

LINEAR ACTUATORS

Standard and customized solutions

Why linear actuators from Nanotec?

Maximum performance

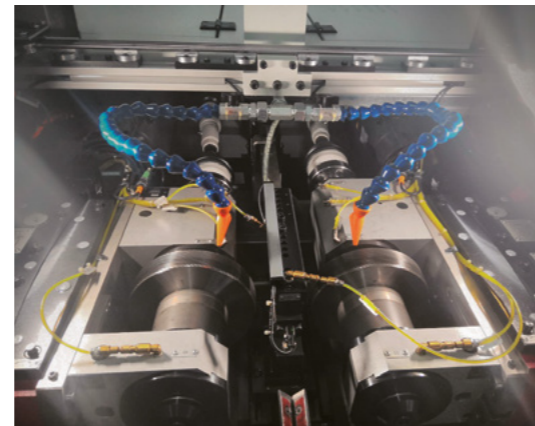
Our highly precise stepper motor linear actuator was developed based on our 25 years of experience in stepper motor technology. Thanks to the improved stator geometry and optimized magnet materials, the Nanotec actuators offer a significantly higher torque and more thrust than comparable drives. Matching lead screws are available in a wide range of leads, diameters, and lengths, both in standard and customized versions. Screw-in and pretensioned nuts with customized flanges guarantee smooth-running and quiet operation as well as a long service life.

Reliable quality

The quality of each component and manufacturing step is meticulously checked and meets the highest standards. Our lead screws are manufactured on a CNC-controlled thread-rolling machine that ensures a consistently high quality of the thread surface as well as a long service life. Each linear actuator is carefully checked again before shipping in order to ensure that all quality requirements of our customers are met.

30%

more torque due to optimized rotor magnets



Complete control

Nanotec offers a large range of motor controllers and encoders that perfectly complement our linear actuators. Performance, accuracy, and the thrust force can be further improved by combining a linear actuator with a closed-loop controller. Various field bus options facilitate integration into existing control concepts.

Custom solutions

From custom threads to special nuts or lead screw machining – our R&D teams in Germany and China can adapt your linear actuators to perfectly match the requirements. We offer many standard configurations, such as combining your linear actuator with an encoder. This ensures fast delivery times for stock items that we assemble on request.

Linear actuator types

Linear actuators are used to convert rotary movements into linear movements. Nanotec products include a wide range of hybrid stepper motors and high-torque linear actuators with high thrust and low space requirements. This includes non-captive linear actuators (LA series), captive linear actuators (LGA series), and external linear actuators (LSA series).

LA – non-captive



- The threaded nuts are injected into the motor, highly resilient and precisely manufactured
- Different lead screws available; encoder optional
- With connector; wirings easily adjustable

LA421S14-A-UKGI

1. Non-captive linear actuator
2. Generation
3. Flange size
4. Step angle: 1 = 1.8°; 0 = 0.9°
5. Length: S, M, L, ...
6. Current: 14 = 1.4 A per winding
7. A = without B shaft, B = with B shaft
8. Thread type: U=ACME, T=trapezoidal
9. Thread diameter: K=6.35 mm, see matrix
10. Thread lead: GI=6.35 mm, see matrix

LGA – captive



- Compact and simple construction, anti-rotation
- No additional bearings or additional linear guides required
- Different lead screws available; encoder optional
- With connector; wirings easily adjustable
- Various stroke lengths available

LGA421S14-A-UKGI-038

1. Captive linear actuator
2. Generation
3. Flange size
4. Step angle: 1 = 1.8°; 0 = 0.9°
5. Length: S, M, L, ...
6. Current: 14 = 1.4 A per winding
7. A = without B shaft, B = with B shaft
8. Thread type: U=ACME, T=trapezoidal
9. Thread diameter: K=6.35 mm, see matrix
10. Thread lead: GI=6.35 mm, see matrix
11. Stroke length: 019=19 mm, 038=38 mm

LSA – external

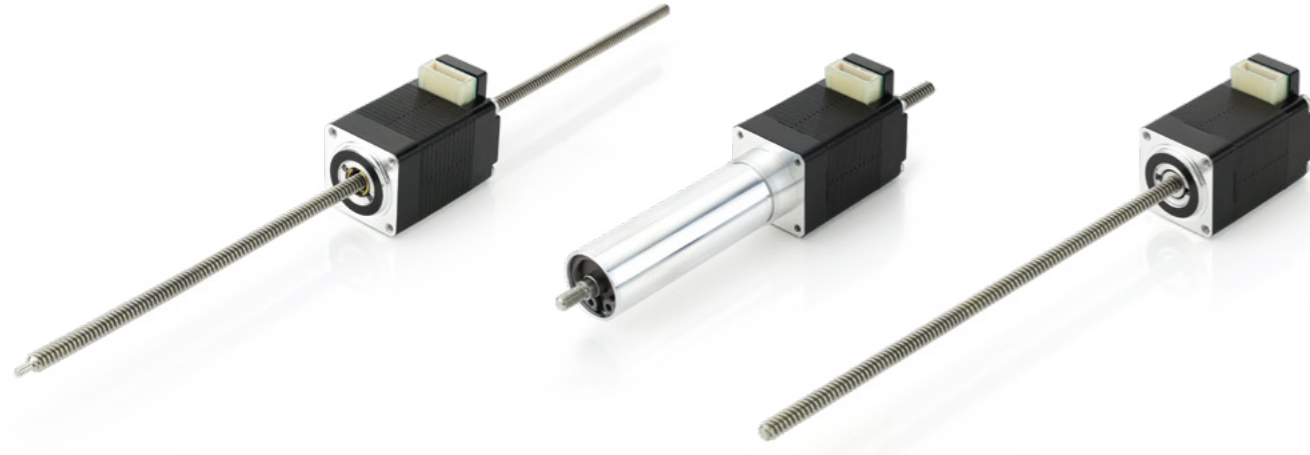


- No additional shaft coupling or bearing support required, thus reduced component costs
- Different lead-screws available; encoder optional
- With connector; wirings easily adjustable
- Threaded nuts can be customized
- Different lead screw lengths on request

LSA421S14-A-UKGI-152

1. External linear actuator
2. Generation
3. Flange size
4. Step angle: 1 = 1.8°; 0 = 0.9°
5. Length: S, M, L, ...
6. Current: 14 = 1.4 A per winding
7. A = without B shaft, B = with B shaft
8. Thread type: U=ACME, T=trapezoidal
9. Thread diameter: K=6.35 mm, see matrix
10. Thread lead: GI=6.35 mm, see matrix
11. Screw length: 102 = 102 mm, 152 = 152 mm

NEMA 8 (20 mm)

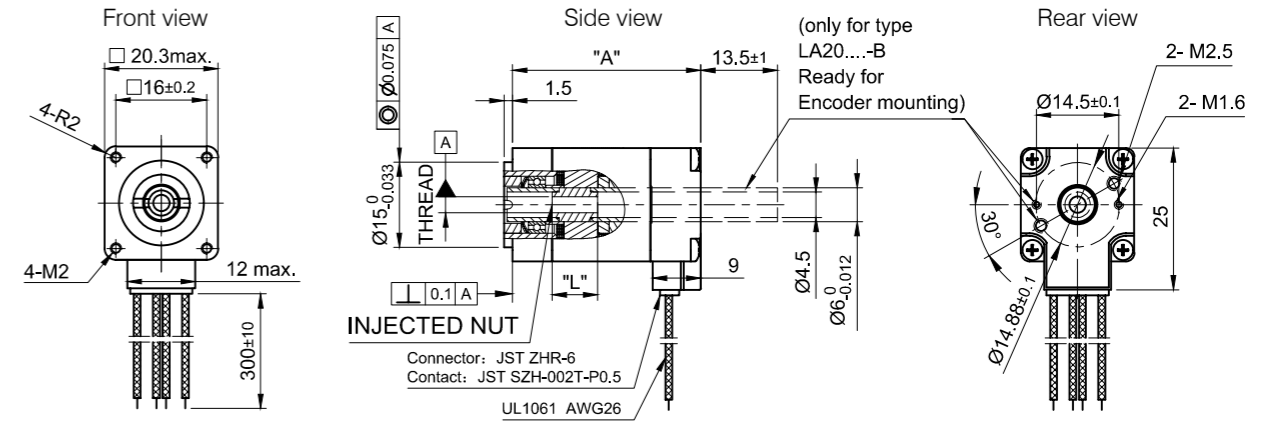


Article	Force (N)	Speed (mm/s)	Current per winding (A)	Resolution (µm/step)	Resistance per winding (Ohm)	Inductance per winding (mH)	Thread diameter (mm)	Thread lead (mm)	Length "A" (mm)	Lead Screw length "L" (mm)	Stroke length "X" (mm)	Weight (kg)
LA201S06-A-TDBA	46	40	0.6	5	6.4	2.6	3.5	1	33	-	-	0.054
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

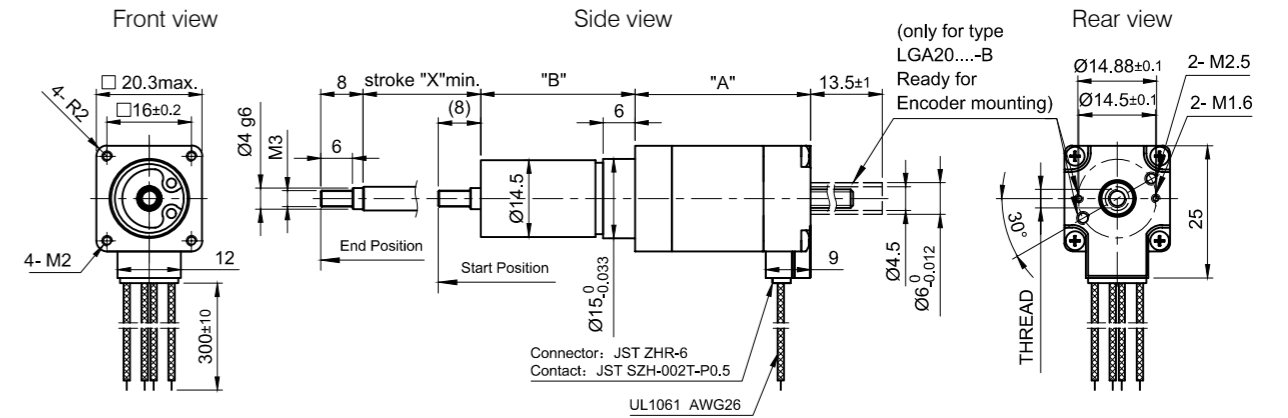
All articles are also available with a second shaft end.

NEMA 8 (20 mm)

LA (non-captive)

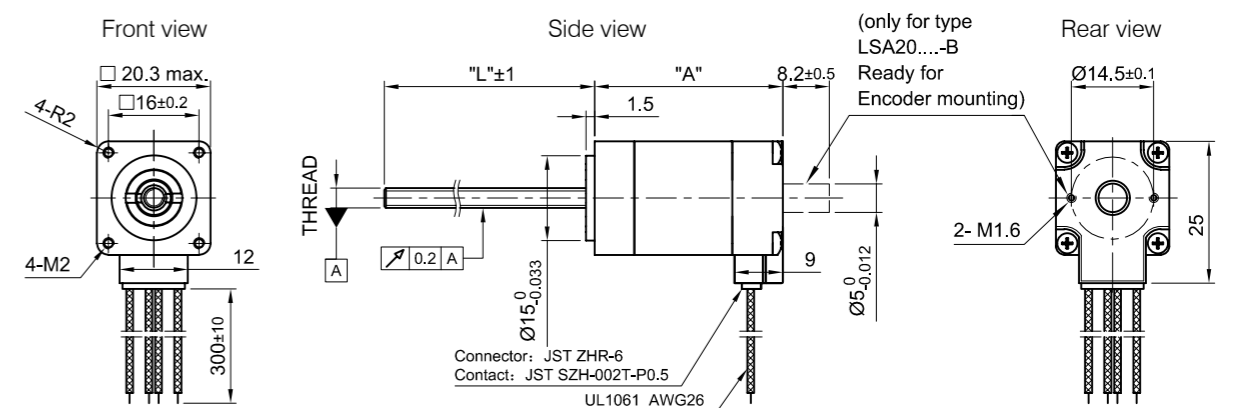


LGA (captive)

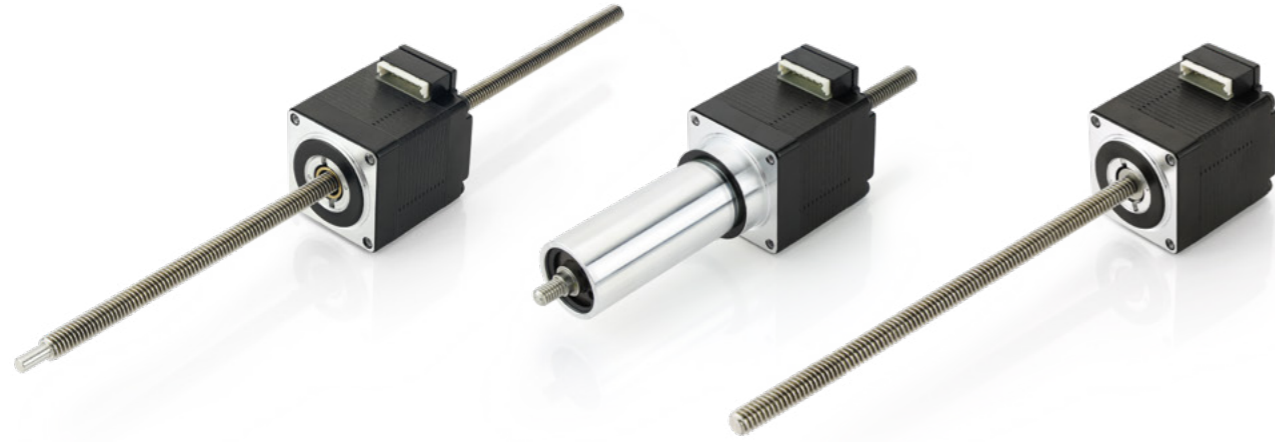


Stroke	Length "B"	Length "X"
019	29.15	19.05
038	48.2	38.1

LSA (external)



NEMA 11 (28 mm)

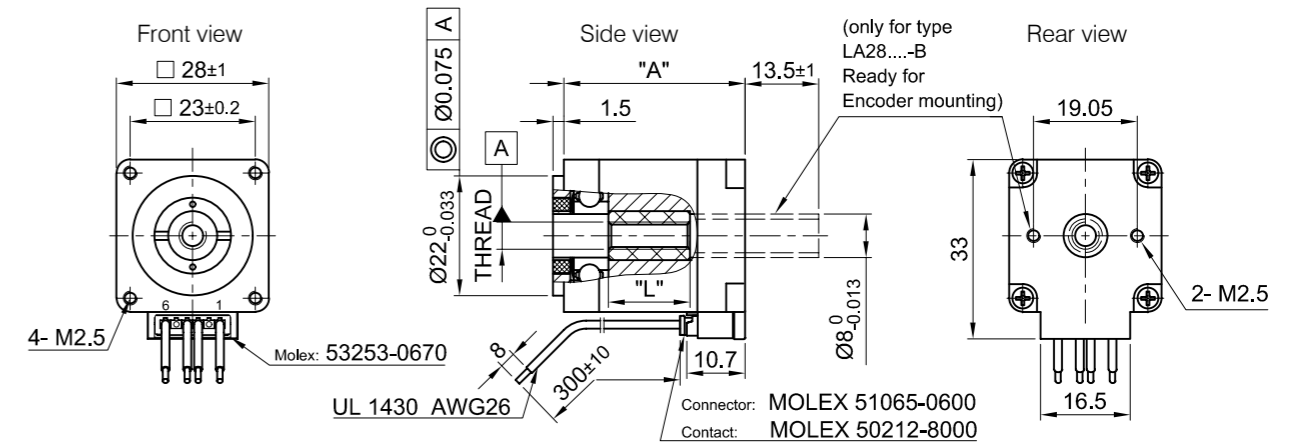


Article	Force (N)	Speed (mm/s)	Current per winding (A)	Resolution (µm/step)	Resistance per winding (Ohm)	Inductance per winding (mH)	Thread diameter (mm)	Thread lead (mm)	Length "A" (mm)	Lead Screw length "L" (mm)	Stroke length "X" (mm)	Weight (kg)
LA281S10-A-UGAQ	210	19	1	3.175	2.7	2.5	4.76	0.635	33	-	-	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

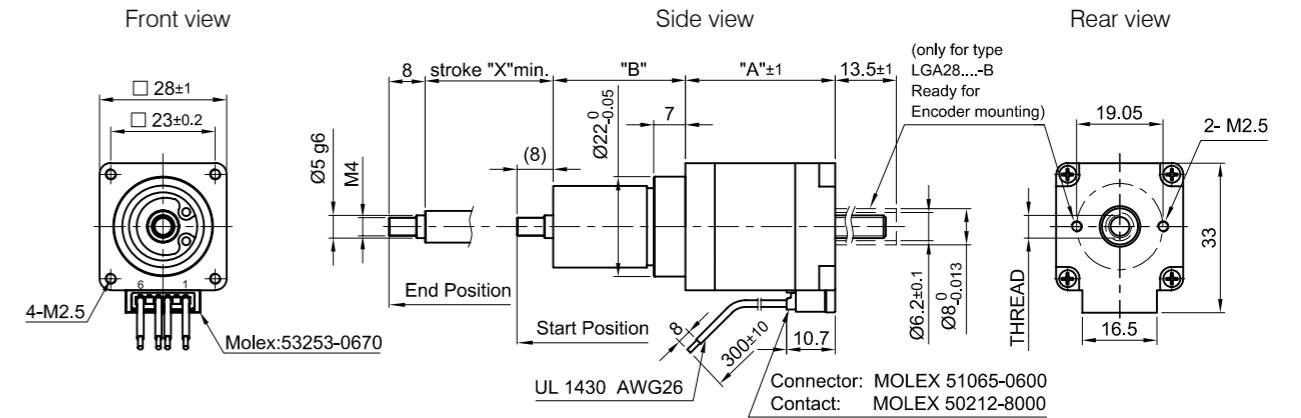
All articles are also available with a second shaft end.

NEMA 11 (28 mm)

LA (non-captive)

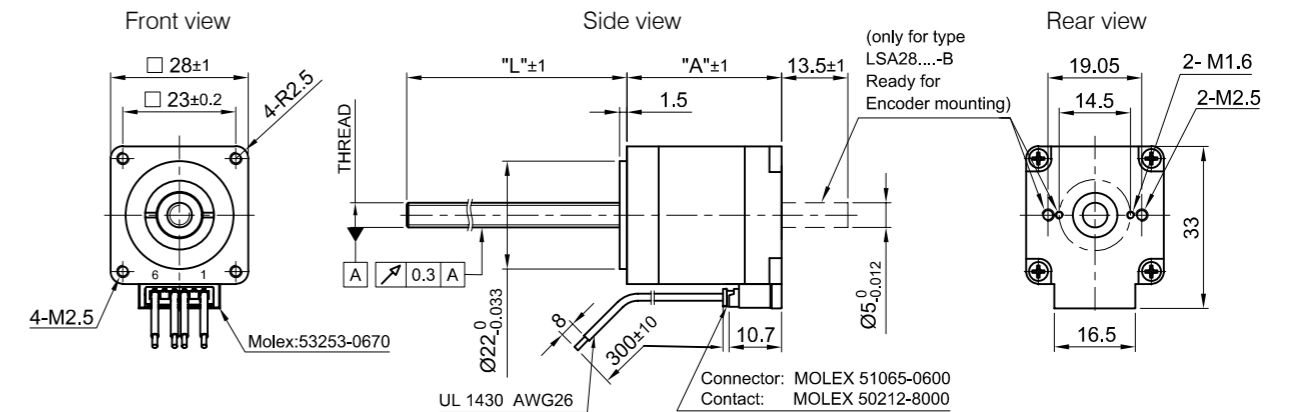


LGA (captive)

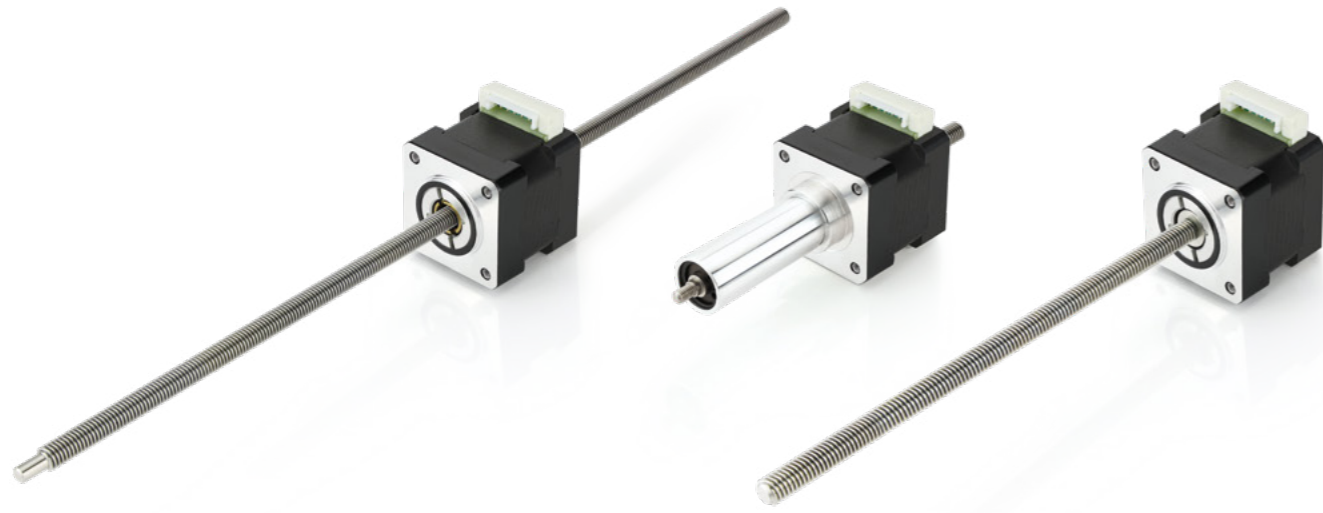


Stroke	Length "B"	Length "X"
019	29.15	19.05
038	48.2	38.1

LSA (external)



NEMA 14 (35 mm)

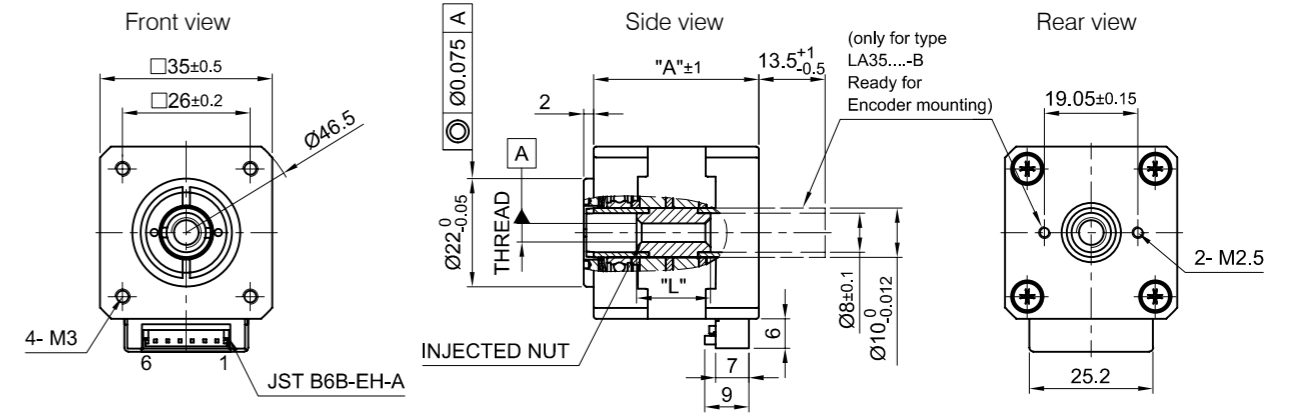


Article	Force (N)	Speed (mm/s)	Current per winding (A)	Resolution (µm/step)	Resistance per winding (Ohm)	Inductance per winding (mH)	Thread diameter (mm)	Thread lead (mm)	Length "A" (mm)	Lead Screw length "L" (mm)	Stroke length "X" (mm)	Weight (kg)
LA351S12-A-UIAP	242.4	13	1.2	3	1.85	2.46	5.56	0.635	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

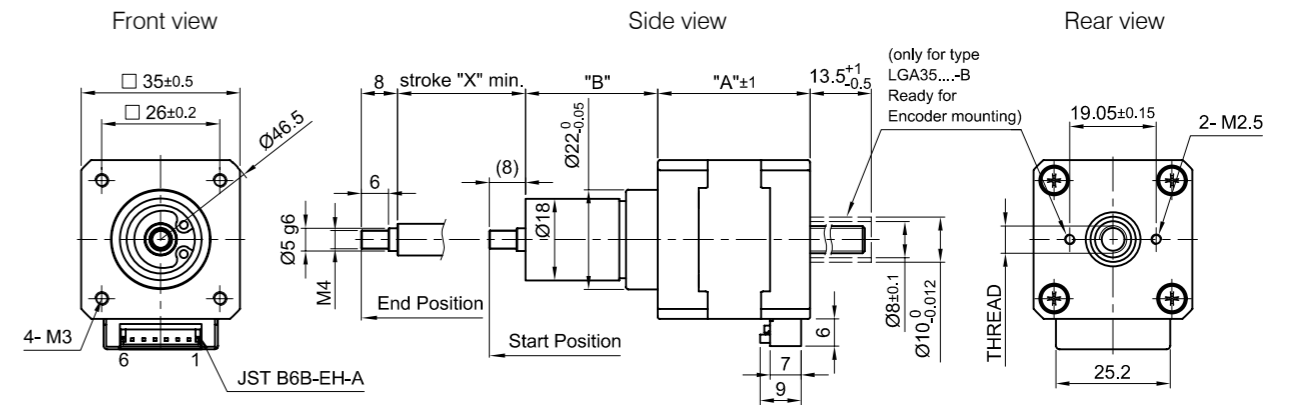
All articles are also available with a second shaft end.

NEMA 14 (35 mm)

LA (non-captive)

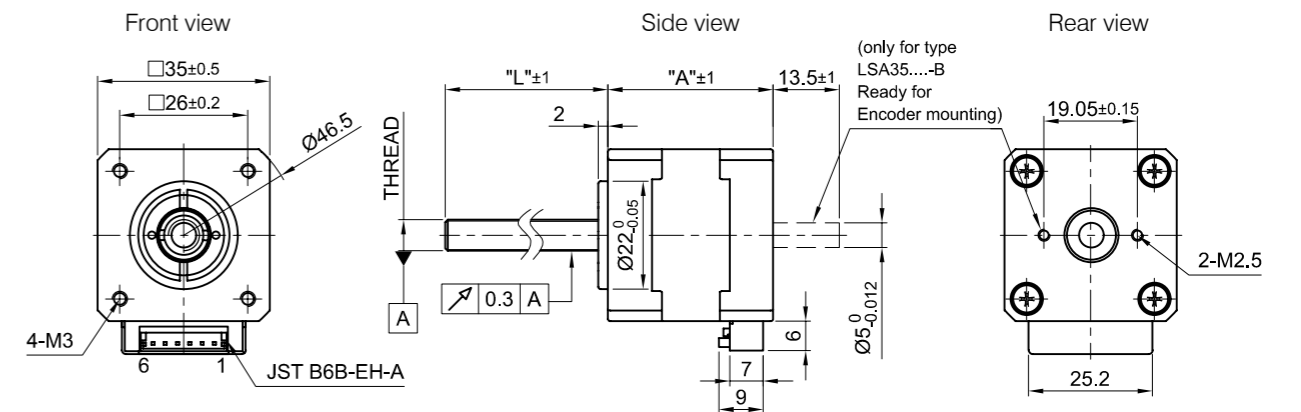


LGA (captive)

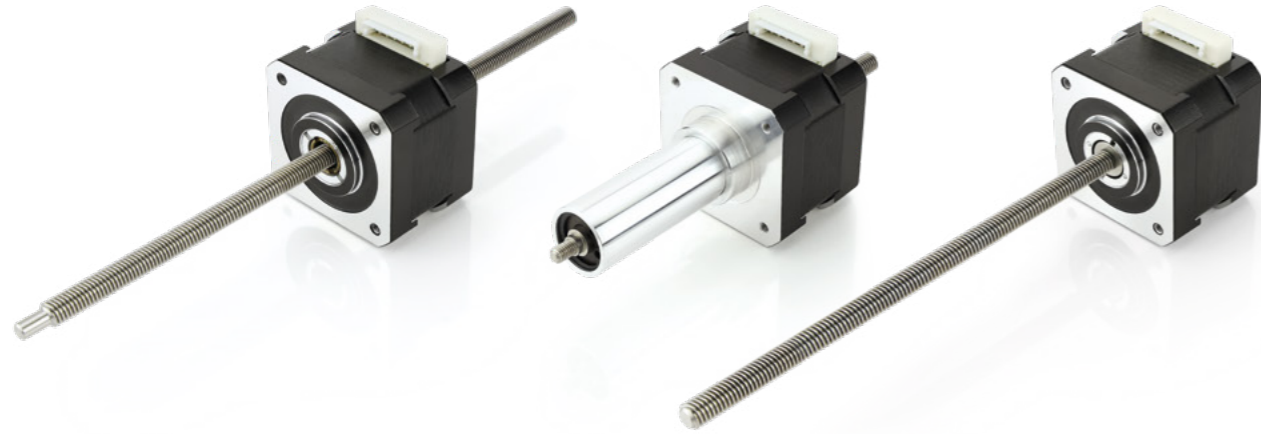


Stroke	Length "B"	Length "X"
019	29.15	19.05
038	48.2	38.1

LSA (external)



NEMA 17 (42 mm)

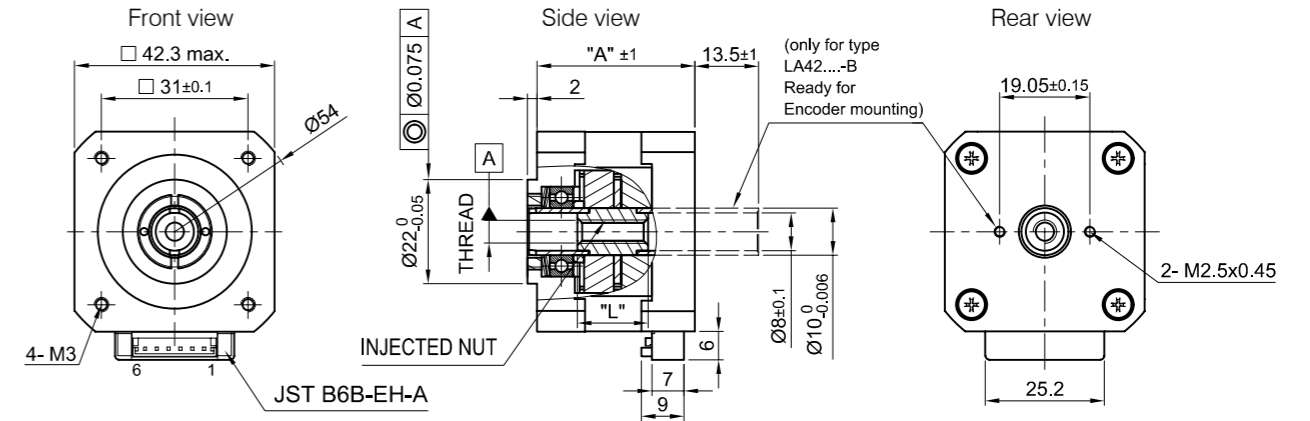


Article	Force (N)	Speed (mm/s)	Current per winding (A)	Resolution (µm/step)	Resistance per winding (Ohm)	Inductance per winding (mH)	Thread diameter (mm)	Thread lead (mm)	Length "A" (mm)	Lead Screw length "L" (mm)	Stroke length "X" (mm)	Weight (kg)
LA421S07-A-TJCA	258	55	0.7	10	9.3	12.8	6	2	33.4	-	-	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

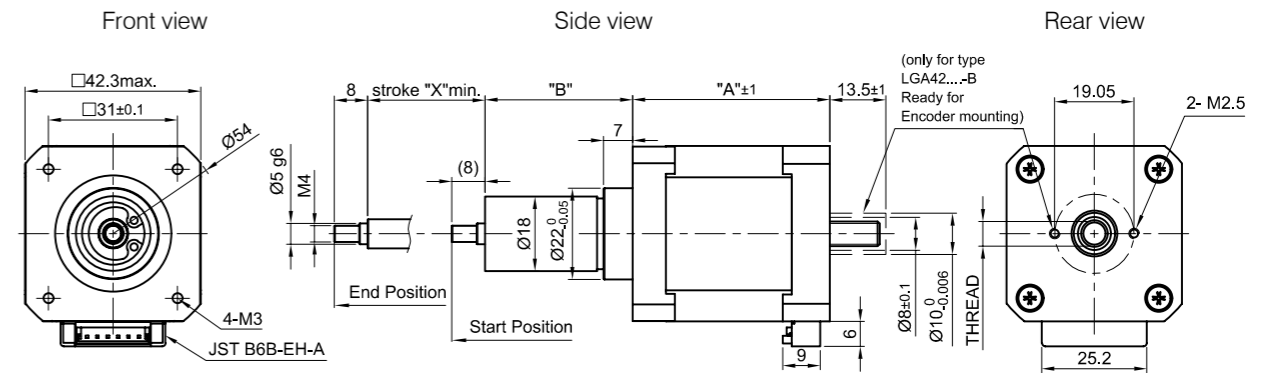
All articles are also available with a second shaft end.

NEMA 17 (42 mm)

LA (non-captive)

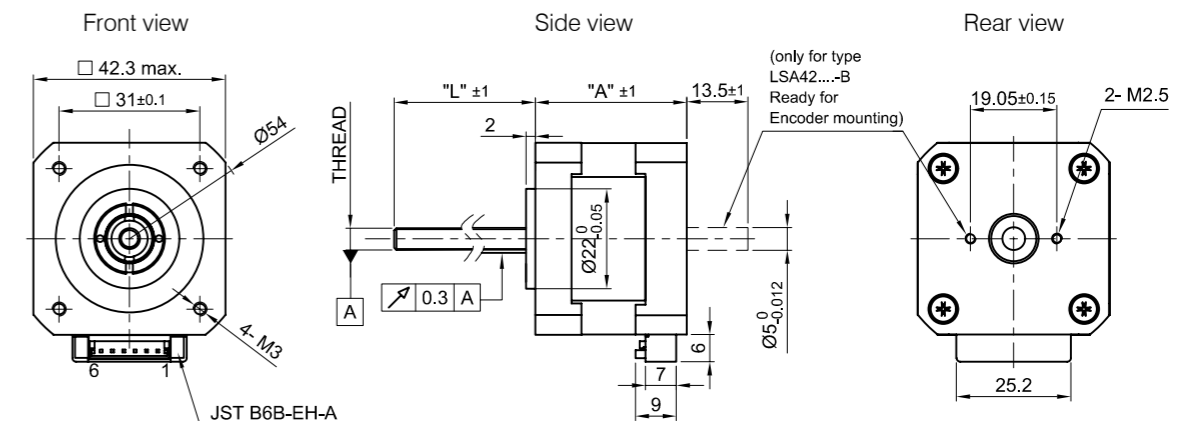


LGA (captive)

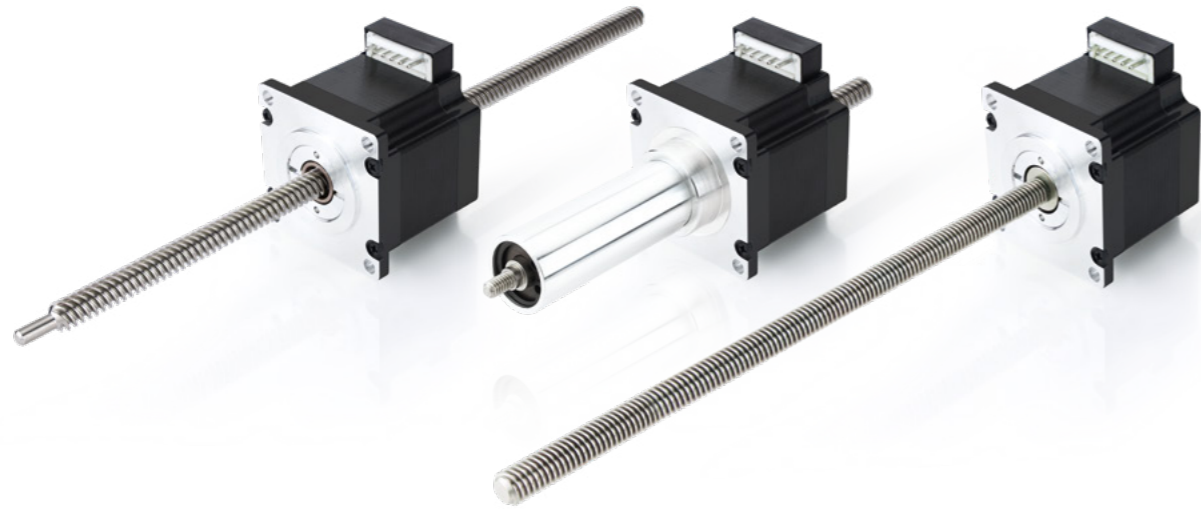


Stroke	Length "B"	Length "X"
019	29.15	19.05
025	35.5	25.4
038	48.2	38.1
063	73.6	63.5

LSA (external)



NEMA 23 (56 mm)

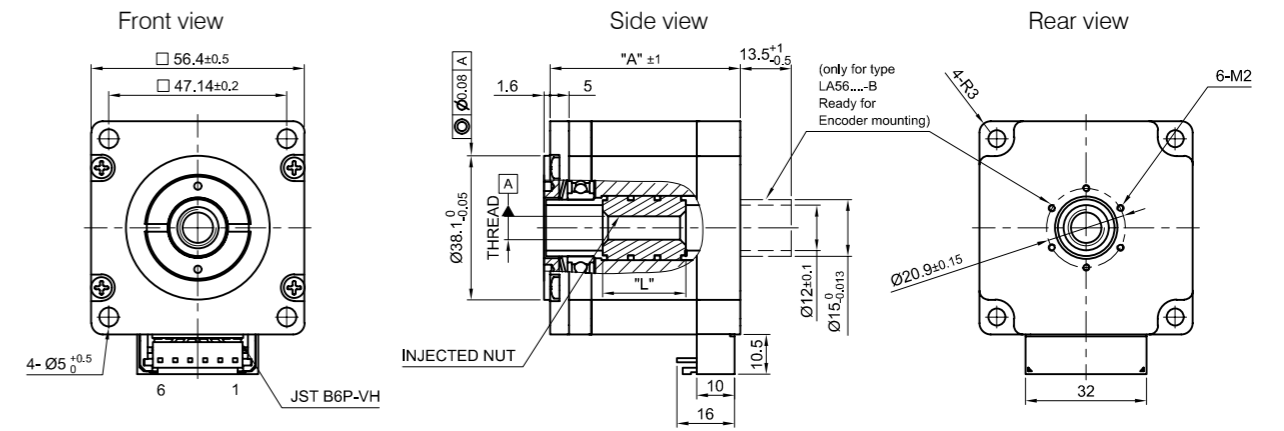


Article	Force (N)	Speed (mm/s)	Current per winding (A)	Resolution (µm/step)	Resistance per winding (Ohm)	Inductance per winding (mH)	Thread diameter (mm)	Thread lead (mm)	Length "A" (mm)	Lead Screw length "L" (mm)	Stroke length "X" (mm)	Weight (kg)
LA561S20-A-UQBN	966.3	22	2.0	7.9	1.5	4.3	9.53	1.586	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

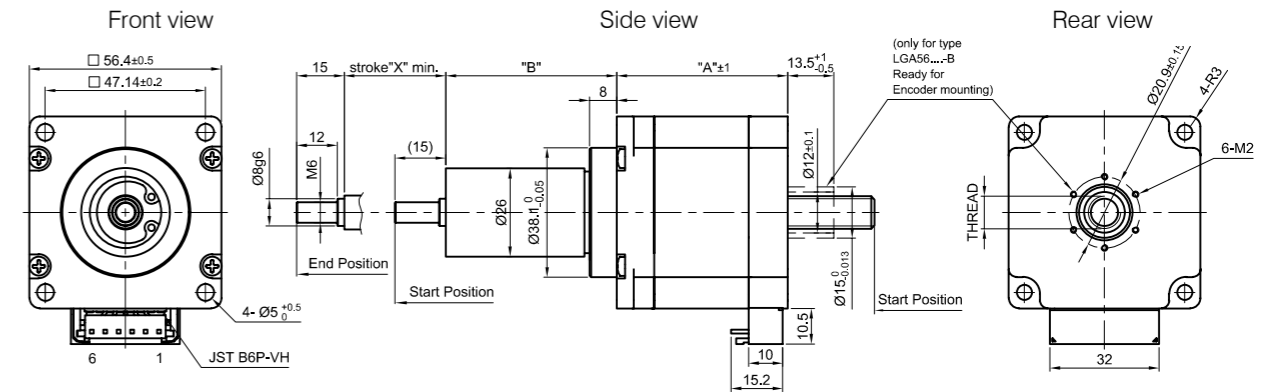
All articles are also available with a second shaft end.

NEMA 23 (56 mm)

LA (non-captive)

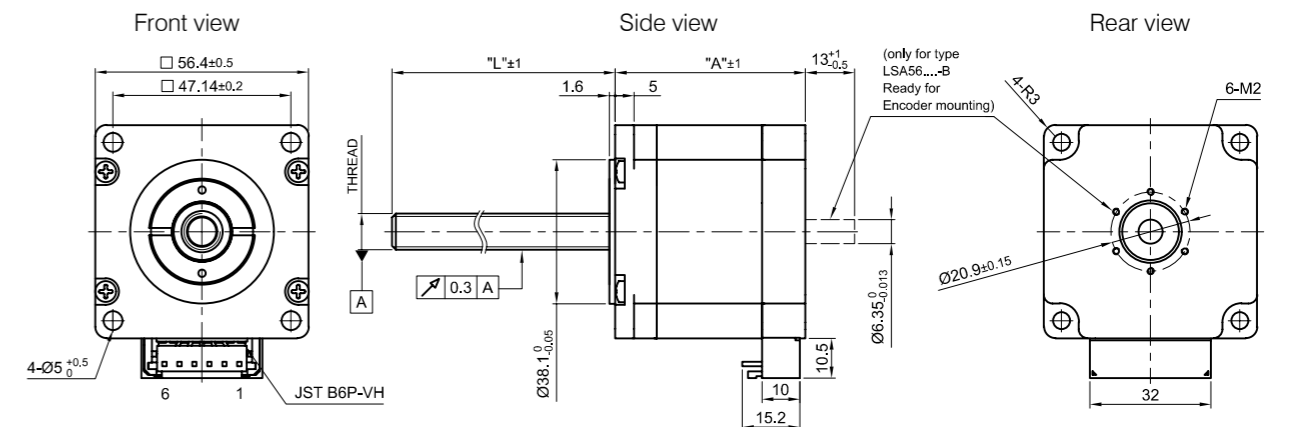


LGA (captive)



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

LSA (external)



THREADED NUTS



Article	Thread code	Thread type	Thread diameter (mm)	Thread pitch (mm)	Matching motors
LSNUT-AAAA-TDBA	TDBA	Trapezoid	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	Trapezoid	5	2	LSA...THCA
LSNUT-AAA-UIAP	UIAP	ACME	5.56	0.61	LSA...UIAP
LSNUT-AAA-UIEV	UIEV	ACME	5.56	4.877	LSA...UIEV
LSNUT-AAA-TJBA	TJBA	Trapezoid	6	1	LSA...TJBA
LSNUT-AAA-TJCA	TJCA	Trapezoid	6	2	LSA...TJCA
LSNUT-AAA-UKAS	UKAS	ACME	6.35	0.794	LSA...UKAS
LSNUT-AAA-UKBN	UKBN	ACME	6.35	1.588	LSA...UKBN
LSNUT-AAA-UKDE	UKDE	ACME	6.35	3.175	LSA...UKDE
LSNUT-AAA-UKGI	UKGI	ACME	6.35	6.35	LSA...UKGI
LSNUT-AAAG-UQBN	UQBN	ACME	9.53	1.588	LSA...UQBN
LSNUT-AAAG-UQKE	UQKE	ACME	9.53	10.16	LSA...UQKE
LSNUT-AAAG-TSCA	TSCA	Trapezoid	10	2	LSA...TSCA
LSNUT-AAAG-TSGA	TSGA	Trapezoid	10	6	LSA...TSGA

All articles are also available in a pre-tensioned version.

Lead screws

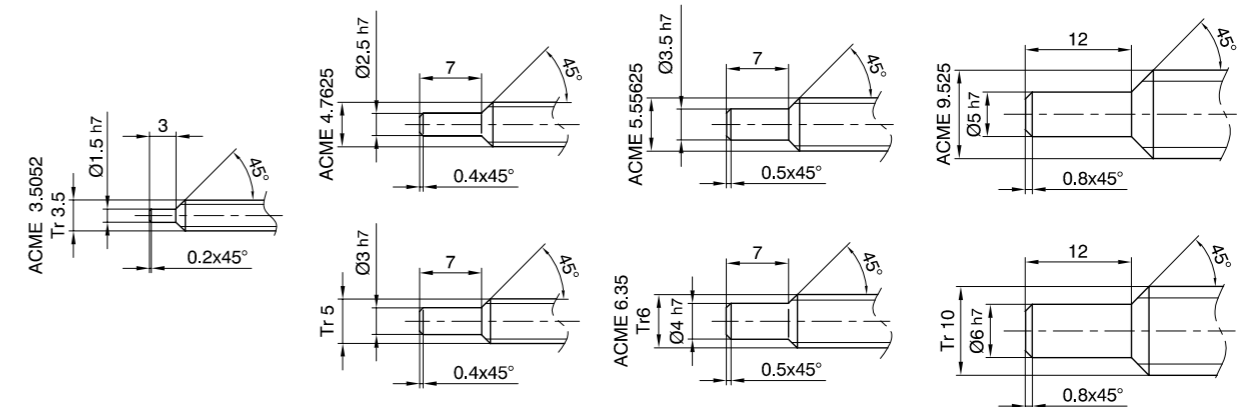


Lead screw material	Stainless steel
Pitch error	± 0.1/300 mm/path

Article	Thread code	Thread type	Thread diameter (mm)	Thread pitch (mm)	Matching motors
ZST3,5-1-...	TDBA	Trapezoid	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
SCREW-ABA-THCA-...	THCA	Trapezoid	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	Trapezoid	6	1	LA...TJBA
SCREW-ABA-TJCA-...	TJCA	Trapezoid	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
ZST10-2-...	TSCA	Trapezoid	10	2	LA...TSCA
SCREW-ABA-TSGA-...	TSGA	Trapezoid	10	6	LA...TSGA

All items are available in different lengths: 200/300/500/1000

SCREW-ABA-...



About us



Whether standard or custom solutions, we offer tailor-made drive systems for applications that require maximum precision, reliability, and functionality. Since 1991, we have been developing a broad range of products that are primarily used in automation systems, laboratory equipment, medical engineering, the packaging industry, and semiconductor production.

Our milestone was the development of the first motor with integrated controller, which played an important role in the company's growth. Today, Nanotec continues to focus heavily on research and development and has been ranked one of the top innovators in Germany in 2021.

With our own production facilities in Feldkirchen and ChangZhou/China, the R&D departments in Germany and Varna/Bulgaria and our sales office in Stoneham, MA/USA, we provide and support customers all over the world with our expertise and customized solutions.



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