

# Linearantriebe „Junior“

## Antriebsbeschreibung · Einsatzgebiete · Optionen

### Linearantriebe der Baureihe

»Junior« sind vielseitige  
Schubkolbenantriebe die  
vorwiegend bei

- Dieselmotoren-Gasverstellungen
- Dosiereinrichtungen
- Weichenverstellungen
- Kippvorrichtungen
- Klappenbetätigungen
- Ventil- und Schieberbetätigungen  
u.v.a.m eingesetzt werden.

	Junior 1	Junior 1/S	Junior 2
Schubkraft (N)	10–2000	50–4000	100–10000
Hubgeschwindigkeit (mm/s)	1,3–70	0,9–57	1,2–85
Standardhublänge (mm)	100	100	150 (Hubverlängerung in Schritten von 50 mm)
Betriebsspannung	<b>24 V/DC</b>		
Temperaturbereich (°C)	-10 bis +50		
Schutzart	IP 54		
Doppelabstreifring	am Kolbenaustritt		
Kolbenstange	verdrehgesichert		
Kabellänge (m)	1,5		

- Potentiometer zur Ausgabe eines hubabhängigen Widerstandswertes
- Impulsgeber
- einstellbares Gelenkauge
- drehbares Gelenkauge
- gefedertes Gelenkauge in Druckrichtung
- Gabelkopf DIN 71752
- Gelenkstangenkopf DIN 648
- Betriebsspannung 12 V DC oder 48 V DC

nur Junior 2

- Bremse (nicht in Verbindung mit Potentiometer oder Impulsgeber)

Andere Befestigungsarten, Hublängen, Hubgeschwindigkeiten, Sonder-  
spannungen, Schaltungsvarianten, Kabeltypen sowie zusätzliche Ausstattung  
(Faltenbalg, Kugelumlaufspindel, Steckeranschluss, . . .) auf Anfrage.



# „Unsere Kleinsten“

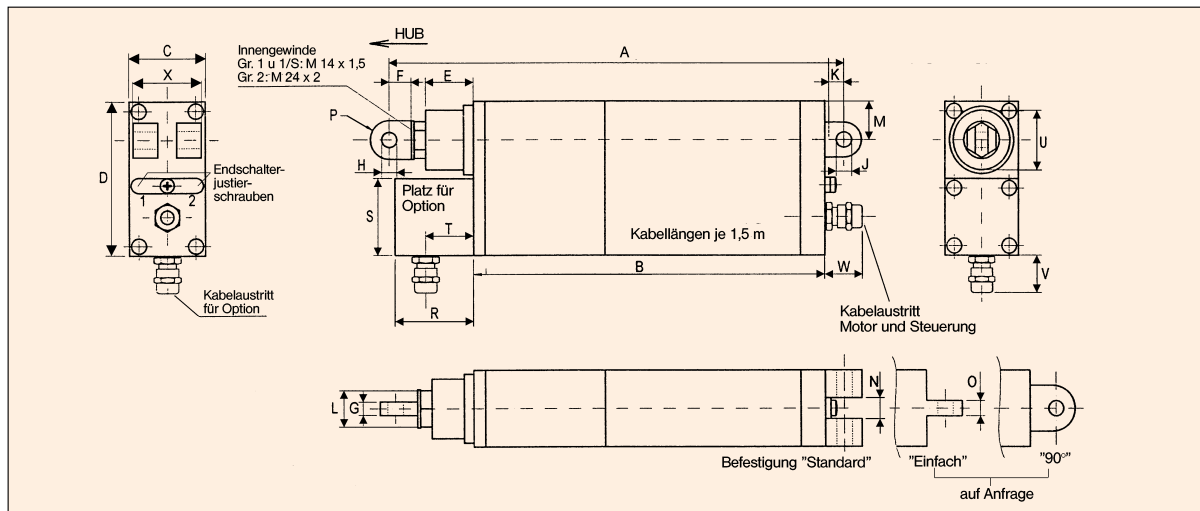
## Schubkraft (N) und Hubgeschwindigkeiten (mm/s)

Variante	ED: S3 40%			ED: S3 60%			ED: S 1			zusätzl. Planetenstufe	max. Hublänge
	Schubkraft N	Hubgeschw. mm/s	Nennstrom A	Schubkraft N	Hubgeschw. mm/s	Nennstrom A	Schubkraft N	Hubgeschw. mm/s	Nennstrom A		
A	50	55	1,2								200
B	70	30	1,2								100
C	300	15	1,2	250	17	1,1	150	20	0,8		200
D	450	8	1,2	400	9	1,1	250	10	0,8		100
E	500	10	1,2	400	13	1,1	300	15	0,8		200
F	800	5	1,2	700	6	1,1	400	7,5	0,8		100
G	1100	4	1,2	1000	4,5	1,1	700	5,5	0,8	x	200
H	1600	2	1,2	1400	2,5	1,1	1000	2,7	0,8	x	100
I	1400	3	1,2	1200	3,5	1,1	900	4	0,8	x	200
J	1700	1,5	1,2	1400	1,7	1,1	1200	2	0,8	x	100
K	2000	2	1,2	2000	2	1,1	1500	2,6	0,8	x	200
L							2000	1,3	0,8	x	100

Variante	ED: S3 15%			ED: S3 40%			ED: S3 60%			ED: S 1			zusätzl. Planetenstufe	max. Hublänge
	Schubkraft N	Hubgeschw. mm/s	Nennstrom A	Schubkraft N	Hubgeschw. mm/s	Nennstrom A	Schubkraft N	Hubgeschw. mm/s	Nennstrom A	Schubkraft N	Hubgeschw. mm/s	Nennstrom A		
A	150	50	2,5											200
B	280	22	2,5											100
C	1000	11	2,5	850	12	2,0	700	13	1,8	450	14,5	1,3		200
D	1250	5,5	2,5	1050	6,2	2,0	900	6,5	1,8	600	7,5	1,3		100
E	1350	7,5	2,5	1100	9	2,0	950	9,5	1,8	700	10	1,3		200
F	1800	3,5	2,5	1500	4,5	2,0	1300	4,7	1,8	800	5,3	1,3		100
G	3500	2,5	2,5	3200	3	2,0	2800	3,2	1,8	2000	3,5	1,3	x	200
H	4000	1,5	2,5	3700	1,5	2,0	3500	1,6	1,8	2500	1,8	1,3	x	100
I	4000	2,1	1,8	4000	2,1	1,8	4000	2,1	1,8	2900	2,5	1,3	x	150
J										4000	1,2	1,3	x	100
K										4000	1,6	1,2	x	150
L										4000	0,9	1,1	x	100

Variante	ED: S3 15%			ED: S3 40%			ED: S3 60%			ED: S 1			nur mit Bremselieferbar	zusätzl. Planetenstufe	max. Hublänge
	Schubkraft N	Hubgeschw. mm/s	Nennstrom A	Schubkraft N	Hubgeschw. mm/s	Nennstrom A	Schubkraft N	Hubgeschw. mm/s	Nennstrom A	Schubkraft N	Hubgeschw. mm/s	Nennstrom A			
A	400	70	6,0										x		350
B	400	38	6,0										x		200
C	1000	19	6,0	700	21	4,7	450	24	4,2	200	26	3,0	x		350
D	1400	12	6,0	800	13	4,7	500	13,5	4,2	250	14	3,0	x		200
E	1800	14	6,0	1300	15	4,7	1000	16	4,2	600	17	3,0	x		350
F	2600	6,5	6,0	1700	7,5	4,7	1500	8	4,2	800	8,5	3,0			200
G	3000	5	6,0	2000	6	4,7	1800	6,2	4,2	1000	7	3,0		x	350
H	5000	3	6,0	4500	3,3	4,7	3800	3,5	4,2	2500	3,8	3,0		x	200
I	5300	3	6,0	4000	3,6	4,7	3500	3,7	4,2	2200	4,3	3,0		x	350
J	9000	1,8	6,0	8000	2	4,7	7000	2,1	4,2	4500	2,2	3,0		x	200
K	7500	2	6,0	6200	2,2	4,7	5700	2,3	4,2	3800	2,7	3,0		x	350
L	10000	1,2	6,0	8000	1,4	4,7	7000	1,4	4,2	5000	1,5	3,0		x	200

# Linearantriebe „Junior“



## Maßtabelle

Gerät	Hublänge	B**	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U	V	W	X
Junior 1	100	172	40	80	25	12	7	8	8	8	17	20	11	8	10	41	40	25	31	17	17	40
	150	172	40	80	69	12	7	8	8	8	17	20	11	8	10	41	40	25	31	17	17	40
	200	172	40	80	117	12	7	8	8	8	17	20	11	8	10	41	40	25	31	17	17	40
Junior 1/S	100	175	47	94	22	12	7	8	8	9	17	23,5	12	12	10	41	47	23	31	17	17	40
	150	175	47	94	69	12	7	8	8	9	17	23,5	12	12	10	41	47	23	31	17	17	40
	200	175	47	94	117	12	7	8	8	9	17	23,5	12	12	10	41	47	23	31	17	17	40
Junior 2	150	211	56	112	40	18	16	12	10	11	26	28	19	15	14	43	56	29	44	17	26	56
	200	211	56	112	90	18	16	12	10	11	26	28	19	15	14	43	56	29	44	17	26	56
	250	211	56	112	140	18	16	12	10	11	26	28	19	15	14	43	56	29	44	17	26	56
	300	211	56	112	190	18	16	12	10	11	26	28	19	15	14	43	56	29	44	17	26	56
	350	211	56	112	240	18	16	12	10	11	26	28	19	15	14	43	56	29	44	17	26	56

## Hublängen/Verstellbereich

Gerät	Hublänge	A*		Verstellbereich A*	
		min.	max.	min.	max.
Junior 1	100	235	335	235-245	325-335
	150	285	435	285-295	425-435
	200	335	535	335-345	525-535
Junior 1/S	100	235	335	235-245	325-335
	150	285	435	285-295	425-435
	200	335	535	335-345	525-535
Junior 2	150	305	455	305-315	445-455
	200	355	555	355-365	545-555
	250	405	655	405-415	645-655
	300	455	755	455-465	745-755
	350	505	855	505-515	845-855

\* Maß A vergrößert sich beim Anbau eines

einstellbaren Gelenkauges um:  
 10 mm (für Junior 1 / Junior 1/S)  
 15 mm (Junior 2)

drehbaren Gelenkauges um:  
 5 mm (alle Geräte)

gefederten Gelenkauges um:  
 26 mm (Junior 1 / Junior 1/S)  
 29 mm (Junior 2)

Gabelkopfes um:  
 24 mm (Gabelkopf G8 x 16 für Junior 1 / Junior 1/S)  
 34 mm (Gabelkopf G12 x 24 für Junior 2)

Gelenkstangenkopfes DIN 648 um:  
 28 mm (GiSW 8 für Junior 1 / Junior 1/S)  
 36 mm (GiSW 12 für Junior 2)

\*\* Maß B vergrößert sich beim Einbau

einer zusätzlichen Planetenstufe um:  
 13 mm (Junior 1)  
 15 mm (Junior 1/S / Junior 2)



# Linearantriebe „Piccolo“

## Antriebsbeschreibung · Einsatzgebiete · Optionen

### Linearantriebe der Baureihe "Vario" zeichnen sich aus durch

- hohe Leistungsfähigkeit bei geringem Platzbedarf
- robuste Bauweise
- hohe statische Belastbarkeit
- anwendungsgerechte Konzeption durch vielseitig kombinierbares Baukastensystem
- minimalen Wartungsaufwand
- optimalen Schutz gegen Verschmutzung und äußere Einflüsse
- exakte Positionierbarkeit
- einstellbare Endlagen

### Einsatzgebiete

- Sondermaschinenbau
- Fördertechnik
- Fahrleitungsbau
- Schiffbau
- Nachrichtentechnik



### Die Fakten .....➤

	<b>Vario 1</b>
max. Verstellkraft (kN)	50
Hubgeschwindigkeit (mm/s)	1-70
Hublängen (mm)	50 - 800
Betriebsspannung	400 V/3AC, 50 Hz
Temperaturbereich (°C)	-10 bis +50
Schutzart	IP 54
Doppelabstreifring	am Kolbenaustritt
Kolbenstange	verdrehgesichert
Korrosionsschutz	schwarz lackiert
Kabellänge (m)	1,5

### Optionen .....➤

- Bremse
- Potentiometer zur Ausgabe eines hubabhängigen Widerstandswertes oder Impulsgeber
- Gabelkopf nach DIN 71752
- Gelenklager nach DIN 648
- Gewindebolzen M20 x38

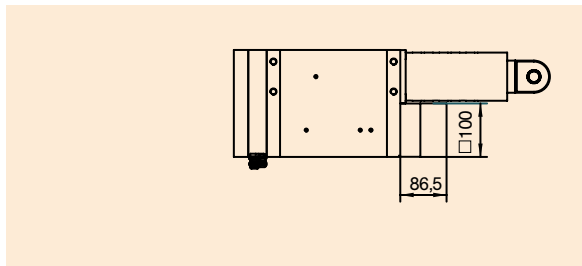
Andere Hublängen, Sonderspannungen, Schaltungsvarianten, Kabeltypen, Sonderlackierung, sowie zusätzliche Ausstattung (Faltenbalg, Steckeranschluss, ...) auf Anfrage.

## Schubkraft (N) und Hubgeschwindigkeiten (mm/s)

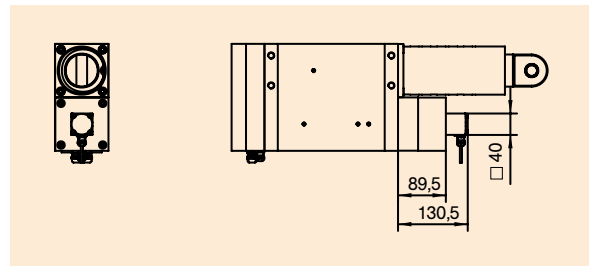
Variante	400 V-3 AC ED: S3 15% Schub-bzw. Zugkraft (kN)	Hubgeschw. (mm/s)	Spindel- abmessungen	Bremse vorgeschrieben	Strom- aufnahme (A)	Leistung (VA)
A	10	70	KGT 32 x 10	ja	3	2100
B	15	50	KGT 32 x 10	ja	3	2100
C	4	50	Tr 40x7	ja	3	2100
D	8	30	Tr 40x7	ja	3	2100
E	15	20	Tr 40x7	ja	3	2100
F	30	10	Tr 40x7	nein	3	2100
G	40	6	Tr 40x7	nein	3	2100
H	50	3	Tr 40x7	nein	1,7	1200
I	40	1	Tr 40x7	nein	1,7	1200

Alle technischen Daten sind Durchschnittswerte und beziehen sich auf eine Umgebungstemperatur von 20 °C

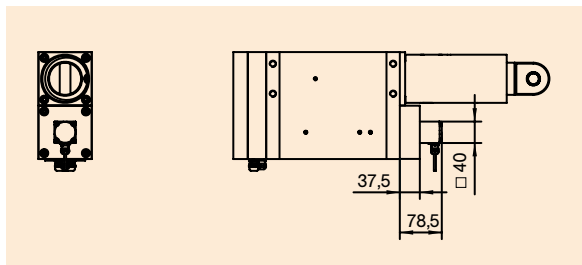
## Optionen



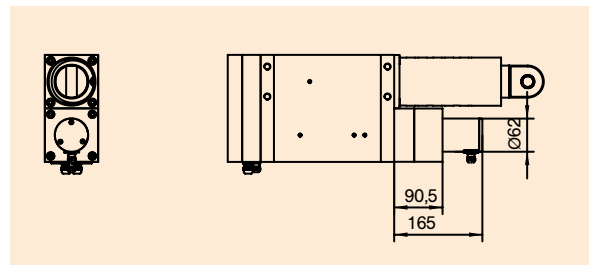
Ausführung mit Bremse



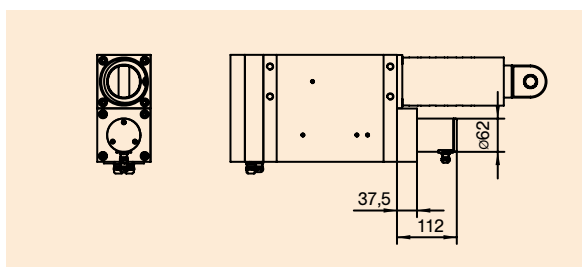
Ausführung mit Bremse und Impulsgeber



Ausführung mit Impulsgeber

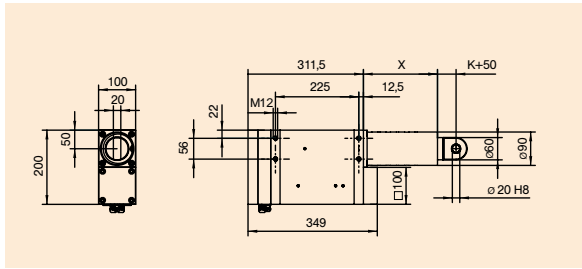


Ausführung mit Bremse und Potentiometer

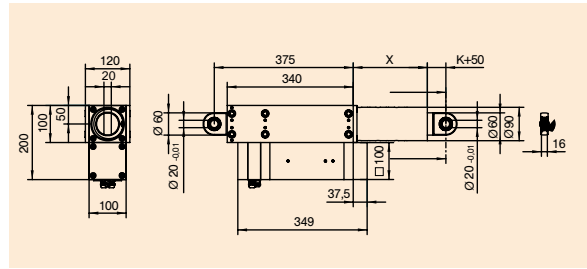


Ausführung mit Potentiometer

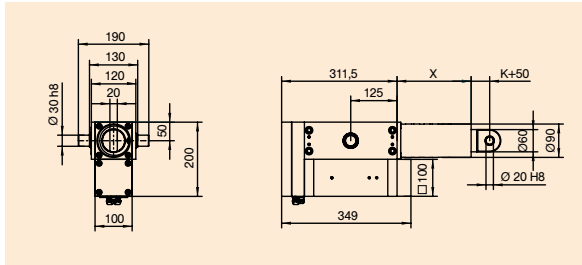
# Befestigungsarten



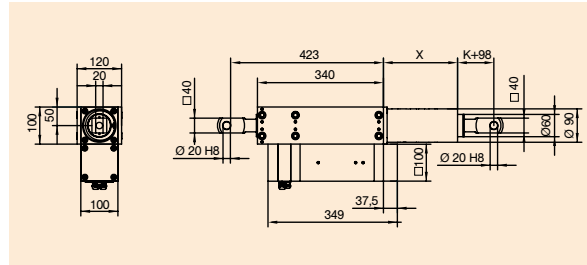
Gewindebohrungen / Auge



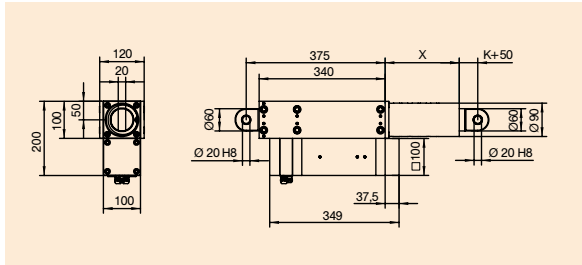
Auge mit Gelenklager / Auge mit Gelenklager



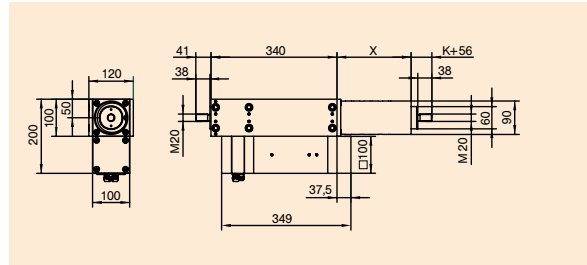
Pendelzapfen / Auge



Gabelkopf / Gabelkopf



Auge / Auge



Gewindebolzen / Gewindebolzen

Hublänge (mm)	200	400	600	800
Maß X (mm)	200	400	650	850

Die Befestigungselemente sind beliebig miteinander kombinierbar

Variante	A	B	C	D	E	F	G	H	I
Maß K (mm)	15	15	0	0	0	0	0	0	0

# „Unsere Formschönen“

## Antriebsbeschreibung · Optionen

### Der Linearantrieb für Lamellenverstellungen an modernen Großgebäuden

#### Die Technik

Der elero "Picolo" ist ein elektromechanischer Schubspindeltrieb. Die rotatorische Bewegung des Elektromotors wird über Getriebeeinheiten und eine Gewindespindel in eine geradlinige Bewegung übersetzt. Zum Einsatz kommt ein Asynchron-Motor, der besonders robust ist und ein sehr konstantes Geschwindigkeitsverhalten bei unterschiedlichen Kräften zeigt. Der Antrieb ist in schlanker und zylindrischer Bauweise ausgeführt, so dass neben den technischen und funktionellen Gesichtspunkten auch den optisch-ästhetischen Aspekten Rechnung getragen wird.



#### Die Fakten .....>

	<b>Picolo XL</b>
Gehäusedurchmesser (mm)	48
Verstellkraft (N)	1.200
Hubgeschwindigkeit (mm/s)	ca. 6
Hublängen (mm)	100 200 300
Betriebsspannung	230 V ~ 50 Hz 0,55 A (126 VA)
Einschaltdauer KB (min.)	5
Temperaturbereich (°C)	-20 bis +80
Kabellänge (m)	2
Gehäuse + Befestigungselemente	Edelstahl 4301
Vorgeschriebene Einbaulage	☑ ☑ ☑
Schutzart	IP 65s

#### Optionen .....>

- Befestigungen 90°/45° gedreht, Lagerbock (für Gabelkopf und Pendelzapfenbefestigung)
- Impulsgeber 5 – 24 V DC, 6 Impulse/mm (2 Kanäle 90° versetzt)
- Gabelkopf (4301) ähnlich DIN 71752 kolben- und/oder gehäuseseitig
- Anschlußkabel mit Steckkupplungen
- Decklackierung in RAL-Farbtönen
- separater Klemmenkasten







## ILD Intelligent Linear Drive

ILD 02  
ILD 05  
ILD 10  
ILD 20

Technical data	Type	ILD 02	ILD 05	ILD 10	ILD 20
Tensile/pressure force	kN	2	5	10	20
Static load	kN	2,5	6	12	25
Thrust speed	mm/sec	25–200	10–100	5–50	2,5–25
fully adjustable					
Stroke length	mm	up to 1.500	up to 700	up to 700	up to 700
Voltage single phase	V / 50 Hz	230	230	230	230
Power consumption	W	1100	1100	1100	1100
Current consumption	A	ca.6	ca.6	ca.6	ca.6
Switch-on duration under rated load (SD 10 min)		20	20	20	20
Ambient temperature	°C	- 10 / + 40	- 10 / + 40	- 10 / + 40	- 10 / + 40
Protection/insulation class		I	I	I	I
Insulation mode	IP	54	54	54	54
Weight (for 200 mm stroke)	kg	approx. 20	approx. 20	approx. 20	approx. 20

### Description

"ILD" stands for a compact power package with integrated electronic control.

The housing consists of an attractive industrial design consisting of a combination of aluminium profiles and cast aluminium. The core of the unit consists of a brushless EC motor triggered by an electronic power component.

3 reverberation sensors monitor the position of the rotor. This information is processed on the one hand to regulate the motor; on the other hand, this information also forms the basis for many function parameters such as speed, acceleration, direction of movement, position and stroke counting. A spur wheel gear transfers the rotative energy to a threaded drive.

The nut is firmly connected to the aluminium thrust tube and secured to prevent it twisting. The drive is available in various force/speed variations. The mechanical components are rated with a safety factor  $S=4^*$  at 50% or  $S=2$  at 100% force. The maximum self-locking device corresponds to the static load stated above. Particularly for areas where people are at risk there is an optional safety trap element.

The drives can be equipped with standard stroke lengths of 200 - 700 mm in graduations of 100 mm.

Longer strokes on request.

In the standard version, the drive is equipped with integrated end position sensors.

These can be combined with additional forced opening safety end switches and/or 2 user sensors. These can be easily adjusted at the head end at the thrust tube outlet.

The drive is operated with mains voltage 230 V/50 Hz. In the case of mains failure, the drive can be adjusted by hand by means of a shaft and special key.

The following electronic parameters can be pre-adjusted by push button, mode switch and potentiometer, or by diagnosis software:

rapid speed / creeping speed / braking and acceleration ramp. In addition, electronic movement range limits and 4 intermediate positions can be programmed.

When the load direction remains the same, absolute repetition accuracy of 0.1 mm is possible. Internal sensors monitor temperature and motor current, and compare the actual and target stroke.

The most important functions and signals can be selected or retrieved via the digital inputs and outputs.

### Electrical connection

The electrical connection may only be completed by trained qualified electricians. Mains connection, signals and/or bus cables are routed through the 2 screw cable gland (PG11).

(see connection/operation description).

### Installation

The drive is fastened at the front at the ball screw eyelet, and at the back either on the fastening eyelet on the gear or at the pivot bushes integrated in the cast material. The attachment eyelets rotate fully.

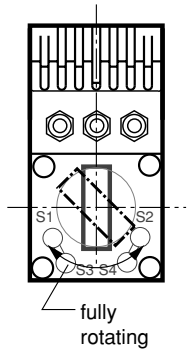
The load being moved must act centrally on the thrust tube. Lateral loads are not allowed.

Electrical cables are to be routed in such a way that there is no possibility of any damage from crushing, bending or tensile strain. On commissioning the drives, the instructions are to be observed (see operating manual). The factory is to be consulted in the case of critical applications. It is the user's responsibility to safeguard applications involving a risk to people.

### Maintenance

The drive is maintenance-free. The service life of the drive depends on the particular use (e.g. temperatures, forces, distances moved, cycles and environmental conditions) and must be ascertained by the user as the case may be. Defect drives may only be opened and serviced here in our factory.

\* S=4 in medical applications



Ball joint head

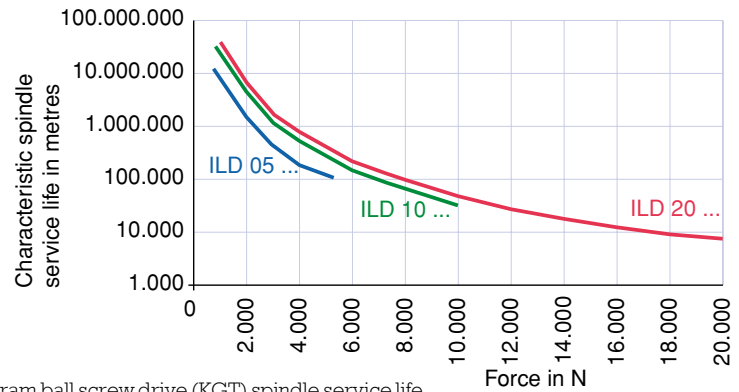
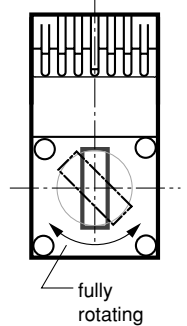


Diagram ball screw drive (KGT) spindle service life



Attachment eyelet

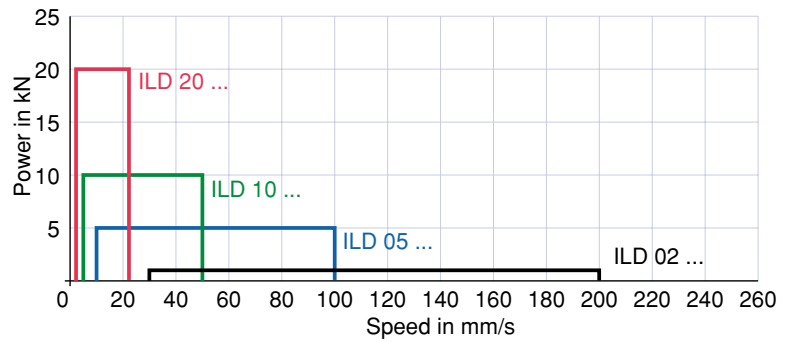
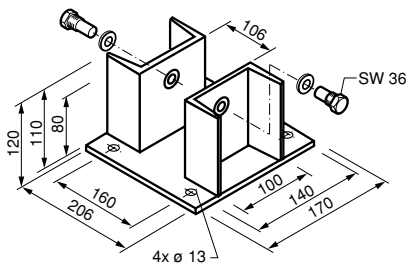
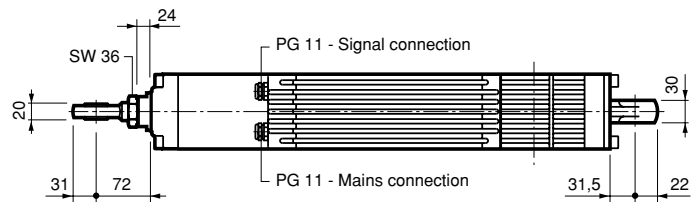


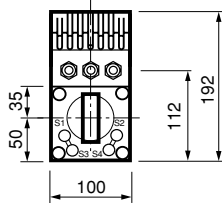
Diagram working range



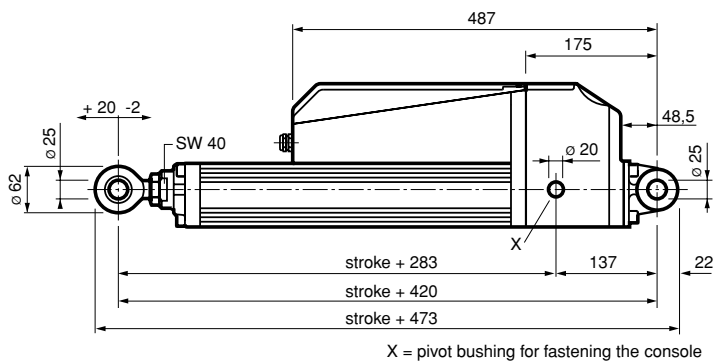
console



Top view



Front view



Side view



## Linear Actuators MAGFORCE

### STD ....

Technical Data:	Type	STD 10007 - 200	STD 12010 - 200	STD 15020 - 200	STD 15040 - 200
Push pull force	kN	10	12	15	15
Static load	kN	16	16	16	16
Speed	mm/sec	10	7	4	2
Stroke length	mm	200	200	200	200
Voltage	V=	3 x 400	3 x 400	3 x 400	3 x 400
Power consumption	W	920	800	700	500
Current consumption	A	1,8	1,7	1,6	1,4
Duty cycle	%	25	10	10	10
Ambient temperature	°C	- 10 / + 40	- 10 / + 40	- 10 / + 40	- 10 / + 40
Protection / insulation class		I/E	I/E	I/E	I/E
Protection class	IP	54	54	54	54
Weight	kg	16,3	16,3	16,3	16,3

#### Description

MAGFORCE linear actuators type STD are specially suitable for industrial application due to their compact and robust design. The stroke is restricted by internal mechanical stops. Limit switches are not necessary as a friction clutch prevents the motor from being stalled in the end positions. The motor, however, should be prevented from operating for long periods of time against the end stops. The duty cycle stated above relates to an ambient temperature of +20° C and an interval operating time of 10 minutes. The technical data mentioned refer to operation under nominal load. A thermal switch incorporated in the motor winding cuts off the power supply at 100° C thus protecting the motor from overheating and resets itself again after cooling. The standard stroke is 200 mm, but lengths up to 700 mm are available on request, whereby the body length is increased proportionally. With increasing push forces the safety factor decreases. In order to maintain the recommended safety factor of  $S = 4$  an additional guide bearing can be fitted, which extends the body length by 50 mm.

#### Electrical Connection

Electrical connections are extremely simple because there are no built-in limit switches. Reversing of the motor is achieved by changing poles via push button or relay. A direct change of direction should be avoided because of the arising inertia forces. The push button or switch must return automatically to the neutral position when it is released so that the motor does not run against the end stops for longer than necessary. Alternatively external limit switches can be supplied on request which switch off the motor in the end positions.

For wiring diagram see inside terminal box. Do not connect motors in parallel. They must be connected according to a special diagram.

#### Installation

The actuator is fixed at the rear clevis and the push tube.  
At the push tube an adapter supplied optionally as well as the fork head can be fixed.  
Ensure that the push tube cannot turn, and that the load on the push tube is axial only. Side loads on the push tube must be avoided. The push tube must not be subjected to bending loads and motor and levers should be aligned.

Make sure that the electric cables are not damaged by squeezing, bending or stretching. Customers must ensure that the cable gland is tight to guarantee protection class IP 54.

#### Maintenance

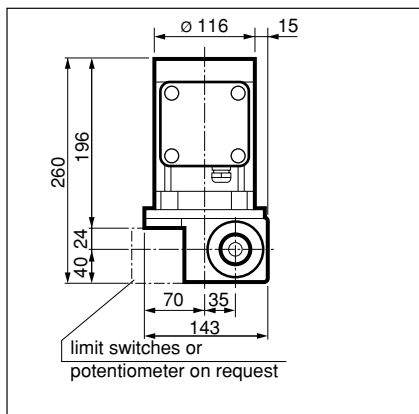
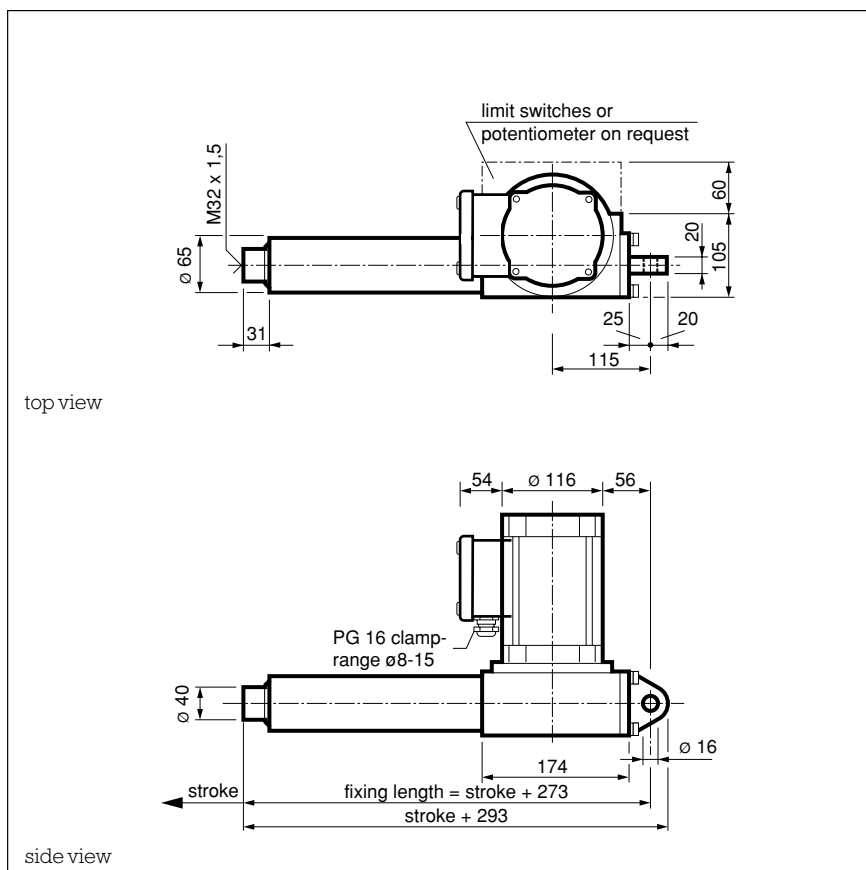
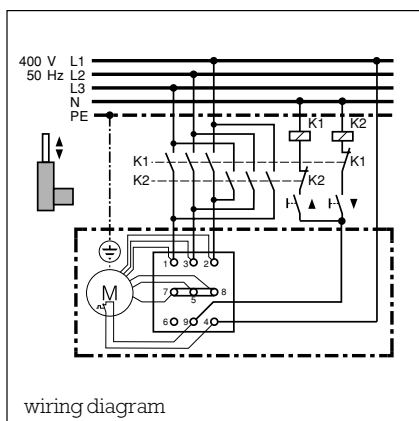
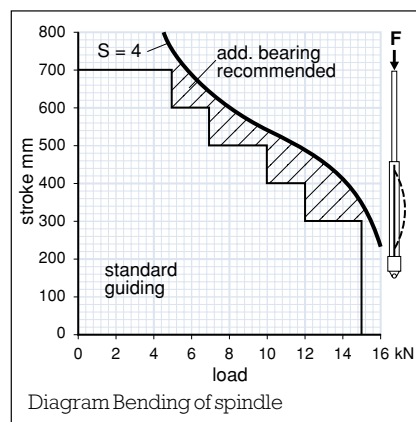
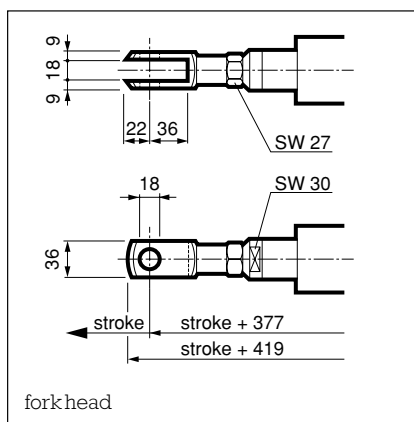
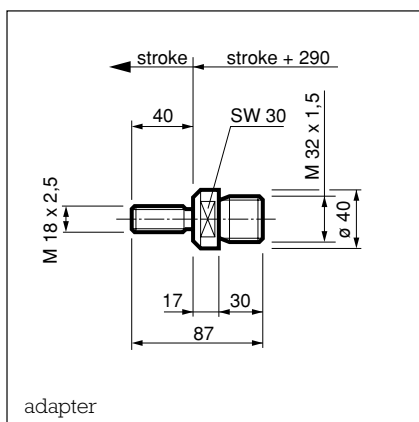
The linear actuator has sufficient lubrication reserve and is almost maintenance-free. Only the push tube should be cleaned and lightly greased from time to time. The service life depends very much on the corresponding application (for example; temperature; conditions regarding run, force and cycles, as well as environmental influences) and must be found out in case of need. Defective motors may be repaired only in our factory for safety reasons.

#### Remark

If our actuators are used for applications where persons could be directly or indirectly endangered, we have to be contacted in order to discuss safety precautions.

## Accessories

- adapter 1031,0106
- fork head complete 1061,9038
- limit switches complete  
0 ... 300 stroke lengths 1043,0268
- limit switches complete  
100 ... 370 stroke lengths 1043,0252
- limit switches complete  
200 ... 740 stroke lengths 1043,0266
- potentiometer 475 stroke lengths  
1k-Ohm standard 1063,0011
- potentiometer max. 944 stroke lengths  
1k-Ohm standard 1063,0012
- other potentiometer values on request





## Linear Actuators MAGFORCE

SKS ....

Technical Data:	Type	SKS 15404 - 300	SKS 20406 - 300	SKS 25412 - 300	SKS 30423 - 300
Push force	kN	15	20	25	30
Static load	kN	40	40	40	40
Speed	mm/sec	45	33	17	9
Stroke length	mm	300	300	300	300
Voltage	V=	3 x 400	3 x 400	3 x 400	3 x 400
Power consumption	W	1700	1650	1300	1200
Current consumption	A	3,3	3,5	2,8	3,0
Duty cycle	%	10	10	10	10
Ambient temperature	°C	- 10 / + 40	- 10 / + 40	- 10 / + 40	- 10 / + 40
Protection / insulation class		I/B	I/B	I/B	I/B
Protection class	IP	54	54	54	54
Weight	kg	30,0	30,0	30,0	30,0

### Description

MAGFORCE linear actuators type SKS are specially suitable for industrial application due to their compact and robust design. The stroke is restricted by internal mechanical stops. Limit switches are not necessary as a friction clutch prevents the motor from being stalled in the end positions. The motor, however, should be prevented from operating for long periods of time against the end stops. The duty cycle stated above relates to an ambient temperature of +40° C and an interval operating time of 10 minutes. The technical data mentioned refer to operation under nominal load. A thermal switch incorporated in the motor winding cuts off the power supply at 120° C thus protecting the motor from overheating and resets itself again after cooling. The standard stroke is 300 mm, but lengths up to 700 mm are available on request, whereby the body length is increased proportionally.

### Electrical Connection

Reversing of the motor is achieved by changing poles via push button or relay. A direct change of direction shouldn't be avoided because of the arising inertia forces. The push button or switch must return automatically to the neutral position when it is released so that the motor does not run against the end stops for longer than necessary. Alternatively external limit switches can be supplied on request which switch off the motor in the end positions.

For wiring diagram see inside terminal box. Do not connect motors in parallel. They must be connected according to a special diagram.

### Installation

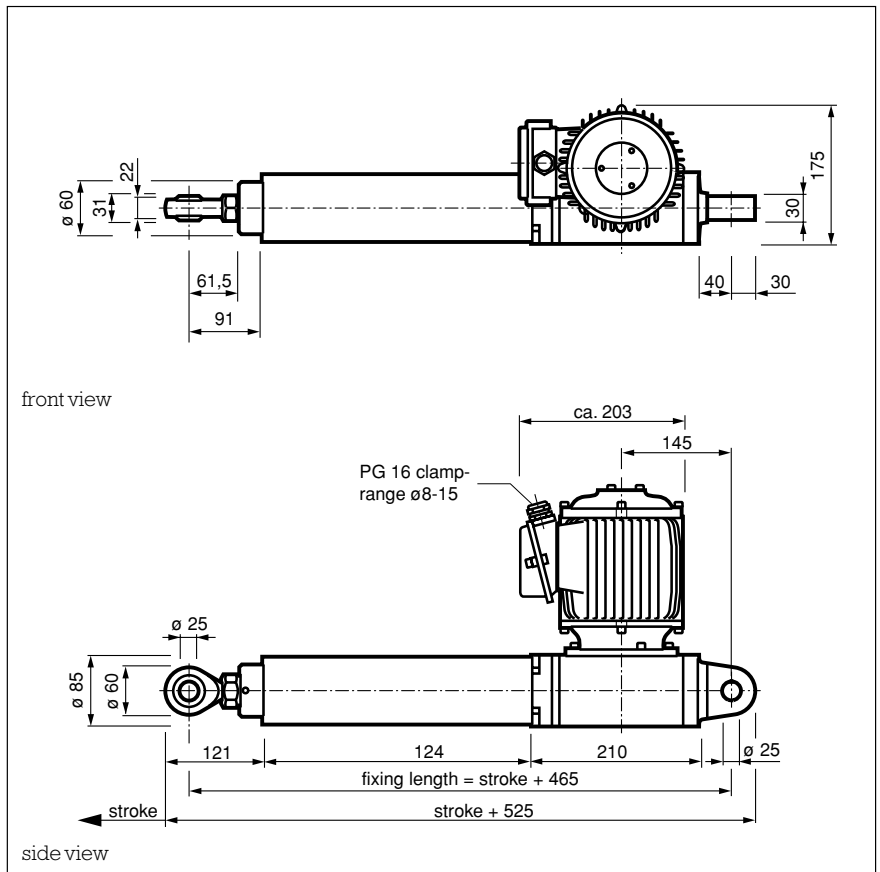
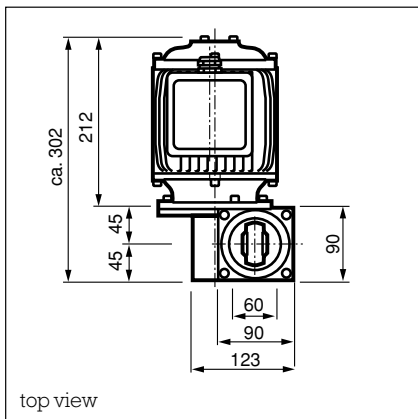
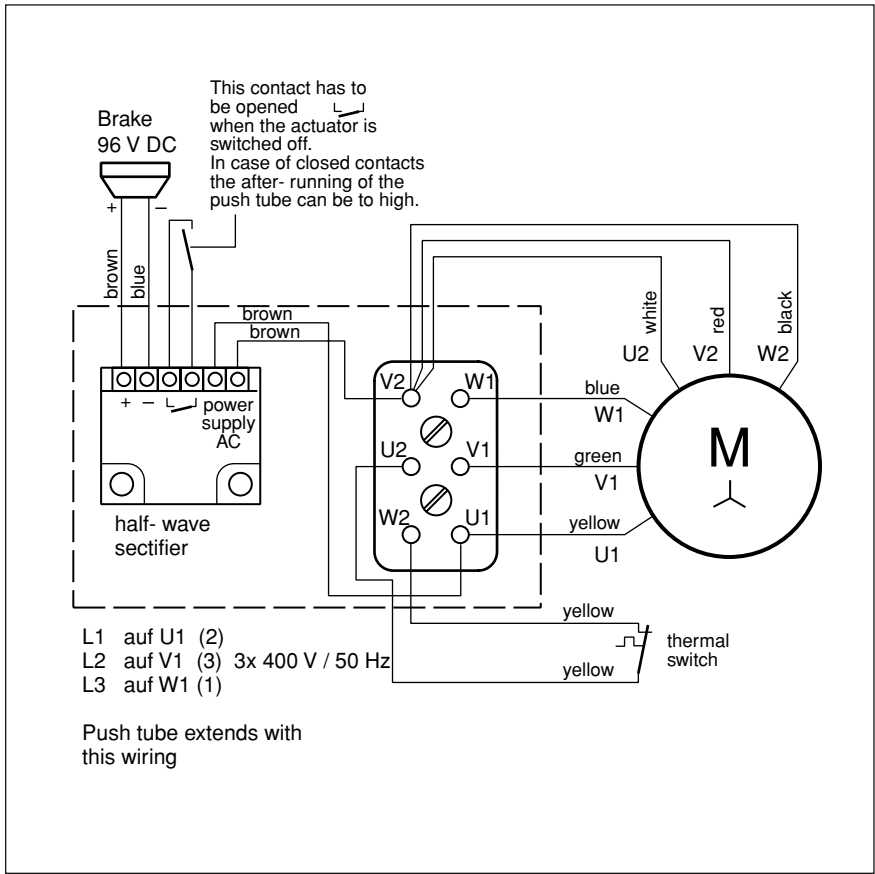
The actuator is fixed at the rear clevis and the push tube. At the push tube an adapter supplied optionally as well as the fork head can be fixed. Ensure that the push tube cannot turn, and that the load on the push tube is axial only. Side loads on the push tube must be avoided. The push tube must not be subjected to bending loads and motor and levers should be aligned. Make sure that the electric cables are not damaged by squeezing, bending or stretching. Customers must ensure that the cable gland is tight to guarantee protection class IP 54.

### Maintenance

The linear actuator has sufficient lubrication reserve and is almost maintenance-free. Only the push tube should be cleaned and lightly greased from time to time. The service life depends very much on the corresponding application (for example; temperature; conditions regarding run, force and cycles, as well as environmental influences) and must be found out in case of need. Defective motors may be repaired only in our factory for safety reasons.

### Remark

If our actuators are used for applications where persons could be directly or indirectly endangered, we have to be contacted in order to discuss safety precautions.



Subject to technical modifications.  
The manufacturer / user must check that the products of Magnetic are compatible with his application.