

nano+

Electrical actuator
for industrial applications



nano+
Product Catalogue

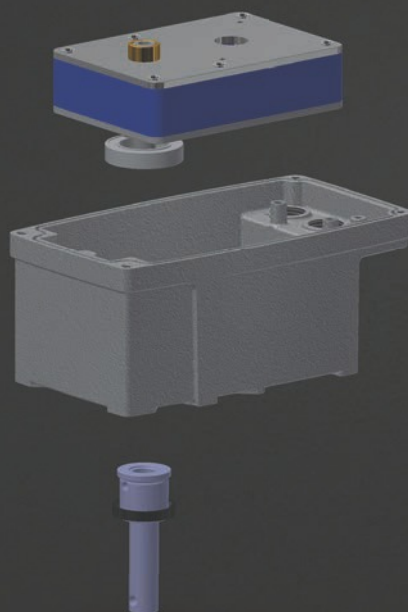
www.kinetrol.uk

Cover made
of aluminium



Motor unit
with electronics
and end position
switch-off

Actuator housing
with gear unit



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nano+

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nano+ S

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nano+ M

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nano+ L

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nano+ XL

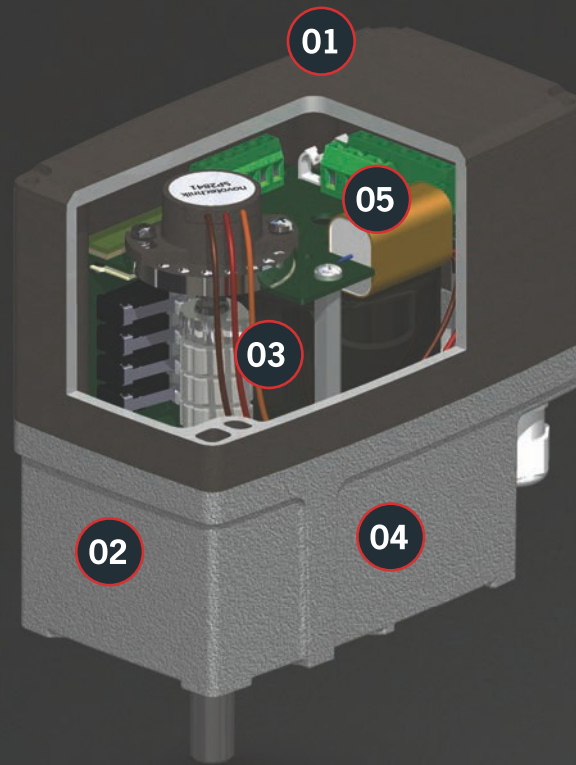
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nano+

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nano+

The all-rounder



01

Robust actuator cover made of aluminium, powder-coated.

02

Metal helical gear unit "Made in Germany".

03

Precision switching cams aluminium, milled with locking screw for secure locking, easy adjustment via the enclosed tool.

04

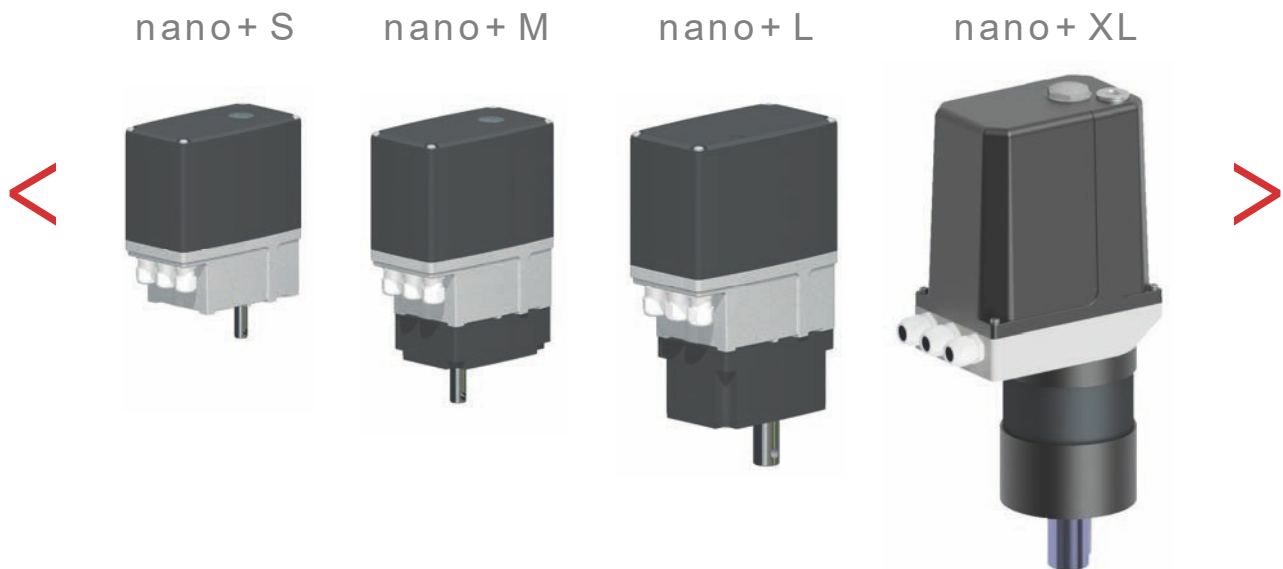
Die-cast actuator housing, powder-coated, high power density on compact basic dimension.

05

Modular construction system of electric components for diverse applications, easy and comfortable wiring.

MODULAR DESIGN

The choice is yours



The **nano+** offers classic actuator technology

The powder-coated aluminum hood of the nano+ combined with the equally powder-coated base unit guarantees a carefree and secure use, even in rough industrial environments. In addition, locking control cams ensure safe actuator cut-off in its set position, even in case of strong vibrations. The availability of different metal hood variants makes possible many additional optional multi-turn applications, up to fail-safe functions. The brand new XL equipment variant of the nano+ product range combines now high torques of up to 500Nm with fast regulating times.

Test institutes confirmed the suitability for the electronic circuit according to DIN EN 12067-2 (optional) and/or in potentially explosive areas of Zone 2 or 22 (optional). The allrounder Nano+ is available in voltages of 230 V, 115 V, 24 V AC or 24 V DC and offers an almost unrestricted application in all industrial applications.

TECHNICAL DATA

AC

DC

Motor	Synchronous motor, short-circuit proof	Direct current brush motor
Protection class	IP 65 (optional IP 66)	
Ambient temperature	-15 °C...+60 °C/optional -40 °C...+80 °C (with PMR: 0 °C...+60 °C)	
Housing	Die cast aluminum (EN AC-44200) powder-coated	
Gear	Metal	
Cover	Aluminum EN AW-6060 T6 / powder-coated	
Shaft	1.4021	
Position indicator	optional	
Power supply	230 V AC (optional 115 V AC/24 V AC)	24 V DC ±20%
Additional switches	2 or 4 pieces (optional)	
Potentiometer	optional	
Travel	10°...330° (optional Multi-Turn)	
Duty cycle	100%	
Connection	3 cable glands M16x1,5	
Travel cutoff	Switching cams/Micro switches	
Maintenance	Lifetime lubrication (maintenance-free)	
Control	3-point-step	2-wire-technology

TYPE LIST

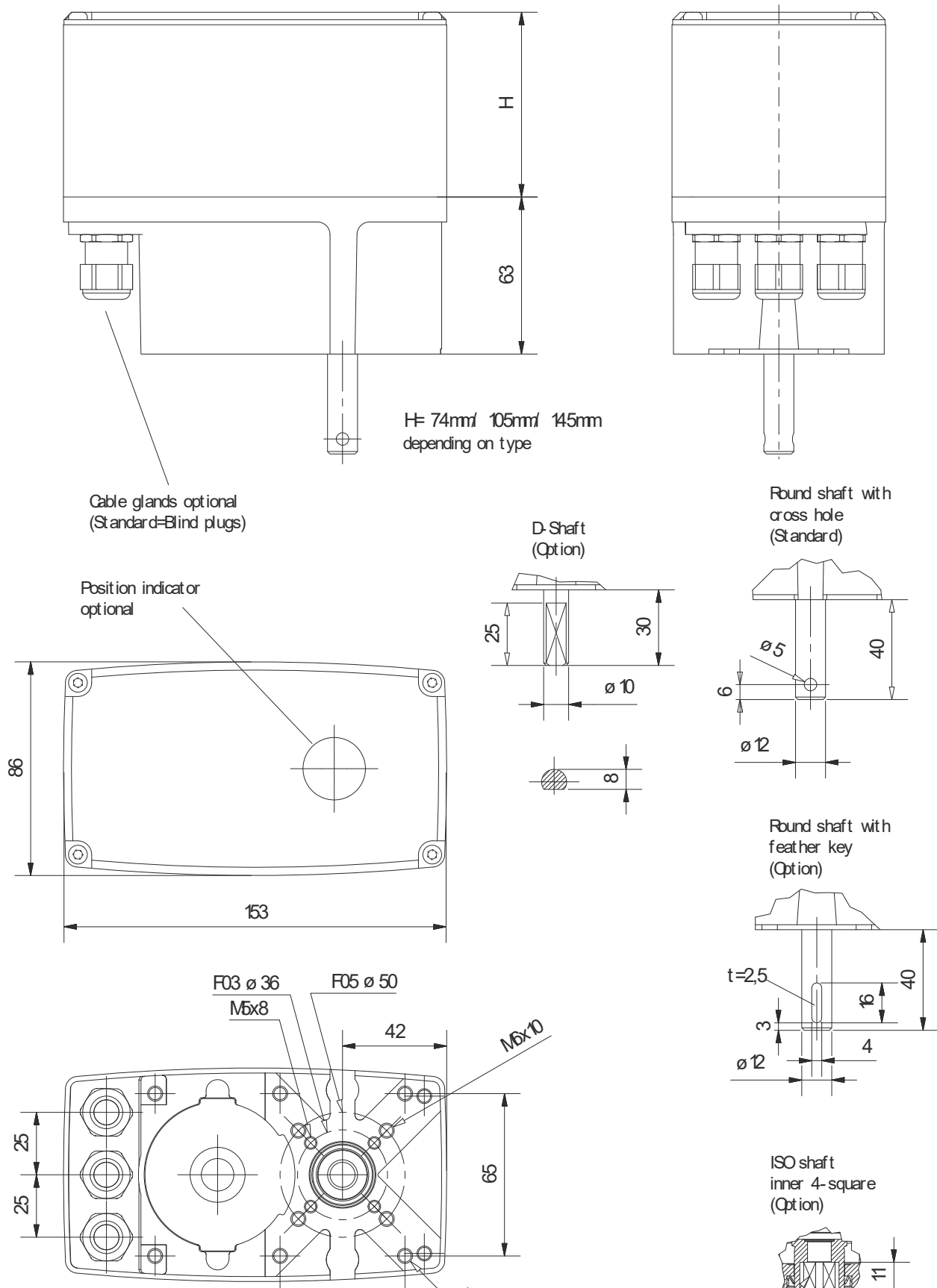
Type	AC		Type	DC	
	Torque [Nm]	Actuating time [s/90°]		Torque [Nm]	Actuating time [s/90°]
nano+ S 05-008	5	0,8 (0,7)	nano+ S-DC 05-03	5	3
nano+ S 05-03	5	3 (2,5)	nano+ S-DC 05-06	5	6
nano+ S 05-06	5	6 (5)	nano+ S-DC 05-10	5	10
nano+ S 05-15	5	15 (13)	nano+ S-DC 05-15	5	15
nano+ S 05-30	5	30 (25)	nano+ S-DC 05-30	5	30
nano+ S 05-60	5	60 (50)	nano+ S-DC 05-45	5	45
nano+ S 10-008	10	0,8 (0,7)	nano+ S-DC 10-03	10	3
nano+ S 10-03	10	3 (2,5)	nano+ S-DC 10-06	10	6
nano+ S 10-06	10	6 (5)	nano+ S-DC 10-10	10	10
nano+ S 10-15	10	15 (13)	nano+ S-DC 10-15	10	15
nano+ S 10-30	10	30 (25)	nano+ S-DC 10-30	10	30
nano+ S 10-60	10	60 (50)	nano+ S-DC 10-45	10	45
nano+ S 15-03	15	3 (2,5)	nano+ S-DC 15-06	15	6
nano+ S 15-06	15	6 (5)	nano+ S-DC 15-10	15	10
nano+ S 15-15	15	15 (13)	nano+ S-DC 15-15	15	15
nano+ S 15-30	15	30 (25)	nano+ S-DC 15-30	15	30
nano+ S 15-60	15	60 (50)	nano+ S-DC 15-45	15	45
nano+ S 20-02	20	1,5 (1,3)	nano+ S-DC 20-06	20	6
nano+ S 20-06	20	6 (5)	nano+ S-DC 20-10	20	10
nano+ S 20-15	20	15 (13)	nano+ S-DC 20-15	20	15
nano+ S 20-30	20	30 (25)	nano+ S-DC 20-30	20	30
nano+ S 20-60	20	60 (50)	nano+ S-DC 20-45	20	45
nano+ S 25-04	25	4 (3)	nano+ S-DC 25-20	25	20
nano+ S 25-06	25	6 (5)	nano+ S-DC 25-30	25	30
nano+ S 25-15	25	15 (13)	nano+ S-DC 25-45	25	45

Values in () = 60 Hz

Other values upon request

DIMENSIONS

nano+ S



nano+ M

TECHNICAL DATA

AC

DC

Motor	Synchronous motor, short-circuit proof	Direct current brush motor
Protection class	IP 65 (optional IP 66)	
Ambient temperature	-15 °C...+60 °C/optional -40 °C...+80 °C (with PMR: 0 °C...+60 °C)	
Housing	Die cast aluminum (EN AC-44200) powder-coated	
Gear	Metal	
Cover	Aluminum EN AW-6060 T6 / powder-coated	
Shaft	1.4021	
Position indicator	optional	
Power supply	230 V AC (optional 115 V AC/24 V AC)	24 V DC ±20%
Additional switches	2 or 4 pieces (optional)	
Potentiometer	optional	
Travel	30 to 40 Nm: 10°...150° / 50 to 60 Nm: 10°...100° (optional Multi-Turn)	
Duty cycle	100%	
Connection	3 cable glands M16x1,5	
Travel cutoff	Switching cams/Micro switches	
Maintenance	Lifetime lubrication (maintenance-free)	
Control	3-point-step	2-wire-technology

TYPE LIST

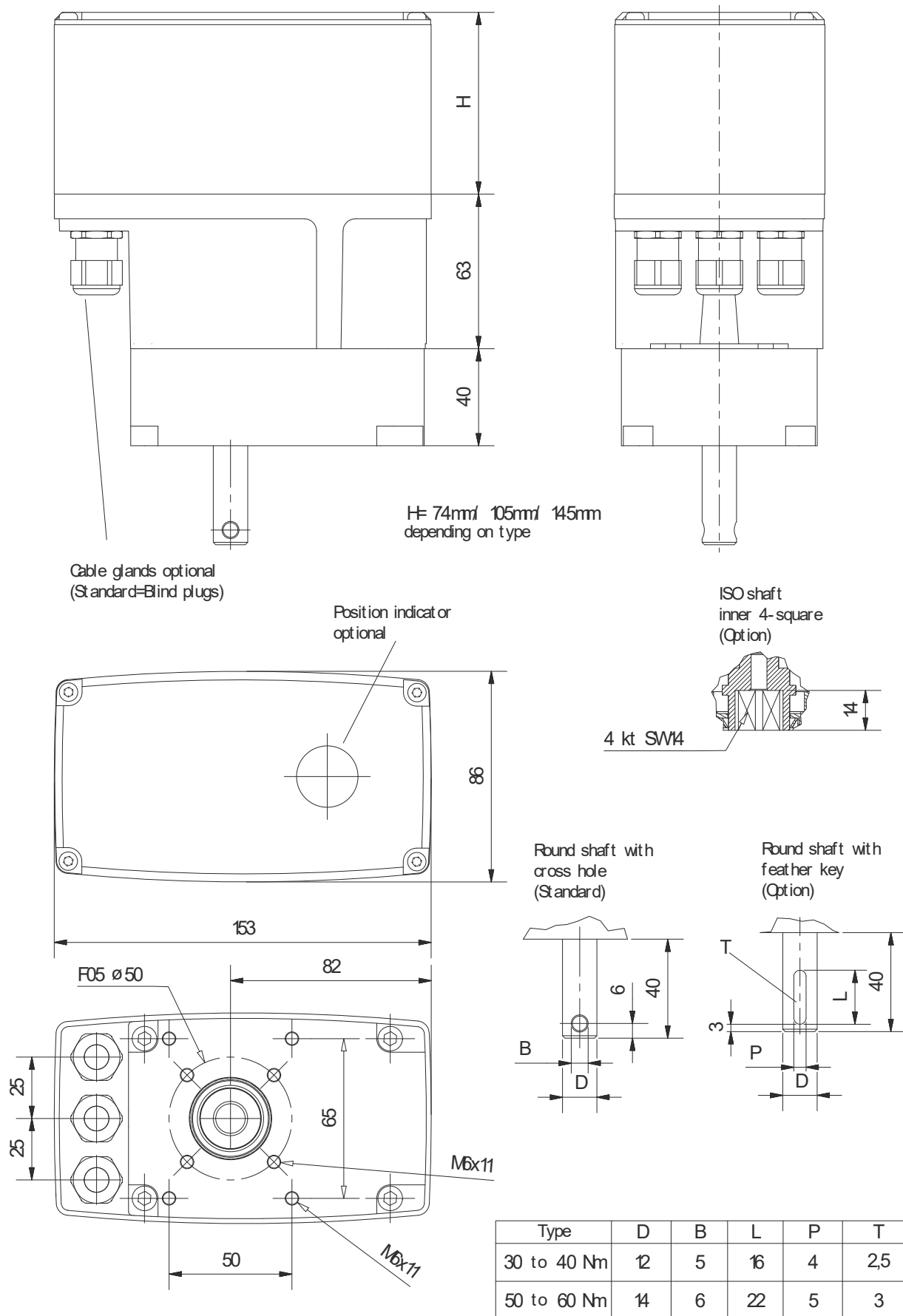
Type	AC		Type	DC	
	Torque [Nm]	Actuating time [s/90°]		Torque [Nm]	Actuating time [s/90°]
nano+ M 25-03	30	3 (2,5)	nano+ M-DC 30-07	30	7
nano+ M 30-08	30	8 (7)	nano+ M-DC 30-10	30	10
nano+ M 30-12	30	12 (10)	nano+ M-DC 30-15	30	15
nano+ M 30-30	30	30 (25)	nano+ M-DC 30-30	30	30
nano+ M 30-60	30	60 (50)	nano+ M-DC 30-60	30	60
nano+ M 30-120	30	120 (100)	nano+ M-DC 30-100	30	100
nano+ M 40-03	40	3 (2,5)	nano+ M-DC 40-10	40	10
nano+ M 40-12	40	12 (10)	nano+ M-DC 40-15	40	15
nano+ M 40-30	40	30 (25)	nano+ M-DC 40-30	40	30
nano+ M 40-60	40	60 (50)	nano+ M-DC 40-60	40	60
nano+ M 40-120	40	120 (100)	nano+ M-DC 40-100	40	100
nano+ M 50-12	50	12 (10)	nano+ M-DC 50-20	50	20
nano+ M 50-20	50	20 (17)	nano+ M-DC 50-30	50	30
nano+ M 50-30	50	30 (25)	nano+ M-DC 50-60	50	60
nano+ M 50-50	50	50 (42)	nano+ M-DC 50-100	50	100
nano+ M 50-90	50	90 (75)			
nano+ M 50-180	50	180 (150)			
nano+ M 60-05	60	5 (4,2)	nano+ M-DC 60-20	60	20
nano+ M 60-20	60	20 (17)	nano+ M-DC 60-30	60	30
nano+ M 60-50	60	50 (42)	nano+ M-DC 60-60	60	60
nano+ M 60-90	60	90 (75)	nano+ M-DC 60-100	60	100
nano+ M 60-180	60	180 (150)			
nano+ M 75-12	75	12 (10)	nano+ M-DC 75-70	75	70
nano+ M 75-20	75	20 (17)	nano+ M-DC 75-90	75	90
nano+ M 75-35	75	35 (30)	nano+ M-DC 75-140	75	140
nano+ M 75-50	75	50 (42)			

Values in () = 60 Hz

Other values upon request

DIMENSIONS

nano+ M





TECHNICAL DATA

AC

DC

Motor	Synchronous motor, short-circuit proof	Direct current brush motor
Protection class	IP 65 (optional IP 66)	
Ambient temperature	-15 °C...+60 °C/optional -40 °C...+80 °C (with PMR: 0 °C...+60 °C)	
Housing	Die cast aluminum (EN AC-44200) powder-coated	
Gear	Metal	
Cover	Aluminum EN AW-6060 T6 / powder-coated	
Shaft	1.4021	
Position indicator	optional	
Power supply	230 V AC (optional 115 V AC/24 V AC)	24 V DC ±20%
Additional switches	2 or 4 pieces (optional)	
Potentiometer	optional	
Travel	10°...330° (optional Multi-Turn)	
Duty cycle	100%	
Connection	3 cable glands M16x1,5	
Travel cutoff	Switching cams/Micro switches	
Maintenance	Lifetime lubrication (maintenance-free)	
Control	3-point-step	2-wire-technology

TYPE LIST

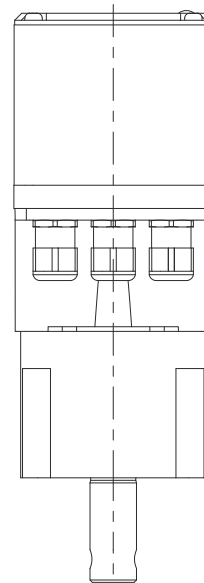
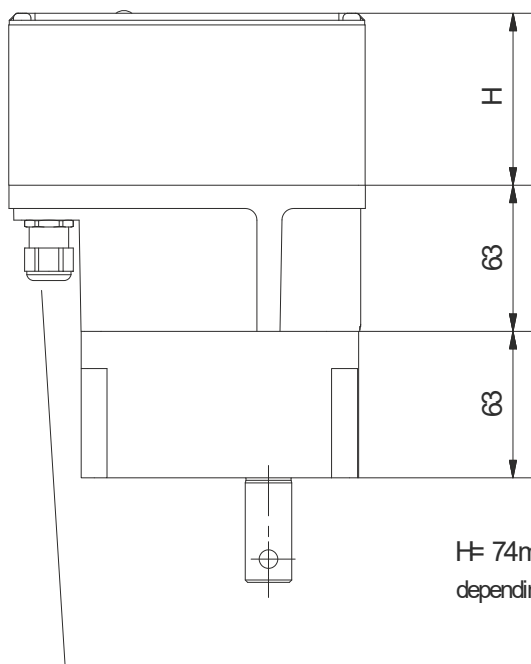
Type	AC		Type	DC	
	Torque [Nm]	Actuating time [s/90°]		Torque [Nm]	Actuating time [s/90°]
nano+ L 70-06	70	6 (5)	nano+ L-DC 80-25	80	25
nano+ L 80-10	80	10 (8)	nano+ L-DC 80-30	80	30
nano+ L 80-15	80	15 (13)	nano+ L-DC 80-45	80	45
nano+ L 80-25	80	25 (21)	nano+ L-DC 80-60	80	60
nano+ L 80-45	80	45 (38)			
nano+ L 80-60	80	60 (50)			
nano+ L 80-80	80	80 (67)			
nano+ L 80-210	80	210 (175)			
nano+ L 100-10	100	10 (8)	nano+ L-DC 100-30	100	30
nano+ L 100-15	100	15 (13)	nano+ L-DC 100-45	100	45
nano+ L 100-25	100	25 (21)	nano+ L-DC 100-60	100	60
nano+ L 100-40	100	40 (33)	nano+ L-DC 100-70	100	70
nano+ L 100-80	100	80 (67)			
nano+ L 100-210	100	210 (175)			
nano+ L 120-10	120	10 (8)	nano+ L-DC 120-30	120	30
nano+ L 120-15	120	15 (13)	nano+ L-DC 120-40	120	40
nano+ L 120-25	120	25 (21)	nano+ L-DC 120-45	120	45
nano+ L 120-40	120	40 (33)	nano+ L-DC 120-60	120	60
nano+ L 120-80	120	80 (67)	nano+ L-DC 120-70	120	70
nano+ L 120-110	120	110 (92)			
nano+ L 120-210	120	210 (175)			
nano+ L 150-25	150	25 (21)	nano+ L-DC 150-30	150	30
nano+ L 150-40	150	40 (33)	nano+ L-DC 150-40	150	40
nano+ L 150-50	150	50 (41)	nano+ L-DC 150-60	150	60
nano+ L 150-80	150	80 (67)	nano+ L-DC 150-70	150	70
nano+ L 150-105	150	105 (88)			
nano+ L 180-15	180	15 (13)	nano+ L-DC 180-18	180	18
nano+ L 180-20	180	20 (17)	nano+ L-DC 180-30	180	30
nano+ L 180-35	180	35 (29)	nano+ L-DC 180-40	180	40
nano+ L 180-55	180	55 (46)	nano+ L-DC 180-60	180	60
nano+ L 180-105	180	105 (88)	nano+ L-DC 180-70	180	70

Values in () = 60 Hz

Other values upon request

DIMENSIONS

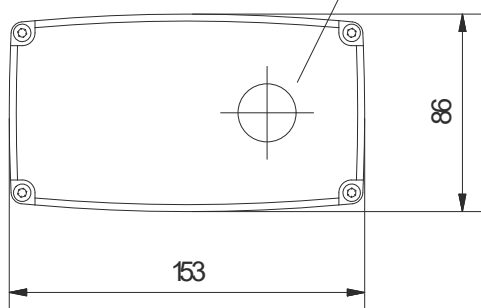
nano+ L



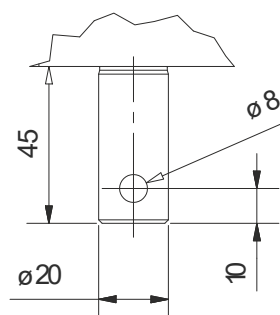
H= 74mm/ 105mm/ 145mm
depending on type

Cable glands optional
(Standard=Blind plugs)

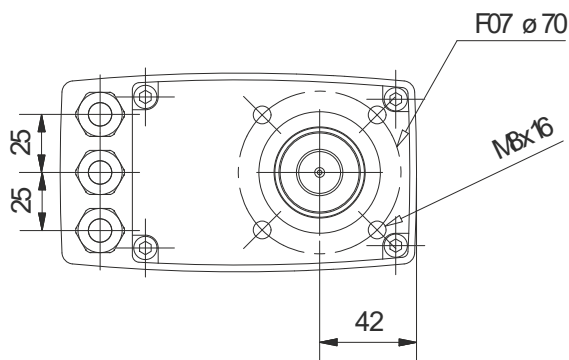
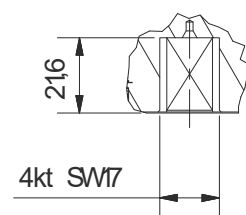
Position indicator
optional



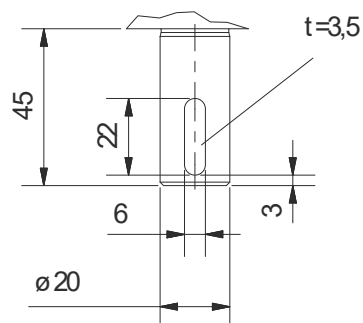
Round shaft with
cross hole
(Standard)



ISO shaft
inner 4-square
(Option)



Round shaft with
feather key
(Option)



nano+ XL

TECHNICAL DATA

	AC	DC
Motor	Synchronous motor, short-circuit proof	Direct current brush motor
Protection class	IP 65 (optional IP 66)	
Ambient temperature	-15 °C...+60 °C/optional -40 °C...+80 °C (with PMR: 0 °C...+60 °C)	
Housing	Aluminium silver anodized	
Gear	Case hardened metal	
Cover	Aluminium powder-coated	
Shaft	1.1191	
Position indicator	Standard	
Power supply	230 V AC (optional 115 V AC/24 V AC)	24 V DC ±20%
Additional switches	2 or 4 pieces (optional)	
Potentiometer	optional	
Travel	10°...330°	
Duty cycle	S1	
Connection	3 cable glands M20x1,5	
Travel cutoff	Switching cams/Micro switches	
Maintenance	Maintenance-free	
Control	3-point-step	2-wire-technology

TYPE LIST

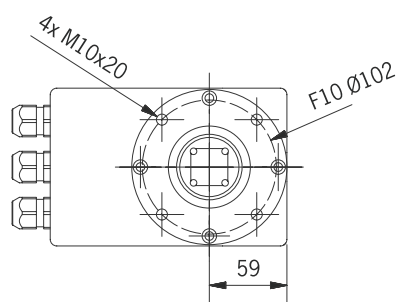
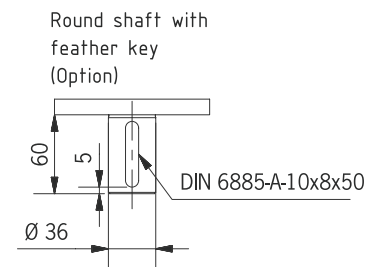
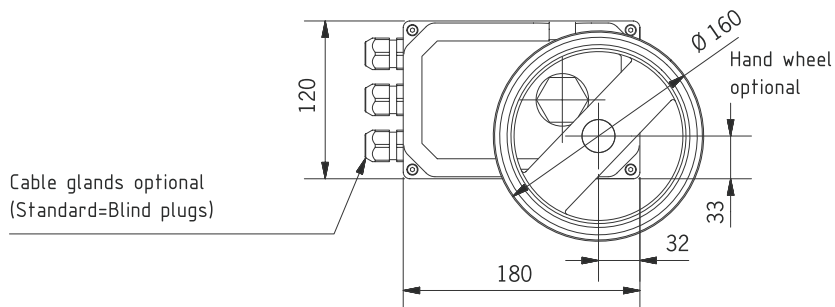
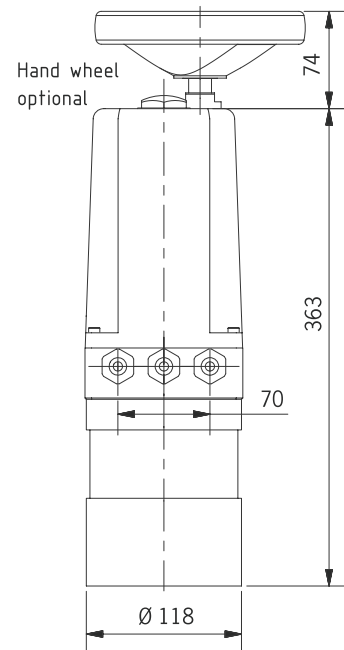
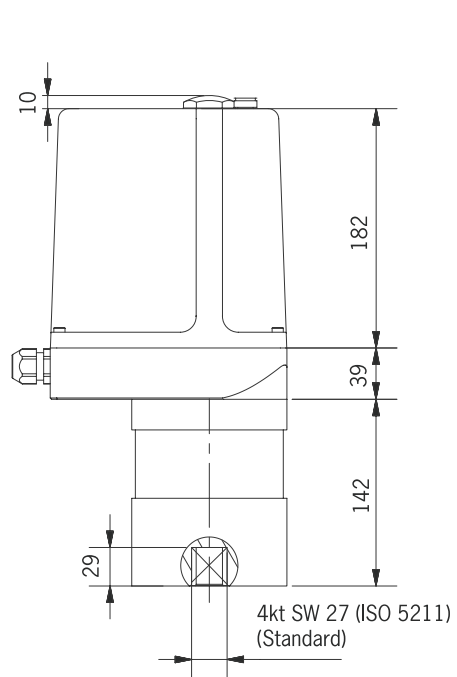
Type	AC		Type	DC	
	Torque [Nm]	Actuating time [s/90°]		Torque [Nm]	Actuating time [s/90°]
nano+ XL 250-20	250	20 (17)	nano+ XL 200-40	200	40
nano+ XL 250-30	250	30 (25)	nano+ XL 200-60	200	60
nano+ XL 250-140	250	140 (117)	nano+ XL 200-75	200	75
nano+ XL 300-30	300	30 (25)	nano+ XL 350-50	350	50
nano+ XL 300-40	300	40 (34)	nano+ XL 350-60	350	60
nano+ XL 300-75	300	75 (63)	nano+ XL 350-75	350	75
nano+ XL 400-60	400	60 (50)	nano+ XL 450-50	450	50
nano+ XL 400-90	400	90 (75)	nano+ XL 500-60	500	60
nano+ XL 400-140	400	140 (117)	nano+ XL 500-75	500	75
nano+ XL 500-35	500	35 (30)			
nano+ XL 500-60	500	60 (50)			
nano+ XL 500-90	500	90 (75)			
nano+ XL 500-150	500	150 (125)			

Values in () = 60 Hz

Other values upon request

DIMENSIONS

nano+ XL



nano+

Options



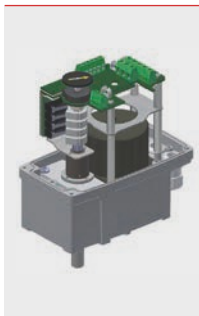
Cams

- > 330° / 180°
- > With threaded pin for safe fixing



Hand wheel (S/M/L)

- > Automatic disengaging
- > Not rotating with shaft



Multi-Turn

- > Optional special resolution for potentiometer and shutoff system
- > For applications with more than 1 revolution



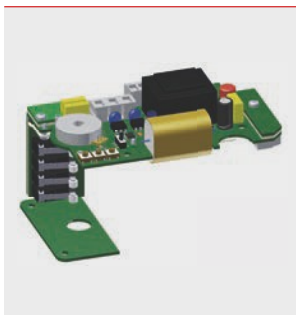
Hand wheel (XL)

- > Automatic disengaging
- > Not rotating with shaft



Mechanical position indicator

- > Free adjustable



PMR-Nano (AC)

- > Power supply: 230 V $\pm$ 10%, 50/60 Hz
Special voltages/-frequencies available
- > Set value input: 0 (4) to 20 mA (DC), optional 0 (2) to 10 V
Burden 250 Ω , overload protection 25 mA
Reverse voltage protection up to -25 mA
Resolution 10 bit
- > Actual value output: Fixed limits: 0 or 4-20 mA (Option 0 or 2-10 V)
Current drain, Burden max. 500 Ω
Resolution 10 bit



Service switch (Standard at DC)

- > Manual/Automatic operation (switch)
- > CW/CCW run (button)
- > Integrated inside actuator



Two or four additional auxiliary switches

- > Setup via tool-free adjustable switching cams
- > Different cam shapes offer different functionalities of auxiliary switches
- > High switching safety by spacer between circuit board and cam shaft



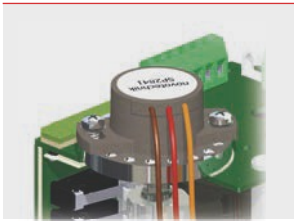
Current output (add-on board)

- > Position feedback 4–20 mA



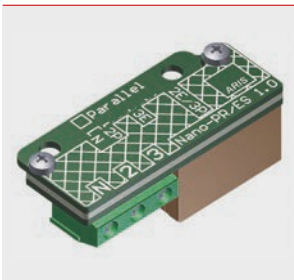
Potentiometer

- > Standard
- > 1 kΩ/10 kΩ
- > Resolution: Nano S+L 90°/180°/320°, Nano M 30...40 Nm 10°...150°, Nano M 50...60 Nm 10°...100° (optional Multi-Turn)



Potentiometer redeed acc. to DIN EN 12067-2

- > Regulation of fuel, air and exhaust streams in combination with electronic compound regulating system
- > Certified actuator and potentiometer
- > Continuous form closure from the actuator shaft to the potentiometer shaft
- > Vibration tested acc. to EN 60068-2-6
- > Electrical testing of actuator acc. to DIN EN 60730



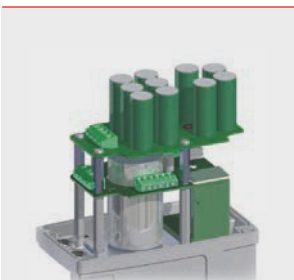
Parallel relays/Single wire operation (AC)

- > AC relay
- > Completely wired
- > Operation voltage=Motor voltage
- > Parallel connection of several actuators



Heating

- > For heating of the actuator's interior against water condensation



Fail-safe

- > Energy storage
- > Run to a pre-defined position on power cutoff
- > Charging time <3 minutes
- > Integrated inside actuator
- > Run with standard or high speed
- > 24 V DC



Cable entry adapter

- > For cable glands 3xM20 (instead of 3xM16)
- > Cable entry from the front
- > Anodized aluminum

MORE POSSIBLE APPLICATIONS

Linearis N+

- > Stainless steel high-helix lead screw Ø18
- > Lead 40 mm with optimized efficiency
 - > less turns per stroke length
 - > long-life motor
 - > slow and smooth motor movement
 - > low noise and vibration
- > Holding torque by self-hold of the actuator
- > separately exchangeable actuator
- > High-strength, anodized milled aluminum parts, corrosion resistant and lightweight
- > Long holes for fastening, i.e. easy installation
- > Maintenance-free by dry-run, no lubrication necessary,
 - > no dirt deposits on grease (longer life span)
- > Embedded (dry) lubricants inside the lead screw nut
- > Easily exchangeable with older ARIS damper actuators
- > High quality „dryspin® technology“, lead screw and nut made by igus®

Actuating force	max. 5000 N (higher forces available)
Actuating time	1.3 mm...13 mm/s (load independant at AC)
Travel	150/300 mm stroke (more stroke length available)
Voltage	230 V, 115 V, 24 V AC/24 V DC
Ambient temperature	-15 °C...+60 °C (optional -40 °C...+80 °C)
Protection class	IP 65 (optional up to IP 67)
Duty cycle	100%

LABS-free according to Daimler testing standard certified by Fraunhofer Institute.



MORE POSSIBLE APPLICATIONS

nano Ex+ Zone 1

(Type S, M, L)



Ex II 2G Ex d IIC T6 Gb

- > Usable in Ex-Zones 1 and 2
- > Appliance categories 2G and 3G
- > Flameproof „d“
- > Usable at gases with increased flame transmission capacity „C“
- > Highest temperature class T6
- > For gases with ignition temperature > 85 °C



Flange connection	ISO F05 and ARIS 65x50
Power supply	230 V, 115 V, 24 V AC/24 V DC
Ambient temperature	-20 °C...+60 °C
Cable entry	1x M20x1,5 bzw. 1x M20x1,5 + 1x M16x1,5
Housing	Aluminium (painted), steel (base)
Ex protection	Ex II 2G Ex d IIC T6 Gb
Protection class	IP65

Nano Ex+ Zone 2/22

(Typen S, M, L)



II 3G Ex ec IIC T4 Gc X (Zone 2)



II 3D Ex tc IIIC T80°C Dc X (Zone 22)

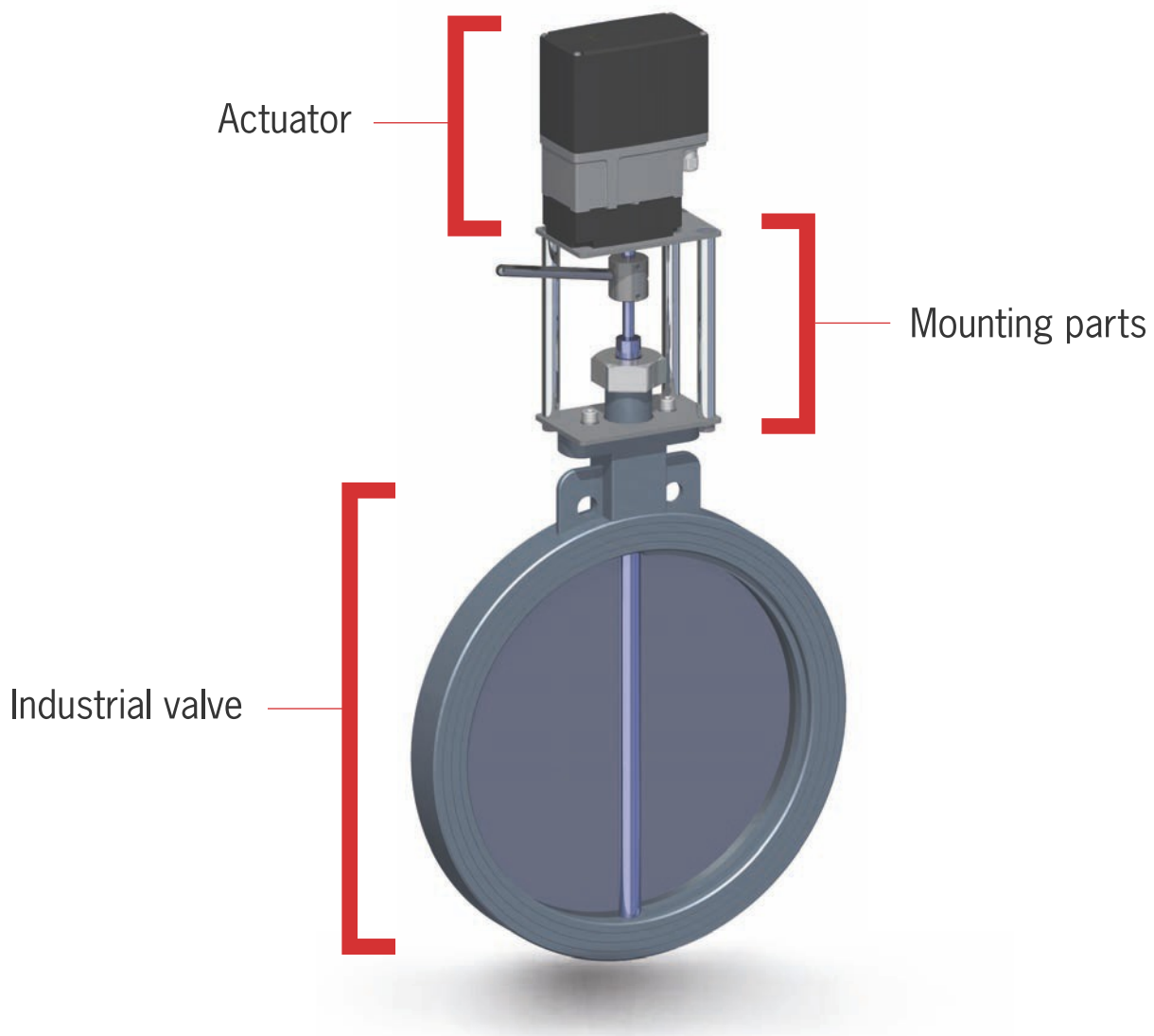
Ambient temperature: $-15\text{ °C} \leq T_a \leq 45\text{ °C}$

- > Compact layout (identical with standard actuator)
- > Small surcharge to standard actuator, lower price than with pressurized encapsulation
- > Usable in zone 2 or 22
- > Dimensions and specifications same as standard actuator
- > High product safety by single check at factory



nano+

The perfect solution
from ARIS



ARIS is your competent partner for innovative and durable drive technology. Our team will be glad to help you with the design and dimensioning of your drive solution.

Our technicians will calculate your entire unit consisting of the actuator head, valve actuator, valve, fitting and add-on modules. The system components are completely assembled, pre-configured and tested prior to delivery.

Come to ARIS – **Your specialist for modern drive technology “Made in Germany”**

A high-contrast, black and white photograph of several large industrial gears. The gears are made of metal and have a matte finish. They are arranged in a way that shows their teeth and the central hubs. The lighting creates strong highlights and shadows, emphasizing the mechanical nature of the components.

Your specialist for up-to-date
drive and control technology
for more than 40 years

Powerite Division of Kinetrol
Steelpark Trading Estate
Wolverhampton, WV11 3BF

T. 01902 780700
sales@kinetrol.uk

www.kinetrol.uk

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