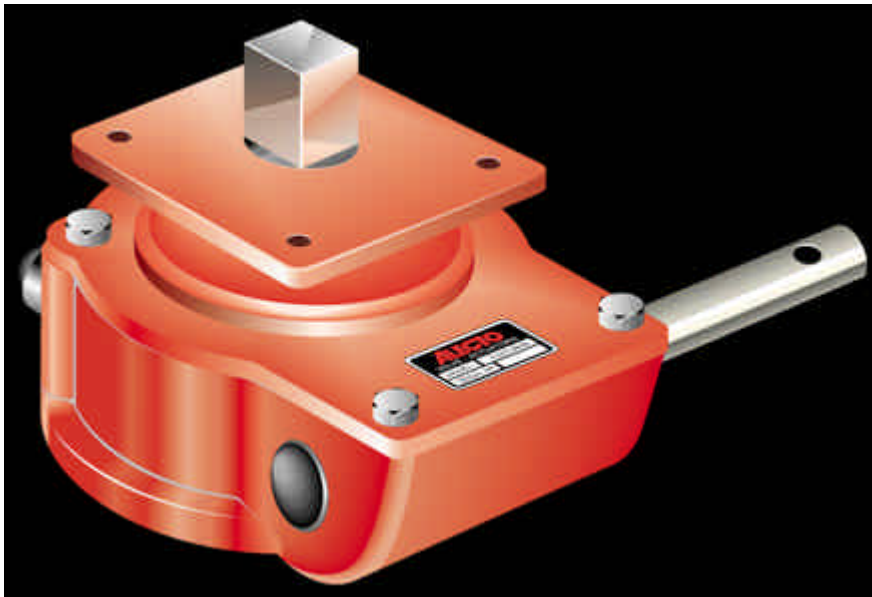


**MANUAL
FOR
INSTALLATION
AND
OPERATING**

for the gearbox model ILG/S



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1. Preface

Rotork Gears bv produces gearboxes of different types and sizes. The ILG/S gearbox of Rotork Gears is a sandwich manual override quarter turn gearbox for single acting actuators. It is intended to be used for the manual operation of valves in pipelines, in case of failure of the of the automatic actuator system.

NB. This manual is valid only for the standard ILG/S gearboxes of Rotork Gears bv. For special versions, the specifications and model can differ.

Rotork Gears bv is not responsible for any damage caused by incorrect use of the gearbox.

1.1 Technical data

Specifications

The maximum allowable input- and outputtorque are listed in table 1.

Gearbox size	connection to actuator	connection to valve	Max. Torque [Nm]	
			Inputshaft	Output
ILG/S 210	F05-F07	F05-F07-F10	28.5	330
ILG/S 550	F07-F10-F12	F07-F10-F12-F14	78	934
ILG/S 880	F10-F12-F14	F10-F12-F14-F16	123	1620
ILG/S 1250	F12-F14-F16	F10-F12-F14-F16	139	2640
ILG/S 1950	F16-F25	F12-F14-F16-F25	160	3050
ILG/S 1950 SP4	F16-F25	F12-F14-F16-F25	125	6800
ILG/S 6800	F25-F30	F16-F25-F30	160	4400
ILG/S 6800 SP4	F25-F30	F16-F25-F30	134	12500
ILG/S 250 SP4	F25-F30	F25-F30-F35-F40	142	32000

table 1 : Connectiondata of the gearboxes

The Rotork Gears gearboxes can be used at ambient temperatures from -20 to $+110^{\circ}\text{C}$.
For more specified information, you can contact our sales departement.

1.2 Handling and safety precautions

Be sure to read and understand this manual before installation and use of our ILG/S-gearbox.

Storage

The gearboxes need to be stored in a safe way to avoid accidents. Also avoid storage in areas subjected to high temperature extremes and /or areas subjected to large amounts of humidity and dust.

Handling

Never drop the gearbox or otherwise subject it to strong impact.

Correct use

Prior to installation, be sure the gearbox will NOT be overloaded during normal use. For this, convince yourself the valvesize and needed opening and closing torque do not exceed the values given for the gearbox. For the maximum allowable torque of the gearbox, see table 1.

Rotork Gears bv is not responsible for any damage caused by incorrect use of the gearbox.

Installation en operating

Not observing and following the rules as stated in this manual can lead to damage and / or personal injuries. The qualified personel must be fully aware of the instructions as descibed in this manual.

Only when the instructions are observed, correct operation of the gearboxes can be guaranteed.

Disposal

Never refuse a gearbox at a general disposal unit. The gearbox has to be offered to a disposal depot for recycling.

The iron parts can be used for recycling . The seals are of nitrile and can be used for plastic recycling.

The grease may not be discharged to sewer- or surface water. It has to be disposed according to local regulations for incineration.

2. Installation : mounting to the valve

The ILG/S is a sandwich manual override quarter turn gearbox for single acting, quarter turn, pneumatic or electric actuators.

For maximum allowable input- and outputtorque, refer to table 1 or the (not included) datasheet.

This manual describes the installation of the gearbox and its parts. The intention is to open a valve with the gearbox in case of a failing actuator system. If the power supply fails the spring returns the actuator (and valve) to the “secure” (closed) position.

1. The gearbox is standard delivered in closed position.
2. It is recommended to mount a handwheel on the inputshaft prior to assemble the gearbox to the valve.
3. Check if the boltcircle of the flanges (of gearbox and valve) coincide. Also check if the valvestem and the bore of the driveshaft match.
4. Make sure the valve is in the fully closed position. If not, close the valve before continuing.
5. For fail-close actuators (90° clockwise close), the gearbox has to be positioned fully closed. This is achieved by turning the handwheel clockwise.
6. In case of use of studbolts for fixing the gearbox to the valve, it is recommended to screw them into the bottomflange of the gearbox prior to mounting the gearbox on top of the valve.
7. The use of a gasket between the flange of the valve and gearbox is recommended.

8. Put the driveshaft from the bottomside into the gearbox (see figure 1). The size and shape of the connections of the driveshaft and the gearbox can differ from figure 1.

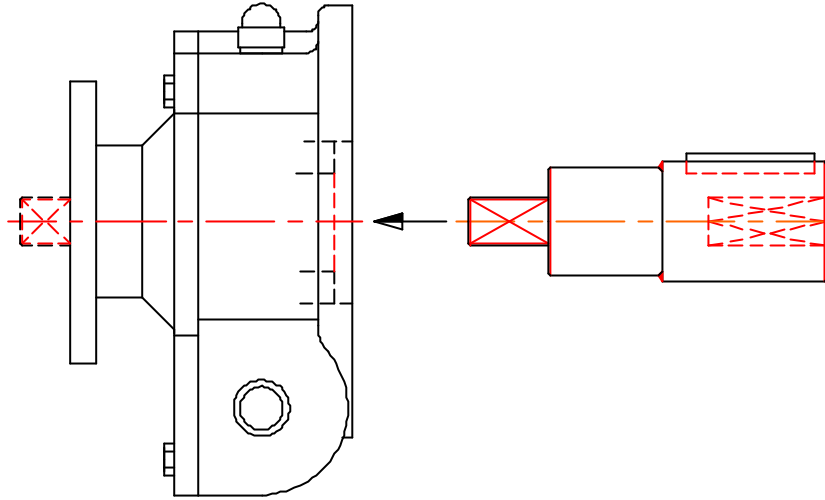


figure 1 : assembly of driveshaft into gearbox ILG/S

9. For fail-close actuators -clockwise close- be sure the driveshaft can make a free quarter turn clockwise (seen from the bottomside) from its endposition; refer to figure 2 (the position of the 'free-run' can differ from the figure). By this the gearbox can open the valve in case of actuator or power supply failure.

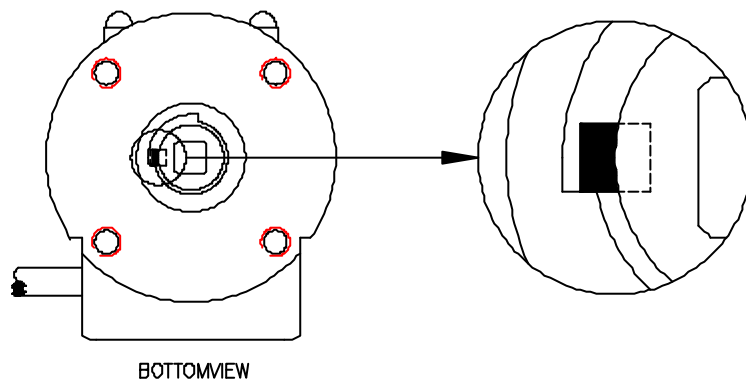


figure 2 : Position of driveshaft.

10. Put the gearbox on top of the valve.
11. The gearbox is mounted perpendicular to the valve (see figure 3).

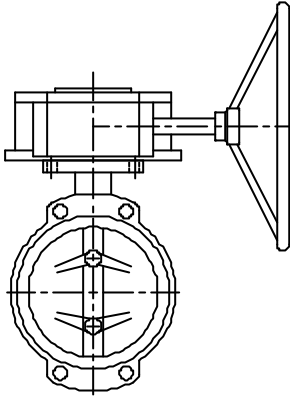


figure 3 : Gearbox perpendicular to the valve

12. Fix the gearbox to the valve with nut and ring. In case of use of bolts, for the maximum screwdepth, see table 1. For tightening, refer to standard VDI 2230.

\ pcd	F05	F07	F10	F12	F14	F16	F25	F30	F35	F40
max. screw depth	8	11	13	16	18	18	18	18	30	36

table 1 : maximum screwdepth per pitch center diameter

13. The (fail-close = spring-return) actuator can be mounted on top (see chapter 3).
 14. The assembly is ready for adjustment (see chapter 3).
 15. For another kind of actuator(operation), above mentioned points may not apply to the situation. When the valve has to opened with the gearbox in case of malfunction of the actuator-system, position the gearbox in opened position and the driveshaftkey at '12 o'clock'. Be sure the driveshaft can be freely turned by the actuator, from close to open v.v., without interfering with the wormwheel.

3. Adjustment of the stopscrews

The gearbox is already mounted on top of the valve (see installation).
 This manual only applies to fail-close (clockwise) actuators.

1. Be sure gearbox and valve are in fully closed position. If not, turn the gearbox in opened position by turning the handwheel clockwise.
2. Turn the valve in the fully closed position.
3. Mount the (spring-clockwise-return) actuator. Do not pressurize the actuator!! Be sure the actuator is ready for use (stopscrews are adjusted)
4. Check if the valve is in fully closed position. If not, then adjust the setscrews either of the gearbox or the actuator.
5. Turn the handwheel counterclockwise to put the gearbox (and valve) in fully opened position. When the full open position can not be achieved, loosen the stopscrew-open of the gearbox (see figure 4) and check the travel stop adjustment of the actuator. Continue turning the handwheel until the valve is fully opened.
6. Turn the screw back into the gearbox until blocked (handtight). Secure the stopscrew–open with the counternut.

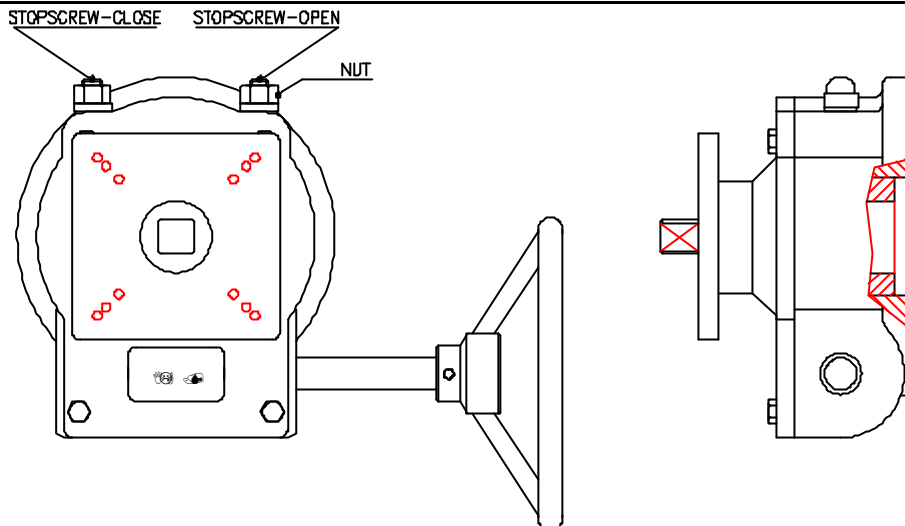


figure 4 : ILG/S gearbox stopscrew adjustment

7. Put the gearbox into the fully closed position by turning the handwheel clockwise.
8. The actuator must also return (the valve) to its fully closed position. When the fully closed position can not be achieved, loosen the stopscrew-close of the gearbox (see figure 4) and check the travel stop adjustment of the actuator.
9. Turn the stop-screw back into the gearbox until blocked (handtight). Secure the stopscrew-open with the counternut.
10. If still no return to closed position is achieved, check if any obstacles prevent the valve from returning back into its closed position.
11. Be sure the gearbox and valve are in fully closed position.
12. Adjustment completed. The assembly is ready for automatic operation.

4. Operating

Under normal circumstances the valve is operated by an automatic actuator. The ILG/S gearbox allows manual operation (closing or opening) of the valve in case of malfunction in the automatic actuator-system.

1. The gearbox is operated by handwheel.
2. The valve is closed by turning the handwheel clockwise.
3. Stop turning when the required valveposition is achieved. The number of rotations of the handwheel needed to turn the valve from fully opened to fully closed position is listed in table 2.
4. When the valve can not be totally closed, first detect and solve the cause of failure.
5. In case of malfunction of the gearbox, this has to be replaced (see chapter 2 for dismounting). Return the gearbox to your supplier for repair.
6. When you do the repair in house, all replacement parts must be obtained from the manufacturer to assure proper operation of the gearbox.
7. The gearbox is self-braking. Therefore no fixation is needed to retain the valveposition¹.
8. When the cause of the malfunction is solved, turn the handwheel until blocked (for correct stand of the gearbox, see chapter 2: installation).
9. The system is ready for use.

¹ Option is a fixation of the the inputshaft to prevent (not allowed) turning.

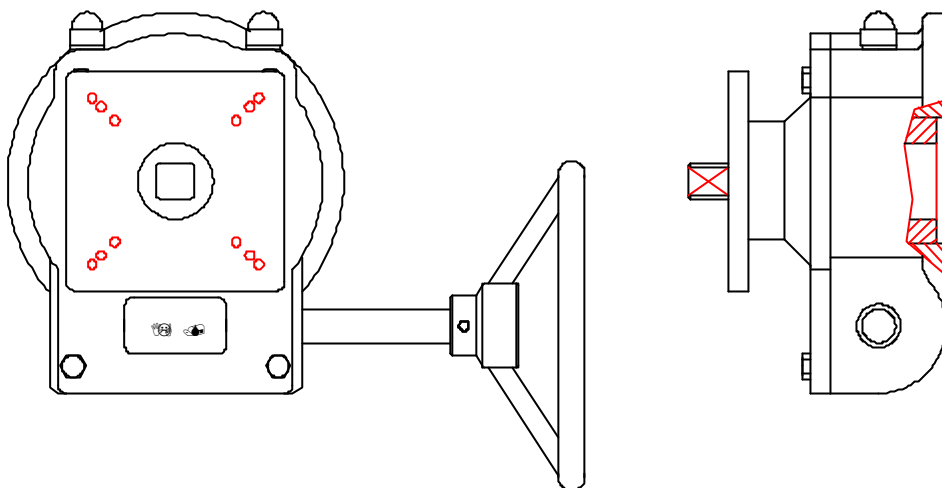


Figure 5 : ILG/S gearbox

type gearbox	number of turns to close		type gearbox	number of turns to close
ILG/S 210	9,25		ILG/S 1950	13
ILG/S550	8,5		ILG/S1950/SP4	52
ILG/S 880	9,5		ILG/S 6800/SP4	79,25
ILG/S 1250	13,75		ILG/S 250/SP9	176

table 2 : number of turned for totally opening / closing.

5. Maintenance

Under normal conditions, the gearbox is maintenance free.

The Rotork Gears gearboxes can be used at ambient temperatures from -20 to $+110^{\circ}\text{C}$.

The standard gearbox reaches IP65 (dust- and waterspray proof). Cleaning can be done with a waterhose, not a high pressure waterjet.