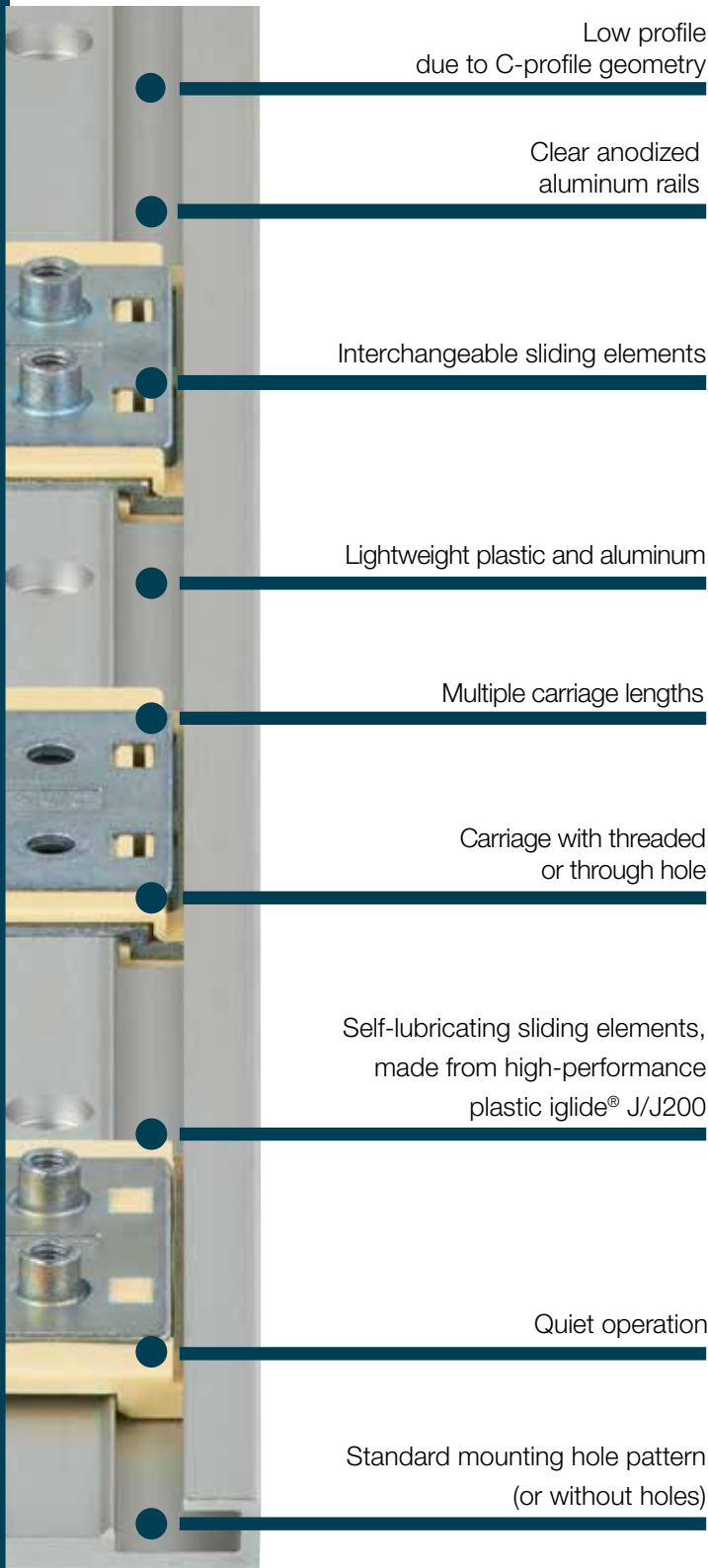


DryLin® N Low-profile Guide Systems

- Low-profile
- Interchangeable sliding elements
- Anodized aluminum rail
- High speed and acceleration possible
- Self-lubricating
- Low weight

DryLin® N - Low-profile guide systems - Advantages

Lightweight, maintenance free, corrosion resistant and low wear



Low profile
due to C-profile geometry

Clear anodized
aluminum rails

Interchangeable sliding elements

Lightweight plastic and aluminum

Multiple carriage lengths

Carriage with threaded
or through hole

Self-lubricating sliding elements,
made from high-performance
plastic iglide® J/J200

Quiet operation

Standard mounting hole pattern
(or without holes)

Maintenance-free low-profile guides - DryLin® N

The low-profile range DryLin® N offers extremely low profile linear bearing and rail systems in a variety of widths. Like all DryLin® products, the complete DryLin® N system operates free of external lubricants. The selected materials and the unique design make DryLin® N a cost-effective and flexible guide system.

- Small mounting heights ranging from 6 - 12 mm
- Lightweight
- A variety of carriage options available, including preloaded options
- Self-lubricating and maintenance-free
- Low coefficient of friction and wear rates
- Rails available in silver or black anodized aluminum
- Low cost

Typical application areas:

- Agricultural ● Vehicle manufacturing
- Medical ● Architectural
- Packaging, etc.



Lifetime calculation online

► www.igus.com/drylin-finder



max. +194°F (90°C)

min. -40°F (-40°C)



Carriage lengths: 60-250 mm

Carriage widths: 54-195 mm

Rail length: up to 4,000 mm



Detailed technical data

► www.igus.com/drylinN



Available from stock

Detailed information about delivery time online.



Cleanroom certification
IPA Fraunhofer



Free of toxins
ROHS 2002/95/EC



ESD compatible
(electrostatic discharge)

DryLin® N - Low-profile guide systems - Product overview

Compact design in four different versions



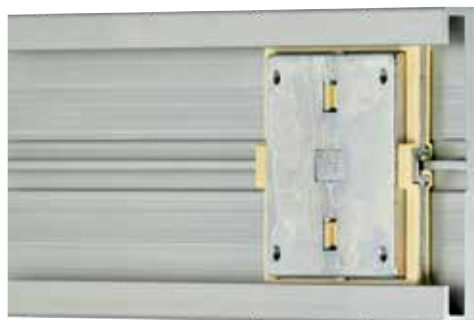
Size 17



Size 27



Size 40



Size 80



Linear guide

- 4 Sizes 17, 27, 40 and 80 mm
 - Corrosion resistant and light weight
 - Standard hole pattern or no hole rail
 - Clear anodized (silver) or "Black edition" (black anti-reflection surface)
- From page 958

Carriage – size 17

- Solid plastic made from high-performance plastic iglide® J, brass thread
 - Standard, preload (PL), floating (LL)
 - Easy to fit due to available double carriage in 30 mm /40 mm length
 - Designed for the smallest installation spaces
- Page 959

Carriage – size 27

- Many carriage and material options with lengths of up to 80 mm
 - Zinc casting with clip-on or overmolded plastic liner
 - Standard, preload (PL), floating (LL)
 - High-temperature carriages and manual clamp available
- Page 961

Carriage – size 40

- Zinc die-casting with thread/through hole
 - Standard, preload (PL), floating (LL)
 - Multiple carriage options
- Page 963

Carriage – size 80

- Carriages with wide load-bearing surface
 - Self-lubricating due to high-performance plastics J/J200
 - Zinc casting with clip-on or overmolded plastic liner
 - Carriages made from zinc casting or aluminum with threaded holes (reduced installation height as no pins used)
- Page 965

Accessories

- End caps
 - Manual clamp for size 27
 - Telescopic rails (with/without locking function)
- Page 968

Based on DryLin® N elements

- DryLin® SLN ➤ Drive Technology
- From page 1281

DryLin® N - Low-profile guide systems - Application examples



The low-profile size of DryLin® N makes it possible to achieve maximum work area in this delta-style 3D printer.



DryLin® N low-profile guides and DryLin® SD lead screw drives perform the height adjustments, and the black anodized DryLin® N profile blends seamlessly into this 3D printer's design.



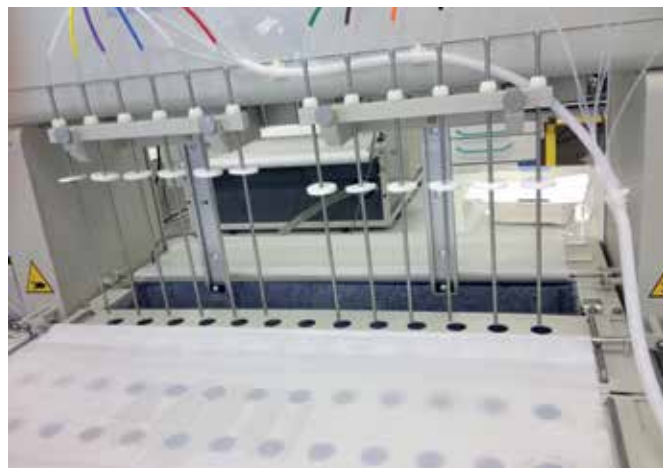
In the redesign on this ATM machine, the durability and lack of maintenance, plus easy-to-install design of DryLin® N made it an ideal bearing solution.



The quiet, self-lubricating, and low-profile design of DryLin® N enabled it to fulfill the safety requirements of this application. Multiple sections of rails are joined to achieve the desired length.

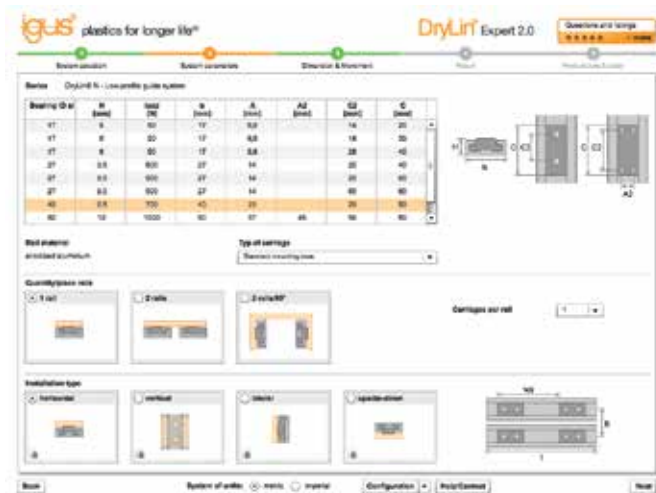


The removal unit is moved along the X-Y axis using space and cost-saving DryLin® N.



This sampling device used DryLin® linear bearings to remove the sampled materials smoothly and precisely.

DryLin® N - Low-profile guide systems - Online tools



DryLin® expert - 2.0 system selections & service life calculation with CAD

A number of online tools, including configurators and service life calculators are available for DryLin® linear systems. Calculate required drive force and other technical details, and get direct access to CAD files and online ordering.

► www.igus.com/drylin-expert



The igus® CAD configurator gives you the ability to design and save your linear guide system, individual components directly as a 3D model in all commonly used formats, or to have these sent via email – No costs or registration required.

► www.igus.com/DryLin-CAD

DryLin® N - Low-profile guide systems - Design rules

Floating bearings version



NW-... NW-... LLZ NW-... LLY NW-... LLYZ

LLZ Floating bearing in z-direction

LLY Floating bearing in y-direction

LLYZ Floating bearing in yz-direction

Floating bearing	NW-17	NW-27	NW-40	NW-80
LLY	0.6	0.45	0.4	0.6
LLZ	0.5	0.8	0.8	0.8
LLYZ	Y = 0.6	Y = 0.3	Y = 0.4	Y = 0.6
	Z = 0.5	Z = 0.4	Z = 0.8	Z = 0.8



The 2:1 Rule ► Page 902

Technical details on floating bearings ► Page 903

Technical options for DryLin® low-profile guide systems

Clip-on sliding elements

iglide® J slide elements are clipped to the die-cast zinc carriage body and can be quickly and easily changed at any time, reusing the zinc carriages. Replacement sliding elements are available.

Overmolded sliding elements

J/J200 are overmolded over the zinc die-cast body, offering the benefit of a one-piece carriage for easy assembly. With the overmolded carriages it is not possible to replace the sliding elements, the entire carriage must be replaced at the end of service life.

Preload function

The use of sliding elements with an integrated spring preload function prevents rattling of the carriages in the profile rail. Silent adjustments are possible using the preload principle, making the guide suitable for use in noise-sensitive applications, such as in medical, furniture, and aircraft/automotive interiors. This preload increases the drive force by a maximum of 10 N

Anodized surfaces

All DryLin® N guide rails are clear anodized and exhibit good wear and corrosion resistance properties. All rail sizes are available with clear anodizing or anti-reflective black anodized surfaces. These are technical, non-decorative coatings and slight crazing and color variations can be expected. These variations will not affect the resistance, corrosion resistance, or gliding properties. Rail ends and post processed surfaces are uncoated.

Tightening torque for DryLin® connections between metal parts

Metric thread [Da]	Torque [Nm]	Recommended torque [Nm]
M4	1.0 - 2.8	1.5
M5	2.0 - 5.5	3.0
M6	4.0 - 10.0	6.0
M8	8.0 - 23.0	15.0
M10	22.0 - 46.0	30.0

Note the minimal screw in depth for aluminum and zinc parts: 1.5 x Da

DryLin® N - Low-profile guide systems - Technical data

System selection				
System	N17	N27	N40	N80
Rail width	17 mm	27 mm	40 mm	80 mm
Installation height	6 mm	9.5 mm	9.5 mm	12 mm
General properties				
Rail weight	150 g/m	290 g/m	450 g/m	1,140 g/m
Carriage weight	1.7 g	9–12.5 g	30 g	100 g
Max. rail length	2,000 mm	3,000 mm	3,000 mm	4,000 mm
Load capacities, static				
F _y	50 N	500 N	700 N	1,000 N
F _z	50 N	500 N	700 N	1,000 N
M _x	0.31 Nm	5 Nm	10 Nm	32.4 Nm
M _y , M _z	0.18 Nm	2.5 Nm	6 Nm	15 Nm
Carriage options				
Floating bearing in y-direction	●	●	●	●
Floating bearing in z-direction	●	●	●	●
Floating bearing in yz-direction	●	●	●	●
Preload (1 N)	●	●	●	–
Molded version	–	●	●	●
Carriage with plain hole	–	●	●	–
Carriage with threaded hole	●	●	●	●

Table 01: System selection ● available – not available

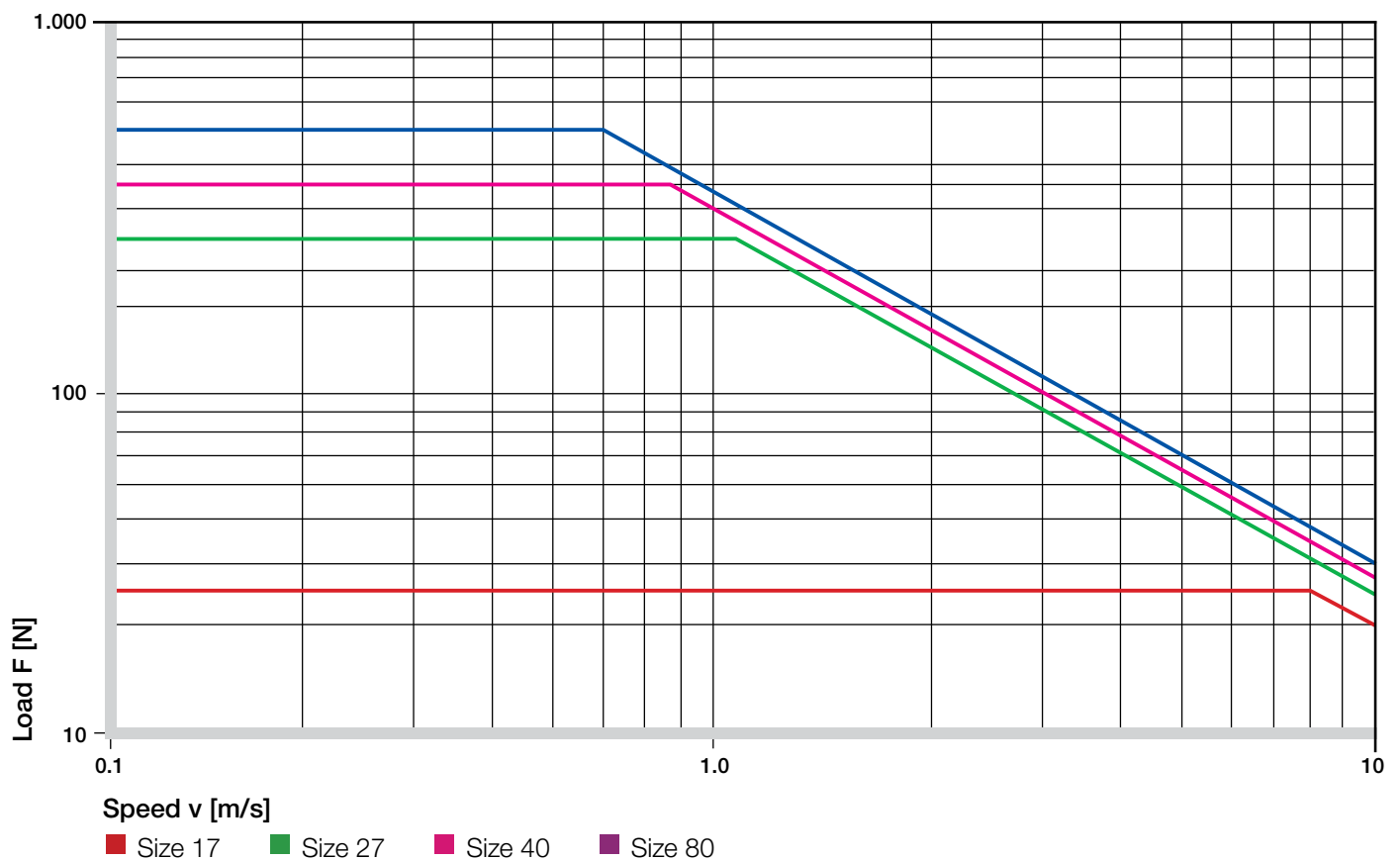


Diagram 01: F v diagram, maximum permissible dynamic load

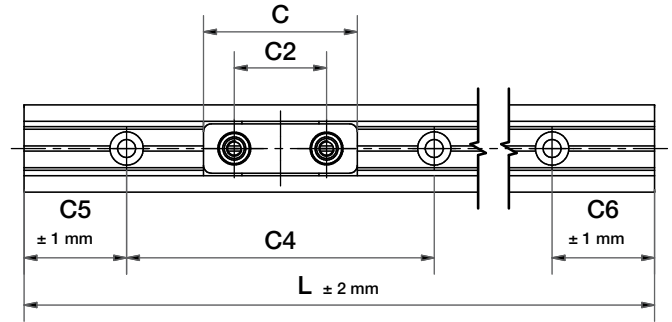
Size 17



Standard,
anodized
with holes

Anodized
without
holes

Black
anodized,
with holes



NW-02-17



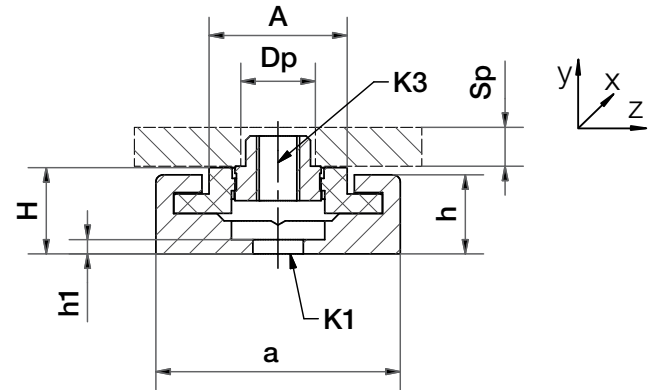
NW-02-17-P



NW-22-17-30



NW-22-17-40



Selection aid – guide carriage

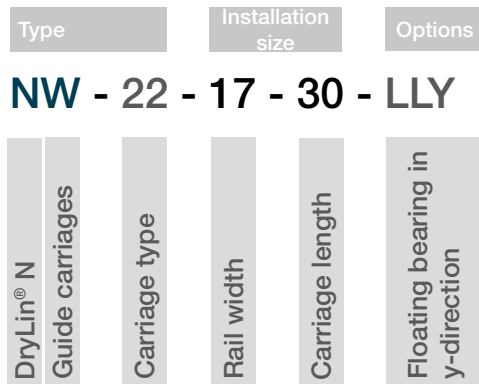
Part No.	Single	Double	Through hole	Threaded pin	Threaded hole	Preload	Solid plastic	Clipped-on	Molded	High temp.
NW-02-17	●			●			●			
NW-02-17-P	●			●		●	●			
NW-22-17-30		●		●			●			
NW-22-17-40		●		●			●			

DryLin® N - Low-profile guide systems - Product range

Guide rails and carriages – size 17



Order key



Type

02 = Carriage with threaded mounting boss

22 = Double carriage with threaded mounting boss

Options

P = Preload

Floating bearing

LLY = Floating y-direction

LLZ = Floating z-direction

LLYZ = Floating yz-direction

Guide rail (standard / undrilled / AR black anodized) – dimensions [mm]

Part No.	L	a	C4	C5 = C6		h	h1	K1 ⁷³⁾	ly	lz	Weight
	max.			min.	max.						
NS-01-17- <input type="text"/> ⁷²⁾	2,000	17	60	20	49.5	5.5	0.9	Ø3.5	1,700	120	150
NS-01-17S- <input type="text"/> ⁷²⁾	2,000	17	–	–	–	5.5	0.9	–	1,700	120	150
NS-01-17-AR- <input type="text"/> ⁷²⁾ (black anodized)	2,000	17	60	20	49.5	5.5	0.9	Ø3.5	1,700	120	150

⁷²⁾ Please add the required length in mm, symmetrical standard hole pattern C5 = C6

⁷³⁾ For cap screw with low head (i.e. DIN 7984, DIN 6912, DIN 84, EN ISO 1707)

Guide carriage – dimensions [mm]

Part No.	H ±0.35	A	C	C2	K3 ⁷⁴⁾	Sp	Dp	Weight [g]
NW-02-17	6.0	9.6	20	14	M3	2.5	5.0	1.7
NW-02-17-P	6.0	9.6	20	14	M3	2.5	5.0	1.7
NW-22-17-30	6.0	9.6	30	18	M3	2.5	5.0	2.4
NW-22-17-40	6.0	9.6	40	28	M3	2.5	5.0	2.6

⁷³⁾ For cap screw with low head (i.e. DIN 7984, DIN 6912, DIN 84, EN ISO 1707)

⁷⁴⁾ Metal thread



Order example:

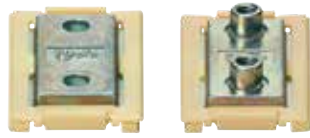
NS-01-17-1500 = Guide rail, size 17, length 1 @ 500 mm

NW-02-17-P-LLY = Guide carriage with threaded pin, size 17, preload, floating bearing in y-direction

Size 27



Standard, anodized with holes Anodized without holes Black anodized, with holes



NW-01-27 NW-02-27



NW-01-27-P NW-02-27-P



NW-01-27-HT NW-02-27-HT



NW-21-27-60-P NW-22-27-60-P



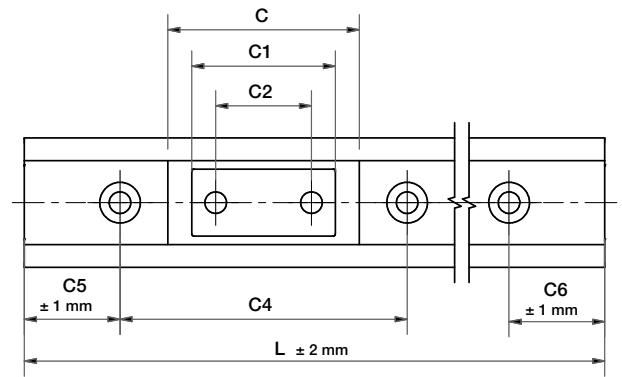
NW-11-27 NW-12-27



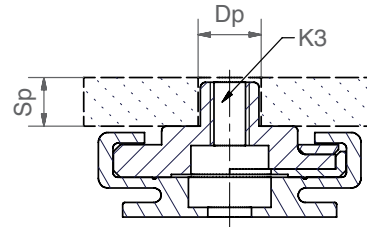
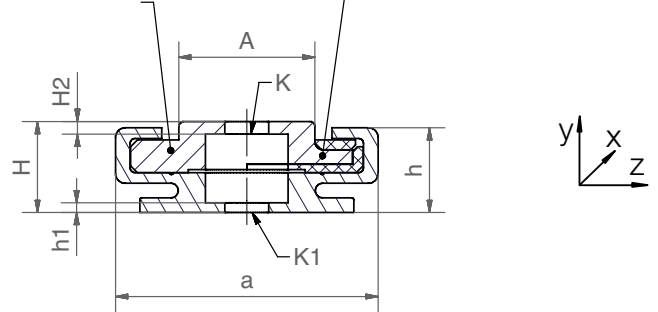
NW-11-27-80 NW-12-27-80



NW-12-27-80-HKA



Design: one-piece overmolded liner Design: clipped-on liner



Selection aid – guide carriage

Part No.	Single	Double	Through hole	Threaded mounting boss	With low thread mount	Preload	Solid plastic	Clipped-on plastic liners	Overmolded plastic liner	High temp. 266°F (130°C)
NW-01-27	●		●					●		
NW-11-27	●		●						●	
NW-01-27-P	●		●			●		●		
NW-01-27-HT	●		●					●		●
NW-02-27	●			●				●		
NW-12-27	●			●					●	
NW-02-27-P	●			●		●		●		
NW-02-27-HT	●			●				●		●
NW-21-27-60-P	●		●			●	●			
NW-22-27-60-P	●				●	●	●			
NW-11-27-80		●	●						●	
NW-12-27-80		●		●					●	

DryLin® N - Low-profile guide systems - Product range

Guide rails and carriages – size 27



Order key

Type	Size	Options
NW - 01 - 27 - HT - LLY		
DryLin® N Guide carriages	Carriage type	Rail width
	High temperature	Floating bearing in y-direction

Carriage type

See selection aids

Options

P = Preload

HT = High temperature 266°F (130°C)

Floating bearing

LLY = Floating y-direction

LLZ = Floating z-direction

LLYZ = Floating yz-direction

Guide rail (standard / undrilled / AR black anodized) – dimensions [mm]

Part No.	L	a	C4	C5 = C6		h	h1	K1 ⁷³⁾	ly	lz	Weight
	max.			min.	max.				[mm ²]	[mm ²]	[g/m]
NS-01-27- <input type="text"/> ⁷²⁾	3,650	27	60	20	49.5	9	1.1	Ø4.5	6,524	588	290
NS-01-27S- <input type="text"/> ⁷²⁾	3,650	27	–	–	–	9	1.1	–	6,524	588	290
NS-01-27-AR- <input type="text"/> ⁷²⁾ (black anodized)	3,000	27	60	20	49.5	9	1.1	Ø4.5	6,524	588	290

⁷²⁾ Please add the required length in mm, symmetrical standard hole pattern C5 = C6

⁷³⁾ For cap screw with low head (i.e. DIN 7984, DIN 6912, DIN 84, EN ISO 1707)

Guide carriage – dimensions [mm]

Part No.	H ±0.35	A	C	C1	C2	H2	K ⁷³⁾	K3 ⁷⁴⁾	M ⁷⁵⁾	Sp	Dp	Weight [g]
NW-01-27	9.5	14.0	40	30	20	1.2	Ø4.5	–	–	–	–	10.8
NW-11-27	9.5	14.0	34	30	20	1.2	Ø4.5	–	–	–	–	10.8
NW-01-27-P	9.5	14.0	40	30	20	1.2	Ø4.5	–	–	–	–	10.8
NW-01-27-HT	9.5	14.0	40	30	20	1.2	Ø4.5	–	–	–	–	11.0
NW-02-27	9.5	14.0	40	30	20	–	–	M4	1.2	5.0	6.5	12.5
NW-12-27	9.5	14.0	34	30	20	–	–	M4	1.2	5.0	6.5	12.5
NW-02-27-P	9.5	14.0	40	30	20	–	–	M4	1.2	5.0	6.5	12.5
NW-02-27-HT	9.5	14.0	40	30	20	–	–	M4	–	5.0	6.5	13.0
NW-21-27-60-P	9.5	14.0	60	60	20	0.7	Ø4.5	–	–	–	–	9.0
NW-22-27-60-P	9.5	14.0	60	60	20	–	–	M4	1.2	5.0	6.5	12.0
NW-11-27-80	9.5	14.0	80	76	60	1.2	Ø4.5	–	–	–	–	25.0
NW-12-27-80	9.5	14.0	80	76	60	–	–	M4	1.2	5.0	6.5	25.0

⁷³⁾ For cap screw with low head (i.e. DIN 7984, DIN 6912, DIN 84, EN ISO 1707)

⁷⁴⁾ Metal thread



Order example:

NS-01-27-1500 = Guide rail, size 27, length 1 @ 500 mm

NW-02-27-P-LLY = Guide carriage with threaded mounting boss, size 27, preload, floating bearing in y-direction

DryLin® N - Low-profile guide systems - Product range

Size 40



Standard,
anodized
with holes

Anodized
without holes

Black anodized,
with holes



NW-01-40

NW-02-40



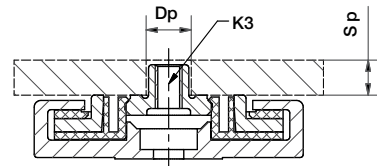
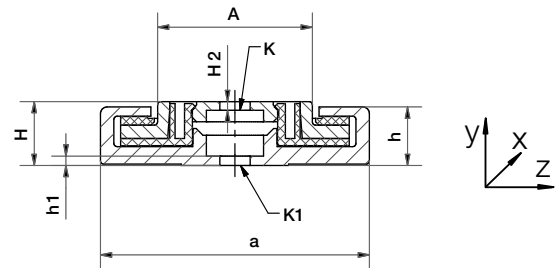
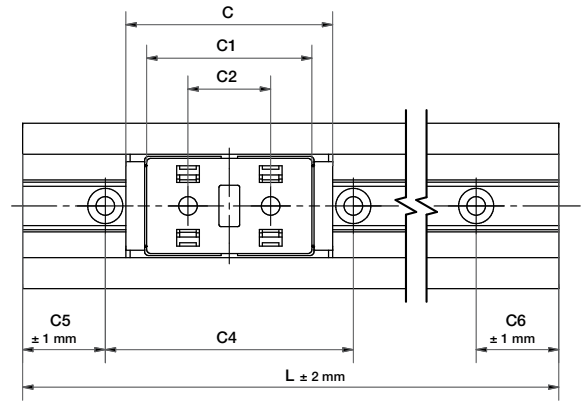
NW-01-40-P

NW-02-40-P



NW-11-40

NW-12-40



Selection aid – guide carriage

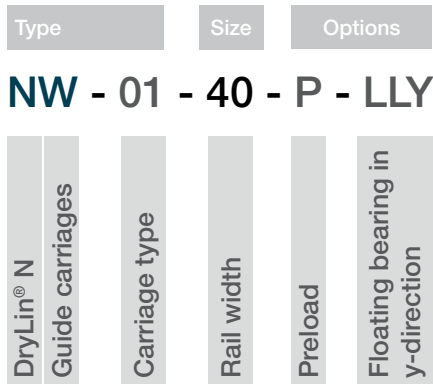
Part No.	Single	Double	Through hole	Threaded mounting boss	Threaded hole	Preload	Solid plastic	Clipped-on plastic liners	Overmolded plastic liner	High temp.
NW-01-40	●		●					●		
NW-01-40-P	●		●			●		●		
NW-11-40	●		●						●	
NW-02-40	●			●				●		
NW-02-40-P	●			●		●		●		
NW-12-40	●			●					●	

DryLin® N - Low-profile guide systems - Product range

Guide rails and carriages – size 40



Order key



Carriage type
See selection aid

Options

P = Preload

Floating bearing

LLY = Floating y-direction

LLZ = Floating z-direction

LLYZ = Floating yz-direction



All elements can be ordered individually or as assembled systems

Guide rail (standard / undrilled / AR black anodized) – dimensions [mm]

Part No.	L	a	C4	C5 = C6		h	h1	K1 ⁷³⁾	ly	lz	Weight
	max.			min.	max.						
NS-01-40- <input type="text"/> ⁷²⁾	3,000	40	60	20	49.5	8.7	1.3	Ø4.5	26,400	970	450
NS-01-40S- <input type="text"/> ⁷²⁾	3,000	40	–	–	–	8.7	1.3	–	26,400	970	450
NS-01-40-AR- <input type="text"/> ⁷²⁾ (black anodized)	3,000	40	60	20	49.5	8.7	1.3	Ø4.5	26,400	970	450

⁷²⁾ Please add the required length in mm, symmetrical standard hole pattern C5=C6

⁷³⁾ For cap screw with low head (i.e. DIN 7984, DIN 6912, DIN 84, EN ISO 1707)

Guide carriage – dimensions [mm]

Part No.	H ±0.35	A	C	C1	C2	H2	K ⁷³⁾	K3 ⁷⁴⁾	Sp	Dp	Weight [g]
NW-01-40	9.5	23.0	50	40	20	1.3	Ø4.5	–	–	–	30.0
NW-01-40-P	9.5	23.0	50	40	20	1.3	Ø4.5	–	–	–	30.0
NW-11-40	9.5	23.0	52	40	20	1.3	Ø4.5	–	–	–	30.0
NW-02-40	9.5	23.0	50	40	20	–	–	M4	5.0	6.5	30.0
NW-02-40-P	9.5	23.0	50	40	20	–	–	M4	5.0	6.5	30.0
NW-12-40	9.5	23.0	52	40	20	–	–	M4	5.0	6.5	30.0

⁷³⁾ For cap screw with low head (i.e. DIN 7984, DIN 6912, DIN 84, EN ISO 1707)

⁷⁴⁾ Metal thread



Order example:

NS-01-40-1500 = Guide rail, size 40, length 1,500 mm

NW-02-40-P-LLY = Guide carriage with threaded pin, size 40, preload, floating bearing in y-direction

DryLin® N - Low-profile guide systems - Product range

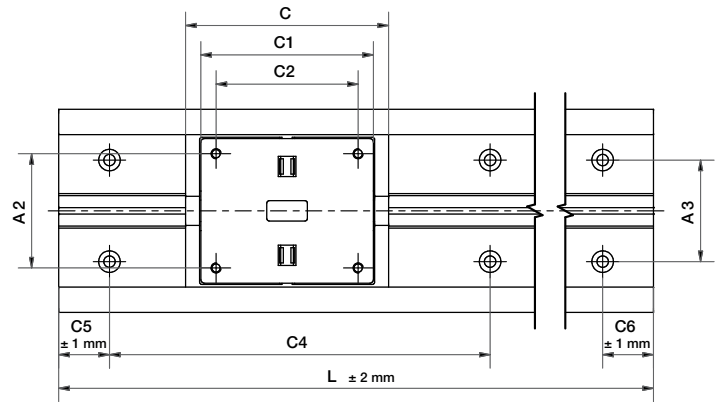
Size 80



Standard, anodized with holes



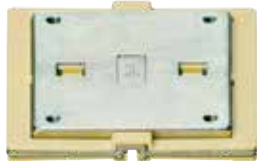
Anodized without holes



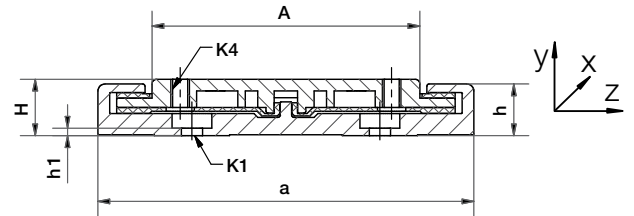
Black anodized, with holes



NW-12-80
Overmolded



NW-02-80
Zinc



Selection aid – guide carriage

Part No.	Single	Double	Through hole	Threaded pin	With thread	Preload	Solid plastic	Clipped-on	Molded	High temp.
NW-02-80	●				●			●		
NW-12-80	●				●				●	

DryLin® N - Low-profile guide systems - Product range

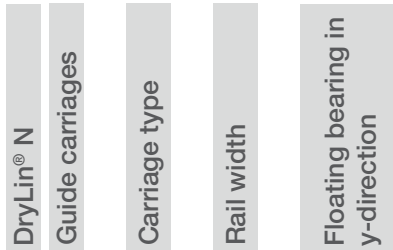
Guide rails and carriages – size 80



Order key

Type Size Options

NW - 02 - 80 - LLY



Carriage type

See selection aid

Options

Floating bearing

LLY = Floating y-direction

LLZ = Floating z-direction

LLYZ = Floating yz-direction

Guide rail (standard / undrilled / AR black anodized) – dimensions [mm]

Part No.	L	a	C4	A3	C5 = C6		h	h1	K1 ⁷³⁾	ly	lz	Weight
	max.				min.	max.						
NS-01-80- <input type="text"/> ⁷²⁾	4,000	80	150	40	25	99.5	11	1.5	Ø4.5	27,120	2,900	1,140
NS-01-80S- <input type="text"/> ⁷²⁾	4,000	80	150	40	–	–	11	1.5	–	27,120	2,900	1,140
NS-01-80-AR- <input type="text"/> ⁷²⁾	4,000	80	150	40	25	99.5	11	1.5	Ø4.5	27,120	2,900	1,140

⁷²⁾ Please add the required length in mm, symmetrical standard hole pattern C5=C6

⁷³⁾ For cap screw with low head (i.e. DIN 7984, DIN 6912, DIN 84, EN ISO 1707)

Guide carriage – dimensions [mm]

Part No.	H ±0.35	A	C	C1	C2	A2	K4 ⁷⁴⁾	Weight [g]
NW-02-80	12.0	57.0	80	68	56	45	M4	100.0
NW-12-80	12.0	57.0	83	68	56	45	M4	146.3
NW-02-80AL (Aluminum)	12.0	57.0	80	68	56	45	M4	72.0

⁷⁴⁾ Metal thread



Order example:

NS-01-80-1500 = Guide rail, size 80, length 1,500 mm

NW-02-80-LLY = Guide carriage, clip-on, size 80, floating bearing in y-direction, suitable for size 80 guide rails

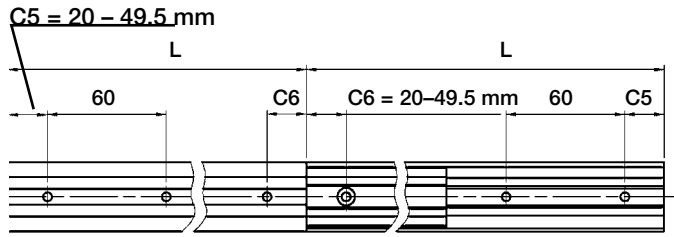
DryLin® N - Low-profile guide systems - Product range

Telescopic rails

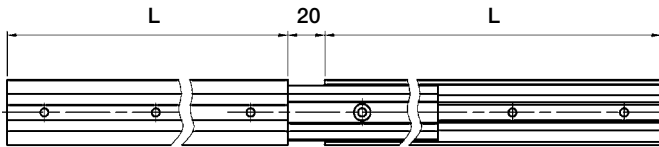


- Solid A180 thermoplastic guide/aluminum rail
- Lightweight
- Low priced
- Corrosion resistant
- Continuous lengths up to 1,200 mm (total extension)

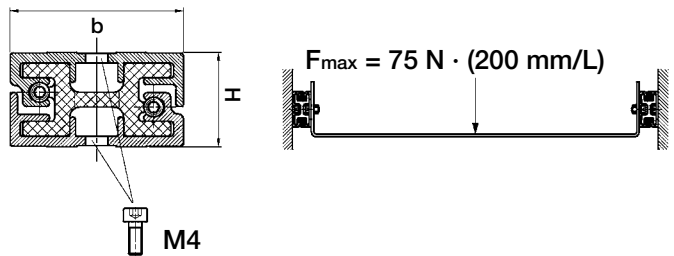
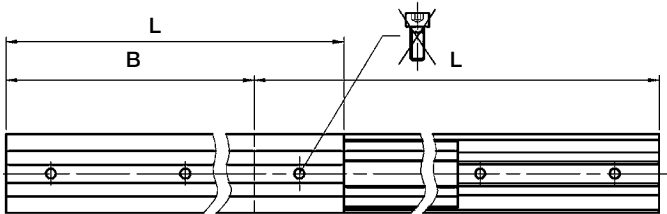
NT-35-"L" - Total extension



NT-35-"L"-"L+20" - Over-extension



NT-35-"L"-"B" - Partial extension



Dimensions [mm]

Part No.	b	H	L min.	L max.
NT-35-... mm	35	19	100	600



Order key

Type	Size
NT - 35 - 300	
DryLin® N	
Telescopic system	
Rails width	
Length [mm]	



Over extension order key

Type	Size	Option
NT - 35 - 300 - 320		
DryLin® N		
Telescopic system		
Rails width		
Length [mm]		
Over extension [mm]		



Partial extension order key

Type	Size	Option
NT - 35 - 300 - 200		
DryLin® N		
Telescopic system		
Rails width		
Length [mm]		
Partial extension [mm]		

Option:
Partial extension
(e.g.: telescoped
length 300 mm,
extended length
500 mm)



Recommendation:

F_{max} calculated using this formula allows an easy manual use. The unit can take higher forces than this, but the required driving force will be correspondingly higher.

DryLin® N - Low-profile guide systems - Product range

Telescopic rails with locking mechanism

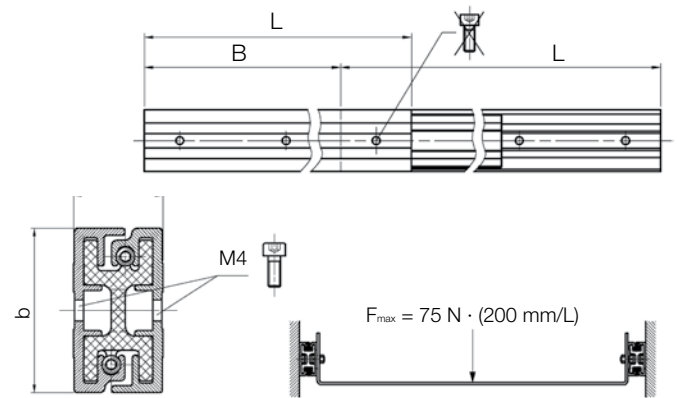
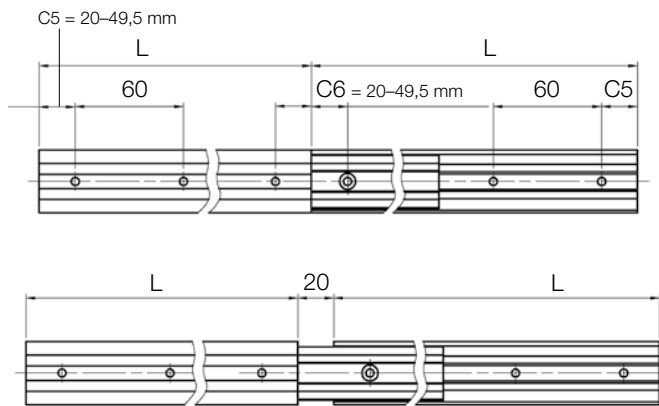


Order key

Type Size Option

NT - LM - 35 - 300

DryLin® N	Telescopic system	Locking mechanism	Rail width	Length [mm]
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DryLin® NT LM in adjustment of Perspex guard



DryLin® NT LM in guard door adjustment in a machine tool

DryLin® detent in end and center position at full extension – Dimensions [mm]

Part No.	b	H	Lmin	Lmax
NT-LM-35-...mm	35	19	140	600

Individual position detent on request; The length divided by the locking distance must be an even number.
e.g. Lengths 250 mm, latching all 62.5 mm = $250 / 62.5 = 4$



Order example:

NT-LM-35-300 = DryLin® N telescopic rail with locking mechanism, 35 mm width, retracted length 300 mm

DryLin® N - Low-profile guide systems - Product range

Accessories: Manual clamp for Size 27



Order key

Type

Size

Option

NW - 02 - 27 - 80 - HKA

DryLin® N

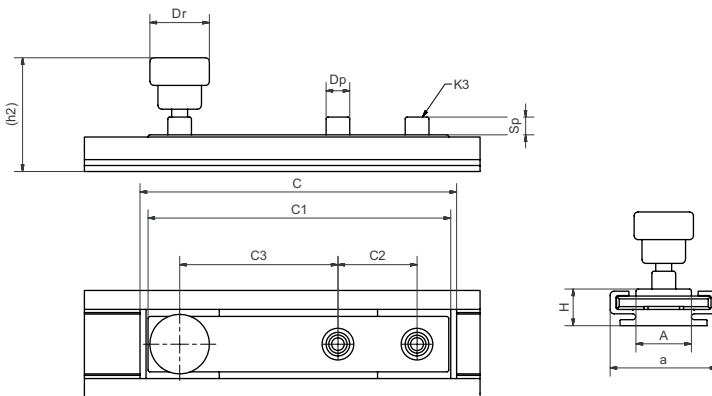
Guide carriages

Carriage type

Rail width

Carriage length

Manual clamp



Dimensions [mm]

Part No.	H	(h2)	A	C	C1	C2	C3	K3	M	Sp	Dp	Dr	Weight [g]
NW-12-27-80-HKA	9.5	32	14	80	76	20	40	M4	1.2	5	6.5	15	32



Order example:

NW-12-27-80-HKA = Manual clamp for NW-12-27-80 carriage

DryLin® N - Low-profile guide systems - Product range

Accessories: End caps



Order key

Type

Size

NSKB - 40

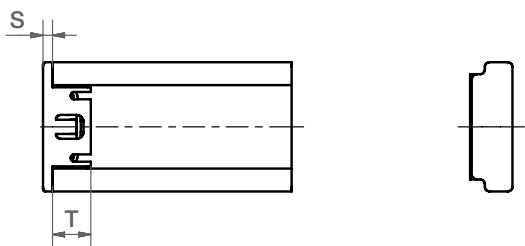
DryLin® N -
End caps

Plugged

Rail width



Size 80 shown for example only



Dimensions [mm]

Part No.	S	T	for rail
NSKB-17	1.5	7	NS-01-17
NSKB-27	2	8	NS-01-27
NSK-40	1.5	8	NS-01-40
NSKB-80	2	17	NS-01-80



Order example:

NSK-40 = end caps for rail size 40, bolted



Easily assembled and disassembled by hand using a screw driver.
Part No.: NSKB



End caps for rail size 40, screwed
Part No.: NSK-40

Notes

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.