

## Schiebel Fail Safe Electric Actuator with Smartcon control unit

### Data

Electric Fail Safe actuator for modulating control or on/off application.  
Voltage from 24V DC to 400V AC. Up to 32000Nm as turn actuator and up to 190kN with 230 mm stroke as linear actuator. Speed/time is adjustable. Temperature range to -50°C.

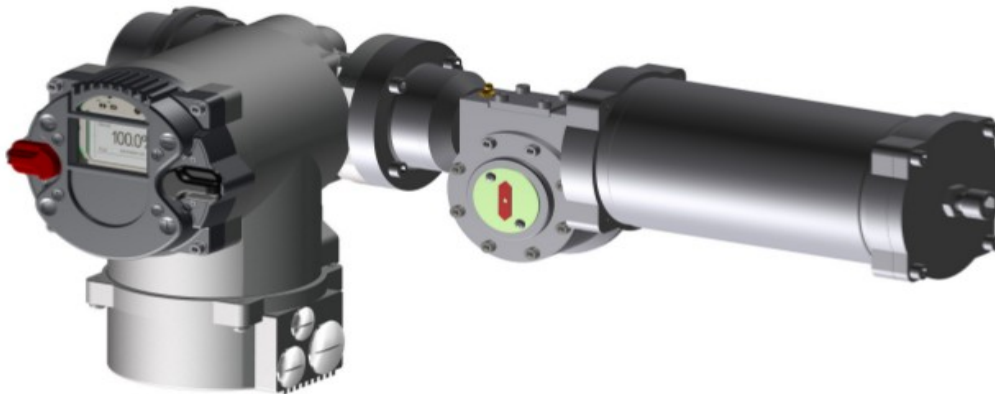
### Advantage of type FS-S

- 100% Fail Safe
- No couplings
- Position kept by electric brake
- No loss of position information
- No re-setup or mounting after fail safe needed
- Ex proof design available
- Force characteristic adjustable to valve
- Robust Design

## FSQT 90° FAILSAFE

### Applications

- Linear or turning actuator
- Control or shut-off



### SMART AND COMPACT

- **90° FAILSAFE ACTUATOR**
  - Reliable drive in safe position with a mechanical spring unit
  - Direct coupling of the failsafe with a valve shaft
  - Failsafe triggering selectable in case of drop-off 24 VDC failsafe signal or main power supply
- **EASY TO CHANGE POSITIONING TIME**
  - Simplifies planning
  - Easy subsequent process optimization
  - Emergency speed and speed ramps parameterisable
- **SEVERAL INTEGRATED SOFTWARE-OPTIONS**
  - Minimal efforts in later adaptations in PLC system
- **MINIMAL MAINTENANCE COSTS**
  - Reduction of spare-parts versions to a minimum
  - Exclusive mechanic energy storage- no hydraulic, no battery
  - No need of periodical inspections - selftesting with every stroke
  - „partial stroke test“ possible
- **CONSTRUCTION**
  - Low maintenance
  - No initial strokes required
  - Modulating operation up to 1200 c/h possible

### TECHNICAL DETAILS

- Switch off torque electric: max. 2.000 Nm
- Modulating torque: max. 1.000 Nm
- Failsafe torque: max. 1.000 Nm
- Positioning time electric adjustable by user
- Positioning time failsafe: 1-10 sec adjustable
- End positions: non-intrusive adjustable
- Available for power supply:
  - 24 VDC
  - 115–230 VDC
  - 1x115V - 230VAC, 50/60 Hz
  - 3x380 - 480 VAC, 50/60 Hz
- Control: integrated controls with frequency inverter and brushless DC motor
- Bluetooth technology for simple configuration
- Explosion proof according ATEX  
*Approvals according CSA and UL standards (pending)*
- **OPTIONAL FEATURES**
  - Analog positionfeedback 0/4-20mA (2-wire)
  - Position for 0/4-20mA input signal
  - Relais board for 250 VAC, 2A with 4 or 6 outputs
  - Bussystems (Profibus DP, Modbus RTU, Modbus TCP, DeviceNet, Powerlink)
  - Mechanic manual override

## FSQT 90° FAILSAFE

TYPE	ON/ OFF Duty	CM03 FSQT 20	CM03 FSQT 30	CM03 FSQT 60	CM06 FSQT 100	CM06 FSQT 200
	Modulating Duty	rCM03 FSQT 20	rCM03 FSQT 30	rCM03 FSQT 60	rCM06 FSQT 100	rCM06 FSQT 200
SWITCH OFF TORQUE ELECTRIC	max. lbf. ft (Nm)	150 (200)	220 (300)	440 (600)	730 (1000)	1475 (2000)
END TORQUE FAILSAFE	max. lbf. ft (Nm)	74 (100)	110 (150)	220 (300)	370 (500)	730 (1000)
MODULATING TORQUE ( rCM)	max. lbf. ft (Nm)	74 (100)	110 (150)	220 (300)	370 (500)	730 (1000)
FAILSAFE FUNCTION		Selectable opening and closing (cw/ccw)				
FAILSAFE TRIGGERING		Drop off 24 V DC failsafe signal or main power supply (selectable)				
POSITIONING TIME - ELECTRIC	sec	10 to 300	15 to 400	15 to 400	20 to 500	25 to 650
POSITIONING TIME - FAILSAFE	sec	1 to 5			4 to 10	
WORKING ANGLE	°	90 +/- 5° with mechanic end-stop				
MODE OF OPERATION	On/Off Duty	S2-15 min				
	Modulating Duty	S4 - 1200 c/h - 40% ED				
MANUAL OVERRIDE		Optional				
VALVE-MOUNTING						
FLANGE	ISO 5210	F07/F10		F10/F12	F12/14	F14/16
MAX. STEM	in (mm)	1,18 (30)	1,37 (35)	1,77 (45)	1,96 (50)	2,75 (70)
MAX. SQUARE	in (mm)	1,0 (27)	1,0 (27)	1,0 (27)	1,4 (36)	1,81 (46)
ENVIRONMENTAL CONDITIONS						
PROTECTION ACCORDING EN 60 529		IP 67 /NEMA 4 (Optional IP 68/NBMA 6)				
AMBIENT TEMPERATURE		- 20° C (-4°F) to + 60° C (140°F) / (Optional - 40° C (-40°F) to +60° C (140°F))				
CORROSION PROTECTION		K2 for aggressive atmospheres				
PAINTING/COLOR		Two component painting / RAL 7024				
WEIGHT approx.	lb. (kg)	85 (39)	94 (43)	116 (53)	300 (140)	440 (200)
MOTOR - BRUSHLESS TECHNOLOGY						
INSULATION CLASS		Insulation class F, max. 155° C (311°F) permanent temperature				
AVAILABLE FOR POWER SUPPLY	V	24 VDC or 115-230 VDC or 1x 115-230 VAC, 50-60Hz or 3x 380-480 VAC, 50-60 Hz				
	Nominal current	2,5 A				
	Power consumption idle	max 24 W				
FAILSAFE BRAKE	Nominal voltage	24VDC +/- 10%				
	Nominal power	12 W	16 W	16 W	on request	on request
CONTROL						
TECHNOLOGY	Integrated processor control unit with frequency technology for variable speed control					
CONTROL ELEMENTS	with additional language independent symbols					
	Selector switch LOCAL - OFF - REMOTE contact free with GMR-technology (lockable) Control switch OPEN - STOP - CLOSE contact free with GMR-technology					
DISPLAY	Display with backlight, Lid with Display in 90° steps turnable					
SIGNAL LAMPS	5 RGB LEDs for operation - readiness - warning - and error messages - colors setable					
COMMUNICATION	Infrared communication interface and bluetooth technology including ANDROID APP for simple configuration					
INPUTS	5 binary input signals OPEN - STOP - CLOSE - EM OPEN - EM CLOSE - selectable Nominal voltage 24VDC - 60VDC					
OUTPUTS	8 binary output signals READY - OPEN - CLOSE - RUN OPEN - RUN CLOSE - TORQUE - LOCAL - REMOTE - selectable Power supply 24VDC +/- 6V (selectable internal or external):					
FUNCTIONS						
STANDARD	Switch-off mode adjustable, travel or torque dependent Torque adjustable: 25-100% of max. torque Adjustable speed for process optimization and emergency speeds Password protection (reading and/or writing) Multilanguage display Status indication for binary inputs/outputs and analog signals on LC Display History data for service planning and error analysis Motor protection by PTC sensors					
ELECTRICAL CONNECTION						
MOTOR	Industry-crew plug HAN10E with 10 poles in round plug casing					
CONTROL	Industry-crew plug HAN24E with 24 poles in round plug casing					
CABLE ENTRY	3 metric threaded boreholes for cable glands: M40x1,5/M32x1,5/M25x1,5 (Optional: 2x NPT1/2" + 1xNPT1")					

## FS LINEAR FAILSAFE



### SMART AND COMPACT

#### ■ LINEAR FAILSAFE ACTUATOR

- Reliable drive in safe position with a mechanical spring unit
- Direct coupling of the failsafe with the valve shaft
- Failsafe triggering selectable in case of drop-off 24 V DC failsafe signal or main power supply
- Failsafe speed adjustable

#### ■ EASY TO CHANGE POSITIONING TIME

- Simplifies planning
- Easy subsequent process optimization
- Emergency speed and speed ramps parameterisable

#### ■ SEVERAL INTEGRATED SOFTWARE-OPTIONS

- Minimal efforts in later adaptations in PLC system

#### ■ MINIMAL MAINTENANCE COSTS

- Reduction of spare-parts versions to a minimum
- Exclusive mechanic energy storage- no hydraulic, no battery
- No need of periodical inspections - selftesting with every stroke
- „partial stroke test“ possible

#### ■ CONSTRUCTION

- Low maintenance
- No initial strokes required
- Modulating operation up to 1800 c/h possible (S9 Operation)

### TECHNICAL DETAILS

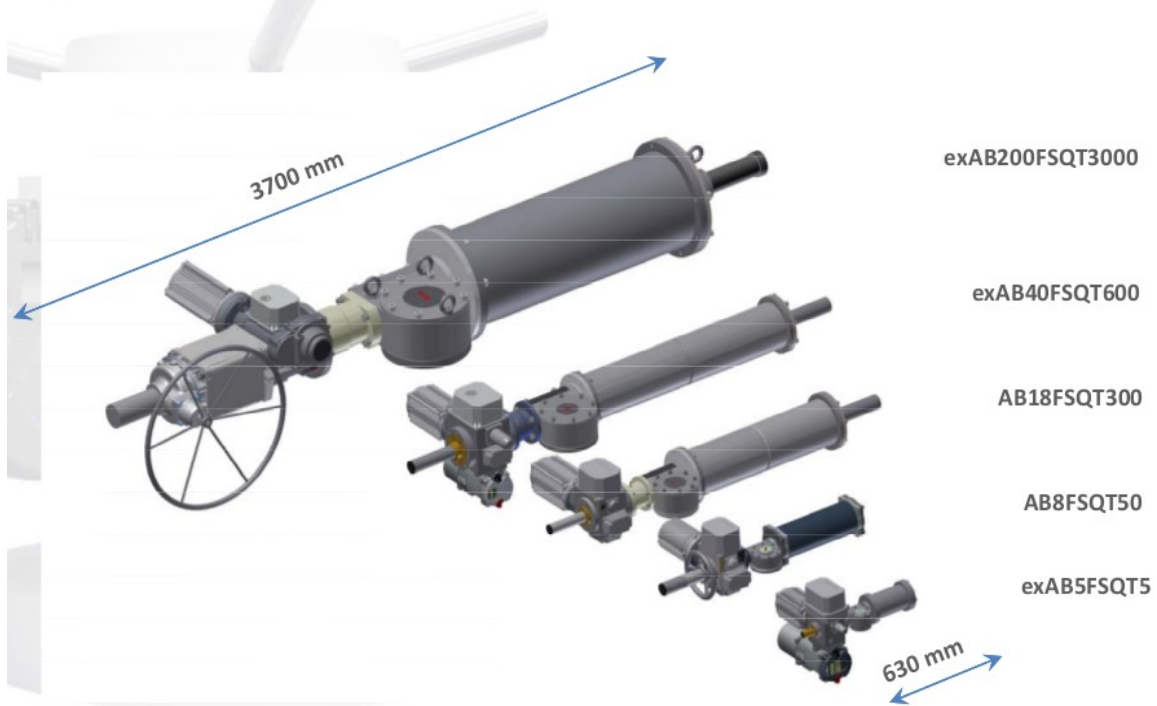
- Switch off thrust electric: max. 30 kN
- Modulating thrust: max. 25 kN
- Failsafe thrust: max. 37 kN
- Positioning speed electric adjustable by user
- Positioning speed failsafe: 1–10 sec adjustable
- End positions: non-intrusive adjustable
- Available for power supply:
  - 24 VDC
  - 115–230 VDC
  - 1x115V – 230VAC, 50/60 Hz
  - 3x 380 – 480 VAC, 50/60 Hz
- Control: integrated controls with frequency inverter and brushless DC motor
- Bluetooth technology for simple configuration
- Explosion proof according ATEX  
*Approvals according CSA and UL standards (pending)*
- **OPTIONAL FEATURES**
  - Analog positionfeedback: 0/4–20mA (2-wire)
  - Position for 0/4–20mA input signal
  - Relais board for 250 VAC, 2A with 4 or 6 outputs
  - Bussystems (Profibus DP, Modbus RTU, Modbus TCP, DeviceNet, Powerlink)
  - Mechanic manual override

## Schiebel Electric Actuator



TYPE	ON/ OFF	CM03 FS 40/3	CM03 FS 50/6	CM03 FS 50/12	CM03 FS 100/12	CM06 FS 50/25	CM06 FS100/25
	Modulating	rCM03 FS 40/3	rCM03 FS 50/6	rCM03 FS 50/12	rCM03 FS 100/12	rCM06 FS 50/25	rCM06 FS100/25
SWITCH OFF THRUST ELECTRIC	max. lbf. (kN)	1350 (6)	2700 (12)	3370 (15)	2700 (12)	6750 (30)	6750 (30)
END THRUST FAILSAFE	max. lbf. (kN)	675 (3)	1350 (6)	2700 (12)	1125 (5)	5620 (25)	5620 (25)
MODULATING THRUST ( rCM)	max. lbf. (kN)	900 (4)	1350 (6)	2250 (10)	1350 (6)	3370 (15)	3370 (15)
FAILSAFE FUNCTION		Selectable opening and dosing (spindle extending/retracting)					
FAILSAFE TRIGGERING		Drop off 24V DC fail safe signal or main power supply (selectable)					
POSITIONING SPEED – ELECTRIC	in/sec (mm/sec)	0,008 to 0,23 (0,21 to 5,83)				0,005 to 0,126 (0,13 to 3,93)	
POSITIONING SPEED – FAILSAFE	sec	1 to 5			2 to 10	4 to 15	
WORKING STROKE	in (mm)	1,57 (40)	1,97 (50)		3,94 (100)	1,97 (50)	3,94 (100)
MODE OF OPERATION	On/Off Duty	52–15 min					
	Modulating Duty	54 – 1800 c/h – 40% ED (Operating 59)					
MANUAL OVERRIDE		Optional					
<b>VALVE-MOUNTING</b>							
FLANGE	ISO 5210/DIN 3338	F07/F10		F10/F12		F14/F16	
STEM		M 16x1,5		M 20x1,5		M 36x3	
<b>ENVIRONMENTAL CONDITIONS</b>							
PROTECTION ACCORDING EN 60 529		IP 67 /NEMA 4 (Optional IP 68/NEMA 6)					
AMBIENT TEMPERATURE		– 20° C (– 4°F) to + 60° C (140° F) //(Optional - 40° C (– 40°F) to +60° C (140°F))					
CORROSION PROTECTION		K2 for aggressive atmospheres					
PAINTING/COLOR		Two component painting / RAL 7024					
WEIGHT approx.	lb. (kg)	85 (39)	105 (48)	116 (53)	165 (75)	210 (96)	308 (140)
<b>MOTOR - BRUSHLESS TECHNOLOGY</b>							
INSULATION CLASS		Insulation class F, max. 155° C (311°F) permanent temperature					
AVAILABLE FOR POWER SUPPLY	V	24VDC or 115-230VDC or 1x 115-230 VAC, 50-60Hz or 3x 380-480 VAC, 50-60 Hz					
	Nominal current	2,5 A					
	Power consumption idle	max 24 W					
FAILSAFE BRAKE	Nominal voltage	24 VDC + – 10%					
	Nominal power	12W	16W	16W	16W	on request	on request
<b>CONTROL</b>							
TECHNOLOGY		Integrated processor control unit with frequency technology for variable speed control					
CONTROL ELEMENTS		with additional language independent symbols Selector switch LOCAL – OFF – REMOTE contact free with GMR-technology (lockable) Control switch OPEN – STOP – CLOSE contact free with GMR-technology					
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SIGNAL LAMPS		5 RGB LEDs for operation – readiness – warning – and error messages – colors setable					
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OUTPUTS		8 binary output signals READY – OPEN – CLOSE – RUN OPEN – RUN CLOSE – TORQUE – LOCAL – REMOTE – selectable Power supply 24 VDC +/- 6V (selectable internal or external):					
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<b>ELECTRICAL CONNECTION</b>							
MOTOR		Industry-screw plug HAN10E with 10 poles in round plug casing					
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CABLE ENTRY		3 metric threaded boreholes for cable glands: M40x1,5/M32x1,5/M25x1,5 (Optional: 2x NPT1/2" + 1xNPT1")					

## Up to 30.000 Nm

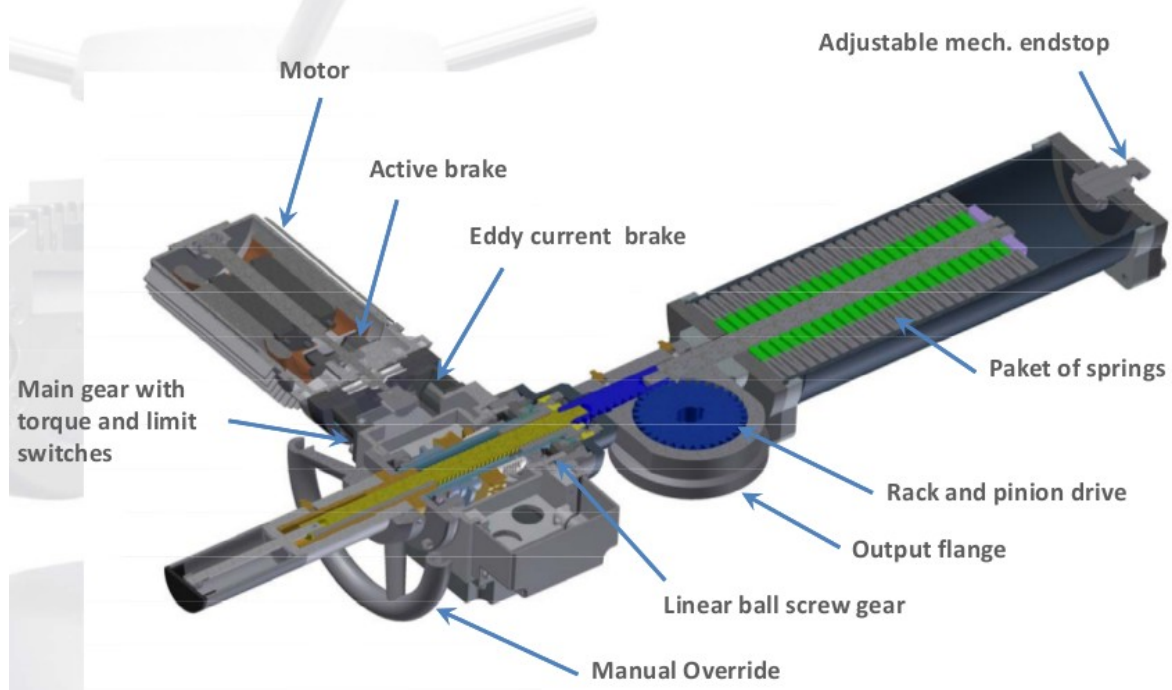


## Up to 120kN





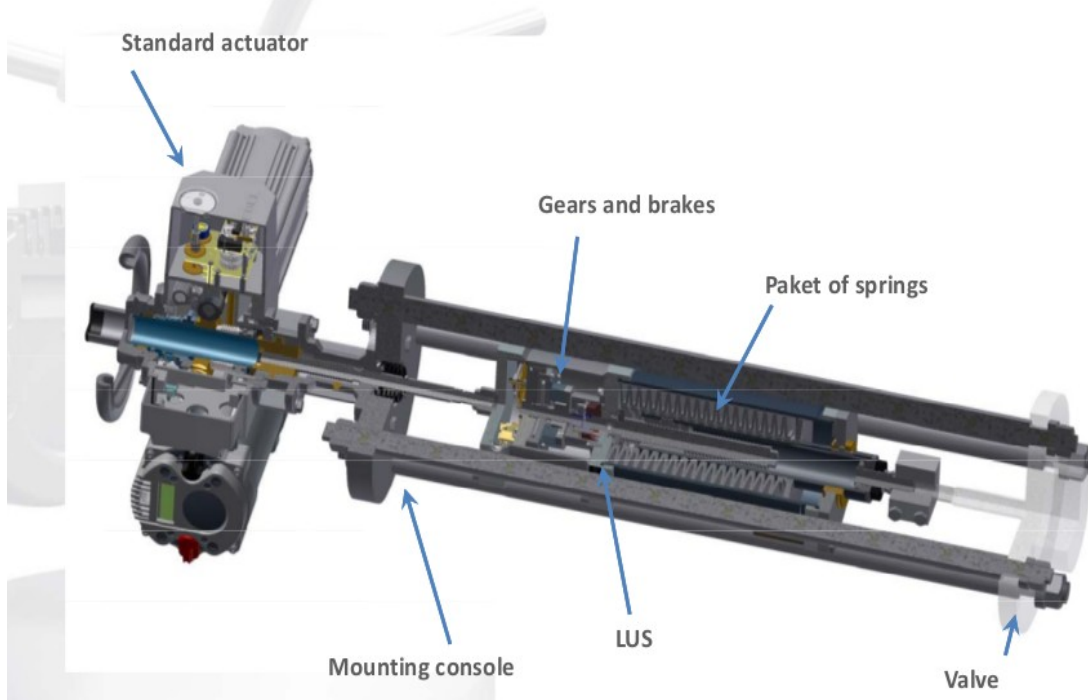
# Actusafe working principle



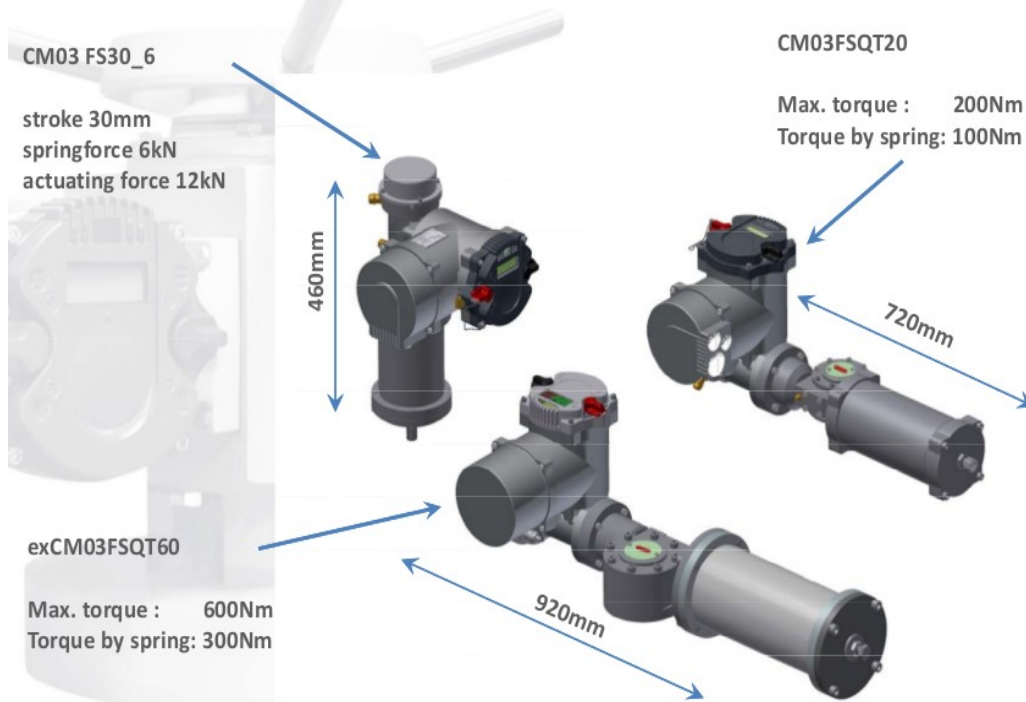
# Linear Unit Safe – LUS range



# Linear Unit Safe – LUS Working Principle



## Compact-failsafe - range



## Compact-failsafeworking principle

