



# Linear actuator CAT 33

Quick delivery of custom actuators



The CAT modular design makes it easy to create custom actuators suitable for specific applications. Select the critical components: motors, gearing, attachments, etc., to achieve custom performance without custom lead-time.

# Build your custom actuator from

Actuators built using the designation type key guide below are assembled from in-stock components. Usually up to 5 pieces can be made in 5 working days.

Quick delivery of custom CAT actuators is easy as **1, 2, 3**. Select your components to build the designation type key then contact your SKF authorized distributor or sales office to order.

- 1** Determine your base (screw)
- 2** Define stroke
- 3** Specify gearing
- 4** Choose attachments
- 5** Pick options
- 6** Designate motor
- 7** Select feedback option

## Designation type key

Assembly		C	A	T															
Motor mounted right side (ambidextrous) left side			R L																
<b>1</b>	<b>Screw (Tube; aluminum outer and DOSS inner)</b>																		
	Sliding screw TR 12x3 with plastic nut																		
	Ballscrew 12x4 mm																		
	Sliding screw 1/2x1/2 with plastic nut																		
<b>2</b>	<b>Stroke (S)</b>																		
	50 mm																		
	100 mm																		
	150 mm																		
	200 mm																		
	250 mm																		
	300 mm																		
	350 mm																		
	Custom order <50 or >350																		
	(stroke lengths including and over 400 mm have an additional 50 mm added to retracted length)																		
<b>3</b>	<b>Gear designator</b>																		
	Ratio 1:25																		
	Ratio 1:12,5 – not self-locking in 33H and 33B w/o brake																		
	Ratio 1:6,25 – not self-locking in 33H and 33B w/o brake																		
<b>4</b>	<b>Rear attachment</b>																		
	Fork (clevis) ear w/cross hole d=12,0 mm																		
	Fork (clevis) ear w/cross hole d=12,7 mm																		
	Single ear w/cross hole d=12,0 mm																		
	Single ear w/cross hole d=12,7 mm																		
	**Custom, fork ear																		
	**Custom, single ear																		
<b>4</b>	<b>Front attachment</b>																		
	Cross hole d=12,0 mm																		
	Cross hole d=12,7 mm																		
	Male thread, M12x1,75																		
	Female thread, M12x1,75																		
	Fork ear, d=10,1 mm																		
	**Custom order																		
<b>5</b>	<b>Options</b>																		
	Friction clutch (slips when force exceeded)																		
	No friction clutch (e.g. when using an encoder)																		
	Backup wire in ball nut (standard for all ball screw units)																		
<b>6</b>	<b>Motor</b>																		
	Without motor (typically when replacing just the actuator)																		
	DC motors rated IP44																		
	12 VDC standard w/24" wires																		
	12 VDC half speed w/24" wires																		
	24 VDC standard w/24" wires																		
	24 VDC half speed w/24" wires																		
	90 VDC standard w/24" wires																		
	90 VDC half speed w/24" wires																		
	12 VDC flat motor standard w/12" wires																		
	24 VDC flat motor standard (with brake)																		
	24 VDC flat motor with extended shaft																		
	AC motors rated IP54																		
	110 VAC (with brake) single phase 50/60 Hz PSC type (requires starting capacitor)																		
	220 VAC (with brake) single phase 50/60 Hz PSC type (requires starting capacitor)																		
	380 VAC 3-phase delta connected																		
<b>7</b>	<b>Feedback option</b>																		
	Encoder – 2PPR (pulse-per-revolution of the motor)																		
	No encoder																		

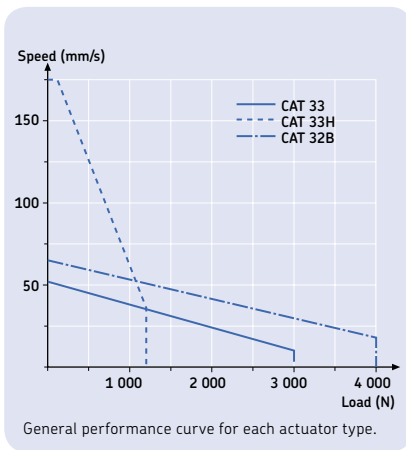
\*\* Custom made to customer specifications (G0, A0 and K0). When custom features are selected this will affect lead time. Please consult technical team.

# om CAT modular components

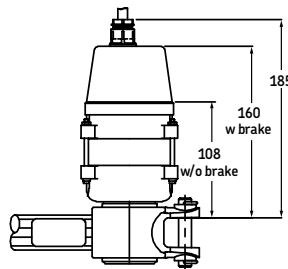
## 1 Base (screw)

For easy selection, three basic actuators form the base for the CAT modular range.

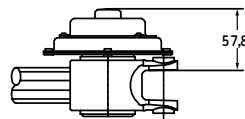
- CAT 33 sliding screw, standard
- CAT 33H sliding screw, high speed
- CAT 33B SKF ball screw, for higher load and/or duty factors



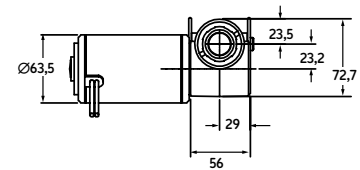
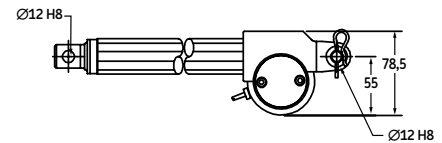
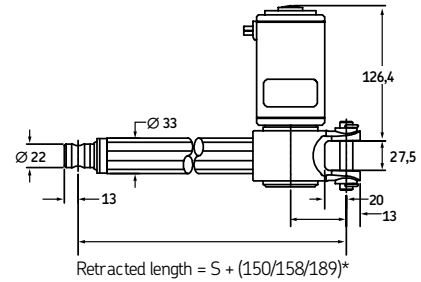
## 6 Motors



Optional AC motor  
E110C, E110CB, E220C, E220CB



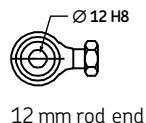
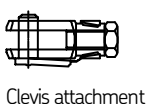
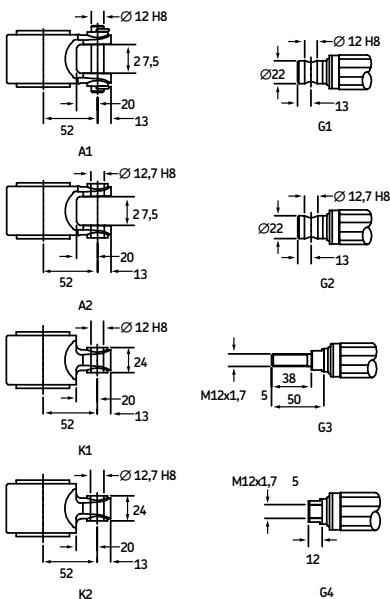
Optional flat style motor  
D12C, D24C, D24CB, D24CS



Optional cylindrical style motor  
C12CTT, C12CWT T, C24CT T, C24CWT T,  
C90CTT, C90CWT T

\* dimension depends on selected front attachment

## 4 Attachments

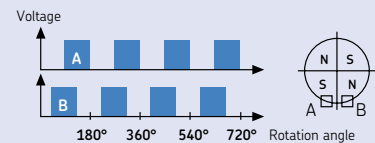


## 7 Encoder

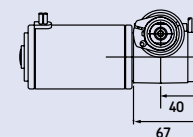
- Can be fitted to all standard motors
- Hall effect, 2 channels with 90° displacement
- Located on gear housing, see drawing
- 2 pulses/channel and motor revolution
- Supply voltage: 5 to 24 VDC
- Current output: max. 12,5 mA
- Final resolution according to gear ratio and actuator basic type (see table)

### Feedback

	gear	pulses/mm	mm/pulse
CAT 33	1	16,67	0,06
	2	8,33	0,12
	4	4,17	0,24
CAT 33H	1	4,00	0,25
	2	2,00	0,50
	4	1,00	1,00
CAT 33B	1	12,50	0,08
	2	6,25	0,16
	4	3,13	0,32



Encoder option E

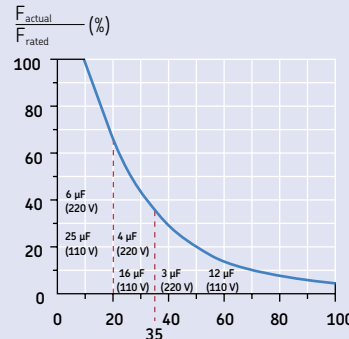


## Temperatures

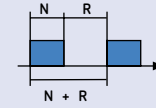
Actuators can normally be used within a temperature range -20 °C (-5 °F) to +50 °C (122 °F). All performance data stated in this catalog are only valid at +20 °C (68 °F).

## Duty factor

- Design for intermittent operation
- Permitted load related to duty factor, e.g. the higher the load, the less the permitted duty factor
- Duty factor is defined as running time under load versus total cycle time
- The diagram shows load as function of duty cycle
- For AC motors the capacitor must be selected with respect to the duty cycle and load. Required capacitor size is indicated in diagram

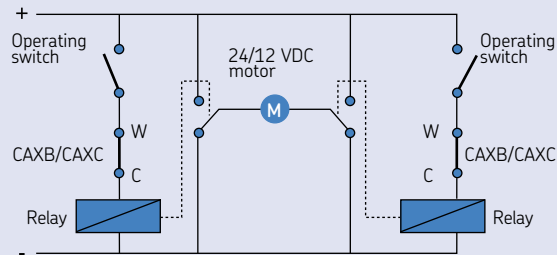


$$\text{Duty factor \%} = \frac{N \times 100}{N + R}$$

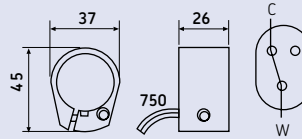


N = running time  
R = rest period  
N + R = total cycle time

## Typical limit switches/wiring diagram



## Optional CAXC 33 shown here



Permissible break power: 3 W  
Max. break voltage 200 VDC  
Max. break current 200 mA DC  
W = Common  
C = Normally closed



Please contact your SKF sales representative to find out more about our Quick Delivery range program



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