

Manual override gear including handwheel and coupler (actuator site), model JHM



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Section 1: Introduction

This section of the installation and operation manual explains the following:

- General product description
- Overview of main components

Installation, setup, commissioning, operation, assembly, disassembly and maintenance of the manual override gear must be carried out by qualified personnel.

Please note:

Failure to follow the instructions in this manual may void your warranty.

WARNING

Before assembling or disassembling the manual emergency gear, read the relevant sections in this manual. If you have any questions about the product or its handling, please contact us.

1.1 Description

The disengageable manual gearbox of the JHM series offer simple and reliable manual operation and positioning of valves, in conjunction with pneumatic or hydraulic rotary actuators with a 90° angle of rotation.

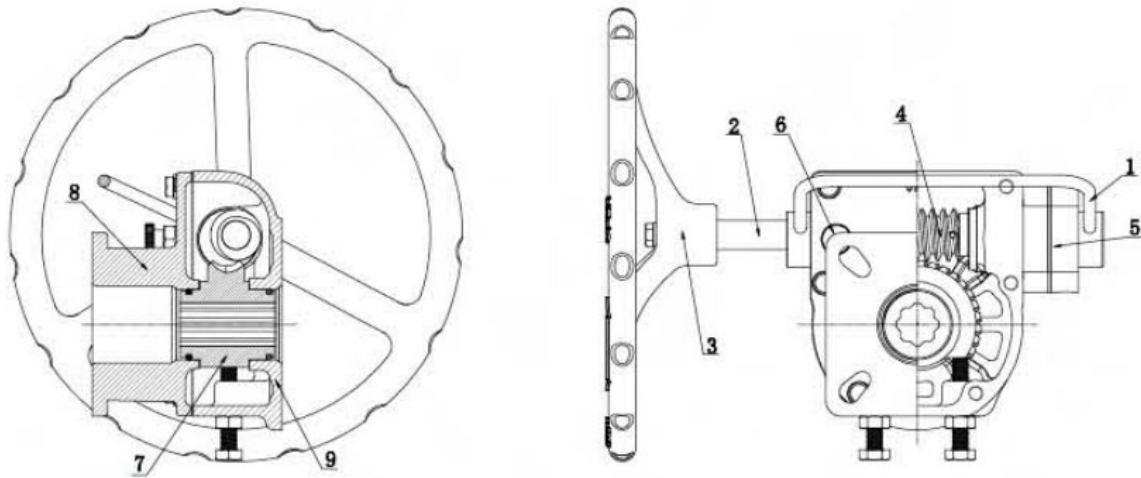
All JHM manual override gears are suitable for indoor and outdoor use and combine a robust construction, acceptable weight and a modular design to provide the most efficient and cost-effective solution for emergency operation of valves. The self-locking gear enables safe and easy operation and a long service life.

The JHM manual override gears can be adapted to almost any rotary actuator and, if necessary, can also be installed directly on existing valves. The drilling patterns at the top and bottom and the connection to the actuator stem correspond to ISO 5211. The connection to the valve is made via a coupling with a corresponding holder for the valve shaft.

1.2 Overview of main components

Basically three different versions are offered:

- The standard execution with a carbon steel coupler between actuator and valve
- The execution with a coupler made of stainless steel (optional)
- and each version equipped with an optional 3/2 way vent valve (up to size JHM70)



Number	Description	Qty	Material
1	Hand lever	1	Stainless steel
2	Drive shaft	1	Carbon steel
3	Handwheel	1	Cast iron
4	Worm	1	Carbon steel
5	Optional vent valve	1	Aluminum
6	Lock-bolt	1	Messing
7	Worm gear	1	Cast iron
8	Cover	1	Cast iron
9	Housing	1	Cast iron

1.3 Storage

The gearboxes should be stored dust-free and dry.

Section 2: Overview of the model types

This section contains information regarding:

- Identification of the product
- Construction details
- Manual override specification

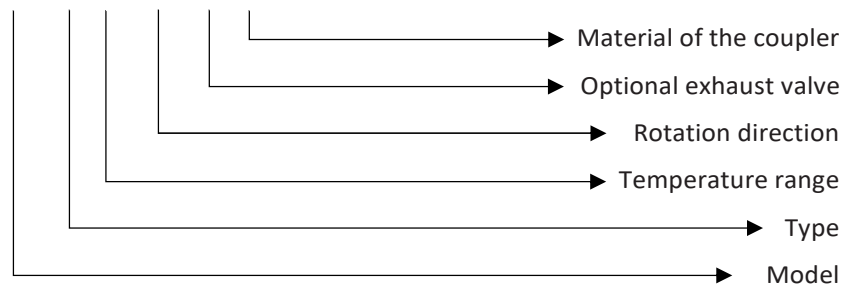
2.1 Identification

The manual override is identified via the serial number engraved on the type plate or directly via the coding on the gearbox type plate.

2.2 Product coding on the type plate

Generally:

JHM - 50 - S - CW - V - S



Selectable options:

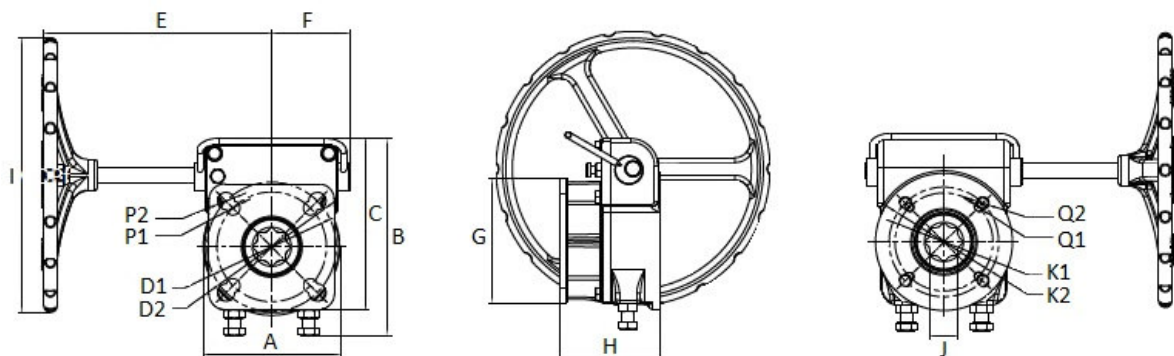
Model	JHM	
Type	40	
	28	
	32	
	50	
	62	
	70	
	85	
	210	
	495	
Temperature range	S	(Standard) -20°C up to +80°C
	L	-40°C up to +80°C
	H	-15°C up to +150°C
Rotation direction	CW	Valve is closing clockwise
	CC	Valve is closing counter-clockwise
3/2 way vent valve	0	Vent valve not assembled
	V	Valve assembled (not for type 85, 210 und 495)
Material of the coupler	C	Carbon steel
	S	Stainless steel (1.4301)

2.3 Technical data

All external components of the KingAct JHM manual override are coated or manufactured in such a way that they can be used in regular indoor and outdoor applications. Please ask us if you require coating for special offshore application conditions or similar.

The gearboxes are sealed to achieve a protection rating of IP67.

2.3.1 Sizes and dimensions (JHM40 up to JHM70)

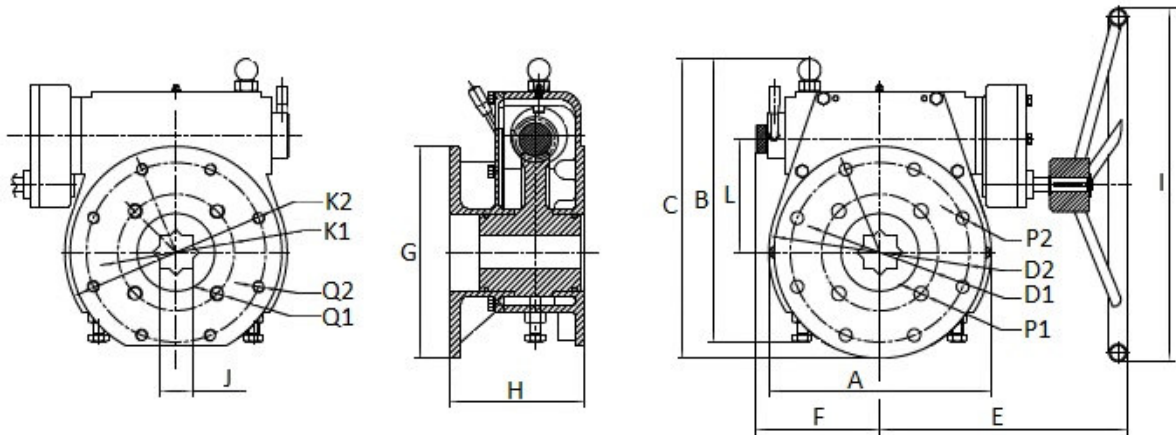


type	flange connection								
	Square J	∅ K1	∅ K2	Q1	Q2	∅ D1	∅ D2	P1	P2
JHM40	17	50	70	4x M6	4x M8	50	70	4x ∅7	4x ∅9
JHM28	22	70		4x M8		70	102	4x ∅9	4x ∅11
JHM32	22	70	102	4x M8	4x M10	102	125	4x ∅11	4x ∅14
JHM50	27	102	125	4x M10	4x M12	102	125	4x ∅11	4x ∅14
JHM62	36	125	140	4x M12	4x M16	140	165	4x ∅18	4x ∅22
JHM70	46	165		4x M20		140	165	4x ∅18	4x ∅22

type	dimensions							
	A	B	C	E	F	∅ G	H	∅ I
JHM40	85	129	116	146	55	70	98	150
JHM28	112	170	146	187	77	100	115	200
JHM32	138	184	160	194	86	120	125	200
JHM50	150	213	185	235	90	120	133	300
JHM62	175	252	219	291	100	160	189	400
JHM70	247	321	286	324	111	160	189	500

type	technical data				
	ratio	Input torque in Nm	output torque in Nm	Valve connection	Actuator connection
JHM40	40:1	15	150	F05 / F07	F05 / F07
JHM28	28:1	45	300	F07	F07 / F10
JHM32	32:1	45	530	F07 / F10	F10 / F12
JHM50	50:1	90	1100	F10 / F12	F10 / F12
JHM62	62:1	130	2100	F14	F14 / F16
JHM70	70:1	150	2800	F16	F14 / F16

2.3.2 Sizes and dimensions (JHM85, JHM201 and JHM495)



type	flange connection								
	Square J	∅ K1	∅ K2	Q1	Q2	∅ D1	∅ D2	P1	P2
JHM85	46	165		4x M20		165		4x ∅22	
JHM210	46	165	298	4x M20	4x M16	165	254	4x ∅22	8x ∅18
JHM410	55	256	254	4x M16	8x M20	298		4x ∅22	

type	dimensions								
	A	B	C	E	F	∅ G	H	∅ I	
JHM85	292	315	300	423	146	200	196	600	
JHM210	306	375	409	494	186	300	253	600	
JHM410	355	410	451	571	203	300	271	800	

type	technical data				
	ratio	Input torque in Nm	output torque in Nm	Valve connection	Actuator connection
JHM85	85:1	190	4000	F16	F16
JHM210	210:1	160	8100	F16 / F25	F16 / F25
JHM410	412:1	175	1700	F25 / F30	F30

Section 3: Assembly between valve and actuator

Please note:

All handling instructions described below should only be carried out when the actuator is depressurized. When the manual override is operated intentionally or inadvertently, the valve must not release pressure or media, nor must it have any other contact points that could result in physical injury to the operator. The operator's protection must be ensured accordingly!

3.1 Mounting direction of the manual override

Pneumatic actuators are usually mounted with their housing axis parallel to the pipeline. The manual override gearbox is now mounted so that the shaft of the handwheel faces outwards on the side opposite the air connections of the drive. The shaft of the manual override is now at a right angle to the housing axis of the actuator or to the pipeline.

This design is preferable given that the pneumatic connections and thus possibly solenoid valve or other connections remain freely accessible for their operation or maintenance.

If the manual override is to be used in a different position due to space constraints, the installation dimensions must be checked to ensure accessibility and continued functionality.

3.2 Assembly of valve and actuator

- 1) Make sure that the valve, actuator and manual override are all in the same position (open or closed).
- 2) Place a bracket and coupling on the valve (if necessary if no direct connection can be made between the manual override gear and the valve). Fasten this bracket to the valve according to the valve manufacturer's instructions.
- 3) Place the manual override gear on the valve (or corresponding bracket as described under 2) and fasten it with the appropriate screws and the specified tightening torques.
- 4) Insert the coupler into the gear. Now place the actuator onto the coupler and screw it onto the manual override using suitable screws. Please refer to the actuator manufacturer's documentation for the permissible tightening torque of the screws.
- 5) Engage the handwheel in the gear by moving the hand lever to the required position. Check by turning the handwheel alternately clockwise and counter-clockwise whether all components: actuator, manual override gear and valve are as free-moving as possible and without any special effort.

The components are dismantled in reverse order.

3.3 Rotation angle adjustment

Turn the handwheel until the valve is in the desired open position. Loosen the lock nuts on the stroke adjustment screws and turn the adjustment screws in or out of the housing until they rest against the worm gear (see picture in section 1.2). Repeat the process for the other end position of the valve. Finally, lock the adjustment screws.

Please note that end stops can also be installed on the rotary actuator, which can affect the entire angle of rotation. Please also note that during normal operation the manual override gear can withstand higher torques than the actuator. To prevent damage to the actuator, it is therefore recommended to use the end stops (stroke adjustment screws) on the manual override gear instead of the end stops on the actuator.

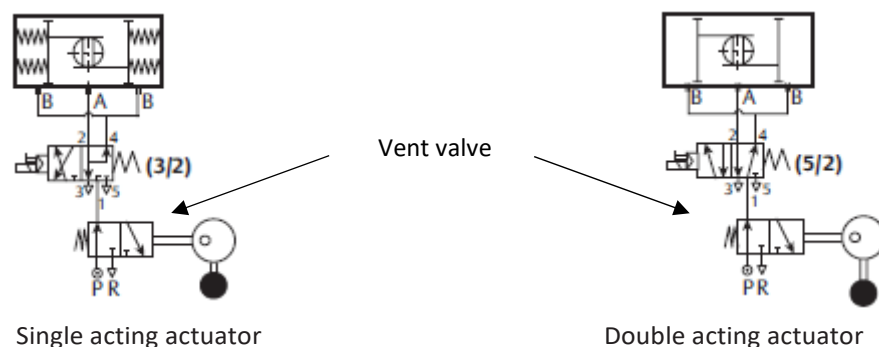
Before operating the actuator with compressed air, the manual override gear must be disengaged by moving the lever to the correct position.

Section 4: Installation and operation with optional vent valve

The JHM manual override gear can be supplied with an optional vent valve. Unfortunately, retrofitting is not possible.

This integrated 3/2-way vent valve disconnects the air supply to the actuator and vents the actuator whenever the handwheel is engaged by turning the lever. The air supply is restored as soon as the handwheel on the manual emergency gear is disengaged.

Depending on the configuration, piping is required between the actuator and the manual override gear. Here are some connection principles:



Section 5: Dismantling, maintenance and repairs

WARNING

Please pay particular attention to the information provided in this section. The actuator must be isolated both pneumatically and electrically as soon as assembly or disassembly work is to be carried out. The valve must be in a position that is safe for the system and the user. Please only use safe tools and avoid using impact tools. Please ensure that the personnel entrusted with working on the actuator have in-depth knowledge of the functionality and structure of the entire unit consisting of the actuator, manual override and valve.

5.1 General information

The JHM manual override gears are designed for smooth, long-lasting use. Maintenance is not required.

If damage or faults are suspected that cannot be identified by the user, the manual override gear should be removed and sent to your supplier for inspection.

When dismantling the actuator, manual override gear and valve components, please proceed in reverse order to that described in point 3.2. Make sure that the actuator is in the basic or safety position before loosening all connecting screws. Single-acting actuators in particular can continue to rotate due to the integrated spring force if it is not in the basic position.

Section 7: Troubleshooting

Problem: The lever cannot be turned to engage the handwheel.

Potential cause: The tooth flanks of the worm wheel and the worm are directly adjacent to each other.

Solution: Turn the handwheel slightly to position the tooth flanks so that they can mesh.

Problem: The lever cannot be turned to disengage the handwheel.

Solution:

- 1) If the actuator is not in an end position, vent the actuator.
- 2) If the actuator is in an end position, apply compressed air to the connection for the counter-rotational movement (double-acting actuators).
- 3) If the actuator is in an end position, please try:
 - a. Applying air to the actuator, or
 - b. Vent the actuator (single acting actuator)
- 4) If the actuator is not in an end position, apply a small amount of air pressure to the actuator until the torque of the actuator no longer exerts any force on the manual override gear.

Problem: The handwheel does not turn.

Solution:

- 1) The actuator is not vented – vent the actuator
- 2) The valve is blocked – check
- 3) The direction of rotation on the handwheel is not correct – turn in the opposite direction
- 4) The actuator and valve do not have the same "open" or "closed" position. The actuator, manual override gear and valve unit must be reassembled in accordance with section 3.2.

Section 8: Contact information

If you have any questions about the information in this brochure, need assistance or would like to provide advice, please contact us.

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47877 Willich

We thank you for your trust and look forward to a good cooperation!