

KCP

Wire Drum Coupling

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KOREA COUPLING CO., LTD.
PTE Manufacturer, Sales & Trade Biz

Coupling Selection

How to Select

Standard Selection

The Standard Selection may be used for engine driven, motor, or turbine applications. The following information is required:

- Application or equipment type (motor to pump, reducer to conveyor, etc.)
- Shaft diameters (mm)
- Gaps between shafts (mm)
- Speed (RPM)
- Horsepower or torque (Nm)

1. Rating : Determine system torque. Torque is calculated as follows :

$$\text{I . Torque (Nm)} = \frac{\text{kW} \times 9,550}{\text{RPM}} \quad \text{II . Torque (Kg.m)} = \frac{\text{kW} \times 974}{\text{RPM}}$$

2. Service Factor : Determine appropriate service factor from page. 5-6

3. Minimum Coupling Rating : Determine the required minimum coupling rating as follows :

$$\text{Minimum Coupling Rating} = \text{Service Factor} \times \text{Torque (Nm)}$$

4. Type : Select the appropriate coupling type

5. Size : Trace the Torque column to find the value that is equal or greater than value from Step 3.

6. Check : Check speed (RPM), bore, gap and dimensions.

Formula Selection

The Standard Selection should be used for most coupling selections.

The Formula Selection procedure below should be used for:

- High Peak Loads.
- Brake Applications (Brake disc or brake wheel is an integral part of coupling)

Using the Formula Selection and providing system peak torque and frequency, duty cycle, and brake torque rating will allow for a more refined selection.

1. High Peak Loads : Use formula A or B for applications which involve motors with higher than normal torque characteristics. Applications should also be those with intermittent operations, including shock loading, inertia effects due to starting and stopping, system-induced repetitive high peak torques. System Peak Torque is the maximum torque that can exist in the system. Select a coupling with a Torque Rating equal or greater than the Selection Torque calculated below:

A. Non-Reversing High Peak Torque : Selection torque (Nm) = System Peak Torque or

$$\text{System Torque (Nm)} = \frac{\text{System peak kW} \times 9549}{\text{RPM}}$$

B. Reversing High Peak Torque : Selection Torque (Nm) = 2 x System Peak Torque or

$$\text{System Torque (Nm)} = \frac{2 \times \text{Peak kW} \times 9549}{\text{RPM}}$$

2. Brake Applications : If the torque rating of the brake exceeds the motor torque, use brake rating as blow :

$$\text{Selection Torque (Nm)} = \text{Brake Torque Rating} \times \text{Service Factor}$$

Service Factors

Service Factors for Operation of Drive System

Application	Service Factor
AERATOR	2.0
AGITATORS	
Vertical and Horizontal Scenv, Propeller, Paddle	1.0
BARGE HAUL PULLER	1.5
BLOWERS	
Centrifugal	1.0
Lobe or Vane	1.25
CAR DUMPERS	2.5
CAR PULLERS	1.5
CLARIFIER or CLASSIFIER	1.0
COMPRESSORS	
Centrifugal	1.0
Rotary, Lobe or Vane	1.25
Rotary, Screw	1.0
With Flywheel and Gear between Compressor and Prime Mover	
1 Cylinder, single acting	3.0
1 Cylinder, double acting	3.0
2 Cylinders, single acting	3.0
2 Cylinders, double acting	3.0
3 Cylinders, single acting	3.0
3 Cylinders, double acting	2.0
4 or more cylinders, single acting	1.75
4 or more cylinders, double acting	1.75
CONVEYORS	
Apron, Assembly, Belt, Chain, Flight, Screw	1.0
Bucket	1.25
Live Roll, Shaker and Reciprocating	3.0
CRANES and HOIST	
Main Hoist	1.75
Skip Hoist	1.75
Slope	1.5
Bridge, Travel or Trolley	1.75
DYNAMOMETER	1.0
ELEVATORS	
Bucket, Centrifugal Discharge	1.25
Gravity Discharge	1.25
EXCITER, GENERATOR	1.0
EXTRUDER, PLASTIC	1.5
FANS	
Centrifugal	1.0
Cooling Tower	2.0
Forced Draft-Across the Line start	1.5
Forced Draft Motor driven thru fluid or electric slip clutch	1.0
Gas Recirculating	1.5
Induced Draft with damper control or blade cleaner	1.25
Induced Draft without controls	2.0
FEEDERS	
Apron, Belt, Disc, Screw	1.0
Reciprocating	2.5
GENERATORS	
Even Load	1.0
Hoist or Railway Service	1.5
Welder Load	2.0
GENERATORS	
Even Load	1.0

Application	Service Factor
Hoist or Railway Service	1.5
Welder Load	2.0
HAMMERMILL	1.75
LAUNDRY WASHER or TUMBLER	2.0
LINE SHAFTS	
Any Processing Machinery	1.5
MACHINE TOOLS	
Auxiliary and Traverse Drive	1.0
Bending Roll, Notching Press, Punch Press, Planer, Plate Reversing	1.75
Main Drive	1.5
METAL FORMING MACHINES	
Continous Caster	1.75
Draw Bench Carriage and Main Drive	2.0
Extruder	2.0
Farming Machine and Forming Mills	2.0
Slitters	1.0
Wire Drawing or Flattening	1.75
Wire Winder	1.5
Coilers and Uncoilers	1.5
MIXERS	
Concrete	1.75
Muller	1.5
PRESS, PRINTING	1.5
PUG MILL	1.75
PULVERIZERS	
Hammermil and Hog	1.75
Roller	1.5
PUMPS	
Boiler Feed	1.5
Centrifugal-Constant Speed	1.0
Frequent Speed Changes under Load	1.25
Descaling with accumulators	1.25
Gear, Rotary, or Vane	1.25
Reciprocating, Plunger Piston	
1 Cylinder, single or double acting	3.0
2 Cylinders, single acting	2.0
2 Cylinders, double acting	1.75
3 or more cylinders	1.5
Screw Pump, Progressing Cavity	1.25
Vacuum Pump	1.25
SCREENS	
Air Washing	1.0
Grizzly	2.0
Rotary Coal or Sand	1.5
Vibrating	2.5
Water	1.0
STEERING GEAR	1.0
STOKER	1.0
TIRE SHREDDER	1.5
TUMBLING BARREL	1.75
WINCH, MANEUVERING	
Dredge, Marine	1.5
WINDLASS	1.5
WOODWORKING MACHINERY	1.0

Service Factors and Reference

Service Factors for Operation of Drive System

Industry	Service Factor
AGGREGATE PROCESSING, CEMENT, MINING KILNS; TUBE, ROD and MILLS	
Direct or on L.S. shaft of Reducer, with final drive Machined Spur Gears	2.0
Single Helical or Herringbone Gears	1.75
Crushers, Ore or Stone	2.5
Dryer, Rotary	1.75
Grizzly	2.0
Hammermill or Hog	1.75
Tumbling Mill or Barrel	1.75
BREWING and DISTILLING	
Bottle and Can Filling Machines	1.0
Brew Kettle	1.0
Cookers, Continuous Duty	1.25
Lauter Tub	1.5
Mash Tub	1.25
Scale Hopper, Frequent Peaks	1.75
CLAY WORKING INDUSTRY	
Brick Press, Briquette Machine, Clay Working Machine, Pug Mill	1.75
DREDGES	
Cable Reel	1.75
Conveyors	1.25
Cutter head, Jig Drive	2.0
Maneuvering Winch	1.5
Pumps (Uniform load)	1.5
Screen Drive, Stacker	1.75
Utility Winch	1.5
FOOD INDUSTRY	
Beet Slicer	1.75
Botting, Can Filling Machine	1.0
Cereal Cooker	1.25
Dough Mixer, Meat Grinder	1.75
LUMBER	
Band Resaw	1.5
Circular Resaw, Cut-off	1.75
Edger, Head Rig, Hog	2.0
Log Haul	2.0
Planer	1.75
Rolls, Non-Reversing	1.25
Rolls, Reversing	2.0
Sawdust Conveyor	1.25
Slab Conveyour	1.75
Sorting Table	1.5
Trimmer	1.75
METAL ROLLING MILLS	
Coilers (Up or Down) Cold Mills only	1.5
Coilers (Up or Down) Hot Mills only	2.0
Coke Plants	
Pusher Ram Drive	2.5
Door Opener	2.0
Pusher or Larry Car Traction Drive	3.0
Continuous Caster	1.75
Colling Beds	1.5
Drawbench	2.0
Feed Rolls-Blooming Mills	3.0
Furnace Pushers	2.0
Hot and Cold Saws	2.0
Ingot Cars	2.0
Manipulators	3.0
Mill Tables	
Roughing Breakdown Mills	3.0
Hot Bed or Transfer, non-reversing	1.5
Runout, reversing	3.0
Runout, non-reversing, non-plugging	2.0
Reel Drives	1.75
Screwdown	2.0
Seamless Tube Mills	
Piercer	3.0
Thrust Block	2.0
Tube Conveyor Rolls	2.0
Reeler	2.0
Kick Out	2.0
Sideguards	3.0

Industry	Service Factor
Slitters, Steel Mill only	1.75
Lift	1.0
Travel	2.0
Straighteners	2.0
Unscramblers (Billet Bundle Busters)	2.0
Wire Drawing Machinery	1.75
OIL INDUSTRY	
Chiller	1.25
Oilwell Pumping (not over 150% peak torque)	2.0
Paraffin Filter Press	1.5
Rotary Kiln	2.0
PAPER MILLS	
Barker Auxiliary, Hydraulic	2.0
Barker, Mechanical	2.0
Barking Drum	
L.S. shaft of reducer with final drive-Helical or Herringbone Gear	2.0
Machined Spur Gear	2.5
Cast Tooth Spur Gear	3.0
Beater & Pulper	1.75
Bleachers, Coaters	1.0
Calender & Super Calender	1.75
Chipper	2.5
Converting Machine	1.25
Couch	1.75
Cutter, Felt Whipper	2.0
Dryer	1.75
Cylinder	1.75
Felt Stretcher	1.25
Fourdrinier	1.75
Jordan	2.0
Log Haul	2.0
Line Shaft	1.5
Press	1.75
Pulp Grinder	1.75
Reel, Rewinder, Winder	1.5
Stock Chest, Washer, Thickener	1.5
Stock Pumps, Centrifugal	
Constant Speed	1.0
Frequent Speed Changes Under load	1.25
Suction Roll	1.75
Vacuum Pumps	1.25
RUBBER INDUSTRY	
Calender	2.0
Cracker, Plasticator	2.5
Extruder	1.75
Intensive or Banbury Mixer	2.5
Mixing Mill, Refiner or Sheeter	
One or two in line	2.5
Three or four in line	2.0
Five or more in line	1.75
Tire Building Machine	2.5
Tire & Tube Press Opener (Peak Torque)	1.0
Tuber, Strainer, Pelletizer	1.75
Warming Mill	
One or two Mills in line	2.0
Three or more Mills in line	1.75
Washer	2.5
SEWAGE DISPOSAL EQUIPMENT	
Bar Screen, Chemical feeders, Collectors, Dewatering Screen, Grit Collector	1.0
SUGAR INDUSTRY	
Cane Carrier & Leveler	1.75
Cane Knife & Crusher	2.0
Mill Stands, Turbine Driver with all Helical or Herringbone, or Spur Gears with any Prime Mover	1.75
TEXTILE INDUSTRY	
Batcher	1.25
Calender, Card Machine	1.5
Cloth Finishing Machine	1.5
Dry Can, Loom	1.5
Dyeing Machinery	1.25
Mangle, Napper, Soaper	1.25
Spinner, Tenter Frame, Winder	1.5

Service Factors

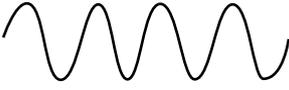
Standard Selection

Service Factors for engine drives are required for applications where good flywheel regulation prevents torque fluctuations greater than $\pm 20\%$. For drives where torque fluctuations are greater or where the operation is near a serious critical or torsional vibration, a mass elastic study is necessary.

Number of Cylinders	4 or 5					6 or more				
Service Factor	1.5	1.75	2	2.25	2.5	1.5	1.75	2	2.25	2.5
Engine Service Factor	2.5	2.75	3	3.25	3.5	2.5	2.75	3	3.25	3.5

To use Engine Drive Service Factors, first determine application Service Factor from page 5-6. When Service Factor is greater than 2.0, or where 1, 2 or 3 cylinder engines are involved, refer complete application details to Korea Coupling for engineering review.

Service Factors are a guide, based on experience, of the ratio between coupling catalogue rating and system characteristics. The system characteristics are best measured with a torque meter.

Torque Demands Driven Machine	Typical applications for Driven Equipment	Typical Service Factor
	Constant torque such as Centrifugal Pumps, Blowers and Compressors.	1.0
	Continuous duty with some torque variations including Plastic Extruders, Forced Draft Fans.	1.5
	Light shock loads from Metal Extruders, Cooling Towers, Cane Knife, Log Haul.	2.0
	Moderate shock loading as expected from a Car Dumper, Stone Crusher, Vibrating Screen.	2.5
	Heavy shock load with some negative torques from Roughing Mills, Reciprocating Pumps, Compressors, Reversing Runout Talbes.	3.0
	Applications like Reciprocating Compressors with frequent torque reversals, which do not necessarily cause reverse rotations.	Refer to KCP

Wire Drum Coupling



KCP Wire Drum Coupling is designed for installation in the drum drive of crane or conveying systems. This coupling can be used in the difficult and rough operating conditions associated with iron and steel work, or in the continuous heavy load operations of shore cranes.

Wire Drum Coupling absorbs pressure stress caused by the high torque and high radial loads resulting from the larger surface areas of these applications.

The design of this coupling prevents the danger of roller and bore breakage due to bending stress. The circular teeth on this coupling produces dramatically lower stress as compared to the bending stress involved with typical gear teeth.

The torque moment in the coupling is transmitted in two ways. First, through the two drag faces of the sleeve which is housed in the drum. Secondly, through a series of bolts which are fixed to the drum.

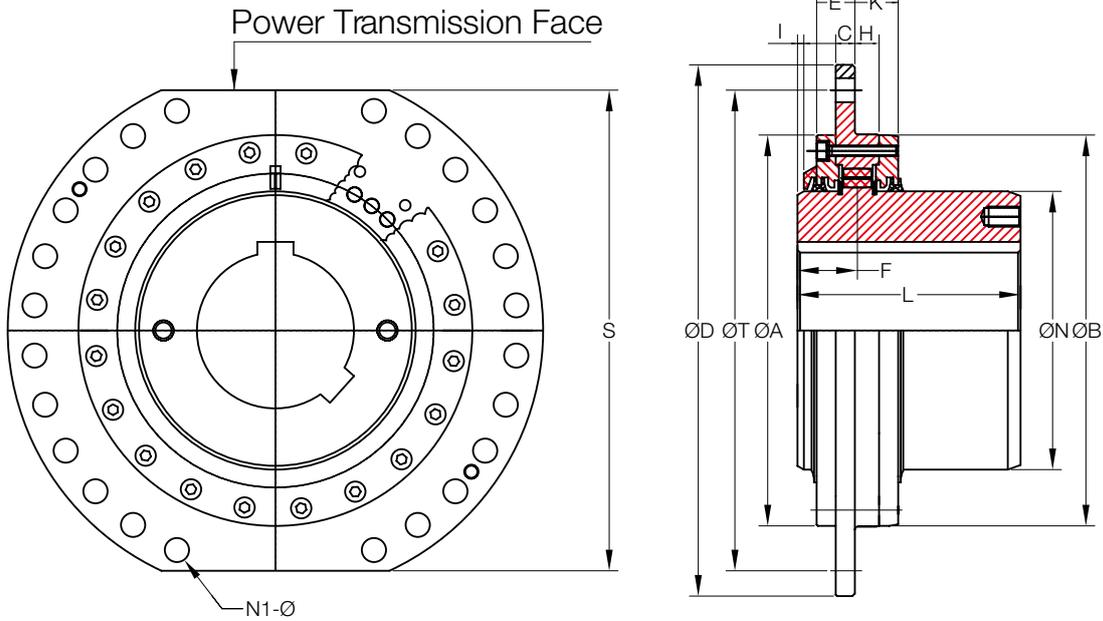
Wire Drum Coupling can compensate for angular misalignments of up to 1° , via a crown which allows the hub to oscillate with respect to the sleeve.

Depending on the size of the selected coupling, axial displacements from $\pm 3\text{mm}$ up to $\pm 8\text{mm}$ can be absorbed. Such couplings are not suitable for absorption or transmission of axial forces.

The following figure shows an example assembly of a Wire Drum Coupling in a hoisting gear. The coupling's hub is placed at the end of the wire drum. The bearing bracket must be configured as a fixed bracket.

KWC Type

Crown Roller



Size	Torque Rating (Nm)	Radial Load (Kg)	Cplg Weight (Kg)	Max Bore (mm)	Min Bore (mm)	GD (Kg. m ²)	Dimensions (Millimeters)															Drum		Max Clearance
							D	T	A	B	N	I	C	H	E	K	L	S	F	Fixing Holes				
																				N1	ø			
25	4,510	1,450	12	65	40	0.24	250	220	159	160	95	5	12	16	42	31	95	220	44	6	15	3		
50	5,980	1,680	19	75	50	0.40	280	250	179	180	110	5	12	16	42	31	100	240	44	6	15	3		
75	7,500	1,885	23	85	60	0.70	320	280	199	200	125	5	15	17	45	32	110	280	46	6	19	4		
100	9,015	2,040	27	95	60	1.00	340	300	219	220	140	5	15	17	45	32	125	300	46	6	19	4		
130	15,485	3,160	38	105	80	1.30	360	320	239	240	160	5	15	19	45	34	130	320	47	6	19	4		
160	19,500	3,570	48	120	80	1.80	380	340	259	260	180	5	15	19	45	34	145	340	47	6	19	4		
200	24,010	3,930	62	135	100	2.40	400	360	279	280	200	5	15	19	45	34	170	360	47	6	19	4		
300	27,980	4,285	76	145	100	3.30	420	380	309	310	220	5	15	19	45	34	175	380	47	6	19	4		
400	37,975	5,000	105	175	100	6.00	450	400	339	340	260	9	20	22	60	40	185	400	61	6	24	4		
600	69,970	11,735	190	205	120	15.00	550	500	419	420	310	7	20	22	60	42	240	500	61	6	24	6		
1000	120,000	12,755	240	230	140	21.00	580	530	449	450	350	7	20	22	60	42	260	530	61	8	24	6		
1500	180,000	15,305	400	280	160	47.00	650	600	529	530	415	7	25	27	65	47	315	580	66	8	24	6		
2600	310,000	25,510	500	300	170	64.00	680	630	559	560	445	7	25	34	65	54	350	600	69	24	24	8		
3400	400,000	31,295	630	315	200	94.00	710	660	599	600	475	16	35	34	81	56	380	640	83	24	28	8		
4200	500,000	34,695	840	355	230	154.00	780	730	669	670	535	16	35	34	81	56	410	700	83	24	28	8		
6200	685,000	38,775	1,120	400	260	248.00	850	800	729	730	600	13	35	34	81	59	450	760	83	24	28	8		

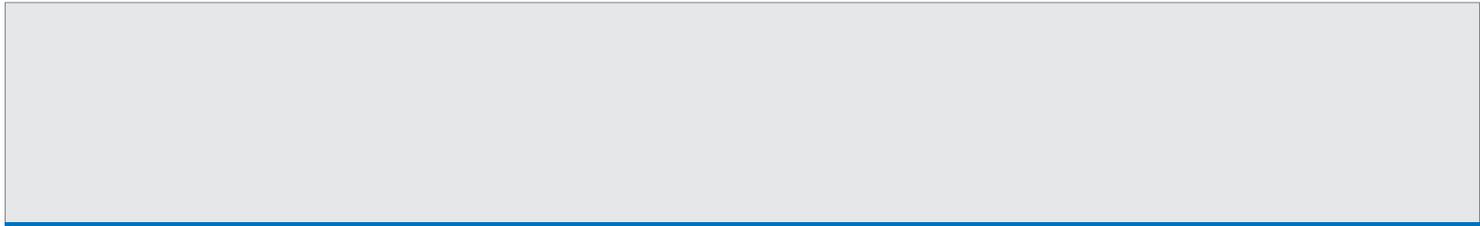
* Coupling Weight is without Bore Machining



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