Telescopic slides

DESIGNED
FOR ENGINEERING

Telescopic slides

General notes

GENERAL INFORMATION

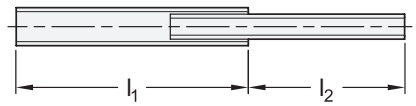
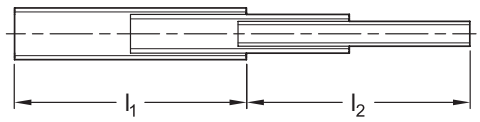
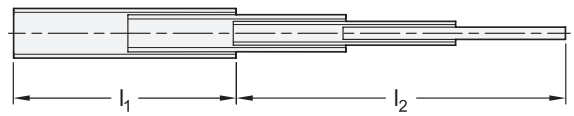
Telescopic slides offer smooth running, wear-free, and quiet linear motion. They are used in a very wide range of applications. The spectrum ranges from the most simple extensions and drawers to high-quality variants that are used in the industrial environment on machines, production systems, and equipment. The telescopic slides have a multitude of positive features and are still very interesting from an economic standpoint. Here are a few examples of use: sliding doors, protective hoods, keyboards and PC pullouts, vehicle equipment, storage shelves, battery boxes etc.
Telescopic slides can come with a number of component options. Some are available for one of the two stop positions and in combination, and they are defined by the type in the article number.

STRUCTURE

Telescopic slides consist of an outer and inner slide as well as additionally of one or two middle slides depending on design and/or required extension lengths. The slides are interconnected through appropriately shaped geometry and move by means of ball bearings. A ball cage keeps the bearings spaced and in position.

The slides are usually mounted through countersunk holes or through-holes. Other options, such as threaded bolts or support brackets, are available as an alternative.

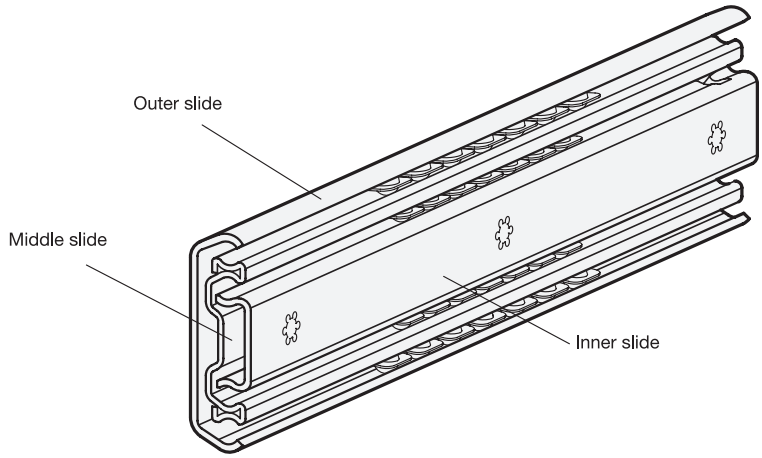
In regard to the length of the extension, telescopic slides can be divided into three categories:
Partial extension, full extension, and over extension. The categories are defined by the achievable stroke l_2, which is listed in relation to the nominal length l_1.

Type of extension	Extension diagram
Partial extension: l1 = 100 % -> l2 = min. 75 %	
Full extension: l1 = 100 % -> l2 = min. 100 %	
Over extension: l1 = 100 % -> l2 = min. 150 %	

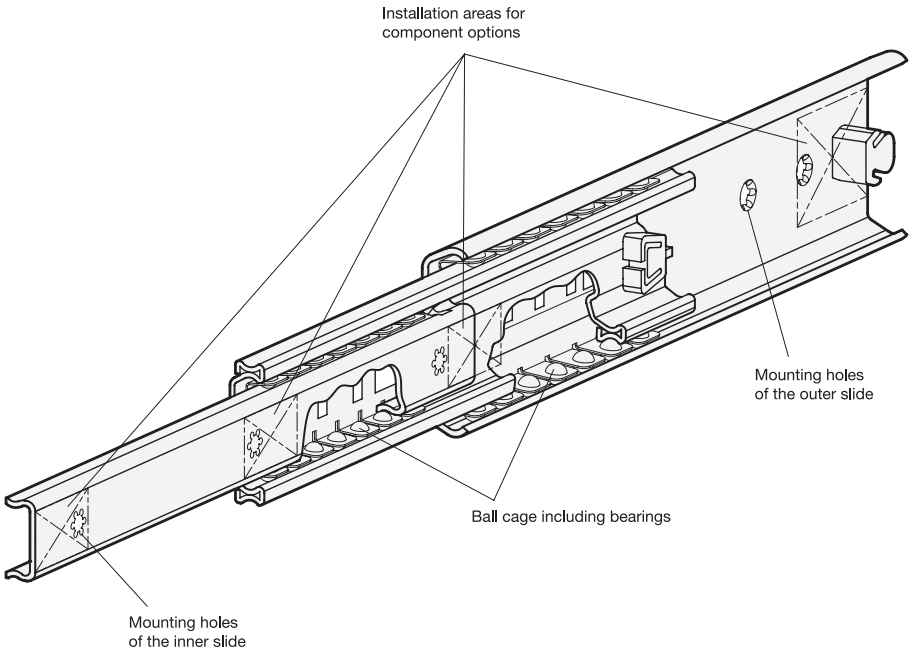
All slides have internally constructed stops in the front and back end position. The stops prevent the slides from extending unintentionally. Depending on the available installation space and required stability, the stops are designed accordingly in a metallic form or with additional plastic or elastomer parts as a rubber stop to prevent the slides from hitting the end positions with too much force.

Also the telescopic slides can come with a variety of accessory functions. Examples include locking devices, latches, detach functions, and self-retracting mechanisms, some of which are dampened. Some additional functions are available, depending on slide variant, for the back or front stop position and in combination. Furthermore, customer-specific modifications regarding the fastening of the slides can be made.

TELESCOPIC SLIDES WITH FULL EXTENSION, BACK STOP POSITION



TELESCOPIC SLIDES WITH FULL EXTENSION, FRONT STOP POSITION



Telescopic slides - Types

Standard	Type of extension	Load capacity	Basic length	Material	Fastening		
	Partial extension **T** Full extension **V**	per pair at 10,000 cycles in N	retracted position in mm	Steel **ST** St. Steel **NI**	Through-holes	Countersunk holes	Outer slide, through-holes/ Inner slide, countersunk holes
					(Id. no. **1**)	(Id. no. **2**)	(Id. no. **3**)
GN 1400 see page 6	T	280	300 - 500	ST	X		
GN 1404 see page 8	T	780	300 - 700	ST			X
GN 1408 see page 10	V	250	250 - 700	ST	X		
GN 1410 see page 13	V	510	250 - 800	ST	X		
GN 1412 see page 16	V	430	300 - 700	ST	X		
GN 1414 see page 19	V	360	300 - 650	ST	X		
GN 1418 see page 22	V	430	350 - 650	ST	X		
GN 1420 see page 25	V	1290	300 - 1200	ST		X	
GN 1422 see page 27	V	1290	300 - 800	ST		X	
GN 1424 see page 30	V	750	350 - 700	ST		X	
GN 1426 see page 33	V	1380	500 - 800	ST		X	
GN 1430 see page 35	V	2120	400 - 1200	ST		X	
GN 1432 see page 37	V	2300	400 - 800	ST		X	
GN 1440 Type B see page 40	V	3250	300 - 1500	ST	X		
GN 1440 Type M see page 40	V	3250	300 - 1500	ST	X		
GN 1440 Type K see page 40	V	3250	300 - 1500	ST	X		
GN 1440 Type Q see page 40	V	3250	300 - 1500	ST	X		
GN 1450 see page 44	V	510	300 - 600	NI	X		
GN 1460 see page 47	V	1050	250 - 800	NI		X	

Telescopic slides - Component features

Standard	Component features									
	without rubber stop	with rubber stop, back-front	Locking device back	Locking device back, detach function	Latch back	Latch front	Latch back-front	Self-retracting mechanism, dampened / not dampened	Push to open - mechanism	Extension on both sides
			Type **E**	Type **F**	Type **M**	Type **K**	Type **Q**			
GN 1400 see page 6	X									
GN 1404 see page 8		X	X							
GN 1408 see page 10		X		X						
GN 1410 see page 13		X		X						
GN 1412 see page 16		X		X				X		
GN 1414 see page 19		X		X				X		
GN 1418 see page 22		X		X					X	
GN 1420 see page 25		X	X							
GN 1422 see page 27		X						X		
GN 1424 see page 30		X						X		
GN 1426 see page 33		X								X
GN 1430 see page 35		X	X							
GN 1432 see page 37		X						X		
GN 1440 Type B see page 40		X								
GN 1440 Type M see page 40		X			X					
GN 1440 Type K see page 40		X				X				
GN 1440 Type Q see page 40		X					X			
GN 1450 see page 44		X		X						
GN 1460 see page 47		X		X						

GN 1400

Telescopic slides

with partial extension, load capacity up to 280 N

SPECIFICATION

Type

Type **A**: without rubber stop

Identification no.

No. **1**: Fastening using through-holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage
Steel, zinc plated

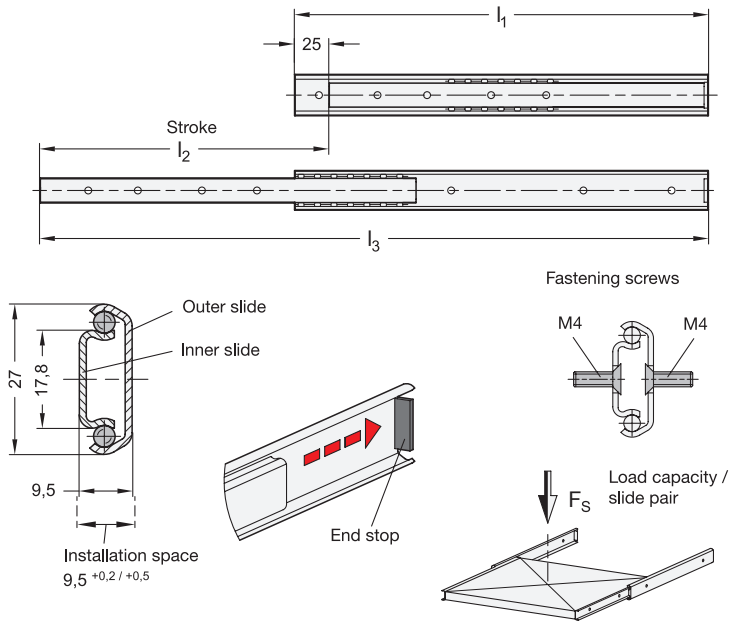
Operating temperature -20 °C to 100 °C

INFORMATION

Telescopic slides GN 1400 are installed vertically and in pairs. The stroke reaches ≈ 75 % of the nominal length l1 (partial extension). With type A without rubber stop, the end stops are made out of steel, which prevents the slide from being unintentionally pulled out or detached. If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach without additional auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- with rubber stop
- with locking device (back, front, or back-front)
- other surfaces
- with support bracket
- with retraction dampening, external

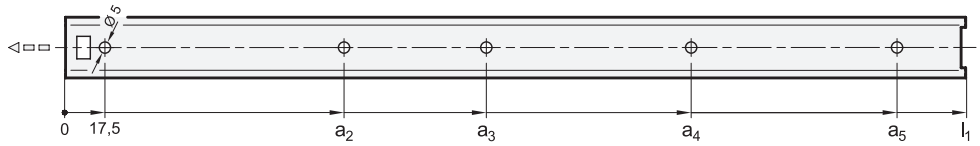


GN 1400

Description	l1	l2 +2/-2	l3	Fs per pair in N at 10,000 cycles	Fs per pair in N at 100,000 cycles	⚖
GN 1400-300-A-1-ZB	300*	210	485	220	170	380
GN 1400-350-A-1-ZB	350*	240	565	260	200	440
GN 1400-400-A-1-ZB	400*	290	665	260	200	500
GN 1400-500-A-1-ZB	500*	370	845	280	220	630

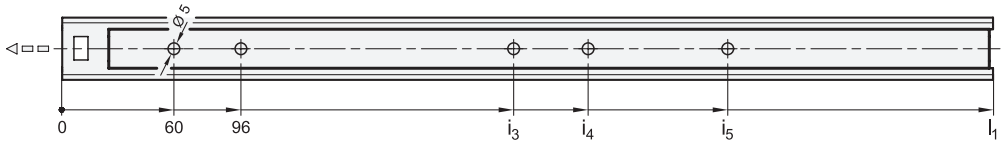
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a2	a3	a4	a5
300	113.5	209.5	273.5	-
350	113.5	209.5	337.5	-
400	113.5	209.5	369.5	-
500	145.5	209.5	337.5	465.5

Mounting holes - Inner slide



l1	i3	i4	i5
300	142.5	182.5	-
350	167.5	207.5	-
400	192.5	232.5	282.5
500	242.5	282.5	357.5

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available through-holes of the outer and inner slide must be used. Failure to use fastening screws reduced the specificed load capacity accordingly. The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Countersunk screw, Phillips | DIN 965	M 4	M 4
Countersunk screw, Phillips | DIN 7997	Size 3.5 / 4	Size 3.5

GN 1404

Telescopic slides

with partial extension, load capacity up to 780 N

SPECIFICATION

Type

Type **E**: with rubber stop, locking device in back

Identification no.

No. **3**: Fastening using through-holes on external slide and countersunk holes on inner slide

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage
Steel, zinc plated

Rubber stop
Plastic / Elastomer

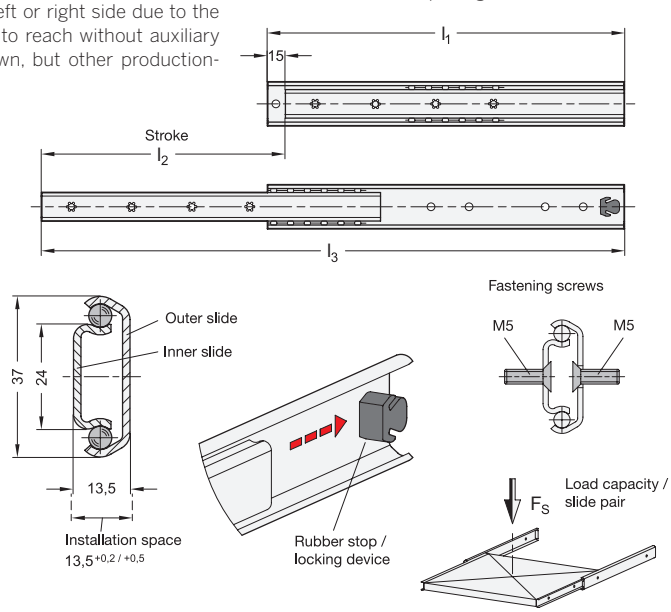
Operating temperature -20 °C to 100 °C

INFORMATION

Telescopic slides GN 1404 are installed vertically and in pairs. The stroke reaches ≈ 75 % of the nominal length l1 (partial extension). The rubber stops of type E dampen the impact of the slide in the two end positions and takes on the locking function of the back stop position. This feature is noticeable through a slight resistance on opening and closing. If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements. The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach without auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- with rubber stop (without locking device)
- other surfaces
- with support bracket
- with retraction dampening, external

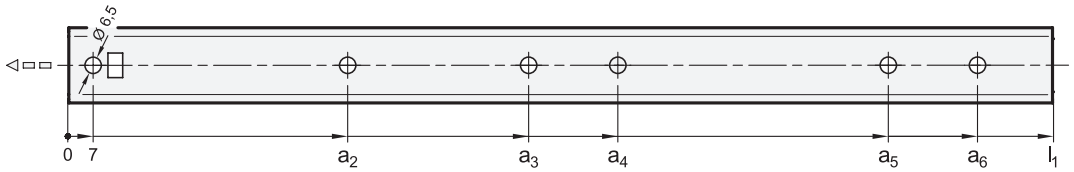


GN 1404

Description	l1	l2 +2/-2	l3	FS per pair in N at 10,000 cycles	FS per pair in N at 100,000 cycles	⚖
GN 1404-300-E-3-ZB	300*	205	490	780	600	900
GN 1404-350-E-3-ZB	350*	239	574	630	490	1040
GN 1404-400-E-3-ZB	400*	289	674	540	420	1200
GN 1404-450-E-3-ZB	450*	339	774	460	360	1340
GN 1404-500-E-3-ZB	500*	373	858	540	420	1400
GN 1404-600-E-3-ZB	600*	457	1042	560	430	1760
GN 1404-700-E-3-ZB	700*	541	1226	560	430	2150

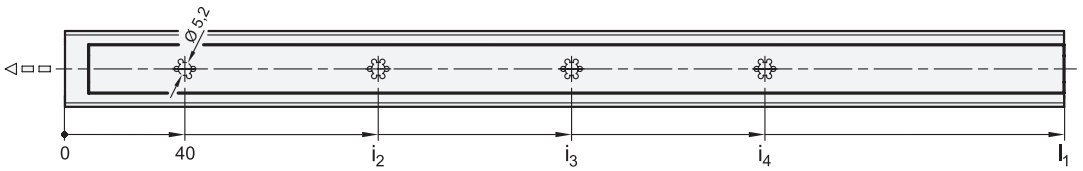
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a2	a3	a4	a5	a6
300	135	199	231	-	-
350	135	231	263	-	-
400	135	295	327	-	-
450	135	327	359	-	-
500	167	295	327	391	423
600	167	359	391	487	519
700	199	391	423	583	615

Mounting holes - Inner slide



l1	i2	i3	i4
300	72	136	168
350	104	168	200
400	104	200	264
450	104	200	296
500	136	232	328
600	168	296	424
700	168	328	520

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available through-holes of the outer and inner slide must be used. Failure to use fastening screws reduced the specificed load capacity accordingly.
The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Countersunk screw, Phillips | DIN 965	M 5	M 5
Countersunk screw, Phillips | DIN 7997	Size 5	Size 4.5

GN 1408

Telescopic slides

with full extension, load capacity up to 250 N

SPECIFICATION

Type

Type **F**: with rubber stop, locking device in back, detach function

Identification no.

No. **1**: Fastening using through-holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage, outer slide
Plastic

Ball cage, inner slide
Steel, zinc plated

Rubber stop and detach function
Plastic / Elastomer

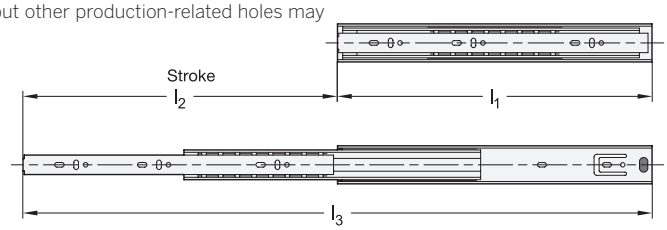
Operating temperature -20 °C to 100 °C

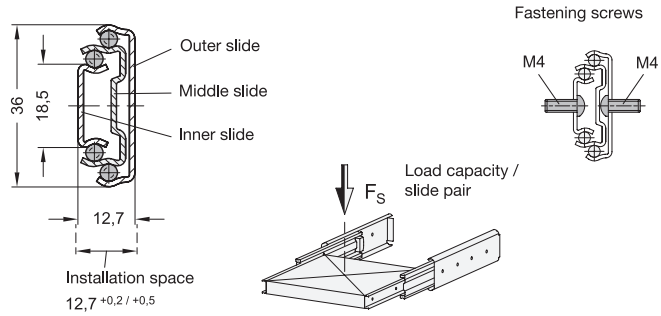
INFORMATION

Telescopic slides GN 1408 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l_1 (full extension).
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- other surfaces



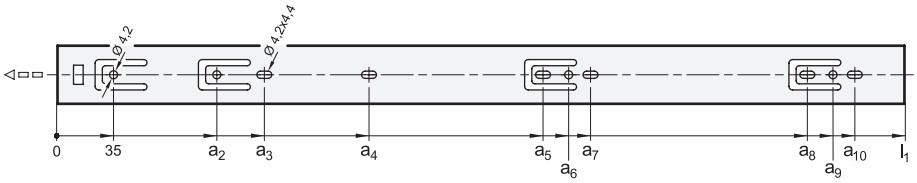


GN 1408

Description	l_1	l_2 +3/-3	l_3	F_S per pair in N at 10,000 cycles	F_S per pair in N at 100,000 cycles	⚖
GN 1408-250-F-1-ZB	250*	250	500	200	150	595
GN 1408-300-F-1-ZB	300*	300	600	200	150	710
GN 1408-350-F-1-ZB	350*	350	700	220	180	815
GN 1408-400-F-1-ZB	400*	400	800	250	200	925
GN 1408-450-F-1-ZB	450*	450	900	250	200	1025
GN 1408-500-F-1-ZB	500*	500	1000	220	180	1175
GN 1408-550-F-1-ZB	550*	550	1100	220	180	1291
GN 1408-600-F-1-ZB	600*	600	1200	200	150	1407
GN 1408-650-F-1-ZB	650*	650	1300	200	150	1523
GN 1408-700-F-1-ZB	700*	700	1400	200	150	1639

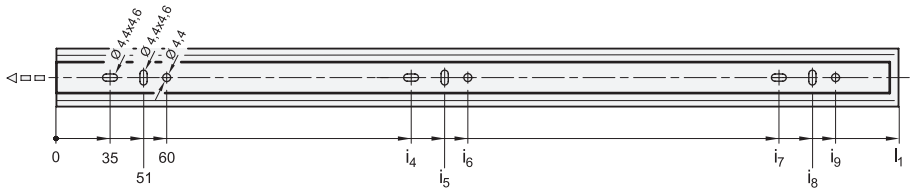
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a2	a3	a4	a5	a6	a7	a8	a9	a10
250	-	65	-	195	210	225	-	-	-
300	99	129	195	257	272	-	-	-	-
350	99	129	185	259	274	289	-	-	-
400	99	129	-	259	274	-	323	338	353
450	99	129	185	259	274	289	387	402	417
500	99	129	185	291	306	321	451	466	481
550	99	129	185	323	338	353	483	498	513
600	99	129	185	323	338	353	515	530	545
650	99	129	185	355	370	385	579	594	609
700	99	129	185	387	402	417	643	658	673

Mounting holes - Inner slide



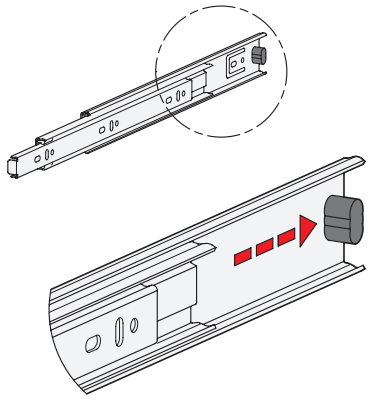
l1	i4	i5	i6	i7	i8	i9
250	195	211	220	-	-	-
300	114	130	139	227	243	252
350	163	179	188	291	307	316
400	163	179	188	355	371	380
450	195	211	220	387	403	412
500	227	243	252	451	467	476
550	259	275	284	492	499	508
600	259	275	284	515	531	540
650	291	307	316	579	595	604
700	323	339	348	643	659	668

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available through-holes of the outer slide having a diameter (Ø) of 4.2 and of the inner slide having a diameter (Ø) of 4.4 must be used. The elongated holes, Ø 4.2 x 4.4 of the outer slide and Ø 4.4 x 4.6 of the inner slide, are used likewise for fastening and facilitate adjustment during mounting when needed. Failure to use fastening screws reduces the specified load capacity accordingly. The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Hexagon socket button head screw ISO 7380	M 4	M 4
Pan head screw, Phillips ISO 7045	M 4	M 4
Pan head tapping screw, Phillips ISO 7049	ST 3.9 / 4.2	ST 3.9 / 4.2

Rubber stop, locking device in back

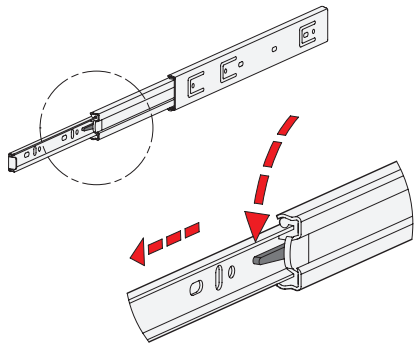


The rubber stops of type F dampen the impact of the slide in the respective end position. This feature minimizes noise development and increases the lifespan. Attached to the slides in a partially concealed, partially visible manner, the stops meet each of the requirements in regard to shape, material, and hardness.

In the back stop position, the rubber stop takes on additionally a locking function, which is noticeable through a slight resistance on opening and closing.

If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.

Detach function

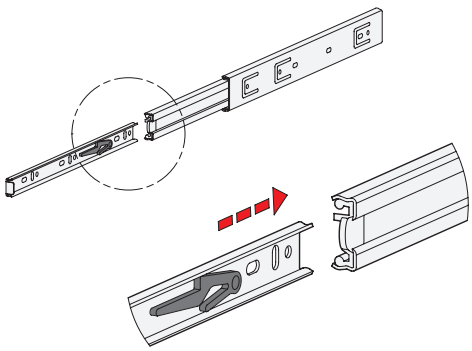


Type F has additionally a detach function through which the extension slides can be completely separated from one another in the area of the middle and inner slide. This feature not only facilitates mounting. It also allows the extension to be quickly removed, for example, when frequent maintenance work is performed on the components located behind.

The telescopic slide can be quickly and easily detached in the extracted position through activation of the release lever, allowing the inner slide to be removed from the front.

For reattaching the slides, the ball cages need to be moved to the front end position. Then the inner slide is inserted to the back end stop where it locks into place automatically.

The protected arrangement of the release mechanism prevents accidental detachment of the slide.



GN 1410

Telescopic slides

with full extension, load capacity up to 510 N

SPECIFICATION

Type

Type **F**: with rubber stop, locking device in back. detach function

Identification no.

No. **1**: Fastening using through-holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage, outer slide
Steel, zinc plated

Ball cage, inner slide
Steel, zinc plated

Rubber stop and detach function
Plastic / Elastomer

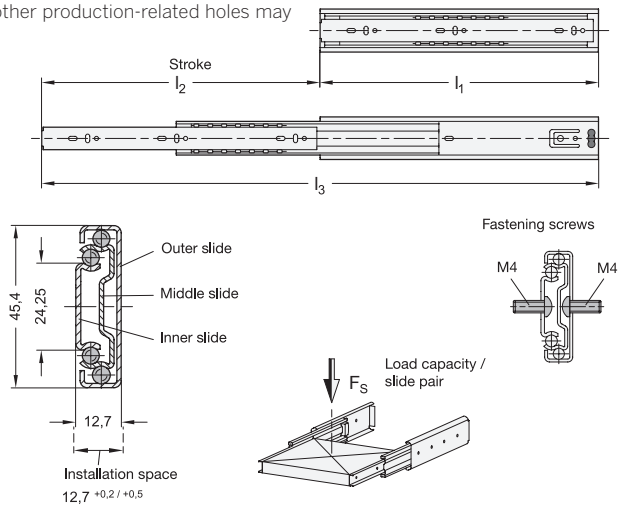
Operating temperature -20 °C to 100 °C

INFORMATION

Telescopic slides GN 1410 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l_1 (full extension).
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- other surfaces

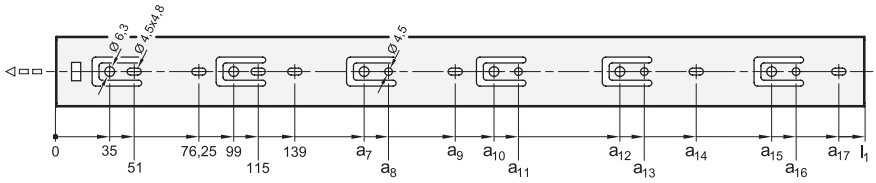


GN 1410

Description	l_1	l_2 +3/-3	l_3	F_S per pair in N at 10,000 cycles	F_S per pair in N at 100,000 cycles	⚖
GN 1410-250-F-1-ZB	250*	250	500	450	320	700
GN 1410-300-F-1-ZB	300*	300	600	460	340	880
GN 1410-350-F-1-ZB	350*	350	700	480	360	1040
GN 1410-400-F-1-ZB	400*	400	800	510	390	1200
GN 1410-450-F-1-ZB	450*	450	900	510	390	1480
GN 1410-500-F-1-ZB	500*	500	1000	480	360	1520
GN 1410-550-F-1-ZB	550*	550	1100	460	340	1630
GN 1410-600-F-1-ZB	600*	600	1200	440	340	1840
GN 1410-650-F-1-ZB	650*	650	1300	420	320	2040
GN 1410-700-F-1-ZB	700*	700	1400	420	320	2160
GN 1410-750-F-1-ZB	750*	750	1500	400	300	2250
GN 1410-800-F-1-ZB	800*	800	1600	400	300	2400

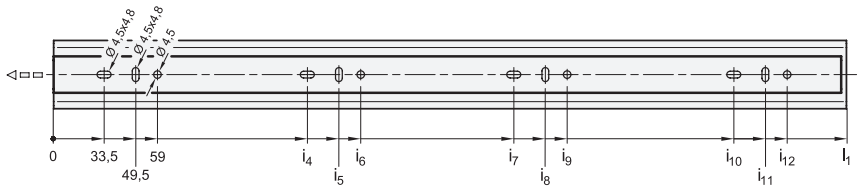
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a7	a8	a9	a10	a11	a12	a13	a14	a15	a16	a17
250	183	199	-	-	-	-	-	-	-	-	-
300	259	275	-	-	-	-	-	-	-	-	-
350	259	275	309	-	-	-	-	-	-	-	-
400	259	275	-	323	339	-	-	373	-	-	-
450	259	275	361.5	387	403	-	-	-	-	-	-
500	259	275	361.5	387	403	451	467	-	-	-	-
550	259	275	361.5	387	403	451	467	501	-	-	-
600	259	275	361.5	387	403	515	531	565	-	-	-
650	259	275	361.5	387	403	579	595	629	-	-	-
700	259	275	361.5	387	403	579	595	629	-	-	-
750	259	275	361.5	387	403	547	563	597	643	659	693
800	259	275	361.5	387	403	579	595	629	707	723	757

Mounting holes - Inner slide



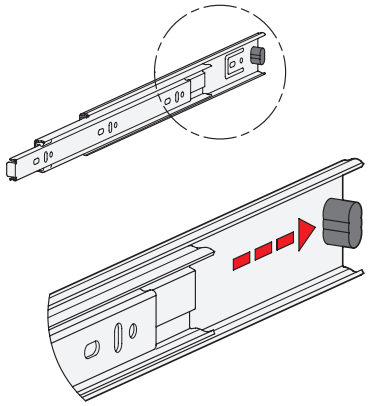
l1	i4	i5	i6	i7	i8	i9	i10	i11	i12
250	209.5	225.5	235	-	-	-	-	-	-
300	129.5	145.5	155	257.5	273.5	283	-	-	-
350	161.5	177.5	187	289.5	305.5	315	-	-	-
400	193.5	209.5	219	353.5	369.5	379	-	-	-
450	193.5	209.5	219	385.5	401.5	411	-	-	-
500	225.5	241.5	251	449.5	465.5	475	-	-	-
550	257.5	273.5	283	481.5	497.5	507	-	-	-
600	289.5	305.5	315	545.5	561.5	571	-	-	-
650	321.5	337.5	347	609.5	625.5	635	-	-	-
700	321.5	337.5	347	609.5	625.5	635	-	-	-
750	193.5	209.5	219	321.5	337.5	347	673.5	689.5	699
800	193.5	209.5	219	353.5	369.5	379	705.5	721.5	731

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available through-holes of the outer and inner slide having a diameter (Ø) of 4.5 must be used. Alternatively, the outer slide has holes with a diameter (Ø) of 6.3 for Euro screws. The elongated holes, Ø 4.5 x 4.8, are used likewise for fastening and facilitate adjustment during mounting when needed. Failure to use fastening screws reduces the specified load capacity accordingly. The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Hexagon socket button head screw | ISO 7380	M 4	M 4
Pan head screw, Phillips | ISO 7045	M 4	M 4
Pan head tapping screw, Phillips | ISO 7049	ST 3.9 / 4.2	ST 3.9 / 4.2

Rubber stop, locking device in back

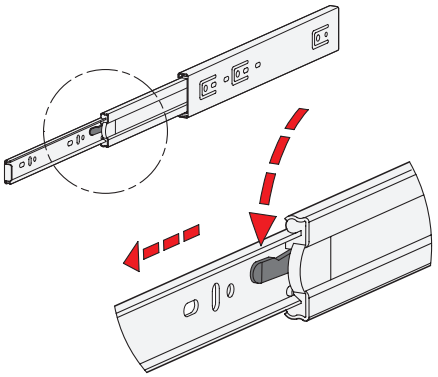


The rubber stops of type F dampen the impact of the slide in the respective end position. This feature minimizes noise development and increases the lifespan. Attached to the slides in a partially concealed, partially visible manner, the stops meet each of the requirements in regard to shape, material, and hardness.

In the back stop position, the rubber stop takes on additionally a locking function, which is noticeable through a slight resistance on opening and closing.

If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.

Detach function

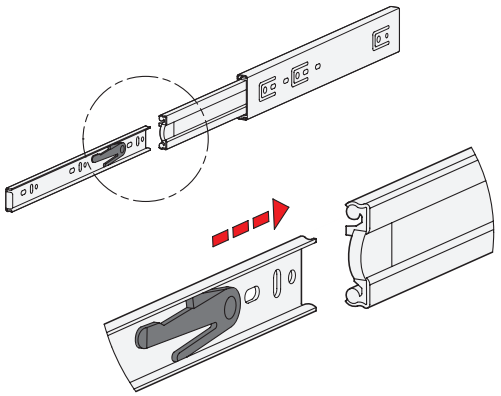


Type F has additionally a detach function through which the extension slides can be completely separated from one another in the area of the middle and inner slide. This feature not only facilitates mounting. It also allows the extension to be quickly removed, for example, when frequent maintenance work is performed on the components located behind.

The telescopic slide can be quickly and easily detached in the extracted position through activation of the release lever, allowing the inner slide to be removed from the front.

For reattaching the slides, the ball cages need to be moved to the front end position. Then the inner slide is inserted to the back end stop where it locks into place automatically.

The protected arrangement of the release mechanism prevents accidental detachment of the slide.



GN 1412

Telescopic slides

with full extension and self-retracting mechanism, load capacity up to 430 N

SPECIFICATION

Type

Type **F**: with rubber stop, locking device in back. detach function

Identification no.

No. **1**: Fastening using through-holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage, outer slide
Plastic

Ball cage, inner slide
Steel, zinc plated

Rubber stop and detach function
Plastic / Elastomer

Self-retracting mechanism
Zinc plated steel / plastic

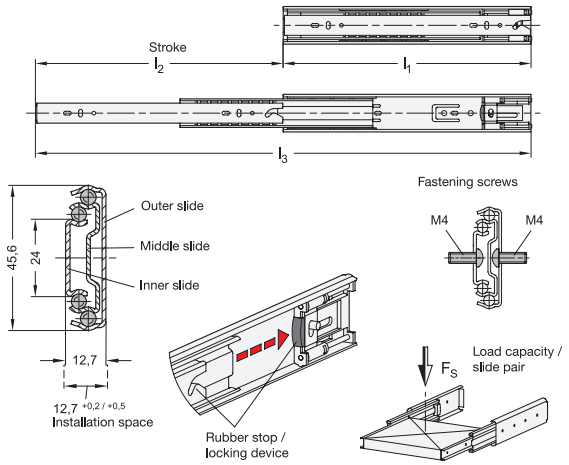
Operating temperature -20 °C to 100 °C

INFORMATION

Telescopic slides GN 1412 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l1 (full extension). The rubber stops of type F dampen the impact of the slide in the end positions. This feature minimizes noise development and increases the lifespan. If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- other surfaces

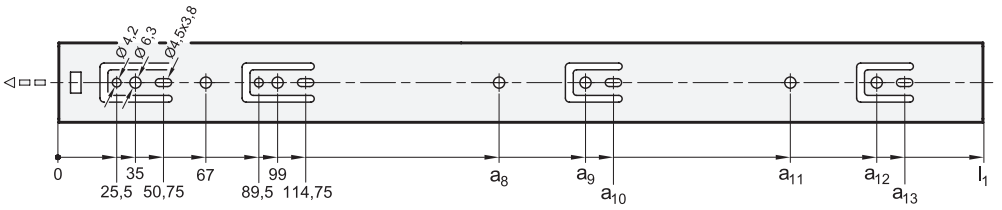


GN 1412

Description	l1	l2 +3/-3	l3	Fs per pair in N at 10,000 cycles	Fs per pair in N at 100,000 cycles	⚖
GN 1412-300-F-1-ZB	300*	300	600	330	240	880
GN 1412-350-F-1-ZB	350*	350	700	380	290	1040
GN 1412-400-F-1-ZB	400*	400	800	430	340	1200
GN 1412-450-F-1-ZB	450*	450	900	430	340	1480
GN 1412-500-F-1-ZB	500*	500	1000	380	290	1400
GN 1412-550-F-1-ZB	550*	550	1100	330	240	1630
GN 1412-600-F-1-ZB	600*	600	1200	320	240	1840
GN 1412-650-F-1-ZB	650*	650	1300	300	220	1990
GN 1412-700-F-1-ZB	700*	700	1400	300	220	2150

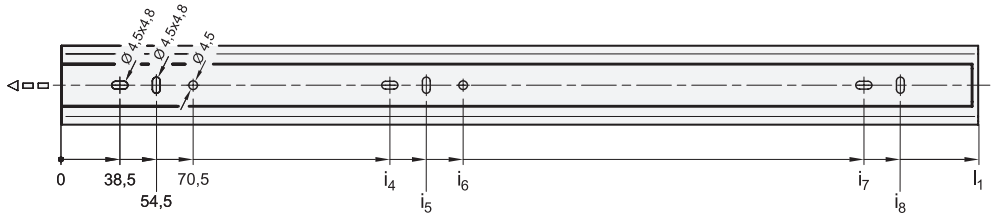
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a8	a9	a10	a11	a12	a13
300	-	195	207.75	227	-	-
350	-	227	239.75	259	-	-
400	259	291	303.75	323	-	-
450	259	323	335.75	-	-	-
500	259	323	335.75	-	387	399.75
550	259	323	335.75	387	451	463.75
600	259	355	367.75	387	483	495.75
650	259	355	367.75	451	515	527.75
700	259	355	367.75	515	579	591.75

Mounting holes - Inner slide



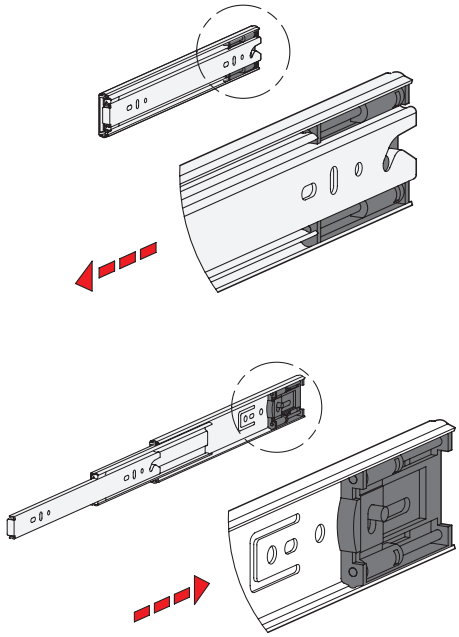
l1	i4	i5	i6	i7	i8
300	230.5	246.5	262.5	-	-
350	150.5	166.5	182.5	292.5	308.5
400	170.5	186.5	202.5	341.5	357.5
450	195.5	211.5	227.5	391.5	407.5
500	220.5	236.5	252.5	441.5	457.5
550	250.5	266.5	282.5	492.5	508.5
600	260.5	276.5	292.5	541.5	557.5
650	260.5	276.5	292.5	602.5	618.5
700	260.5	276.5	292.5	652.5	668.5

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available through-holes of the outer slide having a diameter (Ø) of 4.2 and of the inner slide having a diameter (Ø) of 4.5 must be used. Alternatively, the outer slide has holes with a diameter (Ø) of 6.3 for Euro screws. The elongated holes, Ø 4.5 x 3.8 of the outer slide and Ø 4.5 x 4.8 of the inner slide, are used likewise for fastening and facilitate adjustment during mounting when needed. Failure to use fastening screws reduces the specified load capacity accordingly. The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Hexagon socket button head screw | ISO 7380	M 4	M 4
Pan head screw, Phillips | ISO 7045	M 4	M 4
Pan head tapping screw, Phillips | ISO 7049	ST 3.9 / 4.2	ST 3.9 / 4.2

Self-retracting mechanism

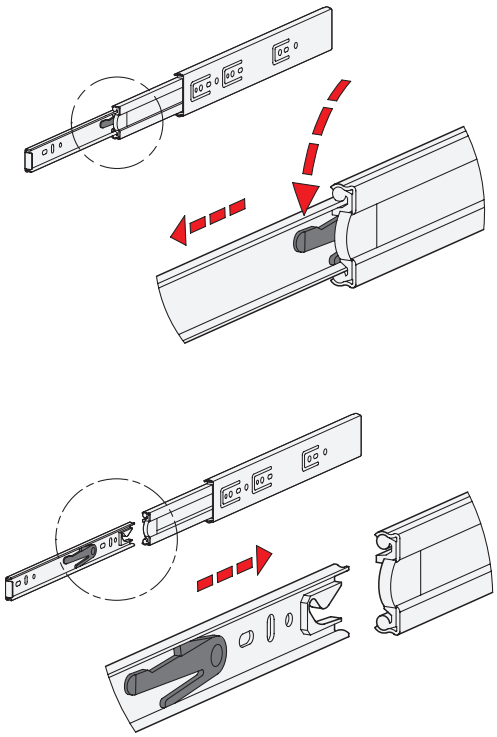


Telescopic slides GN 1412 have an integrated self-retracting mechanism, which improves considerably the ease of use when closing the extensions.

The slides are retracted and held in the back end position automatically by means of a retraction mechanism on the last 30 mm of stroke with a force of approximately 25 newtons for each slide pair.

In this slide variant the available retraction force can be regarded as a locking device, which is noticeable through a slight restriction on opening the extension.

Detach function



Type F has additionally a detach function through which the extension slides can be completely separated from one another in the area of the middle and inner slide. This feature not only facilitates mounting. It also allows the extension to be quickly removed, for example, when frequent maintenance work is performed on the components located behind.

The telescopic slide can be quickly and easily detached in the extracted position through activation of the release lever, allowing the inner slide to be removed from the front.

For reattaching the slides, the ball cages need to be moved to the front end position. Then the inner slide is inserted to the back end stop where it locks into place automatically.

The protected arrangement of the release mechanism prevents accidental detachment of the slide.

GN 1414

Telescopic slides

with full extension and dampened self-retracting mechanism, load capactiy up to 360 N

SPECIFICATION

Type

Type **F**: with rubber stop, locking device in back, detach function

Identification no.

No. **1**: Fastening using through-holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage, outer slide
Plastic

Ball cage, inner slide
Steel, zinc plated

Rubber stop and detach function
Plastic / Elastomer

Self-retracting mechanism, dampened
Steel / Plastic

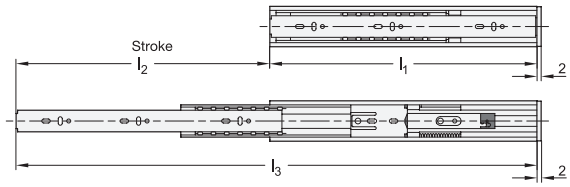
Operating temperature -20 °C to 100 °C

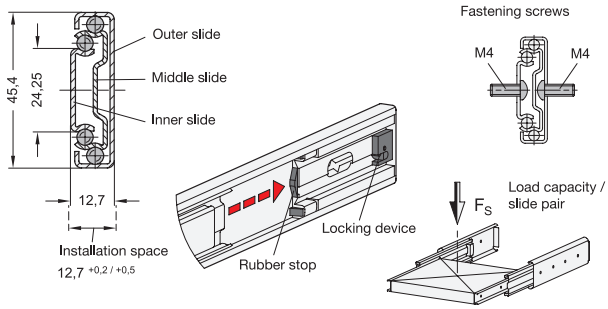
INFORMATION

Telescopic slides GN 1414 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l_1 (full extension). The rubber stops of type F dampen the impact of the slide in the end positions. This feature minimizes noise development and increases the lifespan. If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- other surfaces



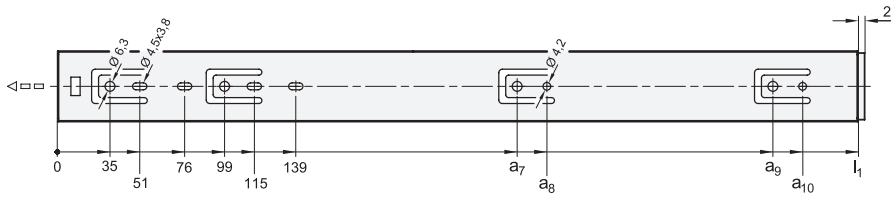


GN 1414

Description	l_1	l_2 +3/-3	l_3	F_S per pair in N at 10,000 cycles	F_S per pair in N at 100,000 cycles	⚖
GN 1414-300-F-1-ZB	300*	250	550	260	140	845
GN 1414-350-F-1-ZB	350*	320	670	260	140	985
GN 1414-400-F-1-ZB	400*	375	775	310	190	1245
GN 1414-450-F-1-ZB	450*	450	900	360	240	1395
GN 1414-500-F-1-ZB	500*	500	1000	360	240	1535
GN 1414-550-F-1-ZB	550*	550	1100	310	190	1685
GN 1414-600-F-1-ZB	600*	600	1200	310	190	1845
GN 1414-650-F-1-ZB	650*	650	1300	260	140	1995

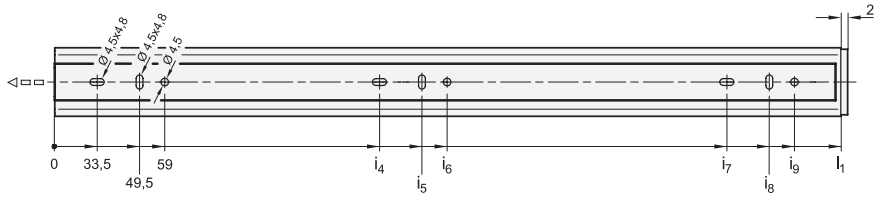
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a7	a8	a9	a10
300	191.75	207.75	-	-
350	241.75	257.75	-	-
400	291.75	307.75	-	-
450	195	211	341.75	357.75
500	227	243	391.75	407.75
550	259	275	441.75	457.75
600	291	307	491.75	507.75
650	323	339	541.75	557.75

Mounting holes - Inner slide



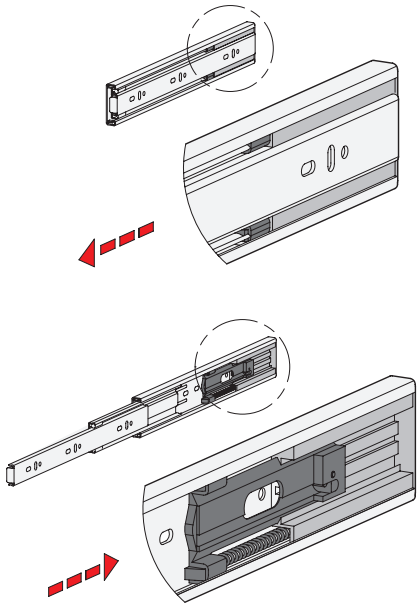
l1	i4	i5	i6	i7	i8	i9
300	129.5	145.5	-	225.5	241.5	251
350	129.5	145.5	155	289.5	305.5	315
400	161.5	177.5	187	321.5	337.5	347
450	193.5	209.5	219	385.5	401.5	411
500	225.5	241.5	251	449.5	465.5	475
550	225.5	241.5	251	481.5	497.5	507
600	257.5	273.5	283	513.5	529.5	539
650	289.5	305.5	315	577.5	593.5	603

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available through-holes of the outer and inner slide having a diameter (Ø) of 4.5 must be used. Alternatively, the outer slide has holes with a diameter (Ø) of 6.3 for Euro screws. The elongated holes, Ø 4.5 x 4.8, are used likewise for fastening and facilitate adjustment during mounting when needed. Failure to use fastening screws reduces the specified load capacity accordingly. The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Hexagon socket button head screw | ISO 7380	M 4	M 4
Pan head screw, Phillips | ISO 7045	M 4	M 4
Pan head tapping screw, Phillips | ISO 7049	ST 3.9 / 4.2	ST 3.9 / 4.2

Self-retracting mechanism, dampened



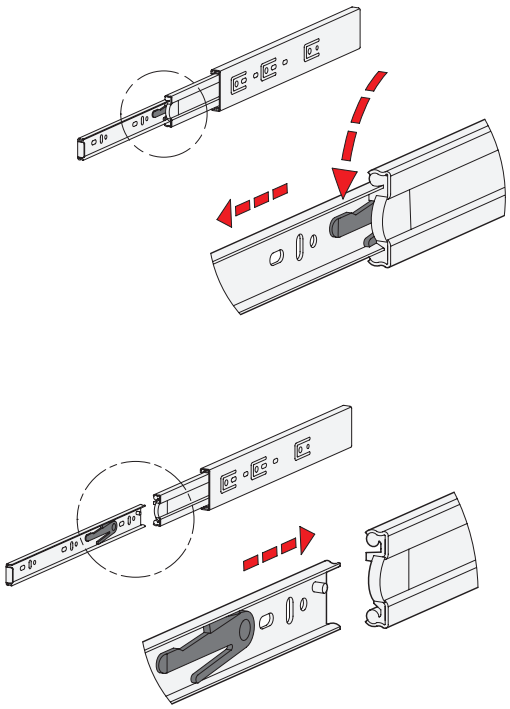
Telescopic slides GN 1414 have a dampened self-retracting mechanism, which is also called “soft-close”. The dampened self-retracting mechanism is divided into two main functions and offers the best possible ease of use on closing the extension.

The self-retracting mechanism takes over the automatic retraction of the slides on the last 47 mm of stroke in the back stop position, where the slides are held in place accordingly. The retraction force is about 40 newtons per slide pair. Also, the dampening mechanism slows down to a considerably reduced speed the closing movement on the said stroke. An extremely smooth and gentle closing movement is achieved. This retraction force has to be overcome accordingly on opening the extension.

The dampened self-retracting mechanism is designed for loads weighing up to 36 kg based on 60,000 cycles (LGA standard). Proper use, including the reduction of the stroke speed to no more than 0.15 m/s on reaching the retraction mechanism, as well as compliance with the load values are required.

In this slide variant the available retraction force can be regarded as a locking device, which is noticeable through a slight restriction on opening the extension.

Detach function



Type F has additionally a detach function through which the extension slides can be completely separated from one another in the area of the middle and inner slide. This feature not only facilitates mounting. It also allows the extension to be quickly removed, for example, when frequent maintenance work is performed on the components located behind.

The telescopic slide can be quickly and easily detached in the extracted position through activation of the release lever, allowing the inner slide to be removed from the front.

For reattaching the slides, the ball cages need to be moved to the front end position. Then the inner slide is inserted to the back end stop where it locks into place automatically.

The protected arrangement of the release mechanism prevents accidental detachment of the slide.

GN 1418

Telescopic slides

with full extension and self-retracting mechanism, load capacity up to 430 N

SPECIFICATION

Type

Type **F**: with rubber stop, locking device in back, detach function

Identification no.

No. **1**: Fastening using through-holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage, outer slide
Plastic

Ball cage, inner slide
Steel, zinc plated

Rubber stop and detach function
Plastic / Elastomer

Push to Open - mechanism
Steel / Plastic

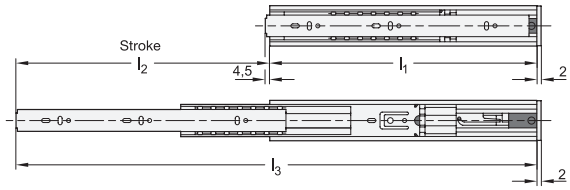
Operating temperature -20 °C to 100 °C

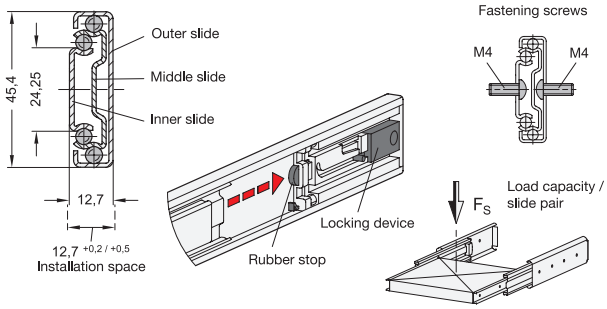
INFORMATION

Telescopic slides GN 1418 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l1 (full extension). The rubber stops of type F dampen the impact of the slide in the end positions. This feature minimizes noise development and increases the lifespan. If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- other surfaces



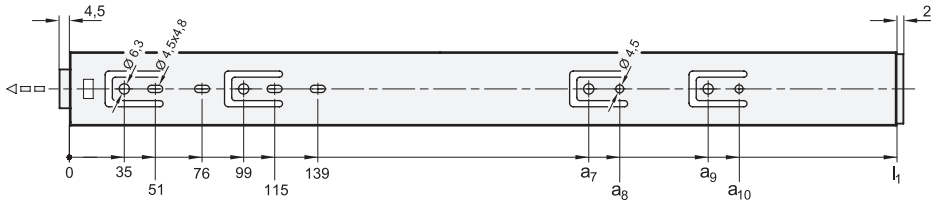


GN 1418

Description	l1	l2 +3/-3	l3	Fs per pair in N at 10,000 cycles	Fs per pair in N at 100,000 cycles	⚖
GN 1418-350-F-1-ZB	350*	350	700	380	290	1065
GN 1418-400-F-1-ZB	400*	400	800	430	340	1215
GN 1418-450-F-1-ZB	450*	450	900	430	340	1400
GN 1418-500-F-1-ZB	500*	500	1000	380	290	1510
GN 1418-550-F-1-ZB	550*	550	1100	330	240	1655
GN 1418-600-F-1-ZB	600*	600	1200	300	200	1835
GN 1418-650-F-1-ZB	650*	650	1300	300	200	2000

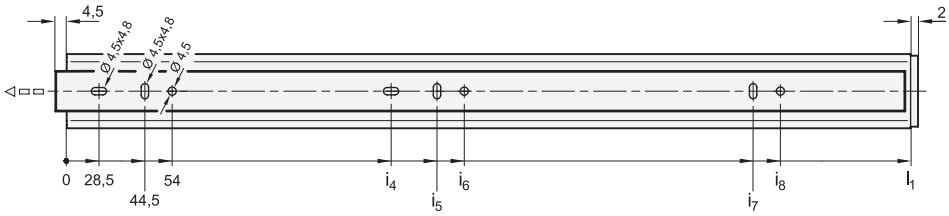
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a7	a8	a9	a10
350	195	211	-	-
400	195	211	-	-
450	259	275	-	-
500	291	307	-	-
550	355	371	-	-
600	387	403	451	467
650	419	435	483	499

Mounting holes - Inner slide



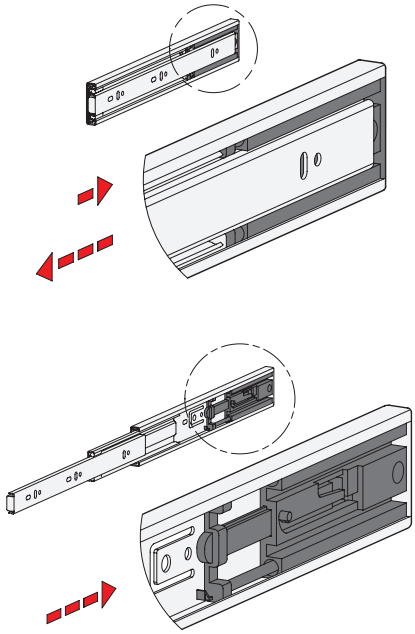
l1	i4	i5	i6	i7	i8
350	125	141	150.5	269	278.5
400	189	205	214.5	301	310.5
450	189	205	214.5	333	342.5
500	189	205	214.5	365	374.5
550	189	205	214.5	397	406.5
600	253	269	278.5	493	502.5
650	253	269	278.5	525	534.5

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available through-holes of the outer and inner slide having a diameter (Ø) of 4.5 must be used. Alternatively, the outer slide has holes with a diameter (Ø) of 6.3 for Euro screws. The elongated holes, Ø 4.5 x 4.8, are used likewise for fastening and facilitate adjustment during mounting when needed. Failure to use fastening screws reduces the specified load capacity accordingly. The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Hexagon socket button head screw | ISO 7380	M 4	M 4
Pan head screw, Phillips | ISO 7045	M 4	M 4
Pan head tapping screw, Phillips | ISO 7049	ST 3.9 / 4.2	ST 3.9 / 4.2

Push to open - mechanism



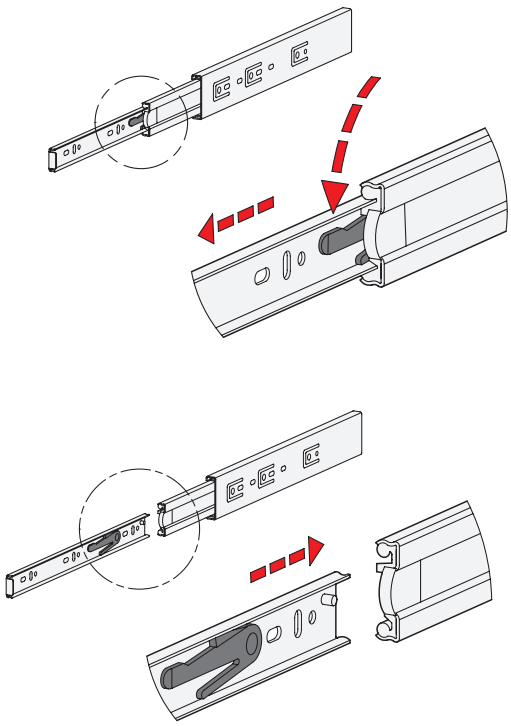
Telescopic slides GN 1418 come with a “push to open” or “touch to open” mechanism. In addition to ease of opening, the system allows you to have drawers without a front handle. The visual appearance is trim and high-end.

The drawers are actuated by pressing your hand on the front of the slide-out shelf or drawer. The required force to activate the opening mechanism is about 40 N per rail pair. The inner rail extends about 4.5 mm in its home position and can be pressed in a maximum of 8 mm in the closing direction. This should be taken into account during construction in order to prevent collisions. The pressure or release point is reached at about 3 mm which causes the drawer to slide out smoothly to about 42 mm in the opening direction after being released.

The same force has to be overcome when the drawer is closed. Over the last 42 mm, the drawer’s speed is reduced to a maximum of 0.15 m/s.

When closed, the rail is held by the opening mechanism as a type of lock.

Detach function



Type F has additionally a detach function through which the extension slides can be completely separated from one another in the area of the middle and inner slide. This feature not only facilitates mounting. It also allows the extension to be quickly removed, for example, when frequent maintenance work is performed on the components located behind.

The telescopic slide can be quickly and easily detached in the extracted position through activation of the release lever, allowing the inner slide to be removed from the front.

For reattaching the slides, the ball cages need to be moved to the front end position. Then the inner slide is inserted to the back end stop where it locks into place automatically.

The protected arrangement of the release mechanism prevents accidental detachment of the slide.

GN 1420

Telescopic slides

with full extension, load capacity up to 1290 N

SPECIFICATION

Type

Type **E**: with rubber stop, locking device in back

Identification no.

No. **2**: Fastening using countersunk holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage
Steel, zinc plated

Rubber stop
Plastic / Elastomer

Operating temperature -20 °C to 100 °C

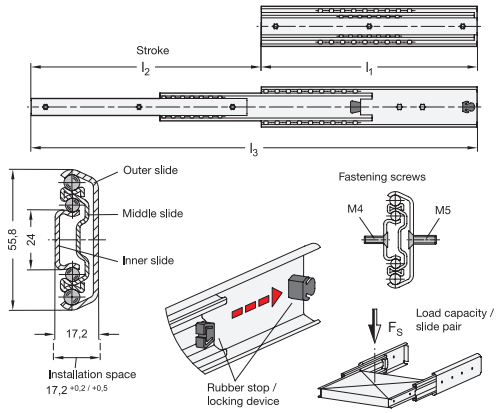
INFORMATION

Telescopic slides GN 1420 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l_1 (full extension). The rubber stops of type E dampen the impact of the slide in the two end positions and takes on the locking function of the back stop position. This feature is noticeable through a slight resistance on opening and closing. If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.

The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- with latches, partially with detach function (back, front, or back-front)
- with locking device (front or back-front)
- other surfaces
- with support bracket

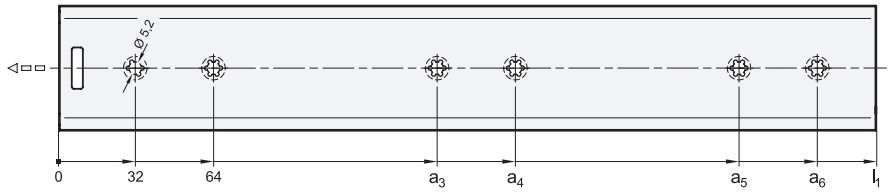


GN 1420

Description	l_1	l_2 +4/-4	l_3	F_S per pair in N at 10,000 cycles	F_S per pair in N at 100,000 cycles	⚖
GN 1420-300-E-2-ZB	300*	320	620	940	680	1680
GN 1420-350-E-2-ZB	350*	375	725	960	770	1960
GN 1420-400-E-2-ZB	400*	440	840	970	730	2240
GN 1420-450-E-2-ZB	450*	495	945	1100	830	2520
GN 1420-500-E-2-ZB	500*	550	1050	1190	910	2830
GN 1420-550-E-2-ZB	550*	600	1150	1180	900	3110
GN 1420-600-E-2-ZB	600*	650	1250	1230	970	3400
GN 1420-700-E-2-ZB	700*	750	1450	1290	1030	3980
GN 1420-800-E-2-ZB	800*	848	1648	1210	1020	4500
GN 1420-900-E-2-ZB	900*	950	1850	1050	900	5160
GN 1420-1000-E-2-ZB	1000*	1050	2050	810	720	5730
GN 1420-1200-E-2-ZB	1200*	1250	2450	640	570	6900

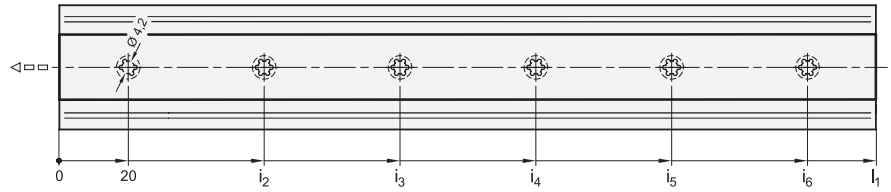
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a3	a4	a5	a6
300	192	224	-	-
350	192	224	-	-
400	224	256	-	-
450	288	320	-	-
500	320	352	-	-
550	352	384	-	-
600	416	448	-	-
700	448	480	-	-
800	384	416	672	704
900	416	448	768	800
1000	480	512	864	896
1200	576	608	1056	1088

Mounting holes - Inner slide



l1	i2	i3	i4	i5	i6
300	150	280	-	-	-
350	175	330	-	-	-
400	200	380	-	-	-
450	225	430	-	-	-
500	250	480	-	-	-
550	275	530	-	-	-
600	300	580	-	-	-
700	350	680	-	-	-
800	271	522.5	774	-	-
900	305	589	874	-	-
1000	258	497	735.5	974	-
1200	251	482	712	943	1174

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available countersunk holes of the outer and inner slide must be used. Failure to use fastening screws reduces the specified load capacity accordingly.
The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Countersunk screw, Phillips | DIN 965	M 5	M 4
Countersunk screw, Phillips | DIN 7997	Size 5	Size 4 / 4.5

GN 1422

Telescopic slides

with full extension and self-retracting mechanism, load capacity up to 1290 N

SPECIFICATION

Type

Type **B**: with rubber stop

Identification no.

No. **2**: Fastening using countersunk holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage
Steel, zinc plated

Rubber stop
Plastic / Elastomer

Self-retracting mechanism
Stainless Steel / Plastic

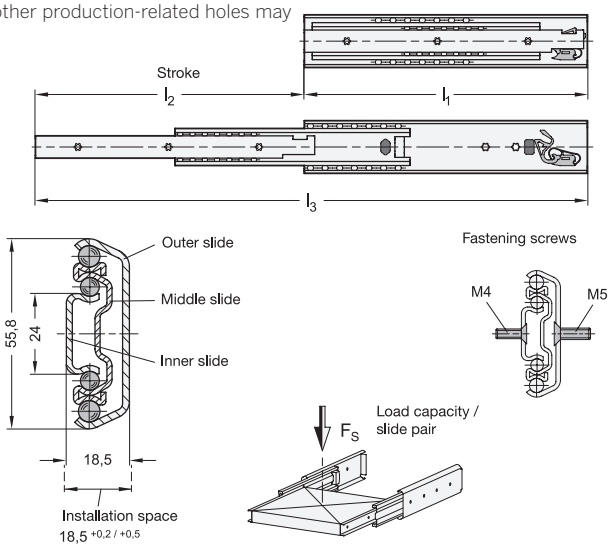
Operating temperature -20 °C to 100 °C

INFORMATION

Telescopic slides with self-retracting mechanism GN 1422 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l1 (full extension).
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- with locking device (front)
- other surfaces
- with support bracket

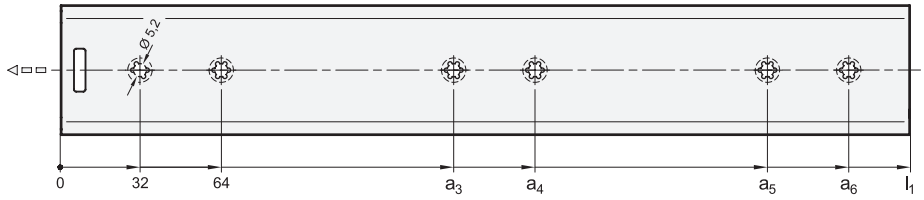


GN 1422

Description	l1	l2 +4/-4	l3	FS per pair in N at 10,000 cycles	FS per pair in N at 100,000 cycles	⚖
GN 1422-300-B-2-ZB	300*	285	585	940	640	1800
GN 1422-350-B-2-ZB	350*	350	700	960	730	2160
GN 1422-400-B-2-ZB	400*	400	800	970	770	2400
GN 1422-450-B-2-ZB	450*	450	900	1100	880	2800
GN 1422-500-B-2-ZB	500*	500	1000	1190	900	3160
GN 1422-550-B-2-ZB	550*	550	1100	1180	980	3460
GN 1422-600-B-2-ZB	600*	600	1200	1230	990	3830
GN 1422-700-B-2-ZB	700*	700	1400	1290	1030	4520
GN 1422-800-B-2-ZB	800*	800	1600	1210	1060	5000

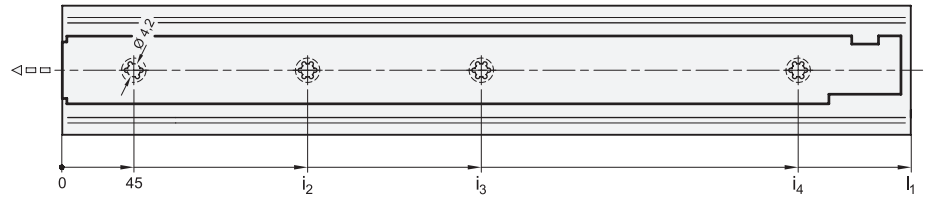
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a3	a4	a5	a6
300	192	224	-	-
350	192	224	-	-
400	224	256	-	-
450	288	320	-	-
500	320	352	-	-
550	352	384	-	-
600	416	448	-	-
700	448	480	-	-
800	384	416	672	704

Mounting holes - Inner slide



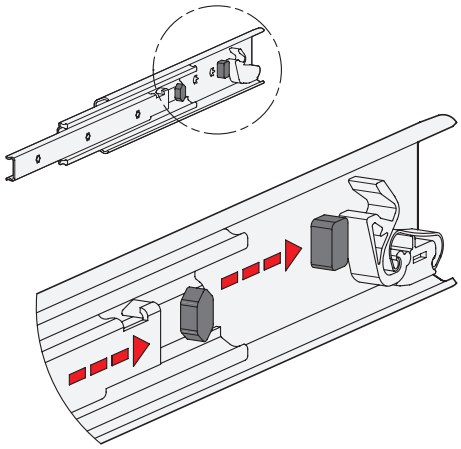
l1	i2	i3	i4
300	141	237	-
350	173	301	-
400	173	333	-
450	205	397	-
500	237	461	-
550	269	493	-
600	173	301	557
700	173	333	653
800	205	397	749

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available countersunk holes of the outer and inner slide must be used. Failure to use fastening screws reduces the specified load capacity accordingly.
The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Hexagon socket countersunk head screw | DIN 7911	M 5	M 4
Countersunk screw, Phillips | DIN 965	M 5	M 4
Countersunk screw, Phillips | DIN 7997	Size 5	Size 4 / 4.5

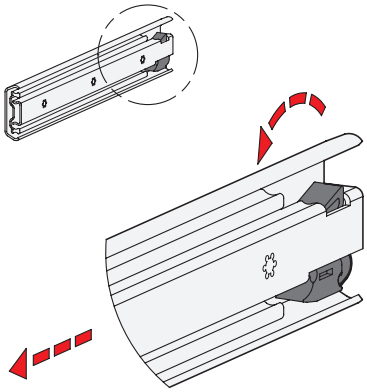
Rubber stop



The rubber stops of type B dampen the impact of the slide in the respective end position. This feature minimizes noise development and increases the lifespan. Attached to the slides in a partially concealed, partially visible manner, the stops meet each of the requirements in regard to shape, material, and hardness.

If larger static of dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.

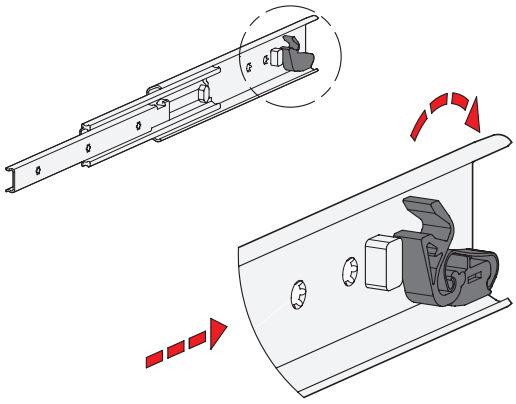
Self-retracting mechanism



Telescopic slides GN 1422 have an integrated self-retracting mechanism, which improves considerably the ease of use when closing the extensions.

The slides are retracted and held in the back end position automatically by means of a retraction mechanism on the last 22 mm of stroke with a force of approximately 30 newtons for each slide pair. This force has to be overcome accordingly on opening the extension.

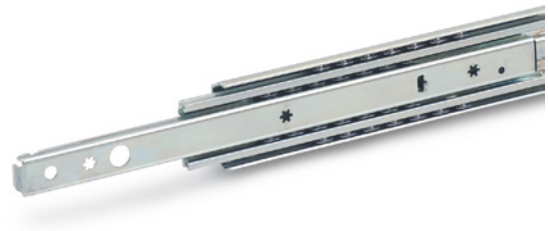
The self-retracting mechanism is also designed in such a way that it uncouples and will not be damaged when the extension is opened or closed in a jerky manner or too quickly. On the following stroke, the self-retracting mechanism clicks back into place automatically, ensuring that the function remains intact.



GN 1424

Telescopic slides

with full extension and dampened self-retracting mechanism, load capacity up to 750 N



SPECIFICATION

Type

Type **B**: with rubber stop

Identification no.

No. **2**: Fastening using countersunk holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage
Steel, zinc plated

Rubber stop
Plastic / Elastomer

Self-retracting mechanism, dampened
Stainless Steel / Plastic

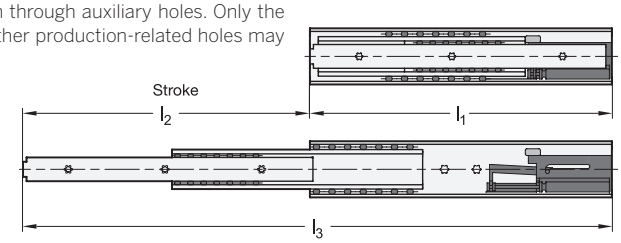
Operating temperature -20 °C to 100 °C

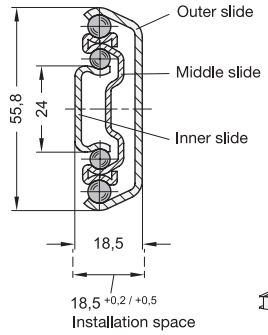
INFORMATION

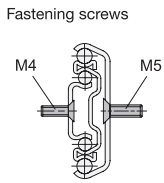
Telescopic slides with dampened self-retracting mechanism GN 1424 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l_1 (full extension).
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

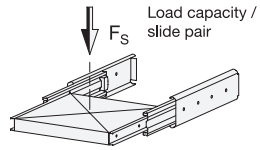
ON REQUEST

- other lengths and hole spacing
- other attachment options
- with locking device (front)
- other surfaces
- with support bracket







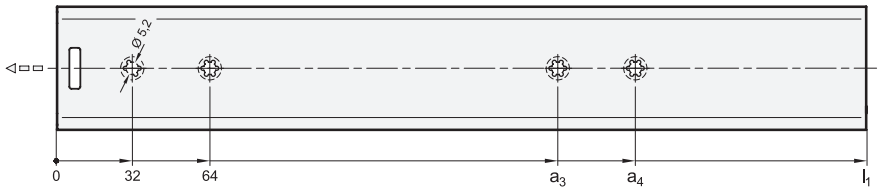


GN 1424

Description	l_1	l_2 +4/-4	l_3	F_S per pair in N at 10,000 cycles	F_S per pair in N at 100,000 cycles	⚖
GN 1424-350-B-2-ZB	350*	335	685	650	570	1840
GN 1424-400-B-2-ZB	400*	400	800	750	680	2120
GN 1424-450-B-2-ZB	450*	451	901	750	750	2450
GN 1424-500-B-2-ZB	500*	506	1006	750	750	2700
GN 1424-550-B-2-ZB	550*	555	1105	750	750	3120
GN 1424-600-B-2-ZB	600*	612	1212	750	750	3280
GN 1424-700-B-2-ZB	700*	700	1400	750	750	3880

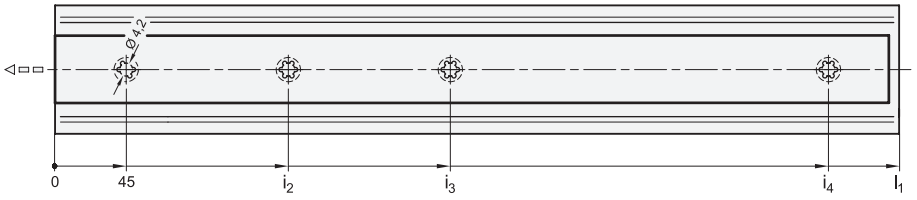
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a3	a4
350	192	224
400	224	256
450	288	320
500	320	352
550	352	384
600	416	448
700	448	480

Mounting holes - Inner slide



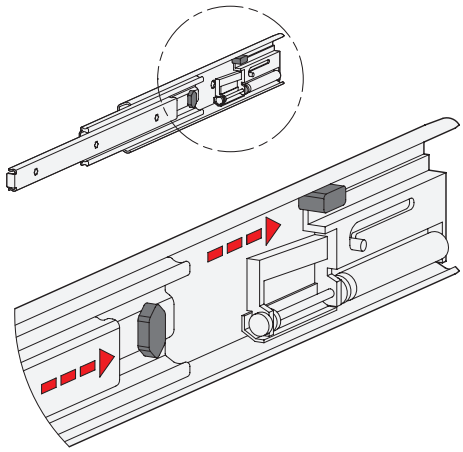
l1	i2	i3	i4
350	173	301	-
400	173	333	-
450	205	397	-
500	237	461	-
550	269	493	-
600	173	301	562
700	173	333	653

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available countersunk holes of the outer and inner slide must be used. Failure to use fastening screws reduces the specified load capacity accordingly.
The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Hexagon socket countersunk head screw | DIN 7911	M 5	M 4
Countersunk screw, Phillips | DIN 965	M 5	M 4
Countersunk screw, Phillips | DIN 7997	Size 5	Size 4 / 4.5

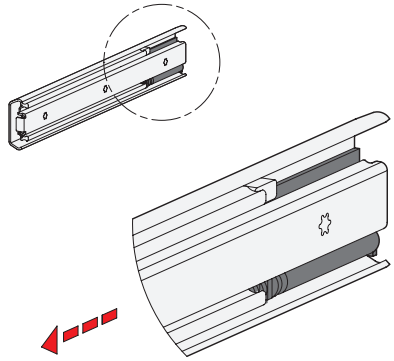
Rubber stop

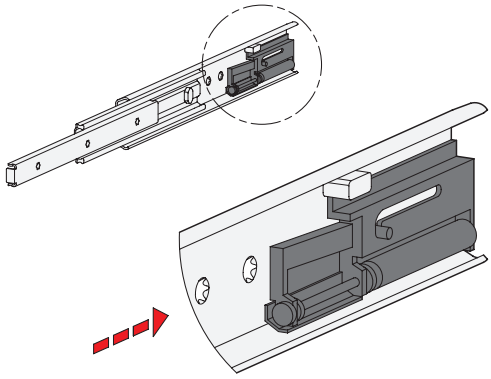


The rubber stops of type B dampen the impact of the slide in the respective end position. This feature minimizes noise development and increases the lifespan. Attached to the slides in a partially concealed, partially visible manner, the stops meet each of the requirements in regard to shape, material, and hardness.

If larger static of dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.

Self-retracting mechanism, dampened





Telescopic slides GN 1424 have a dampened self-retracting mechanism, which is also called "soft-close". The dampened self-retracting mechanism is divided into two main functions and offers the best possible ease of use on closing the extension.

The self-retracting mechanism takes over the automatic retraction of the slides on the last 40 mm of stroke in the back stop position, where the slides are held in place accordingly. The retraction force is about 35 newtons per slide pair. Also, the dampening mechanism slows down to a considerably reduced speed the closing movement on the said stroke. An extremely smooth and gentle closing movement is achieved. This retraction force has to be overcome accordingly on opening the extension.

The dampened self-retracting mechanism is designed for loads weighing up to 75 kg based on 60,000 cycles (LGA standard). Proper use, including the reduction of the stroke speed to no more than 0.15 m/s on reaching the retraction mechanism, as well as compliance with the load values are required.

GN 1426

Telescopic slides

with double-sided full extension, load capacity up to 1380 N

SPECIFICATION

Type

Type **B**: with rubber stop

Identification no.

No. **2**: Fastening using countersunk holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage
Steel, zinc plated

Rubber stop
Plastic / Elastomer

Operating temperature -20 °C to 100 °C

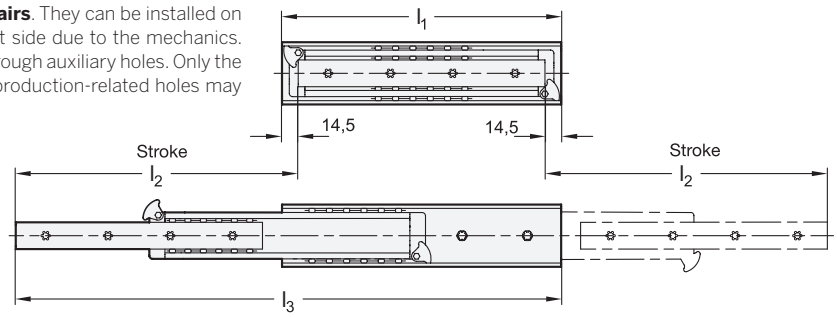
INFORMATION

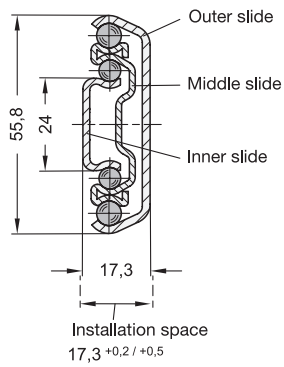
Telescopic slides GN 1426 are installed vertically and in pairs. The special design allows the stroke to achieve ≈ 100 % of the nominal length l_1 on both sides (double-sided full extension). Applications such as the double-sided loading of a drawer can be realized in this way. The rubber stops of type B dampen the impact of the slide in the front end positions. If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.

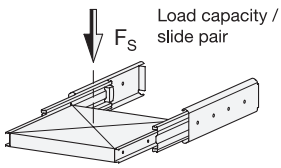
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

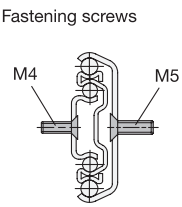
ON REQUEST

- other lengths and hole spacing
- other attachment options
- other surfaces
- with support bracket







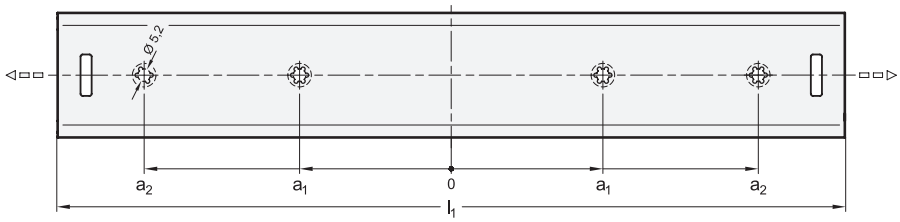


GN 1426

Description	l1	l2 +4/-4	l3	FS per pair in N at 10,000 cycles	FS per pair in N at 100,000 cycles	⚖
GN 1426-500-B-2-ZB	500*	503	988.5	1140	760	2760
GN 1426-600-B-2-ZB	600*	607	1192.5	1190	790	3340
GN 1426-700-B-2-ZB	700*	711	1396.5	1310	870	3980
GN 1426-800-B-2-ZB	800*	815	1600.5	1380	920	4500

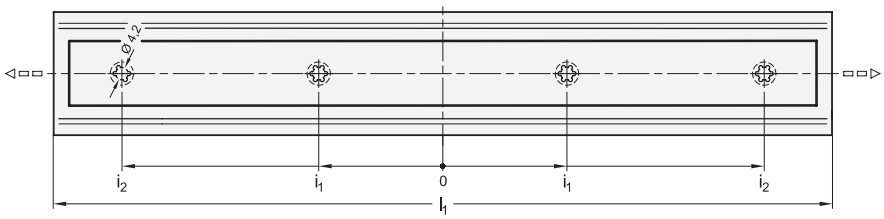
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a1	a2
500	64	192
600	80	240
700	96	288
800	112	336

Mounting holes - Inner slide



l1	i1	i2
500	64	192
600	80	240
700	96	288
800	112	336

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available countersunk holes of the outer and inner slide must be used. Failure to use fastening screws reduces the specified load capacity accordingly.
The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Countersunk screw, Phillips | DIN 965	M 5	M 4
Countersunk screw, Phillips | DIN 7997	Size 5	Size 4 / 4.5

GN 1430

Telescopic slides

with full extension, load capacity up to 2120 N

SPECIFICATION

Type

Type **E**: with rubber stop, locking device in back

Identification no.

No. **2**: Fastening using countersunk holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage
Steel, zinc plated

Rubber stop
Plastic / Elastomer

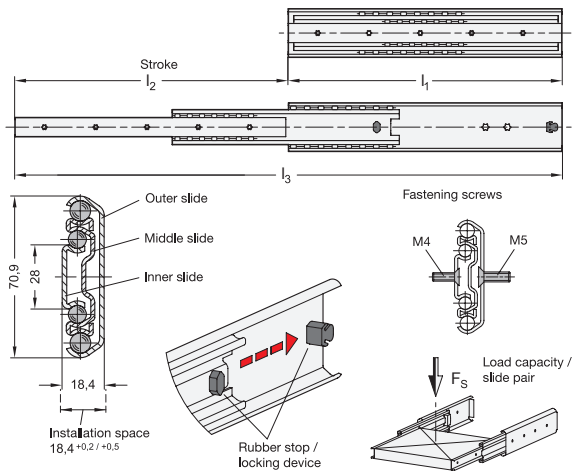
Operating temperature -20 °C to 100 °C

INFORMATION

Telescopic slides GN 1430 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l_1 (full extension). The rubber stops of type E dampen the impact of the slide in the two end positions and takes on the locking function of the back stop position. This feature is noticeable through a slight resistance on opening and closing. If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- with latches, partially with detach function (back, front, or back-front)
- with locking devices (front or back-front)
- other surfaces
- with support bracket

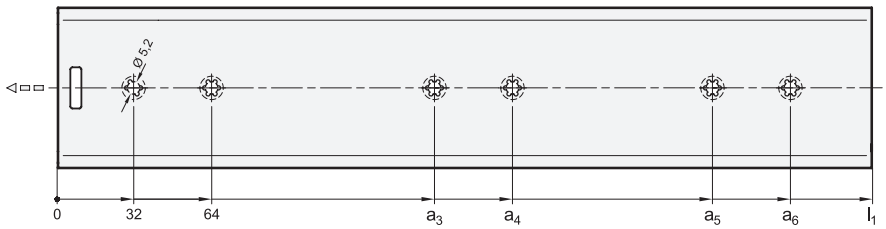


GN 1430

Description	l_1	l_2 +4/-4	l_3	F_S per pair in N at 10,000 cycles	F_S per pair in N at 100,000 cycles	⚖
GN 1430-400-E-2-ZB	400*	435	835	1570	970	3090
GN 1430-450-E-2-ZB	450*	485	935	1600	1030	3500
GN 1430-500-E-2-ZB	500*	545	1045	1690	1150	4200
GN 1430-550-E-2-ZB	550*	595	1145	1870	1160	4800
GN 1430-600-E-2-ZB	600*	650	1250	1890	1180	4700
GN 1430-700-E-2-ZB	700*	750	1450	1870	1370	5400
GN 1430-800-E-2-ZB	800*	850	1650	2120	1470	6200
GN 1430-900-E-2-ZB	900*	950	1850	1920	1250	7160
GN 1430-1000-E-2-ZB	1000*	1050	2050	1790	1080	7900
GN 1430-1200-E-2-ZB	1200*	1250	2450	1630	950	8700

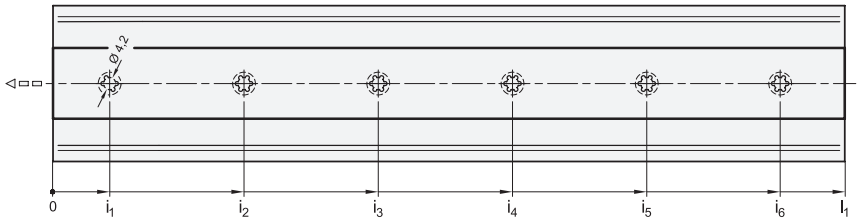
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a3	a4	a5	a6
400	288	320	-	-
450	288	320	-	-
500	352	384	-	-
550	352	384	-	-
600	448	480	-	-
700	448	480	-	-
800	384	416	672	704
900	416	448	768	800
1000	480	512	864	896
1200	576	608	1056	1088

Mounting holes - Inner slide



l1	i1	i2	i3	i4	i5	i6
400	43	118	193	268	343	-
450	43	130.5	218	305.5	393	-
500	43	143	243	343	443	-
550	43	155.5	268	380.5	493	-
600	43	168	293	418	543	-
700	43	193	343	493	643	-
800	20	271	522.5	774	-	-
900	20	305	589	874	-	-
1000	20	258.5	497	735.5	974	-
1200	20	251	482	712	943	1174

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available countersunk holes of the outer and inner slide must be used. Failure to use fastening screws reduces the specified load capacity accordingly.
The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Countersunk screw, Phillips | DIN 965	M 5	M 4
Countersunk screw, Phillips | DIN 7997	Size 5	Size 4 / 4.5

GN 1432

Telescopic slides

with full extension and self-retracting mechanism, load capacity up to 2300 N

SPECIFICATION

Type

Type **B**: with rubber stop

Identification no.

No. **2**: Fastening using countersunk holes

Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage
Steel, zinc plated

Rubber stop
Plastic / Elastomer

Self-retracting mechanism
Stainless Steel / Plastic

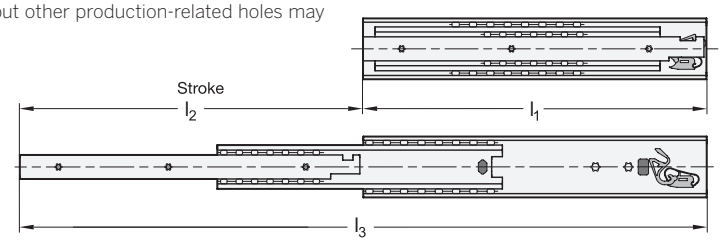
Operating temperature -20 °C to 100 °C

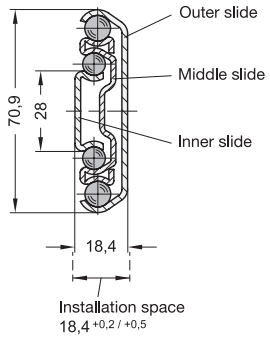
INFORMATION

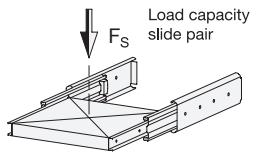
Telescopic slides with self-retracting mechanism GN 1432 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l1 (full extension).
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

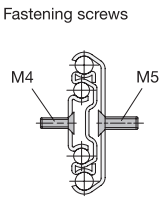
ON REQUEST

- other lengths and hole spacing
- other attachment options
- with locking device (front)
- other surfaces
- with support bracket







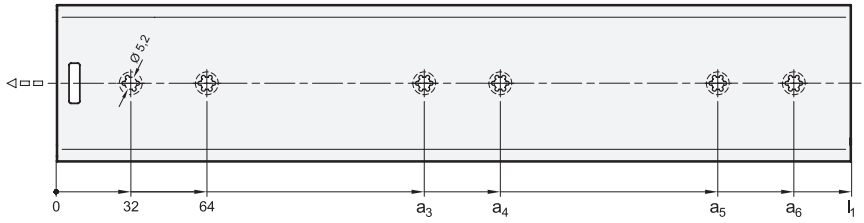


GN 1432

Description	l1	l2 +4/-4	l3	Fs per pair in N at 10,000 cycles	Fs per pair in N at 100,000 cycles	⚖
GN 1432-400-B-2-ZB	400*	400	800	1700	1030	2860
GN 1432-450-B-2-ZB	450*	450	900	1900	1160	3260
GN 1432-500-B-2-ZB	500*	500	1000	2120	1250	3680
GN 1432-550-B-2-ZB	550*	550	1100	2300	1400	4100
GN 1432-600-B-2-ZB	600*	600	1200	2300	1450	4520
GN 1432-700-B-2-ZB	700*	700	1400	2280	1450	5180
GN 1432-800-B-2-ZB	800*	800	1600	2190	1550	6180

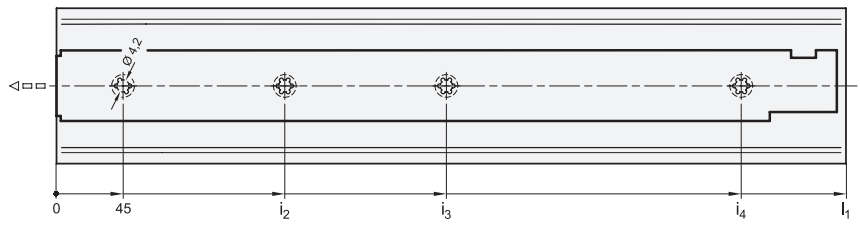
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a3	a4	a5	a6
400	288	320	-	-
450	288	320	-	-
500	352	384	-	-
550	352	384	-	-
600	448	480	-	-
700	448	480	-	-
800	384	416	672	704

Mounting holes - Inner slide



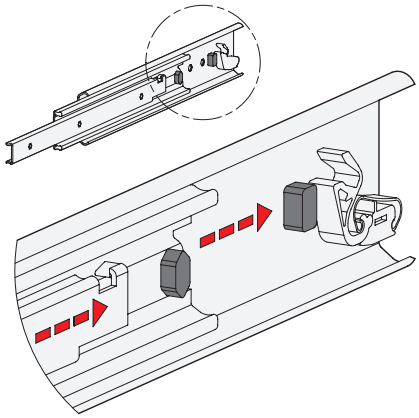
l1	i2	i3	i4
400	173	333	-
450	205	397	-
500	237	461	-
550	269	493	-
600	173	301	557
700	173	333	653
800	205	397	749

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available countersunk holes of the outer and inner slide must be used. Failure to use fastening screws reduces the specified load capacity accordingly.
The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Countersunk screw, Phillips | DIN 965	M 5	M 4
Countersunk screw, Phillips | DIN 7997	Size 5	Size 4 / 4.5

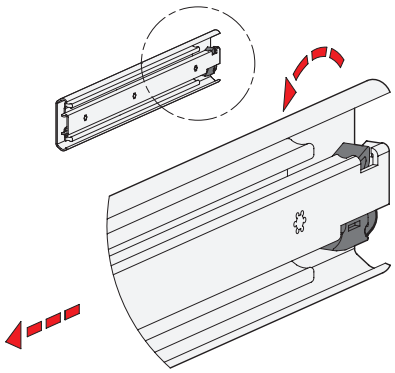
Rubber Stop



The rubber stops of type B dampen the impact of the slide in the respective end position. This feature minimizes noise development and increases the lifespan. Attached to the slides in a partially concealed, partially visible manner, the stops meet each of the requirements in regard to shape, material, and hardness.

If larger static of dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.

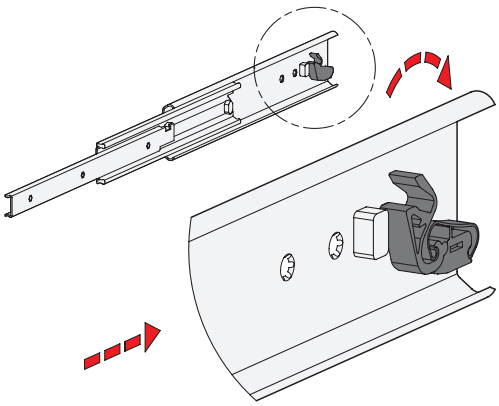
Self-retracting mechanism



Telescopic slides GN 1432 have an integrated self-retracting mechanism, which improves considerably the ease of use when closing the extensions.

The slides are retracted and held in the back end position automatically by means of a retraction mechanism on the last 22 mm of stroke with a force of approximately 30 newtons for each slide pair. This force has to be overcome accordingly on opening the extension.

The self-retracting mechanism is also designed in such a way that it uncouples and will not be damaged when the extension is opened or closed in a jerky manner or too quickly. On the following stroke, the self-retracting mechanism clicks back into place automatically, ensuring that the function remains intact.



GN 1440

Telescopic slides

with full extension, load capacity up to 3250 N

SPECIFICATION

Types

- Type **B**: with rubber stop
- Type **M**: with rubber stop, latch in back
- Type **K**: with rubber stop, latch in front
- Type **Q**: with rubber stop, latch in back and in front

Identification no.

No. **1**: Fastening using through-holes

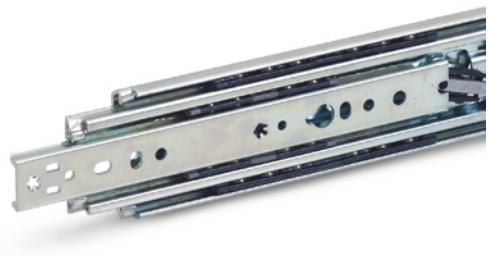
Slide profile
Steel, zinc plated, blue passivated **ZB**

Bearings
Roller bearing steel, hardened

Ball cage
Steel, zinc plated

Rubber stop
Plastic / Elastomer

Operating temperature -20 °C to 100 °C

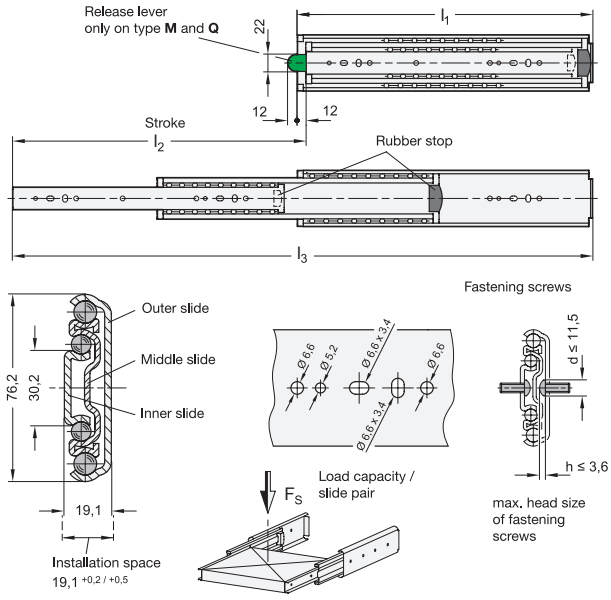


INFORMATION

Telescopic slides GN 1440 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l1 (full extension). Patented plastic ball cages ensure extremely smooth running of the slide.
Telescopic slides of various types, for example, with and without latch, can be combined freely, which is why GN 1440 is delivered **as a single unit** and **not in pairs**. Thanks to the symmetrical design, all types can be installed on either the right or left side on the extension.
All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

ON REQUEST

- other lengths and hole spacing
- other attachment options
- other surfaces

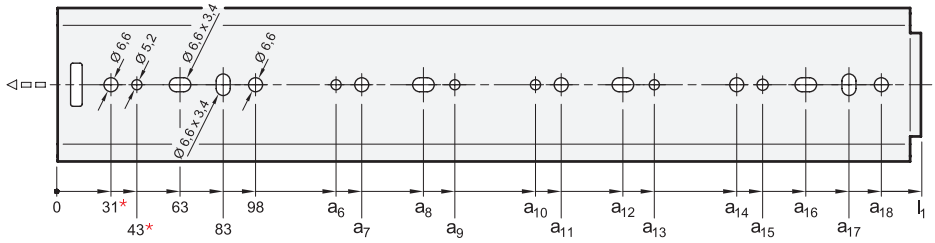


GN 1440

Description	l1	l2 +4/-4	l3	Fs per pair in N at 10,000 cycles	Fs per pair in N at 100,000 cycles	⚖
GN 1440-300-B-1-ZB	300*	298	586	2250	1575	1380
GN 1440-400-B-1-ZB	400*	398	786	2500	1750	1880
GN 1440-500-B-1-ZB	500*	512	1000	2600	1800	2440
GN 1440-600-B-1-ZB	600*	610	1198	2750	1920	2960
GN 1440-700-B-1-ZB	700*	708	1396	2950	2250	3420
GN 1440-800-B-1-ZB	800*	806	1594	3100	2175	3880
GN 1440-900-B-1-ZB	900*	904	1792	3200	2250	4420
GN 1440-1000-B-1-ZB	1000*	1000	1988	3250	2275	4925
GN 1440-1200-B-1-ZB	1200*	1212	2400	2950	2025	5920
GN 1440-1500-B-1-ZB	1500*	1504	2992	2250	1575	7480
GN 1440-300-K-1-ZB	300*	298	586	2250	1575	1380
GN 1440-400-K-1-ZB	400*	398	786	2500	1750	1880
GN 1440-500-K-1-ZB	500*	512	1000	2600	1800	2440
GN 1440-600-K-1-ZB	600*	610	1198	2750	1920	2960
GN 1440-700-K-1-ZB	700*	708	1396	2950	2250	3420
GN 1440-800-K-1-ZB	800*	806	1594	3100	2175	3880
GN 1440-900-K-1-ZB	900*	904	1792	3200	2250	4420
GN 1440-1000-K-1-ZB	1000*	1000	1988	3250	2275	4900
GN 1440-1200-K-1-ZB	1200*	1212	2400	2950	2025	5920
GN 1440-1500-K-1-ZB	1500*	1504	2992	2250	1575	7480
GN 1440-300-M-1-ZB	300*	298	586	2250	1575	1400
GN 1440-400-M-1-ZB	400*	398	786	2500	1750	1900
GN 1440-500-M-1-ZB	500*	512	1000	2600	1800	2460
GN 1440-600-M-1-ZB	600*	610	1198	2750	1920	2980
GN 1440-700-M-1-ZB	700*	708	1396	2950	2250	3440
GN 1440-800-M-1-ZB	800*	806	1594	3100	2175	3900
GN 1440-900-M-1-ZB	900*	904	1792	3200	2250	4440
GN 1440-1000-M-1-ZB	1000*	1000	1988	3250	2275	4920
GN 1440-1200-M-1-ZB	1200*	1212	2400	2950	2025	5940
GN 1440-1500-M-1-ZB	1500*	1504	2992	2250	1575	7500
GN 1440-300-Q-1-ZB	300*	298	586	2250	1575	1480
GN 1440-400-Q-1-ZB	400*	398	786	2500	1750	1980
GN 1440-500-Q-1-ZB	500*	512	1000	2600	1800	2540
GN 1440-600-Q-1-ZB	600*	610	1198	2750	1920	3060
GN 1440-700-Q-1-ZB	700*	708	1396	2950	2250	3520
GN 1440-800-Q-1-ZB	800*	806	1594	3100	2175	3980
GN 1440-900-Q-1-ZB	900*	904	1792	3200	2250	4520
GN 1440-1000-Q-1-ZB	1000*	1000	1988	3250	2275	5000
GN 1440-1200-Q-1-ZB	1200*	1212	2400	2950	2025	6020
GN 1440-1500-Q-1-ZB	1500*	1504	2992	2250	1575	7580

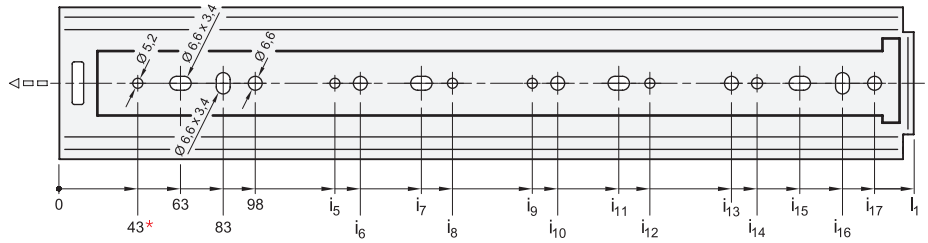
* The telescopic slides are delivered as a single unit.

Mounting holes - Outer slide



l1	a6	a7	a8	a9	a10	a11	a12	a13	a14	a15	a16	a17	a18
300	-	-	-	-	-	-	-	-	161	173	193	213	228
400	-	-	-	-	-	-	-	-	261	273	293	313	328
500	-	-	-	-	-	-	-	-	361	373	393	413	428
600	213	228	363	378	-	-	-	-	461	473	493	513	528
700	213	228	363	378	-	-	-	-	561	573	593	613	628
800	313	328	463	478	-	-	-	-	661	673	693	713	728
900	313	328	463	478	-	-	-	-	761	773	793	813	828
1000	413	428	563	578	-	-	-	-	861	873	893	913	928
1200	313	328	463	478	713	728	863	878	1061	1073	1093	1113	1128
1500	413	428	563	578	913	928	1063	1078	1361	1373	1393	1413	1428

Mounting holes - Inner slide



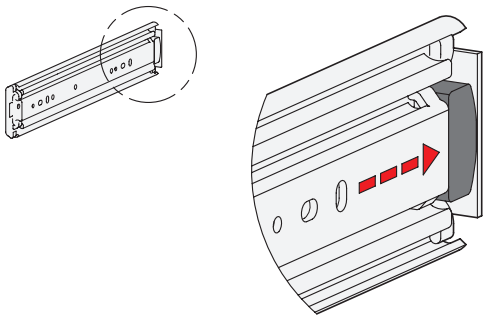
l1	i5	i6	i7	i8	i9	i10	i11	i12	i13	i14	i15	i16	i17
300	-	-	-	-	-	-	-	-	-	173**	-	213	228
400	-	161	-	-	-	-	-	-	261	273	293	313	328
500	-	229	-	-	-	-	-	-	361	373	393	413	428
600	213	228	398	413	-	-	-	-	461	473	493	513	528
700	313	328	463	478	-	-	-	-	561	573	593	613	628
800	313	328	498	513	-	-	-	-	661	573	693	713	728
900	413	428	563	578	-	-	-	-	761	773	793	813	828
1000	413	428	598	613	-	-	-	-	861	873	893	913	928
1200	313	328	463	478	713	728	863	878	1061	1073	1093	1113	1128
1500	413	428	563	578	913	928	1063	1078	1361	1373	1393	1413	1428

* Bores are only usable on type B and type K. | ** Bores are only usable on type B and type M.

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available through-holes of the outer and inner slide having a diameter (Ø) of 6.6 must be used. Alternatively, holes with a diameter (Ø) of 5.2 are available. The elongated holes, Ø 6.6 x 3.4, facilitate adjustment during mounting when needed. Failure to use fastening screws reduces the load capacity. The following screws can be used for mounting:

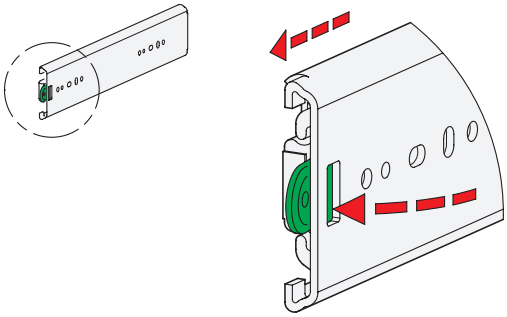
Designation - standard	Outer slide	Inner slide
Hexagon socket button head screw | ISO 7380	M 5 / M 6	M 5 / M 6
Hexagon socket low cylindrical head screw | DIN 7984 / DIN 6912	M 5	M 5



Type B with rubber stop

The rubber stops of type B dampen the impact of the slide in the respective end position. This feature minimizes noise development and increases the lifespan. Attached to the slides in a partially concealed, partially visible manner, the stops meet each of the requirements in regard to shape, material, and hardness.

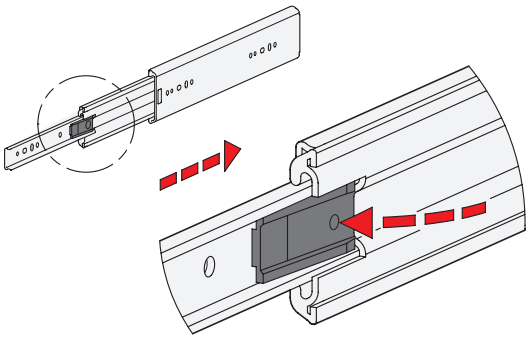
If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.



Type M with rubber stop, latch in back

Type M is used in applications in which the slide needs to be locked in the back end position. This feature prevents the slide from extending on its own, for example, due to a tilted position. If larger loads occur in the direction of extension in the latched position, they should be absorbed by external latch elements.

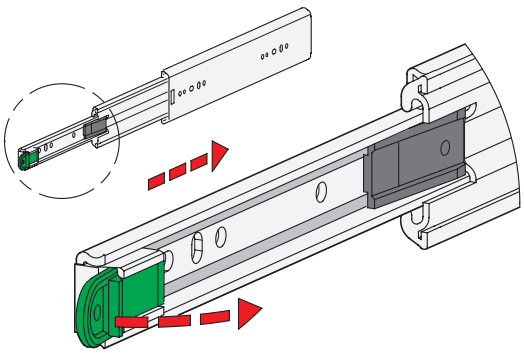
The latch mechanism locks into place in a spring-loaded opening of the outer slide in the closed state. Pressing the release lever releases the inner and middle slide for extension. Back in the back stop position, the mechanism locks into place automatically in the opening of the outer slide by moving over a ramp.



Type K with rubber stop, latch in front

Type K is used when the extension needs to stay in the front stop position for a certain amount of time. This feature allows maintenance work to be performed when the extension is expanded, for example. If larger loads occur in the latched position, they should be absorbed by external latch elements.

For the function to be activated, the slide has to be fully extended to the front, where it will automatically click into place through a pretensioned locking lever. Pressing the lever releases the slide, allowing slide to retract again.



Type Q with rubber stop, latch in back-front

Type Q unites the properties of types M and K. The inner and middle slide lock into place in the respective end position.

Unlike the release of type K, type Q is activated through an internal rod by a convenient “remote control.” The green activation lever is pressed out, the locking lever activated, and the slide released for retraction.

GN 1450

Stainless Steel-
Telescopic slides

with full extension, load capacity up to 510 N

SPECIFICATION

Type

- Type **F**: with rubber stop, locking device in back, detach function

Identification no.

- No. **1**: Fastening using through-holes

Slide profile and bearings
Stainless Steel
AISI 304 **NI**

Ball cage of outer slide
Plastic

Ball cage of inner slide
Stainless Steel
AISI 304

Rubber stop and detach function
Plastic / Elastomer

Lubricant
Roller bearing grease, FDA-compliant

Operating temperature -20 °C to 100 °C

INFORMATION

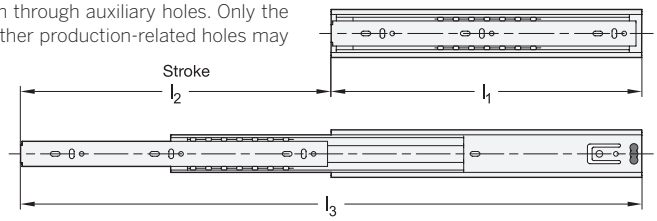
Stainless Steel-Telescopic slides GN 1450 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l_1 (full extension).
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the mounting holes are shown, but other production-related holes may be present.

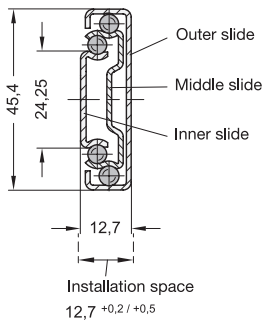
TECHNICAL INFORMATION

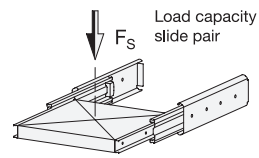
- Stainless Steel characteristics (see page A26)

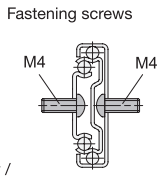
ON REQUEST

- other lengths and hole spacing
- other attachment options







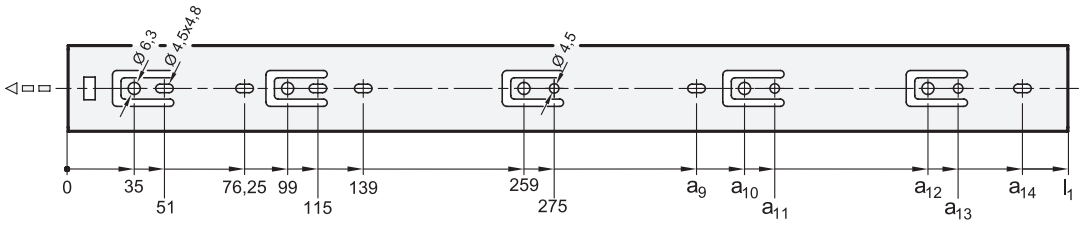


GN 1450 **STAINLESS STEEL**

Description	l_1	l_2 +3/-3	l_3	F_S per pair in N at 10,000 cycles	F_S per pair in N at 100,000 cycles	⚖
GN 1450-300-F-1-NI	300*	300	600	460	340	890
GN 1450-350-F-1-NI	350*	350	700	480	360	1050
GN 1450-400-F-1-NI	400*	400	800	510	390	1180
GN 1450-450-F-1-NI	450*	450	900	510	390	1290
GN 1450-500-F-1-NI	500*	500	1000	480	360	1450
GN 1450-550-F-1-NI	550*	550	1100	460	340	1610
GN 1450-600-F-1-NI	600*	600	1200	440	340	1750

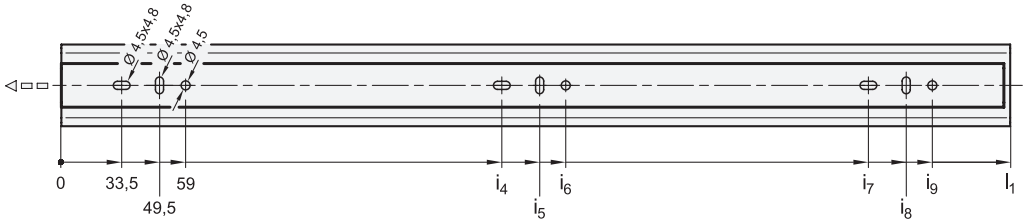
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a9	a10	a11	a12	a13	a14
300	-	-	-	-	-	-
350	309	-	-	-	-	-
400	-	323	339	-	-	373
450	361.5	387	403	-	-	-
500	361.5	387	403	451	467	-
550	361.5	387	403	451	467	501
600	361.5	387	403	515	531	565

Mounting holes - Inner slide



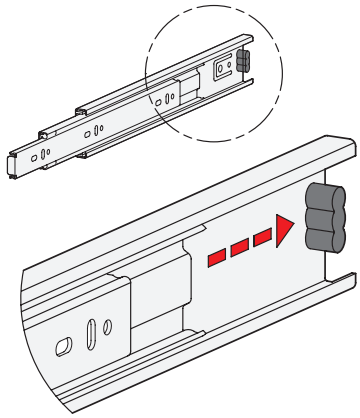
l1	i4	i5	i6	i7	i8	i9
300	129.5	145.5	155	257.5	273.5	283
350	161.5	177.5	187	289.5	305.5	315
400	193.5	209.5	219	353.5	369.5	379
450	193.5	209.5	219	385.5	401.5	411
500	225.5	241.5	251	449.5	465.5	475
550	257.5	273.5	283	481.5	497.5	507
600	289.5	305.5	315	545.5	561.5	571

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available through-holes of the outer and inner slide having a diameter (Ø) of 4.5 must be used. Alternatively, the outer slide has holes with a diameter (Ø) of 6.3 for Euro screws. The elongated holes, Ø 4.5 x 4.8, are used likewise for fastening and facilitate adjustment during mounting when needed. Failure to use fastening screws reduces the specified load capacity accordingly. The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Hexagon socket button head screw | ISO 7380	M 4	M 4
Pan head screw, Phillips | ISO 7045	M 4	M 4
Pan head tapping screw, Phillips | ISO 7049	ST 3.9 / 4.2	ST 3.9 / 4.2

Rubber stop, locking device in back

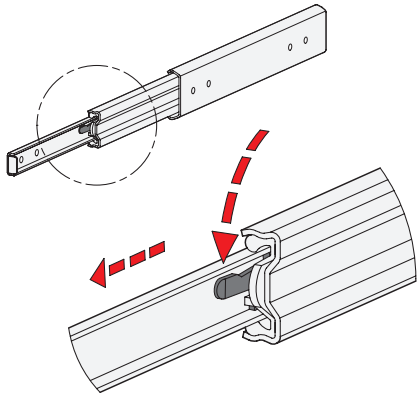


The rubber stops of type F dampen the impact of the slide in the respective end position. This feature minimizes noise development and increases the lifespan. Attached to the slides in a partially concealed, partially visible manner, the stops meet each of the requirements in regard to shape, material, and hardness.

The rubber stop takes on also a locking function in the back stop position. This feature is noticeable through a slight resistance on opening and closing the slide.

If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.

Detach function

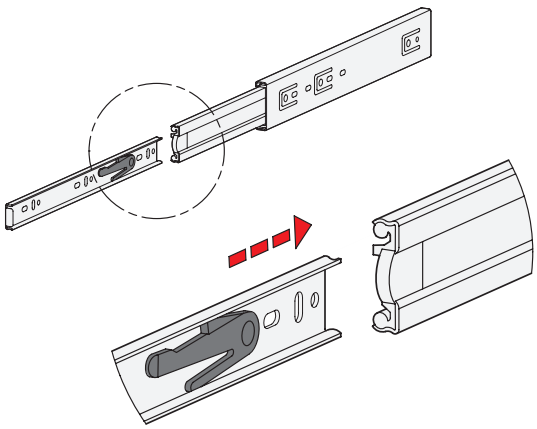


Type F has additionally a detach function through which the extension slides can be completely separated from one another in the area of the middle and inner slide. This feature not only facilitates mounting. It also allows the extension to be quickly removed, for example, when frequent maintenance work is performed on the components located behind.

The telescopic slide can be quickly and easily detached in the extracted position through activation of the release lever, allowing the inner slide to be removed from the front.

For reattaching the slides, the ball cages need to be moved to the front end position. Then the inner slide is inserted to the back end stop where it locks into place automatically.

The protected arrangement of the release mechanism prevents accidental detachment of the slide.



GN 1460

Stainless Steel-Telescopic slides

with full extension, load capacity up to 1050 N

SPECIFICATION

Type

Type **F**: with rubber stop, locking device in back, detach function

Identification no.

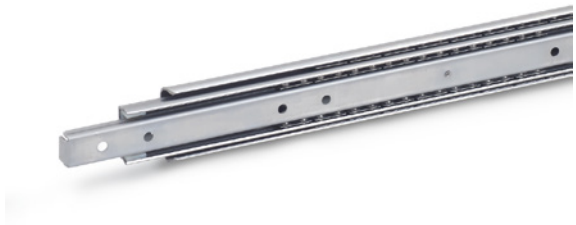
- No. **2**: Fastening using countersunk holes

Slide profile / Bearings / Ball cage
Stainless Steel
AISI 304 **NI**

Rubber stop and detach function
Plastic / Elastomer

Lubricant
Roller bearing grease, FDA-compliant

Operating temperature -20 °C to 100 °C



INFORMATION

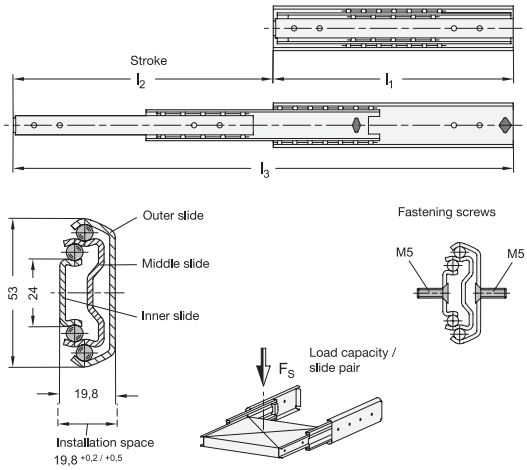
Stainless Steel-Telescopic slides GN 1460 are installed vertically and in pairs. The stroke reaches ≈ 100 % of the nominal length l1 (full extension).
The telescopic slides are delivered in **pairs**. They can be installed on the extension on either the left or right side due to the mechanics. All mounting holes are easy to reach through auxiliary holes. Only the fastening holes are shown, but other production-related holes may be present.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ON REQUEST

- other lengths and hole spacing
- other attachment options

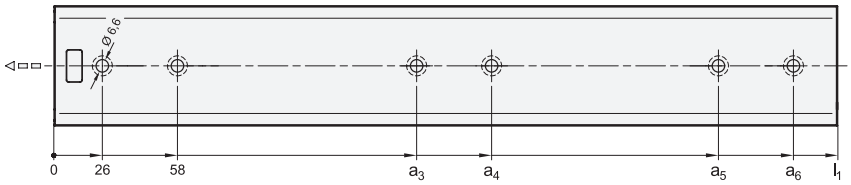


GN 1460 **STAINLESS STEEL**

Description	l1	l2 +3/-3	l3	FS per pair in N at 10,000 cycles	FS per pair in N at 100,000 cycles	⚖
GN 1460-250-F-2-NI	250*	274	524	750	520	1852
GN 1460-300-F-2-NI	300*	325	625	960	660	2202
GN 1460-350-F-2-NI	350*	374	724	980	680	2602
GN 1460-400-F-2-NI	400*	424	824	1000	700	1377
GN 1460-450-F-2-NI	450*	475	925	1020	710	2702
GN 1460-500-F-2-NI	500*	524	1024	1050	730	2702
GN 1460-550-F-2-NI	550*	575	1125	1050	730	4052
GN 1460-600-F-2-NI	600*	625	1225	980	680	4452
GN 1460-650-F-2-NI	650*	675	1325	930	650	4802
GN 1460-700-F-2-NI	700*	750	1450	880	630	5202
GN 1460-750-F-2-NI	750*	800	1550	880	630	5552
GN 1460-800-F-2-NI	800*	850	1650	880	630	5902

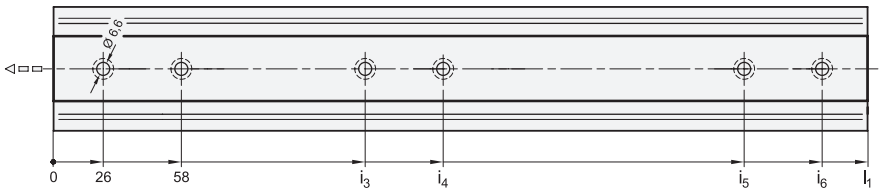
* The telescopic slides are delivered in pairs.

Mounting holes - Outer slide



l1	a3	a4	a5	a6
250	176	208	-	-
300	226	258	-	-
350	250	282	-	-
400	186	218	314	346
450	186	218	360	392
500	218	250	410	442
550	218	250	460	492
600	218	250	510	542
650	326	358	560	592
700	326	358	610	642
750	326	358	660	692
800	326	358	710	742

Mounting holes - Inner slide



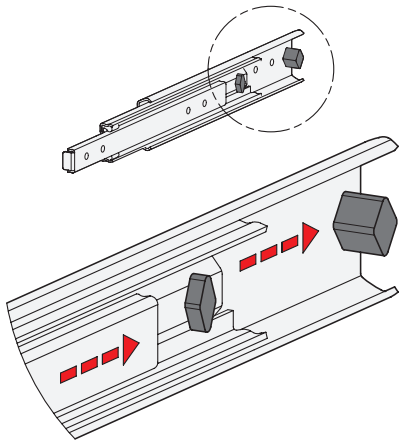
l1	i3	i4	i5	i6
250	187	219	-	-
300	226	258	-	-
350	250	282	-	-
400	154	186	314	346
450	154	186	360	392
500	186	218	410	442
550	186	218	460	492
600	186	218	510	542
650	186	218	560	592
700	276	308	610	642
750	276	308	660	692
800	276	308	710	742

Fastening screws

For the said loading forces Fs to be absorbed reliably in the surrounding structure, all available countersunk holes of the outer and inner slide must be used. Failure to use fastening screws reduces the specified load capacity accordingly.
The following screws can be used for mounting:

Designation - standard	Outer slide	Inner slide
Hexagon socket countersunk head screw | DIN 7991	M 5	M 5
Countersunk screw, Phillips | DIN 965	M 5	M 5
Countersunk screw, Phillips | DIN 7997	Size 5	Size 5

Rubber stop, locking device in back

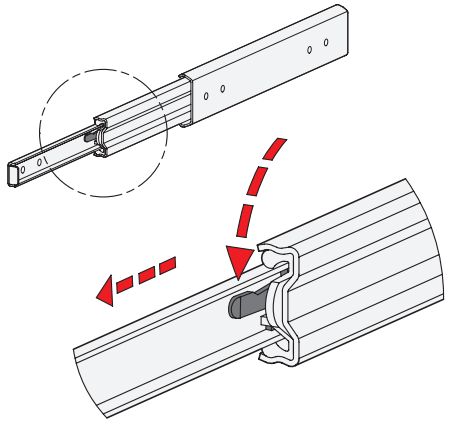


The rubber stops of type F dampen the impact of the slide in the respective end position. This feature minimizes noise development and increases the lifespan. Attached to the slides in a partially concealed, partially visible manner, the stops meet each of the requirements in regard to shape, material, and hardness.

The rubber stop takes on also a locking function in the back stop position. This feature is noticeable through a slight resistance on opening and closing the slide.

If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.

Detach function

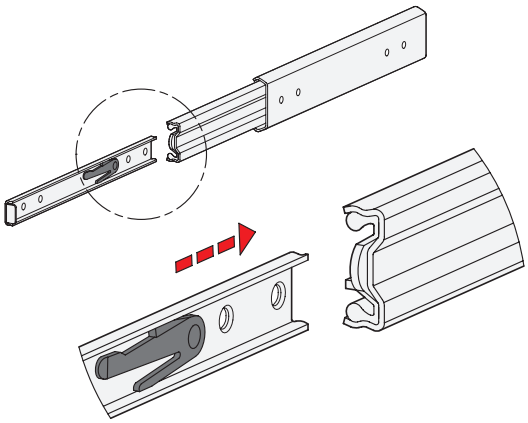


Type F has additionally a detach function through which the extension slides can be completely separated from one another in the area of the middle and inner slide. This feature not only facilitates mounting. It also allows the extension to be quickly removed, for example, when frequent maintenance work is performed on the components located behind.

The telescopic slide can be quickly and easily detached in the extracted position through activation of the release lever, allowing the inner slide to be removed from the front.

For reattaching the slides, the ball cages need to be moved to the front end position. Then the inner slide is inserted to the back end stop where it locks into place automatically.

The protected arrangement of the release mechanism prevents accidental detachment of the slide.



Telescopic slides

Mounting information

GENERAL INSTALLATION INFORMATION

Follow the installation information below when mounting telescopic slides. Ideally this information should have already been taking into account in the design of the extensions. Doing so ensures smooth running, quiet, and low-wear operation of the slides over a long period of time and guarantees function in the long run.

- Telescopic slides are generally installed in pairs so that the mounting surfaces of the housing and extension side are level, parallel, and perpendicular and have to be aligned with one another correctly in regard to position. Furthermore attention should be given to adequate stability of the receiving structure so as to keep geometric errors caused by elastic deformation as minimal as possible.
- Fastening holes should be applied in such a way that excludes twisting or warping of the slides during mounting. Also the slides need to be positioned in the direction of extraction in such a way that the extensions reach the end position at the same time on retraction and extraction. In this way, an equal amount of stress acts on the rubber stops and locking devices.
- The width of the respective slide installation spaces should be designed with a tolerance of +0.2 / +0.5 mm. The slides will then tension slightly in the direction of the middle of the extension. This promotes optimum performance and a long lifespan.
- Before mounting, the inner slides should be moved to the front and back stop position once to allow the ball cages to assume their intended position. Installation should also take place at room temperature.
- After mounting, check the telescopic slides and extensions for ease of movement. If something is wrong, such as sticking or warping, the cause has to be determined and eliminated through appropriate actions.

MOUNTING HOLES, FASTENING SCREWS

In general use all holes intended for fastening when mounting telescopic slides. Doing so will ensure that the forces resulting from the maximum load capacity F_S (nominal load) can be transferred safely from the telescopic slides from and to the surrounding structure. Failure to use fastening screws reduces the specified load capacity accordingly.

The outer and inner slides have other openings and auxiliary holes in addition to the holes intended for mounting. The catalog drawings and the CAD data available for download do not show these holes to exclude confusion and design faults. These holes are needed, among other things, for the fastening of type-dependent component features, such as the self-retracting mechanisms.

Some slide variants have fastening options for screws of various sizes. In this case, all positions of a size or type should be used. Auxiliary holes, which ensure that all mounting holes can be reached, are found accordingly in the CAD data, but are not pictured in the catalog drawings.

The type and specification of suitable screws can be found on the respective catalog pages. It is generally recommended to use screws of tensile strength class 8.8 under consideration of the specified tightening torque.

INSTALLATION POSITION

Telescopic slides are preferably installed arranged vertically and in pairs in a horizontal position. This ensures that the highest possible stability and torsional stiffness is reached in the smallest installation spaces and allows for absorption of the maximum load (nominal load). The performance features are optimum in this installation position, and wear is reduced to a minimum.

The horizontal or lying installation of the slide is likewise possible with certain restrictions. The maximum load in this case is only about 20 % to 25 % of the specified nominal load. The less favorable slide profile results, therefore, in considerably higher bending in the extended state. As a result, the ball cages may leave streaks on the heads of the fastening screws. In case of doubt, check the function under load in a test set-up.

Installing slides in a perpendicular position to the direction of extraction is not recommended because increased cage slip occurs in this case. This means that the upper and lower end position of the slide can be reached in some circumstances only with an increased amount of force after a few cycles since the force of gravity causes the ball cage to become dislocated from its correct position.

The following examples show possible **installation positions** of telescopic slides that are considered favorable or acceptable and some that are regarded as unfavorable and should, therefore, be avoided.

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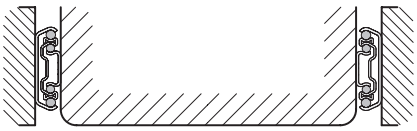
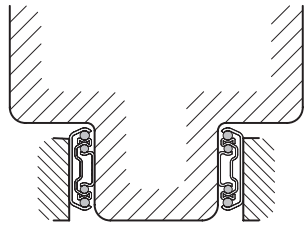
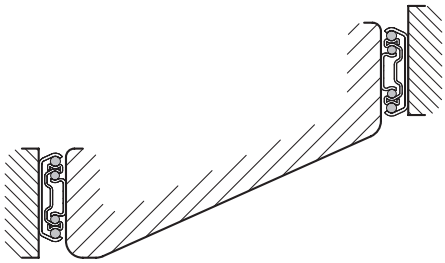
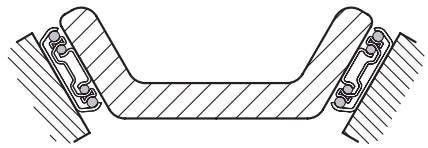
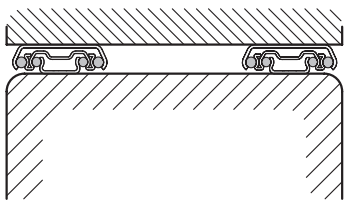
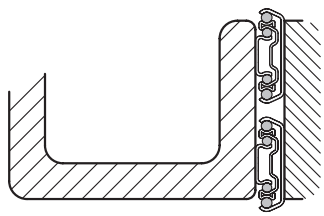
<tr><td>  </td><td>  </td></tr>
<tr><th>vertically shifted, on both sides, acceptable</th><th>vertically inclined, on both sides, acceptable</th></tr>
<tr><td>  </td><td>  </td></tr>
<tr><th>vertically, on one side, unfavorable</th><th>horizontally, on both sides, unfavorable</th></tr>
<tr><td>  </td><td>  </td></tr>
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Telescopic slides

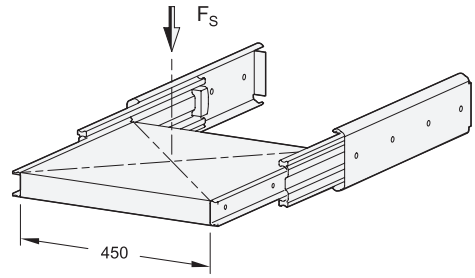
Technical information

LOAD CAPACTIY

The maximum load capacityof telescopic slides depends on the slide profile, the nominal length l_1, and the resulting stroke l_2. Furthermore, the extension width, the slide materials used, and the parts of the component options, such as the dampened self-retracting mechanism, have a considerable influence.

The information on the maximum load capacity of the telescopic slides was determined in fatigue tests under the following

- Slide arrangement vertical in pairs
- Observance of all mounting information
- Equal distribution of the load F_S throughout the extension finish
- Standard slide spacing of 450 mm
- 10,000 or 100,000 test cycles (one extraction and retraction = one cycle)
- Gradual increasing of load



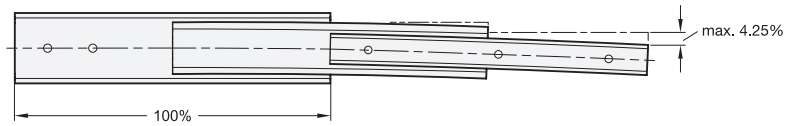
Wear, performance, and maximum bending were assessed after every test segment.

BENDING

Telescopic slides demonstrate elastic bending under load in the extended state.The bending is most noticeable at the far end of the inner slide. The general rule is that the extent of deformation may not be higher than 4.25 % of the stroke path. All slides are within this value on maximum load.

Example:

A telescopic slide having a nominal length of l_1 = 500 mm is moved to the end position and stressed with the maximum load throughout the extension finish. The bending at the front-most point of the slide may now be a maximum of 21.25 mm.



TOLERANCES

All components of the telescopic slides are subject to manufacturing tolerances that ensure consistent quality and a long lifespan.

Since the stroke results from the interaction of all individual parts of the telescopic slides, the sum of all individual tolerances also has to be taken into account for the length tolerance of the stroke. In addition, slight deformation of any existing rubber stops should be mentioned. This results overall in proportionately large total tolerances that are listed on the respective catalog pages and can, therefore, be taken into account in the design layout of extensions.

TRAVEL SPEED

The permissible extraction and retraction speeds of the telescopic slides are set at a maximum speed of 0.3 m/s. Shortly before the end of stroke, the speed should be reduced to less than 0.15 m/s so that the stops, rubber stops, dampened self-retracting mechanisms etc., do not have an excessive amount of impact stress.

SLIDE MATERIALS, SURFACES AND CORROSION PROTECTION

The telescopic slides made by Elesa+Ganter are manufactured out of high-quality steel or stainless steel bands.

The stainless steel telescopic slides are generally delivered with mill-finish surfaces.

The steel telescopic slides are partly made out of a pre-zinc plated steel band and are subsequently batch zinc plated and blue passivated with 5 to 7 µm. Corrosion resistance in the salt spray test for at least 72 hours against white rust is ensured in this way.

To achieve higher corrosion resistance, finish refinements can be provided on request. Two processes are available:

- Galvanically batch zinc plated 5 to 7 µm, black passivated, corrosion resistance in salt spray test for at least 120 hours against white rust
- Galvanically batch zinc plated 5 to 7 µm, passivated, electrolytically coated with T2 top coat / sealer 8 to 12 µm, corrosion resistance in the salt spray test for at least 96 hours against white rust / 500 hours against red rust

All materials and finish refinements used are RoHS compliant.

LUBRICATION AND MAINTENANCE

Telescopic slides are permanently lubricated with high-quality, mineral-oil-based and lead-free bearing lubricants.

For stainless steel telescopic slides, special FDA-compliant lubricants are used that are tasteless and odorless. The lubricants comply with lubricant class H1, which allows them to be used in areas where it is technically infeasible to prevent occasional contact with food. Generally direct contact can be prevented by taking appropriate actions, such as optimum placement of slides or the use of covers.

Re-lubrication is generally not necessary under normal conditions of use since the ball cages and bearings "push out" small amounts of obtained dirt from the slides when the slides move. In applications where there is heavy contamination, the slides should be cleaned from time to time with a clean cloth and then re-lubricated. Acceptable lubricants for the steel variants are, for example, Shell Alvania EP 1 and Klüberplex BE 31-222.

CAGE SLIP

In the event of quick changes of direction and high acceleration forces, cage slip can occur in the worst case, especially with long ball cages. In these cases, the cage does not move synchronously at half the speed of the middle and inner slides. Instead it loses its correct position gradually due to sliding. In such cases an "idle stroke" may need to be moved in the front and back stop position of the slide, at a moderate speed and under slight load to reposition the cage.

TEMPERATURE OF USE

The temperature of use of telescopic slides is within the range of -20 °C to 100 °C and is determined primarily by the plastic and elastomer parts used in the slides. Depending on place of use and application, the user may have to check the function of the extensions if the temperature is at the limit.

Telescopic slides

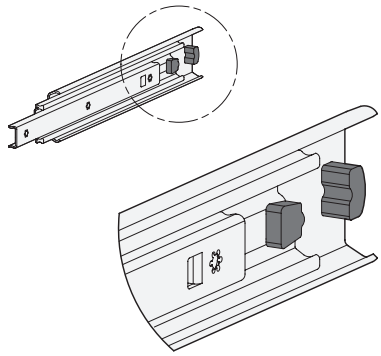
Component options

INFORMATION

Telescopic slides can be delivered with a number of component options. Some are available for one of the two stop positions and in combination, and they are defined by the „type" in the article number.

The following overview shows examples of possible characteristics of the various types and component features. The components used and the employed mechanisms are adapted to match the available installation space, cross section, and structure of the selected slides and have accordingly different designs depending on slide variant. Functionality is comparable, however, and sometimes even identical.

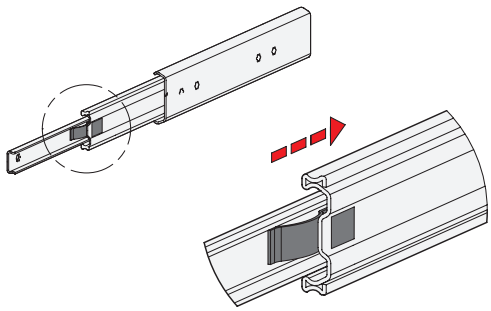
Rubber stops



The rubber stops used in almost all slide variants dampen the impact of the slide in the respective end position. This feature minimizes noise development and increases the lifespan. Attached to the slides in a partially concealed, partially visible manner, the stops meet each of the requirements in regard to shape, material, and hardness.

If larger static or dynamic loads occur in the direction of extension, they should be absorbed by external stop elements.

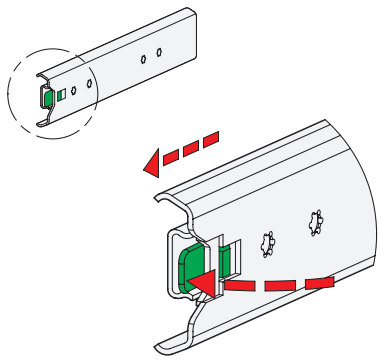
Locking devices



The locking function is noticeable by a slight resistance of the slides in the end positions, which has to be overcome on opening and closing. The locking device in the back stop position is usually integrated into the rubber stop function, making additional components unnecessary.

The locking device is frictionally engaged and, therefore, does not act as a positive locking latch.

Latches

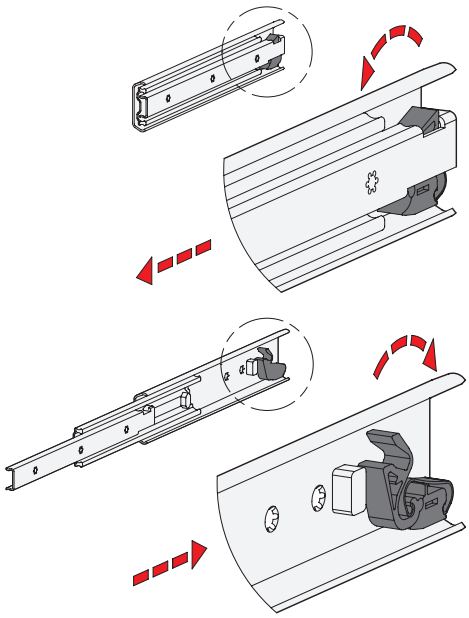


Unlike locking devices, a latch secures the slides in the stop positions in a frictionally engaged way. Telescopic slides with latches are used when the slides need to be protected against independent extension or retraction, for example, due to a tilted position.

A mechanism found within the inner slide latches automatically spring-loaded by moving over a ramp on reaching the respective stop position. Pressing the release lever releases the latch, allowing the slide to move again.

If larger loads occur in the direction of extension in the latched position, they should be absorbed by external latch elements.

Self-retracting mechanism

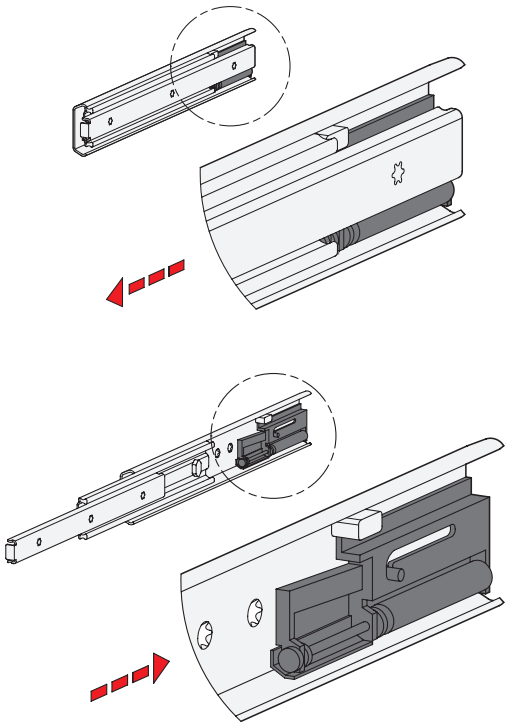


Telescopic slides can have an integrated self-retracting mechanism, which improves considerably the ease of use when closing the extensions.

In the version shown in the example, the slides are retracted and held in the back end position automatically by means of a retraction mechanism on the last 22 mm of stroke with a force of approximately 30 newtons for each slide pair. This force has to be overcome accordingly on opening the extension.

This variant is also designed in such a way that mechanism uncouples and will not be damaged when the extension is opened or closed in a jerky manner or too quickly. On the following stroke, the self-retracting mechanism clicks back into place automatically, ensuring that the function remains intact.

Self-retracting mechanism, dampened

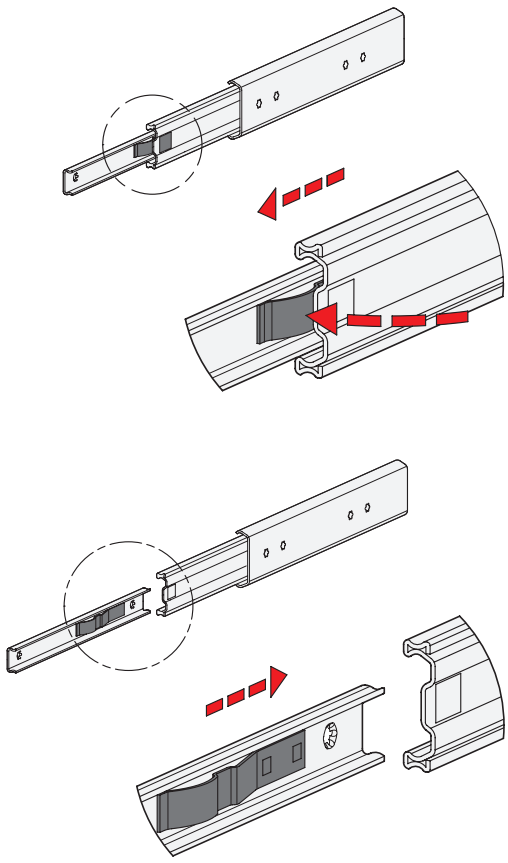


Dampened self-retracting mechanisms are also called "soft-close" and are divided into two main functions. They offer the best possible ease of use on closing the extension.

In the example shown, the self-retracting mechanism takes over the automatic retraction of the slides on the last 40 mm of stroke in the back stop position, where the slides are then held in place. The retraction force is about 35 newtons per slide pair. Also the dampening mechanism slows down to a considerably reduced speed the closing movement on the said stroke, while achieving a extremely gentle and smooth closing movement. This retraction force has to be overcome accordingly on opening the extension.

When dampened self-retracting mechanisms are used, the specified load values and stroke speeds may not be exceeded on reaching the retraction mechanism.

Detach function



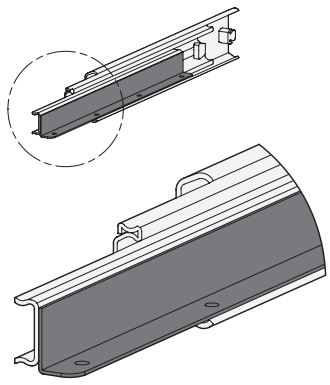
Telescopic slides with a detach function can be completely separated from one another in the area of the middle and inner slide. This feature not only facilitates mounting. It also allows the extension to be quickly removed, for example, when maintenance work is performed on the components located behind.

In the example shown, the telescopic slide can be quickly and easily detached in the extracted position through activation of a flat spring, allowing the inner slide to be removed from the front.

For reattaching the slides, the ball cages need to be moved basically to the front end position. Then the inner slide is inserted to the back end stop where it locks back into place automatically.

The protected arrangement of the various release mechanisms prevents accidental detachment of the slide.

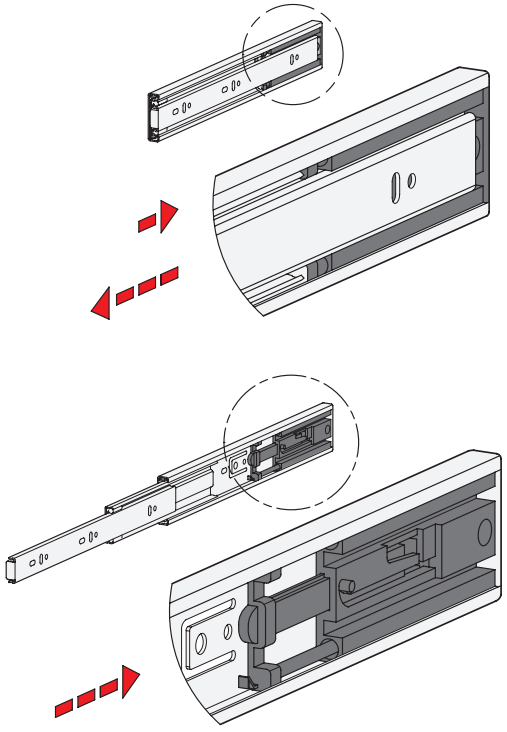
Support and mounting brackets



Support brackets on the inner slide are available on request for some slide variants, even in small quantities. The support bracket is used for simple fastening, for example, of a drawer, if side mounting is not possible. Fastening occurs by means of through-holes that are arranged at a right angle in the bracket.

The fastening screws secure only the position of the drawer in this case. Additional reinforcement of the slides themselves, as with side mounting, is not possible. The drawers should therefore be designed as rigidly as possible so that the perpendicular load does not introduce any unnecessary tension through the support bracket into the slides.

“Push to open” - mechanism



Telescopic slides can be fitted with a “push to open” or “touch to open” mechanism. In addition to ease of opening, the system allows you to have drawers without a front handle. This makes it easy to achieve a sleek, high-end appearance.

The system is typically actuated by pressing your hand on the front of the slide-out shelf or drawer.

In the example shown here, the required force to activate the opening mechanism is about 40 N per rail pair. The inner rail extends 5 mm in its home position and can be pressed in by about 8 mm in the closing direction. This should be taken into account in the design in order to prevent collisions. The pressure or release point is reached at about 3 mm, which causes the drawer to slide out smoothly to about 40 mm in the opening direction after being released.

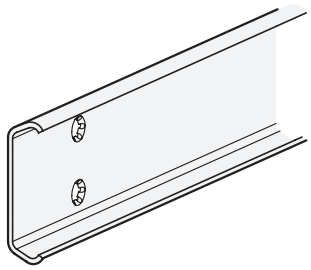
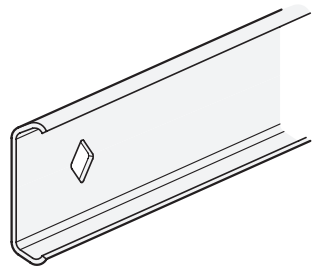
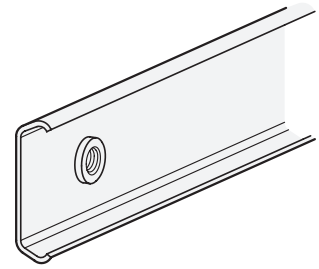
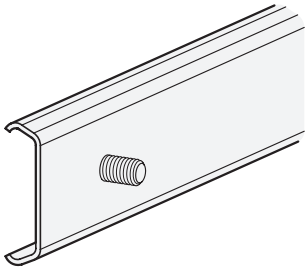
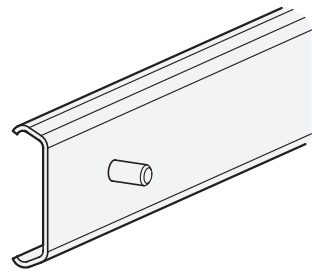
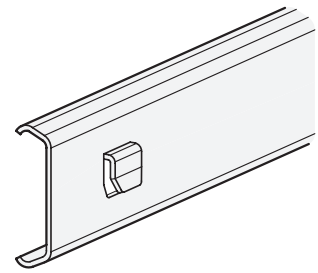
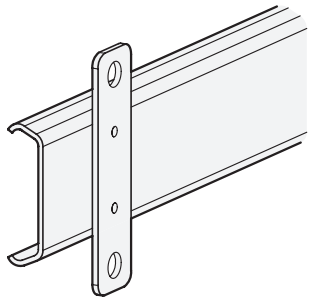
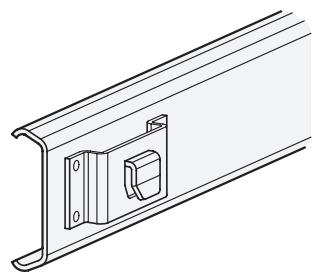
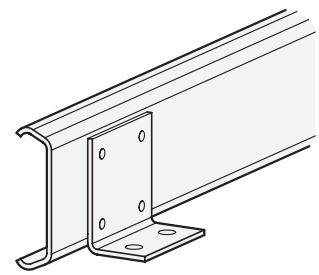
When using telescopic slides with “push to open” actuation, the load values and travel speeds upon reaching the retraction mechanism as specified in the respective standard sheet may not be exceeded.

Telescopic slides

Fastening options

INFORMATION

In addition to the standard fastening of telescopic slides, with through-holes or countersunk holes, other fastening variants can be provided on request. Possible fastening types can be implemented on the inner or outer slide and in combination depending on the requirement. Some examples are shown below. Other, customer-specific special fastenings are also possible after feasibility has been checked.

Countersunk holes	Other fastening holes	Press nuts
		
Threaded studs / bolts	**Mounting studs / bolts**	**Fastening clips**
		
Mounting plates, spot-welded	**Spacers, spot-welded**	**Support brackets, spot-welded**
		

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