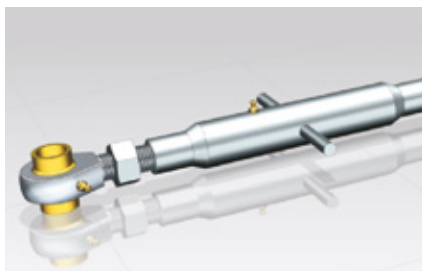




Accessories



In our permanent search to develop useful products to our present and future customers, we present, under the heading Accessories, a collection of widely used products in Power Transmission applications.

Although at a first glance they may appear as a heterogeneous co-

lection of products, they have in common their usefulness in the day to day Power Transmission activity. Last but not least, we will steadily add new product developments to cover new needs.

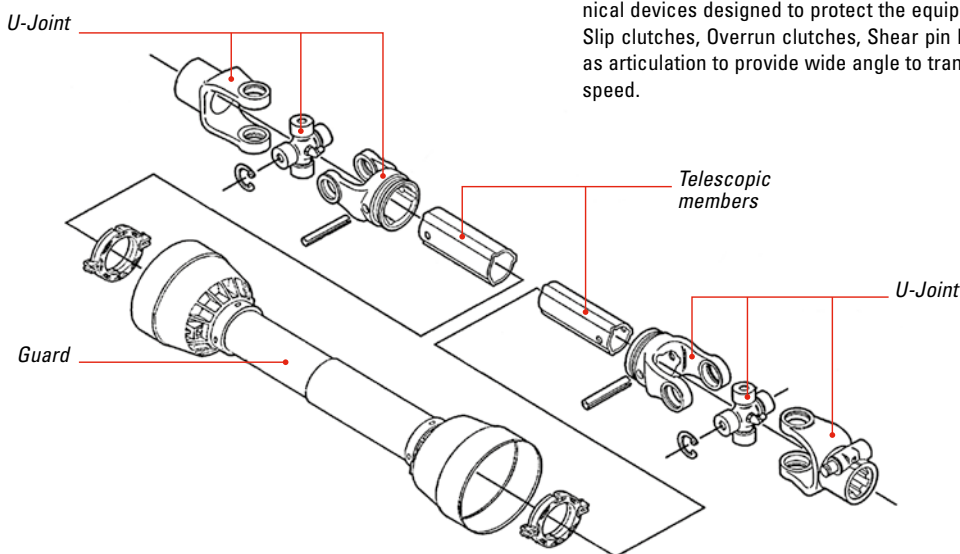
For any special need in Power Transmission application, we suggest to contact our Commercial Department.

PTO SHAFTS

Power Take-Off (PTO)

The PTO is a mechanical power transmission device transmitting torque from a mechanical source, a shaft, to a mechanically operated equipment, amongst the most common we find, farming tractors and trucks.

The ISO 5673-1 Standard specifies the PTO drive shafts for Agricultural tractors and machinery and power-input connection.



The basic configuration of a PTO shaft is composed of:

- Universal joint, known as well as U-Joint, which in turn is composed of two yokes and the cross of one end.
- The sliding telescopic members, Male and Female.
- The Universal joint of the other end, and the PTO shaft guard.

At the equipment end, there are available different types of mechanical devices designed to protect the equipment from overloads as, Slip clutches, Overrun clutches, Shear pin bolt clutches and others as articulation to provide wide angle to transmit torque and uniform speed.

In the catalog, we only display the basic configuration out of the many possible. The different configurations are based on:

- The tractor power shaft.

- The U-Joint and yokes to match the power shaft.
- The telescopic members with different profiles.
- The PTO guard.

It is known as well as U-Joint Shaft for Universal Joint Shaft and Cardaniⁱ Shaft.

Tractor Power Shaft

Specifies in the Standard ISO 500-1 covering, amongst other topics,

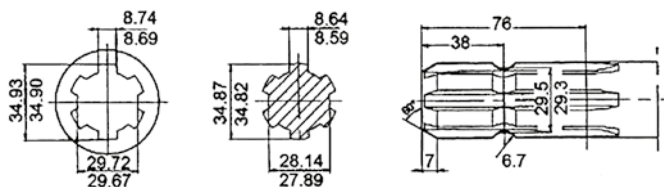
Agricultural tractors – Rear mounted power-off types 1, 2, 3 and 4.

| PTO Type | TYPE 1 | TYPE 2 | TYPE 3 | TYPE 4 |
|-------------------------|----------------|----------------|----------------|------------------|
| Nominal diameter | 1 3/8" - 35 mm | 1 3/8" - 35 mm | 1 3/4" - 45 mm | 2 1/4" - 57,5 mm |
| Type of spline | Straight | Involute | Involute | Involute |
| Number of splines | 6 | 21 | 20 | 22 |
| Nominal angular speed* | 540 / 1000 | 1000 | 1000 | 1300 |
| Recommended PTO power** | < 65 kW < 110 | < 130 kW | < 300 kW | < 500 kW |

* Clockwise viewed from tractor's behind in revs/min.

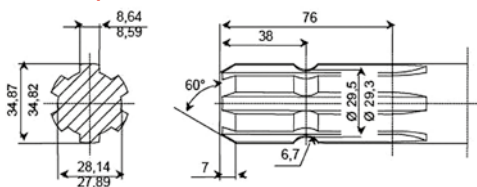
** At rated engine speed.

1 3/8 Z6 splines. 540 RPM

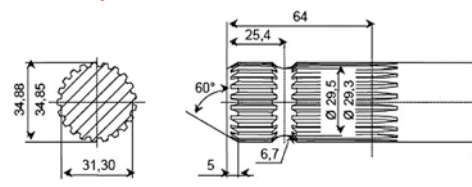


ⁱ After Gerolamo Cardano, Italian 16th Century mathematician, physicist, chemist and astronomer.

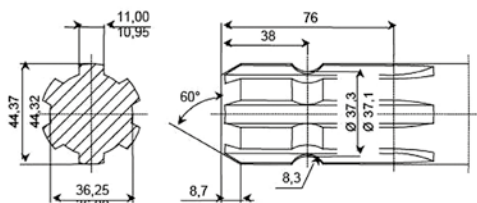
1 3/8" - 6 spline



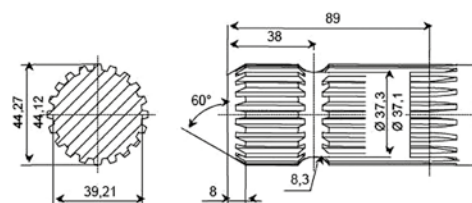
1 3/8" - 21 spline



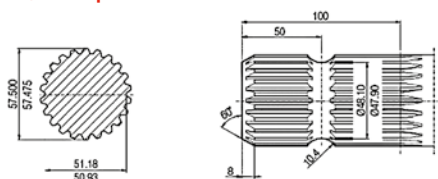
1 3/4" - 6 spline



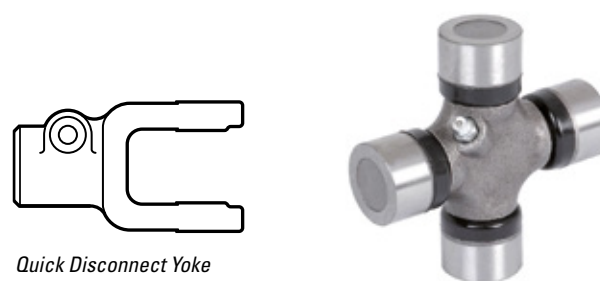
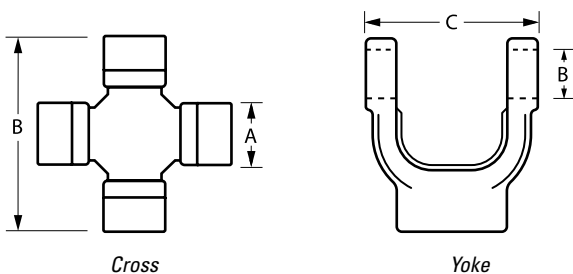
1 3/4" - 20 spline



2 1/4" - 22 spline



U-Joints and Yokes



| CROSS TYPE B* | | YOKE* | REFERENCE |
|---------------|--------|--------|-------------|
| A | B | C | |
| 22,00 | 54,00 | 63,50 | TL-UJ-811 |
| 23,80 | 61,30 | 70,00 | TL-UJ-341AG |
| 27,00 | 70,00 | 79,50 | TL-UJ-813 |
| 27,00 | 74,60 | 84,00 | TL-UJ-344AG |
| 30,20 | 80,00 | 91,00 | TL-UJ-815 |
| 30,20 | 92,00 | 103,00 | TL-UJ-331AG |
| 34,90 | 94,00 | 106,00 | TL-UJ-818 |
| 34,90 | 106,50 | 117,00 | TL-UJ-351AG |
| 41,00 | 108,00 | 119,00 | TL-UJ-819 |

| QUICK DISCONNECT YOKE | | REFERENCE |
|-----------------------|------------|------------|
| Bore | N° Splines | |
| 1 3/8" | 6 | TL-UJ-1000 |
| 1 3/8" | 6 | TL-UJ-1002 |
| 1 3/8" | 6 | TL-UJ-1004 |
| 1 3/8" | 6 | TL-UJ-1006 |
| 1 3/8" | 21 | TL-UJ-1007 |
| 1 3/8" | 6 | TL-UJ-1008 |
| 1 3/8" | 21 | TL-UJ-1009 |
| 1 3/8" | 6 | TL-UJ-1010 |
| 1 3/8" | 21 | TL-UJ-1011 |
| 1 3/8" | 6 | TL-UJ-1012 |
| 1 3/8" | 21 | TL-UJ-1013 |
| 1 3/8" | 6 | TL-UJ-1472 |
| 1 3/8" | 21 | TL-UJ-1473 |
| 1 3/4" | 20 | TL-UJ-1470 |
| 1 3/8" | 6 | TL-UJ-1014 |
| 1 3/8" | 21 | TL-UJ-1005 |
| 1 3/4" | 20 | TL-UJ-1001 |

* All measures in mm.



| CROSS TYPE W* | | YOKE* | REFERENCE |
|---------------|--------|--------|-------------|
| A | B | C | |
| 22,00 | 55,00 | 62,00 | TL-WUJ-812 |
| 23,80 | 61,00 | 68,00 | TL-UJ-341AG |
| 27,00 | 70,00 | 77,00 | TL-UJ-813 |
| 27,00 | 74,60 | 84,00 | TL-UJ-344AG |
| 32,20 | 76,00 | 86,00 | TL-WUJ-814 |
| 30,20 | 92,00 | 101,00 | TL-UJ-331AG |
| 36,00 | 88,80 | 100,00 | TL-WUJ-817 |
| 42,00 | 104,00 | 116,00 | TL-WUJ-821 |

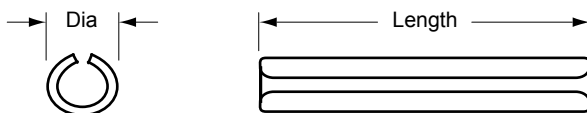
| QUICK DISCONNECT YOKE | | REFERENCE |
|-----------------------|------------|-------------|
| Bore | N° Splines | |
| 1 3/8" | 6 | TL-WUJ1600 |
| 1 3/8" | 6 | TL-UJ-1002 |
| 1 3/8" | 6 | TL-UJ-1004 |
| 1 3/8" | 6 | TL-UJ-1006 |
| 1 3/8" | 21 | TL-UJ-1007 |
| 1 3/8" | 6 | TL-WUJ-1610 |
| 1 3/8" | 6 | TL-UJ-1010 |
| 1 3/8" | 21 | TL-UJ-1011 |
| 1 3/8" | 6 | TL-WUJ-1612 |
| 1 3/8" | 21 | TL-WUJ-1613 |
| 1 3/4" | 20 | TL-WUJ-1614 |
| 1 3/8" | 6 | TL-WUJ-1601 |
| 1 3/8" | 21 | TL-WUJ-1602 |
| 1 3/4" | 20 | TL-WUJ-1603 |

* All measures in mm.

Roll Pin

| DIAMETER* | LENGTH* | REFERENCE |
|-----------|---------|-----------|
| 0,34 | 2,00 | TL-UJ-81 |
| 0,34 | 2,35 | TL-UJ-82 |
| 0,34 | 3,17 | TL-UJ-87 |
| 0,42 | 2,36 | TL-UJ-83 |
| 0,42 | 2,57 | TL-UJ-84 |
| 0,42 | 2,96 | TL-UJ-85 |
| 0,42 | 3,16 | TL-UJ-86 |
| 0,42 | 3,56 | TL-UJ-89 |
| 0,50 | 3,18 | TL-UJ-88 |

* All measures in inches.



Trilobular Outxer Yoke



1 3/8" Z21 Yoke



1 3/8" Z6 Yoke



PTO Shear Bolt



PTO Slip Clutch

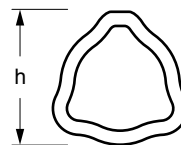


Sprag Clutch. Free Wheel

Telescopic profiles

Trilobular Profile

| CROSS SIZE B | | PTO type | PROFILE HEIGHT h | | REFERENCE |
|--------------|------|----------|------------------|------|------------|
| mm | in | | mm | in | |
| 54,00 | 2,12 | B | 26,67 | 1,05 | TL-1061 |
| 61,30 | 2,41 | B | 29,21 | 1,15 | TL-1062 |
| 70,00 | 2,75 | B | 32,77 | 1,29 | TL-1071 |
| 74,60 | 2,94 | B | 36,07 | 1,42 | TL-1072* |
| 80,00 | 3,15 | B | 43,43 | 1,71 | TL-1073 |
| 92,00 | 3,62 | B | 44,70 | 1,76 | TL-1065** |
| 94,00 | 3,70 | B | 51,56 | 2,03 | TL-1075 |
| 106,50 | 4,19 | B | 53,85 | 2,12 | TL-1076*** |
| 108,00 | 4,25 | B | 55,12 | 2,17 | TL-1078 |



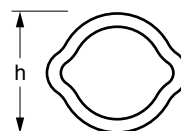
* Wall 0,16" TL1064.

** Wall 0,22" TL1067.

*** Wall 0,20" TL1069.

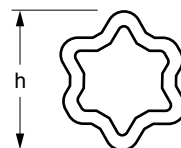
Lemon Profile

| CROSS SIZE B | | PTO type | PROFILE HEIGHT h | | REFERENCE |
|--------------|------|----------|------------------|------|-----------|
| mm | in | | mm | in | |
| 55,00 | 2,15 | W | 29,98 | 1,18 | TL-1671 |
| 61,00 | 2,41 | W | 34,54 | 1,36 | TL-1662 |
| 70,00 | 2,75 | W | 39,62 | 1,56 | TL-1666 |
| 74,50 | 2,94 | W | 41,15 | 1,62 | TL-1672 |
| 76,00 | 2,99 | W | 48 | 1,89 | TL-1676 |



Star Profile

| CROSS SIZE B | | PTO type | PROFILE HEIGHT h | | REFERENCE |
|--------------|------|----------|------------------|------|-----------|
| mm | in | | mm | in | |
| 88,80 | 3,50 | W | 50,55 | 1,99 | TL-1667 |
| 104,00 | 4,09 | W | 60,45 | 2,38 | TL-1677 |



Trilobular Profile



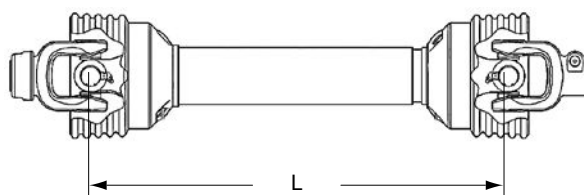
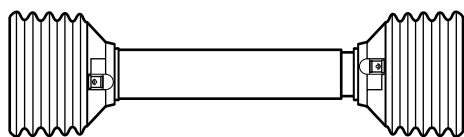
Lemon Profile



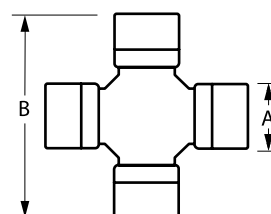
Star Profile

Guard

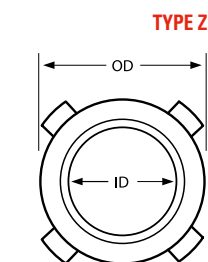
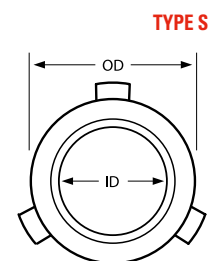
The length of the PTO Shaft is measured from cross center across cross center.



| CROSS MEASURES | | CROSS TYPE | REFERENCE GUARD |
|----------------|--------|------------|-----------------|
| A | B | | |
| 22,00 | 54,00 | B | TL-2071 |
| 23,80 | 61,30 | B | TL-2071 |
| 27,00 | 70,00 | B | TL-2071 |
| 27,00 | 74,60 | B | TL-2071 |
| 30,20 | 80,00 | B | TL-2072 |
| 30,20 | 92,00 | B | TL-2072 |
| 34,90 | 94,00 | B | TL-2072 |
| 34,90 | 106,50 | B | TL-2073 |
| 41,00 | 108,00 | B | TL-2073 |
| 22,00 | 55,00 | W | TL-2071 |
| 23,80 | 61,00 | W | TL-2071 |
| 27,00 | 70,00 | W | TL-2071 |
| 27,00 | 74,60 | W | TL-2071 |
| 32,00 | 76,00 | W | TL-2072 |
| 30,20 | 92,00 | W | TL-2072 |
| 36,00 | 88,80 | W | TL-2072 |
| 42,00 | 104,00 | W | TL-2073 |



| REFERENCE BEARING KIT | TYPE OF BEARING | INNER / OUTER | ID INCH | OD INCH | MATCHING GUARD |
|-----------------------|-----------------|---------------|---------|---------|----------------|
| TL-2080 | S | Inner Shield | 1,35 | 2,80 | TL-2071 |
| | | Outer Shield | 1,58 | 2,80 | |
| TL-2081 | S | Inner Shield | 1,62 | 2,80 | TL-2071 |
| | | Outer Shield | 1,62 | 2,80 | |
| TL-2082 | S | Inner Shield | 1,58 | 2,80 | TL-2071 |
| | | Outer Shield | 1,86 | 2,80 | |
| TL-2083 | S | Inner Shield | 1,86 | 2,80 | TL-2071 |
| | | Outer Shield | 2,08 | 2,80 | |
| TL-2084 | S | Inner Shield | 1,98 | 2,80 | TL-2071 |
| | | Outer Shield | 1,98 | 2,80 | |
| TL-2085 | Z | Inner Shield | 2,10 | 3,27 | TL-2072 |
| | | Outer Shield | 2,47 | 3,27 | |
| TL-2086 | Z | Inner Shield | 2,46 | 3,27 | TL-2072 |
| | | Outer Shield | 2,46 | 3,27 | |
| TL-2087 | Z | Inner Shield | 2,34 | 3,28 | TL-2072 |
| | | Outer Shield | 2,69 | 3,28 | |
| TL-2088 | Z | Inner Shield | 2,68 | 4,06 | TL-2073 |
| | | Outer Shield | 3,16 | 4,06 | |
| TL-2089 | Z | Inner Shield | 3,26 | 4,06 | TL-2073 |
| | | Outer Shield | 3,26 | 4,06 | |





Tractor with a Post-hole digger



Tractor with a Rotary cutter



Tractor with a Flail mower



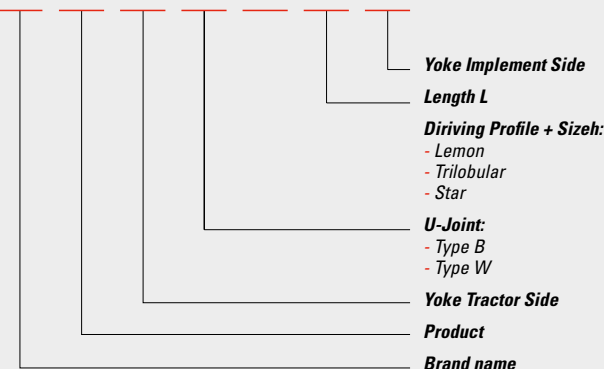
Tractor with a Water pump



Tractor with an AC Generator

GUIDE TO ORDER

TL - PTO



SHAFT COLLARS

The shaft collars use the compression force to generate friction, which locks the collar onto a shaft. Used in virtually any power transmission application either fixing the position of bearings in a shaft inside a speed reducer or a gearbox, on pulleys, on gears or simply as an axial stop.

The shaft collars behave well under constant type of loads while

Single-split shaft collars

Known as well as One-piece shaft collars, they distribute even the clamping forces and provides a big position holding power without damaging the shaft, due to the clamping bolt position design. Our program offers versions in steel, stainless steel, aluminum and surface treatments of Black Oxide, Zinc Plated and Yellow Plated Zinc and Anodized Aluminum.

Double-split shaft collars

Has some additional features over the Single-split, its versatility in assembling and disassembling, the more uniform distribution of the clamping force around the shaft due to the two screws and the higher seating torque of the two screws when compared with the seating torque of the Single-split version.

Offered in steel and stainless steel versions as well as aluminum, with a choice of surface treatments as Black Oxide, Plain Zinc Plating, Yellow Zinc Plating, Passivation in the case of Stainless Steel and Anodizing in the case of Aluminum.

they do not absorb as well the shock loads. Our program offers different types of shaft collars, Single-split shaft collars, Double-split shaft collars and Adjusting Rings or Set Screw.

The Single-split and Double-split, both have threaded versions.

Threaded

Threaded collars while having similar performance than its equivalents of round bore; they have a higher axial holding power. We offer threaded shaft collars in the same versions of materials and treatments than their round bore equivalents.

Adjusting rings

Known as well as set Screw shaft collars. Used with shafts of mild steel and hard Set Screws for greater torque. Manufactured under the 705 DIN Standard in the three basic forms, A, B and C with Grub Screws type under the Standards DIN 913, DIN 914, DIN 915 and DIN 916.

Inch-One-piece Shaft Collars. Series 111

| BORE SIZE IN INCHES | OD IN INCHES | WITDH IN INCHES | MATERIALS, COATINGS & PLATINGS |
|-------------------------|---------------------------------|--------------------|--------------------------------|
| Step increases of 1/16" | | | |
| 1/8 to 4 | 1/2 ; 5/8 ; 11/16 ; 7/8 ; 15/16 | | Plain |
| | 1 1/8 ; 1 1/4 ; 1 5/16 ; 1 3/8 | 1/4 ; 5/16 ; 11/32 | Black Oxide |
| | 1 1/2 ; 1 5/8 ; 1 3/4 ; 1 7/8 | 3/8 ; 13/32 ; 7/16 | Zinc Plated |
| | 2 1/16 ; 2 1/8 ; 2 1/4 ; 2 3/8 | 1/2 ; 9/16 ; 11/16 | Stainless 304 |
| | 2 5/8 ; 2 3/4 | | Aluminum Anodized |



Series 111. Black Oxide

Product Reference: TL-SC111-OD-Material-Treatment.

Bore tolerance in inches.

Up to 3/16: +0,003 to +0,0006.

From 1/4 to 1 1/8: +0,006 to +0,0008.

From 1 3/16 to 2 15/16: +0,008 to +0,0008.

Over 3: +0,008 to +0,0008.

Metric-One-piece Shaft Collar. Series 106

| BORE SIZE IN MM | OD IN INCHES | WITDH IN INCHES | MATERIALS, COATINGS & PLATINGS |
|-------------------------|-----------------------------|-----------------------|--------------------------------|
| Step increases of 1 mm* | | | |
| 30 to 80 | 16 - 18 - 24 - 28 - 30 - 34 | 9 - 11 - 13 - 15 - 19 | Plain |
| | 36 - 40 - 45 - 54 - 57 - 60 | | Black Oxide |
| | 73 - 78 - 82 - 88 - 93 - 98 | | Zinc Plated |
| | 103 - 108 | | Stainless 304 |
| | | | Aluminum Anodized |



Series 106. Black Oxide

Product Reference: TL-SC106-OD-Material-Treatment.

Bore tolerance in mm.

From 2 to 5: +0,08 to +0,01.

From 5 to 20: +0,10 to +0,02.

From 20 to 75: +0,15 to +0,02.

Over 75: +0,20 to +0,02.

* Bores from 3 to 18 mm in steps of 1 mm.
From 20 mm and on, in steps of 5 mm.

Inch-Double Split Shaft Collars. Series 112

| BORE SIZE IN INCHES | OD IN INCHES | WITDH IN INCHES | MATERIALS, COATINGS & PLATINGS |
|-------------------------|---|--------------------------|--------------------------------|
| Step increases of 1/16" | | | |
| 1/8 to 4 | 1/2 ; 5/8 ; 11/16 ; 7/8 ; 15/16 ; 1 1/8 | | Plain |
| | 1 1/4 ; 1 5/16 ; 1 3/8 ; 1 1/2 ; 1 5/8 ; | 1/4 ; 5/16 ; 11/32 | Black Oxide |
| | 1 3/4 ; 1 7/8 ; 2 1/16 ; 2 1/8 ; 2 1/4 ; | 3/8 ; 13/32 ; 7/16 ; 1/2 | Zinc Plated |
| | 2 3/8 ; 2 5/8 ; 2 3/4 ; 2 7/8 ; 3 ; 3 1/8 ; | 9/16 ; 11/16 ; 3/4 ; 7/8 | Stainless 304 |
| | 3 1/4 ; 3 3/8 ; 3 1/2 ; 3 3/4 ; 3 7/8 ; | | Aluminum Anodized |
| | 4 ; 4 1/4 ; 4 1/2 ; 4 3/4 ; 5 1/4 | | |



Series 112. Black Oxide

Product Reference: TL-SC112-OD-Material-Treatment

Bore tolerance in inches.

Up to 3/16: +0,003 to 0,0006.

From 1/4 to 1 1/8: +0,006 to +0,0008.

From 1 3/16 to 2 15/16: +0,008 to +0,0008.

Over 3: +0,008 to +0,0008.

Metric-Double Split Shaft Collars. Series 107

| BORE SIZE IN MM | OD IN INCHES | WIDTH IN INCHES | MATERIALS, COATINGS & PLATINGS |
|-------------------------|-----------------------------|-----------------------|--------------------------------|
| Step increases of 1 mm* | | | |
| 30 to 80 | 16 - 18 - 24 - 28 - 30 - 34 | 9 - 11 - 13 - 15 - 19 | Steel |
| | 36 - 40 - 45 - 54 - 57 - 60 | | Plain |
| | 73 - 78 - 82 - 88 - 93 - 98 | | Black Oxide |
| | 103 - 108 | | Zinc Plated |
| | | | Stainless 304 |
| | | | Aluminum |
| | | | Plain |
| | | | Anodized |

Product Reference: TL-SC107-OD-Material-Treatment.
 Bore tolerance in mm.
 From 2 to 5: +0,08 to +0,01.
 From 5 to 20: +0,10 to +0,02.
 From 20 to 75: +0,15 to +0,02.
 Over 75: +0,20 to +0,02.

* Bores from 3 to 18 mm in steps of 1 mm.
 From 20 mm and on, in steps of 5 mm.



Series 107. Stainless Steel

Inch-Single-Split Threaded Shaft Collars. Series 113

| BORE SIZE IN INCHES | OD UNF THREAD SIZE | WIDTH IN INCHES | MATERIALS, COATINGS & PLATINGS |
|---------------------------------------|--|----------------------------|--------------------------------|
| Step increases of 1/16" | | | |
| #10-32 ; 1/4-20(28) ; 5/16-18(24) | | | Steel |
| 3/8-16(24) ; 7/16-14(20) ; 1/2-13(20) | 5/8 ; 11/16 ; 7/8 ; 15/16 ; 1 1/8 | 5/16 ; 11/32 ; 3/8 ; 13/32 | Plain |
| 5/8-11(18) ; 3/4-10(16) ; 7/8-9(14) | 1 5/16 ; 1 1/2 ; 1 5/8 ; 1 3/4 ; 1 7/8 | 7/16 ; 1/2 ; 9/16 | Black Oxide |
| 1-8 ; 1-12 ; 1-14 ; 1 1/8-12 | 2 1/16 ; 2 3/8 ; 3 ; 3 1/4 | 11/16 ; 3/4 | Zinc Plated |
| 1 1/4-7(12) ; 1 1/2-6(12) | | | Stainless 304 |
| 2 - 12 ; 2 1/4-12 | | | Aluminum |
| | | | Plain |
| | | | Anodized |

Product Reference: TL-SC113-OD-Material-Treatment.



Series 113. Stainless Steel 304

Inch-DoubleSplit Threaded Shaft Collars. Series 114

| BORE SIZE IN INCHES | OD UNF THREAD SIZE | WIDTH IN INCHES | MATERIALS, COATINGS & PLATINGS |
|---------------------------------------|--|----------------------------|--------------------------------|
| Step increases of 1/16" | | | |
| #10-32 ; 1/4-20(28) ; 5/16-18(24) | | | Steel |
| 3/8-16(24) ; 7/16-14(20) ; 1/2-13(20) | 5/8 ; 11/16 ; 7/8 ; 15/16 ; 1 1/8 | 5/16 ; 11/32 ; 3/8 ; 13/32 | Plain |
| 5/8-11(18) ; 3/4-10(16) ; 7/8-9(14) | 1 5/16 ; 1 1/2 ; 1 5/8 ; 1 3/4 ; 1 7/8 | 7/16 ; 1/2 ; 9/16 | Black Oxide |
| 1-8 ; 1-12 ; 1-14 ; 1 1/8-12 | 2 1/16 ; 2 3/8 ; 3 ; 3 1/4 | 11/16 ; 3/4 | Zinc Plated |
| 1 1/4-7(12) ; 1 1/2-6(12) | | | Stainless 304 |
| 2 - 12 ; 2 1/4-12 | | | Aluminum |
| | | | Plain |
| | | | Anodized |

Product Reference: TL-SC114-OD-Material-Treatment.



Double Split Threaded Shaft Collar. Series 114. Aluminum

Inch-Heavy Duty Single Split Shaft Collars. Series 115

| BORE SIZE IN INCHES | OD UNF THREAD SIZE | WITDH IN INCHES | MATERIALS, COATINGS & PLATINGS |
|-------------------------------------|------------------------------------|-------------------------|--------------------------------|
| Step increases of 1/16" | | | |
| #10-32; 1/4-20(28); 5/16-18(24) | | | Plain |
| 3/8-16(24); 7/16-14(20); 1/2-13(20) | 5/8; 11/16; 7/8; 15/16; 1 1/8 | 5/16; 11/32; 3/8; 13/32 | Steel Black Oxide |
| 5/8-11(18); 3/4-10(16); 7/8-9(14) | 1 5/16; 1 1/2; 1 5/8; 1 3/4; 1 7/8 | 7/16; 1/2; 9/16 | Zinc Plated |
| 1-8; 1-12; 1-14; 1 1/8-12 | 2 1/16; 2 3/8; 3; 3 1/4 | 11/16; 3/4 | Stainless 304 |
| 1 1/4-7(12); 1 1/2-6(12) | | | Aluminum Plain |
| 2 - 12; 2 1/4-12 | | | Anodized |



Product Reference: TL-SC114-OD-Material-Treatment.

Inch-Heavy Duty Double Split Shaft Collars. Series 116

| BORE SIZE IN INCHES | OD IN INCHES | WITDH IN INCHES | MATERIALS, COATINGS & PLATINGS |
|-------------------------|--|-----------------|---|
| Step increases of 1/16" | | | |
| 1 7/8 to 5 | 3 1/4; 3 1/2; 4; 4 1/4 4 1/2; 4 3/4; 5; 5 3/4 6 1/4; 6 3/4 | 5/8; 3/4; 1 | Steel Plain Black Oxide Zinc Plated Stainless 304 |
| | | | Aluminum Plain Anodized |



Product Reference: TL-SC116-OD-Material-Treatment.

Bore tolerance in inches.

Up to 1 1/8: +0,004 to 0,0008.

From 1 3/16 to 2 15/16: +0,006 to +0,0008.

Over 3: +0,008 to +0,0008.

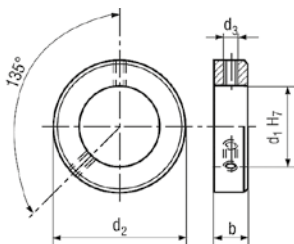
Adjusting Rings

The Forms A, B and C start with bores of 2 mm up to 200 mm Inner Diameter, widths from and Grub Screws from M2 x 3 up to M20 x 45.

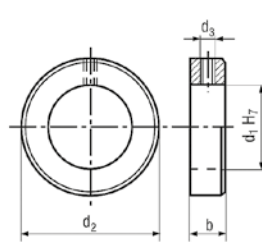
Adjusting Rings material is Mild Steel Plain or treated by Black Oxide* or Zinc Plated** plain or Yellow Zinc Plated. Stainless Steel AISI 304 plain or Passivated***.



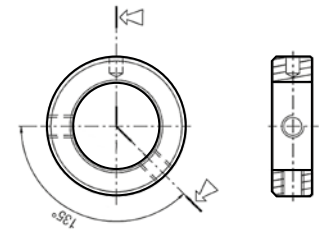
FORM A



FORM B



FORM C



* See page num. M11

** See page num. M14

*** See page num. M12



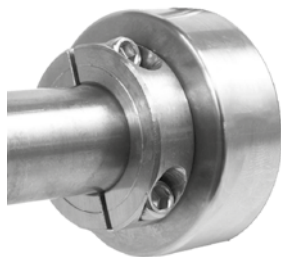
Adjusting Ring Type B



Adjusting Ring Type A



Adjusting Ring Form A, in a Pillow Block



Double-Split Threaded Shaft Collar



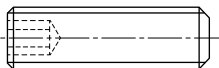
Adjusting Ring Form B, in a Flange Pillow Block

Hex socket set screws, Grub Screws

We offer a wide assortment of Grub Screws in Metric and Imperial sizes.

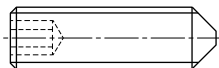
Ask for sizes available to our Commercial Department.

DIN 913 (ISO 4026)



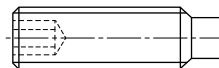
Flat point

DIN 914 (ISO 4027)



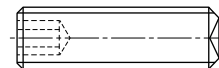
Cone point

DIN 915 (ISO 4028)



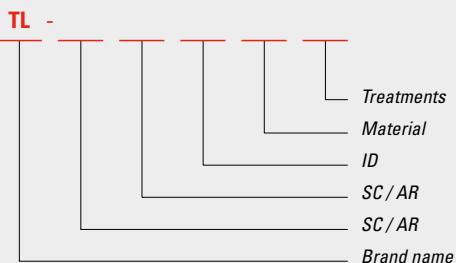
Dog point

DIN 916 (ISO 4029)



Cup point

GUIDE TO ORDER



Treatments: Black Oxide B0
Zinc Plated Plain ZPN
Zinc Plated Yellow ZPY
Passivation P, Anodized Aluminum AAI

Material: Steel, Stainless Steel SS 304, Aluminum

ID: Bore size in inches of mm

SC: Series 111, 106, 112, 107, 113, 114, 115, 116,

AR: Series A, B, C

SC: Shaft Collar

AR: Adjusting Ring



RETAINING RINGS

Retaining Rings are fasteners holding onto a shaft or in hollow, components of Power Transmission. They hold bearings in a Pillow Block, Gears on a Shaft and many others. Designed to fit on the inside of a bore, named Internal Retaining Rings or on the outside of a shaft named External Retaining Rings.

Made of Carbon Spring Steel or Stainless Steel it stands high centrifugal forces while lodged into grooves cut into shafts to stand up to high axial loads.

Known as well as Snap Rings, Circlips and Seeger[†] rings, are manufactured under the Standards DIN 471 and 472.

DIN 471

External Retaining Rings for Shafts – Normal Type and Heavy Type

| REFERENCE* | d ₁ | a | b | d ₂ | d ₃ | d ₄ | d ₅ | h | m | n _{min} | ~ APPROX. | |
|---------------|----------------|------|------|----------------|----------------|----------------|----------------|------|------|------------------|-----------|------------|
| | | | | | | | | | | | Load Kgf | x 1000. Kg |
| TL-RRE-471-03 | 3 | 1,90 | 0,80 | 2,80 | 2,30 | 7,00 | 1,00 | 0,40 | 0,50 | 0,30 | 28 | 0,030 |
| TL-RRE-471-04 | 4 | 2,20 | 0,90 | 3,80 | 3,70 | 8,60 | 1,00 | 0,40 | 0,50 | 0,30 | 30 | 0,034 |
| TL-RRE-471-05 | 5 | 2,50 | 1,10 | 4,80 | 4,70 | 10,30 | 1,00 | 0,60 | 0,70 | 0,45 | 38 | 0,066 |
| TL-RRE-471-06 | 6 | 2,70 | 1,30 | 5,70 | 5,60 | 11,70 | 1,15 | 0,70 | 0,80 | 0,45 | 70 | 0,084 |
| TL-RRE-471-07 | 7 | 3,10 | 1,40 | 6,70 | 6,50 | 13,50 | 1,20 | 0,80 | 0,90 | 0,60 | 80 | 0,121 |
| TL-RRE-471-08 | 8 | 3,20 | 1,50 | 7,60 | 7,40 | 14,70 | 1,20 | 0,80 | 0,90 | 0,60 | 120 | 0,158 |
| TL-RRE-471-09 | 9 | 3,30 | 1,70 | 8,60 | 8,40 | 16,00 | 1,20 | 1,00 | 1,10 | 0,60 | 138 | 0,300 |
| TL-RRE-471-10 | 10 | 3,30 | 1,80 | 9,60 | 9,30 | 17,00 | 1,50 | 1,00 | 1,10 | 0,75 | 153 | 0,340 |
| TL-RRE-471-11 | 11 | 3,30 | 1,80 | 10,50 | 10,20 | 18,00 | 1,50 | 1,00 | 1,10 | 0,75 | 210 | 0,410 |
| TL-RRE-471-12 | 12 | 3,30 | 1,80 | 11,50 | 11,00 | 19,00 | 1,70 | 1,00 | 1,10 | 0,90 | 230 | 0,500 |
| TL-RRE-471-13 | 13 | 3,40 | 2,00 | 12,40 | 11,90 | 20,20 | 1,70 | 1,00 | 1,10 | 0,90 | 300 | 0,530 |
| TL-RRE-471-14 | 14 | 3,50 | 2,10 | 13,40 | 12,90 | 21,40 | 1,70 | 1,00 | 1,10 | 1,10 | 325 | 0,640 |
| TL-RRE-471-15 | 15 | 3,60 | 2,20 | 14,30 | 13,80 | 22,60 | 1,70 | 1,00 | 1,10 | 1,20 | 400 | 0,670 |
| TL-RRE-471-16 | 16 | 3,70 | 2,20 | 15,20 | 14,70 | 23,80 | 1,70 | 1,00 | 1,10 | 1,20 | 490 | 0,700 |
| TL-RRE-471-17 | 17 | 3,80 | 2,30 | 16,20 | 15,70 | 25,00 | 1,70 | 1,00 | 1,10 | 1,50 | 520 | 0,820 |
| TL-RRE-471-18 | 18 | 3,90 | 2,40 | 17,00 | 16,50 | 26,20 | 2,00 | 1,20 | 1,30 | 1,50 | 690 | 1,110 |
| TL-RRE-471-19 | 19 | 3,90 | 2,50 | 18,00 | 17,50 | 27,20 | 2,00 | 1,20 | 1,30 | 1,50 | 725 | 1,220 |
| TL-RRE-471-20 | 20 | 4,00 | 2,60 | 19,00 | 18,50 | 28,40 | 2,00 | 1,20 | 1,30 | 1,50 | 770 | 1,300 |
| TL-RRE-471-21 | 21 | 4,10 | 2,70 | 20,00 | 19,50 | 29,60 | 2,00 | 1,20 | 1,30 | 1,50 | 805 | 1,420 |
| TL-RRE-471-22 | 22 | 4,20 | 2,80 | 21,00 | 20,50 | 30,80 | 2,00 | 1,20 | 1,30 | 1,50 | 845 | 1,600 |
| TL-RRE-471-23 | 23 | 4,30 | 2,90 | 22,00 | 21,50 | 32,60 | 2,00 | 1,20 | 1,30 | 1,50 | 885 | 1,680 |
| TL-RRE-471-24 | 24 | 4,40 | 3,00 | 22,90 | 22,20 | 33,20 | 2,00 | 1,20 | 1,30 | 1,70 | 1010 | 1,770 |
| TL-RRE-471-25 | 25 | 4,40 | 3,00 | 23,90 | 23,20 | 34,20 | 2,00 | 1,20 | 1,30 | 1,70 | 1060 | 1,900 |
| TL-RRE-471-26 | 26 | 4,50 | 3,10 | 24,90 | 24,20 | 35,50 | 2,00 | 1,20 | 1,30 | 1,70 | 1100 | 1,960 |
| TL-RRE-471-27 | 27 | 4,60 | 3,10 | 25,60 | 24,90 | 37,00 | 2,00 | 1,20 | 1,30 | 1,70 | 1200 | 2,700 |
| TL-RRE-471-28 | 28 | 4,70 | 3,20 | 26,60 | 25,90 | 37,90 | 2,00 | 1,50 | 1,60 | 2,10 | 1500 | 2,920 |
| TL-RRE-471-29 | 29 | 4,80 | 3,40 | 27,60 | 26,90 | 39,10 | 2,00 | 1,50 | 1,60 | 2,10 | 1560 | 3,200 |
| TL-RRE-471-30 | 30 | 5,00 | 3,50 | 28,60 | 27,90 | 40,50 | 2,00 | 1,50 | 1,60 | 2,10 | 1620 | 3,320 |
| TL-RRE-471-31 | 31 | 5,00 | 3,50 | 29,30 | 28,60 | 41,50 | 2,50 | 1,50 | 1,60 | 2,60 | 1860 | 3,301 |
| TL-RRE-471-32 | 32 | 5,20 | 3,60 | 30,30 | 29,60 | 43,00 | 2,50 | 1,50 | 1,60 | 2,60 | 2100 | 3,540 |
| TL-RRE-471-33 | 33 | 5,20 | 3,70 | 31,30 | 30,50 | 44,00 | 2,50 | 1,50 | 1,60 | 2,60 | 2160 | 3,639 |
| TL-RRE-471-34 | 34 | 5,40 | 3,80 | 32,30 | 31,50 | 45,40 | 2,50 | 1,50 | 1,60 | 2,60 | 2220 | 3,800 |
| TL-RRE-471-35 | 35 | 5,60 | 3,90 | 33,00 | 32,20 | 46,80 | 2,50 | 1,50 | 1,60 | 3,00 | 2670 | 4,000 |
| TL-RRE-471-36 | 36 | 5,60 | 4,00 | 34,00 | 33,20 | 47,80 | 2,50 | 1,75 | 1,85 | 3,00 | 2760 | 5,000 |
| TL-RRE-471-37 | 37 | 5,70 | 4,10 | 35,00 | 34,20 | 48,60 | 2,50 | 1,75 | 1,85 | 3,00 | 2835 | 5,260 |
| TL-RRE-471-38 | 38 | 5,80 | 4,20 | 36,00 | 35,20 | 50,20 | 2,50 | 1,75 | 1,85 | 3,00 | 2910 | 5,360 |
| TL-RRE-471-39 | 39 | 5,90 | 4,30 | 37,00 | 36,00 | 51,50 | 2,50 | 1,75 | 1,85 | 3,80 | 3360 | 5,620 |
| TL-RRE-471-40 | 40 | 6,00 | 4,40 | 37,50 | 36,50 | 52,60 | 2,50 | 1,75 | 1,85 | 3,80 | 3810 | 6,030 |
| TL-RRE-471-41 | 41 | 6,20 | 4,50 | 38,50 | 37,50 | 54,00 | 2,50 | 1,75 | 1,85 | 3,80 | 3905 | 6,440 |
| TL-RRE-471-42 | 42 | 6,50 | 4,50 | 39,50 | 38,50 | 55,70 | 2,50 | 1,75 | 1,85 | 3,80 | 4000 | 6,500 |
| TL-RRE-471-44 | 44 | 6,60 | 4,60 | 41,50 | 40,50 | 58,00 | 2,50 | 1,75 | 1,85 | 3,80 | 4200 | 6,910 |
| TL-RRE-471-45 | 45 | 6,70 | 4,70 | 42,50 | 41,50 | 59,10 | 2,50 | 1,75 | 1,85 | 3,80 | 4300 | 7,500 |
| TL-RRE-471-46 | 46 | 6,70 | 4,80 | 43,50 | 42,50 | 60,50 | 2,50 | 1,75 | 1,85 | 3,80 | 4400 | 7,650 |

* All measures in mm. † After the invention of Hugo Heierman who developed and patented in 1927 the 'Seegerring', the name from the German company Seeger-Orbis. NEXT >

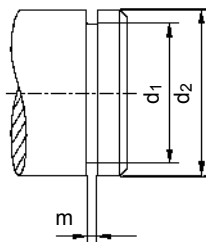
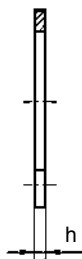
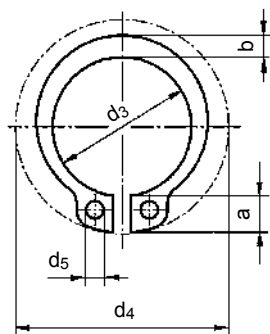
| REFERENCE* | d ₁ | a | b | d ₂ | d ₃ | d ₄ | d ₅ | h | m | n _{min} | ~ APPROX. | |
|----------------|----------------|-------|-------|----------------|----------------|----------------|----------------|------|------|------------------|-----------|------------|
| | | | | | | | | | | | Load Kgf | x 1000. Kg |
| TL-RRE-471-47 | 47 | 6,80 | 4,90 | 44,50 | 43,50 | 61,00 | 2,50 | 1,75 | 1,85 | 3,80 | 4500 | 7,840 |
| TL-RRE-471-48 | 48 | 6,90 | 5,00 | 45,50 | 44,50 | 62,50 | 2,50 | 1,75 | 1,85 | 3,80 | 4600 | 7,900 |
| TL-RRE-471-50 | 50 | 6,90 | 5,10 | 47,00 | 45,80 | 64,50 | 2,50 | 2,00 | 2,15 | 4,50 | 5700 | 10,200 |
| TL-RRE-471-52 | 52 | 7,00 | 5,20 | 49,00 | 47,80 | 66,70 | 2,50 | 2,00 | 2,15 | 4,50 | 5950 | 10,360 |
| TL-RRE-471-54 | 54 | 7,10 | 5,30 | 51,00 | 49,80 | 69,00 | 2,50 | 2,00 | 2,15 | 4,50 | 6185 | 10,990 |
| TL-RRE-471-55 | 55 | 7,20 | 5,40 | 52,00 | 50,80 | 70,20 | 2,50 | 2,00 | 2,15 | 4,50 | 6300 | 11,400 |
| TL-RRE-471-56 | 56 | 7,30 | 5,50 | 53,00 | 51,80 | 71,60 | 2,50 | 2,00 | 2,15 | 4,50 | 6400 | 11,800 |
| TL-RRE-471-57 | 57 | 7,30 | 5,50 | 54,00 | 52,80 | 72,20 | 2,50 | 2,00 | 2,15 | 4,50 | 6525 | 12,060 |
| TL-RRE-471-58 | 58 | 7,30 | 5,60 | 55,00 | 53,80 | 73,60 | 2,50 | 2,00 | 2,15 | 4,50 | 6650 | 12,600 |
| TL-RRE-471-60 | 60 | 7,40 | 5,80 | 57,00 | 55,80 | 75,60 | 2,50 | 2,00 | 2,15 | 4,50 | 6900 | 12,900 |
| TL-RRE-471-62 | 62 | 7,50 | 6,00 | 59,00 | 57,80 | 77,80 | 2,50 | 2,00 | 2,15 | 4,50 | 7100 | 14,300 |
| TL-RRE-471-63 | 63 | 7,60 | 6,20 | 60,00 | 58,80 | 79,00 | 2,50 | 2,00 | 2,15 | 4,50 | 7250 | 15,900 |
| TL-RRE-471-65 | 65 | 7,80 | 6,30 | 62,00 | 60,80 | 81,40 | 3,00 | 2,50 | 2,65 | 4,50 | 7500 | 18,200 |
| TL-RRE-471-67 | 67 | 7,90 | 6,40 | 64,00 | 62,50 | 83,50 | 3,00 | 2,50 | 2,65 | 4,50 | 7670 | 20,520 |
| TL-RRE-471-68 | 68 | 8,00 | 6,50 | 65,00 | 63,50 | 84,80 | 3,00 | 2,50 | 2,65 | 4,50 | 7840 | 21,800 |
| TL-RRE-471-70 | 70 | 8,10 | 6,60 | 67,00 | 65,50 | 87,00 | 3,00 | 2,50 | 2,65 | 4,50 | 8050 | 22,000 |
| TL-RRE-471-72 | 72 | 8,20 | 6,80 | 69,00 | 67,50 | 89,40 | 3,00 | 2,50 | 2,65 | 4,50 | 8300 | 22,500 |
| TL-RRE-471-75 | 75 | 8,40 | 7,00 | 72,00 | 70,50 | 92,80 | 3,00 | 2,50 | 2,65 | 4,50 | 8600 | 24,600 |
| TL-RRE-471-77 | 77 | 8,50 | 7,20 | 74,00 | 72,50 | 94,50 | 3,00 | 2,50 | 2,65 | 4,50 | 8800 | 25,270 |
| TL-RRE-471-78 | 78 | 8,60 | 7,30 | 75,00 | 73,50 | 96,20 | 3,00 | 2,50 | 2,65 | 4,50 | 9000 | 26,200 |
| TL-RRE-471-80 | 80 | 8,60 | 7,40 | 76,50 | 74,50 | 98,20 | 3,00 | 2,50 | 2,65 | 5,30 | 10700 | 27,300 |
| TL-RRE-471-82 | 82 | 8,70 | 7,60 | 78,50 | 76,50 | 100,00 | 3,00 | 2,50 | 2,65 | 5,30 | 11000 | 31,200 |
| TL-RRE-471-85 | 85 | 8,70 | 7,80 | 81,50 | 79,50 | 104,00 | 3,50 | 3,00 | 3,15 | 5,30 | 11400 | 36,400 |
| TL-RRE-471-87 | 87 | 8,80 | 7,90 | 83,50 | 81,50 | 106,00 | 3,50 | 3,00 | 3,15 | 5,30 | 11735 | 38,740 |
| TL-RRE-471-88 | 88 | 8,80 | 8,00 | 84,50 | 82,50 | 107,00 | 3,50 | 3,00 | 3,15 | 5,30 | 11900 | 39,400 |
| TL-RRE-471-90 | 90 | 8,80 | 8,20 | 86,50 | 84,50 | 109,00 | 3,50 | 3,00 | 3,15 | 5,30 | 12100 | 40,250 |
| TL-RRE-471-92 | 92 | 9,00 | 8,40 | 88,50 | 86,50 | 111,00 | 3,50 | 3,00 | 3,15 | 5,30 | 12380 | 43,000 |
| TL-RRE-471-95 | 95 | 9,40 | 8,60 | 91,50 | 89,50 | 115,00 | 3,50 | 3,00 | 3,15 | 5,30 | 12800 | 44,910 |
| TL-RRE-471-97 | 97 | 9,40 | 8,80 | 93,50 | 91,50 | 116,50 | 3,50 | 3,00 | 3,15 | 5,30 | 13080 | 45,700 |
| TL-RRE-471-98 | 98 | 9,50 | 9,00 | 94,05 | 92,50 | 117,50 | 3,50 | 3,00 | 3,15 | 5,30 | 13220 | 47,990 |
| TL-RRE-471-100 | 100 | 9,60 | 9,00 | 96,50 | 94,50 | 121,00 | 3,50 | 3,00 | 3,15 | 5,30 | 13500 | 49,000 |
| TL-RRE-471-102 | 102 | 9,70 | 9,20 | 98,00 | 95,00 | 122,50 | 3,50 | 3,00 | 4,15 | 6,00 | 14580 | 64,500 |
| TL-RRE-471-105 | 105 | 9,90 | 9,30 | 101,00 | 98,00 | 126,00 | 3,50 | 3,00 | 4,15 | 6,00 | 16200 | 70,700 |
| TL-RRE-471-107 | 107 | 10,00 | 9,50 | 103,00 | 100,00 | 128,00 | 3,50 | 3,00 | 4,15 | 6,00 | 16520 | 78,000 |
| TL-RRE-471-108 | 108 | 10,00 | 9,50 | 104,00 | 101,00 | 129,00 | 3,50 | 4,00 | 4,15 | 6,00 | 16880 | 76,600 |
| TL-RRE-471-110 | 110 | 10,10 | 9,60 | 106,00 | 103,00 | 132,00 | 3,50 | 4,00 | 4,15 | 6,00 | 17000 | 82,000 |
| TL-RRE-471-112 | 112 | 10,30 | 9,70 | 108,00 | 105,00 | 134,00 | 3,50 | 4,00 | 4,15 | 6,00 | 17320 | 84,270 |
| TL-RRE-471-115 | 115 | 10,60 | 9,80 | 111,00 | 108,00 | 138,00 | 3,50 | 4,00 | 4,15 | 6,00 | 17800 | 84,700 |
| TL-RRE-471-117 | 117 | 10,80 | 10,00 | 113,00 | 110,00 | 139,50 | 3,50 | 4,00 | 4,15 | 6,00 | 18080 | 86,610 |
| TL-RRE-471-118 | 118 | 10,90 | 10,10 | 114,00 | 111,00 | 141,00 | 3,50 | 4,00 | 4,15 | 6,00 | 18220 | 89,680 |
| TL-RRE-471-120 | 120 | 11,00 | 10,20 | 116,00 | 113,00 | 143,00 | 3,50 | 4,00 | 4,15 | 6,00 | 18500 | 91,550 |
| TL-RRE-471-122 | 122 | 11,20 | 10,30 | 118,00 | 115,00 | 146,00 | 4,00 | 4,00 | 4,15 | 6,00 | 18820 | 93,260 |
| TL-RRE-471-125 | 125 | 11,40 | 10,40 | 121,00 | 118,00 | 149,00 | 4,00 | 4,00 | 4,15 | 6,00 | 19300 | 98,060 |
| TL-RRE-471-127 | 127 | 11,40 | 10,50 | 123,00 | 120,00 | 151,00 | 4,00 | 4,00 | 4,15 | 6,00 | 19620 | 101,080 |
| TL-RRE-471-128 | 128 | 11,50 | 10,60 | 124,00 | 121,00 | 152,00 | 4,00 | 4,00 | 4,15 | 6,00 | 19780 | 103,080 |
| TL-RRE-471-130 | 130 | 11,60 | 10,70 | 126,00 | 123,00 | 155,00 | 4,00 | 4,00 | 4,15 | 6,00 | 20100 | 107,000 |
| TL-RRE-471-132 | 132 | 11,70 | 10,80 | 128,00 | 125,00 | 157,00 | 4,00 | 4,00 | 4,15 | 6,00 | 20420 | 110,400 |
| TL-RRE-471-135 | 135 | 11,80 | 11,00 | 131,00 | 128,00 | 160,00 | 4,00 | 4,00 | 4,15 | 6,00 | 20900 | 112,000 |
| TL-RRE-471-137 | 137 | 11,90 | 11,00 | 133,00 | 130,00 | 162,00 | 4,00 | 4,00 | 4,15 | 6,00 | 21220 | 113,000 |
| TL-RRE-471-138 | 138 | 11,90 | 11,10 | 134,00 | 131,00 | 163,00 | 4,00 | 4,00 | 4,15 | 6,00 | 21380 | 113,500 |
| TL-RRE-471-140 | 140 | 12,00 | 11,20 | 136,00 | 133,00 | 165,00 | 4,00 | 4,00 | 4,15 | 6,00 | 21700 | 114,000 |
| TL-RRE-471-142 | 142 | 12,10 | 11,30 | 138,00 | 135,00 | 167,00 | 4,00 | 4,00 | 4,15 | 6,00 | 22100 | 114,500 |
| TL-RRE-471-145 | 145 | 12,20 | 11,50 | 141,00 | 138,00 | 171,00 | 4,00 | 4,00 | 4,15 | 6,00 | 22500 | 115,000 |
| TL-RRE-471-147 | 147 | 12,30 | 11,60 | 143,00 | 140,00 | 173,00 | 4,00 | 4,00 | 4,15 | 7,00 | 25060 | 116,000 |
| TL-RRE-471-148 | 148 | 12,40 | 11,70 | 144,00 | 141,00 | 174,00 | 4,00 | 4,00 | 4,15 | 7,00 | 26340 | 118,000 |
| TL-RRE-471-150 | 150 | 13,00 | 11,80 | 145,00 | 142,00 | 177,00 | 4,00 | 4,00 | 4,15 | 7,50 | 28900 | 120,000 |
| TL-RRE-471-155 | 155 | 13,00 | 12,00 | 150,00 | 146,00 | 182,00 | 4,00 | 4,00 | 4,15 | 7,50 | 30000 | 135,000 |
| TL-RRE-471-160 | 160 | 13,30 | 12,20 | 155,00 | 151,00 | 188,00 | 4,00 | 4,00 | 4,15 | 7,50 | 31000 | 150,000 |

* All measures in mm.

NEXT >



| REFERENCE* | d ₁ | a | b | d ₂ | d ₃ | d ₄ | d ₅ | h | m | n _{min} | ~ APPROX. | |
|----------------|----------------|-------|-------|----------------|----------------|----------------|----------------|------|------|------------------|-----------|------------|
| | | | | | | | | | | | Load Kgf | x 1000. Kg |
| TL-RRE-471-165 | 165 | 13,50 | 12,50 | 160,00 | 155,50 | 193,00 | 4,00 | 4,00 | 4,15 | 7,50 | 32000 | 160,000 |
| TL-RRE-471-170 | 170 | 13,50 | 12,90 | 165,00 | 160,50 | 198,00 | 4,00 | 4,00 | 4,15 | 7,50 | 32900 | 170,000 |
| TL-RRE-471-175 | 175 | 13,50 | 12,90 | 170,00 | 165,50 | 203,00 | 4,00 | 4,00 | 4,15 | 7,50 | 33800 | 180,000 |
| TL-RRE-471-180 | 180 | 14,20 | 13,50 | 175,00 | 170,50 | 210,00 | 4,00 | 4,00 | 4,15 | 7,50 | 34500 | 190,000 |
| TL-RRE-471-185 | 185 | 14,20 | 13,50 | 180,00 | 175,50 | 215,00 | 4,00 | 4,00 | 4,15 | 7,50 | 33800 | 200,000 |
| TL-RRE-471-190 | 190 | 14,20 | 14,00 | 185,00 | 180,50 | 220,00 | 4,00 | 4,00 | 4,15 | 7,50 | 33500 | 210,000 |
| TL-RRE-471-195 | 195 | 14,20 | 14,00 | 190,00 | 185,50 | 225,00 | 4,00 | 4,00 | 4,15 | 7,50 | 32700 | 220,000 |
| TL-RRE-471-200 | 200 | 14,20 | 14,00 | 195,00 | 190,50 | 230,00 | 4,00 | 4,00 | 4,15 | 7,50 | 31900 | 230,000 |



DIN 472

Internal Retaining Rings for Shafts – Normal Type and Heavy Type

| REFERENCE* | d ₁ | a | b | d ₂ | d ₃ | d ₄ | d ₅ | h | m | n _{min} | ~ APPROX. | |
|---------------|----------------|------|------|----------------|----------------|----------------|----------------|------|------|------------------|-----------|------------|
| | | | | | | | | | | | Load Kgf | x 1000. Kg |
| TL-RRI-472-08 | 8 | 2,40 | 1,10 | 8,40 | 8,70 | 3,00 | 1,00 | 0,80 | 0,90 | 0,60 | 170 | 0,123 |
| TL-RRI-472-09 | 9 | 2,50 | 1,30 | 9,40 | 9,80 | 3,70 | 1,00 | 0,80 | 0,90 | 0,60 | 170 | 0,150 |
| TL-RRI-472-10 | 10 | 3,20 | 1,40 | 10,40 | 10,80 | 3,30 | 1,20 | 1,00 | 1,10 | 0,60 | 310 | 0,267 |
| TL-RRI-472-11 | 11 | 3,30 | 1,50 | 11,40 | 11,80 | 4,10 | 1,20 | 1,00 | 1,10 | 0,60 | 310 | 0,310 |
| TL-RRI-472-12 | 12 | 3,40 | 1,70 | 12,50 | 13,00 | 4,90 | 1,50 | 1,00 | 1,10 | 0,75 | 337 | 0,370 |
| TL-RRI-472-13 | 13 | 3,60 | 1,80 | 13,60 | 14,10 | 5,30 | 1,50 | 1,00 | 1,10 | 0,90 | 354 | 0,420 |
| TL-RRI-472-14 | 14 | 3,70 | 1,90 | 14,60 | 15,10 | 6,20 | 1,70 | 1,00 | 1,10 | 0,90 | 379 | 0,520 |
| TL-RRI-472-15 | 15 | 3,70 | 2,00 | 15,70 | 16,20 | 7,20 | 1,70 | 1,00 | 1,10 | 1,10 | 422 | 0,560 |
| TL-RRI-472-16 | 16 | 3,80 | 2,00 | 16,80 | 17,30 | 8,00 | 1,70 | 1,00 | 1,10 | 1,20 | 515 | 0,600 |
| TL-RRI-472-17 | 17 | 3,90 | 2,10 | 17,80 | 18,30 | 8,80 | 1,70 | 1,00 | 1,10 | 1,20 | 547 | 0,650 |
| TL-RRI-472-18 | 18 | 4,10 | 2,20 | 19,00 | 19,50 | 9,40 | 2,00 | 1,00 | 1,10 | 1,50 | 725 | 0,740 |
| TL-RRI-472-19 | 19 | 4,10 | 2,20 | 20,00 | 20,50 | 10,40 | 2,00 | 1,00 | 1,10 | 1,50 | 764 | 0,830 |
| TL-RRI-472-20 | 20 | 4,20 | 2,30 | 21,00 | 21,50 | 11,20 | 2,00 | 1,00 | 1,10 | 1,50 | 805 | 0,900 |
| TL-RRI-472-21 | 21 | 4,20 | 2,40 | 22,00 | 22,50 | 12,20 | 2,00 | 1,00 | 1,10 | 1,50 | 845 | 1,000 |
| TL-RRI-472-22 | 22 | 4,20 | 2,50 | 23,00 | 23,50 | 13,20 | 2,00 | 1,00 | 1,10 | 1,50 | 882 | 1,100 |
| TL-RRI-472-23 | 23 | 4,20 | 2,50 | 24,10 | 24,60 | 13,60 | 2,00 | 1,20 | 1,30 | 1,50 | 1020 | 1,340 |
| TL-RRI-472-24 | 24 | 4,40 | 2,60 | 25,20 | 25,90 | 14,80 | 2,00 | 1,20 | 1,30 | 1,80 | 1160 | 1,420 |
| TL-RRI-472-25 | 25 | 4,50 | 2,70 | 26,20 | 26,90 | 15,50 | 2,00 | 1,20 | 1,30 | 1,80 | 1200 | 1,500 |
| TL-RRI-472-26 | 26 | 4,70 | 2,80 | 27,20 | 27,90 | 16,10 | 2,00 | 1,20 | 1,30 | 1,80 | 1250 | 1,540 |
| TL-RRI-472-27 | 27 | 4,70 | 2,90 | 28,40 | 29,10 | 16,50 | 2,00 | 1,20 | 1,30 | 2,10 | 1415 | 1,590 |
| TL-RRI-472-28 | 28 | 4,80 | 2,90 | 29,40 | 30,10 | 17,90 | 2,00 | 1,20 | 1,30 | 2,10 | 1580 | 1,610 |
| TL-RRI-472-29 | 29 | 4,80 | 3,00 | 30,40 | 31,10 | 18,50 | 2,00 | 1,20 | 1,30 | 2,10 | 1635 | 1,729 |
| TL-RRI-472-30 | 30 | 4,80 | 3,00 | 31,40 | 32,10 | 19,90 | 2,00 | 1,20 | 1,30 | 2,60 | 1690 | 2,060 |
| TL-RRI-472-31 | 31 | 5,20 | 3,20 | 32,70 | 33,40 | 20,00 | 2,50 | 1,20 | 1,30 | 2,60 | 2100 | 2,100 |
| TL-RRI-472-32 | 32 | 5,40 | 3,20 | 33,70 | 34,40 | 20,60 | 2,50 | 1,20 | 1,30 | 2,60 | 2200 | 2,210 |
| TL-RRI-472-33 | 33 | 5,40 | 3,30 | 34,70 | 35,50 | 20,80 | 2,50 | 1,20 | 1,30 | 2,60 | 2260 | 2,200 |
| TL-RRI-472-34 | 34 | 5,40 | 3,30 | 35,70 | 36,50 | 22,60 | 2,50 | 1,50 | 1,60 | 2,60 | 2320 | 3,200 |

* All measures in mm.

NEXT >

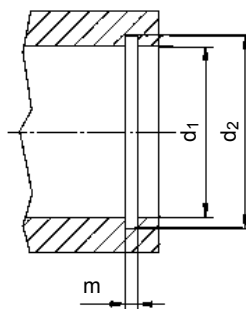
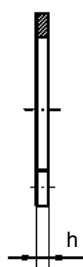
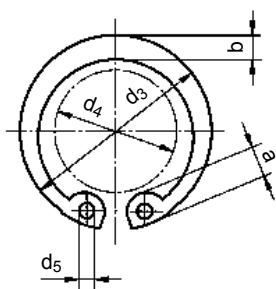
| REFERENCE* | d ₁ | a | b | d ₂ | d ₃ | d ₄ | d ₅ | h | m | n _{min} | ~ APPROX. | |
|----------------|----------------|-------|-------|----------------|----------------|----------------|----------------|------|------|------------------|-----------|------------|
| | | | | | | | | | | | Load Kgf | x 1000. Kg |
| TL-RR1-472-35 | 35 | 5,40 | 3,40 | 37,00 | 37,80 | 23,60 | 2,50 | 1,50 | 1,60 | 3,00 | 2820 | 3,540 |
| TL-RR1-472-36 | 36 | 5,40 | 3,50 | 38,00 | 38,80 | 24,60 | 2,50 | 1,50 | 1,60 | 3,00 | 2900 | 3,700 |
| TL-RR1-472-37 | 37 | 5,60 | 3,60 | 39,00 | 39,80 | 25,40 | 2,50 | 1,50 | 1,60 | 3,00 | 2980 | 3,740 |
| TL-RR1-472-38 | 38 | 5,60 | 3,70 | 40,00 | 40,80 | 26,40 | 2,50 | 1,50 | 1,60 | 3,00 | 3070 | 3,900 |
| TL-RR1-472-39 | 39 | 5,60 | 3,80 | 41,00 | 42,00 | 26,50 | 2,50 | 1,50 | 1,60 | 3,00 | 3560 | 3,920 |
| TL-RR1-472-40 | 40 | 5,80 | 3,90 | 42,50 | 43,50 | 27,80 | 2,50 | 1,75 | 1,85 | 3,00 | 4050 | 4,700 |
| TL-RR1-472-41 | 41 | 5,90 | 4,00 | 43,50 | 44,50 | 28,00 | 2,50 | 1,75 | 1,85 | 3,00 | 4150 | 4,980 |
| TL-RR1-472-42 | 42 | 5,90 | 4,10 | 44,50 | 45,50 | 29,60 | 2,50 | 1,75 | 1,85 | 3,00 | 4250 | 5,400 |
| TL-RR1-472-43 | 43 | 5,90 | 4,20 | 45,50 | 46,50 | 29,70 | 2,50 | 1,75 | 1,85 | 3,00 | 4340 | 5,470 |
| TL-RR1-472-44 | 44 | 6,00 | 4,20 | 46,50 | 47,50 | 31,00 | 2,50 | 1,75 | 1,85 | 3,00 | 4430 | 5,720 |
| TL-RR1-472-45 | 45 | 6,20 | 4,30 | 47,50 | 48,50 | 32,00 | 2,50 | 1,75 | 1,85 | 3,00 | 4520 | 6,000 |
| TL-RR1-472-46 | 46 | 6,30 | 4,40 | 48,50 | 49,50 | 32,20 | 2,50 | 1,75 | 1,85 | 3,00 | 4620 | 6,200 |
| TL-RR1-472-47 | 47 | 6,40 | 4,40 | 49,50 | 50,50 | 33,50 | 2,50 | 1,75 | 1,85 | 3,00 | 4720 | 6,400 |
| TL-RR1-472-48 | 48 | 6,40 | 4,50 | 50,35 | 51,50 | 34,60 | 2,50 | 1,75 | 1,85 | 3,00 | 4820 | 6,700 |
| TL-RR1-472-50 | 50 | 6,50 | 4,60 | 53,00 | 54,20 | 36,30 | 2,50 | 2,00 | 2,15 | 4,50 | 6070 | 7,300 |
| TL-RR1-472-51 | 51 | 6,50 | 4,70 | 54,00 | 55,20 | 36,50 | 2,50 | 2,00 | 2,15 | 4,50 | 6185 | 8,510 |
| TL-RR1-472-52 | 52 | 6,70 | 4,70 | 55,00 | 56,20 | 37,90 | 2,50 | 2,00 | 2,15 | 4,50 | 6300 | 8,200 |
| TL-RR1-472-53 | 53 | 6,70 | 4,90 | 56,00 | 57,20 | 38,50 | 2,50 | 2,00 | 2,15 | 4,50 | 6415 | 9,210 |
| TL-RR1-472-54 | 54 | 6,70 | 5,00 | 57,00 | 58,20 | 39,00 | 2,50 | 2,00 | 2,15 | 4,50 | 6535 | 9,710 |
| TL-RR1-472-55 | 55 | 6,80 | 5,00 | 58,00 | 59,20 | 40,70 | 2,50 | 2,00 | 2,15 | 4,50 | 6650 | 8,300 |
| TL-RR1-472-56 | 56 | 6,80 | 5,10 | 59,00 | 60,20 | 41,70 | 2,50 | 2,00 | 2,15 | 4,50 | 6750 | 8,700 |
| TL-RR1-472-57 | 57 | 6,80 | 5,10 | 60,00 | 61,20 | 42,20 | 2,50 | 2,00 | 2,15 | 4,50 | 8055 | 9,970 |
| TL-RR1-472-58 | 58 | 6,90 | 5,20 | 61,00 | 62,20 | 43,50 | 2,50 | 2,00 | 2,15 | 4,50 | 7000 | 10,500 |
| TL-RR1-472-60 | 60 | 7,30 | 5,40 | 63,00 | 64,10 | 44,70 | 2,50 | 2,00 | 2,15 | 4,50 | 7250 | 11,100 |
| TL-RR1-472-62 | 62 | 7,30 | 5,50 | 65,00 | 66,20 | 46,70 | 2,50 | 2,00 | 2,15 | 4,50 | 7480 | 11,200 |
| TL-RR1-472-63 | 63 | 7,30 | 5,60 | 66,00 | 67,20 | 47,70 | 2,50 | 2,00 | 2,15 | 4,50 | 7580 | 11,700 |
| TL-RR1-472-65 | 65 | 7,60 | 5,80 | 68,00 | 69,20 | 49,00 | 3,00 | 2,50 | 2,65 | 4,50 | 7820 | 14,300 |
| TL-RR1-472-67 | 67 | 7,70 | 6,00 | 70,00 | 71,50 | 50,00 | 3,00 | 2,50 | 2,65 | 4,50 | 8055 | 17,500 |
| TL-RR1-472-68 | 68 | 7,80 | 6,10 | 71,00 | 72,50 | 51,60 | 3,00 | 2,50 | 2,65 | 4,50 | 8170 | 16,000 |
| TL-RR1-472-70 | 70 | 7,80 | 6,20 | 73,00 | 74,50 | 53,60 | 3,00 | 2,50 | 2,65 | 4,50 | 8420 | 16,500 |
| TL-RR1-472-72 | 72 | 7,80 | 6,40 | 75,00 | 76,50 | 55,60 | 3,00 | 2,50 | 2,65 | 4,50 | 8650 | 18,100 |
| TL-RR1-472-75 | 75 | 7,80 | 6,60 | 78,00 | 789,50 | 58,60 | 3,00 | 2,50 | 2,65 | 4,50 | 9000 | 18,800 |
| TL-RR1-472-77 | 77 | 7,90 | 6,70 | 80,00 | 81,50 | 59,00 | 3,00 | 2,50 | 2,65 | 4,50 | 9235 | 22,300 |
| TL-RR1-472-78 | 78 | 8,50 | 6,80 | 81,00 | 82,50 | 60,10 | 3,00 | 2,50 | 2,65 | 4,50 | 9350 | 20,400 |
| TL-RR1-472-80 | 80 | 8,50 | 7,00 | 83,50 | 85,50 | 62,10 | 3,00 | 2,50 | 2,65 | 5,30 | 11200 | 22,000 |
| TL-RR1-472-82 | 82 | 8,50 | 7,00 | 85,50 | 87,50 | 64,10 | 3,00 | 2,50 | 2,65 | 5,30 | 11500 | 24,000 |
| TL-RR1-472-85 | 85 | 8,60 | 7,20 | 88,50 | 90,50 | 66,90 | 3,50 | 3,00 | 3,15 | 5,30 | 11900 | 25,300 |
| TL-RR1-472-87 | 87 | 8,60 | 7,30 | 90,50 | 92,50 | 68,38 | 3,50 | 3,00 | 3,15 | 5,30 | 12035 | 32,120 |
| TL-RR1-472-88 | 88 | 8,60 | 7,40 | 91,50 | 93,50 | 69,90 | 3,50 | 3,00 | 3,15 | 5,30 | 12300 | 34,600 |
| TL-RR1-472-90 | 90 | 8,60 | 7,60 | 93,50 | 95,50 | 71,90 | 3,50 | 3,00 | 3,15 | 5,30 | 12600 | 35,000 |
| TL-RR1-472-92 | 92 | 8,70 | 7,80 | 95,50 | 97,50 | 73,70 | 3,50 | 3,00 | 3,15 | 5,30 | 12900 | 35,900 |
| TL-RR1-472-95 | 95 | 8,80 | 8,10 | 98,50 | 100,5 | 76,50 | 3,50 | 3,00 | 3,15 | 5,30 | 13300 | 38,000 |
| TL-RR1-472-97 | 97 | 8,80 | 8,20 | 100,50 | 102,50 | 78,00 | 3,50 | 3,00 | 3,15 | 5,30 | 13565 | 39,530 |
| TL-RR1-472-98 | 98 | 9,00 | 8,32 | 101,50 | 103,50 | 79,00 | 3,50 | 3,00 | 3,15 | 5,30 | 13700 | 40,500 |
| TL-RR1-472-100 | 100 | 9,20 | 8,40 | 103,50 | 105,50 | 80,60 | 3,50 | 3,00 | 3,15 | 5,30 | 14000 | 42,000 |
| TL-RR1-472-102 | 102 | 9,50 | 8,50 | 106,00 | 108,00 | 82,00 | 3,50 | 4,00 | 4,15 | 6,00 | 16300 | 55,000 |
| TL-RR1-472-105 | 105 | 9,50 | 8,37 | 109,00 | 112,00 | 85,00 | 3,50 | 4,00 | 4,15 | 6,00 | 16800 | 56,000 |
| TL-RR1-472-107 | 107 | 9,50 | 8,80 | 111,00 | 114,00 | 87,00 | 3,50 | 4,00 | 4,15 | 6,00 | 17135 | 58,700 |
| TL-RR1-472-108 | 108 | 9,50 | 8,90 | 112,00 | 115,00 | 88,00 | 3,50 | 4,00 | 4,15 | 6,00 | 17300 | 60,000 |
| TL-RR1-472-110 | 110 | 10,40 | 9,00 | 114,00 | 117,00 | 88,20 | 3,50 | 4,00 | 4,15 | 6,00 | 17600 | 64,500 |
| TL-RR1-472-112 | 112 | 10,50 | 9,10 | 116,00 | 119,00 | 90,00 | 3,50 | 4,00 | 4,15 | 6,00 | 17900 | 72,000 |
| TL-RR1-472-115 | 115 | 10,50 | 9,30 | 119,00 | 122,00 | 93,00 | 3,50 | 4,00 | 4,15 | 6,00 | 18400 | 74,500 |
| TL-RR1-472-117 | 117 | 10,60 | 9,50 | 121,00 | 124,00 | 95,00 | 3,50 | 4,00 | 4,15 | 6,00 | 18720 | 74,030 |
| TL-RR1-472-118 | 118 | 10,70 | 9,60 | 122,00 | 125,00 | 96,00 | 3,50 | 4,00 | 4,15 | 6,00 | 18880 | 79,250 |
| TL-RR1-472-120 | 120 | 11,00 | 9,70 | 124,00 | 127,00 | 96,90 | 3,50 | 4,00 | 4,15 | 6,00 | 19200 | 80,000 |
| TL-RR1-472-122 | 122 | 11,00 | 9,80 | 126,00 | 129,00 | 99,00 | 4,00 | 4,00 | 4,15 | 6,00 | 19480 | 83,960 |
| TL-RR1-472-125 | 125 | 11,00 | 10,00 | 129,00 | 132,00 | 101,90 | 4,00 | 4,00 | 4,15 | 6,00 | 19900 | 85,800 |
| TL-RR1-472-127 | 127 | 11,00 | 10,00 | 131,00 | 134,00 | 104,50 | 4,00 | 4,00 | 4,15 | 6,00 | 20220 | 86,500 |

* All measures in mm.

NEXT >



| REFERENCE* | d ₁ | a | b | d ₂ | d ₃ | d ₄ | d ₅ | h | m | n _{min} | ~ APPROX. | WEIGHT |
|----------------|----------------|-------|-------|----------------|----------------|----------------|----------------|------|------|------------------|-----------|------------|
| | | | | | | | | | | | Load Kgf | x 1000. Kg |
| TL-RRI-472-128 | 128 | 11,00 | 10,20 | 132,00 | 135,00 | 105,50 | 4,00 | 4,00 | 4,15 | 6,00 | 20380 | 89,730 |
| TL-RRI-472-130 | 130 | 11,00 | 10,20 | 134,00 | 137,00 | 106,90 | 4,00 | 4,00 | 4,15 | 6,00 | 20700 | 92,000 |
| TL-RRI-472-132 | 132 | 11,00 | 10,30 | 136,00 | 139,00 | 109,00 | 4,00 | 4,00 | 4,15 | 6,00 | 21020 | 92,500 |
| TL-RRI-472-135 | 135 | 11,20 | 10,50 | 139,00 | 142,00 | 111,50 | 4,00 | 4,00 | 4,15 | 6,00 | 21500 | 96,000 |
| TL-RRI-472-137 | 137 | 11,20 | 10,50 | 141,00 | 144,00 | 114,00 | 4,00 | 4,00 | 4,15 | 6,00 | 21820 | 97,300 |
| TL-RRI-472-138 | 138 | 11,20 | 10,60 | 142,00 | 145,00 | 115,00 | 4,00 | 4,00 | 4,15 | 6,00 | 21980 | 99,200 |
| TL-RRI-472-140 | 140 | 11,20 | 10,70 | 144,00 | 147,00 | 116,50 | 4,00 | 4,00 | 4,15 | 6,00 | 22300 | 100,500 |
| TL-RRI-472-142 | 142 | 11,30 | 10,80 | 146,00 | 149,00 | 119,00 | 4,00 | 4,00 | 4,15 | 6,00 | 22600 | 103,100 |
| TL-RRI-472-145 | 145 | 11,40 | 10,90 | 149,00 | 152,00 | 121,00 | 4,00 | 4,00 | 4,15 | 6,00 | 23100 | 106,000 |
| TL-RRI-472-147 | 147 | 11,60 | 11,00 | 151,00 | 154,00 | 123,50 | 4,00 | 4,00 | 4,15 | 7,00 | 25860 | 109,300 |
| TL-RRI-472-148 | 148 | 11,80 | 11,10 | 152,00 | 155,00 | 124,00 | 4,00 | 4,00 | 4,15 | 7,00 | 27240 | 112,100 |
| TL-RRI-472-150 | 150 | 12,00 | 11,20 | 155,00 | 158,00 | 127,80 | 4,00 | 4,00 | 4,15 | 7,50 | 30000 | 115,000 |
| TL-RRI-472-155 | 155 | 12,00 | 11,40 | 160,00 | 164,00 | 129,80 | 4,00 | 4,00 | 4,15 | 7,50 | 30900 | 125,000 |
| TL-RRI-472-160 | 160 | 13,00 | 11,60 | 165,00 | 169,00 | 132,70 | 4,00 | 4,00 | 4,15 | 7,50 | 31900 | 132,000 |
| TL-RRI-472-165 | 165 | 13,00 | 11,80 | 170,00 | 174,50 | 137,70 | 4,00 | 4,00 | 4,15 | 7,50 | 31960 | 147,000 |
| TL-RRI-472-170 | 170 | 13,50 | 12,20 | 175,00 | 179,50 | 141,60 | 4,00 | 4,00 | 4,15 | 7,50 | 33900 | 150,000 |
| TL-RRI-472-175 | 175 | 13,50 | 12,70 | 180,00 | 184,50 | 146,60 | 4,00 | 4,00 | 4,15 | 7,50 | 34800 | 160,000 |
| TL-RRI-472-180 | 180 | 14,20 | 13,20 | 185,00 | 189,50 | 150,20 | 4,00 | 4,00 | 4,15 | 7,50 | 34500 | 165,000 |
| TL-RRI-472-185 | 185 | 14,20 | 13,70 | 190,00 | 194,50 | 155,20 | 4,00 | 4,00 | 4,15 | 7,50 | 34930 | 170,000 |
| TL-RRI-472-190 | 190 | 14,20 | 13,80 | 195,00 | 199,50 | 160,20 | 4,00 | 4,00 | 4,15 | 7,50 | 34000 | 175,000 |
| TL-RRI-472-195 | 195 | 14,20 | 13,80 | 200,00 | 204,50 | 165,20 | 4,00 | 4,00 | 4,15 | 7,50 | 33000 | 183,000 |
| TL-RRI-472-200 | 200 | 14,20 | 14,00 | 205,00 | 209,50 | 170,20 | 4,00 | 4,00 | 4,15 | 7,50 | 33500 | 195,000 |



FARM EQUIPMENT ACCESSORIES

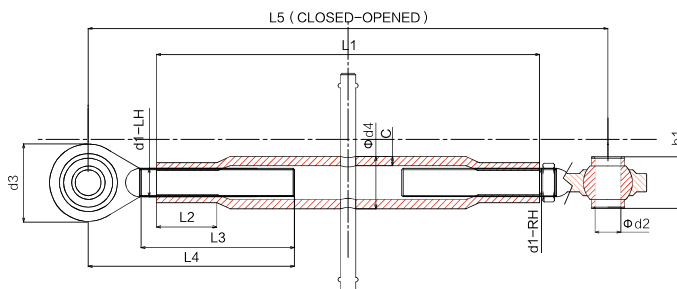
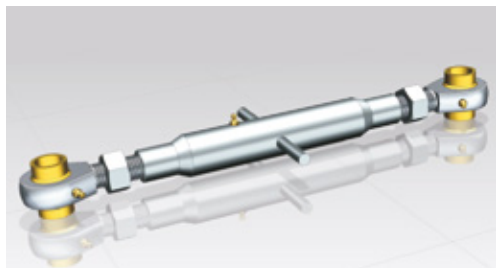
Miscellaneous accessories:

Three-Point-Hitch Top links

Three-Point-Hitch Top Link. Ball end

Turnbuckle pipe according DIN 1478.
Forged ball ends with RH and LH thread.

Ball Hardness HRC 40-45.
Yellow or White Zinc plated.



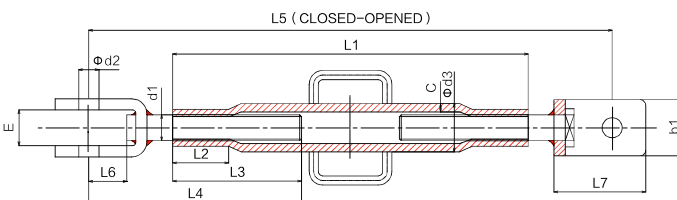
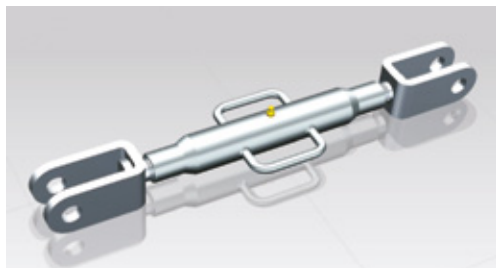
| REFERENCE* | ΦD_2 | ΦD_3 | ΦD_4 | C | L ₁ | L ₂ | L ₃ | L ₄ | L ₅ | b ₁ | THREAD |
|---------------|------------|------------|------------|------|----------------|----------------|----------------|----------------|----------------|----------------|-----------|
| TL-TPH-BE2000 | 16,00 | 48 | 34 | 5,00 | 190 | 30 | 90 | 126 | 280-415 | 26 | M20 x 2.5 |
| TL-TPH-BE2010 | 20,00 | 62 | 34 | 5,00 | 365 | 30 | 100 | 132 | 455-580 | 38 | M20 x 2 |
| TL-TPH-BE2400 | 19,30 | 62 | 42 | 5,60 | 200 | 35 | 130 | 185 | 320-490 | 44 | M24 x 3 |
| TL-TPH-BE2410 | 25,00 | 60 | 42 | 5,60 | 200 | 35 | 100 | 137 | 300-410 | 31 | M24 x 2 |
| TL-TPH-BE2420 | 25,00 | 75 | 42 | 5,60 | 435 | 35 | 165 | 220 | 555-780 | 51 | M24 x 3 |
| TL-TPH-BE2700 | 25,70 | 64 | 42 | 5,60 | 422 | 40 | 155 | 210 | 550-760 | 44 | M27 x 3 |
| TL-TPH-BE2710 | 25,70 | 75 | 42 | 5,60 | 450 | 40 | 165 | 220 | 580-800 | 51 | M27 x 3 |
| TL-TPH-BE3000 | 19,30 | 62 | 51 | 6,30 | 450 | 45 | 175 | 230 | 580-930 | 44 | M30 x 3.5 |
| TL-TPH-BE3010 | 25,70 | 75 | 51 | 6,30 | 500 | 45 | 165 | 220 | 630-960 | 51 | M30 x 3.5 |
| TL-TPH-BE3600 | 25,70 | 87 | 63 | 8,00 | 600 | 50 | 185 | 245 | 750-1100 | 51 | M36 x 3 |
| TL-TPH-BE3610 | 32,00 | 98 | 63 | 8,00 | 700 | 50 | 200 | 270 | 880-1300 | 51 | M38 x 4 |

* All measures in mm unless otherwise indicated.

Three-Point-Hitch Top Link. Clevis end

Turnbuckle pipe according DIN 1478.
Welded U-Clevis with RH and LH thread.

Yellow or White Zinc plated.



| REFERENCE* | ΦD_2 | ΦD_3 | C | L ₁ | L ₂ | L ₃ | L ₄ | L ₅ | L ₆ | L ₇ | E | b ₁ | THREAD |
|---------------|------------|------------|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----|----------------|-----------|
| TL-TPH-CE2000 | 16,00 | 34 | 5,00 | 190 | 30 | 125 | 212 | 370-550 | 60 | 94 | 32 | 50 | M20 x 2.5 |
| TL-TPH-CE2010 | 16,00 | 34 | 5,00 | 365 | 30 | 125 | 212 | 545-725 | 60 | 94 | 32 | 50 | M20 x 2 |
| TL-TPH-CE2400 | 18,00 | 42 | 5,60 | 200 | 35 | 125 | 212 | 390-570 | 60 | 94 | 32 | 50 | M24 x 3 |
| TL-TPH-CE2410 | 20,50 | 42 | 5,60 | 200 | 35 | 125 | 212 | 390-570 | 60 | 94 | 32 | 50 | M24 x 2 |
| TL-TPH-CE2420 | 18,00 | 42 | 5,60 | 435 | 35 | 125 | 212 | 615-795 | 60 | 94 | 32 | 50 | M24 x 3 |
| TL-TPH-CE2700 | 20,50 | 42 | 5,60 | 422 | 40 | 125 | 212 | 600-780 | 60 | 94 | 32 | 50 | M27 x 3 |
| TL-TPH-CE2710 | 20,50 | 42 | 5,60 | 450 | 40 | 125 | 212 | 630-810 | 60 | 94 | 32 | 50 | M27 x 3 |
| TL-TPH-CE3000 | 22,00 | 51 | 6,30 | 450 | 45 | 125 | 212 | 630-810 | 60 | 94 | 32 | 50 | M30 x 3.5 |
| TL-TPH-CE3010 | 22,00 | 51 | 6,30 | 500 | 45 | 125 | 212 | 680-860 | 60 | 94 | 32 | 50 | M30 x 3.5 |

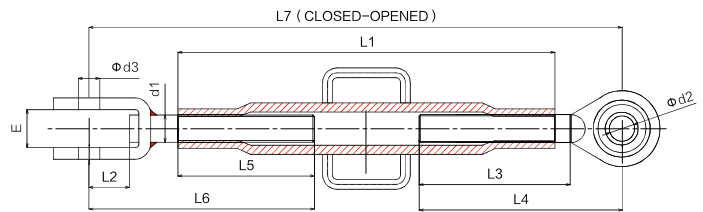
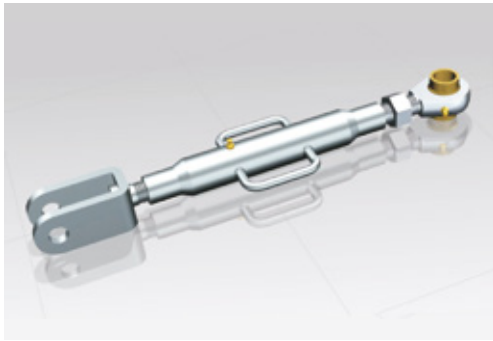
* All measures in mm unless otherwise indicated.

Three-Point-Hitch Top Link. Ball end - Clevis end

Turnbuckle pipe according DIN 1478.

Welded U-Clevis – Forged ball end with RH and LH thread.

Yellow or White Zinc plated.



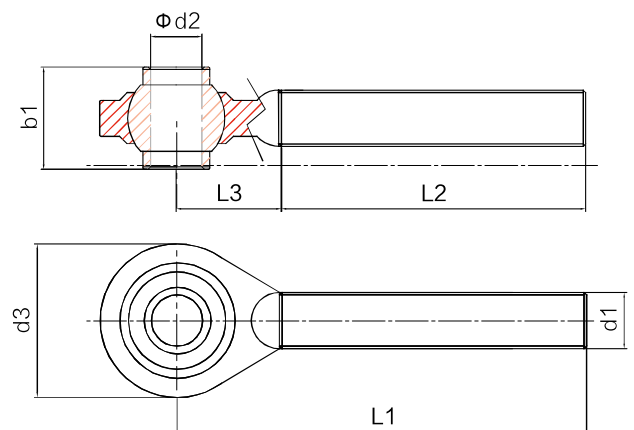
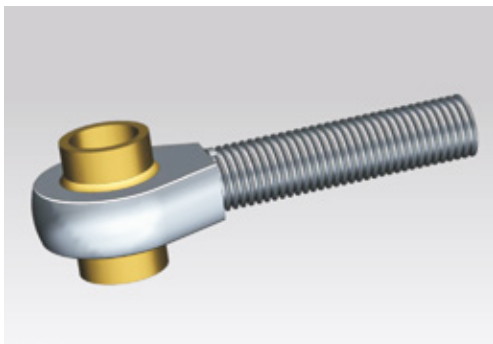
| REFERENCE* | ϕD_2 | ϕD_3 | C | L_1 | L_2 | L_3 | L_4 | L_5 | L_6 | L_7 | E | THREAD |
|---------------|------------|------------|------|-------|-------|-------|-------|-------|-------|---------|----|-----------|
| TL-TPH-BC2000 | 16,00 | 16 | 5,00 | 190 | 60 | 90 | 212 | 125 | 212 | 325-480 | 32 | M20 x 2.5 |
| TL-TPH-BC2010 | 20,00 | 16 | 5,00 | 365 | 60 | 100 | 212 | 125 | 212 | 505-570 | 32 | M20 x 2 |
| TL-TPH-BC2400 | 19,30 | 18 | 5,60 | 200 | 60 | 130 | 212 | 125 | 212 | 360-545 | 32 | M24 x 3 |
| TL-TPH-BC2410 | 25,00 | 18 | 5,60 | 200 | 60 | 100 | 212 | 125 | 212 | 340-495 | 32 | M24 x 2 |
| TL-TPH-BC2420 | 25,70 | 18 | 5,60 | 435 | 60 | 165 | 212 | 125 | 212 | 595-815 | 32 | M24 x 3 |
| TL-TPH-BC2700 | 19,30 | 20,5 | 5,60 | 422 | 60 | 155 | 212 | 125 | 212 | 582-782 | 32 | M27 x 3 |
| TL-TPH-BC2710 | 25,70 | 20,5 | 5,60 | 450 | 60 | 165 | 212 | 125 | 212 | 610-820 | 32 | M27 x 3 |
| TL-TPH-BC3000 | 19,30 | 20 | 6,30 | 450 | 60 | 175 | 212 | 125 | 212 | 610-820 | 32 | M30 x 3.5 |
| TL-TPH-BC3010 | 25,70 | 22 | 6,30 | 500 | 60 | 165 | 212 | 125 | 212 | 660-860 | 32 | M30 x 3.5 |

* All measures in mm unless otherwise indicated.

Forged ball ends

Forged ball end. Angle liberty of 15°.

Made out of C45 Steel, 40 – 45 HRC Hardness.

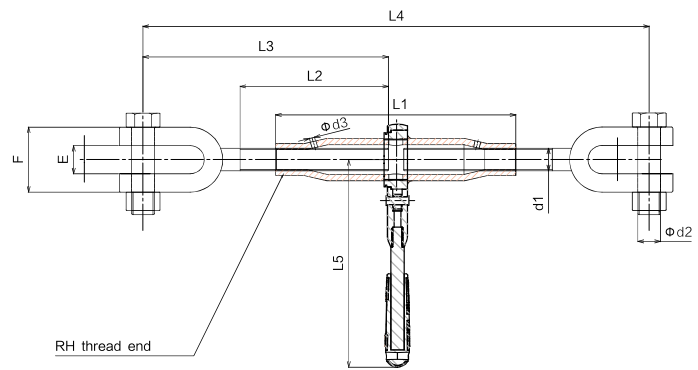
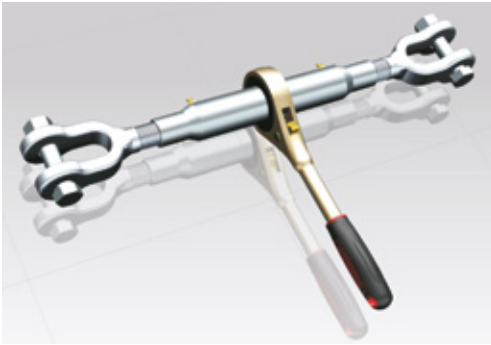


| REFERENCE* | ϕD_2 | ϕD_3 | L_1 | L_2 | L_3 | b_1 | THREAD |
|---------------|------------|------------|-------|-------|-------|-------|-----------|
| TL-THP-BE2000 | 16 | 48 | 126 | 90 | 36 | 26 | M20 x 2.5 |
| TL-THP-BE2010 | 20 | 62 | 132 | 100 | 32 | 38 | M20 x 2 |
| TL-THP-BE2400 | 19,3 | 62 | 185 | 130 | 55 | 44 | M24 x 3 |
| TL-THP-BE2410 | 25,7 | 75 | 137 | 100 | 37 | 51 | M24 x 3 |
| TL-THP-BE2420 | 19,3 | 62 | 220 | 165 | 55 | 44 | M27 x 3 |
| TL-THP-BE2700 | 25,7 | 67 | 210 | 155 | 55 | 51 | M27 x 3 |
| TL-THP-BE2710 | 19,3 | 62 | 220 | 165 | 55 | 44 | M30 x 3.5 |
| TL-THP-BE3000 | 25,7 | 75 | 230 | 175 | 55 | 51 | M30 x 3.5 |
| TL-THP-BE3010 | 25,7 | 80 | 220 | 165 | 55 | 51 | M36 x 3 |
| TL-THP-BE3600 | 32 | 98 | 245 | 185 | 55 | 51 | M36 x 4 |
| TL-THP-BE3610 | 32 | 98 | 270 | 200 | 70 | 51 | M42 x 3 |

* All measures in mm unless otherwise indicated.

Ratchet Turnbuckle

Ratchet Turnbuckle with forged clevis.
Right/Left Hand Ratchet action.



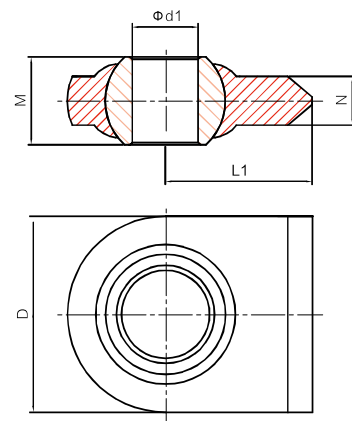
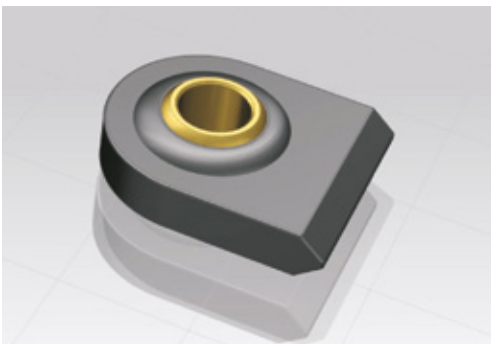
| REFERENCE* | THREAD d_1 | Φd_2 | Φd_3 | Φd_4 | L_1 | L_2 min | L_3 | L_4 | L_5 | E | F | MBL** TON | WEIGHT KG |
|------------|--------------|------------|------------|------------|-------|-----------|-------|-----------|-------|----|----|--------------|--------------|
| TL-RT-J160 | M16 | 12,5 | 4 | 10 | 170 | 100 | 175 | 350 - 470 | 150 | 18 | 46 | 10 | 2,12 |
| TL-RT-J200 | M20 | 16,5 | 4 | 12 | 200 | 120 | 205 | 410 - 550 | 200 | 20 | 50 | 18 | 2,82 |

* All measures in mm unless otherwise indicated.

** Maximum Bearing Load.

Weld-on Lower Lift Arm Ball ends

Forged ball end. Angle liberty of 15°.
Made out of C45 Steel, 40 – 45 HRC Hardness.



| REFERENCE* | Φd_1 | L_1 | M | N | D |
|------------|------------|-------|----|----|----|
| RL-BE100 | 16,5 | 37,5 | 36 | 14 | 50 |
| RL-BE200 | 27 | 60 | 36 | 20 | 80 |

* All measures in mm unless otherwise indicated.

Blades and discs for Agriculture

Rotavator Blades



*LD Models 500 & 500 C
HD Models 501 & 501 C*



Bolt with SL Nut

Rotary Cutter Blades. Different sizes



Reaper Blades



Flail Hammer Blades & Cutting Blades



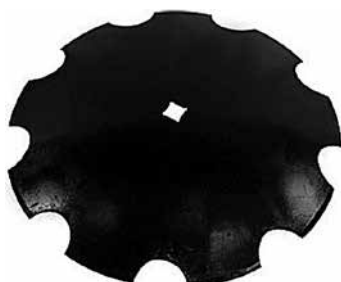
Hammer Blades



Knives Blades

Harrow Discs Plain & Notched

Different sizes available. Consult our Comercial Department.



SPRING-LOAD TENSION CHECKER

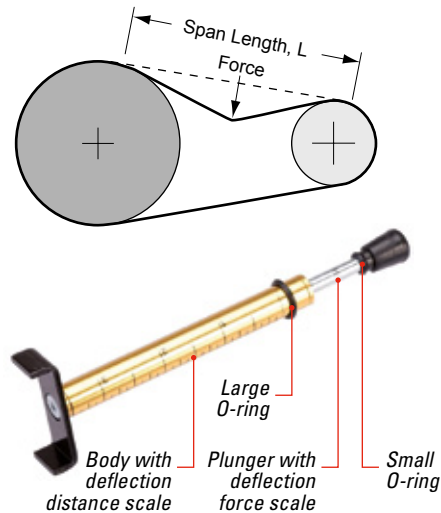
The tension in belt is key factor in the proper work of a belt drive and on the life of the belt and bearings, whereas undertension can cause the belt to slip and in consequence leading to premature belt failure and conversely, persistent overtension can cause bearing and belt failure.

The belt optimal tension is the lowest at which it does not slip nor ratchet under continuous load.

The spring-load tension checker permits to determine the tension by first calculating the deflection.

The allowed deflection in a belt drive is a linear function of its span. The industry consensus establishes an span of 1/64" per inch of span, or 0.16 mm per cm of span approximately.

The procedure starts by checking the span which determines the deflection at the center of the span. The reading of the deflection is set to the large O-ring. By pushing the plunger down until the bottom of the large O-ring pairs with the top of the belt if there are more than one or by pairing with a ruler, the reading of the plunger in the smaller O-ring represents the force applied to deflect the belt. By entering this force into de tables supplied, it gives the tension.



We have in our program as well:

- Sets of gauges of V-Belts and Pulleys
- Device to measure the length of V-Belts

PIN FASTENERS

This range of products fall into the category of must have items, within reach in Power Transmission related activity.

Spring Pins

Known as well as slotted pins and C pins amongst others. Consists of a pin of hollow cylindrical shape beveled at both ends. Used to fasten a transmission element as, a gear, a pulley, a sprocket to a shaft, fasten mating parts, journal bearing and many others.

Available in a choice of materials and finishings for different purposes, Carbon Steel, Alloy Steel and Stainless Steel. As finishings or treatments, Clear Zinc, Yellow Zinc, Blued, Black Oxide, Phosphate and Passivated amongst the most common.

Split Pins

Known as well as a Cotter Pin or a Cotter Key are a kind of fasteners composed of two tines which once inserted are bent locking the element in place or fixing an element in place as in castle nuts, or in the case of side plates in roller chains.

Made of soft steel, they are available in different sizes. It has different versions as the R-clip or hairpin.

We offer an ample choice:

Dowel Pins

Used for precise locating and alignment of parts. Consist of a slightly oversized steel cylinder or taper which once introduced into a reamed hole of parts keep them aligned. The oversize allow the dowel pins be press fit into the holes.

Available in Steel, Stainless Steel, Brass and others with hardening treatments and coatings as black oxide as materials and in metric and imperial sizes.

Linch Pins

Known as well as quick pins are self-locking pins, which inserted through a clevis or a shaft, prevent elements to slide-off. Used mainly in agricultural equipment, in the tractor's three-point-hitch and in the implement's fixing clevises. Constructed under DIN 11023.

Made out of steel with a choice of treatment finishes as, Clear Zinc, Yellow Zinc and Black Phosphate.

Coiled or Rolled Pins

Similar to a slotted pin, where the difference is that, the sheet material is coiled by more than one complete turn forms the pin. It has the same function but is higher duty than the equivalent slotted pin.

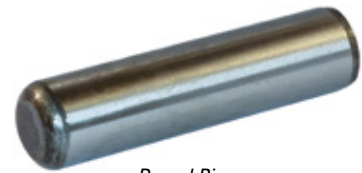
Ask for details to our Commercial Department.



Spring Pins



Coiled Pins

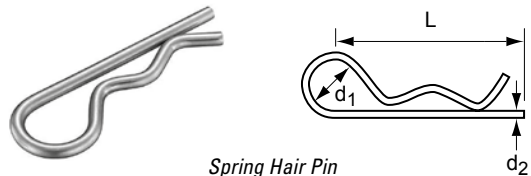


Dowel Pins



Spit Pins

Lengths L: from 20 to 100 mm
Diameter d: from 1,6 to 10 mm



Spring Hair Pin

Lengths L: from 50 to 110 mm
Diameter d₁: from 10 to 28 mm
d₂: from 2 to 8 mm



Lynch Pins



Lift Arm Pin

Lengths: available from 130 to 150 mm
Diameter: available from 18 to 28 mm



Hitch Pins / Towing Pins

Lengths and Diameter: available in Metric and Imperial.