

Valves with a leading edge

VAAS

73/74 SERIES



73/74 SERIES (ANSI CLASS 150 & 300)
FLANGED FULL BORE BALL VALVE
FOR INDUSTRIAL AND PROCESS APPLICATIONS





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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73/74 SERIES OVERVIEW

The 73/74 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 EN 1759 Class 150,300
Face-to-face:	ANSI B16.10 short pattern
Design:	LR type app. ISO 17292 & API 6D ANSI B16.34, ISO 17292
Pressure testing: 100% of production	API 598 ISO 5208, BS EN 12266 Parts 1 & 2
Fire testing:	API 607 5th Edition. ISO 10497, ISO 15156
NACE (must be specified)	MR-01-75
Quality Assurance:	ISO 9001-2008, ISO 15156
Certification:	PED 97/23/EC ISO - 10474 DIN EN 10204 3.1.B ATEX directive 94/9/EC

The 73/74 Series is a one or two-piece body construction and is designed in compliance with ANSI B16.5 and ISO 17292.

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 73/74 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

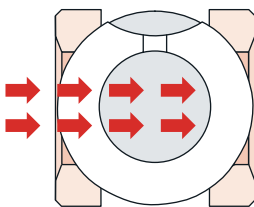


73/74 SERIES FEATURES

The 73/74 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



FLOATING BALL
DOWNSTREAM SEAL

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.

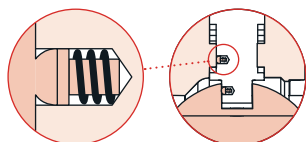
ADDITIONAL DESIGNS

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.



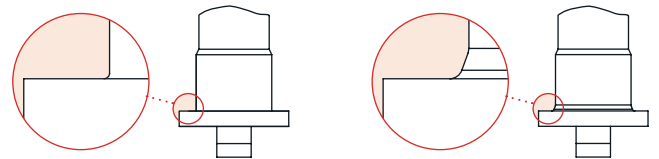
ANTI-STATIC DEVICE

Continual electrical contact between all metallic components, as per ISO 17292, is present within all VAAS 73/74 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 (1/2"-2")

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"-12")

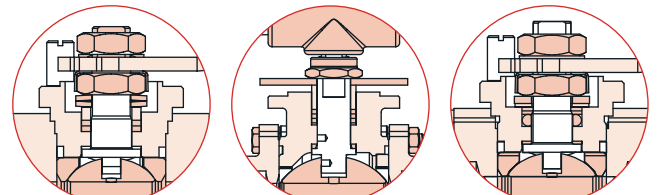
As above, except operating handle replaced by top-loaded stem boss, through which a pipe wrench is inserted.

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

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 H₂SO₄ 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 polyimide 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 H₂O.

C PCTFE (KEL-F®) TRANSPARENT WHITE

PCTFE (commonly referred to as Kel-F®: Chlorotrifluoro 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

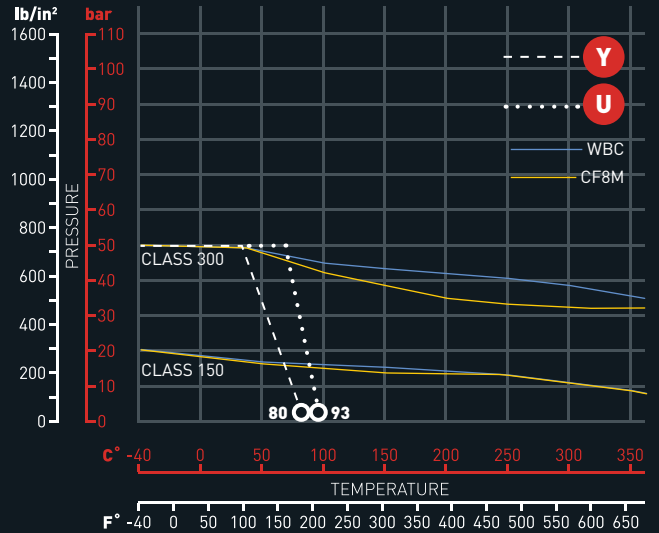
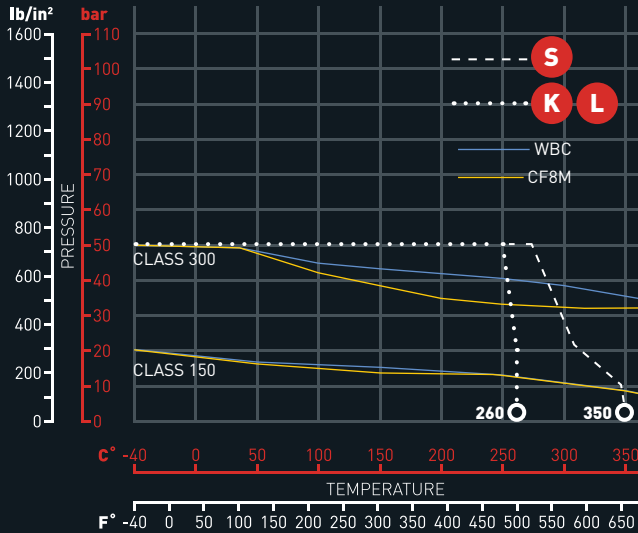
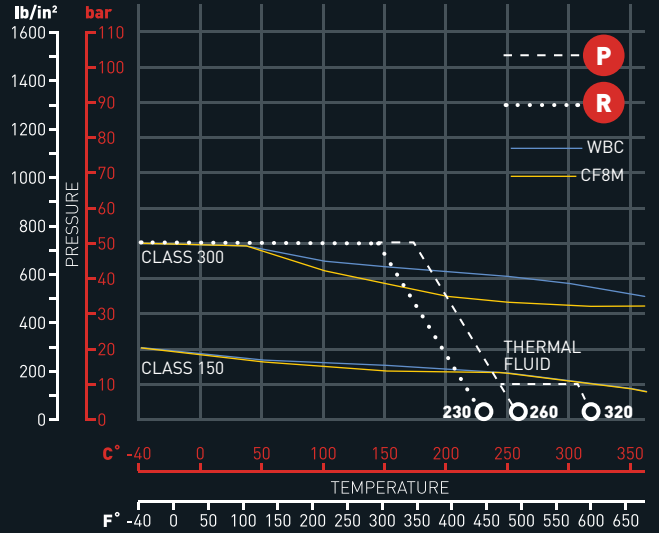
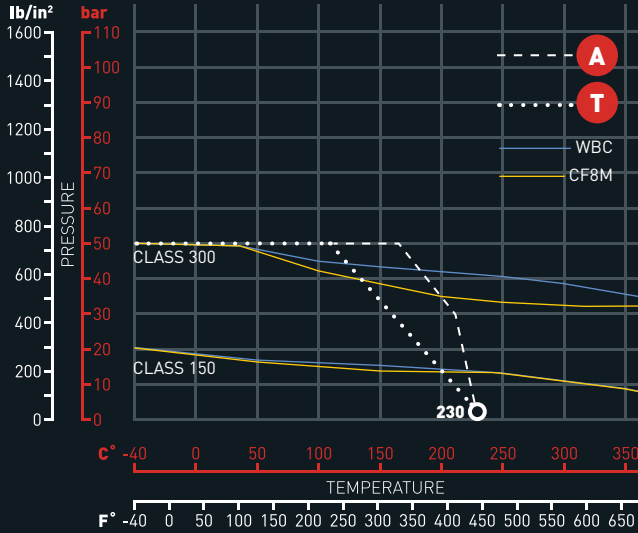
Delrin® is preferred for high pressure applications that demand excellent resistance to wear and deformation. Often used in the petroleum industry, its maximum temperature is limited to 80 °C under full load.

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

SEAT PRESSURE & TEMPERATURE RATINGS

MATERIAL RATINGS

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

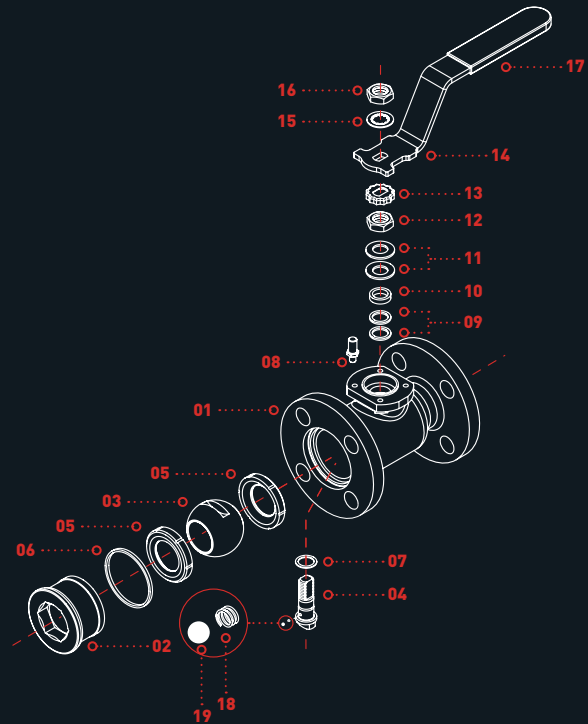


73/74 SERIES

EXPLODED VIEW

SPEC: 1/2" - 1" (15mm - 25mm)

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	1
03	BALL	STAINLESS ST. ASTM A316	1
04	STEM	STAINLESS ST. ASTM A316	1
05*	SEAT RING	VIRGIN PTFE	2
06*	BODY SEAL	VIRGIN PTFE	1
07*	STEM THRUST SEAL	PTFE - 25% CARBON FILLED	1
08*	STOP PIN	STAINLESS ST. AISI 316	1
09*	STEM SEAL	PTFE - 25% CARBON FILLED	1-2
10	GLAND	STAINLESS ST. 316	1
11	DISC SPRINGS	STAINLESS ST. 17-7PH	2
12	GLAND NUT	STAINLESS ST. AISI 316	1
13	TAB WASH	STAINLESS ST. AISI 316	1
14	WRENCH	STAINLESS ST. AISI 304, CARBON ST. ZINC PLATED	1
15	SERRATED WASHER	STAINLESS ST. AISI 316	1
16	WRENCH NUT	STAINLESS ST. AISI 316	1
17	SLEEVE	VINYL PLASTISOL	1
18	PLUNGER SPRING	STAINLESS ST. AISI 302	1
19	ANTI-STATIC PLUNGER	STAINLESS ST. AISI 316	1

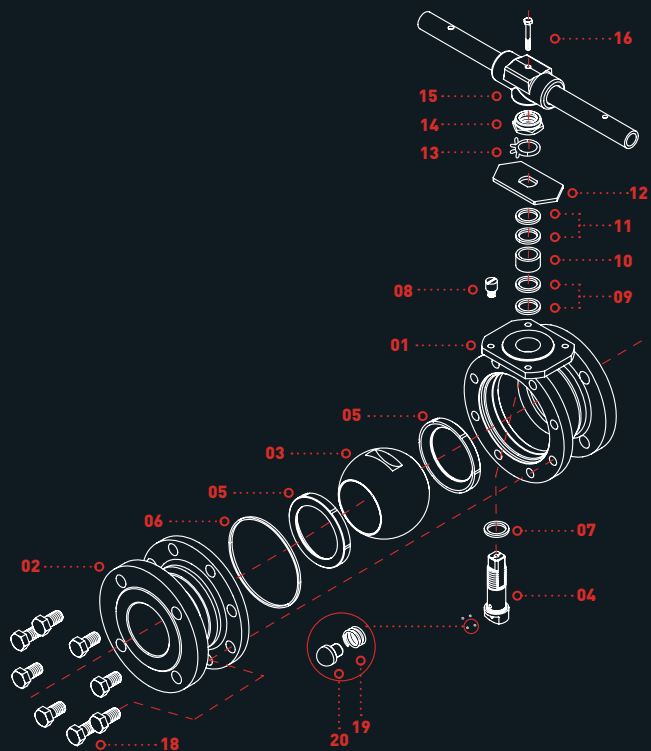


*Standard items for repair kits.

The materials are for standard applications. Other materials are available

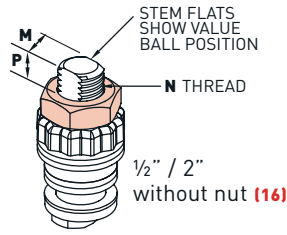
SPEC: 1 1/2" - 6" (40mm - 150mm)

ITEM	DESCRIPTION	MATERIAL SPEC	QTY
01	BODY	STAINLESS ST. ASTM A351 CF8M, CARBON ST. ASTM A216 WCB	1
02	END CAP	STAINLESS ST. ASTM A351 CF8M, CARBON ST. ASTM A216 WCB	1
03	BALL	STAINLESS ST. AISI 316	1
04	STEM	STAINLESS ST. AISI 316 OR 17-4PH	1
05*	SEAT RING	TFM, NRG, PTFE, PEEK, RPTFE, UHMWPE	2
06*	BODY SEAL	GRAPHITE, PTFE, UHMWPE	1
07*	STEM THRUST SEAL	TFM, NRG, PEEK UHMWPE	1
08	STOP PIN	STAINLESS ST. AISI 316	1
09*	GLAND PACKING	GRAPHITE, NRG, TFM, UHMWPE	1-2
10	GLAND	STAINLESS ST. AISI 316	1
11	DISC SPRINGS	STAINLESS ST. 17-4PH	2
12	INDICATOR STOP PLATE	CARBON ST. ZINC PLATED	1
13	LOCKING CLIP	STAINLESS ST. ASTM A164 304	1
14	GLAND NUT	CARBON ST. ZINC PLATED	1
15	WRENCH	MALLEABLE IRON	1
16	WRENCH BOLT	STAINLESS ST. AISI 304	1
17	WRENCH HANDLE	TUBE SCH. 40 ZINC PLATED	1
18	BODY CONNECTOR SCREW	STAINLESS ST. AISI 304 CARBON ST. ZINC PLATED	4-8 -12
19	PLUNGER SPRING	STAINLESS ST. AISI 302	2
20	ANTI-STATIC PLUNGER	STAINLESS ST. AISI 316	2



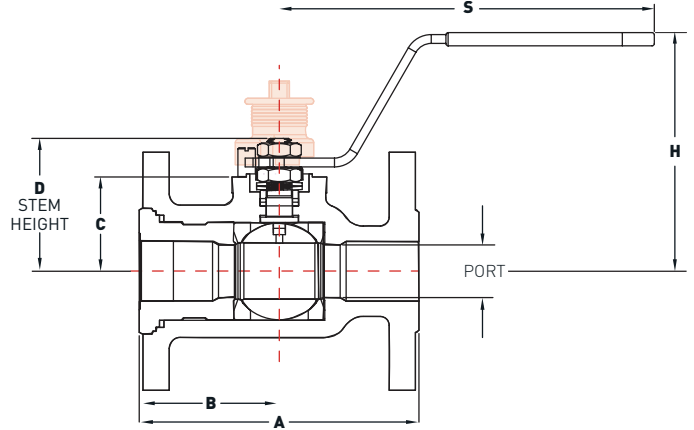
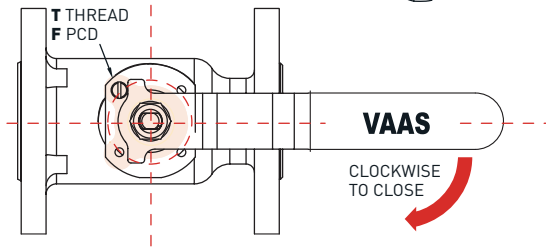
73/74 SERIES DIMENSIONS

STEM DIMENSIONS



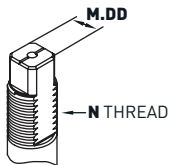
SPEC: 1/2" - 1" (15mm - 25mm)

VALVE DIMENSIONS

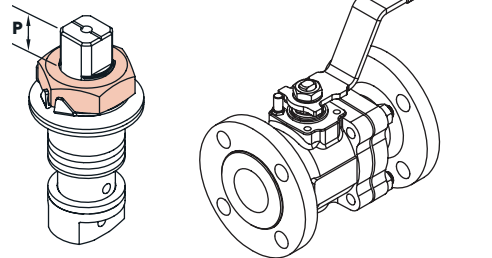


SIZE	UNIT	PORT	A (150)	A (300)	B	C	D	F	H	M	N	P	S	T	WEIGHT (150)	WEIGHT (300)
1/2"	MM	14.3	108.0	140	48.0	31.4	40.5	36.0 (F03)	94.0	5.54	3/8" UNF	11.1	151	M5	1.8KG	2.3KG
	INCH	0.56	4.25	5.5	1.90	1.24	1.59	1.42	3.7	0.218		0.44	5.95		4.0LB	5.1LB
3/4"	MM	20.6	117.0	152.0	58.0	38.2	55.6	42.0 (F04)	103.5	7.54	7/16" UNF	15.4	170	M5	2.2KG	3.3KG
	INCH	0.81	4.62	6.0	2.28	1.50	2.19	1.65	4.07	0.296		0.61	6.69		4.8LB	7.3LB
1"	MM	25.4	127.0	165.0	63.5	42.7	60.3	42.0 (F04)	108	7.54	7/16" UNF	15.4	170	M5	3.2KG	4.6KG
	INCH	1.0	5.0	6.5	2.50	1.68	2.37	1.65	4.25	0.296		0.61	6.69		7.0LB	10.1LB

STEM DIMENSIONS

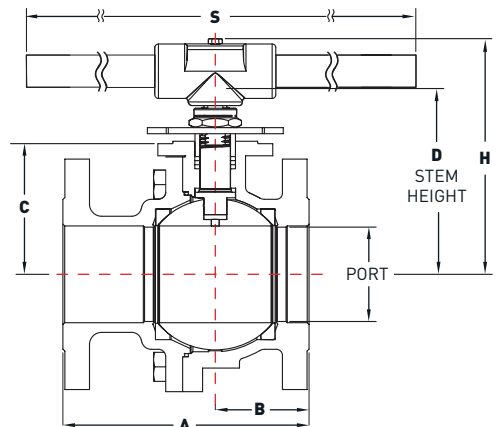
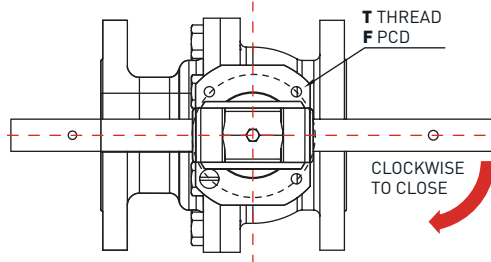
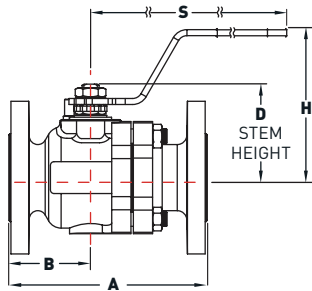


PREPARATION FOR ACTUATION



SPEC: 1 1/2" - 6" (40mm - 150mm)

Valve sizes 1 1/2" - 2" are 2-piece and have a square shape body. The stem assembly parts are built in the style of sizes 1/2" - 1"



SIZE	UNIT	PORT	A (150)	A (300)	B (150)	B (300)	C	D	F	H	M.D.D.	N	P	S	T	WEIGHT (150)	WEIGHT (300)
1 1/2"	MM	38.1	165	190	68.0	80.4	48.3	77.8	50 (F05)	124	8.7	9/16" UNF	19.6	220.5	M6	6.6KG	9.8KG
	INCH	1.50	6.5	7.5	2.68	3.17	1.90	3.06	1.968	4.88	0.343		0.77	6.68		14.5LB	21.5LB
2"	MM	50	178	216	65.0	65.0	70.0	88	70 (F07)	134.2	8.7	9/16" UNF	19.6	220.5	M8	13.0KG	15.0KG
	INCH	2.00	7.0	8.50	2.56	2.56	2.75	3.46	2.755	5.28	0.343		0.77	6.68		28.6LB	33.0LB
3"	MM	80	203	283	79.0	85.0	108	154.6	102 (F10)	194.8	15.9	1 UNF	16.7	400	M10	26.0KG	29.0KG
	INCH	3.25	8.0	11.14	3.11	3.35	4.25	6.08	4.015	7.67	0.6		0.66	15.75		57.0LB	64.0LB
4"	MM	100	229	305	82.0	94.0	124	170.6	102 (F10)	211	15.9	1 UNF	16.7	610	M12	34.0KG	39.0KG
	INCH	3.94	9.0	12.01	3.23	3.70	4.88	6.71	4.015	8.13	0.6		0.66	24.00		75.0LB	86.0LB
6"	MM	150	394	403	168	168	179	248.5	125 (F12)	308	23.8	1 1/2" UNF	26.2	916	M12	71.0KG	78.0KG
	INCH	5.91	15.51	15.87	6.61	6.61	7.05	9.78	4.921	12.12	0.94		1.03	36.00		156LB	172LB

73/74 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.

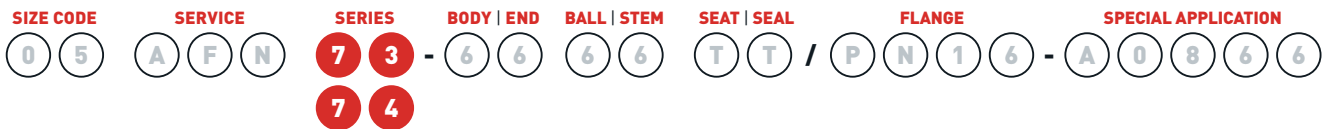
EXAMPLE A: 10 AF73-6666AI/150

Size 1" (10) | Antistatic (A) Firesafe (F) | 73 |
Stainless Steel 316 body/end/ball/stem (6) |
TFM seat (A) Impregnated graphite seal (I) | ANSI 150 RF (150)

EXAMPLE B: 20 W74-446MKG/300

Size 2" (20) | Steam/Thermal (W) | 74 |
Carbon steel body/end (4) | St. St. 316 ball (6) |
St. St. 17-4PH stem (M) | Carbon filled PEEK seat (K)
Expanded graphite seal (G) | ANSI 300 RF (300)

Ball valve identification code



SIZE	SERVICE	BODY END BALL STEM	SEAT	SEAL
05 ½" / 15 mm	A Antistatic	4 Carbon steel	A TFM™	G Expanded graphite
07 ¾" / 20 mm	C Cryogenic	6 S. St. 316 (L)	C PCTFE	I Impregnated graphite
10 1" / 25 mm	F Firesafe	7 Monel	H VX1	M PTFE coated S. St O-Ring
15 1 ½" / 40 mm	K Dry chlorine	8 S. St. 304	J 25% glass filled PTFE	R 15% glass filled PTFE
20 2" / 50 mm	N Control	9 C. Steel LCB	K Carbon filled PEEK®	T PTFE
30 3" / 80 mm	O Oxygen	A Alloy-20	L Virgin PEEK®	U UHMWPE
40 4" / 100 mm	Q Cavity filler	C Hasteloy-C276	M Metal	V Viton®
60 6" / 150 mm	V Vacuum	D Duplex	P NRG	
80 8" / 200 mm	W Steam thermal fluid	M S. St. 17-4PH	R 15% glass filled PTFE	
A0 10" / 250 mm	X Metal seats	Z Inconel 718	S VESPEL®	
		W Hasteloy-C22	T PTFE	
		K Super Duplex	U UHMWPE	
		S 254SMO	Y Delrin®	
			W PVDF	

FLANGE	SPECIAL APPLICATION
150 ANSI 150 RF	A0866 Stem seal ammonia service
300 ANSI 300 RF	P043 Stem seal for vacuum and gas service
FF Flat face	F043 Stem seal neoprene
PN16 Drilled to DIN	P250 Ball with pressure relief hole
PN40 Drilled to DIN	J2N05 Jacketed valve, No. outlets, type, size
	VB Control ball
	DBB Double block & bleed
	NACE Nace service

Other end connections are available on request.

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.



