

Manual Actuator

MN

Type Series Booklet



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Type Series Booklet MN

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Contents

| | |
|-------------------------------|----------|
| Manual Actuators | 4 |
| Manual Gearboxes | 4 |
| MN..... | 4 |
| Main applications..... | 4 |
| Operating data..... | 4 |
| Design details | 4 |
| Benefits..... | 4 |
| Technical data | 5 |
| Materials..... | 6 |
| Dimensions and weights..... | 7 |

Manual Actuators

Manual Gearboxes

MN



Main applications

- Heating systems
- Domestic water supply
- Drinking water supply
- Heating and air-conditioning systems in
 - heating circuits
 - Ventilation circuits
 - Air-conditioning circuits
- Industry
- Water
- Building services

Operating data

Table 1: Operating properties

| Characteristic | Value |
|-----------------------------------|----------------|
| MN | MN 12 MN 25 |
| Min. permissible temperature [°C] | ≥ -20 |
| Max. permissible temperature [°C] | ≤ +80 |
| Output torque [Nm] | ≤ 250 |
| Enclosure | IP67 |

Design details

Design

- The MN manual gearboxes developed by KSB-AMRI cover torques of up to 250 Nm.
- The MN manual gearboxes feature irreversible gear kinematics in any position. They are suitable for all fields of application and all types of quarter-turn valves (centred-disc or offset-disc butterfly valves, ball valves, etc.).
- Exterior coating: polyurethane, average thickness 80 µm, colour: RAL 9011 black
- Actuator/valve connection flange to ISO 5211
- The manual gearboxes are equipped with removable adapters allowing them to be mounted on valves with different types of shaft end (square or flat ends).
- The force required for actuating the handwheel is defined in the EN 12570 standard.
- The manual gearboxes are equipped with a handwheel and position indicator.

Benefits

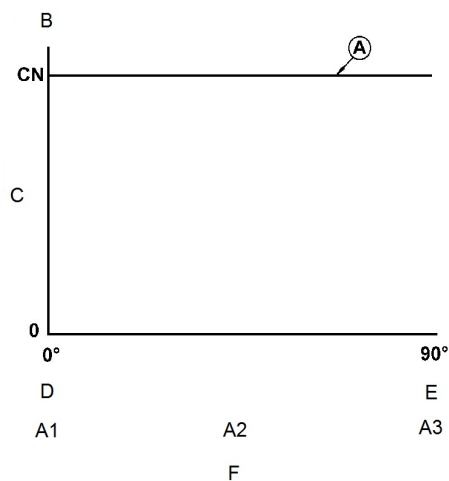
- Grease-packed for life (silicone-free grease) at the factory, therefore maintenance-free.
- Irreversible gear kinematics in any position
- Visual position indicator made of stainless steel

Technical data

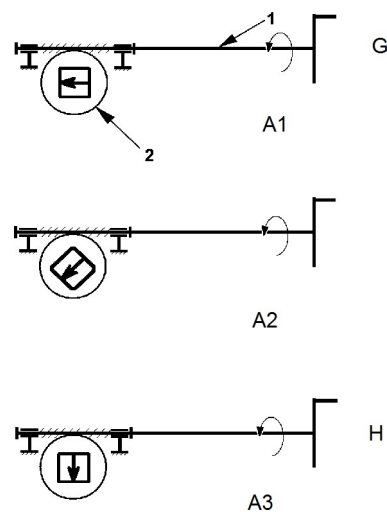
Function

The worm gear provides a constant output torque over the entire worm shaft travel.

When the handwheel connected to the worm ① is actuated, the worm wheel ② rotates together with the valve shaft.



Curve A: constant output torque



Curve of force transmission via worm gear

Key:

A1: Fig. 1

A2: Fig. 2

A3: Fig. 3

B: Output torque

C: Multiplication coefficient

D: Closing

E: Opening

F: Opening angle in degrees

G: Closed

H: Open

MN manual gearboxes are designed for valve closure in clockwise direction.

Type series

Table 2: Torques [Nm] and number of handwheel turns

| Type | Nominal output torque | Nominal input torque | Number of handwheel turns |
|------|-----------------------|----------------------|---------------------------|
| MN | | | |
| 12 | 165 | 12,5 | 10 |
| 25 | 300 | 25 | 10 |

Table 3: Standardised interface and shaft dimensions

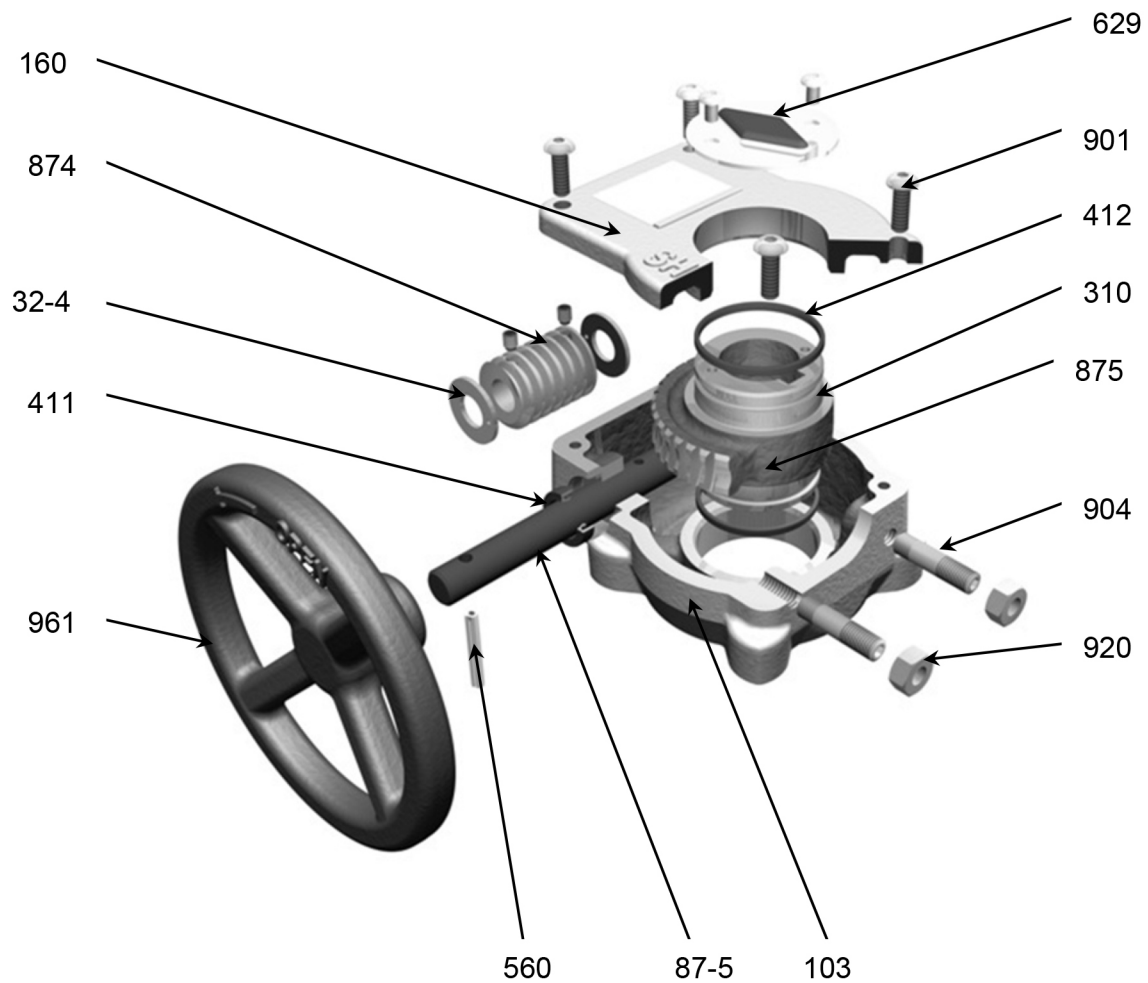
| Type | Interface to ISO* | Max. permissible shaft dimensions | | |
|------|-------------------|-----------------------------------|------------|----------|
| | | Height | Shaft end | |
| | | | Square end | Flat end |
| 12 | F05 - F07 | 37 | - | 14 |
| 25 | F07 - F10 | 47 | 19 | 19 |

* Direct mounting in the case of identical interfaces

Mounting by means of intermediate flange in the case of different interface sizes and footprints

Materials

MN manual gearbox



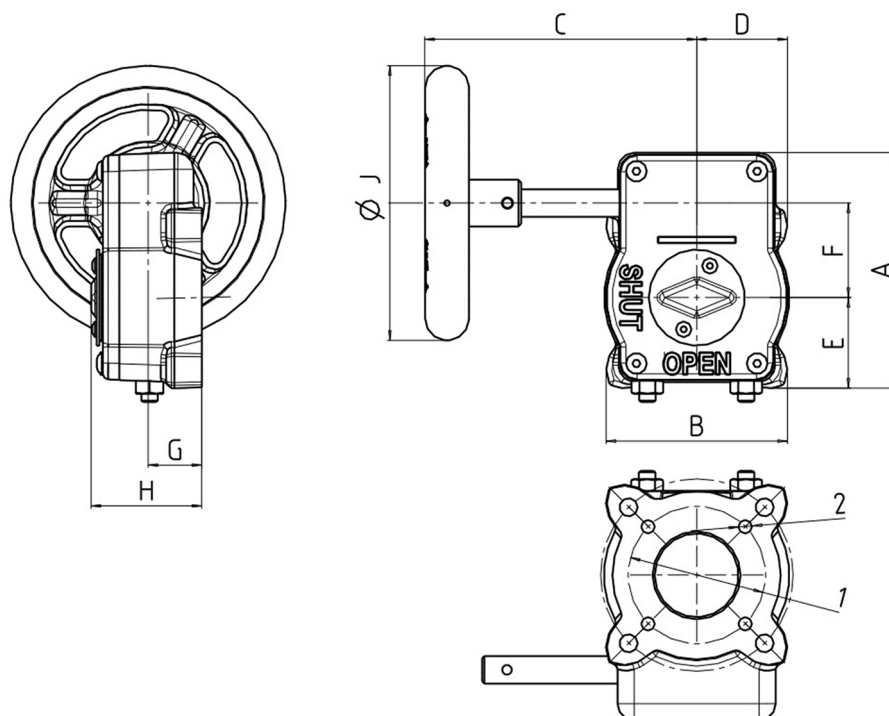
Exploded view of MN

Table 4: List of components

| Part No. | Description | Materials |
|----------|------------------------|--|
| 32-4 | Thrust bearing plate | Tempered steel |
| 87-5 | Actuating shaft | Steel + electrocoating |
| 103 | Gear housing | Lamellar graphite cast iron EN-GJL-250 |
| 160 | Cover | Lamellar graphite cast iron EN-GJL-250 |
| 310 | Bearing | Steel with PTFE coating |
| 411 | Shaft seal ring | Nitrile |
| 412 | O-ring | Nitrile |
| 560 | Handwheel pin | Stainless steel |
| 629 | Position indicator | Stainless steel |
| 874 | Worm | Tempered steel |
| 875 | Worm wheel | Nodular cast iron EN-GJS-400-15 |
| 901 | Bolt/screw | Galvanised steel |
| 904 | Grub screw, adjustable | Galvanised steel |
| 920 | Nut | Galvanised steel |
| 961 | Handwheel | Nodular cast iron EN-GJS-400-15 or steel |

Dimensions and weights

Dimensions and weights for MN 12 and MN 25



Drawing MN 12

- 1: Bore diameter Ød1
2: 4 evenly spaced holes Ød2

Table 5: Dimensions [mm]

| Type | Actuation by handwheel | | | | | | | | |
|------|------------------------|----|-----|----|----|----|----|----|-----|
| MN | A | B | C | D | E | F | G | H | ØJ |
| 12 | 82 | 68 | 146 | 34 | 30 | 34 | 20 | 37 | 100 |
| 25 | 109 | 92 | 242 | 46 | 38 | 41 | 28 | 47 | 200 |

Table 6: Interface [mm] / weights [kg]

| Type | Actuation by handwheel | | | |
|------|------------------------|-------------|-------------|--------|
| MN | Interface to ISO 5211 | | | Weight |
| | Reference | Diameter d1 | Diameter d2 | |
| 12 | F05 | 50 | M6 | 1,0 |
| | F07 | 70 | M8 | |
| 25 | F07 | 70 | M8 | 1,9 |
| | F10 | 102 | M10 | |



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