

jPM Series Worm Gear Units



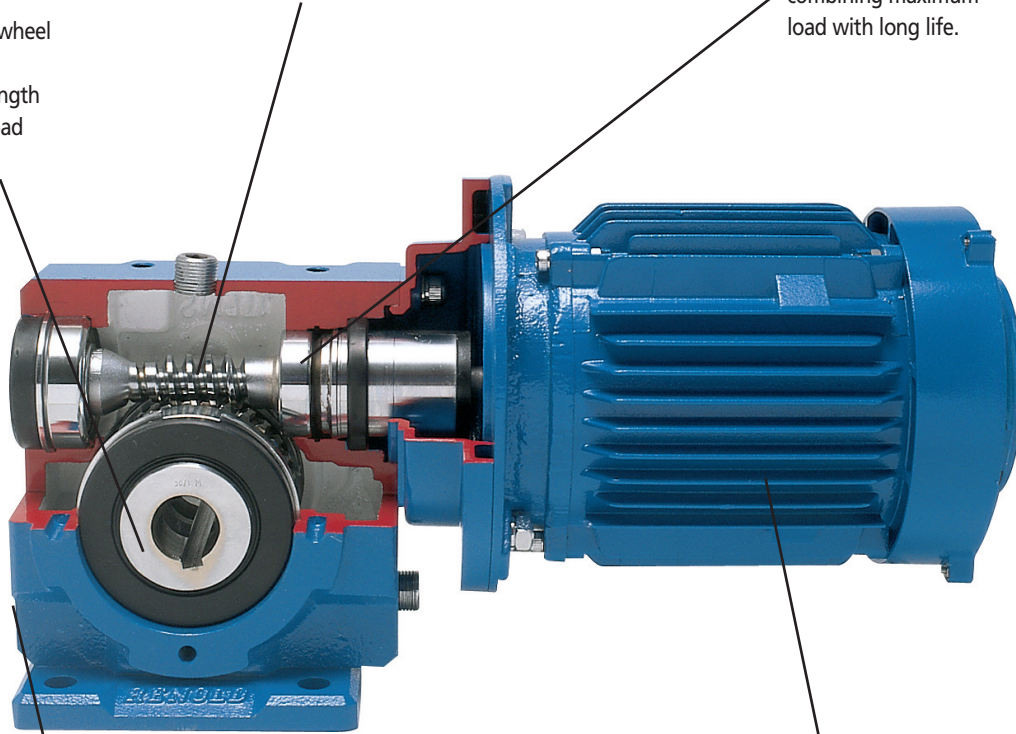
RENOLD
Superior Gear Technology

jPM Series - Product Features

One piece output sleeve with electron beam welded bronze worm wheel rim ensure maximum strength under shock load conditions.

Unique Holroyd tooth form for maximum torque capacity and optimum efficiency.

Heavy duty ball & taper roller bearings combining maximum load with long life.



Machined surfaces on all sides of gear case, plus detachable feet and B5 output flange for wide range of mounting options.

Accepts standard B5 and B14 motors via plug-in polymer bush for durability, quietness and strength.



Section of electron beam welded wormwheel rim and centre showing the fusion of the bronze wormwheel rim onto the cast iron centre. This high security fit allows transmission of power under shock load conditions.

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ATEX Approval Details

ATEX Approval

RENOLD Gears products for operating in potentially explosive atmospheres.

General

- **RENOLD** Gears units are classified as ATEX Group II Category 2 equipment, which embodies sufficient safeguards to be suitable for use in potentially explosive atmospheres for normal operation and for operation during an expected malfunction.
- It is essential that there is sufficient lubricant to prevent the gears and bearings running 'dry'. Gear units should be inspected daily for signs of oil leakage, overheating or noisy operation.
- Gear units should be cleaned at regular intervals depending on the operating conditions, to ensure that dust coatings never exceed 5mm. Plastic parts should be wiped clean with a damp cloth.
- Oil leaks should be dealt with as quickly as practical. Compound joint faces and shims should be cleaned and thread-locking sealant should be applied to bolts and plugs prior to re-assembly.

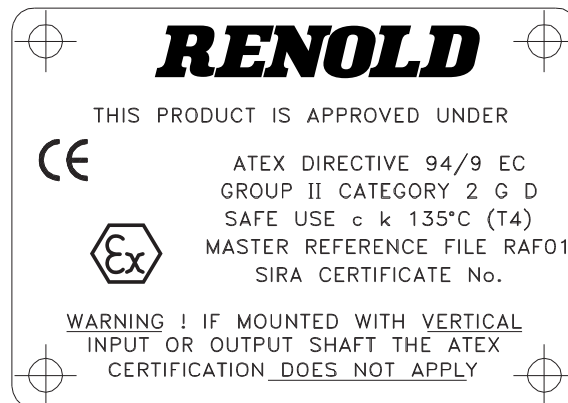
- The temperature of any external surfaces must not exceed the permitted maximum of 135°C (T4).
- Higher temperature class T3 is available dependant on unit mounting, ratio and gear type. For further details consult Renold.
- As a general rule, gear units should be mounted with their feet horizontal. For other mountings, particularly with shaft mounted units, consult **RENOLD** Gears.

WARNING: IF MOUNTING WITH VERTICAL INPUT OR OUTPUT SHAFTS, THE ATEX CERTIFICATION DOES NOT APPLY.

Unit Selection

- The gear unit selection procedures must include an additional reliability factor of 1.25 for mechanical ratings and 1.25 for thermal ratings.

ATEX Nameplate



General Specification

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 complying with BS 1400 PB2-C (centrifugally cast) and secured to the steel output sleeve by the electron beam welding process. The Holroyd gear form used in this

range of gearboxes corresponds to British Standard recommendations and, in addition, 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

The shaft extensions and sleeve bores are to metric dimensions and incorporate standard rectangular parallel keyways which conform to BS 4235: Part 1: 1972 and DIN 6885 recommendations.

Where an output shaft extension is required rather than a bored sleeve, this can be supplied from stock and simply "plugged in" and secured with a circlip. The overhung and thrust loads which these shafts will sustain are shown on page 13. Solid construction output shafts are also available.

BEARINGS

Standard metric bearings to ISO standards 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 15. 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 Gears.

WEIGHTS

The weights listed below cover the gear units in shaft-mounted form and filled with lubricant.

Unit Ref.	Weight (kg) Single Reduction Unit						
	Speed Reducer	Geared Motors					
		D71	D80	D90S	D90L	D100L	D112M
*JPM11	2.9						
JPM17	8.0	15.8	21.4	24.4	25.4		
JPM22	14.5	22.3	27.9	30.9	31.9	41.5	48.6
JPM26	20.7	28.5	34.1	37.1	38.1	47.7	54.8
JPM30	26.9	34.7	40.3	43.3	44.3	53.9	61.0

Unit Ref.	Weight (kg) Helical Worm Unit					
	Speed Reducer	Geared Motors				
		D71	D80	D90S	D90L	D100L
JPM17	11.6	19.4	25.0	27.8	29.0	
JPM22	18.1	25.9	31.5	34.5	35.5	45.1
JPM26	24.3	32.1	37.7	40.7	41.7	51.3
JPM30	30.5	38.2	43.9	46.9	47.9	57.5

*JPM11 geared motor with D63 motor= 6.9kg

*JPM11 geared motor with D71 motor= 8.3kg

Options Available

SPEED REDUCER

This version covers the basic gear unit with the wormshaft having a keyed extension, as shown on page 20.

MOTOR GEAR UNIT

A motor adaptor is assembled onto the input side of the unit to the frame size specified.

In this form the wormshaft has secured to it a coupling having a bored recess and an axial slot. A keyed plastic bush is fitted to the motor shaft on assembly and as the two are brought together the tongue on the bush is located in the axial drive slot.

Units can be supplied complete with motor or with the adaptor fitted and complete with motor shaft bush to suit our customer's own IEC motor.

FOOT MOUNTING - TYPE 2

This foot arrangement comprises a single component, dimensional details of which are shown on pages 22 and 23. It can be secured to the gearcase in any of three positions by four socket head screws, the position of foot location being denoted 2.0, 2.1 and 2.2 as shown on page 7.

OUTPUT ADAPTOR

The circular adaptors which can be attached to the output sides of the gearcase agree to IEC D pattern dimensions and located in a recess machined in the case or wheel cap and secured by socket head screws. They can be fitted to either side.

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 pages 26 and 27 for dimensional details.

OUTPUT SHAFT

Where an output shaft extension is required, suitable single or double extension plug-in shafts are available. They can be inserted in the bore, located by the key and secured axially by a circlip. Both the key and circlip are supplied with the shaft.

When assembling the shaft into the sleeve it is advised that an anti-fretting compound be applied. Rocol ASP anti-scuffing paste is a suitable material for this purpose.

Solid output shafts are also available in single and double extension to the same dimensions as the plug-in shafts.

TORQUE RESTRAINT

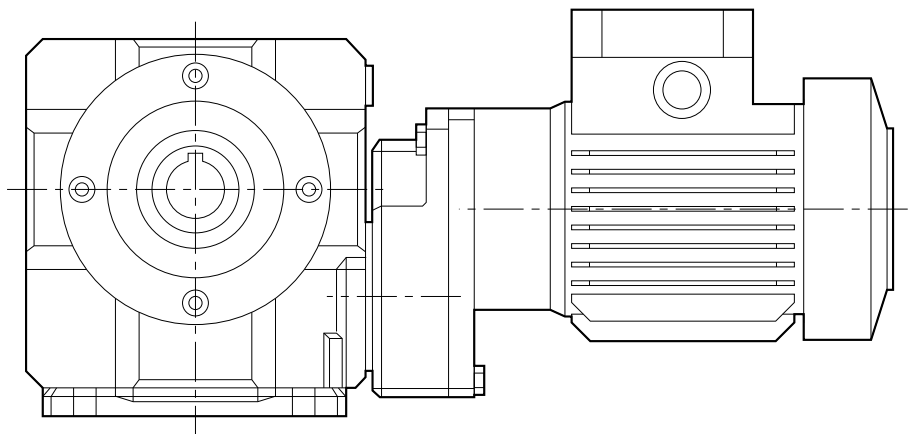
When used in the shaft mounting position the unit can be restrained from rotation by attaching to the side of the driven machine by the output flange or by the adjustable torque arm arrangement shown on page 36. Other torque restraint types can be supplied depending on customers preference.

ADDITIONAL SUPPLY

Any of the above options can be supplied separately or fitted prior to despatch from our works if specified on the order. The various positions and handings of assembly are shown on page 7.

HELICAL WORM

A helical first stage reduction is available covering unit sizes 17 to 30, offering ratios from 5:1 to 280:1. The unit is available as a speed reducer or motorised type up to 4 kW capacity. This type of unit has advantages of higher efficiencies and can allow down sizing of unit selections. Further details are available from the Renold Gears sales office.

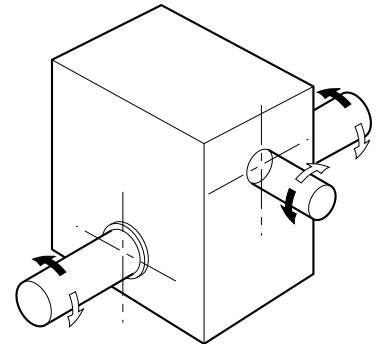
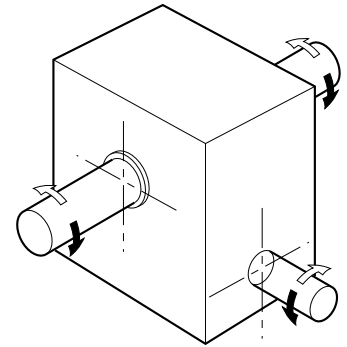


HELICAL WORM jPM UNIT

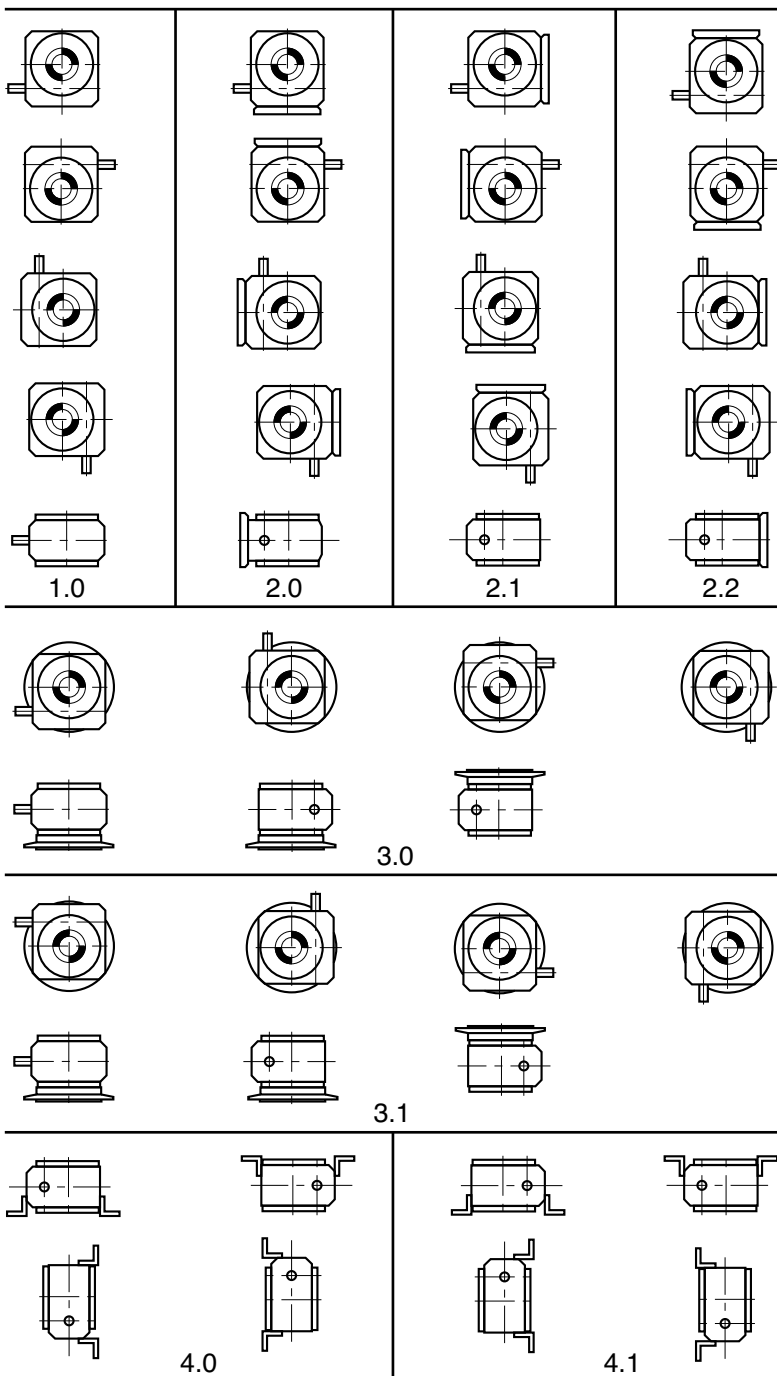
Mounting Positions

Each unit is filled on assembly with a metered 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.

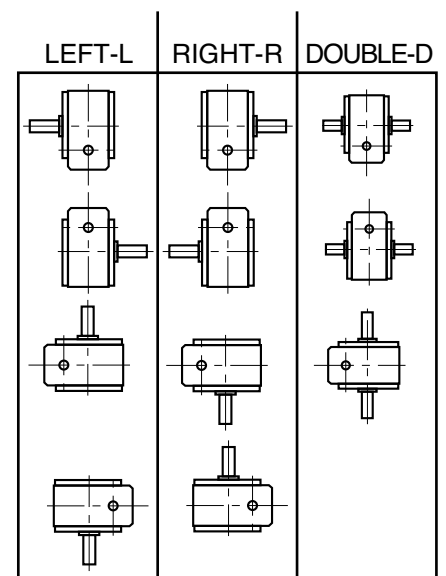
Since the units are sealed they can be placed in any of the positions illustrated without further modification. If a plug-in output shaft is required, and this is to be fitted on supply, the handing arrangement must be specified as indicated.



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

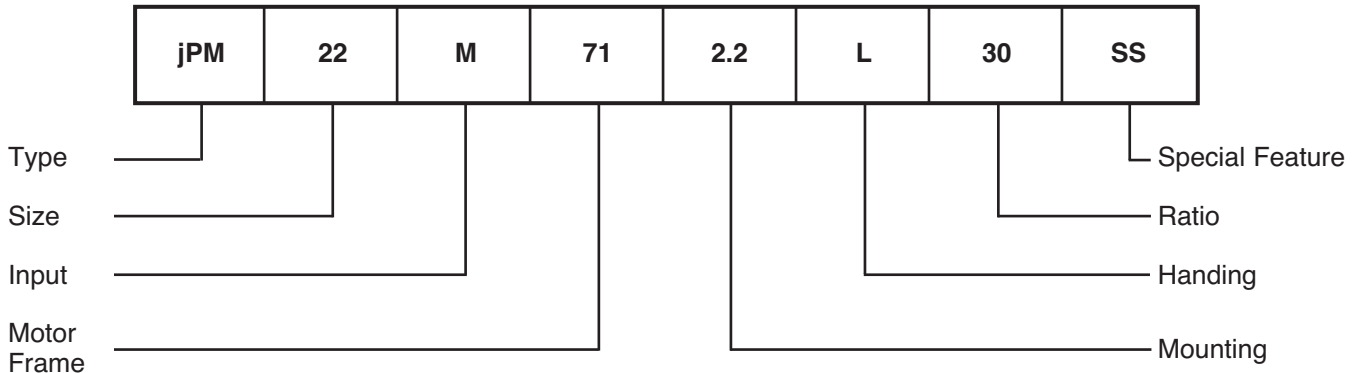


HANDINGS



Unit Designation Code

EXAMPLE:



1. Type
jPM
2. Size
Five models: 11, 17, 22, 26, 30
3. Input
M - Motorised unit with motor supplied
A - Motorised unit without motor but with motor adaptor
H - Non-motorised unit with input shaft extension
4. Motor Frame
Seven Frame sizes:
63, 71, 80, 90S, 90L, 100, 112
5. Mounting
Eight Mounting types: see page 7.
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 7.
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.
TR - Torque restraint bracket.

POWER AND TORQUE RATINGS

The power and torque ratings published assume a uniform load condition at the speeds stated under ambient temperature conditions between minus 10°C and plus 30°C. If the temperature is likely to exceed 30°C, consult Renold.

SERVICE FACTORS

Table 1 (page 11) lists a range of applications with an assessment of the nature of the loading; this is then classified as Steady, Medium Impulsive, or Highly Impulsive. The information obtained here can then be applied to table 5 (page 12) for geared motor units, or table 2 (page 11) for reduction gear units, where the hours of operation are also taken into account and the Duty Service Factor f_D obtained. The Drive Classification, table 5, facilitates selection of geared motor unit where the gear unit/motor combination is already resolved relative to the duty factor and a straightforward selection can be obtained from the capacities on pages 15 to 18. If the number of stops and starts exceeds five each hour a Service Factor f_S must be applied (see table 3 page 4; also NOTE above).

Example:

Selection Power=output kW to driven machine $f_D \cdot f_S \cdot f_T$

NOTE

When the duty involves frequent stop/start cycles it may be necessary to check the capacity of the motor for the application. In this situation the inertia of the driven machine will have to be considered.

Selection of JPM Units Geared Motor Units

GEARED MOTOR UNITS

The capacities covering the jPM geared motor units are on pages 15 to 18 where it will be seen that these have already been classified in accordance with the duty requirements based upon the nature of loading and operational hours each day.

The units are listed under the nominal motor power against output speed, with the selection output power and torque included in the block with the respective gear unit size. Variations in efficiency with regard to ratio are therefore taken into account.

The output speeds listed are approximate only, being based upon the nominal gear ratio and a motor speed of 1440 rpm. The actual gear ratios can be found in the capacity charts.

To select a jPM geared motor unit the procedure below should be followed:-

1. Determine the output speed.
2. Determine the power absorbed by the driven machine:

$$\frac{\text{Absorbed Power (kW)} = \text{Absorbed Torque (Nm)} \times \text{Machine Speed (rev/min)}}{9550}$$
3. Determine the load classification from table 5 (page 12) and, using the information obtained together with the number of operating hours each day, derive the Drive Classification from table 5 (page 12).
4. Select unit from the tables on pages 15 to 18 by class and ensure output power/torque is equal to or in excess of power/torque absorbed by driven machinery.
5. If unit is subjected to imposed external thrust or overhung loads check the details against the capacities listed on page 13 to confirm such loads are within the capability of the unit.
6. Note working conditions: clean, dusty, moist, abnormal temperatures etc.

OVERLOADS

The overload carrying capacity of all jPM units is equivalent to that of the cage-type motors specified for use with them.

EXAMPLE 1

A jPM shaft-mounted geared motor unit is required to drive a rotary pump at 200 rpm, eight hours per day, and the power requirement is 1.7 kW.

1. Output power is 1.7 kW at 200 rpm given.
2. Rotary pump rated as uniform loading in table 1 and for eight hours per day continuous operation drive requirement is Class 1 in table 5.
3. Reference to nominal power higher than 1.7 kW i.e. 2.2 kW, Drive Classification 1 on page 15 shows that a jPM 22 is available with an output speed of 192 rpm. This is close enough for the duty. The power capacity of the unit is 1.97 kW.

4. The ratio of 7.5/1 can be found in the second column, motor frame size from the table on page 8, and so the coding for the selected unit is:

Type	- jPM
Size	- 22
Input	- M
Motor Frame	- 100
Mounting	- 1.0
Handing	- S
Ratio	- 7.5
Special Features	- None

Which reads: jPM22 M 100 1.0 S 7.5

EXAMPLE 2

A geared motor unit is required to drive a uniformly loaded bottle conveyor operating for 24 hours each day. The torque required at the output shaft is 200 Nm at 35 rpm. The output shaft projects vertically upwards and is fitted with a 12" pitch circle diameter chainwheel, the unit being mounted on a horizontal surface.

1. Output speed 35 rpm.
2. Power absorbed by driven machine

$$= \frac{200 \times 35}{9550} = 0.73 \text{ kW}$$
3. Drive classification from table 5 is 2, i.e. uniform load operating in excess of 10 hours per day.
4. Selection table for Drive Classification 2 on page 16 lists nearest output speed of 35 rpm as 36 rpm where we find against torque requirement 200 Nm a size jPM 30 complete with a 1.1 kW motor is rated at 225 Nm.
5. Overhung load

$$= \frac{9.55 \times 0.73 \times 10^6 \times 1}{6 \times 25.4 \times 36} = 1270 \text{ N}$$

From the chart on page 13 we find that a jPM 30 with an output speed 50 - 25 rpm will support a radial load of 6900N.

The coding for the jPM unit is:

Type	- jPM
Size	- 30
Input	- M
Motor Frame	- 90 i.e. 1.1 kW
Mounting	- 3.1
Handing	- L
Ratio	- 40 i.e. $\frac{1410}{36}$ 40

Special Features - None

Which reads: jPM30 M 90 3.1 L 40.

Confirm that the supply to the motor is 415 volt +/- 5%, 3 phase, 50 Hz.

Selection of JPM Speed Reducers Units

GEAR UNITS

To select a jPM speed reducer unit the following basic information must be known.

1. The power absorbed by the driven machine.
2. Input and output speeds.
3. Characteristics of the drive, e.g. degree of impulsiveness of driven load. See application table on page 11.
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 37 to 48 are based upon 10 hours per day continuous running with steady, uniform load conditions.

If the load is not steady, or the operational hours per day differ from the nominal rated period, then the actual power is multiplied by a Service Factor 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).

EXAMPLE 3

A jPM gear unit is required to drive a machine which is in operation for 24 hours per day under moderate shock load conditions with 20 stop/start cycles per hour. The input speed is 1410 rpm with an output power requirement of 0.8 kW at 55 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 1410 rpm, output speed 55 rpm and output power 0.8 kW given.
2. Ratio - $\frac{1410}{55} = 25.6$

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 $0.8 \times 1.5 \times 1.1 = 1.32 \text{ kW}$.

4. From the capacities listed for 25/1 ratio on page 43 we find that at 1500 rpm a jPM 26 has an output power capacity of 1.48 kW.

The coding therefore is:

Type	- jPM
Size	- 26
Input	- H
Mounting	- 2.2
Handing	- L
Ratio	- 25

The code for the above is then jPM 26 H 2.2 L 25.

5. To find the input power required establish the efficiency which
 $= \frac{1.38}{1.61} \times 100$
 $= 85.7\%$

Input power = $\frac{0.8 \times 100}{85.7} = 0.93 \text{ kW}$

Load Classification By Application

TABLE 1

Agitators		Forced draft	*	Rotary kilns	M
Pure liquids	S	Induced draft	M		
Liquids and solids	M	Large, mine etc.	M	Paper mills	
Liquids-variable density	M	Large, industrial	M	Agitators (mixers)	M
		Light, small diameter	S	Barker-auxiliaries hydraulic	M
Blowers				Barker-mechanical	H
Centrifugal	S	Feeders		Barking drum	H
Lobe	M	Apron	M	Beater and pulper	M
Vane	S	Belt	M	Bleacher	S
Brewing and Distilling		Disc	S	Calenders	M
Bottling machinery	S	Reciprocating	H	Calenders-super	M
Brew kettles-continuous duty	S	Screw	M	Converting machine except	H
Cookers-continuous duty	S			cutters, platers	M
Mash tubs-continuous duty	S	Food industry		Conveyors	S
Scale hopper-frequent starts	M	Beef slicer	M	Couch	M
		Cereal cooker	S	Cutters, platers	H
Can filling machines	S	Dough mixer	M	Cylinders	M
		Meat grinder	M	Dryers	M
Cane knives (1)	M			Fell stretcher	M
Car dumpers	H	Generators - not welding	S	Fell whipper	H
Car pullers	M	Hammer mills	H	Jordans	M
Clarifiers	S	Hoists		Log haul	H
Classifiers	M	Heavy duty	H	Presses	M
Clay working machinery		Medium duty	M	Pulp machine reel	M
Brick press	H	Skip hoist	M	Stock chest	M
Briquette machine	H			Suction roll	M
Clay working machinery	M	Laundry		Washers and thickeners	M
Pug mill	M	Washers - reversing	M	Winders	M
		Tumblers	M		*
Compressors		Line shafts		Printing presses	
Centrifugal	S	Driving processing equipment	M		
Lobe	M	Light	S	Pullers	
Reciprocating - multi-cylinder	M	Other line shafts	S	Barge haul	H
Reciprocating - single cylinder	H				
Conveyors - uniformly loaded or fed		Lumber industry		Pumps	
Apron	S	Barkers, hydraulic, mechanical	M	Centrifugal	S
Assembly	M	Burner conveyor	M	Proportioning	M
Belt	S	Chain saw and drag saw	H	Reciprocating	M
Bucket	S	Chain transfer	H	single acting:	
Chain	S	Craneway transfer	H	3 or more cylinders	M
Flight	S	De-barking drum	H	double acting:	
Oven	S	Edger feed	M	2 or more cylinders	M
Screw	S	Gang feed	M	single acting: 1 or 2 cylinders *	
		Green chain	M	double acting: single cylinder *	
Conveyors - heavy duty not uniformly fed		Live rolls	H	Rotary - gear type	S
Apron	M	Log deck	H	Rotary - lobe, vane	S
Assembly	M	Log haul-incline	H		
Belt	M	Log haul-well type	H	Rubber and plastics industries	
Bucket	M	Log turning device	H	Crackers (1)	H
Chain	M	Main log conveyor	H	Laboratory equipment	M
Flight	M	Off bearing rolls	M	Mixed mills (1)	H
Live roll	*	Planer feed chains	M	Refiners (1)	M
Oven	M	Planer floor chains	M	Rubber calenders (1)	M
Reciprocating	H	Planer tilting hoist	M	Rubber mill, 2 on line (1)	M
Screw	M	Re-saw merry-go-round conveyor	M	Rubber mill, 3 on line (1)	S
Shaker	H	Roll cases	H	Sheeter (1)	M
		Slab conveyor	H	Tyre building machines	*
Crane Drives - not dry dock		Small waste conveyor-belt	S	Tyre and tube press openers	*
Main hoist	S	Small waste conveyor-chain	M	Tubers and strainers (1)	M
Bridge travel	*	Sorting table	M	Warming mills (1)	M
Trolley travel	*	Tipple hoist conveyor	M		
Crushers		Tipple hoist drive	M	Sand muller	M
Ore	H	Transfer conveyors	M		
Stone	H	Transfer rolls	M	Screens	
Sugar (1)	M	Tray drive	M	Air washing	S
		Trimmer feed	M	Rotary, stone or gravel	M
Dredges		Waste conveyor	M	Travelling water intake	S
Cable reels	M	Machine tools			
Conveyors	M	Bending roll	M	Sewage disposal equipment	
Cutter head drives	H	Punch press-gear driven	*	Bar screens	S
Jig drives	H	Notching press-belt drive	H	Chemical feeders	S
Manoeuvring winches	M	Plate planners	H	Collectors	S
Pumps	M	Tapping machine	H	Dewatering screws	M
Screen drive	H	Other machine tools		Scum breakers	M
Stackers	M	Main drives	M	Slow or rapid mixers	M
Utility winches	M	Auxiliary drives	S	Thickeners	M
				Vacuum filters	M
Dry dock cranes		Metal mills		Slab pushers	M
Main hoist	(2)	Drawn bench carriage and main drive	M		*
Auxiliary hoist	(2)	Pinch, dryer and scrubber		Steering gear	M
Boom, luffing	(2)	rolls, reversing	*		*
Rotating, swing or slew	(3)	Slitters	M	Stokers	S
Tracking, drive wheels	(4)	Table conveyors non-reversing group drives	M		
		Individual drives	H	Sugar industry	
Elevators		Reversing	*	Cane knives (1)	M
Bucket - uniform load	S	Wire drawing and flattening machine	M	Crushers (1)	M
Bucket - heavy load	M	Wire winding machine	M	Mills (1)	M
Bucket - continuous	S				
Centrifugal discharge	S	Mills, rotary type		Textile industry	
Escalators	S	Ball (1)	M	Batchers	M
Freight	M	Cement kilns (1)	M	Calenders	M
Gravity discharge	*	Dryers and coolers (1)	M	Cards	M
Man lifts	*	Kilns other than cement	M	Dry cans	M
Passenger	*	Pebble (1)	M	Dryers	M
		Rod, plain & wedge bar (1)	M	Dyeing machinery	M
Extruders (plastic)		Tumbling barrels	H	Looms	M
Film	S			Mangles	M
Sheet	S	Mixers		Nappers	M
Coating	S	Concrete mixers continuous	M	Padding	M
Rods	S	Concrete mixers intermittent	M	Range drives	*
Tubing	S	Constant density	S	Slashers	M
Blow moulders	M	Variable density	M	Soapers	M
Pre-plasticiers	M			Spinners	M
		Oil industry		Tenter frames	M
Fans		Chillers	M	Washers	M
Centrifugal	S	Oil well pumping	*	Winders	M
Cooling towers		Paraffin filter press	M	Windlass	*
Induced draft	*				

S = Steady

M = Medium Impulsive

H = Highly Impulsive

* = Refer to Renold Gears

(1) = Select on 24 hours per day service factor only.

(2) = Use service factor of 1.00 for any duration of service.

(3) = Use service factor of 1.25 for any duration of service.

(4) = Use service factor of 1.50 for any duration of service.

NOTE

Machinery characteristics and service factors listed in this catalogue are a guide only. Some applications (e.g. constant power) may require special considerations. Consult Renold Gears.

SERVICE FACTORS

TABLE 2 (SERVICE FACTOR f_D)

Prime mover (Drive input)	Driven machinery characteristics			
	Duration Service	Steady load	Medium impulsive	Highly impulsive
	hours/day			
Electric, Air & Hydraulic Motors or Steam Turbine (Steady input)	intermittent - 3hrs/day max	0.90	1.00	1.50
	3 - 10	1.00	1.25	1.75
	over 10	1.25	1.50	2.00
Multi-cylinder I.C. engine (Medium impulsive input)	intermittent - 3hrs/day max	1.00	1.25	1.75
	3 - 10	1.25	1.50	2.00
	over 10	1.50	1.75	2.25
Single-cylinder I.C. engine (Highly impulsive input)	intermittent - 3hrs/day max	1.25	1.50	2.00
	3 - 10	1.50	1.75	2.25
	over 10	1.75	2.00	2.50

TABLE 3 FACTOR FOR STARTS/HOURS (f_S)

Maximum number of starts per hour	5	50	100	300
Starts Factor f_S	1.0	1.1	1.15	1.2



IMPORTANT

Units to ATEX approval must be selected with a minimum service factor of 1.25.

Drive Classifications

TABLE 5: TABLE OF DRIVE CLASSIFICATION-GEARED MOTOR UNITS

Driven machinery characteristics	Duration of service		
	Under 3 hours	3 to 10 hours	Over 10 hours
Steady	1	1	2
Medium impulsive	1	2	3
Highly impulsive	2	3	4



IMPORTANT

Units to ATEX approval must be selected with a minimum drive classification of 2

Overhung and Thrust Loads

Output shafts of worm gear units are frequently fitted with a spur pinion, chain pinion 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 minimise 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 minimised 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 may be calculated by the following formula:

resultant overhung load =

$$\frac{9.55 \times P \times 10^6 \times F}{R \times S} \quad (\text{Newtons})$$

Where P = Power absorbed at output shaft (kW)

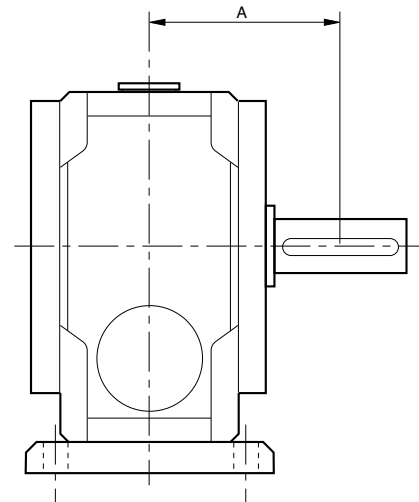
S = Speed of output shaft in rev/min

R = Pitch circle radius of chain pinion, spur or helical gear, or belt pulley in mm

F = Overhung drive application factor as follows:

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

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 centre line of the unit being as given in the diagram.



jPM OVERHUNG LOAD CAPACITIES (N)

OUTPUT RPM	jPM11		jPM17		jPM22		jPM26		jPM30	
	OHL	AXIAL	OHL	AXIAL	OHL	AXIAL	OHL	AXIAL	OHL	AXIAL
300	900	1250	1700	2000	3000	6000	4000	8000	6000	9000
200	950	1400	1750	2500	3200	7000	4200	9000	6200	10000
150	1000	1650	1800	3000	3400	8000	4400	10000	6400	11000
125	1050	1900	1850	3500	3600	9000	4600	11000	6600	12000
100	1100	2200	1900	4000	3800	10000	4700	12000	6700	13000
75	1200	2500	1950	5000	4000	11000	4800	13000	6800	14000
50	1300	2800	2000	6000	4000	12000	4900	14000	6900	15000
25	1350	3200	2050	7000	4000	13000	5000	14000	7000	15000
15	1350	3800	2050	8000	4000	13000	5000	14000	7000	15000
10	1350	4400	2050	9000	4000	13000	5000	14000	7000	15000
5	1350	4800	2050	10000	4000	13000	5000	14000	7000	15000

Unit	Dim A (mm)
JPM11	60
JPM17	75
JPM22	95
JPM26	115
JPM30	140

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

Prior to despatch from our works the gearboxes are filled with the correct amount of synthetic lubricant. This is sufficient for all the mounting positions shown on page 7.

STARTING UP

All worm gear units have been subjected to a short test before despatch to the customer, 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 run-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.

BREATHER / VENTING PLUGS

Two holes for plugs are machined into each jPM unit as shown in Fig 1,2 and 3. Solid taper plugs are factory fitted into the holes as a breather plug is not normally required.

However, if because of continuous higher speed running or high ambient temperatures a breather is required, one is supplied with each unit for customers to fit.

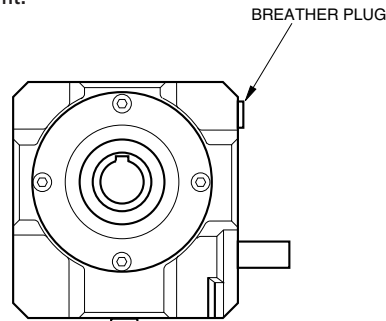


FIG 1

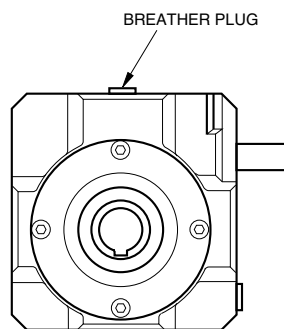


FIG 2

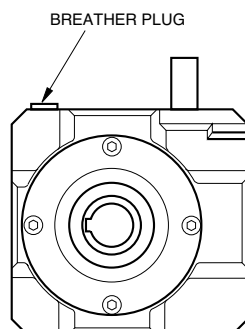


FIG 3

Geared Motor Units - Drive Classification

Nominal Output Speed revs/min	Nominal gear ratio :1	Size	Motor Power-kW										
			0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3.0	4.0
288	5	Output power kW	JPM11	JPM11	JPM11	JPM11	JPM17	JPM17	JPM17	JPM17	JPM22	JPM22	JPM22
		torque Nm	0.11	0.17	0.24	0.35	0.53	0.72	1.06	1.39	2.02	2.74	3.65
			3.8	5.7	7.9	11.6	17.5	24	35	46	67	91	121
192	7.5	Output power kW	JPM11	JPM11	JPM11	JPM11	JPM17	JPM17	JPM17	JPM17	JPM22	JPM26	JPM26
		torque Nm	0.10	0.16	0.22	0.33	0.48	0.66	0.99	1.25	1.97	2.69	3.62
			5.2	7.9	10.9	16.2	24	33	49	62	98	134	180
144	10	Output power kW	JPM11	JPM11	JPM11	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30
		torque Nm	0.10	0.16	0.22	0.32	0.48	0.66	0.97	1.34	1.95	2.68	3.59
			6.8	10.3	14.3	21	32	44	64	89	129	178	238
115	12.5	Output power kW	JPM11	JPM11	JPM11	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30
		torque Nm	0.10	0.16	0.22	0.29	0.48	0.67	0.90	1.34	1.87	2.66	3.60
			8.6	12.9	17.9	24	40	56	75	111	155	221	299
96	15	Output power kW	JPM11	JPM11	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30	JPM30
		torque Nm	0.11	0.16	0.22	0.33	0.49	0.67	0.94	1.29	2.03	2.77	3.55
			10.5	15.7	22	33	49	67	94	128	202	276	353
72	20	Output power kW	JPM11	JPM11	JPM17	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30	
		torque Nm	0.10	0.15	0.22	0.32	0.48	0.59	0.93	1.20	1.76	2.46	
			13.5	20	29	43	64	78	124	159	234	326	
57	25	Output power kW	JPM11	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30	JPM30	
		torque Nm	0.09	0.14	0.20	0.29	0.44	0.61	0.87	1.24	1.67	2.32	
			15.4	23	33	49	73	103	146	208	280	388	
48	30	Output power kW	JPM11	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30		
		torque Nm	0.09	0.14	0.20	0.29	0.43	0.61	0.89	1.23	1.8		
			17.9	27	39	58	86	121	177	244	358		
36	40	Output power kW	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30			
		torque Nm	0.08	0.13	0.18	0.28	0.42	0.58	0.86	1.16			
			22	35	49	73	112	153	227	307			
28	50	Output power kW	JPM11	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30				
		torque Nm	0.06	0.12	0.17	0.26	0.39	0.54	0.81				
			22	42	59	90	134	185	275				
24	60	Output power kW	JPM11	JPM17	JPM17	JPM22	JPM26	JPM26	JPM30				
		torque Nm	0.05	0.12	0.17	0.26	0.37	0.51	0.72				
			20	48	67	102	147	201	288				
20	70	Output power kW	JPM11	JPM17	JPM22	JPM22	JPM26	JPM30					
		torque Nm	0.03	0.13	0.16	0.24	0.36	0.50					
			16.6	53	77	114	174	239					

!
IMPORTANT
Units to ATEX approval must be selected with a minimum drive classification of 2

Actual output speeds depend upon the full load speed of the motor and the exact gear ratio, and may differ from the nominal speeds listed.

Geared Motor Units-Drive Classification 2

Nominal Output Speed		Nominal gear ratio :1	Motor Power-kW										
revs/min			0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3.0	4.0
288	5	Size Output power kW torque Nm	JPM11 0.11 3.8	JPM11 0.17 5.7	JPM11 0.24 7.9	JPM11 0.35 11.6	JPM17 0.53 17.5	JPM17 0.72 24	JPM17 1.06 35	JPM22 1.36 45	JPM22 2.02 67	JPM22 2.74 91	JPM26 3.89 129
192	7.5	Size Output power kW torque Nm	JPM11 0.10 5.2	JPM11 0.16 7.9	JPM11 0.22 10.9	JPM11 0.33 16.2	JPM17 0.48 24	JPM17 0.66 33	JPM17 0.99 49	JPM22 1.35 67	JPM22 1.97 98	JPM26 2.69 134	JPM30 3.62 180
144	10	Size Output power kW torque Nm	JPM11 0.10 6.8	JPM11 0.16 10.3	JPM11 0.22 14.3	JPM17 0.32 21	JPM17 0.48 32	JPM17 0.66 44	JPM22 0.98 65	JPM22 1.33 88	JPM26 1.96 130	JPM30 2.70 179	
115	12.5	Size Output power kW torque Nm	JPM11 0.10 8.6	JPM11 0.16 12.9	JPM11 0.22 17.9	JPM17 0.33 27	JPM17 0.48 40	JPM17 0.66 55	JPM22 0.99 82	JPM22 1.34 111	JPM26 1.97 164	JPM30 2.70 224	
96	15	Size Output power kW torque Nm	JPM11 0.11 10.5	JPM11 0.16 15.7	JPM11 0.22 22	JPM17 0.33 33	JPM17 0.49 49	JPM17 0.67 67	JPM22 0.94 94	JPM22 1.29 128	JPM30 2.03 202	JPM30 2.77 276	
72	20	Size Output power kW torque Nm	JPM11 0.10 13.5	JPM11 0.15 20	JPM17 0.22 29	JPM17 0.32 43	JPM17 0.48 64	JPM22 0.63 84	JPM22 0.98 130	JPM26 1.33 177	JPM30 1.98 262		
57	25	Size Output power kW torque Nm	JPM11 0.09 15.4	JPM11 0.14 23	JPM17 0.20 33	JPM17 0.29 48	JPM22 0.45 76	JPM22 0.61 103	JPM26 0.91 153	JPM30 1.14 191	JPM30 1.83 307		
48	30	Size Output power kW torque Nm	JPM11 0.09 17.9	JPM17 0.14 28	JPM17 0.20 39	JPM17 0.33 66	JPM22 0.44 88	JPM22 0.61 121	JPM26 0.89 178	JPM30 1.23 244	JPM30 1.80 358		
36	40	Size Output power kW torque Nm	JPM17 0.09 23	JPM17 0.13 35	JPM17 0.18 49	JPM22 0.28 75	JPM22 0.42 112	JPM26 0.58 155	JPM30 0.85 225				
28	50	Size Output power kW torque Nm	JPM17 0.08 28	JPM17 0.12 42	JPM17 0.17 59	JPM22 0.26 90	JPM26 0.40 136	JPM26 0.54 185	JPM30 0.81 275				
24	60	Size Output power kW torque Nm	JPM17 0.08 32	JPM17 0.12 48	JPM22 0.17 69	JPM22 0.26 102	JPM26 0.39 155	JPM30 0.55 217					
20	70	Size Output power kW torque Nm	JPM17 0.08 36	JPM22 0.12 55	JPM22 0.16 77	JPM26 0.25 117	JPM30 0.37 175						

!
IMPORTANT
Units to ATEX approval must be selected with a minimum drive classification of 2

Geared Motor Units - Drive Classification 3


Nominal Output Speed revs/min	Nominal gear ratio :1	Size	Motor Power-kW										
			0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3.0	4.0
288	5	Output power kW	JPM11	JPM11	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM22	JPM22	JPM30
		torque Nm	0.11	0.17	0.24	0.36	0.53	0.72	1.00	1.36	2.02	2.71	3.89
			3.8	5.7	7.9	12.0	17.5	24	33	45	67	90	129
192	7.5	Output power kW	JPM11	JPM11	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30	JPM30
		torque Nm	0.10	0.16	0.22	0.32	0.48	0.66	0.99	1.35	1.97	2.71	3.62
			5.2	7.9	10.9	16.0	24	33	49	67	98	135	180
144	10	Output power kW	JPM11	JPM11	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30	
		torque Nm	0.10	0.16	0.22	0.32	0.48	0.66	0.98	1.33	1.96	2.70	
			6.8	10.3	14.3	21	32	44	65	88	130	179	
115	12.5	Output power kW	JPM11	JPM11	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30	
		torque Nm	0.10	0.16	0.22	0.33	0.48	0.66	0.99	1.34	1.97	2.70	
			8.6	12.9	17.9	27	40	55	82	111	164	224	
96	15	Output power kW	JPM11	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30		
		torque Nm	0.11	0.16	0.22	0.33	0.49	0.64	0.94	1.39	2.03		
			10.5	15.7	22	33	49	64	94	138	202		
72	20	Output power kW	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30			
		torque Nm	0.10	0.16	0.22	0.32	0.47	0.63	0.98	1.35			
			13.5	21	29	43	62	84	130	179			
57	25	Output power kW	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30			
		torque Nm	0.09	0.14	0.20	0.29	0.45	0.61	0.91	1.25			
			15.4	23	33	49	76	103	153	209			
48	30	Output power kW	JPM11	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30			
		torque Nm	0.09	0.14	0.20	0.29	0.44	0.61	0.90	1.23			
			17.9	28	39	58	88	121	179	244			
36	40	Output power kW	JPM17	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30				
		torque Nm	0.09	0.13	0.18	0.28	0.42	0.58	0.85				
			23	35	49	75	112	155	225				
28	50	Output power kW	JPM17	JPM17	JPM22	JPM22	JPM26	JPM30					
		torque Nm	0.08	0.12	0.18	0.26	0.40	0.55					
			28	42	61	90	136	188					
24	60	Output power kW	JPM17	JPM17	JPM22	JPM26	JPM30						
		torque Nm	0.08	0.12	0.17	0.26	0.40						
			32	48	69	104	159						
20	70	Output power kW	JPM17	JPM22	JPM22	JPM26	JPM30						
		torque Nm	0.08	0.12	0.16	0.25	0.37						
			36	55	77	117	175						

!
IMPORTANT
Units to ATEX approval must be selected with a minimum drive classification of 2

Actual output speeds depend upon the full load speed of the motor and the exact gear ratio, and may differ from the nominal speeds listed.

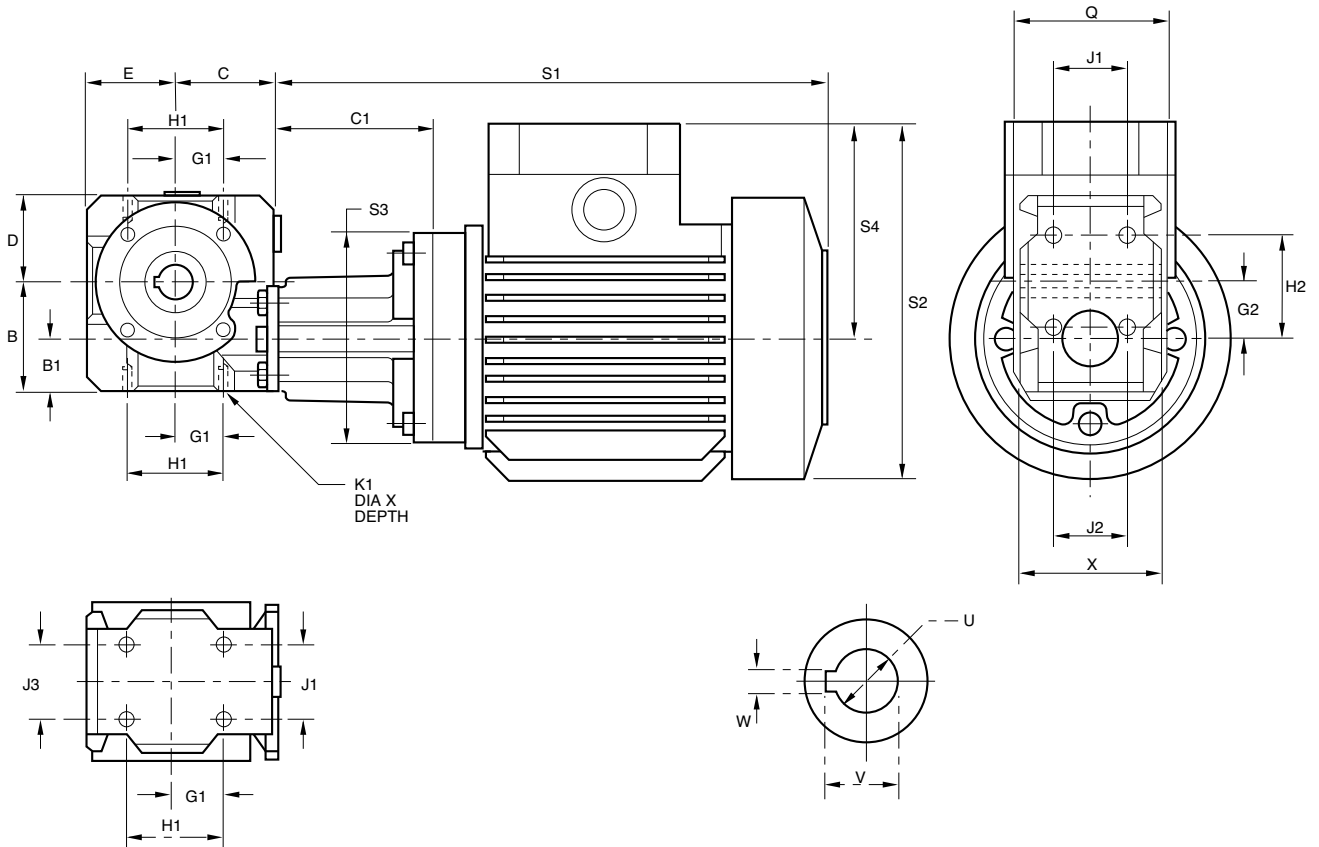
Geared Motor Units-Drive Classification 4

Nominal Output Speed		Nominal gear ratio :1	Motor Power-kW										
revs/min			0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3.0	4.0
288	5	Size Output power kW torque Nm	JPM11 0.11 3.8	JPM11 0.17 5.7	JPM11 0.24 7.9	JPM17 0.36 12.0	JPM17 0.53 17.5	JPM17 0.72 24	JPM22 1.00 33	JPM22 1.36 45	JPM22 2.02 67	JPM26 2.93 97	JPM30 3.89 129
192	7.5	Size Output power kW torque Nm	JPM11 0.10 5.2	JPM11 0.16 7.9	JPM11 0.22 10.9	JPM17 0.32 16	JPM17 0.48 24	JPM17 0.66 33	JPM22 0.99 49	JPM26 1.35 67	JPM26 1.97 98	JPM30 2.71 135	
144	10	Size Output power kW torque Nm	JPM11 0.10 6.8	JPM11 0.16 10.3	JPM17 0.21 14.0	JPM17 0.33 22	JPM17 0.48 32	JPM22 0.66 44	JPM22 0.98 65	JPM26 1.34 89	JPM30 1.98 131		
115	12.5	Size Output power kW torque Nm	JPM11 0.10 8.6	JPM11 0.16 12.9	JPM17 0.22 18.0	JPM17 0.33 27	JPM17 0.48 40	JPM22 0.67 56	JPM22 0.99 82	JPM26 1.35 112	JPM30 1.97 164		
96	15	Size Output power kW torque Nm	JPM11 0.11 10.5	JPM17 0.16 16.0	JPM17 0.22 22	JPM17 0.33 33	JPM22 0.47 47	JPM22 0.64 64	JPM26 0.99 98	JPM26 1.39 138			
72	20	Size Output power kW torque Nm	JPM17 0.10 14.0	JPM17 0.16 21	JPM17 0.22 29	JPM17 0.32 43	JPM22 0.47 62	JPM22 0.63 84	JPM26 0.98 130	JPM30 1.35 179			
57	25	Size Output power kW torque Nm	JPM17 0.10 16.0	JPM17 0.14 23	JPM17 0.20 33	JPM22 0.30 51	JPM22 0.45 76	JPM26 0.62 104	JPM30 0.92 154	JPM30 1.25 209			
48	30	Size Output power kW torque Nm	JPM17 0.10 19.0	JPM17 0.14 28	JPM17 0.20 39	JPM22 0.30 59	JPM22 0.44 88	JPM26 0.58 115	JPM30 0.90 179				
36	40	Size Output power kW torque Nm	JPM17 0.09 23	JPM17 0.13 35	JPM22 0.19 51	JPM22 0.28 75	JPM26 0.43 114	JPM30 0.58 154					
28	50	Size Output power kW torque Nm	JPM17 0.08 28	JPM22 0.13 44	JPM22 0.18 61	JPM26 0.27 91	JPM30 0.40 137						
24	60	Size Output power kW torque Nm	JPM17 0.08 32	JPM22 0.13 50	JPM22 0.17 69	JPM26 0.26 104	JPM30 0.40 159						
20	70	Size Output power kW torque Nm	JPM22 0.08 37	JPM22 0.12 55	JPM26 0.17 79	JPM30 0.25 118							


IMPORTANT
Units to ATEX approval must be selected with a minimum drive classification of 2

Actual output speeds depend upon the full load speed of the motor and the exact gear ratio, and may differ from the nominal speeds listed.

jPM11 Geared Motor Unit - Dimensions (mm)

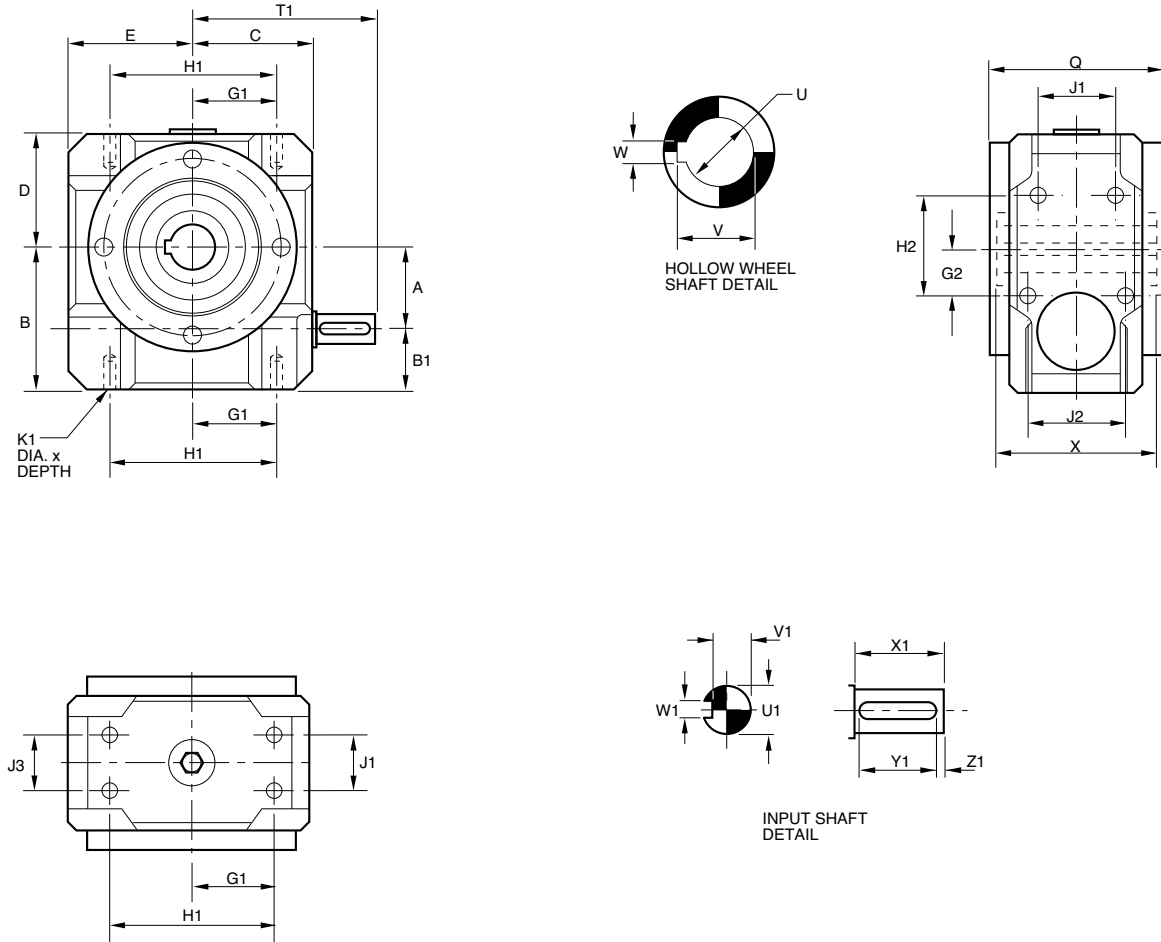


B	B1	C	D	E
55	26.43	52	42	42

G1	H1	K1	Q	J1	G2	H2	J2	X	J3	U	V	W
22.5	45	M6x11	78	37	22.5	45	37	72	37	16.016 16.034	18.4 18.3	5.015 4.985

C1	S1	S2	S3	S4
79	276	140	105	106

jPM Speed Reducers - Dimensions (mm)

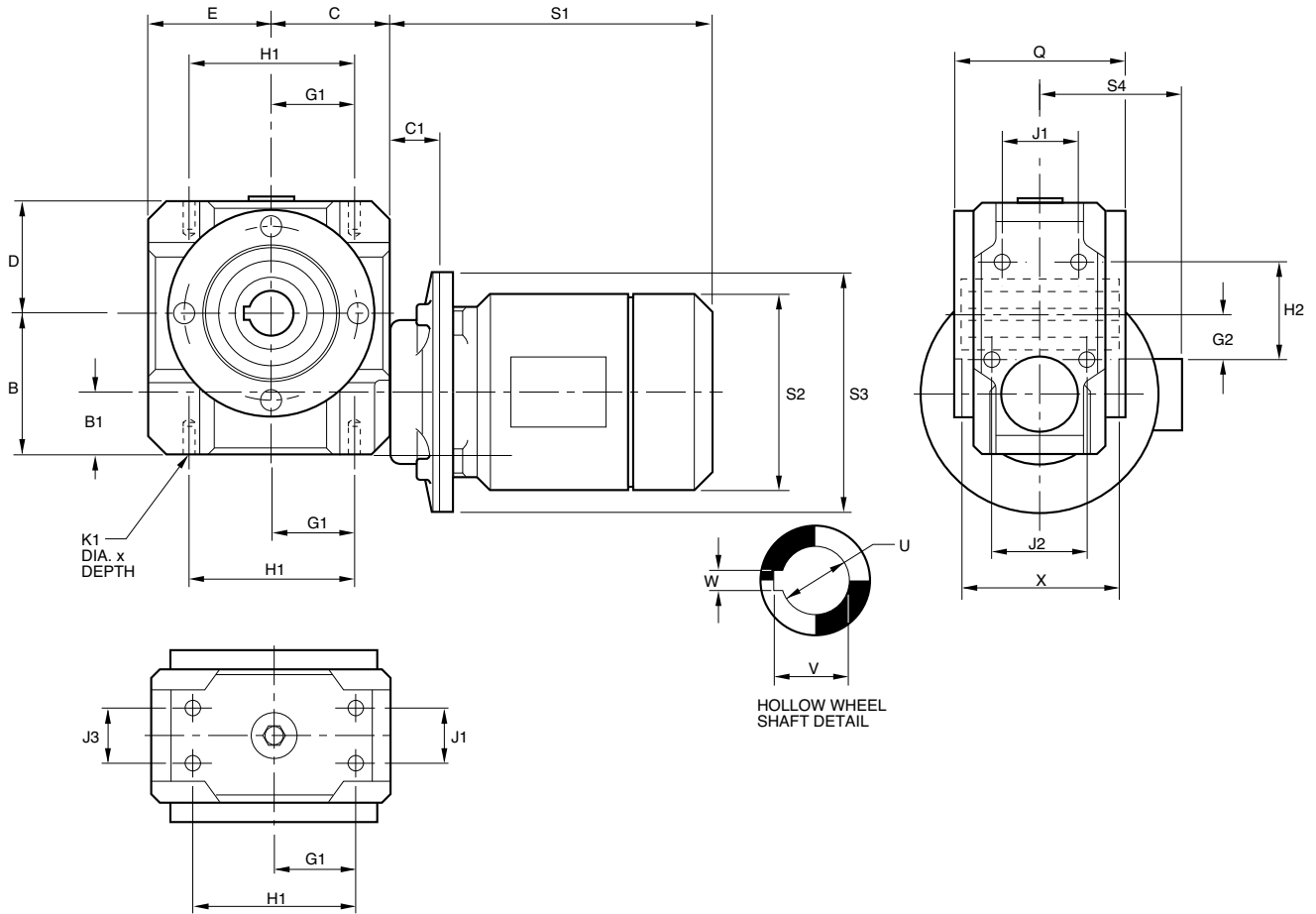


SHAFT MOUNTING

Unit Ref.	A	B	B1	C	D	E	Q	G1	H1	J1	K1	G2	H2
JPM11	28.57	55	26.43	52	42	42	78	22.5	45	37	M6x11	22.5	45
JPM17	44.45	85	40.55	78	60	67	98	45.5	69.5	43	M10x17	24	69.5
JPM22	57.15	105	47.85	90	80	90	126	57.5	115	45	M10x17	33	90.5
JPM26	66.67	117	50.33	97	92	102	140	43.5	87	72	M12x20	43.5	87
JPM30	76.2	135	58.8	105	100	120	156	51	102	85	M12x22	51	102

Unit Ref.	J2	J3	T1	U1	V1	W1	X1	Y1	Z1	U	V	W	X
JPM11	37	37	84	12.008 11.997	9.5 9.4	3.988 3.958	30	25	2.5	16.016 16.034	18.4 18.3	5.015 4.985	72
JPM17	57	57	120	16.009 15.996	13.0 12.9	4.988 4.958	40	36	2	24.020 24.041	27.5 27.3	8.018 7.982	92
JPM22	55	45	132	19.009 18.996	15.5 15.4	5.988 5.958	40	36	2	30.020 30.041	33.5 33.3	8.018 7.982	118
JPM26	72	72	149	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5	38.025 38.050	41.5 41.3	10.018 9.982	132
JPM30	85	85	157	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5	45.025 45.050	49.0 48.8	14.021 13.979	148

jPM Geared Motors - Dimensions (mm)



SHAFT MOUNTING

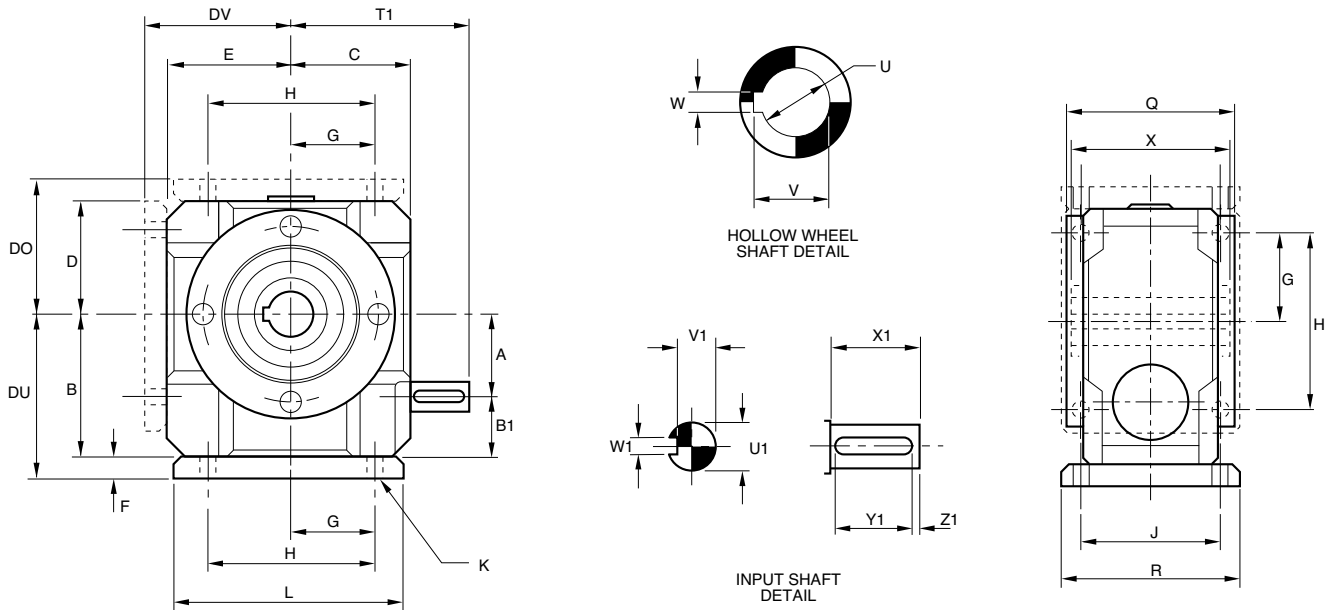
Unit Ref.	DIM	D71M	D80M	D90S	D90L	D100L	D112M
JPM17	C1	34	44	44	44	54	54
	S1*	231	269	277	302	344	377
JPM22	S2*	140	157	180	180	200	211
JPM26	S3* D Flange	160	200	200	200	250	250
JPM30	S3* C Face	105	120	140	140	160	160
	S4*	106	113	120	120	136	146

Unit Ref.	B	B1	C	D	E
JPM11	SEE PAGE 19				
JPM17	85	40.55	78	60	67
JPM22	105	47.85	90	80	90
JPM26	117	50.33	97	92	102
JPM30	135	58.8	105	100	120

*jPM11 MOTOR DIMENSIONS SEE PAGE 27

Unit Ref.	G1	H1	K1	Q	J1	G2	H2	J2	X	J3	U	V	W
JPM11	SEE PAGE 19												
JPM17	45.5	69.5	M10x17	98	43	24	69.5	57	92	57	24.020 24.041	27.5 27.3	8.018 7.982
JPM22	57.5	115	M10x17	126	45	33	90.5	55	118	45	30.020 30.041	33.5 33.3	8.018 7.982
JPM26	43.5	87	M12x20	140	72	43.5	87	72	132	72	38.025 38.050	41.5 41.3	10.018 9.982
JPM30	51	102	M12x22	156	85	51	102	85	148	85	45.025 45.050	49.0 48.8	14.021 13.979

jPM Speed Reducers - Dimensions (mm)



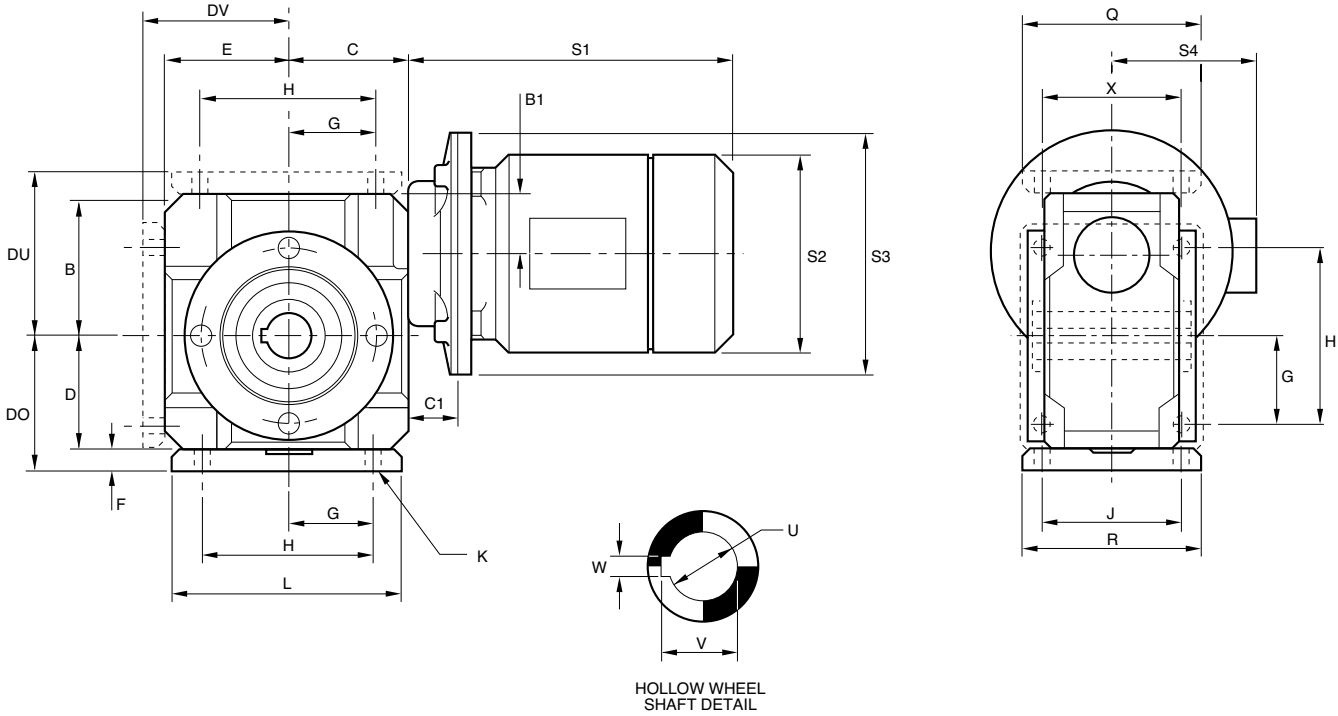
FOOT MOUNTING-TYPE 2

Unit Ref.	A	B	B1	C	D	E	Q	DO	DU	DV	F	G	H
JPM11	28.57	55	26.43	52	42	42	78	50	63	50	8	35	70
JPM17	44.45	85	40.55	78	60	67	98	73	98	80	13	47.5	95
JPM22	57.15	105	47.85	90	80	90	126	95	120	105	15	57.5	115
JPM26	66.67	117	50.33	97	92	102	140	110	135	120	18	72.5	145
JPM30	76.2	135	58.8	105	100	120	156	120	155	140	20	80	160

Unit Ref.	J	K	L	R	U	V	W	X
JPM11	75	7	84	89	16.016 16.034	18.4 18.3	5.015 4.985	72
JPM17	95	12	128	125	24.020 24.041	27.5 27.3	8.018 7.982	92
JPM22	100	12	160	135	30.020 30.041	33.5 33.3	8.018 7.982	118
JPM26	115	14.5	184	150	38.025 38.050	41.5 41.3	10.018 9.982	132
JPM30	130	14.5	195	165	45.025 45.050	49.0 48.8	14.021 13.979	148

Unit Ref.	T1	U1	V1	W1	X1	Y1	Z1
JPM11	84	12.008 11.997	9.5 9.4	3.988 3.958	30	25	2.5
JPM17	120	16.009 15.996	13.0 12.9	4.988 4.958	40	36	2
JPM22	132	19.009 18.996	15.5 15.4	5.988 5.958	40	36	2
JPM26	149	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5
JPM30	157	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5

jPM Geared Motors - Dimensions (mm)



FOOT MOUNTING-TYPE 2

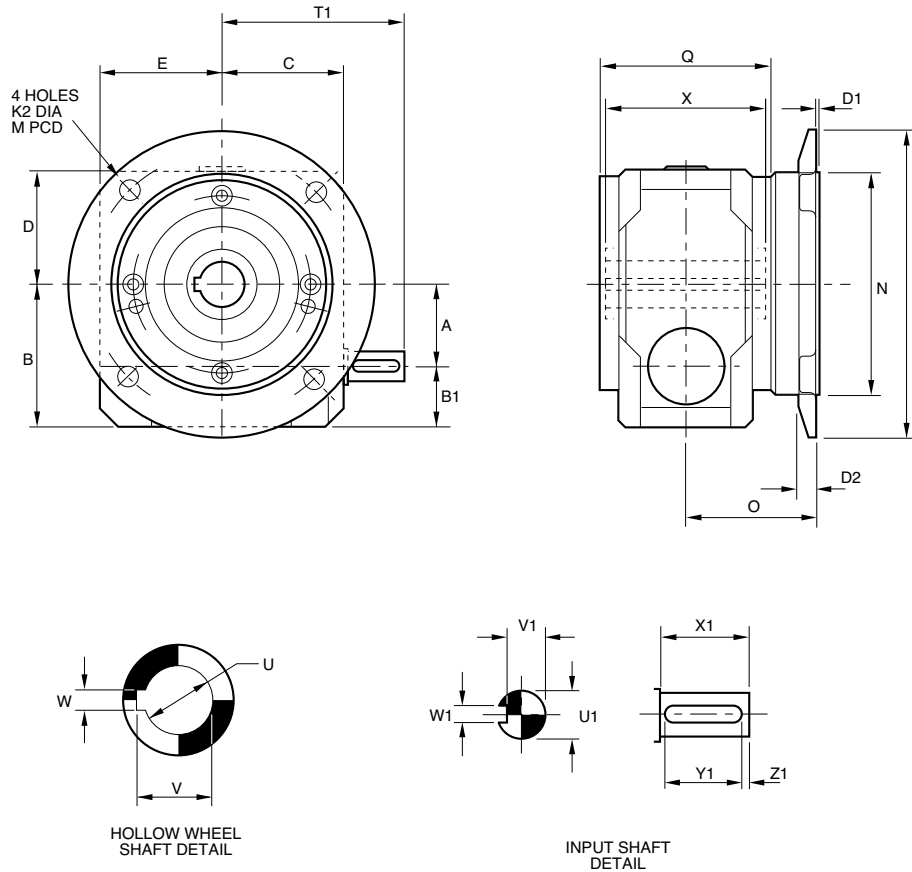
Unit Ref.	DIM	D71M	D80M	D90S	D90L	D100L	D112M
JPM17	C1	34	44	44	44	54	54
	S1*	231	269	277	302	344	377
JPM22	S2*	140	157	180	180	200	211
JPM26	S3* D Flange	160	200	200	200	250	250
JPM30	S3* C Face	105	120	140	140	160	160
	S4*	106	113	120	120	136	146

Unit Ref.	K	L	R	U	V	W	X
JPM11	7	84	89	16.016 16.034	18.4 18.3	5.015 4.985	72
JPM17	12	128	125	24.020 24.041	27.5 27.3	8.018 7.982	92
JPM22	12	160	135	30.020 30.041	33.5 33.3	8.018 7.982	118
JPM26	14.5	184	150	38.025 38.050	41.5 41.3	10.018 9.982	132
JPM30	14.5	195	165	45.025 45.050	49.0 48.8	14.021 13.979	148

*JPM11 MOTOR DIMENSIONS SEE PAGE 27

Unit Ref.	B	B1	C	D	E	Q	DO	DU	DV	F	G	H	J
JPM11	55	26.43	52	42	42	78	50	63	50	8	35	70	75
JPM17	85	40.55	78	60	67	98	73	98	80	13	47.5	95	95
JPM22	105	47.85	90	80	90	126	95	120	105	15	57.5	115	100
JPM26	117	50.33	97	92	102	140	110	135	120	18	72.5	145	115
JPM30	135	58.8	105	100	120	156	120	155	140	20	80	160	130

jPM Speed Reducers - Dimensions (mm)

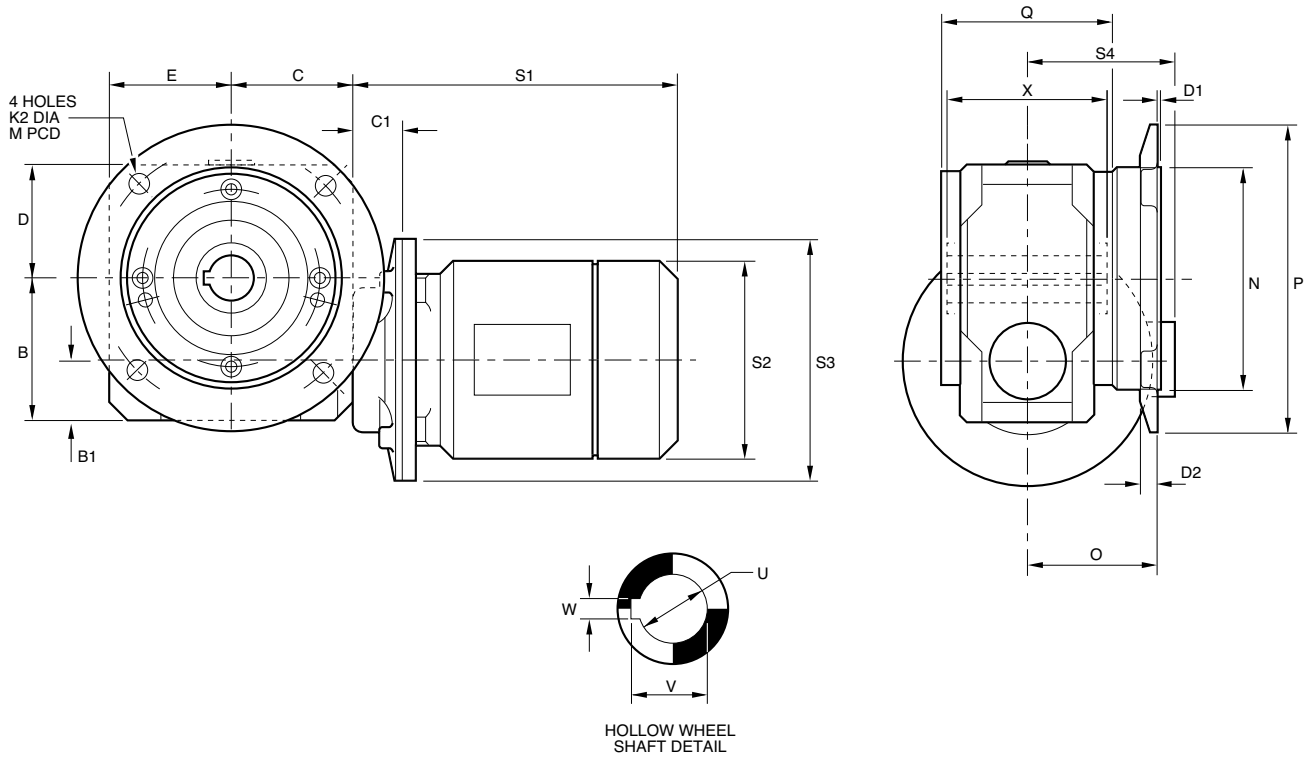


FLANGE MOUNTING-HOLLOW OUTPUT SHAFT

Unit Ref.	A	B	B1	C	D	E	Q	D1	D2	K2	M	N	O
JPM11	28.57	55	26.43	52	42	42	78	3	7	10.0	115	95.000 94.946	60
JPM17	44.45	85	40.55	78	60	67	98	3.5	11	10.0	130	110.000 109.946	85
JPM22	57.15	105	47.85	90	80	90	126	3.5	12	12.0	165	130.000 129.937	105
JPM26	66.67	117	50.33	97	92	102	140	4	12	14.5	215	180.000 179.937	105
JPM30	76.2	135	58.8	105	100	120	156	4	12	14.5	215	180.000 179.937	130

Unit Ref.	P	T1	U1	V1	W1	X1	Y1	Z1	U	V	W	X
JPM11	140	84	12.008 11.997	9.5 9.4	3.988 3.958	30	25	2.5	16.016 16.034	18.4 18.3	5.015 4.985	72
JPM17	160	120	16.009 15.996	13.0 12.9	4.988 4.958	40	36	2	24.020 24.041	27.5 27.3	8.018 7.982	92
JPM22	200	132	19.009 18.996	15.5 15.4	5.988 5.958	40	36	2	30.020 30.041	33.5 33.3	8.018 7.982	118
JPM26	250	149	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5	38.025 38.050	41.5 41.3	10.018 9.982	132
JPM30	250	157	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5	45.025 45.050	49.0 48.8	14.021 13.979	148

jPM Geared Motors - Dimensions (mm)



FLANGE MOUNTING-HOLLOW OUTPUT SHAFT

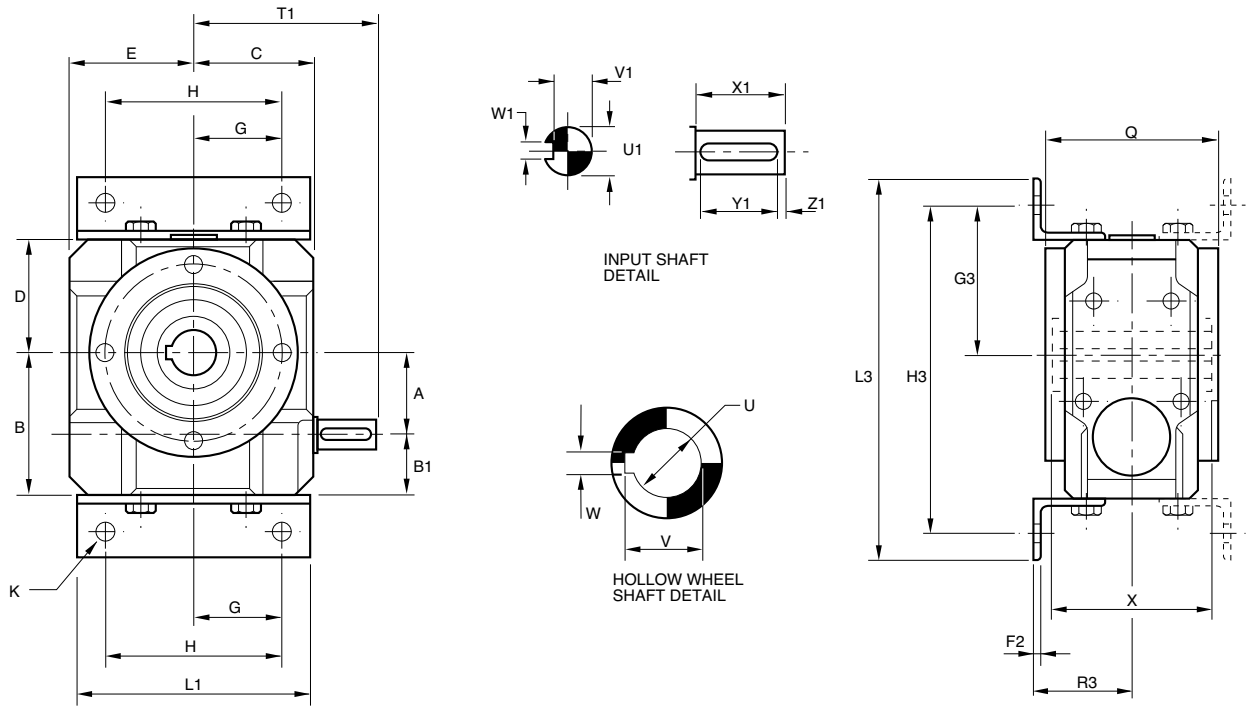
Unit Ref.	DIM	D71M	D80M	D90S	D90L	D100L	D112M
JPM17	C1	34	44	44	44	54	54
	S1*	231	269	277	302	344	377
JPM22	S2*	140	157	180	180	200	211
JPM26	S3* D Flange	160	200	200	200	250	250
JPM30	S3* C Face	105	120	140	140	160	160
	S4*	106	113	120	120	136	146

Unit Ref.	U	V	W	X
JPM11	16.016	18.4	5.015	72
	16.034	18.3	4.985	
JPM17	24.020	27.5	8.018	92
	24.041	27.3	7.982	
JPM22	30.020	33.5	8.018	118
	30.041	33.3	7.982	
JPM26	38.025	41.5	10.018	132
	38.050	41.3	9.982	
JPM30	45.025	49.0	14.021	148
	45.050	48.0	13.979	

*JPM11 MOTOR DIMENSIONS SEE PAGE 27

Unit Ref.	B	B1	C	D	E	Q	D1	D2	K2	M	N	O	P
JPM11	55	26.43	52	42	42	78	3	7	10.0	115	95.000 94.946	60	140
JPM17	85	40.55	78	60	67	98	3.5	11	10.0	130	110.000 109.946	85	160
JPM22	105	47.85	90	80	90	126	3.5	12	12.0	165	130.000 129.937	105	200
JPM26	117	50.33	97	92	102	140	4	12	14.5	215	180.000 179.937	105	250
JPM30	135	58.80	105	100	120	156	4	12	14.5	215	180.000 179.937	130	250

jPM Speed Reducers - Dimensions (mm)



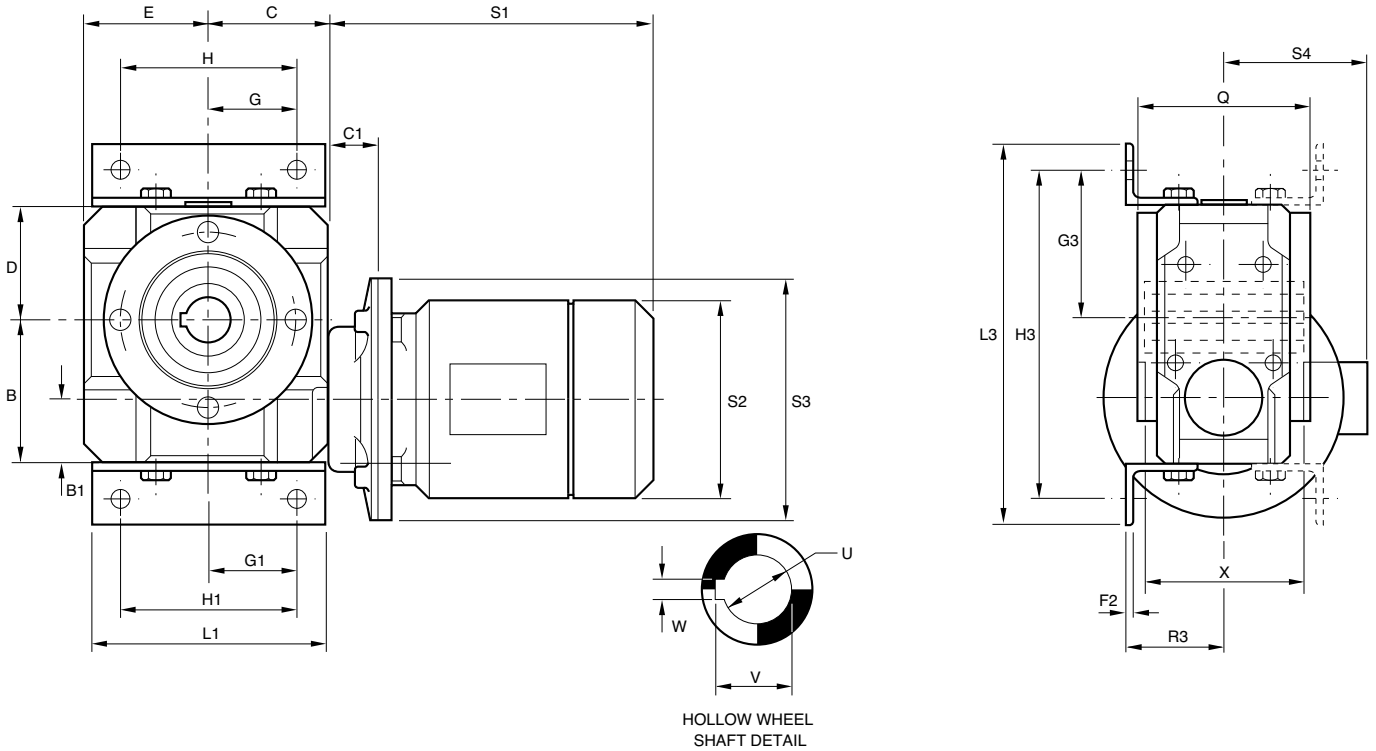
FOOT MOUNTING-TYPE 4

Unit Ref.	A	B	B1	C	D	E	Q	F2	G	H	L1	K	G3
JPM11	28.57	55	26.43	52	42	42	78	3	35	70	84	7	60
JPM17	44.45	85	40.55	78	60	67	98	5	47.5	95	130	12	84
JPM22	57.15	105	47.85	90	80	90	126	6	57.5	115	160	12	110
JPM26	66.67	117	50.33	97	92	102	140	6	72.5	145	190	14.5	122
JPM30	76.2	135	58.8	105	100	120	156	6	80	160	200	14.5	135

Unit Ref.	H3	L3	R3	T1	U1	V1	W1	X1	Y1	Z1
JPM11	133	157	41	84	12.008 11.997	9.5 9.4	3.988 3.958	30	25	2.5
JPM17	193	225	51	120	16.009 15.996	13.0 12.9	4.988 4.958	40	36	2
JPM22	245	285	65	132	19.009 18.996	15.5 15.4	5.988 5.958	40	36	2
JPM26	269	309	72	149	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5
JPM30	305	355	80	157	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5

Unit Ref.	U	V	W	X
JPM11	16.016 16.034	18.4 18.3	5.015 4.985	72
JPM17	24.020 24.041	27.5 27.3	8.018 7.982	92
JPM22	30.020 30.041	33.5 33.3	8.018 7.982	118
JPM26	38.025 38.050	41.5 41.3	10.018 9.982	132
JPM30	45.025 45.050	49.0 48.8	14.021 13.979	148

jPM Geared Motors - Dimensions (mm)



FOOT MOUNTING-TYPE 4

Unit Ref.	DIM	D71M	D80M	D90S	D90L	D100L	D112M
JPM17	C1	34	44	44	44	54	54
	S1*	231	269	277	302	344	377
JPM22	S2*	140	157	180	180	200	211
JPM26	S3* D Flange	160	200	200	200	250	250
JPM30	S3* C Face	105	120	140	140	160	160
	S4*	106	113	120	120	136	146

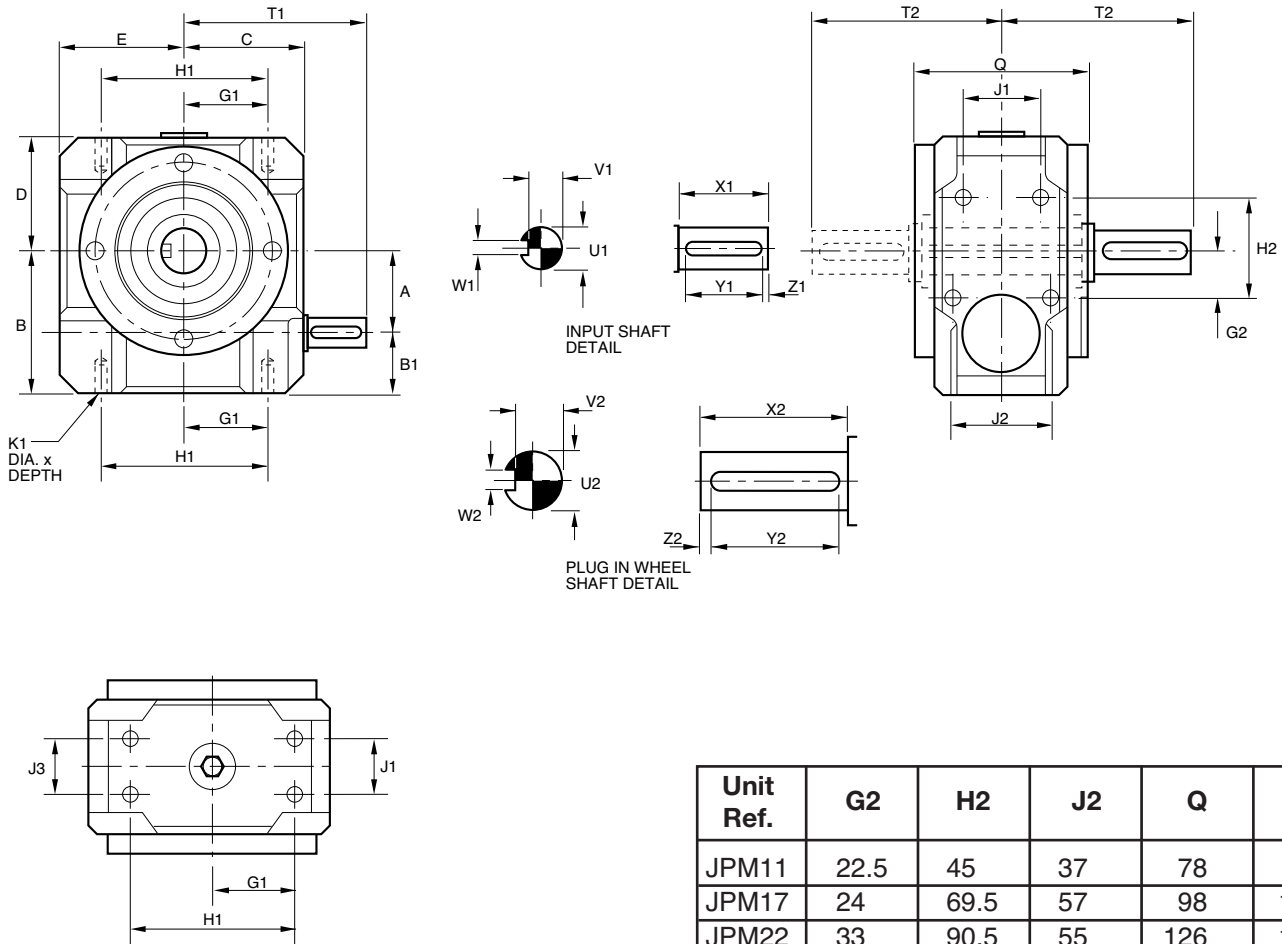
Unit Ref.	H3	L3	R3	U	V	W	X
JPM11	133	157	41	16.016 16.034	18.4 18.3	5.015 4.985	72
JPM17	193	225	51	24.020 24.041	27.5 27.3	8.018 7.982	92
JPM22	245	285	65	30.020 30.041	33.5 33.3	8.018 7.982	118
JPM26	269	309	72	38.025 38.050	41.5 41.3	10.018 9.982	132
JPM30	305	355	80	45.025 45.050	49.0 48.8	14.021 13.979	148

*jPM11 MOTOR DIMENSIONS SEE PAGE 27

Unit Ref.	B	B1	C	D	E	Q	F2	G	H	L1	K	G3
JPM11	55	26.43	52	42	42	78	3	35	70	84	7	60
JPM17	85	40.55	78	60	67	98	5	47.5	95	130	12	84
JPM22	105	47.85	90	80	90	126	6	57.5	115	160	12	110
JPM26	117	50.33	97	92	102	140	6	72.5	145	190	14.5	122
JPM30	135	58.8	105	100	120	156	6	80	160	200	14.5	135

jPM Speed Reducers - Dimensions (mm)

PLUG-IN AND SOLID OUTPUT SHAFTS AVAILABLE



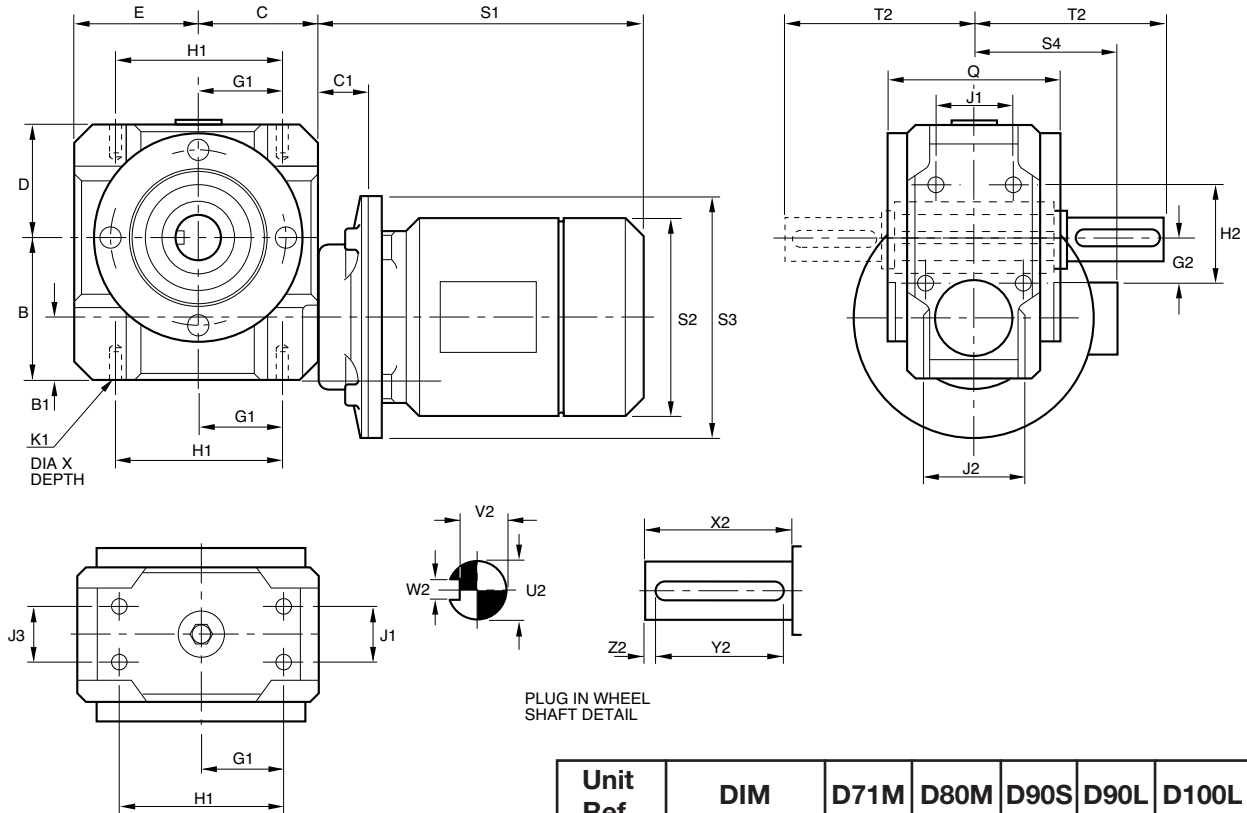
Unit Ref.	G2	H2	J2	Q	T2
JPM11	22.5	45	37	78	80
JPM17	24	69.5	57	98	100
JPM22	33	90.5	55	126	125
JPM26	43.5	87	72	140	155
JPM30	51	102	85	156	195

Unit Ref.	A	B	B1	C	D	E	G1	H1	J1	J3	K1	T1
JPM11	28.57	55	26.43	52	42	42	22.5	45	37	37	M6x11	84
JPM17	44.45	85	40.55	78	60	67	45.5	69.5	43	57	M10x17	120
JPM22	57.15	105	47.85	90	80	90	57.5	115	45	45	M10x17	132
JPM26	66.67	117	50.33	97	92	102	43.5	87	72	72	M12x20	149
JPM30	76.2	135	58.8	105	100	120	51	102	85	85	M12x22	157

Unit Ref.	U1	V1	W1	X1	Y1	Z1	U2	V2	W2	X2	Y2	Z2
JPM11	12.008 11.997	9.5 9.4	3.988 3.958	30	25	2.5	16.008 15.997	13.0 12.9	4.988 4.958	40	36	2
JPM17	16.008 15.997	13.0 12.9	4.988 4.958	40	36	2	22.009 21.996	18.5 18.4	5.988 5.958	50	45	3
JPM22	19.009 18.996	15.5 15.4	5.988 5.958	40	36	2	28.009 27.996	24.0 23.8	7.985 7.949	60	50	5
JPM26	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5	32.018 32.002	27.0 26.8	9.985 9.949	80	70	5
JPM30	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5	40.018 40.002	35.0 34.8	11.982 11.939	110	100	5

jPM Geared Motors - Dimensions (mm)

PLUG-IN AND SOLID OUTPUT SHAFTS AVAILABLE



PLUG IN WHEEL
SHAFT DETAIL

Unit Ref.	DIM	D71M	D80M	D90S	D90L	D100L	D112M
JPM17	C1	34	44	44	44	54	54
JPM22	S1*	231	269	277	302	344	377
JPM26	S2*	140	157	180	180	200	211
JPM30	S3* D Flange	160	200	200	200	250	250
	S3* C Face	105	120	140	140	160	160
	S4*	106	113	120	120	136	146

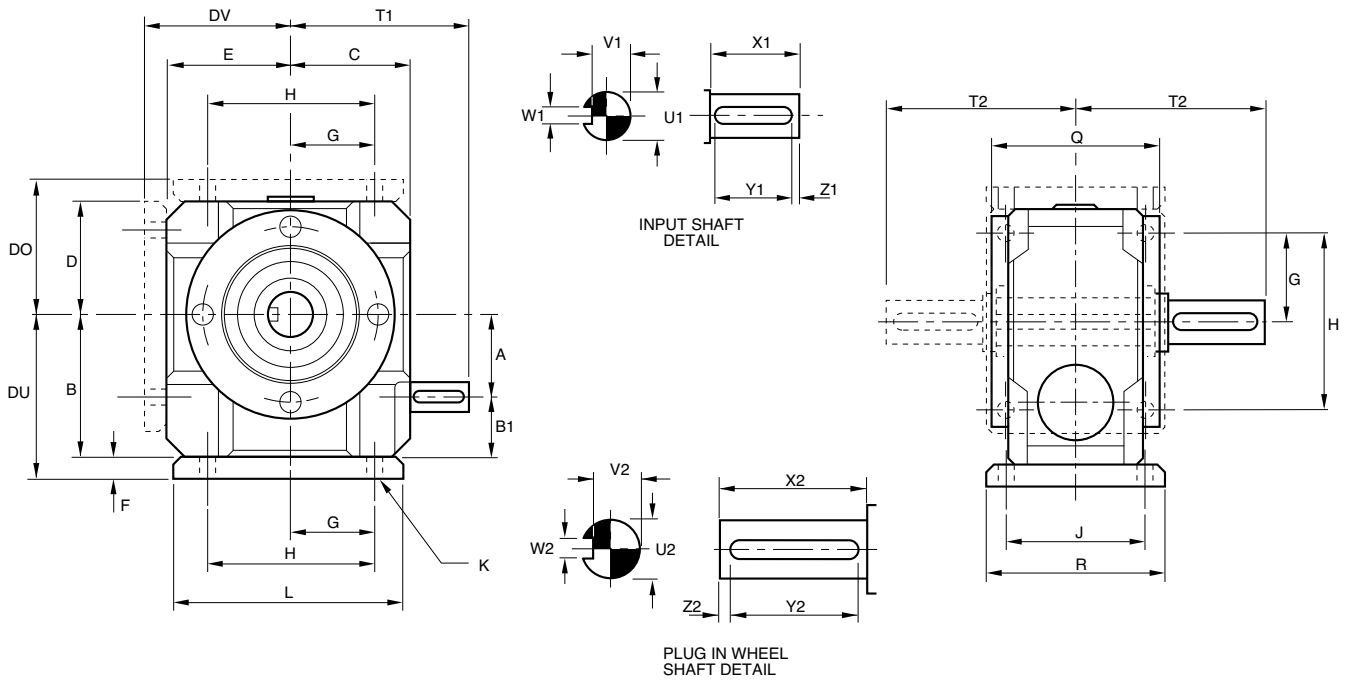
*JPM11 MOTOR DIMENSIONS SEE PAGE 27

Unit Ref.	B	B1	C	D	E	G1	H1	J3
JPM11	55	26.43	52	42	42	22.5	45	37
JPM17	85	40.55	78	60	67	45.5	69.5	57
JPM22	105	47.85	90	80	90	57.5	115	45
JPM26	117	50.33	97	92	102	43.5	87	72
JPM30	135	58.8	105	100	120	51	102	85

Unit Ref.	K1	U2	V2	W2	X2	Y2	Z2	G2	H2	J1	J2	Q	T2
JPM11	M6x11	16.008 15.997	13.0 12.9	4.988 4.958	40	36	2	22.5	45	37	37	78	80
JPM17	M10x17	22.009 21.996	18.5 18.4	5.988 5.958	50	45	3	24	69.5	43	57	98	100
JPM22	M10x17	28.009 27.996	24.0 23.8	7.985 7.949	60	50	5	33	90.5	45	55	126	125
JPM26	M12x20	32.018 32.002	27.0 26.8	9.985 9.949	80	70	5	43.5	87	72	72	140	155
JPM30	M12x22	40.018 40.002	35.0 34.8	11.982 11.939	110	100	5	51	102	85	85	156	195

jPM Speed Reducers - Dimensions (mm)

PLUG-IN AND SOLID OUTPUT SHAFTS AVAILABLE



FOOT MOUNTING-TYPE 2

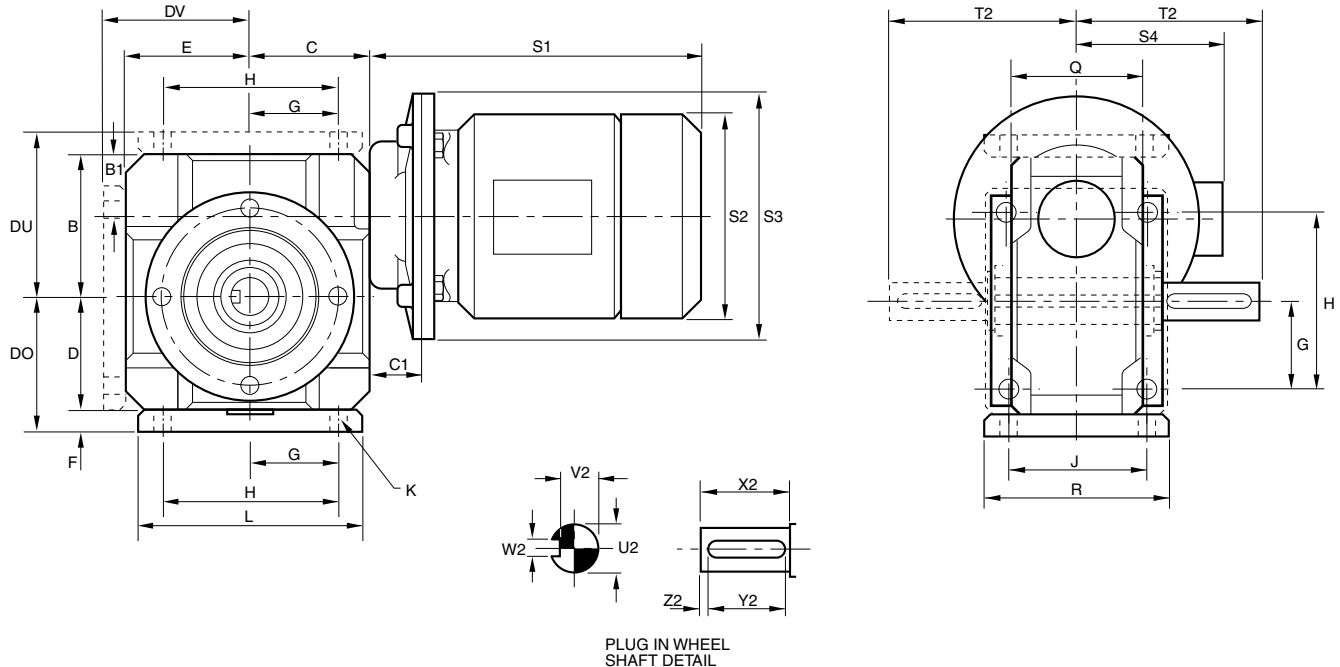
Unit Ref.	A	B	B1	C	D	E	Q	DO	DU	DV	F	G	H
JPM11	28.57	55	26.43	52	42	42	78	50	63	50	8	35	70
JPM17	44.45	85	40.55	78	60	67	98	73	98	80	13	47.5	95
JPM22	57.15	105	47.85	90	80	90	126	95	120	105	15	57.5	115
JPM26	66.67	117	50.33	97	92	102	140	110	135	120	18	72.5	145
JPM30	76.2	135	58.8	105	100	120	156	120	155	140	20	80	160

Unit Ref.	J	K	L	R	T1	U1	V1	W1	X1	Y1	Z1
JPM11	75	7	84	89	84	12.008 11.997	9.5 9.4	3.988 3.958	30	25	2.5
JPM17	95	12	128	125	120	16.009 15.996	13.0 12.9	4.988 4.958	40	36	2
JPM22	100	12	160	135	132	19.009 18.996	15.5 15.4	5.988 5.958	40	36	2
JPM26	115	14.5	184	150	149	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5
JPM30	130	14.5	195	165	157	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5

Unit Ref.	T2	U2	V2	W2	X2	Y2	Z2
JPM11	80	16.008 15.997	13.0 12.9	4.988 4.958	40	36	2
JPM17	100	22.009 21.996	18.5 18.4	5.988 5.958	50	45	3
JPM22	125	28.009 27.996	24.0 23.8	7.985 7.949	60	50	5
JPM26	155	32.018 32.002	27.0 26.8	9.985 9.949	80	70	5
JPM30	195	40.018 40.002	35.0 34.8	11.982 11.939	110	100	5

jPM Geared Motors - Dimensions (mm)

PLUG-IN AND SOLID OUTPUT SHAFTS AVAILABLE



FOOT MOUNTING-TYPE 2

Unit Ref.	DIM	D71M	D80M	D90S	D90L	D100L	D112M
JPM17	C1	34	44	44	44	54	54
	S1*	231	269	277	302	344	377
JPM22	S2*	140	157	180	180	200	211
JPM26	S3* D Flange	160	200	200	200	250	250
JPM30	S3* C Face	105	120	140	140	160	160
	S4*	106	113	120	120	136	146

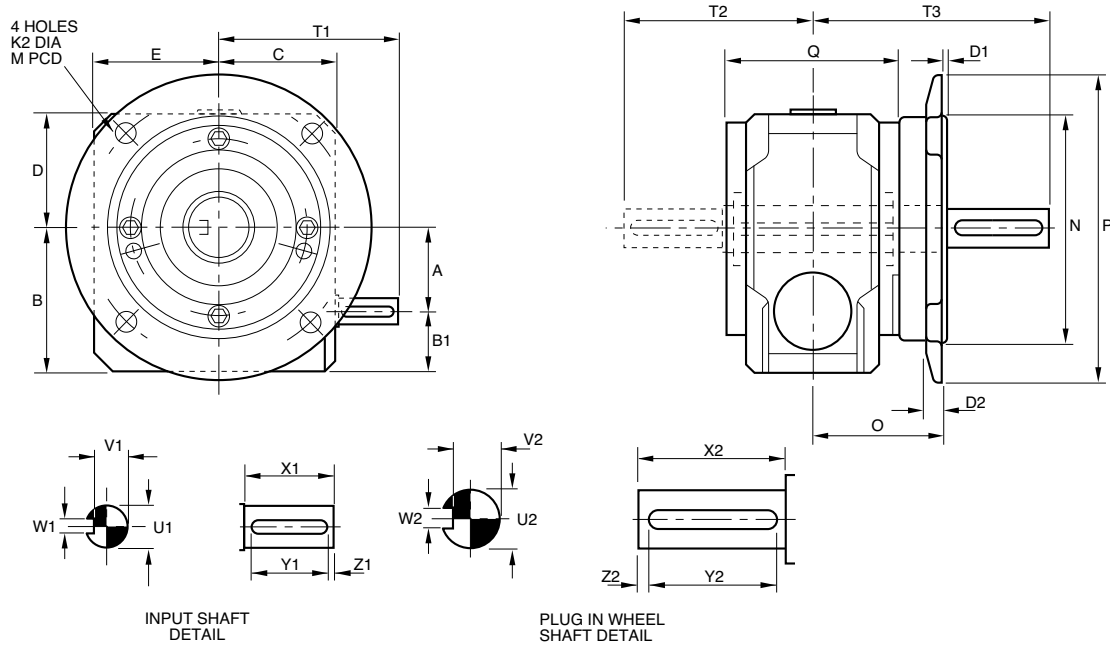
*jPM11 MOTOR DIMENSIONS SEE PAGE 27

Unit Ref.	K	L	R	T2	U2	V2	W2	X2	Y2	Z2
JPM11	7	84	89	80	16.008 15.997	13.0 12.9	4.988 4.958	40	36	2
JPM17	12	128	125	100	22.009 21.996	18.5 18.4	5.988 5.958	50	45	3
JPM22	12	160	135	125	28.009 27.996	24.0 23.8	7.985 7.949	60	50	5
JPM26	14.5	184	150	155	32.018 32.002	27.0 26.8	9.985 9.949	80	70	5
JPM30	14.5	195	165	195	40.018 40.002	35.0 34.8	11.982 11.949	110	100	5

Unit Ref.	B	B1	C	D	E	Q	DO	DU	DV	F	G	H	J
JPM11	55	26.43	52	42	42	78	50	63	50	8	35	70	75
JPM17	85	40.55	78	60	67	98	73	98	80	13	47.5	95	95
JPM22	105	47.85	90	80	90	126	95	120	105	15	57.5	115	100
JPM26	117	50.33	97	92	102	140	110	135	120	18	72.5	145	115
JPM30	135	58.8	105	100	120	156	120	155	140	20	80	160	130

jPM Speed Reducers - Dimensions (mm)

PLUG-IN OUTPUT SHAFTS AVAILABLE WITH T3 DIMENSION
 PLUG-IN AND SOLID OUTPUT SHAFTS AVAILABLE WITH T2 DIMENSION.



FLANGE MOUNTING

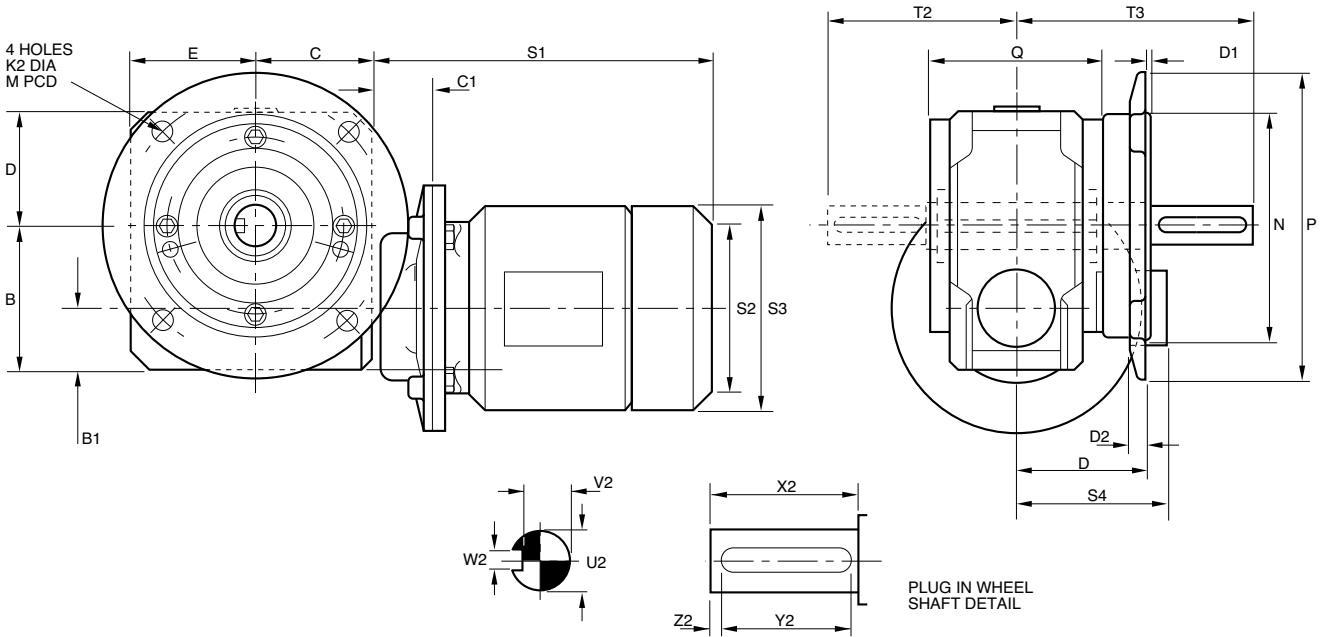
Unit Ref.	A	B	B1	C	D	E	Q	D1	D2	K2	M	N	O
JPM11	28.57	55	26.43	52	42	42	78	3	7	10.0	115	95.000 94.946	60
JPM17	44.45	85	40.55	78	60	67	98	3.5	11	10.0	130	110.000 109.946	85
JPM22	57.15	105	47.85	90	80	90	126	3.5	12	12.0	165	130.000 129.937	105
JPM26	66.67	117	50.33	97	92	102	140	4	12	14.5	215	180.000 179.937	105
JPM30	76.2	135	58.8	105	100	120	156	4	12	14.5	215	180.000 179.937	130

Unit Ref.	P	T1	U1	V1	W1	X1	Y1	Z1
JPM11	140	84	12.008 11.997	9.5 9.4	3.988 3.958	30	25	2.5
JPM17	160	120	16.009 15.996	13.0 12.9	4.988 4.958	40	36	2
JPM22	200	132	19.009 18.996	15.5 15.4	5.988 5.958	40	36	2
JPM26	250	149	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5
JPM30	250	157	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5

Unit Ref.	T2	T3	U2	V2	W2	X2	Y2	Z2
JPM11	80	100	16.008 15.997	13.0 12.9	4.988 4.958	40	36	2
JPM17	100	135	22.009 21.996	18.5 18.4	5.988 5.958	50	45	3
JPM22	125	165	28.009 27.996	24.0 23.8	7.985 7.949	60	50	5
JPM26	155	185	32.018 32.002	27.0 26.8	9.985 9.949	80	70	5
JPM30	195	240	40.018 40.002	35.0 34.8	11.982 11.939	110	100	5

jPM Geared Motors - Dimensions (mm)

PLUG-IN OUTPUT SHAFTS AVAILABLE WITH T3 DIMENSION
 PLUG-IN AND SOLID OUTPUT SHAFTS AVAILABLE WITH T2 DIMENSION.



FLANGE MOUNTING

Unit Ref.	DIM	D71M	D80M	D90S	D90L	D100L	D112M
JPM17	C1	34	44	44	44	54	54
	S1*	231	269	277	302	344	377
JPM22	S2*	140	157	180	180	200	211
JPM26	S3* D Flange	160	200	200	200	250	250
JPM30	S3* C Face	105	120	140	140	160	160
	S4*	106	113	120	120	136	146

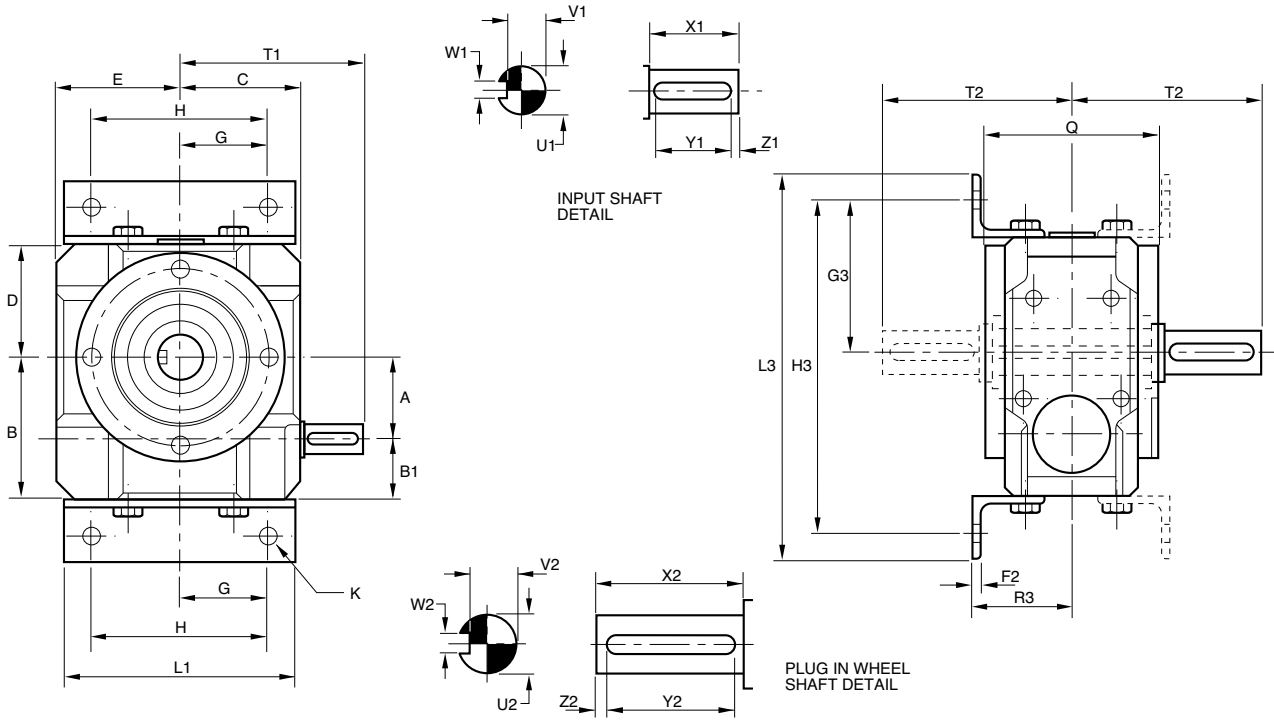
Unit Ref.	T2	T3	U2	V2	W2	X2	Y2	Z2
JPM11	80	100	16.008 15.997	13.0 12.9	4.988 4.958	40	36	2
JPM17	100	135	22.009 21.996	18.5 18.4	5.988 5.958	50	45	3
JPM22	125	165	28.009 27.996	24.0 23.8	7.985 7.949	60	50	5
JPM26	155	185	32.018 32.002	27.0 26.8	9.985 9.949	80	70	5
JPM30	195	240	40.018 40.002	35.0 34.8	11.982 11.939	110	100	5

*JPM11 MOTOR DIMENSIONS SEE PAGE 27

Unit Ref.	B	B1	C	D	E	Q	D1	D2	K2	M	N	O	P
JPM11	55	26.43	52	42	42	78	3	7	10.0	115	95.000 94.946	60	140
JPM17	85	40.55	78	60	67	98	3.5	11	10.0	130	110.000 109.946	85	160
JPM22	105	47.85	90	80	90	126	3.5	12	12.0	165	130.000 129.937	105	200
JPM26	117	50.33	97	92	102	104	4	12	14.5	215	180.000 179.937	105	250
JPM30	135	58.8	105	100	120	156	4	12	14.5	215	180.000 179.937	130	250

jPM Speed Reducers - Dimensions (mm)

PLUG-IN AND SOLID OUTPUT SHAFTS AVAILABLE



FOOT MOUNTING-TYPE 4

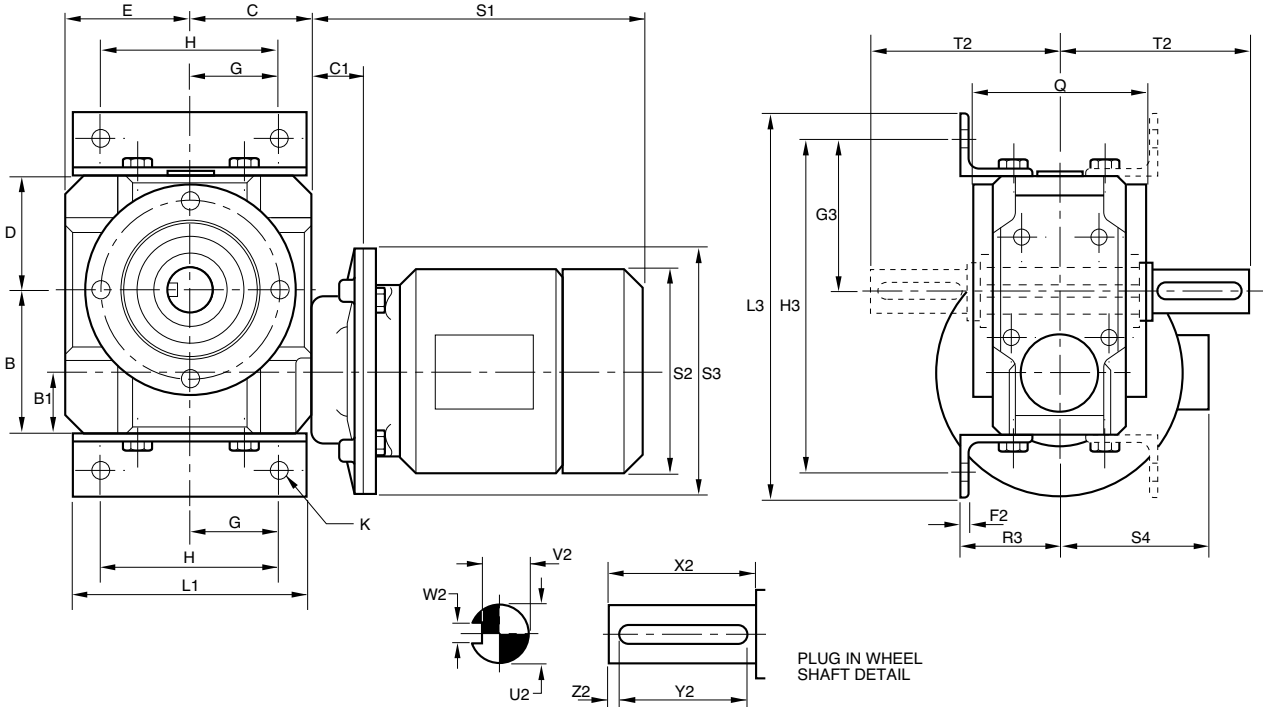
Unit Ref.	A	B	B1	C	D	E	Q	F2	G	H	L1	K	G3
JPM11	28.57	55	26.43	52	42	42	78	3	35	70	84	7	60
JPM17	44.45	85	40.55	78	60	67	98	5	47.5	95	130	12	84
JPM22	57.15	105	47.85	90	80	90	126	6	57.5	115	160	12	110
JPM26	66.67	117	50.33	97	92	102	140	6	72.5	145	190	14.5	122
JPM30	76.2	135	58.8	105	100	120	156	6	80	160	200	14.5	135

Unit Ref.	H3	L3	R3	T1	U1	V1	W1	X1	Y1	Z1
JPM11	133	157	41	84	12.008 11.997	9.5 9.4	3.988 3.958	30	25	2.5
JPM17	193	225	51	120	16.009 15.996	13.0 12.9	4.988 4.958	40	36	2
JPM22	245	285	65	132	19.009 18.996	15.5 15.4	5.988 5.958	40	36	2
JPM26	269	309	72	149	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5
JPM30	305	355	80	157	24.009 23.996	20.0 19.8	7.985 7.949	50	40	5

Unit Ref.	T2	U2	V2	W2	X2	Y2	Z2
JPM11	80	16.008 15.997	13.0 12.9	4.988 4.958	40	36	2
JPM17	100	22.009 21.996	18.5 18.4	5.988 5.958	50	45	3
JPM22	125	28.009 27.996	24.0 23.8	7.985 7.949	60	50	5
JPM26	155	32.018 32.002	27.0 26.8	9.985 9.949	80	70	5
JPM30	195	40.018 40.002	35.0 34.8	11.982 11.949	110	100	5

jPM Geared Motors - Dimensions (mm)

PLUG-IN AND SOLID OUTPUT SHAFTS AVAILABLE



FOOT MOUNTING-TYPE 4

Unit Ref.	DIM	D71M	D80M	D90S	D90L	D100L	D112M
JPM17	C1	34	44	44	44	54	54
	S1*	231	269	277	302	344	377
JPM22	S2*	140	157	180	180	200	211
JPM26	S3* D Flange	160	200	200	200	250	250
JPM30	S3* C Face	105	120	140	140	160	160
	S4*	106	113	120	120	136	146

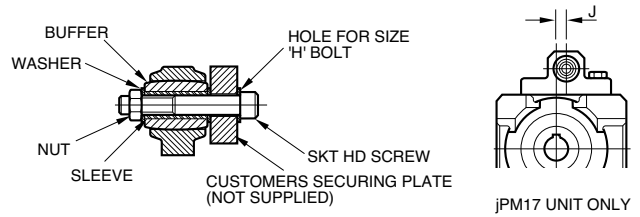
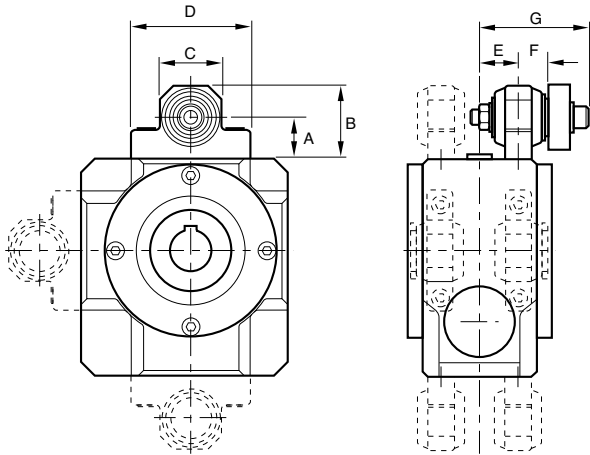
*JPM11 MOTOR DIMENSIONS SEE PAGE 27

Unit Ref.	B	B1	C	D	E	Q	F2	G	H	L1	K	G3
JPM11	55	26.43	52	42	42	78	3	35	70	84	7	60
JPM17	85	40.55	78	60	67	98	5	47.5	95	130	12	84
JPM22	105	47.85	90	80	90	126	6	57.5	115	160	12	110
JPM26	117	50.33	97	92	102	140	6	72.5	145	190	14.5	122
JPM30	135	58.8	105	100	120	156	6	80	160	200	14.5	135

Unit Ref.	H3	L3	R3	T2	U2	V2	W2	X2	Y2	Z2
JPM11	133	157	41	80	16.008 15.997	13.0 12.9	4.988 4.958	40	36	2
JPM17	193	225	51	100	22.009 21.996	18.5 18.4	5.988 5.958	50	45	3
JPM22	245	285	65	125	28.009 27.996	24.0 23.8	7.985 7.949	60	50	5
JPM26	269	309	72	155	32.018 32.002	27.0 26.8	9.985 9.949	80	70	5
JPM30	305	355	80	195	40.018 40.002	35.0 34.8	11.982 11.939	110	100	5

jPM Torque Restraints - Dimensions (mm)

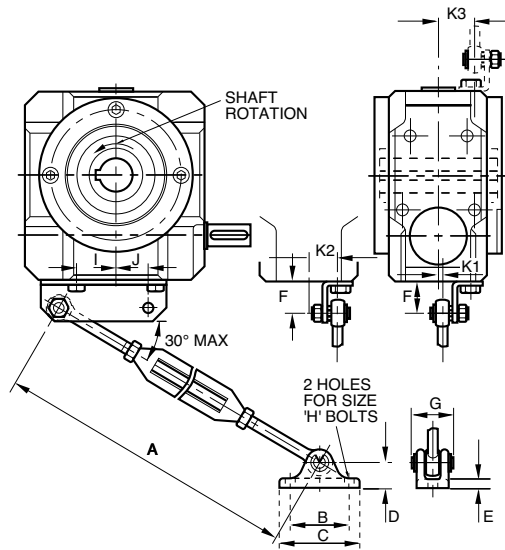
TORQUE RESTRAINT BRACKET



TYPICAL BUFFER ARRANGEMENT

Unit Ref.	A	B	C	D	E	F	G	H	I	J	BUFFER TIGHTENING TORQUE	
											Nm	lb.ft
JPM11	21	39	31	61	18.5	14	54	M8	12	-	23	17
JPM17	30	50	40	100	28.5	17	72.5	M10	15	10.75	46	34
JPM22	35	60	50	145	22.5	23.5	78.5	M12	18	-	80	59
JPM26	43	74	62	117	36	31.5	110.5	M16	24	-	197	145
JPM30	45	79	68	132	43.5	30.5	117	M16	24	-	197	145

TORQUE ARM



Unit Ref.	A	B	C	D	E	F	G	H	I	J	K1	K2	K3
JPM11	500 350	50	70	24	8	22	40	M8	20	20	-13	8	29
JPM17	500 350	50	70	24	8	28	40	M8	30	30	-10	13	37
JPM22	650 500	65	89	28	10	30	47	M10	49.5	50.5	-8	18	27
JPM26	650 500	65	89	28	10	30	47	M10	63.5	36.5	5.5	31.5	40.5
JPM30	650 500	65	89	28	10	30	47	M10	56	44	12	38	47

The angle between the torque arm and the input shaft must not exceed 30° and the arm must be positioned so that it is in tension when loaded: see diagram where the torque reaction is

opposite to the direction of rotation of the output. It is preferred that the torque arm is situated to that side of the gear unit which is adjacent to the driven machine.

Where the duty involves reversing, two torque arms must be fitted, arranged for both directions of rotation. Two holes are available in the bracket to facilitate this.

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 5 TO 1



IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE					
	11	17	22	26	30	
ACTUAL RATIO	31:6	31:6	29:6	31:6	31:6	
1500 RPM INPUT						
Output speed	RPM	290.3	290.3	310.3	290.3	290.3
Input power	kW	0.50	1.50	3.87	5.01	6.66
Output power	kW	0.46	1.40	3.63	4.72	6.29
Output torque	Nm	15.1	46	112	155	207
1000 RPM INPUT						
Output speed	RPM	193.5	193.5	206.9	193.5	193.5
Input power	kW	0.33	1.02	2.96	3.63	5.06
Output power	kW	0.30	0.95	2.75	3.39	4.74
Output torque	Nm	15.0	47	127	167	234
750 RPM INPUT						
Output speed	RPM	145.2	145.2	155.2	145.2	145.2
Input power	kW	0.25	0.79	2.28	2.79	3.80
Output power	kW	0.23	0.72	2.11	2.58	3.53
Output torque	Nm	14.9	47	130	170	244
500 RPM INPUT						
Output speed	RPM	96.8	96.8	103.4	96.8	96.8
Input power	kW	0.17	0.52	1.57	1.90	2.54
Output power	kW	0.15	0.48	1.43	1.74	2.34
Output torque	Nm	14.8	47	133	172	255
250 RPM INPUT						
Output speed	RPM	48.4	48.4	51.7	48.4	48.4
Input power	kW	0.08	0.26	0.81	0.98	1.47
Output power	kW	0.07	0.23	0.72	0.88	1.33
Output torque	Nm	14.6	46	134	175	262

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 7.5 TO 1



IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	29:4	29:4	29:4	29:4	29:4
1500 RPM INPUT					
Output speed RPM	206.9	206.9	206.9	206.9	206.9
Input power kW	0.48	1.45	2.75	4.11	5.83
Output power kW	0.44	1.34	2.56	3.84	5.47
Output torque Nm	20	62	118	177	253
1000 RPM INPUT					
Output speed RPM	137.9	137.9	137.9	137.9	137.9
Input power kW	0.38	1.14	2.17	3.25	4.59
Output power kW	0.34	1.04	2.00	3.01	4.27
Output torque Nm	24	72	138	208	296
750 RPM INPUT					
Output speed RPM	103.4	103.4	103.4	103.4	103.4
Input power kW	0.31	0.95	1.80	2.70	3.85
Output power kW	0.28	0.87	1.65	2.48	3.56
Output torque Nm	26	80	153	229	328
500 RPM INPUT					
Output speed RPM	68.9	68.9	68.9	68.9	68.9
Input power kW	0.21	0.70	1.22	1.82	2.70
Output power kW	0.18	0.63	1.10	1.66	2.46
Output torque Nm	26	88	153	230	341
250 RPM INPUT					
Output speed RPM	34.5	34.5	34.5	34.5	34.5
Input power kW	0.10	0.35	0.61	0.92	1.36
Output power kW	0.09	0.31	0.54	0.82	1.21
Output torque Nm	25	86	151	227	336

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 10 TO 1

IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	29:3	29:3	29:3	29:3	29:3
1500 RPM INPUT					
Output speed RPM	155.2	155.2	155.2	155.2	155.2
Input power kW	0.41	1.25	2.23	3.30	4.70
Output power kW	0.37	1.13	2.06	3.05	4.36
Output torque Nm	23	70	127	188	269
1000 RPM INPUT					
Output speed RPM	103.4	103.4	103.4	103.4	103.4
Input power kW	0.32	0.97	1.75	2.64	3.75
Output power kW	0.29	0.87	1.60	2.41	3.44
Output torque Nm	26	80	147	223	318
750 RPM INPUT					
Output speed RPM	77.6	77.6	77.6	77.6	77.6
Input power kW	0.27	0.81	1.47	2.21	3.14
Output power kW	0.23	0.72	1.33	2.00	2.86
Output torque Nm	29	89	164	246	352
500 RPM INPUT					
Output speed RPM	51.7	51.7	51.7	51.7	51.7
Input power kW	0.20	0.62	1.12	1.67	2.41
Output power kW	0.18	0.55	0.99	1.50	2.17
Output torque Nm	32	101	184	276	401
250 RPM INPUT					
Output speed RPM	25.9	25.9	25.9	25.9	25.9
Input power kW	0.10	0.36	0.56	0.84	1.25
Output power kW	0.09	0.31	0.49	0.74	1.10
Output torque Nm	32	113	182	273	406

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 12.5 TO 1



IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	37:3	37:3	37:3	37:3	37:3
1500 RPM INPUT					
Output speed RPM	121.6	121.6	121.6	121.6	121.6
Input power kW	0.35	1.07	2.14	3.03	4.28
Output power kW	0.31	0.95	1.94	2.77	3.91
Output torque Nm	24	75	152	217	308
1000 RPM INPUT					
Output speed RPM	81.1	81.1	81.1	81.1	81.1
Input power kW	0.27	0.85	1.67	2.39	3.56
Output power kW	0.23	0.75	1.49	2.15	3.22
Output torque Nm	28	88	176	253	379
750 RPM INPUT					
Output speed RPM	60.8	60.8	60.8	60.8	60.8
Input power kW	0.23	0.73	1.39	1.98	2.95
Output power kW	0.19	0.63	1.23	1.76	2.64
Output torque Nm	31	100	194	277	414
500 RPM INPUT					
Output speed RPM	40.5	40.5	40.5	40.5	40.5
Input power kW	1.17	0.55	1.06	1.46	2.28
Output power kW	0.14	0.47	0.92	1.28	2.01
Output torque Nm	33	112	217	303	473
250 RPM INPUT					
Output speed RPM	20.3	20.3	20.3	20.3	20.3
Input power kW	0.08	0.33	0.54	0.74	1.29
Output power kW	0.07	0.28	0.46	0.63	1.10
Output torque Nm	33	131	215	299	521

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 15 TO 1



IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	31:2	31:2	29:2	31:2	31:2
1500 RPM INPUT					
Output speed RPM	96.8	96.8	103.4	96.8	96.8
Input power kW	0.30	0.88	2.01	2.82	3.58
Output power kW	0.26	0.77	1.79	2.53	3.22
Output torque Nm	26	76	166	250	318
1000 RPM INPUT					
Output speed RPM	64.5	64.5	68.9	64.5	64.5
Input power kW	0.24	0.70	1.57	2.20	3.07
Output power kW	0.20	0.61	1.38	1.94	2.71
Output torque Nm	29	90	190	287	401
750 RPM INPUT					
Output speed RPM	48.4	48.4	51.7	48.4	48.4
Input power kW	0.20	0.60	1.30	1.70	2.54
Output power kW	0.16	0.51	1.13	1.48	2.21
Output torque Nm	32	101	208	293	437
500 RPM INPUT					
Output speed RPM	32.2	32.2	34.5	32.2	32.2
Input power kW	0.14	0.45	0.88	1.16	1.90
Output power kW	0.11	0.37	0.75	0.99	1.63
Output torque Nm	33	111	209	295	482
250 RPM INPUT					
Output speed RPM	16.1	16.1	17.2	16.1	16.1
Input power kW	0.07	0.23	0.45	0.59	1.01
Output power kW	0.05	0.19	0.37	0.49	0.84
Output torque Nm	33	110	207	292	497

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 20 TO 1

IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	41:2	41:2	39:2	41:2	41:2
1500 RPM INPUT					
Output speed RPM	73.2	73.2	76.9	73.2	73.2
Input power kW	0.22	0.71	1.45	2.03	2.85
Output power kW	1.18	0.60	1.26	1.77	2.51
Output torque Nm	24	78	157	231	327
1000 RPM INPUT					
Output speed RPM	48.8	48.8	51.3	48.8	48.8
Input power kW	0.17	0.55	1.11	1.57	2.23
Output power kW	0.14	0.45	0.95	1.35	1.92
Output torque Nm	27	89	176	263	377
750 RPM INPUT					
Output speed RPM	36.6	36.6	38.5	36.6	36.6
Input power kW	0.14	0.46	0.89	1.32	1.73
Output power kW	0.11	0.37	0.75	1.11	1.47
Output torque Nm	29	98	186	291	384
500 RPM INPUT					
Output speed RPM	24.4	24.4	25.6	24.4	24.4
Input power kW	0.10	0.33	0.61	0.99	1.17
Output power kW	0.08	0.27	0.51	0.82	0.98
Output torque Nm	30	104	189	321	382
250 RPM INPUT					
Output speed RPM	12.2	12.2	12.8	12.2	12.2
Input power kW	0.05	0.17	0.31	0.51	0.60
Output power kW	0.04	0.13	0.25	0.41	0.48
Output torque Nm	30	103	187	318	379

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 25 TO 1

IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	25:1	25:1	49:2	49:2	25:1
1500 RPM INPUT					
Output speed RPM	60.0	60.0	61.2	61.2	60.0
Input power kW	0.23	0.58	1.08	1.61	2.34
Output power kW	0.18	0.47	0.92	1.38	1.98
Output torque Nm	29	75	144	216	315
1000 RPM INPUT					
Output speed RPM	40.0	40.0	40.8	40.8	40.0
Input power kW	0.19	0.47	0.84	1.26	2.14
Output power kW	0.14	0.37	0.70	1.06	1.76
Output torque Nm	34	89	163	247	423
750 RPM INPUT					
Output speed RPM	30.0	30.0	30.6	30.6	30.0
Input power kW	0.15	0.41	0.68	1.05	1.99
Output power kW	0.11	0.32	0.56	0.87	1.61
Output torque Nm	37	100	174	271	513
500 RPM INPUT					
Output speed RPM	20.0	20.0	20.4	20.4	20.0
Input power kW	0.12	0.33	0.47	0.77	1.53
Output power kW	0.09	0.25	0.38	0.62	1.20
Output torque Nm	41	120	177	291	575
250 RPM INPUT					
Output speed RPM	10.0	10.0	10.2	10.2	10.0
Input power kW	0.073	0.21	0.24	0.40	0.95
Output power kW	0.055	0.15	0.19	0.31	0.73
Output torque Nm	48	142	175	289	686

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 30 TO 1



IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	30:1	30:1	30:1	30:1	30:1
1500 RPM INPUT					
Output speed RPM	50.0	50.0	50.0	50.0	50.0
Input power kW	0.19	0.61	1.23	1.59	2.05
Output power kW	0.15	0.48	1.00	1.30	1.69
Output torque Nm	28	92	191	250	324
1000 RPM INPUT					
Output speed RPM	33.3	33.3	33.3	33.3	33.3
Input power kW	0.15	0.41	0.96	1.44	1.85
Output power kW	0.11	0.33	0.76	1.15	1.49
Output torque Nm	32	91	218	329	427
750 RPM INPUT					
Output speed RPM	25.0	25.0	25.0	25.0	25.0
Input power kW	0.13	0.36	0.80	1.19	1.66
Output power kW	0.09	0.27	0.62	0.93	1.30
Output torque Nm	35	103	237	356	498
500 RPM INPUT					
Output speed RPM	16.7	16.7	16.7	16.7	16.7
Input power kW	0.097	0.29	0.61	0.91	1.28
Output power kW	0.067	0.22	0.46	0.69	0.98
Output torque Nm	38	123	263	398	559
250 RPM INPUT					
Output speed RPM	8.3	8.3	8.3	8.3	8.3
Input power kW	0.059	0.18	0.37	0.57	0.80
Output power kW	0.039	0.13	0.27	0.41	0.58
Output torque Nm	45	144	305	473	663

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 40 TO 1

IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	40:1	40:1	40:1	40:1	40:1
1500 RPM INPUT					
Output speed RPM	37.5	37.5	37.5	37.5	37.5
Input power kW	0.14	0.41	0.84	1.25	1.63
Output power kW	0.10	0.31	0.65	0.97	1.26
Output torque Nm	25	78	166	248	324
1000 RPM INPUT					
Output speed RPM	25.0	25.0	25.0	25.0	25.0
Input power kW	0.11	0.33	0.65	0.97	1.33
Output power kW	0.07	0.24	0.49	0.73	1.00
Output torque Nm	28	92	186	281	381
750 RPM INPUT					
Output speed RPM	18.7	18.7	18.7	18.7	18.7
Input power kW	0.089	0.28	0.55	0.81	1.12
Output power kW	0.059	0.20	0.40	0.60	0.82
Output torque Nm	30	101	202	305	416
500 RPM INPUT					
Output speed RPM	12.5	12.5	12.5	12.5	12.5
Input power kW	0.068	0.22	0.42	0.62	0.86
Output power kW	0.044	0.15	0.29	0.44	0.61
Output torque Nm	33	112	224	340	464
250 RPM INPUT					
Output speed RPM	6.2	6.2	6.2	6.2	6.2
Input power kW	0.040	0.13	0.26	0.38	0.54
Output power kW	0.025	0.08	0.17	0.26	0.36
Output torque Nm	38	130	263	397	545

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 50 TO 1



IMPORTANT

Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	50:1	50:1	50:1	50:1	50:1
1500 RPM INPUT					
Output speed RPM	30.0	30.0	30.0	30.0	30.0
Input power kW	0.104	0.33	0.63	0.92	1.29
Output power kW	0.070	0.23	0.46	0.69	0.97
Output torque Nm	22	74	147	220	310
1000 RPM INPUT					
Output speed RPM	20.0	20.0	20.0	20.0	20.0
Input power kW	0.080	0.25	0.49	0.72	1.02
Output power kW	0.051	0.17	0.34	0.52	0.75
Output torque Nm	25	83	165	249	356
750 RPM INPUT					
Output speed RPM	15.0	15.0	15.0	15.0	15.0
Input power kW	0.067	0.21	0.41	0.60	0.85
Output power kW	0.042	0.14	0.28	0.42	0.60
Output torque Nm	27	89	179	270	384
500 RPM INPUT					
Output speed RPM	10.0	10.0	10.0	10.0	10.0
Input power kW	0.046	0.16	0.31	0.46	0.65
Output power kW	0.028	0.10	0.21	0.31	0.45
Output torque Nm	27	99	196	298	426
250 RPM INPUT					
Output speed RPM	5.0	5.0	5.0	5.0	5.0
Input power kW	0.025	0.09	0.19	0.29	0.41
Output power kW	0.015	0.05	0.12	0.18	0.26
Output torque Nm	28	105	223	349	500

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 60 TO 1



IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	60:1	60:1	60:1	60:1	60:1
1500 RPM INPUT					
Output speed RPM	25.0	25.0	25.0	25.0	25.0
Input power kW	0.086	0.26	0.49	0.72	1.01
Output power kW	0.055	0.18	0.34	0.52	0.74
Output torque Nm	21	68	131	197	283
1000 RPM INPUT					
Output speed RPM	16.7	16.7	16.7	16.7	16.7
Input power kW	0.066	0.20	0.39	0.57	0.80
Output power kW	0.041	0.13	0.26	0.39	0.56
Output torque Nm	23	76	148	225	324
750 RPM INPUT					
Output speed RPM	12.5	12.5	12.5	12.5	12.5
Input power kW	0.054	0.17	0.32	0.48	0.66
Output power kW	0.032	0.11	0.21	0.32	0.45
Output torque Nm	24	82	161	242	348
500 RPM INPUT					
Output speed RPM	8.3	8.3	8.3	8.3	8.3
Input power kW	0.039	0.13	0.24	0.36	0.50
Output power kW	0.022	0.08	0.15	0.23	0.33
Output torque Nm	25	90	175	265	381
250 RPM INPUT					
Output speed RPM	4.2	4.2	4.2	4.2	4.2
Input power kW	0.021	0.075	0.15	0.23	0.31
Output power kW	0.012	0.043	0.09	0.14	0.19
Output torque Nm	27	98	205	311	440

jPM Unit Ratings - Single Reduction

NOMINAL RATIO 70 TO 1

IMPORTANT
Units to ATEX approval must be selected with a minimum service factor of 1.25

DESCRIPTION	UNIT SIZE				
	11	17	22	26	30
ACTUAL RATIO	70:1	70:1	70:1	70:1	70:1
1500 RPM INPUT					
Output speed RPM	21.4	21.4	21.4	21.4	21.4
Input power kW	0.070	0.23	0.43	0.63	0.85
Output power kW	0.040	0.15	0.28	0.43	0.59
Output torque Nm	18	65	127	191	262
1000 RPM INPUT					
Output speed RPM	14.3	14.3	14.3	14.3	14.3
Input power kW	0.049	0.17	0.33	0.49	0.70
Output power kW	0.028	0.10	0.21	0.32	0.46
Output torque Nm	19	71	142	215	307
750 RPM INPUT					
Output speed RPM	10.7	10.7	10.7	10.7	10.7
Input power kW	0.039	0.14	0.28	0.41	0.58
Output power kW	0.022	0.08	0.17	0.26	0.37
Output torque Nm	19	73	153	231	327
500 RPM INPUT					
Output speed RPM	7.1	7.1	7.1	7.1	7.1
Input power kW	0.027	0.099	0.20	0.31	0.45
Output power kW	0.015	0.056	0.12	0.19	0.27
Output torque Nm	20	75	160	254	363
250 RPM INPUT					
Output speed RPM	3.6	3.6	3.6	3.6	3.6
Input power kW	0.016	0.055	0.11	0.17	0.26
Output power kW	0.008	0.030	0.06	0.10	0.15
Output torque Nm	21	79	168	267	397

Notes

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