

# EWELLIX

A Schaeffler Company

## Linear actuator CAT 33

Quick delivery of custom actuators



# Build your custom actuator from CAT modular components

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.

Actuators built using the designation type key guide below are assembled from in-stock components.

Quick delivery of custom CAT actuators is easy as 1, 2, 3. Select your components to build the designation type key then contact your Ewellix 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 (item 0650100)

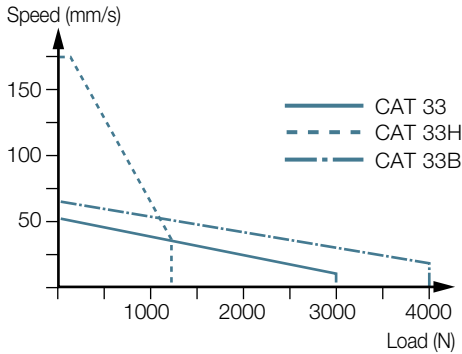
Assembly	C	A	T																	
Motor mounted right side (ambidextrous) left side				R L																
<b>1. Screw (Tube; aluminum outer and DOSS inner)</b>																				
Sliding screw TR 12x3 with plastic nut																				
Ball screw 12x4 mm																				
Sliding screw 1/2x1/2 with plastic nut																				
<b>2. 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. Gear designator</b>																				
Ratio 1:2,5																				
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. 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. 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. 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. 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 speed 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. 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 contact technical team.

### 1. Base (screw)

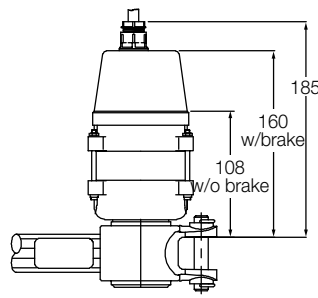
For easy selection, three basic actuators form the base for the CAT modular range.

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

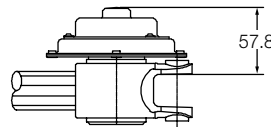
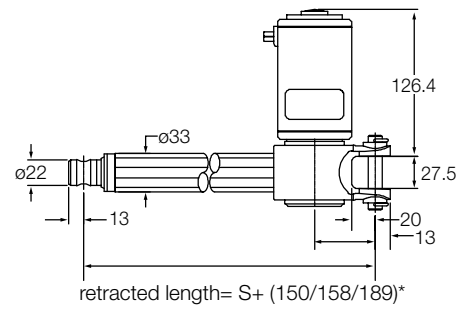


General performance curve for each actuator type.

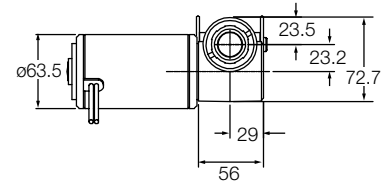
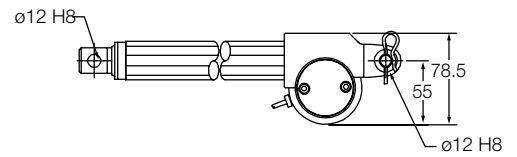
### 6. Motors



optional AC motor  
E110C, E110CB, E220C, E220CB



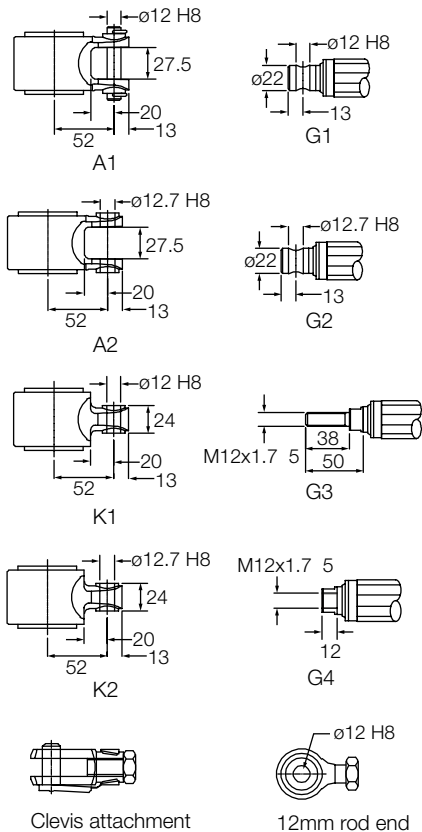
optional flat style motor  
D12C, D24C, D24CB, D24CS



optional cylindrical style motor  
C12CTT, C12CWTT, C24CTT, C24CWTT, C90CTT, C90CWTT

\*Dimension depends on selected front attachment.

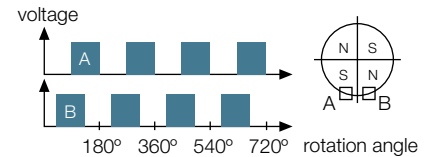
### 4. Attachments



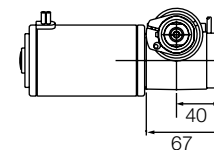
### 7. Feedback option

- 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)

	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

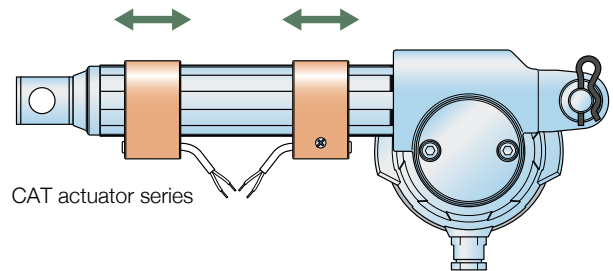
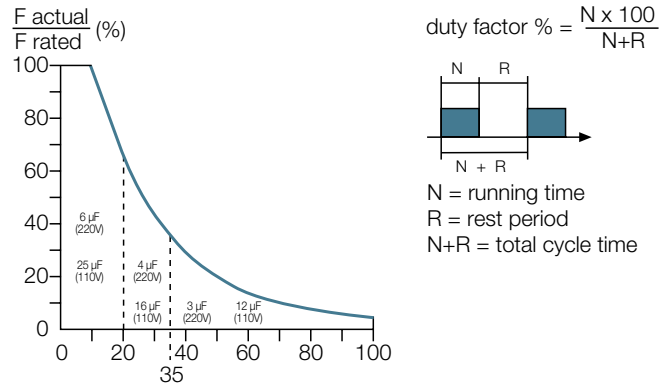


### Temperatures

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 the 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



### CAXD 33 limit switch

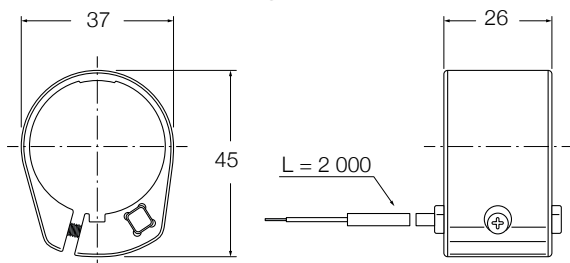
Limit switches, combined with Ewellix control units, make it possible to set the stroke to any desired length.

- CAXD 33 – designed for the following actuators:
  - CAT 33
- One CAXD is needed for each limit position
- Use of limit switches reduce the effective stroke by 20 mm for CAT 33 (retracted position is affected)

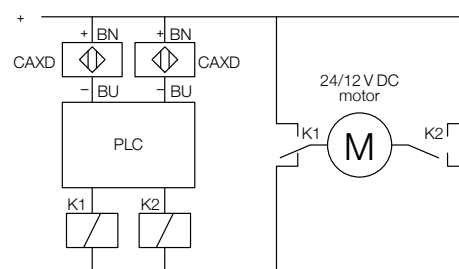
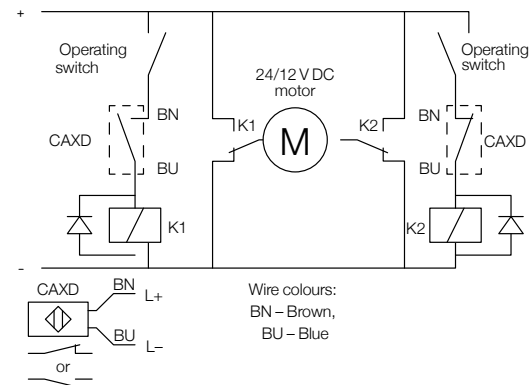
### Technical data

CAXD 33	
Operating voltage	5 to 30 V DC
Max. current	100 mA DC
Voltage drop	< 5 V
Voltage drop	< 5 V
Electrical function	Normally closed or normally open
Make/fall time	0,3 ms / 0,6 ms
Operating temperature	-20 °C to +50 °C
Ingress protection	IP 67 (sensor element)
Vibration/shock	According to IEC 90947-5-2 (sensor element)
Cable dimensions (L x D)	2 m x 3 mm (PUR)
Cable area	2 x 0,14 mm <sup>2</sup>
Housing colour	Black

### Dimensional drawing



### Connecting diagrams



Important! For DC-supply only

### Ordering key

Code	Description
CAXD 33 LIMIT SWITCH, NC	Normally Closed
CAXD 33 LIMIT SWITCH, NO	Normally Open