

KTM RICHARDS FIGURE R731/R733 PIN TRUNNION VALVES

DN 50 - 200

KTM Richards fire-safe and anti-static ASME 150/300 full bore, trunnion two piece body design ball valve for the chemical and petroleum industries
R731 ASME Class 150; R733 ASME Class 300



FEATURES

- Designed to ASME B16.34, API 608 and ISO 17292. Optional testing to API 6D / ISO 14313
- Two piece bolted body design complies with ASME B16.34 and ASME VIII
- ISO 5211 top mounting flange
- Face to face ASME B16.10
- Fire Safe tested and certified to API 607 by Lloyd's Register Asia
- Flange connection to ASME B16.5 as standard
- Carbon steel or stainless steel body as standard
- Precision 316 stainless steel ball and duplex stem as standard
- Blow-out proof shouldered stem
- Anti-static device to API 608
- A secondary metal "firesafe" seat
- Spring energized seat design
- Double block and bleed capability (optional)
- Optional cavity pressure bleed / vent fitting
- External replaceable weather seal.
- Emergency sealant facility (optional).
- Spring energized stem assembly to compensate for wear and temperature changes.
- Optional fugitive emission stem seal package
- Vented ball equalizes body cavity pressure in open position and prevents possible seat damage
- Manufactured under quality system ISO 9001 Cert. No. MEL0929678/A and API 6D Q1 Cert. No. 6D-0243
- All valves factory hydro / air tested to API 598
- Certificate of Compliance to EN 10204 / ISO 10474 Type 3.1 (DIN 50 049) are supplied as standard
- EC Certificated of Conformity for PED 97/23/EC, Schedule 4, Module H
- DN 50 - 150 Pin trunnion design
- DN 200 Plate trunnion design

GENERAL APPLICATION

Ideally suited for use in the oil and gas production, refining and chemical applications. Body material and wetted trim components conform to NACE standard MR0175 - 2002.

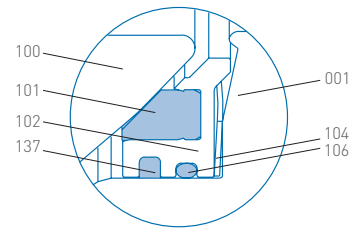
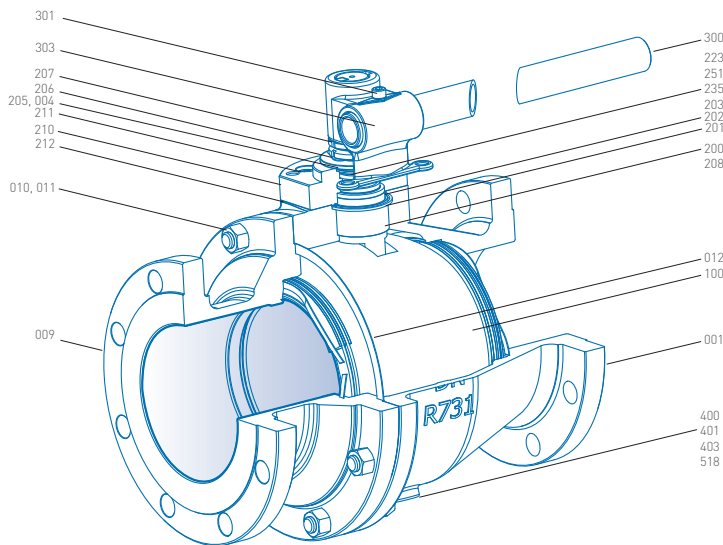
Hazardous areas handling flammable fuels, gases or chemicals where fire-safe, or anti-static valves are mandatory or desirable.

TECHNICAL DATA

Size range: DN 50 - 200
 Pressure rating: ASME Class 150 to 300
 Temperature rating: Up to 260°C
 End connections: Flanged ASME B16.5

KTM RICHARDS FIGURE R731/R733 PIN TRUNNION VALVES

DN 50 - 200



Seat detail

Note: R731 DN 50 - 150 pin trunnion valve illustrated

NOTES

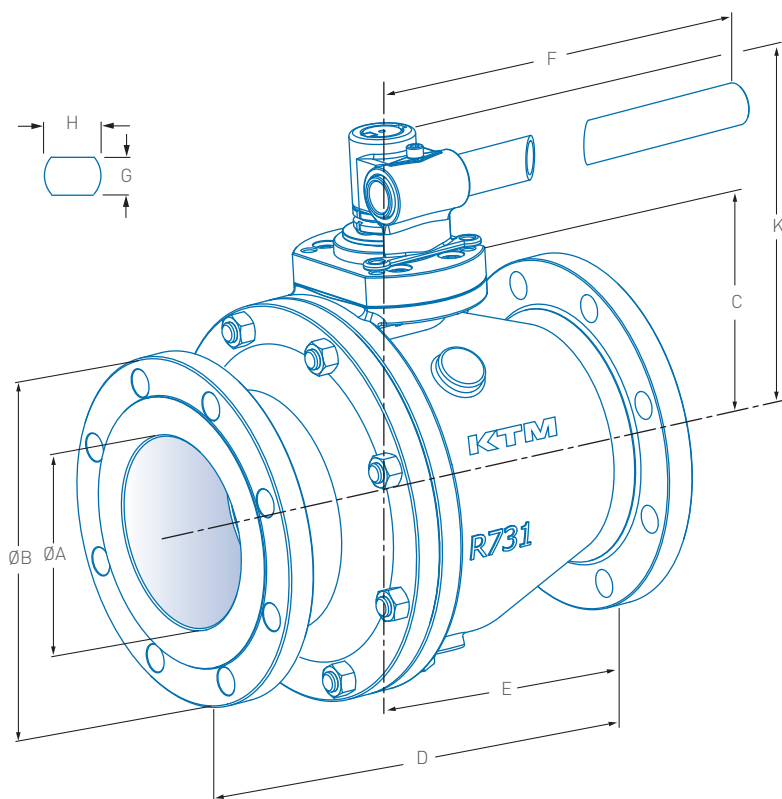
Pressure containing materials conform to NACE MR0175 - 2002.
DN200 R731 R733 - Plate trunnion design (not shown).

PARTS LIST

No.	Description	Carbon steel	Stainless steel
001	Body	ASTM A216-WCC	ASTM A351-CF8M
004	Stop pin	UNS S31600	UNS S31600
009	Body connector	ASTM A216-WCC	ASTM A351-CF8M
010	Body stud	ASTM A193 Gr B7	ASTM A193 Gr B8M
011	Body nut	ASTM A194 Gr 2H	ASTM A194 Gr 8M
012	Body gasket (DN 50 - 150)	Flexible graphite	Flexible graphite
	Body gasket (DN 200)	316SS/graphite	316SS/graphite
100	Ball	UNS S31600	UNS S31600
101	Seat (code 2 - energized)	Carbon reinforced PTFE	Carbon reinforced PTFE
102	Seat follower (energized seat)	UNS S31600	UNS S31600
104	Seat spring (energized seat)	Inconel	Inconel
106	Seat housing seal (energized seat)	FKM	FKM
137	Aux seat housing seal (DN 150 - 200)	Flexible graphite	Flexible graphite
151	Trunnion bearing plate (DN 200)	SS/PTFE	SS/PTFE
200	Stem (standard)	UNS S31803	UNS S31803
	Stem (high strength)	[Optional - UNS S17400]	[Optional - UNS S17400]
201	Primary stem seal	Carbon reinforced PTFE	Carbon reinforced PTFE
202	Firesafe stem seal (DN 50 - 150)	Flexible graphite	Flexible graphite
	Firesafe stem seal (DN 200)	Comp. mineral fiber	Comp. mineral fiber
203	Stem seal	FKM	FKM
205	Stop plate	UNS S31600	UNS S31600
206	Stem spring	Inconel	Inconel
207	Stem nut	UNS S31600	UNS S31600
208	Stem bearing	CS/PTFE	SS/PTFE
210	Stem cover housing (DN 50 - 150)	ASTM A105N	ASTM A182 F316
211	Stem cover screw (DN 50 - 150)	ASTM A193 Gr B7	ASTM A193 Gr B8M
212	Stem housing gasket (DN 50 - 150)	Flexible graphite	Flexible graphite
223	Stem seal follower	UNS S31600	UNS S31600
235	Aux. stem seal (DN 200)	FKM	FKM
245	Bearing plate (DN 200)	UNS S31600	UNS S31600
251	Weather seal	Comp. carbon fiber	Comp. carbon fiber
258	Lock washer (DN 50)	UNS S31600	UNS S31600
300	Wrench (DN 50)	Carbon steel zinc plated (optional - UNS S31600)	Carbon steel zinc plated (optional - UNS S31600)
	Wrench (DN 80 - 100)	Carbon steel zinc plated (optional - UNS S31600)	Carbon steel zinc plated (optional - UNS S31600)
301	Wrench retainer	UNS S31600	UNS S31600
303	Wrench head	WCC (prime coated) (optional - UNS S31600)	WCC (prime coated) (optional - UNS S31600)
400	Trunnion (DN 50 - 150)	UNS S31803	UNS S31803
401	Trunnion bearing	(DN 50 - DN 100) - PEEK (DN 150) - CS/PTFE	(DN 50 - 100) - PEEK (DN 150) - SS/PTFE
403	Trunnion seal (DN 150)	Flexible graphite	Flexible graphite
518	Plug	ASTM A105N	UNS S31600
532	Anti-static device	UNS S31600/monel	UNS S31600/monel

KTM RICHARDS FIGURE R731/R733 PIN TRUNNION VALVES

DN 50 - 200



Note: DN 100 R731 valve illustrated

DIMENSIONS (mm)

Valve size	ØA	ØB		C	D		E		F	K	Stem conn.		Top plate data			Mass (kg)		K _v at full open
		Class 150	Class 300		Class 150	Class 300	Class 150	Class 300			H x G	Keyway	No. holes	Hole dia.	PCD	Class 150	Class 300	
50	51	150	165	84	178	216	75	93	277	160	19 x 12.7	N/A	4	M8	70	16	18	344
80	76	190	210	123	203	283	95	116	427	205	22 x 15.9	N/A	4	M10	102	26	38	852
100	102	230	255	149	229	305	99	135	625	255	Ø32	10 x 10	4	M12	125	45	66	1688
150	150	280	320	184	394	403	181	186	N/A	N/A	Ø32	10 x 10	4	M12	125	95	125	5110
200	203	345	380	198	457	502	229	247	N/A	N/A	Ø35	10 x 8	4	M12	125	170	252	9950

NOTES

F = The handle dimension when the handle is in the extended position N/A when fitted with gear operator.

ØH = The diameter of the stem connection.

G = The dimension across the stem flats.

K_v = The flow rate of water in m³/hr that will pass through a valve with a pressure drop of 1 bar (100 kPa) at 20°C.

C_v = 1.155 K_v

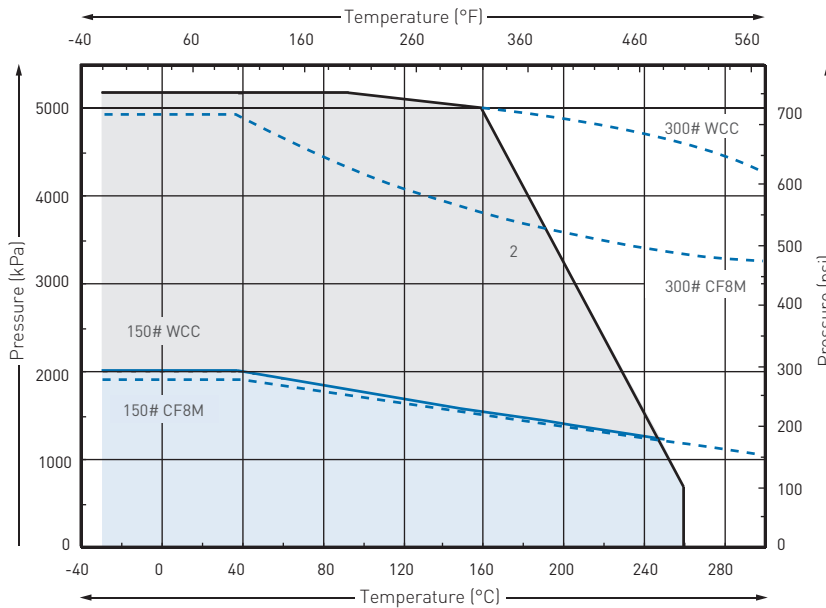
Dimensions are nominal to ± 1 mm.

N/A = Not available

KTM RICHARDS FIGURE R731/R733 PIN TRUNNION VALVES

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PRESSURE/TEMPERATURE CHART



2 RPTFE energized seat*

TYPICAL SPECIFYING SEQUENCE - CLASS 150 AND CLASS 300

100	R731	C	A	A	2	S	F	3	-	01
Valve size	Figure no.	Body material	End conn. (note 1)	End conn. (note 1)	Seat type	Trim material	Body seal	Certification code (note 2)	Valve variant	Standard option

Size range: DN 50 - 200 (full bore)

Figure no: R731 - Fire safe, anti-static, class 150, full bore, pin trunnion ball design, wrench operated with locking device.

R733 - Fire safe, anti-static, class 300, full bore, pin trunnion ball design, wrench operated with locking device.

Trim code	Body material	End conn.	End conn.	Seat	Trim	Body seal
CAA2SF	Carbon steel	Flg ASME	Flg ASME	Carbon RPTFE	316 S/S	Flexible graphite
SAA2SF	316 S/S	Flg ASME	Flg ASME	Carbon RPTFE	316 S/S	Flexible graphite

NOTES

- For end connection details refer to Emerson.
- Certification code: Standard certification code 3 includes pressure test certification and material certification of the pressure containing components conforming to EN 10204:1991/ISO 10474 Type 3.1 (DIN 50 049). Additional certification requirements is available on request, refer to Emerson.
- Valve variant: Standard valve is not offered with variants. Should a valve variant be required, refer to Emerson for variant listing and order code details.
- Standard options: Base valve is supplied with wrench operator with locking device - code 01. For other valve options, refer to Emerson for listing and order code details. For bare shaft valves (code 08) where fitment of gearbox or actuator is required, the order requirement is to be specified as "Complete with" followed by the details of the requirement - eg: complete with gearbox.

PRESSURE/TEMPERATURE RATINGS

Class 150 (Figure R731)

Carbon reinforced PTFE

Carbon steel: 1960 kPa/19.6 bar max at 38°C

Stainless steel: 1900 kPa/19 bar max at 38°C

Class 300 (Figure R733)

Carbon reinforced PTFE

Carbon steel: 5110 kPa/51.1 bar max at 38°C

Stainless steel: 4960 kPa/49.6 bar max at 38°C

NOTES

- These pressure/temperature ratings displayed are for total valve assembly with the respective seat material fitted.
- Seat pressure/temperature limitations displayed for Class 150 and 300 are in combination with FKM O-ring seals. For other seat/sealing materials refer to Emerson.
- Carbon steel valves have a minimum temperature limitation of minus 29°C.