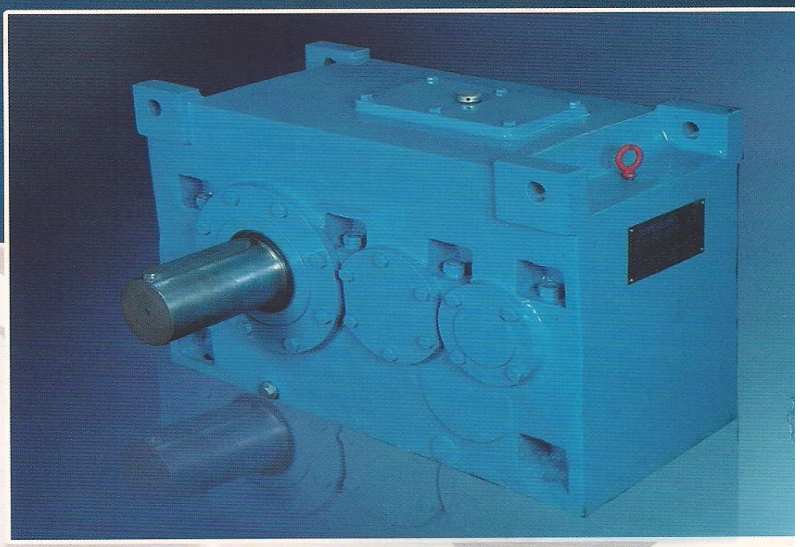
CRESCENT

HELICAL GEAR BOXES



Sokhi Heli-Wom Gears Pvt. Ltd.

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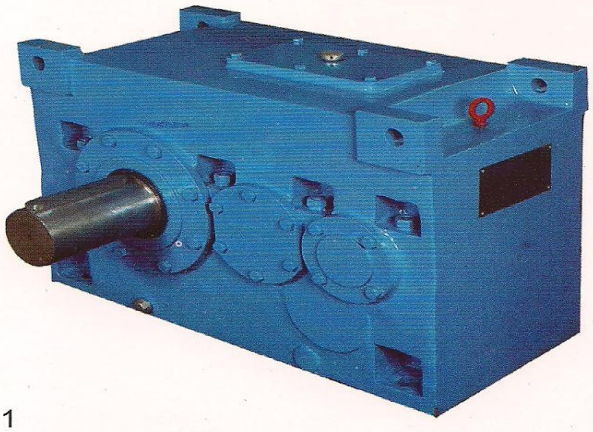
COMPANY PROFILE

Sokhi Heli-Wom Gears specializes in the design, development, production and marketing of high quality Crescent industrial gears and power transmission products, to the highest specifications, with proven performance in diverse industries across the globe. An accent on quality combined with ongoing research and development has given us an international reputation for excellence. Consequently, we are today one of the fastest growing company in this industry. Despite this growth, we ensure that our customers receive due attention, with higher quality products and scheduled deliveries.

As a customer focus & technology driven organization offering quality products & services is our forte. By updating technology & infrastructure, we have continued to deliver high value products to our customers. Our gears & gear boxes are widely available under the brand name "CRESCENT". Maintaining the pace with time, we have carved a niche for ourselves within the industry globally.



DESIGN FEATURES

Crescent gear units are a completely new design, advantages are;

- More sizes with a reduced variety of parts;
- Higher operational reliability combined with increased power capacity.
- Predominantly non-contacting wear-resistant labyrinth seals are possible;
- Flanged output shafts to facilitate assembly of gear units in combined spaces (on request).

The basic gear unit can be optimally adapted to customer requirements by fitting different add-on pieces like motor bell housings, gear unit swing bases or backstops.

Crescent gear units have been designed according to a new unit construction principle. Through this, the variety of parts could be reduced. The parts are mainly on stock enabling the Crescent manufacturing plants nationwide deliver at short term.

HOUSINGS

The housings are of cast iron. If required, they may also be of steel. Housings are made in two part. The housing is rigid in design and due to its form has lesser noise and temperature characteristics

GEAR & PINION

The toothed components of the gear unit are case-hardened. The helical gear teeth are ground; depending on their size and transmission ratio. The high quality of the teeth leads to a significant noise reduction and ensures safe and reliable running.

The gear wheels are joined to the shafts by interference fits and parallel keys. These types of joints transmit the torques generated with adequate reliability.

LUBRICATION

Unless otherwise stated in the order documentation, the teeth and bearings are adequately splash-lubricated with oil by the gearwheels. This means that the gear units require very little maintenance.

In non-horizontal positions, with high bearing speeds or peripheral velocities on the teeth, the splash lubrication system may be replaced or supported by a pressure lubrication system.

The oil supply system is permanently attached to the gear unit and consists of a flange pump, a coarse filter, a pressure-monitoring device and pipework.

SHAFT SEALS

Depending on requirements seals are mounted at the shaft exits to prevent oil from leaking from the housing and dirt from entering it.

FAN

The fan is mounted on a high-speed shaft of the gear unit and is protected from accidental contact by a cowl. The fan sucks air through the grid on the cover and blows it along the air ducts on the side of the gear housing. It thereby dissipates a certain amount of heat from the housing.

SELECTION PROCEDURES & EXAMPLE

HOLD BACK

For certain requirements, the gear unit can be fitted with a mechanical holdback. This permits only the specified direction of rotation during the operation of the unit. The direction of rotation is marked by a corresponding arrow on the input and output side of the gear unit.The holdback is mounted oiltight on an adapter flange on the gear unit and integrated in its oil-circulation system.The holdback is fitted with centrifugally operated sprags. When the gear unit is running in the specified direction, the inner ring and the cage with the sprags also rotates while the outer ring remains stationary

At a certain rotation speed, the sprags lift off and the holdback then operates without any wear.

Note : The stop direction can be changed by turning the cage around. If a change in stop direction is required, Crescent should be consulted beforehand.

COOLING

Depending on requirement, the gear unit is fitted with a fan, a cooling coil, a water or air oil-cooling system or a separate oil supply system.

PAINTING

Gear case Finish : Internal and external surfaces are painted with linear epoxy primer. External surfaces are finished with alkyd semigloss blue paint. These paints are resistant to dilute acids and alkalis, oils and solvents, sea water and temperatures upto 140 degree centigrade.

DIRECTION OF ROTATION

The unit may be operated in either direction of rotation as per requirement

EFFICIENCY

Efficiency of various gearboxes is:

- Single stage 99%
- Double stage 98%
- Triple stage 97.5%
- Quadruple stage 97%

CERTIFICATION

ISO 9001 : 2000

QUALITY CONTROL:

All the components of gearboxes undergo a very strict quality control check at different stages of production. Finish product are finally tested to ensure that no scope is left for complaints about noise,oil leakage or temperature etc.

SELECT PROCEDURE FOR HELICAL GEARBOXES

Select Gearbox type.

- Parallel shaft (helical) foot mounted, shaft mounted with & without foot.

- Calculate gearbox Ratio:
  RATIO = Input speed (Input RPM) /output speed(output RPM)

SELECTION PROCEDURES & EXAMPLE

Select Gearbox size from Mechanical capacity.

- Determine the type of load from table-F on page no-8-9 (uniform, moderate shock or heavy shock).
- Determine the Mechanical service factor from table A on page no-7
- Calculate the Mechanical required power capacity **(Pm)**

  (Pm) = absorbed power (kW) X mechanical service factor .
- Select Gearbox size from rating tables. Pm must be equal to or less than the mechanical rating of the gearbox.

Thermal rating check.

Thermal Rating are given for the following four cases.

- Gearbox without additional cooling.
- Gearbox fitted with fan.
- Gearbox fitted with cooling water coil.
- Gearbox fitted with fan & coil.

Determine the thermal service factor from table B on page no-7.

Calculate the required thermal power capacity **(Pt) = absorbed power (kw) / thermal service factor.**

Specify the type of cooling required by referring to thermal rating tables.

Pt must be equal to or less than the thermal capacity of the gearbox.

SELECTION :

INFORMATION REQUIRED WHEN ORDERING STANDARD UNITS

PRIME MOVER

- Type: -Electric motor or engine,for example 4cylinder internal combustion engine.
- Power rating in kW.
- Output speed if variable, indicate speed range and frequency of variation.
- Dimensions of prime mover.

DRIVEN MACHINE

- Type of example, kiln. conveyor, etc.
- Power rating in kW.
- Speed.
- Service -Hours per day, running time in any hour, details of reversals if applicable type of loading, ambient temperature , etc.

GEAR UNIT

- Type for example, H1
- Size, for example, 200
- Ratio
- Shaft handing. Refer to dimension pages and quote reference.
- Direction of rotation, if holdback arrangement is to be fitted, please indicate the direction of rotation of low speed shaft looking towards it.

SHAFT CONNECTIONS

- Couplings. Quote shaft diameters with tolerances or coupling bores.
- Details of overhung loads, including diameter and type of sheave, sprocket or pinion and any thrust loads.

SHAFT MOUNTED UNITS FOR HIGH INTERTIA DRIVE

When used on Traverse drives with high inertia driven loads, e.g. Crane drives (slewing, long travel and cross travel) bogie drives and selected high inertia load roller table drives, it is recommended that shaft mounted units should be fitted with shock absorbing Torque Arms. Consult us with specific application details.

SELECTION EXAMPLE:

Q:- A foot mounted parallel shaft Gearbox is to be directly coupled to a 85 kw, 960 R.P.M. motor. The output shaft is to rotate at 48 R.P.M. and is coupled to a conveyor which absorbs 75 KW on 24 hours service. The maximum ambient temperature is 30 degree centigrade.

SELECTION

Gearbox type.

- Parallel Shaft type is specified as type H.
- Ratio = Motor R.P.M / Output R.P.M. which is equal to 960/48 = 20.

Mechanical Capacity:

- Load from table F, page 8, is uniform.
- Refer page 7 table a service factor is 1.25
- The required mechanical capacity is 75x1.25 = 93.75
- Refer page 13, under mechanical rating a unit size H2-250, normal ratio 20:1 is a suitable Gearbox.

Thermal Rating Check

- Refer Page 7, Table-B, the Thermal service factor for 30 degree Centigrade ambient temperature and 100% running time is .88 for a unit without any cooling device.
- The required Thermal capacity =75/0.88=85.23
- Refer Page 13, under Thermal power rating, without additional cooling, a size H2-255 with 20:1 ratio is suitable Greatbox. As per Mechanical capacity, the size selected is H2-250 while as per Thermal capacity, the size is H2-225. So, the selected size of Gearbox is H2-250.

OVER HUNG LOAD

Whenever a sprocket, gear, sheave or pulley is mounted on the shaft, a calculation should be made to determine the overhung load in kN, on the shaft

P=kW x 9545 x K / N x R

where

P = Equivalent overhung load in kN.
KW = power carried by the shaft.
K = factor.
N = rpm of the shaft.
R = pitch radius of sprocket ,pinion,sheave or pulley in mm.

OVERHUNG MEMBER	K Factor
Sprocket for chain	1
Spur gear	1.25
V belt sheave	1.50
Flat belt pulley	3

SELECTION TABLES

TABLE -A Mechanical Service Factors (Horizontal units)

Prime Mover	Duration of Service Hrs .per day.	Load Classifications - Driven Machine		
		Uniform	Moderate Shock	Heavy Shock
Electric motor Steam turbine,or Hydraulic,Motor	Under 3 3 to 10 Over 10	0.8 1 1.25	1 1.25 1.5	1.5 1.75 2
Multi-Cylinder Internal combustion Engine	Under 3 3 to 10 Over 10	1 1.25 1.5	1.25 1.5 1.75	1.75 2 2.25
Single Cylinder Internal combustion Engine	Under 3 3 to 10 Over 10	1.25 1.5 1.75	1.5 1.75 2	2 2.25 2.5

TABLE- B Thermal Service Factors (Horizontal units)
(for ambient temperature and duration of operation)

Type of cooling	Ambient Temperature Degree centi.	Running Time in any hour. 100%	80%	60%	40%	20%
Gear boxes Without additional Cooling	10	1.12	1.34	1.57	1.79	2.05
	20	1.00	1.2	1.4	1.6	1.8
	30	0.88	1.06	1.23	1.41	1.58
	40	0.75	0.9	1.05	1.20	1.35
	50	0.63	0.76	0.88	1.01	1.13
Gearboxes with fans	10	1.15	1.38	1.61	1.84	2.07
	20	1.00	1.2	1.40	1.6	1.8
	30	0.90	1.08	1.26	1.44	1.62
	40	0.80	0.96	1.12	1.29	1.44
	50	0.70	0.84	0.98	1.12	1.26
Gear boxes With Cooling coils (1)	10	1.10	1.32	1.54	1.76	1.98
	20	1.0	1.20	1.4	1.6	1.8
	30	0.90	1.08	1.26	1.44	1.62
	40	0.85	1.02	1.19	1.36	1.53
	50	0.80	0.96	1.12	1.29	1.44
Gear boxes with Fans and Cooling coils (1)	10	1.12	1.34	1.57	1.79	2.05
	20	1.0	1.20	1.4	1.60	1.8
	30	0.92	1.10	1.29	1.47	1.66
	40	0.83	1.0	1.16	1.33	1.5
	50	0.78	0.94	1.09	1.25	1.4

TABLE- C Permissible Overhung Load on Low Speed Shaft (kN)
[Horizontal units]

Direction Of Load	Output Speed Rpm	Types H2,H3 unit size. 200	225	250	280	315	355	400	450
1	315	35	42	47	56	78	100	109	172
	200	40	48	57	68	87	118	126	190
	125	48	55	62	85	103	132	150	228
	80	52	68	78	97	130	162	190	280
	50	52	68	90	112	148	182	228	320
	31.5	52	68	90	126	148	182	230	320
2	315	35	42	47	56	78	100	109	172
	200	40	48	57	68	87	118	126	190
	125	41	48	62	85	99	120	150	215
3	315	18	23	30	42	49	61	78	107

TABLE -D Permissible Overhung Load on High Speed Shaft at 1500 rpm (kN) [Horizontal units]

Type of Unit	Unit size 200	225	250	280	315	355	400	450
H2-H2S-H2SF	8.45	10.5	13	19.5	26.5	32.2	38.7	45.8
H3-H3S-H3SF	3.03	4.58	6.45	8.4	10.5	13	20	28.9

TABLE-E Permissible Axial Thrust Load on Low Speed Shaft (kN)
[Horizontal units]

Output speed Rpm	Type H2,H3 unit size. 200	225	250	280	315	355	400	450
315	12	12.5	13.4	11.8	18.3	30.3	28.8	53.4
200	13.4	14.2	15.2	13.3	20.8	34.3	32.6	60.5
125	17.1	17.3	18	18.4	25.3	40	40.9	70.8
80	18.2	20.5	21.8	23.8	35.6	63.3	55.4	80.5
50	19.4	25.8	25.3	32.1	43.5	66.3	68.5	94.3
31.5 & below.	19.4	25.8	25.3	34.3	55.6	66.3	88.6	94.3

RECOMMENDED LUBRICANT
ISO VG320

BRAND	GRADE
Hindustan Petroleum	Enklo 320
Castrol	Alpha ZN320
Gulf	Harmony 320
Indian Oil	Servomesh SP320 or Servosystem 320
Bharat Petroleum	Cabol 320 or Amocam 320
Shell group	Omala Oil 320
Esso Petroleum Co. Ltd.	Sparton EP320
VeedOl	Avalon 320

Oil Capacities for Horizontal Gearboxes in Liters (approx.)

UNIT TYPE	UNIT SIZE 140	160	180	200	225	250	280	315	355	400	450	500	560	630	710
H1	6.5	9.5	14	19	26	37	47.0	74	100	136	189	257.0	-	-	-
H2	7.5	12	16	21	28	37	52	74	105	147	215	336	245	682	939
H3	9.5	14	18	21	28	37	52	74	105	147	215	435	575	866	1207
H4	9.5	14	18	*	*	*	*	*	*	*	*	-	-	-	-

Net Weight for Horizontal Gearboxes in Kg. (approx.)

UNIT TYPE	UNIT SIZE 140	160	180	200	225	250	280	315	355	400	450	500	560	630
H1	165	209	264	330	434	544	748.0	1006	1331	1815	2491	3267.0	-	-
H2	258	291	330	396	517	649	891	1190	1589	2167	2960	3894	5346	7194
H3	320	341	363	418	490	643	935	1265	1677	2288	3124	4158	5610	7590
H4	325	352	379	*	*	*	*	*	*	*	*	-	-	-

Table F LOAD CLASSIFICATION BY APPLICATION

DRIVEN MACHINE	TYPE OF LOAD	DRIVEN MACHINE	TYPE OF LOAD	DRIVEN MACHINE	TYPE OF LOAD
AGITATORS		flight	M	**FOOD INDUSTRY**	
pure liquids	U	live roll	$	beef slicer	M
liquids and solids	M	oven	M	cereal cooker	U
liquids- variable density	M	reciprocating	H	dough mixer	M
BLOWERS		screw	M	meat grinders	M
centrifugal	U	shaker	H	**GENERATORS-NOT WELDING**	U
lobe	M	**CRANCES**		**HAMMER MILLS**	H
vane	U	main hoist	U	**HOISTS**	
BREWING AND DISTILLING		bridge travel	$	heavy duty	H
bottling machinery	U	trolley travel	$	medium duty	M
brew kettles - continous duty	U	**DREDGES**		skip hoist	M
cookers-continuous duty	U	cable reels	M	**LAUNDRY WASHERS**	
mash tube-continuous duty	U	conveyors	M	reversing	M
scale hopper-frequent starts	M	cutter head drives	H	**LAUNDRY TUMBLERS**	M
CAN FILLING MACHINES	U	jig drives	H	**LINE SHAFTS**	
CANE KNIVES	M	manoeuvring winches	M	driving processing equipment	M
CAR DUMPERS	H	pumps	M	light	U
CAR PULLERS	M	screen drive	H	other line shafts	U
CLARIFIERS	U	stackers	M	**LUMBER INDUSTRY**	
CLAY WORKING MACHINERY		utility winches	M	barkers-hydraulic mechanical	M
brick press	H	**DRY DOCK CRANES**		burner conveyor	M
briquette machinery	H	main hoist	**	chain saw and drag saw	H
clay working machinery	M	auxiliary hoist	**	chain transfer	H
pug mill	M	boom, luffing	**	craneway transfer	H
COMPRESSORS		rotating, swing or slew	x	de-barking drum	H
centrifugal	U	tracking, drive wheels	xx	edger feed	M
lobe	M	**ELEVATORS/**		gang feed	M
reciprocating		bucket-uniform load	U	green chain	M
multi-cylinder	M	bucket-heavy load	M	live rolls	H
single-cylinder	H	bucket-continuous	U	log deck	H
CONVEYORS UNIFORMLY		centrifugal discharge	U	log haul-incline	H
loaded or fed		escalators	U	log haul-well type	H
apron	U	freight	M	log turning device	H
assembly	U	gravity discharge	U	main log conveyor	H
belt	U	man lifts	$	off bearing rolls	M
bucket	U	passenger	$	planer feed chains	M
chain	U	**FANS**	M	planer floor chains	M
flight	U	centrifugal	U	planer tilting hoist	M
oven	U	cooling towers		re-saw merry-go-round	
screw	U	induced draft	$	conveyor	M
CONVEYORS -HEAVY DUTY		forced draft	$	roll cases	H
not uniformly led		induced draft	M	slab conveyor	H
apron	M	large, mine, etc.	M		
assembly	M	large, industrial	M		
belt	M	light, small diameter	U		
bucket	M	**FEEDERS**			
chain	M	apron	M		
flight	M	belt	M		
live roll	$	disc	U		
oven	M	reciprocating	H		
		screw	M		

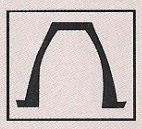
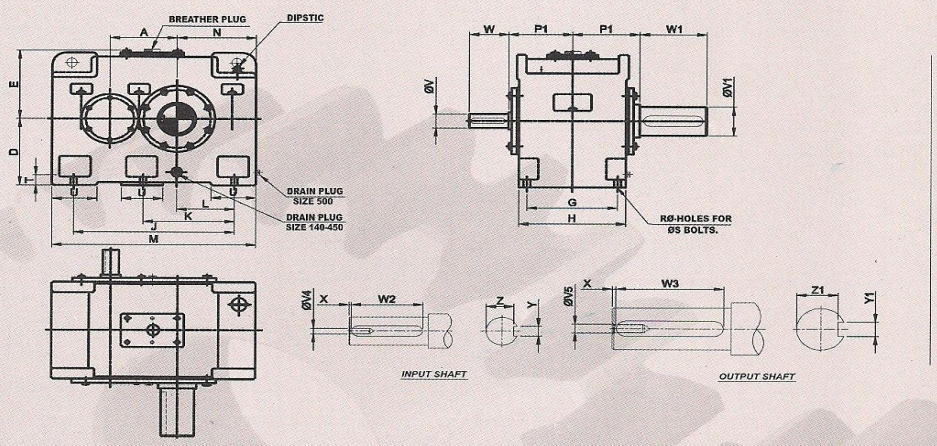


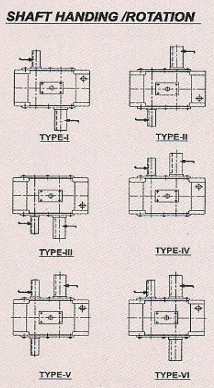
Table F LOAD CLASSIFICATION BY APPLICATION

DRIVEN MACHINE	TYPE OF LOAD	DRIVEN MACHINE	TYPE OF LOAD	DRIVEN MACHINE	TYPE OF LOAD
small waste conveyors -belt	U	**PAGER MILLS**		tire and tube press openers	$
small waste conveyors -chain	M	agitators,(mixers)	M	tubers and strainers*	M
sorting table	M	barker-auxiliaries-hydraulic	H	warming mills*	M
tripple hoist conveyor	M	barker drum	H	**SAND MULLER**	M
tripple hoist drive	M	beater and pulper	M	**SEWAGE DISPOSAL EQUIPMENT**	
transfer conveyors	M	bleacher	U	bar screens	U
transfer rolls	M	calenders	M	chemical feeders	U
tray drive	M	calenders-super converting		collectors	U
trimmer feed	M	machine except cutters, platers	M	dewatering screws	M
waste conveyor	M	conveyors	U	scum breakers	M
MACHINE TOOLS		couch	M	slow or rapid mixers	M
bending roll	M	cutters-plates	H	thickeners	M
punch press-gear driven	H	cylinders	M	vacuum filters	M
notching press-belt driven	$	dryers	M	**SCREENS**	
plate planners	H	felt stretcher	M	air washing	U
tapping machine	H	felt whipper	H	rotary-stone or gravel	M
other machine tools		jordans	M	travelling water intake	U
main drives	M	log haul	H	**SLAB PUSHERS**	M
auxilary drives	U	presses	M	**STEERING GEAR**	$
METAL MILLS		pulp machine reel	M	**STOKERS**	U
draw bench carriage and		stock chest	M	**SUGAR INDUSTRY**	
main drive	M	suction roll	M	cane knives	M
pinch, dryer and scrubber		washers and thickeners	M	crushers	M
rolls-reversing	$	winders	M	mills*	M
siltters	M	**PRINTTING PRESSES**		**TEXTILE INDUSTRY**	
table conveyors non-reversing		**PULLERS**		batchers	M
group drives	M	barge haul	H	calenders	M
individual drives	H	**PUMPS**		cards	M
reversing	$	centrifugal	U	dry cans	M
wire drawing machine and		proportioning	M	dryers	M
flattening machine	M	reciprocating		dyeing machinery	M
wire winding machine	M	single acting : 3 or		knitting machines	$
MILLS-ROTARY TYPE		more cylinders	M	looms	M
ball*	M	double acting : 2 or		mangles	M
cement kilns*	M	more cylinders	M	nappers	M
dryers and coolers*	M	single acting : 1 or 2		pads	M
kilns, other than cement	M	cylinders	$	range drives	$
pebble*		doubling acting : single		slashers	M
rod*		cylinders	$	soapers	M
plain	M	rotary		spinners	M
wedge bar	M	gear type	U	tenter frames	M
tumbling barrels	H	lobe, vane	U	washers	M
MIXERS		**RUBBER AND PLASTICS INDUSTRIES**		winders	M
concrete mixers-continuous	M	crackers	H	**WINDLASS**	$
concrete mixers-intermittent	M	laboratory equipment	M	U = Uniform load	
constant density	U	mixed mills*	H	M = Moderate shock load	
variable density	M	refiners*	M	H = Heavy shock load	
OIL INDUSTRY		rubber calenders*	M	* 24 hours/day Service Factor Only	
chillers	M	rubber mill 2 on line*	M	** Use 1.00 Service Factor	
oil well pumping	x	rubber mill 3 on line*	U	x Use 1.25 Service Facto	
paraffin filter press	M	sheeter*	M	xx Use 1.50 Service Facto	
rotary kilns	M	tire building machines	$	$ Refer to sokhi	

TYPE H1-FOOT MOUNTED UNITS

Single Reduction -Parallel shafts-Principal Dimensions (mm)





Unit Size	A	D	E	G	H	J	K	L	M	N	P1	R	S	T
140	140	160	174	190	224	335		120	425	165	140	14	4X12	20
160	160	180	194	225	260	375		135	475	185	160	18	4X16	20
180	180	200	214	250	290	425		147.5	530	200	175	18	4X16	25
200	200	225	239	265	310	475		165	595	225	185	22	4X20	25
225	225	250	267	280	340	530		185	660	250	205	22	4X20	30
250	250	280	298	300	370	600		210	740	280	220	26	4X24	30
280	280	315	327	335	410	670		240	820	315	240	26	4X24	35
315	315	355	350	375	450	750		270	920	355	260	33	4X30	40
355	355	400	405	425	500	865	530	305	1055	400	290	33	6X30	50
400	400	450	456	475	560	1000	600	350	1200	450	325	39	6X36	55
450	450	500	497	530	640	1120	670	395	1330	500	365	39	6X36	60
500	500	560	624	630	720	1250	750	440	1490	560	420	45	6X42	65

Unit Size	U	V	V1	V4	V5	W	W1	W2	W3	X	Y	Z	Y1	Z1
140	100	45	70	M16X36	M24X50	110	140	102	130	3	14P9	39.5	20P9	62.5
160	110	50	75	M16X36	M24X50	110	140	102	130	3	14P9	44.5	20P9	67.5
180	120	55	85	M16X36	M24X50	110	170	102	160	3	16P9	49	22P9	76
200	125	60	90	M24X50	M24X50	140	170	130	160	3	18P9	53	25P9	81
225	130	70	100	M24X50	M24X50	140	210	130	200	3	20P9	62.5	28P9	90
250	140	80	110	M24X50	M30X60	170	210	160	200	3	22P9	71	28P9	100
280	160	90	125	M24X50	M30X60	170	210	160	200	3	25P9	81	32P9	114
315	180	100	140	M24X50	M30X60	210	250	200	240	3	28P9	90	36P9	128
355	200	110	160	M30X60	M42X80	210	300	200	290	3	28P9	100	40P9	147
400	220	125	180	M30X60	M42X80	210	300	200	290	3	32P9	114	45P9	165
450	250	140	200	M30X60	M42X80	250	350	240	340	3	36P9	128	45P9	185
500	280	160	220	M42X80	M56X105	300	350	290	340	3	40P9	147	50P9	203

MECHANICAL POWER RATINGS IN KW TYPE-H1

Normal Ratio	Nominal Speed rpm N1	Nominal Speed rpm N2	Unit Size 140	160	180	200	225	250	280	315	355	400	450	500
1.6	1500	940	230	305	390	550	740	1100*	1500*	2050*	2700*			
	1000	625	175	230	290	400	550	800	1100	1450	2100	2790*		
	750	470	140	190	240	310	455	660	900	1180	1560	2280	3450	4340
1.8	1500	835	210	290	355	500	690	1000	1400*	2000*	2600*			
	1000	555	160	220	265	370	520	750	1020	1400	1800	2620	3860*	
	750	415	130	180	220	280	425	610	830	1120	1450	2140	3150	4030
2	1500	750	200	270	340	480	630	950	1300	1800*	2400*			
	1000	500	150	200	250	350	475	700	940	1300	1680	2500	3630	4630*
	750	375	120	165	210	265	390	580	770	1020	1370	1990	2970	3790
2.24	1500	670	180	250	310	450	600	890	1200	1650*	2200*			
	1000	445	135	190	235	300	450	650	900	1200	1600	2300	3360	4250*
	750	335	110	155	190	240	370	530	740	970	1260	1820	2750	3480
2.5	1500	600	170	230	290	400	550	820	1100	1500	2050*			
	1000	400	125	170	220	280	410	620	820	1120	1450	2100	3080	4050*
	750	300	105	140	180	230	335	500	670	900	1180	1720	2520	3310
2.8	1500	535	160	210	265	370	495	750	1000	1350	1850			
	1000	360	120	160	200	260	375	560	750	1000	1310	1910	2890	3700
	750	270	93	130	165	210	305	460	610	820	1070	1560	2360	3030
3.15	1500	475	140	190	240	330	460	680	920	1250	1650	2320	3500*	4430*
	1000	315	105	140	180	235	350	510	690	920	1200	1750	2640	3330
	750	235	82	110	150	190	285	410	570	750	960	1430	2150	2730
3.55	1500	425	125	185	240	330	460	680	920	1240	1510	2200	3230*	4120*
	1000	280	88	130	180	225	350	490	630	900	1140	1660	2430	3100
	750	210	67	100	150	180	275	380	550	710	930	1350	1990	2530
4	1500	375	105	160	205	310	460	640	850	1230	1350	1990	2930	3620*
	1000	250	75	105	140	215	350	455	600	880	1020	1500	2200	2730
	750	187	56	81	110	170	265	355	490	670	830	1220	1800	2230
4.5	1500	335	73	140	195	265	375	540	780	1110	1240	1770	2560	3280
	1000	220	52	97	140	185	255	380	560	820	940	1230	1790	2470
	750	166	40	75	105	145	195	295	430	620	770	950	1400	1970
5	1500	300	73	125	140	220	375	475	670	1020	1110	1660	2470	3080
	1000	200	51	86	98	145	265	340	475	710	840	1250	1750	2320
	750	150	40	65	77	110	200	260	360	540	690	1020	1350	1750
5.6	1500	270	68	100	130	200	310	415	560	870	1010	1520	2020	2730
	1000	180	48	72	90	140	210	285	405	590	760	1050	1350	1840
	750	134	37	54	70	105	155	215	305	440	610	790	1040	1400
6.3	1500	240	57	83	120	155	240	345	495	720	940	1210	1840	2160
	1000	160	41	59	84	110	170	230	350	480	700	830	1240	1450
	750	120	32	45	63	87	130	175	270	360	530	640	950	1100

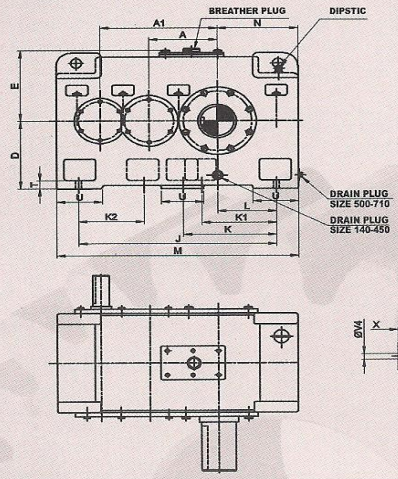
THERMAL POWER RATINGS IN kW

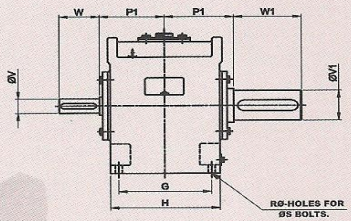
Normal Ratio	Input Speed rpm	Unit Size 140	160	180	200	225	250	280	315	355	400	450	500
		GEAR BOXES WITHOUT COOLING											
1.6	1500	75	92	115	145	175	225	280	355	450			
To	1000	70	87	112	136	167	218	275	350	440	540	660	820
2.8	750	64	81	103	130	160	211	270	345	430	530	650	800
3.15	1500	66	82	102	125	160	220	270	345	440	560	690	
To	1000	62	79	94	120	151	210	260	335	425	535	650	810
6.3	750	60	78	86	115	140	200	240	320	415	525	640	790
		GEAR BOXES WITH FAN COOLiNG											
1.6	1500	130	158	200	262	310	400	500	640	790			
To	1000	110	132	180	225	280	325	422	560	690	860	1160	1400
2.8	750	98	120	165	205	260	310	390	525	630	810	1065	1310
3.15	1500	120	152	190	235	300	378	475	615	785	980	1245	1560
To	1000	90	122	150	202	240	320	415	525	685	835	1050	1360
6.3	750	80	110	135	182	240	285	360	475	605	765	1000	1260
		GEAR BOXES WITH COOLING COIL											
1.6	1500	245	289	335	393	470	555	650	765	920			
To	1000	240	285	332	381	457	543	643	760	910	1070	1260	1530
6.3	750	231	271	328	375	450	536	640	750	890	1060	1245	1510
		GEAR BOXES WITH FAN AND COOLING COIL											
1.6	1500	300	355	420	510	605	730	870	1050	1260			
To	1000	280	330	400	470	570	650	790	970	1160	1390	1760	2110
6.3	750	265	310	390	450	550	635	760	930	1090	1340	1660	2020

Note:- * Require force-feed lubrication by a pump.

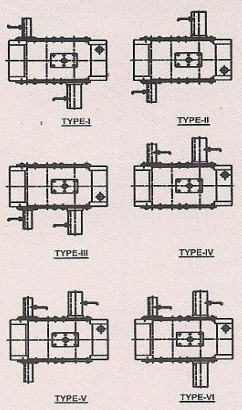
TYPE H2- FOOT MOUNTED UNITS

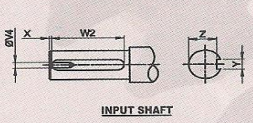
Double Reduction-Parallel Shafts-Principal Dimensions (mm)

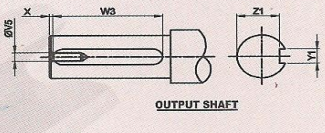




SHAFT HANDING /ROTATION







Unit Size	A	A1	D	E	G	H	J	K	K1	K2	L	M	N	P1	R
140	140	240	160	174	190	224	405				120	495	165	140	14
160	160	272	180	194	225	260	450				135	550	185	160	18
180	180	305	200	214	250	290	505				147.5	610	200	175	18
200	200	340	225	239	265	310	560				165	680	225	185	22
225	225	385	250	267	280	340	630				185	760	250	205	22
250	250	430	280	298	300	370	710				210	850	280	220	26
280	280	480	315	327	335	410	800				240	950	315	240	26
315	315	540	355	350	375	450	900				270	1070	355	260	33
355	355	605	400	405	425	500	1005	530			305	1195	400	290	33
400	400	680	450	456	475	560	1160	600			350	1360	450	325	39
450	450	765	500	497	530	640	1300	670			395	1510	500	365	39
500	500	855	560	624	630	720	1460	750			440	1700	560	420	45
560	560	960	630	679	670	770	1650		560	530	505	1900	630	445	45
630	630	1080	710	754	750	860	1860		630	600	575	2130	710	490	52
710	710	1210	800	850	850	980	2090		710	670	655	2380	800	560	52

Unit Size	S	T	U	V	V1	V4	V5	W	W1	W2	W3	X	Y	Z	Y1	Z1
140	4X12	20	100	32	70	M8X20	M24X50	80	140	73	130	3	10P9	27	20P9	62.5
160	4X16	20	110	35	75	M8X20	M24X50	80	140	73	130	3	10P9	30	20P9	67.5
180	4X16	25	120	38	85	M16X32	M24X50	80	170	73	160	3	10P9	33	22P9	76
200	4X20	25	125	38	90	M16X32	M24X50	80	170	73	160	3	10P9	33	25P9	81
225	4X20	30	130	45	100	M16X32	M24X50	110	210	102	200	3	14P9	39.5	28P9	90
250	4X24	30	140	55	110	M24X50	M30X60	110	210	102	200	3	16P9	49	28P9	100
280	4X24	35	160	65	125	M24X50	M30X60	140	210	130	200	3	18P9	58	32P9	114
315	4X30	40	180	75	140	M24X50	M30X60	140	250	130	240	3	20P9	67.5	36P9	128
355	6X30	50	200	85	160	M24X50	M42X80	170	300	160	290	3	22P9	76	40P9	147
400	6X36	55	220	90	180	M24X50	M42X80	170	300	160	290	3	25P9	81	45P9	165
450	6X36	60	250	100	200	M24X50	M42X80	210	350	200	340	3	28P9	90	45P9	185
500	6X42	65	280	110	220	M30X60	M56X105	210	350	200	340	3	28P9	100	50P9	203
560	8X42	70	320	125	240	M30X60	M56X105	210	410	200	400	3	32P9	114	56P9	220
630	8X48	75	350	140	280	M30X60	M56X105	250	470	240	460	3	36P9	128	63P9	260
710	8X48	80	370	160	320	M42X80	M56X105	300	470	290	460	3	40P9	147	70P9	298

MECHANICAL POWER RATING(kW) TYPE H 2

Normal Ratio	Input Speed rpm N1	N2	Unit Size 140	160	180	200	225	250	280	315	355	400	450	500	560	630	710
6.3	1500	240	70	105	145	205	285	370	530	790	1060*	1450*	2020*	3740*	5060*	7020*	
	1000	160	47	71	100	145	215	280	400	560	800	1100	1520	2650	3650*	4780*	7120*
	750	120	36	54	74	110	170	230	310	425	600	900	1200	1990	2790	3600	5420*
7.1	1500	210	66	100	140	195	280	380	490	730	990	1350*	1900*	3400*	4760*	6200*	
	1000	140	44	66	93	135	200	255	365	490	720	1000	1400	2330	3270*	4210*	6270*
	750	105	33	50	71	100	150	210	275	370	550	790	1050	1760	2470	3170	4730
8	1500	188	62	91	125	180	255	350	450	660	920	1300	1750*	3070*	4300*	5600*	
	1000	125	41	60	85	125	180	245	335	450	680	950	1270	2120	2970	3820	5700*
	750	94	31	46	65	92	135	190	250	340	520	710	950	1590	2230	2870	4270
9	1500	167	56	83	130	185	225	320	450	580	820	1100	1500	2740*	3840*	5000*	
	1000	111	38	56	86	125	160	215	300	430	620	800	1120	1890	2640	3400	5070*
	750	83	28	43	67	95	125	170	235	340	500	650	900	1470	2080	2750	4020
10	1500	150	50	74	100	150	210	280	390	540	760	1050	1420	2540*	3560*	4590*	
	1000	100	33	49	68	95	145	195	265	360	540	750	1000	1700	2380	3060	4560*
	750	75	25	37	50	80	110	155	210	280	420	600	800	1320	1860	2460	3600
11.2	1500	134	45	66	95	140	180	250	330	480	680	900	1250	2270	3180*	4090*	
	1000	89	30	45	65	95	130	175	245	360	500	680	940	1530	2140	2750	4320
	750	67	22	35	49	72	95	130	185	270	400	500	720	1180	1660	2200	3220
12.5	1500	120	40	55	80	110	170	225	320	430	640	850	1200	2020	2830	3630*	5420*
	1000	80	27	37	52	77	115	165	220	300	450	600	850	1390	1970	2600	3800
	750	60	20	28	42	58	88	125	165	225	330	450	640	1050	1480	1950	2860
14	1500	107	35	48	68	100	150	205	280	380	550	710	950	1790	2510	3230*	4820*
	1000	71	24	32	46	70	105	145	195	265	400	520	710	1240	1750	2310	3380
	750	53	18	24	35	52	78	110	145	200	290	420	560	930	1310	1730	2530
16	1500	94	30	43	60	90	135	185	250	340	490	650	860	1590	2230	2870	4270*
	1000	62	20	29	40	62	92	130	175	235	350	490	650	1100	1550	2050	3000
	750	47	15	22	32	47	69	97	130	175	270	370	500	820	1170	1540	2250
18	1500	83	27	37	55	73	120	140	220	310	430	550	740	1470	1760	2570	4020
	1000	56	19	25	39	51	80	98	145	230	320	410	540	970	1230	1820	2730
	750	41	15	19	30	40	62	77	110	180	250	340	440	770	950	1440	2140
20	1500	75	24	35	49	73	110	140	210	280	410	520	700	1320	1860	2460	3600
	1000	50	17	23	33	49	74	98	140	190	280	380	500	880	1240	1640	2400
	750	38	12	18	25	38	58	77	110	145	230	310	400	700	990	1290	1920
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	790v	1040	1600

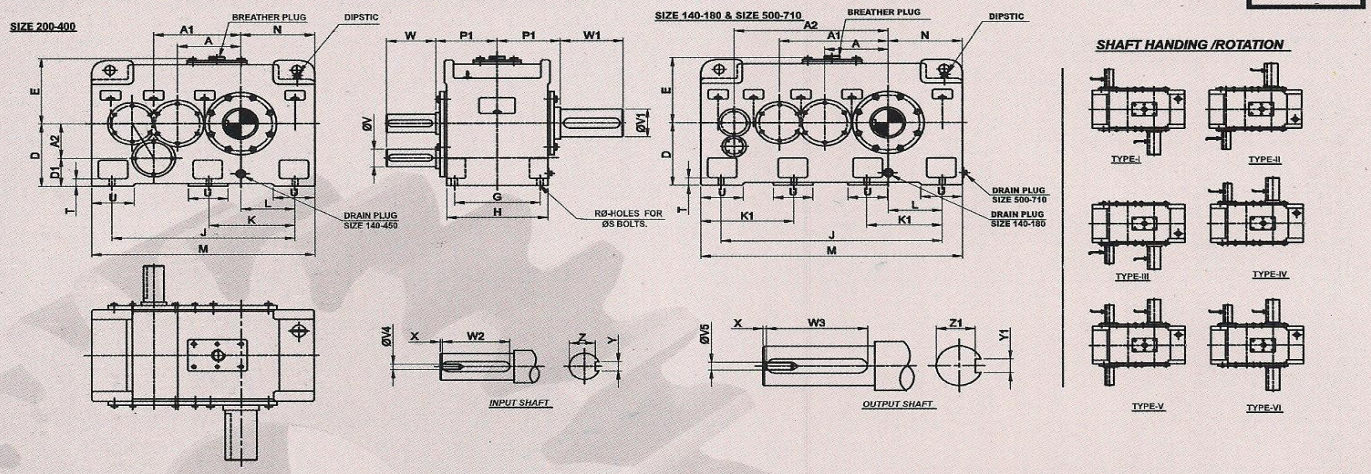
THERMAL POWER RATINGS IN kW

Normal Ratio	Input Speed rpm	140	160	180	200	225	250	280	315	355	400	450	500	560	630	710
	GEAR BOXES WITHOUT COOLING															
6.3	1500	48	62	80	100	122	155	205	245	300	390	480	630	780	1000	1200
To	1000	46	55	72	92	120	150	190	240	290	380	470	620	770	980	1180
15	750	40	53	67	90	110	142	180	230	285	370	465	610	760	950	1160
16	1500	42	56	73	94	120	147	185	240	290	380	465	610	760	970	1170
To	1000	36	48	61	84	108	132	175	230	280	360	460	560	740	955	1150
22.4	750	33	42	56	75	100	122	162	212	275	345	440	550	730	940	1130
	GEAR BOXES WITH FAN COOLING															
6.3	1500	82	110	135	162	205	260	320	405	500	650	800	1000	1300	1600	#
To	1000	65	85	105	145	180	220	280	370	450	580	730	920	1200	1500	#
15	750	58	75	100	130	170	210	260	340	420	530	680	880	1150	1400	#
16	1500	75	95	120	155	200	250	290	390	490	630	780	950	1200	1500	#
To	1000	55	70	95	120	160	210	270	350	440	570	700	900	1100	1400	#
22.4	750	50	62	85	105	140	180	240	300	400	520	650	850	1000	1300	#
	GEAR BOXES WITH COOLING COIL															
6.3	1500	186	202	225	248	267	295	345	390	450	540	680	830	880	1100	#
To	1000	181	195	217	237	260	290	340	380	440	520	660	800	870	1080	#
22.4	750	162	188	207	230	250	282	330	370	425	510	645	780	860	1050	#
	GEAR BOXES WITH FAN AND COOLING COIL															
6.3	1500	220	250	280	310	350	400	460	550	650	800	1000	1200	1400	1700	#
To	1000	200	225	250	290	320	360	430	510	600	720	920	1100	1300	1600	#
22.4	750	180	210	240	270	310	350	410	480	560	670	860	1050	1250	1500	#

Note:- * Require forced-lubrication by a pump.
Thermal rating on request

TYPE-H3-FOOT MOUNTED UNITS

Triple Reduction - parallel shafts-principle dimensions (mm)



Unit Size	A	A1	A2	D	D1	E	G	H	J	K	K1	L	M	N	P1
140	140	240	320	160		174	190	224	490			120	580	165	140
160	160	272	362	180		194	225	260	540			135	640	185	160
180	180	305	405	200		214	250	290	600			147.5	705	200	175
200	200	296	103	225	122	239	265	310	560			165	680	225	185
225	225	343.8	118	250	132	267	280	340	630			185	760	250	205
250	250	378	130	280	150	298	300	370	710			210	850	280	220
280	280	419.2	148	315	167	327	335	410	800			240	950	315	240
315	315	468	165	355	190	350	375	450	900			270	1070	355	260
355	355	536.8	188	400	212	405	425	500	1005	530		305	1195	400	290
400	400	596.7	209	450	241	456	475	560	1160	600		350	1360	450	325
450	450	679.7	235	500	265	497	530	640	1300	670		395	1510	500	365
500	500	855	1135	560		624	630	720	1680		560	440	1920	560	420
560	560	960	1275	630		679	670	770	1890		630	505	2140	630	445
630	630	1080	1435	710		754	750	860	2130		710	575	2400	710	490
710	710	1210	1610	800		850	850	980	2400		800	655	2690	800	560

Unit Size	R	S	T	U	V	V1	V4	V5	W	W1	W2	W3	Y	Z	Y1	Z1
140	14	4X12	20	100	19	70	M6X16	M24X50	40	140	34	130	6P9	15.5	20P9	62.5
160	18	4X16	20	110	22	75	M6X16	M24X50	50	140	43	130	6P9	18.5	20P9	67.5
180	18	4X16	25	120	25	85	M6X16	M24X50	60	170	53	160	8P9	21	22P9	76
200	22	4X20	25	125	28	90	M8X18	M24X50	60	170	53	160	8P9	24	25P9	81
225	22	4X20	30	130	32	100	M8X18	M24X50	80	210	73	200	10P9	27	28P9	90
250	26	4X24	30	140	38	110	M16X32	M30X60	80	210	73	200	10P9	33	28P9	100
280	26	4X24	35	160	45	125	M16X32	M30X60	110	210	102	200	14P9	39.5	32P9	114
315	33	4X30	40	180	50	140	M16X32	M30X60	110	250	102	240	14P9	44.5	36P9	128
355	33	6X30	50	200	55	160	M16X32	M42X80	110	300	102	290	16P9	49	40P9	147
400	39	6X36	55	220	65	180	M24X50	M42X80	140	300	130	290	18P9	58	45P9	165
450	39	6X36	60	250	75	200	M24X50	M42X80	140	350	160	340	20P9	67.5	45P9	185
500	45	8X42	65	280	90	220	M24X50	M56X105	170	350	160	340	25P9	81	50P9	203
560	45	8X42	70	320	100	240	M24X50	M56X105	210	410	200	400	28P9	90	56P9	220
630	52	8X48	75	350	110	280	M30X60	M56X105	210	470	200	460	28P9	100	63P9	260
710	52	8X48	80	370	125	320	M30X60	M56X105	210	470	200	460	32P9	114	70P9	298

MECHANICAL POWER RATINGS IN kW TYPE-H3

Normal Ratio	Input Speed rpm N1	Input Speed rpm N2	Unit Size 140	160	180	200	225	250	280	315	355	400	450	500	560	630	710
	1500	107	--	50	70	105	140	200	280	380	500	660	930	1810*	2540*	3270*	4880*
14	1000	71	--	34	47	73	95	135	190	270	390	500	700	1250	1770	2340	3420*
	750	53	--	26	36	55	74	105	150	215	300	390	580	940	1330	1760	2580
	1500	94	--	46	65	95	130	180	260	350	460	600	860	1610*	2260*	2910*	4330*
16	1000	62	--	32	44	66	88	120	170	250	350	460	640	1120	1580	2090	3060*
	750	47	--	24	33	50	68	95	135	200	270	360	530	830	1180	1560	2280
	1500	83	--	42	62	85	120	160	230	320	420	550	800	1490*	2110*	2790*	4080*
18	1000	56	--	30	42	60	80	105	150	220	320	420	590	1000	1410	1860	2720
	750	41	--	22	32	45	62	85	120	170	250	330	480	780	1110	1460	2170
	1500	75	--	39	59	73	105	145	205	295	385	500	740	1320*	1860*	2480*	3600*
20	1000	50	--	27	39	54	70	98	140	200	290	380	550	880	1240	1640	2400*
	750	38	--	20	30	43	55	77	110	160	240	305	445	690	990	1290	1920
	1500	67	--	35	52	66	93	130	185	270	350	480	700	1170*	1640*	2170*	3180*
22.4	1000	45	--	24	35	50	65	91	130	190	265	345	520	780	1100	1450	2120
	750	33	--	18	26	38	49	69	96	140	215	275	400	620	880	1140	1710
	1500	60	22	30	44	62	83	115	160	235	330	450	660	1030*	1460*	1930*	2820*
25	1000	40	14	20	30	42	57	80	110	165	255	315	460	730	1040	1350	2010
	750	30	11	15	22	31	43	60	85	125	195	240	350	550	780	1010	1510
	1500	54	20	27	40	56	75	105	145	215	310	405	590	910*	1290*	1700*	2440*
28	1000	36	14	18	27	38	52	72	100	150	230	285	420	640	910	1190	1770
	750	27	10	14	20	28	39	54	77	115	165	215	315	490	690	890	1330
	1500	48	17	24	33	48	69	95	130	200	290	385	560	820*	1170*	1540*	2260*
31.5	1000	32	11	16	22	33	46	63	87	130	200	255	370	580	820	1070	1600
	750	24	8	13	17	25	34	49	65	100	150	190	280	440	620	810	1200
	1500	42	16	22	32	46	62	87	120	180	280	345	500	770	1100*	1430*	2120*
35.5	1000	28	11	15	22	30	41	58	82	120	185	230	340	510	720	950	1410
	750	21	8	11	16	23	31	43	61	90	140	175	250	385	550	710	1060
	1500	38	14	20	30	43	56	78	110	160	240	310	450	700	990	1290	1920*
40	1000	25	9	14	21	28	37	52	72	105	165	205	300	465	660	860	1280
	750	19	7	10	15	22	29	41	56	82	125	155	230	350	495	640	960
	1500	33.5	13	17	26	36	50	69	97	145	220	275	400	620	880	1150*	1710*
45	1000	22	8	12	17	25	33	46	64	95	150	180	265	455	640	760	1140
	750	16.6	6	8.5	13	18	26	36	50	74	115	140	205	320	455	600	880
	1500	30	11	15	23	32	44	62	87	130	200	245	360	550	780	1030	1540*
50	1000	20	7	11	15	22	31	43	60	87	135	165	240	365	520	690	1020
	750	15	5	8	12	16	23	32	44	65	100	120	180	290	410	540	780
	1500	27	9	14	20	28	39	55	77	115	175	220	320	500	700	920	1370
56	1000	18	6	9.5	14	19	27	38	53	77	120	145	215	340	485	640	930
	750	13.4	5	7	10	15	21	28	40	59	91	110	165	255	360	475	690
	1500	24	8	11	17	23	35	45	63	100	150	195	285	440	630	810	1220
63	1000	16	5	7.5	11	16	24	30	43	69	105	130	190	300	430	560	420
	750	12	4	6	8.5	12	18	23	32	52	78	98	145	230	325	430	630
	1500	21	7.5	9.5	15	21	31	40	56	90	135	175	250	395	560	730	1090
71	1000	14	5	6.5	10	14	22	27	39	61	92	115	170	270	380	500	730
	750	10.5	3.5	5	7.5	11	16	20	29	46	69	86	125	200	285	380	550
	1500	18.8	6	8.5	14	19	29	36	51	82	120	155	230	350	495	640	960
80	1000	12.5	4	6	9	13	19	24	34	54	82	100	150	240	340	450	650
	750	9.4	3	4.5	7	10	14	19	27	40	63	76	110	180	255	340	495
	1500	16.7	6	8	12	17	26	32	46	74	110	140	205	320	455	600	880
90	1000	11.1	4	5.5	8	11	17	22	31	49	74	92	135	210	300	395	570
	750	8.3	3	4	6.5	9	13	17	24	37	57	69	100	160	225	295	430
	1500	15	5		9.5	16	24	30	44	60	95	130	175	290	410	540	780
100	1000	10	3		6.5	11	16	21	30	40	63	86	115	190	270	360	520
	750	7.5	2		5	8	12	16	22	30	47	65	87	145	205	270	395
	1500	13.4	4			15	21	29	40	53	84	115	155	255	360	475	690
112	1000	8.9	3			10	14	19	27	36	57	78	105	170	245	325	470
	750	6.7	2			7.5	11	15	20	27	43	58	78	130	185	245	355

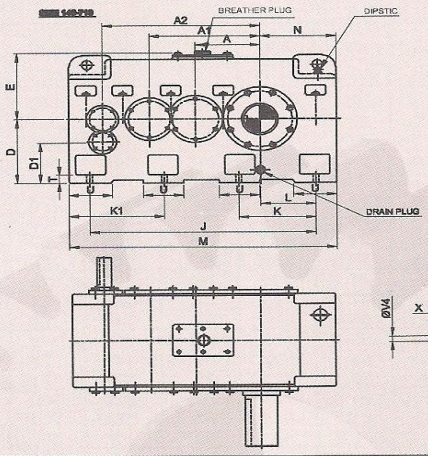
THERMAL POWER RATINGS IN KW

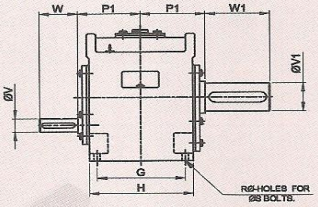
Normal Ratio	Input Speed rpm	UNIT 140	160	180	200	225	250	280	315	355	400	450	500	560	630	710
		GEAR BOXES WITHOUT COOLING														
14	1500	25	42	53	65	90	108	132	172	212	265	335	405	510	650	790
To	1000	23	39	48	60	80	98	125	168	202	255	330	400	490	630	760
35.5	750	21	33	44	54	75	90	118	152	195	242	312	388	485	620	750
40	1500	22	36	48	60	80	97	122	165	202	255	330	395	495	630	770
To	1000	20	32	44	55	70	88	112	155	192	243	310	375	475	605	740
112	750	19	30	40	50	65	80	100	135	172	222	295	368	468	595	720
		GEAR BOXES WITH COOLING														
14	1500	--	75	90	110	140	170	220	270	340	420	520	640	800	1050	#
To	1000	--	65	83	100	130	160	205	250	320	380	492	590	750	1002	#
35.5	750	--	61	78	95	125	152	196	240	305	362	470	560	710	960	#
40	1500	--	72	88	106	138	162	205	260	324	387	500	590	755	1000	#
To	1000	--	63	80	95	128	153	195	245	305	360	466	552	700	942	#
112	750	--	58	75	90	120	140	180	232	290	342	445	522	670	900	#
		GEAR BOXES WITH COOLING COIL														
14	1500	--	100	120	140	170	200	250	288	360	430	545	640	750	850	#
To	1000	--	96	115	132	160	195	245	280	348	425	535	615	720	820	#
112	750	--	92	110	126	150	190	240	272	340	420	515	605	715	805	#
		GEAR BOXES WITH FAN COOLING COIL														
14	1500	--	133	157	185	220	262	338	386	488	585	730	875	1040	1250	#
To	1000	--	122	150	172	210	257	325	362	466	550	697	805	980	1192	#
112	750	--	120	144	167	200	252	318	360	450	540	673	777	940	1145	#

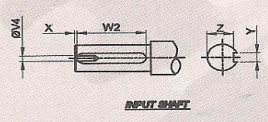
NOTE:- Require forced -feed lubrication by a pump .

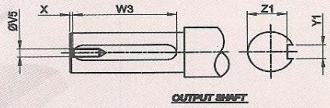
TYPE H4-FOOT MOUNTED UNITS

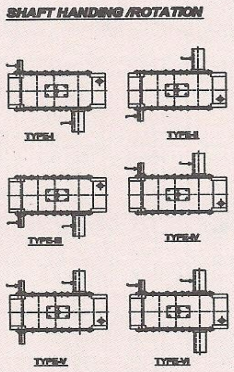
Quadruple Reductiuon-Parallel shafts-Principle Dimensions (mm)











Unit Size	A	A1	A2	D	D1	E	G	H	J	K	K1	L	M	N	P1
140	140	240	320	160	89	174	190	224	490			120	580	165	140
160	160	272	362	180	109	194	225	260	540			135	640	185	160
180	180	305	405	200	120	214	250	290	600			147.5	705	200	175
200	200	340	452	225	135	239	265	310	670			165	790	225	185
225	225	385	510	250	150	267	280	340	750			185	880	250	205
250	250	430	570	280	168	298	300	370	850			210	990	280	220
280	280	480	640	315	190	327	335	410	950	475		240	1100	315	240
315	315	540	720	355	215	350	375	450	1060	530		270	1230	355	260
355	355	605	805	400	240	405	425	500	1180	600		305	1370	400	290
400	400	680	905	450	270	456	475	560	1340	670		350	1540	450	325
450	450	765	1015	500	300	497	530	640	1500	750		395	1710	500	365
500	500	855	1135	560	335	624	630	720	1680	560	560	440	1920	560	420
560	560	960	1275	630	380	679	670	770	1890	630	630	505	2140	630	445
630	630	1080	1435	710	430	754	750	860	2130	710	710	575	2400	710	490
710	710	1210	1610	800	485	850	850	980	2400	800	800	655	2690	800	560

Unit Size	R	S	T	U	V	V1	V4	V5	W	W1	W2	W3	Y	Z	Y1	Z1
140	14	4X12	20	100	18	70	M6X16	M24X52	40	140	34	130	6P9	14.5	20P9	62.5
160	18	4X16	20	110	18	75	M6X16	M24X52	40	140	34	130	6P9	14.5	20P9	67.5
180	18	4X16	25	120	18	85	M6X16	M24X52	40	170	34	160	6P9	14.5	22P9	76
200	22	4X20	25	125	22	90	M8X18	M24X50	50	170	43	160	6P9	14.5	25P9	81
225	22	4X20	30	130	25	100	M8X18	M24X50	60	210	43	200	8P9	24	28P9	90
250	26	4X24	30	140	28	110	M8X18	M30X60	60	210	53	200	8P9	24	28P9	100
280	26	6X24	35	160	32	125	M8X18	M30X60	80	210	73	200	10P9	27	32P9	114
315	33	6X30	40	180	38	140	M16X32	M30X60	80	250	73	240	10P9	33	36P9	128
355	33	6X30	50	200	45	160	M16X32	M42X80	110	300	102	290	14P9	39.5	40P9	147
400	39	6X36	55	220	50	180	M16X32	M42X80	110	300	102	290	14P9	44.5	45P9	165
450	39	6X36	60	250	55	200	M24X50	M42X80	110	350	102	340	16P9	49	45P9	185
500	45	8X42	65	280	65	220	M24X50	M56X105	140	350	130	340	18P9	58	50P9	203
560	45	8X42	70	320	75	240	M24X50	M56X105	140	410	130	400	20P9	67.5	56P9	220
630	52	8X48	75	350	90	280	M24X50	M56X105	170	470	160	460	25P9	81	63P9	260
710	52	8X48	80	370	100	320	M24X50	M56X105	210	470	200	460	28P9	90	70P9	298

MECHANICAL POWER RATINGS IN kW TYPE-H4

Normal Ratio	Input Speed rpm		UNITS														
	N1	N2	140	160	180	200	225	250	280	315	355	400	450	500	560	630	710
	1500	14.15	5.3	8.5	12.6	15	20	35.6	44.6	62.7	75.3	95	153	267	378	505	
106	1000	9.43	3.5	5.6	8.4	10	13.3	23.7	29.7	41.8	50.2	63.3	102	178	252	337	
	750	7.08	2.65	4.25	6.3	7.5	10	17.8	22.3	31.35	37.7	47.5	76.5	134	189	253	
	1500	12.82	4.8	7.7	11.3	13.3	18.5	31	40.8	53.9	70.8	88.3	141	243	336	449	
117	1000	8.55	3.2	5.1	7.5	8.9	12.3	20.6	27.2	35.9	47.2	58.9	94	162	224	299	
	750	6.41	2.4	3.85	5.65	6.65	9.25	15.5	20.4	26.9	35.4	44.2	70.5	122	168	225	
	1500	11.54	4.3	6.9	10.1	12.2	16.5	28	36.9	49	60.8	78.6	127	218	308	400	
130	1000	7.69	2.8	4.6	6.7	8.13	11	18.6	24.6	32.6	40.5	52.4	84.7	145	205	267	
	750	5.77	2.15	3.45	5.05	6.1	8.25	14	18.5	24.5	30.4	39.3	63.5	109	154	200	
	1500	10.42	3.9	6.2	9	11	15.2	26.1	33.4	46.1	58	71.1	112	196	279	376	
144	1000	6.94	2.6	4.1	6	7.3	10.1	17.4	22.3	30.7	38.7	47.4	74.7	131	186	251	
	750	5.21	1.95	3.1	4.5	5.5	7.6	13	16.7	23	29	35.6	56	98	140	188	
	1500	9.43	3.5	5.6	8.1	10.3	14.2	23.7	31	41.8	53.9	66.1	105	182	257	342	
159	1000	6.29	2.3	3.7	5.4	6.9	9.5	15.8	20.7	27.8	35.9	44.1	70	121	171	228	
	750	4.72	1.75	2.8	4.05	5.15	7.1	11.85	15.5	20.9*	27	33.1	52.5	91	129	171	
	1500	8.52	3.2	5	7.2	9.3	13.2	21.4	28.1	37.7	48.1	61.6	98	163	229	300	
176	1000	5.68	2.1	3.3	4.8	6.2	8.8	14.2	18.7	25.1	32.1	41.1	65.3	109	153	200	
	750	4.26	1.6	2.5	3.6	4.7	6.6	10.7	14.1	18.85	24.1	30.8	49	82	115	150	
	1500	7.69	2.8	4.5	6.5	8.6	11.9	19.3	25.5	34.1	43	54.9	88	148	210	276	
195	1000	5.13	1.8	3	4.3	5.7	7.9	12.8	17	22.7	28.7	36.6	58.7	99	140	184	
	750	3.85	1.4	2.25	3.25	4.3	6	9.65	12.8	17	21.5	27.5	44	74	105	138	
	1500	6.97	2.5	4	5.8	7.7	10.9	17.3	23.1	30.7	39.1	50.5	80	135	192	249	
215	1000	4.65	1.6	2.6	3.8	5.1	7.3	11.5	15.4	20.4	26.1	33.7	53.3	90	128	166	
	750	3.48	1.25	2	2.9	3.9	5.5	8.65	11.6	15.35	19.6	25.3	40	68	96	125	
	1500	6.3	2.3	3.7	5.2	6.8	9.8	15.8	20.7	27.9	35.6	44.2	72.3	121	173	225	
238	1000	4.2	1.5	2.4	3.4	4.5	6.5	10.5	13.8	18.6	23.7	29.5	48.2	81	115	150	
	750	3.15	1.15	1.85	2.6	3.4	4.9	7.9	10.35	13.95	17.8	22.1	36.1	61	87	113	
	1500	5.68	2.09	3.3	4.6	6.3	8.8	14.3	18.9	25.3	31.8	40.7	64.8	104	152	200	
264	1000	3.78	1.39	2.2	3	4.2	5.8	9.5	12.6	16.8	21.2	27.1	43.2	69	101	133	
	750	2.84	1.04	1.65	2.3	3.1	4.4	7.15	9.4	12.6	15.9	20.3	32.4	52	76	100	
	1500	5.13	1.88	2.98	4.18	5.7	8	13	17.3	22.9	29.8	37	59.2	96	139	179	
292	1000	3.42	1.25	1.98	2.78	3.8	5.3	8.6	11.5	15.2	19.8	24.6	39.4	64	93	119	
	750	2.56	0.94	1.49	2.09	2.8	4	6.5	8.65	11.45	14.9	18.5	29.6	48	70	90	
	1500	4.64	1.69	2.68	3.7	5.2	7.3	9	15.8	21.1	27.1	33.6	54.1	90	126	170	
323	1000	3.09	1.12	1.78	2.46	3.4	4.8	6	10.5	14.1	18	22.4	36	60	84	113	
	750	2.32	0.84	1.34	1.35	2.6	3.65	4.5	7.9	10.5	13.5	16.8	27	45	63	85	
	1500	4.19	1.52	2.41	3.35	4.7	6.6	8.2	14.3	19.2	24.5	30.6	48.8	83	107	148	
358	1000	2.79	1.01	1.6	2.23	3.1	4.4	5.46	9.5	12.7	16.3	20.4	32.5	55	71	99	
	750	2.09	0.76	1.2	1.67	2.35	3.3	4.1	7.15	9.6	12.2	15.3	24.4	42	54	74	
	1500	3.78	1.37	2.17	3	4.3	5.9	7.4	12.8	17.4	22.1	27.5	44.2	72	101	136	
396	1000	2.52	0.9	1.4	2	2.8	3.9	4.92	8.5	11.5	14.7	18.3	29.4	48	67	91	
	750	1.89	0.685	1.08	1.5	2.15	2.95	3.69	6.4	8.7	11	13.7	22.1	36	51	68	
	1500	3.42	1.23	1.95	2.69	2.3	3.8	4.5	7.6	10.5	13.3	18.5	25.6	67	95	122	
438	1000	2.28	0.82	1.3	1.79	1.5	2.5	3	5	7	8.8	12.3	17	45	63	81	
	750	1.71	0.61	0.97	1.34	1.15	2.9	2.25	3.8	5.25	6.6	9.2	12.8	34	48	61	
	1500	3.09	1.1	1.76	2.41	2.1	3.6	4.23	7	9.7	11.7	16.9	23.1	60	85		
485	1000	2.06	0.73	1.17	1.6	1.4	2.4	2.82	4.6	6.4	7.8	11.2	15.4	40	57		
	750	1.54	0.55	0.88	1.2	1.05	1.8	2.11	3.5	4.85	5.8	8.4	11.5	30	43		
	1500	2.79	1	1.58	2.15	2.5	3.1	4	6.3	8.4	10.9	15.1	21	51	77		
536	1000	1.86	0.6	1.05	1.43	1.6	2	2.66	4.2	5.6	7.2	10	14	34	51.3		
	750	1.39	0.5	0.52	1.07	1.2	1.55	2	3.1	4.2	5.4	7.5	10.5	26	39		
	1500	2.52	0.9	1.42	1.93	2.2	2.5	3.9	5.7	7.6	9.9	13.6	19	48	68		
594	1000	1.68	0.6	0.94	1.28	1.4	1.6	2.6	3.8	5	6.6	9	12.6	32	45.3		
	750	1.26	0.45	0.71	0.96	1.1	1.25	1.95	2.85	3.8	4.9	6.8	9.5	24	34		
	1500	2.28	0.8	1.28	1.72	1.8	2.4	3.7	5.4	7.1	9.2	12.8	17.8	47	67		
657	1000	1.52	0.5	0.85	1.14	1.3	1.6	2.4	3.6	4.7	6.1	8.5	11.8	31	45		
	750	1.14	0.4	0.64	0.86	0.9	1.2	1.85	2.7	3.55	4.6	6.4	8.9	24	34		

THERMAL POWER RATINGS IN kW

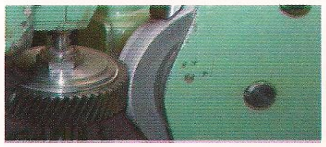
Normal Ratio	Input Speed rpm	UNITS														
		140	160	180	200	225	250	280	315	355	400	450	500	560	630	710
		GEAR BOXES WITHOUT COOLING														
106	1500	15.2	20.3	25.3	32	--	--	86.7	--	--	---	22.19	246	311	407	515
TO	1000	14.1	18.2	23.2	32.3	39.6	51.4	61.7	82.3	98.4	127.8	158.7	242	308	400	507
657	750	13.1	17.1	21.2	26.4	32.3	41.1	49.9	64.6	79.3	102.9	127.8	238	304	392	496

MANUFACTURING PROCESS

CNC TURNING PROCESS

HOBBING PROCESS

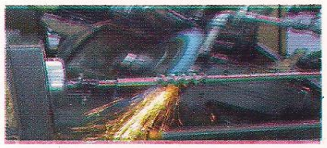
GEAR GRINDING PROCESS



REISHAUER TEETH GRINDING MACHINE

HMC MACHINE

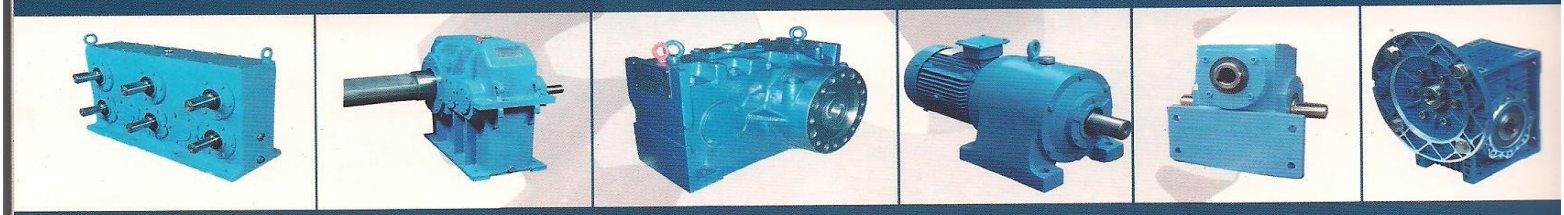
VMC MACHINE



WORM GRINDING M/C.

LEAD & PROFILE TESTING M/C.

CRESCENT



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