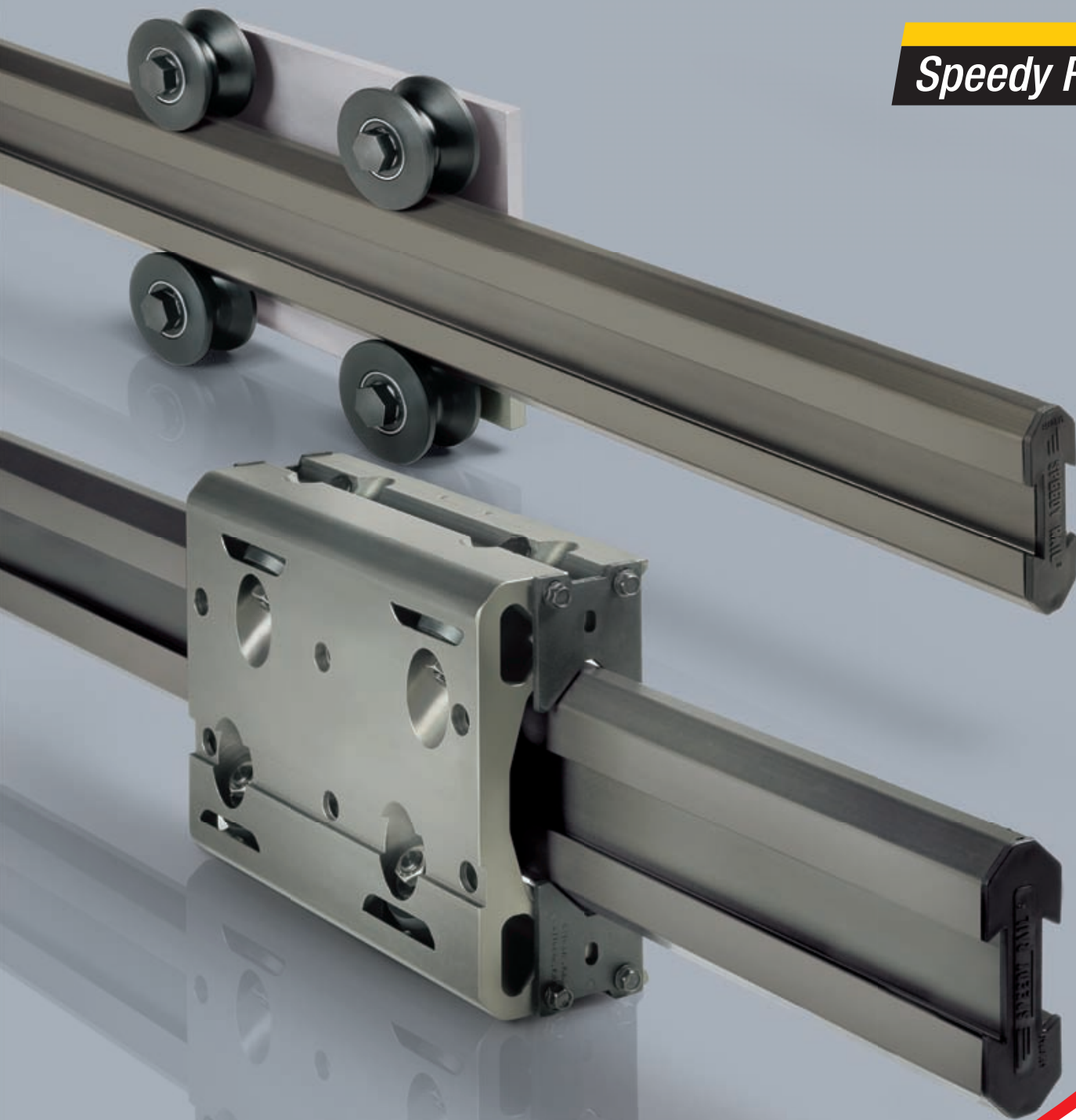


*Linear Line*

*Speedy Rail*



**General catalogue**  
English

[www.rollon.com](http://www.rollon.com)

# When you move. We move.

Rollon S.p.A. was founded in 1975 as a manufacturer of linear motion components. Today Rollon group is a leading name in the design, production, and sale of linear rails, telescopic rails, and actuators, with headquarters based in Italy and offices and distributors located throughout the world. Rollon products are used in many industries, providing creative and efficient solutions in a wide variety of applications.

## Rollon solutions for linear motion

Linear Line



Telescopic Line



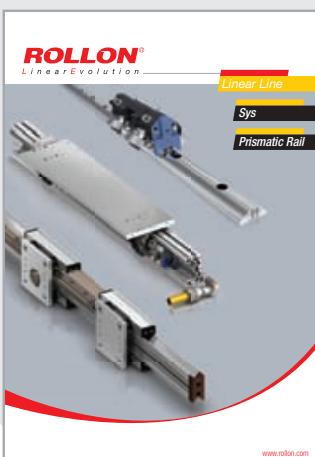
Actuator Line



Actuator System Line



Linear Line  
Sys  
Prismatic Rail



Hegra Rail



Actuator Line



### Linear Rails

- Rails with roller bearings
- Rails with caged ball bearings
- Rails with recirculating ball bearing

### Telescopic Rails

- Rails with partial/total extension
- Heavy duty rails
- Rails for automated and manual applications

### Actuators

- Belt driven actuators
- Ball screw driven actuators
- Rack and pinion actuators

### Solutions for industrial automation

- Multi-axis for pick and place
- Telescopic actuators
- Seventh axis for robots
- Solutions for metal sheet handling

## Core Competencies

- > Full range of linear rails, telescopic rails and actuators
- > Worldwide presence with branches and distributors
- > Fast delivery all over the world
- > Large technical know-how for applications



### > Standard solutions

Wide range of products and sizes  
Linear rails with roller and caged ball bearings  
Heavy duty telescopic rails  
Belt or ball screw driven linear actuators  
Multi-axis systems



### > Collaboration

International know-how in several industries  
Project consultancy  
Maximizing performance and cost optimization



### > Customization

Special products  
Research and development of new solutions  
Technologies dedicated to different sectors  
Optimal surface treatment

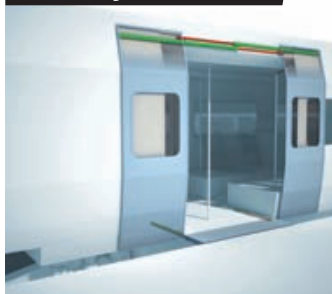


## Applications

### Aerospace



### Railway



### Logistics



### Industrial Machines



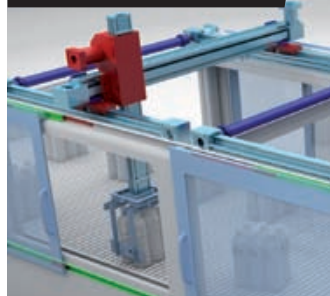
### Medical



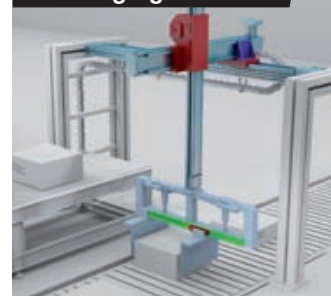
### Specialty Vehicles



### Robotics



### Packaging



## 1 Introduction

|                                           |      |
|-------------------------------------------|------|
| The product, Features and user benefits   | SR-2 |
| Application fields                        | SR-3 |
| Dimensions, Rollers and roller assemblies | SR-4 |
| Measurement units                         | SR-5 |

## 2 Speedy Rail 35

|                                                    |      |
|----------------------------------------------------|------|
| "Speedy Rail 35" guide and specification           | SR-6 |
| "Speedy Rail 35" assemblies and components         | SR-7 |
| Sliding doors "Speedy Rail 35" application example | SR-9 |

## 3 Speedy Rail C 48

|                                                       |       |
|-------------------------------------------------------|-------|
| "Speedy Rail C 48" guide and specification            | SR-10 |
| "Speedy Rail C 48" assemblies and components          | SR-11 |
| Rollers and roller boxes for "Speedy Rail C 48" guide | SR-12 |
| Roller boxes for "Speedy Rail C 48" guide             | SR-13 |

## 4 Speedy Rail 60

|                                                     |       |
|-----------------------------------------------------|-------|
| "Speedy Rail Mini" guide and specification          | SR-14 |
| "Speedy Rail Mini" roller assemblies and components | SR-15 |
| "Speedy Rail Mini" guide and components             | SR-16 |
| Dovetail clamps and fishplates                      | SR-17 |
| Roller assembly and "v" rollers "Light"             | SR-18 |
| Roller assemblies and "V" rollers                   | SR-19 |

## 5 Speedy Rail 90

|                                                |       |
|------------------------------------------------|-------|
| "Middle Speedy Rail" guide and specifications  | SR-21 |
| "Middle Speedy Rail" assemblies and components | SR-22 |
| "Middle Speedy Rail" guide and components      | SR-23 |
| Dovetail clamps and fishplates                 | SR-24 |
| Roller assembly with "V" shaped rollers        | SR-25 |
| Plastic compound shell "V" rollers             | SR-26 |

## 6 Speedy Rail 120

|                                                            |       |
|------------------------------------------------------------|-------|
| "Standard Speedy Rail" guide and specifications            | SR-27 |
| "Standard Speedy Rail" assemblies and components           | SR-28 |
| "Standard Speedy Rail" guide and specifications            | SR-29 |
| Components for speedy rail SR120 guide                     | SR-30 |
| Standard dovetail clamps                                   | SR-31 |
| Racks components for rigid mounting                        | SR-32 |
| Standard fixing fishplates                                 | SR-33 |
| Plastic compound shell "V" rollers                         | SR-34 |
| Roller assembly with "V" rollers                           | SR-35 |
| Plastic compound shell rollers                             | SR-36 |
| 2 Rollers light full-block assembly                        | SR-38 |
| Compact roller assembly with plastic compound rollers      | SR-39 |
| Full-block roller assembly                                 | SR-40 |
| Roller assembly with 4 rollers                             | SR-41 |
| Narrow/wide base blindo beam roller assembly               | SR-42 |
| 8 Rollers blindo beam roller assembly                      | SR-43 |
| Light 4 rollers floating assembly for Speedy Rail guides   | SR-44 |
| Floating roller assembly with 4 rollers - short/long pivot | SR-45 |
| 5 Rollers assembly, one fixed, one self adjusting          | SR-46 |
| Floating roller assembly with 6 rollers - short/long pivot | SR-47 |
| Floating roller assembly with 8 rollers - short/long pivot | SR-49 |



|                                           |       |
|-------------------------------------------|-------|
| Assembling diagram for rigid mounted rack | SR-50 |
| Assembling diagram for floating rack      | SR-51 |
| 40X40 floating rack mounting              | SR-52 |
| Standard racks                            | SR-53 |
| Standard scrapers                         | SR-54 |

## 7 Speedy Rail 180

|                                                             |       |
|-------------------------------------------------------------|-------|
| Wide body multi groove speedy rail guide and specifications | SR-55 |
| Roller assemblies and components                            | SR-56 |
| Wide body multi groove speedy rail guide and specifications | SR-57 |
| Components for wide body multi groove Speedy Rail guide     | SR-58 |
| Roller assembly with "V" shaped rollers                     | SR-59 |
| Roller assembly with 4 rollers                              | SR-60 |
| 8 Rollers floating assembly - complete pairing              | SR-61 |
| Backing plate for floating roller assemblies                | SR-62 |
| Angular mounting bracket for floating roller assemblies     | SR-63 |

## 8 Speedy Rail 250

|                                                                   |       |
|-------------------------------------------------------------------|-------|
| Super wide body multi groove speedy rail guide and specifications | SR-64 |
| Roller assemblies and components                                  | SR-65 |
| Superwide body multi groove speedy rail guide and specifications  | SR-66 |
| Components for super wide body speedy rail guide                  | SR-67 |
| Roller assembly with "V" shaped rollers                           | SR-68 |

## 9 Technical detail

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Mechanical and technological components specifications                  | SR-69 |
| Treatments on all light alloy components, Rollers,<br>Roller assemblies | SR-70 |
| Rollers adjustments, Torque settings, Scrapers,<br>Drive head           | SR-71 |
| Lubrication, Life testing                                               | SR-72 |
| Summary table for standard fixing elements identification               | SR-73 |
| Summary table for Nuova T.M.T. S.r.l. Simple profiles                   | SR-74 |
| Loads on a 4 'V' rollers trolley                                        | SR-75 |
| Loads on twin 4 'V' rollers trolleys                                    | SR-79 |
| Loads on a 4 'V' rollers vertical trolley                               | SR-80 |
| Cilindrical roller loads                                                | SR-81 |
| User suggestions                                                        | SR-83 |

## 10 Applications

|            |       |
|------------|-------|
|            | SR-86 |
| Data sheet | SR-91 |

# Introduction



### > The product:

**Speedy Rail®** beam is a heat-treated aluminium alloy profile with hollow cross-sections which makes it very strong under torsion and deflection stresses.

Beams are then subject to a special patented treatment which provides a smooth, hard (700 HV) surface comparable to tempered steel. The fusion point of the non-stick surface layer (2100°C) permits an excellent resistance to welding splatters.

For these reasons the **Speedy Rail®** beams and components are widely used in the automotive industry to build transfer systems (lift & carry) for automated welding lines.

Many quantities of car bodies during the welding operations are moved by **Speedy Rail®** linear systems.

One of the most successfully feature of TMT lines is that it is practically “maintenance free”.

### > Features and user benefits:

- Wide range of linear transport applications
- Standard modular components
- All parts reusable
- Minimum space required
- Narrow profile
- Hard surface
- Resistance to welding splatters
- Quiet smooth operations
- Resistance to high corrosion
- Easy to assemble
- Saving in assembly time
- Strong, lightweight
- Savings in reducing drive size
- Only hand tools required to assemble or modify

**Speedy Rail®** linear motion systems are lightweight, self-supporting, easy to assemble, inexpensive, modular, clean, quiet and ex stock. **Speedy Rail®** assemblies are very simple. Standard bolted dovetails and fishplate clamps are used for end to end joining. Rails are available in single beam up to max length 7.5 meters – 24.6 feet – and can be joined end-to-end with dovetails to build a transfer system of unlimited length. Rails have a dovetail groove on each side to accommodate any fixture. In this way it is not necessary to drill or to weld.

The profiles Wide Body SR 180, Super Wide Body SR 250 are equipped with grooves and have a planarity precision so that guideways can be fixed without any mechanical machining.

## > Application fields:

- Automotive assembly
- Woodworking and furniture
- Glass processing
- Tire industry
- Painting lines
- Food industry
- Sheet working and laser cut machines
- Plastic extrusion, machine tools
- Appliances assembly and production
- Electronics
- Print, slitter machines
- Cardboard handling machines
- Industrial cleaning
- Packaging
- Tiles, shingles production
- Sportive equipment
- Welding lines
- Overhead transfers and panels handling
- Overhead pick-up and transfer, packaging
- Line of 6/10 stations for tire production
- Multi axis for paint-gun movement
- Cartesian water cutting systems, packaging
- Feeding and scavenging systems
- Rails for protections, tool change system
- Frame and body welding
- Card transfer and dip-in chemical solution tray
- Palletizing, print head replacement
- Palletizers
- Overhead lines with pick-up and transfer
- Palletizers, shrink-wrap machines
- Production transfers
- Guides for target in the shooting, linear sliding for athletic equipment
- Textiles, pharmaceuticals, steel coil processing, etc.
- And more

> Dimensions

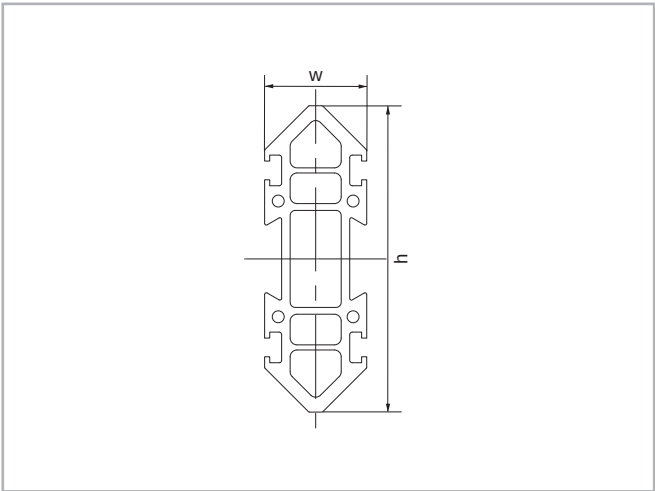


Fig. 1

Speedy Rail® guides are available in the following sizes:

| Type                        | h<br>[mm] | w<br>[mm] |
|-----------------------------|-----------|-----------|
| Speedy Rail 35              | 35        | 14        |
| Speedy Rail C 48            | 48        | 28        |
| Speedy Rail Mini            | 60        | 20        |
| Speedy Rail Middle          | 90        | 30        |
| Speedy Rail Standard        | 120       | 40        |
| Speedy Rail Wide Body       | 180       | 60        |
| Speedy Rail Super Wide Body | 250       | 80        |

Tab. 1

> Rollers and roller assemblies:

The **Speedy Rail®** range includes a large selection of rollers both cylindrical and “V” shaped and roller assemblies with two or more rollers. Our rollers are covered by a sintered plastic compound, resistant to pollutants and virtually maintenance-free. Ball and/or needle bearings with high performance are mounted into the rollers and can be maintained either with standard greasing procedure or lifetime lubricated. All roller boxes are equipped with concentric and eccentric pins for a quick adjustment of the contact between rollers and rail.

- Standard  
with 2 rollers, 1 concentric and 1 eccentric
- Blindo Beam®  
with 4 or 8 rollers. It provides 3 mounting surfaces
- Compact  
with 2 rollers. Suitable for low clearances and limited operation room
- Floating  
with 4, 6 or even more rollers. Suitable for the withstanding minor misalignments on the rail mounted in pairs, one concentric and one eccentric
- “V” roller support  
This kind of support are suggested for light applications and constricted operation areas

Supports are mounted on the frame when the rail is movable and on the trolleys when it is fixed. By the calculation of system needs, consider the max. radial load applicable to the rollers in accordance with the description of each roller.



## > Measurement units

### Conversion tables

|                        | English to metric       |                 |                      | Metric to english |                 |                      |
|------------------------|-------------------------|-----------------|----------------------|-------------------|-----------------|----------------------|
|                        | Unit                    | Symbol          | Value                | Unit              | Symbol          | Value                |
| Length unit            | inch                    | in              | 25.4 mm              | millimeter        | mm              | 0.039 in             |
|                        | foot                    | ft              | 0.3 m                | meter             | m               | 3.3 ft               |
|                        | yard                    | yd              | 0.91 m               | meter             | m               | 1.1 yd               |
|                        | mile                    | mi              | 1.6 Km               | kilometer         | km              | 0.6 ml               |
| Surface unit           | square inch             | in <sup>2</sup> | 6.5 cm <sup>2</sup>  | square centimeter | cm <sup>2</sup> | 0.16 in <sup>2</sup> |
|                        | square foot             | ft <sup>2</sup> | 929 cm <sup>2</sup>  | square meter      | m <sup>2</sup>  | 11 ft <sup>2</sup>   |
|                        | square yard             | yd <sup>2</sup> | 0.83 m <sup>2</sup>  | square meter      | m <sup>2</sup>  | 1.2 yd <sup>2</sup>  |
| Volume unit            | cubic inch              | in <sup>3</sup> | 16.4 cm <sup>3</sup> | cubic centimeter  | cm <sup>3</sup> | 0.06 in <sup>3</sup> |
|                        | cubic foot              | ft <sup>3</sup> | 0.027 m <sup>3</sup> | cubic meter       | m <sup>3</sup>  | 35 ft <sup>3</sup>   |
|                        | cubic yard              | yd <sup>3</sup> | 0.765 m <sup>3</sup> | cubic meter       | m <sup>3</sup>  | 1.3 yd <sup>3</sup>  |
| Capacity unit          | US gallon               | gal usa         | 3.78 l               | litre             | l               | 0.264 gal usa        |
|                        | Imperial gallon         | gal uk          | 4.54 l               | litre             | l               | 0.220 gal uk         |
| Mass unit              | ounce                   | oz              | 28.35 g              | gram              | g               | 0.035 oz             |
|                        | pound                   | lb              | 0.453 kg             | kilogram          | kg              | 2.204 lb             |
| Power unit             | horse power uk          | bhp             | 0.745 kW             | kilowatt          | kW              | 1.341 bhp            |
|                        | foot-pound              | lbf ft/s        | 745 W                | Watt              | lbf ft/s        | 745 W                |
|                        | horse power uk          | bhp             | 1.01 CV              | horse power       | CV              | 0.986 bhp            |
| Speed unit             | foot per second         | ft/s            | 0.305 m/s            | meter per second  | m/s             | 3.278 ft/s           |
| Force unit             | pound-force             | lbf             | 4.448 N              | Newton            | N               | 0.224 lbf            |
| Mechanical moment unit | inch-pound              | lbf in          | 0.112 Nm             | Newton-meter      | Nm              | 8.856 lbf in         |
|                        | foot-pound              | lbf ft          | 1.355 Nm             | Newton-meter      | Nm              | 0.738 lbf ft         |
| Pressure unit          | pound-force/square inch | psi             | 6894.7 Pa            | Pascal            | Pa              | 0.00015 psi          |
| Lineic weight unit     | pound per foot          | lb/ft           | 14.593 N/m           | Newton per meter  | N/m             | 0.0685 lb/ft         |
| Frequency unit         | cycles per second       | cps             | 1 Hz                 | Hertz             | Hz              | 1 cps                |
| Energy unit            | British thermal unit    | Btu             | 1055.06 J            | Joule             | J               | 0.00094 Btu          |
|                        | foot-pound              | lbf ft          | 1.355 J              | Joule             | J               | 0.738 lbf ft         |

Tab. 2

### Thermodynamic scales

| Description      | Symbol | tC        | tF            | tK            |
|------------------|--------|-----------|---------------|---------------|
| temp. Celsius    | tC     | 1         | 5/9 (tF-32)   | tK-273.15     |
| temp. Fahrenheit | tF     | 9/5 tC+32 | 1             | 9/5 tK-459.67 |
| temp. Kelvin     | tK     | tC+273.15 | 5/9 tF+255.37 | 1             |

Tab. 3

## Speedy Rail 35



### > "Speedy Rail 35" guide and specification

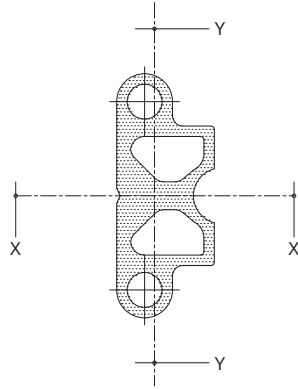


Fig. 2

Surface quadratic moments: X-X axis = 17.779 mm<sup>4</sup> / Y-Y AXIS = 3.665 mm<sup>4</sup>.

Area = 222 mm<sup>2</sup>

Max. angular distortion =  $\pm 20''/m$ .

Linear mass = 0.55 Kg/m.

Max. Linear distortion = 0.5 mm/m.

Standard lengths: 1000-1500-2000-2500-3000-3500-4000-4500 mm.

External surface: deep hard anodizing

> "Speedy Rail 35" assemblies and components

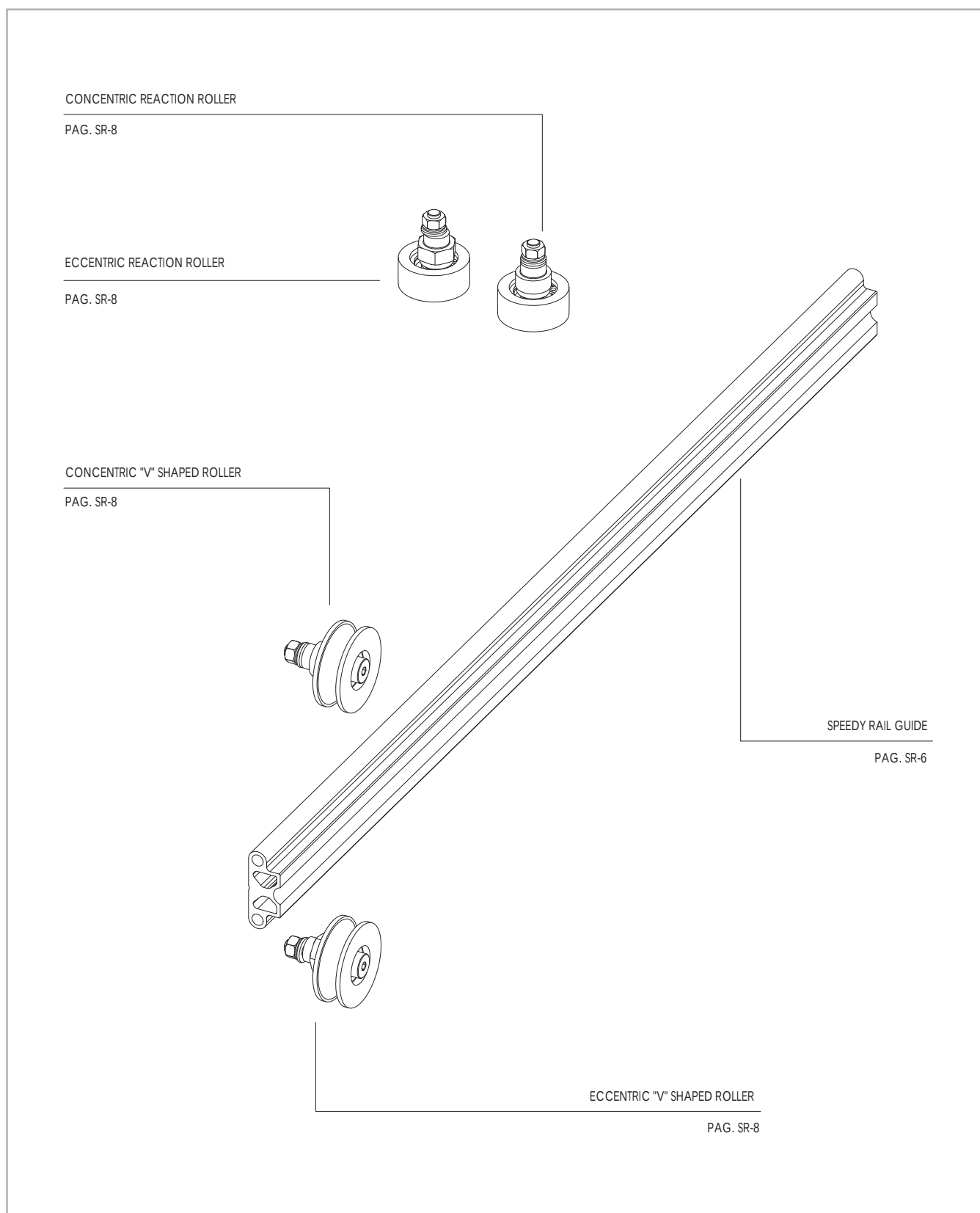
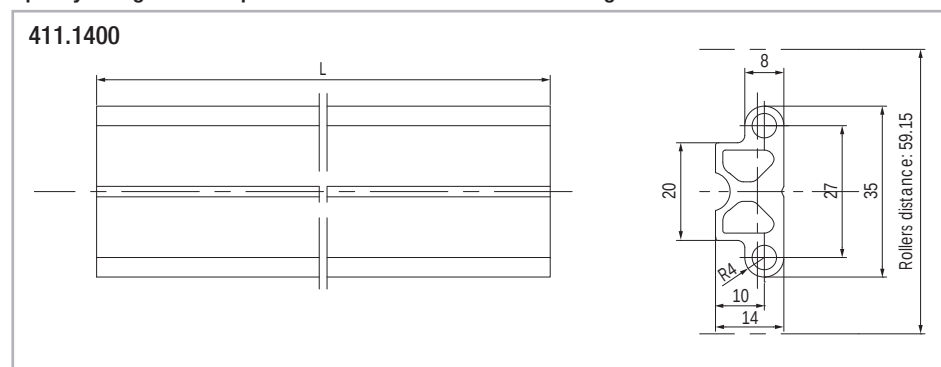
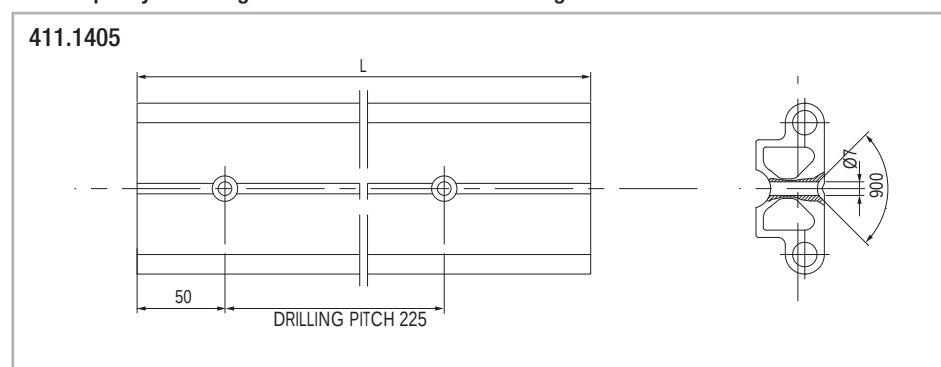


Fig. 3

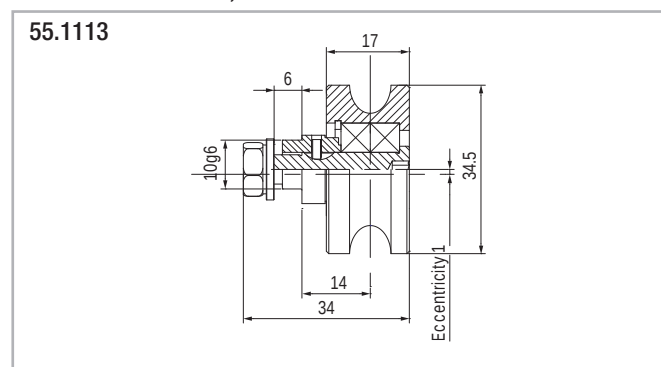
Speedy Rail guide with plain ends - Order code 411.1400/length in mm.



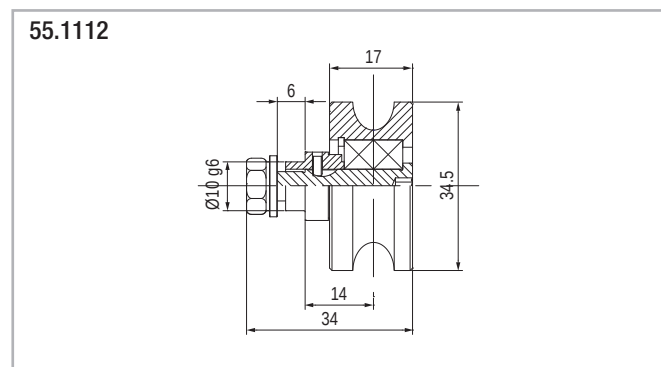
Drilled Speedy Rail 35 guide - Order code 411.1405/length in mm.



Plastic compound eccentric roller,  
max load: radial 200 N, axial 100 N



Plastic compound concentric roller,  
max load: radial 200 N axial 100 N



Plastic compound concentric contrast roller,  
max radial load 200 N

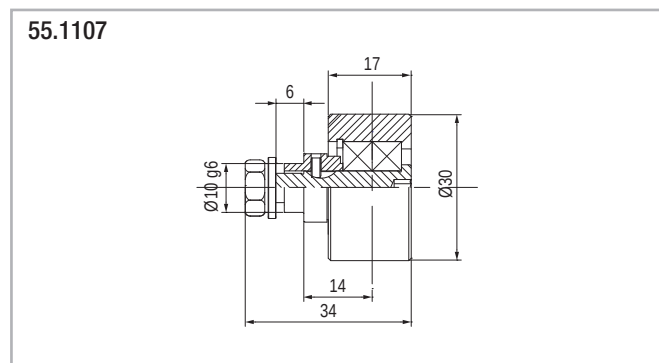


Fig. 8

Plastic compound eccentric contrast,  
roller max radial load 200 N

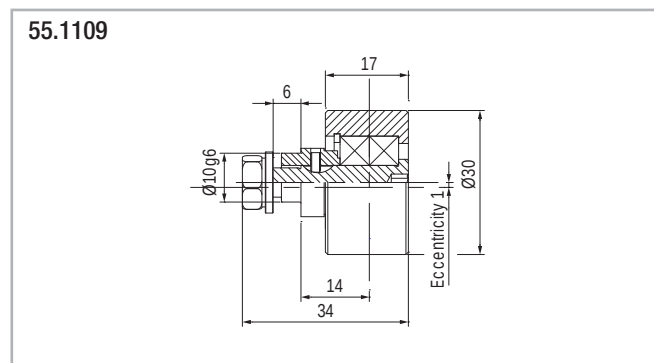


Fig. 9

## > Sliding doors "Speedy Rail 35" application example

Overturning locking upper rollers  
Supporting lower rollers

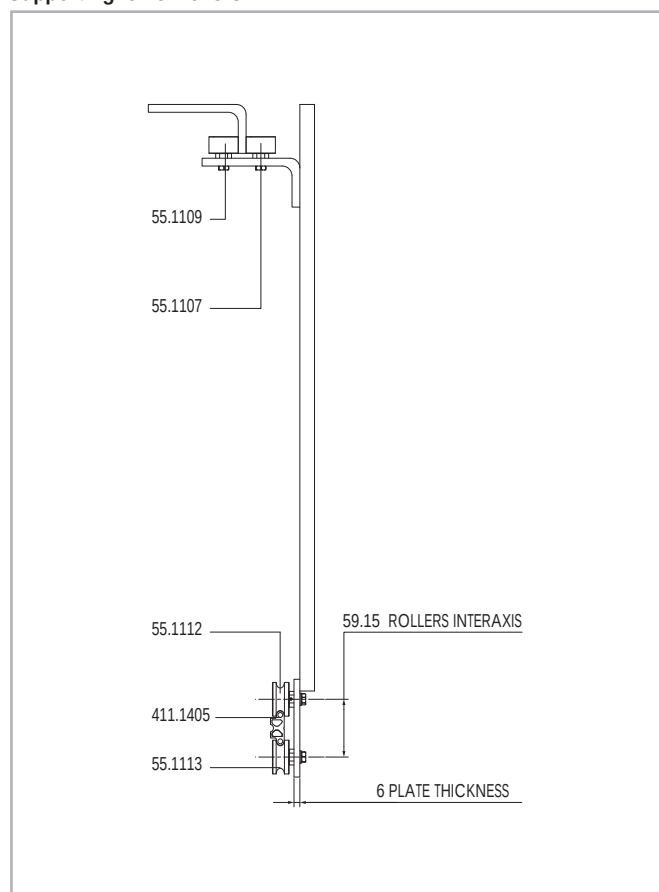


Fig. 10

## Speedy Rail C 48



### > "Speedy Rail C 48" guide and specification

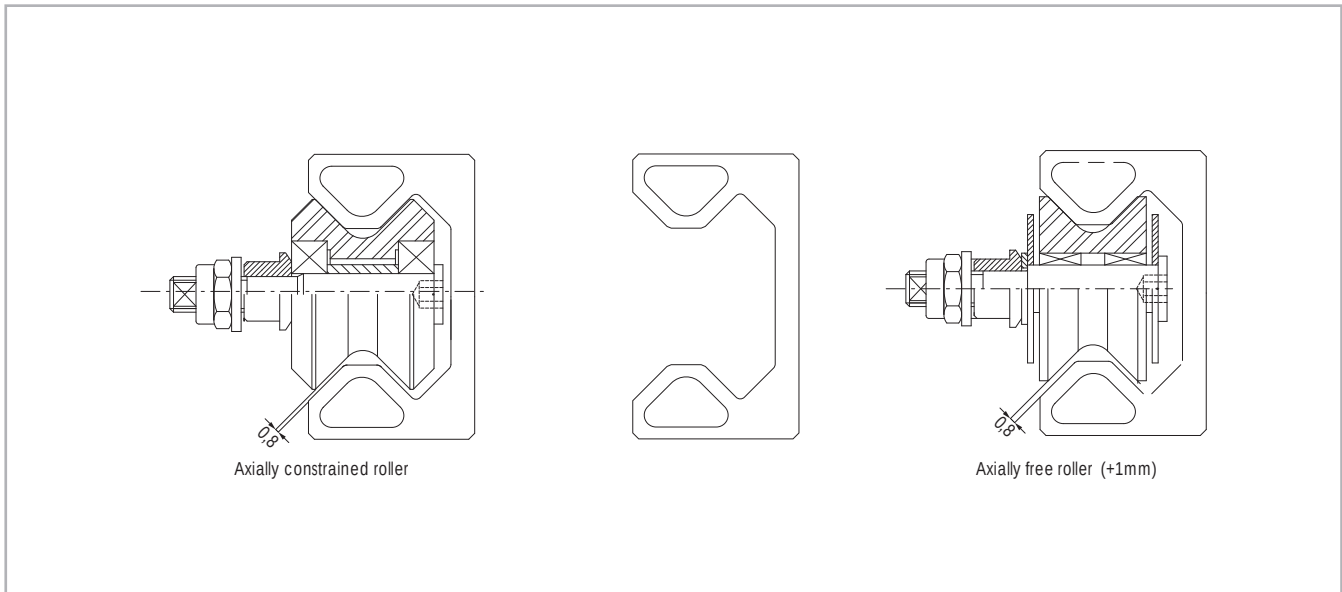


Fig. 11

#### "Speedy Rail C 48" guide

Material: aluminium alloy with hardened surface (700 Hv)

Surface quadratic moments: "I" XX AXIS= 152.026 mm<sup>4</sup> "I" YY AXIS= 36.823 mm<sup>4</sup>

Section modules: W (X) = 6334 mm<sup>3</sup> / W (Y) = 2045 mm<sup>3</sup>

Distance between the centre line of opposite rolling lanes: 28,86 mm

Linear mass = 1,42 kg/m.

Max. Angular distorsion =  $\pm 20'$ /m max.

Max. linear distorsion =  $\pm 0,4$  mm/m. Max.

Standard lengths: 500-1000-1500-2000-2500-3000-3500-4000-4500-5000-5500-6000-6500-7000-7500 mm.

Exterior treatment: deep hard anodizing

#### Rollers

Supported by ball or needle bearings. The external surface is finished with plastic compound

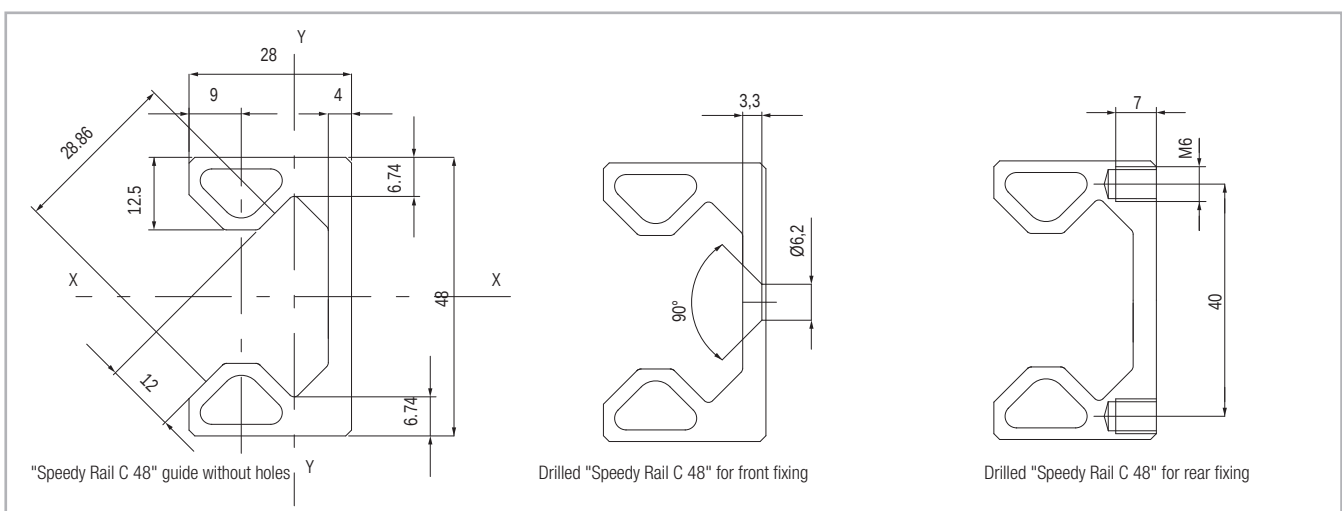


Fig. 12



## > "Speedy Rail C 48" assemblies and components

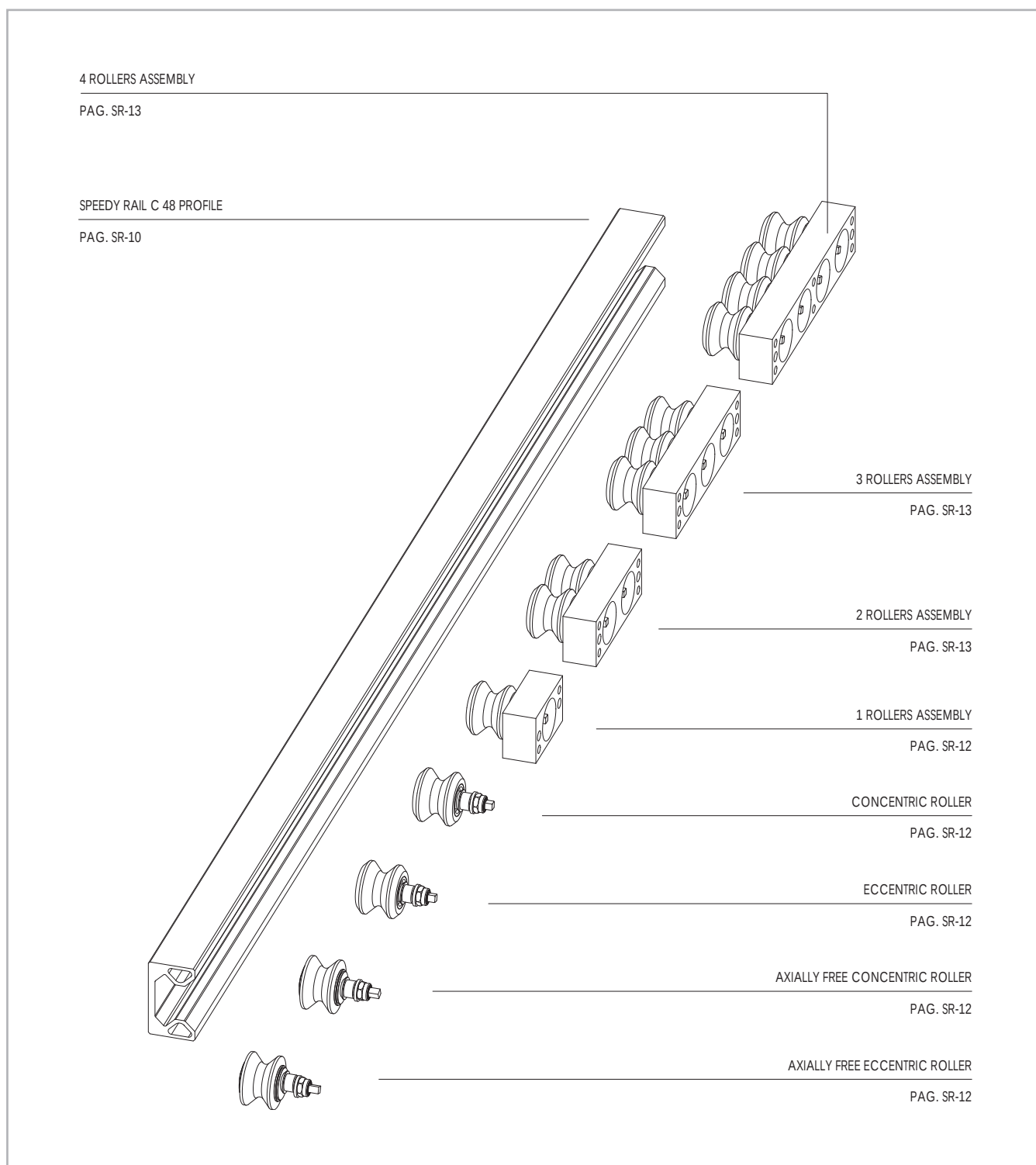


Fig. 13

## > Rollers and roller boxes for "Speedy Rail C 48" guide

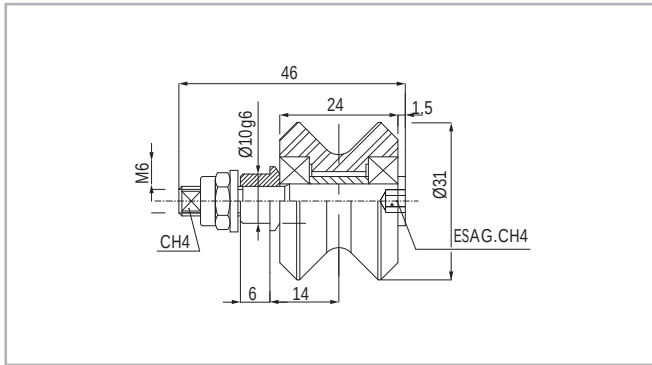


Fig. 14

55.1071 - Axially constrained concentric roller

55.1070 - Axially constrained eccentric roller (ecc. max. 1.4 mm)  
Max radial load 270 N - max axial load 100 N

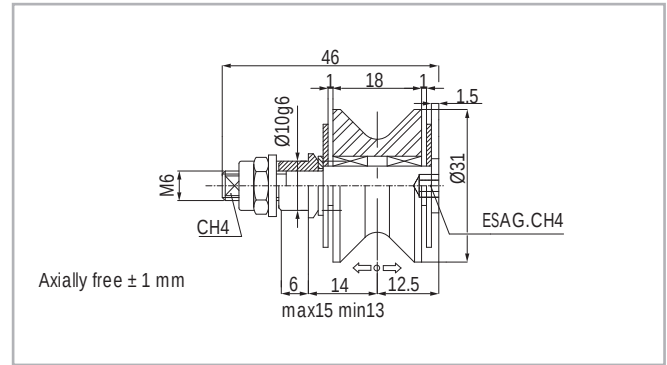


Fig. 15

55.1072 - Axially free concentric roller

55.1073 - Axially free eccentric roller (ecc. max. 1.4 mm)  
Max radial load 270 N - it doesn't accept axial load

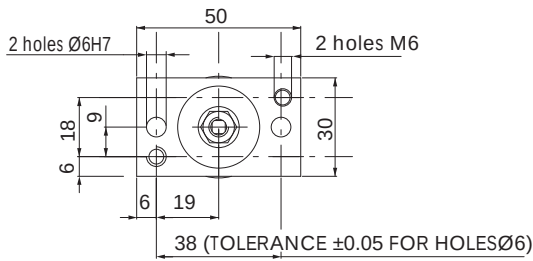


Fig. 16

55.1062 - Roller assembly with one conc. roller

55.1067 - Roller assembly with one ecc. roller  
Max. Load per roller: radial 270 N / axial 100 N

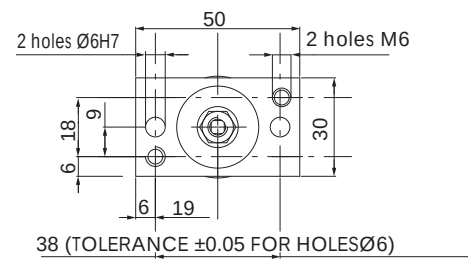


Fig. 17

55.1066 - Roller assembly with one conc. axial free roller

55.1065 - Roller assembly with one ecc. axial free roller  
Max. Load per roller: radial 270 N  
No axial loading

## > Roller boxes for "Speedy Rail C 48" guide

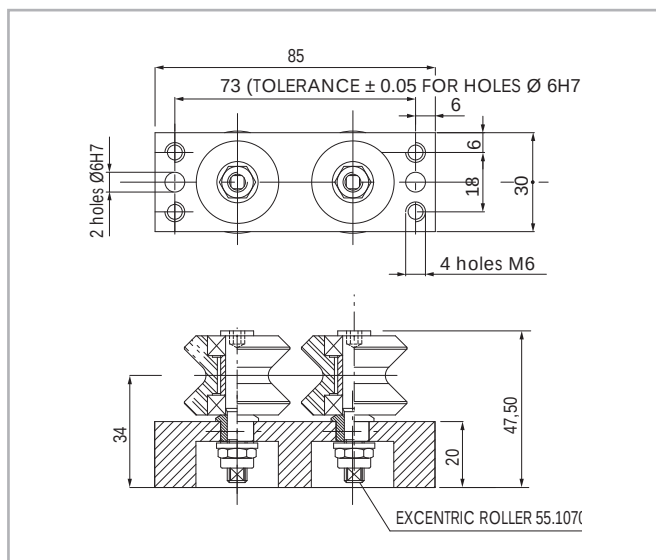


Fig. 18

**55.1061 - Roller assembly with one concentric and one excentric roller**  
 Max. load per roller: radial 270 N / axial 100 N

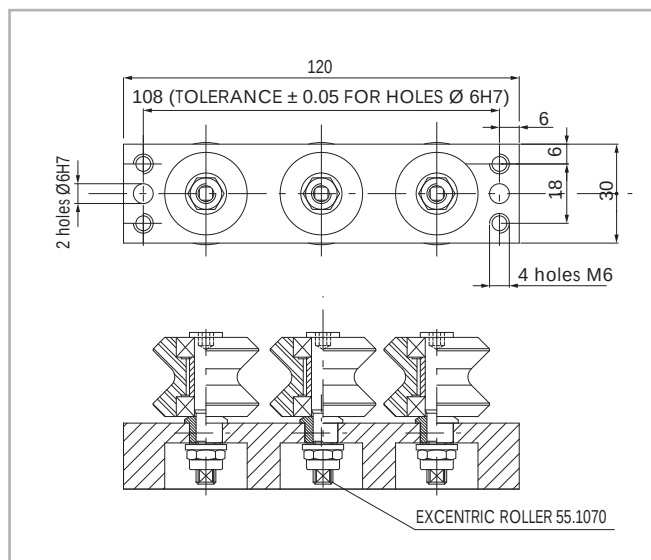


Fig. 19

**55.1060 - Roller assembly with two concentric rollers and one excentric roller**  
 Max. load per roller: radial 270 N / axial 100 N

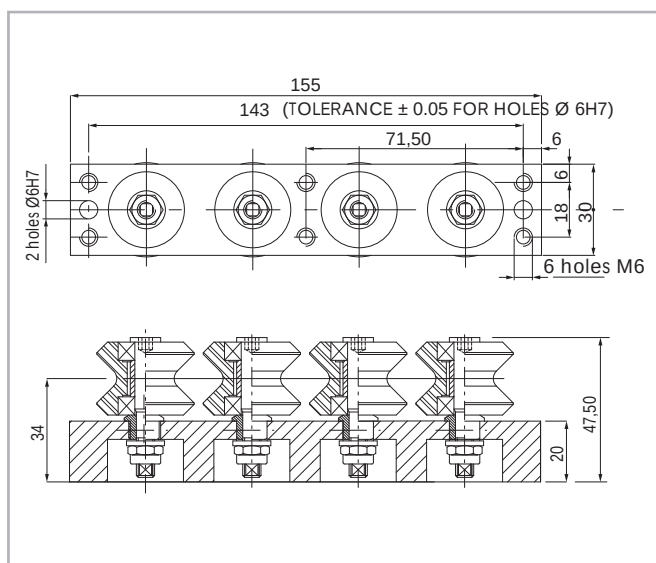


Fig. 20

**55.1064 - Roller assembly with 4 rollers, 3 conc. and 1 ecc.**  
 Max. load per roller: radial 270 N / axial 100 N

With roller assemblies with 2-3-4 rollers it is possible to have different solutions (axial constrained, axial free, concentric and eccentric rollers).

## Speedy Rail 60



### > "Speedy Rail Mini" guide and specification

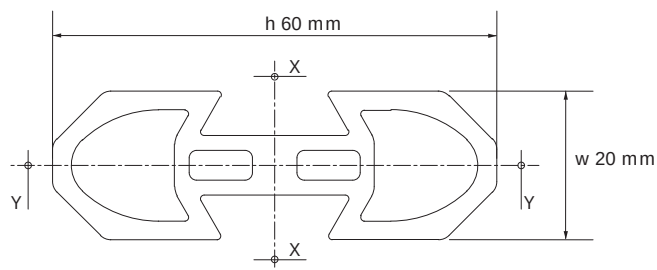


Fig. 21

Surface quadratic moments: X-X axis = 138.600 mm<sup>4</sup> / Y-Y axis = 18.000 mm<sup>4</sup>.

Max. manufacturing tolerances =  $\pm 0.15$  mm across opposite rolling surfaces.

Max. angular distortion =  $\pm 20'$ /m.

Linear mass = 1.27 Kg/m.

Max. linear distortion =  $\pm 0.4$  mm/m.

Standard lengths: 1000-1500-2000-2500-3000-3500-4000-4500-5000-5500-6000-6500-7000 mm.

Ext. surface: deep hard anodizing

## > "Speedy Rail Mini" roller assemblies and components

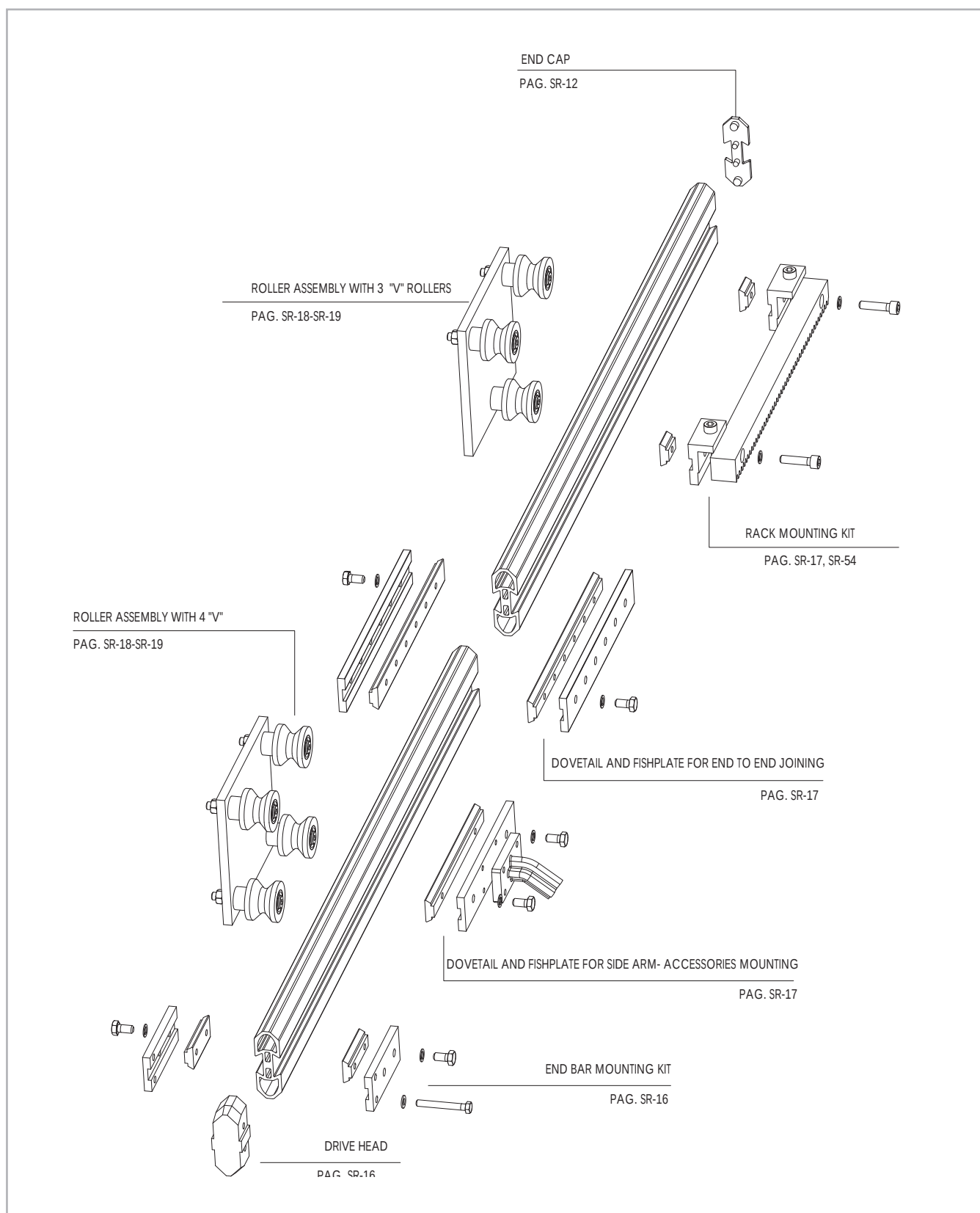


Fig. 22

## > "Speedy Rail Mini" guide and components

**Mini speedy rail with plain ends - Order code 411.0764 / length in mm.**

411.0764

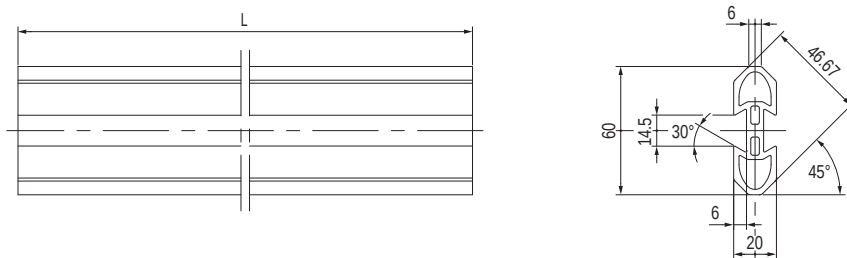


Fig. 23

### Mini speedy rail with drilled ends

Order code 411.0765 / length in mm.

411.0765

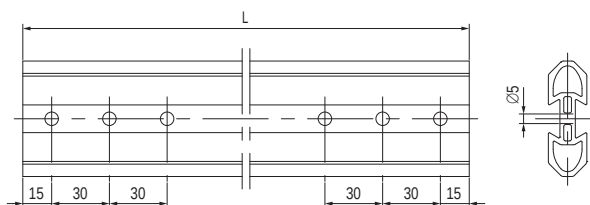


Fig. 24

**Nota:** drillings on the guide end are required as a safety measure with end-to-end joining in moving rails.

See technical note on page SR-70

### Fishplate for drive head

411.0767

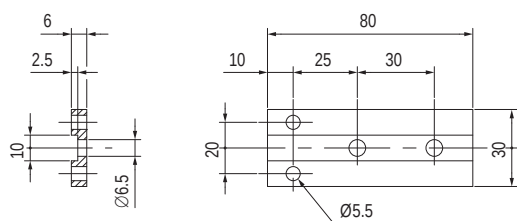


Fig. 25

**M6 allen round head screw**

411.0775

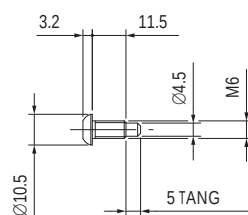


Fig. 26

### Drive head

411.0776

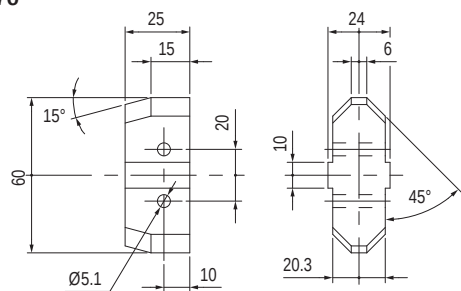


Fig. 27

End cap

411.0739

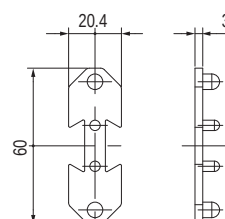


Fig. 28

## Bolt for drive head mount

411.0818

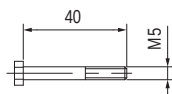
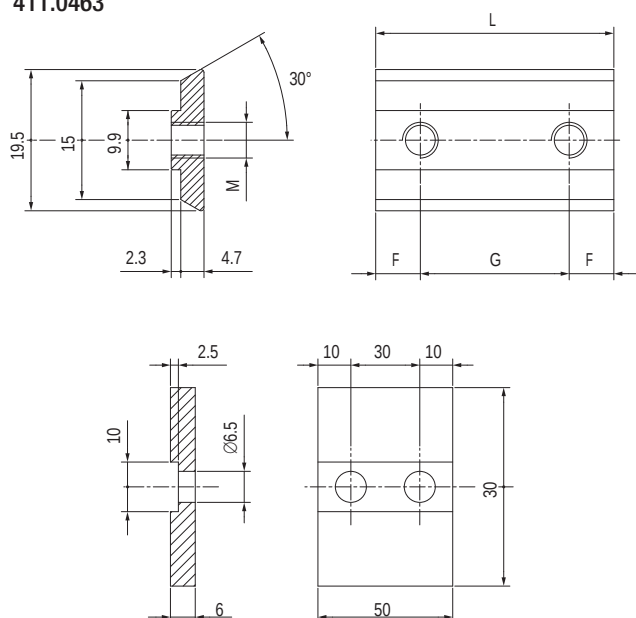


Fig. 29

## &gt; Dovetail clamps and fishplates

## Fishplate

411.0463



Material: hard anodized aluminium alloy

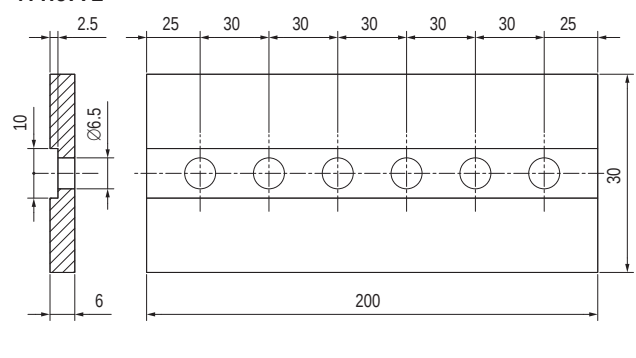
Fig. 30

| Code N°  | N° Holes | F  | G   | L   | M  | Material        |
|----------|----------|----|-----|-----|----|-----------------|
| 411.1732 | 1        | 10 | /   | 20  | M4 | Burnished steel |
| 411.2732 | 1        | 10 | /   | 20  | M5 |                 |
| 411.2733 | 9        | 8  | 60  | 496 | M5 |                 |
| 411.0732 | 1        | 10 | /   | 20  | M6 |                 |
| 411.0768 | 2        | 15 | 30  | 60  | M6 |                 |
| 411.0754 | 3        | 10 | 30  | 80  | M6 |                 |
| 411.0769 | 6        | 25 | 30  | 200 | M6 |                 |
| 411.0771 | 2        | 25 | 100 | 150 | M6 |                 |
| 411.0462 | 2        | 10 | 30  | 50  | M6 |                 |
| 411.3532 | 1        | 10 | /   | 20  | M8 |                 |

Tab. 4

## Fishplate for end to end joining

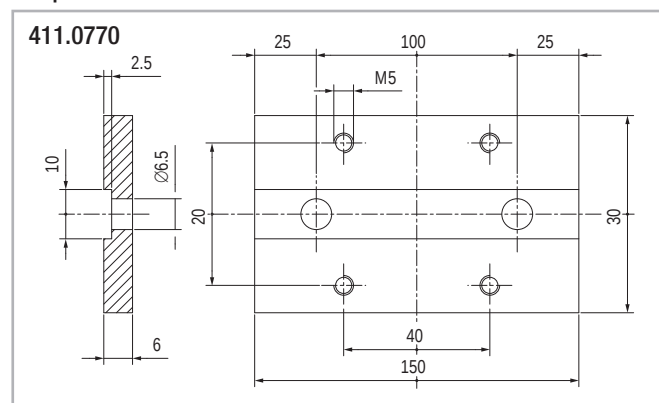
411.0772



Material: hard anodized aluminium alloy

Fig. 31

Fishplate for side-arm attachment



Material: hard anodized aluminium alloy

Fig. 32

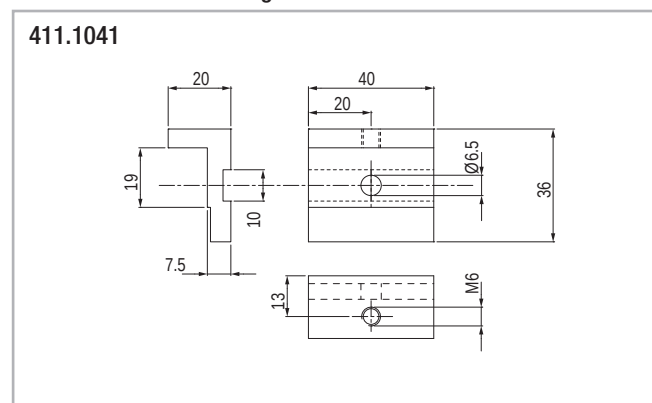
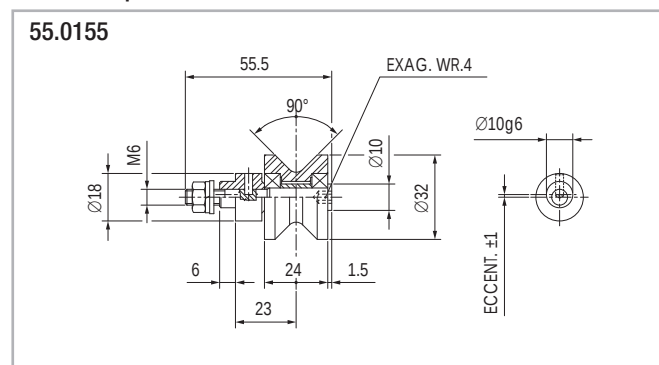
Plate for m<sup>2</sup> rack mounting

Fig. 33

## > Roller assembly and "v" rollers "Light"

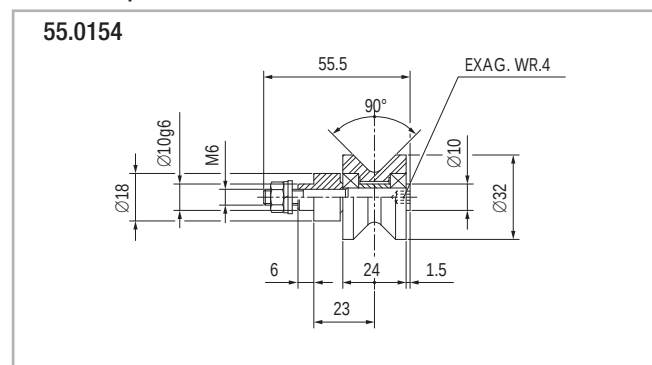
Plastic compound eccentric roller



Max. load: radial 270 N axial 100 N

Fig. 34

Plastic compound concentric roller



Max. load: radial 270 N axial 100 N

Fig. 35

FOR AXIALLY FREE ROLLER SEE PAGE SR-12 ( 55.1072 CONC. - 55.1073 ECC. )

Roller assembly with 3 rollers

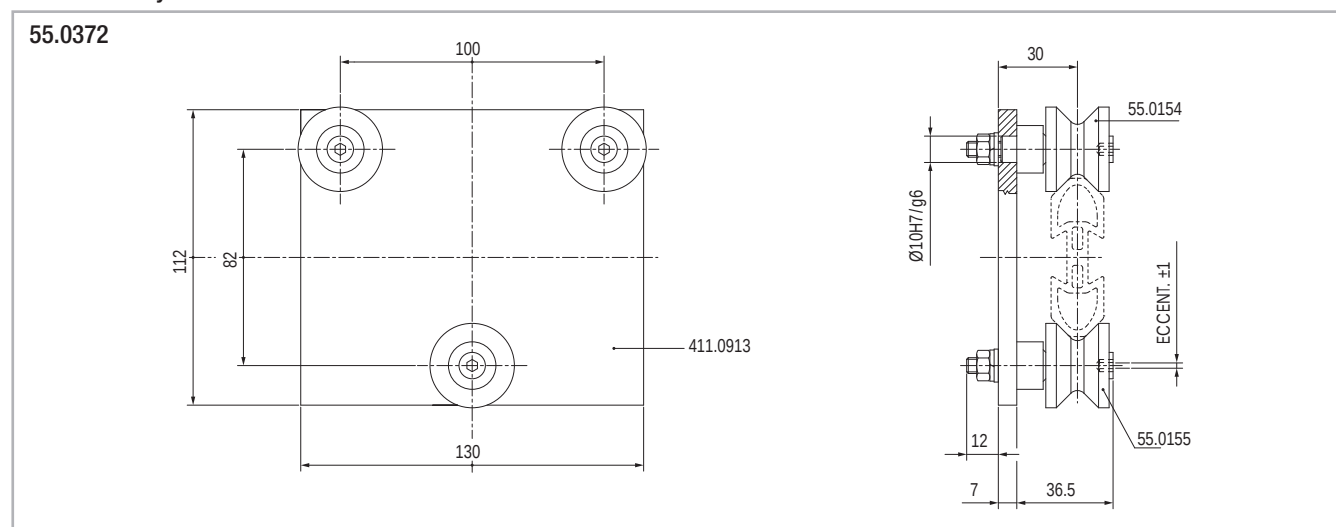
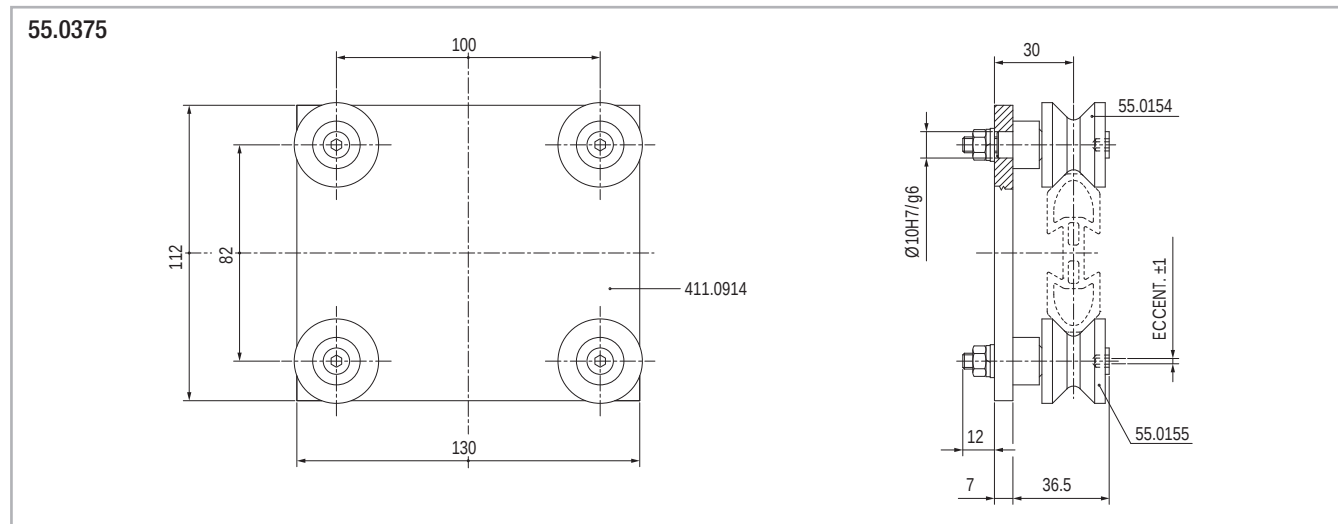


Fig. 36

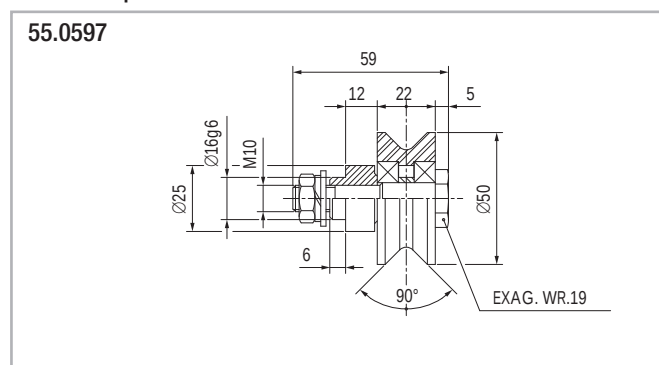


## Roller assembly with 4 rollers



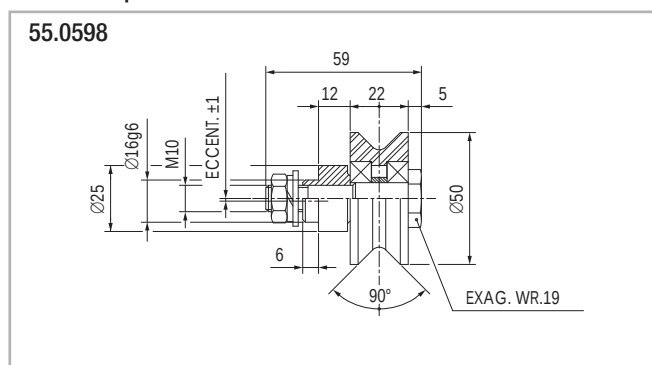
> Roller assemblies and "V" rollers

## Plastic compound concentric roller



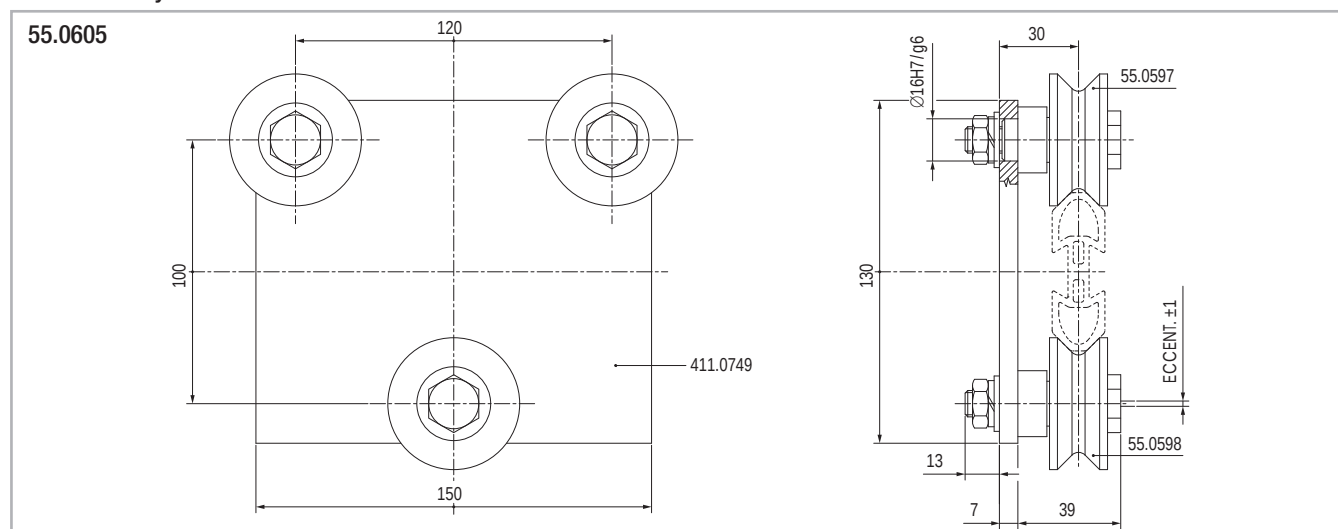
Max. load: radial 400 N axial 100 N

## Plastic compound eccentric roller



Max. load: radial 400 N axial 100 N

## Roller assembly with 3 rollers



Roller assembly with 4 rollers

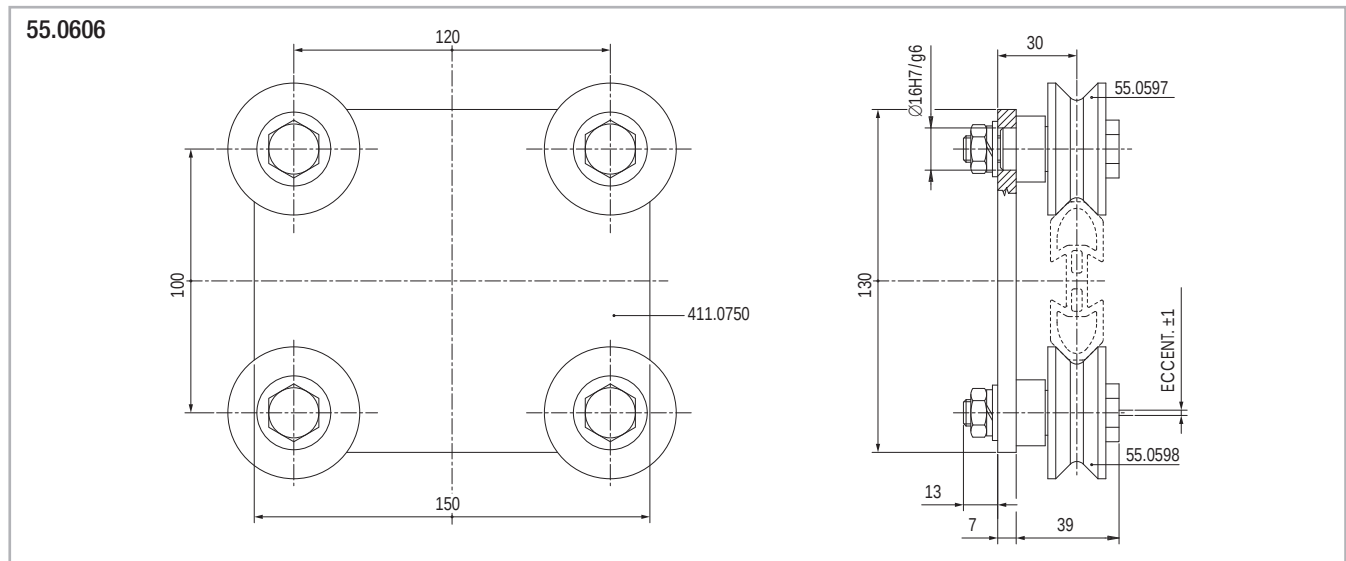


Fig. 41

## Speedy Rail 90



### > "Middle Speedy Rail" guide and specifications

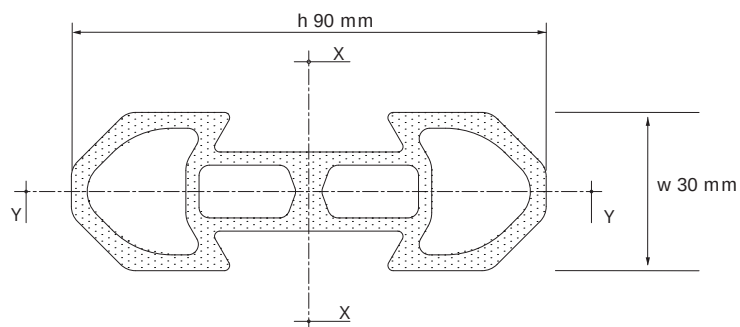


Fig. 42

Surface quadratic moments: X-X axis = 630.000 mm<sup>4</sup> / Y-Y axis = 76.500 mm<sup>4</sup>.

Max. manufacturing tolerances =  $\pm 0.20$  mm across opposite rolling surfaces.

Max. angular distortion =  $\pm 20'$ /m.

Linear mass = 2.6 Kg/m.

Max. linear distortion =  $\pm 0.4$  mm/m.

Standard lengths: 1000-1500-2000-2500-3000-3500-4000-4500-5000-5500-6000-6500-7000-7500 mm.

External surface: deep hard anodizing

> "Middle Speedy Rail" assemblies and components

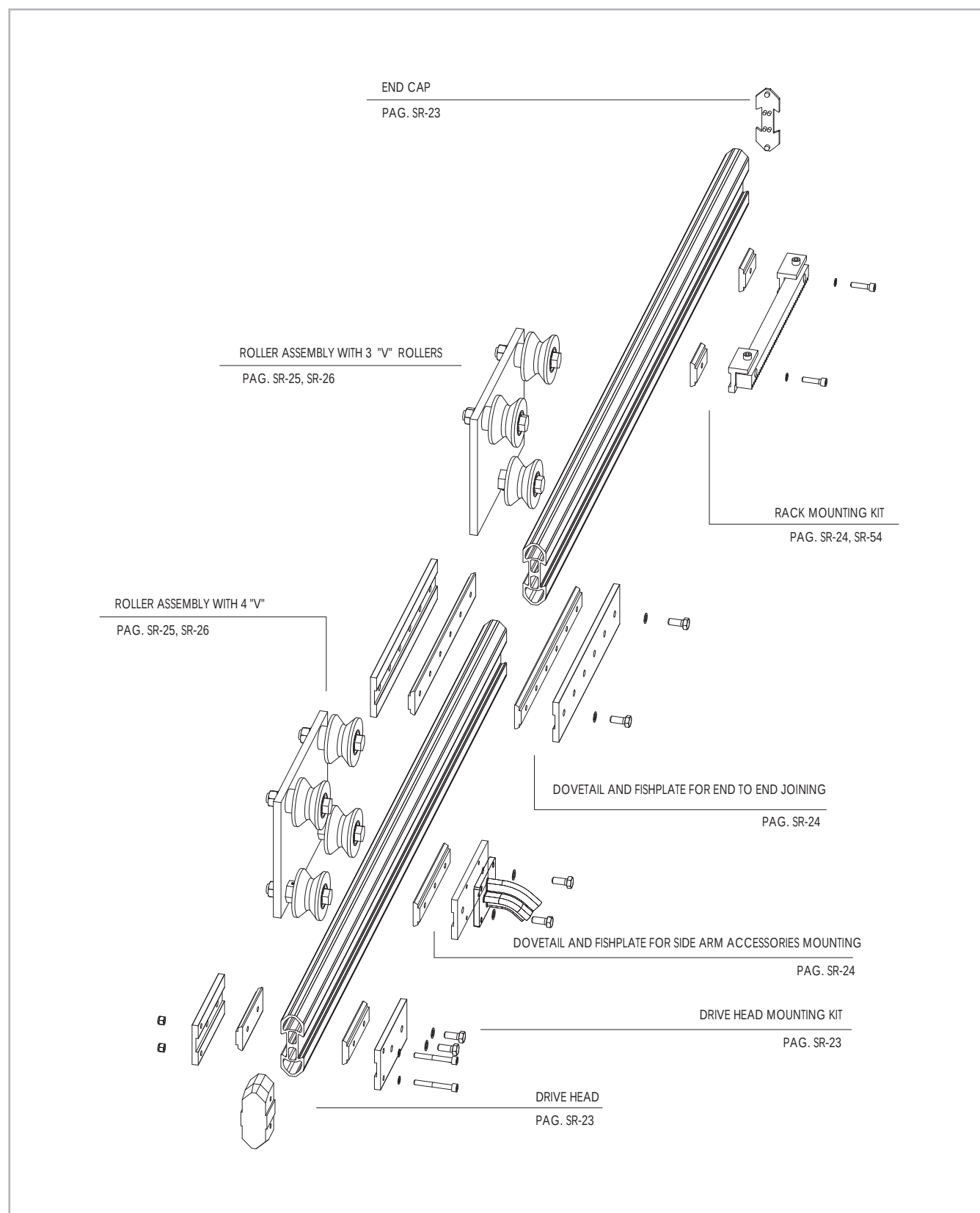


Fig. 43

## > "Middle Speedy Rail" guide and components

Middle Speedy Rail with plain ends - Order code 411.0964 / length in mm.

411.0964



Fig. 44

Middle Speedy Rail with drilled ends

Order code 411.0965 / length in mm.

411.0965

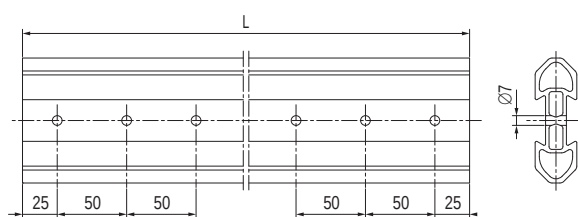


Fig. 45

**Note:** drillings on the guide end are required as a safety measure with end-to-end joining in moving rails.

See technical note on page SR-70

Fishplate for drive head

411.0866

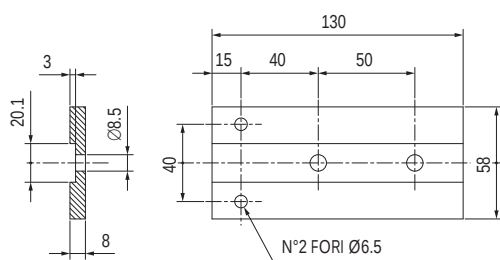


Fig. 46

Drive head

411.0856

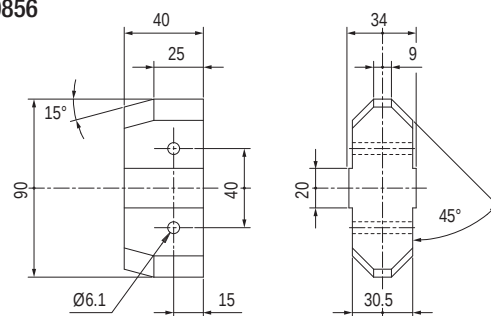


Fig. 47

End cap

411.0858

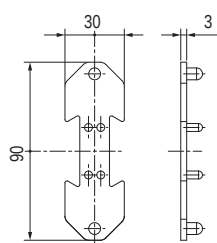


Fig. 48

Bolt for drive head mount

411.0610

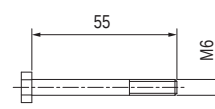


Fig. 49

> Dovetail clamps and fishplates

Fishplate

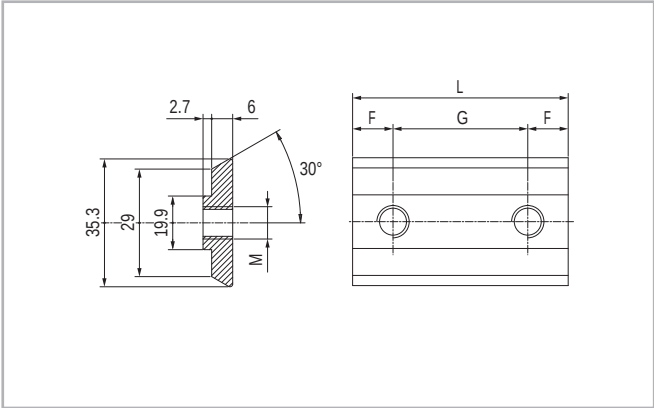


Fig. 50

| Code N.  | N° Holes | F  | G  | L   | M  | Material        |
|----------|----------|----|----|-----|----|-----------------|
| 411.1025 | 1        | 25 | /  | 50  | M4 | Burnished steel |
| 411.1047 | 1        | 25 | /  | 50  | M6 |                 |
| 411.1045 | 1        | 25 | /  | 50  | M8 |                 |
| 411.1069 | 2        | 25 | 50 | 100 | M8 |                 |
| 411.1088 | 3        | 25 | 50 | 150 | M8 |                 |
| 411.1072 | 4        | 25 | 50 | 200 | M8 |                 |
| 411.1070 | 6        | 25 | 50 | 300 | M8 |                 |

Tab. 5

Dovetail-execution without step

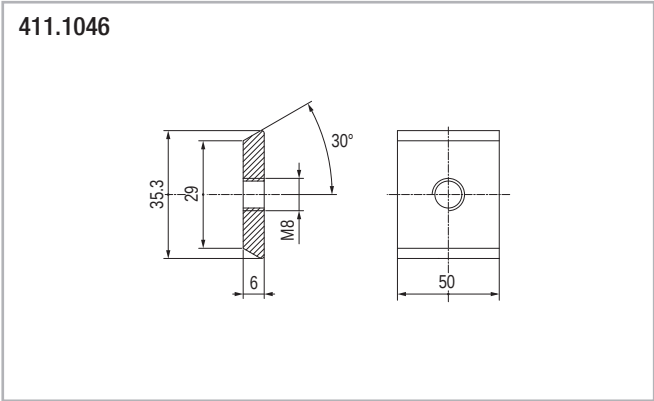


Fig. 51

Dovetail-quick top insertion version

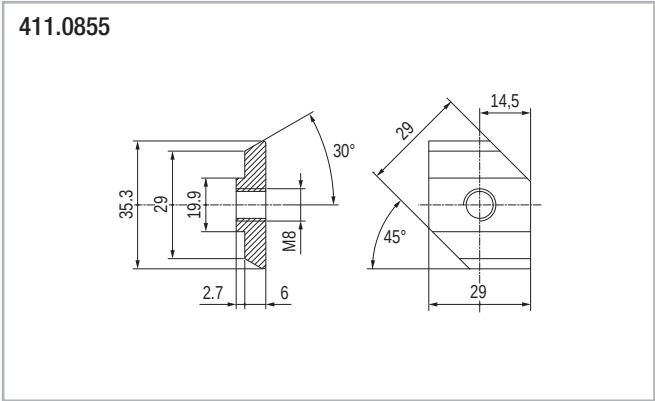
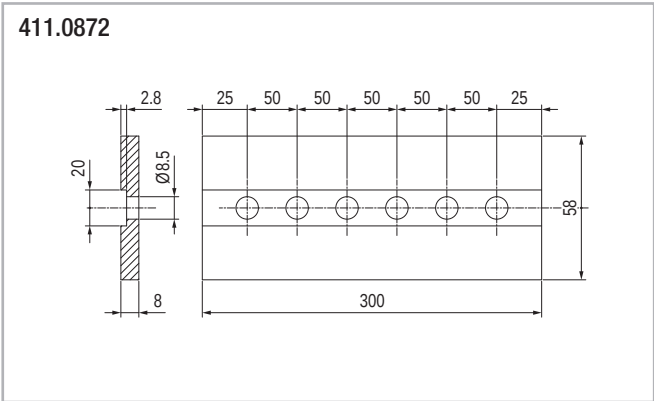


Fig. 52

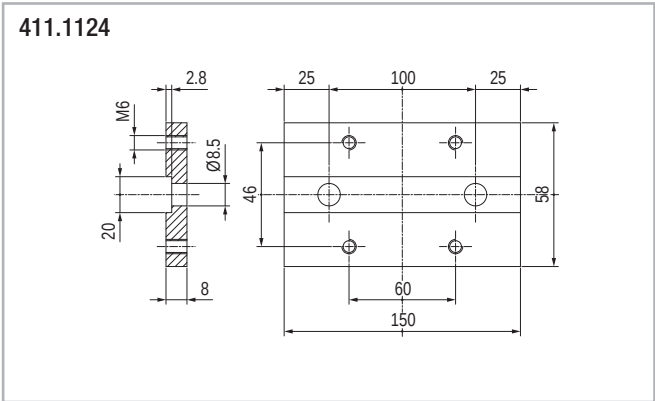
Fishplate for end to end joining



Material: hard anodized aluminium alloy

Fig. 53

Fishplate for side-arm attachment



Material: hard anodized aluminium alloy

Fig. 54

Steel plate for m² rack mounting

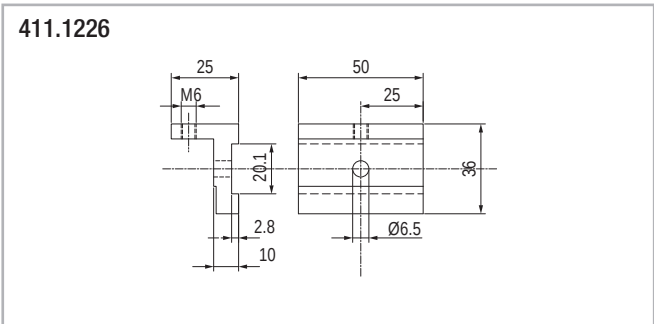
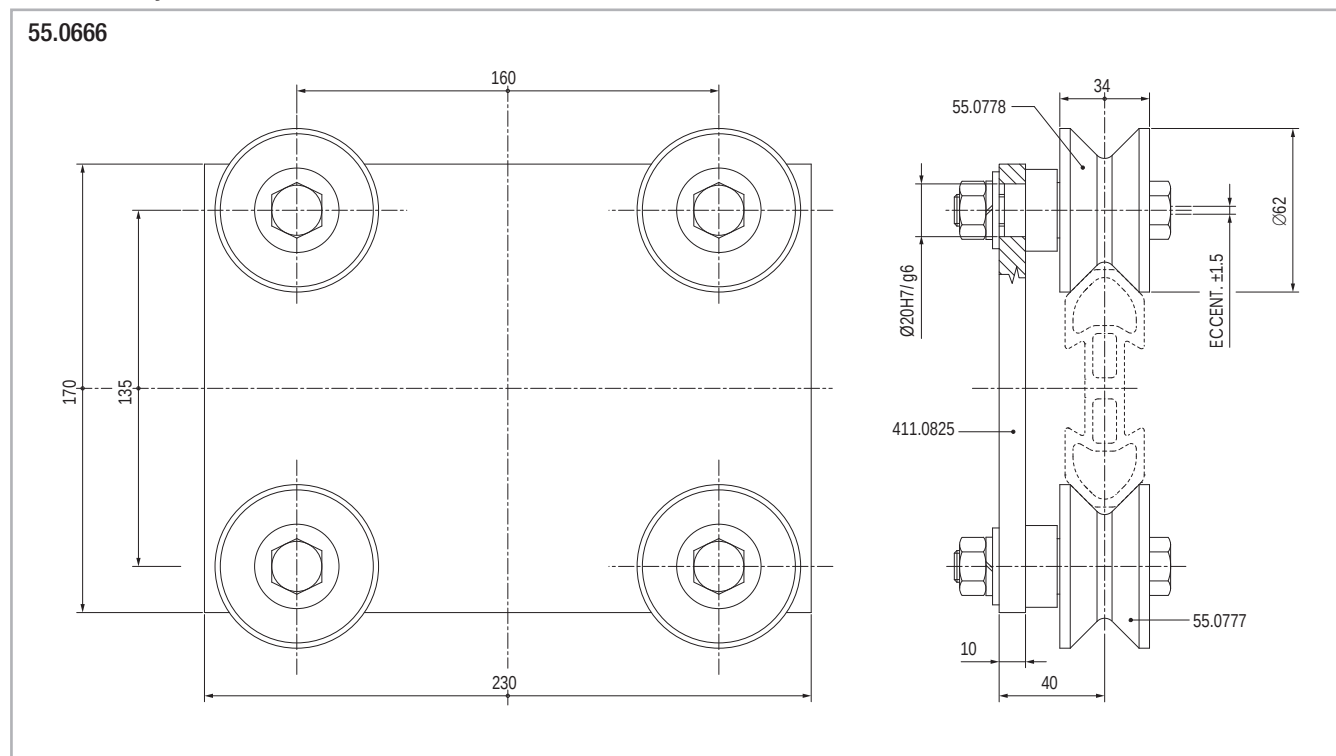


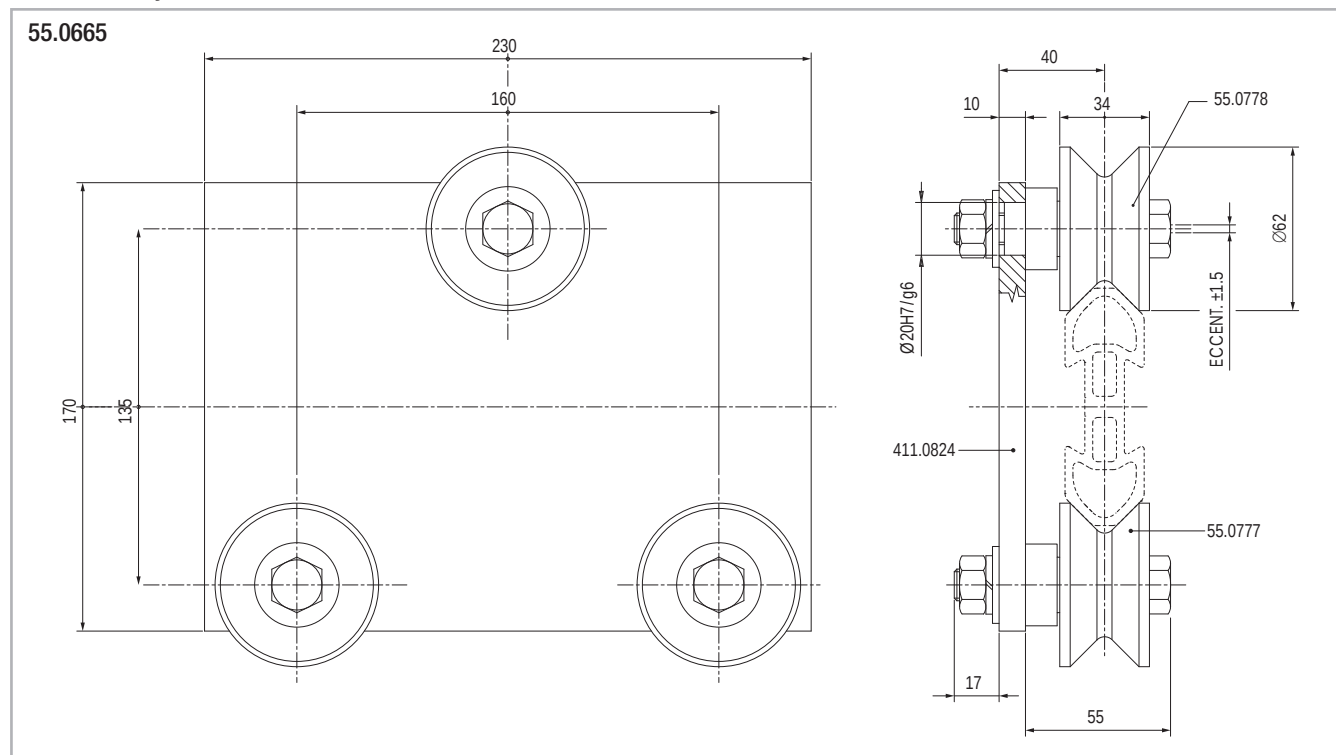
Fig. 55

## > Roller assembly with "V" shaped rollers

### Roller assembly with 4 rollers



### Roller assembly with 3 rollers

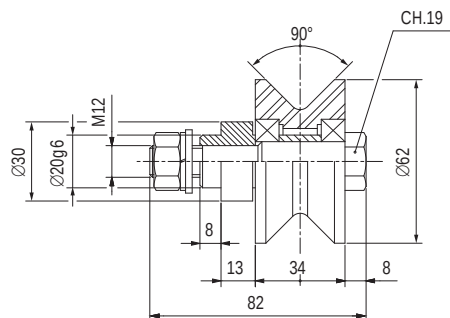


The plates - cod. 411.0825 and 411.0824 - are made in aluminium alloy with hard anodization. The rollers -cod. 55.0387, 55.0388, 55.0130 55.0131- and/or different combinations from the ones shown on this page can be mounted on the above plates. Please call our technical dept. Prior any configuration changes.

## > Plastic compound shell "V" rollers

### Concentric roller

55.0777

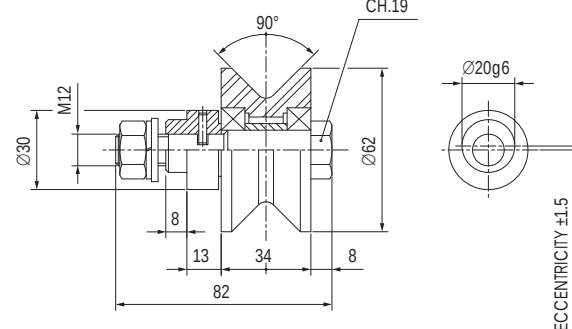


Max. load: radial 450 N/axial 150 N

Fig. 58

### Eccentric roller

55.0778

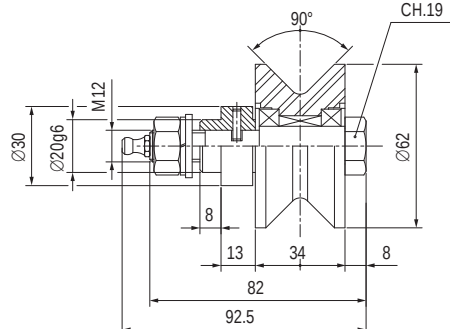


Max. load: radial 450 N/axial 150 N

Fig. 59

### Concentric roller heavy duty

55.0387

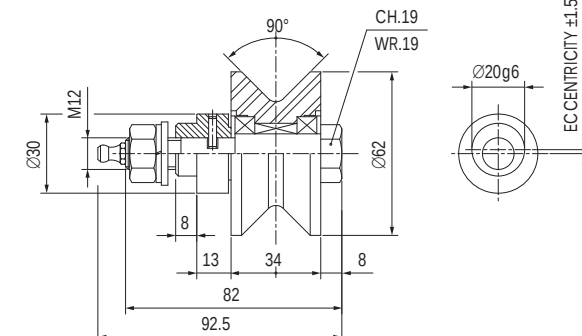


Max. Load: radial 700 N/axial 280 N - Optional lifetime lubrication

Fig. 60

### Eccentric roller heavy duty

55.0388

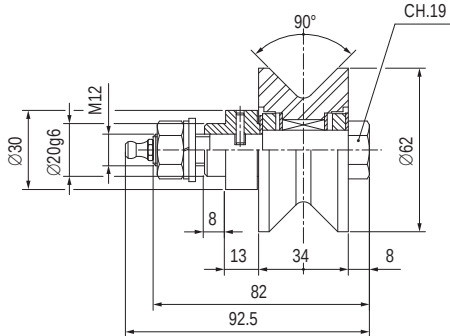


Max. Load: radial 700 N/axial 280 N - Optional lifetime lubrication

Fig. 61

### Concentric roller axially free ±1.75 mm

55.0130

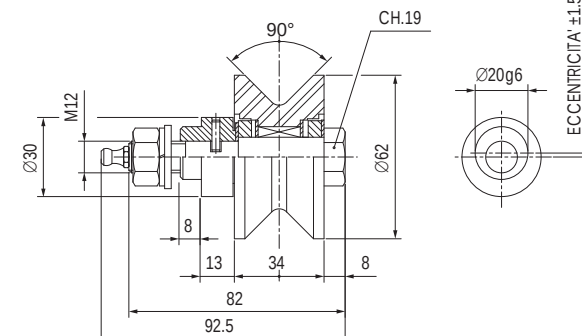


Max. radial load: 700 N - Optional lifetime lubrication

Fig. 62

### Eccentric roller axially free ±1.75 mm

55.0131



Max. radial load: 700 N - Optional lifetime lubrication

Fig. 63



## Speedy Rail 120



### > "Standard Speedy Rail" guide and specifications

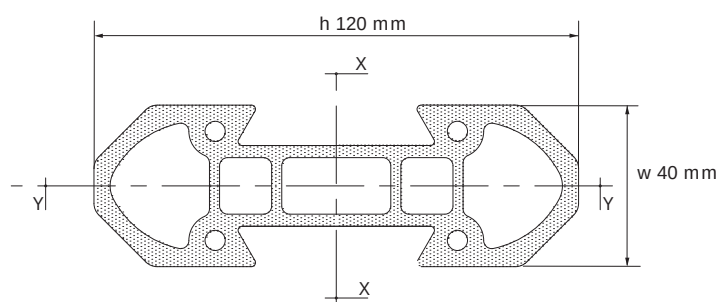


Fig. 64

Surface quadratic moments: X-X axis = 2.138.988 mm<sup>4</sup> / Y-Y axis = 259.785 mm<sup>4</sup>.

Max. manufacturing tolerances =  $\pm 0.20$  mm across opposite rolling surfaces.

Max. angular distorsion =  $\pm 20'$ /m.

Linear mass = 4,4 Kg/m.

Max. linear distorsion =  $\pm 0.5$  mm/m.

Standard lengths: 1000-1500-2000-2500-3000-3500-4000-4500-5000-5500-6000-6500-7000-7500 mm.

External surface: deep hard anodizing

## > "Standard Speedy Rail" assemblies and components

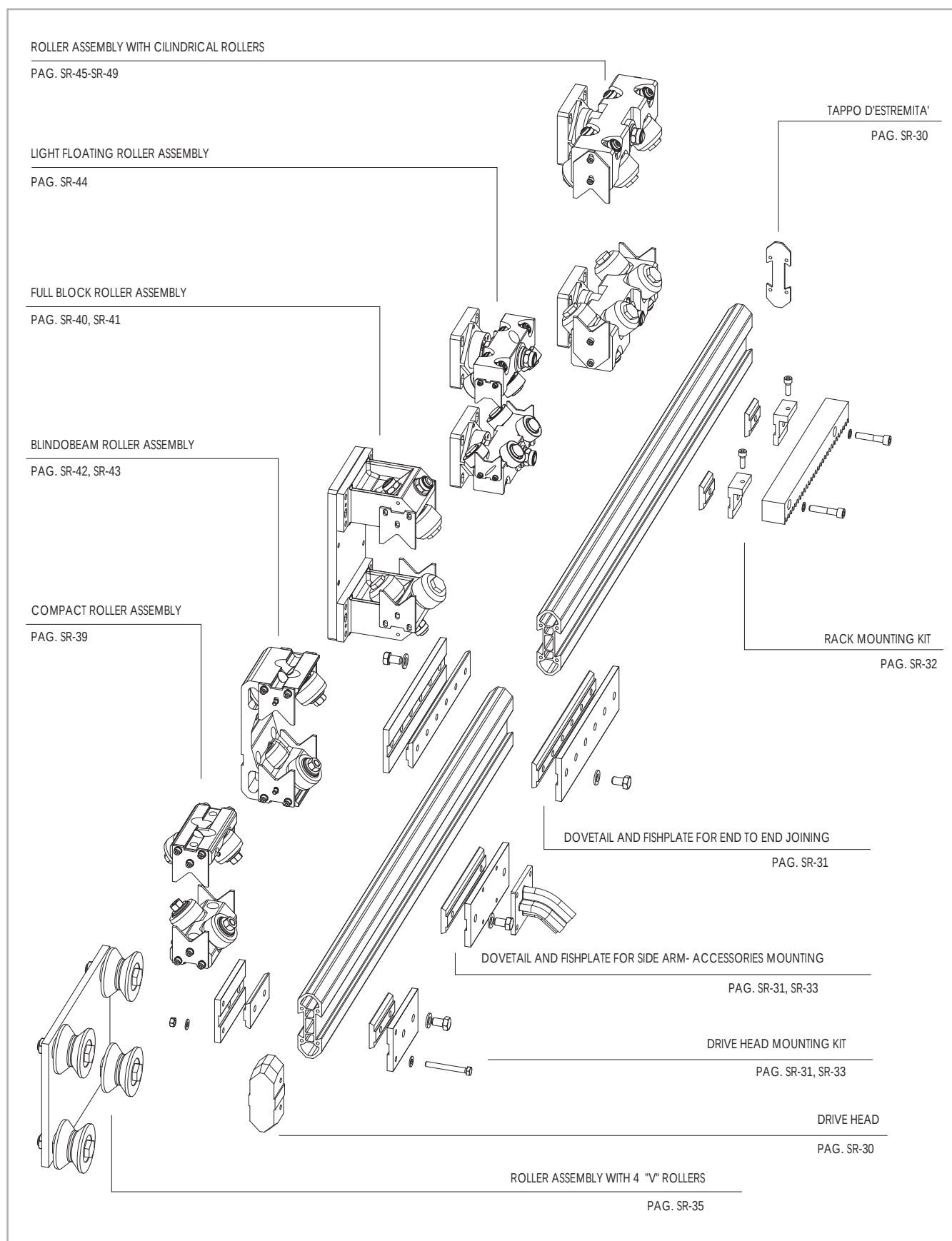


Fig. 65

## > "Standard Speedy Rail" guide and specifications

Standard speedy rail with plain ends - Order code 411.2464 / length in mm.

411.2464

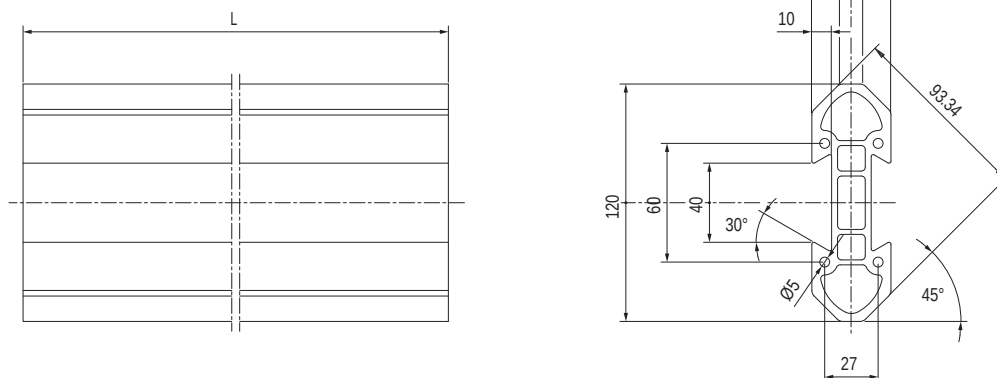


Fig. 66

Standard speedy rail with drilled ends - Order code 411.2465 / length in mm.

411.2465

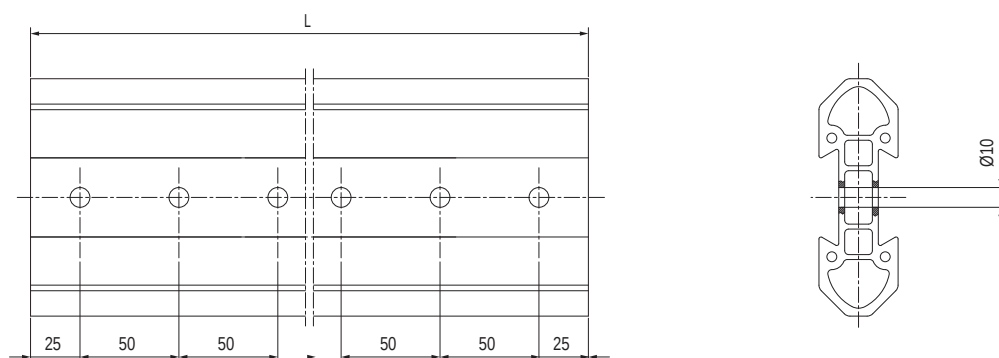


Fig. 67

**Note:** drillings on guide end are required as a safety measure with end-to-end joining in moving rails.

## > Components for speedy rail SR120 guide

### Drive head

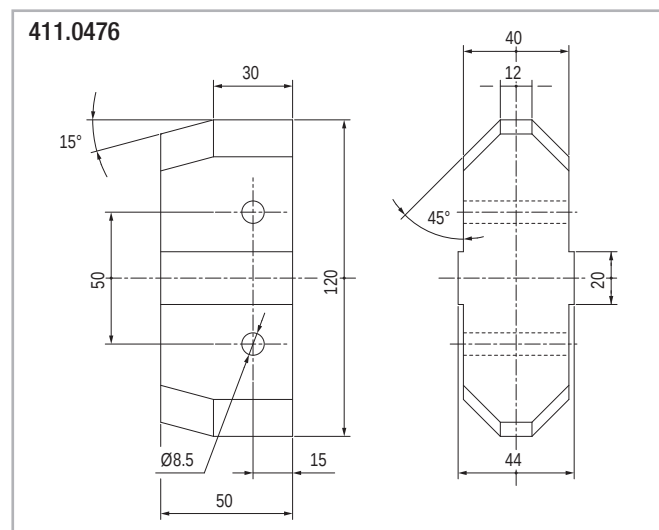


Fig. 68

### Bolt for drive head

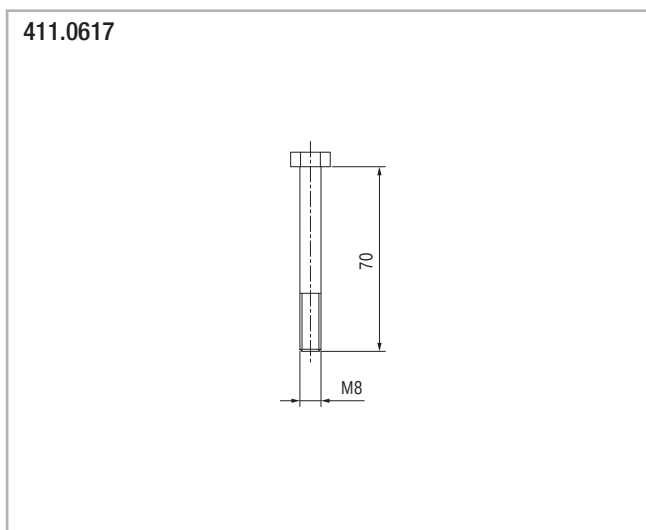


Fig. 69

### Aluminium alloy end cap

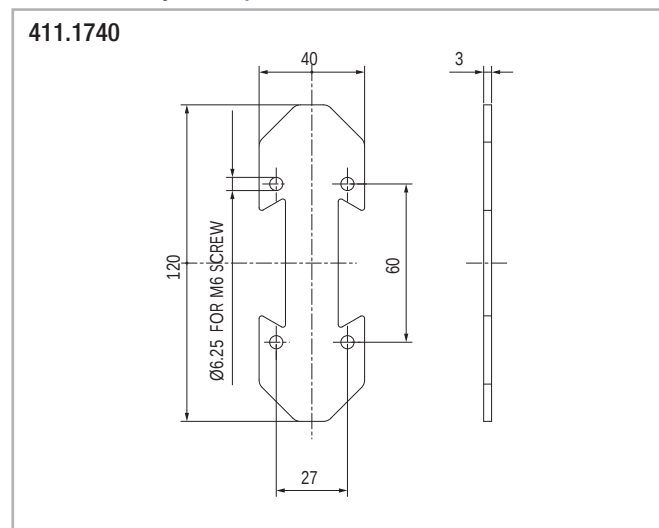


Fig. 70

### Plastic end cap

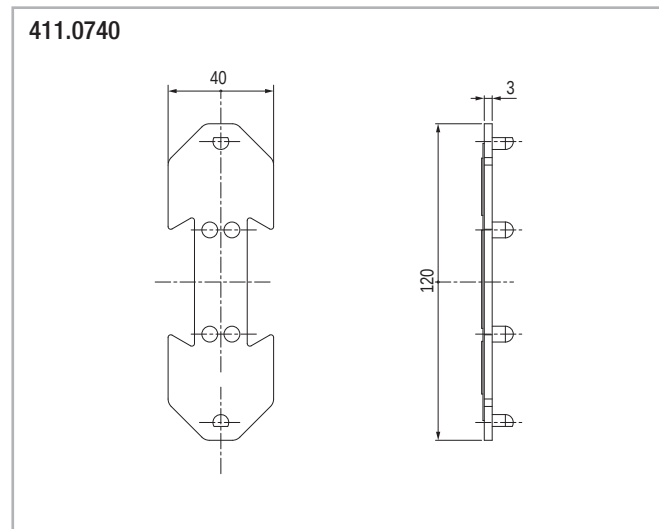


Fig. 71

## > Standard dovetail clamps

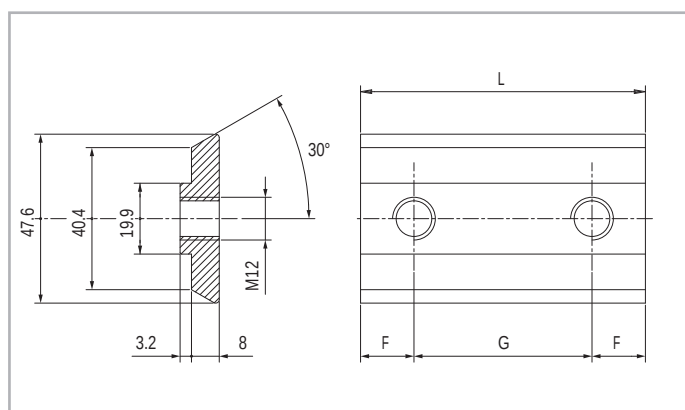


Fig. 72

| Code N.  | N° Holes | F  | G   | L   | Material        |
|----------|----------|----|-----|-----|-----------------|
| 411.0845 | 1        | 25 | /   | 50  | Burnished steel |
| 411.0745 | 1        | 25 | /   | 50  |                 |
| 411.0503 | 2        | 15 | 40  | 70  |                 |
| 411.0469 | 2        | 25 | 50  | 100 |                 |
| 411.0588 | 3        | 25 | 50  | 150 |                 |
| 411.0472 | 2        | 25 | 150 | 200 |                 |
| 411.0470 | 6        | 25 | 50  | 300 |                 |

Tab. 6

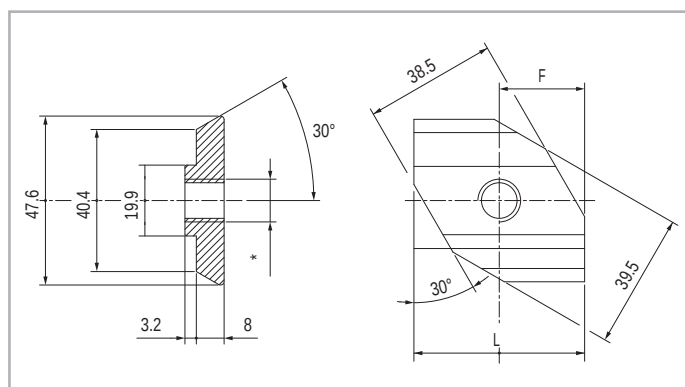


Fig. 73

**411.1178**

\* M10 dovetail-quick front-insertion version

**411.0845**

\* M12 dovetail-quick front-insertion version

### Dovetail clamps with M8 threaded holes

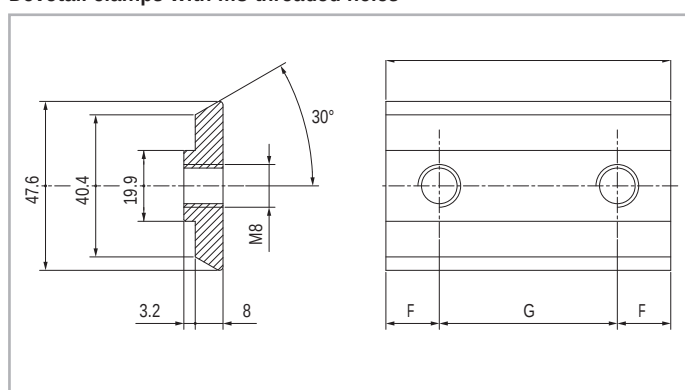


Fig. 74

| Code N.  | N° Holes | F  | G  | L   | Material        |
|----------|----------|----|----|-----|-----------------|
| 411.0675 | 2        | 15 | 20 | 50  | Burnished steel |
| 411.1111 | 1        | 25 | /  | 50  |                 |
| 411.1112 | 2        | 25 | 50 | 100 |                 |
| 411.1113 | 3        | 25 | 50 | 150 |                 |
| 411.0970 | 6        | 25 | 50 | 300 |                 |

Tab. 7

### Dovetail clamps with M10 threaded holes

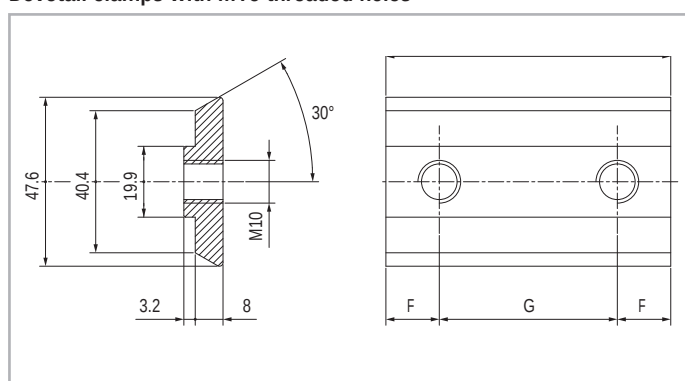


Fig. 75

| Code N.  | N° Holes | F  | G  | L   | Material        |
|----------|----------|----|----|-----|-----------------|
| 411.1117 | 1        | 25 | /  | 50  | Burnished steel |
| 411.1119 | 2        | 25 | 50 | 100 |                 |
| 411.1120 | 3        | 25 | 50 | 150 |                 |

Tab. 8

Dovetail clamps \*quick front insert

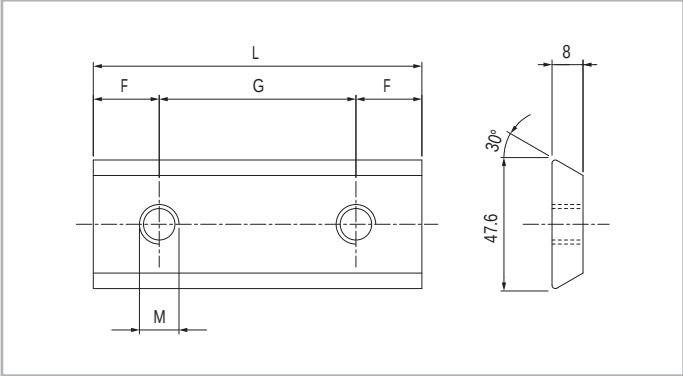


Fig. 76

| Code N.   | N° Holes | F  | G  | L   | M   | Material        |
|-----------|----------|----|----|-----|-----|-----------------|
| 411.1174* | 1        | 25 | /  | 50  | M8  | Burnished steel |
| 411.1675  | 2        | 15 | 20 | 50  | M8  |                 |
| 411.1186  | 1        | 25 | /  | 50  | M10 |                 |
| 411.1185  | 1        | 25 | /  | 50  | M12 |                 |
| 411.0888  | 3        | 25 | 50 | 150 | M12 |                 |

Tab. 9

> Racks components for rigid mounting

Fishplate for mod.2 Rack mounting on uni beam, SR180, SR250 T grooves

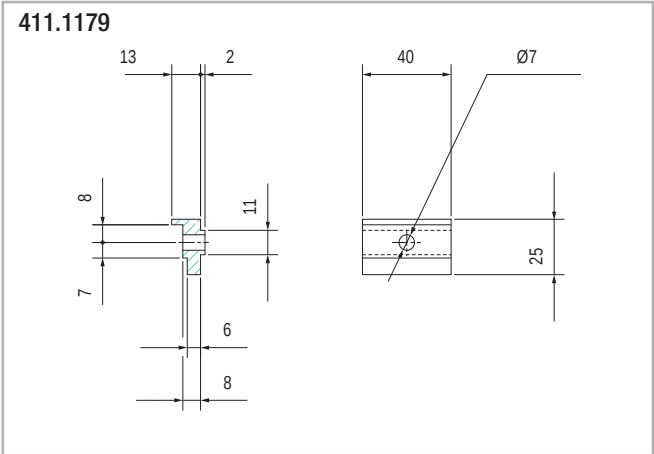


Fig. 77

Fishplate for mod.3-4-5 rack mounting on dovetail grooves

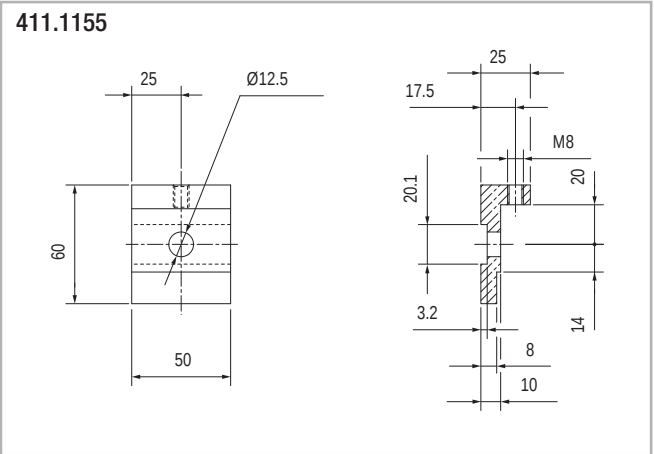


Fig. 78

- For rack mounting plate mod.2 Use insert 411.1349, 411.1352
- For rack mounting plate mod.3 Use dovetaile 411.1111
- For rack mounting plate mod.4 Use dovetail 411.1117
- For rack mounting plate mod.5 Use dovetail 411.0745
- For standard racks see page SR-53; For dovetail see page SR-31, SR-32; For insert see page SR-57

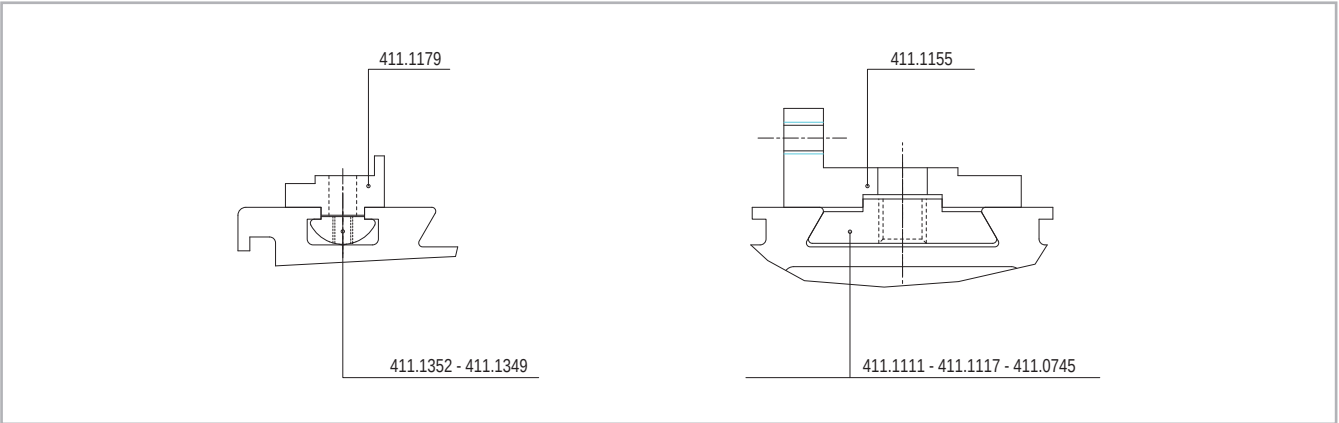


Fig. 79

## > Standard fixing fishplates

Side attachment fishplate suitable for: speedy rail standard, wide body, super wide body, new hold beam and new uni beam guides

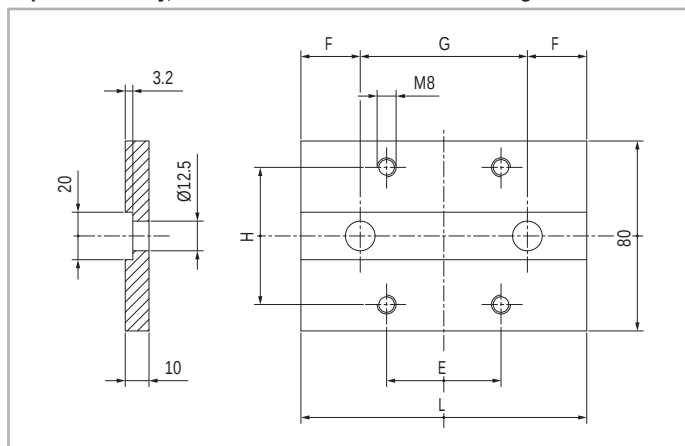


Fig. 80

| Code N.  | E  | F  | G   | H  | L   | Material                      |
|----------|----|----|-----|----|-----|-------------------------------|
| 411.0570 | 70 | 25 | 150 | 60 | 220 | Hard anodized aluminium alloy |

Tab. 10

Fishplates for end to end joining suitable for speedy rail multiple standard, wide body, super wide body, new hold beam and new uni beam

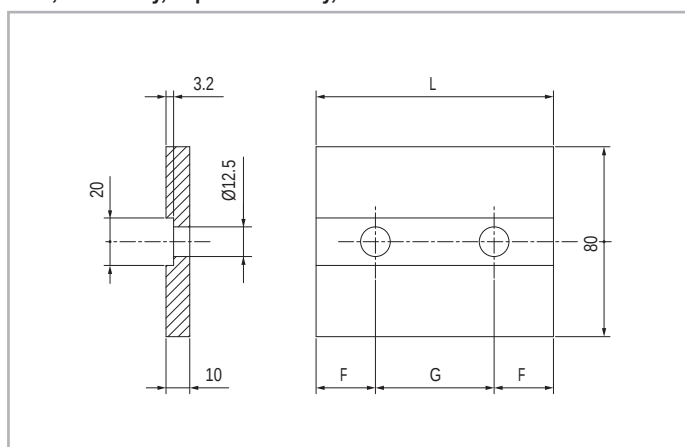


Fig. 81

| Code N.  | N° Fori | L   | F  | G  | Material                      |
|----------|---------|-----|----|----|-------------------------------|
| 411.0572 | 6       | 300 | 25 | 50 | Hard anodized aluminium alloy |
| 411.0690 | 6       | 300 | 25 | 50 | Burnished steel               |
| 411.0573 | 6       | 300 | 25 | 50 | Steel/countersunk holes       |

Tab. 11

Fishplate for drive head

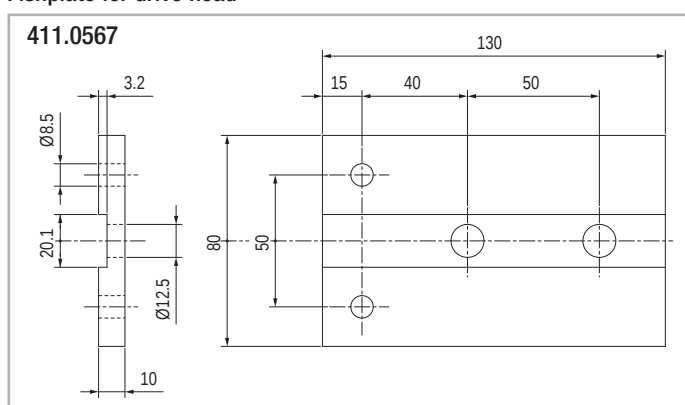


Fig. 82

M12 exag. head screw

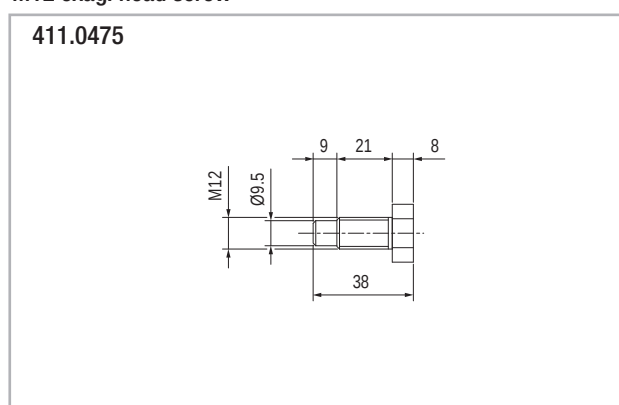


Fig. 83

Technical drawing of a mechanical part, likely a bracket or support, showing dimensions and a 90-degree angle. The drawing includes the following dimensions and features:

- Overall width: 90
- Top flange width: 7.5 (left), 45 (center), 7.5 (right)
- Overall height: 80
- Inner vertical hole diameter:  $\varnothing 25$
- Outer vertical hole diameter:  $\varnothing 35$
- Inner horizontal hole diameter:  $\varnothing 24g6$
- Threaded hole: M16
- Horizontal distance from left edge to inner hole center: 11.8
- Material: WR.20
- Angle: 90°

Fig. 84

55.0728

Technical drawing of a mechanical part, likely a bearing housing or flange, showing a cross-section. The drawing includes dimensions for overall size, internal features, and material specifications.

Key dimensions and features:

- Overall width: 90
- Internal width segments: 7.5, 45, 7.5
- Overall height: Ø80
- Internal bore diameter: Ø25
- Internal thread: M16
- Internal diameter: Ø24<sub>06</sub>
- Overall outer diameter: Ø35
- Internal diameter: Ø24<sub>06</sub>
- Internal diameter: M16
- Internal diameter: ECCENT. ±1.5
- Internal diameter: 11.8
- Material: WR.20
- Angle: 90°

Fig. 85

**55.0538**

Technical drawing of a mechanical part, likely a valve or fitting, showing a cross-section. The drawing includes dimensions: 89 (total length), 11.8 (flange thickness), 9 (thread length), 45 (main body length), and 7 (end flange thickness). The outer diameter is Ø80. The inner diameter is Ø35. The thread is M16. A 90° chamfer is shown at the end. The drawing is labeled EXAG. WR.27.

Fig. 86

55.0539

Ø35

Ø24g6

M16

ECCENT.  $\pm 15$

11.8

9

45

7

89

Ø80

90°

EXAG. WR.27

Fig. 87

[illegible]

Fig. 88

55.0648

Technical drawing of a mechanical part, identified by the number 55.0648. The drawing shows a cross-section of the part with various dimensions and features:

- Overall length: 90
- Outer diameter: Ø35
- Inner diameter (bore): Ø24g6
- Threaded section: M16
- Eccentricity: ECCENT. ±1.5
- Chamfers: CH.30 and CH.20
- Radius: R11.8
- Other dimensions: 7, 45, 7, Ø25, Ø30, 90°

Fig. 89



### > Roller assembly with "V" rollers

### Light weight roller assembly with 4 rollers

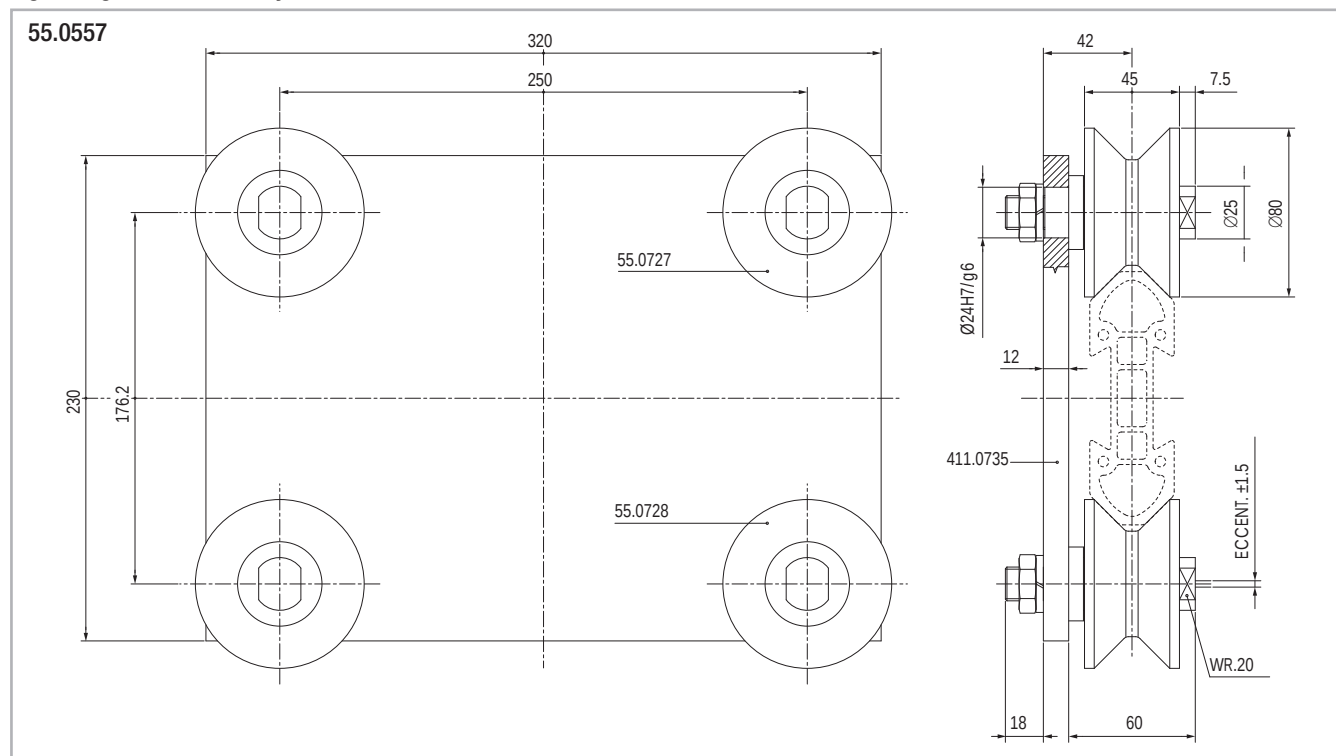


Fig. 90

### Roller assembly with 4 high stiffness rollers

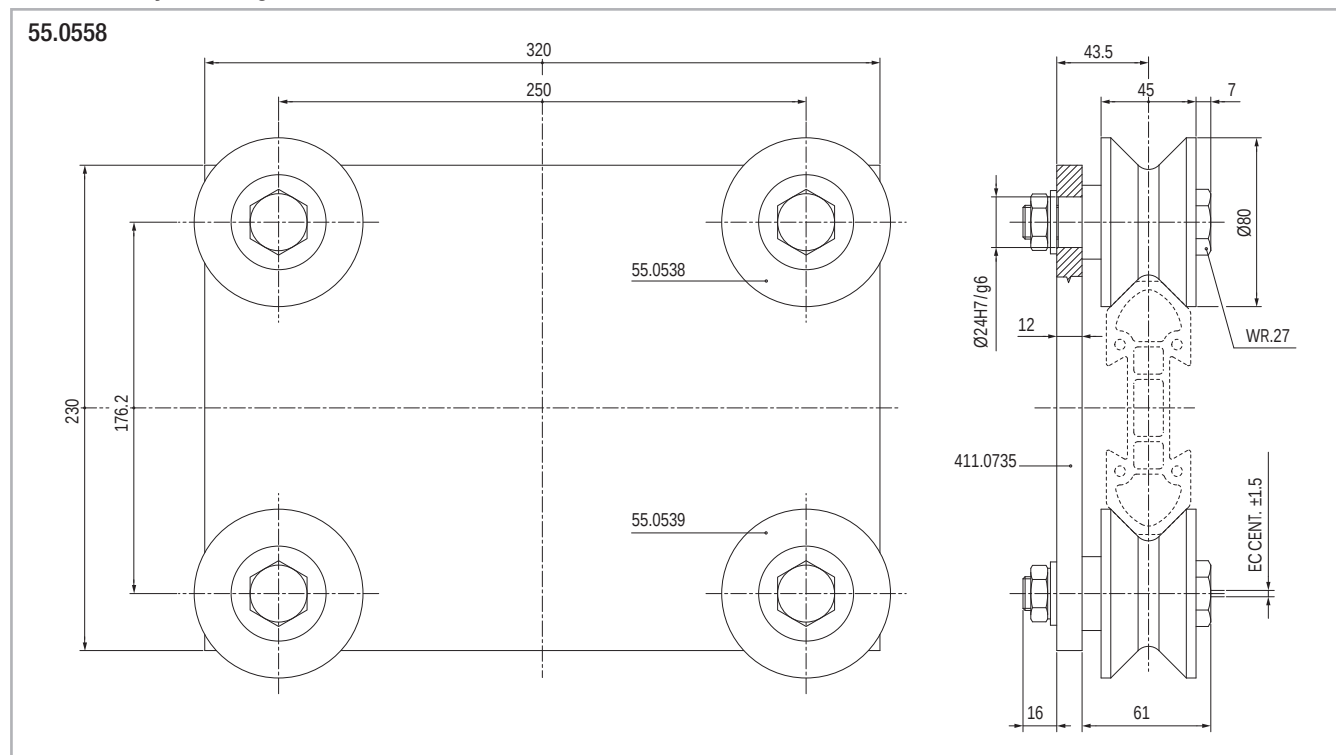


Fig. 91

The plate -cod. 411.0735 - are made in aluminium alloy with hard anodization. The rollers -cod. 55.0647, 55.0648 - and/or different combinations from the ones shown on this page can be mounted on the above plates please call our technical department prior any configuration changes.

## > Plastic compound shell rollers

Concentric roller radial load: 1280 N max.  
Periodical lubrication

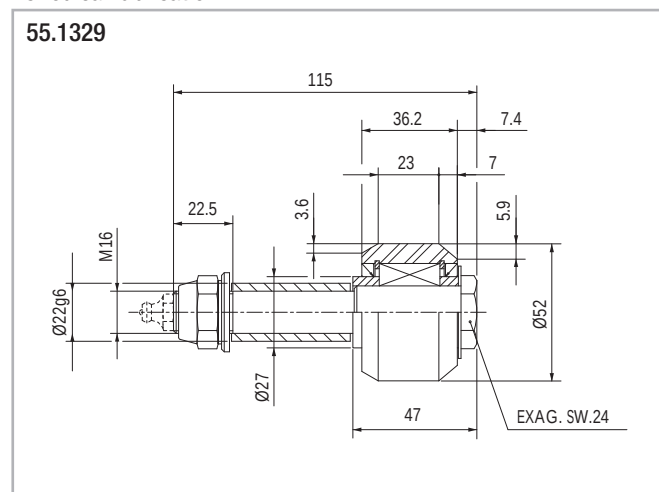


Fig. 92

Eccentric roller radial load: 1280 N max.  
Periodical lubrication

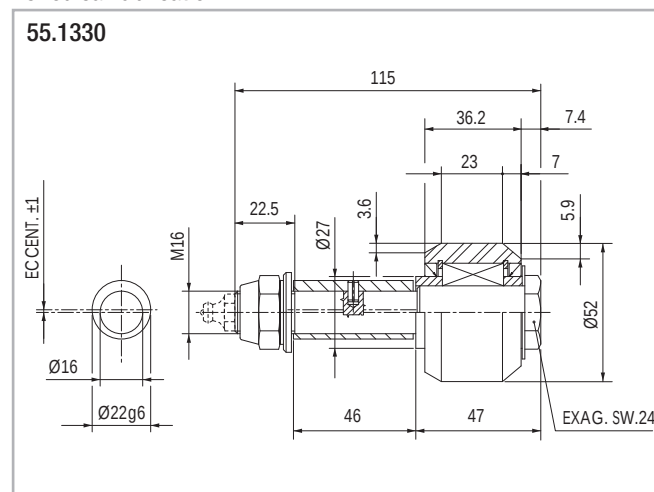


Fig. 93

55.1317  
Concentric roller radial load: 1280 N max.  
Lifetime lubrication

55.1318  
Eccentric roller radial load: 1280 N max.  
Lifetime lubrication

Concentric roller radial load: 880 N max.  
Periodical lubrication

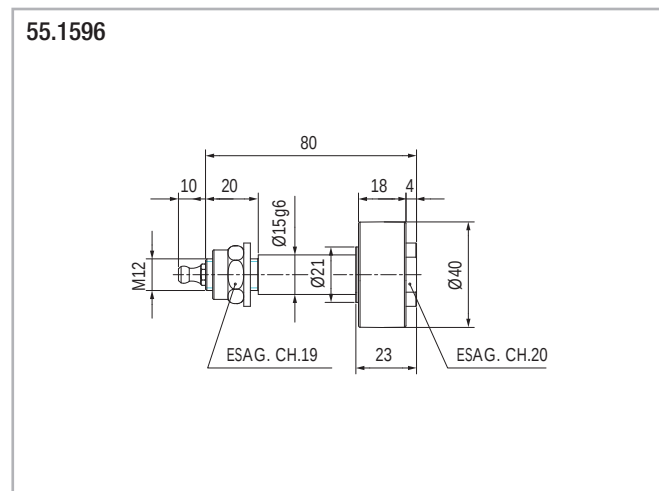


Fig. 94

Concentric roller radial load: 880 N max.  
Lifetime lubrication

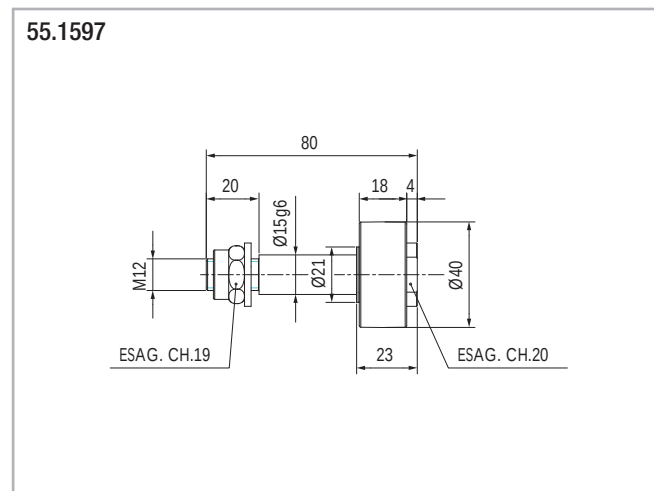
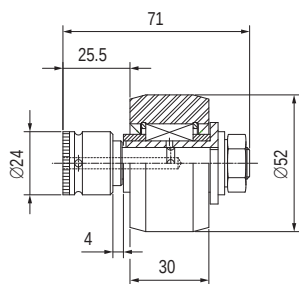


Fig. 95

## Concentric roller

55.1306

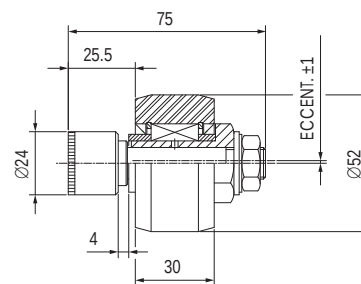


Radial load: 1280 N max. - periodical lubrication

Fig. 96

## Eccentric roller

55.1305



Radial load: 1280 N max. - periodical lubrication

Fig. 97

55.1314

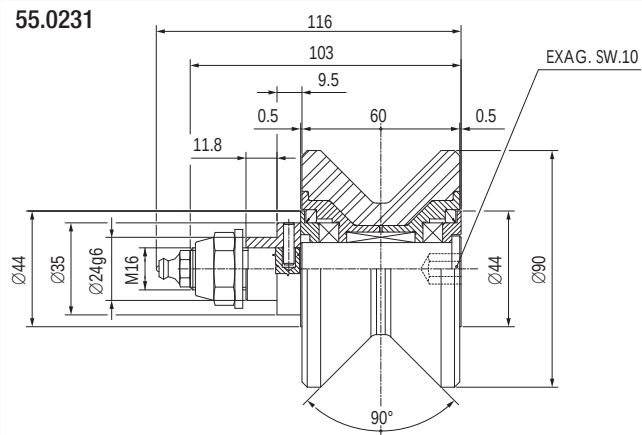
Concentric roller radial load: 1280 N max.  
Lifetime lubrication

55.1313

Concentric roller radial load: 1280 N max.  
Lifetime lubrication

## Heavy duty concentric 'V' roller

55.0231

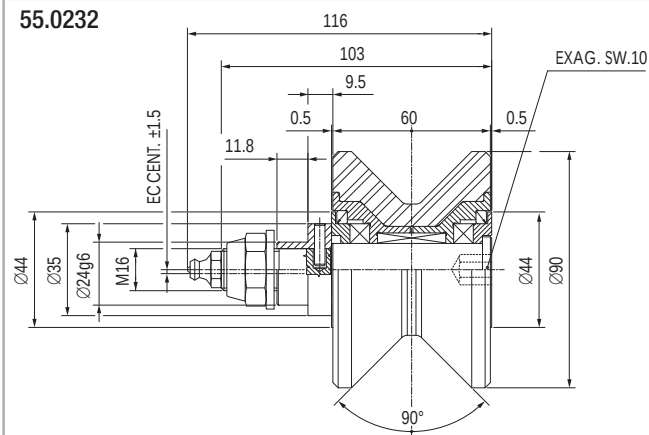


Max. load: radial 1150 N axial 650 N

Fig. 98

## Heavy duty eccentric 'V' roller

55.0232

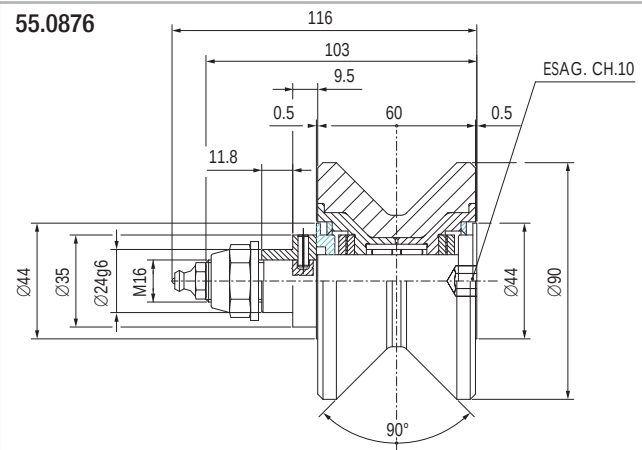


Max. load: radial 1150 N axial 650 N

Fig. 99

## Heavy duty concentric 'V' roller - axially free: ±1.5 mm

55.0876

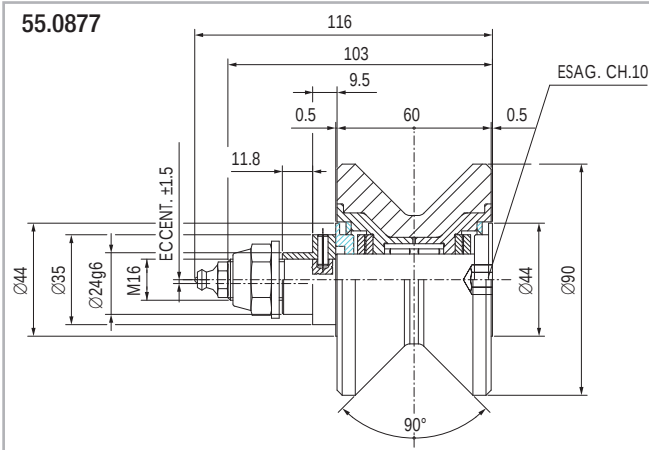


Radial load: 1150 N max.

Fig. 100

## Heavy duty eccentric 'V' roller - axially free: ±1.5 mm

55.0877

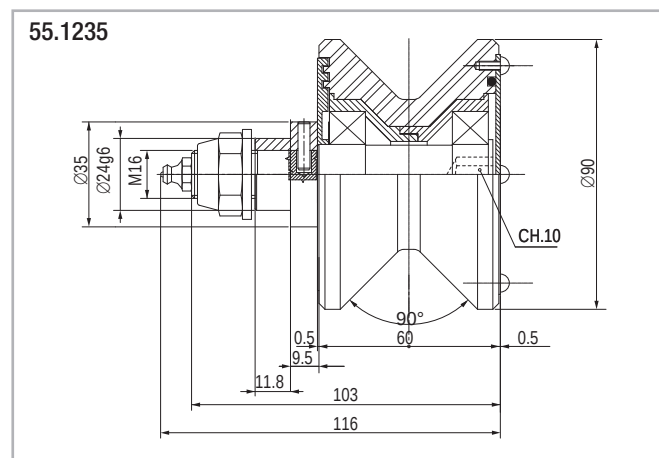


Radial load: 1150 N max.

Fig. 101

## > 2 Rollers light full-block assembly

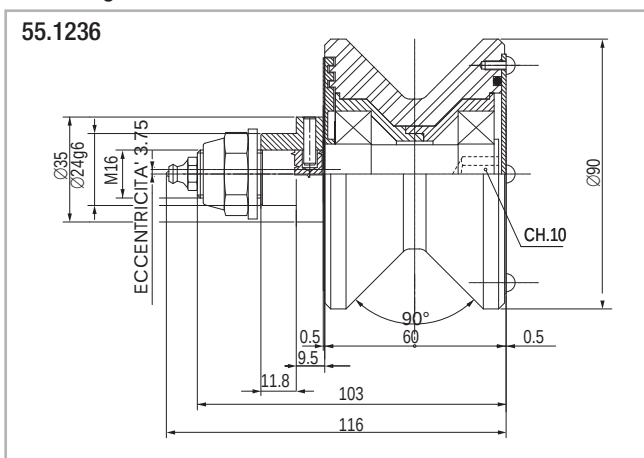
Protected concentric 'V' roller



Max. load: radial 1150 N axial 650 N - Optional lifetime lubrication

Fig. 102

Rotella sagomata a 'V' schermata eccentrica



Max. load: radial 1150 N axial 650 N - Optional lifetime lubrication

Fig. 103

### Wheelbase for all 'V' shaped rollers on Speedy Rail:

Wheelbase between roller centers for SR250 = 302,2 mm

Wheelbase between roller centers for SR180 = 232,2 mm

Wheelbase between roller centers for SR120 = 176.2 mm

For SR250 use spacers code 411.0957, 411.0997 Pag. SR-67

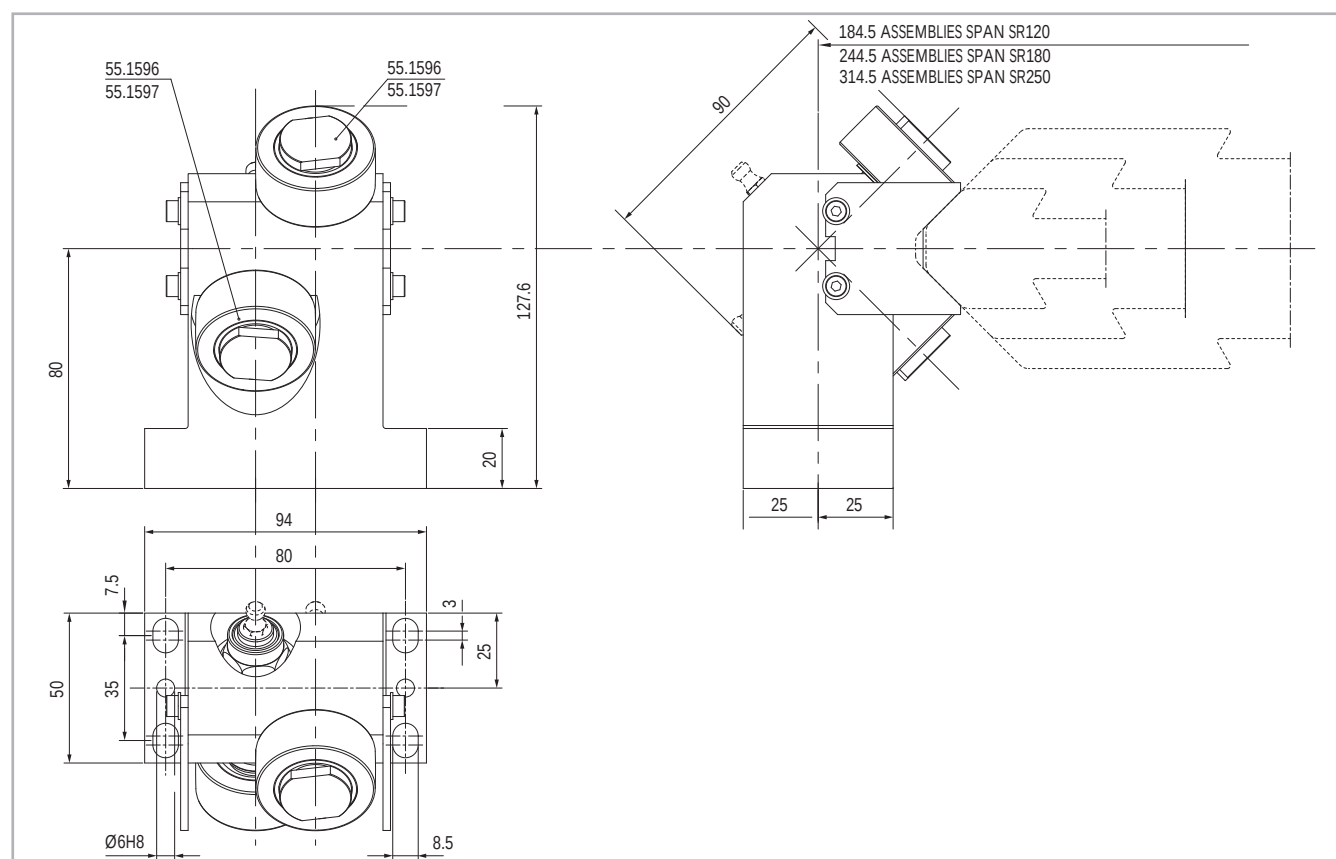


Fig. 104

### 55.1550

Light alloy rollers assembly with 2 Ø40 rollers. 55.1596  
Periodical lubrication.

### 55.1570

Light alloy rollers assembly with 2 Ø40 rollers, 55.1597  
Lifetime lubricated.

## > Compact roller assembly with plastic compound rollers

Light alloy compact roller assembly periodical lubrication version

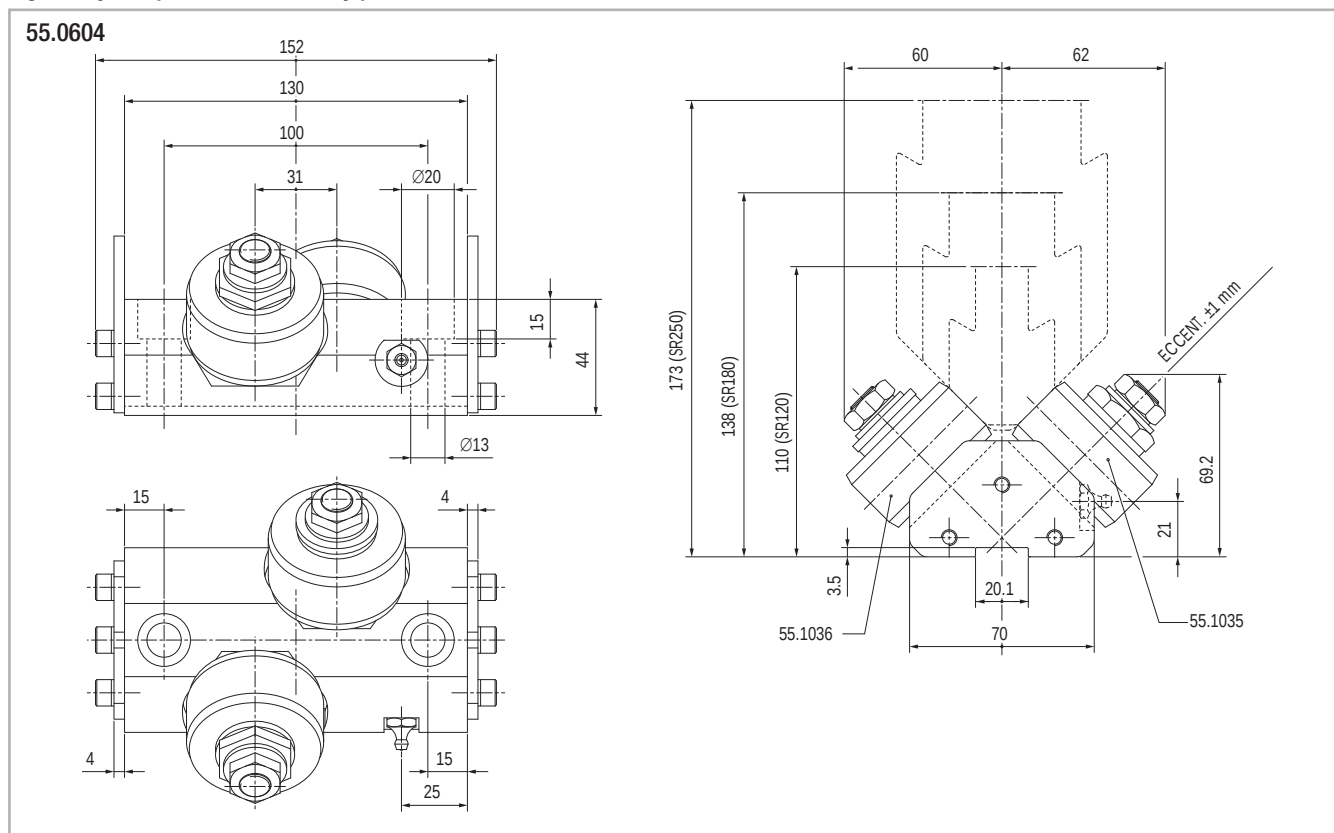


Fig. 105

Light alloy compact roller assembly lifetime lubrication version

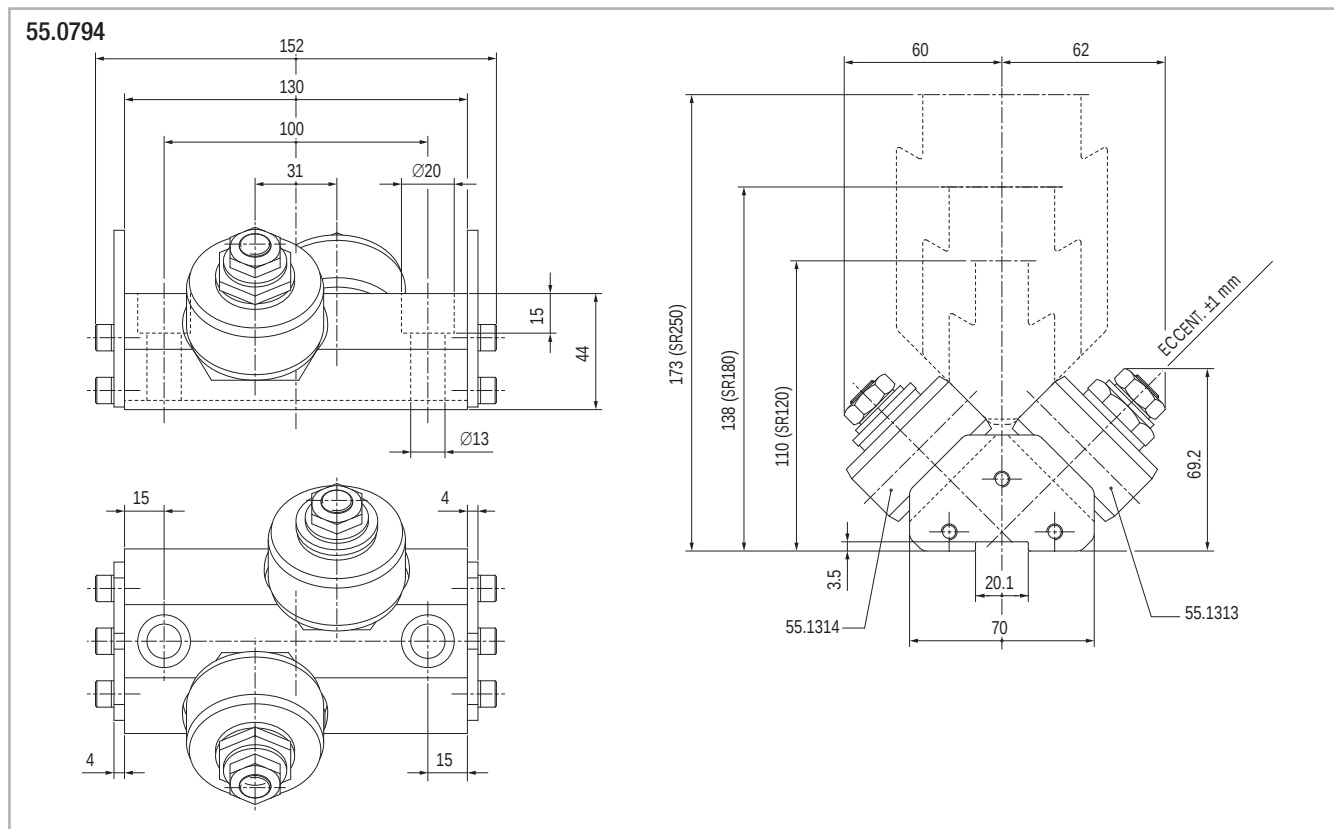


Fig. 106

## > Full-block roller assembly

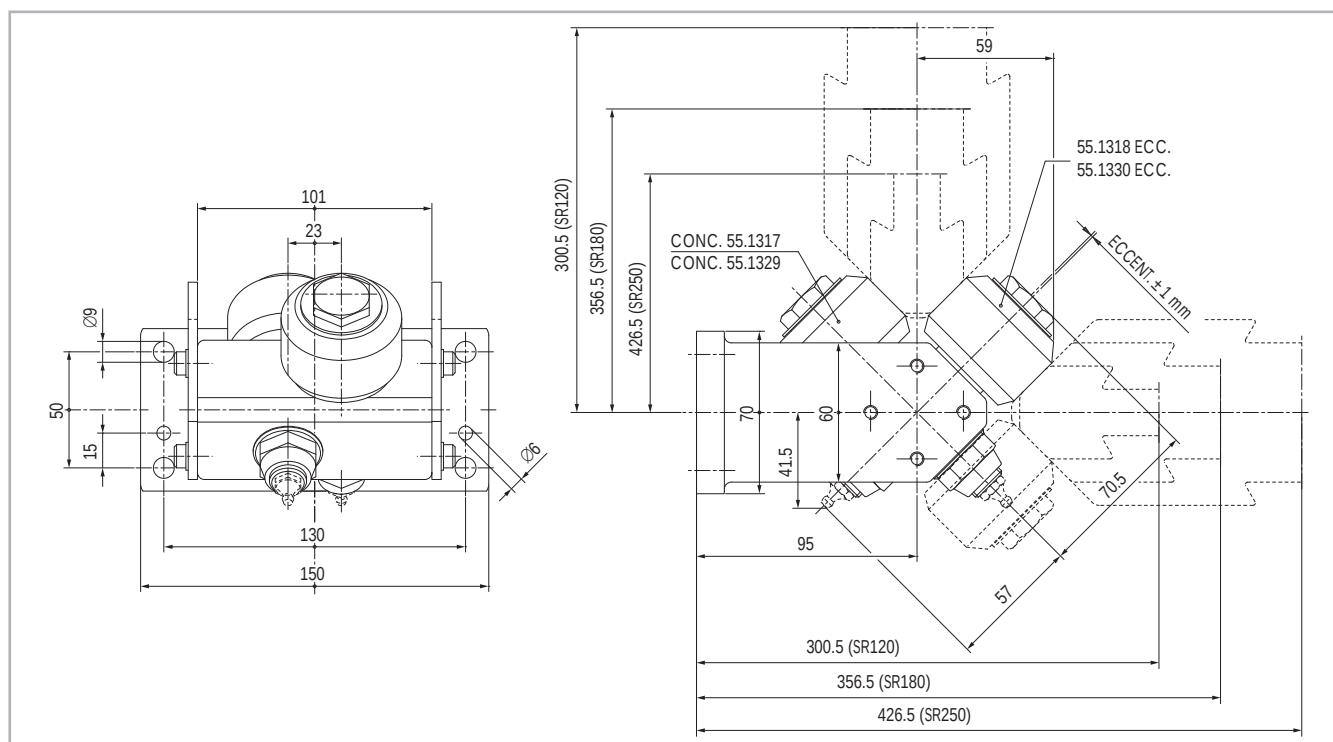


Fig. 107

### 55.0325

Light alloy body roller assembly with side holes and plastic compound rollers  
periodical lubrication version, rollers 55.1329, 55.1330

### 55.0725

Lifetime lubrication version rollers 55.1317, 55.1318

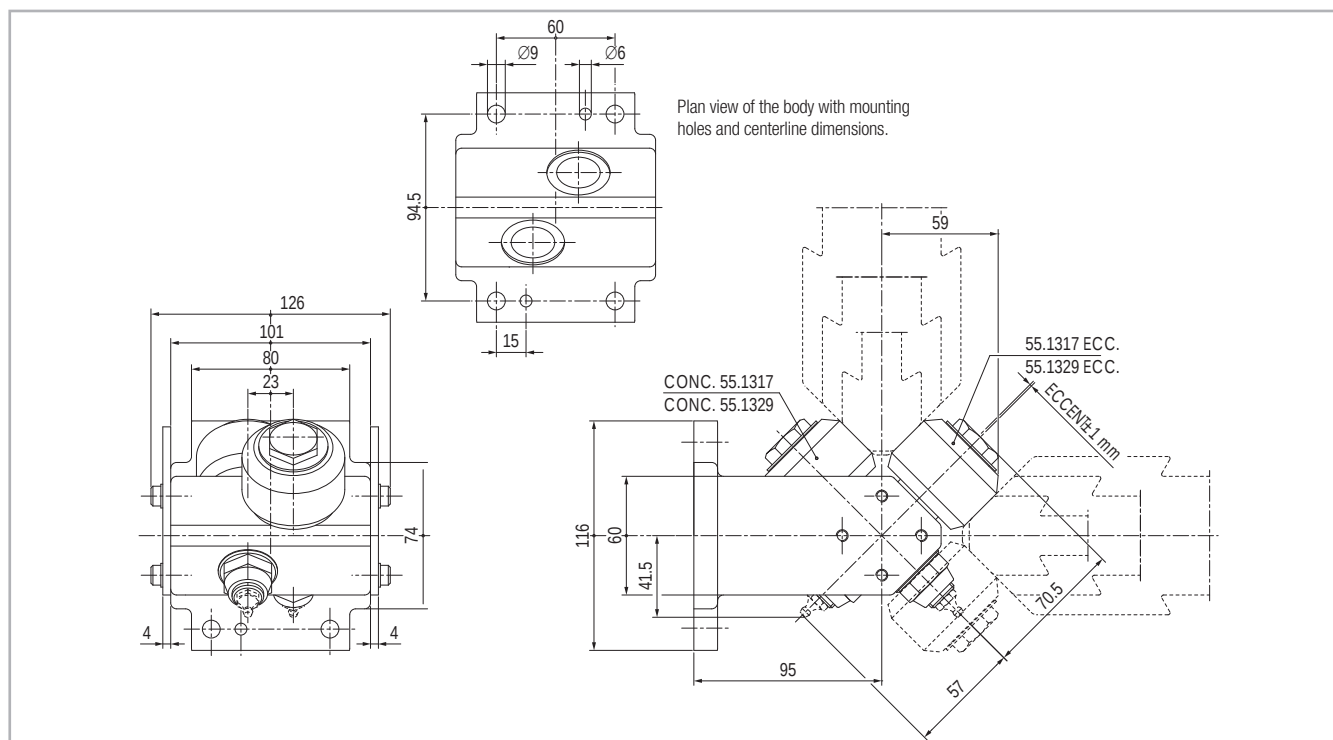


Fig. 108

### 55.0433

Light alloy body roller assembly with side mounting holes and plastic  
compound rollers periodical lubrication version, rollers 55.1329, 55.1330

### 55.0733

Lifetime lubrication version rollers 55.1317, 55.1318

## > Roller assembly with 4 rollers

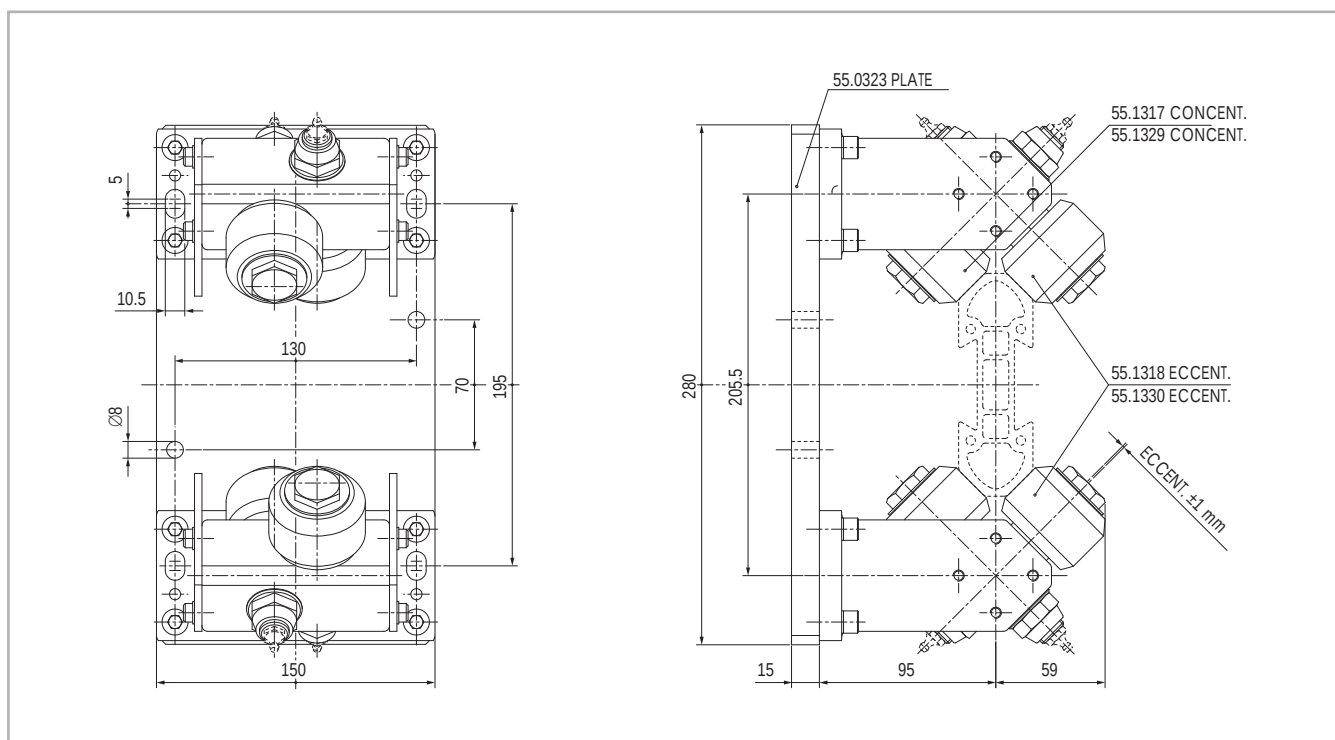


Fig. 109

### 55.0323

Roller assembly with backing plate 280x150x15. Rollers 55.1329, 55.1330 with periodical lubrication

### 55.0723

Roller assembly with backing plate 280x150x15. Rollers 55.1317, 55.1318, lifetime lubricated

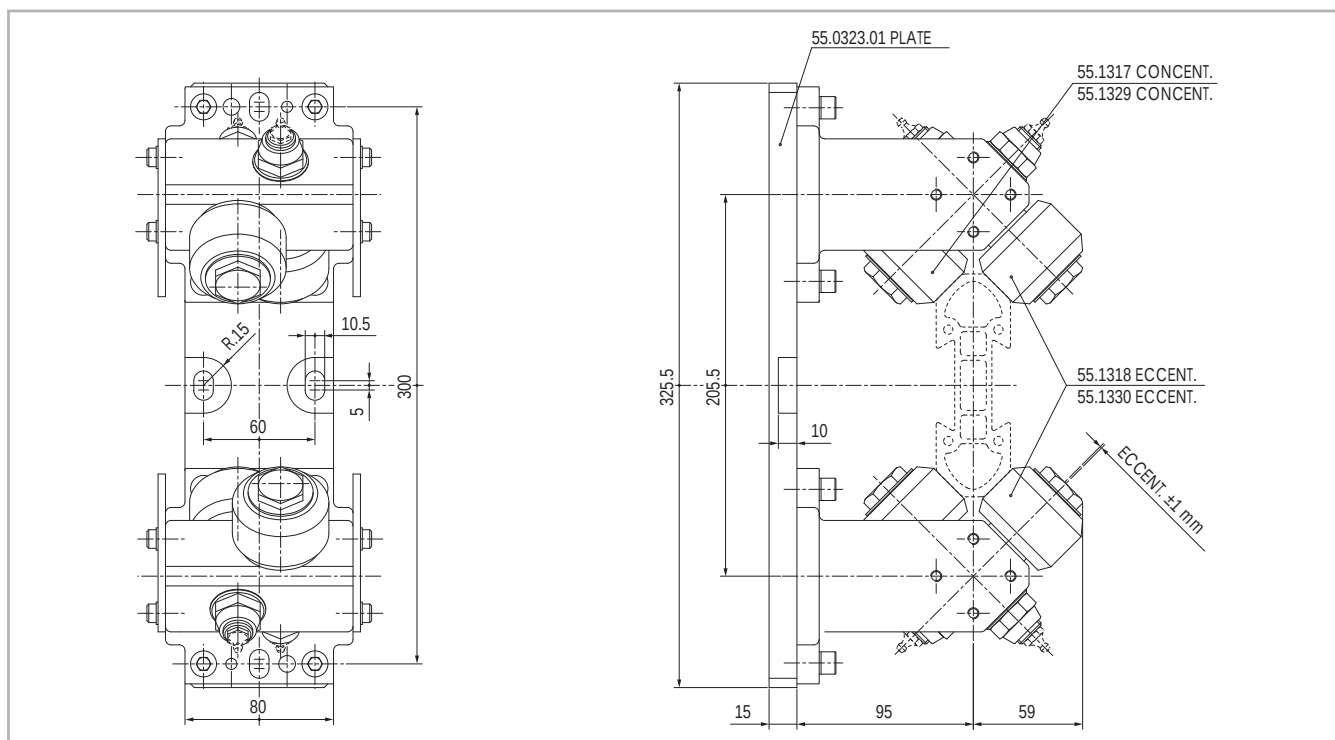


Fig. 110

### 55.0324

Roller assembly with backing plate 235.5X80x15. Rollers 55.1329, 55.1330 with periodical lubrication

### 55.0724

Roller assembly with backing plate 235.5X80x15. Rollers 55.1317, 55.1318, lifetime lubricated

## > Narrow/wide base blindo beam roller assembly

### Narrow base roller assembly

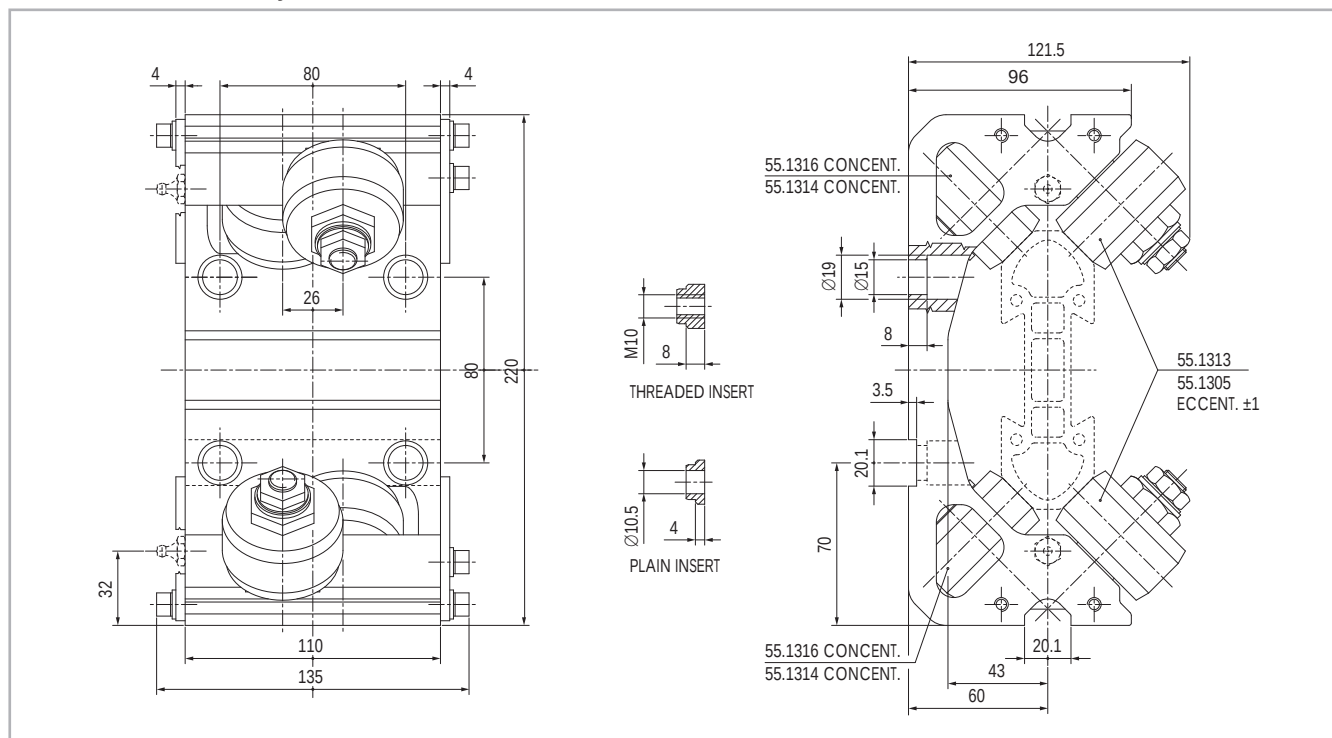


Fig. 111

#### 55.0472-FIL

Equipped with 4 threaded fixing inserts  
Periodical lubrication

#### 55.0472-PAS

Equipped with 4 through hole fixing inserts  
Periodical lubrication

#### 55.0772-FIL

Equipped with 4 threaded fixing inserts  
Lifetime lubrication

#### 55.0772-PAS

Equipped with 4 through hole fixing inserts  
Lifetime lubrication

### Wide base roller assembly

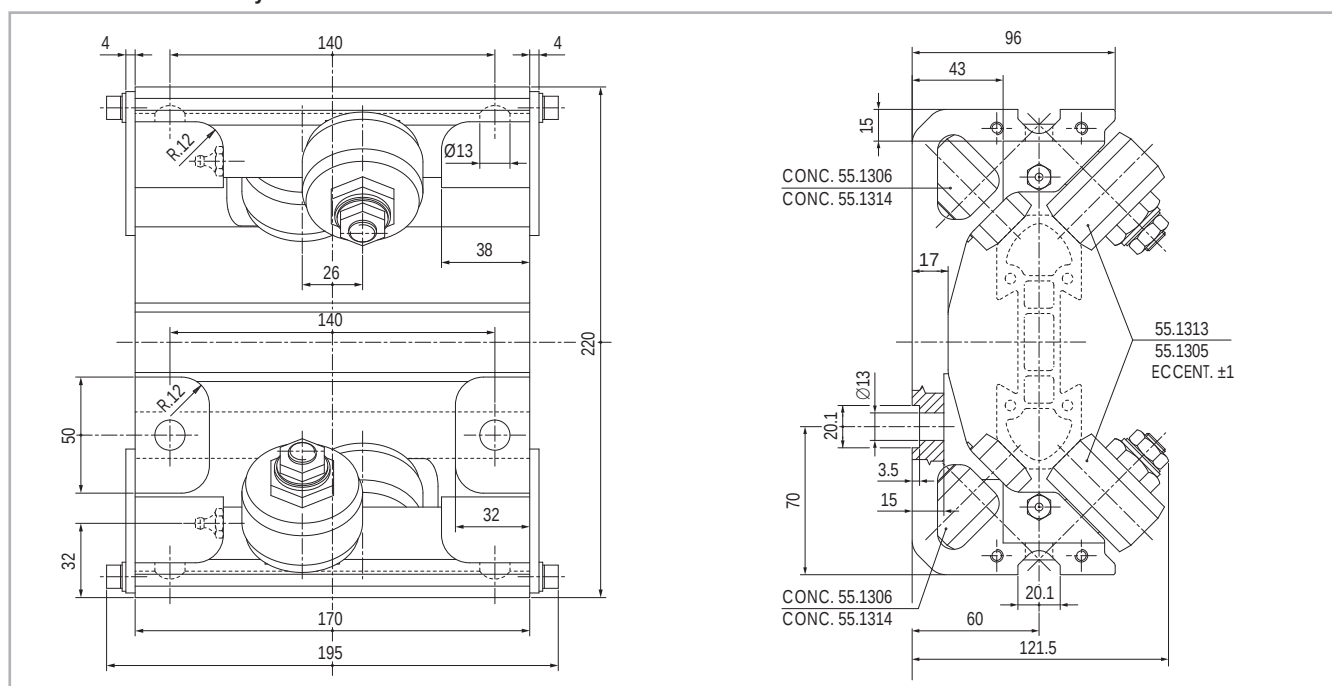


Fig. 112

#### 55.0411

Periodical lubrication

SR-42

#### 55.0711

Lifetime lubrication



### **> 8 Rollers blindo beam roller assembly**

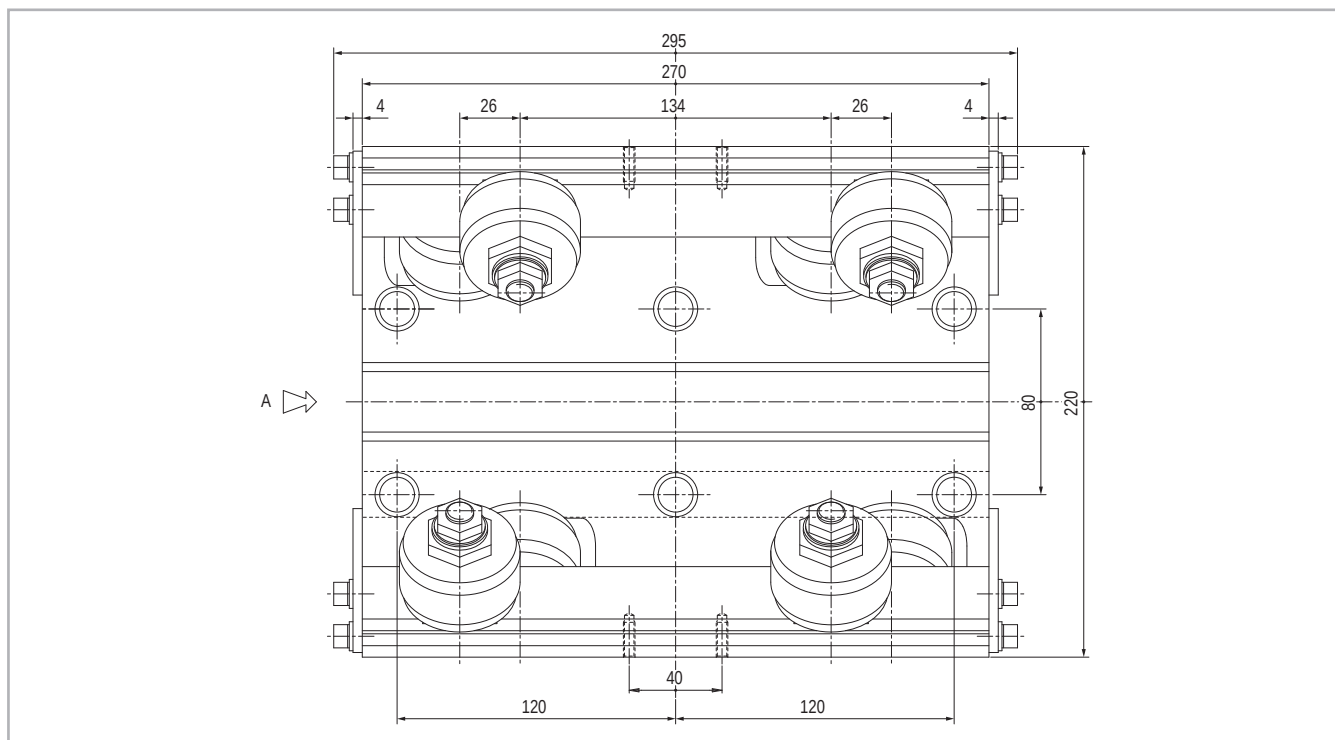


Fig. 113

55.0222-FIL

Equipped with 6 threaded fixing inserts

Lifetime lubrication

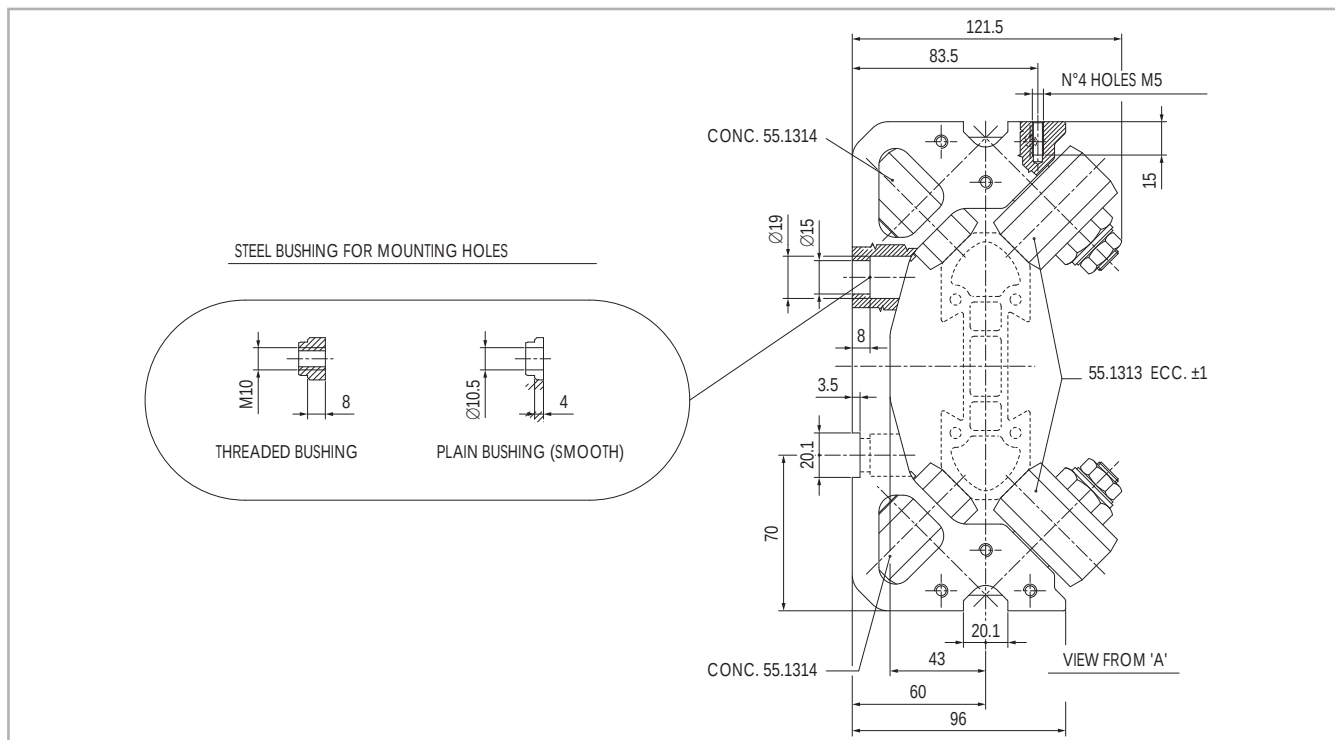


Fig. 114

55.0222-PAS

Equipped with 6 through hole fixing inserts

Lifetime lubrication

The roller box comes with N° 6 threaded bushing and N° 6 plain ones.

The customer will use the bushing more suitable for the application.

## > Light 4 rollers floating assembly for Speedy Rail guides

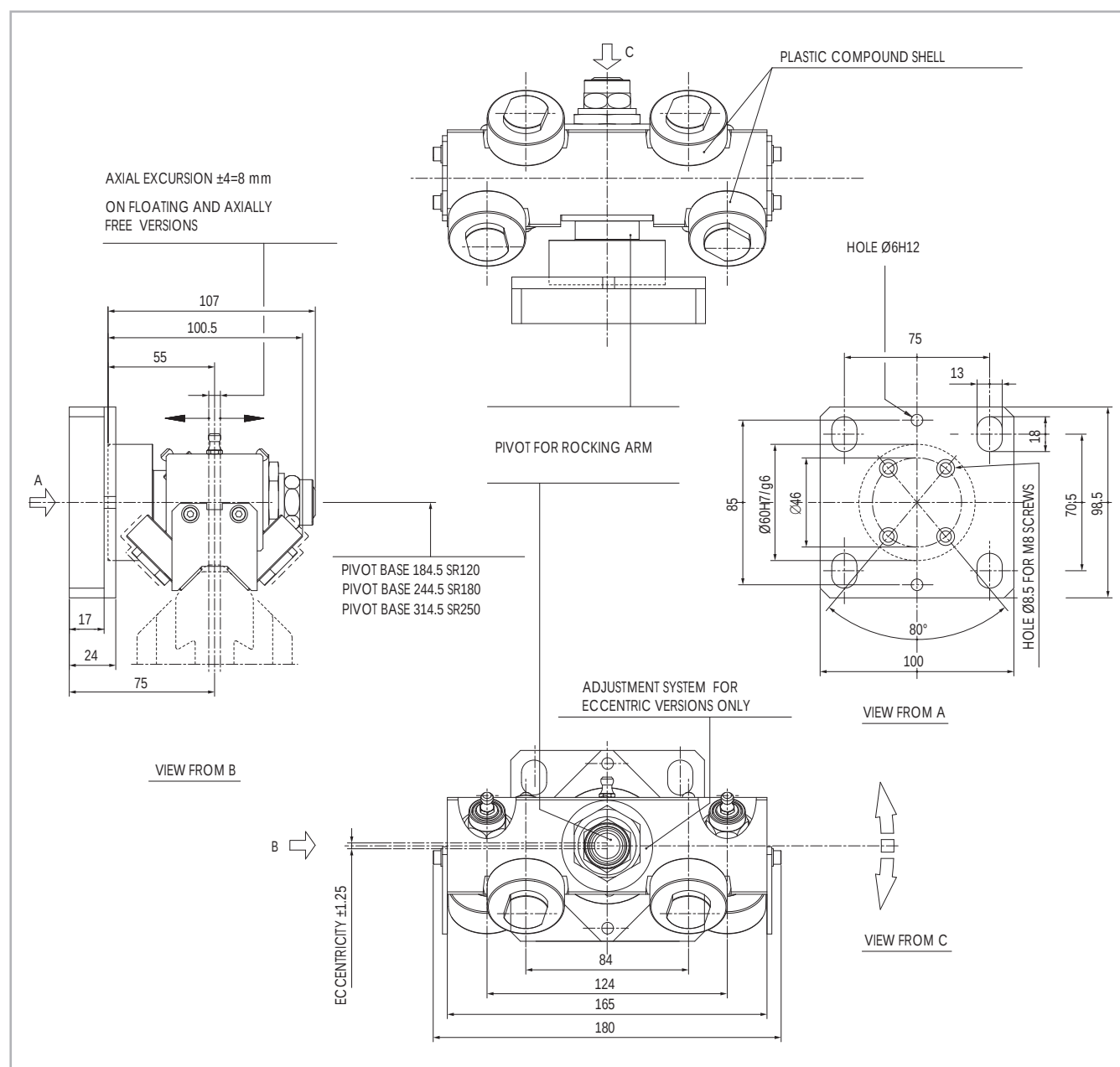


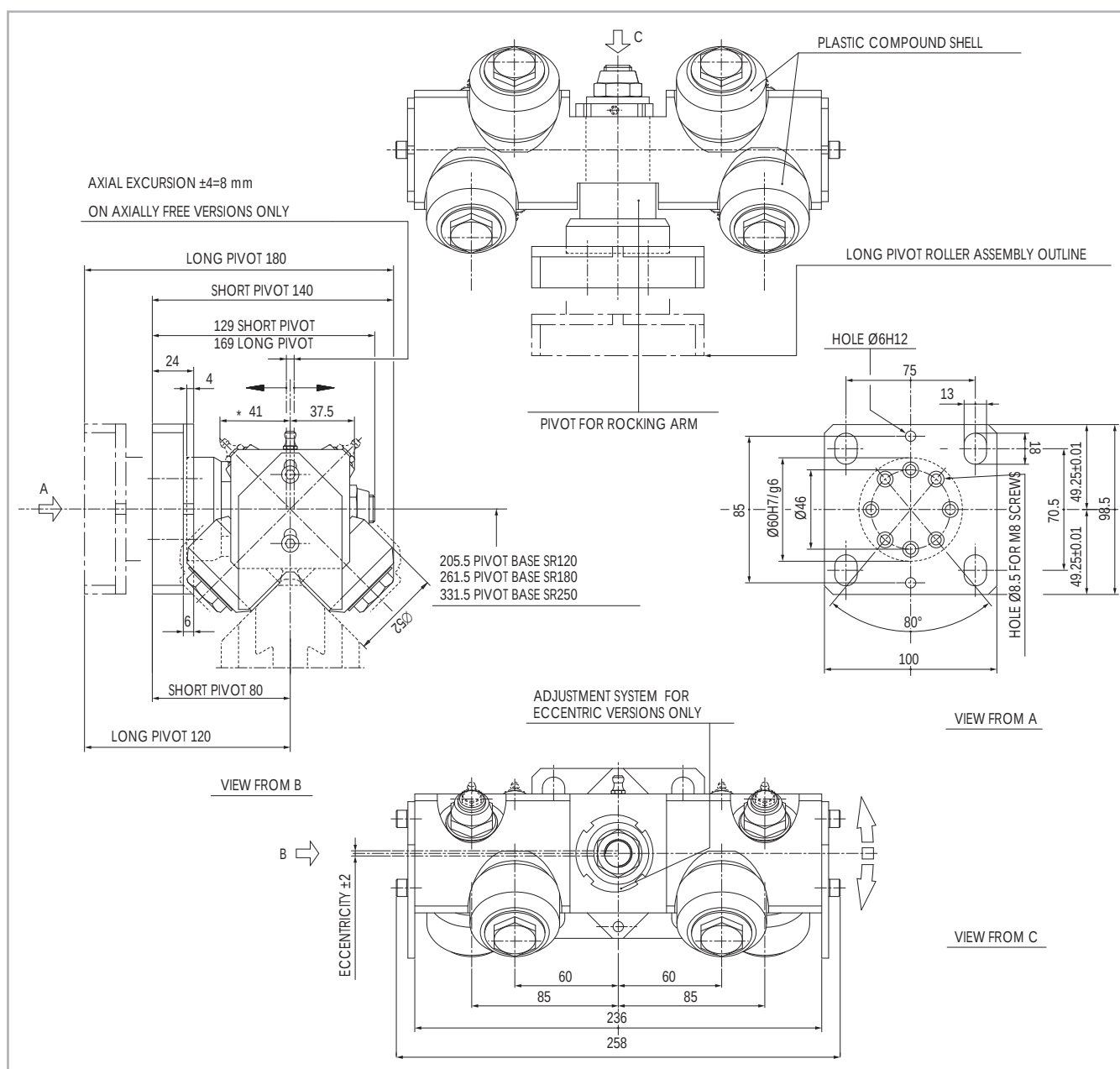
Fig. 115

Assemblies without baseplate have the same code followed by "SP"  
(i.e. 55.1361/SP)

| Roller assemblies reference |       | Axially constrained | Axially free | Rollers code |
|-----------------------------|-------|---------------------|--------------|--------------|
| PERIODICAL LUBRICATION      | ECC.  | 55.1565             | 55.3563      | 55.1596      |
|                             | CONC. | 55.1566             | 55.3564      |              |
| LIFETIME LUBRICATION        | ECC.  | 55.1555             | 55.3553      | 55.1597      |
|                             | CONC. | 55.1556             | 55.3554      |              |

Tab. 12

## > Floating roller assembly with 4 rollers - short/long pivot



\* Lubrication nipple mounted for periodic lubrication versions only

Fig. 116

### Notes:

The axially free version of the assemblies are normally mounted on trolleys running on parallel rails. Coupled with axially constrained assemblies provide a flexible structure able to withstand minor misalignments between runways.

Assemblies without baseplate have the same code followed by "SP" (ad es. 55.1361/SP).

| Roller assemblies reference |                        |       | Axially constrained | Axially free | Rollers code |
|-----------------------------|------------------------|-------|---------------------|--------------|--------------|
| Short pivot                 | PERIODICAL LUBRICATION | ECC.  | 55.1361             | 55.3361      | 55.1329      |
|                             |                        | CONC. | 55.1364             | 55.3364      |              |
|                             | LIFETIME LUBRICATION   | ECC.  | 55.1354             | 55.1358      | 55.1317      |
|                             |                        | CONC. | 55.1355             | 55.1359      |              |
| Long pivot                  | PERIODICAL LUBRICATION | ECC.  | 55.1363             | 55.3363      | 55.1329      |
|                             |                        | CONC. | 55.1365             | 55.3365      |              |
|                             | LIFETIME LUBRICATION   | ECC.  | 55.1350             | 55.3350      | 55.1317      |
|                             |                        | CONC. | 55.1351             | 55.3351      |              |

Tab. 13

## > 5 Rollers assembly, one fixed, one self adjusting

### Fixed 5 concentric rollers assembly

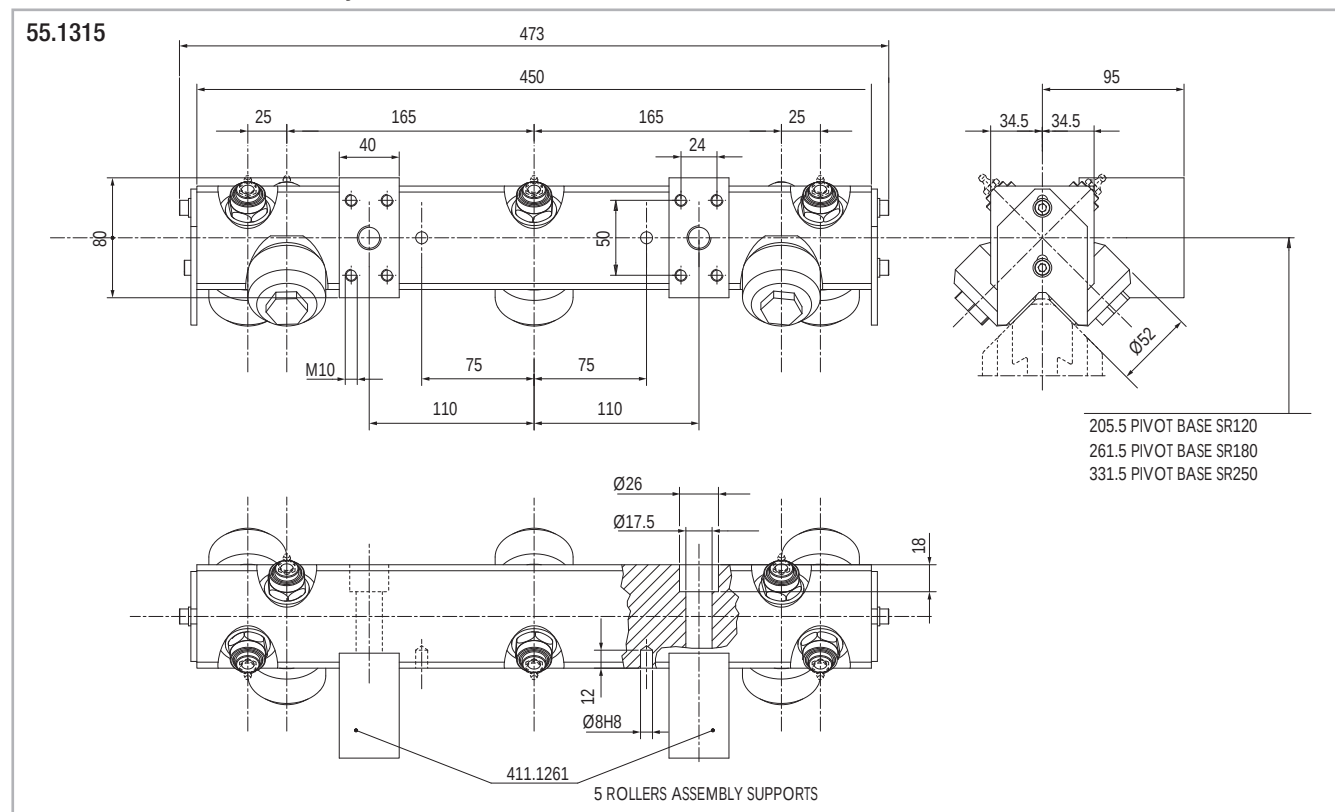


Fig. 117

### Fixed 5 roller assembly, with 2 eccentric rollers for auto backlash retrival

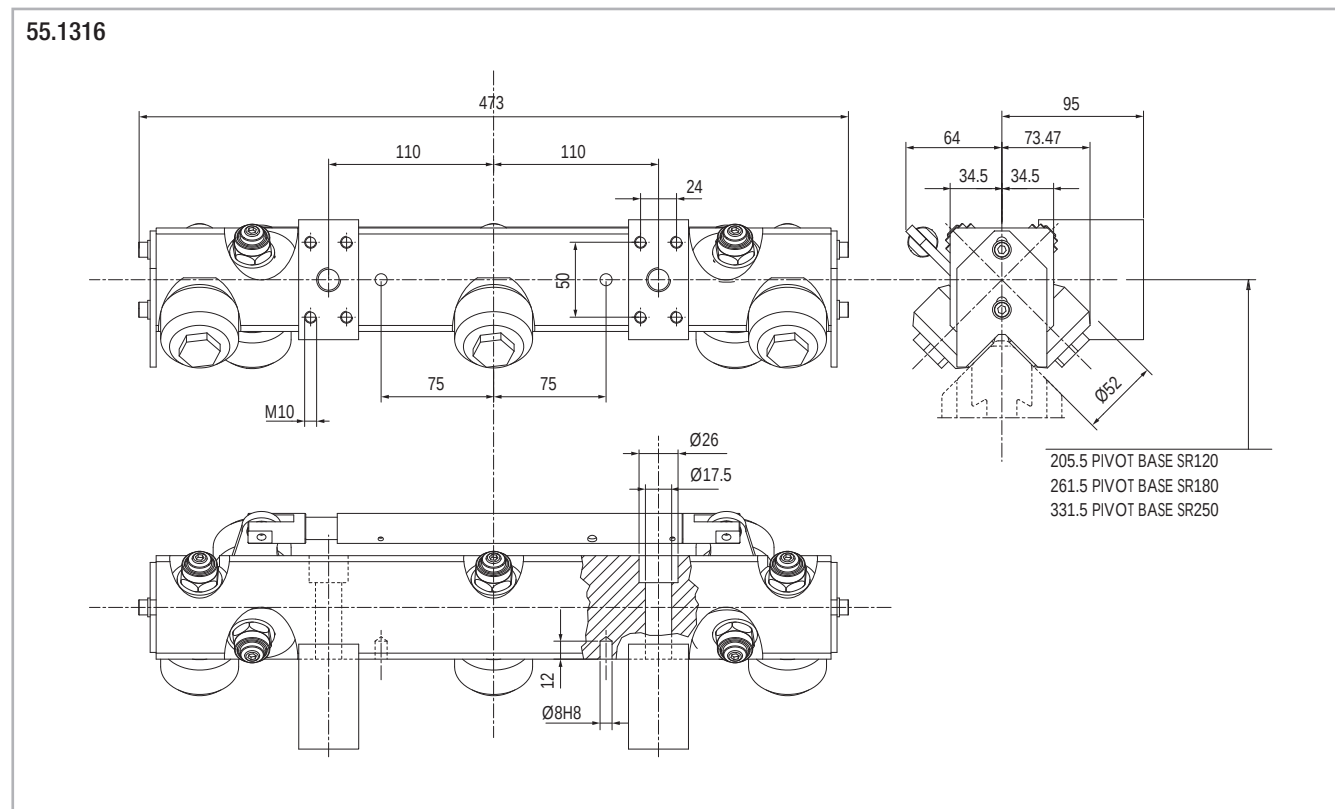
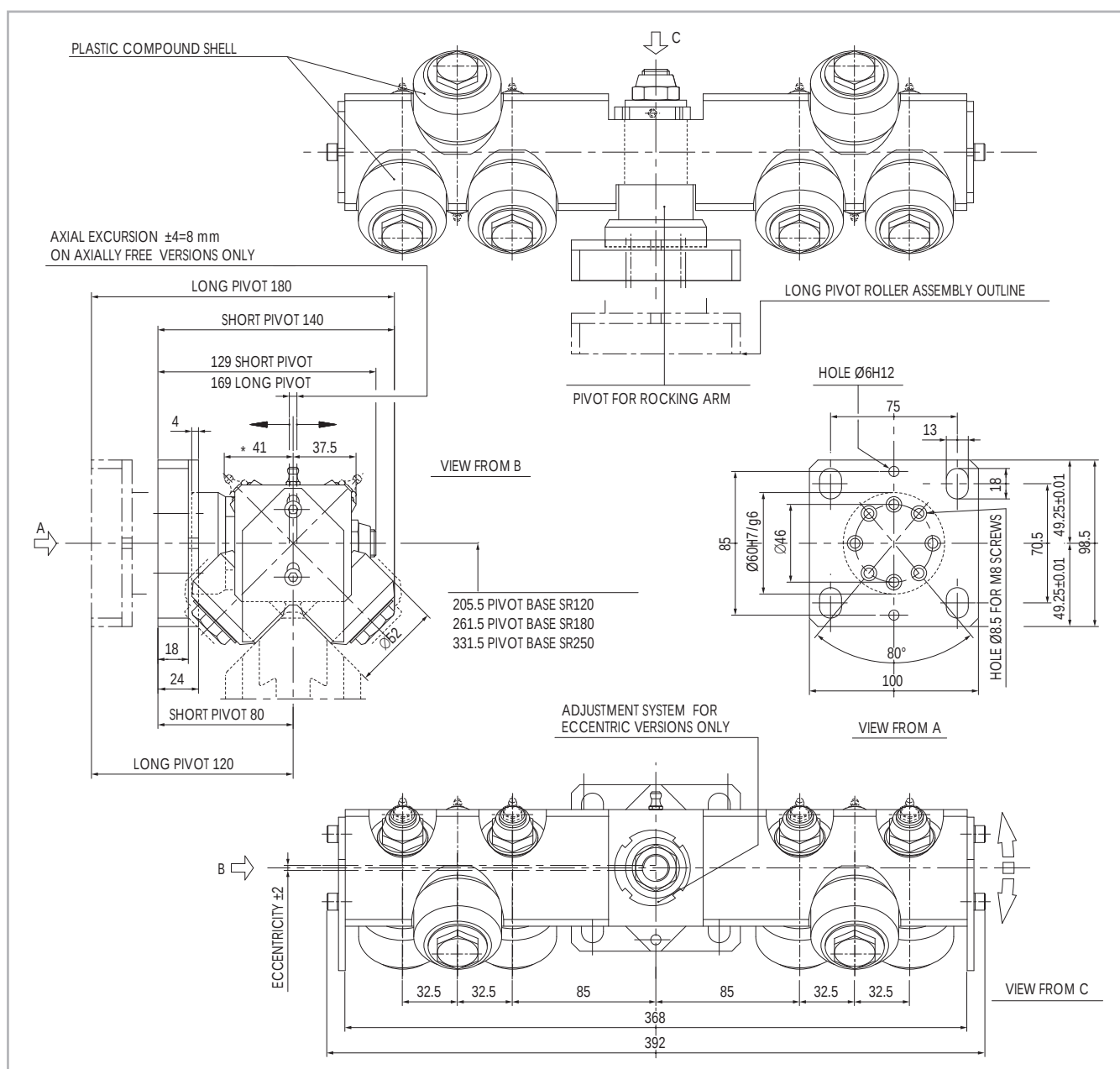


Fig. 118

## > Floating roller assembly with 6 rollers - short/long pivot



\* Lubrication nipple mounted for periodic lubrication versions only

Fig. 129

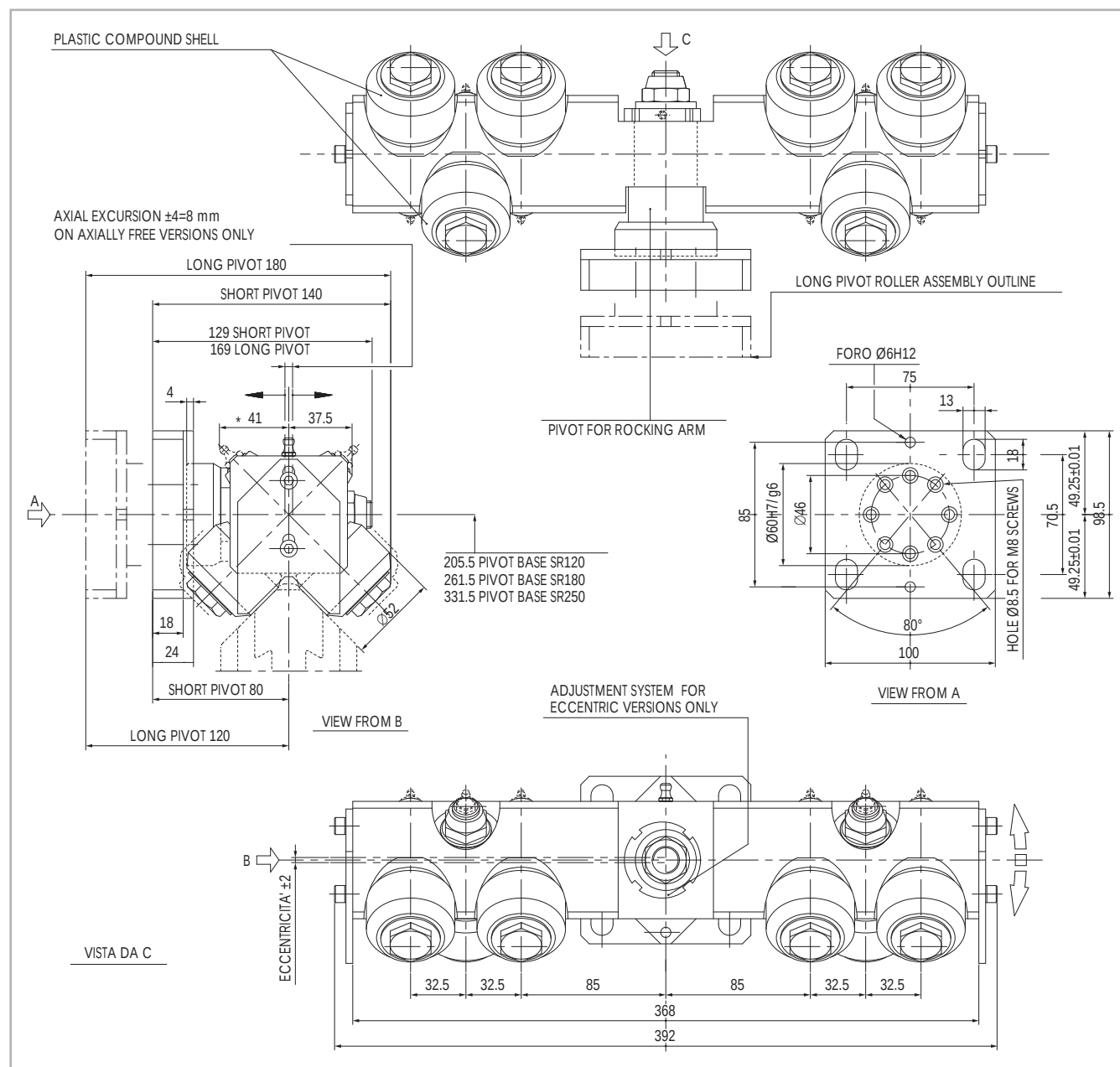
### Notes:

The axially free version of the assemblies are normally mounted on trolleys running on parallel rails. Coupled with axially constrained assemblies provide a flexible structure able to withstand minor misalignments between runways.

Assemblies without baseplate have the same code followed by "SP" ( i.e. 55.1366/SP ).

| Roller assemblies reference |                        |       | Axially constrained | Axially free | Rollers code |
|-----------------------------|------------------------|-------|---------------------|--------------|--------------|
| Short pivot                 | PERIODICAL LUBRICATION | ECC.  | 55.1423             | 55.3423      | 55.1329      |
|                             |                        | CONC. | 55.1424             | 55.3424      |              |
|                             | LIFETIME LUBRICATION   | ECC.  | 55.1425             | 55.3425      | 55.1317      |
|                             |                        | CONC. | 55.1426             | 55.3426      |              |
| Long pivot                  | PERIODICAL LUBRICATION | ECC.  | 55.1419             | 55.3419      | 55.1329      |
|                             |                        | CONC. | 55.1420             | 55.3420      |              |
|                             | LIFETIME LUBRICATION   | ECC.  | 55.1421             | 55.3421      | 55.1317      |
|                             |                        | CONC. | 55.1422             | 55.3422      |              |

Tab. 14



\* Lubrication nipple mounted for periodic lubrication versions only

Fig. 120

### Notes:

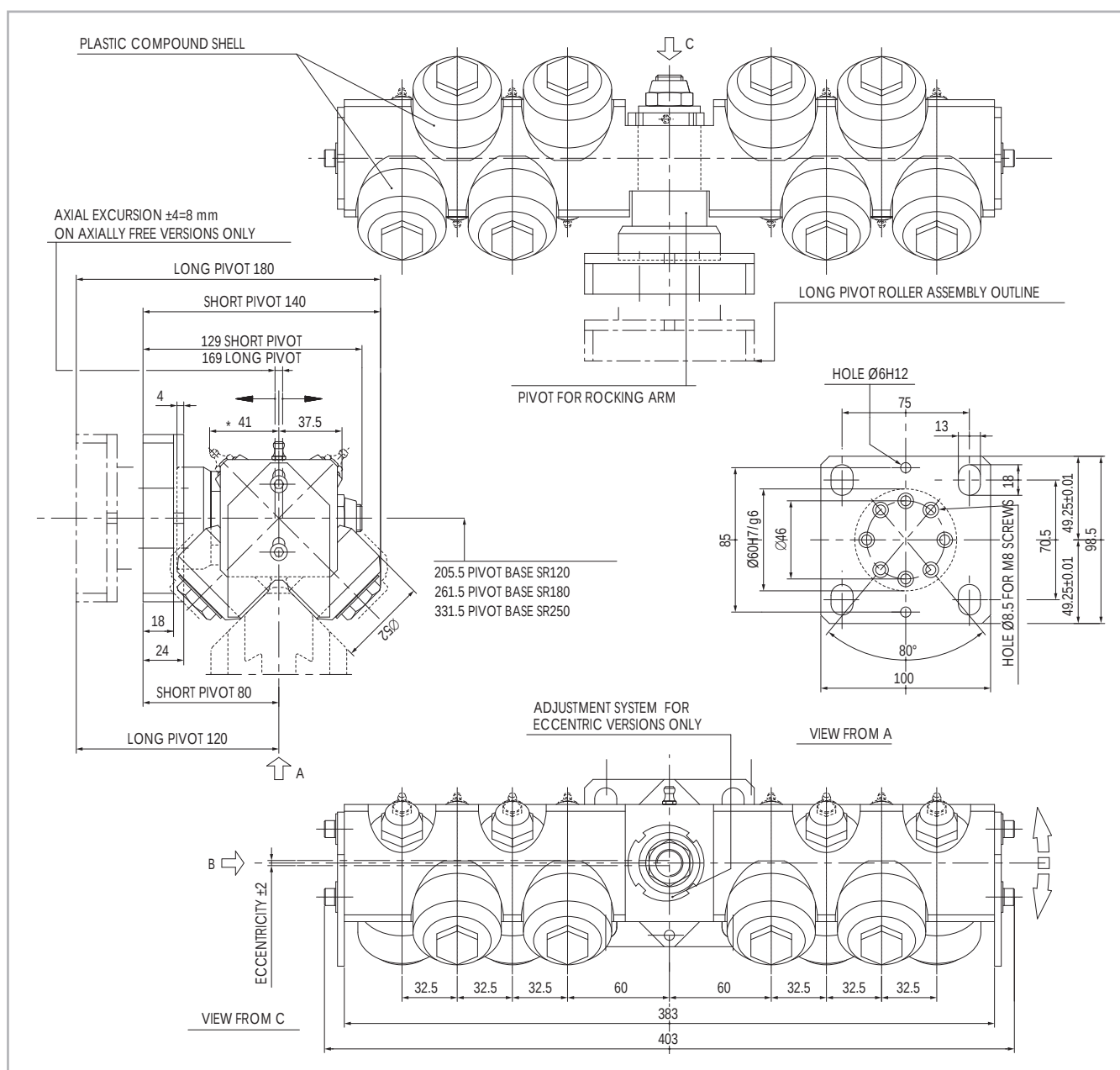
The axially free version of the assemblies are normally mounted on trolleys running on parallel rails. Coupled with axially constrained assemblies provide a flexible structure able to withstand minor misalignments between runways.

Assemblies without baseplate have the same code followed by "SP" (i.e. 55.1366/SP)

| Roller assemblies reference |                        |       | Axially constrained | Axially free | Rollers code |
|-----------------------------|------------------------|-------|---------------------|--------------|--------------|
| Short pivot                 | PERIODICAL LUBRICATION | ECC.  | 55.1366             | 55.3366      | 55.1329      |
|                             |                        | CONC. | 55.1370             | 55.3370      |              |
|                             | LIFETIME LUBRICATION   | ECC.  | 55.1367             | 55.3367      | 55.1317      |
|                             |                        | CONC. | 55.1371             | 55.3371      |              |
| Long pivot                  | PERIODICAL LUBRICATION | ECC.  | 55.1368             | 55.3368      | 55.1329      |
|                             |                        | CONC. | 55.1372             | 55.3372      |              |
|                             | LIFETIME LUBRICATION   | ECC.  | 55.1369             | 55.3369      | 55.1317      |
|                             |                        | CONC. | 55.1373             | 55.3373      |              |

Tab. 15

## > Floating roller assembly with 8 rollers - short/long pivot



\* Lubrication nipple mounted for periodic lubrication versions only

Fig. 121

### Notes:

The axially free version of the assemblies are normally mounted on trolleys running on parallel rails. Coupled with axially constrained assemblies provide a flexible structure able to withstand minor misalignments between runways.

Assemblies without baseplate have the same code followed by "SP" (i.e. 55.1366/SP).

| Roller assemblies reference |                        |       | Axially constrained | Axially free | Rollers code |
|-----------------------------|------------------------|-------|---------------------|--------------|--------------|
| Short pivot                 | PERIODICAL LUBRICATION | ECC.  | 55.1143             | 55.3143      | 55.1329      |
|                             |                        | CONC. | 55.1144             | 55.3144      |              |
|                             | LIFETIME LUBRICATION   | ECC.  | 55.1145             | 55.3145      | 55.1317      |
|                             |                        | CONC. | 55.1146             | 55.3146      |              |
| Long pivot                  | PERIODICAL LUBRICATION | ECC.  | 55.1147             | 55.3147      | 55.1329      |
|                             |                        | CONC. | 55.1148             | 55.3148      |              |
|                             | LIFETIME LUBRICATION   | ECC.  | 55.1149             | 55.3149      | 55.1317      |
|                             |                        | CONC. | 55.1150             | 55.3150      |              |

Tab. 16

## > Assembling diagram for rigid mounted rack

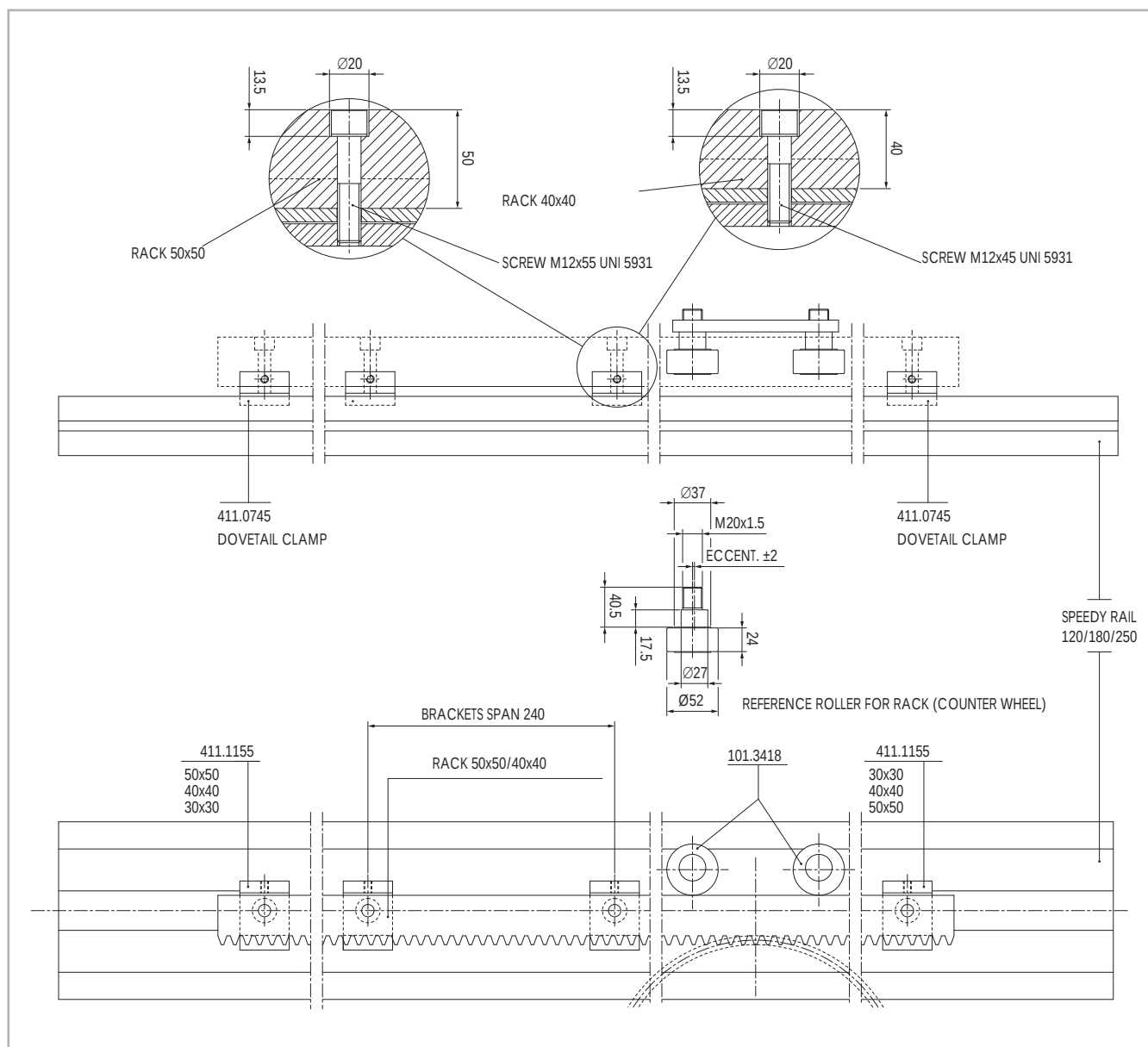


Fig. 122



## > Assembling diagram for floating rack

40X40 rack assembly diagram

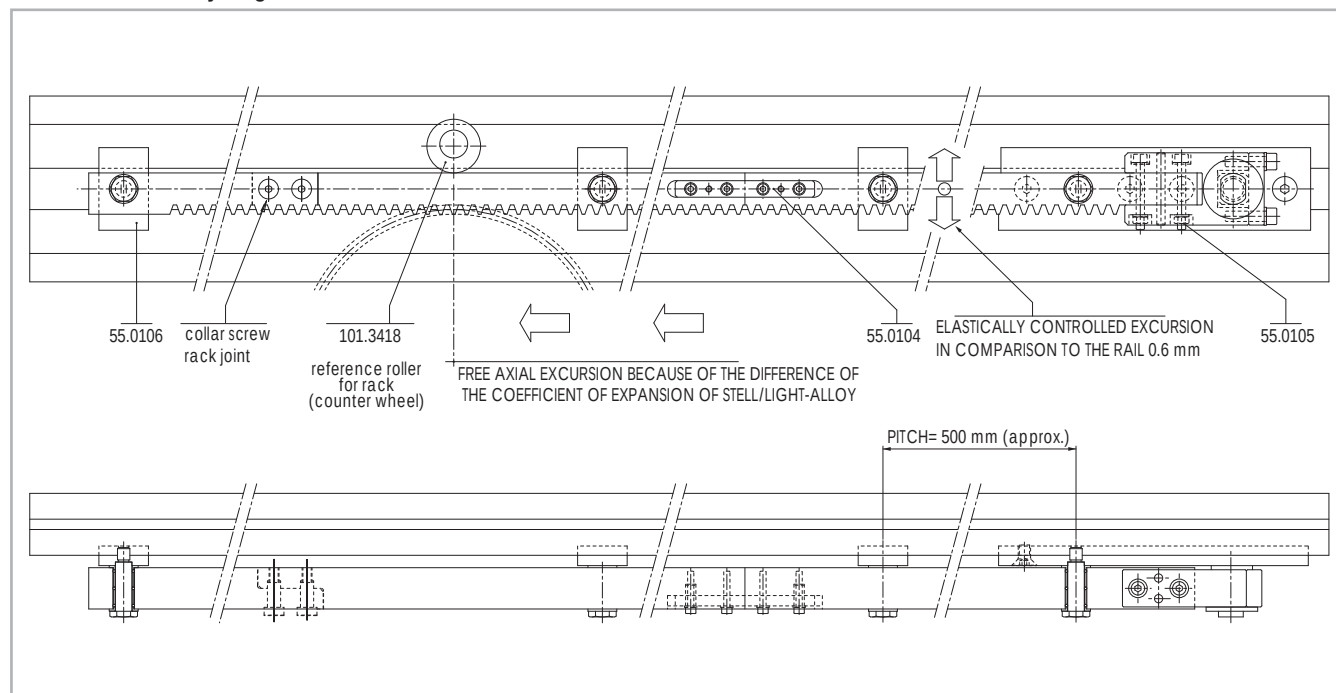


Fig. 123

The floating solution is presented as an alternative to the rigid configuration shown on page SR-50 the objective is to provide the proper setting and constant mesh between rack and pinion thus the reference roller their adjustments independent from the roller assemblies ones. This solutions prevents unwanted overloads on the rollers-speedy rail coupling. That overload could happen on a rigid rack configuration with an incorrect mash setting. The choice of this advanced solution implies the machining of the rack either in one single rod or a number of rack sections connected (with bolts, lockpins etc) either through a key or machined, to half thickness, matching ends. With the "floating constraint" system, the rack has no horizontal backlash at all (direction of the motion) thus leaving 0.6 mm total vertical play and generating a limited elastic reaction only to the floating movement.

## > 40X40 floating rack mounting

### Rack head mounting set-up

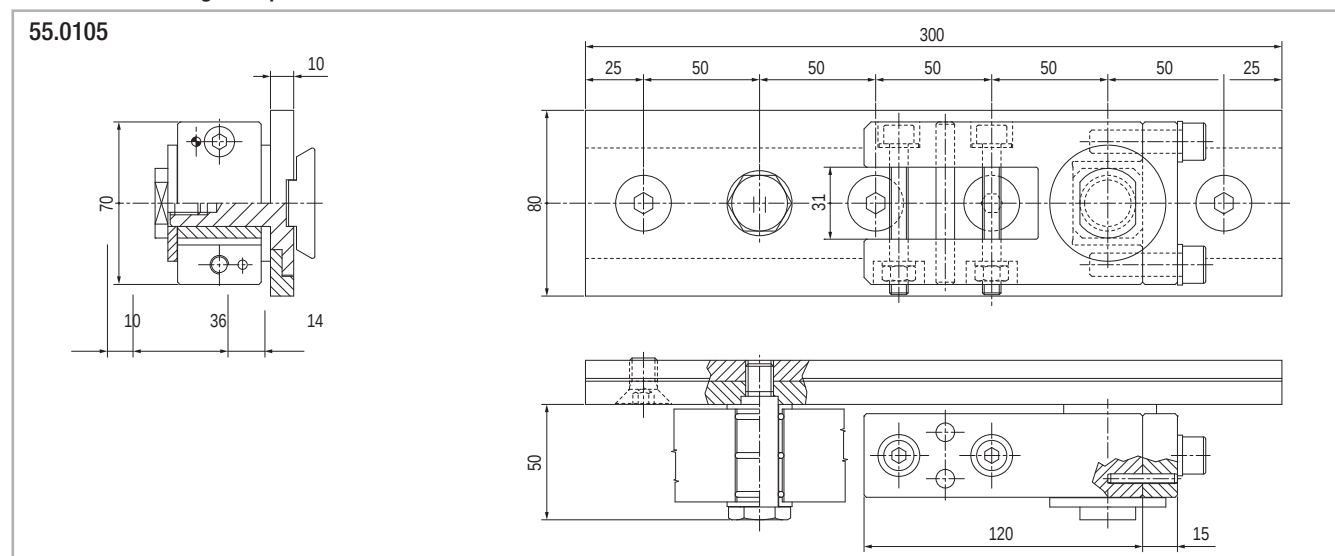


Fig. 124

### Intermediate rack mounting assembly

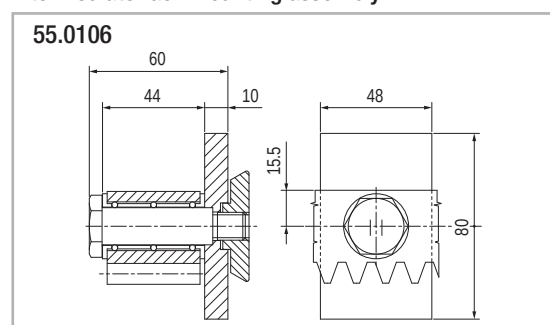


Fig. 125

### Components for end-to-end rack joining with key

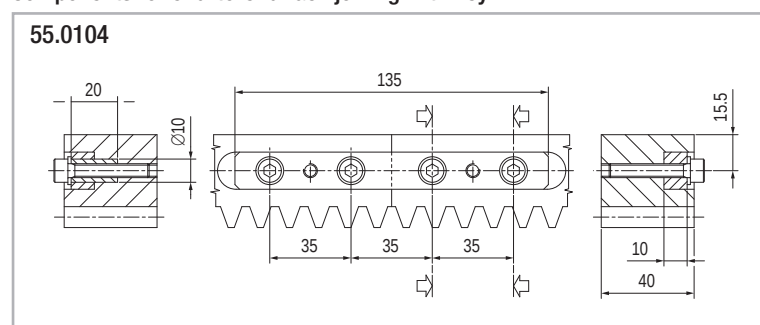


Fig. 126

### Tooling of the rack (supplied by Nuova T.M.T. S.r.l. contractor).

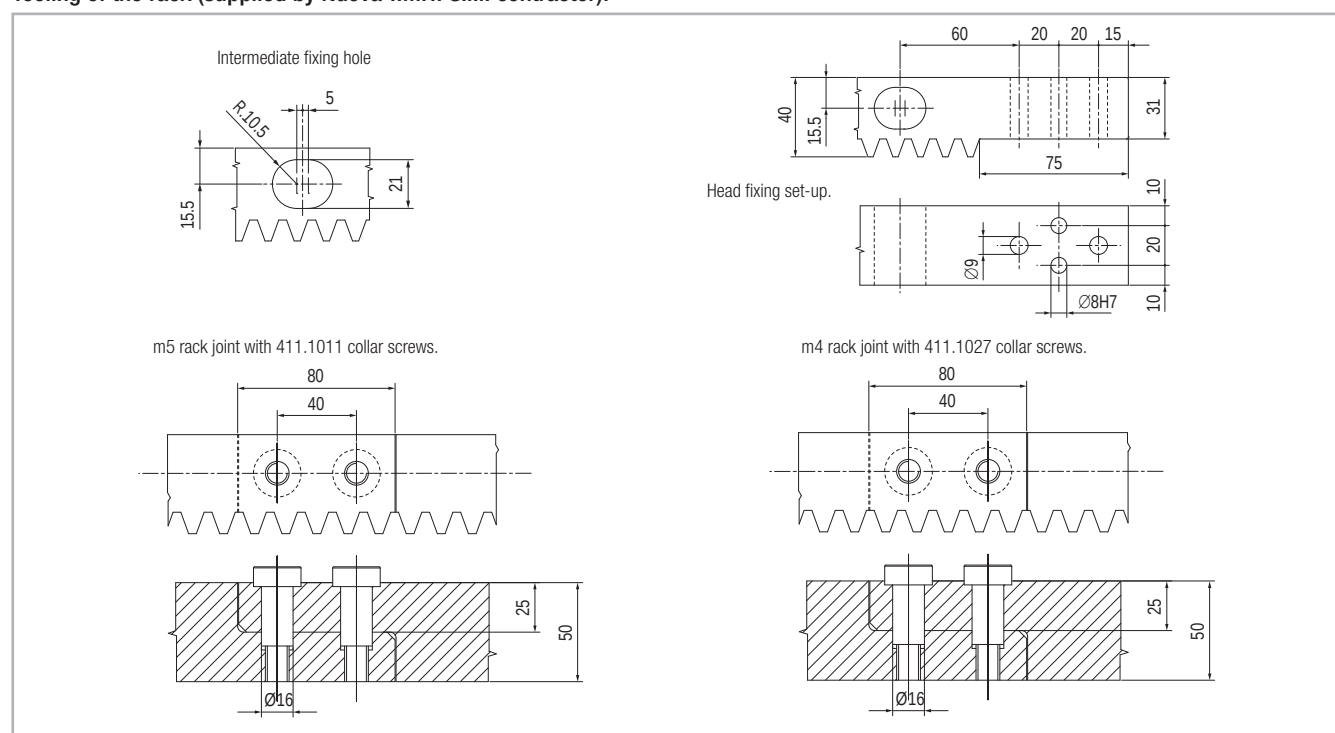


Fig. 127

## > Standard racks

| Code    | Quality | Module | Lenght (mm) | Description                               |
|---------|---------|--------|-------------|-------------------------------------------|
| 2113432 | Q6      | 2      | 1000        | Cremagliera m2 Q6 L=1000 denti inclinati  |
| 2113433 | Q6      | 2      | 2000        | Cremagliera m2 Q6 L=2000 denti inclinati  |
| 2113434 | Q6      | 3      | 1000        | Cremagliera m3 Q6 L=1000 denti inclinati  |
| 2113435 | Q6      | 3      | 2000        | Cremagliera m3 Q6 L=2000 denti inclinati  |
| 2113436 | Q6      | 4      | 1000        | Cremagliera m4 Q6 L=1000 denti inclinati  |
| 2113437 | Q6      | 4      | 2000        | Cremagliera m4 Q6 L=2000 denti inclinati  |
| 2113438 | Q6      | 5      | 1000        | Cremagliera m5 Q6 L=1000 denti inclinati  |
| 2113439 | Q6      | 5      | 2000        | Cremagliera m5 Q6 L=2000 denti inclinati  |
| 2113440 | Q10     | 2      | 1000        | Cremagliera m2 Q10 L=1000 denti inclinati |
| 2113441 | Q10     | 2      | 2000        | Cremagliera m2 Q10 L=2000 denti inclinati |
| 2113442 | Q10     | 3      | 1000        | Cremagliera m3 Q10 L=1000 denti inclinati |
| 2113443 | Q10     | 3      | 2000        | Cremagliera m3 Q10 L=2000 denti inclinati |
| 2113444 | Q10     | 4      | 1000        | Cremagliera m4 Q10 L=1000 denti inclinati |
| 2113445 | Q10     | 4      | 2000        | Cremagliera m4 Q10 L=2000 denti inclinati |
| 2113446 | Q10     | 5      | 1000        | Cremagliera m5 Q10 L=1000 denti inclinati |
| 2113447 | Q10     | 5      | 2000        | Cremagliera m5 Q10 L=2000 denti inclinati |

Tab. 17

### Indexing rack mounting components

| Rack | Mounting plates | Dovetails | Inserts         |
|------|-----------------|-----------|-----------------|
| m2   | 4,4 5,4; 6,7    | 4,4 5,4   | 7,3; 10,3       |
| m3   | 6,7             | 6,6       | 7,3; 10,3; 15,2 |
| m4   | 6,7             | 6,6       | 7,3; 15,2       |

Tab. 18

## > Standard scrapers

### Scraper for floating and full-block assemblies

411.0685

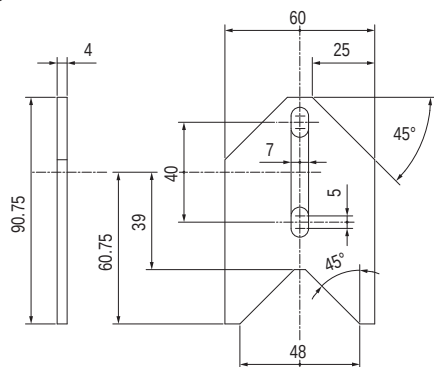


Fig. 128

### Scraper for compact

411.0686

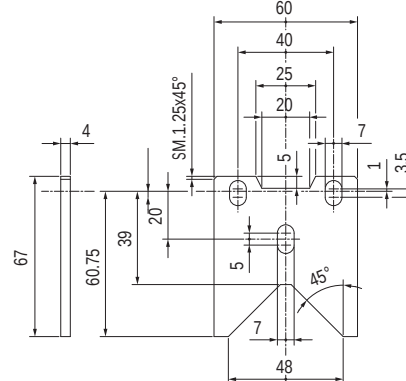


Fig. 129

Sliding brush for speedy rail and steel rail.  
Brushes are kept against tracks by springs.

55.1000

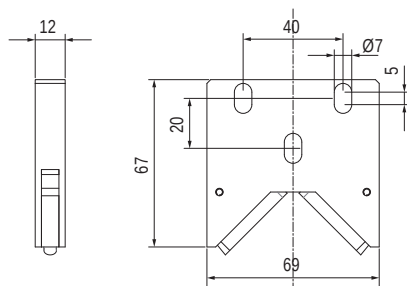


Fig. 130

### Scraper for light floating rollers assemblies

55.1794.05

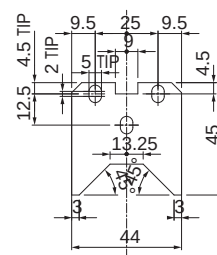


Fig. 131

### Scraper for blind beam roller assemblies

55.0472.02

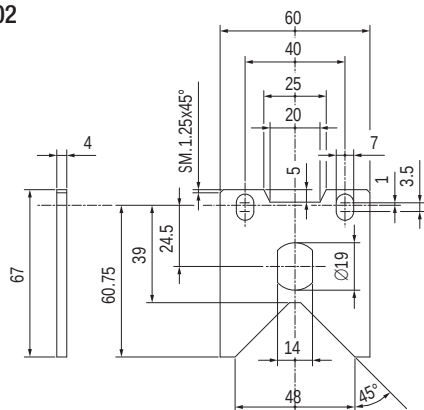


Fig. 132

### Note:

All roller assemblies are equipped with the relate scrapers.

## Speedy Rail 180



### > Wide body multi groove speedy rail guide and specifications

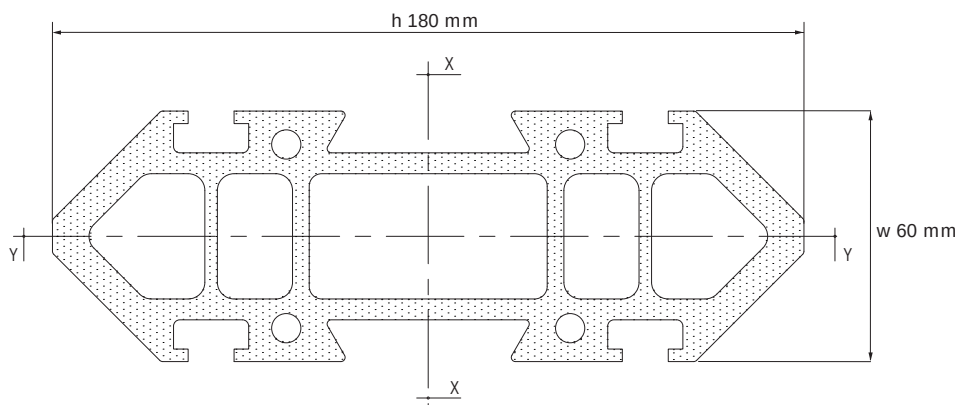


Fig. 133

Surface quadratic moment: X-X axis = 10.291.100 mm<sup>4</sup> / Y-Y axis = 1.278.700 mm<sup>4</sup>.

Max. manufacturing tolerances =  $\pm 0.30$  mm across opposite rolling surfaces.

Max. angular distortion =  $\pm 20'$ /m.

Linear mass = 10.2 Kg/m.

Max. linear distortion =  $\pm 0.7$  mm/m.

Standard lengths: 3000-3500-4000-4500-5000-5500-6000-6500-7000-7500 mm.

External surface: deep hard anodizing

## > Roller assemblies and components

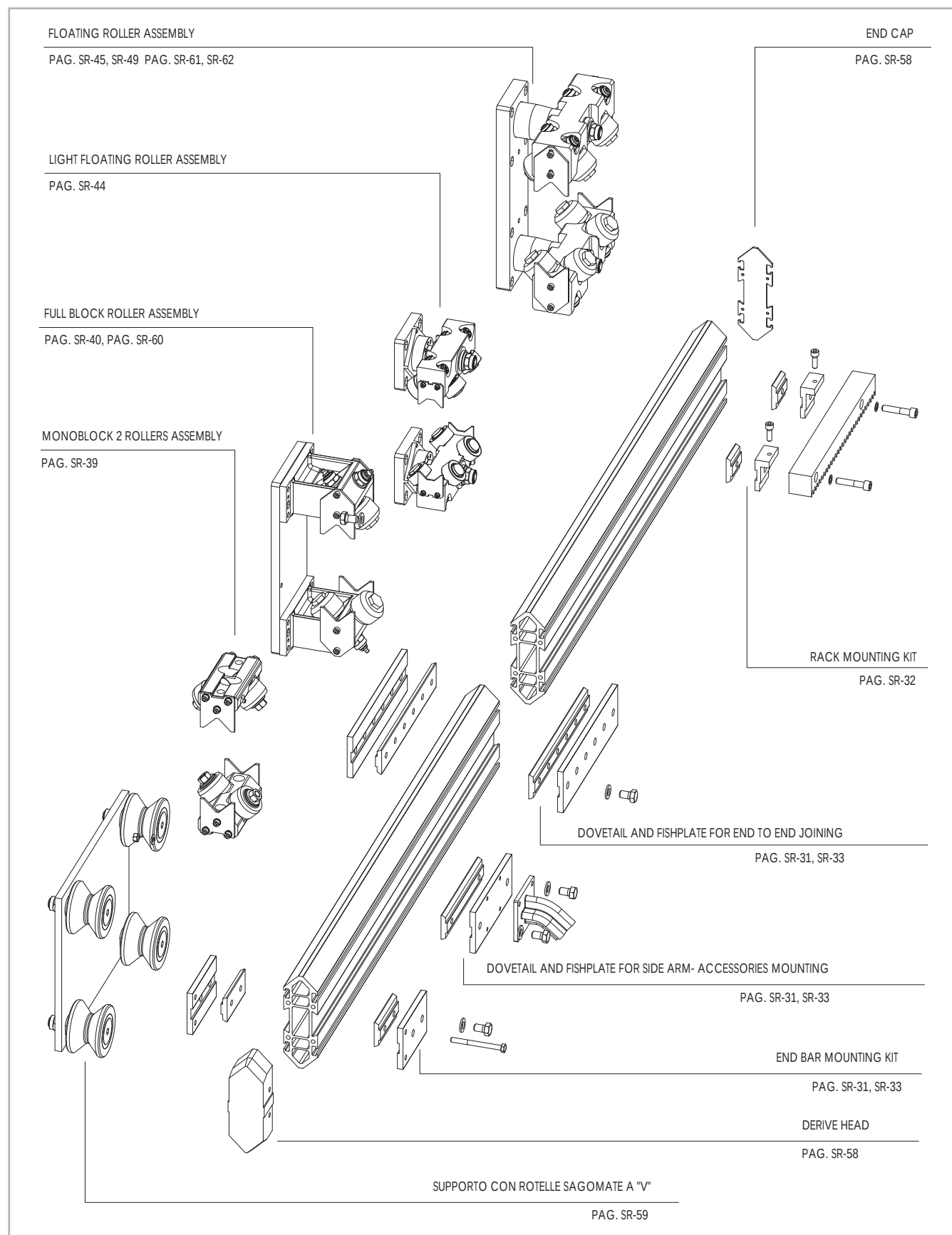


Fig. 134

## > Wide body multi groove speedy rail guide and specifications

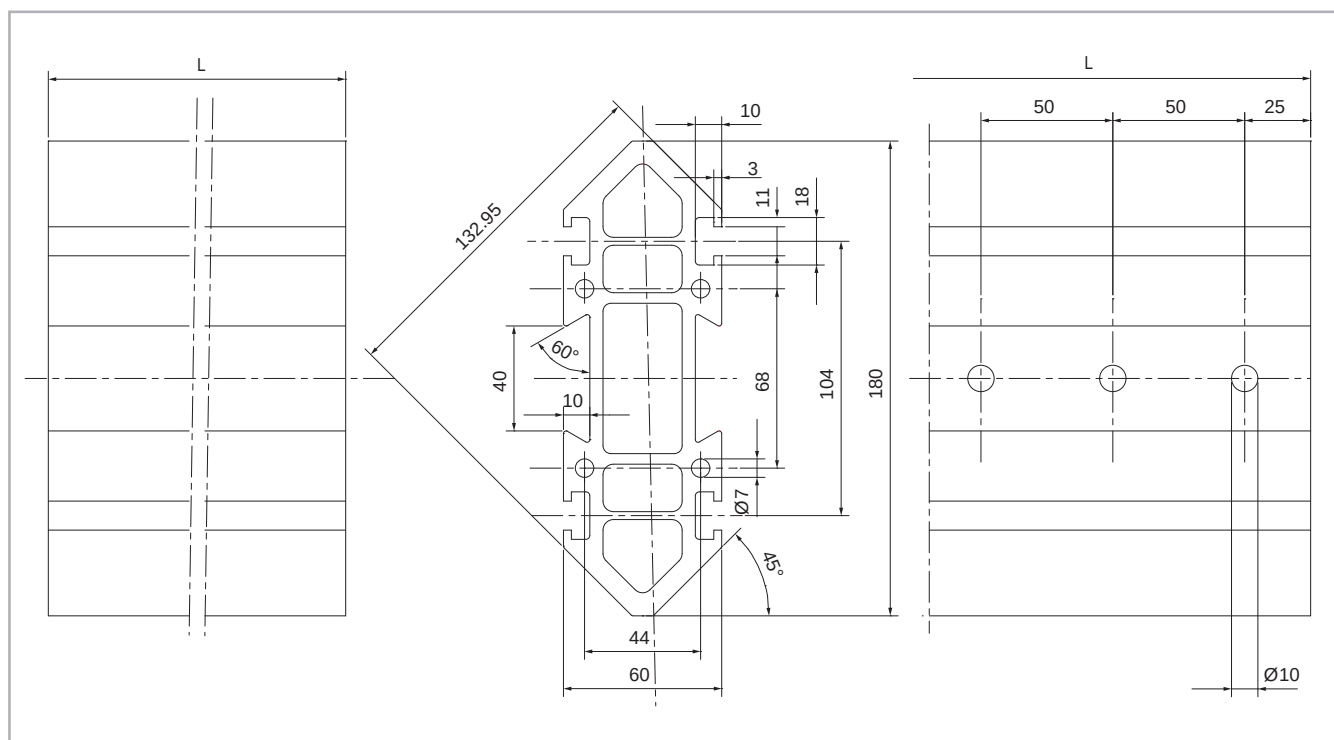


Fig. 135

**411.2688**

Speedy Rail 180 with plain ends

**411.2689**

Speedy Rail 180 with drilled ends

**Note:**

Drillings on the bar end are required as a safety measure whith end-to-end joining in moving rails.

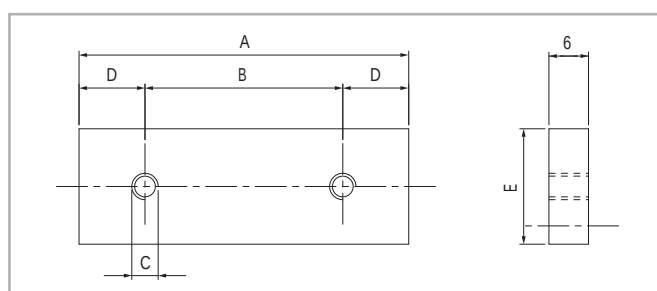


Fig. 136

**Insert**

| A   | B  | C  | D | E  | Material        | N° Holes | Cod.     |
|-----|----|----|---|----|-----------------|----------|----------|
| 496 | 60 | M4 | 8 | 16 | Burnished steel | 9        | 411.2534 |
| 496 | 60 | M5 | 8 | 16 |                 | 9        | 411.2533 |
| 496 | 80 | M6 | 8 | 16 |                 | 9        | 411.3633 |

Tab. 19

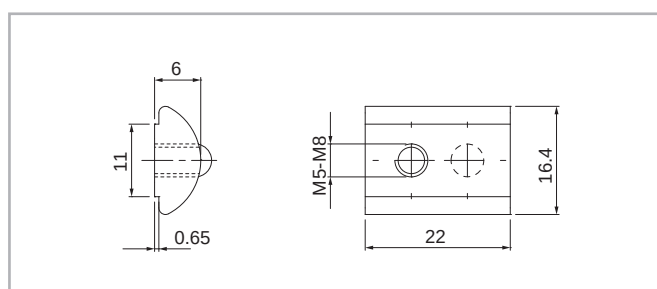


Fig. 137

**Insert**

| A | B | C  | D | E | Material          | N° Holes | Cod.     |
|---|---|----|---|---|-------------------|----------|----------|
| - | - | M4 | - | - | Zinc plated steel | 1        | 411.1349 |
| - | - | M5 | - | - |                   | 1        | 411.1351 |
| - | - | M6 | - | - |                   | 1        | 411.1352 |
| - | - | M8 | - | - |                   | 1        | 411.1353 |

Tab. 20

Wide body multi groove speedy rail guide (SR180) uses the same dovetails, plates, fishplates and joining components of speedy rail standard

(SR120 section) see page SR-31, SR-32, SR-33

## > Components for wide body multi groove Speedy Rail guide

### Drive head

411.0696

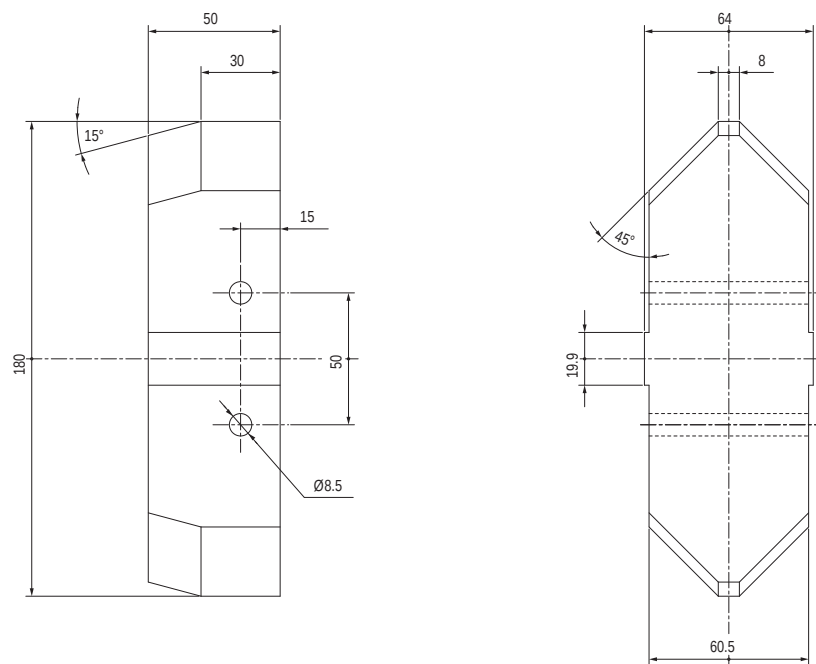


Fig. 138

### Bolt for drive head

411.0744

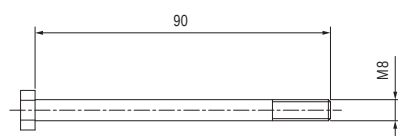


Fig. 139

### Aluminium alloy end cap

411.1964

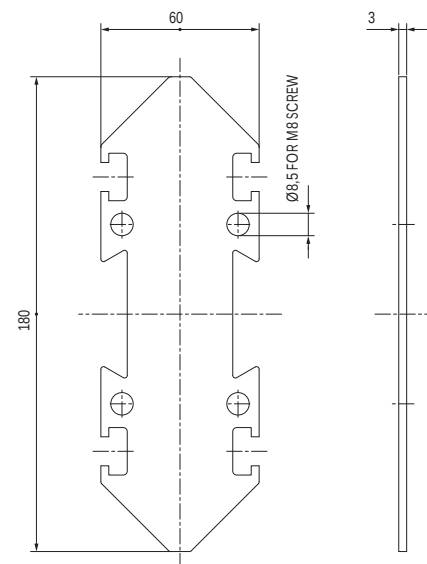


Fig. 140



## > Roller assembly with "V" shaped rollers

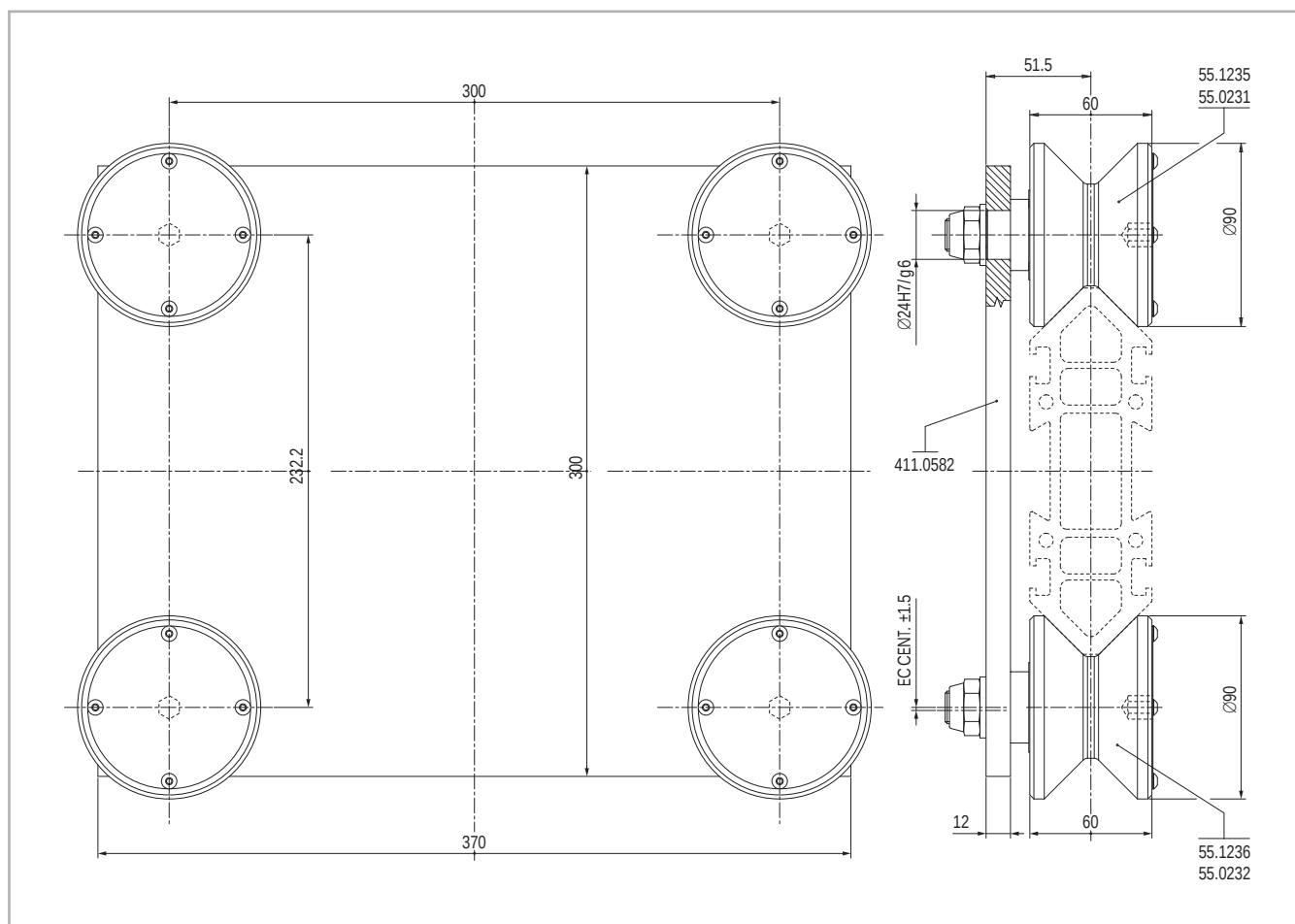


Fig. 141

### 55.1180

Heavy duty roller assembly with 4 rollers, 2 rollers 55.1235, 2 55.1236

### 55.1181

Heavy duty roller assembly with 4 rollers, 2 rollers 55.0231, 2 55.0232

## > Roller assembly with 4 rollers

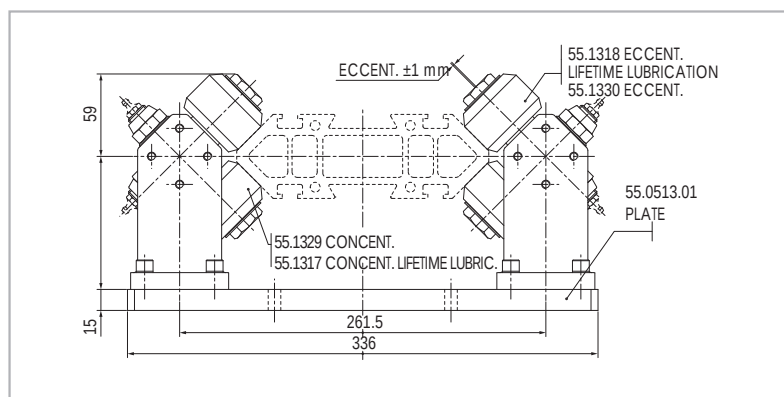


Fig. 142

### 55.0713

Roller assembly with backing plate 336x150x15 rollers with lifetime lubrication

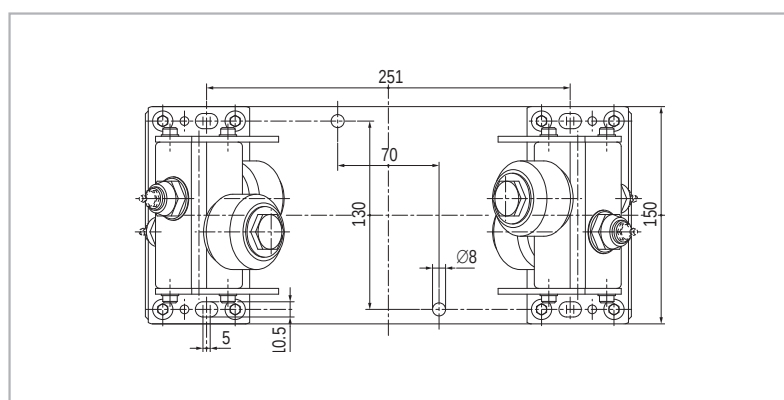


Fig. 143

### 55.0513

Roller assembly with backing plate 336x150x15 rollers with periodical lubrication

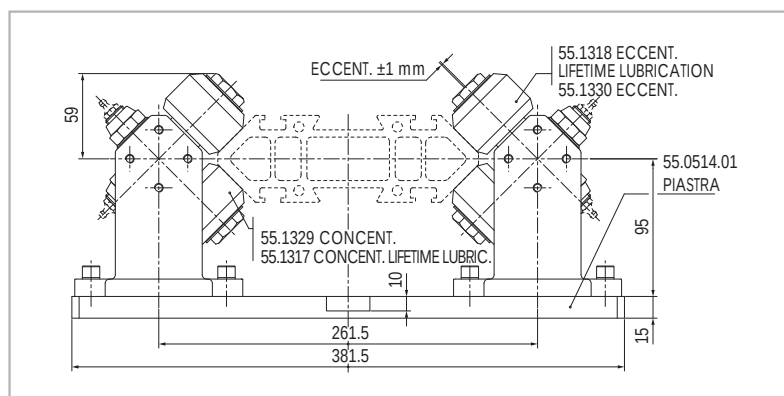


Fig. 144

### 55.0740

Roller assembly with backing plate 381.5x80x15 rollers with lifetime lubrication

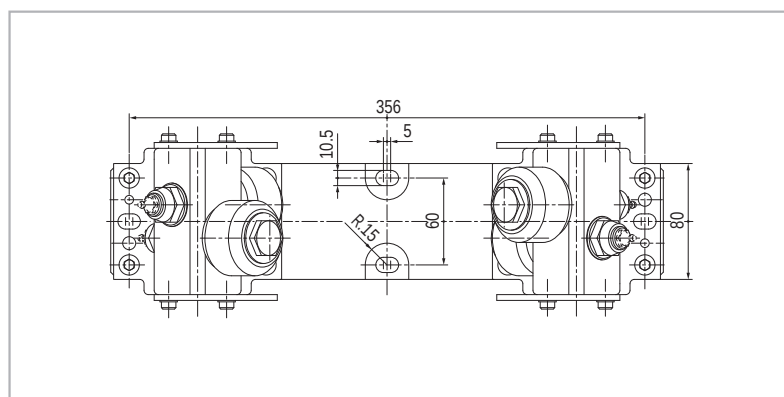
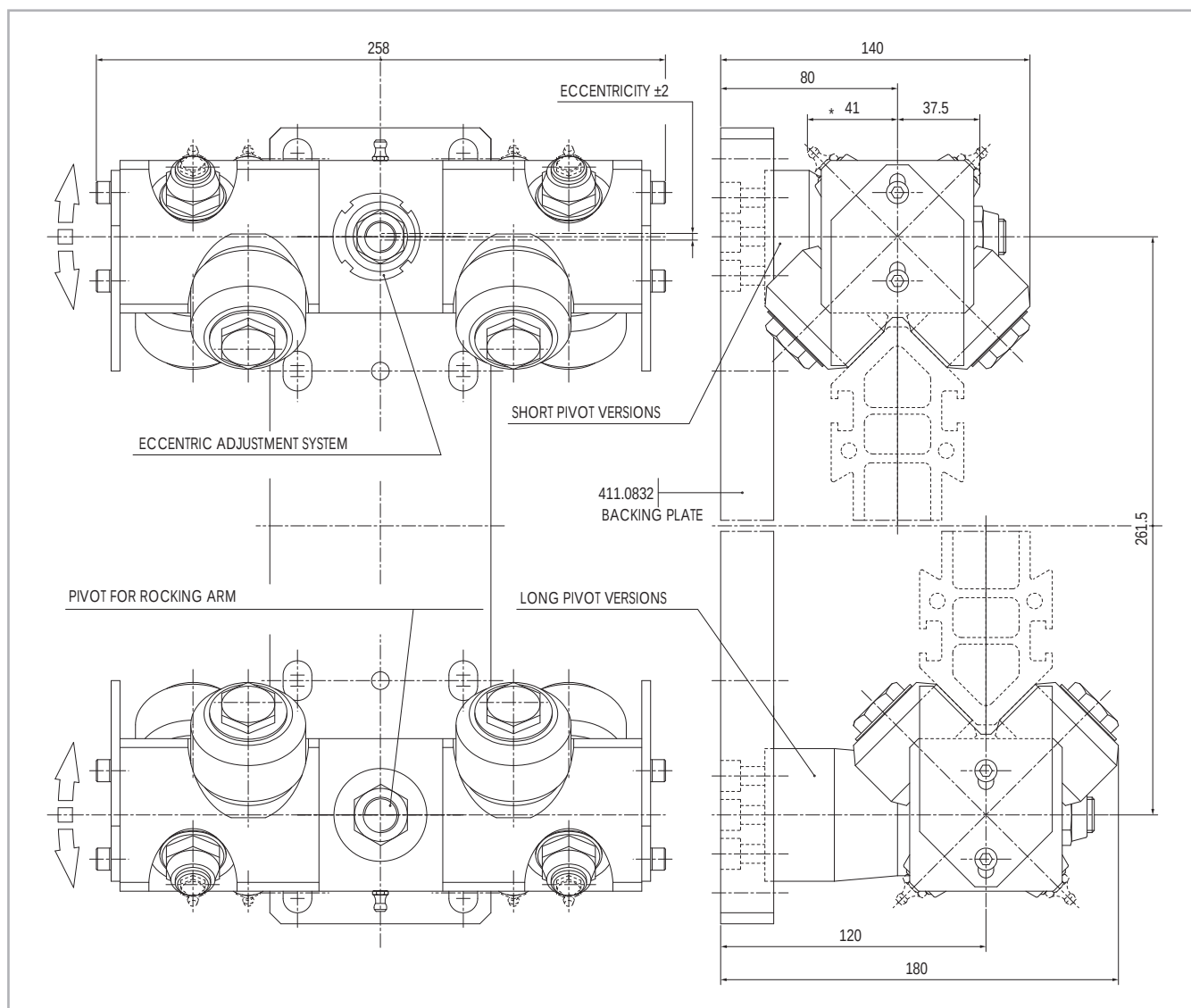


Fig. 145

### 55.0514

Roller assembly with backing plate 381.5x80x15 rollers with periodical lubrication

## > 8 Rollers floating assembly - complete pairing



\* Lubricator nipple mounted for periodic lubrication versions only

Fig. 146

### Notes:

The complete pairing kit comes with one eccentric and one concentric roller assembly mounted on a backing plate. The concentric roller assembly should take the heavier load. For trolley on 2 parallel guides use on one guide axially free roller assemblies ( $\pm 4\text{mm}$ ).

Pairing kits are available with two roller assemblies having the same number of rollers. For different combinations (i.e. upper assembly with 6 rollers and lower assembly with 4 rollers, two eccentric rollers assemblies) please order the assemblies separately, without baseplate and add the backing plate shown in this page. However we suggest to verify always with our technical department prior to ordering.

| Pivot type  | Lubrication type | Axially constrained | Axially free |
|-------------|------------------|---------------------|--------------|
| Short pivot | Periodical       | 55.1380             | 55.1380      |
|             | Lifetime         | 55.1381             | 55.1381      |
| Long pivot  | Periodical       | 55.1382             | 55.1382      |
|             | Lifetime         | 55.1383             | 55.1383      |

Tab. 21

## > Backing plate for floating roller assemblies

Backing plate - Material: hard anodized aluminium alloy

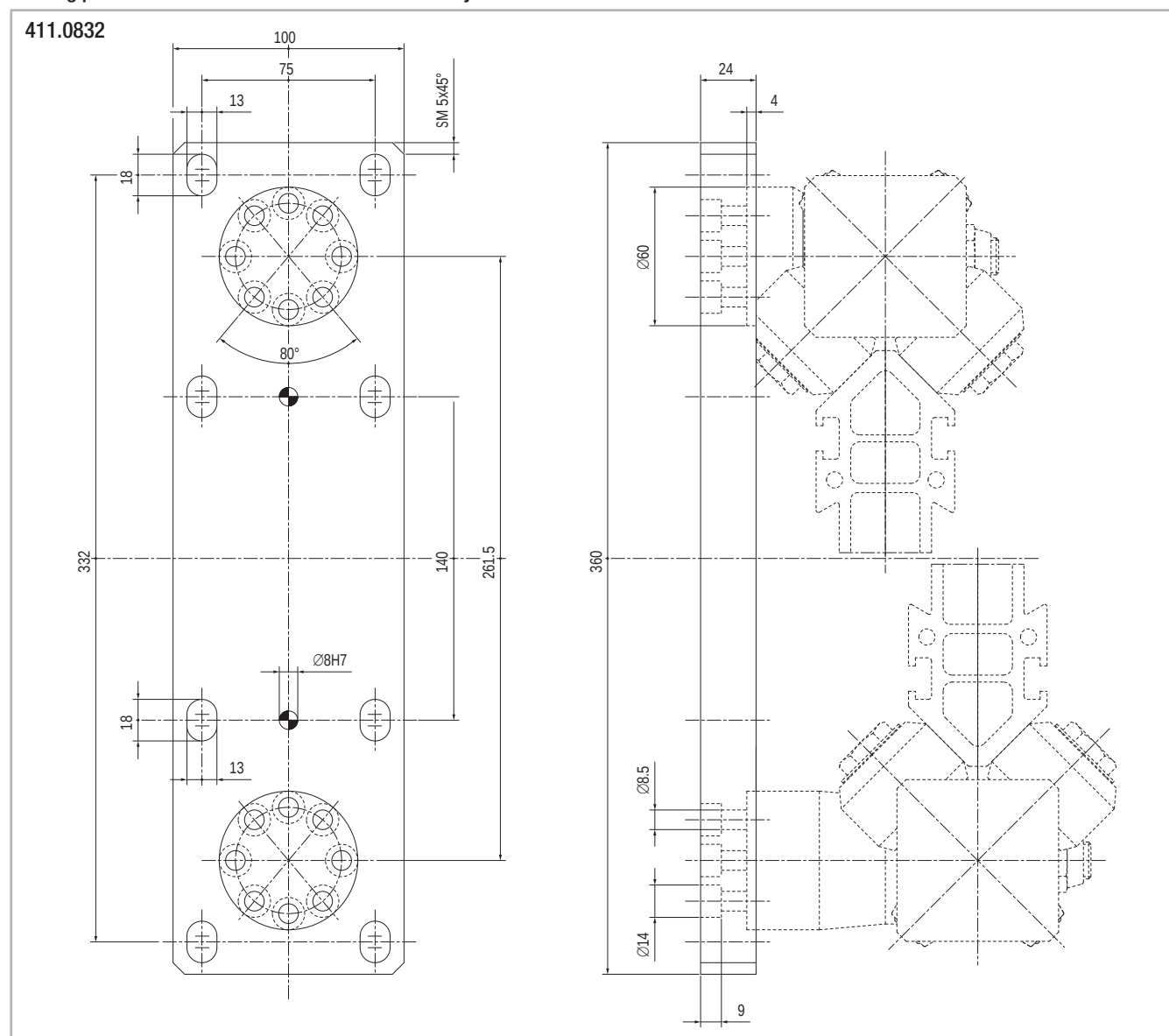


Fig. 147

## > Angular mounting bracket for floating roller assemblies

Steel bracket for single floating roller assemblies long pivot without baseplate

411.0896

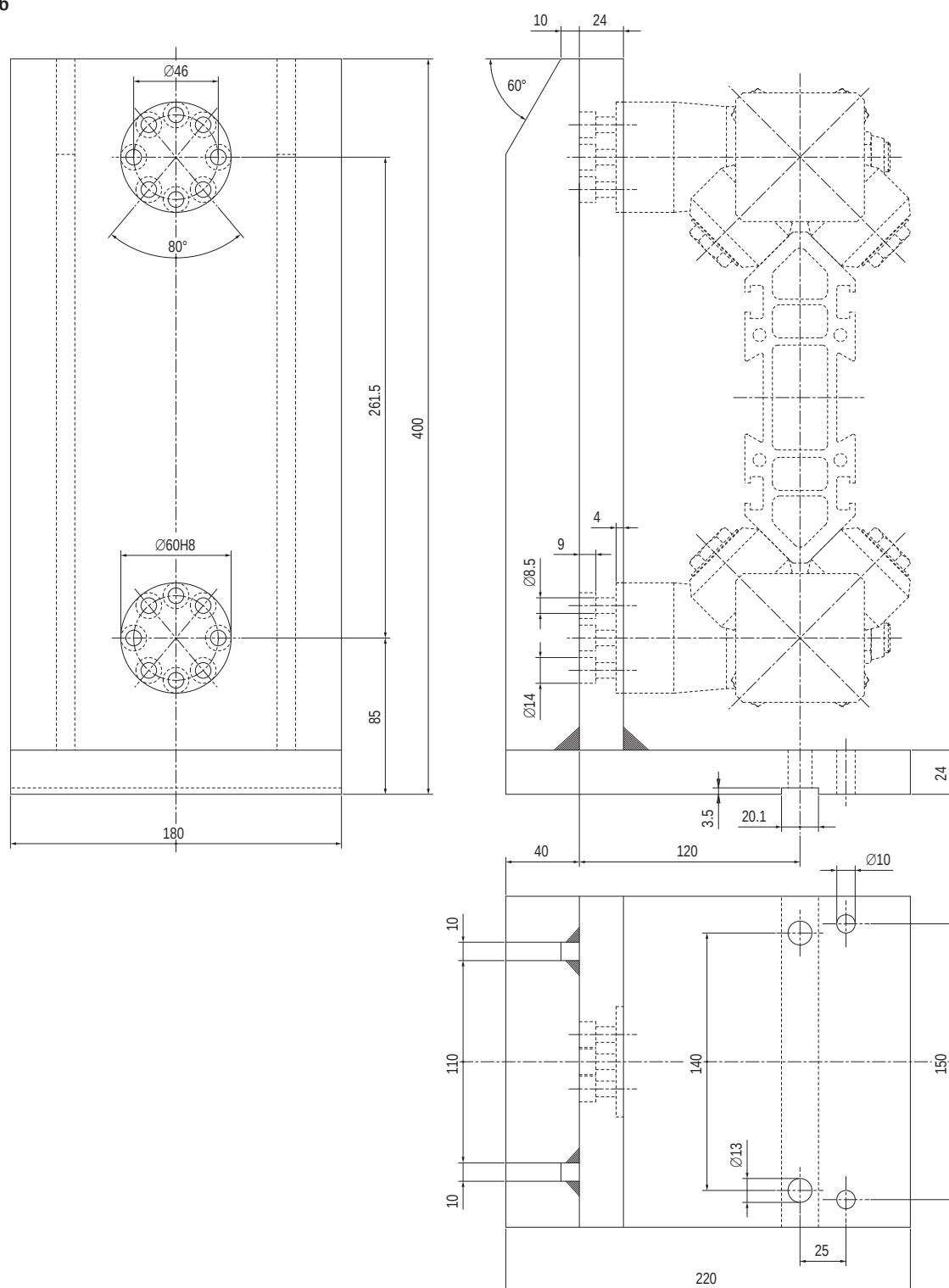


Fig. 148

### Note:

The lower groove allows to mount the bracket onto a new uni-beam supporting profile.

## Speedy Rail 250



### > Super wide body multi groove speedy rail guide and specifications

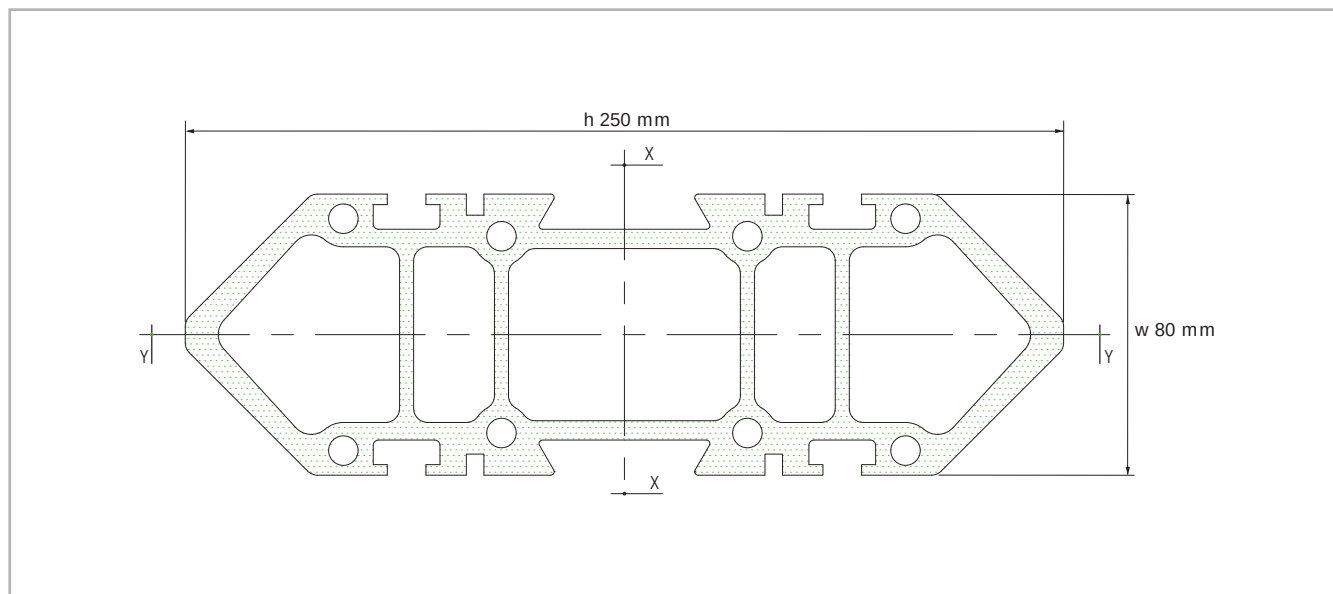


Fig. 149

Surface quadratic moment X-X axis = 27.345.460 mm<sup>4</sup> / Y-Y axis = 4.120.150 mm<sup>4</sup>.

Max. manufacturing tolerances =  $\pm 0.65$  mm across opposite rolling surfaces.

Max. angular distortion =  $\pm 30'$ /m.

Linear mass = 15.20 Kg/m.

Max. linear distortion =  $\pm 0.5$  mm/m.

Standard lengths: 3000-3500-4000-4500-5000-5500-6000-6500-7000-7500 mm.

External surface: deep hard anodizing

## > Roller assemblies and components

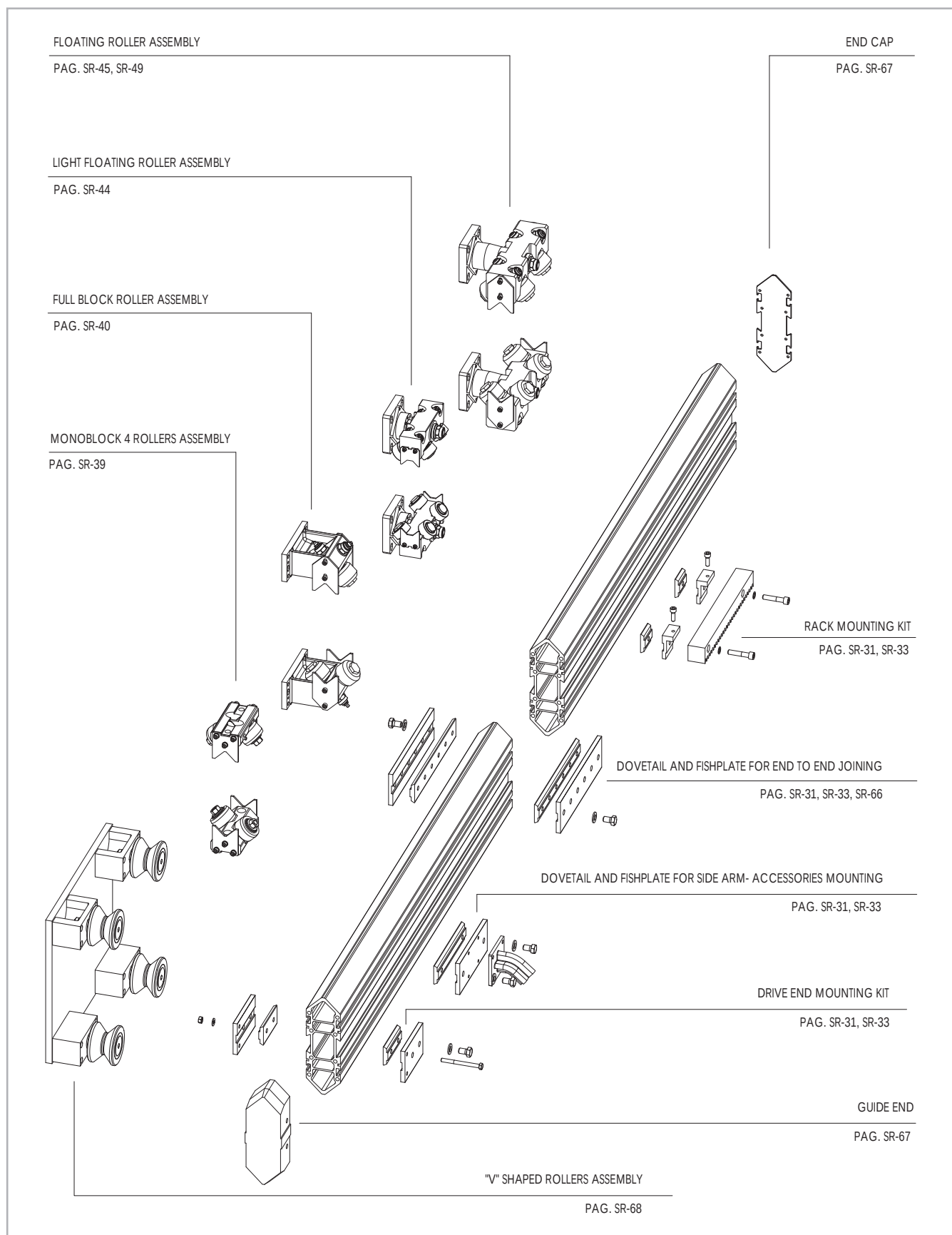


Fig. 150

## > Superwide body multi groove speedy rail guide and specifications

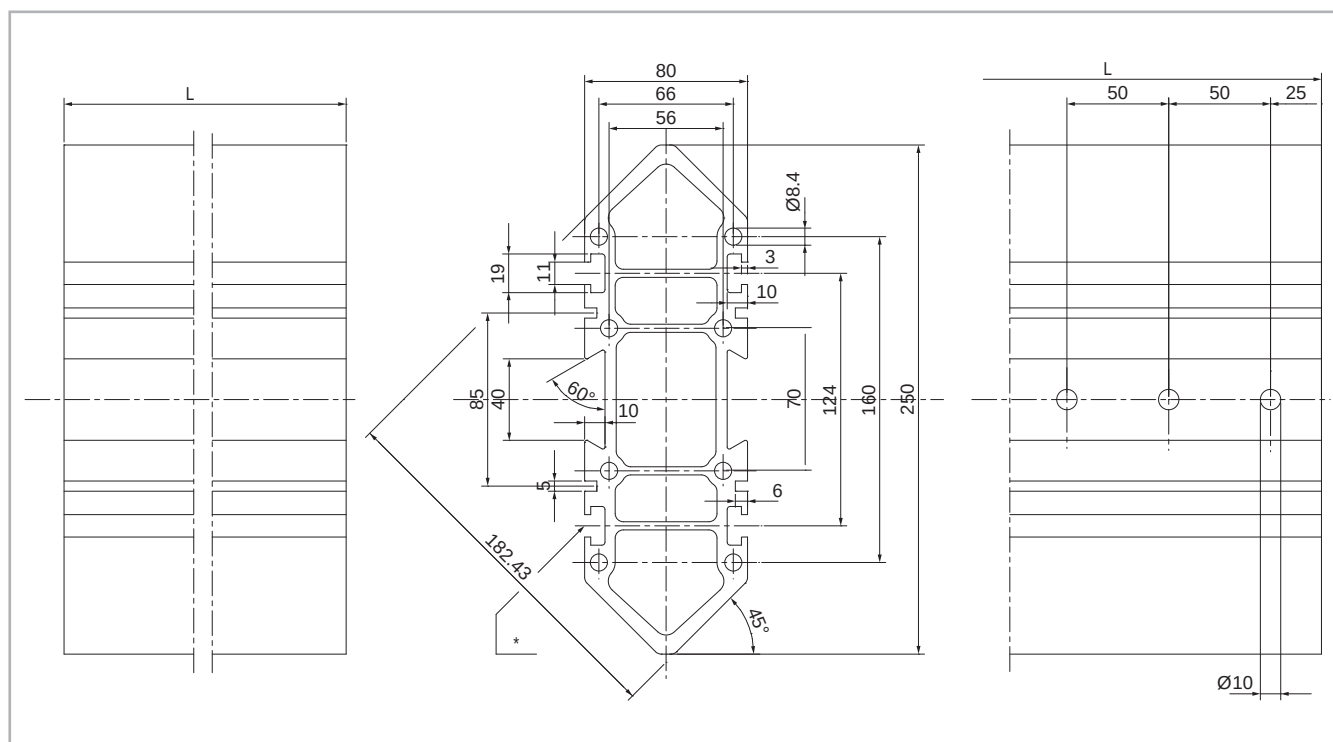


Fig. 151

### 411.2951

Speedy Rail 250 with plain ends

### 411.2952

Speedy Rail 250 with drilled ends

#### Note:

Drillings on the bar end are required as a safety measure with end-to-end joining in moving rails.

Super wide body multi groove speedy rail guide (SR250) uses the same dovetails, plates, fishplates and joining components of speedy rail standard (sr 120m section) see pages SR-31, SR-32, SR-33. Special plates, 411.0960, are also available for end-to-end joining in heavy duty applications.

\* Particularly for side grooves the same inserts for SR180 (pag.SR-57) are used.

#### Steel fishplates for end to end joining

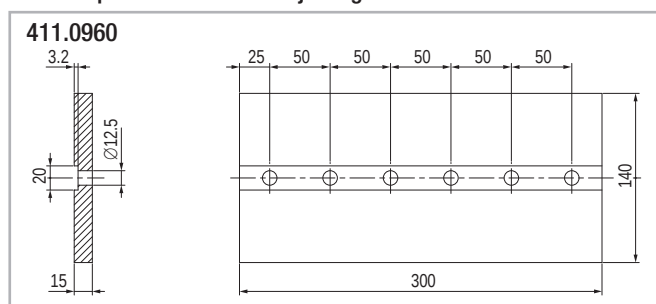


Fig. 152



## > Components for super wide body speedy rail guide

### Spacer

411.0957

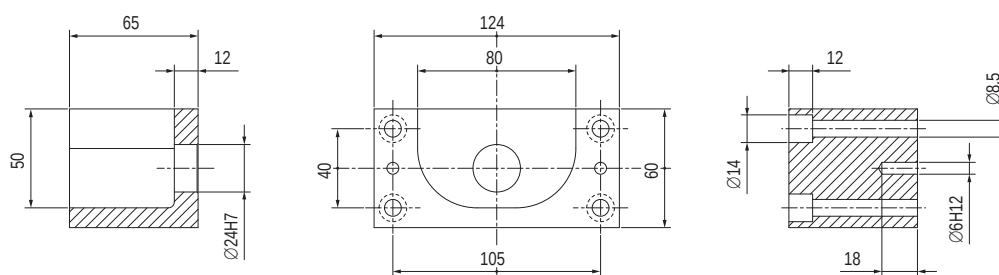


Fig. 153

### Spacer

411.0997

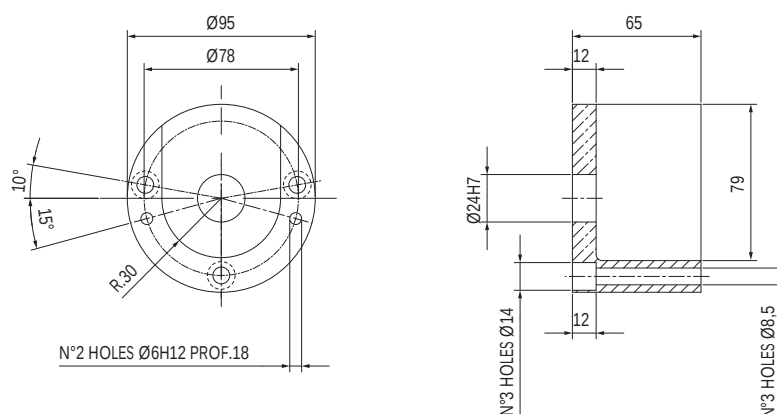


Fig. 154

### Aluminium alloy end cap

411.1963

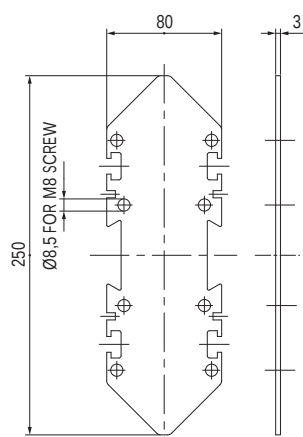


Fig. 155

### Elastomer drive head

411.1015

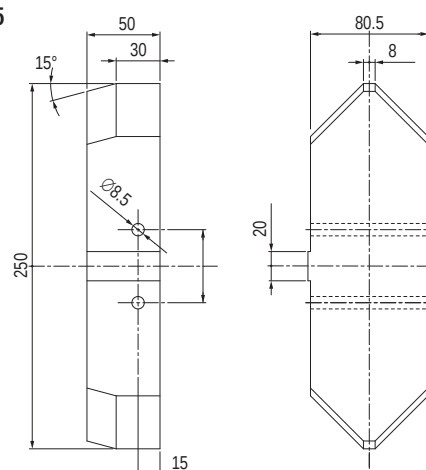


Fig. 156

## > Roller assembly with "V" shaped rollers

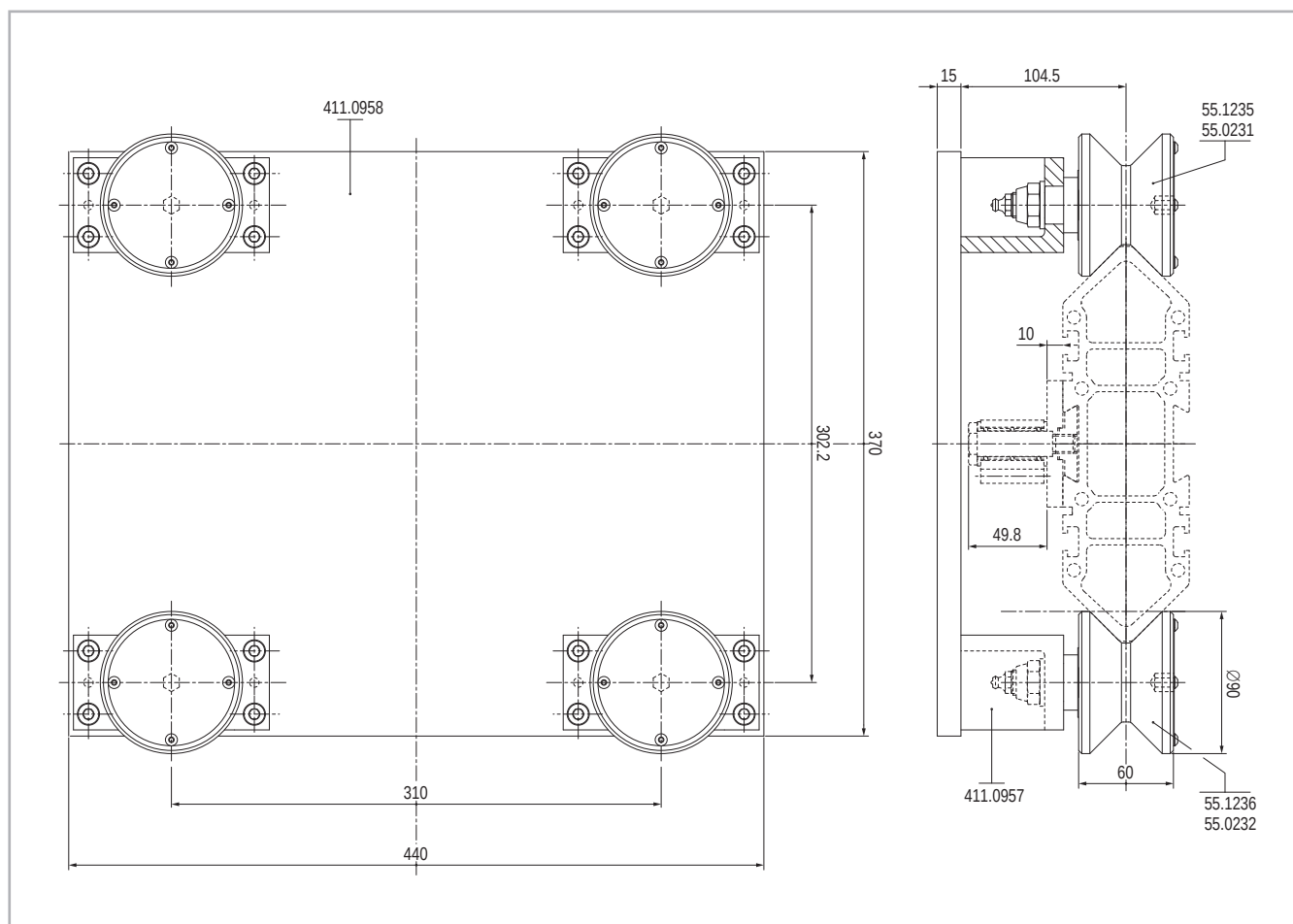


Fig. 157

### 55.0808

Roller assembly with 4 rollers, 2 rollers 55.1235, 2 55.1236

### 55.0788

Roller assembly with 4 rollers, 2 rollers 55.0231, 2 55.0232

## Technical detail



### > Mechanical and technological components specifications

| Guides                                                                                                                                                                                                                                | Accessories             | Material                      | Tensile strength                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Speedy Rail SR 35<br>Speedy Rail SR C 48<br>Speedy Rail Mini SR 60<br>Speedy Rail Middle SR 90<br>Speedy Rail Standard SR 120<br>Speedy Rail Wide Body multiple grooves SR 180<br>Speedy Rail Super Wide Body Multiple Grooves SR 250 | Dovetails<br>Fishplates | Lega di alluminio da bonifica | Tensile strength:<br>$R = 245 \text{ N/mm}^2$<br>Yield stress:<br>$S = 195 \text{ N/mm}^2$<br>Elongation:<br>$10\% \div 13\%$<br>Modulus of elasticity:<br>$E = 70000 \text{ N/mm}^2$<br>$G = 26000 \text{ N/mm}^2$<br>Mass density: $2,7 \text{ kg/dm}^3$<br>Coefficient of expansion:<br>$K = 23 \times 10^{-6} \text{ mm/mm}^\circ\text{C}$ |

Tab. 22

| Components                                                        | Material       | Tensile strength                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Base plates<br>Rocking arms<br>Compact rollers assembly body      | Aluminum Alloy | Tensile strength:<br>$R = 275 \text{ N/mm}^2$<br>Yield stress:<br>$S = 200 \text{ N/mm}^2$<br>Elongation:<br>$10\% \div 13\%$<br>Modulus of elasticity:<br>$E = 70000 \text{ N/mm}^2$<br>$G = 26000 \text{ N/mm}^2$<br>Mass density: $2,7 \text{ kg/dm}^3$ |
| Monoblock roller assembly case<br>Full-block roller assembly case |                | Tensile strength:<br>$R = 225 \text{ N/mm}^2$<br>Yield stress:<br>$S = 142 \text{ N/mm}^2$<br>Elongation:<br>$3\% \div 5\%$<br>Modulus of elasticity:<br>$E = 70000 \text{ N/mm}^2$<br>$G = 26000 \text{ N/mm}^2$<br>Mass density: $2,7 \text{ kg/dm}^3$   |

Tab. 23

## > Treatments on all light alloy components

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Heat treatment    | Age hardening                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Surface treatment | <p>Surface hardening: Low temperature deep anodizing to give a surface hardness of <math>600 \div 700</math> HV</p> <p>Surface layer depth: <math>50 \div 60</math> micron (<math>0.050 \div 0.060</math> mm) for rails, <math>25 \div 35</math> micron (<math>0.025 \div 0.035</math> mm) for supports bodies and plates.</p> <p>Chemical composition of surface layer: <math>Al_2 O_3</math></p> <p>Fusion temperature of surface layer: <math>2100^\circ C</math></p> <p>Surface layer electric resistance at <math>20^\circ C</math>: <math>4 \times 10^{15}</math> Ohm/cm/cm<sup>2</sup></p> <p>Dielectric constant: approx. 7.5</p> <p>Puncture voltage of surface layer: 1500 V</p> |

Tab. 24

## > Rollers

### Speedy Rail system

Rollers are manufactured with a steel shaft, high quality ball-needle bearings, rubber seals labyrinth.

The external surface of the roller is machined with a slightly convex profile, finished with a sintered plastic compound having the following properties:

|                                      |                      |
|--------------------------------------|----------------------|
| Tensile strength:                    | 85 N/mm <sup>2</sup> |
| Rockwell hardness:                   | 120 R                |
| Melting point:                       | + 220 °C             |
| Max. continuous working temperature: | +80°C                |
| Min. continuous working temperature: | - 30°C               |
| Dynamic friction coefficient:        | 0,25                 |

Chemical resistance: excellent to mineral and organic oils; good to basic solutions; fairly good to acid solutions.

We always recommend a preliminary test for the rollers in the actual working environment.

## > Roller assemblies

Roller assemblies with four (4) rollers have the two inner rollers mounted on a plain, concentric sleeve while the outer ones have an eccentric sleeve. This setup allows the proper adjustments to compensate dimensional tolerances on the rail. Two roller assemblies have one roller with an eccentric sleeve and the other with a concentric setup.

Floating roller assemblies: all the rollers on this type of support have a concentric sleeve.

The adjustments are made possible by the pivot settings (hub), which comes either with an eccentric or concentric setup.

Custom configuration for roller assemblies are available upon request.

## > Rollers adjustments

Adjusting the rollers on a single section rail requires the rollers in a position that allows them to touch the running surface with no play - slightly pre-loaded- A different and more accurate setting is required when the runway is assembled with multiple sections.

The rollers setting must leave  $0.15 \div 0.20$  mm backslack (play) from the rail –Use a feeler gauge for best results- The setting requirement is determined by the dimensional tolerances on the rail sections.

## > Torque settings

Bolt purpose torque:

|     |                          |       |
|-----|--------------------------|-------|
| M6  | (fixing scrapers)        | 10 Nm |
| M8  | (fixing assemblies)      | 25 Nm |
| M10 | (fixing assemblies)      | 45 Nm |
| M12 | (dovetails & fishplates) | 55 Nm |
| M16 | (fixing rollers)         | 75 Nm |

Drillings of the end bars:

this are made in order to create a security connection for two or more moving rails that have an end to end joining, through the shaft of the special screws that are used for fixing the fishplate and the dovetails. This additional connection is not a guarantee for the precision but has got the aim to avoid injuries in the case that the moving rails unhook.

## > Scrapers

Are manufactured from a sintered compound, self lubricating, having a low friction coefficient. All the roller assemblies come with the scrapers. The purpose of this item is to keep foreign bodies out of the rollers. Scrapers shall never be set to slide on the rail.

They are equipped with mounting and adjustment holes so that a 0.2 mm minimum clearance can be applied.

For application environments with an excessive pollution or dust use the mobile brush assembly.

## > Drive head

For Speedy Rail profiles. Machined from a hard polymer rubber molding - Shore A hardness 90÷95 - Normally mounted on the bar ends when the system has a rail that moves in and out the roller assemblies. This rubber end piece allows the rail to be easily guided into the roller assemblies.

### > Lubrication

There is no need to lubricate our Speedy Rail profiles. However, lubricant is recommended on Steel rail profiles when used with steel rollers. Best results are obtained using our standard oiler. It provides continuous lubrication and keeps the rail clean.

Rollers: standard rollers with regular maintenance/greasing schedule have its own grease nipple. Please use grade 3 grease for working temperature of 10°C÷60°C.

Grade 2 grease is required when the working temperature drop below 10°C. Lubricate every 5-6 months.

For the “lifetime” lubrication version, the rollers are supplied with a high tech grease.

The grease nipples are removed from the assemblies since this configuration does not require any periodic lubrication.

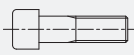
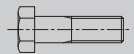
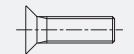
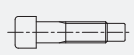
### > Life testing

#### **Speedy rail and system with plastic shell rollers**

The max applicable load, stated in the description of each roller of the Speedy Rail systems, is determined depending on the characteristics of the plastic compound shell. The cylindrical rollers of Speedy Rail system can be used with translation speed up to 15 metres/second and with accelerations and decelerations up to 10 metres/sec<sup>2</sup>. For Speedy Rail and Speedy Rail C 48 systems with “V” shaped and for Speedy Rail 35 plastic compound rollers, the max translation speed is of 8 metres/second while the max accelerations and decelerations are of 8 metres/sec<sup>2</sup>. For all roller types the working temperature limits are -30°C and +80°C.

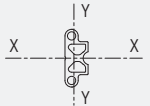
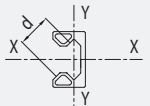
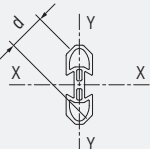
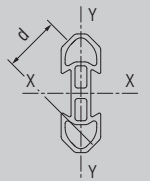
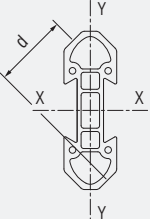
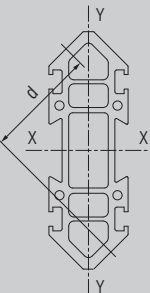
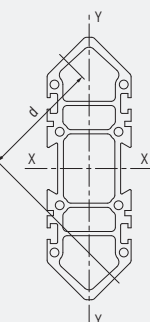
The rollers with plastic compound shell do not damage themselves and do not damage the rails where the invert direction, even in presence of high accelerations and decelerations. Speedy Rail C 48 and Speedy Rail 35 systems has good performance and excellent life even in presence of dust. With stresses on the rollers within the max values stated on the catalogue, the Speedy Rail C 48 and Speedy Rail 35 systems enable a life time of more than 80.000 km. The life can be lower due to excessive presence of dust or pollutants.

## > Summary table for standard fixing elements identification

| Picture                                                                             | Description                                                                                                  | Part N°                          | Notes and application                                                   |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------|
|    | Screw m6x12 uni 5931<br>Screw m8x25 uni 5931                                                                 | 411.0600<br>411.0601             | Scrapers fixing<br>Supports assembling                                  |
|    | Screw m10x50 uni 5737<br>Screw m12x20 uni 5739                                                               | 411.0602<br>411.0603             | Supports fixing<br>Plates assembling                                    |
|    | Screw m12x20 uni 5933                                                                                        | 411.0684                         | Dovetail fixing                                                         |
|    | Screw-dog point m8x.<br>Screw-dog point m12x21                                                               | 411.0473<br>411.0475             | Plates fixing<br>Plates fixing                                          |
|  | Screw-dog point m6x24<br>Screw-dog point m12x66<br>Screw-dog point m12x56                                    | 411.0779<br>411.0479<br>411.0649 | Rack fixing 30x30<br>Rack fixing 50x50<br>Rack fixing 40x40             |
|  | Selflocking nut M16x2                                                                                        | 411.0705                         | Assemblaggio supporti e rotelle                                         |
|  | Nut m8x1.25 Uni 5588                                                                                         | 411.0619                         | End drive fixing                                                        |
|  | Plain washer ø6.6X18 uni 6593                                                                                | 411.0605                         | Scrapers fixing                                                         |
|  | Spring washer ø8.4X14.4 Uni 1751-a<br>Spring washer ø13x21 Uni 1751-a<br>Spring washer ø10.5X17.5 Uni 1751-a | 411.0607<br>411.0608<br>411.0616 | End drive fixing<br>Plates assembling<br>Supports fixing                |
|  | Spring lock washer ø6.4X10<br>Spring lock washer ø8.4X13<br>Spring lock washer ø17x24                        | 411.0606<br>411.0604<br>411.0708 | Fissaggio raschiatori<br>Assemblaggio supporti<br>Assemblaggio supporti |
|  | Elastic pin ø6x20 uni 6873<br>Elastic pin ø6x26 uni 6873<br>Elastic pin ø4x6 uni 6873                        | 411.0618<br>411.0609<br>411.0713 | Supports assembling<br>Supports positioning                             |

Tab. 27

> Summary table for Nuova T.M.T. S.r.l. Simple profiles

| Profile type and code N°                                     | Simple profiles mechanical and specifications                                       | Surface quadratic moment I (X) mm <sup>4</sup> | Surface quadratic moment I (Y) mm <sup>4</sup> | Section modulus W (X) mm <sup>3</sup> : | Section modulus W (Y) mm <sup>3</sup> : | Section mm <sup>2</sup> | Distance d mm: (Roller contact axis) | Linear mass t kg/mt |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------|--------------------------------------|---------------------|
| SR 35<br>411.1400<br>411.1405                                |    | 17.779                                         | 3.665                                          | 1016                                    | 118                                     | 203                     | /                                    | 0.60                |
| SR C 48<br>411.1060                                          |    | 152.026                                        | 36.823                                         | 6334                                    | 2045                                    | 526                     | 28.26                                | 1.42                |
| SR Mini (60)<br>411.0764<br>411.0765                         |    | 138.600                                        | 18.000                                         | 4.620                                   | 1.800                                   | 470                     | 29                                   | 1,27                |
| SR Middle (90)<br>411.0964<br>411.0965                       |   | 630.000                                        | 76.500                                         | 14.250                                  | 5.170                                   | 965                     | 39,6                                 | 2,6                 |
| SR Standard (120)<br>411.2464<br>411.2465                    |  | 2.138.988                                      | 259.785                                        | 35.650                                  | 12.989                                  | 1.645                   | 56,1                                 | 4,4                 |
| SR Wide Body (180)<br>411.2688<br>411.2689                   |  | 10.291.100                                     | 1.278.700                                      | 114.345                                 | 42.620                                  | 3.730                   | 95,7                                 | 10,2                |
| SR Super Wide body (Speedy Rail 250)<br>411.2951<br>411.2952 |  | 27.345.460                                     | 4.120.150                                      | 218.760                                 | 103.000                                 | 5.609                   | 113.95                               | 15.2                |

Tab. 28



## > Loads on a 4 'V' rollers trolley

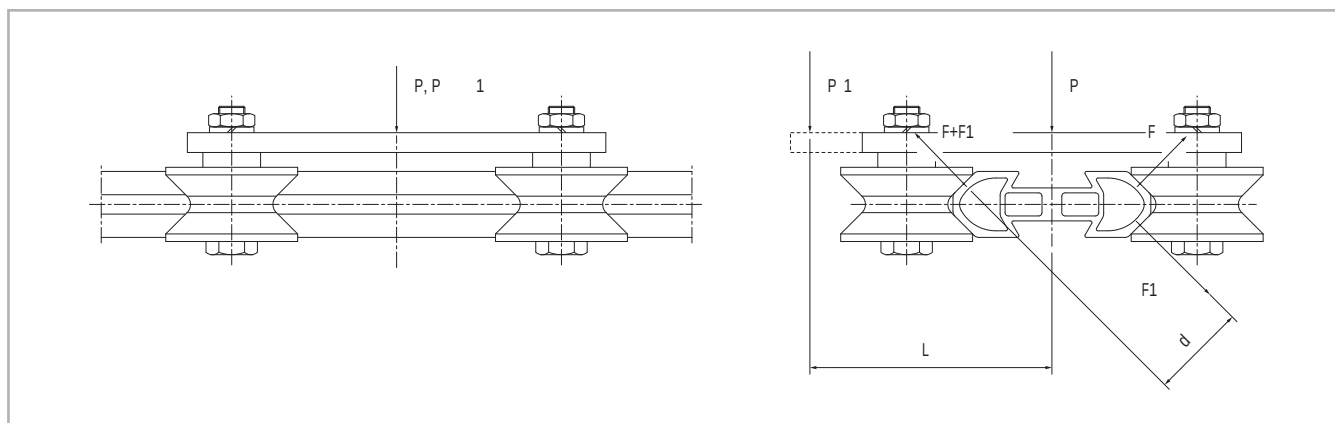


Fig. 158

Rollers load with force 'P' applied on the rail axle

$$F = P \cdot \left( \frac{1}{2 \cdot \sqrt{2}} \right) \text{ (N)}$$

$$F_r = F_a = F \cdot \left( \frac{1}{\sqrt{2}} \right) \text{ (N)}$$

$P, P_1$  = Applied forces (N)  
 $F_r$  = Radial load (N)  
 $F_a$  = Axial load (N)

Fig. 159

Rollers load with ' $P_1$ ' force applied at ' $L$ ' distance (mm) from rail centerline

$$F = P_1 \cdot \left( \frac{1}{2 \cdot \sqrt{2}} \right) \text{ (N)}$$

$$F_1 = \frac{P_1 \cdot L}{2 \cdot d} \text{ (N)}$$

$$F_r = F_a = \frac{F + F_1}{\sqrt{2}} \text{ (N)}$$

$P, P_1$  = Applied forces (N)  
 $F_r$  = Radial load (N)  
 $F_a$  = Axial load (N)

Fig. 160

**Important:** the load on most loaded rollers, must be for each roller type, less or equal to the corresponding rated load on the catalog.

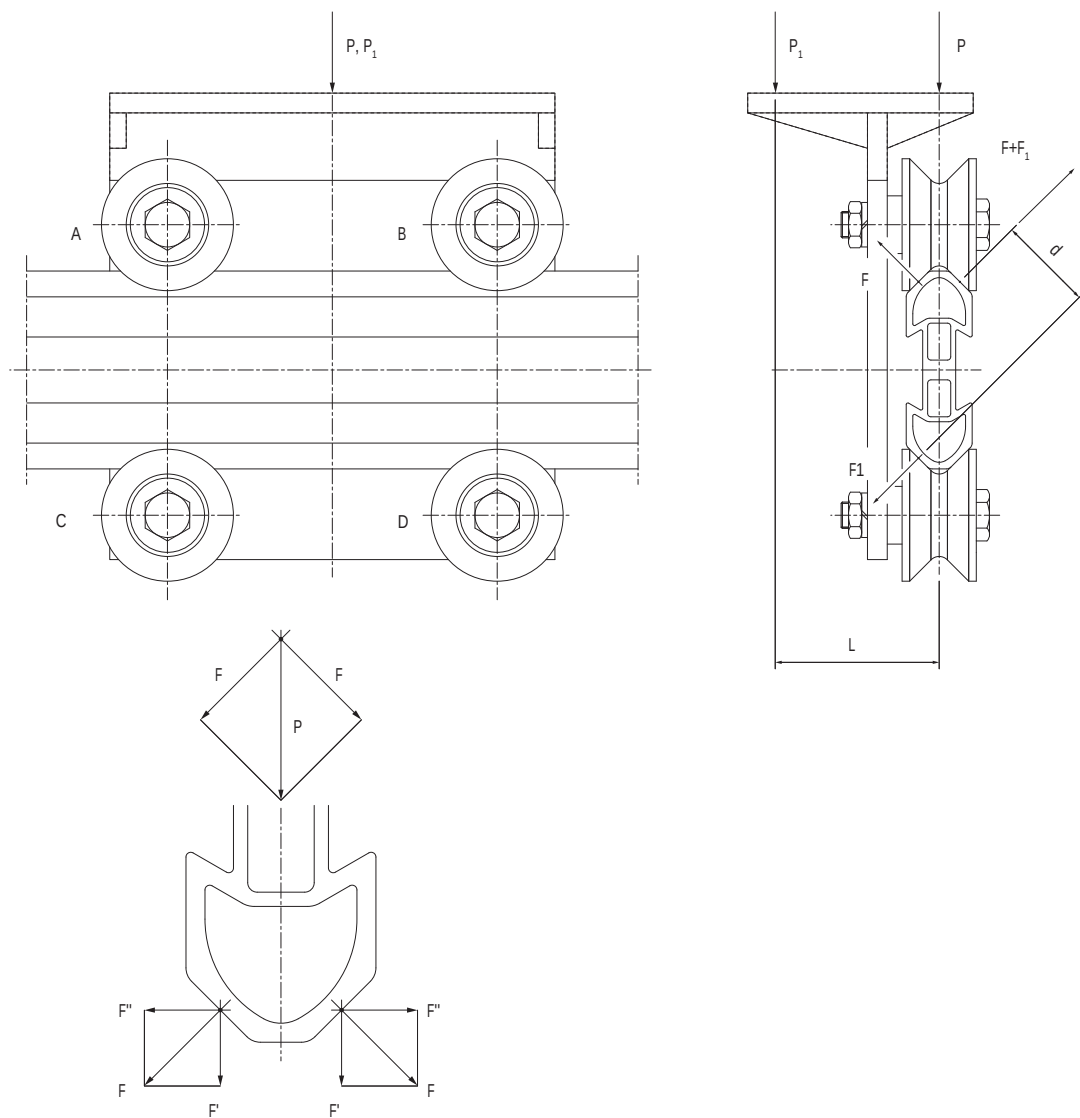


Fig. 161

$$F' = F'' = \frac{F}{\sqrt{2}}$$

A, B    Concentric rollers  
C, D    Eccentric rollers  
 $P, P_1$     = Applied forces (N)  
 $F_r$     = Radial load (N)  
 $F_a$     = Axial load (N)

Fig. 162

### Rollers load with force 'P' applied on the rail axle

|                                 |                       |                                                                                                                                                                                                      |
|---------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $F_r = \frac{P}{2} \text{ (N)}$ | $F_a = 0 \text{ (N)}$ | <p>A, B     Concentric rollers<br/> C, D     Eccentric rollers<br/> P, P<sub>1</sub>   = Applied forces (N)<br/> F<sub>r</sub>       = Radial load (N)<br/> F<sub>a</sub>       = Axial load (N)</p> |
|---------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Fig. 163

### rollers load with 'P<sub>1</sub>' force applied at 'L' Distance (mm) from rail centerline

|                                                        |                                                   |                                                       |                                          |                                                                                                                                                                                                      |
|--------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $F = P_1 \cdot \frac{1}{2 \cdot \sqrt{2}} \text{ (N)}$ | $F_1 = \frac{P_1 \cdot L}{2 \cdot d} \text{ (N)}$ | $F_r = \sqrt{2} F + \frac{F_1}{\sqrt{2}} \text{ (N)}$ | $F_a = \frac{F_1}{\sqrt{2}} \text{ (N)}$ | <p>A, B     Concentric rollers<br/> C, D     Eccentric rollers<br/> P, P<sub>1</sub>   = Applied forces (N)<br/> F<sub>r</sub>       = Radial load (N)<br/> F<sub>a</sub>       = Axial load (N)</p> |
|--------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Fig. 164

**Important:** the load on most loaded rollers, must be for each roller type, less or equal to the corresponding rated load on the catalog.

### Trolley on single rail horizontal

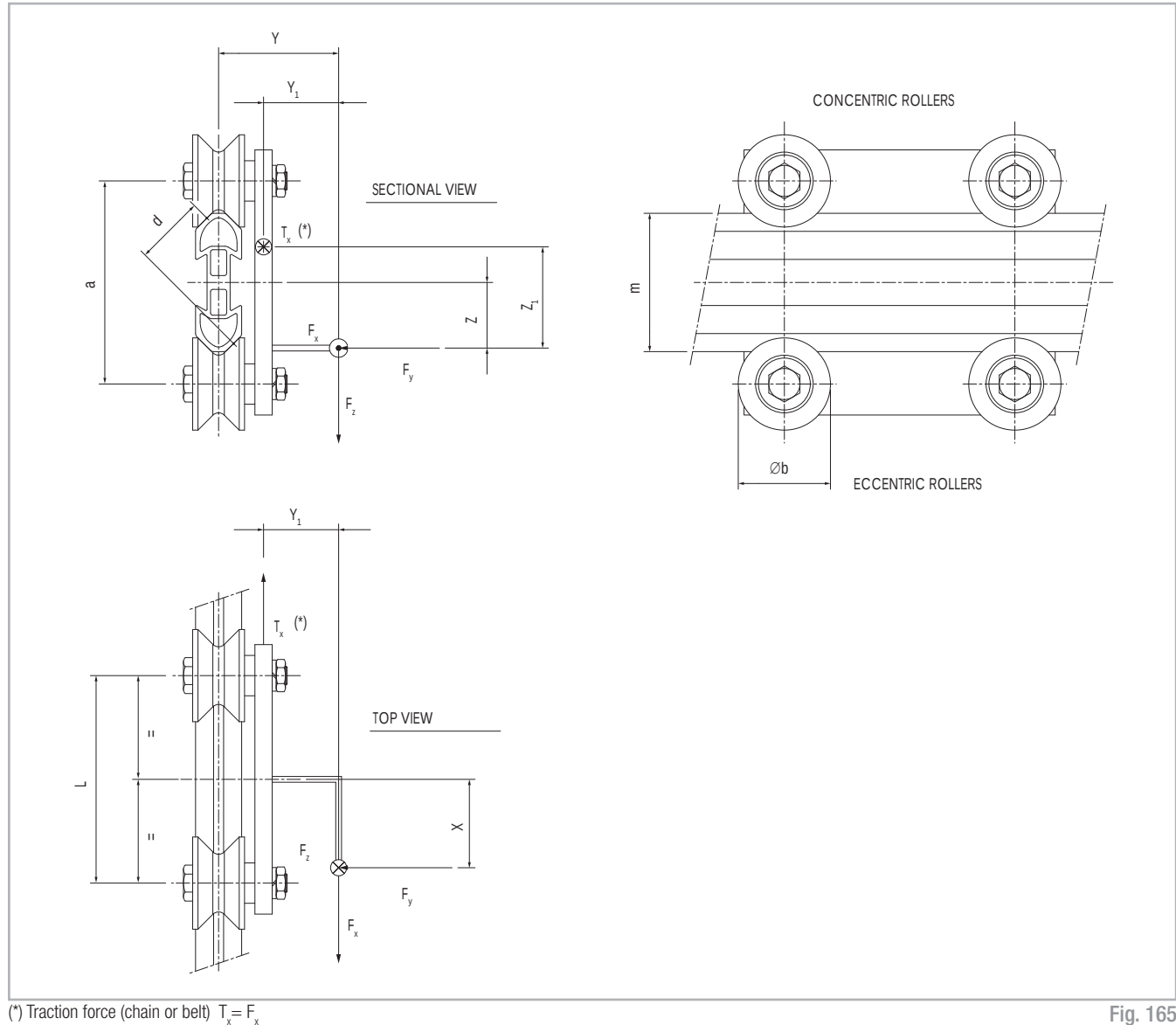


Fig. 165

The rollers with concentric sleeve are mounted where there is the highest load and the ones with eccentric sleeve on the opposite end.

All 'F' values must include the dynamic component obtained by:  
Inertia force = mass (kg) x acceleration (  $mt/s^2$  ).

### Roller-guide load verification

$$F_{Ass} \Rightarrow \frac{F_y}{4} + \frac{F_y \cdot X + F_x \cdot Y_1}{2 \cdot L} + \frac{F_z \cdot Y + F_y \cdot Z}{2 \cdot d \cdot 1.41}$$

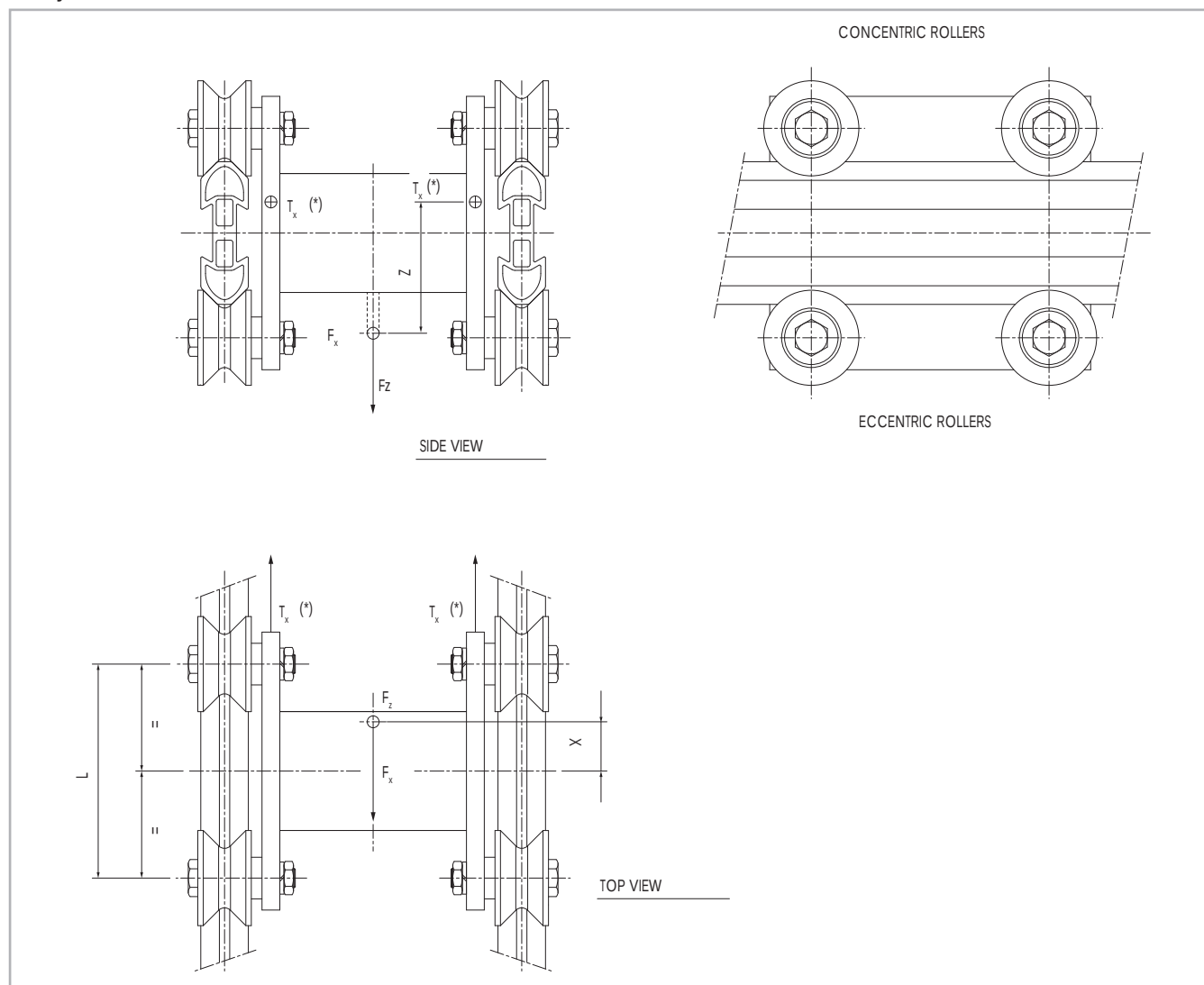
$$F_{Rad} \Rightarrow \frac{F_y}{4} + \frac{F_z \cdot X - F_x \cdot Z_1}{L} + \frac{F_z \cdot Y + F_y \cdot Z}{2 \cdot d \cdot 1.41}$$

Fig. 166

**Important:** the load on most loaded rollers, must be for each roller type, less or equal to the corresponding rated load on the catalog.

## > Loads on twin 4 'V' rollers trolleys

### Trolley on double rail horizontal



(\*) Traction force (chain or belt)  $T_x = F_x / 2$

Fig. 167

When assembling lines with parallel rail and long strokes it would be wise to use axially-free roller assemblies on one of the rails in order to withstand minor misalignments due either to assembly or maintenance errors.

All 'F' values must include the dynamic component obtained by:  
Inertia Force = mass (kg) x acceleration (m/s<sup>2</sup>).

### Roller-guide load verification

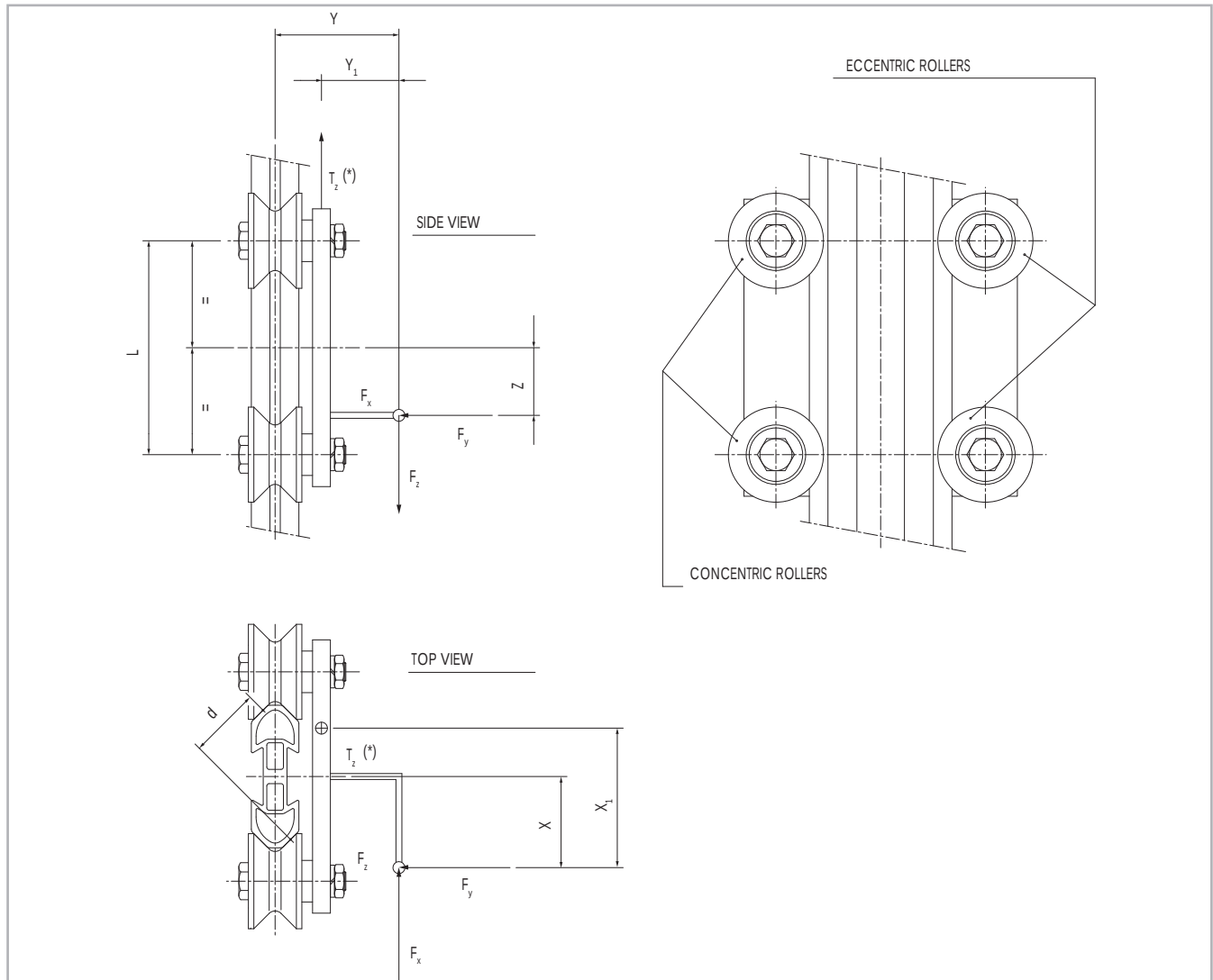
$$F_{\text{Rad}} \Rightarrow \frac{F_z}{4} + \frac{F_x \cdot Z + F_z \cdot X}{2 \cdot L}$$

Fig. 168

**Important:** the load on most loaded rollers, must be for each roller type, less or equal to the corresponding rated load on the catalog.

## > Loads on a 4 'V' rollers vertical trolley

### Trolley on single vertical rail



(\*) Lifting force (chain or belt)  $T_z = F_z$

Fig. 169

The rollers with concentric sleeve are mounted where there is the highest load and the ones with eccentric sleeve on the opposite end.

All 'F' values must include the dynamic component obtained by:

Inertia Force = mass (kg) x acceleration ( $\text{m/s}^2$ ).

### Roller-guide load verification

$$F_{\text{Ass}} \Rightarrow \frac{F_y}{4} + \frac{F_y \cdot Z + F_z \cdot Y_1}{2 \cdot L} + \frac{F_y \cdot X - F_x \cdot y}{2 \cdot d \cdot 1.41}$$

$$F_{\text{Rad}} \Rightarrow \frac{F_z \cdot X_1 + F_x \cdot Z}{L} + \frac{F_x \cdot Y - F_y \cdot X}{2 \cdot d \cdot 1.41} + \frac{F_y}{4} + \frac{F_x}{2}$$

Fig. 170

**Important:** the load on most loaded rollers, must be for each roller type, less or equal to the corresponding rated load on the catalog.

## > Cilindrical roller loads

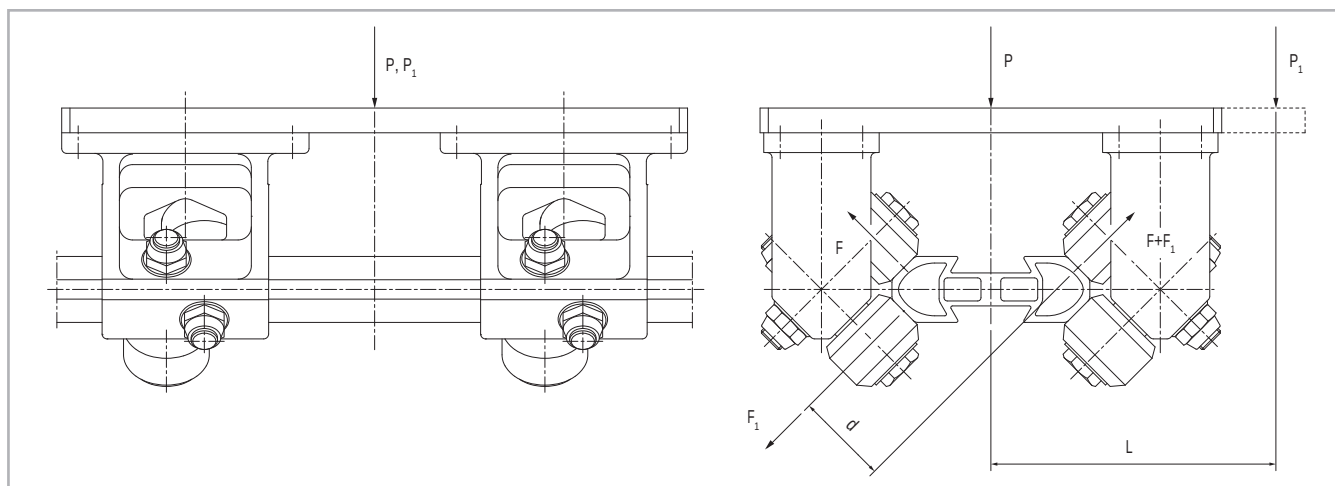


Fig. 171

Rollers load with 'P' force applied on the rail axle

|                                                                     |                       |                       |                                                                        |
|---------------------------------------------------------------------|-----------------------|-----------------------|------------------------------------------------------------------------|
| $F = P \cdot \left( \frac{1}{2 \cdot \sqrt{2}} \right) \text{ (N)}$ | $F_1 = 0 \text{ (N)}$ | $F_r = F \text{ (N)}$ | $P, P_1 = \text{Applied forces (N)}$<br>$F_r = \text{Radial load (N)}$ |
|---------------------------------------------------------------------|-----------------------|-----------------------|------------------------------------------------------------------------|

Fig. 172

Rollers load with 'P<sub>1</sub>' force applied at 'L' distance (mm) from rail centerline

|                                                                       |                                                   |                             |                                                                        |
|-----------------------------------------------------------------------|---------------------------------------------------|-----------------------------|------------------------------------------------------------------------|
| $F = P_1 \cdot \left( \frac{1}{2 \cdot \sqrt{2}} \right) \text{ (N)}$ | $F_1 = \frac{P_1 \cdot L}{2 \cdot d} \text{ (N)}$ | $F_r = F + F_1 \text{ (N)}$ | $P, P_1 = \text{Applied forces (N)}$<br>$F_r = \text{Radial load (N)}$ |
|-----------------------------------------------------------------------|---------------------------------------------------|-----------------------------|------------------------------------------------------------------------|

Fig. 173

**Important:** the load on most loaded rollers, must be for each roller type, less or equal to the corresponding rated load on the catalog.

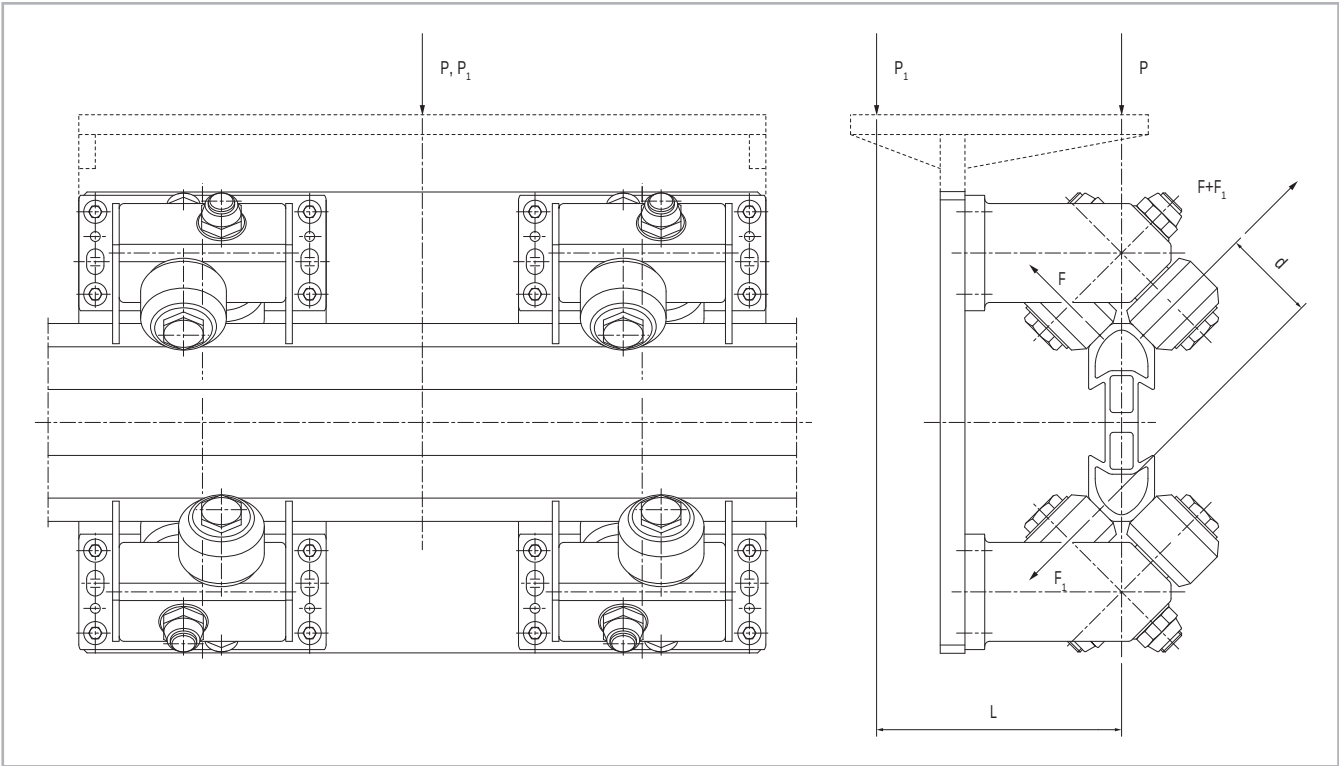


Fig. 174

rollers load with 'P' force applied on the rail axle

|                                                                     |                       |                       |                                                                        |
|---------------------------------------------------------------------|-----------------------|-----------------------|------------------------------------------------------------------------|
| $F = P \cdot \left( \frac{1}{2 \cdot \sqrt{2}} \right) \text{ (N)}$ | $F_1 = 0 \text{ (N)}$ | $F_r = F \text{ (N)}$ | $P, P_1 = \text{Applied forces (N)}$<br>$F_r = \text{Radial load (N)}$ |
|---------------------------------------------------------------------|-----------------------|-----------------------|------------------------------------------------------------------------|

Fig. 175

Rollers load with 'P' force applied at 'L' distance (mm) from rail centerline

|                                                                     |                                                 |                             |                                                                        |
|---------------------------------------------------------------------|-------------------------------------------------|-----------------------------|------------------------------------------------------------------------|
| $F = P \cdot \left( \frac{1}{2 \cdot \sqrt{2}} \right) \text{ (N)}$ | $F_1 = \frac{P \cdot L}{2 \cdot d} \text{ (N)}$ | $F_r = F + F_1 \text{ (N)}$ | $P, P_1 = \text{Applied forces (N)}$<br>$F_r = \text{Radial load (N)}$ |
|---------------------------------------------------------------------|-------------------------------------------------|-----------------------------|------------------------------------------------------------------------|

Fig. 176

**Important:** the load on most loaded rollers, must be for each roller type, less or equal to the corresponding rated load on the catalog.



## > User suggestions

### When and how to use speedy rail:

When a linear transfer system requires one or more of the following features:

- Lightweight
- Quiet
- Resistant to dust and chemical agents
- Easy to assemble
- Interchangeable

### How:

The **Speedy Rail®** beam moves within fixed roller assemblies.

The lightness of the beam offers power and energy cost-savings, increasing the acceleration and speed. Side arm and/or manipulators can be fitted on the moving beam.

The **Speedy Rail®** beam is static and the roller assemblies, connected to a frame, are moving.

Either with a static or moving beam, the movement can be realized through several means such as rack-pivot coupling, belts, chain, pneumatic or hydraulic cylinder.

For preassembled modular units will you please refer to the catalogue of New TMT S.r.l. modules and portals.

If the value is more than 128 daN, it will be necessary to provide either more supports or only one self-aligning roller assembly with 8 - 10 or 12 rollers, so that the "F" value, divided by the number of rollers on the specified point of application will be equal or less than 128 daN.

Compared to steel beams and roller assemblies, the **Speedy Rail®** surface treatment and plastic compound shells on the rollers allows the utilization of TMT components in high speed and high accelerations systems. These benefits remove typical damages due to wear normally present in metal to metal sliding situations. When building a system with one single segment of **Speedy Rail®** section, it is possible to slightly pre-load the rollers.

Do not pre-load rollers on a system with a rail composed of 2 or more segments.

### Calculations data:

Important calculation factors to consider:

- 1) Maximum beam deflection under the load action
- 2) Maximum roller stress

#### 1) Elastic deflection - speedy rail profiles

Usually elastic deflections don't hinder the proper working of a transfer system.

#### 2) Roller stress

The maximum load on the highest stressed cylindrical rollers should not exceed 128 daN. You can calculate. We consider a system with roller boxes equipped with cylindrical rollers.

the value "F" on the roller with the highest stress with the following formula:

Mediante la formula  $F = \frac{P \cdot a}{d} + \frac{P}{\sqrt{2}}$

Power required to drive a trolley or bar

The following calculations are true in a system without overloads generated either by misalignment or an incorrect assembly. The following sliding friction factors are approximate with excess.

Terminology and dimensional units

|                         |                                                                    |
|-------------------------|--------------------------------------------------------------------|
| M [kg]                  | moving mass                                                        |
| $n_r$                   | number of moving rollers                                           |
| $C_r = 100 \text{ Nmm}$ | internal max resisting torque for each roller                      |
| a [m/s <sup>2</sup> ]   | moving mass acceleration                                           |
| g [m/s <sup>2</sup> ]   | gravity acceleration                                               |
| $f_{cc} = 0.05$         | drive resisting coefficient of plastic compound rollers            |
| $f_{vc} = 0.065$        | drive resisting coefficient of 'V' shaped plastic compound rollers |
| F [N]                   | drive resisting force                                              |
| V [m/s]                 | max traverse speed                                                 |
| N [W]                   | power                                                              |
| d [mm]                  | average roller diameter                                            |

Calculations

traverse

|                 |                                         |           |           |
|-----------------|-----------------------------------------|-----------|-----------|
| resisting force | $F = M a + M g f + \frac{2 n_r C_r}{d}$ | max power | $N = F V$ |
|-----------------|-----------------------------------------|-----------|-----------|

Fig. 177

vertical lift

|                 |                                               |           |           |
|-----------------|-----------------------------------------------|-----------|-----------|
| resisting force | $F = M a + M g (1 + f) + \frac{2 n_r C_r}{d}$ | max power | $N = F V$ |
|-----------------|-----------------------------------------------|-----------|-----------|

Fig. 178

## Thermal expansion of tmt profiles, simple and compound

All profiles specifications are located on pages SR-74.

### Terminology and dimensional units

|                                                       |                                                         |
|-------------------------------------------------------|---------------------------------------------------------|
| $K_1 = 23 \times 10^{-6} \text{ } 1/^{\circ}\text{C}$ | light alloy linear thermal expansion coefficient        |
| $D_1 \text{ } [^{\circ}\text{C}]$                     | temperature variation in comparison with the assembling |
| $A_1 \text{ } [\text{mm}^2]$                          | light alloy profile section                             |
| $L \text{ } [\text{mm}]$                              | rail length                                             |
| $D_1 \text{ } [\text{mm}]$                            | rail length variation                                   |

### Calculations

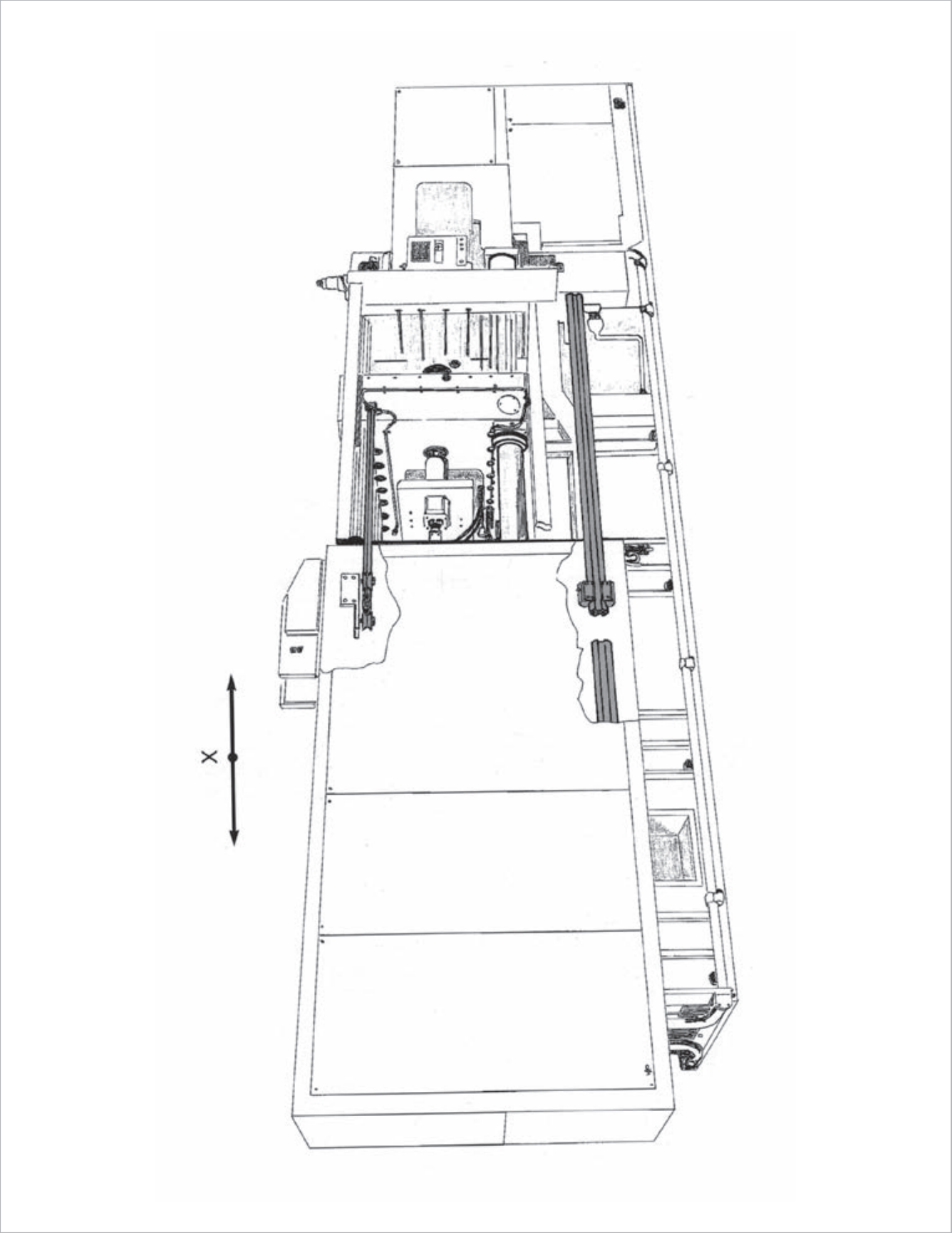
light alloy rails

$$D_1 = K_1 \times D_t \times L$$

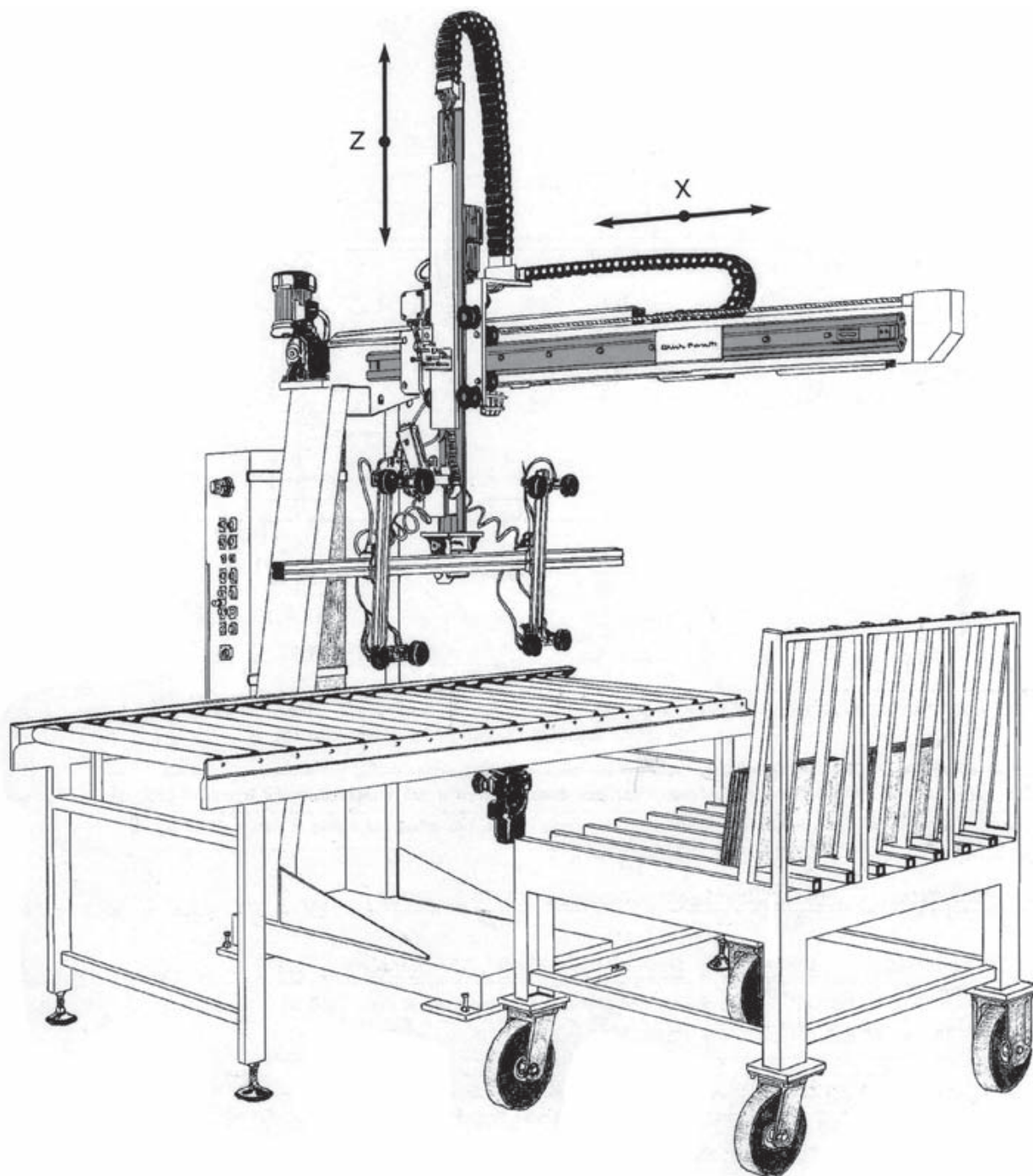
Applications

✓

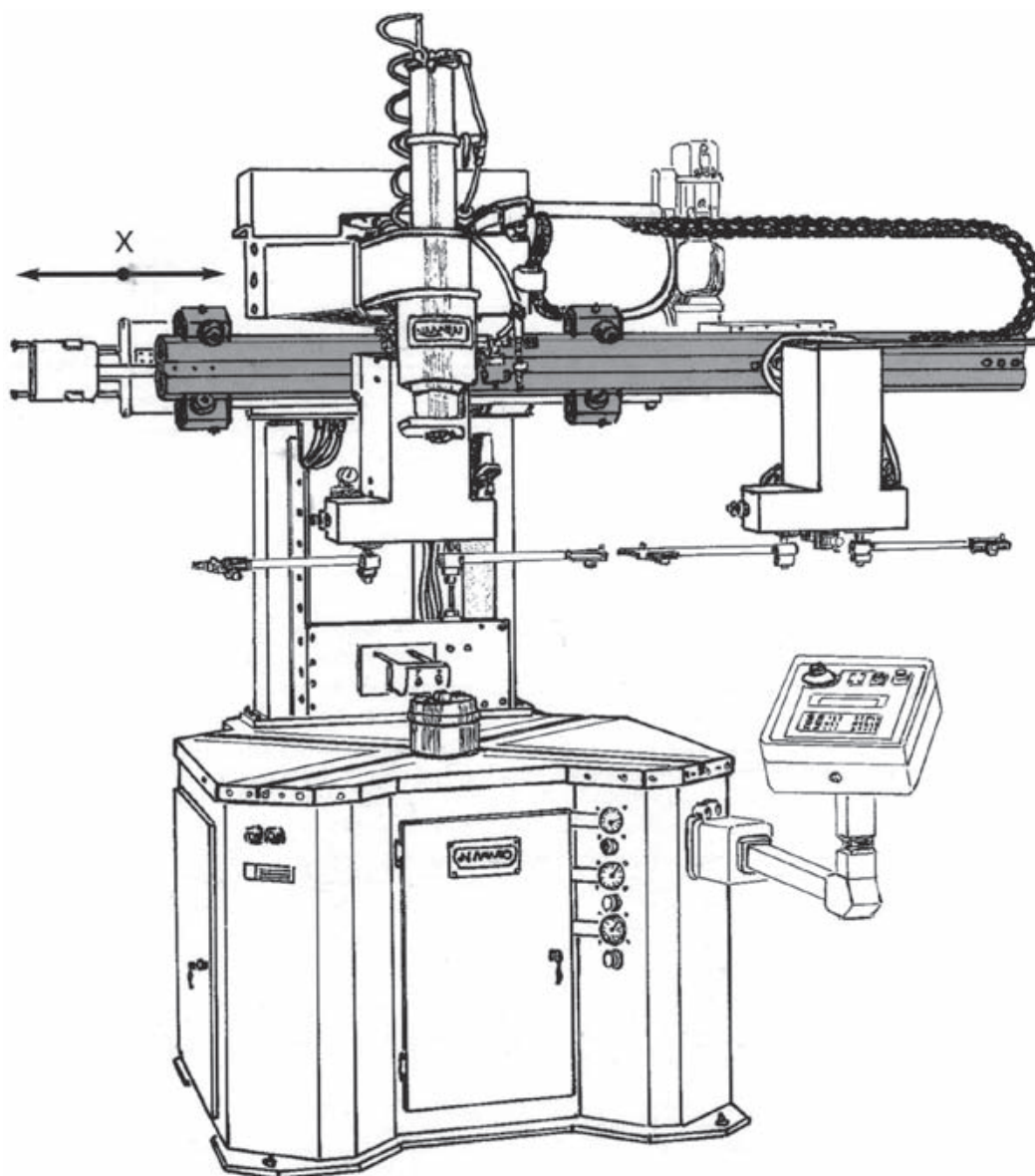
Rails for sliding doors



Glass sheet manipulator

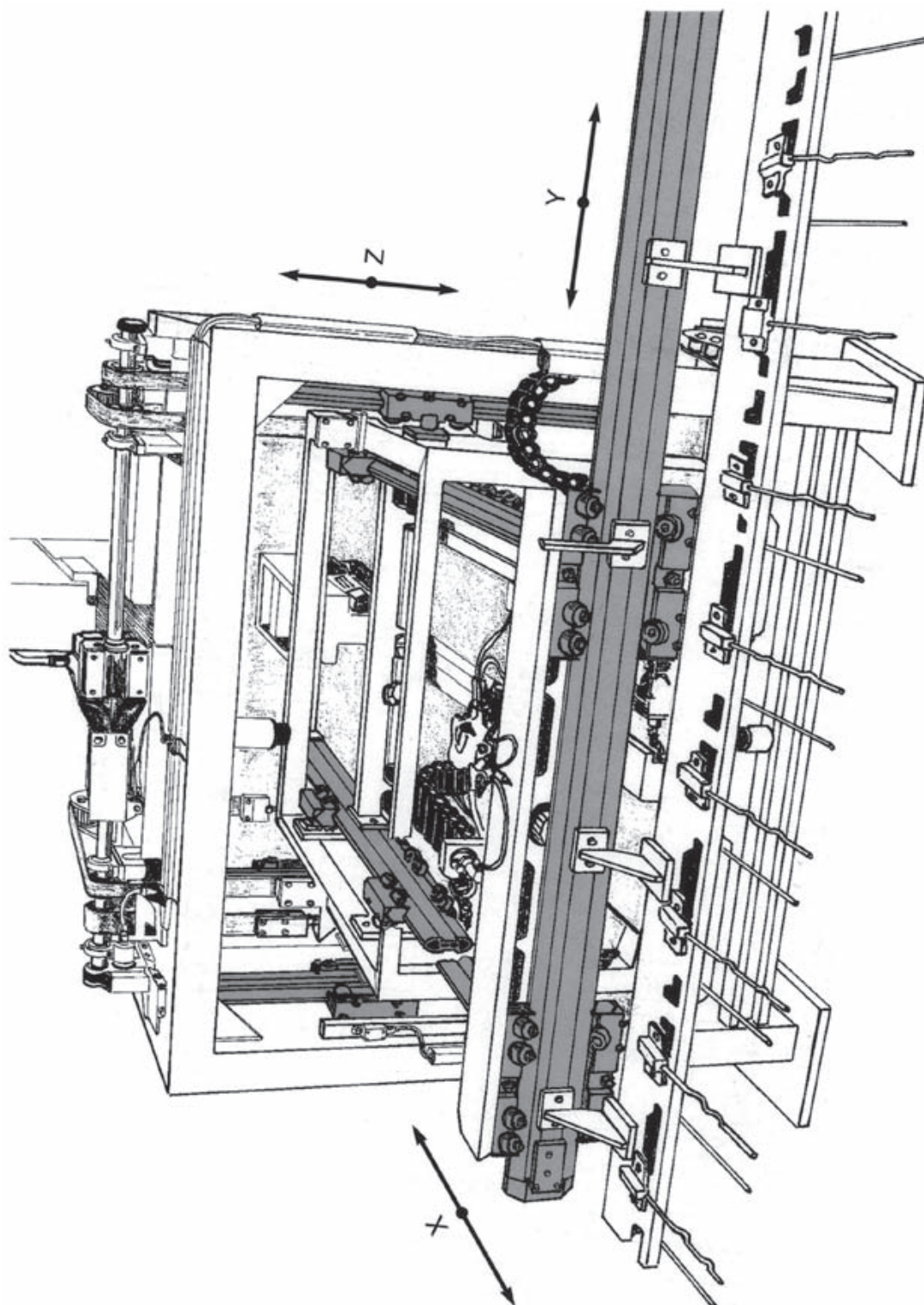


Automatic press feeder

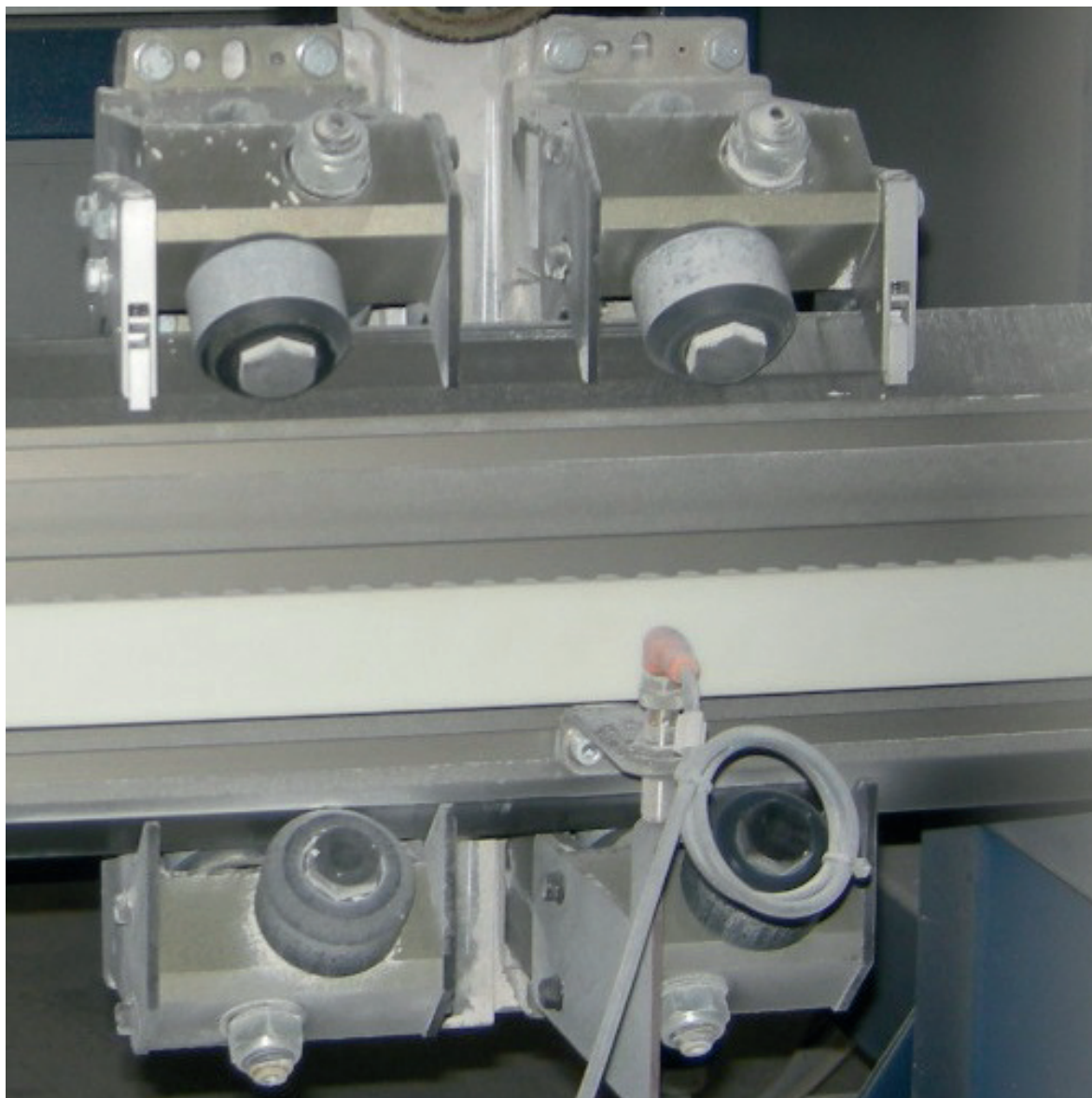




Automated oven feeder - tile production



Speedy Rail SR180 and plastic compound cylindric rollers in enviroment with strong presence of impurities





## Data sheet



## REQUEST FOR TECHNICAL CONSULTING

Nuova T.M.T. S.r.l. - Sede legale e operativa / Via Trieste 26, 20871 Vimercate (MB)

General data: Date: ..... Inquiry N°: .....

Address: ..... Contact: .....

Company: ..... Cap: .....

PHONE: ..... Fax: .....

Business field: .....

System in use: .....

Working enviroment: ..... ☐ Dusty ☐ High temperature☐ Chemicals ☐ Other

Positioning precision: .....

Working cycle: .....

Life expectancy: .....

Drive: ☐ Motor ..... ☐ Asynchronous ☐ Brushless☐ Actuator ☐ Pneumatic ☐ Hydraulic ☐ Other

|                   | Axis X                 | Axis Y                 | Axis Z                 |
|-------------------|------------------------|------------------------|------------------------|
| Load              | _____ N                | _____ N                | _____ N                |
| Load position     | _____ mm               | _____ mm               | _____ mm               |
| Stroke            | _____ mm               | _____ mm               | _____ mm               |
| Speed             | _____ m/s              | _____ m/s              | _____ m/s              |
| Max. Acceleration | _____ m/s <sup>2</sup> | _____ m/s <sup>2</sup> | _____ m/s <sup>2</sup> |
| Deceleration      | _____ m/s <sup>2</sup> | _____ m/s <sup>2</sup> | _____ m/s <sup>2</sup> |

Please enclose general drawing for application and specify loads with the position during working cycle, the above informations will allow is to provide the support request

Notes 



Notes 



Notes 







## ROLLON S.p.A. - ITALY



Via Trieste 26  
I-20871 Vimercate (MB)  
Phone: (+39) 039 62 59 1  
www.rollon.it - infocom@rollon.it

● Rollon Branches & Rep. Offices  
● Distributors

### Branches:

## ROLLON GmbH - GERMANY



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

## ROLLON B.V. - NETHERLANDS



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

### Rep. Offices:

## ROLLON S.p.A. - RUSSIA



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

## 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 Corporation - USA



101 Bilby Road. Suite B  
Hackettstown, NJ 07840  
Phone: (+1) 973 300 5492  
www.rolloncorp.com - info@rolloncorp.com

## ROLLON Ltd - UK



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 Ltd - CHINA



No. 16 Jin Wen Road,  
China, Shanghai, 201323  
Phone: +86 21 5811 8288  
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

### Regional Manager:

## ROLLON - SOUTH AMERICA



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 - JAPAN

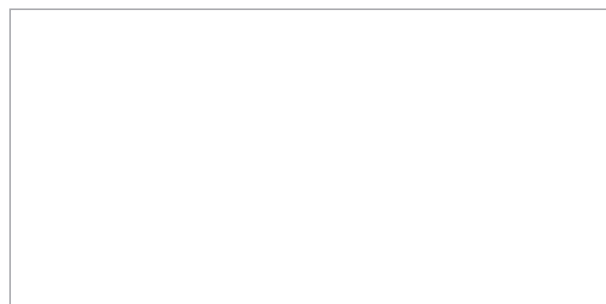


3F Shiodome Building, 1-2-20 Kaigan, Minato-ku,  
Tokyo 105-0022 Japan  
Phone +81 3 6721 8487  
www.rollon.jp - info@rollon.jp

Consult the other ranges of products



Distributor



All addresses of our global sales partners can also be found at [www.rollon.com](http://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](http://www.rollon.com).  
Changes and errors expected. The text and images may be used only with our permission.