



Structural bearings

# RESTON®POT bearings

## Introduction

The following tables indicate the dimensions of standard RESTON®POT bearings with vertical load capacities of up to 75 MN. Minimum movement capacities, supplemental movements and minimum dimensions as specified by the standard EN 1337 are incorporated in the design. It should be noted that bearing heights can vary by up to 10 mm as a result of fabrication tolerances.

In determining bearing dimensions, assumptions were made as described below.

## Load combinations

Bearings are dimensioned to resist the maximum vertical and horizontal forces indicated in the tables.

Maximum permissible horizontal loads are assumed to act only in combination with a simultaneously acting vertical load of approximately 40 % of maximum (with friction thus resisting some of the horizontal force). More demanding load combinations must be checked individually.

The relevant parameters are:

- $N_{Rd}$ : Maximum vertical load capacity of the bearing (ULS)
- $V_{Rd}$ : Maximum horizontal load capacity of the bearing (ULS), under a vertical load of 40 % of  $N_{Rd}$
- $N_{d,min}$ : Minimum required vertical load with a simultaneous horizontal load,  $V_{Rd}$  (ULS)

It is assumed that friction can be considered to resist some of the horizontal force (with the exception of railway bridges and seismic loading).

The load combinations are in accordance with EN 1991. If the design loads are not in accordance with this standard, detailed design will be carried out in accordance with the applicable norm (e.g. AASHTO, BS, SIA, etc.).

## Concrete strength

The pressure acting on concrete main structures is calculated in accordance with EN 1992 (partial surface pressure). Design requirements are generally fulfilled if concrete of class C30/37 or higher is used and the load distribution area in the concrete structure is approximately 1.6 times the base area of the pot.

## Movements

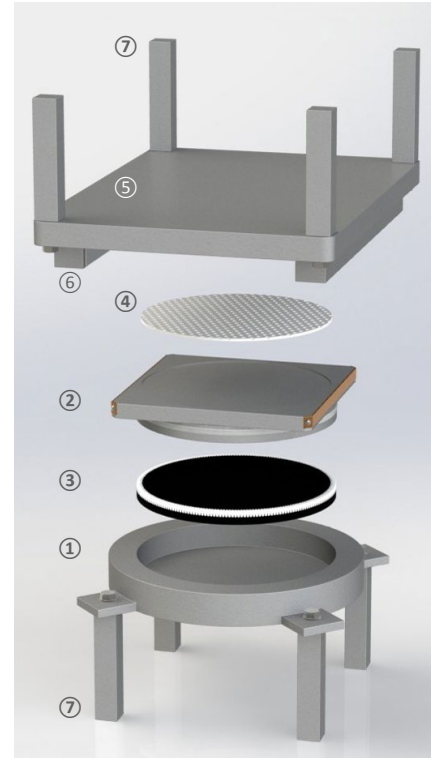
- TE bearings: Total longitudinal movement of 100 mm (+/- 50 mm)
- TA bearings: Total longitudinal movement of 100 mm (+/- 50 mm), and transverse movement of 40 mm (+/- 20 mm)

Bearings can also be designed for larger longitudinal and transverse movements. This requires the dimensions of the sliding plate, the height and the upper anchorage to be adapted. For longitudinally fixed TE bearings, the movement is normally reduced.

## Support

Our product specialists are always ready to advise you in selecting the optimal solution for your project, and to provide you with quotations for supply.

You can also find further information at [www.mageba.ch](http://www.mageba.ch) and in the relevant product brochure.



- 1 Steel pot
- 2 Piston
- 3 Elastomeric pad
- 4 PTFE sliding material (TE and TA bearings only)
- 5 Sliding plate (TE and TA bearings only)
- 6 Guide bars (TE bearings only)
- 7 Dowels or threaded sleeves (alternatively, anchor plates with shear studs can be supplied)



# Typical dimensions – Type TF

RESTON®POT bearings of type TF resist horizontal forces in every direction and facilitate rotations about every axis. The bearing is connected to the superstructure and substructure by means of dowels or anchor plates with shear studs.

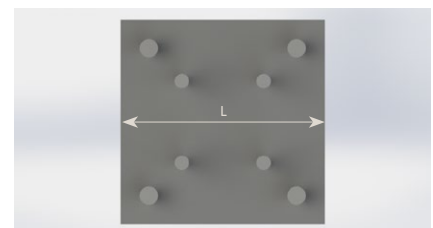
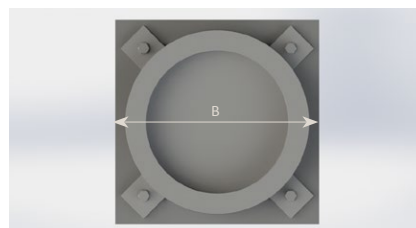
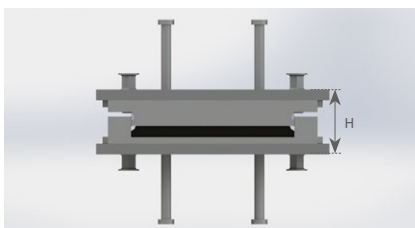
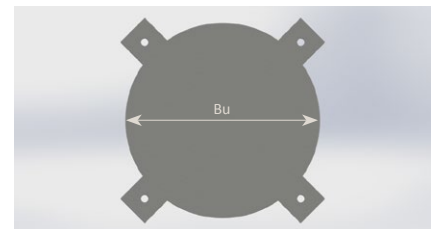
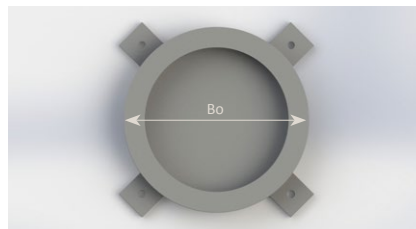
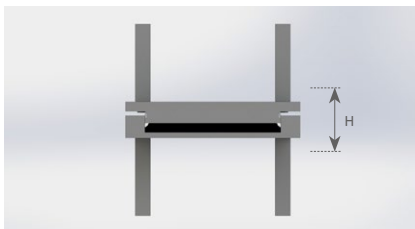
Bearing dimensions and weights for deviating requirements can be determined on request.

## Dimensions for concrete class C30/37 (based on EN 1337)

| Type    | N <sub>rd</sub> | V <sub>rd</sub> | D     | Without anchor plates |      |        | With anchor plates |                |        |      |        |
|---------|-----------------|-----------------|-------|-----------------------|------|--------|--------------------|----------------|--------|------|--------|
|         |                 |                 |       | N <sub>d,min</sub>    | H    | Weight | N <sub>d,min</sub> | Anchor plates* |        | H**  | Weight |
|         |                 |                 |       |                       |      |        |                    | Bo, Lu         | Bu, Lo |      |        |
| [kN]    | [kN]            | [mm]            | [kN]  | [mm]                  | [kg] | [kN]   | [mm]               | [mm]           | [mm]   | [kg] |        |
| TF 1    | 852             | 280             | 200   | 323                   | 80   | 30     | 315                | 220            | 310    | 112  | 45     |
| TF 1.5  | 1,193           | 370             | 240   | 503                   | 79   | 40     | 494                | 260            | 350    | 112  | 60     |
| TF 2    | 1,706           | 460             | 280   | 683                   | 79   | 50     | 672                | 300            | 390    | 112  | 75     |
| TF 2.5  | 2,229           | 582             | 325   | 830                   | 82   | 75     | 775                | 345            | 450    | 116  | 103    |
| TF 3    | 2,935           | 705             | 365   | 976                   | 87   | 90     | 878                | 390            | 510    | 119  | 130    |
| TF 3.5  | 3,574           | 865             | 410   | 1,296                 | 90   | 105    | 1,094              | 435            | 555    | 124  | 165    |
| TF 4    | 4,496           | 1,034           | 455   | 1,634                 | 95   | 130    | 1,310              | 480            | 600    | 128  | 200    |
| TF 4.5  | 5,261           | 1,139           | 495   | 1,846                 | 98   | 155    | 1,511              | 520            | 650    | 132  | 245    |
| TF 5    | 6,388           | 1,247           | 540   | 2,060                 | 100  | 180    | 1,711              | 560            | 700    | 136  | 290    |
| TF 5.5  | 7,307           | 1,398           | 585   | 2,370                 | 103  | 210    | 1,972              | 605            | 745    | 143  | 350    |
| TF 6    | 8,647           | 1,556           | 625   | 2,678                 | 111  | 250    | 2,232              | 650            | 790    | 149  | 410    |
| TF 6.5  | 9,651           | 1,748           | 665   | 3,064                 | 112  | 280    | 2,622              | 690            | 850    | 155  | 483    |
| TF 7    | 11,207          | 1,905           | 710   | 3,376                 | 122  | 345    | 3,012              | 730            | 910    | 160  | 555    |
| TF 7.5  | 12,362          | 2,075           | 750   | 3,620                 | 122  | 400    | 3,394              | 775            | 935    | 162  | 618    |
| TF 8    | 14,143          | 2,263           | 795   | 3,878                 | 126  | 450    | 3,775              | 820            | 960    | 164  | 680    |
| TF 8.5  | 15,409          | 2,394           | 830   | 4,142                 | 130  | 500    | 3,974              | 860            | 1,020  | 169  | 773    |
| TF 9    | 17,422          | 2,526           | 875   | 4,404                 | 136  | 570    | 4,172              | 900            | 1,080  | 174  | 865    |
| TF 9.5  | 18,739          | 2,731           | 920   | 4,814                 | 139  | 640    | 4,584              | 950            | 1,130  | 184  | 1,023  |
| TF 10   | 20,986          | 2,938           | 975   | 5,228                 | 151  | 780    | 4,996              | 1,000          | 1,180  | 193  | 1,180  |
| TF 10.5 | 22,908          | 3,152           | 1,020 | 5,658                 | 150  | 835    | 5,425              | 1,040          | 1,230  | 193  | 1,278  |
| TF 11   | 24,942          | 3,367           | 1,060 | 6,086                 | 151  | 890    | 5,854              | 1,080          | 1,280  | 193  | 1,375  |
| TF 12   | 29,239          | 3,800           | 1,145 | 6,952                 | 159  | 1,080  | 6,720              | 1,170          | 1,370  | 201  | 1,650  |
| TF 13   | 33,807          | 4,395           | 1,225 | 8,142                 | 174  | 1,345  | 9,710              | 1,250          | 1,510  | 222  | 2,120  |
| TF 14   | 38,782          | 4,654           | 1,300 | 8,660                 | 188  | 1,625  | 8,612              | 1,320          | 1,580  | 236  | 2,475  |
| TF 15   | 44,098          | 4,850           | 1,380 | 9,052                 | 188  | 1,800  | 8,820              | 1,400          | 1,660  | 237  | 2,770  |
| TF 16   | 49,671          | 4,967           | 1,455 | 9,286                 | 202  | 2,140  | 9,054              | 1,480          | 1,740  | 250  | 3,205  |
| TF 17   | 55,665          | 5,010           | 1,530 | 9,372                 | 216  | 2,525  | 9,140              | 1,550          | 1,810  | 262  | 3,715  |
| TF 18   | 62,000          | 5,270           | 1,600 | 9,892                 | 222  | 2,800  | 9,660              | 1,620          | 1,880  | 272  | 4,090  |
| TF 19   | 68,577          | 5,486           | 1,680 | 10,324                | 223  | 3,055  | 10,092             | 1,700          | 1,960  | 273  | 4,460  |
| TF 20   | 75,590          | 5,670           | 1,760 | 10,692                | 242  | 3,660  | 10,460             | 1,780          | 2,040  | 292  | 5,190  |

\*) Bu, Bo: Widths of anchor plates, below and above; Lu, Lo: Lengths of anchor plates, below and above

\*\*) Including anchor plates



Section through TF bearing with dowels (without anchor plates)

Plan view of pot of a TF bearing

Plan view of piston of a TF bearing



# Typical dimensions – Type TE

RESTON®POT bearings of type TE can move along one horizontal axis and resist horizontal forces transverse to that axis, while accommodating rotations about every axis. The bearing is connected to the superstructure and substructure by means of dowels or anchor plates with shear studs.

Small bearings are generally equipped with external guide bars (type “a”), for space reasons. Larger bearings are normally equipped with an internal guide bar along the bearing’s axis (type “i”). Depending on the size of the horizontal force in relation to the vertical force, bearings of intermediate size can be equipped with external or, as provided here, internal guide bars.

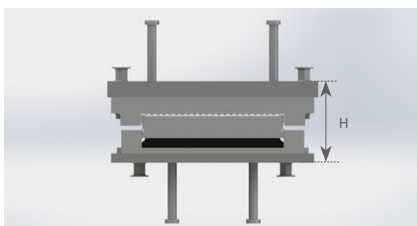
Bearing dimensions and weights for deviating requirements can be determined on request.

## Dimensions for concrete class C30/37 (based on EN 1337)

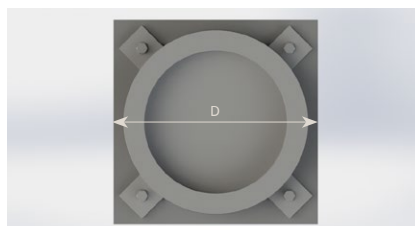
| Type     | N <sub>Rd</sub> | V <sub>Rd</sub> | D     | Without anchor plates |      |                |                |        | With anchor plates |                |       |       |       |      |        |
|----------|-----------------|-----------------|-------|-----------------------|------|----------------|----------------|--------|--------------------|----------------|-------|-------|-------|------|--------|
|          |                 |                 |       | N <sub>d,min</sub>    | H    | B <sub>x</sub> | B <sub>y</sub> | Weight | N <sub>d,min</sub> | Anchor plates* |       |       |       | H**  | Weight |
|          |                 |                 |       |                       |      |                |                |        |                    | Bu             | Lu    | Bo    | Lo    |      |        |
| [kN]     | [kN]            | [mm]            | [kN]  | [mm]                  | [mm] | [mm]           | [kg]           | [kN]   | [mm]               | [mm]           | [mm]  | [mm]  | [mm]  | [kg] |        |
| TE 1a    | 620             | 192             | 200   | 356                   | 91   | 390            | 270            | 50     | 356                | 330            | 220   | 290   | 410   | 125  | 70     |
| TE 1.5a  | 1,113           | 240             | 240   | 477                   | 90   | 430            | 300            | 60     | 422                | 375            | 255   | 320   | 440   | 130  | 93     |
| TE 2a    | 1,486           | 329             | 270   | 488                   | 102  | 450            | 330            | 80     | 488                | 420            | 290   | 350   | 470   | 135  | 115    |
| TE 2.5a  | 2,231           | 418             | 315   | 714                   | 101  | 490            | 360            | 95     | 685                | 465            | 335   | 395   | 505   | 142  | 155    |
| TE 3a    | 2,772           | 542             | 360   | 887                   | 113  | 520            | 420            | 135    | 881                | 510            | 380   | 440   | 540   | 148  | 195    |
| TE 3.5a  | 3,577           | 662             | 400   | 1,145                 | 125  | 560            | 450            | 175    | 958                | 555            | 425   | 485   | 575   | 160  | 258    |
| TE 4a    | 4,395           | 897             | 450   | 1,425                 | 140  | 590            | 510            | 245    | 1,034              | 600            | 470   | 530   | 610   | 172  | 320    |
| TE 4.5a  | 5,267           | 982             | 490   | 1,620                 | 139  | 640            | 540            | 280    | 1,230              | 650            | 510   | 540   | 640   | 177  | 358    |
| TE 5i    | 4,780           | 1,071           | 525   | 1,785                 | 144  | 650            | 530            | 290    | 1,425              | 700            | 550   | 550   | 670   | 181  | 395    |
| TE 5.5i  | 6,288           | 1,150           | 570   | 1,968                 | 149  | 660            | 575            | 335    | 1,567              | 740            | 590   | 595   | 705   | 186  | 463    |
| TE 6i    | 7,011           | 1,248           | 610   | 2,158                 | 154  | 710            | 615            | 390    | 1,708              | 780            | 630   | 640   | 740   | 191  | 530    |
| TE 6.5i  | 8,838           | 1,336           | 650   | 2,356                 | 155  | 740            | 655            | 440    | 1,892              | 820            | 670   | 675   | 775   | 194  | 603    |
| TE 7i    | 9,627           | 1,422           | 685   | 2,527                 | 159  | 790            | 690            | 500    | 2,076              | 860            | 710   | 710   | 810   | 197  | 675    |
| TE 7.5i  | 11,146          | 1,508           | 730   | 2,621                 | 160  | 820            | 735            | 580    | 2,264              | 900            | 750   | 755   | 850   | 199  | 758    |
| TE 8i    | 12,678          | 1,599           | 770   | 2,687                 | 163  | 870            | 775            | 645    | 2,451              | 940            | 790   | 800   | 890   | 201  | 840    |
| TE 8.5i  | 14,402          | 1,671           | 810   | 2,847                 | 164  | 900            | 815            | 695    | 2,638              | 995            | 830   | 840   | 930   | 203  | 935    |
| TE 9i    | 16,128          | 1,775           | 850   | 3,062                 | 167  | 950            | 855            | 780    | 2,825              | 1,050          | 870   | 880   | 970   | 205  | 1,030  |
| TE 9.5i  | 18,011          | 1,846           | 895   | 3,258                 | 169  | 980            | 900            | 850    | 3,012              | 1,090          | 910   | 920   | 1,010 | 210  | 1,145  |
| TE 10i   | 19,917          | 1,950           | 930   | 3,435                 | 174  | 1,030          | 935            | 950    | 3,199              | 1,130          | 950   | 960   | 1,050 | 214  | 1,260  |
| TE 10.5i | 22,034          | 2,028           | 990   | 3,623                 | 183  | 1,060          | 995            | 1,110  | 3,387              | 1,180          | 1,000 | 1,005 | 1,100 | 221  | 1,440  |
| TE 11i   | 24,169          | 2,126           | 1,025 | 3,812                 | 188  | 1,130          | 1,030          | 1,230  | 3,575              | 1,230          | 1,050 | 1,050 | 1,150 | 228  | 1,620  |
| TE 12i   | 28,820          | 2,303           | 1,105 | 4,192                 | 202  | 1,210          | 1,110          | 1,520  | 3,954              | 1,310          | 1,130 | 1,130 | 1,230 | 242  | 1,970  |
| TE 13i   | 33,771          | 2,477           | 1,175 | 4,566                 | 216  | 1,280          | 1,180          | 1,830  | 4,335              | 1,380          | 1,200 | 1,200 | 1,300 | 262  | 2,410  |
| TE 14i   | 38,782          | 2,654           | 1,255 | 4,947                 | 225  | 1,360          | 1,260          | 2,140  | 4,708              | 1,460          | 1,280 | 1,280 | 1,380 | 271  | 2,810  |
| TE 15i   | 44,098          | 2,831           | 1,340 | 5,329                 | 238  | 1,440          | 1,345          | 2,570  | 5,090              | 1,540          | 1,360 | 1,370 | 1,460 | 285  | 3,340  |
| TE 16i   | 49,671          | 3,757           | 1,450 | 7,266                 | 250  | 1,550          | 1,455          | 3,180  | 7,028              | 1,670          | 1,470 | 1,480 | 1,570 | 302  | 4,180  |
| TE 17i   | 55,665          | 3,978           | 1,525 | 7,741                 | 266  | 1,630          | 1,530          | 3,730  | 7,504              | 1,750          | 1,550 | 1,550 | 1,650 | 318  | 4,780  |
| TE 18i   | 62,000          | 4,199           | 1,600 | 8,218                 | 280  | 1,700          | 1,605          | 4,300  | 7,979              | 1,890          | 1,620 | 1,630 | 1,720 | 335  | 5,620  |
| TE 19i   | 68,577          | 4,416           | 1,680 | 8,687                 | 294  | 1,780          | 1,685          | 4,980  | 8,676              | 1,970          | 1,700 | 1,710 | 1,800 | 349  | 6,420  |
| TE 20i   | 75,590          | 4,637           | 1,755 | 9,164                 | 302  | 1,860          | 1,760          | 5,540  | 8,925              | 2,050          | 1,780 | 1,780 | 1,880 | 357  | 7,120  |

\*) Bu, Bo: Widths of anchor plates, below and above; Lu, Lo: Lengths of anchor plates, below and above

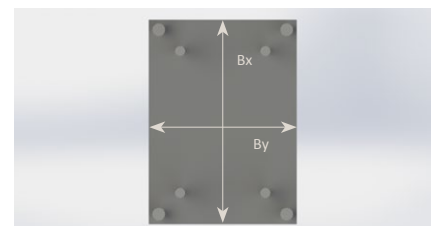
\*\*\*) Including anchor plates



Section through TE bearing with dowels (without anchor plates)



Plan view of pot of a TE bearing



Plan view of sliding plate of a TE bearing



# Typical dimensions – Type TA

RESTON®POT bearings of type TA facilitate movements in every direction and rotations about every axis. This type of bearing cannot transmit any horizontal forces except friction. The bearing is connected to the superstructure and substructure by means of threaded sleeves or anchor plates with shear studs.

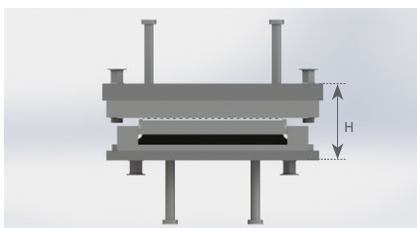
Bearing dimensions and weights for deviating requirements can be determined on request.

## Dimensions for concrete class C30/37 (based on EN 1337)

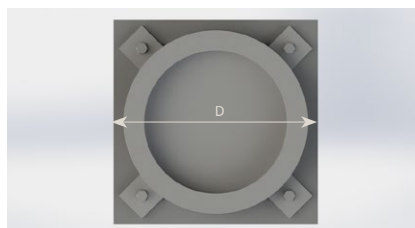
| Type    | N <sub>rd</sub> | D     | Without anchor plates |                |                |        | With anchor plates |                 |                |                |                |        |
|---------|-----------------|-------|-----------------------|----------------|----------------|--------|--------------------|-----------------|----------------|----------------|----------------|--------|
|         |                 |       | H                     | B <sub>x</sub> | B <sub>y</sub> | Weight | H*                 | Anchor plates** |                |                |                | Weight |
|         |                 |       |                       |                |                |        |                    | B <sub>u</sub>  | L <sub>u</sub> | B <sub>o</sub> | L <sub>o</sub> |        |
| [kN]    | [mm]            | [mm]  | [mm]                  | [mm]           | [kg]           | [mm]   | [mm]               | [mm]            | [mm]           | [mm]           | [mm]           | [kg]   |
| TA 1    | 714             | 200   | 86                    | 300            | 260            | 30     | 120                | 270             | 270            | 270            | 320            | 55     |
| TA 1.5  | 1,193           | 240   | 85                    | 380            | 300            | 45     | 120                | 295             | 295            | 300            | 355            | 68     |
| TA 2    | 1,595           | 270   | 86                    | 370            | 320            | 50     | 120                | 320             | 320            | 330            | 390            | 80     |
| TA 2.5  | 2,231           | 310   | 86                    | 440            | 350            | 65     | 124                | 350             | 350            | 370            | 430            | 105    |
| TA 3    | 2,913           | 350   | 95                    | 450            | 390            | 85     | 128                | 380             | 380            | 410            | 470            | 130    |
| TA 3.5  | 3,577           | 390   | 95                    | 510            | 430            | 105    | 133                | 415             | 415            | 445            | 505            | 160    |
| TA 4    | 4,496           | 420   | 105                   | 520            | 460            | 130    | 138                | 450             | 450            | 480            | 540            | 190    |
| TA 4.5  | 5,267           | 460   | 105                   | 580            | 500            | 155    | 147                | 485             | 485            | 520            | 580            | 240    |
| TA 5    | 6,388           | 500   | 119                   | 600            | 540            | 200    | 155                | 520             | 520            | 560            | 620            | 290    |
| TA 5.5  | 7,315           | 540   | 119                   | 640            | 580            | 225    | 158                | 560             | 560            | 595            | 655            | 335    |
| TA 6    | 8,647           | 570   | 123                   | 670            | 610            | 260    | 161                | 600             | 600            | 630            | 690            | 380    |
| TA 6.5  | 9,661           | 625   | 129                   | 730            | 650            | 325    | 168                | 635             | 635            | 670            | 730            | 448    |
| TA 7    | 11,207          | 650   | 136                   | 750            | 690            | 365    | 175                | 670             | 670            | 710            | 770            | 515    |
| TA 7.5  | 12,375          | 690   | 142                   | 790            | 730            | 425    | 180                | 705             | 705            | 745            | 805            | 583    |
| TA 8    | 14,143          | 720   | 146                   | 820            | 760            | 470    | 184                | 740             | 740            | 780            | 840            | 650    |
| TA 8.5  | 15,425          | 760   | 150                   | 860            | 800            | 530    | 192                | 780             | 780            | 820            | 880            | 753    |
| TA 9    | 17,422          | 800   | 161                   | 900            | 840            | 630    | 199                | 820             | 820            | 860            | 920            | 855    |
| TA 9.5  | 18,758          | 840   | 164                   | 940            | 880            | 700    | 207                | 860             | 860            | 900            | 960            | 980    |
| TA 10   | 20,986          | 880   | 174                   | 980            | 920            | 820    | 215                | 900             | 900            | 940            | 1,000          | 1,105  |
| TA 10.5 | 22,933          | 930   | 175                   | 1,030          | 970            | 905    | 219                | 940             | 940            | 980            | 1,040          | 1,230  |
| TA 11   | 24,942          | 960   | 183                   | 1,060          | 1,000          | 1,010  | 223                | 980             | 980            | 1,020          | 1,080          | 1,355  |
| TA 12   | 29,239          | 1,040 | 192                   | 1,140          | 1,080          | 1,235  | 233                | 1,060           | 1,060          | 1,100          | 1,160          | 1,645  |
| TA 13   | 33,807          | 1,130 | 211                   | 1,230          | 1,170          | 1,595  | 257                | 1,150           | 1,150          | 1,190          | 1,250          | 2,130  |
| TA 14   | 38,782          | 1,210 | 226                   | 1,310          | 1,250          | 1,950  | 272                | 1,230           | 1,230          | 1,270          | 1,330          | 2,560  |
| TA 15   | 44,098          | 1,300 | 235                   | 1,400          | 1,340          | 2,325  | 281                | 1,320           | 1,320          | 1,360          | 1,420          | 3,025  |
| TA 16   | 49,671          | 1,380 | 249                   | 1,480          | 1,420          | 2,775  | 300                | 1,400           | 1,400          | 1,440          | 1,500          | 3,650  |
| TA 17   | 55,665          | 1,460 | 262                   | 1,560          | 1,500          | 3,270  | 314                | 1,480           | 1,480          | 1,520          | 1,580          | 4,260  |
| TA 18   | 62,000          | 1,540 | 271                   | 1,640          | 1,580          | 3,730  | 326                | 1,560           | 1,560          | 1,600          | 1,660          | 4,885  |
| TA 19   | 68,577          | 1,620 | 281                   | 1,720          | 1,660          | 4,245  | 336                | 1,640           | 1,640          | 1,680          | 1,740          | 5,520  |
| TA 20   | 75,590          | 1,710 | 300                   | 1,810          | 1,750          | 5,105  | 355                | 1,730           | 1,730          | 1,770          | 1,830          | 6,520  |

\*) Including anchor plates

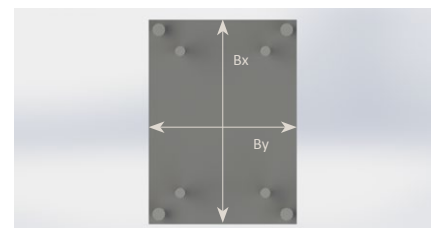
\*\*) B<sub>o</sub>, B<sub>u</sub>: Widths of anchor plates, above and below; L<sub>o</sub>, L<sub>u</sub>: Lengths of anchor plates, above and below



Section through TA bearing with threaded sleeve anchors (without anchor plates)



Plan view of pot of a TA bearing



Plan view of sliding plate of a TA bearing