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ACTUATOR

WFS SERIES

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(401) 250-3800

WFM Series – For Standard Control Operation

BASIC



DESCRIPTION

WFM series multi-turn electric actuators are designed for multi-turn or linear motion valves such as gate valves, globe valves, control valves, and other similar valve applications. It can also be used with a 90° worm gearbox to drive quarter turn valves such as butterfly valves, ball valves, plug valves and other similar valves.

KEY FEATURES

- Direct output torque range of 50–900 N.m
- Output speed range of 18–144rpm
- Add a gearbox to meet torque requirements of large-diameter, high-torque valve applications
- Aluminum alloy housing
- Non-intrusive setting
- Standard IP67 protection
- Intelligent model includes an LCD display

INTEGRATION



INTELLIGENT



Technical Specifications

		BASIC	INTEGRATION	INTELLIGENT
Control	On-Off	X	X	X
	Modulating	–	X	X
Protection	Standard IP67, IP68 Optional	X	–	–
	Standard IP68	–	X	X
Display	Mechanical Pointer	X	–	–
	Open/Close/Remote/Fault Indicator Lamp	–	X	X
	LCD Digital Position Percentage Display	–	X	X
	LCD Digital Torque Percentage Display	–	–	X
Position Limit	Registering Gear	X	–	–
	Absolute Encoder	–	X	X
Local Control	Open/Stop/Close Button, Local/Remote/Lock	–	X	X
	Remote Control	–	X	X
Protection	Over Torque	X	X	X
	Motor Over Heat	X	X	X
	Valve Stall	–	X	X
	Loss Signal	–	X	X
	Reverse Starter	–	X	X
	Loss Phase (3 Phase Only)	–	X	X
	Auto Phase Correction (3 Phase Only)	–	X	X
	Non-Intrusive Set Up	–	X	X
	Operational Data Log	–	–	X
	Password	–	X	X
	Anti-Condensation (Heater)	Optional	X	X
Feedback Signal	Open and Close Limit, Open and Close Torque Switch, Position Feedback Potentiometer	X	–	–
	1* Collective Fault Feedback, 5* Potentiometer Feedback Contact (Contact Capacity 5A@250Vac)	–	X	X
Control Signal	On-Off Switch Signal	X	X	X
	Analogue Signal (4–20mA, 0–10V, 2–10V)	–	X	X
	Modbus, Profibus, HART	–	X	X
Other	Non-Intrusive Position Limit Set Up	–	X	X
	Torque Switch Limit Set Up	–	–	X
	Set Up Of: Deadzone, Reverse Signal, Loss Signal Mode, (0%, 100%, keep); Feedback Contacts, ESD (0%, 100%, Keep);	–	X	X
	Power Loss Display	–	–	X

NOTE: IP68 protection level is defined as 7m underwater and 72 hours without leakage.

Technical Specifications

		BASIC	INTEGRATION	INTELLIGENT
Model Range		WFM05-WFM90		WFM10-WFM90
Speed	50 Hz	18, 24, 36, 48, 72 RPM	18, 24, 36, 48, 72, 96, 144 RPM	
	60 Hz	21, 29, 43, 57, 86 RPM	21, 29, 43, 57, 86, 115, 173 RPM	
Ambient Temperature		-30°C – 70°C		
Noise		Within 1 Meter < 75 dB		
Cable Entries		Standard 2-NPT¾" (2-NPT1" Available) Standard 2-NPT¾" (2-NPT1" Available)		Standard 2-NPT1" & 1-NPT¾" Optional 3-NPT1" & 1-NPT1½"
Ingress Protection		Standard IP67 Optional IP68	Standard IP68	
Mounting		JB2920 (Standard), ISO5210 (Optional A type or B type)		
Motor		Standard F class motor for heat protection up to 135°C		
Duty Cycle	On-Off	S2~15min (600 starts per hour)		
	Modulating	—	S4~25% (600 starts per hour)	
Standard Voltage (Other voltages can be customized)		3 Phase: AC 380V (±10%) 1 Phase: AC 220V Frequency: 50Hz/60Hz (±5%)		
Input Signal	On-Off	Built in contacts 5A@250Vac	AC/DC 24V input; AC 110/220V (optional); optical signal isolation	
	Modulating	—	Input Signal: 4~20mA; Optional: 0~10V, 2~10V Input Impedance: 150 Ω (4~20mA)	
Feedback Signal	On-Off	<ul style="list-style-type: none"> • Open stroke limit, close stroke limit • Open over torque, close over torque • Flash signal (contact capacity: 5A@250Vac) • Position feedback potentiometer 	5 Configurable Contacts, (1 Integrated Fault Contact) (Contact Capacity 5A@250Vac)	
	Modulating	—	Input Signal: 4~20mA; Optional: 0~10V, 2~10V Output Impedance: ≤750 Ω (Repeatability and linearity within ±1% of full valve stroke)	
Fault Signal	On-Off	Integrated fault alarm: Motor overheating, over torque contacts	Collective fault alarm: Power off, motor overheating, lost phase, over torque, lose signal	
	Modulating	—	Signal Reverse, Dead Zone ≤2%	
Position Display		Mechanical Pointer	<ul style="list-style-type: none"> • LCD Screen Display • Position Percentage Display 	<ul style="list-style-type: none"> • 4-Level Grayscale LCD Screen Opening Indicator • Position Percentage Display • Torque Percentage Display

NOTE: WFM90 three-phase no modulating type; Single-phase 220V no modulating type.

WFM – 3 Phase Voltage On/Off Control

Model	Speed (RPM)		Torque (N.m)	Power (KW)	Rated Current (A)	Start Current (A)	Stall Current (A)	Handwheel Ratio	Max. Stem Diameter (mm)
	50 Hz	60 Hz							
WFM05	18	21	50	0.35	1.0	2.1	1.8	80:1	≤30
	24	29	50	0.35	1.0	2.4	2.1	60:1	
	36	43	50	0.35	1.0	2.5	2.1	40:1	
	48	57	50	0.35	1.3	3.2	2.8	30:1	
	72	86	40	0.35	1.3	3.8	3.4	20:1	
WFM10	18	21	100	0.35	1.3	3.6	3.2	80:1	≤30
	24	29	100	0.35	1.3	4.3	3.7	60:1	
	36	43	100	0.35	1.3	5.3	4.7	40:1	
	48	57	100	0.45	1.7	8.0	7.2	30:1	
	72	86	70	0.45	1.7	7.9	7.3	20:1	
	*144	173	40	0.60	2.1	6.9	6.1	20:1	
WFM15	18	21	150	0.45	1.5	6.3	5.5	80:1	≤30
	24	29	150	0.45	1.5	6.3	5.5	60:1	
	36	43	150	0.45	1.5	7.2	6.5	40:1	
	48	57	120	0.70	2.3	6.8	5.9	30:1	
	72	86	100	0.70	2.5	7.4	6.7	20:1	
	*144	173	75	0.70	2.7	9.8	8.4	40:1	
WFM20	18	21	200	0.75	2.2	6.9	6.0	80:1	≤42
	24	29	200	0.75	2.3	7.0	6.3	60:1	
	36	43	200	1.25	3.4	9.2	8.4	40:1	
	48	57	200	1.25	3.4	11.9	10.4	30:1	
	72	86	170	1.25	4.3	13.8	12.6	20:1	
	*144	173	100	1.80	5.0	16.8	14.5	40:1	
WFM30	18	21	300	0.75	2.9	11.9	10.7	80:1	≤42
	24	29	300	0.75	2.9	12.4	10.8	60:1	
	36	43	300	1.25	4.5	16.0	14.8	40:1	
	48	57	250	1.25	5.4	19.5	18.2	30:1	
	72	86	200	1.25	5.2	16.5	14.9	20:1	
	*144	173	170	1.80	5.6	19.0	17.4	40:1	
WFM40	18	21	400	1.25	4.2	15.9	14.3	80:1	≤42
	24	29	400	1.25	4.8	16.5	14.8	60:1	
	36	43	350	2.00	5.3	18.7	16.6	40:1	
	48	57	300	2.00	5.4	19.5	17.1	30:1	
	72	86	250	2.00	6.5	20.6	19.0	20:1	
	*144	173	150	2.30	7.0	26.7	24.5	40:1	
					6.9	20.3	18.7	20:1	

NOTE: 1. Above torque is maximum torque of actuator. 2. Motor duty cycle S2~15min, 3 Phase 380VAC. 3. RPM with "*" has higher momental force, not recommended for direct drive of valve.

WFM – 3 Phase Voltage On/Off Control (Cont.)

Model	Speed (RPM)		Torque (N.m)	Power (KW)	Rated Current (A)	Start Current (A)	Stall Current (A)	Handwheel Ratio	Max. Stem Diameter (mm)
	50 Hz	60 Hz							
WFM50	18	21	500	2.2	6.7	21.1	19.4	80:1	≤50
	24	29	500	2.2	6.7	21.1	19.6	60:1	
	36	43	500	2.2	6.7	23.9	21.8	40:1	
	48	57	500	2.4	9.9	34.3	31.7	30:1	
	72	86	400	2.4	10.4	38.3	35.4	20:1	
	96	115	300	2.8	9.8	37.3	36.2	40:1	
	*144	173	200	2.8	12.0	49.3	47.6	20:1	
WFM60	18	21	610	2.4	6.4	25.8	24.5	80:1	≤50
	24	29	610	2.4	6.4	25.8	22.4	60:1	
	36	43	610	2.4	8.2	29.1	27.0	40:1	
	48	57	550	3.0	12.1	41.8	39.4	30:1	
	72	86	450	3.0	13.0	47.9	45.6	20:1	
	96	115	330	4.0	13.1	49.7	47.3	40:1	
	*144	173	260	4.0	13.5	37.1	35.1	20:1	
WFM90	18	21	900	2.9	8.5	30.6	28.4	80:1	≤50
	24	29	900	2.9	10.4	37.6	34.0	60:1	
	36	43	750	2.9	10.6	43.3	41.7	40:1	
	48	57	600	2.9	12.4	38.9	37.2	30:1	
	72	86	480	2.9	12.4	49.9	47.5	20:1	

NOTE: 1. Above torque is maximum torque of actuator. 2. Motor duty cycle S2-15min, 3 Phase 380VAC. 3. RPM with "*" has higher momental force, not recommended for direct drive of valve.

WFM – 1 Phase 220VAC On/Off Control

Model	Speed (RPM)		Torque (N.m)	Power (KW)	Rated Current (A)	Start Current (A)	Stall Current (A)	Handwheel Ratio	Max. Stem Diameter (mm)
	50 Hz	60 Hz							
WFM50	18	21	60	0.26	1.7	5.9	5.2	80:1	≤30
	24	29	60	0.26	2.3	7.8	6.9	60:1	
	36	43	50	0.28	2.6	8.9	7.9	40:1	
	48	57	50	0.32	2.9	9.8	8.7	30:1	
	72	86	35	0.35	3.0	10.1	9.1	20:1	
WFM60	18	21	150	0.60	4.3	11.8	10.7	80:1	≤42
	24	29	150	0.60	5.7	15.7	14.3	60:1	
	36	43	130	0.60	6.4	17.5	15.9	40:1	
	48	57	100	0.60	6.2	18.4	16.7	30:1	
	72	86	50	0.60	5.4	18.3	16.2	20:1	
WFM90	18	21	250	1.40	7.6	21.0	19.1	80:1	≤50
	24	29	250	1.40	8.9	25.8	23.5	60:1	
	36	43	180	1.40	9.3	28.8	26.5	40:1	
	48	57	150	1.40	11.1	34.6	31.7	30:1	
	72	86	110	1.40	11.7	36.2	33.5	20:1	

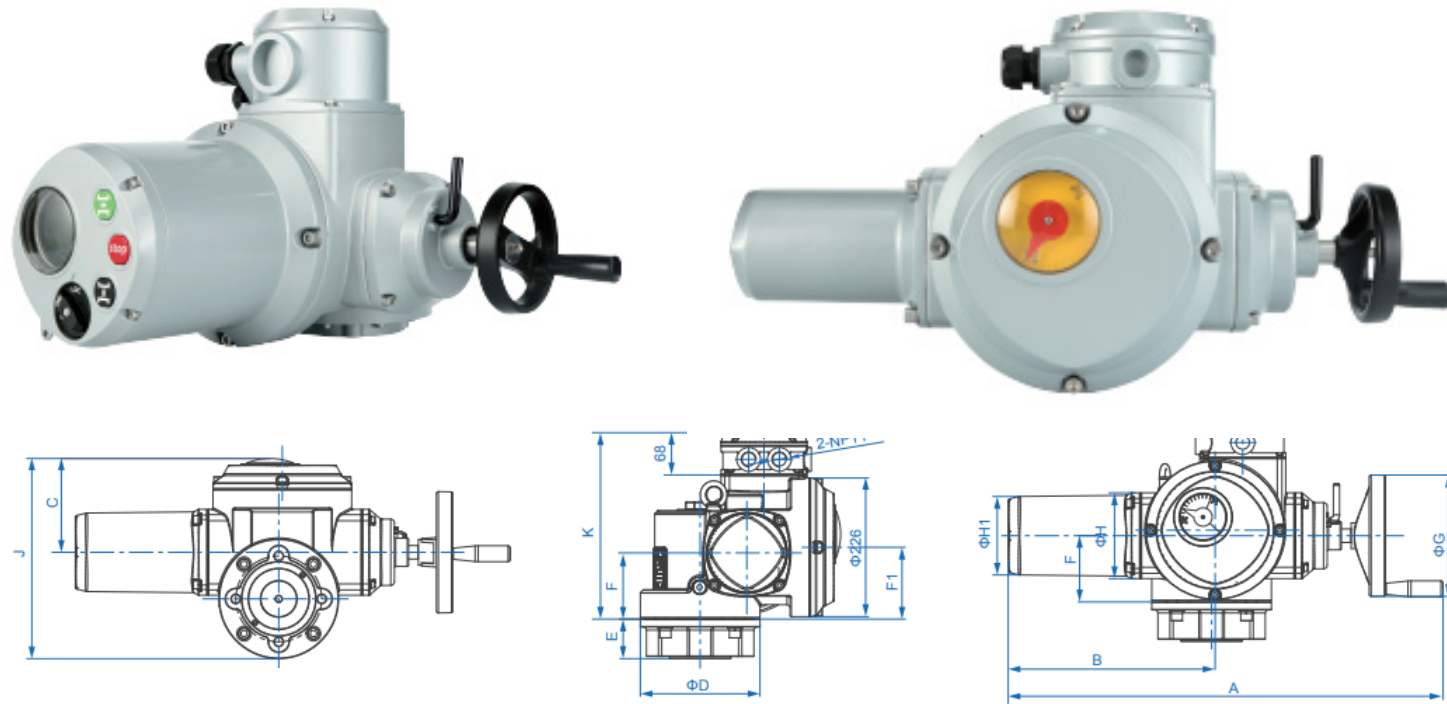
NOTE: 1. Above torque is maximum torque of actuator. 2. Motor duty cycle S2-15min, 3 Phase 380VAC.

WFM – 3 Phase Voltage Modulating Control

Model	Speed (RPM)		Torque (N.m)	Power (KW)	Rated Current (A)	Start Current (A)	Stall Current (A)	Handwheel Ratio	Max. Stem Diameter (mm)
	50 Hz	60 Hz							
WFM05	18	21	50	0.35	0.4	1.5	1.31	80:1	≤30
	24	29	50	0.35	0.6	2.0	1.75	60:1	
	36	43	50	0.35	0.9	3.0	2.63	40:1	
	48	57	50	0.35	1.2	4.0	3.51	30:1	
	72	86	40	0.35	1.4	4.8	4.21	20:1	
WFM10	18	21	100	0.35	0.9	3.0	2.63	80:1	≤30
	24	29	100	0.35	1.2	3.9	3.51	60:1	
	36	43	100	0.35	1.7	5.9	5.26	40:1	
	48	57	100	0.45	2.3	7.9	7.01	30:1	
WFM15	18	21	150	0.45	1.3	4.5	3.94	80:1	≤30
	24	29	150	0.45	1.7	5.9	5.26	60:1	
	36	43	150	0.45	2.6	8.9	7.89	40:1	
	48	57	120	0.70	3.5	11.9	10.52	30:1	
	72	86	100	0.70	3.5	11.9	10.52	20:1	
WFM20	18	21	200	0.75	1.7	5.9	5.26	80:1	≤42
	24	29	200	0.75	2.3	7.9	7.01	60:1	
	36	43	200	1.25	3.5	11.9	10.52	40:1	
	48	57	200	1.25	4.6	15.9	14.03	30:1	
	72	86	170	1.80	5.9	19.7	17.88	20:1	
WFM30	18	21	300	0.75	2.6	8.9	7.89	80:1	≤42
	24	29	300	0.75	3.5	11.9	10.52	60:1	
	36	43	300	1.25	5.2	17.4	15.78	40:1	
	48	57	250	1.25	6.9	23.1	21.04	30:1	
	72	86	200	1.80	6.9	23.4	21.04	20:1	
WFM40	18	21	400	1.25	3.5	11.9	10.52	80:1	≤42
	24	29	400	1.25	4.6	15.9	14.03	60:1	
	36	43	350	2.00	6.1	20.3	18.41	40:1	
	48	57	250	2.00	6.9	23.1	21.04	30:1	
	72	86	250	2.30	8.7	28.9	26.30	20:1	
WFM50	18	21	500	2.20	4.3	14.9	13.15	80:1	≤50
	24	29	500	2.20	5.8	19.1	17.53	60:1	
	36	43	500	2.20	8.7	28.7	26.30	40:1	
	48	57	500	2.40	11.6	31.5	28.93	30:1	
WFM60	18	21	610	2.40	5.3	18.1	16.04	80:1	≤50
	24	29	610	2.40	7.1	24.2	21.39	60:1	
	36	43	610	2.40	10.6	30.7	27.86	40:1	
	48	57	610	3.00	14.1	36.8	34.43	30:1	
	72	86	500	4.00	17.4	40.5	38.57	20:1	

NOTE: 1. Above torque is maximum torque of actuator. 2. Motor duty cycle S4-25%, 3 Phase 380VAC. 3. For modulating model selection torque safety factor up to 1.8-2 must be considered. 4. Modulating control is only available on Intelligent model.

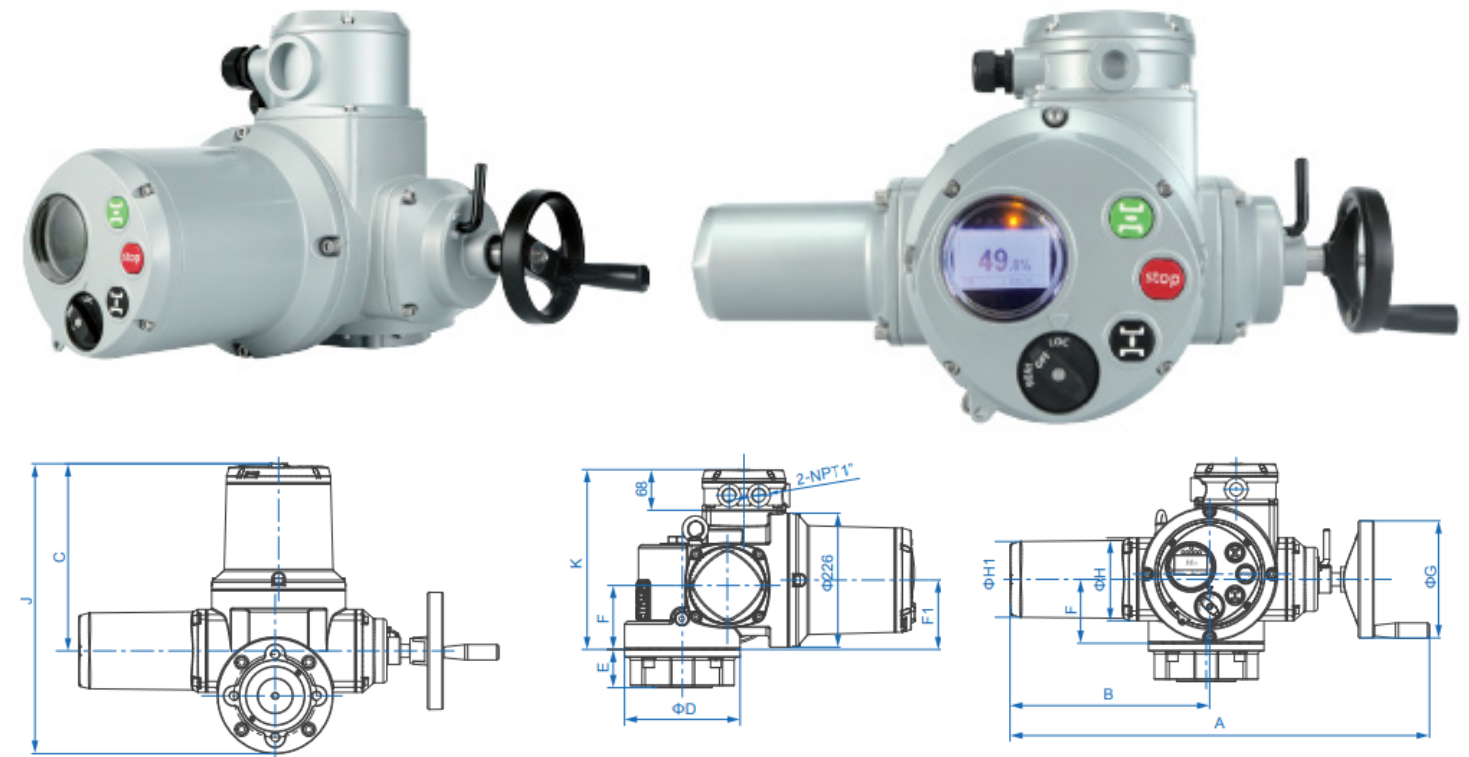
Product Dimensions: WFM-Basic Type Dimension



Model	A (mm)	B (mm)	C (mm)	ΦD (mm)	E			F (mm)	F1 (mm)	ΦG (mm)	ΦH (mm)	ΦH1 (mm)	J (mm)	K (mm)	Weight (KG)
					JB (mm)	Type A (mm)	Type B (mm)								
WFM05/10/15	600	280	132	145	2	50	40	111	120	100	140	98	283	307	30
WFM20/30/40	710	338	153	195	2	65	42	114	117	200	140	128	327	303	36
WFM50/60/90	760	382	160	234	2	65	42	114	118	200	161	148	382	303	47

NOTE: 1. Above connection size is in compliance with ISO5210. Customizations available upon request. 2. A type is for rising type valve stem, B type is for non-rising type valve stem.

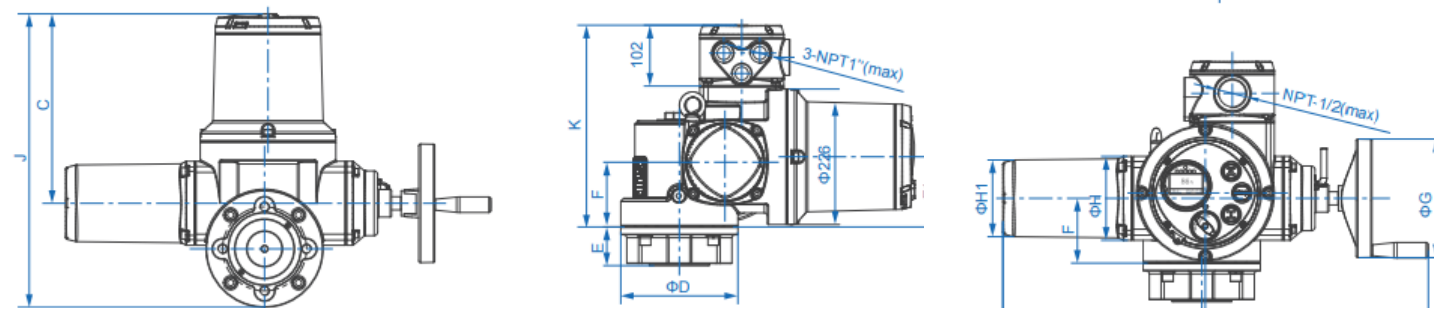
Product Dimensions: WFM-Integration Type Dimension



Model	A (mm)	B (mm)	C (mm)	ΦD (mm)	E			F (mm)	F1 (mm)	ΦG (mm)	ΦH (mm)	ΦH1 (mm)	J (mm)	K (mm)	Weight (KG)
					JB (mm)	Type A (mm)	Type B (mm)								
WFM05/10/15	600	280	316	145	2	50	40	111	120	100	140	98	446	307	30
WFM20/30/40	710	338	316	195	2	65	42	108	117	200	140	128	490	303	36
WFM50/60/90	760	382	332	234	2	65	42	114	118	200	161	148	545	303	47

NOTE: 1. Above connection size is in compliance with ISO5210. Customizations available upon request. 2. A type is for rising type valve stem, B type is for non-rising type valve stem.

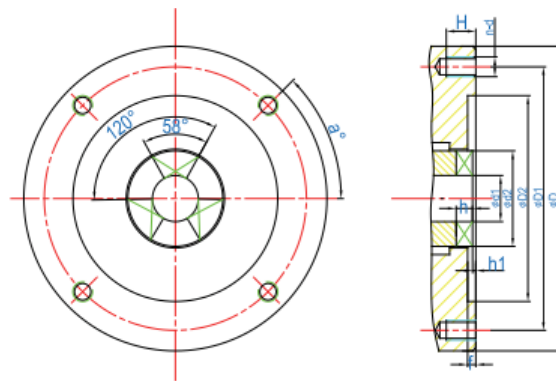
Product Dimensions: WFM-Intelligent Type Dimension



Model	A (mm)	B (mm)	C (mm)	ΦD (mm)	E			F (mm)	F1 (mm)	ΦG (mm)	ΦH (mm)	ΦH1 (mm)	J (mm)	K (mm)	Weight (KG)
					JB (mm)	Type A (mm)	Type B (mm)								
WFM10/15	600	280	316	145	2	50	40	111	120	100	140	98	446	341	30
WFM20/30/40	710	338	316	195	2	65	42	108	117	200	140	128	490	337	36
WFM50/60/90	760	382	332	234	2	65	42	114	118	200	161	148	545	337	47

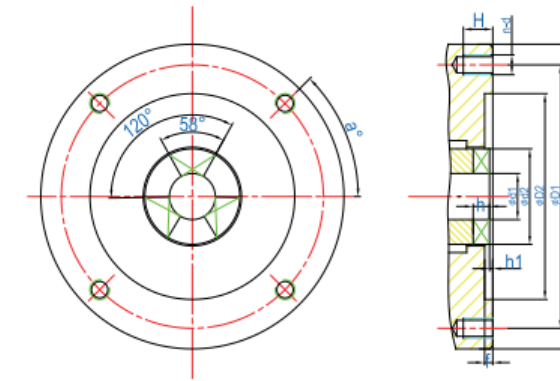
NOTE: 1. Above connection size is in compliance with ISO5210. Customizations available upon request. 2. A type is for rising type valve stem, B type is for non-rising type valve stem.

Product Dimensions: WFM-JB Type Output (Rotary Type)-JB2920



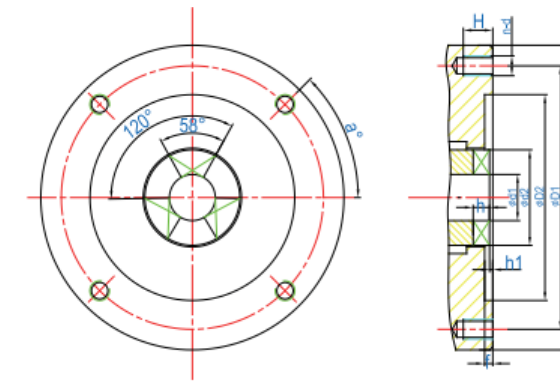
Model	Base	ΦD (mm)	ΦD1 (mm)	ΦD2 (mm)	h1 (mm)	f (mm)	h (mm)	Φd1 (mm)	Φd2 (mm)	n-d (mm)	a (mm)	H (mm)
WFM05/10/15	JB2	145	120	90	2	5	8	≤Φ30	Φ45	4-M10	45°	15
WFM20/30/40	JB3	185	160	125	2	5	10	≤Φ42	Φ58	4-M12	45°	15
WFM50/60/90	JB4	225	195	150	2	5	12	≤Φ50	Φ72	4-M16	45°	30

Product Dimensions: WFM-A Type Output (Rising Type)-ISO5210



Model	Flange	ΦD (mm)	ΦD1 (mm)	ΦD2 (mm)	f (mm)	Φd1 (mm)	n-d (mm)	a (mm)	H (mm)
WFM05/10/15	F10	120	102	70	3	≤Tr30	4-M10	45°	JB2
WFM20/30/40	F14	175	140	100	4	≤Tr42	4-M16	45°	JB3
WFM50/60/90	F16	205	165	135	5	≤Tr50	4-M20	45°	JB4

Product Dimensions: WFM-B Type Output (Rotary Type)-ISO5210



Model	Flange	ΦD (mm)	ΦD1 (mm)	ΦD2 (mm)	f (mm)	Φd1 (mm)	n-d (mm)	a (mm)	H (mm)
WFM05/10/15	F10	120	102	70	3	≤Tr30	4-M10	45°	15
WFM20/30/40	F14	175	140	100	4	≤Tr42	4-M16	45°	24
WFM50/60/90	F16	205	165	135	5	≤Tr50	4-M20	45°	30



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