



Composite Coupling

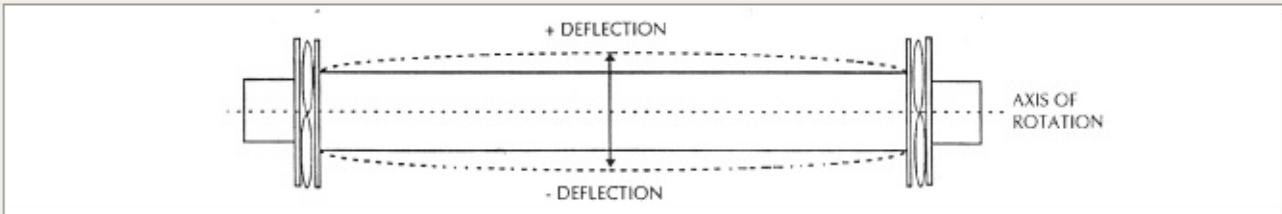
For the Cooling Tower

 **JAC coupling**

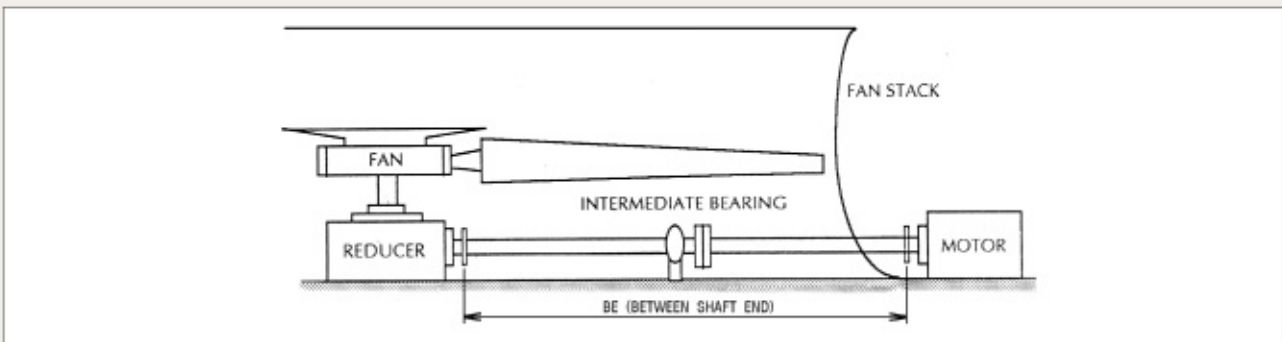


The merits of JAC composite coupling

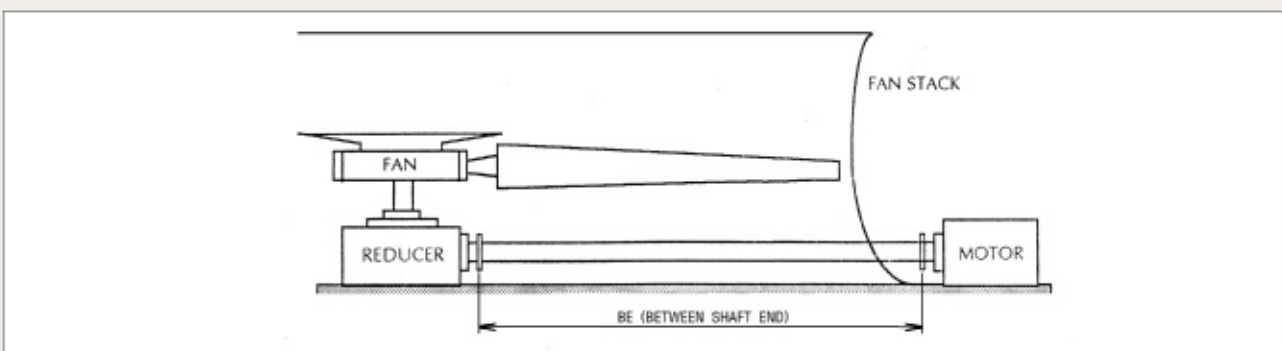
The JAC composite coupling is designed to be applied to the facility like a high-speed cooling tower which definitely needs a long axis. This axis has very long DBSE(Distance Between Shaft Ends). Therefore, if we use steel materials as an axis, it tends to cause a big deflection phenomenon during rotation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



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.



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 the 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.



The characteristics of JAC composite coupling

- The material of JAC composite coupling is safe from being rusty.
- Factory Workers can install and replace it easily because of the light weight
- Compensation function for the big misalignment is allowed through the long fatigue life and the high flexibility of JAC composite coupling.

Quality Assurance

- Rotation quality is guaranteed through 100% balancing test in accordance with ISO1940-1 6.3 grade
- Peak torque is guaranteed through the regular bond-strength test.

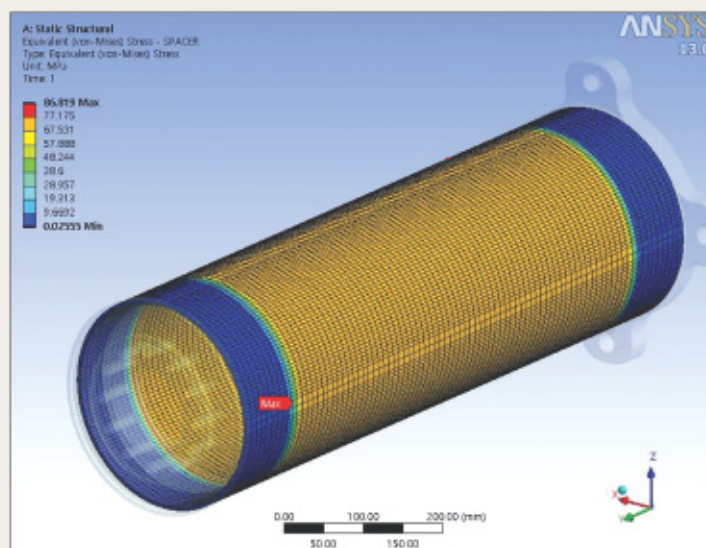
Design

- Owing to the low gravity of the carbon-composite material, the weight of JAC 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 JAC composite coupling can be enlarged by 80% more than the axis of 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.

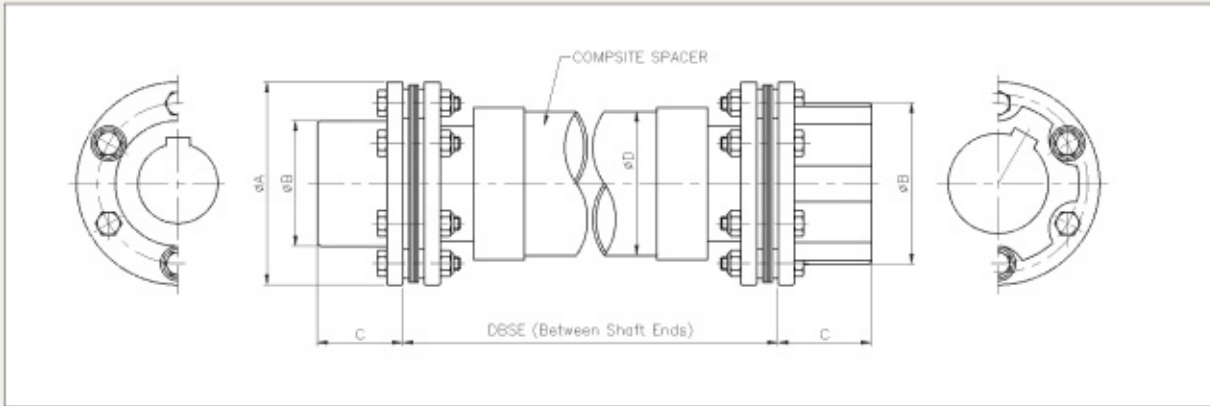


Bonding of composite material and metal

- As it is designed in the form of aggregation structure with the groove type to secure the solid bonding of stainless flange and composite spacer used the composite materials, JAC composite coupling minimize the radial displacement while the rotation lasts at high speed and the stress distribution of the bonding surface following the bonding structure was approved by the finite element analysis and the related test.



Dimension table for the standard products

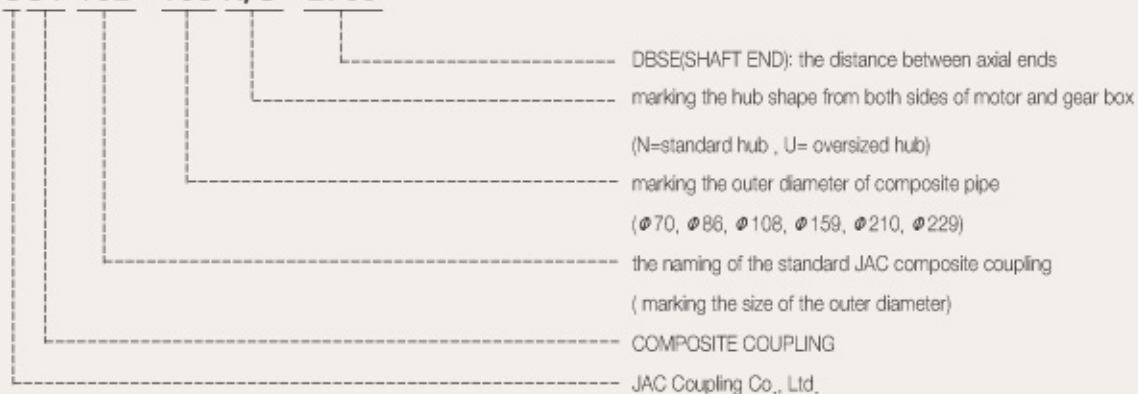


Model No.	Continus Torque		Peak Torque		Max_DBSE (mm)		D (mm)	A (mm)	B (mm)		Max_Bore (mm)		C (mm)	
	Nm	kgf.m	Nm	kgf.m	@1780 RPM	@1480 RPM			N (Stan-dad)	U (Over Size)	N (Stan-dad)	U (Over Size)	N (Stan-dad)	U (Over Size)
JCT-133	820	83.7	1,229	125.4	2,500	2,500	70	133	80	102	55	75	45	57
JCT-152	1,243	126.8	1,864	190.2	3,000	3,000	86	152	94	121	70	85	64	70
					3,581	3,912	108							
					4,318	4,800	159							
JCT-171	2,045	208.7	3,067	312.9	3,581	3,912	108	171	108	133	80	100	65	70
					4,318	4,800	159							
					4,902	5,461	210							
JCT-229	4,090	417.3	6,135	626.0	4,318	4,800	159	229	147	191	105	130	64	64
					4,902	5,461	210							

NOTE) 표기된 중량은 내경 가공이 없는 상태의 중량임

How to read the marking method for the standard JAC composite coupling

JCT 152 - 108 N/U - 2700



How to select the suitable composite coupling for the cooling tower

JAC Composite Coupling Design Sheet

Customer : ABC Co.
Date : 2015_04_01

Inquiry No. : JAC-15-04100
Written by : SC KIM

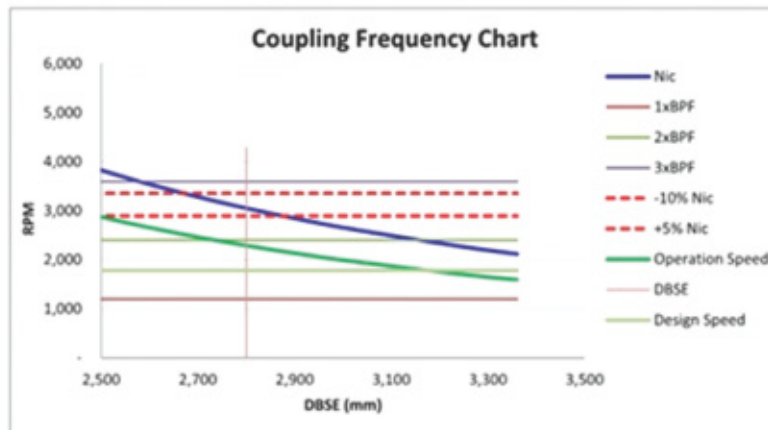
Input Data

1. Fan Specification	1) Fan Shaft Power		Hp
	2) Fan Diameter		mm
	3) Fan Speed	300	RPM
	4) Number of Blade	4	Ea
2. Moter Specification	1) Rated Power		Hp
	2) Rated Speed	1780	RPM
3. Service Factor		2	
4. Distance between Shaft Ends of Gear & Moter		2800	mm
5. Size of Shaft Ends of Gear & Moter			mm
6. Rated Torque		400	Nm
7. Design Torque		800	Nm

Calculation Data

1. Model Selection	JCT-152-86	
2. Engineering Data for	JCT-152-86	
1) Continuous Torque		1,243 Nm
2) Moment of Inertia		
3) Critical Speed		3,052 Cpm
4) Maximum Operation Speed		2,289 RPM
5) Fan Blade Passing Frequency		1,200 CPM

Resonance Chart





Jac coupling

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