



ACTUATOR

MGV Series (Electrical Multi-Turn Actuator)

Model Number: MGV Series

DESCRIPTION

- The MGV Series Actuator is a high-performance, multi-turn and part-turn actuator designed for reliable operation in industrial and hazardous environments. Engineered with advanced technology, the MGV Series offers robust mechanical construction, non-intrusive controls, and a suite of protection systems for enhanced performance and durability.
- Constructed with high-quality aluminum alloy for durability and excellent corrosion resistance
- With reliable and stable operation, the MGV Series is used in many industries Oil & gas/Powerplant/ Chemical & petrochemical/ Water /Marine & shipbuilding

TECHNICAL FEATURES

1. Non-Intrusive Design Concept:

The MGV series actuators incorporate a non-intrusive design, characterized by:

The use of magnetic steel to control the Hall element for the mode selection and local operation knobs, replacing the traditional mechanical shaft knobs. An infrared setter for parameter setting, adjustment, and debugging, all performed without needing to open the actuator casing.

Advantages of this non-invasive design include:

- Protection from environmental factors such as dust, harmful gases, and moisture.
- The ability to debug even in harsh conditions, such as rain or the presence of flammable gases.
- Easy access to actuator status, which can be quickly queried.

2. Comprehensive Protection Features:

- **Torque Protection:** Prevents over-torque during actuator operation to avoid valve stem damage and actuator wear. The torque protection value is customizable through the menu.
- **Valve Position Limit Protection:** Automatically stops the actuator when it reaches the valve's closed or open limit, based on the configured working mode.
- **Instantaneous Reverse Protection:** When an opposite command is received, a time delay is implemented to prevent unnecessary wear on the valve shaft and gearbox.
- **Power Supply Phase Loss Protection:** Monitors the three-phase power to prevent motor damage caused by a phase loss.
- **Valve Jam Protection:** If the actuator doesn't move within 5-10 seconds after receiving the control signal, the motor's power supply is cut off to avoid damage.
- **Overheat Protection:** Thermal relays detect overheating in the motor windings. If overheating occurs, the control circuit disables the actuator to protect the motor.

3. Status Recording:

The actuator records important operational data:

- **Power-on times:** Tracks the number of times the actuator is powered on.
- **Opening and closing times:** Tracks the number of times the valve is opened and closed.
- **Ambient temperature:** Records the highest and lowest temperatures the actuator has experienced when powered on.

4. Fieldbus Control:

Utilizing fieldbus technology, the MGV actuator can communicate within a control system, allowing for full digitalization and bidirectional communication. It supports open international standards such as:

- Modbus
- Profibus
- FF (Foundation Fieldbus)
- HART

This ensures interoperability among instruments from different manufacturers and enables distributed control systems.

5. Debugging and Troubleshooting:

The MGV series actuators feature an infrared setting tool for easy and fast debugging, without needing to open the casing. This tool simplifies fault diagnosis and displays a range of internal actuator statuses.

It allows users to configure:

- Positive/negative effects of the actuator when closed
- Open/close limit protection settings
- Language selection (English)
- Local control mode selection
- Trigger settings for six status indication relays
- Emergency action functions
- Analog control signal settings
- Torque protection value adjustment
- Analog feedback signal adjustments





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STANDARD CONFIGURATION

1	Protection Degree	Weatherproof enclosure IP67
2	Power Supply	Single phase: 220VAC 50/60Hz, Three phase: 380VAC 50/60Hz
3	Working Duty (On-off Type)	S2: 10min~30min, S4: 20~50%, Maximum 600 times/hour
4	Working Duty (Modulating Type)	S4: 30~50%, 300-1200 Start/Hour, Maximum 1200 times/hour
5	Motor	Fully enclosed squirrel-cage induction motor, F-class
6	Contact Feedback	Fully open/fully closed position, open over-torque/close over-torque, remote, fault (configurable)
7	Overheat Protection	Motor overheat protection (150° C±5° C ON, 97° C±5° C OFF)
8	Stroke	5-500
9	Position Indication	LCD display
10	Torque Protection	Electronic
11	Self-locking Function	YES
12	Manual operation	Declutchable manual override
13	Cable Interface	2*1" +1*1.5" NPT or metric 2*M25 +1*M40
14	Valve Stem Connection	Three-claw
15	Flange Connection	ISO5210
16	Ambient Temperature	-20°C~+70°C
17	Ambient Humidity	Minimum relative humidity 10%, Maximum relative humidity 95%, No condensation
18	Housing	High-pressure aluminum alloy housing with hard anodizing and powder coating
19	Torque	14-3000NM

OPTIONAL CONFIGURATION

1	Explosion-proof type	Exd IIBT4 ExdIICT4
2	Advanced protection type	IP68 (submersible)
3	Stem connector	Keyway Copper Threaded Five-Claw
4	Bus control	Hart Modbus Profibus FF
5	Space heater	Automatic temperature adjustment (for use in low temperature environments)
6	Power supply:	Single phase: 110VAC 230VAC 50/60HZ Three-phase: 220VAC 400VAC 415VAC 440VAC 50/60HZ and other special voltages
7	Split type	The actuator is divided into the execution part and the control part, which are installed on site and in the safety area respectively and connected by cables
8	Bevel gearbox	Reduce the speed to get greater output torque
9	Torque	Torque range 3000~20000 (with reduction gearbox)
10	Ambient temperature	-40° C~+70° C (low temperature type) -20° C~+80° C (high temperature type)



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ACTUATOR SELECTION TABLE

Performance Data Sheet of MGV Series Adjustable Multi-turn Actuator (220VAC/50)

Output speed rpm		18	24	36	48	72	96	144	192
MGV30	Adjust Torque N.m	12	12	10	10				
	Max. Torque N.m	24	24	21	20				
	Motor Power KW	0.06	0.08	0.08	0.1				
	Stall Current A	6.5	7.3	7.3	7.9				
	Rated Current A	1.6	1.8	1.8	1.9				
	Adjust Torque N.m	20	18	15	13				
MGV50	Max. Torque N.m	42	38	33	27				
	Motor Power KW	0.12	0.12	0.12	0.12				
	Stall Current A	8.5	8.5	8.5	8.5				
	Rated Current A	2.0	2.0	2.0	2.0				
	Adjust Torque N.m	40	32	26	25				
MGV100	Max. Torque N.m	85	77	58	55				
	Motor Power KW	0.19	0.21	0.23	0.25	0.28			
	Stall Current A	9.5	10.2	11.6	13	14.1			
	Rated Current A	2.3	2.45	2.8	3.2	3.4			
	Adjust Torque N.m	70	70	55	42	42			
MGV200	Max. Torque N.m	133	133	107	89	89			
	Motor Power KW	0.28	0.35	0.32	0.35	0.37			
	Stall Current A	14.1	17.2	16.5	17.2	18.1			
	Rated Current A	3.4	3.75	3.6	3.75	3.9			
	Adjust Torque N.m	180	150	130	102	72			
MGV550	Max. Torque N.m	343	328	265	204	142			
	Motor Power KW	0.8	0.8	0.75	0.8	0.8			
	Stall Current A	36	36	32	36	36			
	Rated Current A	7.8	7.8	7	7.8	7.8			

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ACTUATOR SELECTION TABLE

Performance Data Sheet of MGV Series Adjustable Multi-turn Actuator (380VAC/50)

Output speed rpm		18	24	36	48	72	96	144	192
MGV30	Adjust Torque N.m	17	17	15.6	13.6				
	Max. Torque N.m	34	34	30	27				
	Motor Power KW	0.07	0.07	0.13	0.14				
	Stall Current A	2.3	2.3	3.6	3.7				
	Rated Current A	0.75	0.75	1	1.1				
MGV50	Adjust Torque N.m	34	34	30	27				
	Max. Torque N.m	61	54	54	48				
	Motor Power KW	0.12	0.13	0.19	0.23				
	Stall Current A	2.7	3.6	4.7	6.4				
	Rated Current A	0.85	1.0	1.0	2.1				
MGV100	Adjust Torque N.m	81	81	68	54	47			
	Max. Torque N.m	122	109	81	68	54			
	Motor Power KW	0.3	0.3	0.35	0.35	0.47			
	Stall Current A	6.8	6.8	9.25	9.25	10.25			
	Rated Current A	2.3	2.3	2.8	2.8	3.6			
MGV200	Adjust Torque N.m	152	152	129	102	102			
	Max. Torque N.m	204	204	163	136	136			
	Motor Power KW	0.47	0.47	0.58	0.68	0.70			
	Stall Current A	10.25	10.25	13.4	16	16			
	Rated Current A	3.6	3.6	4.6	5.5	5.5			
MGV550	Adjust Torque N.m	271	271	253	203	203			
	Max. Torque N.m	544	544	408	313	218			
	Motor Power KW	0.9	1.05	1.27	1.2	1.35			
	Stall Current A	18	25	28	27.6	29			
	Rated Current A	6	7	9	7.8	8.2			

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ACTUATOR SELECTION TABLE

Performance Data Sheet of Combination of MGV Adjustable Actuator and MW Series Worm-gear Box

	Rated Torque	Stroke Time	Output Speed of Actuator	Transmission Proportion of Worm-gear Box	Max. Valve Shaft Diameter		Rated Torque	Stroke Time	Output Speed of Actuator	Transmission Proportion of Worm-gear Box	Max. Valve Shaft Diameter
MGV30B4/MW4	280	25	24	40:1	64	MGV100 B4/MW6	2052	44	24	70:1	102
MGV30B4/MW4	267	33	18	40:1	64	MGV200 B4/MW6	2734	22	48	70:1	102
MGV30B4/MW4	418	44	24	70:1	64	MGV100B4/MW6R*	2537	29	72	140:1	102
MGV50B4/MW4	558	25	24	40:1	64	MGV100 B4/MW6R*	2750	44	48	140:1	102
MGV50B4/MW4	723	22	48	70:1	64	MGV100 B4/MW7	2016	38	24	60:1	127
MGV50B4/MW4	535	33	18	40:1	64	MGV200 B4/MW7	3328	25	36	60:1	127
MGV50B4/MW4	789	29	36	70:1	64	MGV200 B4/MW7	3784	38	24	60:1	127
MGV30B4/MW4R*	447	25	48	80:1	64	MGV100B4/MW7R*	2690	38	48	120:1	127
MGV30B4/MW4R*	503	33	36	80:1	64	MGV100B4/MW7R*	3640	38	72	180:1	127
MGV50B4/MW5	438	25	24	40:1	76	MGV200 B4/MW8	3800	38	24	60:1	153
MGV50B4/MW5	842	22	48	70:1	76	MGV550 B4/MW8	6370	25	36	60:1	153
MGV50B4/MW5	417	33	18	40:1	76	MGV550 B4/MW8	6830	38	24	60:1	153
MGV50B4/MW5	915	29	36	70:1	76	MGV200B4/MW8R*	4880	38	48	120:1	153
MGV50B4/MW5	1,014	44	24	70:1	76	MGV200B4/MW8R*	7325	38	72	180:1	153
MGV30B4/MW5R*	525	38	48	120:1	76	MGV200B4/MW8R*	6072	38	36	60:1	153
MGV50B4/MW5R*	695	25	48	80	76	MGV550 B4/MW9	6211	25	24	60:1	178
MGV50B4/MW5R*	760	33	36	80	76	MGV550 B4/MW9	15412	38	72	180:1	178
MGV50B4/MW5R*	1,618	44	48	140	76	MGV550B4/MW9R*	17004	38	24	60:1	203.2
MGV50B4/MW6R*	1,618	44	48	140	102	MGV550B4/MW10	17148	38	72	180:1	203.2

Note: With *specification added R transmission proportion represent the multistage reducer above 80.



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Performance Data Sheet of MGV Open-close Actuator (220VAC/50HZ)

Output speed rpm		18	24	36	48	72	96	144	192
MGV30	Rated Torque N.m	20	20	17	15				
	Motor Power KW	0.08	0.08	0.08	0.08				
	Stall Current A	7.3	7.3	7.3	7.3				
	Rated Current A	1.8	1.8	1.8	1.8				
MGV80	Rated Torque N.m	24	24	20	17				
	Motor Power KW	0.1	0.1	0.1	0.1				
	Stall Current A	8.2	8.2	8.2	8.2				
	Rated Current A	2.1	2.1	2.1	2.1				
MGV140	Rated Torque N.m	32	28	22					
	Motor Power KW	0.12	0.12	0.12					
	Stall Current A	8.8	8.8	8.8					
	Rated Current A	2.4	2.4	2.4					
MGV200	Rated Torque N.m	81	81	81	63	63			
	Motor Power KW	0.23	0.23	0.28	0.28	0.28			
	Stall Current A	11.6	13	14.1	14.1	14.1			
	Rated Current A	2.8	3.2	3.4	3.4	3.4			
MGV400	Rated Torque N.m	142	142	127	108				
	Motor Power KW	0.35	0.37	0.37	0.37				
	Stall Current A	17.2	18.1	18.1	18.1				
	Rated Current A	3.75	3.9	3.9	3.9				
MGV600	Rated Torque N.m	252	232	184	147	109			
	Motor Power KW	0.8	0.8	0.75	0.8	0.8			
	Stall Current A	36	36	32	36	36			
	Rated Current A	7.8	7.8	7	7.8	7.8			

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ACTUATOR SELECTION TABLE

Performance Data Sheet of MGV Open-close Actuator (380VAC/50HZ)

Output speed rpm		18	24	36	48	72	96	144	192
MGV30	Rated Torque N.m	34	34	34	34	34	34		
	Motor Power KW	0.05	0.05	0.07	0.10	0.13	0.17		
	Stall Current A	1.4	1.8	2.3	3	3.6	3.6		
	Rated Current A	0.45	0.6	0.75	1	1	1.3		
MGV80	Rated Torque N.m	81	81	81	81	61	47		
	Motor Power KW	0.12	0.14	0.19	0.23	0.24	0.24		
	Stall Current A	2.7	3.7	4.7	6.4	6.4	6.4		
	Rated Current A	0.85	1.1	1.5	2.1	2.1	2.1		
MGV140	Rated Torque N.m	108	136	102					
	Motor Power KW	0.15	0.23	0.23					
	Stall Current A	3.7	6.4	6.4					
	Rated Current A	1.1	2.1	2.1					
MGV200	Rated Torque N.m	203	203	203	203	63			
	Motor Power KW	0.30	0.35	0.47	0.58	0.28			
	Stall Current A	6.8	9.25	10.25	13.4	14.1			
	Rated Current A	2.3	2.8	3.6	4.6	3.4			
MGV300	Rated Torque N.m	350	300	250					
	Motor Power KW	0.55	0.55	0.58					
	Stall Current A	12.5	12.5	13.4					
	Rated Current A	4.3	4.3	4.6					
MGV400	Rated Torque N.m	400	400	298	147	244			
	Motor Power KW	0.58	0.68	0.68	0.8	0.68			
	Stall Current A	13.4	16	16	36	16			
	Rated Current A	4.06	5.5	5.5	7.8	5.5			
MGV600	Rated Torque N.m	610	610	542	474	474	366	275	
	Motor Power KW	0.90	1.05	1.27	1.35	1.90	1.80	2.00	
	Stall Current A	18	25	28	29	41	37	43	
	Rated Current A	6	7	9	8.2	12.5	12	13	

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Performance Data Sheet of MGV Open-close Actuator (380VAC/50HZ)

Output speed rpm		18	24	36	48	72	96	144	192
MGV1000	Rated Torque N.m	1020	1020	845	680	680	542	406	
	Motor Power KW	2.10	2.10	2.10	3.7	3.7	3.7	3.7	
	Stall Current A	45	45	45	61	61	61	61	
	Rated Current A	11	11	11	16.5	16.5	16.5	16.5	
MGV1500	Rated Torque N.m	1490	1490	1290	1020	1020	745	645	542
	Motor Power KW	2.75	2.75	4.80	4.80	4.80	4.80	4.80	4.80
	Stall Current A	61	61	95	95	95	95	95	95
	Rated Current A	15	15	25	25	25	25	25	25
MGV2000	Rated Torque N.m	2030	2030	1700	1355	1355	1020	865	730
	Motor Power KW	4.5	4.5	4.5	7.5	7.5	7.5	3.5	7.5
	Stall Current A	78	78	78	138	138	138	138	138
	Rated Current A	21	21	21	35	35	35	35	35
MGV3000	Rated Torque N.m		3000						
	Motor Power KW		4.8						
	Stall Current A		78						
	Rated Current A		22						

*Because over fast sliding deceleration can speed up the damage of drive shaft sleeve, be cautious to choose rotate speed when mounting gate valve directly



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ACTUATOR SELECTION TABLE

Performance Data Sheet of the Combination of MGV Open-close Actuator and MD/MW Gearbox (220VAC/50HZ)

Model of Combination		Scope of Rated Torque Output	Output Speed	Speed Ratio of Gearbox	Max. Diameter of Valve Shaft
MGV30	MD4	190~422	18~48	40/70	Φ64
	MW4				
MGV80	MD4	270~564	18~48	40/70	Φ64
	MW4				
MGV140	MD5	318~630	18~36	40/70	Φ76
	MW5				
MGV200	MD5	1009~1556	18~72	40/70	Φ76
	MW5				
MGV200	MD6	1324~1704	18~72	70	Φ102
	MW6				
MGV400	MD6	2271~2979	18~48	70	Φ102
	MW6				
MGV400	MD7	2986~4281	18~48	60	Φ127
	MW7				
MGV600	MD7	2504~6248	18~72	60	Φ127
	MW7				

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Model of Combination		Scope of Rated Torque Output	Output Speed	Speed Ratio of Gearbox	Max. Diameter of Valve Shaft
MGV30	MD4	430~717	18~96	40/70	Φ64
	MW4				
MGV80	MD4	750~1691	18~96	40/70	Φ64
	MW4				
MGV140	MD5	1300~2858	18~36	40/70	Φ76
	MW5				
MGV200	MD5	1621~3900	18~144	40/70	Φ76
	MW5				
MGV200	MD6	2140~4270	18~144	70	Φ102
	MW6				
MGV300	MD6	5260~7344	18~36	70	Φ102
	MW6				
MGV400	MD6	5132~8393	18~48	70	Φ102
	MW6				
MGV400	MD7	5746~12060	18~48	60	Φ127
	MW7				
MGV600	MD7	5920~14013	18~144	60	Φ127
	MW7				
MGV1000	MD8	9350~19480	18~144	60	Φ153
	MW8				

Note: 1. The form only lists part of the assembly of primary gearbox and that of secondary gearbox with a speed ratio of above 80:1. Please contact our company for getting detailed materials;
 2. As long as the customer provides relevant valve data (diameter, pressure, pressure difference, type of valve, medium flow and temperature), we are responsible for model recommendation