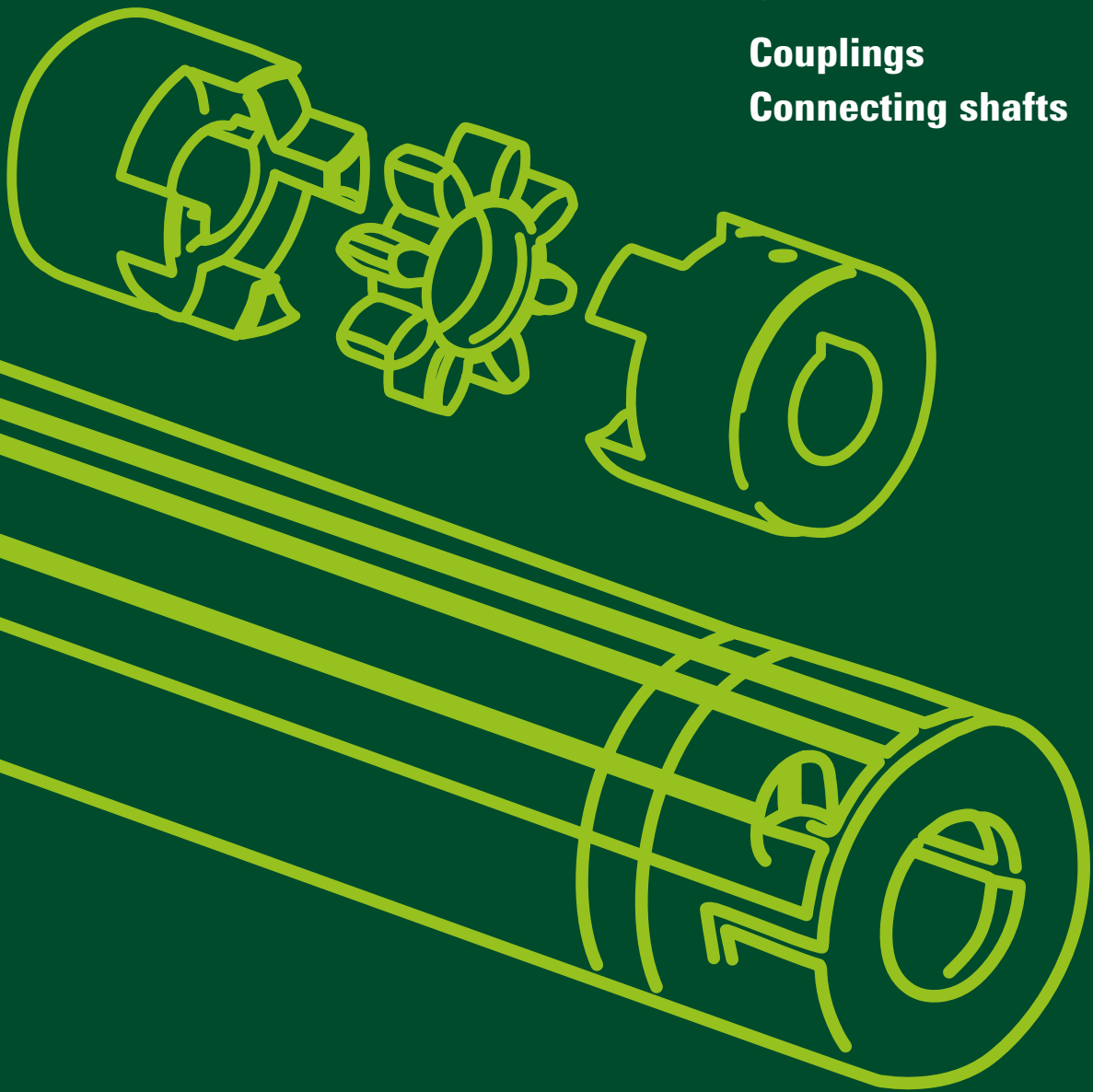

Connection Elements

Couplings

Connecting shafts





Connection Elements

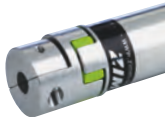
Couplings
Connecting shafts



Standard coupling KUZ 2



Clamp coupling KUZ-KK 3



Connecting shaft VWZ 4



Accessories for connecting shaft
Pedestal bearing STL, Shaft extension WZ 6



Technical information
for connecting shaft 7

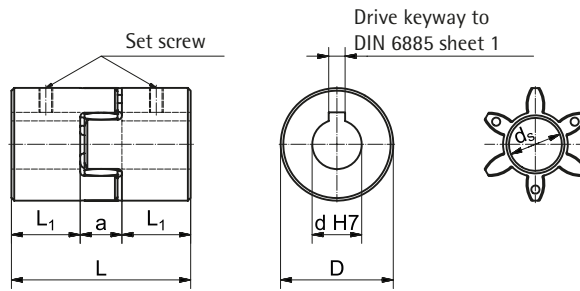
Standard coupling KUZ

Coupling with keyway and set screw:

Material: as shown in the table,
Provides rotational resilience and
maintenance-free,
Drive keyway: DIN 6885/1-P9,
Bore U = not drilled

Elastomer – Star "red":

Material: Polyurethane,
Medium to good damping,
Very good long-term strength,
Temperature range: -20°C to +70°C
reduced to -30°C up to +100°C (Mx0,55)



Dimensions

| Coupling size | D | L | L1 | a | ds _{Star} | L1 _{Long hub} | Set screw | Tightening torque Nm |
|---------------|------|-----|----|----|--------------------|------------------------|-----------|----------------------|
| KUZ-09 | 20 | 30 | 10 | 10 | - | - | M4 | 1.5 |
| KUZ-14 | 27.5 | 44 | 16 | 12 | - | - | M6 (M4) | 4.8 (1.5) |
| KUZ-19 | 34.5 | 51 | 19 | 13 | 12 | - | M6 | 4.8 |
| KUZ-24 | 40 | 66 | 25 | 16 | 17 | 40 | M5 | 2 |
| KUZ-28 | 55 | 78 | 30 | 18 | 26 | - | M5 | 2 |
| KUZ-38 | 65 | 90 | 35 | 20 | 29 | 60 | M6 | 4.8 |
| KUZ-45 | 80 | 114 | 45 | 24 | 37 | - | M8 | 10 |
| KUZ-55 | 95 | 126 | 50 | 26 | 45 | - | M8 | 10 |
| KUZ-60 | 105 | 140 | 56 | 28 | 50 | - | M8 | 10 |
| KUZ-70 | 120 | 160 | 65 | 30 | 59 | - | M10 | 17 |
| KUZ-75 | 135 | 185 | 75 | 35 | 67 | - | M10 | 17 |
| KUZ-90 | 160 | 210 | 85 | 40 | 79 | - | M10 | 17 |

Standard bores "d" mm

| | |
|---|--------------------------------|
| KUZ-09 | U, 5*, 6, 7, 8, 9 |
| KUZ-14 | U, 9, 11, 14 |
| KUZ-19 | U, 11, 14, 16, 19 |
| KUZ-24 | U, 11, 14, 16, 19, 19L, 20, 24 |
| KUZ-28 | U, 14, 16, 19, 20, 24, 25, 28 |
| KUZ-38 | U, 25, 28, 28L, 32, 38 |
| KUZ-45 | U, 25, 28, 32, 38, 42, 45 |
| KUZ-55 | U, 28, 42, 48, 55 |
| U = not drilled (KUZ-14 and KUZ-19 pre-drilled Ø6.3 mm) | |
| L = long hub | |
| *Coupling with set screw, without keyway | |
| Other diameter available on request | |

Technical data

| Coupling size | Rated torque Nm | max. torque Nm | max. speed rpm | Shore hardness star | Material* | Weight drilled kg | Torsional stiffness C _{Tdyn} Nm/rad | Moment of inertia 10 ⁻³ kgm ² |
|---------------|-----------------|----------------|----------------|---------------------|-----------|-------------------|--|---|
| KUZ-09 | 3 | 6 | 28000 | 92A | A | 0.05 | - | - |
| KUZ-14 | 4.5 | 4.5 | 20000 | 55D | S | 0.14 | 254 | 0.02 |
| KUZ-19 | 7.3 | 7.3 | 14000 | 55D | S | 0.27 | 274 | 0.03 |
| KUZ-24 | 17 | 34 | 14000 | 98A | S | 0.34 | 2920 | 0.1 |
| KUZ-28 | 60 | 120 | 10600 | 98A | S | 0.9 | 9930 | 0.4 |
| KUZ-38 | 160 | 320 | 8500 | 98A | S | 1.5 | 26770 | 1.4 |
| KUZ-45 | 325 | 650 | 7100 | 98A | G | 2.35 | 48570 | 2.5 |
| KUZ-55 | 450 | 900 | 6000 | 98A | G | 3.55 | 54500 | 6.1 |
| KUZ-60 | 525 | 1050 | 5600 | 98A | G | 4.85 | 65290 | 10.2 |
| KUZ-70 | 625 | 1250 | 4750 | 98A | G | 7.4 | 94970 | 20.3 |
| KUZ-75 | 900 | 1300 | 4250 | 98A | G | 10.8 | 129510 | 37.1 |
| KUZ-90 | 1500 | 3000 | 3550 | 98A | G | 17.7 | 197500 | 84 |

*A=Aluminium, S=Sintered steel, G=Cast iron

Ordering example:

KUZ-24-20/24

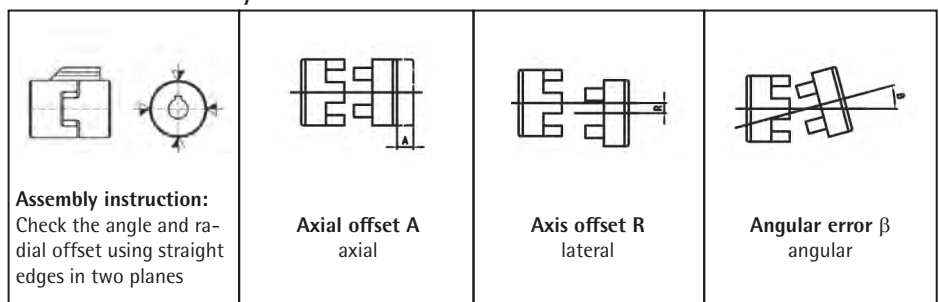
Coupling size
Bore d end 1
Bore d end 2



Permissible assembly errors

| Coupling size | max. axial offset in mm | max. axis offset in mm | Angular error in degrees |
|---------------|-------------------------|------------------------|--------------------------|
| KUZ-09 | 0.8 | 0.15 | 1.0° |
| KUZ-14 | 0.75 | 0.4 | 0.5° |
| KUZ-19 | 0.75 | 0.4 | 0.5° |
| KUZ-24 | 1.2 | 0.2 | 0.9° |
| KUZ-28 | 1.4 | 0.22 | 0.9° |
| KUZ-38 | 1.5 | 0.25 | 0.9° |
| KUZ-45 | 1.8 | 0.28 | 1.0° |
| KUZ-55 | 2 | 0.32 | 1.0° |
| KUZ-60 | 2.1 | 0.36 | 1.1° |
| KUZ-70 | 2.2 | 0.38 | 1.1° |
| KUZ-75 | 2.6 | 0.42 | 1.2° |
| KUZ-90 | 3 | 0.48 | 1.2° |

Potential assembly errors



Assembly instruction:
Check the angle and radial offset using straight edges in two planes

Axial offset A
axial

Axis offset R
lateral

Angular error β
angular

Clamp coupling KUZ-KK

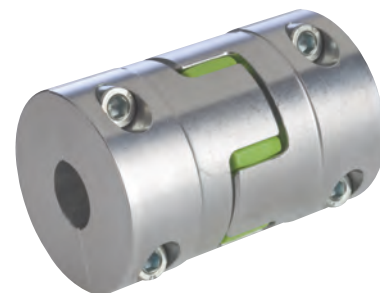
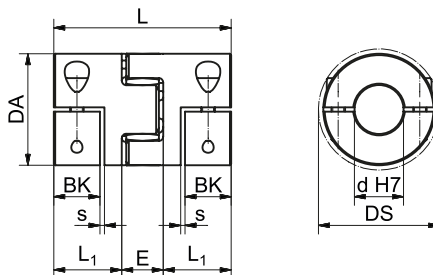
Coupling with split shells:

Material: high-tensile aluminium,
Split shells permit easy radial insertion,
High concentricity, High clamping forces,
Low moment of inertia, Stepless adjustment facility
thanks to the clamp hub rather than a fitted drive key,
Drive keyway available on request

Elastomer - Star "ZIMM green":

Permanently free of play and dampens vibration,
Shore hardness 64D,

Temperature range: 0°C to +70°C
reduced to -20°C up to +100°C (Mx0,55)



Dimensions, technical data

| Coupling size | DA mm | DS mm | L mm | L1 mm | BK* mm | s mm | E mm | M 10.9 | Tightening torque Nm | Moment of inertia 10 ⁻³ kgm ² | Torsional stiffness C _{Tdyn} Nm/rad | Weight kg |
|---------------|-------|-------|------|-------|--------|------|------|--------|----------------------|---|--|-----------|
| KUZ-KK-16 | 32 | 32 | 54 | 21 | 15 | 1.5 | 12 | M4 | 4 | 0.01 | 1375 | 0.1 |
| KUZ-KK-24 | 42 | 44.5 | 66 | 25 | 17 | 1.5 | 16 | M5 | 8 | 0.08 | 3700 | 0.2 |
| KUZ-KK-32 | 56 | 57 | 98 | 40 | 30 | 2 | 18 | M6 | 15 | 0.24 | 9917 | 0.55 |
| KUZ-KK-35 | 67 | 68 | 114 | 47 | 35 | 2 | 20 | M8 | 35 | 0.51 | 24417 | 0.9 |
| KUZ-KK-45 | 82 | 85 | 134 | 55 | 40 | 2 | 24 | M10 | 70 | 2.4 | 33667 | 1.6 |
| KUZ-KK-60 | 102 | 105 | 156 | 65 | 50 | 2 | 26 | M12 | 120 | 6 | 67667 | 2.7 |

*BK=Shaft extension clamping length

Standard bores "d" mm

| | |
|-----------|--|
| KUZ-KK-16 | 8, 9, 10, 11, 12, 14, 15, 16 |
| KUZ-KK-24 | 9, 10, 11, 12, 14, 15, 16, 18, 19, 20, 22 |
| KUZ-KK-32 | 10, 11, 12, 14, 15, 16, 18, 19, 20, 22, 24, 25, 28, 30, 32 |
| KUZ-KK-35 | 12, 15, 16, 18, 20, 22, 24, 25, 28, 30, 32, 35 |
| KUZ-KK-45 | 16, 19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45 |
| KUZ-KK-60 | 25, 28, 32, 38, 40, 42, 45, 48, 50, 55 |

Other diameter available on request

Torques

| Coupling size | Elastomer star | | max. transmittable torque of clamp hub depending on the bore diameter (clamp force) | | | | | | | | | | | | | | | | | |
|---------------|-----------------|----------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Rated torque Nm | max. torque Nm | Ø9 Nm | Ø11 Nm | Ø14 Nm | Ø16 Nm | Ø19 Nm | Ø20 Nm | Ø22 Nm | Ø24 Nm | Ø25 Nm | Ø28 Nm | Ø30 Nm | Ø32 Nm | Ø38 Nm | Ø40 Nm | Ø42 Nm | Ø45 Nm | Ø48 Nm | Ø55 Nm |
| KUZ-KK-16 | 16 | 32 | 21 | 26 | 33 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KUZ-KK-24 | 21 | 42 | - | 41 | 52 | 60 | 70 | 74 | 81 | - | - | - | - | - | - | - | - | - | - | - |
| KUZ-KK-32 | 75 | 150 | - | 60 | 76 | 87 | 104 | 109 | 120 | 131 | 136 | 153 | 164 | 175 | - | - | - | - | - | - |
| KUZ-KK-35 | 200 | 400 | - | - | - | 120 | - | 188 | 206 | - | 235 | - | 301 | - | - | - | - | - | - | - |
| KUZ-KK-45 | 405 | 810 | - | - | - | 325 | 386 | 406 | 447 | 488 | 508 | 568 | 610 | 650 | 772 | - | 854 | 915 | - | - |
| KUZ-KK-60 | 660 | 1350 | - | - | - | - | - | - | - | - | 570 | 638 | - | 730 | 866 | 914 | 960 | 1029 | 1097 | 1250 |

Ordering example:

KUZ-KK-32-20/24

Coupling size
Bore d end 1
Bore d end 2



Permissible assembly errors

| Coupling size | max. axial offset in mm | max. axis offset in mm | Angular error in degrees |
|---------------|-------------------------|------------------------|--------------------------|
| KUZ-KK-16 | ±1 | 0.08 | 1° |
| KUZ-KK-24 | ±2 | 0.08 | 1° |
| KUZ-KK-32 | ±2 | 0.1 | 1° |
| KUZ-KK-35 | ±2 | 0.15 | 1° |
| KUZ-KK-45 | ±2 | 0.12 | 1° |
| KUZ-KK-60 | ±2 | 0.14 | 1° |

Potential assembly errors

| | | |
|---------------------------------|----------------------------------|------------------------------------|
| <p>Axial offset A axial</p> | <p>Axis offset R lateral</p> | <p>Angular error β angular</p> |
|---------------------------------|----------------------------------|------------------------------------|

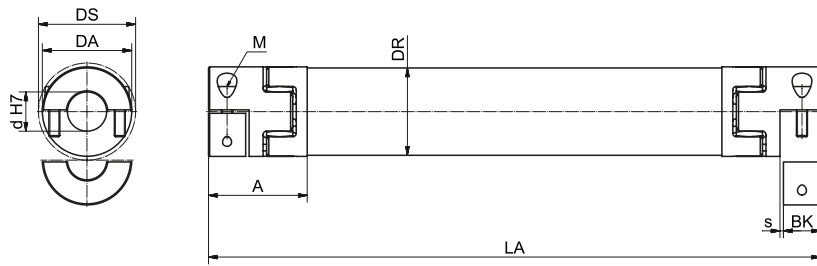
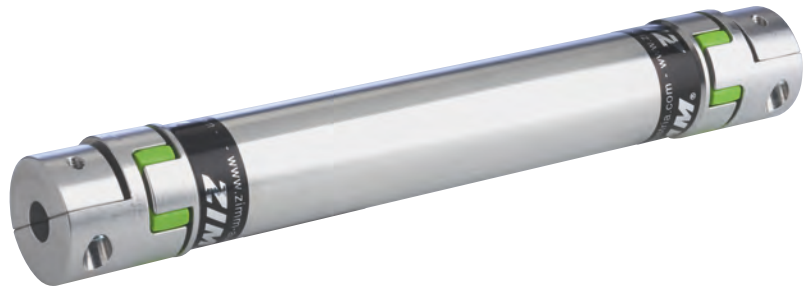
Connecting shafts VWZ

Shafts with split shells:

Material: high-tensile aluminium (stainless steel on request),
 Split shells permit easy radial insertion,
 High concentricity and clamping forces,
 Low moment of inertia, Stepless adjustment facility
 thanks to the clamp hub rather than a fitted drive key,
 Drive keyway available on request

Elastomer – Star "ZIMM green":

Permanently free of play and dampens vibration,
 Shore hardness 64D,
 Temperature range: 0°C to +70°C
 reduced to -20°C up to +100°C (Mx0,55)



Standard bores "d" mm

| | |
|---------|--|
| VWZ-30 | 8, 9, 10, 11, 12, 14, 15, 16 |
| VWZ-40 | 9, 10, 11, 12, 14, 15, 16, 18, 19, 20, 22 |
| VWZ-60 | 10, 11, 12, 14, 15, 16, 18, 19, 20, 22, 24, 25, 28, 30, 32 |
| VWZ-60V | 12, 15, 16, 18, 20, 22, 24, 25, 28, 30, 32, 35 |
| VWZ-80 | 16, 19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45 |
| VWZ-100 | 25, 28, 32, 38, 40, 42, 45, 48, 50, 55 |

Other diameter available on request

Dimensions, Technical data

| Size | Dimensions | | | | | Clamping screw | | Moment of inertia | | Torsional stiffness | | Weight | | | |
|---------|------------|-------|-------|--------|------|----------------|-----------|-------------------|----------------------|--|--|-----------------------------------|-------------------------------------|-------------------|-----------|
| | DA mm | DS mm | DR mm | BK* mm | s mm | A mm | LA min mm | M 10.9 | Tightening torque Nm | Per coupling 10 ⁻³ kgm ² | Tube/m 10 ⁻³ kgm ² | Per star C _{Tdyn} Nm/rad | Per tube/m C _{Tdyn} Nm/rad | Both couplings kg | Tube/m kg |
| VWZ-30 | 32 | 32 | 30 | 15 | 1.5 | 34 | 99 | M4 | 4 | 0.01 | 0.11 | 1375 | 1104 | 0.14 | 0.58 |
| VWZ-40 | 42 | 44.5 | 40 | 17 | 1.5 | 46 | 133 | M5 | 8 | 0.08 | 0.2 | 3700 | 2332 | 0.36 | 0.76 |
| VWZ-60 | 56 | 57 | 60 | 30 | 2 | 63 | 177 | M6 | 15 | 0.24 | 0.8 | 9917 | 8292 | 0.94 | 0.97 |
| VWZ-60V | 67 | 68 | 60 | 35 | 2 | 73 | 205 | M8 | 35 | 0.46 | 0.8 | 24417 | 8292 | 1.42 | 0.97 |
| VWZ-80 | 82 | 85 | 80 | 40 | 2 | 84 | 249 | M10 | 70 | 2.4 | 3 | 33667 | 29102 | 2.98 | 2 |
| VWZ-100 | 102 | 105 | 100 | 50 | 2 | 97 | 283 | M12 | 120 | 6 | 5.8 | 67667 | 58178 | 4.62 | 2.47 |

*BK=Shaft extension clamping length

Tab.35

Torques

| Size | Elastomer star | | max. transmittable torque of clamp hub depending on the bore diameter (clamp force) | | | | | | | | | | | | | | | | | Coupling type | | |
|---------|-----------------|----------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------------|--------|-----------|
| | Rated torque Nm | max. torque Nm | Ø9 Nm | Ø11 Nm | Ø14 Nm | Ø16 Nm | Ø19 Nm | Ø20 Nm | Ø22 Nm | Ø24 Nm | Ø25 Nm | Ø28 Nm | Ø30 Nm | Ø32 Nm | Ø38 Nm | Ø40 Nm | Ø42 Nm | Ø45 Nm | Ø48 Nm | | Ø55 Nm | |
| VWZ-30 | 16 | 32 | 21 | 26 | 33 | 37 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | KUZ-KK-16 |
| VWZ-40 | 21 | 42 | - | 41 | 52 | 60 | 70 | 74 | 81 | - | - | - | - | - | - | - | - | - | - | - | - | KUZ-KK-24 |
| VWZ-60 | 75 | 150 | - | 60 | 76 | 87 | 104 | 109 | 120 | 131 | 136 | 153 | 164 | 175 | - | - | - | - | - | - | - | KUZ-KK-32 |
| VWZ-60V | 200 | 400 | - | - | - | 120 | - | 188 | 206 | - | 235 | - | - | 301 | - | - | - | - | - | - | - | KUZ-KK-35 |
| VWZ-80 | 405 | 810 | - | - | - | 325 | 386 | 406 | 447 | 488 | 508 | 568 | 610 | 650 | 772 | - | 854 | 915 | - | - | - | KUZ-KK-45 |
| VWZ-100 | 660 | 1350 | - | - | - | - | - | - | - | - | 570 | 638 | - | 730 | 866 | 914 | 960 | 1029 | 1097 | 1250 | - | KUZ-KK-60 |

The max. torque is limited either by the star or by the clamping force

Tab.36

” ZIMM VWZ shafts of 500 mm length and more are checked for concentricity as standard! ”

Ordering example:

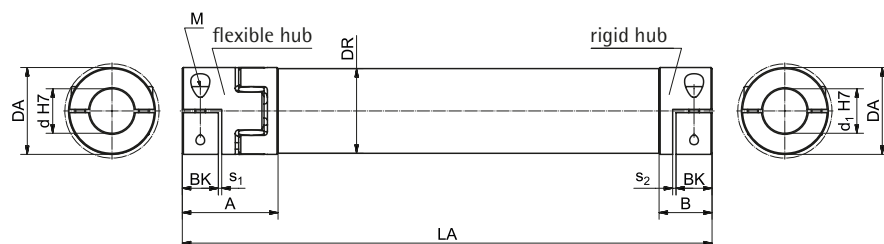
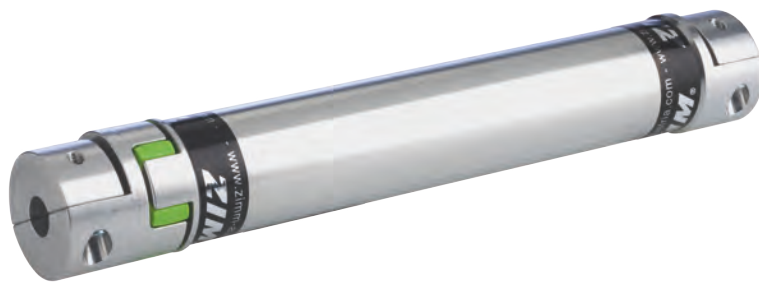
VWZ-60-LA1800-20/25



n=1500 rpm (specify the speed)

Connecting shaft VWZ with rigid hub for pedestal bearing use

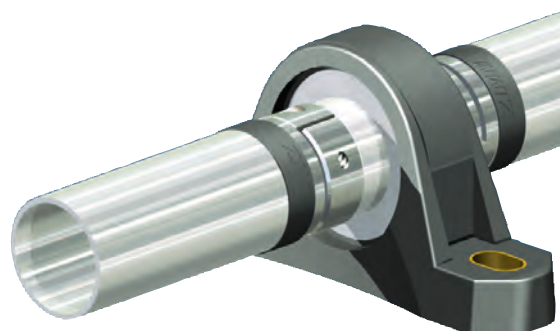
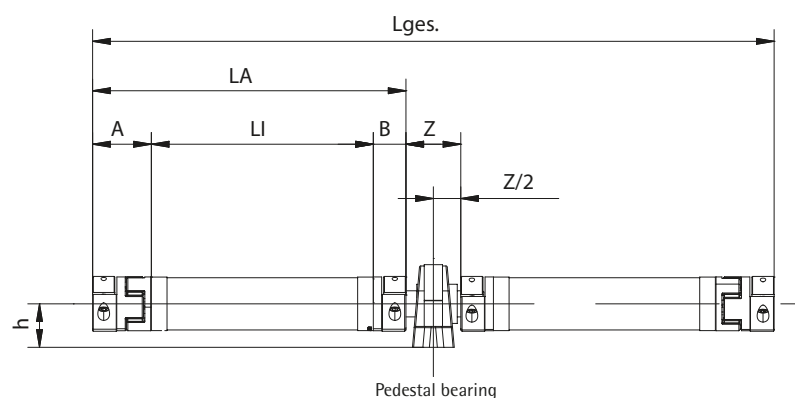
The installation situation is very important when selecting shaft dimensions. For example, the cost of a larger diameter connecting shaft not requiring additional pedestal bearing support can be considerably less than the cost of a smaller connecting shaft requiring costly sub-structures for the additional pedestal bearing. For this version we use the rigid hub version so that no radial misalignment can occur in the pedestal bearing.



| Size | A | B | s1 | s2 | Bk* | d1 | LA min |
|---------|----|----|----|-----|-----|----|--------|
| VWZ-30 | 34 | 20 | 2 | 1.2 | 15 | 15 | 85 |
| VWZ-40 | 46 | 25 | 2 | 1.6 | 17 | 20 | 112 |
| VWZ-60 | 63 | 40 | 2 | 2 | 30 | 20 | 154 |
| VWZ-60V | 73 | 42 | 2 | 2 | 35 | 30 | 175 |
| VWZ-80 | 84 | 55 | 2 | 2 | 40 | 30 | 220 |
| VWZ-100 | 97 | 65 | 2 | 2 | 50 | 50 | 251 |

*BK=Shaft extension clamping length

Tab.37



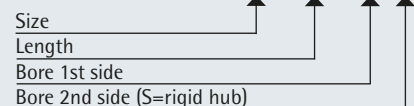
| Size | A | B | Z | L _{VWZ} | d1 | h |
|---------|----|----|----|------------------|----|------|
| VWZ-30 | 34 | 20 | 44 | 74 | 15 | 30.2 |
| VWZ-40 | 46 | 25 | 42 | 76 | 20 | 33.3 |
| VWZ-60 | 63 | 40 | 42 | 102 | 20 | 33.3 |
| VWZ-30 | 34 | 20 | 44 | 74 | 15 | 30.2 |
| VWZ-40 | 46 | 25 | 42 | 76 | 20 | 33.2 |
| VWZ-60 | 63 | 40 | 42 | 102 | 20 | 33.2 |
| VWZ-40 | 46 | 25 | 42 | 76 | 20 | 33.2 |
| VWZ-60 | 63 | 40 | 42 | 102 | 20 | 33.2 |
| VWZ-80 | 84 | 55 | 50 | 130 | 30 | 42.9 |
| VWZ-40 | 46 | 25 | 42 | 76 | 20 | 33.2 |
| VWZ-60 | 63 | 40 | 42 | 102 | 20 | 33.2 |
| VWZ-80* | 84 | 55 | 50 | 130 | 30 | 42.9 |
| VWZ-60* | 73 | 42 | 60 | 130 | 30 | 42.9 |
| VWZ-80* | 84 | 55 | 50 | 130 | 30 | 42.9 |
| VWZ-60 | 63 | 40 | 42 | 102 | 20 | 33.3 |
| VWZ-60V | 73 | 42 | 60 | 130 | 30 | 42.9 |
| VWZ-80* | 84 | 55 | 50 | 130 | 30 | 42.9 |
| VWZ-60 | 63 | 40 | 42 | 102 | 20 | 33.2 |
| VWZ-60V | 73 | 42 | 60 | 130 | 30 | 42.9 |
| VWZ-80 | 84 | 55 | 50 | 130 | 30 | 42.9 |
| VWZ-60 | 63 | 40 | 42 | 102 | 20 | 33.2 |
| VWZ-60V | 73 | 42 | 60 | 130 | 30 | 42.9 |
| VWZ-80 | 84 | 55 | 50 | 130 | 30 | 42.9 |
| VWZ-100 | 97 | 65 | 70 | 170 | 50 | 57.2 |
| VWZ-80 | 84 | 55 | 50 | 130 | 30 | 42.9 |
| VWZ-100 | 97 | 65 | 70 | 170 | 50 | 57.2 |
| VWZ-80 | 84 | 55 | 50 | 130 | 30 | 42.9 |
| VWZ-100 | 97 | 65 | 70 | 170 | 50 | 57.2 |

*Can't be fitted with pivot mounts LB

Tab.38

Ordering example:

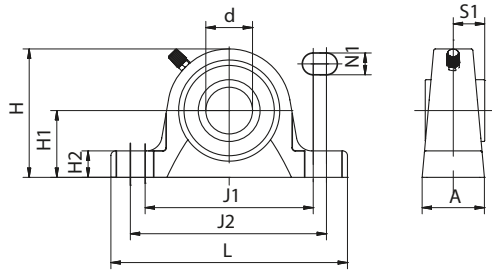
VWZ-60-LA1800-25/20S



n=1500 rpm (specify the speed)

Pedestal bearing STL for connecting shaft VWZ

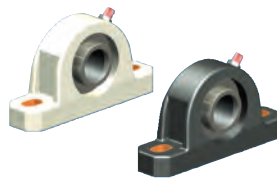
Housing material: Grey cast iron, primed in blue
Bearing material: Roller bearing steel
Temperature range: -30°C to +120°C



| Part no. | d | A | H | H1 | H2 | J1 | J2 | L | N1 | S1 | kg |
|----------|----|----|-------|------|----|-----|-----|-----|------|------|------|
| STL-15-G | 15 | 32 | 56 | 30.2 | 14 | 88 | 106 | 127 | 11.5 | 15.3 | 0.47 |
| STL-20-G | 20 | 32 | 65 | 33.3 | 14 | 88 | 106 | 127 | 11.5 | 18.3 | 0.59 |
| STL-30-G | 30 | 40 | 82.5 | 42.9 | 17 | 108 | 127 | 152 | 14 | 22.2 | 1.1 |
| STL-40-G | 40 | 48 | 99 | 49.2 | 19 | 125 | 146 | 175 | 14 | 30.2 | 1.85 |
| STL-50-G | 50 | 54 | 114.5 | 57.2 | 22 | 149 | 165 | 203 | 18 | 32.6 | 2.7 |

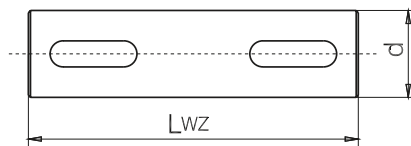
Tab.39

» Pedestal bearings of plastic "white" or "black"
(foodstuffs applications) on request.
CAUTION: Dimensions may change!



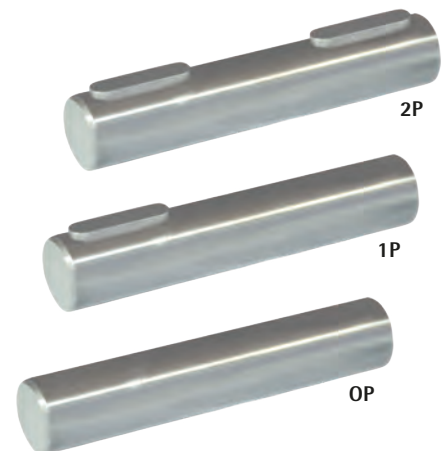
Shaft extension WZ for connecting shaft VWZ

Material: Steel, ground



| Part no. | d1 | LWZ | kg |
|--------------|----|-----|------|
| WZ-15/74-?P | 15 | 74 | 0.1 |
| WZ-20/76-?P | 20 | 76 | 0.19 |
| WZ-20/102-?P | 20 | 102 | 0.25 |
| WZ-30/130-?P | 30 | 130 | 0.72 |
| WZ-40/170-?P | 40 | 170 | 1.67 |
| WZ-50/170-?P | 50 | 170 | 2.61 |

Tab.40



Examples:



VWZ with rigid hub,
for pedestal bearings.

Shaft extension without fitted key (OP)

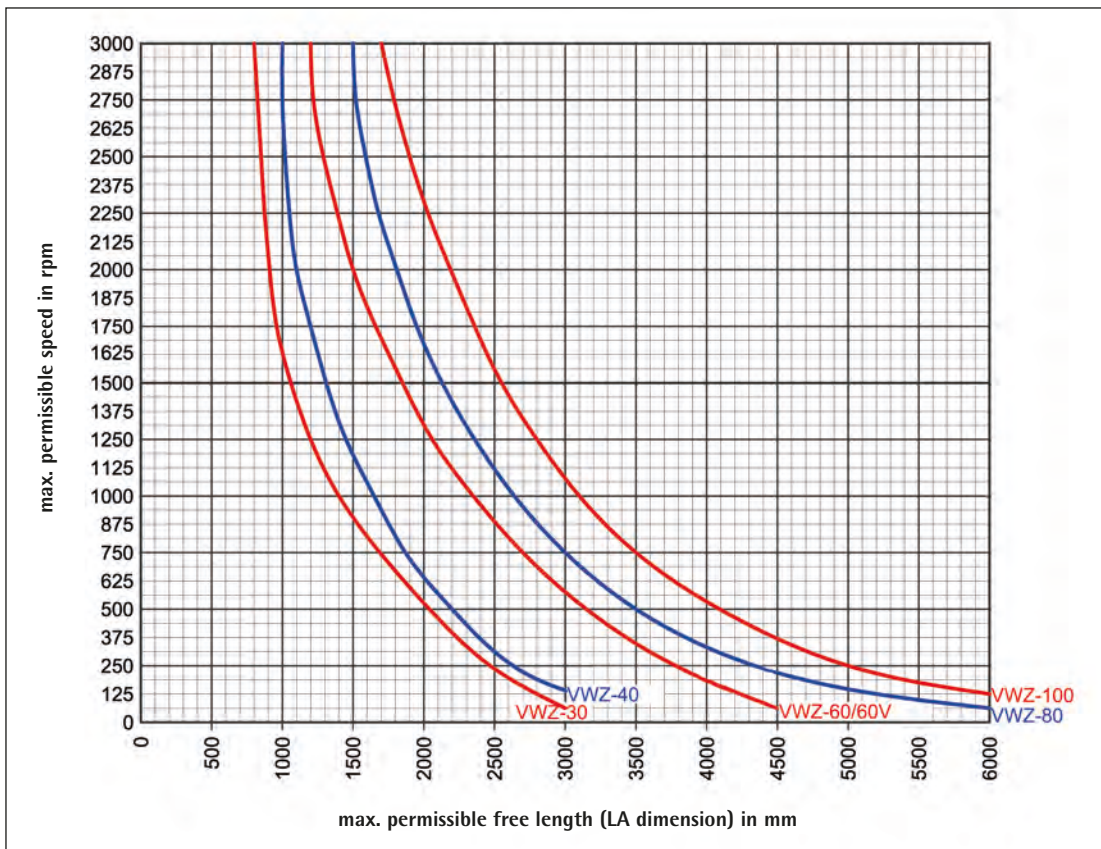


Pedestal bearing with handwheel
for driving the VWZ shaft.

Shaft extensions with fitted key at one end (1P)

Connecting shaft VWZ – Length calculation

maximum length dependent on speed



max. permissible offset

Lateral offset:



Kr max. 1.5 mm per 100 mm L_I

Angular offset:



max. 2° (1° per coupling)

Axial offset:



approx. +/- 1 to 2 mm



Installation:

By using split shell couplings connecting shafts can be mounted while drive shafts have already been installed. Simply attach the connecting shafts to the drive shafts using the split shell couplings and fix them with the mounting screw using a torque wrench (no drive key needed).

Screw tightening torque acc. to table.



ZIMM[®]

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