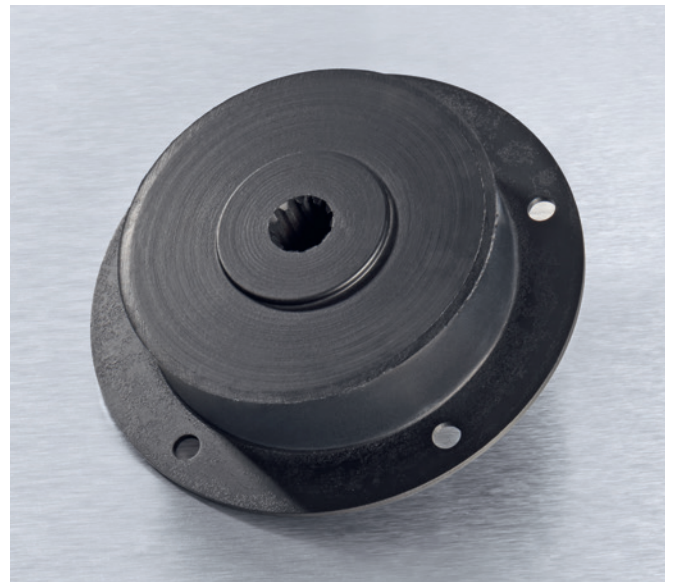
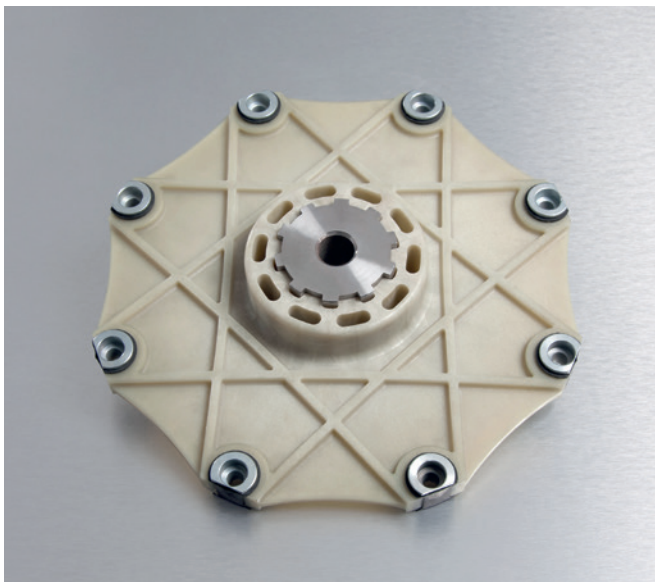




FLANGE COUPLINGS FOR COMBUSTION ENGINES

FLANGE COUPLINGS FOR COMBUSTION ENGINES



CONTENT

| | |
|----------------------------------|-----|
| Product description / Order code | 177 |
| FL-PA flange coupling | 178 |
| Pump mounting plates | 179 |
| FBA flange coupling | 181 |
| NV flange coupling | 183 |
| Delta flange coupling | 183 |
| Pump mounting housings | 187 |

STAREX® FL-PA FLEXIBLE FLANGE COUPLINGS

- Torsionally rigid, positive coupling for diesel engine drives of hydraulic pumps
- Short installation lengths
- Simple plug-in installation of hub and flange without aligning tools
- Maintenance free due to combination of materials plastics / steel
- High mechanical stability and temperature resistance up to +130°C due to fibre-glass reinforced polyamide flange
- For all hydrostatic drive of construction machines, harvesters and forest machineries



Order code STAREX® FL-PA couplings

| Coupling type | Size | Hub | Pump face code |
|---------------|--------|-----|----------------|
| STAREX® FL-PA | 7 1/2" | 48 | SAE 16/32 x15Z |

PUMP MOUNTING PLATES

- Easy assembly of hydraulic pumps to the flywheel housing of combustion engines
- For all SAE housing #1 - #6
- Material steel S235JR, on request also with surface coating

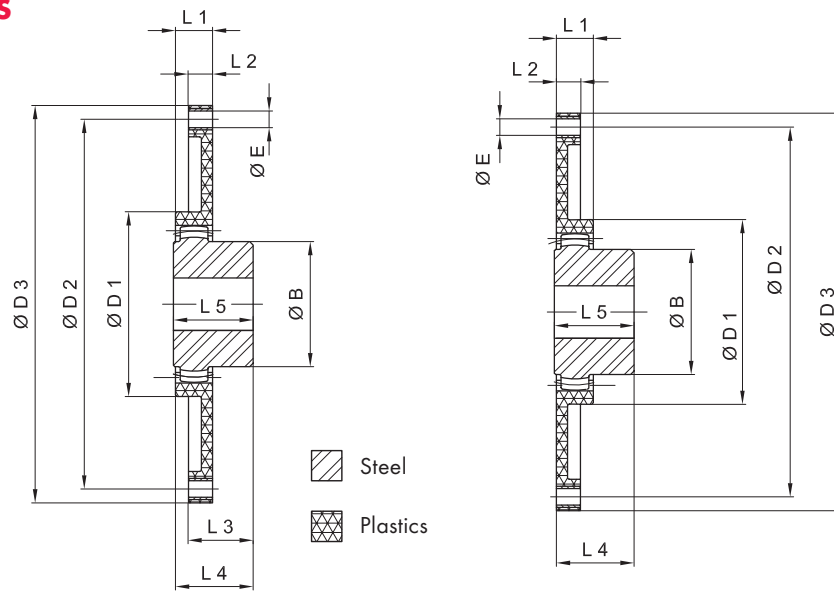


Order code pump mounting plates

| Type | Size | | Bore |
|------|-------|---|-------|
| PMP | SAE 3 | - | 747/1 |

FLEXIBLE FLANGE COUPLINGS STAREX® FL-PA

DIMENSIONS



Assembly diagram 1
(short version)

Assembly diagram 2
(long version)

SAE FLANGES

| FL-PA type | Dimensions [mm] | | | Number z | Torque [Nm] | |
|------------|-----------------|--------|-----|----------|-----------------|-------------------|
| | Ø D2 | Ø D3 | Ø E | | T _{KN} | T _{Kmax} |
| 6 1/2"-48 | 200.02 | 215.90 | 9 | 6 | 237 | 599 |
| 7 1/2"-48 | 222.25 | 241.30 | 9 | 8 | 237 | 599 |
| 8"-48 | 244.47 | 263.52 | 11 | 6 | 237 | 599 |
| 10"-48 | 295.27 | 314.32 | 11 | 8 | 237 | 599 |
| 10"-65 | 295.27 | 314.32 | 11 | 8 | 644 | 1605 |
| 11 1/2"-65 | 333.37 | 352.42 | 11 | 8 | 644 | 1605 |
| 11 1/2"-80 | 333.37 | 352.42 | 11 | 8 | 1198 | 3006 |

METRIC FLANGES

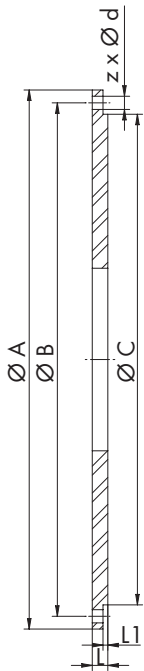
| FL-PA type | Dimensions [mm] | | | Number z |
|------------|-----------------|------|-----|----------|
| | Ø D2 | Ø D3 | Ø E | |
| 96-48 | 50 | 96 | 9 | 4 |
| 125-48 | 100 | 125 | 9 | 3 |
| 135-48 | 100 | 135 | 9 | 3 |
| 130-48 | 105 | 130 | 11 | 4 |
| 150-48 | 130 | 150 | 9 | 5 |
| 152-48 | 122 | 152 | 12 | 3 |
| 152-48 | 125 | 152 | 12 | 3 |

HUB DIMENSIONS FOR SAE FLANGES

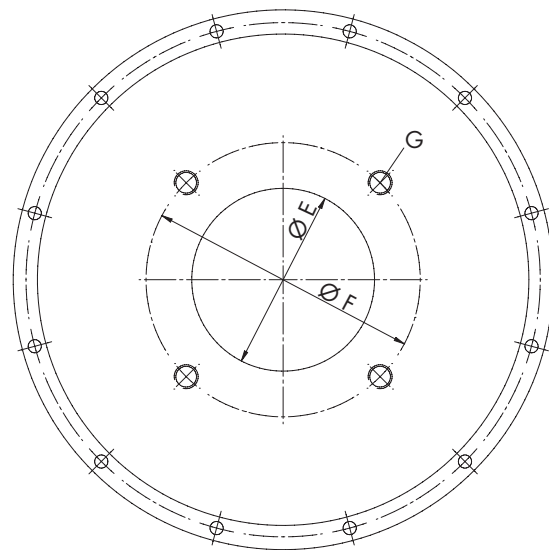
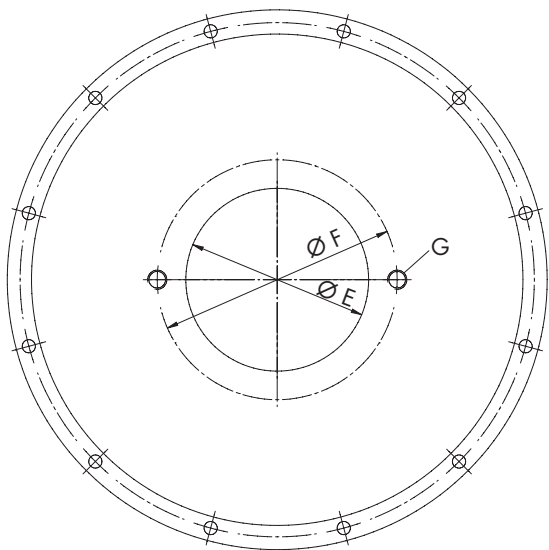
| STAREX® type | Finish bore [mm] | | Dimensions [mm] | | | | | | | Extended hub L5 [mm] | Nominal size acc. to SAE (d) | | | | |
|--------------|------------------|------|-----------------|------|----|----|----|----|----|----------------------|------------------------------|--------|----|-----|---------|
| | min. | max. | Ø B | Ø D1 | L5 | L3 | L4 | L1 | L2 | | 6 1/2" | 7 1/2" | 8" | 10" | 11 1/2" |
| MB 42 | 20 | 42 | 65 | 100 | 42 | 33 | 40 | 20 | 13 | 110 | x | x | x | x | - |
| MB 48 | 20 | 48 | 68 | 100 | 50 | 41 | 48 | 20 | 13 | 110 | x | x | x | x | - |
| MB 65 | 25 | 65 | 96 | 132 | 55 | 45 | 52 | 27 | 21 | 70/140 | - | - | - | x | - |
| MB 65 | 25 | 65 | 96 | 170 | 55 | 45 | 52 | 31 | 21 | 70/140 | - | - | - | - | x |
| MB 80 | 25 | 80 | 124 | 170 | 90 | 78 | 87 | 30 | 21 | - | - | - | - | - | x |

PUMP MOUNTING PLATES

DIMENSIONS



| Housing size | Dimensions [mm] | | | | | | |
|--------------|-----------------|--------|--------|----|-----|-------------|------|
| | Ø A | Ø B | Ø C | z | Ø d | L | L1 |
| SAE 1 | 552.45 | 530.23 | 511.18 | 12 | 11 | 19.05 | 3.18 |
| SAE 2 | 488.95 | 466.73 | 447.68 | 12 | 11 | 19.05 | 3.18 |
| SAE 3 | 450.85 | 428.63 | 409.58 | 12 | 11 | 19.05/12.70 | 3.18 |
| SAE 4 | 403.23 | 381.00 | 361.95 | 12 | 11 | 12.70 | 3.18 |
| SAE 5 | 355.60 | 333.38 | 314.33 | 8 | 11 | 12.70 | 3.18 |
| SAE 6 | 307.98 | 285.75 | 266.70 | 8 | 11 | 12.70 | 3.18 |



2 BOLT FLANGE

| Flange size acc. to SAE | Dimensions [mm] | | |
|-------------------------|-----------------|--------|---------|
| | Ø E | Ø F | G |
| AA | 50.80 | 82.55 | 5/16-18 |
| AA | 82.55 | 106.35 | 3/8-16 |
| B | 101.60 | 146.05 | 1/2-13 |
| C | 127.00 | 180.98 | 5/8-11 |
| D | 152.40 | 228.60 | 3/4-10 |
| E | 165.10 | 317.50 | 1-8 |
| F | 177.80 | 350.04 | 1-8 |

4 BOLT FLANGE

| Flange size acc. to SAE | Dimensions [mm] | | |
|-------------------------|-----------------|--------|---------|
| | Ø E | Ø F | G |
| AA | 45.24 | 72.09 | 5/16-18 |
| AA | 82.55 | 104.78 | 3/8-16 |
| B | 101.60 | 127.00 | 1/2-13 |
| C | 127.00 | 161.93 | 5/8-11 |
| D | 152.40 | 228.60 | 3/4-10 |
| E | 165.10 | 317.50 | 1-8 |
| F | 177.80 | 350.04 | 1-8 |

PUMP MOUNTING PLATES

DIMENSIONS

| SAE housing size | Number of bores | Plate thickness | | SAE centring pump Ø | | |
|------------------|-----------------|-----------------|------|---------------------|----------|-------|
| | | mm | inch | | mm | inch |
| #1 | 2-Bolt | 19.05 mm | .75" | SAE "C" | 127.0 mm | 5.00" |
| #1 | 4-Bolt | 19.05 mm | .75" | SAE "C" | 127.0 mm | 5.00" |
| #1 | 2 and 4 Bolt | 19.05 mm | .75" | SAE "C" | 127.0 mm | 5.00" |
| #1 | 2-Bolt | 19.05 mm | .75" | SAE "D" | 152.4 mm | 6.00" |
| #1 | 4-Bolt | 19.05 mm | .75" | SAE "D" | 152.4 mm | 6.00" |
| #1 | 2 and 4 Bolt | 19.05 mm | .75" | SAE "D" | 152.4 mm | 6.00" |
| #1 | 2-Bolt | 19.05 mm | .75" | SAE "E" | 165.1 mm | 6.50" |
| #1 | 4-Bolt | 19.05 mm | .75" | SAE "E" | 165.1 mm | 6.50" |
| #1 | 2-Bolt | 19.05 mm | .75" | SAE "F" | 177.8 mm | 7.00" |
| #1 | 4-Bolt | 19.05 mm | .75" | SAE "F" | 177.8 mm | 7.00" |
| #2 | 2-Bolt | 19.05 mm | .75" | SAE "C" | 127.0 mm | 5.00" |
| #2 | 4-Bolt | 19.05 mm | .75" | SAE "C" | 127.0 mm | 5.00" |
| #2 | 2 and 4 Bolt | 19.05 mm | .75" | SAE "C" | 127.0 mm | 5.00" |
| #2 | 2-Bolt | 19.05 mm | .75" | SAE "D" | 152.4 mm | 6.00" |
| #2 | 4-Bolt | 19.05 mm | .75" | SAE "D" | 152.4 mm | 6.00" |
| #2 | 2 and 4 Bolt | 19.05 mm | .75" | SAE "D" | 152.4 mm | 6.00" |
| #2 | 2-Bolt | 19.05 mm | .75" | SAE "E" | 165.1 mm | 6.50" |
| #2 | 4-Bolt | 19.05 mm | .75" | SAE "E" | 165.1 mm | 6.50" |
| #3 | 2-Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #3 | 4-Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #3 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #3 | 2-Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #3 | 4-Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #3 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #3 | 2-Bolt | 12.7 mm | .50" | SAE "D" | 152.4 mm | 6.00" |
| #3 | 4-Bolt | 12.7 mm | .50" | SAE "D" | 152.4 mm | 6.00" |
| #3 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "D" | 152.4 mm | 6.00" |
| #4 | 2-Bolt | 12.7 mm | .50" | SAE "A" | 82.55 mm | 3.25" |
| #4 | 4-Bolt | 12.7 mm | .50" | SAE "A" | 82.55 mm | 3.25" |
| #4 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "A" | 82.55 mm | 3.25" |
| #4 | 2-Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #4 | 4-Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #4 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #4 | 2-Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #4 | 4-Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #4 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #5 | 2-Bolt | 12.7 mm | .50" | SAE "A" | 82.55 mm | 3.25" |
| #5 | 4-Bolt | 12.7 mm | .50" | SAE "A" | 82.55 mm | 3.25" |
| #5 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "A" | 82.55 mm | 3.25" |
| #5 | 4-Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #5 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #5 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #5 | 4-Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #5 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #6 | 2-Bolt | 12.7 mm | .50" | SAE "A" | 82.55 mm | 3.25" |
| #6 | 4-Bolt | 12.7 mm | .50" | SAE "A" | 82.55 mm | 3.25" |
| #6 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "A" | 82.55 mm | 3.25" |
| #6 | 2-Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #6 | 4-Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #6 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "B" | 101.6 mm | 4.00" |
| #6 | 2-Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #6 | 4-Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |
| #6 | 2 and 4 Bolt | 12.7 mm | .50" | SAE "C" | 127.0 mm | 5.00" |

FBA FLANGE COUPLING

PRODUCT DESCRIPTION

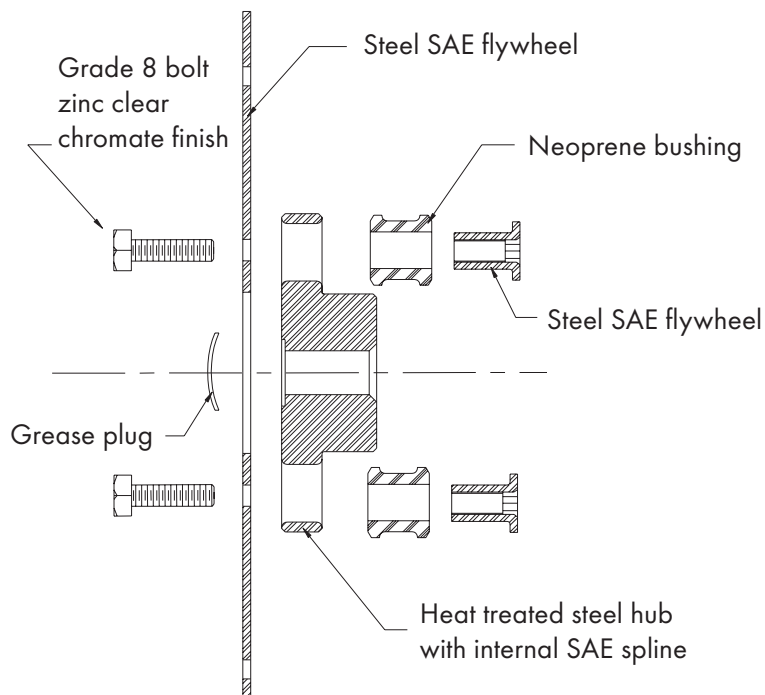
- Elastic coupling for the connection of gas or diesel motors and hydraulic pumps
- Steel flange with intergrated pump hub and neoprene mounted screw connections
- Simple blind mounting due to one piece design
- Damping and vibration absorbing characteristics
- Temperature resistance up to +100°C
- SAE flywheel sizes 6 1/2" up to 14" available
- Typical applications: aerial lifts, skid steer loader, excavators and low mass compressors



Order code FBA flange couplings

| Coupling type | Size | | Bore |
|---------------|------|---|----------------|
| FBA | 14 | - | SAE 16/32 x15Z |

TECHNICAL DATA



| Flywheel size | Nominal torque T_{KN} |
|---------------|-------------------------|
| | [Nm] |
| 6 1/2 | 220 |
| 7 1/2 | 220 |
| 8 | 410 |
| 10 | 525 |
| 11 1/2 | 840 |
| 14 | 1370 |

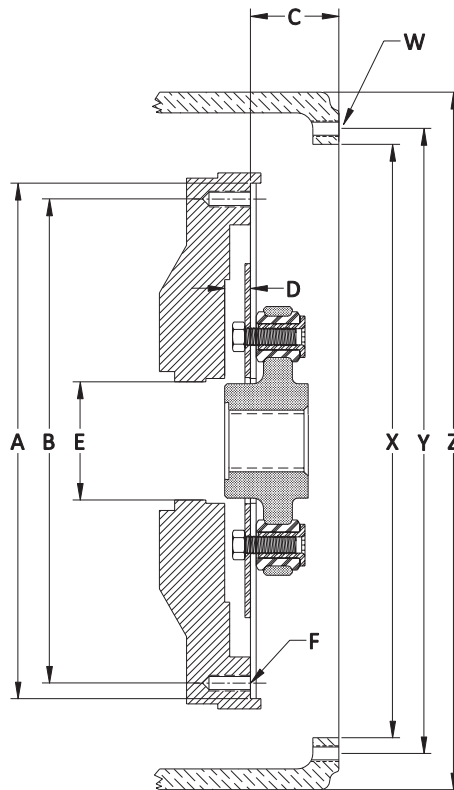
MISALIGNMENT VALUES

Angular misalignment = 1°

Parallel misalignment = 0.38 mm

FBA FLANGE COUPLING

DIMENSIONS



SAE FLANGES

| Flywheel size | Dimensions [mm] | | | | | | Number |
|---------------|-----------------|--------|-------|-------|-------|------------|--------|
| | A | B | C | D | E | F | F |
| 6 1/2 | 215.90 | 200.02 | 30.23 | 12.70 | 52.00 | 5/16" - 18 | 6 |
| 7 1/2 | 241.30 | 222.25 | 30.23 | 12.70 | 52.00 | 5/16" - 18 | 8 |
| 8 | 263.53 | 244.48 | 61.98 | 12.70 | 62.00 | 3/8" - 16 | 6 |
| 10 | 314.33 | 295.28 | 53.85 | 15.75 | 72.00 | 3/8" - 16 | 8 |
| 11 1/2 | 352.43 | 333.38 | 39.62 | 28.45 | 72.00 | 3/8" - 16 | 8 |
| 14 | 466.73 | 438.15 | 25.40 | 28.45 | 80.00 | 1/2" - 13 | 8 |

SAE HOUSING

| Housing size | Dimensions [mm] | | | | Number |
|--------------|-----------------|---------|---------|------------|--------|
| | X | Y | Z | W | W |
| 6 | 266.700 | 285.750 | 307.848 | 3/8" - 16 | 8 |
| 5 | 314.325 | 333.375 | 355.600 | 3/8" - 16 | 8 |
| 4 | 361.950 | 381.000 | 403.352 | 3/8" - 16 | 12 |
| 3 | 409.575 | 428.625 | 450.850 | 3/8" - 16 | 12 |
| 2 | 447.675 | 466.725 | 488.950 | 3/8" - 16 | 12 |
| 1 | 511.175 | 530.225 | 552.450 | 7/16" - 14 | 12 |

NV FLANGE COUPLING

PRODUCT DESCRIPTION

- Elastic torsional coupling for the connection of gas or diesel motors and hydraulic pumps
- Cast iron flange with elastomer and intergrated pump hub
- Simple blind mounting due to one piece design
- Damping and vibration absorbing characteristics
- No lubrication or clamping of the pump hub is required

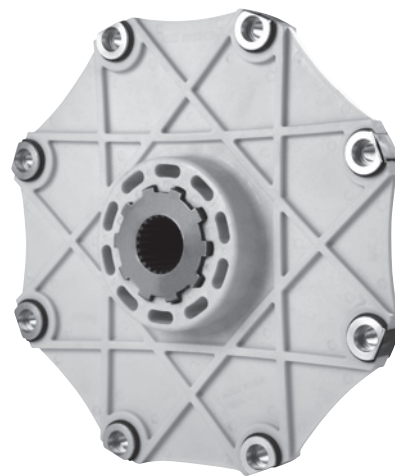


| Flywheel size | Pitch circle | Outer diameter flange | Fixing bolts |
|-------------------|--------------|-----------------------|--------------|
| Kubota Super Mini | 130.00 mm | 150.00 mm | 5 x 8 mm |
| Kubota Super 5 | 100.00 mm | 135.00 mm | 3 x 10 mm |

DELTA FLANGE COUPLING

PRODUCT DESCRIPTION

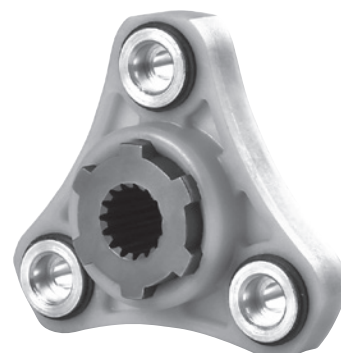
- Cost-effective flange coupling for drive of hydraulic pumps by combustion engines
- Glass fibre reinforced polyamide flange with intergrated hardened steel pump hub and rubber mounted screw connections
- Simple blind mounting due to one piece design
- Reduced wear of the shaft profile due to damping and vibration absorbing characteristics
- Temperature resistance -40°C up to +100°C
- For hydrostatic drives of construction machines, harvesters and forest machineries



SAE 10



SUPER 3



SUPER 5

DELTA FLANGE COUPLING

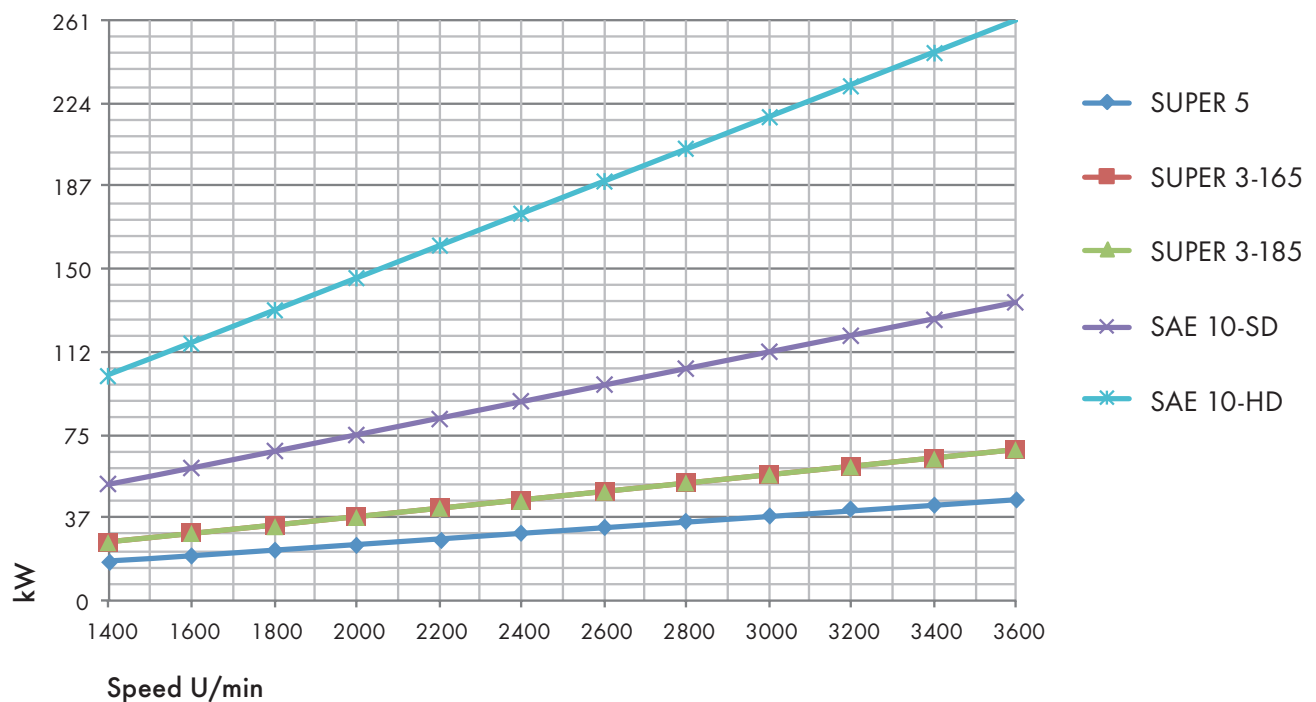
TECHNICAL DATA

| Type | Nominal torque* | Maximum torque* | Power | | Misalignment** | | | | Temperature range |
|-------------|-----------------|-----------------|-------|-----|----------------|------|-------|----------|--------------------------|
| | | | | | Parallel | | Axial | | |
| | Nm | Nm | kW | HP | mm | inch | mm | inch | °C |
| SUPER 5 | 120.24 | 300.65 | 22.4 | 30 | 0.2 | .008 | 7.62 | +/- .030 | -40°C up to +100°C |
| SUPER 3-165 | 180.08 | 450.13 | 33.6 | 45 | 0.2 | .008 | 7.62 | +/- .030 | |
| SUPER 3-185 | 180.08 | 450.13 | 33.6 | 45 | 0.2 | .008 | 7.62 | +/- .030 | |
| SAE 10-SD | 355.64 | 889.09 | 67.1 | 90 | 0.2 | .008 | 7.62 | +/- .030 | |
| SAE 10-HD | 692.08 | 1730.19 | 130.5 | 175 | 0.2 | .008 | 7.62 | +/- .030 | |

*The torque values listed are for ambient temperatures. Torque capacities may be reduced at lower and higher temperatures. Please review the temperature service factors for the different temperature ranges.

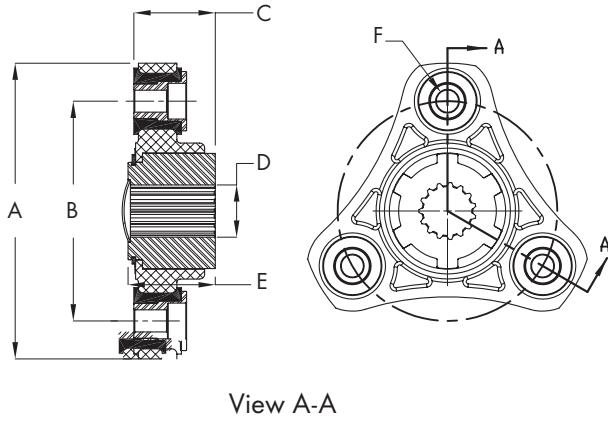
**The Delta series is able to accommodate small angular, parallel and axial misalignments that are typical to shaft / flange connections. The Delta series is not recommended for applications with excessive misalignments.

| Service factors for temperature range | | | | | |
|---------------------------------------|-------|-------|-------|-------|--------|
| -40°C | -18°C | +23°C | +52°C | +72°C | +100°C |
| 1.50 | 1.30 | 1.00 | 1.30 | 1.50 | 1.95 |

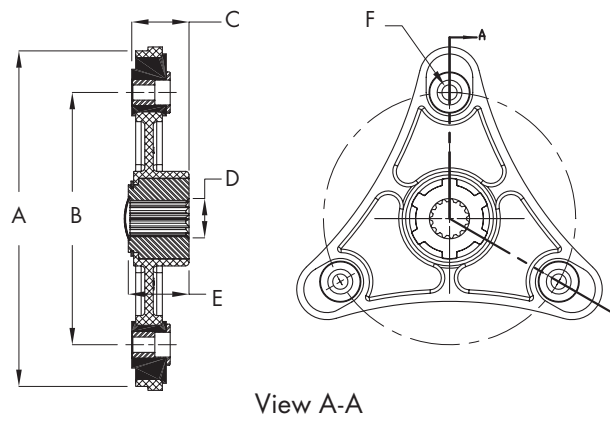


DIMENSIONS

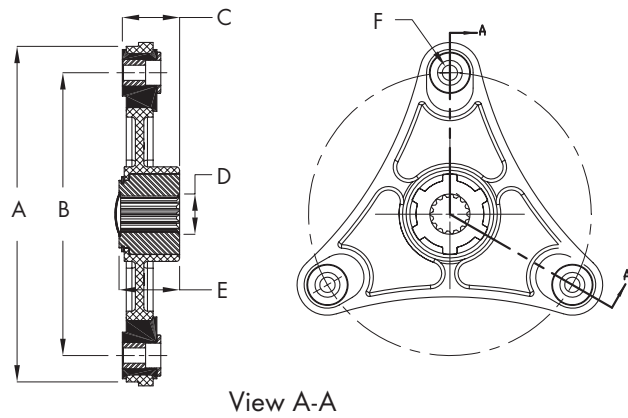
SUPER 5 DIAGRAM



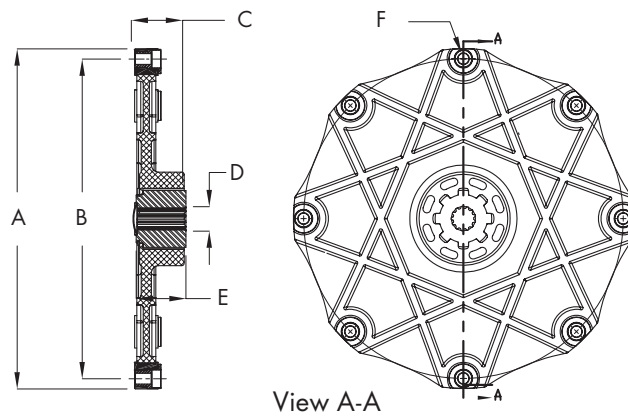
SUPER 3-165 DIAGRAM



SUPER 3-185 DIAGRAM



SAE 10 DIAGRAM

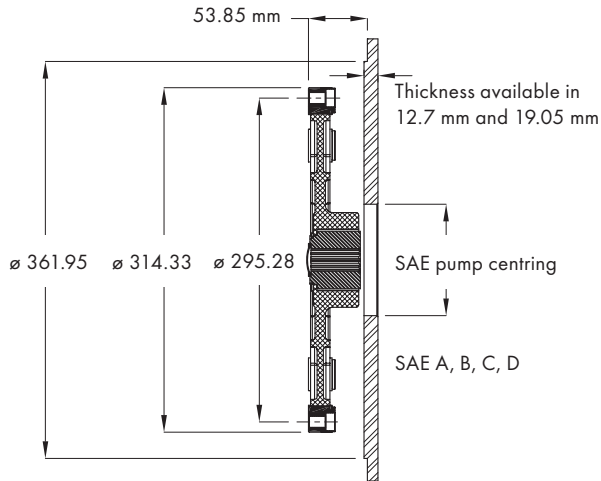


| Type | A | | B | | C | | D | | | | E | | F | No of hub teeth |
|-------------|----------------|---------|--------------|---------|--------------|--------|--------------|-------|-------|--------|--------------------|--------------|--------|-----------------|
| | Outer diameter | | Pitch circle | | Total length | | Diameter [Ø] | | | | Hub overall length | Fixing bolts | | |
| | mm | inch | mm | inch | mm | inch | min | | max | | | | | |
| SUPER 5 | 135 | 5.315" | 100 | 3.937" | 37 | 1.457" | 12.7 | .50" | 31.75 | 1.250" | 40 | 1.562" | 3 x 10 | 6 |
| SUPER 3-165 | 220 | 8.661" | 165 | 6.496" | 37 | 1.475" | 12.7 | .50" | 31.75 | 1.250" | 40 | 1.562" | 3 x 12 | 6 |
| SUPER 3-185 | 220 | 8.661" | 185 | 7.283" | 37 | 1.457" | 12.7 | .50" | 31.75 | 1.250" | 40 | 1.562" | 3 x 10 | 6 |
| SAE 10-SD | 314.3 | 12.375" | 295 | 11.625" | 47.45 | 1.869" | 19.15 | .754" | 31.75 | 1.250" | 46 | 1.813" | 8 x 10 | 8 |
| SAE 10-HD | 314.3 | 12.375" | 295 | 11.625" | 50.04 | 1.970" | 22.28 | .877" | 31.75 | 1.250" | 54 | 2.125" | 8 x 10 | 10 |

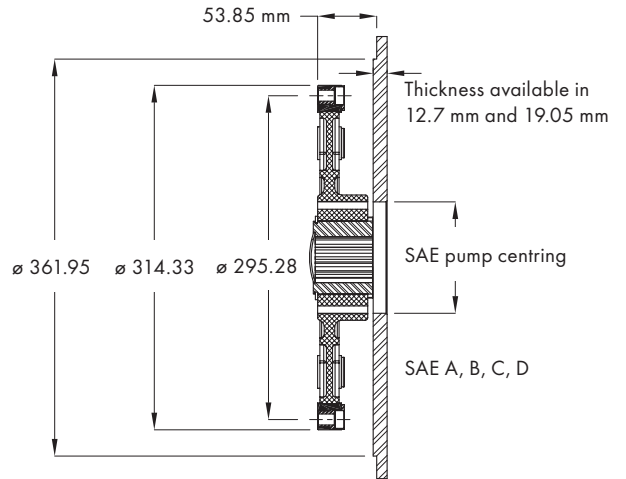
DELTA FLANGE COUPLING

ASSEMBLY CONFIGURATIONS

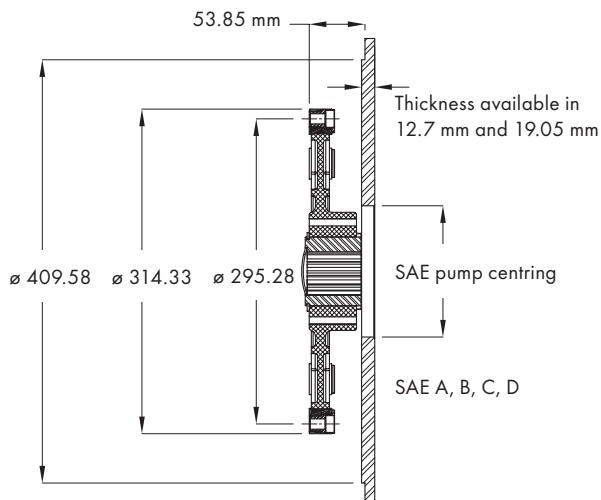
SAE 10 -SD / SAE #4



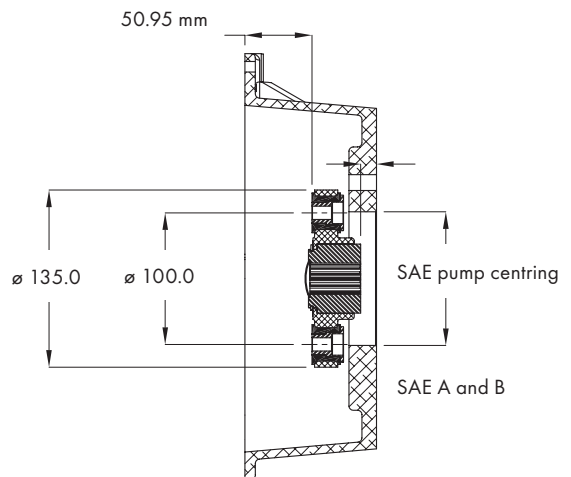
SAE 10 -HD / SAE #4



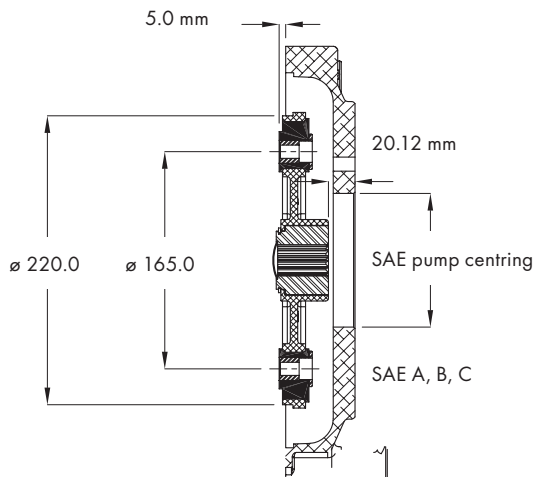
SAE 10 -HD / SAE #3



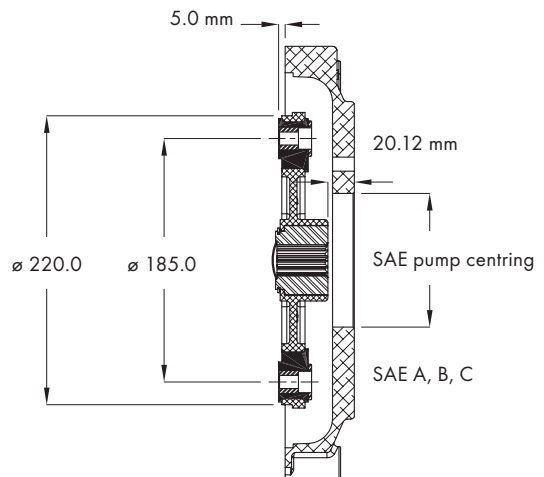
SUPER 5



SUPER 3-165



SUPER 3-185



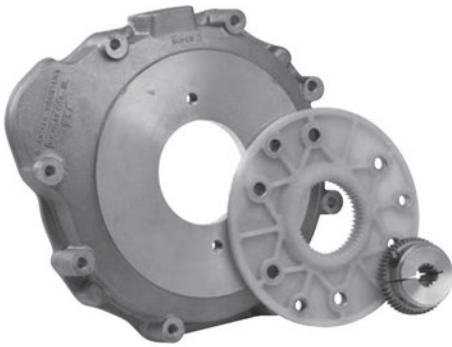
Note: Kubota Super 3 and Super 5 configurations are available in both aluminium and cast iron pump mount designs

PUMP MOUNTING HOUSINGS

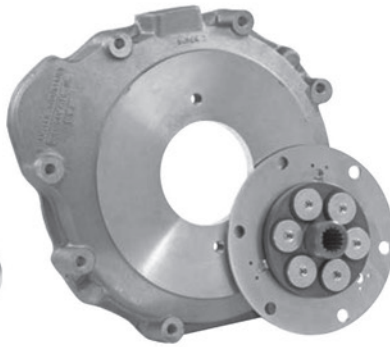
PRODUCT DESCRIPTION

- To simplify the assembly of hydraulic pumps and diesel motors without SAE flywheel housing
- Exact positioning of motor and pump
- Available with all common pump connection configurations
- Combination with all flange couplings series FL-PA, FBA, Delta or NV possible
- Materials aluminium, EN-GJL-250 (GG25) or EN-GJS-400 (GGG40)

KUBOTA SUPER THREE FL



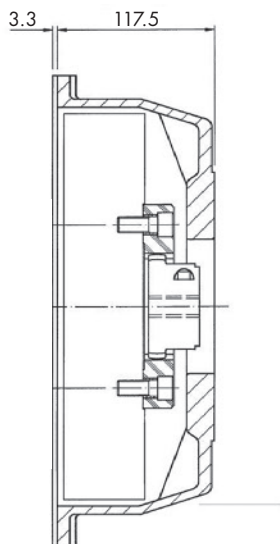
KUBOTA SUPER THREE FBA



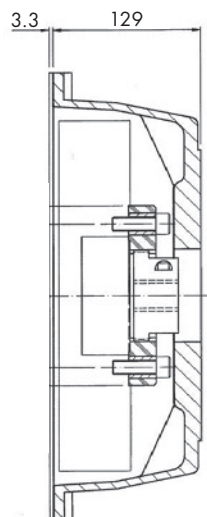
KUBOTA SUPER FIVE DELTA



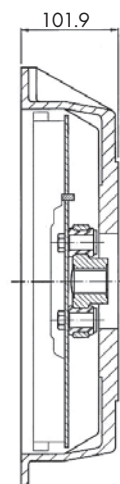
PERKINS 103-13/15 FL



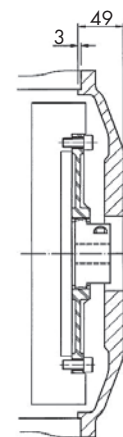
PERKINS 404-22



GM 3.0/4.3



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