

TRANS**MATIX**



H & BH SERIES GEAR BOXES

HELICAL AND BEVEL HELICAL GEAR BOXES

STANDARD GEAR UNITS

TECHNICAL CATALOGUE

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1. GENERAL INFORMATION

1.1 COMPANY INTRODUCTION

'TRANSMATIX' is having its registered office in Mumbai & Manufacturing facility at Satara, Maharashtra. It is engaged in manufacturing and supplying high quality **Helical, Bevel-Helical, Planetary, Bevel Planetary & other customised Gearboxes & Winches**. This catalogue gives the standard range of H-Series Helical Gearboxes and BH Series Bevel Helical Gearboxes being manufactured by TRANSMATIX. For other types, see our catalogues of respective type. The Helical Gearboxes can be offered in single, double, triple or multiple stages as a standard product. These modular stages can also be combined with bevel, worm or planetary gearing stages to give customized combination gear boxes as per the requirement.

1.2 CONSTRUCTION & WORKING PRINCIPLE OF THE GEARBOXES

Transmatix Helical Gearbox series is named as H-Series. This series Gearboxes consist of Single, Double, Tripple or Quadruple stages of Helical Pairs. In case of BH Series gearboxes, normally, the first stage is a Bevel Pair and rest of the stages are Helical Gear Pairs. All these gearboxes are designed in Standard Metric Series. Each Gear Pair consists of a Pinion & a Gear. Helical Gearboxes are in Parallel Shaft configuration and Bevel-Helical Gearboxes are in Right Angled configuration with Split Casing Design for easy maintenance. The design of gears is done using one of the best gear design software and the gear corrections are selected optimally to evenly distribute the power in each stage and optimizing the Heat Generation (for least heating), Noise (for quiet operation) and Contact Ratio (for smooth running). Most of the gearboxes are designed in such a way that the internals can be mirror imaged to convert LH Gearbox to RH or vice versa.

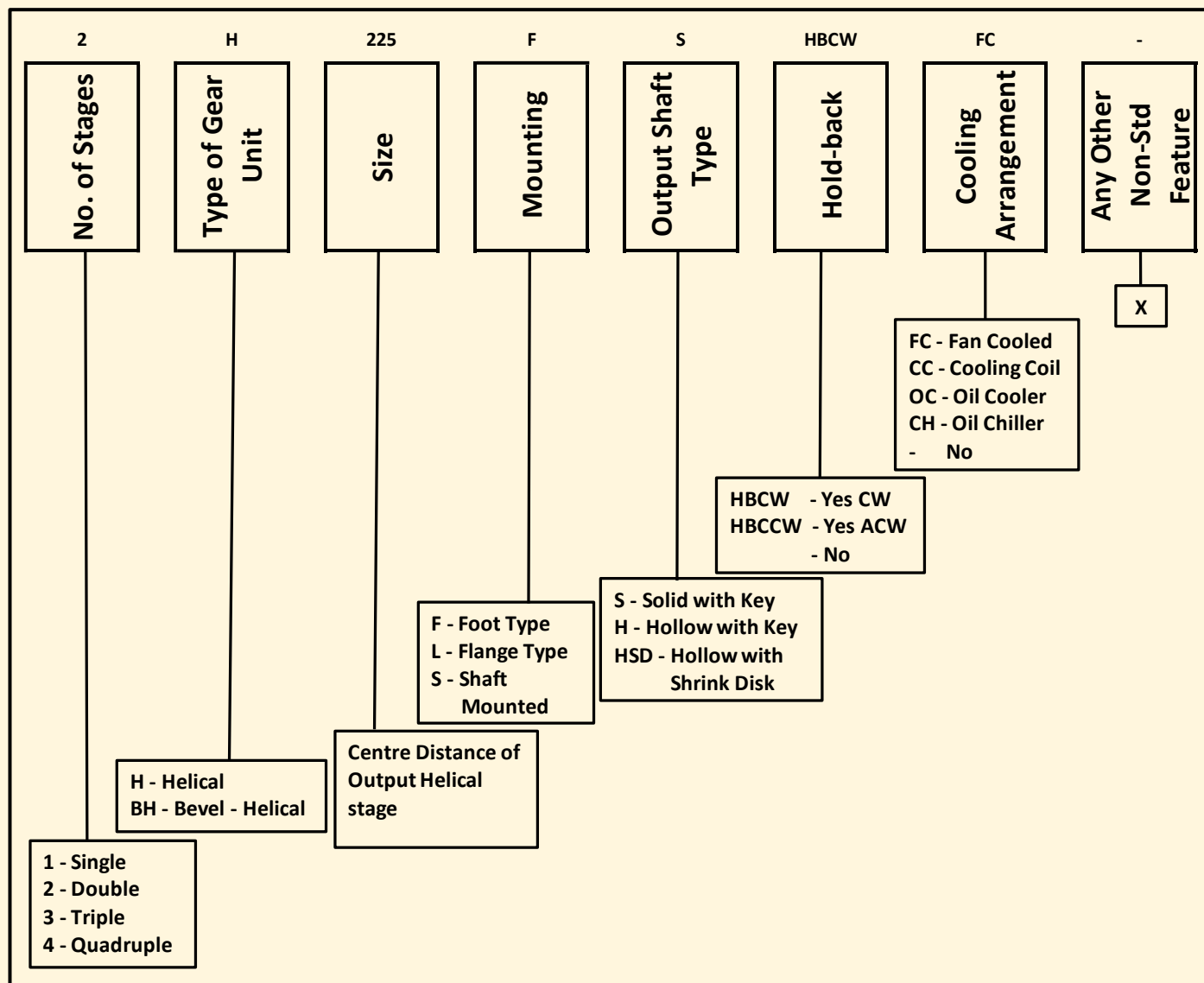
1.3 QUALITY FEATURES OF THE GEARBOXES

- **GEARS:** All Gears & Pinions are designed using a special gear design software of international reput and manufactured from Forged Case Carburizing Alloy Steels like 20MnCr5 / SAE8620 / 17CrNiMo6-7 or equivalent. These gears are Case Hardened with Case Hardness from 56-62 HRC and profile Ground. Bevel Gear Pairs are lapped for smooth running. ID Grinding & Surface Grinding is also done for all the gears.
- **SHAFTS:** Output Shafts are manufactured from through hardening Alloy Steel and are through hardened to 26 to 32 HRC & ground.

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- **GEARBOX CASING:** Gearbox Casing is Fabricated using IS 2062-E250 Material or equivalent and is duly stress relieved. Normally it is made in Horizontal split casing design for ease of maintenance.
 - **BEARINGS:** Amply proportioned anti-friction bearings of reputed make are used throughout the gearbox to support all the shafts.
 - **FASTENERS:** All fasteners used are of Metric Size and are of Minimum 8.8 Grade (High Tensile) or Higher Grade
 - **OIL SEALS:** For preventing Oil Leakages, Double Lip Oil Seals or Two Single Lip Oil Seals of reputed make are used.
 - **OIL PLUGS:** All the gear boxes have a provision of Oil Drain, Oil Level Indicator and a Breather plug.
 - **PAINTING:** The Gearbox is painted with a first coat of Primer and then two coats of Enamel of our standard shade RAL 1004 – Golden Yellow. For any different paint shade or paint type, it must be notified at the time of inquiry, as it may have an impact on the price.
 - **NOISE LEVEL:** The allowable noise level is generally 85dB.
 - **EFFICIENCY:** 99% per stage for Helical Gears
98% per stage for Bevel Gear Stage
 - **LUBRICATION:** The Gear Units are dispatched without oil. The oil is drained after test running the gearbox. Recommended lubricants are mentioned on Page No. 6.
 - **DIMENSIONS, WEIGHT & OIL QUANTITY:** These figures are given in the selection tables. However, these figures are not binding on us. We reserve right to modify dimensions. The weights and oil quantities are only indicative average values. While filling the oil in the gearbox, note the oil level marking on the gearbox.
 - **ACCESSORIES:** The gear units can be supplied with accessories such as Holdback units, Shrink disc, Fan cooling, Oil Coolers etc. However, these must be mentioned at the time of inquiry.
 - **TEST REPORT:** Every Gearbox is tested for Dimensions, No Load Running, Noise, Temperature Rise and Oil Leakage. A test report will be supplied with every gearbox.

Due to continuous improvement in design, the specifications given in this catalog is not to be regarded as final or binding on TRANSMATIX. Details pertaining to dimensions and rating capacities are subject to alterations, without notice. Specific certified drawings against a specific order will be sent on request.

1.4 Nomenclature



Example:

2 H 225 F S HBCCW FCCC X

1.5 Data Required to Quote:

1. Type of Gear Unit – Helical or Bevel-Helical
2. Size – Output Stage Centre Distance 315 (Optional, required for replacing existing GB).
3. Reduction Ratio – 20.29: 1
4. Input Power and Speed – 40HP, 4 Pole (1440 RPM)
5. Mounting – Foot.
6. Orientation – LH/RH
7. Additional Attachments – Fan Cooling, Holdback, Oil Pump, Oil Cooler, Shrink Disc Etc.

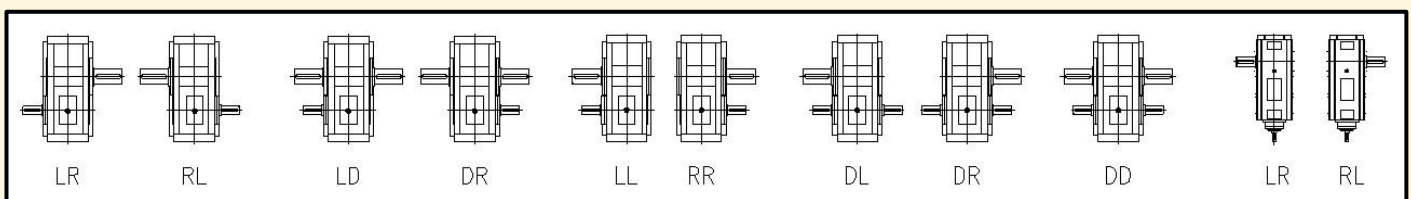
NOTE: In case of Holdback, Direction of Rotation CW or CCW is direction of rotation of Output Shaft as seen from output shaft side.

8. Input Shaft Extension – Single / Double
9. Output Shaft Extension – Single / Double.

(The dimensions of Double Shaft Extensions for Input as well as output are same as single shaft extension but on both sides).

10. Shaft Handing – Different Types of Shaft configurations are shown below. This should be mentioned at the time of placement of Order. The configurations are named as under:

Input Shaft – Output Shaft (R – on Right Side, L – on Left Side, D – Double Extended As seen from Top) LR is also known as RH & RL is also known as LH.



2. GEARBOX SELECTION

2.1 GEARBOX REDUCTION RATIO

Select Gearbox Reduction Ratio which is either already known or can be calculated as given below:

$$\text{Gearbox Reduction Ratio (i)} = \frac{\text{Gearbox Input Speed in RPM (n}_1\text{)}}{\text{Gearbox Output Speed in RPM (n}_2\text{)}}$$

Select the nearest nominal Gear ratio from the selection tables given below.

2.2 SERVICE FACTORS

Table 1: Load Parameters

Driven machines		Driven machines		Driven machines	
Excavators and stackers		Impeller blowers	U	wet	H**
Bucket chain excavators	H*	Turbo blowers	U	suction	H**
Travelling gear		Centrifugal blowers	U	Suction rollers	H**
caterpillar track	H*	Generators		Drying cylinders	H**
rail	M	Generators, under uniform load	U	Pumps	
Bucket-wheel stackers	M*	Welding generators	***	Proportioning pumps	M
Bucket wheels		Rubber and Plastics		Piston pumps	
clearing	H	Extruders		U < 1:100	H
coal	H	rubber	H**	U > 1:100 - 1:200	M**
lime	H	plastics	M**	Centrifugal pumps	
Cutter heads	H*	Calenders	M**	light liquids	U
Slewing machines	M*	Kneading machines, rubber	H**	viscous liquids -	M
Suction pumps	M*	Mixers	M**	Compression pumps	H
Cable drums	M	Mills, rubber	M**	Plunger pumps	H**
Winches	M	Rolling mills, rubber	H**	Sand pumps	M**
Mining, rock, earth		Wood-working machinery		Machines for the Textile Industry	
Concrete mixers	M	Decorticating drums	H	Bobbin winding machines	M
Crushers	H	Planing machine	M	Printing machines	M
Briquetting presses	H*	Saw frames	M	Dyeing machines	M
Rotary kilns	H**	Iron and Steel Industry		Tan-liquor vessels	M
Pneumatic sifters	M*	Foundry crane (hoisting gear)	H**	Calenders	M
Clay mixers	M	Converters	***	Willowing machines	M
Chemical Industry		Slag cars	U**	Drying machines	M
Mixers	M	Sintering belts	M**	Looms	M
Agitators		Crusher	H**	Compressors	
pure liquids	U	Torpedo mixers	***	Rotary piston compressors	
liquids and solids	M	Car tipper	H	U < 1:100	H
liquids with variable densities	M	Cranes		U > 1:100 - 1:200	M
Rotary Dryer	M	Luffing gear	U*	Centrifugal compressors	M
Centrifuges		Travelling gear	M*	Turbo compressors	M
light	U	Hoisting gear	M*	Rolling mills	
heavy	M	Slewing gear	M*	Plate tilters	M**
Petroleum Industry		Winches	U	Bloom pushers	H***
Drilling pumps	***	Metal working		Bloom conveying plant	H**
Rotary Kilns	M	Folding presses	H	Wire pulls	M
Filter presses	M**	Plate bending machines	M**	Revolving turrets	M**
Pipeline pumps	M**	Plate straightening presses	H	(contin.casting)	
Scavenging pumps	M**	Eccentric presses	H	De-scaling crushers	H**
Conveying plants		Hammers	H**	Reels	
Uniform load		Planing machines	H	strip	M*
Bucket conveyors	U	Crank presses	H	wire	M**
Roasting furnace conveyors	U	Shearing machine	M**	Walking beam conveyors	M*
Assembly line belts	U	Forging presses	H	Chain transporter	M**
Band conveyors	U	Punching machines	H	Cooling troughs	M**
Overhead conveyors	U	Mills		Traverse tractors	M**
Chain conveyors	U	Hammer mills	H***	Pipe welding machine	H
Apron conveyors	U	Edge mills	H***	Pipe drawing machine	H*
Worm conveyors	U	Ball mills	H***	Roller straightening machine	M**
Medium and heavy load		Pendulum mills	H***	Roller gear beds	
Shaft - sinking machines	H*	Impact mills	H***	light	M**
Bucket conveyors	M	Tube mills	H***	heavy	H**
Bucket belts	M**	Beating mills	H***	Shears	
Assembly line conveyors	M	Rod mills	H***	plate	H**
Conveyors winders	M**	Roller mills	H***	wire	M**
Conveyors	H*	Foodstuffs machines		billet	H**
Belt Conveyors	M	Filling machines	U	cropping	H**
Chain Conveyors	M	Kneading machines	M	plate trimming	M**
Goods lifts	M	Packing machines	U	Winding turret	M**
Passenger lifts	***	Weighing machines	M	Winding tractor	M**
Apron conveyors	M	Sugarcane crushers	M**	Continuous casting plants	H**
Shaker conveyors	M	Sugarcane mills	H**	Shifting device	H
Worm conveyors	M	Sugarcane Cutters	M**	Roller adjusting device	M
Inclined lifts	H**	Sugar-beet Cutters	M		
Blowers, fans, ventilators		Paper machines		Water recycling machine	
Axial blowers	M	Couchers	H**	Thickeners	M
Rotary piston blowers	M	Glazing cylinders	H**	Gyroscopic ventilators	M
Large ventilators (mining)	M	Calenders	M**	Mixers	M
Cooling tower fans	***	Mixers	M	Water screws	M
Radial blowers	M	Presses		Vacuum filter presses	M
Induced draft fans	M	glue	H**	Rate/Screen drives	U

Load Parameters

U = Uniform Load
M = Medium Load
H = Heavy Load

H* = Extra Heavy Load
* = Detailed calculation on request
** = Only calculated for 24-hour period of operation

*** = Load parameter on request.

Table 2: Mechanical Service Factor (f_m)

Prime Mover	Hours of Operation/ day	Uniform Load (U)	Medium Shock Load (M)	Heavy Shock Load (H)	Extra Heavy Shock Load (H*)
Electric Motor or Turbine	Upto 3	0.80	1.00	1.50	2.0
	OVER 3 to 10	1.00	1.25	1.75	2.25
	OVER 10 to 24	1.25	1.50	2.00	2.50
Multi Cylinder Engines	Upto 3	1.00	1.25	1.75	1.75
	OVER 3 to 10	1.25	1.50	2.00	2.50
	OVER 10 to 24	1.50	1.75	2.25	2.25
Single Cylinder Engines	Upto 3	1.25	1.50	2.00	2.50
	OVER 3 to 10	1.50	1.75	2.25	2.25
	OVER 10 to 24	1.75	2.00	2.50	3.00

Table 4: Starting Frequency Factor (f_f)

Starts per hour	Mechanical Service Factor - f_m					
	0.8	1	1.25	1.5	1.75	2
1	1.000	1.000	1.000	1.000	1.000	1.000
2 to 20	1.200	1.100	1.080	1.070	1.070	1.060
21 to 40	1.300	1.200	1.170	1.160	1.150	1.080
41 to 80	1.500	1.400	1.250	1.230	1.180	1.100
81 to 160	1.600	1.500	1.350	1.300	1.200	1.100
161 to 320	2.000	1.800	1.700	1.600	1.500	1.400

Table 3: Thermal Service Factor (f_t)

Type of Cooling	Ambient Temperature	Percentage Duration of Operation per hour				
		100%	80%	60%	40%	20%
For gearboxes without additional cooling	10°C	1.12	1.34	1.57	1.79	2.05
	20°C	1	1.2	1.4	1.6	1.8
	30°C	0.88	1.06	1.23	1.41	1.58
	40°C	0.75	0.9	1.05	1.2	1.35
	50°C	0.63	0.76	0.88	1.01	1.13
For gearboxes with fans	10°C	1.15	1.38	1.61	1.84	2.07
	20°C	1	1.2	1.4	1.6	1.8
	30°C	0.9	1.08	1.26	1.44	1.62
	40°C	0.8	0.96	1.12	1.29	1.44
	50°C	0.7	0.84	0.98	1.12	1.26
For gearboxes with cooling coils	10°C	1.1	1.32	1.54	1.76	1.98
	20°C	1	1.2	1.4	1.6	1.8
	30°C	0.9	1.08	1.26	1.44	1.62
	40°C	0.85	1.02	1.19	1.36	1.53
	50°C	0.8	0.96	1.12	1.29	1.44
For gearboxes with fans and cooling coils	10°C	1.12	1.34	1.57	1.79	2.05
	20°C	1	1.2	1.4	1.6	1.8
	30°C	0.92	1.1	1.29	1.47	1.66
	40°C	0.83	1	1.16	1.33	1.5
	50°C	0.78	0.94	1.09	1.25	1.4

2.3 NUMBER OF STAGES

Once the Gearbox Ratio is determined as given in Section 2.1 above, we can select the number of stages of the gearbox. The number of stages is dependent on the reduction ratio which is summarized in the respective rating charts of Helical & Bevel Helical Gearboxes.

For ratios appearing common in both 2 Stages and 3 Stages, higher Ratings can be achieved if these ratios are taken in 3 Stages as compared to these ratios taken in 2 Stages.

2.4 LUBRICANTS

Recommended Oil Viscosity

Ambient Temperature (°C)	ISO Viscosity Grade (mm ² /s at 40 °C)		
	Load Classifications of Driven Machine		
	Uniform Load (U)	Moderate Shock (M)	Heavy Shock Load (H)
0 to 50	VG 320	VG 320	VG 460

Gear units are supplied without oil, before putting it in operation, ensure that they are filled to correct oil levels, as per the markings of dipsticks, with proper grade of lubricants, given in the tables

For other Ambient temperatures and load classifications, please refer to TRANSMATIX

Examples of Lubricants

Viscosity ISO-VG at 40 °C in mm ² /s	Bharat Petroleum	Castrol	Esso	Hindustan Petroleum	Kluber	Mobil	OKS	Shell
VG 320	MAK Amocam 320	Castrol Alpha SP 320	Spartan EP 320	Parthan EP 320	Kluber Oil GEM 1-320	Mobil gear 632	Mo _x -Active 320	Shell Macoma 320
VG 460	MAK Amocam 460	Castrol Alpha SP 460	Spartan EP 460	Parthan EP 320	Kluber Oil GEM 1-460	Mobil gear 634	Mo _x -Active 460	Shell Macoma 460

2.5 GEARBOX SIZE SELECTION

Once the Gearbox Ratio, Service Factors & Number of Stages is determined as mentioned in Sections 2.1, 2.2 & 2.3 above, we can proceed to selection of gearbox size. For gearbox size selection, please follow following steps:

	P_m	–	Minimum Rated Mechanical Power
$P_m = P_c \times f_m \times f_f$	P_c	–	Consumed Mechanical Power
	f_m	–	Mechanical service factor
	f_f	–	Starting Frequency Factor

After calculating Minimum Rated Mechanical Power (P_m) and deciding No. of Stages based on Ratio, we can refer to the appropriate Mechanical Rating Chart based on the Number of Stages.

- In the Mechanical Rating Chart of desired number of stages, scroll through the Reduction Ratio Column on the Left-Hand Side select the Reduction Ratio in the table which is nearest to the Calculated Reduction Ratio.
- Once the nearest Reduction Ratio is found, in that ratio, we will refer to the specific line corresponding to the Input Speed Nearest to the Actual Input Speed & Scroll horizontally through the Mechanical Ratings mentioned in the table for different sizes of the gearboxes.
- We shall now select the size of the gearbox such that the Power Rating given in the table is greater than our calculated Minimum Rated Mechanical Power (P_m)
- The power ratings can also be linearly interpolated for Input speeds which are in between the Input Speeds given in the Mechanical Rating Chart.

2.6 THERMAL RATING CHECK

The Ratings mentioned in the Gear Rating Chart are Mechanical Ratings. The ratings which are marked in Bold, imply that natural splash lubrication is inadequate, and some additional cooling method such as Fan Cooling or Forced cooling is required. The ratings with Fan Cooling, Cooling Coil & Fan and Cooling Coil both are given below each table.

Once the Gearbox Size is selected from the Mechanical Rating Chart as mentioned in Section 2.5 above, it is also necessary to check if the selected size is also suitable thermally. For this, we need to calculate Minimum Rated Thermal Power (P_t) based on the actual input power (P_1) & thermal service factor (f_t). Minimum Rated Thermal Power (P_t) can be calculated as:

$$\text{Minimum Rated Thermal Power } (P_t) = \frac{\text{Actual Input Power } (P_1)}{\text{Thermal Service Factor } (f_t)}$$

- After calculating Minimum Rated Thermal Power (P_t), we can refer to the Thermal Rating Chart based on the Number of Stages, which is given just below the mechanical rating chart.
- In the Thermal Rating Chart, we will refer to the Gearboxes without cooling section & we will scroll through the Reduction Ratio Range Column on the Left-Hand Side and Refer to the Lines for the Reduction Ratio Range which corresponds to the Selected Reduction Ratio in Section 2.5 above.
- Once the Reduction Ratio Range is found, we will refer to the specific line corresponding to the Input Speed Nearest to the Actual Input Speed & refer to the thermal rating for the size selected in Section 2.6 above.
- If the thermal rating given in the chart is greater than our Minimum Rated Thermal Rating (P_t), then we can conclude that the selected gearbox is thermally suitable & finalize the selection
- If the thermal rating given in the chart is lower than our Minimum Rated Thermal Rating (P_t), then we can check the thermal ratings of the same size for other cooling options & select the cooling option in the same size which will give a thermal rating greater than our Minimum Rated Thermal Rating (P_t) and finalize the selection with the appropriate cooling option
- Alternately, we can also go for a higher size of gearbox with either gearbox without cooling or any other cooling option that can be adopted in the application such that the thermal rating for that size is higher than our Minimum Rated Thermal Rating (P_t).
- If we are selecting a size higher than the size determined in the Selection based on Mechanical Rating given in Section 2.5 above, there is no need to check the mechanical rating again since the size is already higher than the size selection based on Mechanical Rating. We can directly finalize the size & the selected cooling option giving us a thermal rating higher than the Minimum Rated Thermal Rating (P_t)

SELECTION EXAMPLE

Given Data:

Prime Mover Electric Motor:

P_1 – Input Power = 80 kW

n_1 – Input Speed = 1500 rpm

Driven Machine: Apron Conveyor

(Medium Loading as per load

classification Chart given above)

P_c – Consumed Power = 70 kW

n_2 – Output Speed = 48 rpm

Duty = 24 hr / day

Starts Per Hour = 20

Ambient Temperature: 50° C

Gear Unit Design

- Parallel Shaft
- Solid Input and Solid Output
- Foot Type
- Horizontal
- LH (RL) Handing

Gear Unit Design:

Foot Mounted, Helical, Foot, Horizontal, Solid Input and Solid Output, LH

Required Transmission Ratio:

$$i_{\text{req}} = \frac{n_1}{n_2} = \frac{1500}{48} = 31.25$$

Nominal Ratio:

$$i_n = 31$$

Mechanical Service Factor (f_m):

For Input Electric Motor & 24 Hrs Duty per day & Medium Shock Load is **1.5** as per table 2

Starting Frequency Factor (F_f):

For f_m of 1.5 & 20 Starts per hour, f_f is **1.07** as per Table 4

Required Mechanical Power Capacity: $P_m = P_c \times f_m \times f_f = 70 \times 1.5 \times 1.07 = 112.35$

Gear Unit Type and Size:

According to Gear Unit Design and Nominal Ratio, Gear Unit Type is Selected as 3H

According To Required Mechanical Power Capacity Gear Unit Size 280 with Power Rating Capacity 130 kW is selected, which is greater than P_m 112.35KW

Thermal Service Factor

Ambient Temp of 50 Degree & 24 Hour Duty, Thermal Service factor f_t is 0.63 as per table 3

Thermal Rating

$$P_t = P_c / f_t = 70/0.63$$

Type of Cooling:

$$P_t = 111.11 \text{ kW}$$

For 3H280, In Thermal Selection for 1500 RPM & Ratio Range of 14 to 35.5, the Rating Given for Gear unit without cooling is 130KW > 111.11KW. Hence we conclude that Model Selection 3H280 is Appropriate Mechanically as well as Thermally.

CONCLUSION:

Helical Gear Unit, Triple Stage, Horizontal, Foot Mounted, Solid Input & Solid Output Shaft Type 3H280, 31 Nominal Ratio with Fan Cooling Is Selected.

3. Rating Charts

3.1 Single Stage

Power Rating

Nominal Ratio i_N	Nominal Speeds		Size of Gear Unit																		
	(RPM)		80	90	100	110	125	140	160	180	200	225	250	280	315	355	400	450	500	560	630
	n_1	n_2	Nominal Gear Box Rating P_n (kW)																		
1.25	1500	1200	59	116	215	298	430	580	770	950*	1485*	2120*	2650*								
	1000	800	40	79	148	205	286	400	517	640	1000	1430	1790	2390*	3480*						
	750	600	30	50	116	157	220	335	396	490	781	1110	1390	1860	2840	4250*	5000*				
1.4	1500	1071	55	108	209	287	400	538	705	875*	1430*	1950*	2430								
	1000	714	37	74	144	198	270	372	473	585	968	1315	1640	2280*	3180						
	750	536	28	56	109	151	215	318	363	450	748	1020	1270	1700	2600	3950*	4750*				
1.6	1500	938	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	469	28	41	56	70	105	140	190	240	310	455	660	900	1180	1560	2280	3450	4340		
1.8	1500	833	45	67	91	110	160	210	290	355	500	690	1000	1400*	2000*	2600*					
	1000	556	32	48	66	85	120	160	220	265	370	520	750	1020	1400	1800	2620	3860*			
	750	417	25	37	52	66	98	130	180	220	280	425	610	830	1120	1450	2140	3150	4030		
2	1500	750	38	58	79	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	
2.24	1500	670	37	51	68	95	135	180	250	310	450	600	890	1200	1650*	2200*					
	1000	446	26	36	48	68	100	135	190	235	300	450	650	900	1200	1600	2300	3360	4250*		
	750	335	20	28	37	52	82	110	155	190	240	370	530	740	970	1260	1820	2750	3480	4420	4510*
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
2.8	1500	536	27	42	48	66	115	160	210	265	370	495	750	1000	1350	1850					
	1000	357	19	30	34	46	80	120	160	200	260	375	560	750	1000	1310	1910	2890	3700		
	750	268	15	23	27	36	62	93	130	165	210	305	460	610	820	1070	1560	2360	3030	3830	3930
3.15	1500	476	23	34	47	63	91	140	190	240	330	460	680	920	1250	1650	2320	3500*	4430*		
	1000	317	16	24	33	44	62	105	140	180	235	350	510	690	920	1200	1750	2640	3330*	4220	
	750	238	13	18	26	35	47	82	110	150	190	285	410	570	750	960	1430	2150	2730	3450	3570
3.55	1500	423	20	28	43	59	92	125	185	240	330	460	680	920	1240	1510	2200	3230*	4120*		
	1000	282	14	20	31	41	63	88	130	180	225	350	490	630	900	1140	1660	2430	3100	4250	
	750	211	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	880	1020	1500	2200	2730	4240	
	750	188	8.5	13	19	27	40	56	81	110	170	265	355	490	670	830	1220	1800	2230	3060	3280
4.5	1500	333	14	18	31	37	54	73	140	195	265	375	540	780	1110	1240	1770	2560	3280	5170*	
	1000	222	10	13	22	26	39	52	97	140	185	255	380	560	820	940	1230	1790	2470	3850	
	750	167	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	268			22	30	41	68	100	130	200	310	415	560	870	1010	1520	2020	2730	3940	
	1000	179			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	238				23	41	57	83	120	155	240	345	495	720	940	1210	1840	2160	3160	
	1000	159				16	29	41	59	84	110	170	230	350	480	700	830	1240	1450	2150	
	750	119				13	22	32	45	63	87	130	175	270	360	530	640	950	1100	1640	2500

Thermal Capacity (kW)

Nominal Ratio i_N	Input Speed	Size of Gear Unit																			
	(RPM)	80	90	100	110	125	140	160	180	200	225	250	280	315	355	400	450	500	560	630	
	n_1	Thermal capacity, P_{G1} (kW), for gear boxes without cooling																			
1.25 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		
3.15 to 6.3	750	20	26	32	40	51	64	81	103	130	160	211	270	345	430	530	650	800	1000	1200	
	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	
Thermal capacity, P_{G2} (kW), for gear boxes with fan cooling																					
1.25 to 2.8	1500	42	48	65	85	102	130	158	200	262	310	400	500	640	790						
	1000	35	44	55	70	85	110	132	180	225	280	325	422	560	690	860	1160	1400	1800		
3.15 to 6.3	750	30	40	50	62	75	98	120	165	205	260	310	390	525	630	810	1065	1310	1700	2000	
	1500	38	42	60	75	92	120	152	190	235	300	378	475	615	785	980	1245	1560			
	1000	28	34	43	56	75	90	122	150	202	240	320	415	525	685	835	1050	1360	1750		
	750	24	30	37	50	65	80	110	135	182	240	285	360	475	605	765	1000	1260	1650	1900	
Thermal capacity, P_{G3} (kW), for gear boxes with cooling coil																					
1.25 to 6.3	1500	101	121	144	175	212	245	289	335	393	470	555	650	765	920						
	1000	96	113	141	175	204	240	285	332	381	457	543	643	760	910	1070	1260	1530	1850		
	750	95	111	140	168	196	231	271	328	375	450	536	640	750	890	1060	1245	1510	1780	2000	
	Thermal capacity, P_{G4} (kW), for gear boxes with fan and cooling coil																				
1.25 to 6.3	1500	120	140	172	210	255	300	355	420	510	605	730	870	1050	1260						
	1000	110	130	162	200	235	280	330	400	470	570	650	790	970	1160	1390	1760	2110	2600		
	750	105	125	158	190	220	265	310	390	450	550	635	760	930	1090	1340	1660	2020	2480	2800	

3.2 Double Stage

Power Rating

Nominal Ratio i_N	Nominal Speeds		Size of Gear Unit																	
	(RPM)		110	125	140	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800
	n_1	n_2	Nominal Gear Box Rating P_n (kW)																	
6.3	1500	238	36	50	70	105	145	205	285	370	530	790	1060*	1450*	2020*	3740*	5060*	7020*		
	1000	159	24	34	47	71	100	145	215	280	400	560	800	1100	1520	2650	3650*	4780*	7120*	
	750	119	18	25	36	54	74	110	170	230	310	425	600	900	1200	1990	2790	3600	5420*	7700*
7.1	1500	211	36	48	66	100	140	195	280	380	490	730	990	1350*	1900*	3400*	4760*	6200*		
	1000	141	24	32	44	66	93	135	200	255	365	490	720	1000	1400	2330	3270*	4210	6270*	
	750	106	18	24	33	50	71	100	150	210	275	370	550	790	1050	1760	2470	3170	4730	6700*
8	1500	188	32	44	62	91	125	180	255	350	450	660	920	1300	1750*	3070*	4300*	5600*		
	1000	125	22	30	41	60	85	125	180	245	335	450	680	950	1270	2120	2970	3820	5700*	
	750	94	16	22	31	46	65	92	135	190	250	340	520	710	950	1590	2230	2870	4270	6070
9	1500	167	29	40	56	83	130	185	225	320	450	580	820	1100	1500*	2740*	3840*	5000*		
	1000	111	19	27	38	56	86	125	160	215	300	430	620	800	1120	1890	2640	3400	5070*	
	750	83	15	20	28	43	67	95	125	170	235	340	500	650	900	1470	2080	2750	4270	5760
10	1500	150	25	35	50	74	100	150	210	280	390	540	760	1050	1420*	2540*	3560*	4590*		
	1000	100	17	24	33	49	68	95	145	195	265	360	540	750	1000	1700	2380	3060	4560*	
	750	75	13	18	25	37	50	80	110	155	210	280	420	600	800	1320	1860	2460	3600	5160
11.2	1500	134	22	32	45	66	95	140	180	250	330	480	680	900	1250	2270	3180*	4090*		
	1000	89	15	21	30	45	65	95	130	175	245	360	500	680	940	1530	2140	2750	4320	
	750	67	11	16	22	35	49	72	95	130	185	270	400	500	720	1180	1660	2200	3220	4610
12.5	1500	120	21	29	40	55	80	110	170	225	320	430	640	850	1200	2020	2830	3630*	5420*	
	1000	80	14	19	27	37	52	77	115	165	220	300	450	600	850	1390	1970	2600	3800	
	750	60	11	15	20	28	42	58	88	125	165	225	330	450	640	1050	1480	1950	2860	4090
14	1500	107	18	26	35	48	68	100	150	205	280	380	550	710	950	1790	2510	3230*	4820*	
	1000	71	12	17	24	32	46	70	105	145	195	265	400	520	710	1240	1750	2310	3380	
	750	54	9	13	18	24	35	52	78	110	145	200	290	420	560	930	1310	1730	2530	3630
16	1500	94	15	22	30	43	60	90	135	185	250	340	490	650	860	1590	2230	2870	4270*	
	1000	63	10	15	20	29	40	62	92	130	175	235	350	490	650	1100	1550	2050	3000	
	750	47	8	11	15	22	32	47	69	97	130	175	270	370	500	820	1170	1540	2250	3220
18	1500	83	13	19	27	37	55	73	120	140	220	310	430	550	740	1470	1760	2570	4020	
	1000	56	8.5	14	19	25	39	51	80	98	145	230	320	410	540	970	1230	1820	2730	
	750	42	6.5	10	15	19	30	40	62	77	110	180	250	340	440	770	950	1440	2140	3110
20	1500	75		17	24	35	49	73	110	140	210	280	410	520	700	1320	1860	2460	3600	
	1000	50		12	17	23	33	49	74	98	140	190	280	380	500	880	1240	1640	2400	
	750	38		9	12	18	25	38	58	77	110	145	230	310	400	700	990	1290	1920	2780
22.4	1500	67			21	30	41	65	99	135	185	250	390	490	660	1180	1550	2020	3110	
	1000	45			14	20	27	44	66	92	125	170	260	350	460	790	1050	1360	2100	
	750	33			11	16	21	34	52	70	98	130	200	280	370	620	790	1040	1600	2370

Thermal Capacity (kW)

Nominal Ratio i_n	Input Speed		Size of Gear Unit																	
	(RPM)		110	125	140	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800
	n_1		Thermal capacity, P_{G1} (kW), for gear boxes without cooling																	
6.3 to 14	1500	30	40	48	62	80	100	122	155	205	245	300	390	480	630	780	1000	1200	1500	
	1000	26	35	46	55	72	92	120	150	190	240	290	380	470	620	770	980	1180	1470	
	750	23	32	40	53	67	90	110	142	180	230	285	370	465	610	760	950	1160	1450	
16 to 22.4	1500	25	34	42	56	73	94	120	147	185	240	290	380	465	610	760	970	1170	1470	
	1000	22	29	36	48	61	84	108	132	175	230	280	360	460	560	740	955	1150	1450	
	750	20	25	33	42	56	75	100	122	162	212	275	345	440	550	730	940	1130	1420	
Thermal capacity, P_{G2} (kW), for gear boxes with fan cooling																				
6.3 to 14	1500	52	65	82	110	135	162	205	260	320	405	500	650	800	1000	1300	1600			
	1000	40	50	65	85	105	145	180	220	280	370	450	580	730	920	1200	1500			
	750	32	42	58	75	110	130	170	210	260	340	420	530	680	880	1150	1400			
16 to 22.4	1500	45	58	75	95	120	155	200	250	290	390	490	630	780	950	1200	1500			
	1000	34	44	55	70	95	120	160	210	270	350	440	570	700	900	1100	1400			
	750	30	38	50	62	85	105	140	180	240	300	400	520	650	850	1000	1300			
Thermal capacity, P_{G3} (kW), for gear boxes with cooling coil																				
6.3 to 22.4	1500	148	165	186	202	225	248	267	295	345	390	450	540	680	830	880	1100			
	1000	136	156	181	195	217	237	260	290	340	380	440	520	660	800	870	1080			
	750	121	140	162	188	207	230	250	282	330	370	425	510	645	780	860	1050			
Thermal capacity, P_{G4} (kW), for gear boxes with fan and cooling coil																				
6.3 to 22.4	1500	170	190	220	250	280	310	350	400	460	550	650	800	1000	1200	1400	1700			
	1000	150	170	200	225	250	290	320	360	430	510	600	720	920	1100	1300	1600			
	750	130	150	180	210	240	270	310	350	410	480	560	670	860	1050	1250	1500			

For Power Ratings in Bold – Check Thermal Capacity. For Power Ratings Marked with * Forced Lubrication Required

Power Rating

Nominal Ratio i_N	Nominal Speeds		Size of Gear Unit														
	(RPM)		160	180	200	225	250	280	315	355	400	450	500	560	630	710	800
	n_1	n_2	Nominal Gear Box Rating P_n (kW)														
14	1500	107	50	70	105	140	200	280	380	500	660	930	1810*	2540*	3270*	4880*	
	1000	71	34	47	73	95	135	190	270	390	500	700	1250	1770	2340	3420*	4900*
	750	54	26	36	55	74	105	150	215	300	390	580	940	1330	1760	2580	3700
16	1500	94	46	65	95	130	180	260	350	460	600	860	1610*	2260	2910	4330*	
	1000	63	32	44	66	88	120	170	250	350	460	640	1120	1580	2090	3060*	4390*
	750	47	24	33	50	68	95	135	200	270	360	530	830	1180	1560	2280	3270
18	1500	83	42	62	85	120	160	230	320	420	550	800	1490*	2110	2790	4080*	
	1000	56	30	42	60	80	105	150	220	320	420	590	1000	1410	1860	2720*	3900*
	750	42	22	32	45	62	85	120	170	250	330	480	780	1110	1460	2170	3140
20	1500	75	39	59	73	105	145	205	295	385	500	740	1320*	1860	2460	3600*	
	1000	50	27	39	54	70	98	140	200	290	380	550	880	1240	1640	2400	3440*
	750	38	20	30	43	55	77	110	160	240	305	445	690	990	1290	1920	2770
22.4	1500	67	35	52	66	93	130	185	270	350	480	700	1170*	1640	2170	3180*	
	1000	45	24	35	50	65	91	130	190	265	345	520	780	1100	1450	2120	3040*
	750	33	18	26	38	49	69	96	140	215	275	400	620	880	1140	1710	2460
25	1500	60	30	44	62	83	115	160	235	330	450	660	1030*	1460	1930	2820*	
	1000	40	20	30	42	57	80	110	165	255	315	450	730	1040	1350	2010	2900*
	750	30	15	22	31	43	60	85	125	195	240	350	550	780	1010	1510	2180
28	1500	54	27	40	56	75	105	145	215	310	405	590	910	1290	1700	2440*	
	1000	36	18	27	38	52	72	100	150	230	285	420	640	910	1190	1770	2550*
	750	27	14	20	28	39	54	77	115	165	215	315	490	690	890	1330	1920
31.5	1500	48	24	33	48	69	95	130	200	290	385	560	820*	1170	1540	2260*	
	1000	32	16	22	33	46	63	87	130	200	255	370	580	820	1070	1600	2310*
	750	24	13	17	25	34	49	65	100	150	190	280	440	620	810	1200	1740
35.5	1500	42	22	32	46	62	87	120	180	280	345	500	770	1100	1430	2120*	3070*
	1000	28	15	22	30	41	58	82	120	185	230	340	510	720	950	1410	2030
	750	21	11	16	23	31	43	61	90	140	175	250	385	550	710	1060	1530
40	1500	38	20	30	43	56	78	110	160	240	310	450	700	990	1290	1920	2770*
	1000	25	14	21	28	37	52	72	105	165	205	300	465	660	860	1280	1850
	750	19	10	15	22	29	41	56	82	125	155	230	350	495	640	960	1390
45	1500	33	17	26	36	50	69	97	145	220	275	400	620	880	1150	1710*	2480*
	1000	22	12	17	25	33	46	64	95	150	180	265	455	640	760	1140	1650
	750	17	8.5	13	18	26	36	50	7	115	140	205	320	455	600	880	1260
50	1500	30	15	23	32	44	62	87	130	200	245	360	550	780	1030	1540*	2220*
	1000	20	11	15	22	31	43	60	87	135	165	240	365	520	690	1020	1480
	750	15	8	12	16	23	32	44	65	100	120	180	290	410	540	780	1130
56	1500	27	14	20	28	39	55	77	115	175	220	320	500	700	920	1370	1980*
	1000	18	9.5	14	19	27	38	53	77	120	145	215	340	485	640	930	1330
	750	13	7	10	15	21	28	40	59	90	110	165	255	360	475	690	990
63	1500	24	11	17	23	35	45	63	100	150	195	285	440	630	810	1220	1760
	1000	16	7.5	11	16	24	30	43	69	105	130	180	300	430	560	820	1180
	750	12	6	8.5	12	18	23	32	52	78	98	145	230	325	430	630	900
71	1500	21	9.5	15	21	31	40	56	90	135	175	250	395	560	730	1090	1570
	1000	14	6.5	10	14	22	27	39	61	92	115	17	270	380	500	730	1050
	750	11	5	7.5	11	16	20	29	46	69	86	125	200	285	380	550	790
80	1500	19	8.5	14	19	29	36	51	82	120	155	230	350	495	640	960	1390
	1000	13	6	9	13	19	24	34	54	82	100	150	240	340	450	650	940
	750	9	4.5	7	10	14	19	27	40	63	76	110	180	255	340	495	700
90	1500	17	8	12	17	26	32	46	74	110	140	205	320	455	600	880	1260
	1000	11	5.5	8	11	17	22	31	49	74	92	135	210	300	395	570	820
	750	8	4	6.5	9	13	17	24	37	57	69	100	160	225	295	430	620
100	1500	15		9.5	16	24	30	44	60	95	130	175	290	410	540	780	1130
	1000	10		6.5	11	16	21	30	40	63	86	115	190	270	360	520	750
	750	8		5	8	12	16	22	30	47	65	87	145	205	270	395	560
112	1500	13			15	21	29	40	53	84	115	155	255	360	475	690	990
	1000	9			10	14	19	27	36	57	78	105	170	245	325	470	670
	750	7			7.5	11	15	20	27	43	58	78	130	185	245	355	510

Thermal Capacity (kW)

Nominal Ratio i_n	Input Speed	Size of Gear Unit														
	(RPM)	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800
14 to 35.5	n_1	Thermal capacity, PG1 (kW), for gear boxes without cooling														
	1500	42	53	65	90	108	132	172	212	265	335	405	510	650	790	1010
	1000	39	48	60	80	98	125	168	202	255	330	400	490	630	760	990
40 to 112	750	33	44	54	75	90	118	152	195	242	312	388	485	620	750	970
	1500	36	48	60	80	97	122	165	202	255	330	395	495	630	770	990
	1000	42	44	55	70	88	112	155	192	243	310	375	475	605	740	960
112	750	30	40	50	65	80	100	135	172	222	295	368	468	595	720	90
Thermal capacity, P _{G2} (kW), for gear boxes with fan cooling																
14 to 35.5	1500	75	90	110	140	170	220	270	340	420	520	640	800	1050		
	1000	65	83	100	130	160	205	250	320	380	492	590	750	1002		
	750	61	78	95	125	152	196	240	305	362	470	560	710	960		
40 to 112	1500	72	88	106	138	162	205	260	324	387	500	590	755	1000		
	1000	63	80	95	128	153	195	245	305	360	466	552	700	942		
	750	58	75	90	120	140	180	232	290	342	445	522	670	900		
Thermal capacity, PG3 (kW), for gear boxes with cooling coil																
14 to 112	1500	100	120	140	170	200	250	288	360	430	545	640	750	850		
	1000	96	115	132	160	195	245	280	348	425	535	615	720	820		
	750	92	110	126	150	190	240	272	340	420	515	605	715	805		
Thermal capacity, PG4 E60(kW), for gear boxes with fan and cooling coil																
14 to 112	1500	133	157	185	220	262	338	386	488	585	730	875	1040	1250		
	1000	122	150	172	210	257	325	362	466	550	697	805	980	1192		
	750	120	144	167	200	252	318	360	450	540	673	777	940	1145		

For Power Ratings in Bold – Check Thermal Capacity. For Power Ratings Marked with * Forced Lubrication Required

3.4 Quadruple Stage

Power Rating

Nominal Ratio i_N	Nominal Speeds		Size of Gear Unit											
	(RPM)		225	250	280	315	355	400	450	500	560	630	710	800
	n_1	n_2	Nominal Gear Box Rating P_n (kW)											
112	1500	13	20	29	40	59	91	110	160	255	360	480	690	990
	1000	9	14	20	27	39	59	70	105	170	240	320	470	670
	750	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	11	16	23	32	46	72	87	130	205	290	380	550	800
	1000	7	11	16	21	31	47	58	85	135	190	250	365	520
	750	5	8	12	16	23	36	44	65	100	145	190	275	395
160	1500	9	14	20	28	41	63	76	115	180	255	340	495	710
	1000	6	9.5	14	18	27	42	51	75	120	170	225	330	470
	750	5	7.5	10	14	21	32	39	58	91	130	170	250	360
180	1500	8	13	19	25	37	57	69	100	160	225	295	435	630
	1000	6	8.5	12	17	25	38	46	68	105	150	200	290	420
	750	4	6.5	9.5	13	18	29	35	51	81	115	155	220	320
200	1500	8	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	4	6	8	11	17	26	30	44	72	100	135	200	280
224	1500	7	10	14	19	29	45	55	82	130	185	240	355	500
	1000	4	7	9	13	20	30	37	54	86	120	160	235	340
	750	3	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	8	11	15	23	36	44	65	100	145	190	275	395
	1000	4	5.5	7.5	10	15	24	29	43	67	95	125	185	265
	750	3	4	5.5	8	12	18	22	32	50	71	95	140	195
315	1500	5	7.5	9.5	13	21	32	39	58	91	130	170	250	355
	1000	3	5	6.5	9	14	21	25	37	60	86	11	165	235
	750	2	3.5	5	7	10	16	20	29	46	65	86	125	180
355	1500	4	6.5	8.5	12	18	29	35	51	82	115	155	225	320
	1000	3	4.5	6	8.5	12	19	23	34	53	75	99	145	205
	750	2	3	4.5	6.5	9.5	14	17	25	41	58	77	110	160
400	1500	4	6	8	11	16	26	31	45	71	100	135	195	280
	1000	3	4	5	7.5	11	17	20	30	48	68	90	130	190
	750	2	3	4	5.5	8	13	15	23	35	52	66	98	135
450	1500	3	5	7.5	10	13	21	29	39	65	92	120	175	255
	1000	2	3.5	5	6.5	9	14	19	26	43	60	81	115	170
	750	2	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	2		3	4.5	6	9.5	13	17	29	41	54	79	115
560	1500	3			8	11	17	23	30	50	71	95	140	195
	1000	2			5.5	7	11	16	21	35	49	65	94	135
	750	1			4	5.5	8.5	12	16	26	37	49	71	100
630	1500	2				9.5	15	21	28	46	65	86	125	180
	1000	2				6.5	10	14	18	30	43	57	83	120
	750	1				5	7.5	10	14	23	33	43	63	90

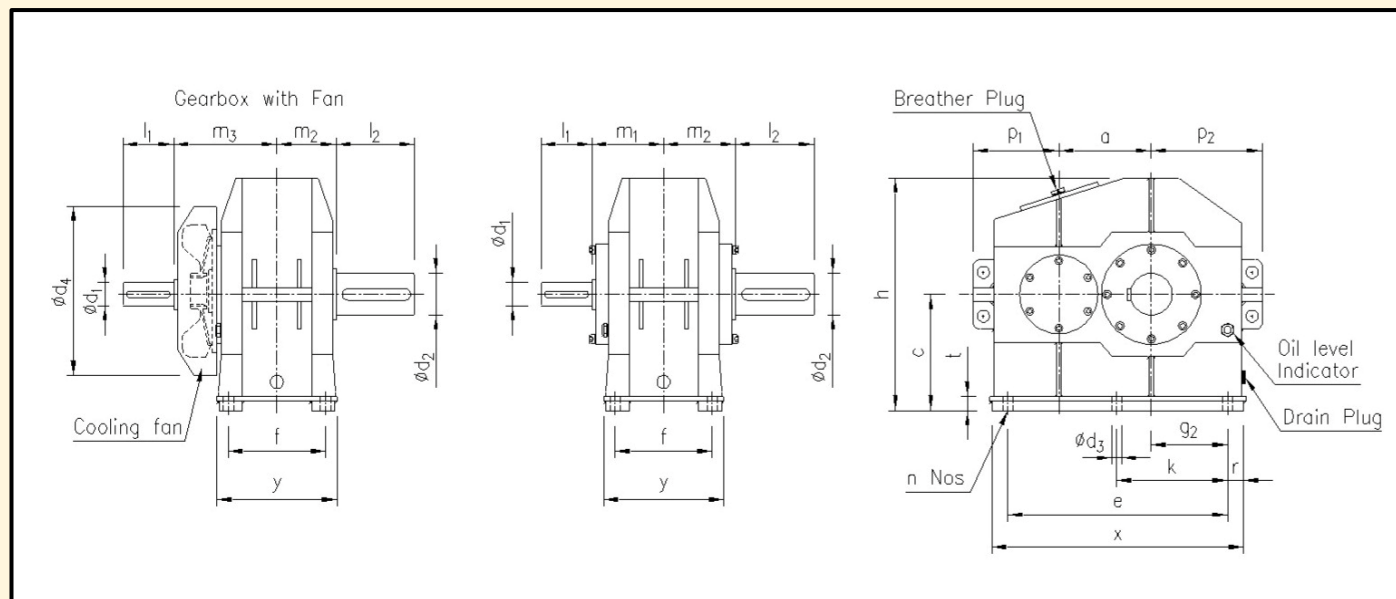
Thermal Capacity (kW)

Nominal Ratio i_N	Input Speed		Size of Gear Unit											
	(RPM)		225	250	280	315	355	400	450	500	560	630	710	800
	n_1		Thermal capacity, PG1 (kW), for gear boxes without cooling											
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

For Power Ratings in Bold – Check Thermal Capacity. For Power Ratings Marked with * Forced Lubrication Required

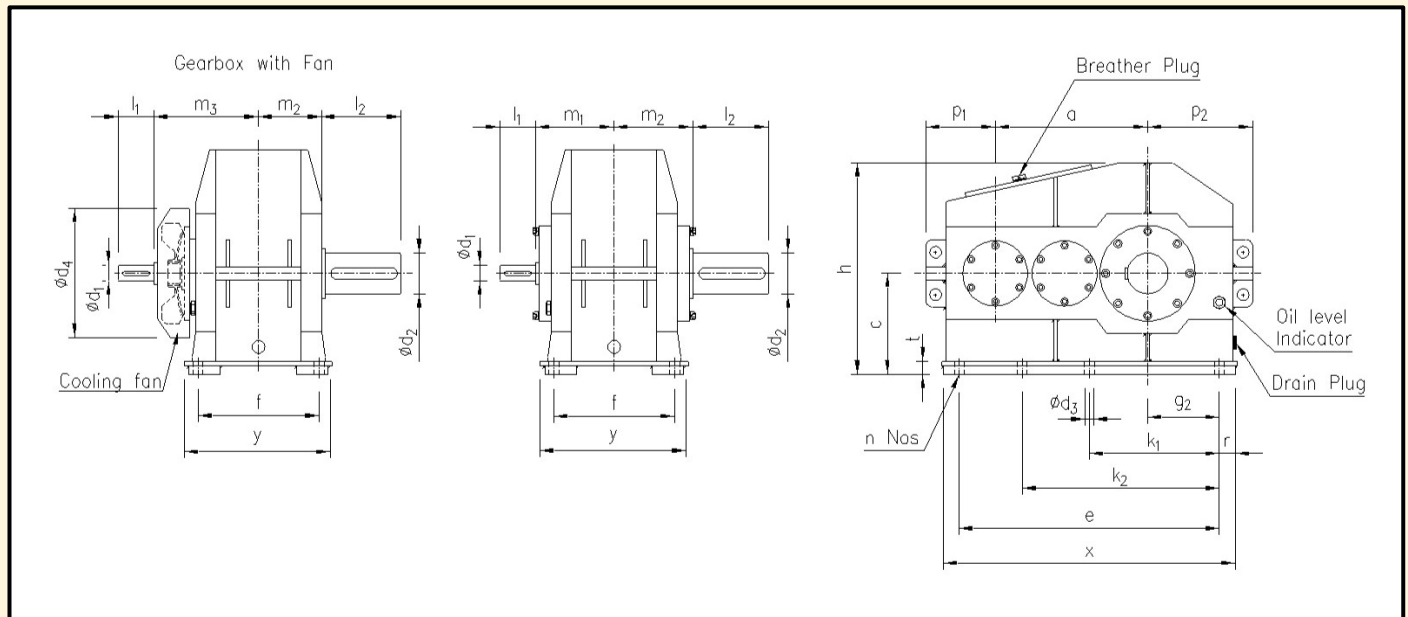
4. Dimensional Details

4.1 Single Stage



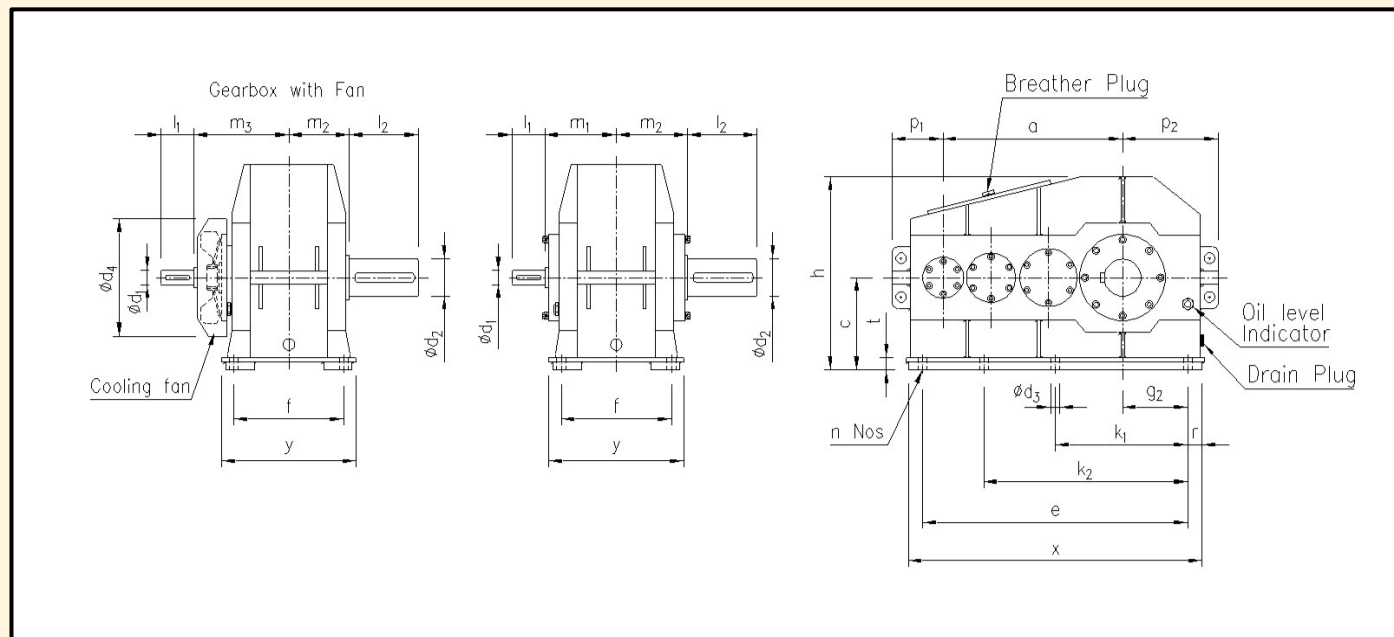
Size	Average Weight (kg)	Oil Quantity (litres)	Input Shaft Details							Output Shaft Details			Mounting Details					Other Dimensions										Fan Details	
			i ≤ 2.8		i = 2.8 to i = 4.5		Above i = 4.5		m1	d2	l2	m2	a	c	e	f	g2	x	y	r	d3	n	k	t	h	p1	p2	d4	m3
			d1	l1	d1	l1	d1	l1																					
80	18	0.8	32	80	24	50			90	35	80	90	80	100	190	130	65	230	160	20	14	4		20	230	95	115	186	140
100	36	1.5	40	110	32	80	24	50	100	45	110	100	100	125	240	145	80	280	180	20	14	4		25	280	110	130	186	150
125	67	2.8	50	110	40	110	32	80	115	55	110	115	125	160	295	165	105	345	200	25	14	4		25	335	120	160	231	165
140	90	4	55	110	45	110	35	80	125	60	140	125	140	180	340	180	120	390	215	25	14	4		30	370	140	180	287	175
160	118	5.3	60	140	50	110	40	110	130	70	140	130	160	200	375	195	130	435	240	30	18	4		35	405	155	200	287	180
180	170	7.5	70	140	55	110	45	110	145	80	170	145	180	225	420	205	150	480	250	30	18	4		35	450	160	220	364	205
200	225	10	75	140	60	140	50	110	155	90	170	155	200	250	475	210	165	545	260	35	22	4		40	500	185	240	364	215
225	300	14	90	170	70	140	55	110	170	100	210	170	225	280	535	250	185	605	300	35	22	4		45	550	210	270	364	230
250	425	19	100	210	75	140	60	140	180	110	210	180	250	315	600	260	215	680	320	40	26	4		50	615	220	300	459	240
280	560	27	110	210	90	170	70	140	200	120	210	200	280	355	660	290	235	750	360	45	26	6	330	55	695	240	330	459	260
315	780	36	120	210	100	210	75	140	220	140	250	220	315	400	740	340	260	840	410	50	33	6	370	60	775	275	370	459	280
355	1050	50	130	250	110	210	90	170	250	160	300	250	355	450	830	360	300	940	440	55	33	6	415	65	855	290	415	459	310
400	1400	70	150	250	120	210	100	210	265	170	300	265	400	500	930	400	335	1040	480	55	33	6	465	70	965	320	460	570	325
450	1950	98	170	300	130	250	110	210	310	190	350	310	450	560	1060	460	375	1190	550	65	39	6	530	80	1075	370	510	570	375
500	2550	135	190	350	150	250	120	210	335	210	350	335	500	630	1180	510	415	1330	620	75	39	6	590	90	1195	420	570	570	400
560	3820	145			160	300	130	250	380	240	400	380	560	710	1310	560	450	1480	670	85	45	6	655	100	1420	500	665	660	450
630	5250	200			180	300	140	250	410	260	410	410	630	800	1470	590	525	1640	700	85	45	6	735	110	1575	525	735	660	480

4.2 Double Stage



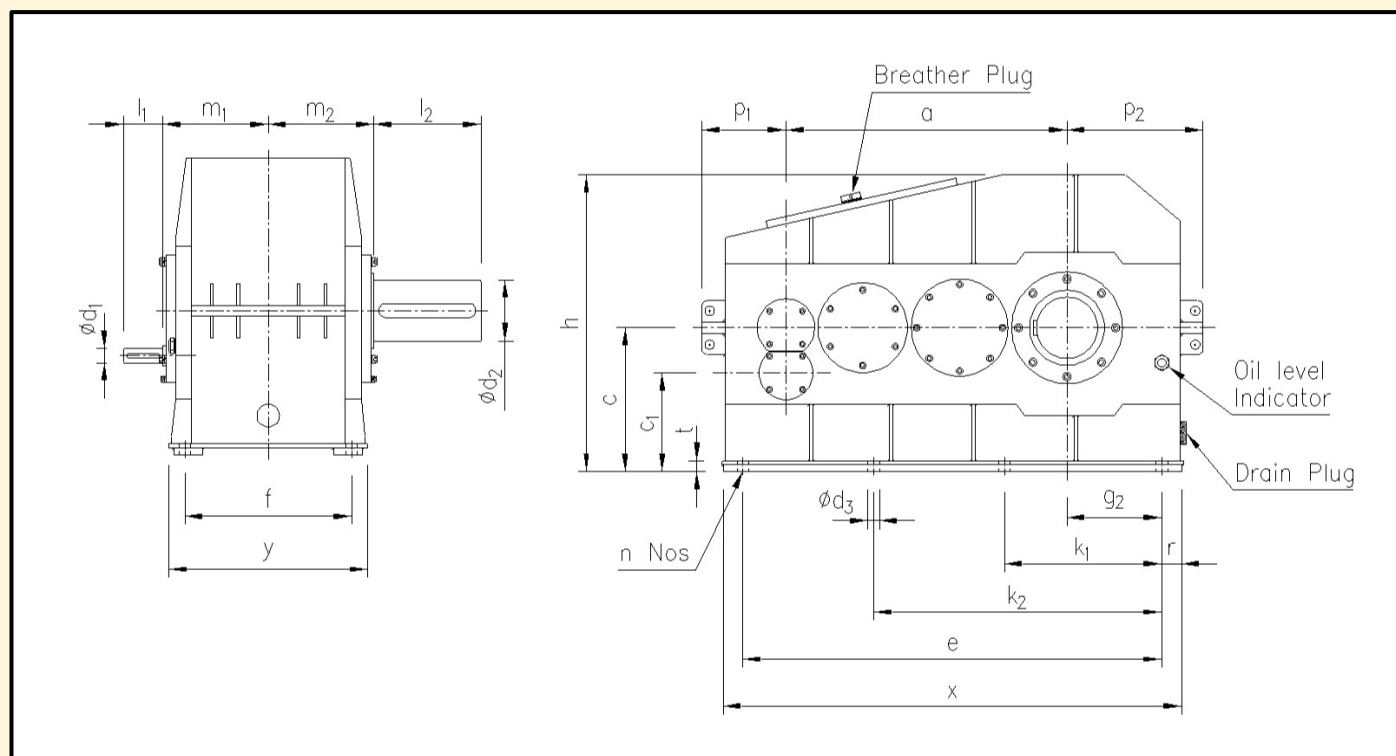
Size	Average Weight (kg)	Oil Quantity (litres)	Input Shaft Details							Output Shaft Details	Mounting Details					Other Dimensions												Fan Details		
			i <= 11.2		i = 11.2 to i = 18		Above i = 18		m ₁		d ₂	l ₂	m ₂	a	c	e	f	g ₂	x	y	r	d ₃	n	k ₁	k ₂	t	h	p ₁	p ₂	d ₄
			d ₁	l ₁	d ₁	l ₁	d ₁	l ₁																						
110	65	2.5	28	60	24	50			110	48	110	110	190	125	330	165	95	370	200	20	14	6	165		25	285	95	145	186	160
125	88	3.5	32	80	28	60	24	50	120	55	110	120	215	140	390	185	110	430	220	20	14	6	195		25	300	115	160	231	170
140	118	4.8	35	80	32	80	24	50	135	60	140	135	240	160	420	205	120	470	240	25	14	6	210		30	345	120	180	231	185
160	160	6.5	40	110	35	80	28	60	140	70	140	140	270	180	470	215	130	530	260	30	18	6	235		30	385	135	195	231	190
180	215	9.5	45	110	40	110	32	80	140	80	170	140	305	200	540	235	145	600	280	30	18	6	270		35	435	160	215	231	210
200	280	13	50	110	45	110	35	80	160	90	170	160	340	225	580	270	160	650	330	35	22	6	290		40	470	155	235	287	225
225	370	18	55	110	50	110	40	110	175	100	210	175	385	250	690	300	185	760	360	35	22	6	345		45	525	200	265	287	240
250	500	25	60	140	55	110	45	110	190	110	210	190	430	280	760	340	195	740	410	40	26	6	380		50	600	225	285	364	275
280	670	36	70	140	60	140	50	110	215	130	250	215	480	315	840	370	215	930	440	45	26	6	420		55	670	240	30	364	295
315	930	50	75	140	70	140	55	110	235	140	250	235	540	355	930	410	240	1030	500	50	33	6	465		60	740	260	350	364	320
355	1250	65	90	170	75	140	60	140	260	170	300	260	605	400	1070	465	265	1180	555	55	33	6	535		65	825	315	380	364	355
400	1800	95	100	210	90	170	70	140	295	180	300	295	680	450	1190	490	305	1300	600	55	33	6	595		70	915	325	425	459	375
450	2300	125	110	210	100	210	75	140	315	210	350	315	765	500	1350	540	340	1480	650	65	39	8	540	945	80	1010	370	465	459	405
500	3200	180	120	210	110	210	90	170	345	240	410	345	855	560	1515	650	375	1665	760	75	39	8	595	1055	90	1120	440	530	459	460
560	4500	250	130	250	120	210	100	210	400	270	470	400	960	630	1680	700	415	1850	820	85	45	8	660	1170	100	1270	470	580	459	500
630	6100	360	150	250	130	250	110	210	440	300	470	440	1080	710	1880	780	475	2050	900	85	45	8	740	1310	110	1390	485	640	570	555
710	8500	500	170	300	150	250	120	210	490	340	550	490	1210	800	2090	870	540	2270	1010	90	45	8	820	1455	125	1570	530	735	570	605
800	11400	670	190	350	170	300	130	250	540	390	650	540	1360	900	2360	1020	610	2540	1160	90	45	8	900	1630	140	1760	590	815	570	665

4.3 Triple Stage



Size	Average Weight (kg)	Oil Quantity (litres)	Input Shaft Details							Output Shaft Details			Mounting Details					Other Dimensions												Fan Details	
			i <=45		i = 45 to i = 80		Above i = 80																								
			d ₁	l ₁	d ₁	l ₁	d ₁	l ₁	m ₁	d ₂	l ₂	m ₂	a	c	e	f	g ₂	x	y	r	d ₃	n	k ₁	k ₂	t	h	p ₁	p ₂	d ₄	m ₃	
125	90	7	19	40	18	35			120	55	110	120	278	140	450	185	110	490	220	20	14	6	225		25	300	105	160	231	170	
140	160	9	22	40	18	40			135	60	140	135	310	160	470	205	120	520	240	25	14	6	235		30	345	120	180	231	185	
160	170	9	28	60	24	50	19	35	140	70	140	140	350	180	520	215	130	580	260	30	18	6	260		30	385	105	195	231	190	
180	225	11	32	80	28	60	22	35	160	80	170	160	395	200	590	235	145	650	280	30	18	6	295		35	435	120	215	231	210	
200	300	15	35	80	32	80	24	50	175	90	170	175	440	225	650	270	160	720	330	35	22	6	325		40	470	125	235	287	225	
225	410	22	40	110	35	80	28	60	190	100	210	190	495	250	750	300	185	820	360	35	22	6	375		45	525	150	265	287	240	
250	540	30	45	110	40	110	32	80	215	110	210	215	555	280	830	340	195	910	410	40	26	6	415		50	600	170	285	287	265	
280	750	45	50	110	45	110	35	80	235	130	250	235	620	315	910	370	215	1000	440	45	26	6	455		55	670	170	310	287	285	
315	1000	60	55	110	50	110	40	110	260	140	250	260	700	355	1050	410	240	1150	500	50	33	8	400	725	60	740	220	350	287	310	
355	1320	85	60	140	55	110	45	110	295	170	300	295	785	400	1170	465	265	1280	555	55	33	8	440	805	65	825	235	380	364	355	
400	1900	120	70	140	60	140	50	110	315	180	300	315	880	450	1320	490	305	1430	600	55	33	8	490	905	70	915	255	425	364	375	
450	2500	170	75	140	70	140	55	110	345	210	350	345	990	500	1470	540	340	1600	650	65	39	8	540	1005	80	1010	270	465	364	405	
500	3550	230	90	170	75	140	60	140	400	240	410	400	1105	560	1665	650	375	1815	760	75	39	8	595	1130	90	1120	340	530	364	460	
560	4900	330	100	210	90	170	70	140	440	270	470	440	1240	630	1830	700	415	2000	820	85	45	8	660	1245	100	1270	340	580	459	500	
630	6700	480	110	210	100	210	75	140	490	300	470	490	1395	710	2100	780	475	2270	900	85	45	8	740	1420	110	1390	395	640	710	550	
710	9200	680	120	210	110	210	90	170	540	340	550	540	1565	800	2370	980	640	2550	1010	90	45	8	820	1595	125	1570	460	735	710	600	
800	12500	925	130	250	120	210	100	210	600	390	650	600	1760	900	2670	1020	610	2850	1160	90	45	8	900	1785	140	1760	505	815	710	660	

4.4 Quadruple Stage



Size	Average Weight (kg)	Oil Quantity (litres)	Input Shaft Details					Output Shaft Details			Mounting Details							Other Dimensions									
			i ≤ 280		Above i = 280		m_1	d_2	l_2	m_2	a	c	c_1	e	f	g_2	x	y	r	d_3	n	k_1	k_2	t	h	p_1	p_2
			d_1	l_1	d_1	l_1																					
225	410	22	24	50	20	50	190	100	210	190	495	250	170	750	300	185	820	360	35	22	6	375		45	525	150	265
250	550	30	28	60	22	50	215	110	210	215	555	280	190	930	340	195	910	410	40	26	6	475		50	600	170	285
280	760	45	32	80	24	50	235	130	250	235	620	315	215	910	370	215	1000	440	45	26	6	455		55	670	170	310
315	1050	60	35	80	28	60	260	140	250	260	700	355	245	1050	410	240	1150	500	50	33	8	400	725	60	740	220	350
355	1370	85	40	110	32	80	295	170	300	295	785	400	275	1170	465	265	1280	555	55	33	8	440	805	65	825	235	380
400	1950	210	45	110	35	80	315	180	300	315	880	450	310	1320	490	305	1430	600	55	33	8	490	905	70	915	255	425
450	2550	170	50	110	40	110	345	210	350	345	990	500	340	1470	540	340	1600	650	65	39	8	540	1005	80	1010	270	465
500	3650	230	55	110	45	110	400	240	410	400	1105	560	380	1665	650	375	1815	760	75	39	8	595	1130	90	1120	340	530
560	5000	330	60	140	50	110	440	270	470	440	1240	630	430	1830	700	415	2000	820	85	45	8	660	1245	100	1270	340	580
630	6800	480	70	140	55	110	490	300	470	490	1395	710	485	2100	780	475	2270	900	85	45	8	740	1420	110	1390	395	640
710	9300	680	75	140	60	140	540	340	550	540	1565	800	550	2370	970	540	2550	1010	90	45	8	820	1595	125	1570	460	735
800	12600	925	90	170	70	140	600	390	650	600	1760	900	620	2670	1020	610	2850	1160	90	45	8	900	1785	140	1760	505	815

5. Rating Charts

5.1 Double Stage

Power Rating

Nominal Ratio i_N	Nominal Speeds (RPM)		Size of Gearbox																	
			80	90	100	110	125	140	160	180	200	225	250	280	315	355	400	450	500	560
	n_1	n_2	Mechanical Rating in KW																	
6.3	1500	238	12	18	24	28	45	65	94	115	165	240	360	460	610	790	1290*	1850*	2100*	2400*
	1000	159	8	12	16	21	34	49	70	86	125	180	270	345	465	590	970	1380	1800	2200*
	750	119	6	9	12	17	24	40	56	71	100	145	210	275	380	490	790	1030	1450	1850
7.1	1500	211	12	16	24	28	45	65	94	115	155	225	345	460	610	790	1180*	1740*	2100*	2400*
	1000	141	8	11	16	21	32	49	70	86	115	170	265	345	465	590	890	1310	1800	2200*
	750	106	6	8	12	17	24	40	56	68	94	135	200	275	380	490	720	1030	1450	1850
8	1500	188	9	13	19	28	40	56	81	115	145	205	320	435	610	750	1080*	1680*	2100*	2400*
	1000	125	6	9	13	18	27	38	56	86	110	155	245	325	465	560	810	1260	1700	2200
	750	94	4.5	6.5	10	14	20	29	42	55	88	125	185	250	340	465	660	950	1400	1800
9	1500	167	8	12	18	25	36	51	74	100	135	190	290	395	540	680	980	1540*	2050*	2200*
	1000	111	5.5	8	12	16	24	34	49	76	100	145	220	295	415	510	740	1110	1560	1950
	750	83	4	6	9.5	13	19	26	38	51	79	120	175	230	315	420	600	830	1190	1500
10	1500	150	7.5	10	16	22	32	46	67	92	130	165	255	345	480	610	910	1370	1900*	2200*
	1000	100	5	7	11	15	22	30	44	69	94	125	195	260	360	465	620	950	1270	1700
	750	75	4	5.5	8.5	11	17	23	34	46	73	105	155	210	295	380	510	710	950	1300
11.2	1500	134	6.5	9.5	14	20	29	41	59	81	115	150	235	325	450	560	840	1200	1550	2000*
	1000	89	4.5	6.5	9.5	13	20	27	40	61	84	130	175	245	340	430	630	810	1030	1380
	750	67	3.5	4.8	7.5	10	15	21	31	41	65	98	140	185	240	350	470	610	780	1040
12.5	1500	120	5.5	8.5	13.8.5	18	26	36	53	75	105	140	210	285	390	500	760	980	1260	1550*
	1000	80	3.9	5.5	5.5	12	18	25	36	56	74	105	145	215	265	380	480	660	850	1110
	750	60	3	4.2	4.2	9	13	19	27	36	56	76	110	150	190	270	365	500	640	840
14	1500	107	5	7.5	10	14	23	32	48	66	81	125	190	260	345	465	580	780	1000	1150
	1000	71	3.5	5	6.5	9	15	21	31	42	54	84	110	165	205	310	415	520	680	900
	750	54	2.6	3.7	4.9	7	11	15	23	31	38	60	80	115	145	235	310	400	510	690
16	1500	94	4.3	6	7.5	11	18	24	37	51	60	105	135	205	260	410	480	600	840	1000
	1000	63	2.8	3.7	5	7.5	11	15	24	32	37	63	81	125	150	250	350	410	560	720
	750	47	2.1	2.8	37	5.5	8.5	11	17	23	27	46	59	88	110	180	260	305	425	600
18	1500	83	3.3	4.5	6	8.5	13													
	1000	56	2.2	2.9	3.9	5.5	8.5													
	750	42	1.6	2.2	2.9	4.2	6.5													

Thermal Capacity (KW)

Nominal Ratio	Input Speed (RPM)	Size of Gear Unit																	
		80	90	100	110	125	140	160	180	200	225	250	280	315	355	400	450	500	560
i_N	n_1	Thermal capacity, P_{G1} (kW), for gear boxes without cooling																	
6.3 to 11.2	1500	11	16	21	26	31	38	50	90	125	125	140	170	220	275	355	430	550	675
	1000	10	15	20	24	29	36	48	86	110	110	135	165	210	270	340	420	545	665
12.5 to 18	750	9	13	18	21	26	35	46	80	105	105	130	155	205	260	330	415	535	660
	1500	10	15	18	24	28	36	48	62	86	110	135	165	215	265	340	420	545	665
	1000	9	13	16	22	25	34	45	54	78	105	125	160	205	260	335	415	535	655
	750	8	12	15	19	23	32	41	50	73	100	120	150	200	255	330	410	530	650
		Thermal capacity, P_{G2} (kW), for gear boxes with fan cooling																	
6.3 to 11.2	1500	28	35	45	56	70	90	110	150	195	250	330	380	510	620	800	990	1200	1500
	1000	26	33	42	52	63	82	100	140	175	230	305	350	450	550	700	830	1100	1400
12.5 to 18	750	22	30	37	48	55	75	95	125	150	205	260	300	400	500	620	780	950	1300
	1500	25	33	42	54	68	86	105	140	180	230	310	370	480	600	750	950	1150	1450
	1000	21	29	36	46	58	72	92	120	150	200	260	320	430	520	660	810	1000	1300
	750	16	24	30	40	50	64	82	105	135	180	230	280	380	480	600	740	930	1200
		Thermal capacity, P_{G3} (kW), for gear boxes with cooling coil																	
6.3 to 11.2	1500	20	26	32	42	56	70	90	110	135	170	210	260	330	425	575	760	975	1175
	1000	18	24	30	40	54	65	83	106	131	160	200	255	310	420	570	740	965	1165
	750	15	22	29	37	51	61	81	104	130	155	194	250	300	410	565	715	935	1110
		Thermal capacity, P_{G4} (kW), for gear boxes with fan and cooling coil																	
6.3 to 11.2	1500	37	45	56	72	95	122	150	195	240	305	400	470	620	770	1020	1200	1500	2000
	1000	34	42	52	68	88	111	135	188	220	280	370	440	550	700	930	1150	1400	1900
	750	28	39	48	64	80	101	130	171	200	255	324	395	495	650	855	1080	1350	1750

For Power Ratings in Bold – Check Thermal Capacity. For Power Ratings Marked with * Forced Lubrication Required.

5.2 Triple Stage

Power Rating

Nominal Ratio i_N	Nominal Speeds (RPM)		Size of Gearbox																	
			110	125	140	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800
	n_1	n_2	Mechanical Rating in KW																	
14	1500	107	16	22	32	45	63	85	120	170	240	320	440	620*	830*	1350*	1850*	2500*		
	1000	71	11	15	23	30	46	60	85	120	175	235	330	450	630	1010	1420*	2200*	2500*	2850*
	750	54	8.5	12	17	24	35	45	70	90	145	190	270	360	510	830	1180	1750	2300*	2600*
16	1500	94	15	22	30	45	61	80	120	160	230	305	440	600*	830*	1350*	1850*	2500*		
	1000	63	10	14	21	30	43	60	85	115	170	230	330	440	630	1010	1420*	2200*	2500*	2850*
	750	47	8	12	17	24	35	45	70	85	140	185	270	360	510	830	1180	1600	2300*	2600*
18	1500	83	13	20	28	42	58	75	110	150	210	290	440	560	780*	1350*	1850*	2500*	2700*	
	1000	56	9	13	19	30	40	53	75	105	155	215	330	420	590	1000	1400*	1860*	2500*	2850*
	750	42	7	10	15	23	32	42	65	80	120	175	260	345	480	790	1120	1460	2180	2500
20	1500	75	12	17	25	39	53	68	100	135	195	270	430	550	780*	1320*	1800*	2460*	2650*	
	1000	50	8	12	17	27	36	48	70	95	140	200	315	380	550	880	1240*	1640*	2400*	2850*
	750	38	6	9	13	20	28	38	55	75	110	160	245	310	445	700	1000	1290	1920*	2500*
22.4	1500	67	10	15	22	34	50	65	94	130	175	250	400	510	730*	1170*	1540*	2170*	2500*	2850*
	1000	45	7	11	15	23	34	45	65	90	130	185	290	360	520	780	1100	1450*	2120*	2600*
	750	33	5.5	8	11	17	25	36	49	70	95	140	220	275	400	620	880	1140	1710	2460*
25	1500	60	9	14	20	30	44	62	83	115	160	225	350	450	650	1030*	1460*	1930*	2500*	2850*
	1000	40	6.5	9.5	14	20	30	42	57	80	110	165	255	315	460	730	1040	1350*	2010*	2600*
	750	30	4.7	7	10	15	23	32	43	60	85	125	195	240	350	550	780	1010	1510	2180*
28	1500	54	8	11	18	22	37	48	75	92	140	215	320	405	590	910*	1290*	1710*	2400*	2700*
	1000	36	5.5	8	12	15	25	34	52	66	94	150	225	285	420	640	910	1190	1770*	2500*
	750	27	4.1	6	9	12	19	26	39	50	71	115	170	215	315	490	690	890	1330	1920*
31.5	1500	48	7	10	16	20	33	44	69	85	120	195	290	385	550		1170*	1540*	2260*	2500*
	1000	32	4.8	7	11	14	22	31	46	59	83	130	200	255	370	580	820	1070	1600*	2310*
	750	24	3.6	5.5	8	10	17	23	34	44	62	100	150	190	280		620	800	1200	1740*
35.5	1500	42	6.5	9.5	15	18	30	40	62	77	110	180	260	345	500	770*	1100*	1430*	2120*	2400*
	1000	28	4.3	6.5	10	12	20	28	42	53	75	120	180	230	340	510	720	950	1410*	2030*
	750	21	3.2	4.8	7.5	9	15	21	31	40	56	90	135	175	250	385	540	710	1060	1540
40	1500	38	6	8.5	13	17	27	36	56	69	98	160	235	310	450	690	990*	1290*	1920*	2200*
	1000	25	3.9	5.5	9.5	11	18	25	41	47	67	120	160	225	330	465	660	860	1280	1850*
	750	19	2.9	4.4	6.5	8.5	14	19	29	36	52	82	125	155	230	350	495	640	960	1390
45	1500	34	5	7.5	12	15	24	33	19	64	90	145	215	275	400	620	880	1150*	1720*	2100*
	1000	22	3.5	5	8	10	16	12	33	42	60	95	145	180	265	455	640	840	1250	1810
	750	17	2.7	4	6	7.5	12	17	22	32	46	74	110	140	205	320	455	600	870	1260
50	1500	30	4.6	7	11	13	21	30	17	57	80	130	195	245	360	550	780	1030	1540*	2050*
	1000	20	3.1	4.6	7	9.5	14	20	31	38	54	87	130	165	240	365	520	680	1020	1480
	750	15	2.4	3.5	5.5	6.5	11	15	23	29	41	65	99	120	180	290	410	540	780	1130
56	1500	27	4.1	6	9.5	12	19	26	39	50	71	115	170	220	320	500	700	920	1370*	1980*
	1000	18	2.8	4.2	6.5	8	13	18	27	34	49	78	115	145	215	340	485	640	930	1340
	750	13	2.1	3.1	4.6	6	10	14	21	26	37	59	88	110	165	255	360	475	690	990
63	1500	24	3.7	5.5	8.5	10	17	23	35	44	63	100	150	195	285	440	620	810	1220	1550*
	1000	16	2.5	3.7	5.5	7	12	16	24	30	43	69	105	130	190	300	430	560	820	1110
	750	12	1.9	2.8	4.2	5.5	8.5	12	18	23	32	52	78	98	145	230	325	430	620	840
71	1500	21	3.2	4.8	7.5	9	15	21	31	40	56	90	135	175	250	395	560	730	1000	1150
	1000	14	2.2	3.3	5	6.5	10	14	22	27	37	62	81	115	160	265	380	500	680	900
	750	11	1.7	2.5	3.7	4.8	7.5	11	16	20	27	46	59	86	110	200	285	380	510	690
80	1500	19	2.9	4.4	6	9	12	19	29	40	55	74	115	160	210	350	480	600	850	1050
	1000	13	2	3	4.2	6	8	14	20	27	37	50	79	110	145	240	340	410	560	720
	750	9	1.5	2.2	3.1	4.5	8	10	15	20	27	38	59	81	110	180	255	305	425	600
90	1500	17	2.3	3.9	5.5	8	10	18	26	36	46	67	110	145	190	310	385	520	800	920
	1000	11	1.5	2.5	3.7	5.5	7	12	17	24	29	41	67	95	115	180	260	355	540	650
	750	8	1.1	1.9	2.8	4	5.5	9	13	18	21	30	48	68	85	130	195	270	410	510
100	1500	15		2.8	5	7	9.5	16	21	30	34	50	82	120	140	230	320	430	650	850
	1000	10		1.8	3.3	4.6	6.5	10	13	19	22	31	50	64	85	135	205	295	435	550
	750	8		1.3	2.4	3.4	4.9	7.5	9.5	14	16	23	37	46	62	97	145	225	330	440

Thermal Capacity (KW)

Nominal Ratio	Input Speed (RPM)	Size of Gear Unit																	
		110	125	140	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800
i_N	n_1	Thermal capacity, P_{G1} (kW), for gear boxes without cooling																	
14 to 35.5	1500	21	26	32	42	51	65	85	102	133	168	202	250	305	386	485	605	760	960
	1000	19	23	29	38	49	60	78	100	120	158	192	240	292	375	480	595	740	940
	750	17	20	26	34	45	55	72	95	118	152	183	232	282	370	465	585	720	920
40 to 100	1500	18	24	30	38	48	60	75	96	123	157	191	242	300	380	475	595	750	950
	1000	17	21	27	36	46	57	74	94	115	150	181	228	277	365	460	580	730	930
	750	15	19	24	32	42	54	70	92	110	140	170	215	265	350	445	560	705	900
		Thermal capacity, P_{G2} (kW), for gear boxes with fan cooling																	
14 to 35.5	1500	50	62	80	100	120	150	195	225	290	380	465	550	715	900	1160	1450	#	#
	1000	48	60	76	95	115	135	175	210	260	345	410	470	595	770	1000	1300	#	#
	750	46	58	72	90	110	125	160	190	230	300	360	420	530	695	920	1190	#	#
40 to 100	1500	47	60	76	96	115	140	180	212	255	320	390	480	620	760	950	1290	#	#
	1000	45	56	72	86	108	130	165	195	240	290	350	450	580	700	890	1180	#	#
	750	43	52	66	80	100	120	156	180	220	270	310	410	520	655	860	1100	#	#
		Thermal capacity, P_{G3} (kW), for gear boxes with cooling coil																	
14 to 100	1500	71	84	97	122	141	165	210	247	313	318	367	485	540	646	685	855	#	#
	1000	69	81	93	113	134	160	193	240	300	308	357	465	517	595	640	835	#	#
	750	67	77	89	104	120	150	182	230	296	300	348	462	512	585	625	795	#	#
		Thermal capacity, P_{G4} (kW), for gear boxes with fan and cooling coil																	
14 to 100	1500	100	120	145	180	210	250	320	370	470	530	630	785	950	1160	1360	1700	#	#
	1000	98	118	140	170	200	235	290	350	440	495	575	695	820	990	1180	1540	#	#
	750	96	115	135	160	185	220	270	325	408	448	525	650	760	910	1080	1400	#	#

5.3 Quadruple Stage

Power Rating

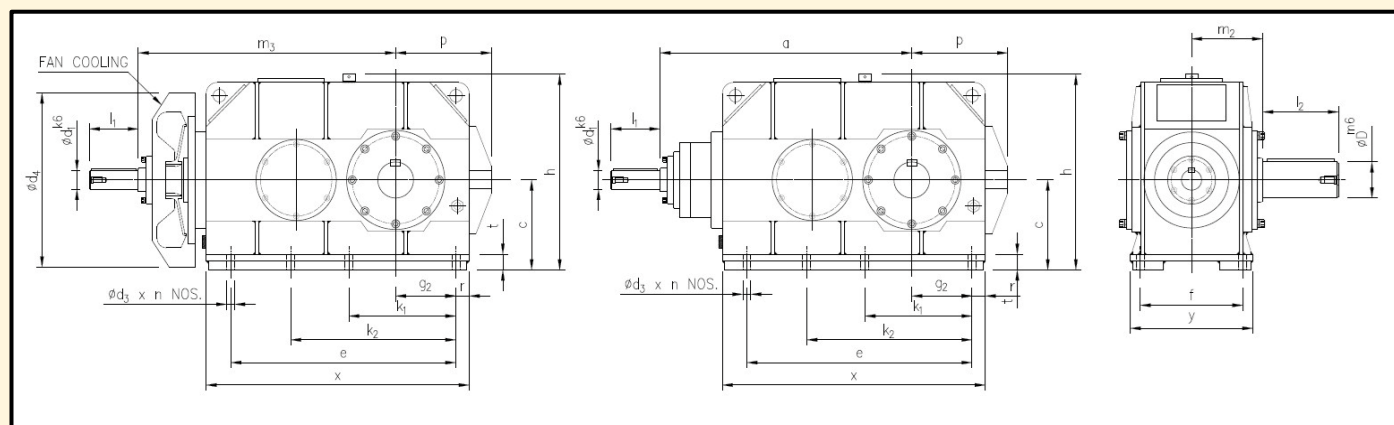
Nominal Ratio i_N	Nominal Speeds (RPM)		Size of Gearbox														
			160	180	200	225	250	280	315	355	400	450	500	560	630	710	800
	n_1	n_2	Mechanical Rating in KW														
100	1500	15						41	65	98	135	180	290	400	540	780	1130
	1000	10						27	44	65	84	120	190	270	360	520	750
	750	8						21	33	50	64	90	145	205	270	395	560
112	1500	13	6	9.5	13	21	27	37	59	86	110	160	255	360	480	690	900
	1000	9	4.1	7	9.5	14	18	25	39	60	70	105	170	240	320	470	670
	750	7	3	5	7	10	14	19	29	44	53	83	130	185	235	355	500
125	1500	12	5.5	9	12	18	24	33	52	78	97	145	230	320	425	610	880
	1000	8	3.7	6	8.5	12	16	23	34	53	65	95	155	210	285	420	570
	750	6	2.7	4.6	6.5	9	12	17	26	40	48	71	115	160	210	310	440
140	1500	11	4.9	8	11	16	22	29	46	70	87	130	205	290	380	550	800
	1000	7	3.3	5.5	7.5	11	15	21	31	48	58	85	135	190	250	365	520
	750	5	2.5	4.1	5.5	8	11	16	23	36	44	65	100	145	190	275	395
160	1500	9	4.4	7.5	10	14	20	27	41	63	76	115	180	255	340	495	710
	1000	6	2.9	4.9	7	9.5	13	18	27	42	51	75	120	170	225	330	470
	750	5	2.2	3.6	5	7.5	10	14	21	32	39	58	91	130	170	250	360
180	1500	8	3.9	6.5	9	13	17	24	37	57	69	100	160	225	295	435	630
	1000	6	2.6	4.3	6	8.5	12	16	25	38	46	68	105	150	200	290	420
	750	4	2	3.2	4.5	6.5	9	12	19	29	35	51	81	115	155	220	320
200	1500	8	3.5	5.8	8	12	15	22	33	51	62	92	145	205	270	395	560
	1000	5	2.3	3.8	5.5	8	10	14	22	34	41	61	96	135	180	260	375
	750	4	1.9	2.9	4.3	6	8	11	17	26	30	44	72	100	135	200	280
224	1500	7	3.1	5	7	10	14	19	30	45	55	82	130	185	240	355	500
	1000	4	2.1	3.4	4.7	7	9	13	20	30	37	54	86	120	160	235	340
	750	3	1.7	2.6	3.8	5	7	10	15	23	28	41	65	92	120	175	255
250	1500	6	2.8	4.6	6.5	9.5	12	17	26	40	48	71	115	165	215	315	450
	1000	4	1.9	3.1	4.7	6	8.5	12	17	27	32	48	77	110	145	210	300
	750	3	1.5	2.3	3.4	4.5	6.5	9	13	20	24	36	58	82	110	155	225
280	1500	5	2.7	3.4	5.5	8	11	15	23	36	44	65	100	145	190	275	395
	1000	4	1.7	2.3	3.8	5.5	7.5	11	16	24	29	43	67	95	125	185	265
	750	3	1.2	1.6	2.7	4.1	5.5	8	12	18	22	32	50	71	95	140	195
315	1500	5	2.3	3.1	5	7.5	9.5	14	21	32	39	58	91	130	170	250	335
	1000	3	1.6	2.1	3.5	4.8	6.5	9	14	21	25	37	60	86	115	165	225
	750	2	1.2	1.5	2.6	3.7	5	7	11	16	20	29	46	65	86	125	170
355	1500	4	2.1	2.8	4.6	6.5	8.5	11	18	23	35	43	82	115	155	205	275
	1000	3	1.3	1.9	3	4.3	6	7.5	12	16	23	29	53	75	99	135	185
	750	2	1	1.3	2.3	3.2	4.4	5.5	9	12	17	21	41	58	77	105	140
400	1500	4	1.7	2.4	3.8	5	7.5	9	15	19	28	35	71	100	120	170	240
	1000	3	1.1	1.5	2.5	3.3	5	6	10	13	19	24	47	68	81	115	160
	750	2	0.8	1.2	1.9	2.5	3.7	4.5	7.5	9.5	14	17	35	52	61	85	120
450	1500	3	1.3	2.1	3	5	7	9	13	19	28	35	57	88	105	150	215
	1000	2	0.9	1.4	2	3.3	5	6	9	13	19	24	38	61	73	100	145
	750	2	0.7	1.1	1.5	2.5	3.7	4.5	7	9.5	14	17	28	45	54	76	105
500	1500	3				3.8	6	7	9.5	16	22	25	43	70	96	145	185
	1000	2				2.5	4	4.6	6.5	11	15	17	29	47	64	99	125
	750	2				1.9	3.1	3.4	4.8	8	11	12	21	35	48	73	92
560	1500	3					5.5	6	8.5	14	20	22	38	62	85	130	165
	1000	2					3.6	4	5.5	9.5	13	15	26	42	57	87	110
	750	1					2.7	3	4.2	7	10	11	19	31	43	64	82
630	1500	2						4.8	7	11	14	17	29	43	70	105	140
	1000	2						3.2	4.6	7.5	9.5	11	19	29	46	69	93
	750	1						2.4	3.4	5.5	7	8.5	14	21	35	52	70

Thermal Capacity (KW)

Nominal Ratio i_N	Input Speed (RPM)	Size of Gear Unit														
		160	180	200	225	250	280	315	355	400	450	500	560	630	710	800
	n_1	Thermal capacity, P_{G1} (kW), for gear boxes without cooling														
100 to 630	1500	17	22	28	36	45	60	76	100	122	152	195	240	305	390	510
	1000	15	18	24	32	40	55	66	85	110	135	175	230	290	365	490
	750	14	16	23	30	35	45	62	80	102	130	160	205	285	345	470

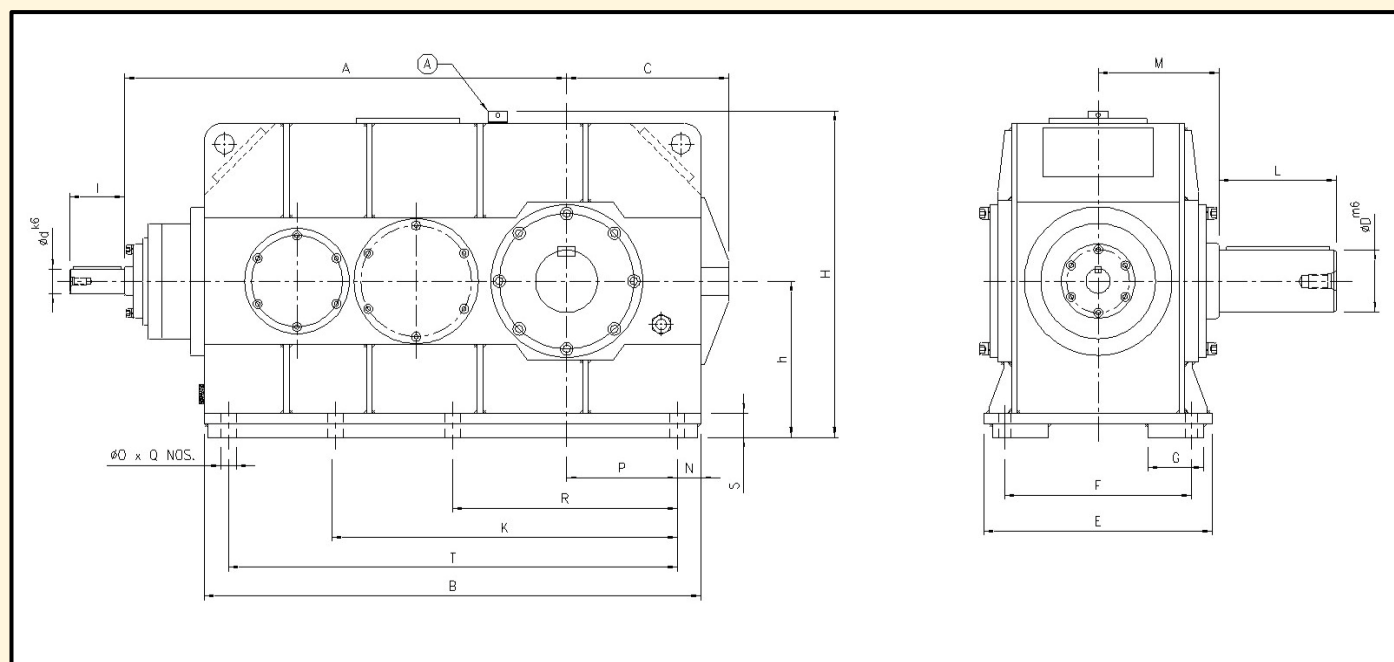
For Power Ratings in Bold – Check Thermal Capacity. For Power Ratings Marked with * Forced Lubrication Required

6.1 Double Stage



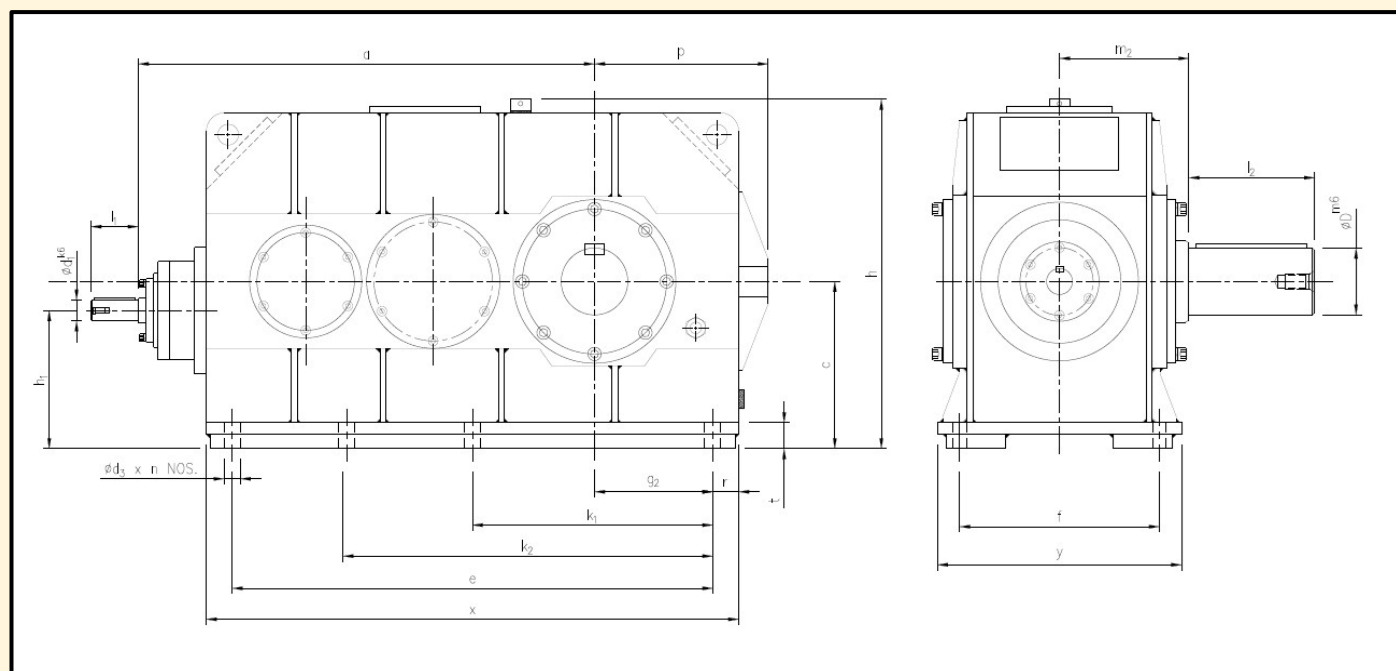
Size	Average Weight (kg)	Oil Quantity (litres)	Input Shaft Details				Output Shaft Details			Mounting Details					Other Dimensions												Fan Details	
			Upto i = 10		Above i = 10																							
			d ₁	l ₁	d ₁	l ₁	d ₂	l ₂	m ₂	a	c	e	f	g ₂	x	y	k ₁	k ₂	t	d ₃	r	n	h	p	d ₄	m ₃		
80	28	1.5	16	40	16	40	32	80	80	250	90	215	105	50	245	130	95		15	11.5	15	6	230	100	180	350		
90	37	2	20	50	20	50	38	80	90	280	100	245	116	60	275	140	110		20	11.5	15	6	250	115	180	380		
100	50	2.5	20	50	20	50	45	110	100	315	110	270	130	65	310	160	120		20	14	20	6	270	125	180	415		
110	70	2.5	28	60	24	50	48	110	110	370	125	330	165	95	370	200	165		25	14	20	6	285	145	186	420		
125	95	3.5	32	80	28	60	55	110	120	410	140	390	185	110	430	220	195		25	14	20	6	300	160	231	460		
140	125	5	35	80	32	80	60	140	135	440	160	420	205	120	470	240	210		30	14	25	6	345	180	231	490		
160	170	7	40	110	35	80	70	140	140	505	180	470	215	130	530	260	235		30	18	30	6	385	195	231	555		
180	225	10	45	110	40	110	80	170	160	545	200	540	235	145	600	280	270		35	18	30	6	435	215	287	595		
			Upto i = 12.5		Above i = 12.5																							
200	300	14	50	110	45	110	90	170	175	620	225	580	270	160	650	330	290		40	22	35	6	470	235	287	670		
225	410	19	55	110	50	110	100	210	190	715	250	690	300	185	760	360	345		45	22	35	6	525	265	364	775		
250	540	27	60	140	55	110	110	210	215	775	280	760	340	195	840	410	380		50	26	40	6	600	285	364	835		
280	750	38	70	140	60	140	130	250	235	860	315	840	370	215	930	440	420		55	26	45	6	670	310	364	920		
315	1000	55	75	140	70	140	140	250	260	985	355	930	410	240	1030	500	465		60	33	50	6	740	350	364	1045		
355	1320	75	90	170	75	140	170	300	295	1070	400	1070	465	265	1180	555	535		65	33	55	6	825	380	459	1130		
400	1900	100	100	210	90	170	180	300	315	1190	450	1190	490	305	1300	600	595		70	33	55	6	915	425	459	1250		
450	2500	140	110	210	100	210	210	350	345	1360	500	1350	540	340	1480	40	540	945	80	39	65	8	1010	465	459	1420		
500	3550	200	120	210	110	210	240	410	400	1510	560	1515	650	375	1665	760	595	1055	90	39	75	8	1120	530	570	1575		
560	4900	280	130	250	120	210	270	470	440	1700	630	1680	700	415	1850	820	660	1170	100	45	85	8	1270	580	570	1765		

6.2 Triple Stage



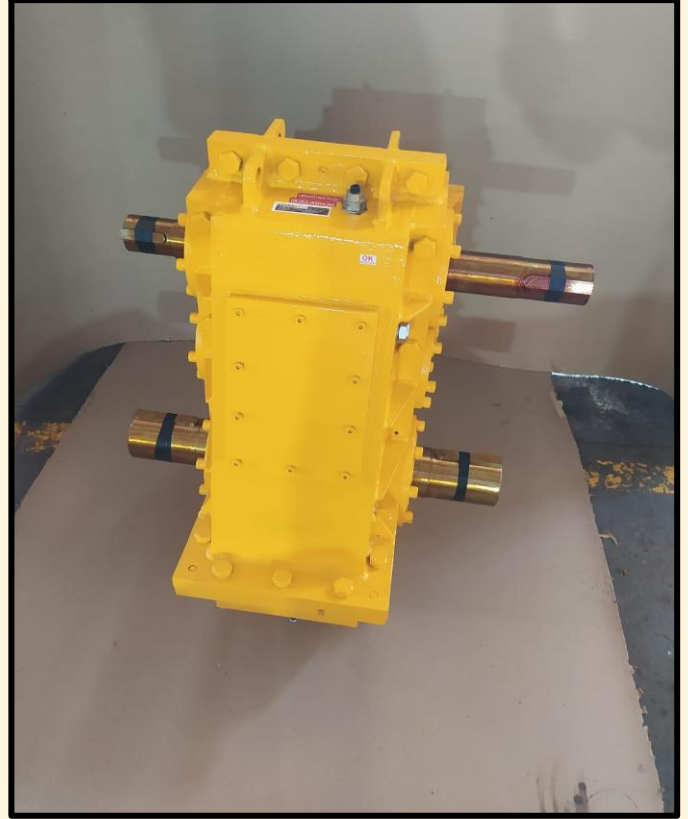
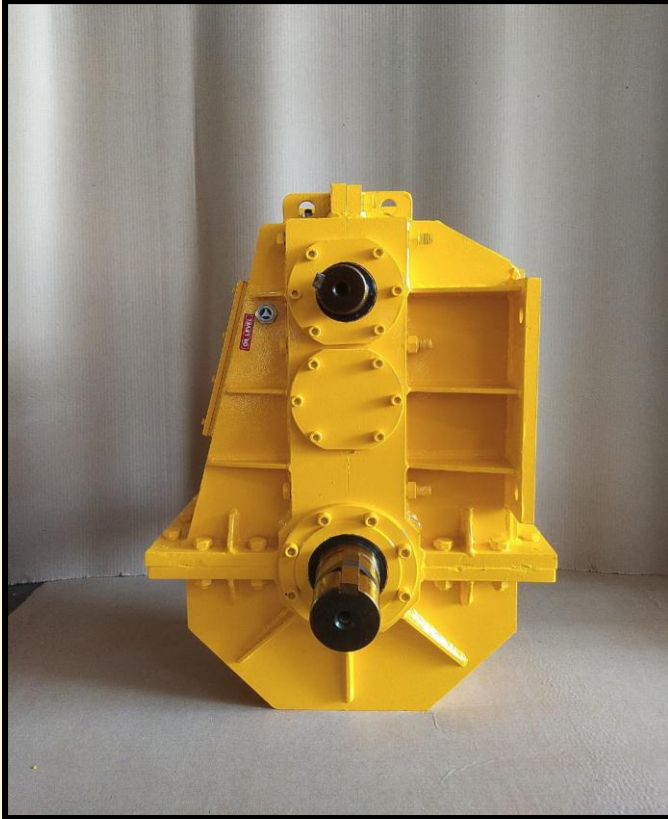
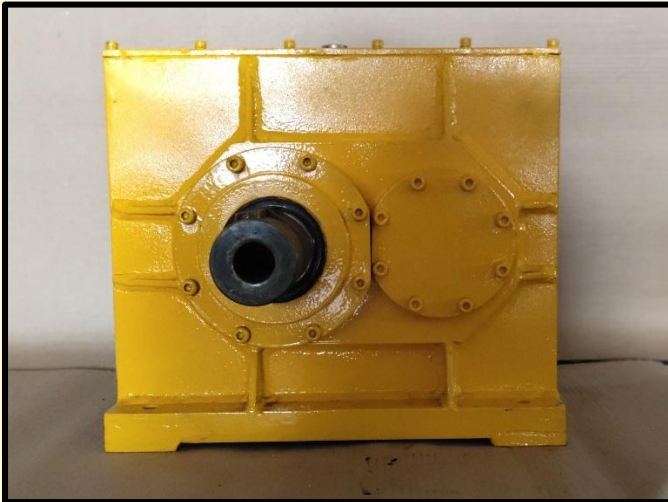
Size	Average Weight (kg)	Oil Quantity (litres)	Input Shaft Details						Output Shaft Details			Mounting Details					Other Dimensions										Fan Details	
			Upto i = 28		Above i = 28 To i = 80		Above i = 80		d ₂	l ₂	m ₂	a	c	e	f	g ₂	x	y	k ₁	k ₂	t	d ₃	r	n	h	p	d ₄	m ₃
			d ₁	l ₁	d ₁	l ₁	d ₁	l ₁																				
110	70	3.5	16	40	16	40			48	110	110	360	125	345	150	80	385	180	140		25	14	20	6	310	140	230	460
125	95	4.5	20	50	20	50			55	110	120	405	140	395	170	95	435	200	170		25	14	20	6	340	155	230	505
140	130	6.5	20	50	20	50			60	140	135	455	160	450	190	110	490	220	195		30	14	20	6	380	175	300	555
160	180	9.5	28	60	24	50	20	50	70	140	140	530	180	520	215	130	580	260	260		30	18	30	6	385	195	231	580
180	230	13	32	80	28	60	22	50	80	160	160	590	200	590	235	145	650	280	295		35	18	30	6	435	215	231	640
200	315	18.5	35	80	32	80	24	50	90	175	175	640	225	650	270	160	720	330	325		40	22	35	6	470	235	287	690
225	425	25	40	110	35	80	28	60	100	190	190	730	250	750	300	185	820	360	375		45	22	35	6	525	265	287	780
250	560	36	45	110	40	110	32	80	110	215	215	795	280	830	340	195	910	410	415		50	26	40	6	600	285	364	855
			Upto i = 45		Above i = 45 To i = 80		Above i = 80																					
280	780	50	50	110	45	110	35	80	130	235	235	900	315	910	370	215	1000	440	455		55	26	45	6	670	310	364	960
315	1060	68	55	110	50	110	40	110	140	260	260	1030	355	1050	410	240	1150	500	400	725	60	33	50	8	740	350	364	1090
355	1500	95	60	140	55	110	45	110	170	295	295	1130	400	1170	465	265	1280	555	440	805	65	33	55	8	825	380	364	1190
400	2000	130	70	140	60	140	50	110	180	315	315	1260	450	1320	490	305	1430	600	490	905	70	33	55	8	915	425	459	1320
450	2700	185	75	140	70	140	55	110	210	345	345	1435	500	1470	540	340	1600	650	540	1005	80	39	65	8	1010	465	459	1495
500	3800	250	90	170	75	140	60	140	240	400	400	1570	560	1665	650	375	1815	760	595	1130	90	39	75	8	1120	530	459	1630
560	5100	355	100	210	90	170	70	140	270	440	440	1750	630	1830	700	415	2000	820	660	1245	100	45	85	8	1270	480	570	1815
630	7100	500	110	210	100	210	75	140	300	490	490	1990	710	2100	780	475	2270	900	740	1420	110	45	85	8	1390	640	570	2055
710	10000	700	120	210	110	210	90	170	340	540	540	2220	800	2370	870	540	2550	1010	820	1595	125	45	90	8	1570	735	570	2285
800	13400	965	130	250	120	210	100	210	390	600	600	2500	900	2670	1020	610	2850	1160	900	1785	140	45	90	8	1760	815	570	2565

6.3 Quadruple Stage



Size	Average Weight (kg)	Oil Quantity (litres)	Input Shaft Details				Output Shaft Details			Mounting Details					Other Dimensions									
			Upto $i = 10$		Above $i = 10$																			
			d_1	l_1	d_1	l_1	d_2	l_2	m_2	a	c	e	f	g_2	x	y	k_1	k_2	t	d_3	r	n	h	p
160	175	9	19	40	19	40	70	140	145	510	180	495	210	115	555	250	210		18	18	30	6	430	190
180	235	13	19	40	19	40	80	170	160	575	200	565	230	135	625	270	240		18	18	30	6	475	215
200	320	18	19	40	19	40	90	170	175	640	225	615	250	145	685	300	255		23	22	35	6	520	240
225	440	25	24	50	20	50	100	210	190	730	250	750	300	185	820	360	375		45	22	35	6	525	265
250	580	36	28	60	22	50	110	210	215	795	280	830	340	195	910	410	415		50	26	40	6	600	285
280	800	50	32	80	24	50	130	250	235	900	315	910	370	215	1000	440	455		55	26	45	6	670	310
315	1110	68	35	80	28	60	140	250	260	1030	355	1050	410	240	1150	500	400	725	60	33	50	8	740	350
355	1550	95	40	110	32	80	170	300	295	1130	400	1170	465	265	1280	555	440	805	65	33	55	8	825	380
400	2050	130	45	110	35	80	180	300	315	1260	450	1320	490	305	1430	600	490	905	70	33	55	8	915	425
450	2750	185	50	110	40	110	210	350	345	1435	500	1470	540	340	1600	650	540	1005	80	39	65	8	1010	465
500	3900	250	55	110	45	110	240	410	400	1570	560	1655	650	375	1815	760	595	1130	90	39	75	8	1120	530
560	5200	355	60	140	50	110	270	470	440	1750	630	1830	700	415	2000	820	660	1245	100	45	85	8	1270	580
630	7200	500	70	140	55	110	300	470	490	1990	710	2100	780	475	2270	900	740	1420	110	45	85	8	1390	640
710	10100	700	75	140	60	140	340	550	540	2220	800	2370	870	540	2550	1010	820	1595	125	45	90	8	1570	735
800	13500	965	90	170	70	140	390	650	600	2500	900	2670	1020	610	2850	1160	900	1785	140	45	90	8	1760	815

Images of Customized Gearboxes – We also cater to customized requirements. Kindly Contact us for Enquiries.





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