

# LINEAR ACTUATORS

Standard and Custom Solutions

# Why choose Nanotec linear actuators?

## Maximum performance

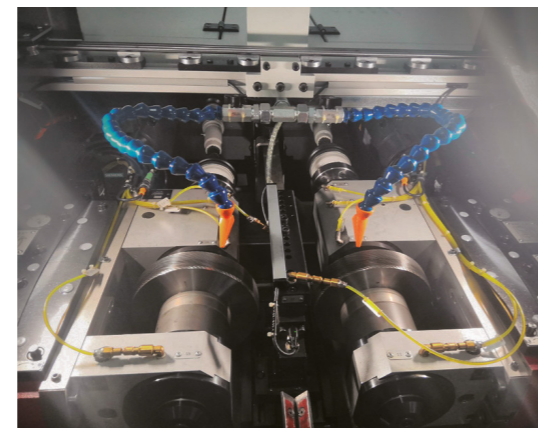
More than twenty-five years of experience in stepper motor technology allow us to use the most advanced motor designs as a basis for the development of our linear actuators. An improved stator geometry and optimized magnetic materials result in products with a significantly higher torque and more thrust than comparable actuators. Matching lead screws are available in a wide range of pitches, diameters and lengths – in standard sizes as well as in customized versions. Screw-in and pretensioned nuts with custom flanges ensure smooth and quiet operation as well as a long service life.

## Reliable quality

The quality of every component and manufacturing process is tightly scrutinized and managed to the highest standards. We produce our lead screws on a CNC-controlled thread rolling machine to ensure superior thread surface quality and a long lifetime. Every linear actuator is inspected before shipment to make sure that our products meet our customers' expectations in terms of quality and consistency.

# 30%

**With its special magnetic material, the motor's torque increases by 30%**

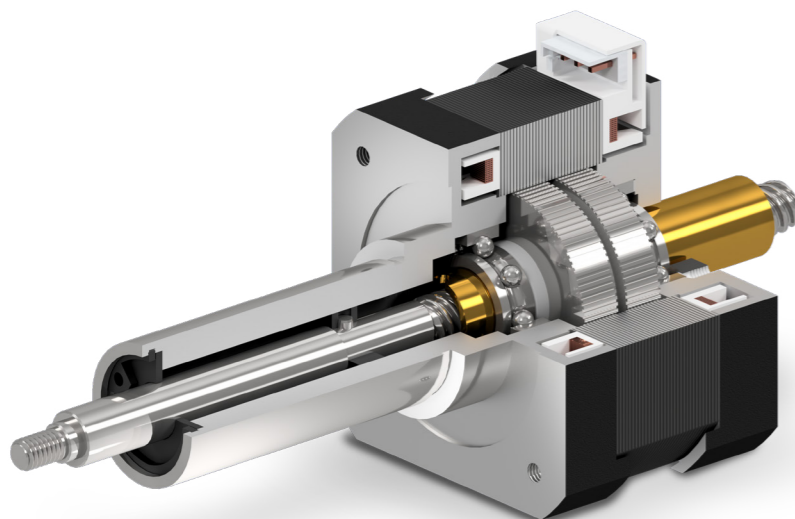


## Custom solutions

Whether it is an individual winding, a specific nut or lead screw machining, our R&D teams in Germany and China will help you modify your linear actuators to perfectly match your application needs. We offer many standard configurations to choose from: Customize your linear actuator for example with encoders and benefit from the quick turnaround of stocked standard components that we assemble on demand.

## Complete control

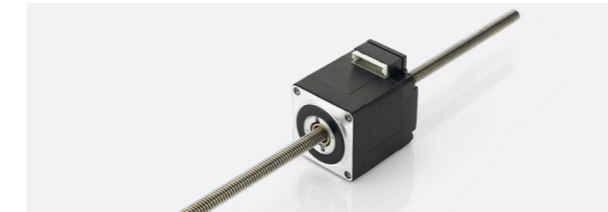
Nanotec offers a large range of controllers and encoders to complement its linear actuators. Controllers with closed-loop control will further increase acceleration, accuracy and thrust force, making the new linear actuators ideal for high throughput processes. Several fieldbus options facilitate the integration in existing control concepts.



# Types of linear actuators

Hybrid linear actuators simplify the conversion from rotational motion to linear motion. Nanotec provides a comprehensive range of hybrid linear stepper motors and components, as well as high-torque linear actuators designed for linear motion control in small spaces. This includes the non-captive linear actuators from the LA series, the external linear actuators from the LSA series and the captive linear actuators from the LGA series.

## LA – Non-captive

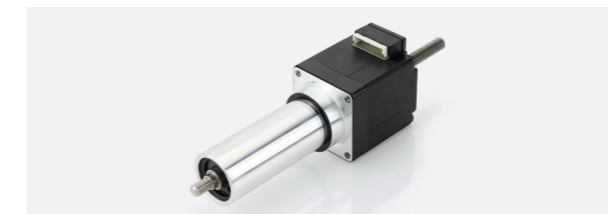


- The nuts are injection moulded into the motor and provide high load capacity and precision
- Different lead screws are available, encoders are optional
- With connector, wiring easy to customize

**LA421S14-A-UKGI**

1. Non-captive linear actuator
2. Generation
3. Flange size
4. Phase angle: 1=1.8°, 0=0.9°
5. Length: S, M, L, ...
6. Current: 14=1.4 A per winding
7. B-shaft: A=no B-shaft, B=with B-shaft
8. Thread type: U=ACME, T=trapezoidal
9. Thread diameter: K=6.35 mm, see thread matrix
10. Thread lead: GI=6.35 mm, see thread matrix

## LGA – Captive

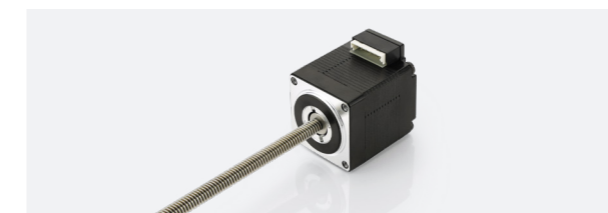


- Anti-rotation, more compact and simple design
- No additional bearing or linear slide necessary
- Different lead screws are available, encoders are optional
- With connector, wiring easy to customize
- Different stroke lengths can be selected

**LGA421S14-A-UKGI-038**

1. Captive linear actuator
2. Generation
3. Flange size
4. Phase angle: 1=1.8°, 0=0.9°
5. Length: S, M, L, ...
6. Current: 14=1.4 A per winding
7. B-shaft: A=no B-shaft, B=with B-shaft
8. Thread type: U=ACME, T=trapezoidal
9. Thread diameter: K=6.35 mm, see thread matrix
10. Thread lead: GI=6.35 mm, see thread matrix
11. Stroke length: 019=19 mm, 038=38 mm

## LSA – External

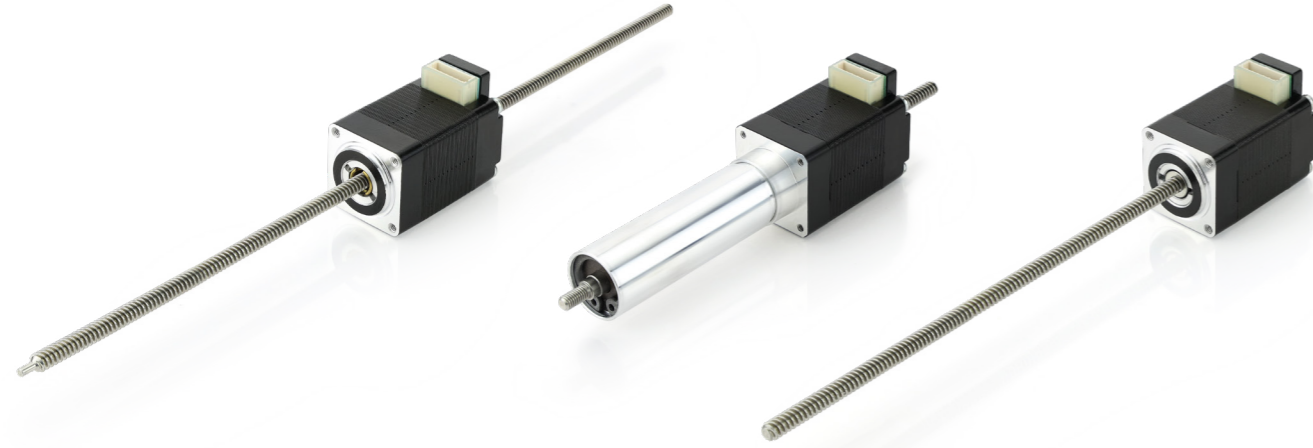


- No shaft coupling or bearing support required, therefore lower component costs
- Different lead screws are available, encoders are optional
- With connector, wiring easy to customize
- Threaded nuts can be customized according to customers' requirements
- Different screw lengths on request

**LSA421S14-A-UKGI-152**

1. External linear actuator
2. Generation
3. Flange size
4. Phase angle: 1=1.8°, 0=0.9°
5. Length: S, M, L, ...
6. Current: 14=1.4 A per winding
7. B-shaft: A=no B-shaft, B=with B-shaft
8. Thread type: U=ACME, T=trapezoidal
9. Thread diameter: K=6.35 mm, see thread matrix
10. Thread lead: GI=6.35 mm, see thread matrix
11. Screw length: 102=102 mm, 152=152 mm

# NEMA 8 (20mm)

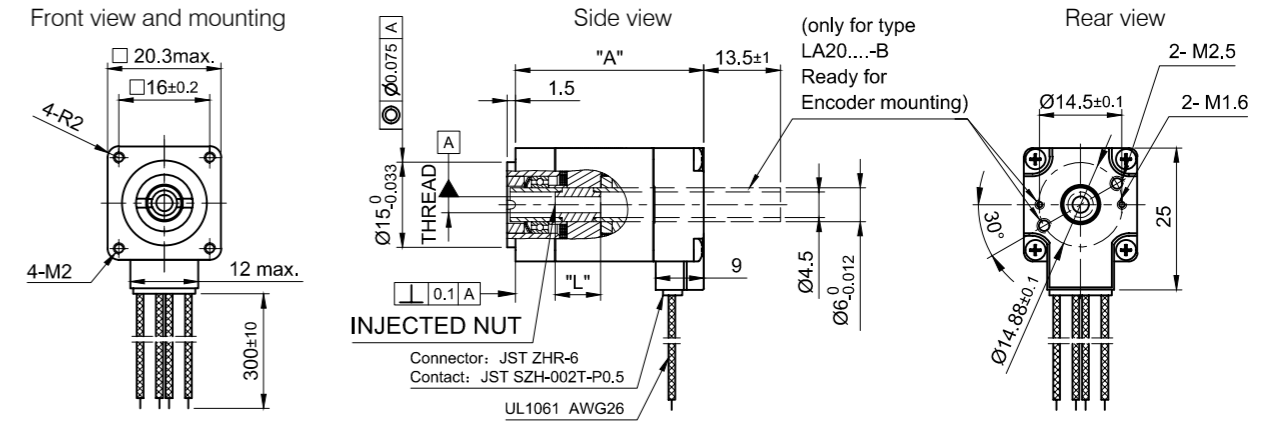


Article	Force (N)	Speed (mm/s)	Current per Winding (A)	Resolution (µm/step)	Resistance per Winding (Ohm)	Inductance per Winding (mH)	Thread Diameter (mm)	Thread Lead (mm)	Length "A" (mm)	Screw Length "L" (mm)	Stroke Length "X" (mm)	Weight (kg)
LA201S06-A-TDBA	46	40	0.6	5	6.4	2.6	3.5	1	33	-	-	0.054
LA201S06-A-UECB	33.7	60	0.6	10	6.4	2.6	3.5	2	33	-	-	0.054
LGA201S06-A-TDBA-019	46	40	0.6	5	6.4	2.6	3.5	1	33	-	19.05	0.066
LGA201S06-A-TDBA-038	46	40	0.6	5	6.4	2.6	3.5	1	33	-	38.1	0.073
LGA201S06-A-UECB-019	33.7	60	0.6	10	6.4	2.6	3.5	2	33	-	19.05	0.066
LGA201S06-A-UECB-038	33.7	60	0.6	10	6.4	2.6	3.5	2	33	-	38.1	0.073
LSA201S06-A-TDBA-102	46	40	0.6	5	6.4	2.6	3.5	1	33	102	-	0.063
LSA201S06-A-UECB-102	33.7	60	0.6	10	6.4	2.6	3.5	2	33	102	-	0.063

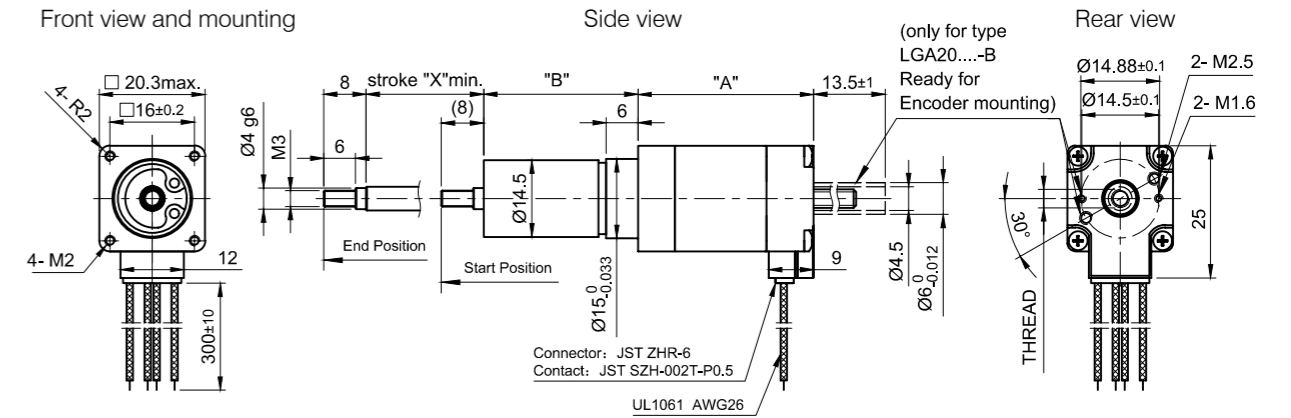
All articles also available with B-shaft

# NEMA 8 (20mm)

LA (non-captive)

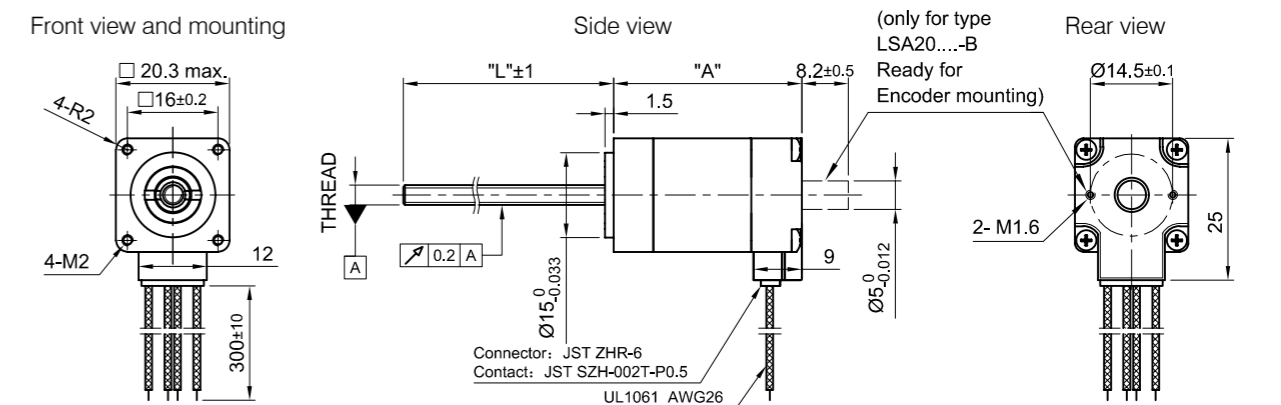


LGA (captive)



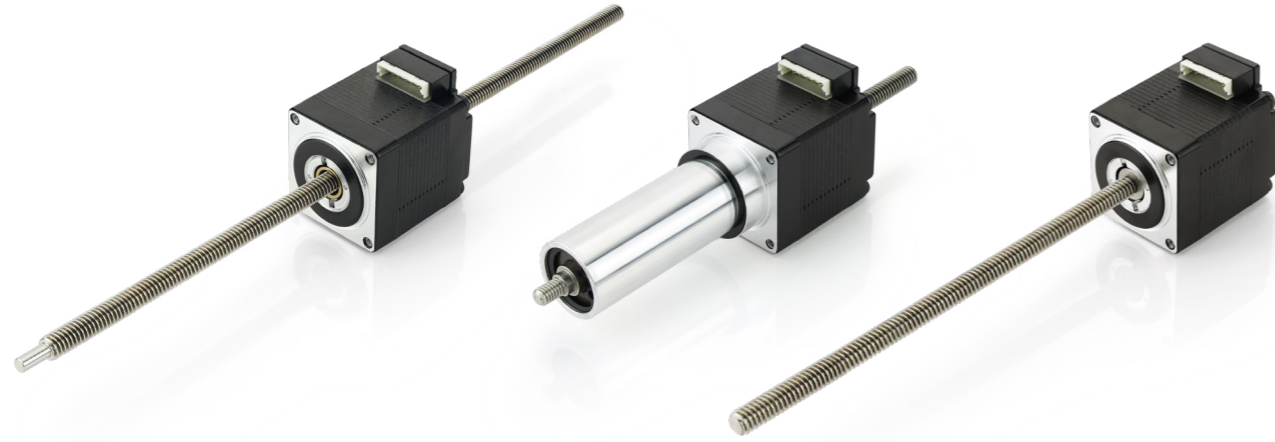
Stroke	Dimension "B"	Dimension "X"
019	29.15	19.05
038	48.2	38.1

LSA (external)





# NEMA 11 (28mm)

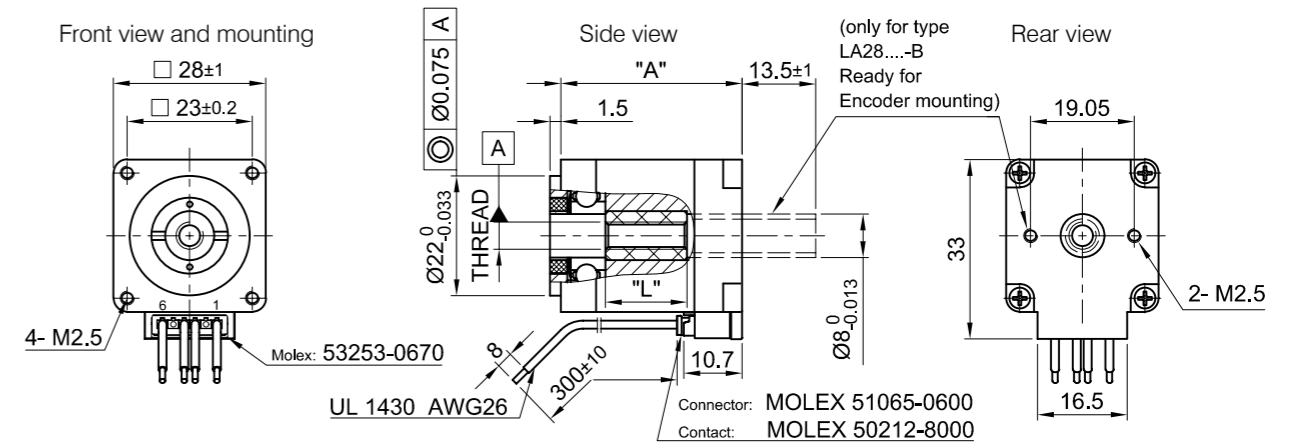


Article	Force (N)	Speed (mm/s)	Current per Winding (A)	Resolution (µm/step)	Resistance per Winding (Ohm)	Inductance per Winding (mH)	Thread Diameter (mm)	Thread Lead (mm)	Length "A" (mm)	Screw Length "L" (mm)	Stroke Length "X" (mm)	Weight (kg)
LA281S10-A-UGAQ	210	19	1	3.175	2.7	2.5	4.76	0.635	33	-	-	0.11
LA281S10-A-UGFC	50	120	1	25.4	2.7	2.5	4.76	5.08	33	-	-	0.11
LA281S10-A-THCA	130.7	40	1	10	2.7	2.5	5	2	33	-	-	0.11
LA281M06-A-THCA	152.1	40	0.6	10	7.3	6.52	5	2	41	-	-	0.14
LA281M15-A-THCA	152.1	40	1.5	10	1.45	1.25	5	2	41	-	-	0.14
LGA281S10-A-UGAQ-019	210	19	1	3.175	2.7	2.5	4.76	0.635	33	-	19.05	0.14
LGA281S10-A-UGAQ-038	210	19	1	3.175	2.7	2.5	4.76	0.635	33	-	38.1	0.15
LGA281S10-A-UGFC-019	50	120	1	25.4	2.7	2.5	4.76	5.08	33	-	19.05	0.14
LGA281S10-A-UGFC-038	50	120	1	25.4	2.7	2.5	4.76	5.08	33	-	38.1	0.15
LGA281S10-A-THCA-019	130.7	40	1	10	2.7	2.5	5	2	33	-	19.05	0.14
LGA281S10-A-THCA-038	130.7	40	1	10	2.7	2.5	5	2	33	-	38.1	0.15
LSA281S10-A-UGAQ-152	210	19	1	3.175	2.7	2.5	4.76	0.635	33	152	-	0.13
LSA281S10-A-UGFC-152	50	120	1	25.4	2.7	2.5	4.76	5.08	33	152	-	0.13
LSA281S10-A-THCA-152	130.7	40	1	10	2.7	2.5	5	2	33	152	-	0.13

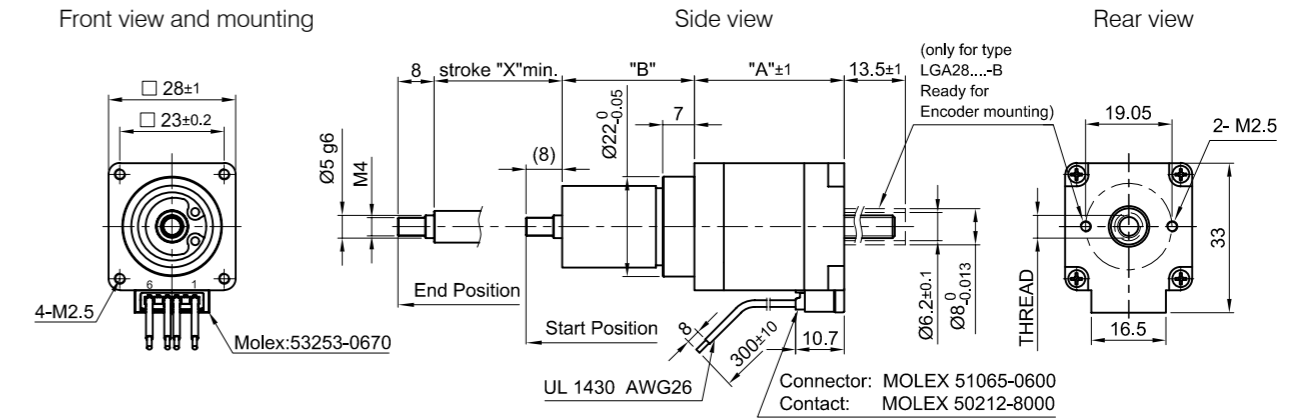
All articles also available with B-shaft

# NEMA 11 (28mm)

## LA (non-captive)

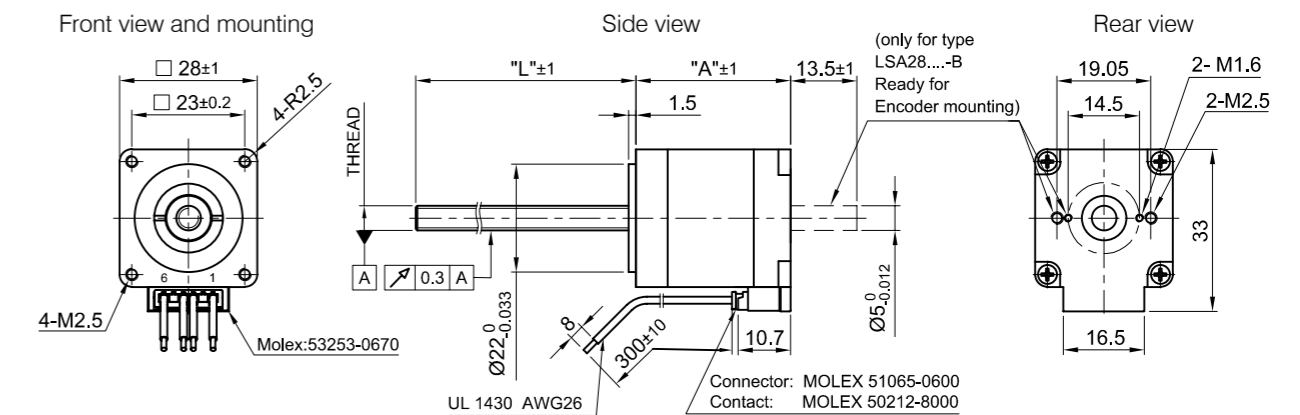


## LGA (captive)

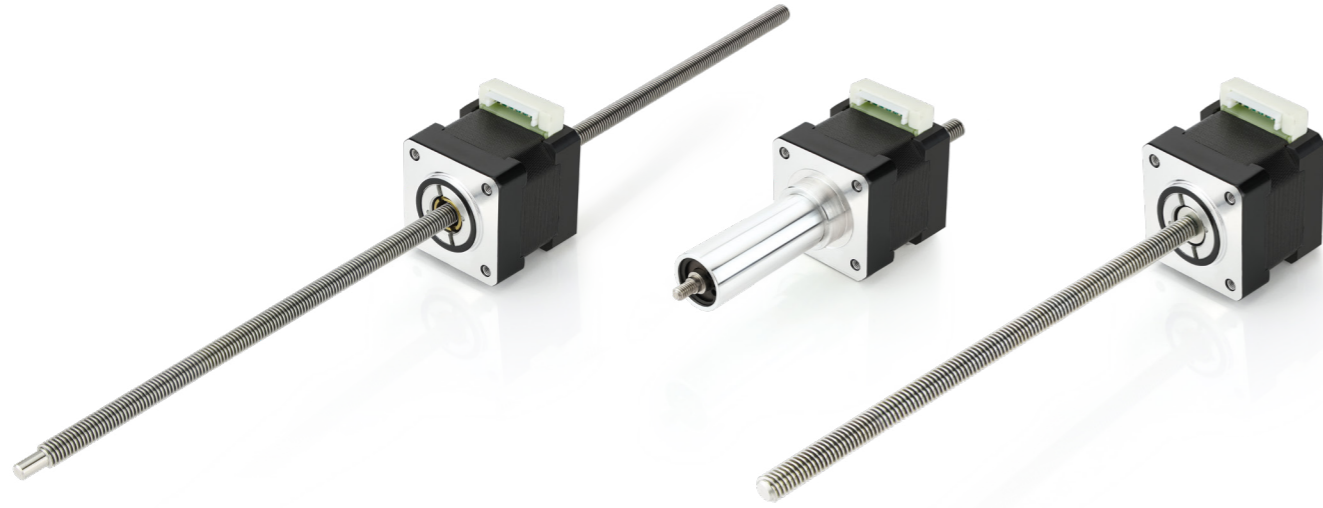


Stroke	Dimension "B"	Dimension "X"
019	29.15	19.05
038	48.2	38.1

## LSA (external)



# NEMA 14 (35mm)

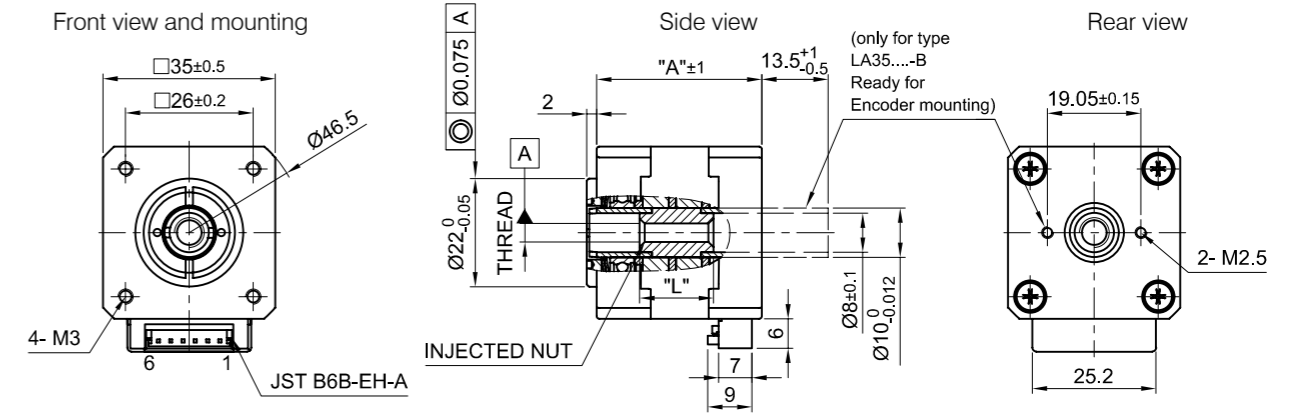


Article	Force (N)	Speed (mm/s)	Current per Winding (A)	Resolution (µm/step)	Resistance per Winding (Ohm)	Inductance per Winding (mH)	Thread Diameter (mm)	Thread Lead (mm)	Length "A" (mm)	Screw Length "L" (mm)	Stroke Length "X" (mm)	Weight (kg)
LA351S12-A-UIAP	242.4	13	1.2	3	1.85	2.46	5.56	0.635	33.6	-	-	0.16
LA351S12-A-UIEV	86.2	100	1.2	24.4	1.85	2.46	5.56	4.877	33.6	-	-	0.16
LGA351S12-A-UIAP-019	242.4	13	1.2	3	1.85	2.46	5.56	0.635	33.6	-	19.05	0.19
LGA351S12-A-UIAP-038	242.4	13	1.2	3	1.85	2.46	5.56	0.635	33.6	-	38.1	0.21
LGA351S12-A-UIEV-019	86.2	100	1.2	24.4	1.85	2.46	5.56	4.877	33.6	-	19.05	0.19
LGA351S12-A-UIEV-038	86.2	100	1.2	24.4	1.85	2.46	5.56	4.877	33.6	-	38.1	0.21
LSA351S12-A-UIAP-152	242.4	13	1.2	3	1.85	2.46	5.56	0.635	33.6	152	-	0.18
LSA351S12-A-UIEV-152	86.2	100	1.2	24.4	1.85	2.46	5.56	4.877	33.6	152	-	0.18

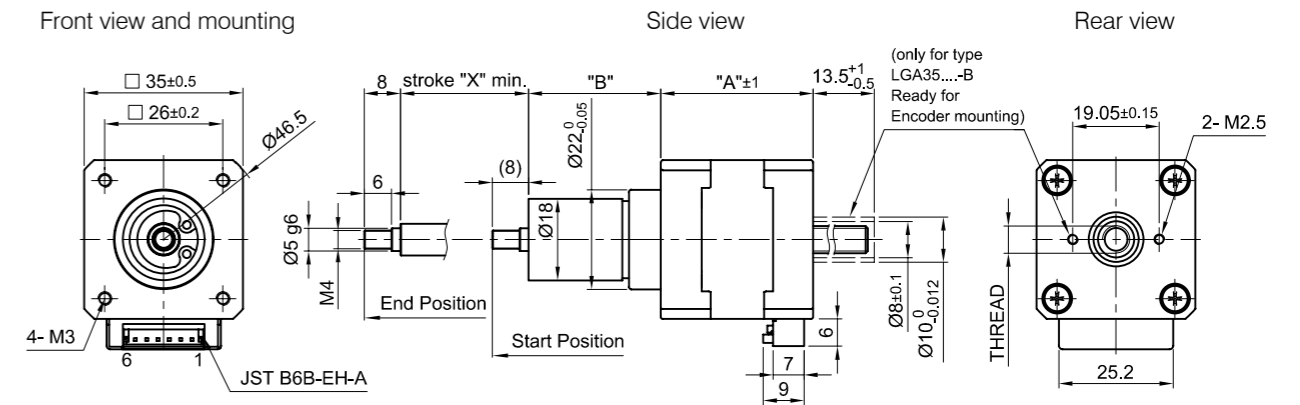
All articles also available with B-shaft

# NEMA 14 (35mm)

LA (non-captive)

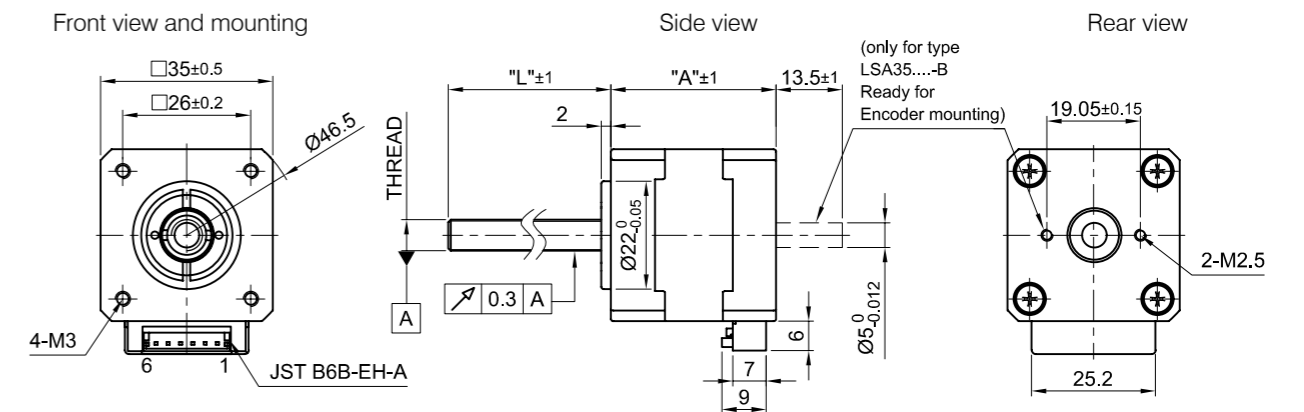


LGA (captive)

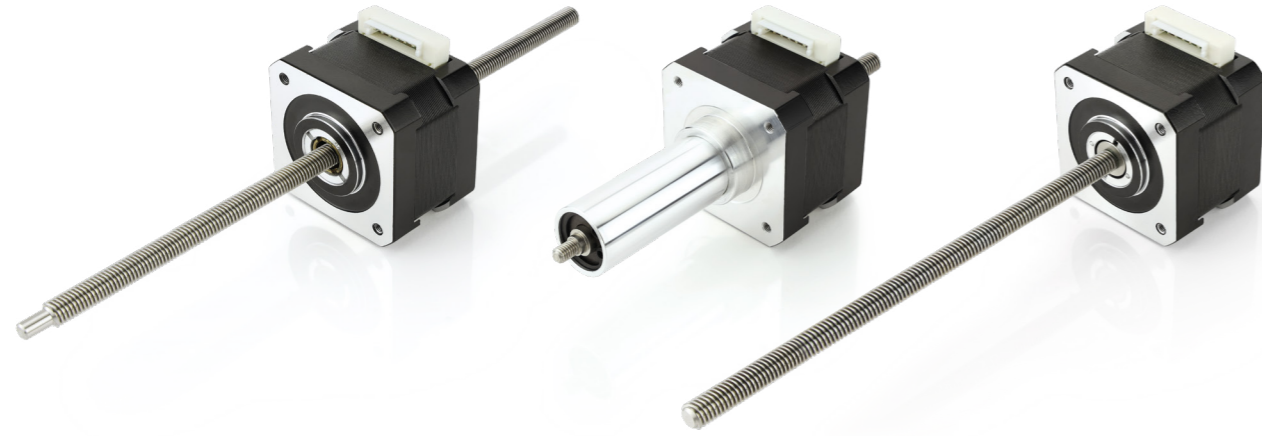


Stroke	Dimension "B"	Dimension "X"
019	29.15	19.05
038	48.2	38.1

LSA (external)



# NEMA 17 (42mm)

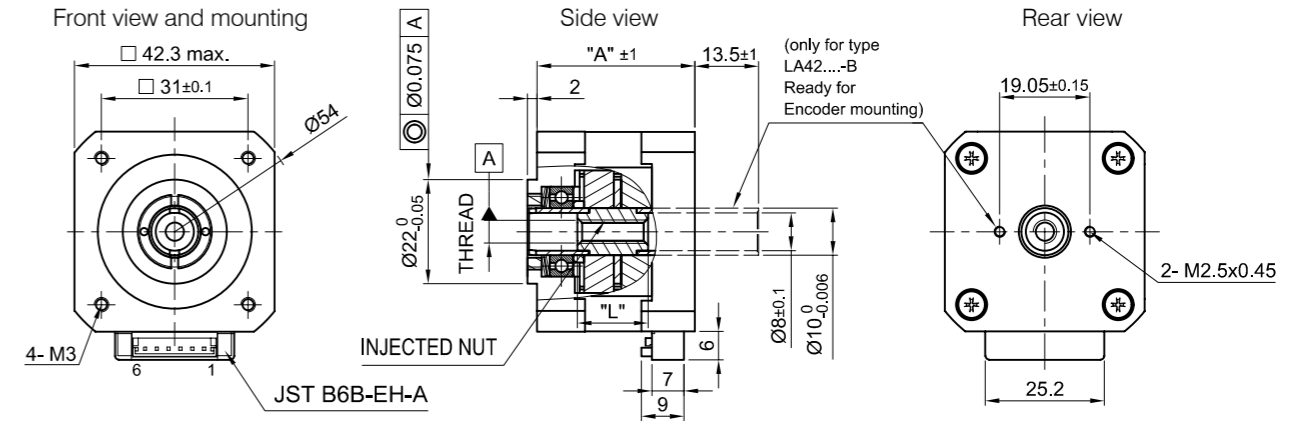


Article	Force (N)	Speed (mm/s)	Current per Winding (A)	Resolution (µm/step)	Resistance per Winding (Ohm)	Inductance per Winding (mH)	Thread Diameter (mm)	Thread Lead (mm)	Length "A" (mm)	Screw Length "L" (mm)	Stroke Length "X" (mm)	Weight (kg)
LA421S07-A-TJCA	258	55	0.7	10	9.3	12.8	6	2	33.4	-	-	0.2
LA421S14-A-TJBA	469.8	26	1.4	5	2	2.8	6	1	33.4	-	-	0.2
LA421S14-A-TJCA	258	55	1.4	10	2	2.8	6	2	33.4	-	-	0.2
LA421S14-A-UIEV	232.6	100	1.4	24.4	2	2.8	5.56	4.877	33.4	-	-	0.2
LA421S14-A-UKAS	498.5	14	1.4	4	2	2.8	6.35	0.79	33.4	-	-	0.2
LA421S14-A-UKBN	451.6	36	1.4	7.9	2	2.8	6.35	1.59	33.4	-	-	0.2
LA421S14-A-UKDE	278.7	50	1.4	15.9	2	2.8	6.35	3.175	33.4	-	-	0.2
LA421S14-A-UKGI	174.3	100	1.4	31.75	2	2.8	6.35	6.35	33.4	-	-	0.2
LA421L13-A-TJCA	369	50	1.3	10	3.8	6.15	6	2	47.4	-	-	0.34
LA421L18-A-TJCA	369	50	1.8	10	1.75	3.4	6	2	47.4	-	-	0.34
LA421L18-B-UKGI	275	80	1.8	31.75	1.75	3.4	6.35	6.35	47.4	-	-	0.34
LGA421S14-A-TJBA-019	469.8	26	1.4	5	2	2.8	6	1	33.4	-	19.05	0.24
LGA421S14-A-TJBA-038	469.8	26	1.4	5	2	2.8	6	1	33.4	-	38.1	0.25
LGA421S14-A-TJCA-019	258.3	55	1.4	10	2	2.8	6	2	33.4	-	19.05	0.24
LGA421S14-A-TJCA-038	258.3	55	1.4	10	2	2.8	6	2	33.4	-	38.1	0.25
LGA421S14-A-UIEV-019	232.6	100	1.4	24.4	2	2.8	5.56	4.877	33.4	-	19.05	0.24
LGA421S14-A-UIEV-038	232.6	100	1.4	24.4	2	2.8	5.56	4.877	33.4	-	38.1	0.25
LGA421S14-A-UKAS-019	498.5	14	1.4	4	2	2.8	6.35	0.79	33.4	-	19.05	0.24
LGA421S14-A-UKAS-038	498.5	14	1.4	4	2	2.8	6.35	0.79	33.4	-	38.1	0.25
LGA421S14-A-UKBN-019	451.6	36	1.4	7.9	2	2.8	6.35	1.59	33.4	-	19.05	0.24
LGA421S14-A-UKBN-038	451.6	36	1.4	7.9	2	2.8	6.35	1.59	33.4	-	38.1	0.25
LGA421S14-A-UKDE-019	278.7	50	1.4	15.9	2	2.8	6.35	3.175	33.4	-	19.05	0.24
LGA421S14-A-UKDE-038	278.7	50	1.4	15.9	2	2.8	6.35	3.175	33.4	-	38.1	0.25
LGA421S14-A-UKGI-019	174.3	100	1.4	31.75	2	2.8	6.35	6.35	33.4	-	19.05	0.24
LGA421S14-A-UKGI-038	174.3	100	1.4	31.75	2	2.8	6.35	6.35	33.4	-	38.1	0.25
LGA421L18-B-UKGI-025	275	80	1.8	31.75	1.75	3.4	6.35	6.35	47.4	-	25.4	0.34
LGA421L18-B-UKGI-063	275	80	1.8	31.75	1.75	3.4	6.35	6.35	47.4	-	63.5	0.39
LSA421S14-A-TJBA-152	469.8	26	1.4	5	2	2.8	6	1	33.4	152	-	0.26
LSA421S14-A-TJCA-152	258.3	55	1.4	10	2	2.8	6	2	33.4	152	-	0.26
LSA421S14-A-UIEV-152	232.6	100	1.4	24.4	2	2.8	5.56	4.877	33.4	152	-	0.26
LSA421S14-A-UKAS-152	498.5	14	1.4	4	2	2.8	6.35	0.79	33.4	152	-	0.26
LSA421S14-A-UKBN-152	451.6	36	1.4	7.9	2	2.8	6.35	1.59	33.4	152	-	0.26
LSA421S14-A-UKDE-152	278.7	50	1.4	15.9	2	2.8	6.35	3.175	33.4	152	-	0.26
LSA421S14-A-UKGI-152	174.3	100	1.4	31.8	2	2.8	6.35	6.35	33.4	152	-	0.26
LSA421L18-B-TJCA-152	369	50	1.8	10	1.75	3.4	6	2	47.7	152	-	0.4
LSA421L18-B-UKGI-152	275	80	1.8	31.8	1.75	3.4	6.35	6.35	47.4	152	-	0.4

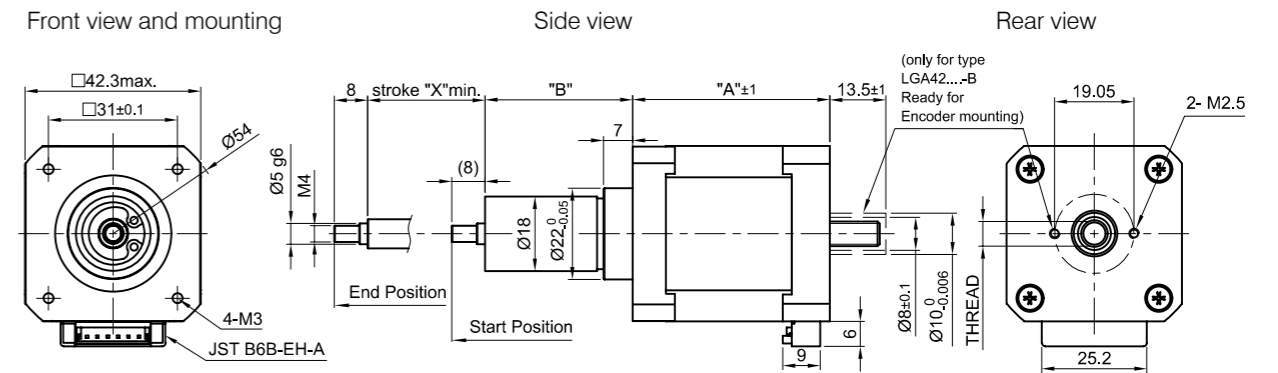
All articles with A-shaft are also available with B-shaft

# NEMA 17 (42mm)

LA (non-captive)

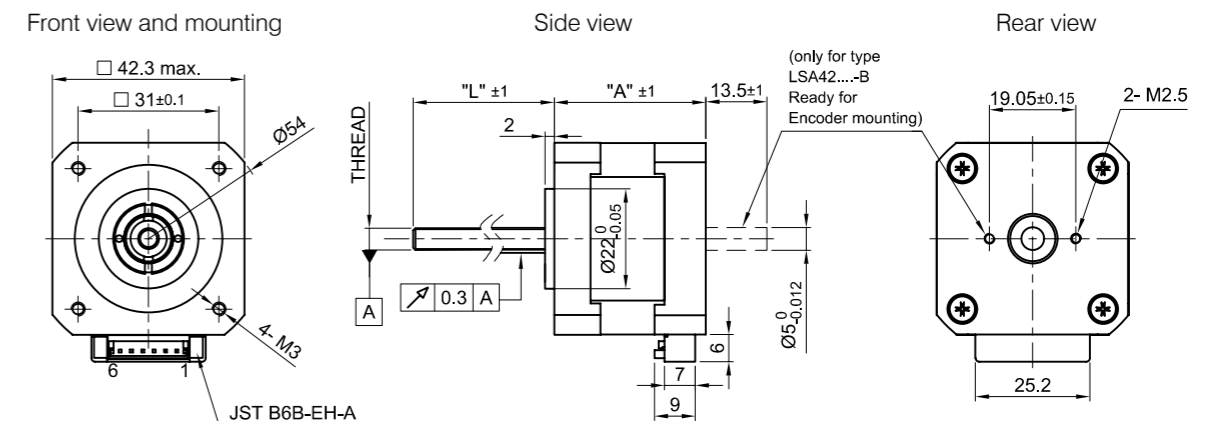


LGA (captive)

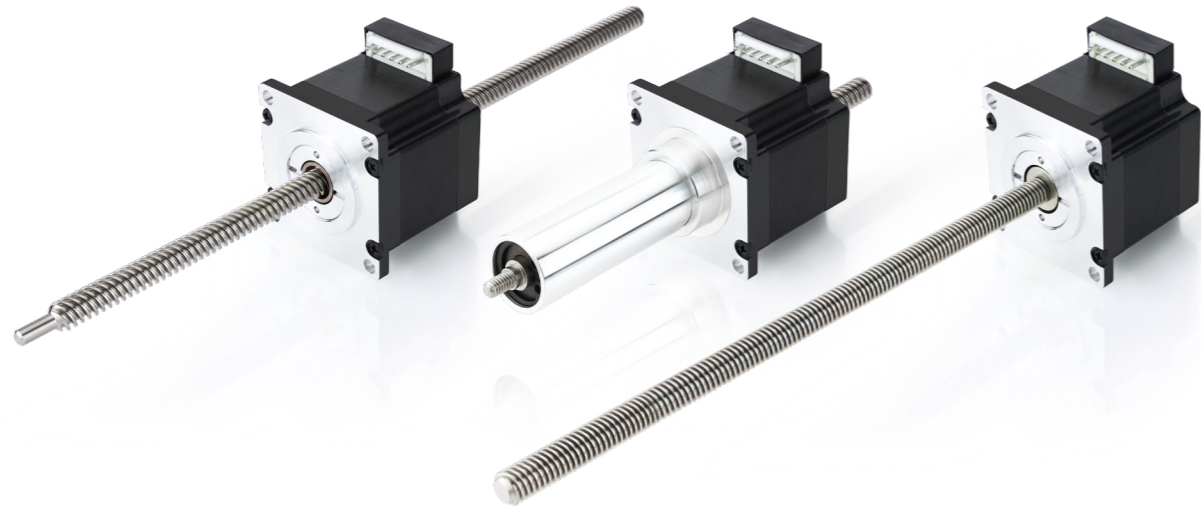


Stroke	Dimension "B"	Dimension "X"
019	29.15	19.05
025	35.5	25.4
038	48.2	38.1
063	73.6	63.5

LSA (external)



# NEMA 23 (56mm)

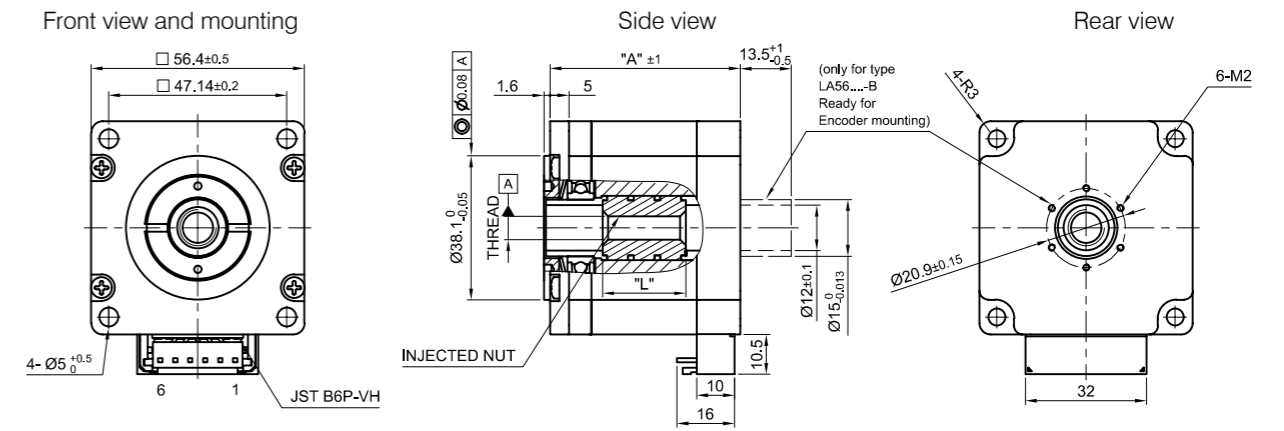


Article	Force (N)	Speed (mm/s)	Current per Winding (A)	Resolution (µm/step)	Resistance per Winding (Ohm)	Inductance per Winding (mH)	Thread Diameter (mm)	Thread Lead (mm)	Length "A" (mm)	Screw Length "L" (mm)	Stroke Length "X" (mm)	Weight (kg)
LA561S20-A-UQBN	966.3	22	2.0	7.9	1.5	4.3	9.53	1.586	50.3	-	-	0.58
LA561S20-A-UQKE	352.2	150	2.0	50.8	1.5	4.3	9.53	10.16	50.3	-	-	0.58
LA561S20-A-TSCA	938.9	30	2.0	10	1.5	4.3	10	2	50.3	-	-	0.58
LA561S20-A-TSGA	400	90	2.0	30	1.5	4.3	10	6	50.3	-	-	0.58
LGA561S20-A-UQBN-019	966.3	22	2.0	7.9	1.5	4.3	9.53	1.586	50.3	-	19.05	0.7
LGA561S20-A-UQBN-038	966.3	22	2.0	7.9	1.5	4.3	9.53	1.586	50.3	-	38.1	0.75
LGA561S20-A-UQKE-019	352.2	150	2.0	50.8	1.5	4.3	9.53	10.16	50.3	-	19.05	0.7
LGA561S20-A-UQKE-038	352.2	150	2.0	50.8	1.5	4.3	9.53	10.16	50.3	-	38.1	0.75
LGA561S20-A-TSCA-019	938.9	30	2.0	10	1.5	4.3	10	2	50.3	-	19.05	0.7
LGA561S20-A-TSCA-038	938.9	30	2.0	10	1.5	4.3	10	2	50.3	-	38.1	0.75
LGA561S20-A-TSGA-019	400	90	2.0	30	1.5	4.3	10	6	50.3	-	19.05	0.7
LGA561S20-A-TSGA-038	400	90	2.0	30	1.5	4.3	10	6	50.3	-	38.1	0.75
LSA561S20-A-UQBN-152	966.3	22	2.0	7.9	1.5	4.3	9.53	1.586	50.3	152	-	0.67
LSA561S20-A-UQKE-152	352.2	150	2.0	50.8	1.5	4.3	9.53	10.16	50.3	152	-	0.67
LSA561S20-A-TSCA-152	938.9	30	2.0	10	1.5	4.3	10	2	50.3	152	-	0.67
LSA561S20-A-TSGA-152	400	90	2.0	30	1.5	4.3	10	6	50.3	152	-	0.67

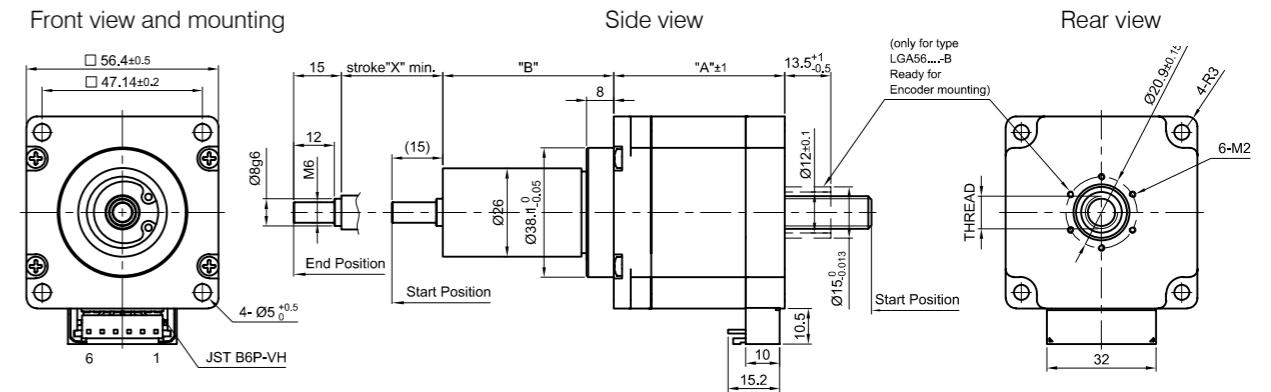
All articles also available with B-shaft

# NEMA 23 (56mm)

## LA (non-captive)

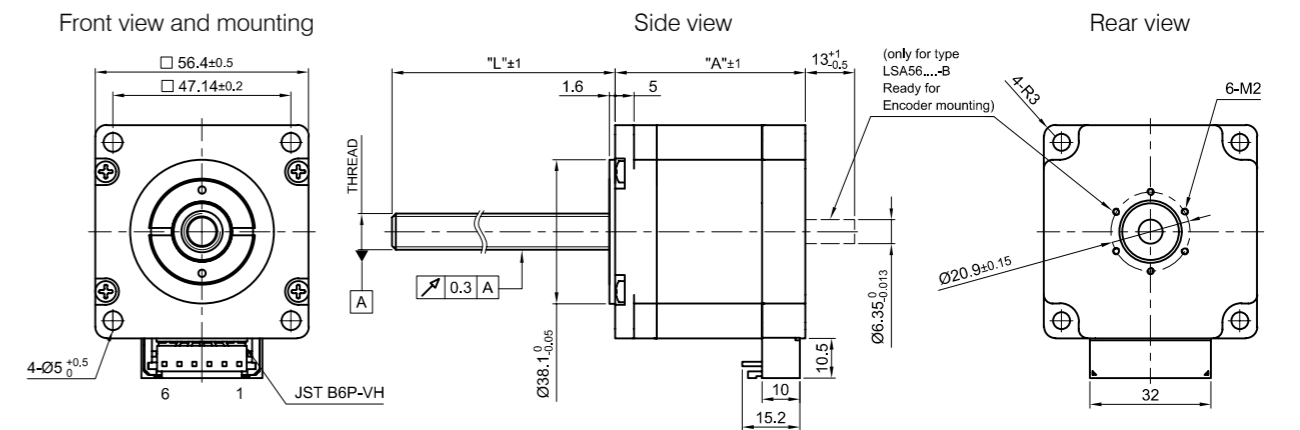


## LGA (captive)



Stroke	Dimension "B"	Dimension "X"
019	29.15	19.05
038	48.2	38.1

## LSA (external)





# Threaded nuts



Article	Thread Code	Thread Type	Thread Diameter (mm)	Thread Lead (mm)	Matching Motors
LSNUT-AAAA-TDBA	TDBA	Trapezoidal	3.5	1	LSA...-TDBA
LSNUT-AAAA-UECB	UECB	ACME	3.5	2	LSA...-UECB
LSNUT-AAAA-UGAQ	UGAQ	ACME	4.76	0.635	LSA...-UGAQ
LSNUT-AAAA-UGFC	UGFC	ACME	4.76	5.08	LSA...-UGFC
LSNUT-AAAA-THCA	THCA	Trapezoidal	5	2	LSA...-THCA
LSNUT-AAAAE-UIAP	UIAP	ACME	5.56	0.61	LSA...-UIAP
LSNUT-AAAAE-UIEV	UIEV	ACME	5.56	4.877	LSA...-UIEV
LSNUT-AAAAE-TJBA	TJBA	Trapezoidal	6	1	LSA...-TJBA
LSNUT-AAAAE-TJCA	TJCA	Trapezoidal	6	2	LSA...-TJCA
LSNUT-AAAAE-UKAS	UKAS	ACME	6.35	0.794	LSA...-UKAS
LSNUT-AAAAE-UKBN	UKBN	ACME	6.35	1.588	LSA...-UKBN
LSNUT-AAAAE-UKDE	UKDE	ACME	6.35	3.175	LSA...-UKDE
LSNUT-AAAAE-UKGI	UKGI	ACME	6.35	6.35	LSA...-UKGI
LSNUT-AAAAG-UQBN	UQBN	ACME	9.53	1.588	LSA...-UQBN
LSNUT-AAAAG-UQKE	UQKE	ACME	9.53	10.16	LSA...-UQKE
LSNUT-AAAAG-TSCA	TSCA	Trapezoidal	10	2	LSA...-TSCA
LSNUT-AAAAG-TSGA	TSGA	Trapezoidal	10	6	LSA...-TSGA

All articles also available in a pre-tensioned version

# Lead screws

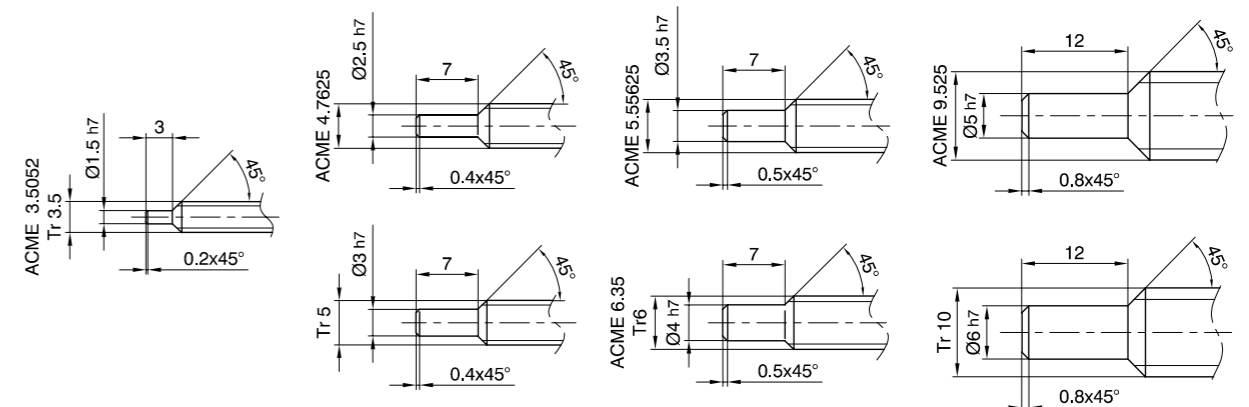


Lead screw material	Stainless steel
Linear precision	± 0.1/300 mm/section

Article	Thread Code	Thread Type	Thread Diameter (mm)	Thread Lead (mm)	Matching Motors
ZST3,5-1-...	TDBA	Trapezoidal	3.5	1	LA...-TDBA
SCREW-ABA-UECB-...	UECB	ACME	3.5	2	LA...-UECB
SCREW-ABA-UGAQ-...	UGAQ	ACME	4.76	0.635	LA...-UGAQ
SCREW-ABA-UGFC-...	UGFC	ACME	4.76	5.08	LA...-UGFC
ZST5-2-...	THCA	Trapezoidal	5	2	LA...-THCA
SCREW-ABA-UIAP-...	UIAP	ACME	5.56	0.61	LA...-UIAP
SCREW-ABA-UIEV-...	UIEV	ACME	5.56	4.877	LA...-UIEV
SCREW-ABA-TJBA-...	TJBA	Trapezoidal	6	1	LA...-TJBA
SCREW-ABA-TJCA-...	TJCA	Trapezoidal	6	2	LA...-TJCA
SCREW-ABA-UKAS-...	UKAS	ACME	6.35	0.794	LA...-UKAS
SCREW-ABA-UKBN-...	UKBN	ACME	6.35	1.588	LA...-UKBN
SCREW-ABA-UKDE-...	UKDE	ACME	6.35	3.175	LA...-UKDE
SCREW-ABA-UKGI-...	UKGI	ACME	6.35	6.35	LA...-UKGI
SCREW-ABA-UQBN-...	UQBN	ACME	9.53	1.588	LA...-UQBN
SCREW-ABA-UQKE-...	UQKE	ACME	9.53	10.16	LA...-UQKE
SCREW-ABA-TSCA-...	TSCA	Trapezoidal	10	2	LA...-TSCA
ZST10-6-...	TSGA	Trapezoidal	10	6	LA...-TSGA

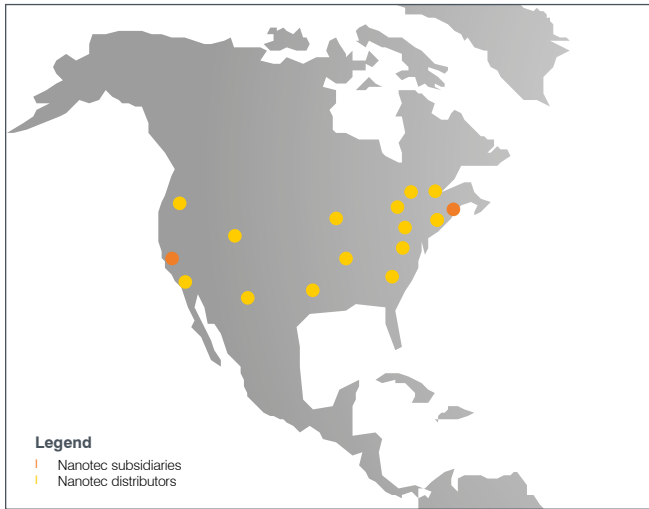
All articles available in different lengths: 200/300/500/1000

## SCREW-ABA-...





# Your Sales Contact



Nanotec Electronic specializes in precise, high-performance drive solutions. We manufacture a broad range of integrated motors, brushless DC motors and stepper motors, as well as controllers and linear actuators for automation and robotic applications. Thirty years of engineering and production experience allow us to offer our customers valuable support in system design and selecting the best motion control solution for their application.

For additional information, technical assistance, and off-the-shelf delivery, please contact us at (781) 219-3343 or [info@us.nanotec.com](mailto:info@us.nanotec.com).



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