



# N1 - N4 A

## Rotary and part-turn actuators

### Product features

- Wide torque range
- Wide range of positioning times
- Constant positioning times under fluctuating loads
- Large number of auxiliary position switches possible
- Electronic position controller ESR-N integrated in actuator
- Wide selection of output shafts
- Custom shafts possible
- Solid metal housing
- Maintenance-free gearbox
- Operates in any position

### Overview

The N series is the standard series with a wide range of options within the Agromatic program of products. The wide range of torques from 1 Nm through to 60 Nm and numerous options ensure the N series is the optimum solution for applications in process plant engineering.

The design of the housing made of die-cast aluminium and die-cast zinc in combination with

a permanently lubricated gearbox made of steel with sintered-bronze bearing bushes ensure their suitability for use in a broad range of temperatures and harsh operating environments.

Utilizing an (optional) ESR-N electronic position controller can simplify integrating rotary and part-turn actuators into the controls of complex plant and systems.



## Product details

### HOUSING

- Housing made of die-cast zinc
- Hood made of corrosion-resistant, die-cast aluminium
- Coated with silicon-free paint
- Colour: RAL 7032 Pebble Grey
- Three cable entries M20x1.5
- Protection class IP54 to DIN EN 60529
- Options:
  - Protection classes IP65/IP66/IP67
  - Custom colours
  - Sealed with clear coating material and corrosion-preventative wax to improve corrosion resistance
  - Electric anti-condensate heater (helps prevent build-up of condensate in the actuator)

### MOTOR

- Single-phase AC synchronous motor with permanent magnet, reversible
- 230 V  $\pm$  10%, 50/60 Hz  $\pm$  5%
- ON time 100% duty cycle on request
- Short start/stop times
- Insulation class B to VDE 0530
- Synchronous motors maintain speed and constant positioning times irrespective of the load
- Tropical insulation
- Options:
  - Three-phase motor
  - DC motor
  - Custom voltages
  - Custom frequencies

### GEARBOX

- Spur gearing with straight-toothed steel gears
- Robust, maintenance-free
- Permanently lubricated gears
- Self-lubricating sintered bronze bearing
- Encapsulated version, operates in any position

### OUTPUT SHAFT

#### N1 – N4

- $\varnothing$  12 mm, with  $\varnothing$  5 mm cross-hole
- Options:
  - $\varnothing$  12 mm with feather key
  - Output shaft with square socket WAF 14 mm (F05 to DIN ISO 5211)
  - Other output shafts on request

#### N4 A

- $\varnothing$  14 mm, with  $\varnothing$  6 mm cross-hole
- Options:
  - $\varnothing$  14 mm with feather key
  - Output shaft with square socket WAF 14 mm (F05 to DIN ISO 5211)
  - Other output shafts on request

### ELECTRICAL CONNECTION

- Connection terminals positioned centrally close to cable entry
- Screw-type terminals
- Two free slots to retrofit additional auxiliary position switches
- Additional PCB terminals ensure retrofitting systems extensions is fully unproblematic

### CONTROLS

- Open/close signals
- Options:
  - Additional potential-free contacts
  - Electronic position controller ESR-N (integrated in actuator or external)
  - Potentiometer 200  $\Omega$  ... 10 k $\Omega$
  - Electromechanical emergency torque limit switch shuts off the motor in the event a blockage occurs

### AMBIENT TEMPERATURE

- -15 °C to +60 °C
- 0 °C to +60 °C when utilizing electronic position controller ESR-N
- Options:
  - Up to +80 °C, duty cycle S3-50%
  - Down to -40 °C

## ANGLE OF ROTATION LIMITED BY SNAP-ACTION

### POSITION OFF SWITCH

- Two limit switches (standard)
- All travel-dependent switches actuated by infinitely adjustable control cams
- CO switches – silver-plated contacts
- Switch connections routed to terminal strip
- Max. switching capacity: 6 A, 250 V AC
- Options:
  - Switches with gold-plated contacts
  - Switches with positive-break contacts
  - Switches designed for higher temperatures

### POSITION SENSOR FOR EXTERNAL POSITION INDICATION (OPTIONAL)

- With potentiometer
  - Choice of wire-wound or conductive plastic potentiometer
  - Multiturn potentiometer up to 10 turns
  - Up to three potentiometers possible
  - It is possible to adapt the electrical angle of rotation of the potentiometer to the desired angle of rotation utilizing a gearbox.
- With 4 ... 20 mA transmitter
  - Utilizing a gearbox it is possible to adapt the electrical angle of rotation of the transmitter to the desired angle of rotation.

### MECHANICAL POSITION INDICATOR (OPTIONAL)

- Position indicator on hood
- Graduated scale OPEN/CLOSED, 0° ... 90°, blank or to customer specification

### MANUAL OPERATION (OPTIONAL)

- Using a handwheel it is possible to manually adjust the position of the output shaft and valve.
- Disengaging the gearbox and motor reduces the amount of force required.
- Position switch-off setting is retained during manual operation.
- Handwheel remains motionless during electrical operation.

## OPTIONS

- Other voltage/frequency
- Other ambient temperature range
- Higher protection class
- Handwheel
- Gearbox disengages manually
- Additional auxiliary position switches
- Custom control cams
- Electronic position controller
- Position sensor
- Anti-condensate heater
- Relay
- Pulse relay
- Relays to switch several actuators in parallel
- On the spot mechanical position indicator
- Potentiometer
- Components to UL standard

## INSTALLATION

- Easy to mount thanks to stable angle bracket/ ISO bracket to DIN EN 5211
- No fuss coupling to valve stem by means of:
  - Hand-operated lever
  - Lever arm, clamping lever, ball-and-socket joint, connecting rods, sprung connecting rods
  - Flexible shaft coupling
  - Rigid shaft coupling

## ORDER DETAILS

- Device type
- Torque
- Positioning time
- Output shaft type
- Operating voltage /frequency
- Desired options
- When ordering potentiometers:
  - Resistance value
  - Desired angle of rotation of actuator
- Presetting information for position switches and potentiometer
- Or order number
- Desired valve, where applicable

## ACTUATORS – N1 - N4 A SERIES, 230 V, 50(60) Hz (OPTIONAL: 115 V, 50(60) Hz AND 24 V, 50(60) Hz)

Type	Positioning time 90°	Torque	Power consumption (max.)	Turning range	Shaft	Hood height	Weight	Order No.
N1	15(13) s	5 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.45 kg	110040
N1	30(25) s	9 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.45 kg	110050
N1	60(50) s	15 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.45 kg	110060
N1	120(100) s	30 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.45 kg	110070
Optionally up to 300 turns								
N2	15(13) s	7 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	110110
N2	30(25) s	11 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	110120
N2	60(50) s	17 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	110130
N2	120(100) s	35 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	110140
Optionally up to 300 turns								
N2 A	6(5) s	3 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	110160
N2 A	15(13) s	7 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	110170
N2 A	30(25) s	13 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	110180
N2 A	60(50) s	21 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	110190
Optionally up to 300 turns								
N2 B	25(21) s	25 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.85 kg	110210
N2 B	45(38) s	25 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.65 kg	110220
N2 B	60(50) s	25 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.40 kg	110230
Optionally up to 300 turns								
N3	6(5) s	15 Nm	31 VA	0 - 330°	ø12/40/CH5	92 mm	3.85 kg	110250
N3	15(13) s	15 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	110260
N3	30(25) s	30 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.85 kg	110270
N3	60(50) s	35 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.65 kg	110280
N3	120(100) s	40 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	110290
Optionally up to 300 turns								
N4	6(5) s	40 Nm	35 VA	0 - 330°	ø12/40/CH5	28 mm+120 mm	5.05 kg	110310
N4	12(10) s	40 Nm	31 VA	0 - 330°	ø12/40/CH5	92 mm	3.95 kg	110320
N4	25(21) s	40 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.85 kg	110330
N4	60(50) s	40 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.85 kg	110340
Optionally up to 300 turns								
N4 A	8(7) s	60 Nm	47 VA	0 - 330°	ø14/40/CH6	176 mm	5.85 kg	110370
N4 A	15(13) s	60 Nm	31 VA	0 - 330°	ø14/40/CH6	92 mm	3.95 kg	110380
N4 A	25(21) s	60 Nm	18 VA	0 - 330°	ø14/40/CH6	92 mm	3.85 kg	110390
N4 A	60(50) s	60 Nm	18 VA	0 - 330°	ø14/40/CH6	92 mm	3.85 kg	110400

Type	Positioning time 90°	Torque	Power consumption (max.)	Turning range	Shaft	Hood height	Weight	Order No.
N4 A	120(100) s	60 Nm	7 VA	0 - 330°	ø14/40/CH6	92 mm	3.75 kg	110410

Optionally up to 300 turns

## ACTUATORS – N1 DC - N2 A-DC SERIES, 24 V DC

Type	Positioning time 90°	Torque	Power consumption (max.)	Turning range	Shaft	Hood height	Weight	Order No.
N1 DC	3 s	4 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.55 kg	110610
N1 DC	6 s	7 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.55 kg	110620
N1 DC	12 s	16 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.55 kg	110630
N1 DC	25 s	16 Nm	5 W	0 - 330°	ø12/40/CH5	92 mm	3.45 kg	110640
N1 DC	60 s	20 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.55 kg	110650
N1 DC	120 s	20 Nm	5 W	0 - 330°	ø12/40/CH5	92 mm	3.45 kg	110660

Optionally up to 300 turns

N2 DC	1.5 s	3 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.55 kg	110680
N2 DC	3 s	7 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.55 kg	110690
N2 DC	6 s	12 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.55 kg	110700
N2 DC	12 s	20 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.55 kg	110710

Optionally up to 300 turns

N2 A-DC	1.5 s	6 Nm	21 W	0 - 330°	ø12/40/CH5	120 mm	3.85 kg	110730
N2 A-DC	3 s	12 Nm	21 W	0 - 330°	ø12/40/CH5	120 mm	3.85 kg	110740
N2 A-DC	6 s	20 Nm	21 W	0 - 330°	ø12/40/CH5	120 mm	3.85 kg	110750

Optionally up to 300 turns

N2 B-DC	25 s	25 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.75 kg	110770
N2 B-DC	45 s	25 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.75 kg	110780
N2 B-DC	90 s	25 Nm	5 W	0 - 330°	ø12/40/CH5	92 mm	3.65 kg	110790

Optionally up to 300 turns

N3 DC	6 s	30 Nm	21 W	0 - 330°	ø12/40/CH5	120 mm	3.95 kg	110830
N3 DC	12 s	30 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.95 kg	110840
N3 DC	25 s	30 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.95 kg	110850
N3 DC	45 s	30 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.95 kg	110860
N3 DC	90 s	30 Nm	5 W	0 - 330°	ø12/40/CH5	92 mm	3.65 kg	110880

Optionally up to 300 turns

N4 DC	4 s	40 Nm	38 W	0 - 330°	ø12/40/CH5	176 mm	5.25 kg	110900
N4 DC	6 s	40 Nm	38 W	0 - 330°	ø12/40/CH5	176 mm	5.25 kg	110910
N4 DC	12 s	40 Nm	21 W	0 - 330°	ø12/40/CH5	120 mm	3.95 kg	110920
N4 DC	25 s	40 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.75 kg	110930
N4 DC	45 s	40 Nm	11 W	0 - 330°	ø12/40/CH5	120 mm	3.75 kg	110940
N4 DC	90 s	40 Nm	5 W	0 - 330°	ø12/40/CH5	92 mm	3.65 kg	110950

Optionally up to 300 turns



Type	Positioning time 90°	Torque	Power consumption (max.)	Turning range	Shaft	Hood height	Weight	Order No.
N4 A-DC	4 s	60 Nm	38 W	0 - 330°	ø14/40/CH6	176 mm	5.35 kg	110980
N4 A-DC	6 s	60 Nm	38 W	0 - 330°	ø14/40/CH6	176 mm	5.35 kg	110990
N4 A-DC	12 s	60 Nm	38 W	0 - 330°	ø14/40/CH6	176 mm	5.35 kg	111000
N4 A-DC	25 s	60 Nm	11 W	0 - 330°	ø14/40/CH6	120 mm	3.85 kg	111010
N4 A-DC	45 s	60 Nm	11 W	0 - 330°	ø14/40/CH6	120 mm	3.85 kg	111020
N4 A-DC	90 s	60 Nm	5 W	0 - 330°	ø14/40/CH6	92 mm	3.75 kg	111030

Optionally up to 300 turns

**ACTUATORS - N1 DS - N4 A-DS SERIES, 400 V, 50(60) Hz**

Type	Positioning time 90°	Torque	Power consumption (max.)	Turning range	Shaft	Hood height	Weight	Order No.
N1 DS	15(13) s	5 Nm	23 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111780
N1 DS	30(25) s	9 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111790
N1 DS	65(54) s	15 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111800
N1 DS	130(108) s	30 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111810
Optionally up to 300 turns								
N2 DS	15(13) s	6 Nm	23 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111850
N2 DS	30(25) s	11 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111860
N2 DS	65(54) s	17 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111870
N2 DS	130(108) s	35 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111880
Optionally up to 300 turns								
N2 A-DS	6(5) s	3 Nm	23 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111900
N2 A-DS	15(13) s	7 Nm	23 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111910
N2 A-DS	30(25) s	13 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111920
N2 A-DS	65(54) s	21 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.4 kg	111930
Optionally up to 300 turns								
N3 DS	4(3) s	15 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.6 kg	111940
N3 DS	8(7) s	15 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.6 kg	111950
N3 DS	15(13) s	15 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.6 kg	111960
N3 DS	30(25) s	30 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.6 kg	111970
N3 DS	65(54) s	35 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.6 kg	111980
N3 DS	130(108) s	40 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.6 kg	111990
Optionally up to 300 turns								
N4 DS	6(5) s	40 Nm	36 VA	0 - 330°	ø12/40/CH5	120 mm	4.0 kg	112010
N4 DS	15(13) s	40 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.6 kg	112020
N4 DS	30(25) s	40 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.6 kg	112030
N4 DS	65(54) s	40 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.6 kg	112040

Type	Positioning time 90°	Torque	Power consumption (max.)	Turning range	Shaft	Hood height	Weight	Order No.
N4 DS	130(108) s	40 Nm	19 VA	0 - 330°	ø12/40/CH5	120 mm	3.6 kg	112050
Optionally up to 300 turns								
N4 A-DS	6(5) s	60 Nm	44 VA	0 - 330°	ø14/40/CH6	148 mm	4.8 kg	112070
N4 A-DS	15(13) s	60 Nm	19 VA	0 - 330°	ø14/40/CH6	120 mm	3.7 kg	112080
N4 A-DS	30(25) s	60 Nm	19 VA	0 - 330°	ø14/40/CH6	120 mm	3.7 kg	112090
N4 A-DS	50(42) s	60 Nm	27 VA	0 - 330°	ø14/40/CH6	92 mm	3.7 kg	112100
N4 A-DS	130(108) s	60 Nm	19 VA	0 - 330°	ø14/40/CH6	120 mm	3.7 kg	112110
Optionally up to 300 turns								

### ACTUATORS – N1 - N4 A SERIES, 230 V, 50(60) Hz (OPTIONAL: 115 V, 50(60) Hz AND 24 V, 50(60) Hz)

Type	Positioning time 90°	Torque	Power consumption (max.)	Turning range	Shaft	Hood height	Weight	Order No.
N AS-10	1.8(1.5) s	1 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	111200
N AS-10	3.2(2.6) s	2 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	111210
N AS-10	6.3(5.3) s	3 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	111220
N AS-10	9.5(8) s	5 Nm	7 VA	0 - 330°	ø12/40/CH5	92 mm	3.55 kg	111230
Optionally up to 300 turns								
N AS-11	1.2(1) s	1.5 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111235
N AS-11	1.8(1.5) s	2 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111240
N AS-11	3.2(2.6) s	4 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111250
N AS-11	6.3(5.3) s	8 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111260
N AS-11	9.5(8) s	10 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111270
Optionally up to 300 turns								
N AS-12	0.6(0.5) s	1 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111290
N AS-12	1.2(1) s	2 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111300
N AS-12	1.8(1.5) s	4 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111310
N AS-12	3.2(2.6) s	8 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111320
N AS-12	6.3(5.3) s	12 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111330
N AS-12	9.5(8) s	20 Nm	18 VA	0 - 330°	ø12/40/CH5	92 mm	3.75 kg	111340
Optionally up to 300 turns								
N AS-13	0.6(0.5) s	2 Nm	31 VA	0 - 330°	ø12/40/CH5	120 mm	3.85 kg	111350
N AS-13	1.2(1) s	4 Nm	31 VA	0 - 330°	ø12/40/CH5	92 mm	3.85 kg	111360
N AS-13	1.8(1.5) s	8 Nm	31 VA	0 - 330°	ø12/40/CH5	92 mm	3.85 kg	111370
N AS-13	3.2(2.6) s	16 Nm	31 VA	0 - 330°	ø12/40/CH5	120 mm	3.85 kg	111380
N AS-13	6.3(5.3) s	20 Nm	31 VA	0 - 330°	ø12/40/CH5	120 mm	3.85 kg	111390
Optionally up to 300 turns								

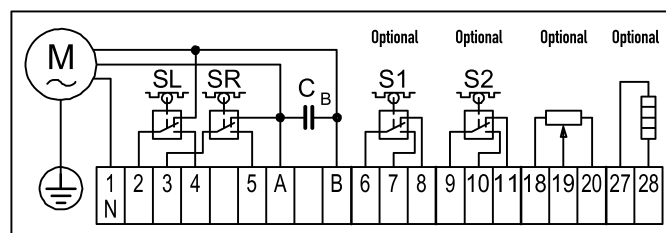




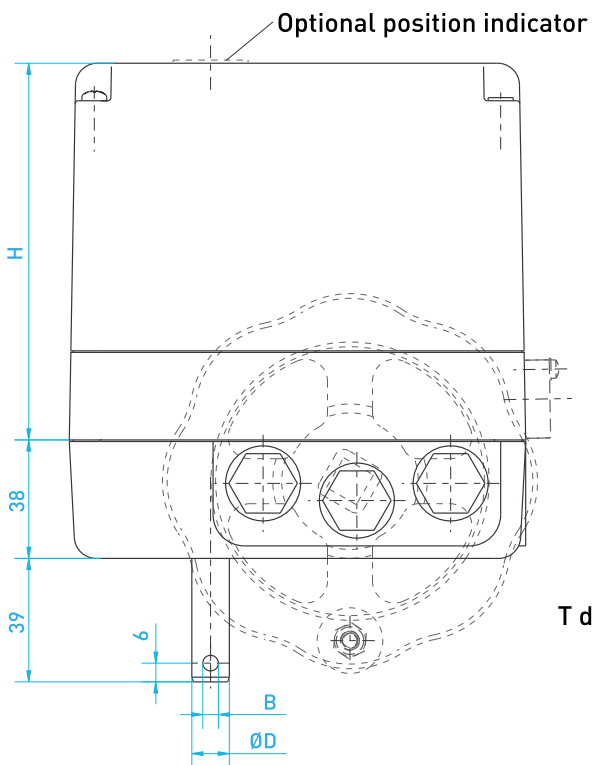
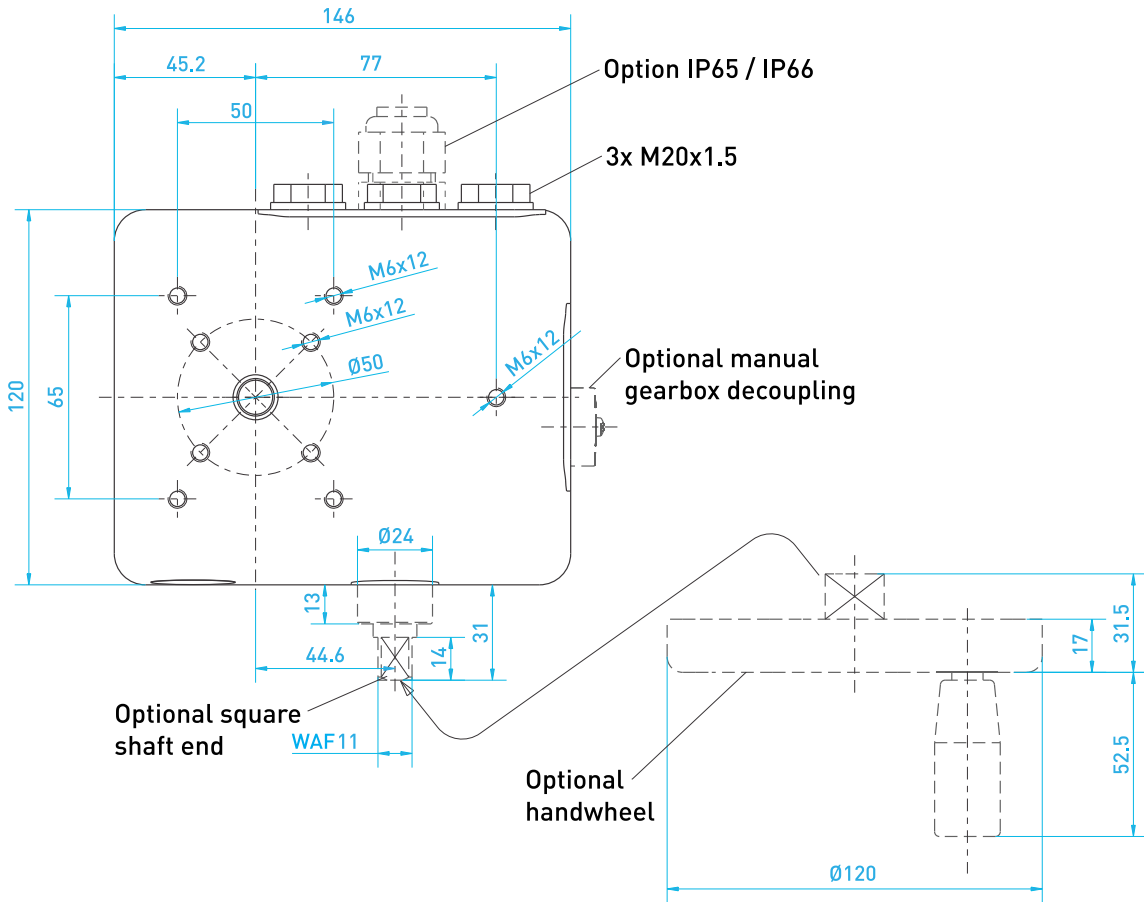
Type	Positioning time 90°	Torque	Power consumption (max.)	Turning range	Shaft	Hood height	Weight	Order No.
N AS-14	0.3(0.25) s	2 Nm	35 VA	0 - 330°	ø12/40/CH5	28 mm+120 mm	4.75 kg	111410
N AS-14	0.45(0.4) s	4 Nm	35 VA	0 - 330°	ø12/40/CH5	28 mm+120 mm	4.75 kg	111420
N AS-14	0.8(0.65) s	7 Nm	35 VA	0 - 330°	ø12/40/CH5	28 mm+120 mm	4.75 kg	111430
N AS-14	1.6(1.3) s	12 Nm	35 VA	0 - 330°	ø12/40/CH5	28 mm+120 mm	4.75 kg	111440
N AS-14	2.4(2) s	18 Nm	35 VA	0 - 330°	ø12/40/CH5	28 mm+120 mm	4.75 kg	111450
N AS-14	4(3.3) s	20 Nm	35 VA	0 - 330°	ø12/40/CH5	28 mm+120 mm	4.75 kg	111460
Optionally up to 300 turns								
N AS-15	0.15(0.12) s	2 Nm	47 VA	0 - 330°	ø12/40/CH5	176 mm	5.65 kg	111480
N AS-15	0.3(0.25) s	4 Nm	47 VA	0 - 330°	ø12/40/CH5	176 mm	5.65 kg	111490
N AS-15	0.45(0.38) s	6 Nm	47 VA	0 - 330°	ø12/40/CH5	176 mm	5.65 kg	111500
N AS-15	0.8(0.65) s	10 Nm	47 VA	0 - 330°	ø12/40/CH5	176 mm	5.65 kg	111510
N AS-15	1.6(1.3) s	18 Nm	47 VA	0 - 330°	ø12/40/CH5	176 mm	5.65 kg	111520
N AS-15	2.4(2) s	20 Nm	47 VA	0 - 330°	ø12/40/CH5	176 mm	5.65 kg	111530

Optionally up to 300 turns

### SCHEMATIC DIAGRAM STANDARD AC



# Dimensions



Type	Positioning time	H	D	B	P	L	T
N1 - N3	All	92	12	5	4	16	2.5
N4	12-120s / 90°	92	12	5	4	16	2.5
	6s / 90°	176	12	5	4	16	2.5
N4 A	15-120s / 90°	92	14	6	5	22	3
	8s / 90°	176	14	6	5	22	3

