Precision Linear Actuators

www.thomsonlinear.com

THOMSON®

Linear Motion. ***Optimized.***™

Thomson – the Choice for Optimized Motion Solutions

Often the ideal design solution is not about finding the fastest, sturdiest, most accurate or even the least expensive option. Rather, the ideal solution is the optimal balance of performance, life and cost.

The Best Positioned Supplier of Mechanical Motion Technology

Thomson has several advantages that makes us the supplier of choice for motion control technology.

- Thomson own the broadest standard product offering of mechanical motion technologies in the industry.
- Modified versions of standard product or white sheet design solutions are routine for us.
- Choose Thomson and gain access to over 70 years of global application experience in industries including packaging, factory automation, material handling, medical, clean energy, printing, automotive, machine tool, aerospace and defense.
- As part of Danaher Corporation, we are financially strong and unique in our ability to bring together control, drive, motor, power transmission and precision linear motion technologies.

A Name You Can Trust

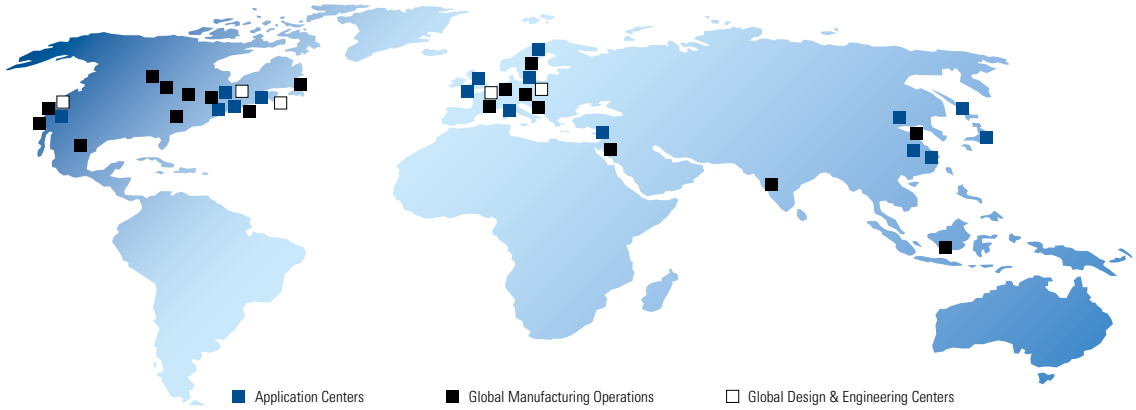
A wealth of product and application information as well as 3D models, software tools, our distributor locator and global contact information is available at www.thomsonlinear.com. For assistance in Europe, contact us at +44 1271 334 500 or e-mail us at sales.uk@thomsonlinear.com.

Talk to us early in the design process to see how Thomson can help identify the optimal balance of performance, life and cost for your next application. And, call us or any of our 2000+ distribution partners around the world for fast delivery of replacement parts.

The Danaher Business System

The Danaher Business System (DBS) was established to increase the value we bring to customers. It is a mature and successful set of tools we use daily to continually improve manufacturing operations and product development processes. DBS is based on the principles of Kaizen which continuously and aggressively eliminate waste in every aspect of our business. DBS focuses the entire organization on achieving breakthrough results that create competitive advantages in quality, delivery and performance – advantages that are passed on to you. Through these advantages Thomson is able to provide you faster times to market as well as unsurpassed product selection, service, reliability and productivity.

Local Support Around the Globe



Introduction

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Introduction

Company Introduction

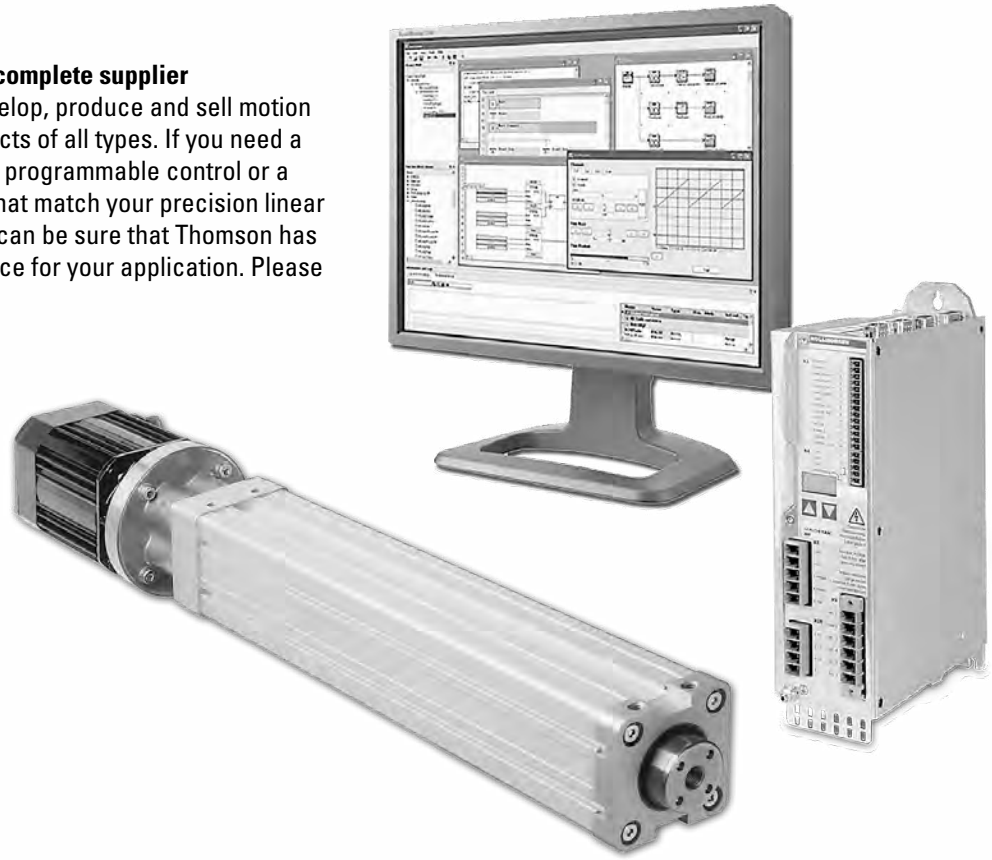
Thomson is one of the leading suppliers of motion control products in the world offering a complete product portfolio. Actuators, servo motors, lead screws, servo drives and controls are just some of the products manufactured by Thomson. The precision linear actuator range is a result of over 40 years of actuator development and represents the state of the art in linear actuator design.

The precision linear actuators in this catalog represent the experience gained during decades of actuator development. The result are design concepts that will work in the hardest applications imaginable and unique product features unavailable anywhere else.

World wide representation
Thomson has plants, support centers and sales offices all around the globe. In addition we have a large network of distributors and system houses that all are ready to support you throughout the entire life cycle of the product.

Thomson - a complete supplier
Thomson develop, produce and sell motion control products of all types. If you need a servo drive, a programmable control or a linear guide that match your precision linear actuator you can be sure that Thomson has the ideal choice for your application. Please visit www.thomsonlinear.com for more information on us and our products.

Online product selector tool
Selection is made easy when using our precision linear actuator product selector at www.thomsonlinear.com/selectors. This online tool helps you select the right system for your application needs based off pre-selected performance and electromechanical criteria.



Introduction

Product Introduction

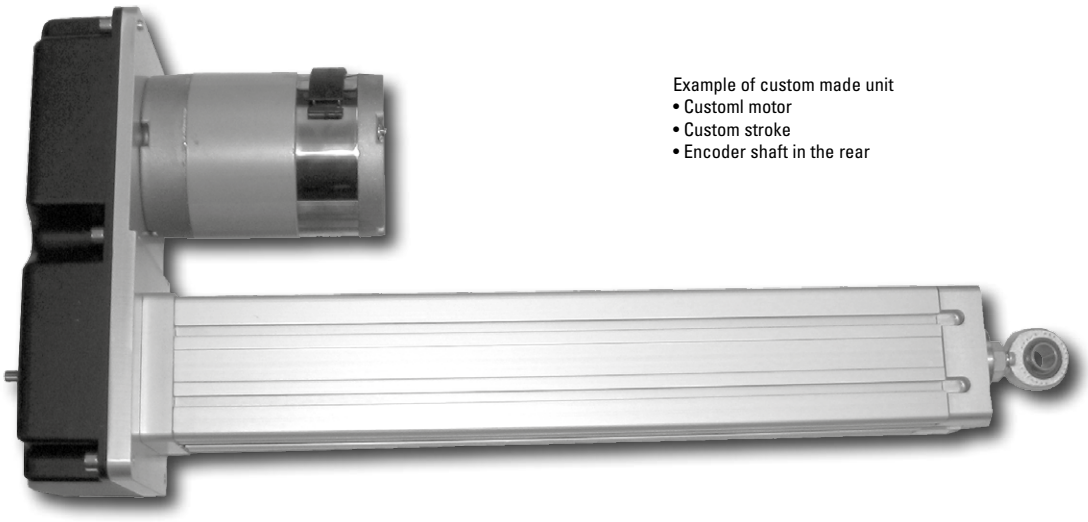
Precision linear actuators are used in handling, machining and manufacturing applications. Another suitable area is in the replacement of hydraulic or pneumatic cylinders where they bring many benefits compared to these traditional technologies. The broad range of options and accessories and our long experience in building customized units makes it easy to find the perfect actuator for almost any application.

The hallmark for Thomson precision linear actuators is the ability to work hard, fast and accurately, day in and day out, under the toughest conditions. All precision linear actuators are designed to require a minimum of maintenance. There are no parts that need to be replaced due to wear and regular lubrication is needed only in applications where the actuator works hard and frequently.

Hydraulics and pneumatics replacement
Precision linear actuators are direct descendants of hydraulic and pneumatic cylinders. Possessing many of the same unique design characteristics that made hydraulic and pneumatic cylinders popular, actuators benefit from cleaner, simpler and more energy-efficient power transmission. They are also much easier to integrate with modern programmable controls, have greater accuracy and are less noisy.

Harsh environments
Chemical plants, paper mills, welding operations and outdoor applications are all suitable for precision linear actuators. IP65 protection as standard or as option, a robust design and the use of high-quality components makes them suitable for almost every location.

Customized units
Customization is one of our strengths and we have built hundreds of customized units. If you need a special stroke, a unique mounting bracket, or some other adaptation of the standard product, our engineers will help you find the perfect solution for your application. Please contact customer service for more information.

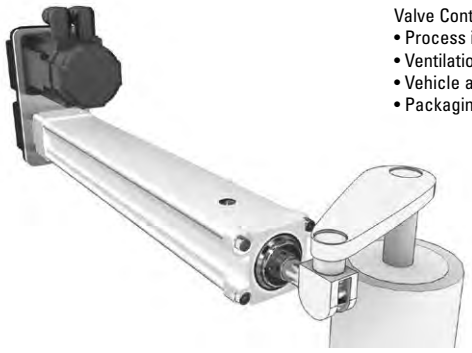


Example of custom made unit
- Customl motor
- Custom stroke
- Encoder shaft in the rear

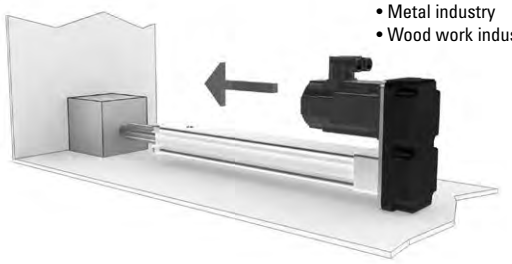
Introduction

Applications

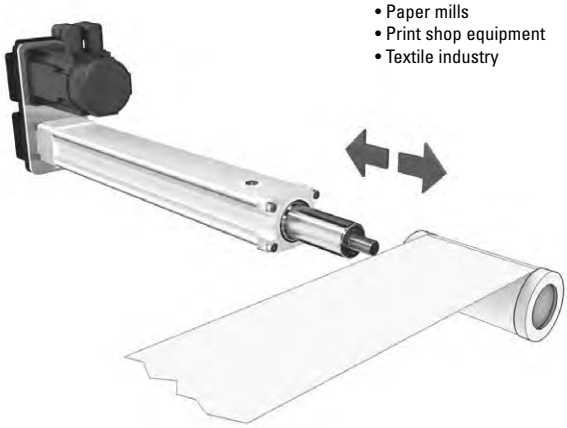
Precision linear actuators can fit a wide variety of applications within many motion industries. In combination with high performance drives and controls from Thomson, design into linear motion equipment is made easy and simple. Some common applications are described below.



Valve Control
- Process industry
- Ventilation equipment
- Vehicle applications
- Packaging industry

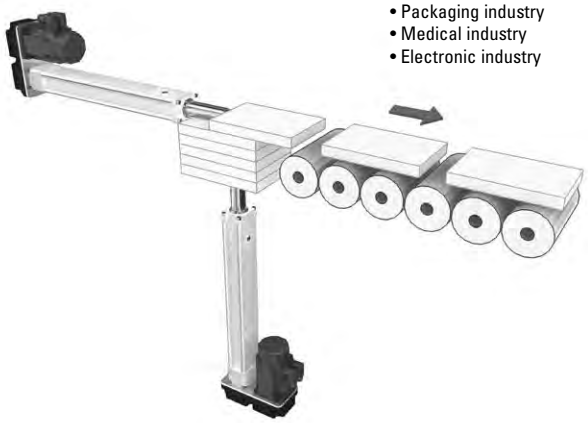


Pressing and clamping
- Machine tools
- Electronic industry
- Plastic industry
- Metal industry
- Wood work industry



Edge Guide Control
- Paper mills
- Print shop equipment
- Textile industry

Backstop Adjust
- Wood work industry
- Machine tools
- Metal industry



Loading or Unloading
- Handling equipment
- Packaging industry
- Medical industry
- Electronic industry

Drilling, Welding, Gluing or Thermo-forming
- Machine tools
- Plastic industry
- Metal industry
- Wood work industry
- Electronic industry
- Packaging industry

Introduction

The Benefits of Electrification

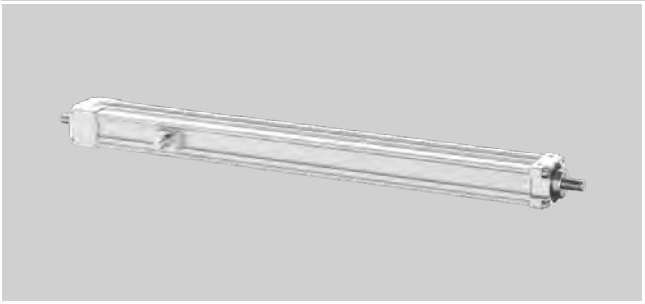
Precision linear actuators are often a better choice than hydraulic or pneumatic alternatives with advantages of simpler and smaller installation, easier control, lower energy costs, higher accuracy, less maintenance, less noise, and a cleaner, healthier environment.

Electrical Actuators vs. Hydraulic and Pneumatic Cylinders

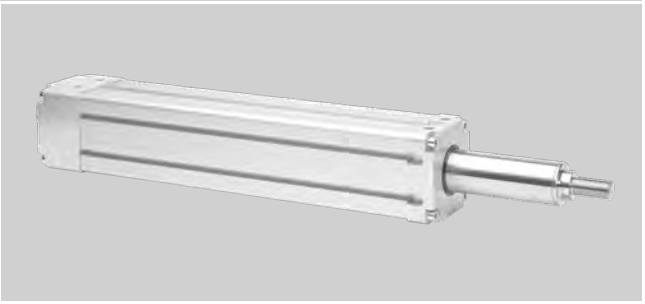
	Electrical Linear Actuators	Hydraulic Cylinders	Pneumatic Cylinders
Installation	All electric operation requires simple wiring.	Requires expensive plumbing, filtering, pumps, etc.	Requires expensive plumbing, filtering, pumps, etc.
Accuracy	Very repeatable (to ± 0,013 mm) and rigid, multi-stop capabilities.	Requires expensive position sensing and precise electro-hydraulic valving to implement, has tendency to creep.	Difficult to achieve.Requires expensive position sensing and precise valving to implement, has tendency to creep.
Control	Directly compatible with standard programmable controls allowing easy automatic operation of complex motion sequences.	Requires electronic/fluid interfaces and exotic valve designs. Hysteresis, dead zone, supply pressure and temperature changes complicate control.	Inherently non-linear, compressible power source severely complicates servo control.
Speed	Smooth, variable speed with from 0 to 2 m/s with controlled accleration.	Difficult to control accurately. Varies with temperature and wear. Stick slip can be a problem.	More susceptible to stick slip and varying load. Well-suited for light high speed applications.
Reliability	Repeatable, reproducible performance during the entire product life. Very little maintenance required.	Very contamination sensitive. Require regular maintenance. Seals are prone to leak. Reliable with diligent maintenance.	Very contamination sensitive. Air sources require proper filtration. Good reliability, but usually many system components are involved.
Power	Up to 40 000 N	Virtually unlimited force. Most powerful.	Up to 25 000 N. Typically used below 6000 N.
Life expectancy	Up to millions of cycles at rated load. Easy to predict.	Dependent on design and seal wear, usually good.	Dependent on design and seal wear, usually good.
Environment	Standard models rated for -30 to +70 °C. Inherently clean and energy efficient.	Temperature extremes can be a major problem. Seals are prone to leak. Waste disposal is increasingly problematic.	Temperature extremes can be a major problem. Seals prone to leak. Air-borne oil can be a problem.
Load holding	Acme screw units are selflocking if power fails. Fail-safe brakes available for ball screw models.	Complex back-up safety devices must be used.	Complex back-up safety devices must be used.
Cost	Moderate initial cost, very low operating cost.	Components often cost less, but installation and maintenance are increased. Hydraulic power unit cost is high if not pre-existing.	Components often cost less, but installation and maintenance are increased.

Performance Overview

Precision Linear Actuators - T Series

		T60
		
Load		
Maximum load, Fx	[N]	10 000
Maximum load, Fy	[N]	100
Maximum load, Fz	[N]	100
Maximum load torque, Mx	[Nm]	-
Maximum load torque, My	[Nm]	50
Maximum load torque, Mz	[Nm]	50
Stroke		
Maximum standard stroke	[mm]	1500
Speed		
Maximum speed	[m/s]	2,5
Accuracy		
Repeatability	[± mm]	0,05
Backlash	[mm]	0,11
General data		
Profile size (width × height)	[mm]	75 × 60
Operating temperature limits	[°C]	-20 – +70
Maximum duty cycle	[%]	100
Screw diameter	[mm]	25
Screw type		ball screw
Protection class - standard / optional		IP65
Features		
Single point lubrication		•
Mounting options		
Magnetic position sensors		•
Mounting feet kit		on request
Trunnion mounting kit		•
Clevis mounting kit		•
Tube end - inside thread / outside thread / spherical joint		• / • / •

[1] Depending on the screw diameter used in the actuator.

	T90	T130
		
	20 000	60 000
	500	800
	500	800
	-	-
	150	300
	150	300
	1500	2000
	2,0	2,0
	0,05	0,05
	0,11 (0,18) [1]	0,21
	90 × 92	130 × 130
	-20 – +70	-20 – +70
	100	100
	25, 32	40, 50
	ball screw	ball screw
	IP65	IP65
	•	•
	•	•
	•	•
	•	•
	•	•
	•/•/•	•/•/•

Performance Overview

Packaged Precision Linear Actuators - ECT Series

		ECT90
		
Load		
Maximum load, Fx	[N]	20 000
Maximum load, Fy	[N]	500
Maximum load, Fz	[N]	500
Maximum load torque, Mx	[Nm]	-
Maximum load torque, My	[Nm]	150
Maximum load torque, Mz	[Nm]	150
Stroke		
Maximum standard stroke	[mm]	1500
Speed		
Maximum speed	[m/s]	1,6
Accuracy		
Repeatability	[± mm]	0,05
Backlash	[mm]	0,11 (0,18) [1]
General data		
Profile size (width × height)	[mm]	90 × 92
Operating temperature limits	[°C]	-20 – +70
Maximum duty cycle	[%]	100
Screw diameter	[mm]	25, 32
Screw type		ball screw
Protection class - standard / optional		IP65
Features		
Brushless AC servo motor / Three phase AC motor		• / •
Single point lubrication		•
Mounting options		
Magnetic position sensors		•
Mounting feet kit		•
Trunnion mounting kit		•
Clevis mounting kit		•
Tube end - inside thread / outside thread / spherical joint		• / • / •

[1] Depending on the screw diameter used in the actuator.

	ECT130
	
	38 000
	800
	800
	-
	300
	300
	2000
	2,0
	0,05
	0,21
	130 × 130
	-20 – +70
	100
	40
	ball screw
	IP65
	• / •
	•
	•
	•
	•
	•
	• / • / •

T Series

Introduction

The proven design of the T series precision linear actuators has found its way into thousands of applications throughout the world. Precision-rolled ball screws provide smooth motion, accurate positioning and quiet operation while the slide guide bushings and the rugged exterior design allows it to be used in the thoughest applications. The T series combines durability, performance and ease-of-use with a large selection of factory-engineered options and accessories. Regardless of the environment or requirement, we can customize our standard models to fit just about any application.

T Series

Overview

Features

- Extruded anodized aluminum cover tube
- Anodized aluminum housing
- Hard chromed steel extension tube
- Can be installed in all directions
- Ball screw drive
- Slide guides
- Load up to 60000 N
- IP65 protection class
- Wash down protected versions
- Mounting accessories according to hydraulic cylinder standards available

Parameter		T60	T90	T130
Profile size (width × height)	[mm]	75 × 60	90 × 92	130 × 130
Stroke length (S), maximum	[mm]	1500	1500	2000
Speed, maximum	[m/s]	2,5	2,0	2,0
Dynamic Load (Fx), maximum	[N]	10 000	20 000	60 000
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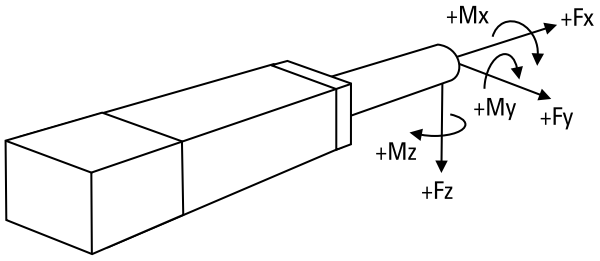
Definition of Forces



T60

Ball Screw Drive, Slide Guide

» Ordering Key - see page 69
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Compact, robust and reliable
- High accuracy ball screw drive
- Stroke up to 1500 mm
- Load up to 10000 N
- Speed up to 2,5 m/s
- Hard chromed steel extension tube
- IP65 as standard
- Mounting accessories according to hydraulic cylinder standards available.

General Specifications

Parameter	T60
Profile size (w × h) [mm]	75 × 60
Type of screw	ball screw with single nut
Protection class	IP65
Lubrication	One point lubrication of ballscrew
Included accessories	–

Rod Idle Torque (M idle) [Nm]

Input speed [rpm]	Screw lead (p) [mm]			
	p = 5	p = 10	p = 25	p = 50
500	1,5	1,5	2	3,5

M idle = the input torque needed to move the rod with no load on it.

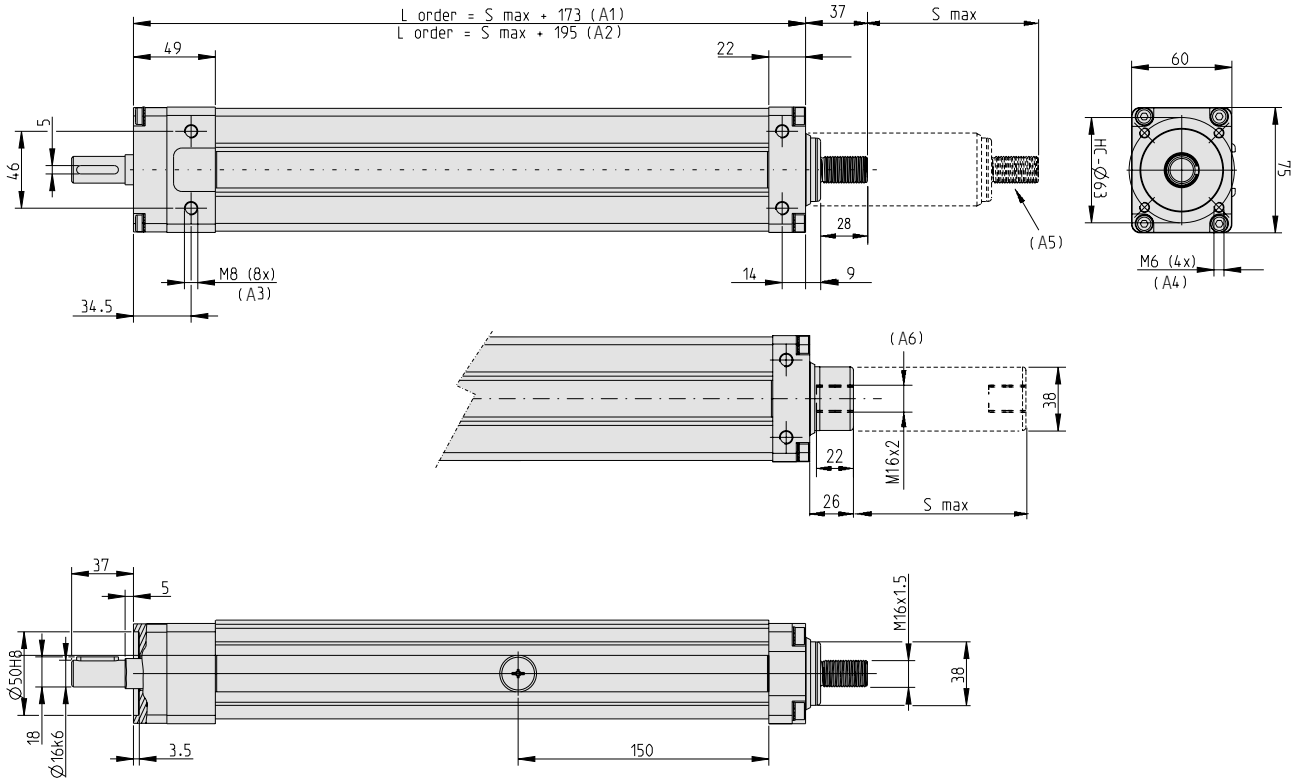
Performance Specifications

Parameter		T60
Stroke length (S max), maximum	[mm]	1500
Linear speed, maximum	[m/s]	2,5
Acceleration, maximum	[m/s²]	20
Repeatability	[± mm]	0,05
Input speed, maximum screw diameter/lead 25/10, 25/25 screw diameter/lead 25/05, 25/50	[rpm]	 4000 3000
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum	[N]	10000
Dynamic load (Fy), maximum	[N]	100
Dynamic load (Fz), maximum	[N]	100
Dynamic load torque (Mz, My), max.	[Nm]	50
Drive shaft force (Frd), maximum	[N]	1000
Drive shaft torque (Mta), maximum	[Nm]	48
Screw versions, diameter (d_0) / lead (p)	[mm]	25/05, 25/10, 25/25, 25/50
Weight of units of unit with zero stroke of every 100 mm of stroke	[kg]	 5,20 0,95

[1] Value for the complete unit

T60

Ball Screw Drive, Slide Guide



A1: screw 25/05 and 25/25
A2: screw 25/10 and 25/50
A3: depth 10
A4: depth 20
A5: outside thread
A6: inside thread

T90

Ball Screw Drive, Slide Guide

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» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Compact, robust and reliable
- High accuracy ball screw drive
- Stroke up to 1500 mm
- Load up to 20000 N
- Speed up to 2 m/s
- Hard chromed steel extension tube
- IP65 as standard
- Mounting accessories according to hydraulic cylinder standards available.

General Specifications

Parameter	T90
Profile size (w × h) [mm]	90 × 92
Type of screw	ball screw with single nut
Protection class	IP65
Lubrication	One point lubrication of ballscrew
Included accessories	–

Rod Idle Torque (M idle) [Nm]

Input speed [rpm]	Screw lead (p) [mm]				
	p = 5	p = 10	p = 20	p = 25	p = 32
500	1,5	1,5	3,0	2,0	3,5

M idle = the input torque needed to move the rod with no load on it.

Performance Specifications

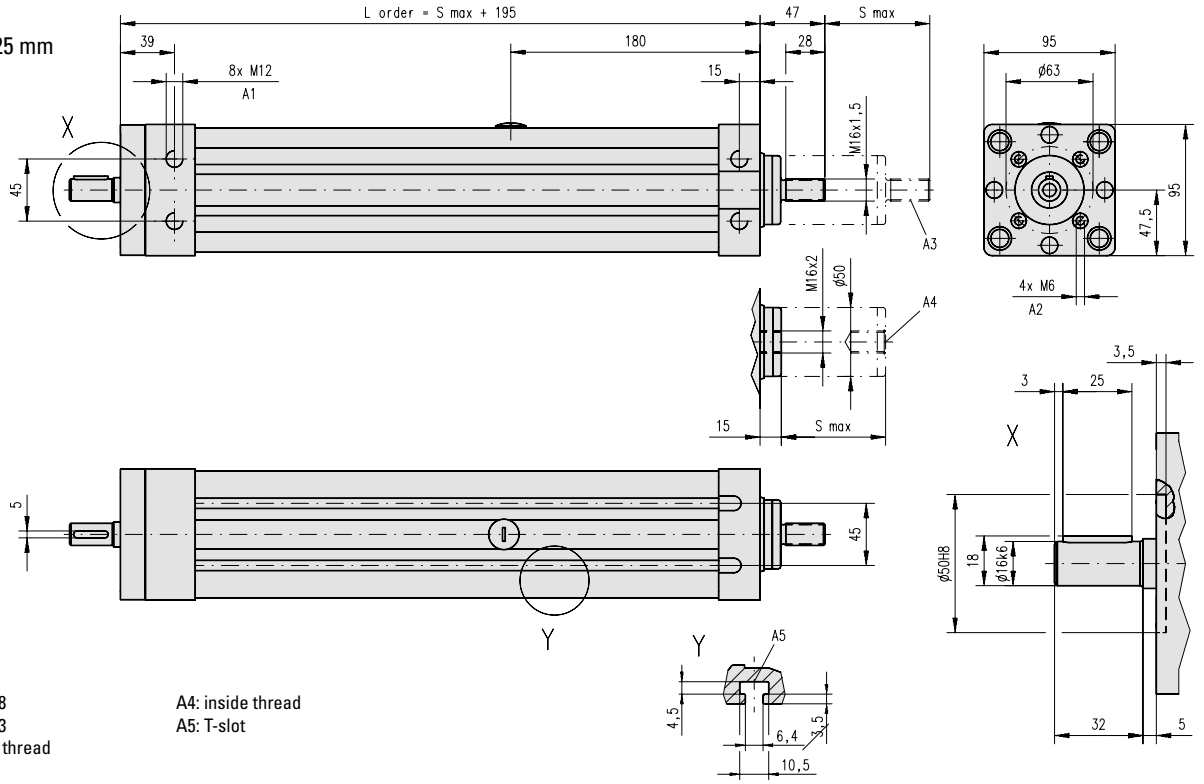
Parameter		T90
Stroke length (S max), maximum	[mm]	1500
Linear speed, maximum	[m/s]	2,0
Acceleration, maximum	[m/s²]	8
Repeatability	[± mm]	0,05
Input speed, maximum screw diam./lead 25/05 mm screw diam./lead 25/10, 25/25 mm screw diam./lead 32/10, 32/20, 32/32 mm	[rpm]	 3000 4000 3750
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum screw diameter 25 mm screw diameter 32 mm	[N]	 10000 20000
Dynamic load (Fy), maximum screw diameter 25 mm screw diameter 32 mm	[N]	 300[1] 500[1]
Dynamic load (Fz), maximum screw diameter 25 mm screw diameter 32 mm	[N]	 300[1] 500[1]
Dynamic load torque (Mz, My), max.	[Nm]	150[1]
Drive shaft force (Frd), maximum screw diameter 25 mm screw diameter 32 mm	[N]	 1000 1300
Drive shaft torque (Mta), maximum screw diameter 25 mm screw diameter 32 mm	[Nm]	 48 93
Screw versions, diameter (d0) / lead (p)	[mm]	25/05, 25/10, 25/25, 32/10, 32/20, 32/32
Weight of units with screw diameter 25 mm of unit with zero stroke of every 100 mm of stroke	[kg]	 8,16 1,62
Weight of units with screw diameter 32 mm of unit with zero stroke of every 100 mm of stroke	[kg]	 10,64 1,80

[1] Value for the complete unit

T90

Ball Screw Drive, Slide Guide

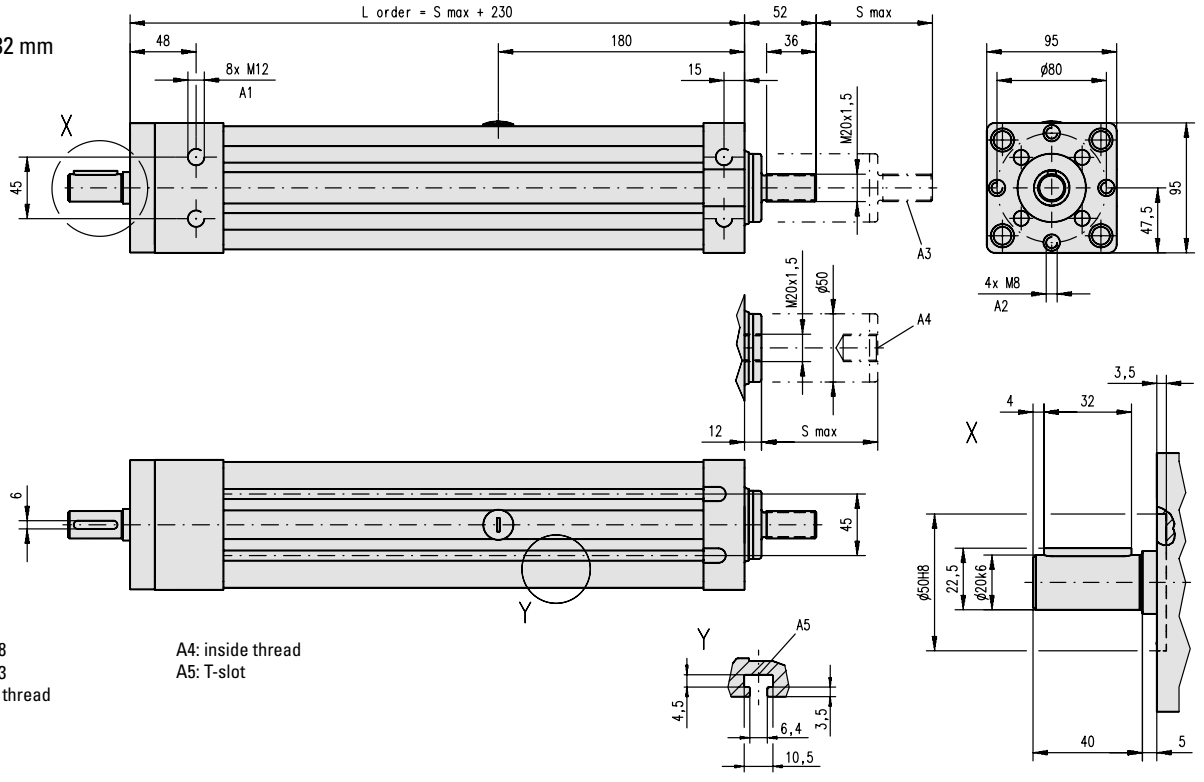
T09-B25
screw ø25 mm



A1: depth 18
A2: depth 33
A3: outside thread

A4: inside thread
A5: T-slot

T09-B32
screw ø32 mm



A1: depth 18
A2: depth 43
A3: outside thread

A4: inside thread
A5: T-slot

T130

Ball Screw Drive, Slide Guide

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» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Compact, robust and reliable
- High accuracy ball screw drive
- Stroke up to 2000 mm
- Load up to 60000 N
- Speed up to 2 m/s
- Hard chromed steel extension tube
- IP65 as standard
- Mounting accessories according to hydraulic cylinder standards available.

General Specifications

Parameter	T90
Profile size (w × h) [mm]	130 × 130
Type of screw	ball screw with single nut
Protection class	IP65
Lubrication	One point lubrication of ballscrew
Included accessories	–

Rod Idle Torque (M idle) [Nm]

Input speed [rpm]	Screw diameter (do) [mm] / lead (p) [mm]			
	do = 40			do = 50
	p = 10	p = 20	p = 40	p = 10
500	4,5	4,5	5,5	5,5

M idle = the input torque needed to move the rod with no load on it.

Performance Specifications

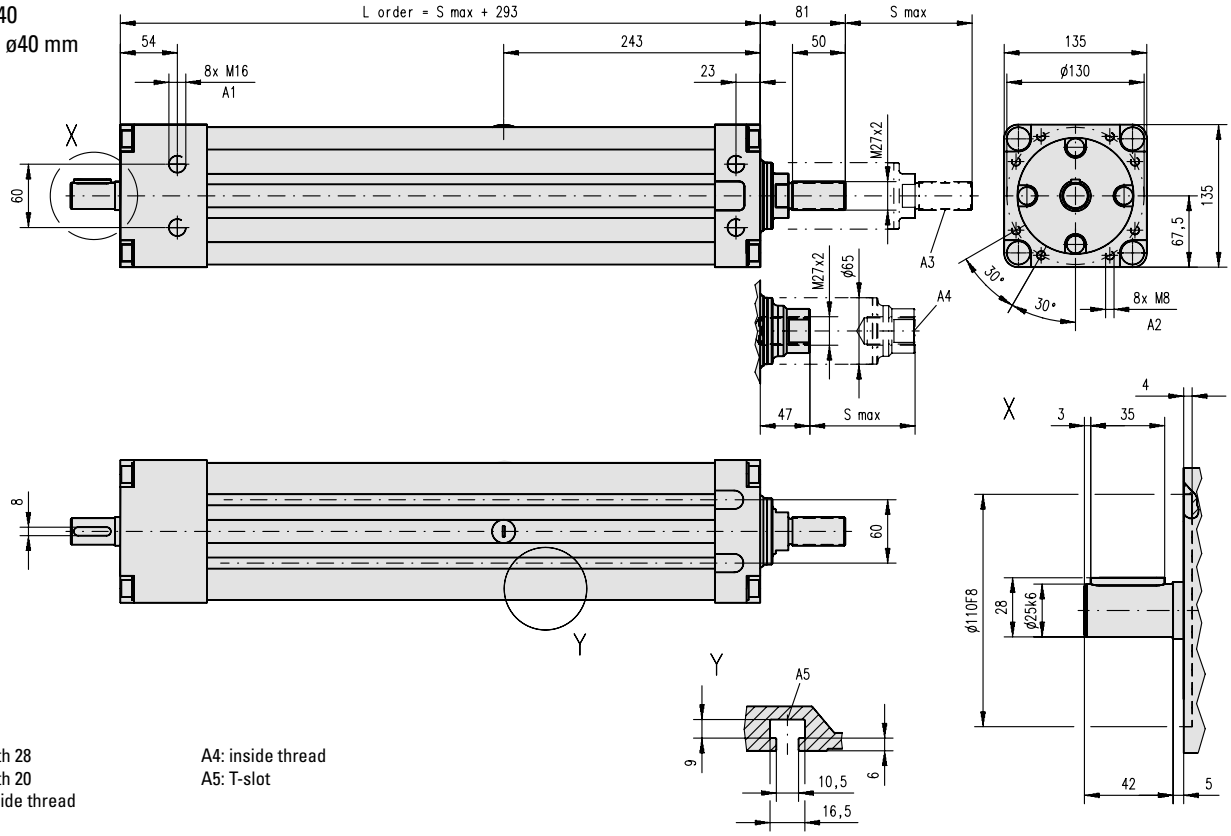
Parameter		T130
Stroke length (S max), maximum	[mm]	2000
Linear speed, maximum	[m/s]	2,0
Acceleration, maximum	[m/s²]	8
Repeatability	[± mm]	0,05
Input speed, maximum screw diameter/lead 40/10 mm screw diameter/lead 40/20, 40/40 mm screw diameter/lead 50/10 mm	[rpm]	 2500 3000 2000
Operation temperature limits	[°C]	- 20 – 70
Dynamic load (Fx), maximum screw diameter/lead 50/10 mm screw diameter/lead 40/10 mm screw diameter/lead 40/20 mm screw diameter/lead 40/40 mm	[N]	 60000 40000 35000 15000
Dynamic load (Fy), maximum	[N]	800[1]
Dynamic load (Fz), maximum	[N]	800[1]
Dynamic load torque (My, Mz), max.	[Nm]	300[1]
Drive shaft force (Frd), maximum	[N]	3000
Drive shaft torque (Mta), maximum screw diameter 40 mm screw diameter 50 mm	[Nm]	 140 200
Screw versions, diameter (do) / lead (p)	[mm]	40/10, 40/20, 40/40, 50/10
Weight of units with screw diameter 40 mm of unit with zero stroke of every 100 mm of stroke	[kg]	 18,50 3,00
Weight of units with screw diameter 50 mm of unit with zero stroke of every 100 mm of stroke	[kg]	 25,40 3,60

[1] Value for the complete unit

T130

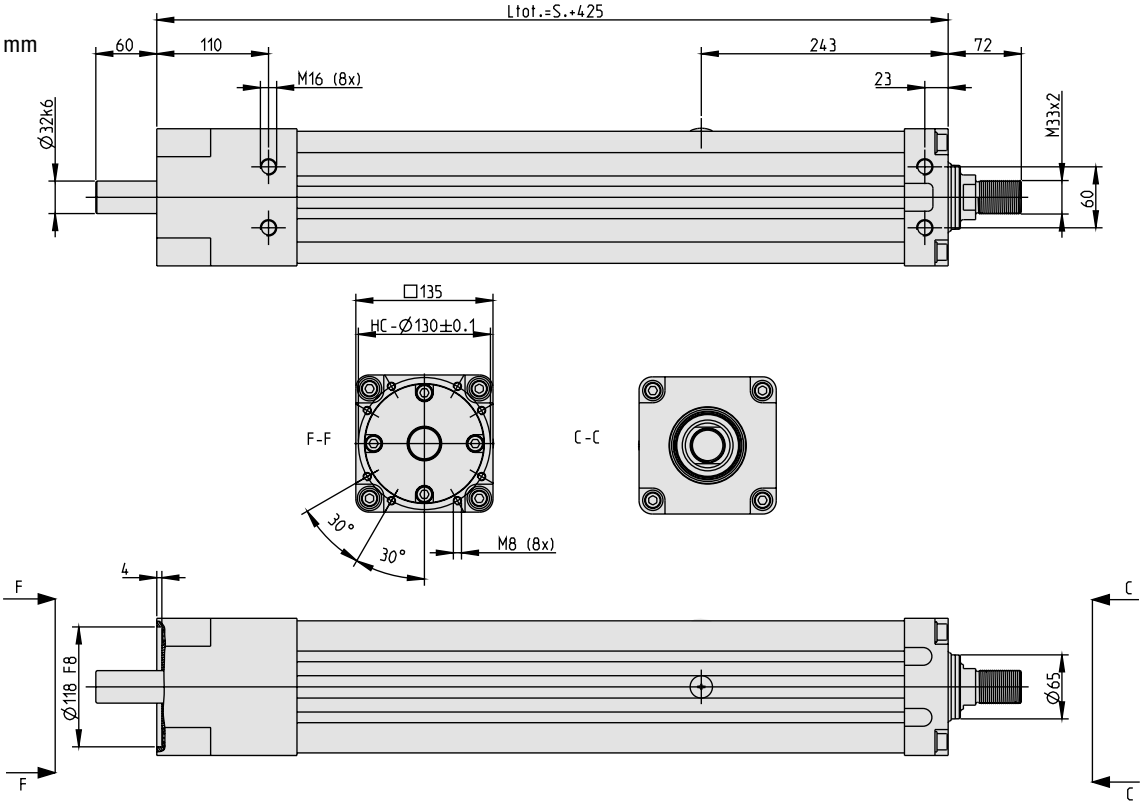
Ball Screw Drive, Slide Guide

T13-B40
screw ø40 mm



A1: depth 28
A2: depth 20
A3: outside thread
A4: inside thread
A5: T-slot

T13-B50
screw ø50 mm



ECT Series

Introduction

The ECT series is our line of packaged precision linear actuators. They are based on the proven T series and equipped with a high quality selection of motors and gears that make them ready to take on the most demanding applications. The ECT series is ideal when short design times, maximum performance and the longest life cycle are required. And if you can't find a standard unit that fits our engineers can build you a customized unit to suit just your needs.

ECT Series

Overview

Features

- Extruded anodized aluminum cover tube
- Anodized aluminum housing
- Hard chromed steel extension tube
- Can be installed in all directions
- Ball screw drive
- Slide guides
- Load up to 38000 N
- Asynchronous three phase AC motor or brushless AC servo motor
- Parallel or Inline motor
- Belt gear, planetary gear or direct drive
- IP65 as standard
- Large range of options and accessories
- Wash down protected versions
- Mounting accessories according to hydraulic cylinder standards available

Parameter		ECT90	ECT130
Profile size (width × height)	[mm]	90 × 92	130 × 130
Stroke length (S), maximum	[mm]	1500	2000
Speed, maximum	[mm/s]	1600	2000
Dynamic load (Fx), maximum	[N]	20 000	38 000
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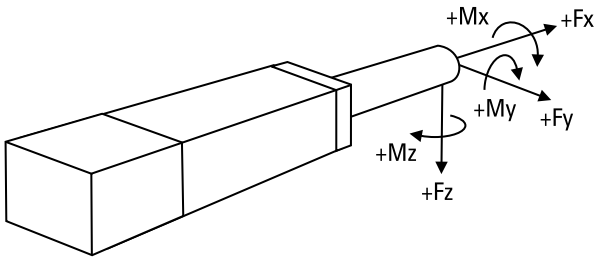
Definition of Forces



ECT90

Parallel IEC90 AC Motor

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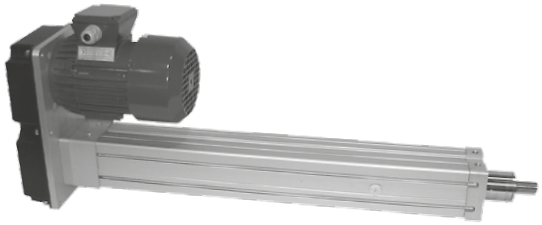
» Adapter Options - see page 54
» Glossary - see page 74



Standard Features and Benefits

- Robust and reliable
- Three phase asynchronous AC motor with brake
- Belt gear
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 1500 mm
- Load up to 9750 N
- Speed up to 1520 mm/s

General Specifications

Parameter	ECT90
Profile size (w × h)	90 × 92 mm
Screw type	ball screw
Gear box	belt gear
Motor type	asynchronous AC motor
Motor voltage	3 × 400 Vac
Motor power	2,2 kW
Motor current, nominal	4,7 A
Motor feedback	no
Motor connection	terminal box
Motor brake	yes (230 Vac)
Lubrication	single point lubrication
Certificates	CE
Options	• mounting options • adapter options

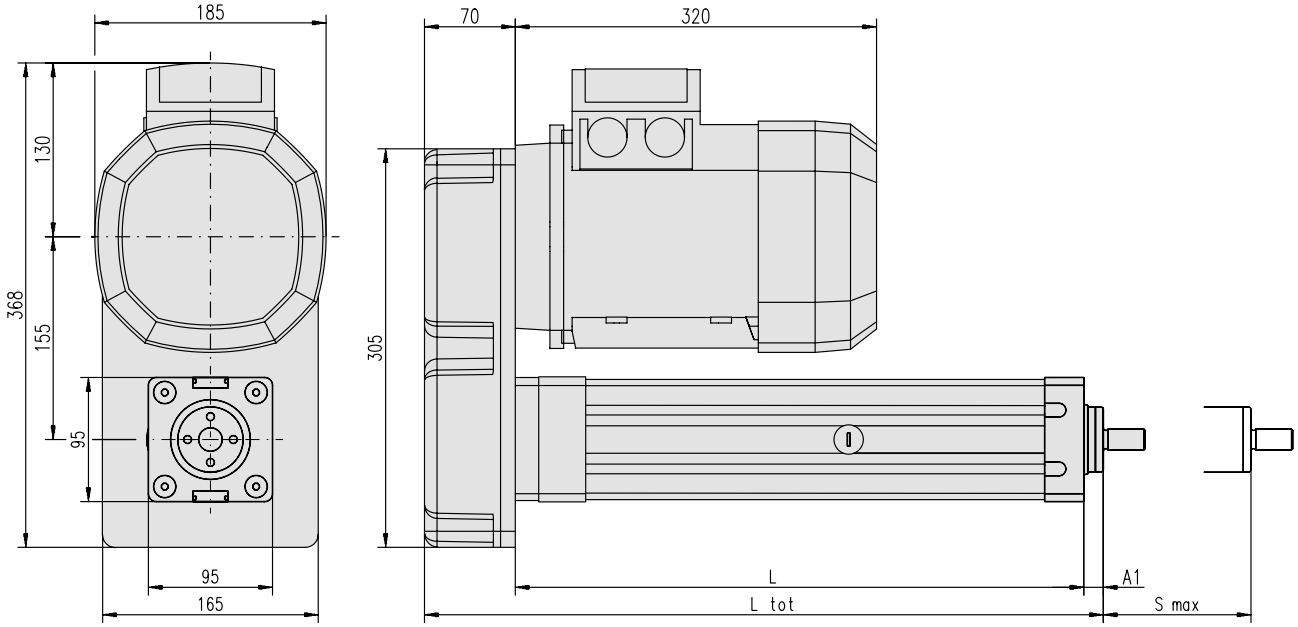
Performance Specifications

Parameter		ECT90
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1]	[N]	
ECT09-I09B03PB-2510		9750
ECT09-I09B02PB-2510		6500
ECT09-I09B03PB-3220		4800
ECT09-I09B02PB-3220		3100
ECT09-I09B01PB-3220		1600
ECT09-I09B01PB-3232		900
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed[3]	[mm/s]	
ECT09-I09B03PB-2510		160
ECT09-I09B02PB-2510		240
ECT09-I09B03PB-3220		320
ECT09-I09B02PB-3220		480
ECT09-I09B01PB-3220		960
ECT09-I09B01PB-3232		1520
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	25, 32
Screw leads[4]	[mm]	10, 20, 32
Backlash	[mm]	
Screw diameter = 25 mm		0,11
Screw diameter = 32 mm		0,18
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.
[3] The maximum speed is based on a max. input frequency to the motor of 50 Hz. Frequency inverters can provide higher frequencies thus higher speeds but that may damage the actuator.
[4] 10 mm lead = diameter 25 mm. 20 and 32 mm leads = diameter 32 mm.

ECT90

Parallel IEC90 AC Motor



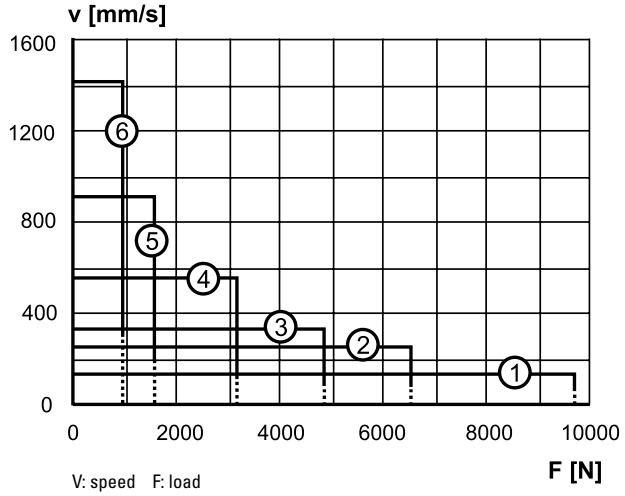
S max: maximum stroke (ordering stroke in mm)
L: cover tube length

L tot: retracted length
A1: ECT09-I09B • • PB-25 = 15 mm, ECT09-I09B • • PB-32 = 12 mm

Cover tube length (L)	**[mm]**	ECT09-I09B •• PB-25: L = S max + 195 ECT09-I09B •• PB-32: L = S max + 230
Retracted length (L tot)	**[mm]**	ECT09-I09B •• PB-25: L tot = S max + 280 ECT09-I09B •• PB-32: L tot = S max + 312
Weight of unit	**[kg]**	ECT09-I09B •• PB-25: kg = 30,8 + 0,016 × S max ECT09-I09B •• PB-32: kg = 33,2 + 0,018 kg × S max

Performance Diagrams

Speed vs. Load

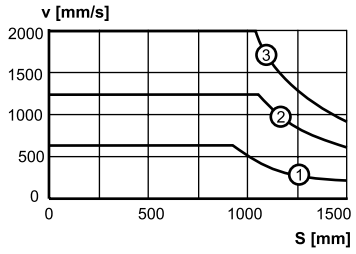


V: speed F: load

1: ECT09-I09B03PB-2510
2: ECT09-I09B02PB-2510
3: ECT09-I09B03PB-3220
4: ECT09-I09B02PB-3220
5: ECT09-I09B01PB-3220
6: ECT09-I09B01PB-3232

----- = Overheating of the motor may occur if running at this speed continiously!

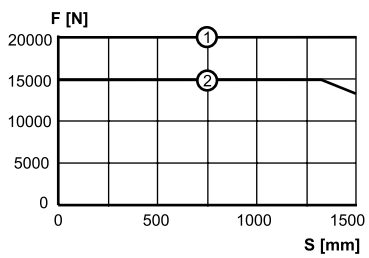
Critical Speed vs. Stroke



v: speed S: stroke length

1: ECT09-I09B0 • PB-2510
2: ECT09-I09B0 • PB-3220
3: ECT09-I09B0 • PB-3232

Column Load Limit vs. Stroke



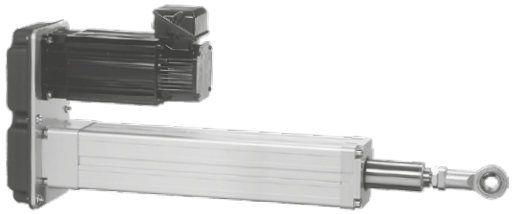
F: load S: stroke length

1: ECT09-I09B0 • PB-2510
2: ECT09-I09B0 • PB-32 ••

ECT90

Parallel B43 AC Servo Motor

» Ordering Key - see page 70
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74



Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Belt gear
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 1500 mm
- Load up to 5800 N
- Speed up to 420 mm/s

General Specifications

Parameter	ECT90
Profile size (w × h)	90 × 92 mm
Screw type	ball screw
Gear box	belt gear
Motor type	brushless AC servo motor
Motor designation	AKM43E-ANCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

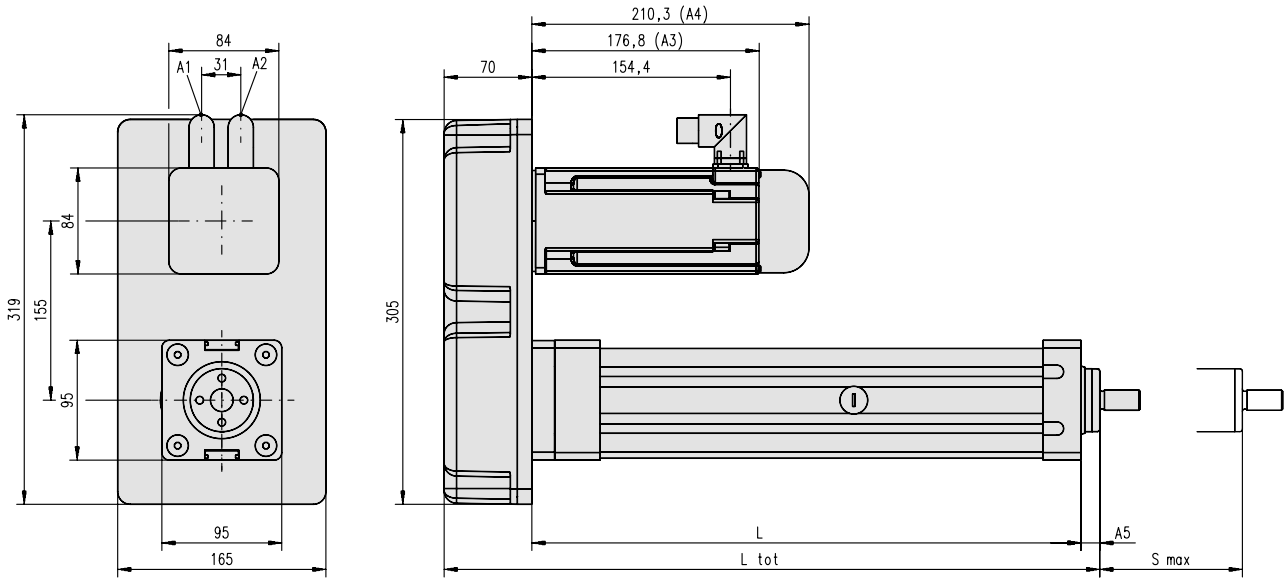
Performance Specifications

Parameter		ECT90
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1]	[N]	
ECT09-B43R03PB-2510		5800
ECT09-B43R02PB-2510		3800
ECT09-B43R03PB-3220		2800
ECT09-B43R02PB-3220		1800
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed	[mm/s]	
ECT09-B43R03PB-2510		140
ECT09-B43R02PB-2510		210
ECT09-B43R03PB-3220		270
ECT09-B43R02PB-3220		420
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	25, 32
Screw leads[3]	[mm]	10, 20
Backlash	[mm]	
Screw diameter = 25 mm		0,11
Screw diameter = 32 mm		0,18
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.
[3] 10 mm lead = diameter 25 mm. 20 mm lead = diameter 32 mm.

ECT90

Parallel B43 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

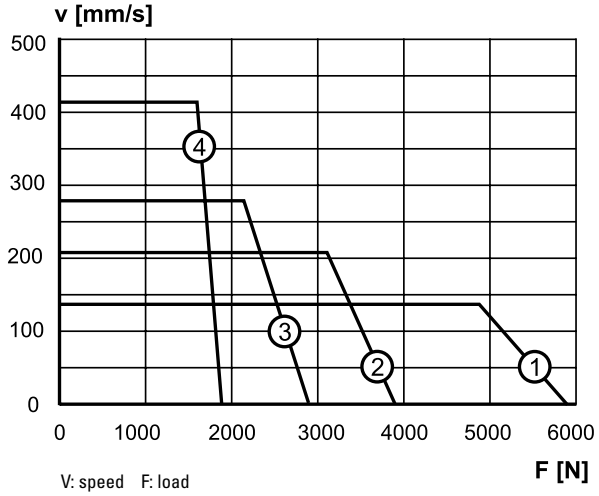
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake
A5: ECT09-B43 • • • PB-25 = 15 mm, ECT09-B43 • • • PB-32 = 12 mm

Cover tube length (L)	**[mm]**	ECT09-B43 • • • PB-25: L = S max + 195 ECT09-B43 • • • PB-32: L = S max + 230
Retracted length (L tot)	**[mm]**	ECT09-B43 • • • PB-25: L tot = S max + 280 ECT09-B43 • • • PB-32: L tot = S max + 312
Weight of unit	**[kg]**	ECT09-B43 • • PB-25: kg = 17,2 + 0,016 × S max ECT09-B43 • • PB-32: kg = 19,6 + 0,018 × S max

Performance Diagrams

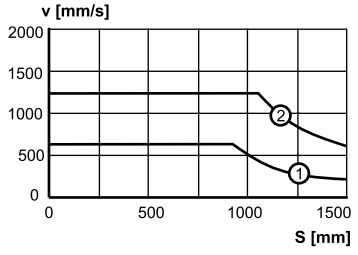
Speed vs. Load



V: speed F: load

1: ECT09-B43R03PB-2510
2: ECT09-B43R02PB-2510
3: ECT09-B43R03PB-3220
4: ECT09-B43R02PB-3220

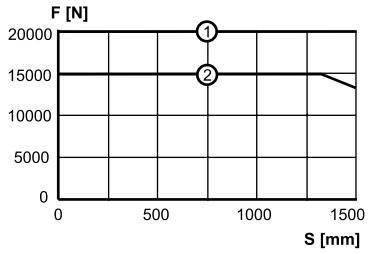
Critical Speed vs. Stroke



v: speed S: stroke length

1: ECT09-B43R0 • PB-2510
2: ECT09-B43R0 • PB-3220

Column Load Limit vs. Stroke



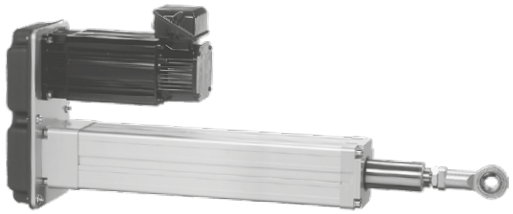
F: load S: stroke length

1: ECT09-B43R0 • PB-2510
2: ECT09-B43R0 • PB-3220

ECT90

Parallel B53 AC Servo Motor

» Ordering Key - see page 71
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74



Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Belt gear
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 1500 mm
- Load up to 9800 N
- Speed up to 670 mm/s

General Specifications

Parameter	ECT90
Profile size (w × h)	90 × 92 mm
Screw type	ball screw
Gear box	belt gear
Motor type	brushless AC servo motor
Motor designation	AKM53K-CNCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

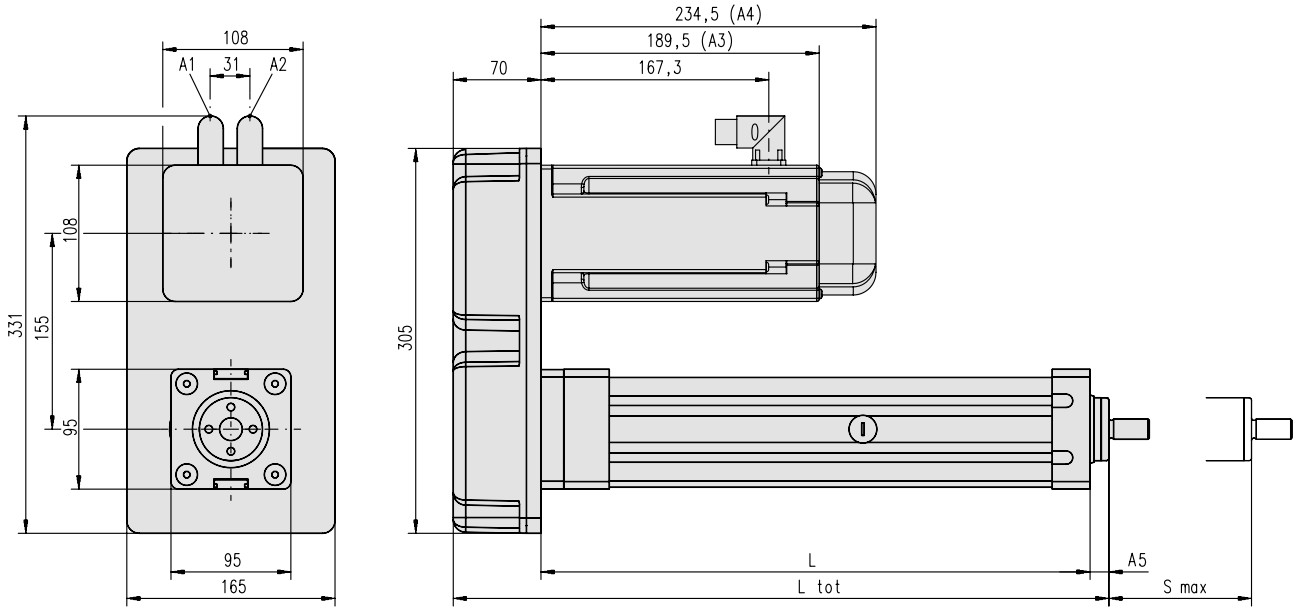
Performance Specifications

Parameter		ECT90
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1]	[N]	
ECT09-B53R03PB-2510		9800
ECT09-B53R02PB-2510		8000
ECT09-B53R03PB-3220		5900
ECT09-B53R02PB-3220		3900
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed	[mm/s]	
ECT09-B53R03PB-2510		220
ECT09-B53R02PB-2510		330
ECT09-B53R03PB-3220		440
ECT09-B53R02PB-3220		670
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	25, 32
Screw leads[3]	[mm]	10, 20
Backlash	[mm]	
Screw diameter = 25 mm		0,11
Screw diameter = 32 mm		0,18
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.
[3] 10 mm lead = diameter 25 mm. 20 mm lead = diameter 32 mm.

ECT90

Parallel B53 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

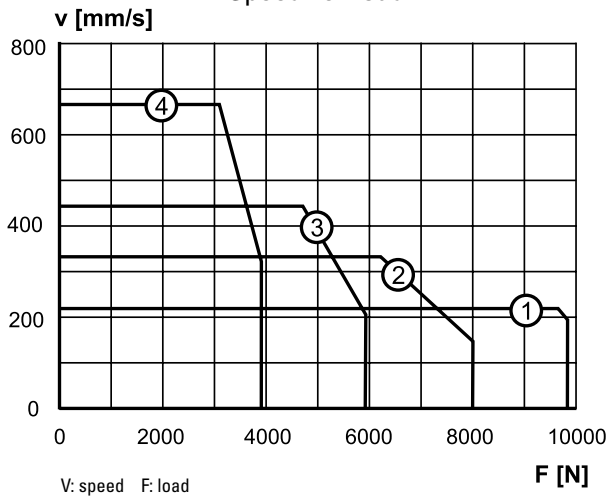
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake
A5: ECT09-B53 • • • PB-25 = 15 mm, ECT09-B53 • • • PB-32 = 12 mm

Cover tube length (L)	**[mm]**	ECT09-B53 • • • PB-25: L = S max + 195 ECT09-B53 • • • PB-32: L = S max + 230
Retracted length (L tot)	**[mm]**	ECT09-B53 • • • PB-25: L tot = S max + 280 ECT09-B53 • • • PB-32: L tot = S max + 312
Weight of unit	**[kg]**	ECT09-B53 • • PB-25: kg = 20,2 + 0,016 × S max ECT09-B53 • • PB-32: kg = 22,6 + 0,018 × S max

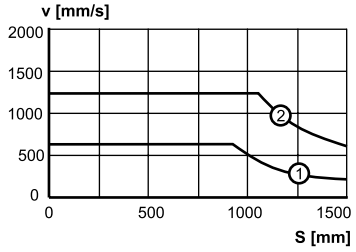
Performance Diagrams

Speed vs. Load



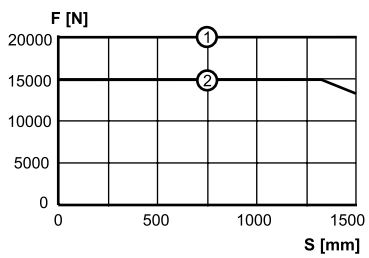
V: speed F: load
1: ECT09-B53R03PB-2510
2: ECT09-B53R02PB-2510
3: ECT09-B53R03PB-3220
4: ECT09-B53R02PB-3220

Critical Speed vs. Stroke



v: speed S: stroke length
1: ECT09-B53R0 • PB-2510
2: ECT09-B53R0 • PB-3220

Column Load Limit vs. Stroke



F: load S: stroke length
1: ECT09-B53R0 • PB-2510
2: ECT09-B53R0 • PB-3220

ECT90

Direct Drive, Inline B43 AC Servo Motor

» Ordering Key - see page 71
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Direct drive
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 1500 mm
- Load up to 5300 N
- Speed up to 1600 mm/s

General Specifications

Parameter	ECT90
Profile size (w × h)	90 × 92 mm
Screw type	ball screw
Gear box	no, direct drive
Motor type	brushless AC servo motor
Motor designation	AKM43E-ANCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

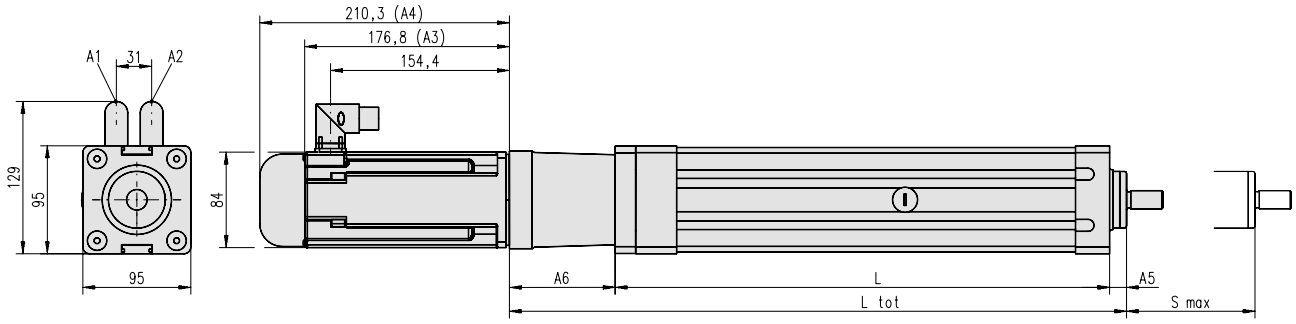
Performance Specifications

Parameter		ECT90
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1] ECT09-B43R01LD-2510 ECT09-B43R01LD-3220	[N]	 2000 900
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed ECT09-B43R01LD-2510 ECT09-B43R01LD-3220	[mm/s]	 410 820
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	25, 32
Screw leads[3]	[mm]	10, 20
Backlash Screw diameter = 25 mm Screw diameter = 32 mm	[mm]	 0,11 0,18
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.
[3] 10 mm lead = diameter 25 mm. 20 mm lead = diameter 32 mm.

ECT90

Direct Drive, Inline B43 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

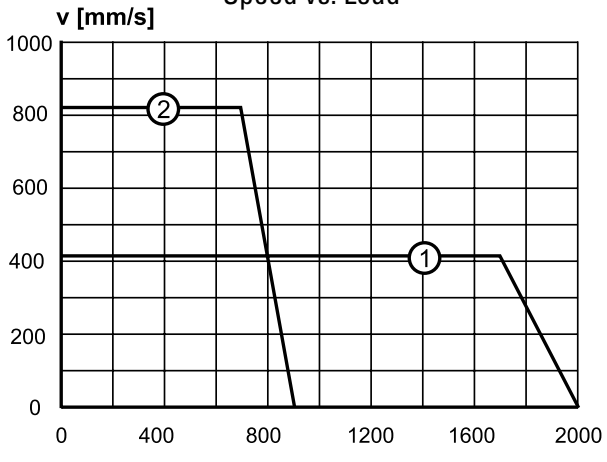
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake
A5: ECT09-B43 • 01LD-25 = 15 mm, ECT09-B43 • 01LD-32 = 12 mm
A6: ECT09-B43 • 01LD-25 = 93 mm, ECT09-B43 • 01LD-32 = 103 mm

Cover tube length (L)	**[mm]**	ECT09-B43 • 01LD-25: L = S max + 195 ECT09-B43 • 01LD-32: L = S max + 230
Retracted length (L tot)	**[mm]**	ECT09-B43 • 01LD-25: L tot = S max + 303 ECT09-B43 • 01LD-32: L tot = S max + 345
Weight of unit	**[kg]**	ECT09-B43 • • 01LD-25: kg = 13,7 + 0,016 × S max ECT09-B43 • • 01LD-32: kg = 16,2 + 0,018 × S max

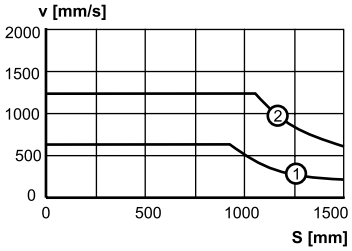
Performance Diagrams

Speed vs. Load



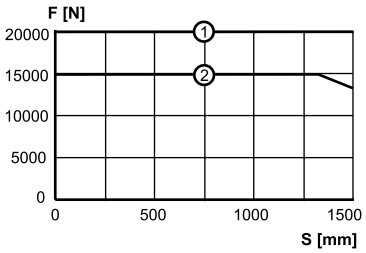
V: speed F: load
1: ECT09-B43R01LD-2510
2: ECT09-B43R01LD-3220

Critical Speed vs. Stroke



v: speed S: stroke length
1: ECT09-B43R01LD-2510
2: ECT09-B43R01LD-3220

Column Load Limit vs. Stroke



F: load S: stroke length
1: ECT09-B43R01LD-2510
2: ECT09-B43R01LD-3220

ECT90

Direct Drive, Inline B53 AC Servo Motor

» Ordering Key - see page 71
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Direct drive
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 1500 mm
- Load up to 5300 N
- Speed up to 1600 mm/s

General Specifications

Parameter	ECT90
Profile size (w × h)	90 × 92 mm
Screw type	ball screw
Gear box	no, direct drive
Motor type	brushless AC servo motor
Motor designation	AKM53K-ANCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

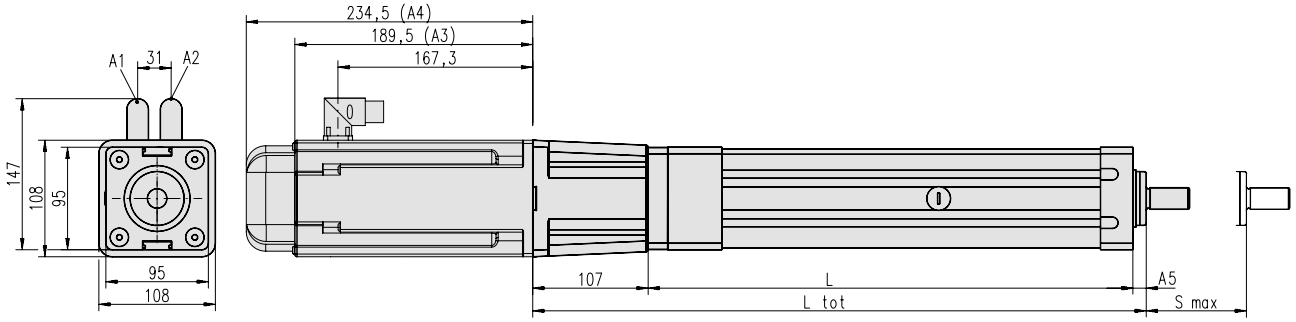
Performance Specifications

Parameter		ECT90
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1]	[N]	
ECT09-B53R01LD-2510		5300
ECT09-B53R01LD-3220		2600
ECT09-B53R01LD-3232		1500
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed	[mm/s]	
ECT09-B53R01LD-2510		450
ECT09-B53R01LD-3220		1000
ECT09-B53R01LD-3232		1600
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	25, 32
Screw leads[3]	[mm]	10, 20, 32
Backlash	[mm]	
Screw diameter = 25 mm		0,11
Screw diameter = 32 mm		0,18
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.
[3] 10 mm lead = diameter 25 mm. 20 and 32 mm leads = diameter 32 mm.

ECT90

Direct Drive, Inline B53 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

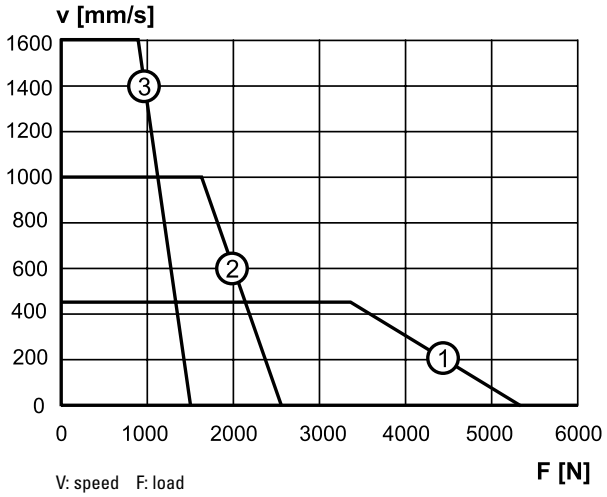
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake
A5: ECT09-B53 • 01LD-25 = 15 mm, ECT09-B53 • 01LD-32 = 12 mm

Cover tube length (L)	**[mm]**	ECT09-B53 • 01LD-25: L = S max + 195 ECT09-B53 • 01LD-32: L = S max + 230
Retracted length (L tot)	**[mm]**	ECT09-B53 • 01LD-25: L tot = S max + 303 ECT09-B53 • 01LD-32: L tot = S max + 344
Weight of unit	**[kg]**	ECT09-B53 • • 01LD-25: kg = 17,2 + 0,016 × S max ECT09-B53 • • 01LD-32: kg = 19,6 + 0,018 × S max

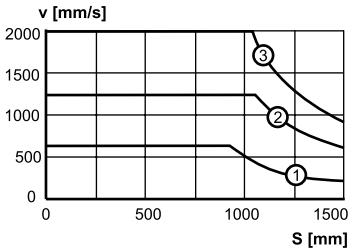
Performance Diagrams

Speed vs. Load



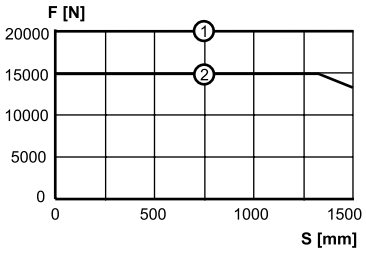
V: speed F: load
1: ECT09-B53R01LD-2510
2: ECT09-B53R01LD-3220
3: ECT09-B53R01LD-3232

Critical Speed vs. Stroke



v: speed S: stroke length
1: ECT09-B53R01LD-2510
2: ECT09-B53R01LD-3220
3: ECT09-B53R01LD-3232

Column Load Limit vs. Stroke



F: load S: stroke length
1: ECT09-B53R01LD-2510
2: ECT09-B53R01LD-32 • •

ECT90

Planetary Gear, Inline B43 AC Servo Motor

» Ordering Key - see page 71
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Planetary gear
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 1500 mm
- Load up to 10000 N
- Speed up to 160 mm/s

General Specifications

Parameter	ECT90
Profile size (w × h)	90 × 92 mm
Screw type	ball screw
Gear box	planetary gear
Motor type	brushless AC servo motor
Motor designation	AKM43E-ANCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

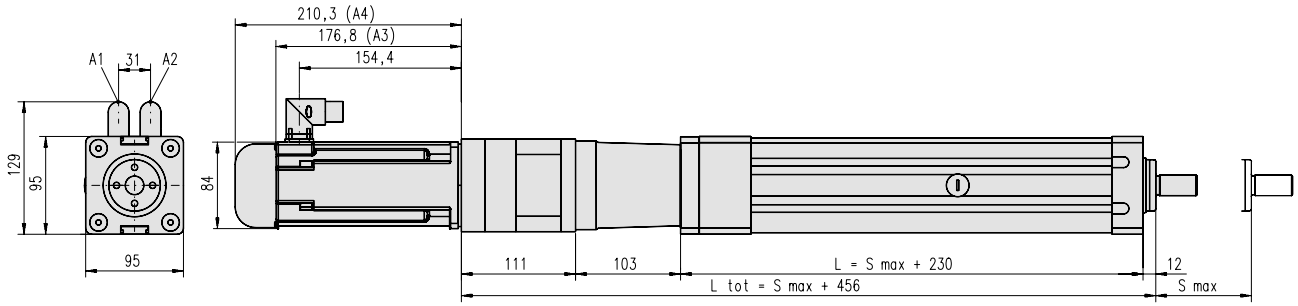
Performance Specifications

Parameter		ECT90
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1] ECT09-B43R10LP-3220 ECT09-B43R05LP-3220	[N]	 10000 5000
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed ECT09-B43R10LP-3220 ECT09-B43R05LP-3220	[mm/s]	 80 160
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	32
Screw leads	[mm]	20
Backlash Screw diameter = 25 mm Screw diameter = 32 mm	[mm]	 0,11 0,18
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.

ECT90

Planetary Gear, Inline B43 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

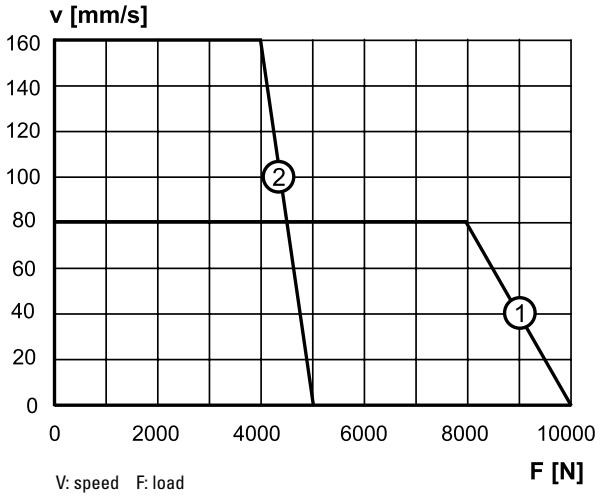
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake

Cover tube length (L)	**[mm]**	L = S max + 230
Retracted length (L tot)	**[mm]**	L tot = S max + 456
Weight of unit	**[kg]**	kg = 19,2 + 0,018 × S max

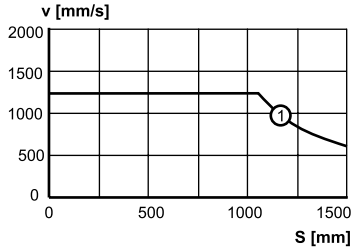
Performance Diagrams

Speed vs. Load



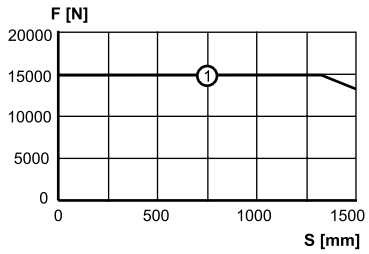
V: speed F: load
1: ECT09-B43R10LP-3220
2: ECT09-B43R05LP-3220

Critical Speed vs. Stroke



v: speed S: stroke length
1: ECT09-B43R • • LP-3220

Column Load Limit vs. Stroke



F: load S: stroke length
1: ECT09-B43R • • LP-3220

ECT90

Planetary Gear, Inline B53 AC Servo Motor

» Ordering Key - see page 71
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Planetary gear
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 1500 mm
- Load up to 20000 N
- Speed up to 270 mm/s

General Specifications

Parameter	ECT90
Profile size (w × h)	90 × 92 mm
Screw type	ball screw
Gear box	planetary gear
Motor type	brushless AC servo motor
Motor designation	AKM53K-ANCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

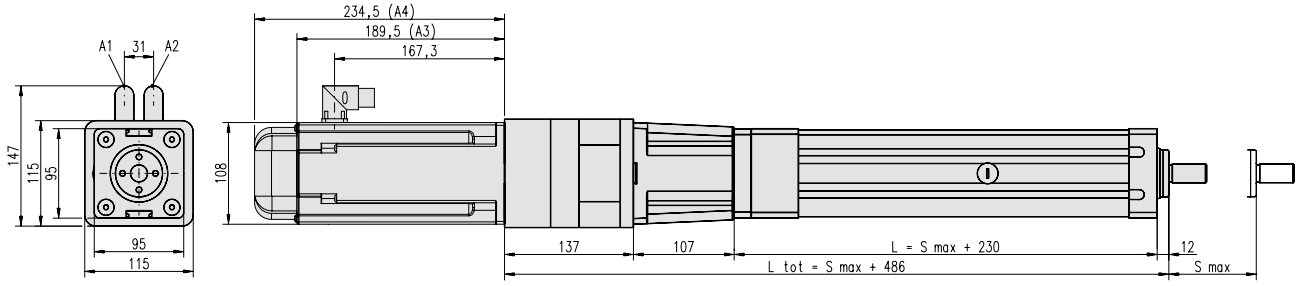
Performance Specifications

Parameter		ECT90
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1] ECT09-B53R10LP-3220 ECT09-B53R05LP-3220	[N]	 20000 13000
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed ECT09-B53R10LP-3220 ECT09-B53R05LP-3220	[mm/s]	 130 270
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	32
Screw leads	[mm]	20
Backlash Screw diameter = 25 mm Screw diameter = 32 mm	[mm]	 0,11 0,18
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.

ECT90

Planetary Gear, Inline B53 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

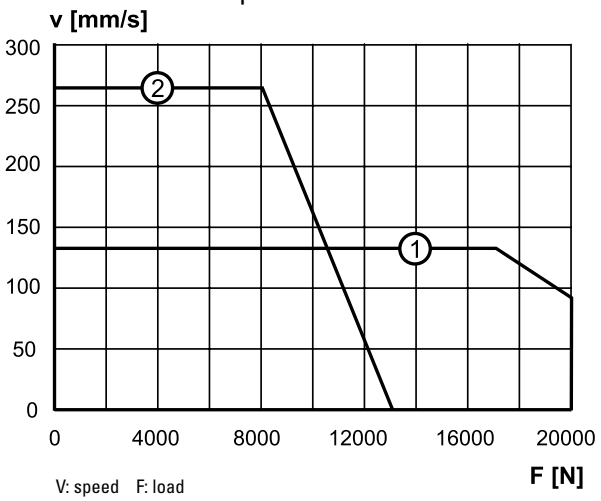
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake

Cover tube length (L)	**[mm]**	L = S max + 230
Retracted length (L tot)	**[mm]**	L tot = S max + 486
Weight of unit	**[kg]**	kg = 24,8 + 0,018 × S max

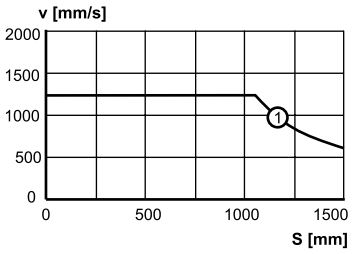
Performance Diagrams

Speed vs. Load



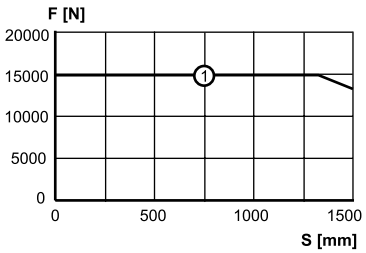
V: speed F: load
1: ECT09-B53R10LP-3220
2: ECT09-B53R05LP-3220

Critical Speed vs. Stroke



v: speed S: stroke length
1: ECT09-B53R••LP-3220

Column Load Limit vs. Stroke

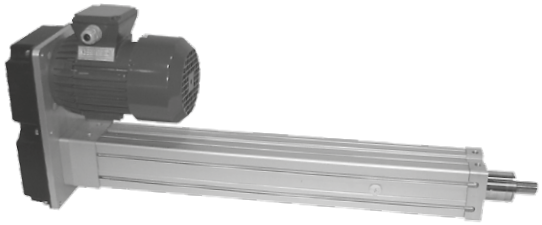


F: load S: stroke length
1: ECT09-B53R••LP-3220

ECT130

Parallel IEC100 AC Motor

» Ordering Key - see page 72
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74



Standard Features and Benefits

- Robust and reliable
- Three phase asynchronous AC motor with brake
- Belt gear
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 2000 mm
- Load up to 13300 N
- Speed up to 1900 mm/s

General Specifications

Parameter	ECT130
Profile size (w × h)	130 × 130 mm
Screw type	ball screw
Gear box	belt gear
Motor type	asynchronous AC motor
Motor voltage	3 × 400 Vac
Motor power	3,0 kW
Motor current, nominal	6,1 A
Motor feedback	no
Motor connection	terminal box
Motor brake	yes (230 Vac)
Lubrication	single point lubrication
Certificates	CE
Options	• mounting options • adapter options

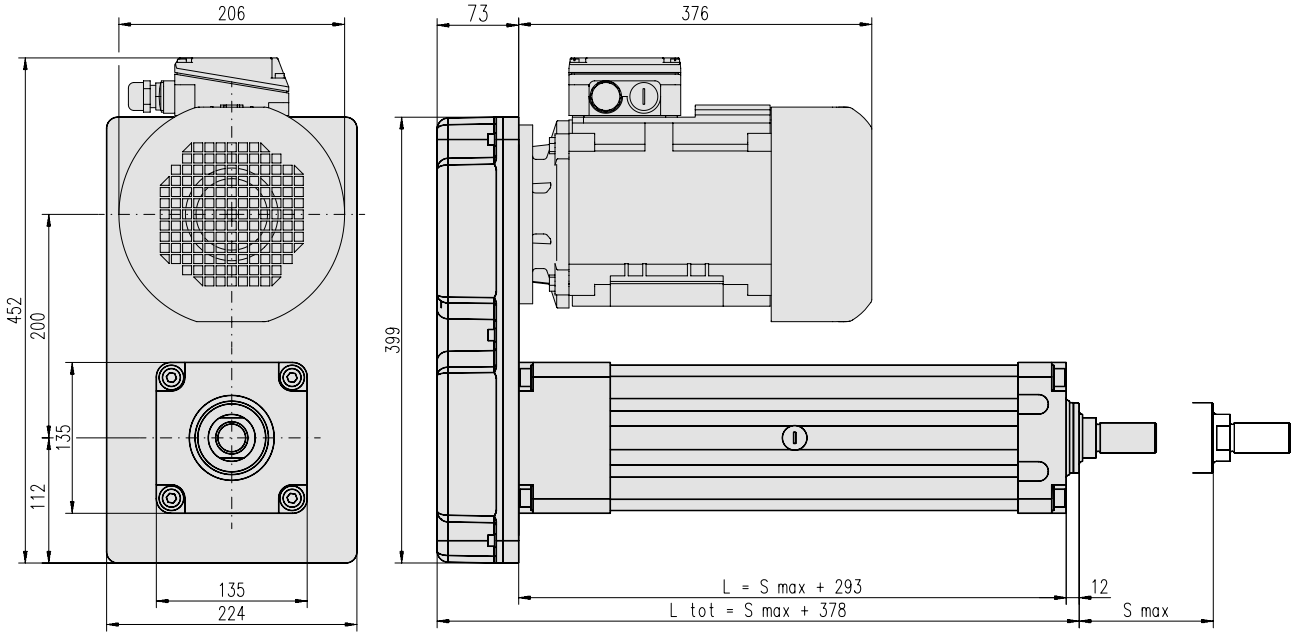
Performance Specifications

Parameter		ECT130
Stroke length (S), maximum	[mm]	2000
Maximum dynamic load (Fx)[1]	[N]	
ECT13-I10B03PB-4010		13300
ECT13-I10B02PB-4010		9400
ECT13-I10B03PB-4020		6200
ECT13-I10B02PB-4020		4200
ECT13-I10B01PB-4020		1800
ECT13-I10B01PB-4040		600
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed[3]	[mm/s]	
ECT13-I10B03PB-4010		175
ECT13-I10B02PB-4010		210
ECT13-I10B03PB-4020		300
ECT13-I10B02PB-4020		420
ECT13-I10B01PB-4020		950
ECT13-I10B01PB-4040		1900
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	40
Screw leads	[mm]	10, 20, 40
Backlash	[mm]	0,21
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.
[3] The maximum speed is based on a max. input frequency to the motor of 50 Hz. Frequency inverters can provide higher frequencies thus higher speeds but that may damage the actuator.

ECT130

Parallel IEC100 AC Motor

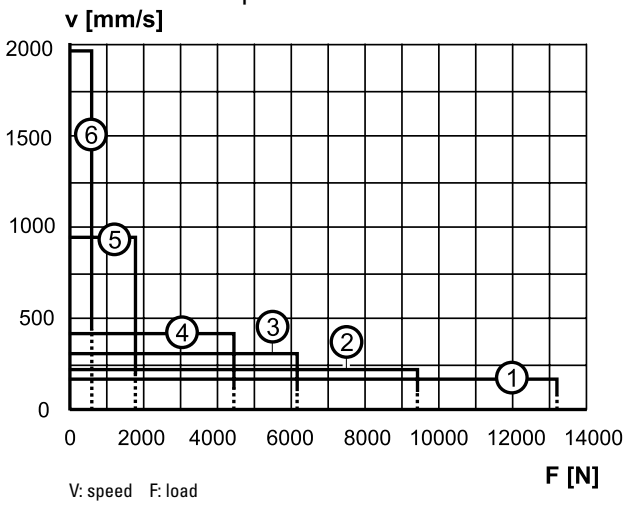


S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

Cover tube length (L)	**[mm]**	L = S max + 293
Retracted length (L tot)	**[mm]**	L tot = S max + 378
Weight of unit	**[kg]**	kg = 63,5 + 0,03 × S max

Performance Diagrams

Speed vs. Load

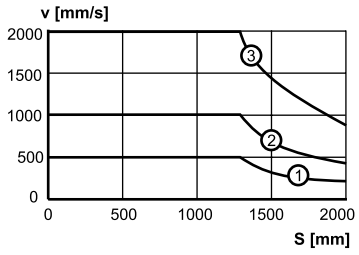


V: speed F: load

1: ECT13-I10B03PB-4010
2: ECT13-I10B02PB-4010
3: ECT13-I10B03PB-4020
4: ECT13-I10B02PB-4020
5: ECT13-I10B01PB-4020
6: ECT13-I10B01PB-4040

▪▪▪▪▪ = Overheating of the motor may occur if running at this speed continiously!

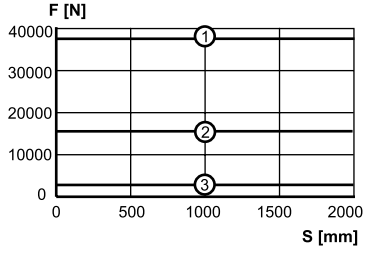
Critical Speed vs. Stroke



v: speed S: stroke length

1: ECT13-I10B0 • PB-4010
2: ECT13-I10B0 • PB-4020
3: ECT13-I10B0 • PB-4040

Column Load Limit vs. Stroke



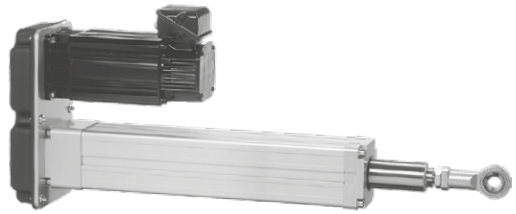
F: load S: stroke length

1: ECT13-I10B0 • PB-4010
2: ECT13-I10B0 • PB-4020
3: ECT13-I10B0 • PB-4040

ECT130

Parallel B53 AC Servo Motor

» Ordering Key - see page 72
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74



Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Belt gear
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 2000 mm
- Load up to 15000 N
- Speed up to 440 mm/s

General Specifications

Parameter	ECT130
Profile size (w × h)	130 × 130 mm
Screw type	ball screw
Gear box	belt gear
Motor type	brushless AC servo motor
Motor designation	AKM53K-CNCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

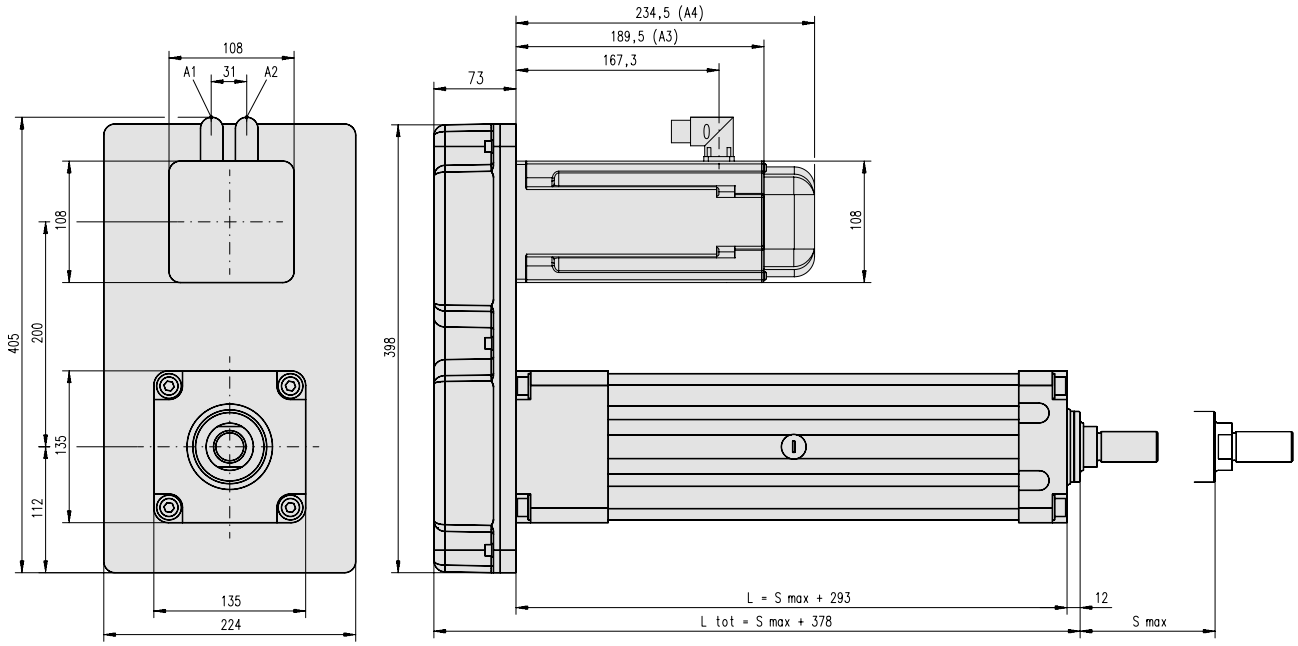
Performance Specifications

Parameter		ECT130
Stroke length (S), maximum	[mm]	2000
Maximum dynamic load (Fx)[1]	[N]	
ECT13-B53R03PB-4010		15000
ECT13-B53R02PB-4010		10500
ECT13-B53R03PB-4020		7000
ECT13-B53R02PB-4020		5000
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed	[mm/s]	
ECT13-B53R03PB-4010		160
ECT13-B53R02PB-4010		220
ECT13-B53R03PB-4020		320
ECT13-B53R02PB-4020		440
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	40
Screw leads	[mm]	10, 20
Backlash	[mm]	0,21
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.

ECT130

Parallel B53 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

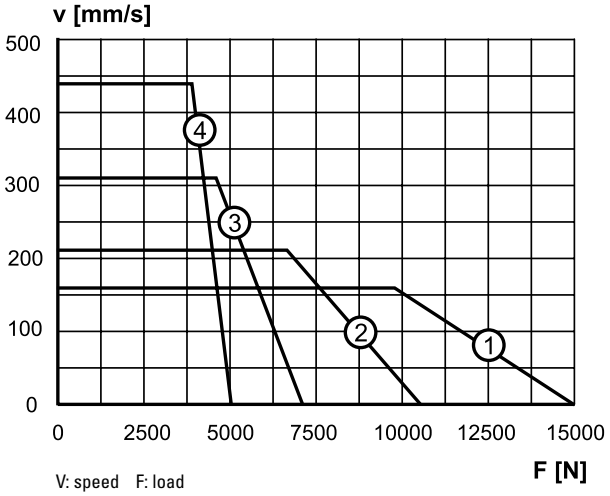
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake

Cover tube length (L)	**[mm]**	L = S max + 293
Retracted length (L tot)	**[mm]**	L tot = S max + 378
Weight of unit	**[kg]**	kg = 39,9 + 0,03 × S max

Performance Diagrams

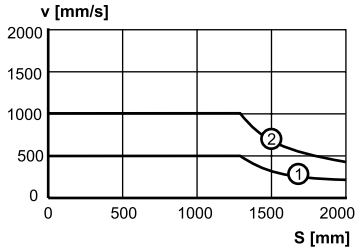
Speed vs. Load



V: speed F: load

1: ECT13-B53R03PB-4010
2: ECT13-B53R02PB-4010
3: ECT13-B53R03PB-4020
4: ECT13-B53R02PB-4020

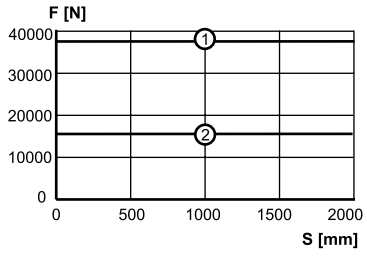
Critical Speed vs. Stroke



v: speed S: stroke length

1: ECT13-B53R • 3PB-4010
2: ECT13-B53R • 3PB-4020

Column Load Limit vs. Stroke



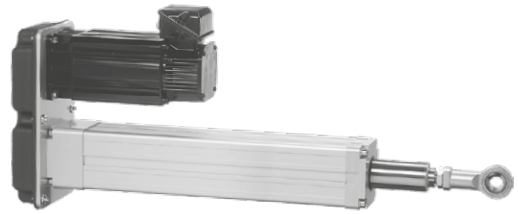
F: load S: stroke length

1: ECT13-B53R • 3PB-4010
2: ECT13-B53R • 3PB-4020

ECT130

Parallel B63 AC Servo Motor

» Ordering Key - see page 72
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74



Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Belt gear
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 2000 mm
- Load up to 21500 N
- Speed up to 440 mm/s

General Specifications

Parameter	ECT130
Profile size (w × h)	130 × 130 mm
Screw type	ball screw
Gear box	belt gear
Motor type	brushless AC servo motor
Motor designation	AKM63K-ANCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

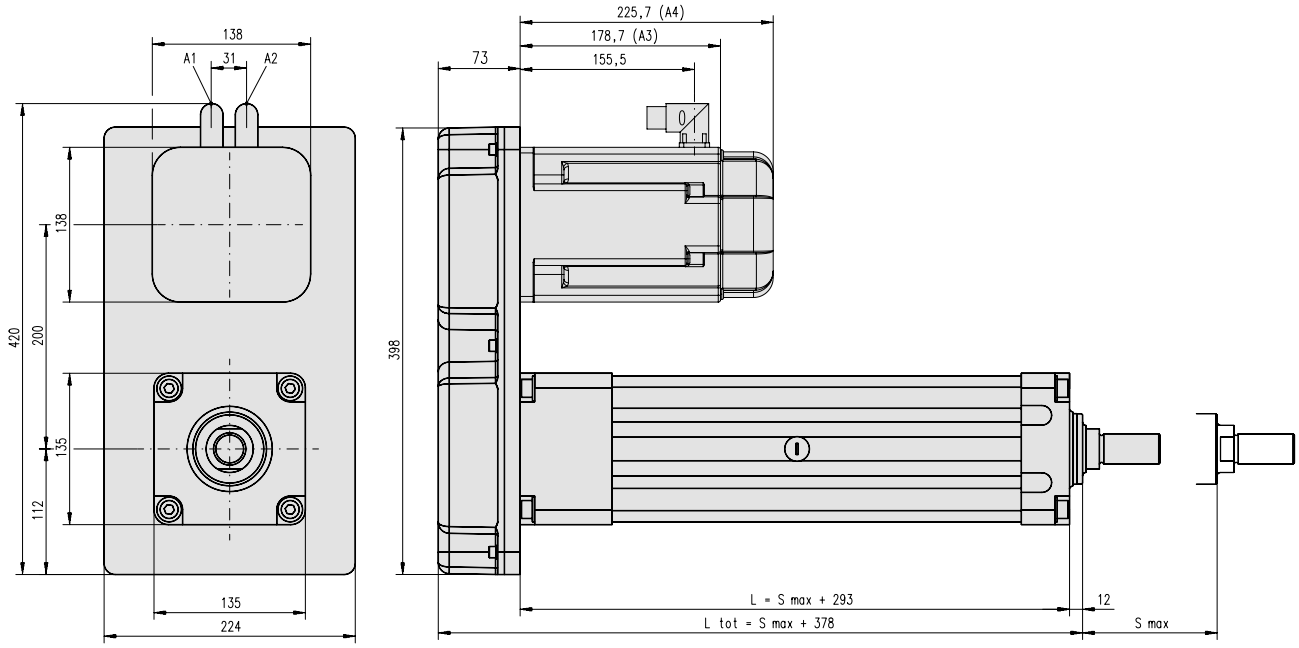
Performance Specifications

Parameter		ECT130
Stroke length (S), maximum	[mm]	2000
Maximum dynamic load (Fx)[1]	[N]	
ECT13-B63R03PB-4010		21500
ECT13-B63R02PB-4010		15500
ECT13-B63R03PB-4020		10500
ECT13-B63R02PB-4020		7500
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed	[mm/s]	
ECT13-B63R03PB-4010		160
ECT13-B63R02PB-4010		220
ECT13-B63R03PB-4020		320
ECT13-B63R02PB-4020		440
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	40
Screw leads	[mm]	10, 20
Backlash	[mm]	0,21
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.

ECT130

Parallel B63 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

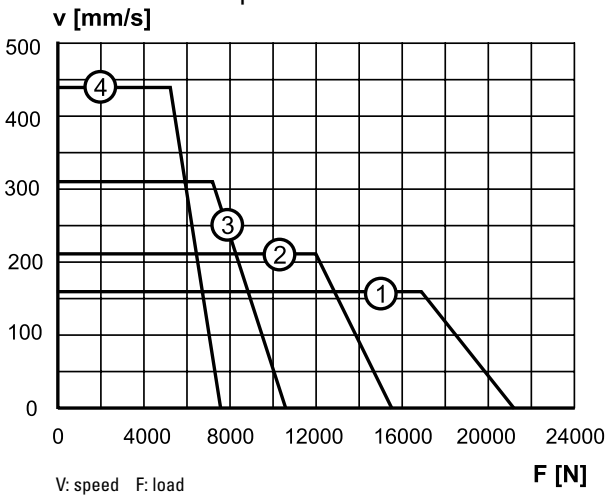
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake

Cover tube length (L)	**[mm]**	L = S max + 293
Retracted length (L tot)	**[mm]**	L tot = S max + 378
Weight of unit	**[kg]**	kg = 43,6 + 0,03 × S max

Performance Diagrams

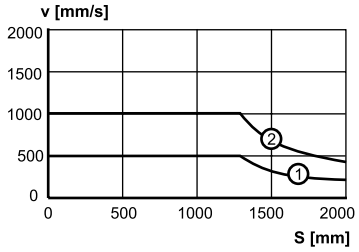
Speed vs. Load



V: speed F: load

1: ECT13-B63R03PB-4010
2: ECT13-B63R02PB-4010
3: ECT13-B63R03PB-4020
4: ECT13-B63R02PB-4020

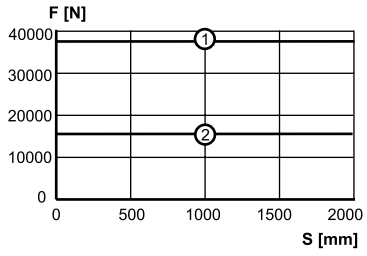
Critical Speed vs. Stroke



v: speed S: stroke length

1: ECT13-B63R • 3PB-4010
2: ECT13-B63R • 3PB-4020

Column Load Limit vs. Stroke



F: load S: stroke length

1: ECT13-B63R • 3PB-4010
2: ECT13-B63R • 3PB-4020

ECT130

Direct Drive, Inline B53 AC Servo Motor

» Ordering Key - see page 73
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Direct drive
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 2000 mm
- Load up to 4900 N
- Speed up to 2000 mm/s

General Specifications

Parameter	ECT130
Profile size (w × h)	130 × 130 mm
Screw type	ball screw
Gear box	no, direct drive
Motor type	brushless AC servo motor
Motor designation	AKM53K-ANCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

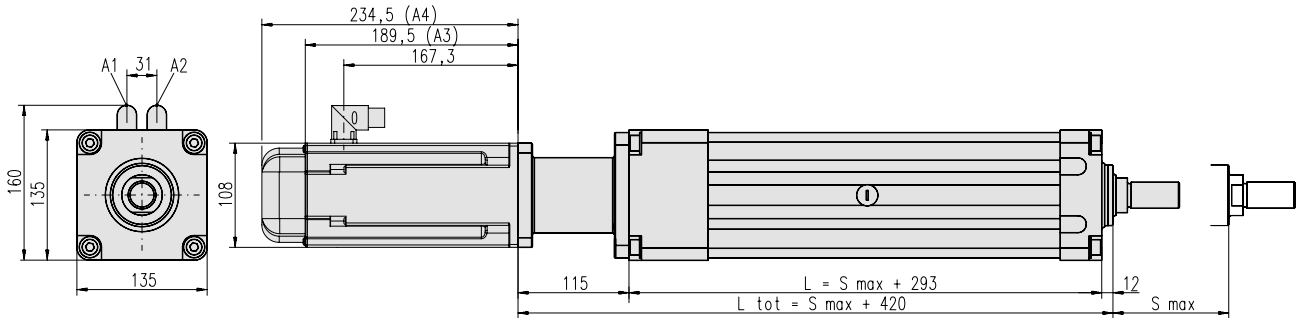
Performance Specifications

Parameter		ECT130
Stroke length (S), maximum	[mm]	2000
Maximum dynamic load (Fx)[1]	[N]	
ECT13-B53R01LD-4010		4900
ECT13-B53R01LD-4020		2250
ECT13-B53R01LD-4040		700
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed	[mm/s]	
ECT13-B53R01LD-4010		400
ECT13-B53R01LD-4020		1000
ECT13-B53R01LD-4040		2000
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	40
Screw leads	[mm]	10, 20, 40
Backlash	[mm]	0,21
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.

ECT130

Direct Drive, Inline B53 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

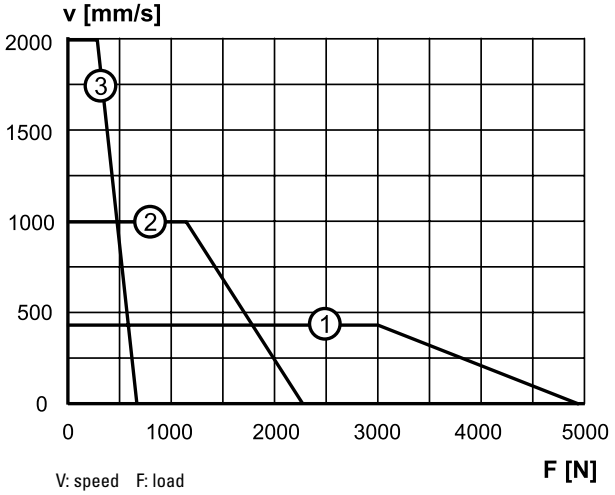
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake

Cover tube length (L)	**[mm]**	L = S max + 293
Retracted length (L tot)	**[mm]**	L tot = S max + 420
Weight of unit	**[kg]**	kg = 28,7 + 0,03 × S max

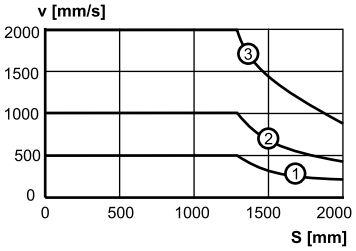
Performance Diagrams

Speed vs. Load



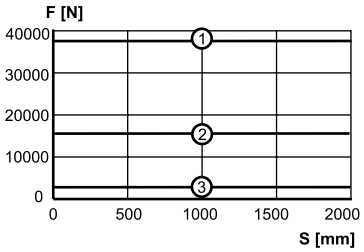
V: speed F: load
1: ECT13-B53R01LD-4010
2: ECT13-B53R01LD-4020
3: ECT13-B53R01LD-4040

Critical Speed vs. Stroke



v: speed S: stroke length
1: ECT13-B53R01LD-4010
2: ECT13-B53R01LD-4020
3: ECT13-B53R01LD-4040

Column Load Limit vs. Stroke



F: load S: stroke length
1: ECT13-B53R01LD-4010
2: ECT13-B53R01LD-4020
3: ECT13-B53R01LD-4040

ECT130

Direct Drive, Inline B63 AC Servo Motor

» Ordering Key - see page 73
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Direct drive
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 2000 mm
- Load up to 7400 N
- Speed up to 2000 mm/s

General Specifications

Parameter	ECT130
Profile size (w × h)	130 × 130 mm
Screw type	ball screw
Gear box	no, direct drive
Motor type	brushless AC servo motor
Motor designation	AKM63K-ANCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

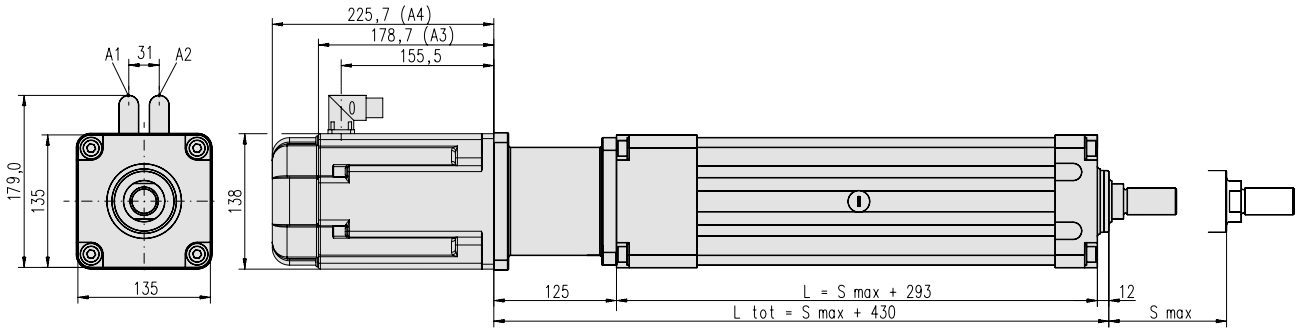
Performance Specifications

Parameter		ECT130
Stroke length (S), maximum	[mm]	2000
Maximum dynamic load (Fx)[1]	[N]	
ECT13-B63R01LD-4010		7400
ECT13-B63R01LD-4020		3400
ECT13-B63R01LD-4040		1400
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed	[mm/s]	
ECT13-B63R01LD-4010		400
ECT13-B63R01LD-4020		1000
ECT13-B63R01LD-4040		2000
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	40
Screw leads	[mm]	10, 20, 40
Backlash	[mm]	0,21
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.

ECT130

Direct Drive, Inline B63 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

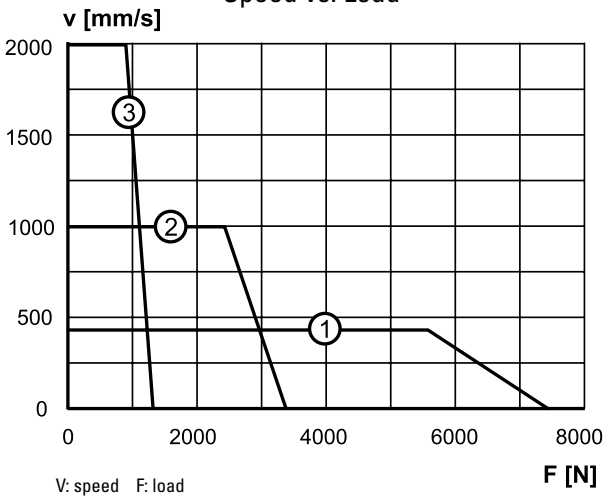
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake

Cover tube length (L)	**[mm]**	L = S max + 293
Retracted length (L tot)	**[mm]**	L tot = S max + 430
Weight of unit	**[kg]**	kg = 32,8 + 0,03 × S max

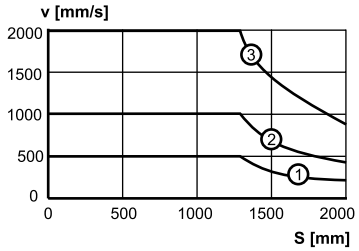
Performance Diagrams

Speed vs. Load



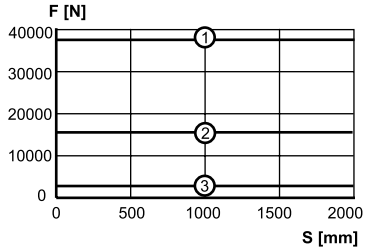
V: speed F: load
1: ECT13-B63R01LD-4010
2: ECT13-B63R01LD-4020
3: ECT13-B63R01LD-4040

Critical Speed vs. Stroke



v: speed S: stroke length
1: ECT13-B63S(R901LD-4010
2: ECT13-B63R01LD-4020
3: ECT13-B63R01LD-4040

Column Load Limit vs. Stroke



F: load S: stroke length
1: ECT13-B63R01LD-4010
2: ECT13-B63R01LD-4020
3: ECT13-B63R01LD-4040

ECT130

Planetary Gear, Inline B53 AC Servo Motor

» Ordering Key - see page 73
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Planetary gear
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 2000 mm
- Load up to 38000 N
- Speed up to 200 mm/s

General Specifications

Parameter	ECT130
Profile size (w × h)	130 × 130 mm
Screw type	ball screw
Gear box	planetary gear
Motor type	brushless AC servo motor
Motor designation	AKM53K-ANCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

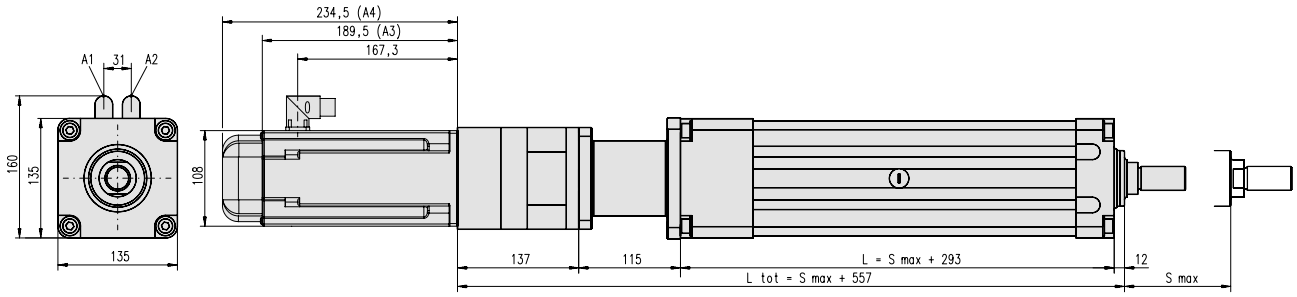
Performance Specifications

Parameter		ECT130
Stroke length (S), maximum	[mm]	2000
Maximum dynamic load (Fx)[1] ECT13-B53R10LP-4010 ECT13-B53R05LP-4010 ECT13-B53R05LP-4020	[N]	 38000 22500 11000
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed ECT13-B53R10LP-4010 ECT13-B53R05LP-4010 ECT13-B53R05LP-4020	[mm/s]	 50 100 200
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	40
Screw leads	[mm]	10, 20
Backlash	[mm]	0,21
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.

ECT130

Planetary Gear, Inline B53 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

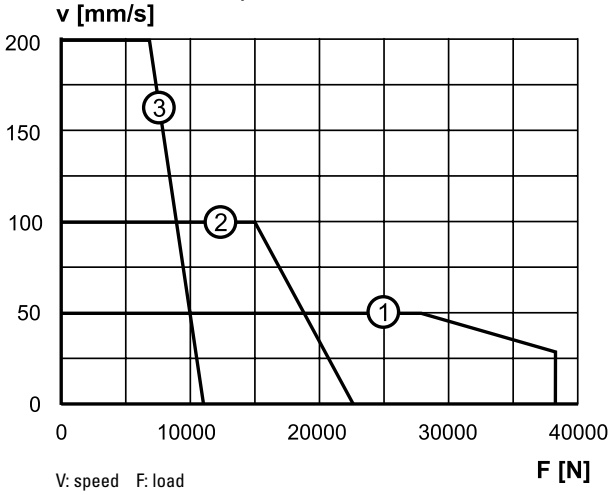
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake

Cover tube length (L)	**[mm]**	L = S max + 293
Retracted length (L tot)	**[mm]**	L tot = S max + 557
Weight of unit	**[kg]**	kg = 33,9 + 0,03 × S max

Performance Diagrams

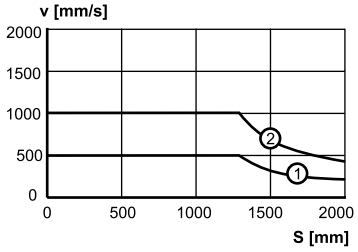
Speed vs. Load



V: speed F: load

1: ECT13-B53R10LP-4010
2: ECT13-B53R05LP-4010
3: ECT13-B53R05LP-4020

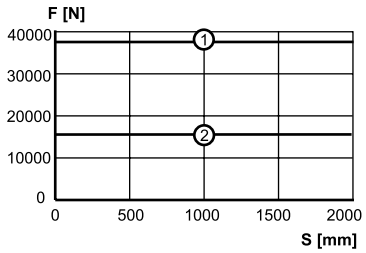
Critical Speed vs. Stroke



v: speed S: stroke length

1: ECT13-B53R • • LP-4010
2: ECT13-B53R • • LP-4020

Column Load Limit vs. Stroke



F: load S: stroke length

1: ECT13-B53R • • LP-4010
2: ECT13-B53R • • LP-4020

ECT130

Planetary Gear, Inline B63 AC Servo Motor

» Ordering Key - see page 73
» Mounting Options - see page 50
» Adapter Options - see page 54
» Glossary - see page 74

Standard Features and Benefits

- Robust and reliable
- Brushless AC servo motor
- Planetary gear
- Ball screw
- Hard chromed steel extension tube
- IP65 as standard
- Stroke up to 2000 mm
- Load up to 33000 N
- Speed up to 200 mm/s

General Specifications

Parameter	ECT130
Profile size (w × h)	130 × 130 mm
Screw type	ball screw
Gear box	planetary gear
Motor type	brushless AC servo motor
Motor designation	AKM63K-ANCNR-00
Motor feedback	resolver
Motor connection	connector
Motor brake	no, optional
Lubrication	single point lubrication
Certificates	CE
Options	• motor brake (24 Vdc) • mounting options • adapter options

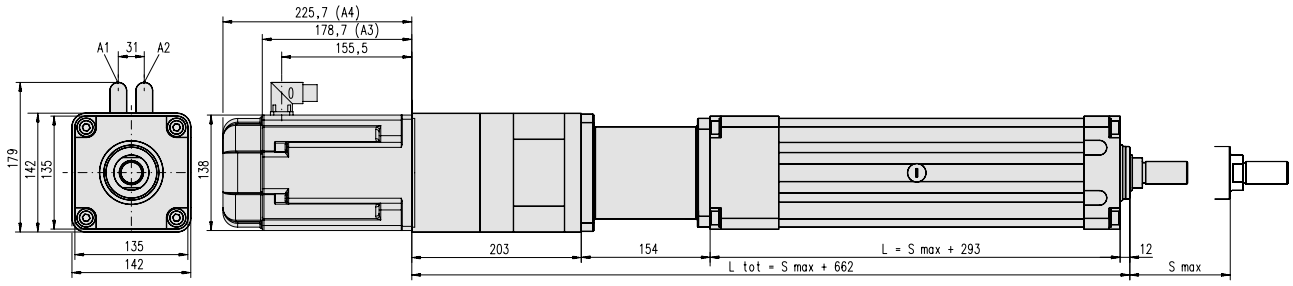
Performance Specifications

Parameter		ECT130
Stroke length (S), maximum	[mm]	2000
Maximum dynamic load (Fx)[1] ECT13-B63R05LP-4010 ECT13-B63R05LP-4020	[N]	 33000 16000
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed ECT13-B63R05LP-4010 ECT13-B63R05LP-4020	[mm/s]	 100 200
Operating temperature limits	[°C]	-20 – 70
Screw diameters	[mm]	40
Screw leads	[mm]	10, 20
Backlash	[mm]	0,21
Repeatability	[± mm]	0,05
Protection class, standard		IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.

ECT130

Planetary Gear, Inline B63 AC Servo Motor



S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

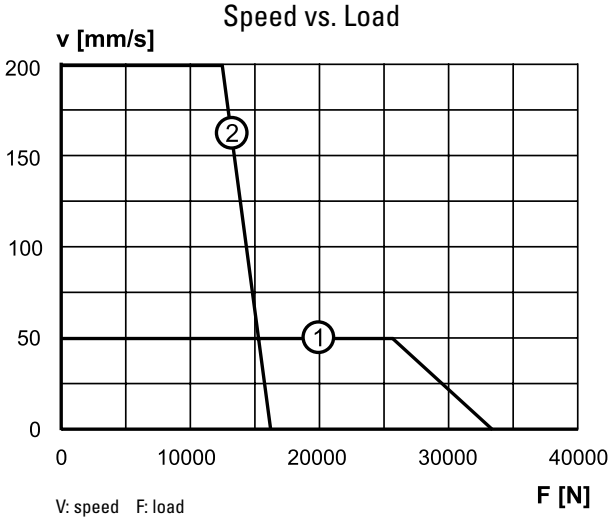
A1: power connector
A2: resolver connector
A3: without brake

A4: with brake

Cover tube length (L)	**[mm]**	L = S max + 293
Retracted length (L tot)	**[mm]**	L tot = S max + 662
Weight of unit	**[kg]**	kg = 46,8 + 0,03 × S max

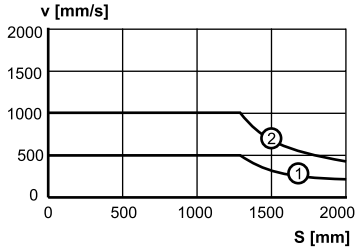
Performance Diagrams

Speed vs. Load



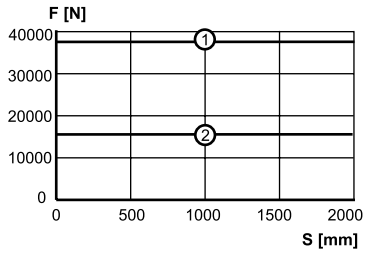
V: speed F: load
1: ECT13-B63R05LP-4010
2: ECT13-B63R05LP-4020

Critical Speed vs. Stroke



v: speed S: stroke length
1: ECT13-B63R • • LP-4010
2: ECT13-B63R • • LP-4020

Column Load Limit vs. Stroke

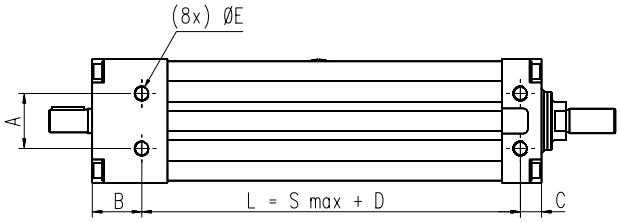


F: load S: stroke length
1: ECT13-B63R • • LP-4010
2: ECT13-B63R • • LP-4020

Options and Accessories

Mounting

Mounting Holes - Standard Feature

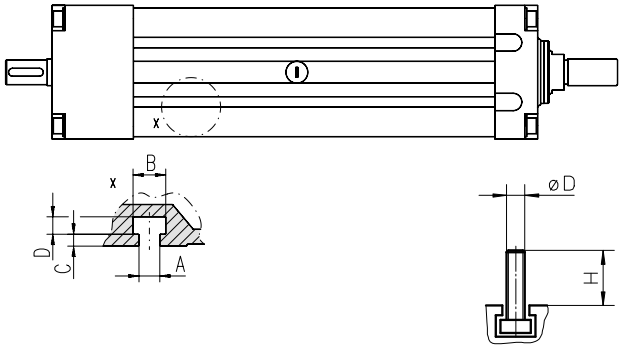


All T and ECT models have mounting holes as standard. If however mounting feet type F are used these holes will be occupied by the attachment screws for the feet. Note! The distances “B” and “D” can be different depending on the diameter or lead of the screw of the unit.

	A	B	C	D	E
T60	46	34,5	14	124,5 [1] / 146,5 [2]	M8 × 10
T90 / ECT90	45	39[1] / 48[2]	15	141 [3] / 167 [4]	M12 × 18
T130 / ECT130	60	54	23	216	M16 × 28

[1] T06-B2505, T06-B2525 [2] T06-B2510, T06-B2550 [3] T09-B25, ECT09-B •••••••25 [4] T09-B32, ECT09-B •••••••32

T-slots and T-slot Bolts - Standard Feature



The T60, T90, T130, ECT90 and ECT130 models all have T-slots running along the entire profile. T60 has two T-slot (one on each side) while the other models have four (two on each side). Suitable T-slot bolts can be ordered using the part numbers in the table below.

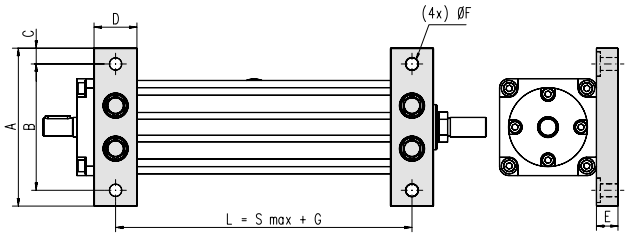
	A	B	C	D
T60	21,8	26,4	2,55	3,4
T90 / ECT90	6,4	10,5	3,5	4,5
T130 / ECT130	10,5	16,5	6,0	9,0

	ø D	H	p/n
T60	M5	14	D312 221
T90 / ECT90	M6	18	D310 314
T90 / ECT90	M6	26	D310 311
T130 / ECT130	M10	28	D800 089

Options and Accessories

Mounting

Mounting Feet type F

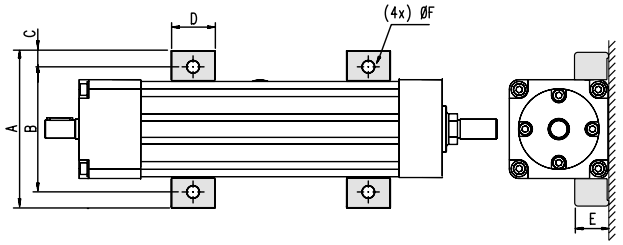


The mounting feet option can be mounted on the unit from the factory if this is stated in the ordering key at order (ECT series only) or be ordered seperately using the part number (T and ECT series). When ordered seperately all neccessary screws to attach the feet are included. Note! The distance "G" can be different depending of the screw diameter of the unit.

	A	B	C	D	E	F	G	p/n
T90 / ECT90	155	125	15	40	20	13	141[1] / 162[2]	D606 225
T130 / ECT130	220	176	22	60	30	17	216 /	D606 157

[1] T09-B25, ECT09-B•••••••25 [2] T09-B32, ECT09-B •••••••32

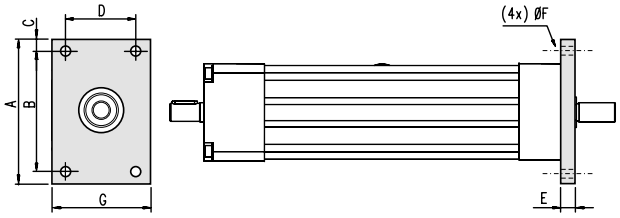
T-slot Mounting Clamps



The T-slot mounting clamp accessory are only available for the T60 models. They are ordered seperately using the part number (one clamp). Normally you would need four clamps per unit. The clamps fit in to the T-slot running along each side of the unit.

	A	B	C	D	E	F	p/n
T60	109	87	9,7	25	20,8	6,5	D313 618

Front Mounting Plates



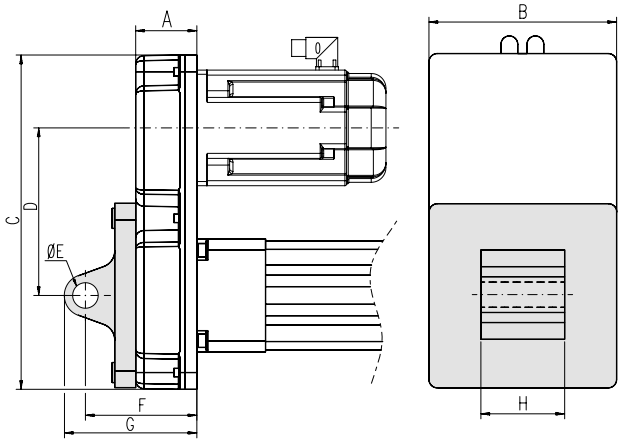
The front mounting plates must be mounted from the factory as a part of the assembly of the unit and can not be mounted afterwards by the customer.

	A	B	C	D	E	F	G	p/n
T60	120	100	10	56	14	7	75	D606 359
T90 / ECT90	150	126	12	72	16	9	95	D606 360
T130 / ECT130	205	180	12,5	110	20	11	140	D606 361

Options and Accessories

Mounting

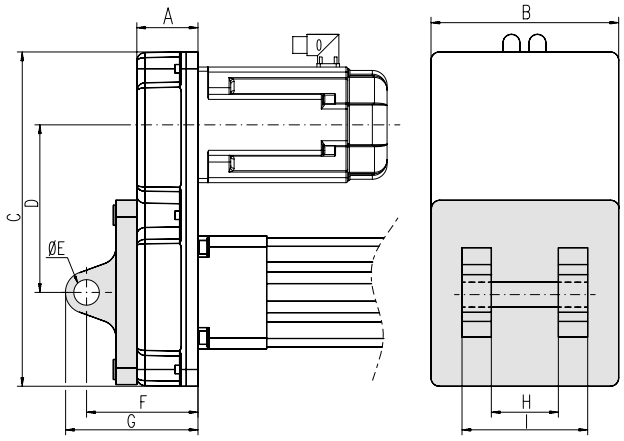
Clevis type S



The clevis option is only available for ECT units with BGM belt gear and is orderder by stating this in the ordering key at order. The clevis comes mounted on the unit from the factory.

	A	B	C	D	E	F	G	H
ECT90	70	165	305	155	25 H9	122	147	70
ECT130	73	224	399	200	30 H9	134	159	90

Clevis type R



The clevis option can either be mounted on the belt gear from the factory if this is stated in the ordering key at order (ECT series only) or be ordered seperately using the part number (T and ECT series). The clevis mounting option can only be mounted on T130 or ECT130 units equipped with a BGM belt gear.

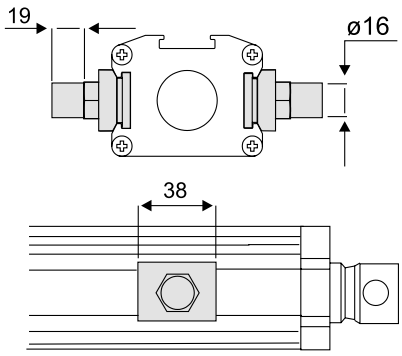
	A	B	C	D	E	F	G	H	I
ECT130	73	224	399	200	30 H9	134	159	90H4	170

Options and Accessories

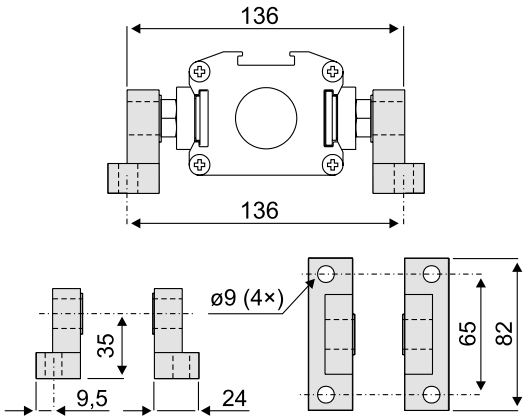
Mounting

Trunnion type T

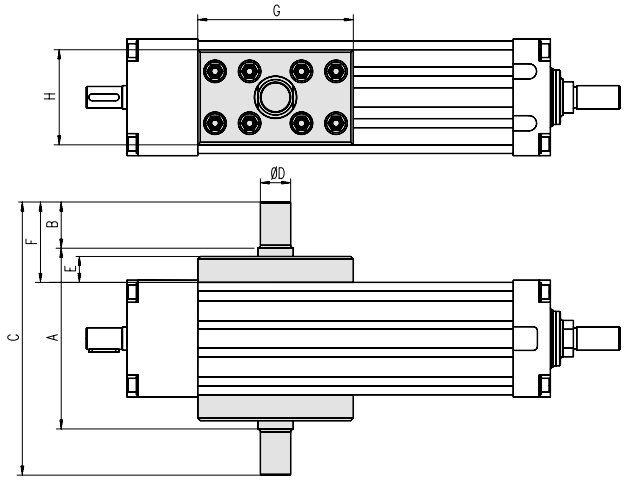
Trunnion kit for T60



Trunnion bracket kit for T60



Trunnion kit for T90, T130, ECT90, ECT130



The trunnion option can be mounted on the unit from the factory if this is stated in the ordering key at order (ECT series only) or be ordered seperately using the part number (T and ECT series). When ordered seperately all neccessary screws to attach the trunnions to the unit are included. The position along the profile can be adjusted freely by the customer. A trunnion bracket kit is available for T60 which is ordered seperately.

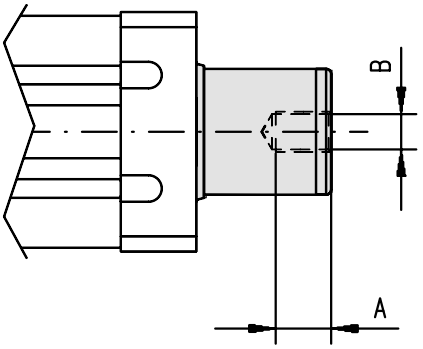
	p/n
T60 trunnion kit	D603 022
T60 trunnion bracket kit	D603 030
T90 / ECT90 trunnion kit	D606 030
T130 / ECT130 trunnion kit	D606 155

	A	B	C	D	E	F	G	H
T90 / ECT90	150	45	240	20f8	25	75	130	80
T130 / ECT130	210	53	316	35f8	30	93	180	110

Options and Accessories

Adapters

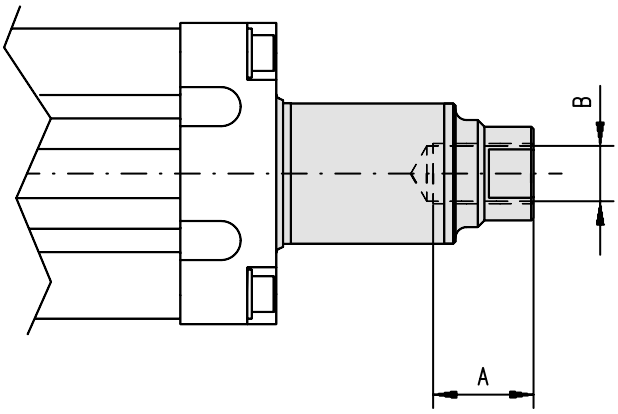
Inside Thread type P and R



The inside thread option comes mounted from factory if this is stated in the ordering key at order. Which types that are possible for the different unit sizes depends on on the ball screw diameter of the unit, see “Ball screw diameter” in the table.

	Ball screw diameter	Type	A	B
T60	25 mm	P	22	M16 × 2
T90 / ECT90	25 mm	P	22	M16 × 2
T90 / ECT90	25, 32 mm	R	24	M20 × 1,5

Inside Thread type T, V and X



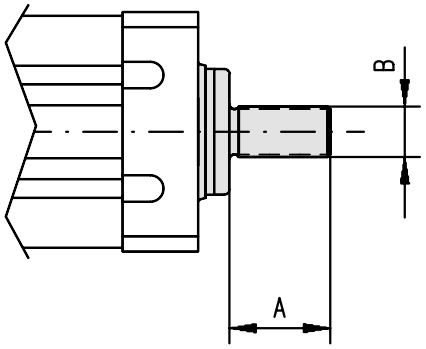
The inside thread option comes mounted from factory if this is stated in the ordering key at order. Which types that are possible for the different unit sizes depends on on the ball screw diameter of the unit, see “Ball screw diameter” in the table.

	Ball screw diameter	Type	A	B
T130 / ECT130	40 mm	T	45	M27 × 2
T130 / ECT130	40, 50 mm	V	45	M33 × 2
T130 / ECT130	40 mm	X	45	M30 × 2

Options and Accessories

Adapters

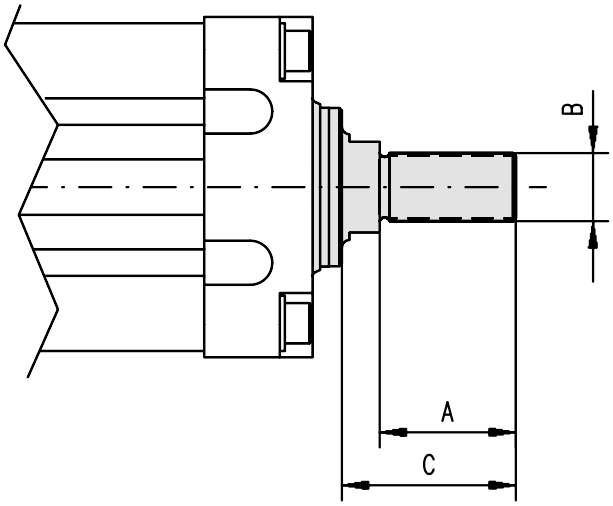
Outside Thread type N and Q



The outside thread option comes mounted from factory if this is stated in the ordering key at order. Which types that are possible for the different unit sizes depends on on the ball screw diameter of the unit, see “Ball screw diameter” in the table.

	Ball screw diameter	Type	A	B
T60 / T90 / ECT90	25 mm	N	32	M16 × 1,5
T90 / ECT90	25, 32 mm	Q	40	M20 × 1,5

Outside Thread type S and U



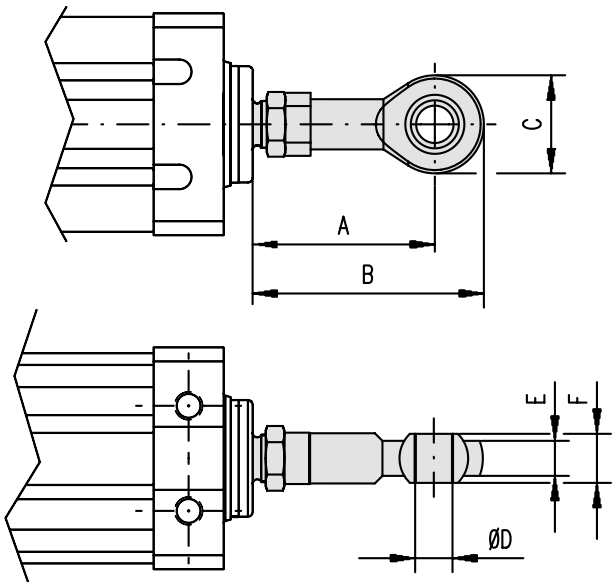
The outside thread option comes mounted from factory if this is stated in the ordering key at order. Which types that are possible for the different unit sizes depends on on the ball screw diameter of the unit, see “Ball screw diameter” in the table.

	Ball screw diameter	Type	A	B	C
T130 / ECT130	40 mm	S	54	M27 × 2	66
T130 / ECT130	40, 50 mm	U	45	M33 × 2	57

Options and Accessories

Adapters

Spherical Joint type J and K



The spherical joint option can be mounted on the unit from the factory if this is stated in the ordering key at order (ECT series only) or be ordered seperately using the part numbers (T and ECT series). When ordered seperately all neccessary componnets to attach the spherical joints to the unit are included. Note! when ordering a spherical joint seperately, make sure that the extension tube end has an outside thread adapter to be able to mount it.

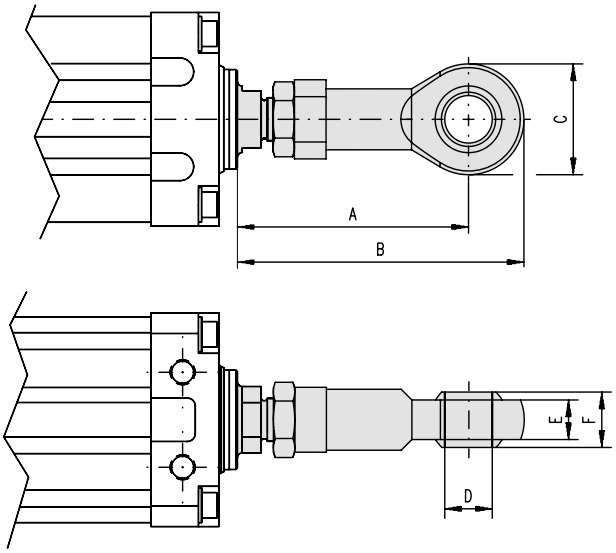
	Type	A	B	C	D	E	F	p/n
T60 / T90 / ECT90	J	76	97	42	16	15	21	D606 193 + D290 286
T90 / ECT90	K	90	115	50	20	18	25	D606 192 + D290 281

Options and Accessories

Adapters

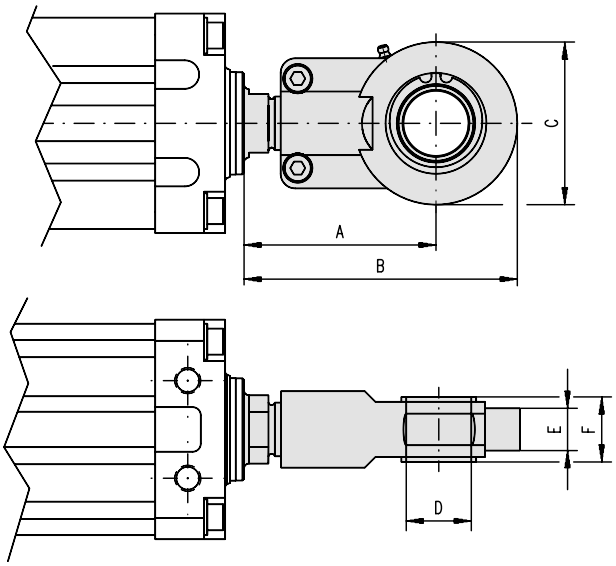
Spherical Joint type L and M

Type L



The spherical joint option can be mounted on the unit from the factory if this is stated in the ordering key at order (ECT series only) or be ordered seperately using the part number(s) (T and ECT series). When ordered seperately all neccessary componnets to attach the spherical joints to the unit are included.Type M joints includes a grease nipple. Note! when ordering a spherical joint seperately, make sure that the extension tube end has an outside thread adapter to be able to mount it.

Type M



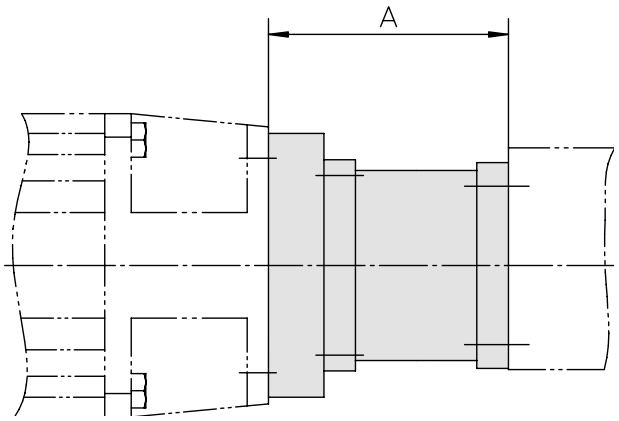
	Type	A	B	C	D	E	F	p/n
T130 / ECT130	L [1]	137	172	70	30	25	37	D606 191 + D290 287
T130 / ECT130	M	115	164	97	40	32	40	D606 159

[1] Not possible for T13- B50

Options and Accessories

Flanges and Gears

Bell House Flanges for IEC Motors



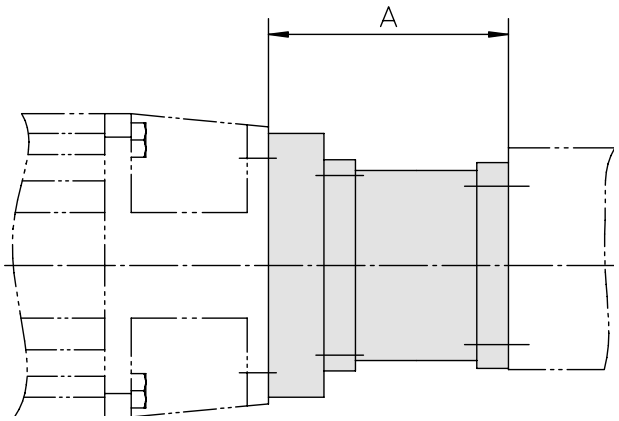
The bell house flange includes a matching coupling. Note! Keep in mind that heavy motors will need extra support in order not to break the flange or gear due to the load torque created.

	IEC63 B14	A	IEC71 B14	A	IEC80 B14	A	IEC90 B14	A	IEC100/112 B14	A
T60	D391 126	91	contact customer support for availability							
T90 (T09-B25)			D390 823	83	D390 914	101	D390 918	101	–	–
T90 (T09-B32)			–	–	D390 922	101	D390 924	108	–	–
T130			–	–	–	–	D606 180	115	D606 181	125

Options and Accessories

Flanges and Gears

MGK Bell House Flanges for AKM Servo Motors



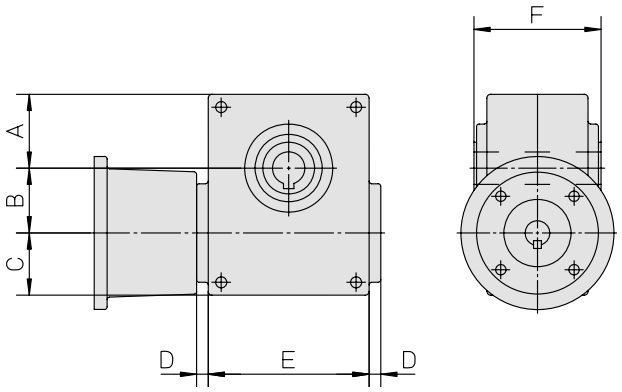
The bell house flange includes a matching coupling. Note! Keep in mind that heavy motors will need extra support in order not to break the flange or gear due to the load torque created.

	AKM3 • • -Ax	A	AKM4 • • -Ax	A	AKM5 • • -Ax	A	AKM6 • • -Ax	A
T60	D391 094	82	D391 075	93	D391 077	103	contact customer support	
T90 (T09-B25)	–	–	D390 928	93	D390 940	107	–	–
T90 (T09-B32)	–	–	D390 946	103	D390 906	107	–	–
T130 (T13-B40)	–	–	–	–	D390 972	115	D309 907	125

Options and Accessories

Flanges and Gears

BS40 / BS50 Worm Gears



The worm gear includes a gear, a bell house and a matching coupling but no adaptor flange. The worm gear is ordered using the ordering keys on the right page. The adaptor flange is ordered seperately using the part numbers below as there are different adaptor flanges depending on the type of unit being used.

Dimensions

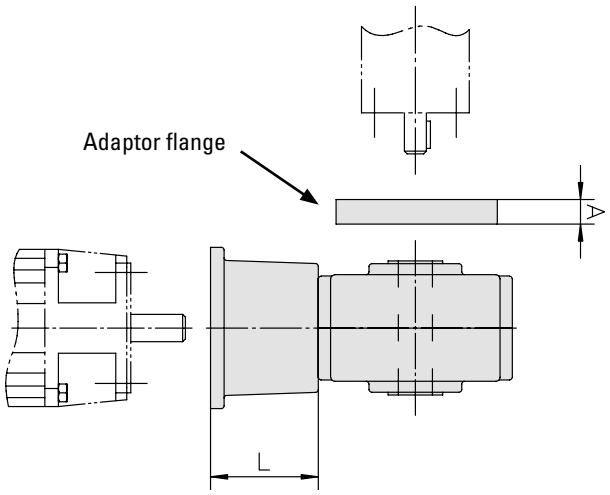
Gear	A	B	C	D	E	F
BS40	54	40	46	10	100	92
BS50	57	50	48	10	124	98

Compatability

Unit	BS40	BS50	IEC71B14	IEC80B14	IEC90B14	A	L
T90 (T09-B32)	•		•			17	58
T90 (T09-B32)	•			•		17	68
T130		•	•			17	78
T130		•		•		17	88
T130		•			•	17	98

Adaptor Flanges

Unit	p/n
T90 (T09-B32)	D606 227
T130	D606 187



Options and Accessories

Flanges and Gears

BS40 / BS50 Worm Gears

BS40 Ordering Key

1	2	3
BS40	**-10**	**-71**
1. Type and size of worm gear BS40 = BS40 worm gear	**2. Gear ratio** -3 = 3:1 -5,5 = 5,5:1 -7,5 = 7,5:1 -10 = 10:1 -15 = 15:1 -20 = 20:1 -24 = 24:1 -30 = 30:1 -40 = 40:1 -48 = 48:1 -60 = 60:1	**6. Motor size** -71 = IEC71B14 -80 = IEC80B14

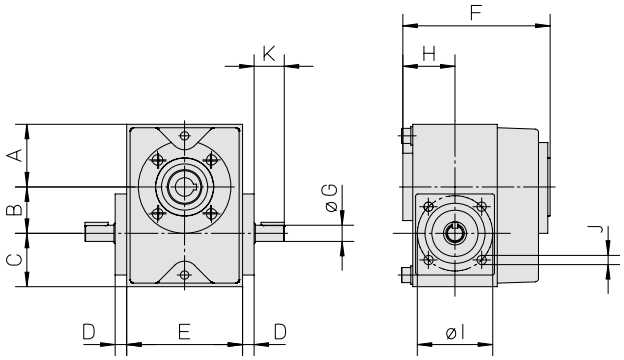
BS50 Ordering Key

1	2	3
BS50	**-37**	**-90**
1. Type and size of worm gear BS50 = BS50 worm gear	**2. Gear ratio** -8 = 8:1 -10,5 = 10,5:1 -14 = 14:1 -21 = 21:1 -24 = 24:1 -32 = 32:1 -37 = 37:1 -42 = 42:1 -54 = 54:1 -64 = 64:1 -81 = 81:1	**6. Motor size** -71 = IEC71B14 -80 = IEC80B14 -90 = IEC90B14

Options and Accessories

Flanges and Gears

TBS40 Worm Gear



The worm gear is installed directly to the unit and require no intermediate coupling between the two. To be able to install the gear to the motor a bell house flange must be used between the gear and the motor. The bell house flange, which includes a matching coupling, is ordered separately. A shaft cover can be ordered to cover the second primary shaft on the gear in case it is not being used.

Dimensions

Gear	A	B	C	D	E	F	øG	H	øI	J	K
TBS40	54	40	46	10	100	125	14j6	45	65	M8 (4×)	25

Compatability

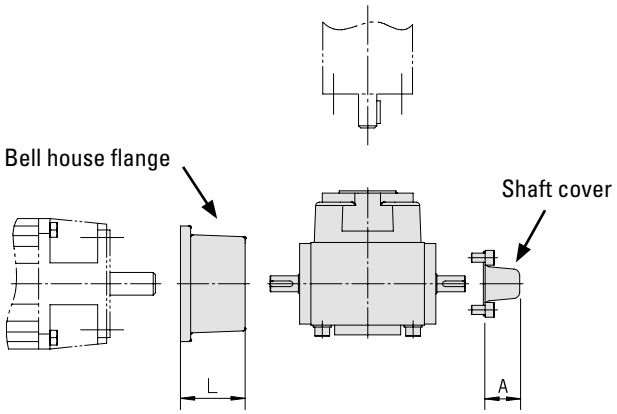
Unit	TBS40	IEC71B14	IEC80B14	A	L
T60 / T90 (T09-B25)	•	•		32	58
T60 / T90 (T09-B25)	•		•	32	68

Bell House Flange

Motor size	p/n
IEC71B14	D701 011
IEC80B14	D701 015

Shaft Cover

Gear type	p/n
TBS40	D701 020



Options and Accessories

Flanges and Gears

TBS40 Worm Gear

Ordering Key

1	2	3
TBS40	-3	-216

1. Type and size of worm gear	2. Gear ratio	3. Fixed code
TBS40 = TBS40 worm gear	-3 = 3:1 -5,5 = 5,5:1 -7,5 = 7,5:1 -10 = 10:1 -15 = 15:1 -20 = 20:1 -24 = 24:1 -30 = 30:1 -40 = 40:1 -48 = 48:1 -60 = 60:1	-216

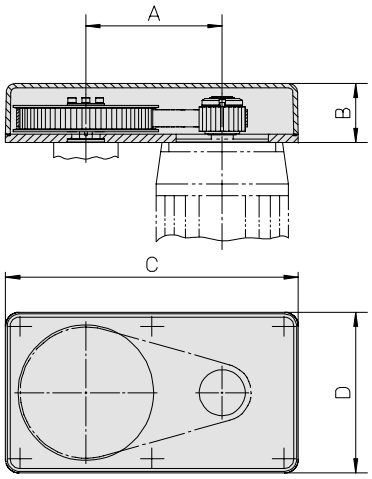
Options and Accessories

Flanges and Gears

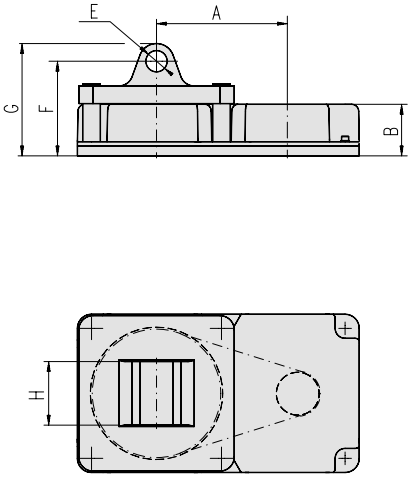
BGM Belt Gear

The belt gear comes in parts and is assembled and mounted to the unit and motor by the customer.

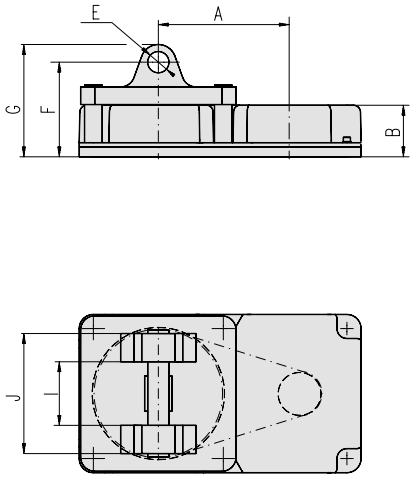
BGM06/09/41/81 - NO CLEVIS OPTION



BGM09/41/81 - CLEVIS OPTION TYPE S



BGM06/81 - CLEVIS OPTION TYPE R



Dimensions

Gear	A	B	C	D	øE	F	G	H	I	J
BGM06	72,5	50	152	95	16 H9	82	98	–	40	70
BGM09	118,7	52	255	140	20 H9	95	115	60	–	–
BGM41	155,2	70	305	165	25 H9	122	147	70	–	–
BGM81	200	73	399	224	30 H9	134	159	90	90H14	170

Technical Data

Gear	i	nmax [rpm]	Mmax [Nm]	η	J [kgm²]	Weight [kg]
BGM06	1:1	4000	2,1	0,85	0,000076	1,6
BGM06	2:1	4000	3,4	0,85	0,000100	1,7
BGM09	1,04:1	4000	3,3	0,85	0,000102	2
BGM09	1,85:1	4000	3,3	0,85	0,000112	2,1
BGM09	2,85:1	4000	3,3	0,85	0,000213	2,5
BGM41	1:1	4000	16,6	0,85	0,000438	3,4
BGM41	2:1	4000	9,7	0,85	0,000342	3,7
BGM41	3:1	4000	9,7	0,85	0,000583	4,6
BGM81	1:1	4000	32	0,85	0,000836	12,1
BGM81	2,25:1	4000	30	0,85	0,001051	12,9
BGM81	3,13:1	4000	28	0,85	0,001439	14

i = gear ratio, nmax = max. input speed, Mmax = max. input torque, η = efficiency factor, J = inertia

Options and Accessories

Flanges and Gears

BGM Belt Gear

BGM Compatability

Gear	T60	T90 (T09-B25)	T90 (T09-B32)	T130
BGM06	•			
BGM09	•	•		
BGM41		•	•	•
BGM81				•

BGM Ordering Key

1	2	3	4	5	6	7	8
BGM09	-2	-CC	063	P	09A	X	+XX

1. Type and size of belt gear
BGM06 = BGM belt gear size 06
BGM09 = BGM belt gear size 09
BGM41 = BGM belt gear size 41
BGM81 = BGM belt gear size 81

2. Gear ratio
-1 = see table below
-2 = see table below
-3 = see table below

Gear ratio code	Belt gear type			
	BGM06	BGM09	BGM41	BGM81
-1	1:1	1,04:1	1:1	1:1
-2	2:1	1,85:1	2:1	2,25:1
-3	–	2,85:1	3:1	3,13:1

3. Type of couplings
-CC = conical couplings

4. Motor size compatability [1]
063 = IEC 63 B14
071 = IEC 71 B14
080 = IEC 80 B14
090 = IEC 90 B14
100 = IEC 100/121 B14
S80 = servo motor size 80
S95 = servo motor size 95
A20 = servo motor size A200
AK3 = servo motor type AKM 3
AK4 = servo motor type AKM 4
AK5 = servo motor type AKM 5
AK6 = servo motor type AKM 6

Motor code	Belt gear type			
	BGM06	BGM09	BGM41	BGM81
063		•		
071		•	•	
080			•	
090				•
100				•
S80		•	•	
S95				
A20			•	•
AK3	•			
AK4	•	•		
AK5			•	
AK6				•

5. Type of mounting
P = standard

6. Compatable unit
T06 = T60
09A = T90 (T09-B25)
09B = T90 (T09-B32)
130 = T130

Unit code	Belt gear type			
	BGM06	BGM09	BGM41	BGM81
T06	•	•		
09A		•	•	
09B			•	
130			•	•

7. Clevis option compatability
X = no clevis option
S = clevis option type S
R = clevis option type R

Clevis code	Belt gear typ			
	BGM06	BGM09	BGM41	BGM81
X	•	•	•	•
S		•	•	•
R	•			•

8. Protection
+XX = standard
+S1 = wash down protection

(1) This is only a selection of all motors that fits the gears. Please contact customer support to see if your prefered motor fits the gear.

Options and Accessories

Sensors

Magnetic Sensors Option

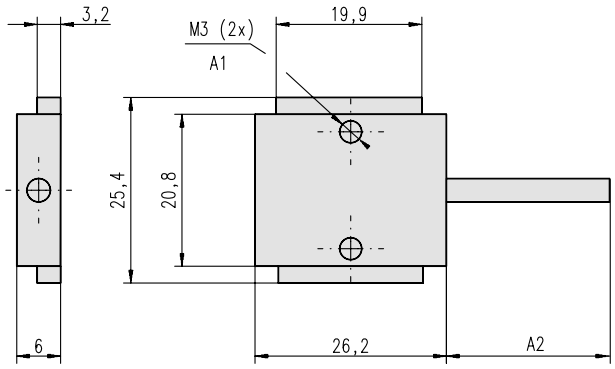
Technical Specification

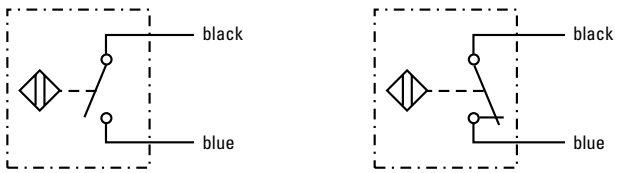
Parameter		
Max. power	[W]	10
Max. voltage	[Vdc]	100
Max. current	[A]	0,5
LED indicator for switch		no
Protection class		IP67
Cable length	[m]	3
Cable cross section	[mm²]	2 × 0,15
Operating temperature limits	[°C]	-25 – 65
Weight	[kg]	0,050

Part Numbers

Sensor type	suitable units	p/n
Normally closed	T60, T90, T130, ECT90, ECT130	D535 071
Normally open	T60, T90, T130, ECT90, ECT130	D535 070

The magnetic sensors are mounted directly in the sensor slots on both sides of the profile of the units. They require no additional mounting bracket. The sensor is fixed in position by two M3 size locking screws (A1). The cable (A2) is molded into the sensor. Up to nine normally open and nine normally closed sensors can be ordered to the unit using the ordering key. These sensors will be shipped with the unit but not mounted to the unit. Extra sensors can be ordered using the part numbers.





Options and Accessories

Environmental Protection

Environment Protection Option S1

Technical Specification

Item	S1
External screws, bolts, nuts and washers	stainless class A2
Extension tube rod end	standard class A2

The S1 environment protection option will enhance the units ability to withstand harsh environments where water, acids and basic agents are present. All performance data and the life expectancy is the same as for standard units.

S1 - Wash down protection
Typical places where S1 is used are in slaughter houses, dairy plants, food plants or in any other light wash down application.

Ordering Keys

How to Order

When ordering a Thomson precision linear actuator it is necessary to first make sure that the proper sizing and selection has been done. The demand on your system will impact on your choice of stroke length, profile size, belt or screw drive, environmental protection demands etc.

The load and speed demand will tell you the configuration of gearboxes drive shafts and motor attachment accessories that are necessary. You will also need to evaluate what accessories and options that are necessary.

We will assist you in the sizing and selection work and determining of part numbers but it is important that you are aware of the demand and need of your specific application in order to enable us to supply you with the correct unit.

On the following pages you will find the ordering keys for the different T and ECT precision linear actuators shown in earlier chapters. These keys are self-explanatory and by following the examples you can quickly and easily learn about the different options and versions available. Please also visit www.thomsonlinear.com where you can find a information and CAD drawings that makes the selection, ordering and design process much easier or contact us for further support.

Ordering Keys

T60, T90 and T130

T60, T90 and T130

1	2	3	4	5	6
T09-B	2525	M	P	045	S1

1. Model
T06-B = T60 unit
T09-B = T90 unit
T13-B = T130 unit

2. Ball screw diameter, lead and tolerance class
2505 = 25 mm, 05 mm, T7 (only possible for T06-B and T09-B)
2510 = 25 mm, 10 mm, T7 (only possible for T06-B and T09-B)
2525 = 25 mm, 25 mm, T7 (only possible for T06-B and T09-B)
2550 = 25 mm, 50 mm, T7 ((only possible for T06-B)
3220 = 32 mm, 20 mm, T7 (only possible for T09-B)
3232 = 32 mm, 32 mm, T7 (only possible for T09-B)
4010 = 40 mm, 10 mm, T7 (only possible for T13-B)
4020 = 40 mm, 20 mm, T7 (only possible for T13-B)
4040 = 40 mm, 40 mm, T7 (only possible for T13-B)
5010 = 50 mm, 10 mm, T7 (only possible for T13-B)

3. Engineering unit
M = metric

4. Type of adapter
N = M16 × 1,5 outside thread (only possible for T06-B25 • • and T09-B25 • •)
P = M16 × 2 inside thread (only possible for T06-B25 • • and T09-B25 • •)
Q = M20 × 1,5 outside thread (only possible for T09-B32 • •)
R = M20 × 1,5 inside thread (only possible for T09-B32 • •)
S = M27 × 2 outside thread (only possible for T13-B40 • •)
T = M27 × 2 inside thread (only possible for T13-B40 • •)
U = M33 × 2 outside thread (only possible for T13-B40 • • and T13-B5010)
V = M33 × 2 inside thread (only possible for T13-B40 • • and T13-B5010)
X = M30 × 2 inside thread (only possible for T13-B40 • •)

5. Ordering length (L order)
• • • = distance in cm

6. Protection option[1]
S1 = wash down protection

[1] Leave blank if no protection option required.

Ordering Keys

ECT90

ECT90 - Parallel IEC90 AC Motor

1	2	3	4	5	6	7	8
ECT09-I	09B02PB2510	-1500	X	J	0	2	XX

1. Model and motor type
ECT09-I = ECT90 with IEC90 three phase AC motor

2. Max. load, speed, gear type, brake and motor style
09B03PB2510 = 9750 N, 160 mm/s, belt gear, brake, parallel [1]
09B02PB2510 = 6500 N, 240 mm/s, belt gear, brake, parallel [1]
09B03PB3220 = 4800 N, 320 mm/s, belt gear, brake, parallel [2]
09B02PB3220 = 3100 N, 480 mm/s, belt gear, brake, parallel [2]
09B01PB3220 = 1600 N, 960 mm/s, belt gear, brake, parallel [2]
09B01PB3232 = 900 N, 1520 mm/s, belt gear, brake, parallel [2]

3. Stroke (S max)
- •••• = distance in mm

4. Mounting options
X = no mounting option
S = clevis
F = mounting feet
T = trunnion

5. Adapter options
J = spherical joint ø16 mm
K = spherical joint ø20 mm
N = outside thread M16 × 1,5
P = inside thread M16 × 2
Q = outside thread M20 × 1,5
R = inside thread M20 × 1,5

6. Magnetic sensors N.C [3]
• = number of normally closed sensors (0 - 9)

7. Magnetic sensors N.O [3]
• = number of normally open sensors (0 - 9)

8. Protection options [4]
XX = standard
S1 = wash down protection

[1] These models are only compatable with adapter options J, N and P.

[2] These models are only compatable with adapter options K, Q and R.

[3] The sensors are shipped unmounted with the unit.

[4] See page 67 for more information.

ECT90 - Parallel B43 or B53 AC Servo Motor

1	2	3	4	5	6	7	8
ECT09-B	53R03PB3220	-1340	S	Q	3	0	S1

1. Model and motor type
ECT09-B = ECT90 with AC servo motor

2. Max. load, speed, gear type, brake and motor style
53R03PB2510 = 9800 N, 220 mm/s, belt gear, no brake, parallel [1]
53R02PB2510 = 8000 N, 330 mm/s, belt gear, no brake, parallel [1]
53R03PB3220 = 5900 N, 440 mm/s, belt gear, no brake, parallel [2]
43R03PB2510 = 5800 N, 140 mm/s, belt gear, no brake, parallel [1]
53R02PB3220 = 3900 N, 670 mm/s, belt gear, no brake, parallel [2]
43R02PB2510 = 3800 N, 210 mm/s, belt gear, no brake, parallel [1]
43R03PB3220 = 2800 N, 270 mm/s, belt gear, no brake, parallel [2]
43R02PB3220 = 1800 N, 420 mm/s, belt gear, no brake, parallel [2]
53S03PB2510 = 9800 N, 220 mm/s, belt gear, brake, parallel [1]
53S02PB2510 = 8000 N, 330 mm/s, belt gear, brake, parallel [1]
53S03PB3220 = 5900 N, 440 mm/s, belt gear, brake, parallel [2]
43S03PB2510 = 5800 N, 140 mm/s, belt gear, brake, parallel [1]
53S02PB3220 = 3900 N, 670 mm/s, belt gear, brake, parallel [2]
43S02PB2510 = 3800 N, 210 mm/s, belt gear, brake, parallel [1]
43S03PB3220 = 2800 N, 270 mm/s, belt gear, brake, parallel [2]
43S02PB3220 = 1800 N, 420 mm/s, belt gear, brake, parallel [2]

3. Stroke (S max)
- •••• = distance in mm

4. Mounting options
X = no mounting option
S = clevis
F = mounting feet
T = trunnion

5. Adapter options
J = spherical joint ø16 mm
K = spherical joint ø20 mm
N = outside thread M16 × 1,5
P = inside thread M16 × 2
Q = outside thread M20 × 1,5
R = inside thread M20 × 1,5

6. Magnetic sensors N.C [3]
• = number of normally closed sensors (0 - 9)

7. Magnetic sensors N.O [3]
• = number of normally open sensors (0 - 9)

8. Protection options [4]
XX = standard
S1 = wash down protection

[1] These models are only compatable with adapter options J, N and P.

[2] These models are only compatable with adapter options K, Q and R.

[3] The sensors are shipped unmounted with the unit.

[4] See page 67 for more information.

Ordering Keys

ECT90

ECT90 - Direct Drive, Inline B43 or B53 AC Servo Motor

1	2	3	4	5	6	7	8
ECT09-B	53R01LD2510	-0800	T	P	0	0	S1

1. Model and motor type
ECT09-B = ECT90 with AC servo motor

2. Max. load, speed, gear type, brake and motor style
53R01LD2510 = 5300 N, 450 mm/s, direct drive, no brake, inline [1]
53R01LD3220 = 2600 N, 1000 mm/s, direct drive, no brake, inline [2]
43R01LD2510 = 2000 N, 410 mm/s, direct drive, no brake, inline [1]
53R03LD3232 = 1500 N, 1600 mm/s, direct drive, no brake, inline [2]
43R01LD3220 = 900 N, 820 mm/s, direct drive, no brake, inline [2]
53S01LD2510 = 5300 N, 450 mm/s, direct drive, brake, inline [1]
53S01LD3220 = 2600 N, 1000 mm/s, direct drive, brake, inline [2]
43S01LD2510 = 2000 N, 410 mm/s, direct drive, brake, inline [1]
53S03LD3232 = 1500 N, 1600 mm/s, direct drive, brake, inline [2]
43S01LD3220 = 900 N, 820 mm/s, direct drive, brake, inline [2]

3. Stroke (S max)
- •••• = distance in mm

4. Mounting options
X = no mounting option
F = mounting feet
T = trunnion

5. Adapter options
J = spherical joint ø16 mm
K = spherical joint ø20 mm
N = outside thread M16 × 1,5
P = inside thread M16 × 2
Q = outside thread M20 × 1,5
R = inside thread M20 × 1,5

6. Magnetic sensors N.C [3]
• = number of normally closed sensors (0 - 9)

7. Magnetic sensors N.O [3]
• = number of normally open sensors (0 - 9)

8. Protection options [4]
XX = standard
S1 = wash down protection

[1] These models are only compatable with adapter options J, N and P.

[2] These models are only compatable with adapter options K, Q and R.

[3] The sensors are shipped unmounted with the unit.

[4] See page 67 for more information.

ECT90 - Planetary Gear, Inline B43 or B53 AC Servo Motor

1	2	3	4	5	6	7	8
ECT09-B	43R10LP3220	-1205	X	R	9	2	XX

1. Model and motor type
ECT09-B = ECT90 with AC servo motor

2. Max. load, speed, gear type, brake and motor style
53R10LP3220 = 20000 N, 130 mm/s, planetary gear, no brake, inline
53R05LP3220 = 13000 N, 270 mm/s, planetary gear, no brake, inline
43R10LP3220 = 10000 N, 80 mm/s, planetary gear, no brake, inline
43R05LP3220 = 5000 N, 160 mm/s, planetary gear, no brake, inline
53S10LP3220 = 20000 N, 130 mm/s, planetary gear, brake, inline
53S05LP3220 = 13000 N, 270 mm/s, planetary gear, brake, inline
43S10LP3220 = 10000 N, 80 mm/s, planetary gear, brake, inline
43S05LP3220 = 5000 N, 160 mm/s, planetary gear, brake, inline

3. Stroke (S max)
- •••• = distance in mm

4. Mounting options
X = no mounting option
F = mounting feet
T = trunnion

5. Adapter options
K = spherical joint ø20 mm
Q = outside thread M20 × 1,5
R = inside thread M20 × 1,5

6. Magnetic sensors N.C [1]
• = number of normally closed sensors (0 - 9)

7. Magnetic sensors N.O [1]
• = number of normally open sensors (0 - 9)

8. Protection options [2]
XX = standard
S1 = wash down protection

[1] The sensors are shipped unmounted with the unit.

[2] See page 67 for more information.

Ordering Keys

ECT130

ECT130 - Parallel IEC100 AC Motor

1	2	3	4	5	6	7	8
ECT13-I	10B03PB4010	-1850	R	V	1	0	S1

1. Model and motor type
ECT13-I = ECT130 with IEC100 three phase AC motor

2. Max. load, speed, gear type, brake and motor style
10B03PB4010 = 13300 N, 175 mm/s, belt gear, brake, parallel
10B02PB4010 = 9400 N, 210 mm/s, belt gear, brake, parallel
10B03PB4020 = 6200 N, 300 mm/s, belt gear, brake, parallel
10B02PB4020 = 4200 N, 420 mm/s, belt gear, brake, parallel
10B01PB4020 = 1800 N, 950 mm/s, belt gear, brake, parallel
10B01PB4040 = 600 N, 1900 mm/s, belt gear, brake, parallel

3. Stroke (S max)
- •••• = distance in mm

4. Mounting options
X = no mounting option
R = clevis
F = mounting feet
T = trunnion

5. Adapter options
L = spherical joint ø30 mm
M = spherical joint ø40 mm
S = outside thread M27 × 2
T = inside thread M27 × 2
U = outside thread M33 × 2
V = inside thread M33 × 2
X = inside thread M30 × 2

6. Magnetic sensors N.C [1]
• = number of normally closed sensors (0 - 9)

7. Magnetic sensors N.O [1]
• = number of normally open sensors (0 - 9)

8. Protection options [2]
XX = standard
S1 = wash down protection

[1] The sensors are shipped unmounted with the unit.

[2] See page 67 for more information.

ECT130 - Parallel B53 or B63 AC Servo Motor

1	2	3	4	5	6	7	8
ECT13-B	53R02PB4020	-2000	X	U	0	0	XX

1. Model and motor type
ECT13-B = ECT130 with AC servo motor

2. Max. load, speed, gear type, brake and motor style
63R03PB4010 = 21500 N, 160 mm/s, belt gear, no brake, parallel
63R02PB4010 = 15500 N, 220 mm/s, belt gear, no brake, parallel
53R03PB4010 = 15000 N, 160 mm/s, belt gear, no brake, parallel
63R03PB4020 = 10500 N, 320 mm/s, belt gear, no brake, parallel
53R02PB4010 = 10500 N, 220 mm/s, belt gear, no brake, parallel
63R02PB4020 = 7500 N, 440 mm/s, belt gear, no brake, parallel
53R03PB4020 = 7000 N, 320 mm/s, belt gear, no brake, parallel
53R02PB4020 = 5000 N, 440 mm/s, belt gear, no brake, parallel
63S03PB4010 = 21500 N, 160 mm/s, belt gear, brake, parallel
63S02PB4010 = 15500 N, 220 mm/s, belt gear, brake, parallel
53S03PB4010 = 15000 N, 160 mm/s, belt gear, brake, parallel
63S03PB4020 = 10500 N, 320 mm/s, belt gear, brake, parallel
53S02PB4010 = 10500 N, 220 mm/s, belt gear, brake, parallel
63S02PB4020 = 7500 N, 440 mm/s, belt gear, brake, parallel
53S03PB4020 = 7000 N, 320 mm/s, belt gear, brake, parallel
53S02PB4020 = 5000 N, 440 mm/s, belt gear, brake, parallel

3. Stroke (S max)
- •••• = distance in mm

4. Mounting options
X = no mounting option
R = clevis
F = mounting feet
T = trunnion

5. Adapter options
L = spherical joint ø30 mm
M = spherical joint ø40 mm
S = outside thread M27 × 2
T = inside thread M27 × 2
U = outside thread M33 × 2
V = inside thread M33 × 2
X = inside thread M30 × 2

6. Magnetic sensors N.C [1]
• = number of normally closed sensors (0 - 9)

7. Magnetic sensors N.O [1]
• = number of normally open sensors (0 - 9)

8. Protection options [2]
XX = standard
S1 = wash down protection

[1] The sensors are shipped unmounted with the unit.

[2] See page 67 for more information.

Ordering Keys

ECT130

ECT130 - Direct Drive, Inline B53 or B63 AC Servo Motor

1	2	3	4	5	6	7	8
ECT13-B	53R01LD4040	-1850	X	S	1	1	S1

1. Model and motor type
ECT13-B = ECT130 with AC servo motor

2. Max. load, speed, gear type, brake and motor style
63R01LD4010 = 7400 N, 400 mm/s, direct drive, no brake, inline
53R01LD4010 = 4900 N, 400 mm/s, direct drive, no brake, inline
63R01LD4020 = 3400 N, 1000 mm/s, direct drive, no brake, inline
53R01LD4020 = 2250 N, 1000 mm/s, direct drive, no brake, inline
63R01LD4040 = 1400 N, 2000 mm/s, direct drive, no brake, inline
53R01LD4040 = 700 N, 2000 mm/s, direct drive, no brake, inline
63S01LD4010 = 7400 N, 400 mm/s, direct drive, brake, inline
53S01LD4010 = 4900 N, 400 mm/s, direct drive, brake, inline
63S01LD4020 = 3400 N, 1000 mm/s, direct drive, brake, inline
53S01LD4020 = 2250 N, 1000 mm/s, direct drive, brake, inline
63S01LD4040 = 1400 N, 2000 mm/s, direct drive, brake, inline
53S01LD4040 = 700 N, 2000 mm/s, direct drive, brake, inline

3. Stroke (S max)
- •••• = distance in mm

4. Mounting options
X = no mounting option
F = mounting feet
T = trunnion

5. Adapter options
L = spherical joint ø30 mm
M = spherical joint ø40 mm
S = outside thread M27 × 2
T = inside thread M27 × 2
U = outside thread M33 × 2
V = inside thread M33 × 2
X = inside thread M30 × 2

6. Magnetic sensors N.C [1]
• = number of normally closed sensors (0 - 9)

7. Magnetic sensors N.O [1]
• = number of normally open sensors (0 - 9)

8. Protection options [2]
XX = standard
S1 = wash down protection

[1] The sensors are shipped unmounted with the unit.

[2] See page 67 for more information.

ECT130 - Planetary Gear, Inline B53 or B63 AC Servo Motor

1	2	3	4	5	6	7	8
ECT13-B	63R05LP4010	-0600	F	L	0	5	XX

1. Model and motor type
ECT13-B = ECT130 with AC servo motor

2. Max. load, speed, gear type, brake and motor style
53R10LP4010 = 38000 N, 50 mm/s, planetary gear, no brake, inline
63R05LP4010 = 33000 N, 100 mm/s, planetary gear, no brake, inline
53R05LP4010 = 22500 N, 100 mm/s, planetary gear, no brake, inline
63R05LP4020 = 16000 N, 200 mm/s, planetary gear, no brake, inline
53R05LP4020 = 11000 N, 200 mm/s, planetary gear, no brake, inline
53S10LP4010 = 38000 N, 50 mm/s, planetary gear, brake, inline
63S05LP4010 = 33000 N, 100 mm/s, planetary gear, brake, inline
53S05LP4010 = 22500 N, 100 mm/s, planetary gear, brake, inline
63S05LP4020 = 16000 N, 200 mm/s, planetary gear, brake, inline
53S05LP4020 = 11000 N, 200 mm/s, planetary gear, brake, inline

3. Stroke (S max)
- •••• = distance in mm

4. Mounting options
X = no mounting option
F = mounting feet
T = trunnion

5. Adapter options
L = spherical joint ø30 mm
M = spherical joint ø40 mm
S = outside thread M27 × 2
T = inside thread M27 × 2
U = outside thread M33 × 2
V = inside thread M33 × 2
X = inside thread M30 × 2

6. Magnetic sensors N.C [1]
• = number of normally closed sensors (0 - 9)

7. Magnetic sensors N.O [1]
• = number of normally open sensors (0 - 9)

8. Protection options [2]
XX = standard
S1 = wash down protection

[1] The sensors are shipped unmounted with the unit.

[2] See page 67 for more information.

Glossary

A – Ce

Acceleration
Acceleration is a measure of the rate of speed change going from standstill (or a lower speed) to a higher speed. The calculations, which are used to develop the Load versus Speed diagrams for each actuator, are based on an acceleration rate that is limited by the maximum speed of the unit. Therefore, this value will be different for all actuators. Please contact customer service if your application is critical to which acceleration rate is acceptable or needed. Also see "Deceleration".

Accuracy
There are several types of accuracy and many different factors that will affect the overall accuracy of a system. Also see "Repeatability", "Positioning Accuracy", "Resolution", "Lead Accuracy" and "Backlash".

AC Motor
There are several types of AC motors; all of which run on an applied alternating current. Also see "Three Phase AC Motor".

AC Servo Motor
AC servo motor is an abbreviation for a brushless, synchronous AC motor design. This type of design requires little mechanical maintenance since no physical contact (no brushes and bars) is used to commutate the motor. This extends the life of the motor and reduces down time. Also see "Brushless AC Servo Motor".

Adapter
The adapter on T and ECT actuators is the connection point for the load and is situated at the end of the extension tube. There are several types of adapters: 1) tapped hole, 2) threaded rod and 3) spherical joint. Also see "Mounting".

Anti Rotation Mechanism
An actuator with anti-rotation mechanism has a built-in feature that prevent the extension tube from rotating if the tube is not attached to any load. All T and ECT actuators have this feature.

Backlash
Backlash is the stack up of tolerances (play) within the leadscrew assembly and gearing which creates a dead band when changing directions. The result is that the motor can rotate some before any motion can be seen on the extension tube when reversing the direction of the motor rotation. The backlash varies depending of the actuator model and the amount of backlash for each can be found in the performance specifications. The backlash for ball screw models will remain the same during its life time while it will increase slightly for acme screws. Direct driven models normally have less backlash because the do not incorporate any gearing.

Ball Screw
Ball screws (fig. a) are used on all T and ECT actuators. They are highly efficient and can run up at 100% duty cycle. Also see "Duty Cycle".

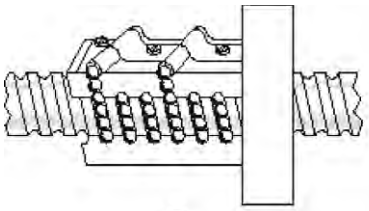


Fig. a

Belt Gear
A belt gear consist of a timing belt that runs between two pulley wheels of different diameter. The difference between the diameters determines the gear ratio. Belt gears are quiet, have medium accuracy, and require no maintenance. But the belt is susceptible to breakage under overload conditions

Brake
Acme screws are inherently self-locking while ball screws are not. To prevent ball screw actuators from backdriving, the actuator may need some type of motor brake depending on the application. A brake can also be used to stop the actuator quickly and safely in emergency situations. Precision linear actuators with DC motors do not have optional brakes so an alternative solution must be sought. All asynchronous three-phase AC motors come equipped with an electrically released, fail-safe brake (optional for brushless AC servo motors).

Brushless AC Servo Motor
A brushless AC servo motor has many advantages over DC and asynchronous three-phase AC motors. For a given power rating, they are smaller and can typically travel at higher speeds and acceleration rates (due to a lower rotor inertia). Unlike DC motors, AC servo motors have no brushes for commutation; therefore, they are almost maintenance free. Instead, they incorporate a resolver feedback device that feeds a shaft-position signal to the drive control for commutation. The drive control also converts the resolver signal into a simulated encoder pulse train that can be used to feed a positioning controller. Also see " Three Phase AC motor","Servo Motor" and "Servo Drive".

Certificates
All T and ECT actuators sold in the EU are CE certified. Please contact customer service if you need any other type of certificate.

Glossary

Co – Du

Column Load Limit

The column load limit is the maximum compression force that the lead screw can handle before it becomes damaged (Fig. b). The limit is a function of the the screw diameter and the unsupported length of the screw which means that the limit will drop as the extension tube extends. For some actuators this means that the allowed maximum dynamic load found in the performance specifications can be higher than the column load limit when the extension tube travel is beyond a certain distance. In this case, either the load must be reduced to the column load limit, the amount of used stroke must be reduced, or you must select another actuator model that can manage the column load at that stroke. The column load force limits can be found in the "Column Load vs. Stroke" diagram on the product pages for each actuator. Also see "Dynamic Load Rating".

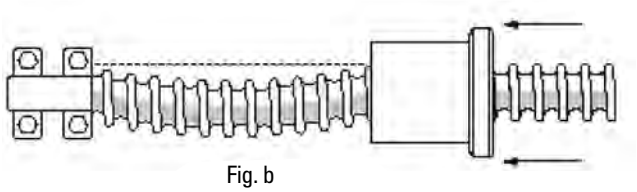


Fig. b

Controls

There are many types of programmable controls that can be used to control the motion of the actuator. PLC's, motion controls, robot controls, CNC controls and industrial computers are just some of them. Many types of servo drives have built-in (or as an expansion card option) programmable motion control features. Thomson offers a variety of combinations to serve your motion control needs.

Cover Tube

The cover tube provides protection for the ball or acme screw and provides protection and support for the extension tube. The cover tube on T and ECT actuators are designed so that magnetic sensors easily can be mounted to the outside of the tube. Also see "Extension Tube" and "Magnetic Sensors".

Critical Speed

All ball screws have a critical speed where the screw starts to vibrate and eventually bend or warp the screw (Fig. c). The excact limit is a function of how far out the extension tube is run and speed. For some actuators this means that the allowed maximum speed found in the performance specifications can be higher than the critical speed when the extension tube travel is beyond a certain distance. In this case, either the speed must be reduced to the critical speed, the amount of stroke must be reduced, or you must select another actuator model that can manage the speed at that stroke. The critical speed limits can be found in the "Critical Speed vs. Stroke" diagram on the product pages for each actuator. Also see "Speed Rating".

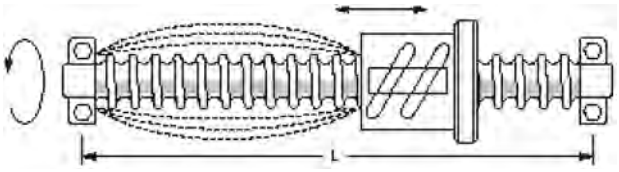


Fig. c

Customization

Even the most versatile standard actuator may not always suit all applications. But whatever your need is, our engineers are ready to help you to customize the actuators according to your requirements. We build more exclusive actuators than anyone in the bussines and have decades of experience in customizing actuators to meet special needs.

Cycle

One cycle is one complete extension and retraction of the extension tube.

Deceleration

Deceleration is a measure of the rate of speed change going from a higher speed to a lower speed (or standstill). The calculations, which are used to develop the Load versus Speed diagrams for each actuator, are based on a deceleration rate that is limited by the maximum speed of the unit. Therefore, this value will be different for all actuators. Please contact customer service if your application is critical to which deceleration rate is acceptable or needed. Also see "Acceleration".

Direct Drive

Direct drive means that there is no gearing between the motor and the lead screw. Instead the motor is connected to the lead screw directly via a coupling.

Duty Cycle

$$\text{Duty cycle} = \frac{\text{on time}}{(\text{on time} + \text{off time})}$$

Example: 2,5 minutes on, 7,5 minutes off

$$\frac{2{,}5 \text{ min}}{(2{,}5 \text{ min} + 7{,}5 \text{ min})} = 25\% \text{ duty cycle}$$

The duty cycle is a function of the load and the ambient temperature. A higher ambient temperature and/or load will affect the duty cycle negatively while a lower temperature and/or lower load will affect it positively. The duty cycles stated in this catalog are all valid for a 10 minute period.

Glossary

Dy – Lif

Dynamic Load Rating
The dynamic load rating (Fx) is the maximum load the actuator can move at a given speed. The relation between the the dynamic load and the speed can be studied in the speed versus load diagrams. For some actuators however, the column load limit will be exceeded if the extension tube extends beyond a certain point. Also see “Load Rating” “Forces” and “Column Load Limit”.

Encoder
Encoders provide a digital output signal in the form of a square shaped pulse train that can be used to determine the position of the extension tube. The encoder signal in a servo motor system is connected to the motion control so that it can control the servo drive and hence close the position feedback loop. The servo motors used on the precision linear actuators do not have an encoder. Instead, they incorporate a resolver feedback device that feeds a shaft-position signal to the drive control. The drive control also converts the resolver signal into a simulated encoder pulse train that can be used to feed a positioning controller. Also see “Resolver”, Servo Motor” and Servo Drive”.

End of Stroke Switches
We strongly recommend the use of switches at the ends of the actuator stroke to prevent the unit from running in to the mechanical end stops. Keep in mind that the extension tube will travel some distance (dependant of speed, load and actuator type) before it comes to a complete stop. This means the end of stroke switches must be placed before the mechanical end of stroke and will reduce the available stroke length.

Extension Tube
The extension tube slides in and out of the actuator’s cover tube and is connected via the front adaptor to the load being moved or positioned. Also see “Cover Tube”.

Extension Tube Side Load
The extension tube side loads (Fy and Fz) are the forces applied to the sides of the extension tube. The maximum allowed side loads can be found in the performance specifications for each actuator. The stated side loads are only valid for a completely retracted extension tube and will decrease as the extension tube extends. Also see “Forces”.

Forces
The below figure (Fig. d) show the definitions for the forces and moments used in this catalog. Always use these definitions in any communication with Thomson.

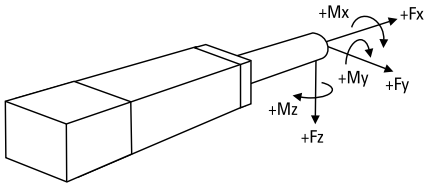


Fig. d

Frequency Inverter
A frequency inverter (also called frequeny converter) is a type of motor drive that are used to control the speed, acceleration and decelration of three phase AC motors. A frequency inverter does that by changing the input frequency to the motor windings as the rotational speed of a three phase AC motor is dependant of the frequency. Also see “Three Phase AC Motor”.

Inertia
Inertia is the property of an object to resist speed changes and is dependant on the shape and the mass of the object. The inertia is important when sizing and selecting and also when tuning a servo system to optimum performance. Consult customer service for more information.

Inline Motor
An inline motor is mounted in line with the cover tube.

Installation Instructions
Each actuator has an installation manual to answer typical questions about mounting and wiring the actuators.

Lead Accuracy
Lead accuracy is a measure of how accurate the lead of a lead screw is. For a lead screw with a lead of 25 mm, the screw should in theory move the nut 25 mm per each revolution. In reallity there will be a deviation between the expected traveling distance and what is actually achieved. The deviation is typically for a ball screw 0,05 mm per 300 mm of stroke. Contact customer service for more information. Also se “Accuracy”.

Lifetime Expectancy
The life time expectancy is a function of many important factors, including load, speed, duty cycle, ambient temperature and screw type. To be able to accurately estimate the life time expectancy, applications must be evaluated on a case by case basis. However, for most actuators a travel life of at least 25 km under the maximum dynamic load can be used as a general approximation. Contact customer service for more information.

Glossary

Lin – Po

Linear Actuators
Actuators providing a linear thrust via an extension tube to lift, lower, push, pull or position a load.

Load Rating
There are many types of load ratings that all needs to be considered. Normally when you speak about the load you refer to the load that the extension tube will pull or push; which is the dynamic load. But there may also be static, side, moment and column loads and forces from acceleration, deceleration, gravity and friction that are all equally important. Also see “Dynamic Load Rating”, “Static Load Rating”, “Side Loads”,“Column Load Limit”, “Tension and Compression Load”, “Acceleration” and “Deceleration”.

Magnetic Sensors
The magnetic sensors used to the precision linear actuators consist of a reed switch that are molded into a plastic housing. In the actuator a magnet is mounted that travels back and forth with the extension tube. The magnet triggers the magnetic sensors which are mounted on the outside of the cover tube. The sensors come in both normally open and normally closed versions.

Motion Control
A motion control is a control that is dedicated to control the motion of a servo motor. To be able to do this the control must have inputs that can recieve the feedback signal which typically is an encoder signal (even if other devices such as potentiometers and resolvers, can be used) and an output which gives the motion commands to the servo drive. Motion controls can be stand alone units or be integrated in other control systems. Also see “Control”, “Servo Motors and “Servo Drive”.

Motor Type
There are two types of electrical motors in different sizes used on the precision linear actuators; three phase AC motors and brushless AC servo motors. Also see Brushless AC Servo Motor” and “Three Phase AC motor”.

Mounting
The precision linear actuators can quickly and easily be mounted using any of the available mounting and adapter options. There are however some things to consider when mounting the actuator. When using the clevis type of mounting, solid mounting pins should be used (avoid using roll or spring type mounting pins). The mounting pins (or trunnions) should be parallel to each other as shown below (Fig. e). It is also recommended to attach the load so that the force act along the axis of the actuator (Fig. f). Any actuator using side angel brackets, tapped holes or mounting feet should be mounted so that the covertube or the extension tube not becomes bend or is subjected to bending forces during standstill or operation.

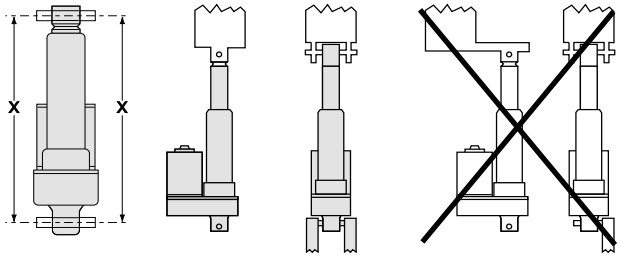


Fig. e

Fig. f

Mounting Options
To be able to mount a precision linear actuator you must select the appropiate mounting and adapter options for your application. There are several different options to choose from and you can define your choice by using the ordering keys or part numbers. T and ECT actuators, however comes with mounting holes and T-slots that can be used for mounting.

Operating and Storage Temperature
The operating temperature is the range in which the actuator may be safely operated. All actuators can be stored or transported at the same temperature as the operating temperature. Contact customer support if the operating temperature will be exceeded during storage or transportation.

Parallel Motor
A parallel motor is mounted parallel to the cover tube.

Planetary Gear
A planetary gear is a gear system that consists of one or more outer gears (planet gears) rotating about a central (sun) gear. Typically, the planet gears are mounted on a movable arm or carrier which itself may rotate relative to the sun gear. As a result, planetary gears have the input and output shaft in line with each other with rotation in the same direction. Planetary gears are robust, accurate and comparably small but are more expensive than belt or helical gears.

Positioning accuracy
Positioning accuracy is the error between the the expected and actual position and is the sum of all factors that will reduce the accuracy (i.e. repeatability, backlash, resolution, lead accuracy, and the accuracy of the motor, drive and motion control system). Some of these factors, such as backlash and lead accuracy, can sometimes be compensated for in the software of the motion control system being used. Also see “Accuracy”.

Glossary

Pr – Sta

Protection Class
The protection class refers to the environmental rating of the enclosure. The first digit applies to airborne contaminants and the second digit to water/moisture.

IP65: dust tight and protected against low pressure water jets from any direction.

Repeatability
Repeatability is the ability for a positioning system to return to a location when approaching from the same distance, at the same speed and deceleration rate. Some of the factors that affect the repatability are the angular repeatability of the motor, drive and motion control system, system friction and changes in load, speed and deceleration.

Resolution
Resolution is the smallest move increment that the system can perform. Some of the factors that affect the resolution are the angular repeatability of the motor, drive and motion control system, system friction, the drive train reduction, the type and lead of the lead screw and changes in load, speed and deceleration.

Resolver
A resolver is basically a type of rotary electrical transformer used for measuring degrees of rotation and are commonly used on AC servo motors as a feedback device to control the commutation of the motor windings. The resolver is mounted to the end of motor shaft and when the motor rotates the resolver will transmit the position and direction of the rotor to the servo drive which then can control the motor. Most servo drives for AC servo motors on the market today can convert the resolver signal in to a pulse train (encoder signal simulation) which can be used by a motion control to determine and control the position of the motor. Also see “Encoder”, “Servo Drive”, “Servo Motor” and “Motion Control”.

RoHS Compliance
The RoHS directive stands for “the restriction of the use of certain hazardous substances in electrical and electronic equipment”. This directive bans the placing on the EU market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants. All precicion linear actuators, controls and accessories sold in the EU are RoHS compliant.

Service and Maintenance
Precision liner actuators only need to be lubricated. The intervall between the lubrications depends on the how frequent and hard the actuator works. The lubrication of the entire actuator is done at one single point. No other service or maintenance is required

Servo Drive
A servo drive is an electrical device which controls the commutation of a servo motor. Different types of servo motors require different types of drives. To be able to run the system as a servo system there must also be a motion control which give the commands to the servo drive and some kind of feedback (encoder, potentiometer, etc) to the control so that it can determine and adjust the speed and the position of the motor (closed loop feedback). Some servo drives has built in motion controls. Also see “Servo Motor”, Brushless AC Servo Motor” and “Controls”.

Servo Motor
A servo motor is a motor that works with a feedback device in a closed loop configuration controlled by a motion control. Any type of motor can in principal work as a servo motor but normally when speaking about servo motors you refer to motors that are specially designed to work in servo systems. Also see “Servo Drive”, Brushless AC Servo Motor” and “Controls”.

Side Loads
See “Extension Tube Side Loads”.

Sizing and Selection
This catalog can give you an overview of what Thomson can offer you and an indication of which products that may suit your application. But in order to get the best solution it is neccessary to know your specific application and to carry out detailed sizing and selection calculations. Please contact customer service for further help.

Speed Rating
The speed versus load diagrams on each product page show the maximum allowed speed at any given dynamic load ranging from no load to maximum allowed dynamic load. For some actuators however, the critical speed limit can be a limiting factor for the maximum allowed speed if the extension tube extends beyond a certain point. Also see “Load Rating” “Forces” and “Critical Speed Limit”.

Static Load Rating
The static load rating is how much load the actuator will hold at standstill. This value can be higher than the dynamic load rating and depends on factors such as stroke length, column load rating, gear type, and maximum holding force of the motor brake. Consult customer service for more information. Also see “Load Rating”.

Glossary

Str – Th

Stroke Length

The maximum stroke length for each actuator type can be found in the performance specifications. The stroke length is the available distance the extension tube can move from one mechanical end to the other. Keep in mind that extra stroke length above the application requirements will be needed to avoid hitting the mechanical end stops. We also recommend the use of end of stroke limit switches (both extension and retraction) to avoiding running in to the mechanical ends by accident. Using end of stroke limit switches require some deceleration distance to be added to the stroke so that the extension tube has time to stop before running in to the ends. Exactly how much extra stroke you need depends on many factors and needs to be determined for each application on a case to case basis. Also see “End of Stroke Limit Switches”.

Tension and Compression Load

A tension load tries to stretch the actuator and a compression load tries to compress the actuator (Fig. g). All precision linear actuators can manage the same tension and compression load. Also see “Dynamic Load Rating”.

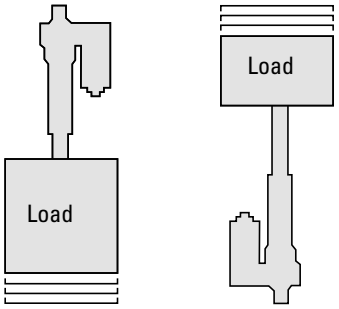


Fig. g

Three Phase AC Motor

The three phase AC motor is known under many names; squirrel cage motor, induction motor, asynchronous motor or asynchronous induction motor are a few. The three phase AC motor can be run directly from a three phase source in which case its speed will be determined by the frequency and the number of poles. The typical nominal speed of a 2 pole motor is around 2850 rpm, a 4 pole has half that speed and a 8 pole half of the 4 pole, etc. However, when running the motor directly from a three phase source there is no control of the speed, acceleration or deceleration. Instead, the motor accelerates as fast as it can, depending of the load, to its nominal speed. This puts stress on the mechanical components, if they can manage it at all. A precision linear unit with a three phase AC motor is not designed to run directly from a three phase source. Instead, a frequency inverter must be used that can control speed, acceleration and deceleration to keep these within the acceptable limits. A three phase motor is relatively cheap, very robust and needs no maintenance. The downside is that even though it can be controlled from a frequency inverter, it will never be as accurate as a servo motor system. Especially at low speeds (below approximately 10 Hz), the motor will start to loose torque and may also become overheated with time, as the internal fan mounted on the rotor will rotate too slow to be able to cool the motor sufficient for operation. Using an external fan mounted to the back of the motor may solve this problem but is an added cost and will also make the installation larger. The speed at which overheating caution should be taken is marked in the “Speed vs. Load” diagrams with a dashed line instead of a continous line (Fig. h). Also see “Frequency Inverter” and “Motor Type”.

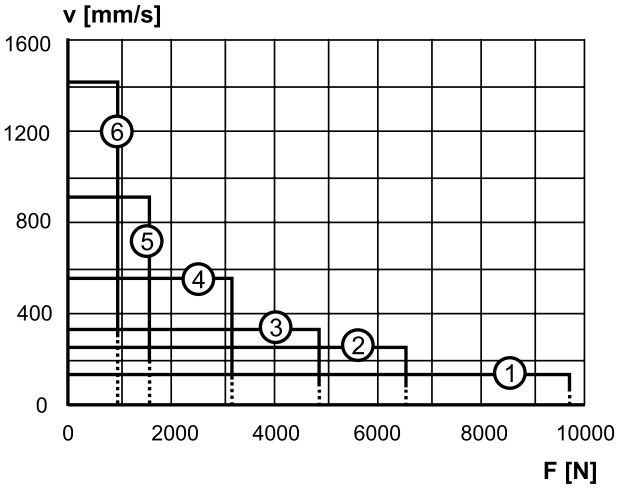


Fig. h

Application Data Form

Worksheet

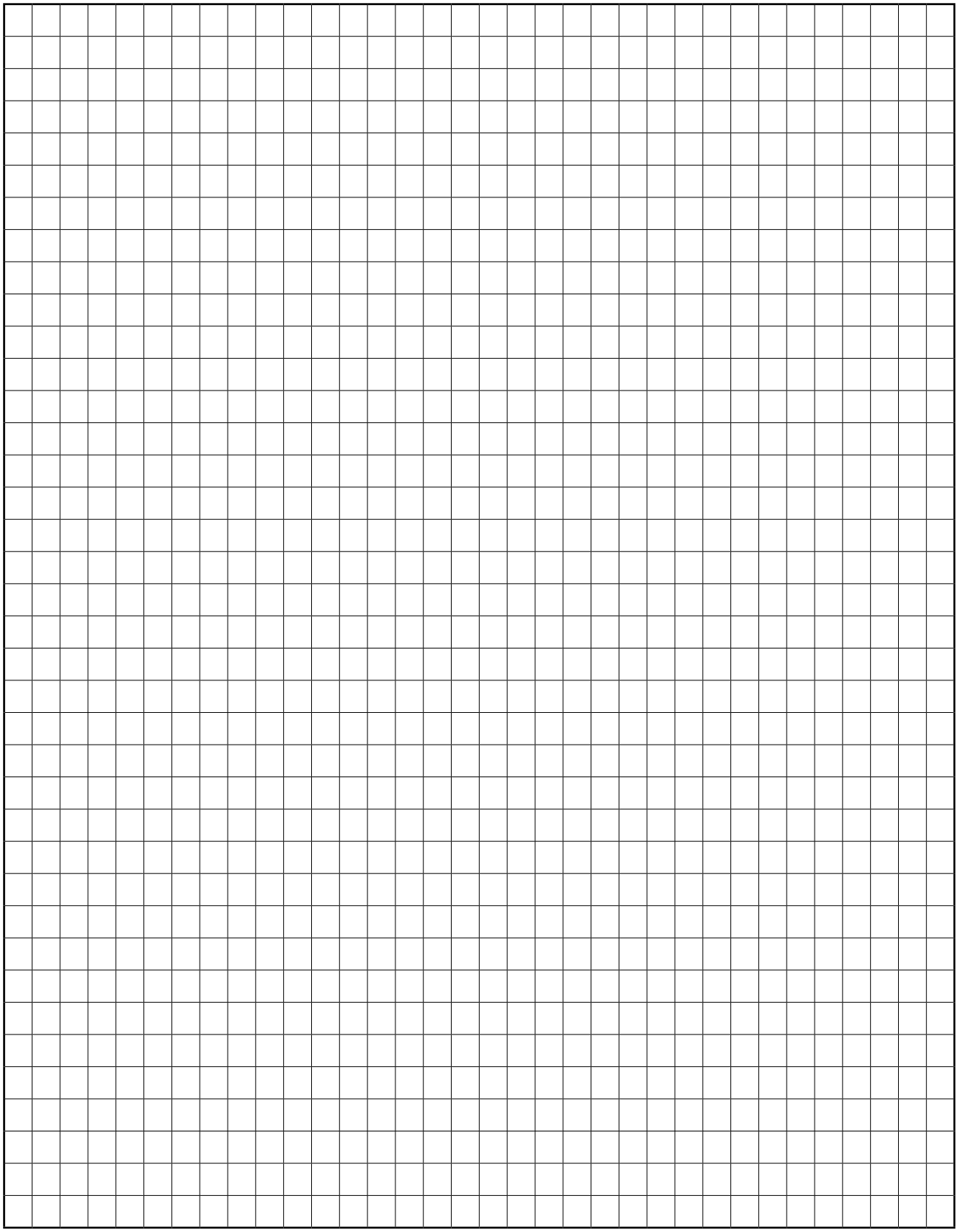
Application Data Form*

Submitted by:	Phone:	Date:
1. Company name	20. Do you need any special retracted length (cross hole c/c in mm)?	
2. Street address	21. What kind of motor would you prefer?	
3. City-state, zip	22. Is a holding brake required?	
4. Contact name	23. Do you need any of the optional features of the actuator?	
5. Phone	24. Do you need a matching drive to the actuator?	
6. Fax	25. What is the accuracy requirements of the application?	
7. E-mail	26. What are the environmental conditions (dusty, outdoors, wash down)?	
8. What is the estimated annual volume?	27. What is the operation temperature range in Celcius?	
9. What is the target price?	28. What is the duty cycle (on-time / on-time + off-time) in seconds?	
10. What is the current or alternative solution?	29. Do you need any certificate (UL, CE, etc.)?	
11. How much load is moved in Newton?	30. Do you require any print (dwg, dxf, faxed)?	
12. How much load do you need to hold in Newton?	31. Describe any additional requirements (packaging, labeling, etc.)	
13. How will the actuator be mounted (horizontal/vertical)?		
14. Is the load trying to stretch or/and compress the actuator?		
15. What speed do you want the actuator to move in mm/s?		
16. What is the life of the unit in cycles (one cycle = extend and retract)?		
17. What is the stroke length?		
18. How will the actuator be mounted to the extension tube?		
19. How will the actuator be mounted to the foundation?		

* Please enter all fields in the form and send it and any drawing to customer service by mail or fax. See the back of the catalog for the nearest location.

Application Data Form

Drawing/Notes



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