

BALL-CAGE TELESCOPIC SLIDES

The Ball-cage T RACE telescopic slides range are the most advanced ball-cage slides. They offer the best ratio “capacity load / size” available on the market with the Superior smooth performance, thanks to its nitriding hardened raceways, assuring constant preload during full lifetime. The black oxidation guarantees a high corrosion resistance unlike traditional zinc plated slides, which soon lose their preload, once soft zinc is consumed at ball contact points.

All the Series are available in the version “X” with high corrosion resistance. For this version the balls the cages and the screws are made in stainless steel (INOX) and also the intermediate plate (when foreseen) for high corrosion resistance. The rails are standard with T RACE-NOX treatment. All ball-cage telescopic are supplied with a standard preload that is between a light play to a light preload, obtained by selecting the right ball diameter from a large range of balls, with diameter differences of hundreds of mm. As both the rail and inner rail have minor tolerances also the preload has subsequently a small range of preload setting, i.e. between minor play to minor preload. Typically suitable for all standard applications. For special application could provide the versions:

Version with light play G1

“G1” version with light play over total stroke for minor friction and/or to allow some minor compensation of assembly error.

Version with light preload P1

“P1” version with light preload over total stroke, to provide a complete stable and more rigid movement with some higher friction when slide is without load.

Version with superfinished raceways

It is possible also to have a “F” version with better finished raceways for optimal smooth movement. When combined with a light preload P1 version the telescopic offer an un-comparable smooth and stable movement, for High-Tech application, for which others standard ball-cage linear bearing offer too poor sliding performance. As this version has its raceways honed after T RACE-NOX treatment, the hardened raceways are no longer black, so corrosion resistance at the raceways is comparable with standard hardened linear bearings.

Version with customized stroke

All ball-cage telescopic slides can be requested with stroke customized to meet the applications specific request for stroke. In general additional stroke of 5-30% can be obtained, with some load capacity reduction. Each such request must be verified by T RACE’s Tech. Depart. and eventual extra cost will then be communicated along with technical revised data.

Two section-dimensions are available : 28 and 43mm

TLS

The TLS are full telescopic slides, composed of 2 semi-telescopic slides fixed to a robust S-shaped intermediate element, to provide high load capacities with min. flexion.

Double full stroke versions are also available.

The optimized design and hardened raceways provide superior performance at competitive prices, compared to traditional zinc plated slides.



TSQ

TSQ slides are obtained by rivetting 2 semi-telescopic SR slides together, forming a H-shaped intermediate element, in which the inner rails are fixed to mobile and fixed structure.

The TSQ slides offer very compact dimensions, with good radial and axial load capacities. Full double stroke is possible for all versions.



TSQR

The telescopic slides of the series TSQR are equipped with robust stoppers with rubber shock absorber for dragging of the intermediate element during the extraction stage and in the phase of recovery and re-closing, significantly reducing the shock and noise derived from the impact and allowing a longer life. These telescopic allow the complete extraction in only one side.

TSH

The TSH telescopic slides are composed of two SR semi-telescopic slides fixed to a rectangular rigid element, providing high load capacities both radial and axial, at very compact overall dimensions. Compared to TLS versions, the TSH provide a much more stable assembly and with less oscillations, in extended position.

The TSH also comes with synchronized movement for both single and double stroke. TSH.DSY - i.e. the two semi-telescopic slides SR move together, as connected by a integrated rack & pinion system. Hereby moving the intermediate element 500mm the mobile part extends 1000mm.

System particularly usefull for High-speed telescopic applications and double side telescopic slides movements, as the intermediate element automatically follows smoothly the movement, without any strong impact, as the element is dragged along with the movement all the time



SR

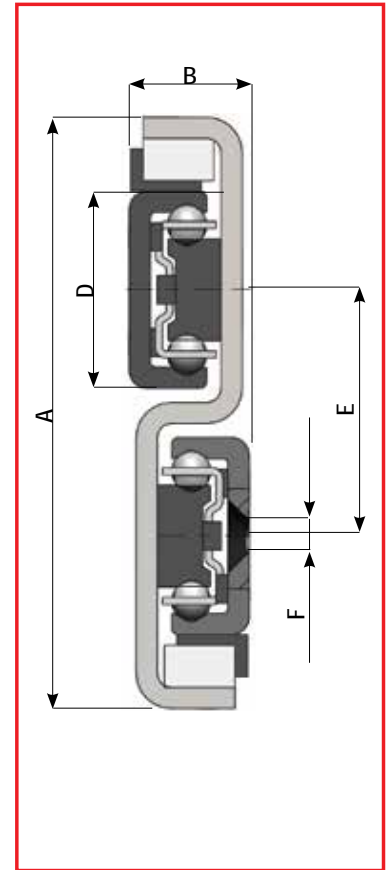
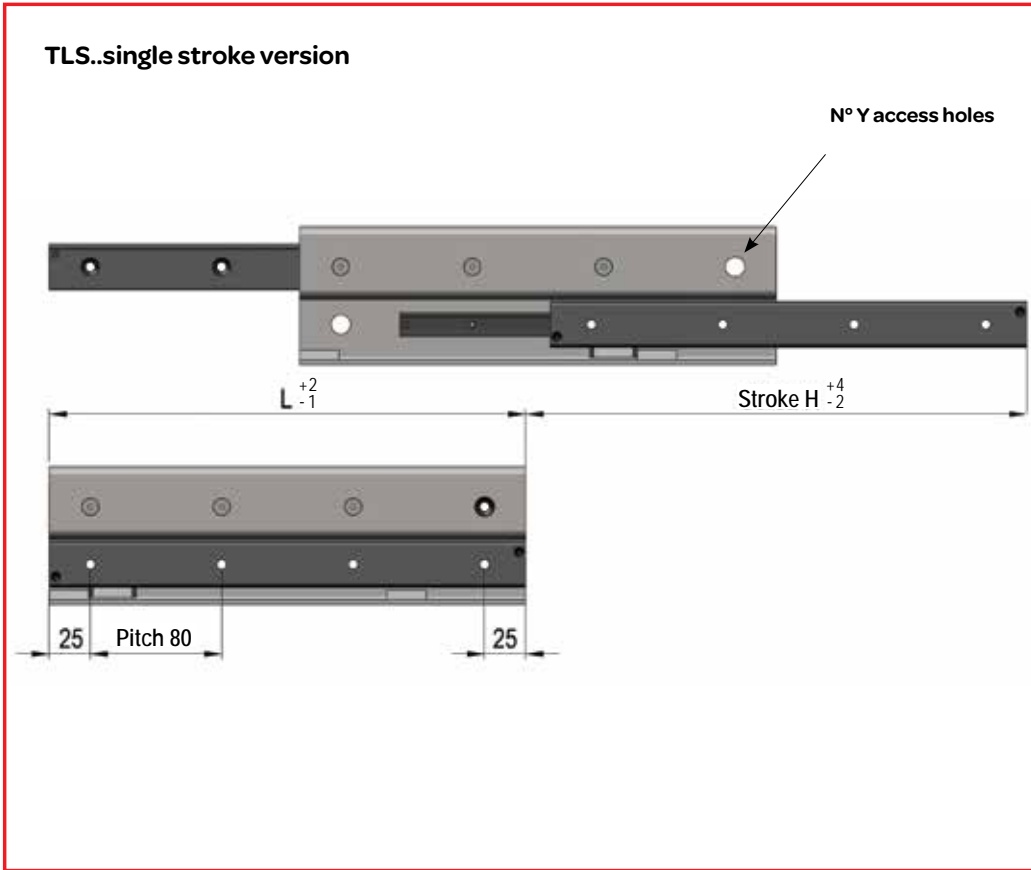
The SR semi-telescopic slides, allows for half stroke on each side.

They are the base component for TLS and TSQ slides.

Unique solution for partial extensions of heavy loads, at economical prices.

With double stroke, space saving linear solutions can be obtained.





* In closed position most fixing holes are accessible through the access-holes Y on the intermediate element.

| Code | A (mm) | B (mm) | D (mm) | E (mm) | F (mm) |
|--------|--------|--------|--------|--------|------------------------------|
| TLS.28 | 84 | 17 | 28 | 35 | Hole for screw M5 DIN7991 |
| TLS.43 | 120 | 28 | 43 | 52 | Hole for screw M8 DIN7991 |

The slide TLSX offers high corrosion resistance, with all components and intermediate element in INOX, except the rails. The TLSX have the same dimensions and performance as standard version TLS. Could be provided the versions G1 with light play and the version P1 with light preload.

Order code ex. :

TLS28-610 standard slide with single stroke

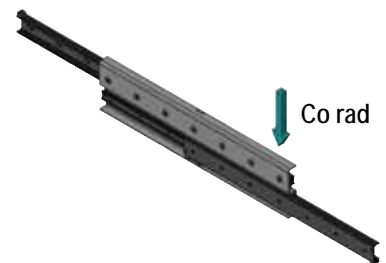
TLSX28-610-P1 slide with high corrosion resistance and preload P1

TLSX28-610 slide with high corrosion resistance

The nominal load capacities **Co rad** are all based for load related to centered load position **P**, in the middle of the single slide. For applications with load in other positions, please refer to page 74. Load capacities are indicated per single slide.

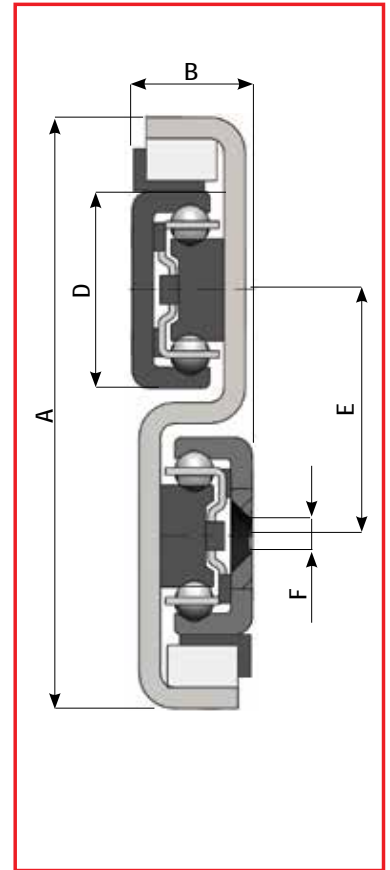
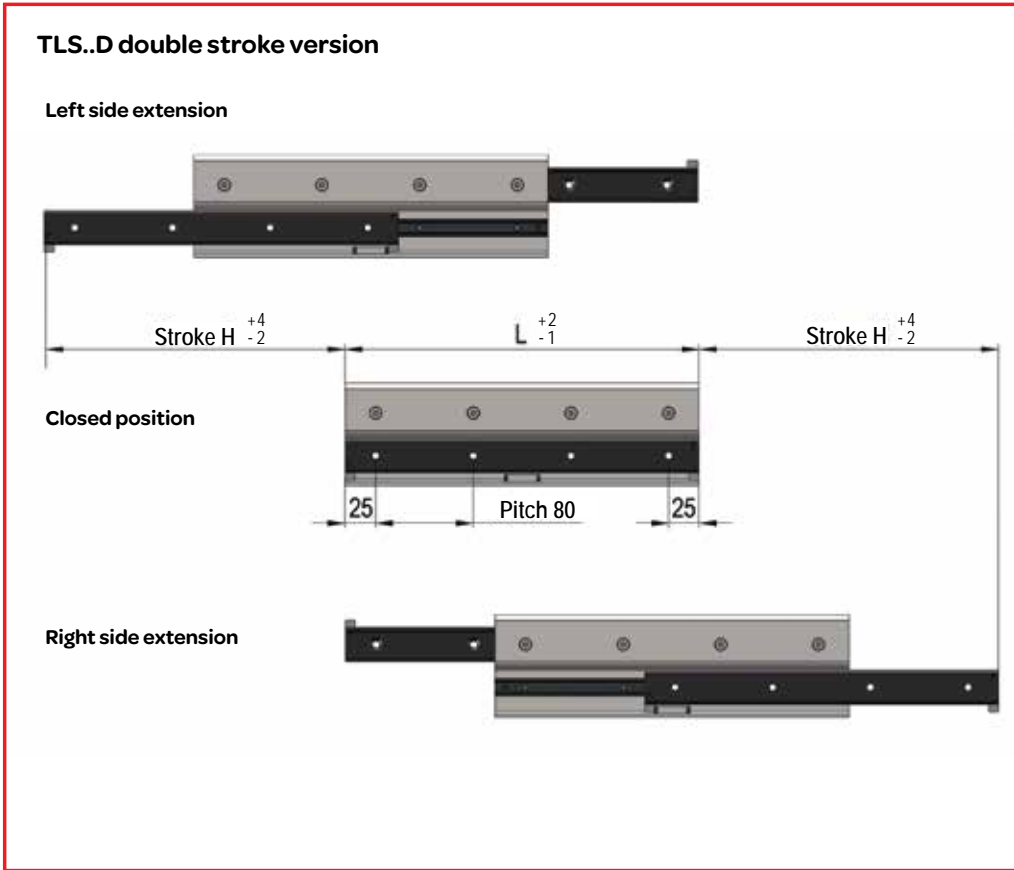
The TLS slide is installed with upper rail fixed to structure and lower rail fixed to mobile part, having the product code at top.

For flexion f in relation to applied load and its position, please refer to page 76 .



| Code | Lenght L (mm) | Stroke H (mm) | n°Y access holes* | Dynamic coefficient C (N) | Load capacity Co rad (N) | Weight (kg) |
|-------------|---------------|---------------|-------------------|---------------------------|--------------------------|-------------|
| TLS.28-290 | 290 | 295 | 1 | 867 | 577 | 1,7 |
| TLS.28-370 | 370 | 380 | 1 | 1143 | 761 | 2,2 |
| TLS.28-450 | 450 | 460 | 1 | 1525 | 1020 | 2,6 |
| TLS.28-530 | 530 | 540 | 2 | 1802 | 1205 | 3,1 |
| TLS.28-610 | 610 | 620 | 2 | 2187 | 1465 | 3,6 |
| TLS.28-690 | 690 | 700 | 2 | 2464 | 1651 | 4,1 |
| TLS.28-770 | 770 | 780 | 2 | 2850 | 1913 | 4,5 |
| TLS.28-850 | 850 | 860 | 3 | 3127 | 2098 | 5 |
| TLS.28-930 | 930 | 940 | 3 | 3514 | 2222 | 5,5 |
| TLS.28-1010 | 1010 | 1020 | 3 | 3791 | 2053 | 5,9 |
| TLS.28-1090 | 1090 | 1100 | 3 | 4068 | 1907 | 6,4 |
| TLS.28-1170 | 1170 | 1180 | 4 | 4455 | 1781 | 6,9 |
| TLS.28-1250 | 1250 | 1260 | 4 | 4732 | 1671 | 7,4 |
| TLS.28-1330 | 1330 | 1340 | 4 | 5120 | 1573 | 7,7 |
| TLS.28-1410 | 1410 | 1420 | 4 | 5397 | 1486 | 8,2 |
| TLS.28-1490 | 1490 | 1500 | 5 | 5785 | 1409 | 8,7 |

| Code | Lenght L (mm) | Stroke H (mm) | n°Y access holes* | Dynamic coefficient C (N) | Load capacity Co rad (N) | Weight (kg) |
|-------------|---------------|---------------|-------------------|---------------------------|--------------------------|-------------|
| TLS.43-530 | 530 | 545 | 2 | 3489 | 2186 | 7,1 |
| TLS.43-610 | 610 | 625 | 2 | 3824 | 2393 | 8,5 |
| TLS.43-690 | 690 | 705 | 2 | 4467 | 2799 | 9,7 |
| TLS.43-770 | 770 | 785 | 2 | 5112 | 3206 | 10,7 |
| TLS.43-850 | 850 | 865 | 3 | 5757 | 3614 | 11,9 |
| TLS.43-930 | 930 | 945 | 3 | 6404 | 4022 | 13 |
| TLS.43-1010 | 1010 | 1025 | 3 | 7050 | 4431 | 14,1 |
| TLS.43-1090 | 1090 | 1105 | 3 | 7698 | 4840 | 15,2 |
| TLS.43-1170 | 1170 | 1185 | 4 | 8027 | 4715 | 16,4 |
| TLS.43-1250 | 1250 | 1265 | 4 | 8674 | 4427 | 17,5 |
| TLS.43-1330 | 1330 | 1345 | 4 | 9321 | 4172 | 18,6 |
| TLS.43-1410 | 1410 | 1425 | 4 | 9969 | 3945 | 19,7 |
| TLS.43-1490 | 1490 | 1505 | 5 | 10616 | 3741 | 20,9 |
| TLS.43-1570 | 1570 | 1585 | 5 | 11264 | 3558 | 22 |
| TLS.43-1650 | 1650 | 1665 | 5 | 11912 | 3391 | 23,1 |
| TLS.43-1730 | 1730 | 1745 | 5 | 12240 | 3240 | 24,2 |
| TLS.43-1810 | 1810 | 1825 | 6 | 12887 | 3101 | 25,4 |
| TLS.43-1890 | 1890 | 1905 | 6 | 13535 | 2974 | 26,4 |
| TLS.43-1970 | 1970 | 1985 | 6 | 14183 | 2857 | 27,6 |



* The rail central fixing hole, with odd fixing holes are not accessible, and therefore not to be used for fixing.

NB. In closed position the intermediate element might be protruding at one of the sides, as movement not synchronized with the rails.

| Code | A (mm) | B (mm) | D (mm) | E (mm) | F (mm) |
|---------|--------|--------|--------|--------|-------------------------------|
| TLS.28D | 84 | 17 | 28 | 35 | Holes for screw M5 DIN7991 |
| TLS.43D | 120 | 28 | 43 | 52 | Holes for screw M8 DIN7991 |

The slide TLS..D offers high corrosion resistance, with all components and intermediate element in INOX, except the rails. The TLS..D have the same dimensions and performance as standard version TLS..D. Could be provided the versions G1 with light play and the version P1 with light preload.

Order code ex. :

TLS28D-610 standard slide with double stroke

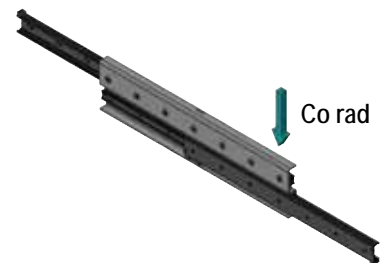
TLSX28D-610-P1 slide with high corrosion resistance and preload P1

TLSX28D-610 slide with high corrosion resistance

The nominal load capacities **Co rad** are all based for load related to centered load position **P**, in the middle of the single slide. For applications with load in other positions, please refer to page 74. Load capacities are indicated per single slide.

The TLS slide is installed with upper rail fixed to structure and lower rail fixed to mobile part, having the product code at top.

For flexion **f** in relation to applied load and its position, please refer to page 76.

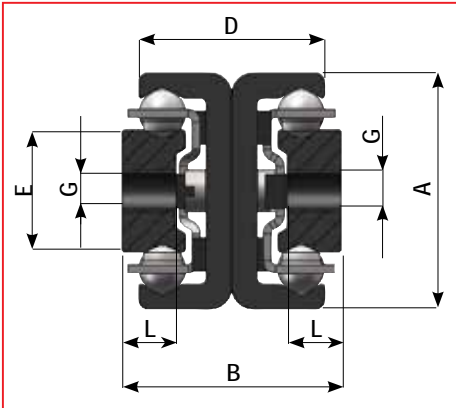


Ball-cage telescopic slides TLS..D, TLSX..D

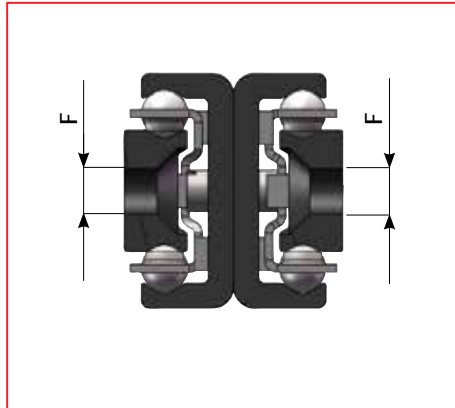
| Code | Lenght L (mm) | Stroke H (mm) | Dynamic coefficient C (N) | Load capacity Co rad (N) | Weight (kg) |
|--------------|---------------|---------------|---------------------------|--------------------------|-------------|
| TLS.28D-290 | 290 | 245 | 1481 | 1020 | 1,8 |
| TLS.28D-370 | 370 | 325 | 1866 | 1280 | 2,3 |
| TLS.28D-450 | 450 | 405 | 2129 | 1454 | 2,8 |
| TLS.28D-530 | 530 | 485 | 2518 | 1718 | 3,3 |
| TLS.28D-610 | 610 | 565 | 2787 | 1897 | 3,8 |
| TLS.28D-690 | 690 | 645 | 3057 | 2077 | 4,3 |
| TLS.28D-770 | 770 | 725 | 3448 | 2342 | 4,8 |
| TLS.28D-850 | 850 | 805 | 3720 | 2523 | 5,3 |
| TLS.28D-930 | 930 | 885 | 4110 | 2566 | 5,8 |
| TLS.28D-1010 | 1010 | 965 | 4383 | 2343 | 6,3 |
| TLS.28D-1090 | 1090 | 1045 | 4774 | 2155 | 6,8 |
| TLS.28D-1170 | 1170 | 1125 | 5047 | 1996 | 7,3 |
| TLS.28D-1250 | 1250 | 1205 | 5438 | 1858 | 7,8 |
| TLS.28D-1330 | 1330 | 1285 | 5712 | 1738 | 8,2 |
| TLS.28D-1410 | 1410 | 1365 | 5986 | 1633 | 8,7 |
| TLS.28D-1490 | 1490 | 1445 | 6376 | 1539 | 9,2 |

| Code | Lenght L (mm) | Stroke H (mm) | Dynamic coefficient C (N) | Load capacity Co rad (N) | Weight (kg) |
|--------------|---------------|---------------|---------------------------|--------------------------|-------------|
| TLS.43D-530 | 530 | 480 | 4726 | 3022 | 7,6 |
| TLS.43D-610 | 610 | 560 | 5020 | 3197 | 8,7 |
| TLS.43D-690 | 690 | 640 | 5667 | 3605 | 9,9 |
| TLS.43D-770 | 770 | 720 | 6314 | 4015 | 11 |
| TLS.43D-850 | 850 | 800 | 6962 | 4424 | 12,2 |
| TLS.43D-930 | 930 | 880 | 7610 | 4834 | 13,3 |
| TLS.43D-1010 | 1010 | 960 | 8258 | 5244 | 14,5 |
| TLS.43D-1090 | 1090 | 1040 | 8907 | 5654 | 15,6 |
| TLS.43D-1170 | 1170 | 1120 | 9217 | 5272 | 16,8 |
| TLS.43D-1250 | 1250 | 1200 | 9867 | 4915 | 17,9 |
| TLS.43D-1330 | 1330 | 1280 | 10516 | 4603 | 19,1 |
| TLS.43D-1410 | 1410 | 1360 | 11165 | 4328 | 20,2 |
| TLS.43D-1490 | 1490 | 1440 | 11814 | 4084 | 21,4 |
| TLS.43D-1570 | 1570 | 1520 | 12464 | 3866 | 22,5 |
| TLS.43D-1650 | 1650 | 1600 | 13113 | 3670 | 23,7 |
| TLS.43D-1730 | 1730 | 1680 | 13428 | 3493 | 24,8 |
| TLS.43D-1810 | 1810 | 1760 | 14078 | 3333 | 26 |
| TLS.43D-1890 | 1890 | 1840 | 14727 | 3186 | 27,1 |
| TLS.43D-1970 | 1970 | 1920 | 15377 | 3052 | 28,3 |

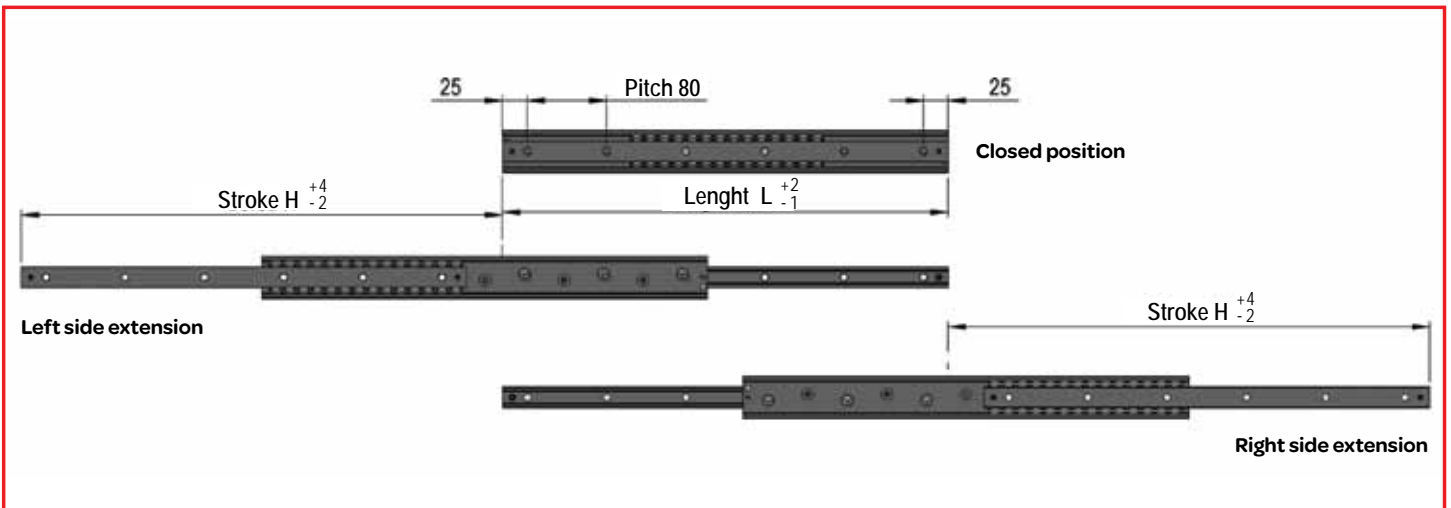
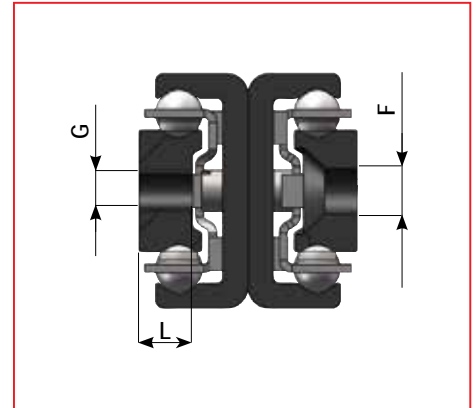
TSQ. standard
Threaded holes both sides.



TSQ.S version
C'sunk fixing holes both sides.



TSQ.M version
C'sunk fixing holes and other side with threaded fixing holes.



Note: The slide is provided with a set screw which limits the stroke of the movable sliders in one direction for a stroke equal to H, by removing the screw it is possible to move the sliders in the opposite direction to obtain a double stroke equal to 2H.

| Code | A (mm) | B (mm) | D (mm) | E (mm) | G (mm) | L* (mm) | F (mm) |
|---------|--------|--------|--------|--------|--------|---------|------------------------------|
| TSQ.28. | 28 | 26 | 23 | 14,5 | M5 | 6 | Hole for screw M5 DIN7991 |
| TSQ.43. | 43 | 44 | 36,6 | 21 | M8 | 11,5 | Hole for screw M8 DIN7991 |

* Thread not through passing, value equals usable thread

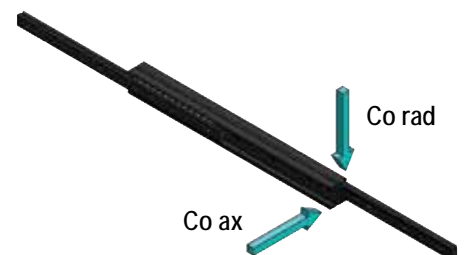
The slide TSQX offers high corrosion resistance, with all components and intermediate element in INOX, except the rails. The TSQX have the same dimensions and performance as standard version TSQ. Could be provided the versions G1 with light play and the version P1 with light preload.

Order code ex. :

- TSQ28-610** standard slide
- TSQX28-610-P1** slide with high corrosion resistance and preload P1
- TSQX28-610** slide with high corrosion resistance

The nominal load capacities **Co rad** are all based for load related to centered load position **P**, in the middle of the single slide. For applications with load in other positions, please refer to page 74. Load capacities are indicated per single slide.

For flexion f in relation to applied load and its position, please refer to page 76.



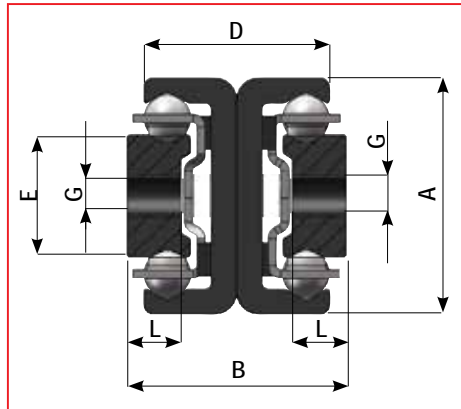
| Code | Lenght L (mm) | Stroke H (mm) | Dynamic coefficient C (N) | Load capacity Co rad (N) | Load capacity Co ax (N) | Weight (kg) |
|--------------|---------------|---------------|---------------------------|--------------------------|-------------------------|-------------|
| TSQ.28.-130 | 130 | 136 | 392 | 259 | 151 | 0,4 |
| TSQ.28.-210 | 210 | 224 | 685 | 454 | 265 | 0,7 |
| TSQ.28.-290 | 290 | 312 | 979 | 649 | 379 | 1,1 |
| TSQ.28.-370 | 370 | 400 | 1273 | 844 | 358 | 1,4 |
| TSQ.28.-450 | 450 | 470 | 1759 | 1173 | 316 | 1,7 |
| TSQ.28.-530 | 530 | 558 | 2051 | 1037 | 266 | 2 |
| TSQ.28.-610 | 610 | 628 | 2547 | 944 | 242 | 2,3 |
| TSQ.28.-690 | 690 | 716 | 2839 | 825 | 211 | 2,6 |
| TSQ.28.-770 | 770 | 786 | 3340 | 765 | 196 | 2,9 |
| TSQ.28.-850 | 850 | 874 | 3630 | 685 | 175 | 3,2 |
| TSQ.28.-930 | 930 | 944 | 4134 | 643 | 165 | 3,5 |
| TSQ.28.-1010 | 1010 | 1032 | 4422 | 585 | 150 | 3,8 |
| TSQ.28.-1090 | 1090 | 1120 | 4712 | 537 | 138 | 4,1 |
| TSQ.28.-1170 | 1170 | 1190 | 5217 | 511 | 131 | 4,4 |

| Code | Lenght L (mm) | Stroke H (mm) | Dynamic coefficient C (N) | Load capacity Co rad (N) | Load capacity Co ax (N) | Weight (kg) |
|--------------|---------------|---------------|---------------------------|--------------------------|-------------------------|-------------|
| TSQ.43.-210 | 210 | 232 | 968 | 636 | 410 | 1,9 |
| TSQ.43.-290 | 290 | 308 | 1657 | 1098 | 709 | 2,7 |
| TSQ.43.-370 | 370 | 412 | 1891 | 1246 | 804 | 3,4 |
| TSQ.43.-450 | 450 | 488 | 2583 | 1710 | 1104 | 4,2 |
| TSQ.43.-530 | 530 | 564 | 3289 | 2187 | 1105 | 4,9 |
| TSQ.43.-610 | 610 | 640 | 4005 | 2670 | 992 | 5,7 |
| TSQ.43.-690 | 690 | 716 | 4727 | 3158 | 901 | 6,4 |
| TSQ.43.-770 | 770 | 820 | 4924 | 2733 | 774 | 7,2 |
| TSQ.43.-850 | 850 | 896 | 5642 | 2532 | 717 | 7,9 |
| TSQ.43.-930 | 930 | 972 | 6363 | 2359 | 668 | 8,7 |
| TSQ.43.-1010 | 1010 | 1048 | 7088 | 2208 | 625 | 9,4 |
| TSQ.43.-1090 | 1090 | 1124 | 7816 | 2075 | 587 | 10,2 |
| TSQ.43.-1170 | 1170 | 1200 | 8545 | 1957 | 554 | 10,9 |
| TSQ.43.-1250 | 1250 | 1276 | 9277 | 1852 | 524 | 11,7 |
| TSQ.43.-1330 | 1330 | 1380 | 9450 | 1690 | 478 | 12,4 |
| TSQ.43.-1410 | 1410 | 1456 | 10178 | 1611 | 456 | 13,2 |
| TSQ.43.-1490 | 1490 | 1532 | 10908 | 1539 | 436 | 13,9 |
| TSQ.43.-1570 | 1570 | 1608 | 11639 | 1473 | 417 | 14,7 |
| TSQ.43.-1650 | 1650 | 1684 | 12371 | 1413 | 400 | 15,4 |
| TSQ.43.-1730 | 1730 | 1760 | 13104 | 1357 | 384 | 16,2 |
| TSQ.43.-1810 | 1810 | 1836 | 13838 | 1306 | 370 | 16,9 |
| TSQ.43.-1890 | 1890 | 1940 | 14001 | 1223 | 346 | 17,7 |
| TSQ.43.-1970 | 1970 | 2016 | 14733 | 1181 | 334 | 18,4 |

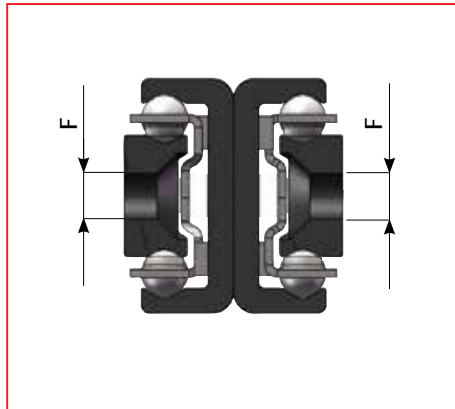


The telescopic slides of the series TSQR are equipped with robust stoppers with rubber shock absorber for dragging of the intermediate element during the extraction stage and in the phase of recovery and re-closing, significantly reducing the shock and noise derived from the impact and allowing a longer life. This telescopic slide allow the complete extraction in only one side.

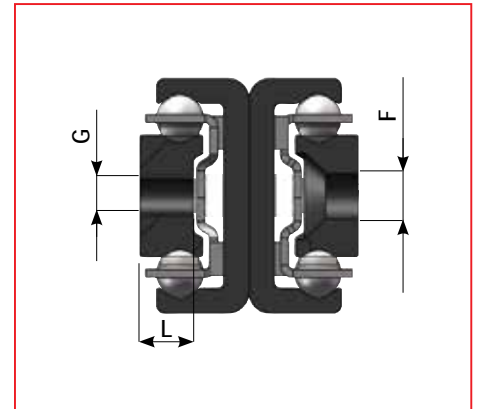
TSQR. standard
Threaded holes both sides.



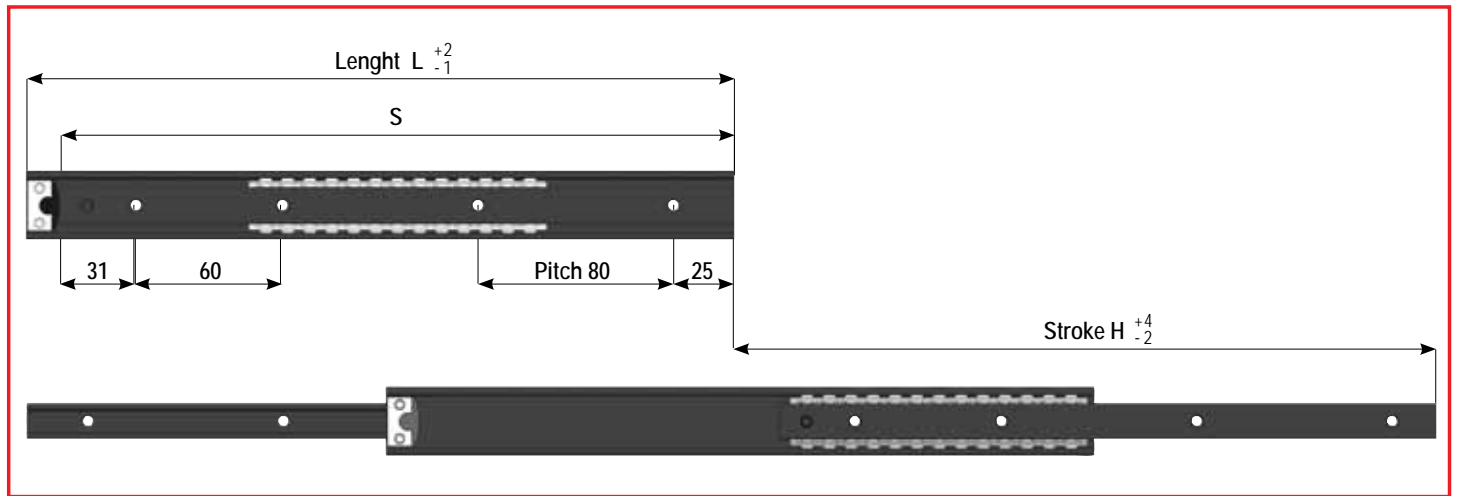
TSQR.S version
C'sunk fixing holes both sides.



TSQR.M version
C'sunk fixing holes and other side with threaded fixing holes.



Note: The fixed and mobile sliders, are equal to each other and slightly shorter (S) of the length of the closed telescopic slide (L). To gain access to the fixing holes for the version with countersunk holes is necessary to remove the stoppers on both sides and reassemble them again after fixing.



| Code | A (mm) | B (mm) | D (mm) | E (mm) | G (mm) | L* (mm) | F (mm) |
|----------|--------|--------|--------|--------|--------|---------|------------------------------|
| TSQR.28. | 28 | 26 | 23 | 14,5 | M5 | 6 | Hole for screw M5 DIN7991 |
| TSQR.43. | 43 | 44 | 36,6 | 21 | M8 | 11,5 | Hole for screw M8 DIN7991 |

* Thread not through passing, value equals usable thread

The slide TSQRX offers high corrosion resistance, with all components and intermediate element in INOX, except the rails. The TSQRX have the same dimensions and performance as standard version TSQR. Could be provided the versions G1 with light play and the version P1 with light preload.

Order code ex. :

TSQR28-610 standard slide with single stroke

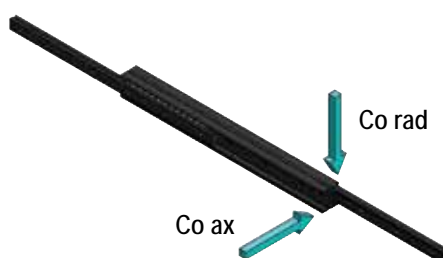
TSQRX28-610-P1 slide with high corrosion resistance and preload P1

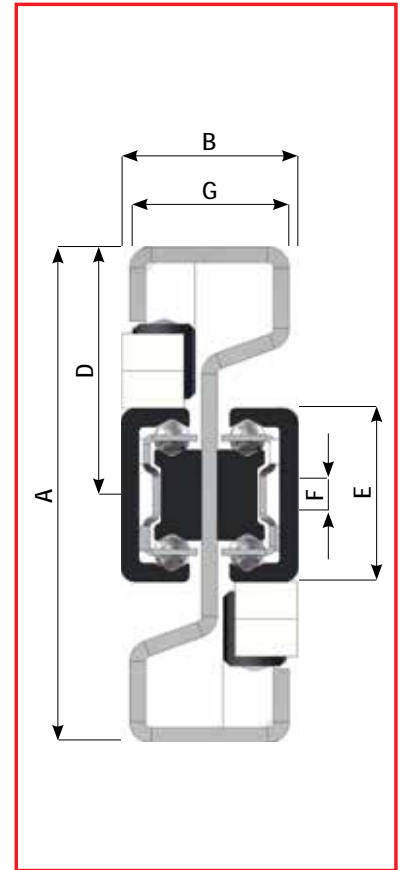
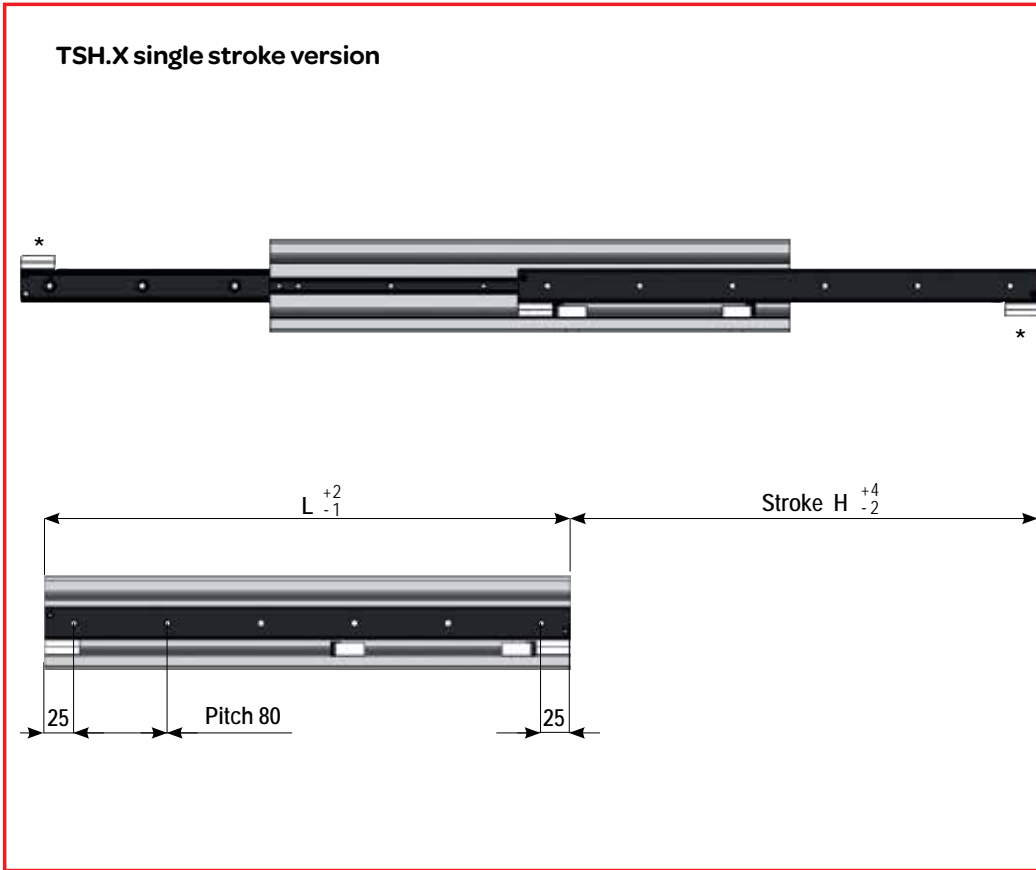
TSQRX28-610 slide with high corrosion resistance

The nominal load capacities **Co rad** are all based for load related to centered load position **P**, in the middle of the single slide. For applications with load in other positions, please refer to page 74. Load capacities are indicated per single slide. For flexion **f** in relation to applied load and its position, please refer to page 76.

| Code | Lenght L (mm) | Lenght S (mm) | Stroke H (mm) | Dynamic coefficient C (N) | Load capacity Co rad (N) | Load capacity Co ax (N) | Weight (kg) |
|---------------|---------------|---------------|---------------|---------------------------|--------------------------|-------------------------|-------------|
| TSQR.28.-130 | 130 | 116 | 130 | 392 | 259 | 151 | 0,4 |
| TSQR.28.-210 | 210 | 196 | 220 | 685 | 454 | 265 | 0,7 |
| TSQR.28.-290 | 290 | 276 | 290 | 979 | 649 | 379 | 1,1 |
| TSQR.28.-370 | 370 | 356 | 380 | 1273 | 844 | 358 | 1,4 |
| TSQR.28.-450 | 450 | 436 | 450 | 1759 | 1173 | 316 | 1,7 |
| TSQR.28.-530 | 530 | 516 | 540 | 2051 | 1037 | 266 | 2 |
| TSQR.28.-610 | 610 | 596 | 610 | 2547 | 944 | 242 | 2,3 |
| TSQR.28.-690 | 690 | 676 | 700 | 2839 | 825 | 211 | 2,6 |
| TSQR.28.-770 | 770 | 756 | 770 | 3340 | 765 | 196 | 2,9 |
| TSQR.28.-850 | 850 | 836 | 860 | 3630 | 685 | 175 | 3,2 |
| TSQR.28.-930 | 930 | 916 | 930 | 4134 | 643 | 165 | 3,5 |
| TSQR.28.-1010 | 1010 | 996 | 1020 | 4422 | 585 | 150 | 3,8 |
| TSQR.28.-1090 | 1090 | 1076 | 1090 | 4712 | 537 | 138 | 4,1 |
| TSQR.28.-1170 | 1170 | 1156 | 1180 | 5217 | 511 | 131 | 4,4 |

| Code | Lenght L (mm) | Lenght S (mm) | Stroke H (mm) | Dynamic coefficient C (N) | Load capacity Co rad (N) | Load capacity Co ax (N) | Weight (kg) |
|---------------|---------------|---------------|---------------|---------------------------|--------------------------|-------------------------|-------------|
| TSQR.43.-210 | 210 | 196 | 225 | 968 | 636 | 410 | 1,9 |
| TSQR.43.-290 | 290 | 276 | 290 | 1657 | 1098 | 709 | 2,7 |
| TSQR.43.-370 | 370 | 356 | 385 | 1891 | 1246 | 804 | 3,4 |
| TSQR.43.-450 | 450 | 436 | 450 | 2583 | 1710 | 1104 | 4,2 |
| TSQR.43.-530 | 530 | 516 | 545 | 3289 | 2187 | 1105 | 4,9 |
| TSQR.43.-610 | 610 | 596 | 610 | 4005 | 2670 | 992 | 5,7 |
| TSQR.43.-690 | 690 | 676 | 705 | 4727 | 3158 | 901 | 6,4 |
| TSQR.43.-770 | 770 | 756 | 770 | 4924 | 2733 | 774 | 7,2 |
| TSQR.43.-850 | 850 | 836 | 865 | 5642 | 2532 | 717 | 7,9 |
| TSQR.43.-930 | 930 | 916 | 930 | 6363 | 2359 | 668 | 8,7 |
| TSQR.43.-1010 | 1010 | 996 | 1025 | 7088 | 2208 | 625 | 9,4 |
| TSQR.43.-1090 | 1090 | 1076 | 1090 | 7816 | 2075 | 587 | 10,2 |
| TSQR.43.-1170 | 1170 | 1156 | 1185 | 8545 | 1957 | 554 | 10,9 |
| TSQR.43.-1250 | 1250 | 1236 | 1250 | 9277 | 1852 | 524 | 11,7 |
| TSQR.43.-1330 | 1330 | 1316 | 1345 | 9450 | 1690 | 478 | 12,4 |
| TSQR.43.-1410 | 1410 | 1396 | 1410 | 10178 | 1611 | 456 | 13,2 |
| TSQR.43.-1490 | 1490 | 1476 | 1505 | 10908 | 1539 | 436 | 13,9 |
| TSQR.43.-1570 | 1570 | 1556 | 1570 | 11639 | 1473 | 417 | 14,7 |
| TSQR.43.-1650 | 1650 | 1636 | 1665 | 12371 | 1413 | 400 | 15,4 |
| TSQR.43.-1730 | 1730 | 1716 | 1730 | 13104 | 1357 | 384 | 16,2 |
| TSQR.43.-1810 | 1810 | 1796 | 1825 | 13838 | 1306 | 370 | 16,9 |
| TSQR.43.-1890 | 1890 | 1876 | 1890 | 14001 | 1223 | 346 | 17,7 |
| TSQR.43.-1970 | 1970 | 1956 | 1985 | 14733 | 1181 | 334 | 18,4 |





*To fix the slide it is necessary to remove the stoppers at the end of fixed rail and moving rail. The stoppers are 2 in total and identified by NOT having the pins pressed down. Once rails are fixed each of the 2 stoppers are mounted with the 2 screws and 2 pins.

| Code | A (mm) | B (mm) | D (mm) | E (mm) | F (mm) | G (mm) |
|--------|--------|--------|--------|--------|------------------------------|--------|
| TSH.28 | 80 | 28,5 | 40 | 28 | Hole for screw M5 DIN7991 | 25,5 |
| TSH.43 | 100 | 47 | 50 | 43 | Hole for screw M8 DIN7991 | 42 |

The slide TSHX offers high corrosion resistance, with all components and intermediate element in INOX, except the rails. The TSHX have the same dimensions and performance as standard version TSH. Could be provided the versions G1 with light play and the version P1 with light preload.

Order code ex. :

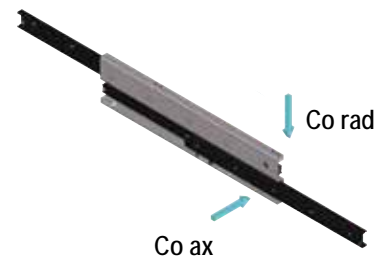
TSH28-610 standard slide with single stroke

TSHX28-610-P1 slide with high corrosion resistance and preload P1

TSHX28-610 slide with high corrosion resistance

The nominal load capacities **Co rad** are all based for load related to centered load position **P**, in the middle of the single slide. For applications with load in other positions, please refer to page 74. Load capacities are indicated per single slide.

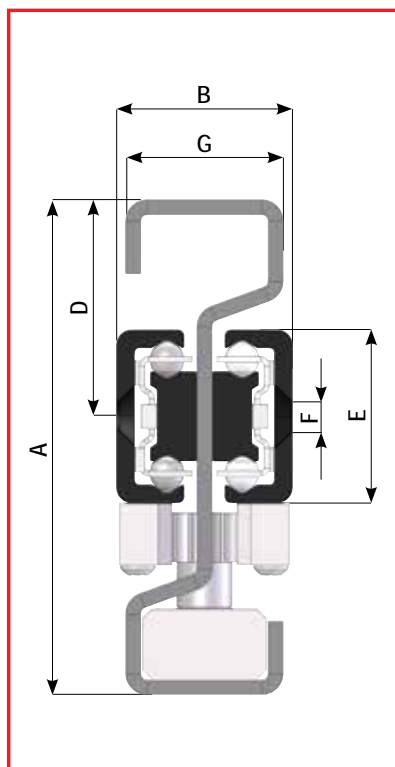
For flexion **f** in relation to applied load and its position, please refer to page 76.



Ball-cage telescopic slides TSH., TSHX..

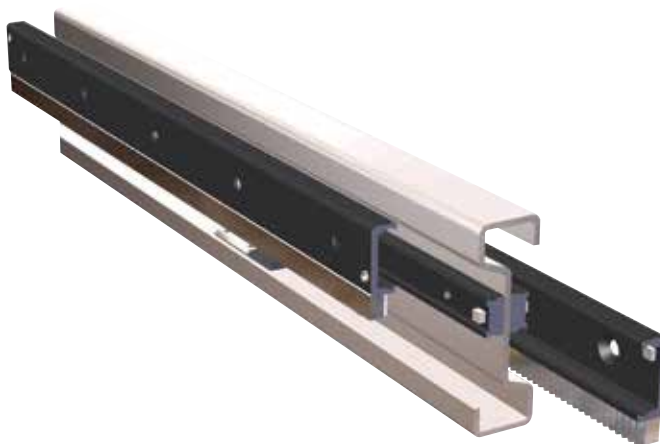
| Code | Lenght L (mm) | Stroke H (mm) | Dynamic coefficient C (N) | Load capacity Co rad (N) | Load capacity Co ax (N) | Weight (kg) |
|-------------|---------------|---------------|---------------------------|--------------------------|-------------------------|-------------|
| TSH.28-290 | 290 | 295 | 868 | 577 | 336 | 1,8 |
| TSH.28-370 | 370 | 380 | 1143 | 762 | 443 | 2,3 |
| TSH.28-450 | 450 | 460 | 1525 | 1020 | 593 | 2,8 |
| TSH.28-530 | 530 | 540 | 1802 | 1206 | 701 | 3,3 |
| TSH.28-610 | 610 | 620 | 2187 | 1466 | 853 | 3,8 |
| TSH.28-690 | 690 | 700 | 2464 | 1652 | 961 | 4,3 |
| TSH.28-770 | 770 | 780 | 2851 | 1913 | 1113 | 4,8 |
| TSH.28-850 | 850 | 860 | 3128 | 2099 | 1221 | 5,3 |
| TSH.28-930 | 930 | 940 | 3515 | 2361 | 1374 | 5,8 |
| TSH.28-1010 | 1010 | 1020 | 3792 | 2546 | 1423 | 6,3 |
| TSH.28-1090 | 1090 | 1100 | 4068 | 2370 | 1322 | 6,8 |
| TSH.28-1170 | 1170 | 1180 | 4456 | 2213 | 1235 | 7,3 |
| TSH.28-1250 | 1250 | 1260 | 4733 | 2076 | 1158 | 7,8 |
| TSH.28-1330 | 1330 | 1340 | 5121 | 1955 | 1091 | 8,2 |
| TSH.28-1410 | 1410 | 1420 | 5397 | 1847 | 1031 | 8,7 |
| TSH.28-1490 | 1490 | 1500 | 5785 | 1750 | 977 | 9,2 |

| Code | Lenght L (mm) | Stroke H (mm) | Dynamic coefficient C (N) | Load capacity Co rad (N) | Load capacity Co ax (N) | Weight (kg) |
|-------------|---------------|---------------|---------------------------|--------------------------|-------------------------|-------------|
| TSH.43-530 | 530 | 545 | 3490 | 2187 | 1266 | 7,3 |
| TSH.43-610 | 610 | 625 | 3824 | 2393 | 1385 | 8,3 |
| TSH.43-690 | 690 | 705 | 4468 | 2799 | 1621 | 9,5 |
| TSH.43-770 | 770 | 785 | 5112 | 3206 | 1856 | 10,5 |
| TSH.43-850 | 850 | 865 | 5758 | 3614 | 2092 | 11,7 |
| TSH.43-930 | 930 | 945 | 6404 | 4022 | 2329 | 12,7 |
| TSH.43-1010 | 1010 | 1025 | 7051 | 4431 | 2565 | 13,9 |
| TSH.43-1090 | 1090 | 1105 | 7698 | 4808 | 2802 | 15,0 |
| TSH.43-1170 | 1170 | 1185 | 8028 | 4495 | 2919 | 16,1 |
| TSH.43-1250 | 1250 | 1265 | 8675 | 4220 | 2903 | 17,2 |
| TSH.43-1330 | 1330 | 1345 | 9322 | 3977 | 2736 | 18,3 |
| TSH.43-1410 | 1410 | 1425 | 9969 | 3761 | 2587 | 19,4 |
| TSH.43-1490 | 1490 | 1505 | 10617 | 3567 | 2453 | 20,5 |
| TSH.43-1570 | 1570 | 1585 | 11265 | 3392 | 2333 | 21,6 |
| TSH.43-1650 | 1650 | 1665 | 11913 | 3233 | 2224 | 22,7 |
| TSH.43-1730 | 1730 | 1745 | 12240 | 3089 | 2124 | 23,8 |
| TSH.43-1810 | 1810 | 1825 | 12888 | 2956 | 2033 | 24,9 |
| TSH.43-1890 | 1890 | 1905 | 13536 | 2835 | 1950 | 26,0 |
| TSH.43-1970 | 1970 | 1985 | 14184 | 2723 | 1873 | 27,1 |

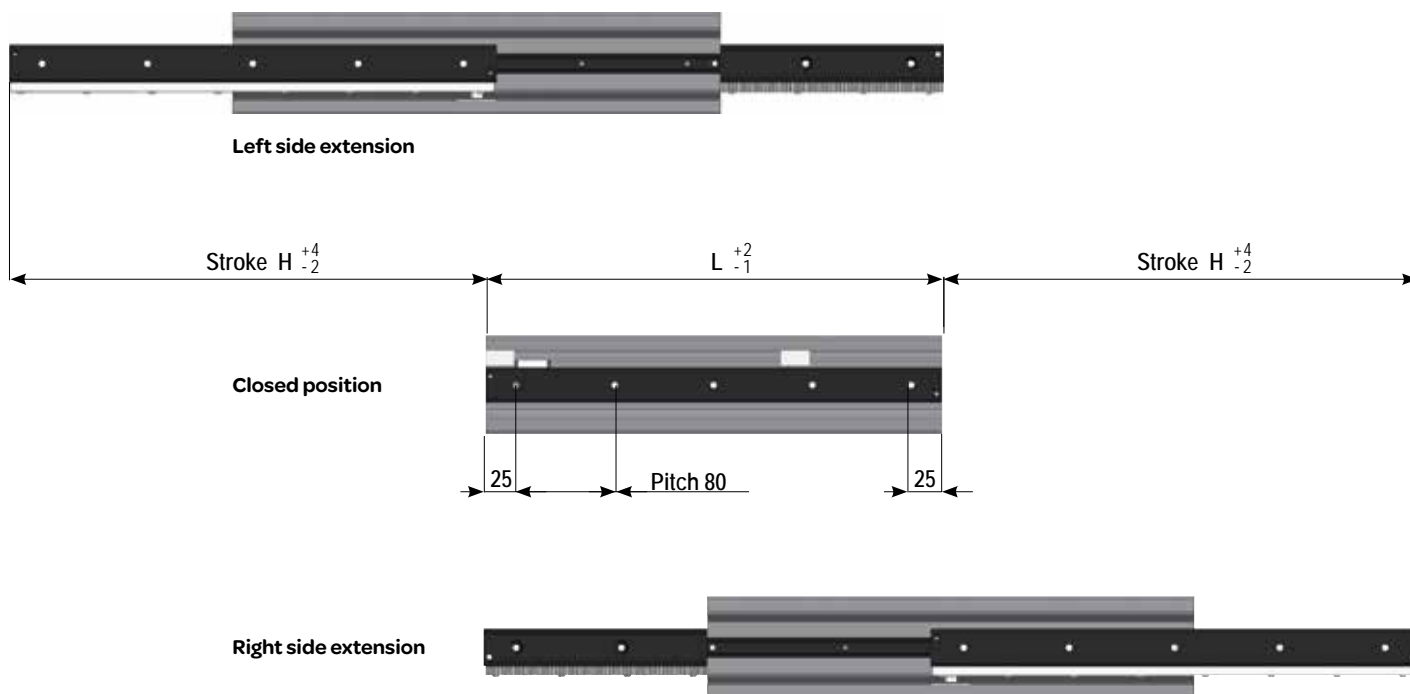


The TSH..DSY with synchronized movement for both single and double stroke, is composed of two semi-telescopic slides SR that move together, as connected by an integrated rack & pinion system. Hereby moving the intermediate element 500mm the mobile part extends 1000mm.

System particularly useful for High-speed telescopic slide applications and double side telescopic slides movements, as the intermediate element automatically follows smoothly the movement, without any strong impact, as the element is dragged along with the movement all the time.



TSH..DSY double stroke version

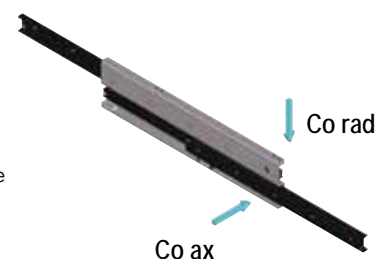


| Code | A (mm) | B (mm) | D (mm) | E (mm) | F (mm) | G (mm) |
|----------|--------|--------|--------|--------|------------------------------|--------|
| TSH28DSY | 80 | 28,5 | 35 | 28 | Hole for screw M5 DIN7991 | 25,5 |
| TSH43DSY | 100 | 47 | 45 | 43 | Hole for screw M8 DIN7991 | 42 |

Synchronized telescopic slides TSH..DSY

| Code | Lenght L (mm) | Stroke H (mm) | Dynamic coefficient C (N) | Load capacity Co rad (N) | Load capacity Co ax (N) | Weight (kg) |
|---------------|---------------|---------------|---------------------------|--------------------------|-------------------------|-------------|
| TSH28DSY-290 | 290 | 270 | 982 | 661 | 385 | 1,8 |
| TSH28DSY-370 | 370 | 350 | 1259 | 846 | 493 | 2,3 |
| TSH28DSY-450 | 450 | 430 | 1648 | 1110 | 646 | 2,8 |
| TSH28DSY-530 | 530 | 510 | 1924 | 1295 | 753 | 3,3 |
| TSH28DSY-610 | 610 | 590 | 2313 | 1559 | 907 | 3,8 |
| TSH28DSY-690 | 690 | 670 | 2589 | 1744 | 1014 | 4,3 |
| TSH28DSY-770 | 770 | 750 | 2978 | 2008 | 1168 | 4,8 |
| TSH28DSY-850 | 850 | 830 | 3254 | 2192 | 1276 | 5,3 |
| TSH28DSY-930 | 930 | 910 | 3644 | 2456 | 1429 | 5,8 |
| TSH28DSY-1010 | 1010 | 990 | 3920 | 2641 | 1509 | 6,3 |
| TSH28DSY-1090 | 1090 | 1070 | 4196 | 2503 | 1396 | 6,8 |
| TSH28DSY-1170 | 1170 | 1150 | 4585 | 2328 | 1299 | 7,3 |
| TSH28DSY-1250 | 1250 | 1230 | 4861 | 2177 | 1215 | 7,8 |
| TSH28DSY-1330 | 1330 | 1310 | 5251 | 2044 | 1141 | 8,2 |
| TSH28DSY-1410 | 1410 | 1390 | 5527 | 1926 | 1075 | 8,7 |
| TSH28DSY-1490 | 1490 | 1470 | 5916 | 1822 | 1016 | 9,2 |

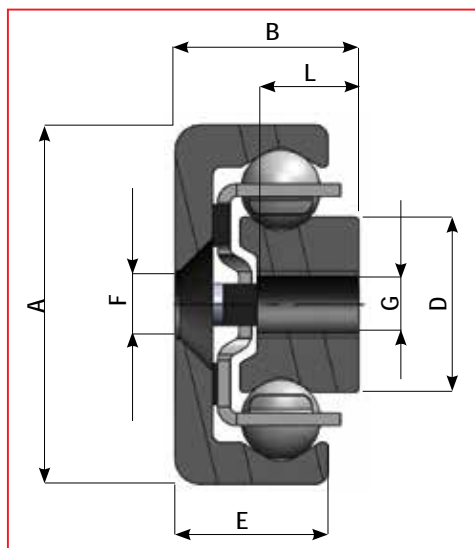
| Code | Lenght L (mm) | Stroke H (mm) | Dynamic coefficient C (N) | Load capacity Co rad (N) | Load capacity Co ax (N) | Weight (kg) |
|---------------|---------------|---------------|---------------------------|--------------------------|-------------------------|-------------|
| TSH43DSY-530 | 530 | 500 | 4181 | 2.653 | 1.536 | 7,5 |
| TSH43DSY-610 | 610 | 580 | 4830 | 3.063 | 1.774 | 8,6 |
| TSH43DSY-690 | 690 | 660 | 5479 | 3.474 | 2.011 | 9,8 |
| TSH43DSY-770 | 770 | 740 | 5794 | 3.665 | 2.122 | 10,8 |
| TSH43DSY-850 | 850 | 820 | 6443 | 4.075 | 2.359 | 12,0 |
| TSH43DSY-930 | 930 | 900 | 7093 | 4.486 | 2.597 | 13,1 |
| TSH43DSY-1010 | 1010 | 980 | 7742 | 4.897 | 2.835 | 14,3 |
| TSH43DSY-1090 | 1090 | 1060 | 8392 | 5.216 | 3.073 | 15,4 |
| TSH43DSY-1170 | 1170 | 1140 | 9041 | 4.850 | 3.311 | 16,5 |
| TSH43DSY-1250 | 1250 | 1220 | 9690 | 4.532 | 3.117 | 17,7 |
| TSH43DSY-1330 | 1330 | 1300 | 10009 | 4.253 | 2.925 | 18,8 |
| TSH43DSY-1410 | 1410 | 1380 | 10658 | 4.006 | 2.755 | 20,0 |
| TSH43DSY-1490 | 1490 | 1460 | 11308 | 3.787 | 2.604 | 21,1 |
| TSH43DSY-1570 | 1570 | 1540 | 11957 | 3.590 | 2.469 | 22,2 |
| TSH43DSY-1650 | 1650 | 1620 | 12607 | 3.413 | 2.347 | 23,4 |
| TSH43DSY-1730 | 1730 | 1700 | 13256 | 3.252 | 2.237 | 24,5 |
| TSH43DSY-1810 | 1810 | 1780 | 13906 | 3.106 | 2.136 | 25,6 |
| TSH43DSY-1890 | 1890 | 1860 | 14226 | 2.972 | 2.044 | 26,8 |
| TSH43DSY-1970 | 1970 | 1940 | 14875 | 2.850 | 1.960 | 27,9 |



The nominal load capacities **Co rad** are all based for load related to centered load position **P**, in the middle of the single slide. For applications with load in other positions, please refer to page 74.

Load capacities are indicated per single slide.

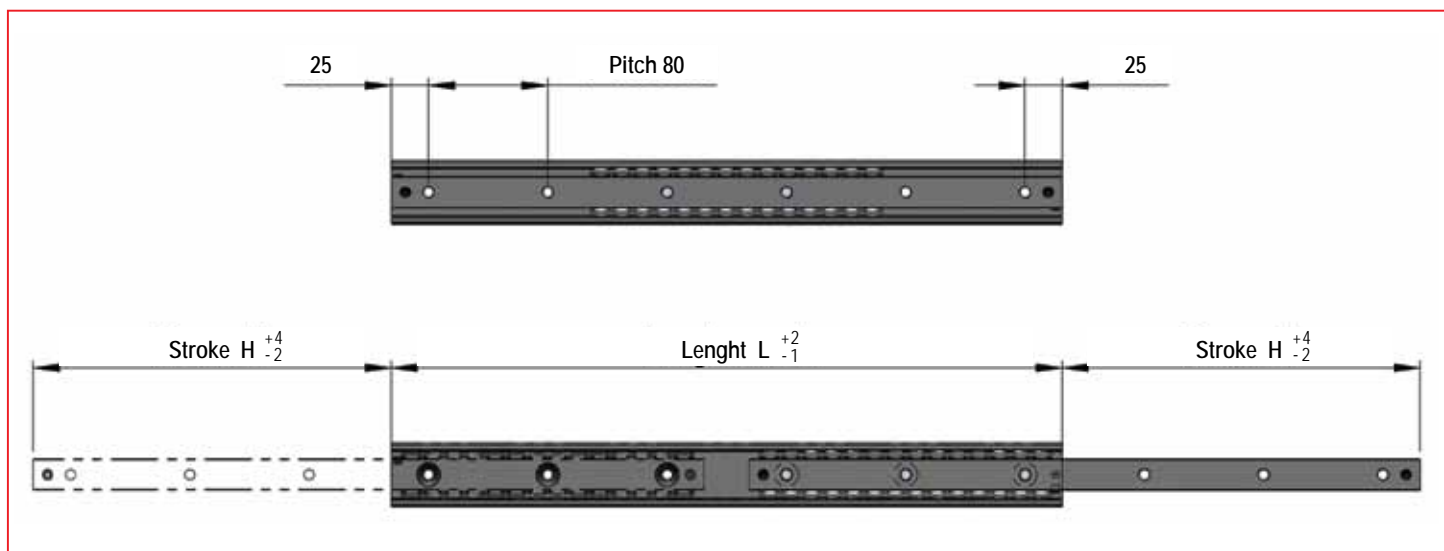
For flexion f in relation to applied load and its position, please refer to page 76.



The semi-telescopic slides SR allow for a stroke H, equal to half the length of the slide, plus a minor stroke 10-25mm depending on type. The slides can also perform an equal stroke to the other side, removing the small screw positioned at the left side.

The version SRX for high corrosion resistance, have all components in INOX, except the profiles. SRX have same dimensions and performance as SR.

The load capacities are all referred to a single slide, with load at the centered position.



*To fix the slide it is necessary to remove the stoppers at the end of fixed rail and moving rail. The stoppers are 2 in total and identified by NOT having the pins pressed down. Once rails are fixed each of the 2 stoppers are mounted with the 2 screws and 2 pins.

| Code | A (mm) | B (mm) | D (mm) | E (mm) | G (mm) | L* (mm) | F (mm) |
|-------|--------|--------|--------|--------|--------|---------|---------------------------|
| SR.28 | 28 | 13 | 14,5 | 11,5 | M5 | 6 | Hole for screw M5 DIN7991 |
| SR.43 | 43 | 22 | 21 | 18,30 | M8 | 11,5 | Hole for screw M8 DIN7991 |

* Thread not through passing, value equals usable thread

The slide is provided with a screw which limits the stroke of the movable sliders in one direction for a stroke equal to H, by removing the screw it is possible to move the sliders in the opposite direction to obtain a double stroke equal to 2H. The slide may be produced on request with stroke increased or diminished. For example, with an extraction of 75% compared with the standard extraction of 50%, the load capacity is reduced to 20% of the load capacity Co rad indicated in the table. The slide SRX offers high corrosion resistance, with all components and intermediate element in INOX, except the rails. The SRX have the same dimensions and performance as standard version SR. Could be provided the versions G1 with light play and the version P1 with light preload.

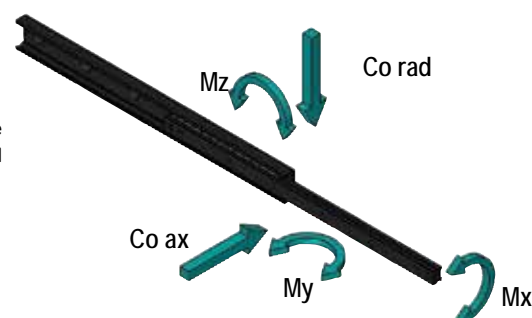
Order code ex. :

SR28-610 standard slide with single stroke

SRX28-610-P1 slide with high corrosion resistance and preload P1

SRX28-610 slide with high corrosion resistance

The nominal load capacities **Co rad** are all based for load related to centered load position **P**, in the middle of the single slide. For applications with load in other positions, please refer to page 74. Load capacities are indicated per single slide.



| Code | Lenght L (mm) | Stroke H (mm) | Dyn coeff. C (N) | Load-moment capacities | | | | | Weight (kg) |
|------------|---------------|---------------|------------------|------------------------|-----------|---------|---------|---------|-------------|
| | | | | Co rad (N) | Co ax (N) | Mx (Nm) | My (Nm) | Mz (Nm) | |
| SR.28-130 | 130 | 68 | 872 | 639 | 374 | 13 | 15 | 27 | 0,25 |
| SR.28-210 | 210 | 112 | 1544 | 1139 | 665 | 23 | 46 | 80 | 0,40 |
| SR.28-290 | 290 | 156 | 2217 | 1639 | 958 | 33 | 94 | 161 | 0,55 |
| SR.28-370 | 370 | 200 | 2891 | 2140 | 1251 | 43 | 158 | 270 | 0,70 |
| SR.28-450 | 450 | 235 | 3934 | 2949 | 1724 | 55 | 260 | 446 | 0,86 |
| SR.28-530 | 530 | 279 | 4607 | 3450 | 2017 | 65 | 361 | 618 | 1,01 |
| SR.28-610 | 610 | 314 | 5666 | 4276 | 2499 | 78 | 510 | 873 | 1,16 |
| SR.28-690 | 690 | 358 | 6337 | 4774 | 2791 | 88 | 648 | 1109 | 1,31 |
| SR.28-770 | 770 | 393 | 7403 | 5608 | 3278 | 100 | 843 | 1443 | 1,46 |
| SR.28-850 | 850 | 437 | 8072 | 6105 | 3569 | 110 | 1018 | 1742 | 1,62 |
| SR.28-930 | 930 | 472 | 9142 | 6943 | 4059 | 122 | 1259 | 2154 | 1,77 |
| SR.28-1010 | 1010 | 516 | 9810 | 7438 | 4348 | 132 | 1471 | 2516 | 1,92 |
| SR.28-1090 | 1090 | 560 | 10480 | 7934 | 4638 | 142 | 1699 | 2906 | 2,07 |
| SR.28-1170 | 1170 | 595 | 11550 | 8774 | 5129 | 155 | 2007 | 3433 | 2,22 |

| Code | Lenght L (mm) | Stroke H (mm) | Dyn coeff. C (N) | Load-moment capacities | | | | | Weight (kg) |
|------------|---------------|---------------|------------------|------------------------|-----------|---------|---------|---------|-------------|
| | | | | Co rad (N) | Co ax (N) | Mx (Nm) | My (Nm) | Mz (Nm) | |
| SR.43-210 | 210 | 116 | 2232 | 1497 | 966 | 99 | 75 | 117 | 1,0 |
| SR.43-290 | 290 | 154 | 3817 | 2615 | 1688 | 152 | 176 | 272 | 1,4 |
| SR.43-370 | 370 | 206 | 4496 | 3055 | 1972 | 187 | 266 | 412 | 1,7 |
| SR.43-450 | 450 | 244 | 6107 | 4197 | 2709 | 239 | 436 | 675 | 2,1 |
| SR.43-530 | 530 | 282 | 7746 | 5368 | 3464 | 292 | 647 | 1003 | 2,5 |
| SR.43-610 | 610 | 320 | 9403 | 6556 | 4232 | 344 | 901 | 1396 | 2,9 |
| SR.43-690 | 690 | 358 | 11072 | 7757 | 5006 | 397 | 1196 | 1853 | 3,2 |
| SR.43-770 | 770 | 410 | 11693 | 8138 | 5253 | 432 | 1416 | 2194 | 3,6 |
| SR.43-850 | 850 | 448 | 13358 | 9334 | 6025 | 484 | 1781 | 2759 | 4,0 |
| SR.43-930 | 930 | 486 | 15030 | 10538 | 6802 | 537 | 2187 | 3389 | 4,4 |
| SR.43-1010 | 1010 | 524 | 16707 | 11747 | 7582 | 589 | 2636 | 4084 | 4,7 |
| SR.43-1090 | 1090 | 562 | 18390 | 12962 | 8366 | 642 | 3126 | 4843 | 5,1 |
| SR.43-1170 | 1170 | 600 | 20076 | 14180 | 9152 | 694 | 3658 | 5667 | 5,5 |
| SR.43-1250 | 1250 | 638 | 21764 | 15401 | 9941 | 747 | 4231 | 6556 | 5,9 |
| SR.43-1330 | 1330 | 690 | 22347 | 15743 | 10161 | 782 | 4637 | 7184 | 6,3 |
| SR.43-1410 | 1410 | 728 | 24032 | 16960 | 10947 | 834 | 5280 | 8180 | 6,6 |
| SR.43-1490 | 1490 | 766 | 25719 | 18180 | 11734 | 887 | 5965 | 9241 | 7,0 |
| SR.43-1570 | 1570 | 804 | 27409 | 19402 | 12523 | 939 | 6691 | 10367 | 7,4 |
| SR.43-1650 | 1650 | 842 | 29100 | 20626 | 13313 | 992 | 7460 | 11557 | 7,8 |
| SR.43-1730 | 1730 | 880 | 30793 | 21852 | 14105 | 1044 | 8270 | 12813 | 8,1 |
| SR.43-1810 | 1810 | 918 | 32488 | 23080 | 14897 | 1097 | 9122 | 14132 | 8,5 |
| SR.43-1890 | 1890 | 970 | 33053 | 23403 | 15106 | 1132 | 9713 | 15048 | 8,9 |
| SR.43-1970 | 1970 | 1008 | 34745 | 24628 | 15896 | 1184 | 10634 | 16476 | 9,3 |