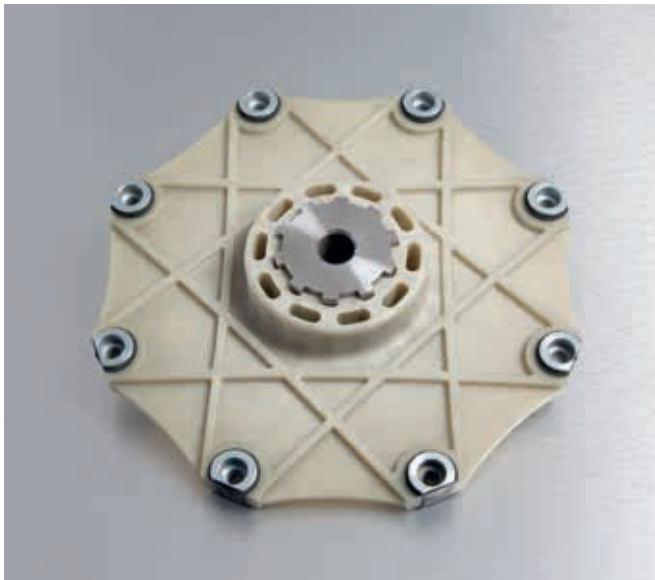




# FLANGE COUPLINGS FOR COMBUSTION ENGINES

## FLANGE COUPLINGS FOR COMBUSTION ENGINES



### CONTENT

Product description / Order code	177
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### 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

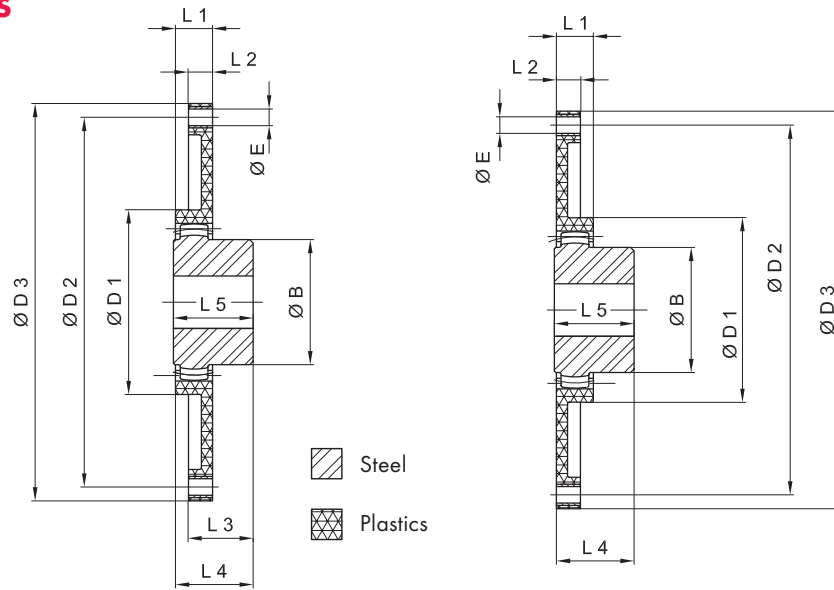


#### Order code pump mounting plates

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 <sub>KN</sub>	T <sub>Kmax</sub>
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

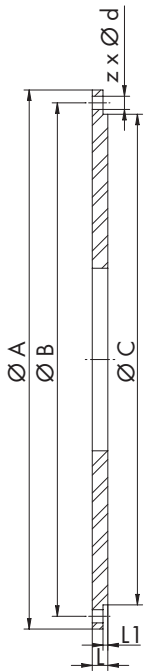
FL-PA type	Dimensions [mm]			Number z
	ø D2	ø D3	ø E	
96-48	50	96	9	4
125-48	100	125	9	3
135-48	100	135	9	3
130-48	105	130	11	4
150-48	130	150	9	5
152-48	122	152	12	3
152-48	125	152	12	3

### HUB DIMENSIONS FOR SAE FLANGES

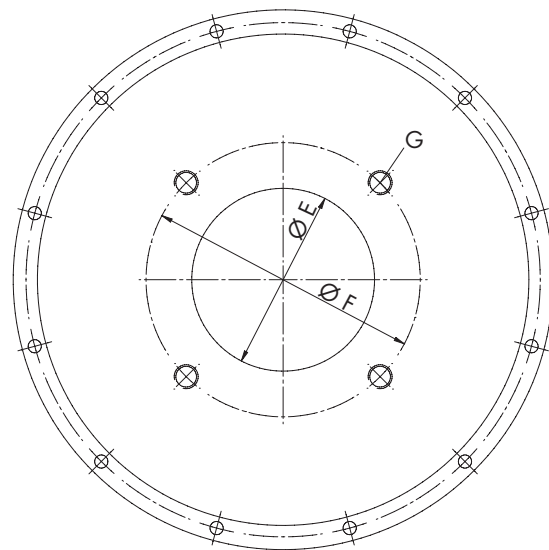
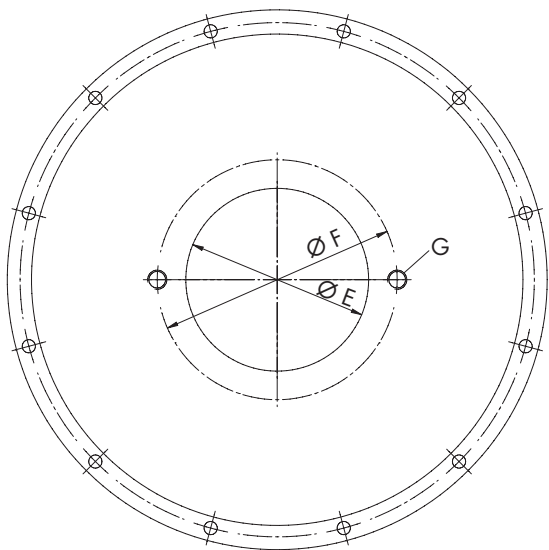
STAREX® type	Finish bore [mm]		Dimensions [mm]							Extended hub L5 [mm]	Nominal size acc. to SAE (d)				
	min.	max.	ø B	ø D1	L5	L3	L4	L1	L2		6 1/2"	7 1/2"	8"	10"	11 1/2"
MB 42	20	42	65	100	42	33	40	20	13	110	x	x	x	x	-
MB 48	20	48	68	100	50	41	48	20	13	110	x	x	x	x	-
MB 65	25	65	96	132	55	45	52	27	21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

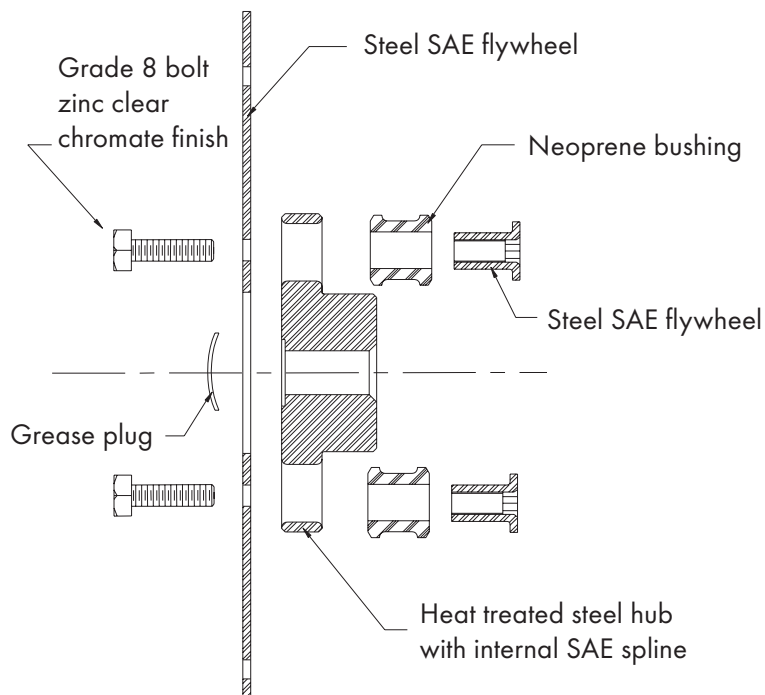
- Elastic coupling for the connection of gas or diesel motors and hydraulic pumps
- Steel flange with intergrated pump hub and neoprene mounted screw connections
- Simple blind mounting due to one piece design
- Damping and vibration absorbing characteristics
- Temperature resistance up to +100°C
- SAE 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

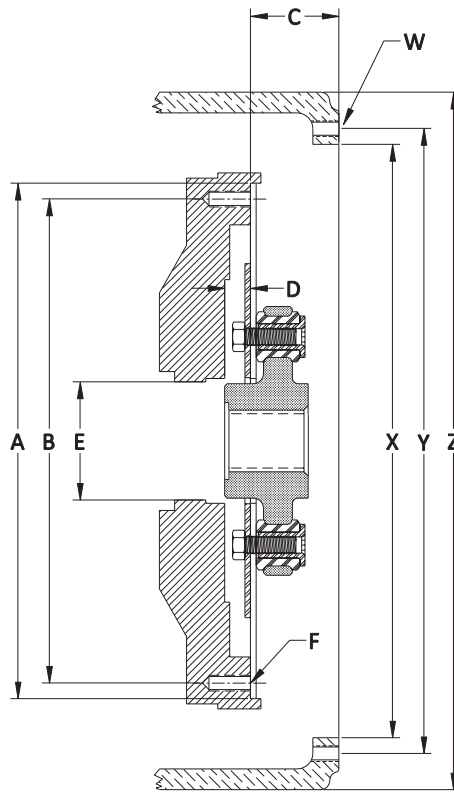
### MISALIGNMENT VALUES

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

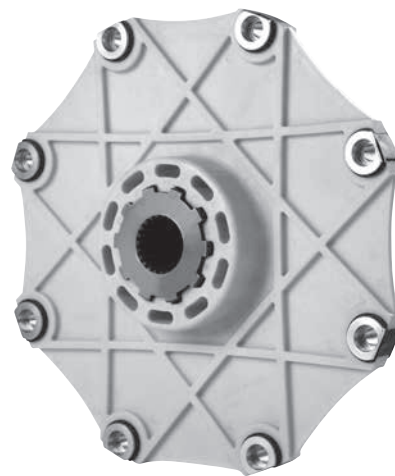


Flywheel size	Pitch circle	Outer diameter flange	Fixing bolts
Kubota Super Mini	130.00 mm	150.00 mm	5 x 8 mm
Kubota Super 5	100.00 mm	135.00 mm	3 x 10 mm

## 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

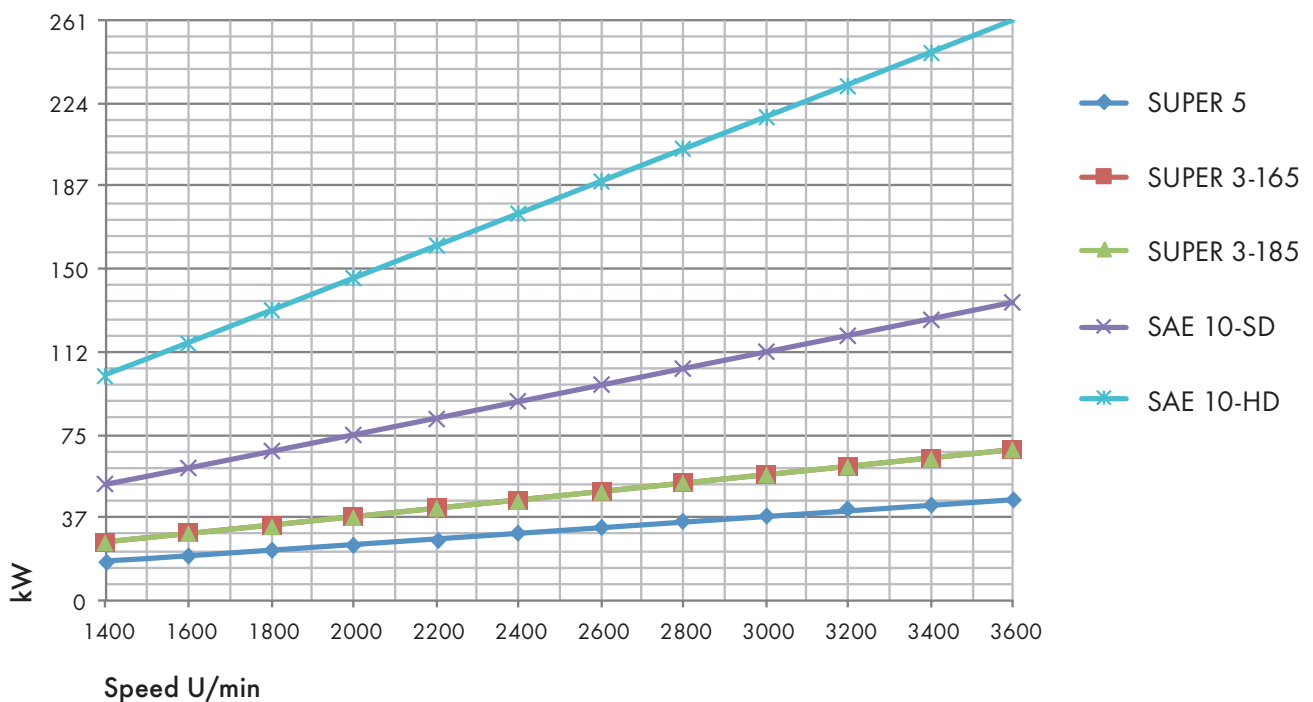
### TECHNICAL DATA

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.

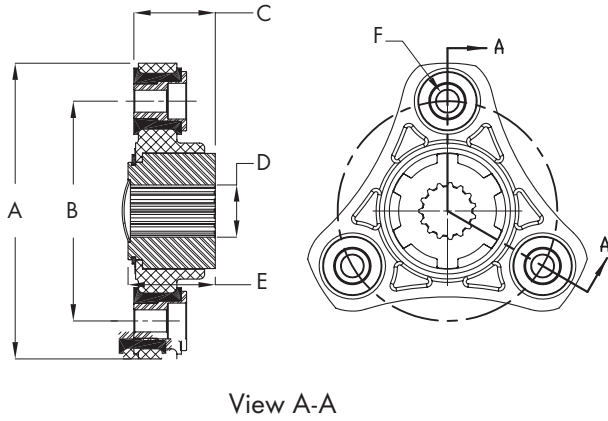
\*\*The Delta series is able to accommodate small angular, parallel and axial misalignments that are typical to shaft / flange connections. The Delta series is not recommended for applications with excessive misalignments.

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

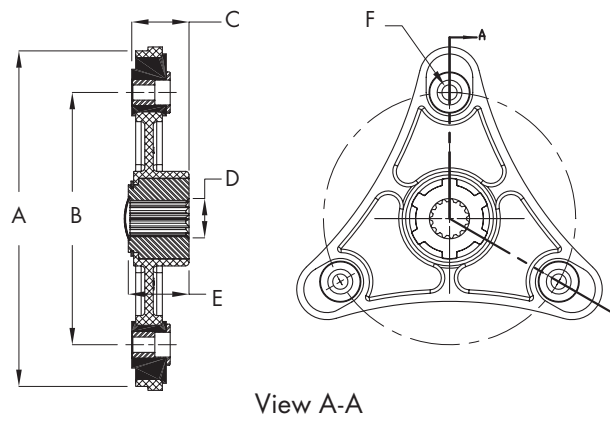


## DIMENSIONS

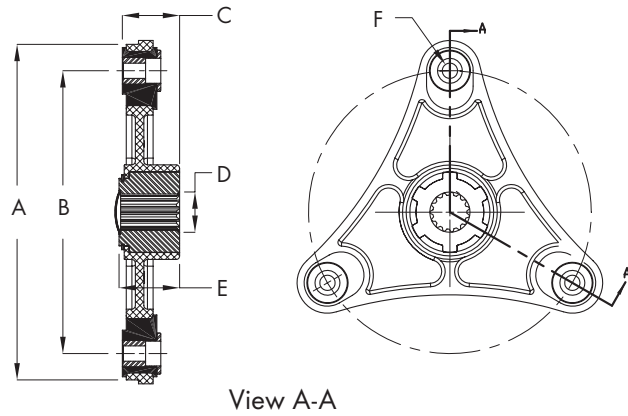
### SUPER 5 DIAGRAM



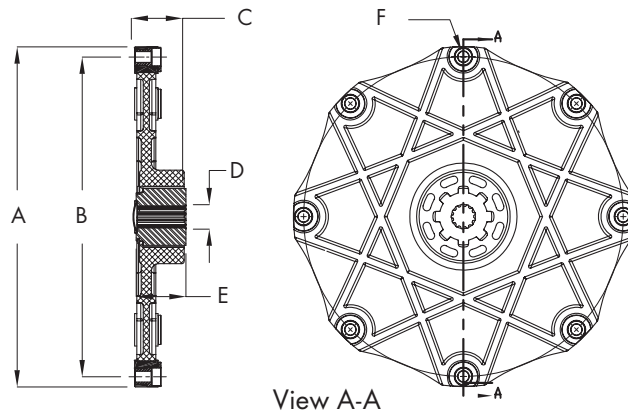
### SUPER 3-165 DIAGRAM



### SUPER 3-185 DIAGRAM



### SAE 10 DIAGRAM

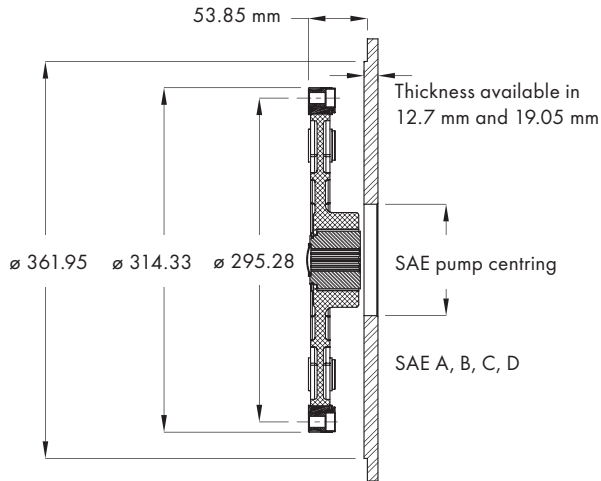


Type	A		B		C		D				E		F	No of hub teeth
	Outer diameter		Pitch circle		Total length		Diameter [Ø]				Hub overall length	Fixing bolts		
	mm	inch	mm	inch	mm	inch	min	max	mm	inch			mm	
SUPER 5	135	5.315"	100	3.937"	37	1.457"	12.7	.50"	31.75	1.250"	40	1.562"	3 x 10	6
SUPER 3-165	220	8.661"	165	6.496"	37	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

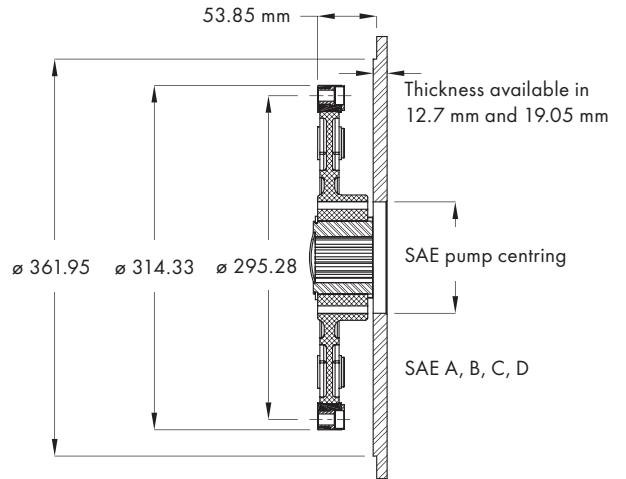
# DELTA FLANGE COUPLING

## ASSEMBLY CONFIGURATIONS

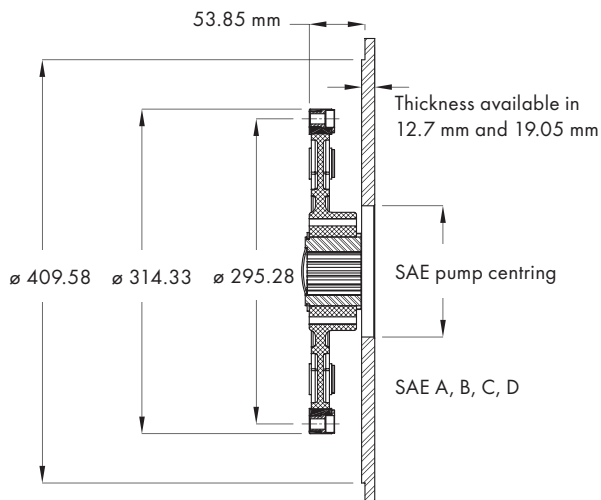
### SAE 10 -SD / SAE #4



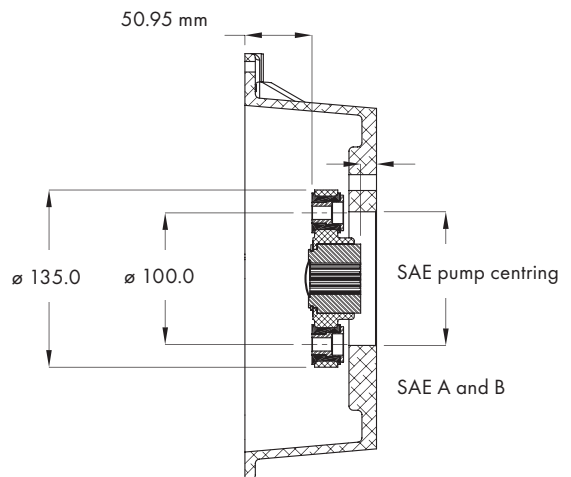
### SAE 10 -HD / SAE #4



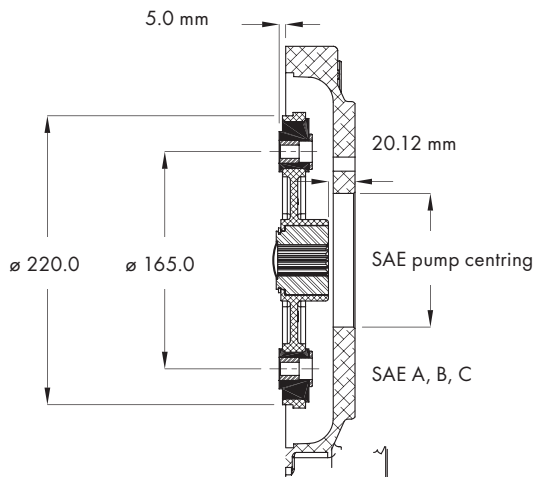
### SAE 10 -HD / SAE #3



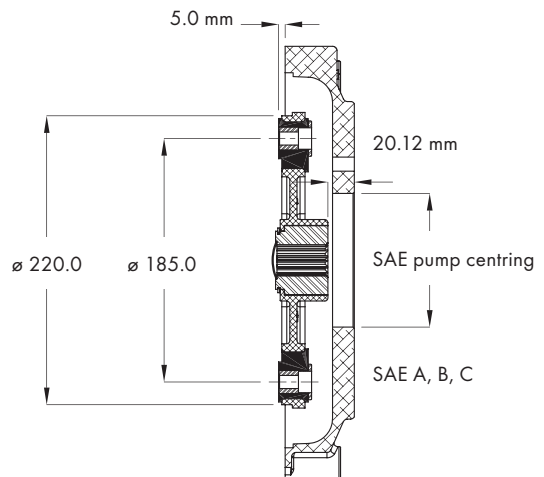
### SUPER 5



### 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



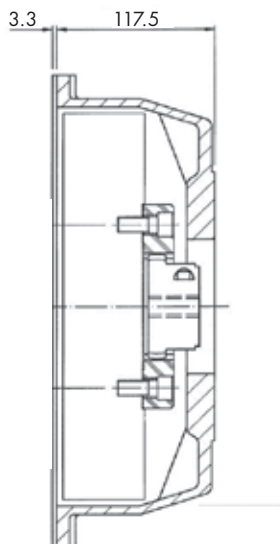
### KUBOTA SUPER THREE FBA



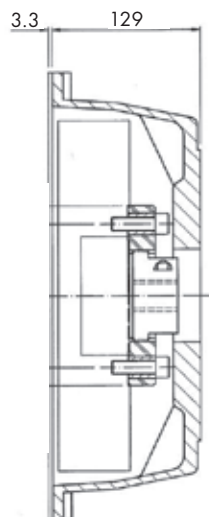
### KUBOTA SUPER FIVE DELTA



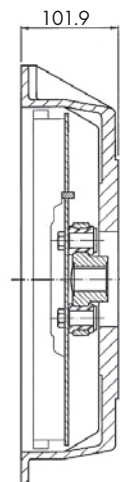
### PERKINS 103-13/15 FL



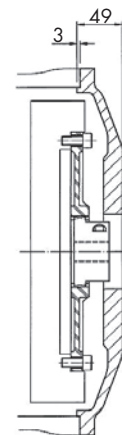
### PERKINS 404-22



### GM 3.0/4.3



### DEUTZ 1011/2 FL



Online catalogue



[epaper.hbe-hydraulics.com/en](http://epaper.hbe-hydraulics.com/en)

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