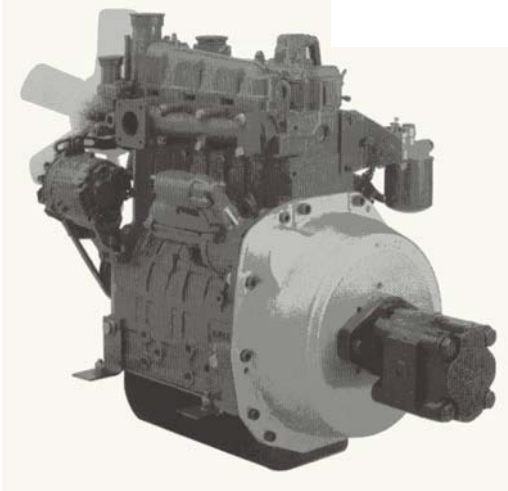




BROWN EUROPE

DIESEL ENGINE HOUSINGS & COUPLINGS

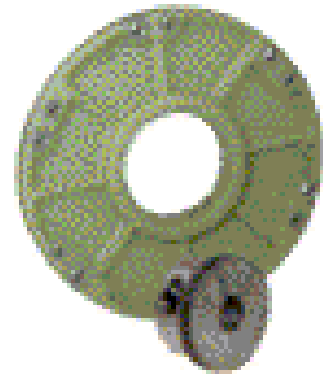
ENGINE HOUSINGS & SAE PUMP PLATES



Engine Housings to suit most makes of Diesel and Petrol Engines, Light weight, strong and a major cost saving against using an SAE ring and steel pump mounting plate.

FLE ENGINE COUPLING

FLE Flywheel Coupling for the connection of Diesel Engines and Hydraulic Pumps.
Two piece design consisting of fibre glass reinforced nylon engine flange and sintered steel splined clamped pump hub.



FBA ENGINE COUPLING



FBA Flywheel Coupling for the connection of Diesel Engines and Hydraulic Pumps.
One piece "plug in" failsafe design, torsionally soft, absorbs shocks and suitable for temperatures to 212 deg. F.
High torque capacity.



BROWN EUROPE

Revenge Road,
Lordswood Ind. Estate, Chatham,
Kent.

ME5 8UD.

Tel. (0044) 1634 687141

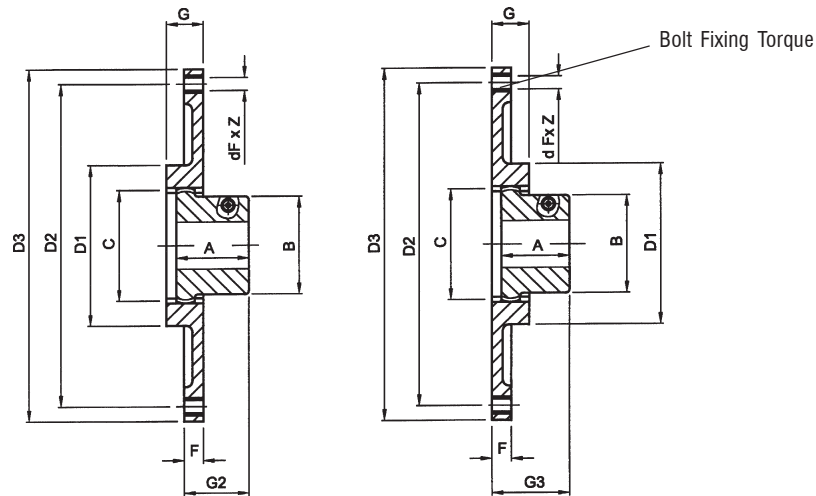
Fax. (0044) 1634 686347

Email. Mail@Browngroutpltd.com



BX-FLE ENGINE FLYWHEEL COUPLINGS

SAE FLANGES



SAE Flange Size	TKN	TK Max	Max Speed	D1	D2	D3	dF x z	F	G	A	B	C	G2 Short	G3 Long
BX42 FLE 6 1/2	240	600	5000	100	200.02	215.9	9 x 6	13	20	38.1	65	78	33	42
BX42 FLE 7 1/2	240	600	5000	100	222.25	241.3	9 x 8	13	20	38.1	65	78	33	42
BX42 FLE 8	240	600	5000	100	244.47	263.52	11 x 6	13	20	38.1	65	78	33	42
BX42 FLE 10	240	600	5000	100	295.27	314.32	11 x 8	13	20	38.1	65	78	33	42
BX48 FLE 6 1/2	240	600	5000	100	200.02	215.9	9 x 6	13	20	45.7	68	78	41	50
BX48 FLE 7 1/2	240	600	5000	100	222.25	241.3	9 x 8	13	20	45.7	68	78	41	50
BX48 FLE 8	240	600	5000	100	244.47	263.52	11 x 6	13	20	45.7	68	78	41	50
BX48 FLE 10	240	600	5000	100	295.27	314.32	11 x 8	13	20	45.7	68	78	41	50
BXT48 FLE 6 1/2	300	750	5000	100	200.02	215.9	9 x 6	13	20	56	66	78	49	56
BXT48 FLE 7 1/2	300	750	5000	100	222.25	241.3	9 x 8	13	20	56	66	78	49	56
BXT48 FLE 8	300	750	5000	100	244.47	263.52	11 x 6	13	20	56	66	78	49	56
BXT48 FLE 10	300	750	5000	100	295.27	314.32	11 x 8	13	20	56	66	78	49	56
BX65 FLE 8	650	1600	3600	132	244.47	263.52	11 x 6	21	27	55	96	110	48	55
BX65 FLE 10	650	1600	3600	132	295.27	314.32	11 x 8	21	27	55	96	110	48	55
BX65 FLE 11 1/2	650	1600	3600	132	333.37	352.42	11 x 8	21	27	55	96	110	45	55
BXT65 FLE 8	800	2000	3600	132	244.47	263.52	11 x 6	21	27	55	96	110	48	55
BXT65 FLE 10	800	2000	3600	132	295.27	314.32	11 x 8	21	27	55	96	110	48	55
BXT65 FLE 11 1/2	800	2000	3600	132	333.37	352.42	11 x 8	21	27	55	96	110	45	55
BX80 FLE 11 1/2	1200	3000	3600	170	333.37	352.42	11 x 8	21	30	54	124	144	43	46
BXT80 FLE 11 1/2	1550	3875	3600	170	333.37	352.42	11 x 8	21	30	54	124	144	43	46

Scale assembly drawings showing diesel engine flywheel and pump on request.

Cross clamp bolt tightening torque - Pump Hub

BX42/BX48	49 Nm (M10)
BX65	86 Nm (M12)
BX80	355 Nm (M16)

Bolt tightening torque - FLE flange to Engine Flywheel

M8	25 Nm
M10	49 Nm
M12	86 Nm
M16	355 Nm

Useful Formulae - Hydraulic Pumps and Motors

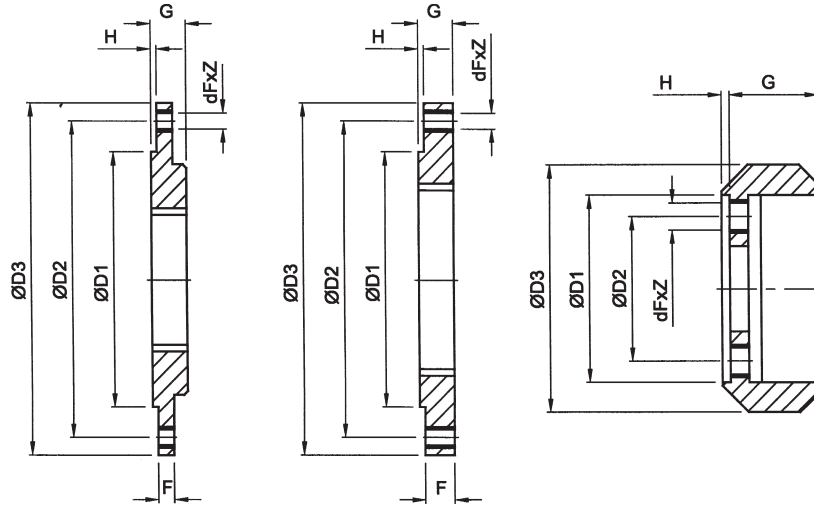
Shaft Torque (Nm) $M = \frac{\text{Displacement (cm}^3\text{/rev)} \times \text{Pressure (bar)}}{20 \times \pi}$

Shaft Power (kW) $P = \frac{\text{Shaft Torque (Nm)} \times \text{rpm}}{9550}$



BX-FLE ENGINE FLYWHEEL COUPLINGS

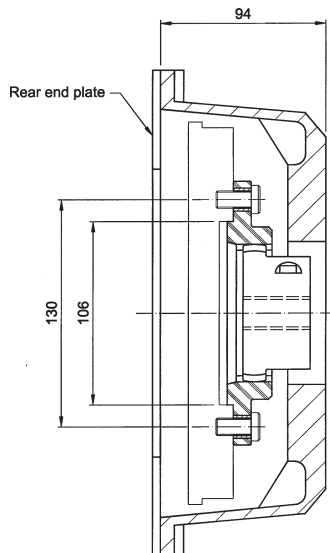
SPECIAL FLANGES



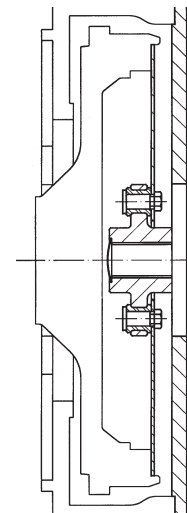
SAE Flange Size	TKN	TK Max	Max Speed	D1	D2	D3	dF	x	z	F	G	H	Design	To Suit Engine
BX48 FLE 96	240	600	5000	70	50	96	11	x	4	-	43	4.5	3	Hatz
BX48 FLE 125	240	600	5000	80	100	125	11	x	3	27	30	3	2	Lister/Deutz/Perkins
BX48 FLE 135	240	600	5000	-	100	135	10.5	x	3	17	17	-	2	Kubota/Perkins
BX48 FLE 150	240	600	5000	106	130	150	9.5	x	5	10	25	3	1	Kubota/Briggs/Diahsatsu
BX48 FLE 152/1	240	600	5000	106	125	152	13	x	3	23	26	3	2	Perkins
BX48 FLE 152/2	240	600	5000	105	122	152	13	x	3	23	26	3	2	Hatz
BX48 FLE 152/3	240	600	5000	100	125	152	13	x	3	23	26	3	2	Perkins
BX48 FLE 155	240	600	5000	-	125	155	13	x	3	?	?	-	2a	Perkins
BX48 FLE 165	240	600	5000	125	142	165	13	x	6	10	20	4	1	Hatz
BX48 FLE 188	240	600	5000	136	165	200	?	x	?	13	?	?	1	Kubota
BX48 FLE 252/1	240	600	5000	-	234	252	9	x	6	9	20	-	1	3 x 6mm dowel centering
BX48 FLE 252/2	240	600	5000	-	218	234	9	x	6	?	?	?	?	?
BX65 FLE 180	650	1600	3600	-	155	180	10	x	4	?	?	?	?	All Purpose Adaptor

Scale assembly drawings showing diesel engine flywheel and pump on request.

TYPICAL ENGINE HOUSING ASSEMBLY (FLE)

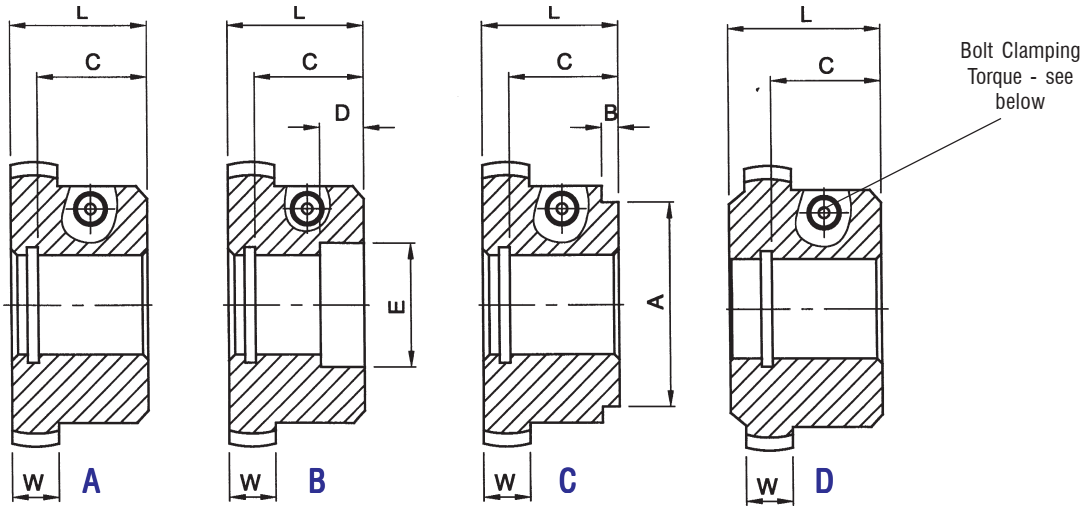


TYPICAL SAE ASSEMBLY WITH PUMP PLATE (FBA)





SAE SPLINED CLAMPED PUMP HUBS



Clamp Pump Hub	TKN	TK Max	Hub Type	Teeth	DP	A x B	C	D x E	L	W
BX42 PH X 35	240	600	B	9	16/32	- -	24	16 x 18	35	13
BX42 PH X 37	240	600	B	9	16/32	- -	16	16 X 14.6	38	13
BX42 PH X 42	240	600	A	9	16/32	- -	No	- -	38	13
BX42 PI X 35	240	600	B	11	16/32	- -	No	10 x 20	38	13
BX42 PI x 37	240	600	A	11	16/32	- -	No	- -	38	13
BX42 PI x 37.5	240	600	B	11	16/32	- -	No	14 x 22	38	13
BX42 PB-S x 36	240	600	C	13	16/32	60 x 3	33	- -	36	13
BX42 PB-S X 28.5	240	600	C	13	16/32	60 x 3	No	- -	28.5	13
BX42 PB-S x 42	240	600	A	13	16/32	- -	No	- -	38	13
BX48-PBS x 46	240	600	A	13	16/32	- -	No	- -	46	13
BX48-PBS X 56	240	600	A	13	16/32	- -	27	- -	56	13
BX42-PC X 42	240	600	A	14	12/24	- -	30	- -	38	13
BX48T-PC X 42	270	675	A	14	12/24	- -	No	- -	38	16
BX48T-PC X 46	300	750	A	14	12/24	- -	No	- -	46	20
BX65-PC X 55	650	1600	D	14	12/24	- -	No	- -	55	20
BX65-PC X 70	650	1600	D	14	12/24	- -	No	- -	70	20
BX42-PB-B X 37	240	600	A	15	16/32	- -	34	- -	38	13
BX42-PB-B X 42	240	600	C	15	16/32	50 X 5	27	- -	38	13
BX48T-PB-B X 46	300	750	A	15	16/32	- -	No	- -	46	20
BX48T-PB-B X 56	300	750	A	15	16/32	- -	No	- -	56	20
BX48-PA X 46	240	600	C	21	16/32	52 X 7	45	- -	46	13
BX48T-PA X 46	300	750	A	21	16/32	- -	38.5	- -	46	20
BX48T-PA X 56	300	750	A	21	16/32	- -	No	- -	56	20
BX65-PA X 55	650	1600	D	21	16/32	- -	No	- -	55	20
BX65-PD-S X 55	650	1600	D	23	16/32	- -	No	- -	55	20
BX65-PE-S X 55	660	1600	D	27	16/32	- -	No	- -	55	20

The above table indicates popular (normally ex stock) pump hubs. Other size, splines and lengths are available on short delivery times.

Cross clamp bolt tightening torque

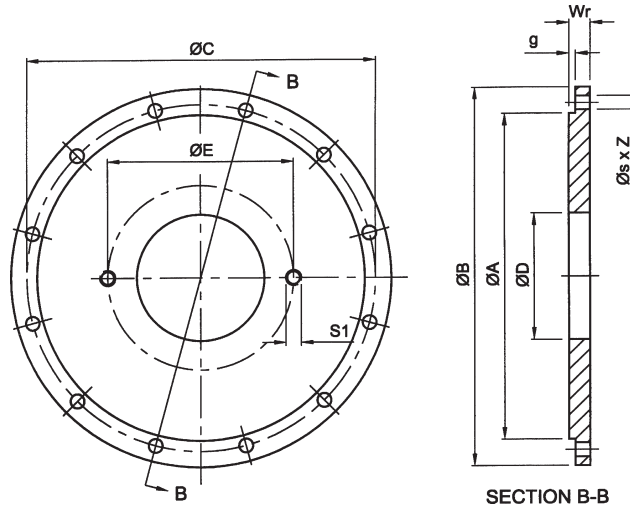
BX42/BX48
BX65

49Nm (M10)
86Nm (M12)



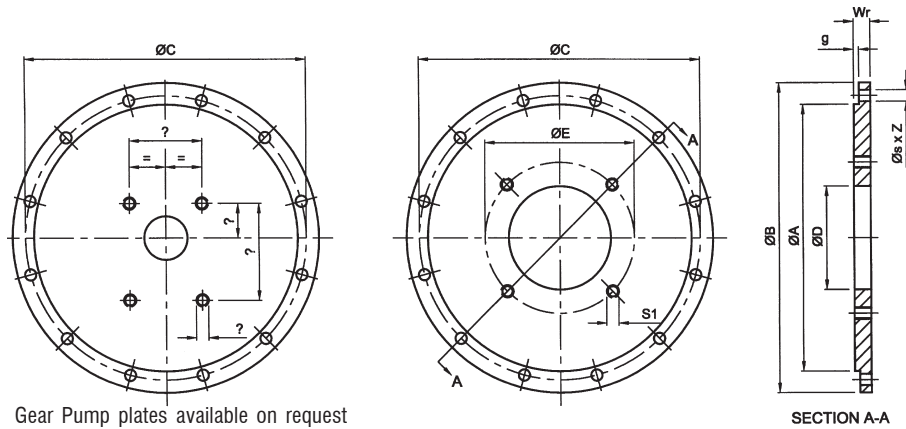
SAE 2 & 4 BOLT PUMP PLATES

SAE 2 BOLT



Size	A	B	C	S	X	Z	g	Wr	DH	E	s1
SAE 5-SAE A-2	333.4	356	314.33	11	X	8	4	13.5	82.55	106.4	M10
SAE 5-SAE B-2	333.4	356	314.33	11	X	8	4	13.5	101.6	146	M12
SAE 4-SAE A-2	381.0	403	361.95	11	X	12	4	13.5	82.55	106.4	M10
SAE 4-SAE B-2	381.0	403	361.95	11	X	12	4	13.5	101.6	146	M12
SAE 4-SAE C-2	381.0	403	361.95	11	X	12	4	13.5	127	181	M16
SAE 3-SAE B-2	428.6	452	409.5	11	X	12	4	13.5	101.6	146	M12
SAE 3-SAE C-2	428.6	452	409.5	11	X	12	4	13.5	127	181	M16
SAE 2-SAE B-2	466.7	489	447.68	11	X	12	5	17.7	101.6	146	M12
SAE 2-SAE C-2	466.7	489	447.68	11	X	12	5	17.7	127	181	M16
SAE 1-SAE C-2	511.2	553	530.22	12.5	X	12	3	16	127	181	M16

SAE 4 BOLT



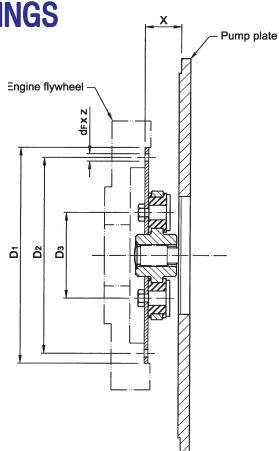
Gear Pump plates available on request

Size	A	B	C	S	X	Z	g	Wr	DH	E	s1
SAE 5-SAE B-4	333.4	356	314.33	11	X	8	4	13.5	101.6	127	M12
SAE 4-SAE B-4	381.0	403	361.95	11	X	12	4	13.5	101.6	127	M12
SAE 4-SAE C-4	381.0	403	361.95	11	X	12	4	13.5	127	162	M12
SAE 3-SAE B-4	428.6	452	409.5	11	X	12	4	13.5	101.6	127	M12
SAE 3-SAE C-4	428.6	452	409.5	11	X	12	4	13.5	127	162	M12
SAE 2-SAE C-4	466.7	489	447.68	11	X	12	5	17.7	127	162	M12
SAE 2-SAE D-4	466.7	489	447.68	11	X	12	5	17.7	152.4	228.6	M16
SAE 1- SAE C-4	511.2	553	530.22	12.5	X	12	3	16	127	162	M12
SAE 1- SAE D-4	511.2	553	530.22	12.5	X	12	3	16	152.4	228.6	M16
SAE 1- SAE E-4	511.2	553	530.22	12.5	X	12	3	16	165.1	317.5	M18

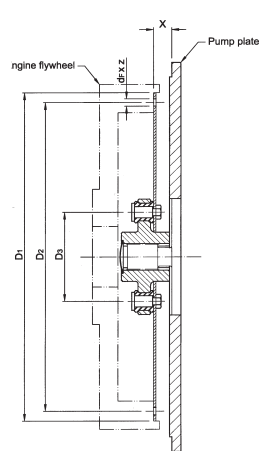


FBA ENGINE FLYWHEEL COUPLINGS

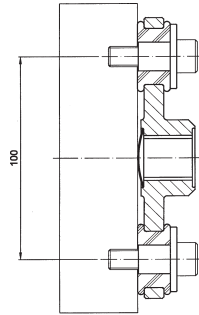
SAE - FBA COUPLINGS



FBA 6.5 - FBA 10



FBA 11.5 - FBA 14



Special Designs to suit non SAE fixings available

	TKN	TK Max	Teeth	d/p	D1	D2	D3	Df	X	Z	X	Pump Plate SAE Option
FBA 6 1/2 - 9	390	975	9	16/32	114	200.02	2159	9	x	6	30.2	4 or 5
FBA 6 1/2 - 11	390	975	11	16/32	114	200.02	2159	9	x	6	30.2	4 or 5
FBA 6 1/2 - 13	390	975	13	16/32	114	200.02	2159	9	x	6	30.2	4 or 5
FBA 6 1/2 - 15	390	975	15	16/32	114	200.02	2159	9	x	6	30.2	4 or 5
FBA 7 1/2 - 11	390	975	11	16/32	114	222.25	2413	9	x	8	30.2	4 or 5
FBA 7 1/2 - 13	390	975	13	16/32	114	222.25	2413	9	x	8	30.2	4 or 5
FBA 7 1/2 - 15	390	975	15	16/32	114	222.25	2413	9	x	8	30.2	4 or 5
FBA 8 - 11	830	2070	11	16/32	122	244.47	263.52	11	x	6	62	4 or 5
FBA 8 - 13	830	2070	13	16/32	122	244.47	263.52	11	x	6	62	4 or 5
FBA 8 - 14	830	2070	14	12/24	122	244.47	263.52	11	x	6	62	4 or 5
FBA 8 - 15	830	2070	15	16/32	122	244.47	263.52	11	x	6	62	4 or 5
FBA 10 - 11	1040	2620	11	16/32	138	295.27	314.32	11	x	8	54	3 or 4
FBA 10 - 13	1040	2620	13	16/32	138	295.27	314.32	11	x	8	54	3 or 4
FBA 10 - 14	1040	2620	14	12/24	138	295.27	314.32	11	x	8	54	3 or 4
FBA 10 - 15	1040	2620	15	16/32	138	295.27	314.32	11	x	8	54	3 or 4
FBA 10 - 21	1040	2620	21	16/32	138	295.27	314.32	11	x	8	54	3 or 4
FBA 11 1/2 - 13	1695	4240	13	16/32	138	333.37	352.42	11	x	8	39.6	1, 2 or 3
FBA 11 1/2 - 14	1695	4240	14	12/24	138	333.37	352.42	11	x	8	39.6	1,2 or 3
FBA 11 1/2 - 15	1695	4240	15	16/32	138	333.37	352.42	11	x	8	39.6	1,2 or 3
FBA 11 1/2 - 21	1695	4240	21	16/32	138	333.37	352.42	11	x	8	39.6	1,2 or 3
FBA 11 1/2 - 23	1695	4240	23	16/32	138	333.37	352.42	11	x	8	39.6	1,2 or 3
FBA 11 1/2 - 27	1695	4240	27	16/32	138	333.37	352.42	11	x	8	39.6	1,2 or 3
FBA 14 - 13	1695	4240	13	16/32	138	438.15	466.72	14	x	8	25.4	1 or 2
FBA 14 - 14	1695	4240	14	12/24	138	438.15	466.72	14	x	8	25.4	1 or 2
FBA 14 - 15	1695	4240	15	16/32	138	438.15	466.72	14	x	8	25.4	1 or 2
FBA 14 - 21	1695	4240	21	16/32	138	438.15	466.72	14	x	8	25.4	1 or 2
FBA 14 - 23	1695	4240	23	16/32	138	438.15	466.72	14	x	8	25.4	1 or 2
FBA 14 - 27	1695	4240	27	16/32	138	438.15	466.72	14	x	8	25.4	1 or 2

The **FBA** (flywheel - blind assembly) was designed in response to engineers that required a torsionally soft drive system with "plug" in capability. This flywheel coupling consists of a steel flywheel flange (clear chromate protected), heat treated steel hub (splined or bored and keywayed), rubber vibration dampers and specially designed fasteners (no nuts required). Applications include arial lifts, skid steer loaders, excavators and low mass compressors.

Standard flanges are available from SAE 6 1/2 through SAE 14, although many special flanges are available. Please ask for details.

For details of Pump Plate see page 5

NOTE
The end user is required to use a lithium based grease on pump spline and coupling installation. We recommend Texaco 1912 or equivalent.

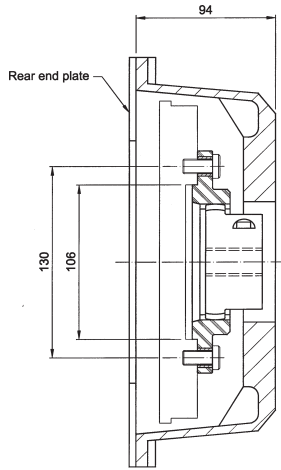
Misalignment capability - Angular 1° - Parallel 0.38mm.

ENGINE HOUSINGS & PUMP MOUNTING PLATES
A wide range of engine housings and pump mounting plates for use with the FBA coupling are available, please ask for details or scale drawings.

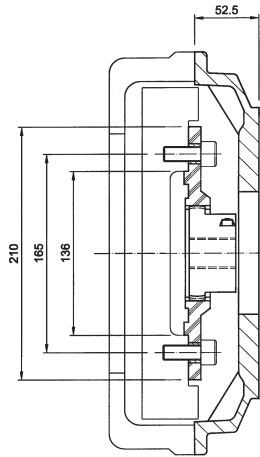


ENGINE HOUSINGS - TYPICAL ASSEMBLIES

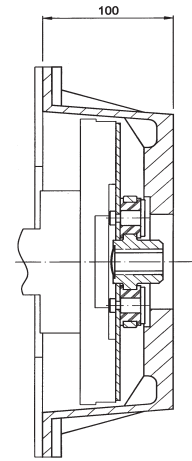
KUBOTA MINI (FLE)



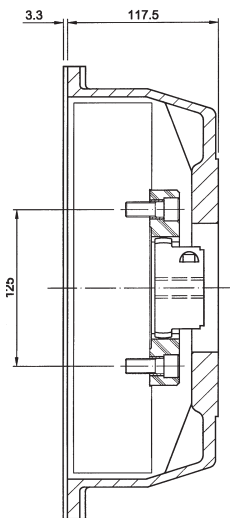
KUBOTA SUPER THREE (FLE)



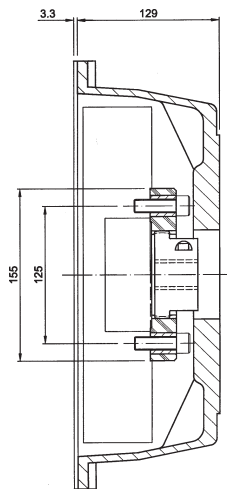
KUBOTA SUPER FIVE (FBA)



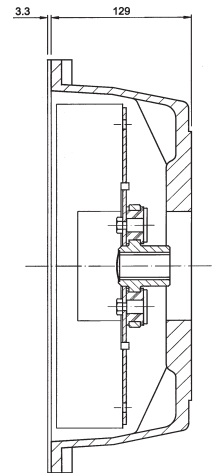
PERKINS 103-13/15 (FLE)



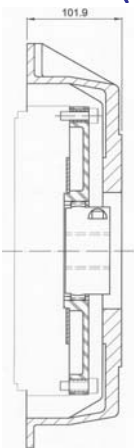
PERKINS 404-22 (FLE)



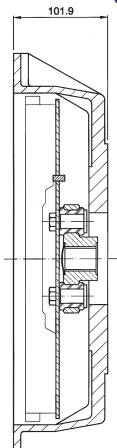
PERKINS 404-22 (FBA)



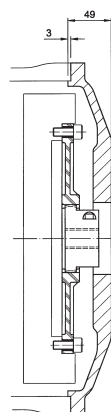
GM 3.0/4.3 (FLE)



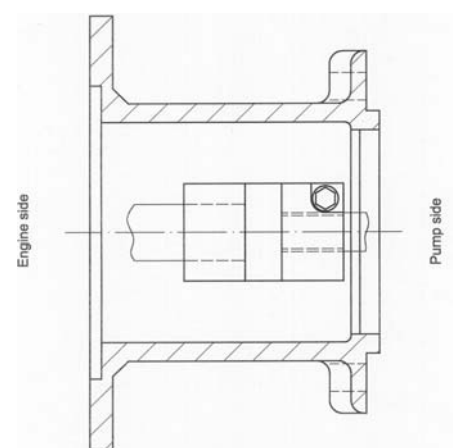
GM 3.0/4.3 (FBA)



DEUTZ 1011(FLE)



BRIGGS & STRATTON





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