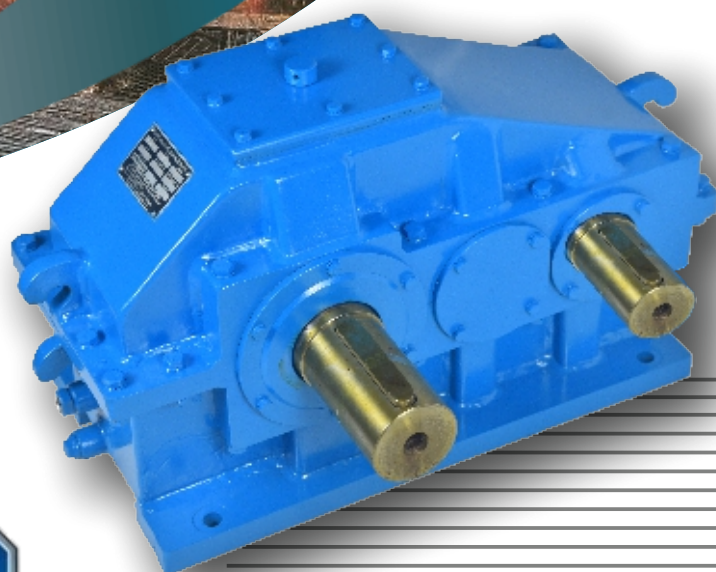




HELICAL GEAR BOX

SUDARSHAN GEARS

Incorporated in the Year 1983 at Mumbai (Maharashtra, India), we “Sudarshan Gears” are a leading manufacturer & exporter of Gear Boxes and Geared Motors which includes Helical Gear Boxes, Geared Motors Worm Gear Boxes etc. The offered range is manufactured using high quality raw material from the reliable vendors of the industry and advanced technology as per the defined international quality standards.

Our product range is processed using the advanced machinery under the supervision of skilled professionals. In order to meet the exact requirements of our valuable clients, we offer the entire product range in different customized specifications. Moreover, we also offer these products at competitive market prices.

Our in-house manufacturing unit facilitates enables our skilled team members to manufacture our wide range of products in bulk quantity at a very high production rate. Our stringent Quality norms and Integrated Management System certified for ISO9001:2015 standards by TUV SUD ensures razor sharp customer focus and high product quality.

The modular design of this new series of Helical Gearboxes offers many engineering , manufacturing and performance advantages resulting in very high cost performance benefits.

Every product is optimized in its design parameters for most favourable performance parameters and modular construction to ensure ease of manufacturing, easy availability of spares and quick deliveries. All the gears and gearboxes are designed by our in-house team of highly skilled and qualified engineers using the latest design tools and softwares.

All the designs confirm to the applicable DIN / ISO standards and the same can be made available to customers on request. We have developed a highly skilled pool of machine operators who ensure that the manufacturing is carried out as per the design standards to ensure that our gearboxes fulfil the committed performance parameters.



GEARBOX CONSTRUCTION

Gear Casing

Fabricated Gear casing, made of E250 (IS 2062) steels – designed with 3D modelling software and analysed with FEA Software to ensure rigidity and stiffness. Split Casing design is adopted for easy maintenance, and the additional features also included like Inspection cover, dipstick, breather with drain plugs. The supporting ribs, Oil pockets, foot and vertical wall thickness are designed accordingly to ensure low vibration. Cast Iron casing also supplied on request depending on order quantity.

Gears

Case hardened and profile ground Helical gears, with optimum design features and high accuracy manufacturing of gears, assures quiet running characteristics and maximum torque transmission in lower Centre distance (high power density).

Shaft

The shafts are manufactured from High Grade Alloy Steel and Heated Treated. The shaft diameters are sized based on DIN 743 and the subsequent diameter reductions undercuts / fillet radius- are analysed for stress concentrations. The input and output shafts are designed to suit the standard applications, considering the connections and the additional loads in radial and axial directions. For any specific overhanging load conditions (OHL)-additional shaft extensions-Splined shafts, please contact Sudarshan Gears for design verifications.

Bearings

All bearings are selected for optimal L10 life, to take radial and axial loads from the gear pair and the deflection of the shafts using the design software. Contact Sudarshan Gears for any special requirements of bearing.

Lubrication

Splash Lubrication is the default method of lubrication. Integrated mechanical pumps and external FLS also utilised according to the application needs. The recommended grade of the synthetic oil is ISO VG 460 grades. Gearboxes are always supplied without any lubricant unless agreed specifically.

Sealing

Sealing arrangements provided on Industrial Gearboxes are Radial Lip Seals with Labyrinth Arrangement to increase reliability and life of seal. The seal are sourced from highly reputed manufacturers and strictly as per their recommendations. Seal seating areas are always Ground for achieving high surface finish to avoid leakage paths during running.

Accessories

Direct motorised units are manufactured on a regular basis. Hold backs, Base plates, Motor mounting adaptors, Couplings, Overrunning clutches, Hollow shaft shrink discs, External Lub. Systems, etc.... are supplied on specific request, when informed to Sudarshan Gears during enquiry process.

GEARBOX RATED CAPACITY

Mechanical Rating

The Mechanical Gear rating is computed according to DIN 3990-Method B. The safety factor for Pitting and Tooth root strength are calculated using latest design software. The scuffing and micropitting calculation are also computed, based on the optimal values of tooth corrections, geometrical / manufacturing tolerances and oil properties.

Thermal Rating

Thermal rating is done based on ISO TR 14179 guidelines, and the different thermal ratings are tabulated for only Normal cooling by convection-by gear case. Forced lubrication system with external tank, Separate oil cooler- Shell & Tube heat exchanger also available on request.

Safety factors:

The Gearbox rating chart is based on Continuous Duty 24 hrs Running.

SELECTION GUIDELINES

Table 1 - Mechanical Service Factor f_1

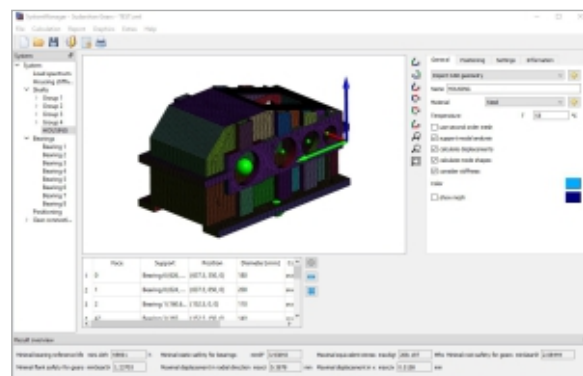
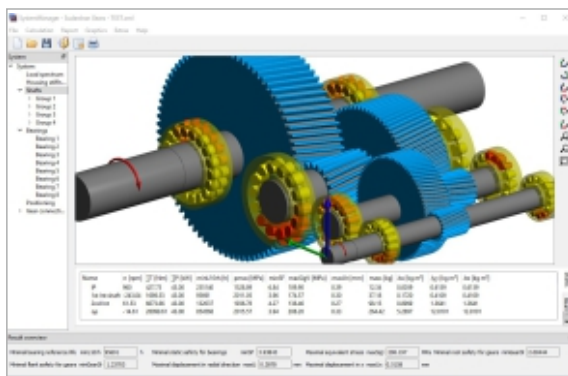
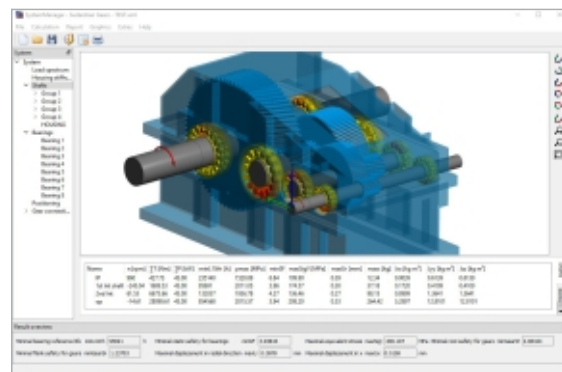
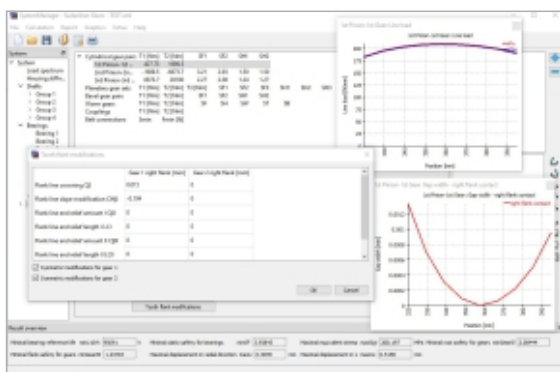
Prime mover	Duration of service hour per day	Load Classification of driven Machine		
		Uniform load	Moderate shock load	Heavy shock load
Elec. Motor, Steam turbine, Hydraulic motor	upto 3	0.80	1.00	1.50
	over 3 upto 10	1.00	1.25	1.75
	over 10	1.25	1.50	2.00
Multi -cylinder Internal Combustion engine	upto 3	1.00	1.25	1.75
	over 3 upto 10	1.25	1.50	2.00
	over 10	1.50	1.75	2.25
Single -cylinder Internal Combustion engine	upto 3	1.25	1.50	2.00
	over 3 upto 10	1.50	1.75	2.25
	over 10	1.75	2.00	2.50

Table 2 - Thermal Service Factor F_t

Ambient Temperature	Running time in any hour E_D				
	100%	80%	60%	40%	20%
10°C	1.12	1.34	1.57	1.79	2.05
20°C	1.00	1.20	1.40	1.60	1.80
30°C	0.88	1.06	1.23	1.41	1.58
40°C	0.75	0.90	1.05	1.20	1.35
50°C	0.63	0.76	0.88	1.01	1.13

Table 3 - Frequency Start Factor F_s

Start per hour	Mechanical Service Factor - f_1					
	0.8	1	1.25	1.5	1.75	2
1	1.00	1.00	1.00	1.00	1.00	1.00
2 to 20	1.20	1.10	1.08	1.07	1.07	1.06
21 to 40	1.30	1.20	1.17	1.16	1.15	1.08
41 to 80	1.50	1.40	1.25	1.23	1.18	1.10
81 to 160	1.60	1.50	1.35	1.30	1.20	1.10
161 to 320	2.00	1.80	1.70	1.60	1.50	1.40



1) For Mechanical Power Rating:

Understand the application needs, and gather the Input data.

Find the required transmission ratio

$$i_{req} = \frac{n_1}{n_2}$$

Select nearest nominal ratio from catalogue

$$i_N$$

Calculate the required Mechanical Power Capacity

$$P_{req} = P_d \times f_1 \times f_2$$

Select Gear Unit Type and Size

Type based on Gear Unit design with appropriate nearest Nominal ratio and Size using

$$P_N \geq P_{req}$$

i_{req} = Required transmission ratio

i_N = Nominal ratio

n_1 = Input speed of Gearbox [rpm]

n_2 = Output speed of Gearbox [rpm]

P_{req} = Required Mechanical Power Capacity [kW]

P_N = Nominal Mechanical Power Capacity [kW]

P_d = Absorbed Power of connected driven machine, if not known take consumed power consumed power of prime mover [kW]

f_1 = Mechanical service factor, refer Table 1

f_2 = Frequency start factor, refer Table 3

F_t = Thermal service factor, refer Table 2

2) For Thermal Power Rating:

Natural Air cooling

$$P_d \leq P_G \times f_t \text{ Units}$$

P_G = Thermal Power Capacity of Gear

Selection Example:

Motor Power : 60 kW
Motor Speed (n_1) : 960 rpm
Duty : 24 h / day
Running time : 80%
Per hour E_d

Power (Consumed) P_d : 50 kW
Speed n_2 : 38 rpm
Start per hour : 8
Ambient temperature : 40°C

Gear unit type : Foot mounted, Horizontal Parallel shaft, Solid Output With key

Required Transmission Ratio

$$i_{req} = \frac{n_1}{n_2} = \frac{960}{38} = 25.26$$

Nominal Ratio

$$i_N = 25$$

Required Mechanical Power Capacity

$$P_{req} = P_d \times f_1 \times f_2 = 50 \times 1.25 \times 1.08 = 67.5 \text{ kW}$$

So Gear unit is 3 stage 550 model

Required Thermal Power Capacity P_d

$$= 50 \text{ kW}$$

$$P_G \times f_t = 108 \times 0.90 = 97.2 \text{ kW} \quad \text{So Air cooling is sufficient}$$

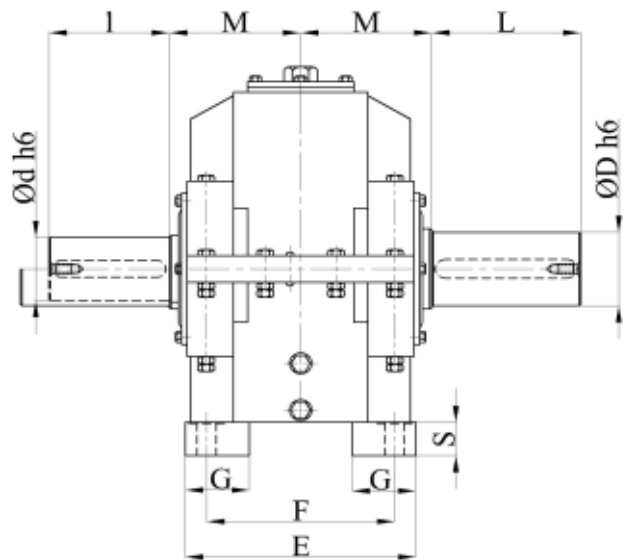
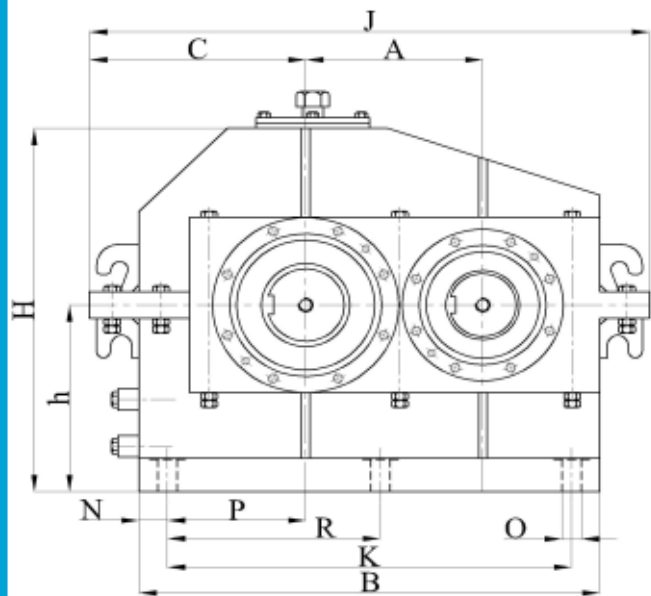
SUDARSHAN GEARS , MUMBAI																					
SINGLE STAGE HELICAL GEARBOX SELECTION CHART																					
Nom. Ratio i_N	Speed (rpm)		Gear Unit Sizes Single Stage										Gearbox Nominal Power Rating P (KW)								
	Input n_1	Output n_2	75	87.5	100	112.5	125	150	162.5	175	200	225	250	275	325	350	400	450	500	550	625
1.6	1500	940	50	74	97	120	170	230	305	390	550	740	1100	1500	2050	2700					
	1000	625	36	53	71	90	130	175	230	290	400	550	800	1100	1450	2100	2790				
	750	470	28	41	56	70	105	140	190	240	310	455	660	900	1180	1560	2280	3450	4340		
2	1500	750	38	58	779	105	150	200	270	340	480	630	950	1300	1800	2400					
	1000	500	27	43	57	77	110	150	200	250	350	475	700	940	1300	1680	2500	3630	4630		
	750	375	21	34	44	60	89	120	165	210	265	390	580	770	1020	1370	1990	2970	3790	4810	
2.5	1500	600	30	47	57	78	125	170	230	290	400	550	820	1100	1500	2050					
	1000	400	21	33	41	55	95	125	170	220	280	410	620	820	1120	1450	2100	3080	4050		
	750	300	17	25	32	43	77	105	140	180	230	335	500	670	900	1180	1720	2520	3310	4120	4200
3.15	1500	475	23	34	47	63	91	140	190	240	330	460	680	920	1250	1650	2320	3500	4430		
	1000	315	16	24	33	44	62	105	140	180	235	350	510	690	920	1200	1750	2640	3330	4220	
	750	235	13	18	26	35	47	82	110	150	190	285	410	570	750	960	1430	2150	2730	3450	3570
3.55	1500	425	20	28	43	59	92	125	185	240	330	460	680	920	1240	1510	2200	3230	4120		
	1000	280	14	20	31	41	63	88	130	180	225	350	490	630	900	1140	1660	2430	3100	4250	
	750	210	11	16	24	31	47	67	100	150	180	275	380	550	710	930	1350	1990	2530	3300	3470
4	1500	375	16	23	35	51	75	105	160	205	310	460	640	850	1230	1350	1990	2930	3620		
	1000	250	11	16	25	36	53	75	105	140	215	350	455	600	8800	1020	1500	2200	2730	4240	
	750	187	8.5	13	19	27	40	56	81	110	170	265	355	490	670	830	1220	1800	2230	3060	3280
4.5	1500	335	14	18	31	37	54	73	140	195	265	375	540	780	1110	1240	1770	2560	3280	5170	
	1000	220	10	13	22	26	39	52	97	140	185	255	380	560	820	940	1230	1790	2470	3850	
	750	166	7.5	10	17	20	30	40	75	105	145	195	295	430	620	770	950	1400	1970	2960	3230
5	1500	300		17	27	33	50	73	125	140	220	375	475	670	1020	1110	1660	2470	3080	4670	
	1000	200		12	19	23	36	51	86	98	145	265	340	475	710	840	1250	1750	2320	3290	
	750	150		9.5	15	18	28	40	65	77	110	200	260	360	540	690	1020	1350	1750	2540	3200
5.6	1500	270			22	30	41	68	100	130	200	310	415	560	870	1010	1520	2020	2730	3940	
	1000	180			15	21	29	48	72	90	140	210	285	405	590	760	1050	1350	1840	2700	
	750	134			12	16	22	37	54	70	105	155	215	305	440	610	790	1040	1400	2070	3000
6.3	1500	240				23	41	57	83	120	155	240	345	495	720	940	1210	1840	2160	3160	
	1000	160				16	29	41	59	84	110	170	230	350	480	700	830	1240	1450	2150	
	750	120				13	22	32	45	63	87	130	175	270	360	530	640	950	1100	1640	2500

Thermal Capacities PG in kW																				
Single Stage Helical Gear Units																				
Nominal Ratio	Input Speed	Gear Unit sizes																		
iN	n1	75	87.5	100	112.5	125	150	162.5	175	200	225	250	275	325	350	400	450	500	550	625
Thermal Capacities P _g For Gear Units Without Cooling in kW																				
1.6 to 2.8	1500	23	29	37	50	59	75	92	115	145	175	225	280	355	450					
	1000	21	27	34	42	54	70	87	112	136	167	218	275	350	440	540	660	820	1050	
	750	20	26	32	40	51	64	81	103	130	160	211	270	345	430	530	650	800	1000	1200
3.15 to 6.3	1500	18	24	31	38	51	66	82	102	125	160	220	270	345	440	560	690			
	1000	16	20	29	33	45	62	79	94	120	151	210	260	335	425	535	650	810	1020	
	750	14	18	22	29	40	60	78	86	115	140	200	240	320	415	525	640	790	980	1180

Notes :- 1) The above power ratings are for Service Factor 1 continuous duty at full load giving minimum working life of 20000 hrs. Appropriate Service Factor should be applied depending on the application. Consult our design

2) Nominal transmission ratios are maintained with a tolerance of ± 5% . Intermediate ratios can be given upon request.

3) Larger gearboxes of this type available on enquiry.



SUDARSHAN GEARS , MUMBAI

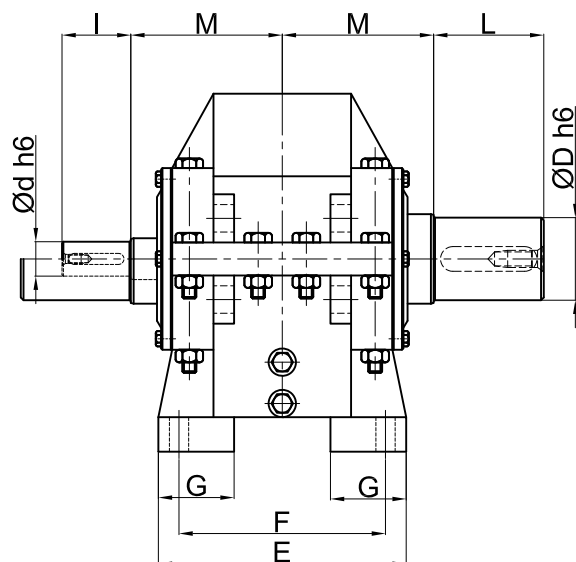
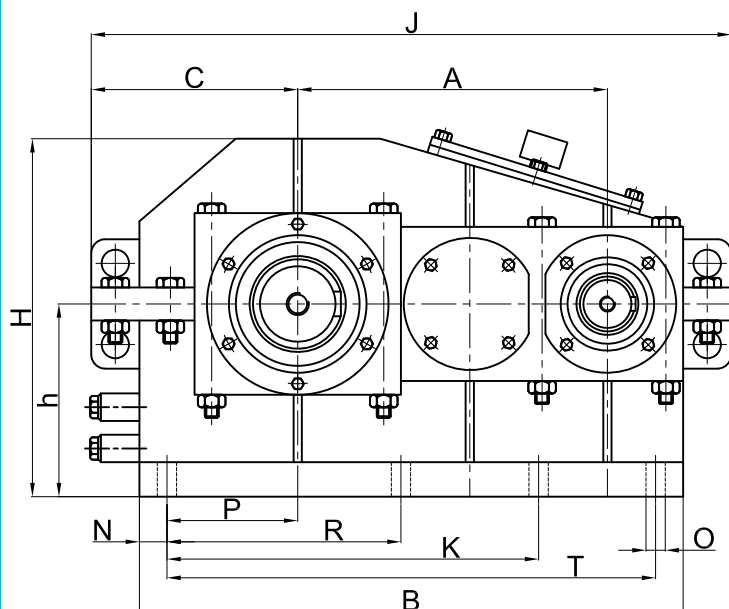
SINGLE STAGE HELICAL GEARBOX DIMENSION CHART

Size of gear unit	Input Shaft Diameter						Output Shaft Diameter		Dimensions [mm]																Average weight [kg]	Oil quantity [litres]
	up to 45		Gear Ratio		above 45																					
			above 45																							
d	l	d	l	d	l	D	L	A	B	C	E	F	G	h	H	J	K	M	N	O	P	R	S			
75	25	60	20	50			32	80	75	205	115	140	110	45	100	180	280	175	90	15	14	60		20	18	1
87.5	30	80	25	60			38	80	87.5	230	125	150	120	50	110	200	310	200	95	15	14	70		20	25	1
100	35	80	30	80	20	50	45	110	100	260	135	155	125	50	125	225	340	220	100	20	14	75		25	35	1
112.5	45	110	35	80	25	60	48	110	112.5	290	145	170	140	50	140	255	370	250	105	20	14	85		25	50	2
125	50	110	40	110	30	80	55	110	125	330	165	185	155	55	160	295	420	290	115	20	14	100		25	65	2
150	55	110	45	110	35	80	60	140	150	365	180	200	160	60	180	325	460	315	125	25	14	110		35	95	3
162.5	60	140	50	110	40	110	70	140	162.5	410	205	230	190	65	200	365	520	350	135	30	18	120		35	120	4
175	70	140	55	110	45	110	80	170	175	470	220	250	210	70	225	415	560	410	150	30	18	145		35	170	7
200	75	140	60	140	50	110	90	170	200	520	250	270	220	75	250	460	640	450	160	35	23	155		40	225	9
225	85	170	70	140	55	110	100	210	225	590	275	290	240	80	280	515	710	520	175	35	23	180		45	320	12
250	95	170	80	170	60	140	110	210	250	650	305	325	265	90	315	580	790	570	185	40	27	195		50	415	16
275	105	210	90	170	70	140	120	210	275	720	340	350	290	100	355	655	880	630	200	45	27	215	370	55	570	21
325	115	210	95	170	80	170	140	250	325	805	375	390	315	110	400	740	975	705	215	50	33	240	420	60	760	30
350	130	250	110	210	90	170	160	300	350	910	425	400	325	120	450	835	1100	810	235	50	33	280	480	65	1025	42
400	145	250	120	210	100	210	170	300	400	1020	475	430	350	130	500	930	1230	910	250	55	33	315	540	70	1400	58
450	160	300	130	250	110	210	190	350	450	1145	535	475	390	140	560	1040	1385	1025	280	60	39	355	615	80	1900	80
500	180	300	140	250	120	210	210	350	500	1275	590	510	425	150	630	1170	1535	1155	295	60	39	400	680	90	2800	105
550	190	350	160	300	130	250	240	410	550	1425	650	550	465	160	710	1320	1700	1305	310	60	39	450	760	100	3810	140
625	210	350	180	300	140	250	260	410	625	1600	730	570	485	170	800	1490	1910	1480	330	60	39	510	840	110	5100	190

SUDARSHAN GEARS , MUMBAI																
2 STAGE HELICAL GEARBOX SELECTION CHART																
Nom. Ratio i _N	Speed (rpm)		Gear Unit Sizes 2 Stage								Gearbox Nominal Power Rating P (KW)					
	Input n ₁	Output n ₂	200	225	250	275	300	350	400	425	475	550	600	675	775	850
6.3	1500	240	36	50	70	105	145	205	285	370	530	790	1060	1450	2020	3740
	1000	160	24	34	47	71	100	145	215	280	400	560	800	1100	1520	2650
	750	120	18	25	36	54	74	110	170	230	310	425	600	900	1200	1990
8	1500	188	32	44	62	91	125	180	255	350	450	660	920	1300	1750	3070
	1000	125	22	30	41	60	85	125	180	245	335	450	680	950	1270	2120
	750	94	16	22	31	46	65	92	135	190	250	340	520	710	950	1590
10	1500	150	25	35	50	74	100	150	210	280	390	540	760	1050	1420	2540
	1000	100	17	24	33	49	68	95	145	195	265	360	540	750	1000	1700
	750	75	13	18	25	37	50	80	110	155	210	280	420	600	800	1320
12.5	1500	120	21	29	40	55	80	110	170	225	320	430	640	850	1200	2020
	1000	80	14	19	27	37	52	77	115	165	220	300	450	600	850	1390
	750	60	11	15	20	28	42	58	88	125	165	225	330	450	640	1050
15	1500	100	15	22	30	43	60	90	135	185	250	340	490	650	860	1590
	1000	67	10	15	20	29	40	62	92	130	175	235	350	490	650	1100
	750	50	8	11	15	22	32	47	69	97	130	175	270	370	500	820
18	1500	83	13	19	27	37	55	73	120	160	220	310	430	550	740	1470
	1000	56	8.5	14	19	25	39	51	80	115	145	230	320	410	540	970
	750	41	6.5	10	15	19	30	40	62	87	110	180	250	340	440	770
20	1500	75	11	17	24	35	49	73	110	140	210	280	410	520	700	1320
	1000	50	6	12	17	23	33	49	74	98	140	190	280	380	500	880
	750	38	5	9	12	18	25	38	58	77	110	145	230	310	400	700
25	1500	60	9	14	21	30	41	65	99	135	185	250	390	490	660	1180
	1000	40	4	9	14	20	27	44	66	92	125	170	260	350	460	790
	750	30	3	6	11	16	21	34	52	70	98	130	200	280	370	620

Thermal Capacities PG in kw																
2 Stage Helical Gear Units																
Nominal Ratio	Input Speed	Gear Unit sizes														
iN	n1	200	225	250	275	300	350	400	425	475	550	600	675	775	850	
6.3 to 12.5	1500	33	43	55	69	86	107	131	160	223	267	314	413	518	680	
	1000	28	37	47	59	76	97	127	159	203	252	310	407	503	657	
	750	25	33	44	56	70	95	117	152	194	244	311	400	493	647	
14 to 25	1500	27	36	46	58	80	102	124	162	198	247	312	395	503	659	
	1000	23	30	40	52	65	88	118	139	184	237	305	378	483	626	
	750	21	27	37	48	63	81	103	130	170	225	286	375	464	587	

Notes :- 1) The above power ratings are for Service Factor 1 continuous duty at full load giving minimum working life of 20000 hrs. Appropriate Service.
2) Nominal transmission ratios are maintained with a tolerance of +5%. Intermediate ratios can be given upon request.
3) Larger gearboxes of this type available on enquiry.



2 STAGE HELICAL GEARBOX DIMENSION CHART

Size of gear unit	Input Shaft Diameter						Output Shaft Diameter	Dimensions [mm]																		Average weight (kg)	Oil quantity (Litres)
	Gear Ratio																										
	up to 12.5		above 12.5 upto 20		above 20																						
	d	I	d	I	d	I		D	L	A	B	C	E	F	G	h	H	J	K	M	N	O	P	R	S		
200	25	60	20	50			48	110	200	350	140	180	150	50	125	225	430		110	20	14	80	140	25	310	58	2
225	30	80	25	60			55	110	225	395	155	200	170	55	140	255	475		120	20	14	95	170	25	355	78	3
250	35	80	30	80	20	50	60	140	250	440	175	220	190	60	160	290	530		135	20	14	110	195	30	400	110	4
275	45	110	35	80	25	60	70	140	275	500	190	250	210	65	180	325	590		145	30	18	115	210	35	440	145	5
300	50	110	40	110	30	80	80	170	300	565	215	270	230	70	200	365	665		160	30	18	135	240	35	505	200	8
350	55	110	45	110	35	80	90	170	350	625	240	300	250	75	225	410	745		175	35	23	145	255	40	555	270	11
400	60	140	50	110	40	110	100	210	400	705	260	320	270	80	250	455	825		190	35	23	165	290	45	635	360	14
425	70	140	55	110	45	110	110	210	425	785	290	370	310	90	280	510	925		210	40	27	180	315	50	705	490	21
475	75	140	60	140	50	110	120	210	475	875	325	400	340	100	315	575	1035		230	45	27	200	355	55	785	675	29
550	85	170	70	140	55	110	140	250	550	975	355	450	380	110	355	650	1145		260	50	33	220	405	60	875	910	42
600	95	170	80	170	60	140	160	300	600	1085	390	480	410	120	400	735	1265		285	55	33	245	450	65	975	1230	60
675	105	210	90	170	70	140	170	300	675	1215	440	530	460	130	450	830	1425		305	55	33	280	510	70	1105	1675	85
775	115	210	95	170	80	170	190	350	775	1365	490	600	510	140	500	920	1595	940	345	60	39	315	575	80	1245	2260	115
850	125	250	110	210	90	170	220	350	850	1525	550	650	560	150	560	1030	1785	1050	475	70	39	350	645	90	1385	3500	165

3 STAGE HELICAL GEARBOX SELECTION CHART

Nom. Ratio I_n	Speed (rpm)		Gear Unit Sizes 3 Stage							Gearbox Nominal Mechanical Power Rating (Pn)			
	Input n_1	Output n_2	350	400	450	500	550	625	700	775	900	1000	1100
15	1500	100	50	70	105	140	200	280	380	500	660	930	1810
	1000	67	34	47	73	95	135	190	270	390	500	700	1250
	750	50	26	36	55	74	105	150	215	300	390	580	940
20	1500	75	39	59	73	105	148	205	295	385	500	740	1320
	1000	50	27	39	54	70	98	140	200	290	380	550	880
	750	38	20	30	43	55	77	110	160	240	305	445	690
25	1500	60	30	44	62	83	115	160	235	330	450	660	1030
	1000	40	20	30	42	57	80	110	165	255	315	460	730
	750	38	15	22	31	43	60	85	125	195	240	350	550
30	1500	50	24	33	48	69	95	130	200	290	385	560	820
	1000	34	16	22	33	46	63	87	130	200	255	370	580
	750	25	13	17	26	34	49	65	100	150	190	280	440
35	1500	43	22	32	46	62	87	120	180	280	345	500	770
	1000	29	15	22	30	41	58	82	120	185	230	340	510
	750	22	11	16	23	31	43	61	90	140	176	250	385
40	1500	38	20	30	43	56	78	110	160	240	310	450	700
	1000	25	14	21	28	37	52	72	105	165	205	300	485
	750	19	10	15	22	29	41	56	82	125	155	230	350
45	1500	34	17	26	36	50	69	97	145	220	275	400	620
	1000	23	12	17	25	33	46	64	95	150	180	265	455
	750	17	8.5	13	18	26	36	50	74	115	140	205	320
50	1500	30	15	23	32	44	62	87	130	200	245	360	550
	1000	20	11	15	22	31	43	60	87	135	165	240	365
	750	15	8	12	16	23	32	44	65	100	120	180	290
55	1500	28	14	20	28	39	55	77	115	175	220	320	500
	1000	19	9.5	14	19	27	38	53	79	120	145	215	340
	750	14	7	10	15	21	28	40	59	91	110	165	255
60	1500	25	11	17	23	35	45	63	100	150	195	285	440
	1000	17	7.5	11	16	24	30	43	69	105	130	190	300
	750	13	6	8.5	12	18	23	32	52	78	98	145	230
70	1500	89	9.5	15	21	31	40	56	90	135	175	250	395
	1000	15	6.5	10	14	22	27	39	61	92	115	170	270
	750	11	5	7.5	11	16	20	29	46	69	86	125	200
80	1500	19	8.5	14	19	29	36	51	82	120	155	230	350
	1000	13	6	9	13	19	24	34	54	82	100	150	240
	750	10	4.5	7	10	14	19	27	40	63	76	110	180
90	1500	17	8	12	17	26	32	46	74	110	140	205	320
	1000	12	5.5	8	11	17	22	31	49	74	92	135	210
	750	9	4	6.5	9	13	17	24	37	57	69	100	160
100	1500	15		9.5	16	24	30	44	60	95	130	175	290
	1000	10		6.5	11	16	21	33	40	63	86	115	190
	750	7.5		5	8	12	16	22	30	47	65	87	145
110	1500	14			15	21	29	40	53	84	115	155	255
	1000	10			10	14	19	27	36	57	78	105	170
	750	7			7.5	11	15	20	27	43	58	78	130

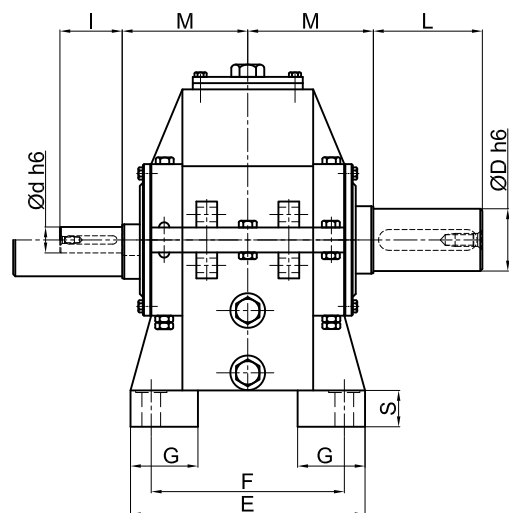
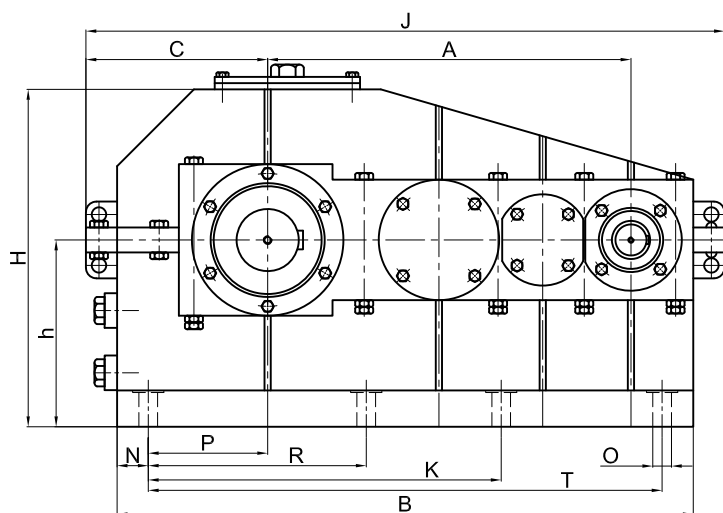
Thermal Capacities PG in kW												
3 Stage Helical Gear Units												
Nominal Ratio	Input Speed	Gear Unit sizes										
iN	n_1	350	400	450	500	550	625	700	775	900	1000	1100
Thermal Capacities PG1 For Gear Units Without Cooling in kW												
15 to 40	1500	45	58	77	95	120	150	179	226	286	371	433
	1000	43	52	68	89	108	138	183	216	268	347	443
	750	36	49	65	78	103	129	164	203	268	340	425
45 to 110	1500	43	54	67	89	109	134	177	221	268	356	435
	1000	36	47	65	78	105	132	160	203	265	331	402
	750	35	45	60	72	97	119	153	187	243	319	385

NOTES :-1) The above Power ratings are for Service Factor 1 Continuous Duty at full load giving minimum working life of 20000 hrs.

Appropriate Service Factor should be applied depending upon the application. Consult our design department in case of doubt.

2) Nominal transmission ratios are given with a tolerance of $\pm 5\%$. Intermediate ratios can be given upon request.

3) Gearbox sizes in between the given sizes can be given on request. Appropriate power ratings will be provided.



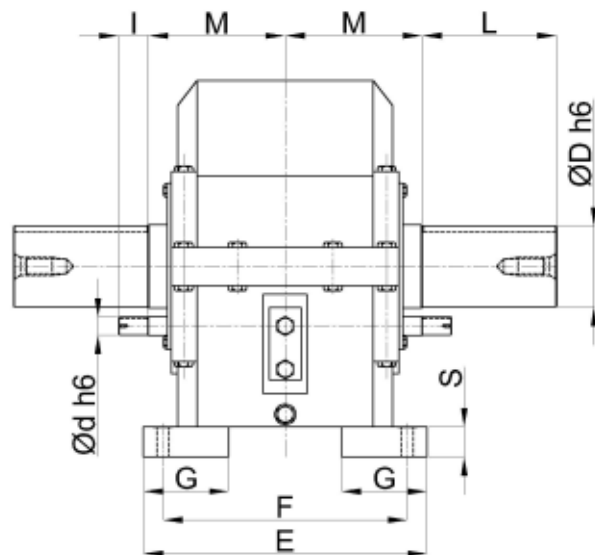
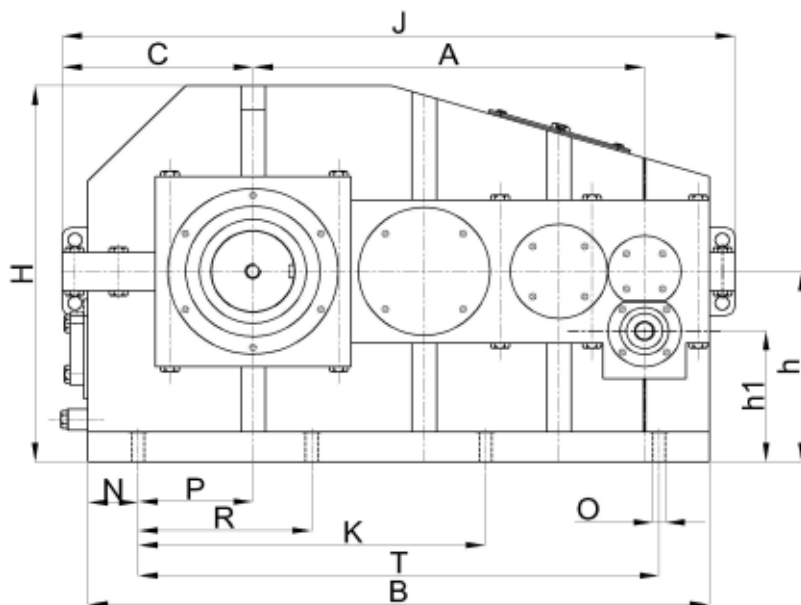
3 STAGE HELICAL GEARBOX DIMENSION CHART

Size of gear unit	Input Shaft Diameter						Output Shaft Diameter	Dimensions [mm]																		Average weight (kg)	Oil quantity (Litres)
	Gear Ratio Diameter																										
	up to 45		above 45 upto 100		above 45																						
	d	I	d	I	d	I		D	L	A	B	C	E	F	G	h	H	J	K	M	N	O	P	R	S		
350	25	60	20	50			70	140	350	555	190	250	210	65	180	325	645		145	30	18	115	210	35	495	160	8
400	30	80	25	60			80	170	400	625	215	270	230	70	200	365	725		160	30	18	135	240	35	565	215	10
450	35	80	30	80	20	50	90	170	450	685	240	300	250	75	225	410	805		175	35	23	145	255	40	615	295	14
500	45	110	35	80	25	60	100	210	500	775	260	320	270	80	250	455	895		190	35	23	165	290	45	705	405	22
550	50	110	40	110	30	80	110	210	550	860	290	370	310	90	280	510	1000		210	40	27	180	315	50	780	540	28
625	55	110	45	110	35	80	120	210	625	970	325	400	340	100	315	575	1130		230	45	27	200	355	55	880	720	39
700	60	140	50	110	40	110	140	250	700	1085	355	450	380	110	355	650	1255	655	260	50	33	220	405	60	985	970	56
775	70	140	55	110	45	110	160	300	775	1220	390	480	410	120	400	735	1400	740	285	55	33	245	450	65	1110	1300	80
900	75	140	60	140	50	110	170	300	900	1355	440	530	460	130	450	830	1565	840	305	55	33	280	510	70	1245	1770	115
1000	85	170	70	140	55	110	190	350	1000	1520	490	600	510	140	500	920	1750	940	345	60	39	315	575	80	1400	2350	165
1100	95	170	80	170	60	140	220	350	1100	1690	550	650	560	150	550	1030	1950	1050	475	70	39	350	645	90	1550	3850	220

SUDARSHAN GEARS , MUMBAI														
4 STAGE HELICAL GEARBOX SELECTION CHART														
Nom. Ratio I _N	Speed (rpm)		Gear Unit Sizes Single Stage					Gearbox Nominal Power Rating P (KW)						
	Input n ₁	Output n ₂	575	650	725	800	900	1025	1150	1300	1450	1625	1825	2050
112	1500	13.4	20	29	40	59	91	110	160	255	360	480	690	990
	1000	8.9	14	20	27	39	59	70	105	170	240	320	470	670
	750	6.7	10	15	20	29	43	53	83	130	185	235	355	500
125	1500	12	18	26	36	52	81	97	145	230	320	425	610	880
	1000	8	12	17	23	34	53	64	95	155	210	285	420	570
	750	6	9	13	18	26	40	48	71	115	160	210	310	440
140	1500	10.7	16	23	32	46	72	87	130	205	290	380	550	800
	1000	7.15	11	16	21	61	47	58	85	135	190	250	365	520
	750	5.4	8	12	16	23	36	44	65	100	145	190	275	395
160	1500	9.37	14	20	28	41	63	76	115	180	255	340	495	710
	1000	6.25	9.5	14	18	27	42	51	75	120	170	225	330	470
	750	4.68	7.5	10	14	21	32	39	58	91	130	170	250	360
180	1500	8.34	13	9	25	37	57	69	100	160	225	295	435	630
	1000	556	8.5	12	17	25	38	46	68	105	150	200	290	420
	750	4.17	6.5	9.5	13	18	29	35	51	81	115	155	220	320
200	1500	7.5	12	15	22	33	51	62	92	145	205	270	395	560
	1000	5	8	10	14	22	34	41	61	96	135	180	260	375
	750	3.75	6	8	11	17	26	30	44	72	100	135	200	280
224	1500	6.7	10	14	19	29	45	55	82	130	185	240	355	500
	1000	4.47	7	9	13	20	30	37	54	86	120	160	235	340
	750	3.35	5	7	10	15	23	28	41	65	92	120	175	255
250	1500	6	9.5	12	17	26	40	48	71	115	165	215	315	450
	1000	4	6	8.5	12	17	27	32	48	77	110	145	210	300
	750	3	4.5	6.5	9	13	20	24	36	58	82	110	155	225
280	1500	5.35	8	11	15	23	36	44	65	100	145	190	275	395
	1000	3.57	5.5	7.5	10	15	24	29	43	67	95	125	185	265
	750	2.67	4	5.5	8	12	18	22	32	50	71	95	140	195
315	1500	4.76	7.5	9.5	13	21	32	39	58	91	130	170	250	355
	1000	3.17	5	6.5	9	14	21	25	37	60	86	115	165	235
	750	2.38	3.5	5	7	10	16	20	29	46	65	86	125	180
355	1500	4.23	6.5	8.5	12	18	29	35	51	82	115	155	225	320
	1000	2.82	4.5	6	8.5	12	19	23	34	53	75	99	145	205
	750	2.12	3	4.5	6.5	9.5	14	17	25	41	58	77	110	160
400	1500	3.75	6	8	11	16	26	31	45	71	100	135	195	280
	1000	2.5	4	5	7.5	11	17	20	30	48	68	90	130	190
	750	1.88	3	4	5.5	8	13	15	23	35	52	66	98	135
450	1500	3.33	5	7.5	10	13	21	29	39	65	92	120	175	255
	1000	2.22	3.5	5	6.5	9	14	19	26	43	60	81	115	170
	750	1.66	2.5	3.5	5	6.5	11	14	19	32	46	60	88	125
500	1500	3		6.5	9	12	19	26	35	58	82	110	155	225
	1000	2		4.5	6	8	13	17	23	38	54	72	105	150
	750	1.6		3	4.5	6	9.5	13	17	29	41	54	79	115
560	1500	2.68			8	11	17	23	30	50	71	95	140	195
	1000	1.78			5.5	7	11	16	21	35	49	65	94	135
	750	1.34			4	5.5	8.5	12	16	26	37	49	71	100
630	1500	2.38				9.5	15	21	28	46	65	86	125	180
	1000	1.59				6.5	10	14	18	30	43	57	83	120
	750	1.19				5	7.5	10	14	23	33	43	63	90

Thermal Capacities PG in kW														
4 Stage Helical Gear Units														
Nominal Ratio	Input Speed	Gear Unit sizes												
i _n	n ₁	575	650	725	800	900	1025	1150	1300	1450	1625	1825	2050	
Thermal Capacities P _G For Gear Units Without Cooling in kW														
112 TO 630	1500	38	50	66	90	105	135	170	210	275	360	430	550	
	1000	35	45	55	80	95	120	150	200	255	340	410	530	
	750	30	40	53	74	90	110	140	180	225	290	385	490	

Notes :-
1) The above power ratings are for Service Factor 1 continuous duty at full load giving minimum working life of 20000 hrs. Appropriate Service
2) Nominal transmission ratios are maintained with a tolerance of ± 5% . Intermediate ratios can be given upon request.
3) Larger gearboxes of this type available on enquiry.



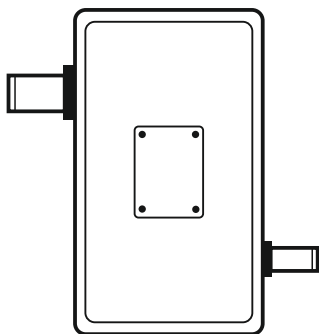
SUDARSHAN GEARS , MUMBAI

4 STAGE HELICAL GEARBOX DIMENSION CHART

Size of gear unit	Input Shaft Diameter				Output Shaft Diameter		Dimensions [mm]																		Average weight [kg]	Oil quantity [litres]
	Gear Ratio																									
	up to 45		above 45 up to 100																							
					d	l	d	l	D	L	A	B	C	E	F	G	h	h1	H	J	K	M	N	O	P	R
575	18	40			100	210	500	775	260	320	270	80	250	175	500	895		190	35	23	165	290	45	705	405	22
650	22	50			110	210	562.5	860	290	370	310	90	280	192.5	560	1000		210	40	27	180	315	50	780	540	28
725	25	60	20	50	120	210	625	970	325	400	340	100	315	215	630	1130		230	45	27	200	355	55	880	720	39
800	30	80	25	60	140	250	687.5	1085	355	450	380	110	355	242.5	710	1255	655	260	50	33	220	405	60	985	970	56
900	40	110	30	80	160	300	775	1220	390	480	410	120	400	275	800	1400	740	285	55	33	245	450	65	1110	1300	80
1025	45	110	35	80	170	300	875	1355	440	530	460	130	450	300	900	1565	840	305	55	33	280	510	70	1245	1770	115
1150	50	110	40	110	190	350	987.5	1520	490	600	510	140	500	337.5	1000	1750	940	345	60	39	315	575	80	1400	2350	165
1300	55	110	45	110	220	350	1125	1690	550	650	560	150	560	385	1120	1950	1050	475	70	39	350	645	90	1550	3850	220
1450	60	140	50	110	250	410	1250	1895	610	750	640	160	630	430	1260	2175	1165	510	80	45	390	715	100	1735	5300	310
1625	70	140	55	110	300	470	1400	2145	695	800	690	170	710	485	1420	2485	1320	560	80	45	445	800	110	1985	7250	450
1825	75	140	60	140	340	550	1575	2400	760	900	770	190	800	550	1600	2740	1490	600	90	45	500	900	125	2220	10100	670
2050	85	170	70	140	400	650	1775	2700	840	1000	870	200	900	625	1800	3040	1680	645	90	45	560	1100	140	2520	14100	900

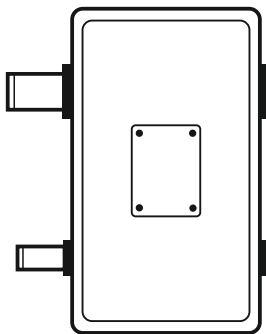
Assembly Arrangements

Arrangement 1



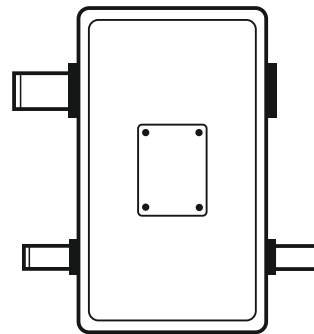
Single I/O
Left-hand design

Arrangement 2



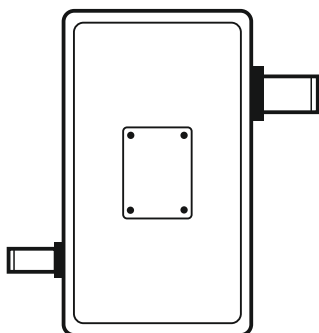
I/O Same side
Left-hand design

Arrangement 3



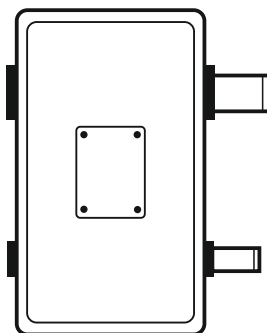
Double-Input
Left-hand design

Arrangement 4



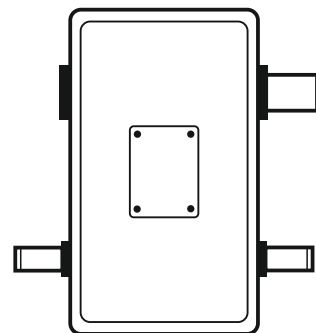
Single I/O
Right-hand design

Arrangement 5



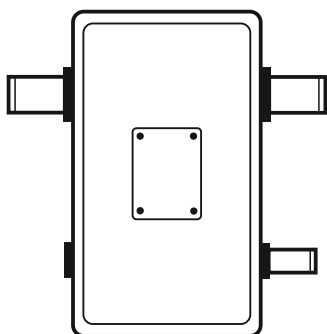
I/O Same side
Right-hand design

Arrangement 6



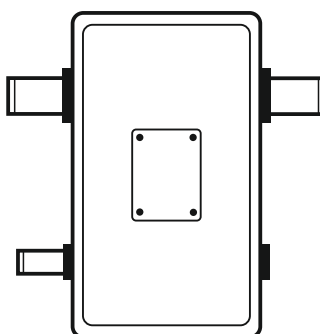
Double-Input
Right-hand design

Arrangement 7



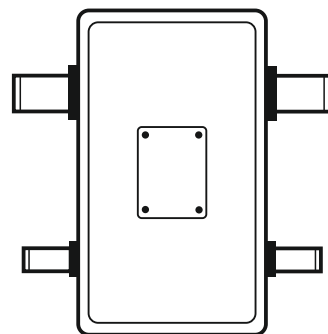
Single -Input / Double-Output
Right-hand design

Arrangement 8



Single -Input / Double-Output
left-hand design

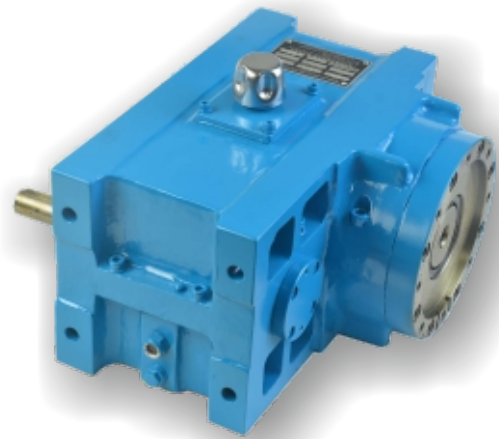
Arrangement 9



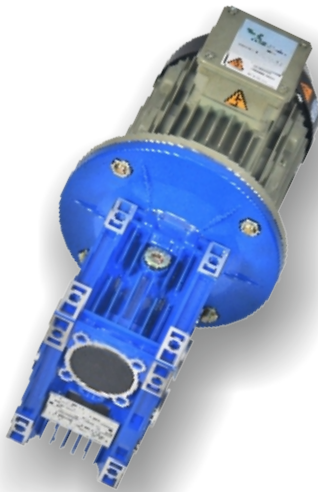
Double-Input / Double-Output
Left-hand
Right-hand design



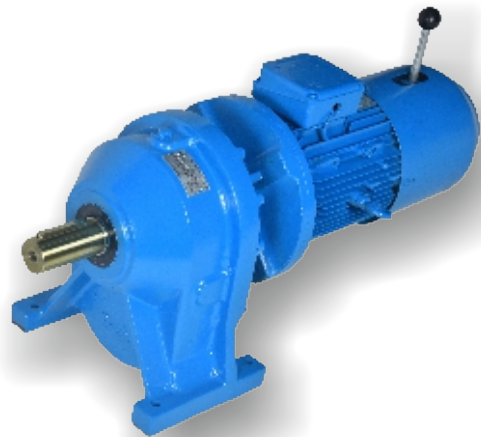
Inline Helical Geared Motor



Extruder Gear Box



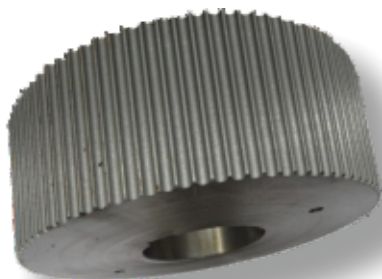
Worm Geared Motor



Helical Brake Geared Motor



Spares Gears



Timing Pulley



Screw Jack

