

# Pump Spacer Coupling TFI Series w/ Torsi-Lock - Torsiflex-i

## API610/ISO13709 | Double Flex Spacer

- All Torsi-Lock devices must be sized to transmit the actual application Peak Torque. The data table shows a comparison of the Torsi-Lock torque transmissibility to the coupling Peak Torque Rating as a reference. The table below does not show all possible Torsi-Lock sizes and ranges. For any Torsi-Lock requirement beyond those detailed here, please consult TB Woods Engineering (see the catalog back cover for contact information).



- To determine the actual transmissible torque, as well as the actual combined hub plus Torsi-Lock device weight, from the data table, linearly interpolate between the range of values given for min and max shaft diameter. See the example interpolation calculation to the right.

- The data table is applicable to keyless shaft applications only. For keyed shaft applications, either:
  - Use a half key in the shaft and deduct the transmissible torque value of the Torsi-Lock by 10%
  - Use a full height key and the overkey dimension as the Shaft Size (dw) to determine the correct Torsi-Lock size.

| Torsi-Lock Size              |          |            |       | 20    | 22    | 24    | 30    | 36    | 40    | 44    | 48    | 50    | 55    | 62    | 68    | 75    | 80    | 90    | 100   |      |      |      |      |      |      |      |
|------------------------------|----------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| Shaft Size Range             | DW       | Min (over) | in    | 0.630 | 0.709 | 0.787 | 0.827 | 1.024 | 1.220 | 1.339 | 1.417 | 1.575 | 1.654 | 1.890 | 2.047 | 2.362 | 2.559 | 2.756 | 2.953 |      |      |      |      |      |      |      |
|                              |          |            | mm    | 16    | 18    | 20    | 21    | 26    | 31    | 34    | 36    | 40    | 42    | 48    | 52    | 60    | 65    | 70    | 75    |      |      |      |      |      |      |      |
|                              |          | Max (incl) | in    | 0.709 | 0.787 | 0.827 | 1.024 | 1.220 | 1.339 | 1.417 | 1.575 | 1.654 | 1.890 | 2.047 | 2.362 | 2.559 | 2.756 | 2.953 | 3.150 |      |      |      |      |      |      |      |
|                              |          |            | mm    | 18    | 20    | 21    | 26    | 31    | 34    | 36    | 40    | 42    | 48    | 52    | 60    | 65    | 70    | 75    | 80    |      |      |      |      |      |      |      |
| Transmissible Torque (x1000) |          | TMin       | lb-in | 1.15  | 1.50  | 1.86  | 1.71  | 3.45  | 4.96  | 6.28  | 6.46  | 9.29  | 10.3  | 15.5  | 17.7  | 22.1  | 28.3  | 42.0  | 61.1  |      |      |      |      |      |      |      |
|                              |          | TMax       | lb-in | 1.59  | 2.04  | 2.21  | 3.36  | 5.58  | 7.08  | 7.61  | 9.82  | 12.2  | 16.6  | 19.9  | 27.9  | 35.0  | 40.7  | 64.2  | 79.7  |      |      |      |      |      |      |      |
| Torsi-Lock Device Dims       | O.A.L.   | L1         | in    | 0.89  | 0.89  | 0.91  | 0.98  | 1.07  | 1.11  | 1.18  | 1.18  | 1.26  | 1.36  | 1.38  | 1.38  | 1.50  | 1.50  | 1.75  | 1.95  |      |      |      |      |      |      |      |
|                              | O.D.     | Ht         | in    | 1.89  | 1.89  | 1.97  | 2.36  | 2.83  | 2.95  | 3.15  | 3.15  | 3.54  | 3.94  | 4.33  | 4.53  | 5.43  | 5.71  | 6.10  | 6.69  |      |      |      |      |      |      |      |
|                              | Weight   | Wt         | lb    | 0.44  | 0.44  | 0.44  | 0.66  | 1.10  | 1.10  | 1.32  | 1.21  | 1.76  | 2.43  | 2.87  | 3.09  | 5.29  | 5.51  | 7.28  | 10.4  |      |      |      |      |      |      |      |
| Coupling Size                | TFI0027  |            |       | 1.48  | 1.47  | 1.46  | 1.77  | 2.24  | 2.19  | 2.44  | 2.40  | 2.87  | 3.69  |       |       |       |       |       |       |      |      |      |      |      |      |      |
|                              | TFI0038  |            |       | 1.44  | 1.43  | 1.44  | 1.64  | 2.07  | 2.08  | 2.36  | 2.21  | 2.76  | 3.33  |       |       |       |       |       |       |      |      |      |      |      |      |      |
|                              | TFI0140  |            |       | 1.47  | 1.47  | 1.49  | 1.57  | 1.65  | 1.69  | 1.76  | 1.76  | 1.84  | 1.94  |       |       |       |       |       |       |      |      |      |      |      |      |      |
|                              | TFI0260  |            |       |       |       |       |       |       | 3.79  | 4.04  | 3.99  | 4.46  | 5.29  | 5.76  | 6.08  | 8.23  | 8.40  | 10.8  | 14.8  |      |      |      |      |      |      |      |
|                              | TFI0400  |            |       |       |       |       |       |       | 3.67  | 3.95  | 3.80  | 4.35  | 4.92  | 5.48  | 5.47  | 7.78  | 7.91  | 10.2  | 14.1  |      |      |      |      |      |      |      |
|                              | TFI0750  |            |       |       |       |       |       |       | 1.69  | 1.76  | 1.76  | 1.84  | 1.94  | 1.96  | 1.96  | 2.08  | 2.08  | 2.33  | 2.53  |      |      |      |      |      |      |      |
|                              | TFI1310  |            |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 6.29  | 6.74  | 7.55 | 7.99 | 8.28 | 10.4 | 10.5 | 12.9 | 16.8 |
|                              | TFI1900  |            |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |      |      |      |
|                              | TFI2500  |            |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |      |      |      |
|                              | TFI3300  |            |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |      |      |      |
|                              | TFI6000  |            |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |      |      |      |
|                              | TFI8500  |            |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |      |      |      |
|                              | TFI12000 |            |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |      |      |      |

**Example (Coupling Size 1310):**

| 90   | 100  | 110  | 115  | 125  | 140  | 155  | 165  | 175  | 185  | 195  |
|------|------|------|------|------|------|------|------|------|------|------|
| 25.4 | 29.2 | 33.1 | 33.5 | 33.2 | 38.4 | 41.0 | 48.9 | 54.7 | 63.0 | 79.3 |
| 24.7 | 28.4 | 32.1 | 31.4 | 30.8 | 33.1 | 36.4 | 47.1 | 50.8 | 58.8 | 74.3 |
| 2.80 | 2.99 | 3.29 | 3.45 | 3.35 | 3.35 | 3.35 | 3.80 | 3.80 | 3.80 | 4.19 |

Transmits less than Peak Starting Torque Rating of the Coupling. Therefore the actual Transmissible Torque must be compared against the Application Peak Torque.

Transmits more than Peak Starting Torque Rating of the Coupling.

# Pump Spacer Coupling TFI Series w/ Torsi-Lock - Torsiflex-i

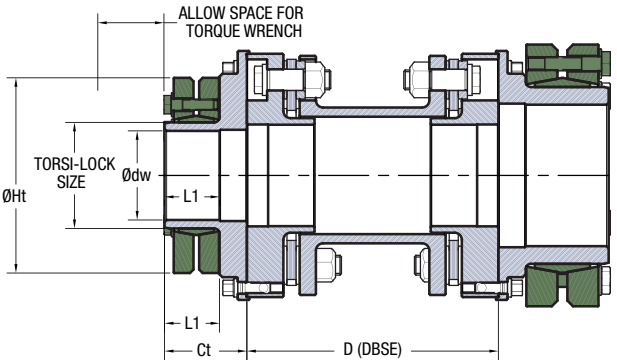
## API610/ISO13709 | Double Flex Spacer

### Example Interpolation Calculation

To interpolate Torsi-Lock table data for a TF 0260 with a size 115 Torsi-Lock for a bore of 3.625":

|   |   |       |                    |   |
|---|---|-------|--------------------|---|
| Y | Z | 3.346 | dw MIN (Min. Bore) | Target Weight $w = w1 + \frac{Z}{Y} (X)$                          |
|   |   | 3.625 | B (Target Bore)    |   |
|   |   | 3.740 | dw MAX (Max. Bore) |   |
|   |   |       |                    | $W = 21.3 + \frac{(3.625 - 3.346)}{(3.74 - 3.346)} (21.3 - 19.3)$ |
|   |   |       |                    | $W = 19.9 \text{ (lbs)}$  |
| X |   | 21.3  | w1 (Wt. @ dw MIN)  | Where:<br>Z = B - dw MIN<br>Y = dw MAX - dw MIN<br>X = w2 - w1    |
|   |   | W     | (Target Wt.)       |   |
|   |   | 19.3  | w2 (Wt. @ dw MAX)  |   |

Note that the same method can be used to determine actual Torsiloc transmissible torque ratings for bores that are in between the min and max.



| 110   | 115   | 125   | 140   | 155   | 165   | 175   | 185   | 195   | 200   | 220   | 240   | 260   | 280   | 300    | 320    | 340    | 350    | 360    | 380    | 390    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| 3.150 | 3.346 | 3.740 | 4.134 | 4.921 | 5.512 | 5.709 | 6.102 | 6.496 | 6.890 | 7.283 | 7.874 | 8.465 | 9.252 | 9.843  | 10.630 | 11.417 | 12.008 | 12.205 | 12.598 | 12.992 |
| 80    | 85    | 95    | 105   | 120   | 140   | 145   | 155   | 165   | 175   | 185   | 200   | 215   | 235   | 250    | 270    | 290    | 305    | 310    | 320    | 330    |
| 3.346 | 3.740 | 4.134 | 4.921 | 5.512 | 5.709 | 6.102 | 6.496 | 6.890 | 7.283 | 7.874 | 8.465 | 9.252 | 9.843 | 10.630 | 11.417 | 12.008 | 12.205 | 12.598 | 12.992 | 13.780 |
| 85    | 95    | 105   | 125   | 140   | 145   | 155   | 165   | 175   | 185   | 200   | 215   | 235   | 250   | 270    | 290    | 305    | 310    | 320    | 330    | 350    |
| 63.7  | 81.4  | 93.4  | 124   | 99    | 283   | 345   | 412   | 558   | 655   | 733   | 1,000 | 1,204 | 1,513 | 1,885  | 2,301  | 2,655  | 3,292  | 3,186  | 3,850  | 4,470  |
| 95.6  | 133   | 122   | 181   | 257   | 341   | 407   | 478   | 642   | 748   | 929   | 1,190 | 1,478 | 1,841 | 2,257  | 2,664  | 2,983  | 3,540  | 3,673  | 4,133  | 5,098  |
| 2.24  | 2.40  | 2.31  | 2.31  | 2.31  | 2.76  | 2.76  | 2.76  | 3.15  | 3.15  | 3.71  | 3.71  | 4.03  | 4.50  | 4.50   | 4.58   | 4.58   | 5.31   | 5.31   | 5.87   | 5.87   |
| 7.28  | 7.28  | 7.28  | 8.66  | 9.65  | 10.24 | 10.83 | 11.61 | 12.40 | 12.99 | 13.58 | 14.57 | 15.55 | 16.73 | 18.11  | 19.49  | 21.06  | 21.46  | 21.85  | 23.03  | 23.43  |
| 13.0  | 13.2  | 13.2  | 17.6  | 22.1  | 30.9  | 35.3  | 44.1  | 59.5  | 66.2  | 77.2  | 97.0  | 106   | 132   | 165    | 185    | 221    | 265    | 276    | 331    | 344    |
|       |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
|       |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
|       |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
| 20.7  | 21.3  |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
| 19.9  | 19.3  |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
| 3.01  | 3.16  |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
| 22.4  | 23.0  | 22.8  | 28.2  |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
| 21.6  | 21.0  | 20.7  | 23.3  |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
| 3.01  | 3.16  | 3.07  | 3.07  |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
| 26.0  | 26.5  | 26.2  | 31.6  | 34.4  |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
| 25.1  | 24.4  | 24.0  | 26.5  | 30.0  |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
| 3.13  | 3.28  | 3.19  | 3.19  | 3.19  |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |
| 33.1  | 33.5  | 33.2  | 38.4  | 41.0  | 48.9  | 54.7  | 63.0  | 79.3  |       |       |       |       |       |        |        |        |        |        |        |        |
| 32.1  | 31.4  | 30.8  | 33.1  | 36.4  | 47.1  | 50.8  | 58.8  | 74.3  |       |       |       |       |       |        |        |        |        |        |        |        |
| 3.29  | 3.45  | 3.35  | 3.35  | 3.35  | 3.80  | 3.80  | 3.80  | 4.19  |       |       |       |       |       |        |        |        |        |        |        |        |
| 41.5  | 42.0  | 41.6  | 46.8  | 49.2  | 57.1  | 62.8  | 71.0  | 87.2  | 91.0  | 109   |       |       |       |        |        |        |        |        |        |        |
| 40.6  | 39.8  | 39.2  | 41.3  | 44.5  | 55.1  | 58.8  | 66.7  | 82.2  | 85.7  | 98.9  |       |       |       |        |        |        |        |        |        |        |
| 3.37  | 3.52  | 3.43  | 3.43  | 3.43  | 3.88  | 3.88  | 3.88  | 4.27  | 4.27  | 4.84  |       |       |       |        |        |        |        |        |        |        |
|       | 50.0  | 49.4  | 54.5  | 56.7  | 64.3  | 69.9  | 78.0  | 94.0  | 97.5  | 115   | 137   |       |       |        |        |        |        |        |        |        |
|       | 47.7  | 46.9  | 48.8  | 51.7  | 62.3  | 65.7  | 7.5   | 88.8  | 92.0  | 105   | 126   |       |       |        |        |        |        |        |        |        |
|       | 3.70  | 3.60  | 3.60  | 3.60  | 4.05  | 4.05  | 4.05  | 4.44  | 4.44  | 5.01  | 5.01  |       |       |        |        |        |        |        |        |        |
|       |       |       | 62.0  | 64.2  | 71.7  | 77.4  | 85.4  | 101   | 105   | 122   | 144   | 157   |       |        |        |        |        |        |        |        |
|       |       |       | 56.2  | 59.2  | 69.7  | 73.2  | 80.9  | 96.2  | 99.5  | 112   | 133   | 141   |       |        |        |        |        |        |        |        |
|       |       |       | 3.60  | 3.60  | 4.05  | 4.05  | 4.05  | 4.44  | 4.44  | 5.01  | 5.01  | 5.32  |       |        |        |        |        |        |        |        |
|       |       |       |       | 87.6  | 95.0  | 101   | 108   | 124   | 128   | 148   | 166   | 179   | 207   | 244    | 262    |        |        |        |        |        |
|       |       |       |       | 82.5  | 93.0  | 96.3  | 104   | 119   | 122   | 135   | 155   | 162   | 192   | 222    | 239    |        |        |        |        |        |
|       |       |       |       | 3.75  | 4.19  | 4.19  | 4.19  | 4.59  | 4.59  | 5.15  | 5.15  | 5.47  | 5.94  | 5.94   | 6.02   |        |        |        |        |        |
|       |       |       |       |       |       | 132   | 140   | 155   | 158   | 175   | 196   | 208   | 236   | 271    | 289    | 321    | 364    | 381    |        |        |
|       |       |       |       |       |       | 127   | 135   | 150   | 152   | 164   | 184   | 191   | 220   | 249    | 265    | 302    | 357    | 366    |        |        |
|       |       |       |       |       |       | 4.43  | 4.43  | 4.82  | 4.82  | 5.39  | 5.39  | 5.70  | 6.17  | 6.17   | 6.25   | 6.25   | 6.99   | 6.99   |        |        |
|       |       |       |       |       |       |       |       | 191   | 193   | 210   | 231   | 243   | 270   | 305    | 322    | 353    | 396    | 413    | 487    | 499    |
|       |       |       |       |       |       |       |       | 185   | 187   | 199   | 219   | 225   | 254   | 282    | 297    | 334    | 389    | 397    | 470    | 463    |
|       |       |       |       |       |       |       |       | 4.98  | 4.98  | 5.55  | 5.55  | 5.86  | 6.33  | 6.33   | 6.41   | 6.41   | 7.15   | 7.15   | 7.70   | 7.70   |

79.3 — Combined weight of the hub and Torsi-Lock device at the MIN shaft diameter.

74.4 — Combined weight of the hub and Torsi-Lock device at the MAX shaft diameter.

4.19 — Ct: Overall hub length thru bore (not including pilot lip)