



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																	
1 Screw (Tube; aluminum outer and DOSS inner)																				
Sliding screw TR 12x3 with plastic nut		33																		
Ballscrew 12x4 mm		33B																		
Sliding screw 1/2x1/2 with plastic nut		33H																		
2 Stroke (S)																				
50 mm		050																		
100 mm		100																		
150 mm		150																		
200 mm		200																		
250 mm		250																		
300 mm		300																		
350 mm		350																		
Custom order <50 or >350		XXX																		
(stroke lengths including and over 400 mm have an additional 50 mm added to retracted length)																				
3 Gear designator																				
Ratio 1:25		1																		
Ratio 1:12,5 – not self-locking in 33H and 33B w/o brake		2																		
Ratio 1:6,25 – not self-locking in 33H and 33B w/o brake		4																		
4 Rear attachment																				
Fork (clevis) ear w/cross hole d=12,0 mm		A1																		
Fork (clevis) ear w/cross hole d=12,7 mm		A2																		
Single ear w/cross hole d=12,0 mm		K1																		
Single ear w/cross hole d=12,7 mm		K2																		
**Custom, fork ear		A0																		
**Custom, single ear		K0																		
4 Front attachment																				
Cross hole d=12,0 mm		G1																		
Cross hole d=12,7 mm		G2																		
Male thread, M12x1,75		G3																		
Female thread, M12x1,75		G4																		
Fork ear, d=10,1 mm		G5																		
**Custom order		G0																		
5 Options																				
Friction clutch (slips when force exceeded)		F																		
No friction clutch (e.g. when using an encoder)		Z																		
Backup wire in ball nut (standard for all ball screw units)		S																		
6 Motor																				
Without motor (typically when replacing just the actuator)		0000																		
DC motors rated IP44																				
12 VDC standard w/24" wires		C12CTT																		
12 VDC half speed w/24" wires		C12CWTT																		
24 VDC standard w/24" wires		C24CTT																		
24 VDC half speed w/24" wires		C24CWTT																		
90 VDC standard w/24" wires		C90CTT																		
90 VDC half speed w/24" wires		C90CWTT																		
12 VDC flat motor standard w/12" wires		D12C																		
24 VDC flat motor standard (with brake)		D24C (D24CB)																		
24 VDC flat motor with extended shaft		D24CS																		
AC motors rated IP54																				
110 VAC (with brake) single phase 50/60 Hz PSC type (requires starting capacitor)		E110C (E110CB)																		
220 VAC (with brake) single phase 50/60 Hz PSC type (requires starting capacitor)		E220C (E220CB)																		
380 VAC 3-phase delta connected		E380C																		
7 Feedback option																				
Encoder – 2PPR (pulse-per-revolution of the motor)		E																		
No encoder		-																		

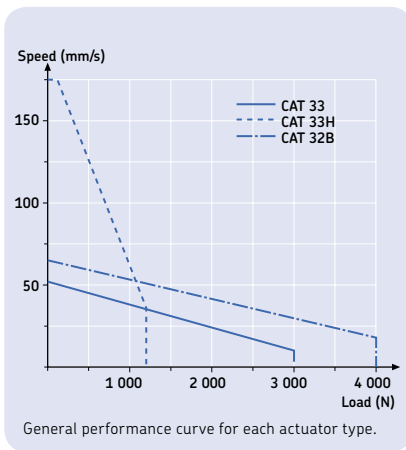
** Custom made to customer specifications (G0, A0 and K0). When custom features are selected this will affect lead time. Please consult technical team.

om CAT modular components

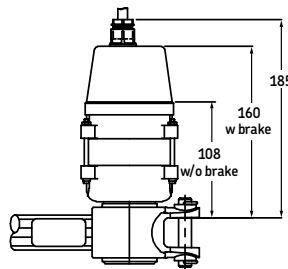
1 Base (screw)

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

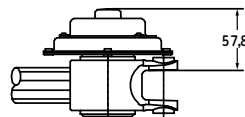
- CAT 33 sliding screw, standard
- CAT 33H sliding screw, high speed
- CAT 33B SKF ball screw, for higher load and/or duty factors



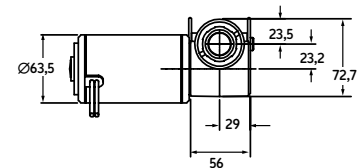
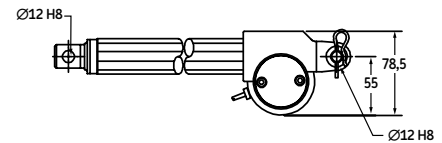
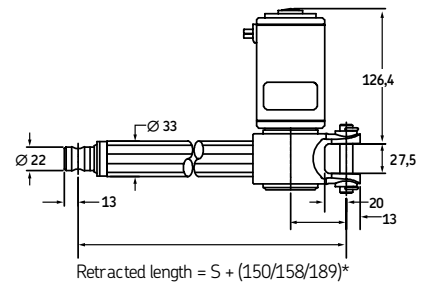
6 Motors



Optional AC motor
E110C, E110CB, E220C, E220CB



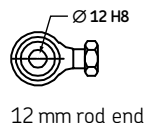
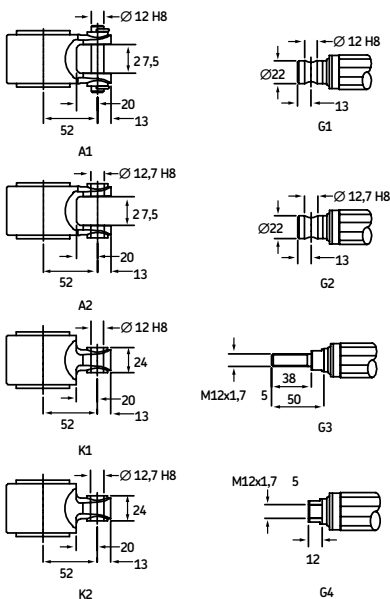
Optional flat style motor
D12C, D24C, D24CB, D24CS



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

* dimension depends on selected front attachment

4 Attachments

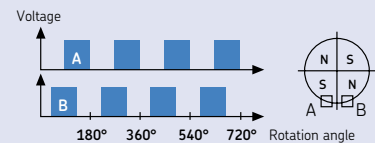


7 Encoder

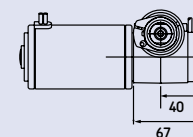
- Can be fitted to all standard motors
- Hall effect, 2 channels with 90° displacement
- Located on gear housing, see drawing
- 2 pulses/channel and motor revolution
- Supply voltage: 5 to 24 VDC
- Current output: max. 12,5 mA
- Final resolution according to gear ratio and actuator basic type (see table)

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

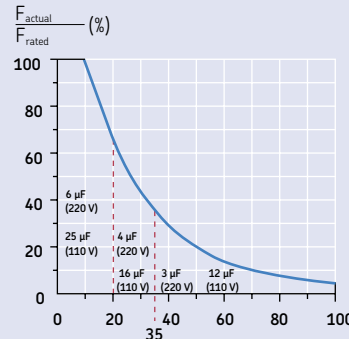


Temperatures

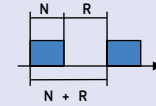
Actuators can normally be used within a temperature range -20 °C (-5 °F) to +50 °C (122 °F). All performance data stated in this catalog are only valid at +20 °C (68 °F).

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

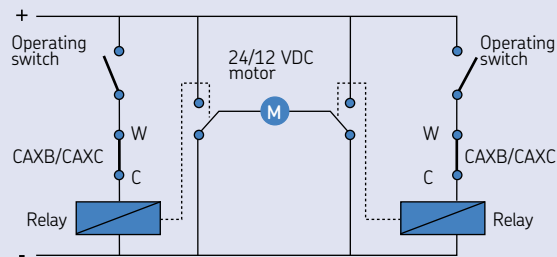


$$\text{Duty factor \%} = \frac{N \times 100}{N + R}$$

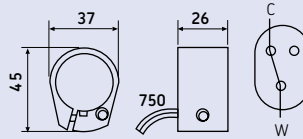


N = running time
R = rest period
N + R = total cycle time

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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