



# ROD ENDS AND SPHERICAL PLAIN BEARINGS® HIGH RESISTANCE, CLEVISES, BALL JOINTS AND SELF-ALIGNING JOINTS



# CHIAVETTE UNIFICATE S.P.A.

## TOGETHER IN MOVEMENT



chiavette unificate S.p.A.

Chiavette Unificate SpA sells its products worldwide and is located in Italy close to Bologna. The Company started its activities in 1952, over 65 years of creativity and passion: since then Chiavette always tried to follow the requirements and the developments of this sector and offers products that made and continue to make the history of the Company. From the craft stage during the first years to the industrial production based on high technology, we manufacture mechanical components, which are necessary for the motion of different systems and machineries. The company focuses on continuous improvements, consolidated management and production systems, details accuracy, the central role of people, quick innovation, and service efficiency; these values enable us to reach the customer's trust and transparency.

That's why we are "together in movement". We're moving with you: we widened our range of products dedicated to our customers.

Among our product range we have the Tescubal rod ends, DIN648, ball sockets, ball studs and spherical bearings (steel-bronze or steel-steel coupling), the Tesno rod ends and spherical bearings (steel-PTFE coupling), which are high resistance solutions, self lubricating and able to guarantee excellent performances even in case of heavy applications; the ball joints, axial joints and self aligning joints; the clevises and their accessories; the keys; the rod assemblies... Several solutions made of mild steel, stainless steel and aluminium.

On the other hand special solutions and according to drawings can be easily supplied and managed, delivered directly to the customer's production line. We always want to give you the right products according to your requirements and a dynamic service, which enables

you to save time and money. All together, these are the strengths of Chiavette Unificate S.p.A.

In our catalogue you can find our complete range of products, which are manufactured according to our Quality System certified by TÜV. You can deepen these informations visiting our web site, so that we can better know each other and work together, since the people of Chiavette Unificate S.p.A. will surely move with you.



Company certified with quality system UNI EN ISO 9001:2008

together in movement

## WE CONTRIBUTE TO THE GROW IN OVER 60 COUNTRIES



### SALES ORGANISATION

- Worldwide Sales and Customer Support.
- Application Engineering Support.
- Fast and Competitive Quotes.

### ENGINEERING AND R&D

- Innovative and Flexible Product Designs.
- Product Solutions that meet Customer requirements.
- Technical drawings and catalogues
- In-House Test and Inspection Equipment.

### MANUFACTURING AND RESEARCH

- Production of Cam followers and Guide Rollers.
- Manufacturing of Guide Rails in Aluminum, Steel and Stainless steel.
- Standard and Customized Products.
- Fast Pick & Ship or to Order Assemblies.
- All products meet ISO 9001 / 14001.

# ROD ENDS AND SPHERICAL-PLAIN BEARINGS

The rod ends and spherical bearings are mechanical junctions which, because of their internal geometry, are particularly suited for the transmission of static and dynamic forces, together with rotary, oscillatory and tipping movements. They are standard products which are produced in accordance with ISO 12240-4 Series K and ISO 12240-1 Series K respectively. The project takes into account the ever more stringent requirements of the market which calls for a reduced clearance, remaining constant with time, and completely maintenance free operation.

## CHOICE OF ROD ENDS AND SPHERICAL BEARINGS

In order to make the appropriate choice of rod ends or spherical bearings it is important to know what their real application will be. The type of load applied, static or dynamic, will be decisive for the correct dimensioning of the rod end or the spherical bearing.

## STATIC LOAD

The static load means the maximum radial or axial load applied to the rod ends or spherical bearings in a static way, without oscillations or rotations, at room temperature, that does not cause permanent deformations or does not endanger its functionality. The values of the maximum acceptable load were obtained by calculations and then checked on considerable samplings taken from our mass production.

## RADIAL STATIC LOAD

The maximum acceptable radial static load for rod ends and spherical bearings is the one indicated on the dimensional table.

## AXIAL STATIC LOAD

For the rod ends the maximum axial static load should not exceed the axial holding load of the joint on the head.

Furthermore, it should be calculated basing on the length of engagement of the thread for the male type and on the male resistance connected to the female type. For the spherical bearings the maximum acceptable axial static load is the one indicated in the dimensional tables.



# ROD ENDS AND SPHERICAL-PLAIN BEARINGS

The TESCUBAL® rod ends and spherical bearings are high resistance and precision products, which are made according to ISO 12240-4 K series and ISO 12240-1 K series. They are maintenance free and employ a coupling of metal (inner ring) on sintered metal (outer ring) impregnated with a high potency lubricating fluid, which guarantees a constant lubrication. The outer ring is cold formed on the inner ring, in order to guarantee a 100% surface contact, so that it can resist high loads and speeds, keeping the right lubrication during operation.

## Rod ends

TOP version in steel/bronze coupling, self-lubricating ( stainless steel version available )



## Rod ends

OK version in steel/steel coupling, self-lubricating



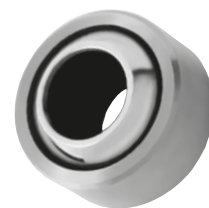
## Spherical-plain bearings

TOP version in steel/steel coupling, self-lubricating

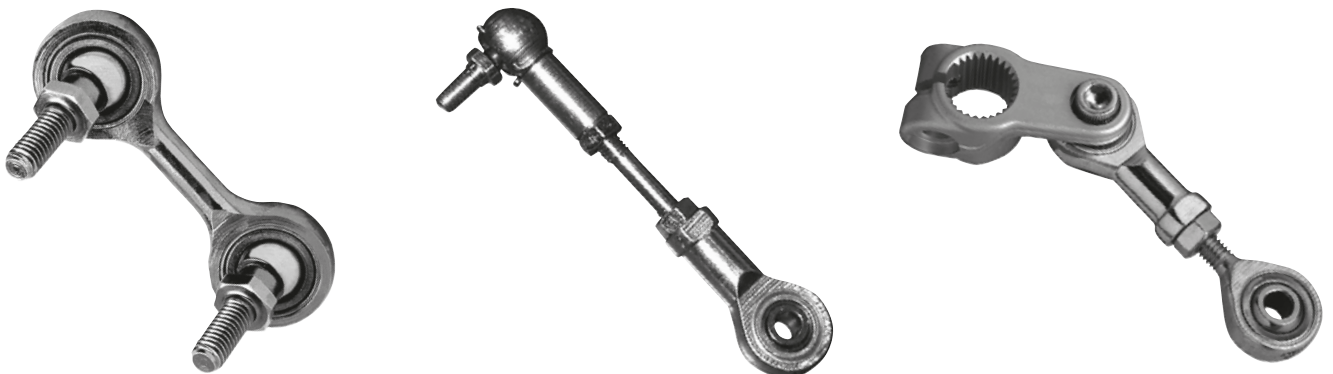


## Spherical-plain bearings

OK version in steel/steel coupling, self-lubricating



Examples of linkage with the use of rod ends, spherical-plain bearings, ball joints and clevises



# CLEVISES

Clevises are mechanical linking units suitable for the transmission of static forces. They are standard products, which are produced according to the norms and the indicated dimensional tables. All our products can be supplied galvanized or unplated.

## Clevises DIN 71752

Short and long version, and accessories  
( available in stainless steel and aluminum )



## Clevises

ROTATING SHANK version



## Clevises

Mating piece for clevises



# BALL AND AXIAL JOINTS

Ball joints are mechanical units for the connection of 2 parts which are perpendicular with respect to each other. They enable the transmission of alternating forces through angular and oscillating movements, at a moderate speed. They are standard products made according to the following standards DIN 71802.

## Ball joints DIN 71802

STANDARD  
and STAINLESS  
STEEL version



## Ball joints long version similar to DIN 71802

LONG STANDARD  
and STAINLESS STEEL  
version



## Ball stud DIN 71803

B and C version,  
STANDARD and  
STAINLESS STEEL



## Ball socket DIN 71805

STANDARD, LONG  
and STAINLESS STEEL  
version



## Axial joint

STANDARD  
version



## Self-Aligning Joints

STANDARD  
version



## Members of Nadella Group

**NADELLA S.p.A.**  
**Italy**

Via Melette, 16  
20128 Milano

Tel. : +39 02 27 093  
Fax : +39 02 257 64 79  
customer.service@nadella.it

[www.nadella.it](http://www.nadella.it)

**NADELLA Inc.**  
**United States**

14115 – 63 Way North  
Clearwater – Florida 33760-3621

Toll free: +1 844-537-0330  
Fax : +1 844-537-0331  
info@nadella.com

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

**DURBAL Metallwarenfabrik GmbH**  
**Germany**

Verrenberger Weg 2  
74613 Öhringen

Tel.: +49 7941 9460-0  
Fax: +49 7941 9460-90  
info@durbal.de

[www.durbal.de](http://www.durbal.de)

**NADELLA GmbH**  
**Germany**  
Rudolf-Diesel-Str. 28  
71154 Nufringen

Tel. : +49 7032 9540-0  
Fax : +49 7032 9540-25  
info@nadella.de

[www.nadella.de](http://www.nadella.de)

**NADELLA Linear Shanghai Co. Ltd.**  
**China**  
Room D314, NO.245 Xinjunhuan Road  
201114 Minhang Shanghai

Tel. : +86 21 5068 3835  
info@nadella.cn.com

[www.nadella.cn.com](http://www.nadella.cn.com)

**CHIAVETTE UNIFICATE S.p.A.**  
**Italy**  
Via G.Brodolini 6-8-10  
40069 Zola Predosa, Bologna

Tel.: +39 051 75 87 67  
Fax: +39 051 75 47 80  
tescubal@chiavette.it

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

