



# Rothe Erde<sup>®</sup> Turntables



Proudly represented in New Zealand by Gough Transpecs

ThyssenKrupp Rothe Erde



ThyssenKrupp

# Rothe Erde® Turntables

## Technology made-to-measure



Our product range comprises ball-bearing and roller-bearing slewing rings, turntables and seamless rolled rings.

We at ThyssenKrupp Rothe Erde put quality first. All our activities from application engineering to design and production including comprehensive customer service are based on the following international quality standards:

- Quality assurance system acc. to DIN EN ISO 9001,
- Environmental protection acc. to DIN EN ISO 14001 and
- Industrial safety acc. to OHSAS 18001.



### **Rothe Erde® turntables – Products of proven quality**

Rothe Erde® turntables have been developed for installation in transport vehicles. Their purpose is to transmit both the axial load, thrust and traction forces.

The standard series turntables shown here are the result of many years' design and manufacturing experience in the field of trailer steering systems for road truck trailers, positively steered semi-trailers, fifth wheel couplings, heavy goods vehicles and special vehicles.

Rothe Erde® turntables are produced to exacting standards and are designed to meet high performance requirements.

Each turntable consists of two steel rings designed for flange mounting. The raceways are machined so as to ensure that the power transmission is favourably directed between the profiled rings and the inserted antifriction bearing steel balls. The turntables are delivered with preservation and grease filling.







# Bearing configurations and bearing tables

## Types 16 L – 16 – 80 – 80 S

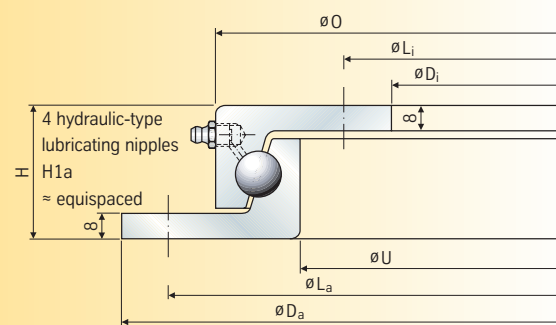
| Drawing No. · Type |                                  | Track diameter       | Weight (approx.) | Outer diameter       | Inner diameter       | Overall height | Outer bolt circle diameter | Inner bolt circle diameter | Bore diameter | Number of grease nipples | Diameter              | Diameter |
|--------------------|----------------------------------|----------------------|------------------|----------------------|----------------------|----------------|----------------------------|----------------------------|---------------|--------------------------|-----------------------|----------|
|                    |                                  | D <sub>L</sub><br>mm | kg               | D <sub>a</sub><br>mm | D <sub>i</sub><br>mm | H<br>mm        | L <sub>a</sub><br>mm       | L <sub>i</sub><br>mm       | B<br>mm       | n <sub>1</sub><br>mm     | D <sub>a1</sub><br>mm | O<br>mm  |
| 16 L               | Type 16 L undrilled              |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
|                    | 310.16.0300.000 · Typ 16 L/400   | 320.0                | 11.0             | 404                  | 236.0                | 42             | 375                        | 260                        | –             | 4                        | –                     | 346      |
|                    | 310.16.0400.000 · Typ 16 L/500   | 420.0                | 15.0             | 504                  | 336.0                | 42             | 475                        | 360                        | –             | 4                        | –                     | 446      |
|                    | 310.16.0500.000 · Typ 16 L/650   | 570.0                | 20.0             | 654                  | 486.0                | 42             | 625                        | 510                        | –             | 4                        | –                     | 596      |
|                    | 310.16.0600.000 · Typ 16 L/750   | 670.0                | 23.0             | 754                  | 586.0                | 42             | 725                        | 610                        | –             | 4                        | –                     | 696      |
|                    | 310.16.0700.000 · Typ 16 L/850   | 770.0                | 27.0             | 854                  | 686.0                | 42             | 825                        | 710                        | –             | 4                        | –                     | 796      |
|                    | 310.16.0800.000 · Typ 16 L/950   | 870.0                | 30.0             | 954                  | 786.0                | 42             | 925                        | 810                        | –             | 4                        | –                     | 896      |
|                    | 310.16.0900.000 · Typ 16 L/1050  | 970.0                | 34.0             | 1054                 | 886.0                | 42             | 1025                       | 910                        | –             | 4                        | –                     | 996      |
| 16                 | Type 16 undrilled                |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
|                    | 320.16.0400.000 · Typ 16/500     | 407.5                | 17.0             | 500                  | 315.0                | 48             | 475                        | 340                        | –             | 4                        | –                     | 434      |
|                    | 320.16.0500.000 · Typ 16/650     | 557.5                | 23.0             | 650                  | 465.0                | 48             | 625                        | 490                        | –             | 4                        | –                     | 584      |
|                    | 320.16.0600.000 · Typ 16/750     | 657.5                | 26.0             | 750                  | 565.0                | 48             | 725                        | 590                        | –             | 4                        | –                     | 684      |
|                    | 320.16.0700.000 · Typ 16/850     | 757.5                | 30.0             | 850                  | 665.0                | 48             | 825                        | 690                        | –             | 4                        | –                     | 784      |
|                    | 320.16.0800.000 · Typ 16/950     | 857.5                | 34.0             | 950                  | 765.0                | 48             | 925                        | 790                        | –             | 4                        | –                     | 884      |
|                    | 320.16.0900.000 · Typ 16/1050    | 957.5                | 39.0             | 1050                 | 865.0                | 48             | 1025                       | 890                        | –             | 4                        | –                     | 984      |
| 80                 | Type 80 undrilled                |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
|                    | 330.16.0500.000 · Typ 80/685     | 598.5                | 38.0             | 721                  | 567.0                | 80             | 671                        | 657                        | –             | 4                        | 696                   | –        |
|                    | 330.16.0700.000 · Typ 80/880     | 793.5                | 48.0             | 916                  | 762.0                | 80             | 866                        | 852                        | –             | 4                        | 891                   | –        |
|                    | 330.16.0900.000 · Typ 80/1000    | 913.5                | 58.0             | 1036                 | 882.0                | 80             | 984                        | 970                        | –             | 4                        | 1011                  | –        |
|                    | 330.16.1000.000 · Typ 80/1090    | 1003.5               | 63.0             | 1126                 | 972.0                | 80             | 1074                       | 1060                       | –             | 4                        | 1101                  | –        |
|                    | Type 80 drilled                  |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
|                    | 330.16.0700.010 · Typ 80/880     | 793.5                | 48.0             | 916                  | 762.0                | 80             | 866                        | 852                        | 16            | 4                        | 891                   | –        |
|                    | 330.16.1000.010 · Typ 80/1090    | 1003.5               | 63.0             | 1126                 | 972.0                | 80             | 1074                       | 1060                       | 18            | 4                        | 1101                  | –        |
| 80 S               | Type 80 S undrilled              |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
|                    | 350.16.1000.000 · Typ 80 S/1100  | 1002.5/992.5         | 73.0             | 1108                 | 959.5                | 80             | –                          | –                          | –             | 6                        | 1095                  | –        |
|                    | 350.16.0700.000 · Typ 80 S/890   | 792.5/782.5          | 57.0             | 894                  | 749.5                | 80             | –                          | –                          | –             | 6                        | 880                   | –        |
|                    | 350.16.0500.000 · Typ 80 S/660   | 562.5/552.5          | 40.6             | 664                  | 519.5                | 80             | –                          | –                          | –             | 6                        | 650                   | –        |
|                    | Type 80 S drilled                |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
|                    | 350.16.1000.010 · Typ 80 S/1100  | 1002.5/992.5         | 72.8             | 1108                 | 959.5                | 80             | 1074                       | 1060                       | 16            | 6                        | 1095                  | –        |
|                    | 350.16.0710.010 · Typ 80 S/890 A | 792.5/782.5          | 56.7             | 894                  | 749.5                | 80             | 866                        | 852                        | 16            | 6                        | 880                   | –        |
|                    | 350.16.0700.010 · Typ 80 S/890   | 792.5/782.5          | 56.8             | 894                  | 749.5                | 80             | 866                        | 852                        | 16            | 6                        | 880                   | –        |
|                    | 350.16.0500.010 · Typ 80 S/660   | 562.5/552.5          | 40.4             | 664                  | 519.5                | 80             | 636                        | 622                        | 14            | 6                        | 650                   | –        |

\* For other axle combinations or other uses, please ask us

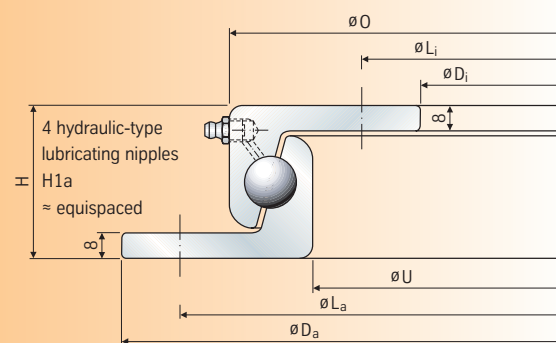
\*\* Type 80 S/890 A: Permissible load valid for fifth wheel couplings

| Diameter<br><b>U</b><br>mm | Ball<br>diameter<br><b>d</b><br>mm | Trailer load                                 |   | Permissible<br>acceleration or<br>deceleration<br><br>m/s <sup>2</sup> | Maximum<br>bearing<br>clearances |              |
|----------------------------|------------------------------------|--|---|--|----------------------------------|--------------|
|                            |                                    | Permissible axial load*<br><br>2 axles<br>kN | Permissible axial load*<br><br>more than<br>2 axles<br>kN |  |                                  |              |
| 294                        | 16                                 | 7.5  | —   | 4  | axial<br>mm                      | radial<br>mm |
| 394                        | 16                                 | 9.0  | —   | 4  | 1.0                              | 0.7          |
| 544                        | 16                                 | 15.0   | —   | 4  | 1.0                              | 0.7          |
| 644                        | 16                                 | 18.0   | —   | 4  | 1.0                              | 0.7          |
| 744                        | 16                                 | 25.0   | —   | 4  | 1.0                              | 0.7          |
| 844                        | 16                                 | 30.0   | —   | 4  | 1.0                              | 0.7          |
| 944                        | 16                                 | 35.0   | —   | 4  | 1.0                              | 0.7          |
| 381                        | 16                                 | 18.0   | —   | 7  | 1.0                              | 0.7          |
| 531                        | 16                                 | 25.0   | —   | 7  | 1.0                              | 0.7          |
| 631                        | 16                                 | 30.0   | —   | 7  | 1.0                              | 0.7          |
| 731                        | 16                                 | 35.0   | —   | 7  | 1.0                              | 0.7          |
| 831                        | 16                                 | 40.0   | —   | 7  | 1.0                              | 0.7          |
| 931                        | 16                                 | 45.0   | —   | 7  | 1.0                              | 0.7          |
| 583                        | 16                                 | 35.0   | 30.0  | 7  | 1.0                              | 0.7          |
| 778                        | 16                                 | 55.0   | 50.0  | 7  | 1.0                              | 0.7          |
| 898                        | 16                                 | 65.0   | 60.0  | 7  | 1.0                              | 0.7          |
| 988                        | 16                                 | 70.0   | 65.0  | 7  | 1.0                              | 0.7          |
| 778                        | 16                                 | 55.0   | 50.0  | 7  | 1.0                              | 0.7          |
| 988                        | 16                                 | 70.0   | 65.0  | 7  | 1.0                              | 0.7          |
| 994                        | 16/14                              | 100.0  | 100.0   | 7  | 1.0                              | 0.7          |
| 784                        | 16/14                              | 80.0   | 80.0  | 7  | 1.0                              | 0.7          |
| 554                        | 16/14                              | 50.0   | 50.0  | 7  | 1.0                              | 0.7          |
| 994                        | 16/14                              | 100.0  | 100.0   | 7  | 1.0                              | 0.7          |
| 784                        | 16/14                              | 160.0**                                      | 160.0**   | 7  | 1.0                              | 0.7          |
| 784                        | 16/14                              | 80.0   | 80.0  | 7  | 1.0                              | 0.7          |
| 554                        | 16/14                              | 50.0   | 50.0  | 7  | 1.0                              | 0.7          |

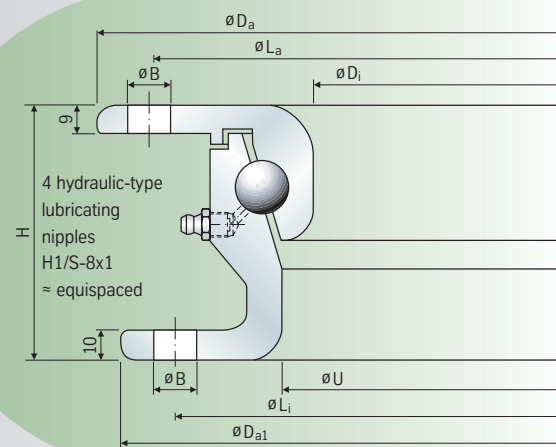
**Type 16 L**  
for farm trucks  
and carts



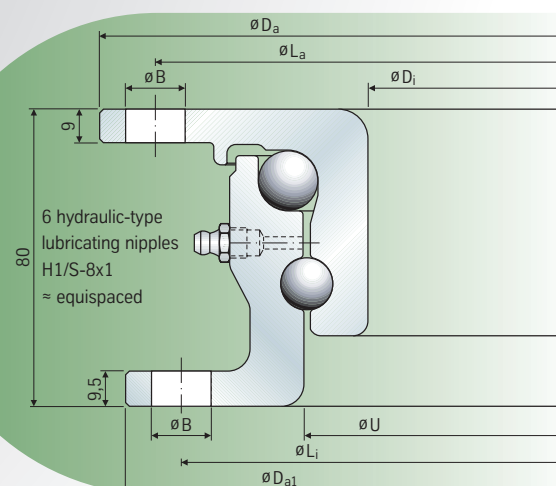
**Type 16**  
for lightweight  
truck trailers  
and farm trucks



**Type 80**  
for two and  
three-axle trailers



**Type 80 S**  
for two and  
three-axle trailers



# Bearing configurations and bearing tables

## Types 90 – 90 WA – 90 S



| Drawing No. · Type                  | Track diameter       | Weight (approx.) | Outer diameter       | Inner diameter       | Overall height | Outer bolt circle diameter | Inner bolt circle diameter | Bore diameter | Number of grease nipples | Diameter              | Diameter |
|-------------------------------------|----------------------|------------------|----------------------|----------------------|----------------|----------------------------|----------------------------|---------------|--------------------------|-----------------------|----------|
|                                     | D <sub>L</sub><br>mm | kg               | D <sub>a</sub><br>mm | D <sub>i</sub><br>mm | H<br>mm        | L <sub>a</sub><br>mm       | L <sub>i</sub><br>mm       | B<br>mm       | n <sub>1</sub><br>mm     | D <sub>a1</sub><br>mm | O<br>mm  |
| <b>Type 90 undrilled</b>            |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
| 360.18.0800.000 · Typ 90/1000.18    | 894                  | 64               | 1008                 | 854                  | 90             | 974                        | 960                        | –             | 6                        | 1000                  | –        |
| 360.20.0800.000 · Typ 90/1000.20    | 894                  | 64               | 1008                 | 854                  | 90             | 974                        | 960                        | –             | 6                        | 1000                  | –        |
| 360.22.0800.000 · Typ 90/1000.22    | 894                  | 64               | 1008                 | 854                  | 90             | 974                        | 960                        | –             | 6                        | 1000                  | –        |
| 360.24.0800.000 · Typ 90/1000.24    | 894                  | 64               | 1008                 | 854                  | 90             | 974                        | 960                        | –             | 6                        | 1000                  | –        |
| 360.18.0900.000 · Typ 90/1100.18    | 994                  | 71               | 1108                 | 954                  | 90             | 1074                       | 1060                       | –             | 6                        | 1100                  | –        |
| 360.20.0900.000 · Typ 90/1100.20    | 994                  | 71               | 1108                 | 954                  | 90             | 1074                       | 1060                       | –             | 6                        | 1100                  | –        |
| 360.22.0900.000 · Typ 90/1100.22    | 994                  | 71               | 1108                 | 954                  | 90             | 1074                       | 1060                       | –             | 6                        | 1100                  | –        |
| 360.24.0900.000 · Typ 90/1100.24    | 994                  | 71               | 1108                 | 954                  | 90             | 1074                       | 1060                       | –             | 6                        | 1100                  | –        |
| 360.22.1000.000 · Typ 90/1200.22    | 1094                 | 79               | 1208                 | 1054                 | 90             | 1174                       | 1160                       | –             | 6                        | 1200                  | –        |
| 360.24.1000.000 · Typ 90/1200.24    | 1094                 | 79               | 1208                 | 1054                 | 90             | 1174                       | 1160                       | –             | 6                        | 1200                  | –        |
| 360.22.1100.000 · Typ 90/1300.22    | 1194                 | 87               | 1308                 | 1154                 | 90             | 1274                       | 1260                       | –             | 6                        | 1300                  | –        |
| <b>Type 90 drilled</b>              |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
| 360.18.0900.010 · Typ 90/1100.18    | 994                  | 71               | 1108                 | 954                  | 90             | 1074                       | 1060                       | 18            | 6                        | 1100                  | –        |
| 360.20.0900.010 · Typ 90/1100.20    | 994                  | 71               | 1108                 | 954                  | 90             | 1074                       | 1060                       | 18            | 6                        | 1100                  | –        |
| 360.22.0900.010 · Typ 90/1100.22    | 994                  | 71               | 1108                 | 954                  | 90             | 1074                       | 1060                       | 18            | 6                        | 1100                  | –        |
| 360.24.0900.010 · Typ 90/1100.24    | 994                  | 71               | 1108                 | 954                  | 90             | 1074                       | 1060                       | 18            | 6                        | 1100                  | –        |
| 360.22.1000.010 · Typ 90/1200.22    | 1094                 | 79               | 1208                 | 1054                 | 90             | 1174                       | 1160                       | 18            | 6                        | 1200                  | –        |
| 360.24.1000.010 · Typ 90/1200.24    | 1094                 | 79               | 1208                 | 1054                 | 90             | 1174                       | 1160                       | 18            | 6                        | 1200                  | –        |
| 360.22.1100.010 · Typ 90/1300.22    | 1194                 | 87               | 1308                 | 1154                 | 90             | 1274                       | 1260                       | 18            | 6                        | 1300                  | –        |
| <b>Type 90 WA drilled</b>           |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
| 360.22.0955.010 · Typ 90/1100.22 WA | 994                  | 71               | 1108                 | 954                  | 90             | 1074                       | 1060                       | 18            | 6                        | 1100                  | –        |
| 360.24.0955.010 · Typ 90/1100.24 WA | 994                  | 71               | 1108                 | 954                  | 90             | 1074                       | 1060                       | 18            | 6                        | 1100                  | –        |
| 360.22.1055.010 · Typ 90/1200.22 WA | 1094                 | 79               | 1208                 | 1054                 | 90             | 1174                       | 1160                       | 18            | 6                        | 1200                  | –        |
| 360.24.1055.010 · Typ 90/1200.24 WA | 1094                 | 79               | 1208                 | 1054                 | 90             | 1174                       | 1160                       | 18            | 6                        | 1200                  | –        |
| 360.22.1155.010 · Typ 90/1300.22 WA | 1194                 | 87               | 1308                 | 1154                 | 90             | 1274                       | 1260                       | 18            | 6                        | 1300                  | –        |
| <b>Type 90 S undrilled</b>          |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
| 370.20.0804.000 · Typ 90 S/1000     | 880/870              | 82               | 1000                 | 834                  | 90             | 966                        | 952                        | –             | 6                        | 987                   | –        |
| 370.20.0904.000 · Typ 90 S/1100     | 988/978              | 92               | 1108                 | 942                  | 90             | 1074                       | 1060                       | –             | 6                        | 1095                  | –        |
| 370.20.1004.000 · Typ 90 S/1200     | 1088/1078            | 101              | 1208                 | 1042                 | 90             | 1174                       | 1160                       | –             | 6                        | 1195                  | –        |
| 370.24.1004.000 · Typ 90 S/1200.SP  | 1087/1078            | 101              | 1208                 | 1042                 | 90             | 1174                       | 1160                       | –             | 6                        | 1195                  | –        |
| <b>Type 90 S drilled</b>            |                      |                  |                      |                      |                |                            |                            |               |                          |                       |          |
| 370.20.0804.010 · Typ 90 S/1000     | 880/870              | 82               | 1000                 | 834                  | 90             | 966                        | 952                        | 18            | 6                        | 987                   | –        |
| 370.20.0904.010 · Typ 90 S/1100     | 988/978              | 92               | 1108                 | 942                  | 90             | 1074                       | 1060                       | 18            | 6                        | 1095                  | –        |
| 370.20.1004.010 · Typ 90 S/1200     | 1088/1078            | 101              | 1208                 | 1042                 | 90             | 1174                       | 1160                       | 18            | 6                        | 1195                  | –        |
| 370.20.1004.030 · Typ 90 S/1200.12  | 1088/1078            | 101              | 1208                 | 1042                 | 90             | 1174                       | 1160                       | 18            | 6                        | 1195                  | –        |
| 370.24.1004.010 · Typ 90 S/1200.SP  | 1087/1078            | 101              | 1208                 | 1042                 | 90             | 1174                       | 1160                       | 18            | 6                        | 1195                  | –        |

\* For other axle combinations or other uses, please ask us

### Type 90 WA: Low-maintenance version

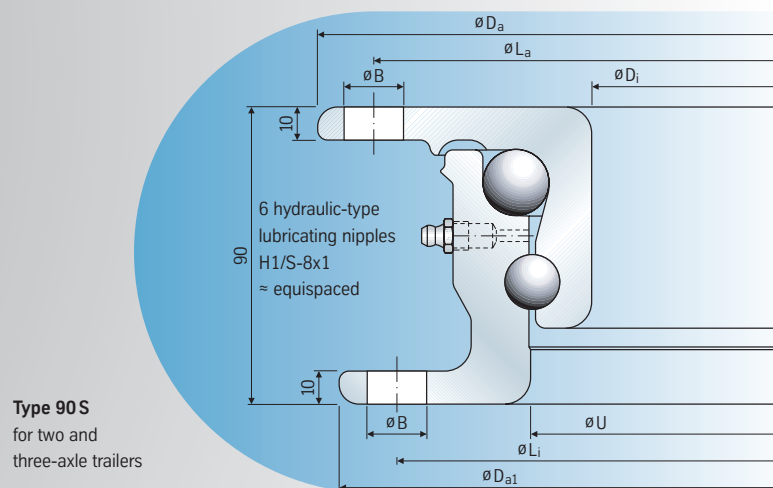
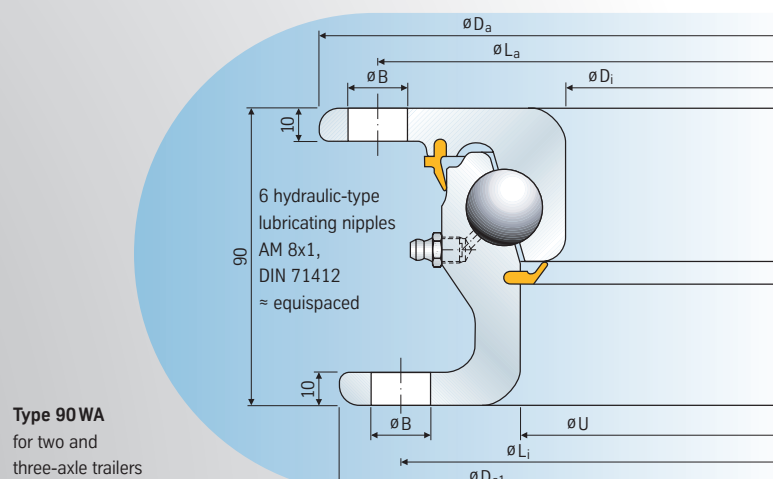
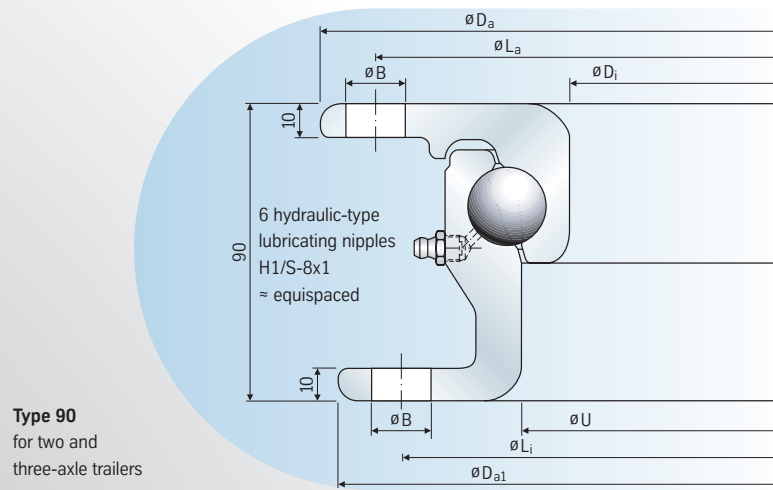
- Raceway system protected by seals at upper and lower bearing gap.
- Low-maintenance for a minimum of 3 years or a mileage of 300,000 kms under normal operating conditions. Should exceptional environmental conditions prevail or should the turntable be



| Diameter<br><b>U</b><br>mm | Ball<br>diameter<br><b>d</b><br>mm | Trailer load  |  | Permissible<br>acceleration or<br>deceleration<br><br>m/s <sup>2</sup> | Maximum<br>bearing<br>clearances |              |
|----------------------------|------------------------------------|---|--|--|----------------------------------|--------------|
|                            |                                    | Permissible axial load*   |  |  |                                  |              |
|                            |                                    |  2 axles<br>kN |  more than<br>2 axles<br>kN |  | axial<br>mm                      | radial<br>mm |
| 885                        | 18                                 | 75  | 70   | 7  | 1.0                              | 0.7          |
| 885                        | 20                                 | 90  | 80   | 7  | 1.0                              | 0.7          |
| 885                        | 22                                 | 110   | 100  | 7  | 1.0                              | 0.7          |
| 885                        | 24                                 | 160   | 140  | 7  | 1.0                              | 0.7          |
| 985                        | 18                                 | 90  | 80   | 7  | 1.0                              | 0.7          |
| 985                        | 20                                 | 110   | 100  | 7  | 1.0                              | 0.7          |
| 985                        | 22                                 | 130   | 120  | 7  | 1.0                              | 0.7          |
| 985                        | 24                                 | 180   | 160  | 7  | 1.0                              | 0.7          |
| 1085                       | 22                                 | 160   | 140  | 7  | 1.0                              | 0.7          |
| 1085                       | 24                                 | 200   | 180  | 7  | 1.0                              | 0.7          |
| 1185                       | 22                                 | 180   | 160  | 7  | 1.0                              | 0.7          |
| 985                        | 18                                 | 90  | 80   | 7  | 1.0                              | 0.7          |
| 985                        | 20                                 | 110   | 100  | 7  | 1.0                              | 0.7          |
| 985                        | 22                                 | 130   | 120  | 7  | 1.0                              | 0.7          |
| 985                        | 24                                 | 180   | 160  | 7  | 1.0                              | 0.7          |
| 1085                       | 22                                 | 160   | 140  | 7  | 1.0                              | 0.7          |
| 1085                       | 24                                 | 200   | 180  | 7  | 1.0                              | 0.7          |
| 1185                       | 22                                 | 180   | 160  | 7  | 1.0                              | 0.7          |
| 985                        | 22                                 | 130   | 120  | 7  | 0.8                              | 0.6          |
| 985                        | 24                                 | 180   | 160  | 7  | 0.8                              | 0.6          |
| 1085                       | 22                                 | 160   | 140  | 7  | 0.8                              | 0.6          |
| 1085                       | 24                                 | 200   | 180  | 7  | 0.8                              | 0.6          |
| 1185                       | 22                                 | 180   | 160  | 7  | 0.8                              | 0.6          |
| 871                        | 20/16                              | 160   | 160  | 7  | 1.0                              | 0.7          |
| 979                        | 20/16                              | 200   | 200  | 7  | 1.0                              | 0.7          |
| 1079                       | 20/16                              | 200   | 200  | 7  | 1.0                              | 0.7          |
| 1079                       | 24/16                              | 300   | 300  | 7  | 1.0                              | 0.7          |
| 871                        | 20/16                              | 160   | 160  | 7  | 1.0                              | 0.7          |
| 979                        | 20/16                              | 200   | 200  | 7  | 1.0                              | 0.7          |
| 1079                       | 20/16                              | 200   | 200  | 7  | 1.0                              | 0.7          |
| 1079                       | 20/16                              | 200   | 200  | 7  | 1.0                              | 0.7          |
| 1079                       | 24/16                              | 300   | 300  | 7  | 1.0                              | 0.7          |

directly cleaned with a high-pressure equipment, it is necessary to re-grease the turntable immediately. Take also care that the companion structure protects the turntable either so as to prevent any water and dirt from entering the race system.

- Re-greasing and inspection is necessary after the low-maintenance operating period has elapsed.



- Frictional torque: As a consequence of the double seal at the bearing gaps a somewhat increased frictional torque may develop in comparison with the normal version. Operation is not impaired by this when used in vehicle trailers.
- Mounting dimensions, permissible loads, weights, and drilling plans are as for standard design type 90.

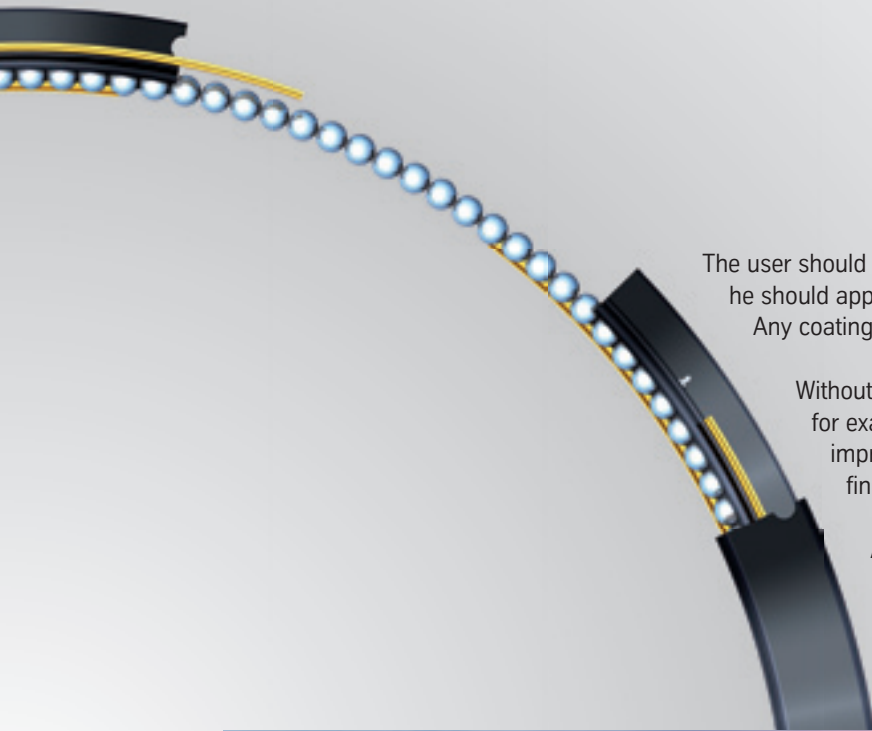
# Delivery



The turntables are supplied as standard type being filled with lithium-saponified grease of penetration grade 2 and as low-maintenance type being filled with Gleitmo 585 K.

The turntables are supplied with a surface preservative. This preservation is only a temporary protection against corrosion which can principally be overpainted with all commercial finishing paints (such as acrylic resins, one-component and two-component acrylic varnishes, two-component PU varnishes, two-component epoxy varnishes) and with bituminous paint. (Attention: Do not overpaint the seals.)





The user should check in each individual case if overpainting is possible, he should apply a trial coat and make an intermediate adherence test. Any coating older than 3 months must be sanded down first.

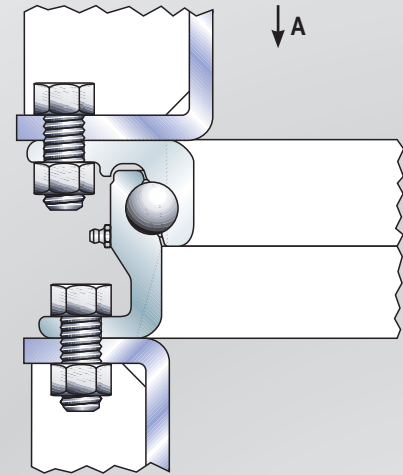
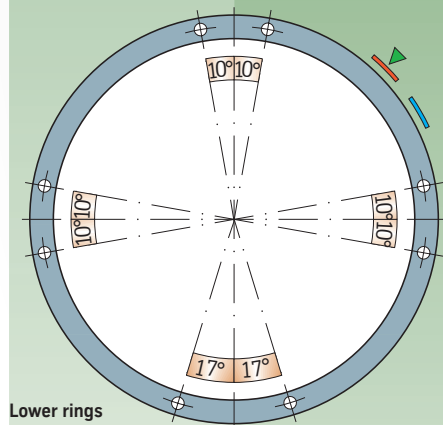
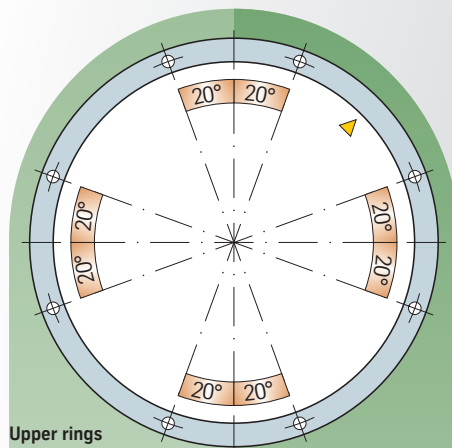
Without pretreatment of the turntable outer surface – sandblasting for example – the applied protective painting does not provide an improved protection against corrosion even in connection with finishing paints either. Specific surface treatments can be agreed.

A storage of the turntables up to 6 months requires roofed storage areas. Up to 12 months storage the turntables should be kept in enclosed temperature-controlled rooms.



# Mounting holes

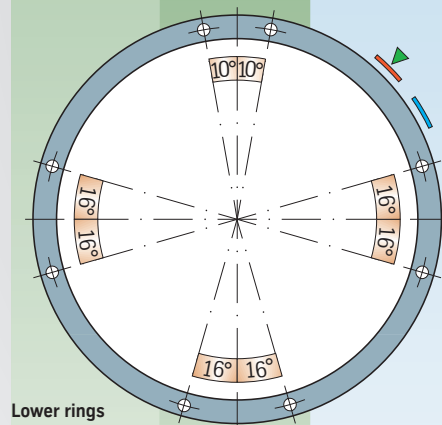
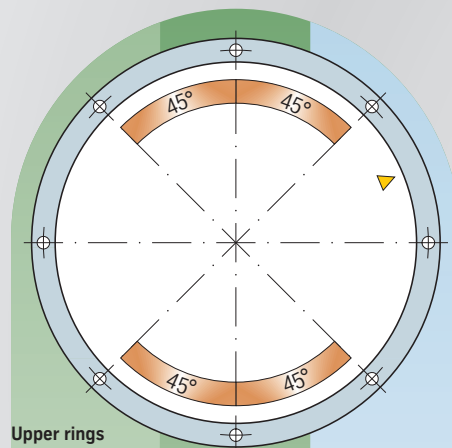
Turntables can be delivered either drilled or undrilled. If the customer drills the holes himself, he must allow for positioning of the nameplate/filler plug lateral to the direction of travel outside the main load-carrying area. It is furthermore necessary to drill one fastening hole approx. 70 mm right or left off the type plate.

Views in direction **A**

**Type 80/880**  
**Type 80 S/890**

Drilled holes according to the table  
Special drilled holes upon request

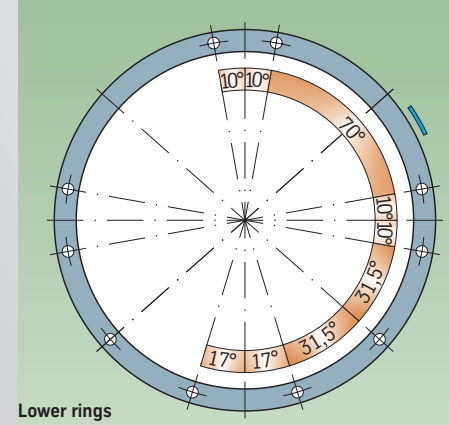
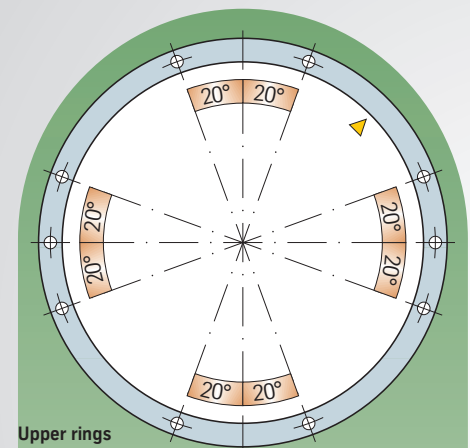
- ▼ Filler plug
- Nameplate
- ▼ Filler plug (applies to Type 80 S)
- Nameplate (applies to Type 80 S)

Views in direction **A**

**Type 80/1090**  
**Type 80 S/660**  
**Type 80 S/1100**  
**Type 90/1100.18 to Type 90/1300.22**

Drilled holes according to the table  
Special drilled holes upon request

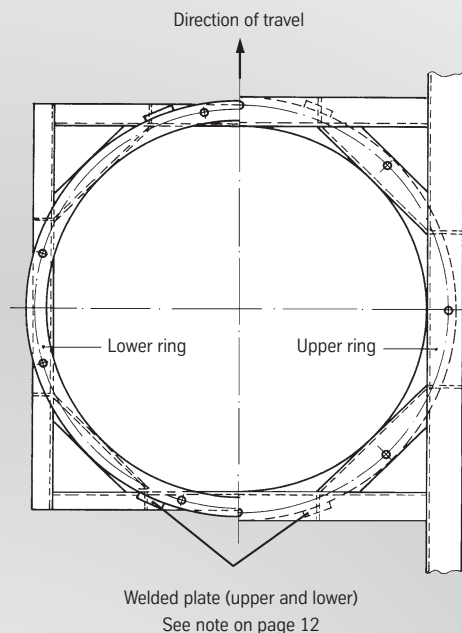
- ▼ Filler plug
- Nameplate
- ▼ Filler plug (applies to Type 80 S)
- Nameplate (applies to Type 80 S)

Views in direction **A**

**Type 80 S/890 A**

Drilled holes according to the table  
Special drilled holes upon request

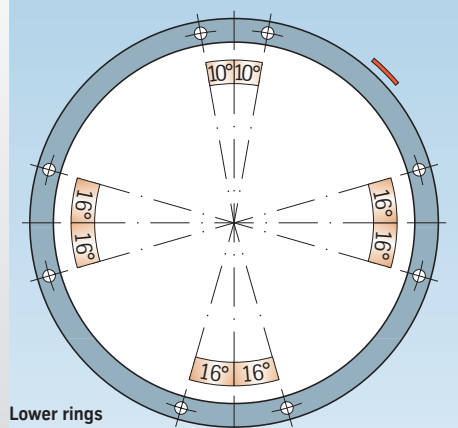
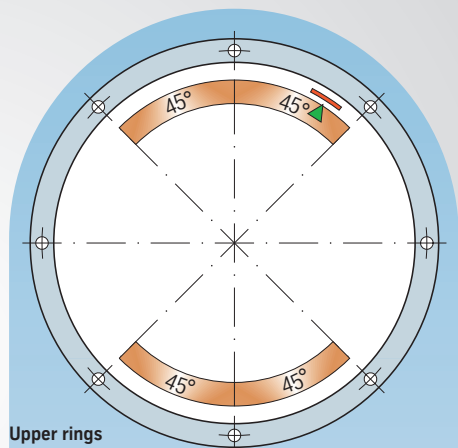
- ▼ Filler plug
- Nameplate



This type plate is fixed at the upper ring (inner diameter) of bearing type 90S and 90WA. When using undrilled types take care to prevent any chips from entering the raceway system and that the turntable as well as the seals (WA types) are not damaged when introducing the fastening holes.

Holes adjacent to the type plate are not permitted.

Views in direction **A**

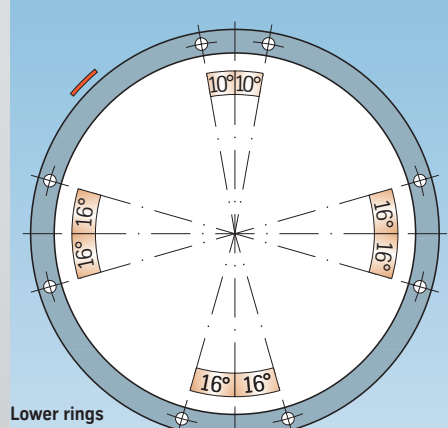
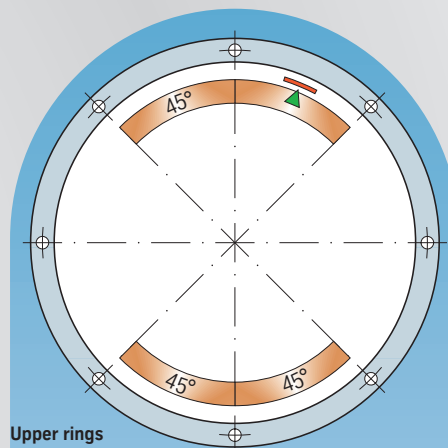


**Type 90/1100.22 WA to Type 90/1300.22 WA**

Drilled holes according to the table  
Special drilled holes upon request

▼ Filler plug  
— Nameplate

Views in direction **A**



**Type 90S/1000**

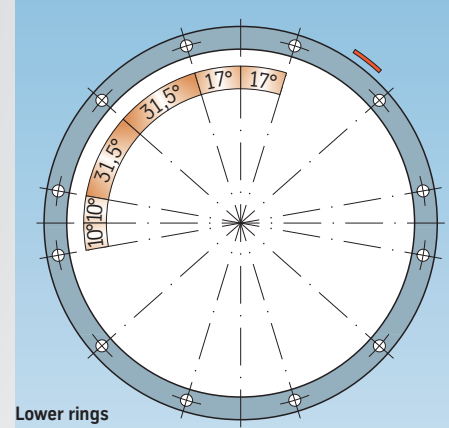
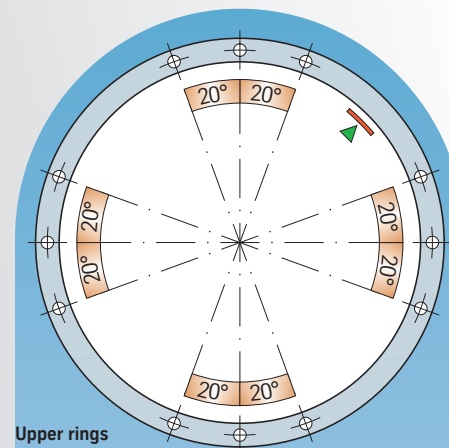
**Type 90S/1100**

**Type 90S/1200**

Drilled holes according to the table  
Special drilled holes upon request

▼ Filler plug  
— Nameplate

Views in direction **A**



**Type 90S/1200.12**

**Type 90S/1200 SP**

Drilled holes according to the table  
Special drilled holes upon request

▼ Filler plug  
— Nameplate



# Installation

Turntables must be mounted on a flat and torsion-resistant frame structure. It is essential that at least 50% of the peripheral surface of the flanges are supported load-bearing zones and that these latter are roughly equispaced in the direction of travel and at right angles to this.

The essential factor here is to support the profiled webs of the turntable thus assuring direct force transmission into the ball raceways. Total out-of-flatness 1.3 mm, permissible are for example 0.8 mm up and 0.5 mm down. Larger out-of-flatnesses have to be compensated by suitable measures (machining of the contact surfaces or captive shims in the respective contact area).

To secure drilled versions of the turntable, high-strength bolts of quality grade 10.9 as well as high tensile washers must be used in all the mounting holes.

On undrilled versions we recommend using at least 8 high-strength bolts of quality grade 10.9 as well as high tensile washers for optimum load introduction.

Take care to prevent any chips from entering the raceway system and that the turntable as well as the seals (WA types) are not damaged when introducing the fastening holes.

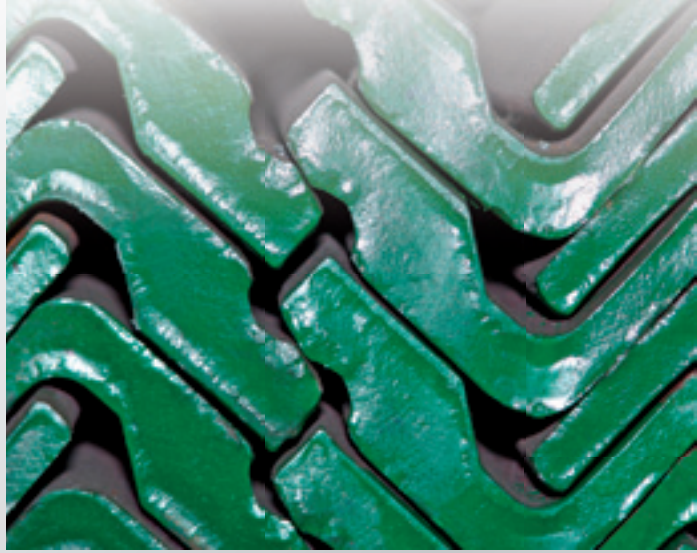
The size and distribution of the bolts must be calculated on the basis of the load. The bolt locking system must comply with the TÜV's (German Technical Control Board's) requirements or with the prevailing approval regulations.

The turntable must be form-fitted to the connection structures so that the horizontal forces from acceleration and deceleration are transmitted and the bolts are relieved in radial direction. To prevent distortion from occurring, turntables must never be attached to the companion structure by welding.

The load details and bolt connections are only valid for operation on paved roads and under transport conditions as usual in Western Europe.

Under special operating conditions, e.g. forestry work, the companion structure has to protect the turntable in a way that it cannot be damaged by branches etc.

The nameplate / filler plug has to be positioned 90 degrees to the direction of travel, i.e. outside the main load-carrying area.



| Table of tolerances |   |         |                           |                         |                         |                      |         |         |
|---------------------|---|---------|---------------------------|-------------------------|-------------------------|----------------------|---------|---------|
| Type                |   | H<br>mm | Flange<br>thickness<br>mm | D <sub>a</sub><br>mm    | D <sub>a1</sub><br>mm   | D <sub>i</sub><br>mm | O<br>mm | U<br>mm |
| 16 L                | Type 16 L/400<br>and<br>Type 16 L/500             | ± 3     | ± 2.0                     | + 8<br>- 5              | —                       | + 4<br>- 10          | ± 3     | ± 3     |
|                     | Type 16 L/650<br>up to<br>Type 16 L/1050          | ± 3     | ± 1.5                     | + 8<br>- 4              | —                       | + 4<br>- 10          | ± 3     | ± 3     |
| 16                  | Type 16/500                                       | ± 3     | ± 2.0                     | + 8<br>- 5              | —                       | + 4<br>- 10          | ± 3     | ± 3     |
|                     | Type 16/650<br>up to<br>Type 16/1050              | ± 3     | ± 1.5                     | + 8<br>- 4              | —                       | + 4<br>- 10          | ± 3     | ± 3     |
| 80                  | Type 80/685<br>up to<br>Type 80/1090              | ± 3     | ± 1.5                     | + 8<br>- 4              | + 8<br>- 4              | ± 3                  | —       | ± 3     |
| 80 S                | Type 80 S/660<br>Type 80 S/890<br>Type 80 S/1100  | ± 3     | ± 1.5                     | - 0.8<br>- 0.9<br>- 1.1 | - 0.8<br>- 0.9<br>- 1.1 | ± 3                  | —       | ± 3     |
| 90                  | Type 90/1000.18<br>up to<br>Type 90/1300.22       | ± 3     | ± 1.5                     | + 8<br>- 4              | + 8<br>- 4              | ± 3                  | —       | ± 3     |
| 90 WA               | Type 90/1100.22 WA<br>up to<br>Type 90/1300.22 WA | ± 3     | ± 1.5                     | + 8<br>- 4              | + 8<br>- 4              | ± 3                  | —       | ± 3     |
| 90 S                | Type 90 S/1000<br>up to<br>Type 90 S/1200.SP      | ± 3     | ± 1.5                     | - 1.6                   | - 1.6                   | ± 3                  | —       | ± 3     |



# Lubrication and maintenance

## Other conditions of use

## Warranty

### Lubrication and maintenance of standard turntables

Prior to installation, the turntable has to be re-greased while turning the upper ring until a grease collar appears at all bearing gaps around the entire circumference. A penetrating grade 2 lithium-saponified grease should be used for re-greasing. Regreasing should also be carried out after installation, rotating or slewing the turntable through at least  $\pm 30^\circ$  to achieve uniform grease distribution. Regreasing is required at least once a month. It must be warranted that a sufficient amount of bolt preload is maintained throughout the complete life time of the turntable. Practical experience has shown that it is necessary to re-tighten the bolts with the required tightening torque in order to compensate the settling phenomenon.

The “as-supplied” bearing clearances shown in the bearing tables are permitted to increase through wear by a maximum of 3 mm axially and radially. Thereafter, the turntable must be replaced.

### Maintenance of type 90WA turntables – low-maintenance design

90 WA turntables are provided with a long-term lubrication for a low-maintenance period of at least 3 years or a mileage of 300,000 kms. The precondition is a protection at the companion structure to prevent water from entering there. Should exceptional environmental conditions prevail or should the turntable be directly cleaned with a high-pressure equipment, it is necessary to re-grease the turntable immediately. Take also care that the companion structure protects the turntable either so as to prevent any water and dirt from entering the race system.

This service period can be extended by relubrication with Gleitmo 585 K (Fuchs Lubritech, Weilerbach). Regreasing should be carried out while turning or slewing the turntable through at least  $\pm 30^\circ$  in order to guarantee a uniform distribution of the grease.

In case of applications with extreme environmental conditions specific maintenance instructions have to be established for each individual case.

The turntables are equipped with lubricating nipples. Once the low-maintenance operating period has elapsed, it is necessary to re-grease through all lubricating nipples. Re-greasing should be carried out while turning or slewing the turntable through at least  $\pm 30^\circ$  in order to guarantee a uniform distribution of the grease.

It must be warranted that a sufficient amount of bolt preload is maintained throughout the complete life time of the turntable. Practical experience has shown that it is necessary to re-tighten the bolts with the required tightening torque in order to compensate the settling phenomenon.

We recommend that axial movement measurements are undertaken in conjunction with acceptance procedures by the German TÜV or other accredited testing agencies. If the measurement shows an axial or radial clearance in excess of 3 mm, the turntable will have to be replaced.

### Brief description of the axial movement measurement

- Check the bolt connections.
- Position the dial gauge with integrated magnets between the superstructure and the undercarriage in axial direction close to the raceway and a bolted area.
- Set the dial gauge to zero.
- Lift the superstructure by a forklift or lifting tackle until the undercarriage is freely suspended.
- Read the dial gauge.
- Position the dial gauge on the other side and repeat the above sequence of steps.

### Other conditions of use

- Should turntables be applied in vehicles with less accelerations or decelerations than indicated, the permissible axial load can be increased.
- Rothe Erde® turntables are suitable only for turning movements of  $\pm 180^\circ$ .

For other fields of application and load scenarios you must ask ThyssenKrupp Rothe Erde.

### Warranty

ThyssenKrupp Rothe Erde warrants that the products and material characteristics will be free from defects for a period of 12 months as from commissioning or, as applicable, a maximum period of 18 months as from delivery.

This depends on proper installation, observance of the applicable maintenance instructions as well as on the suitability of the product for the selected application.

Our General Terms of Sale are generally applicable.

The warranty claims cover rework or substitute delivery. Consequential damages due to defects are excluded.

Damage resulting from product modifications or improper cleaning is not covered by this warranty.



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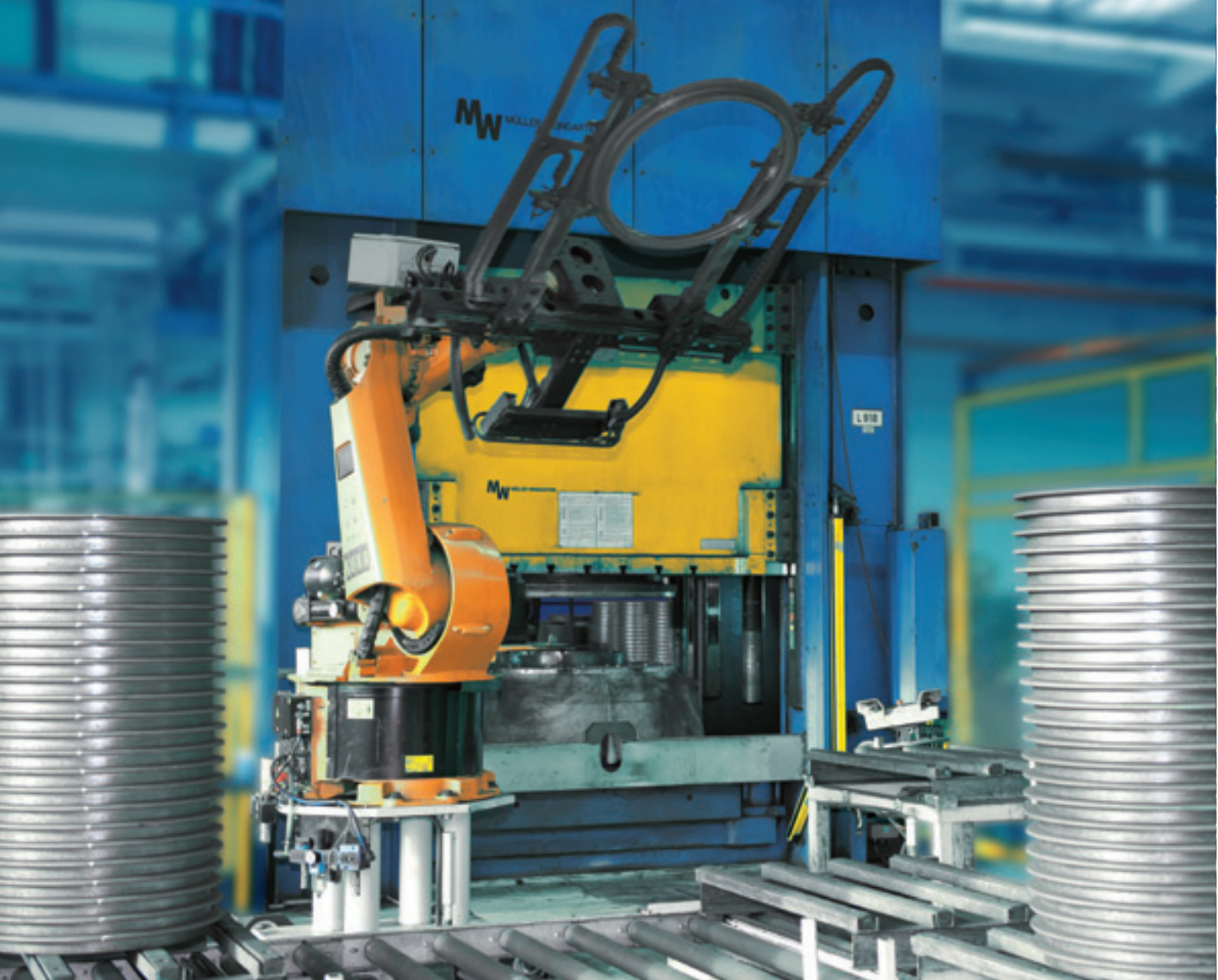
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