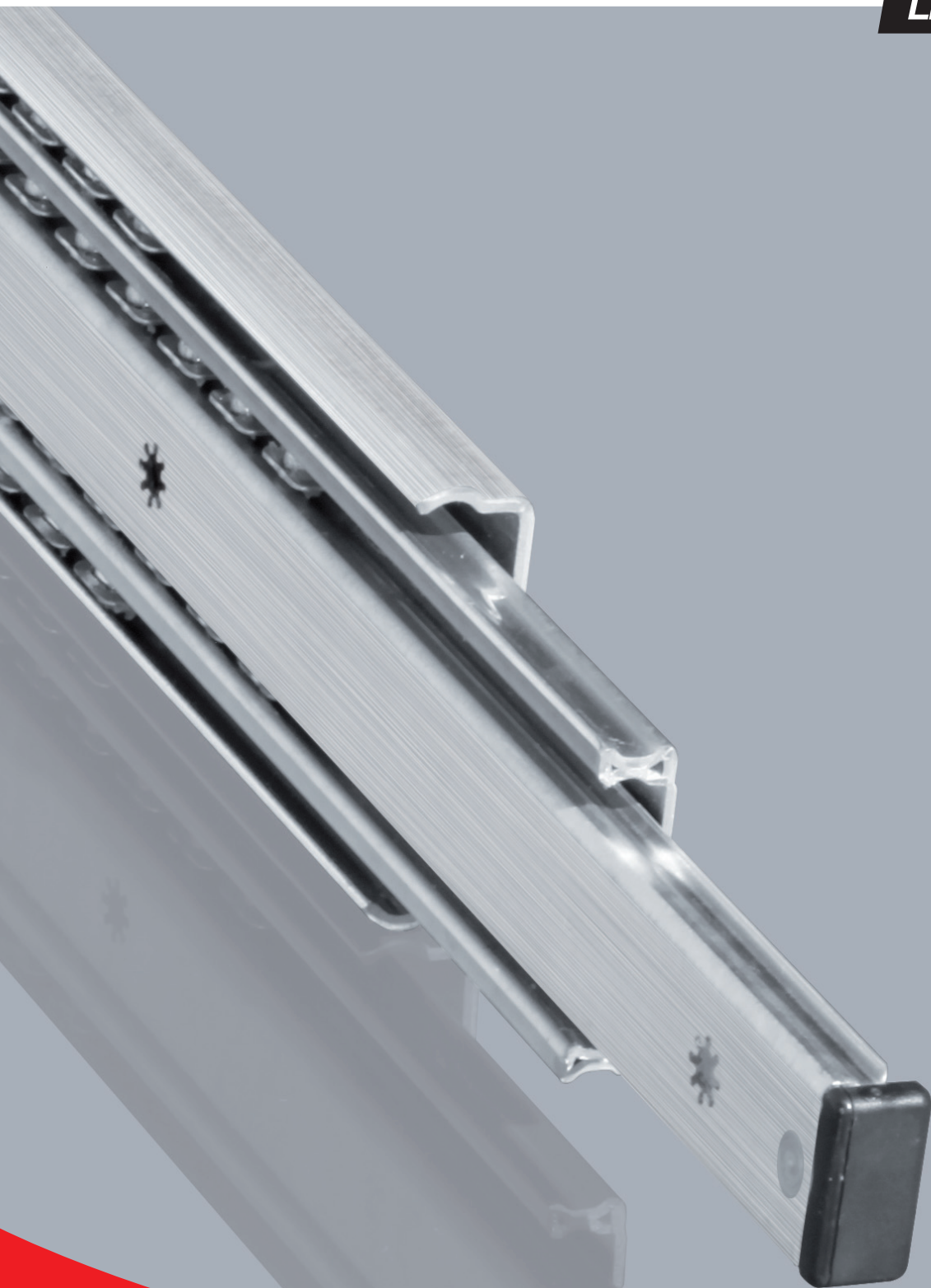


ROLLON®
Linear Evolution

Light Rail



When you move. We move.

Rollon S.p.A. was founded in 1975 as a manufacturer of linear motion components. Today Rollon group is a leading name in the design, production, and sale of linear rails, telescopic rails, and actuators, with headquarters based in Italy and offices and distributors located throughout the world. Rollon products are used in many industries, providing creative and efficient solutions in a wide variety of applications.

Rollon solutions for linear motion

Linear Line



Telescopic Line



Actuator Line



Actuator System Line



Linear Line
Sys
Prismatic Rail



Hegra Rail



Actuator Line



Linear Rails

- Rails with roller bearings
- Rails with caged ball bearings
- Rails with recirculating ball bearing

Telescopic Rails

- Rails with partial/total extension
- Heavy duty rails
- Rails for automated and manual applications

Actuators

- Belt driven actuators
- Ball screw driven actuators
- Rack and pinion actuators

Solutions for industrial automation

- Multi-axis for pick and place
- Telescopic actuators
- Seventh axis for robots
- Solutions for metal sheet handling

Core Competencies

- > Full range of linear rails, telescopic rails and actuators
- > Worldwide presence with branches and distributors
- > Fast delivery all over the world
- > Large technical know-how for applications



> Standard solutions

Wide range of products and sizes
Linear rails with roller and caged ball bearings
Heavy duty telescopic rails
Belt or ball screw driven linear actuators
Multi-axis systems



> Collaboration

International know-how in several industries
Project consultancy
Maximizing performance and cost optimization



> Customization

Special products
Research and development of new solutions
Technologies dedicated to different sectors
Optimal surface treatment

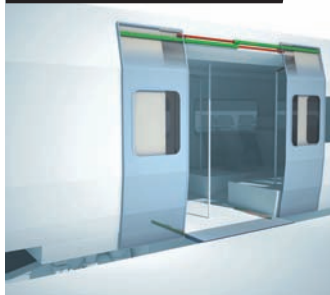


Applications

Aerospace



Railway



Logistics



Industrial Machines



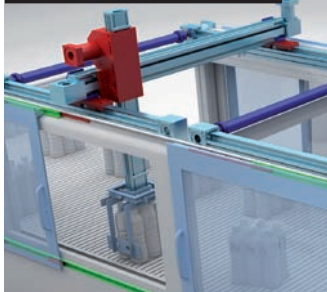
Medical



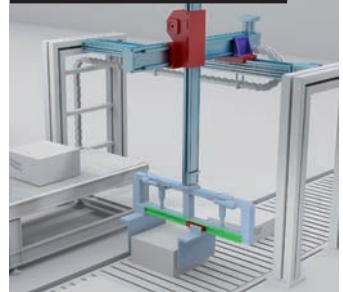
Specialty Vehicles



Robotics



Packaging



Technical features overview

> *Telescopic Rail*



1 Product explanation

Telescopic Rail: Seven models with full and partial extension

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> Opti Rail



1 Product explanation

Fully extending telescopic rails for manual movement

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LTH30 KF

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LTH30S

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LTH45 KF

OR-9

LTH45S

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LTF44

OR-11

4 Technical instructions

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Anticorrosive protection, Temperature,

Lubrication, Installation instructions

OR-13

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> Light Rail



1 Product explanation

Light telescopic rails, with full or partial extension

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Speed, Temperature, Lubrication, Corrosion protection

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Installation instructions, DRX/DRS installation

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Ordering key















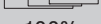





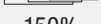























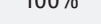





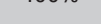




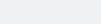





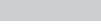





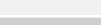





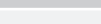







Ordering key with explanations

LR-15

Guides suitable for all applications

Technical features overview



Reference			Section	Profile		Self alignment	Extension	Slider		Anticorrosion
Family	Product	Type		Hardened raceways	Balls			Rollers		
Telescopic Rail		ASN		Cold Drawn	√	+	 50%			 **
		DE		Cold Drawn	√	++	 100%			 **
		DS		Cold Drawn	√	++	 100%			 **
		DSE		Cold Drawn	√	++	 150%			 **
		DSC		Cold Drawn	√	++	 100%			 **
		DBN		Cold Drawn	√	++	 100%			 **
		DMS		Cold Drawn	√	++	 100%			 **
		DRT		Cold Drawn	√	+	 100%			 **
	Opti Rail		LTH		Cold Drawn		++	 100%		
		LTF		Cold Drawn		++	 100%			 **
Light Rail		LPS		Formed Sheetmetal		++	 50%			
		LFS		Formed Sheetmetal		++	 100%			
		LFX		Formed Sheetmetal		++	 100%			 Available in stainless steel
		DRX/DRS		Formed Sheetmetal		++	100%			Available in stainless steel

The information shown must be verified for the specific application.

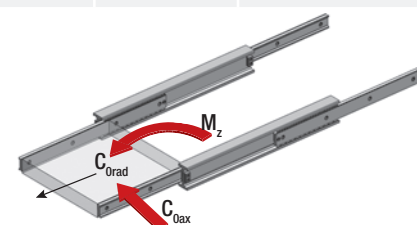
For a complete view of technical data, please consult our catalogs on www.rollon.com

* The maximum value is defined by the application.

** Different anti-corrosion treatments are available. For more information, please contact Rollon.

*** For more information, please contact Rollon.

Size	Max. load capacity per guida [N]		Max. dynamic load capacity [N] C 100	Max. stroke [mm]	Max. rail length [mm]	Max. extension speed [m/s]	Rigidity (deflection)	Operating temperature
	C ₀ rad	C ₀ ax						
22-28-35-43-63	44247	30973	61688	1013	1970	0,8	+++	-20°C/+170°C
22-28-35-43-63	7198	3062	26338	2026	1970	0,8	+++	-20°C/+170°C
28-35-43-63	12832		14483	2026	1970	0,8	++++	-20°C/+110°C
28-35-43-63	5672		16063	3039	1970	0,8	++++	-20°C/+110°C
43	5529	2075	14885	2028	1970	0,8	+++	-20°C/+110°C
22-28-35-43	1331	1279	14483	2026	1970	0,8	+	-20°C/+170°C
63	19812		30595	2266	2210	0,8	++++	-20°C/+110°C
43	2860		6053	1980	1970	0,8	+++	-20°C/+110°C
30-45	1673		***	1522	1500	0,3	++	-20°C/+170°C
44	648		1000	1010	1000	0,3	+	-20°C/+170°C
38	175	50	***	373	473	0,5	+	+10°C/+40°C
46-57-58-70	650	115	***	1100	1100	0,5	+	+10°C/+40°C
27	350	50	***	576	550	0,5	+	-30°C/+200°C
30	360		***	1120	1040	0,8	+	-20°C/+100°C



Product explanation



> Light telescopic rails, with full or partial extension



Fig. 1

The Light Rail product family consists of five series with full and partial extensions in a lightweight design. It is ideal for applications in which the mass of the rail is just as important as the bending rigidity.

The most important characteristics:

- Light and quiet running with heavy loads
- Long service life without maintenance
- Effective self-cleaning of the ball track
- High functional reliability
- Structural elasticity capable of absorbing minor impacts and absence of permanent deformation
- Not sensitive to side impacts

Preferred areas of application:

- Beverage industry
- Automotive
- Construction and machine technology (e.g., housing)
- Packaging machines
- Railcars (e. g., maintenance and battery extensions)
- Special machines

LPS 38

Partial extension with rails made of hot-dipped galvanized steel and plastic ball cages.



Fig. 2

LFS 46

Detachable internal rail which can be released with a latch. Rails are made of bright chrome-plated steel, the ball cages of steel and plastic. Roll back protection in closed position.



Fig. 3

LFS 57

Full extension with rails made of hot-dipped galvanized steel and zinc-plated steel ball cages. Roll back protection in closed position.



Fig. 4

LFS 58 SC

Full extension with automatic retraction and damping. The automatic retraction system is assisted by a spring-loaded mechanism that allows the rail to get back to a complete retraction before reaching the closed position.



Fig. 5

LFS 70

Full extension with rails made of zinc-plated galvanized and blue passivated steel. The ball cages are made of zinc-plated steel. Heavy load end stop in opened and closed position. Roll back protection in closed position.



Fig. 6

LFX 27

The stainless steel full extension consists of two inner guide rails that, connected to a double-T profile, form the intermediate element and two outer rails that form the connection to the connecting construction as fixed and moving element. The square cross-section allows a compact design of high load ratings and low deflection.



Fig. 7

DRX-DRS

Roller type telescopic rail made of stainless or galvanized steel. Corrosion resistant even if scratched, exposed to solvents or to shocks.



Fig. 8

Technical data

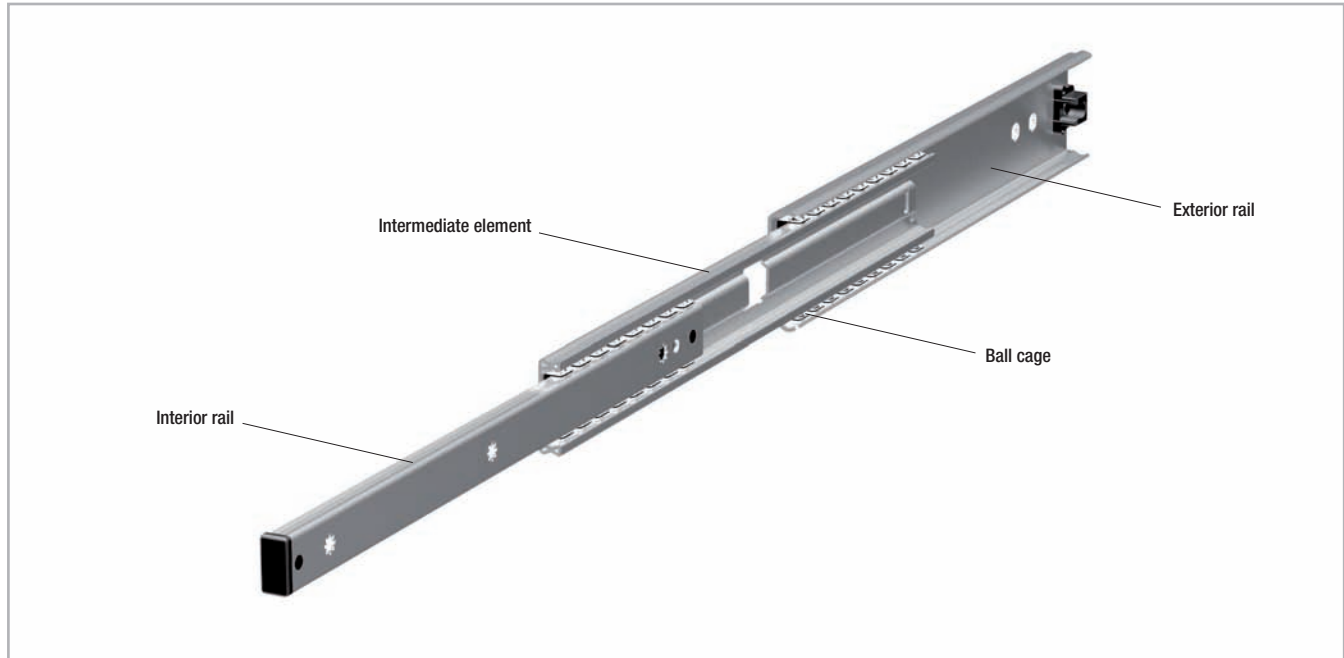


Fig. 9

Performance characteristics:

- Extension speed (depending on application):
 Extension distance 100 - 500 mm: max. 0.5 m/s (19.69 in/s)
 Extension distance 600 mm: max. 0.4 m/s (15.75 in/s)
 Extension distance 700 mm: max. 0.3 m/s (11.81 in/s)
- LFS 58 SC series with automatic retraction
- Temperature range: from +10 °C to +40 °C,
 for DRX/DRS from -20° to + 100° C, for LFX from -30° to +200° C.
 Temporary storage and transport temperature: -20 °C to max. +80 °C (-4 °F to +176 °F)
- All systems are lubricated for life
- LFS/LPS rail material: hot galvanized or chromed steel
- LFS/LPS ball bearing cage material: galvanized steel or plastic
- LFS/LPS ball bearing material: hardened carbon steel
- LFX rail, balls and cage material: stainless steel 1.4301
- DRX rail material: stainless steel AISI 316L
- DRS rail material: galvanized steel ISO 2081 compliant

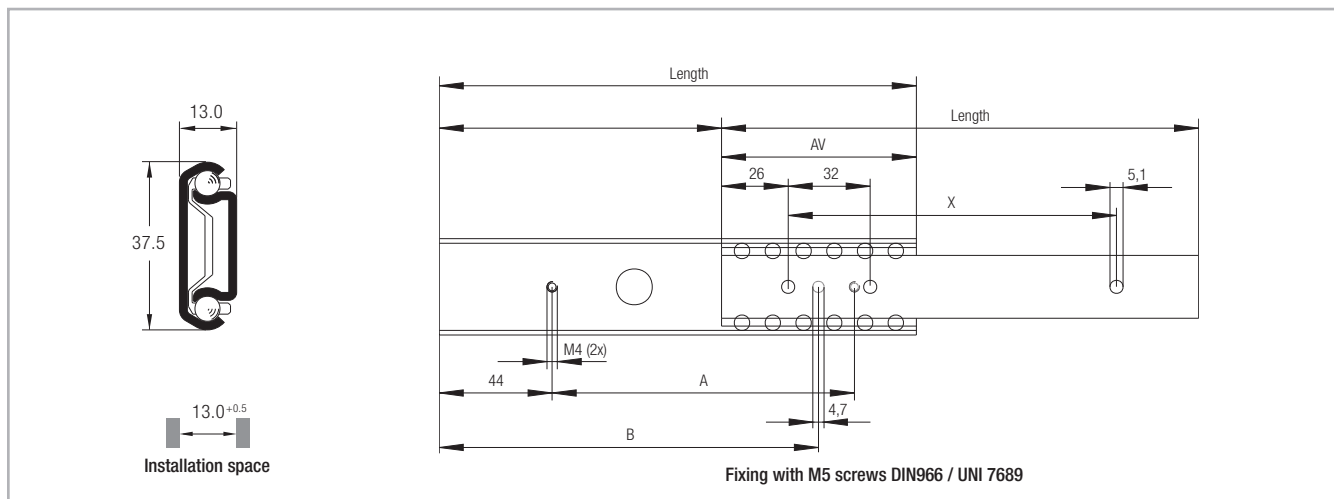
Remarks:

- Assembly in cross-sectional width, here a positive tolerance of +0.5 mm is recommended (mounted under tension). If the extensions are installed with too small a tolerance, the service life is decreased
- Load capacity is per single rail (not per pair)
- Cycle data applies to the use of an extension pair (recommended)
- Vertical use of extensions (radial load) is recommended
- If mounted in a horizontal position, the load capacity will be reduced (see p. LR-12)
- Cathodic edge protection, additional corrosion protection with powder coating on request
- Roll back protection in closed position is friction locked (except LPS 38)
- Not suitable for moments – must be used as extension pair

Dimensions and load capacity



> LPS 38



All dimensions given in mm

Fig. 10

Type	Size	Length [mm]	Extension loss AV [mm]	Stroke* [mm]	A [mm]	B [mm]	X [mm]	Load capacity** C _{0rad} [N]	Load capacity** C _{0ax} [N]	Weight** [kg]
LPS	38	242	88	154	166	202	192	175	50	0.30
		317		229	241	277	256			0.40
		398	100	298	322	358	352			0.50
		473		373	397	433	416			0.60

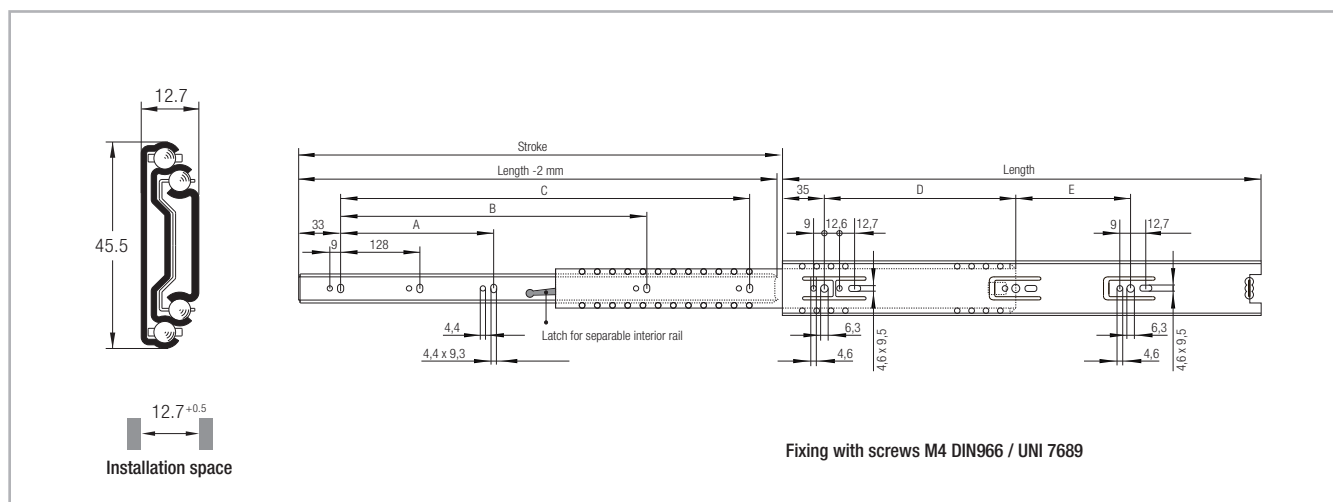
* The stroke is the difference of the length and the extension loss AV

** The given load capacities and weights apply for a single extension

Tab. 1

Note: The given load capacities are guidelines with 100,000 cycles and uniform load distribution (area load) when using all mounting holes. The load values must be reduced in unfavorable conditions.

> LFS 46



All dimensions given in mm

Fig. 11

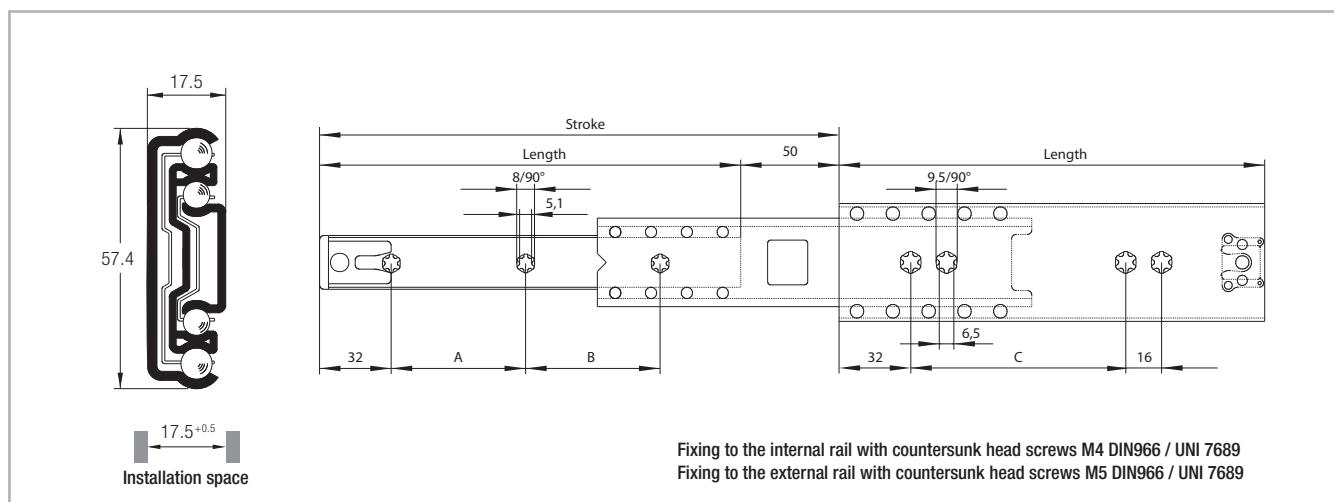
Type	Size	Length	Stroke	A	B	C	D	E	Load capacity*	Load capacity*	Weight*
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	C _{0rad} [N]	C _{0ax} [N]	[kg]
LFS	46	300	305	-	-	242	192	-	150	50	0,48
		350	356	-	-	292	256	-	150		0,505
		400	406	-	256	342	160	96	175		0,64
		450	457	-		392		160			0,71
		500	508	-	352	442	224	128	200		0,79
		550	559	224	416	492		192			0,88
		600	610			542		224			0,95

* The given load capacities and weights apply for a single extension

Tab. 2

Note: The given load capacities are guidelines with 50,000 cycles and uniform load distribution (area load) when using all mounting holes. The load values must be reduced in unfavorable conditions.

> LFS 57



All dimensions given in mm

Fig. 12

Type	Size	Length	Stroke*	A	B	C	Load capacity**	Load capacity**	Weight**
		[mm]	[mm]	[mm]	[mm]	[mm]	C _{0rad} [N]	C _{0ax} [N]	[kg]
LFS	57	300	350	128	104	160	250	80	0.84
		350	400		152	256	300		0.98
		400	450	160	168		325		1.13
		450	500		224	350	1.27		
		500	550	224	208	375	1.42		
		550	600		256		1.57		
		600	650	288	240	400	1.71		
		650	700		288		1.86		
		700	750	320	312		2.01		
		750	800		360		2.16		

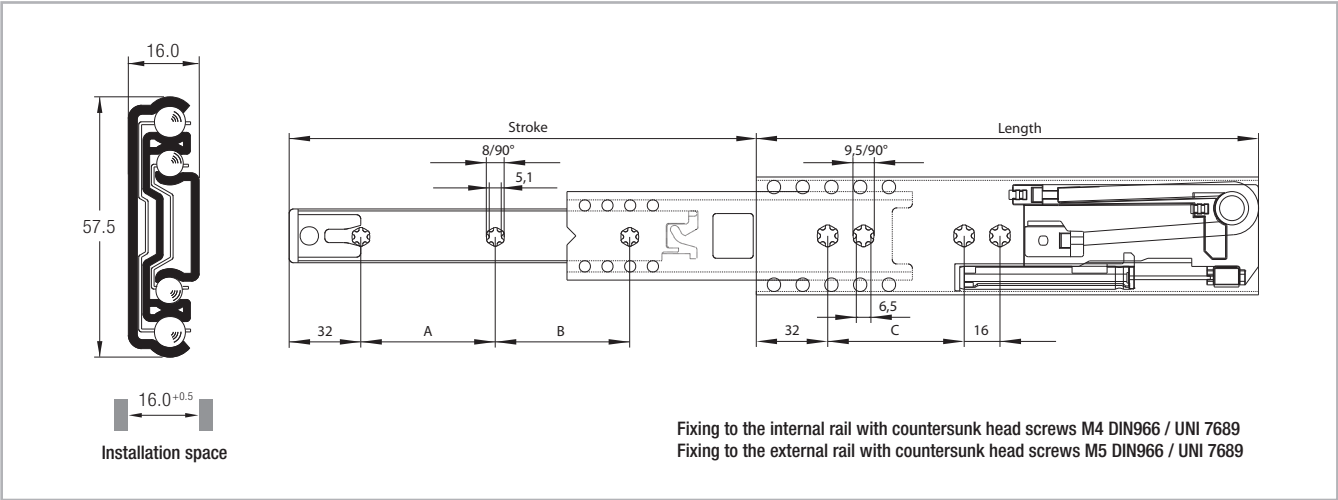
* The stroke is the sum of the length and the over extension

** The given load capacities and weights apply for a single extension

Tab. 3

Note: The given load capacities are guidelines with 100,000 cycles and uniform load distribution (area load) when using all mounting holes. The load values must be reduced in unfavorable conditions.

> LFS 58 SC



All dimensions given in mm

Fig. 13

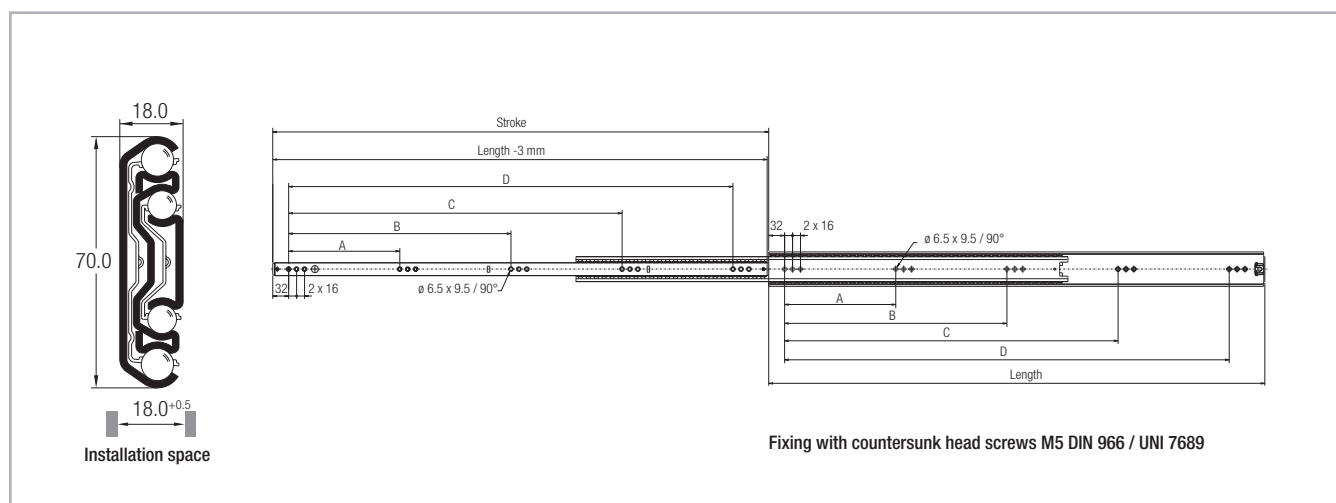
Type	Size	Length	Stroke	A	B	C	Load capacity*	Weight*
		[mm]	[mm]	[mm]	[mm]	[mm]	C _{Drad} [N]	[kg]
LFS	58	400	434	128	128	224	200	1.10
		450	484	160	160	256	250	1.25
		500	534		192	320	275	1.40
		550	584	192			300	1.55

* The given load capacities and weights apply for a single extension

Tab. 4

Note: The given load capacities are guidelines with 100,000 cycles and uniform load distribution (area load) when using all mounting holes. The load values must be reduced in unfavorable conditions. Horizontal installation is not possible due to the damping system. The damping effect is reduced for loads of 450 N and higher per extension pair.

> LFS 70



All dimensions given in mm

Fig. 14

Type	Size	Length	Stroke	A	B	C	D	Load capacity*		Load capacity*	Weight*
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	C _{0rad} [N]		C _{0ax} [N]	[kg]
LFS	70	400	400	-	-	-	288	525	900**	150	1,55
		450	450	-	-	160	320	575	950**		1,74
		500	500	-	-	192	384	650	975**		1,94
		550	550	-	-	224	448		1000**		2,13
		600	600	-	-				975**		2,32
		700	700	-	192	384	576		875**		2,70
		800	800	-	224	448	672	600	725**		3,10
		1100	1100	224	448	672	896	450	525**	100	4,25

* The given load capacities and weights apply for a single extension

** 10.000 cycles

Tab. 5

Note: The given load capacities are guidelines with 100.000 cycles and uniform load distribution (area load) when using all mounting holes. The load values must be reduced in unfavorable conditions.

> LFX 27

Stainless steel telescopic guide

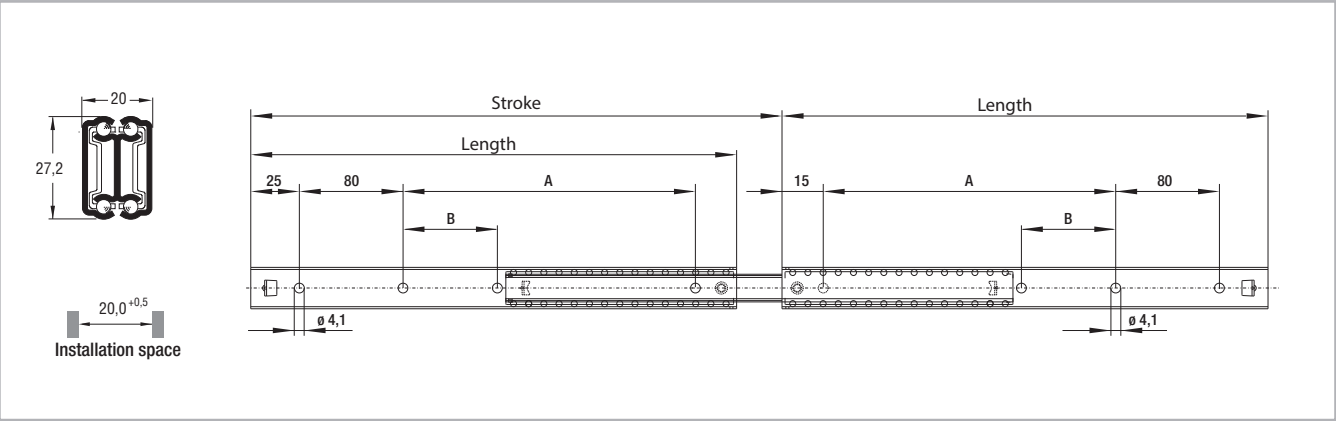


Fig. 15

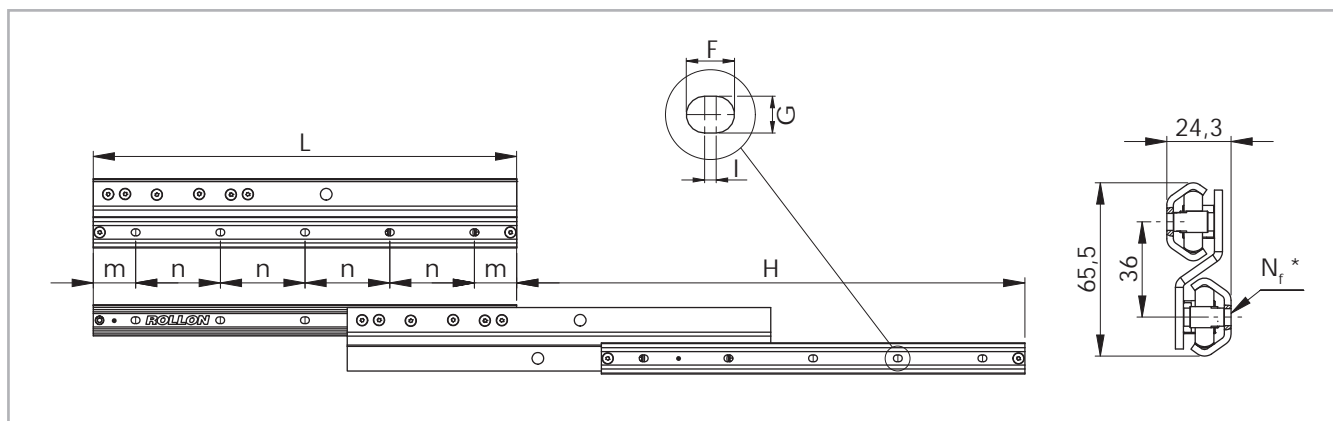
Type	Size	Length	Stroke	A	B	Load capacity* [N]				Weight* [kg]
		[mm]	[mm]	[mm]	[mm]	C _{0rad}	C _{0ax}	C _{0rad}	C _{0ax}	
						to 10.000 cycles		to 100.000 cycles		
LFX	27	300	326	180	-	175	25	125	25	0,43
		350	376	230	70					0,49
		400	426	280	100					0,57
		450	476	330	100					0,64
		500	526	380	140					0,72
		550	576	430	160					0,76

* The given load capacities and weights apply for a single extension

Tab. 6

> DRX/DRS

DRX version in stainless steel



* Number of mounting holes

Fig. 16

Type	Size	Length L [mm]	Stroke H [mm]	Load capacity* C_{0rad} [N]	Fixed and movable rail							
					m [mm]	n [mm]	N_f [2 rails]	Holes for screws	Weight [kg/m]	F [mm]	G [mm]	I [mm]
DRX DRS	30	400	480	150	40	80	10	M5	3.40	8,4	6,4	2
		480	560	200			12					
		560	640	240			14					
		640	720	280			16					
		720	800	320			18					
		800	880	360			20					
		880	960	350			22					
		960	1040	310			24					
		1040	1120	250			26					

* The given load capacities and weights apply for a single extension

Tab. 7

> Fixing screws

We recommend fixing screws according to ISO 7380 with low head height or TORX® screws (see fig. 17) on request.

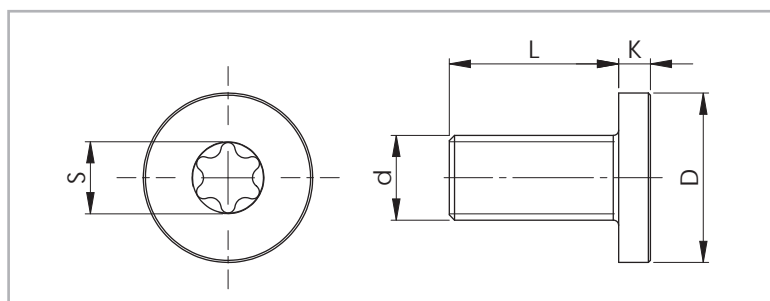


Fig. 17

Rail size	Screw type	d	D [mm]	L [mm]	K [mm]	S	Tightening torque [Nm]
30	M5 x 10	M5 x 0.8	10	10	2	T25	9

Tab. 8

Technical instructions



> Load capacities

Vertical installation (radial load)

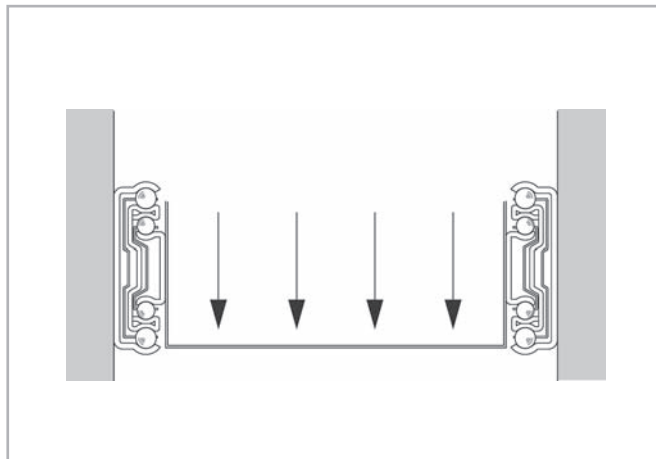


Fig. 18

The given loading capacities are guidelines for an extension rail vertically mounted with uniform load distribution using all mounting holes. The load values must be reduced in unfavorable conditions.

Horizontal installation (axial load)

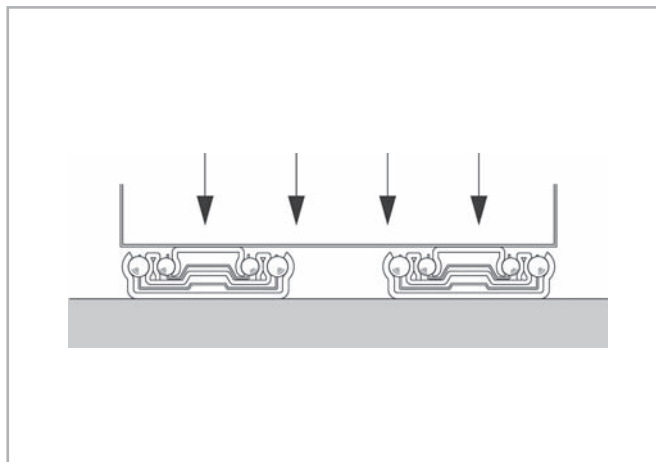


Fig. 19

For horizontal mounted extensions the load capacity is reduced (see pg. LR-5ff). The DRS/DRX series is not suitable for use on horizontal mounting (axial loads)

> Speed

The extension speed is determined by the size of the intermediate elements. Therefore, the maximum extension speed is inversely proportional to the overall extension of the rails (see fig. 20). The maximum extension speed is also directly related to the applied load and operating time. The indicated data refers to continuous operation at the maximum load capacity.

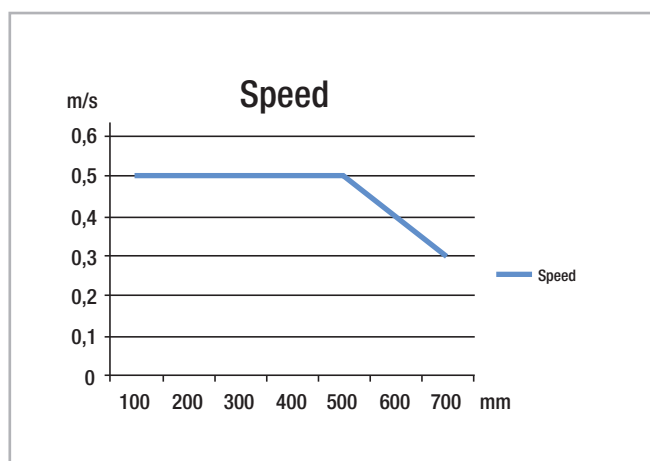


Fig. 20

> Temperature

Continual operating temperature of the Light Rail extensions is +10 °C to +40 °C. Temporary storage and transport temperature: -20 °C to max. +80 °C. The operating temperature for the DRX/DRS rails ranges from -20 °C to +100 °C. For more information please contact Rollon technical support.

> Lubrication

All extensions of the Light Rail product family are lubricated for life. Different lubricants for special applications are available upon request. Example: Lubricant with FDA approval for use in the food industry. For more information please contact Rollon technical support.

> Corrosion protection

Base material for the Light Rail product family is cold-rolled, hot-dipped galvanized steel. The cathodic edge protection offers a perfect combination of quality and cost-efficiency. The surface protection conforms to RoHS. The DRX/DRS series rails are also available in the stainless steel version for a high corrosion resistance.

For more information please contact Rollon technical support.

> Installation instructions

- The existing internal stops are not designed to stop the moving load. They are only supposed to retain the ball-cage and prevent the internal parts to slide out of the assembly. An external end-stop must always be installed to stop the moving load.
- To achieve optimum running properties, high service life and rigidity, it is necessary to fix the Light Rail extensions with all accessible holes on a rigid and level surface. When using an extension pair, please observe the parallelism of the installation surfaces. The fixed and movable rails will assume the rigidity of the mounting structure.
- Light Rail full and partial extensions are suitable for use in automatic systems. For this, the stroke should remain constant in all moving cycles and the extension speed must be checked (see pg. LR-13, fig.20). The movement of the extensions is enabled by internal ball cages, which could experience an offset from the original position with differing strokes. This phase offset can have a negative effect on the running properties or limit the stroke. If differing strokes occur in an application, the drive force must be sufficiently dimensioned in order to appropriately synchronize the ball cage offset. As an alternative, an extra full stroke cycle can be performed every certain number of cycles, in order to re-phase the ball cage in its correct position.

Horizontally installed guides

Horizontally installed extensions can support tension or compression loads (see figs. 21 and 22).

For the horizontal mounting of extensions with compression loads, please take the following conditions into account: The Hertzian stress of the balls is no longer effective due to the expansion of the rail profile; the nominal tension tolerance of +0.5 mm is eliminated due to the installation confi-

guration. Both the above mentioned conditions contribute to a significant reduction of the axial load capacity.

Horizontally-mounted rails (axial load) also determine a considerably higher deflection of the extended tips if compared to traditionally vertically-mounted rails (radial load).

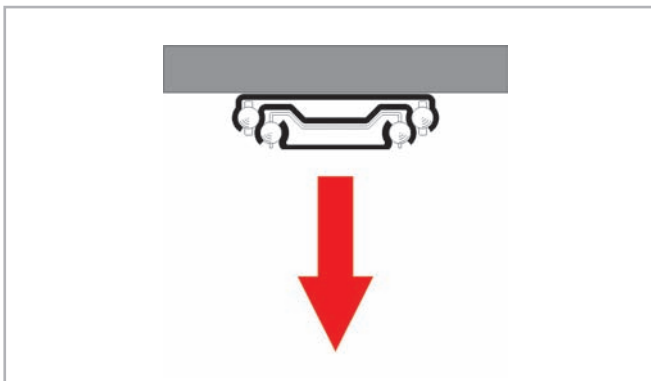


Fig. 21

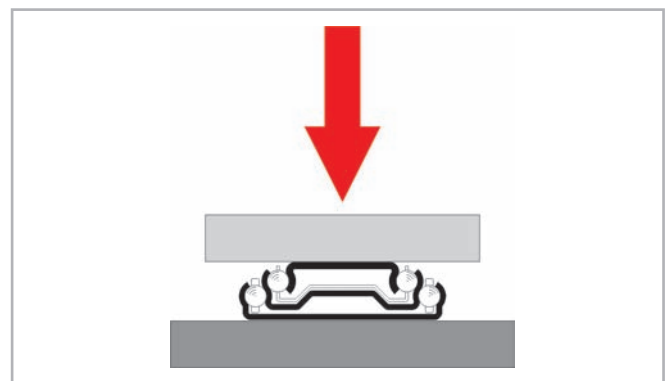


Fig. 22

> DRX/DRS installation

- During installation care must be taken that the movable elements are assembled as in the figure; i.e. as the lower rail. The opposite upside-down assembly negatively affects the function.
- Internal stops are used to stop the unloaded slider and the ball cage. Please use external stops as end stops for a loaded system.
- To achieve optimum running properties, high service life and rigidity, it is necessary to fix the telescopic rails with all accessible holes on a rigid and level surface.
- When using two telescopic rails, please observe the parallelism of the installation surfaces. The fixed and movable rails fit to the rigid assembly construction.

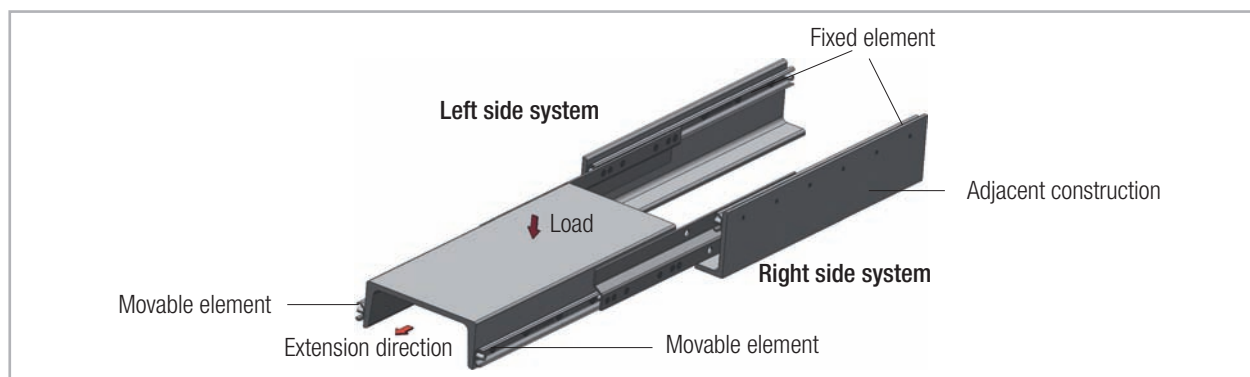


Fig. 23

Ordering key

✓

> Light Rail

LFS	58-	400	SC	
			Automatic retraction only in LFS 58 SC	see pg. LR-8
		Rail length in mm	see pg. LR-5	
	Size	see pg. LR-5		
Rail type	see pg. LR-5			

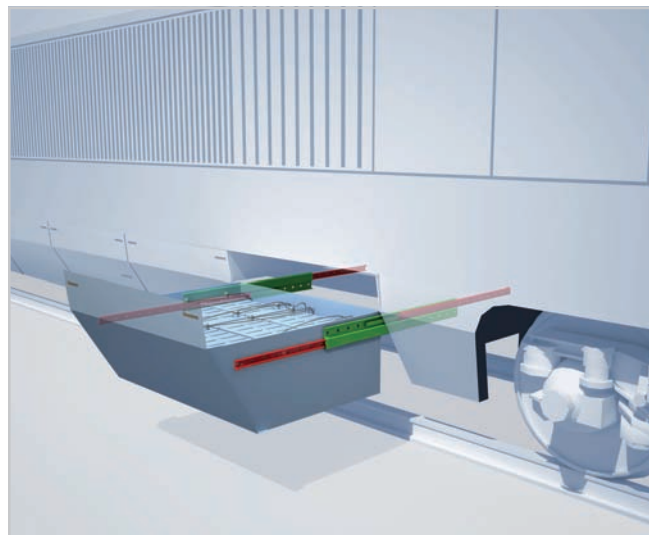
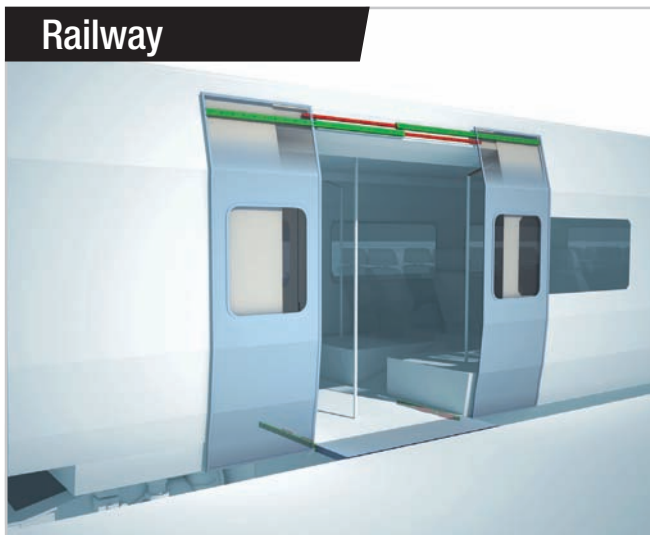
Ordering example: LFS58-0400SC

Notes on ordering: The rail lengths are always indicated as 4 digits with 0 prefixes

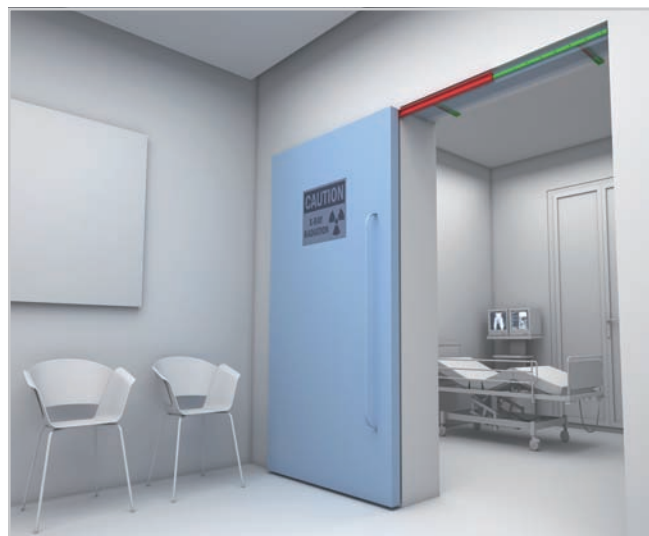
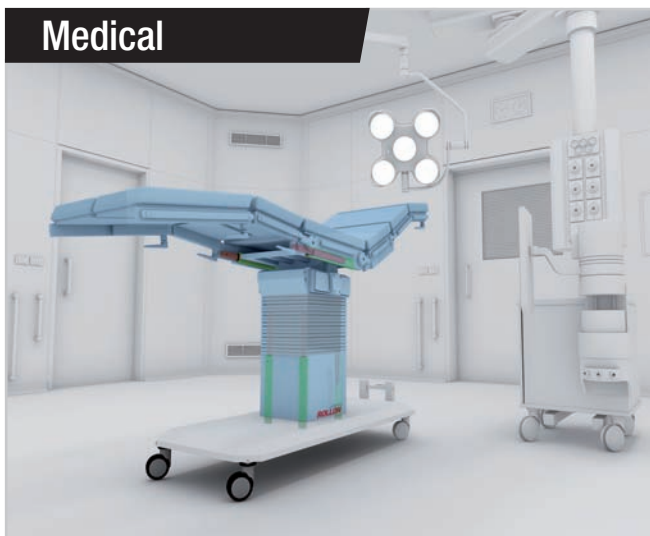
Guides suitable for all applications



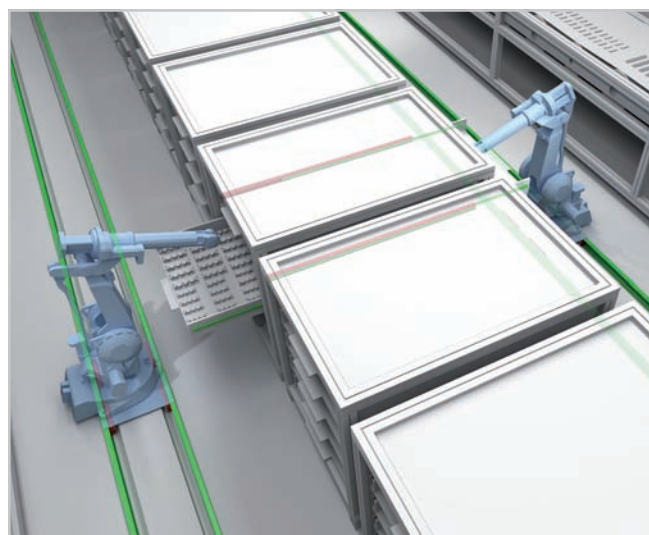
Railway



Medical



Logistics



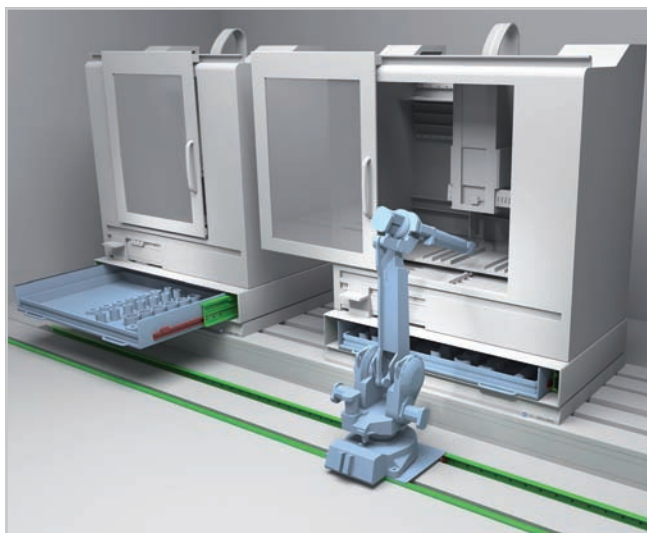
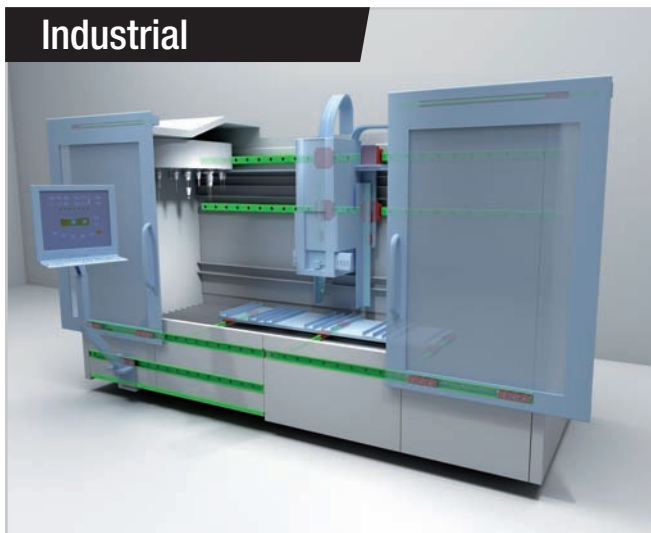
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ROLLON S.p.A. - ITALY



Via Trieste 26
I-20871 Vimercate (MB)
Phone: (+39) 039 62 59 1
www.rollon.it - infocom@rollon.it

● Rollon Branches & Rep. Offices
● Distributors

Branches:

ROLLON GmbH - GERMANY



Bonner Strasse 317-319
D-40589 Düsseldorf
Phone: (+49) 211 95 747 0
www.rollon.de - info@rollon.de

ROLLON B.V. - NETHERLANDS



Ringbaan Zuid 8
6905 DB Zevenaar
Phone: (+31) 316 581 999
www.rollon.nl - info@rollon.nl

Rep. Offices:

ROLLON S.p.A. - RUSSIA



117105, Moscow, Varshavskoye
shosse 17, building 1
Phone: +7 (495) 508-10-70
www.rollon.ru - info@rollon.ru

ROLLON S.A.R.L. - FRANCE



Les Jardins d'Eole, 2 allée des Séquoias
F-69760 Limonest
Phone: (+33) (0) 4 74 71 93 30
www.rollon.fr - infocom@rollon.fr

ROLLON Corporation - USA



101 Bilby Road. Suite B
Hackettstown, NJ 07840
Phone: (+1) 973 300 5492
www.rolloncorp.com - info@rolloncorp.com

ROLLON Ltd - UK



The Works 6 West Street Olney
Buckinghamshire, United Kingdom, MK46 5 HR
Phone: +44 (0) 1234964024
www.rollon.uk.com - info@rollon.uk.com

ROLLON Ltd - CHINA



No. 16 Jin Wen Road,
China, Shanghai, 201323
Phone: +86 21 5811 8288
www.rollon.cn.com - info@rollon.cn.com

ROLLON India Pvt. Ltd. - INDIA



1st floor, Regus Gem Business Centre, 26/1
Hosur Road, Bommanahalli, Bangalore 560068
Phone: (+91) 80 67027066
www.rollonindia.in - info@rollonindia.in

Regional Manager:

ROLLON - SOUTH AMERICA



R. Joaquim Floriano, 397, 2o. andar
Itaim Bibi - 04534-011, São Paulo, BRASIL
Phone: +55 (11) 3198 3645
www.rollonbrasil.com.br - info@rollonbrasil.com

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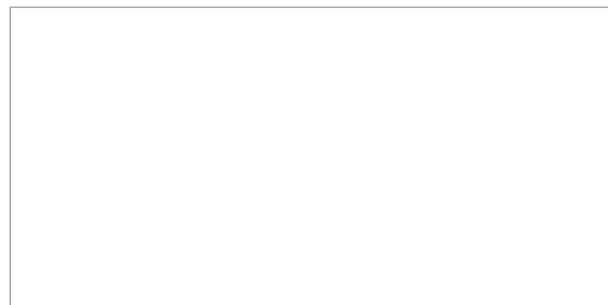


3F Shiodome Building, 1-2-20 Kaigan, Minato-ku,
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