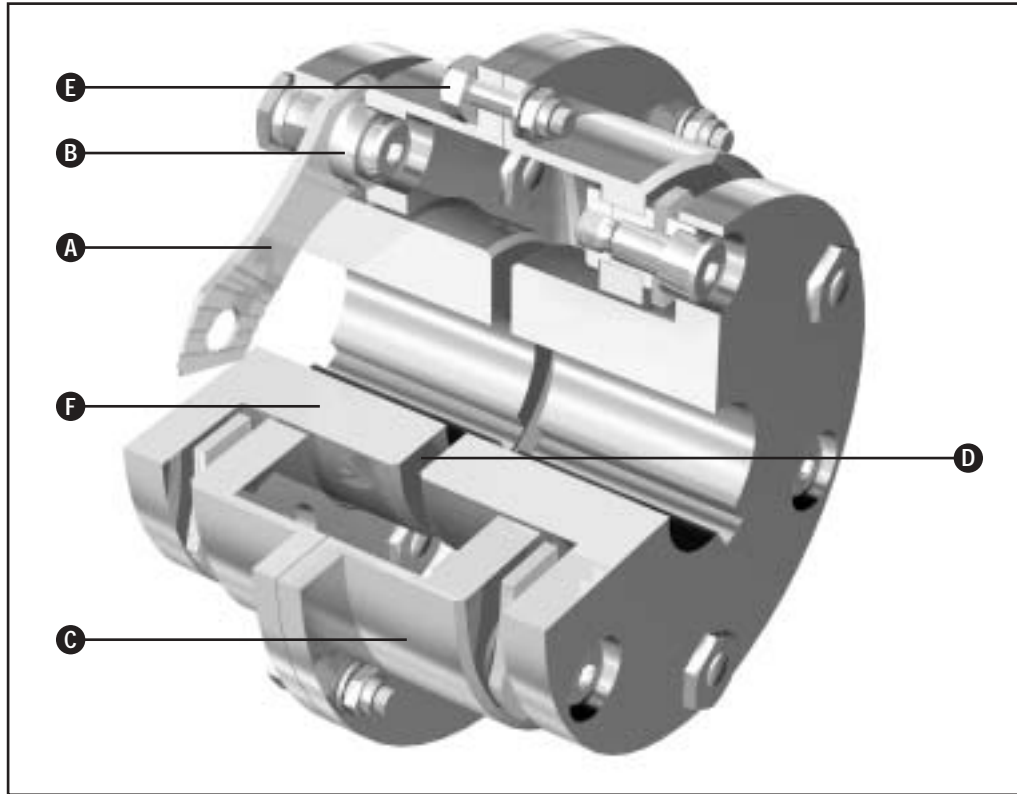


METASTREAM® T Series Couplings

- A – Stainless Steel Flexible Membranes
- B – Overload Collars
- C – Anti-Corrosion Treatment
- D – Minimum DBSE (Distance Between Shaft Ends)
- E – Externally Wrenched Bolts
- F – Compact Length



Product Description

The Metastream® TSKC range of close coupled membrane couplings has been specifically designed as a direct replacement for lubricated gear couplings even when the shaft separation is very small, typically 3mm. The TSKC coupling, incorporates a scalloped design of stainless steel flexible membrane which allows for transmitting high torque combined with shaft misalignment.

- Easy to install.
- Can be supplied to meet API 610 8th edition specification.
- Intrinsic balance meets AGMA standard 9000 class 9.
- Ideally suited for electric motor and turbine drives in process industry, marine, and power generation applications.

Design Feature

- Completely maintenance free with no wearing parts.
- Spark resistant option for use in hazardous areas.
- Excellent power-to-weight ratio.
- High misalignment capability.
- Low imposed forces on machinery leading to:
 - reduced machinery vibration
 - maximised bearing life.
- Stainless steel flexible membranes for maximum life.
- Overload collars are fitted to protect the flexible membranes in case of severe torsional overload.
- Anti-fly retention of the spacer in the unlikely event of membrane failure.
- Puller holes incorporated into hubs as standard.



TSKC

METASTREAM® T Series Couplings

TSKC Technical Data

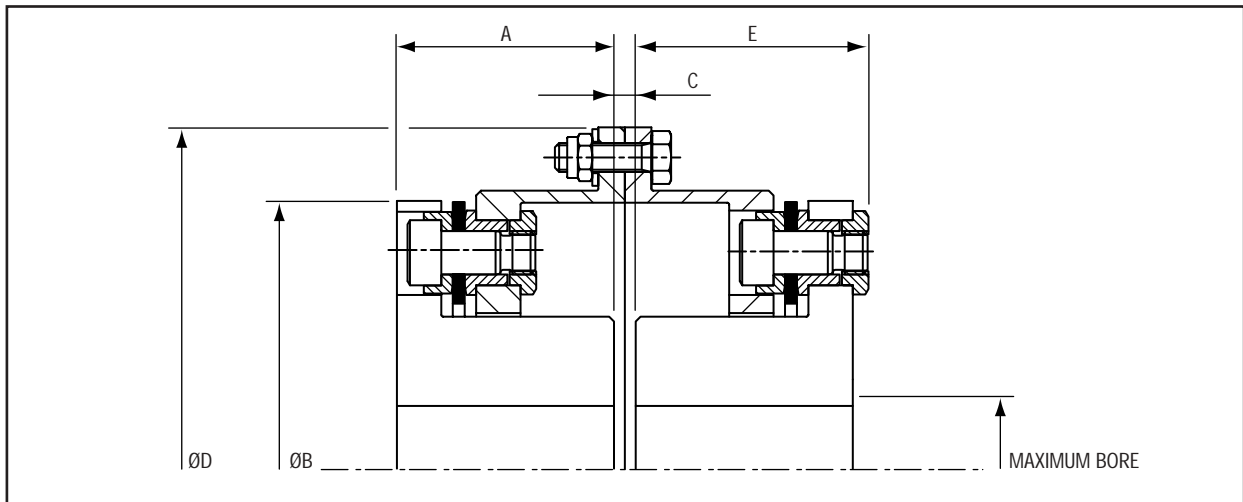
Coupling Size*	Rating kW/ 1000 rpm	Max. Cont. Torque Nm	Peak Overload Torque Nm	Maximum Speed rpm	Weight		Moment of Inertia WR ²	
					Min. DBSE Kg	Extra DBSE Kg/m	Min DBSE kgm ²	Extra per mDBSE kgm ²
0013	13	125	310	21,500	1.7	7.00	0.002	0.12
0033	33	320	790	20,000	4.1	9.35	0.006	0.024
0075	75	720	1790	16,300	8.2	12.54	0.019	0.051
0135	135	1290	3220	14,100	13.9	16.78	0.042	0.96
0230	230	2200	5490	12,000	22.4	19.72	0.096	0.156
0350	350	3350	8360	10,500	31.2	24.94	0.165	0.255
0500	500	4800	11940	9,500	42.2	27.84	0.280	0.35
0740	740	7100	17670	8,000	58.2	30.74	0.480	0.48
0930	930	8900	22200	7,000	75.0	34.20	0.720	0.66
1400	1400	13400	33400	6,000	98.0	39.38	1.100	0.91

NOTES: * Higher rated sizes are available. Consult John Crane for details.

Weights based on minimum DBSE and unbored hubs.

The standard parallel bore machining tolerance is Grade 7, to give a light interference on the shaft. Keyways will be cut to DIN 6885, BS 4235 Pt. 1 (metric) or BS 46 Pt. 1 (inch).

TSKC Typical Arrangement



TSKC Dimensional Data

Coupling Size	Distance Between Shaft Ends (DBSE) Min					Maximum Bore**
	A	B	C*	D	E	
0013	30	79	3	114	33.0	27.5
0033	40	98	3	134	43.5	37.0
0075	50	123	3	169	54.5	50.8
0135	60	145	3	194	65.5	61.0
0230	70	172	3	229	76.5	74.5
0350	80	197	3	254	86.0	85.0
0500	90	222	3	283	96.5	96.0
0740	100	247	3	319	107.0	107.0
0930	110	272	3	347	117.5	119.0
1400	120	297	3	374	128.5	130.0

NOTES: * Other Distance Between Shaft End lengths to suit specific applications are available.

** Maximum bores shown are based on standard DIN / BS rectangular keys.

All dimensions in mm unless otherwise stated, but should not be used for construction. Certified dimensions furnished upon request.



Selection Procedure

1. Select appropriate service factor SF.
2. Calculate coupling rating R from

$$R = \frac{kW \times 1000 \times SF}{N}$$
 where:
 kW = driver rated power
 N = speed (rpm)
3. Select a coupling with the same or higher rating.
4. Check that the hub bore capacity is suitable.
5. Check peak torque capability is suitable for application.
6. Check speed capability.
7. Check whether additional dynamic balancing is required.
8. Specify Distance Between Shaft Ends (DBSE).

Example:

150 kW electric motor to centrifugal pump at 2960 rpm

$$R = \frac{150 \times 1000 \times 1}{2960}$$

R = 50.7 kW per 1000 rpm

Selection: TSKC - 0075

Hub bore capacity 50.8 mm

Peak torque capability - 1790 Nm

Additional dynamic balancing would not be required.

Service Factor SF

Suggested service factors for electric motor, steam turbine, and gas turbine drivers are given below.

Torque Variation		Service Factor
Constant Torque	Centrifugal Pump Centrifugal Compressor Axial Compressor Centrifugal Blower	1.0*
Slight Torque Fluctuation	Screw Compressor Gear, Lobe and Vane Pumps Forced Draft Fan Medium Duty Mixer Lobe Blower	1.5
Substantial Torque Fluctuations	Reciprocating Pumps Heavy Duty Mixers Induced Draft Fans	2.0

The examples given are for typical machines and are empirically based guidelines. Knowledge of actual torque characteristics may indicate a different service factor. For example, variable-speed electric motors may exhibit a fluctuating torque characteristic.

Consult John Crane for advice.

* Use a minimum service factor of 1.25 on electric motor drives through a gearbox.

Available Options

- Spark-resistant couplings for hazardous zone operation.
 - Special materials for low temperature applications and/or higher corrosion resistance.
 - Electrical insulation.
 - Larger sized close coupled couplings are available up to 49,000 kW/1000.
- Consult John Crane for any other special requirements. Metastream couplings can be adapted to suit virtually all power transmission coupling needs.



TSKC

METASTREAM® T Series Couplings

Coupling Alignment

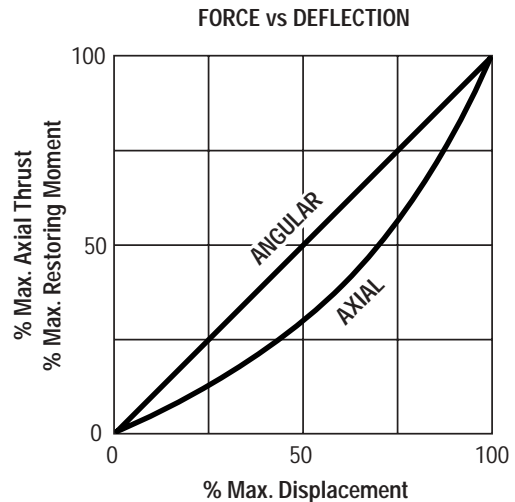
Correct installation and alignment of couplings is essential for reliable machinery performance.

John Crane supplies a variety of shaft alignment equipment and offers alignment training courses.

The angular and axial restoring forces in the table below left are given at maximum deflections. The chart can be used to determine forces across the full deflection range. The nonlinear characteristics can detune a system to prevent high amplitude axial vibration.

TSKC MISALIGNMENT				
Coupling Size	Max. Axial Misalignment*		Max. Parallel Misalignment**	
	± mm	Equivalent Thrust kN	mm	Restoring Moment Nm
0013	1.0	0.2	0.25	4
0033	1.3	0.3	0.40	6
0075	1.5	0.4	0.60	10
0135	2.0	0.6	0.70	12
0230	2.5	0.7	0.90	15
0350	2.8	0.8	1.10	35
0500	3.3	1.1	1.20	40
0740	3.8	1.3	1.40	50
0930	4.3	1.5	1.60	55
1400	5.0	2.7	1.70	60

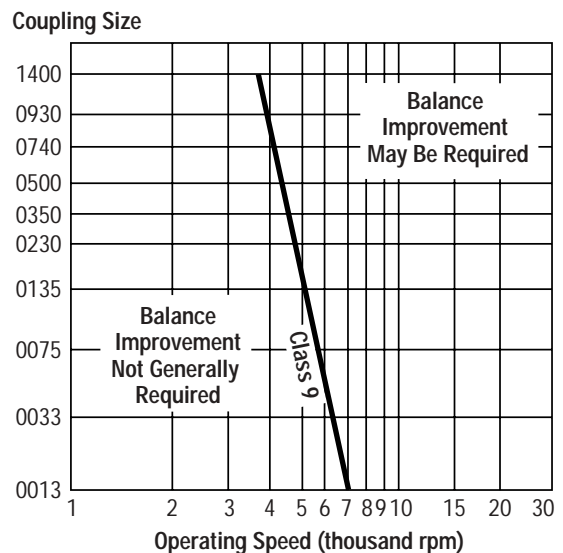
NOTES: * Meets NEMA end float specifications without modification.
** Values based on angular deflection of 1/2° per end and minimum DBSE. Greater misalignment accommodation is possible by increasing dimension C.



Balance Recommendations

The inherent balance of the TSKC range meets AGMA standard 9000-C90 class 9. The adjacent chart relates the TSKC sizes to operating speeds on the basis of this AGMA class 9 characteristic to provide a general guide to determine if dynamic balance improvement is necessary.

When balancing improvement is requested, John Crane will dynamically balance the transmission unit. Hubs may also be dynamically balanced, and this will usually be carried out after machining the bore but before cutting single keyways.



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