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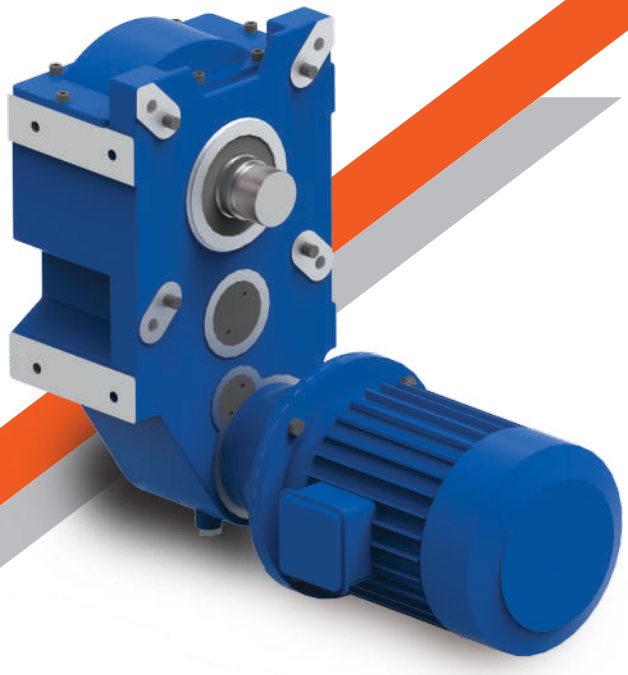
UNLEASHING POWER

UNLOCKING VALUE



Series H

Hoist Geared Motor & Gearbox

GEARED MOTORS · GEARBOXES · GEAR ASSEMBLIES · DRIVE SOLUTIONS

CH-I.01INP0923

AN AERIAL VIEW OF THE RADICON POWERBUILD

Leaders in Power Transmission Solutions and packed with intensive research, Power Build's geared motors have strongly positioned itself amongst the best products available in the country today.

The flag ship company considered to be the pioneer in manufacturing of geared motors in India, was established in the year 1972, at Vallabh Vidyanagar, Gujarat. Committed workforce supported by ultra modern facilities and backed up by the latest generation technological developments, has set the company on the track of rapid growth path. As a result the company has today made its presence felt at all the major core sectors.

The Company got certified for successfully implementing ISO 9001:2000 quality standard in the year 2006 from TUV Rheinland and subsequently got certified for implementing ISO 9001:2015, ISO 14001:2018, ISO 45001:2018 standards in April, 2019. With this certification PBPL became the first hard core engineering company in western India to get this honour. The company also awarded the most precious TPM Excellence Award, Japan in 2018.

Initially PBPL started building the geared motors using the German technology and later on also incorporated technology from Europe for extending the product range. Quick adaptation to innovative technology has been the key to success for the company. The products of the company are built with the most modern methodology called "Kit Concept" and are dimensionally interchangeable with other major brands.

radicon POWERBUILD

GEARED MOTORS · GEARBOXES · GEAR ASSEMBLIES · DRIVE SOLUTIONS

POWER BUILD PVT LTD

Leaders in Power Transmission Solutions

CONTENTS

PRODUCT INFORMATION

In hoist applications, parallel shaft gear units are widely used wherein rope drum and motor are on the same side of gear unit. Lifting and conveying loads require powerful and reliable drive unit which can deliver even under impact loads. These drives requires larger center distance to allow use of wide range of rope drums.

The new H series units are PBL's new range of products dedicated for catering Hoist application requirements in material handling cranes. The development of H series gear boxes are result of excellent efforts of our R&D team who conducted thorough research by interacting with various crane manufacturers and understood their challenges and requirements. This required special features and robust design, which are wisely incorporated in these series.

Model	H3100	H3200	H3300
Lifting capacity (Tons)	Upto 3.2	Upto 6.8	Upto 12.5
Lifting speeds (m/min)*	Upto 5.8	Upto 6.9	Upto 5.8
Drum diameters (mm)	Upto 200	Upto 220	Upto 300
Nominal Ratios	40 to 80	36 to 80	60 to 120
Frame sizes (IEC)	90L to 112M	100L to 132M	132S to 160L
Mechanism class	M6, M7	M5, M6, M7	M6, M7
Output shaft	External splined shaft as per DIN 5480.		
Lifting speed is calculated for 4/1 rope (*) reeving (falls)			

Features and Benefits

Larger center distance enables OEM's to choose from range of drum sizes. This allows the use of large drum diameters and hence shorter drums. It also facilitates easy accessibility and maintenance.

Higher Input offset distance allows greater flexibility in rope Reeving.

Wide range of options for Motor frame sizes, brake sizes, output shaft and driving flange.

Gear geometry is designed for high power density with high precision hardened and ground helical gears.

High Overhung load capacity which is primary requirement for Hoists. Our product can withstand high impact loads during operation.

Optional external brake solution for safety of system.

Weight optimization to reduce the total mass of trolley to be moved.

Inverter controlled drive options are available.

Compact and heavy duty hoist drive units.

Direct mounting of rope drums on the gear unit.

UNIT DESIGNATION & VERSIONS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
H	3	1	0	0	5	0	X	B	M	S	D	2	A	3	X	0	A	A	L

1 - Series Type

H — Hoist Gearbox

2 - No. of Reductions

3 — 3 Reductions

3, 4 - Size of Unit

1	0
2	0
3	0

H310
H320
H330

5 - Revision / Version

0

6, 7, 8 - Nominal Ratio

e.g.

3	6	X
5	0	X
1	1	6

For 36 : 1
For 50 : 1
For 116 : 1

9 - Mounting Type

B — Base Mount

10 - Input Type

M — With Motor

G — Without Motor (Suitable for Customer's Motor)

11 - Output Shaft

S — External Splined Shaft

12 - Motor Adaptor for Unit

Unit	Motor Frame Size (B05 Const.)	Entry 12
H3100	90	C
	100 / 112	D
H3200	100 / 112	D
	132	E
H3300	132	E
	160	F

13,14 - Mounting Positions

Refer Table on Page No.4

15,16,17 - Geared Motor Power

e.g.

1	X	5
1	5	X

For 1.5 kW
For 15 kW

18 - No. of Poles of Motor

	50 Hz		60 Hz
4 Pole	1500 rpm	A	1800 rpm B
6 Pole	1000 rpm	C	1200 rpm D
8 Pole	750 rpm	G	900 rpm H

19 - Special Features for Motor

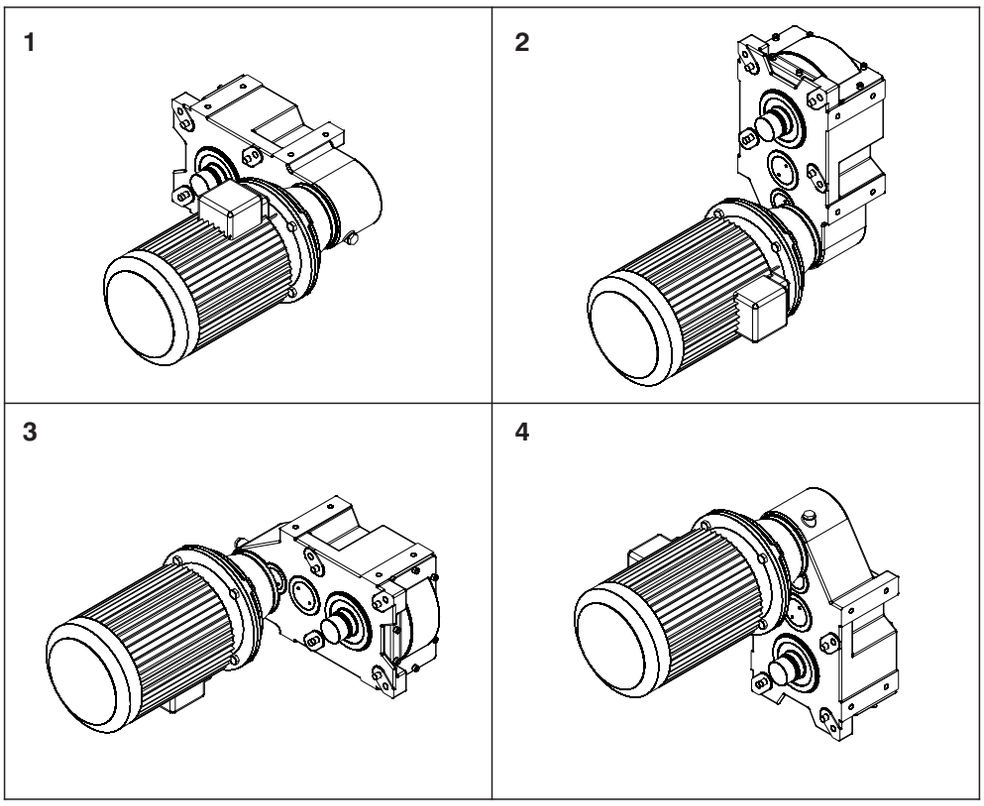
Refer Table on Page No.5

20 - Special Features for Gearbox

Refer Table on Page No.5

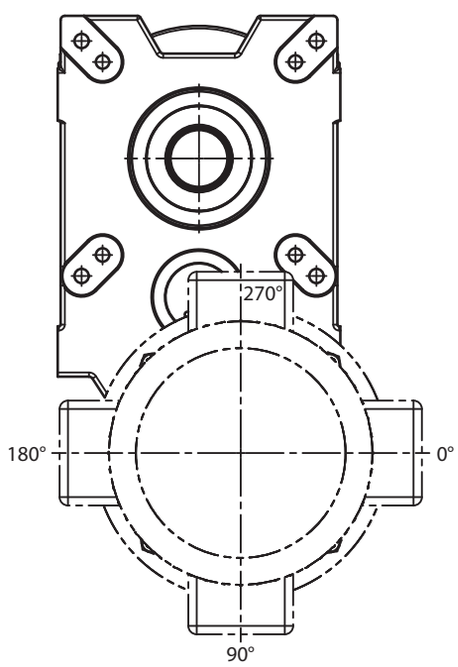
MOUNTING POSITIONS

Column 13 Entry - Mounting Positions



Motor Terminal Box Positions

Column 14 Entry



Terminal Box Position For Motorised Units

Column Entry 14	Terminal Box Position
A	0◦
B	90◦
C	180◦
D	270◦
-	Unit Without Motor

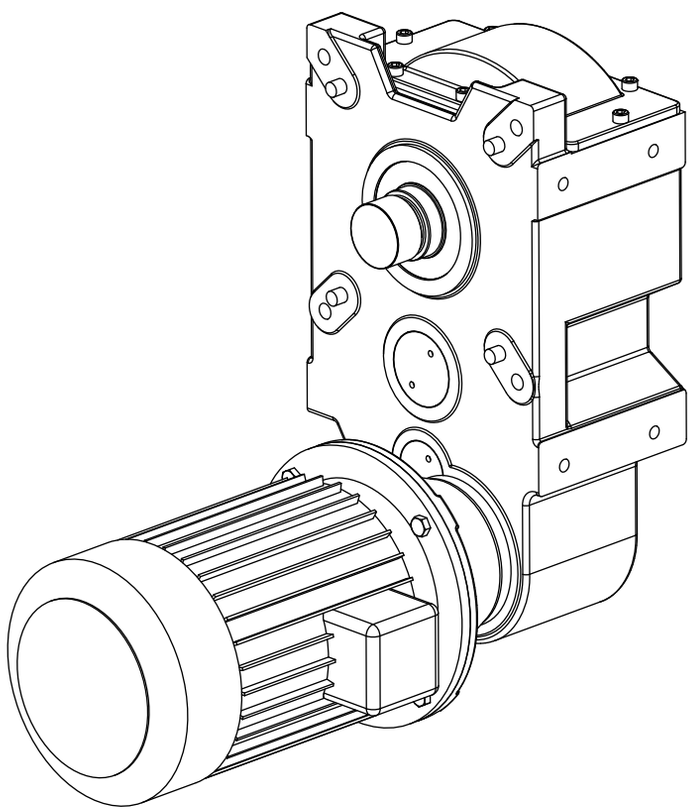
Column Entry 19 & 20

Special Features For Motor - Column 19 Entry

Column Entry 19	Motor Features				
	IE2 Motor	IE3 Motor	Brake Motor	Crane Duty	Spl. Features
M	*				
A	*		*		
B	*			*	
C	*		*	*	
P		*			
Q		*	*		
R		*		*	
T		*	*	*	
S					*

Special Features For Gearbox - Column 20 Entry

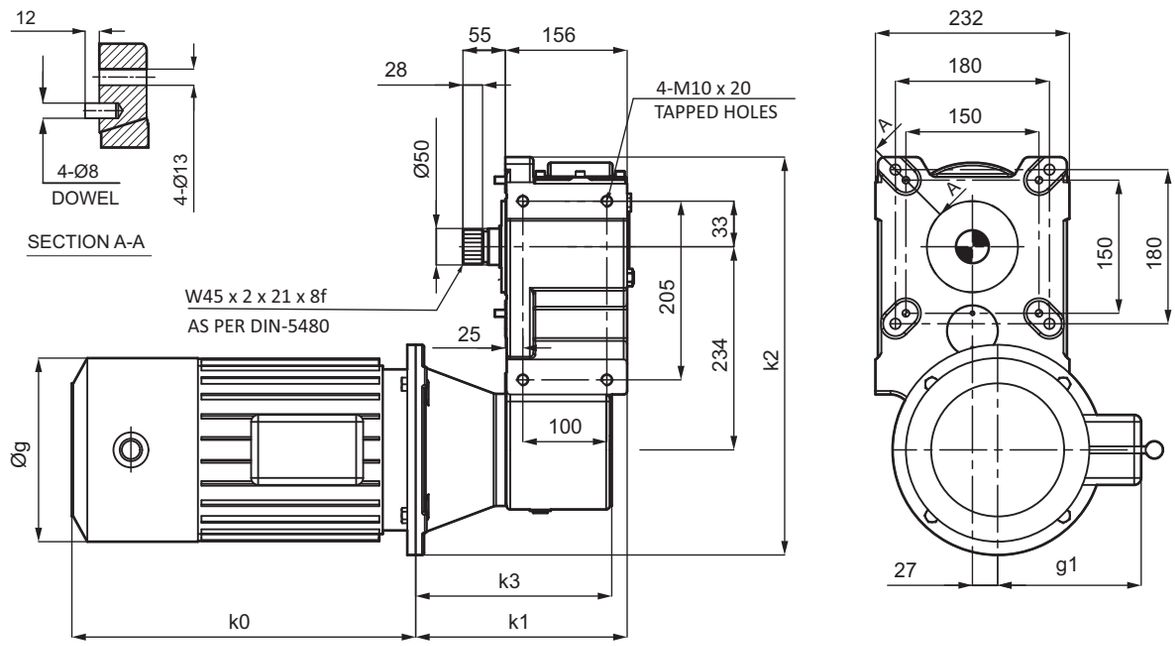
Column Entry 20	Gearbox Features				
	Double Oil Seal	With Driving Flange	ND Side Brake	Brake Fitting Provision	GB Spl. Features
A	*				
D	*	*			
E	*		*		
F	*			*	
H	*	*	*		
K	*	*		*	
L		*			
M		*	*		
O		*		*	
P			*		
Q				*	
Z					*



HOIST GEARED MOTOR

SERIES H

H3100 - RATINGS & DIMENSION SHEET



Frame Size	k0	Øg	g1	k1	k2	k3	Unit Weight Without Motor (kg)
-	mm	mm	mm	mm	mm	mm	kg
90L	417	180	133	#	#	#	#
100L	425	198	175	260	451	238	51.1
112M	477	222	185	260	451	238	51.1

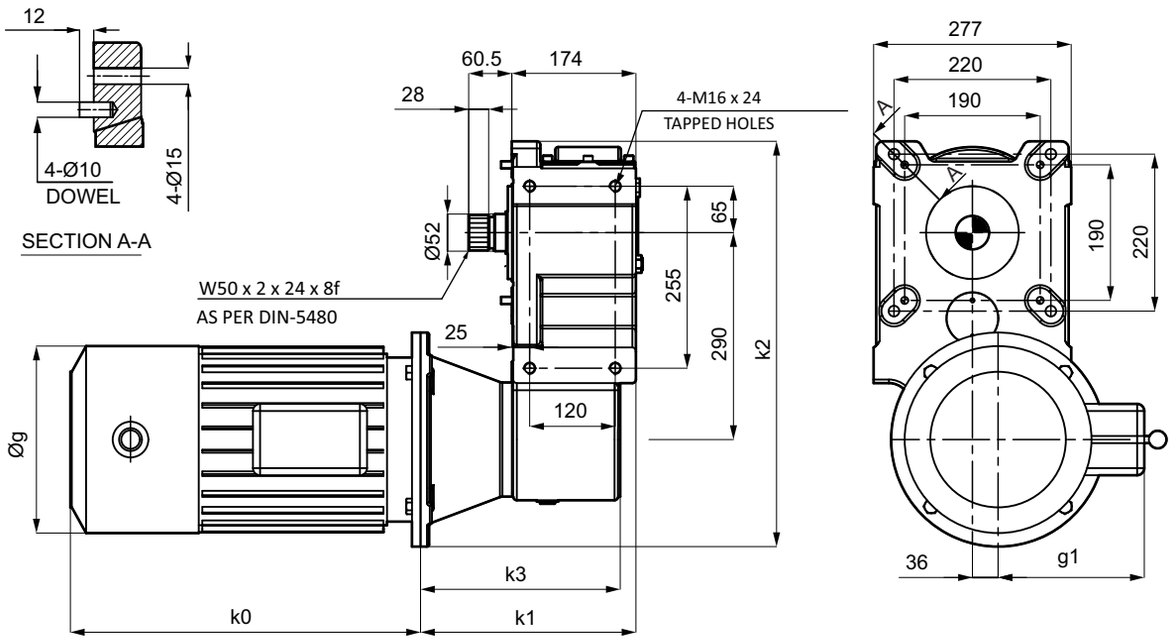
Rating Details								
Drum Dia. (*)	Lifting Speed	Gearbox Output Speed	Gearbox Ratio		Motor Power	Gearbox O/p Torque	Motor Frame Size	ISO Class (*)
mm	m/min	rpm	Nominal	Actual	kW	Nm	-	-
140	2.0	18.5	78.0	78.52	1.5	774	90	M7
	2.4	22.1	65.0	65.63	1.5	648	90	M7
	3.1	28.4	50.0	51.14	2.2	740	100	M7
	4.0	36.7	38.0	39.59	3	781	100	M7
170	2.5	18.5	78.0	78.52	1.5	774	90	M7
	2.9	22.1	65.0	65.63	2.2	951	100	M7
	3.8	28.4	50.0	51.14	3	1,009	100	M7
	4.9	36.7	38.0	39.59	3	781	100	M7
200	2.9	18.5	78.0	78.52	2.2	1,136	100	M6
	3.5	22.1	65.0	65.63	2.2	951	100	M7
	4.5	28.4	50.0	51.14	3	1,009	100	M7
	5.8	36.7	38.0	39.59	3.7	963	112	M7

Note :-

1. Lifting speed is calculated for 4/1 rope (*) reeving (Falls).
2. Input speed is considered 1450 rpm.
3. All frame size of motor are in B5 construction.

(*) We can offer other options based on your request.
' # ' Under develoment.

H3200 - RATINGS & DIMENSION SHEET



Frame Size	k0	Øg	g1	k1	k2	k3	Unit Weight Without Motor (kg)
-	mm	mm	mm	mm	mm	mm	kg
100L	425	198	175	#	#	#	#
112M	477	222	185	#	#	#	#
132S	500	262	205	302	568	280	83.6

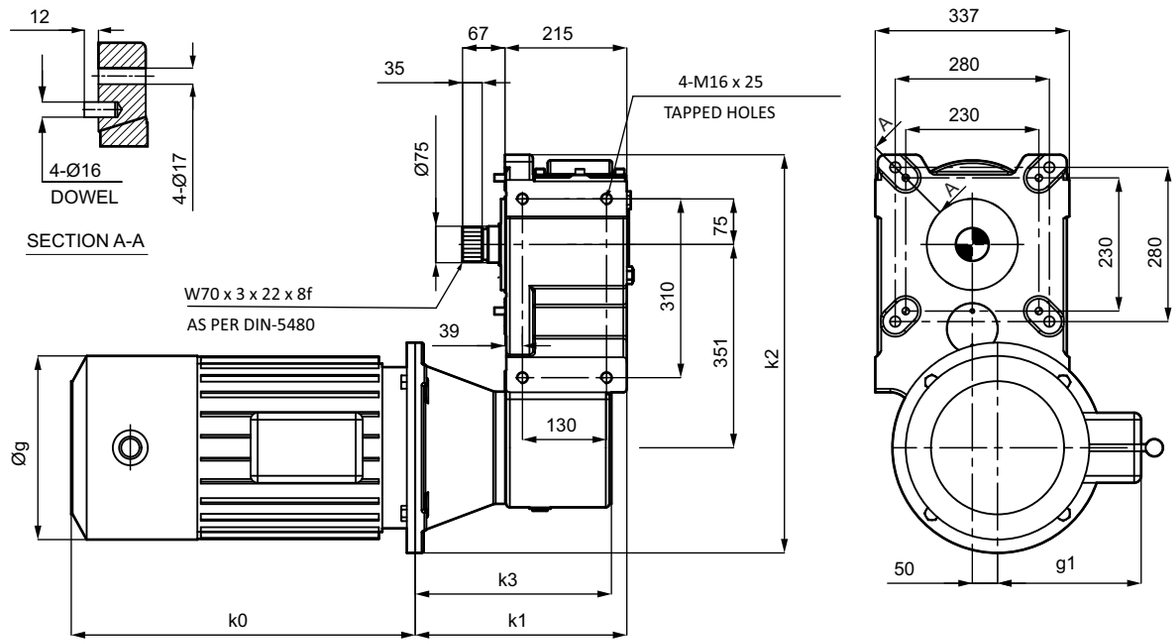
Rating Details								
Drum Dia. (*)	Lifting Speed	Gearbox Output Speed	Gearbox Ratio		Motor Power	Gearbox O/p Torque	Motor Frame Size	ISO Class (*)
mm	m/min	rpm	Nominal	Actual	kW	Nm	-	-
170	2.5	18.5	78.0	78.49	3.7	1,910	112	M7
	3.2	24.3	58.0	59.91	5.5	2,162	132	M6
	4.3	32.5	44.0	44.72	5.5	1,616	132	M7
	5.3	40.1	38.0	36.22	7.5	1,786	132	M7
200	2.9	18.5	78.0	78.49	3.7	1,910	112	M7
	3.8	24.3	58.0	59.91	5.5	2,162	132	M6
	5.1	32.5	44.0	44.72	7.5	2,204	132	M5
	6.3	40.1	38.0	36.22	9.3	2,215	132	M5
220	3.2	18.5	78.0	78.49	3.7	1,910	112	M7
	4.2	24.3	58.0	59.91	5.5	2,162	132	M6
	5.6	32.5	44.0	44.72	7.5	2,204	132	M5
	6.9	40.1	38.0	36.22	9.3	2,215	132	M5

Note :-

1. Lifting speed is calculated for 4/1 rope (*) reeving (Falls).
2. Input speed is considered 1450 rpm.
3. All frame size of motor are in B5 construction.

(*) We can offer other options based on your request.
' # ' Under develoment.

H3300 - RATINGS & DIMENSION SHEET



Frame Size	k0	Øg	g1	k1	k2	k3	Unit Weight Without Motor (kg)
-	mm	mm	mm	mm	mm	mm	kg
132S	500	262	205	345	671	295	153.6
132M	538	262	205	345	671	295	153.6
160M	605	314	216	377	696	329	161.6
160L	664	314	216	377	696	329	161.6

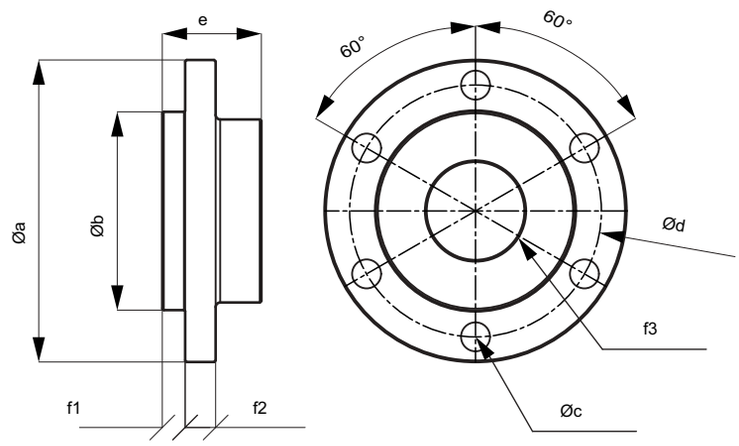
Rating Details								
Drum Dia. (*)	Lifting Speed	Gearbox Output Speed	Gearbox Ratio		Motor Power	Gearbox O/p Torque	Motor Frame Size	ISO Class (*)
mm	m/min	rpm	Nominal	Actual	kW	Nm	-	-
240	2.3	12.4	116.0	116.94	5.5	4,236	132	M5
	2.7	14.4	100.0	100.94	7.5	4,974	132	M5
	2.9	15.7	92.0	92.93	7.5	4,562	132	M5
	3.6	19.4	74.0	75.00	9.3	4,578	132	M5
	4.6	24.7	58.0	58.89	11	4,253	160	M5
270	2.6	12.4	116.0	116.94	7.5	5,776	132	M5
	3.0	14.4	100.0	100.94	7.5	4,974	132	M5
	3.3	15.7	92.0	92.93	7.5	4,562	132	M5
	4.1	19.4	74.0	75.00	9.3	4,578	132	M5
	5.2	24.7	58.0	58.89	15	5,800	160	M5
300	2.9	12.4	116.0	116.94	7.5	5,776	132	M5
	3.4	14.4	100.0	100.94	7.5	4,974	132	M5
	3.7	15.7	92.0	92.93	9.3	5,657	132	M5
	4.6	19.4	74.0	75.00	11	5,415	160	M5
	5.8	24.7	58.0	58.89	15	5,800	160	M5

Note :-

1. Lifting speed is calculated for 4/1 rope (*) reeving (Falls).
2. Input speed is considered 1450 rpm.
3. All frame size of motor are in B5 construction.

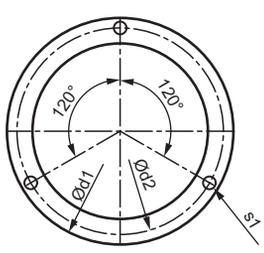
(*) We can offer other options based on your request.
' # ' Under develoment.

Driving Flange

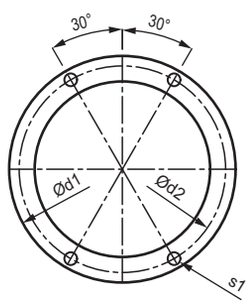


Unit Size	a	b	c	d	e	f1	f2	f3	Weight
-	mm	mm	mm (X Nos.)	mm	mm	mm	mm	As per DIN 5480 N	kg.
H3100	138	95 j6	13 (x4)	115	49.5	12	16	45 x 2 x 30 x 21 x 9H	2.8
H3200	158	110 j6	16 (x4)	130	54.5	15	20	50 x 2 x 30 x 24 x 9H	4.2
H3300	198	130 j6	19 (x4)	165	65	15	20	70 x 3 x 30 x 22 x 9H	6.8

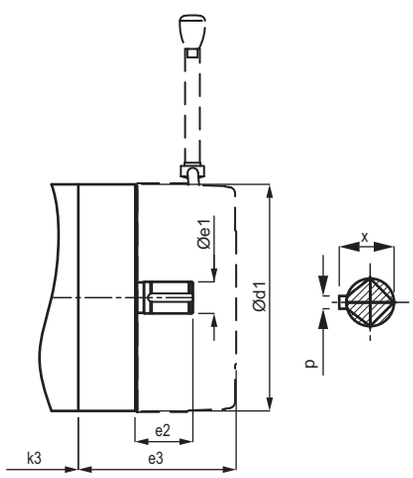
Brake Fitting Provision



For Brake Size 12 & 14



For Brake Size 18 & 20



Shaft Extension for Brake Mounting

Unit Size	Brake Size	d1	d2	s1	e1	e2	e3	p	x	Brake Mounting Plate Weight (kg)
H3100	**12**	150	132	M6	*	*	*	*	*	*
	14	165	145	M8	25	47	107	8	28	2.51
H3200	**14**	165	145	M8	*	*	*	*	*	*
	18	217	196	M8	30	54	122	8	33	4.27
H3300	**18**	217	196	M8	30	53	152	8	33	6.94
	20	257	230	M10	*	*	*	*	*	*

("*') Data will be provided on request
For dimension k3 refer respective unit page.

LUBRICATION

All units require filling with EP mineral oil
Lubricant quantities are approximate fill until oil escapes from the level plug hole, fit ventilator plug (when supplied) in the appropriate position for the required mounting position (see installation and maintenance instructions).

Temperature Limitations
The standard lubricant is suitable for operation in ambient temperatures of 0° to 50°C, outside of this consult Table 1 or consult Application Engineering.

Lubricant Grade Table			
Lubricant	**Ambient Temperature Range**		
	-5˚C - 20˚C (E) -30˚C - 20˚C (H)	0˚C - 35˚C	20˚C - 50˚C
EP Mineral Oil (type E)	5E (VG 220)	6E (VG 320)	7E (VG 460)
Polyalphaolefin Based Synthetic (type H)	5H (VG 220)	5H (VG 220)	6H (VG 320)

Unit Lubricant Table (Litres)				
Unit Size	**Mounting Positions**			
	1	**2**	**3**	**4**
H3100	2.25	3.00	2.70	3.25
H3200	4.50	5.75	4.70	7.00
H3300	7.00	8.75	8.60	11.75

PRODUCT SAFETY INFORMATION

IMPORTANT

Product Safety Information

General - The following information is important in ensuring safety. It **must** be brought to the attention of personnel involved in the selection of the equipment, those responsible for the design of the machinery in which it is to be incorporated and those involved in its installation, use and maintenance.

The equipment will operate safely provided it is selected, installed, used and maintained properly. As with any power transmission equipment **proper precautions must** be taken as indicated in the following paragraphs, to ensure safety.

Potential Hazards - these are **not** necessarily listed in any order of severity as the degree of danger varies in individual circumstances. It is important therefore that the list is studied in its entirety:-

1) Fire/Explosion
   (a) Oil mists and vapour are generated within gear units. It is therefore dangerous to use naked lights in the proximity of gearbox openings, due to the risk of fire or explosion.
   (b) In the event of fire or serious overheating (over 300 °C), certain materials (rubber, plastics, etc.) may decompose and produce fumes. Care should be taken to avoid exposure to the fumes, and the remains of burned or overheated plastic/rubber materials should be handled with rubber gloves.

2) Guards - Rotating shafts and couplings must be guarded to eliminate the possibility of physical contact or entanglement of clothing. It should be of rigid construction and firmly secured.

3) Noise - High speed gearboxes and gearbox driven machinery may produce noise levels which are damaging to the hearing with prolonged exposure. Ear defenders should be provided for personnel in these circumstances. Reference should be made to the Department of Employment Code of Practice for reducing exposure of employed persons to noise.

4) Lifting - Where provided (on larger units) only the lifting points or eyebolts must be used for lifting operations (see maintenance manual or general arrangement drawing for lifting point positions). Failure to use the lifting points provided may result in personal injury and/or damage to the product or surrounding equipment. Keep clear of raised equipment.

5) Lubricants and Lubrication
   (a) Prolonged contact with lubricants can be detrimental to the skin. The manufacturer's instruction must be followed when handling lubricants.
   (b) The lubrication status of the equipment must be checked before commissioning. Read and carry out all instructions on the lubricant plate and in the installation and maintenance literature. Heed all warning tags. Failure to do so could result in mechanical damage and in extreme cases risk of injury to personnel.

6) Electrical Equipment - Observe hazard warnings on electrical equipment and isolate power before working on the gearbox or associated equipment, in order to prevent the machinery being started.

7) Installation, Maintenance and Storage
   (a) In the event that equipment is to be held in storage, for a period exceeding 6 months, prior to installation or commissioning, application engineering must be consulted regarding special preservation requirements. Unless otherwise agreed, equipment must be stored in a building protected from extremes of temperature and humidity to prevent deterioration.

   The rotating components (gears and shafts) must be turned a few revolutions once a month (to prevent bearings brinelling).

   (b) External gearbox components may be supplied with preservative materials applied, in the form of a "waxed" tape overwrap or wax film preservative. Gloves should be worn when removing these materials. The former can be removed manually, the latter using white spirit as a solvent.

   Preservatives applied to the internal parts of the gear units do not require removal prior to operation.

   (c) Installation must be performed in accordance with the manufacturer's instructions and be undertaken by suitably qualified personnel.
   (d) Before working on a gearbox or associated equipment, ensure that the load has been removed from the system to eliminate the possibility of any movement of the machinery and isolate power supply. Where necessary, provide mechanical means to ensure the machinery cannot move or rotate. Ensure removal of such devices after work is complete.
   (e) Ensure the proper maintenance of gearboxes in operation. Use only the correct tools and approved spare parts for repair and maintenance. Consult the Maintenance Manual before dismantling or performing maintenance work.

8) Hot Surfaces and Lubricants
   (a) During operation, gear units may become sufficiently hot to cause skin burns. Care must be taken to avoid accidental contact.
   (b) After extended running the lubricant in gear units and lubrication systems may reach temperatures sufficient to cause burns. Allow equipment to cool before servicing or performing adjustments.

9) Selection and Design
   (a) Where gear units provide a backstop facility, ensure that back-up systems are provided if failure of the backstop device would endanger personnel or result in damage.
   (b) The driving and driven equipment must be correctly selected to ensure that the complete machinery installation will perform satisfactorily, avoiding system critical speeds, system torsional vibration, etc.
   (c) The equipment must not be operated in an environment or at speeds, powers, torques or with external loads beyond those for which it was designed.
   (d) As improvements in design are being made continually the contents of this catalogue are not to be regarded as binding in detail, and drawings and capacities are subject to alterations without notice.

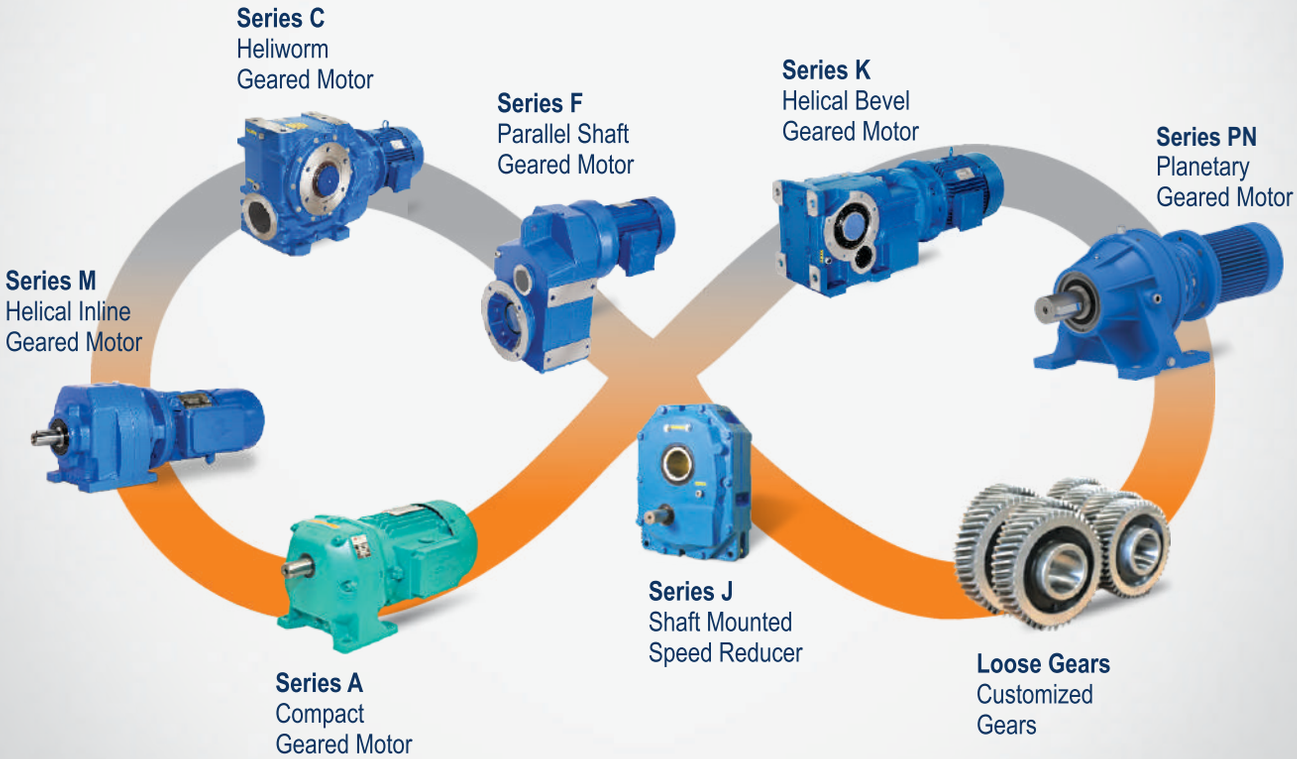
The above guidance is based on the current state of knowledge and our best assessment of the potential hazards in the operation of the gear units.

Any further information or clarification required may be obtained by contacting an Application Engineer.

radicon POWERBUILD

A range of products so reliable, they just go on and on...

Cutting-edge technology. Robust build quality.



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