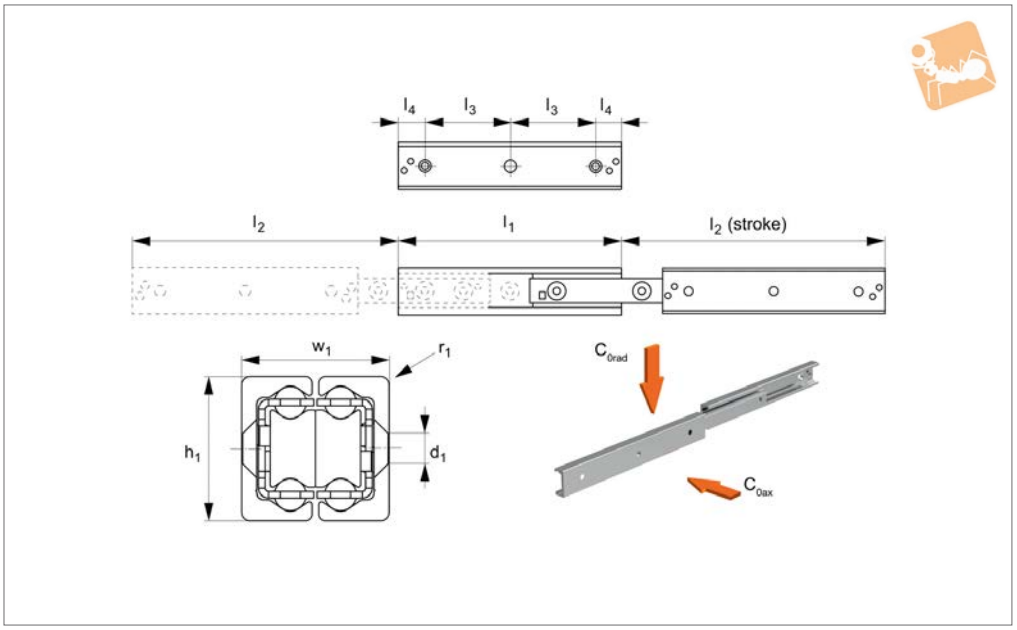



# L1988.43



## Material

Cold drawn bearing steel raceways hardened to 60 HRc. Balls - hardened steel.
Zinc coating to ISO2081 (excluding race-ways). Corrosion resistant coatings available on request.

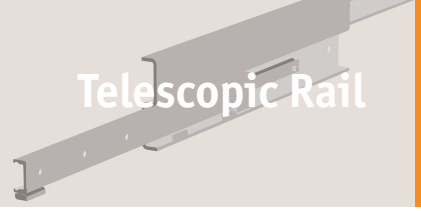
## Technical Notes

These are extremely strong and rigid teles-copic slides with high load capacities. $C_{0rad}$ is the load rating for a single telescopic slide.
Temperature range: -30°C to +170°C.
The strong intermediate member allows the rail to be mounted with the load acting radially or axially with nearly the same load capacity.

## Tips

A double direction stroke can be obtained by removing the end stops screws at the end of each side of the intermediate member.
For double direction strokes, when the moving element has started the stroke in the opposite direction it will catch the intermediate member and force it to return.
The slides have end stops, but these are not designed to stop a moving, loaded slide. External end stops should be used for this.
Only to be used for horizontal movements.
Special strokes up to 130% of the closed length can be provided on request.

| Order No. | $h_1$ | $l_1$ | $l_2$ stroke | $l_3$ | $l_4$ | $w_1$ | $r_1$ | For screws $d_1$ | No. of holes | Load (per rail) $C_{0\,ax}$ N max. | Load (per rail) $C_{0\,rad}$ N max. | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L1988.43-0210 | 43 | 210 | 246 | 80 | 25 | 44 | 2.5 | M8 | 3 | 449 | 631 | 2.33 |
| L1988.43-0290 | 43 | 290 | 316 | 80 | 25 | 44 | 2.5 | M8 | 4 | 819 | 1158 | 3.212 |
| L1988.43-0370 | 43 | 370 | 316 | 80 | 25 | 44 | 2.5 | M8 | 5 | 954 | 1349 | 4.11 |
| L1988.43-0450 | 43 | 450 | 486 | 80 | 25 | 44 | 2.5 | M8 | 6 | 1298 | 1370 | 5.00 |
| L1988.43-0530 | 43 | 530 | 556 | 80 | 25 | 44 | 2.5 | M8 | 7 | 1229 | 1229 | 5.88 |
| L1988.43-0610 | 43 | 610 | 626 | 80 | 25 | 44 | 2.5 | M8 | 8 | 1115 | 1115 | 6.77 |
| L1988.43-0690 | 43 | 690 | 726 | 80 | 25 | 44 | 2.5 | M8 | 9 | 939 | 939 | 7.66 |
| L1988.43-0770 | 43 | 770 | 796 | 80 | 25 | 44 | 2.5 | M8 | 10 | 870 | 870 | 8.55 |
| L1988.43-0850 | 43 | 850 | 866 | 80 | 25 | 44 | 2.5 | M8 | 11 | 812 | 812 | 9.44 |
| L1988.43-0930 | 43 | 930 | 966 | 80 | 25 | 44 | 2.5 | M8 | 12 | 714 | 714 | 10.32 |
| L1988.43-1010 | 43 | 1010 | 1036 | 80 | 25 | 44 | 2.5 | M8 | 13 | 674 | 674 | 11.21 |
| L1988.43-1090 | 43 | 1090 | 1106 | 80 | 25 | 44 | 2.5 | M8 | 14 | 629 | 629 | 12.10 |
| L1988.43-1170 | 43 | 1170 | 1206 | 80 | 25 | 44 | 2.5 | M8 | 16 | 576 | 576 | 12.99 |
| L1988.43-1250 | 43 | 1250 | 1276 | 80 | 25 | 44 | 2.5 | M8 | 17 | 546 | 546 | 13.88 |
| L1988.43-1330 | 43 | 1330 | 1376 | 80 | 25 | 44 | 2.5 | M8 | 18 | 503 | 503 | 14.76 |
| L1988.43-1410 | 43 | 1410 | 1446 | 80 | 25 | 44 | 2.5 | M8 | 19 | 473 | 473 | 15.65 |
| L1988.43-1490 | 43 | 1490 | 1516 | 80 | 25 | 44 | 2.5 | M8 | 20 | 464 | 464 | 16.54 |
| L1988.43-1570 | 43 | 1570 | 1586 | 80 | 25 | 44 | 2.5 | M8 | 21 | 443 | 443 | 17.43 |
| L1988.43-1650 | 43 | 1650 | 1686 | 80 | 25 | 44 | 2.5 | M8 | 23 | 415 | 415 | 18.32 |
| L1988.43-1730 | 43 | 1730 | 1756 | 80 | 25 | 44 | 2.5 | M8 | 24 | 397 | 397 | 19.20 |
| L1988.43-1810 | 43 | 1810 | 1856 | 80 | 25 | 44 | 2.5 | M8 | 25 | 376 | 376 | 20.09 |
| L1988.43-1890 | 43 | 1890 | 1926 | 80 | 25 | 44 | 2.5 | M8 | 26 | 364 | 364 | 21.00 |
| L1988.43-1970 | 43 | 1970 | 2026 | 80 | 25 | 44 | 2.5 | M8 | 27 | 344 | 344 | 21.87 |



# Telescopic Rail

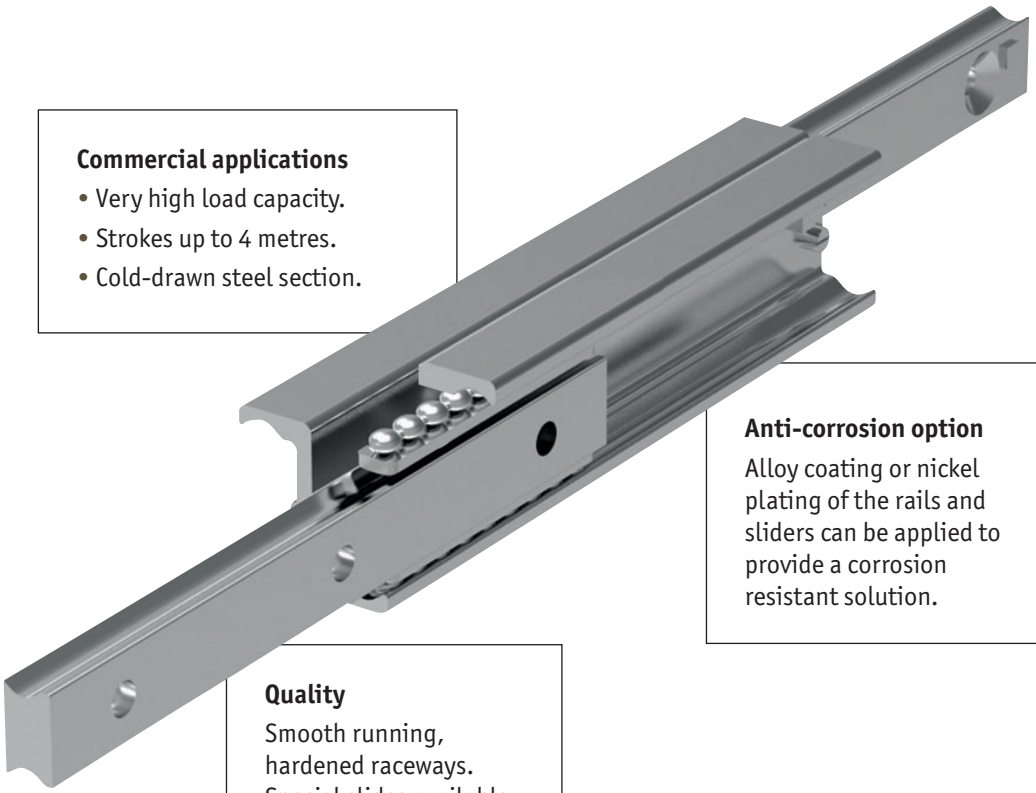
## Introduction



If you are looking for heavy duty, quality telescopic rails for industrial or commercial applications then these are the rails for you!

### The best heavy duty telescopic slides on the market

These are unique rails that are not made from pressed steel but from cold-drawn steel section. The rails can take high loads, with very long strokes, with repeated use, low deflection and minimal play.



**Commercial applications**

- Very high load capacity.
- Strokes up to 4 metres.
- Cold-drawn steel section.

**Anti-corrosion option**

Alloy coating or nickel plating of the rails and sliders can be applied to provide a corrosion resistant solution.

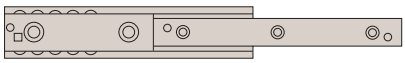
**Quality**

Smooth running, hardened raceways. Special slides available.

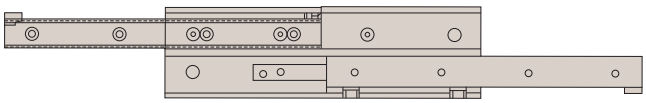
### Rail types

Our range of telescopic rails covers partial, full stroke and over-extension.

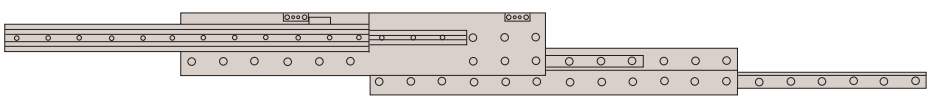
For more information refer to our product specifications pages or call our technical department.



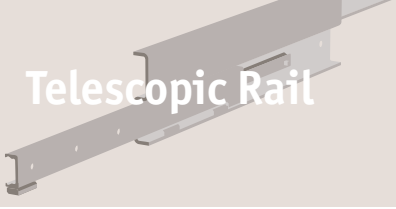
Partial Stroke (~60%)



Full Stroke (~100%)



Over-extension (150%)






## Specifications

- Generally all our telescopic rails have induction hardened raceways.
- Cold drawn roller bearing steel.
- Maximum operating speed 0,8 m/s.
- Temperature range (mainly -30°C to +170°C).
- Electrolytic galvanised to ISO 2081, other anti-corrosion finishes on request.
- High load ratings with low deflection characteristics.
- Minimum play (even at maximum load ratings).
- Smooth, free running movement.
- Long strokes and heavy load ratings.
- Can be used in horizontal applications only (due to the use of a ball cage), with the exception of part number L1985 which uses roller bearings.
- Light duty "cage stops" are included on the telescopic rails to prevent damage to the ball cage. External end stops must be designed into your application (to protect the rails from high forces and possible damage on opening and closing).
- For telescopic rails with an "upper" and "lower" rail, the moving rail should be the lower one. Using the upper rail as the moving element effects the smooth running and the load capacity of the telescopic sliders.
- All load capacity figures are given for a single rail, and based on continuous use.
- Fix to structures using screws of strength class 10,9.
- Anti-corrosion option. We have a highly effective anti-corrosive coating option, and we utilise stainless steel ball bearings in this version.

## Applications

**Special purpose & packaging machines**
Precision positioning systems
handling units
robotic systems • cutting machines

**Seating**
Sliding seats
disability ramps
seat extensions

**Safety guarding**
Extending protective systems
sliding gates
automatic pick & place

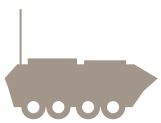
**Logistics solutions**
Container extensions
heavy duty extending systems
sliding doors

**Disability vehicles**
Sliding seats
extension ramps

**Transport (naval)**
Sliding hatches
pull-out storage

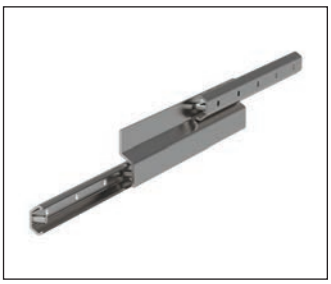
**Transport (rail)**
Seat adjustment
sliding doors
battery removal units

**Transport (automotive)**
Ambulance sliding systems
fire fighting vehicles
sliding panels



**Transport (military)**
Sliding seats
protective hatches
stretcher extensions

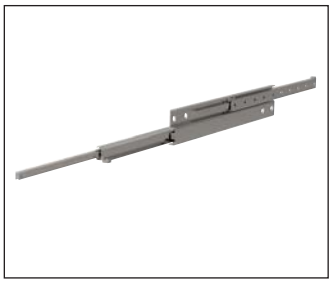
**L1989** - these are full extension slides made from 316L stainless steel. For use in applications where corrosion may be a problem.



| | |
|---|---|
| **Standard extension** | 100% |
| **Special extension range** | No |
| **Single & double direction?** | No |
| **Number of rail sizes** | 1 |
| **Maximum extension (at 100%)** | 1120 mm |
| **Maximum load (per rail)** | 35 Kg |

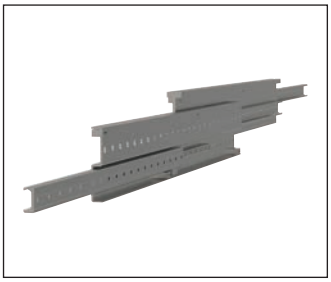
### Extended stroke telescopic rails

**L1997** - these are extended stroke (150%), heavy duty telescopic rails, with high load capacity and stiffness.



| | |
|---|---|
| **Standard extension** | 150% |
| **Special extension range** | On request |
| **Single & double direction?** | No |
| **Number of rail sizes** | 1 |
| **Maximum extension (at 150%)** | 3030 mm |
| **Maximum load (per rail)** | 240 Kg |

**L1998** - these are extended stroke (150%), heavy duty telescopic rails. They have a solid steel intermediate element. They are our heaviest duty extended stroke units.



| | |
|---|---|
| **Standard extension** | 150% |
| **Special extension range** | On request |
| **Single & double direction?** | No |
| **Number of rail sizes** | 1 |
| **Maximum extension (at 150%)** | 3020 mm |
| **Maximum load (per rail)** | 480 Kg |

## Service life

The service life is defined as the time span between commissioning and the first fatigue or wear indications on the raceway. The service life of a telescopic rail is dependent on several factors, such as the effective load, the installation precision, occurring shocks and vibrations, the operating temperature, the ambient conditions and the lubrication.
Calculation of the service life is based exclusively on the loaded rows of balls.

In practice, the decommissioning of the bearing, due to its destruction or extreme wear of a component, represents the end of service life.

This is taken into account by an application coefficient ($f_i$), so the service life consists of:

$$L_{Km} = 100 \cdot \left( \frac{\delta}{W} \cdot \frac{1}{f_i} \right)^3$$

L = calculated service life in Km
δ = load capacity factor in N (see tables on following pages)
W = equivalent load in N
$f_i$ = application coefficient

### Application coefficient $f_i$

| Operating conditions | Safety factor (.fi) |
|---|---|
| Neither shocks or vibrations, smooth and low-frequency direction change, clean environment | 1,3 - 1,8 |
| Light vibrations and average direction change | 1,8 - 2,3 |
| Shocks and vibrations, high-frequency direction change, very dirty environment | 2,3 - 3,5 |

If the external load, P, is the same as the dynamic load capacity, $C_{0rad}$ (which of course must never be exceeded), the service life at ideal operating conditions ($f_i = 1$) is 100Km.

For a single load P, the following applies: W = P.

If several external loads occur simultaneously, the equivalent load is calculated as follows:

$$W = P_{rad} + \left( \frac{P_{ax}}{C_{0ax}} + \frac{M_1}{M_x} + \frac{M_2}{M_y} + \frac{M_3}{M_z} \right) \cdot C_{0rad}$$