

# SERIES F16 & F40

FULL PORT TWO-PIECE FLANGED BALL VALVES

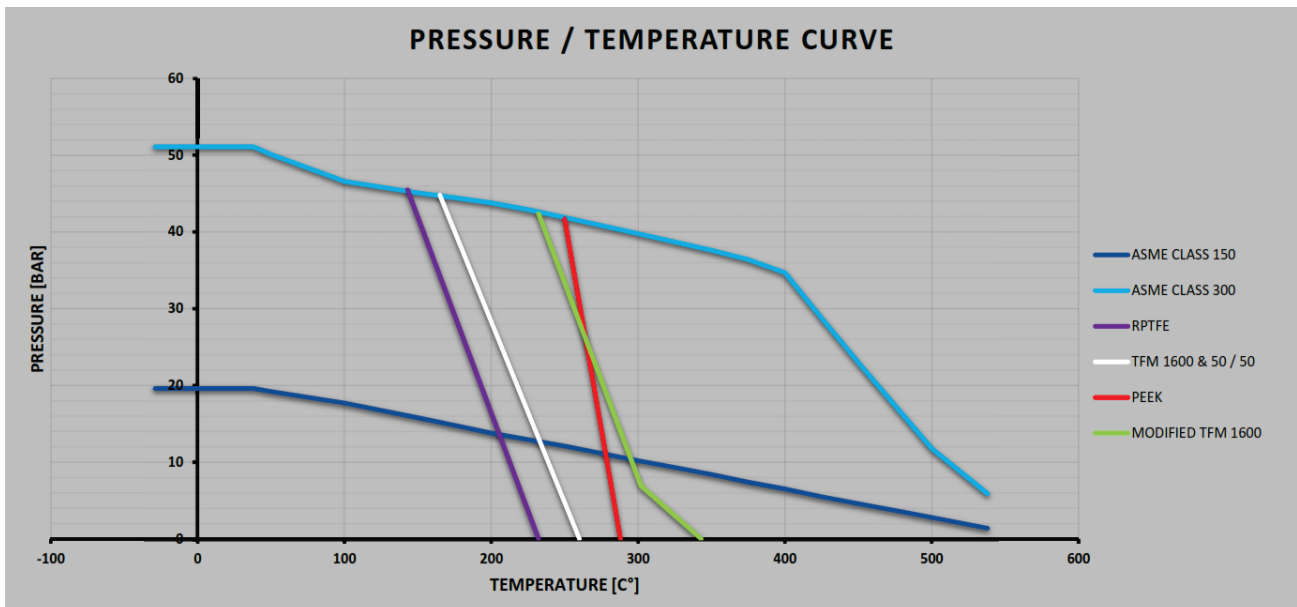


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## SUMMARY

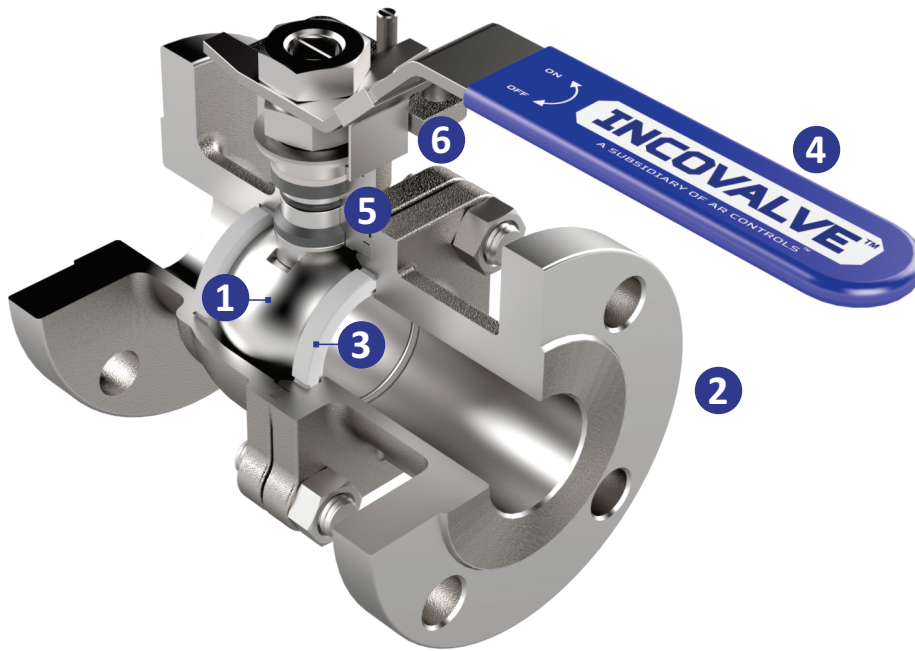
- **PRESSURE RATING** | F16: PN10 / PN16 ; F40: PN25 / PN40
- **SIZE RANGE** | DN15 - DN200 (1/2" - 8")
- **BODY MATERIALS** | STAINLESS STEEL & CARBON STEEL & SPECIAL ALLOY
- **FIRE SAFE** | API 607 6<sup>TH</sup> EDITION
- **STANDARD SEAT MATERIAL** | TFM 1600 (MODIFIED PTFE)
- **OPTIONAL SEAT MATERIALS TO SUIT VARIOUS APPLICATIONS:**  
PTFE | RPTFE (15% GLASS FIBRE REINFORCED) | PFA | PEEK | UHMWPE | 50/50 (316 SS + RPTFE) | METAL | 15% CARBON REINFORCED PTFE | 25% CARBON REINFORCED PTFE | MODIFIED TFM1600 |
- **BLOW-OUT PROOF STEM**
- **ANTI-STATIC DEVICE**
- **FULL PORT**
- **INTERCHANGEABLE SEATS WITH PRESSURE RELIEF GROOVES**
- **MOUNTING PAD** | ISO 5211
- **STANDARD LOCKABLE HAND LEVER**
- **TEMPERATURE RANGE** | -20 TO 180°C
- **V-PORT OPTIONS** | 15°; 30°; 45°; 60°; 90°
- **DESIGN** | EN 12516-1
- **FLANGE DIMENSIONS** | EN 1092-1 TYPE 21 PN16/40 (RF SS)
- **FACE TO FACE** | EN 558-1 F4/F5 (DIN 3202 F4)
- **PRESSURE TEST** | EN 12266-1



\* ASME 150 / 300 CURVE VARIES SLIGHTLY DEPENDING ON BODY MATERIALS

# FEATURES

IncoValve's F16/F40 is a flanged, fire safe, floating ball valve featuring a split body and full port. The F16/F40 is designed to be robust and is manufactured to the highest quality standards in Inco's world class manufacturing facility, offering superior service life, even in challenging industrial applications.



## 1 BALL

Cast with the highest integrity and precision machined to a perfect sphere with a superior surface finish to ensure an optimal sealing surface. A bi-directional bubble tight seal is achieved while maintaining a low operating torque. Full port ball ensures a high Cv and allows pigging of the line.

## 2 FLANGES

Exterior flange sealing surface is serrated to ensure a tight seal. The valve has a DIN 3202 F4 face-to-face and is available in various flange drillings to suit the customer requirement.

## 3 SEATS

F16/F40 resilient seats are designed to relieve entrapped cavity pressure through integral relief grooves. Seats are available in various specialised engineered materials to suit any application and ensure the lowest friction and operating torque, reducing the need to compromise on sufficient preloading for low pressure and vacuum service.

## 4 LEVER

Stainless Steel levers are supplied as standard on all manually operated valves. The lever features a self-engaging locking device to prevent unwanted movement of the ball.

## 5 STEM PACKING

The standard F16/F40 packing provides an API 607 6<sup>TH</sup> edition fire safe stem seal. Belleville washers ensure that constant pressure is maintained on the adjustable packing when changes in temperature occur, and these forces are evenly distributed to the packing through the packing gland. Premium materials are offered as standard.

## 6 MOUNTING PAD

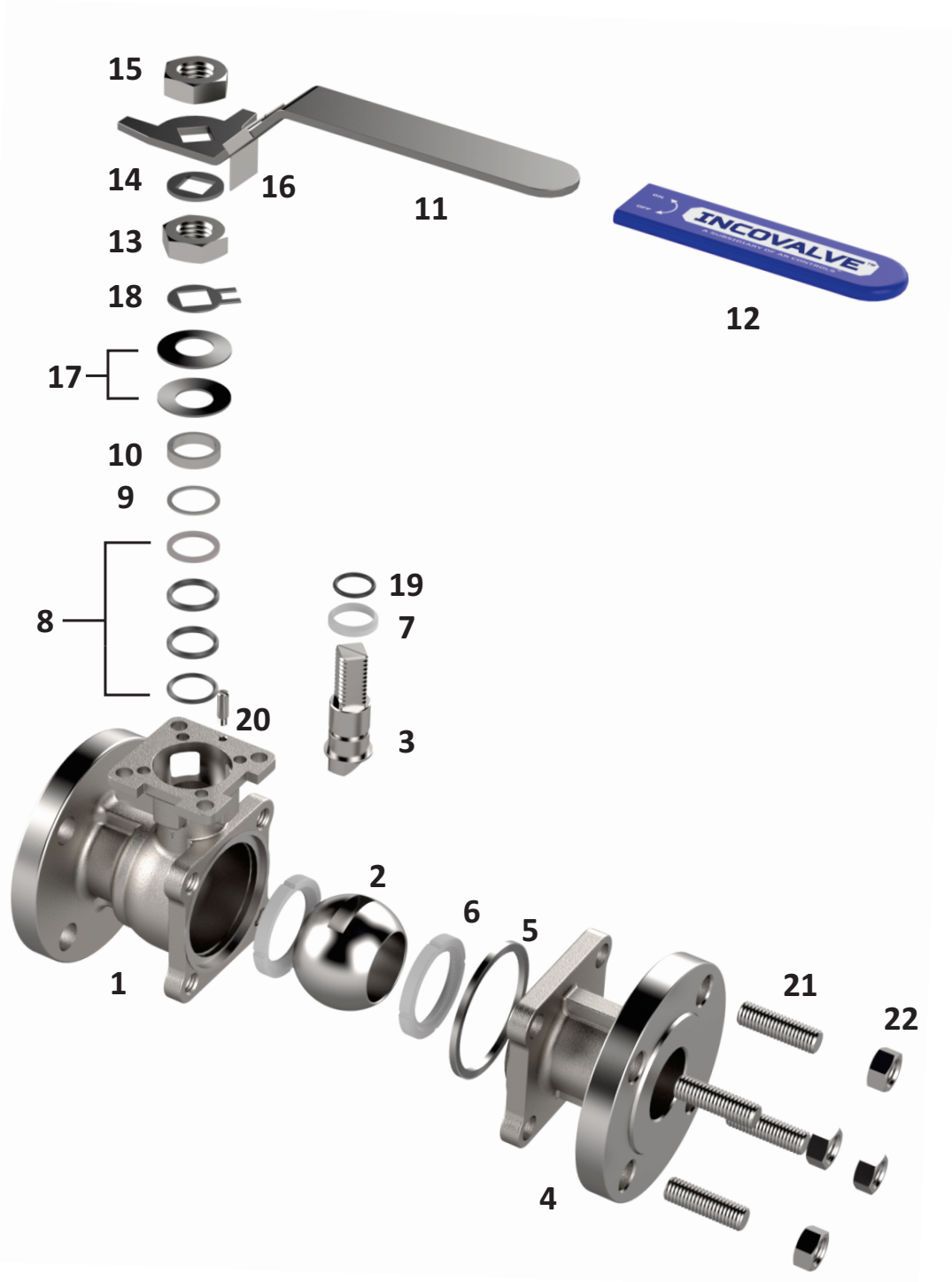
The mounting pad is precision machined to provide a perfectly level mounting surface for actuators, eliminating the possibility of shaft misalignment. The mounting pad is raised for full flange clearance, allowing any size or style actuator to be fitted in the desired orientation without the use of brackets and couplings.



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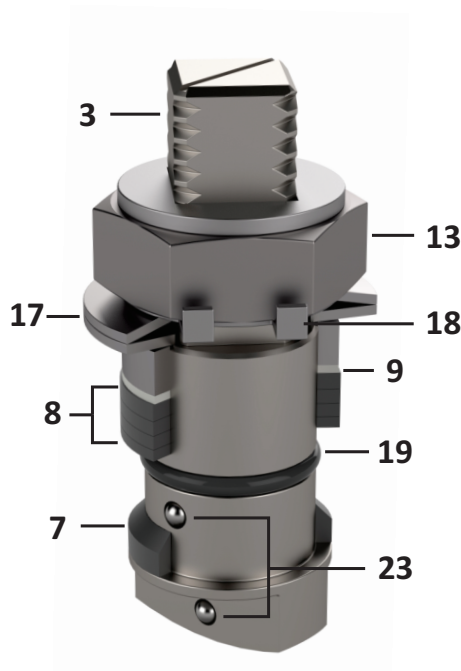
## MATERIALS OF CONSTRUCTION



# BILL OF MATERIALS

NO	PART NAME	PN16 / PN40		CLASS 150 / CLASS 300	
1	BODY*	1.4408	1.0619	CF8M	WCB
2	BALL*	1.4408		CF8M	
3	STEM*	1.4401		316 SS	
4	END CAP*	1.4408	1.0619	CF8M	WCB
5	BODY SEAL	SPIRAL WOUND 316 SS / GRAPHITE			
6	SEAT*	TFM 1600			
7	THRUST WASHER	MODIFIED TFM 1600			
8	STEM PACKING*	GRAPHITE			
9	PACKING PROTECTOR	MODIFIED TFM 1600			
10	GLAND BUSH	1.4301		304 SS	
11	HANDLE	1.4301		304 SS	
12	HANDLE COVER	PLASTIC			
13	STEM NUT	1.4301		304 SS	
14	THRUST WASHER	1.4301		304 SS	
15	HANDLE NUT	1.4301		304 SS	
16	LOCKING PAD	1.4301		304 SS	
17	BELLEVILLE WASHER	1.4310		301 SS	
18	STOP WASHER	1.4301		304 SS	
19	STEM O-RING	FKM			
20	MECHANICAL STOP	1.4301		304 SS	
21	BODY STUD	Gr. B8		Gr. B8	
22	BODY NUT	Gr. 8		Gr. 8	
23	ANTI-STATIC DEVICE	1.4301		304 SS	

\* VARIOUS MATERIALS AVAILABLE



INCOVALVE® F16 AND F40 STEM ASSEMBLY

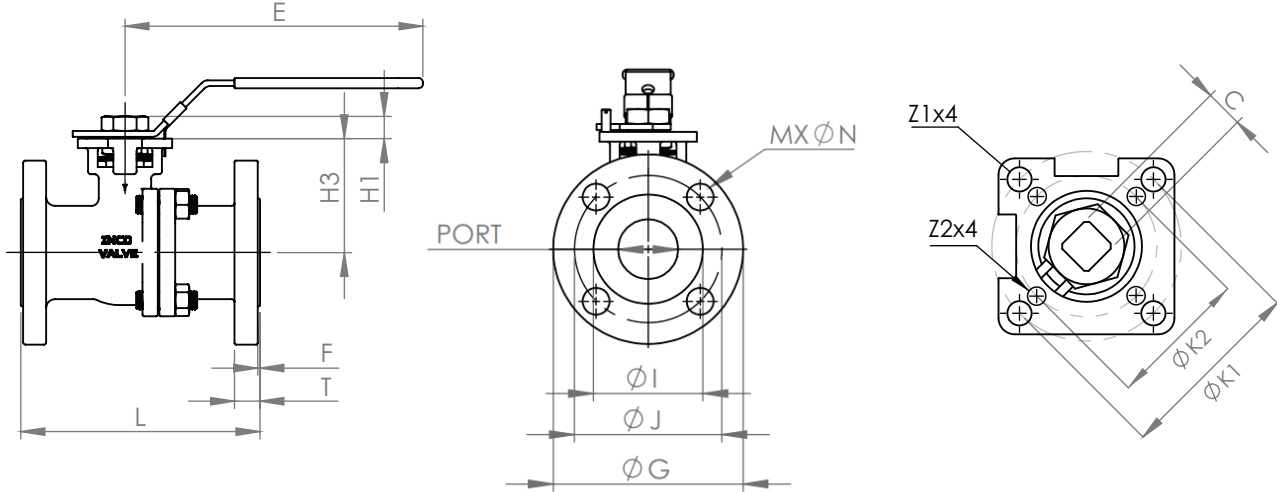
SERIES F16 & F40



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FULL PORT TWO-PIECE FLANGED BALL VALVES

## DIMENSIONS



Valve Size		SERIES F16 & F40 [DN15 - DN50]																
inch	mm	PORT	L	E	H1	H3	C	$\phi G$	$\phi J$	$\phi I$	T	F	M	$\phi N$	$\phi K1$	$\phi K2$	Z1	Z2
1/2"	15	15	115	112	9	48	9	95	65	45	16	2	4	14	50	36	7	6
3/4"	20	20	120	112	9	59	9	105	75	58	18	2	4	14	50	36	7	6
1"	25	25	125	136	10	64	9	115	85	68	18	2	4	14	50	36	7	6
1 1/4"	32	32	130	185	10	71	9	140	100	78	18	2	4	18	50	36	7	6
1 1/2"	40	38	140	198	14	79	14	150	110	88	18	3	4	18	70	50	9	7
2"	50	50	150	198	14	87	14	165	125	102	20	3	4	18	70	50	9	7

METRIC (MM)

Valve Size		SERIES F16 [DN65 - DN100]																
inch	mm	PORT	L	E	H1	H3	C	$\phi G$	$\phi J$	$\phi I$	T	F	M	$\phi N$	$\phi K1$	$\phi K2$	Z1	Z2
2 1/2"	65	64	170	450	18	107	17	185	145	122	18	3	4	18	102	70	12	10
3"	80	76	180	450	18	116	17	200	160	138	20	3	8	18	102	70	12	10
4"	100	100	190	450	18	155	17	220	180	158	20	3	8	18	102	70	12	10

METRIC (MM)

Valve Size		SERIES F40 [DN65 - DN100]																
inch	mm	PORT	L	E	H1	H3	C	$\phi G$	$\phi J$	$\phi I$	T	F	M	$\phi N$	$\phi K1$	$\phi K2$	Z1	Z2
2 1/2"	65	64	170	450	18	107	17	185	145	122	22	3	8	18	102	70	12	10
3"	80	76	180	450	18	116	17	200	160	138	24	3	8	18	102	70	12	10
4"	100	100	190	450	18	155	17	235	190	158	24	3	8	22	102	70	12	10

METRIC (MM)

Valve Size		SERIES F16 [DN125 - DN200]														
inch	mm	PORT	L	E	H1	H3	C	$\phi G$	$\phi J$	$\phi I$	T	F	M	$\phi N$	$\phi K1$	Z1
5"	125	125	325	600	30	194	27	250	210	188	22	3	8	18	125	14
6"	150	150	350	800	30	213	27	285	240	212	22	3	8	22	125	14

METRIC (MM)

Valve Size		SERIES F40 [DN125 - DN200]														
inch	mm	PORT	L	E	H1	H3	C	$\phi G$	$\phi J$	$\phi I$	T	F	M	$\phi N$	$\phi K1$	Z1
5"	125	125	325	600	30	194	27	270	220	188	26	3	8	26	125	14
6"	150	150	350	800	30	213	27	300	250	218	28	3	8	26	125	14

METRIC (MM)

# TORQUE FIGURES

$$T_T = T_{WP} \times (S_F + M_F + C_F + F_F)$$

$T_T$  = Total Torque Requirement

$T_{WP}$  = Torque at Working Pressure

$S_F$  = Seat Factor

$M_F$  = Media Factor

$C_F$  = Configuration Factor

$F_F$  = Frequency Factor

Valve Size		Torque [Nm] @ Working Pressure			
inch	mm	10 bar	16 bar	25 bar	40 bar
1/2"	15	6	6	6	7
3/4"	20	6	6	6	8
1"	25	10	10	10	12
1 1/4"	32	14	14	14	19
1 1/2"	40	18	18	18	26
2"	50	14	16	24	32
2 1/2"	65	30	38	52	60
3"	80	30	44	70	86
4"	100	70	74	94	142
5"	125	150	187	300	435
6"	150	200	250	400	580

\* NO SAFETY FACTOR INCLUDED

Media Factor		Configuration Factor	
MEDIA	FACTOR	CONFIGURATION	FACTOR
Clean lubricating fluid	0,0	Through Port	0,0
Clean non-lubricating fluid	0,0	V-Port	0,3
Chilled water	0,3	Modulating Service	0,3
Low temperature service (< 0°C)	0,3	Frequency Factor	
Raw water	0,4	FREQUENCY	FACTOR
Steam	0,4	Cycled Daily	0,0
Clean Gas	0,4	Cycled Weekly	0,1
Slurry	0,8	Cycled Monthly	0,2
Dry media	0,8	Cycled Bi-monthly	0,3
Seat Factor			
SEAT MATERIAL	FACTOR	SEAT MATERIAL	FACTOR
TFM 1600, MODIFIED TFM 1600, PTFE	0,90	UHMWPE	1,35
RPTFE	1,00	PEEK, 50/50	1,50





## PRODUCT WARRANTY

AR Controls will at its discretion repair or replace without charge or refund the purchase price for products supplied, which prove to be defective in matter or workmanship provided that, in each case the product has been properly installed and is used in the service for which it was recommended, and that the written claim, specifying the alleged defect is presented to AR Controls within 18 months from the date of shipment or within 12 months from date of installation, whichever date occurs first. AR Controls shall in no event be liable for the following cost, which includes but is not limited to costs associated with; consequential damages, labour, equipment or engineering costs related to the repair or replacement of defective equipment.

The warranty stated in this paragraph is in lieu of all other warranties, either express or implied. With respect to warranties, this paragraph states the buyer's exclusive remedy and AR Controls' exclusive liability."

14 CHROME STREET, CE6,  
VANDERBIJLPARK, 1900, SOUTH AFRICA



[SALES@ARCONTROLS.COM](mailto:SALES@ARCONTROLS.COM)



+27 (16) 981 4551



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