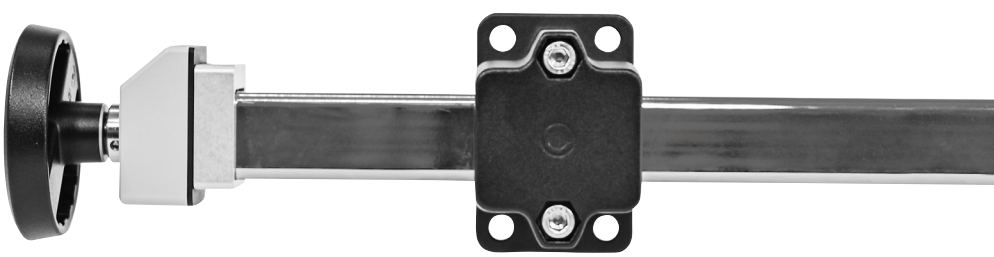
Ganter Norm®

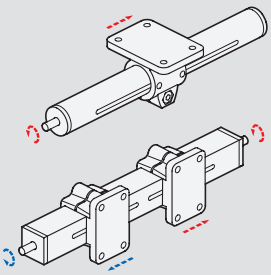
Highlights

Configurable Linear Actuators



Standard Parts. Ganter.

Configure your linear actuator: Four steps to the right product



1

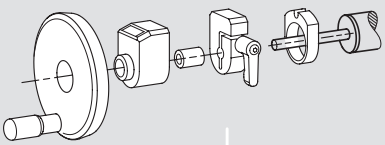
Select the linear actuator

Round or square, one or two spindles, independent or opposing: The type overview on page 2 can assist you in selecting the right linear actuator.

GN 2910 / GN 2911 /
GN 2920 / GN 2921 /
GN 2930 / GN 2931

2

Choose accessories



The stud lengths on the linear actuator vary depending on the chosen accessories. The type overview on page 25 details the range of possible accessories.

3

Ordering the linear actuator

The linear actuator can now be ordered customized for the chosen accessories.

How to order

Standard section | Additio

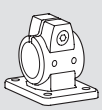
1	2	3	4	5	6	7	8	9	10
GN 2920	- 60	- ST	- 100	- 200	- 120	- 150	- RH	- 1,5	- D - H54

1	Outer diameter d_1
2	Material
3	Stroke l_1
4	Edge distance 1 k_1

4

Ordering the accessories and the linear actuator connector

e.g. GN 9734



e.g. GN 146.1

The accessories and the linear actuator connectors must be ordered separately using the corresponding standards.The type overview on page 32 can assist you in selecting the linear actuator connector.

Contens

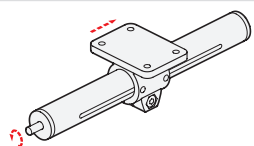
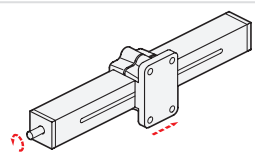
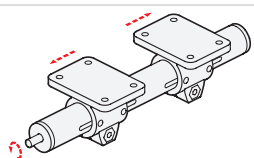
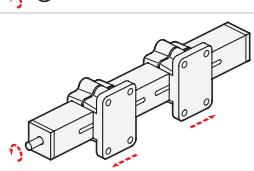
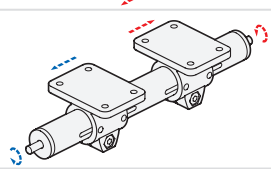
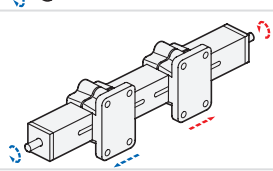
Otto Ganter GmbH & Co. KG, September 2022

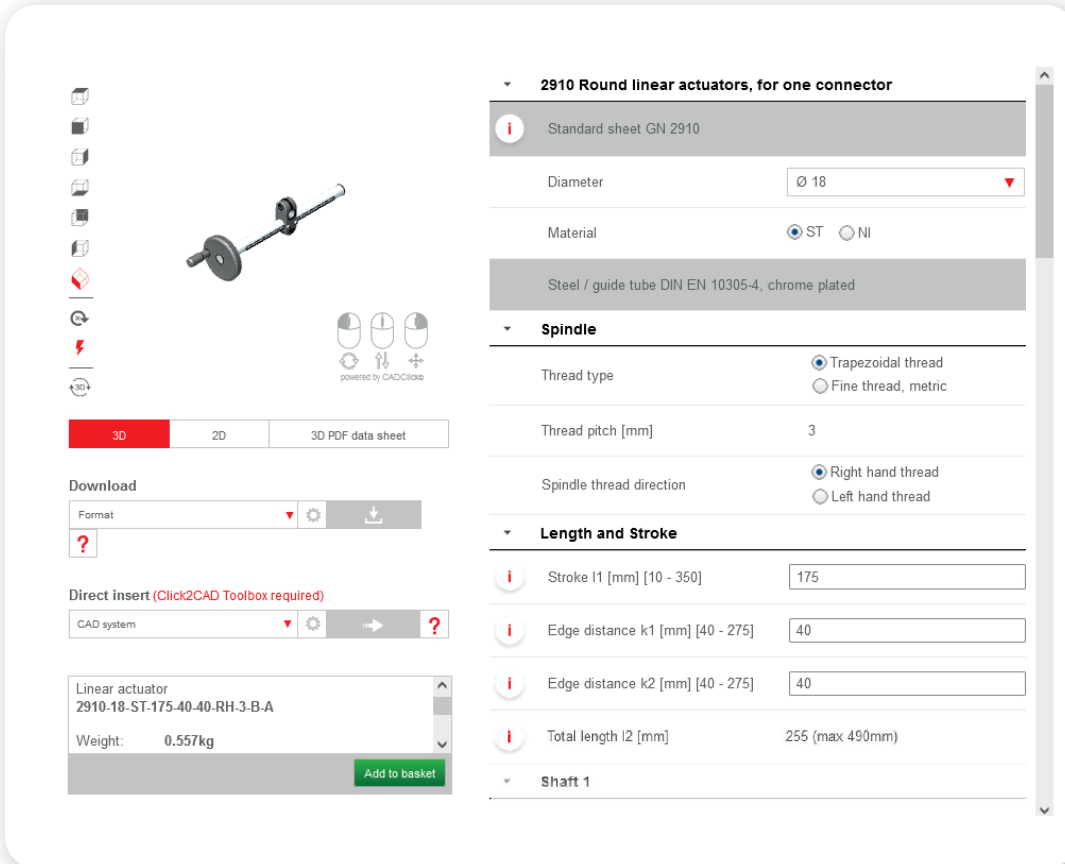
Configurable linear actuators move parts along their horizontal axis. The installed linear actuator connector is moved linearly by the pitch of the drive spindle inside the guide tube. A variety of kinematic designs are available to flexibly cover a wide range of applications. Linear actuators are used anywhere that linear movements are required, such as in machine and plant construction and for format adjustment.

The lengths and strokes of the linear actuators can be freely selected. They can be ordered specifically using the supplemental section of the article number (see order example on each standard sheet). The spindles are available in right and left versions as well as with different pitches. The stud of the threaded spindle, which is used to drive the linear actuator, varies in length depending on the required accessories.

The guide tubes of the configurable linear actuators are made of precision tubes of chrome plated steel or stainless steel with a plain finish. They are combined with the linear actuator connector to create either round or square linear guides.

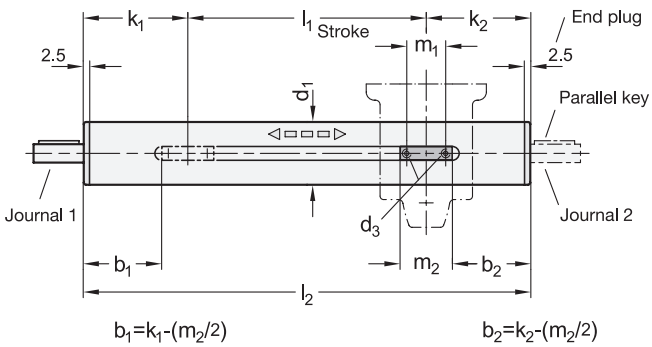
Combining the fully configured linear actuator with a linear actuator connector results in a complete functional unit.

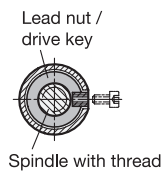
Part no.	Number of required linear actuator connectors	Kinematics	Function	Dimension Guide tube d_1	Dimension Guide tube s
GN 2910 Page 4 	1		The installed linear actuator connector is moved linearly along the guide tube by the pitch of the spindle thread.	18 30 40 50 60	-
GN 2911 Page 7 	1			-	30 40 50
GN 2920 Page 10 	2		The two linear actuator connectors move symmetrically along the guide tube due to the different thread directions.	18 30 40 50 60	-
GN 2921 Page 13 	2			-	30 40 50
GN 2930 Page 16 	2		The linear actuator connectors move along the guide tube independently of the opposite side due to separate spindles.	30 40 50 60	-
GN 2931 Page 19 	2			-	30 40 50



Simple online configuration and ordering at ganternorm.com

The new online configurator makes configuring your individual linear actuator incredibly easy while providing a complete overview of the various designs and possible accessories. When finished, you can even place an order directly from the configurator.





Inox Stainless Steel

6 Thread direction of spindle

RH Right hand thread
LH Left hand thread

1 d_1	3 l_1 Stroke max.	4 k_1 Edge distance 1 min.	5 k_2 Edge distance 2 min.	d_3	l_2 Total length max. ($k_1+l_1+k_2$)	m_1	m_2
18	350	40	40	M 3	490	17	24
30	1250	57	57	M 4	1455	23	38
40	1570	70	70	M 5	1805	42	54
50	1565	75	75	M 6	1805	42	54
60	1520	88	88	M 8	1805	58	70

Specification

2

- Steel **ST**
  - Guide tube DIN EN 10305-4, chrome plated
  - Trapezoidal / fine thread spindle, with ball bearing
- Stainless steel **NI**
  - Guide tube EN 10216-5, AISI 304
  - Trapezoidal / fine thread spindle, AISI 303, with ball bearing
- Lead nut
  Gun metal
- End plug
  Plastic
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

The guide tubes of the linear actuators GN 2910 are made of precision tubes of chrome plated steel or stainless steel with a plain finish. A continuous spindle with ball bearings at both ends is installed within the guide tube. The guide nut transmits the linear movements to a linear actuator connector along the guide groove via a follower.

A solid linear round guide is created by connecting the guide tube with the hole of the linear actuator connector. Multiple connector types are available and can be adjusted or clamped with low backlash thanks to the slotted holes. Depending on the setup, either the part to be moved is fastened to the connector or the connector itself is installed at the application site such that the entire linear actuator moves.

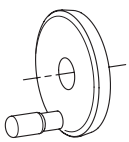
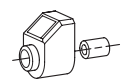
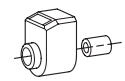
The overview offers a range of possible accessories that can be installed on the linear actuator in the various configurations. The design and length of the stud varies depending on the accessories, and this must be considered when selecting the linear actuator. The accessories are not included with the linear actuators and must be ordered separately. For assistance, please consult the overview of types on *page 25*.

A linear actuator connector is also needed to build a functioning linear actuator. A wide range of different versions are available to meet the needs of the specific application. The overview of types on *page 32* can assist in making a selection.

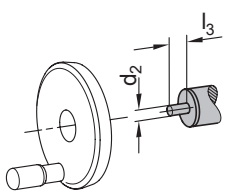
7

d_1	Spindle pitch: Trapezoidal thread	Spindle pitch: Fine thread, metric	Stud diameter d_2	Stud length l_3	l_4	l_5	l_6	l_7	l_8
18	3	1	6	16	28	44	-	-	16...65
30	4	1	8	16	36	52	31	67	16...67
40	4	1	12	17	42	59	32	74	17...74
50	4	1	12	18	42	60	33	75	18...75
60	5	1,5	14	19	42	61	34	76	19...76

Accessories overview

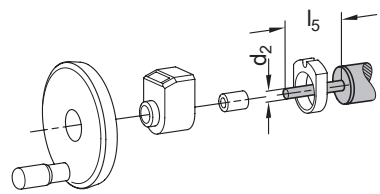
Handwheel GN 9234 → Page 26	Clamping plate GN 9734 → Page 27	Torque support GN 295.2 → Page 30	Position indicator GN 9034 electronic counter → Page 29	Position indicator GN 9534 mechanical counter → Page 28
	 for $d_1 \geq 30$		 for $d_1 \geq 30$	 for $d_1 = 30$ only usable up to stroke ≤ 1000 mm for $d_1 = 60$ only usable for trapezoidal thread spindles

Stud design 1



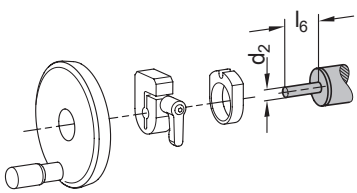
8 **B** Stud for handwheel

Stud length l_3



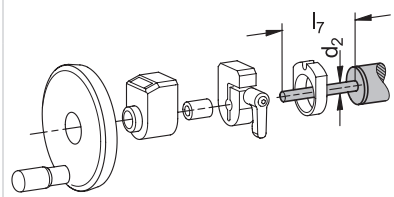
8 **D** Stud for position indicator and handwheel

Stud length l_5



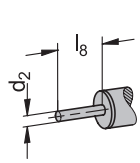
8 **E** Stud for clamping plate and handwheel (for $d_1 \geq 30$)

Stud length l_6



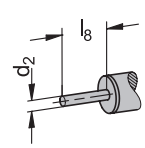
8 **F** Stud for clamping plate, position indicator and handwheel (for $d_1 \geq 30$)

Stud length l_7



8 **Gxx** Individual length with parallel key (for xx value from table column l_8)

Stud length l_8



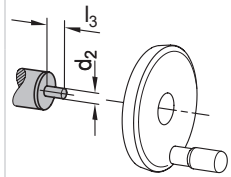
8 **Hxx** Individual length without parallel key (for xx value from table column l_8)

Stud length l_8

Stud design 2

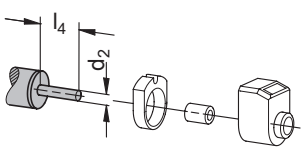
9 **A**
Without stud

Cover cap



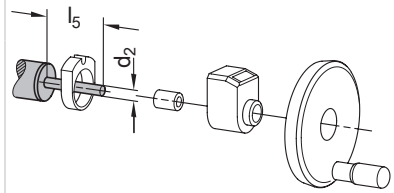
9 **B**
Stud for handwheel

Stud length l_3



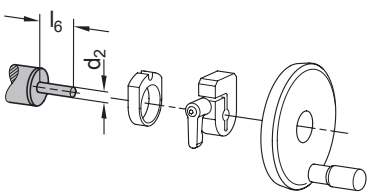
9 **C**
Stud for position indicator

Stud length l_4



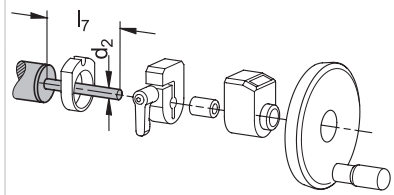
9 **D**
Stud for position indicator and handwheel

Stud length l_5



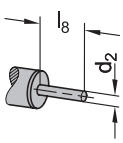
9 **E**
Stud for clamping plate and handwheel (for $d_1 \geq 30$)

Stud length l_6



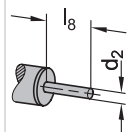
9 **F**
Stud for clamping plate, position indicator and handwheel (for $d_1 \geq 30$)

Stud length l_7



9 **Gxx**
Individual length with parallel key (for xx value from table column l_8)

Stud length l_8



9 **Hxx**
Individual length without parallel key (for xx value from table column l_8)

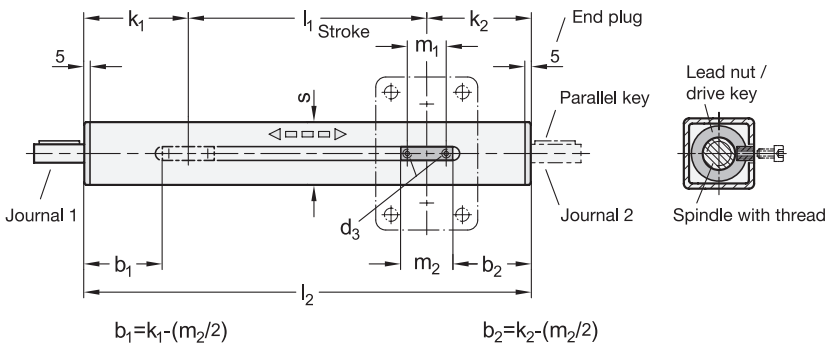
Stud length l_8

How to order

Standard section | Supplemental section

1	2	3	4	5	6	7	8	9
GN 2910 -	30 -	ST -	1000 -	200 -	150 -	RH -	4 -	B -	H23

1	Outer diameter d_1	4	Edge distance 1 k_1	7	Spindle pitch
2	Material	5	Edge distance 2 k_2	8	Stud design 1
3	Stroke l_1	6	Thread direction of spindle	9	Stud design 2



Inox Stainless Steel

6 Thread direction of spindle

RH Right hand thread
LH Left hand thread

1 **s**	3 **l_1** Stroke max.	4 **k_1** Edge distance 1 min.	5 **k_2** Edge distance 2 min.	**d_3**	**l_2** Total length max. (k_1+l_1+k_2)	**m_1**	**m_2**
30	1250	59	59	M 4	1460	23	38
40	1570	72	72	M 5	1810	42	54
50	1565	77	77	M 6	1810	42	54

Specification

2

- Steel **ST**
  - Guide tube DIN EN 10305-4, chrome plated
  - Trapezoidal / fine thread spindle, with ball bearing
- Stainless steel **NI**
  - Guide tube EN 10216-5, AISI 304
  - Trapezoidal / fine thread spindle, AISI 303, with ball bearing
- Lead nut
  Gun metal
- End plug
  Plastic
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

The guide tubes of the linear actuators GN 2911 are made of square tubes of chrome plated steel or stainless steel with a plain finish. A continuous spindle with ball bearings at both ends is installed within the guide tube. The guide nut transmits the linear movements to a linear actuator connector along the guide groove via a follower.

A solid linear square guide is created by connecting the guide tube with the hole of the linear actuator connector. The square shape is particularly suited for receiving torsional forces. Multiple connector types are available and can be adjusted or clamped with low backlash thanks to the split design of the holes. Depending on the setup, either the part to be moved is fastened to the connector or the connector itself is installed at the application site such that the entire linear actuator moves.

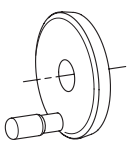
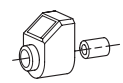
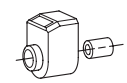
The overview offers a range of possible accessories that can be installed on the linear actuator in the various configurations. The design and length of the stud varies depending on the accessories, and this must be considered when selecting the linear actuator. The accessories are not included with the linear actuators and must be ordered separately. For assistance, please consult the overview of types on *page 25*.

A linear actuator connector is also needed to build a functioning linear actuator. A wide range of different versions are available to meet the needs of the specific application. The overview of types on *page 32* can assist in making a selection.

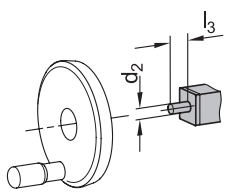
7

s	Spindle pitch		Stud diameter	Stud length					
	Trapezoidal thread	Fine thread, metric	d_2	l_3	l_4	l_5	l_6	l_7	l_8
30	4	1	8	16	36	52	31	67	16...67
40	4	1	12	17	42	59	32	74	17...74
50	4	1	12	18	42	60	33	75	18...75

Accessories overview

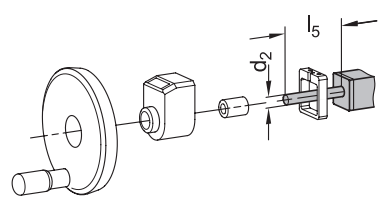
Handwheel GN 9234	Clamping plate GN 9734	Torque support GN 296.2	Position indicator GN 9034 electronic counter	Position indicator GN 9534 mechanical counter
→ Page 26	→ Page 27	→ Page 31	→ Page 29	→ Page 28
				 for d_1 = 30 only usable up to stroke ≤ 1000

Stud design 1



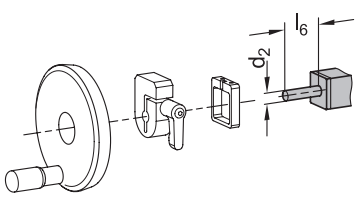
8 **B** Stud for handwheel

Stud length l_3



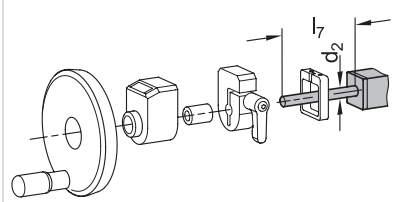
8 **D** Stud for position indicator and handwheel

Stud length l_5



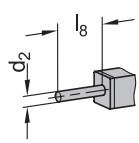
8 **E** Stud for clamping plate and handwheel

Stud length l_6



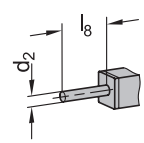
8 **F** Stud for clamping plate, position indicator and handwheel

Stud length l_7



8 **Gxx** Individual length with parallel key (for xx value from table column l_8)

Stud length l_8



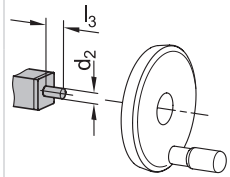
8 **Hxx** Individual length without parallel key (for xx value from table column l_8)

Stud length l_8

Stud design 2

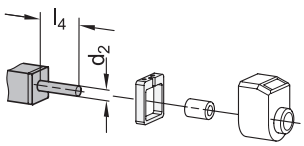
9 **A**
Without stud

Cover cap



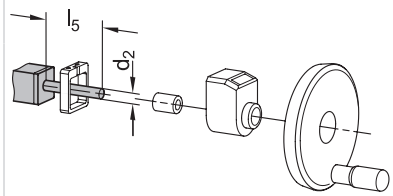
9 **B**
Stud for handwheel

Stud length l_3



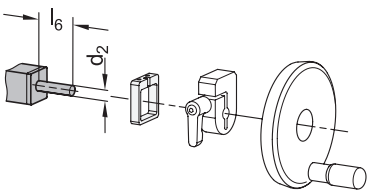
9 **C**
Stud for position indicator

Stud length l_4



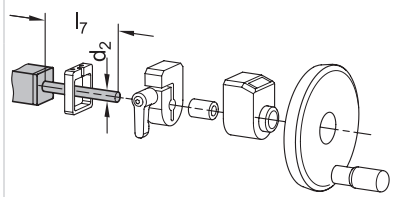
9 **D**
Stud for position indicator and handwheel

Stud length l_5



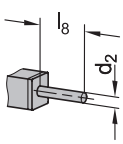
9 **E**
Stud for clamping plate and handwheel

Stud length l_6



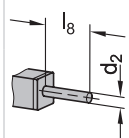
9 **F**
Stud for clamping plate, position indicator and handwheel

Stud length l_7



9 **Gxx**
Individual length with parallel key (for xx value from table column l_8)

Stud length l_8



9 **Hxx**
Individual length without parallel key (for xx value from table column l_8)

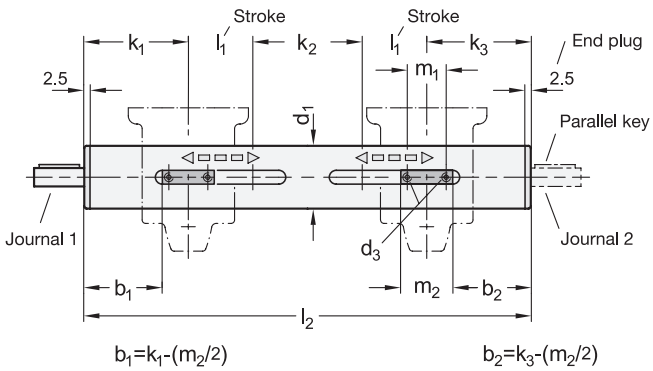
Stud length l_8

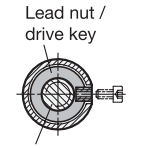
How to order

Standard section | Supplemental section

GN 2911 - 40 - NI - 800 - 150 - 120 - LH - 4 - B - G34
(1 2 3 4 5 6 7 8 9)

1	Square s	4	Edge distance 1 k_1	7	Spindle pitch
2	Material	5	Edge distance 2 k_2	8	Stud design 1
3	Stroke l_1	6	Thread direction of spindle	9	Stud design 2





Inox
Stainless
Steel

6 Thread direction of spindle

RH Right hand thread for stud 1, left hand thread for stud 2

LH Left hand thread for stud 1, right hand thread for stud 2

1 d_1	3 l_1 Stroke max.	4 k_1 Edge distance 1 min.	5 k_2 Intermediate distance min.	6 k_3 Edge distance 2 min.	d_3	l_2 Total length max. ($k_1+k_2+k_3+2*l_1$)	m_1	m_2
18	167	40	32	40	M 3	505	17	24
30	601	57	50	57	M 4	1455	23	38
40	753	70	66	70	M 5	1805	42	54
50	748	75	70	75	M 6	1805	42	54
60	715	93	90	93	M 8	1805	58	70

Specification

2

- Steel **ST**
  - Guide tube DIN EN 10305-4, chrome plated
  - Trapezoidal / fine thread spindle, with ball bearing
- Stainless steel **NI**
  - Guide tube EN 10216-5, AISI 304
  - Trapezoidal / fine thread spindle, AISI 303, with ball bearing
- Lead nut
  Gun metal
- End plug
  Plastic
- *Stainless Steel Characteristics → Page 2166*
- RoHS

Information

The guide tubes of the linear actuators GN 2920 are made of precision tubes of chrome plated steel or stainless steel with a plain finish. A spindle with ball bearings at both ends is installed within the guide tube and consists of one part with left hand thread and one part with right hand thread. The guide nuts positioned on the left and right transmit the symmetrical and opposing linear movements to two linear actuator connectors along the guide groove via two followers.

A solid linear round guide is created by connecting the guide tube with the holes of the linear actuator connectors. Multiple connector types are available and can be adjusted or clamped with low backlash thanks to the slotted holes. Depending on the setup, either the part to be moved is fastened to the connector or the connector itself is installed at the application site such that the entire linear actuator moves

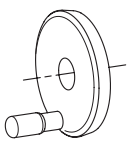
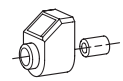
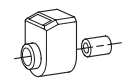
The overview offers a range of possible accessories that can be installed on the linear actuator in the various configurations. The design and length of the stud varies depending on the accessories, and this must be considered when selecting the linear actuator. The accessories are not included with the linear actuators and must be ordered separately. For assistance, please consult the overview of types on *page 25*.

Linear actuator connectors are also needed to build a functioning linear actuator. A wide range of different versions are available to meet the needs of the specific application. The overview of types on *page 32* can assist in making a selection.

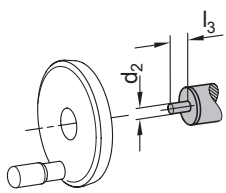
8

	Spindle pitch		Stud diameter	Stud length					
d_1	Trapezoidal thread	Fine thread, metric	d_2	l_3	l_4	l_5	l_6	l_7	l_8
18	3	1	6	16	28	44	-	-	16...65
30	4	1	8	16	36	52	31	67	16...67
40	4	1	12	17	42	59	32	74	17...74
50	4	1	12	18	42	60	33	75	18...75
60	5	1,5	14	19	42	61	34	76	19...76

Accessories overview

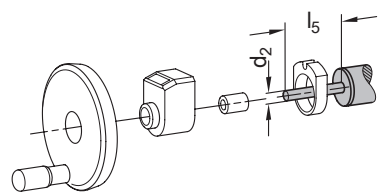
Handwheel GN 9234	Clamping plate GN 9734	Torque support GN 295.2	Position indicator GN 9034 electronic counter	Position indicator GN 9534 mechanical counter
→ Page 26	→ Page 27	→ Page 30	→ Page 29	→ Page 28
	 for $d_1 \geq 30$		 for $d_1 \geq 30$	 for $d_1 = 60$ only usable for trapezoidal thread spindles

Stud design 1



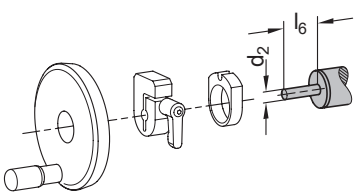
9 **B** Stud for handwheel

Stud length l_3



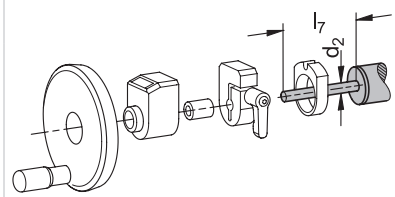
9 **D** Stud for position indicator and handwheel

Stud length l_5



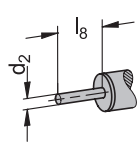
9 **E** Stud for clamping plate and handwheel (for $d_1 \geq 30$)

Stud length l_6



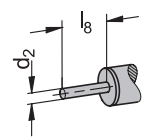
9 **F** Stud for clamping plate, position indicator and handwheel (for $d_1 \geq 30$)

Stud length l_7



9 **Gxx** Individual length with parallel key (for xx value from table column l_8)

Stud length l_8



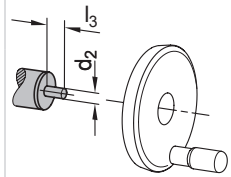
9 **Hxx** Individual length without parallel key (for xx value from table column l_8)

Stud length l_8

Stud design 2

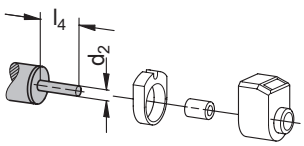
10
A
Without stud

Cover cap



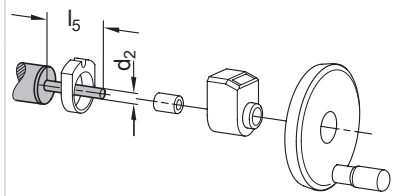
10
B
Stud for handwheel

Stud length l_3



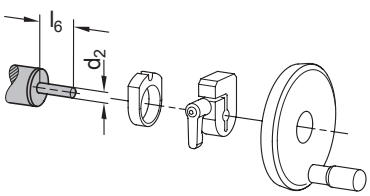
10
C
Stud for position indicator

Stud length l_4



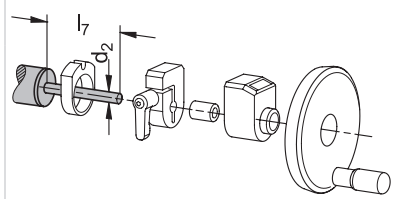
10
D
Stud for position indicator and handwheel

Stud length l_5



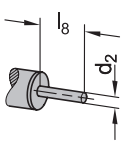
10
E
Stud for clamping plate and handwheel (for $d_1 \geq 30$)

Stud length l_6



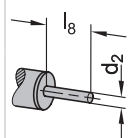
10
F
Stud for clamping plate, position indicator and handwheel (for $d_1 \geq 30$)

Stud length l_7



10
Gxx
Individual length with parallel key (for xx value from table column l_8)

Stud length l_8



10
Hxx
Individual length without parallel key (for xx value from table column l_8)

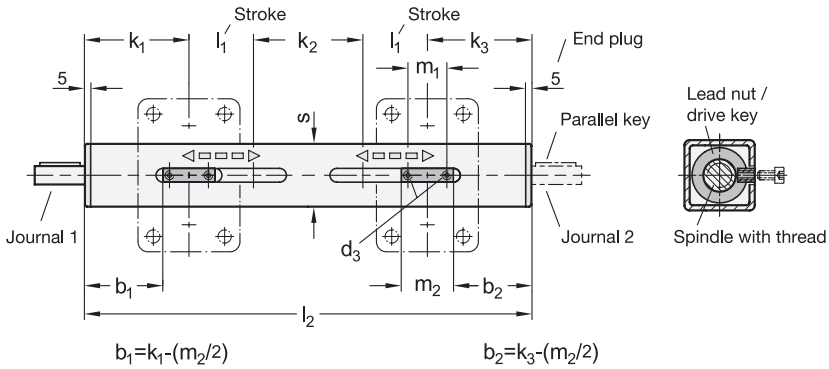
Stud length l_8

How to order

Standard section | Supplemental section

1	2	3	4	5	6	7	8	9	10
GN 2920	- 60	- ST	- 100	- 200	- 120	- 150	- RH	- 1,5	- D	- H54

1	Outer diameter d_1	5	Intermediate distance k_2	9	Stud design 1
2	Material	6	Edge distance 2 k_3	10	Stud design 2
3	Stroke l_1	7	Thread direction of spindle		
4	Edge distance 1 k_1	8	Spindle pitch		



Inox Stainless Steel

6 Thread direction of spindle

RH Right hand thread for stud 1, left hand thread for stud 2

LH Left hand thread for stud 1, right hand thread for stud 2

1	3	4	5	6				
s	**l_1** Stroke max.	**k_1** Edge distance 1 min.	**k_2** Intermediate distance min.	**k_3** Edge distance 2 min.	**d_3**	**l_2** Total length max. ($k_1+k_2+k_3+2*l_1$)	**m_1**	**m_2**
30	601	59	50	59	M 4	1460	23	38
40	753	72	66	72	M 5	1810	42	54
50	748	77	70	77	M 6	1810	42	54

Specification

2

- Steel **ST**
  - Guide tube DIN EN 10305-4, chrome plated
  - Trapezoidal / fine thread spindle, with ball bearing
- Stainless steel **NI**
  - Guide tube EN 10216-5, AISI 304
  - Trapezoidal / fine thread spindle, AISI 303, with ball bearing
- Lead nut
  Gun metal
- End plug
  Plastic
- *Stainless Steel Characteristics → Page 2166*
- RoHS

Information

The guide tubes of the linear actuators GN 2921 are made of square tubes of chrome plated steel or stainless steel with a plain finish. A spindle with ball bearings at both ends is installed within the guide tube and consists of one part with left hand thread and one part with right hand thread. The guide nuts positioned on the left and right transmit the symmetrical and opposing linear movements to two linear actuator connectors along the guide groove via two followers.

A solid linear square guide is created by connecting the guide tube with the holes of the linear actuator connectors. The square shape is particularly suited for receiving torsional forces. Multiple connector types are available and can be adjusted or clamped with low backlash thanks to the split design of the holes. Depending on the setup, either the part to be moved is fastened to the connector or the connector itself is installed at the application site such that the entire linear actuator moves.

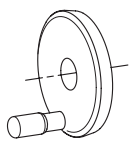
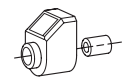
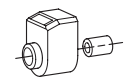
The overview offers a range of possible accessories that can be installed on the linear actuator in the various configurations. The design and length of the stud varies depending on the accessories, and this must be considered when selecting the linear actuator. The accessories are not included with the linear actuators and must be ordered separately. For assistance, please consult the overview of types on *page 25*.

Linear actuator connectors are also needed to build a functioning linear actuator. A wide range of different versions are available to meet the needs of the specific application. The overview of types on *page 32* can assist in making a selection.

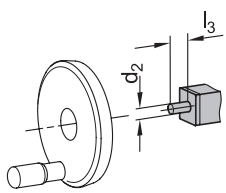
8

s	Spindle pitch		Stud diameter	Stud length					
	Trapezoidal thread	Fine thread, metric	d_2	l_3	l_4	l_5	l_6	l_7	l_8
30	4	1	8	16	36	52	31	67	16...67
40	4	1	12	17	42	59	32	74	17...74
50	4	1	12	18	42	60	33	75	18...75

Accessories overview

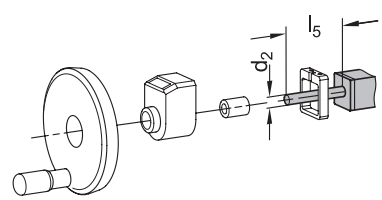
Handwheel GN 9234	Clamping plate GN 9734	Torque support GN 296.2	Position indicator GN 9034 electronic counter	Position indicator GN 9534 mechanical counter
→ Page 26	→ Page 27	→ Page 31	→ Page 29	→ Page 28
				

Stud design 1



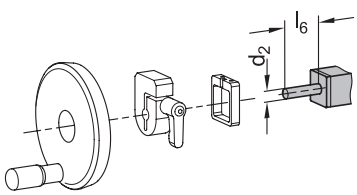
9 **B**
Stud for handwheel

Stud length l_3



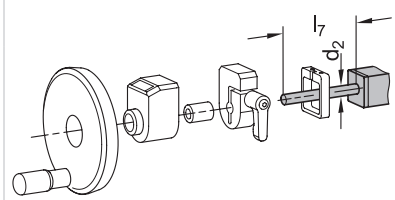
9 **D**
Stud for position indicator and handwheel

Stud length l_5



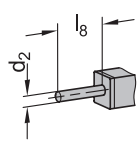
9 **E**
Stud for clamping plate and handwheel

Stud length l_6



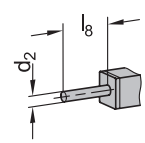
9 **F**
Stud for clamping plate, position indicator and handwheel

Stud length l_7



9 **Gxx**
Individual length with parallel key (for xx value from table column l_8)

Stud length l_8



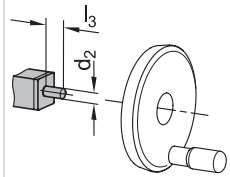
9 **Hxx**
Individual length without parallel key (for xx value from table column l_8)

Stud length l_8

Stud design 2

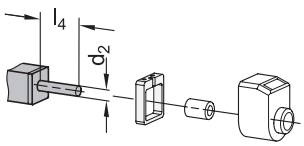
10
A
Without stud

Cover cap



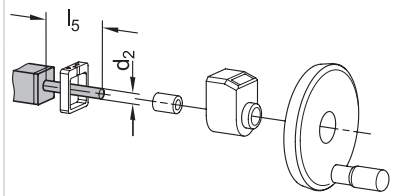
10
B
Stud for handwheel

Stud length l_3



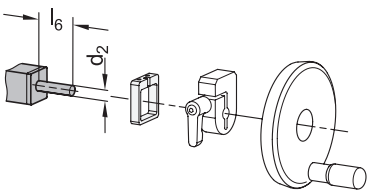
10
C
Stud for position indicator

Stud length l_4



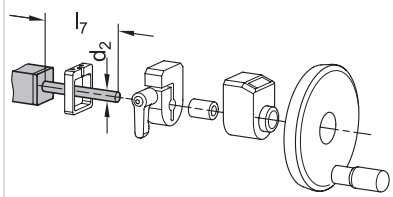
10
D
Stud for position indicator and handwheel

Stud length l_5



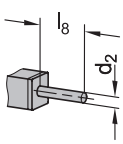
10
E
Stud for clamping plate and handwheel

Stud length l_6



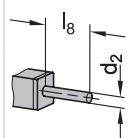
10
F
Stud for clamping plate, position indicator and handwheel

Stud length l_7



10
Gxx
Individual length with parallel key (for xx value from table column l_8)

Stud length l_8



10
Hxx
Individual length without parallel key (for xx value from table column l_8)

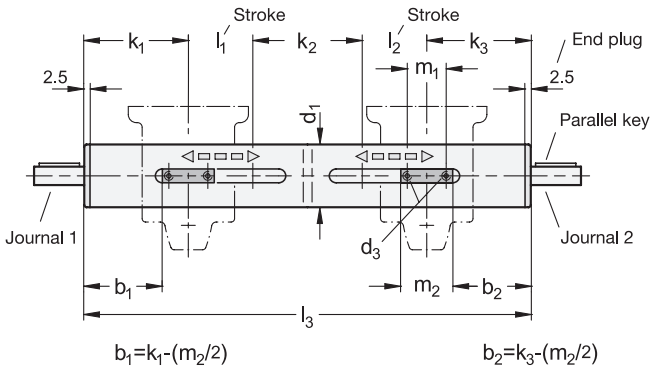
Stud length l_8

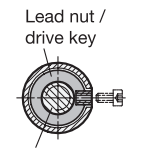
How to order

Standard section | Supplemental section

1	2	3	4	5	6	7	8	9	10
GN 2921 -	40 -	ST -	200 -	150 -	110 -	100 -	RH -	4 -	F -	H60

1	Square s	5	Intermediate distance k_2	9	Stud design 1
2	Material	6	Edge distance 2 k_3	10	Stud design 2
3	Stroke l_1	7	Thread direction of spindle		
4	Edge distance 1 k_1	8	Spindle pitch		





Inox Stainless Steel

8 **Thread direction of spindle 1**

RH Right hand thread
LH Left hand thread

11 **Thread direction of spindle 2**

RH Right hand thread
LH Left hand thread

1 d_1	3 l_1 Stroke 1 max.	4 l_2 Stroke 2 max.	5 k_1 Edge distance 1 min.	6 k_2 Intermediate distance min.	7 k_3 Edge distance 2 min.	d_3	l_3 Total length max. $(k_1+k_2+k_3+l_1+l_2)$	m_1	m_2
30	601	601	57	50	57	M 3	1455	23	38
40	753	753	76	66	76	M 4	1805	42	54
50	748	748	80	70	80	M 5	1805	42	54
60	715	715	98	90	98	M 6	1805	58	70

Specification

2

- Steel **ST**
  - Guide tube DIN EN 10305-4, chrome plated
  - Trapezoidal / fine thread spindle, with ball bearing
- Stainless steel **NI**
  - Guide tube EN 10216-5, AISI 304
  - Trapezoidal / fine thread spindle, AISI 303, with ball bearing
- Lead nut
  Gun metal
- End plug
  Plastic
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

The guide tubes of the linear actuators GN 2930 are made of precision tubes of chrome plated steel or stainless steel with a plain finish. Two independent spindles with ball bearings at both ends are installed within the guide tube. The thread direction of the spindles can be chosen independently for each side. The guide nuts on each of the spindles transmit the linear movements to the linear actuator connector along the guide groove via a follower, independently of the opposite side.

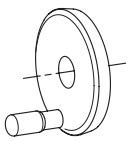
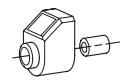
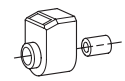
A solid linear round guide is created by connecting the guide tube with the holes of the linear actuator connectors. Multiple connector types are available and can be adjusted or clamped with low backlash thanks to the slotted holes. Depending on the setup, either the part to be moved is fastened to the connector or the connector itself is installed at the application site such that the entire linear actuator moves.

The overview offers a range of possible accessories that can be installed on the linear actuator in the various configurations. The design and length of the stud varies depending on the accessories, and this must be considered when selecting the linear actuator. The accessories are not included with the linear actuators and must be ordered separately. For assistance, please consult the overview of types on *page 25*.

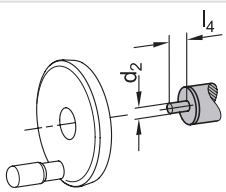
Linear actuator connectors are also needed to build a functioning linear actuator. A wide range of different versions are available to meet the needs of the specific application. The overview of types on *page 32* can assist in making a selection.

	9		12							
	Spindle pitch of spindle 1		**Spindle pitch of spindle 2**		Stud diameter	Stud length				
d_1	Trapezoidal thread	Fine thread, metric	Trapezoidal thread	Fine thread, metric	d_2	l_4	l_5	l_6	l_7	l_8
30	4	1	4	1	8	16	52	31	67	16...65
40	4	1	4	1	12	17	59	32	74	17...74
50	4	1	4	1	12	18	60	33	75	18...75
60	5	1,5	5	1,5	14	19	61	34	76	19...76

Accessories overview

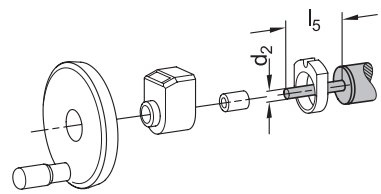
Handwheel GN 9234 → Page 26	Clamping plate GN 9734 → Page 27	Torque support GN 295.2 → Page 30	Position indicator GN 9034 electronic counter → Page 29	Position indicator GN 9534 mechanical counter → Page 28
				 for d_1 = 60 only usable for trapezoidal thread spindles

Stud design 1



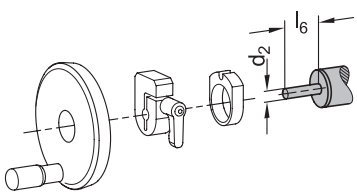
10 **B**
Stud for handwheel

Stud length l_4



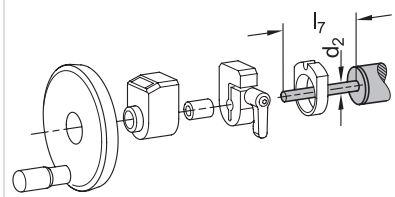
10 **D**
Stud for position indicator and handwheel

Stud length l_5



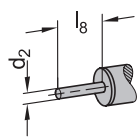
10 **E**
Stud for clamping plate and handwheel

Stud length l_6



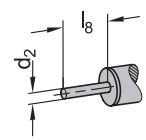
10 **F**
Stud for clamping plate, position indicator and handwheel

Stud length l_7



10 **Gxx**
Individual length with parallel key (for xx value from table column l_8)

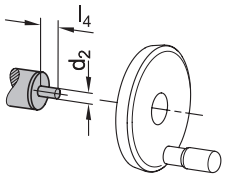
Stud length l_8



10 **Hxx**
Individual length without parallel key (for xx value from table column l_8)

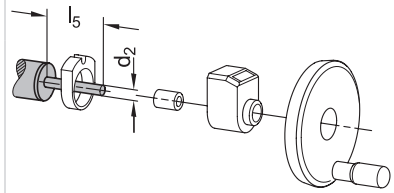
Stud length l_8

Stud design 2



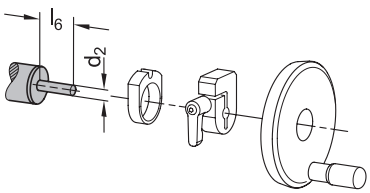
13 **B**
Zapfen für Handrad

Stud length l_4



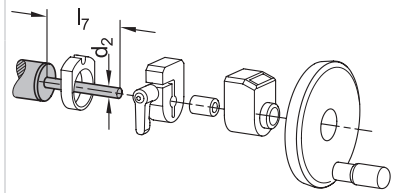
13 **D**
Stud for position indicator and handwheel

Stud length l_5



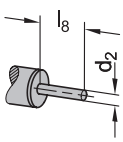
13 **E**
Stud for clamping plate and handwheel

Stud length l_6



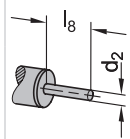
13 **F**
Stud for clamping plate, position indicator and handwheel

Stud length l_7



13 **Gxx**
Individual length with parallel key (for xx value from table column l_8)

Stud length l_8



13 **Hxx**
Individual length without parallel key (for xx value from

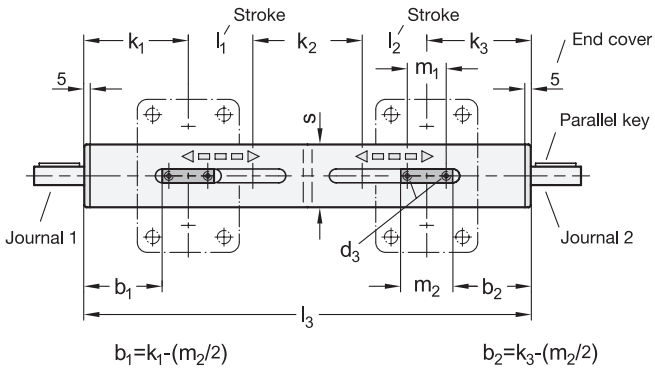
Stud length l_8

How to order

Standard section | Supplemental section

1	2	3	4	5	6	7	8	9	10	11	12	13
GN 2930 -	40 -	NI -	620 -	350 -	120 -	100 -	110 -	RH -	4 -	B -	LH -	1 -	F

1	Outer diameter d_1	6	Intermediate distance k_2	11	Thread direction of spindle 2
2	Material	7	Edge distance 2 k_3	12	Spindle pitch 2
3	Stroke 1 l_1	8	Thread direction of spindle 1	13	Stud design 2
4	Stroke 2 l_2	9	Spindle pitch 1		
5	Edge distance 1 k_1	10	Stud design 1		



Inox Stainless Steel

8 Thread direction of spindle 1

RH Right hand thread
LH Left hand thread

11 Thread direction of spindle 2

RH Right hand thread
LH Left hand thread

1 **s**	3 l_1 Stroke 1 max.	4 l_2 Stroke 2 max.	5 k_1 Edge distance 1 min.	6 k_2 Intermediate distance min.	7 k_3 Edge distance 2 min.	d_3	l_3 Total length max. ($k_1+k_2+k_3+l_1+l_2$)	m_1	m_2
30	601	601	59	50	59	M 4	1460	23	38
40	753	753	78	66	78	M 5	1810	42	54
50	748	748	82	70	82	M 6	1810	42	54

Ausführung

2

- Steel **ST**
  - Guide tube DIN EN 10305-4, chrome plated
  - Trapezoidal / fine thread spindle, with ball bearing
- Stainless steel **NI**
  - Guide tube EN 10216-5, AISI 304
  - Trapezoidal / fine thread spindle, AISI 303, with ball bearing
- Lead nut
  Gun metal
- End plug
  Plastic
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Hinweis

The guide tubes of the linear actuators GN 2931 are made of square tubes of chrome plated steel or stainless steel with a plain finish. Two independent spindles with ball bearings at both ends are installed within the guide tube. The thread direction of the spindles can be chosen independently for each side. The guide nuts on each of the spindles transmit the linear movements to the linear actuator connector along the guide groove via a follower, independently of the opposite side.

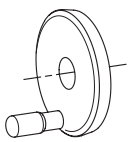
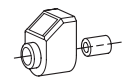
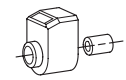
A solid linear square guide is created by connecting the guide tube with the holes of the linear actuator connectors. The square shape is particularly suited for receiving torsional forces. Multiple connector types are available and can be adjusted or clamped with low backlash thanks to the split design of the holes. Depending on the setup, either the part to be moved is fastened to the connector or the connector itself is installed at the application site such that the entire linear actuator moves.

The overview offers a range of possible accessories that can be installed on the linear actuator in the various configurations. The design and length of the stud varies depending on the accessories, and this must be considered when selecting the linear actuator. The accessories are not included with the linear actuators and must be ordered separately. For assistance, please consult the overview of types on *page 25*.

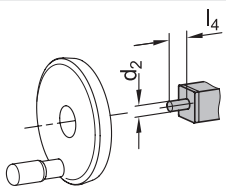
Linear actuator connectors are also needed to build a functioning linear actuator. A wide range of different versions are available to meet the needs of the specific application. The overview of types on page 32 can assist in making a selection.

	9		12							
	Spindle pitch of spindle 1		**Spindle pitch of spindle 2**		Stud diameter	Stud length				
d_1	Trapezoidal thread	Fine thread, metric	Trapezoidal thread	Fine thread, metric	d_2	l_4	l_5	l_6	l_7	l_8
30	4	1	4	1	8	16	52	31	67	16...67
40	4	1	4	1	12	17	59	32	74	17...74
50	4	1	4	1	12	18	60	33	75	18...75

Accessories overview

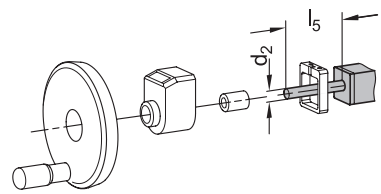
Handwheel GN 9234	Clamping plate GN 9734	Torque support GN 296.2	Position indicator GN 9034 electronic counter	Position indicator GN 9534 mechanical counter
→ Page 26	→ Page 27	→ Page 31	→ Page 29	→ Page 28
				

Stud design 1



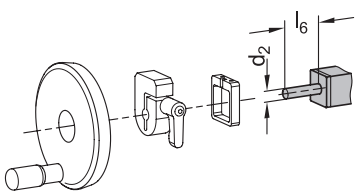
10 **B**
Stud for handwheel

Stud length l_4



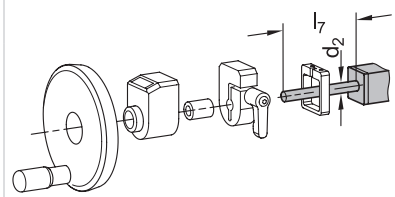
10 **D**
Stud for position indicator and handwheel

Stud length l_5



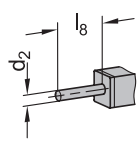
10 **E**
Stud for clamping plate and handwheel

Stud length l_6



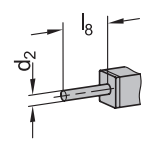
10 **F**
Stud for clamping plate, position indicator and handwheel

Stud length l_7



10 **Gxx**
Individual length with parallel key (for xx value from table column l_8)

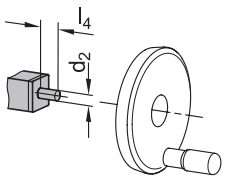
Stud length l_8



10 **Hxx**
Individual length without parallel key (for xx value from table column l_8)

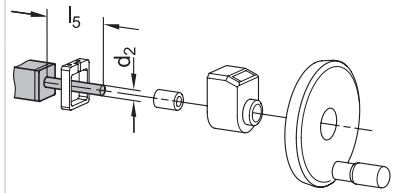
Stud length l_8

Stud design 2



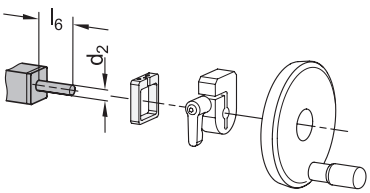
13
B
Stud for handwheel

Stud length l_4



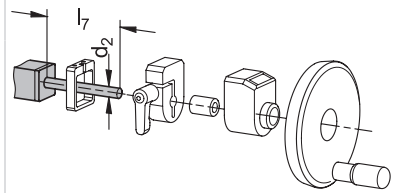
13
D
Stud for position indicator and handwheel

Stud length l_5



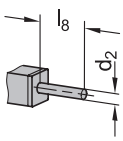
13
E
Stud for clamping plate and handwheel

Stud length l_6



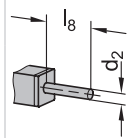
13
F
Stud for clamping plate, position indicator and handwheel

Stud length l_7



13
Gxx
Individual length with parallel key (for xx value from table column l_8)

Stud length l_8



13
Hxx
Individual length without parallel key (for xx value from table column l_8)

Stud length l_8

How to order

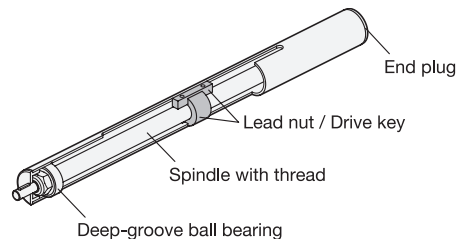
Standard section | Supplemental section

1	2	3	4	5	6	7	8	9	10	11	12	13
GN 2931 -	40 -	NI -	620 -	350 -	120 -	100 -	110 -	RH -	4 -	B -	LH -	1 -	F

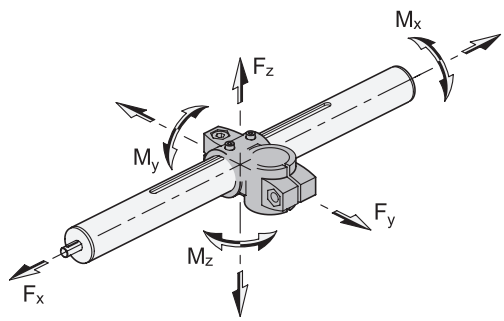
1	Square d_1	6	Intermediate distance k_2	11	Thread direction of spindle 2
2	Material	7	Edge distance 2 k_3	12	Spindle pitch 2
3	Stroke 1 l_1	8	Thread direction of spindle 1	13	Stud design 2
4	Stroke 2 l_2	9	Spindle pitch 1		
5	Edge distance 1 k_1	10	Stud design 1		

Technical Description

The linear actuators have a guide nut that is moved axially by means of the threaded spindle with ball bearings. The follower prevents twisting and forms the connection to the installed linear actuator connector.
Tube clamps are available in a wide variety of different designs for fastening the linear actuators.



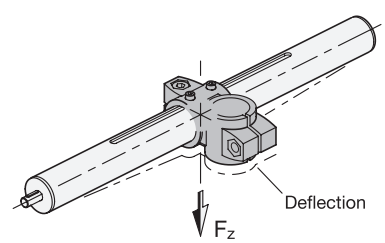
Load Data



Ø Linear actuator	**Fx** in N	**Fy** in N			**Fz** in N			**Mx** in Nm	**My** in Nm	**Mz** in Nm
		l = 500	l = 1000	l = 1500	l = 500	l = 1000	l = 1500			
18	400	80	-	-	65	-	-	1,5	4,5	4,5
30	850	500	70	15	550	55	10	6,5	15	15
40	1100	2150	250	65	1900	150	50	15	42	42
50	1750	3100	650	150	3100	650	150	29	69	69
60	2600	4550	1500	400	4550	1400	350	45	125	125

Deflection / Elastic Deformation

The maximum permissible forces and torques given in the table result in elastic deformation of the linear actuator. With the values listed, this amounts to approximately 0.4 mm. The figure shows this deformation using force F_z as example.



Positioning precision

The positioning precision indicates the amount of deviation with which a specific position can be reached. The table indicates the maximum occurring deviation.

Max. deviation	
Trapezoidal thread drive	Find thread drive
± 0.1 mm / 300 mm Hub	± 0.1 mm / 300 mm Hub

Repeatability

The repeatability indicates how precisely a position can be reached multiple times under identical conditions. In general, the repeatability is higher than the positioning precision because manufacturing tolerances have no influence on the repeatability. With the trapezoidal and fine thread drives used, the repeatability is ±0.05 mm.

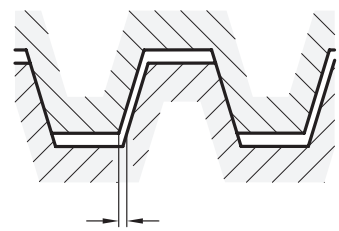
Guidance Accuracy

The precision guide tubes of the linear actuators are made of steel as per DIN EN 10305-4 and are also chrome plated. The stainless steel design makes use of stainless steel precision tubes as per EN 10216-5.

Backlash on Reversal

The play between the thread flanks of the spindle and the spindle nut results in idling when the drive direction is changed. Before the connector moves in the opposite direction, this play must first be overcome.

This backlash on reversal prevents the spindle nut and spindle from jamming up. For linear actuators with trapezoidal and fine thread spindles, the backlash on reversal is 0.2 mm.



Self-Braking

Because the pitch angle of trapezoidal and fine thread spindles is smaller than the angle of friction, these spindles are self-braking. It is not possible to push the linear actuator connector. The spindle can also be additionally secured with an external spindle lock by means of clamping plates.

Lifespan

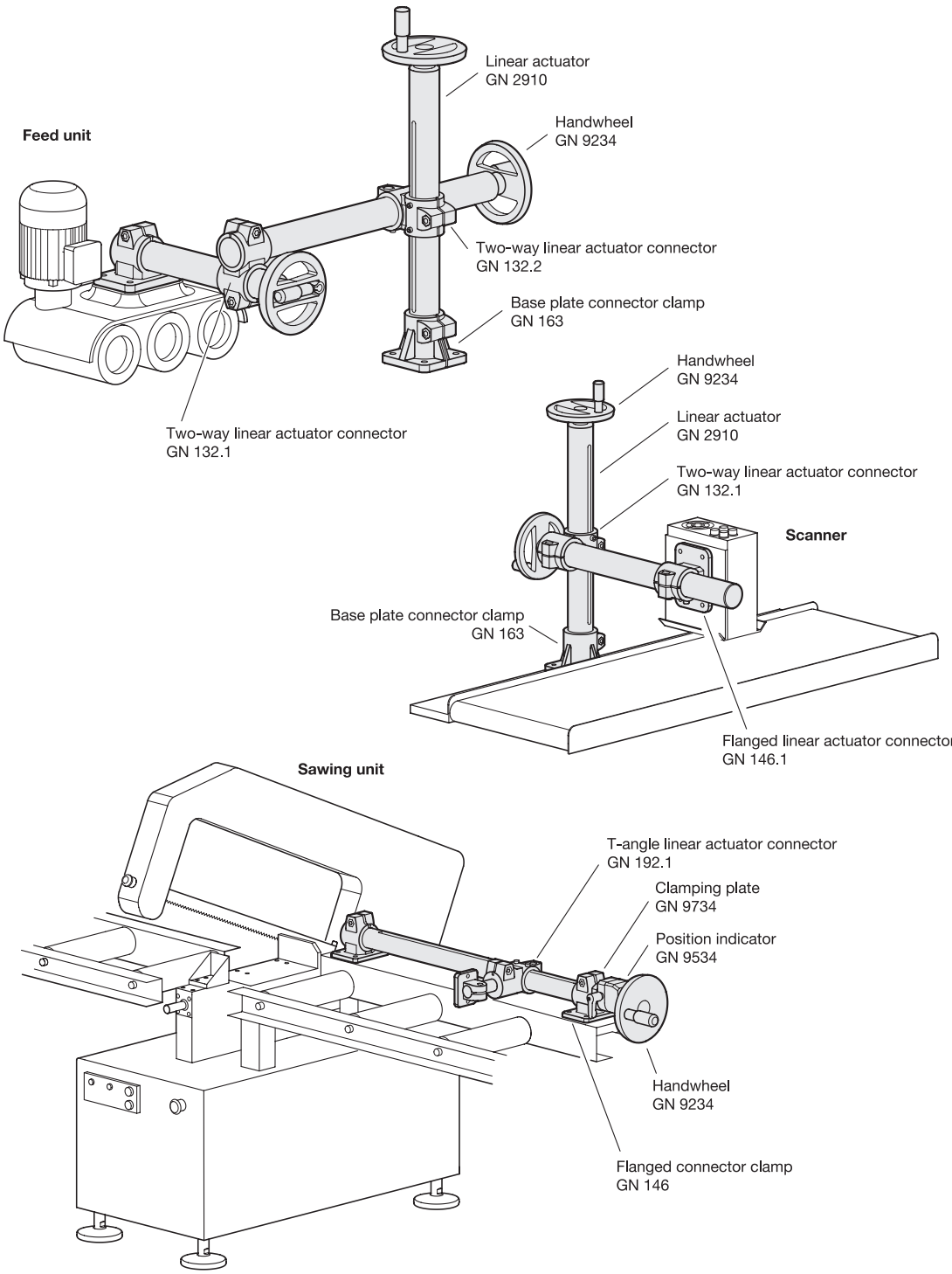
The lifespan of linear actuators in a given application depends on the expected environmental conditions.

The following factors come into play:

- Installation position
- Load moved
- Movement speed
- Movement frequency
- Ambient temperature
- Compliance with maintenance intervals

Environmental Conditions

The linear actuators are designed for ambient temperatures from -20 °C to +100 °C. In general, large temperature fluctuations and condensing humidity should be avoided.

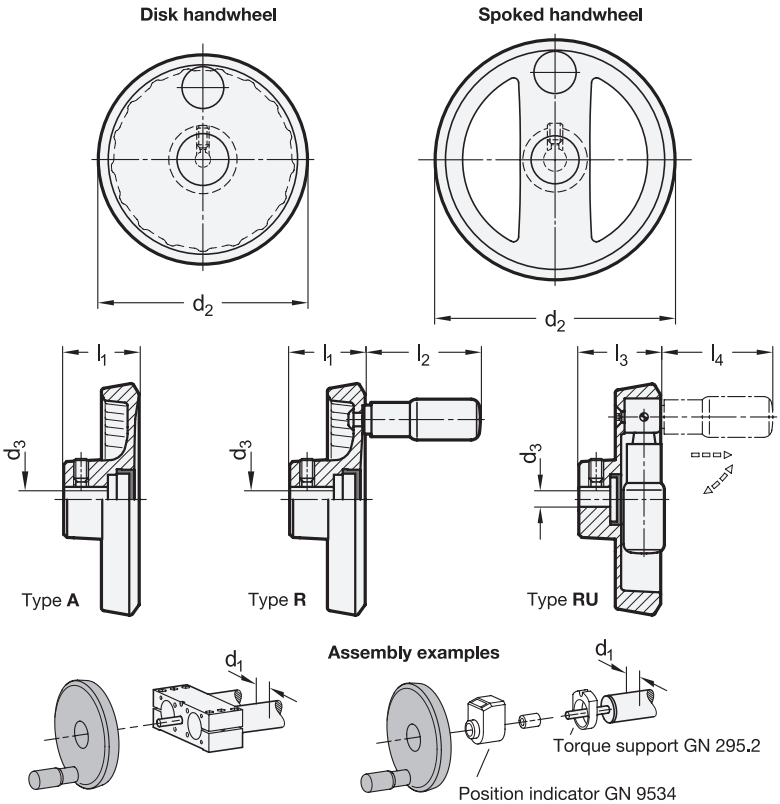

Feed unit
Linear actuator
GN 2910
Handwheel
GN 9234
Two-way linear actuator connector
GN 132.2
Base plate connector clamp
GN 163
Two-way linear actuator connector
GN 132.1
Handwheel
GN 9234
Linear actuator
GN 2910
Two-way linear actuator connector
GN 132.1
Scanner
Base plate connector clamp
GN 163
Flanged linear actuator connector
GN 146.1
Sawing unit
T-angle linear actuator connector
GN 192.1
Clamping plate
GN 9734
Position indicator
GN 9534
Handwheel
GN 9234
Flanged connector clamp
GN 146

Accessories for Configurable Linear Actuators

Overview of Types

The accessories include parts that supplement the linear actuators or improve their usability. For example, handwheels can be used for operating the linear actuators, position indicators for monitoring the position and clamping plates for locking the spindle in place. The torque supports provide protection against twisting when installing a position indicator and clamping plate. The matching accessories can be selected on the various standard sheets based on the diameter of the chosen linear actuator.

Code no.		Characteristics	Cross-section	
			d_1	s
GN 9234 Page 26		Handwheels GN 9234 are used for manually operating linear actuators and are available with a variety of handle designs.	18 30 40 50 60	30 40 50
GN 9734 Page 27		Clamping plates GN 9734 are used to lock the threaded spindle to prevent unintended movement out of the current position.	30 40 50 60	30 40 50
GN 9534 Page 28		Position indicators GN 9534 indicate the current position of the linear actuator connector using a mechanical counter. The supplied adapter bushing serves as the connection between the stud of the linear actuator connector and the hollow shaft of the position indicator.	18 30 40 50 60	30 40 50
GN 9034 Page 29		Position indicators GN 9034 indicate the current position of the linear actuator connector using a display. The supplied adapter bushing serves as the connection between the stud of the linear actuator connector and the hollow shaft of the position indicator.	30 40 50 60	30 40 50
GN 295.2 Page 30		Torque supports GN 295.2 are needed for installing clamping plates and position indicators on round linear actuators.	18 30 40 50 60	-
GN 296.2 Page 31		Torque supports GN 296.2 are needed for installing clamping plates and position indicators on square linear actuators.	-	30 40 50



reddot design award winner

3 Type

A	Without handle
R	With revolving handle
RU	With revolving retractable handle (only for d_1 = 30...60)

1	2						
d_1 Ø Linear actuator	**d_2** Disk handwheel	**d_2** Spoked handwheel	**d_3** H7 Bore	**l_1 ≈**	**l_2 ≈**	**l_3 ≈**	**l_4 ≈**
18	80	-	6	26	43,5	-	-
30	100	-	8	30	58	39	56,5
40	100	-	12	30	58	39	56,5
40	-	125	12	33,5	61,5	45	60,5
50	-	140	12	36,5	76,5	47	75,5
60	-	160	14	39,5	76,5	48	75,5

Specification

4

- Aluminum die casting
  - Machined hub
  - Turned rim
  - Powder coated
    Black, RAL 9005, textured finish ● **SW**
- Concentricity and axial run-out tolerance of the rim < 0.4
- Revolving handles / Retractable handles GN 798.2 / GN 798.3
- *Keyway JS9 DIN 6885 Page 1 → Page 2078*
- *Cross Holes GN 110 → Page 2080*
- *ISO Fundamental Tolerances → Page 2151*
- RoHS

Information

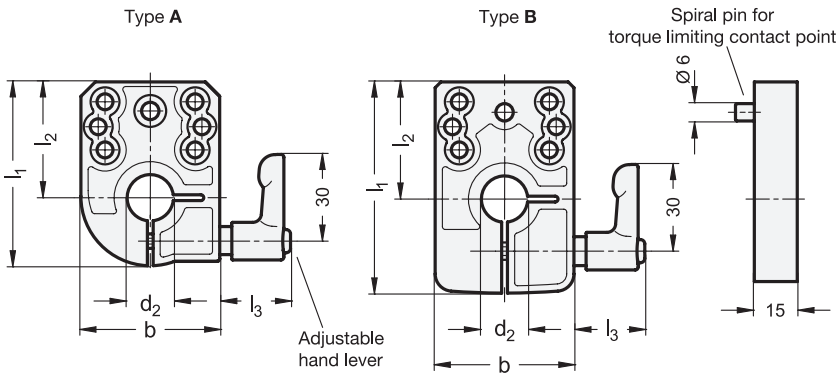
Handwheels GN 9234 are intended for use with linear actuators and are designed as disk or spoked handwheels, depending on their size.

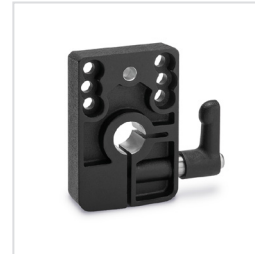
The applied torque is transmitted by means of a parallel key, and the handwheel is secured axially with the supplied grub screw. The handwheels can be ordered without handles, with revolving handles or with revolving retractable handles.

How to order

1 2 3 4
GN 9234-30-100-R-SW

1	d_1
2	d_2
3	Type
4	Finish



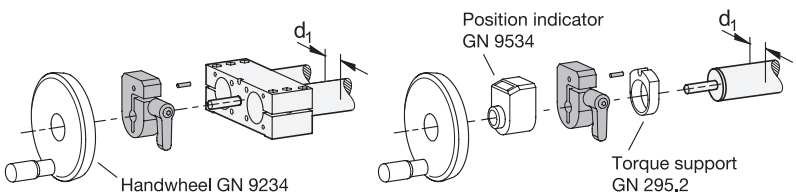


2 Type

A For mechanical position indicators or without position indicator

B For electronic position indicators

Assembly examples



1

d_1 Ø Linear actuator	b	d_2 F9	l_1		l_2		l_3	Compatible with position indicator	
			Type A	Type B	Type A	Type B		Type A	Type B
30	33	8	47	55	30,5	30,5	24,5	GN 9534	GN 9034
40	48	12	66,5	73	43	40,5	24,5	GN 9534	GN 9034
50	48	12	66,5	73	43	40,5	24,5	GN 9534	GN 9034
60	48	14	66,5	73	43	40,5	24,5	GN 9534	GN 9034

Specification

- Zinc die casting
  Powder coated
  Black, textured finish
- Spiral pin ISO 8750
  Stainless steel
- Adjustable hand lever GN 302.1
  - Zinc die casting
    Powder coated
    Black, RAL 9005, textured finish
  - Threaded insert
    Stainless steel AISI 303

→ *Page 451*

- *ISO Fundamental Tolerances* → *Page 2151*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

Clamping plates GN 9734 are used to fix the spindles of configurable linear actuators in place after adjustment.

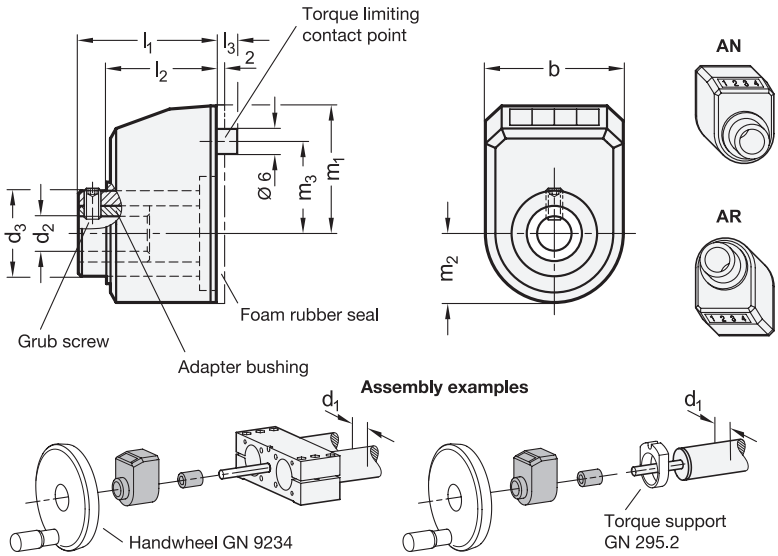
Using a hand lever, the bore diamter of the clamping plate is reduced until the spindle stem of the linear actuator is clamped, preventing unintentional adjustment of the approached position.

The enclosed spiral pin connects the clamping plate to the torque support, preventing it from twisting. If no position indicator is mounted to the linear actuator, as shown in the example, type A is recommended.

see also...

- *Torque Supports GN 295.2 / GN 296.2* → *Page 30 / 31*
- *Position Indicators GN 9034 (Electronic Counter)* → *Page 29*
- *Position Indicators GN 9534 (Mechanical Counter)* → *Page 28*

How to order		
GN 9734-40-A (1 2)	1	d_1
	2	Type



3 Type

R Numbers ascending clockwise
L Numbers ascending anti-clockwise

5 Installation (Front view)

AN On the chamfer, above
AR On the chamfer, below

1 d_1 Ø Linear actuator	2 p Spindle pitch Linear actuator	Counter	Indication after one spindle revolution	b	d_2 H7	d_3	l_1	l_2	l_3	m_1	m_2	m_3	Grub screw	Max. rpm
18	3	003	003	24	6	14	26	21	5	28,5	10	18	M 3	1500
30	4	004.0	0040	33	8	20	33	26	5,5	30,5	16,5	22	M 4	625
30	1	001.0	0010	33	8	20	33	26	5,5	30,5	16,5	22	M 4	1500
40	4	0004.0	00040	48	12	29	37	30	6	43,5	23	30	M 5	625
40	1	0001.0	00010	48	12	29	37	30	6	43,5	23	30	M 5	1500
50	4	0004.0	00040	48	12	29	37	30	6	43,5	23	30	M 5	625
50	1	0001.0	00010	48	12	29	37	30	6	43,5	23	30	M 5	1000
60	5	0005.0	00050	48	14	29	37	30	6	43,5	23	30	M 5	500

Specification

- Hollow shaft, adapter bushing
  - Steel, blackened — **ST**
  - Stainless steel AISI 304 — **NI**
- Housing
  Plastic (polyamide PA)
  - Orange, RAL 2004 — **OR**
  - Grau, RAL 7035 — **GR**
  - Temperature resistant up to 80 °C
  - Oil and solvent resistant
- Digits white,
  Number wheels for integers black,
  for decimals red with additional scale
- *ISO Fundamental Tolerances → Page 2151*
- *Plastic Characteristics → Page 2158*
- *Stainless Steel Characteristics → Page 2166*
- RoHS

Information

Position indicators GN 9534 are designed for attachment to configurable linear actuators. They are mounted to the spindle stem of the linear actuator using an adapter bushing and a grub screw. The directly driven counter with digital position display must be matched to the pitch of the threaded spindle.

The housing is welded by ultrasound, making it particularly sturdy, tight and compact. The foam rubber seal prevents the transmission of vibration to the counter and acts as a seal.

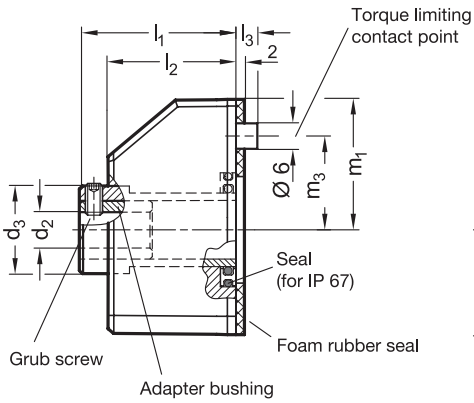
see also...

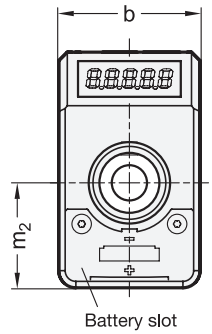
- *More Information for Position Indicators → Page 394*

How to order

GN 9534-30-4-R-ST-AN-OR

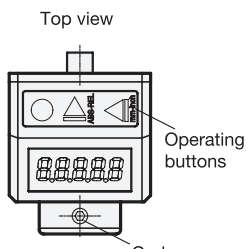
1	d_1
2	p
3	Type
4	Material
5	Installation (Front view)
6	Color

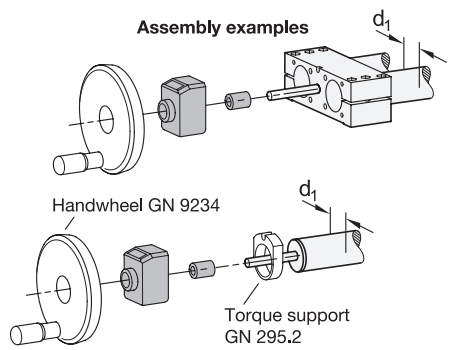




2 Identification no.

1 Protection class IP 65
2 Protection class IP 67





1

d_1 Ø Linear actuator	b	d_2 H7	d_3	l_1	l_2	l_3	m_1	m_2	m_3	Grub screw	LCD display Number of positions	Max. rpm
30	33,5	8	19,5	34	28,5	5,5	30,5	25	22	M 4	5	1000
40	48	12	28,5	41	34	6	40	32,5	30	M 5	6	1000
50	48	12	28,5	41	34	6	40	32,5	30	M 5	6	1000
60	48	14	28,5	41	34	6	40	32,5	30	M 5	6	1000

Specification

3

- Housing
  Plastic (polyamide PA)
  - Orange, RAL 2004 **OR**
  - Gray, RAL 7035 **GR**
  - Temperature resistant up to 50 °C
  - Oil and solvent resistant
- LCD display
- Hollow shaft, adapter bushing
  Stainless steel AISI 304
- O-ring seal
  Rubber NBR (Perbunan®)
  (only for identification no. 2)
- *ISO Fundamental Tolerances → Page 2151*
- *IP Protection Classes → Page 2153*
- *Plastic Characteristics → Page 2158*
- *Stainless Steel Characteristics → Page 2166*
- RoHS

Information

Electronic position indicators GN 9034 are designed for attachment to configurable linear units. They are mounted to the spindle stem of the linear actuator using an adapter bushing and a grub screw. The position indicators must be adjusted for the thread pitch and direction of the linear actuators. Power is supplied by a long-life battery.

The housing is welded by ultrasound, making it particularly sturdy, tight and compact. The foam rubber seal prevents the transmission of vibrations and acts as a seal.

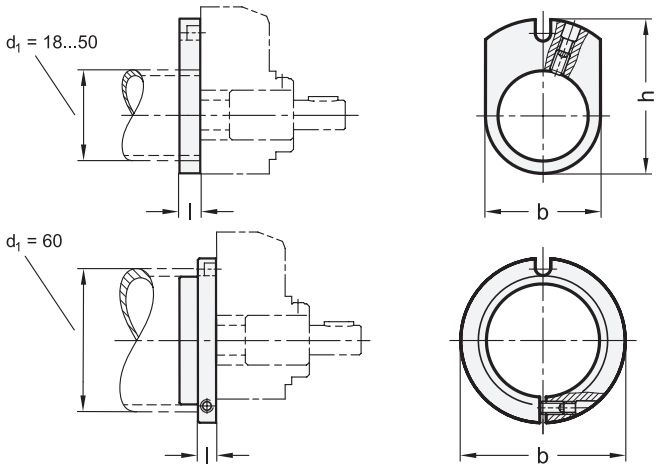
see also...

- *More Information for Position Indicators → Page 394*

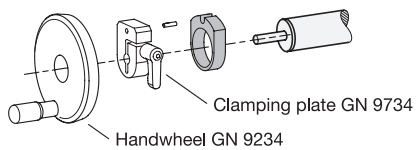
How to order

GN 9034-50-2-GR (1 2 3)

1	d_1
2	Identification no.
3	Color



Assembly example



1

d_1 Ø Linear actuator	b	h	Length l
18	24	33	10
30	35	42	10
40	47	56,5	10
50	58	61	10
60	64	-	7

Specification

2

- Aluminum
  Black anodized **ELS**
- Grub screw DIN 913
  Stainless steel AISI 304
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

Torque supports GN 295.2 are required for attaching a position indicator or a clamping plate to configurable linear actuators.

The torque supports are made of black anodized aluminum and are non-positively clamped to the linear actuator. With the open radial groove on one side, they prevent the position indicator or clamping plate from twisting.

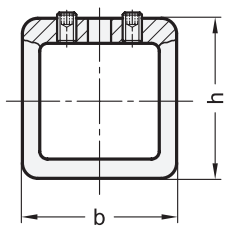
see also...

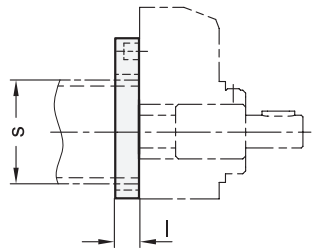
- *Linear Actuators GN 2910 / GN 2920 / GN 2930* → *Page 4 / 10 / 16*
- *Position Indicators GN 9034 (Electronic Counter)* → *Page 29*
- *Position Indicators GN 9534 (Mechanical Counter)* → *Page 28*
- *Clamping Plates GN 9734* → *Page 27*
- *Handwheels GN 9234* → *Page 26*

How to order

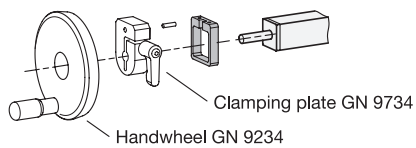
GN 295.2-30-ELS (1 = 30, 2 = ELS)

1	d_1
2	Finish





Assembly example



1

s ⍁ Linear actuator	**b**	**h**	Length **l**
30	40	43,5	12
40	50	56,5	12
50	60	61,5	12

Specification

2

- Aluminum
  Matte, ground finish **MT**
- Grub screw DIN 913
  Stainless steel AISI 304
- RoHS

Information

Torque supports GN 296.2 are required for attaching a position indicator or a clamping plate to configurable square linear actuators.

The torque supports are made of aluminum and are non-positively clamped to the linear actuator. With the open radial groove on one side, they prevent the position indicator or clamping plate from twisting.

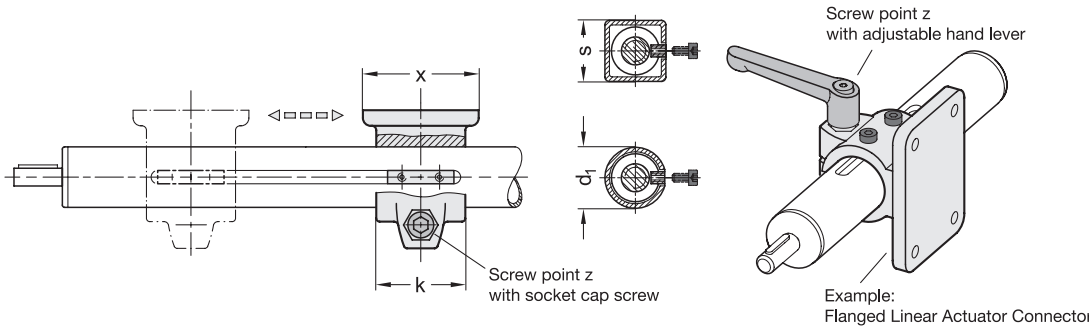
see also...

- *Square Linear Actuators GN 2911 / GN 2921 / GN 2931* → *Page 7 / 13 / 19*
- *Position Indicators GN 9034 (Electronic Counter)* → *Page 29*
- *Position Indicators GN 9534 (Mechanical Counter)* → *Page 28*
- *Clamping Plates GN 9734* → *Page 27*
- *Handwheels GN 9234* → *Page 26*

How to order

GN 296.2-30-MT (1 2)

1	s
2	Finish



Code no.		Material AL	Material NI	Cross-section d_1	Cross-section s	Interfering contours k Clamping length	Interfering contours x Flange	Slide insert available	Hand lever available as accessory
GN 131.1 **GN 131.2** Page 1954		×	×	18	-	25	-	Yes	Yes
GN 132.1 **GN 132.2** Page 1955		×	-	30 40 50 60	-	40 56 65 80	-	Yes	Yes
GN 132.15 **GN 132.25** Page 1956		-	×	30 50	-	40 65	-	Yes	Yes
GN 133.1 **GN 133.2** Page 1957		×	-	18 30 50	-	40 65	-	Yes	Yes
GN 134.1 **GN 134.2** **GN 135.1** Page 1978		×	-	30 40 50	30 40 50	50 60 76	-	No	Yes
GN 145.1 Page 1958		×	-	18	-	25	35	Yes	Yes
GN 146.1 **GN 146.13** Page 1959		×	-	30 40 50 60	-	40 56 65 80	52 78 92 110	Yes	Yes
GN 146.15 **GN 146.16** Page 1961		-	×	30 50	-	40 65	52 92	Yes	Yes
GN 147.1 Page 1980		×	-	-	30 40 50	50 76	50 76	No	Yes

Code no.		Material		Cross-section		Interfering contours		Slide insert available	Hand lever available as accessory
		AL	NI	d_1	s	k Clamping length	x Flange		
GN 162.1 Page 1963		-	×	18	-	40	-	Yes	Yes
GN 163.1 Page 1964		×	-	30 40 50 60	-	50 70 85 100	-	Yes	No
GN 163.15 Page 1965		-	×	30 50	-	50 85	-	Yes	Yes
GN 165.1 Page 1981		×	-	-	30 40 50	58 91	-	No	Yes
GN 273.1 Page 1969		×	-	18	-	25	-	Yes	Yes
GN 274.1 Page 1970		×	-	30 40 50	-	40 65	-	Yes	Yes
GN 277.1 Page 1971		×	-	18	-	25	-	Yes	Yes
GN 278.1 Page 1972		×	-	30 40 50	-	40 65	-	Yes	Yes
GN 191.1 Page 1966		×	×	18	-	25	-	Yes	Yes
GN 192.1 Page 1967		×	-	30 40 50 60	-	40 56 65 80	-	Yes	Yes
GN 192.15 Page 1968		-	×	30 50	-	37 65	-	Yes	Yes

SP-GA-ENG-09.22-KOLI Configurable Linear Actuators

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