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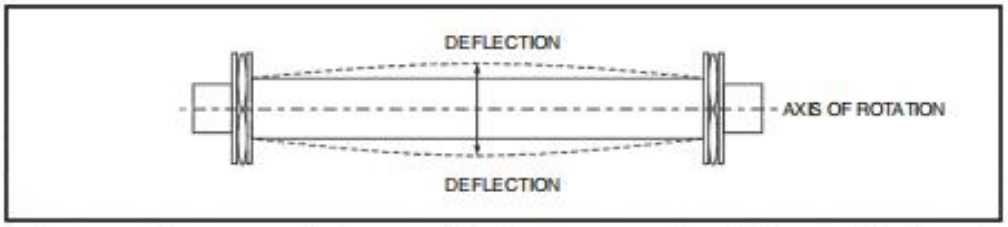
COMPOSITE COUPLING

CTKU–N
KWN 22170

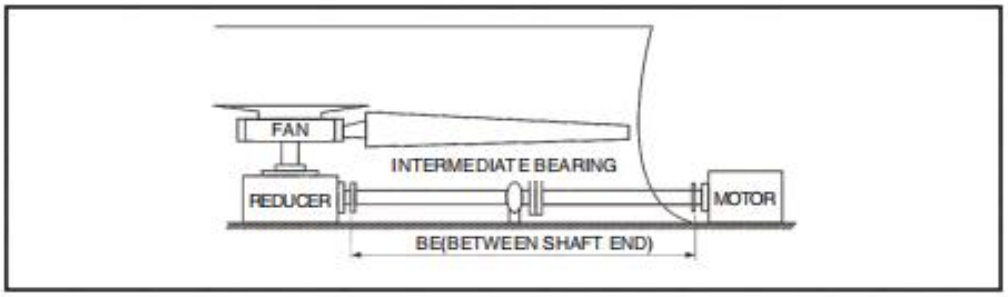
Product | Engineering Services
Maintenance

The Merits of Composite Coupling

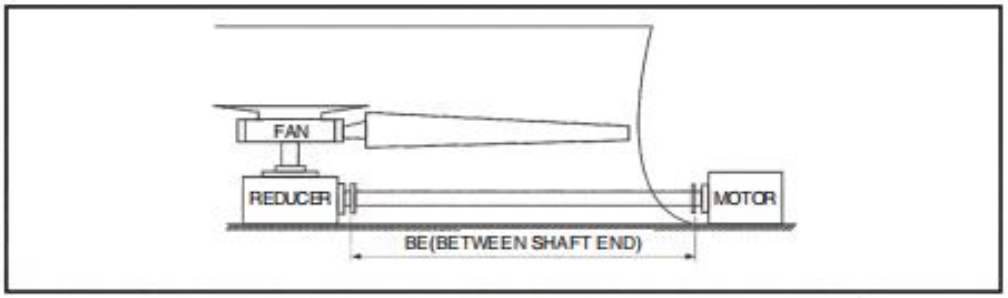
1.The composite coupling is designed to be the facility like a high–speed cooling tower which definitely needs a long axis. This axis has very long DBSE(Distance Between Shaft Ends). Therefore, if we use steel materials as an axis, it tends to cause a big deflection phenomenon during rotation because of its self–load



2.In this case, we have to use the fixture and bearings to support the middle part of the long axis to minimize the deflection as shown in the picture below.



3.However, the long axis of the coupling made of the composite material which weighs only 20% of the steel material can reduce deflection conspicuously compared to the same standard coupling made of steel material. Once the composite material is used, the length of the axis can be extended by as much as 80% without using the fixture and bearings as shown in the picture below.



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The Charecteristics of Composite Coupling

- Corrosion resistance
- High–misalignment capacity
- Excellent fatigue resistance
- Low weight
- Easy installation and disassembly。

Design

• Owing to the low gravity of the carbon–composite material, the weight of composite coupling is about 20% of the coupling made by the steel material. Once the composite material is used, the length of the axis of composite coupling can be enlarged by 80% more than the coupling made by the steel material without using the fixture and bearings while transmitting power at high speed.

• As the surface is coated to prevent the moisture absorption of composite materials, the high fatigue life is guaranteed even though they are exposed to the corrosion environment.

• Both ends of the composite coupling are in the form of flexible element,The flexible element is a unitized disc constructed of advanced composite material and stainless steel bushings.The elements are encapsulated in urethane for ease of handling, and to prevent fretting and corrosion

• Rotation quality is guaranteed through 100% balancing test in accordance with ISO1940–1 G6.3 grade.

•Coupling flanges are available in three materials: carbon fiber, fiberglass amalgamation or alloy steel.

Marking Method for The Standard Composite Coupling

CTKU – N – 100 – 76

- 76 — Outer diameter dimension of intermediate shaft of composite coupling
- 100 — Model code of composite coupling
- CTKU – N — Product series code of composite coupling

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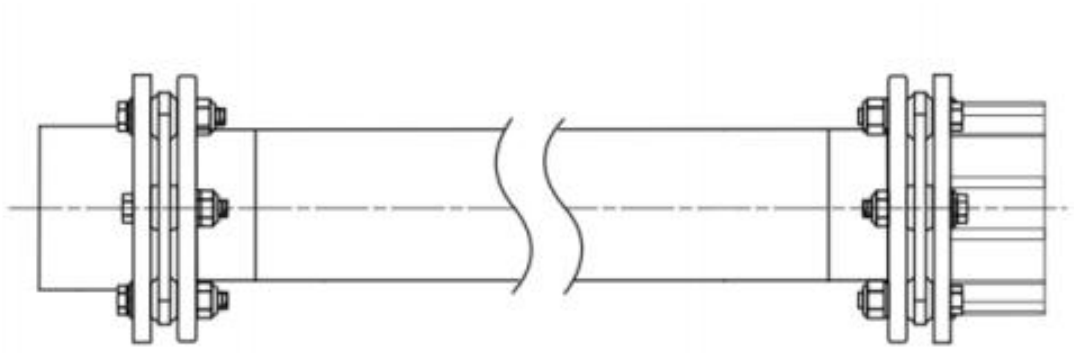
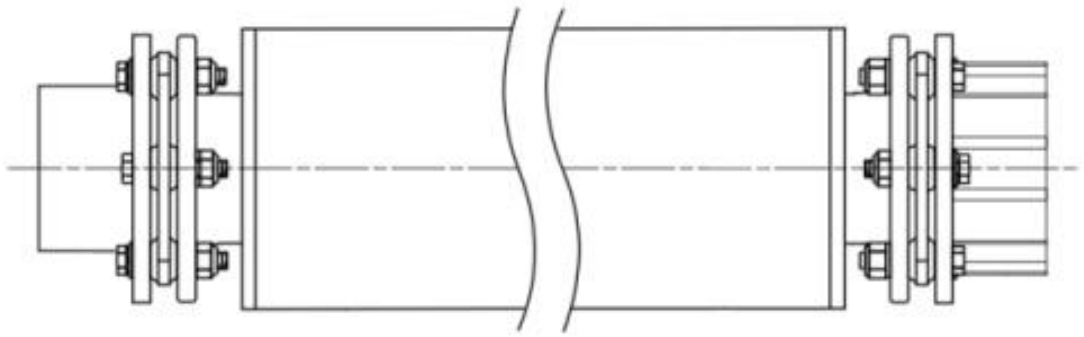
Structural Style

The composite coupling has the following two structures according to the model. See the following schematic diagram for the structure. Please consult us when placing an order:





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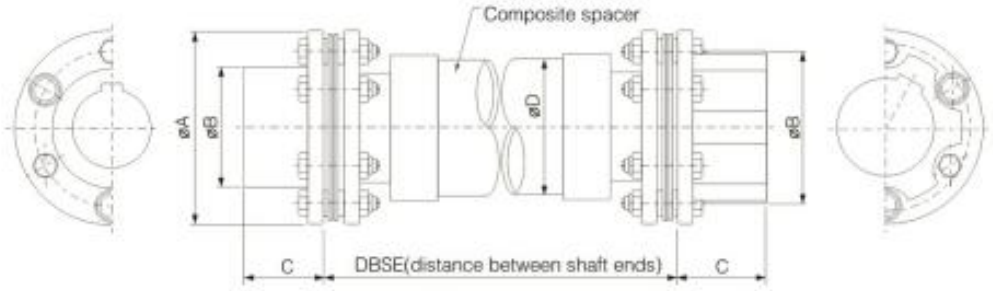
Basic Size



Model Series	Spacer Material	Min DBSE	Max DBSE @ 1500 RPM @1.18/1.3S.F.(mm)	Max Bore(mm)	A(mm)	Max. B(mm)	C(mm)	D(mm)
CTKU-N-100-76C	C	182	2710/2584	55	130	70	60	76
CTKU-N-100-76R	R	182	3223/3073	55	130	70	60	76
CTKU-N-120-91C	C	202	2979/2840	65	150	85	70	91
CTKU-N-120-91R	R	202	3543/3377	65	150	85	70	91
CTKU-N-145-107R	R	222	3849/3669	80	180	100	80	107
CTKU-N-145-158R	R	334	4729/4486	80	180	100	80	158
CTKU-N-170-127R	R	268	4215/4019	90	210	120	90	127
CTKU-N-190-158R	R	268	4729/4486	125	240	140	100	158
CTKU-N-190-158H	H	268	4998/4742	125	240	140	100	158
CTKU-N-190-158U	U	268	5203/4935	125	240	140	100	158
CTKU-N-190-188R	R	454	5093/4853	125	240	140	100	188
CTKU-N-190-188H	H	454	5383/5130	125	240	140	100	188
CTKU-N-190-188U	U	454	5602/5338	125	240	140	100	188
CTKU-N-190-208R	R	494	5313/5049	125	240	140	100	208
CTKU-N-190-208H	H	494	5616/5337	125	240	140	100	208
CTKU-N-190-208U	U	494	5844/5554	125	240	140	100	208

C:Fiberglass Amalgamation;
R:Standard Carbon Fiber;
X:Medium To High Modulus Carbon Fiber;
U:High Modulus Carbon Fiber

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Technical Data

Model Series	Spacer Material	Continuous Torque (Nm)	Instantaneous torque(Nm)	Peak Overload Torque (Nm)	Weight @ Min DBSE (kg)	WR^2 @ Min DBSE ($kg-m^2$)	Weight Change per Length (kg/m)	WR^2 Change per Length ($kg-m^2/m$)
CTKU-N-100-76C	C	300	600	900	6	0.0096	1.01	0.0013
CTKU-N-100-76R	R	300	600	900	6	0.0096	0.92	0.0012
CTKU-N-120-91C	C	540	1080	1620	8	0.024	1.52	0.0029
CTKU-N-120-91R	R	540	1080	1620	8	0.024	1.38	0.0027
CTKU-N-145-107R	R	875	1750	2627	14	0.036	1.6	0.0043
CTKU-N-145-158R	R	875	1750	2675	14.5	0.042	2.76	0.017
CTKU-N-170-127R	R	1350	2700	4050	20	0.073	2.07	0.008
CTKU-N-190-158R	R	2250	4500	6750	29	0.130	2.76	0.017
CTKU-N-190-158H	H	2250	4500	6750	29	0.130	2.76	0.017
CTKU-N-190-158U	U	2250	4500	6750	29	0.130	2.76	0.017
CTKU-N-190-188R	R	2250	4500	6750	32	0.14	3.22	0.027
CTKU-N-190-188H	H	2250	4500	6750	32	0.14	3.06	0.026
CTKU-N-190-188U	U	2250	4500	6750	32	0.14	3.06	0.026
CTKU-N-190-208R	R	2250	4500	6750	34	0.15	3.45	0.036
CTKU-N-190-208H	H	2250	4500	6750	34	0.15	3.28	0.034
CTKU-N-190-208U	U	2250	4500	6750	34	0.15	3.28	0.034

The standard weight and WR^2 values are at minimum DBSE and standard minimum bore for a complete assembly. To determine the total weight or inertia, subtract the minimum DBSE from the total DBSE required and multiply that value times the WT and/or WR^2 change per length, then add that calculated WT or WR^2 to the minimum DBSE values. Values may vary slightly depending on the actual bore and key size.

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Routine Test

Before leaving the factory, the dynamic balance test, high speed test and torque test are carried out to ensure the product quality.

High speed tester

Dynamic balance tester

Torque tester

Application of composite coupling

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Select The Suitable Composite Coupling for The Cooling Tower

Composite Coupling Design Sheet

Customer :	Inquiry No:	
Date :	Written by:	
Rated Torque		Nm
Design Torque		Nm
Service Facter		
Distance between Shaft Ends of motor shaft and reducer shaft		mm
Moter Specification		
Rated Power		kw
Rated Speed		rpm
Moter shaft diameter		mm
Gear reducer Specification		
Gear reducer input shaft diameter		mm
Fan Specification		
Fan Shaft Power		kw
Fan Diameter		mm
Fan Speed		rpm
Number of Blade		Ea

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