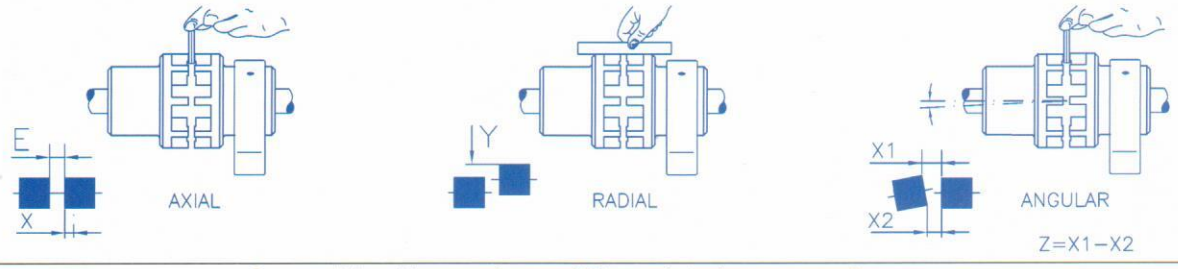
Compañia
Internacional
Transmisiones

samiflex®

Elastic couplings

Misalignment admissable



Assembly dimensions (E) and tolerances in mm

Type	A0	A1	A2	A3	A4	A45	A5	A55	A6	A7	A8	A9	A10	A11	A12
E Assembly	1,5	1,5	2,5	2,5	3,5	3,5	3,5	3,5	3,5	4	5	5	6	6	5
Axial X	+0,3	+0,5	+0,5	+0,7	+0,8	+1,0	+1,0	+1,0	+1,0	+1,0	+1,5	+1,5	+2	+2	+3
Radial Y	0,1	0,1	0,1	0,15	0,20	0,20	0,20	0,20	0,20	0,30	0,30	0,30	0,40	0,40	0,60
Angular Z	0,10	0,20	0,20	0,30	0,40	0,40	0,50	0,50	0,60	0,90	1,10	1,30	1,70	1,70	2,00

Coupling selection

FACTOR F1

DRIVEN MACHINE / EXAMPLES	ELECTRIC MOTOR	DIESEL AND PETROL ENGINES	
		4 A 6 CYLINDERS	1 A 3 CYLINDERS
Uniform operation, with small masses to be accelerated. Hydraulic and centrifugal pumps, Light generators transmissions, ventilators, transfer equipment.	1,5	1,8	2,5
Uniform operation, with medium masses to be accelerated. Sheet metal bending machines, Word working machines, mills, textiles machines, mixers.	1,8	2	2,8
With medium masses to be accelerated and irregular operation. Rotating ovens, printing and colourinmachines, generators, shredders, winders, pumps for viscous fluids.	2,0	2,5	3
With medium masses to be accelerated, irregular operation and shocks. Concrete mixers, drop hammers, cable cars, paper mills, compression pumps, propeller pumps. Rope winders, centrifuges.	2,5	2,8	3,5
Large masses to be accelerated, irregular operation and heavy shocks. Excavators, hammer mills, piston pumps, presses, rotary boring machines, shears, forge presses, stamping presses.	2,8	3	3,8
Very large masses to be accelerated, irregular operation and very heavy shocks. Piston type compressor and puma without speed variations, heavy roll sets, welding machines, brick presses, stone crushers.	3,0	3,5	4

FACTOR F2

OPERATION PERIOD HOURS / DAY			
MORE THAN UP TO	2	2 12	12 24
FACTOR F2	1	1,2	1,4

FACTOR F3

STARTS PER HOURS					
MORE THAN UP TO	10	10 40	40 120	120 200	200
FACTOR F3	1	1,3	2	2,5	3

METHOD

Data needed to correctly select coupling size.
- Kw of driver.
- R.p.m. of driver.
- Service coefficiency F, (see below).
- Shaft size of driver and driven equipment.

(1) Calculate the nominal torque (Pn) in Nm.

$$Pn = \frac{7.160 \times H.P.}{r.p.m.} \qquad Pn = \frac{9.550 \times Kw}{r.p.m.}$$

(2) Use figures obtained from tables F1, F2 and F3 to determine the service coefficiency F.
F = F1 x F2 x F3
Calculate the maximum torque (Pc) Pc = Pn x F

(3) In the TECHNICAL DETAIL SAMIFLEX COUPLING table, obtained nominal torque and maximum torque for each size coupling. Select size the coupling whose nominal torque is higher than Pn, or whose maximum torque is higher than Pc.

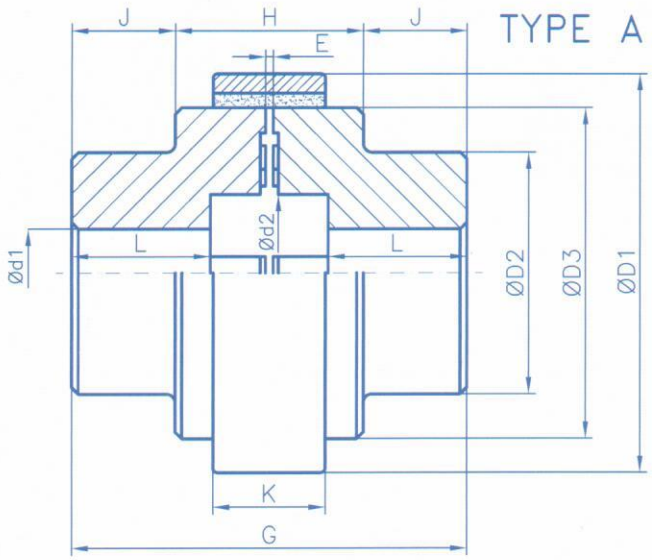
EXAMPLE

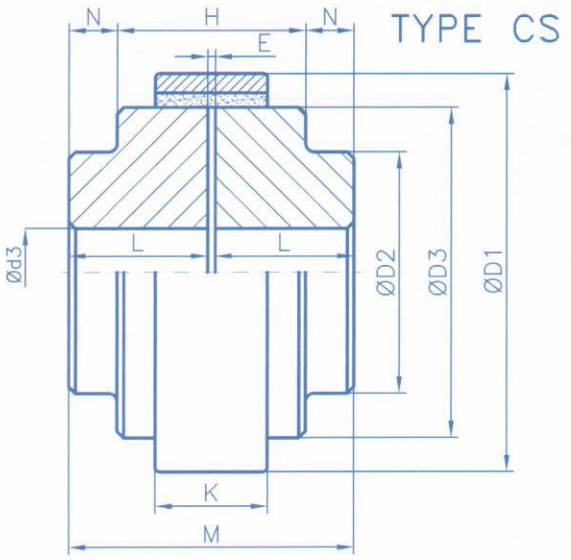
- Electric motor – 55 Kw
- R.P.M. – 1.500
- Shaft motor – 65 mm.
- Shaft pump – 48 mm.
- Driven equipment – Centrifugal pump.
- Working 24 hours per day.

$$Pn = \frac{9.550 \times 55}{1.500} = 350 \text{ Nm}$$

F1 = 1,5
F2 = 1,4
F3 = 1
F = F1 × F2 × F3 = 1,5 × 1,4 × 1 = 2,1
Pc = Pn × F = 350 × 2,1 = 735 Nm
Select size A4
Nominal torque = 460 Nm
Maximum torque = 1.150 Nm
Max. bore = 65 mm.

SAMIFLEX COUPLING TYPES A & CS





Samiflex coupling Type A

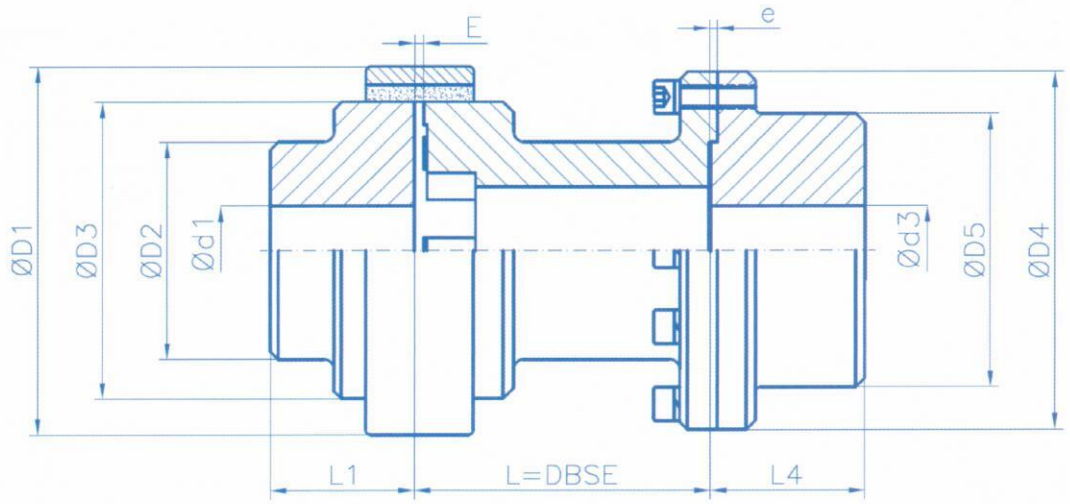
	Samiflex insert STD Yellow Torque (Nm)			Ø d1 (mm)		DIMENSIONS IN mm.									
Size	Nominal	Maximum	r.p.m*	Pre Ø	Ø Max	G	L	Ød2	D1	D2	D3	K	J	H	E
A0	22	55	11.000	8	24	73	28	32	65	52	52	16	-	-	1,5
A1	55	138	8.800	14	38	91	34	39	83	65	65	22	-	-	1,5
A2	110	275	6.500	17	44	127	47	45	111	80	86	32	36	55	2,5
A3	220	550	4.900	19	50	156	56	52	144	85	116	42	45	65	2,5
A3B	220	550	4.900	19	58	156	56	52	144	105	116	42	45	65	2,5
A4	460	1.150	3.800	24	65	180	63	70	182	110	150	51	47	85	3,5
A4B	460	1.150	3.800	24	70	180	63	70	182	135	150	51	47	85	3,5
A45	805	2.013	3.300	25	75	198	70	90	202	125	170	56	52	93	3,5
A5	1.150	2.875	3.000	29	85	216	77	89	225	140	190	59	57	101	3,5
A55	1.725	3.450	2.650	30	95	246	90	115	250	155	215	64	68	109	3,5
A6	2.300	4.600	2.450	39	110	260	95	112	265	180	233	67	70	119	3,5
A7	4.600	9.200	2.100	48	130	310	116	135	306	205	267	75	88	134	4
A8	8.625	17.250	1.750	63	150	382	147	157	363	242	326	85	114	154	5
A9	13.750	27.500	1.450	73	180	420	162	188	425	280	385	92	129	162	5
A10	27.500	44.000	1.175	96	210	482	188	218	523	330	483	102	145	192	6
A11	36.750	58.800	1.650	96	210	512	190	216	503	350	458	128	148	216	6
A12	100.000	160.000	1.175	100	300	709	250	380	710	500	650	210	175	359	5

Samiflex coupling Type CS

	Samiflex insert STD Yellow Torque (Nm)			Ø d3 (mm)		DIMENSIONS IN mm.								
Size	Nominal	Maximum	r.p.m*	Pre Ø	Ø Max	M	L	D1	D2	D3	K	N	H	E
A1CS	55	138	8.800	14	28	73	34	83	65	65	22	-	-	1,5
A2CS	110	275	6.500	17	35	97	47	111	80	86	32	20,4	55	2,5
A3CS	220	550	4.900	19	42	115,5	56	144	85	116	42	24,7	65	2,5
A4CS	460	1.150	3.800	24	55	129,5	63	182	110	150	51	22	85	3,5
A45CS	805	2.013	3.300	25	65	143,5	70	202	125	170	56	25	93	3,5
A5CS	1.150	2.875	3.000	29	75	157,5	77	225	140	190	59	28,2	101	3,5
A55CS	1.725	3.450	2.650	30	85	184	90	250	155	215	64	37,2	109	3,5
A6CS	2.300	4.600	2.450	39	90	194	95	265	180	233	67	37,2	119	3,5
A7CS	4.600	9.200	2.100	48	110	236	116	306	205	267	75	51	134	4
A8CS	8.625	17.250	1.750	63	120	299	147	363	242	326	85	72,5	154	5

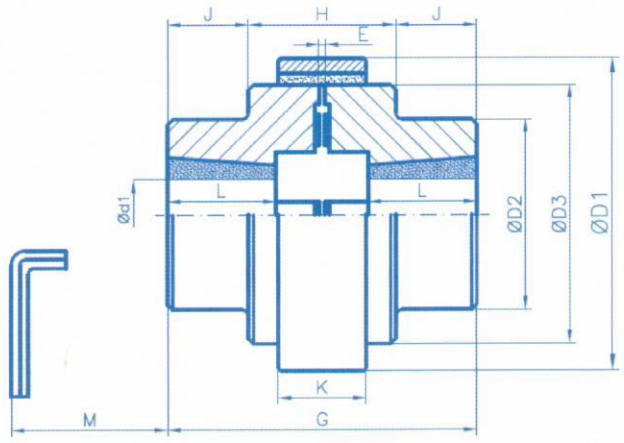
- *Max. Rpm for Couplings with cast iron hubs (GG 25), with the exception of Samiflex couplings A11 and A12 which are supplied with ductile iron hubs (GGG 40) as standard. Peripheral speeds of over v=30m/s requires compulsory ductile iron (GGG40) or steel (C1045) hubs and dynamic balancing (VDI 2060 G 6.3). Please consult technical department.
- For gearbox output applications, we recommend Samiflex insert hardness of 97 Shore A (type HD Ochre and HDT Red), which allows torque rating to be increased by 30%. Available from A4 up to A11 size. Please consult technical department.
- For running temperature over 80°C, we recommend Samiflex inserts HT Orange or HDT Red (up to 140°C), compulsory supplied together with steel ring on sizes from A0 up to A4. Please consult technical department.
- Standard coupling is supplied with cast iron hubs (GG25), standard yellow insert (95 Shore A) and polyamide ring on sizes A0 up to A4 and steel ring for the rest.

SAMIFLEX SPACER COUPLING TYPE CS

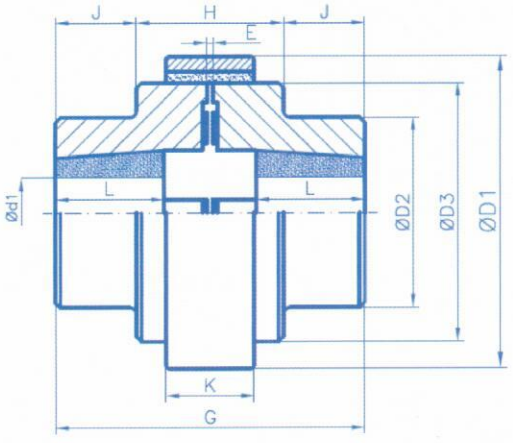


	Insert 95° Shore A Torque (Nm)		Bore Ø (mm.)				Dimensions in mm.									
Size	Nominal	Maximum	Pre Ø	Ø Max. d1	Ø Max d3	r.p.m	D1	D2	D3	D4	D5	E	e	L1	L4	L(DBSE)
A1CS	55	138	14	28	42	5.500	83	65	65	100	67	3.0	2.0	34	37	100 120 140
A2CS	110	275	17	35	48	5.000	111	80	86	120	83	3.0	2.0	47	54	100 120 140
A3CS	220	550	19	42	65	4.500	144	85	116	140	107	3.5	2.5	56	60	100 120 140
A4CS	460	1.150	24	55	85	3.500	182	110	150	178	140	3.5	2.5	63	65	120 140 180
A45CS	805	2.013	25	65	90	3.100	202	125	170	200	150	3.5	2.5	70	75	120 140 180
A5CS	1.150	2.875	29	75	110	2.900	225	140	190	225	179	3.5	2.5	77	79	140 180 200
A55CS	1.725	3.450	30	75	110	2.600	250	155	215	245	180	4.0	3.0	90	95	140 180 200
A6CS	2.300	4.600	39	90	120	2.500	265	180	233	265	198	4.0	3.0	95	95	180 200 250
A7CS	4.600	9.200	48	110	130	2.200	306	205	267	290	220	4.0	3.0	116	120	200 250 280

SAMIFLEX COUPLING FOR TAPER BUSH



TYPE TB
OUT SIDE



TYPE TBI
IN SIDE

Size	Taper bush	MIN Ød1 mm.	MAX. Ød1 mm.	L mm.	G mm.	E mm.	K mm.	H mm.	D1 mm.	D2 mm.	D3 mm.	J mm.	M mm.
A1 – TB/TBI	1108	9	28	27	77	1,5	22	-	83	65	65	-	29
A2 – TB/TBI	1210	11	32	32	97	2,5	32	55	111	80	86	21	38
A3 – TB/TBI	1610	14	42	32	107	2,5	42	65	144	85	116	21	38
A4 – TB/TBI	2012	14	50	38	130	3,5	51	85	182	110	150	22	42
A45 – TB/TBI	2517	16	60	50	158	3,5	55	93	202	125	170	32	50
A5 – TB/TBI	3020	25	75	56	173	3,5	59	101	225	140	190	36	55
A6 – TB	3535	35	90	95	259	3,5	67	119	265	180	233	70	67
A7 - TB	4040	40	100	107	292	4	75	134	306	205	267	79	70

ASSEMBLY AND DISASSEMBLY

Once the bores of hubs (1) and (2) are machined, they are fitted onto the shafts, having previously placed the retaining ring over one of them.

The teeth of the hubs are positioned facing each other without touching or overlapping and observing the assembly gap E (see feature list), with the purpose of assembling the elastic insert (3) so that it fits into the slots formed by the aligned teeth of the hubs (see fig. 1).

Then proceed with the alignment of the groove on the elastic insert and the reference line marked on the outside of the retaining ring (4). Once this operation has been done and with the aid of Samiflex assembly tools or a soft-headed mallet, slide the ring into place (see fig. 2).

Finally, it is required to secure the retaining ring to the elastic insert using the locking set screws that come with each coupling, ensuring that they are flush to the outside surface of the retaining ring so as to avoid potentially sharp surfaces.

Once the equipment is ready to be started up, the fitting of duly standardised protection is required in order to comply with safety regulations regarding rotary equipment.

To disassemble of the elastic part, go back over the above to remove the retaining ring, where access will be possible to assess whether replacement of the elastic insert is required.

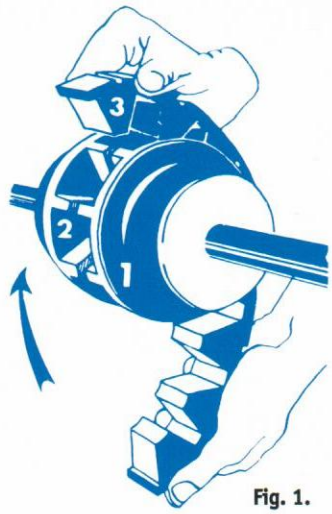


Fig. 1.

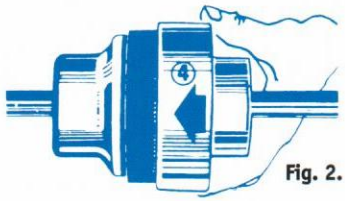


Fig. 2.

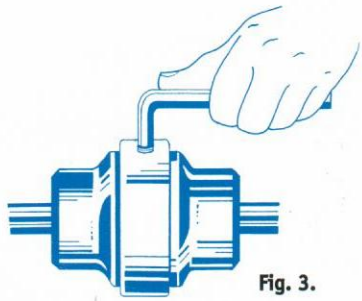


Fig. 3.

ADVANTAGES

- Assembly and disassembly of the elastic insert without needing to displace the motor or machine. This advantage allows for inspection of the elastic insert at any time, simply by sliding back the retaining ring. Where necessary, it can be replaced for a new one in a few minutes.

- The two hubs work independently each one sharing half the elastic insert. This concept allows free-wheeling of the motor, simply by sliding back the retaining ring and removing the elastic insert. This alternative is of great help, especially in applications with combustion engines, as they can be started up with no load.

- For any wear and tear arising in the elastic insert, the hubs have no contact between them, which implies that this coupling has explosion proof properties. Furthermore, the elastic insert being polyurethane is fireproof.

- The polyurethane elastic insert is a key element of this coupling. Its estimated lifetime is 25,000 operating hours in optimum working conditions.

- The coupling, by design, allows for ease of alignment. After assembly, all final references can be easily checked, by simply sliding back the retaining ring and removing the elastic insert.

- The Samiflex coupling is an environment friendly product due to the absence of lubricants.

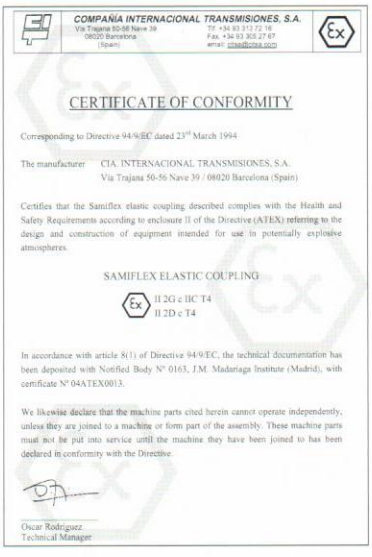
HINTS FOR INSTALLATIONS IN HAZARDOUS AREAS

II 2G C IIC T4
II 2D C T4

In accordance with directive ATEX 94/9/EC, shaft couplings are classified as units that form part of equipment within the group of non-electric materials.
Samiflex elastic couplings meet the ATEX requirements for group II, categories 2G (gases) and 2D (dust), explosion group IIC and temperature T4.
Assembly instructions for ATEX approved Samiflex couplings are published in our 07/2003 report and can be consulted at our Websites www.citsa.com and www.samiflex.com.


LABORATORIO OFICIAL J. M. MADARIAGA

CERTIFICADO DE CUSTODIA DE EXPEDIENTE TÉCNICO


COMPAÑIA INTERNACIONAL TRANSMISIONES, S.A.
Via Trajana 50-56 Nave 39
08020 Barcelona
(Spain)
Tf. +34 93 312 72 16
Fax. +34 93 305 27 67
email: citsa@citsa.com

CERTIFICATE OF CONFORMITY

Corresponding to Directive 94/9/EC dated 23rd March 1994

The manufacturer CIA. INTERNACIONAL TRANSMISIONES, S.A.
Via Trajana 50-56 Nave 39 / 08020 Barcelona (Spain)

Certifies that the Samiflex elastic coupling described complies with the Health and Safety Requirements according to enclosure II of the Directive (ATEX) referring to the design and construction of equipment intended for use in potentially explosive atmospheres.

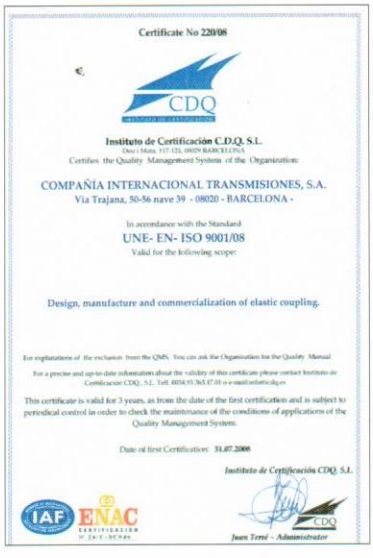
SAMIFLEX ELASTIC COUPLING

II 2G c IIC T4
II 2D c T4

In accordance with article 8(1) of Directive 94/9/EC, the technical documentation has been deposited with Notified Body Nº 0163, J.M. Madariaga Institute (Madrid), with certificate Nº 04ATEX0013.

We likewise declare that the machine parts cited herein cannot operate independently, unless they are joined to a machine or form part of the assembly. These machine parts must not be put into service until the machine they have been joined to has been declared in conformity with the Directive.

Oscar Rodriguez
Technical Manager


Certificate No 220/08

CDQ

Instituto de Certificación C.D.Q. S.L.

Certifies the Quality Management Systems of the Organization:

COMPAÑIA INTERNACIONAL TRANSMISIONES, S.A.
Via Trajana, 50-56 nave 39 - 08020 - BARCELONA -

In accordance with the Standard
UNE- EN- ISO 9001/08
Valid for the following scope:

Design, manufacture and commercialization of elastic coupling.

This certificate is valid for 3 years, as from the date of the first certification and is subject to periodical control in order to check the maintenance of the conditions of applications of the Quality Management System.

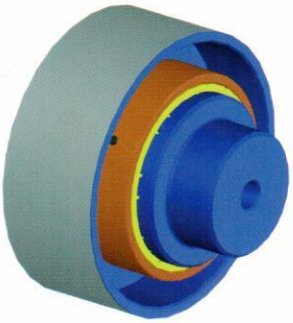
Date of first Certification: 31.07.2008

Instituto de Certificación CDQ, S.L.

IAF ENAC CDQ

Joan Terré - Administrador

SAMIFLEX
FLYWHEEL EB
ADAPTATION



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