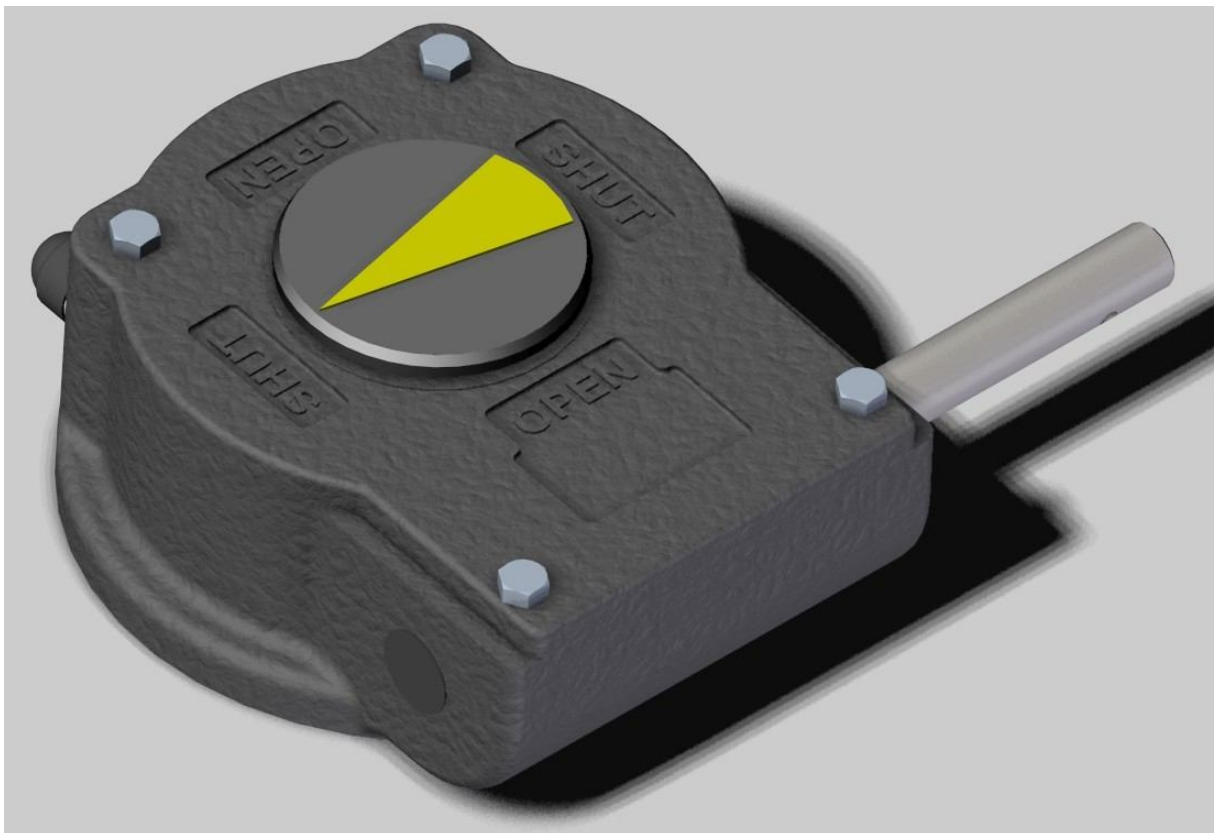


rotork® Gears

MANUAL FOR INSTALLATION AND OPERATING

for gearbox model AB, 232 and 300



1.	Preface	3
1.1	Technical data	3
1.2	Handling and safety precautions.....	4
1.3	ATEX	4
2.	Installation : mounting to the valve.....	5
3.	Adjustment of the setscrews.....	6
4.	Operating instructions.....	7
5.	Maintenance	8

1. Preface

The gearbox of the AB-, 232- and 300-series is a quarter turn gearbox intended to be used for the manual operation of valves (e.g. butterfly/ball valves) in pipelines.

NB. This manual is valid only for the standard AB-, 232- and 300-series gearboxes of Rotork Gears BV. For special versions, 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 output torque are listed in.

Gearbox type	Connection Valve ISO 5211/1	Max. Torque [Nm]	
		Input	Output
AB 150	F05-F07	16	150
AB 210/215 (LB)	F05-F07-F10(-F12)	28.5/43	330/500
AB 550 (LB)	F07-F10-F12-F14(-F16)	83	1000
AB 880 (LB)	F10-F12-F14-F16	152	2000
AB 1250 (LB)	F10-F12-F14-F16(-F25)	171	3250
AB 1950(LB)	F12-F14-F16-F25(-F30)	289	5500
AB 1950(LB) HR	F12-F14-F16-F25(-F30)	159	4500
AB 1950(LB)/SP4	F12-F14-F16-F25(-F30)	125	6800
AB 6800(LB)	F16-F25-F30(-F35)	305	8400
AB 6800(LB)LT/SP4	F16-F25-F30(-F35)	96	9000
AB 6800(LB)/SP4	F16-F25-F30(-F35)	134	12500
AB 6800(LB)/SP6	F16-F25-F30(-F35)	121	17000
AB 6800(LB)/SP9	F16-F25-F30(-F35)	92	17000
A 200/SP9	F25-F30-F35	166	26000
A 250LT/SP9	F25-F30-F35-F40	116	26000
A 250/SP9	F25-F30-F35-F40	142	32000
232-05O	F05-F07	13	125
232-05N	F05-F07	12,5	125
232-06	F05-F07	25	250
232-07	F05-F07	21	250
232-08	F07-F10	41,7	500
232-10	F07-F10-F12	39	500
232-11	F10-F12	75	900
232-12	F10-F12-F14	100	1000
232-13	F10-F12-F14	83	1000
232-14	F10-F12-F14	125	1500
232-15	*per application	125	1500
307	F07	21	250
310	F10	39	500
312	F12	100	1000

table 1 : Connection data of the gearbox

For more specified information, you can contact our sales department.

1.2 Handling and safety precautions

Be sure to read and understand this manual before installation and use of our gearboxes.

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, verify that valve size and required opening torque do not exceed the values given for the gearbox. For the maximum allowable torque on the gearbox, see table 1.

Installation and 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.

1.3 ATEX

Directive EC 94/9/EG states the directive only applies to equipment which is capable of causing an explosion through its own potential sources of ignition. The gearboxes from type AB, 232, 300, ILG/S and ILG/D don't have their own potential source of ignition, so directive EC 94/9/EG doesn't apply. Therefore we state that:

Operation of gearboxes type series AB, 232 and 300 with the marking :

 II 2 G D c 120 C

in areas with explosive gas atmospheres Zone I and II Category 2 (and 3)
and
explosive dust atmospheres Zone 21 and 22 Categories 2 (and 3)



: this product meets the requirements for explosion prevention

II

: in a potential explosive surrounding, other than in mines,

2

: with a high level of safety, based on normal operation and anticipated risks

G D

: suitable for a possible explosive atmosphere caused by gases, vapours, mists of air/dust mixtures

c

: safety obtained by constructive solutions.

120C

: indicating the maximum surface temperature in °C

2. Installation : mounting to the valve

Following description applies to standard type gearboxes.

1. The gearbox is standard delivered in the closed position.
2. It is recommended to mount a handwheel on the input shaft before assembling the gearbox to the valve.

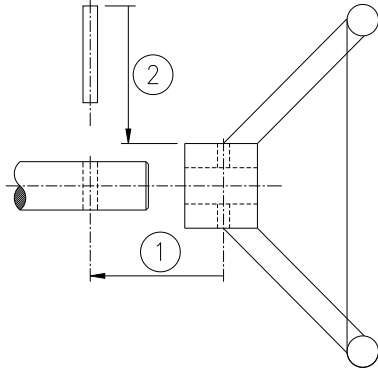


figure 1 : mounting handwheel

3. Check if the bolt circle of the flanges (of gearbox and valve) coincide. Also check if the valve stem and the bore 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. When stud bolts are used for fixing the gearbox to the valve, it is recommended to screw them into the bottom flange of the gearbox before 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. Mount the gearbox perpendicular to the valve (see figure 2).

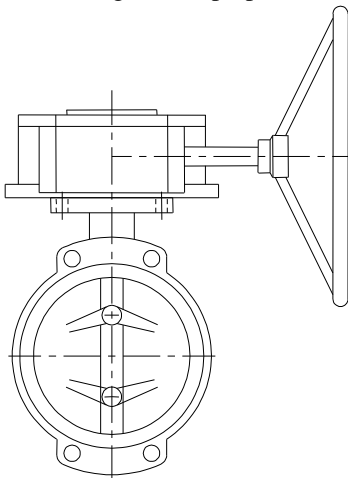


figure 2 : Gearbox perpendicular to the valve

9. Fix the gearbox to the valve with nut and ring. Where bolts are used refer to table 2 for maximum screw dept. 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 screw depth per pitch circle diameter

10. The assembly is now ready for adjustment. (see chapter 2).

3. Adjustment of the setscrews

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

1. Close the valve completely, by turning the handwheel clockwise.
2. The valve position is indicated by the arrow on the position indicator.
3. Remove the plastic caps from the setscrews.
4. When the fully closed position can not be achieved, loosen the setscrew-close (see figure 1) by turning them counterclockwise. Continue turning the handwheel until the valve is totally closed.
5. Screw the set-screw back into the gearbox (by turning clockwise) until tight (blocked against stud bolt). Secure the setscrew-close with the nut.

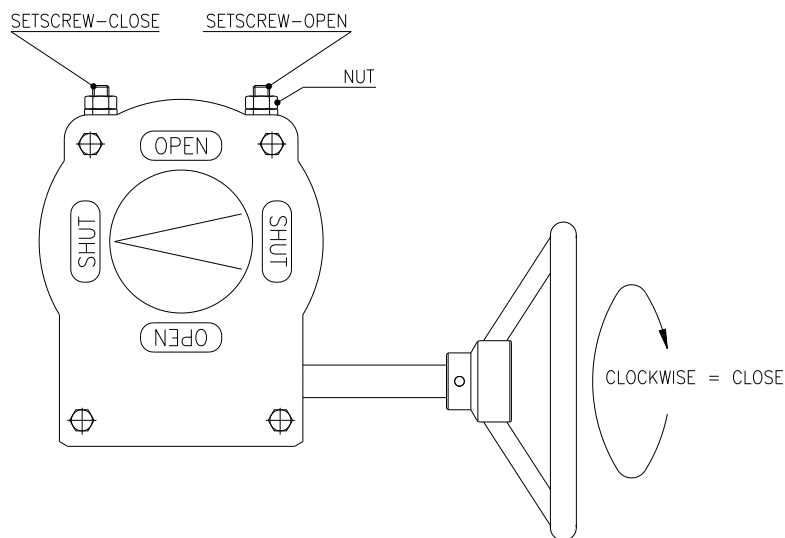


figure 3 : gearbox setscrew adjustment

6. Open the valve by turning the handwheel counter clockwise.
7. When it can not be achieved to open the valve completely (90°), loosen the setscrew-open (see figure 1) by turning it counter clockwise. Continue turning the handwheel until the valve is completely opened.
8. Screw the set-screw back into the gearbox (by turning clockwise) until tight (blocked against studbolt). Secure the setscrew-open with the nut.
9. Close the valve with the handwheel
10. Put the plastic caps back on the setscrews.
11. Adjustment completed.

4. Operating instructions

The AB models are manually operated quarter turn gearboxes made of cast iron. The 232 models are made of aluminium and the 300 range is made of stainless steel.

The maximum allowable input- and output torques are listed in chapter 1.1.

1. The gearbox is manually operated by handwheel.
2. For opening the valve, the handwheel is turned counter clockwise. For closing turn the handwheel clockwise¹.
3. Stop turning when the required valve position is achieved. The number of turns needed to completely open or close the valve is in table 2.
4. The valve position is indicated by the position indicator on top of the gearbox.
5. When the valve can not be completely opened (or closed), first detect and solve the cause of malfunction.
6. In case of malfunction of the gearbox, it has to be replaced (see chapter installation for removing) removing. 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. The gearbox is self-braking. Therefore no fixation needs to be installed to retain the valve position².
9. When the fault is repaired, turn the handwheel until blocked.
10. The system is ready for use.

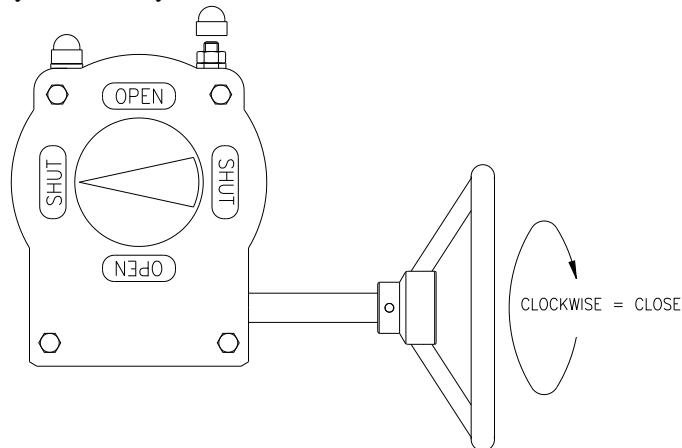


figure 4 : gearbox model AB

¹ As special we can deliver clockwise = opening, counter clockwise=closing.

² Option is the possibility to fix the inputshaft to prevent (not allowed) turning.

TYPE	Number of turns	TYPE	Number of turns	TYPE of gearbox	Number of turns
AB 150	10	AB 6800(LB)/SP6	119	232-05O	10
AB 210/215	9,25	AB 6800(LB)/SP9	176	232-05N	10
AB 550	8,5	A 200/SP9	148	232-06	10
AB 880	9,5	AB 250LT/SP9	176	232-07	9,25
AB 1250	13,75	AB 250/SP9	176	232-08	9,25
AB 1950(LB)	13			232-10	11,25
AB 1950(LB) HR	21	307	9,25	232-11	11,25
AB 1950(LB)/SP4	52	310	11,25	232-12	10
AB 6800(LB)	19,5	312	10	232-13	10
AB 6800(LB)LT/SP4	79,25			232-14	10
AB 6800(LB)/SP4	79,25			232-15	10

table 3 : number of turns for complete 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 $+120^{\circ}\text{C}$.

The standard gearbox from the 300- and 232 range is IP65 (dust tight and water jet proof). Cleaning can be done with a water hose, not a high pressure water jet.

The standard "N" gearbox from the AB range reaches IP67 (dust tight and temporary immersion proof). Cleaning can be done with a high pressure water jet.