

WKM 370D5R

Trunnion-mounted ball valve



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SLB is a leading provider of valve, valve automation, and measurement systems to the oil and gas industry.

Our products 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 WKM™ valves and other widely recognized brands such as

- DEMCO™ valves
- Grove™ valves
- NAVCO™ floating ball valves
- NUTRON™ ball valves
- TOM WHEATLEY™ check valves
- WHEATLEY™ check valves.

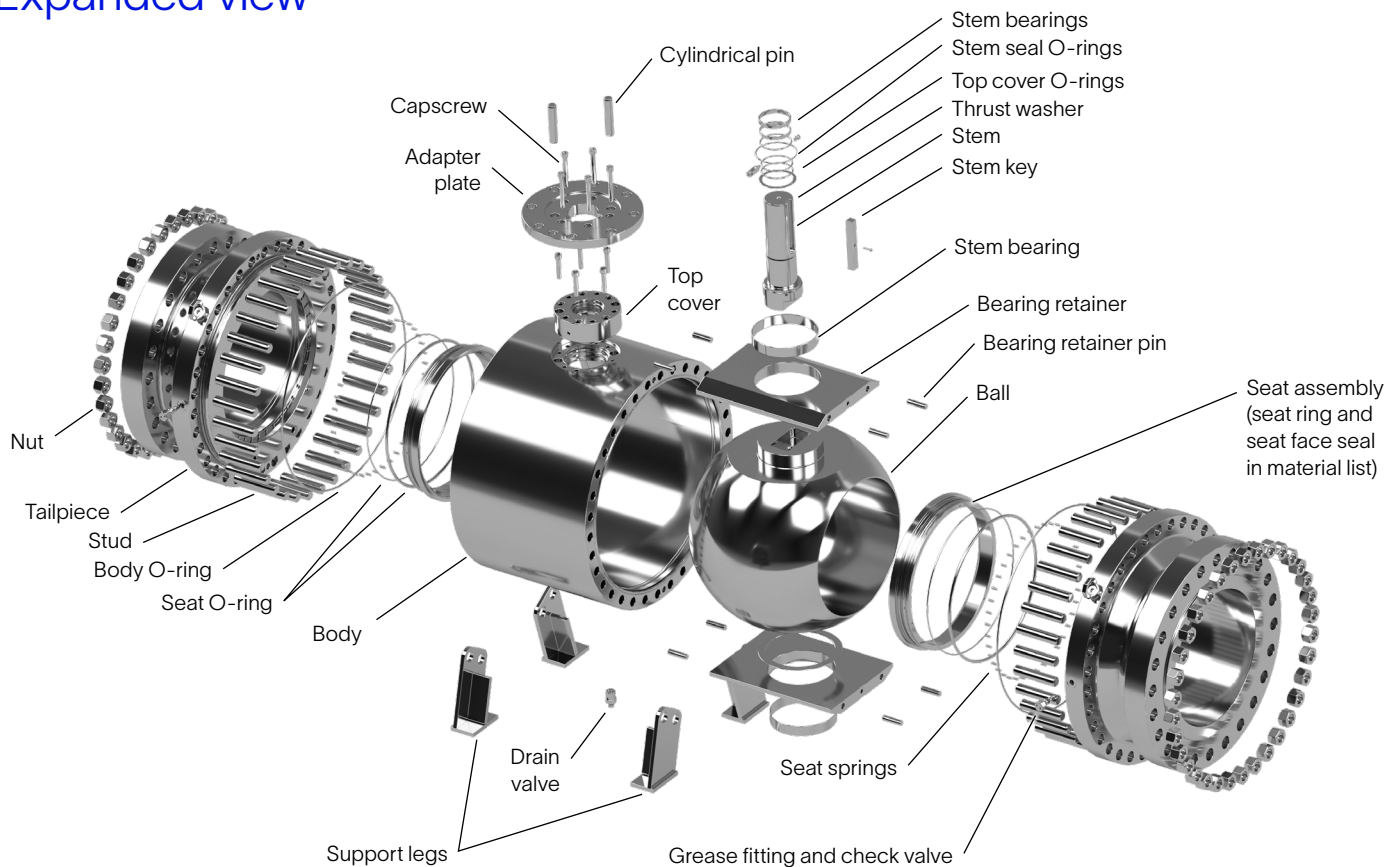
WKM valves are recognized throughout the world for durable, reliable, and flexible operation in challenging situations. Our portfolio of valves includes gate valves, trunnion-mounted and floating ball valves, and butterfly valves, all built to standards for demanding applications.

WKM 370D5R™ trunnion-mounted ball valves satisfy a wide range of ANSI and API Specification 6D applications. Engineered for heavy-duty, reduced-maintenance performance and manufactured in a variety of body and seal materials, WKM 370D5R valves are commonly selected for many specialized applications such as gas distribution, gas transmission, oilfield production, and industrial applications.

ASME Classes 150, 300, and 600 valves

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 (fire test)
 - API Standard 641 (low emissions)

ASME Pressure Classes

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

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).

Materials list

Body Group Trim Number

Part	Carbon Steel (NACE) 24
Body	A350 LF2
Tailpiece	A350 LF2
Support legs (not shown)	Carbon steel
Drain valve	Stainless steel
Check valve	Stainless steel
Plugs	Carbon steel
Top cover	A350 LF2
Adapter plate	A350 LF2
Stem key	Carbon steel
Lifting lug	Carbon steel
Anchor pin	Carbon steel
Studs	A320 L7M
Nuts	A194 7M
Capscrews	A320 L7M
Spacer	Stainless steel

Internal Group Trim Number

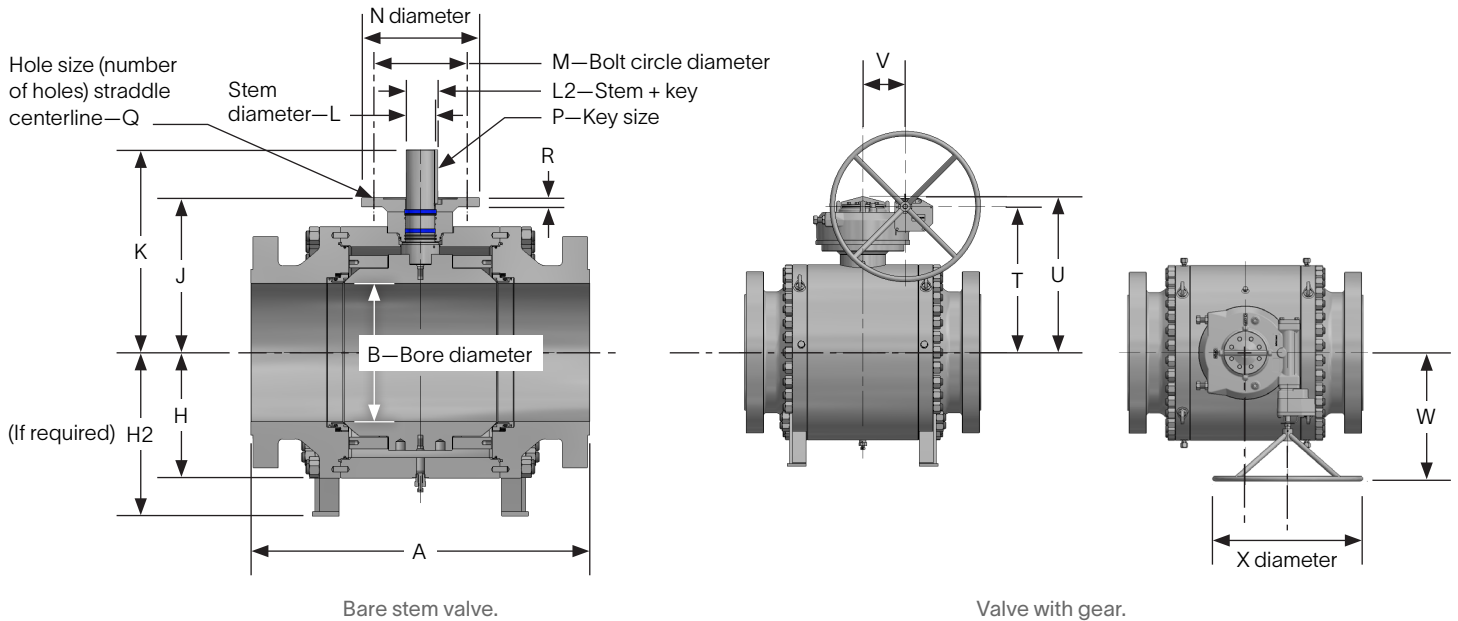
Part	Carbon Steel (NACE) 24	Stainless Steel (NACE) 23
Bearing retainer	A516 Grade 70	A516 Grade 70
Bearings	Stainless steel and filled polytetrafluoroethylene (PTFE)	Stainless steel and filled PTFE
Seat	LF2 and 1-mil-thick electroless nickel plating (ENP)	316 stainless steel
Seat springs	X-750	X-750
Seat stop washer	F316	F316
Ball	LF2 and 1-mil-thick ENP	CF8M
Stem	4140 and 1-mil-thick ENP	Type 630
Gland bushing	4140 and 1-mil-thick ENP	4140 and 1-mil-thick ENP
Bearing retainer pin	1040	1040
Ground device	Stainless steel	Stainless steel

Seal Group Trim Number

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
Seat O-rings	HNBR	FKM GLT
Body and tailpiece O-ring	HNBR	FKM GLT

NACE indicates compliance with NACE MR0175/ISO 15156.

Dimensions



ASME Class 150 Full Port Dimensions, in [mm]

Size, in [mm]	A		B	H	H2	J	K	L	L2	M	N	P	Q	R	T	U	V	W	X
	RF	RJ																	
18 [450]	34 [864]	34.49 [876]	17.17 [436]	15.35 [390]	20.67 [525]	19.31 [490.5]	24.04 [610.5]	2.953 [75]	3.27 [83.0]	11.732 [298]	13.78 [350]	0.709 [18]	0.866 (8) [22]	1.30 [33]	22.56 [573.1]	25.03 [635.8]	5.67 [144.1]	18.66 [474.0]	16 [406.4]
20 [500]	36 [914]	36.50 [927]	19.17 [487]	16.77 [426]	22.09 [561]	20.81 [528.5]	25.53 [648.5]	2.953 [75]	3.27 [83.0]	11.732 [298]	13.78 [350]	0.709 [18]	0.866 (8) [22]	1.30 [33]	24.06 [611.1]	26.53 [673.8]	5.67 [144.1]	19.16 [486.7]	18 [457.2]
24 [600]	42 [1,067]	42.52 [1,080]	23.19 [589]	19.88 [505]	25.22 [640]	23.98 [609]	30.83 [783]	3.543 [90]	3.92 [99.5]	14.016 [356]	16.34 [415]	0.866 [22]	1.30 (8) [33]	1.30 [33]	27.54 [699.5]	31.59 [802.3]	5.93 [150.6]	20.98 [532.9]	24 [610]

ASME Class 300 Full Port Dimensions, in [mm]

Size, in [mm]	A		B	H	H2	J	K	L	L2	M	N	P	Q	R	T	U	V	W	X
	RF	RJ																	
18 [450]	36 [914.5]	36.61 [930]	17.17 [436]	15.51 [394]	20.83 [529]	19.47 [494.5]	26.32 [668.5]	3.543 [90]	3.92 [99.5]	14.016 [356]	16.34 [415]	0.866 [22]	1.30 (8) [33]	1.30 [33]	23.03 [585]	27.08 [687.8]	7.30 [185.4]	22.59 [573.7]	30 [762]
20 [500]	39.02 [991]	39.76 [1,010]	19.17 [487]	17.13 [435]	22.44 [570]	21.46 [545]	28.15 [715]	3.937 [100]	4.39 [111.4]	14.016 [356]	16.34 [415]	1.000 [25.4]	1.30 (8) [33]	1.30 [33]	25.02 [635.5]	29.07 [738.3]	5.93 [150.6]	20.98 [532.9]	24 [610]
24 [600]	45 [1,143]	45.87 [1,165]	23.19 [589]	20.39 [518]	25.71 [653]	25.35 [644]	32.64 [829]	4.331 [110]	4.82 [122.2]	15.984 [406]	18.70 [475]	1.102 [28]	1.54 (8) [39]	1.50 [38]	31.36 [796.5]	36.05 [915.6]	7.58 [192.5]	23.95 [608.3]	24 [610]

ASME Class 600 Full Port Dimensions, in [mm]

Size, in [mm]	A		B	H	H2	J	K	L	L2	M	N	P	Q	R	T	U	V	W	X
	RF	RJ																	
18 [450]	43 [1,092]	43.11 [1,095]	17.17 [436]	15.75 [400]	21.06 [535]	19.47 [494.5]	26.32 [668.5]	3.543 [90]	3.92 [99.5]	14.020 [356]	16.34 [415]	0.866 [22]	1.30 (8) [33]	1.30 [33]	25.72 [653.2]	27.31 [693.6]	5.93 [150.6]	22.11 [561.6]	36 [914.4]
20 [500]	46.93 [1,191.9]	47.24 [1,200]	19.17 [487]	17.44 [443]	22.68 [576]	21.46 [545]	28.15 [715]	3.937 [100]	4.39 [111.4]	14.016 [356]	16.34 [415]	1.000 [25.4]	1.30 (8) [33]	1.30 [33]	29.03 [737.3]	31.04 [788.4]	8.44 [214.3]	25.58 [649.7]	30 [762]
24 [600]	55 [1,397]	55.39 [1,407]	23.19 [589]	20.93 [531.5]	26.24 [666.5]	25.89 [657.5]	33.17 [842.5]	4.331 [110]	4.82 [122.2]	15.984 [406]	18.70 [475]	1.102 [28]	1.54 (8) [39]	1.50 [38]	32.54 [826.4]	34.70 [881.5]	8.87 [225.3]	26.94 [684.3]	30 [762]

How to order

Example

18 D5R 600 RF × RF 24 D R F 24 WGA

Size, in [mm]	Valve Model		Pressure Class	End Connections	Body Group		Seat Group		Seal Group		Fire Tested	Internal Group		Actuation	
	D5R	370D5R			24	Carbon NACE—buried	D	Devlon V-API material	R	HNBR		F	Fire tested	23	Stainless steel NACE
18 [450]			150	RF × RF					W	FKM GLT					
20 [500]			300												
24 [600]			600									24	Carbon steel NACE		

¹With mounting plate

This chart 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 SLB 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, SLB 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.

18D5R600RF×RF24DRF24WGA

18-in [450-mm], Model D5R, 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

Weights and flow coefficient (C_v) data

Weights, lbm [kg]—Valve Only, Bare Stem

Valve Port	Valve Pressure Classes		
Size, in [mm]	150	300	600
18 [450]	3,560 [1,615]	4,078 [1,850]	5,052 [2,292]
20 [500]	4,434 [2,011]	5,338 [2,421]	6,583 [2,986]
24 [600]	7,110 [3,225]	8,562 [3,884]	10,935 [4,960]

Weights, lbm [kg]—Worm Gear Actuator Only

Valve Port	Valve Pressure Classes		
Size, in [mm]	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 Coefficient, C_v

Valve Port	Valve Pressure Classes		
Size, in [mm]	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

Valve torque chart

Ball Valve Torque Chart

Valve Port Size, in [mm]	Gauge Pressure, psi	Break Torque, lbf.in	Run Torque, lbf.in	Reseat Torque, lbf.in	Max. Allowable Stem Torque (MAST), lbf.in	
					24xxx24	24xxx23
18 [450]	0 to 285	35,138	19,440	28,110	198,258	276,412
	286 to 740	49,366	19,440	39,492	342,568	457,851
	741 to 1,480	87,994	19,440	70,395	342,568	457,851
20 [500]	0 to 285	40,990	20,880	32,792	198,248	276,412
	286 to 740	66,523	20,880	53,219	469,912	587,343
	741 to 1,480	104,112	20,640	83,290	469,912	587,343
24 [600]	0 to 285	67,951	40,044	54,361	342,568	457,851
	286 to 740	100,428	40,044	80,342	625,456	768,437
	741 to 1,480	148,147	37,680	118,518	625,456	768,437

These torque values do not contain service factors.

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

The reseal torque is equal to ~80% of the break torque.

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

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



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reduced-maintenance performance**

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