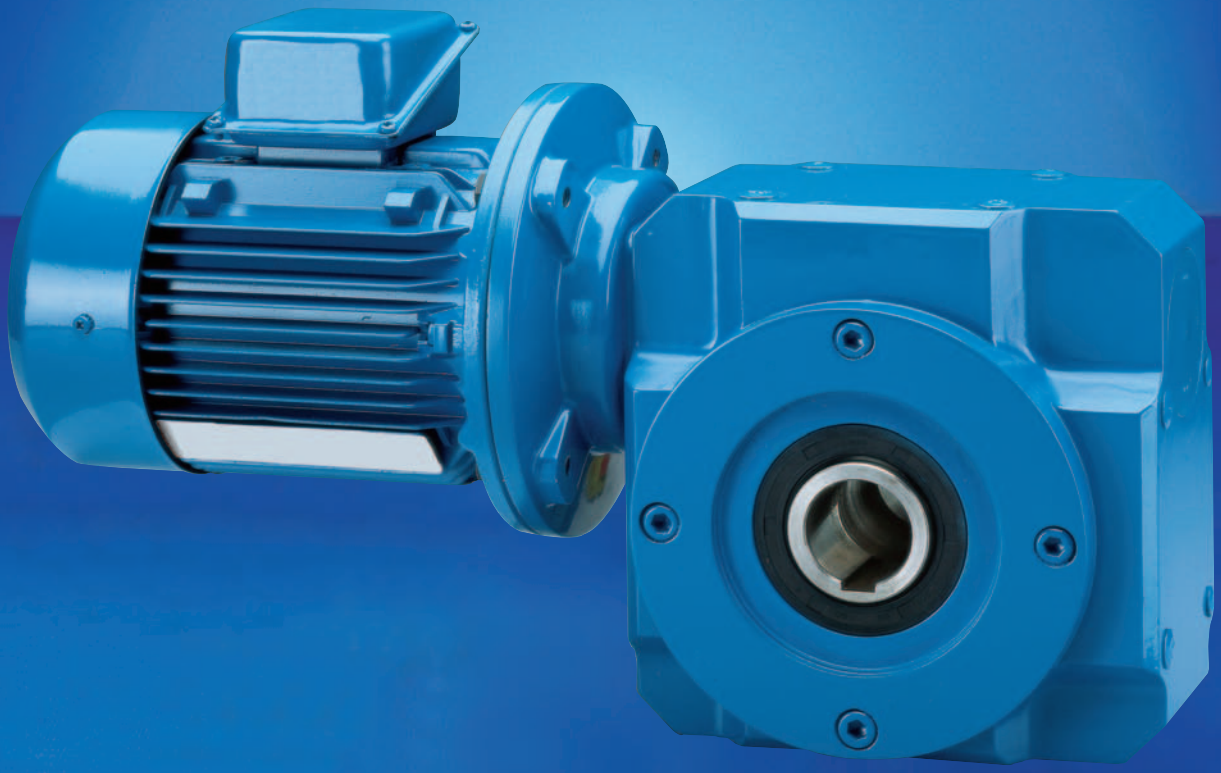
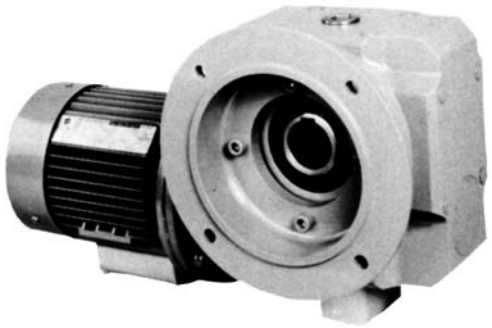
RENOLD

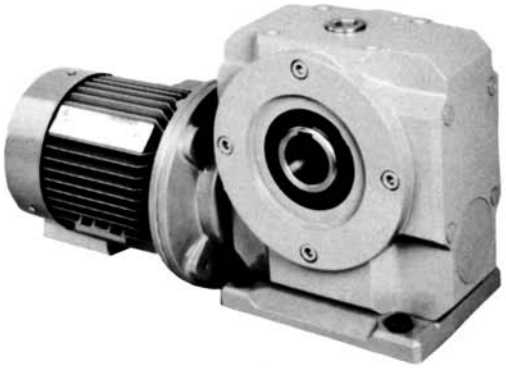
jPM Wormgear



Worm Geared Motors and Speed Reducers
Worm & Helical Wormgear Unit

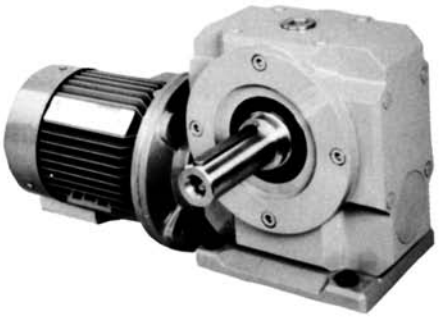
WORM GEARED MOTORS AND SPEED REDUCERS





Renold has been designing and manufacturing gears and gear units for over 100 years, giving us a depth of experience few other companies can rival.
Investments in the latest CAD/CAM technology have insured that our production facilities are among the most advanced in the industry, while stringent testing means that our final products achieve the highest quality standards possible.
This total commitment to excellence is combined with an industry-leading reputation for innovation: innovation which resulted in the development of the unique Holroyd tooth form - the most efficient type of worm gear available.
The Holroyd toot form is an integral part of the jPM gear units described in this catalogue, all of which offer the option of 12 standard ratios and each available with or without a motor.
A one-piece output sleeve and wormwheel center with electron beam-welded bronze rim ensure absolute strength and integrity.
The output shaft bearings combine a high overhung load capacity with a long life.
The worm shafts on the three largest models are supported by three bearings for even greater capacity.
One-piece cast iron gearcases with smooth contours minimize dirt build-up, making jPM gear units ideal for the food industry.
Immense versatility is provided by the large number of mounting options. jPM gear units also accept standard NEMA motors* via a plug-in arrangement with high-performance polymer inserts for durability and quietness.
If you need help in selecting the right units for your application, you can contact our engineers at any time.

*With the exception of jPM size 11.



jPM

CONTENTS

RENOLD GEARS

GENERAL SPECFICATION

GEARCASE
The close-grained cast iron gearcase is of one-piece construction to maximize strength and rigidity and to reduce load bearing joints.
The internal case style is designed for efficient circulation of lubricant with such a beneficial effect on thermal properties that no cooling fan is necessary.The gearcase contours are smooth and clean to minimize the accumulation of dirt and to facilitate cleaning.
The case is drilled and tapped on three faces to accommodate the bolts for the feet or torque arm bracket. Normally the unit will be delivered with the unused holes blocked with plastic plugs which can be easily removed if required.

GEARS
The worm is integral with its shaft, and manufactured from alloy steel, case hardened on the threads, and ground and polished on the thread profiles.
The wormwheel rim is produced from phosphor bronze (centrifugally cast) and secured to the steel output sleeve by the electron beam welding process.
The Holroyd gear form used in this line of gearboxes has an exclusive feature which consists principally of an important modification to the worm thread and wheel tooth which confers additional valuable properties to gear performance.This ensures that our gears will run correctly and transmit true uniform angular velocity even when running under non-uniform load conditions.The modification also gives a tapered oil entry gap between the teeth, which drags the lubricant between the surfaces and results in oil-borne friction only.

SHAFTS
Shaft extensions and sleeve bores are to inch dimensions and incorporate standard square keyways conforming to AGMA standards.

BEARINGS
Standard metric bearings are fitted throughout the ***jPM*** range of units.

LUBRICATION
All ***jPM*** units are factory-filled with a synthetic lubricant, giving the advantages of low coefficient of friction, extended temperature range and long life. Each unit receives a metered amount suitable for every mounting position, shown on page 10.
The gears and bearings are positively lubricated by oil from the sump.
In certain applications having input speeds below 500 RPM, a larger amount of lubricant may be required.
In order that this requirement can be identified and met, details of the application and mounting position should be supplied to Renold.

ELECTRIC MOTORS
With the exception of the size 11 motorized unit, all other sizes accept a standard NEMA “C” Face electric motor.
The size 11 is complete with a motor supplied by Renold.
Motor details are on pages 22 and 23.

OPTIONS

GEAR MOTOR UNIT
In this version the unit is supplied with a motor adaptor flange located on the input which will accept a standard NEMA “C” Face Motor. A rugged plastic bush (supplied with the unit) is fitted to the motor shaft, and the motor will then fit into the flange, with the bush engaging in the coupling attached to the input shaft.

REDUCTION GEAR UNIT
This version covers the basic gear unit with the wormshaft extended to form the input shaft.

FOOT MOUNTING — TYPE 2
This foot arrangement comprises a single component, dimensional details of which are shown on page 18. It can be secured to the gearcase in any of three positions by four socket head screws.

FOOT MOUNTING — TYPE 4
These feet are manufactured from steel and are secured by bolts to the holes in the gearcase in the required position; see page 19 for dimensional details.

OUTPUT FLANGE MOUNTING
Flanges that can be attached to the output sides of the gearcase are located in a recess machined in the case or wheel cap and secured by socket head screws. They can be fitted to either side, as shown on page 18.

PLUG-IN OUTPUT SHAFT
Where an output shaft is required, suitable single or double plug-in shafts are available. They can be inserted in the bore, located by the key and secured axially by a snap ring. Both the key and snap ring are supplied with the shaft. When assembling the shaft into the sleeve it is advised that an anti-fretting compound be applied. The overhung and thrust loads which these shafts will sustain are shown on page 8.

TORQUE RESTRAINT ARM
When shaft mounted, the unit can be restrained from rotation by securing it to the side of the driven machine by the output flange or by the adjustable torque arm arrangement shown on page 20.

SELECTION OF jPM UNITS

GEARED MOTOR UNITS
Selection tables for Geared Motor Units are to be found on pages 14 and 15.
These tables enable a unit to be selected when the motor horsepower and the output speed required from the unit are known. The output speeds given are based on nominal gear ratios and motor speeds of 1750 RPM. If exact output speeds are required, these can be obtained by using the motor speed and the exact gear ratios found on page 21. The motor horsepower can be determined by following step 5 from the example for reduction gear selection on page 6.
The selection tables enable a unit to be selected from one of two drive classes: Class 1 has a service factor of 1, and Class 2 has a service factor of 1.4. The relevant drive class to be used can be found from the Drive Classification Table on page 7.

HOW TO SELECT A jPM GEARED MOTOR UNIT
Information Required
Motor Horsepower
Desired Output Speed or Ratio
Application
Duty

Procedure
1. From the application and duty, determine the drive classification from the tables on page 7.

2. Turn to the selection table for the drive class determined in step 1.

3. Find the motor horsepower column along the top of the table and the output speed or ratio line down the side of the table, and from their intersection determine the unit size.

4. If the unit is to be subjected to external thrust or overhung loads, then the selected unit should be checked as indicated on page 8.

If there are any unusual service conditions such as high ambient temperatures or more than 1 stop and start per minute, then consult Renold.

EXAMPLE 1
A jPM Geared Motor Unit is to be used to drive a rotary pump. The unit is to be fitted with a 2HP x 1750 RPM motor, and the pump is to run at 200 RPM for up to 8 hours per day. The unit will be mounted directly on the pump shaft, and it is to be supplied with a torque arm. Select a suitable unit and confirm the actual output speed.

1. From the Drive Classification Table on page 7, a rotary pump used for 8 hours per day is a Drive Class 1.

2. From the selection table for Drive Class 1 units on page 14, find the column for 2HP motors and see that 200 RPM is between available output speeds. For 233 RPM output, a non-stock ratio would be required, so an output of 175 RPM will be chosen. Under the 2HP column at the line for 175 RPM, we find that a size jPM22 is the unit to be selected.
   The nominal ratio is 10:1, but from page 11, we find the actual ratio is 9.67:1; therefore, the actual output speed will be 1750/9.67 = 181 RPM.

3. From page 23, we find that the frame size for a 2HP x 1750 RPM is L145TC.

4. From page 9, determine that the ordering code is jPM22M1451.0S10T.

EXAMPLE 2
A jPM Geared Motor Unit is required to drive a small, uniformly fed conveyor which operates 20 hours per day. The unit is to be fitted with a 3HP motor and the output speed required is 85 RPM. The unit is to be fitted with an output shaft, vertically up, and will be mounted on a horizontal baseplate. The final drive from the unit will be by a chain drive with a 6-inch pitch circle diameter sprocket mounted on the output shaft.

1. From the Drive Classification Table on page 7, a uniformly fed conveyor operating between 10 and 24 hours per day is a Drive Class 2.

2. From the selection table on page 15, and assuming a 1750 RPM motor, under the 3HP column, an 87 RPM output is available from stock and therefore the unit to be selected is a size jPM30, nominal ratio 10:1.

3. From page 8, calculate the overhung load = 3 x 126,000/6 x 87 = 724lbf. From the capacity table at the foot of the same page, we find that 87 RPM falls between 100 and 75 RPM. Using the larger figure would be conservative, and we find that a jPM30 has an overhung load capacity of 1505lbf.; therefore the unit will accept the overhung load.

4. From page 23, we see that a 3HP x 1750 RPM motor has a frame size of L182TC.

5. From page 10, determine that the mounting position is 4.1-RH.

6. From page 9, determine the ordering code is jPM30M1824.1R10.

SELECTION OF jPM UNITS

GEAR UNITS

To select a jPM reduction gear unit the following basic information must be known.

1. The power requirements of the driven machine.
2. Input and output speeds.
3. Characteristics of the drive, e.g., degree of shock of driven load. See application table on page 7.
4. Duration of service in hours per day.
5. Frequency of stop/start cycles per hour.
6. Disposition and details of external thrust loads or overhung load when the output shaft is fitted.
7. Working conditions: clean, dusty, moist, abnormal temperatures, etc.

If the operating conditions are in any way unusual it is advisable to consult our Sales Technical Staff.

From this basic information is derived the gear ratio and selection power to be applied to the Selection Tables.

$$\text{Gear Ratio} = \frac{\text{Input Speed (RPM)}}{\text{Output Speed (RPM)}}$$

The capacities given in pages 11 to 13 are based upon 12 hours per day continuous running with steady, uniform load conditions.
If the load is not steady, or the operational hours per day differs from the nominal rated period, then the actual power is multiplied by Service Factors to obtain the selection power, and this new figure is then used to determine, from the Selection Tables, the size of unit required [i.e., Selection power = Actual power x Service Factor(s)].
The selection factors can be determined from Tables 2, 3, and 4 on page 7, using the basic information.

EXAMPLE 3

A jPM gear unit is required to drive a machine which is in operation for 24 hours each day under moderate shock load conditions with 20 stop/start cycles per hour. The input speed is 1750 RPM with an output power requirement of 1HP at 75 RPM. The unit is foot mounted, with the input shaft horizontal above the output. An output shaft is required projecting to the right when viewed at the input end.

1. Input speed 1750 RPM, output speed 75 RPM and output power 1HP given.

2. Ratio = $\frac{1750}{75}$ = 23.3:1

   Nearest standard is 25:1.

3. The drive classification service factor for 24 hours per day operation under moderate shock load conditions is 1.5 from Table 2. The factor for 20 stop/start cycles per hour from Table 3 is 1.1.
   The selection power is 1 x 1.5 x 1.1 = 1.65HP.

4. From the capacities list for 25:1 ratio on page 12, we find that at 1750 RPM, a jPM26 has an output power capacity of 2.03HP, which is acceptable. A jPM22 has an output power capacity of 1.36, which is not acceptable.

   Therefore, a jPM26 is selected.

   The coding therefore is:

Type	——	jPM
Size	——	26
Input	——	H
Mounting	——	2.2
Handling	——	L
Ratio	——	25

   The code for the above is then jPM26 J 2.2L25.

5. To find the input power required, first calculate the efficiency by dividing the output power by the input power for the unit selected, and multiplying by 100.

   For the jPM26, output power is 2.03HP, input power is 2.36HP, therefore the efficiency is

   $$\text{Efficiency} = \frac{2.03}{2.36} \times 100 = 86\%$$

   Therefore, input power required =

   $$\frac{1 \times 100}{86} = 1.16\text{HP}$$

SELECTION TABLES

TABLE 1: DRIVE CLASS SELECTION TABLE FOR GEARED MOTORS

APPLICATION	* TYPE OF LOAD	DRIVE CLASS NO. UP TO 10 HRS/ DAY	DRIVE CLASS NO. OVER 10 HRS/ DAY	APPLICATION	* TYPE OF LOAD	DRIVE CLASS NO. UP TO 10 HRS/ DAY	DRIVE CLASS NO. OVER 10 HRS/ DAY
AGITATORS and MIXERS				DREDGERS			
(Liquid, Semi Liquid)	U	1	2	(Pumps)	MS	2	2
(Liquids plus solids or variable density)	MS	2	2				
				DRUM DRIVES			
ALTERNATORS and GENERATORS				(Chemical and Refuse)	MS	2	2
(Generators — Lighting, etc.)	U	1	2				
				LAUNDRY MACHINERY			
BLOWERS, EXHAUSTERS and FANS				(Centrifugal, Drying tumblers, Reversing			
(Centrifugal induced draft, Light —				washers)	MS	2	2
small and diameter fans)	U	1	2				
(Centrifugal forced draft, Large industrial				LINESHAFTS	U	1	1
fans, Lobed rotor type, Vane type)	MS	2	2				
				LUMBER INDUSTRY			
CABLE REELS, CEMENT MIXERS				(Precision woodworking machinery)	U	1	2
and COMPRESSORS				(Barkers — hydraulic, mechanical, Saw mills)	MS	2	2
(Reciprocating — 3 or more cylinders,							
Lobed rotor type)	MS	2	2	MACHINE TOOLS			
				(Bending rolls, Lathes and milling machines,			
COMPRESSORS				Presses and shears — Main drive to flywheel)	MS	2	2
(Centrifugal)	U	1	2				
				PUMPS			
CONVEYORS and ELEVATORS				(Centrifugal, Gear, Rotary)	U	1	2
(Escalators, Uniform feed)	U	1	2				
(Non-uniform feed, Screw feeders)	MS	2	2	PRINTING	U	1	1
CRANES and HOISTS							
(Main hoists and travel motion, Skip hoist)	MS	2	2	PROPELLERS	MS	1	2
DRINK and FOOD INDUSTRY							
(Bottling machinery, Can filling machinery,				MISCELLANEOUS DRIVES			
Cookers and Coolers)	U	1	2	Uniform Loads	U	1	2
(Dough mixer, Flour and feed milling,				Medium Shock Loads	MS	2	2
Grinders, Mincers, Slicers)	MS	2	2				

*U — Uniform Load; MS — Medium Shock Load

TABLE 2: TABLE OF SERVICE FACTORS — REDUCTION GEAR UNITS

Prime mover (Drive Input)	Duration of service (hrs/day)	Driven machinery characteristics	
		Steady	Medium shock
Electric motor (Steady input)	Intermittent – 3 max	0.90	1.00
	3 – 10	1.00	1.25
	over 10	1.25	1.50

TABLE 3: STARTS PER HOUR FACTOR

Driven machinery characteristics	Maximum number of starts per hour			
	5	50	100	300
Steady	1.00	1.10	1.15	1.20

TABLE 4: TEMPERATURE SERVICE FACTOR

Ambient Temperature °C	30	40	50	60
Ambient Temperature °F	86	104	122	140
Factor	1.00	1.20	1.45	1.81

OVERHUNG AND THRUST LOADS

Output shafts of worm gear units are frequently fitted with a spur pinion, chain sprocket or belt pulley, causing an overhung load to be imposed on the output shaft and bearings.These loads can generally be sustained by the gear unit; however, if the load is greater than the maximum allowable load for the unit, it may be necessary either to select a larger unit or to lessen the effect of the load on the shaft bearings. This can be done in two ways: the pinion can be mounted on a shaft in its own bearings and the shaft coupled to the gear unit; or the wheel shaft may be extended beyond the overhung load and fitted with an outboard bearing. In order to obtain the best possible arrangement for a particular application (where larger overhung loads are anticipated) customers are advised to submit details of the load to our Sales Technical Staff for their consideration.

In the interests of good design, the overhung member should be fitted as close as possible to the gear case in order to minimize the stresses and reduce the deflecting moment on the unit.

The maximum imposed axial thrust and overhung loads (OHL) to which the units can be subjected are given in the table below.

Imposed axial thrust loads can also be minimized by the use of flexible couplings on the input and output shafts.

For drives where both imposed thrust and overhung loads are encountered, it is advisable to consult our Sales Technical Staff.

Where a double extension shaft is fitted, the maximum overhung loads listed apply in full to each shaft extension.

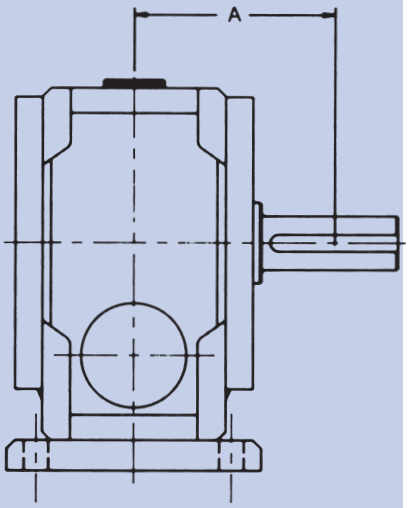
The overhung load capacities listed in the table below assume the load is applied mid-way along the output shaft extension, the relevant dimension from the center line of the unit being as given in the diagram.

The overhung load may be calculated by the following formula:

$$\text{Resultant overhung load} = \frac{P \times 126{,}000 \times F}{D \times S}$$

where P = Power absorbed at output shaft (HP)
S =peed of output shaft in rev/min
D = Pitch circle diamtere of chain sprokect, spur or helical gear, or belt pulley in ins.
F = Overhung drive application factor as follows:

Chain sprocket	1.00	Vee pulley	1.50
Spur or helical gear	1.25	Flat belt pulley	2.00



DIMENSION A (INS.)

UNIT				
jPM11	jPM17	jPM22	jPM26	jPM30
2.44	3.13	3.94	4.63	5.38

jPM OVERHUNG LOAD CAPACITIES (lbf.):

	jPM11		jPM17		jPM22		jPM26		jPM30	
OUTPUT RPM	OHL	AXIAL	OHL	AXIAL	OHL	AXIAL	OHL	AXIAL	OHL	AXIAL
300	200	280	380	445	670	1345	895	1795	1345	2020
200	210	310	390	560	715	1570	940	2020	1390	2245
150	220	370	400	670	760	1795	985	2245	1435	2470
125	235	425	415	785	805	2020	1030	2470	1480	2695
100	245	490	425	895	850	2245	1055	2695	1505	2920
75	265	560	435	1120	895	2695	1075	2920	1525	3145
50	290	625	445	1345	895	2695	1100	3145	1550	3370
25	300	715	460	1570	895	2920	1120	3145	1570	3370
15	300	850	460	1795	895	2920	1120	3145	1570	3370
10	300	985	460	2020	895	2920	1120	3145	1570	3370
5	300	1075	460	2245	895	2920	1120	3145	1570	3370

ORDERING INFORMATION

When ordering jPM units, we strongly recommend the use of the Unit Designation Code, which gives all the information needed for us to rapidly make up your unit from our stock.

The code consists of a series of letters and numbers which are explained below:

UNIT DESIGNATION CODE

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
jPM	22	M	143	2.2	L	30	SS

(1) Type
(2) Size
(3) Input
(4) Motor Frame
(5) Mounting
(6) Hand
(7) Ratio
(8) Special Feature

(1) **Type**
jPM

(2) **Size**
Five Models: 11, 17, 22, 26, 30

(3) **Input**
M – Motorized unit with motor supplied
A – Motorized unit without motor but with motor adaptor flange and insert
H – Non-Motorized unit with input shaft extension

(4) **Motor Frame**
For a non-motorized unit, use "00". For a size 11, which is fitted with a motor supplied by Renold, use "11". For other motor sizes, use the frame size from page 23.

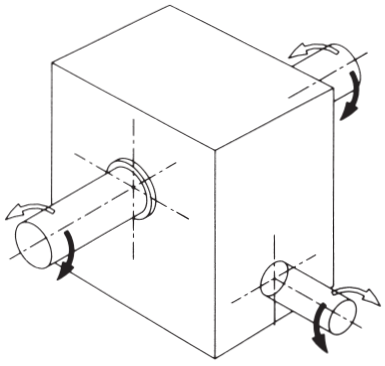
(5) **Mounting**
Use the code number from page 10. This will indicate the type of mounting device to be fitted, e.g., Foot or Flange.

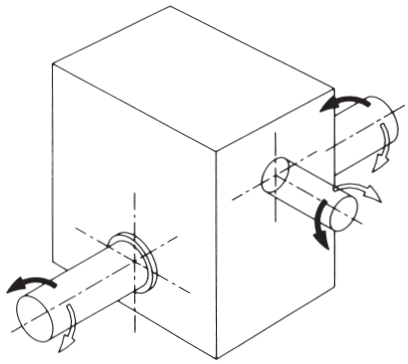
(6) **Handing**
If the unit is to be assembled onto the driven shaft, coding is "S". If an output shaft extension is required there are three shaft handing positions: see page 10. Use the letter relative to the shaft and handing required.

(7) **Ratio**
12 Standard ratios: 5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 70.

(8) **Special Features**
T – Torque arm assembly
B – Braked motor. Give details of stop/start frequency, stopping torque on enquiry/order
SS – Slow Speed Input, i.e., input speed below 500 RPM.

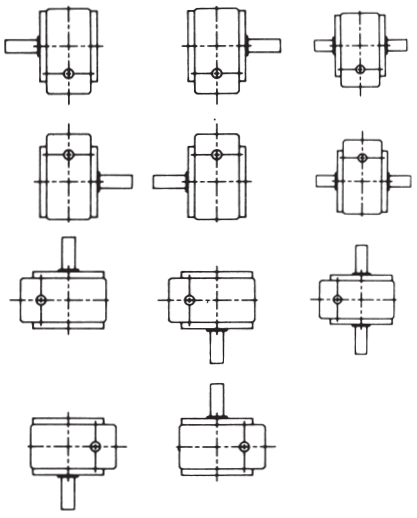
MOUNTING POSITIONS



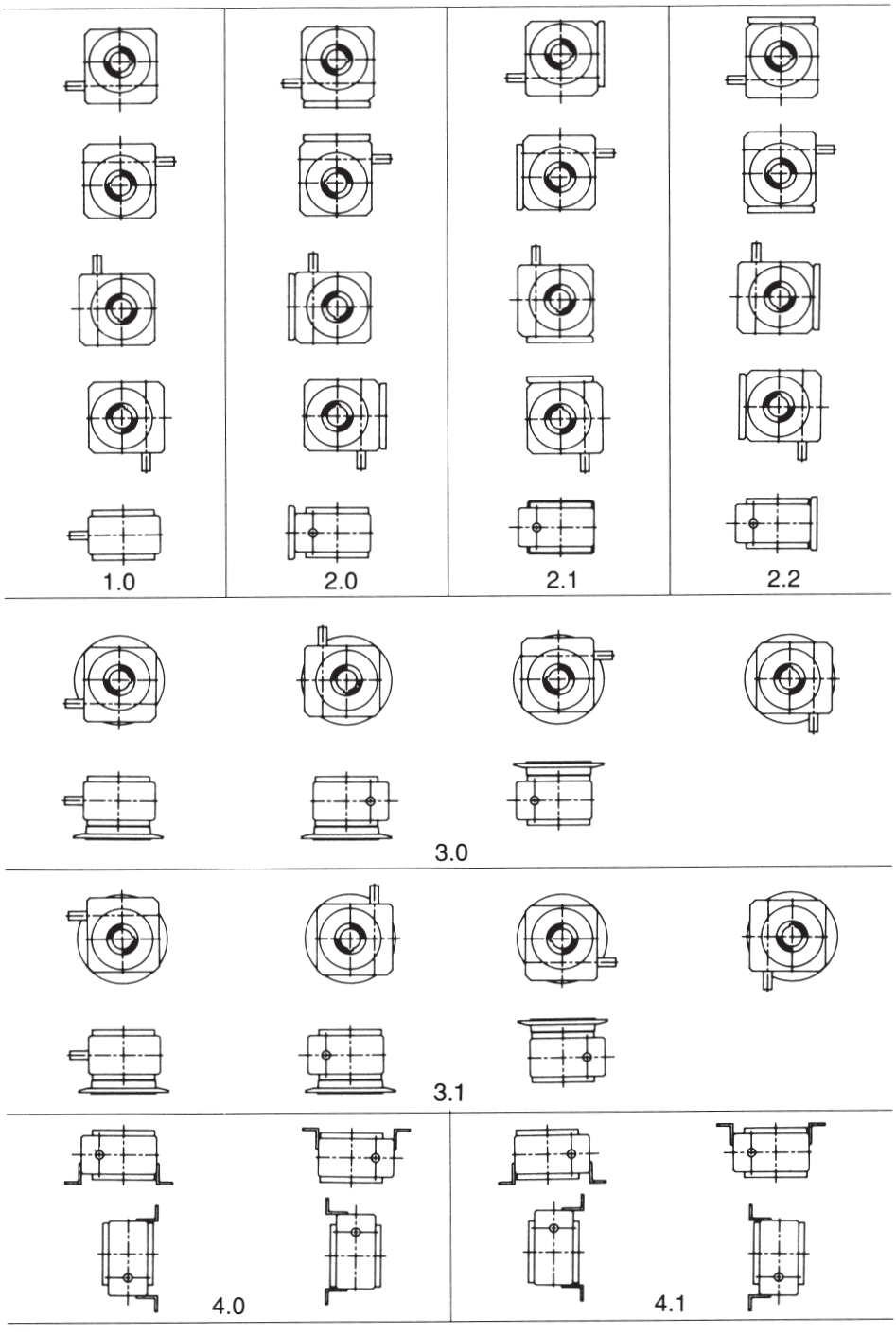


The diagrams above illustrate the relative directions of rotation of the input and output shafts. All jPM gear units are reversible.

HANDINGS		
LEFT-L	RIGHT-R	DOUBLE-D



Each unit is filled on assembly with a measured amount of lubricant which is sufficient for each of the mounting positions shown, with the exception of some situations where the input speed is below 500 RPM.
The code numbers indicate the type of foot or flange arrangement relative to the position of the input. Since the units are sealed they can be placed in any of the positions illustrated without further modification.
If a plug-in output shaft is required, and this is to be fitted on supply, the handing arrangement must be specified as indicated.



HORSEPOWER AND TORQUE RATINGS

NOMINAL RATIO 5 TO 1					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	31:6	31:6	29:6	31:6	31:6
1750 RPM INPUT/350 RPM OUTPUT					
Input HP	0.78	2.45	5.42	7.01	9.31
Output HP	0.72	2.29	5.11	6.62	8.82
Output torque lb ins	134	426	890	1232	1642
1450 RPM INPUT/290 RPM OUTPUT					
Input HP	0.65	2.03	5.08	6.57	8.73
Output HP	0.60	1.89	4.77	6.19	8.25
Output torque lb ins	134	425	1003	1389	1852
1150 RPM INPUT/230 RPM OUTPUT					
Input HP	.51	1.61	4.69	6.01	8.06
Output HP	0.47	1.49	4.39	5.64	7.58
Output torque lb ins	133	423	1163	1596	2145
870 RPM INPUT/174 RPM OUTPUT					
Input HP	0.39	1.22	3.74	4.56	6.81
Output HP	0.35	1.12	3.48	4.24	6.36
Output torque lb ins	133	420	1217	1587	2379
570 RPM INPUT/114 RPM OUTPUT					
Input HP	0.26	0.80	2.46	2.99	4.47
Output HP	0.23	0.73	2.26	2.75	4.13
Output torque lb ins	131	417	1206	1573	2359
400 RPM INPUT/80 RPM OUTPUT					
Input HP	0.18	0.56	1.73	2.10	3.14
Output HP	0.16	0.51	1.57	1.92	2.88
Output torque lb ins	130	414	1197	1561	2342
200 RPM INPUT/40 RPM OUTPUT					
Input power HP	0.09	0.28	0.87	1.06	1.58
Output power HP	0.079	0.25	0.77	0.95	1.42
Output torque lb ins	129	408	1180	1539	2307

NOMINAL RATIO 10 TO 1					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	29:3	29:3	29:3	29:3	29:3
1750 RPM INPUT/175 RPM OUTPUT					
Input HP	0.61	1.83	3.27	5.01	6.98
Output HP	0.55	1.67	3.02	4.57	6.51
Output torque lb ins	191	582	1053	1590	2266
1450 RPM INPUT/145 RPM OUTPUT					
Input HP	0.55	1.64	2.94	4.34	6.16
Output HP	0.49	1.49	2.70	4.01	5.71
Output torque lb ins	205	625	1135	1687	2399
1150 RPM INPUT/115 RPM OUTPUT					
Input HP	0.47	1.42	2.57	3.86	5.46
Output HP	0.42	1.28	2.35	3.54	5.04
Output torque lb ins	223	677	1246	1878	2668
870 RPM INPUT/87 RPM OUTPUT					
Input HP	0.40	1.20	2.16	3.25	4.63
Output HP	0.35	1.07	1.96	2.96	4.23
Output torque lb ins	243	752	1372	2076	2964
570 RPM INPUT/57 RPM OUTPUT					
Input HP	0.30	0.91	1.66	2.49	3.52
Output HP	0.26	0.81	1.48	2.24	3.18
Output torque lb ins	280	862	1586	2393	3402
400 RPM INPUT/40 RPM OUTPUT					
Input HP	0.22	0.72	1.20	1.80	2.66
Output HP	0.19	0.63	1.07	1.60	2.38
Output torque lb ins	286	964	1624	2436	3621
200 RPM INPUT/20 RPM OUTPUT					
Input HP	0.11	0.38	0.61	0.91	1.34
Output HP	0.093	0.33	0.53	0.79	1.17
Output torque lb ins	283	1000	1604	2407	3577

NOMINAL RATIO 7.5 TO 1 *					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	29:4	29:4	29:4	29:4	29:4
1750 RPM INPUT/233 RPM OUTPUT					
Input HP	0.70	2.12	4.02	6.01	8.32
Output HP	0.64	1.97	3.76	5.64	7.84
Output torque lb ins	168	515	982	1473	2046
1450 RPM INPUT/193 RPM OUTPUT					
Input HP	0.63	1.91	3.62	5.39	7.66
Output HP	0.58	1.77	3.37	5.04	7.19
Output torque lb ins	182	557	1061	1588	2265
1150 RPM INPUT/153 RPM OUTPUT					
Input HP	0.55	1.67	3.16	4.71	6.62
Output HP	0.50	1.53	2.93	4.38	6.18
Output torque lb ins	199	608	1163	1740	2454
870 RPM INPUT/116 RPM OUTPUT					
Input HP	0.47	1.40	2.65	3.99	5.68
Output HP	0.42	1.28	2.44	3.69	5.26
Output torque lb ins	220	671	1279	1936	2763
570 RPM INPUT/76 RPM OUTPUT					
Input HP	0.32	1.06	1.86	2.78	4.12
Output HP	0.28	0.96	1.69	2.54	3.77
Output torque lb ins	227	768	1355	2036	3025
400 RPM INPUT/53 RPM OUTPUT					
Input HP	0.23	0.76	1.31	1.96	2.90
Output HP	0.20	0.68	1.18	1.77	2.63
Output torque lb ins	226	772	1346	2023	3005
200 RPM INPUT/26 RPM OUTPUT					
Input powerHP	0.11	0.38	0.66	0.99	1.46
Output power HP	0.098	0.33	0.58	0.87	1.30
Output torque lb ins	223	762	1328	1996	2966

NOMINAL RATIO 12.5 TO 1 *					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	37:3	37:3	37:3	37:3	37:3
1750 RPM INPUT/140 RPM OUTPUT					
Input HP	0.52	1.64	3.09	4.41	6.02
Output HP	0.46	1.47	2.82	4.04	5.49
Output torque lb ins	203	652	1251	1796	2440
1450 RPM INPUT/116 RPM OUTPUT					
Input power HP	0.46	1.47	2.81	3.99	5.61
Output power HP	0.40	1.31	2.55	3.64	5.13
Output torque lb ins	217	702	1365	1953	2749
1150 RPM INPUT/92 RPM OUTPUT					
Input HP	0.40	1.27	2.45	3.49	5.20
Output HP	0.35	1.13	2.20	3.16	4.71
Output torque lb ins	236	761	1488	2137	3187
870 RPM INPUT/69.6 RPM OUTPUT					
Input HP	0.33	1.08	2.05	2.92	4.37
Output HP	0.29	0.94	1.82	2.62	3.93
Output torque lb ins	257	840	1630	2342	3510
570 RPM INPUT/45.6 RPM OUTPUT					
Input HP	0.25	0.81	1.56	2.22	3.31
Output HP	0.22	0.70	1.37	1.97	2.93
Output torque lb ins	294	955	1866	2681	4001
400 RPM INPUT/32 RPM OUTPUT					
Input HP	0.18	0.65	1.14	1.57	2.64
Output HP	0.15	0.55	0.99	1.37	2.31
Output torque lb ins	292	1066	1917	2669	4480
200 RPM INPUT/16 RPM OUTPUT					
Input HP	0.092	0.36	0.58	0.80	1.39
Output HP	0.075	0.30	0.49	0.68	1.18
Output torque lb ins	290	1156	1895	2637	4592

* These ratios to special order only.

HORSEPOWER AND TORQUE RATINGS

NOMINAL RATIO 15 TO 1					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	31:2	31:2	29:2	31:2	31:2
1750 RPM INPUT/116 RPM OUTPUT					
Input HP	0.50	1.42	3.02	3.86	4.94
Output HP	0.38	1.25	2.63	3.48	4.46
Output torque lb ins	213	700	1374	1942	2489
1450 RPM INPUT/97 RPM OUTPUT					
Input HP	0.40	1.28	2.64	3.63	4.65
Output HP	0.34	1.12	2.36	3.25	4.16
Output torque lb ins	230	751	1485	2190	2804
1150 RPM INPUT/77 RPM OUTPUT					
Input HP	0.35	1.10	2.30	3.23	4.31
Output HP	0.29	0.ss	2.03	2.86	3.83
Output torque lb ins	249	811	1615	2434	3251
870 RPM INPUT/58 RPM OUTPUT					
Input HP	0.29	0.93	1.91	2.68	3.77
Output HP	0.24	0.79	1.67	2.35	3.31
Output torque lb ins	272	889	1754	2635	3720
570 RPM INPUT/38 RPM OUTPUT					
Input HP	0.21	0.68	1.35	1.77	2.89
Output HP	0.17	0.57	1.16	1.53	2.49
Output torque lb ins	291	984	1854	2617	4268
400 RPM INPUT/26.6 RPM OUTPUT					
Input HP	0.15	0.49	0.95	1.25	2.14
Output HP	0.12	0.40	0.81	1.07	1.81
Output torque lb ins	289	979	1844	2602	4427
200 RPM INPUT/13.3 RPM OUTPUT					
Input HP	0.075	0.25	0.48	0.64	1.09
Output HP	0.059	0.20	0.40	0.53	0.90
Output torque lb ins	287	971	1824	2574	4385

NOMINAL RATIO 25 TO 1					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	25:1	25:1	49:2	49:2	25:1
1750 RPM INPUT/70 RPM OUTPUT					
Input HP	0.35	1.01	1.59	2.36	3.27
Output HP	0.27	0.77	1.36	2.03	2.78
Output torque lb ins	247	694	1204	1795	2504
1450 RPM INPUT/58 RPM OUTPUT					
Input HP	0.31	0.85	1.42	2.12	3.08
Output HP	0.24	0.69	1.21	1.82	2.59
Output torque lb ins	262	745	1286	1934	2819
1150 RPM INPUT/46 RPM OUTPUT					
Input HP	0.27	0.75	1.22	1.84	2.87
Output HP	0.21	0.59	1.02	1.55	2.38
Output torque lb ins	282	814	1376	2087	3266
870 RPM INPUT/34.8 RPM OUTPUT					
Input HP	0.23	0.64	1.04	1.54	2.64
Output HP	0.17	0.50	0.85	1.29	2.16
Output torque lb ins	307	899	1517	2281	3912
570 RPM INPUT/22.8 RPM OUTPUT					
Input HP	0.17	0.49	0.72	1.17	2.23
Output HP	0.13	0.37	0.58	0.95	1.78
Output torque lb ins	347	1034	1566	2583	4909
400 RPM INPUT/16 RPM OUTPUT					
Input HP	0.14	0.40	0.51	0.83	1.76
Output HP	0.096	0.30	0.40	0.67	1.37
Output torque lb ins	379	1168	1559	2570	5403
200 RPM INPUT/8 RPM OUTPUT					
Input HP	0.082	0.25	0.26	0.43	1.09
Output HP	0.056	0.18	0.20	0.33	0.81
Output torque lb ins	439	1403	1544	2546	6406

NOMINAL RATIO 20 TO 1					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	41:2	41:2	39:2	41:2	41:2
1750 RPM INPUT/87.5 RPM OUTPUT					
Input HP	0.32	1.05	2.13	2.99	4.22
Output HP	0.27	0.90	1.87	2.62	3.74
Output torque lb ins	199	662	1310	1937	2762
1450 RPM INPUT/72.5 RPM OUTPUT					
Input HP	0.29	0.93	1.90	2.67	3.74
Output HP	0.24	0.79	1.65	2.32	3.29
Output torque lb ins	213	704	1402	2068	2932
1150 RPM INPUT/57.5 RPM OUTPUT					
Input HP	0.25	0.80	1.64	2.32	3.27
Output HP	0.20	0.67	1.41	2.00	2.85
Output torque lb ins	229	752	1508	2245	3200
870 RPM INPUT/43.5 RPM OUTPUT					
Input HP	0.21	0.67	1.37	1.94	2.67
Output HP	0.17	0.56	1.16	1.65	2.30
Output torque lb ins	229	752	1508	2245	3200
570 RPM INPUT/28.5 RPM OUTPUT					
Input HP	0.15	0.50	0.94	1.49	1.78
Output HP	0.12	0.41	0.78	1.24	1.50
Output torque lb ins	247	828	1645	2445	3409
400 RPM INPUT/20 RPM OUTPUT					
Input HP	0.11	0.36	0.66	1.07	1.26
Output HP	0.083	0.28	0.54	0.88	1.04
Output torque lb ins	270	924	1678	2803	3390
200 RPM INPUT/10 RPM OUTPUT					
Input HP	0.055	0.18	0.34	0.55	0.65
Output HP	0.041	0.14	0.27	0.43	0.52
Output torque lb ins	267	913	1653	2807	3343

NOMINAL RATIO 30 TO 1					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	30:1	30:1	30:1	30:1	30:1
1750 RPM INPUT/58 RPM OUTPUT					
Input HP	0.29	0.83	1.69	2.21	3.01
Output HP	0.22	0.67	1.38	1.83	2.38
Output torque lb ins	236	719	1492	1976	2572
1450 RPM INPUT/48.3 RPM OUTPUT					
Input HP	0.26	0.75	1.60	2.09	2.70
Output HP	0.19	0.59	1.29	1.71	2.22
Output torque lb ins	250	772	1683	2227	2896
1150 RPM INPUT/38.3 RPM OUTPUT					
Input HP	0.22	0.66	1.41	1.95	2.52
Output HP	0.16	0.51	1.13	1.57	2.04
Output torque lb ins	271	844	1851	2587	3356
870 RPM INPUT/29 RPM OUTPUT					
Input HP	0.19	0.56	1.18	1.76	2.33
Output HP	0.14	0.43	0.92	1.39	1.85
Output torque lb ins	294	933	2010	3029	4023
570 RPM INPUT/19 RPM OUTPUT					
Input HP	0.14	0.44	0.90	1.34	1.87
Output HP	0.099	0.32	0.68	1.03	1.44
Output torque lb ins	330	1074	2252	3411	4773
400 RPM INPUT/13.3 RPM OUTPUT					
Input HP	0.11	0.36	0.71	1.05	1.48
Output HP	0.076	0.26	0.52	0.79	1.11
Output torque lb ins	359	1214	2469	3726	5240
200 RPM INPUT/6.7 RPM OUTPUT					
Input HP	0.064	0.21	0.40	0.65	0.91
Output HP	0.042	0.14	0.28	0.46	0.65
Output torque lb ins	395	1343	2692	4381	6150

HORSEPOWER AND TORQUE RATINGS

NOMINAL RATIO 40 TO 1					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	40:1	40:1	40:1	40:1	40:1
1750 RPM INPUT/43.7 RPM OUTPUT					
Input HP	0.20	0.64	1.24	1.82	2.26
Output HP	0.14	0.48	0.97	1.44	1.78
Output torque lb ins	209	699	1390	2068	2558
1450 RPM INPUT/36.2 RPM OUTPUT					
Input HP	0.18	0.57	1.11	1.64	2.14
Output HP	0.13	0.43	0.85	1.28	1.66
Output torque lb ins	224	743	1483	2220	2879
1150 RPM INPUT/28.7 RPM OUTPUT					
Input HP	0.16	0.50	0.96	1.43	1.94
Output HP	0.11	0.36	0.72	1.09	1.47
Output torque lb ins	240	793	1588	2389	3225
870 RPM INPUT/21.7 RPM OUTPUT					
Input power HP	0.13	0.42	0.80	1.19	1.64
Output power HP	0.088	0.30	0.59	0.89	1.22
Output torque lb ins	256	860	1716	2579	3526
570 RPM INPUT/14.2 RPM OUTPUT					
Input HP	0.099	0.31	0.61	0.91	1.26
Output HP	0.065	0.22	0.44	0.66	0.90
Output torque lb ins	286	956	1924	2910	3968
400 RPM INPUT/10 RPM OUTPUT					
Input HP	0.078	0.25	0.48	0.71	0.99
Output HP	0.049	0.17	0.33	0.50	0.69
Output torque lb ins	311	1049	2101	3156	4323
200 RPM INPUT/5 RPM OUTPUT					
Input HP	0.044	0.15	0.29	0.44	0.62
Output HP	0.026	0.096	0.19	0.29	0.40
Output torque lb ins	333	1209	2425	3683	5062

NOMINAL RATIO 60 TO 1					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	60:1	60:1	60:1	60:1	60:1
1750 RPM INPUT/29 RPM OUTPUT					
Input HP	0.12	0.37	0.70	1.02	1.50
Output power HP	0.079	0.26	0.50	0.74	1.06
Output torque lb ins	171	551	1070	1596	2301
1450 RPM INPUT/24.1 RPM OUTPUT					
Input HP	0.11	0.34	0.65	0.96	1.34
Output HP	0.072	0.23	0.45	0.68	0.98
Output torque lb ins	186	601	1180	1770	2543
1150 RPM INPUT/19.1 RPM OUTPUT					
Input HP	0.098	0.30	0.57	0.84	1.17
Output HP	0.060	0.20	0.39	0.58	0.84
Output torque lb ins	199	646	1266	1913	2755
870 RPM INPUT/15.5 RPM OUTPUT					
Input HP	0.081	0.25	0.48	0.70	0.98
Output HP	0.049	0.16	0.31	0.47	0.68
Output torque lb ins	212	697	1367	2053	2963
570 RPM INPUT/9.5 RPM OUTPUT					
Input HP	0.058	0.19	0.36	0.54	0.75
Output HP	0.033	0.12	0.23	0.34	0.50
Output torque lb ins	222	771	1511	2286	3295
400 RPM INPUT/6.7 RPM OUTPUT					
Input HP	0.043	0.15	0.28	0.42	0.59
Output HP	0.024	0.088	0.17	0.26	0.38
Output torque lb ins	227	836	1646	2482	3573
200 RPM INPUT/3.3 RPM OUTPUT					
Input HP	0.024	0.084	0.17	0.26	0.34
Output HP	0.013	0.047	0.099	0.15	0.21
Output torque lb ins	238	881	1866	2845	3888

NOMINAL RATIO 50 TO 1					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	50:1	50:1	50:1	50:1	50:1
1750 RPM INPUT/35 RPM OUTPUT					
Input HP	0.15	0.50	1.01	1.33	2.00
Output HP	0.10	0.34	0.68	1.01	1.44
Output torque lb ins	186	618	1220	1819	2599
1450 RPM INPUT/29 RPM OUTPUT					
Input HP	0.14	0.43	0.82	1.21	1.69
Output HP	0.092	0.30	0.60	0.91	1.28
Output torque lb ins	200	660	1313	1967	2779
1150 RPM INPUT/23 RPM OUTPUT					
Input HP	0.12	0.37	0.71	1.06	1.49
Output HP	0.077	0.26	0.51	0.77	1.10
Output torque lb ins	212	703	1399	2113	3009
870 RPM INPUT/17.4 RPM OUTPUT					
Input power HP	0.098	0.31	0.60	0.89	1.26
Output power HP	0.062	0.21	0.42	0.63	0.90
Output torque lb ins	226	761	1519	2287	3276
570 RPM INPUT/11.4 RPM OUTPUT					
Input HP	0.075	0.24	0.45	0.68	0.95
Output HP	0.046	0.15	0.31	0.46	0.66
Output torque lb ins	253	847	1691	2561	3657
400 RPM INPUT/8 RPM OUTPUT					
Input HP	0.058	0.19	0.36	0.53	0.75
Output HP	0.035	0.12	0.23	0.35	0.50
Output torque lb ins	272	922	1840	2767	3942
200 RPM INPUT/4 RPM OUTPUT					
Input HP	0.035	0.11	0.22	0.33	0.46
Output HP	0.020	0.067	0.13	0.20	0.29
Output torque lb ins	313	1056	2104	3206	4613

NOMINAL RATIO 70 TO 1					
UNIT SIZE	11	17	22	26	30
ACTUAL RATIO	70:1	70:1	70:1	70:1	70:1
1750 RPM INPUT/25 RPM OUTPUT					
Input HP	0.10	0.31	0.59	0.86	1.21
Output HP	0.061	0.21	0.40	0.60	0.85
Output torque lb ins	155	520	1006	1502	2141
1450 RPM INPUT/20.7 RPM OUTPUT					
Input HP	0.087	0.29	0.55	0.81	1.13
Output HP	0.052	0.19	0.36	0.55	0.78
Output torque lb ins	158	566	1110	1669	2367
1150 RPM INPUT/16.4 RPM OUTPUT					
Input HP	0.073	0.26	0.49	0.72	1.02
Output HP	0.042	0.16	0.32	0.48	0.68
Output torque lb ins	163	616	1217	1836	2616
870 RPM INPUT/12.4 RPM OUTPUT					
Input HP	0.059	0.21	0.41	0.60	0.85
Output HP	0.033	0.13	0.26	0.39	0.55
Output torque lb ins	168	636	1308	1962	2806
570 RPM INPUT/8.1 RPM OUTPUT					
Input HP	0.042	0.15	0.30	0.46	0.65
Output HP	0.023	0.085	0.18	0.28	0.40
Output torque lb ins	175	661	1404	2174	3101
400 RPM INPUT/5.7 RPM OUTPUT					
Input HP	0.031	0.11	0.23	0.35	0.52
Output HP	0.016	0.061	0.13	0.21	0.31
Output torque lb ins	179	677	1439	2296	3389
200 RPM INPUT/2.9 RPM OUTPUT					
Input HP	0.017	0.061	0.13	0.20	0.29
Output HP	0.008	0.032	0.068	0.11	0.16
Output torque lb ins	187	708	1504	2401	3559

GEARED MOTOR UNITS - DRIVE CLASSIFICATION 1

OUTPUT RPM	NOMINAL RATIO	INPUT HORSEPOWER							
		1/4	1/2	3/4	1	1 1/2	2	3	5
350	5	11	11	17	17	17	17	22	22
233	7.5*	11	11	17	17	17	17	22	26
175	10	11	11	17	17	17	22	22	26
140	12.5*	11	11	17	17	17	22	22	30
117	15	11	11	17	17	22	22	22	30
87	20	11	17	17	17	22	22	26	
70	25	11	17	17	22	22	26	30	
58	30	11	17	17	22	22	26	30	
44	40	17	17	22	22	26	30		
35	50	17	17	22	26	30	30		
29	60	17	22	26	26	30			
25	70	17	22	20	30				

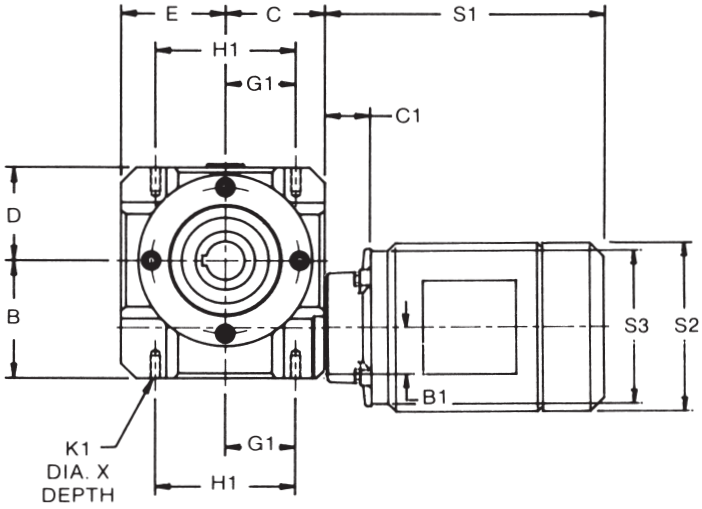
Note: Table based on 1750 RPM motors.
* These ratios to special order only.

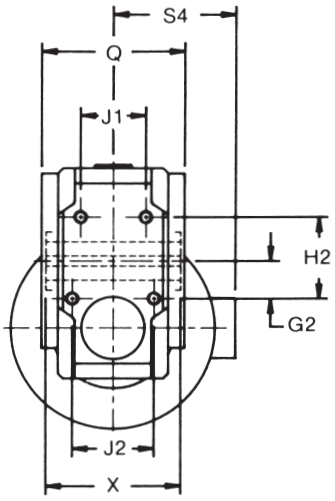
GEARED MOTOR UNITS - DRIVE CLASSIFICATION 2

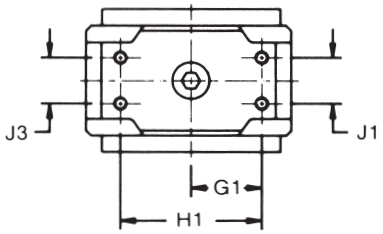
OUTPUT RPM	NOMINAL RATIO	INPUT HORSEPOWER							
		1/4	1/2	3/4	1	1 1/2	2	3	5
350	5	11	11	17	17	17	22	22	26
233	7.5*	11	11	17	17	17	22	26	30
175	10	11	17	17	17	22	22	26	30
140	12.5*	11	17	17	17	22	22	26	
117	15	11	17	17	17	22	22	30	
87	20	17	17	17	22	22	26	30	
70	25	17	17	22	22	26	30		
58	30	17	17	22	22	26	30		
44	40	17	22	22	26	30			
35	50	17	22	26	30				
29	60	17	22	26	30				
25	70	22	26	30					

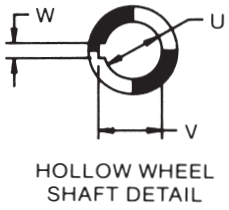
Note: Table based on 1750 RPM motors.
* These ratios to special order only.

GEARED MOTORS - DIMENSIONS









HOLLOW WHEEL
SHAFT DETAIL

NOTE.

For dimensional details of type 2 and type 4 feet, output shafts and output flanges which can be fitted to these units see pages 18 and 19.

MOTORIZED UNIT

Unit. Ref.	B	B1	C	D	E	Q	G1	H1	J1	K1	G2	H2	J2
jPM11	2.17	1.04	2.05	1.65	1.65	3.07	0.89	1.78	1.46	M6x0.43	0.89	1.78	1.46
jPM17	3.35	1.60	3.07	2.36	2.64	3.86	1.79	2.74	1.69	M10x0.67	0.95	2.74	2.24
jPM22	4.13	1.88	3.54	3.15	3.54	4.96	2.26	4.52	1.77	M10x0.67	1.30	3.56	2.17
jPM26	4.61	1.98	3.82	3.62	4.02	5.51	1.71	3.42	2.83	M12x0.78	1.71	3.42	2.83
jPM30	5.31	2.31	4.13	3.94	4.72	6.14	2.01	4.02	3.35	M12x0.86	2.01	4.02	3.35

Unit. Ref.	J3	U	V	W	X
jPM11	1.46	0.751 0.750	0.847 0.837	0.1895 0.1875	2.83
jPM17	2.24	1.001 1.000	1.124 1.114	0.2520 0.2500	3.62
jPM22	1.77	1.251 1.250	1.377 1.367	0.2520 0.2500	4.65
jPM26	2.83	1.501 1.500	1.679 1.669	0.3770 0.3750	5.20
jPM30	3.35	1.751 1.750	1.932 1.922	0.3770 0.3750	5.83

See page 10 for mounting options.

Unit Ref	DIM	56C	143C	145C	182C	184C
jPM17 jPM22 jPM26 jPM30	C1	1.91	1.91	1.91	2.40	2.40
	S1	10.53	11.72	11.72	14.53	14.53
	S2	6.25	7.19	7.19	8.56	8.56
	S3	6.50	6.50	6.50	9.00	9.00
	S4	4.75	5.00	5.00	6.63	6.63

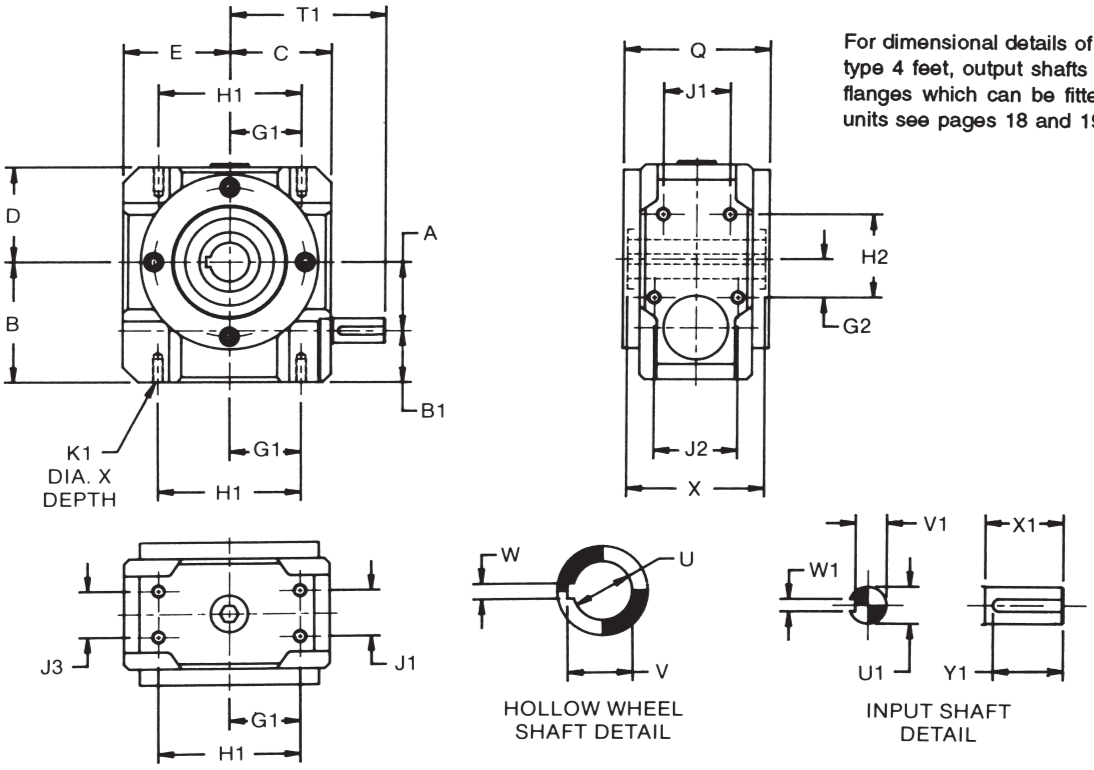
Unit Ref	jPM11				
DIM	C1	S1	S2	S3	S4
D63/71	0	8.19	4.61	3.78	3.78

Dimensions are in inches.

jPM SPEED REDUCERS - DIMENSIONS

NOTE.

For dimensional details of type 2 and type 4 feet, output shafts and output flanges which can be fitted to these units see pages 18 and 19.



REDUCTION GEAR UNIT

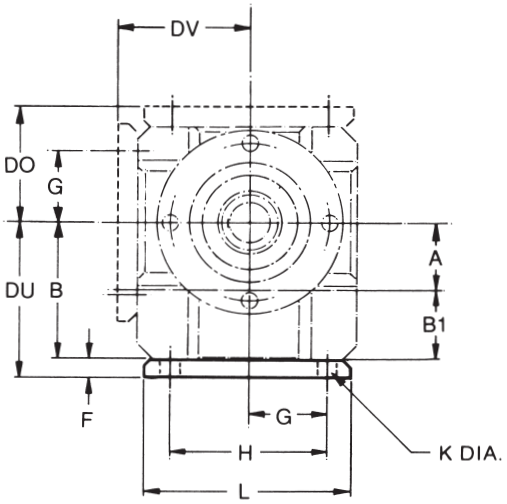
Unit. Ref.	A	B	B1	C	D	E	Q	G1	H1	J1	K1	G2	H2
jPM11	1.125	2.17	1.04	2.05	1.65	1.65	3.07	0.89	1.78	1.46	M6x0.43	.089	1.78
jPM17	1.750	3.35	1.60	3.07	2.36	2.64	3.86	1.79	2.74	1.69	M10x0.67	0.95	2.74
jPM22	2.250	4.13	1.88	3.54	3.15	3.54	4.96	2.26	4.52	1.77	M10x0.67	1.30	3.56
jPM26	2.625	4.61	1.98	3.82	3.62	4.02	5.51	1.71	3.42	2.83	M12x0.78	1.71	3.42
jPM30	3.00	5.31	2.31	4.13	3.94	4.72	6.14	2.01	4.02	3.35	M12x0.86	2.01	4.02

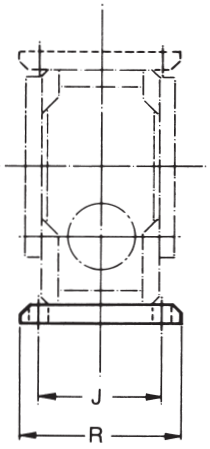
Unit. Ref.	J2	J3	T1	U1	V1	W1	X1	Y1	U	V	W	X
jPM11	1.46	1.46	3.31	0.5000 0.4995	0.430 0.415	0.1270 0.1250	1.18	1.000	0.751 0.750	0.847 0.837	0.1895 0.1875	2.83
jPM17	2.24	2.24	4.72	0.6250 0.6245	0.517 0.502	0.1895 0.1875	1.57	1.375	1.001 1.000	1.124 1.114	0.2520 0.2500	3.62
jPM22	2.17	1.77	5.20	0.7500 0.7495	0.644 0.629	0.1895 0.1875	1.57	1.375	1.251 1.250	1.377 1.367	0.2520 0.2500	4.65
jPM26	2.83	2.83	5.87	0.8750 0.8745	0.771 0.756	0.1895 0.1875	1.97	1.750	1.501 1.500	1.679 1.669	0.3770 0.3750	5.20
jPM30	3.35	3.35	6.18	0.9375 0.9370	0.796 0.781	0.2520 0.2500	1.97	1.750	1.751 1.750	1.932 1.922	0.3770 0.3750	5.83

Dimensions are in inches.

See page 10 for mounting options.

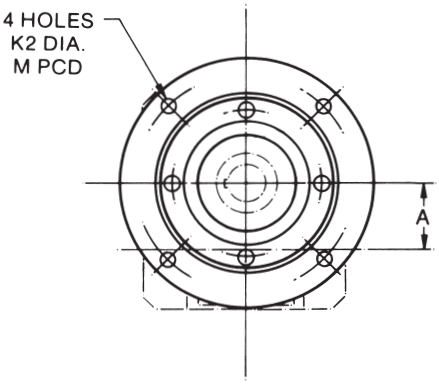
SPEED REDUCERS - DIMENSIONS

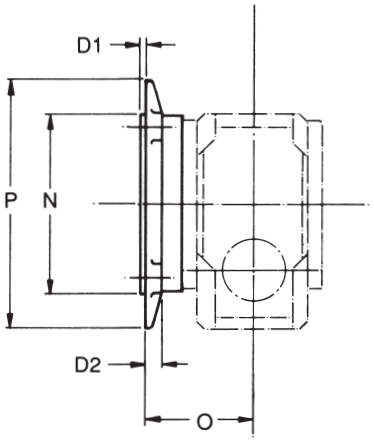




FOOT MOUNTING — TYPE 2

Unit. Ref.	A	B	B1	DO	DU	DV	F	G	H	J	K	L	R
jPM11	1.125	2.17	1.04	1.97	2.48	1.97	0.31	1.38	2.76	2.95	0.28	3.31	3.50
jPM17	1.750	3.35	1.60	2.87	3.86	3.15	0.51	1.87	3.74	3.74	0.47	5.04	4.92
jPM22	2.250	4.13	1.88	3.74	4.72	4.13	0.59	2.26	4.53	3.94	0.47	6.30	5.31
jPM26	2.625	4.61	1.98	4.33	5.31	4.72	0.71	2.85	5.71	4.53	0.57	7.24	5.91
jPM30	3.000	5.31	2.31	4.72	6.10	5.51	0.79	3.15	6.30	5.12	0.57	7.68	6.50



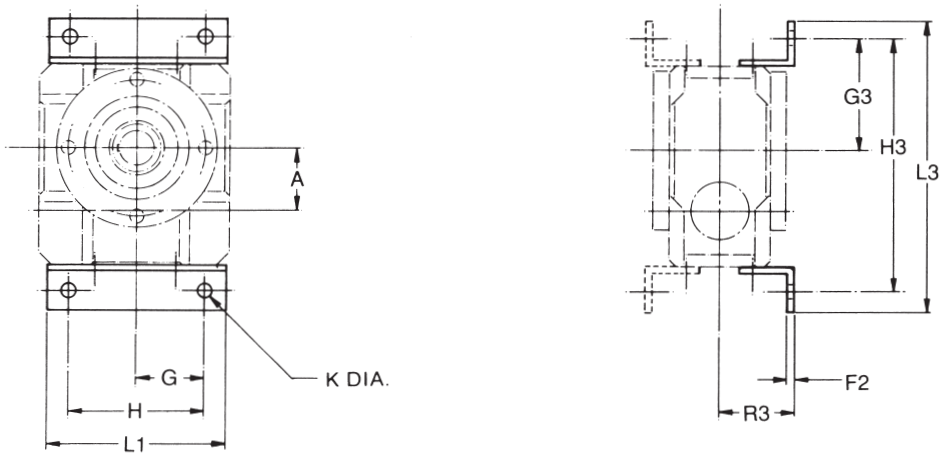


FLANGE MOUNTING

Unit. Ref.	A	D1	D2	K2	M	N	O	P
jPM11	1.125	0.12	0.28	0.39	4.53	3.7402 3.7380	2.36	5.51
jPM17	1.750	0.14	0.43	0.39	5.12	4.3307 4.3286	3.35	6.30
jPM22	2.250	0.14	0.47	0.47	6.50	5.1181 5.1156	4.03	7.87
jPM26	2.625	0.16	0.47	0.57	8.46	7.0866 7.0841	4.13	9.84
jPM30	3.000	0.16	0.47	0.57	8.46	7.0866 7.0841	5.12	9.84

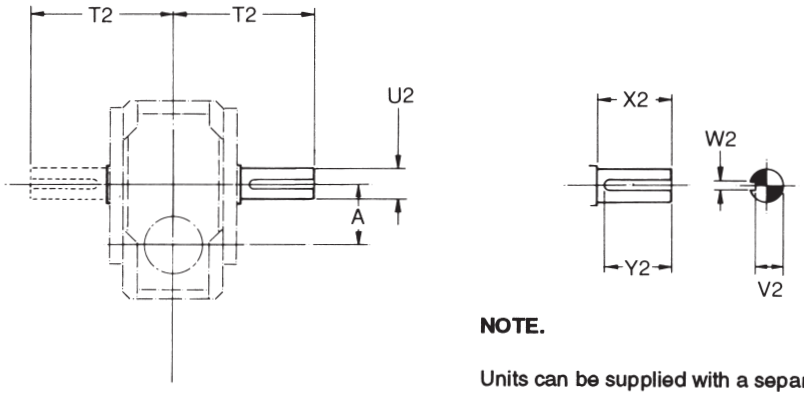
Dimensions are in inches.

SPEED REDUCERS - DIMENSIONS



FOOT MOUNTING — TYPE 4

Unit. Ref.	A	F2	G	H	K	L1	L	G3	H3	L3	R3
jPM11	1.125	0.12	1.38	2.76	0.28	3.31	0.28	2.36	5.24	6.18	1.61
jPM17	1.750	0.20	1.87	3.74	0.47	5.12	0.47	3.31	7.60	8.86	2.01
jPM22	2.250	0.24	2.26	4.53	0.47	6.30	0.47	4.33	9.65	11.22	2.56
jPM26	2.625	0.24	2.85	5.71	0.57	7.48	0.57	4.80	10.59	12.17	2.83
jPM30	3.000	0.24	3.15	6.30	0.57	7.87	0.57	5.31	12.01	13.98	3.15



NOTE.

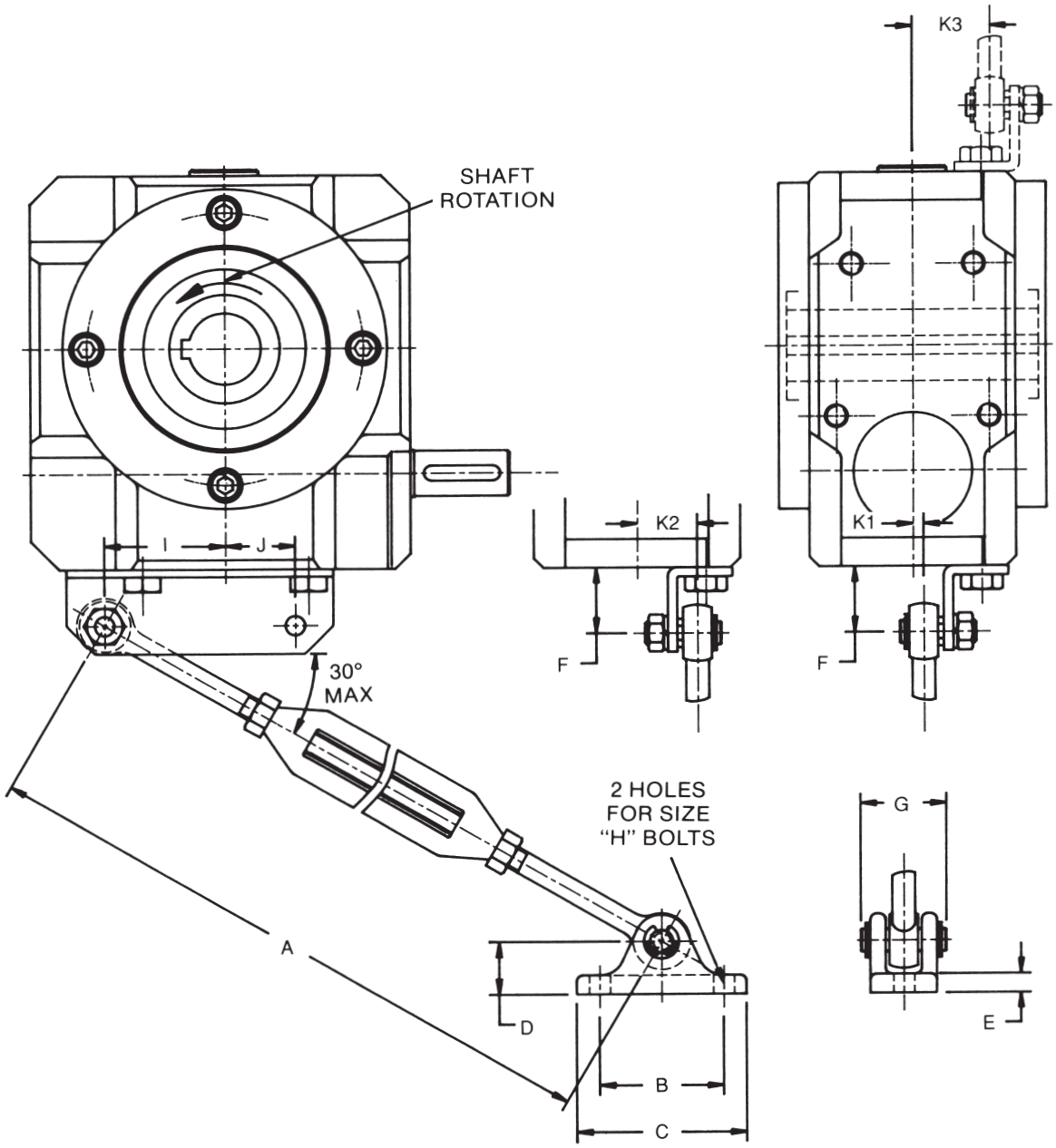
Units can be supplied with a separate output shaft which fits into the hollow bore of the unit, or with built-in shafts.

SOLID OUTPUT SHAFT

Unit. Ref.	A	T2	U2	V2	W2	X2	Y2
jPM11	1.125	3.125	0.6250 0.6245	0.517 0.502	0.1895 0.1875	1.500	1.375
jPM17	1.750	4.000	0.8750 0.8745	0.771 0.756	0.1895 0.1875	2.000	1.750
jPM22	2.250	5.000	1.1250 1.1245	0.986 0.971	0.2520 0.2500	2.375	2.125
jPM26	2.625	6.000	1.2500 1.2495	1.112 1.097	0.2520 0.2500	3.000	2.750
jPM30	3.000	7.250	1.500 1.4995	1.289 1.274	0.3770 0.3750	4.000	3.750

Dimensions are in inches.

jPM TORQUE ARMS - DIMENSIONS



Unit. Ref.	A	B	C	D	E	F	G	H	I	J	K1	K2	K3
jPM11	19.7 13.8	1.97	2.75	0.94	0.31	0.87	1.57	0.344	0.79	0.79	-0.51	0.31	1.14
jPM17	19.7 13.8	1.97	2.75	0.94	0.31	1.10	1.57	0.344	1.18	1.18	*0.39	0.51	1.46
jPM22	25.6 19.7	2.56	3.50	1.10	0.39	1.18	1.85	0.406	1.95	1.99	-0.34	0.71	1.06
jPM26	25.6 19.7	2.56	3.50	1.10	0.39	1.18	1.85	0.406	2.50	1.44	0.22	1.24	1.59
jPM30	25.6 19.7	2.56	3.50	1.10	0.39	1.18	1.85	0.406	2.20	1.73	0.47	1.50	1.85

Dimensions are in inches.

INSTALLATION AND MAINTENANCE

INSTALLATION
Complete instructions on the correct installation and maintenance of jPM units are sent with each unit supplied and additional copies are available on request.

COUPLINGS AND BEDPLATES
All couplings should be accurately fitted and shafts accurately aligned. To prevent damage to the bearings, coupling half-bodies should not be hammered onto shafts.
Where the plug-in single extension output shaft is fitted the coupling can be assembled onto the shaft prior to securing in the output sleeve.
Gear units and other drive components should be rigidly mounted on firm foundations to prevent movement and vibration which may affect the alignment of the shafts. Suitable bedplates can be supplied if required.

INITIAL RUNNING
First Filling
Gearboxes are shipped with the correct amount of synthetic lubricant.This is sufficient for all the mounting positions shown on page 10.

STARTING UP
All worm gear units have been subjected to a short test before delivery, but it takes many hours running under full load for the gear to attain its highest efficiency.
The gear may, if necessary, be put to work immediately on full load, but if circumstances permit it is better for the ultimate life of the gears to run under gradually increasing load, attaining the full load after about 20 to 40 hours.
Reasonable precautions should, however, be taken to avoid overloads in the early stages of running.
Temperature rise on the initial run will be higher than that eventually attained after the gear is fully broken-in.

STORAGE
All worm gear units stored or left inactive for long periods should be adequately protected, particularly those on exposed sites and/or operating in corrosive or salty atmospheres.
Units left inactive for long periods should, ideally, be run at full speed for not less than 10 minutes once each month.
Before a gear unit is returned to service after a long period of inactivity, oil seals should be checked and, if necessary, replaced.

SPARE PARTS
Information relating to spare parts is available on request.

TABLE OF EXACT RATIOS

UNIT SIZE	NOMINAL RATIOS											
	5	7.5	10	12.5	15	20	25	30	40	50	60	70
jPM11	5.17	7.25	9.67	12.3	15.5	20.5	25	30	40	50	60	70
jPM17	5.17	7.25	9.67	12.3	15.5	20.5	25	30	40	50	60	70
jPM22	4.83	7.25	9.67	12.3	14.5	19.5	24.5	30	40	50	60	70
jPM26	5.17	7.25	9.67	12.3	15.5	20.5	24.5	30	40	50	60	70
jPM30	5.17	7.25	9.67	12.3	15.5	20.5	25	30	40	50	60	70

WEIGHTS
The weights below are for reducers in shaft-mounted form filled with lubricant, in lbs.

UNIT SIZE	GEAR REDUCER lbs	GEARED MOTORS				
		RENOLD	Frame Size 56	Frame Size 143	Frame Size 145	Frame Size 182/184
jPM11	6.5	15.2	—	—	—	—
jPM17	17.6	—	31	54	61	—
jPM22	31.9	—	47	70	77	109
jPM26	45.5	—	58	81	88	120
jPM30	59.2	—	—	100	107	139

ELECTRIC MOTORS

jPM Geared Motor Units are generally fitted with standard NEMA Totally Enclosed Fan Cooled Electric Motors with a standard "C" face mounting, and fitted with an oil seal.
However, this does not apply to the jPM11 which is fitted with a special Renold Motor. See below.

STANDARDS
All motors meet NEMA Standard MG1-1.26.B and are suitable for use in dusty and dirty environments.

WINDINGS
Motors are supplied with class F insulation and are class B temperature rise at the rated horsepower, in normal ambient conditions. Motors can be supplied with higher insulation classes.

VOLTAGE
Unless otherwise specified the motors will be supplied suitable for an electrical supply of 575 Volts / 3 Phase / 60 Hz in Canada, and 460 Volt / 3 Phase / 60 Hz in the USA. Motors suitable for other suitable electrical supplies can be provided.

TERMINAL BOXES
Standard terminal boxes are weather proof and are screwed to suit American National Pipe Threads for the fitting of standard conduit. The box can be rotated in 90 degree steps to facilitate wiring.

CUSTOMER SUPPLIED MOTORS
Customer supplied motors can be fitted providing that they meet the requirements above, except for size jPM11 which will only accept the Renold Motor. There will be a small fitting charge for assembling customers motors.
Please consult Renold to confirm the suitability of customer supplied motors.

jPM11
Because of the small physical size of these units they will not accept a standard "C" face motor and Renold supply a motor to their own specifications for this size unit. The motor is only available for an electrical supply of 110 Volts / 1 Phase / 60 Hz. Customer's own motors cannot be fitted to this size unit.

ELECTRIC MOTOR — jPM11
The special motors fitted to size jPM11 are manufactured to RENOLD standards, which meet or exceed NEMA standards.

SIZE
Only 1/4HP and 1/2HP motors are fitted to jPM11 geared motors.

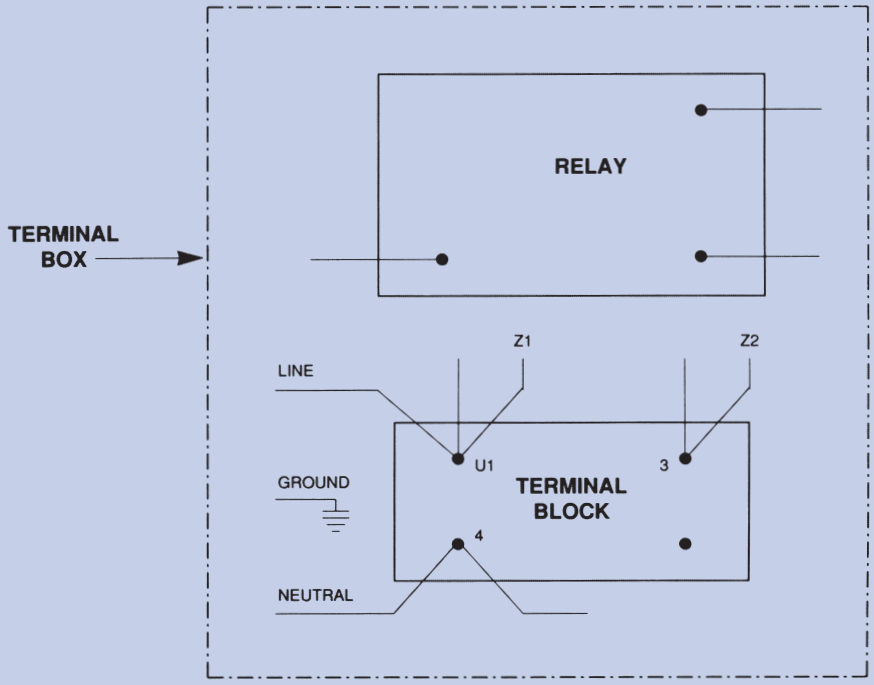
WINDINGS
The motors are supplied with Class F insulation, and are Class B temperature rise at the rated HP.

VOLTAGE
Motors are available suitable for an electrical supply of 110 Volts/1ph/60Hz only.

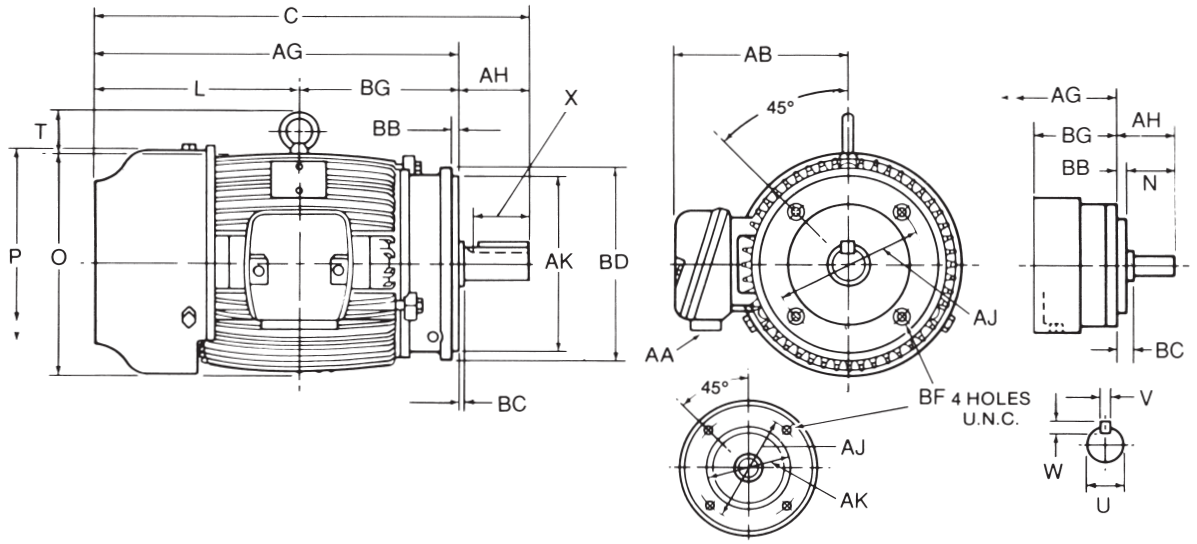
TERMINAL BOXES
A pressed steel terminal box is located on the motor, and is provided with a "knock-out" for cable entry at one end. The box/lid joint and the box/motor joint are sealed with synthetic rubber gaskets. The box may be rotated through 360 degrees in 90-degree steps to facilitate cable entry.

CONNECTIONS
The motor should be connected in accordance with the diagram.
Grounding connections are provided on the motor body, or one of the box fixing screws can be used.
Connect the line wire to terminal U1 and the neutral wire to terminal 4.

To reverse the rotation of the motor, interchange the leads marked Z1 and Z2 indicated on the diagram.
All electrical connections must be made by a qualified electrician.



MOTOR DIMENSIONS - NEMA/CEMA STANDARD
"C" FACE MOUNTING



Motor HP	Motor Frame	C	L	N	O	P	T	U Diameter		M Conduit Size	AB	AG	AH
								Max.	Min.				
0.25	56C	11.188		1.938	7.000	6.968		.6248	.6243	.500	4.546	9.125	2.062
0.333	56C	11.188		1.938	7.000	6.968		.6248	.6243	.500	4.546	9.125	2.062
0.50	56C	11.188		1.938	7.000	6.968		.6248	.6243	.500	4.546	9.125	2.062
0.75	56C	11.188		1.938	7.000	6.968		.6248	.6243	.500	4.546	9.125	2.062
1.00	56C	12.688		1.938	7.000	6.968		.6248	.6243	.500	4.546	9.125	2.062
1.00	143TC	12.688	6.188	2.000	7.062	7.125		.8750	.8745	.750	5.500	10.562	2.125
1.50	145TC	13.688	6.688	2.000	7.062	7.125		.8750	.8745	.750	5.500	11.562	2.125
2.00	145TC	13.688	6.688	2.000	7.062	7.125		.8750	.8745	.750	5.500	11.562	2.125
3.00	182TC	14.688	6.938		9.218	9.812	1.750	1.1250	1.1245	.750	7.750	12.062	2.625
5.00	184TC	15.688	7.438		9.218	9.812	1.750	1.1250	1.1245	.750	7.750	13.062	2.625

Motor HP	Motor Frame	AJ	AK	BB	BC	BD	(Tapped) BF		BG	KEY			Weight (Approx.) lbs.
										Width V	Depth W	Length X	
0.25	56C	5.875	4.500	0.125	0.188	6.500	3/8	UNC	4.062	0.188	0.188	1.375	24
0.333	56C	5.875	4.500	0.125	0.188	6.500	3/8	UNC	4.062	0.188	0.188	1.375	26
0.50	56C	5.875	4.500	0.125	0.188	6.500	3/8	UNC	4.062	0.188	0.188	1.375	28
0.75	56C	5.875	4.500	0.125	0.188	6.500	3/8	UNC	4.062	0.188	0.188	1.375	31
1.00	56C	5.875	4.500	0.125	0.188	6.500	3/8	UNC	4.062	0.188	0.188	1.375	39
1.00	143TC	5.875	4.500	0.125	-0.125	6.500	3/8	UNC	4.875	0.188	0.188	1.375	32
1.50	145TC	5.875	4.500	0.125	-0.125	6.500	3/8	UNC	4.875	0.188	0.188	1.375	38
2.00	145TC	5.875	4.500	0.125	-0.125	6.500	3/8	UNC	4.875	0.188	0.188	1.375	38
3.00	182TC	7.250	8.500	0.250	-0.125	9.000	1/2	UNC	5.125	0.250	0.250	1.750	92
5.00	184TC	7.250	8.500	0.250	-0.125	9.000	1/2	UNC	6.50	0.250	0.250	1.750	108

Dimensions are in inches.

RENOLD CANADA LTD

Head Office & Ontario District

121 Roy Blvd., Brantford, ON N3T 5N4
Phone: (800) 265-9970 or (519) 756-6118
fax: (800) 661-6118 or (519) 756-1767

Quebec District

622 rue De Hull, Ville La Salle, QC H8R 1V9
Phone: (800) 361-1414 or (514) 367-1764
Fax: (514) 367-4993

Western, Atlantic & Manitoba Districts

Phone: (800-265-9970
Fax: (800) 661-6118

www.renoldcanada.com
inquiry@renoldcanada.com

Authorized Distributor