




TRANSMISSION GEARS

INDUSTRIAL  
GEARBOXES

# Shaft Mounted Speed Reducer



The  Shaft Mounted Speed Reducer provides a very convenient method of reducing speed, since it is mounted directly on the driven shaft instead of requiring foundations of its own. It eliminates the use of one and sometimes two flexible couplings and external belt take-up arrangements.

A torque-arm anchors the Reducer and provides quick easy adjustment of the V-Belts by means of its turnbuckle. The Optigear Speed Reducer is manufactured in eight gear case sizes, designated by the letters B to J. The eight sizes may have any one of three nominal gear ratios 5: 1, 13: 1 and 20: 1.

A very wide choice of final driven speed can be determined by the use of an appropriate input V -Belt drive. The units are normally oil lubricated, but they are equally suitable for "lubricated for life" greases.

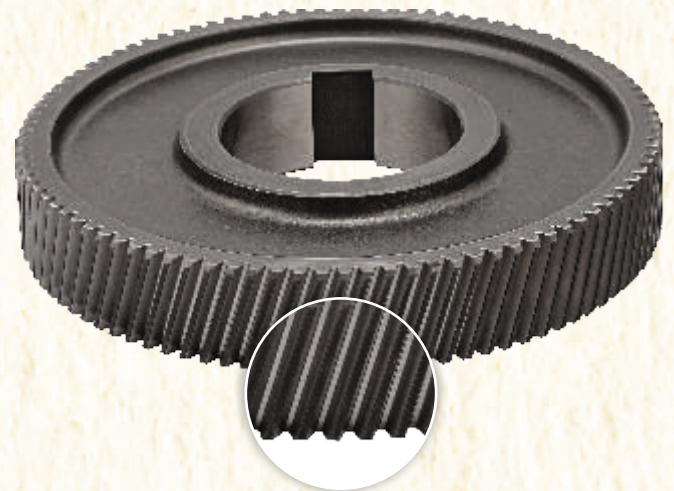
## SELECTION PROCEDURE

- (a) Service Factor - From Table 1 select the service factor applicable to the drive.
- (b) Design Power - Multiply the absorbed power (or motor power if absorbed power not known) by the service factor chosen in step (a).  
Note: Ensure that design power exceeds motor rated power.
- (c) Peak Load - Divide any peak load by two.
- (d) Unit Selection - Using the greater value of steps (b) and (c) refer to the Power Rating Tables and select the correct size of unit. The choice of single or double reduction gearbox will be determined by the output speed required. The normal operating speeds for each of the gearboxes may be observed in the Power Rating Tables. For other speeds CONSULT OPTIGEAR.  
Note: 5.1 Units require special selection when fitted with backstops CONSULT OPTIGEAR  
Selection of Associated Drive for 1440 rev/min Electric Motors
- (e) Output Speed - Refer to the Drive Selection Tables and under the appropriate gearbox size and ratio read down the column headed 'Output Speed' until an output speed equal or near to that required is found

**TABLE - SERVICE FACTORS**

Types of Driven Machine	Operational Hours Per Day		
	Under 10	10 to 16	16 and over
<b>Uniform</b> Agitators and Mixers-liquid or semi-liquid Blowers -centrifugal Bottling Machines Conveyors and Elevators - uniformly loaded Cookers Laundry Washing Machines -non-reversing Line Shafts Pumps - centrifugal and gear Wire Drawing Machines	1.0	1.12	1.25
<b>Moderate Shock</b> Agitators and Mixers - variable density Conveyors - not uniformly loaded Cranes, travel motion and hoisting Drawbench Feeders - pulsating load Hoists Kilns Laundry Tumblers Lifts Piston Pumps - with 3 or more cylinders Pulp and Paper Making Machinery Rubber Mixer. and Calenders Rotary Screens Textile Machinery	1.0	1.12	1.25
<b>Heavy Shock</b> Brick Presses Briquetting Machines Conveyors - reciprocating and shaker Crushers Feeders - reciprocating Hammer Mills Piston Pumps - 1 or 2 cylinders Rubber Masticators Vibrating Machines	1.6	1.8	2.0

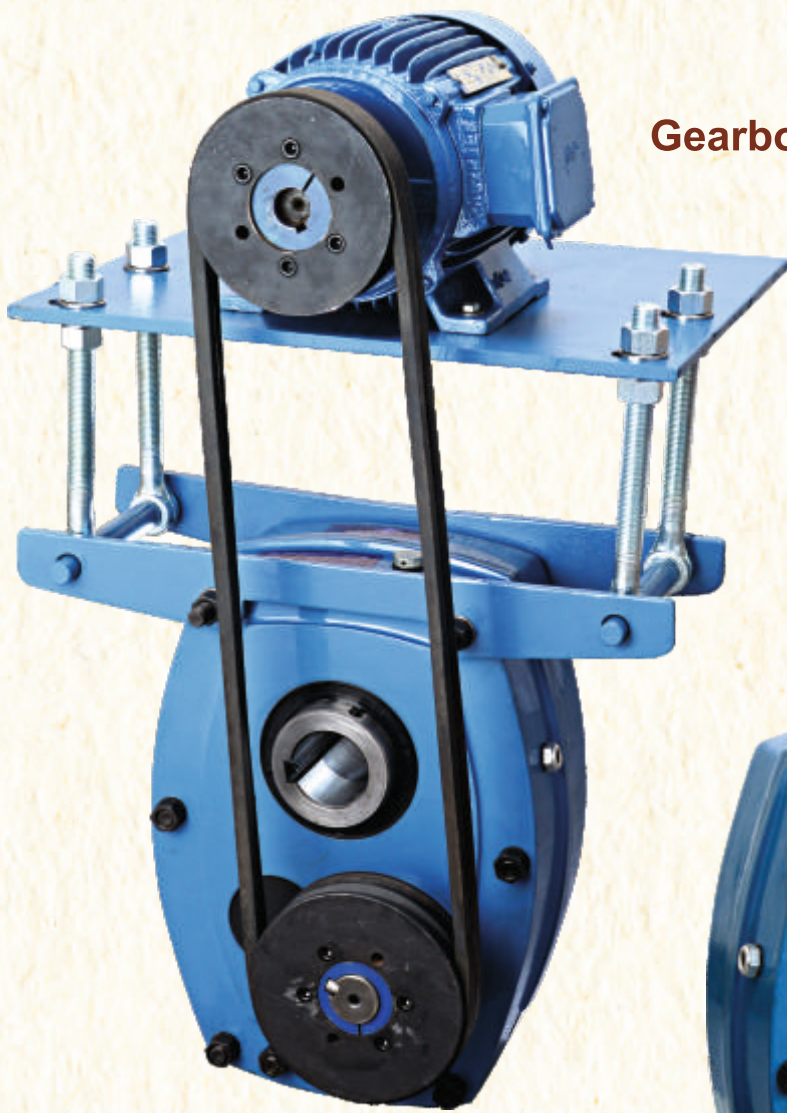
## Ground Gear



Magnified Image



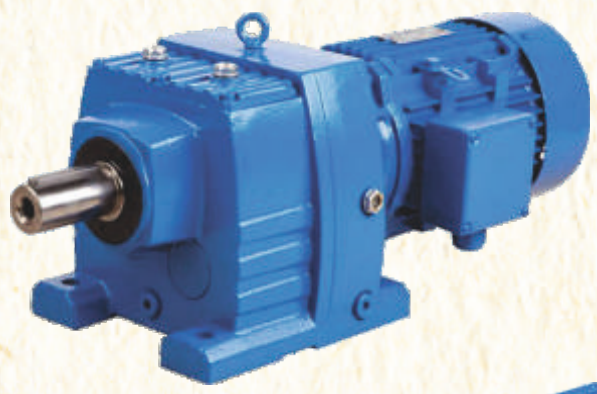
- (l) Pulley Diameters - Read across from the chosen output speed to obtain both driving and driven pulley pitch diameters and the appropriate number of belts.
- (g) Centre Distance - Belt length and centre distance can be found by referring to pages 2 & 4 of Wedge Belt catalogue.  
Selection of Associated Drive for Driving Speeds other than 1440 rev/min
- (h) Design Power - Obtain from the Power Rating Tables the rated power of the gearbox at the required output speed and use it as the design power for the drive
- (i) Gearbox Input Shaft Speed - Multiply the gearbox output speed by the exact gear ratio to obtain the gearbox input shaft speed
- (j) Selection of V-Drive - Combination of pulleys can be chosen. It is advisable not to select a gearbox pulley smaller than that shown in the drive tables for the approximate speed required



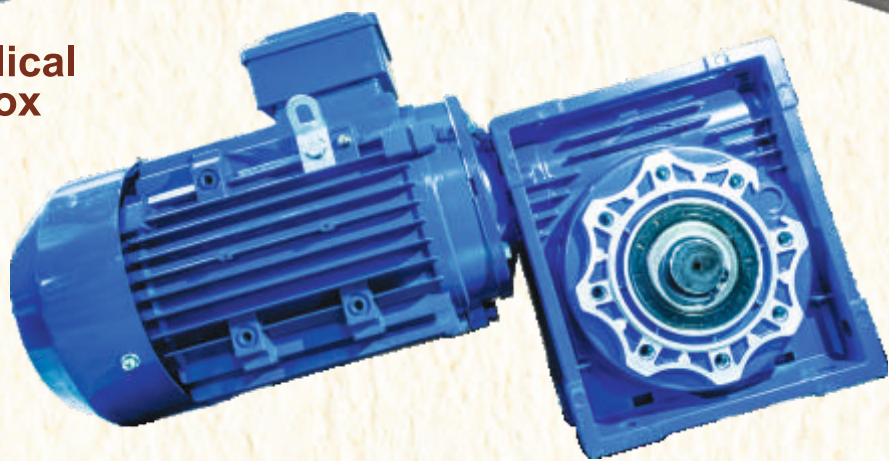
**Gearbox with Stand**



**Taper Pulley**

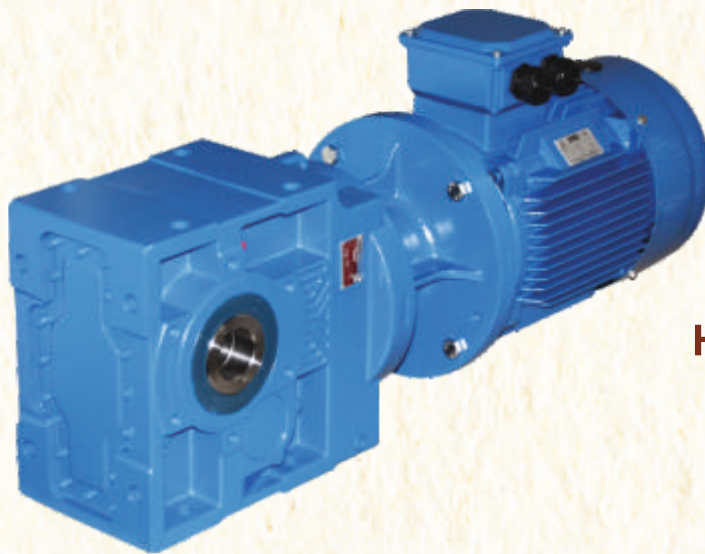


**Inline Helical Gear Box**



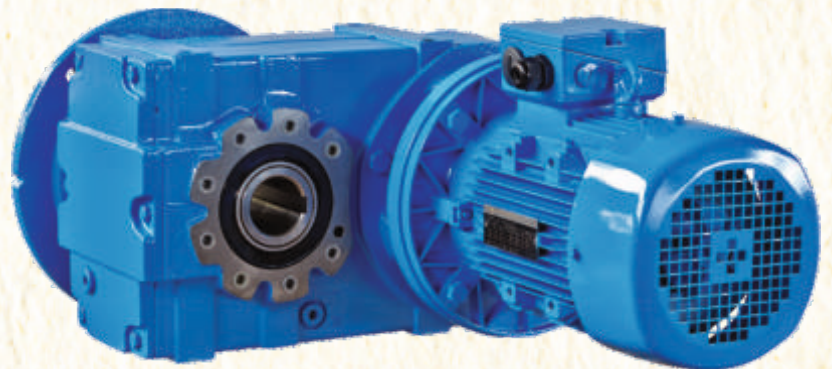
**Gear Motor**

**Round GearBox**



**Helical Bevel Gearbox**

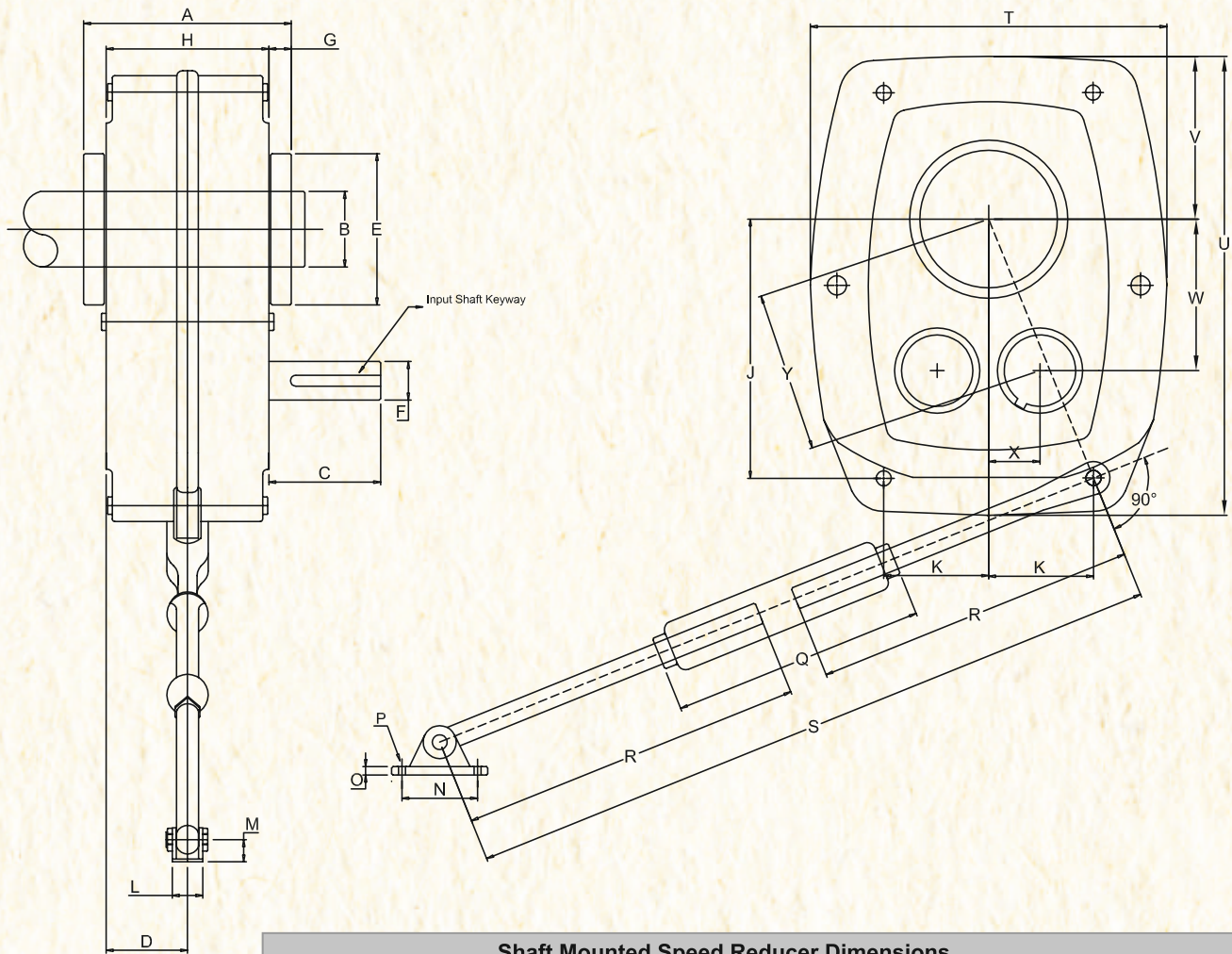
**Parallel Shaft Gear Box**



**Loose & Ground Gears & Shaft**



**Right Angle Bevel Gearbox**



**Shaft Mounted Speed Reducer Dimensions**

Dimension	B	C	D	E	F	G	H	J
A	143	142	152	160	192	212	242	257
B	30	40	55	55	65	75	85	100
C	63	72	76	87	113	108	116	138
D	52	65	59	65	75	86	95	98.5
E	80	90	100	110	131	140	170	200
F	19	22	25	28	32	42	48	58
G	15	17	17	20	20	20	26	30
H	104	108	118	130	150	172	190	197
J	131	156	188	219	255	255	330	470
K	55	59	76	90	100	110	137	140
L	16	16	16	16	26	26	26	26
M	25	25	25	25	65	65	65	65
N	75	75	75	75	125	125	125	125
O	5	5	5	5	20	20	20	20
P	13	13	13	13	16	16	16	16
Q	204	204	204	204	255	255	255	285
R	385	385	385	385	375	375	375	375
S Max	920	920	920	920	900	900	900	900
S Min	770	770	770	770	750	750	750	750
T	186	218	258	278	330	365	434	600
U	226	270	328	376	440	468	550	730
V	81	96	117	129	156	162	195	260
W	75	90	110	125	141	156	189	255
X	25	31	37	43	50	56	62	75
Y	79	95	116	133	150	166	200	265.77
Keyway	6x3.5x50	6x3.5x56	8x4x67	8x4x73.50	10x5x85	12x5x90	14x5.5x100	16x6x110
Weight (Kg.)	17	23	34	45	72	97	146	270

All dimensions are in mm. Keyways are British Standard metric.

# Output Hub & Key Size

MODEL	Output Shaft Bore Size	Output Shaft Key Size	Input Shaft Diameter	Input Shaft Key Size
B	30 / 40	8x8x125	19	7x6x50
C	40 / 50	16x10x140	22	8x7x57
D	40 / 50 / 55	16x10x145	25	8x8x57
E	50 / 55 / 60	16x10x160	28	8x7x70
F	55 / 60 / 65 / 70	18x11x180	32	10x10x85
G	70 / 75 / 80	20x12x200	42	12x10x90
G Modified	85	22x14x200	42	12x10x90
H	80 / 85 / 90	22x14x230	48	14x12x100
H Modified	75	20x12x230	48	14x12x100
J	100 / 105	28x16x250	58	16x11x110

All above sizes in mm

# Stand Detail

MODEL	Plate Size (mm.)
B	340x305x8
C	340x305x8
D	340x305x8
E	340x305x8
F	450x350x8
G - 15 HP	530x360x8
G - 30 HP	530x360x8
H - 40 HP	560x450x10

# Round Shaft Mounted Speed Reducer

MODEL	Output shaft Bore Size	Output Shaft Key Size	Output Shaft Length	Input Shaft Diameter	Input Shaft Key Size
OP 45 - 55	45	16 x 10 x 145	162	28	8 x 7 x 50
	50	16 x 10 x 145	162	28	8 x 7 x 50
	55	16 x 10 x 145	162	28	8 x 7 x 50
OP 60 - 70	60	20 x 12 x 170	200	38	10 x 10 x 70
	70	20 x 12 x 170	200	38	10 x 10 x 70

All above sizes in mm

MODEL	CONVEYOR BELT SIZES OF SHAFT MOUNTED GEAR BOX
D	450 mm Belt Width x Length 20ft, 30ft, 40ft, 50ft
E	600 mm Belt Width x Length 30ft, 40ft, 50ft, 60ft
F	750 mm Belt Width x Length 30ft, 40ft, 50ft, 60ft
G	900 mm Belt Width x Length 30ft, 40ft, 50ft, 60ft, 70ft, 80ft, 90ft, 100ft
H	1200 mm Belt Width x Length 40ft, 60ft, 70ft, 80ft, 90ft, 100ft
J	1500 mm Belt Width x Length 40ft, 60ft, 80ft, 90ft, 100ft, 150ft

MODEL	RATING AT 40rpm 13(KW) 20:1 RATIO	RATING AT 200rpm (KW) 5:1 RATIO	HEIGHT (mm)	WIDTH (mm)	DEPTH (mm)	STANDARD HUB BORE (mm)	ALTERNATIVE HUB BORE (mm)	APPROX. MASS KG. 20:1	Oil Required 320 No./420 No. Oil Limit
B	1.05	2.99	226	186	134	30	40	17.00kg.	1.5 to 2 ltr
C	1.70	4.41	270	218	142	40	50	23.00kg.	1.5 to 2 ltr
D	2.84	7.26	328	258	152	50	55	34.00kg.	2.5 to 3 ltr
E	4.36	10.80	377	278	170	55	60	45.00kg.	3.5 to 4 ltr
F	6.85	15.50	414	317	189	65	70	72.00kg.	5 to 5.5 ltr
G	10.80	26.60	468	365	212	75	80	97.00kg.	7.5 to 8 ltr
H	16.90	38.10	550	434	242	85	90	146.00kg.	10.5 to 11 ltr
J	26.30	92.00	700	542	257	100	105	270.00kg.	21 to 22 ltr



TRANSMISSION GEARS

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