We design and produce in order to support you

An international group for technology, a local support for service

Over 40 years of know how in design and production
From a full range of standard products to fit-to-customer solutions for best performances

Collaboration

High level technical consulting

Cross competences in several industrial sectors for an effective problem-solving

Solutions
A complete range for linear motion which reaches every customer

Linear and curved guides with ball and roller bearings, with hardened raceways, high load capacities, self-alignment and capable of working in dirty environments.

Linear Line

Telescopic guides with ball bearings, with hardened raceways, high load capacities, and low bending, resistant to shocks and vibrations. For partial, total or extended extraction up to 200% of the length of the guide.

Telescopic Line
Actuator System Line

Integrated actuators for industrial automation, they find applications in numerous industrial sectors: from machinery servo systems to high precision assembly systems, packaging lines and high speed production lines. It has evolved from Actuator Line series in order to meet the most demanding needs of our customers.

Actuator Line

Linear actuators with different guide configurations and drives, available with belt, screw or rack and pinion drives according to different needs in terms of precision and speed. Guides with bearings or ball recirculating systems for different load capacities and critical environments.

A global provider of solutions for applications for linear motion
O-Rail

1 Product explanation
   O-Rail - unique assembly possibilities, FXRG series

2 General characteristics
   Configurations

3 Dimensions and load capacity
   FXRG series
   Rollers for FXRG
   Mounting configurations

Ordering key

www.rollon.com
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 R.43G 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 ° to +130 ° c
- Neoprene lateral seals for dust protection

Self-aligning system when using two parallel rails, compensating large assembly inaccuracies on both longitudinal and transversal plane.
- allow for installation on non precise structures - welded carpentry or aluminium frame structures
- Do not require machined fixing surfaces for installation.
- Cost saving, as easy and fast assembly

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**
  - Rotation ±5°
  - Fig. 6

- **Combination of two FXRG with resting load**
  - Fig. 7

- **Configuration with two parallel FXRG with self-aligning capacity**
  - Fig. 8

- **Configuration with two FXRG to form a single rail with a slider allowing for high Mx moments**
  - Fig. 9

- **Telescopic configuration**
  - 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.
  - Fig. 10

- **Configuration of two FXRG**
  - With high cantilever load capacity, meanwhile Self-aligning.
  - Fig. 11
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.

Position of guiding roller - Concentric RCV43G on the three raceways

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</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>
</tr>
</tbody>
</table>

Tab. 1

Axial movement of floating roller R.P43G with FXRG

<table>
<thead>
<tr>
<th>Type</th>
<th>P [mm]</th>
<th>movement</th>
<th>P min [mm]</th>
<th>P max [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>FXRG</td>
<td>25,50</td>
<td>+/-1</td>
<td>24,50</td>
<td>26,50</td>
</tr>
</tbody>
</table>

Tab. 2

Rotation of guiding roller R.V43G on FXRG

<table>
<thead>
<tr>
<th>fi [mm]</th>
<th>gi [mm]</th>
<th>fe [mm]</th>
<th>ge [mm]</th>
<th>fs [mm]</th>
<th>gs [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>7,82</td>
<td>25,50</td>
<td>32,82</td>
<td>25,50</td>
<td>21,50</td>
<td>36,82</td>
</tr>
</tbody>
</table>

Tab. 3
3 Dimensions and load capacity

Available lengths

*Version FXRG-P-C with additional slot

Fig. 15

Dimensions

<table>
<thead>
<tr>
<th>Rail codes</th>
<th>Length L [mm]</th>
</tr>
</thead>
</table>

Special lengths or pitches available upon request, please contact our Technical Department. Highlighted rail lengths are available from stock.

Version Characteristics

<table>
<thead>
<tr>
<th>Version</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RCV43G</td>
<td>Concentric</td>
<td>guiding</td>
<td>31,4</td>
<td>-</td>
<td>14</td>
<td>9</td>
<td>2</td>
<td>6</td>
<td>M8</td>
<td>10,5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7600</td>
<td>4000</td>
<td>1190</td>
</tr>
<tr>
<td>RCP43G</td>
<td>Concentric</td>
<td>floating</td>
<td>31,5</td>
<td>31,4</td>
<td>6</td>
<td>6</td>
<td>M8</td>
<td>10,5</td>
<td>7600</td>
<td>4000</td>
<td>0</td>
<td>7600</td>
<td>4000</td>
<td>1190</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REV43G</td>
<td>Eccentric</td>
<td>guiding</td>
<td>0,8</td>
<td>31,4</td>
<td>6</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>15</td>
<td>M8</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7600</td>
<td>4000</td>
<td>1190</td>
</tr>
<tr>
<td>REP43G</td>
<td>Eccentric</td>
<td>floating</td>
<td>31,5</td>
<td>31,5</td>
<td>6</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>15</td>
<td>M8</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7600</td>
<td>4000</td>
<td>0</td>
</tr>
</tbody>
</table>

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 °.
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>

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>

Double rail with slider for high overturning moments

<Diagram>
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.

The rollers must be fixed on a metal surface not yielding, perfectly flat and with its fixing screws, applying a locking torque of 22 Nm. The tightening of the fixing-screw is to be performed, while holding the roller firm with an Allen-wrench, present on the opposite side of the fixing thread. In case eccentric rollers, it is advisable to use a cup-spring washer under the screw-head to obtain a firm movement, able to maintain the roller “firm” against the surface and facilitate minor adjustment of eccentric roller, before the final locking. The preload adjustment can also be carried out by checking the force $F_i$ of insertion of the movable part, in which the rollers are fixed into the rail. In general, for a good $F_i$ adjustment, the inserting friction must be between 2-10 N. To increase or decrease the $F_i$ 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.
Ordering Key

O-Rail guide

<table>
<thead>
<tr>
<th>FXRG</th>
<th>0960</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>see pg. OR-6ff</td>
</tr>
<tr>
<td>Product type</td>
<td>see pg. OR-2ff</td>
</tr>
</tbody>
</table>

Ordering example: FXRG-3120

Notes on ordering: Rail lengths and stroke lengths are always stated with 4 digits. Please pad with zeroes to fill in for lengths with less than 4 digits, e.g. 515mm length is "0515"
Follow us:

**EUROPE**

**ROLLON S.p.A. - ITALY (Headquarters)**
Via Trieste 26
I-20871 Vimercate (MB)
Phone: (+39) 039 62 59 1
www.rollon.it - infocom@rollon.it

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

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

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

**ROLLON GmbH - GERMANY**
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 Ltd - UK (Rep. Office)**
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 Corporation - USA**
101 Bilby Road, Suite B
Hackettstown, NJ 07840
Phone: (+1) 973 300 5492
www.rolloncorp.com - info@rolloncorp.com

**ROLLON Ltd - CHINA**
No. 1155 Pang Jin Road,
China, Suzhou, 215200
Phone: +86 0512 6392 1625
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

**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 - SOUTH AMERICA (Rep. Office)**
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

**ROLLON Ltd - JAPAN**
3F Shiodome Building, 1-2-20 Kaigan, Minato-ku,
Tokyo 105-0022 Japan
Phone: +81 3 6721 8487
www.rollon.jp - info@rollon.jp

Consult the other ranges of products

Distributor

All addresses of our global sales partners can also be found at www.rollon.com

The content of this document and its use are subject to the general terms of sale of ROLLON available on the web site www.rollon.com

Changes and errors expected. The text and images may be used only with our permission.