

HEAVY LOADS

BALLCAGE TELESCOPIC SLIDES TLS-TSH-TSQ-SR SERIES

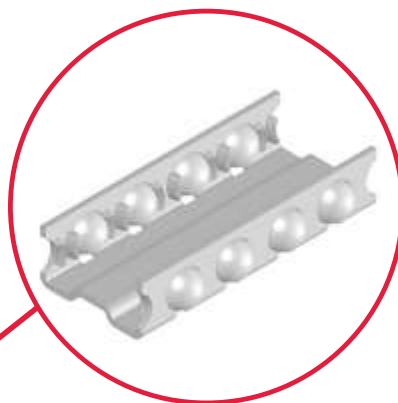
Rails with Patented **T RACE NOX 1.0** - treatment with high depth nitride hardening and with black oxidation, assuring long lifetime without wear and a good corrosion resistance.

- **HIGH HARDNESS**
- **DURABLE** for high load/frequency
- **LONG LIFE**
- **GOOD CORROSION RESISTANCE** also on the raceways, tested for 120 hours in salt fog.

STRONG CLOSED BALL-CAGE
• No risk of losing balls

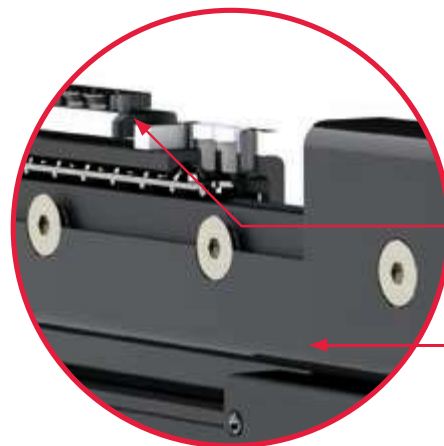
SHORT BALLPITCH
• For increased load capacity

SHAPED BALL-CAGE
• For more rigid ball-cage to withstand ball-cage re-positioning



STRONG RUBBER DAMPING STOPPERS TO DRAG THE INTERMEDIATE ELEMENT.

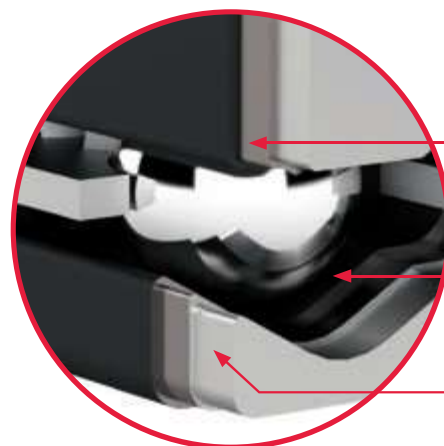
SMOOTH SILENT MOVEMENT

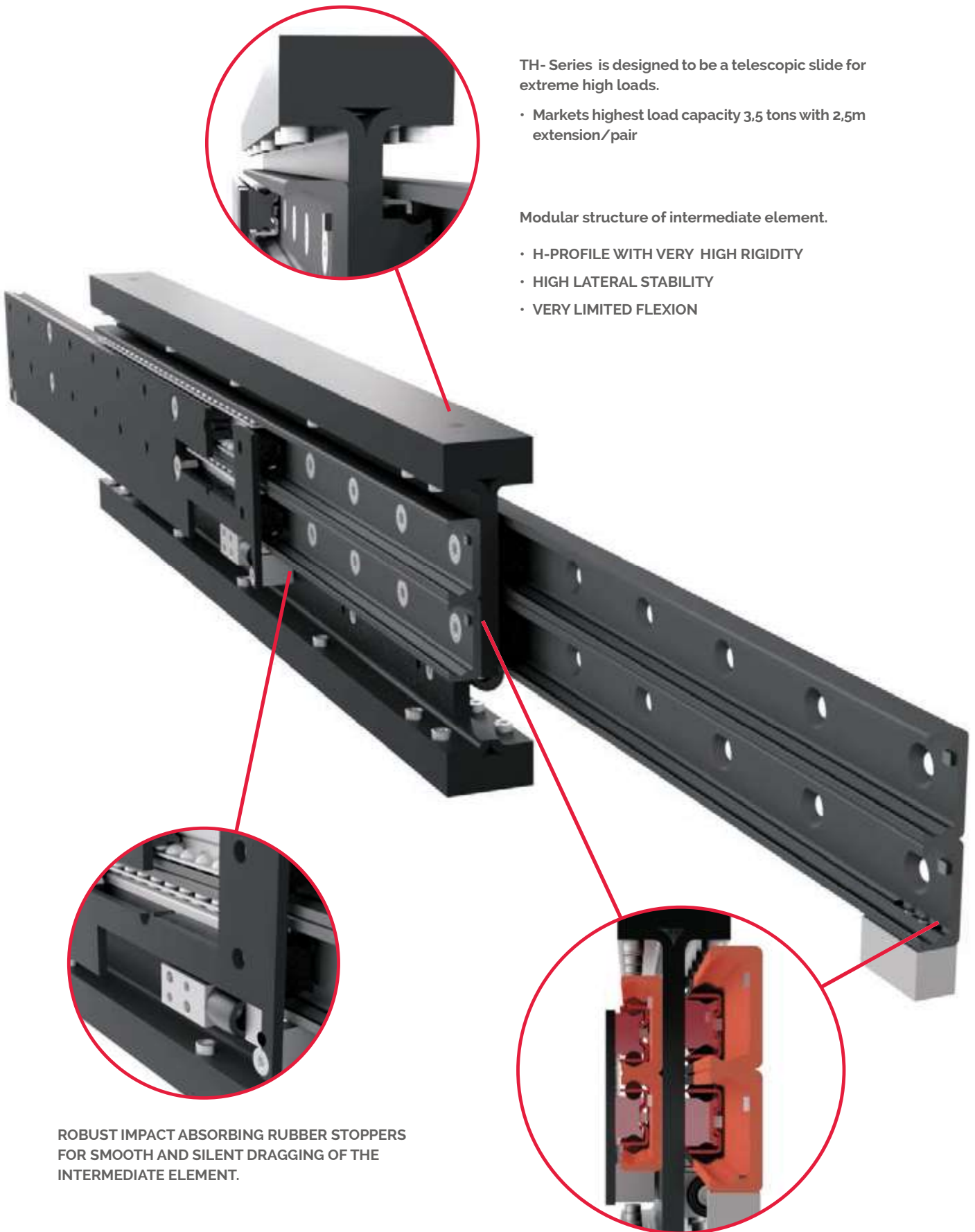


HIGH DEPTH NITRIDING TECHNOLOGY T RACE-NOX 1.0

BLACK OXIDATION WITH MICRO OIL IMPREGNATION, T RACE-NOX 1.0, ANTI-CORROSION TREATMENT

HIGH STRENGTH COLD DRAWN STEEL ALLOY PROFILE





TH- Series is designed to be a telescopic slide for extreme high loads.

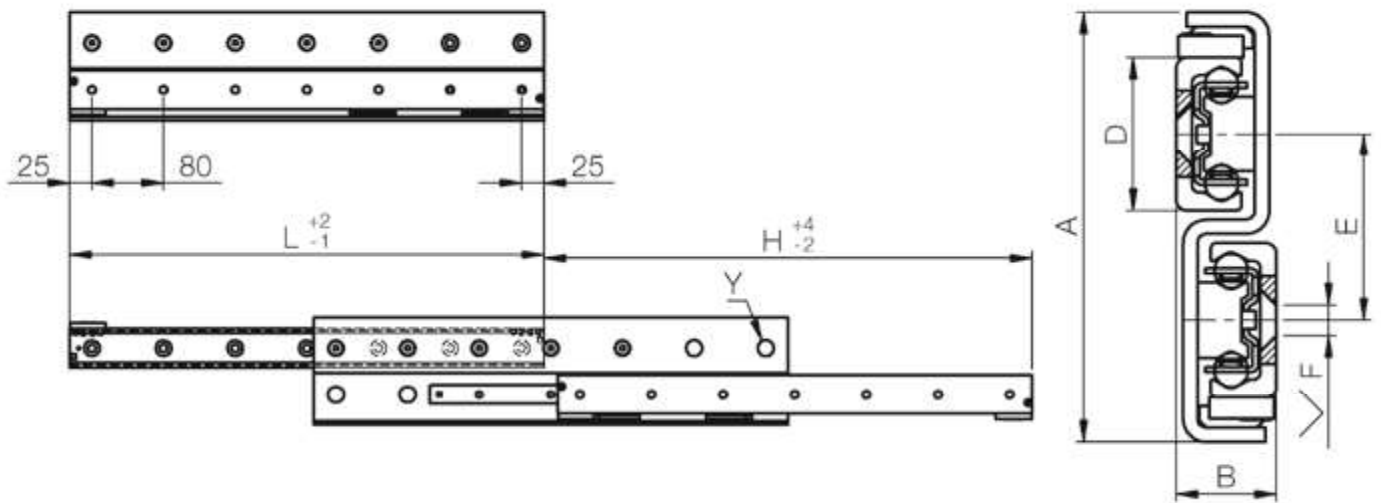
- Markets highest load capacity 3,5 tons with 2,5m extension/pair

Modular structure of intermediate element.

- H-PROFILE WITH VERY HIGH RIGIDITY
- HIGH LATERAL STABILITY
- VERY LIMITED FLEXION

ROBUST IMPACT ABSORBING RUBBER STOPPERS FOR SMOOTH AND SILENT DRAGGING OF THE INTERMEDIATE ELEMENT.

DOUBLE RAIL WITH HIGH RELIABILITY



A few fixing holes are only accessible in closed position, through access Y-hole.

Code	A (mm)	B (mm)	D (mm)	E (mm)	F (mm)
TLS28	84	17	28	35	Ø 5,5 for screw M5 DIN7991
TLS35	104	22,5	35	43	Ø 6,5 for screw M6 DIN7991
TLS43	120	28	43	52	Ø 8,5 for screw M8 DIN7991

The listed load capacities $C_{o\ rad}$, are per single slide, with the load centered, i.e. in the middle of the extended lower rail, P. In case the load is not centered, ex. The load is more towards tip, the load capacity is reduced, please refer to page 48. For further info and flexion "f" indications.

When using the TLS in pairs, the same slide is assembled both left and right side just by turning the TLS 180°.

ORDER CODE	VERSION	CHARACTERISTICS
TLS43-1010	BASIC	Cold drawn steel rails with patented "T RACE-NOX 1.0": high depth nitride hardening and black oxidation treatment. The rails are cut to size after treatment, so the rail ends are protected by protective spray. All threaded holes are without treatment. Ball-cages in zinc plated steel, while balls hardened steel. Intermediate steel S-element is protected with black epoxy electro coating - "T RACE e-coating 1.0".
TLS43-1010-KL	KL	As a basic TLS product but with additional black "T RACE e-coating 1.0" on the rails, for high corrosion resistance (min 700 hours resistance in salt fog). The rail has no T RACE e-coating on the raceway contact area with the rollers, as masked before the treatment. The raceways are anyhow with standard oxidation while the wipers with incorporated pre-oiled felt assure lubrication and corrosion protection of raceways.
TLS43-1010-KB	KB	As the version KL but with the ball-cages made in stainless steel AISI304 and the balls in hardened AISI440C

TECHNICAL CHARACTERISTICS

TLS ball-cage telescopic slides are composed of two SR semi-telescopic slides fixed to a rigid intermediate S-element and thus assure high load capacities combined with low flexion. Both inner and outer rail are with patented T RACE-NOX 1,0 treatment; high depth nitride hardened rails with black oxidation, assuring a long lifetime without wear and a good corrosion resistance.

The intermediate element is dragged out/in by strong rubber damping stoppers so a much reduced impact interference of intermediate element during opening/closing. Patented T RACE-NOX treatment guarantees a constant preload setting during the complete lifetime, unlike traditional zinc-plated ball-cage slides, which very soon have the zinc worn away at the raceway contact points, with the result being increased play/shaky movements. The standard preload setting is a nominal play to absorb minor inaccuracies of assembly structure, while for precision applications we generally recommend to prefer the preloaded version, - customized version.

The materials and surface treatments assure a general high standard of corrosion resistance. With additional black electro coating, KB-version, the TLS slide becomes suitable for outdoor applications or very humid ambient environmental conditions.

Upon request, a customized version with longer extension or both customized length and stroke is available. Load Co rad refers to a single slide.

Code	Lenght L (mm)	Stroke H (mm)	N' of Y-access holes	Dynamic coefficient C (N)	Capacity load Co rad (N)	Weight (kg)
TLS28-290	290	295	1	867	577	1,7
TLS28-370	370	380	1	1143	761	2,2
TLS28-450	450	460	1	1525	1020	2,6
TLS28-530	530	540	2	1802	1205	3,1
TLS28-610	610	620	2	2187	1465	3,6
TLS28-690	690	700	2	2464	1651	4,1
TLS28-770	770	780	2	2850	1913	4,5
TLS28-850	850	860	3	3127	2098	5
TLS28-930	930	940	3	3514	2222	5,5
TLS28-1010	1010	1020	3	3791	2053	5,9
TLS28-1090	1090	1100	3	4068	1907	6,4
TLS28-1170	1170	1180	4	4455	1781	6,9
TLS28-1250	1250	1260	4	4732	1671	7,4
TLS28-1330	1330	1340	4	5120	1573	7,7
TLS28-1410	1410	1420	4	5397	1486	8,2
TLS28-1490	1490	1500	5	5785	1409	8,7

Code	Lenght L (mm)	Stroke H (mm)	N' of Y-access holes	Dynamic coefficient C (N)	Capacity load Co rad (N)	Weight (kg)
TLS35-450	450	465	2	1,974	1,316	5
TLS35-530	530	545	2	2,409	1,608	5,9
TLS35-610	610	625	2	2,844	1,902	6,7
TLS35-690	690	705	2	3,281	2,196	7,6
TLS35-770	770	785	2	3,718	2,490	8,5
TLS35-850	850	865	2	4,156	2,785	9,4
TLS35-930	930	945	3	4,593	3,080	10,3
TLS35-1010	1010	1025	3	5,031	3,375	11,2
TLS35-1090	1090	1105	3	5,470	3,670	12,1
TLS35-1170	1170	1185	3	5,908	3,749	12,9
TLS35-1250	1250	1265	3	6,346	3,520	13,8
TLS35-1330	1330	1345	4	6,785	3,318	14,7
TLS35-1410	1410	1425	4	7,223	3,137	15,6
TLS35-1490	1490	1505	4	7,662	2,975	16,5
TLS35-1570	1570	1585	4	8,101	2,829	17,4
TLS35-1650	1650	1665	5	8,539	2,697	18,2
TLS35-1730	1730	1745	5	8,978	2,576	19,1

Code	Lenght L (mm)	Stroke H (mm)	N' of Y-access holes	Dynamic coefficient C (N)	Capacity load Co rad (N)	Weight (kg)
TLS43-530	530	545	2	3489	2186	7,1
TLS43-610	610	625	2	3824	2393	8,5
TLS43-690	690	705	2	4467	2799	9,7
TLS43-770	770	785	2	5112	3206	10,7
TLS43-850	850	865	3	5757	3614	11,9
TLS43-930	930	945	3	6404	4022	13
TLS43-1010	1010	1025	3	7050	4431	14,1
TLS43-1090	1090	1105	3	7698	4840	15,2
TLS43-1170	1170	1185	4	8027	4715	16,4
TLS43-1250	1250	1265	4	8674	4427	17,5
TLS43-1330	1330	1345	4	9321	4172	18,6
TLS43-1410	1410	1425	4	9969	3945	19,7
TLS43-1490	1490	1505	5	10616	3741	20,9
TLS43-1570	1570	1585	5	11264	3558	22
TLS43-1650	1650	1665	5	11912	3391	23,1
TLS43-1730	1730	1745	5	12240	3240	24,2
TLS43-1810	1810	1825	6	12887	3101	25,4
TLS43-1890	1890	1905	6	13535	2974	26,4
TLS43-1970	1970	1985	6	14183	2857	27,6



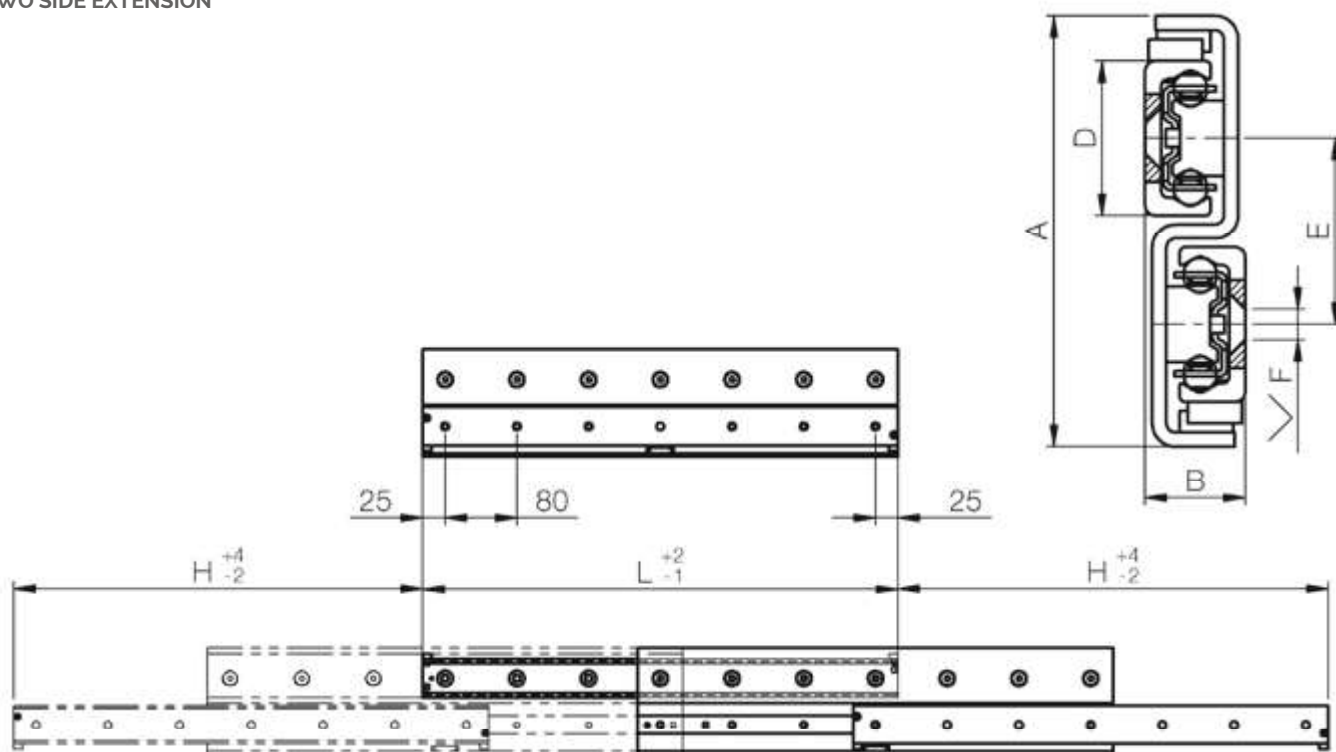
HEAVY LOADS

BALLCAGE TELESCOPIC SLIDES TLS.D SERIES

TWO SIDE EXTENSION

HEAVY LOADS

30



* The central fixing hole of rails with odd numbers of fixing holes is not accessible and not intended to be used.

Attention!

In closed position the intermediate element can freely move for about half it's length left or right side .

Code	A (mm)	B (mm)	D (mm)	E (mm)	F (mm)
TLS28D	84	17	28	35	Ø 5,5 for screw M5 DIN7991
TLS35D	104	22,5	35	43	Ø 6,5 for screw M6 DIN7991
TLS43D	120	28	43	52	Ø 8,5 for screw M8 DIN7991

The listed load capacities $C_{o\ rad}$, are per single slide, with the load centered, i.e. in the middle of the extended lower rail, P. In case the load is not centered, ex. The load is more towards tip, the load capacity is reduced, please refer to page 48. For further info and flexion "f" indications.

When using the TLS in pairs, the same slide is assembled both left and right side, just by turning the TLS 180°.

ORDER CODE	VERSION	CHARACTERISTICS
TLS43D-1010	BASIC	Cold drawn steel rails with patented "T RACE-NOX 1.0", depth nitride nitriding hardening and black oxidation treatment. The rails are cut to size after treatment, so the rail ends are protected by protective spray. All threaded holes are without treatment. Ball-cages in zinc plated steel, while balls hardened steel. Intermediate steel S-element is protected with black epoxy electro coating - "T RACE e-coating 1.0".
TLS43D-1010-KL	KL	As a basic TLS product but with additional black "T RACE e-coating 1.0" on the rails, for high corrosion resistance (min 700 hours resistance in salt fog) . The rail has no T RACE e-coating on the raceway contact area with the rollers, as masked before the treatment, The raceways are anyhow with standard oxidation while the wipers with incorporated pre-oiled felt assure lubrication and corrosion protection of raceways.
TLS43D-1010-KB	KB	As the version KL but with the ball-cages made in stainless steel AISI304 and the balls in hardened AISI440C

Code	Lenght L (mm)	Stroke H (mm)	Dynamic coefficient C (N)	Capacity load Co rad (N)	Weight (kg)
TLS28D-290	290	245	1481	1020	1,8
TLS28D-370	370	325	1866	1280	2,3
TLS28D-450	450	405	2129	1454	2,8
TLS28D-530	530	485	2518	1718	3,3
TLS28D-610	610	565	2787	1897	3,8
TLS28D-690	690	645	3057	2077	4,3
TLS28D-770	770	725	3448	2342	4,8
TLS28D-850	850	805	3720	2523	5,3
TLS28D-930	930	885	4110	2566	5,8
TLS28D-1010	1010	965	4383	2343	6,3
TLS28D-1090	1090	1045	4774	2155	6,8
TLS28D-1170	1170	1125	5047	1996	7,3
TLS28D-1250	1250	1205	5438	1858	7,8
TLS28D-1330	1330	1285	5712	1738	8,2
TLS28D-1410	1410	1365	5986	1633	8,7
TLS28D-1490	1490	1445	6376	1539	9,2

Code	Lenght L (mm)	Stroke H (mm)	Dynamic coefficient C (N)	Capacity load Co rad (N)	Weight (kg)
TLS35D-450	450	405	2.791	1.905	5
TLS35D-530	530	485	3.225	2.196	5.9
TLS35D-610	610	565	3.660	2.489	6.7
TLS35D-690	690	645	4.096	2.782	7.6
TLS35D-770	770	725	4.532	3.076	8,5
TLS35D-850	850	805	4.970	3.371	9,4
TLS35D-930	930	885	5.407	3.665	10,3
TLS35D-1010	1010	965	5.845	3.960	11,2
TLS35D-1090	1090	1045	6.283	4.256	12,1
TLS35D-1170	1170	1125	6.721	4.155	12,9
TLS35D-1250	1250	1205	7.160	3.875	13,8
TLS35D-1330	1330	1285	7.598	3.631	14,7
TLS35D-1410	1410	1365	8.037	3.416	15,6
TLS35D-1490	1490	1445	8.475	3.225	16,5
TLS35D-1570	1570	1525	8.914	3.054	17,4
TLS35D-1650	1650	1605	9.353	2.900	18,2
TLS35D-1730	1730	1685	9.791	2.761	19,1

Code	Lenght L (mm)	Stroke H (mm)	Dynamic coefficient C (N)	Capacity load Co rad (N)	Weight (kg)
TLS43D-530	530	480	4726	3022	7,6
TLS43D-610	610	560	5020	3197	8,7
TLS43D-690	690	640	5667	3605	9,9
TLS43D-770	770	720	6314	4015	11
TLS43D-850	850	800	6962	4424	12,2
TLS43D-930	930	880	7610	4834	13,3
TLS43D-1010	1010	960	8258	5244	14,5
TLS43D-1090	1090	1040	8907	5654	15,6
TLS43D-1170	1170	1120	9217	5272	16,8
TLS43D-1250	1250	1200	9867	4915	17,9
TLS43D-1330	1330	1280	10516	4603	19,1
TLS43D-1410	1410	1360	11165	4328	20,2
TLS43D-1490	1490	1440	11814	4084	21,4
TLS43D-1570	1570	1520	12464	3866	22,5
TLS43D-1650	1650	1600	13113	3670	23,7
TLS43D-1730	1730	1680	13428	3493	24,8
TLS43D-1810	1810	1760	14078	3333	26
TLS43D-1890	1890	1840	14727	3186	27,1
TLS43D-1970	1970	1920	15377	3052	28,3

TECHNICAL CHARACTERISTICS

TLS.D is basically a standard TLS, but with a double extension, i.e. full stroke left side and full stroke right side. As the stopper occupies a constant space on the external rail, the stroke each side is 45-50mm less than the length of the TLS.D, while the standard TLS has a stroke a bit longer than its length.

The TLS.D are ball-cage telescopic slides and are composed of two SR semi-telescopic slides fixed to a rigid intermediate S-element therefore assuring high load capacities with low flexion. Both inner and outer rail are with patented T RACE-NOX treatment; high depth nitride hardened rails with black oxidation, assuring a long lifetime without wear and a good corrosion resistance.

The intermediate element is dragged out/in by strong rubber damping stoppers so features much reduced impacting bumps between the intermediate element during opening/closing. Patented T RACE-NOX treatment guarantees a constant preload setting during the complete lifetime, unlike traditional zinc-plated ball-cage slides, which very soon the zinc will be worn off at the raceway contact points, with the result quite quickly of much increased play/shaky movements. The standard preload setting features nominal play to absorb minor inaccuracies of assembly structure, while for precision application is in general preferred preloaded version, - customized version.

The materials and surface treatments assure a general high standard of corrosion resistance. With additional black electro coating, KB-version, the TLS.D slide becomes suitable for outdoor applications or very humid ambient conditions being present.

Upon request, we can offer customized length and stroke. Load Co rad refers to a single slide.

