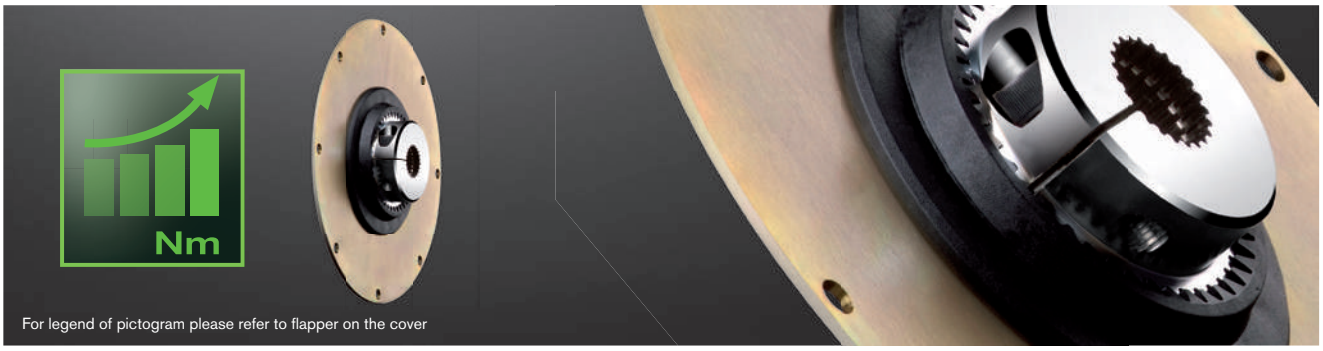
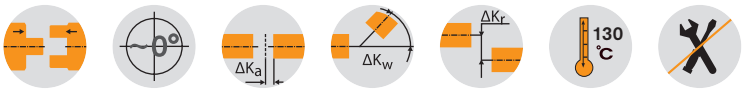
BoWex® FLE-PAC
Torsionally rigid flange couplings

Axial plug-in, extremely short design, carbon-fibre reinforced material





BoWex® FLE-PAC – Dimensions/nominal dimension to SAE

Size	Pilot bore	Finish bore d		Dimensions [mm]							Special length l_1 max.	Nominal size acc. to SAE (D_3)						Max. axial displacement [mm]
		Min.	Max.	D	D_1	l_1	l_3	l_7	l_8	l_{10}		6 ½"	7 ½"	8"	10"	11 ½"	14"	
48 / T 48	13	15	48	68	110	50	35	46	25	3	up to 60	●	●	●	●			± 3
T 55	17	20	55	85	148	50	32	42	28	3	-	●	●	●	●			± 3
65 / T 65	21	30	65	96	165	55	36	46	32	4	up to 70	●	●	●	●	●		± 3
80 / T 80	31	35	90	124	220	90	72	76	35	4	-				●	●	●	± 3
100 / T 100	38	40	100	152	280	110	85	102	47	5	-					●	●	± 3
125 / T 125	45	50	125	192	250	140	113	140	50	28	-					●	●	± 3

Special flange dimensions deviating from SAE standard are also available.

Technical data of BoWex® FLE-PAC – Torques/weights/mass moments of inertia/torsion spring stiffness

Size	Torque T_K [Nm]			Weight/mass moment of inertia J	Hub with max. bore	FLE-PAC flanges according to SAE						Dynamic torsion spring stiffness with +60 °C/ψ = 0.45 [Nm/rad]			
	T_{KN}	$T_{K\,max}$	T_{KW}			6 ½"	7 ½"	8"	10"	11 ½"	14"	0.30 T_{KN}	0.50 T_{KN}	0.75 T_{KN}	1.00 T_{KN}
48	300	600	150	[kg]	0.79	0.77	0.98	1.19	1.73			64 x 10^3	95 x 10^3	114 x 10^3	132 x 10^3
				[kgm²]	0.0007	0.0049	0.0077	0.0109	0.0221						
T 48	370	740	185	[kg]	0.79	0.77	0.98	1.19	1.73			91 x 10^3	129 x 10^3	155 x 10^3	182 x 10^3
				[kgm²]	0.0007	0.0049	0.0077	0.0109	0.0221						
T 55	550	1100	275	[kg]	1.20	0.74	0.95	1.16	1.7			181 x 10^3	258 x 10^3	312 x 10^3	358 x 10^3
				[kgm²]	0.0016	0.0049	0.0077	0.0109	0.0222						
65	800	1600	400	[kg]	1.50	0.93	1.2	1.48	2.20	2.83		214 x 10^3	329 x 10^3	397 x 10^3	451 x 10^3
				[kgm²]	0.0027	0.0065	0.0101	0.0145	0.0294	0.0467					
T 65	1000	2000	500	[kg]	1.60	0.93	1.2	1.48	2.20	2.83		256 x 10^3	381 x 10^3	461 x 10^3	516 x 10^3
				[kgm²]	0.0035	0.0065	0.0101	0.0145	0.0294	0.0467					
80	1500	3000	750	[kg]	5.20				2.27	2.90	5.20	486 x 10^3	713 x 10^3	923 x 10^3	1156 x 10^3
				[kgm²]	0.0151				0.0312	0.0485	0.1462				
T 80	1850	3700	925	[kg]	5.20				2.27	2.90	5.20	556 x 10^3	815 x 10^3	1065 x 10^3	1329 x 10^3
				[kgm²]	0.0151				0.0312	0.0485	0.1462				
100	2550	5100	1275	[kg]	9.37					3.35	6.22	679 x 10^3	929 x 10^3	1218 x 10^3	1457 x 10^3
				[kgm²]	0.0401					0.0606	0.1828				
T 100	3100	6200	1550	[kg]	9.37					3.35	6.22	767 x 10^3	1030 x 10^3	1343 x 10^3	1594 x 10^3
				[kgm²]	0.0401					0.0606	0.1828				
125	5350	10700	2675	[kg]	19.73					2.09	9.85	1538 x 10^3	2098 x 10^3	2528 x 10^3	2980 x 10^3
				[kgm²]	0.1359					0.043	0.306				
T 125	6600	13200	3300	[kg]	19.73					2.09	9.85	1887 x 10^3	2495 x 10^3	3035 x 10^3	3629 x 10^3
				[kgm²]	0.1359					0.043	0.306				

= Years of experience with applications at customer sites and additional test series in the KTR test field in Rheine enabled us to determine potentials allowing for an increase of the rated torques with some sizes of this series.

Any questions? Please contact us.

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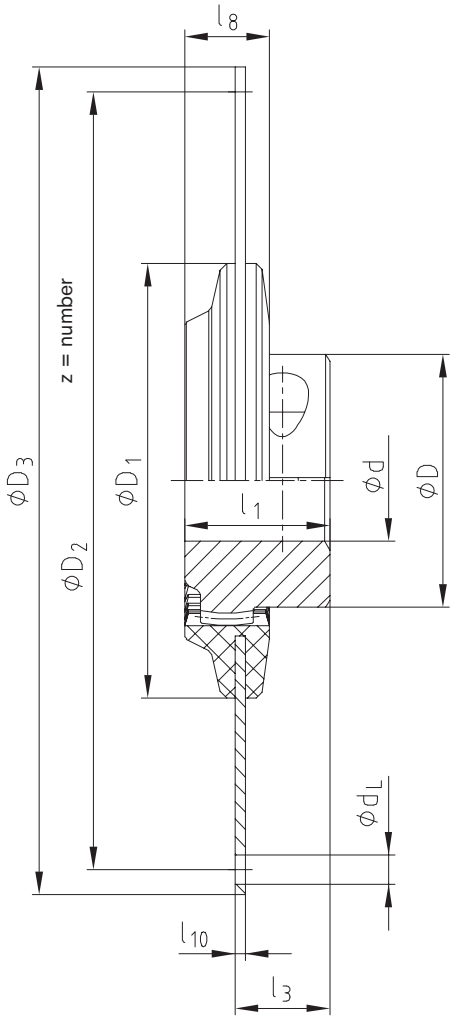
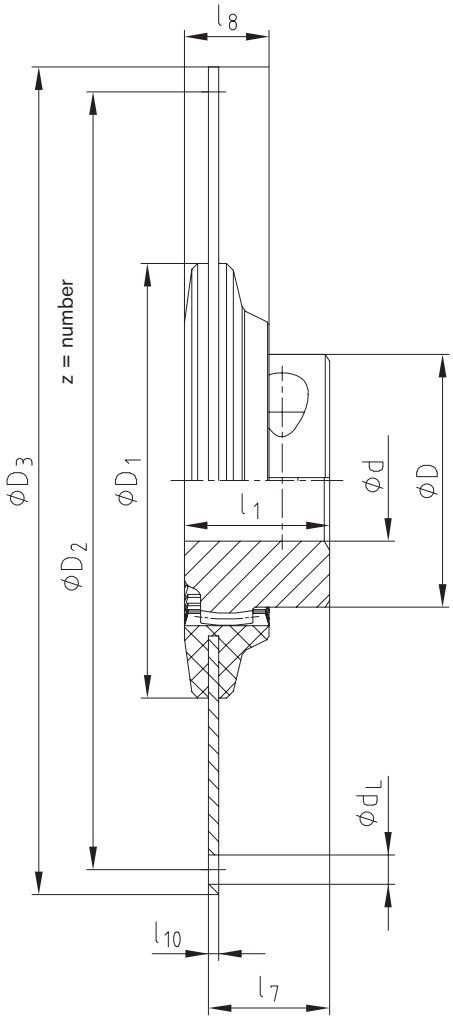
Mounting short version

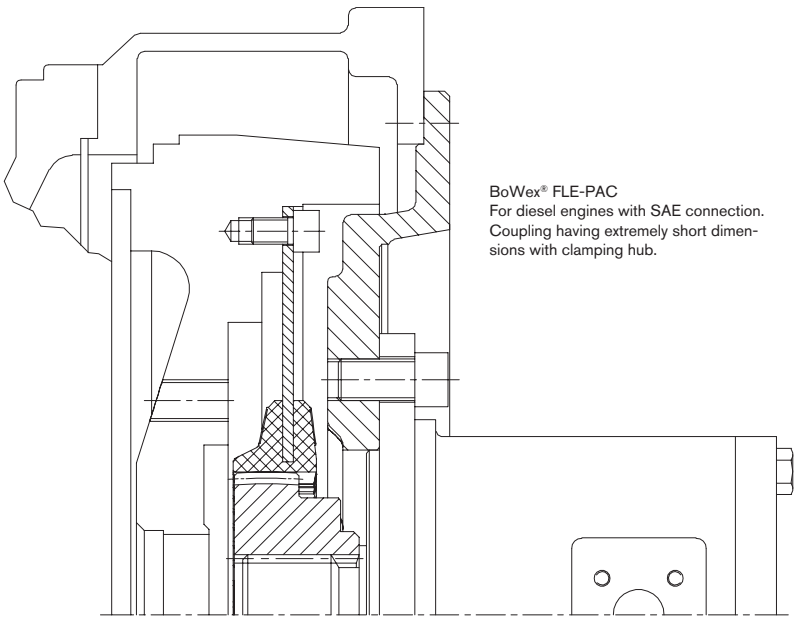


Mounting long version



Flange dimensions according to SAE J620 [mm]

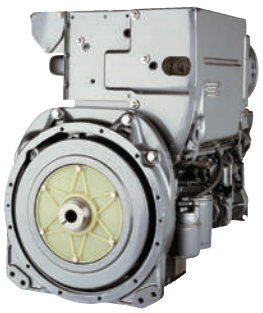
Size	D_3	D_2	z	d_L
6 ½"	215.9	200.02	6	9
7 ½"	241.3	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 ½"	352.42	333.37	8	11
14"	466.72	438.15	8	14



BoWex® FLE-PAC
For diesel engines with SAE connection. Coupling having extremely short dimensions with clamping hub.

BoWex® FLE-PA / FLE-PAC
Torsionally rigid flange couplings

Selection according to SAE standard



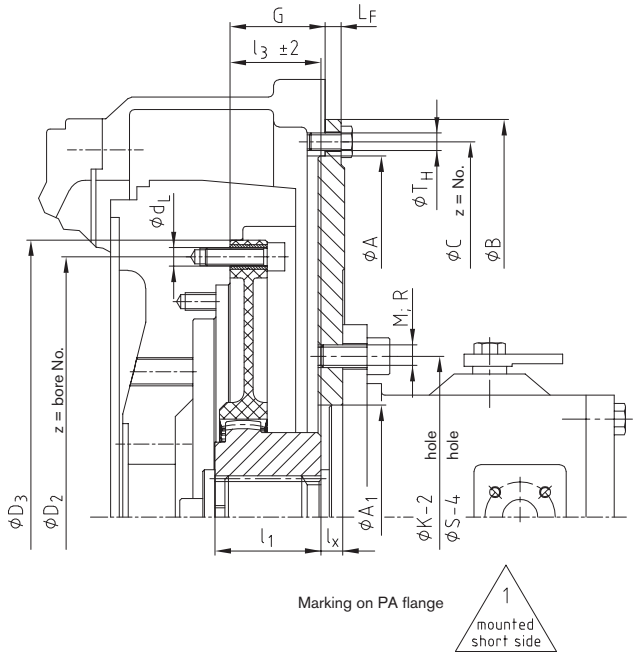
Determination of coupling

Determination of coupling size	Table 1
Connection dimension of coupling	Table 2
Hub design/mounting length	Table 3

SAE pump mounting flange

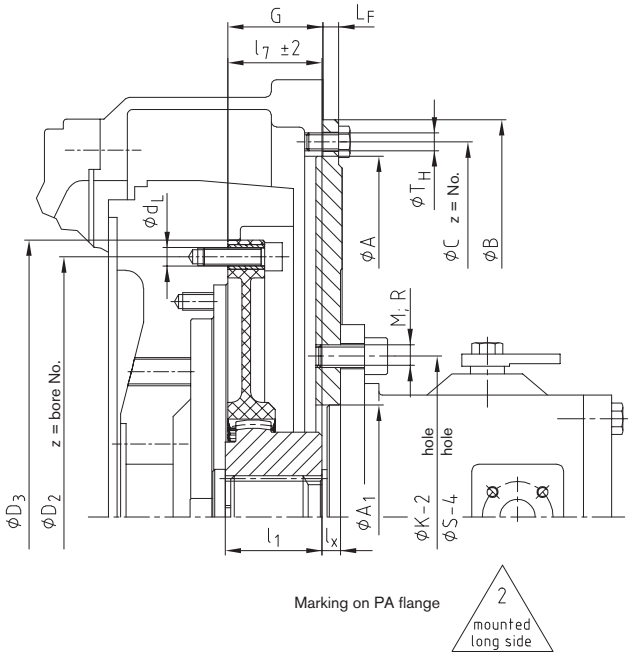
Flange size according to SAE 617	Table 4
Connection flange of hydraulic pump	Table 5

Short mounting version of coupling (l_3)



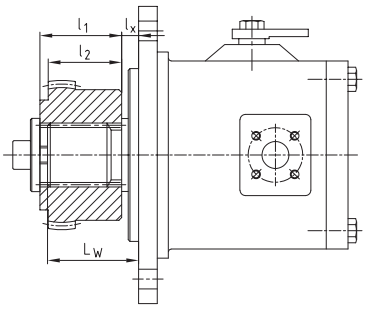
Marking on PA flange

Long mounting version of coupling (l_7)

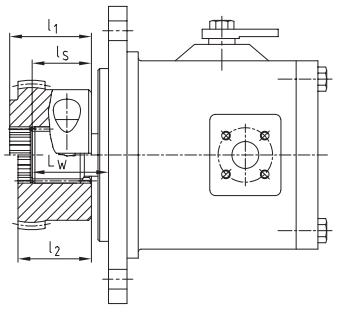


Marking on PA flange

Spline hub



Clamping hub



Determination of mounting length l_3 or l_7	
SAE shaft	$l_3 / l_7 = G + L_F - L_W + l_S$
DIN shaft	$l_3 / l_7 = G + L_F - l_X$

If axial fixing of the hub by means of an end plate and a screw is not possible for a pump shaft with involute spline, we would recommend to use a clamping hub.

Mounting instructions:

The flange can be fastened to the engine flywheel by means of socket head cap screws according to DIN EN ISO 4762 quality 8.8 or by hexagon head screws quality 8.8. We recommend screws are loctited in position.

Screw tightening torque of FLE-PA flange on the flywheel	
M8	25 Nm
M10	49 Nm
M12	86 Nm

Screw tightening torque of spline clamping hubs DIN EN ISO 4762		
42/48	M10	49 Nm
T55/65/T70	M12	86 Nm
80/100/125	M16	210 Nm

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Mounting dimensions according to SAE standard

1. Selection of coupling for diesel engine

Ⓧ	Diesel engine power		Coupling size	Flywheel to SAE			Pump mounting flange			Driving shaft of pump
	kW	HP			G			LF		
	up to 30 kW	up to 40 PS	48 FLE-PA	6 1/2"	30.15	1.19"	For dimensions to SAE see tables 3 and 4	9.5	0.375"	See Table 3 hub design SAE J 498 /DIN 5480
				7 1/2"	30.15	1.19"				
				8"	62	2.44"				
				10"	54	2.12"				
	up to 90 kW	up to 120 PS	65 FLE-PA	8"	62	2.44"				
				10"	54	2.12"		9.5	0.375"	
				11 1/2"	39.6	1.56"		12.7	0.5"	
	up to 180 kW	up to 240 PS	80 FLE-PA	11 1/2"	39.6	1.56"		12.7	0.5"	

2. Dimensions of coupling flange according to SAE J620 [mm]

Ⓧ	Nominal size	D_3	D_2	z = number	d_L
	6 1/2"	215.90	200.02	6	9
	7 1/2"	241.30	222.25	8	9
	8"	263.52	244.47	6	11
	10"	314.32	295.27	8	11
	11 1/2"	352.42	333.37	8	11
	14 "	466.72	438.15	8	14

4. Housing dimensions according to SAE 617 [mm]

Ⓧ	SAE size	A	B	C	Z	TH	
	SAE-1	511.18	552	530.2	12	M10	3/8"
	SAE-2	447.68	489	466.7	12	M10	3/8"
	SAE-3	409.58	451	428.6	12	M10	3/8"
	SAE-4	361.95	403	381.0	12	M10	3/8"
	SAE-5	314.33	356	333.4	8	M10	3/8"

5. Mounting flange for hydraulic pump acc. to SAE [mm]

Ⓧ	SAE size	SAE flange with 2 holes					SAE flange with 4 holes				
		A_1	K-2	M		Z	A_1	S-4	R		Z
	A	82.55	106.4	M10	3/8"	2	82.55	104.6	M10	3/8"	4
	B	101.6	146.0	M12	1/2"	2	101.6	127.0	M12	1/2"	4
	C	127.0	181.0	M16	5/8"	2	127.0	162.0	M12	1/2"	4
	D	152.4	228.6	M16	5/8"	2	152.4	228.6	M16	5/8"	4
	E	-	-	-	-	-	165.1	317.5	M20	3/4"	4

3. Selection of coupling hubs - Determination of mounting length l_3 or l_7

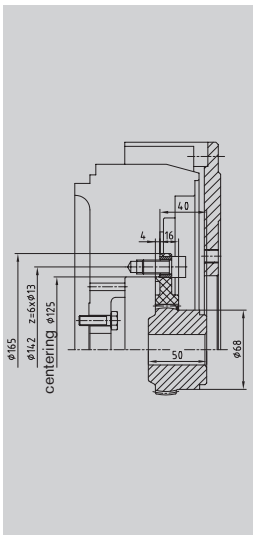
BoWex® coupling size	Pump shaft to SAE J 498 and DIN 5480	Spline hub	Spline clamping hub	Dimensions of coupling hub [mm]			Mounting length of coupling l_3 or l_7								Code to order coupling hub
							Flange size 6 1/2" and 7 1/2"		Flange size 8"		Flange size 10"		Flange size 11 1/2"		Specify coupling size
							K	L	K	L	K	L	K	L	
				l_1	l_2	l_S	l_3	l_7	l_3	l_7	l_3	l_7	l_3	l_7	
42	SAE-16/32 DP		x	42	-	33	33	42							P559101
	PI-S 3/4"														
	z = 11														
42	SAE-16/32 DP		x	42	-	-	33	42							P567101
	PB-S 7/8"														
	z = 13														
42	SAE-16/32 DP		x	42	-	27	33	42							P660201
	PB-BS 1"														
	z = 15														
48	SAE-16/32 DP		x	50	-	45	41	50		50	41	50			P663301
65	PA-S 1 3/8"		x	50	-	48				54	45	54	41		P663301
	z = 21														
65	SAE-12/24 DP		x	55	-	44				54	45	54	41		P656201
	PC-S 1 1/4"														
	z = 14														
65	SAE-16/32 DP		x	-	49	45						53	41		P664301
	PD-S 1 1/2"														
	z = 23														
80	SAE-16/32 DP		x	55	-	-							33	44	P565402
	PE-S 1 3/4"														
	z = 27														
42	25 x 1.25 x 18 DIN 5480	x		42	-	-	33	42							P000205
42			x	42	-	-	33	42							P500202
42	30 x 2 x 14 DIN 5480		x	42	-	-	33	42							P500203
48		x		50	-	-	41	50							P000206
48			x	50	-	-	41	50		50		50			P500203
48	35 x 2 x 16 DIN 5480	x		46	-	-	37	46							P000303
65		x		55	-	-						54	39		P000303
65			x	60	-	-			50	59	50	59	39		P500301
65	40 x 2 x 18 DIN 5480	x		55	-	-						54	39		P000304
65			x	55	-	-				54	45	54	39		P500302
65	45 x 2 x 21 DIN 5480	x		-	64	-			60	69	60	69	39		P000403
65			x	55	-	-				54	45	54	39		P500401
80	50 x 2 x 24 DIN 5480		x	55	-	-							37	42	P500405

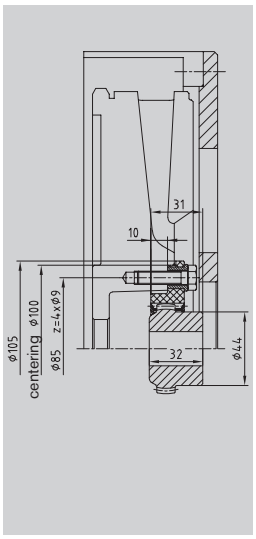
Ordering example: Coupling FLE-PA/FLE-PAC			SAE pump mounting flange	
BoWex® 48 FLE-PA	7 1/2"	P663301	SAE-4	B-2L
Coupling size	SAE connection of coupling	Code of coupling hub	Pump mounting flange for engine housing	Pump flange to SAE 2 holes/4 holes standard metric fastening thread
Table 1	Table 2	Table 3	Table 4	Table 5

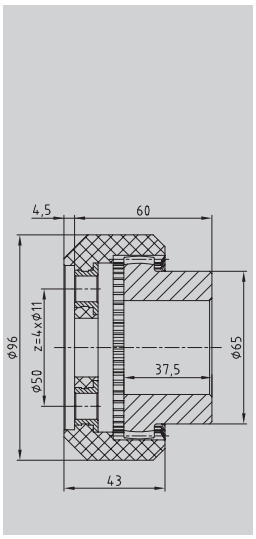
BoWex® FLE-PA
Torsionally rigid flange couplings

Special flange programme, deviations from the SAE standard

Fitting to diesel engines: Hatz

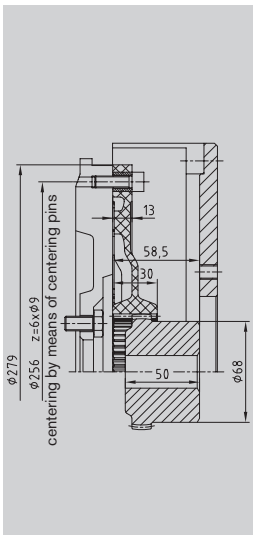


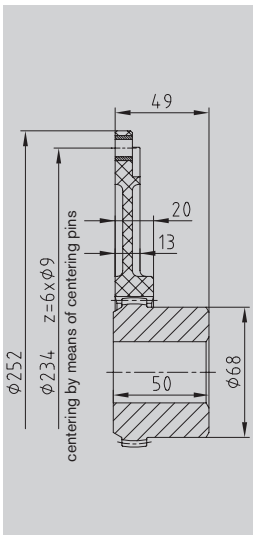


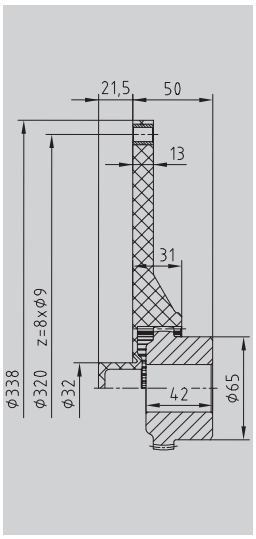


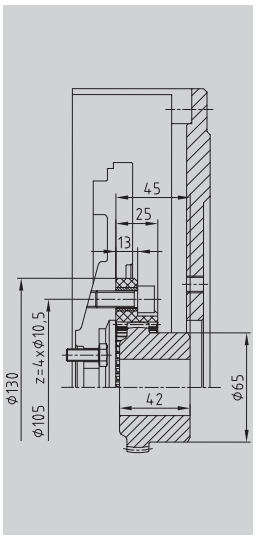
Coupling size	BoWex® 48 FLE-PA, Ø165	BoWex® 28 FLE-PA, Ø105	BoWex® 48 FLE-PA, Ø96
Engine type	Hatz 2L/3L/4L41C 2M/3M/4M41 4M42,4L42C	Hatz 1D81 / 1D90	Hatz Z788 / Z789 / Z790

Fitting to diesel engines: VW Mitsubishi



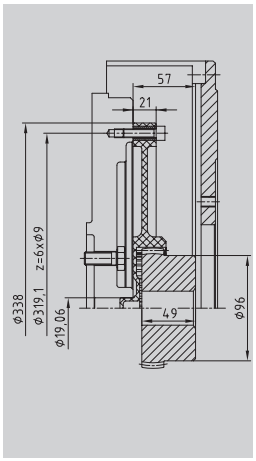


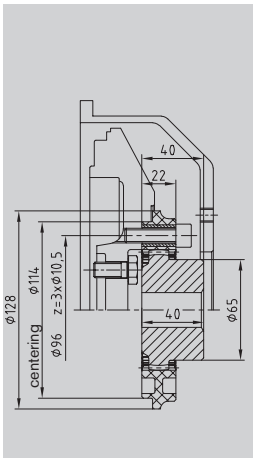


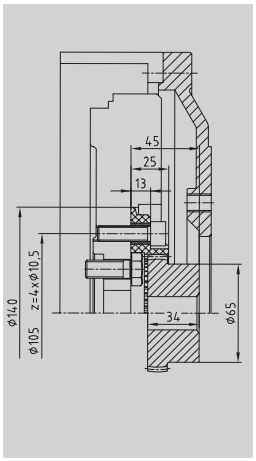


Coupling size	BoWex® 48 FLE-PA, Ø279	BoWex® 48 FLE-PA, Ø252	BoWex® 48 FLE-PA	BoWex® 48 FLE-PA, Ø130
Engine type	VW 028.B / M344	VW 062.2 / 068.5 / 6 / A / D	Mitsubishi Ø338-32	Mitsubishi Series L / Series K

Fitting to diesel engines: Perkins Lombardini







Coupling size	BoWex® 65 FLE-PA, Ø338	BoWex® 48 FLE-PA, Ø128	BoWex® 48 FLE-PA, Ø140
Engine type	Perkins 1104C-44T Flywheel No. D0014	Lombardini FOCS series	Lombardini LDW

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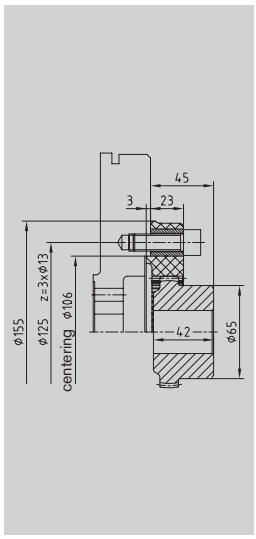
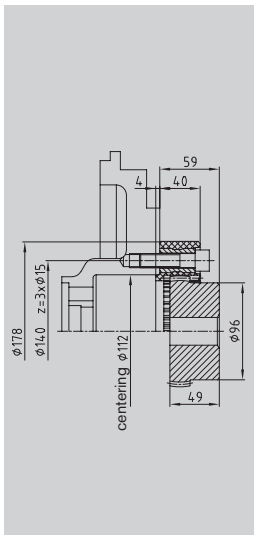
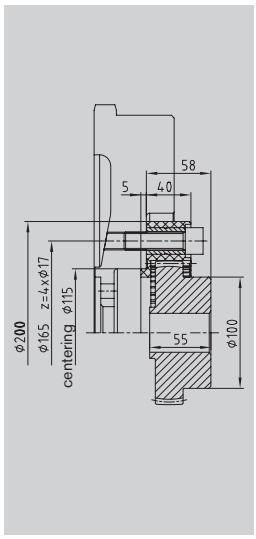
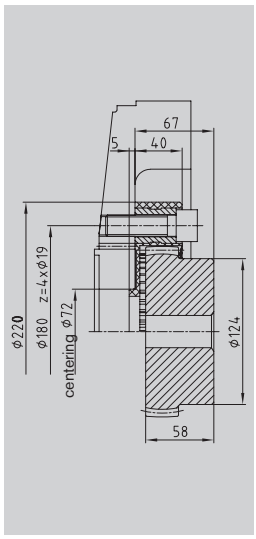
Special flange programme, deviations from the SAE standard

Fitting to diesel engines: Perkins Isuzu Cummins



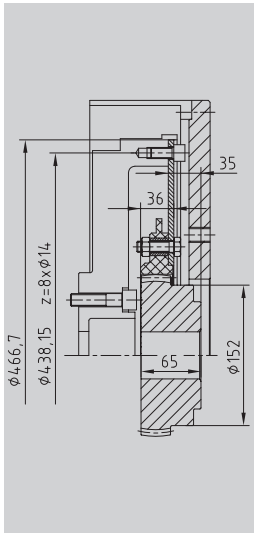


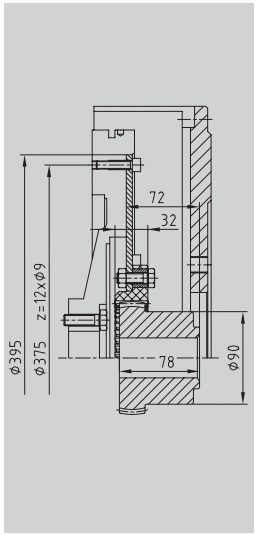


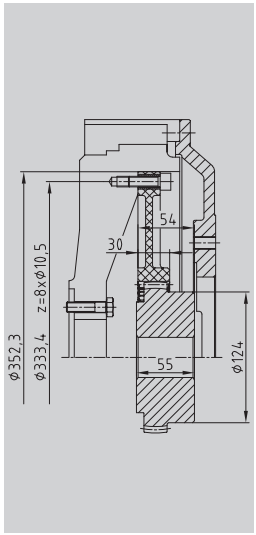


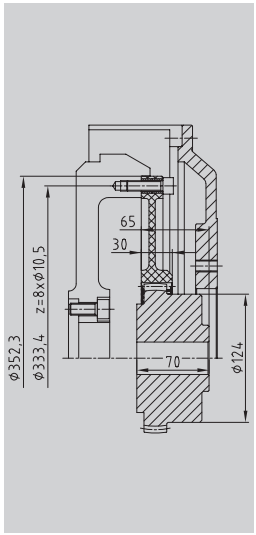
Coupling size	BoWex® 48 FLE-PA, Ø155	BoWex® 65 FLE-PA, Ø178	BoWex® 70 FLE-PA, Ø200	BoWex® 80 FLE-PA, Ø220
Engine type	3 holes, Ø125	3 holes, Ø140	4 holes, Ø165	4 holes, Ø180

Fitting to diesel engines: Caterpillar Daimler Cummins John-Deere



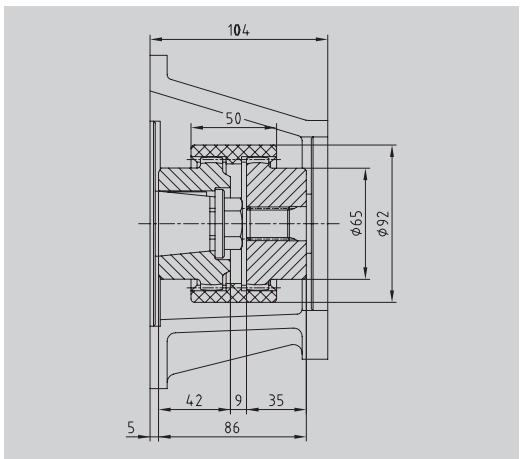


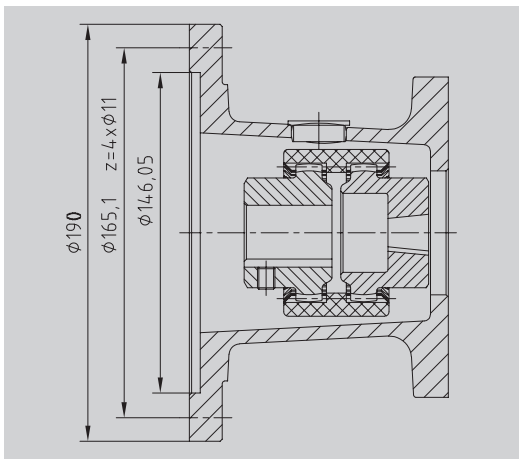




Coupling size	BoWex® T100 FLE-PA, 14”	BoWex® T65 FLE-PA, Ø395	BoWex® 80 FLE-PA, 11 1/2”	BoWex® 80 FLE-PA 11 1/2”
Engine type	Caterpillar C 10 / C 12	Daimler OM904	Cummins QSX/QSB	John Deere

Fitting to shaft motors: Hatz Honda Briggs-Stratton Yanmar Kohler Robin



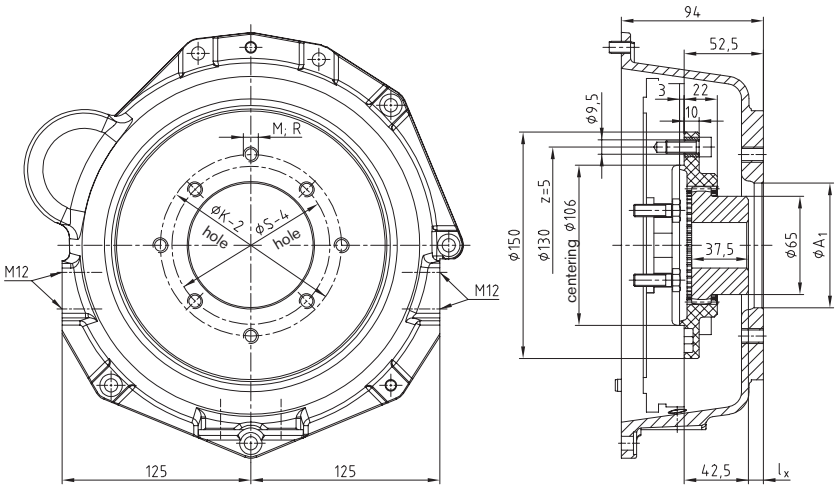


Coupling size	BoWex® M42	BoWex® shaft coupling type M28 and M32
Engine type	Hatz 2G30	Housing connection according to SAE J609A

Flange couplings and pump connection housings for KUBOTA engines

KUBOTA
Super MINI series

Z-400
Z-442-B
Z-482-B
D-600
D-662-B
D-902-B
V-800



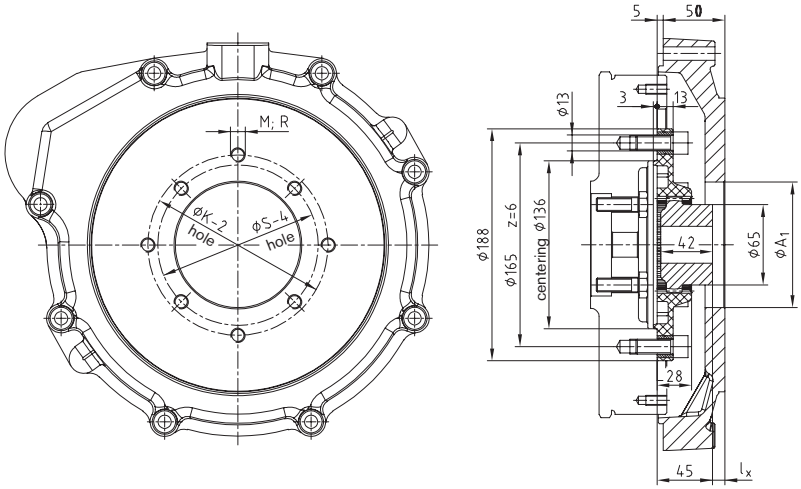
BoWex® 48 FLE-PA Ø 150 / pump connection housings

KUBOTA
Super 3 series

D 1403/1703
Flywheel
No. 190027991

V 1903/2203
Flywheel
No. 190002369

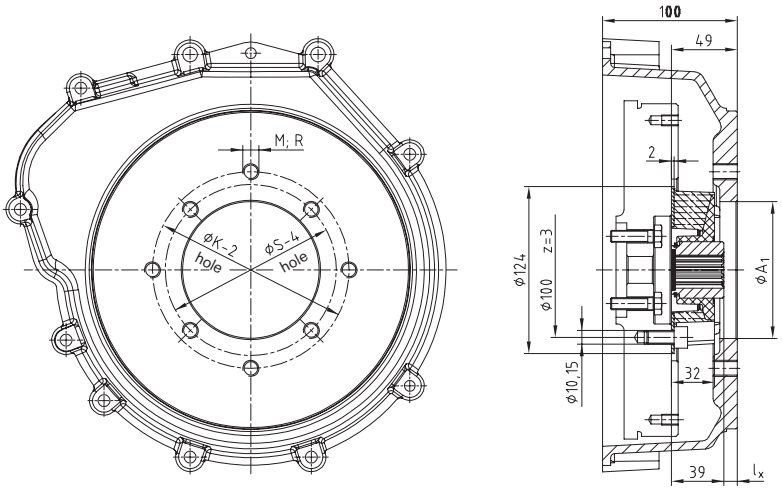
V 2003-T



BoWex® 48 FLE-PA Ø 188 / pump connection housings

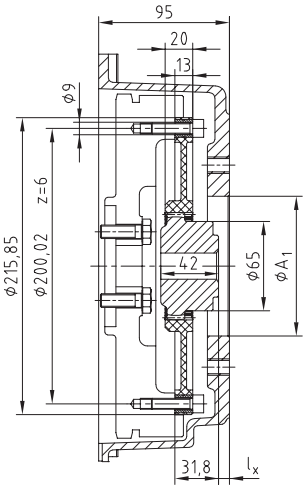
KUBOTA
Super 5 series

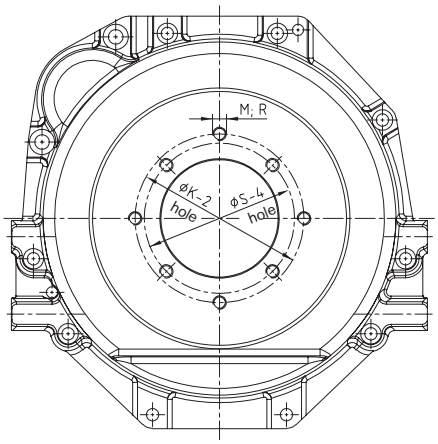
D 905
D 1005
D 1105
D 1105-T
V 1205
V 1305
V 1505

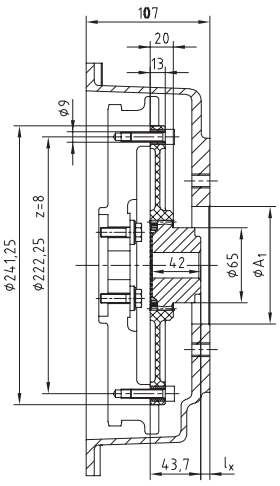


MONOLASTIC® 28 Ø 124 / pump connection housings

Flange couplings and pump connection housings for Perkins engines

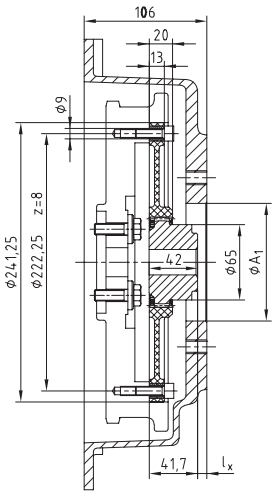


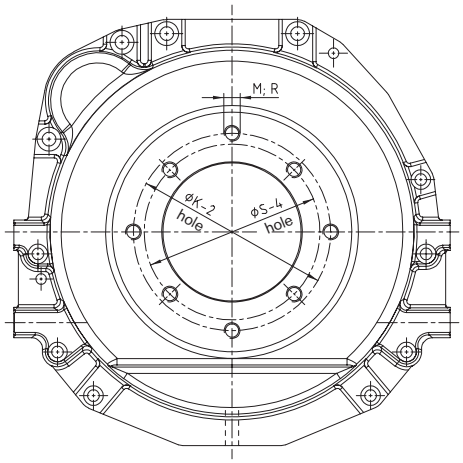


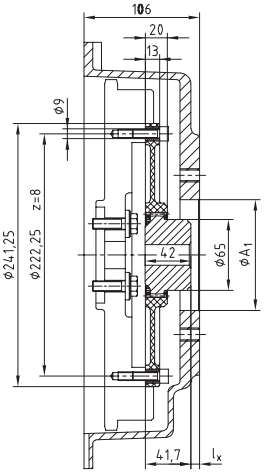


Perkins 403D - 10/11

Perkins 403D - 13/15



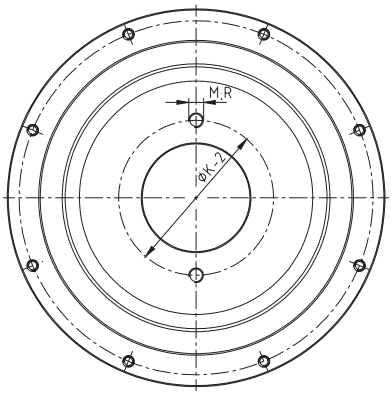


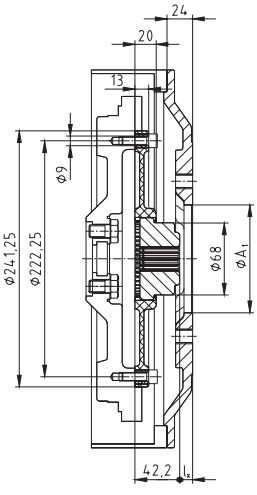


Perkins 404D - 20

Perkins 404D - 22

Other selections on request for Yanmar Mitsubishi etc.





Mitsubishi SL series

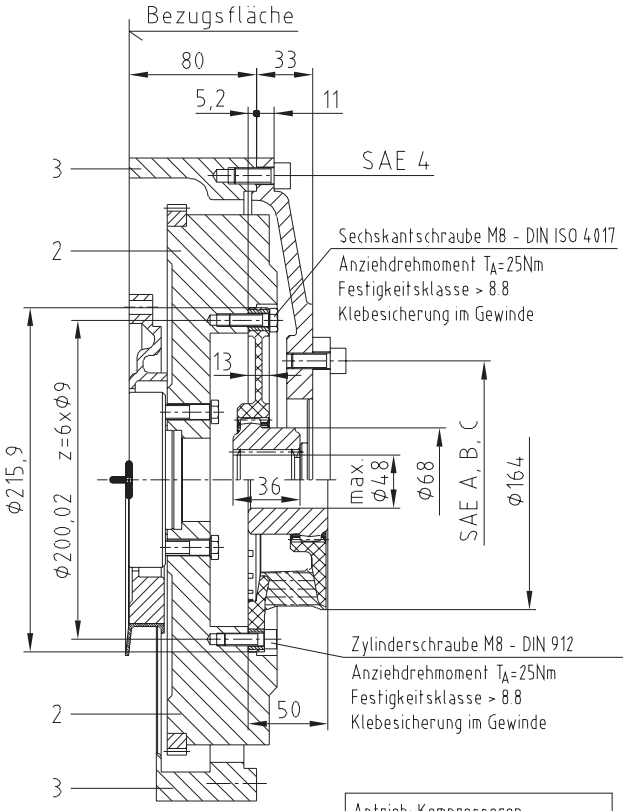
Yanmar TNV series

BoWex® FLE-PA
Torsionally rigid flange couplings

Selection of DEUTZ engines FL/M 1011 and FL/M 2011, TCD/TD/D 2.9 L4, TDC/T 3.6 L

Anbaukombination A

Antrieb: Hydraulikpumpen
BoWex® 48 FLE-PA 6 1/2"
SAE-4.0/33 Pumpenanbauflansch

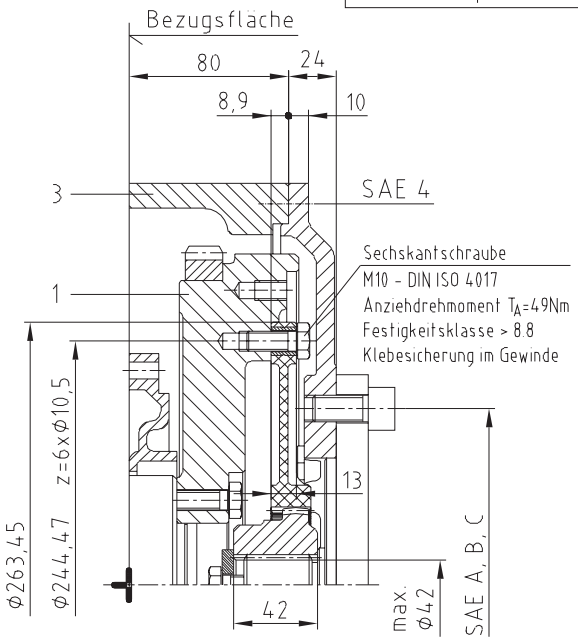


Anbaukombination B

Antrieb: Kompressoren,
Wasserpumpen usw.
BoWex-Elastic® HE 6 1/2"

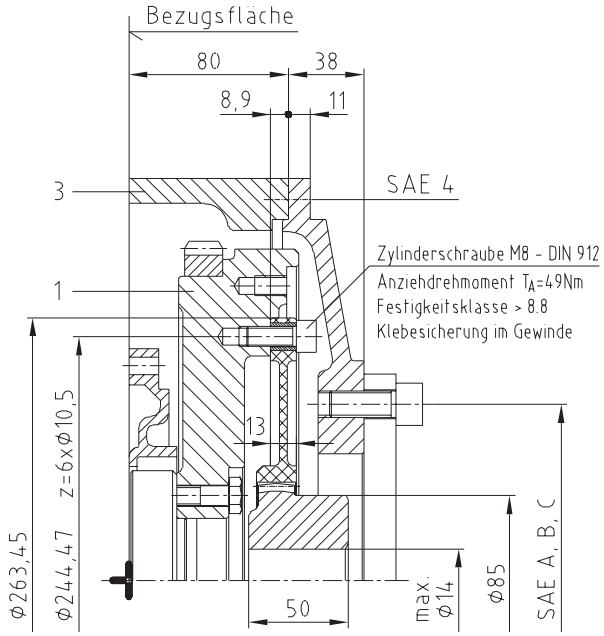
Anbaukombination C

Antrieb: Hydraulikpumpen
BoWex® 48 FLE-PA 8"
SAE-4.3/24 Pumpenanbauflansch



Anbaukombination D

Antrieb: Hydraulikpumpen
BoWex® T55 FLE-PA 8"
SAE-4.0/38 Pumpenanbauflansch



ACHTUNG: Entsprechend der Motorleistung ist die Kupplungsanordnung durch den Anwender zu prüfen.
Nach erfolgtem Kupplungsanbau Kurbelwellenlängsspiel prüfen. Sollmaß für Lagerluft 0,1 ... 0,3 mm.
DEUTZ übernimmt keine Haftung für außerhalb des DEUTZ Lieferumfanges liegende Maßgaben und/oder Teile.

Bei techn. Rückfragen hinsichtlich der Kupplungsausführung wenden Sie sich bitte an:
KTR-Kupplungstechnik GmbH
Postfach 1763 D-48407 Rheine
Telefon +49 - 05971 / 798-0

D	C	B	A	Pos.	Benennung	Nummer	G (kg)	Baus.-Nr.
1	1	1	1	3	Zwischengehäuse (SAE-4)	0427 0980 KZ 0138-52 0417 1040 UA 0138-52	15	0553
-	-	1	1	2	Schwungrad (SAE 6 1/2") J= 0,499 kgm²	0428 0586 KZ 0138-05 0417 1301 UA 0138-05	30,3	3174
1	1	-	-	1	Schwungrad (SAE 8 u.10") J= 0,405 kgm²	0427 2426 KZ 0138-05 0417 1301 UA 0138-05	25,3	2461

Anbau-kombination

Bauart TYPE	FL/M1011 FL/M2011
Maßstab SCALE	1:1
Gewicht WEIGHT	-
Werkstoff-Nr. Rohteil-Nr. BLANK NO.	-
Benennung TITLE	Kupplungsanbau BoWex® FLE-PA / ELASTIC HE
Zeichnungs-Nummer	0428 0967 UB
Techn. Änderungsnummer	0138-97
Blatt SHEET	1 von 1 Bl.
Bearb.	17.12.13 Sha
Gepr.	12.12.13 Sh
Norm	
QE DEPT.	
Ges.	
Ersetzt für REPLACES	
Ersetzt durch REPLACED BY	

DEUTZ AG

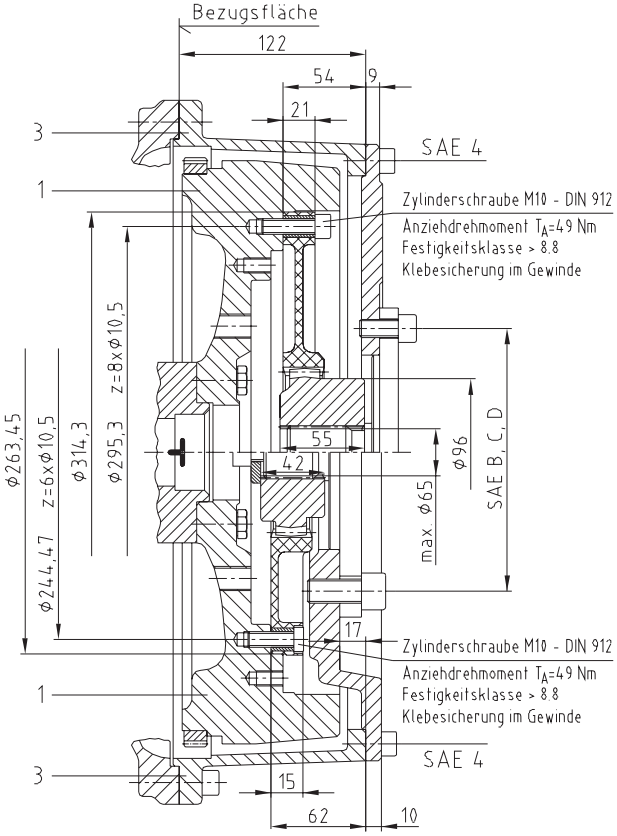
Morskate®

Selection of DEUTZ engines BFM 1012/1013/2012/2013/1015

Anbaukombination A

BoWex® 65 FLE-PA 10"
SAE-4/9 Pumpenanbauflansch

Deutz-Motor
BF4/6M 1012/2012, BF4/6 1013/2013,
TCD/TD 2012 L04/06 2V/4V, TCD/TD 2013 L04 2V, TCD 4.1 L4



Anbaukombination B

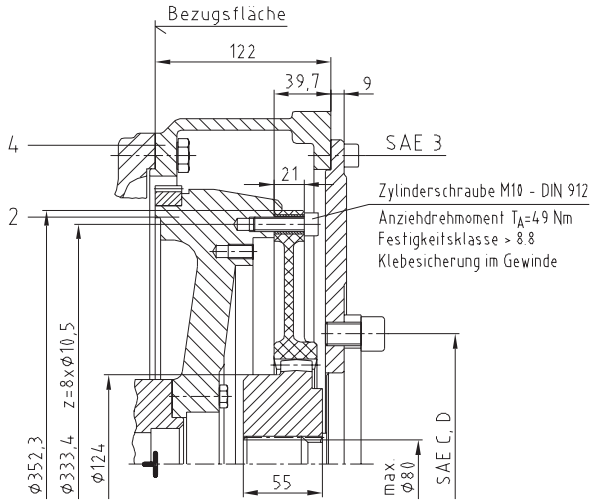
BoWex® 65 FLE-PA 8"
SAE-4 2/-17 Pumpenanbauflansch

Deutz-Motor
BF4/6M 1012/2012, BF4/6 1013/2013,
TCD/TD 2012 L04/06 2V/4V, TCD/TD 2013 L04 2V, TCD 4.1 L4

Anbaukombination C

BoWex® 80 FLE-PA 11 1/2"
SAE-3/9 Pumpenanbauflansch

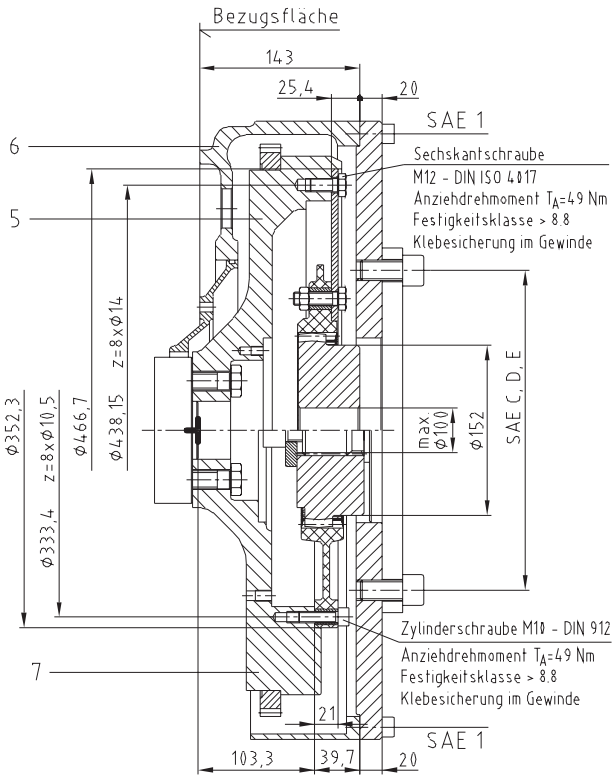
Deutz-Motor
BF4/6M 1012/2012, BF4/6 1013/2013,
TCD/TD 2012 L04/06 2V/4V, TCD/TD 2013 L04/06 2V, TCD 4.1 L4, TCD 6.1 L6



Anbaukombination D

BoWex® 100 FLE-PA 14"
SAE-1/20 Pumpenanbauflansch

Deutz-Motor
BF6/8M 1015/2015,
TCD 2015 V06, TCD 12.0 V6



Anbaukombination E

BoWex® 100 FLE-PA 11 1/2"
SAE-1/20 Pumpenanbauflansch

Deutz-Motor
BF6/8M 1015/2015,
TCD 2015 V06, TCD 12.0 V6

ACHTUNG: Entsprechend der Motorleistung ist die Kupplungsanordnung durch den Anwender zu prüfen. Nach erfogtem Kupplungsanbau Kurbelwellenlängsspiel prüfen. Sollmaß für Lagerluft: Motor 1012/1013/2012/2013 = 0,1 - 0,28 mm; Motor 1015 = 0,2 - 0,4 mm
DEUTZ übernimmt keine Haftung für außerhalb des DEUTZ Lieferumfanges liegende Maßgaben und/oder Teile.

Bei techn. Rückfragen hinsichtlich der Kupplungsausführung wenden Sie sich bitte an:
KTR-Kupplungstechnik GmbH; Postfach 1763; D-48407 Rheine; Tel.: 05971/798-0

E	D	C	B	A	Pos.	Benennung	Nummer	G[kg]	Baus.-Nr.
1	-	-	-	-	7	Schwungrad (SAE-11 1/2") J= 2,255 kgm²		66,7	
1	1	-	-	-	6	Anschlußgehäuse (SAE-1)		45,6	
-	1	-	-	-	5	Schwungrad (SAE-14") J= 2,264 kgm²		61,6	
-	-	1	-	-	4	Anschlußgehäuse (SAE-3)			
-	-	-	1	1	3	Anschlußgehäuse (SAE-4)			
-	-	1	-	-	2	Schwungrad (SAE-10 u. 11 1/2") J= 0,872 kgm²			
-	-	-	1	1	1	Schwungrad (SAE-8 u. 10") J= 1,03 kgm²			

Anbau-kombination

DEUTZ 1012 / 1013
siehe 0420 8900 UB 0130-97

Morskate®

Any questions? Please contact us.

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