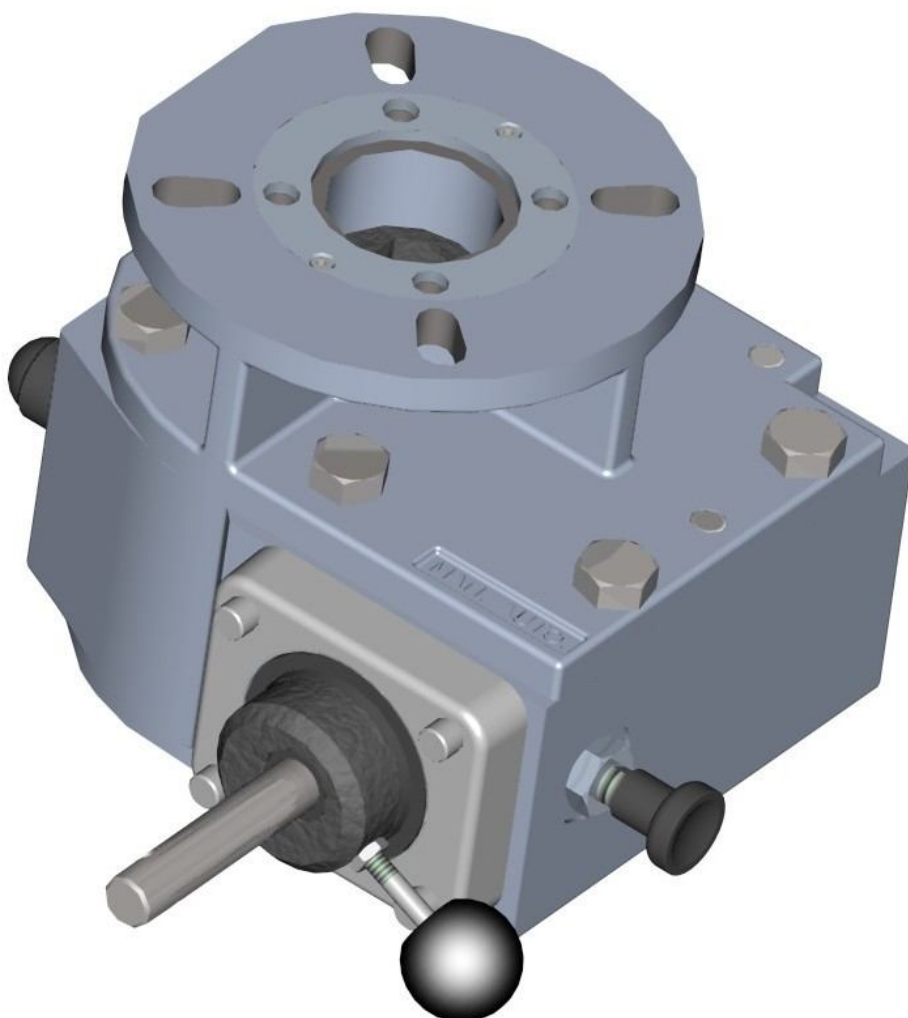


rotork®

Gears

**MANUAL
FOR
INSTALLATION
AND
OPERATING**

for gearbox model ILG/D



1.	Preface.....	3
1.1	Technical data.....	3
1.2	Handling and safety precautions	3
2.	Installation : mounting to the valve.....	4
3.	Adjustment of the stopscrews	5
4.	Operating	6
5.	Maintenance.....	8

1. Preface

Rotork Gears BV produces gearboxes of different types and sizes. The model ILG/D is a declutchable override quarter turn gearbox for double acting pneumatic or electric actuators. The ILG/D is intended for manual operation of the valve, in case of failure of the automatic actuator system.

NB. This manual is only for the standard ILG/D gearboxes of Rotork Gears BV. For special versions, the values 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 output torque are listed in table 1.

Gearbox type	Connection to actuator	connection to valve	Max. Torque [Nm]	
			Input	Output
ILG/D 100	F05-F07	F05-F07	13	150
ILG/D 200	F05-F07	F05-F07	26	250
ILG/D 600	F07-F10-F12	F07-F10-F14	60	750
ILG/D 900	F10-F12-F14	F10-F12-F14	125	1450
ILG/D 1500	F12-F14-F16	F10-F12-F14-F16	160	2485
ILG/D 2400	F14-F16	F12-F14-F16	188	3390
ILG/D 5000	F16-F25	F16-F25	298	7450
ILG/D 8000PR3	F16-F25	F16-F25	120	8135
ILG/D 16000PR6	F25-F30	F25-F30	140	17000
ILG/D 232-10	F07	F07-F10-F12	25	250

table 1 : connection data of gearboxes

1.2 Handling and safety precautions

Be sure to read and understand this manual before installation and use of our ILG/D-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 subject it to strong impact.

Correct use

Before installation, be sure the gearbox will NOT be overloaded during normal use. This means the gearbox must be suited for the valve and actuator to which it is mounted. For checking, see table 1 for the maximum allowable torque.

Installation en operating

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

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

Disposal

Never dispose a gearbox at a general disposal site/depot. 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/D is a manual declutchable override quarter turn gearbox for double acting actuators.

For connection data, maximum allowable input- and output torque refer to table 1.

This manual describes the installation of the gearbox and its parts. The intention of the ILG/D gearbox is to operate the valve in case of a failing actuator system.

1. The gearbox is standard delivered in the closed position.
2. It is recommended to mount a handwheel on the inputshaft, before assembling 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 at the bottom of the gearbox match.
4. Make sure the valve is in the closed position. If not, close the valve before continuing.
5. Check if the gearbox is in fully closed position 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 before mounting the gearbox to the valve.
7. The use of a gasket between the flange of the valve and gearbox is recommended.
8. The gearbox is mounted perpendicular to the valve (see figure 1).

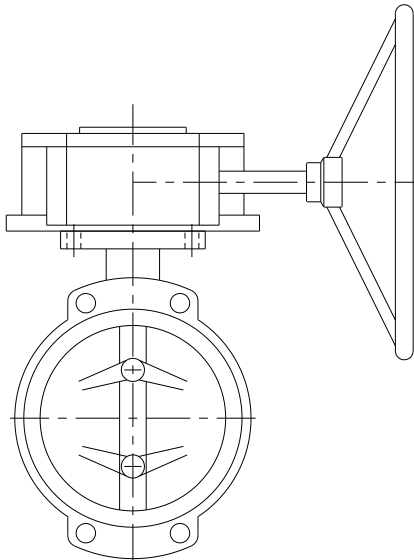


figure 1 : Gearbox perpendicular to the valve

9. Fasten the gearbox to the valve with nut and ring. In case of use of bolts, for the maximum tapping depth, see table 2. 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 2 : maximum tapping depth per pitch center diameter

10. The 3/2-valve is optional and meant for gearbox mode detection. The 3/2 vent valve is open (and vents to atmosphere) with the gearbox in manual mode.

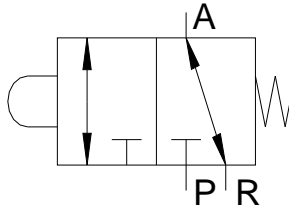


Figure 2 : port designation

11. The assembly is now ready for adjustment. (see chapter 3).

3. Adjustment of the stopscrews

The gearbox is mounted on top of the valve (see installation).

1. In case of a pneumatic actuator, be sure the actuator depressurised.
2. Put the gearbox in the manual-mode by turning the handle 90 degrees counter clockwise (see 'operating' and/or figure 5: 1->2->3)
3. Turn the valve into fully closed position by turning the handwheel clockwise. When the fully closed position can not be achieved, loosen the stopscrew-close (see figure 2). Continue turning the handwheel until the valve is fully closed.
4. Turn the screw back into the gearbox until blocked (handtight). Secure the stopscrew-close with the counternut.

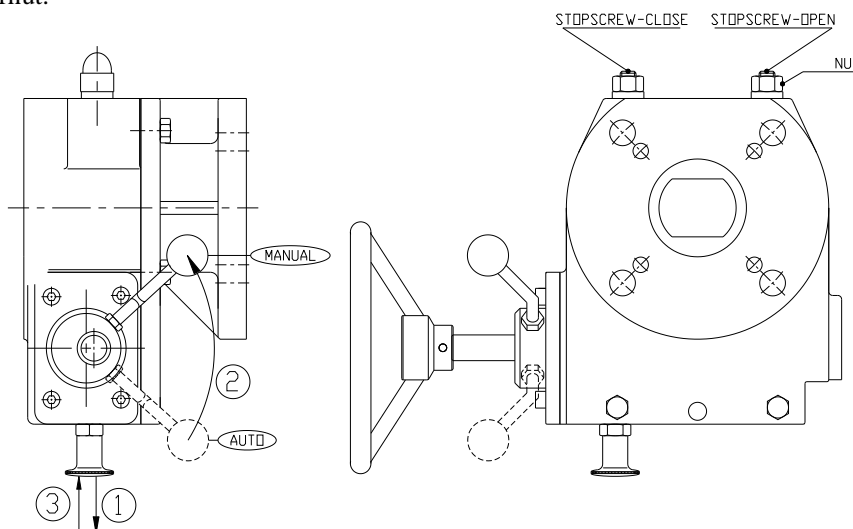


Figure 3 : ILG/D gearbox stopscrew adjustment

5. Open the valve by turning the handwheel counter-clockwise. When the fully open position can not be

- achieved, loosen the stopscrew-open (see figure 3). Continue turning the handwheel until the valve is fully open.
6. Turn the stop-screw back into the gearbox until blocked (handtight). Secure the stopscrew-open with the counternut.
 7. Close the valve completely with the handwheel.
 8. Pull the knob outwards (1) and turn the handle (clockwise) until knob falls back into its locked-position (3).
 9. Adjustment completed. The gearbox is now ready for manual or automatic operation.
 10. Prior to mounting an actuator,
 - a. adjust the stopscrews.
 - b. position the driveshaft (see figure 4) in top of the gearbox.
 - c. make sure the actuator is in closed position.

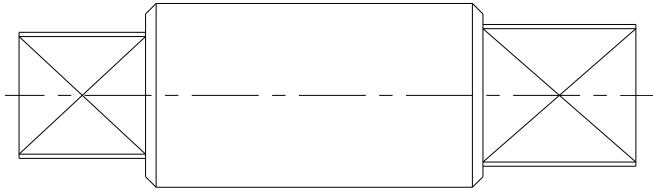


Figure 4 : Driveshaft example from an ILG/D gearbox

4. Operating

The ILG/D is a manual declutchable override quarter turn gearbox for double acting pneumatic or electric actuators.

For maximum allowable input- and outputtorque, refer to table 1.

The gearbox is delivered in automatic mode: valve-operating by actuator.

1. The gearbox is manually operated by handwheel.
 2. Prior to manual operation, the gearbox has to be put into manual mode. To achieve this, refer to figure 5 and follow the next points :
 - i. Pull the knob outwards (1). Secure the knob in this position.
 - ii. Turn the handle counter clockwise (2) and release the knob. Continue turning the handle until the knob falls back into locking position (3).
- NB** When the handle can not be fully turned over $\pm 90^\circ$, turn the handwheel slightly. Continue turning the handle until full engagement is achieved (knob returns to start position).
- iii. The gearbox is ready for manual operation.

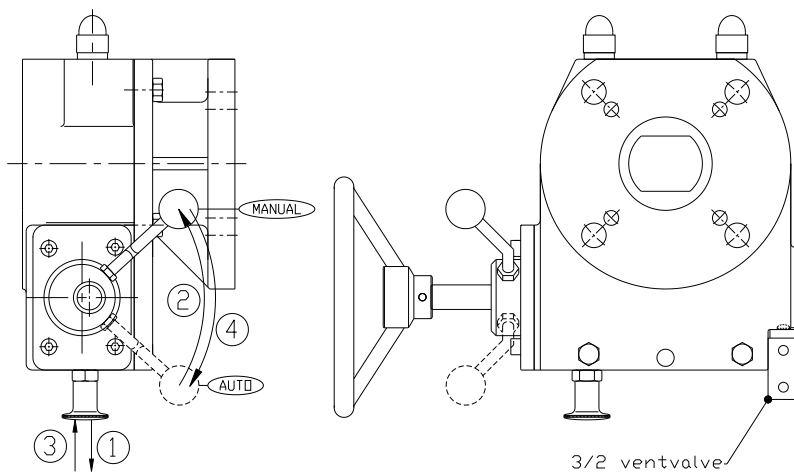


Figure 5 : ILG/D gearbox

3. To close the valve, turn the handwheel clockwise.
4. Stop turning until the required valve position is achieved. The number of turns needed from totally open to totally close the valve is in table 3.
5. When the valve can not be totally opened (or closed), first the cause has to be detected and solved.
6. In case of malfunction of the gearbox, this one has to be replaced (see chapter installation for dismantling). Return the gearbox to your supplier for repair.
7. When you do the repair in house, all replacement parts must be obtained from the manufacturer to assure proper operation of the gearbox.
8. When the fault is repaired, turn the handwheel until blocked.
9. Declutch the gearbox:
 - i. Pull the knob outwards (1).
 - ii. Turn the handle clockwise (4) and release the knob. Continue turning the handle until the knob falls into its locking position (3).
10. In case of opening the valve, follow procedure described under point 2 to 5. Except point 3: to open the valve, turn the handwheel counter-clockwise.

type gearbox	Number of turns
ILG/D 100	10
ILG/D 200	8.75
ILG/D 600	11.5
ILG/D 900	10.75
ILG/D 1500	14.25
ILG/D 2400	17
ILG/D 5000	26
ILG/D 8000PR3	78
ILG/D 16000PR6	117
ILG/D 232-10	9.25

table 3 : number of turns to open / close.

5. Maintenance

Under normal conditions, the gearbox is maintenance free.

The Rotork Gears ILG/D gearboxes can be used at ambient temperatures from -20 to $+120^{\circ}\text{C}$. Other temperature ranges are available on request.

The standard gearbox is sealed to IP65 (dust tight and water jet proof). Cleaning can be done with a water hose, not a high pressure water jet. As an option ILG/D gearboxes can also be supplied sealed to IP67 or IP68.