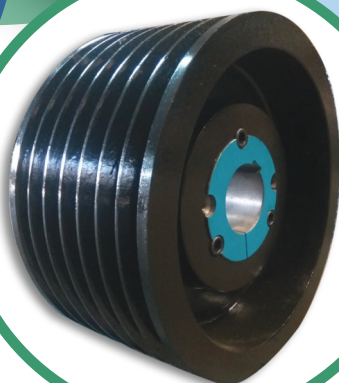




SUPER MECH INDUSTRIES



**MANUFACTURER AND STOCKIEST OF
ALL TYPES OF GEAR COUPLES, V BELT PULLEYS,
SPROCKETS, ROLLING, SUGAR, CONSTRUCTION
MACHINERY & CEMENT PLANT MACHINERY
SPARES**



 www.smigearcoupling.com
www.gearcouplingindia.com
www.gearcoupling.net



Company Profile

Ever since SUPER MECH INDUSTRIES' inception 45 years ago, they have strived to reach new frontiers of technical excellence from a modest start in manufacturing materials handling equipment namely SUPER MECH INDUSTRIES Engineering in 1968 graduated to the manufacture of gear boxes (initially for captive use) in 2013 today.

SUPER MECH INDUSTRIES Engineers manufacturer of extruder gear box helical gear box, bevel helical gear box, gear motor. Worm reduction gear box, SMSR gear box, f series gear box, pan mixer gear box, other mechanical power transmission equipment.

Gear: high quality alloy cases hardening materials provide long life wear resistance and fatigue strength. Profile ground single helical gears ensure high standards of accuracy. Surface finish and quite running characteristics helical gears are fitted in parallel shaft units.

Bearing: roller bearing are used throughout.

Gear Cases: Gear cases are of rigid cast iron construction with modern styling.

Inspection covers are provided for inspection of internals. Oil level indicator, ventilator and drain plugs are fitted. Cases are split in horizontal plain for horizontal gearboxes.

Gear Cases Finish: Internal and external surface are panted with linear epoxy primer.

External surface are finished with alkyne semi-gloss blue paint. These paint are resistant to dilute acids and alkalis oils solvents sea water and temperature up to 140 C.

External Dimensions: Centre distances are chosen from ISO preferred number series. Shafts extensions and hollow wheel shaft bores are to ISO metric standards. Fasteners Are Metric.

Lubrication: in horizontal units, Lubrication in most instances is by transfer of oil by gears dipping in the sumps of gear unit bases where high pitch line speeds could causes churning of the lubricant, baffles are fitted as indicated a rating tables forced Lubrication is necessary where shown and complete systems can be supplied when required.

Cooling: depending on the application standard gear units are cooled by Normal heat dissipation by convection from external surfaces. Fans fitted to high speed shafts. Fans and cooling coil. Separate oil cooler incorporate in forced lubrication system.

Specification:

Whenever they can be applied in material and construction. They are made almost to ISS 3734-1966. For worm Gearing or DIN or latest ISI standard.

Guarantee:

Every Gear worm Reduction Gear unit is guaranteed for one year against manufacturing defect. If any gear is becoming defective within guarantee period the same will be repaired or replace free of charge. It is send to our works on site carriage paid. Any defect caused by accident on transit or misuse is not converted by guarantee.



Technical Details:

$$\text{Reduction ratio (I)} \quad \text{Ratio(I)} = \frac{\text{input speed (n}_1\text{)}}{\text{output speed (n}_2\text{)}}$$

Generated Torque/Gear Motor Delivered Torque T₁ (Nm)

This is net Torque delivered to output shaft while prime mover of capacity P (kw/Hp) coupled gear drive.

- Efficiency is taken into consideration.
- Calculation confirms to 10,000 hrs of Service Life.

Rated Torque / Output Torque T₂ (Nm)

This is the torque output which gearbox can transmit safely.

- 10,000 hrs of service life.
- Values are derived from ISO DP6336.

TABLE-A RATED TORQUE OF ALL GEAR BOX

MODEL	501	502	503	504	505	506	507	508	509	510	511	512	513	514
RATED TORQUE T ₂ (Nm)	250	525	1000	1700	3500	6000	8100	12000	17000	32500	75000	120000	190000	250000
O/P SHAFT	Ø20	Ø30	Ø40	Ø50	Ø60	Ø70	Ø80	Ø95	Ø110	Ø120	Ø150	Ø160	Ø180	Ø200

Required Torque T_{R2} (Nm)

It is a torque demanded/required by the end use application to get the work done.

It should always be less than T₂ by service factor value S.

$$T_{R2} = \frac{7123 \times P \times n}{n_2}$$

$$T_{R2} = \frac{9550 \times P \times n}{n_2}$$

For 1 Stage n = 96%
For 2 Stag n = 92%

For 3 Stag n = 88%
For 4 Stag n = 85%

where P = Input Power (Hp) where P = Input Power (kw)

Selection Torque Ts₂ (Nm)

It is a final torque value calculated for selection of gear box taking into consideration application required service factor S.

$$Ts_2 = T_{R2} \times S < T_2$$

Input Power P₁ (kw / Hp)

It represents the input prime mover's power available for the gear drive. It is the combination of the output speed (n₂) and the relevant output torque (T₂).

Output Power P₂ (Kw / Hp)

It is net power available at output shaft considering efficiencies of each stage of gear drive.

Life Index / Load Cycle n₂.h

It is the product of output speed of the gear drive and expected life of the gear drive in hours.

e.g. : Output speed n₂ = 40 rpm, Life required h = 12,500 hours

$$n_2.h = 40 \times 12,500 = 5,00,000$$



☎ +91 98794 30132

☎ +91 96621 60816



Service Factor Sf

It is a number which is derived by taken into consideration.

- Number of start and stops per hour
- Type of Load (uniform, Moderate, Heavy)
- Number of Hours of work per day

It gives general guideline to design engineer to select gear drive properly according to severity of application. Refer Table No. - B for Operation specific service factor selection table which covers industry specific application to prevent designer from selecting under rated gear drive. It also act cross checking for analyzing previously calculated service Factor.

TABLE-B SERVICE FACTOR

Load Category	Usage / Day (Hours)	Number of starts / hour						
		2 to 5	6 to 9	10 to 15	16 to 30	31 to 60	61 to 120	121 to 250 & more
Uniform Load	3	0.8	0.9	0.9	1.0	1.1	1.1	1.2
	6	1.0	1.1	1.1	1.3	1.3	1.3	1.3
	12	1.25	1.3	1.3	1.5	1.5	1.5	1.5
	24	1.5	1.5	1.5	1.8	1.8	1.8	1.8
Prime mover : Electric motor, Hydraulic Motor, Steam Turbine								
Load Category	Usage / Day (Hour)	Number of Starts / Hour						
		2 to 5	6 to 9	10 to 15	16 to 30	31 to 60	61 to 120	121 to 250 & More
Moderate Shock	3	1	1	1	1.3	1.3	1.3	1.3
	6	1.3	1.3	1.3	1.5	1.5	1.5	1.5
	12	1.5	1.5	1.5	1.8	1.8	1.8	1.8
	24	1.8	1.8	1.8	2.2	2.2	2.2	2.3
Prime Mover : Multi - cylinder internal combustion engine								
Load Category	Usage / Day (Hours)	Number of Starts / hour						
		2 to 5	6 to 9	10 to 15	16 to 30	31 to 60	61 to 120	121 to 250 & More
heavy Shock	3	1.3	1.3	1.3	1.5	1.5	1.5	1.5
	6	1.5	1.5	1.5	1.8	1.8	1.8	1.8
	12	1.8	1.8	1.8	2.2	2.2	2.2	2.2
	24	2.2	2.2	2.2	2.5	2.5	2.5	2.5
Prime mover : Single cylinder internal combustion engine								

THERMAL RATING P_T (kw)

Thermal rating is limiting value of maximum mechanical power that can be transmitted by the gear drive without overheating (i.e. sump temperature not getting above 90-95°C & overall casing temperature not getting above 80-85°C), which is necessary for the satisfactory working of gear drive for stipulated time frame. Values are derived based on the following conditions:

- Lubrication system splash • Mounting Horizontal • Input speed 1140 rpm • Ambient temp. 30°C
- Use continuous • Max. oil temp. 90° C • Oil Grade VG 220

Thermal rating value should not be taken into consideration in case of continuous duty for max. 1.5 hours followed by sufficient enough gap (1.5 - 2 Hours) to bring gear back to an ambient temperature.



Radial & Axial Load F_R & F_A

Radial Load F_R

Permissible radial and axial load carrying capacity of the gear drive is based on the nominal bearing life chosen. When a sprocket, gear or pulley is mounted on the input or output side of the shaft, radial load (overhung load) will act on the shaft and consequently on the bearings.

For satisfactory operation of the reducer calculated overhung load on the shaft should not exceed the tabulated value for any specific gear drive.

$$\text{OHL (N)} = \frac{9,500,000 \times K \times \text{kw}}{(n1 / n2) \times R}$$

kw Power transmitted by shaft (kw)

K Factor

n1 Speed of Input Shaft

n2 Speed of Input Shaft (rpm)

R Pitch radius of the sprocket, etc (mm)

Axial load / Thrust Load F_A

No check or calculation is required if the axial load towards or away from the unit is 50% of the permissible overhung load. If the axial load on the unit exceeds considerably or there is combination of axial and radial load please contact us.

LUBRICATION

For the best performance of the enclosed industrial gear drives proper selection of the lubricating agent is indispensable. Unless otherwise specified **gear drive are supplied without oil fill**. Lubricant serves following purposes:

- Reduces friction reduces / prevents wear. Carries away heat generated due to friction
- Protects against corrosion

There are three kinds of lubricants: Liquids (mineral / vegetable oils) Semi-solids (grease) Solids (graphite, molybdenum disulfide)

Lubricant should satisfy following constraints of the gear drive at different working conditions:

- Speed - Lesser the output speed more viscous the lubricant required. Higher speed necessitates use of synthetic based oils.
- Temperature - Higher the Output speed higher the temperature lesser the viscosity grade of the lubricant required.
- Pressure - High Pressure usually requires synthetic base EP additives.



Range of Ratios and Frame size suitable for different models

MODEL	RATIO RANGE	INPUT (FS)	MODEL	RATIO RANGE	INPUT (FS)
1501	3.55, 3.95, 4.5, 5.31, 6.6	63, 71, 80	1506	3.43, 4.09, 4.58, 5.25, 6.23, 7.8	112, 132, 160
2501	12.6 - 43.5	63, 71, 80	2506	11.8 - 60.8	100, 112, 132
3501	44.7 - 287.5	63, 71, 80	3506	40.4 - 474.6	100, 112, 132
4501	158.8 - 1897	63, 71, 80	4506	146.5 - 3796	100, 112, 132
1502	3.68, 4.11, 4.69, 5.54, 6.9	80, 90	1507	3.43, 4.09, 4.58, 5.25, 6.23, 7.8	112, 132, 160
2502	13.54 - 47.6	63, 71, 80, 90	2507	11.8 - 60.8	112, 132, 160
3502	48 - 314	63, 71, 80	3507	40.4 - 474.6	100, 112, 132
4502	170.7 - 2073	63, 71, 80	4507	138.4 - 3701	100, 112, 132
1503	3.63, 4, 4.5, 5.2, 6.25, 8	90, 100, 112	1508	3.48, 4.09, 4.58, 5.25, 6.23, 7.8	132, 160, 180
2503	13 - 55	80, 90, 100, 112	2508	11.8 - 60.8	112, 132, 160
3503	47.4 - 364.3	63, 71, 80	3508	40.4 - 474.6	100, 112, 132
4503	174.5 - 2514	63, 71, 80	4508	138.4 - 3701	100, 112, 132
1504	3.43, 4.09, 4.53, 5.25, 6.23, 7.8	100, 112	1509	3.43, 4.09, 4.58, 5.25, 6.23, 7.8	132, 160, 180
2504	12.5 - 62.4	100, 112	2509	11.8 - 60.8	112, 132, 160
3504	45.8 - 430.6	80, 90	3509	40.4 - 474.6	100, 112, 132
4504	162.7 - 2841.7	63, 71, 80	4509	138.4 - 3701	100, 112, 132
1505	3.43, 4.09, 4.53, 5.25, 6.23, 7.8	100, 112, 132	1510	3.43, 4.09, 4.58, 5.25, 6.23, 7.8	132, 160, 180
2505	11.8 - 60.8	100, 112, 132	2510	11.8 - 60.8	112, 132, 160
3505	60.7 - 486.7	100, 112	3510	40.4 - 474.6	100, 112, 132
4505	223.5 - 3358	80, 90	4510	138.4 - 3701	100, 112, 132

HOLLOW INPUT DIMENSIONAL DETAILS

Sr. No.	HP	FS	Ød1	Ød2	Ød3	Ød4	e	f	ff
1	0.16 / 0.25	63	Ø11	Ø95	PCØ115 (M8 N°4)	Ø140	32	4	12.9
2	0.35 / 0.5	71	Ø14	Ø110	PCØ130 (M8 N°4)	Ø160	37	5	16.3
3	0.75 / 1	80	Ø19	Ø130	PCØ165 (M10 N°4)	Ø200	56	6	21.8
4	1.5 / 2	90	Ø24	Ø130	PCØ165 (M10 N°4)	Ø200	60	8	27.3
5	3 / 4	100	Ø28	Ø180	PCØ215 (M12 N°4)	Ø250	82	8	31.3
6	5	112	Ø28	Ø180	PCØ215 (M12 N°4)	Ø250	82	8	31.3
7	7.5 / 10	132	Ø38	Ø230	PCØ265 (M12 N°4)	Ø300	93	10	41.3
8	12.5 / 15 / 20	160	Ø42	Ø250	PCØ300 (M16 N°4)	Ø350	115	12	45.3
9	25 / 30	180	Ø48	Ø250	PCØ300 (M16 N°4)	Ø350	115	14	51.8
10	40	200	Ø55	Ø300	PCØ350 (M16 N°4)	Ø400	126.5	16	59.3
11	50	225	Ø60	Ø350	PCØ400 (M16 N°8)	Ø450	16	18	64.4

☎ +91 98794 30132

☎ +91 96621 60816



Dimensional Details For Flange Mounted Gear Drive

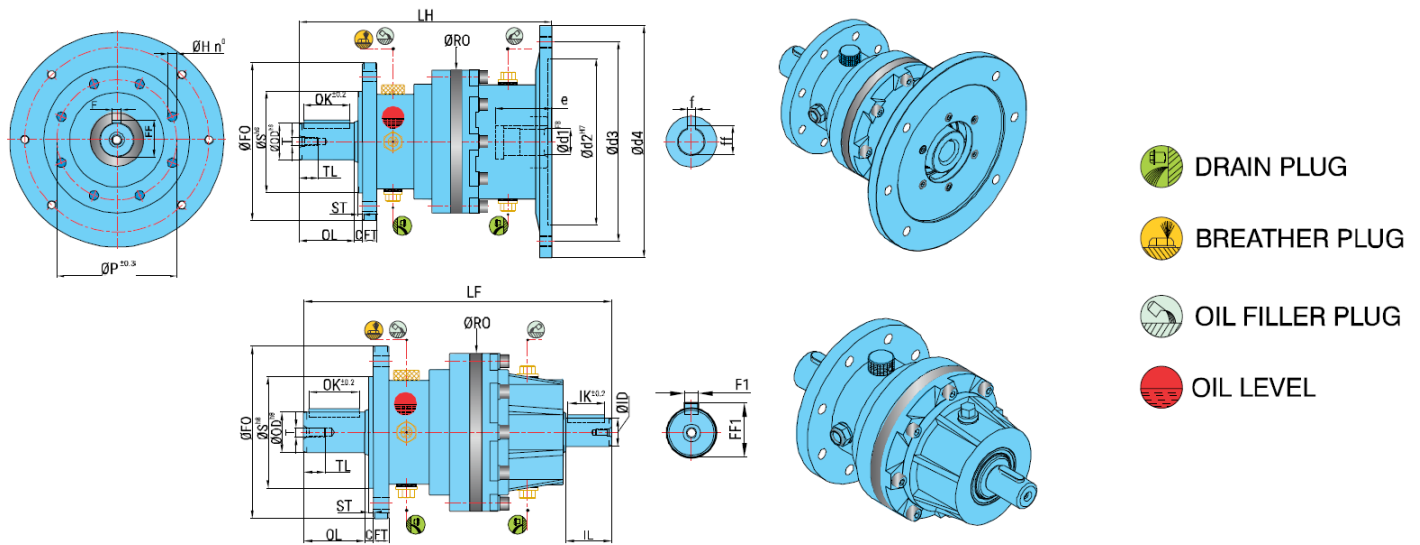
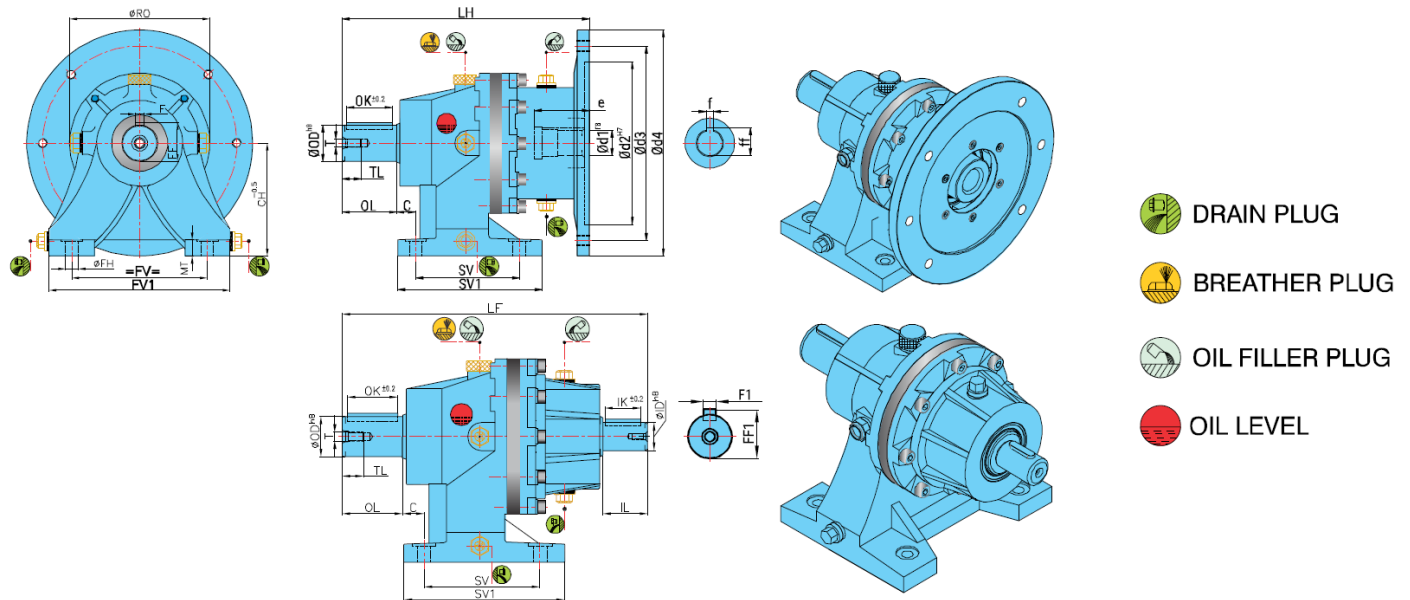


TABLE FOR DIMENSIONAL DETAILS FOR FLANGE MOUNTED GEAR DRIVE

MODEL	INPUT SIDE					OUTPUT SIDE															TOTAL LENGTH		
	ØID	IL	IK	F1	Ff1	ØOD	OL	OK	FF	F	C	ØS	ØP	ØFO	FT	ST	ØH	N°	T	TL	ØRO	LH	LF
1501	15	25	18	5	17	20	30	20	6	22.5	5	80	100	120	10	3	9	4	M5	14	100	173	185
2501																						206	219
3501																						240	252
4501																						273	286
1502	20	30	20	6	22.5	30	50	40	8	33	6	95	115	140	13	3	11	4	M8	20	124	240	254
2502																						282	296
3502																						294	307
4502																						328	340
1503	28	45	30	8	31	40	60	50	12	43	9	110	140	170	15	5	11	8	M12	28	155	274	304
2503																						325	355
3503																						367	381
4503																						408	422
1504	40	60	50	12	43	50	75	63	14	53.5	10	130	165	200	15	6	13	8	M12	28	195	335	349
2504																						390	404
3504																						406	437
4504																						457	488
1505	40	60	50	12	43	60	90	70	18	64	10	160	215	250	17	6	13	8	M16	35	230	378	414
2505																						442	478
3505																						498	513
4505																						553	568
1506	55	75	63	16	59	70	100	80	20	74.5	30	180	220	260	20	8	14	10	M16	35	260	460	489
2506																						540	569
3506																						576	612
4506																						640	676
1507	60	80	63	20	64.5	80	120	90	22	85	31	240	265	300	20	8	18	8	M16	40	280	500	540
2507																						592	632
3507																						621	657
4507																						685	721
1508	70	100	80	20	74.5	95	135	110	25	100	32	250	290	340	25	8	18	12	M20	50	320	569	625
2508																						676	732
3508																						734	763
4508																						814	843
1509	80	110	80	22	85	110	180	160	28	116	2	260	315	370	32	10	18	12	M20	40	360	703	743
2509																						837	877
3509																						885	925
4509																						971	1017
1510	80	120	100	22	85	120	190	160	32	127	46	280	330	380	34	12	21	12	M24	50	410	806	897
2510																						971	1063
3510																						1066	1088
4510																						1173	1195



Dimensional Details For Foot Mounted Gear Drive



- DRAIN PLUG
- BREATHER PLUG
- OIL FILLER PLUG
- OIL LEVEL

TABLE FOR DIMENSIONAL DETAILS FOR FOOT MOUNTED GEAR DRIVE

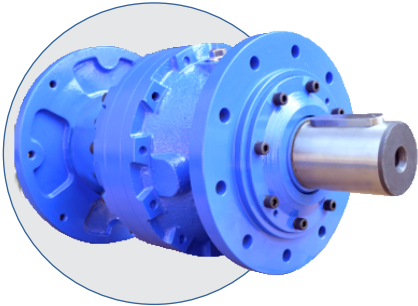
MODEL	INPUT SIDE					OUTPUT SIDE																TOTAL LENGTH	
	ØID	IL	IK	F1	Ff1	ØOD	OL	OK	FF	F	C	FV	Fv1	SV	Sv1	CH	MT	ØFH	T	TL	ØRO	LH	LF
1501	15	25	18	5	17	20	30	20	6	22.5	25	80	110	55	85	85	8	9	M5	14	100	173	185
2501																						206	219
3501																						240	252
4501																						273	286
1502	20	30	20	6	22.5	30	50	40	8	33	20	125	170	100	135	100	12	13	M8	20	124	240	254
2502																						282	296
3502																						294	307
4502																						328	340
1503	28	45	30	8	31	40	60	50	12	43	21.3	150	200	120	160	125	18	14	M12	28	155	274	304
2503																						325	355
3503																						367	381
4503																						408	422
1504	40	60	50	12	43	50	75	63	14	53.5	25.7	190	240	120	165	130	18	14	M12	28	195	335	349
2504																						390	404
3504																						406	437
4504																						457	488
1505	40	60	50	12	43	60	90	70	18	64	24	230	280	145	200	150	20	16	M16	35	230	378	414
2505																						442	478
3505																						498	513
4505																						553	568
1506	55	75	63	16	59	70	100	80	20	74.5	34.3	230	300	170	230	160	20	18	M16	35	260	460	489
2506																						540	569
3506																						576	612
4506																						640	676
1507	60	80	63	20	64.5	80	120	90	22	85	31	240	265	300	20	8	18	8	M16	40	280	500	540
2507																						592	632
3507																						621	657
4507																						685	721
1508	70	100	80	20	74.5	95	135	110	25	100	32	250	290	340	25	8	18	12	M20	50	320	569	625
2508																						676	732
3508																						734	763
4508																						814	843
1509	80	110	80	22	85	110	180	160	28	116	2	260	315	370	32	10	18	12	M20	40	360	703	743
2509																						837	877
3509																						885	925
4509																						971	1017
1510	80	120	100	22	85	120	190	160	32	127	46	280	330	380	34	12	21	12	M24	50	410	806	897
2510																						971	1063
3510																						1066	1088
4510																						1173	1195

☎ +91 98794 30132

☎ +91 96621 60816

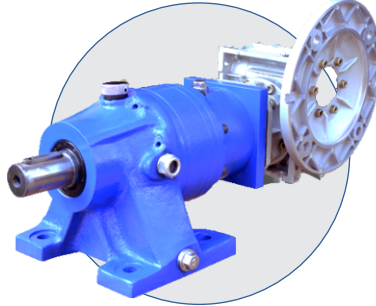


Better Transmission, Greater Result.....



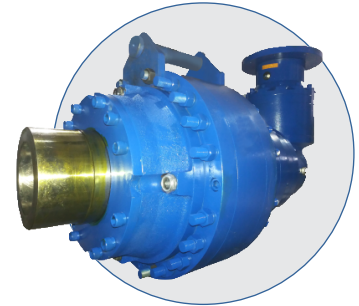
Planetary Gearbox

- Model 501-515
- Ratio: 1:3.63 to 1:100000
- Rated Torque: 12 Kg.m to 60,000 Kg.m
- Input Power: 0.12kw to 315kw
- Mounting: Foot / Flange / Agitator
- Input: Hollow to suite 63Fs to 355 Fs & male free shaft.



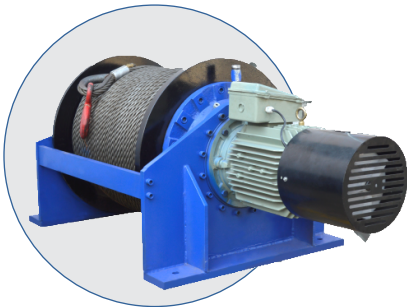
Warm Planetary Gearbox

- Model WP501-WP4511
- Ratio: 1:26.6 to 1:100000
- Rated Torque: 12 Kg.m to 8,000 Kg.m
- Input Power: 0.12kw to 37kw
- Mounting: Foot / Flange
- Input: Hollow to suite 63Fs to 355Fs & male free shaft.



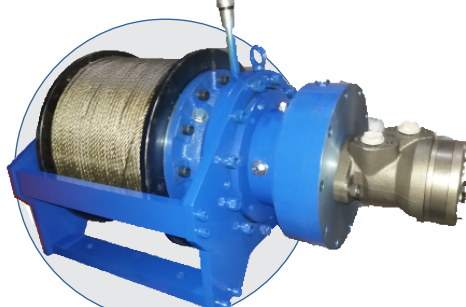
Bevel Planetary Gearbox

- Model BP1501 - BP4515
- Ratio: 1:3.63 to 1:100000
- Rated Torque: 12 Kg.m to 60,000 Kg.m
- Input Power: 0.12kw to 315kw
- Mounting: Foot / Flange
- Input: Hollow to suite 63Fs to 355Fs & male free shaft.



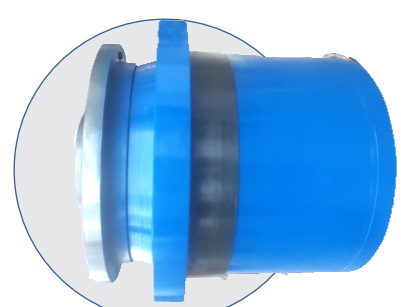
Electric Winch

- Model SEW0.5 - SEW20
- Capacity: 500kg to 20,000kg
- Speed: 3m/min - 25m/min
- Wire Rope: Ø6 to Ø38 & L10m - 1000m
- Drum: Single / Double



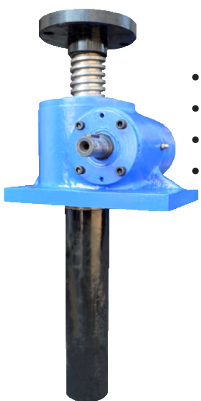
Hydraulic Winch

- Model SWH0.5 - SWH20
- Capacity: 500 Kg to 20,000 Kg
- Speed: 15 m /min - 40m/min
- Pressure: 50-200 Bar, Flow -25-100 Lpm
- Wire Rope: Ø6 to Ø38 & L10m - 1000m
- Drum: Single / Double
- Supplied with negative Parking Break



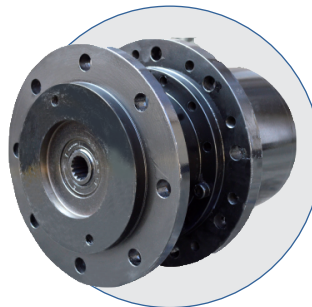
Winch Drive

- Model SWD1502 to SWD4512
- Ratio: 1:40 to 1:1000
- Rated Torque: 12 Kg.m to 60,000 Kg.m
- Input Power: 0.12kw to 315kw
- Mounting: Body
- Input: Hollow to suite 63Fs to 355Fs & male free shaft.



Screw Jack

- Model SSJ25 - SSJ190
- Capacity: 0.5 Ton to 100 Ton
- Stroke: 30mm to 4000mm
- Rotating and Translating Screw Trapezoidal and ACME thread.



Track Drive

- Model STD160 - STD415
- Ratio: 1:5.25 to 1:39.5
- Rated Torque: 100Kg.m to 4000 Kg.m
- Face seal for longer life
- Rigid Design
- Hydraulic Releasing parking break on request.



OUR MAJOR SUPPLY & MAINTENANCE SERVICE IN

- ⦿ Chemical Machinery
- ⦿ Rolling Mill Machinery
- ⦿ Construction Machinery
- ⦿ Mines & Quarry Machinery
- ⦿ Sugar Mill Machinery
- ⦿ Cement Plant Machinery
- ⦿ Oil Mill Machinery
- ⦿ Material Handling



SUPER MECH INDUSTRIES

108/A, Shri Ram Estate, Anup Engg. Compound, B/h. C.M.C. Odhav, Ahmedabad - 382415

☎ 91 98794 30132 | +91 96621 60816 | +91 88495 83013

✉ supremechind@yahoo.com

✉ smigvs@gmail.com

🌐 www.smigearcoupling.com
www.gearcouplingindia.com
www.gearcoupling.net