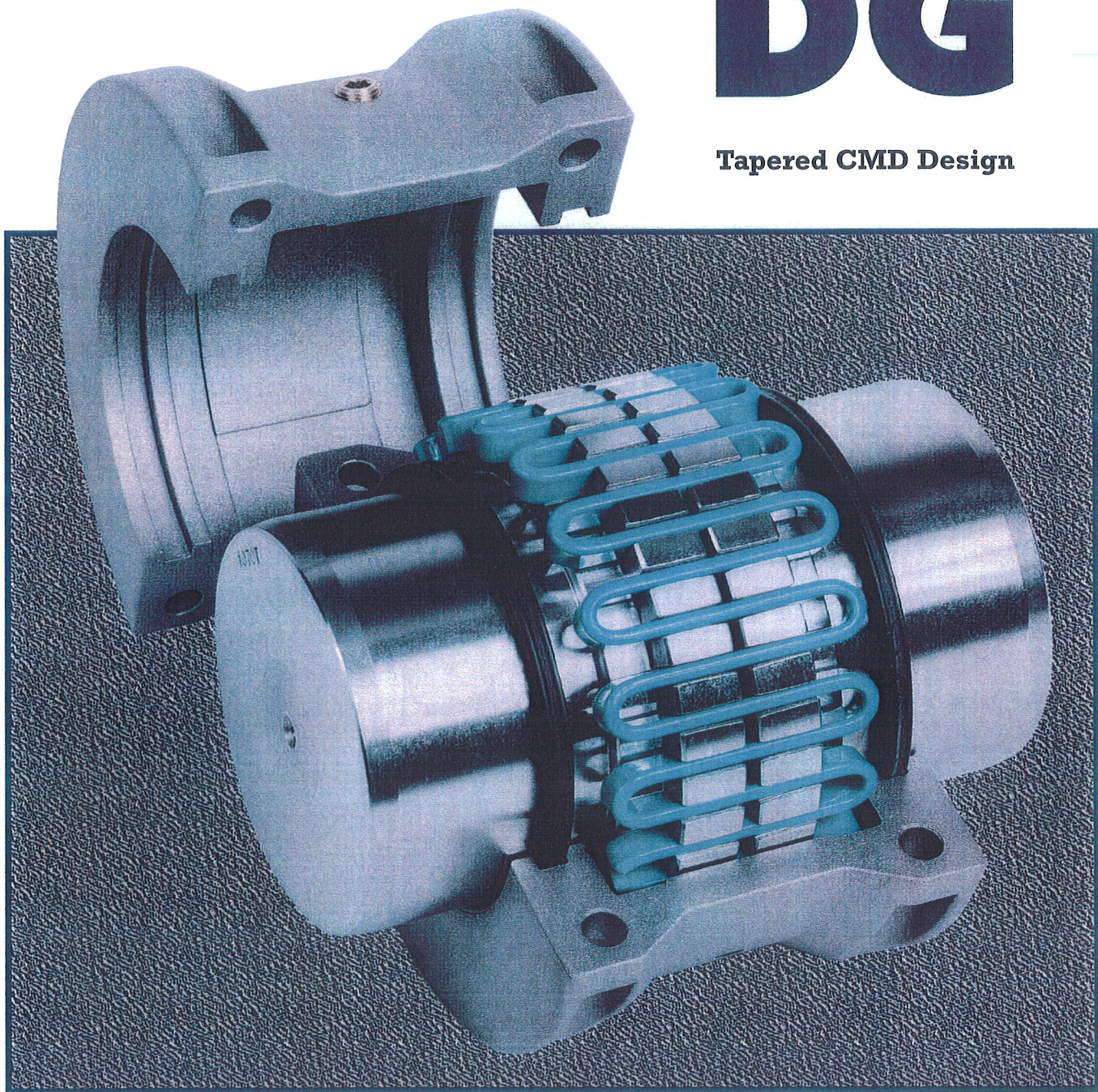


# winflex<sup>®</sup> DG

Tapered CMD Design



**CMD**

ENGRENAGES & REDUCTEURS

Geared for Success



**Tapered grid design** providing for :  
High Torque Capacity - Compact Design - Ease of Assembly.

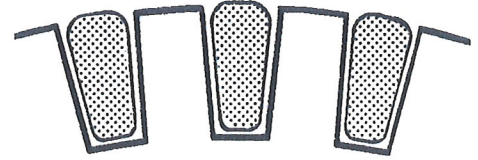
- **All Metal Construction** affording minimum dimensions with consequent weight and inertia advantages.

**Grid :** Chrome Vanadium Steel, heat treated to give maximum strength and spring hardness.

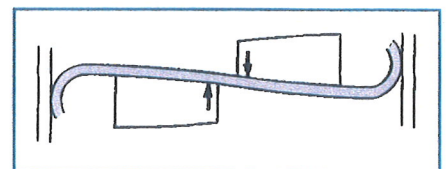
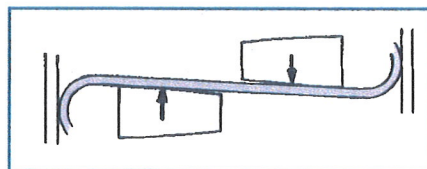
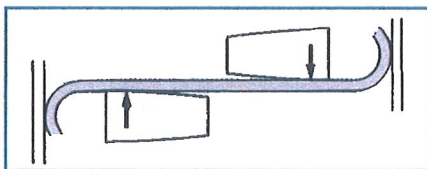
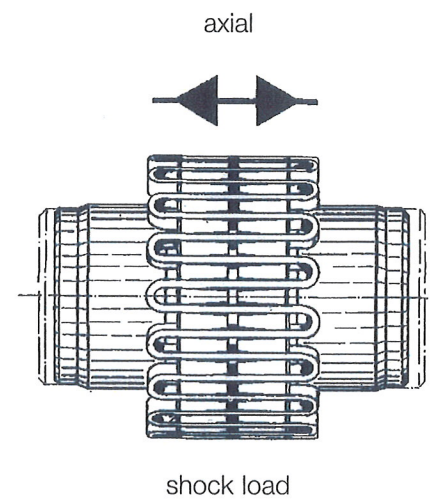
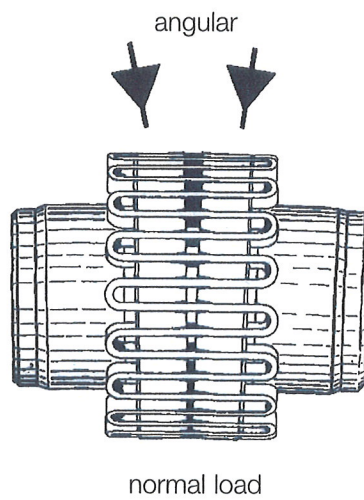
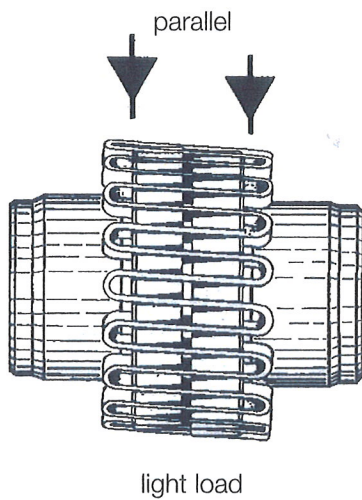
**Hub :** Forged Steel accurately machined

**Cover :** "V" Type Heavy Duty Steel - zinc plated.  
"H" Type Alloy Aluminium.

**Seals :** Durable Synthetic Material.



- **Torsionally Flexible :** The circumferential flexibility being progressive as a result of the curved profile of the grooves and providing for positive protection from damaging effects of Shock Loads - Impact Loads - Vibration.
- **Accommodates :** Parallel - Angular - Axial misalignment or combined misalignment resulting from deviation following operational service.



- **Resilient :** The coupling is capable of smoothing shock loads absorbing high instantaneous impact energies with consequent protection of drive and maximising of transmitted torque.
- **Installation :** Design provides for easy disconnection without removal of drive. Horizontal and vertical covers provide for varied applications.

## Selection Method

1. **Determine service factor :** a) for electric motor or turbine refer to table 1.  
b) for engine drives refer to table 2.  
c) for brake or high peak load refer to table 3.
2. **Calculate equivalent power = actual power (KW) X determined service factor** or refer to table 4 by reading the calculated on the line of the service factor under the actual power required.
3. **Select coupling size :** (Refer to table 5). Read horizontally from the required speed, a value equal to or greater than the calculated equivalent power and read coupling size at top of relevant column.
4. **Check bore and speed capabilities of selected couplings :** (Refer to table 6)
  - If larger bore than that of selected coupling is required, select next larger size.
  - If higher speed is required than that of selected coupling, consult our local representative.



**TABLE 1 : Application service factors for winflex DG couplings electric motor and turbine drivers**

Application (Read foot-notes)	factor •	Application (Read foot-notes)	factor •	Application (Read foot-notes)	factor •
<b>AGITATORS</b>	1.0	<b>FANS</b>		Jordan	2.0
<b>AGGREGATE PROCESSING</b>		Centrifugal	1.0	barking drums : with final gearing	
<b>CEMENT, MINING KILNS ; TUBE</b>		Forced draft with slip, clutch	1.0	machined	2.0
<b>RODS AND BALL MILLS</b>		Induced draft - with damper		- cast teeth gear	3.0
Direct or on L.S. of reducer		control or blade cleaner	1.25	Felt stretcher	1.25
With final drive :		Induced draft without control	2.0	<b>PUMP</b>	
accurate machined gears	2.0	Cooling tower	2.0	Centrifugal	1.0
ordinary gears	2.5	<b>FLOUR MILLING</b>		Gear , Rotary or vane	1.25
Hammer mill or Hog	1.75	Various type	1.75	Reciprocating :	
Crushers, ore or stone	2.50	<b>FOOD INDUSTRY</b>		1 cyl. double act. or single act.	3.0
Grizzly	2.0	Beet slicer	1.75	2 cyl. double acting	1.75
<b>COMPRESSORS</b>		Botting, Canfilling mach	1.0	3 cyl. double acting	1.5
Centrifugal	1.0	Cookers, continuous duty	1.25	<b>RUBBER INDUSTRY</b>	
Rotary (Roots)	1.25	<b>GENERATORS</b>		Calender	2.0
Reciprocating, with flywheel : **		Even load	1.0	Mixer (Banbury-Werner)	2.5
1 cylinder, single acting	3.0	With overload	2.0	External mixer, mixing mill :	
1 cylinder double acting	3.0	Welder load	2.0	... two in line	2.5
2 cylinders, single acting	3.0	A.C. dynamo with hyd. turbine	1.0	Super calender	2.5
2 cylinders, double acting	3.0	<b>LUMBER</b>		<b>STEEL WORKS</b>	
3 cylinders, single acting	3.0	Circular resaw, cut off	1.75	Draw bench, wire drawing	2.0
3 cylinders, double acting	2.0	Band resaw	1.5	Collers, uncoilers (at max. torque)	
4 or more cyl. double acting	1.75	Edger, Head Rig, Hog	2.0	Straighteners flattening	2.0
single act.	1.75	Log haul	2.0	Wire mills	2.0
<b>CONVEYORS</b>		Rolls, reversing	2.0	Rod mills	2.5
Horizontal or sloped		Trimmer	1.75	Feed rolls, Blooming mills	3.0
Belt screw, apron	1.0	<b>MACHINE TOOLS</b>		Tube conveyor rolls	2.0
Scraper	1.5	Miscellaneous, auxiliary	1.0	<b>SUGAR INDUSTRY</b>	
Buckets	1.25	Notching press	1.75	Cane Knife and crusher	2.0
<b>ELEVATORS, CRANES, HOISTS*</b>		Planer	1.75	Mill stands :	
Main hoist	1.75	Main drive	1.5	Turbine driven with helical gears	1.5
Bridge, travel or trolley	1.75	<b>PAPER INDUSTRY</b>		Any other prime mover	2.0
Mach, tools, warehouse	2.0	Calender	1.75	<b>TEXTILE</b>	
Grab-buckets, casting, scraps	2.5	Super-calender	1.75	Miscellaneous	1.5
Filler, pits, strips, ingots	2.5	Line shaft	1.5	Calender, Card machine	1.5
Cranes : general handling	1.75	Cylinder, dryer, couch, press	1.75	Printing cylinder	1.75
harbour, grad-buckets	2.0	Chipper	2.5	<b>WOOD WORKING MACH.</b>	
		Reel, rewinder, winder	1.5	Miscellaneous	1.0
		Beater, pulper	1.75		

\* If persons are occasionally transported consult factory

\*\* ADD 0,5 factor if flywheel not provided

- Service factors given are typical values for normal operation of the various applications listed. Higher or lower values may be used dependant upon operating conditions e.g. severe or unusual loading, intermittent service power source etc.

If in doubt please consult factory

It is advisable in some application e.g. pumps, fans, reciprocating system drive or driven etc. to additionally check the selected coupling by carrying out a calculation of torsional vibrations in the drive.

**TABLE 2 : Additional service factors for engine drives**

N° of Cylinders	12 or more	8 to 11	6 to 7A	4 to 5	Less than 4
Factor	0	0,5	0,5	1	consult factory

**Example :** For an application where an application service factor of 2,5 is needed (e.g. driven by diesel engine with 6 cylinders) ADD relevant Engine Service Factor (i.e. 2,5 + 0,5 = 3)

Service factors listed for Engine Drives are those required for application where good flywheel regulations prevent excessive torque fluctuations.

**TABLE 3 : Brake and high peak load applications**

**a) BRAKE :** When torque or power rating of the brake exceeds the rating of the prime mover, the coupling selection must be based upon the brake rating.

**b) HIGH PEAK LOAD :** For applications with high torque motor, intermittent operation, where extreme repetitive shocks occur, where inertia effect must be absorbed :

- determine if application is reversing for non reversing and select as follow :

**NON REVERSING APPLICATION :**  
REQUIRED COUPLING TORQUE RATING = SYSTEM PEAK TORQUE

**REVERSING APPLICATIONS :**  
REQUIRED COUPLING TORQUE RATING = SYSTEM PEAK TORQUE x 2



**TABLE 4 : Equivalent power = actual power x service factor**

Service factor K	ACTUAL POWER kW or Hp x 0,746																									
	0,75	1	1,5	2	3	4	5,5	7,5	10	15	20	25	30	40	50	60	75	100	125	180	220	270	340	380	430	480
1.0	0.75	1	1.5	2	3	4	5.5	7.5	10	15	20	25	30	40	50	60	75	100	125	180	220	270	340	380	430	480
1.25	0.94	1.25	1.9	2.5	3.8	5	6.9	9.4	12.5	18.8	25	31	38	50	63	75	94	125	156	225	275	338	425	475	538	600
1.50	1.13	1.50	2.3	3	4.5	6	8.3	11.3	15	22.5	30	38	45	60	75	90	113	150	188	270	330	405	510	570	645	720
1.75	1.31	1.75	2.6	3.5	5.3	7	9.6	13.1	17.5	26.3	35	44	53	70	88	105	131	175	219	315	385	473	595	665	753	840
2	1.5	2	3	4	6	8	11	15	20	30	40	50	60	80	100	120	150	200	250	360	440	540	680	760	860	960
2.50	1.9	2.5	3.8	5	7.5	10	13.8	18.8	25	38	50	63	75	100	125	150	188	250	313	450	550	675	850	950	1075	1200
3	2.3	3	4.5	6	9	12	16.5	22.5	30	45	60	75	90	120	150	180	225	300	375	540	660	810	1020	1140	1290	1440
3.5	2.6	3.5	5.3	7	10.5	14	19.3	26.3	35	53	70	88	105	140	175	210	263	350	438	630	770	945	1190	1330	1505	1680
4	3	4	6	8	12	16	22	30	40	60	80	100	120	160	200	240	300	400	500	720	880	1080	1360	1520	1720	1920

**TABLE 5 : Coupling selection - Equivalent kW ratings**

Speed rpm*	Coupling size													
	2 DG	3 DG	4 DG	5 DG	6 DG	7 DG	8 DG	9 DG	10 DG	11 DG	12 DG	13 DG	14 DG	
4500	22.5	64	108	188										
3500	17.5	49.7	83.7	146	228	340	679	1253						
2900	14.5	41.2	69.3	121	189	281	563	1038						
1750	8.75	24.9	41.8	73.2	114	170	340	627	1050	1575				
1450	7.25	20.6	34.7	60.6	94.3	141	281	519	870	1305	1920	2792	4014	
1150	5.75	16.3	27.5	48	74.8	112	223	412	690	1035	1523	2215	3183	
970	4.85	13.8	23.2	40.5	63	94	188	347	582	873	1284	1868	2685	
870	4.35	12.4	20.8	36.4	56.6	84.4	169	311	522	783	1152	1675	2408	
720	3.6	10.2	17.2	30	46.8	69.8	140	258	432	648	953	1386	1993	
580	2.9	8.23	13.9	24.2	37.7	56.3	113	208	348	522	768	1117	1606	
500	2.5	7.1	12	20.9	32.5	48.5	97	179	300	450	662	963	1384	
425	2.13	6.04	10.2	17.8	27.6	41.2	82.5	152	255	383	563	818	1176	
315	1.58	4.47	7.52	13.2	20.5	30.6	61.1	113	189	284	417	607	872	
250	1.25	3.55	5.98	10.5	16.3	24.3	48.5	89.5	150	225	331	481	692	
200	1	2.84	4.78	8.36	13	19.4	38.8	71.6	120	180	265	385	554	
160	0.8	2.27	3.82	6.69	10.4	15.5	31	57.3	96	144	212	308	443	
125	0.63	1.78	2.98	5.23	8.13	12.1	24.3	44.8	75	113	165	241	346	
100	0.5	1.42	2.39	4.18	6.5	9.7	19.4	35.8	60	90	132	193	277	
80	0.4	1.14	1.91	3.34	5.2	7.76	15.5	28.6	48	72	106	154	221	
63	0.315	0.89	1.51	2.63	4.1	6.1	12.2	22.6	37.8	56.7	83.4	121	174	
40		0.57	0.96	1.67	2.6	3.88	7.76	14.3	24	36	53	77	111	
25			0.6	1.05	1.63	2.43	4.85	8.95	15	22.5	33.1	48.2	69.2	
16				0.67	1.04	1.55	3.10	5.73	9.6	14.4	21.2	30.8	44.3	
10					0.65	0.97	1.94	3.58	6	9	13.2	19.3	27.7	
5						0.49	0.97	1.79	3	4.5	6.6	9.6	13.8	

\* If required speed is not shown, used next lower lister, or interpolate between those listed.

**TABLE 6 : Coupling selection data**

Coupling size	Power per 100 rpm kW	Torque rating daNm	Max. rpm		Approx. WR <sup>2</sup> • kg.m <sup>2</sup>		Max. Bores +		Recommended misalignment : mn	
			DGH	DGV	DGH	DGV	Rect. Key*	Sq. Key**	Parallel offset	Angular
2 DG	0.5	4.8	4500	6000	0.0014	0.0016	28	28	0.13	0.13
3 DG	1.42	13.6	4500	6000	0.0022	0.0024	35	35	0.13	0.13
4 DG	2.39	23	4500	6000	0.0032	0.0035	42	41	0.13	0.13
5 DG	4.18	40	4500	6000	0.0068	0.0076	50	48	0.13	0.13
6 DG	6.5	62	4350	6000	0.0117	0.0121	56	54	0.25	0.25
7 DG	9.7	93	4125	5500	0.0181	0.0181	65	63	0.25	0.25
8 DG	19.4	185	3600	4750	0.0437	0.0434	80	76	0.25	0.25
9 DG	35.8	340	3600	4000	0.0763	0.0797	95	89	0.30	0.30
10 DG	60	570	2440	3250	0.179	0.178	110	102	0.30	0.30
11 DG	90	860	2250	3000	0.270	0.272	120	114	0.30	0.30
12 DG	132	1265	2025	2700	0.514	0.471	137	127	0.30	0.30
13 DG	193	1840	1800	2400	0.988	1.044	165	152	0.30	0.30
14 DG	277	2645	1650	2200	1.845	1.882	184	178	0.30	0.30

• WR<sup>2</sup> values are for hubs without bore

\* for rectangular section keys (ISO)

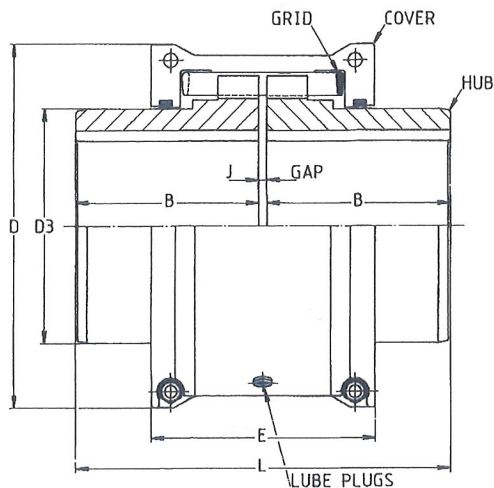
\*\* for square section keys (AGMA)

+ when severe loading conditions exist be advise to reduce by TEN PER CENT the tabled maximum bore capacities for the hubs



## TYPE DG-H with horizontal split cover

- cover in cast aluminium
- easy to assemble, axial clearance unnecessary for grid removal



## TYPE DG-V with vertically split cover

- same torque capability as the DG.H type but a higher maximum speed capability
- can operate in horizontal or vertical position
- cover in zinc plated steel, thus resistant to corrosion

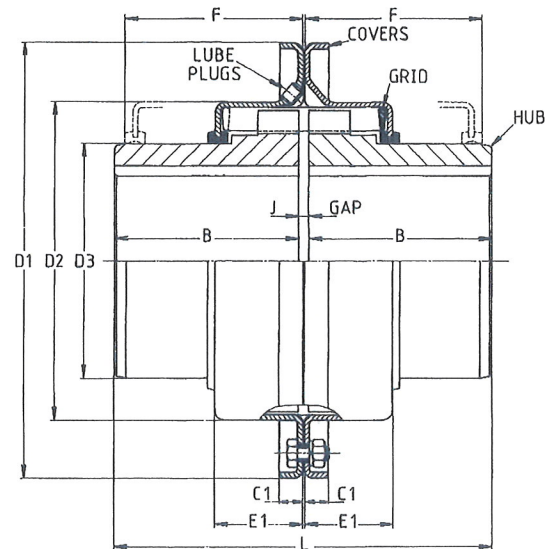


TABLE 7

Coupling size		2 DG	3 DG	4 DG	5 DG	6 DG	7 DG	8 DG	9 DG	10 DG	11 DG	12 DG	13 DG	14 DG
Power per 100 rpm	Kw	0.5	1.42	2.39	4.18	6.5	9.7	19.4	35.8	60	90	132	193	277
Torque rating	daNm	4.8	13.6	23	40	62	93	185	340	570	860	1265	1840	2645
Max bore + with	Rect	28	35	42	50	56	65	80	95	110	120	137	165	184
	Sq	28	35	41	48	54	63	76	89	102	114	127	152	178
	B	47	47	50	60	63	76	88	98	120	127	149	162	184
	C <sub>1</sub>	9.5	9.5	9.5	12	13	13	13	13	16	16	17	21	21
	D	88	99	107	130	139	150	176	196	251	270	308	346	384
	D <sub>1</sub>	112	121	129	148	162	174	200	232	267	286	319	378	416
	D <sub>2</sub>	64	73	83	99	111	124	150	168	197	216	245	283	321
	D <sub>3</sub>	39.5	49	57	66.5	76	87	104.5	123.5	142	160	179	217	254
	E	68	70	71	85	92	95	117	123	156	162	192	195	201
	E <sub>1</sub>	25	25.3	26	31	32	34	44	47	59	63	73	75	78
	F	48	48	51	61	64	67	89	96	121	124	143	147	156
	J	3	3	3	3	3	3	3	3	5	5	6	6	6
	L	97	97	103	123	129	155	179	199	245	259	304	330	374
Hub weight*	kg	0.57	0.85	1.2	1.9	2.7	4.1	7.1	10.6	17.4	23	34.7	53.2	80.6
Grid	No Segments	1	1	1	1	1	2	2	2	2	2	2	2	2
	total weight kg	0.08	0.083	0.1	0.29	0.33	0.35	0.92	1	2.1	2.5	4.4	5.4	6
Lube weight	kg	0.03	0.03	0.06	0.06	0.09	0.11	0.17	0.25	0.43	0.51	0.74	0.91	1.2
Coupling weight* kg	DG H	1.8	2.4	3.2	5.1	7.2	10.1	17.8	25	43	56	81.2	121	178
	DG V	1.9	2.5	3.3	5.3	7.4	10.4	18.2	26	43	56	81.7	122.5	180
Cover assy } weight kg	DG H	0.65	0.73	0.79	1.3	1.8	1.9	2.6	4	8.6	9.6	11.8	14.6	16.8
	DG V	0.75	0.84	0.92	1.5	2	2.2	4	4.6	8.6	9.6	12.3	16.1	18.8
Approx WR <sup>2</sup> kgm <sup>2</sup> *	DG H	0.0014	0.0022	0.0032	0.0068	0.0117	0.0181	0.0437	0.0763	0.179	0.270	0.514	0.988	1.845
	DG V	0.0016	0.0024	0.0035	0.0076	0.0121	0.0181	0.0434	0.0797	0.178	0.272	0.471	1.044	1.882
Max speed Rpm	DG H	4500	4500	4500	4500	4350	4125	3600	3600	2440	2250	2025	1800	1650
	DG V	6000	6000	6000	6000	6000	5500	4750	4000	3250	3000	2700	2400	2200

\* for rectangular section keys (ISO)

\*\* for square section keys (AGMA)

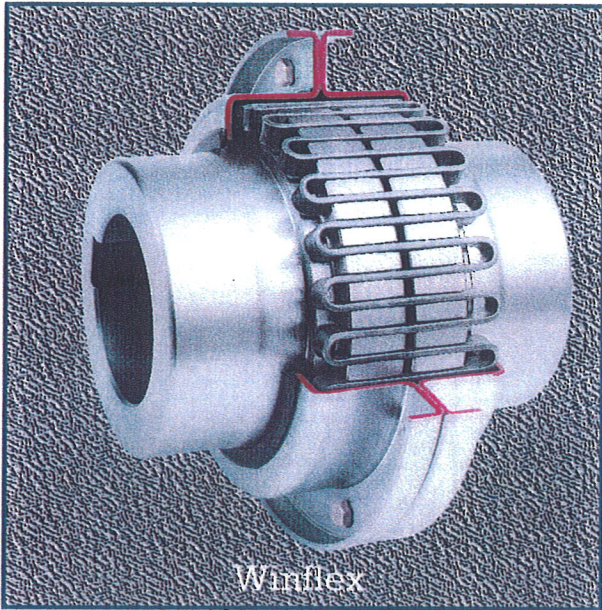
+ when severe loading conditions exist be advise to reduce by TEN PER CENT the tabled maximum bore capacities for the hubs

• values are for hubs without bore

NOTE : all dimensions are subject to change without notice

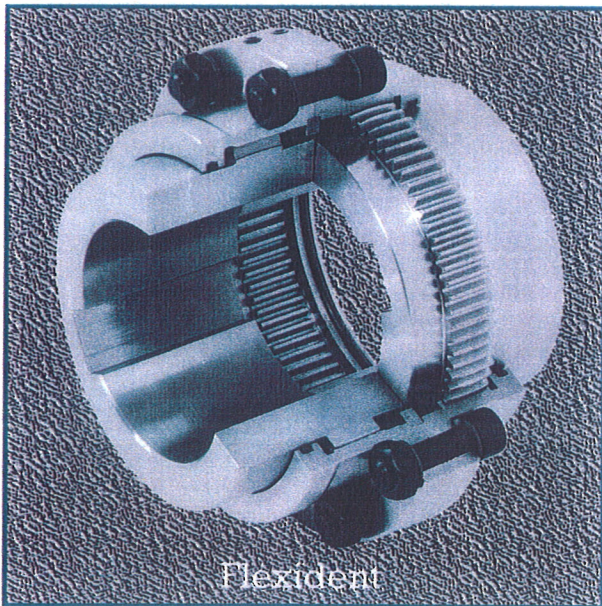


# Other CMD couplings



## winflex<sup>®</sup> T série

The well-know WINFLEX T has a comprehensive size range, with versatility of models - with brake disk or brake wheel - with spacer - heavy duty - for steel mill etc.



## flexident<sup>®</sup> Gear coupling

with fully crowned teeth

**Serie S** : for applications up to 250 mm

**Serie Z** : for heavy duty applications,  
bore capacity up to 800 mm

Appointed agent for your area.

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539, avenue du Cateau - 59400 CAMBRAI - FRANCE  
Tél. : 33 (0) 3 27 73 53 11 Fax : 33 (0) 3 27 78 36 99 - Telex : 160388 F