**Product explanation**

**O-Rail - unique assembly possibilities**

The roller linear system O-Rail offers the maximum flexibility configuration due to the original shape of the guide with 3 raceways arranged at 90° to each other where on each of those can slide rollers OR-43 series. Using a single guide, two, or more parallel guides, gives rise to a number of combinations capable of satisfying each specific need for linear motion and offering exceptional self-alignment capacity. O-Rail is constructed in high strength steel hardened with hardening treatments, for a further improvement of both performance and durability.

**FXRG series**

O-Rail is designed to be a strong and simple multitask linear system for larger handling and automation applications. It is an easy to assemble system, that offers smooth motion even on inaccurate surfaces.

**General characteristics**

New GEOMETRICAL DESIGN of the contact areas, based on Gothic arch raceways:
- Superior sliding
- Very low friction
- Long lifetime
- Greater load capacity
- Very compact design

New rollers, double row bearings, with increased thickness of outer ring, gothic profile and finished raceways:
- Increased load capacity
- Increased lifetime
- Extremely low noise
- High speed
- Lubricated with low-temperature grease
- Temperature range -40 °C to +130 °C
- Neoprene lateral seals for dust protection

Patented process ROLLON-NOX, to further improve the rail material and thermochemical hardening treatment of deep nitriding and post-oxidation black for an effective corrosion protection:
- Very high hardness
- Resistance to heavy loads
- Very low wear
- Effective corrosion protection
- Smooth black finish

Black oxidation technology ROLLON-NOX and Micro impregnation for high corrosion resistance

High dept nitride hardening technology ROLLON-NOX

High strength cold drawn steel profile
The FXRG allows a wide range of configurations when using two or more rails in parallel. Depending on required load and moment capacities, direction more single rollers and standard sliders are used to obtain unique self-aligning systems. Contact ROLLON for eventual support in dimensioning customized systems.

### FXRG with guiding slider with limited rotational capacity

![Diagram](image1)

**Rotation** 
$\pm 5^\circ$

### Combination of two FXRG with resting load

![Diagram](image2)

### Configuration with two parallel FXRG with self-aligning capacity

![Diagram](image3)

### Configuration with two FXRG to form a single rail with a slider allowing for high Mx moments

![Diagram](image4)

### Telescopic configuration

![Diagram](image5)

### Configuration of two FXRG

![Diagram](image6)

Composed of two FXRG rails with rollers in between the rails fixed to mobile part and rollers on fixed structure running on outer raceways, providing a customized solutions for telescopic movements.

### FXRG series

FXRG is a high precision cold drawn profile of high strength steel. After a high depth nitride hardening treatment the rails are oxidized, assuring high hardness and excellent corrosion resistance. The characteristic black color on the whole rail is the result of oxidation and subsequent process of micro-impregnation with oils and substances for improved smoothness and long life. The fixing holes are for standard M6 cylindrical low head screws, DIN 7984, with 80mm pitch.

#### Dimensions and load capacity

<table>
<thead>
<tr>
<th>Code</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>S (mm)</th>
<th>H (mm)</th>
<th>C (mm)</th>
<th>d (mm)</th>
<th>D (mm)</th>
<th>E (mm)</th>
<th>Screw type</th>
<th>M (mm)</th>
<th>N (mm)</th>
<th>Weight (g)</th>
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</thead>
<tbody>
<tr>
<td>FXRG</td>
<td>27.02</td>
<td>22.52</td>
<td>7.00</td>
<td>12.04</td>
<td>16.50</td>
<td>6.50</td>
<td>11.00</td>
<td>4.20</td>
<td>M6 DIN 7984</td>
<td>18.52</td>
<td>12.50</td>
<td>2.48</td>
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#### Axial movement of floating roller R.P43G with FXRG

<table>
<thead>
<tr>
<th>Code</th>
<th>P (mm)</th>
<th>P min</th>
<th>P max</th>
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<tbody>
<tr>
<td>FXRG</td>
<td>25.50</td>
<td>24.50</td>
<td>26.50</td>
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</table>

#### Rotation of guiding roller R.V43G on FXRG

<table>
<thead>
<tr>
<th>Code</th>
<th>f3 (mm)</th>
<th>g1 (mm)</th>
<th>fe (mm)</th>
<th>ge (mm)</th>
<th>fs (mm)</th>
<th>gs (mm)</th>
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</thead>
<tbody>
<tr>
<td>FXRG</td>
<td>7.82</td>
<td>25.50</td>
<td>32.82</td>
<td>25.50</td>
<td>21.50</td>
<td>36.82</td>
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Available lengths

Dimensions from 400 mm to 2000 mm

<table>
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<tr>
<th>Rail codes</th>
<th>Length L (mm)</th>
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<tbody>
<tr>
<td>FXRG-...</td>
<td>160 240 320 400 480 560 640 720 800 880 960 1040 1120 1200 1280 1360 1440 1520 1600 1680 1760 1840 1920 2000</td>
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<tr>
<td>FXRG</td>
<td><em>Available in stock</em></td>
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</table>

Dimensions from 2080 mm to 4000 mm

<table>
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<th>Rail codes</th>
<th>Length L (mm)</th>
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<tbody>
<tr>
<td>FXRG-...</td>
<td>2080 2160 2240 2320 2400 2480 2560 2640 2720 2800 2880 2960 3040 3120 3200 3280 3360 3440 3520 3600 3680 3760 3840 3920 4000</td>
</tr>
<tr>
<td>FXRG</td>
<td><em>Available in stock</em></td>
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</tbody>
</table>

Order codes

<table>
<thead>
<tr>
<th>Order codes</th>
<th>Version</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>FXRG-1040</td>
<td>BASIC</td>
<td>Cold drawn profile with high depth nitride hardening &quot;ROLLON-NOX&quot;, oxidation with micro oil impregnation. Ends are cut to size after treatments and sprayed with protective black paint.</td>
</tr>
</tbody>
</table>

Rollers for FXRG

Guiding roller R.VG and floating roller R.PG

- Self-aligning combinations
  - When FXRG rails are used in parallel, the use of floating rollers R.P43G and guiding rollers R.V43G provides a Self-aligning system, capable of compensating great inaccuracies of structure or assembly errors. The guiding rollers R.V43G in contact with the FXRG’s gothic raceways assure precise guiding while compensating misalignment, as they are able to rotate slightly around the longitudinal axis of about +/- 5°. Combined with floating rollers R.P43G on a parallel rail, such system can compensate an axial displacement of +/- 1 mm, in addition to a max. rotation of +/- 5°.
  - The combination effect of both rotation and lateral movement, allow two parallel rails to compensate for misalignment on both a) and b) level.
Mounting configurations

The concentric rollers should be positioned in the direction of radial loading. **Warning!** A single slider configuration will rotate ±5° around the longitudinal axis of a single FXRG rail, not able to take any Mx moments.

Single rail with 3 rollers slider

![Diagram of Single rail with 3 rollers slider]

It is recommended, when more than two rollers are on the same track with max. radial load, to use only two concentric rollers (as from example figure). The others should be eccentric. For cases with a wider distance between concentric rollers, please contact ROLLON’s Technical department for dimensioning.

Single rail with 5 rollers slider

![Diagram of Single rail with 5 rollers slider]

Double rail with slider for high overturning moments

![Diagram of Double rail with slider for high overturning moments]

The rollers need to be positioned on the rail in numbers and directions according to the prevailing load. It is always preferable to orient the rollers so that the prevailing load acts radially, due to higher radial load capacity.

3 Dimensions and load capacity

The preload adjustment can also be carried out by checking the force Fi of insertion of the movable part, in which the rollers are fixed into the rail. In general for a good Fi adjustment, the inserting friction must be between 2-10 N. To increase or decrease the Fi act on eccentric rollers, opposite to the load direction (see figure below).

In case required to have eccentric rollers on the internal rail side, it is necessary to include optional accesses, to allow Allen-key to reach the roller. Otherwise the adjustment can take place outside of the rail.