U **UHMWPE (ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE)** WHITE + GREEN STRIPE

UHMWPE offers high radio-active resistance, and is commonly used in the tobacco Industry and H_2S0_4 applications. UHMWPE also possesses good abrasion resistance.

K **CARBON FILLED PEEK®** BLACK + YELLOW STRIPE

PEEK® (Polyetheretherketone) is a semi-crystalline thermoplastic with high tensile strength, excellent shear strength, and high creep resistance. Other benefits are outstanding fatigue and chemical resistance with no susceptibility to hydrolysis (Steam/Hot water).

L **VIRGIN PEEK®** BEIGE

Virgin PEEK® has similar physical characteristics as filled PEEK®, without the inclusion of fillers. It offers higher radiation resistance than filled PEEK®, and can be applied to food, tobacco and pharmaceutical applications.

S **VESPEL®** BROWN

Vespel® is a polymide with high temperature capabilities under load, and is often used in heat transfer, hot gas and oil applications.

Not to be used with media containing H_2O.

C **PCTFE (KEL-F®)** TRANSPARENT WHITE

PCTFE (commonly referred to as Kel-F®: Chlorotrifloro Ethylene) is used extensively in cryogenic applications where valves are exposed to temperatures between -196˚C and 121˚C. Gas production, transportation and storage applications often favour PCTFE over other materials.

Y **DELRIN® (ACETAL RESIN)** CREAMY WHITE + BLACK STRIPE

Delrin® is preferred for high pressure applications that demand excellent resistance to wear and deformation. Often used in the petroleum industry, its maximum temperature is limited to 80˚C under full load.

Delrin® must not be used if there is OXYGEN present.

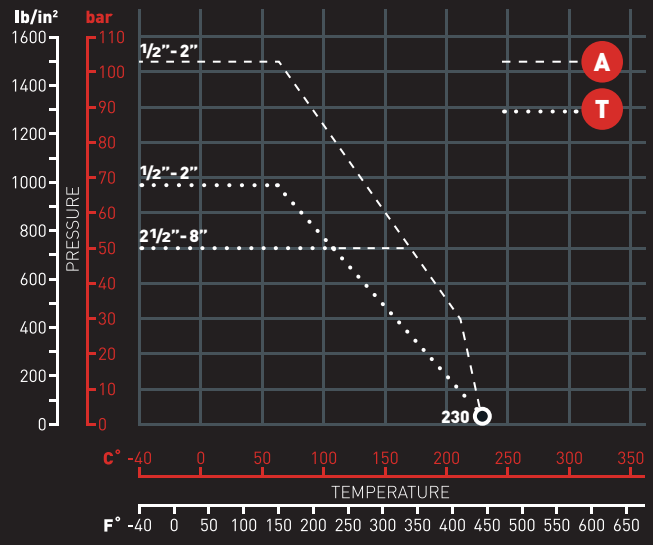
31/32 SERIES

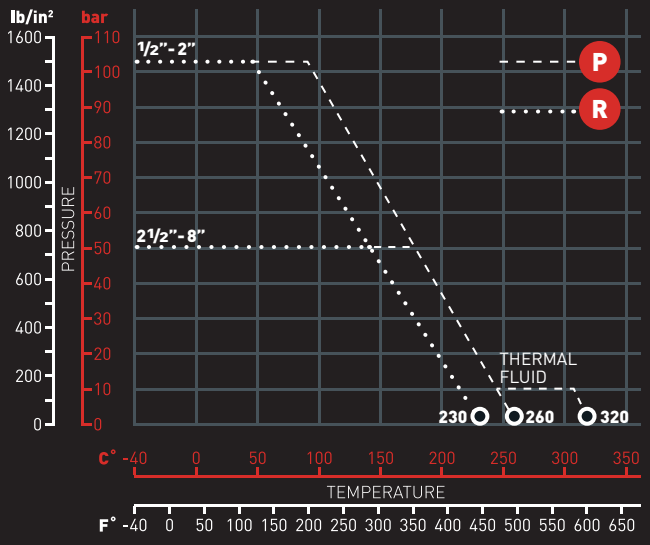
SEAT PRESSURE & TEMPERATURE RATINGS

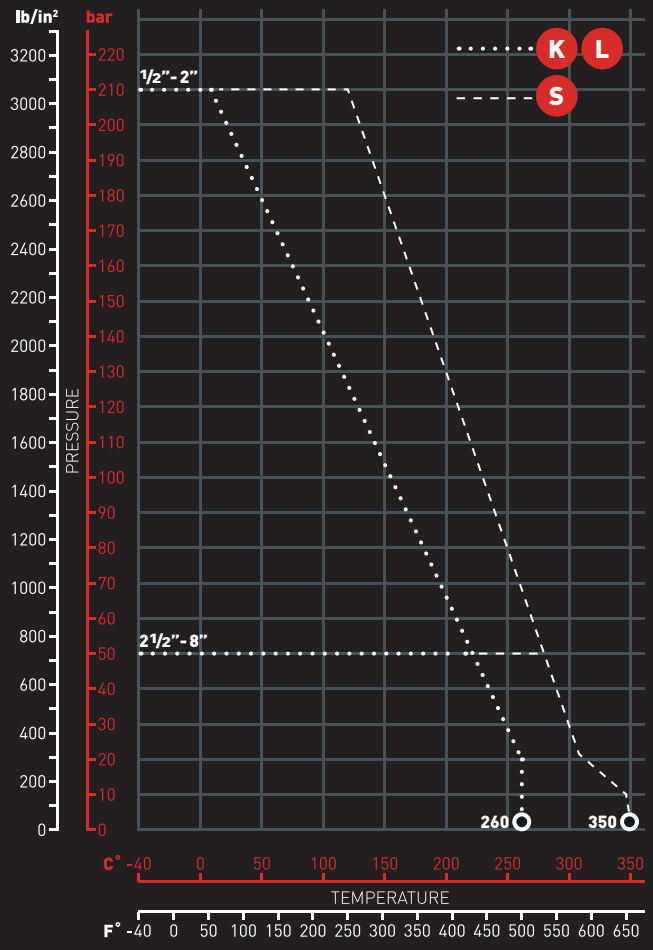
MATERIAL RATINGS

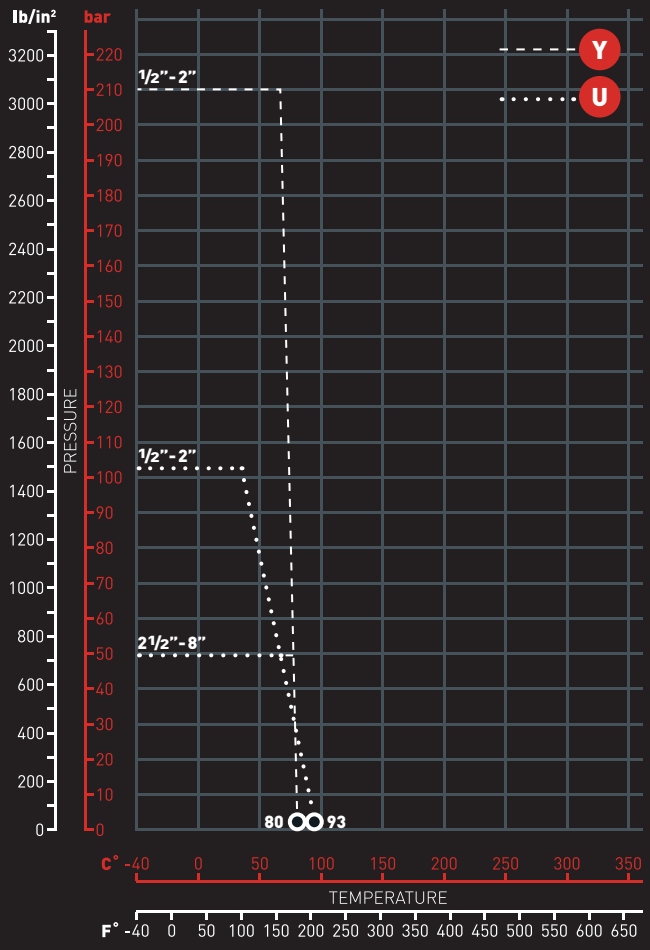
The graphs below correspond with the highlighted seat material ratings. The valve body pressure ratings are higher than the seat ratings in all conditions and are therefore excluded.*

The data refers to differential pressure, with valves in the closed position.









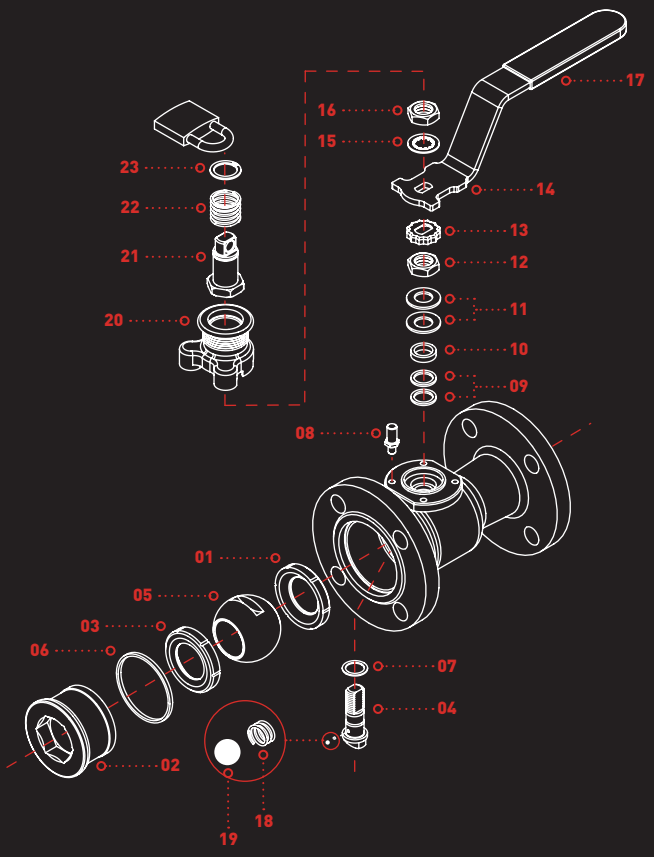
*Additional information on other materials is available on request.

31/32 SERIES

EXPLODED VIEW

SPEC: ½" - 2" (15mm - 50mm)

ITEM	DESCRIPTION	MATERIAL SPEC	QTY
01	BODY	STAINLESS ST. ASTM A351 CF8M, DUPLEX, ALLOY-20, HASTELOY C22, MONEL	1
02	INSERT	CARBON ST. ASTM A105	1
03	BALL	STAINLESS ST. ASTM A351 CF8M, DUPLEX, ALLOY-20, HASTELOY C22, MONEL	1
04	STEM	STAINLESS ST. ASTM A276 316 / 316L, DUPLEX, ALLOY-20, HASTELOY C22, MONEL	2
05*	SEAT RING	PTFE, RPTFE, NRG, PEEK, TFM, VESPEL, DELRIN, UHMWPE	1
06*	BODY SEAL	PTFE, RPTFE, TFM, UHMWPE, GRAPHITE	1
07*	STEM THRUST SEAL	RPTFE, NRG, PEEK, TFM, VESPEL, NYLATRON, UHMWPE	1
08*	STOP PIN	STAINLESS ST. ASTM A582 303	2
09*	STEM PACKING	NRG, RPTFE, TFM, UHMWPE, GRAPHITE	1
10	FOLLOWERS	STAINLESS ST. ASTM B783 316L	1-2**
11	DISC SPRINGS	STAINLESS ST. 17-7PH	2
12	STEM NUT	STAINLESS ST. ASTM A194 316	1
13	LOCKING CLIP	STAINLESS ST. ASTM A164 304	1
14	HANDLE	STAINLESS ST. ASTM A240 430, CARBON ST. ZINC PLATED	1
15	SERRATED WASHER	STAINLESS ST. 410	1
16	HANDLE NUT	STAINLESS ST. ASTM A194 316	1
17	SLEEVE	VINYL PLASTISOL	1
18	ANTI-STATIC SPRING	STAINLESS ST. AISI 302	1
19	ANTI-STATIC BALL	STAINLESS ST. AISI 304	1
20	LD HOUSING	STAINLESS ST. ASTM A351 CF8	1
21	LD STEM	STAINLESS ST. ASTM A351 CF8	1
22	LD SPRING	STAINLESS ST. MUSIC WIRE	1
23	LD CIRCLIP	SPRING STEEL	1

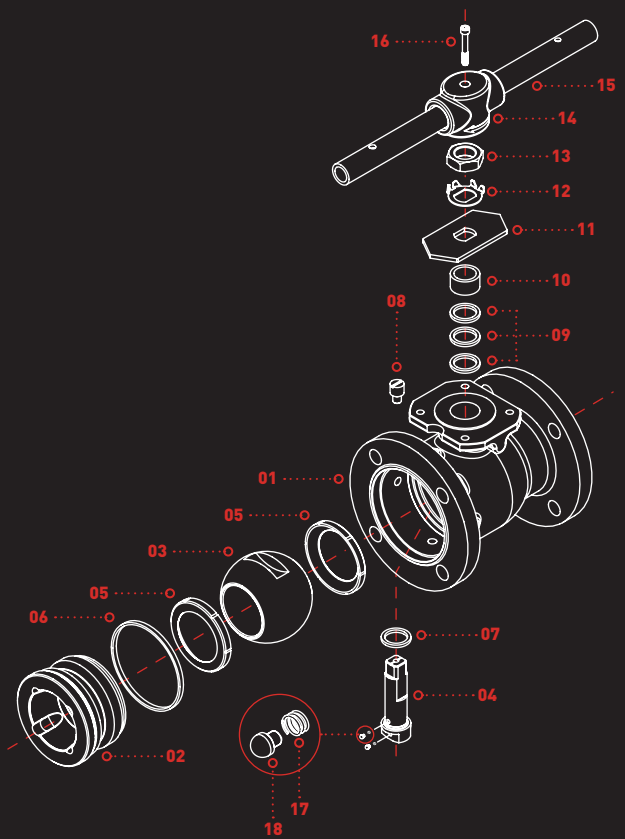


*Standard items for repair kits.

** 2 Followers are used on ½" to ¾".

SPEC: 3" - 8" (80mm - 200mm)

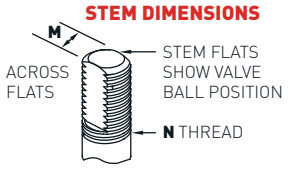
ITEM	DESCRIPTION	MATERIAL SPEC	QTY
01	BODY	STAINLESS ST. ASTM A351 CF8M, CARBON ST. ASTM A216 WCB	1
02	INSERT	STAINLESS ST. ASTM A351 CF8M, CARBON ST. ASTM A216 WCB	2
03	BALL	STAINLESS ST. ASTM A351 CF8M	1
04	STEM	STAINLESS ST. ASTM A276 316 / 316L	1
05*	SEAT RING	PTFE, RPTFE, NRG, PEEK, TFM, VESPEL, DELRIN, UHMWPE	2
06*	BODY SEAL	PTFE, RPTFE, TFM, UHMWPE, GRAPHITE	1
07*	STEM THRUST SEAL	RPTFE, NRG, PEEK, TFM, VESPEL, NYLATRON, UHMWPE	1
08*	STOP PIN	STAINLESS ST. ASTM A582 303, CARBON ST. ASTM A29 GR 1020	1
09*	STEM PACKING	NRG, RPTFE, TFM, UHMWPE, GRAPHITE	3
10	FOLLOWERS	STAINLESS ST. ASTM B783 316L	1
11	STOP PLATE	CARBON ST. ZINC PLATED	1
12	TAB LOCK WASHERS	STAINLESS ST. ASTM A240 304	1
13	STEM NUT	CARBON ST. ZINC PLATED	1
14	WRENCH HEAD	MALEABLE IRON	1
15	WRENCH HANDLE	CARBON ST. ZINC PLATED	1
16	WRENCH BOLT	STAINLESS ST. AISI 304	1
17	ANTI-STATIC SPRING	STAINLESS ST. AISI 302	2
18	ANTI-STATIC PLUNGER	STAINLESS ST. AISI 304	2

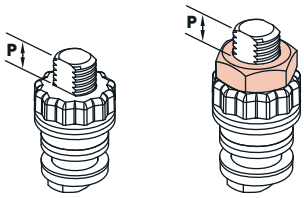


31/32 SERIES

DIMENSIONS

STEM DIMENSIONS



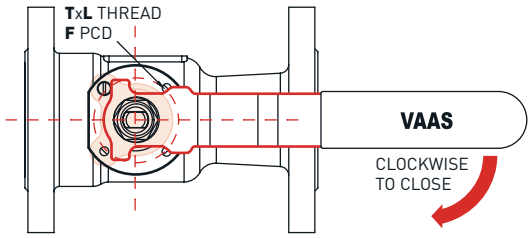


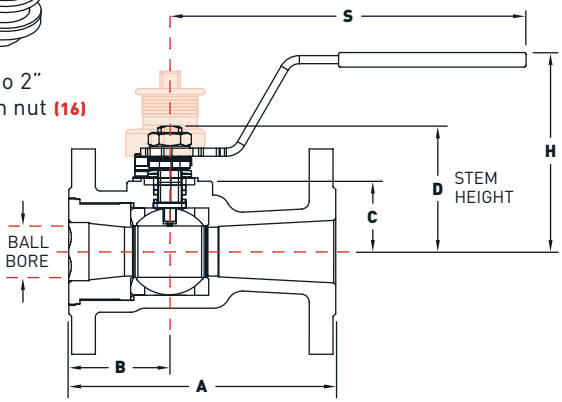
SPEC: ½" - 2" (15mm - 50mm)

½" / ¾" / 2½" without nut (16)

1" to 2" with nut (16)

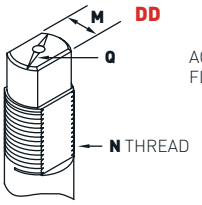
½" - 2½" WITH ISO TOP

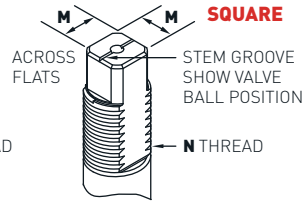


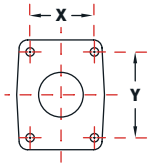


SIZE	UNIT	BORE	A (150)	A (300)	B	C	D	H	S	M	N	P	TxL	F (ISO)	WEIGHT (150)	WEIGHT (300)
½"	MM INCH	11.1 0.44	108.0 4.25	140 5.5	46.0 1.81	29.0 1.14	38.0 1.5	92.0 3.62	151.0 5.94	5.54 0.218	3/8" UNF	11.1 0.437	M5X10	36.0 (FO3) 1.42	1.7KG 3.8LB	2.4KG 5.3LB
¾"	MM INCH	14.3 0.56	117.0 4.61	152.0 6.0	49.3 1.94	31.4 1.24	40.3 1.59	94.0 3.7	151.0 5.94	5.54 0.218	3/8" UNF	11.1 0.437	M5X10	36.0 (FO3) 1.42	2.3KG 5.1LB	3.3KG 7.3LB
1"	MM INCH	20.6 0.81	127.0 5.0	165.0 6.5	57.2 2.25	38.2 1.50	55.6 2.19	103.5 4.07	170.0 6.69	7.54 0.296	7/16" UNF	15.4 0.606	M5X10	42.0 (F04) 1.65	3.3KG 7.3LB	4.6KG 10.2LB
1 ½"	MM INCH	31.8 1.25	165.0 6.5	190.0 7.5	62.3 2.45	43.6 1.72	73.1 2.88	119.2 4.7	220.5 8.68	8.7 0.343	9/16" UNF	19.6 0.771	M6X12	50.0 (F05) 1.97	5.5KG 12.2LB	8.7KG 19.3LB
2"	MM INCH	38.1 1.50	178.0 7.0	216.0 8.5	67.8 2.67	48.3 1.90	77.8 3.06	123.9 4.88	220.5 8.68	8.7 0.343	9/16" UNF	19.6 0.771	M6X12	50.0 (F05) 1.97	8.1KG 18.0LB	10.8KG 24.0LB

STEM DIMENSIONS

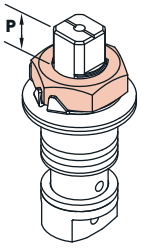


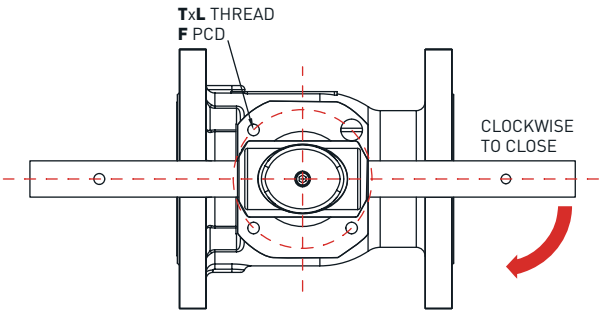


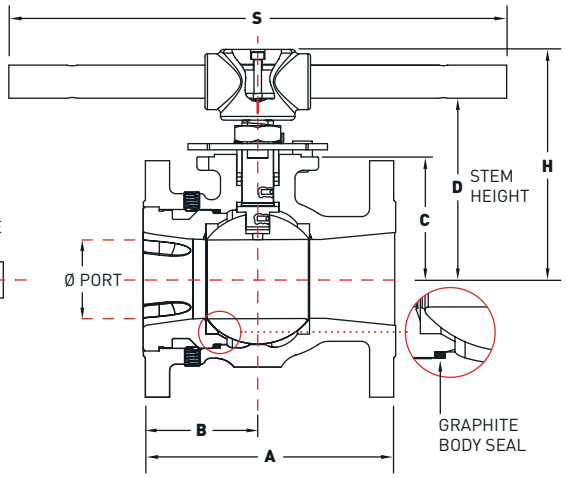


SPEC: 3" - 8" (80mm - 200mm)

PREPARATION FOR ACTUATION







SIZE	UNIT	BORE	A (150)	A (300)	B	C	D	H	S	M	M-DD	N	P	TxL	F (ISO)	WEIGHT (150)	WEIGHT (300)
3"	MM INCH	63.5 2.5	203 8.0	284 11.18	92.1 3.63	98.4 3.88	145 5.72	185.1 7.28	400 15.75	18.9 0.744	15.9 0.626	1"-14 UNS-2A	16.7 0.66	M10X20	102 (F10) 4.015	18.0KG 40.0LB	22.7KG 50.4LB
4"	MM INCH	82.6 3.25	229 9.0	305 12.0	101.6 4.0	114.1 4.49	161 6.34	201 7.91	610 24.01	18.9 0.744	15.9 0.626	1"-14 UNS-2A	16.7 0.66	M10X20	102 (F10) 4.015	28.2KG 62.8LB	36.3KG 80.6LB
6"	MM INCH	111.1 4.38	267 10.5	403.2 15.88	108.0 4.25	157.4 6.20	226 8.91	285.9 11.25	916 36.08	28.4 1.112	23.75 0.935	1½"-12 UNF-1A	26.2 1.03	M12X20	125(F12) 4.921	41.0KG 91.0LB	69.0KG 153LB
8"	MM INCH	144.4 5.68	292 11.5	419 16.5	163.5 5.37	185.2 7.30	254 10.0	313.6 12.34	916 36.08	28.45 1.118	23.75 0.935	1½"-12 UNF-1A	26.2 1.03	M12X20	125 (F12) 4.921	82.0KG 182LB	105KG 233 LB

*Valve 6" ANSI 300 only: X=76.2, Y=101.6.

31/32 SERIES

HOW TO ORDER

When placing an order for VAAS valves, please provide as many details as possible on the application such as: Media, temperature, pressure, pipe line size and type of connection.

In accordance with our policy to strive for continuous improvement of the product, we reserve the right to alter the dimensions, technical data and information included in this catalogue when required.

Please use the table below to order your VAAS valves.

EXAMPLE A: 10 AFB31-4466TG/BW-P043

Size 4" (40) | Cavity filler (Q) | 31 | S. St 316 body (6) | End / Trim (6) | PEEK seats (K) | Viton body seals (V) | ANSI 150 RF (150) | Stem seal for vacuum and gas service (P043)

EXAMPLE B: 20 R32-6666KV/PN40-VB60

Size 2" (20) | Firesafe (F) | 32 | S. St 316 body (6) | End / Trim (6) | PEEK seats (K) | Viton body seals (V) | ANSI 300 RF (300) | Control ball (VB)

Ball valve identification code

SIZE CODE	SERVICE	SERIES		BODY | END	BALL | STEM	SEAT | SEAL		FLANGE		SPECIAL APPLICATION	
0 5	A F N	3 1	3 2	- 6 6	6 6	T T	/	P N 1 6	-	A 0 8 6 6	

SIZE	
05	½" / 15 mm
07	¾" / 20 mm
10	1" / 25 mm
15	1 ½" / 40 mm
20	2" / 50 mm
30	3" / 80 mm
40	4" / 100 mm
60	6" / 150 mm
80	8" / 200 mm

SERVICE	
A	Antistatic
C	Cryogenic
D	Diverter bottom entry
F	Firesafe
K	Dry chlorine
N	Control
O	Oxygen
Q	Cavity filler
S	Diverter side entry
V	Vacuum
W	Steam thermal fluid
X	Metal seats

BODY | END | BALL | STEM	
4	Carbon steel
6	S. St. 316 (L)
7	Monel
8	S. St. 304
9	C. Steel LCB
A	Alloy-20
C	Hasteloy-C
D	Duplex
M	S. St. 17-4PH
Z	Inconel 718
W	Hastelloy-C
K	Super Duplex
S	254SMO

SEAT	
A	TFM™
C	PCTFE
F	PFA
H	VX1
J	25% glass filled PTFE
K	Carbon filled PEEK®
L	Virgin PEEK®
M	Metal
P	NRG
R	15% glass filled PTFE
S	VESPEL®
T	PTFE
U	UHMWPE
Y	Delrin®

SEAL	
G	Expanded graphite
I	Impregnated graphite
M	PTFE coated S. St O-Ring
R	15% glass filled PTFE
T	PTFE
U	UHMWPE
V	Viton®

FLANGE	
150	ANSI 150 RF
300	ANSI 300 RF
FF	Flat face
PN16	ANSI RF
PN40	Drilled to DIN
BW	Buttweld neck

SPECIAL APPLICATION			
90°	Diverter ball valve 90° turn	J2N05	Jacketed valve, No. outlets, type, size
180°	Diverter ball valve 180° turn	VB	Control ball
A0866	Stern seal ammonia service	VB30	Control valve ball
P043	Stern seal for vacuum and gas service	DBB	Double block & bleed
F043	Stern seal neoprene	NACE	Nace service
P250	Ball with pressure relief hole		

Other end connections are available on request.

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VAAS