Precision Linear Actuators

DANAHER MOTION

Helping you build a better machine, ***faster.***

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Danaher Motion -
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Danaher Corporation combined over 30 industry-leading brands such as Kollmorgen, Thomson, Dover, Pacific Scientific, Portescap, Neff, Seidel and Bautz to establish a customer-focused motion control manufacturing company called Danaher Motion. We offer this powerful set of integrated motion control technologies under the Danaher Motion and Thomson brand names. We are a $1B+ global motion control leader, unique in our ability to marshal decades of application experience and technical innovation to help you build better machines, faster.

Danaher Motion defines high standards of quality, innovation and technology. We enable improved machine performance and reliability while controlling costs. Our global manufacturing footprint, rapid customization and prototyping capabilities drive quick lead times. Unmatched application experience and design expertise empowers you to commission machines faster.

Consider your options in today's market for a motion control partner. Select Danaher Motion and join a team with 6100 employees, over 60 years of application experience and 2000+ distributor locations around the globe. Danaher Motion serves industries as diverse as semiconductor, aerospace and defense, electric vehicle systems, packaging, printing, medical and robotics. We offer an unparalleled depth and breadth of motion control product solutions through a worldwide service and support infrastructure, field service engineers and support teams available when and where you need them.

The Danaher Business System -
Building sustainable competitive advantage into your business

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 Danaher Motion 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

Table of Contents

Introduction

Company Introduction

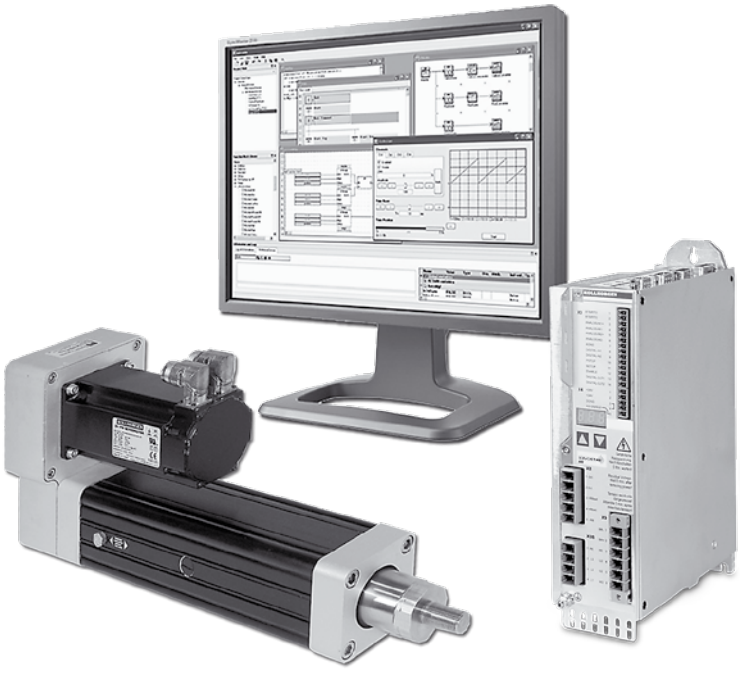
Danaher Motion is one of the leading suppliers of motion control products in the world offering a complete product portfolio. Actuators, servo motors, lead screws, servo drives and controls are just some of the products manufactured by Danaher Motion. The precision linear actuator range is a result of 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
Danaher Motion 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.

Danaher Motion - a complete supplier
Danaher Motion 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 Danaher Motion has the ideal choice for your application. Please visit www.danahermotion.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.danahermotion.com/PLA_advisor. 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 can successfully be 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.

Danaher Motion offers two high performance precision linear actuator series - the black EC series in four sizes and the aluminum-colored ECT series in two sizes. Both series are ideal for positioning loads that are either externally-guided and supported, or pivoting. They are also ideal where there is a high concentration of airborne contaminants, as rodless actuators are inherently less well protected.

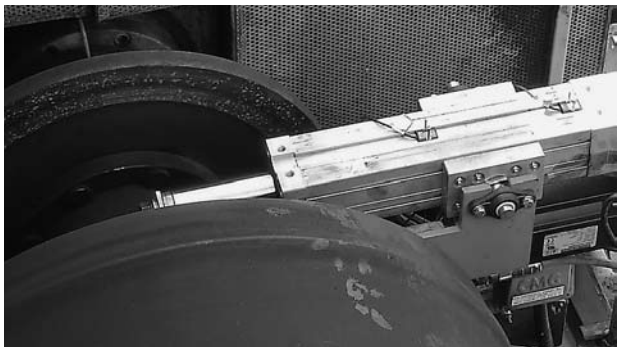
Strong, fast and accurate
The hallmark for the entire range of precision linear actuators is the ability to work hard, fast and accurately, day in and day out, under the toughest conditions.

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.

Minimum maintenance
All precision linear actuators are designed to require a minimum of maintenance. There are no parts that need to be replaced due to wear. Regular lubrication is needed only in applications where the actuator works hard and frequently.

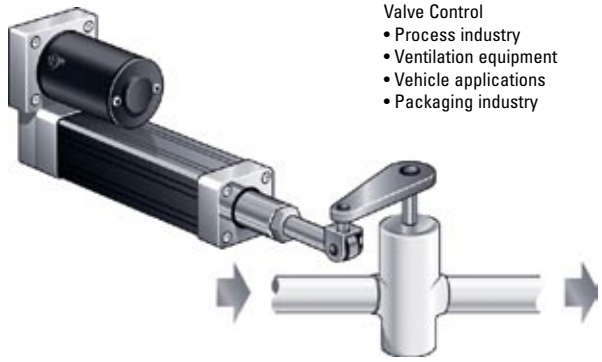
Customized units
Customization is one of our strengths and we have built hundreds of customized units. If you need a special stroke, a unique mounting bracket, or some other adaptation of the standard product, our engineers will help you find the perfect solution for your application. Please contact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



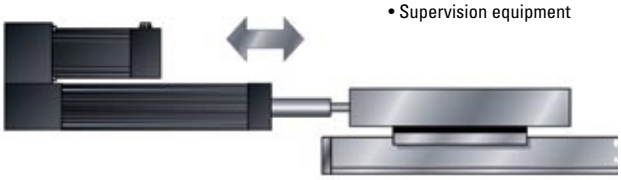
Introduction

Applications

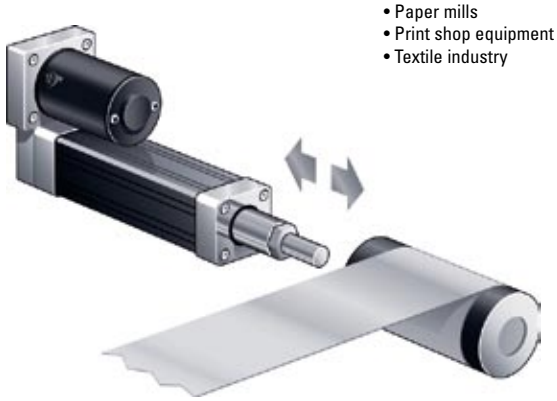
Precision linear actuators can fit a wide variety of applications within many motion industries. In combination with high performance drives and controls from Danaher Motion, design into linear motion equipment is made easy and simple. Some common applications are described below.



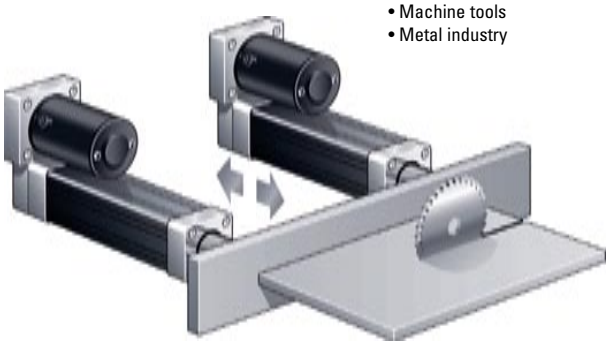
Valve Control
- Process industry
- Ventilation equipment
- Vehicle applications
- Packaging industry



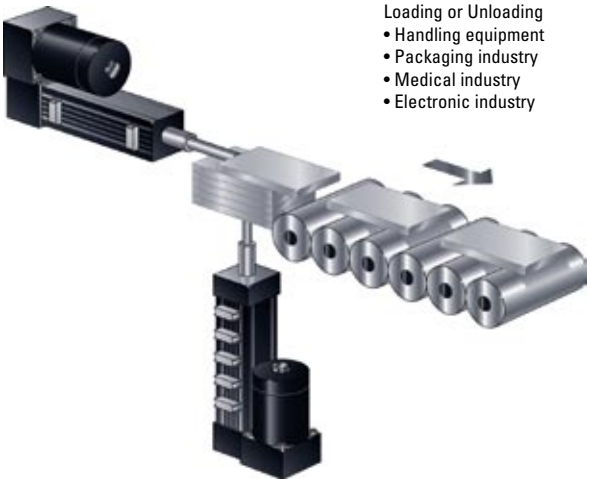
Linear Guide Positioning
- Machine tools
- Vehicle applications
- Electronic industry
- Scanning equipment
- Supervision equipment



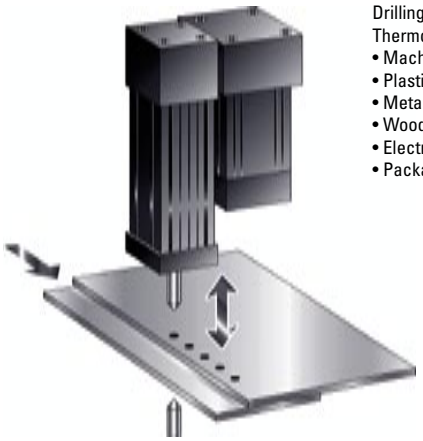
Edge Guide Control
- Paper mills
- Print shop equipment
- Textile industry



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

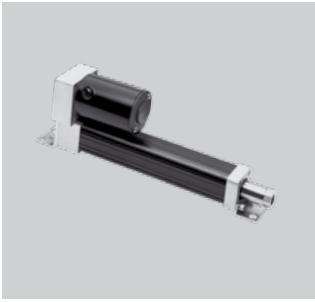
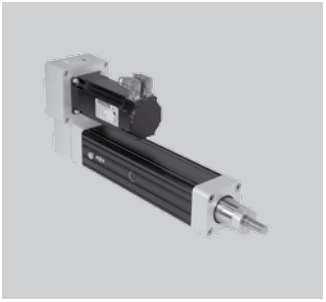
Precision linear actuators are often a better choice than hydraulic or pneumatic alternatives with advantages of simpler and smaller installation, easier control, lower energy costs, higher accuracy, less maintenance, less noise, and a cleaner, healthier environment.

Electrical Actuators vs. Hydraulic and Pneumatic Cylinders

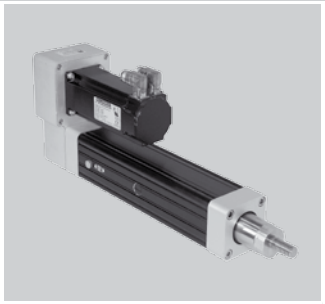
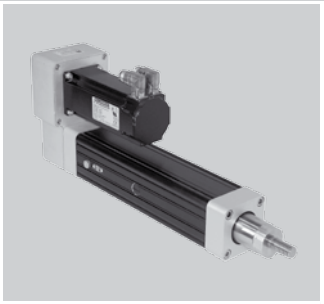
	Electrical Linear Actuators	Hydraulic Cylinders	Pneumatic Cylinders
Installation	All electric operation requires simple wiring.	Requires expensive plumbing, filtering, pumps, etc.	Requires expensive plumbing, filtering, pumps, etc.
Accuracy	Very repeatable (to ± 0,013 mm) and rigid, multi-stop capabilities.	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 Actuator Range

		EC2	EC3
			
Load			
Maximum load, Fx	[N]	3600	7200
Maximum load, Fy	[N]	0	0
Maximum load, Fz	[N]	0	0
Maximum load torque, Mx	[Nm]	5	7,5
Maximum load torque, My	[Nm]	0	0
Maximum load torque, Mz	[Nm]	0	0
Stroke			
Maximum standard stroke	[mm]	750	1000
Speed			
Maximum speed	[m/s]	1,28	1,28
Accuracy			
Repeatability	[± mm]	0,013	0,013
Backlash - acme / ball screw	[mm]	0,4 / 0,25	0,4 / 0,25
General data			
Profile size (width × height)	[mm]	55 × 55	68 × 68
Operating temperature limits	[°C]	0 – +70	0 – +70
Maximum duty cycle	[%]	100	100
Lead screw diameter	[mm]	16	16, 20
Lead screw type		acme or ball screw	ball screw
Protection class - standard / optional		IP54 / IP65	IP54 / IP65
Features			
DC motor / 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		•	•
Front / rear flange mounting kit		•	•
Tube end - inside thread / outside thread / clevis / spherical joint		•/•/•/•	•/•/•/•

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

	EC4	EC5	ECT90	EC T130
				
	12000	25000	20000	38000
	0	0	500	800
	0	0	500	800
	10	10	-	-
	0	0	150	300
	0	0	150	300
	1500	1500	1500	2000
	1,33	1,33	1,6	2,0
	0,013	0,013	0,05	0,05
	/ 0,25	/ 0,3	/ 0,11 (0,18) [1]	/ 0,21
	94 × 94	94 × 94	90 × 92	130 × 130
	0 – +70	0 – +70	-20 – +70	-20 – +70
	100	100	100	100
	25	32	25, 32	40
	ball screw	ball screw	ball screw	ball screw
	IP54 / IP65	IP54 / IP65	IP65	IP65
	/•/	/•/	/•/•	/•/•
	•	•	•	•
	•	•	•	•
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	•/•/•/•	•/•/•/•	•/•/ /	•/•/ /

EC Series

Introduction

The proven design of the EC actuators has found its way into thousands of applications throughout the world. Regardless of the environment or requirement, we can customize our standard models to fit just about any application. The EC series combines durability and ease-of-use with the largest selection of factory-engineered options available today.

EC Series

Overview

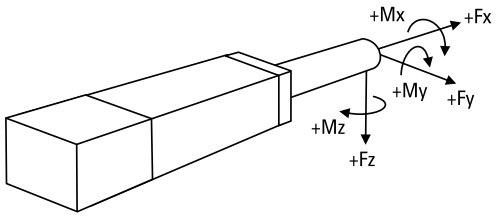
Features

- Extruded anodized aluminum cover tube
- Anodized aluminum housing
- Stainless steel extension tube
- Acme or ball screw drive
- Permanent magnet DC motor or brushless AC servo motor
- Parallel or Inline motor
- Maintenance free
- Belt gear, helical spur gear or direct drive
- Large range of options and accessories

Parameter		EC2	EC3
Profile size (width × height)	[mm]	55 × 55	68 × 68
Stroke length (S), maximum	[mm]	700	1000
Speed, maximum	[m/s]	1,28	1,28
Load (Fx), maximum	[N]	3600	7200
Available motor types		DC motor or AC servo motor	AC servo motor
Page			

Parameter		EC4	EC5
Profile size (width × height)	[mm]	94 × 94	94 × 94
Stroke length (S), maximum	[mm]	1500	1500
Speed, maximum	[m/s]	1,33	1,33
Load (Fx), maximum	[N]	12000	25000
Available motor types		AC servo motor	AC servo motor
Page			

Definition of Forces



EC2

Acme Screw, Parallel 24 Volt DC Motor

» Ordering Key - see page 86
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Permanent magnet DC motor
- Belt gear or helical gear depending on gear ratio
- Self locking acme screw
- Stroke up to 750 mm
- Load up to 800 N
- Speed up to 220 mm/s

General Specifications

Parameter	EC2
Profile size (w × h)	55 × 55 mm
Screw type	acme screw
Gear box	belt gear (1:1, 1,5:1, 2:1) helical gear (5:1, 10:1)
Motor type	permanent magnet DC motor
Motor voltage	24 Vdc
Motor current, maximum continuous peak	 4,5 A 10 A
Motor feedback	no
Motor connection	connector
Motor brake	no, self-locking
Lubrication	single point lubrication
Certificates	CE
Options	• mounting options • adapter options • IP65 protective bellows

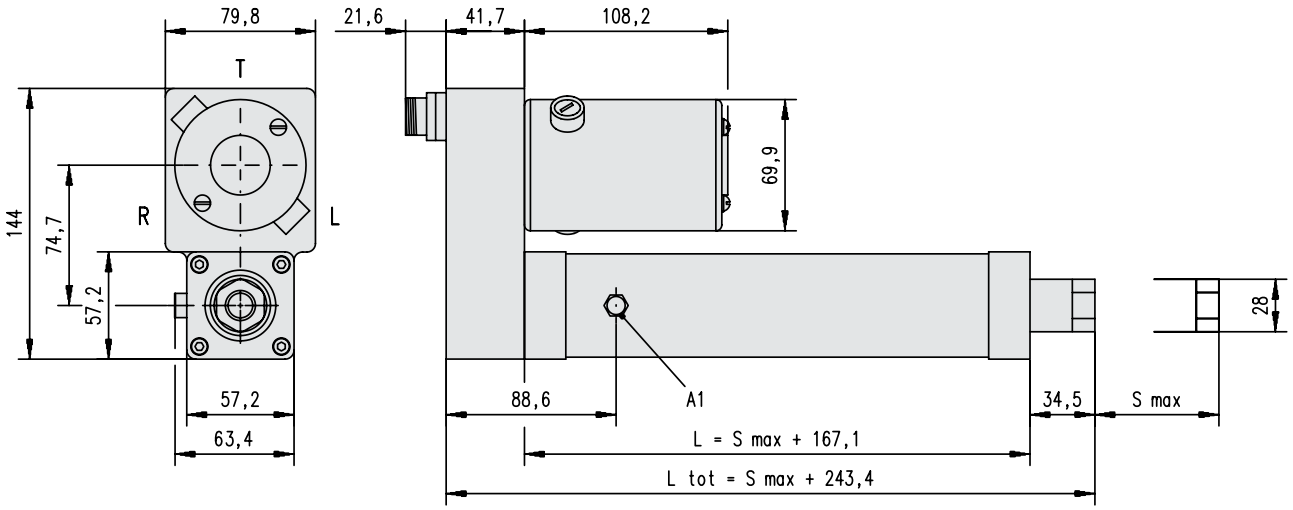
Performance Specifications

Parameter		EC2
Stroke length (S), maximum	[mm]	750
Maximum dynamic load (Fx)[1] EC2-D-100-04A EC2-D-50-04A EC2-D-20-04A EC2-D-15-04A EC2-D-10-04A	[N]	 800 425 170 125 80
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	5
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed EC2-D-100-04A EC2-D-50-04A EC2-D-20-04A EC2-D-15-04A EC2-D-10-04A	[mm/s]	 20 40 100 140 220
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	16
Screw leads	[mm]	4
Backlash	[mm]	0,40
Repeatability	[± mm]	0,13
Protection class, standard / optional		IP54 / IP65

[1] At a 50% duty cycle over a 10 minute period.
[2] Value at full retraction - decreases as the actuator extends.

EC2

Acme Screw, Parallel 24 Volt DC Motor



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

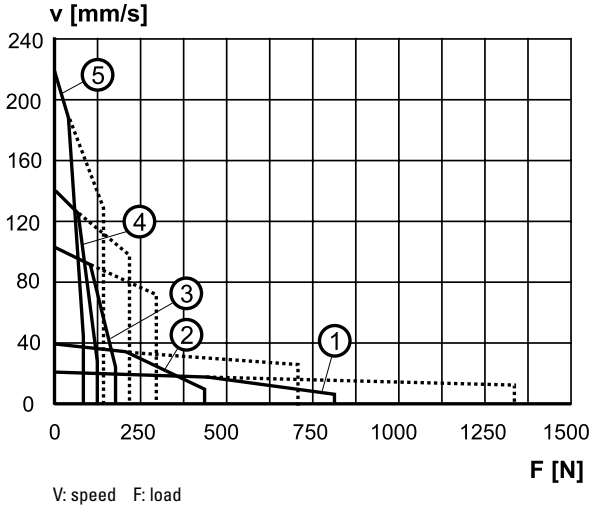
T: top side
R: right side
L: left side

A1: breather tube output cover, 1/8 NPT - 11,1 HEX

Retracted length (L tot)	**[mm]**	L tot = S max + 243,4
Weight of unit	**[kg]**	kg = 4,28 + 0,006 + S max

Performance Diagrams

Speed vs. Load

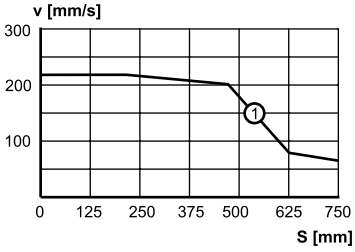


V: speed F: load

1: EC2-D-100-04A
2: EC2-D-50-04A
3: EC2-D-20-04A
4: EC2-D-15-04A
5: EC2-D-10-04A

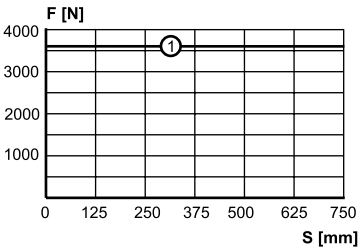
—— = Performance at a duty cycle of maximum 50%.
····· = Performance at a duty cycle of maximum 30%.

Critical Speed vs. Stroke



v: speed S: stroke length
1: EC2-D-••-04A

Column Load Limit vs. Stroke



F: load S: stroke length
1: EC2-D-••-04A

EC2

Acme Screw, Inline 24 Volt DC Motor

» Ordering Key - see page 86
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Permanent magnet DC motor
- Direct drive
- Self locking acme screw
- Stroke up to 750 mm
- Load up to 80 N
- Speed up to 220 mm/s

General Specifications

Parameter	EC2
Profile size (w × h)	55 × 55 mm
Screw type	acme screw
Gear box	no, direct drive
Motor type	permanent magnet DC motor
Motor voltage	24 Vdc
Motor current, maximum continuous peak	 4,5 A 10 A
Motor feedback	no
Motor connection	flying leads
Motor brake	no, self-locking
Lubrication	single point lubrication
Certificates	CE
Options	• mounting options • adapter options • IP65 protective bellows

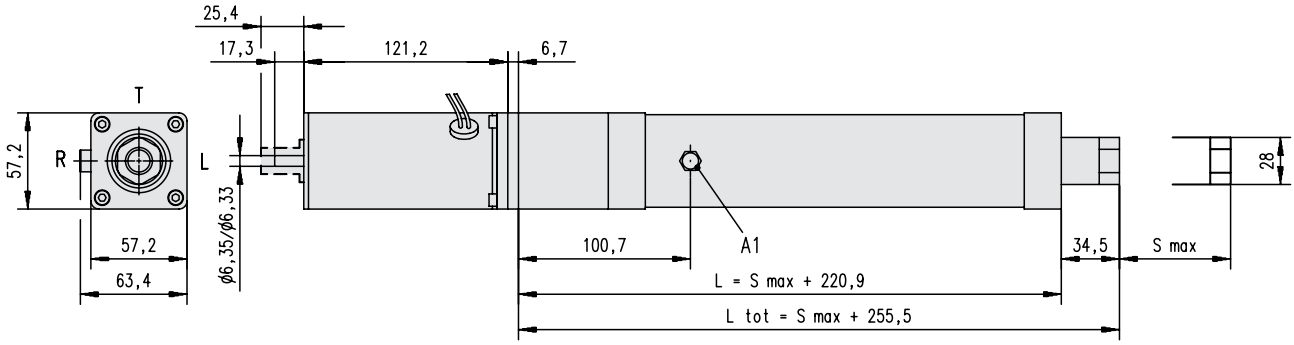
Performance Specifications

Parameter		EC2
Stroke length (S), maximum	[mm]	750
Maximum dynamic load (Fx)[1] EC2-D-10L-04A	[N]	 80
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	5
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed EC2-D-10L-04A	[mm/s]	 220
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	16
Screw leads	[mm]	4
Backlash	[mm]	0,40
Repeatability	[± mm]	0,13
Length of motor leads	[mm]	150
Protection class, standard / optional		IP54 / IP65

[1] At a 50% duty cycle over a 10 minute period.
[2] Value at full retraction - decreases as the actuator extends.

EC2

Acme Screw, Inline 24 Volt DC Motor



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

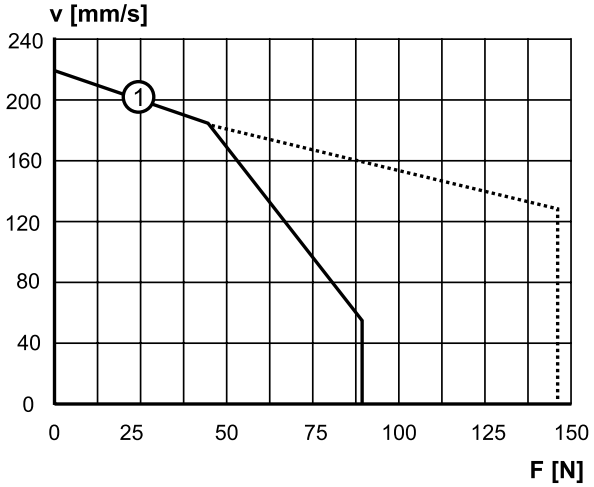
T: top side
R: right side
L: left side

A1: breather tube output cover, 1/8 NPT - 11,1 HEX

Retracted length (L tot)	**[mm]**	L tot = S max + 255,5
Weight of unit	**[kg]**	kg = 4,28 + 0,006 + S max

Performance Diagrams

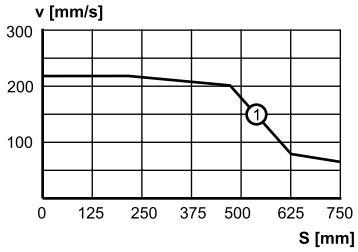
Speed vs. Load



V: speed F: load
1: EC2-D-10L-04A

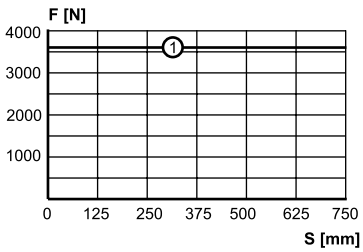
—— = Performance at a duty cycle of maximum 50%.
····· = Performance at a duty cycle of maximum 30%.

Critical Speed vs. Stroke



v: speed S: stroke length
1: EC2-D-10L-04A

Column Load Limit vs. Stroke



F: load S: stroke length
1: EC2-D-10L-04A

EC2

Ball Screw, Parallel 24 Volt DC Motor

» Ordering Key - see page 87
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Permanent magnet DC motor
- Belt gear or helical gear depending on gear ratio
- Ball screw
- Stroke up to 750 mm
- Load up to 1330 N
- Speed up to 820 mm/s

General Specifications

Parameter	EC2
Profile size (w × h)	55 × 55 mm
Screw type	ball screw
Gear box	belt gear (1:1, 1,5:1, 2:1) helical gear (5:1, 10:1)
Motor type	permanent magnet DC motor
Motor voltage	24 Vdc
Motor current, maximum continuous peak	 4,5 A 10 A
Motor feedback	no
Motor connection	connector
Motor brake	no
Lubrication	single point lubrication
Certificates	CE
Options	• mounting options • adapter options • IP65 protective bellows

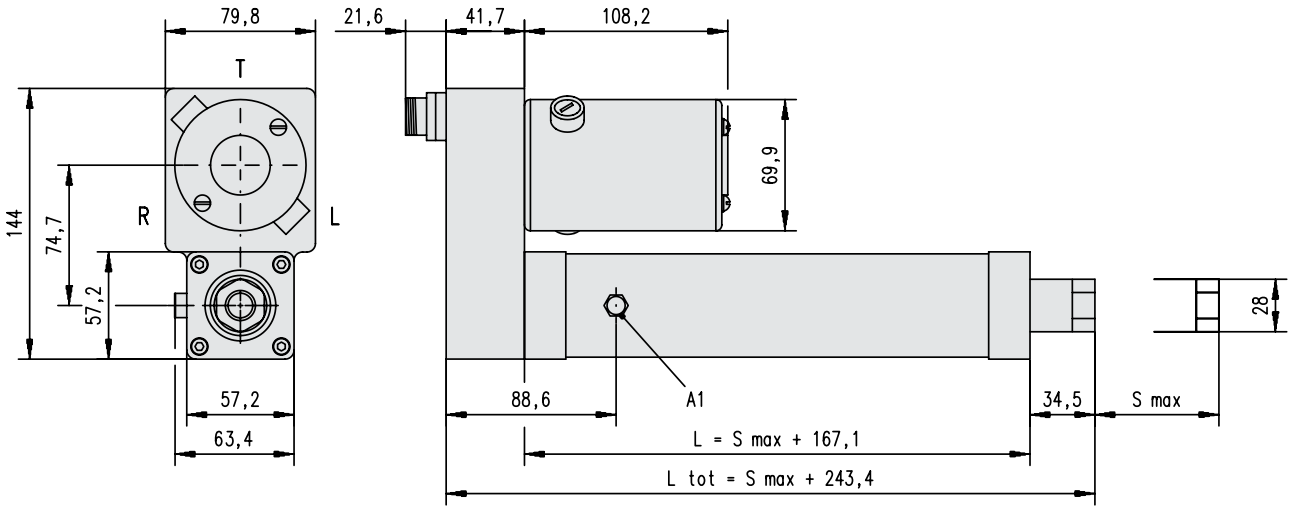
Performance Specifications

Parameter		EC2
Stroke length (S), maximum	[mm]	750
Maximum dynamic load (Fx)[1] EC2-D-100-05B EC2-D-50-05B EC2-D-100-16B EC2-D-20-05B EC2-D-50-16B EC2-D-15-05B EC2-D-10-05B EC2-D-20-16B EC2-D-15-16B EC2-D-10-16B	[N]	 1330 670 420 280 200 200 140 80 60 40
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	5
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed EC2-D-100-05B EC2-D-50-05B EC2-D-100-16B EC2-D-20-05B EC2-D-50-16B EC2-D-15-05B EC2-D-10-05B EC2-D-20-16B EC2-D-15-16B EC2-D-10-16B	[mm/s]	 25 50 80 130 160 170 260 410 560 830
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	16
Screw leads	[mm]	5, 16
Backlash	[mm]	0,25
Repeatability EC2-D-••-05B EC2-D-••-16B	[± mm]	 0,13 0,25
Protection class, standard / optional		IP54 / IP65

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

EC2

Ball Screw, Parallel 24 Volt DC Motor



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

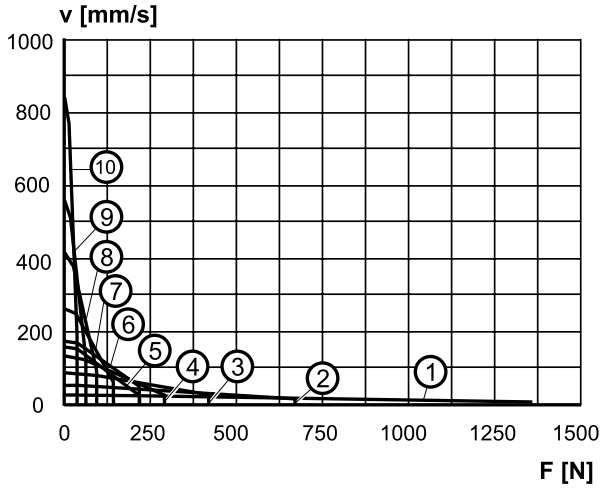
T: top side
R: right side
L: left side

A1: breather tube output cover, 1/8 NPT - 11,1 HEX

Retracted length (L tot)	**[mm]**	L tot = S max + 243,4
Weight of unit	**[kg]**	kg = 4,28 + 0,006 + S max

Performance Diagrams

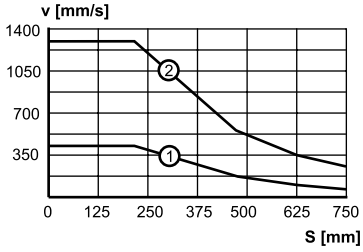
Speed vs. Load



V: speed F: load

1: EC2-D-100-05B
2: EC2-D-50-05B
3: EC2-D-100-16B
4: EC2-D-20-05B
5: EC2-D-50-16B
6: EC2-D-15-05B
7: EC2-D10-05B
8: EC2-D20-16B
9: EC2-D15-16B
10: EC2-D10-16B

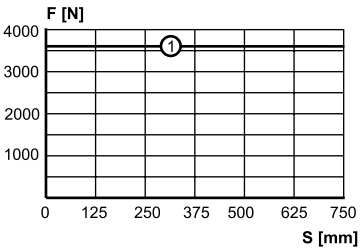
Critical Speed vs. Stroke



v: speed S: stroke length

1: EC2-D-••-05B
2: EC2-D-••-16B

Column Load Limit vs. Stroke



F: load S: stroke length

1: EC2-D-••-••B

EC2

Ball Screw, Inline 24 Volt DC Motor

» Ordering Key - see page 87
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Permanent magnet DC motor
- Direct drive
- Ball screw
- Stroke up to 750 mm
- Load up to 140 N
- Speed up to 820 mm/s

General Specifications

Parameter	EC2
Profile size (w × h)	55 × 55 mm
Screw type	ball screw
Gear box	no, direct drive
Motor type	permanent magnet DC motor
Motor voltage	24 Vdc
Motor current, maximum continuous peak	 4,5 A 10 A
Motor feedback	no
Motor connection	flying leads
Motor brake	no
Lubrication	single point lubrication
Certificates	CE
Options	• mounting options • adapter options • IP65 protective bellows

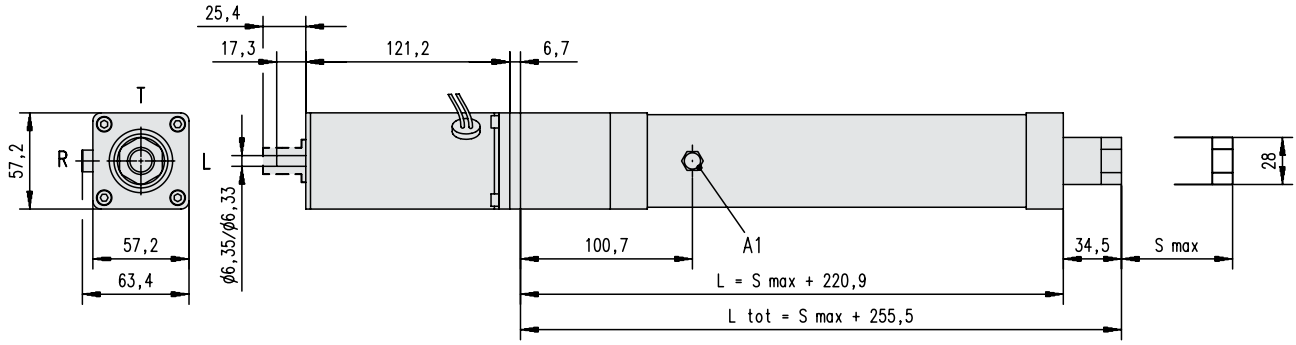
Performance Specifications

Parameter		EC2
Stroke length (S), maximum	[mm]	750
Maximum dynamic load (Fx)[1] EC2-D-10L-05B EC2-D-10L-16B	[N]	 140 40
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	5
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed EC2-D-10L-05B EC2-D-10L-16B	[mm/s]	 260 820
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	16
Screw leads	[mm]	5, 16
Backlash	[mm]	0,25
Repeatability EC2-D-10L-05B EC2-D-10L-16B	[± mm]	 0,13 0,25
Length of motor leads	[mm]	150
Protection class, standard / optional		IP54 / IP65

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

EC2

Ball Screw, Inline 24 Volt DC Motor



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

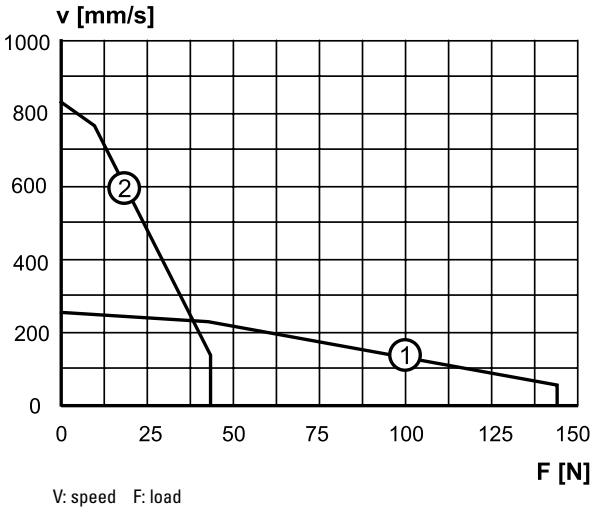
T: top side
R: right side
L: left side

A1: breather tube output cover, 1/8 NPT - 11,1 HEX

Retracted length (L tot)	**[mm]**	L tot = S max + 255,5
Weight of unit	**[kg]**	kg = 4,28 + 0,006 + S max

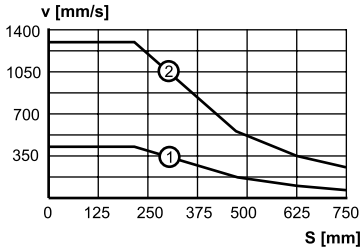
Performance Diagrams

Speed vs. Load



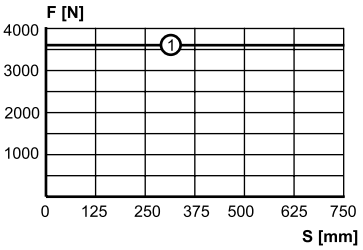
V: speed F: load
1: EC2-D-10L-05B
2: EC2-D-10L-16B

Critical Speed vs. Stroke



v: speed S: stroke length
1: EC2-D-••L-05B
2: EC2-D-••L-16B

Column Load Limit vs. Stroke



F: load S: stroke length
1: EC2-D-••L-••B

EC2

Ball Screw, Parallel BK23 AC Servo Motor

» Ordering Key - see page 88
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Brushless AC servo motor
- Belt gear or helical gear depending on gear ratio
- Ball screw
- Stainless steel extension tube
- Stroke up to 750 mm
- Load up to 3600 N
- Speed up to 1280 mm/s

General Specifications

Parameter	EC2
Profile size (w × h)	55 × 55 mm
Screw type	ball screw
Gear box	belt gear (1:1, 1,5:1, 2:1) helical gear (5:1, 10:1)
Motor type	brushless AC servo motor
Motor designation	AKM23D-EFCNR
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 • IP65 protective bellows

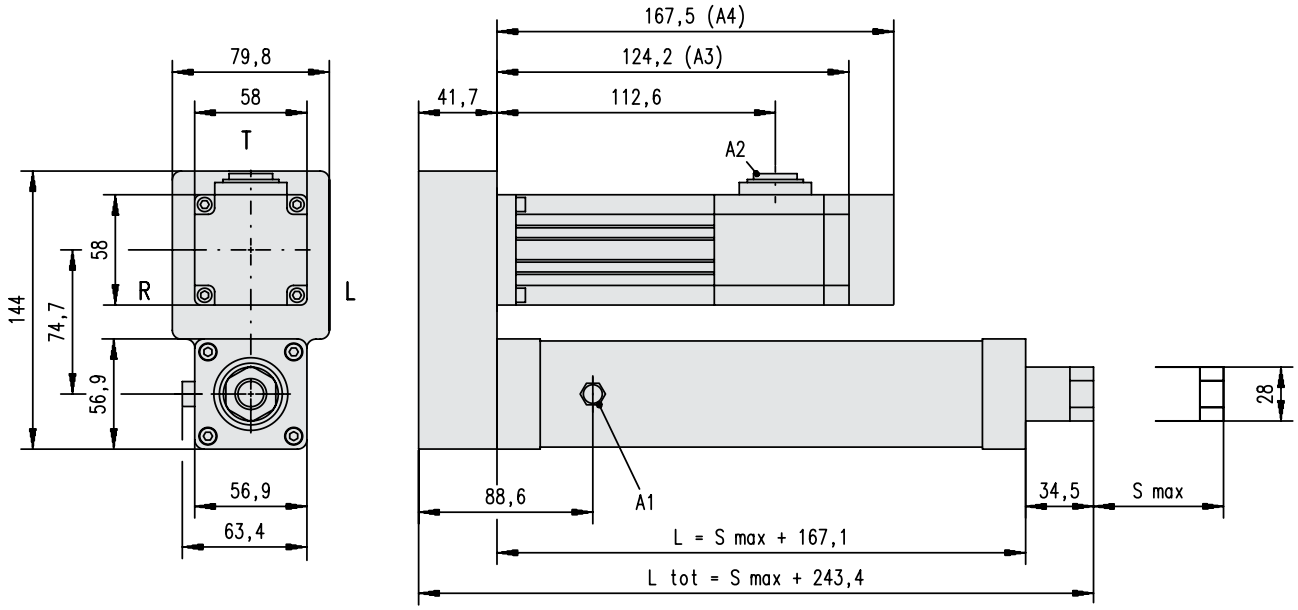
Performance Specifications

Parameter		EC2
Stroke length (S), maximum	[mm]	750
Maximum dynamic load (Fx)[1]	[N]	
EC2-BK23R-50-05B		3600
EC2-BK23R-100-16B		2830
EC2-BK23R-20-05B		1900
EC2-BK23R-50-16B		1420
EC2-BK23R-15-05B		1400
EC2-BK23R-10-05B		950
EC2-BK23R-20-16B		590
EC2-BK23R-15-16B		440
EC2-BK23R-10-16B		290
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	5
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed	[mm/s]	
EC2-BK23R-50-05B		60
EC2-BK23R-100-16B		90
EC2-BK23R-20-05B		290
EC2-BK23R-50-16B		180
EC2-BK23R-15-05B		390
EC2-BK23R-10-05B		400
EC2-BK23R-20-16B		920
EC2-BK23R-15-16B		1250
EC2-BK23R-10-16B		1280
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	16
Screw leads	[mm]	5, 16
Backlash	[mm]	0,25
Repeatability	[± mm]	0,013
Protection class, standard / optional		IP54 / IP65

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

EC2

Ball Screw, Parallel BK23 AC Servo Motor



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

T: top side
R: right side
L: left side

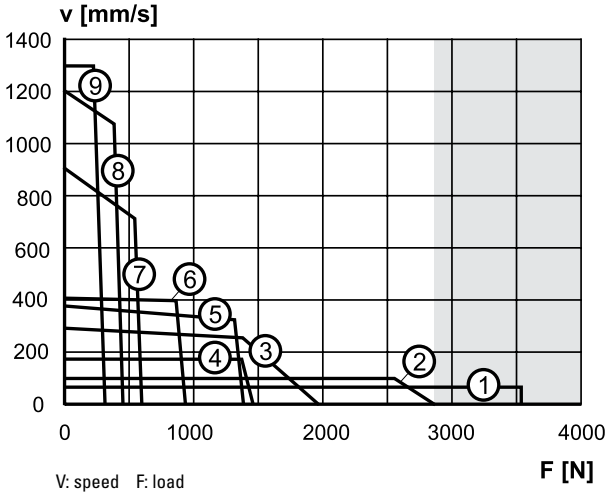
A1: breather tube output cover, 1/8 NPT - 11,1 HEX
A2: connector
A3: without brake

A4: with brake

Retracted length (L tot)	**[mm]**	L tot = S max + 243,4
Weight of unit	**[kg]**	kg = 4,63 + 0,006 + S max

Performance Diagrams

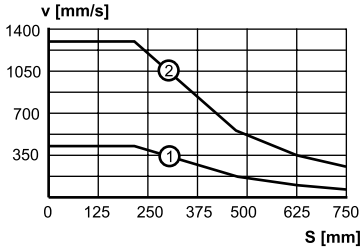
Speed vs. Load



V: speed F: load

1: EC2-BK23R-50-05B
2: EC2-BK23R-100-16B
3: EC2-BK23R-20-05B
4: EC2-BK23R-50-16B
5: EC2-BK23R-15-05B
6: EC2-BK23R-10-05B
7: EC2-BK23R-20-016B
8: EC2-BK23R-15-16B
9: EC2-BK23R-10-16B

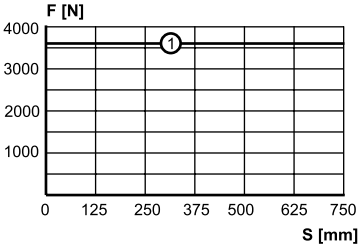
Critical Speed vs. Stroke



v: speed S: stroke length

1: EC2-BK23R-••-05B
2: EC2-BK23R-••-16B

Column Load Limit vs. Stroke



F: load S: stroke length

1: EC2-BK23R-••-••B

= Operation in the grey area will reduce life to 25 km of operation!

EC2

Ball Screw, Inline BK23 AC Servo Motor

» Ordering Key - see page 88
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Brushless AC servo motor
- Direct drive
- Ball screw
- Stainless steel extension tube
- Stroke up to 750 mm
- Load up to 950 N
- Speed up to 1280 mm/s

General Specifications

Parameter	EC2
Profile size (w × h)	55 × 55 mm
Screw type	ball screw
Gear box	no, direct drive
Motor type	brushless AC servo motor
Motor designation	AKM23D-EFCNR
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 • IP65 protective bellows

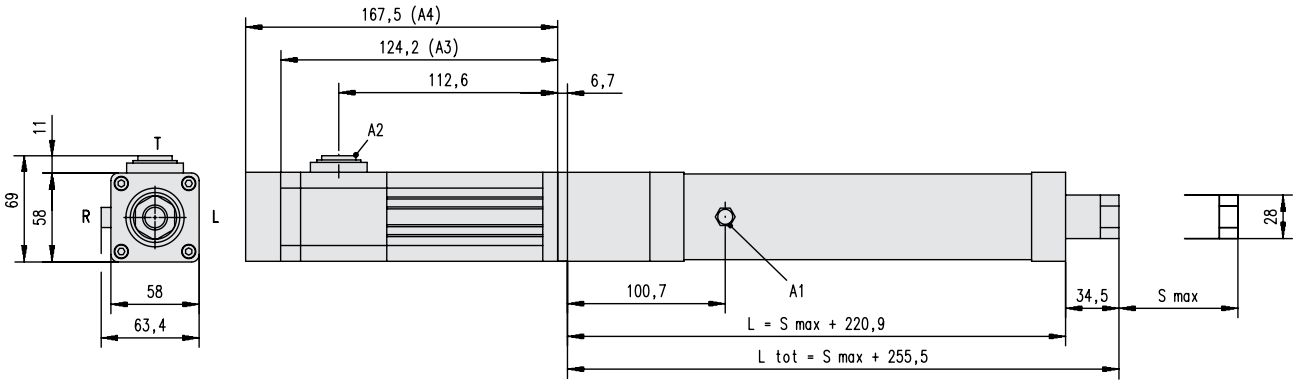
Performance Specifications

Parameter		EC2
Stroke length (S), maximum	[mm]	750
Maximum dynamic load (Fx)[1] EC2-BK23R-10L-05B EC2-BK23R-10L-16B	[N]	 950 290
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	5
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed EC2-BK23R-10L-05B EC2-BK23R-10L-16B	[mm/s]	 400 1280
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	16
Screw leads	[mm]	5, 16
Backlash	[mm]	0,25
Repeatability	[± mm]	0,013
Protection class, standard / optional		IP54 / IP65

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

EC2

Ball Screw, Inline BK23 AC Servo Motor



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

T: top side
R: right side
L: left side

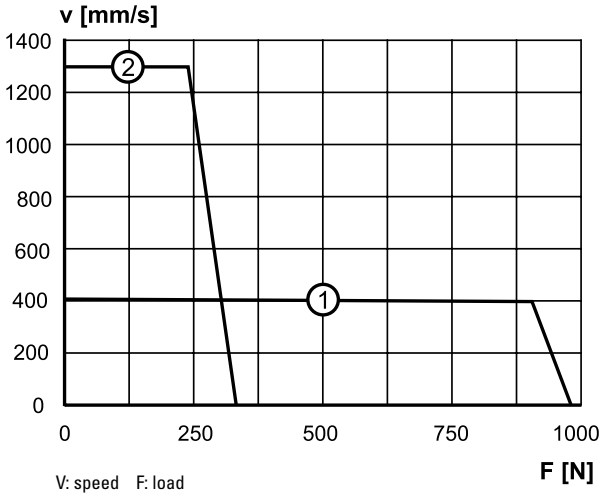
A1: breather tube output cover, 1/8 NPT - 11,1 HEX
A2: connector
A3: without brake

A4: with brake

Retracted length (L tot)	**[mm]**	L tot = S max + 220,9
Weight of unit	**[kg]**	kg = 4,63 + 0,006 + S max

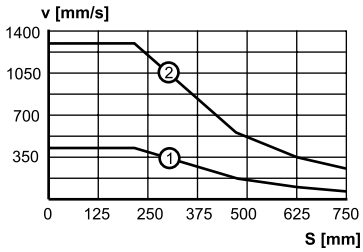
Performance Diagrams

Speed vs. Load



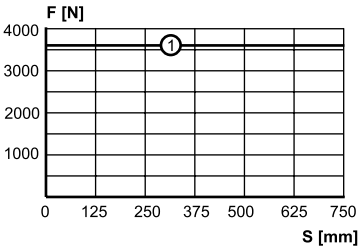
V: speed F: load
1: EC2-BK23R-10L-05B
2: EC2-BK23R-10L-16B

Critical Speed vs. Stroke



v: speed S: stroke length
1: EC2-BK23R-••L-05B
2: EC2-BK23R-••L-16B

Column Load Limit vs. Stroke



F: load S: stroke length
1: EC2-BK23R-••L-••B

EC3

Ball Screw, Parallel BK23 AC Servo Motor

» Ordering Key - see page 89
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Brushless AC servo motor
- Belt gear or helical gear depending on gear ratio
- Ball screw
- Stainless steel extension tube
- Stroke up to 1000 mm
- Load up to 5390 N
- Speed up to 1280 mm/s

General Specifications

Parameter	EC3
Profile size (w × h)	68 × 68 mm
Screw type	ball screw
Gear box	belt gear (1:1, 1,5:1, 2:1) helical gear (5:1, 7:1)
Motor type	brushless AC servo motor
Motor designation	AKM23D-EFCNR
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 • IP65 protective bellows

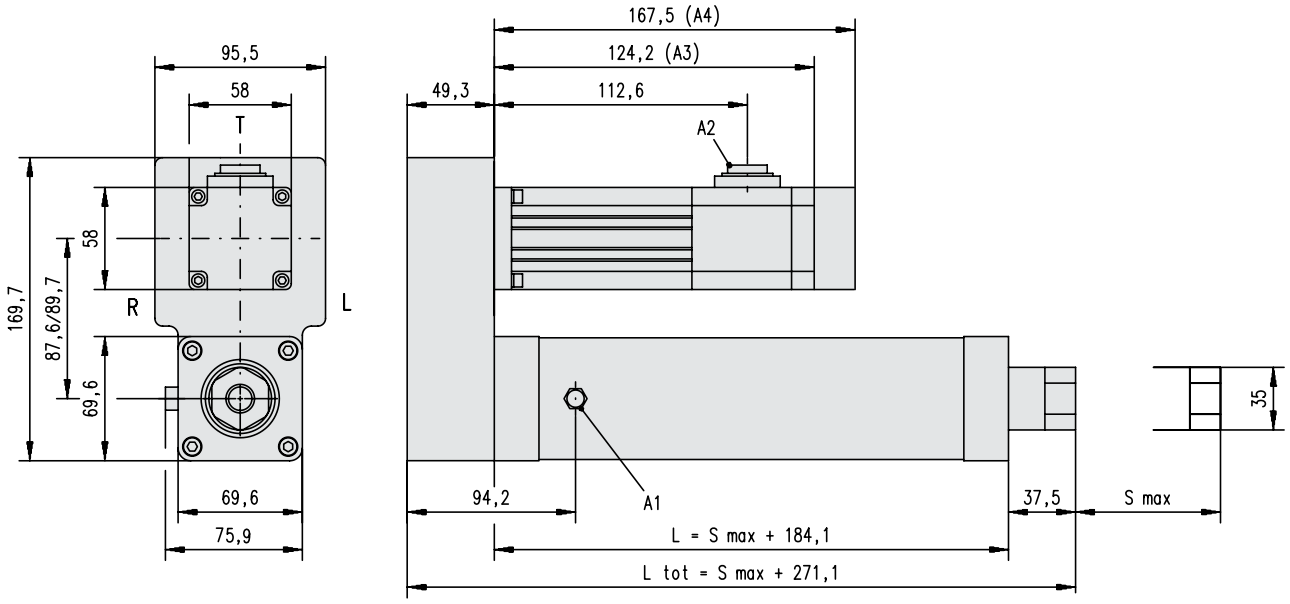
Performance Specifications

Parameter		EC3
Stroke length (S), maximum	[mm]	1000
Maximum dynamic load (Fx)[1]	[N]	
EC3-BK23R-70-05B		5390
EC3-BK23R-50-05B		3880
EC3-BK23R-70-10B		2700
EC3-BK23R-20-05B		1950
EC3-BK23R-50-10B		1940
EC3-BK23R-15-05B		1420
EC3-BK23R-50-16B		1210
EC3-BK23R-10-05B		950
EC3-BK23R-15-10B		710
EC3-BK23R-20-16B		610
EC3-BK23R-10-10B		480
EC3-BK23R-10-16B		270
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	7,5
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed	[mm/s]	
EC3-BK23R-70-05B		35
EC3-BK23R-50-05B		50
EC3-BK23R-70-10B		70
EC3-BK23R-20-05B		260
EC3-BK23R-50-10B		100
EC3-BK23R-15-05B		260
EC3-BK23R-50-16B		160
EC3-BK23R-10-05B		260
EC3-BK23R-15-10B		530
EC3-BK23R-20-16B		890
EC3-BK23R-10-10B		530
EC3-BK23R-10-16B		1280
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	16, 20
Screw leads[3]	[mm]	5, 10, 16
Backlash	[mm]	0,25
Repeatability	[± mm]	0,013
Protection class, standard / optional		IP54 / IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.
[3] 16 mm lead = 16 mm diameter. 5 and 10 mm leads = 20 mm diameter.

EC3

Ball Screw, Parallel BK23 AC Servo Motor



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

T: top side
R: right side
L: left side

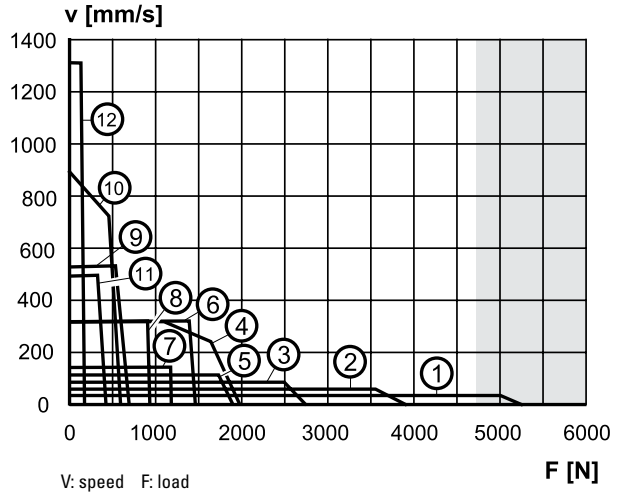
A1: breather tube output cover, 1/8 NPT - 11,1 HEX
A2: connector
A3: without brake

A4: with brake

Retracted length (L tot)	**[mm]**	L tot = S max + 271,1
Weight of unit	**[kg]**	kg = 6,2 + 0,008 + S max

Performance Diagrams

Speed vs. Load

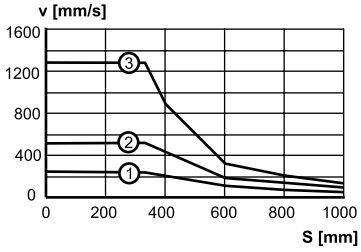


V: speed F: load

1: EC3-BK23R-70-05B
2: EC3-BK23R-50-05B
3: EC3-BK23R-70-10B
4: EC3-BK23R-20-05B
5: EC3-BK23R-50-10B
6: EC3-BK23R-15-05B
7: EC3-BK23R-50-16B
8: EC3-BK23R-10-05B
9: EC3-BK23R-15-10B
10: EC3-BK23R-20-16B
11: EC3-BK23R-10-10B
12: EC3-BK23R-10-16B

= Operation in the grey area will reduce life to 25 km of operation!

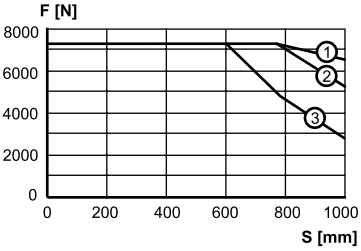
Critical Speed vs. Stroke



v: speed S: stroke length

1: EC3-BK23R-••-05B
2: EC3-BK23R-••-10B
3: EC3-BK23R-••-16B

Column Load Limit vs. Stroke



F: load S: stroke length

1= EC3-BK23R-••-05B
2= EC3-BK23R-••-10B
3= EC3-BK23R-••-16B

EC3

Ball Screw, Parallel BK32 AC Servo Motor

» Ordering Key - see page 89
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Brushless AC servo motor
- Belt gear or helical gear depending on gear ratio
- Ball screw
- Stainless steel extension tube
- Stroke up to 1000 mm
- Load up to 7200 N
- Speed up to 1280 mm/s

General Specifications

Parameter	EC3
Profile size (w × h)	68 × 68 mm
Screw type	ball screw
Gear box	belt gear (1:1, 1,5:1, 2:1) helical gear (5:1, 7:1)
Motor type	brushless AC servo motor
Motor designation	AKM42G-EKCNR
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 • IP65 protective bellows

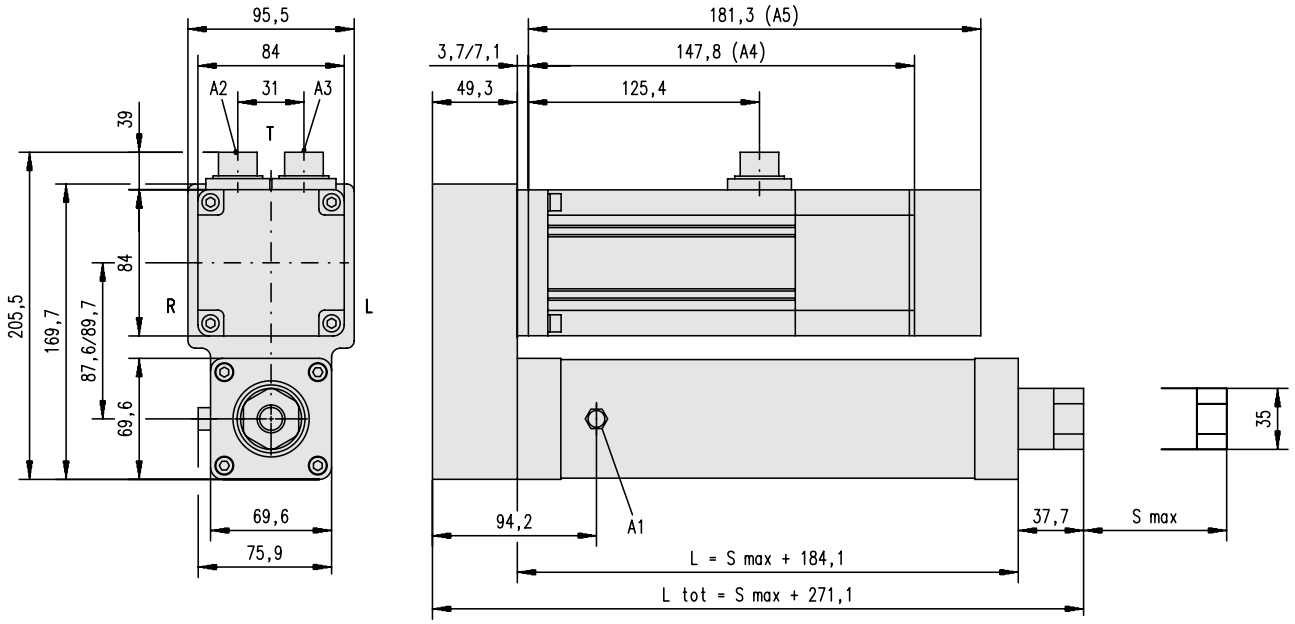
Performance Specifications

Parameter		EC3
Stroke length (S), maximum	[mm]	1000
Maximum dynamic load (Fx)[1]	[N]	
EC3-BK32R-50-05B		7200
EC3-BK32R-70-10B		7100
EC3-BK32R-50-10B		5880
EC3-BK32R-20-05B		4630
EC3-BK32R-15-05B		4300
EC3-BK32R-50-16B		3670
EC3-BK32R-20-10B		2270
EC3-BK32R-15-10B		2150
EC3-BK32R-20-16B		1470
EC3-BK32R-15-16B		1350
EC3-BK32R-10-16B		900
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	7,5
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed	[mm/s]	
EC3-BK32R-50-05B		50
EC3-BK32R-70-10B		70
EC3-BK32R-50-10B		100
EC3-BK32R-20-05B		170
EC3-BK32R-15-05B		260
EC3-BK32R-50-16B		160
EC3-BK32R-20-10B		330
EC3-BK32R-15-10B		530
EC3-BK32R-20-16B		550
EC3-BK32R-15-16B		870
EC3-BK32R-10-16B		1280
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	16, 20
Screw leads[3]	[mm]	5, 10, 16
Backlash	[mm]	0,25
Repeatability	[± mm]	0,013
Protection class, standard / optional		IP54 / IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.
[3] 16 mm lead = 16 mm diameter. 5 and 10 mm leads = 20 mm diameter.

EC3

Ball Screw, Parallel BK32 AC Servo Motor



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

T: top side
R: right side
L: left side

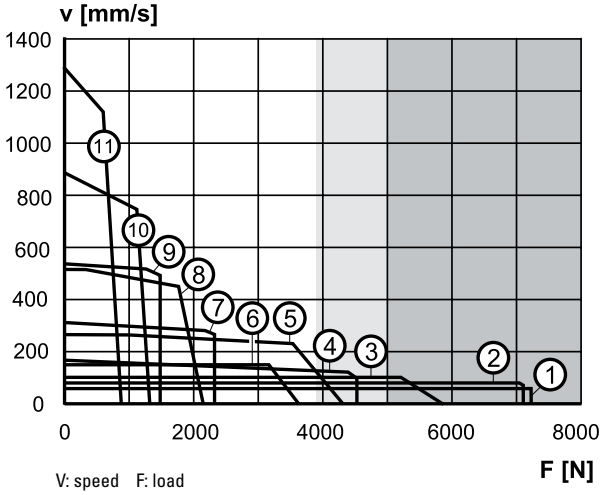
A1: breather tube output cover, 1/8 NPT - 11,1 HEX
A2: resolver connector
A3: power connector

A4: without brake
A5: with brake

Retracted length (L tot)	**[mm]**	L tot = S max + 271,1
Weight of unit	**[kg]**	kg = 8,7 + 0,008 + S max

Performance Diagrams

Speed vs. Load

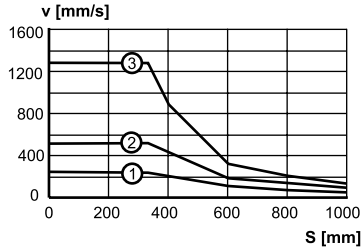


V: speed F: load

1: EC3-BK32R-50-05B
2: EC3-BK32R-70-10B
3: EC3-BK32R-50-10B
4: EC3-BK32R-20-05B
5: EC3-BK32R-15-05B
6: EC3-BK32R-50-16B
7: EC3-BK32R-20-10B
8: EC3-BK32R-15-10B
9: EC3-BK32R-20-16B
10: EC3-BK32R-15-16B
11: EC3-BK32R-10-16B

Operation in the light or dark grey area will reduce life to 25 km of operation = for EC3-BK32R- • • -16B units while operation in the dark grey area will reduce life to 25 km of operation for EC3-BK32R- • • -05B units!

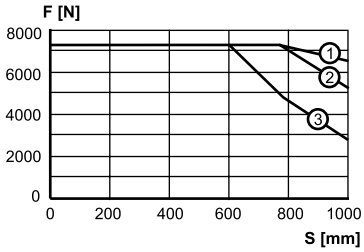
Critical Speed vs. Stroke



v: speed S: stroke length

1: EC3-BK32R- • • -05B
2: EC3-BK32R- • • -10B
3: EC3-BK32R- • • -16B

Column Load Limit vs. Stroke



F: load S: stroke length

1: EC3-BK32R- • • -05B
2: EC3-BK32R- • • -10B
3: EC3-BK32R- • • -16B

EC3

Ball Screw, Inline BK23 or BK32 AC Servo Motor

» Ordering Key - see page 89
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Brushless AC servo motor
- Two motor sizes
- Direct drive
- Ball screw
- Stainless steel extension tube
- Stroke up to 1000 mm
- Load up to 950 N
- Speed up to 1280 mm/s

General Specifications

Parameter	EC3
Profile size (w × h)	68 × 68 mm
Screw type	ball screw
Gear box	no, direct drive
Motor type	brushless AC servo motor
Motor designation	AKM42G-EKCNR
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 • IP65 protective bellows

Performance Specifications

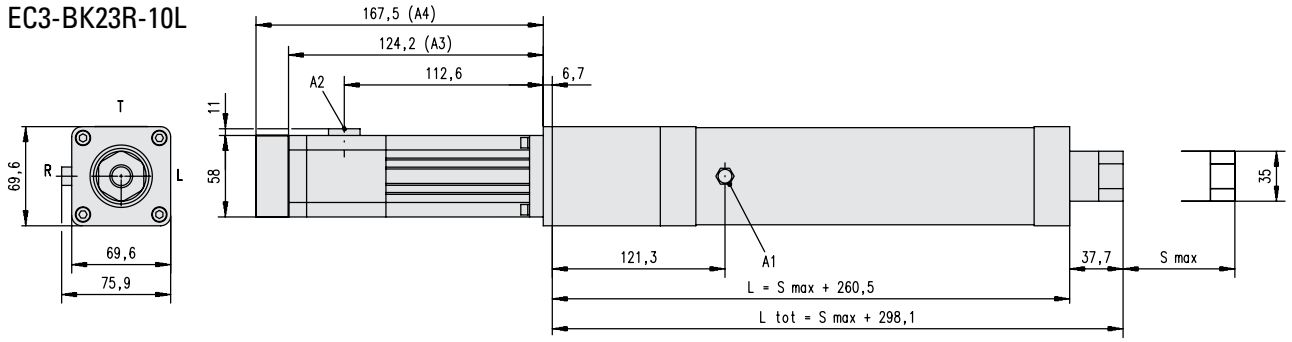
Parameter		EC3
Stroke length (S), maximum	[mm]	1000
Maximum dynamic load (Fx)[1]	[N]	
EC3-BK23R-10L-05B		950
EC3-BK32R-10L-16B		900
EC3-BK23R-10L-10B		480
EC3-BK23R-10L-16B		270
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	7,5
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed	[mm/s]	
EC3-BK23R-10L-05B		260
EC3-BK32R-10L-16B		1280
EC3-BK23R-10L-10B		530
EC3-BK23R-10L-16B		1280
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	16, 20
Screw leads[3]	[mm]	5, 10, 16
Backlash	[mm]	0,25
Repeatability	[± mm]	0,013
Protection class, standard / optional		IP54 / IP65

[1] At a 100% duty cycle.
[2] Value at full retraction - decreases as the actuator extends.
[3] 16 mm lead = 16 mm diameter. 5 and 10 mm leads = 20 mm diameter.

EC3

Ball Screw, Inline BK23 or BK32 AC Servo Motor

EC3-BK23R-10L



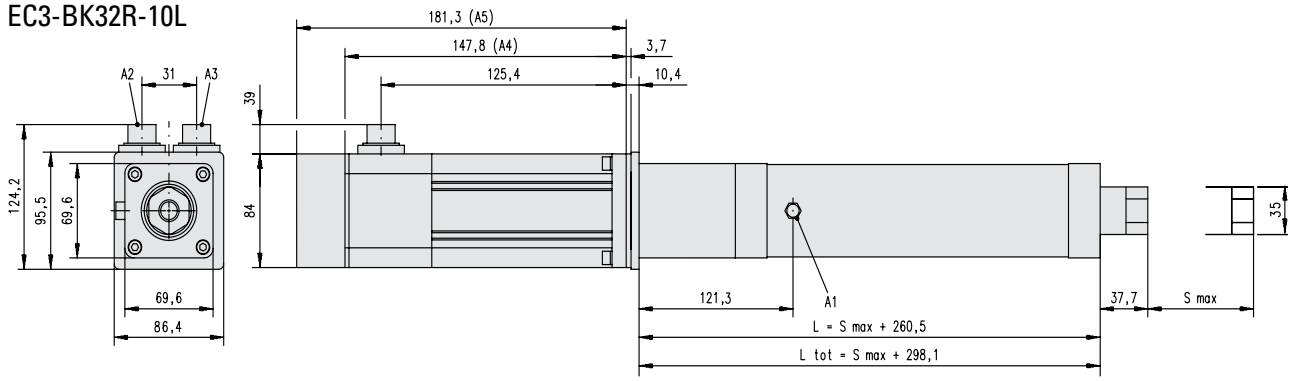
S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

T: top side
R: right side
L: left side

A1: breather tube output cover, 1/8 NPT - 11,1 HEX
A2: connector
A3: without brake

A4: with brake

EC3-BK32R-10L



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

T: top side
R: right side
L: left side

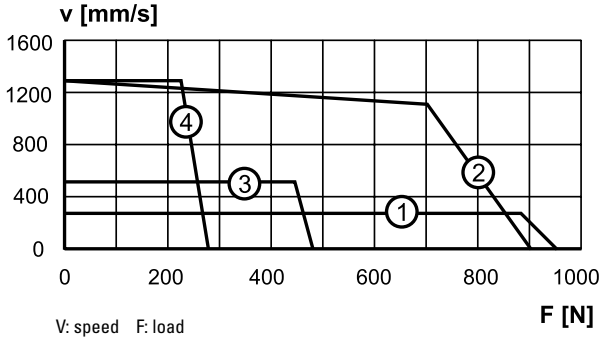
A1: breather tube output cover, 1/8 NPT - 11,1 HEX
A2: resolver connector
A3: power connector

A4: without brake
A5: with brake

Retracted length (L tot)	**[mm]**	L tot = S max + 298,1
Weight of unit	**[kg]**	EC3-BK23R-10L: kg = 6,2 + 0,008 + S max EC3-BK32R-10L: kg = 8,7 + 0,008 + S max

Performance Diagrams

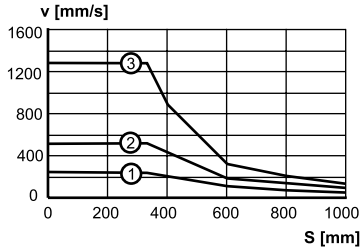
Speed vs. Load



V: speed F: load

1: EC3-BK23R-10L-05B
2: EC3-BK32R-10L-16B
3: EC3-BK23R-10L-10B
4: EC3-BK23R-10L-16B

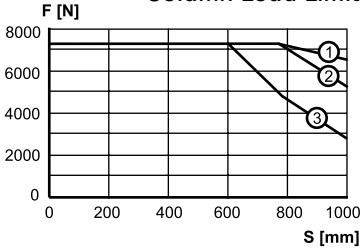
Critical Speed vs. Stroke



v: speed S: stroke length

1: EC3-BK23R-••L-05B
2: EC3-BK23R-••L-10B
3: EC3-BK23(32)R-••L-16B

Column Load Limit vs. Stroke



F: load S: stroke length

1: EC3-BK23R-••L-05B
2: EC3-BK23R-••L-10B
3: EC3-BK23(32)R-••L-16B

EC4

Ball Screw, Parallel BK32 AC Servo Motor

» Ordering Key - see page 90
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Brushless AC servo motor
- Belt gear or helical gear depending on gear ratio
- Ball screw
- Stainless steel extension tube
- Stroke up to 1500 mm
- Load up to 12000 N
- Speed up to 1330 mm/s

General Specifications

Parameter	EC4
Profile size (w × h)	94 × 94 mm
Screw type	ball screw
Gear box	belt gear (1:1, 1,5:1, 2:1) helical gear (5:1, 10:1)
Motor type	brushless AC servo motor
Motor designation	AKM42G-EKCNR
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 • IP65 protective bellows

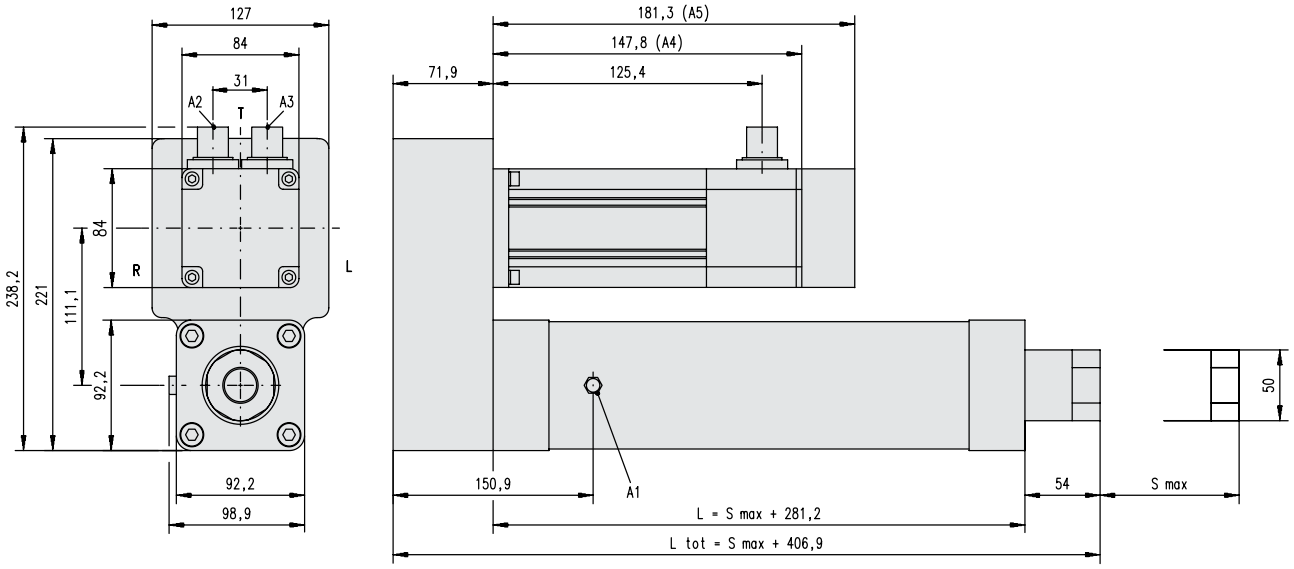
Performance Specifications

Parameter		EC4
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1]	[N]	
EC4-BK32R-100-05B		12000
EC4-BK32R-50-10B		7020
EC4-BK32R-100-25B		5500
EC4-BK32R-20-10B		2870
EC4-BK32R-50-25B		2800
EC4-BK32R-15-10B		2160
EC4-BK32R-20-25B		1150
EC4-BK32R-15-25B		860
EC4-BK32R-10-25B		570
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	10
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed	[mm/s]	
EC4-BK32R-100-05B		27
EC4-BK32R-50-10B		50
EC4-BK32R-100-25B		65
EC4-BK32R-20-10B		410
EC4-BK32R-50-25B		130
EC4-BK32R-15-10B		530
EC4-BK32R-20-25B		1020
EC4-BK32R-15-25B		1330
EC4-BK32R-10-25B		1330
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	25
Screw leads	[mm]	10, 25
Backlash	[mm]	0,30
Repeatability	[± mm]	0,013
Protection class, standard / optional		IP54 / IP65

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

EC4

Ball Screw, Parallel BK32 AC Servo Motor



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

T: top side
R: right side
L: left side

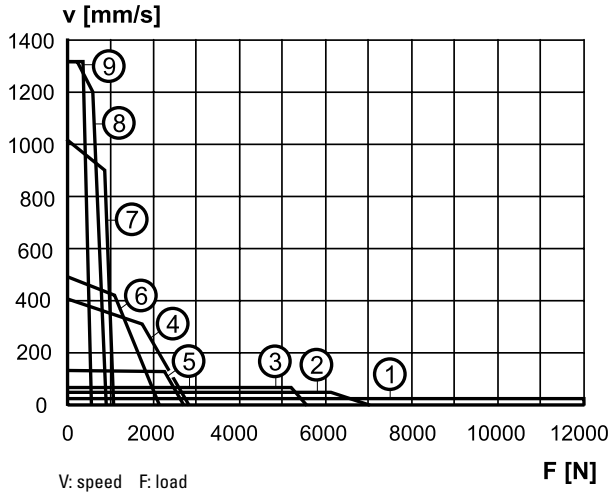
A1: breather tube output cover, 1/4 NPT - 14,0 HEX
A2: resolver connector
A3: power connector

A4: without brake
A5: with brake

Retracted length (L tot)	**[mm]**	L tot = S max + 406,9
Weight of unit	**[kg]**	kg = 16,7 + 0,0188 + S max

Performance Diagrams

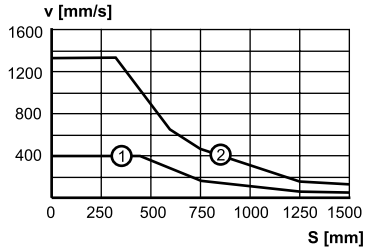
Speed vs. Load



V: speed F: load

1: EC4-BK32R-100-05B
2: EC4-BK32R-50-10B
3: EC4-BK32R-100-25B
4: EC4-BK32R-20-10B
5: EC4-BK32R-50-25B
6: EC4-BK32R-10-15B
7: EC4-BK32R-20-25B
8: EC4-BK32R-15-25B
9: EC4-BK32R-10-25B

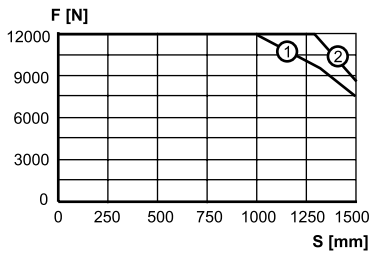
Critical Speed vs. Stroke



v: speed S: stroke length

1: EC4-BK32R-••-10B
2: EC4-BK32R-••-25B

Column Load Limit vs. Stroke



F: load S: stroke length

1: EC4-BK32R-••-10B
2: EC4-BK32R-••-25B

EC4

Ball Screw, Inline BK32 AC Servo Motor

» Ordering Key - see page 90
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Brushless AC servo motor
- Direct drive
- Ball screw
- Stainless steel extension tube
- Stroke up to 1500 mm
- Load up to 570 N
- Speed up to 1330 mm/s

General Specifications

Parameter	EC4
Profile size (w × h)	94 × 94 mm
Screw type	ball screw
Gear box	no, direct drive
Motor type	brushless AC servo motor
Motor designation	AKM42G-EKCNR
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 • IP65 protective bellows

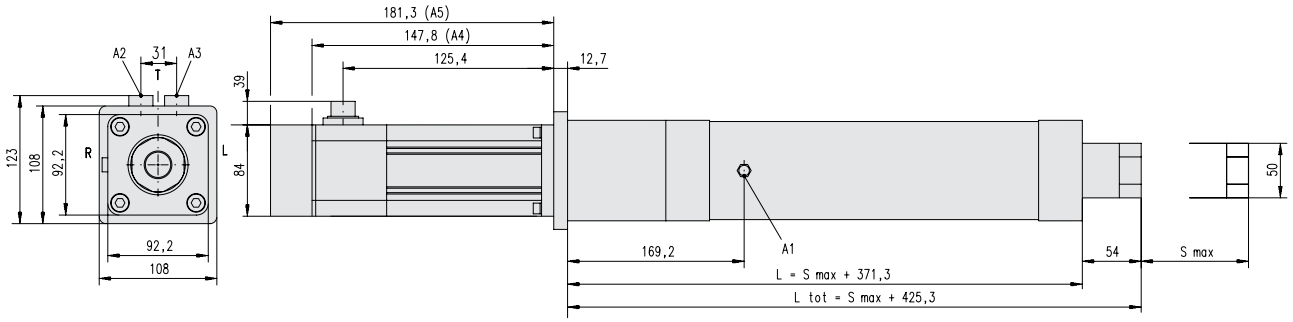
Performance Specifications

Parameter		EC4
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1] EC4-BK32R-10L-25B	[N]	570
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	10
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed EC4-BK32R-10L-25B	[mm/s]	1330
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	25
Screw leads	[mm]	10, 25
Backlash	[mm]	0,30
Repeatability	[± mm]	0,013
Protection class, standard / optional		IP54 / IP65

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

EC4

Ball Screw, Inline BK32 AC Servo Motor



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

T: top side
R: right side
L: left side

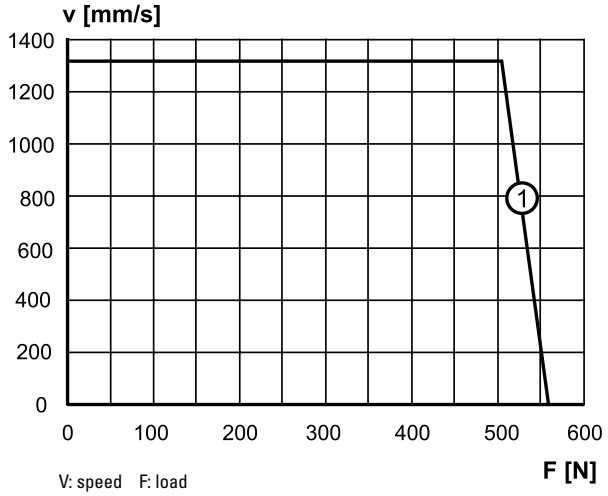
A1: breather tube output cover, 1/4 NPT - 14,0 HEX
A2: resolver connector
A3: power connector

A4: without brake
A5: with brake

Retracted length (L tot)	**[mm]**	L tot = S max + 425,3
Weight of unit	**[kg]**	kg = 16,7 + 0,0188 + S max

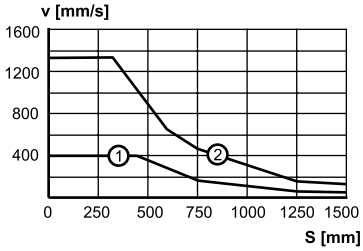
Performance Diagrams

Speed vs. Load



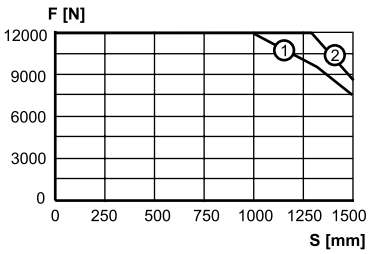
V: speed F: load
1: EC4-BK32R-10L-25B

Critical Speed vs. Stroke



v: speed S: stroke length
1: EC4-BK32R-••-10B
2: EC4-BK32R-••-25B

Column Load Limit vs. Stroke



F: load S: stroke length
1: EC4-BK32R-••-10B
2: EC4-BK32R-••-25B

EC5

Ball Screw, Parallel BK32 AC Servo Motor

» Ordering Key - see page 91
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Brushless AC servo motor
- Belt gear or helical gear depending on gear ratio
- Ball screw
- Stainless steel extension tube
- Stroke up to 1500 mm
- Load up to 13750 N
- Speed up to 1330 mm/s

General Specifications

Parameter	EC5
Profile size (w × h)	94 × 94 mm
Screw type	ball screw
Gear box	belt gear (1:1, 1,5:1, 2:1) helical gear (5:1, 10:1)
Motor type	brushless AC servo motor
Motor designation	AKM42G-EKCNR
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 • IP65 protective bellows

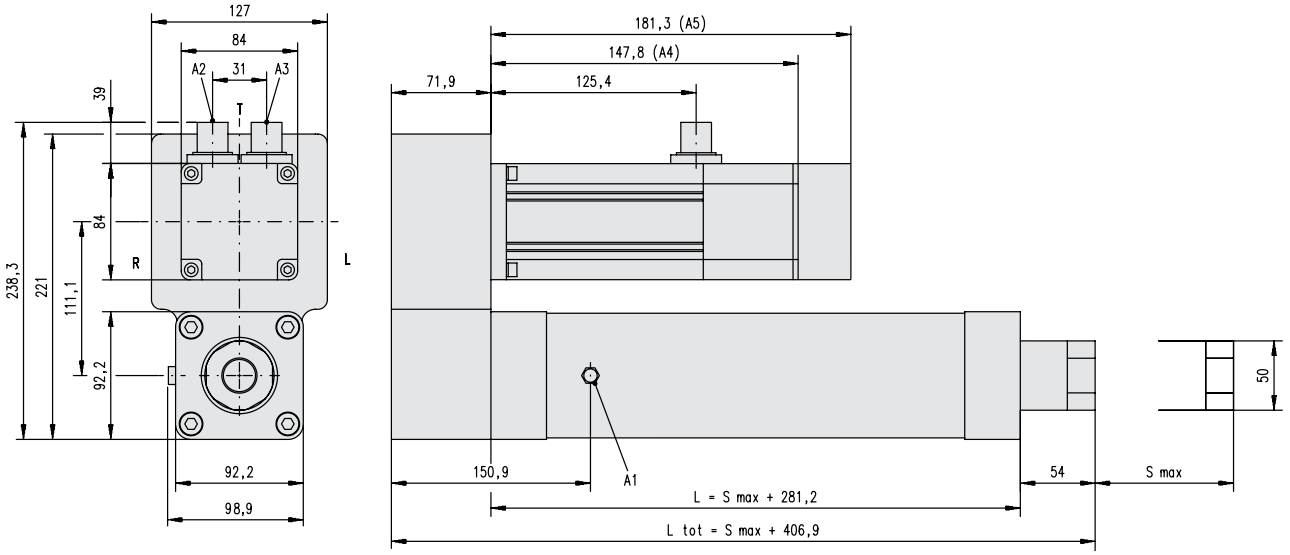
Performance Specifications

Parameter		EC5
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1]	[N]	
EC5-BK32R-100-10B		13750
EC5-BK32R-50-10B		7020
EC5-BK32R-100-32B		4290
EC5-BK32R-20-10B		2870
EC5-BK32R-50-32B		2190
EC5-BK32R-15-10B		2160
EC5-BK32R-20-32B		900
EC5-BK32R-15-32B		670
EC5-BK32R-10-32B		450
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	10
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed	[mm/s]	
EC5-BK32R-100-10B		26
EC5-BK32R-50-10B		52
EC5-BK32R-100-32B		85
EC5-BK32R-20-10B		390
EC5-BK32R-50-32B		170
EC5-BK32R-15-10B		390
EC5-BK32R-20-32B		1310
EC5-BK32R-15-32B		1330
EC5-BK32R-10-32B		1330
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	32
Screw leads	[mm]	10, 32
Backlash	[mm]	0,30
Repeatability	[± mm]	0,013
Protection class, standard / optional		IP54 / IP65

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

EC5

Ball Screw, Parallel BK32 AC Servo Motor



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

T: top side
R: right side
L: left side

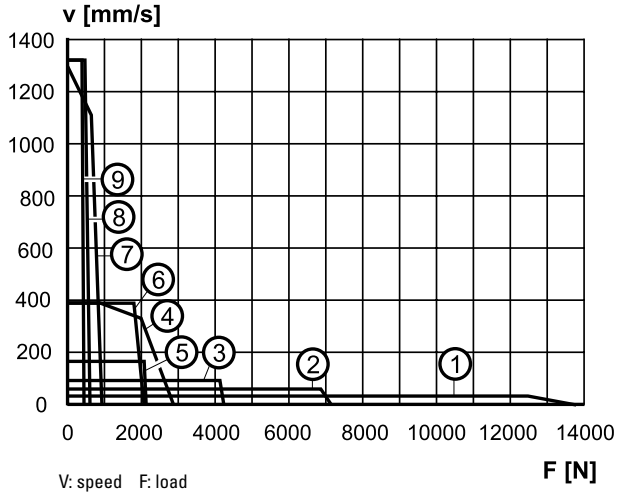
A1: breather tube output cover, 1/4 NPT - 14,0 HEX
A2: resolver connector
A3: power connector

A4: without brake
A5: with brake

Retracted length (L tot)	**[mm]**	L tot = S max + 406,9
Weight of unit	**[kg]**	kg =16,7 + 0,0188 + S max

Performance Diagrams

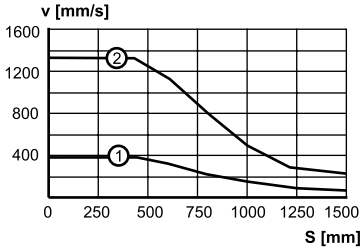
Speed vs. Load



V: speed F: load

1: EC5-BK32R-100-10B
2: EC5-BK32R-50-10B
3: EC5-BK32R-100-32B
4: EC5-BK32R-20-10B
5: EC5-BK32R-50-32B
6: EC5-BK32R-15-10B
7: EC5-BK32R-20-32B
8: EC5-BK32R-15-32B
9: EC5-BK32R-10-32B

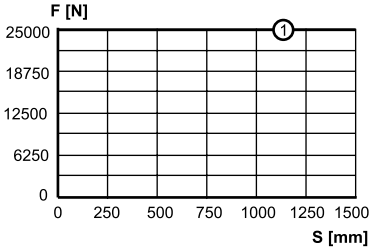
Critical Speed vs. Stroke



v: speed S: stroke length

1: EC5-BK32R-••-10B
2: EC5-BK32R-••-32B

Column Load Limit vs. Stroke



F: load S: stroke length

1: EC5-BK32R-••-••B

EC5

Ball Screw, Parallel BK42 AC Servo Motor

» Ordering Key - see page 91
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Brushless AC servo motor
- Belt gear or helical gear depending on gear ratio
- Ball screw
- Stainless steel extension tube
- Stroke up to 1500 mm
- Load up to 25000 N
- Speed up to 1090 mm/s

General Specifications

Parameter	EC5
Profile size (w × h)	94 × 94 mm
Screw type	ball screw
Gear box	belt gear (1:1, 1,5:1, 2:1) helical gear (5:1, 10:1)
Motor type	brushless AC servo motor
Motor designation	AKM52G-BSCNR-02
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 • IP65 protective bellows

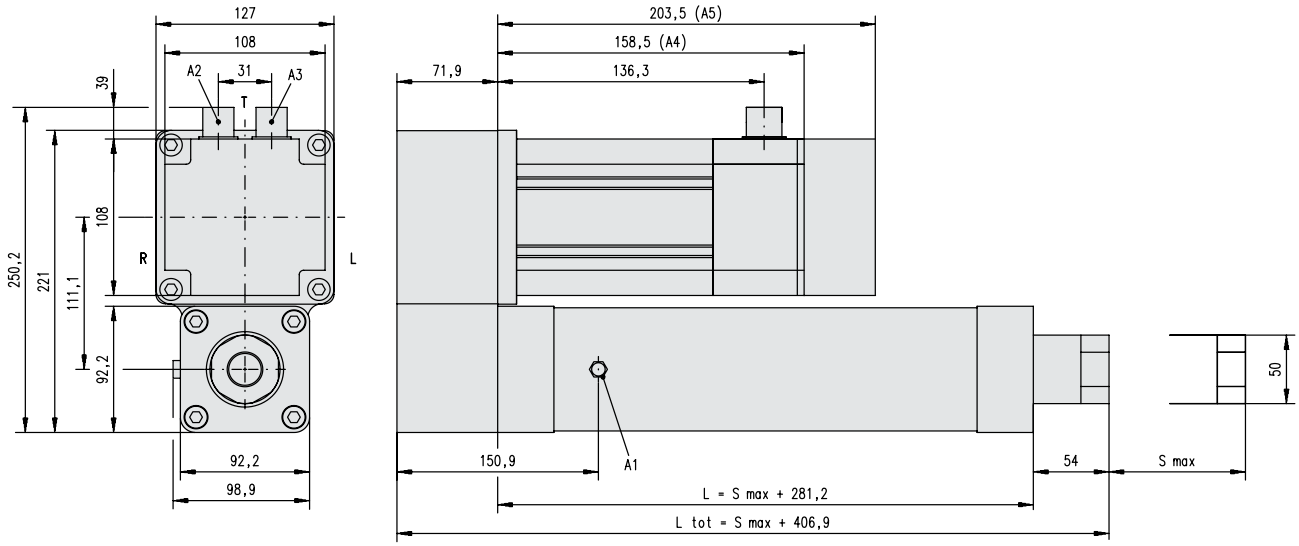
Performance Specifications

Parameter		EC5
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1]	[N]	
EC5-BK42R-100-10B		25000
EC5-BK42R-50-10B		16750
EC5-BK42R-100-32B		10250
EC5-BK42R-20-10B		6860
EC5-BK42R-15-10B		5140
EC5-BK42R-20-32B		2140
EC5-BK42R-15-32B		1600
EC5-BK42R-10-32B		1070
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	10
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed	[mm/s]	
EC5-BK42R-100-10B		26
EC5-BK42R-50-10B		52
EC5-BK42R-100-32B		85
EC5-BK42R-20-10B		170
EC5-BK42R-15-10B		220
EC5-BK42R-20-32B		545
EC5-BK42R-15-32B		725
EC5-BK42R-10-32B		1090
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	32
Screw leads	[mm]	10, 32
Backlash	[mm]	0,30
Repeatability	[± mm]	0,013
Protection class, standard / optional		IP54 / IP65

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

EC5

Ball Screw, Parallel BK42 AC Servo Motor



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

T: top side
R: right side
L: left side

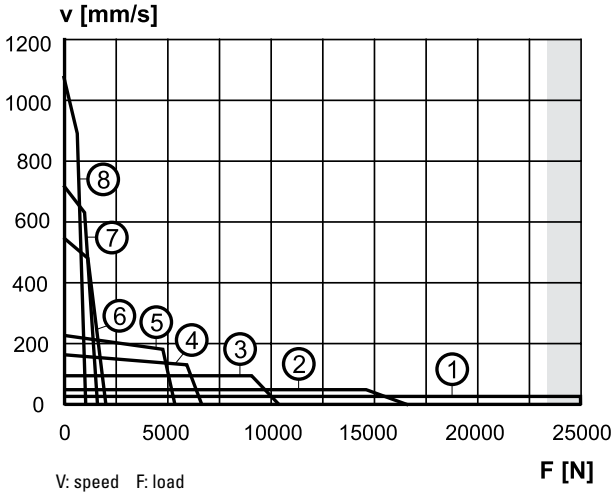
A1: breather tube output cover, 1/4 NPT - 14,0 HEX
A2: resolver connector
A3: power connector

A4: without brake
A5: with brake

Retracted length (L tot)	**[mm]**	L tot = S max + 406,9
Weight of unit	**[kg]**	kg = 20,4 + 0,0188 + S max

Performance Diagrams

Speed vs. Load

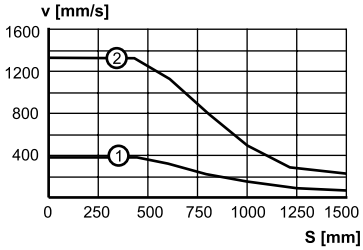


V: speed F: load

1: EC5-BK42R-100-10B
2: EC5-BK42R-50-10B
3: EC5-BK42R-100-32B
4: EC5-BK42R-20-10B
5: EC5-BK42R-15-10B
6: EC5-BK42R-20-32B
7: EC5-BK42R-15-32B
8: EC5-BK42R-10-32B

= Operation in the grey area will reduce life to 25 km of operation!

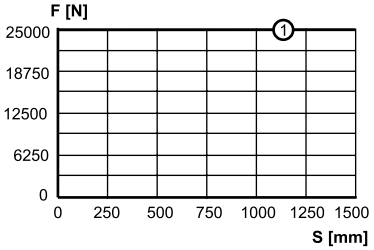
Critical Speed vs. Stroke



v: speed S: stroke length

1: EC5-BK42R-••-10B
2: EC5-BK42R-••-32B

Column Load Limit vs. Stroke



F: load S: stroke length

1: EC5-BK42R-••-••B

EC5

Ball Screw, Inline BK32 or BK42 AC Servo Motor

» Ordering Key - see page 91
» Mounting Options - see page 40
» Adapter Options - see page 44
» Glossary - see page 96

Standard Features and Benefits

- Compact design
- Brushless AC servo motor
- Two motor sizes
- Direct drive
- Ball screw
- Stainless steel extension tube
- Stroke up to 1500 mm
- Load up to 1070 N
- Speed up to 1330 mm/s

General Specifications

Parameter	EC5
Profile size (w × h)	94 × 94 mm
Screw type	ball screw
Gear box	no, direct drive
Motor type	brushless AC servo motor
Motor designation EC5-BK32R EC5-BK42R	 AKM42G-EKCNR AKM52G-BSCNR-02
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 • IP65 protective bellows

Performance Specifications

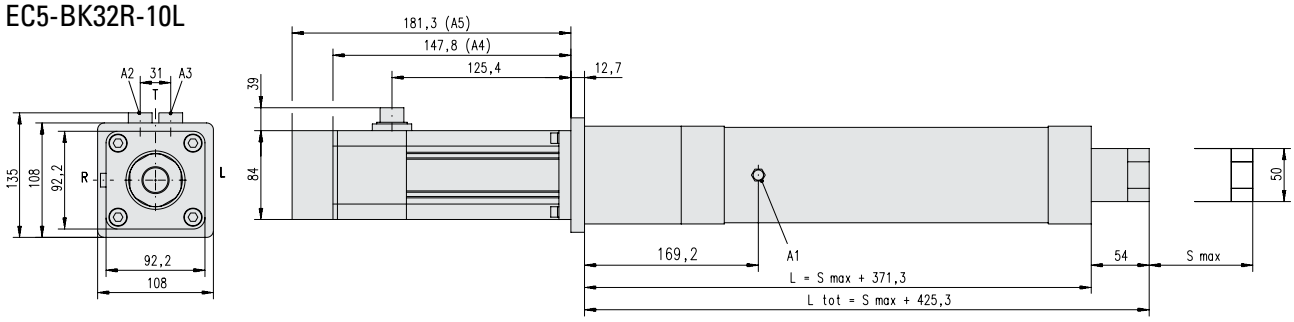
Parameter		EC5
Stroke length (S), maximum	[mm]	1500
Maximum dynamic load (Fx)[1] EC5-BK42R-10L-32B EC5-BK32R-10L-32B	[N]	 1070 450
Maxium load (Fy, Fz)[2]	[N]	200
Maximum load torque (Mx)	[Nm]	10
Maximum load torque (My, Mz)	[Nm]	0
Maximum speed EC5-BK42R-10L-32B EC5-BK32R-10L-32B	[mm/s]	 1090 1330
Operating temperature limits	[°C]	0 – 70
Screw diameters	[mm]	32
Screw leads	[mm]	10, 32
Backlash	[mm]	0,30
Repeatability	[± mm]	0,013
Protection class, standard / optional		IP54 / IP65

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

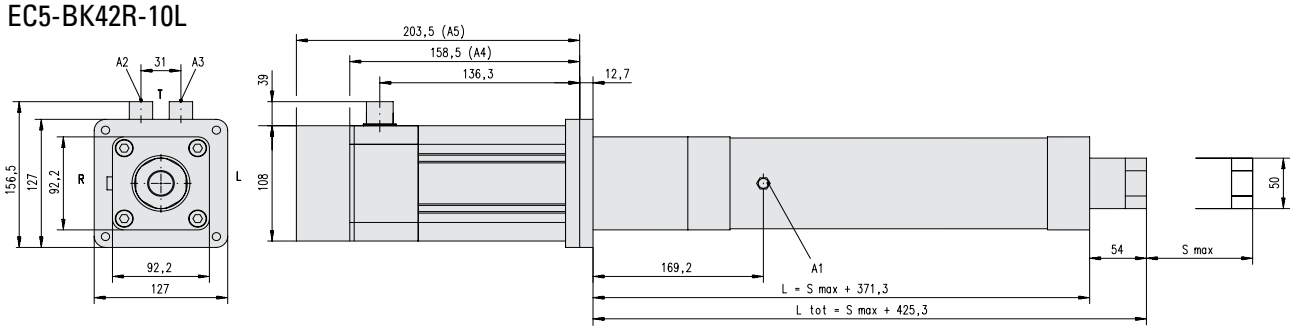
EC5

Ball Screw, Inline BK32 or BK42 AC Servo Motor

EC5-BK32R-10L



EC5-BK42R-10L



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

T: top side
R: right side
L: left side

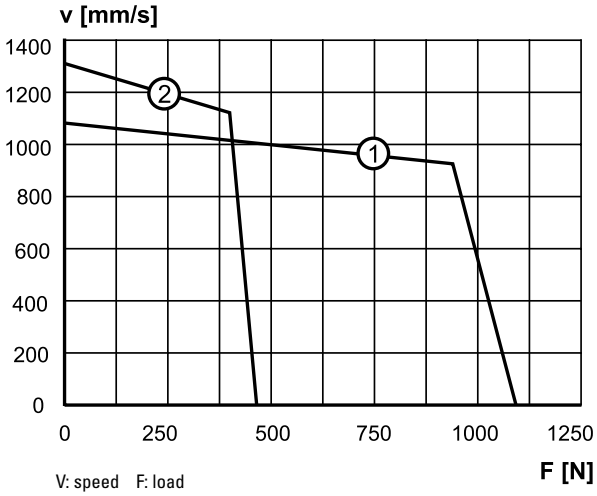
A1: breather tube output cover, 1/4 NPT - 14,0 HEX
A2: resolver connector
A3: power connector

A4: without brake
A5: with brake

Retracted length (L tot)	**[mm]**	L tot = S max + 425,3
Weight of unit	**[kg]**	EC5-BK32R-10L: kg =16,7 + 0,0188 + S max EC5-BK42R-10L: kg = 20,4 + 0,0188 + S max

Performance Diagrams

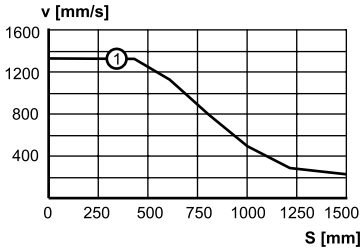
Speed vs. Load



V: speed F: load

1: EC5-BK42R-10L-32B
2: EC5-BK32R-10L-32B

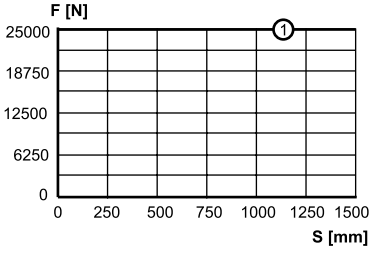
Critical Speed vs. Stroke



v: speed S: stroke length

1: EC5-BK32(42)R- • • L-32B

Column Load Limit vs. Stroke



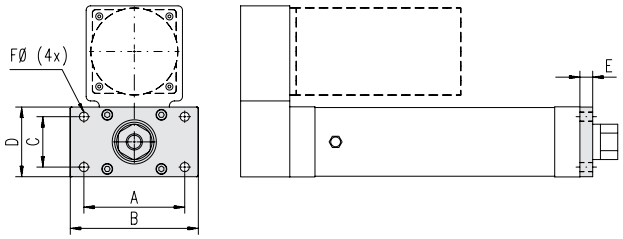
F: load S: stroke length

1: EC5-BK32(42)R- • • L- • • B

EC Series

Mounting Options

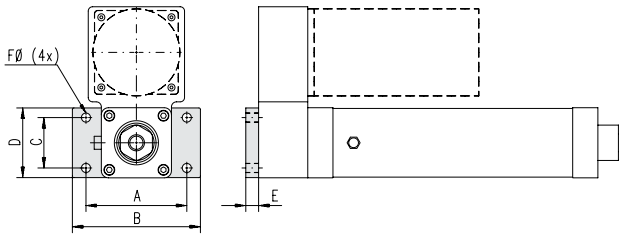
Front Flange type MF1M



The flange comes mounted from factory. Flange dimensions in accordance with ISO6431 for 50 mm (EC2), 63 mm (EC3) or 80 mm (EC4 and EC5) bore size.

	A	B	C	D	E	F
EC2	90,0	114,3	45	63,5	9,5	9,0
EC3	100,0	127,0	50	69,1	12,7	9,0
EC4	126,0	152,4	63	96,3	12,7	12,0
EC5	150,0	186,9	75	114,3	19,1	14,0 / 14,4

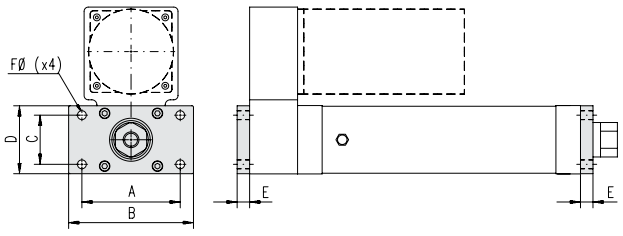
Rear Flange type MF2M



The flange comes mounted from factory. Flange dimensions in accordance with ISO6431 for 50 mm (EC2), 63 mm (EC3) or 100 mm (EC4 and EC5) bore size.

	A	B	C	D	E	F
EC2	90,0	114,3	45,0	63,5	9,5	9,0
EC3	100,0	127,0	50,0	69,1	12,7	9,0
EC4	126,0	152,4	63,0	96,3	12,7	12,0
EC5	150,0	186,9	75,0	114,3	19,1	14,0 / 14,4

Front and Rear Flanges type MF3M



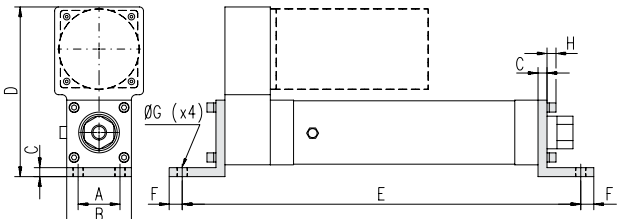
The flanges comes mounted from factory. Flange dimensions in accordance with ISO6431 for 50 mm (EC2 and (EC3) or 100 mm (EC4 and EC5) bore size.

	A	B	C	D	E	F
EC2	90,0	114,3	45,0	63,5	9,5	9,0
EC3	100,0	127,0	50,0	69,1	12,7	9,0
EC4	126,0	152,4	63,0	96,3	12,7	12,0
EC5	150,0	186,9	75,0	114,3	19,1	14,0 / 14,4

EC Series

Mounting Options

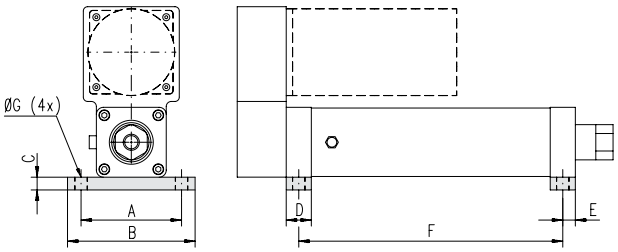
Side End Angel Brackets type MS1



The brackets comes mounted from factory.

	A	B	C	D	E	F	G	H
EC2	38,0	57,2	9,5	153,7	288,8 + S max	12,0	9,0	7,3
EC3	45,0	69,6	9,7	182,4	325,4 + S max	14,0	11,0	9,1
EC4	31,8	50,8	3,2	225,7	403,9 + S max	9,5	11,1	7,7
EC5	not available							

Mounting Feet type MS2



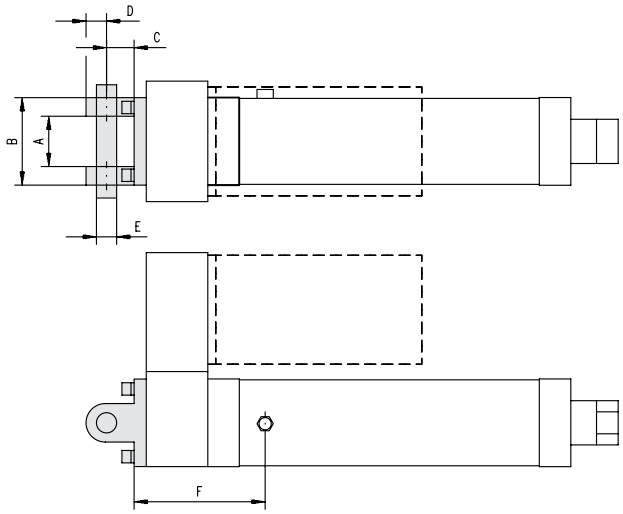
The feets comes mounted from factory.

	A	B	C	D	E	F	G
EC2	85,0	114,3	9,5	22,1	11,0	144,8 + S max	9,0
EC3	100,0	127,0	12,7	25,0	12,5	158,8 + S max	11,0
EC4	140,0	181,1	19,1	38,1	19,1	242,6 + S max	18,0
EC5	140,0	181,1	19,1	38,1	19,1	242,6 + S max	18,0

EC Series

Mounting Options

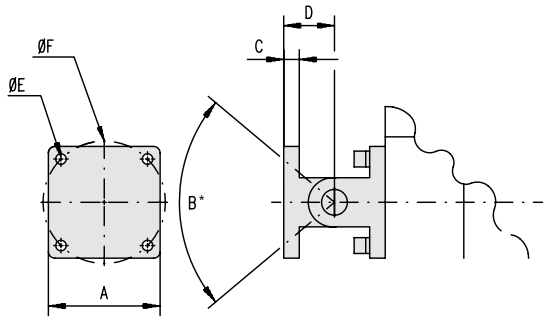
Rear Clevis without Pivot Base type MP2



The clevis comes mounted from factory. Clevis dimensions in accordance with ISO6431 for 50 mm (EC2), 63 mm (EC3) or 100 mm (EC4 and EC5) bore size.

	A	B	C	D	E	F
EC2	32,0 / 32,6	57,0	15,7	12,7	11,95 / 12,00	98,3
EC3	40,0 / 40,6	69,3	21,8	15,2	15,95 / 16,00	103,9
EC4	60,0 / 60,5	91,4	28,7	19,6	19,95 / 20,00	166,6
EC5	60,0 / 60,5	91,4	28,7	19,6	19,95 / 20,00	166,6

Rear Clevis with Pivot Base type MP3



* B = maximum pivot angle

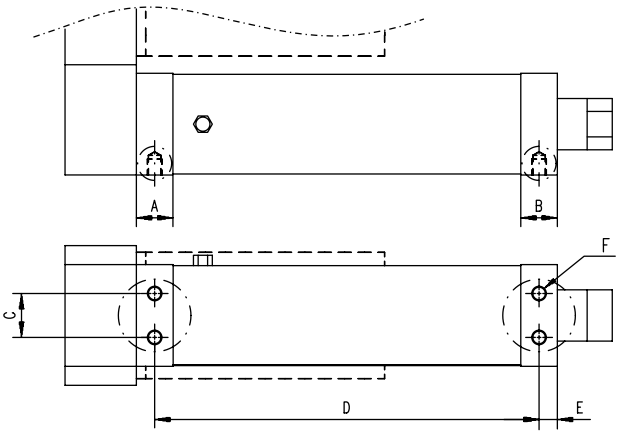
The MP3 rear clevis kit consists of a MP2 kit plus a pivot base. Clevis dimensions in accordance with ISO6431 for 50 mm (EC2), 63 mm (EC3) or 100 mm (EC4 and EC5) bore size.

	A	B	C	D	E	F
EC2	56,9	70,0°	9,5	25,4	5,4	61,7
EC3	69,3	80,0°	9,5	31,5	6,5	76,0
EC4	91,4	80,0°	15,7	44,4	11,1	98,8
EC5	91,4	80,0°	15,7	44,4	11,1	98,8

EC Series

Mounting Options

Side Tapped Holes type MS6M

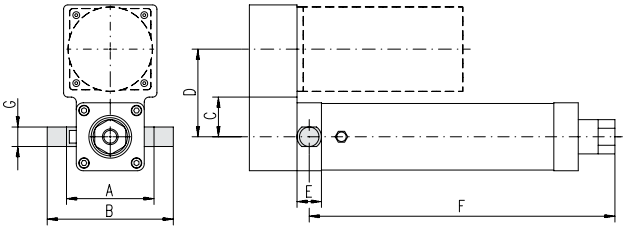


The holes comes drilled and tapped from factory.

	A	B	C	D	E	F
EC2	22,1	22,1	25,0	144,8 + S max	11,0	M8 × 8,4
EC3	25,1	25,0	30,0	158,8 + S max	12,5	M10 × 10,2
EC4	40,0	40,0	40,6	242,6 + S max	19,1	M16 × 14,0
EC5	40,0	40,0	40,6	242,6 + S max	19,1	M16 × 14,0

Trunninon type MT4

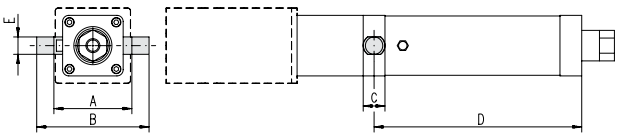
Parallel versions



The trunnion comes mounted from factory. Trunnion dimensions in accordance with ISO6431 for 50 mm (EC2), 63 mm (EC3) or 100 mm (EC4 and EC5) bore size.

	A	B	C	D	E	F	G
EC2	75,0	106,9	28,5	74,7	19,1	155,8 + S max	ø 15,92 / 15,97
EC3	90,0	129,6	38,6	87,6 / 89,7	25,0	171,2 + S max	ø 19,91 / 19,96
EC4	131,8	181,8	48,0	111,1	31,8	261,6 + S max	ø 24,91 / 24,96
EC5	131,8	181,8	48,0	111,1	31,8	261,6 + S max	ø 24,91 / 24,96

Inline versions

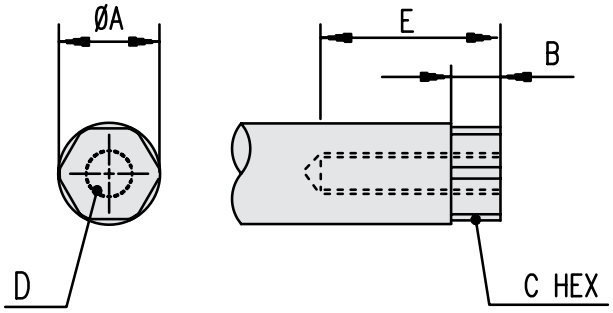


	A	B	C	D	E
EC2	75,0	106,9	19,1	155,8 + S max	ø 15,92 / 15,97
EC3	90,0	129,6	25,0	171,2 + S max	ø 19,91 / 19,96
EC4	131,8	181,6	31,8	261,6 + S max	ø 24,91 / 24,96
EC5	131,8	181,6	31,8	261,6 + S max	ø 24,91 / 24,96

EC Series

Adapter Options

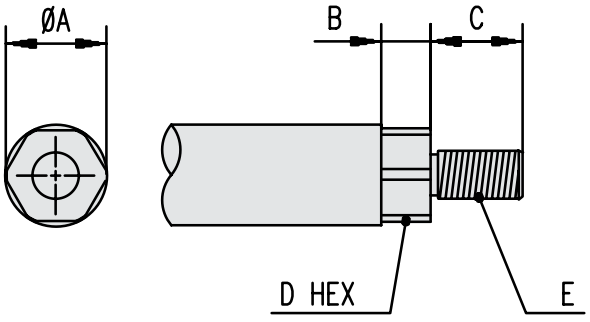
Inside Threads type FT1M



Inside thread means that the cover tube adapter consist of a threaded hole.

	A	B	C	D	E
EC2	28,0	12,0	25,4	M16 × 2	19,0
EC3	35,0	17,2	31,75	M16 × 2	25,0
EC4	50,0	20,0	47,6	M20 × 1,5	31,0
EC5	50,0	20,0	47,6	M24 × 2	31,0

Outside Threads type MT1M



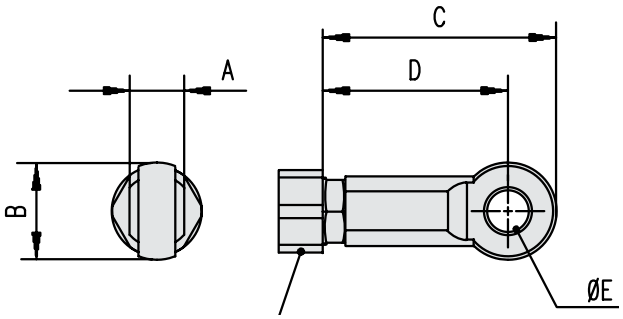
Inside thread means that the cover tube adapter consist of a threaded pin.

	A	B	C	D	E
EC2	35,0	17,2	32,0	31,8	M16 × 2
EC3	35,0	17,2	32,0	31,8	M16 × 2
EC4	50,0	20,0	40,0	47,6	M20 × 1,5
EC5	50,0	20,0	40,0	47,6	M24 × 2

EC Series

Adapter Options

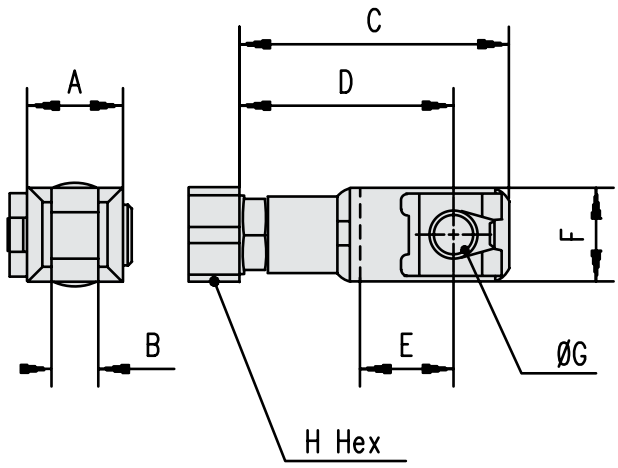
Spherical Joint type FS2



The spherical joint comes mounted from factory. It includes a jam nut to lock the joint in position.

	A	B	C	D	E	F
EC2	21,0	38,0	92,2	73,2	16,1 / 16,0	25,4
EC3	21,0	38,0	92,2	73,2	16,1 / 16,0	31,8
EC4	25,0	46,0	111,0	88,0	20,1 / 20,0	47,6
EC5	31,0	60,0	138,5	108,5	25,0 / 24,9	47,6

Clevis with Pin type FC2



The clevis comes mounted from factory. Included is a pin, a pin lock and a jam nut to lock the clevis in position.

	A	B	C	D	E	F	G	H
EC2	32,0	16,0	92,2	73,2	32,0	32,0	16,0 / 15,9	25,4
EC3	32,0	16,0	92,2	73,2	32,0	32,0	16,0 / 15,9	31,8
EC4	40,0	20,0	116,0	91,0	40,0	40,0	20,0 / 19,9	47,6
EC5	50,0	25,0	145,5	113,5	50,0	50,0	25,0 / 24,9	47,6

EC Series

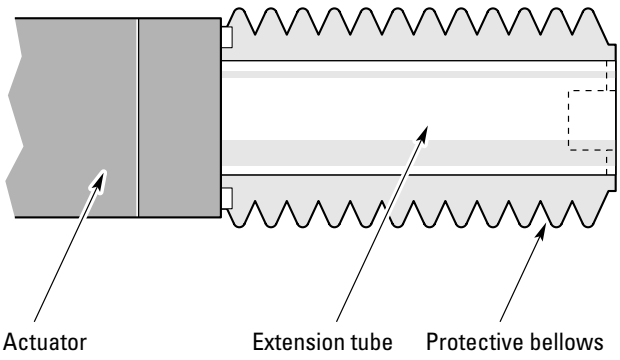
Other Options

Protective Bellows type PB

Stroke Reducement Table

Model	Stroke [mm]	Reduced stroke [mm]	Bellows diameter [mm]
EC2	0 - 149	30	64
	150 - 299	47	
	300 - 449	65	
	450 - 600	82	
	601 - 750	95	
EC3	0 - 199	37	76
	200 - 399	54	
	400 - 599	72	
	600 - 800	90	
	801 - 1000	103	
EC4, EC5	0 - 249	41	95
	250 - 499	63	
	500 - 749	85	
	750 - 999	106	
	1000 - 1249	128	
	1250 - 1500	151	

The protective bellows option is a durable bellows made of polyurethane which protects the unit from dust, dirt, and liquids. A unit equipped with protective bellows is protected to IP65. The bellows will reduce the available stroke of the unit, as extra space is needed when retracting. They will also increase the diameter of the extension tube. The amount of stroke reduction and bellows diameter are indicated in the table.



EC Series

Accessories

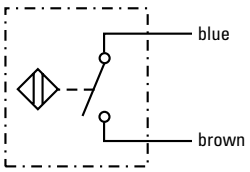
Magnetic Sensors

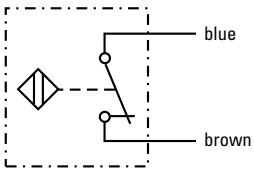
Technical Specification

Parameter		
Max. power	[W]	6
Max. voltage	[V]	120
Max. current	[A]	0,05
LED indicator for switch		yes
Protection class		IP67
Cable length	[m]	3
Operating temperature limits	[°C]	-20 – 70

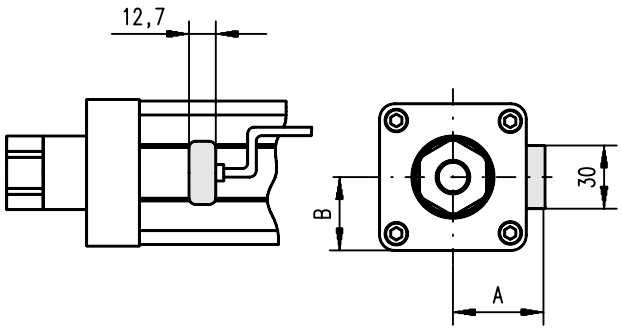
Part Numbers

Sensor type	suitable units	p/n
Normally closed	EC2, EC3, EC4, EC5	PSR-2
Normally open	EC2, EC3, EC4, EC5	PSR-1





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 a single locking screw. The cable is molded into the sensor. Sensors are ordered by using the part numbers.

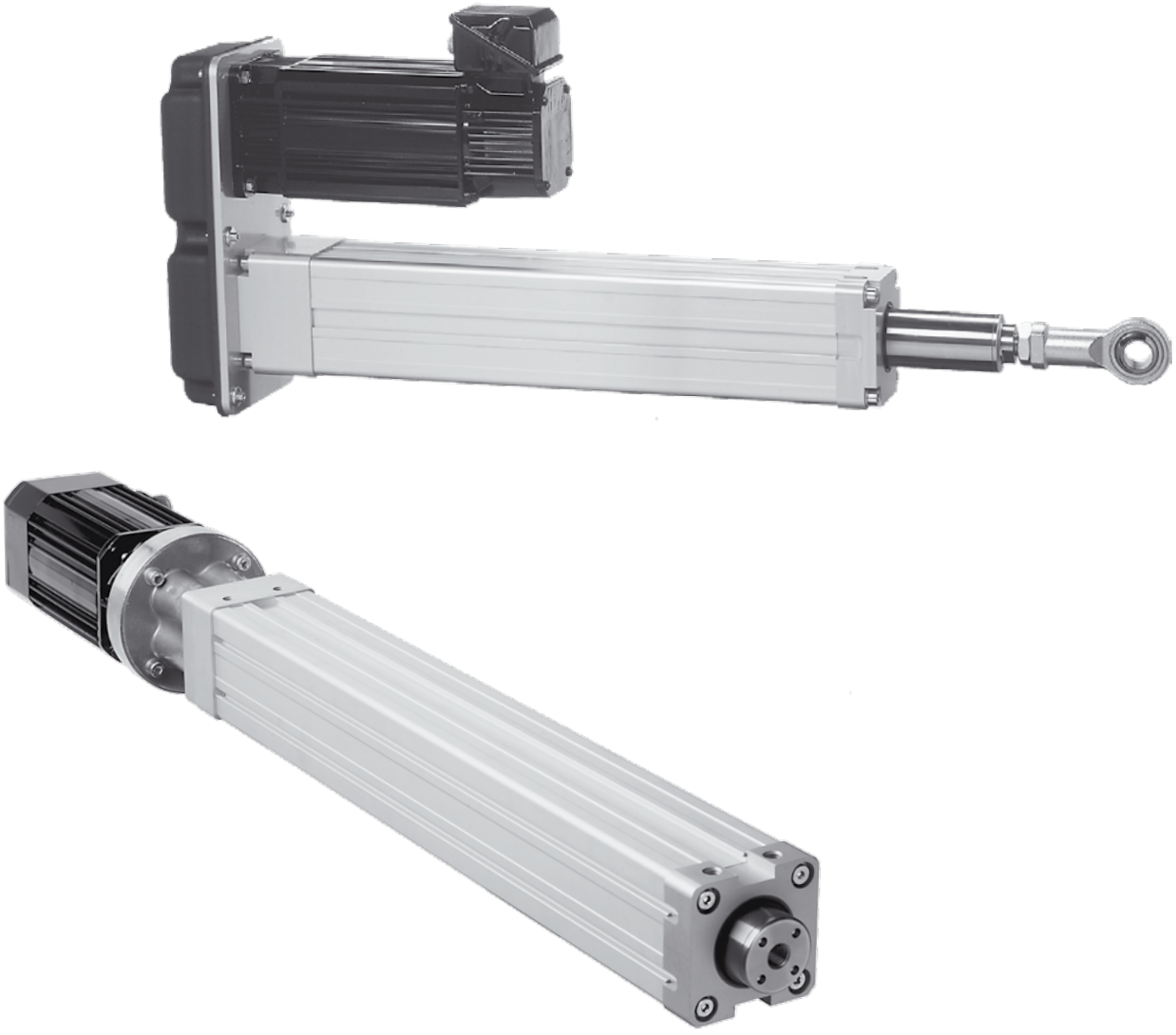


	A	B
EC2	37,3	28,5
EC3	43,7	34,8
EC4	54,5	46,1
EC5	54,5	46,1

ECT Series

Introduction

The ECT series is our highest performing line of precision linear actuators. Designed for the most demanding applications, the ECT series is ideal when the maximum available performance and longest life cycle are required. Precision-rolled ball screws provide smooth motion, accurate positioning, and quiet operation. The ECT series guarantees trouble-free operation even in the toughest applications.



ECT Series

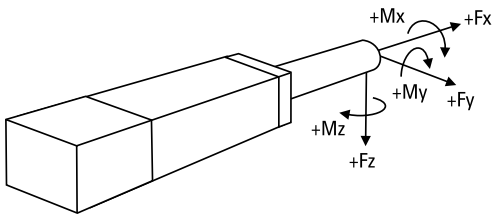
Overview

Features

- Extruded anodized aluminum cover tube
- Anodized aluminum housing
- Hard chromed steel extension tube
- Ball screw drive
- 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

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
Load (Fx), maximum	[N]	20 000	38 000
Available motor types		Three phase AC motor or AC servo motor	Three phase AC motor or AC servo motor
Page			

Definition of Forces



ECT90

Parallel IEC90 AC Motor

» Ordering Key - see page 92
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96

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

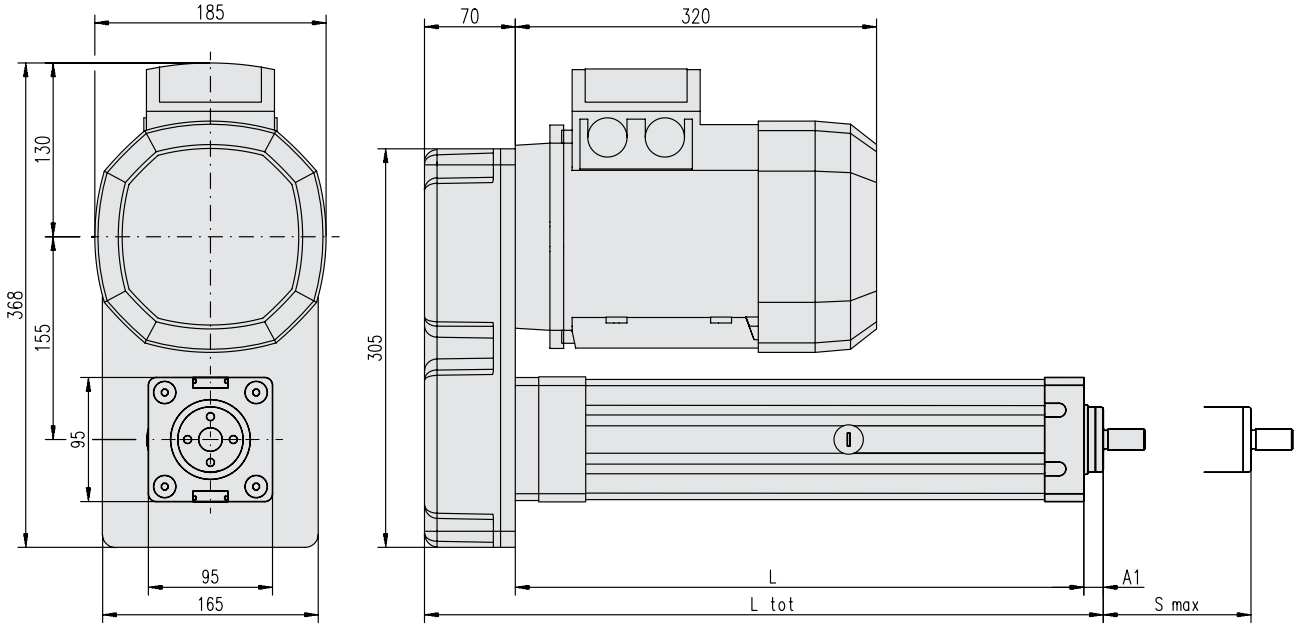
Performance Specifications

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



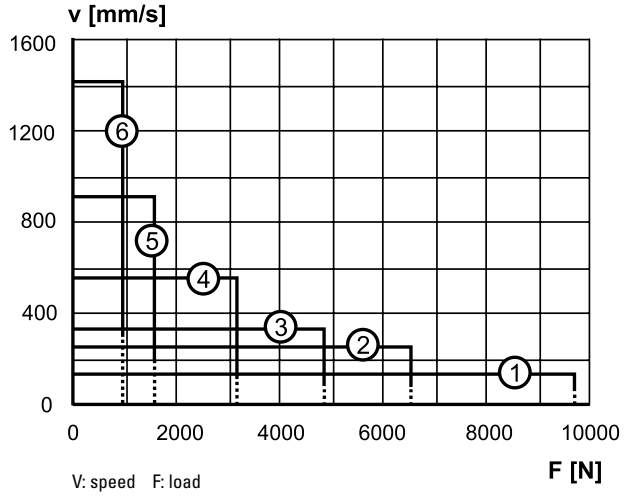
S max: maximum stroke (ordering stroke in mm)
L: cover tube length

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

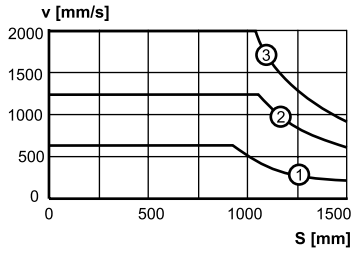


V: speed F: load

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!

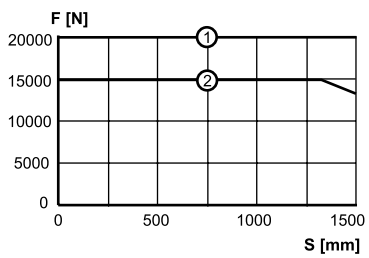
Critical Speed vs. Stroke



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



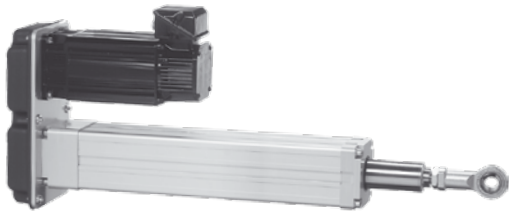
F: load S: stroke length

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

ECT90

Parallel B43 AC Servo Motor

» Ordering Key - see page 92
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96



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

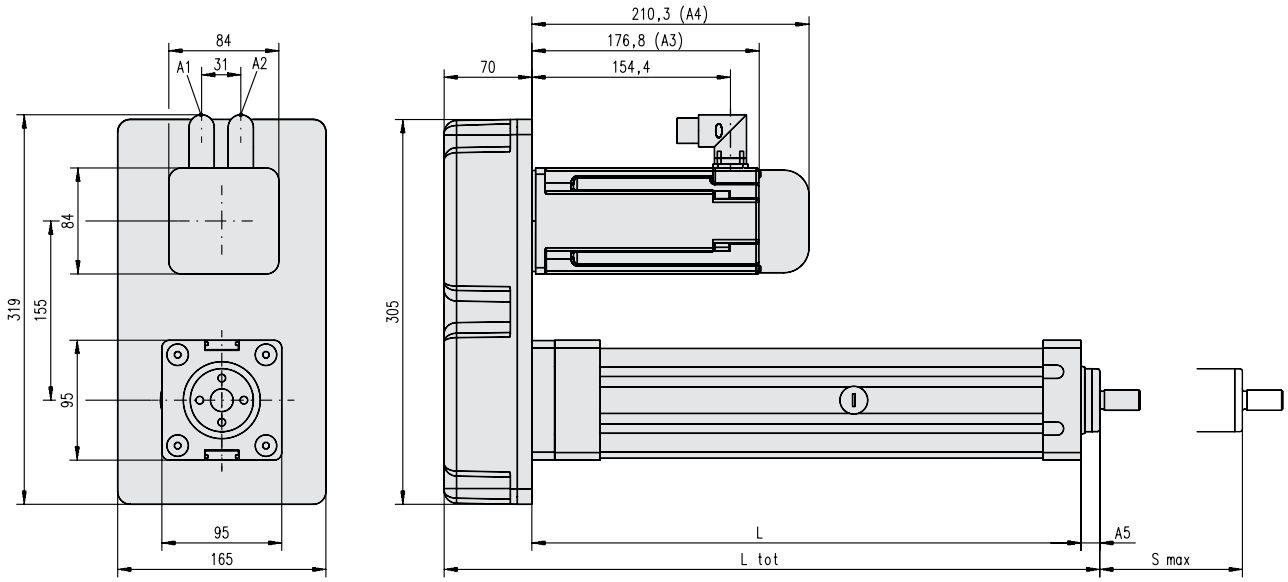
Performance Specifications

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

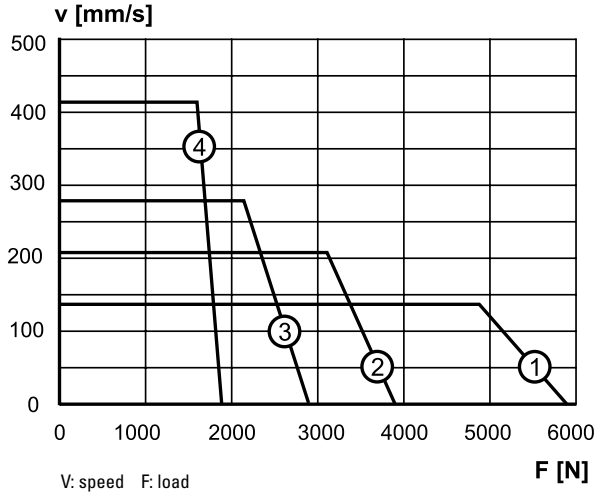
A1: power connector
A2: resolver connector
A3: without brake

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

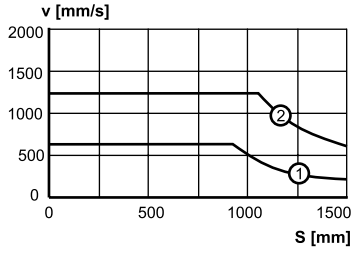
Speed vs. Load



V: speed F: load

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

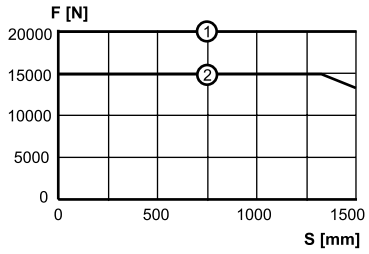
Critical Speed vs. Stroke



v: speed S: stroke length

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

Column Load Limit vs. Stroke



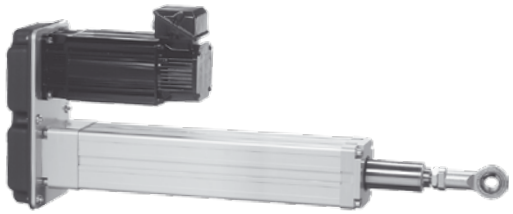
F: load S: stroke length

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

ECT90

Parallel B53 AC Servo Motor

» Ordering Key - see page 92
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96



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

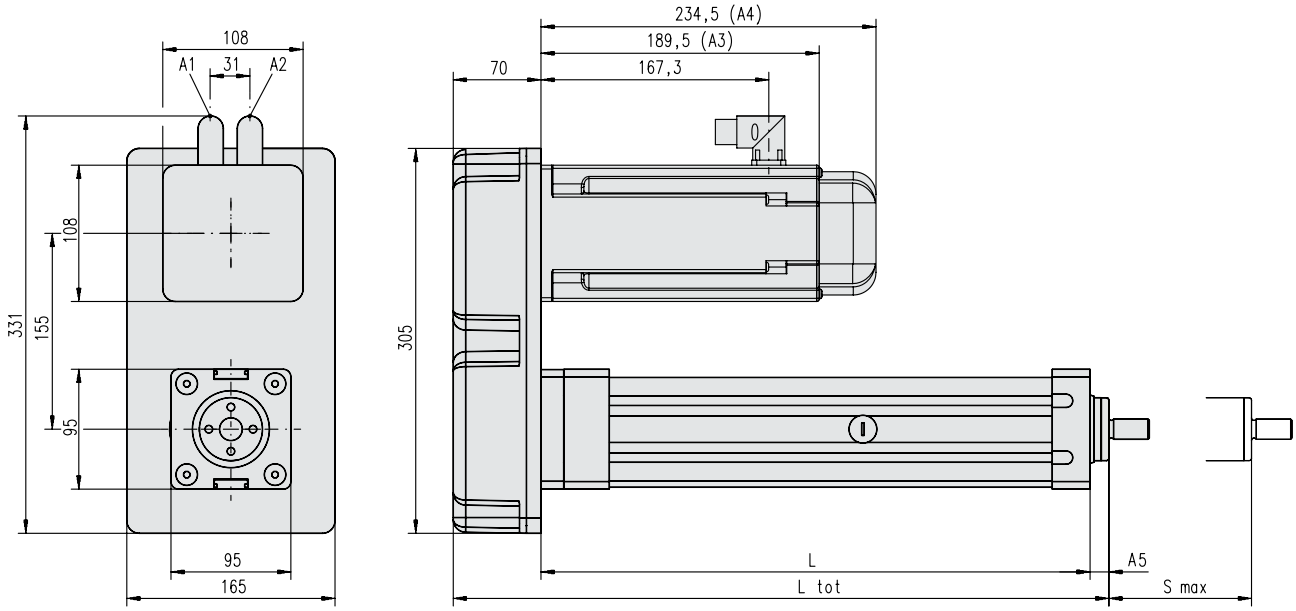
Performance Specifications

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

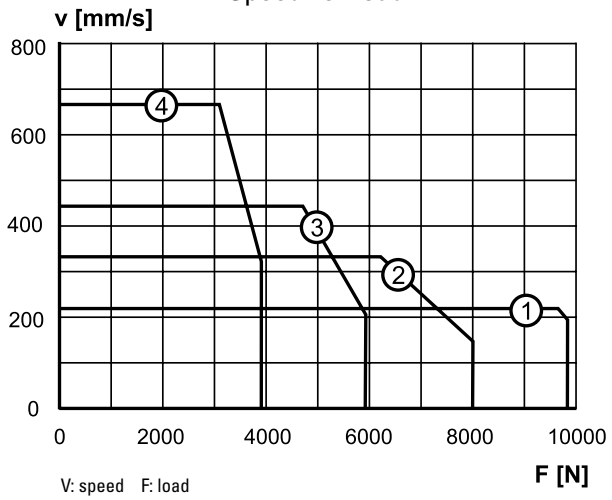
A1: power connector
A2: resolver connector
A3: without brake

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

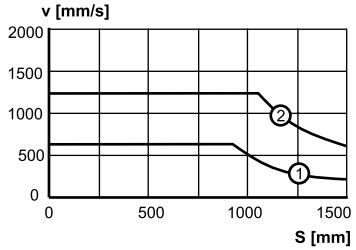
Performance Diagrams

Speed vs. Load



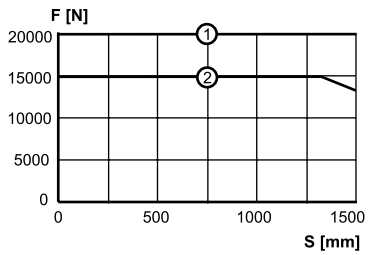
V: speed F: load
1: ECT09-B53R03PB-2510
2: ECT09-B53R02PB-2510
3: ECT09-B53R03PB-3220
4: ECT09-B53R02PB-3220

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 93
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96

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

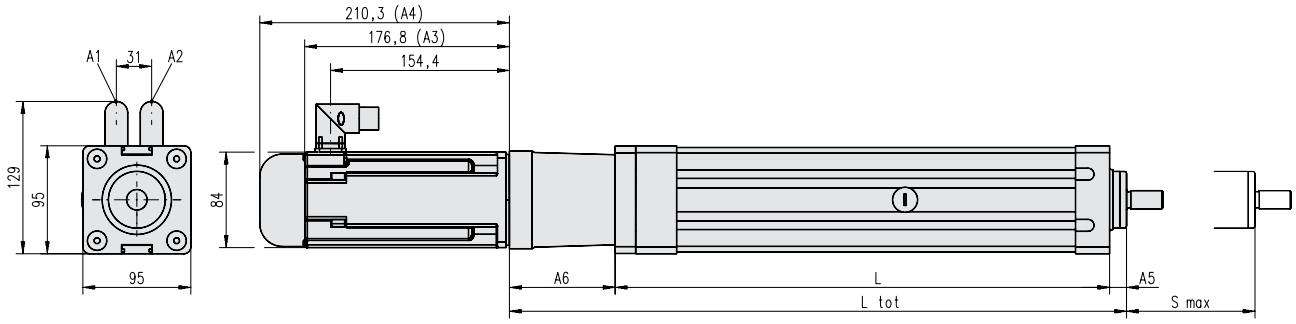
Performance Specifications

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

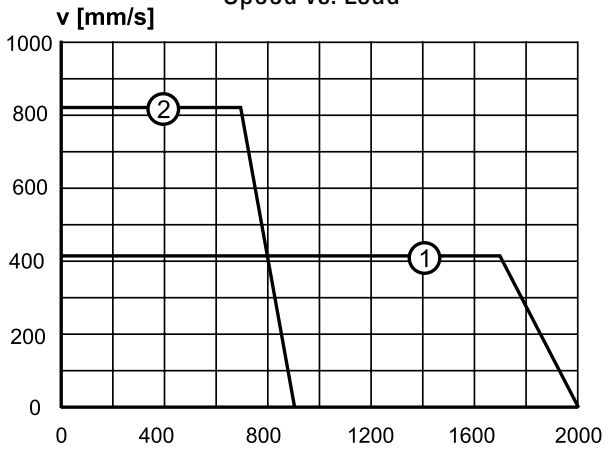
A1: power connector
A2: resolver connector
A3: without brake

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

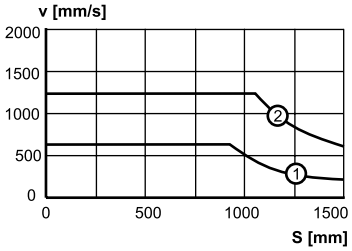
Performance Diagrams

Speed vs. Load



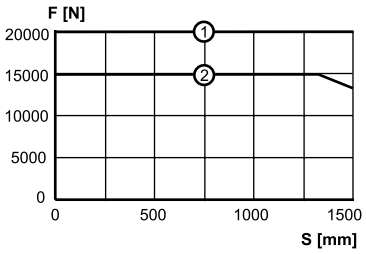
V: speed F: load
1: ECT09-B43R01LD-2510
2: ECT09-B43R01LD-3220

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 93
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96

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

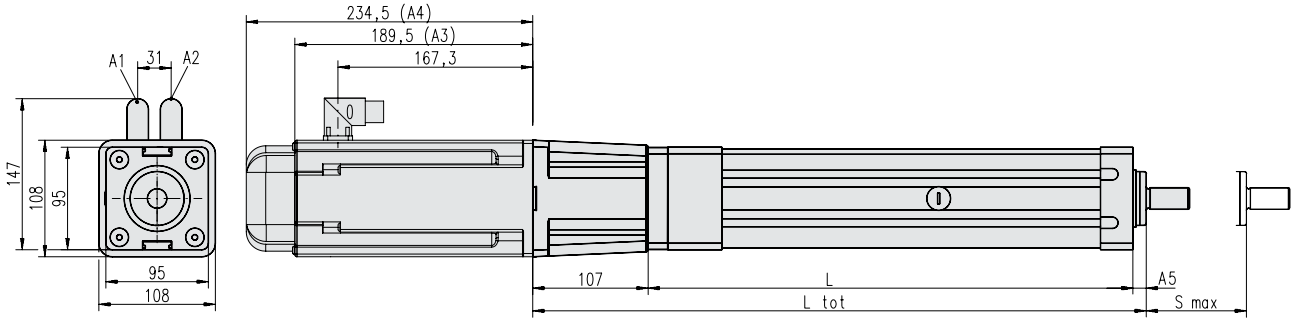
Performance Specifications

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

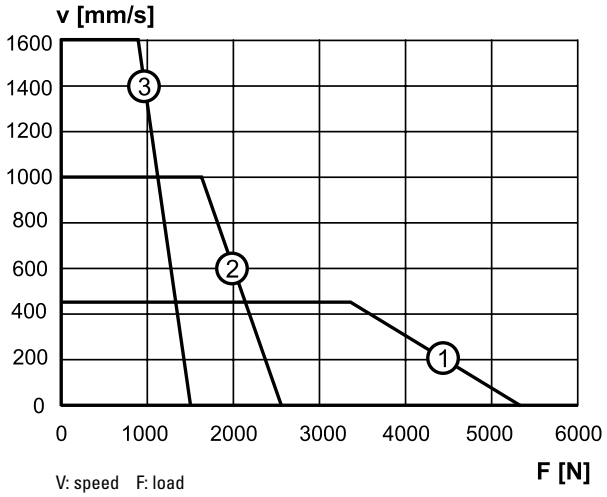
A1: power connector
A2: resolver connector
A3: without brake

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

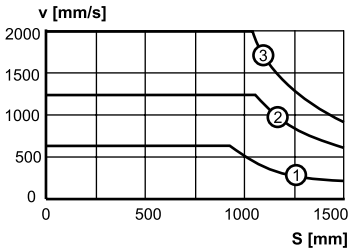
Performance Diagrams

Speed vs. Load



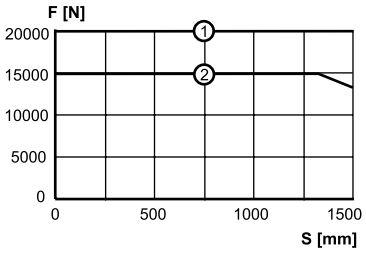
V: speed F: load
1: ECT09-B53R01LD-2510
2: ECT09-B53R01LD-3220
3: ECT09-B53R01LD-3232

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 93
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96

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

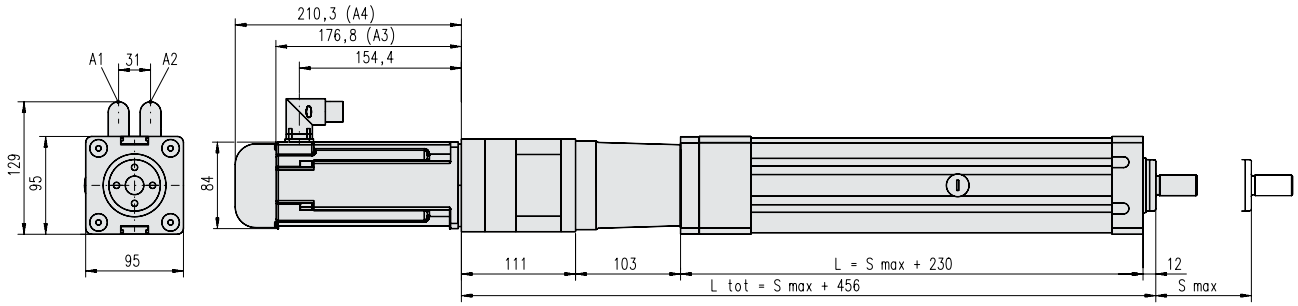
Performance Specifications

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

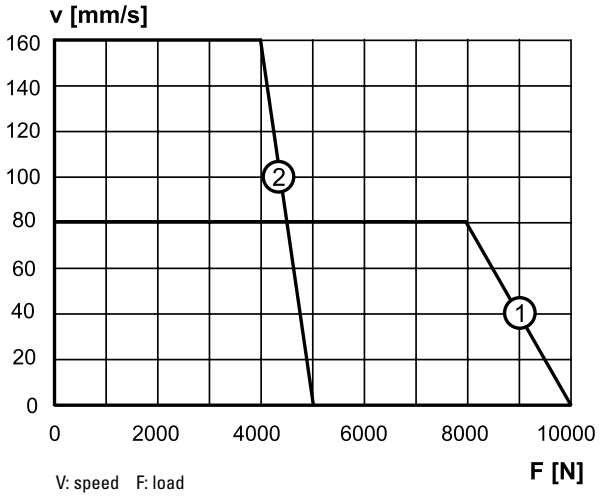
A1: power connector
A2: resolver connector
A3: without brake

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

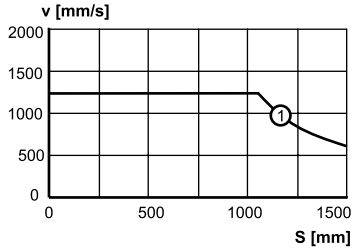
Performance Diagrams

Speed vs. Load



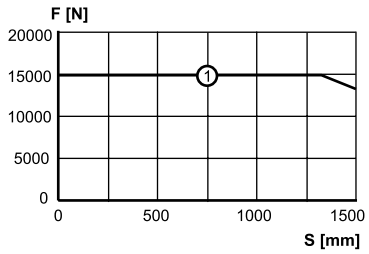
V: speed F: load
1: ECT09-B43R10LP-3220
2: ECT09-B43R05LP-3220

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 93
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96

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

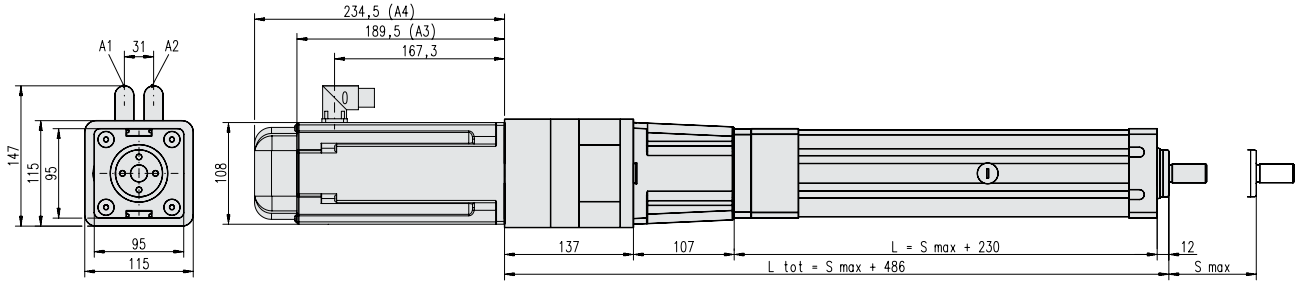
Performance Specifications

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

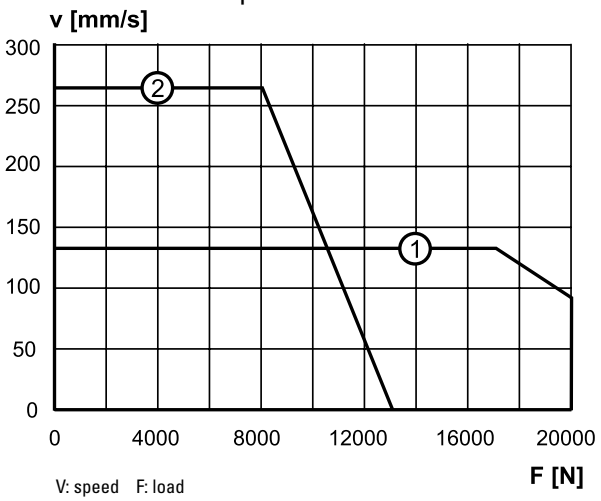
A1: power connector
A2: resolver connector
A3: without brake

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

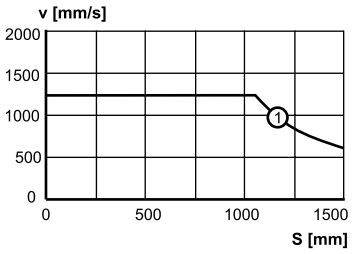
Performance Diagrams

Speed vs. Load



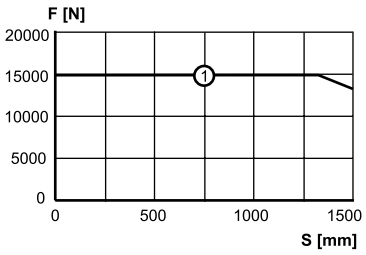
V: speed F: load
1: ECT09-B53R10LP-3220
2: ECT09-B53R05LP-3220

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 94
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96

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

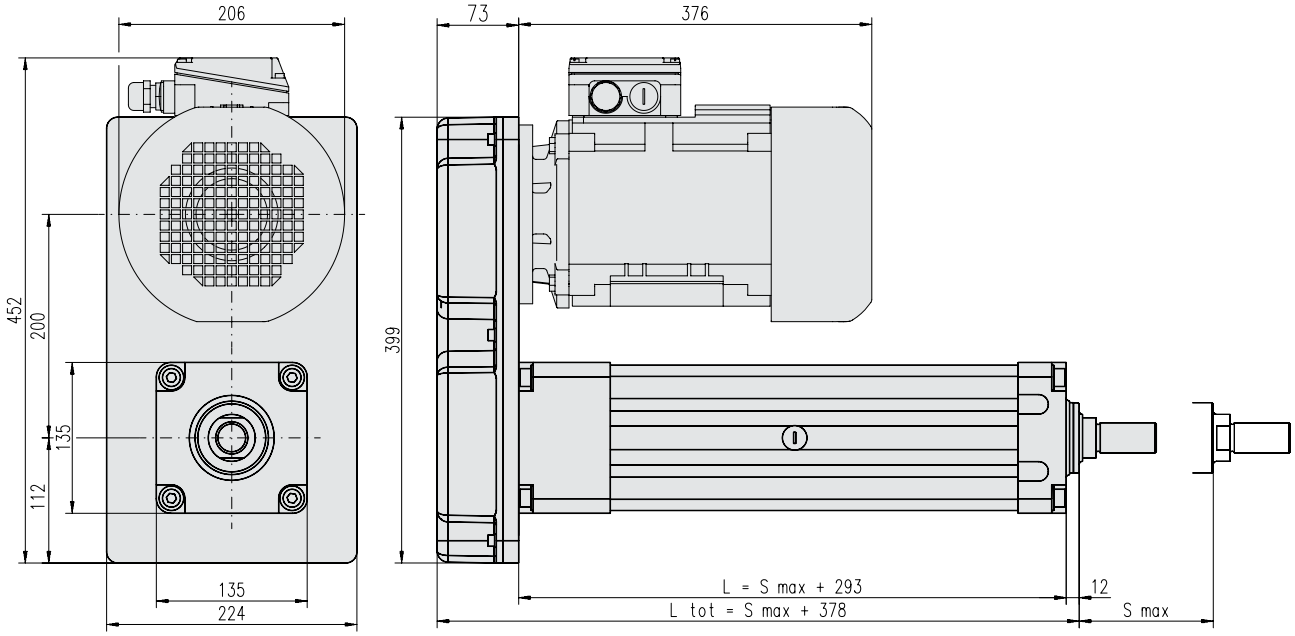
Performance Specifications

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

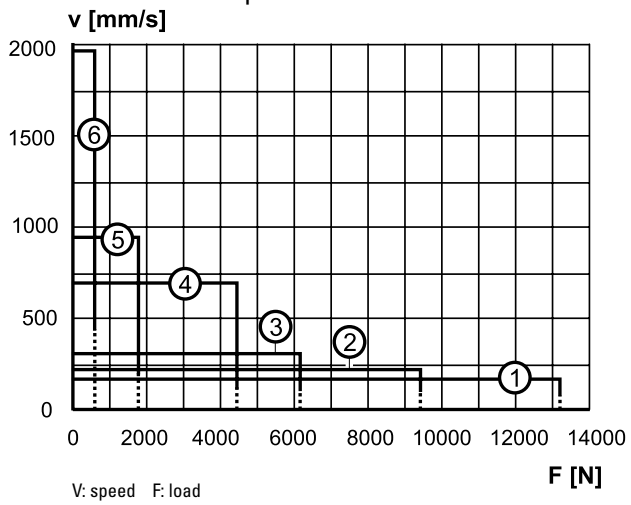


S max: maximum stroke (ordering stroke in mm)
L: cover tube length
L tot: retracted length

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

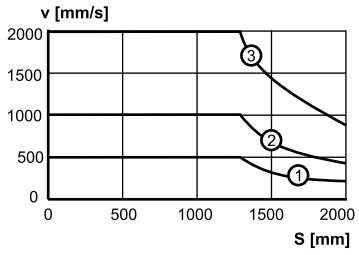


V: speed F: load

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!

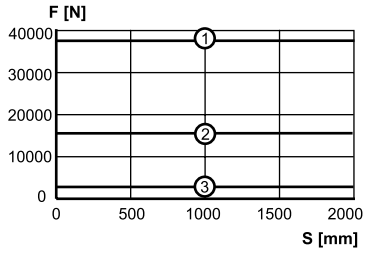
Critical Speed vs. Stroke



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



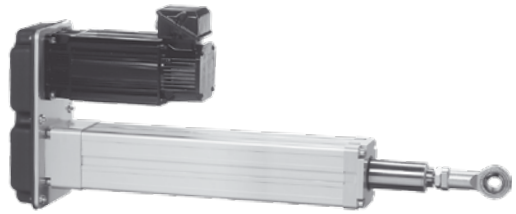
F: load S: stroke length

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 94
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96



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

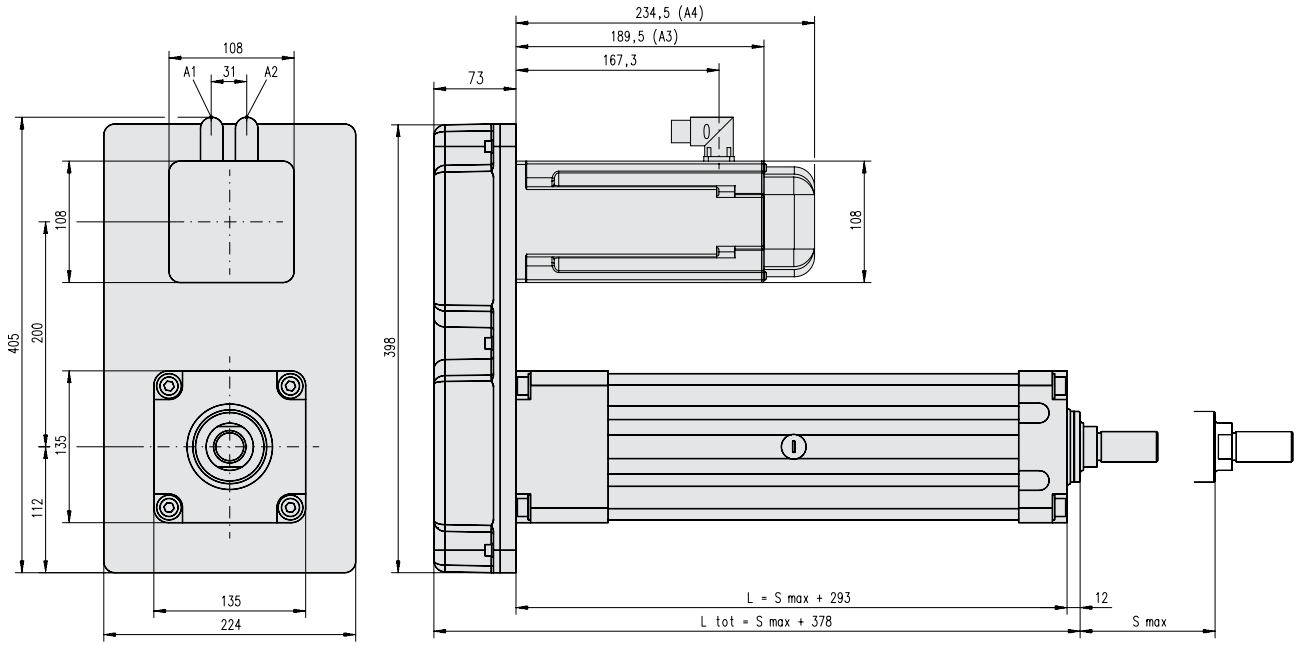
Performance Specifications

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

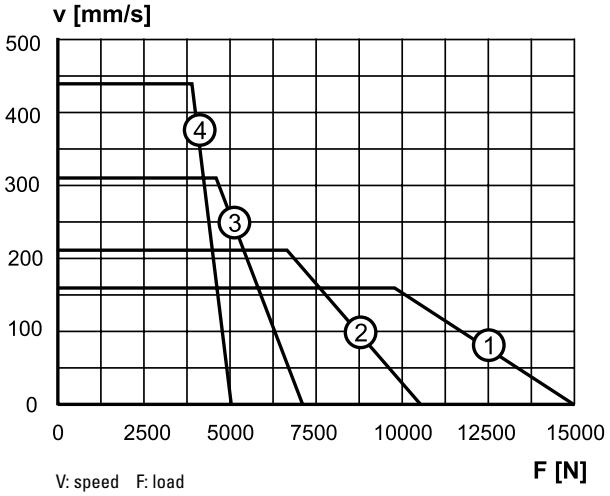
A1: power connector
A2: resolver connector
A3: without brake

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

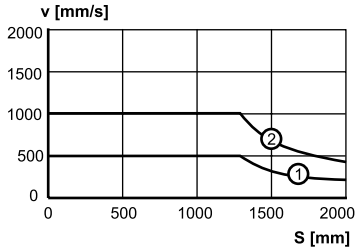
Speed vs. Load



V: speed F: load

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

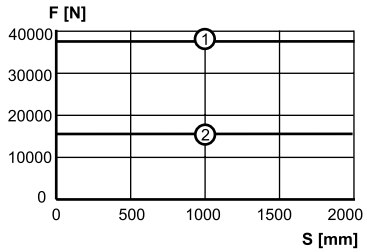
Critical Speed vs. Stroke



v: speed S: stroke length

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

Column Load Limit vs. Stroke



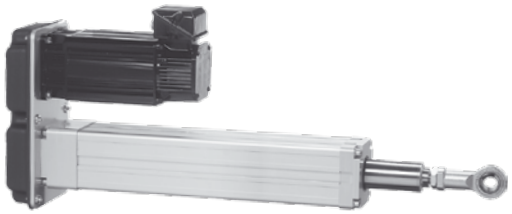
F: load S: stroke length

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

ECT130

Parallel B63 AC Servo Motor

» Ordering Key - see page 94
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96



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

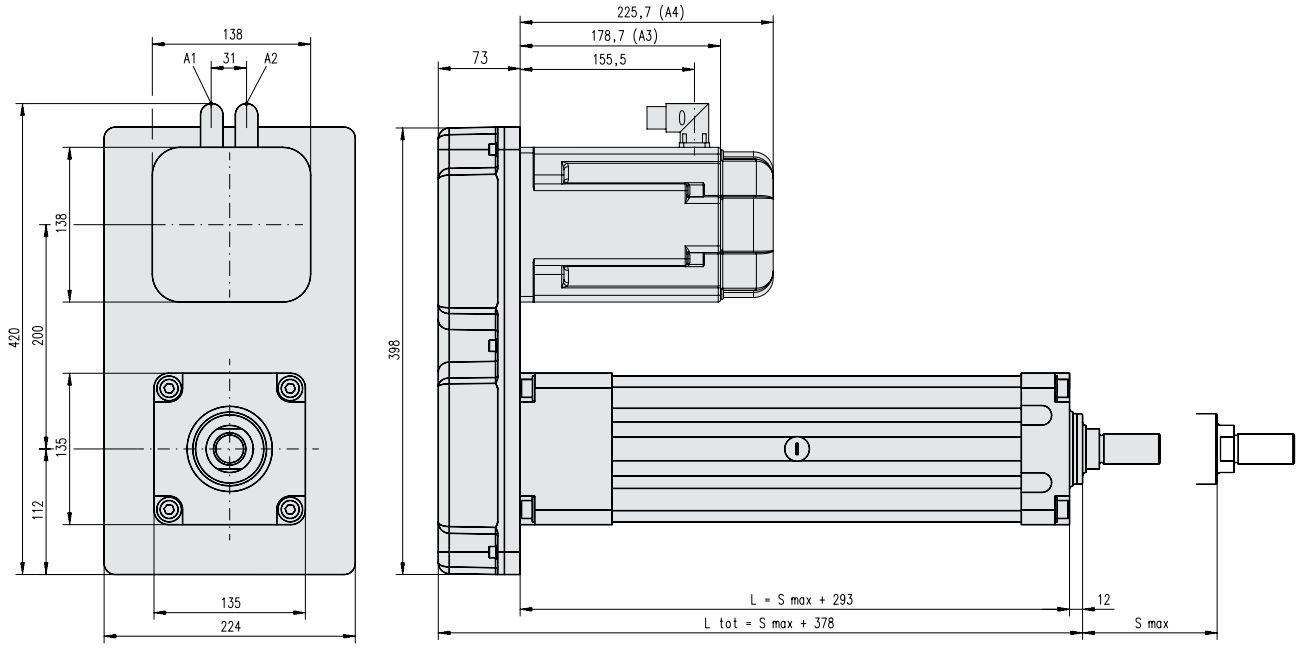
Performance Specifications

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

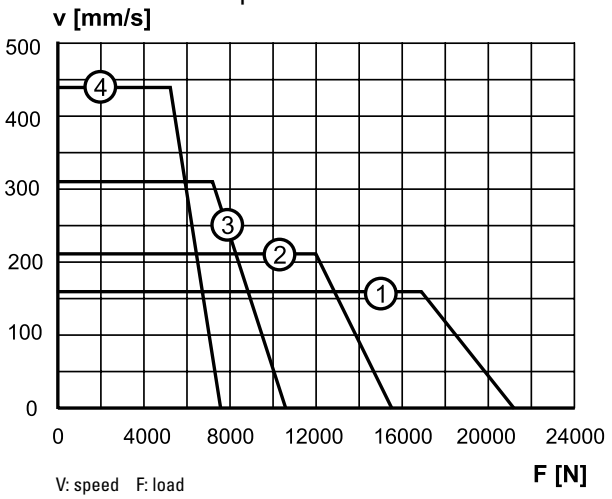
A1: power connector
A2: resolver connector
A3: without brake

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

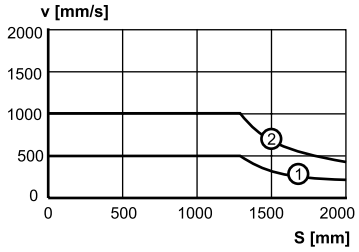
Speed vs. Load



V: speed F: load

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

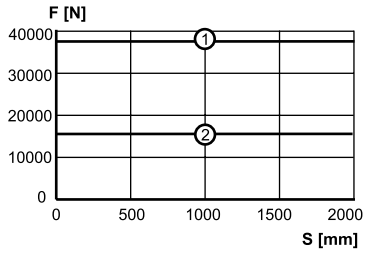
Critical Speed vs. Stroke



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 95
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96

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

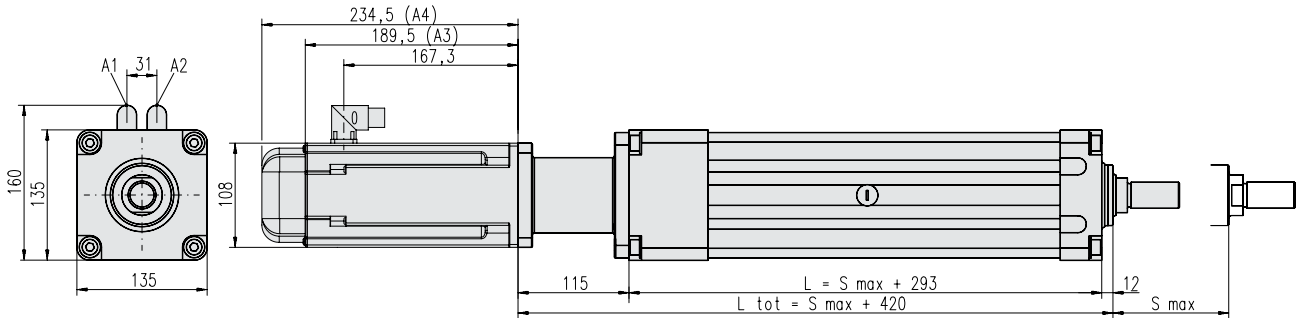
Performance Specifications

Parameter		ECT130
Stroke length (S), maximum	[mm]	2000
Maximum dynamic load (Fx)[1] ECT13-B53R01LD-4010 ECT13-B53R01LD-4020 ECT13-B53R01LD-4040	[N]	 4900 2250 700
Maxium load (Fy, Fz)[2]	[N]	500
Maximum load torque (My, Mz)	[Nm]	150
Maximum speed ECT13-B53R01LD-4010 ECT13-B53R01LD-4020 ECT13-B53R01LD-4040	[mm/s]	 400 1000 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

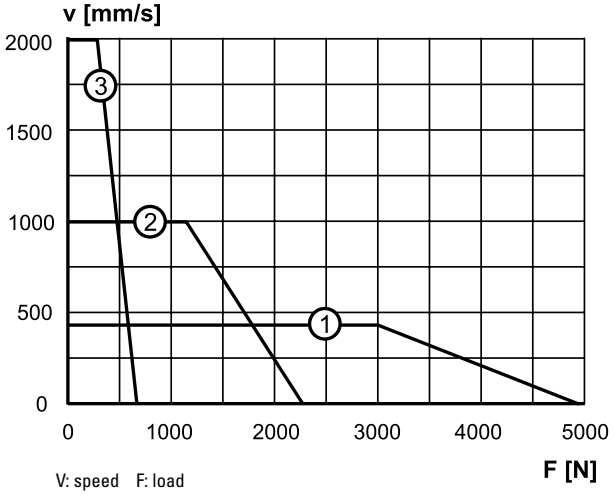
A1: power connector
A2: resolver connector
A3: without brake

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

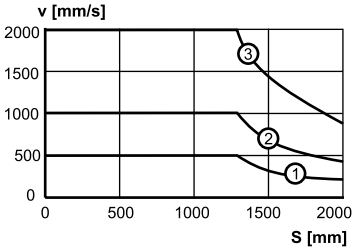
Performance Diagrams

Speed vs. Load



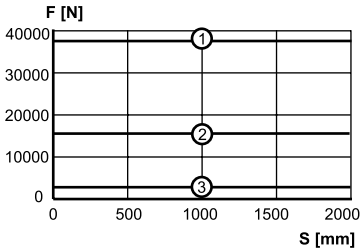
V: speed F: load
1: ECT13-B53R01LD-4010
2: ECT13-B53R01LD-4020
3: ECT13-B53R01LD-4040

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 95
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96

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

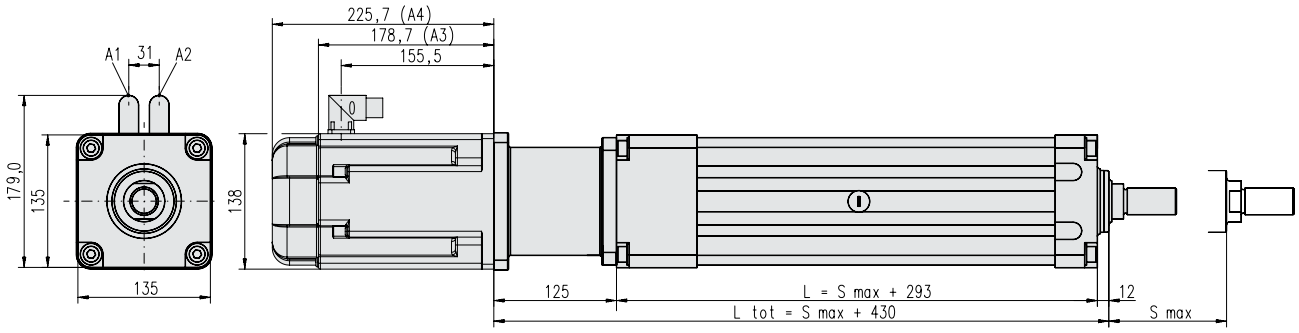
Performance Specifications

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

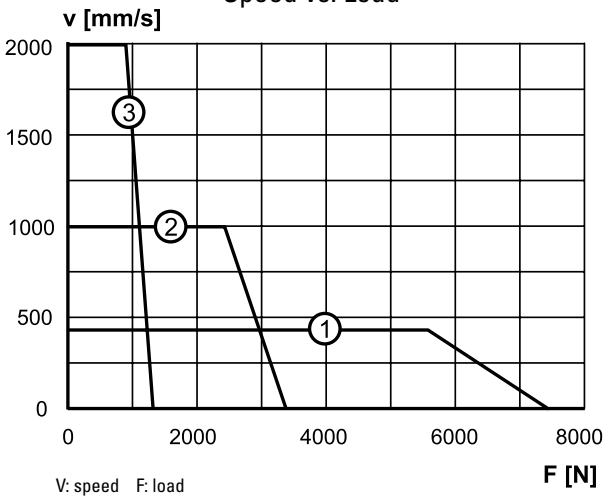
A1: power connector
A2: resolver connector
A3: without brake

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

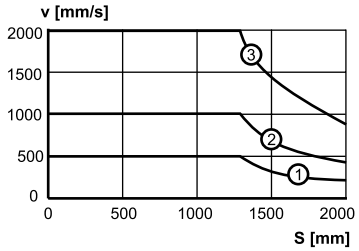
Performance Diagrams

Speed vs. Load



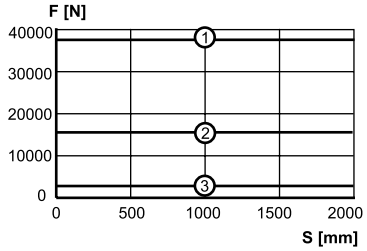
V: speed F: load
1: ECT13-B63R01LD-4010
2: ECT13-B63R01LD-4020
3: ECT13-B63R01LD-4040

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 95
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96

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

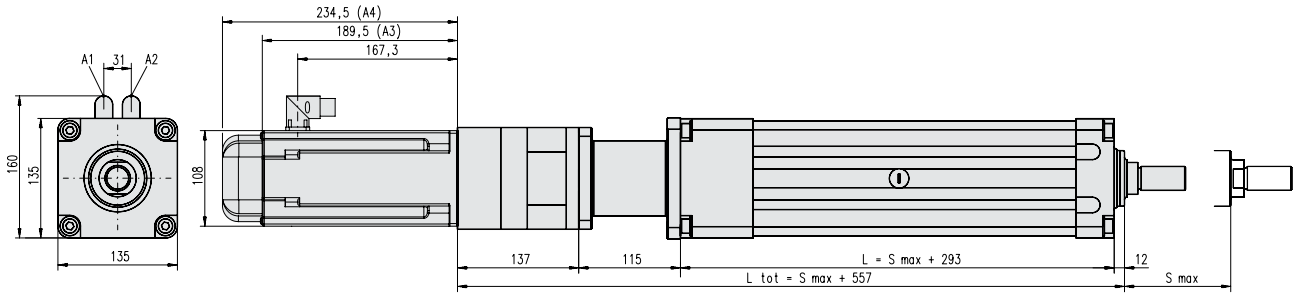
Performance Specifications

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

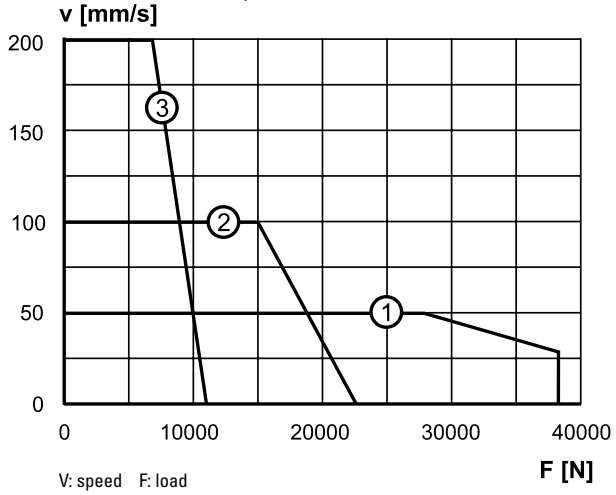
A1: power connector
A2: resolver connector
A3: without brake

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

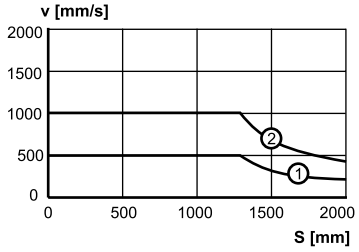
Speed vs. Load



V: speed F: load

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

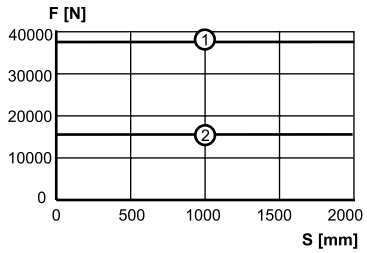
Critical Speed vs. Stroke



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 95
» Mounting Options - see page 78
» Adapter Options - see page 80
» Glossary - see page 96

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

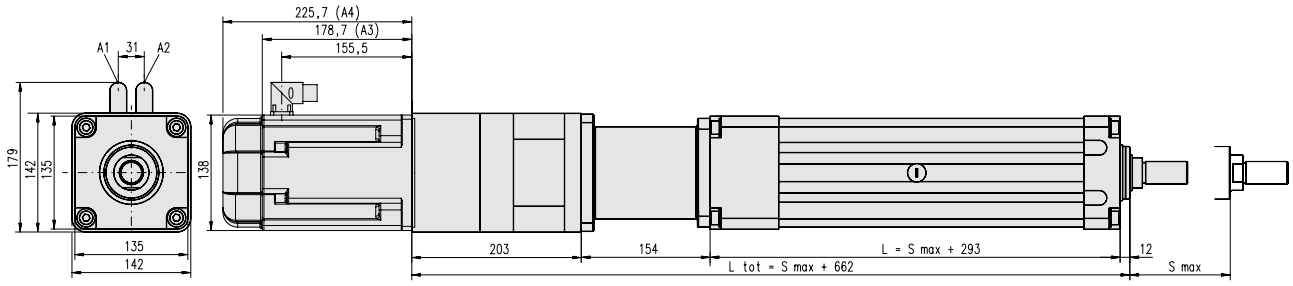
Performance Specifications

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

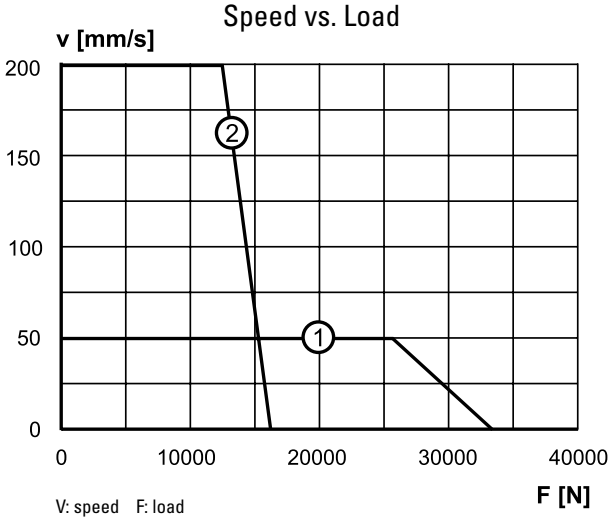
A1: power connector
A2: resolver connector
A3: without brake

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

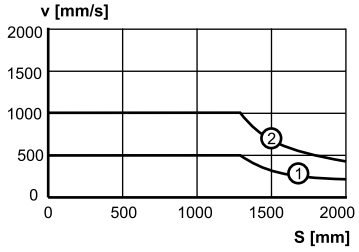
Performance Diagrams

Speed vs. Load



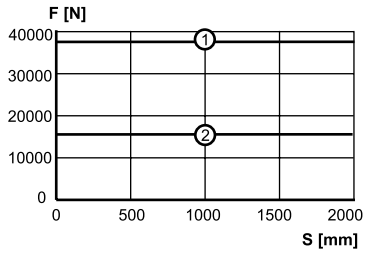
V: speed F: load
1: ECT13-B63R05LP-4010
2: ECT13-B63R05LP-4020

Critical Speed vs. Stroke



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

Column Load Limit vs. Stroke

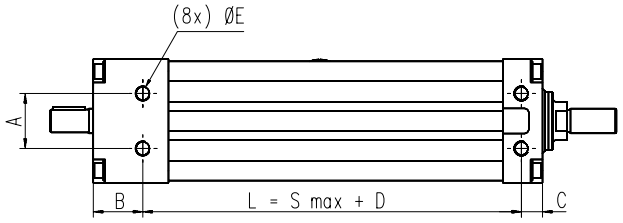


F: load S: stroke length
1: ECT13-B63R • • LP-4010
2: ECT13-B63R • • LP-4020

ECT Series

Mounting Options

Mounting Holes - Standard Feature

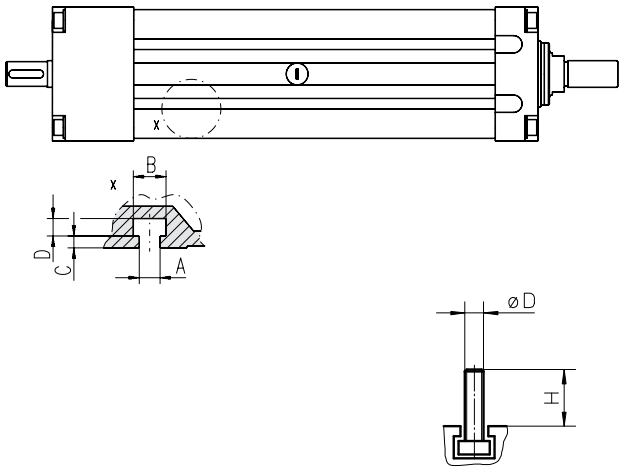


All ECT models have mounting holes as standard except when ordering mounting feet type F, when the holes are used to attach the feet. Note! The distance “B” and “D” for ECT90 units are different depending of the screw diameter of the unit.

	A	B	C	D	E
ECT90	45	39[1] / 48[2]	15	141[1] / 167[2]	M12 × 18
ECT130	60	54	23	216	M16 × 28

[1] ECT09- ••••••••25
[2] ECT09- ••••••••32

T-slots and T-slot Bolts - Standard Feature

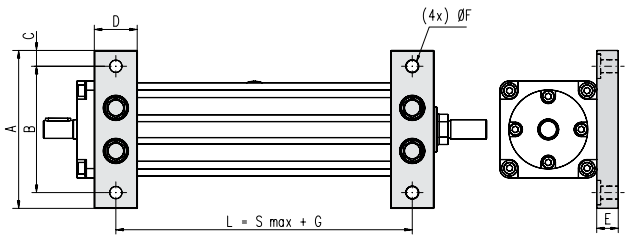


All ECT models have four T-slots, two on the top and two on the bottom, running along the entire profile. Suitable T-slot bolts can be ordered (see second table below).

	A	B	C	D
ECT90	6,4	10,5	3,5	4,5
ECT130	10,5	16,5	6,0	9,0

	ø D	H	p/n
ECT90	M6	18	D310 314
ECT90	M6	26	D310 311
ECT130	M10	28	D800 089

Mounting Feet type F



The mounting feet option comes mounted from factory if ordered. Note! The distance “G” for ECT90 units is different depending of the screw diameter of the unit.

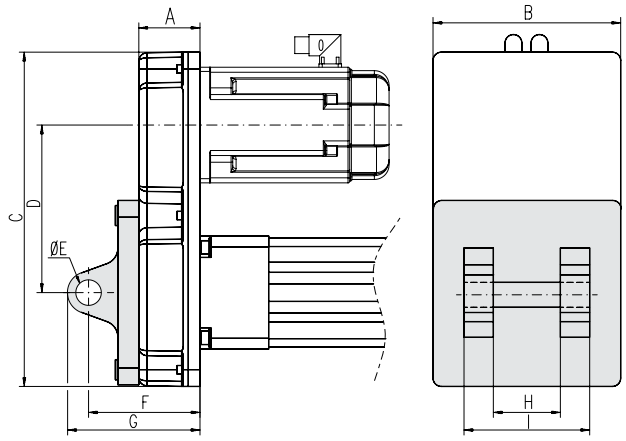
	A	B	C	D	E	F	G
ECT90	155	125	15	40	20	13	141[1] / 162[2]
ECT130	220	176	22	60	30	17	216

[1] ECT09- ••••••••25
[2] ECT09- ••••••••32

ECT Series

Mounting Options

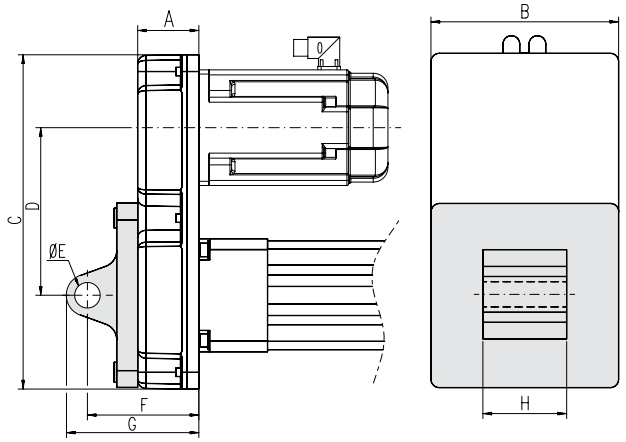
Clevis type R



The clevis option comes mounted from factory on the belt gear if ordered. The clevis mounting option can only be ordered on ECT130 units with belt gear.

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

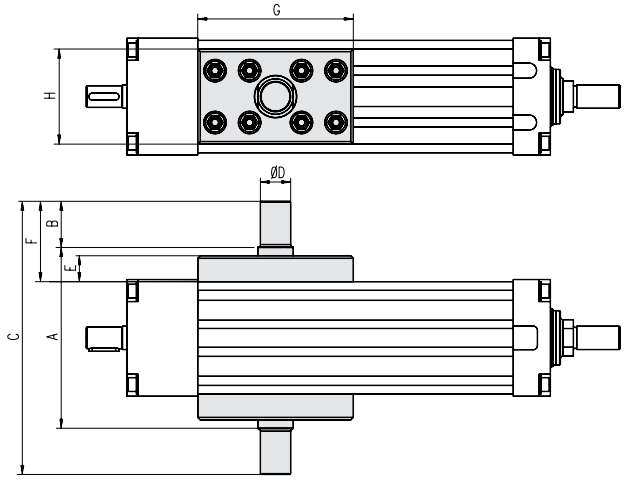
Clevis type S



The clevis option comes mounted from factory on the belt gear if ordered. The clevis mounting option can only be ordered on ECT90 and ECT130 units with belt gear.

	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

Trunnion type T



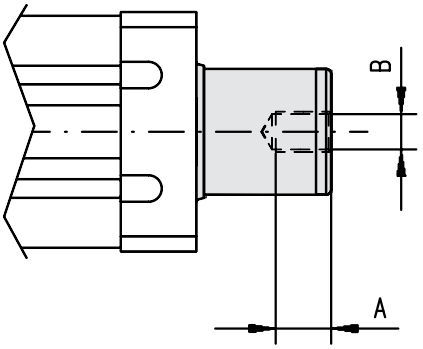
The trunnion option comes mounted from factory if ordered. The position along the profile can however be adjusted freely by the customer.

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

ECT Series

Adapter Options

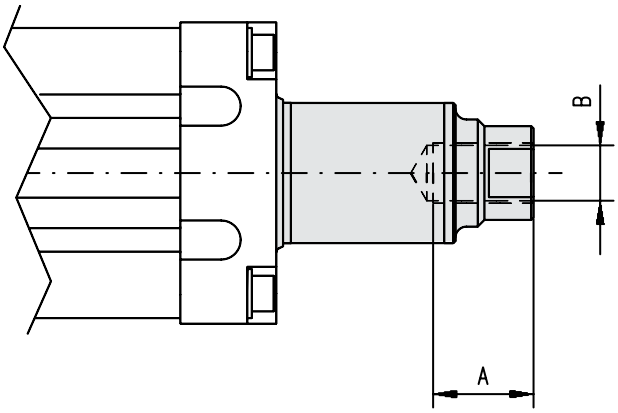
Inside Thread type P and R



The inside thread option comes mounted from factory if ordered. Inside threads type P and R only fits ECT90 units where P only are possible on units with screw diameter 25 mm and R only are possible on units with screw diameter 32 mm.

	Type	A	B
ECT90	P	22	M16 × 2
ECT90	R	24	M20 × 1,5

Inside Thread type T, V and X



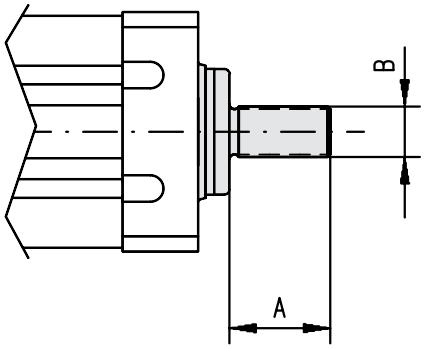
The inside thread option comes mounted from factory if ordered. Inside threads type T, V and X only fits ECT130 units.

	Type	A	B
ECT130	T	45	M27 × 2
ECT130	V	45	M33 × 2
ECT130	X	45	M30 × 2

ECT Series

Adapter Options

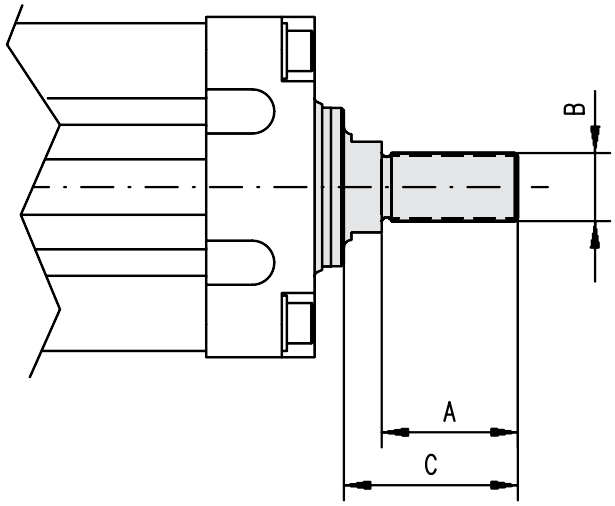
Outside Thread type N and Q



The outside thread option comes mounted from factory if ordered. Outside threads type N and Q only fits ECT90 units where N only are possible on units with screw diameter 25 mm and Q only are possible on units with screw diameter 32 mm.

	Type	A	B
ECT90	N	32	M16 × 1,5
ECT90	Q	40	M20 × 1,5

Outside Thread type S and U



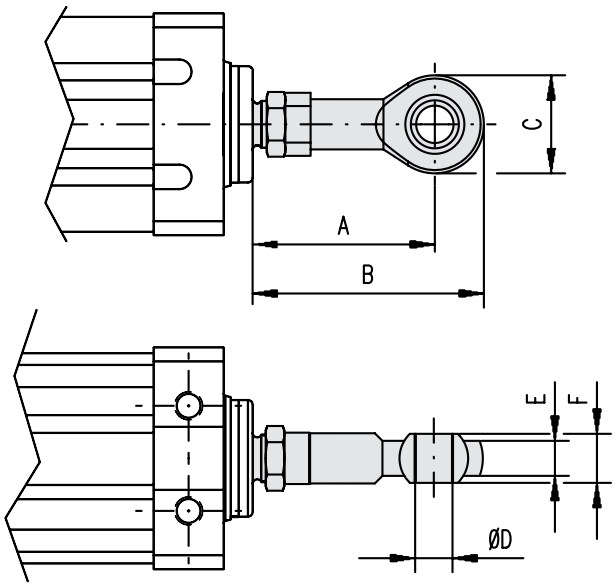
The outside thread option comes mounted from factory if ordered. Outside threads type S and U only fits ECT130 units.

	Type	A	B	C
ECT130	S	54	M27 × 2	66
ECT130	U	45	M33 × 2	57

ECT Series

Adapter Options

Spherical Joint type J and K



The spherical joint comes mounted from factory if ordered. Joints type J and K only fits ECT90 units.

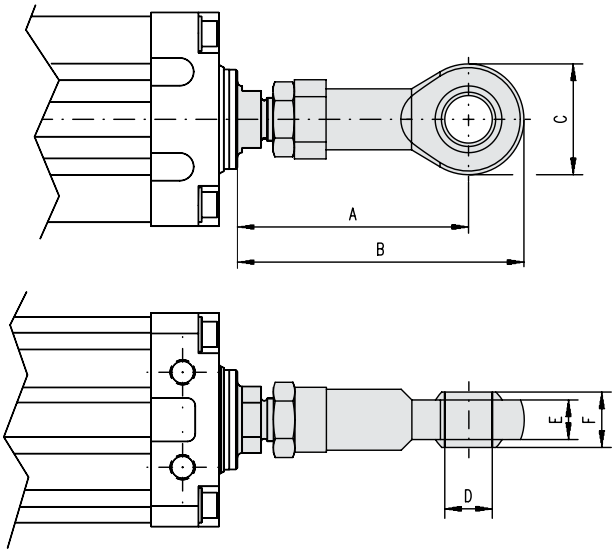
	Type	A	B	C	D	E	F
ECT90	J	76	97	42	16	15	21
ECT90	K	90	115	50	20	18	25

ECT Series

Adapter Options

Spherical Joint type L and M

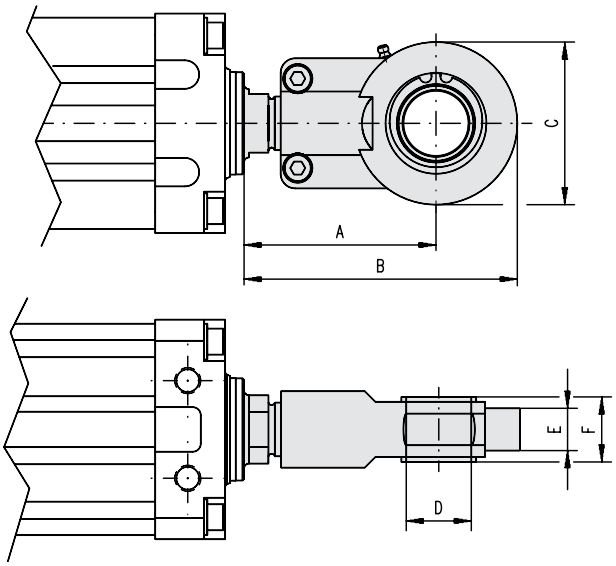
Type L



The spherical joint comes mounted from factory if ordered. Joints type L and M only fits ECT130 units. Joint type M includes a grease nipple.

	Type	A	B	C	D	E	F
ECT130	L	137	172	70	30	25	37
ECT130	M	115	164	97	40	32	40

Type M



ECT Series

Sensors Option

Magnetic Sensors Option

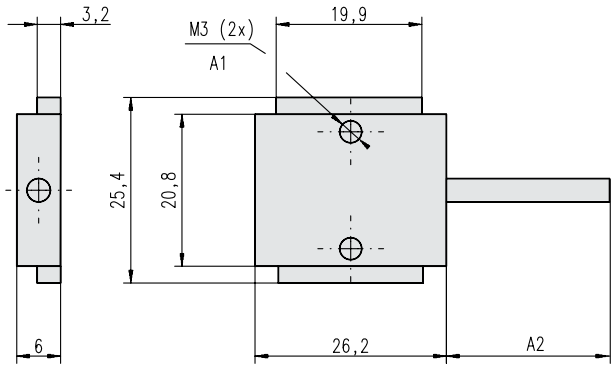
Technical Specification

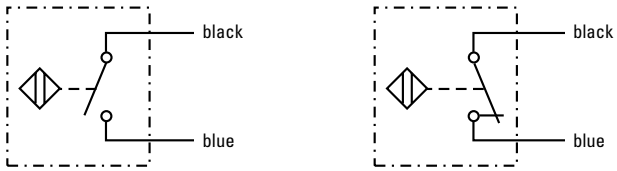
Parameter		
Max. power	[W]	10
Max. voltage	[Vdc]	100
Max. current	[A]	0,5
LED indicator for switch		no
Protection class		IP67
Cable length	[m]	3
Cable cross section	[mm²]	2 × 0,15
Operating temperature limits	[°C]	-25 – 65
Weight	[kg]	0,050

Part Numbers

Sensor type	suitable units	p/n
Normally closed	ECT90, ECT130	D535 071
Normally open	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.





ECT Series

Protection Options

Environment Protection Option S1

Technical Specification

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

EC2

EC2 - Acme Screw, Parallel 24 Volt DC Motor

1	2	3	4	5	6
EC2-D	-10-04A	1000	-MF1M	-FT1M	-PB

1. Model and motor type
EC2-D = EC2 with 24 Vdc DC motor

2. Max. load, speed, screw type and motor style
-100-04A = 800 N, 20 mm/s, acme screw, parallel
-50-04A = 425 N, 40 mm/s, acme screw, parallel
-20-04A = 170 N, 100 mm/s, acme screw, parallel
-15-04A = 125 N, 140 mm/s, acme screw, parallel
-10-04A = 80 N, 220 mm/s, acme screw, parallel

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

4. Mounting options
-MF1M = front flange
-MF2M = rear flange
-MF3M = both front and rear flange
-MS1 = side end angel brackets
-MS2 = mounting feet
-MP2 = rear clevis without pivot base
-MP3 = rear clevis with pivot base
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-PB = IP65 protective bellows

[1] Leave position blank if no other option is desired.

EC2 - Acme Screw, Inline 24 Volt DC Motor

1	2	3	4	5	6
EC2-D	-10L-04A	800	-MT4	-FC2	

1. Model and motor type
EC2-D = EC2 with 24 Vdc DC motor

2. Max. load, speed, screw type and motor style
-10L-04A = 80 N, 220 mm/s, acme screw, inline

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

4. Mounting options
-MF1M = front flange
-MS2 = mounting feet
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-PB = IP65 protective bellows

[1] Leave position blank if no other option is desired.

Ordering Keys

EC2

EC2 - Ball Screw, Parallel 24 Volt DC Motor

1	2	3	4	5	6
EC2-D	-10-05B	770	-MP2	-MT1M	

1. Model and motor type
EC2-D = EC2 with 24 Vdc DC motor

2. Max. load, speed, screw type and motor style
-100-05B = 1330 N, 25 mm/s, ball screw, parallel
-50-05B = 670 N, 50 mm/s, ball screw, parallel
-100-16B = 420 N, 80 mm/s, ball screw, parallel
-20-05B = 280 N, 130 mm/s, ball screw, parallel
-50-16B = 200 N, 160 mm/s, ball screw, parallel
-15-05B = 200 N, 170 mm/s, ball screw, parallel
-10-05B = 140 N, 260 mm/s, ball screw, parallel
-20-16B = 80 N, 410 mm/s, ball screw, parallel
-15-16B = 60 N, 560 mm/s, ball screw, parallel
-10-16B = 40 N, 830 mm/s, ball screw, parallel

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

4. Mounting options
-MF1M = front flange
-MF2M = rear flange
-MF3M = both front and rear flange
-MS1 = side end angel brackets
-MS2 = mounting feet
-MP2 = rear clevis without pivot base
-MP3 = rear clevis with pivot base
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-PB = IP65 protective bellows

[1] Leave position blank if no other option is desired.

EC2 - Ball Screw, Inline 24 Volt DC Motor

1	2	3	4	5	6
EC2-D	-10L-16B	365	-MS2	-FC2	-PB

1. Model and motor type
EC2-D = EC2 with 24 Vdc DC motor

2. Max. load, speed, screw type and motor style
-10L-05B = 140 N, 260 mm/s, ball screw, inline
-10L-16B = 40 N, 820 mm/s, ball screw, inline

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

4. Mounting options
-MF1M = front flange
-MS2 = mounting feet
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-PB = IP65 protective bellows

[1] Leave position blank if no other option is desired.

Ordering Keys

EC2

EC2 - Ball Screw, Parallel BK23 AC Servo Motor

1	2	3	4	5	6
EC2-BK	23R-50-16B	1000	-MF3M	-FT1M	-BM24

1. Model and motor type
EC2-BK = EC2 with AC servo motor

2. Max. load, speed, screw type and motor style
23R-50-05B = 3600 N, 60 mm/s, ball screw, parallel
23R-100-16B = 2830 N, 90 mm/s, ball screw, parallel
23R-20-05B =1900 N, 290 mm/s, ball screw, parallel
23R-50-16B = 1420 N, 180 mm/s, ball screw, parallel
23R-15-05B = 1400 N, 390 mm/s, ball screw, parallel
23R-10-05B = 950 N, 400 mm/s, ball screw, parallel
23R-20-16B = 590 N, 920 mm/s, ball screw, parallel
23R-15-16B = 440 N, 1250 mm/s, ball screw, parallel
23R-10-16B = 290 N, 1280 mm/s, ball screw, parallel

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

4. Mounting options
-MF1M = front flange
-MF2M = rear flange
-MF3M = both front and rear flange
-MS1 = side end angel brackets
-MS2 = mounting feet
-MP2 = rear clevis without pivot base
-MP3 = rear clevis with pivot base
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-BM24 = motor brake
-PB = IP65 protective bellows
-BM24-PB = brake and IP65 protective bellows

[1] Leave position blank for no option

EC2 - Ball Screw, Inline BK23 AC Servo Motor

1	2	3	4	5	6
EC2-BK	23R-10L-05B	920	-MS6M	-FS2	

1. Model and motor type
EC2-BK = EC2 with AC servo motor

2. Max. load, speed, screw type and motor style
23R-10L-05B = 950 N, 400 mm/s, ball screw, inline
23R-10L-16B = 290 N, 1280 mm/s, ball screw, inline

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

4. Mounting options
-MF1M = front flange
-MS2 = mounting feet
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-BM24 = motor brake
-PB = IP65 protective bellows
-BM24-PB = brake and IP65 protective bellows

[1] Leave position blank for no option

Ordering Keys

EC3

EC3 - Ball Screw, Parallel BK23 AC Servo Motor

1	2	3	4	5	6
EC3-BK	23R-50-05B	1000	-MP3	-FC2	-PB

1. Model and motor type
EC3-BK = EC3 with AC servo motor

2. Max. load, speed, screw type and motor style
23R-70-05B = 5390 N, 35 mm/s, ball screw, parallel
23R-50-05B = 3380 N, 50 mm/s, ball screw, parallel
23R-70-10B = 2700 N, 70 mm/s, ball screw, parallel
23R-20-05B = 1950 N, 260 mm/s, ball screw, parallel
23R-50-10B = 1940 N, 100 mm/s, ball screw, parallel
23R-15-05B = 1420 N, 260 mm/s, ball screw, parallel
23R-50-16B = 1210 N, 160 mm/s, ball screw, parallel
23R-10-05B = 950 N, 260 mm/s, ball screw, parallel
23R-15-10B = 710 N, 530 mm/s, ball screw, parallel
23R-20-16B = 610 N, 890 mm/s, ball screw, parallel
23R-10-10B = 480 N, 530 mm/s, ball screw, parallel
23R-10-16B = 270 N, 1280 mm/s, ball screw, parallel

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

4. Mounting options
-MF1M = front flange
-MF2M = rear flange
-MF3M = both front and rear flange
-MS1 = side end angel brackets
-MS2 = mounting feet
-MP2 = rear clevis without pivot base
-MP3 = rear clevis with pivot base
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-BM24 = motor brake
-PB = IP65 protective bellows
-BM24-PB = brake and IP65 protective bellows

[1] Leave position blank for no option

EC3 - Ball Screw, Parallel BK32 AC Servo Motor

1	2	3	4	5	6
EC3-BK	32R-70-10B	1000	-MP3	-FC2	-BM24-PB

1. Model and motor type
EC3-BK = EC3 with AC servo motor

2. Max. load, speed, screw type and motor style
32R-50-05B = 7200 N, 50 mm/s, ball screw, parallel
32R-70-10B = 7100 N, 70 mm/s, ball screw, parallel
32R-50-10B = 5880 N, 100 mm/s, ball screw, parallel
32R-20-05B = 4630 N, 170 mm/s, ball screw, parallel
32R-15-05B = 4300 N, 260 mm/s, ball screw, parallel
32R-50-16B = 3670 N, 160 mm/s, ball screw, parallel
32R-20-10B = 2270 N, 330 mm/s, ball screw, parallel
32R-15-10B = 2150 N, 530 mm/s, ball screw, parallel
32R-20-16B = 1470 N, 550 mm/s, ball screw, parallel
32R-15-16B = 1350 N, 870 mm/s, ball screw, parallel
32R-10-16B = 900 N, 1280 mm/s, ball screw, parallel

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

4. Mounting options
-MF1M = front flange
-MF2M = rear flange
-MF3M = both front and rear flange
-MS1 = side end angel brackets
-MS2 = mounting feet
-MP2 = rear clevis without pivot base
-MP3 = rear clevis with pivot base
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-BM24 = motor brake
-PB = IP65 protective bellows
-BM24-PB = brake and IP65 protective bellows

[1] Leave position blank for no option

EC3 - Ball Screw, Inline BK23 AC Servo Motor

1	2	3	4	5	6
EC3-BK	23R-10L-16B	1000	-MS2	-FT1M	-BM24

1. Model and motor type
EC3-BK = EC3 with AC servo motor

2. Max. load, speed, screw type and motor style
23R-10L-05B = 950 N, 260 mm/s, ball screw, inline
32R-10L-16B = 900 N, 1280 mm/s, ball screw, inline
23R-10L-10B = 480 N, 530 mm/s, ball screw, inline
23R-10L-16B = 270 N, 1280 mm/s, ball screw, inline

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

4. Mounting options
-MF1M = front flange
-MS2 = mounting feet
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-BM24 = motor brake
-PB = IP65 protective bellows
-BM24-PB = brake and IP65 protective bellows

[1] Leave position blank for no option

Ordering Keys

EC4

EC4 - Ball Screw, Parallel BK32 AC Servo Motor

1	2	3	4	5	6
EC4-BK	32R-100-25B	1500	-MF3M	-FT1M	-BM24

1. Model and motor type
EC4-BK = EC2 with AC servo motor

2. Max. load, speed, screw type and motor style
32R-100-05B = 12000 N, 27 mm/s, ball screw, parallel
32R-50-10B = 7020 N, 50 mm/s, ball screw, parallel
32R-100-25B = 5500 N, 65 mm/s, ball screw, parallel
32R-20-10B = 2870 N, 410 mm/s, ball screw, parallel
32R-50-25B = 2800 N, 130 mm/s, ball screw, parallel
32R-15-10B = 2160 N, 530 mm/s, ball screw, parallel
32R-20-25B = 1150 N, 1020 mm/s, ball screw, parallel
32R-15-25B = 860 N, 1330 mm/s, ball screw, parallel
32R-10-25B = 570 N, 1330 mm/s, ball screw, parallel

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

4. Mounting options
-MF1M = front flange
-MF2M = rear flange
-MF3M = both front and rear flange
-MS1 = side end angel brackets
-MS2 = mounting feet
-MP2 = rear clevis without pivot base
-MP3 = rear clevis with pivot base
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-BM24 = motor brake
-PB = IP65 protective bellows
-BM24-PB = brake and IP65 protective bellows

[1] Leave position blank for no option

EC4 - Ball Screw, Inline BK32 AC Servo Motor

1	2	3	4	5	6
EC4-BK	33R-10L-25B	1110	-MF1M	-FS2	

1. Model and motor type
EC4-BK = EC2 with AC servo motor

2. Max. load, speed, screw type and motor style
32R-10L-25B = 570 N, 1330 mm/s, ball screw, parallel

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

4. Mounting options
-MF1M = front flange
-MS2 = mounting feet
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-BM24 = motor brake
-PB = IP65 protective bellows
-BM24-PB = brake and IP65 protective bellows

[1] Leave position blank for no option

Ordering Keys

EC5

EC5 - Ball Screw, Parallel BK32 AC Servo Motor

1	2	3	4	5	6
EC5-BK	32R-20-10B	1450	-MT4	-FS2	-BM24-PB

1. Model and motor type
EC5-BK = EC3 with AC servo motor

2. Max. load, speed, screw type and motor style
32R-100-10B = 13750 N, 26 mm/s, ball screw, parallel
32R-50-10B = 7020 N, 52 mm/s, ball screw, parallel
32R-100-32B = 4290 N, 85 mm/s, ball screw, parallel
32R-20-10B = 2870 N, 390 mm/s, ball screw, parallel
32R-50-32B = 2190 N, 170 mm/s, ball screw, parallel
32R-15-10B = 2160 N, 390 mm/s, ball screw, parallel
32R-20-32B = 900 N, 1310 mm/s, ball screw, parallel
32R-15-32B = 670 N, 1330 mm/s, ball screw, parallel
32R-10-32B = 450 N, 1330 mm/s, ball screw, parallel

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

4. Mounting options
-MF1M = front flange
-MF2M = rear flange
-MF3M = both front and rear flange
-MS2 = mounting feet
-MP2 = rear clevis without pivot base
-MP3 = rear clevis with pivot base
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-BM24 = motor brake
-PB = IP65 protective bellows
-BM24-PB = brake and IP65 protective bellows

[1] Leave position blank for no option

EC5 - Ball Screw, Parallel BK42 AC Servo Motor

1	2	3	4	5	6
EC5-BK	41R-10-32B	1450	-MT4	-FS2	-PB

1. Model and motor type
EC5-BK = EC3 with AC servo motor

2. Max. load, speed, screw type and motor style
42R-100-10B = 25000 N, 26 mm/s, ball screw, parallel
42R-50-10B = 16750 N, 52 mm/s, ball screw, parallel
42R-100-32B = 10250 N, 85 mm/s, ball screw, parallel
42R-20-10B = 6860 N, 170 mm/s, ball screw, parallel
42R-15-10B = 5140 N, 220 mm/s, ball screw, parallel
42R-20-32B = 2140 N, 545 mm/s, ball screw, parallel
42R-15-32B = 1600 N, 725 mm/s, ball screw, parallel
42R-10-32B = 1070 N, 1090 mm/s, ball screw, parallel

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

4. Mounting options
-MF1M = front flange
-MF2M = rear flange
-MF3M = both front and rear flange
-MS2 = mounting feet
-MP2 = rear clevis with pivot base
-MP3 = rear clevis without pivot base
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-BM24 = motor brake
-PB = IP65 protective bellows
-BM24-PB = brake and IP65 protective bellows

[1] Leave position blank for no option

EC5 - Ball Screw, Inline BK32 or BK42 AC Servo Motor

1	2	3	4	5	6
EC5-BK	41R-10L-32B	890	-MS2	-MT1M	-BM24

1. Model and motor type
EC5-BK = EC3 with AC servo motor

2. Max. load, speed, screw type and motor style
42R-10L-32B =1070 N, 1090 mm/s, ball screw, inline
32R-10L-32B = 450 N, 1330 mm/s, ball screw, inline

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

4. Mounting options
-MF1M = front flange
-MS2 = mounting feet
-MS6M = side tapped holes
-MT4 = trunnion

5. Adapter options
-FT1M = female thread
-MT1M = male thread
-FS2 = spherical joint
-FC2 = clevis

6. Other options [1]
-BM24 = motor brake
-PB = IP65 protective bellows
-BM24-PB = brake and IP65 protective bellows

[1] Leave position blank for no option

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 85 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 85 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 85 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
53R05LP2510 = 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
53S05LP2510 = 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 85 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 85 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 85 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 85 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 85 for more information.

Glossary

A – Bra

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”.

Acme Screw
The advantages of acme screws (fig. a) are that they withstand vibrations and shock loads better than ball screws. However, they are louder, less accurate, and limited to 50% duty cycle (catalog standard). Also see “Lead Screws” and “Duty Cycle”.

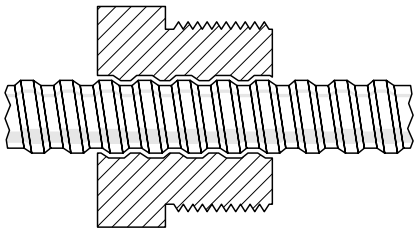


Fig. a

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 EC 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, 3) spherical joint, and 4) clevis with a pin. 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 EC 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. b) are highly efficient and are used for high loads and speeds. In comparison to acme screws, they are more accurate and can run up at 100% duty cycle. However, they produce a bit more noise. Also see “Lead Screw” and “Duty Cycle”.

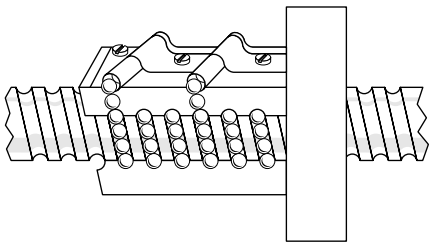


Fig. b

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).

Glossary

Bre – C

Breather Tube Output
A fitting is included, which can be installed to the breather tube output to permit the actuator to breathe through a tube from a non-contaminated area, or receive a continuous positive pressure of 14 - 20 kPa (2 - 3 psi) dry air.

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 "Premanent Magnet DC Motor", " Three Phase AC motor","Servo Motor" and "Servo Drive".

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

Column Load Limit
The column load limit is the maximum compression force that the lead screw can handle before it becomes damaged (Fig. c). 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".

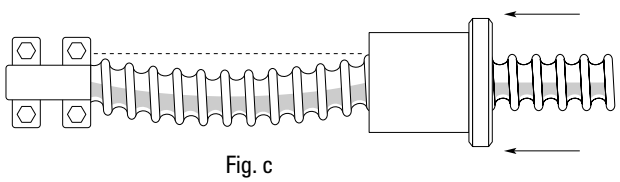


Fig. c

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. Danaher Motion 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 EC 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 lead screws have a critical speed where the screw starts to vibrate and eventually bend or warp the screw (Fig. d). 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".

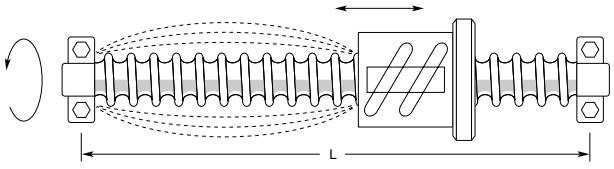


Fig. d

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.

Glossary

D – Fo

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".

DC Motor

There are several types of DC motors which all have in common that they run on direct current. A DC motor has several advantages. It is lower in cost then most AC alternatives and is fairly easy and inexpensive to control. However, they are typically bulky and experience brush wear, leading to higher maintenance cost and down time. Also see "Brushless AC Servo Motor", "Three Phase AC motor","Servo Motor" and "Servo Drive".

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.

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. e) show the definitions for the forces and moments used in this catalog. Always use these definitions in any communication with Danaher Motion.

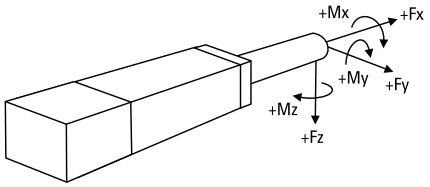


Fig. e

Glossary

Fr – L

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”.

Helical Gear
In a helical gear the teeth on the gears are cut at an angle to the face of the gear. When two teeth on a helical gear system engage, the contact starts at one end of the tooth and gradually spreads as the gears rotate, until the two teeth are in full engagement. This gradual engagement makes helical gears operate much more smoothly and quietly than ordinary spur gears. Helical gears are robust, has medium accuracy and are maintenace free.

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.

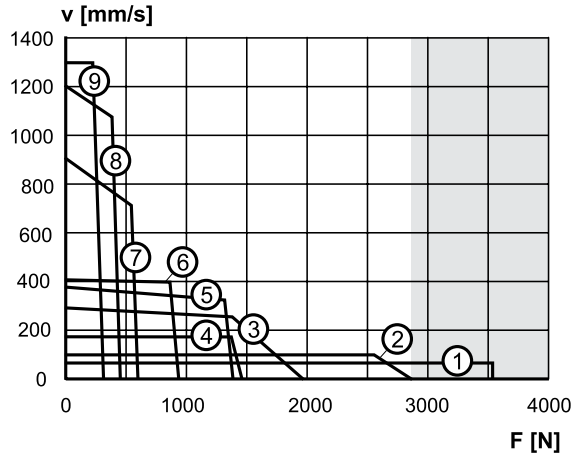
Inline Motor
An inline motor is mounted in line with the cover tube.

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 an acme screw 0,1 mm and for a ball screw 0,05 mm per 300 mm of stroke. Contact customer service for more information. Also se “Accuracy”.

Lead Screw
The precision linear actuators use two different types of lead screws, either an acme screws or a ball screws, depending on the configuration and load requirements of the actuator. Also see “Acme Screw” and “Ball Screw”.

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. But for some actuators, the 25 km travel life limit can be expected to happen at a load below its maximum dynamic load rating. In the “Speed vs. Load” diagrams (Fig. f) a grey backgound indicates the load span where the excpected travel life is less than 25 km. Contact customer service for more information.



= Operation in the grey area will reduce life to 25 km of operation!

Fig. f

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”.

Glossary

M – Po

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 three types of electrical motors in different sizes used on the precision linear actuators; DC motors, three phase AC motors and brushless AC servo motors. Also see “Permanent Magnet DC motor”, 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. g). It is also recommended to attach the load so that the force act along the axis of the actuator (Fig. h). 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.

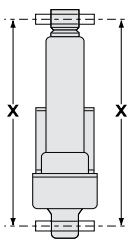


Fig. g

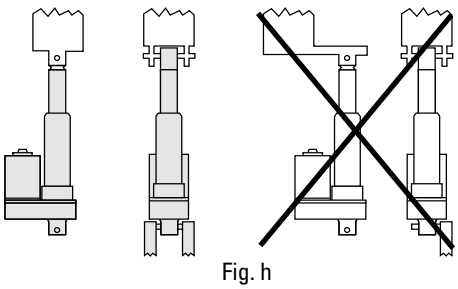


Fig. h

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. For ECT actuators, you always have mounting holes and T-slots as a default mounting method. With EC units, you always must select a mounting option to be able to mount it. Also see “Mounting” and “Adapter”.

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.

Permanent Magnet DC Motor
A permanent magnet DC motor has a permanent magnet in the stator while the windings are in the rotor. The commutation of the current to the rotor windings is done through two brushes. The advantages with this type of motor is that it is fairly easy to control and has a lower cost compared to a brushless AC servo motor. The disadvantages compared to brushless AC servo motor are the maintenance required (the brushes needs to replaced as they wear) and a larger size for a given power rating. The DC motor is also less responsive due to the added inertia having the windings on the rotor.

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 – Sp

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.

IP54: protected from dust and splashing water from any direction.

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 Danaher Motion can offer you and an indication of which products that may suit your application. But in order to get the best solution for your 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”.

Glossary

St – T

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”.

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. i). All precision linear actuators can manage the same tension and compression load. Also see “Dynamic Load Rating”.

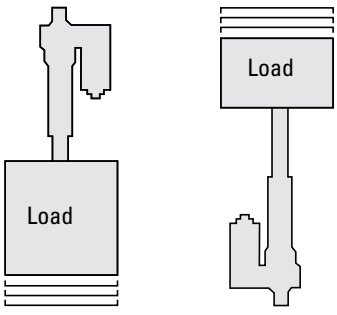


Fig. i

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”.

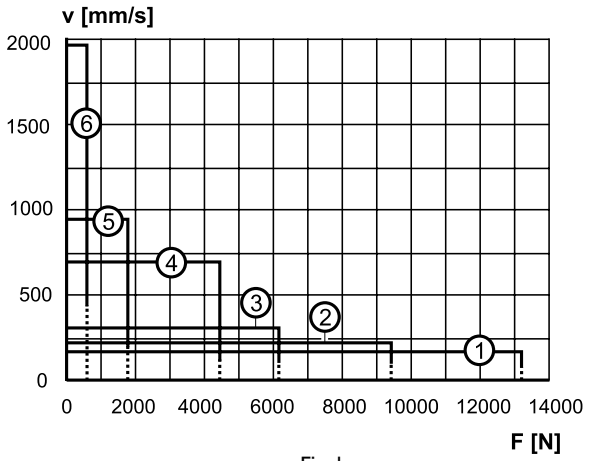


Fig. h

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.

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