

# *Tensor*

High-precision, multi-turn  
capable electronic  
actuator



***Tensor***

Product catalogue

[stellantriebe.de](http://stellantriebe.de)

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Long life precision actuator



Control electronics with wear-free, absolute position detection and regulated BLDC motor

**NOTE**

Despite carefully checking all data in the catalogue, we assume no liability for incorrect or incomplete information. Subject to technical modifications. Any disclosure as well as duplication of this document, utilising and communicating its contents prohibited without express approval. Images may vary from actual delivery.

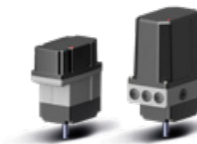


**Tensor – the actuator**

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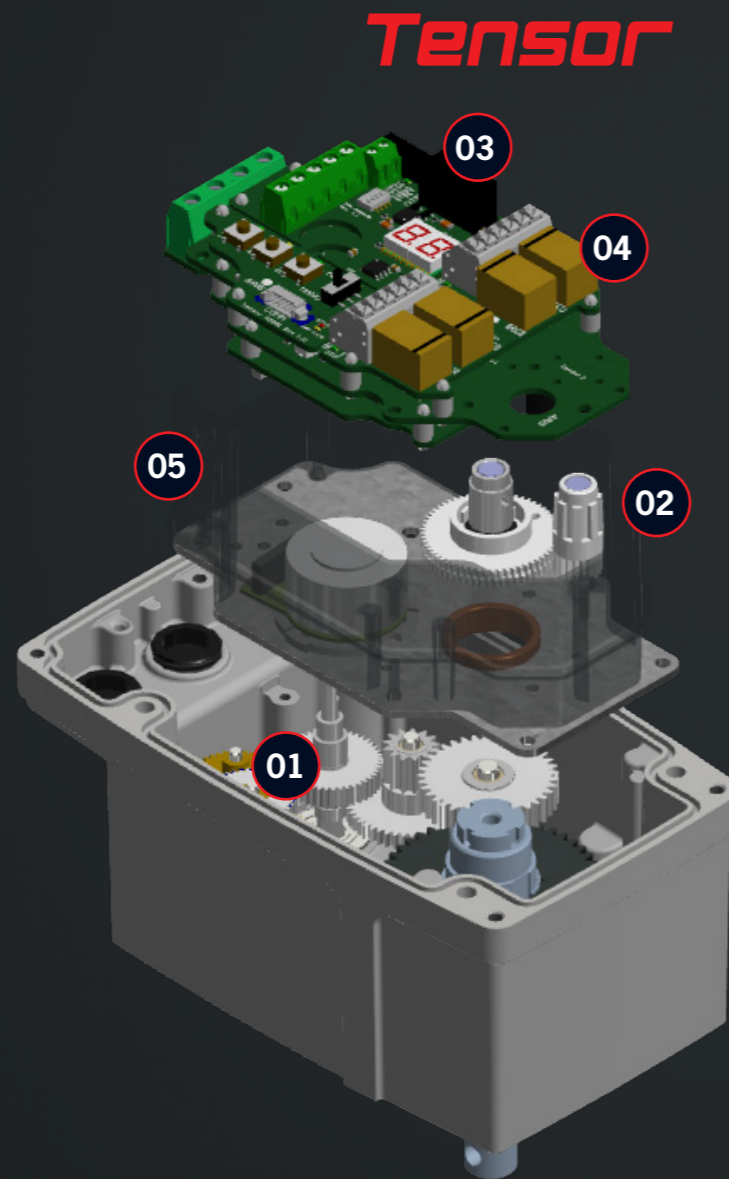
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# TENSOR AND TENSOR HIGHSPEED

## Strong arguments for a future-proof technology

- > Flexible travel from 10° to 100 turns
- > Position detection accuracy up to 0.03°
- > Multi current power supply 85 – 265 V AC or 24 V DC
- > Regulated torque and actuating times
- > Long durability (up to 259x over DIN EN 15714-2:2010-02)
- > Plug-and-Play for options (including retrofit)
- > Blocking system and overload protection, ramps, special characteristics curves, etc.



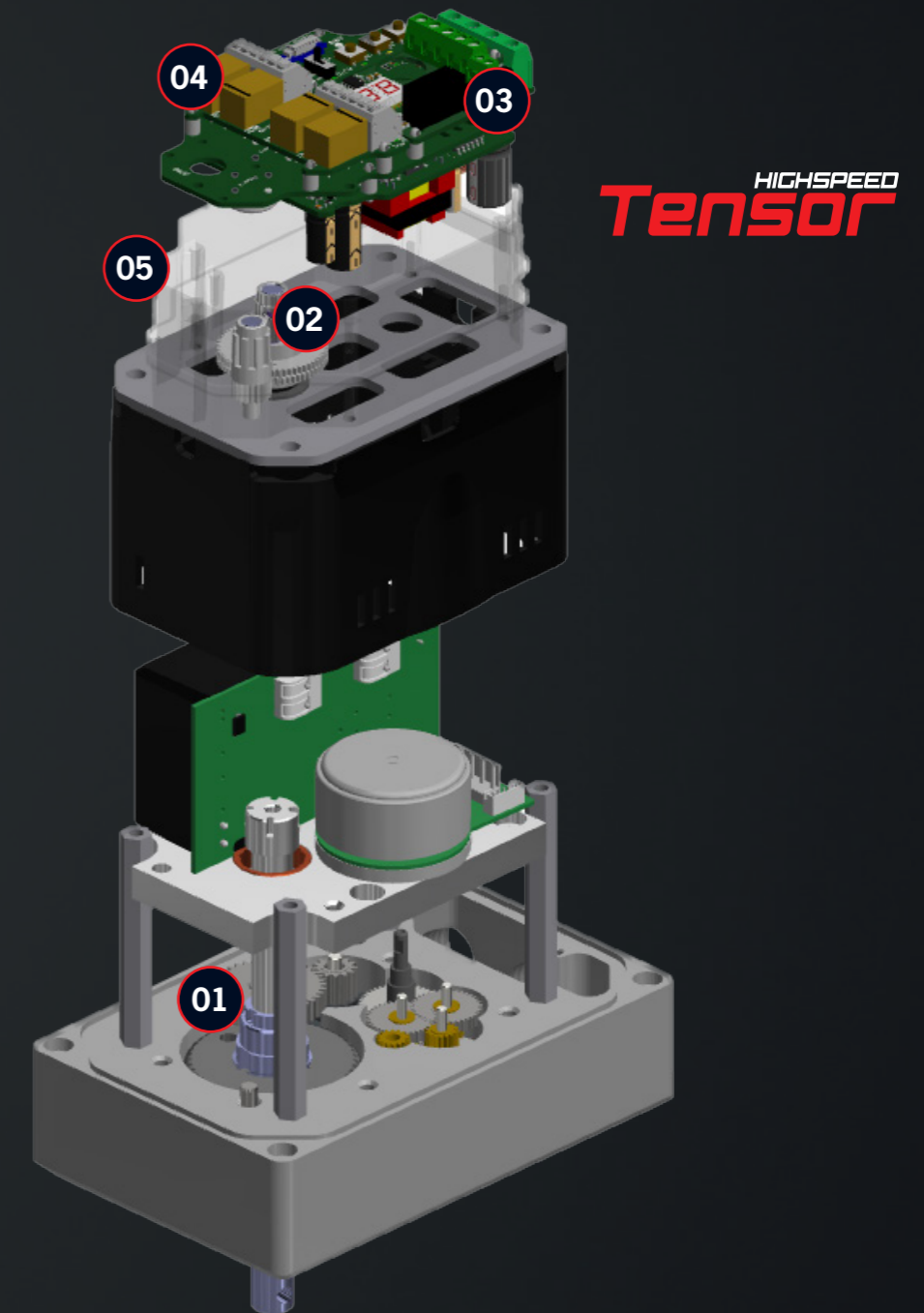
**01**  
**Precise and durable**  
 precision gear with high control accuracy and longer life.  
 > High reliability

**02**  
**backlash-free and wear-free**  
 non-contact, high resolution and absolute position detection.  
 > Permanently high precision

**03**  
**Flexible and simple**  
 Easy to adjust via buttons and menu navigation.  
 > Quick commissioning

**04**  
**Easy to expand**  
 Simply connect options, the systems automatically recognises them.  
 > Future-proof

**05**  
**High contact protection**  
 All electrical parts are 100 % covered.  
 > High safety





# TENSOR Applications



Boilers



Industrial furnaces



Painting lines



Industrial valves



Food technology



Malting technology



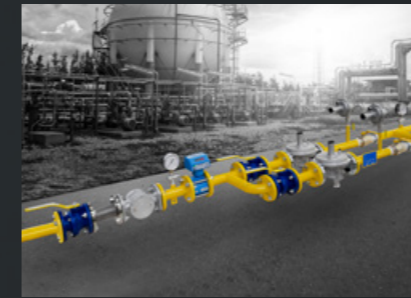
Roasting



Dosing technology



Industrial combustion



Gastrain



Vehicle construction



Solar technology



Biogas plant



Industrial ventilation



Smokehouses



Chemical installations



Extinguishing systems



Shipbuilding



Environmental technology



Silo bulks technology



# TENSOR

## Technical features



# Tensor

- > compact dimensions
- > low power consumption
- > ATEX applications  
Zone 2/Zone 22

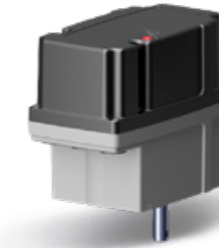
# Tensor<sup>HIGHSPEED</sup>

- > shorter actuating times
- > more performance options
- > metal cover standard
- > 3 x M20x1.5 standard

Protection class	IP 65 (optionally up to IP 67)
Ambient temperature	-15 °C... +60 °C (optionally -40 °C...+80 °C)
Housing	Die cast aluminium (EN AC-44200) powder-coated / Highspeed: anodised
Gear	Metal
Cover	Polycarbonate (optionally aluminium) / Highspeed aluminium: die cast
Drive shaft	1.4021
Hand wheel	External (optional)
Position indicator	Electronic
Power supply	85–265 V AC (24 V DC low voltage power supply optional)
Additional switches	2 or 4 bistable relays (optional)
Potentiometer	Electronic (optional)
Travel	10°...100 turns
Duty cycle	100%
Connection	3 cable glands M16x1.5 / Highspeed 3 x M20x1.5
Travel cut-off	Electronic (wear free)
Maintenance	Lifetime lubrication (maintenance-free)
Control	3-point-step (optional controller 12 bit, bus...)

# THE TENSOR SERIES

## Size S (1 to 20 Nm)



TENSOR S



TENSOR S HIGHSPEED

## Size M (30 to 75 Nm)



TENSOR M



TENSOR M HIGHSPEED

## Size L (80 to 200 Nm)



TENSOR L



TENSOR L HIGHSPEED

# SIZE S

for torques up to 20 Nm



Also available as:  
 Ex Tensor Ex (Zone 1)  
 Ex Tensor Ex (Zone 2/22)

### SIZE S

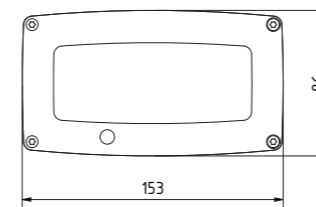
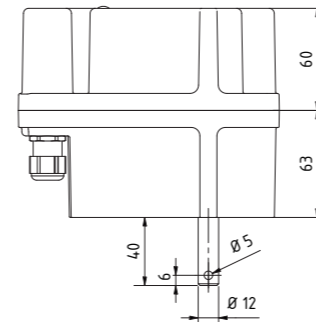
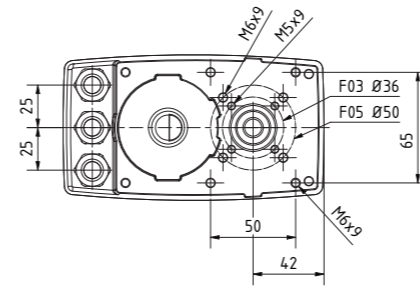
Torque (Nm)	Type	Actuating time (s/90°)							
		0,7	1	2	3	6	15	30	60
5	Tensor S HS	0,7	1	2	3	6	15	30	60
	Tensor S			2	3	6	15	30	60
10	Tensor S HS	0,8	1	2	3	6	15	30	60
	Tensor S				3	6	15	30	60
15	Tensor S HS			2	3	6	15	30	60
	Tensor S				3	6	15	30	60
20	Tensor S HS			2	3	6	15	30	60
	Tensor S					6	15	30	60

Other actuating times on request

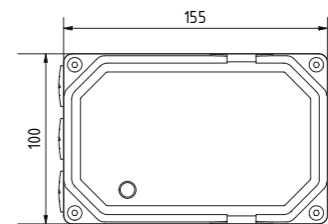
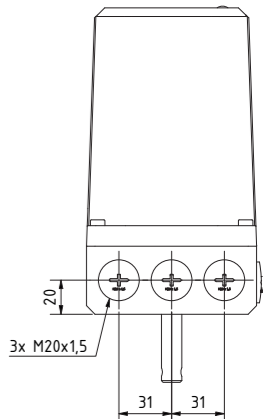
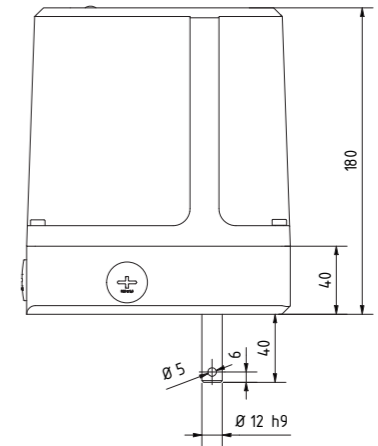
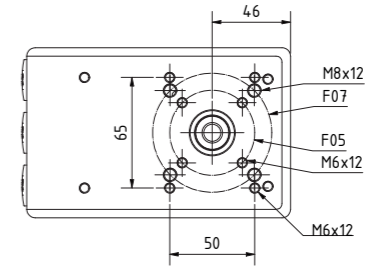
Preferred types

# DIMENSIONS

## TENSOR S

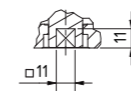


## TENSOR S HIGHSPEED

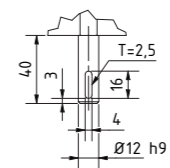


### TENSOR S and TENSOR S HIGHSPEED

Inner 4-square ISO shaft



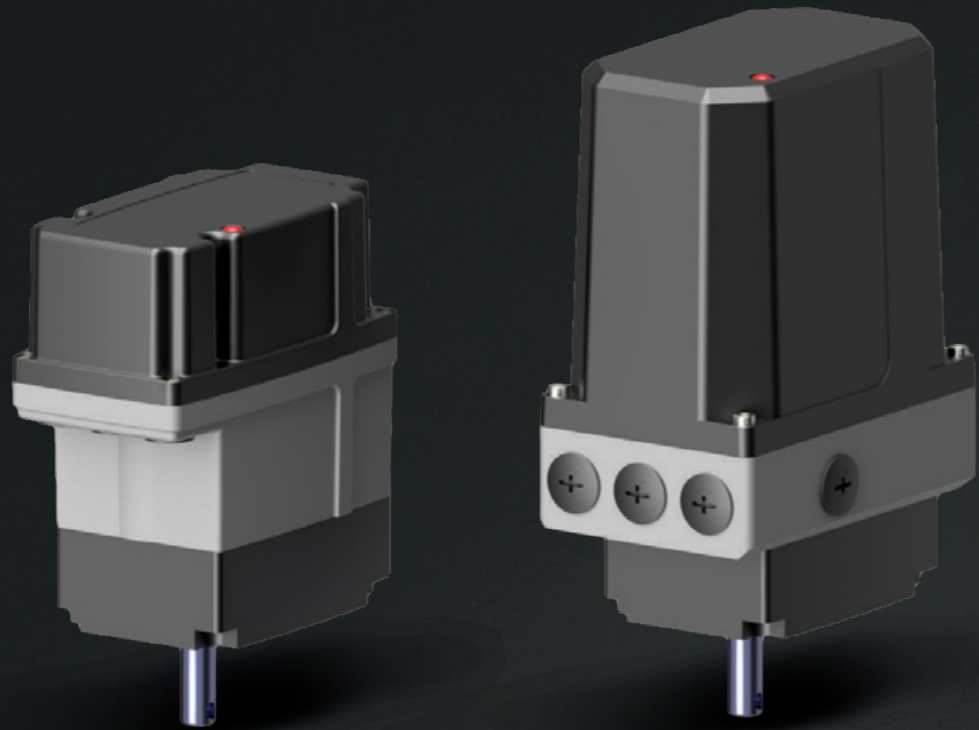
Round shaft with feather key





# SIZE M

for torques from 30 to 75 Nm



Also available as:  
 Ex Tensor Ex (Zone 1)  
 Ex Tensor Ex (Zone 2/22)

### SIZE M WITH SPUR GEAR

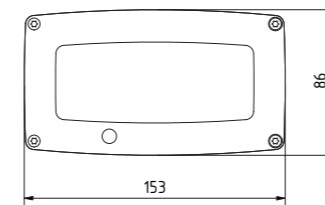
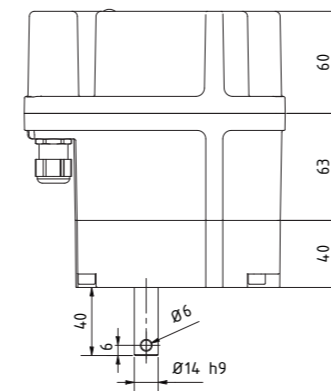
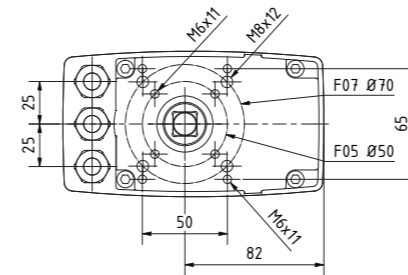
Torque (Nm)	Type	Actuating time (s/90°)							
		4	6	8	12	15	30	60	120
30	Tensor M HS	4	6	8	12	15	30	60	120
	Tensor M			8	12	15	30	60	120
40	Tensor M HS	4	6	8	12	15	30	60	120
	Tensor M				12	15	30	60	120
50	Tensor M HS		6	8	12	15	30	60	120
	Tensor M					15	30	60	120
60	Tensor M HS		6	8	12	15	30	60	120
	Tensor M						30	60	120
75	Tensor M HS			8	12	15	30	60	120
	Tensor M						60	120	

Other actuating times on request

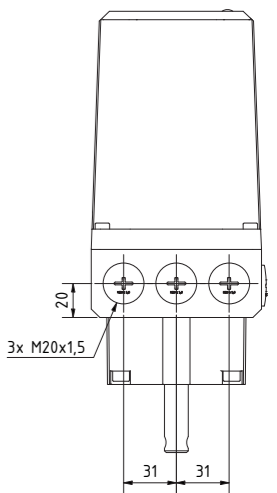
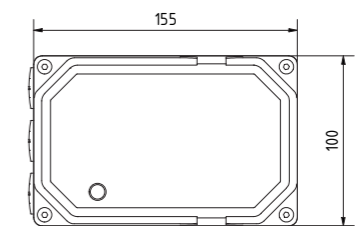
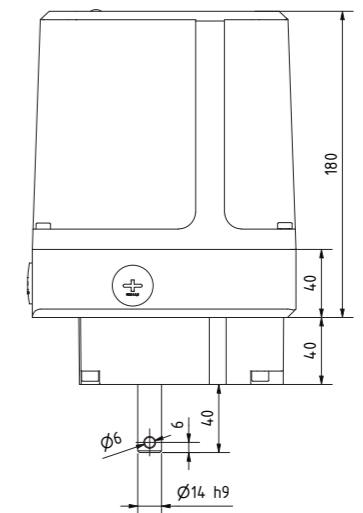
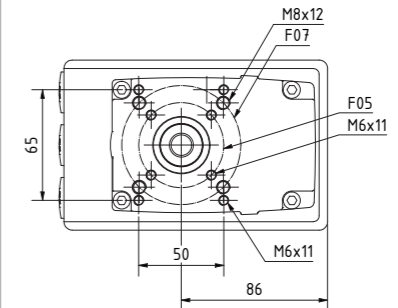
Preferred types

# DIMENSIONS

## TENSOR M

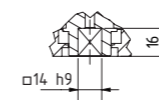


## TENSOR M HIGHSPEED

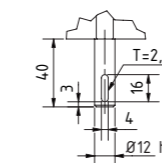


### TENSOR M and TENSOR M HIGHSPEED

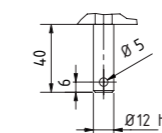
Inner 4-square ISO shaft



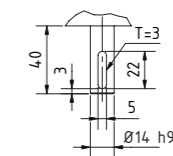
round shaft Ø12 with feather key 30–40 Nm



round shaft Ø12 with cross hole 30–40 Nm

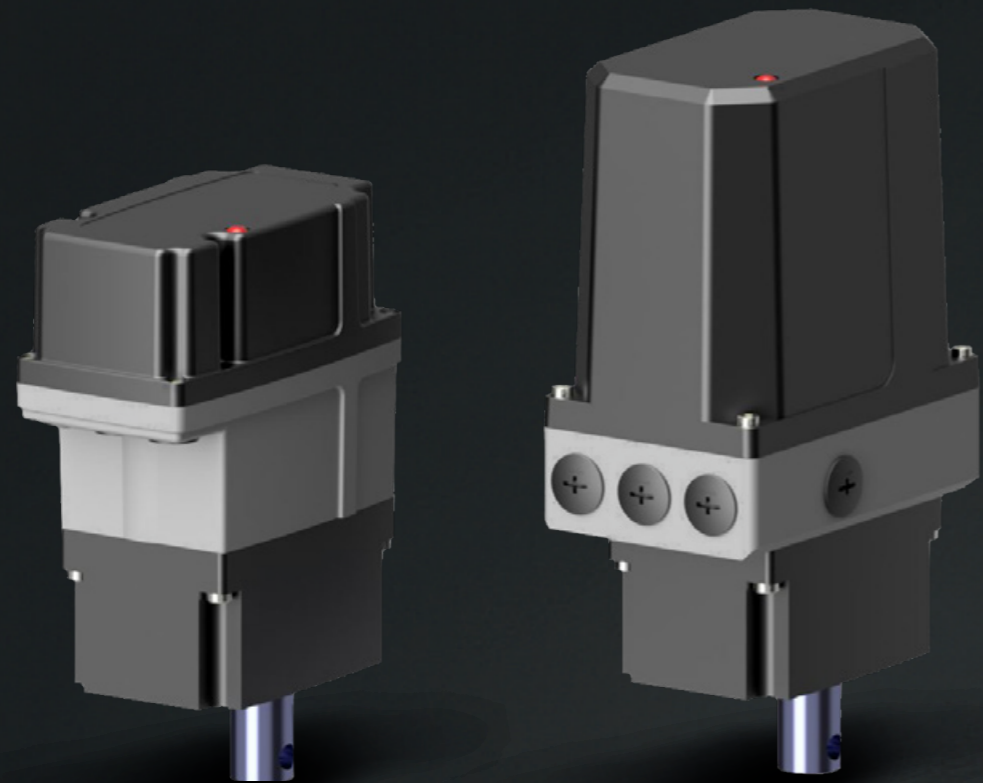


round shaft Ø14 with feather key 50–60 Nm



# SIZE L

for torques from 80 to 200 Nm



Also available as:  
 Ex Tensor Ex (Zone 1)  
 Ex Tensor Ex (Zone 2/22)

SIZE L WITH PLANETARY GEAR

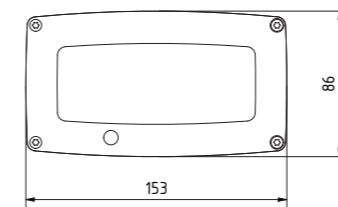
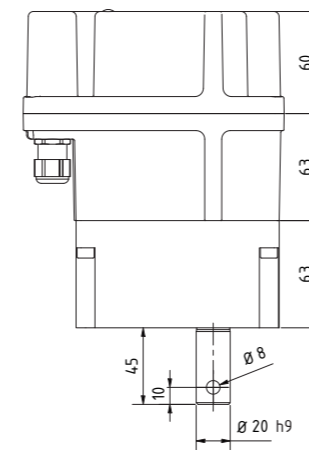
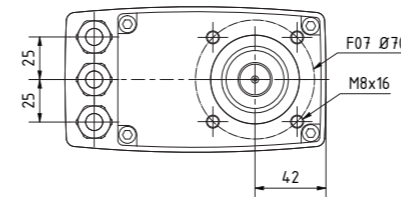
Torque (Nm)	Type	Actuating time (s/90°)								
		12	15	20	30	45	60	120	210	
80	Tensor L HS	12	15	20	30	45	60	120	210	
	Tensor L				30	45	60	120	210	
100	Tensor L HS	12	15	20	30	45	60	120	210	
	Tensor L				30	45	60	120	210	
120	Tensor L HS	12	15	20	30	45	60	120	210	
	Tensor L					45	60	120	210	
150	Tensor L HS		15	20	30	45	60	120	210	
	Tensor L						60	120	210	
180	Tensor L HS			20	30	45	60	120	210	
	Tensor L							120	210	
200	Tensor L HS				30	45	60	120	210	

Other actuating times on request

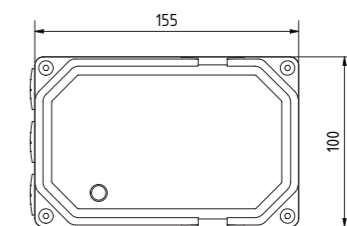
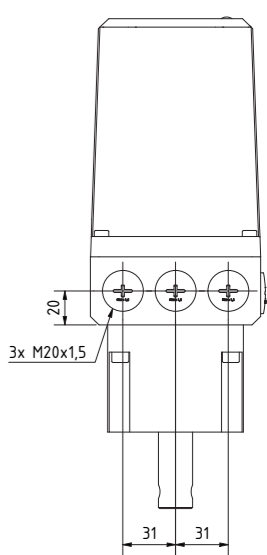
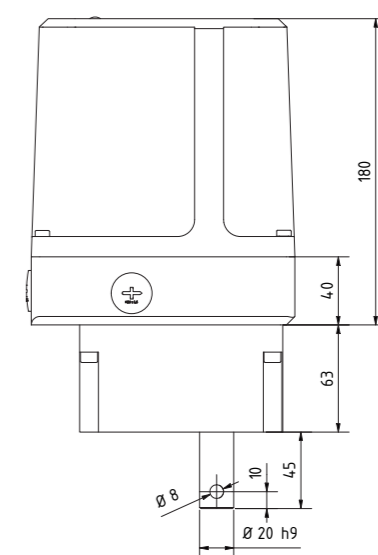
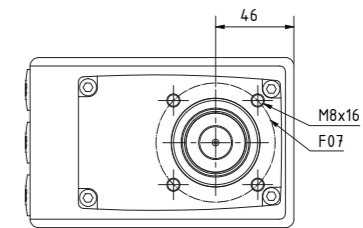
Preferred types

# DIMENSIONS

## TENSOR L

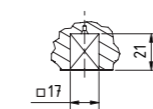


## TENSOR L HIGH SPEED

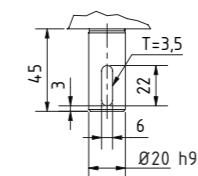


### TENSOR L and TENSOR L HIGH SPEED

Inner 4-square ISO shaft



Round shaft with feather key









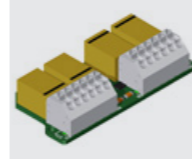
# TENSOR

## Options (mechanical)

Option	Tensor	Tensor Highspeed
Metal cover	 <ul style="list-style-type: none"> <li>&gt; robust and shock-proof industrial aluminium design</li> <li>&gt; powder-coated</li> </ul>	 <ul style="list-style-type: none"> <li>&gt; metal cover standard</li> <li>&gt; die cast aluminium</li> <li>&gt; powder-coated</li> <li>&gt; robust industrial design</li> </ul>
Hand wheel	 <ul style="list-style-type: none"> <li>&gt; inside cover</li> <li>&gt; not rotating with shaft</li> <li>&gt; automatic disengaging</li> </ul>	<b>Comfort style</b> <ul style="list-style-type: none"> <li>&gt; larger diameter</li> <li>&gt; with knob</li> <li>&gt; not rotating with shaft</li> <li>&gt; automatic disengaging</li> </ul> 
		<ul style="list-style-type: none"> <li>&gt; side hand wheel</li> <li>&gt; compact design</li> <li>&gt; not rotating with shaft</li> <li>&gt; automatic disengaging</li> </ul> 
Gauge/position indicator	 <ul style="list-style-type: none"> <li>&gt; 7-segment display visible from outside</li> </ul>	 <ul style="list-style-type: none"> <li>&gt; 7-segment display visible from outside</li> </ul>
		 <ul style="list-style-type: none"> <li>&gt; Series: cable inlet 3 x M20x1.5, M20 cable gland plug optional</li> </ul>
M20 cable inlet	 <ul style="list-style-type: none"> <li>&gt; adapter for cable gland 3 x M20x1.5 (instead of 3 x M16x1.5)</li> </ul>	

# TENSOR

## Options (electronic)

	<b>Positioner board I-ACT</b> <ul style="list-style-type: none"> <li>&gt; add-on board</li> <li>&gt; integrated in internal system bus</li> <li>&gt; electronic positioner</li> <li>&gt; system resolution 12 bit</li> <li>&gt; setpoint inputs: 0(2) to 10 V DC, 0(4) to 20mA, 10 KOhm potentiometer</li> <li>&gt; actual value output: 0(2) to 10 V DC, 0(4) to 20mA</li> <li>&gt; fault message output as operation status signal</li> <li>&gt; 2-digit 7 segment display</li> <li>&gt; special functions: wire break detection; hysteresis; lock-up protection; speed reduction</li> <li>&gt; electronic position indicator</li> </ul>		<b>Current output board</b> <ul style="list-style-type: none"> <li>&gt; add-on board</li> <li>&gt; integrated in internal system bus</li> <li>&gt; position feedback</li> <li>&gt; system resolution 12 bit</li> <li>&gt; actual value output: 0(2) to 10 V DC, 0(4) to 20mA</li> <li>&gt; fault message output as operation status signal</li> <li>&gt; 2-digit 7 segment display</li> <li>&gt; electronic position indicator</li> </ul>
	<b>Electronic potentiometer board</b> <ul style="list-style-type: none"> <li>&gt; add-on board</li> <li>&gt; integrated in internal system bus</li> <li>&gt; electronic potentiometer (useable as voltage divider)</li> <li>&gt; 1 KOhm impedance</li> <li>&gt; self-adjusting</li> <li>&gt; fault message output as operation status signal</li> <li>&gt; 2-digit 7 segment display</li> <li>&gt; electronic position indicator</li> </ul>		<b>Clear text display board</b> <ul style="list-style-type: none"> <li>&gt; add-on board</li> <li>&gt; integrated in internal system bus</li> <li>&gt; 2-digit 7 segment display for easy programming</li> <li>&gt; electronic position indicator</li> </ul>
	<b>Auxiliary switches board</b> <ul style="list-style-type: none"> <li>&gt; add-on board</li> <li>&gt; integrated in internal system bus</li> <li>&gt; additional auxiliary switches with free selectable switch-on and switch-off points</li> <li>&gt; bistable switching state even with voltage-free Tensor</li> <li>&gt; 2 or 4 additional switches available</li> </ul>		

# TENSOR

## Versions

### Linearis TE and TE HS

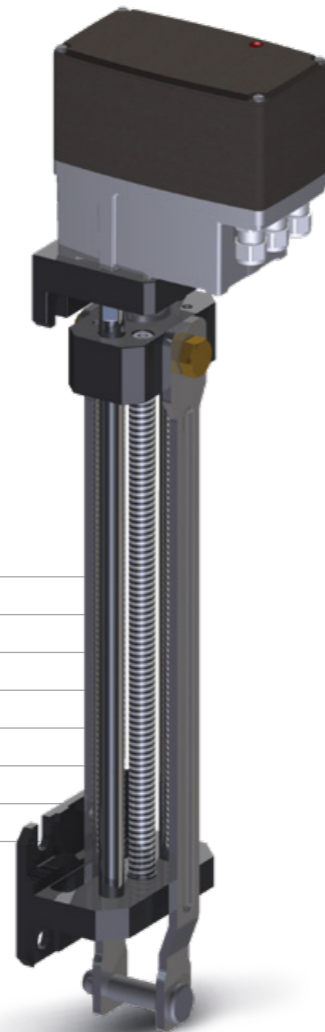
- > 40 mm lead with optimised efficiency
  - less turns per stroke length
  - longer motor life
  - slow and smooth motor movement
  - low noise and vibration
- > holding torque via self-lock of the actuator
- > separately exchangeable actuator
- > high-strength, anodized milled aluminium parts, corrosion resistant
- > long holes for fastening, i.e. quick and easy installation
- > maintenance-free dry run, no lubrication necessary, no dirt deposit on grease (longer life)
- > embedded (dry) lubricants inside the lead screw nut
- > compatible with earlier ARIS damper actuators
- > high-quality „dryspin® Technology“, lead screw and nut by igus®

### PROPERTIES

#### LINEARIS TE

<b>Actuating force</b>	max. 5000 N (higher forces on request)
<b>Actuating time</b>	0.5 mm...16 mm/s (load independent)
<b>Travel</b>	150/300 mm stroke (other strokes on request)
<b>Power supply</b>	85–265 V AC (24 V DC low voltage power supply optional)
<b>Ambient temp.</b>	-15 °C...+60 °C (optionally -40 °C...+80 °C)
<b>Protection class</b>	IP 65 (optionally up to IP 67)
<b>Duty cycle</b>	100 %

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



# TENSOR

## Versions

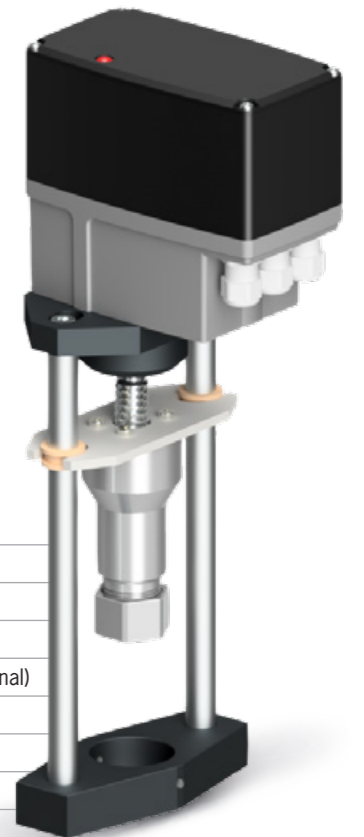
### Ventaris TE and TE HS

- > stainless steel trapezoidal threaded spindle Ø18
- > spindle pitch 4 mm/rev
  - precise positioning
  - low noise & vibration actuator travel
- > actuator self-locking via trapezoidal threaded lead screw
- > separately exchangeable actuator
- > easy exchange of earlier ARIS valve units
- > high strength, anodised milled aluminium parts combined with corrosion-resistant stainless steel parts
- > flexible mounting options (direct, flange)
- > maintenance-free dry run, no lubrication embedded, no dirt deposit on grease (longer life)
- > embedded (dry) lubricants inside ball screw nut
- > high-quality „dryspin® Technology“, lead screw and nut by igus®

### PROPERTIES

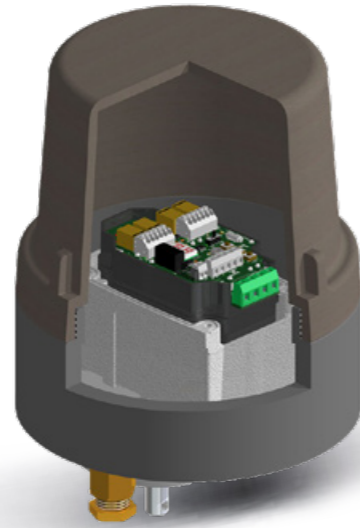
#### VENTARIS TE AND TE HS

<b>Actuating force</b>	max. 6000 N (higher forces on request)
<b>Actuating time</b>	0.1...1.6 mm/s
<b>Travel</b>	50 mm stroke (other strokes on request)
<b>Power supply</b>	85–265 V AC (24 V DC low voltage power supply optional)
<b>Ambient temp.</b>	-15 °C...+60 °C (optionally -40 °C...+80 °C)
<b>Protection class</b>	IP 65 (optionally IP 67)
<b>Duty cycle</b>	100 %





# TENSOR Versions



### Tensor Ex (Zone 1)

**Ex II 2G Ex d IIC T6 Gb**

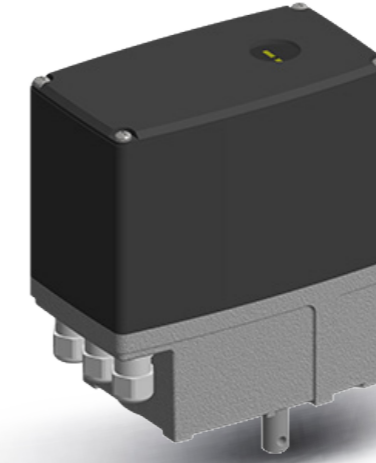
- > for use in Zone 1, 2 and 22
- > device categories 2G and 3G
- > flameproof enclosure „d“
- > suitable for gases with higher flammability „C“
- > maximum temperature class T6
- > for gases with ignition temperature > 85 °C

### PROPERTIES

#### TENSOR EX (ZONE 1)

Flange connection	ISO F05 and ARIS 65x50
Power supply	85–265V AC (24 V DC optional)
Ambient temp.	–20 °C...+60 °C
Cable gland	1x M20x1.5 or 1x M20x1.5 + 1x M16x1.5
Housing	Aluminium (painted), ground plate steel
Ex protection class	Ex II 2G Ex d IIC T6 Gb
Protection class	IP65

# TENSOR Versions



### Tensor Ex (Zone 2/22)

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

**Ex II 3D Ex tc IIIC T80°C Dc X (Zone 22)**

**Ambient temperature: –15 °C ≤ Ta ≤ +50 °C**

- > compact design (identical to standard actuator)
- > small surcharge from standard actuator, clearly less expensive than flameproof enclosure
- > suitable for Zone 2 or 22
- > dimensions and technical data same as standard actuator
- > individually factory tested for high safety

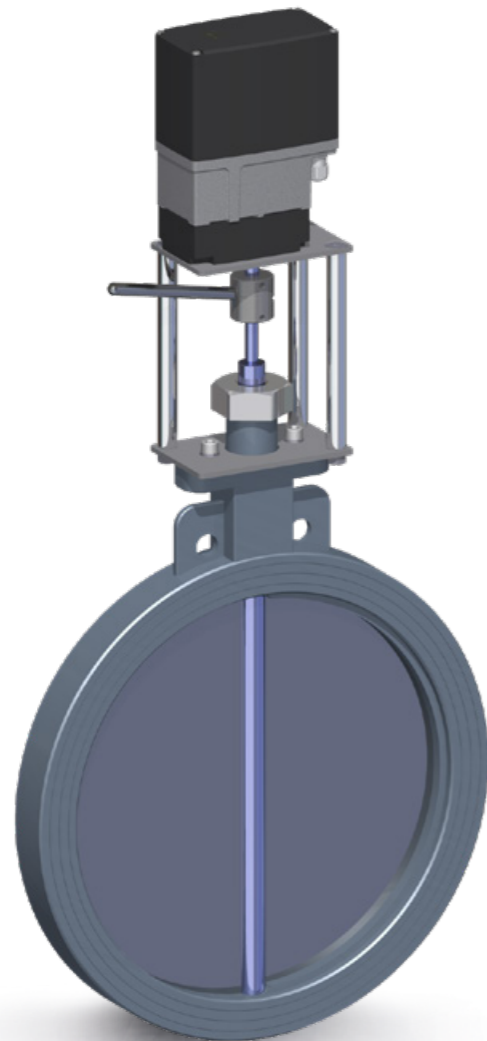
### PROPERTIES

#### TENSOR EX (ZONE 2/22)

Flange connection	see Tensor
Power supply	85...265 V AC; 24V AC/DC
Ambient temp.	–15 °C...+50 °C
Cable gland	3x M16x1.5
Housing	Die cast aluminium (EN AC-44200), powder-coated
Ex protection class	II 3G Ex ec IIC T4 Gc X (Zone 2); II 3D Ex tc IIIC T80 °C Dc X (Zone 22) Ambient temperature: –15 °C ≤ Ta ≤ 50 °C
Protection class	IP65

# Tensor

## Complete units



**In addition to high-quality actuators, ARIS also supplies robust industrial valves. On request, our technician will configure a complete unit to your specifications consisting of valve, connecting parts and actuator.**

The fully assembled complete unit is preset to the necessary parameters and tested for proper functionality. We will ship your safely packed and adequately documented complete unit to any address... worldwide!

Come to ARIS – **Your specialist for modern actuator and valve technology „made in Germany“.**

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for over 40 years

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