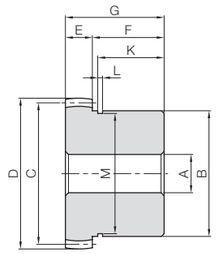
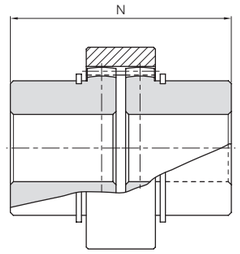
Gear Couplings (Inner Hubs)

Specifications	
Gear teeth	Normal teeth (crowning)
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened *
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coating

* Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).



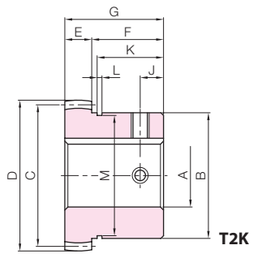
T2



Catalog Number	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	C-shaped retaining ring groove			Mounting bolt length	Backlash (mm)	Weight (kg)
				A_{H8}	B	C	D	E	F	G	K	L	M	N		
GC1-12S	***m*2**	25	T2	12	45	50	54	10	25	35	23	1.95	42.5	73	0.40~0.60	0.43
GC2-20S	***m*2**	40		20	70	80	84	15	40	55	37	2.7	67	115		1.66
GC3-20S	***m*2.5**	42		20	90	105	110	20	45	65	42	3.2	86.5	135		3.43

[Caution on Product Characteristics] ① A snap ring is included as an accessory.

J Series



T2K

Catalog Number	J
GC1-12SJ BORE	10
GC2-20SJ BORE	13
GC3-20SJ BORE	20

To order J Series products, please specify: Catalog No. + J + BORE.

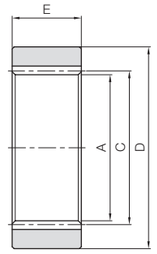
Bore H7	* The product shapes of J Series items are identified by background color.																	
Keyway Js9	12	14	15	16	17	18	19	20	22	25	28	30	32	35	40	45	50	
Screw size	4×1.8	5×2.3				6×2.8				8×3.3			10×3.3		12×3.3	14×3.8		
Catalog Number	M4					M5				M6			M8			M10		
GC1-12SJ BORE	*																	
GC2-20SJ BORE								*										
GC3-20SJ BORE								*										

[Caution on J series] ① Cancellation is not possible for made-to-order products. See page 42 for lead times and allowable order quantities. See page 44 for other precautions.
② Number of pieces we can process for one order is 1 to 20 units. For larger orders, please request a price and delivery quote.
③ Black oxide is not re-applied to parts undergoing secondary operations.
④ Keyways are made according to JIS B1301 standards, Js9 tolerance. Also note that keyway tooth position alignment is not performed.
⑤ Certain products which would otherwise have a very long tapped hole are counterbored. Please see the Website for more details.
⑥ For products having a tapped hole, a set screw is included.
⑦ Products marked with an * have a bore tolerance of H8.

Gear Couplings (Outer Rings)

Specifications	
Gear teeth	Standard full depth
Pressure angle	20°
Material	S45C
Heat treatment	Gear teeth induction hardened *
Tooth hardness	50 to 60HRC
Surface treatment	Black oxide coating

* Due to the gear teeth being induction hardened, no secondary operations can be performed on tooth areas including the bottom land (approx. 2 to 3 mm).



T1

Catalog Number	Module	No. of teeth	Shape	Inside dia.	Pitch dia.	Outside dia.	Face width	Backlash (mm)	Weight (kg)
				A	C	D	E		
GC1-I	***m*2**	25	T1	46	50	68	25	0.40~0.60	0.33
GC2-I	***m*2**	40		76	80	105	36		1.03
GC3-I	***m*2.5**	42		100	105	145	48		2.96

■ Characteristics of Gear Couplings

- There are many ways to couple shafts to transmit power. We have developed these standardized gear couplings of our own design. They are easier to connect or disconnect than chain couplings.
- As the external gear (inner cylinder) is crowned, the shaft angle can be up to 5°.
- Due to the induction hardened gear teeth, these couplings have excellent durability.
- The GCJ units are machined complete with keyways, set screw holes and finished bores and are ready for immediate installation. We also offer minimum bore models for users who want to perform their own secondary operations.

■ Gear Coupling Ordering Method

Gear coupling outer rings and inner hubs can each be purchased individually: however, normal usage requires a set of 1 outer ring and 2 inner hubs.

<E.g.> For 1 set of GC2-20S
GC2-I (outer ring) x 1 piece and GC2-20S (inner hub) x 2 piece set.

■ Strength of Gear Couplings

The allowable torques of the gear couplings are determined in accordance with the shear strength of the keys.
Allowable shear force of keys F (N) is calculated from the following formula.

$$F=b\cdot L\cdot\sigma\cdot\frac{1}{S}$$

Additionally, allowable torques T(N·m) of the inner hubs of the GC gear coupling is calculated using the following formula.

$$T=\frac{F\cdot d}{2000}$$

b : Key Width mm → Keyway width of inner hubs of the GC Gear Coupling
L : Key Length mm → Set at G-2 mm from the total length of the inner hub of the GC Gear Coupling
σ : Allowable Shear Force of keys → Set at 49MPa (5kgf/mm^2)
S : Safety Factor → Optionally set
d : Bore size (mm) → Bore size A of the inner hub of the GC Gear Coupling

Caution: Safety Factor (S) must be set at a value between 1 to 3, depending on the load types or the coupling displacement.