drylin® N replacement plastic sliders (set)

Material iglidur® J

Carriage type	Part No. Sliding part set
NW-01/02/27	NEK-01-27
NW-01/02-27P	NEK-01-27-P
NW-01/02-27-LLY	NEK-01-27-LLY
NW-01/02-27-LLZ	NEK-01-27-LLZ
NW-01/02-40	NEK-02-40
NW-01/02-40P	NEK-01-40-P
NW-01/02-40-LLY	NEK-02-40-LLY
NW-01/02-40-LLZ	NEK-02-40-LLZ
NW-02-80	NEK-02-80
NW-02-80-LLY	NEK-02-80-LLY
NW-02-80-LLZ	NEK-02-80-LLZ

drylin® linear technology – drylin® T rail guides

- Robust linear guides
- Adjustable bearing clearance
- Wear-resistant and durable
- Dimensionally identical to recirculating ball-bearing guides
- Lubrication and maintenance-free

Resistant to dirt, low vibration, low noise, long service life

Lubrication-free rail guides – drylin® T

drylin® T rail guides were originally developed for applications in both automation and materials handling. The goal was to create a robust linear guide for use in the most diverse, even extreme environments. Their dimensions are identical to most recirculating ball bearing guides.

- 100 % lubrication-free
- Adjustable bearing clearance
- Automatic clearance adjustment
- High static load capacity
- Service life up to 50,000km
- Resistant to dirt
- Low vibration and quiet

Typical application areas

- Mechanical engineering
- Wood working industry
- Machine tools
- Handling

Available from stock
Detailed information about delivery time online.

Price breaks online
No minimum order value. No minimum order quantity.

Max. +90°C
Min. –40°C

7 carriage types
Rail length up to 4,000mm

Service life calculation
▶ www.igus.eu/drylin-expert

Cleanroom certificated IPA Fraunhofer

Free from toxins 2011/65/EU (RoHS)

ESD-compatible (electrostatic discharge)

Dimensionally identical to most recirculating ball-bearing guides

High performance
- 50% longer service life due to iglidur® J200 sliding elements
- Fast assembly
- Adjustable bearing clearance

▶ From page 1001

Standard / with manual clamp
- Manual clearance adjustment on the carriage
- Long service life with iglidur® J-sliding elements
- Manual clamp on carriage (optional)

▶ From page 1002

Automatic
- Automatic clearance adjustment
- Easy assembly with pre-load key
- Long service life with iglidur® J sliding elements

▶ Page 1003

Heavy duty
- Robust design, factory clearance adjustment
- Long service life with iglidur® J-sliding elements
- Quick assembly

▶ Page 1005

Compact
- Narrow guide carriages for small spaces
- Captive plastic sliders
- Corrosion-free

▶ Page 1006

Miniature guides / Adjustable miniature guides
- Small compact design
- Easy to fit
- Individual clearance adjustment on carriage

▶ Page 1008

Clamps
- Compact or heavy duty design
- Available for installation sizes 15-30mm
- Holding force up to 500N

▶ Page 1007

drylin® T rails
- Lightweight, aluminium extruded section
- Robust and corrosion-resistant hard-anodised surfaces
- Shaft length delivered with millimetre precision up to max. 4,000mm

▶ Page 1000

Based on drylin® T
drylin® SLT linear module

▶ From Page 1335

Long service life and food grade quality are also prerequisites for the application like insensitivity to pungent detergents and humidity.

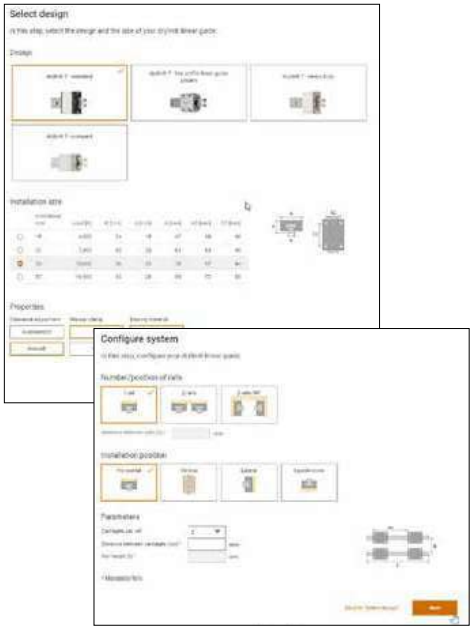
The adjustment of the pressing roller and the compensation of the imbalance of the grinding tools are implemented with drylin® T in place of recirculating ball bearing guides.

The drylin® T linear guides are used in these enveloping machines to guide an envelope suction opener that is mounted on one side.

Due to the welding spatter and dust, the use of the extremely dirt-resistant drylin® T linear guide finds the balance between high service life and low costs.

drylin® T rail guides with adjustable clearance change the height of the work table silently and precisely.

Time saving: Reduced tool changing time due to this measuring system. The gauge is guided on a drylin® T rail. This solution works also without problems in dusty environments.



Expert for linear guides: System selection and service life calculation with CAD

Configure linear bearings and calculate their service life – constantly expanded by new sizes and products

Easily calculate the service life of your required linear guide and configure with a few clicks. Select a drylin® system and add the relevant environmental parameters. Select the bearing size, carriage, number and position. Then enter the distance between the rails and the mounting. Define the coordinates for the drive location and the centre of gravity, or enter these via the keyboard. Define the weight, acceleration, and distance of the bearing and select a rail length. The results are displayed.

▶ **www.igus.eu/drylin-expert**

drylin® CAD configurator: Generate complete 3D models for drylin® linear technology according to your specifications

The igus® CAD online configurator gives you the ability to design and save your linear guide as a system, individual components directly as a 3D model in all commonly used formats, or to have these sent by e-mail – free of charge and without registration.

▶ **www.igus.eu/drylin-CAD**

More information about the products can be found in the igus® download area

- Assembly instructions
- Assembly videos
- System design
- Catalogues

▶ **www.igus.eu/downloads**

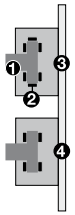
Design tip

The compensation of parallelism errors up to a maximum of 0.5mm between mounted rails is possible with a fixed/floating bearing. During installation, take care that the floating bearing has approximately the same clearance on both sides.
In the adjacent designs you can see the version of the fixed/floating bearing system recommended by us.
The mounting surfaces of the rails and guide carriages should be very flat (e.g. machined surface) to prevent twisting in the system. Small discrepancies in the mounting surfaces can be compensated up to a certain amount (0.5mm) by a greater clearance adjustment. The clearance adjustment is possible only in unloaded state. If you have any questions on design and/or assembly, please make use of our technical support.

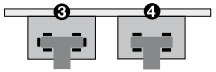
Technical details on floating bearings ▶ Page 907
The 2:1 Rule ▶ Page 907

Version with floating bearing in z-direction

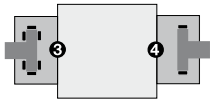
❶ Rail
❷ Slide elements
❸ Carriage with fixed bearings
❹ Carriage with floating bearings
LLZ or LLY



Horizontal version with floating bearing in z-direction



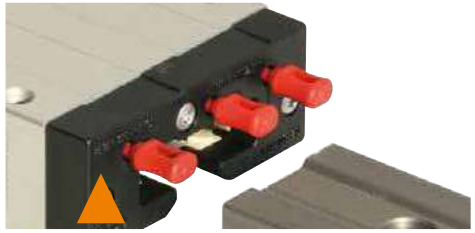
Horizontal version with floating bearing in the y-direction and lateral guide carriage



Installation drylin® T linear guide system

Make sure to assemble the side of the carriage saying "Reset Clearance" onto the rail first (see picture).

TW series, adjustable clearance



TWA series, automatic

Tightening torque for drylin® connections between metal parts

Metric thread (Da)	Torque [Nm]	Recommended tightening torque [Nm]
M3	0.5 – 1.1	0.7
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

Minimal screw-in depth for aluminium and zinc die-casting parts: 1.5 x Da

Floating bearing clearances for drylin® T miniature guides

LLZ: Floating bearing in z-direction
LLY: Floating bearing in y-direction

Floating bearing clearances	TW-04-07	TW-04-09	TW-04-12	TW-04-15
LLY	–	0.4	0.5	0.7
LLZ	0.4	0.4	0.5	0.7

Guide rail	
Material	Aluminium, extruded section
Material	EN AW-6060 T66
Coating	Hard-anodised aluminium, 50 µm
Hardness	500 HV
Guide carriages	
Base structure	Aluminium, extruded section
Material	EN AW-6060 T66
Coating	Anodised aluminium
Sliding elements	Maintenance-free plain bearings materials iglidur® J, iglidur® J200 (TW-12/TW-04-07)
Bolts, springs	Stainless steel
End cap	Plastic (TW-01/TWA-01), steel (TW-02)/TW-03/TW-12
Max. surface speed	5m/s
Temperature range	from –40°C to +90°C

Table 01: drylin® – technical data

Type	C_{0Y} [kN]	$C_{0(-Y)}$ [kN]	C_{0Z} [kN]	M_{0X} [Nm]	M_{0Y} [Nm]	M_{0Z} [Nm]
04-07	0.2	0.2	0.1	1.2	0.6	0.6
04-09	0.48	0.48	0.24	3.4	1.8	1.8
04-12	0.96	0.96	0.48	9.2	4.4	4.4
04-12 (TWE)	0.48	0.48	0.24	4.6	2.2	2.2
04-15	1.4	1.4	0.7	17	8	8
04-15 (TWE)	0.7	0.7	0.35	8.5	4	4
01-/12-15	4	4	2	32	25	25
01-/02-/12-20	7.4	7.4	3.7	85	45	45
01-/02-/03-/12-25	10	10	5	125	65	65
01-/02-/12-30	14	14	7	200	100	100

Table 02: drylin® – permissible static load capacity

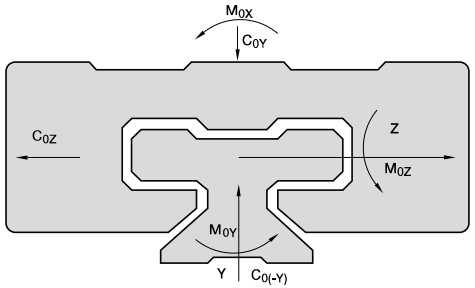


Diagram 01: Marking of the directions

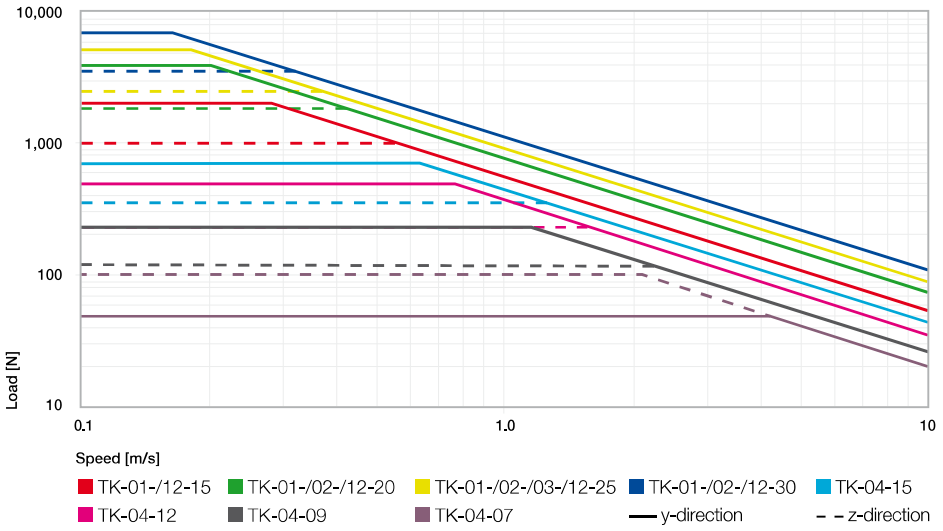


Diagram 02: drylin® T– permissible dynamic load capacity

drylin® T rail guides | Product range

Guide rails

TS-01

TS-11

Order key

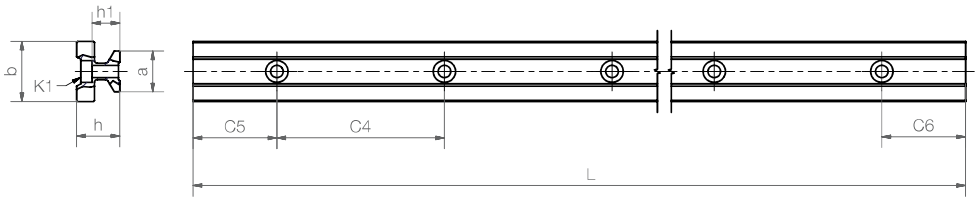
Type	Options

TS - 01 - 15 - 1000

- Guide rails
- Standard
- Installation size
- Rail length [mm]

Curved rail profiles
▶ Page 906

Options:
TS-01: Standard rail, hard-anodised
TS-11: Weight-reduced rail, clear-anodised
Hartanodisierte Oberflächen
▶ Page 902



Dimensions [mm]

Part No.	Weight	L	a	C4	C5	C5	C6	C6	h	h1	K1 for screw	b	Iy	Iz	Wby	Wbz
		Max.	−0.2		Min.	Max.	Min.	Max.			DIN 912					
	[kg/m]												[mm⁴]	[mm⁴]	[mm³]	[mm³]
TS-01-15	0.6	4,000	15	60	20	49.5	20	49.5	15.5	10.0	M4	22	6,440	4,290	585	488
TS-01-20	1.0	4,000	20	60	20	49.5	20	49.5	19.0	12.3	M5	31	22,570	11,520	1,456	1,067
TS-11-20	0.5	4,000	20	120	20	79.5	20	79.5	19.0	12.3	M5	31	12,140	6,360	780	620
TS-01-25	1.3	4,000	23	60	20	49.5	20	49.5	21.5	13.8	M6	34	34,700	19,300	2,041	1,608
TS-01-30	1.9	4,000	28	80	20	59.5	20	59.5	26.0	15.8	M8	40	70,040	40,780	3,502	2,832

Standard hole pattern symmetric C5 = C6
For rails without mounting holes, please use part number suffix "UNGEBOHRT"

Can be combined with:


TW-01-...


TWA-01-...


TW-01-HKA


TW-02-...

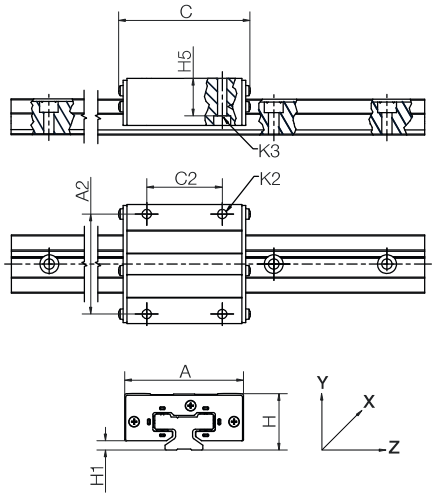

TW-03-...

Technical data
▶ Page 999

drylin® T rail guides

drylin® T rail guides | Product range

High performance carriage with clearance adjustment



Order key

Type

TW - 12 - 15

- Guide carriages
- High performance
- Installation size

Dimensions [mm]

Part No.	Weight	H	H5	A	C	A2	C2	H1	K2- th-read	K3 for cap screw	Sliding elements
		±0.35						±0.35			
	[kg]										
TW-12-15	0.11	24	16.0	47	63	38	30	4.0	M5	M4	iglidur® J200
TW-12-20	0.19	30	19.8	63	72	53	40	5.0	M6	M5	iglidur® J200
TW-12-25	0.29	36	24.8	70	82	57	45	5.0	M8	M6	iglidur® J200
TW-12-30	0.50	42	27.0	90	94	72	52	6.5	M10	M8	iglidur® J200

Can only be combined with:


TS-01-20


TS-11-20

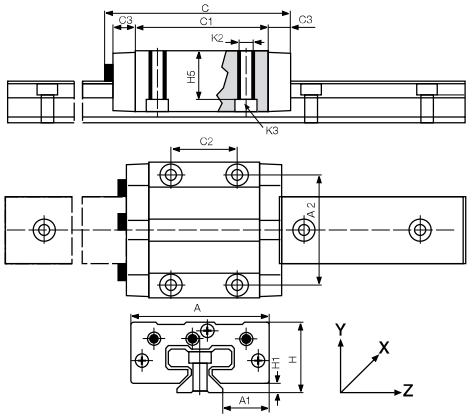
Technical data
▶ Page 999

drylin® T rail guides | Product range

Guide carriage – manual clearance adjustment

TW-01

Complete system online



Order key

Type	Options
TW - 01 - 15 -	LLY

Guide carriages | Standard | Installation size | Floating bearing

Options:

LLY: Floating bearing in y-direction

LLZ: Floating bearing in z-direction

Dimensions [mm]

Part No.	Weight	H	A	C	A1	A2	C1	C2	C3	H1	H5	K2- thread	Tightening torque Max.	K3 for screw
	[kg]	±0.35			±0.35					±0.35			[Nm]	DIN 912
TW-01-15	0.11	24	47	74	16.0	38	50	30	9	4.0	16.0	M5	1.5	M4
TW-01-20	0.19	30	63	87	21.5	53	61	40	10	5.0	19.8	M6	2.5	M5
TW-01-25	0.29	36	70	96	23.5	57	68	45	11	5.0	24.8	M8	6.0	M6
TW-01-30	0.50	42	90	109	31.0	72	79	52	12	6.5	27.0	M10	15.0	M8

All elements can be ordered individually or as assembled systems

TW-01-20-LLY: Standard guide carriage with manually adjustable clearance, installation size 20 and floating bearing in y-direction

TK-01-20-2-500: Complete system with two standard guide carriages type 01, installation size 20 and standard guide rail, 500mm length

Can be combined with:

TS-01-...

Technical data ▶ Page 999

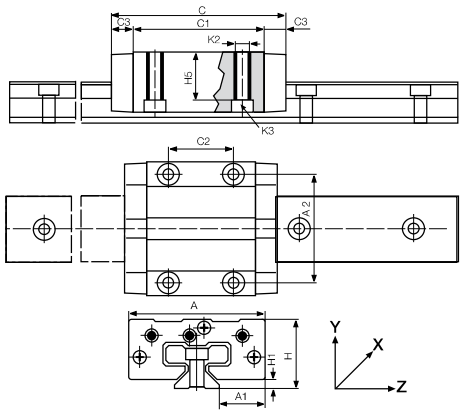
drylin® T rail guides

drylin® T rail guides | Product range

Guide carriages – automatic clearance adjustment

TWA-01

Complete system online



Order key

Type	Options
TWA - 01 - 15 -	LLY

Guide carriages Automatic version | Standard | Installation size | Floating bearing

Options:

LLY: Floating bearing in y-direction

LLZ: Floating bearing in z-direction

Dimensions [mm]

Part No.	Weight	H	A	C	A1	A2	C1	C2	C3	H1	H5	K2- Weight	Tightening torque Max.	K3 for screw
	[kg]	±0.35			±0.35					±0.35			[Nm]	DIN 912
TWA-01-15	0.11	24	47	68	16.0	38	50	30	9	4.0	16.0	M5	1.5	M4
TWA-01-20	0.19	30	63	81	21.5	53	61	40	10	5.0	19.8	M6	2.5	M5
TWA-01-25	0.29	36	70	90	23.5	57	68	45	11	5.0	24.8	M8	6.0	M6
TWA-01-30	0.50	42	90	103	31.0	72	79	52	12	6.5	27.0	M10	15.0	M8

All elements can be ordered individually or as assembled systems

TW-01-20-LLY: Guide carriage with automatic clearance adjustment, installation size 20 and floating bearing in y-direction

TKA-01-20-2-500: Complete system with two standard guide carriages type 01, automatic clearance adjustment, installation size 20 and standard guide rail, 500mm length

Can be combined with:

TS-01-...

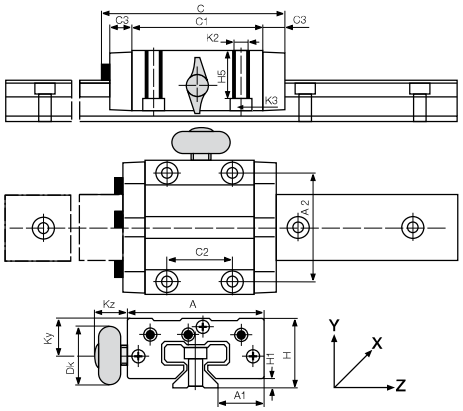
Technical data ▶ Page 999

drylin® T rail guides | Product range

Guide carriage – with manual clamp

TW-01-HKA

Complete system online



Order key

Type	Options

TW - 01 - 15 - HKA

- Guide carriages
- Standard
- Installation size
- Manual clamp

Other dimensions as standard design
TW-01-... ▶ Page 1003

Dimensions [mm]

Part No.	Size	Kz	Ky	Dk	Manual clamp thread
TW-01-15-HKA	15	19.0	11.5	20.0	M6
TW-01-20-HKA	20	18.0	15.0	28.0	M8
TW-01-25-HKA	25	17.0	19.0	28.0	M8
TW-01-30-HKA	30	20.0	21.5	28.0	M8

All elements can be ordered individually or as assembled systems
TW-01-20-HKA: Guide carriage with manually adjustable clearance, installation size 20 and manual clamp
TK-01-20-HKA-2-500: Complete system with two standard guide carriages type 01 with manual clamp, installation size 20 and standard guide rail, 500mm length

The manual clamp thread was developed for simple tasks. The creep behaviour of the clamped plastic causes a reduction in clamping force over time (up to 70%). Therefore no safety-relevant parts may be clamped. Please contact our technical consultant, if you require other options for the clamping.

Can be combined with:

TS-01-...

Technical data
▶ Page 999

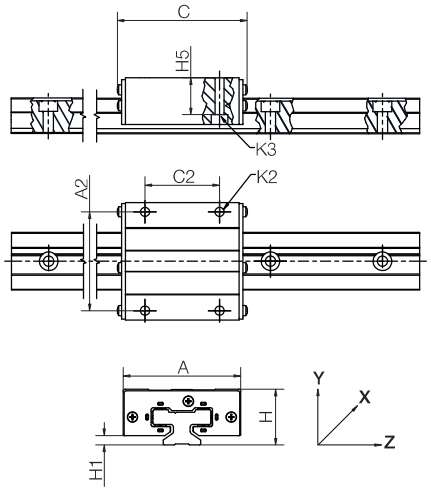
drylin® T rail guides

drylin® T rail guides | Product range

Guide carriage – heavy duty for extreme conditions

TW-02

Complete system online



Order key

Type

TW - 02 - 20

- Guide carriages
- Heavy duty
- Installation size

Floating bearing upon request

Dimensions [mm]

Part No.	Weight [kg]	H ±0.35	H5	A	C	A2	C2	H1 ±0.35	K2	K3
TW-02-20	0.19	30	19.8	63	70	53	40	5.0	M6	M5
TW-02-25	0.29	36	24.8	70	77	57	45	5.0	M8	M6
TW-02-30	0.50	42	27.0	90	92	72	52	6.5	M10	M8

All elements can be ordered individually or as assembled systems
TW-02-20: Heavy duty guide carriage, installation size 20
TK-02-20-2-500: Complete system with two heavy duty guide carriages type 02, installation size 20 and standard guide rail, 500mm length

Can be combined with:

TS-01-...

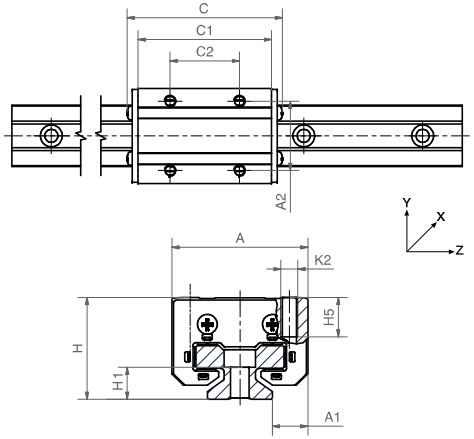
Technical data
▶ Page 999

drylin® T rail guides | Product range

Compact for tough applications

TW-03

Complete system online



Order key

Type

TW - 03 - 25

Guide carriages

Reduced weight

Installation size

Dimensions [mm]

Part No.	Weight	H	A	C	A1	A2	C1	C2	H1	H5	K2	Tightening torque
		±0.35						±0.35				Max.
	[kg]											[Nm]
TW-03-25	0.16	36	48	81	14	35	67.4	35	5	13	M6	6.0

All elements can be ordered individually or as assembled systems

TW-03-25: Compact guide carriage, installation size 25

TK-03-25-2-500: Complete system with two compact guide carriages type 03, installation size 25 and standard guide rail, 500mm length

Can only be combined with:

TS-01-20 TS-11-20

Technical data ▶ Page 999

drylin® T rail guides

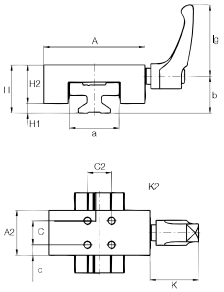
drylin® T rail guides | Product range

Accessories: Manual clamp

Compact design

Plastic clamping elements

TWBM-11



Order key

Type

TWBM - 11 - 15

Manual clamp

Compact

Installation size

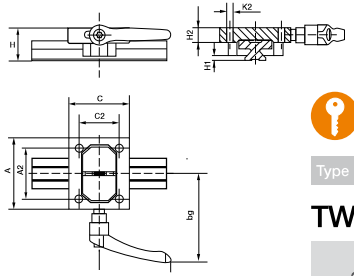
Dimensions [mm]

Part No.	Clamp force	A	a	A2	H	H1	H2	K	K2	C	C2	c	lg	b
	[N]													
TWBM-11-15	180	47	22	23	24	4	20	30	M4	15	15	4	44	18.9
TWBM-11-20	180	63	31	28	30	5	24	30	M5	15	15	6.5	44	23.0
TWBM-11-25	400	70	34	35	36	5	31	39	M6	20	20	7.5	63.63	26.2
TWBM-11-30	500	90	40	38	42	6.5	35.5	47	M6	20	20	9	78	32.4

Standard design

with brass clamp

TWBM-01



Order key

Type

TWBM - 01 - 25

Manual clamp

Standard

Installation size

Dimensions [mm]

Part No.	Clamp force	A	A2	H	H1	H2	K2	C	C2	lg	bg
	[N]										
TWBM-01-25	500	80	57	36	5	16	M8	68	45	80	99

Can only be combined with:

TS-01-...

drylin® T rail guides | Product range

Miniature guide rails

TS-04

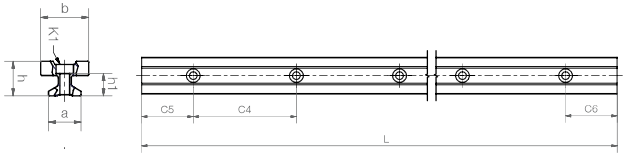
Complete system online

Order key

Type

TS - 04 - 07

Guide rail | Miniature | Installation size



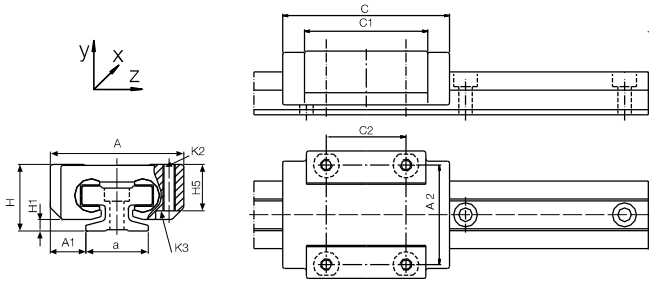
Curved rail profiles
▶ Page 906

Dimensions [mm]

Part No.	Weight	L	a	C4	C5	C5	C6	C6	h	h1	K1 for screw	b	Iy	Iz	Wby	Wbz
		Max.	–0.2		Min.	Max.	Min.	Max.								
	[kg/m]										DIN 912		[mm⁴]	[mm⁴]	[mm³]	[mm³]
TS-04-07	0.08	2,000	7	15	5	12	5	12	5.5	3.7	M2	8	131	90	32	29
TS-04-09	0.11	2,000	9	20	5	14.5	5	14.5	6.3	4.6	M2	9.6	252	169	52	49
TS-04-12	0.20	2,000	12	25	5	17.0	5	17.0	8.6	5.9	M3	13	856	574	132	120
TS-04-15	0.33	3,000	15	40	10	29.5	10	29.5	10.8	7.0	M3	17	2,420	1,410	285	239

Miniature guide carriage – standard

TW-04



Dimensions [mm]

Part No.	Weight	H	A	C	A1	A2	C1	C2	H1	H5	K2 thread	tightening torque	K3 for screw
		±0.2	–0.2	±0.3	±0.35				±0.35				
	[g]											[Nm]	DIN 912
TW-04-07	8	8	17	23	5	12	21	8	1.5	–	M2	0.25	–
TW-04-09	17	10	20	29	5.5	15	18	13	1.7	7.2	M2	0.25	M2
TW-04-12	34	13	27	34	7.5	20	22	15	2.2	9.5	M3	0.50	M2 (M3)[77]
TW-04-15	61	16	32	42	8.5	25	31	20	2.8	11	M3	0.50	M2 (M3)[77]

[77] (M...) = bored out

drylin® T rail guides | Product range

Adjustable miniature guide carriage

TWE-04

Complete system online

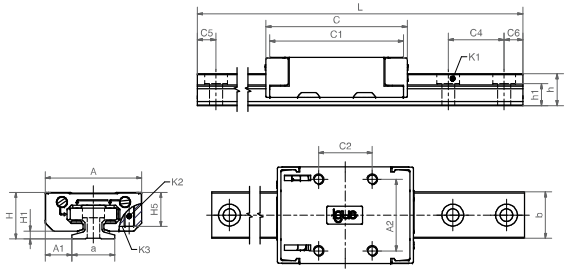
Order key

Type

TW E - 04 - 12

Guide carriages | Adjustable clearance | Miniature | Installation size

High corrosion resistance by use of re-coating finish



Dimensions [mm]

Part No.	Weight	H	A	C	A1	A2	C1	C2	H1	H5	K2 thread	K3 for screw
			–0.2	±0.3	±0.35				±0.35			
	[g]	±0.2										DIN 912
TWE-04-12	36	13	27	38	7.5	20	36	15	2.2	9.5	M3	M2
TWE-04-15	61	16	32	45	8.5	25	31	20	2.8	11	M3	M2

Press in, turn, snap into place

Tool: screwdriver with 3mm edge wide

Right side: setting the height clearance

Left side: setting the lateral clearance

Can be combined with:

TS-04-...

Technical data
▶ Page 999

drylin® T replacement plastic slide elements (set)

iglidur® J material ▶ Page 159

iglidur® A180 material ▶ Page 385

Guide carriages	Part No. Sliding part set
TW-01-15	TEK-01-15
TW-01-20	TEK-01-20
TW-01-25	TEK-01-25
TW-01-30	TEK-01-30
TW-02-20	TEK-02-20
TW-02-25	TEK-02-25
TW-02-30	TEK-02-30
TW-12-20	TEK-12-20
TW-04-09	TEK-04-09
TW-04-12	TEK-04-12
TW-04-15	TEK-04-15

drylin® T end caps for series 01 guide rail holes:

Rail	Part No. End cap
TS-01-15	TSZ-011501
TS-01-20	TSZ-012001
TS-01-25	TSZ-012501
TS-01-30	TSZ-013001

When using the end caps, screws with a low screw head must be used to attach the rail.

drylin® T – system design

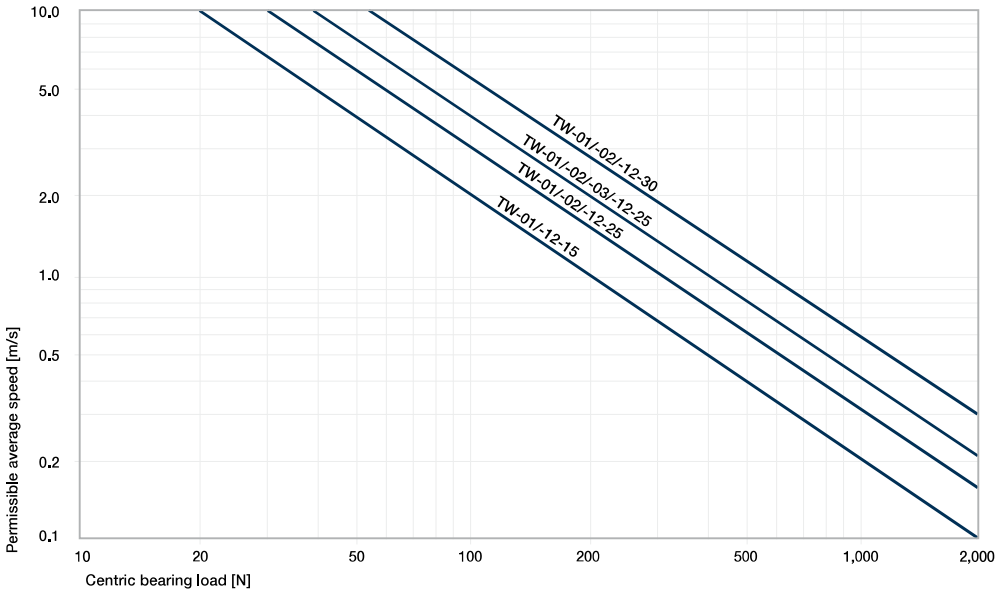


Diagram 04: Determination of the maximum permitted speed for the load

Part No.	Fymax., Fzmax. [N]
TW-01/-12-15	2,000
TW-01/-02/-12-20	3,700
TW-01/-02/-03/-12-25	5,000
TW-01/-02/-12-30	7,000

drylin® linear technology – drylin® R shaft guides

- Lubrication-free drylin® liners
- Resistance to dust and dirt
- Low coefficient of friction
- Extremely quiet operation
- Many adapter and housing options