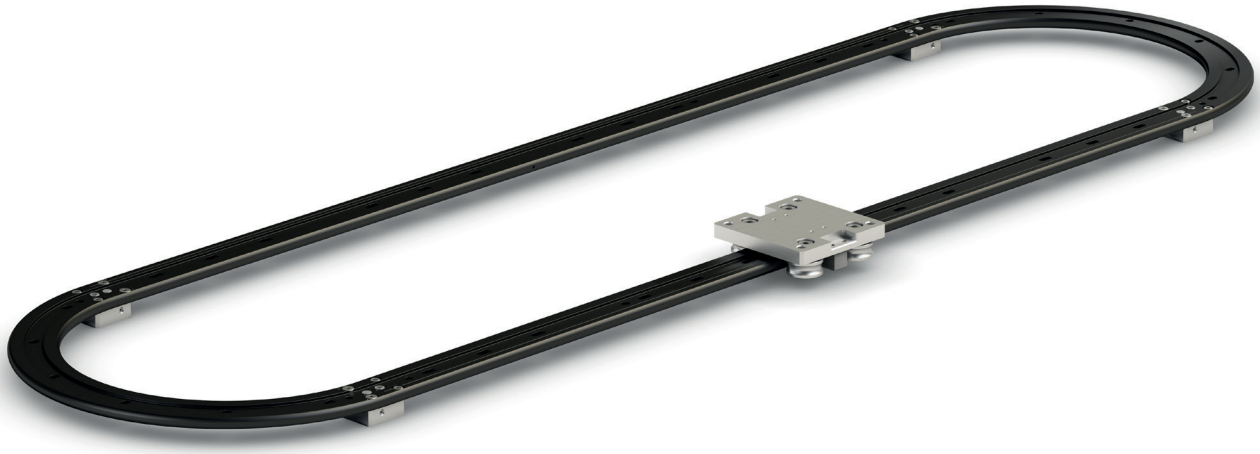
ROLLON®
BY TIMKEN

CLT TRACK

Data sheet - rev. 1.2



LINEAR COMPONENTS

myRollon

MyRollon is **your digital working platform** for linear guides, telescopic rails, actuators and actuator systems.

With myRollon, it is possible to determine the best linear motion solution according to your application specifications.

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Index

ORDERING KEY

▪ **Track**

CLT	Q O	43	-165	-00000	-J -0	-S1 -S2 -S3	-00	W
								Wipers - W = Slider with wiper
							Number of sliders	
						Spacers (each 250 mm) - S1 = 1pc, S2 = 2pcs, S3 = 3pcs		
					Alignment block - J = With junctions, 0 = Without junctions			
				Stroke sequence - Curved: 1 = 90° R165, 2 = 180° R165, 3 = 90° R302, 4 = 180° R302 Straight: 5 = 250 mm, 6 = 500 mm, 7 = 750 mm, 8 = 1000 mm, 9 = 1500 mm, 0 = 2000 mm			
			Radius - see pg.6					
		Size						
	Track type - O = Oval, Q = Square\rectangular							
Series								

Ordering example: **CLTQ43-165-25627-J-S2-12**; **CLTQ43-302-49486-0-S3-6W**

▪ **Curved guide**

CLTN	43	-090	-R165
			Radius - see pg.6
		Sector angle - see pg.6	
	Size		
Rail type			

Ordering example: **CLTN43-090-R165**

▪ **Straight rail**

CLTN	43	-0250
		Rail length - see pg.6
	Size	
Rail type		

Ordering example: **CLTN43-0750**

▪ **Slider**

ACLM	W	43	-04	-R302
				Radius - see pg.6
			Rollers	
		Size		
	Wiper - see pg.7			
Slider type - see pg.7				

Ordering example: **ACLTMW43-04-R165**

FEATURES AND ADVANTAGES

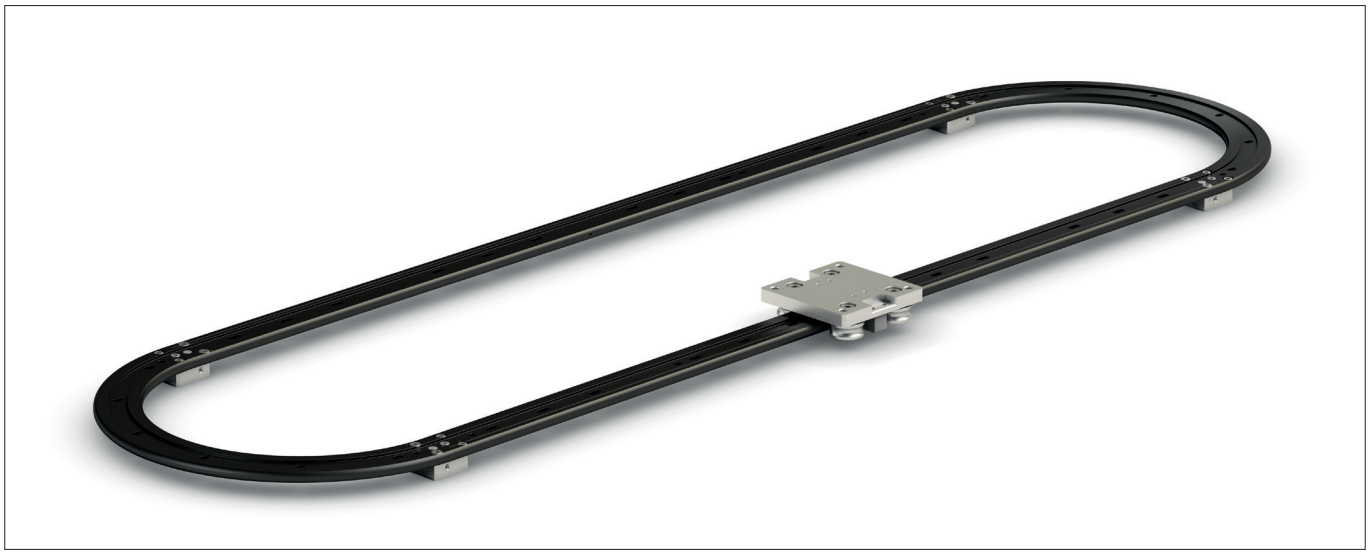

Fig.1

CLT is a modular track that allows the creation or remodeling of oval, rectangular, and square circuits.

Designed for maximum flexibility, CLT rails enable easy configuration changes through the combination of sliders, curved rails and straight rails. The modularity and interchangeability between components allows the circuit to be modified at any time.

The raceways are ground to ensure low friction, smooth movement, and reduced noise. They undergo nitriding heat treatment to achieve high hardness (60 HRC) and corrosion resistance.

Sliders can be equipped with lubricated wipers, an optimal solution for dirty environments. Alternatively, automatic lubrication systems can be integrated through transverse holes that distribute the lubricant directly into the raceways, ensuring low maintenance even under high dynamics and speeds.

CLT finds application in several industries; it is particularly suitable for the automation of packaging processes in sectors such as food & beverage, medical, and cosmetics.

Performance characteristics

- Available rail size: 43
- Max. operating speed: 7* m/s (276 in/s).
- Max. acceleration: 15*m/s² (590.55 in/s²).
- Max. radial load capacity: 8000 N (per slider,see pg.7-Tab.4).
- Temperature range: -20 °C to +120 °C (-4 °F to +248 °F).

*Depending on the application, rollers and guides are suitable components for high speeds and accelerations, which must be evaluated in relation to the mass transported. In the transition between straight and curved sections, inertia forces limit the permissible speed or transported mass.

Straight rails

- Material: cold-drawn steel.
- Surface treatment: Nitriding (standard).
- Available rail lengths from 250 mm to 2000 mm (6.3 in to 142 in).

Curved rails

- Material: Carbon steel.
- Surface treatment: Nitriding (standard).
- Available radii: 165 mm e 302.5 mm, both available in 90° and 180° sectors.

Sliders

- Material: Aluminium.
- Surface treatment: -
- Rollers material: Steel 100Cr6.
- Rollers are lubricated for life.
- Roller seal/shield: 2RS (splash-proof).

MAIN ADVANTAGES

Modularity	Low maintenance	Uniquely quiet	Long lifetime	Reliability in dirty environments
Stocked standardized rails that allow the creation of various types of circuits or the remodeling of existing ones.	The nitriding heat treatment on the guides and the optional wipers allows for very low maintenance over time.	Ground raceways help to ensure low friction and low noise.	Studying the contact between raceways and bearings ensures that the carriages slide with minimal friction and have a long service life.	The possibility of equipping CLT sliders with wipers help to ensure optimal cleaning of the raceways.

COMPONENTS AND DIMENSIONS

■ Curved guides

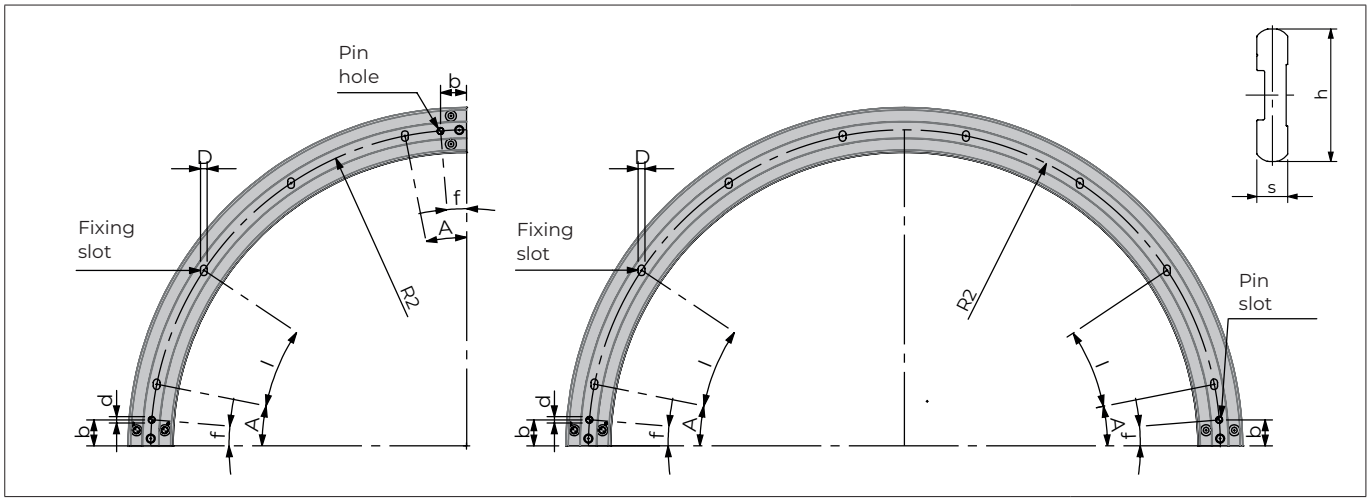

Fig.2

Type	A	b [mm]	l [mm]	f	d H7 [mm]	D [mm]	R2	h [mm]	s [mm]	n° fixing slot	n° pin hole	Weight [kg]
CLTN43-090-R302	11.25°	25	22.5°	4.74°	6	6.5x10	302.5	43	10	4	2	1.325
CLTN43-180-R302	11.25°	25	22.5°	4.74°	6	6.5x10	302.5	43	10	8	2	2.674
CLTN43-090-R165	15°	25	30°	8.71°	6	6.5x10	165	43	10	3	2	0.708
CLTN43-180-R165	15°	25	30°	8.71°	6	6.5x10	165	43	10	6	2	1.443

Tab. 1

■ Straight rails

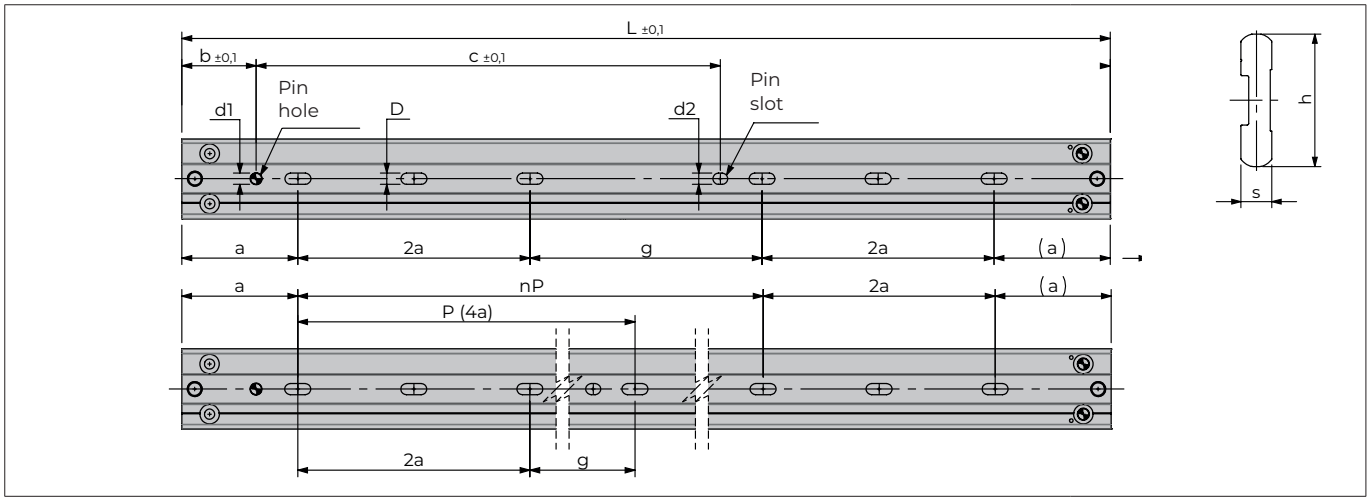

Fig.3

Type	L [mm]	ID	a [mm]	2a [mm]	g [mm]	P [mm]	nP [mm]	b [mm]	c [mm]	d1 H7 [mm]	d2 H7 [mm]	D [mm]	h [mm]	s [mm]	Weight [kg]
CLTN43-0250*	250	1	62.5	125	0	0	0	40	0	Ø6	6x8	6x14	43	10	0.682
CLTN43-0500	500	2	62.5	125	125	250	0	40	250	Ø6	6x8	6x14	43	10	1.379
CLTN43-0750	750	3	62.5	125	125	250	500	40	250	Ø6	6x8	6x14	43	10	2.170
CLTN43-1000	1000	4	62.5	125	125	250	750	40	250	Ø6	6x8	6x14	43	10	2.910
CLTN43-1500	1500	5	62.5	125	125	250	1250	40	250	Ø6	6x8	6x14	43	10	4.370
CLTN43-2000	2000	6	62.5	125	125	250	1750	40	250	Ø6	6x8	6x14	43	10	5.840

*No centring holes.. Fixing holes for socket cap screws according to DIN DIN 7984.

Tab.2

■ Sliders

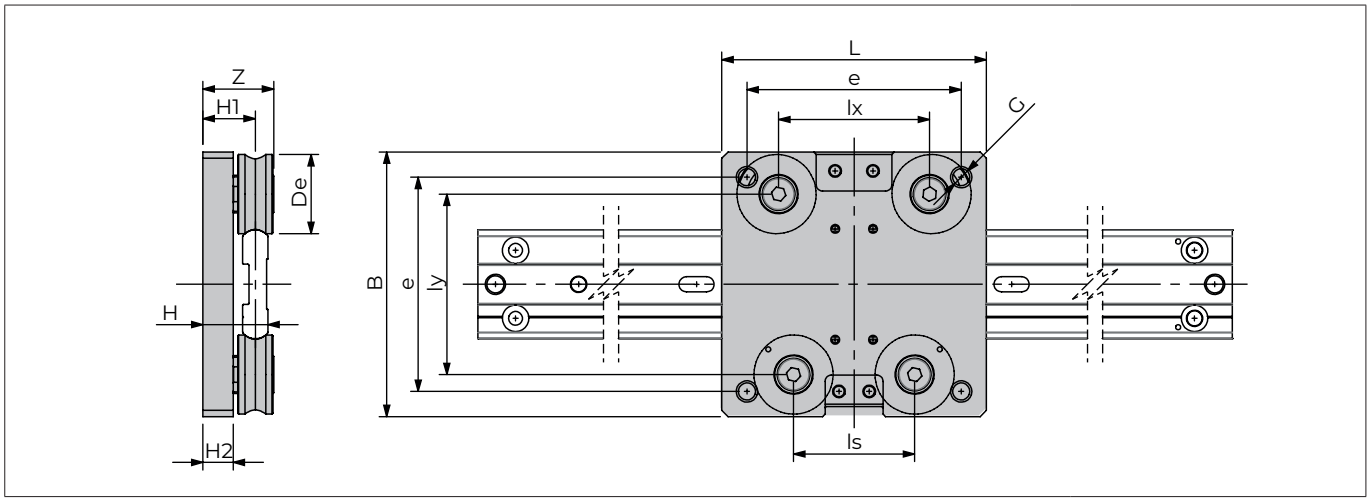

Fig.4

Type	Wipers	De [mm]	L [mm]	B [mm]	e [mm]	G [mm]	lx [mm]	ly [mm]	ls [mm]	H [mm]	H1 [mm]	H2 [mm]	Z [mm]	Weight [kg]
ACLM43-04-R302	-	Ø31.4	150	105	85	M8	105	71.59	93.15	25.8	20.8	12	28.1	0.75
ACLMW43-04-R302	✔	Ø31.4	150	105	85	M8	105	71.59	93.15	25.8	20.8	12	28.1	0.75
ACLM43-04-R165	-	Ø31.4	105	105	85	M8	59.9	71.59	48.05	25.8	20.8	12	28.1	0.6
ACLMW43-04-R165	✔	Ø31.4	105	105	85	M8	59.9	71.59	48.05	25.8	20.8	12	28.1	0.6

Slider bodies are pre-assembled at the factory.

Tab. 3

■ Load capacities and static moments

Type	C [N]	C_{0ax} [N]	C_{0rad} [N]	Mx (Nm)	My (Nm)	Mz (Nm)
ACLM43-04-R302	15200	3570	8000	54	166	790
ACLM43-04-R165	15200	3570	8000	54	86	430

Tab. 4

Note: Loads are based on the maximum permissible bearing load. The actual load that can be borne must be assessed taking into account the duration of the carriage and the dynamic forces due to accelerations in curves. The minimum safety factor of 4 is recommended for dimensioning. Considering the effect of accelerations, the slider is normally suitable for handling masses not exceeding 20 kg (R302.5) and 15 kg (R165).

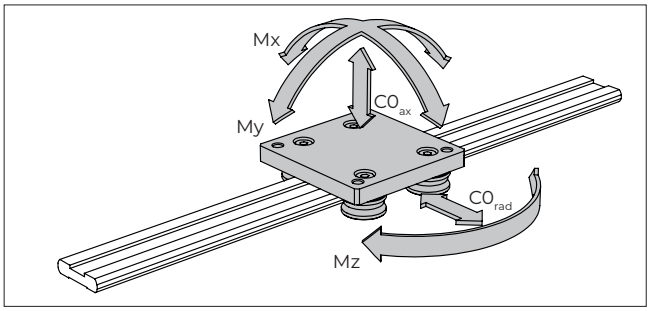

Fig.5

■ Preload classes

Factory-fitted sliders are only available with standard adjustment. The preload variation is directly influenced by the machining tolerances of the rails and can vary from 0 to +0.04mm.

Type	Preload class	Reduction y	Interference [mm]
43	Standard	0.1	from 0 to +0.04mm

Tab.5

ACCESSORIES

■ Rollers

RN...G - RGN...R
Concentric rollers
RA...G - RGA...R
Eccentric rollers

Version V
Guiding rollers

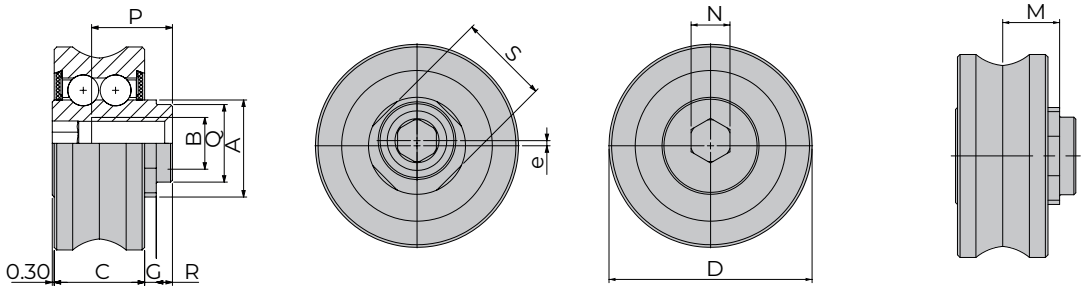

Fig.6

Type	Material	e [mm]	S	N	D [mm]	M [mm]	C [mm]	G [mm]	R [mm]	A [mm]	Q [mm]	B [mm]	P [mm]	C [N]	$C0_{rad}$ [N]	$C0_{ax}$ [N]	Weight [kg]
RGNV43R	Steel	-	14	6	31.4	8.8	14	1.8	2.5	15	11h7	M8	8	7600	4000	1190	0.05
RGAV43R	Steel	0.8	14		31.4	8.8	14	1.8	2.5	15	11h7	M8	8	7600	4000	1190	0.05

Seals: 2RS splash proof seal. The rollers are lubricated for life.

Tab.6

■ Alignment block

The jointing kit consists of a steel alignment block, which allows for optimal jointing and adjustment of the rail alignment.

Code	Bolt kit	A (mm)	B (mm)	C (mm)
ZK-CL43-01W	✔	35	40	14.5
CL43-01W*	-			

*The code refers to a single piece

Tab.7

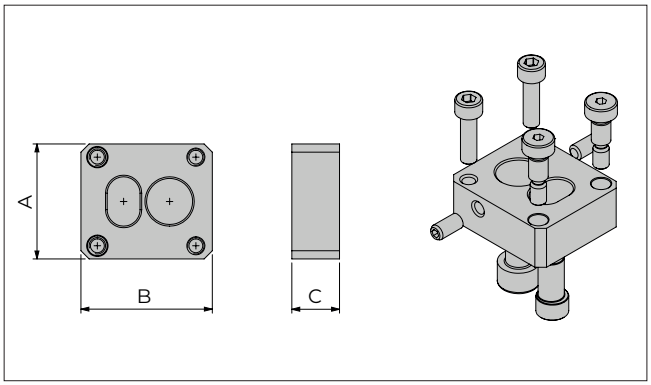

Fig.7

■ Spacers

Type	A [mm]	D [mm]	d [mm]	H [mm]	H1 [mm]	H2 [mm]
CL43-03W*	16	Ø36	Ø6.5	16.5	13.8	6.3

*The code refers to a single piece

Tab.8

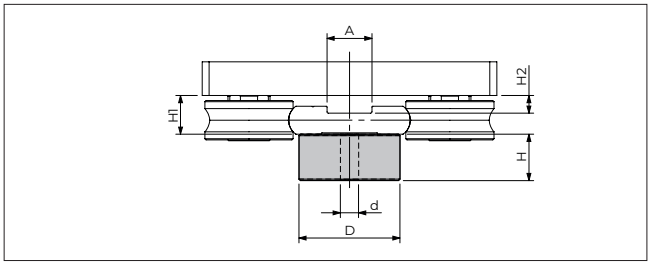

Fig.8

■ Wipers (on request)

The sliders can be equipped with special slow release felt pads designed so that the felts are always in contact with the raceways, ensuring a perfect lubrication.

Type	Code (pair)
43	ZK-CL43-02

Tab.9

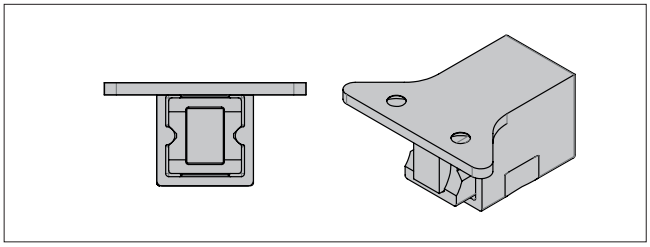

Fig.9

USE AND MAINTENANCE

■ Roller lubrication

All roller bearings of the CLT rail are lubricated for life.

■ Raceways lubrication

Rails must be lubricated before operation. Recommended lubrication intervals are heavily dependent upon the ambient conditions, speed, and temperature. Under normal conditions, lubrication is recommended after 100 km operational performance or after an operating period of six months whichever comes first. In critical application cases the interval hould be shorter. Please clean the raceways carefully before lubrication.

We recommend a high quality roller bearing grease lubricant consisting of mineral oil with a white lithium soap base of NLGI 2 grade.

Proper lubrication during normal conditions:

- Reduces friction.
- Reduces wear.
- Reduces running noise.

Wipers with non-lubricated felt suitable for applications requiring speciallubricants are available on request:

- FDA-approved lubricant for use in the food industry.
- Specific lubricant for clean rooms.
- Specific lubricant for the marine technology sector.
- Specific lubricant for high and low temperatures..

When using sliders equipped with wipers and lubrication felts (indicated by the letter 'W' in the order code), the lubrication interval is extended to 1000 km.

For specific information, contact Rollon technical support.

■ Automatic raceways lubrication

Automatic lubrication systems can be integrated by means of transverse holes that distribute the lubricant directly onto the tracks.

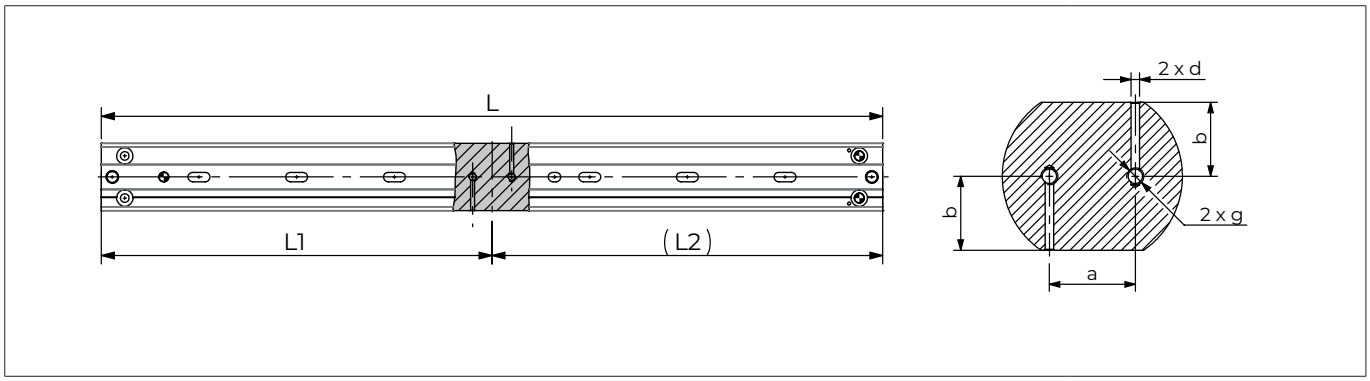

Fig.10

Type	L [mm]	L1 [mm]	L2 [mm]	a [mm]	b [mm]	d [mm]	g [mm]
CLTN43-0250*	250	-	-	-	-	-	-
CLTN43-0500	500	250	250	25	21.5	Ø2.5	M5
CLTN43-0750	750	500	250	25	21.5	Ø2.5	M5
CLTN43-1000	1000	500	500	25	21.5	Ø2.5	M5
CLTN43-1500	1500	750	750	25	21.5	Ø2.5	M5
CLTN43-2000	2000	1000	1000	25	21.5	Ø2.5	M5

*No lubrication holes

Tab.10

■ CLT track assembly instructions

The circuit can be assembled starting from either position ‘A’ or ‘B’.

At junction points A or B, ensure that the curved rail has reference notches at the collar screw holes, and that the straight rail has the reference line facing the outside of the circuit. The support plane of the guides must always align with the reference plane of the guide (refer to “Detail C”).

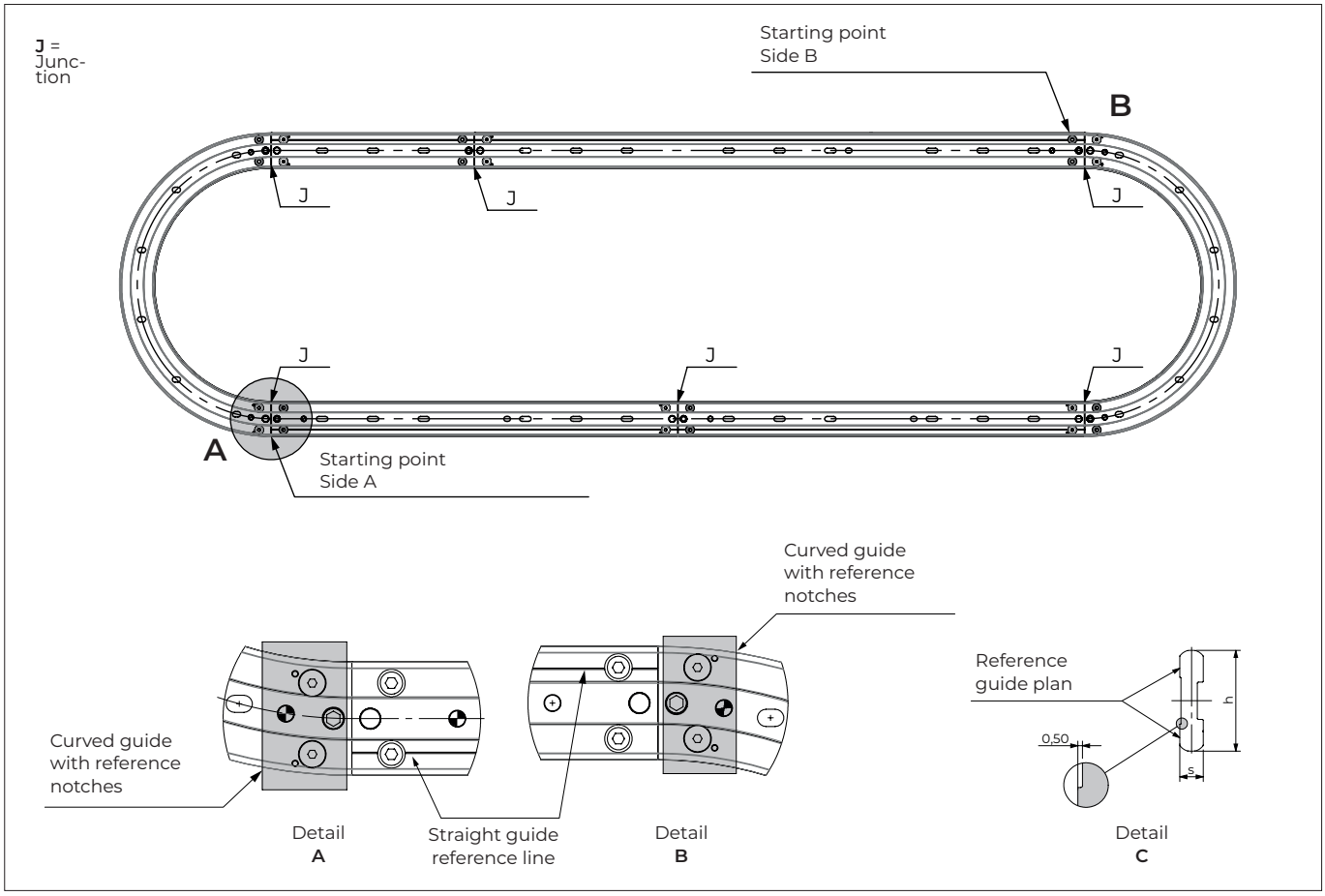

Fig.11

■ Spacers for straight rails (on request)

An aluminium spacer is available to assemble the circuit on the mounting surface without interference with the rollers.

Curved rails (both R165 and R302.5) must be mounted using all fixing points.

For straight rails, use spacers according to the loads:

- Light loads: using only the centre slot of the group of three results in a constant installation pitch of 250 mm (see “Detail D”).
- Normal loads: using the two outer slots of the group of three results in a constant mounting pitch of 125 mm (see “Detail E”).
- Medium-high loads: using all slots results in maximum rigidity (see “Detail F”).

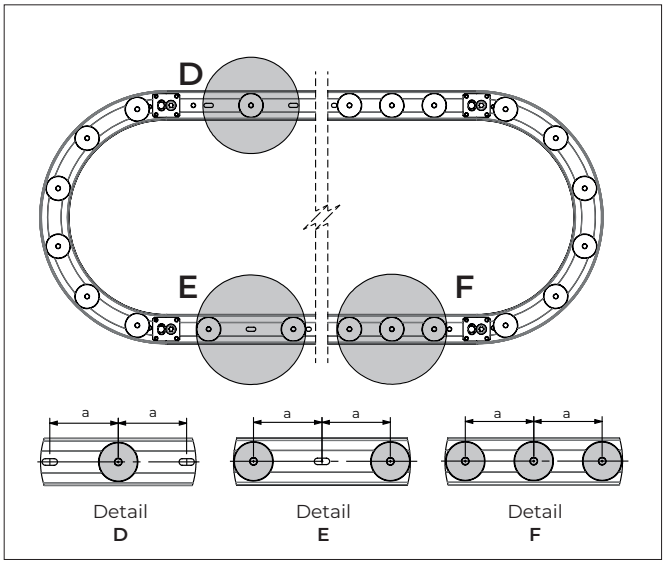

Fig.12

■ Assembly instructions straight-curved/straight-straight sections

1. Mount the eccentric pin in the guide and in neutral position (detail A). The chisels in the guide indicate where the eccentric pin is to be inserted. Then mount the M8 screw and position the alignment block as shown below. The eccentric pin must protrude from the guide as far as the M8 screw (detail B).

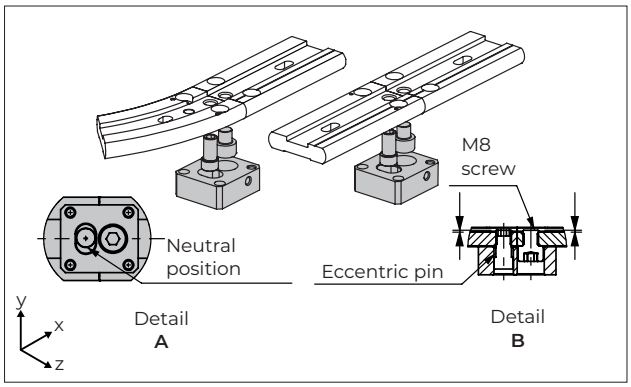

Fig.13

2. Insert the M5 screws and collar screws. The chisels in the guide indicate where the collar screws are to be inserted. Do not tighten the screws completely, but leave them loose.

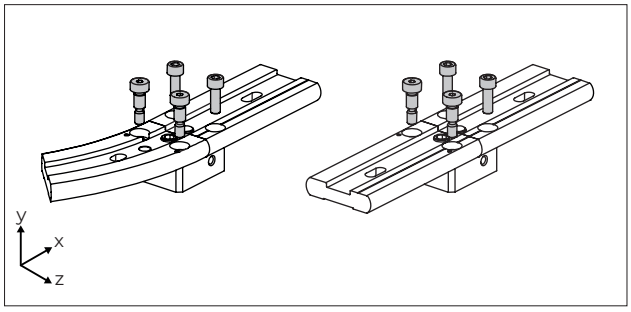

Fig.14

3. Lightly tighten the M5 screws and couple the guides by bringing the faces of the movable guide and the fixed guide into contact along the x-x axis. While holding the guides together, act on the eccentric pin and tighten the collar screws to torque. The fixed guide will be the guide with the collar screws, conversely, the movable guide will be the guide with the M5 screws.

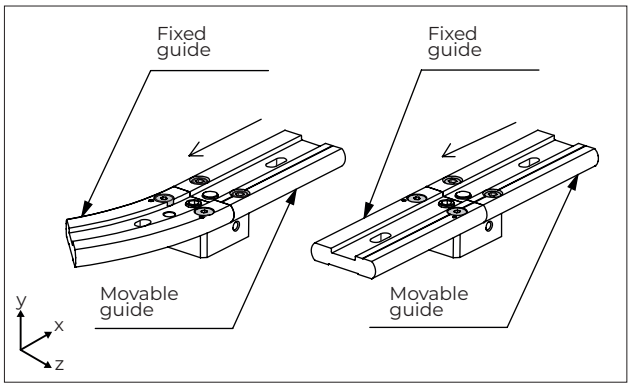

Fig.15

4. Insert the M5 grub screws into the threaded holes in the block and proceed with the adjustment along the z-z axis. When the adjustment is complete, tighten the M5 screws and grub screws.

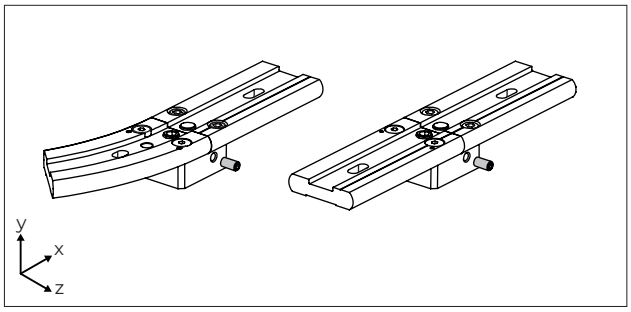

Fig.16

■ Junctions

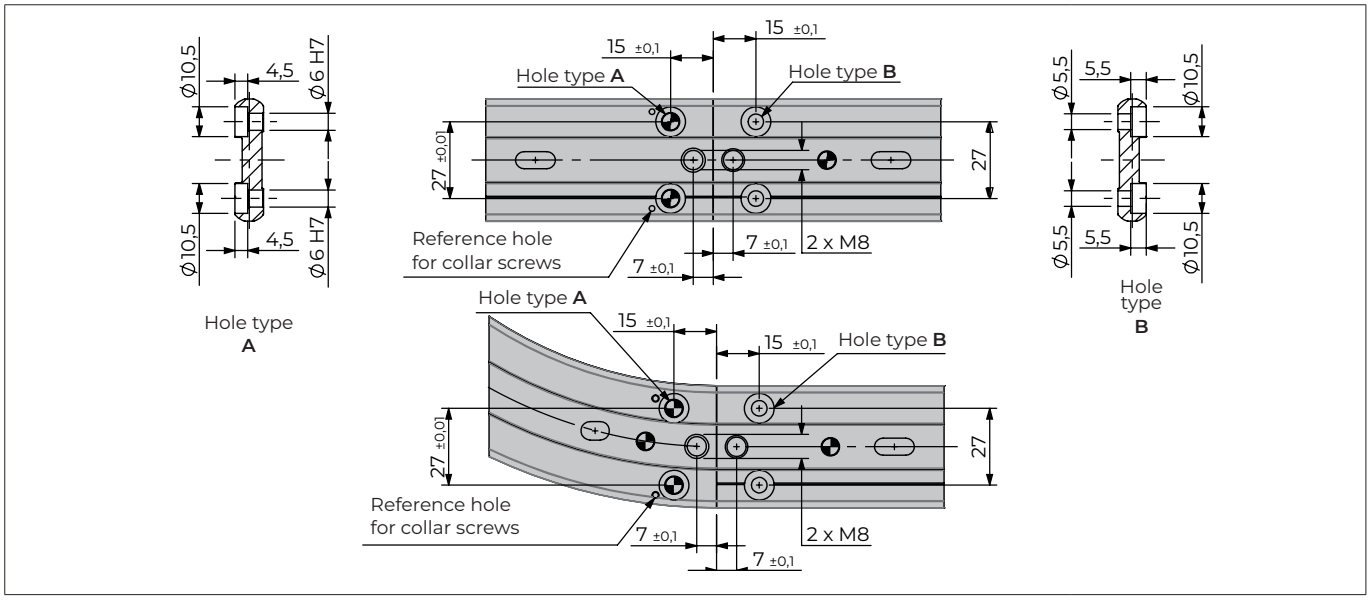

Fig.17

beyond motion