



WKM 370D5

Trunnion-mounted ball valves



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WKM 370D5* trunnion-mounted ball valves

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WKM 370D5 trunnion-mounted ball valves

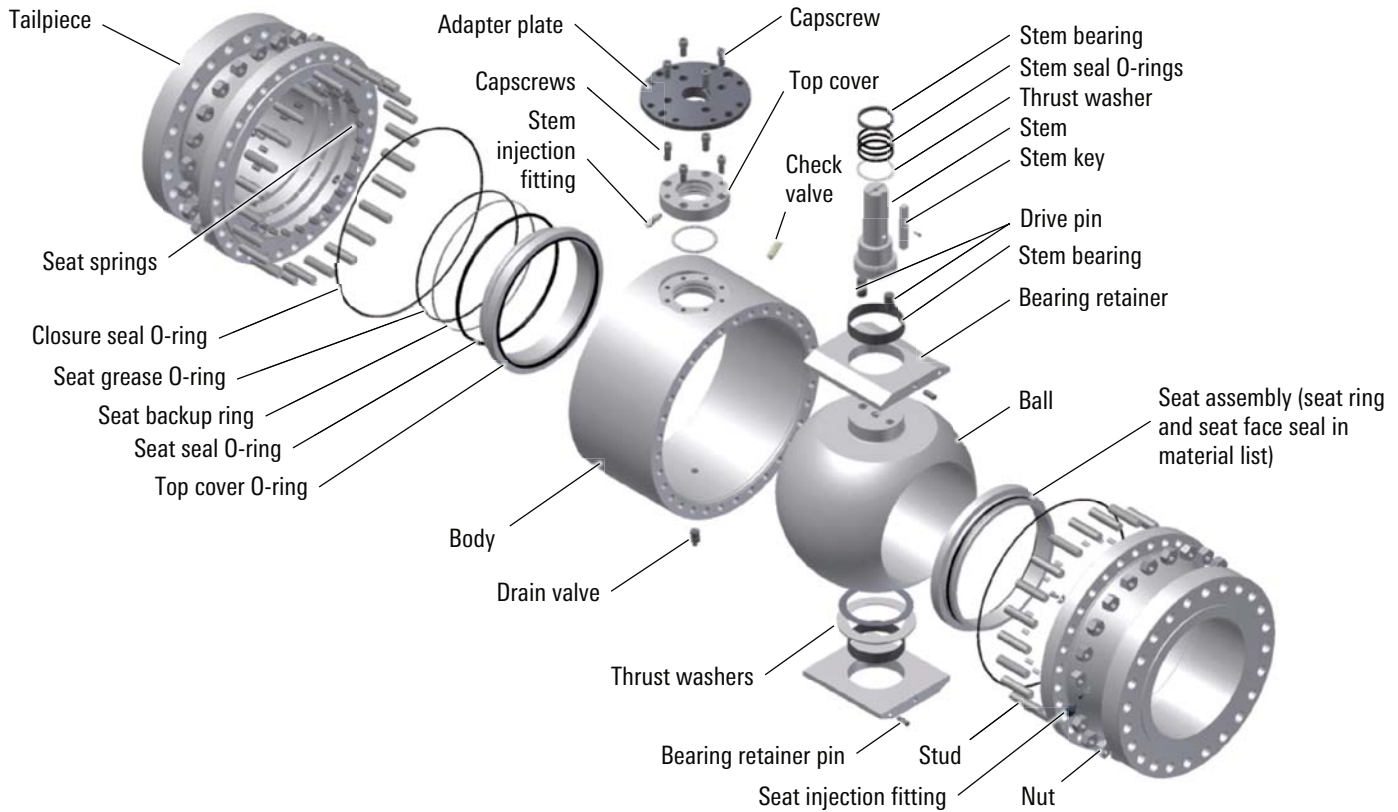
Cameron is a leading provider of valve, valve automation, and measurement systems to the oil and gas industry. We offer products primarily used to control, direct, and measure the flow of oil and gas as it is moved to refineries, petrochemical plants, and industrial centers for processing.

We provide valve products that are sold through distributor networks worldwide. Our products are used in oil, gas, and industrial applications and include widely recognized brands such as DEMCO* valves; NAVCO* floating ball valves; NEWCO* gate, globe, and check valves; DOUGLAS CHERO* forged-steel gate, globe, and check valves; NUTRON* ball valves; THORNHILL CRAVER* choke valves; TOM WHEATLEY* check valves; WHEATLEY* check valves; and WKM* valves.

WKM valves are recognized throughout the world for durable, reliable, and flexible operation in challenging situations. Our portfolio of valves includes gate valves, trunnion-mounted and floating ball valves, and butterfly valves, all built to standards for demanding applications.

ASME Classes 150, 300, and 600 18, 20, and 24 in [450, 500, and 600 mm]

Expanded View



Features and specifications

- Three-piece forged construction
- Double block-and-bleed design
- Stem and seat injection
- Adapter plate for direct-mount gear
- Conformance to
 - API Specification 6D
 - NACE MR0175/ISO 15156
 - MSS-SP-6 (standard finishes for pipe flanges)
 - MSS-SP-25 (standard marking system for valves)
 - API Standard 607 and Specification 6FA (fire test)

In addition, WKM valves with DynaSeal* pressure seals can be supplied to comply with these standards:

- API Standard 598 (valve inspection and testing)
- MSS-SP-61 (pressure testing of steel valves)
- ASME B16.104 (valve seat leakage).

ASME Pressure Classes

Size, in [mm]	150	300	600
18 [450]	●	●	●
20 [500]	●	●	●
24 [600]	●	●	●

Materials List

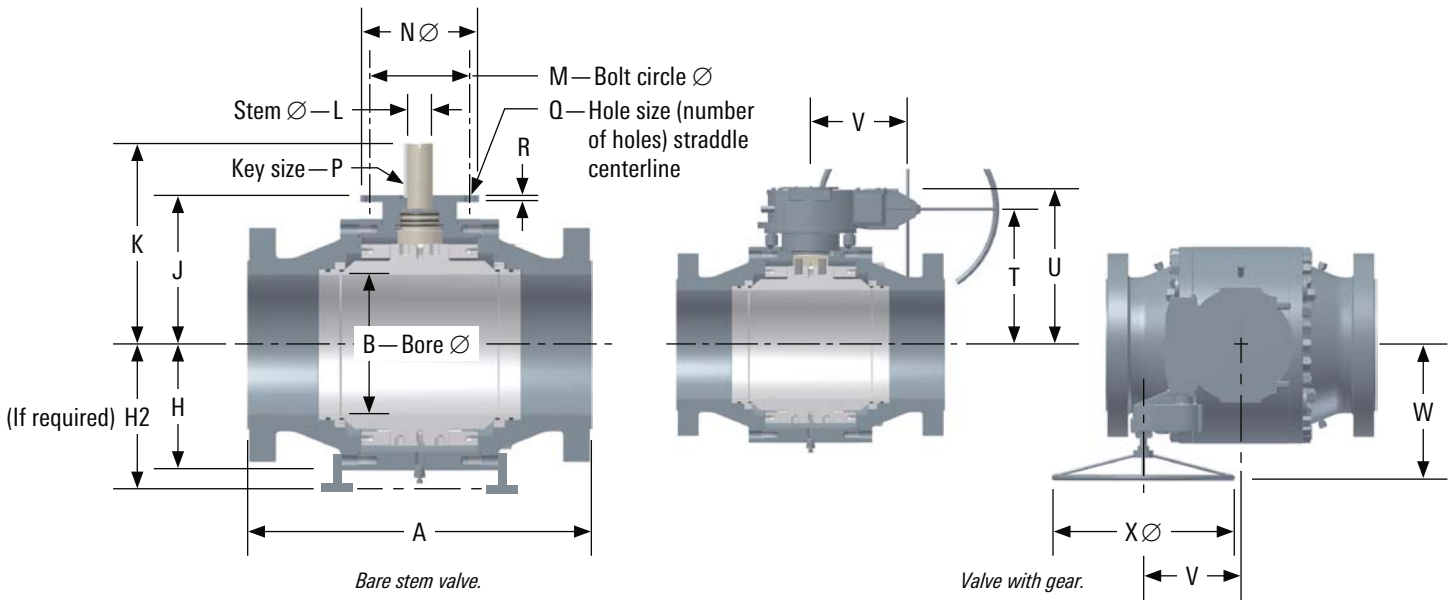
Body Group Trim Number	
Part	Carbon Steel (NACE) 24
Body	A105
Tailpiece	A105
Support legs (not shown)	Carbon steel
Drain valve	Stainless steel
Check valve	Stainless steel
Plugs	Carbon steel
Top cover	A105
Adapter plate	A105
Stem key	Carbon steel
Lifting lug	Carbon steel
Anchor pin	Carbon steel
Studs	A193 Gr. B7M
Nuts	A194 Gr. 2HM
Capscrews	A193 Gr. B7M
Spacer	Stainless steel

Internal Group Trim Number		
Part	Carbon Steel (NACE) 24	Stainless Steel (NACE) 23
Bearing retainer	A516 Gr. 70	A516 Gr. 70
Bearings	Stainless steel and filled polytetrafluoroethylene (PTFE)	Stainless steel and filled PTFE
Seat	4130 and 1-mil-thick electroless nickel plating (ENP)	316 stainless steel
Seat springs	X-750	X-750
Seat stop washer	A105	A105
Ball	A105 and 1-mil-thick ENP	CF8M
Stem	4130 and 1-mil-thick ENP	Type 630
Gland bushing	4130 and 1-mil-thick ENP	4130 and 1-mil-thick ENP
Drive pin	Type 630	Type 630
Bearing retainer pin	1040	1040
Ground device	Stainless steel	Stainless steel

Seal Group Trim Code		
Part	DRF	DWF
Temperature limits	-20 to 250 degF [-29 to 121 degC]	-20 to 300 degF [-29 to 149 degC]
Face seal	Devlon® V-API material	Devlon V-API material
Thrust washer	Stainless steel and filled PTFE	Stainless steel and filled PTFE
Stem O-rings	HNBR	FKM GLT
Stem backup rings	Nylon 6	Nylon 6
Seat O-rings	HNBR	FKM GLT
Seat backup rings	Nylon 6	Nylon 6
Body and tailpiece O-ring	HNBR	FKM GLT

NACE indicates compliance with NACE MR0175/ISO 15156.

Dimensions



Full Port Dimensions

ASME Class 150 Full Port Dimensions, in [mm]

Size, in [mm]	A		B	H	H2	J	K	L	M	N	P	Q	R	T	U	V	W	X
	RF	RJ																
18 [450]	34 [864]	34.49 [876]	17.25 [438.2]	17.07 [433.5]	18.13 [460.5]	19.13 [486]	23.70 [602]	2.953 [74.93]	10.630 [270]	12.60 [320]	0.708 [18]	0.866 (8) [22]	1.31 [33]	24.32 [617.7]	25.70 [652.8]	7.30 [185.5]	20.94 [531.9]	20 [508]
20 [500]	36 [914]	36.50 [927]	19.25 [488.9]	18.15 [461]	25.91 [658]	20.59 [523]	23.90 [607]	2.953 [74.93]	10.630 [270]	12.60 [320]	0.708 [18]	0.866 (8) [22]	0.91 [23]	25.78 [654.8]	27.16 [689.9]	7.30 [185.5]	20.94 [531.9]	24 [610]
24 [600]	42 [1,067]	42.52 [1,080]	23.25 [590.55]	21.46 [545]	31.81 [808]	23.27 [591]	29.65 [753]	3.543 [89.99]	14.173 [360]	16.14 [410]	0.866 [22]	1.063 (8) [27]	0.91 [23]	28.27 [718.1]	29.84 [757.9]	5.93 [150.6]	22.43 [570]	24 [610]

ASME Class 300 Full Port Dimensions, in [mm]

Size, in [mm]	A		B	H	H2	J	K	L	M	N	P	Q	R	T	U	V	W	X
	RF	RJ																
18 [450]	36 [914]	36.61 [930]	17.25 [438.2]	16.67 [423.5]	20.41 [518.5]	19.13 [486]	21.87 [555.5]	2.953 [74.93]	10.630 [270]	12.60 [320]	0.708 [18]	0.866 (8) [22]	1.31 [33]	24.32 [617.7]	25.70 [652.8]	7.30 [185.5]	20.94 [531.9]	30 [762]
20 [500]	39 [991]	39.76 [1,010]	19.25 [488.9]	18.70 [475]	20.47 [520]	20.59 [523]	26.46 [672]	2.953 [74.93]	10.630 [270]	12.60 [320]	0.708 [18]	0.866 (8) [22]	0.91 [23]	25.78 [654.8]	27.16 [686.9]	7.30 [185.5]	20.94 [531.9]	36 [914.4]
24 [600]	45 [1,143]	45.87 [1,165]	23.25 [590.55]	21.93 [557]	25.43 [646]	23.60 [591]	30.30 [769.5]	3.543 [89.99]	14.173 [360]	16.14 [410]	0.866 [22]	1.063 (8) [27]	0.91 [23]	28.60 [726.4]	30.17 [766.3]	5.93 [150.6]	23.57 [598.7]	36 [914.4]

ASME Class 600 Full Port Dimensions, in [mm]

Size, in [mm]	A		B	H	H2	J	K	L	M	N	P	Q	R	T	U	V	W	X
	RF	RJ																
18 [450]	43 [1,092]	43.11 [1,095]	17.25 [438.2]	16.69 [424]	21.46 [545]	19.41 [493]	25 [635]	3.543 [89.99]	14.173 [360]	16.14 [410]	0.866 [22]	1.063 (8) [27]	1.57 [40]	24.41 [620]	25.98 [659.9]	5.93 [150.6]	24.07 [611.4]	30 [762]
20 [500]	47 [1,194]	47.24 [1,200]	19.25 [488.9]	18.70 [475]	20.47 [520]	20.39 [518]	27.46 [697.5]	3.543 [89.99]	14.173 [360]	16.14 [410]	0.866 [22]	1.063 (8) [27]	0.91 [23]	25.39 [644.9]	26.96 [684.8]	5.93 [150.6]	23.57 [598.7]	36 [914.4]
24 [600]	55 [1,397]	55.39 [1,407]	23.25 [590.55]	21.85 [555]	24.51 [622.5]	23.62 [600]	31.69 [805]	4.724 [120]	16.535 [420]	18.90 [480]	1.260 [32]	1.181 (8) [30]	1.10 [28]	28.59 [726.2]	30.78 [781.8]	8.87 [225.3]	27.91 [708.9]	36 [914.4]

Weight and C_v Data

Weight (Valve Only, Bare Stem), lbm [kg]

Size, in [mm]	Valve Pressure Class		
	150	300	600
18 [450]	3,476 [1,577]	3,584 [1,626]	4,553 [2,065]
20 [500]	4,850 [2,200]	5,090 [2,309]	6,340 [2,876]
24 [600]	7,200 [3,266]	7,560 [3,429]	9,430 [4,277]

Weight (Worm Gear Actuator Only), lbm [kg]

Size, in [mm]	Valve Pressure Class		
	150	300	600
18 [450]	150 [68]	150 [68]	148 [67]
20 [500]	150 [68]	150 [68]	148 [67]
24 [600]	148 [67]	148 [67]	402 [182]

Flow Characteristics (C_v)

Size, in [mm]	Valve Pressure Class		
	150	300	600
18 [450]	56,221	53,803	51,836
20 [500]	71,060	64,664	64,559
24 [600]	106,055	100,830	95,605

Torque Chart

ASME Classes 150 through 600 Max. Operating Pressure

Ball Valve Torque Chart

Size in, [mm]	Gauge Pressure, psi	Torque Expressions, in.lbf	Break Torque, in.lbf	Run Torque, in.lbf	Reseat Torque, in.lbf	Max. Allowable Stem Torque (MAST), in lbf	
						24xxx24	24xxx23
18 (450)	0 to 285	$19,440 + (55.08 \times P)$	35,138	19,440	28,110	74,028	—
	286 to 740	$19,440 + (40.44 \times P)$	49,366	19,440	39,492	130,080	138,912
	741 to 1,480	$19,440 + (46.32 \times P)$	87,994	87,994	19,440	70,395	193,236
20 (500)	0 to 285	$20,880 + (70.56 \times P)$	40,990	20,880	32,792	130,080	169,032
	286 to 740	$20,880 + (61.68 \times P)$	66,523	20,880	53,219	130,080	227,652
	741 to 1,480	$20,640 + (56.40 \times P)$	104,112	104,112	20,640	83,290	224,676
24 (600)	0 to 285	$40,044 + (97.92 \times P)$	67,951	40,044	54,361	224,676	323,784
	286 to 740	$40,044 + (81.60 \times P)$	100,428	40,044	80,342	184,524	184,524
	741 to 1,480	$37,680 + (74.64 \times P)$	148,147	37,680	118,518	349,560	349,560

The above values are new valve torque values, where P is the maximum operating pressure of the valve.

These torque values do not contain service factors.

Soaking effects, particle matter, or both in the valve may cause an increase in the torque.

For intermediate pressure, use the torque expressions for the stated pressure range. For example, an intermediate gauge pressure of 1,000 psi uses the torque equations that correspond to the 751- to 1,500-psi gauge pressure range.

The reseal torque is taken as 0.8 times the break torque.

For power operation, multiply all of the above values by a factor of 1.25 or customer-specified factor, whichever is larger.

Actuator selection should be made on customer experience and appropriate service factors.

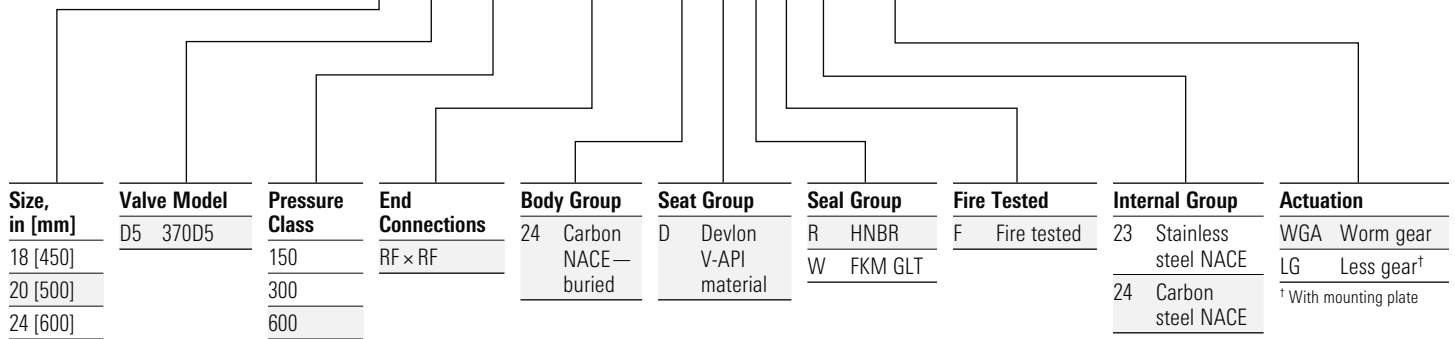
How to Order

Example

20 D5 600 RF × RF 24 D R F 24 WGA

20D5600RF×RF24DRF24WGA:

18-in [450-mm], Model D5, pressure class 600, RF × RF end connections, carbon NACE body, Devlon V-API material seat, HNBR seal, fire-tested, carbon steel NACE internal, worm gear actuation



The chart above identifies in general terms each of the standard WKM valve trims.

- Valves ordered with worm gears (WGA) are shipped with gears installed, but handwheels are not installed (shipped separately).
- Valves ordered less gear (LG) are shipped with gear mounting plate installed (for actuation by others).

The trim charts provide more specific application details, including availability of fire-tested materials. Contact Cameron for information concerning availability of trims other than those listed or for any additional information concerning the choice or guidance for application of the trims listed.

NACE MR0175/ISO 15156 Compliance—Materials of construction shall be in compliance with the prequalified material requirements specified by NACE MR0175/ISO 15156. According to NACE MR0175/ISO 15156, it is the manufacturer’s responsibility for meeting metallurgical requirements and the customer’s and user’s responsibility to ensure that a material will be satisfactory in the intended environment. When given the application requirements (environment) by the customer or user, Cameron can make technical recommendations in accordance with NACE MR0175/ISO 15156, but that in no way certifies or warrants the product or materials for the application.

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