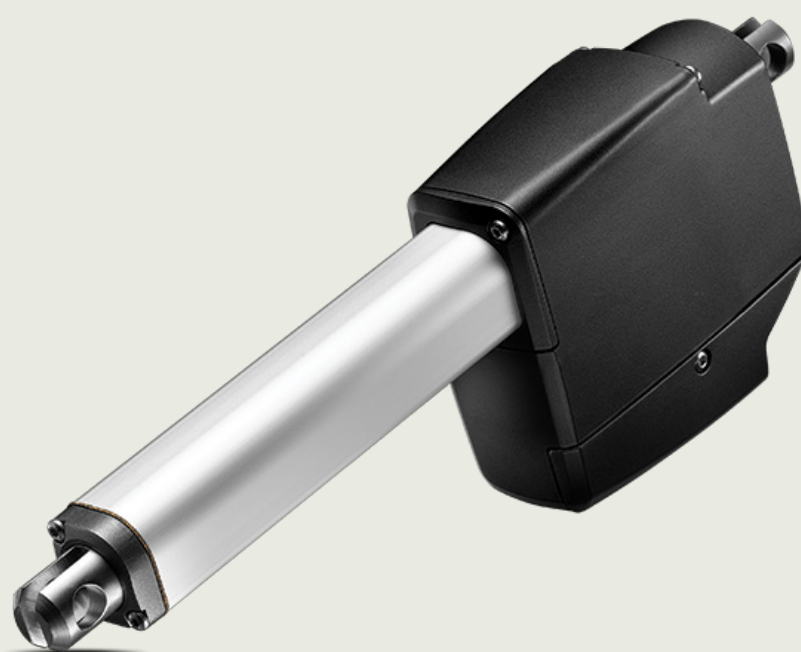


LA25

Data Sheet



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Introduction

Extremely powerful linear actuator able to create reliable movement in most environments. Comes with LINAK® Integrated Controller (IC) and ideal for arduous outdoor environments.

Tough applications require equally tough actuator solutions. The actuator LA25 is specifically developed for heavy-duty applications in environments where temperature, moist or dust are causing problems and where there is a need for high lifting capacity and holding load.

Safety instructions

Please read this safety information carefully.

Be aware of the following three symbols throughout the user manual:



Warning!

Failing to follow these instructions can cause accidents resulting in serious personal injury.



Recommendations

Failing to follow these instructions can result in the actuator suffering damage or being ruined.



Additional information

Usage tips or additional information that is important in connection with the use of the actuator.

Furthermore, ensure that all staff who are to connect, mount, or use the actuator are in possession of the necessary information and that they have access to this user manual.

Persons who do not have the necessary experience or knowledge of the product/products must not use the product/products. Besides, persons with reduced physical or mental abilities must not use the product/products, unless they are under surveillance or they have been thoroughly instructed in the use of the apparatus by a person who is responsible for the safety of these persons.

Moreover, children must be under surveillance to ensure that they do not play with the product.

Before you start mounting/dismounting, ensure that the following points are observed:

- The actuator is not in operation.
- The actuator is free from loads that could be released during this work.

Before you put the actuator into operation, check the following:

- The actuator is correctly mounted as indicated in the relevant user instructions.
- The equipment can be freely moved over the actuator's whole working area.
- The actuator is connected to a mains electricity supply/transformer with the correct voltage and which is dimensioned and adapted to the actuator in question.
- Ensure that the voltage applied matches to the voltage specified on the actuator label.
- Ensure that the connection bolts can withstand the wear.
- Ensure that the connection bolts are secured safely.

During operation, please be aware of the following:

- Listen for unusual sounds and watch out for uneven running. Stop the actuator immediately if anything unusual is observed.
- Do not sideload the actuator.
- Only use the actuator within the specified working limits.
- Do not step on or kick the actuator.

When the equipment is not in use:

- Switch off the mains supply in order to prevent unintentional operation.
- Check regularly for extraordinary wear.

Classification

The equipment is not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

Warnings

- Do not sideload the actuator.
- When mounting the actuator in the application ensure that the bolts can withstand the wear and that they are secured safely.
- If irregularities are observed, the actuator must be replaced.

**Recommendations**

- Do not place load on the actuator housing.
- Prevent impact or blows, or any other form of stress to the housing.
- Ensure that the cable cover is mounted correctly. Use 3.5 Nm torque.
- Ensure that the duty cycle and the usage temperatures for LA25 actuators are respected.
- Ensure that the cable cannot be squeezed, pulled or subjected to any other stress.
- Furthermore, it will be good practice to ensure that the actuator is fully retracted in the "normal" position. The reason is that there will be a vacuum inside the actuator if it is extended which over time can lead to water entering the actuator.

Features

- 12 V/24 V DC permanent magnetic motor
- Load from 600 N - 2.500 N in push and pull
- Speed from 2.5 to 25 mm/seconds depending on load and spindle pitch
- Stroke length from 20 - 600 mm (Zero Point: 100 to 600 mm)
- Colour: Dark olive grey
- Protection class: IP66. Furthermore, the actuator can be washed down by a high pressure cleaner (IP69K static)
- Heavy-duty aluminium housing for harsh conditions
- Built-in endstop switches
- Mechanical endstop
- Guided nut
- Static safety factor: 2.0
- Noise level: Max. 58.5 dB(A) at nominal voltage and with no load, according to EN ISO 3743-1

Options in general

- Safety nut in push or pull (2.500 N version: only safety nut in push; 600 N version: no safety nut)
- Exchangeable cables in different lengths up to 10 m
- Steel or stainless steel back fixture and piston rod eye
- Special anodised housing for extreme environments
- Analogue and digital feedback for precise positioning
- IC Basic and IC Advanced
- I/O Basic, I/O Customised and I/O Full
- Limit switch principle
- Zero point principle
- CAN bus J1939
- CANopen
- LIN bus
- IO-Link
- Actuator Connect™ and BusLink
- IECEx/ATEX certified for Zone 21

Usage

- Duty cycle is max. 20% (4 min. drive and 16 min. rest)
The duty cycles are valid for operation within an ambient temperature of +5°C to +40°C
- Ambient operating temperature: -40°C to +85°C (for IECEx/ATEX: T135 -25°C to +65°C; T125 -25°C to +55°C), full performance from +5°C to +40°C
- Storage temperature: -55°C to +105°C

Technical specifications

12 V

Type	Push/ Pull Max. (N)	Self-lock min. (N) Push/Pull				Spin- dle pitch (mm)	*Typical speed (mm/s)		Standard stroke length (mm)	*Typical amp. at 12 V	
		With short circuit		Without short circuit			No load	Full load		No load	Full load
		Self- lock (N)	**Back- drive (mm)	Self- lock (N)	**Back- drive (mm)						
25030xxxxxxxxxA...	2500	2500	1	2500	1	3	3.1	2.5	20-500	0.8	3.8
25060xxxxxxxxxA...	1500	1500	1	1500	2	6	6.6	5.2	20-600	0.8	3.8
25090xxxxxxxxxA...	1200	1200	2	1200	4	9	9.9	7.5	20-600	0.9	4.0
25120xxxxxxxxxA...	900	900	3	900	7	12	13	9.6	20-600	0.9	3.8
25200xxxxxxxxxA...	600	600	5	600	12	20	25	18	20-600	0.9	4.0

24 V

Type	Push/ Pull Max. (N)	Self-lock min. (N) Push/Pull				Spin- dle pitch (mm)	*Typical speed (mm/s)		Standard stroke length (mm)	*Typical amp. at 24 V	
		With short circuit		Without short circuit			No load	Full load		No load	Full load
		Self- lock (N)	**Back- drive (mm)	Self- lock (N)	**Back- drive (mm)						
25030xxxxxxxxxB...	2500	2500	1	2500	1	3	3.2	2.6	20-500	0.4	1.9
25060xxxxxxxxxB...	1500	1500	1	1500	2	6	6.4	5.5	20-600	0.4	1.9
25090xxxxxxxxxB...	1200	1200	2	1200	4	9	9.5	8.1	20-600	0.4	2.0
25120xxxxxxxxxB...	900	900	3	900	7	12	12.6	10.4	20-600	0.4	1.9
25200xxxxxxxxxB...	600	600	5	600	12	20	25	18	20-600	0.4	2.0

* The typical values can have a variation of $\pm 20\%$ on the current values and $\pm 10\%$ on the speed values. Measurements are made with an actuator in connection with a stable power supply and an ambient temperature of 20°C.

** The back drive is measured with a stable power supply at an ambient temperature of 20°C after 120 seconds of continuous push load.



Please note that all actuators featuring 'soft stop towards endstop' will run at a regulated speed, which is typically around 80% of the nominal speed.

Special anodised housing



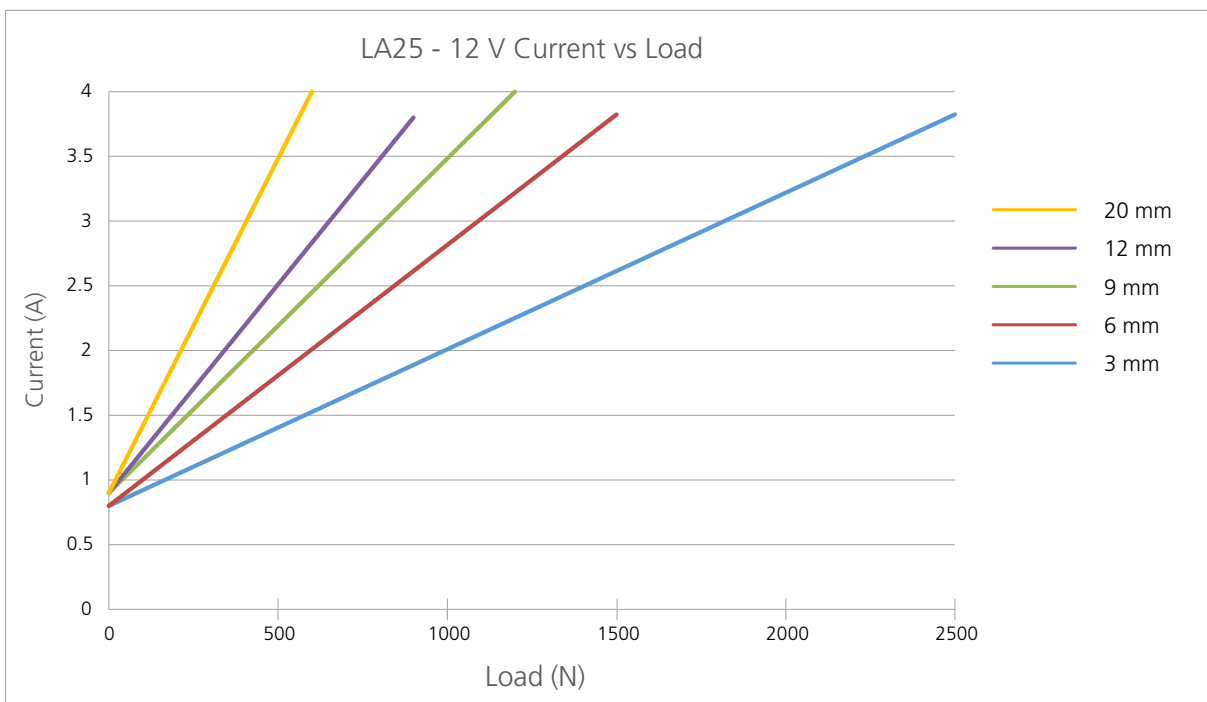
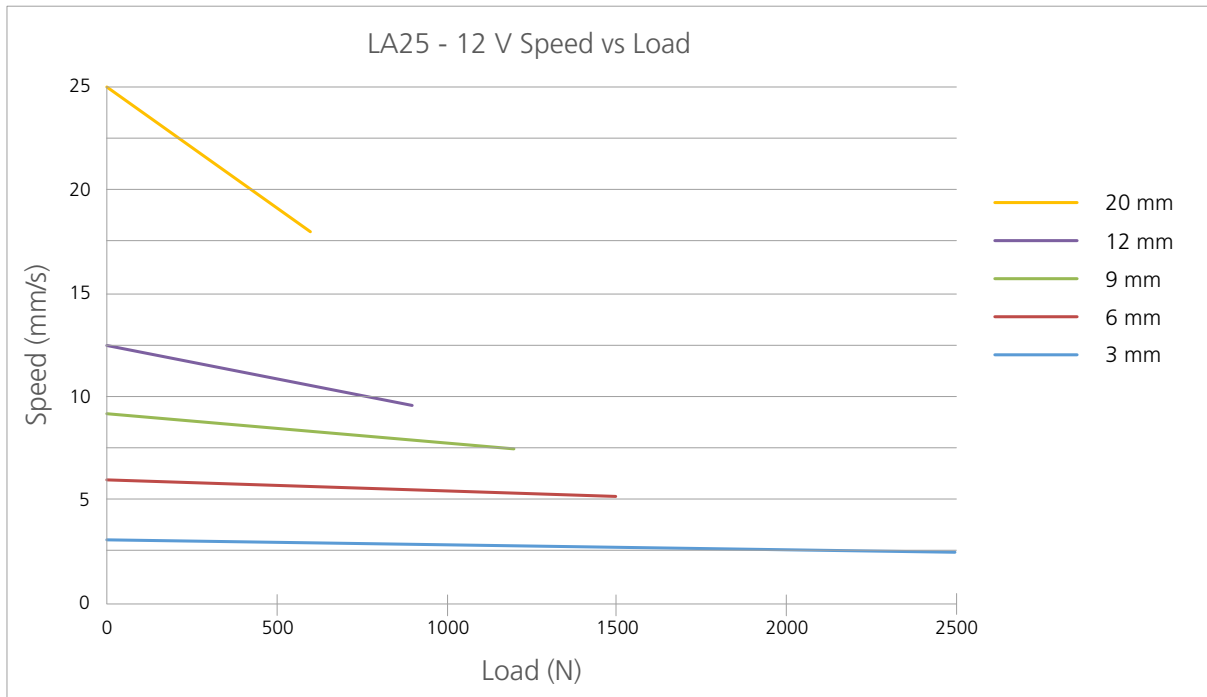
This housing should be recommended for use in particularly harsh environments such as stables, where the actuator is in touch with extremely corrosive liquids and/or vapours such as ammoniac.

The anodised housing option embodies a special surface treatment of the aluminium housing in order to reduce corrosion of the housing and avoid any vapours or liquids entering the actuator.

The anodised housing is also IP66/IP69K. This is only available in black.

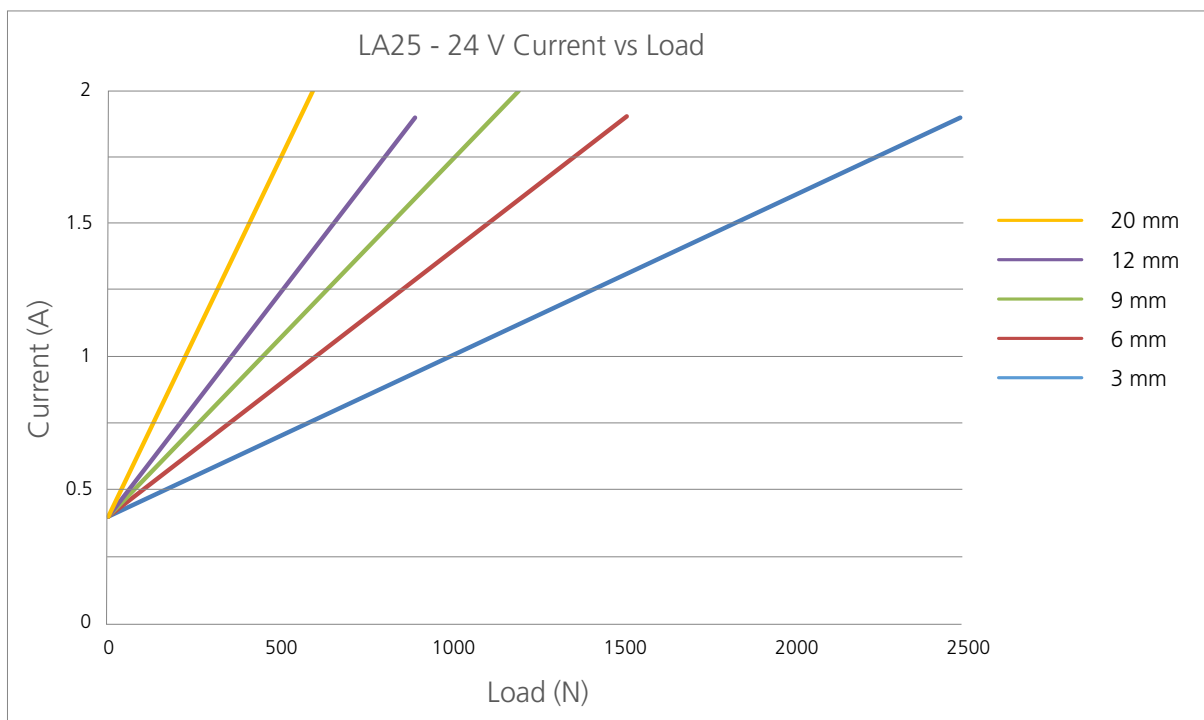
Speed and current curves

The charts below display typical values made with a stable power supply and an ambient temperature of 20°C.



Speed and Current Curves

The charts below display typical values made with a stable power supply and an ambient temperature of 20° C.



Current limits

Platform	Movement	12 V	24 V	Temperature
B, C, F	Outwards	8 A	5 A	Above
	Inwards	8 A	5 A	
	Reference temperature 0°C			
	Outwards	8 A	8 A	Below
	Inwards	8 A	8 A	

If the actuator's current consumption rises above the set limit, the actuator regulates and tries to keep it below the set current limit by reducing the PWM and therefore also the speed accordingly. The actuator does this continuously until the actuator stops moving (mechanically blocked) - something that is determined by monitoring the Hall feedback signal. If there are no changes to the Hall feedback signal during the set time frame, the Integrated Controller will cut power to the H-bridge motor circuit.

If the actuator is stopped due to the above-mentioned criteria, it automatically drives slightly in the opposite direction to reduce the torque in a blocking situation.

Current cut-offs

The principle behind the current cut-off measurement is an 'above limit' and a 'below limit' accumulating counter. When the time-out counter reaches a specific value the current cut-off goes into effect. The time-out value is pre-set at 500 ms.

Platform	Movement	12 V	24 V	Temperature
3, 6	Outwards	8 A	5 A	Above
	Inwards	8 A	5 A	
	Reference temperature 0°C			
	Outwards	9 A	6 A	Below
	Inwards	9 A	6 A	

Platform	Movement	12 V	24 V	Temperature
7, 9	Outwards	15 A	10 A	Above
	Inwards	15 A	10 A	
	Reference temperature 0°C			
	Outwards	20 A	15 A	Below
	Inwards	20 A	15 A	

Ordering example

2 5 P P P X X X S S F F P M E I = B O R P C E F L P 0 X X X

Type	25	= LA25	
Spindle pitch	PPP		
	030	= 3 mm	
	060	= 6 mm	
	090	= 9 mm	
	120	= 12 mm	
	200	= 20 mm	
Stroke length	XXX	= mm	
Safety	SS		
	00	= None	
	0A	= Safety nut	
Feedback	FF		
	00	= None	
	OK	= Single Hall	
	0A	= Hall potentiometer (Analogue feedback)	
	0F	= PWM	
Platform	P		12-pin connector
	0	= None	B = I/O Basic
	3	= IC (Not for OpenBus™)	C = I/O Customised
	6	= LIN bus	F = I/O Full
	7	= CAN bus	
	9	= CANopen	
	A	= IO-Link	
	X	= Special	
Motor Type	M		
	A	= 12 V BDC	
	B	= 24 V BDC	
Endstop	E		
	0	= Power switch	
	1	= Signal switch	
	2	= Zero point	
IP	I		
	A	= IP66 + IP69K	
	B	= IP66 + IP69K + stainless steel screws	
	C	= IP66 + Reinforced	
	D	= IP66 + IP69K Reinforced + stainless steel screws	
	T	= IECEx + ATEX (ATEX not for 12-pin connector)	
	U	= IECEx + ATEX + stainless steel screws	
	9	= Harsh environment + IP66/IP69K	
Colour	=		
	=	= Dark grey	
	-	= Black	

Ordering Example

2 5 P P P X X X S S F F P M E I = B O R P C E F L P O X X X

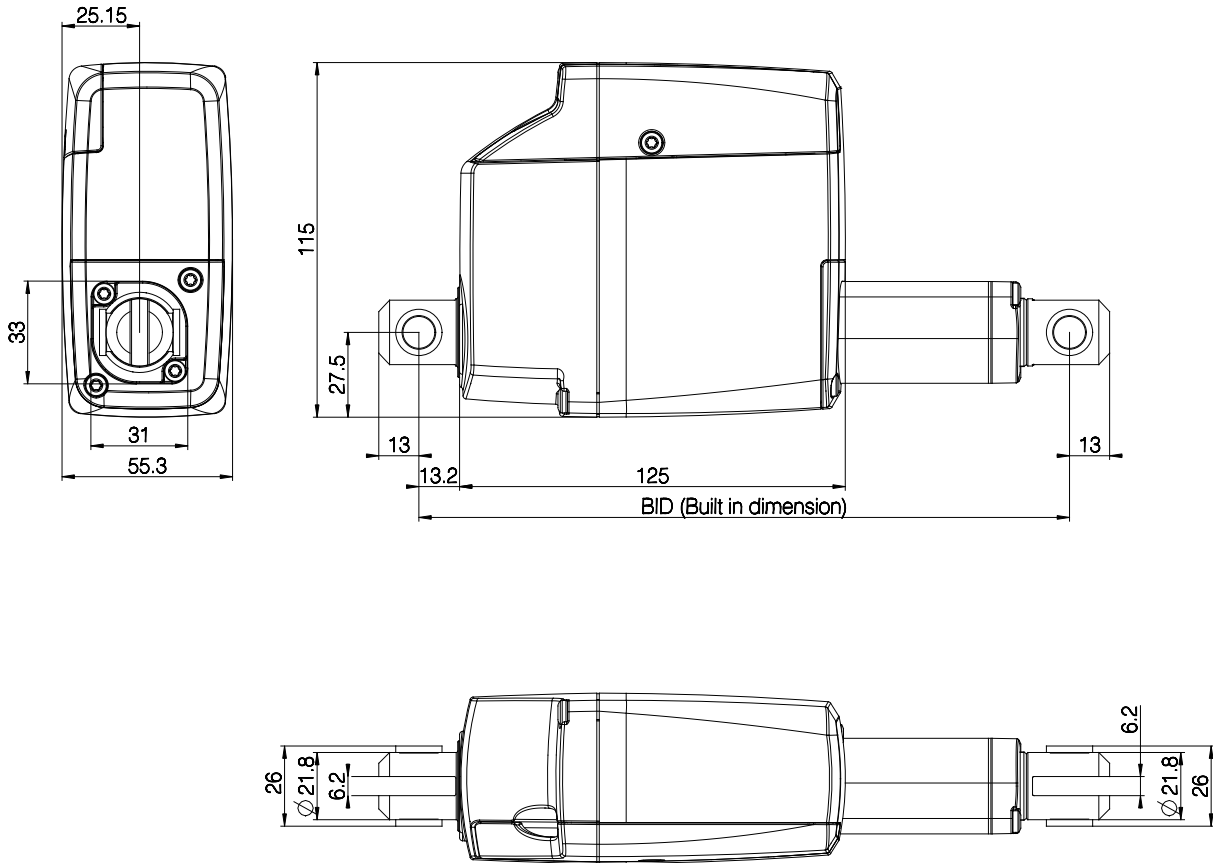
Back fixture type	B	Zinc-coated steel		Stainless steel
	1	= \varnothing 10.2 (0251011)	A	= \varnothing 10.2 (0251015)
	2	= With bushings \varnothing 10.2	B	= With bushings \varnothing 10.2
	3	= \varnothing 12.3 (0251010)	C	= \varnothing 12.3 (0251014)
	4	= With bushings \varnothing 8.2	D	= With bushings \varnothing 8.2
	5	= \varnothing 10.2 + nut (0251032)	F	= \varnothing 10.2 + nut (0251034)
	6	= With bushings \varnothing 10.2 + nut	G	= With bushings \varnothing 10.2 + nut
	7	= \varnothing 12.3 + nut (0251026)	H	= \varnothing 12.3 + nut (0251033)
	8	= With bushings \varnothing 8.2 + nut	I	= With bushings \varnothing 8.2 + nut
			M	= Male adapter M12 (0251021)
			X	= Special
Back fixture orientation	O			
	1	= 0 degrees		
	2	= 90 degrees		
Piston rod eye	R	Zinc-coated steel		Stainless steel
	1	= \varnothing 10.2 (0231033)	A	= \varnothing 10.2 (0231096)
	2	= With bushings \varnothing 10.2	B	= With bushings \varnothing 10.2
	3	= \varnothing 12.3 (0231016)	C	= \varnothing 12.3 (0231095)
	4	= With bushings \varnothing 8.2	D	= With bushings \varnothing 8.2
			K	= Ball eye \varnothing 10 H7 (0351053)
			L	= Ball eye \varnothing 12 H7 (0351035)
			F	= Female adapter M8 (0251039)
			M	= Male adapter M12 (231094)
			X	= Special
Plug type	P			
	0	= None (Is to be chosen if cable and connectors are not wanted)		
	C	= Flying leads (Is to be chosen if connector is not wanted)		
	I	= Moulded Deutsch (DT4)		
	J	= Deutsch (DT4)		
	K	= AMP superseal		
	L	= Moulded AMP superseal		
	M	= M12 5P (Only IO-Link length: 0.3 m)		
	S	= SMPS (Only cable length: 0.3 and 1.5 m)		
	X	= Special		
Cable	C			
	0	= None		
	S	= Straight 0.75 m (8-core or 2-core when no feedback is needed)		
	T	= Straight 1.5 m (8-core or 2-core when no feedback is needed)		
	R	= Straight 5.0 m (8-core or 2-core when no feedback is needed)		
	U	= Straight 0.3 m (Only SMPS and IO-Link)		
	V	= Straight 10 m		
	Y	= Straight 1.5 m (11-core)		
	Z	= Straight 5 m (11-core)		
	X	= Special		

Ordering Example

2 5 P P P X X X S S F F P M E I = B O R P C E F L P O X X X

Endstop signal (Endstop reached in/out)	E				
	CAN / LIN / IO-Link			IC Advanced and I/O	
	0	= None	0	= None	
			A	= A_HIGH / A_HIGH	
	Standard		B	= A_LOW / A_HIGH	
	0	= None	C	= A_HIGH / A_LOW	
	1	= Yes	D	= A_LOW / A_LOW	
			E	= LOW / A_HIGH	
	IC Basic		F	= HIGH / A_HIGH	
	1	= Yes	G	= LOW / A_LOW	
		H	= HIGH / A_LOW		
IC Parallel (Not for I/O)		J	= A_HIGH / LOW		
1	= A_HIGH / A_HIGH	K	= A_LOW / LOW		
		L	= A_HIGH / HIGH		
		M	= A_LOW / HIGH		
IC Parallel with Feedback		N	= LOW / LOW		
X	= Special	P	= HIGH / LOW		
		Q	= LOW / HIGH		
		R	= HIGH / HIGH		
		X	= Special		
Feedback	F			IC Advanced and I/O	
	CAN / LIN / IO-Link		0	= None	
	0	= None	A	= 0 - 10 V	
			B	= 0.5 - 4.5 V	
	Standard		C	= 4 - 20 mA	
	0	= None	D	= 10 - 90% (Only IC Advanced)	
	1	= 0 - 10 V	E	= 20 - 80% (Only IC Advanced)	
	2	= 0.5 - 4.5 V	G	= 1 - 9 V	
	3	= 4 - 20 mA	X	= Special	
	4	= 10 - 90%			
5	= 20 - 80%				
9	= Special				
		IC Basic		IC Parallel (Not for I/O)	
		8	= None	Z	= IC Parallel
				Y	= Parallel with feedback
				X	= Special
Load type	L				
	0	= Push/Pull			
	1	= Push			
		2	= Pull		
Parallel mode	P				
	0	= Non-critical Parallel	2-8	= Critical Parallel	
SW configuration	0				
	0	= Standard configuration			
	X	= Special configuration			
Built-in dimensions	XXX	= BID (mm)			

Dimensions



Stroke tolerances

Platform options	Descriptions	Stroke tolerance	Example for 200 mm stroke
25030/060/090/120 XXXXXXXX0	With built-in limit switches	+2 / -2 mm	198 to 202 mm
25200XXXXXXXX0	With built-in limit switches	+3 / -1 mm	199 to 203 mm
25XXXXXXXXXXX3	Integrated Controller with built-in limit switches and zero point	+1 / -3 mm	197 to 201 mm
25200XXXXXXXX3	Integrated Controller with built-in limit switches and zero point	+2 / -2 mm	198 to 202 mm

Built-in tolerances

Platform options	Descriptions	BID tolerance	Example for 200 mm BID
25XXXXXXXXXXX	All variants	+2 / -2 mm	198 to 202 mm

Built-in dimensions

The built-in dimension depends on the chosen safety option and stroke length(s).

				Piston rod types			
				1, 2, 3, 4, A, B, C, D	M / from the surface	K, L / to the centre of the hole	F / from the surface
Safety option	Stroke length	Spindle pitch	Min. built-in dimensions				
			No safety option	20 - 49	3	168	165
No safety option	20 - 49	6, 9 or 12	160	157	171	150	
No safety option	20 - 48	20	160	157	171	150	
Safety nut for push	20 - 49	3	168	165	179	158	
Safety nut for push	20 - 49	6, 9 or 12	160	157	171	150	
Safety nut for pull	20 - 49	6, 9 or 12	172	169	183	162	
Back fixture types 1, 2, 3, 4 and A, B, C, D							
No safety option	50 - 200	3	118 + s	115 + s	129 + s	108 + s	
No safety option	50 - 200	6, 9 or 12	110 + s	107 + s	121 + s	100 + s	
No safety option	49 - 200	20	112 + s	109 + s	123 + s	102 + s	
Safety nut for push	50 - 200	3	118 + s	115 + s	129 + s	108 + s	
Safety nut for push	50 - 200	6, 9 or 12	110 + s	107 + s	121 + s	100 + s	
Safety nut for pull	50 - 200	6, 9 or 12	122 + s	119 + s	133 + s	112 + s	
Back fixture types 1, 2, 3, 4 and A, B, C, D							
No safety option	201 - 400	3	138 + s	135 + s	149 + s	128 + s	
No safety option	201 - 400	6, 9, 12 or 20	130 + s	127 + s	141 + s	120 + s	
Safety nut for push	201 - 400	3	138 + s	135 + s	149 + s	128 + s	
Safety nut for push	201 - 400	6, 9 or 12	130 + s	127 + s	141 + s	120 + s	
Safety nut for pull	201 - 400	6, 9 or 12	142 + s	139 + s	153 + s	132 + s	
Back fixture types 1, 2, 3, 4 and A, B, C, D							
No safety option	401 - 500	3	158 + s	155 + s	169 + s	148 + s	
No safety option	401 - 600	6, 9, 12 or 20	150 + s	147 + s	161 + s	140 + s	
Safety nut for push	401 - 500	3	158 + s	155 + s	169 + s	148 + s	
Safety nut for push	401 - 600	6, 9 or 12	150 + s	147 + s	161 + s	140 + s	
Safety nut for pull	401 - 600	6, 9 or 12	162 + s	159 + s	173 + s	152 + s	

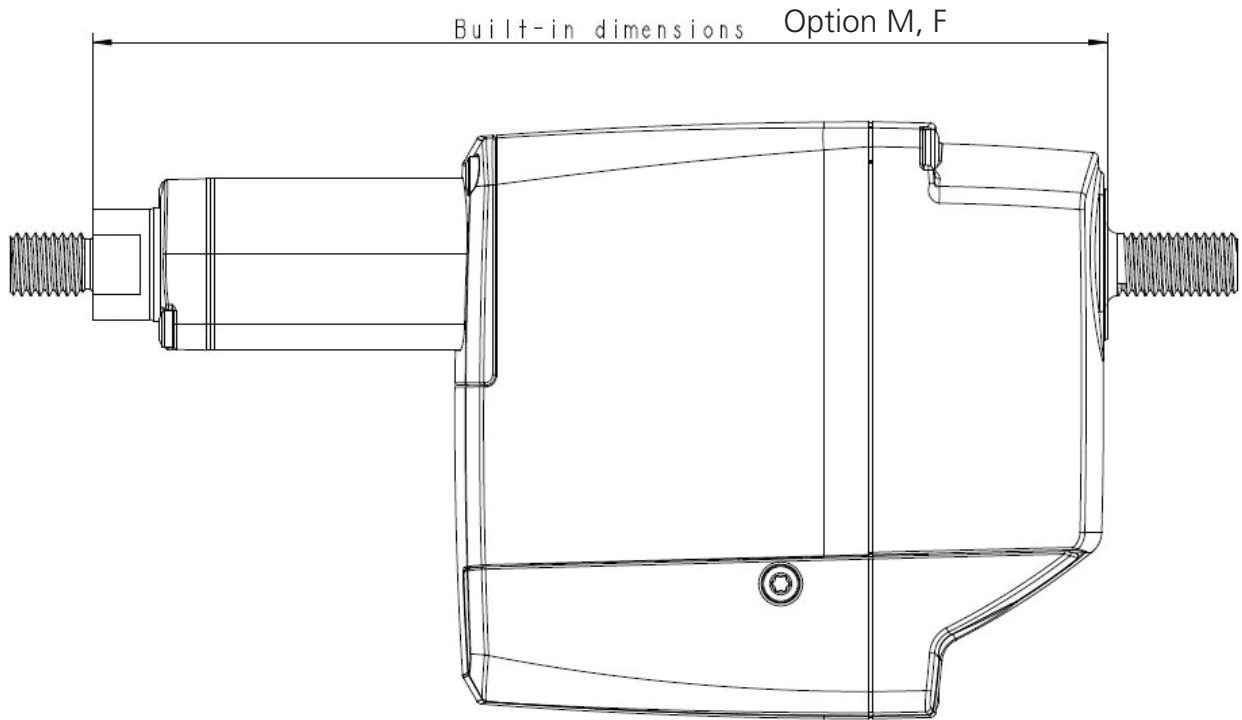
Built-in dimensions

				Piston rod types			
				1, 2, 3, 4, A, B, C, D	M / from the surface	K, L / to the centre of the hole	F / from the surface
Back fixture type M	Safety option	Stroke length	Spindle pitch	Min. built-in dimensions			
		No safety option	20 - 49	3	155	152	166
	No safety option	20 - 49	6, 9 or 12	147	144	158	137
	No safety option	20 - 48	20	147	144	158	137
	Safety nut for push	20 - 49	3	155	152	166	145
	Safety nut for push	20 - 49	6, 9 or 12	147	144	158	137
	Safety nut for pull	20 - 49	6, 9 or 12	159	156	170	149
	No safety option	50 - 200	3	105 + s	102 + s	116 + s	95 + s
	No safety option	50 - 200	6, 9 or 12	97 + s	94 + s	108 + s	87 + s
	No safety option	49 - 200	20	99 + s	96 + s	110 + s	89 + s
	Safety nut for push	50 - 200	3	105 + s	102 + s	116 + s	95 + s
	Safety nut for push	50 - 200	6, 9 or 12	98 + s	94 + s	108 + s	87 + s
	Safety nut for pull	50 - 200	6, 9 or 12	110 + s	106 + s	120 + s	99 + s
	No safety option	201 - 400	3	125 + s	122 + s	136 + s	115 + s
	No safety option	201 - 400	6, 9, 12 or 20	117 + s	114 + s	128 + s	107 + s
	Safety nut for push	201 - 400	3	125 + s	122 + s	136 + s	115 + s
	Safety nut for push	201 - 400	6, 9 or 12	117 + s	114 + s	128 + s	107 + s
	Safety nut for pull	201 - 400	6, 9 or 12	129 + s	126 + s	140 + s	119 + s
	No safety option	401 - 500	3	145 + s	142 + s	156 + s	135 + s
	No safety option	401 - 600	6, 9, 12 or 20	137 + s	134 + s	148 + s	127 + s
	Safety nut for push	401 - 500	3	145 + s	142 + s	156 + s	135 + s
	Safety nut for push	401 - 600	6, 9, 12 or 20	137 + s	134 + s	148 + s	127 + s
	Safety nut for pull	401 - 600	6, 9, 12 or 20	149 + s	146 + s	160 + s	139 + s

Built-in dimensions

				Piston rod types				
				1, 2, 3, 4, A, B, C, D	M / from the surface	K, L / to the centre of the hole	F / from the surface	
Back fixture types 5, 6, 7, 8 and F, G, H, I	Safety option	Stroke length	Spindle pitch	Min. built-in dimensions				
	No safety option	20 - 49	3	174	171	185	164	
	No safety option	20 - 49	6, 9 or 12	166	163	177	156	
	No safety option	20 - 48	20	166	163	177	156	
	Safety nut for push	20 - 49	3	174	171	185	164	
	Safety nut for push	20 - 49	6, 9 or 12	166	163	177	156	
	Safety nut for pull	20 - 49	6, 9 or 12	178	175	189	168	
	No safety option	50 - 200	3	124 + s	121 + s	135 + s	114 + s	
	No safety option	50 - 200	6, 9 or 12	116 + s	113 + s	127 + s	106 + s	
	No safety option	49 - 200	20	118 + s	115 + s	129 + s	108 + s	
	Safety nut for push	50 - 200	3	124 + s	121 + s	135 + s	114 + s	
	Safety nut for push	50 - 200	6, 9 or 12	116 + s	113 + s	127 + s	106 + s	
	Safety nut for pull	50 - 200	6, 9 or 12	128 + s	125 + s	139 + s	118 + s	
	No safety option	201 - 400	3	144 + s	141 + s	155 + s	134 + s	
	No safety option	201 - 400	6, 9, 12 or 20	136 + s	133 + s	147 + s	126 + s	
	Safety nut for push	201 - 400	3	144 + s	141 + s	155 + s	134 + s	
	Safety nut for push	201 - 400	6, 9 or 12	136 + s	133 + s	147 + s	126 + s	
	Safety nut for pull	201 - 400	6, 9 or 12	148 + s	145 + s	159 + s	138 + s	
No safety option	401 - 500	3	164 + s	161 + s	175 + s	154 + s		
No safety option	401 - 600	6, 9, 12 or 20	156 + s	153 + s	167 + s	146 + s		
Safety nut for push	401 - 500	3	164 + s	161 + s	175 + s	154 + s		
Safety nut for push	401 - 600	6, 9, 12 or 20	156 + s	153 + s	167 + s	146 + s		
Safety nut for pull	401 - 600	6, 9, 12 or 20	168 + s	165 + s	179 + s	158 + s		

Built-in dimensions

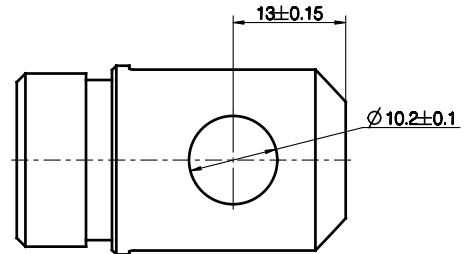
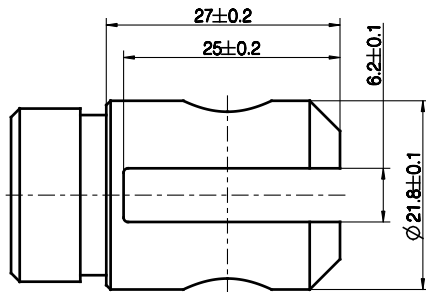


Piston rod eyes

Option "1" and "A"

Piston 0231033, zinc-coated steel

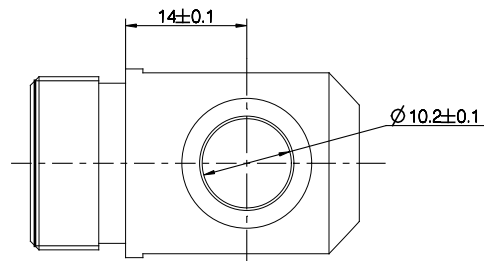
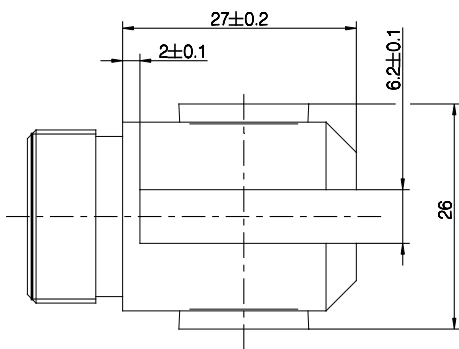
Piston 0231096, stainless steel AISI 304



Option "2" and "B"

Piston 0231016 with bushings, zinc-coated steel

Piston 0231095 with bushings, stainless steel AISI 304

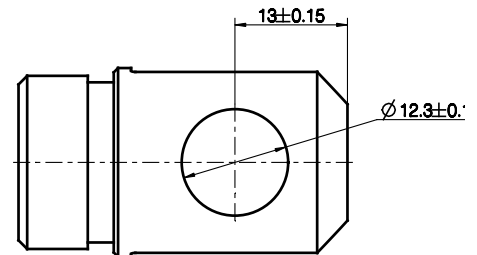
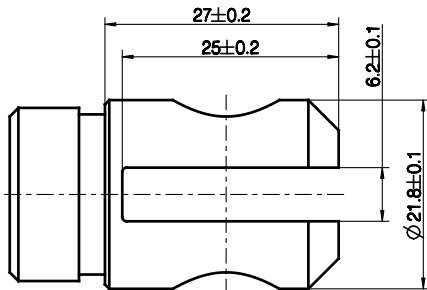


Piston rod eyes

Option "3" and "C"

Piston 0231016, zinc-coated steel

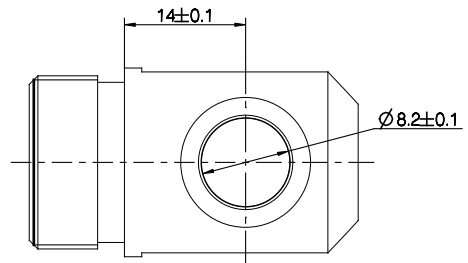
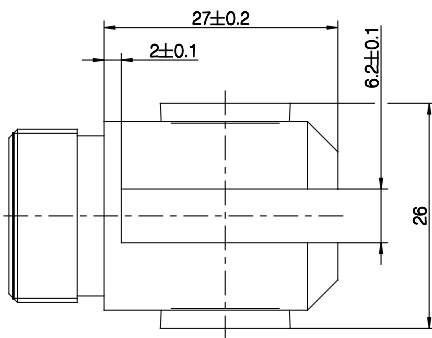
Piston 0231095, stainless steel AISI 304



Option "4" and "D"

Piston 0231033 with bushings, zinc-coated steel

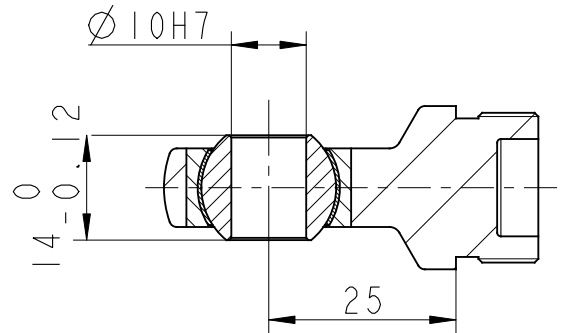
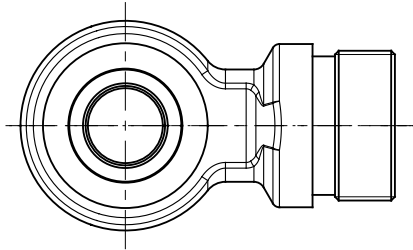
Piston 0231096 with bushings, stainless steel AISI 304



Piston rod eyes

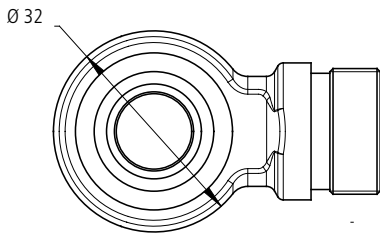
Option "K"

Piston 0351053, stainless steel AISI 304



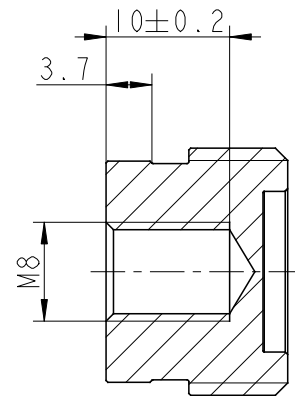
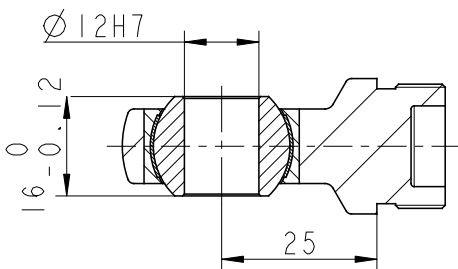
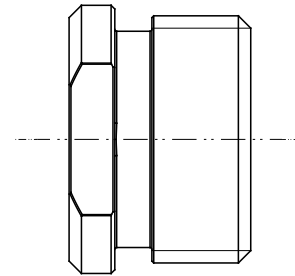
Option "L"

Piston 0351035, stainless steel AISI 304



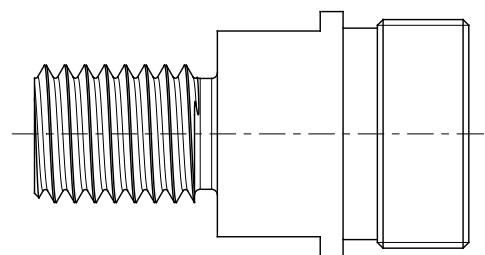
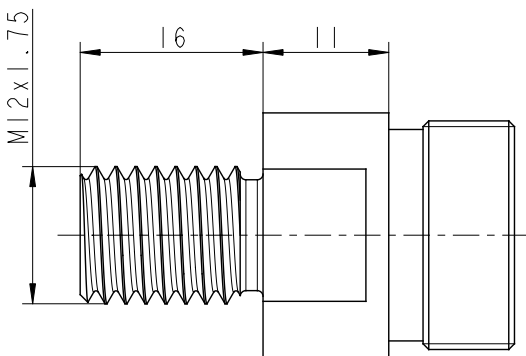
Option "F"

Piston 0251039, stainless steel AISI 303



Option "M"

Piston 0231094, stainless steel AISI 304



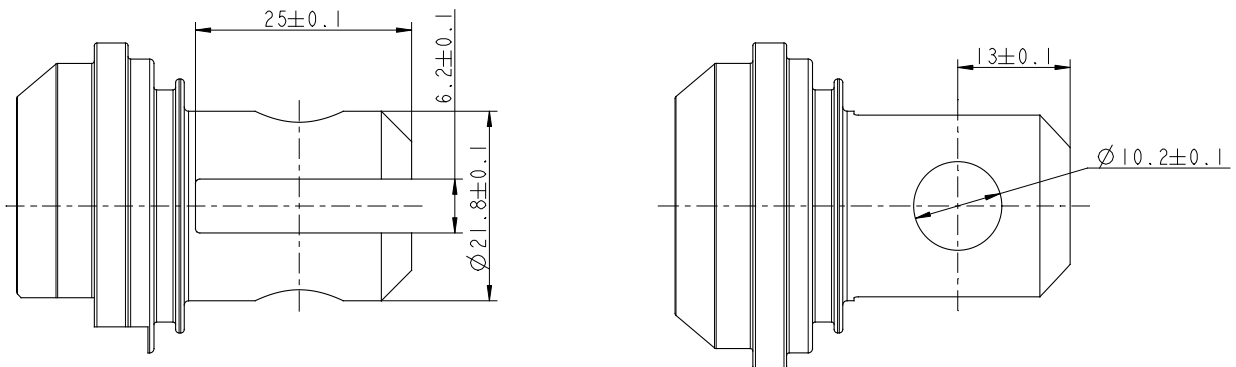
The piston rod eye is only allowed to turn 0-180 degrees anti-clockwise.

Back fixtures

Option "1" and "A"

LINAK P/N: 0251011 without bushings, zinc-coated steel

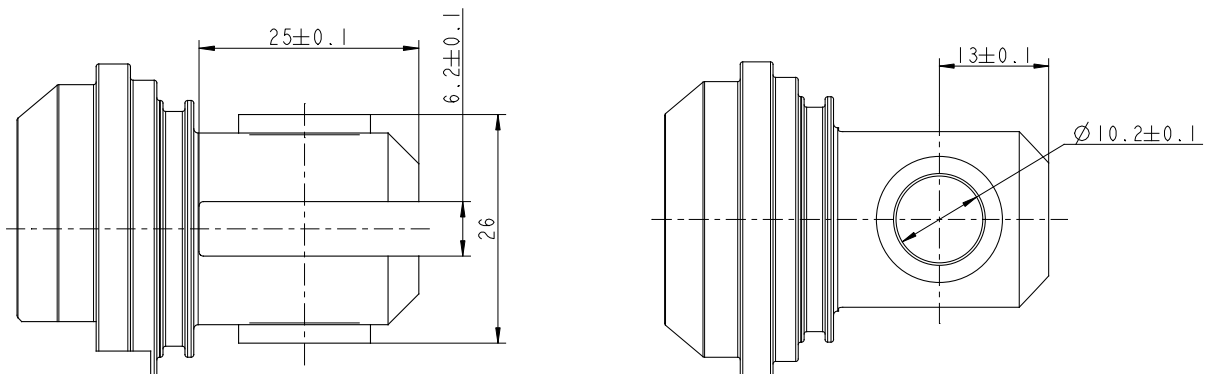
0251015 without bushings, stainless steel AISI 304



Option "2" and "B"

LINAK P/N: 0251010 with bushings, zinc-coated steel

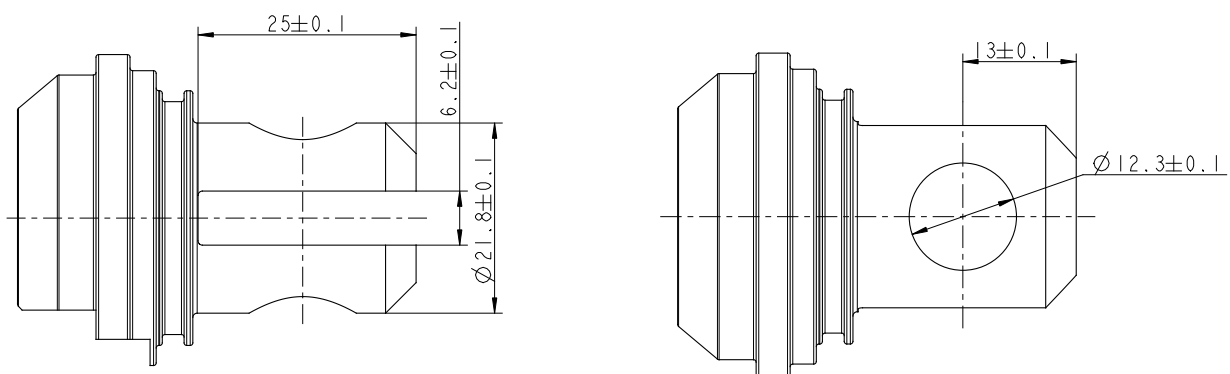
0251014 with bushings, stainless steel AISI 304



Option "3" and "C"

LINAK P/N: 0251010 without bushings, zinc-coated steel

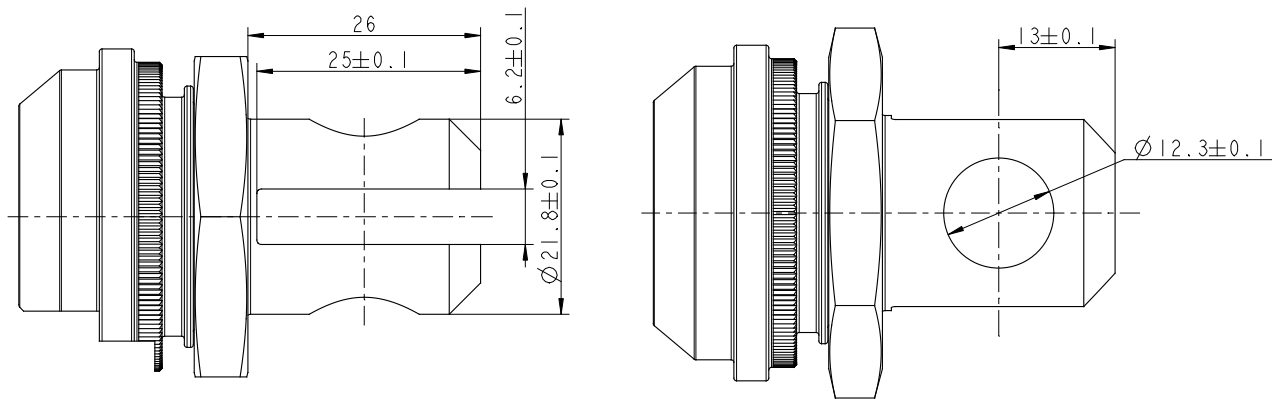
0251014 without bushings, stainless steel AISI 304



Back fixtures

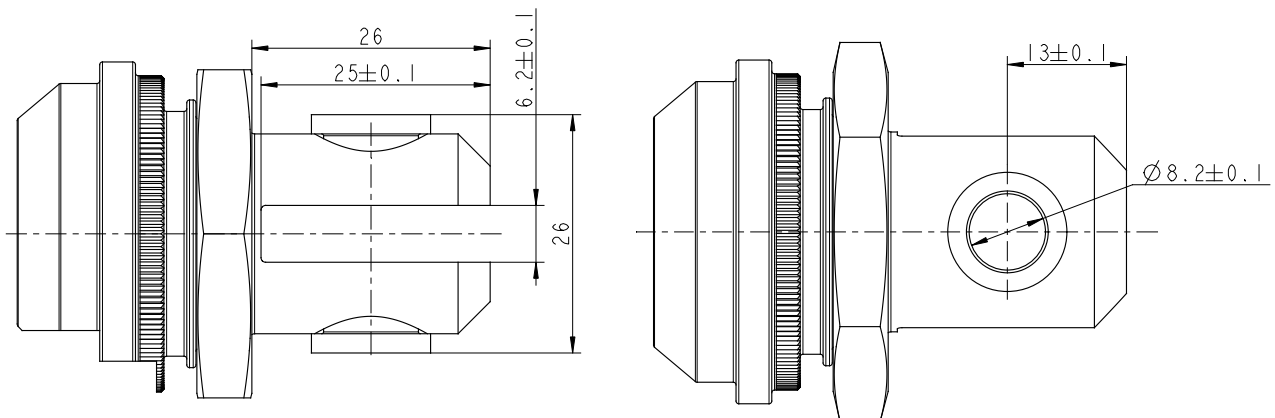
Option "7" and "H"

LINAK P/N 0251026 without bushings, zinc-coated steel
0251033 without bushings, stainless steel AISI 304



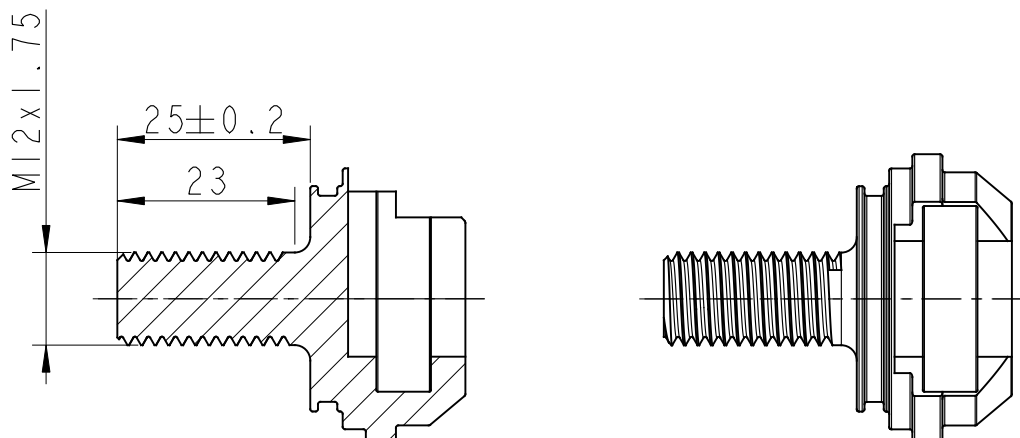
Option "8" and "I"

LINAK P/N 0251032 with bushings, zinc-coated steel
0251034 with bushings, stainless steel AISI 304

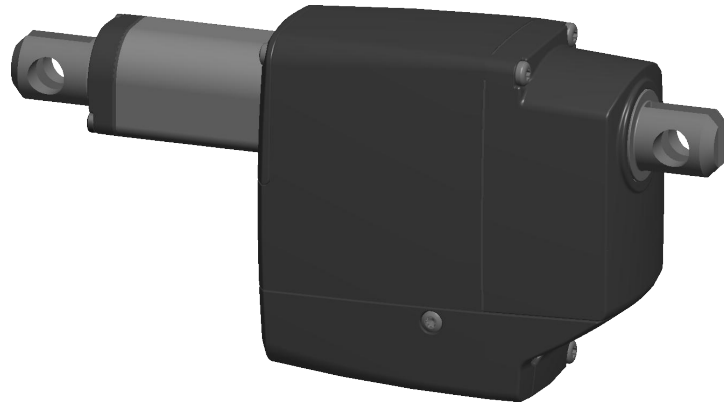


Option "M"

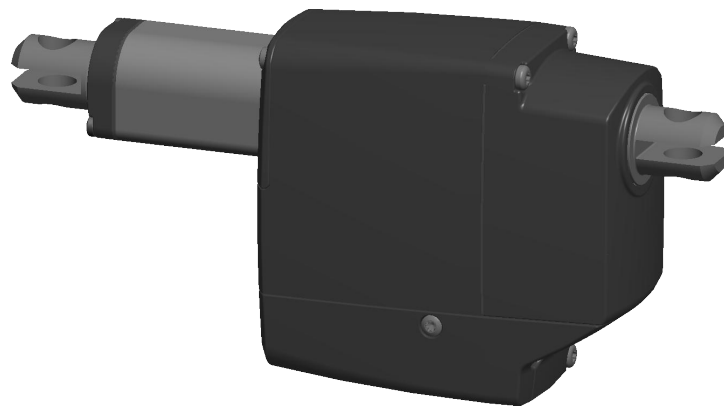
LINAK P/N: 0251021, stainless steel AISI 303



Back fixture orientation

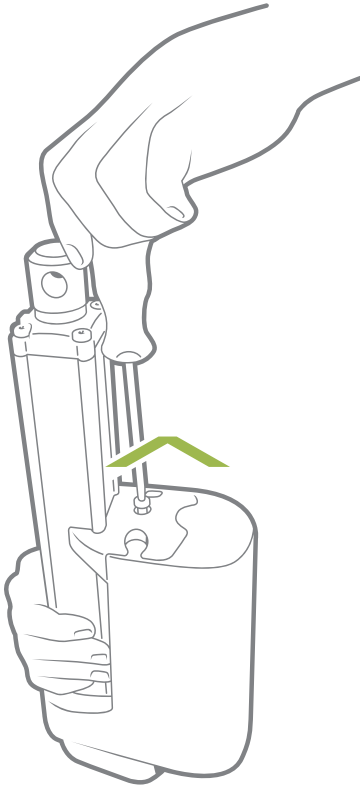


Option 1 = 0°

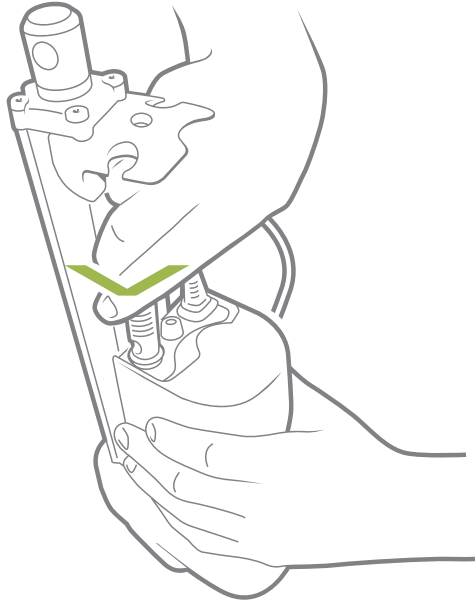


Option 2 = 90°

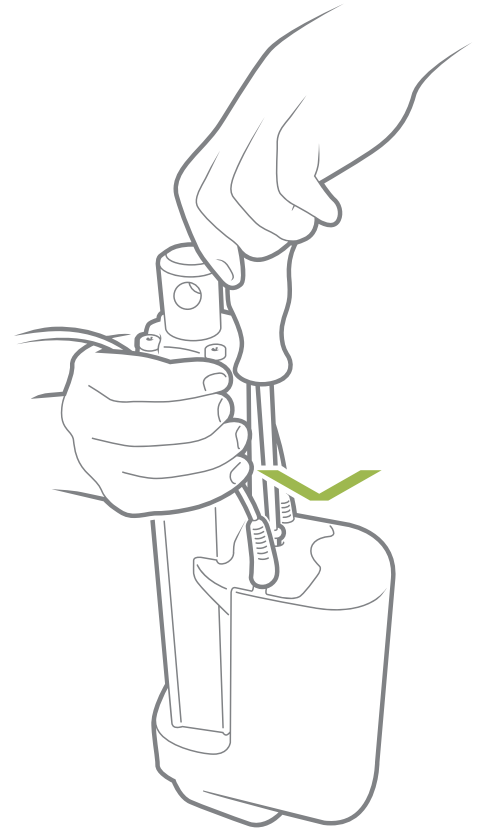
Mounting of cables




1. Unscrew the cover and remove the two blind plugs.



2. Plug in the power cable and/or the signal cable.




3. Slide the cover onto the actuator.
The torque of the cover screw is approx. 3.5 ± 0.3 Nm
TORX 25IP

 When changing the cables on a LINAK® actuator, it is important that this is done carefully, in order to protect the plugs and pins. Before the new cable is mounted, we recommend that the socket is greased with vaseline, to keep the high IP protection and ensure an easy mounting. Please be sure that the plug is in the right location and fully pressed in before the cable lid is mounted.

Please note that if the cables are mounted and dismantled more than 3 times the plugs can be damaged. Therefore, we recommend that such cables are discarded and replaced.

Also note that the cables should not be used for carrying the actuator.

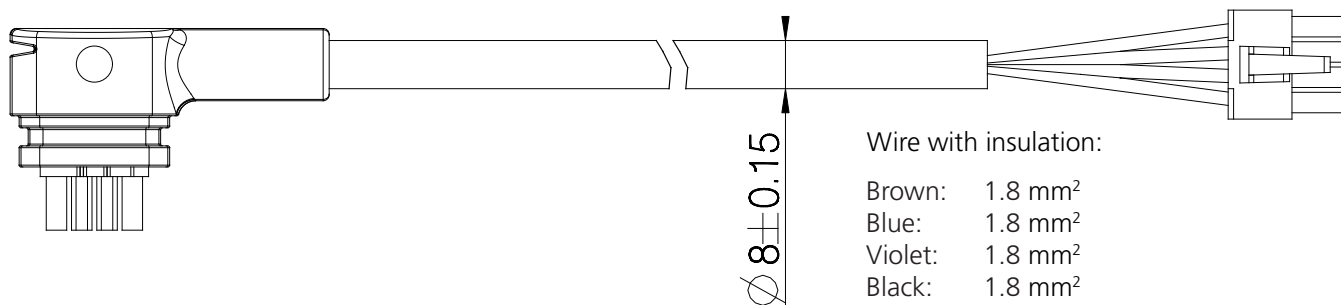
We recommend to take some precaution and design the wire connection in a way, where the cable end is kept inside a closed, protected area to guarantee the high IP protection.

 **NOT** valid for ATEX cables, please refer to the ATEX section for correct cable mounting on ATEX actuators.

Cable dimensions

Wire without insulation:

- Brown: 1.0 mm² 18 AWG*
- Blue: 1.0 mm² 18 AWG
- Violet: 1.0 mm² 18 AWG
- Black: 1.0 mm² 18 AWG
- Red: 1.0 mm² 18 AWG
- Yellow: 1.0 mm² 18 AWG
- Green: 1.0 mm² 18 AWG
- White: 1.0 mm² 18 AWG




Wire with insulation:

- Brown: 1.8 mm²
- Blue: 1.8 mm²
- Violet: 1.8 mm²
- Black: 1.8 mm²
- Red: 1.8 mm²
- Yellow: 1.8 mm²
- Green: 1.8 mm²
- White: 1.8 mm²

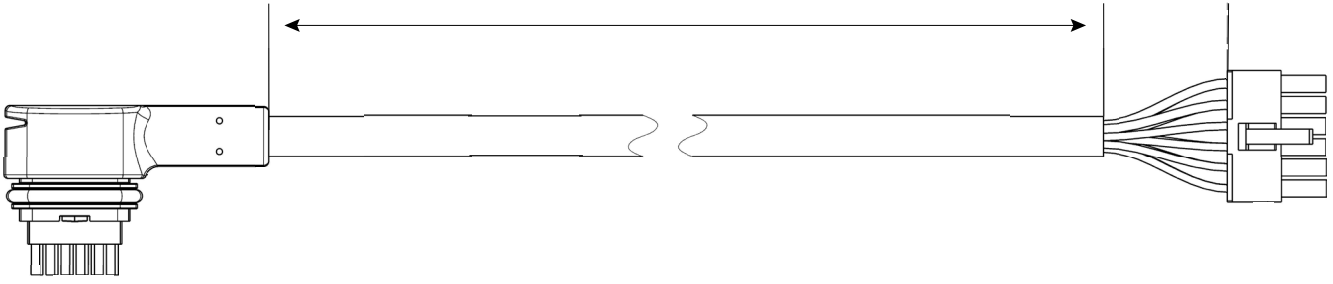
Standard cable item numbers (included in new actuator)

Connector		C		J/K		I/L	
		Length (mm)		Length (mm)		Length (mm)	
S	0147001 - 850	CS	810	JS/KS	785	IS/LS	740
T	0147001 - 1600	CT	1560	JT/KT	1535	IT/LT	1490
R	0147001 - 5100	CR	4960	JR/KR	4935	IR/LR	4890
V	0147001 - 10100	CV	10060	JV/KV	10035	IV/LV	9990

 The LA25 standard cable is a UV-resistant PVC cable.

*AWG: American Wire Gauge

Cable dimensions




Standard cable item numbers (included in new actuator)


LA25 cable item no.	Length
0257057 - 0850	850 ± 30
0257057 - 1600	1600 ± 30
0257057 - 2000	2000 ± 40
0257057 - 5100	5100 ± 50
0257057 - 10100	10100 ± 100
0257057 - 15100	15100 ± 100

Electrical installation

For Standard actuators:

-  • To ensure maximum self-locking ability, please be sure that the motor is shorted when stopped. When using soft stop on a DC-motor, a short peak of higher voltage will be sent back towards the power supply. It is important when selecting the power supply that it does not turn off the output, when this backwards load dump occurs. The power supply must be monitored externally and cut off in case of current overload.

For IC actuators:

-  • As long as the actuator is powered, actuators with Integrated Controller ensure that the motor is shorted when stopped.

Environmental tests – Climatic

Test	Specification	Comment	TRD number
Cold test	EN60068-2-1 (Ab)	Storage at low temperature: Temperature: -40°C Duration: 72 h Actuator is not connected/operated Tested at room temperature	TRD5675
		Storage at low temperature: Temperature: -55°C Duration: 24 h Actuator is not connected Tested at room temperature	TRD5675
	EN60068-2-1 (Ad)	Operating at low temperature: Temperature: -40°C Duration: 4 h Tested at room temperature within 5 minutes overload	
Dry heat	EN60068-2-2 (Bb)	Storage at high temperature: Temperature: +85°C Duration: 72 h Actuator is not connected/operated Tested at room temperature	TRD5675
	EN60068-2-2 (Bb)	Storage at low temperature: Temperature: +105°C Duration: 24 h Actuator operated at high temperature	TRD5675
Damp heat	EN60068-2-30 (Db)	Damp heat, Cyclic: Relative humidity: 93-98% High temperature: +55°C in 12 hours Low temperature: +25°C in 12 hours Duration: 21 cycles * 24 hours Actuator is operated during test	TRD5677
Salt mist	EN ISO 9227	Dynamic salt spray test: Salt solution: 5% sodium chloride (NaCl) Temperature: 35 ± 2°C Duration: 500 h Actuator is operated	TRD5678
Thermal shock		Dunk test: Actuator is heated to +85°C for 4 h and submerged into a 0°C cold salt-water-detergent solution for 2 h Followed by 18 h dry time Duration: 5 cycles	TRD5679

Degrees of protection	EN60529 - IP66	IP6X - Dust: Dust-tight - no ingress of dust Actuator is not activated	TRD5680
	EN60529 - IP66	IPX6 - Water: Ingress of water in quantities causing harmful effects is not allowed Duration: 100 litres pr. minute for 3 minutes Actuator is not activated	TRD5682
	DIN40050 - IP69K	IPX9K: High pressure cleaner Temperature: +80°C Water pressure: 80-100 bar Water flow: 14-16 l/min Duration: 30 seconds each at 4 different angles: 0°, 30°, 60° and 90° Actuator is not activated Ingress of water in quantities causing harmful effects is not allowed	TRD5680
Rain		Dynamic rain test: Actuators exposed to continuous rain Actuators operated and sideloaded with 5 N Duration: 10.000 cycles and 240 h	TRD5681

Environmental tests – Mechanical

Test	Specification	Comment	TRD number
Mechanical shock (handling) - drop test		3 drops on 6 faces onto a concrete floor Drop height: 500 mm on all surfaces	TRD5683
Mechanical shock operational		Peak Pulse Amplitude: 50 G Pulse Duration: 11 ms Number of pulses: 18 total - 3 in each direction for all three axes	TRD5684
		Peak Pulse Amplitude: 30 G Pulse Duration: 18 ms Number of pulses: 18 total - 3 in each direction for all three axes	TRD5684
		Peak Pulse Amplitude: 25 G Pulse Duration: 6 ms Number of pulses: 6000 total- 1000 in each direction for all three axes	TRD5684
Vibration random		Random vibration: From 18 Hz - 0,025 G to 1000 Hz - 0,015 G Duration: 2 h/axis UM-32-30-003	TRD5684

Environmental tests - Electrical

Standard	Specification	FOCUS ON
2004/104/EC	Automotive EMC Directive 2004/104/EC on electrical and electronic car components	<ul style="list-style-type: none"> VEHICLES AND MOBILITY
EN/IEC 60204-1: 2006 +A1: 2009	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	<ul style="list-style-type: none"> INDUSTRIAL AUTOMATION
EN/IEC 60204 -32: 2008	Safety of machinery - Electrical equipment of machines - Part 32: Requirements for hoisting machines	<ul style="list-style-type: none"> INDUSTRIAL AUTOMATION PLATFORMS AND LIFTS
EN/IEC 61000-6-1: 2007	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for industrial environments	<ul style="list-style-type: none"> INDUSTRIAL AUTOMATION
EN/IEC 61000-6-2: 2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments	<ul style="list-style-type: none"> INDUSTRIAL AUTOMATION
EN/IEC 61000-6-3: 2007 + A1:2011	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments	<ul style="list-style-type: none"> INDUSTRIAL AUTOMATION
EN/IEC 61000-6-4: 2007 + A1:2011	Electromagnetic compatibility (EMC) - Part 6: Generic standards - Section 4: Emission standard for industrial environments	<ul style="list-style-type: none"> INDUSTRIAL AUTOMATION
EN 13309: 2010	Construction machinery	<ul style="list-style-type: none"> CONSTRUCTION
EN/ISO 13766: 2006	Earth-moving machinery - Electromagnetic compatibility	<ul style="list-style-type: none"> CONSTRUCTION
EN/ISO 14982: 2009	Agricultural and forestry machines - Electromagnetic compatibility	<ul style="list-style-type: none"> MOBILE AGRICULTURE OUTDOOR POWER EQUIPMENT
EU recreational crafts directive 94/25/EC		
IECEX / ATEX (Ex)	EN60079-0:2012 EN60079-31:2014 This Ex certification allows the actuator to be mounted in Ex dust areas: II 2D Ex tb IIIC T135°C Db Tamb -25°C to +65°C	



All electrical and radiated emission tests (EMC) have been conducted.

Non-complying standards

Standard	Explanation
IEC 60601-1	Please note that this product cannot be approved according to the medical electrical equipment standard. Due to the combination of the aluminium cast housing and the embedded PCB, we do not fulfil the regulations according to leakage current.

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