radicon

with you at every turn

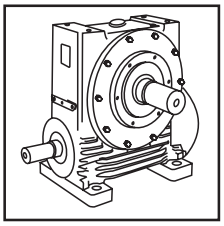
Series A Mid Range Worm Gear

Technical
Up to - 190HP / 6300 lb.in

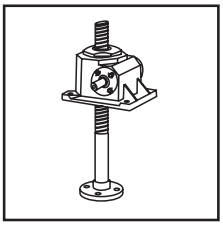
Worm Gears
CAM-2.00US0812

PRODUCTS IN THE RANGE

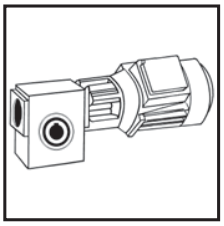
Serving an entire spectrum of mechanical drive applications from food, energy, mining and metal; to automotive, aerospace and marine propulsion, we are here to make a positive difference to the supply of drive solutions.



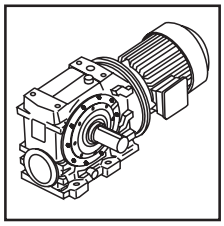
Series A
Worm Gear units and geared motors in single & double reduction types



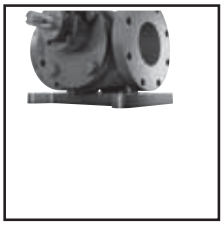
Series BD
Screwjack worm gear unit



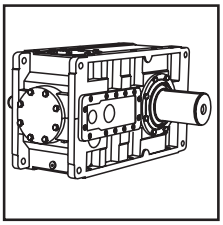
Series BS
Worm gear unit



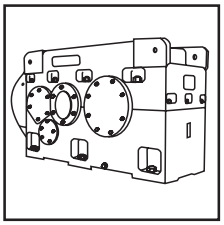
Series C
Right angle drive helical worm geared motors & reducers



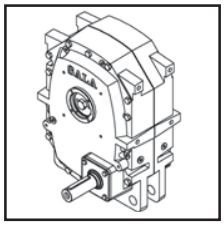
Series F
Parallel angle helical bevel helical geared motors & reducers



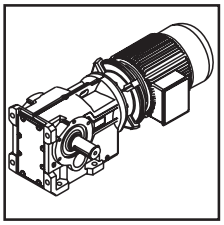
Series G
Helical parallel shaft & bevel helical right angle drive gear units



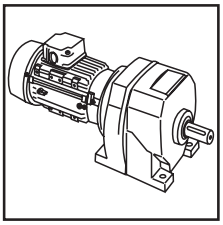
Series H
Large helical parallel shaft & bevel helical right angle drive units



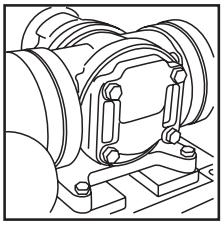
Series J
Shaft mounted helical speed reducers



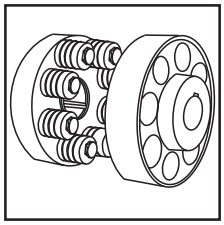
Series K
Right angle helical bevel helical geared motors & reducers



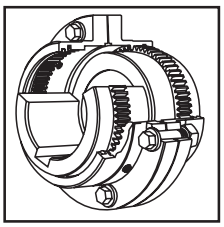
Series M
In-line helical geared motors & reducers



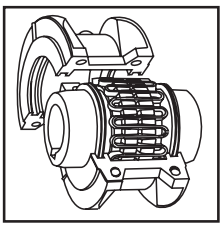
Roloid Gear Pump
Lubrication and fluid transportation pump



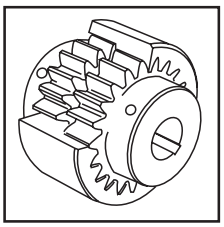
Series X
Cone Ring
Pin and bush elastomer coupling



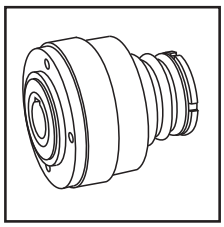
Series X
Gear
Torsionally rigid, high torque coupling



Series X
Grid
Double flexing steel grid coupling



Series X
Nylicon
Gear coupling with nylon sleeve



Series X
Torque Limiter
Overload protection device

We offer a wide range of repair services and many years experience of repairing demanding and highly critical transmissions in numerous industries.

We can create custom engineered transmission solutions of any size and configuration.

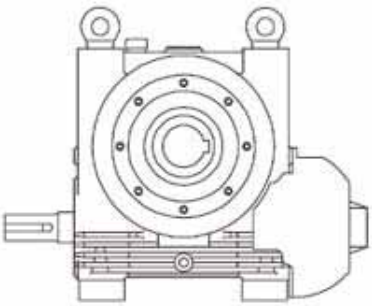
CONTENTS

GENERAL DESCRIPTION

Single Reduction Units (worm)
The four units in this range are 1002, 1252, 1602 and 2002, based on a single universal case for each size, giving a high degree of common parts and interchangeability. Under-driven, over-driven and vertical types provide a choice of shaft arrangements in meeting the requirements of a wide variety of applications in the medium power range up to 100 HP.

All units are designed with hollow output bore, output shaft can be fitted allowing handing to be changed without dismantling the unit.

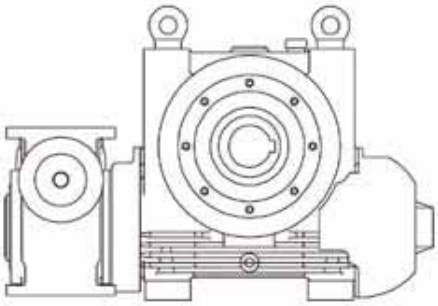
Series A Mid Range gives a choice of 12 standard ratios from 5/1 to 70/1 and important features include high efficiencies and load carrying capacities combined with long life and reliability in service.



Single Reduction Units (worm)

Double Reduction Units (worm/worm)
These units consist of a standard single reduction unit with a smaller shaft mounted unit fitted to the input shaft. The three smallest sizes are fitted with shaft mounted Series A Junior units whilst the size 2002 is fitted with a size 1002 (C07 when motorized). The range extends the ratios available up to the maximum of 4200/1 making them ideal for fitting to slow moving machinery.

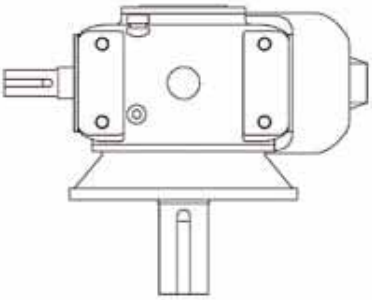
As with the single reduction units they are available in under-driven, over-driven and vertical types, foot mounting and shaft mounting.



Double Reduction Units (worm/worm)

Heavy Duty Stirrer Units
Based on the standard Series A Mid Range the Heavy Duty Stirrer Unit incorporates an extended bearing housing to accommodate a larger bottom bearing and increased shaft size, thereby enhancing the units capacity to absorb the high bending loads imposed during stirrer applications.

These units can be ordered with a dry-well option to minimise the risk of output shaft leakage.



Heavy Duty Stirrer Units

Cooling Tower Fan Drives
Based on the standard Series A Mid Range the Cooling Tower Fan Drive incorporates an extended top bearing housing to accommodate the larger wheelshaft bearing whilst maintaining a compact drive.

Lengths of output shaft extensions are manufactured to clients requirements to suit fan hubs.

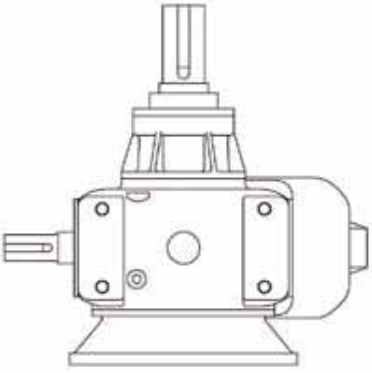
Lubrication is entirely contained. Gears and lower bearings dip in the oil bath whilst oil is pumped to the top wheelshaft bearing by means of a built-in mechanical oil pump.

Two oil seals are fitted on both the wheelshaft and wormshaft, the wheelshaft extension incorporating a grease chamber. All exposed parts other than the extensions are finished with corrosion resistant paint. Units are supplied with BSP plugs fitted to the oil filler, drain and ventilator points, suitable for connection to the outsides of towers. Where specified on the order Textron Power Transmission can supply the necessary piping complete with ventilator, combined dipstick and oil drain.

When selecting a unit, use the selection procedure as detailed on pages 5 - 6 and apply a service factor of 1.75

The ratings for these units are on pages 15 - 38.

Enquiries should include full details of the duty required together with full information regarding ambient temperature at site and whether acids or abrasive solids are likely to be present in the air flow.

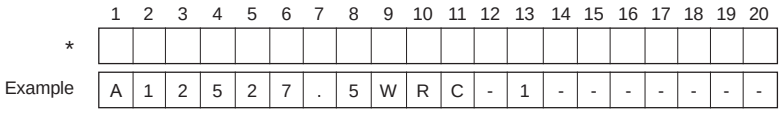


Cooling Tower Fan Drives

SERIES AM

UNIT DESIGNATIONS

UNIT DESIGNATION



1 - SERIES A

Range A

2-4 - SIZE OF UNIT

eg 1 2 5

5 - REVISION VERSION

2 ETC

6,7,8 - NOMINAL OVERALL RATIO

eg 7 . 5

5 0 .

SEE PAGE 10

9 - UNIT VERSION

- W - STD UNIT MACHINED FACE ON LEFT**
- Y - STD UNIT MACHINED FACE ON RIGHT**
- F - STD UNIT WITH OUTPUT FLANGE ON LEFT**
- H - STD UNIT WITH OUTPUT FLANGE ON RIGHT**
- B - STD UNIT MACHINED FACE ON LEFT** WITH BASE MOUNTED FEET
- D - STD UNIT MACHINED FACE ON RIGHT** WITH BASE MOUNTED FEET
- A - AGITATOR UNIT
- C - COOLING TOWER UNIT
- T - STD UNIT WITH BANJO T/A ON LEFT**
- X - STD UNIT WITH BANJO T/A ON RIGHT**
- U - STD VERTICAL UNIT WITH OUTPUT FLANGE AND DRYWELL

10 - TYPE OF UNIT

- R - REDUCER UNIT - SINGLE REDUCTION
- D - REDUCER UNIT - DOUBLE REDUCTION
- M - MOTORIZED - DOUBLE REDUCTION ONLY
- A - UNIT TO ALLOW FITTING OF NEMA MOTOR
- G - UNIT TO ALLOW FITTING OF NON TEXTRON POWER TRANSMISSION MOTOR

20 - ADDITIONAL FEATURES

PAINT, LUBRICANT, DOUBLE OIL SEAL, HOLD BACK ETC

eg - F SEE PAGE 11

19 - MOTOR REQUIRED

eg - A

FOR NEMA MOTOR ENTER A

FOR R, A/G TYPE ENTER -

FOR SLOW SPEED APPLICATIONS WHERE GREATER OIL QUANTITIES ARE REQUIRED

ENTER D SEE PAGE 66

18 - NO OF MOTOR POLES

2 4 OR 6

FOR R OR G TYPE ENTER -

15, 16, 17 - GEARED MOTOR

MOTOR POWER REQUIRED

eg . 7 5

FOR R OR G TYPE

ENTER - - -

13, 14 - MOUNTING POSITION

eg 1 2 SEE PAGE 7 & 9

12 - MOTOR ADAPTOR FOR G OR A TYPE UNIT

SEE PAGE 12

FOR ALL OTHER TYPES ENTER -

11 - OUTPUT SHAFT SEE PAGE 11

- N - STD INCH SINGLE EXTENSION ON LEFT**
- B - STD INCH SINGLE EXTENSION ON RIGHT**
- P - STD INCH DOUBLE EXTENSION
- Q - STD INCH REDUCED DIA SINGLE EXTENSION ON LEFT**
- T - STD INCH REDUCED DIA SINGLE EXTENSION ON RIGHT**
- R - STD INCH REDUCED DIA DOUBLE EXTENSION
- A - STD INCH SHAFT MOUNTED
- C - METRIC SINGLE EXTENSION ON LEFT**
- E - METRIC SINGLE EXTENSION ON RIGHT**
- D - METRIC DOUBLE EXTENSION
- F - METRIC REDUCED DIA SINGLE EXTENSION ON LEFT**
- J - METRIC REDUCED DIA SINGLE EXTENSION ON RIGHT**
- G - METRIC REDUCED DIA DOUBLE EXTENSION
- H - METRIC SHAFT MOUNTED

FOR AGITATOR COOLING TOWER ENTER -

EXPLANATION & USE OF RATINGS & SERVICE FACTORS

Gear unit selection is made by comparing actual loads with catalogue ratings. Catalogue ratings are based on a standard set of loading conditions, whereas actual load conditions vary according to type of application. Service Factors are therefore used to calculate an equivalent load to compare with catalogue ratings. i.e. Equivalent Load = Actual Load x Service Factor

Two types of Service Factor must be considered:- Mechanical Service Factor Fm and Thermal Service Factors Ft, Fp and FD

Mechanical ratings and service factor FM

Mechanical ratings measure capacity in terms of life and/or strength, assuming 10 hr/day continuous running under uniform load conditions.

Catalogue ratings allow for an 100% overload at starting, braking or momentarily during operation on aggregate once per hour for each hour of operation.

The unit selected must therefore have a catalogue rating at least equal to half maximum overload.

Mechanical Service Factor Fm (Table 1) is used to modify the actual load according to daily operating time, and type of loading.

Load characteristics for a wide range of applications are detailed in Table 5 opposite, which are used in deciding the appropriate Service Factor Fm from Table 1.

If overloads can be calculated, or accurately assessed, actual loads should be used instead of Fm.

For units subject to frequent stop/start overloads in excess of 10 times per day, refer to Textron Power Transmission.

For applications where high inertia loads are involved e.g. crane travel drives, slewing motion etc., unit selection should be referred to Textron Power Transmission engineers.

Table 1. Mechanical service factor Fm

Prime mover	Duration of service hrs per day	Load classification-driven machine		
		Uniform	Moderate Shock	Heavy Shock
Electric motor, steam turbine or hydraulic motor	Under 3	0.80	1.00	1.50
	3 to 10	1.00	1.25	1.75
	Over 10	1.25	1.50	2.00
Multi-cylinder internal combustion engine	Under 3	1.00	1.25	1.75
	3 to 10	1.25	1.50	2.00
	Over 10	1.50	1.75	2.25
Single cylinder internal combustion engine	Under 3	1.25	1.50	2.00
	3 to 10	1.50	1.75	2.25
	Over 10	1.75	2.00	2.50

Thermal ratings and service factors

The Thermal ratings are a measure of the gear units ability to dissipate heat. If they are exceeded the lubricant may overheat and breakdown, resulting in gear failure.

Thermal factors are for units with fans fitted, un-fanned units to be referred to Textron Power Transmission Applications department.

To select motorized units the reducer rating tables should be used, pages 15 - 38, referring to the relevant input speed equivalent to motor speed.

Catalogue thermal limitations are based on the unit operating continuously in an environment with an ambient temperature equal to 68°F and in mounting position 1. The thermal rating is affected by ambient temperature, duration of running per hour and mounting position. To account for these varying conditions, the service factors given in tables 2, 3 and 4 should be applied to the catalogue thermal ratings as follows:-

Ptherm = (Pt x Ft x Fp x Fd x efficiency) / 100

Pt = Catalogue input power thermal rating (HP)
Ptherm = Allowable output power thermal rating (HP)
Ft = Service factor for ambient temperature (see Table 2)
Fp = Service factor for different mounting positions (see Table 3)
Fd = Thermal service factor for duration of running (see Table 4)

Table 2. Thermal service factor Ft

Ambient temperature °F	-20	0	20	40	60	68	80	100	120
Factor Ft	1.64	1.50	1.36	1.22	1.07	1.00	0.92	0.77	0.63

Table 3. Thermal service factor Fp (Single Reduction units)

Output Speed (Rev / min)	Mounting Position (See pages 7 and 8)			
	1	2	3 & 4	5 & 6
0 to 100	1.0	1.0	1.0	Refer to David Brown Applications Department
>100 to 200	1.0	1.0	1.0	
>200 to 300	1.0	1.0	1.0	
>300 to 400	1.0	1.0	1.0	
>400 to 500	1.0	1.0	1.0	
>500 to 600	1.0	1.0	1.0	
>600 to 700	1.0	1.0	1.0	
>700	1.0	1.0	1.0	

Table 4. Thermal service factor Fd

Input shaft speed (Rev/min)	Unit Size	% Running time per hour					
		>60	>50-60	>40-50	>30-40	>20-30	>20
100	all	1.0	1.45	1.70	1.95	2.30	2.82
400	all	1.0	1.35	1.50	1.68	1.89	2.24
875	all	1.0	1.26	1.36	1.47	1.63	1.87
1160	all	1.0	1.23	1.31	1.40	1.54	1.75
1450	all	1.0	1.20	1.26	1.33	1.45	1.62
1750	1002/1252	1.0	1.19	1.25	1.31	1.43	1.59
	1602/2002	1.0	1.16	1.21	1.27	1.37	1.50
2500	1002/1252		1.12	1.15	1.18	1.27	1.37
	1602/2002		1.06	1.08	1.09	1.14	1.18
3500	1002/1252		1.08	1.10	1.12	1.18	1.24
	1602/2002		1.03	1.04	1.05	1.07	1.09

Double Reduction Units

For double reduction units the factors given in tables 2 and 4 apply. The input shaft speed referred to in table 4 should now be the input speed of the primary unit. New factors should be applied for mounting position (Fp), which refer to the position of the primary unit.

i Inputshaft horizontal and wheel- line horizontal Fp = 1.0
ii Inputshaft horizontal and wheel-line vertical Fp = 0.88
iii Inputshaft vertical and wheel-line horizontal Fp = 0.68

General

When selecting units, use actual load required to be transmitted, not rating of prime mover. Wherever possible use required output torque (lb-in). Catalogue also gives input power rating (HP), being the power required from prime mover allowing for gear unit efficiency. When units transmit less than rated output torque, required input power may be reduced pro-rata to decide capacity of prime mover.

Table 5

U = Uniform load

M = Moderate shock load

H = Heavy shock load

† = Refer to David Brown

Driven Machine	type of load
Agitators	
pure liquids	U
liquids and solids	M
liquids-variable density	M
Blowers	
centrifugal	U
lobe	M
vane	U
Brewing and distilling	
bottling machinery	U
brew kettles-continuous duty	U
cookers-continuous duty	U
mash tubs-continuous duty	U
scale hopper-frequent starts	M
Can filling machines	**U**
Cane knifes	**M**
Car dumpers	**H**
Car pullers	**M**
Clarifiers	**U**
Classifiers	**M**
Clay working machinery	
brick press	H
briquette machine	H
clay working machinery	M
pug mill	M
Compressors	
centrifugal	U
lobe	M
reciprocating	
multi-cylinder	M
single cylinder	H
Conveyors-uniformly loaded or fed	
apron	U
assembly	U
belt	U
bucket	U
chain	U
flight	U
oven	U
screw	U
Conveyors-heavy duty not uniformly fed	
apron	M
assembly	M
belt	M
bucket	M
chain	M
flight	M
live roll	†
oven	M
reciprocating	H
screw	M
shaker	H
Cranes	
main hoists	U
bridge travel	†
trolley travel	†
Crusher	
ore	H
stone	H
sugar	H
Dredges	
cable reels	M
conveyors	M
cutter head drives	H
jig drives	H
manoeuvring winches	M
pumps	M
screen drive	H
stackers	M
utility winches	M
Dry dock cranes	
main hoist	†
auxiliary hoist	†
boom, luffing	†
rotating, swing or slew	†
tracking, drive wheels	†
Elevators	
bucket-uniform load	U
bucket-heavy load	M
bucket-continuous	U
centrifugal discharge	U
escalators	U
freight	M
gravity discharge	U
man lifts	†
passenger	†
Fans	
centrifugal	U
cooling towers	
induced draft	†
forced draft	†
induced draft	M
large, mine, etc	M
large, industrial	M
light, small diameter	U
Feeders	
apron	M
belt	M
disc	U
reciprocating	H
screw	M
Food industry	
beef slicer	M
cereal cooker	U
dough mixer	M
meat grinders	M
Generators-not welding	**U**
Hammer mills	**H**
Hoists	
heavy duty	H
medium duty	M
skip hoist	M
Laundry washers	
reversing	M
Laundry tumblers	**M**
Line shafts	
driving processing equipment	M
light	U
other line shafts	U
Lumber industry	
barkers-hydraulic-mechanical	M
burner conveyor	M
chain saw and drag saw	H
chain transfer	H
craneway transfer	H
de-barking drum	H
edger feed	M
gang feed	M
green chain	M
live rolls	H
log deck	H
log haul-incline	H
log haul-well type	H
log turning device	H
main log conveyor	H
off bearing rolls	M
planer feed chains	M
planer floor chains	M
planer tilting hoist	M
re-saw merry-go-round conveyor	M
roll cases	H
slab conveyor	H
small waste conveyor-belt	U
small waste conveyor-chain	M
sorting table	M
tipple hoist conveyor	M
tipple hoist drive	M
transfer conveyors	M
transfer rolls	M
tray drive	M
trimmer feed	M
waste conveyor	M
Machine tools	
bending roll	M
punch press-gear driven	H
notching press- belt driven	†
plate planers	H
tapping machine	H
other machine tools	
main drives	M
auxiliary drives	U
Metal mills	
draw bench carriage and main drive	M
pinch, dryer and scrubber rolls-reversing	†
slitters	M
table conveyors non-reversing	
group drives	M
individual drives	H
reversing wire drawing and flattening machine	M
wire winding machine	M
Mill-rotary type ball	H
cement kilns	H
dryers and coolers	H
kilns, other than cement	H
pebble	H
rod	
plain	H
wedge bar	H
tumbling barrels	H
Mixers	
concrete mixers -continuous	M
concrete mixers -intermittent	M
constant density	U
variable density	M
Oil industry	
chillers	M
oil well pumping	†
paraffin filter press	M
rotary kilns	M
Paper mills	
agitators, (mixers)	M
barker-auxiliarieshydraulic	M
barker-mechanical	H
barking drum	H
beater and pulper	M
bleacher	U
calenders	M
calenders-super	H
converting machine, except cutters, platers	M
conveyors	U
couch	M
cutters-plates	H
cylinders	M
dryers	M
felt stretcher	M
felt whipper	H
jordans	M
log haul	H
presses	M
pulp machine reel	M
stock chest	M
suction roll	M
washers and thickeners	M
winders	M
Printing presses	†
Pullers	
barge haul	H
Pumps	
centrifugal	U
proportioning	M
reciprocating	
single acting; 3 or more cylinders	M
double acting; 2 or more cylinders	M
single acting; 1 or 2 cylinders	†
double acting; single cylinder	†
rotary	
gear type	U
lobe, vane	U
Rubber and plastics industries	
crackers	H
laboratory equipment	M
mixed mills	H
refiners	M
rubber calenders	M
rubber mill-2 on line	M
rubber mill-3 on line	M
sheeter	M
tire building machines	†
tire and tube press openers	†
tubers and strainers	M
warming mills	M
Sandmuller	**M**
Sewage disposal equipment	
bar screens	U
chemical feeders	U
collectors	U
dewatering screws	M
scum breakers	M
slow or rapid mixers	M
thickeners	M
vacuum filters	M
Screens	
air washing	U
rotary-stone or gravel	M
travelling water intake	U
Slab pushers	**M**
Steering gear	†
Stokers	**U**
Sugar industry	
cane knives	M
crushers	M
mills	M
Textile industry	
batchers	M
calenders	M
cards	M
dry cans	M
dryers	M
dyeing machinery	M
knitting machines	†
looms	M
mangles	M
nappers	M
pads	M
range drives	†
slashers	M
soapers	M
spinners	M
tenter frames	M
washers	M
winders	M
Windlass	†

EXAMPLE APPLICATION DETAILS

Absorbed power of driven machine = 5.23HP
Output speed of gearbox or Input speed of machine = 25rpm
Application = Heavy duty, non uniformly fed bucket conveyor
Duration of service (hours per day) = 10hrs
Motor speed = 3 phase electric motor, 4 pole, 1750rpm
Textron Power Transmission mounting position = 2
Ambient temperature = 68°F
Running time (%) = 100%

1 DETERMINE RATIO OF GEARBOX REQUIRED

$$\frac{\text{Motor speed}}{\text{Gearbox output speed}} \quad \frac{1750}{25} = 70$$

Refer to exact ratios (page 10) for nearest standard ratio = 70:1

2 DETERMINE MECHANICAL SERVICE FACTOR (Fm)

Refer to Load Classification by Application, table 5, page 4

Application = Heavy duty, non uniformly fed, bucket conveyor

Conveyors-uniformly loaded or fed	
apron	U
assembly	U
belt	U
bucket	U
chain	U

U = Moderate shock loading

Refer to mechanical service factor (Fm), table 1, page 3

Duration of service (hours per day) = 24hrs

Prime mover	Duration of service hrs per day	Load classification-drive	
		Uniform	Moderate Shock
Electric motor, steam turbine or hydraulic motor	Under 3	0.80	0.80
	3 to 10	1.00	1.00
	Over 10	1.25	1.25

Therefore mechanical service factor (Fm) = 1.25

3 DETERMINE REQUIRED MECHANICAL OUTPUT TORQUE CAPACITY OF GEARBOX

$$\text{Absorbed output torque} = \frac{\text{Absorbed power x 63025}}{\text{Gearbox output speed}}$$

$$\frac{5.23 \times 63025}{25} = 13185\text{lb.in}$$

Required mechanical output torque = Absorbed output x Fm torque

13185 x 1.25 = 16481lb.in

4 DETERMINE SIZE OF GEAR BOX REQUIRED

Refer to ratings tables, Input speed = 1750rpm, therefore refer to page 21.

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV/MIN	CAPACITY	SIZE OF UNIT			
			A1002	A1252	A1602	A2002
70.0	25.00	Input Power HP (mechanical)	3.18	5.27	12.00	17.60
		Input Power HP (thermal)	5.40	9.14	12.70	24.20
		Output Power HP (mechanical)	2.27	3.95	9.05	14.00
		Output Torque lb-in (mech.)	5710.	9960.	22800.	35200.
		Efficiency %	71	53	75	79

Mechanical output torque capacity must be equal or more than required mechanical output torque capacity of gear box. Required mechanical output torque capacity = 16481lb-in. At a 70:1 ratio, nominal output speed 25 an A1602 unit has a mechanical output torque capacity of 22800lb-in. Therefore the unit is acceptable

5 DETERMINE EXACT RATIO OF GEARBOX

Refer to exact ratios table, page 10

Nominal Ratio Column Entry (6 | 7 | 8)	Size 1002	Size 1252	Size 1602	Size 2002
	Exact Ratio	Exact Ratio	Size Exact Ratio	Exact Ratio
70.	70	70	70	70

Exact ratio = 70.0:1

6 CHECK THERMAL CAPACITY OF GEARBOX SELECTED DETERMINE THERMAL INPUT POWER CAPACITY (Pt)

Refer to ratings tables

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV/MIN	CAPACITY	SIZE OF UNIT			
			A1002	A1252	A1602	A2002
70.0	25.00	Input Power HP (mechanical)	3.18	5.27	12.00	17.60
		Input Power HP (thermal)	5.40	9.14	12.70	24.20
		Output Power HP (mechanical)	2.27	3.95	9.05	14.00
		Output Torque lb-in (mech.)	5710.	9960.	22800.	35200.
		Efficiency %	71	75	75	79

Pt = 12.7 HP

Go to point 7

7 DETERMINE THERMAL SERVICE FACTOR (Ft)

Refer to table 2, page 3
Ambient temperature = 68°F

Ambient temperature °F	-20	0	20	40	60	68
Factor Ft	1.64	1.50	1.36	1.22	1.07	1.0

Ft = 1.0

8 DETERMINE THERMAL SERVICE FACTOR (Fp)

Refer to table 3, page 3
Mounting position = 2
Nominal output speed (rev/min) = 25

Unit Output Shaft Speed (Rev / min)	Mounting	
	1	2
0 to 100	1.0	0.91
> 100 to 200	1.0	0.89
> 200 to 300	1.0	0.85

Fp = 0.91

9 DETERMINE THERMAL SERVICE FACTOR (Fd)

Refer to table 4, page 3
% running time = 100

Input shaft speed (Rev / min)	% Running time per hour		
	Unit Size	>60	>50 - 60
1750	1002/1252	1.0	1.19
	1602/2002	1.0	1.16

Fd = 1.0

10 DETERMINE REQUIRED POWER OF ELECTRIC MOTOR

Refer to ratings tables to determine gear unit efficiency

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV/MIN	CAPACITY	SIZE OF UNIT			
			A1002	A1252	A1602	A2002
70.0	25.00	Input Power HP (mechanical)	3.18	5.27	12.00	17.60
		Input Power HP (thermal)	5.40	9.14	12.70	24.20
		Output Power HP (mechanical)	2.27	3.95	9.05	14.00
		Output Torque lb-in (mech.)	5710.	9960.	22800.	35200
		Efficiency %	71	75	75	79

Efficiency % = 60 Required motor power = $\frac{\text{Absorbed power of driven machine x 100}}{\text{Efficiency}} = \frac{5.23 \times 100}{75.} = 6.97$ HP

The next largest standard motor power available is selected 0.75 HP

11 DETERMINE ALLOWABLE OUTPUT POWER THERMAL RATING (Ptherm)

$$\text{Ptherm} = \frac{\text{Pt x Ft x Fp x Fd x efficiency}}{100}$$

$$= \frac{12.7 \times 1.0 \times 0.91 \times 1.0 \times 75}{100}$$

= 8.67 HP

Thermal output power capacity (Ptherm) must be equal or more than absorbed output power to drive machine

Absorbed output power = 5.23 HP Ptherm = 8.67 HP

Therefore unit is acceptable

12 CHECK PHYSICAL DIMENSIONS IF MOTORIZED

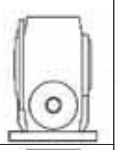
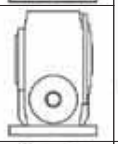
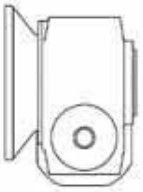
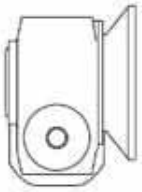
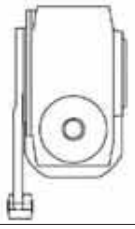
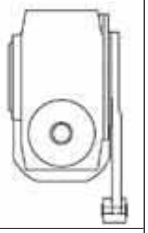
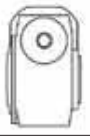
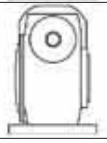
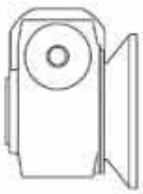
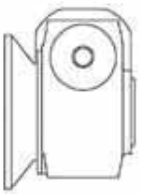
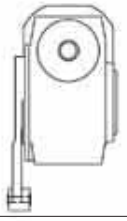
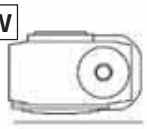
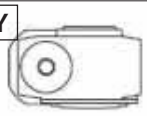
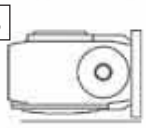
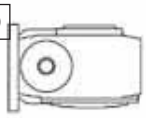
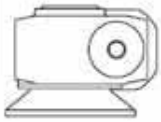
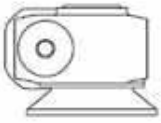
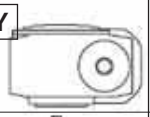
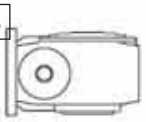
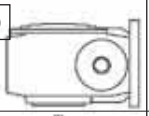
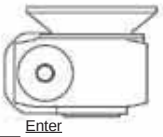
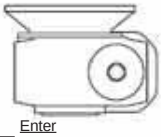
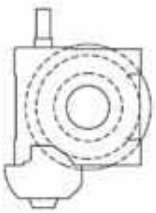
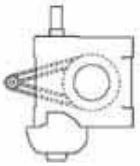
For motorized units check on dimension pages that the gearbox will accept the dimensions of the motor frame required

13 CHECK OVERHUNG LOADS

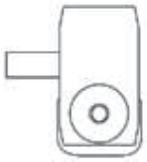
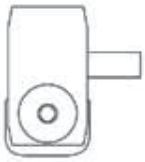
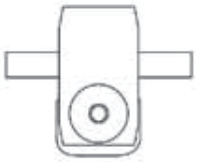
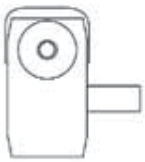
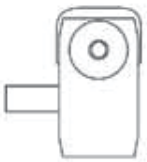
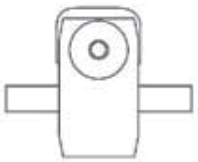
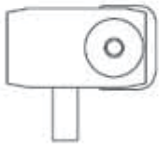
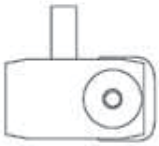
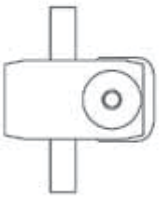
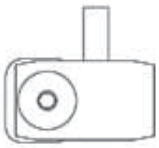
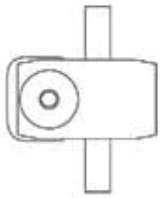
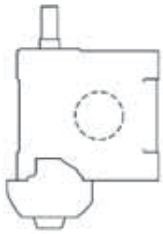
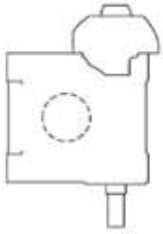
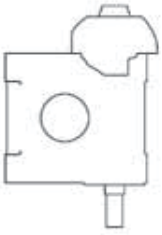
If sprocket, gear, etc is mounted on the input or output shaft then refer to Overhung loads procedure, pages 13 and 14

NOTE: If any of the following conditions occur then consult David Brown Radicon Application Engineers:-

a) $\frac{\text{Inertia of the Driven Machine (Referred to motor speed)}}{\text{Inertia of Gear Unit plus Motor}}$ >1.0 b) Ambient temperature is above 120°F or c) The unit is required without a fan

Column 13 Entry	Unit Version - Column 9 Entry					
	Basic Unit	Base mounted feet	Output flange		Banjo torque arm	
1	W  Y 	B  D 	F 	H 	T 	X 
2	W  Y 	B  D 	F 	H 	T 	X 
3	W  Y 	B  D 	F 	H 	T	X
4	W  Y 	B  D 	F  Enter V for drywell A for agitator C for cooling tower	H  Enter V for drywell A for agitator C for cooling tower	T	X
5	W  Y 	B  D 	F 	H 	T 	X 
6	W  Y 	B  D 	F	H	T	X

UNIT HANDINGS - OUTPUT SHAFT POSITIONS

Column 13 Entry	Output Shaft Positions - Column 11 Entry		
	N (Q) Single extension	B (T) Single extension	P (R) Double extension
1			
2			
3			
4			
5			
6			

Letters in brackets indicate reduced diameter output shafts, see page 13 for details.

DOUBLE REDUCTION PRIMARY UNIT MOUNTING POSITION

Column 13 Entry	Primary Unit Mounting Position - Column 14 Entry							
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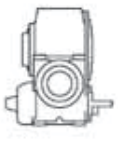
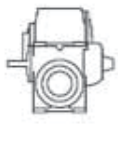
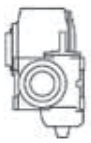
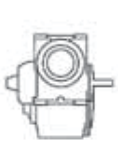
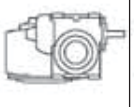
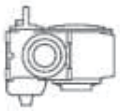
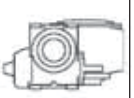
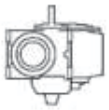
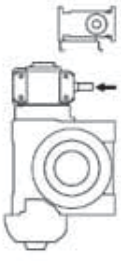
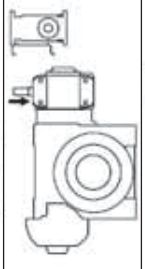
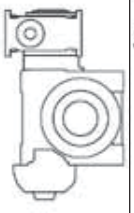
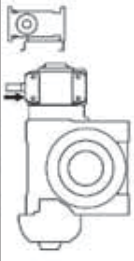
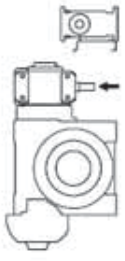
1								
2								
3								
4								
5								
6								

FOR SINGLE REDUCTION ENTER -

SIZE 2002 MOTORISED, ONLY PRIMARY MOUNTING POSITIONS 1, 2, 3 AND 4 ARE AVAILABLE

Single reduction (worm)

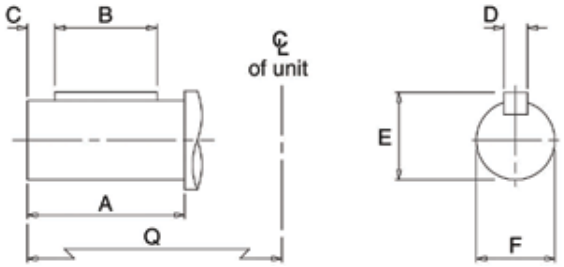
Nominal Ratio Column Entry (6 7 8)	Size 1002 Exact Ratio	Size 1252 Exact Ratio	Size 1602 Exact Ratio	Size 2002 Exact Ratio
5 . 0	5.143	5.125	5.125	5.1
7 . 5	7.4	7.4	7.571	7.571
1 0 .	9.75	9.75	9.8	9.8
1 2 .	12.333	12.333	12.25	12.25
1 5 .	15.5	15.5	14.667	15.333
2 0 .	19.5	19.5	20.5	20.5
2 5 .	25	25	24.5	24.5
3 0 .	30	30	30	30
4 0 .	40	40	40	40
5 0 .	50	50	50	50
6 0 .	60	60	60	60
7 0 .	70	70	70	70

Double reduction (worm/worm)

Nominal Ratio	Column Entry (6 7 8)	Primary & Secondary Nominal Ratio	Size 1002 Exact Ratio	Size 1252 Exact Ratio	Size 1602 Exact Ratio	Size 2002 Reducer Exact Ratio	Size 2002 Motorized (helical worm/worm) Primary & Secondary Nominal Ratio	Size 2002 Motorized (helical worm/worm) Exact Ratio
75.00	7 5 .	5 x 15	77.5	80.6	70.88	78.857	8 x 10	77.43
100.00	1 0 0	5 x 20	97.5	101.4	99.083	105.429	8 x 12.5	96.79
125.00	1 2 5	5 x 25	125	130	118.416	126	12 x 10	120.5
150.00	1 5 0	10 x 15	149.83	160.18	141.77	149.5	20 x 7.5	152.0
200.00	2 0 0	10 x 20	188.5	201.5	198.16	199.875	8 x 25	193.6
225.00	2 2 5	15 x 15	232.5	224.75	212.66	237.66	18 x 12.5	216.3
250.00	2 5 0	25 x 10	243.75	243.75	259.66	252.83	20 x 12.5	245.9
300.00	3 0 0	20 x 15	292.5	282.75	297.25	317.75	12 x 25	301.2
350.00	3 5 0	5 x 70	350	364	338.33	360	14 x 25	331.2
375.00	3 7 5	25 x 15	387.5	387.5	366.66	383.33	25 x 15	377.0
400.00	4 0 0	20 x 20	390	380.25	399.75	399.75	8 x 50	395.0
450.00	4 5 0	15 x 30	465	465	440	460	10 x 25	432.6
500.00	5 0 0	20 x 25	487.5	487.5	512.5	512.5	25 x 20	491.8
600.00	6 0 0	40 x 15	600	580	580	620	80 x 75	572.1
625.0	6 2 5	25 x 25	625	625	612.5	612.5	25 x 25	602.4
700.00	7 0 0	70 x 10	676.67	723.33	676.66	682.5	14 x 50	675.9
750.00	7 5 0	50 x 15	750	750	750	750	50 x 15	765.1
800.00	8 0 0	40 x 20	780	780	820	820	20 x 40	802.9
900.00	9 0 0	60 x 15	900	900	900	900	18 x 50	882.8
1000.00	1 0 C	40 x 25	1000	1000	1000	1000	20 x 50	1004.
1200.00	1 2 C	40 x 30	1200	1200	1200	1200	20 x 60	1204.
1250.00	1 3 C	50 x 25	1250	1250	1225	1225	50 x 25	1222.
1400.00	1 4 C	70 x 20	1365	1365	1435	1435	28 x 50	1352.
1500.00	1 5 C	60 x 25	1500	1500	1500	1500	50 x 30	1497.
1600.00	1 6 C	40 x 40	1600	1600	1600	1600	32 x 50	1541.
1750.00	1 7 C	70 x 25	1750	1750	1715	1715	28 x 60	1622.
1800.00	1 8 C	60 x 30	1800	1800	1800	1800	45 x 40	1765.
2000.00	2 0 C	50 x 40	2000	2000	2000	2000	40 x 50	2007.
2100.00	2 1 C	70 x 30	2100	2100	2100	2100	71 x 30	2070.
2400.00	2 4 C	60 x 40	2400	2400	2400	2400	80 x 30	2267.
2500.00	2 5 C	50 x 50	2500	2500	2500	2500	50 x 50	2495.
2800.00	2 8 C	70 x 40	2800	2800	2800	2800	56 x 50	2681.
3000.00	3 0 C	60 x 50	3000	3000	3000	3000	50 x 60	2994.
3500.00	3 5 C	70 x 50	3500	3500	3500	3500	50 x 70	3493.
3600.00	3 6 C	60 x 60	3600	3600	3600	3600	71 x 50	3450.
4200.00	4 2 C	70 x 60	4200	4200	4200	4200	71 x 60	4140.

NOMINAL RATIO ENTERED IN COLUMNS (6 7 8)

OUTPUTSHAFT OPTIONS, COLUMN 11 ENTRY



SIZE OF UNIT	TYPE OF OUTPUTSHAFT	COLUMN 11 ENTRY		DIMENSIONS IN INCHES (METRIC SHAFTS IN MM)						
		SINGLE EXT	DOUBLE EXT	A	B	C	D	E	øF	Q
A1002	Std Inch *	N, B	P	4.33	3.88	-	.501 / .500	2.219 / 2.212	2.0 / 1.9993	8.86
	Inch Red. Dia. *	Q, T	R	3.23	2.69	-	.376 / .375	1.913 / 1.906	1.75 / 1.7494	8.46
	Metric	C, E	D	110	86	10	14.000 / 13.957	53.50 / 53.21	50.018 / 50.002	225
	Metric Red. Dia.	F, J	G	82	56	10	14.000 / 13.957	48.50 / 48.21	45.018 / 45.002	215
A1252	Std Inch *	N, B	P	4.72	4.19	-	.626 / .625	2.774 / 2.767	2.5 / 2.4993	10.04
	Inch Red. Dia. *	Q, T	R	3.23	2.75	-	.501 / .500	2.218 / 2.211	2.0 / 1.9993	9.06
	Metric	C, E	D	120	92	12	18.000 / 17.957	69.00 / 68.69	65.030 / 65.011	255
	Metric Red. Dia.	F, J	G	82	54	11	16.000 / 15.957	59.00 / 58.71	55.030 / 55.011	230
A1602	Std Inch *	N, B	P	5.31	4.63	-	.751 / .750	3.328 / 3.321	3.0 / 2.9993	11.61
	Inch Red. Dia. *	Q, T	R	4.13	3.70	-	.626 / .625	2.772 / 2.765	2.5 / 2.4993	10.83
	Metric	C, E	D	135	105	13	20.000 / 19.948	79.50 / 79.19	75.030 / 75.011	295
	Metric Red. Dia.	F, J	G	105	82	12	18.000 / 17.957	69.00 / 68.69	65.030 / 65.011	275
A2002	Std Inch *	N, B	P	6.69	5.94	-	.876 / .875	3.883 / 3.876	3.5 / 3.4993	13.98
	Inch Red. Dia. *	Q, T	R	5.12	4.63	-	.751 / .750	3.327 / 3.320	3.0 / 2.9993	12.30
	Metric	C, E	D	170	135	15.5	25.000 / 24.948	95.00 / 94.59	90.035 / 90.013	355
	Metric Red. Dia.	F, J	G	130	103	14	22.000 / 21.948	85.00 / 84.69	80.030 / 80.011	310

* Inch shafts have an open ended keyway, therefore no 'C' dimension is required

ADDITIONAL FEATURES - COLUMN 20 ENTRY

COLUMN 20 ENTRY	DOUBLE OIL SEALS	PRIME PAINTED ONLY	HOLD BACK	LUBRICANT TYPE* (See lubrication details - page 6)	
				MINERAL	SYNTHETIC
-				●	
A	●			●	
B		●		●	
C			●	●	
D	●	●		●	
E		●	●	●	
F	●		●	●	
G	●	●	●	●	
H (1)					
J	●				
K		●			
L			●		
M	●	●			
N		●	●		
P	●		●		
Q	●	●	●		
R					●
S	●				●
T		●			●
U			●		●
V	●	●			●
W		●	●		●
X	●		●		●
Y	●	●	●		●

* Customer requests for special oils (food compatible etc) must be referred to Textron Power Transmission Applications Engineering, since a derate could result depending on oil type used.

(1) Standard option

MOTOR ADAPTORS (For Double Reduction Units Only)

NEMA MOTOR ADAPTORS, COLUMN 12 ENTRY FOR A TYPE ONLY

MOTOR FRAME/FLANGE	UNIT SIZE			
	1002	1252	1602	2002
56C	A	-	-	-
143TC / 145TC	B	D	F	J
182TC / 184TC	-	E	G	K
213TC / 215TC	-	-	H	L
254TC/256TC	-	-	-	M

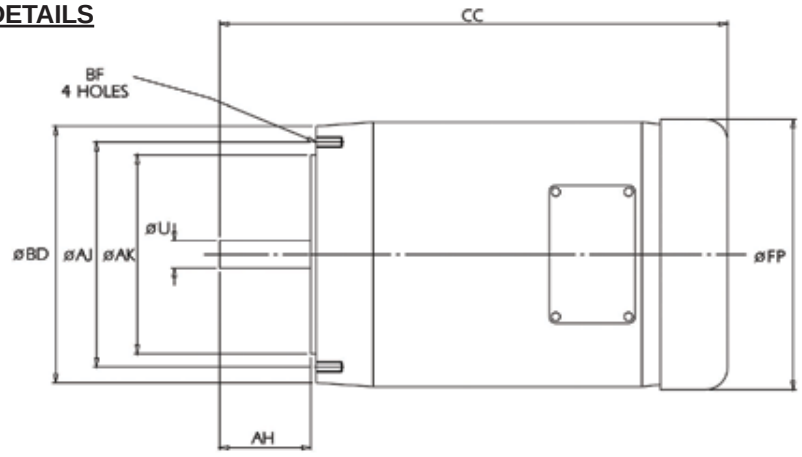
IEC MOTOR ADAPTORS, COLUMN 12 ENTRY FOR G TYPE ONLY

MOTOR FRAME/FLANGE	UNIT SIZE			
	1002	1252	1602	2002
80/D	A	G	-	-
80/C	B	H	-	-
90/D	C	J	N	-
90/C	D	K	P	-
100/112D	E	L	Q	U
100/112C	F	M	R	-
132/D	-	W	S	V
132/C	-	-	T	-

NOTE

Close coupled motorized units are only available in double reduction versions ie ratios 75:1 to 4200:1. For motorized units up to 75:1 use Series C product range.

MOTOR DETAILS



MOTOR FRAME SIZE	ø BD	ø AJ	ø AK	ø U	ø AH	CC max	ø FP	B F TAP UNC
56C	6.50	5.88	4.5	0.625	2.06	11.38	7.19	0.38
143TC / 145TC	6.50	5.88	4.5	0.875	2.12	14.19	7.19	0.38
182TC/184TC	9.00	7.25	8.5	1.125	2.63	18.06	8.50	0.50
213TC/215TC	9.00	7.25	8.5	1.375	3.13	19.44	10.19	0.50
254TC/256TC	9.13	7.25	8.5	1.625	3.75	23.63	12.50	0.50

These dimensions apply to Textron Power Transmission NEMA motors

OVERHUNG LOADS (lbs) ON SHAFTS

Maximum permissible overhung loads

When a sprocket, gear etc. is mounted on the shaft a calculation, as below, must be made to determine the overhung load on the shaft, and the results compared to the maximum permissible overhung loads tabulated. Overhung loads can be reduced by increasing the diameter of the sprocket, gear, etc. If the maximum permissible overhung load is exceeded, the sprocket, gear, etc. should be mounted on a separate shaft, flexibly coupled and supported in its own bearings, or the gear unit shaft should be extended to run in an outboard bearing. Alternatively, a larger gear is often a less expensive solution.

Permissible overhung loads vary according to the direction of rotation. The values tabulated are for the most unfavourable direction with the unit transmitting full rated power and the load P applied midway along the shaft extension. Hence they can sometimes be increased for a more favourable direction of rotation, or if the power transmitted is less than the rated capacity of the gear unit, or if the load is applied nearer to the gear unit case. Refer to Textron Power Transmission for further details. In any event, the sprocket, gear etc. should be positioned as close as possible to the gear unit case in order to reduce bearing loads and shaft stresses, and to prolong life.

All units will accept 100% momentary overload on stated capacities.

Overhung load (lbs)

$$P = \frac{HP \times 126{,}000 \times K}{N \times o}$$

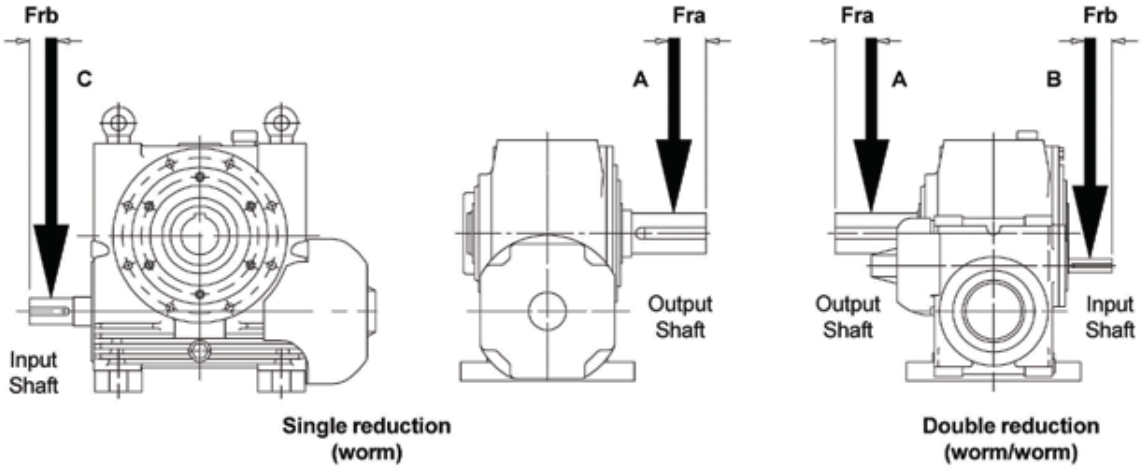
where

P = equivalent overhung load (lb)
H P = power transmitted by the shaft (HP)
N = speed of shaft (rpm)
D = pitch diameter of sprocket, etc. (in)
K = factor

Overhung member	K (factor)
Chain sprocket*	1.00
Spur or helical pinion	1.25
Vee belt sheave	1.50
Flat belt pulley	2.00

* If multistrand chain drives are equally loaded and the outer strand is further than dimension A output or 8 input, refer to Textron Power Transmission.

Note: 1 lb = 0.4536 kg = 4.4484 Newtons.



Distance midway along the shaft extension

Size of unit	Dimension A (inches)	Dimension B (inches)	Dimension C (inches)
1002	2.165	1.125	1.14
1252	2.360	1.375	1.615
1602	2.655	1.625	1.615
2002	3.345	1.140	1.615

OVERHUNG LOADS (Fra) & AXIAL THRUST CAPACITIES ON OUTPUTSHAFT

		OUTPUT Rev/min							
		700	500	350	230	140	95	70	15 & UNDER
A1002	OHL (Fra)	3160	3250	3380	3570	3890	3890	3880	3860
	THRUST	3060	3060	3060	3060	3060	3060	3060	3060
A1252	OHL (Fra)	4220	4390	4510	4740	5620	5620	5620	5620
	THRUST	3880	3880	3880	3880	3880	3880	3880	3880
A1602	OHL (Fra)	5870	6170	6270	6600	7990	8080	8080	8030
	THRUST	4480	4480	4480	4480	4480	4480	4480	4480
A2002	OHL (Fra)	6960	7420	7480	7700	9780	10200	10200	10100
(REDUCER)	THRUST	4530	4530	4530	4530	4530	4530	4530	4520
A2002	OHL (Fra)							10200	10200
(MOTORIZED)	THRUST							4530	4530

REDUCER OVERHUNG LOADS (Frb) ON INPUTSHAFT

AT 1750 rev/min

	RATIO	SIZE			
		A1002	A1252	A1602	A2002
	5	1600	1680	2470	3340
	7.5	1620	1790	2580	3480
	10	1630	1790	2540	3390
	12.5	1630	1800	2450	3180
	15	1490	1850	2170	2900
	20	1660	1830	1930	2490
	25	952	1740	2220	2720
	30	1310	1630	1820	1940
	40	1360	2170	1620	1720
	50	1260	1640	1770	2620
	60	1150	1310	2050	3150
	70	1570	1140	2050	2780
	100	359	659	674	1730
	150	295	340	514	1710
	200	355	345	590	1760
	300	265	346	300	1730
	400	319	360	382	1780
	600	329	378	449	1740
	800	380	391	520	1780
	1200	385	401	582	1850
	1600	392	448	620	1850
	2400	296	436	483	1410
	3000	315	438	518	1450
	4200	346	460	626	1820

RATINGS
3500 RPM INP

	NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT			
				A1002	A1252	A1602	A2002
SINGLE REDUCTION	5.0	700.00	Input Power HP (mechanical)	37.90	65.20	121.00	206.00
			Input Power HP (thermal)	65.20	98.20	145.00	240.00
			Output Power HP (mechanical)	36.10	62.30	116.00	197.00
			Output Torque lb.in (mech.)	3340.	5750.	10700.	18100.
			Efficiency %	95	96	96	96
	7.5	466.67	Input Power HP (mechanical)	30.70	53.90	92.50	164.00
			Input Power HP (thermal)	50.50	77.10	123.00	213.00
			Output Power HP (mechanical)	28.90	51.00	88.10	156.00
			Output Torque lb.in (mech.)	3850.	6790.	12000.	21200.
			Efficiency %	94	95	95	95
	10.0	350.00	Input Power HP (mechanical)	25.60	45.40	82.30	144.00
			Input Power HP (thermal)	45.60	68.20	108.00	187.00
			Output Power HP (mechanical)	23.90	42.60	77.70	136.00
			Output Torque lb.in (mech.)	4190.	7470.	13700.	24000.
			Efficiency %	93	94	94	94
	12.5	280.00	Input Power HP (mechanical)	22.30	39.80	71.00	126.00
			Input Power HP (thermal)	38.70	57.90	96.20	167.00
			Output Power HP (mechanical)	20.50	36.80	66.70	119.00
			Output Torque lb.in (mech.)	4560.	8180.	14700.	26200.
			Efficiency %	92	93	94	94
	15.0	233.33	Input Power HP (mechanical)	20.70	37.40	65.80	112.00
			Input Power HP (thermal)	31.40	51.40	82.00	147.00
			Output Power HP (mechanical)	18.80	34.30	61.00	104.00
			Output Torque lb.in (mech.)	5250.	9580.	16100.	28700.
			Efficiency %	91	92	93	93
	20.0	175.00	Input Power HP (mechanical)	16.70	29.60	52.20	93.50
			Input Power HP (thermal)	28.80	43.30	59.90	114.00
			Output Power HP (mechanical)	14.90	26.70	47.20	85.40
			Output Torque lb.in (mech.)	5240.	9360.	17400.	31500.
			Efficiency %	89	90	90	91
	25.0	140.00	Input Power HP (mechanical)	18.50	31.10	41.80	77.80
			Input Power HP (thermal)	21.20	33.70	54.30	98.00
			Output Power HP (mechanical)	16.20	27.60	37.20	70.10
			Output Torque lb.in (mech.)	7280.	12400.	16400.	30900.
			Efficiency %	87	89	89	90
	30.0	116.67	Input Power HP (mechanical)	14.40	26.20	47.10	90.70
			Input Power HP (thermal)	19.50	29.30	41.80	78.60
			Output Power HP (mechanical)	12.40	22.80	40.90	80.40
			Output Torque lb.in (mech.)	6670.	12300.	22100.	43400.
			Efficiency %	86	87	87	88
	40.0	87.50	Input Power HP (mechanical)	10.30	18.00	33.70	62.90
			Input Power HP (thermal)	15.60	25.30	35.20	66.00
			Output Power HP (mechanical)	8.36	15.00	28.20	54.00
			Output Torque lb.in (mech.)	6020.	10800.	20300.	38900.
			Efficiency %	81	83	84	86
	50.0	70.00	Input Power HP (mechanical)	7.81	14.00	25.40	46.60
			Input Power HP (thermal)	13.40	20.80	31.00	54.00
			Output Power HP (mechanical)	6.11	11.20	20.60	38.70
			Output Torque lb.in (mech.)	5500.	10100.	18500.	34800.
			Efficiency %	78	80	81	83
	60.0	58.33	Input Power HP (mechanical)	6.13	11.00	19.80	36.40
			Input Power HP (thermal)	11.20	17.70	25.20	44.20
			Output Power HP (mechanical)	4.56	8.46	15.40	29.30
			Output Torque lb.in (mech.)	4930.	9140.	16600.	31600.
			Efficiency %	74	77	78	80
	70.0	50.00	Input Power HP (mechanical)	5.28	8.83	16.90	29.60
			Input Power HP (thermal)	9.16	15.30	20.30	38.40
			Output Power HP (mechanical)	3.71	6.50	12.50	22.90
			Output Torque lb.in (mech.)	4670.	8190.	15700.	28900.
			Efficiency %	70	74	74	77

SERIES AM
RATINGS AT 3500 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
75.0	46.67	Input Power HP (mechanical)	8.64	12.20	26.90	37.80	27.80
		Input Power HP (thermal)	7.93	13.70	24.20	41.20	27.10
		Output Power HP (mechanical)	7.08	10.30	23.40	33.30	23.20
		Output Torque lb.in (mech.)	9880.	14900.	29800.	47300.	32400
		Efficiency %	82	84	87	88	84
100.	35.00	Input Power HP (mechanical)	5.68	11.00	21.70	33.90	27.80
		Input Power HP (thermal)	7.71	11.60	18.00	32.30	24.10
		Output Power HP (mechanical)	4.52	9.04	18.20	29.10	23.00
		Output Torque lb.in (mech.)	7930.	16500.	32400.	55300.	40100
		Efficiency %	80	82	83	86	82
125.	28.00	Input Power HP (mechanical)	6.81	10.20	17.20	27.70	23.10
		Input Power HP (thermal)	5.89	9.23	16.20	28.80	21.90
		Output Power HP (mechanical)	5.24	8.12	14.10	23.50	19.50
		Output Torque lb.in (mech.)	11800.	19000.	30100.	53200.	42200
		Efficiency %	76	79	82	85	84
150.	23.33	Input Power HP (mechanical)	5.85	7.35	16.40	24.80	16.90
		Input Power HP (thermal)	5.44	8.45	14.80	25.80	21.40
		Output Power HP (mechanical)	4.49	5.83	13.50	21.10	14.20
		Output Torque lb.in (mech.)	12100.	16800.	34500.	56800.	38900
		Efficiency %	76	79	82	85	84
200.	17.50	Input Power HP (mechanical)	3.59	6.66	14.40	20.90	14.90
		Input Power HP (thermal)	5.05	7.23	11.10	20.40	15.30
		Output Power HP (mechanical)	2.63	5.13	11.40	17.30	11.00
		Output Torque lb.in (mech.)	8930.	18600.	40700.	62100.	38400
		Efficiency %	73	77	79	82	74
225.	15.56	Input Power HP (mechanical)	4.37	5.84	14.30	17.70	15.30
		Input Power HP (thermal)	3.90	7.16	11.70	19.60	17.50
		Output Power HP (mechanical)	3.13	4.42	11.40	14.40	12.60
		Output Torque lb.in (mech.)	13100.	17900.	43600.	61600.	49000
		Efficiency %	71	76	79	81	82
250.	14.00	Input Power HP (mechanical)	4.47	7.51	10.70	18.30	13.80
		Input Power HP (thermal)	2.44	7.85	12.50	20.20	16.90
		Output Power HP (mechanical)	3.05	5.47	7.98	14.60	11.30
		Output Torque lb.in (mech.)	13400.	24000.	35200.	64500.	50100
		Efficiency %	64	73	75	80	82
300.	11.67	Input Power HP (mechanical)	3.76	4.75	11.20	14.90	10.20
		Input Power HP (thermal)	2.70	6.37	10.30	17.50	12.40
		Output Power HP (mechanical)	2.47	3.47	8.61	11.90	7.62
		Output Torque lb.in (mech.)	13800.	18900.	44300.	64200.	41300
		Efficiency %	64	73	77	80	75
350.	10.00	Input Power HP (mechanical)	1.78	3.09	6.47	9.78	9.50
		Input Power HP (thermal)	2.99	4.76	7.19	12.50	12.00
		Output Power HP (mechanical)	0.99	1.89	4.20	6.82	7.06
		Output Torque lb.in (mech.)	6260.	12400.	25600.	44200.	42100
		Efficiency %	56	61	65	70	74
375.	9.33	Input Power HP (mechanical)	3.27	4.22	10.50	12.60	8.96
		Input Power HP (thermal)	2.44	6.12	9.77	16.00	15.00
		Output Power HP (mechanical)	2.05	2.82	7.55	9.70	6.56
		Output Torque lb.in (mech.)	14300.	19700.	49800.	66900.	44500
		Efficiency %	61	67	72	77	73
400.	8.75	Input Power HP (mechanical)	2.36	4.34	9.31	12.70	8.92
		Input Power HP (thermal)	2.70	5.49	7.83	13.90	9.75
		Output Power HP (mechanical)	1.45	3.05	6.78	9.78	5.47
		Output Torque lb.in (mech.)	10200.	20900.	48800.	70400.	38900
		Efficiency %	62	70	72	77	61
450.	7.78	Input Power HP (mechanical)	2.47	4.78	9.93	12.80	7.69
		Input Power HP (thermal)	2.99	4.41	6.53	11.20	11.10
		Output Power HP (mechanical)	1.53	3.21	6.93	9.39	5.69
		Output Torque lb.in (mech.)	12400.	25100.	54300.	78600.	44300
		Efficiency %	62	67	68	73	74
500.	7.00	Input Power HP (mechanical)	2.86	4.11	7.35	10.50	6.95
		Input Power HP (thermal)	2.70	4.44	7.16	12.60	10.80
		Output Power HP (mechanical)	1.69	2.75	5.20	7.87	5.12
		Output Torque lb.in (mech.)	15200.	24100.	44700.	67700.	45300
		Efficiency %	58	67	70	75	74
600.	5.83	Input Power HP (mechanical)	2.43	3.03	7.03	8.98	5.22
		Input Power HP (thermal)	2.04	5.46	8.57	13.80	8.36
		Output Power HP (mechanical)	1.37	1.87	4.72	6.45	4.13
		Output Torque lb.in (mech.)	15300.	20900.	49800.	71200.	42500
		Efficiency %	55	62	67	72	79
625.	5.60	Input Power HP (mechanical)	2.50	3.68	6.46	8.94	6.51
		Input Power HP (thermal)	2.44	4.32	6.86	11.50	10.90
		Output Power HP (mechanical)	1.40	2.24	4.20	6.39	4.33
		Output Torque lb.in (mech.)	15700.	25200.	46300.	70500.	46900
		Efficiency %	56	61	65	72	66
700.	5.00	Input Power HP (mechanical)	1.59	2.43	3.64	5.03	5.65
		Input Power HP (thermal)	0.97	3.58	6.06	8.40	7.58
		Output Power HP (mechanical)	0.79	1.37	2.16	3.26	3.51
		Output Torque lb.in (mech.)	9660.	16800.	26700.	40200.	42700
		Efficiency %	44	56	59	65	62
750.	4.67	Input Power HP (mechanical)	2.07	2.53	5.17	7.42	4.51
		Input Power HP (thermal)	1.46	5.38	8.48	12.40	11.30
		Output Power HP (mechanical)	1.09	1.50	3.28	5.14	3.43
		Output Torque lb.in (mech.)	15200.	20900.	43300.	71000.	47300
		Efficiency %	50	59	63	69	76
800.	4.38	Input Power HP (mechanical)	1.55	2.79	5.88	7.74	5.49
		Input Power HP (thermal)	2.04	4.74	6.59	11.10	7.55
		Output Power HP (mechanical)	0.81	1.65	3.68	5.30	3.63
		Output Torque lb.in (mech.)	11300.	23200.	54300.	78200.	52400
		Efficiency %	52	59	63	68	66

SERIES AM
RATINGS AT 3500 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
900.	3.89	Input Power HP (mechanical)	1.81	2.25	4.15	5.88	4.57
		Input Power HP (thermal)	1.27	4.70	7.93	10.40	7.01
		Output Power HP (mechanical)	0.91	1.25	2.50	3.90	2.83
		Output Torque lb.in (mech.)	15200.	20900.	39600.	64600.	45000
		Efficiency %	47	55	60	66	62
1000.	3.50	Input Power HP (mechanical)	1.89	2.68	4.53	6.44	4.13
		Input Power HP (thermal)	2.04	3.88	6.06	9.56	6.78
		Output Power HP (mechanical)	0.93	1.49	2.71	4.26	2.55
		Output Torque lb.in (mech.)	16800.	26800.	47800.	75100.	46000
		Efficiency %	49	56	60	66	62
1200.	2.92	Input Power HP (mechanical)	1.45	2.57	4.50	5.89	3.31
		Input Power HP (thermal)	2.04	3.47	4.94	8.11	6.21
		Output Power HP (mechanical)	0.67	1.37	2.51	3.64	1.91
		Output Torque lb.in (mech.)	14400.	29500.	54300.	78600.	41400
		Efficiency %	46	53	56	62	58
1250.	2.80	Input Power HP (mechanical)	1.62	2.25	3.87	5.36	3.22
		Input Power HP (thermal)	1.46	3.82	5.75	8.93	8.09
		Output Power HP (mechanical)	0.75	1.19	2.20	3.40	2.27
		Output Torque lb.in (mech.)	16800.	26800.	48400.	75000.	50000
		Efficiency %	45	53	57	63	71
1400.	2.50	Input Power HP (mechanical)	1.09	1.89	3.64	5.03	3.75
		Input Power HP (thermal)	0.97	3.58	6.06	8.40	6.81
		Output Power HP (mechanical)	0.46	0.94	1.94	3.01	1.99
		Output Torque lb.in (mech.)	11200.	23100.	50200.	77700.	48400
		Efficiency %	40	50	53	60	53
1500.	2.33	Input Power HP (mechanical)	1.42	2.00	3.42	4.66	2.95
		Input Power HP (thermal)	1.27	3.87	5.56	8.63	7.12
		Output Power HP (mechanical)	0.62	0.99	1.85	2.83	1.94
		Output Torque lb.in (mech.)	16700.	26700.	48900.	74900.	52400
		Efficiency %	43	49	54	61	66
1600.	2.19	Input Power HP (mechanical)	1.31	1.72	3.67	4.71	2.94
		Input Power HP (thermal)	2.04	3.12	4.33	6.89	5.89
		Output Power HP (mechanical)	0.55	0.82	1.89	2.73	1.78
		Output Torque lb.in (mech.)	15700.	23500.	54300.	78600.	49400
		Efficiency %	42	47	51	58	61
1750.	2.00	Input Power HP (mechanical)	1.32	1.83	3.13	4.22	3.09
		Input Power HP (thermal)	0.97	3.58	5.52	8.40	5.84
		Output Power HP (mechanical)	0.53	0.85	1.60	2.42	1.49
		Output Torque lb.in (mech.)	16700.	26700.	49300.	74800.	43500
		Efficiency %	37	46	51	57	48
1800.	1.94	Input Power HP (mechanical)	1.11	1.93	3.34	4.30	2.63
		Input Power HP (thermal)	1.27	3.48	4.91	7.85	6.04
		Output Power HP (mechanical)	0.44	0.91	1.68	2.43	1.65
		Output Torque lb.in (mech.)	14400.	29500.	54300.	78600.	52400
		Efficiency %	40	47	50	56	63
2000.	1.75	Input Power HP (mechanical)	1.14	1.46	3.11	3.96	2.66
		Input Power HP (thermal)	1.46	3.05	4.18	6.46	5.61
		Output Power HP (mechanical)	0.44	0.65	1.51	2.18	1.41
		Output Torque lb.in (mech.)	15700.	23400.	54300.	78600.	51000
		Efficiency %	38	45	48	55	53
2100.	1.67	Input Power HP (mechanical)	1.03	1.77	3.05	3.91	2.18
		Input Power HP (thermal)	0.97	3.54	4.98	7.75	6.63
		Output Power HP (mechanical)	0.38	0.78	1.44	2.08	1.41
		Output Torque lb.in (mech.)	14400.	29400.	54300.	78600.	52400
		Efficiency %	36	44	47	53	65
2400.	1.46	Input Power HP (mechanical)	1.01	1.32	2.74	3.47	2.01
		Input Power HP (thermal)	1.27	3.00	4.05	6.28	6.44
		Output Power HP (mechanical)	0.36	0.54	1.26	1.82	1.28
		Output Torque lb.in (mech.)	15600.	23400.	54300.	78600.	52400
		Efficiency %	36	41	46	52	64
2500.	1.40	Input Power HP (mechanical)	0.82	1.27	2.46	3.29	1.92
		Input Power HP (thermal)	1.46	2.52	3.62	5.47	4.86
		Output Power HP (mechanical)	0.27	0.51	1.10	1.70	1.13
		Output Torque lb.in (mech.)	12000.	23000.	49500.	76300.	50900
		Efficiency %	32	40	45	52	59
2800.	1.25	Input Power HP (mechanical)	0.94	1.22	2.51	3.16	2.01
		Input Power HP (thermal)	0.97	2.98	4.01	6.20	5.00
		Output Power HP (mechanical)	0.31	0.46	1.08	1.56	1.05
		Output Torque lb.in (mech.)	15600.	23400.	54300.	78600.	50900
		Efficiency %	33	38	43	49	52
3000.	1.17	Input Power HP (mechanical)	0.74	1.15	2.19	2.89	1.53
		Input Power HP (thermal)	1.27	2.48	3.53	5.27	4.08
		Output Power HP (mechanical)	0.22	0.43	0.92	1.41	0.85
		Output Torque lb.in (mech.)	12100.	23000.	49900.	76200.	45700
		Efficiency %	30	37	42	49	55
3500.	1.00	Input Power HP (mechanical)	0.70	1.07	2.03	2.64	1.18
		Input Power HP (thermal)	0.97	2.47	3.50	5.21	3.62
		Output Power HP (mechanical)	0.19	0.37	0.80	1.21	0.61
		Output Torque lb.in (mech.)	12200.	23000.	50200.	76100.	38500
		Efficiency %	28	34	39	46	52
3600.	0.97	Input Power HP (mechanical)	0.57	0.89	1.59	2.35	1.42
		Input Power HP (thermal)	1.27	2.19	3.00	4.47	4.37
		Output Power HP (mechanical)	0.14	0.28	0.58	1.06	0.82
		Output Torque lb.in (mech.)	9240.	18000.	37800.	68500.	50800
		Efficiency %	25	31	37	45	58
4200.	0.83	Input Power HP (mechanical)	0.55	0.84	1.49	2.16	1.13
		Input Power HP (thermal)	0.97	2.18	2.98	4.43	3.67
		Output Power HP (mechanical)	0.12	0.24	0.50	0.91	0.61
		Output Torque lb.in (mech.)	9340.	18200.	38200.	68500.	45700
		Efficiency %	22	29	34	42	54

SERIES AM
RATINGS AT 2400 RPM INPUT

	NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT			
				A1002	A1252	A1602	A2002
SINGLE REDUCTION	5.0	480.00	Input Power HP (mechanical)	31.30	54.00	100.00	172.00
			Input Power HP (thermal)	49.80	76.80	117.00	196.00
			Output Power HP (mechanical)	29.90	51.80	96.60	166.00
			Output Torque lb.in (mech.)	4040.	6970.	13000.	22200.
			Efficiency %	96	96	97	96
	7.5	320.00	Input Power HP (mechanical)	25.20	44.40	76.20	135.00
			Input Power HP (thermal)	37.70	58.60	95.60	167.00
			Output Power HP (mechanical)	23.80	42.10	73.00	129.00
			Output Torque lb.in (mech.)	4620.	8170.	14500.	25700.
			Efficiency %	94	95	96	96
	10.0	240.00	Input Power HP (mechanical)	20.80	37.10	67.30	118.00
			Input Power HP (thermal)	33.70	51.50	83.60	146.00
			Output Power HP (mechanical)	19.50	34.90	63.80	112.00
			Output Torque lb.in (mech.)	5000.	8930.	16400.	28900.
			Efficiency %	94	94	95	95
	12.5	192.00	Input Power HP (mechanical)	18.00	32.30	57.80	103.00
			Input Power HP (thermal)	28.60	43.70	74.00	130.00
			Output Power HP (mechanical)	16.70	30.00	54.40	97.30
			Output Torque lb.in (mech.)	5410.	9720.	17500.	31300.
			Efficiency %	93	93	94	95
	15.0	160.00	Input Power HP (mechanical)	16.70	29.10	53.30	90.30
			Input Power HP (thermal)	23.20	38.60	63.10	114.00
			Output Power HP (mechanical)	15.20	26.80	49.60	84.50
			Output Torque lb.in (mech.)	6190.	10900.	19100.	34000.
			Efficiency %	91	92	93	94
	20.0	120.00	Input Power HP (mechanical)	12.70	23.70	42.00	75.10
			Input Power HP (thermal)	21.20	32.50	46.20	88.60
			Output Power HP (mechanical)	11.40	21.50	38.10	68.90
			Output Torque lb.in (mech.)	5850.	11000.	20500.	37100.
			Efficiency %	90	91	91	92
	25.0	96.00	Input Power HP (mechanical)	14.80	23.80	33.40	62.10
			Input Power HP (thermal)	15.70	25.30	41.70	78.00
			Output Power HP (mechanical)	12.90	21.00	29.90	56.30
			Output Torque lb.in (mech.)	8490.	13800.	19200.	36200.
			Efficiency %	87	88	89	91
	30.0	80.00	Input Power HP (mechanical)	11.00	20.90	37.70	72.50
			Input Power HP (thermal)	14.40	22.00	32.20	60.90
			Output Power HP (mechanical)	9.43	18.20	32.90	64.50
			Output Torque lb.in (mech.)	7430.	14300.	25900.	50800.
			Efficiency %	86	87	87	89
	40.0	60.00	Input Power HP (mechanical)	8.09	13.70	26.70	49.40
			Input Power HP (thermal)	11.50	18.90	27.00	52.30
			Output Power HP (mechanical)	6.64	11.50	22.60	42.80
			Output Torque lb.in (mech.)	6970.	12100.	23700.	44900.
			Efficiency %	82	84	85	87
	50.0	48.00	Input Power HP (mechanical)	6.30	11.10	20.80	35.50
			Input Power HP (thermal)	10.10	16.00	24.10	42.30
			Output Power HP (mechanical)	5.00	8.99	17.10	29.90
			Output Torque lb.in (mech.)	6560.	11800.	22500.	39200.
			Efficiency %	79	81	82	84
	60.0	40.00	Input Power HP (mechanical)	5.09	8.31	16.60	27.40
			Input Power HP (thermal)	8.45	13.40	19.80	34.80
			Output Power HP (mechanical)	3.87	6.48	13.20	22.30
			Output Torque lb.in (mech.)	6100.	10200.	20800.	35200.
			Efficiency %	76	78	80	82
	70.0	34.29	Input Power HP (mechanical)	4.16	6.62	14.30	22.20
			Input Power HP (thermal)	6.90	11.70	15.90	30.10
			Output Power HP (mechanical)	2.99	4.97	10.80	17.50
			Output Torque lb.in (mech.)	5490.	9140.	19900.	32200.
			Efficiency %	72	75	76	79

SERIES AM
RATINGS AT 2400 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
75.0	32.00	Input Power HP (mechanical)	6.87	9.13	21.90	30.00	19.10
		Input Power HP (thermal)	6.56	10.40	18.70	31.60	22.30
		Output Power HP (mechanical)	5.51	7.56	18.80	26.30	15.90
		Output Torque lb.in (mech.)	11200.	16000.	34900.	54400.	32400
		Efficiency %	80	83	85	88	83
100.	24.00	Input Power HP (mechanical)	4.27	8.24	17.20	25.20	19.10
		Input Power HP (thermal)	6.00	8.87	13.90	24.80	19.90
		Output Power HP (mechanical)	3.33	6.65	14.20	21.50	15.80
		Output Torque lb.in (mech.)	8520.	17700.	36900.	59400.	40100
		Efficiency %	78	81	82	85	83
125.	19.20	Input Power HP (mechanical)	5.16	7.70	13.60	20.60	18.30
		Input Power HP (thermal)	4.58	7.08	12.60	22.10	19.40
		Output Power HP (mechanical)	3.84	5.98	11.00	17.30	15.40
		Output Torque lb.in (mech.)	12600.	20400.	34100.	57100.	48600
		Efficiency %	75	77	80	84	84
150.	16.00	Input Power HP (mechanical)	4.39	5.48	13.40	18.40	12.20
		Input Power HP (thermal)	4.41	6.82	11.60	19.90	18.00
		Output Power HP (mechanical)	3.28	4.28	10.90	15.40	10.20
		Output Torque lb.in (mech.)	12900.	18000.	40600.	60600.	40500
		Efficiency %	75	78	81	84	83
200.	12.00	Input Power HP (mechanical)	2.68	4.97	11.20	15.60	10.70
		Input Power HP (thermal)	4.07	5.84	8.73	15.80	12.60
		Output Power HP (mechanical)	1.93	3.78	8.67	12.70	8.03
		Output Torque lb.in (mech.)	9550.	20000.	45100.	66400.	40800
		Efficiency %	72	76	77	81	75
225.	10.67	Input Power HP (mechanical)	3.29	4.35	11.00	13.10	11.30
		Input Power HP (thermal)	3.62	6.03	9.76	16.10	15.80
		Output Power HP (mechanical)	2.29	3.24	8.60	10.60	9.19
		Output Torque lb.in (mech.)	14000.	19100.	48000.	65900.	52200
		Efficiency %	70	74	78	81	81
250.	9.60	Input Power HP (mechanical)	3.39	5.81	8.57	14.60	10.10
		Input Power HP (thermal)	2.31	6.82	10.80	15.70	15.40
		Output Power HP (mechanical)	2.23	4.16	6.30	11.60	8.12
		Output Torque lb.in (mech.)	14300.	26600.	40500.	74500.	52400
		Efficiency %	64	72	73	79	80
300.	8.00	Input Power HP (mechanical)	2.82	3.52	8.95	11.00	7.54
		Input Power HP (thermal)	2.58	5.47	8.77	14.70	11.00
		Output Power HP (mechanical)	1.81	2.53	6.77	8.70	5.62
		Output Torque lb.in (mech.)	14700.	20100.	50800.	68300.	44400
		Efficiency %	63	72	76	79	74
350.	6.86	Input Power HP (mechanical)	1.30	2.23	4.75	7.31	7.00
		Input Power HP (thermal)	2.33	3.67	5.44	9.40	10.80
		Output Power HP (mechanical)	0.70	1.33	2.97	5.03	5.20
		Output Torque lb.in (mech.)	6450.	12700.	26400.	47500.	45200
		Efficiency %	54	60	63	69	74
375.	6.40	Input Power HP (mechanical)	2.45	3.11	7.77	9.27	6.47
		Input Power HP (thermal)	2.31	5.33	8.45	13.70	13.60
		Output Power HP (mechanical)	1.49	2.04	5.49	7.04	4.76
		Output Torque lb.in (mech.)	15200.	20800.	52800.	70800.	47100
		Efficiency %	60	66	71	76	74
400.	6.00	Input Power HP (mechanical)	1.76	3.22	7.10	9.39	6.32
		Input Power HP (thermal)	2.58	4.72	6.67	11.70	7.89
		Output Power HP (mechanical)	1.05	2.23	5.05	7.14	3.99
		Output Torque lb.in (mech.)	10800.	22300.	53000.	74900.	41400
		Efficiency %	60	69	71	76	63
450.	5.33	Input Power HP (mechanical)	1.86	3.59	7.02	8.98	5.66
		Input Power HP (thermal)	2.56	3.72	5.45	9.23	10.10
		Output Power HP (mechanical)	1.12	2.36	4.76	6.44	4.17
		Output Torque lb.in (mech.)	13200.	26900.	54300.	78600.	47300
		Efficiency %	60	66	67	72	74
500.	4.80	Input Power HP (mechanical)	2.15	3.07	5.40	7.75	5.11
		Input Power HP (thermal)	2.58	3.82	6.11	10.40	9.84
		Output Power HP (mechanical)	1.23	2.01	3.73	5.74	3.73
		Output Torque lb.in (mech.)	16100.	25700.	46800.	72000.	48200
		Efficiency %	57	65	69	74	73
600.	4.00	Input Power HP (mechanical)	1.73	2.12	5.24	6.22	3.87
		Input Power HP (thermal)	1.86	5.17	8.07	11.50	6.29
		Output Power HP (mechanical)	0.93	1.28	3.43	4.40	3.00
		Output Torque lb.in (mech.)	15200.	20900.	52800.	70900.	45100
		Efficiency %	54	61	65	71	78
625.	3.84	Input Power HP (mechanical)	1.88	2.73	4.65	6.57	4.68
		Input Power HP (thermal)	2.31	3.75	5.94	9.49	9.65
		Output Power HP (mechanical)	1.02	1.63	2.95	4.65	3.14
		Output Torque lb.in (mech.)	16700.	26700.	47500.	74800.	49700
		Efficiency %	54	60	64	71	67
700.	3.43	Input Power HP (mechanical)	1.18	1.78	2.78	4.02	4.14
		Input Power HP (thermal)	0.90	2.82	4.65	6.38	6.76
		Output Power HP (mechanical)	0.56	0.98	1.61	2.60	2.59
		Output Torque lb.in (mech.)	10100.	17500.	29000.	46800.	45900
		Efficiency %	45	55	58	65	62
750.	3.20	Input Power HP (mechanical)	1.48	1.77	4.27	5.14	3.13
		Input Power HP (thermal)	1.35	4.56	7.21	9.28	8.59
		Output Power HP (mechanical)	0.75	1.02	2.66	3.51	2.35
		Output Torque lb.in (mech.)	15200.	20800.	51200.	70700.	47100
		Efficiency %	50	58	62	68	75
800.	3.00	Input Power HP (mechanical)	1.10	1.95	4.15	5.37	3.82
		Input Power HP (thermal)	1.86	4.49	6.15	9.73	6.90
		Output Power HP (mechanical)	0.55	1.13	2.52	3.62	2.49
		Output Torque lb.in (mech.)	11200.	23200.	54300.	77900.	52400
		Efficiency %	50	58	61	67	65

SERIES AM
RATINGS AT 2400 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
900.	2.67	Input Power HP (mechanical)	1.30	1.57	3.54	4.44	3.36
		Input Power HP (thermal)	1.17	3.68	6.04	7.83	6.37
		Output Power HP (mechanical)	0.62	0.85	2.10	2.92	2.07
		Output Torque lb.in (mech.)	15100.	20800.	48400.	70500.	48000
		Efficiency %	47	54	59	66	62
1000.	2.40	Input Power HP (mechanical)	1.35	1.88	3.26	4.46	3.03
		Input Power HP (thermal)	1.86	3.65	5.30	8.30	6.01
		Output Power HP (mechanical)	0.64	1.02	1.90	2.91	1.86
		Output Torque lb.in (mech.)	16700.	26700.	48800.	74900.	49000
		Efficiency %	47	54	58	65	61
1200.	2.00	Input Power HP (mechanical)	1.03	1.81	3.19	4.10	2.42
		Input Power HP (thermal)	1.86	3.27	4.63	7.49	5.09
		Output Power HP (mechanical)	0.46	0.94	1.72	2.50	1.39
		Output Torque lb.in (mech.)	14400.	29500.	54300.	78600.	44000
		Efficiency %	44	52	54	61	58
1250.	1.92	Input Power HP (mechanical)	1.16	1.58	2.78	3.71	2.24
		Input Power HP (thermal)	1.35	3.63	5.12	7.83	7.16
		Output Power HP (mechanical)	0.51	0.81	1.54	2.32	1.55
		Output Torque lb.in (mech.)	16700.	26700.	49400.	74700.	49800
		Efficiency %	44	52	55	63	69
1400.	1.71	Input Power HP (mechanical)	0.77	1.33	2.77	3.48	2.66
		Input Power HP (thermal)	0.90	2.82	4.65	6.38	5.61
		Output Power HP (mechanical)	0.31	0.64	1.44	2.05	1.44
		Output Torque lb.in (mech.)	11200.	23000.	54300.	77400.	51000
		Efficiency %	40	48	52	59	54
1500.	1.60	Input Power HP (mechanical)	1.02	1.41	2.46	3.22	2.07
		Input Power HP (thermal)	1.17	3.68	4.99	7.56	6.50
		Output Power HP (mechanical)	0.42	0.68	1.29	1.93	1.33
		Output Torque lb.in (mech.)	16700.	26700.	49900.	74600.	52400
		Efficiency %	42	48	53	60	64
1600.	1.50	Input Power HP (mechanical)	0.93	1.20	2.60	3.27	2.11
		Input Power HP (thermal)	1.86	2.82	3.83	5.98	5.02
		Output Power HP (mechanical)	0.37	0.56	1.29	1.87	1.26
		Output Torque lb.in (mech.)	15600.	23400.	54300.	78600.	50900
		Efficiency %	40	46	50	57	60
1750.	1.37	Input Power HP (mechanical)	0.94	1.29	2.25	2.91	2.16
		Input Power HP (thermal)	0.90	2.82	4.65	6.38	4.75
		Output Power HP (mechanical)	0.36	0.58	1.12	1.65	1.08
		Output Torque lb.in (mech.)	16700.	26600.	50200.	74500.	45800
		Efficiency %	38	45	50	57	50
1800.	1.33	Input Power HP (mechanical)	0.79	1.36	2.38	2.99	1.84
		Input Power HP (thermal)	1.17	3.30	4.57	6.89	5.35
		Output Power HP (mechanical)	0.31	0.62	1.15	1.66	1.13
		Output Torque lb.in (mech.)	14400.	29400.	54300.	78600.	52400
		Efficiency %	39	46	48	56	61
2000.	1.20	Input Power HP (mechanical)	0.81	1.02	2.21	2.74	1.82
		Input Power HP (thermal)	1.35	2.71	3.69	5.67	4.81
		Output Power HP (mechanical)	0.30	0.45	1.03	1.50	0.96
		Output Torque lb.in (mech.)	15600.	23400.	54300.	78600.	50800
		Efficiency %	37	44	47	55	53
2100.	1.14	Input Power HP (mechanical)	0.73	1.25	2.17	2.71	1.53
		Input Power HP (thermal)	0.90	2.82	4.54	6.38	5.90
		Output Power HP (mechanical)	0.26	0.53	0.99	1.43	0.96
		Output Torque lb.in (mech.)	14300.	29400.	54300.	78600.	52400
		Efficiency %	35	43	45	53	63
2400.	1.00	Input Power HP (mechanical)	0.72	0.92	1.95	2.40	1.41
		Input Power HP (thermal)	1.17	2.70	3.63	5.48	5.81
		Output Power HP (mechanical)	0.25	0.37	0.86	1.25	0.88
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	52400
		Efficiency %	35	40	44	52	62
2500.	0.96	Input Power HP (mechanical)	0.59	0.88	1.77	2.26	1.35
		Input Power HP (thermal)	1.35	2.22	3.20	4.74	4.28
		Output Power HP (mechanical)	0.19	0.35	0.77	1.16	0.78
		Output Torque lb.in (mech.)	12300.	23000.	50400.	76100.	50800
		Efficiency %	32	40	43	51	57
2800.	0.86	Input Power HP (mechanical)	0.67	0.85	1.78	2.18	1.38
		Input Power HP (thermal)	0.90	2.70	3.61	5.46	4.37
		Output Power HP (mechanical)	0.21	0.32	0.74	1.07	0.72
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	50700
		Efficiency %	32	37	42	49	52
3000.	0.80	Input Power HP (mechanical)	0.53	0.80	1.58	1.98	1.07
		Input Power HP (thermal)	1.17	2.20	3.13	4.59	3.59
		Output Power HP (mechanical)	0.16	0.29	0.65	0.97	0.58
		Output Torque lb.in (mech.)	12400.	22900.	51000.	76000.	45600
		Efficiency %	30	36	41	49	54
3500.	0.69	Input Power HP (mechanical)	0.50	0.75	1.47	1.80	0.85
		Input Power HP (thermal)	0.90	2.20	3.11	4.57	3.19
		Output Power HP (mechanical)	0.14	0.25	0.56	0.83	0.43
		Output Torque lb.in (mech.)	12500.	22900.	51500.	76000.	39500
		Efficiency %	27	33	38	46	51
3600.	0.67	Input Power HP (mechanical)	0.40	0.62	1.14	1.60	1.00
		Input Power HP (thermal)	1.17	1.93	2.65	3.87	3.89
		Output Power HP (mechanical)	0.10	0.20	0.41	0.72	0.56
		Output Torque lb.in (mech.)	9490.	18500.	38800.	68400.	50600
		Efficiency %	25	32	36	45	56
4200.	0.57	Input Power HP (mechanical)	0.39	0.59	1.07	1.46	0.79
		Input Power HP (thermal)	0.90	1.93	2.64	3.85	3.26
		Output Power HP (mechanical)	0.09	0.17	0.36	0.62	0.42
		Output Torque lb.in (mech.)	9590.	18700.	39200.	68300.	45500
		Efficiency %	22	29	33	42	53

SERIES AM

RATINGS AT 1750 RPM INPUT

SINGLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT			
			A1002	A1252	A1602	A2002
5.0	350.00	Input Power HP (mechanical)	26.50	45.80	85.50	146.00
		Input Power HP (thermal)	38.20	60.30	94.40	160.00
		Output Power HP (mechanical)	25.40	44.00	82.40	141.00
		Output Torque lb.in (mech.)	4700.	8120.	15200.	25900.
		Efficiency %	96	96	96	97
7.5	233.33	Input Power HP (mechanical)	21.20	37.50	64.40	114.00
		Input Power HP (thermal)	28.90	45.60	75.20	132.00
		Output Power HP (mechanical)	20.00	35.50	61.30	109.00
		Output Torque lb.in (mech.)	5340.	9460.	16700.	29800.
		Efficiency %	95	95	95	96
10.0	175.00	Input Power HP (mechanical)	17.50	31.10	56.50	99.30
		Input Power HP (thermal)	25.70	39.90	65.60	115.00
		Output Power HP (mechanical)	16.40	29.30	53.60	94.40
		Output Torque lb.in (mech.)	5740.	10300.	18900.	33300.
		Efficiency %	93	94	95	95
12.5	140.00	Input Power HP (mechanical)	15.00	26.90	48.30	86.10
		Input Power HP (thermal)	21.80	33.80	57.90	103.00
		Output Power HP (mechanical)	13.90	25.00	45.40	81.40
		Output Torque lb.in (mech.)	6180.	11100.	20000.	35900.
		Efficiency %	93	93	94	95
15.0	116.67	Input Power HP (mechanical)	13.90	23.10	44.40	75.10
		Input Power HP (thermal)	17.70	29.70	49.40	89.90
		Output Power HP (mechanical)	12.60	21.30	41.30	70.30
		Output Torque lb.in (mech.)	7040.	11900.	21800.	38800.
		Efficiency %	91	92	93	94
20.0	87.50	Input Power HP (mechanical)	10.10	19.60	34.80	62.20
		Input Power HP (thermal)	16.10	25.00	36.20	69.70
		Output Power HP (mechanical)	9.07	17.80	31.60	57.20
		Output Torque lb.in (mech.)	6370.	12500.	23300.	42200.
		Efficiency %	90	91	91	92
25.0	70.00	Input Power HP (mechanical)	12.00	19.00	27.60	51.30
		Input Power HP (thermal)	12.00	19.60	32.60	62.20
		Output Power HP (mechanical)	10.50	16.80	24.70	46.60
		Output Torque lb.in (mech.)	9430.	15100.	21800.	41100.
		Efficiency %	87	88	90	91
30.0	58.33	Input Power HP (mechanical)	8.79	17.30	31.20	60.10
		Input Power HP (thermal)	10.90	17.00	25.40	48.10
		Output Power HP (mechanical)	7.50	15.00	27.20	53.40
		Output Torque lb.in (mech.)	8100.	16200.	29400.	57700.
		Efficiency %	85	86	87	88
40.0	43.75	Input Power HP (mechanical)	6.68	10.90	22.10	39.30
		Input Power HP (thermal)	8.75	14.50	21.20	41.10
		Output Power HP (mechanical)	5.45	9.17	18.60	34.00
		Output Torque lb.in (mech.)	7850.	13200.	26800.	48900.
		Efficiency %	82	84	84	86
50.0	35.00	Input Power HP (mechanical)	5.04	8.89	17.20	28.30
		Input Power HP (thermal)	7.78	12.40	18.90	34.00
		Output Power HP (mechanical)	3.97	7.17	14.10	23.80
		Output Torque lb.in (mech.)	7150.	12900.	25300.	42800.
		Efficiency %	79	81	82	84
60.0	29.17	Input Power HP (mechanical)	4.18	6.62	13.70	21.80
		Input Power HP (thermal)	6.59	10.50	15.80	28.00
		Output Power HP (mechanical)	3.17	5.14	10.80	17.80
		Output Torque lb.in (mech.)	6840.	11100.	23400.	38400.
		Efficiency %	76	78	79	82
70.0	25.00	Input Power HP (mechanical)	3.18	5.27	12.00	17.60
		Input Power HP (thermal)	5.40	9.14	12.70	24.20
		Output Power HP (mechanical)	2.27	3.95	9.05	14.00
		Output Torque lb.in (mech.)	5710.	9960.	22800.	35200.
		Efficiency %	71	75	75	79

SERIES AM
RATINGS AT 1750 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
75.0	23.33	Input Power HP (mechanical)	5.54	7.11	17.90	23.30	13.90
		Input Power HP (thermal)	5.20	8.20	14.50	24.20	20.10
		Output Power HP (mechanical)	4.37	5.79	15.20	20.10	11.60
		Output Torque lb.in (mech.)	12200.	16800.	38700.	57200.	32300
		Efficiency %	79	81	84	86	83
100.	17.50	Input Power HP (mechanical)	3.34	6.43	14.10	19.60	13.90
		Input Power HP (thermal)	4.78	7.00	10.80	19.10	17.90
		Output Power HP (mechanical)	2.56	5.10	11.40	16.50	11.50
		Output Torque lb.in (mech.)	8980.	18600.	40700.	62600.	39900
		Efficiency %	77	79	81	84	82
125.	14.00	Input Power HP (mechanical)	4.07	6.03	11.10	16.10	13.90
		Input Power HP (thermal)	3.65	5.59	9.78	17.10	17.80
		Output Power HP (mechanical)	2.96	4.59	8.80	13.30	11.50
		Output Torque lb.in (mech.)	13300.	21500.	37500.	60200.	50000
		Efficiency %	72	76	79	82	83
150.	11.67	Input Power HP (mechanical)	3.46	4.29	11.20	14.40	9.28
		Input Power HP (thermal)	3.85	5.92	9.92	16.90	13.60
		Output Power HP (mechanical)	2.54	3.31	9.01	11.90	7.64
		Output Torque lb.in (mech.)	13700.	19100.	46000.	64200.	41800
		Efficiency %	73	77	80	83	82
200.	8.75	Input Power HP (mechanical)	2.11	3.90	8.96	12.20	8.28
		Input Power HP (thermal)	3.57	5.08	7.49	13.40	11.40
		Output Power HP (mechanical)	1.49	2.91	6.83	9.78	6.23
		Output Torque lb.in (mech.)	10100.	21100.	48700.	70400.	43400
		Efficiency %	71	75	76	80	75
225.	7.78	Input Power HP (mechanical)	2.58	3.39	8.68	10.20	8.40
		Input Power HP (thermal)	3.29	5.33	8.57	14.10	14.70
		Output Power HP (mechanical)	1.76	2.48	6.66	8.09	6.73
		Output Torque lb.in (mech.)	14700.	20100.	51000.	69200.	52400
		Efficiency %	68	73	77	79	80
250.	7.00	Input Power HP (mechanical)	2.59	4.63	6.55	11.50	7.43
		Input Power HP (thermal)	2.12	6.21	9.05	12.00	13.60
		Output Power HP (mechanical)	1.66	3.24	4.72	8.91	5.92
		Output Torque lb.in (mech.)	14600.	28400.	41600.	78600.	52400
		Efficiency %	63	70	72	77	80
300.	5.83	Input Power HP (mechanical)	2.20	2.73	6.95	8.48	5.85
		Input Power HP (thermal)	2.37	4.96	7.86	13.00	10.20
		Output Power HP (mechanical)	1.37	1.92	5.15	6.61	4.33
		Output Torque lb.in (mech.)	15300.	20900.	53000.	71200.	46900
		Efficiency %	62	70	74	78	74
350.	5.00	Input Power HP (mechanical)	1.00	1.70	3.66	5.74	5.42
		Input Power HP (thermal)	1.91	2.98	4.33	7.46	9.97
		Output Power HP (mechanical)	0.52	0.99	2.22	3.87	3.99
		Output Torque lb.in (mech.)	6600.	13000.	27000.	50100.	47600
		Efficiency %	52	58	61	67	74
375.	4.67	Input Power HP (mechanical)	1.85	2.32	5.81	6.89	4.78
		Input Power HP (thermal)	2.12	5.07	7.97	12.00	12.60
		Output Power HP (mechanical)	1.09	1.50	4.01	5.14	3.49
		Output Torque lb.in (mech.)	15200.	20900.	52900.	71000.	47300
		Efficiency %	59	65	69	75	73
400.	4.38	Input Power HP (mechanical)	1.36	2.49	5.42	7.27	4.87
		Input Power HP (thermal)	2.37	4.28	5.99	10.40	7.11
		Output Power HP (mechanical)	0.81	1.69	3.77	5.43	3.09
		Output Torque lb.in (mech.)	11300.	23200.	54300.	78200.	44000
		Efficiency %	59	68	70	75	64
450.	3.89	Input Power HP (mechanical)	1.46	2.82	5.26	6.69	4.38
		Input Power HP (thermal)	2.30	3.30	4.80	8.10	9.28
		Output Power HP (mechanical)	0.86	1.81	3.47	4.70	3.19
		Output Torque lb.in (mech.)	13900.	28400.	54300.	78600.	49600
		Efficiency %	59	64	66	70	73
500.	3.50	Input Power HP (mechanical)	1.68	2.38	4.11	6.00	3.92
		Input Power HP (thermal)	2.37	3.46	5.49	8.93	8.75
		Output Power HP (mechanical)	0.93	1.53	2.77	4.37	2.83
		Output Torque lb.in (mech.)	16800.	26800.	47700.	75200.	50100
		Efficiency %	56	64	67	73	72
600.	2.92	Input Power HP (mechanical)	1.30	1.58	3.91	4.61	2.92
		Input Power HP (thermal)	1.69	4.95	7.04	8.75	5.35
		Output Power HP (mechanical)	0.68	0.93	2.49	3.20	2.23
		Output Torque lb.in (mech.)	15200.	20800.	52600.	70600.	46000
		Efficiency %	52	59	64	69	76
625.	2.80	Input Power HP (mechanical)	1.42	2.04	3.54	4.90	3.46
		Input Power HP (thermal)	2.12	3.57	5.35	8.34	8.39
		Output Power HP (mechanical)	0.75	1.19	2.20	3.40	2.31
		Output Torque lb.in (mech.)	16800.	26800.	48400.	75000.	50000
		Efficiency %	53	58	62	69	67
700.	2.50	Input Power HP (mechanical)	0.92	1.38	2.15	3.10	3.21
		Input Power HP (thermal)	0.84	2.30	3.70	5.00	6.21
		Output Power HP (mechanical)	0.42	0.74	1.21	1.96	1.99
		Output Torque lb.in (mech.)	10400.	18100.	30000.	48300.	48400
		Efficiency %	46	53	57	63	62
750.	2.33	Input Power HP (mechanical)	1.12	1.32	3.29	3.82	2.31
		Input Power HP (thermal)	1.24	3.68	5.72	7.23	6.74
		Output Power HP (mechanical)	0.54	0.74	1.99	2.55	1.70
		Output Torque lb.in (mech.)	15100.	20700.	52500.	70400.	46900
		Efficiency %	48	56	60	67	74
800.	2.19	Input Power HP (mechanical)	0.82	1.45	3.11	3.99	2.84
		Input Power HP (thermal)	1.69	4.19	5.58	8.75	6.24
		Output Power HP (mechanical)	0.40	0.82	1.84	2.63	1.81
		Output Torque lb.in (mech.)	11200.	23100.	54300.	77600.	52400
		Efficiency %	49	57	59	66	64

SERIES AM
RATINGS AT 1750 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
900.	1.94	Input Power HP (mechanical)	0.98	1.17	2.87	3.30	2.60
		Input Power HP (thermal)	1.07	2.98	4.78	6.10	5.53
		Output Power HP (mechanical)	0.45	0.62	1.65	2.12	1.59
		Output Torque lb.in (mech.)	15100.	20700.	52400.	70300.	50400
		Efficiency %	46	53	58	64	61
1000.	1.75	Input Power HP (mechanical)	1.01	1.40	2.48	3.31	2.33
		Input Power HP (thermal)	1.69	3.53	4.85	7.48	5.23
		Output Power HP (mechanical)	0.46	0.74	1.41	2.12	1.41
		Output Torque lb.in (mech.)	16700.	26700.	49600.	74700.	51000
		Efficiency %	46	53	57	64	61
1200.	1.46	Input Power HP (mechanical)	0.77	1.35	2.40	3.06	1.85
		Input Power HP (thermal)	1.69	3.16	4.43	6.80	4.39
		Output Power HP (mechanical)	0.33	0.68	1.26	1.82	1.06
		Output Torque lb.in (mech.)	14400.	29400.	54300.	78600.	45800
		Efficiency %	43	50	52	59	57
1250.	1.40	Input Power HP (mechanical)	0.87	1.18	2.12	2.75	1.66
		Input Power HP (thermal)	1.24	3.53	4.69	7.11	6.47
		Output Power HP (mechanical)	0.37	0.59	1.14	1.69	1.13
		Output Torque lb.in (mech.)	16700.	26600.	50200.	74500.	49700
		Efficiency %	42	50	54	61	68
1400.	1.25	Input Power HP (mechanical)	0.58	0.99	2.09	2.60	1.94
		Input Power HP (thermal)	0.84	2.30	3.70	5.00	4.93
		Output Power HP (mechanical)	0.23	0.47	1.05	1.49	1.05
		Output Torque lb.in (mech.)	11100.	23000.	54300.	77200.	50900
		Efficiency %	39	47	50	57	54
1500.	1.17	Input Power HP (mechanical)	0.77	1.05	1.88	2.39	1.54
		Input Power HP (thermal)	1.07	2.98	4.59	6.10	5.90
		Output Power HP (mechanical)	0.31	0.49	0.96	1.41	0.97
		Output Torque lb.in (mech.)	16700.	26600.	50600.	74400.	52400
		Efficiency %	40	47	51	59	63
1600.	1.09	Input Power HP (mechanical)	0.70	0.90	1.95	2.44	1.57
		Input Power HP (thermal)	1.69	2.58	3.51	5.40	4.50
		Output Power HP (mechanical)	0.27	0.41	0.94	1.36	0.92
		Output Torque lb.in (mech.)	15600.	23400.	54300.	78600.	50800
		Efficiency %	39	45	48	56	58
1750.	1.00	Input Power HP (mechanical)	0.71	0.97	1.72	2.17	1.57
		Input Power HP (thermal)	0.84	2.30	3.70	5.00	4.15
		Output Power HP (mechanical)	0.27	0.42	0.82	1.20	0.78
		Output Torque lb.in (mech.)	16700.	26600.	50900.	74300.	45700
		Efficiency %	37	44	48	55	50
1800.	0.97	Input Power HP (mechanical)	0.59	1.02	1.79	2.23	1.37
		Input Power HP (thermal)	1.07	2.98	4.21	6.10	4.84
		Output Power HP (mechanical)	0.22	0.45	0.84	1.21	0.83
		Output Torque lb.in (mech.)	14300.	29300.	54300.	78600.	52400
		Efficiency %	37	44	47	54	60
2000.	0.88	Input Power HP (mechanical)	0.61	0.76	1.66	2.04	1.34
		Input Power HP (thermal)	1.24	2.51	3.40	5.16	4.32
		Output Power HP (mechanical)	0.22	0.32	0.75	1.09	0.70
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	50700
		Efficiency %	36	43	45	54	52
2100.	0.83	Input Power HP (mechanical)	0.55	0.93	1.64	2.03	1.14
		Input Power HP (thermal)	0.84	2.30	3.70	5.00	5.44
		Output Power HP (mechanical)	0.19	0.39	0.72	1.04	0.70
		Output Torque lb.in (mech.)	14300.	29300.	54300.	78600.	52400
		Efficiency %	34	41	44	51	62
2400.	0.73	Input Power HP (mechanical)	0.54	0.69	1.47	1.79	1.05
		Input Power HP (thermal)	1.07	2.50	3.34	5.02	5.31
		Output Power HP (mechanical)	0.18	0.27	0.63	0.91	0.64
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	52400
		Efficiency %	34	39	43	51	61
2500.	0.70	Input Power HP (mechanical)	0.44	0.66	1.35	1.68	1.00
		Input Power HP (thermal)	1.24	2.03	2.92	4.30	3.89
		Output Power HP (mechanical)	0.14	0.25	0.57	0.84	0.56
		Output Torque lb.in (mech.)	12500.	22900.	51500.	76000.	50600
		Efficiency %	31	39	42	50	56
2800.	0.63	Input Power HP (mechanical)	0.50	0.63	1.34	1.63	1.02
		Input Power HP (thermal)	0.84	2.30	3.34	5.00	3.97
		Output Power HP (mechanical)	0.16	0.23	0.54	0.78	0.52
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	50600
		Efficiency %	31	36	40	48	51
3000.	0.58	Input Power HP (mechanical)	0.40	0.60	1.21	1.47	0.79
		Input Power HP (thermal)	1.07	2.03	2.87	4.19	3.26
		Output Power HP (mechanical)	0.12	0.21	0.48	0.70	0.42
		Output Torque lb.in (mech.)	12700.	22900.	52100.	75900.	45500
		Efficiency %	30	36	40	48	53
3500.	0.50	Input Power HP (mechanical)	0.38	0.55	1.12	1.34	0.64
		Input Power HP (thermal)	0.84	2.04	2.87	4.19	2.89
		Output Power HP (mechanical)	0.10	0.18	0.42	0.60	0.32
		Output Torque lb.in (mech.)	12700.	22900.	52600.	75800.	40300
		Efficiency %	27	33	37	45	50
3600.	0.49	Input Power HP (mechanical)	0.30	0.47	0.87	1.18	0.74
		Input Power HP (thermal)	1.07	1.77	2.42	3.53	3.56
		Output Power HP (mechanical)	0.07	0.15	0.31	0.53	0.41
		Output Torque lb.in (mech.)	9690.	18900.	39600.	68200.	50500
		Efficiency %	25	31	35	45	55
4200.	0.42	Input Power HP (mechanical)	0.29	0.44	0.81	1.08	0.59
		Input Power HP (thermal)	0.84	1.78	2.42	3.53	2.98
		Output Power HP (mechanical)	0.06	0.13	0.27	0.45	0.31
		Output Torque lb.in (mech.)	9780.	19100.	40000.	68200.	45500
		Efficiency %	22	29	33	42	52

SERIES AM
RATINGS AT 1450 RPM INPUT

	NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT			
				A1002	A1252	A1602	A2002
SINGLE REDUCTION	5.0	290.00	Input Power HP (mechanical)	24.00	41.50	77.40	133.00
			Input Power HP (thermal)	31.90	51.30	81.60	139.00
			Output Power HP (mechanical)	22.90	39.80	74.50	128.00
			Output Torque lb.in (mech.)	5120.	8860.	16600.	28400.
			Efficiency %	95	96	96	96
	7.5	193.33	Input Power HP (mechanical)	19.10	33.70	58.00	103.00
			Input Power HP (thermal)	24.50	38.90	64.60	114.00
			Output Power HP (mechanical)	18.00	32.00	55.30	98.50
			Output Torque lb.in (mech.)	5790.	10300.	18200.	32400.
			Efficiency %	94	95	95	96
	10.0	145.00	Input Power HP (mechanical)	15.70	27.90	50.80	89.30
			Input Power HP (thermal)	21.70	34.00	56.30	99.40
			Output Power HP (mechanical)	14.60	26.20	48.10	84.80
			Output Torque lb.in (mech.)	6200.	11100.	20500.	36100.
			Efficiency %	93	94	95	95
	12.5	116.00	Input Power HP (mechanical)	13.50	24.10	43.20	77.20
			Input Power HP (thermal)	18.40	28.80	49.60	88.10
			Output Power HP (mechanical)	12.40	22.40	40.60	72.90
			Output Torque lb.in (mech.)	6660.	12000.	21600.	38800.
			Efficiency %	92	93	94	94
	15.0	96.67	Input Power HP (mechanical)	12.40	20.20	39.70	67.20
			Input Power HP (thermal)	15.00	25.20	42.30	77.10
			Output Power HP (mechanical)	11.20	18.60	36.90	62.90
			Output Torque lb.in (mech.)	7570.	12500.	23500.	41900.
			Efficiency %	91	92	93	94
	20.0	72.50	Input Power HP (mechanical)	8.87	17.50	31.10	55.60
			Input Power HP (thermal)	13.50	21.20	31.10	59.90
			Output Power HP (mechanical)	7.92	15.80	28.20	51.00
			Output Torque lb.in (mech.)	6710.	13400.	25100.	45400.
			Efficiency %	89	90	90	92
	25.0	58.00	Input Power HP (mechanical)	10.60	16.60	24.60	45.80
			Input Power HP (thermal)	10.20	16.70	28.00	53.30
			Output Power HP (mechanical)	9.14	14.60	22.00	41.50
			Output Torque lb.in (mech.)	9930.	15900.	23400.	44200.
			Efficiency %	86	88	89	91
	30.0	48.33	Input Power HP (mechanical)	7.71	15.40	27.90	53.60
			Input Power HP (thermal)	9.26	14.50	21.80	41.40
			Output Power HP (mechanical)	6.54	13.30	24.20	47.50
			Output Torque lb.in (mech.)	8530.	17300.	31600.	61900.
			Efficiency %	85	86	87	88
	40.0	36.25	Input Power HP (mechanical)	5.97	9.59	19.80	34.40
			Input Power HP (thermal)	7.41	12.40	18.20	35.30
			Output Power HP (mechanical)	4.84	8.00	16.60	29.60
			Output Torque lb.in (mech.)	8410.	13900.	28800.	51500.
			Efficiency %	81	83	84	86
	50.0	29.00	Input Power HP (mechanical)	4.44	7.81	15.30	24.70
			Input Power HP (thermal)	6.58	10.60	16.20	29.60
			Output Power HP (mechanical)	3.47	6.26	12.50	20.70
			Output Torque lb.in (mech.)	7530.	13600.	27100.	45000.
			Efficiency %	78	80	82	84
	60.0	24.17	Input Power HP (mechanical)	3.68	5.82	12.20	19.10
			Input Power HP (thermal)	5.64	9.04	13.80	24.40
			Output Power HP (mechanical)	2.76	4.49	9.59	15.50
			Output Torque lb.in (mech.)	7200.	11700.	25000.	40500.
			Efficiency %	75	77	79	81
	70.0	20.71	Input Power HP (mechanical)	2.72	4.63	10.50	15.40
			Input Power HP (thermal)	4.64	7.85	11.10	21.10
			Output Power HP (mechanical)	1.92	3.45	7.86	12.20
			Output Torque lb.in (mech.)	5830.	10500.	23900.	37000.
			Efficiency %	70	75	75	79

SERIES AM
RATINGS AT 1450 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
75.0	19.33	Input Power HP (mechanical)	4.79	6.13	15.90	20.10	11.50
		Input Power HP (thermal)	4.61	7.29	12.60	21.20	19.00
		Output Power HP (mechanical)	3.71	4.97	13.30	17.20	9.54
		Output Torque lb.in (mech.)	12500.	17400.	41000.	59000.	32100
		Efficiency %	78	81	83	86	83
100.	14.50	Input Power HP (mechanical)	2.89	5.55	12.40	16.90	11.50
		Input Power HP (thermal)	4.25	6.23	9.41	16.70	17.00
		Output Power HP (mechanical)	2.18	4.36	9.97	14.10	9.44
		Output Torque lb.in (mech.)	9250.	19200.	42900.	64600.	39700
		Efficiency %	76	79	80	83	82
125.	11.60	Input Power HP (mechanical)	3.53	5.22	9.78	13.90	11.50
		Input Power HP (thermal)	3.25	4.98	8.53	15.00	17.00
		Output Power HP (mechanical)	2.54	3.93	7.68	11.30	9.48
		Output Torque lb.in (mech.)	13800.	22200.	39500.	62100.	49600
		Efficiency %	71	75	78	82	82
150.	9.67	Input Power HP (mechanical)	3.00	3.70	10.00	12.40	7.89
		Input Power HP (thermal)	3.58	5.49	9.13	15.50	11.50
		Output Power HP (mechanical)	2.18	2.83	7.99	10.20	6.44
		Output Torque lb.in (mech.)	14200.	19700.	49200.	66300.	42500
		Efficiency %	73	77	79	82	82
200.	7.25	Input Power HP (mechanical)	1.82	3.37	7.84	10.60	7.12
		Input Power HP (thermal)	3.33	4.72	6.91	12.30	10.80
		Output Power HP (mechanical)	1.28	2.49	5.90	8.37	5.34
		Output Torque lb.in (mech.)	10500.	21800.	50800.	72700.	44900
		Efficiency %	70	74	75	79	75
225.	6.44	Input Power HP (mechanical)	2.23	2.92	7.47	8.76	7.02
		Input Power HP (thermal)	3.08	5.00	8.00	13.20	12.90
		Output Power HP (mechanical)	1.50	2.12	5.67	6.90	5.58
		Output Torque lb.in (mech.)	15200.	20700.	52400.	71200.	52400
		Efficiency %	67	73	76	79	79
250.	5.80	Input Power HP (mechanical)	2.18	3.98	5.58	9.62	6.22
		Input Power HP (thermal)	2.00	5.45	7.86	10.20	11.50
		Output Power HP (mechanical)	1.37	2.75	3.96	7.38	4.90
		Output Torque lb.in (mech.)	14500.	29100.	42200.	78600.	52400
		Efficiency %	63	69	71	77	79
300.	4.83	Input Power HP (mechanical)	1.85	2.28	5.82	7.09	5.02
		Input Power HP (thermal)	2.24	4.82	7.63	12.50	9.77
		Output Power HP (mechanical)	1.13	1.59	4.26	5.47	3.69
		Output Torque lb.in (mech.)	15200.	20900.	52900.	71100.	48300
		Efficiency %	61	70	73	77	74
350.	4.14	Input Power HP (mechanical)	0.85	1.44	3.14	4.98	4.66
		Input Power HP (thermal)	1.71	2.67	3.82	6.59	9.59
		Output Power HP (mechanical)	0.44	0.84	1.86	3.31	3.41
		Output Torque lb.in (mech.)	6690.	13200.	27400.	51800.	49000
		Efficiency %	52	58	59	67	73
375.	3.87	Input Power HP (mechanical)	1.56	1.94	4.88	5.77	3.98
		Input Power HP (thermal)	2.00	4.95	7.77	10.20	11.10
		Output Power HP (mechanical)	0.90	1.24	3.31	4.25	2.88
		Output Torque lb.in (mech.)	15200.	20900.	52800.	70800.	47200
		Efficiency %	58	64	68	74	72
400.	3.63	Input Power HP (mechanical)	1.14	2.09	4.55	6.09	4.19
		Input Power HP (thermal)	2.24	4.17	5.81	9.83	6.76
		Output Power HP (mechanical)	0.66	1.40	3.13	4.49	2.66
		Output Torque lb.in (mech.)	11200.	23200.	54300.	78000.	45600
		Efficiency %	58	67	69	74	63
450.	3.22	Input Power HP (mechanical)	1.26	2.43	4.43	5.63	3.70
		Input Power HP (thermal)	2.19	3.10	4.49	7.57	8.52
		Output Power HP (mechanical)	0.73	1.54	2.87	3.89	2.67
		Output Torque lb.in (mech.)	14300.	29200.	54300.	78600.	50100
		Efficiency %	58	64	65	69	72
500.	2.90	Input Power HP (mechanical)	1.42	2.00	3.50	5.03	3.28
		Input Power HP (thermal)	2.24	3.37	5.16	8.29	8.12
		Output Power HP (mechanical)	0.77	1.27	2.33	3.61	2.34
		Output Torque lb.in (mech.)	16800.	26800.	48300.	75000.	50000
		Efficiency %	54	63	66	72	71
600.	2.42	Input Power HP (mechanical)	1.10	1.32	3.29	3.87	2.47
		Input Power HP (thermal)	1.59	4.33	6.13	7.41	4.90
		Output Power HP (mechanical)	0.56	0.77	2.06	2.64	1.87
		Output Torque lb.in (mech.)	15100.	20800.	52500.	70400.	46500
		Efficiency %	51	58	63	68	76
625.	2.32	Input Power HP (mechanical)	1.20	1.72	3.01	4.11	2.88
		Input Power HP (thermal)	2.00	3.48	5.04	7.89	7.90
		Output Power HP (mechanical)	0.62	0.98	1.84	2.81	1.91
		Output Torque lb.in (mech.)	16700.	26700.	48900.	74900.	49900
		Efficiency %	51	57	61	68	66
700.	2.07	Input Power HP (mechanical)	0.79	1.18	1.85	2.66	2.76
		Input Power HP (thermal)	0.80	2.03	3.23	4.30	5.68
		Output Power HP (mechanical)	0.36	0.62	1.02	1.65	1.70
		Output Torque lb.in (mech.)	10600.	18400.	30500.	49200.	49800
		Efficiency %	45	53	55	62	61
750.	1.93	Input Power HP (mechanical)	0.95	1.11	2.77	3.21	1.93
		Input Power HP (thermal)	1.17	3.24	4.98	6.18	5.96
		Output Power HP (mechanical)	0.45	0.62	1.64	2.11	1.41
		Output Torque lb.in (mech.)	15100.	20700.	52400.	70300.	46800
		Efficiency %	47	55	59	66	73
800.	1.81	Input Power HP (mechanical)	0.69	1.22	2.63	3.35	2.38
		Input Power HP (thermal)	1.59	3.99	5.29	7.41	5.80
		Output Power HP (mechanical)	0.33	0.68	1.52	2.18	1.50
		Output Torque lb.in (mech.)	11200.	23100.	54300.	77500.	52400
		Efficiency %	48	56	58	65	63

SERIES AM
RATINGS AT 1450 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
900.	1.61	Input Power HP (mechanical)	0.83	0.99	2.42	2.78	2.20
		Input Power HP (thermal)	1.02	2.63	4.16	5.22	5.09
		Output Power HP (mechanical)	0.37	0.51	1.37	1.75	1.33
		Output Torque lb.in (mech.)	15100.	20700.	52300.	70100.	50900
		Efficiency %	45	52	57	63	60
1000.	1.45	Input Power HP (mechanical)	0.86	1.18	2.11	2.78	1.95
		Input Power HP (thermal)	1.59	3.48	4.60	7.07	4.87
		Output Power HP (mechanical)	0.38	0.61	1.18	1.75	1.17
		Output Torque lb.in (mech.)	16700.	26600.	50100.	74500.	50900
		Efficiency %	45	52	56	63	60
1200.	1.21	Input Power HP (mechanical)	0.65	1.14	2.03	2.58	1.55
		Input Power HP (thermal)	1.59	3.04	4.21	6.45	4.08
		Output Power HP (mechanical)	0.27	0.56	1.04	1.51	0.88
		Output Torque lb.in (mech.)	14300.	29400.	54300.	78600.	45800
		Efficiency %	42	49	51	58	56
1250.	1.16	Input Power HP (mechanical)	0.74	0.99	1.80	2.32	1.39
		Input Power HP (thermal)	1.17	3.24	4.47	6.18	5.96
		Output Power HP (mechanical)	0.31	0.49	0.95	1.40	0.93
		Output Torque lb.in (mech.)	16700.	26600.	50600.	74400.	49600
		Efficiency %	42	49	53	60	67
1400.	1.04	Input Power HP (mechanical)	0.49	0.84	1.77	2.19	1.61
		Input Power HP (thermal)	0.80	2.03	3.23	4.30	4.60
		Output Power HP (mechanical)	0.19	0.39	0.87	1.24	0.87
		Output Torque lb.in (mech.)	11100.	22900.	54300.	77100.	50800
		Efficiency %	38	46	49	56	54
1500.	0.97	Input Power HP (mechanical)	0.65	0.89	1.60	2.02	1.29
		Input Power HP (thermal)	1.02	2.63	4.16	5.22	5.63
		Output Power HP (mechanical)	0.26	0.41	0.80	1.16	0.81
		Output Torque lb.in (mech.)	16600.	26600.	51000.	74300.	52400
		Efficiency %	39	46	50	58	62
1600.	0.91	Input Power HP (mechanical)	0.59	0.75	1.65	2.06	1.31
		Input Power HP (thermal)	1.59	2.48	3.33	5.12	4.24
		Output Power HP (mechanical)	0.22	0.34	0.78	1.13	0.76
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	50700
		Efficiency %	38	45	47	55	58
1750.	0.83	Input Power HP (mechanical)	0.61	0.81	1.47	1.83	1.30
		Input Power HP (thermal)	0.80	2.03	3.23	4.30	3.88
		Output Power HP (mechanical)	0.22	0.35	0.69	1.00	0.65
		Output Torque lb.in (mech.)	16600.	26500.	51500.	74200.	45700
		Efficiency %	36	43	47	54	50
1800.	0.81	Input Power HP (mechanical)	0.50	0.86	1.52	1.89	1.15
		Input Power HP (thermal)	1.02	2.63	4.07	5.22	4.57
		Output Power HP (mechanical)	0.18	0.38	0.69	1.01	0.68
		Output Torque lb.in (mech.)	14300.	29300.	54300.	78600.	52400
		Efficiency %	37	44	46	53	59
2000.	0.73	Input Power HP (mechanical)	0.51	0.64	1.41	1.72	1.11
		Input Power HP (thermal)	1.17	2.40	3.24	4.91	4.07
		Output Power HP (mechanical)	0.18	0.27	0.63	0.91	0.58
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	50700
		Efficiency %	35	42	44	53	52
2100.	0.69	Input Power HP (mechanical)	0.47	0.79	1.39	1.72	0.96
		Input Power HP (thermal)	0.80	2.03	3.23	4.30	5.10
		Output Power HP (mechanical)	0.16	0.32	0.60	0.86	0.58
		Output Torque lb.in (mech.)	14300.	29300.	54300.	78600.	52400
		Efficiency %	34	41	43	50	61
2400.	0.60	Input Power HP (mechanical)	0.45	0.58	1.24	1.51	0.88
		Input Power HP (thermal)	1.02	2.40	3.20	4.79	4.90
		Output Power HP (mechanical)	0.15	0.22	0.52	0.75	0.53
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	52400
		Efficiency %	33	39	42	50	60
2500.	0.58	Input Power HP (mechanical)	0.38	0.55	1.15	1.41	0.84
		Input Power HP (thermal)	1.17	1.94	2.78	4.10	3.68
		Output Power HP (mechanical)	0.12	0.21	0.48	0.70	0.47
		Output Torque lb.in (mech.)	12700.	22900.	52100.	75900.	50600
		Efficiency %	31	38	42	50	56
2800.	0.52	Input Power HP (mechanical)	0.43	0.53	1.14	1.38	0.85
		Input Power HP (thermal)	0.80	2.03	3.20	4.30	3.76
		Output Power HP (mechanical)	0.13	0.19	0.45	0.65	0.43
		Output Torque lb.in (mech.)	15500.	23300.	54300.	78600.	50600
		Efficiency %	30	36	39	47	51
3000.	0.48	Input Power HP (mechanical)	0.34	0.50	1.03	1.24	0.67
		Input Power HP (thermal)	1.02	1.94	2.75	4.01	3.09
		Output Power HP (mechanical)	0.10	0.18	0.40	0.58	0.35
		Output Torque lb.in (mech.)	12700.	22900.	52700.	75800.	45500
		Efficiency %	29	35	39	47	53
3500.	0.41	Input Power HP (mechanical)	0.32	0.46	0.96	1.13	0.54
		Input Power HP (thermal)	0.80	1.96	2.75	4.03	2.74
		Output Power HP (mechanical)	0.08	0.15	0.35	0.50	0.27
		Output Torque lb.in (mech.)	12700.	22900.	53300.	75700.	40800
		Efficiency %	26	32	37	44	50
3600.	0.40	Input Power HP (mechanical)	0.26	0.39	0.74	1.00	0.62
		Input Power HP (thermal)	1.02	1.70	2.31	3.37	3.38
		Output Power HP (mechanical)	0.06	0.12	0.26	0.44	0.34
		Output Torque lb.in (mech.)	9800.	19100.	40100.	68200.	50500
		Efficiency %	25	31	35	44	54
4200.	0.35	Input Power HP (mechanical)	0.25	0.37	0.69	0.91	0.49
		Input Power HP (thermal)	0.80	1.71	2.32	3.38	2.84
		Output Power HP (mechanical)	0.05	0.11	0.22	0.37	0.25
		Output Torque lb.in (mech.)	9890.	19300.	40500.	68100.	45400
		Efficiency %	22	29	32	41	51

SERIES AM
RATINGS AT 1160 RPM INPUT

	NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT			
				A1002	A1252	A1602	A2002
SINGLE REDUCTION	5.0	232.00	Input Power HP (mechanical)	21.30	36.70	68.60	118.00
			Input Power HP (thermal)	25.60	41.30	67.30	117.00
			Output Power HP (mechanical)	20.30	35.20	66.10	113.00
			Output Torque lb.in (mech.)	5660.	9790.	18400.	31400.
			Efficiency %	95	96	96	96
	7.5	154.67	Input Power HP (mechanical)	16.80	29.70	51.10	90.70
			Input Power HP (thermal)	20.10	32.10	53.50	94.60
			Output Power HP (mechanical)	15.80	28.10	48.60	86.60
			Output Torque lb.in (mech.)	6360.	11300.	20000.	35600.
			Efficiency %	94	95	95	95
	10.0	116.00	Input Power HP (mechanical)	13.70	24.50	44.60	78.40
			Input Power HP (thermal)	17.70	27.90	46.50	82.50
			Output Power HP (mechanical)	12.80	23.00	42.10	74.40
			Output Torque lb.in (mech.)	6770.	12200.	22400.	39600.
			Efficiency %	93	94	94	95
	12.5	92.80	Input Power HP (mechanical)	11.80	21.10	37.80	67.60
			Input Power HP (thermal)	15.00	23.60	40.90	73.00
			Output Power HP (mechanical)	10.80	19.60	35.50	63.70
			Output Torque lb.in (mech.)	7250.	13100.	23600.	42400.
			Efficiency %	92	93	94	94
	15.0	77.33	Input Power HP (mechanical)	10.80	17.20	34.70	57.90
			Input Power HP (thermal)	12.20	20.70	35.00	63.80
			Output Power HP (mechanical)	9.78	15.70	32.10	54.20
			Output Torque lb.in (mech.)	8230.	13200.	25600.	45100.
			Efficiency %	91	91	93	94
	20.0	58.00	Input Power HP (mechanical)	7.55	15.30	27.20	48.20
			Input Power HP (thermal)	11.00	17.40	25.80	49.60
			Output Power HP (mechanical)	6.70	13.80	24.50	44.20
			Output Torque lb.in (mech.)	7100.	14600.	27300.	49200.
			Efficiency %	89	90	90	92
	25.0	46.40	Input Power HP (mechanical)	9.02	14.20	21.50	39.30
			Input Power HP (thermal)	8.32	13.70	23.10	44.10
			Output Power HP (mechanical)	7.73	12.40	19.10	35.50
			Output Torque lb.in (mech.)	10500.	16800.	25400.	47200.
			Efficiency %	86	87	89	90
	30.0	38.67	Input Power HP (mechanical)	6.60	13.30	24.40	45.80
			Input Power HP (thermal)	7.56	11.90	18.10	34.40
			Output Power HP (mechanical)	5.54	11.40	21.10	40.40
			Output Torque lb.in (mech.)	9030.	18500.	34300.	65800.
			Efficiency %	84	85	86	88
	40.0	29.00	Input Power HP (mechanical)	5.23	8.20	17.30	29.30
			Input Power HP (thermal)	6.07	10.10	15.10	29.20
			Output Power HP (mechanical)	4.18	6.77	14.40	25.10
			Output Torque lb.in (mech.)	9090.	14700.	31200.	54600.
			Efficiency %	80	83	83	86
	50.0	23.20	Input Power HP (mechanical)	3.80	6.69	13.40	21.10
			Input Power HP (thermal)	5.47	8.68	13.40	24.90
			Output Power HP (mechanical)	2.93	5.30	10.80	17.60
			Output Torque lb.in (mech.)	7970.	14400.	29300.	47700.
			Efficiency %	77	79	81	83
	60.0	19.33	Input Power HP (mechanical)	3.11	4.98	10.60	16.30
			Input Power HP (thermal)	4.76	7.51	11.60	20.50
			Output Power HP (mechanical)	2.31	3.81	8.29	13.20
			Output Torque lb.in (mech.)	7540.	12400.	27000.	42900.
			Efficiency %	74	76	78	81
	70.0	16.57	Input Power HP (mechanical)	2.26	3.97	8.69	13.10
			Input Power HP (thermal)	3.94	6.46	9.39	17.70
			Output Power HP (mechanical)	1.57	2.92	6.44	10.30
			Output Torque lb.in (mech.)	5970.	11100.	24500.	39200.
			Efficiency %	69	74	74	79

SERIES AM
RATINGS AT 1160 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
75.0	15.47	Input Power HP (mechanical)	4.07	5.18	13.70	16.90	9.21
		Input Power HP (thermal)	4.16	6.55	11.20	18.80	17.90
		Output Power HP (mechanical)	3.11	4.13	11.40	14.40	7.59
		Output Torque lb.in (mech.)	13100.	18100.	43700.	61600.	31900
		Efficiency %	76	80	82	85	82
100.	11.60	Input Power HP (mechanical)	2.45	4.70	10.70	14.40	9.21
		Input Power HP (thermal)	3.85	5.60	8.38	14.80	16.10
		Output Power HP (mechanical)	1.83	3.65	8.46	11.80	7.50
		Output Torque lb.in (mech.)	9670.	20100.	45500.	67500.	39400
		Efficiency %	75	78	79	82	81
125.	9.28	Input Power HP (mechanical)	3.01	4.43	8.40	11.80	9.21
		Input Power HP (thermal)	2.94	4.49	7.61	13.30	14.70
		Output Power HP (mechanical)	2.12	3.29	6.48	9.48	7.52
		Output Torque lb.in (mech.)	14400.	23200.	41700.	64900.	49200
		Efficiency %	71	74	77	80	82
150.	7.73	Input Power HP (mechanical)	2.53	3.10	8.44	10.40	6.49
		Input Power HP (thermal)	3.31	5.07	8.35	14.10	9.93
		Output Power HP (mechanical)	1.81	2.35	6.62	8.45	5.25
		Output Torque lb.in (mech.)	14700.	20400.	51000.	68600.	43300
		Efficiency %	71	76	79	81	81
200.	5.80	Input Power HP (mechanical)	1.53	2.83	6.68	8.87	5.96
		Input Power HP (thermal)	3.09	4.36	6.33	11.20	10.20
		Output Power HP (mechanical)	1.05	2.07	4.95	6.94	4.44
		Output Torque lb.in (mech.)	10800.	22600.	53300.	75300.	46700
		Efficiency %	69	73	74	78	75
225.	5.16	Input Power HP (mechanical)	1.83	2.39	6.13	7.10	5.68
		Input Power HP (thermal)	2.85	4.79	7.60	12.20	10.60
		Output Power HP (mechanical)	1.20	1.71	4.59	5.51	4.46
		Output Torque lb.in (mech.)	15200.	20900.	53000.	71100.	52400
		Efficiency %	66	72	75	78	79
250.	4.64	Input Power HP (mechanical)	1.78	3.29	4.61	7.82	5.03
		Input Power HP (thermal)	1.85	4.65	6.62	8.32	9.93
		Output Power HP (mechanical)	1.10	2.24	3.22	5.91	3.92
		Output Torque lb.in (mech.)	14500.	29600.	42800.	78600.	52400
		Efficiency %	62	68	70	76	78
300.	3.87	Input Power HP (mechanical)	1.51	1.85	4.72	5.74	4.20
		Input Power HP (thermal)	2.08	4.69	7.39	11.00	9.05
		Output Power HP (mechanical)	0.90	1.27	3.40	4.37	3.06
		Output Torque lb.in (mech.)	15200.	20900.	52800.	70900.	50000
		Efficiency %	60	69	72	76	73
350.	3.31	Input Power HP (mechanical)	0.71	1.19	2.61	4.25	3.85
		Input Power HP (thermal)	1.54	2.38	3.38	5.82	8.67
		Output Power HP (mechanical)	0.36	0.68	1.51	2.77	2.79
		Output Torque lb.in (mech.)	6780.	13400.	27700.	54200.	50100
		Efficiency %	51	57	58	65	72
375.	3.09	Input Power HP (mechanical)	1.27	1.58	3.97	4.68	3.21
		Input Power HP (thermal)	1.85	4.65	6.62	8.32	9.15
		Output Power HP (mechanical)	0.72	0.99	2.65	3.39	2.30
		Output Torque lb.in (mech.)	15200.	20800.	52700.	70600.	47100
		Efficiency %	57	63	67	72	72
400.	2.90	Input Power HP (mechanical)	0.93	1.69	3.71	4.94	3.50
		Input Power HP (thermal)	2.08	4.06	5.59	9.10	6.41
		Output Power HP (mechanical)	0.53	1.12	2.50	3.59	2.21
		Output Torque lb.in (mech.)	11200.	23200.	54300.	77900.	47400
		Efficiency %	57	66	67	73	63
450.	2.58	Input Power HP (mechanical)	1.04	2.00	3.61	4.59	2.99
		Input Power HP (thermal)	2.14	2.98	4.27	7.17	7.89
		Output Power HP (mechanical)	0.59	1.25	2.30	3.11	2.13
		Output Torque lb.in (mech.)	14400.	29500.	54300.	78600.	50000
		Efficiency %	57	62	64	68	71
500.	2.32	Input Power HP (mechanical)	1.16	1.63	2.88	4.08	2.65
		Input Power HP (thermal)	2.08	3.28	4.79	7.74	7.58
		Output Power HP (mechanical)	0.62	1.01	1.88	2.89	1.87
		Output Torque lb.in (mech.)	16700.	26700.	48900.	74900.	49900
		Efficiency %	53	62	65	71	70
600.	1.93	Input Power HP (mechanical)	0.90	1.08	2.68	3.15	2.02
		Input Power HP (thermal)	1.48	3.71	5.21	6.07	4.46
		Output Power HP (mechanical)	0.45	0.62	1.64	2.11	1.52
		Output Torque lb.in (mech.)	15100.	20700.	52400.	70300.	47100
		Efficiency %	50	57	61	67	75
625.	1.86	Input Power HP (mechanical)	0.98	1.40	2.48	3.34	2.32
		Input Power HP (thermal)	1.85	3.41	4.75	7.35	7.31
		Output Power HP (mechanical)	0.49	0.79	1.49	2.25	1.52
		Output Torque lb.in (mech.)	16700.	26700.	49500.	74700.	49800
		Efficiency %	50	56	60	67	66
700.	1.66	Input Power HP (mechanical)	0.66	0.98	1.54	2.22	2.28
		Input Power HP (thermal)	0.75	1.76	2.75	3.65	5.18
		Output Power HP (mechanical)	0.29	0.51	0.84	1.34	1.39
		Output Torque lb.in (mech.)	10800.	18800.	31100.	50100.	50900
		Efficiency %	44	52	54	61	61
750.	1.55	Input Power HP (mechanical)	0.77	0.90	2.26	2.61	1.56
		Input Power HP (thermal)	1.10	2.78	4.23	5.21	5.34
		Output Power HP (mechanical)	0.36	0.49	1.31	1.68	1.12
		Output Torque lb.in (mech.)	15100.	20700.	52300.	70100.	46700
		Efficiency %	46	54	58	65	72
800.	1.45	Input Power HP (mechanical)	0.56	0.99	2.15	2.74	1.93
		Input Power HP (thermal)	1.48	3.71	5.04	6.07	5.43
		Output Power HP (mechanical)	0.26	0.54	1.22	1.74	1.20
		Output Torque lb.in (mech.)	11100.	23000.	54300.	77300.	52400
		Efficiency %	46	55	57	63	62

SERIES AM
RATINGS AT 1160 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
900.	1.29	Input Power HP (mechanical)	0.68	0.81	1.98	2.27	1.78
		Input Power HP (thermal)	0.95	2.26	3.53	4.37	4.71
		Output Power HP (mechanical)	0.30	0.41	1.09	1.40	1.06
		Output Torque lb.in (mech.)	15100.	20600.	52200.	70000.	50900
		Efficiency %	44	51	55	62	60
1000.	1.16	Input Power HP (mechanical)	0.70	0.96	1.74	2.27	1.58
		Input Power HP (thermal)	1.48	3.43	4.34	6.07	4.51
		Output Power HP (mechanical)	0.31	0.49	0.95	1.40	0.93
		Output Torque lb.in (mech.)	16700.	26600.	50600.	74400.	50800
		Efficiency %	44	51	55	62	59
1200.	0.97	Input Power HP (mechanical)	0.53	0.93	1.66	2.12	1.26
		Input Power HP (thermal)	1.48	2.89	3.98	6.07	3.78
		Output Power HP (mechanical)	0.22	0.45	0.83	1.21	0.70
		Output Torque lb.in (mech.)	14300.	29300.	54300.	78600.	45700
		Efficiency %	41	48	50	57	55
1250.	0.93	Input Power HP (mechanical)	0.61	0.81	1.49	1.89	1.12
		Input Power HP (thermal)	1.10	2.78	4.23	5.21	5.34
		Output Power HP (mechanical)	0.25	0.39	0.77	1.12	0.75
		Output Torque lb.in (mech.)	16600.	26600.	51100.	74200.	49500
		Efficiency %	40	48	52	59	67
1400.	0.83	Input Power HP (mechanical)	0.40	0.68	1.46	1.79	1.30
		Input Power HP (thermal)	0.75	1.76	2.75	3.65	4.28
		Output Power HP (mechanical)	0.15	0.31	0.70	0.99	0.69
		Output Torque lb.in (mech.)	11100.	22900.	54300.	76900.	50700
		Efficiency %	37	45	48	55	53
1500.	0.77	Input Power HP (mechanical)	0.53	0.73	1.33	1.65	1.05
		Input Power HP (thermal)	0.95	2.26	3.53	4.37	5.29
		Output Power HP (mechanical)	0.20	0.33	0.65	0.93	0.65
		Output Torque lb.in (mech.)	16600.	26500.	51800.	74100.	52400
		Efficiency %	38	45	49	56	61
1600.	0.73	Input Power HP (mechanical)	0.48	0.61	1.35	1.68	1.06
		Input Power HP (thermal)	1.48	2.35	3.14	4.84	3.95
		Output Power HP (mechanical)	0.18	0.27	0.63	0.91	0.61
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	50700
		Efficiency %	37	44	46	54	57
1750.	0.66	Input Power HP (mechanical)	0.50	0.67	1.22	1.50	1.05
		Input Power HP (thermal)	0.75	1.76	2.75	3.65	3.60
		Output Power HP (mechanical)	0.18	0.28	0.56	0.79	0.52
		Output Torque lb.in (mech.)	16600.	26500.	52300.	74000.	45600
		Efficiency %	35	42	46	53	49
1800.	0.64	Input Power HP (mechanical)	0.41	0.70	1.25	1.55	0.93
		Input Power HP (thermal)	0.95	2.26	3.53	4.37	4.29
		Output Power HP (mechanical)	0.15	0.30	0.56	0.80	0.55
		Output Torque lb.in (mech.)	14300.	29300.	54300.	78600.	52400
		Efficiency %	36	43	44	52	59
2000.	0.58	Input Power HP (mechanical)	0.42	0.52	1.15	1.41	0.90
		Input Power HP (thermal)	1.10	2.29	3.08	4.64	3.82
		Output Power HP (mechanical)	0.14	0.22	0.50	0.72	0.46
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	50600
		Efficiency %	34	41	43	51	51
2100.	0.55	Input Power HP (mechanical)	0.38	0.64	1.14	1.41	0.78
		Input Power HP (thermal)	0.75	1.76	2.75	3.65	4.63
		Output Power HP (mechanical)	0.13	0.26	0.48	0.69	0.47
		Output Torque lb.in (mech.)	14300.	29200.	54300.	78600.	52400
		Efficiency %	33	40	42	49	60
2400.	0.48	Input Power HP (mechanical)	0.37	0.47	1.02	1.24	0.71
		Input Power HP (thermal)	0.95	2.26	3.05	4.37	4.46
		Output Power HP (mechanical)	0.12	0.18	0.42	0.60	0.43
		Output Torque lb.in (mech.)	15500.	23200.	54300.	78600.	52400
		Efficiency %	32	38	41	49	60
2500.	0.46	Input Power HP (mechanical)	0.31	0.45	0.96	1.15	0.68
		Input Power HP (thermal)	1.10	1.85	2.64	3.88	3.47
		Output Power HP (mechanical)	0.09	0.17	0.39	0.56	0.37
		Output Torque lb.in (mech.)	12700.	22900.	52900.	75800.	50500
		Efficiency %	30	38	41	49	55
2800.	0.41	Input Power HP (mechanical)	0.35	0.43	0.94	1.13	0.69
		Input Power HP (thermal)	0.75	1.76	2.75	3.65	3.54
		Output Power HP (mechanical)	0.10	0.15	0.36	0.52	0.35
		Output Torque lb.in (mech.)	15500.	23200.	54300.	78600.	50500
		Efficiency %	29	35	38	46	50
3000.	0.39	Input Power HP (mechanical)	0.27	0.41	0.86	1.01	0.54
		Input Power HP (thermal)	0.95	1.86	2.62	3.80	2.90
		Output Power HP (mechanical)	0.08	0.14	0.33	0.47	0.28
		Output Torque lb.in (mech.)	12700.	22900.	53500.	75700.	45400
		Efficiency %	29	35	38	46	52
3500.	0.33	Input Power HP (mechanical)	0.26	0.38	0.80	0.93	0.44
		Input Power HP (thermal)	0.75	1.76	2.63	3.65	2.58
		Output Power HP (mechanical)	0.07	0.12	0.28	0.40	0.22
		Output Torque lb.in (mech.)	12700.	22800.	54000.	75600.	41300
		Efficiency %	26	32	36	43	49
3600.	0.32	Input Power HP (mechanical)	0.21	0.32	0.61	0.81	0.50
		Input Power HP (thermal)	0.95	1.62	2.20	3.20	3.19
		Output Power HP (mechanical)	0.05	0.10	0.21	0.35	0.27
		Output Torque lb.in (mech.)	9930.	19400.	40700.	68100.	50400
		Efficiency %	24	31	34	43	54
4200.	0.28	Input Power HP (mechanical)	0.20	0.30	0.57	0.75	0.40
		Input Power HP (thermal)	0.75	1.64	2.21	3.22	2.68
		Output Power HP (mechanical)	0.04	0.09	0.18	0.30	0.20
		Output Torque lb.in (mech.)	10000.	19600.	41000.	68000.	45400
		Efficiency %	22	28	32	40	51

SERIES AM
RATINGS AT 875 RPM INPUT

	NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT			
				A1002	A1252	A1602	A2002
SINGLE REDUCTION	5.0	175.00	Input Power HP (mechanical)	18.20	31.40	58.70	101.00
			Input Power HP (thermal)	19.20	31.20	51.10	90.70
			Output Power HP (mechanical)	17.20	29.80	56.10	96.70
			Output Torque lb.in (mech.)	6370.	11000.	20700.	35500.
			Efficiency %	95	96	95	96
	7.5	116.67	Input Power HP (mechanical)	14.30	25.20	43.30	76.90
			Input Power HP (thermal)	15.50	24.90	41.80	74.10
			Output Power HP (mechanical)	13.30	23.60	41.10	73.20
			Output Torque lb.in (mech.)	7110.	12600.	22400.	39900.
			Efficiency %	93	94	95	95
	10.0	87.50	Input Power HP (mechanical)	11.60	20.70	37.60	66.20
			Input Power HP (thermal)	13.80	21.60	36.20	64.60
			Output Power HP (mechanical)	10.70	19.20	35.40	62.60
			Output Torque lb.in (mech.)	7530.	13500.	25000.	44200.
			Efficiency %	92	93	94	95
	12.5	70.00	Input Power HP (mechanical)	9.93	17.80	31.90	57.00
			Input Power HP (thermal)	11.70	18.30	31.80	57.00
			Output Power HP (mechanical)	9.07	16.30	29.70	53.50
			Output Torque lb.in (mech.)	8050.	14500.	26200.	47200.
			Efficiency %	91	92	93	94
	15.0	58.33	Input Power HP (mechanical)	9.14	13.90	29.30	46.90
			Input Power HP (thermal)	9.58	16.00	27.20	49.70
			Output Power HP (mechanical)	8.18	12.60	27.00	43.60
			Output Torque lb.in (mech.)	9130.	14100.	28500.	48100.
			Efficiency %	90	91	92	93
	20.0	43.75	Input Power HP (mechanical)	6.13	12.50	23.00	39.10
			Input Power HP (thermal)	8.64	13.70	20.10	38.70
			Output Power HP (mechanical)	5.39	11.10	20.50	35.60
			Output Torque lb.in (mech.)	7570.	15600.	30300.	52500.
			Efficiency %	88	89	89	91
	25.0	35.00	Input Power HP (mechanical)	7.36	11.60	18.20	31.90
			Input Power HP (thermal)	6.54	10.60	18.10	34.40
			Output Power HP (mechanical)	6.22	9.94	16.00	28.60
			Output Torque lb.in (mech.)	11200.	17900.	28200.	50400.
			Efficiency %	85	86	88	90
	30.0	29.17	Input Power HP (mechanical)	5.38	10.80	20.70	37.30
			Input Power HP (thermal)	5.95	9.23	14.20	27.00
			Output Power HP (mechanical)	4.46	9.12	17.60	32.50
			Output Torque lb.in (mech.)	9640.	19700.	38000.	70300.
			Efficiency %	83	84	85	87
	40.0	21.88	Input Power HP (mechanical)	4.40	6.70	14.60	23.90
			Input Power HP (thermal)	4.80	8.00	11.90	22.90
			Output Power HP (mechanical)	3.47	5.45	11.90	20.20
			Output Torque lb.in (mech.)	9990.	15700.	34400.	58300.
			Efficiency %	79	81	81	85
	50.0	17.50	Input Power HP (mechanical)	3.12	5.47	11.30	17.20
			Input Power HP (thermal)	4.28	6.86	10.50	19.80
			Output Power HP (mechanical)	2.37	4.28	8.94	14.10
			Output Torque lb.in (mech.)	8520.	15400.	32200.	50900.
			Efficiency %	76	78	80	82
	60.0	14.58	Input Power HP (mechanical)	2.48	4.08	8.92	13.30
			Input Power HP (thermal)	3.78	6.04	9.20	16.20
			Output Power HP (mechanical)	1.80	3.06	6.83	10.60
			Output Torque lb.in (mech.)	7760.	13200.	29500.	45800.
			Efficiency %	72	75	77	80
	70.0	12.50	Input Power HP (mechanical)	1.80	3.25	6.89	10.70
			Input Power HP (thermal)	3.13	5.22	7.52	14.10
			Output Power HP (mechanical)	1.22	2.36	5.00	8.31
			Output Torque lb.in (mech.)	6140.	11900.	25200.	41900.
			Efficiency %	68	73	73	78

SERIES AM
RATINGS AT 875 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
75.0	11.67	Input Power HP (mechanical)	3.29	4.17	11.30	13.60	6.95
		Input Power HP (thermal)	3.71	5.79	9.75	16.40	16.70
		Output Power HP (mechanical)	2.47	3.29	9.21	11.40	5.67
		Output Torque lb.in (mech.)	13800.	19100.	47000.	64800.	31600
		Efficiency %	75	79	82	84	82
100.	8.75	Input Power HP (mechanical)	1.98	3.79	8.80	11.60	6.95
		Input Power HP (thermal)	3.44	4.97	7.34	12.90	15.10
		Output Power HP (mechanical)	1.45	2.90	6.83	9.37	5.58
		Output Torque lb.in (mech.)	10200.	21200.	48700.	71100.	38900
		Efficiency %	73	77	78	81	80
125.	7.00	Input Power HP (mechanical)	2.45	3.59	6.90	9.52	6.95
		Input Power HP (thermal)	2.63	3.98	6.69	11.70	11.30
		Output Power HP (mechanical)	1.69	2.61	5.23	7.53	5.59
		Output Torque lb.in (mech.)	15200.	24400.	44600.	68300.	48500
		Efficiency %	69	73	76	79	80
150.	5.83	Input Power HP (mechanical)	2.02	2.45	6.73	8.25	5.07
		Input Power HP (thermal)	3.09	4.71	7.58	12.70	7.90
		Output Power HP (mechanical)	1.42	1.81	5.19	6.61	4.04
		Output Torque lb.in (mech.)	15300.	20900.	53000.	71200.	44200
		Efficiency %	70	74	77	80	80
200.	4.38	Input Power HP (mechanical)	1.22	2.23	5.23	7.07	4.75
		Input Power HP (thermal)	2.89	4.06	5.75	10.10	9.62
		Output Power HP (mechanical)	0.83	1.60	3.81	5.43	3.50
		Output Torque lb.in (mech.)	11300.	23200.	54300.	78200.	48800
		Efficiency %	68	72	73	77	74
225.	3.89	Input Power HP (mechanical)	1.41	1.83	4.70	5.43	4.34
		Input Power HP (thermal)	2.57	4.62	7.29	9.58	8.75
		Output Power HP (mechanical)	0.91	1.29	3.45	4.14	3.36
		Output Torque lb.in (mech.)	15200.	20900.	52800.	70800.	52400
		Efficiency %	64	71	73	76	78
250.	3.50	Input Power HP (mechanical)	1.37	2.55	3.62	6.03	3.85
		Input Power HP (thermal)	1.69	3.81	5.37	6.54	7.90
		Output Power HP (mechanical)	0.83	1.69	2.47	4.46	2.96
		Output Torque lb.in (mech.)	14500.	29700.	43600.	78600.	52400
		Efficiency %	60	66	68	74	77
300.	2.92	Input Power HP (mechanical)	1.17	1.42	3.62	4.40	3.22
		Input Power HP (thermal)	1.88	4.55	6.89	8.64	8.05
		Output Power HP (mechanical)	0.68	0.96	2.55	3.28	2.31
		Output Torque lb.in (mech.)	15200.	20800.	52600.	70600.	50000
		Efficiency %	58	67	71	75	72
350.	2.50	Input Power HP (mechanical)	0.56	0.93	2.06	3.36	2.94
		Input Power HP (thermal)	1.36	2.10	2.95	5.02	7.86
		Output Power HP (mechanical)	0.27	0.52	1.16	2.13	2.10
		Output Torque lb.in (mech.)	6890.	13600.	28200.	55300.	50000
		Efficiency %	49	56	56	63	71
375.	2.33	Input Power HP (mechanical)	0.99	1.21	3.06	3.60	2.45
		Input Power HP (thermal)	1.69	3.81	5.37	6.54	7.14
		Output Power HP (mechanical)	0.54	0.74	1.99	2.55	1.73
		Output Torque lb.in (mech.)	15100.	20700.	52500.	70400.	47000
		Efficiency %	55	61	65	71	71
400.	2.19	Input Power HP (mechanical)	0.72	1.30	2.86	3.79	2.80
		Input Power HP (thermal)	1.88	3.82	5.13	8.36	5.73
		Output Power HP (mechanical)	0.40	0.84	1.89	2.70	1.74
		Output Torque lb.in (mech.)	11200.	23100.	54300.	77600.	49600
		Efficiency %	56	65	66	71	62
450.	1.94	Input Power HP (mechanical)	0.80	1.54	2.80	3.54	2.29
		Input Power HP (thermal)	2.08	2.88	4.12	6.86	7.19
		Output Power HP (mechanical)	0.44	0.94	1.73	2.35	1.60
		Output Torque lb.in (mech.)	14400.	29500.	54300.	78600.	49800
		Efficiency %	56	61	62	66	70
500.	1.75	Input Power HP (mechanical)	0.90	1.25	2.25	3.14	2.03
		Input Power HP (thermal)	1.88	3.19	4.44	7.07	6.90
		Output Power HP (mechanical)	0.46	0.76	1.44	2.17	1.41
		Output Torque lb.in (mech.)	16700.	26700.	49600.	74700.	49800
		Efficiency %	52	61	64	69	69
600.	1.46	Input Power HP (mechanical)	0.70	0.83	2.07	2.43	1.56
		Input Power HP (thermal)	1.35	3.04	4.26	4.80	4.01
		Output Power HP (mechanical)	0.34	0.46	1.24	1.59	1.16
		Output Torque lb.in (mech.)	15100.	20700.	52300.	70100.	47700
		Efficiency %	48	56	60	65	74
625.	1.40	Input Power HP (mechanical)	0.76	1.08	1.95	2.58	1.77
		Input Power HP (thermal)	1.69	3.33	4.39	6.54	6.69
		Output Power HP (mechanical)	0.37	0.59	1.14	1.69	1.15
		Output Torque lb.in (mech.)	16700.	26600.	50200.	74500.	49700
		Efficiency %	49	55	58	65	65
700.	1.25	Input Power HP (mechanical)	0.53	0.78	1.22	1.77	1.75
		Input Power HP (thermal)	0.69	1.46	2.25	2.90	4.67
		Output Power HP (mechanical)	0.22	0.39	0.64	1.04	1.05
		Output Torque lb.in (mech.)	11000.	19200.	31800.	51200.	50900
		Efficiency %	43	50	53	59	60
750.	1.17	Input Power HP (mechanical)	0.60	0.70	1.75	2.02	1.19
		Input Power HP (thermal)	1.01	2.29	3.43	4.12	4.70
		Output Power HP (mechanical)	0.27	0.37	0.99	1.27	0.85
		Output Torque lb.in (mech.)	15000.	20600.	52200.	69900.	46600
		Efficiency %	45	53	56	63	71
800.	1.09	Input Power HP (mechanical)	0.44	0.77	1.67	2.12	1.49
		Input Power HP (thermal)	1.35	3.04	4.26	4.80	4.96
		Output Power HP (mechanical)	0.20	0.41	0.92	1.31	0.91
		Output Torque lb.in (mech.)	11100.	23000.	54300.	77100.	52400
		Efficiency %	45	53	55	62	61

SERIES AM
RATINGS AT 875 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
900.	0.97	Input Power HP (mechanical)	0.53	0.62	1.54	1.76	1.37
		Input Power HP (thermal)	0.87	1.87	2.87	3.47	4.29
		Output Power HP (mechanical)	0.22	0.31	0.82	1.05	0.80
		Output Torque lb.in (mech.)	15000.	20600.	52100.	69800.	50800
		Efficiency %	42	49	53	60	58
1000.	0.88	Input Power HP (mechanical)	0.55	0.74	1.37	1.76	1.21
		Input Power HP (thermal)	1.35	3.04	4.06	4.80	4.13
		Output Power HP (mechanical)	0.23	0.37	0.73	1.05	0.70
		Output Torque lb.in (mech.)	16600.	26600.	51300.	74200.	50700
		Efficiency %	42	50	53	60	58
1200.	0.73	Input Power HP (mechanical)	0.41	0.72	1.29	1.65	0.96
		Input Power HP (thermal)	1.35	2.74	3.77	4.80	3.46
		Output Power HP (mechanical)	0.17	0.34	0.63	0.91	0.53
		Output Torque lb.in (mech.)	14300.	29300.	54300.	78600.	45600
		Efficiency %	40	47	49	55	55
1250.	0.70	Input Power HP (mechanical)	0.47	0.63	1.18	1.47	0.86
		Input Power HP (thermal)	1.01	2.29	3.43	4.12	4.70
		Output Power HP (mechanical)	0.18	0.29	0.59	0.84	0.56
		Output Torque lb.in (mech.)	16600.	26500.	52100.	74100.	49400
		Efficiency %	39	47	50	57	65
1400.	0.63	Input Power HP (mechanical)	0.31	0.53	1.14	1.40	1.00
		Input Power HP (thermal)	0.69	1.46	2.25	2.90	3.94
		Output Power HP (mechanical)	0.11	0.23	0.53	0.74	0.52
		Output Torque lb.in (mech.)	11100.	22900.	54300.	76800.	50600
		Efficiency %	36	44	46	53	52
1500.	0.58	Input Power HP (mechanical)	0.42	0.56	1.05	1.28	0.81
		Input Power HP (thermal)	0.87	1.87	2.87	3.47	4.70
		Output Power HP (mechanical)	0.15	0.25	0.50	0.70	0.49
		Output Torque lb.in (mech.)	16600.	26500.	52800.	74000.	52400
		Efficiency %	37	44	48	55	60
1600.	0.55	Input Power HP (mechanical)	0.37	0.47	1.05	1.31	0.82
		Input Power HP (thermal)	1.35	2.22	2.95	4.52	3.65
		Output Power HP (mechanical)	0.14	0.20	0.47	0.68	0.46
		Output Torque lb.in (mech.)	15600.	23300.	54300.	78600.	50600
		Efficiency %	36	43	45	52	56
1750.	0.50	Input Power HP (mechanical)	0.39	0.52	0.97	1.17	0.80
		Input Power HP (thermal)	0.69	1.46	2.25	2.90	3.30
		Output Power HP (mechanical)	0.13	0.21	0.43	0.60	0.39
		Output Torque lb.in (mech.)	16600.	26500.	53300.	73900.	45500
		Efficiency %	34	41	44	51	49
1800.	0.49	Input Power HP (mechanical)	0.32	0.54	0.97	1.21	0.72
		Input Power HP (thermal)	0.87	1.87	2.87	3.47	3.98
		Output Power HP (mechanical)	0.11	0.23	0.42	0.61	0.41
		Output Torque lb.in (mech.)	14300.	29200.	54300.	78600.	52400
		Efficiency %	35	41	43	50	58
2000.	0.44	Input Power HP (mechanical)	0.33	0.40	0.90	1.10	0.69
		Input Power HP (thermal)	1.01	2.17	2.90	4.12	3.54
		Output Power HP (mechanical)	0.11	0.16	0.38	0.55	0.35
		Output Torque lb.in (mech.)	15500.	23200.	54300.	78600.	50500
		Efficiency %	33	40	42	50	51
2100.	0.42	Input Power HP (mechanical)	0.30	0.50	0.89	1.11	0.60
		Input Power HP (thermal)	0.69	1.46	2.25	2.90	4.14
		Output Power HP (mechanical)	0.09	0.19	0.36	0.52	0.35
		Output Torque lb.in (mech.)	14300.	29200.	54300.	78600.	52400
		Efficiency %	32	39	40	47	59
2400.	0.36	Input Power HP (mechanical)	0.29	0.36	0.80	0.97	0.55
		Input Power HP (thermal)	0.87	1.87	2.87	3.47	4.01
		Output Power HP (mechanical)	0.09	0.13	0.31	0.46	0.32
		Output Torque lb.in (mech.)	15500.	23200.	54300.	78600.	52400
		Efficiency %	31	37	40	47	59
2500.	0.35	Input Power HP (mechanical)	0.24	0.34	0.76	0.90	0.52
		Input Power HP (thermal)	1.01	1.74	2.49	3.65	3.22
		Output Power HP (mechanical)	0.07	0.13	0.30	0.42	0.28
		Output Torque lb.in (mech.)	12700.	22800.	53800.	75600.	50400
		Efficiency %	30	37	39	47	54
2800.	0.31	Input Power HP (mechanical)	0.27	0.34	0.73	0.89	0.53
		Input Power HP (thermal)	0.69	1.46	2.25	2.90	3.30
		Output Power HP (mechanical)	0.08	0.12	0.27	0.39	0.26
		Output Torque lb.in (mech.)	15500.	23200.	54300.	78600.	50400
		Efficiency %	28	34	37	44	50
3000.	0.29	Input Power HP (mechanical)	0.21	0.31	0.68	0.79	0.41
		Input Power HP (thermal)	0.87	1.76	2.48	3.47	2.70
		Output Power HP (mechanical)	0.06	0.11	0.25	0.35	0.21
		Output Torque lb.in (mech.)	12700.	22800.	54300.	75600.	45400
		Efficiency %	28	34	37	44	51
3500.	0.25	Input Power HP (mechanical)	0.20	0.29	0.62	0.73	0.34
		Input Power HP (thermal)	0.69	1.46	2.25	2.90	2.40
		Output Power HP (mechanical)	0.05	0.09	0.22	0.30	0.17
		Output Torque lb.in (mech.)	12600.	22800.	54300.	75500.	41600
		Efficiency %	25	31	35	41	48
3600.	0.24	Input Power HP (mechanical)	0.16	0.25	0.48	0.63	0.39
		Input Power HP (thermal)	0.87	1.54	2.08	3.03	2.98
		Output Power HP (mechanical)	0.04	0.08	0.16	0.26	0.20
		Output Torque lb.in (mech.)	10100.	19700.	41300.	68000.	50300
		Efficiency %	24	31	33	41	53
4200.	0.21	Input Power HP (mechanical)	0.16	0.23	0.45	0.58	0.31
		Input Power HP (thermal)	0.69	1.46	2.10	2.90	2.50
		Output Power HP (mechanical)	0.03	0.07	0.14	0.23	0.15
		Output Torque lb.in (mech.)	10200.	19700.	41700.	67900.	45300
		Efficiency %	22	28	31	39	50

SERIES AM
RATINGS AT 500 RPM INPUT

	NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT			
				A1002	A1252	A1602	A2002
SINGLE REDUCTION	5.0	100.00	Input Power HP (mechanical)	13.00	22.60	42.30	71.70
			Input Power HP (thermal)	12.10	19.30	31.60	55.50
			Output Power HP (mechanical)	12.20	21.20	40.10	68.30
			Output Torque lb.in (mech.)	7900.	13700.	25900.	43900.
			Efficiency %	93	94	95	95
	7.5	66.67	Input Power HP (mechanical)	10.20	18.00	30.00	54.80
			Input Power HP (thermal)	10.00	16.00	27.10	48.30
			Output Power HP (mechanical)	9.36	16.70	28.10	51.80
			Output Torque lb.in (mech.)	8730.	15600.	26800.	49400.
			Efficiency %	92	93	94	94
	10.0	50.00	Input Power HP (mechanical)	8.21	14.70	26.70	47.10
			Input Power HP (thermal)	8.90	13.90	23.50	42.10
			Output Power HP (mechanical)	7.48	13.50	24.90	44.10
			Output Torque lb.in (mech.)	9190.	16600.	30700.	54400.
			Efficiency %	91	92	93	93
	12.5	40.00	Input Power HP (mechanical)	7.03	12.60	22.60	40.40
			Input Power HP (thermal)	7.58	11.80	20.70	37.00
			Output Power HP (mechanical)	6.30	11.50	20.80	37.50
			Output Torque lb.in (mech.)	9790.	17800.	32100.	57900.
			Efficiency %	90	91	92	93
	15.0	33.33	Input Power HP (mechanical)	6.48	9.07	20.80	30.30
			Input Power HP (thermal)	6.22	10.40	17.80	32.20
			Output Power HP (mechanical)	5.68	8.09	18.80	27.80
			Output Torque lb.in (mech.)	11100.	15800.	34800.	53700.
			Efficiency %	87	89	90	92
	20.0	25.00	Input Power HP (mechanical)	4.01	8.16	16.30	25.40
			Input Power HP (thermal)	5.67	8.82	13.20	25.20
			Output Power HP (mechanical)	3.44	7.08	14.20	22.70
			Output Torque lb.in (mech.)	8460.	17400.	36800.	58700.
			Efficiency %	86	87	87	89
	25.0	20.00	Input Power HP (mechanical)	4.87	7.61	12.80	20.80
			Input Power HP (thermal)	4.30	7.00	11.90	22.50
			Output Power HP (mechanical)	4.00	6.38	11.00	18.30
			Output Torque lb.in (mech.)	12600.	20100.	34100.	56400.
			Efficiency %	82	83	86	88
	30.0	16.67	Input Power HP (mechanical)	3.56	7.17	14.70	24.50
			Input Power HP (thermal)	3.95	6.11	9.44	17.80
			Output Power HP (mechanical)	2.86	5.85	12.10	20.80
			Output Torque lb.in (mech.)	10800.	22100.	45700.	78600.
			Efficiency %	80	81	82	85
	40.0	12.50	Input Power HP (mechanical)	3.07	4.45	10.30	15.80
			Input Power HP (thermal)	3.21	5.28	7.91	15.10
			Output Power HP (mechanical)	2.32	3.47	8.12	13.00
			Output Torque lb.in (mech.)	11700.	17500.	40900.	65300.
			Efficiency %	76	78	79	82
	50.0	10.00	Input Power HP (mechanical)	2.09	3.66	7.90	11.40
			Input Power HP (thermal)	2.89	4.57	7.06	12.90
			Output Power HP (mechanical)	1.51	2.73	6.03	9.06
			Output Torque lb.in (mech.)	9540.	17200.	38000.	57100.
			Efficiency %	72	75	76	80
	60.0	8.33	Input Power HP (mechanical)	1.56	2.73	6.04	8.82
			Input Power HP (thermal)	2.56	4.02	6.12	10.70
			Output Power HP (mechanical)	1.08	1.96	4.42	6.79
			Output Torque lb.in (mech.)	8150.	14800.	33400.	51300.
			Efficiency %	69	72	73	77
	70.0	7.14	Input Power HP (mechanical)	1.14	2.08	4.36	7.15
			Input Power HP (thermal)	2.13	3.50	5.03	9.29
			Output Power HP (mechanical)	0.73	1.44	2.99	5.32
			Output Torque lb.in (mech.)	6430.	12700.	26400.	46900.
			Efficiency %	64	69	69	74

SERIES AM
RATINGS AT 500 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
75.0	6.67	Input Power HP (mechanical)	2.13	2.68	7.39	8.77	3.97
		Input Power HP (thermal)	3.06	4.73	7.80	12.10	10.20
		Output Power HP (mechanical)	1.55	2.05	5.84	7.12	3.16
		Output Torque lb.in (mech.)	15100.	20800.	52200.	70700.	30800
		Efficiency %	73	76	79	81	80
100.	5.00	Input Power HP (mechanical)	1.28	2.45	5.82	7.50	3.97
		Input Power HP (thermal)	2.86	4.08	5.90	10.30	10.20
		Output Power HP (mechanical)	0.90	1.81	4.35	5.84	3.11
		Output Torque lb.in (mech.)	11100.	23100.	54300.	77600.	37900
		Efficiency %	71	74	75	78	78
125.	4.00	Input Power HP (mechanical)	1.60	2.33	4.35	6.17	3.97
		Input Power HP (thermal)	2.19	3.28	5.40	8.95	7.48
		Output Power HP (mechanical)	1.05	1.63	3.17	4.70	3.10
		Output Torque lb.in (mech.)	16600.	26700.	47300.	74600.	47100
		Efficiency %	66	70	73	76	78
150.	3.33	Input Power HP (mechanical)	1.19	1.44	3.96	4.85	3.09
		Input Power HP (thermal)	2.86	4.38	6.91	8.90	5.49
		Output Power HP (mechanical)	0.81	1.03	2.95	3.75	2.39
		Output Torque lb.in (mech.)	15200.	20800.	52700.	70700.	45800
		Efficiency %	68	72	74	77	77
200.	2.50	Input Power HP (mechanical)	0.72	1.32	3.11	4.17	2.87
		Input Power HP (thermal)	2.72	3.72	5.13	8.44	7.79
		Output Power HP (mechanical)	0.47	0.91	2.17	3.09	2.05
		Output Torque lb.in (mech.)	11200.	23100.	54300.	77700.	49900
		Efficiency %	65	69	70	74	71
225.	2.22	Input Power HP (mechanical)	0.84	1.08	2.77	3.21	2.56
		Input Power HP (thermal)	2.10	4.21	6.21	6.22	5.85
		Output Power HP (mechanical)	0.52	0.73	1.96	2.35	1.92
		Output Torque lb.in (mech.)	15100.	20700.	52500.	70400.	52400
		Efficiency %	62	68	71	73	75
250.	2.00	Input Power HP (mechanical)	0.82	1.52	2.15	3.61	2.26
		Input Power HP (thermal)	1.39	2.58	3.62	4.30	5.49
		Output Power HP (mechanical)	0.47	0.96	1.40	2.55	1.69
		Output Torque lb.in (mech.)	14400.	29500.	43300.	78600.	52400
		Efficiency %	57	63	65	71	75
300.	1.67	Input Power HP (mechanical)	0.70	0.84	2.14	2.60	1.89
		Input Power HP (thermal)	1.55	3.57	5.30	5.67	6.73
		Output Power HP (mechanical)	0.39	0.54	1.45	1.86	1.31
		Output Torque lb.in (mech.)	15100.	20700.	52400.	70200.	49700
		Efficiency %	55	65	68	72	69
350.	1.43	Input Power HP (mechanical)	0.35	0.57	1.29	2.08	1.73
		Input Power HP (thermal)	1.10	1.68	2.29	3.90	6.54
		Output Power HP (mechanical)	0.16	0.31	0.68	1.25	1.19
		Output Torque lb.in (mech.)	7080.	14000.	29000.	56900.	49700
		Efficiency %	47	53	53	60	69
375.	1.33	Input Power HP (mechanical)	0.59	0.72	1.83	2.15	1.44
		Input Power HP (thermal)	1.39	2.58	3.62	4.30	4.81
		Output Power HP (mechanical)	0.31	0.42	1.13	1.45	0.98
		Output Torque lb.in (mech.)	15100.	20600.	52200.	70000.	46700
		Efficiency %	52	59	62	67	68
400.	1.25	Input Power HP (mechanical)	0.43	0.77	1.71	2.25	1.70
		Input Power HP (thermal)	1.55	3.34	4.43	5.67	4.63
		Output Power HP (mechanical)	0.23	0.48	1.08	1.53	1.02
		Output Torque lb.in (mech.)	11100.	23000.	54300.	77200.	50800
		Efficiency %	53	63	63	68	60
450.	1.11	Input Power HP (mechanical)	0.48	0.92	1.68	2.13	1.34
		Input Power HP (thermal)	1.95	2.65	3.69	5.87	5.85
		Output Power HP (mechanical)	0.25	0.54	0.99	1.34	0.91
		Output Torque lb.in (mech.)	14300.	29400.	54300.	78600.	49600
		Efficiency %	53	58	59	63	68
500.	1.00	Input Power HP (mechanical)	0.54	0.74	1.38	1.87	1.19
		Input Power HP (thermal)	1.55	3.00	3.80	5.67	5.49
		Output Power HP (mechanical)	0.27	0.43	0.84	1.23	0.80
		Output Torque lb.in (mech.)	16700.	26600.	50800.	74300.	49500
		Efficiency %	49	58	61	66	67
600.	0.83	Input Power HP (mechanical)	0.42	0.50	1.25	1.47	0.94
		Input Power HP (thermal)	1.13	2.08	2.89	3.21	3.57
		Output Power HP (mechanical)	0.19	0.26	0.70	0.90	0.68
		Output Torque lb.in (mech.)	15000.	20600.	52000.	69700.	49100
		Efficiency %	46	53	56	61	72
625.	0.80	Input Power HP (mechanical)	0.46	0.65	1.21	1.55	1.04
		Input Power HP (thermal)	1.39	2.58	3.62	4.30	4.81
		Output Power HP (mechanical)	0.21	0.34	0.67	0.96	0.65
		Output Torque lb.in (mech.)	16600.	26500.	51700.	74200.	49400
		Efficiency %	46	52	55	62	63
700.	0.71	Input Power HP (mechanical)	0.33	0.49	0.77	1.13	1.04
		Input Power HP (thermal)	0.59	1.02	1.52	1.97	3.92
		Output Power HP (mechanical)	0.13	0.23	0.38	0.62	0.60
		Output Torque lb.in (mech.)	11500.	19900.	33000.	53200.	50700
		Efficiency %	40	47	49	54	57
750.	0.67	Input Power HP (mechanical)	0.36	0.42	1.06	1.22	0.69
		Input Power HP (thermal)	0.85	1.58	2.28	2.77	3.81
		Output Power HP (mechanical)	0.15	0.21	0.56	0.72	0.48
		Output Torque lb.in (mech.)	15000.	20500.	51900.	69500.	46300
		Efficiency %	42	50	53	59	69
800.	0.63	Input Power HP (mechanical)	0.26	0.46	1.01	1.28	0.88
		Input Power HP (thermal)	1.13	2.08	2.89	3.21	4.21
		Output Power HP (mechanical)	0.11	0.23	0.53	0.74	0.52
		Output Torque lb.in (mech.)	11100.	22900.	54300.	76800.	52400.
		Efficiency %	43	51	52	58	59

SERIES AM
RATINGS AT 500 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
900.	0.56	Input Power HP (mechanical)	0.32	0.37	0.93	1.07	0.81
		Input Power HP (thermal)	0.74	1.30	1.92	2.35	3.63
		Output Power HP (mechanical)	0.13	0.18	0.47	0.60	0.46
		Output Torque lb.in (mech.)	15000.	20500.	51800.	69400.	50600
		Efficiency %	40	47	50	56	56
1000.	0.50	Input Power HP (mechanical)	0.33	0.45	0.86	1.06	0.72
		Input Power HP (thermal)	1.13	2.08	2.89	3.21	3.51
		Output Power HP (mechanical)	0.13	0.21	0.43	0.60	0.40
		Output Torque lb.in (mech.)	16600.	26500.	53300.	73900.	50500
		Efficiency %	40	47	50	56	56
1200.	0.42	Input Power HP (mechanical)	0.25	0.43	0.79	1.00	0.57
		Input Power HP (thermal)	1.13	2.08	2.89	3.21	2.94
		Output Power HP (mechanical)	0.09	0.19	0.36	0.52	0.30
		Output Torque lb.in (mech.)	14300.	29200.	54300.	78600.	45500
		Efficiency %	38	45	46	52	53
1250.	0.40	Input Power HP (mechanical)	0.29	0.38	0.74	0.89	0.50
		Input Power HP (thermal)	0.85	1.58	2.28	2.77	3.81
		Output Power HP (mechanical)	0.11	0.17	0.35	0.48	0.32
		Output Torque lb.in (mech.)	16600.	26400.	54100.	73800.	49200
		Efficiency %	37	44	47	54	64
1400.	0.36	Input Power HP (mechanical)	0.19	0.32	0.70	0.86	0.59
		Input Power HP (thermal)	0.59	1.02	1.52	1.97	3.39
		Output Power HP (mechanical)	0.06	0.13	0.30	0.42	0.30
		Output Torque lb.in (mech.)	11000.	22800.	54300.	76400.	50400
		Efficiency %	34	42	43	49	50
1500.	0.33	Input Power HP (mechanical)	0.25	0.34	0.66	0.78	0.48
		Input Power HP (thermal)	0.74	1.30	1.92	2.35	3.81
		Output Power HP (mechanical)	0.09	0.14	0.29	0.40	0.28
		Output Torque lb.in (mech.)	16500.	26400.	54300.	73700.	52400
		Efficiency %	35	41	45	51	58
1600.	0.31	Input Power HP (mechanical)	0.23	0.28	0.64	0.80	0.48
		Input Power HP (thermal)	1.13	2.00	2.63	3.21	3.15
		Output Power HP (mechanical)	0.08	0.12	0.27	0.39	0.26
		Output Torque lb.in (mech.)	15500.	23200.	54300.	78600.	50400
		Efficiency %	34	41	42	49	54
1750.	0.29	Input Power HP (mechanical)	0.24	0.31	0.60	0.72	0.47
		Input Power HP (thermal)	0.59	1.02	1.52	1.97	2.84
		Output Power HP (mechanical)	0.07	0.12	0.25	0.34	0.22
		Output Torque lb.in (mech.)	16500.	26400.	54300.	73600.	45400
		Efficiency %	32	38	42	47	47
1800.	0.28	Input Power HP (mechanical)	0.19	0.33	0.59	0.74	0.42
		Input Power HP (thermal)	0.74	1.30	1.92	2.35	3.46
		Output Power HP (mechanical)	0.06	0.13	0.24	0.35	0.24
		Output Torque lb.in (mech.)	14200.	29100.	54300.	78600.	52400
		Efficiency %	33	39	40	47	56
2000.	0.25	Input Power HP (mechanical)	0.20	0.24	0.55	0.67	0.41
		Input Power HP (thermal)	0.85	1.58	2.28	2.77	3.09
		Output Power HP (mechanical)	0.06	0.09	0.22	0.31	0.20
		Output Torque lb.in (mech.)	15500.	23200.	54300.	78600.	50300
		Efficiency %	31	39	39	46	49
2100.	0.24	Input Power HP (mechanical)	0.18	0.30	0.55	0.69	0.35
		Input Power HP (thermal)	0.59	1.02	1.52	1.97	3.62
		Output Power HP (mechanical)	0.05	0.11	0.21	0.30	0.20
		Output Torque lb.in (mech.)	14200.	29100.	54300.	78600.	52400
		Efficiency %	30	36	38	43	57
2400.	0.21	Input Power HP (mechanical)	0.17	0.22	0.49	0.59	0.32
		Input Power HP (thermal)	0.74	1.30	1.92	2.35	3.57
		Output Power HP (mechanical)	0.05	0.08	0.18	0.26	0.18
		Output Torque lb.in (mech.)	15500.	23100.	54300.	78600.	52400
		Efficiency %	29	35	37	44	57
2500.	0.20	Input Power HP (mechanical)	0.14	0.21	0.47	0.55	0.31
		Input Power HP (thermal)	0.85	1.58	2.25	2.77	2.81
		Output Power HP (mechanical)	0.04	0.07	0.17	0.24	0.16
		Output Torque lb.in (mech.)	12600.	22800.	54300.	75400.	50300
		Efficiency %	28	35	37	44	52
2800.	0.18	Input Power HP (mechanical)	0.16	0.20	0.45	0.55	0.31
		Input Power HP (thermal)	0.59	1.02	1.52	1.97	2.90
		Output Power HP (mechanical)	0.04	0.07	0.15	0.22	0.15
		Output Torque lb.in (mech.)	15500.	23100.	54300.	78600.	50300
		Efficiency %	27	33	34	41	48
3000.	0.17	Input Power HP (mechanical)	0.13	0.19	0.41	0.48	0.24
		Input Power HP (thermal)	0.74	1.30	1.92	2.35	2.36
		Output Power HP (mechanical)	0.03	0.06	0.14	0.20	0.12
		Output Torque lb.in (mech.)	12600.	22800.	54300.	75300.	45200
		Efficiency %	26	32	35	41	49
3500.	0.14	Input Power HP (mechanical)	0.12	0.17	0.38	0.45	0.20
		Input Power HP (thermal)	0.59	1.02	1.52	1.97	2.10
		Output Power HP (mechanical)	0.03	0.05	0.12	0.17	0.09
		Output Torque lb.in (mech.)	12600.	22700.	54300.	75300.	41400
		Efficiency %	24	30	32	38	47
3600.	0.14	Input Power HP (mechanical)	0.10	0.15	0.30	0.39	0.23
		Input Power HP (thermal)	0.74	1.30	1.89	2.35	2.63
		Output Power HP (mechanical)	0.02	0.04	0.09	0.15	0.12
		Output Torque lb.in (mech.)	10400.	19600.	42600.	67800.	50200
		Efficiency %	23	29	32	39	51
4200.	0.12	Input Power HP (mechanical)	0.09	0.14	0.28	0.36	0.18
		Input Power HP (thermal)	0.59	1.02	1.52	1.97	2.20
		Output Power HP (mechanical)	0.02	0.04	0.08	0.13	0.09
		Output Torque lb.in (mech.)	10500.	19600.	42900.	67700.	45200
		Efficiency %	21	27	29	36	48

SERIES AM
RATINGS AT 250 RPM INPUT

	NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT			
				A1002	A1252	A1602	A2002
SINGLE REDUCTION	5.0	50.00	Input Power HP (mechanical)	8.41	14.60	27.50	40.80
			Input Power HP (thermal)	7.28	11.40	18.20	31.00
			Output Power HP (mechanical)	7.72	13.60	25.60	38.30
			Output Torque lb.in (mech.)	10000.	17500.	33100.	49200.
			Efficiency %	92	92	93	94
	7.5	33.33	Input Power HP (mechanical)	6.51	11.60	16.90	31.50
			Input Power HP (thermal)	6.13	9.61	16.00	27.60
			Output Power HP (mechanical)	5.90	10.60	15.60	29.30
			Output Torque lb.in (mech.)	11000.	19700.	29700.	55900.
			Efficiency %	90	91	92	93
	10.0	25.00	Input Power HP (mechanical)	5.22	9.40	16.30	30.30
			Input Power HP (thermal)	5.52	8.46	14.00	24.30
			Output Power HP (mechanical)	4.68	8.47	14.90	27.90
			Output Torque lb.in (mech.)	11500.	20800.	36800.	68800.
			Efficiency %	90	90	91	92
	12.5	20.00	Input Power HP (mechanical)	4.45	8.05	14.10	25.10
			Input Power HP (thermal)	4.73	7.24	12.40	21.50
			Output Power HP (mechanical)	3.89	7.11	12.70	22.80
			Output Torque lb.in (mech.)	12100.	22100.	39100.	70400.
			Efficiency %	87	88	90	91
	15.0	16.67	Input Power HP (mechanical)	3.89	5.24	13.20	17.50
			Input Power HP (thermal)	3.90	6.43	10.70	18.90
			Output Power HP (mechanical)	3.30	4.53	11.70	15.60
			Output Torque lb.in (mech.)	12900.	17700.	43200.	60400.
			Efficiency %	85	86	88	89
	20.0	12.50	Input Power HP (mechanical)	2.32	4.74	10.30	14.80
			Input Power HP (thermal)	3.60	5.48	8.00	14.90
			Output Power HP (mechanical)	1.94	4.01	8.71	12.80
			Output Torque lb.in (mech.)	9530.	19700.	45000.	66200.
			Efficiency %	84	85	84	87
	25.0	10.00	Input Power HP (mechanical)	2.86	4.46	8.07	12.10
			Input Power HP (thermal)	2.74	4.37	7.25	13.40
			Output Power HP (mechanical)	2.25	3.60	6.69	10.30
			Output Torque lb.in (mech.)	14200.	22700.	41300.	63600.
			Efficiency %	78	81	83	85
	30.0	8.33	Input Power HP (mechanical)	2.10	4.23	8.92	12.80
			Input Power HP (thermal)	2.53	3.85	5.78	10.60
			Output Power HP (mechanical)	1.61	3.29	7.01	10.40
			Output Torque lb.in (mech.)	12200.	24900.	53000.	78600.
			Efficiency %	77	78	78	81
	40.0	6.25	Input Power HP (mechanical)	1.83	2.64	6.48	9.34
			Input Power HP (thermal)	2.08	3.37	4.91	9.14
			Output Power HP (mechanical)	1.31	1.96	4.84	7.32
			Output Torque lb.in (mech.)	13200.	19800.	48800.	73800.
			Efficiency %	72	74	75	78
	50.0	5.00	Input Power HP (mechanical)	1.25	2.18	4.95	6.78
			Input Power HP (thermal)	1.89	2.94	4.43	7.91
			Output Power HP (mechanical)	0.86	1.54	3.56	5.12
			Output Torque lb.in (mech.)	10800.	19400.	44900.	64500.
			Efficiency %	69	71	72	76
	60.0	4.17	Input Power HP (mechanical)	0.87	1.63	3.38	5.26
			Input Power HP (thermal)	1.70	2.61	3.85	6.62
			Output Power HP (mechanical)	0.57	1.10	2.32	3.84
			Output Torque lb.in (mech.)	8570.	16700.	35100.	58000.
			Efficiency %	65	68	69	73
	70.0	3.57	Input Power HP (mechanical)	0.64	1.16	2.47	4.28
			Input Power HP (thermal)	1.41	2.29	3.18	5.80
			Output Power HP (mechanical)	0.38	0.75	1.57	3.01
			Output Torque lb.in (mech.)	6750.	13300.	27700.	53100.
			Efficiency %	60	65	64	70

SERIES AM
RATINGS AT 250 RPM INPUT

DOUBLE REDUCTION

NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
75.0	3.33	Input Power HP (mechanical)	1.12	1.39	3.89	4.56	1.99
		Input Power HP (thermal)	2.81	4.30	6.80	7.28	6.21
		Output Power HP (mechanical)	0.78	1.02	2.95	3.56	1.52
		Output Torque lb.in (mech.)	15200.	20800.	52700.	70700.	29700
		Efficiency %	69	74	76	78	76
100.	2.50	Input Power HP (mechanical)	0.67	1.28	3.05	3.92	1.99
		Input Power HP (thermal)	2.64	3.65	5.04	7.28	6.21
		Output Power HP (mechanical)	0.46	0.90	2.17	2.92	1.50
		Output Torque lb.in (mech.)	11200.	23100.	54300.	77700.	36500
		Efficiency %	68	71	71	75	75
125.	2.00	Input Power HP (mechanical)	0.85	1.23	2.38	3.24	1.99
		Input Power HP (thermal)	2.03	3.01	4.33	6.98	4.99
		Output Power HP (mechanical)	0.53	0.82	1.65	2.35	1.50
		Output Torque lb.in (mech.)	16700.	26700.	49200.	74700.	45400
		Efficiency %	62	66	69	73	75
150.	1.67	Input Power HP (mechanical)	0.62	0.74	2.05	2.50	1.66
		Input Power HP (thermal)	2.35	3.77	5.39	5.52	4.09
		Output Power HP (mechanical)	0.40	0.51	1.47	1.86	1.24
		Output Torque lb.in (mech.)	15100.	20700.	52400.	70200.	47600
		Efficiency %	64	69	72	75	75
200.	1.25	Input Power HP (mechanical)	0.37	0.68	1.63	2.17	1.49
		Input Power HP (thermal)	2.32	3.12	4.22	5.52	6.21
		Output Power HP (mechanical)	0.23	0.45	1.09	1.53	1.02
		Output Torque lb.in (mech.)	11100.	23000.	54300.	77200.	49600
		Efficiency %	62	66	67	71	68
225.	1.11	Input Power HP (mechanical)	0.44	0.56	1.44	1.67	1.32
		Input Power HP (thermal)	1.69	2.91	4.04	3.90	4.29
		Output Power HP (mechanical)	0.26	0.36	0.97	1.17	0.96
		Output Torque lb.in (mech.)	15000.	20600.	52200.	69800.	52400
		Efficiency %	59	65	68	70	73
250.	1.00	Input Power HP (mechanical)	0.43	0.80	1.13	1.91	1.17
		Input Power HP (thermal)	1.06	1.81	2.39	2.74	4.09
		Output Power HP (mechanical)	0.23	0.48	0.69	1.27	0.85
		Output Torque lb.in (mech.)	14300.	29300.	42700.	78600.	52400
		Efficiency %	54	60	61	67	72
300.	0.83	Input Power HP (mechanical)	0.37	0.44	1.12	1.35	0.98
		Input Power HP (thermal)	1.20	2.49	3.48	3.60	4.99
		Output Power HP (mechanical)	0.19	0.27	0.72	0.93	0.65
		Output Torque lb.in (mech.)	15000.	20600.	52000.	69700.	49400
		Efficiency %	52	62	64	69	66
350.	0.71	Input Power HP (mechanical)	0.19	0.31	0.72	1.16	0.90
		Input Power HP (thermal)	0.91	1.37	1.82	3.08	4.78
		Output Power HP (mechanical)	0.08	0.16	0.35	0.65	0.59
		Output Torque lb.in (mech.)	7360.	14500.	30100.	59200.	49400
		Efficiency %	44	50	49	56	66
375.	0.67	Input Power HP (mechanical)	0.31	0.38	0.97	1.13	0.74
		Input Power HP (thermal)	1.06	1.81	2.39	2.74	3.28
		Output Power HP (mechanical)	0.15	0.21	0.56	0.72	0.49
		Output Torque lb.in (mech.)	15000.	20500.	51900.	69500.	46300
		Efficiency %	49	55	58	64	66
400.	0.63	Input Power HP (mechanical)	0.23	0.40	0.90	1.18	0.89
		Input Power HP (thermal)	1.20	2.49	3.48	3.60	3.75
		Output Power HP (mechanical)	0.11	0.24	0.54	0.76	0.51
		Output Torque lb.in (mech.)	11100.	22900.	54300.	76800.	50600
		Efficiency %	50	60	60	65	57
450.	0.56	Input Power HP (mechanical)	0.25	0.48	0.89	1.13	0.70
		Input Power HP (thermal)	1.69	2.28	3.13	3.90	4.29
		Output Power HP (mechanical)	0.13	0.27	0.50	0.67	0.45
		Output Torque lb.in (mech.)	14300.	29200.	54300.	78600.	49300
		Efficiency %	50	55	56	59	65
500.	0.50	Input Power HP (mechanical)	0.29	0.39	0.76	0.98	0.62
		Input Power HP (thermal)	1.20	2.49	3.22	3.60	4.09
		Output Power HP (mechanical)	0.13	0.22	0.44	0.61	0.40
		Output Torque lb.in (mech.)	16600.	26500.	53200.	73900.	49300
		Efficiency %	46	55	58	63	65
600.	0.42	Input Power HP (mechanical)	0.23	0.26	0.66	0.78	0.50
		Input Power HP (thermal)	0.88	1.48	1.94	2.08	3.24
		Output Power HP (mechanical)	0.10	0.13	0.35	0.45	0.36
		Output Torque lb.in (mech.)	14900.	20500.	51700.	69200.	51400
		Efficiency %	42	50	53	57	71
625.	0.40	Input Power HP (mechanical)	0.24	0.34	0.67	0.82	0.54
		Input Power HP (thermal)	1.06	1.81	2.39	2.74	3.28
		Output Power HP (mechanical)	0.11	0.17	0.35	0.48	0.32
		Output Torque lb.in (mech.)	16600.	26400.	54100.	73800.	49200
		Efficiency %	43	49	52	58	60
700.	0.36	Input Power HP (mechanical)	0.18	0.27	0.43	0.64	0.54
		Input Power HP (thermal)	0.52	0.75	1.04	1.31	3.24
		Output Power HP (mechanical)	0.07	0.12	0.20	0.32	0.30
		Output Torque lb.in (mech.)	11900.	20600.	34200.	55100.	50400
		Efficiency %	38	44	46	50	55
750.	0.33	Input Power HP (mechanical)	0.19	0.22	0.56	0.65	0.36
		Input Power HP (thermal)	0.73	1.14	1.54	1.82	3.41
		Output Power HP (mechanical)	0.08	0.10	0.28	0.36	0.24
		Output Torque lb.in (mech.)	14900.	20400.	51600.	69100.	46100
		Efficiency %	39	47	49	55	67
800.	0.31	Input Power HP (mechanical)	0.14	0.24	0.54	0.68	0.46
		Input Power HP (thermal)	0.88	1.48	1.94	2.08	3.53
		Output Power HP (mechanical)	0.06	0.12	0.26	0.37	0.26
		Output Torque lb.in (mech.)	11000.	22800.	54300.	76400.	52400
		Efficiency %	41	48	49	54	56

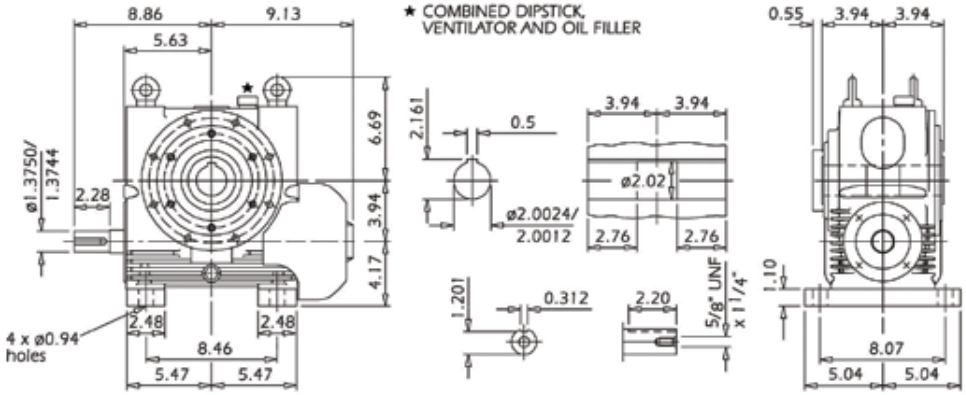
SERIES AM
RATINGS AT 250 RPM INPUT

DOUBLE REDUCTION

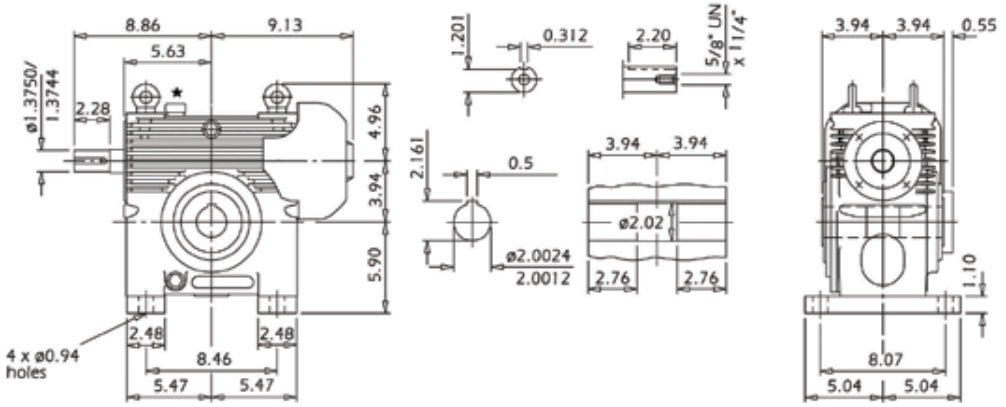
NOMINAL RATIO	NOMINAL OUTPUT SPEED REV / MIN	CAPACITY	SIZE OF UNIT				
			A1002	A1252	A1602	A2002 Reducer	A2002 Motorized
900.	0.28	Input Power HP (mechanical)	0.17	0.20	0.50	0.57	0.42
		Input Power HP (thermal)	0.64	0.94	1.30	1.56	3.04
		Output Power HP (mechanical)	0.06	0.09	0.23	0.30	0.23
		Output Torque lb.in (mech.)	14900.	20400.	51600.	69000.	50400
		Efficiency %	37	44	47	52	54
1000.	0.25	Input Power HP (mechanical)	0.18	0.24	0.47	0.57	0.38
		Input Power HP (thermal)	0.88	1.48	1.94	2.08	2.95
		Output Power HP (mechanical)	0.07	0.11	0.22	0.30	0.20
		Output Torque lb.in (mech.)	16500.	26400.	54300.	73500.	50300
		Efficiency %	37	44	47	52	53
1200.	0.21	Input Power HP (mechanical)	0.13	0.23	0.42	0.54	0.30
		Input Power HP (thermal)	0.88	1.48	1.94	2.08	2.47
		Output Power HP (mechanical)	0.05	0.10	0.18	0.26	0.15
		Output Torque lb.in (mech.)	14200.	29100.	54300.	78600.	45300
		Efficiency %	36	42	42	48	50
1250.	0.20	Input Power HP (mechanical)	0.15	0.20	0.40	0.48	0.26
		Input Power HP (thermal)	0.73	1.14	1.54	1.82	3.41
		Output Power HP (mechanical)	0.05	0.08	0.18	0.24	0.16
		Output Torque lb.in (mech.)	16500.	26300.	54300.	73400.	48900
		Efficiency %	34	42	44	50	61
1400.	0.18	Input Power HP (mechanical)	0.10	0.17	0.38	0.47	0.31
		Input Power HP (thermal)	0.52	0.75	1.04	1.31	2.89
		Output Power HP (mechanical)	0.03	0.07	0.15	0.21	0.15
		Output Torque lb.in (mech.)	11000.	22700.	54300.	76100.	50300
		Efficiency %	32	39	40	45	48
1500.	0.17	Input Power HP (mechanical)	0.13	0.18	0.36	0.42	0.25
		Input Power HP (thermal)	0.64	0.94	1.30	1.56	3.41
		Output Power HP (mechanical)	0.04	0.07	0.15	0.20	0.14
		Output Torque lb.in (mech.)	16500.	26300.	54300.	73300.	52400
		Efficiency %	33	38	41	47	56
1600.	0.16	Input Power HP (mechanical)	0.12	0.15	0.34	0.43	0.25
		Input Power HP (thermal)	0.88	1.48	1.94	2.08	2.68
		Output Power HP (mechanical)	0.04	0.06	0.14	0.20	0.13
		Output Torque lb.in (mech.)	15500.	23100.	54300.	78600.	50200
		Efficiency %	32	38	39	45	52
1750.	0.14	Input Power HP (mechanical)	0.13	0.17	0.33	0.39	0.24
		Input Power HP (thermal)	0.52	0.75	1.04	1.31	2.43
		Output Power HP (mechanical)	0.04	0.06	0.13	0.17	0.11
		Output Torque lb.in (mech.)	16500.	26300.	54300.	73300.	45200
		Efficiency %	30	36	38	43	45
1800.	0.14	Input Power HP (mechanical)	0.10	0.18	0.32	0.40	0.22
		Input Power HP (thermal)	0.64	0.94	1.30	1.56	2.97
		Output Power HP (mechanical)	0.03	0.06	0.12	0.17	0.12
		Output Torque lb.in (mech.)	14200.	29000.	54300.	78600.	52400
		Efficiency %	31	36	37	43	53
2000.	0.13	Input Power HP (mechanical)	0.10	0.13	0.30	0.37	0.21
		Input Power HP (thermal)	0.73	1.14	1.54	1.82	2.67
		Output Power HP (mechanical)	0.03	0.05	0.11	0.16	0.10
		Output Torque lb.in (mech.)	15400.	23100.	54300.	78600.	50200
		Efficiency %	29	36	36	43	47
2100.	0.12	Input Power HP (mechanical)	0.10	0.16	0.30	0.38	0.18
		Input Power HP (thermal)	0.52	0.75	1.04	1.31	3.27
		Output Power HP (mechanical)	0.03	0.05	0.10	0.15	0.10
		Output Torque lb.in (mech.)	14200.	29000.	54300.	78600.	52400
		Efficiency %	28	34	35	39	55
2400.	0.10	Input Power HP (mechanical)	0.09	0.12	0.26	0.32	0.17
		Input Power HP (thermal)	0.64	0.94	1.30	1.56	3.24
		Output Power HP (mechanical)	0.03	0.04	0.09	0.13	0.09
		Output Torque lb.in (mech.)	15400.	23100.	54300.	78600.	52400
		Efficiency %	28	33	34	40	55
2500.	0.10	Input Power HP (mechanical)	0.07	0.11	0.25	0.30	0.16
		Input Power HP (thermal)	0.73	1.14	1.54	1.82	2.42
		Output Power HP (mechanical)	0.02	0.04	0.09	0.12	0.08
		Output Torque lb.in (mech.)	12600.	22700.	54300.	75200.	50100
		Efficiency %	27	33	34	40	50
2800.	0.09	Input Power HP (mechanical)	0.09	0.11	0.24	0.30	0.16
		Input Power HP (thermal)	0.52	0.75	1.04	1.31	2.52
		Output Power HP (mechanical)	0.02	0.03	0.08	0.11	0.07
		Output Torque lb.in (mech.)	15400.	23100.	54300.	78600.	50100
		Efficiency %	25	31	32	37	46
3000.	0.08	Input Power HP (mechanical)	0.07	0.10	0.22	0.26	0.13
		Input Power HP (thermal)	0.64	0.94	1.30	1.56	2.03
		Output Power HP (mechanical)	0.02	0.03	0.07	0.10	0.06
		Output Torque lb.in (mech.)	12600.	22700.	54300.	75100.	45100
		Efficiency %	25	30	32	38	47
3500.	0.07	Input Power HP (mechanical)	0.06	0.09	0.21	0.25	0.11
		Input Power HP (thermal)	0.52	0.75	1.04	1.31	1.81
		Output Power HP (mechanical)	0.01	0.03	0.06	0.09	0.05
		Output Torque lb.in (mech.)	12600.	22700.	54300.	75000.	41300
		Efficiency %	23	28	30	35	45
3600.	0.07	Input Power HP (mechanical)	0.05	0.08	0.17	0.21	0.12
		Input Power HP (thermal)	0.64	0.94	1.30	1.56	2.27
		Output Power HP (mechanical)	0.01	0.02	0.05	0.07	0.06
		Output Torque lb.in (mech.)	10800.	19600.	44100.	67600.	50000
		Efficiency %	23	28	29	35	49
4200.	0.06	Input Power HP (mechanical)	0.05	0.07	0.15	0.20	0.09
		Input Power HP (thermal)	0.52	0.75	1.04	1.31	1.91
		Output Power HP (mechanical)	0.01	0.02	0.04	0.06	0.04
		Output Torque lb.in (mech.)	10800.	19600.	44400.	67500.	45000
		Efficiency %	20	26	27	32	46

A SHAFT MOUNTED UNIT

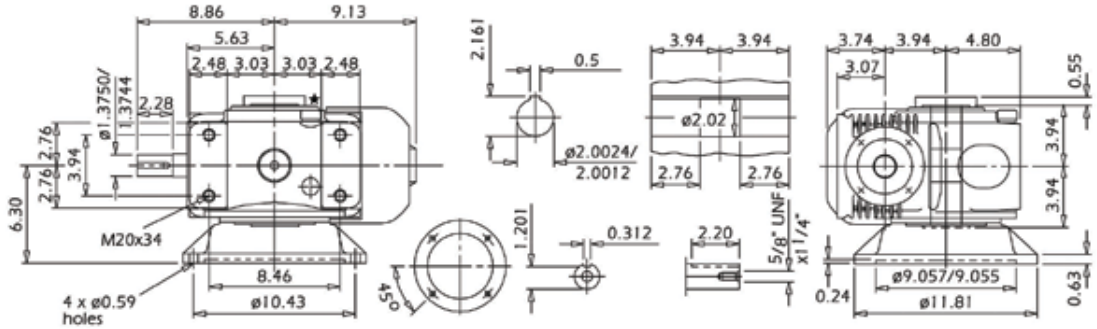
A 1 0 0 2 R
Under Driven



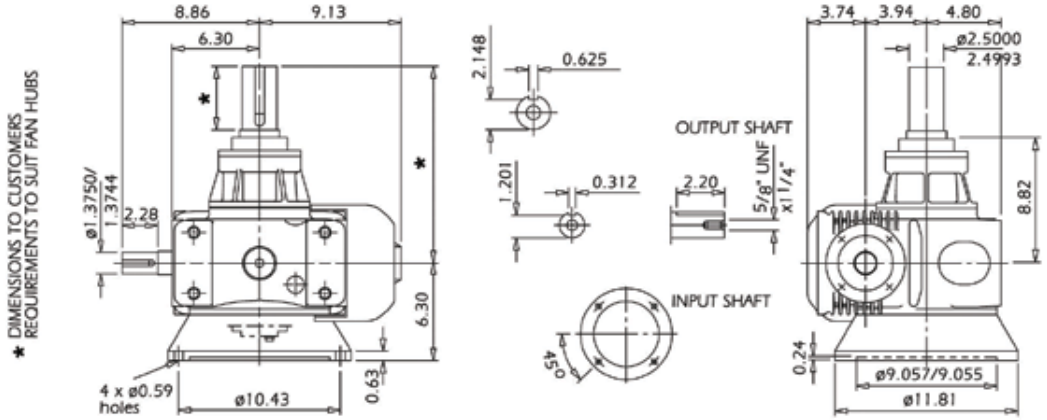
A 1 0 0 2 R
Over Driven



A 1 0 0 2 R
Output Flange

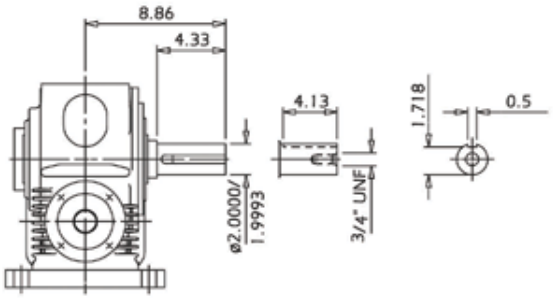


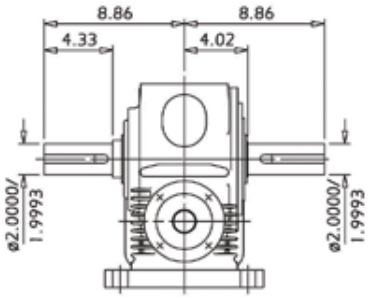
A 1 0 0 2 C R
Cooling Tower



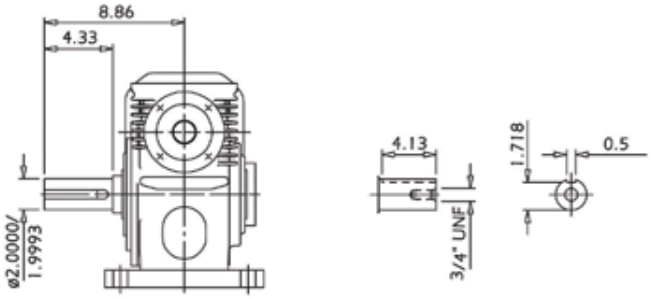
N or B **SINGLE EXTENSION OUTPUT SHAFT**

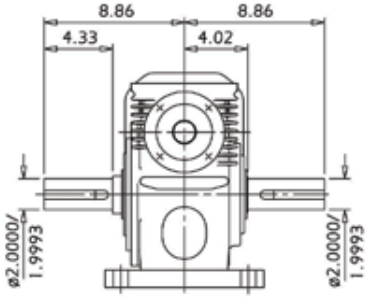
P **DOUBLE EXTENSION OUTPUT SHAFT**



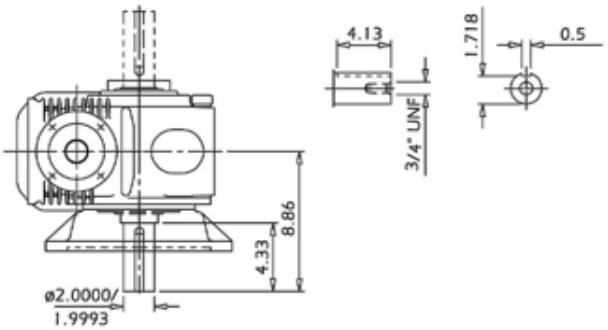


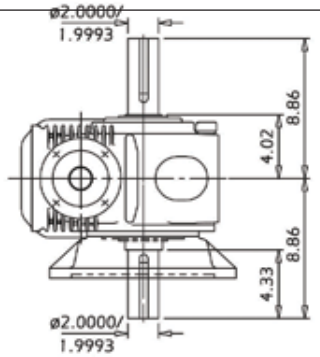
A1002R Under Driven



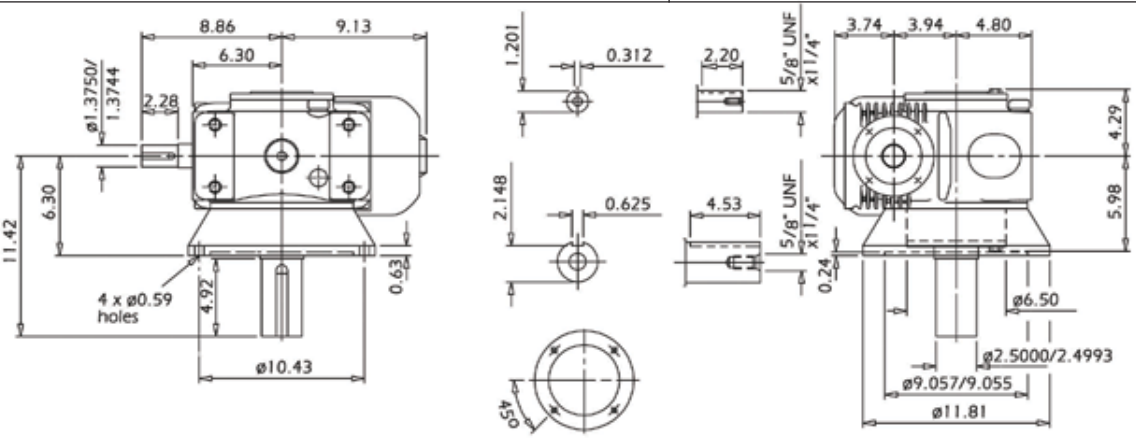


A1002R Over Driven





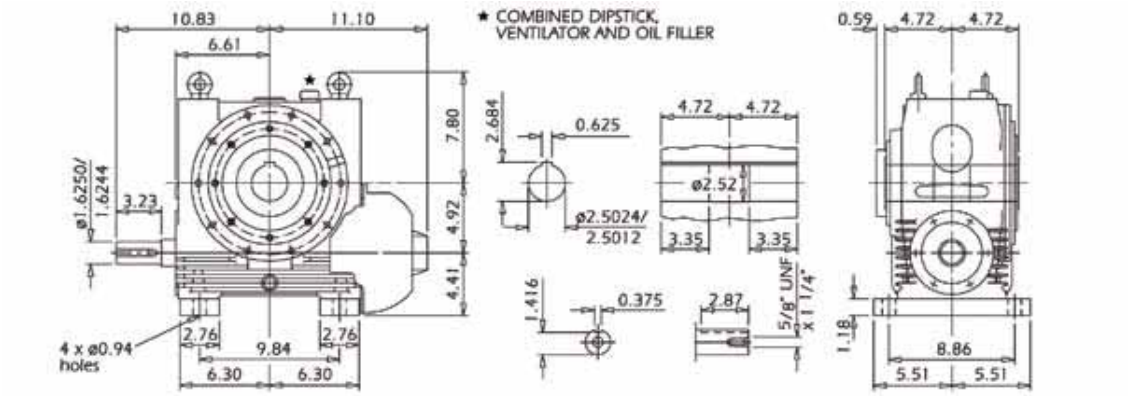
A1002R Output Flange



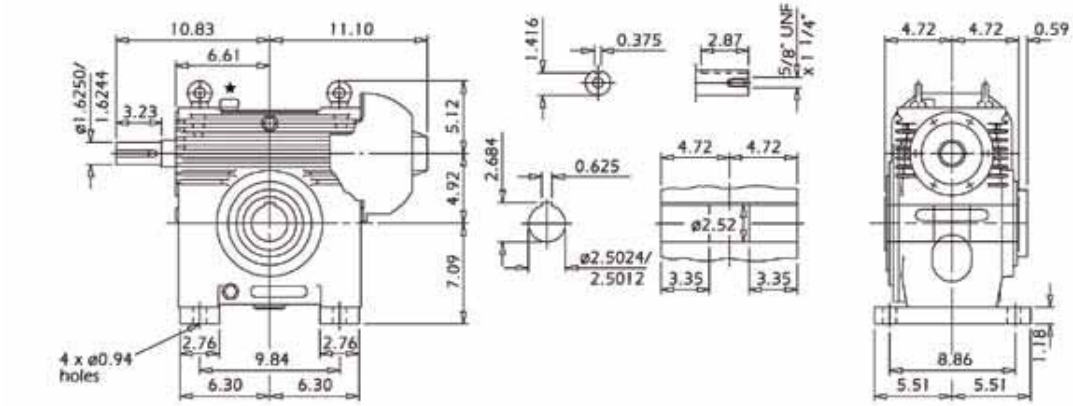
A1002AR Agitator

A SHAFT MOUNTED UNIT

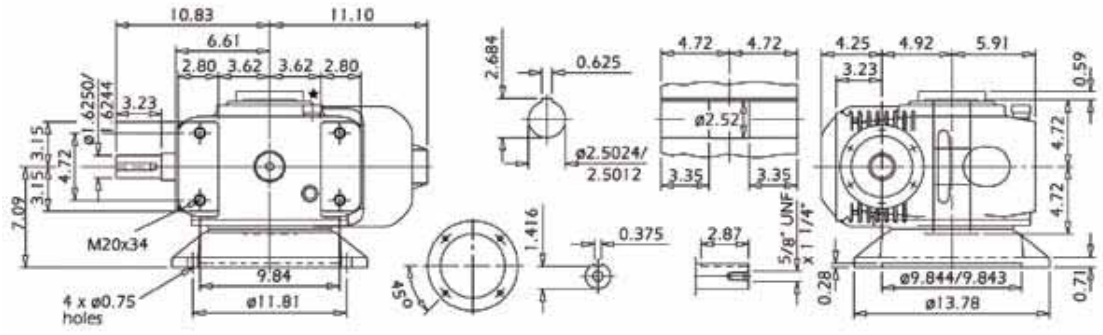
A 1 2 5 2 R
Under Driven



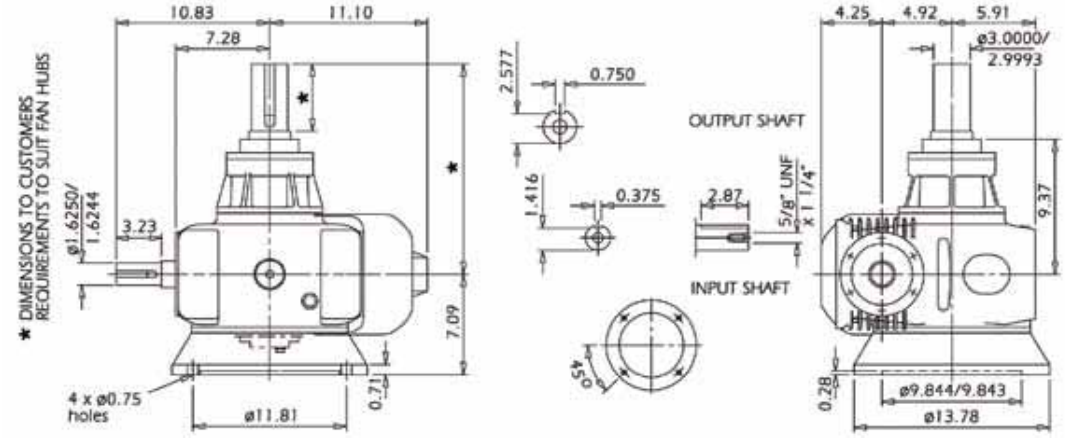
A 1 2 5 2 R
Over Driven



A 1 2 5 2 R
Output Flange

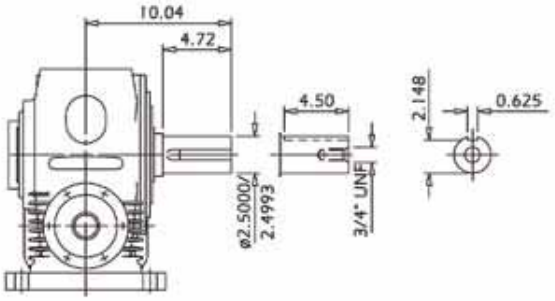


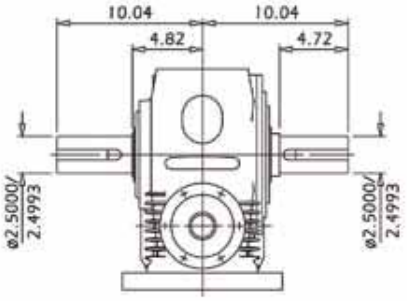
A 1 2 5 2 C R
Cooling Tower



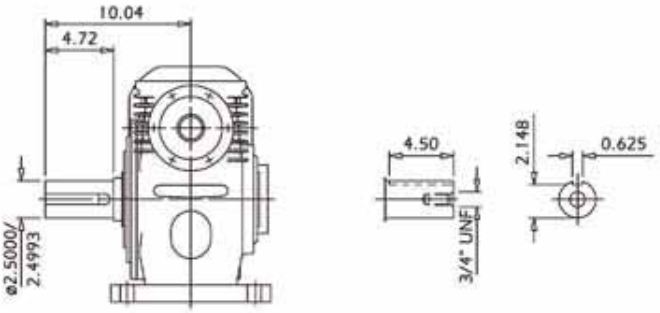
N or B **SINGLE EXTENSION OUTPUT SHAFT**

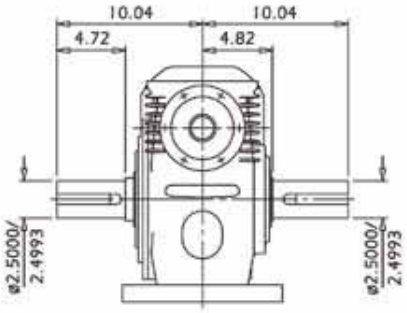
P **DOUBLE EXTENSION OUTPUT SHAFT**



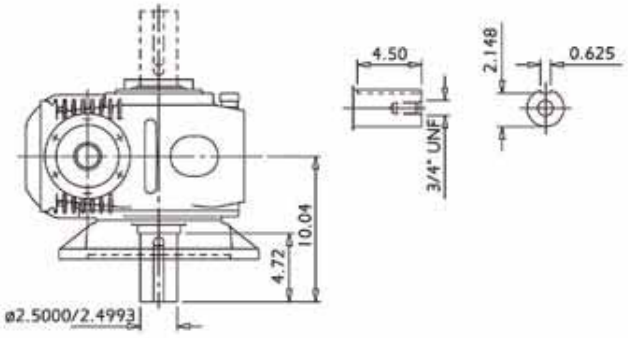


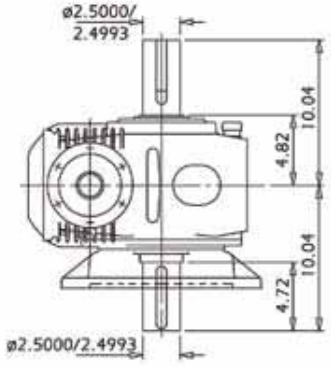
A 1 2 5 2 R — Under Driven



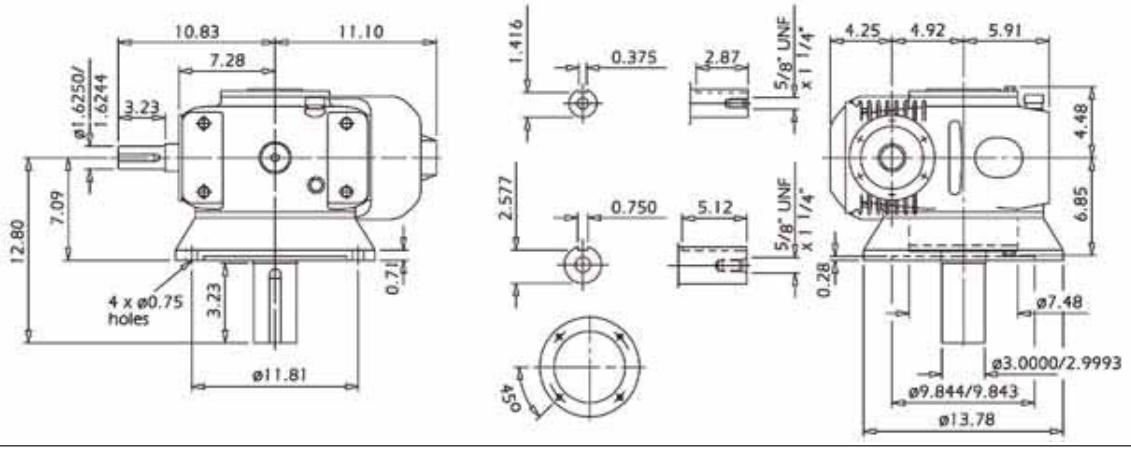


A 1 2 5 2 R — Over Driven





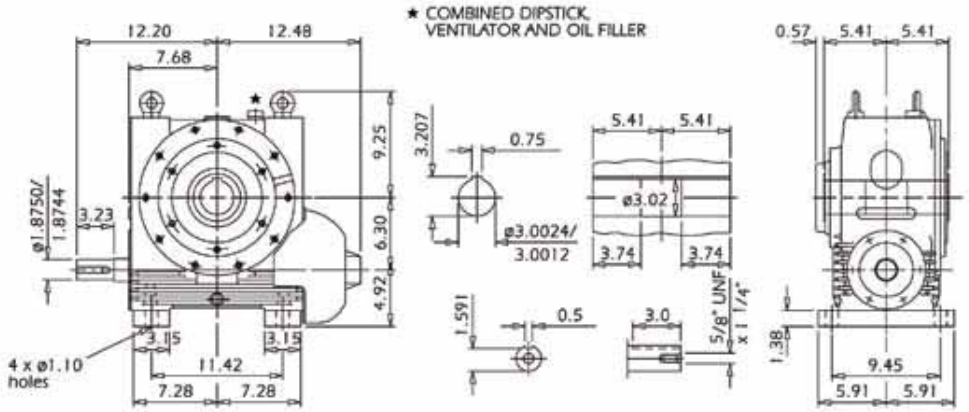
A 1 2 5 2 R — Output Flange



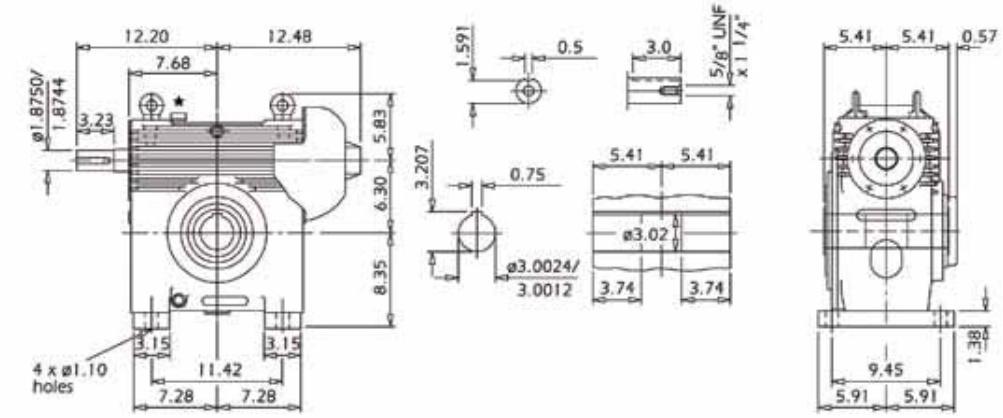
A 1 2 5 2 A R — Agitator

A SHAFT MOUNTED UNIT

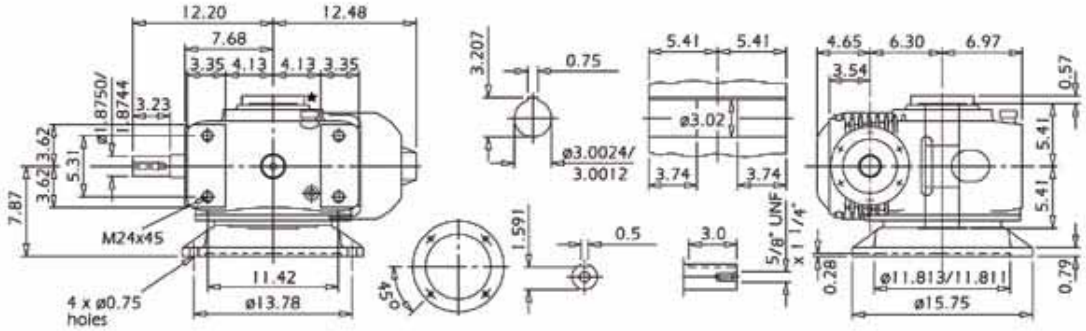
A 1 6 0 2 R
Under Driven



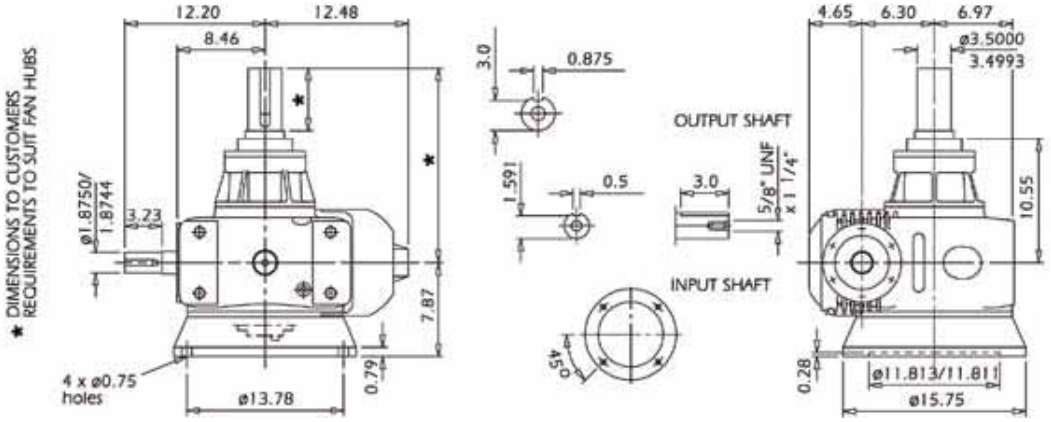
A 1 6 0 2 R
Over Driven



A 1 6 0 2 R
Output Flange

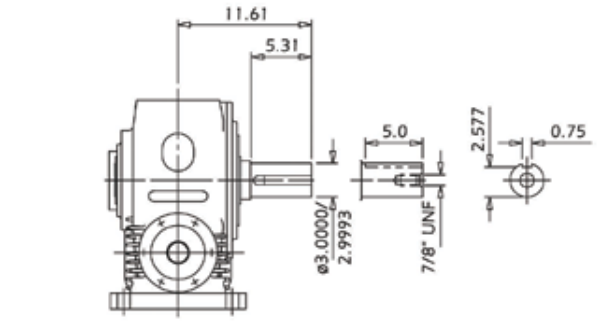


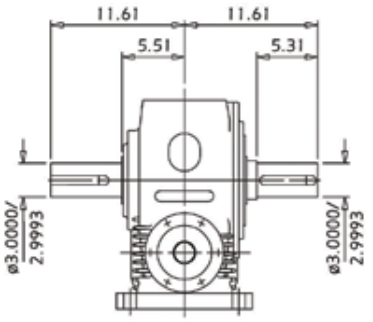
A 1 6 0 2 C R
Cooling Tower



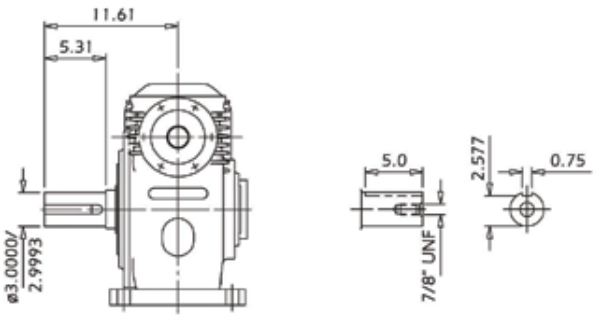
N or B **SINGLE EXTENSION OUTPUT SHAFT**

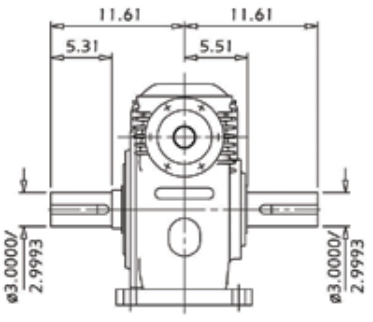
P **DOUBLE EXTENSION OUTPUT SHAFT**



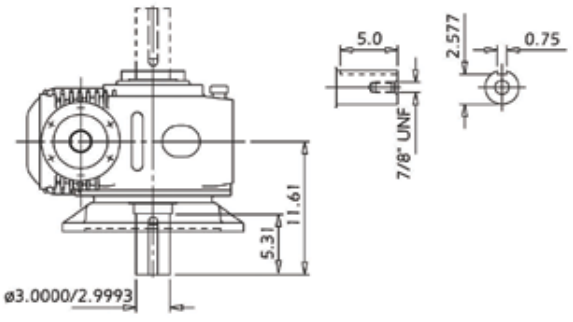


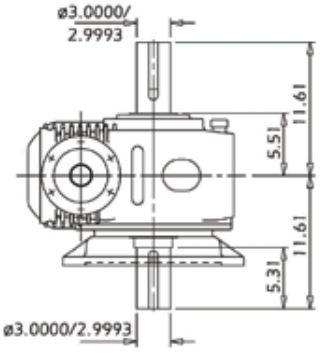
A1602 R — Under Driven



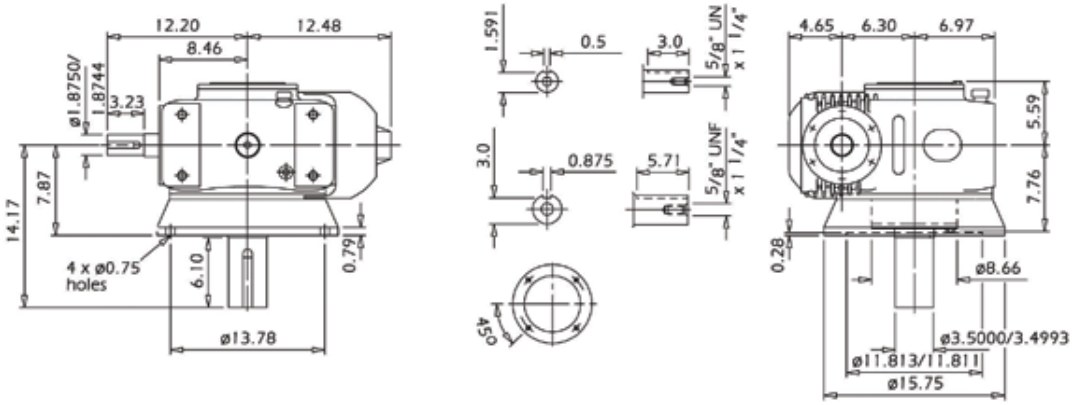


A1602 R — Over Driven





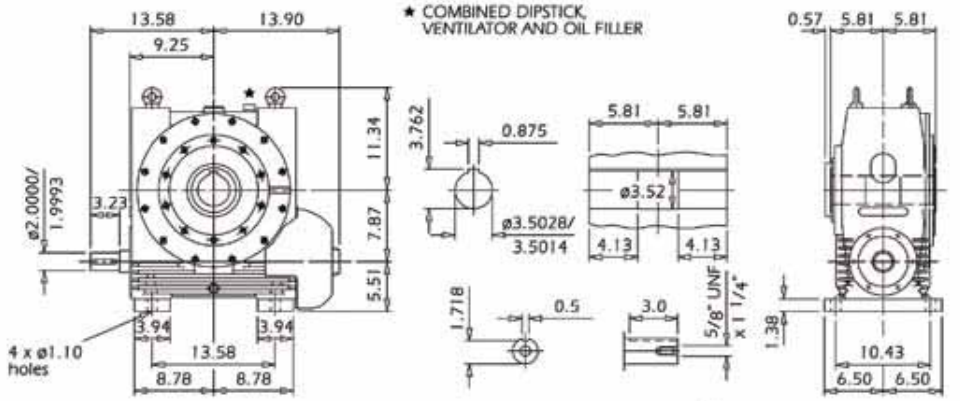
A1602 R — Output Flange



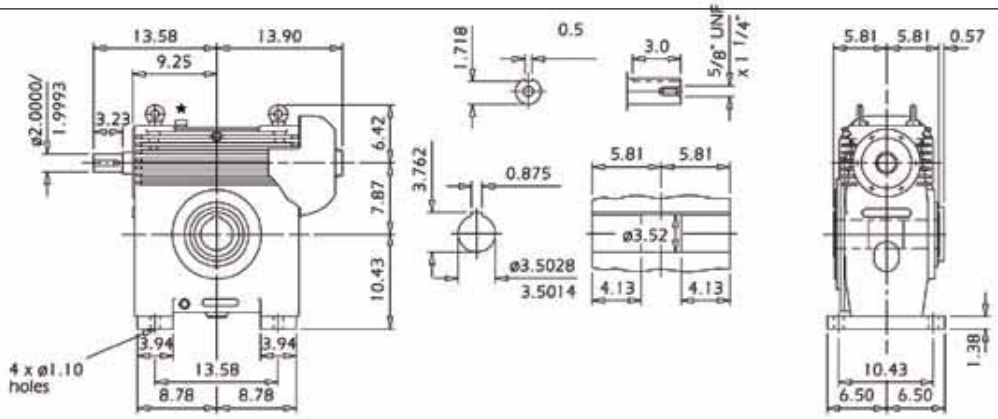
A1602 A R — Agitator

A **SHAFT MOUNTED UNIT**

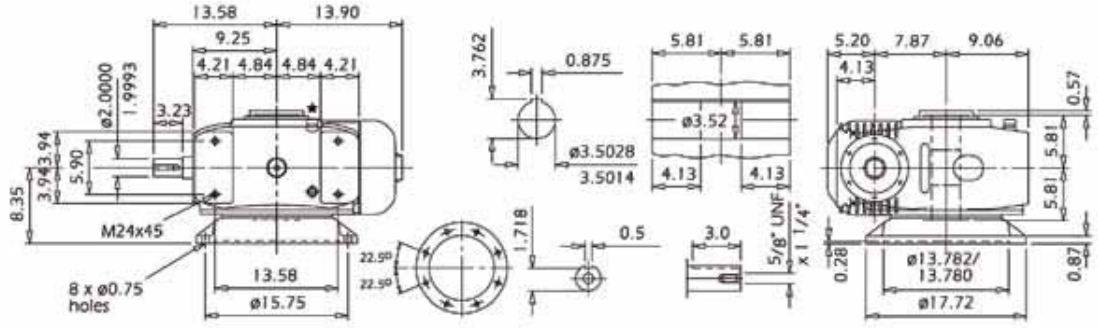
A 2 0 0 2 R
Under Driven



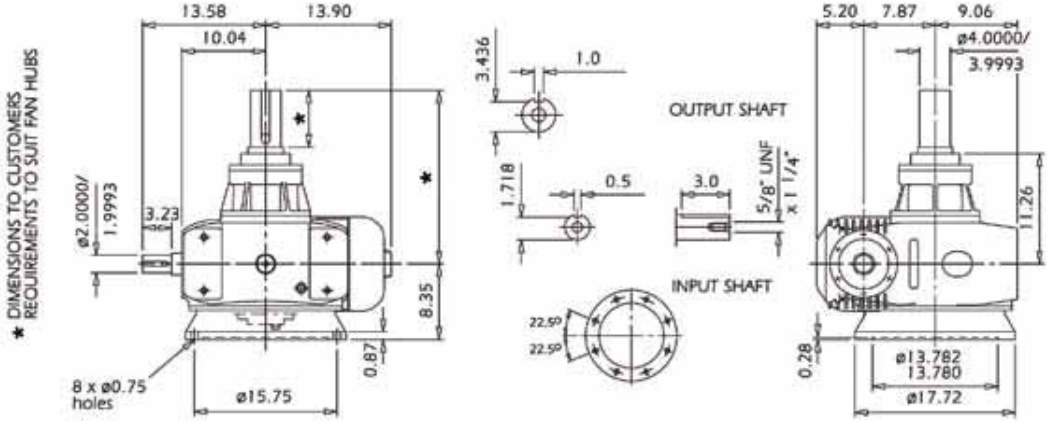
A 2 0 0 2 R
Over Driven



A 2 0 0 2 R
Output Flange

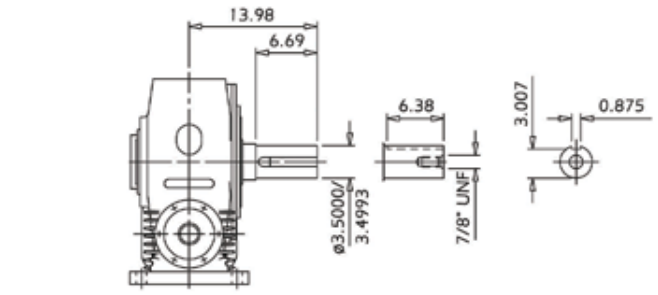


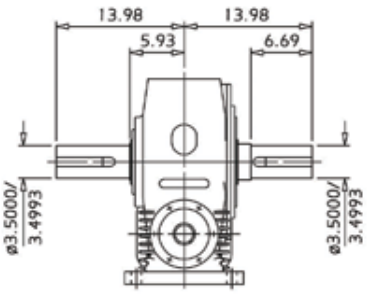
A 2 0 0 2 C R
Cooling Tower



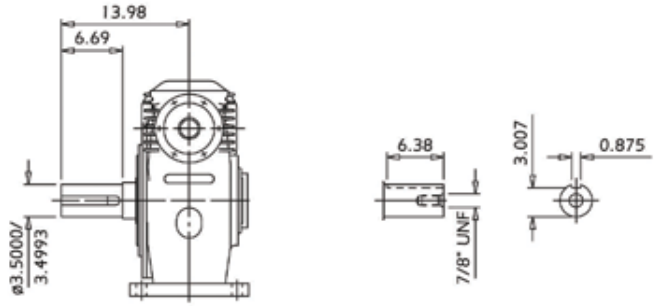
N or B **SINGLE EXTENSION OUTPUT SHAFT**

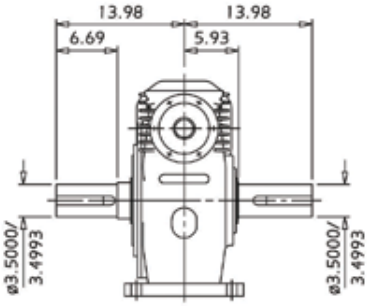
P **DOUBLE EXTENSION OUTPUT SHAFT**



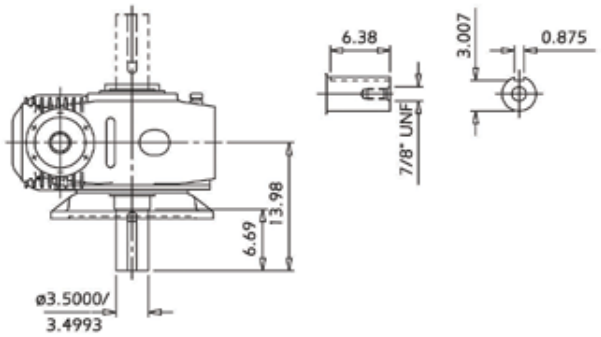


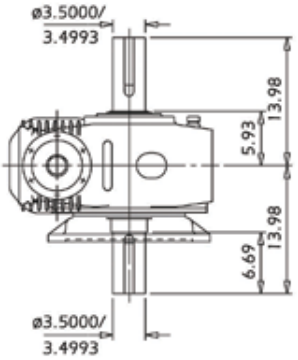
A 2 0 0 2 R — Under Driven



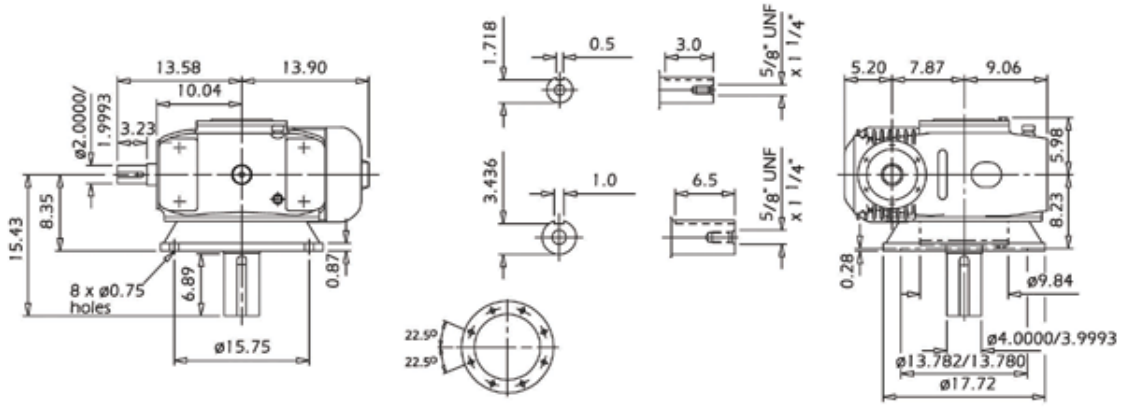


A 2 0 0 2 R — Over Driven





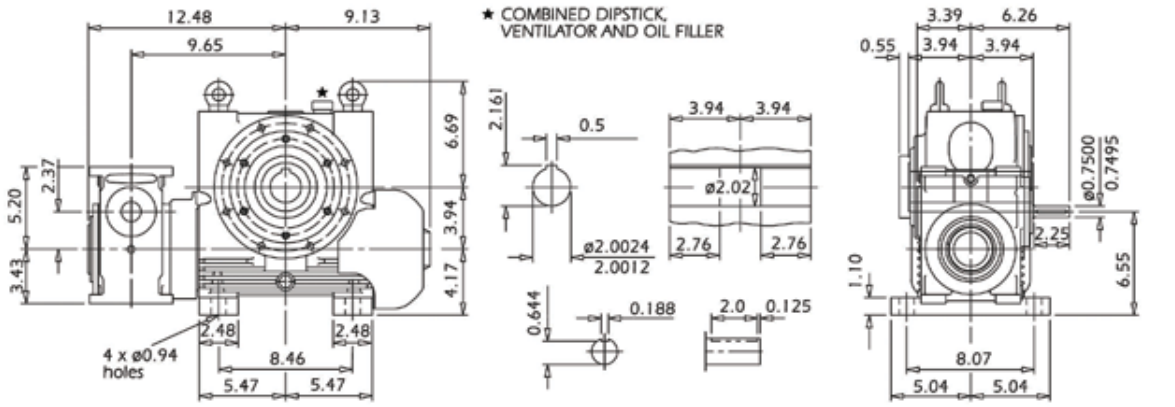
A 2 0 0 2 R — Output Flange



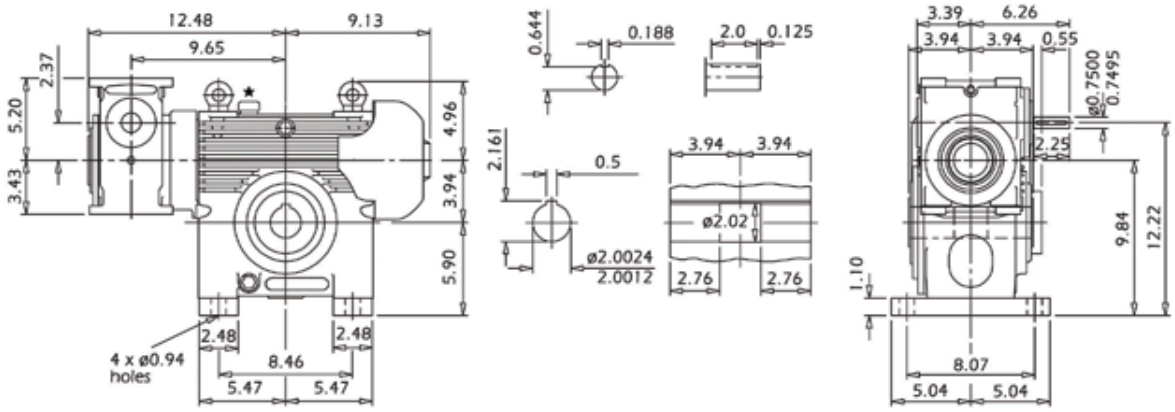
A 2 0 0 2 A R — Agitator

A SHAFT MOUNTED UNIT

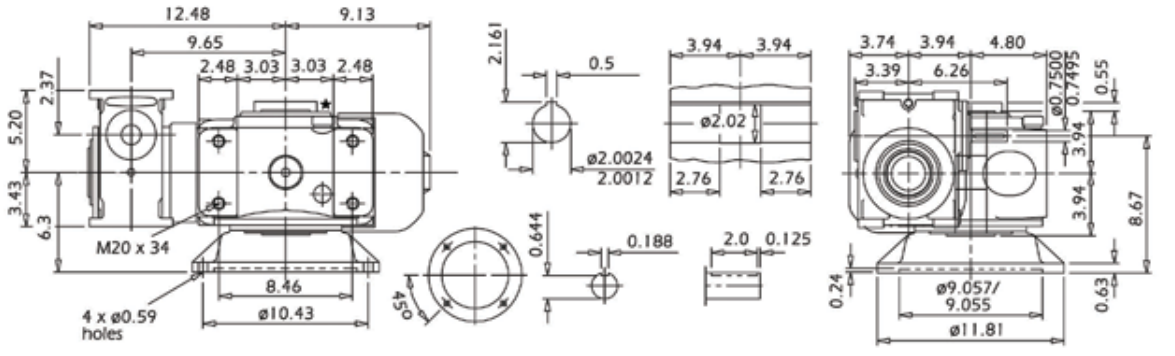
A2002D Under Driven



A2002D Over Driven

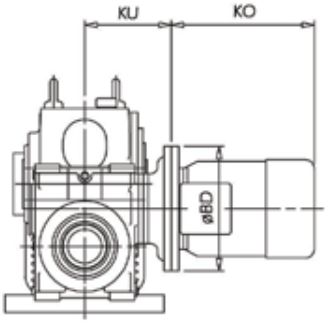


A2002D Output Flange



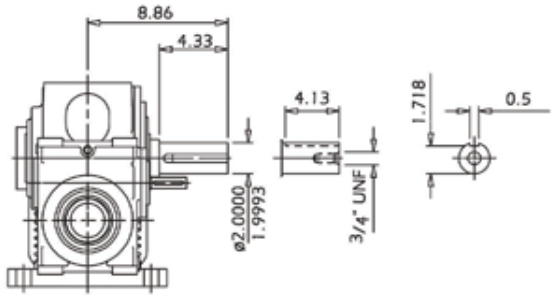
A2002M Motorized

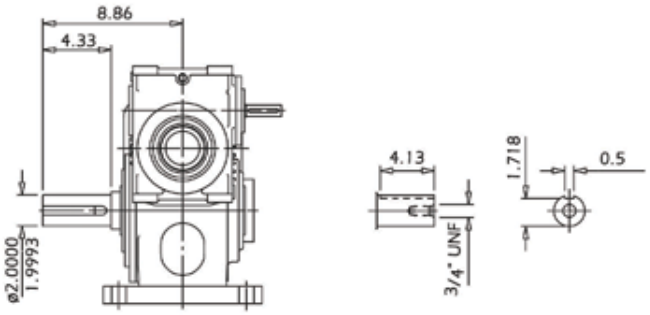
MOTOR FRAME SIZE	KU	øBD	KO (MAX)
56C	4.57	6.50	12.00
143/145TC	4.57	6.50	12.06
-	-	-	-
-	-	-	-

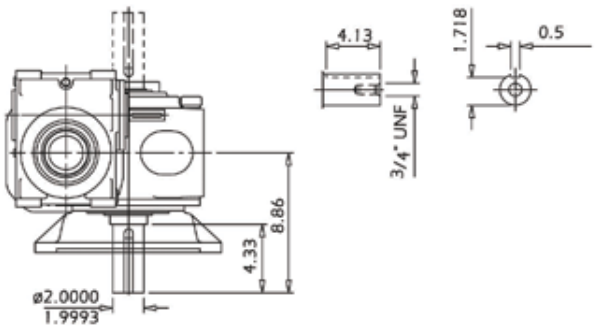


TERMINAL BOX IN SET POSITION UNLESS REQUESTED OTHERWISE

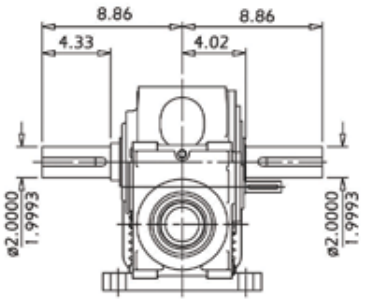
N or B **SINGLE EXTENSION OUTPUT SHAFT**



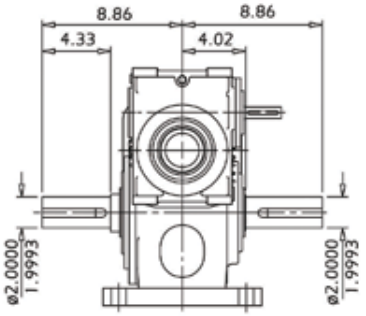




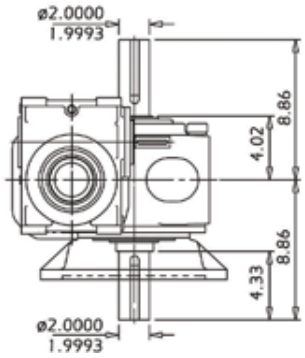
P **DOUBLE EXTENSION OUTPUT SHAFT**



A 1 0 0 2 R — Under Driven



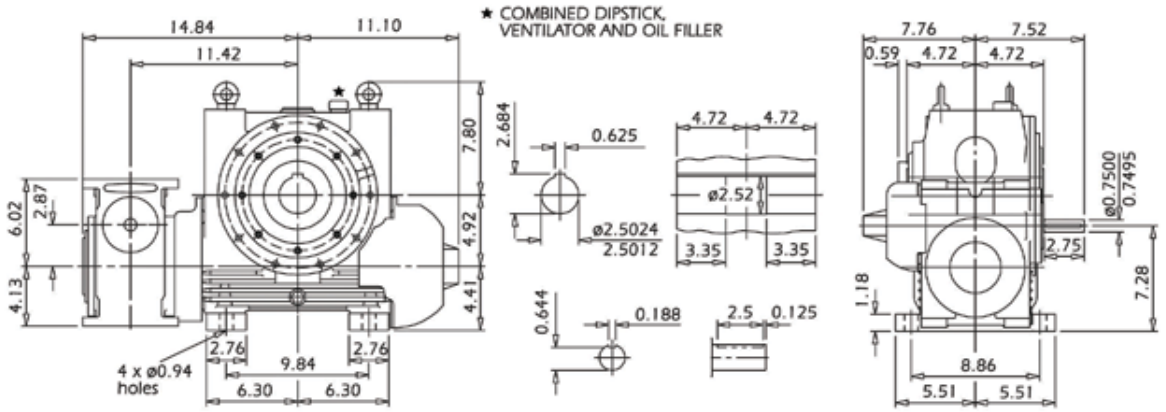
A 1 0 0 2 R — Over Driven



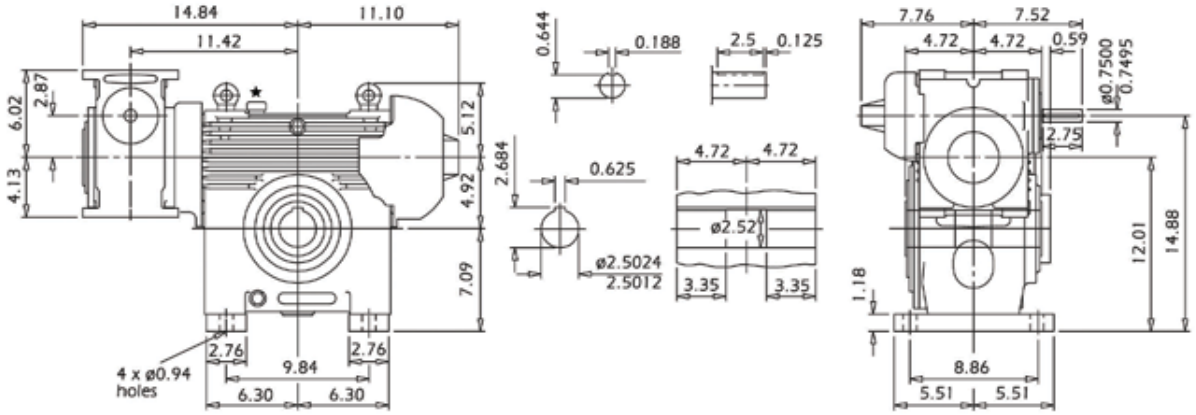
A 1 0 0 2 R — Output Flange

A SHAFT MOUNTED UNIT

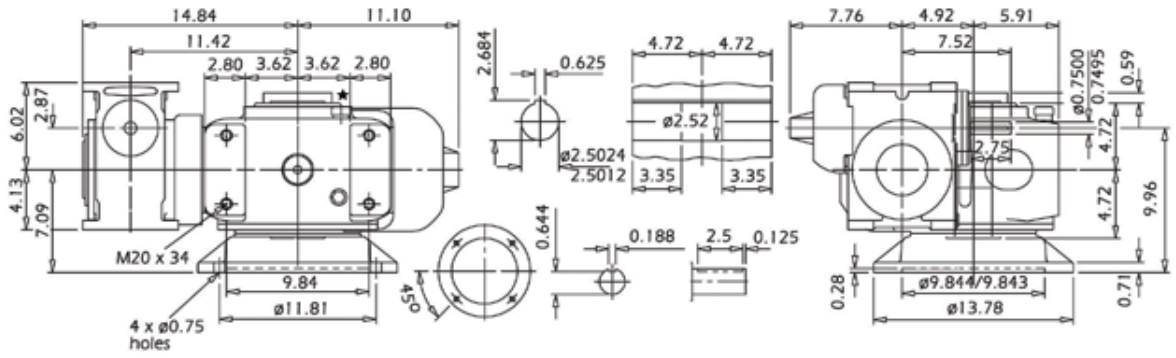
A1252D Under Driven



A1252D Over Driven

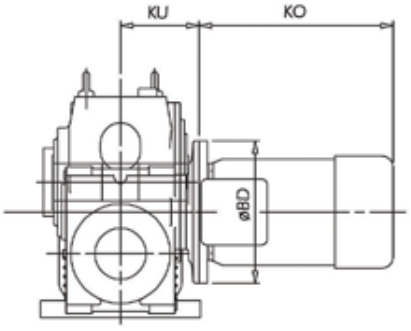


A1252D Output Flange



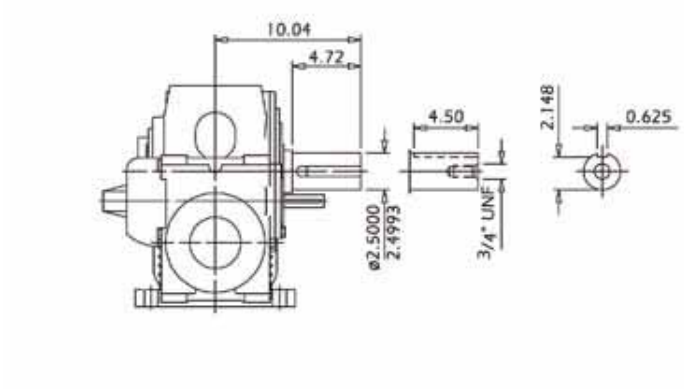
A1252M Motorized

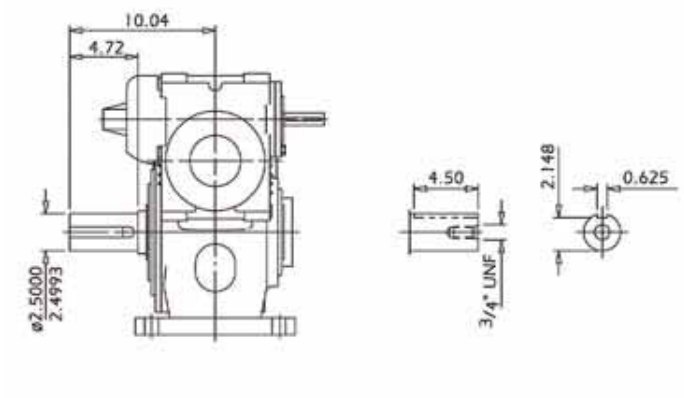
MOTOR FRAME SIZE	KU	øBD	KO (MAX)
143/145TC	5.59	6.50	12.06
182/184TC	5.79	9.00	15.44
-	-	-	-
-	-	-	-

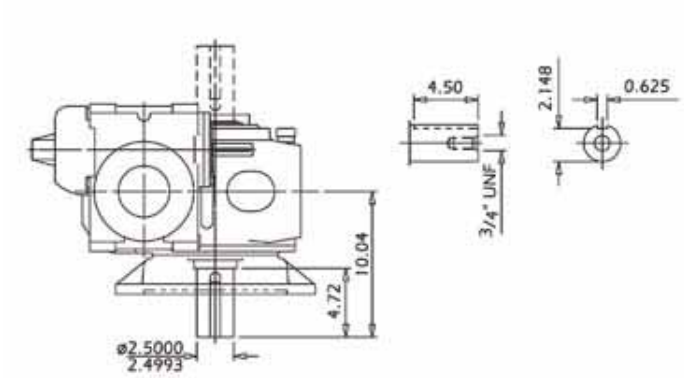


TERMINAL BOX IN SET POSITION UNLESS REQUESTED OTHERWISE

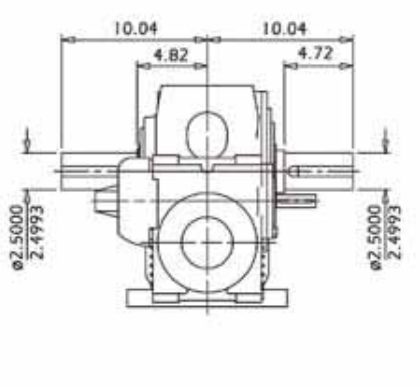
N or B **SINGLE EXTENSION OUTPUT SHAFT**





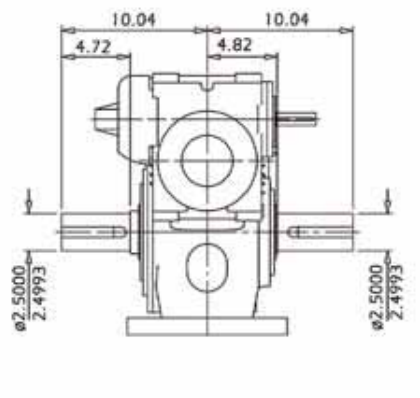


P **DOUBLE EXTENSION OUTPUT SHAFT**



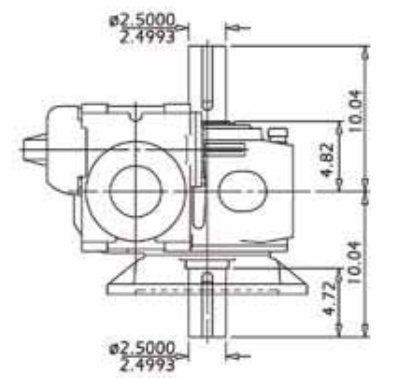
A	1	2	5	2				D

Under Driven



A	1	2	5	2				D

Over Driven

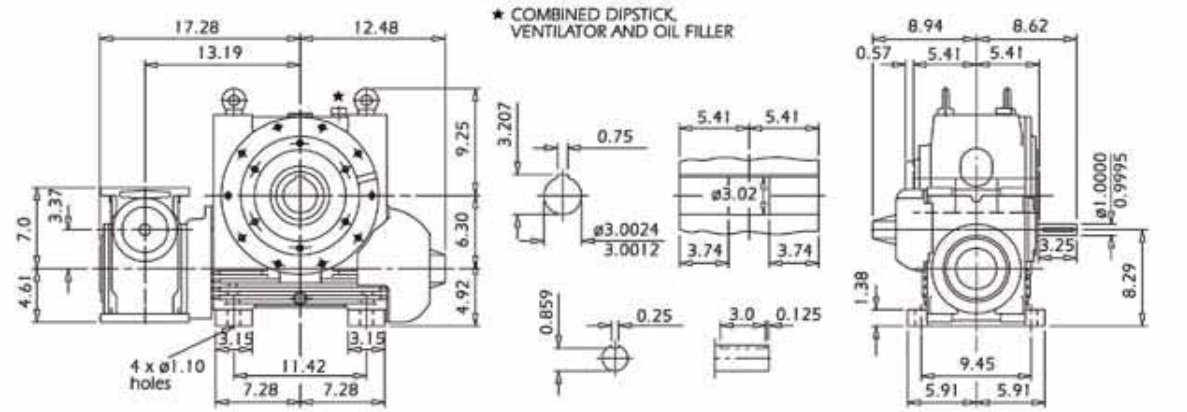


A	1	2	5	2				D

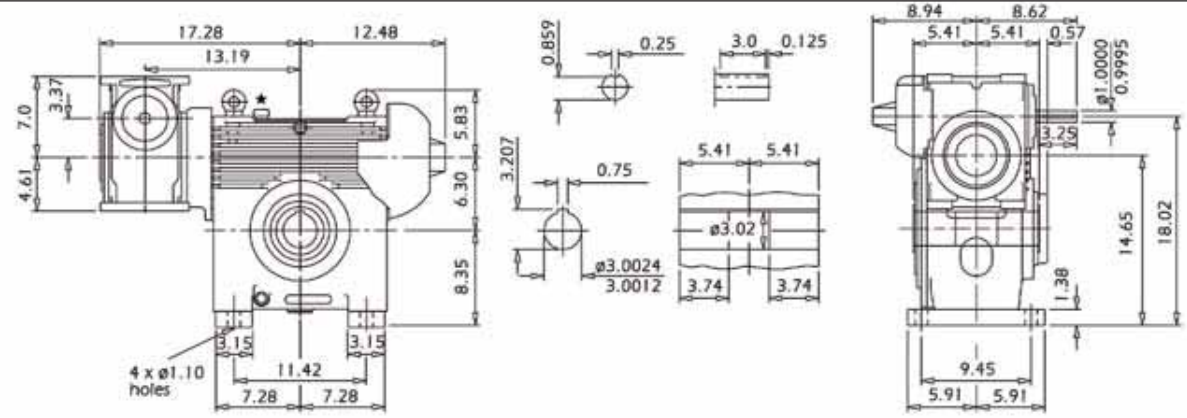
Output Flange

A **SHAFT MOUNTED UNIT**

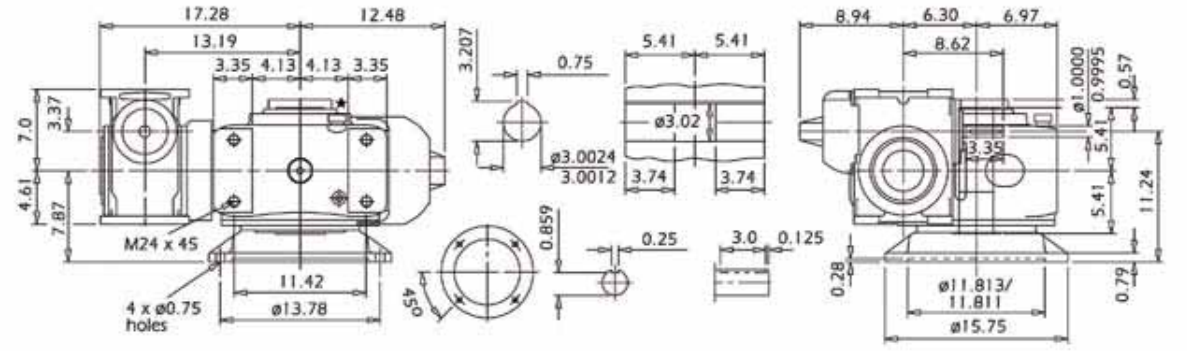
A1602D Under Driven



A1602D Over Driven

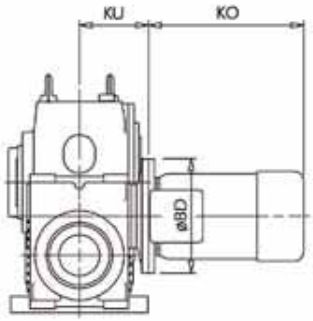


A1602D Output Flange



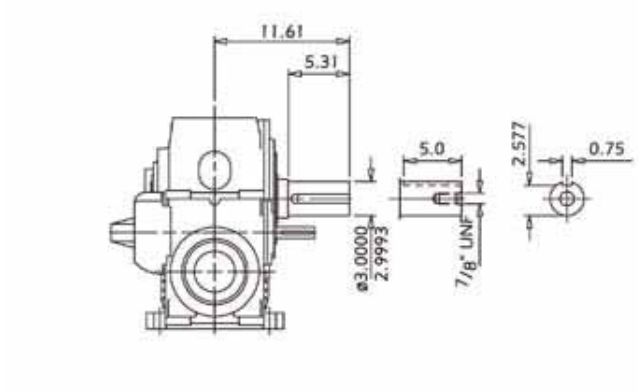
A1602M Motorized

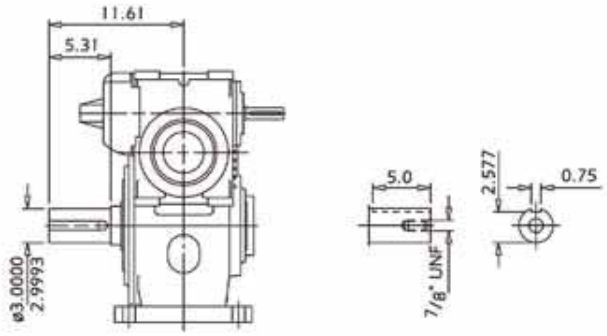
MOTOR FRAME SIZE	KU	øBD	KO (MAX)
143/145TC	6.102	6.5	12.06
182/184TC	6.535	9.0	15.44
213/215TC	6.535	9.0	16.31
-	-	-	-

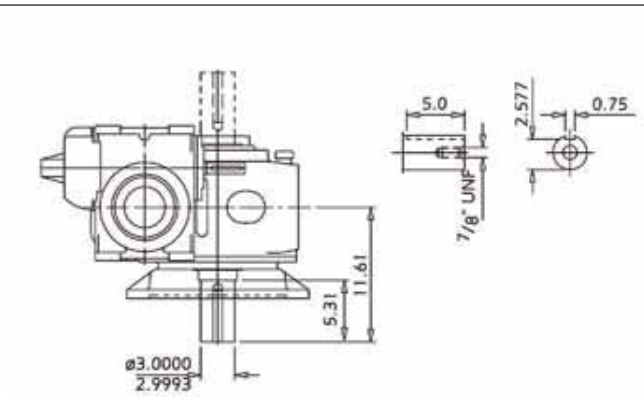


TERMINAL BOX IN SET POSITION UNLESS REQUESTED OTHERWISE

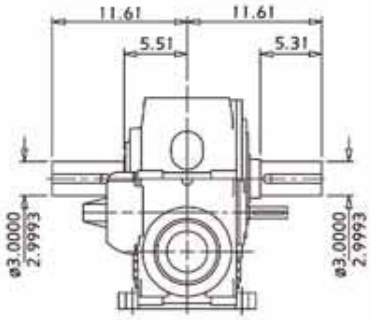
N or B **SINGLE EXTENSION OUTPUT SHAFT**





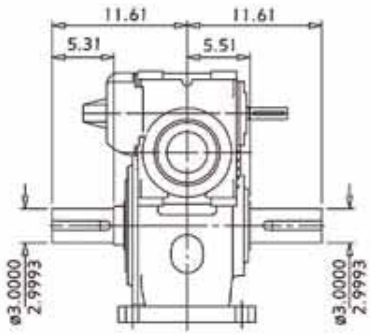


P **DOUBLE EXTENSION OUTPUT SHAFT**



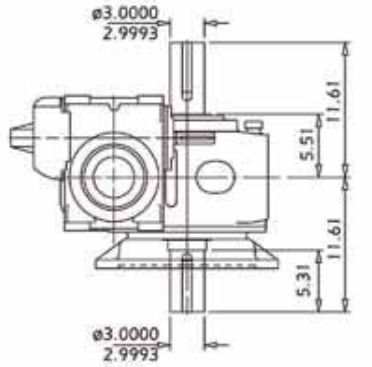
A	1	6	0	2				D

Under Driven



A	1	6	0	2				D

Over Driven

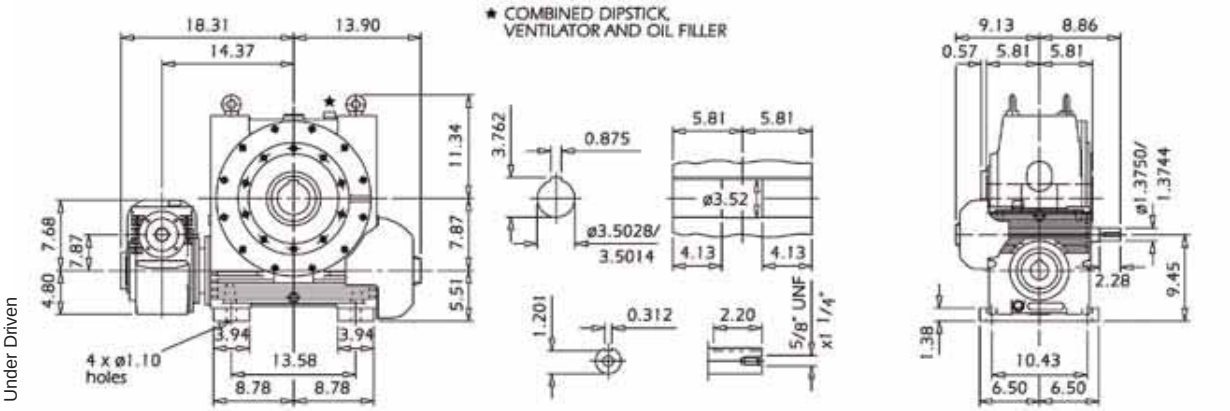


A	1	6	0	2				D

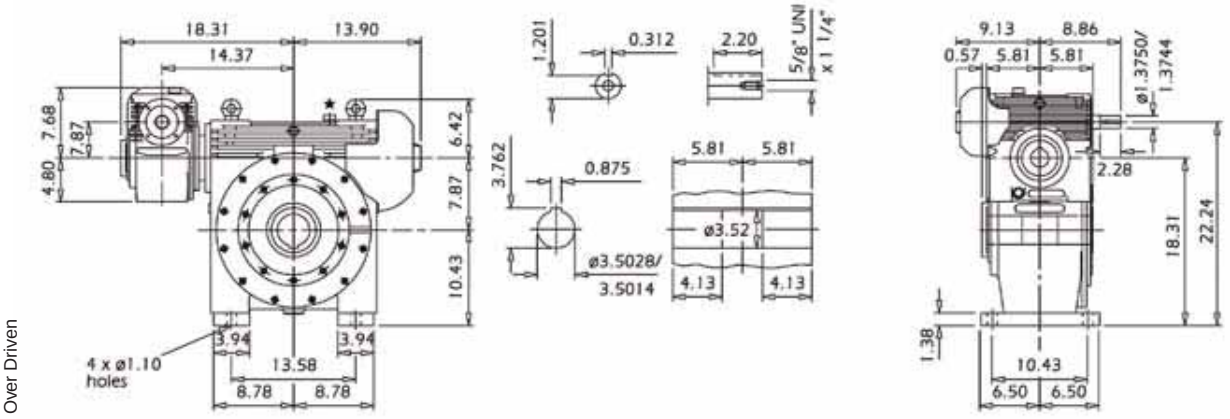
Output Flange

A **SHAFT MOUNTED UNIT**

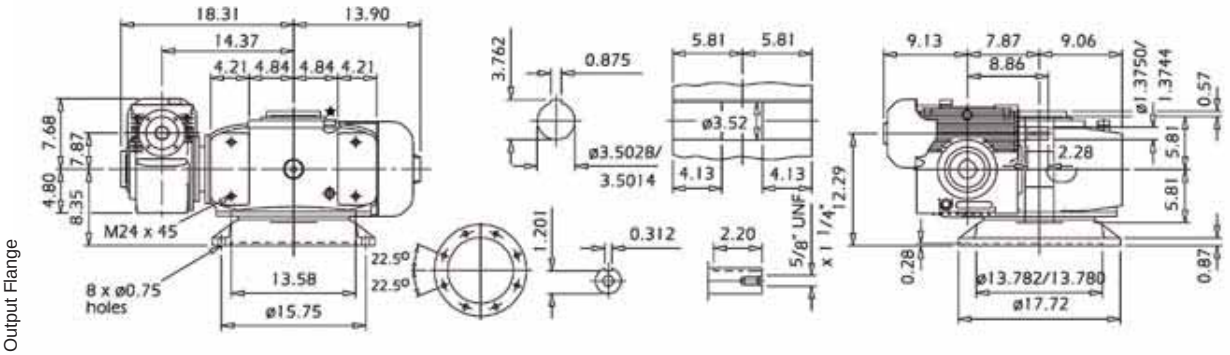
A2002D Under Driven



A2002D Over Driven

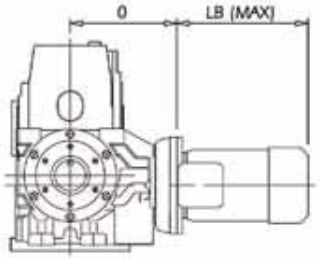


A2002D Output Flange



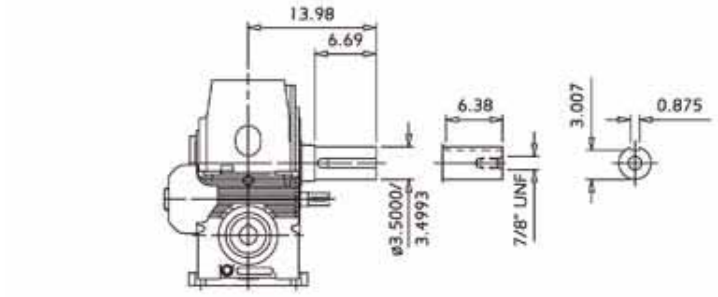
A2002M Motorized

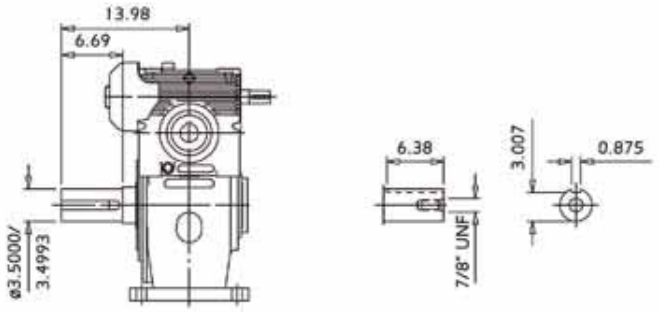
MOTOR FRAME SIZE	KU	KO (MAX)
56C	10.15	12.00
143/145TC	10.15	12.06
182/184TC	10.95	15.44
213/215TC	10.95	16.31
254/256TC	14.28	19.63

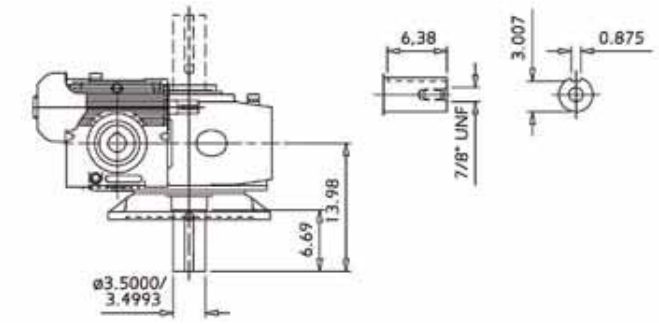


TERMINAL BOX IN SET POSITION UNLESS REQUESTED OTHERWISE

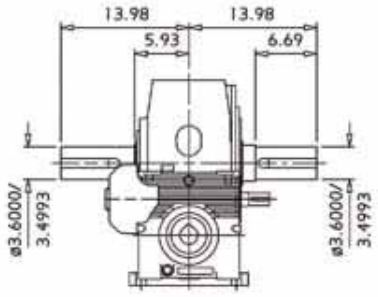
N or B **SINGLE EXTENSION OUTPUT SHAFT**

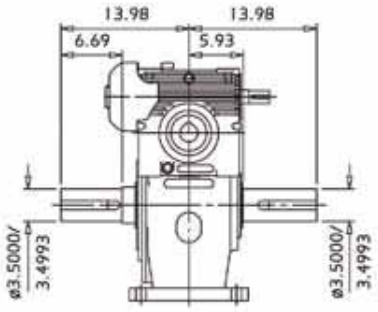


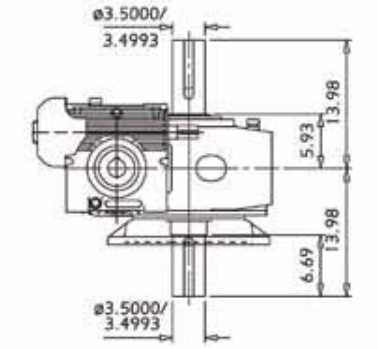




P **DOUBLE EXTENSION OUTPUT SHAFT**







A 2 0 0 2 D

Under Driven

Over Driven

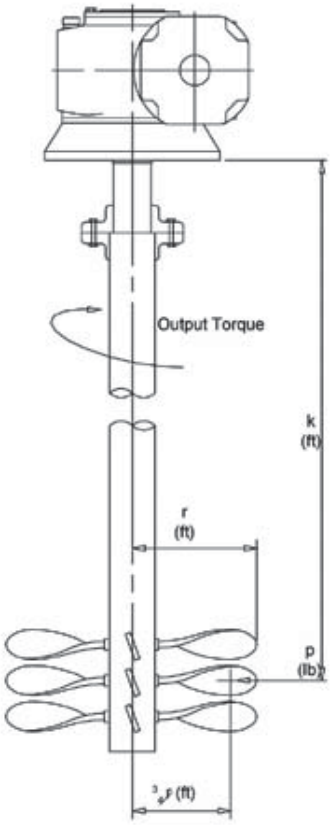
Output Flange

AGITATOR UNIT, VERSION **A**

Based on the standard Series A Mid Range, the Agitator unit incorporates an extended bearing housing to accommodate a larger bottom bearing and increased shaft size, thereby enhancing the units capacity to absorb the high bending loads imposed during stirrer applications.

It is recommended that as much as possible of the following information be given on inquiry to enable us to check and advise on the correct size of unit for a given duty.

1 Quantity.
2 HP power or torque required at stirrer shaft.
3 Type of prime mover and HP power of prime mover.
4 Speed or range of speeds of stirrer shaft.
5 Total operating time per day with full details of any loading cycles.
6 Nature of medium to be stirred, i.e. constant or variable density.
7 Dimensions of the stirrer shaft, including length from the centre of the paddle to the top of the shaft, paddle diameter and shaft extension diameter.
8 Weight and thrust from paddle and direction of thrust.
9 Details of any abnormal operating conditions, e.g. ambient temperatures, humidity, etc.
10 Whether coupling or other ancillary equipment are required.



The following selection procedure applies.

Selection

1 Check the unit power capacity from ratings tables on pages 15 - 38

2 Calculate the bending moment (m) at the output shaft.

$$m = pk = \frac{\text{output torque}}{0.75r} \times k$$

3 Check the calculated bending moment against the shaft and bearing limitations shown in Tables 1 and 2.

4 Check from Table 3 the capacity of the unit to accept any specified axial thrust load.

Shaft Stress limitations

Table 1 Allowable bending moment at the output shaft bottom bearing (lb ft).

Output Shaft Torque (lb ft)	Standard Units				Heavy Duty Stirrer Units			
	1002	1252	1602	2002	1002	1252	1602	2002
300	1017	1548	2580	4793	2580	3967	5790	9439
450	980	1520	2560	1793	2560	3960	5780	9439
650	878	1460	2522	4793	2522	3940	5767	9439
1100	428	1246	2404	4735	2116	3864	5715	9365
1600		700	2176	4624	1268	3458	5620	9292
2500			1305	4343		2404	5036	9145
3900				3289			3800	8458
5900								6836

Bearing limitations *

Table 2 Allowable bending moment at the output shaft bottom bearing (lb ft).

Output Shaft Speed (rpm)	Standard Units				Heavy Duty Stirrer Units			
	1002	1252	1602	2002	1002	1252	1602	2002
280	1054	1312	1865	2964	1320	1688	2441	3834
190	1260	1740	2433	3952	1578	2242	3185	5110
125	1600	2205	3104	5050	2005	2839	4063	6526
84	1895	2625	3775	6777	2374	4041	4941	8775
56	2227	3148	4498	7448	2795	4056	5885	9587
37	2610	3710	5272	8628	3274	4771	6902	1135
25	3075	4314	6054	9882	3856	5553	7890	12758
20 and less	3244	4646	6475	10619	4070	5980	8480	13716

* Bearing Limitations are based on 10,000 hrs L_{10} life. For other lives multiply by the following factors:

Required Life (hrs)	5,000	10,000	25,000	50,000	100,000
Factor	1.23	1	0.76	0.62	0.50

Table 3 Allowable Axial Thrust on Output Shaft (lb).

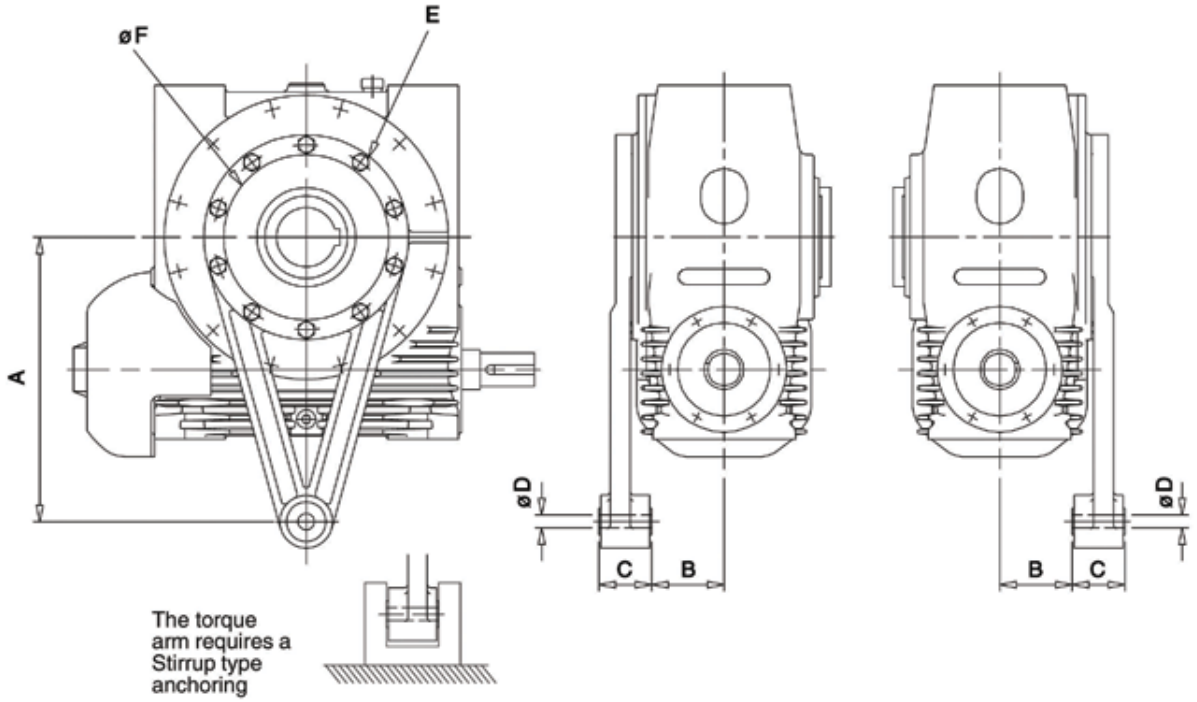
Output Shaft Speed (rpm)	Standard Units				Heavy Duty Units Towards Gearbox				Heavy Duty Units Away from Gearbox			
	1002	1252	1602	2002	1002	1252	1602	2002	1002	1252	1602	2002
280	238	319	445	625	238	315	445	625	1328	1470	1875	3237
190	402	537	748	1052	402	537	748	1052	1623	1782	2270	3956
125	607	813	1124	1591	607	813	1124	1591	1967	2187	2787	4811
84	854	1146	1585	2248	854	1146	1585	2248	2383	2630	3372	5800
56	1169	1564	2171	3080	1169	1564	1585	2248	2900	3192	4091	7060
37	1540	2061	2855	4069	1540	2061	2855	4069	3484	3844	4923	8475
25	1960	2630	3642	5170	1960	2630	3642	5170	4114	4541	5800	10026
20 and less	2315	310	4316	6092	2315	310	4316	6092	4541	5013	6430	11061

The above axial thrusts may be applied in addition to the bending moment. Higher axial thrusts can be applied but the allowable bending moment would be reduced. Contact us in such cases.

TORQUE ARM BANJO TYPE,

T STANDARD UNIT WITH BANJO TORQUE ARM ON LEFT

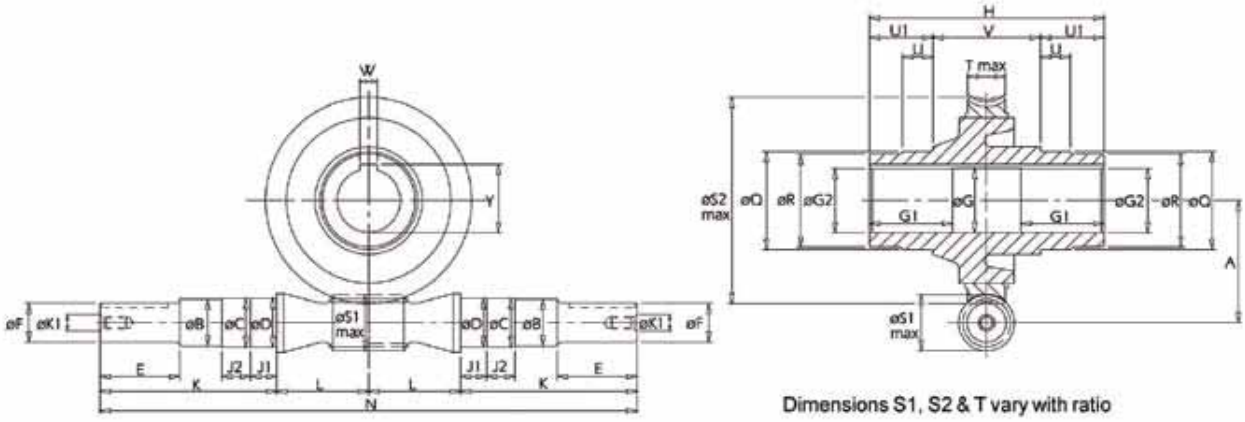
X STANDARD UNIT WITH BANJO TORQUE ARM ON RIGHT



All dimensions are in inches

SIZE OF UNIT	A	B	C	øD	E	øF (Spigot dia)
1002	9.84	2.64	2.36	0.65	6 x M12 on a 6.10 pcd	5.1969 / 5.1944
1252	12.20	3.05	2.36	0.65	8 x M12 on a 7.68 pcd	6.6929 / 6.6904
1602	14.96	3.31	3.15	0.65	6 x M12 on a 9.06 pcd	7.8740 / 7.8712
2002	16.93	4.35	3.15	0.65 9	10 x M12 on a 11.02 pcd	9.8425 / 9.8397

NOTE: It is recommended that the torque arm is mounted on the side of the unit adjacent to the driven machine.



All dimensions are in inches

SIZE OF UNIT	A	øB	øC	øD	E	øF	øG	G1	øG2	H	J1	J2	K
1002	3.94	1.4961 1.4941	1.5000 1.4995	1.5758 1.5752	2.28	1.3750 1.3744	2.025 2.015	2.76	2.0024 2.0012	7.87	0.91	1.06	5.71
1252	4.92	1.890 1.888	1.9578 1.9573	1.9695 1.9689	3.23	1.6250 1.6244	2.525 2.515	3.35	2.5024 2.5012	9.45	1.06	1.14	7.13
1602	6.30	1.9675 1.9660	2.1564 2.1559	2.1665 2.1658	3.23	1.8750 1.8744	3.025 3.015	3.74	3.0024 3.0012	10.83	1.14	1.22	7.72
2002	7.87	2.1250 2.1235	2.1564 2.1559	2.5602 2.5595	3.23	2.0000 1.9993	3.525 3.515	4.13	3.5028 3.5014	11.61	1.30	1.69	8.19

SIZE OF UNIT	K1	L	N	øQ	øR	øS1	øS2	T	U	U1	V	W	Y
1002	$^{5}/_{8}$"UNFX1$^{1}/_{4}$"	3.15	17.72	3.1508 3.1500	3.069 3.066	2.031	7.01	1.56	1.10	2.28	3.31	0.501 0.500	2.167 2.161
1252	$^{5}/_{8}$"UNFX1$^{1}/_{4}$"	3.70	21.65	3.9384 3.9375	3.738 3.735	2.421	8.90	1.89	1.22	2.56	4.33	0.626 0.625	2.690 2.684
1602	$^{5}/_{8}$"UNFX1$^{1}/_{4}$"	4.49	24.41	4.3321 4.3312	4.132 4.129	3.065	11.14	2.22	1.50	2.83	5.16	0.751 0.750	3.213 3.207
2002	$^{5}/_{8}$"UNFX1$^{1}/_{4}$"	5.39	27.17	5.1197 5.1187	4.919 4.916	3.499	14.25	2.68	1.75	3.13	5.35	0.876 0.875	3.768 3.762

SINGLE REDUCTION

All weights in lbs

		1002				1252				1602				2002			
COLUMN 9 ENTRY		B,D	F,H	A	C	B,D	F,H	A	C	B,D	F,H	A		B,D	F,H	A	C
	Unit Weight	147	160			205	227			308	346			467	526		
	Weight Packed	174	189			235	260			348	388			540	593		
	Volume Packed (ft^3)	2.82	3.18			4.24	4.94			6.36	6.71			8.48	8.83		
	Unit Weight	163	179	190	178	227	251	262	251	341	384	401	383	520	586	604	586
	Weight Packed	194	209	222	209	262	288	299	288	388	433	449	432	599	659	676	659
	Volume Packed (ft^3)	4.24	3.53	3.53	*	6.00	6.00	5.65	*	8.48	8.48	7.77	*	12.01	11.66	10.60	*

* VOLUME DEPENDENT ON SIZE OF WHEELSHAFT EXTENSION (FOR STANDARD EXTENSION, VOLUME AS STANDARD AGITATOR **A** UNIT)

DOUBLE REDUCTION

		1002		1252		1602		2002	
COLUMN 9 ENTRY		B,D	F,H	B,D	F,H	B,D	F,H	B,D	F,H
	Unit Weight	220	238	317		480	518	720	793
	Weight Packed	246	264	350		524	564	820	886
	Volume Packed (ft^3)	3.88	4.94	5.30		8.48	9.89	14.84	11.30
Extension	Unit Weight	205	220	293		443	485	667	734
Extension	Weight Packed	235	251	330		491	535	773	833
Extension	Volume Packed (ft^3)	6.00	5.30	7.42		11.30	11.66	15.54	14.48

ALL WEIGHTS IN lbs ALL WEIGHTS EXCLUDE LUBRICANT

COLUMN 9 ENTRY **B & D** - BASE MOUNTED

F & H - FLANGE MOUNTED

A - AGITATOR

C - COOLING TOWER

NOTE: FOR SHIPPING SPECIFICATION OF DOUBLE REDUCTION MOTORIZED UNITS ADD WEIGHT AND VOLUME OF MOTORS AND MOTOR ADAPTORS TO THE FIGURES SHOWN ABOVE

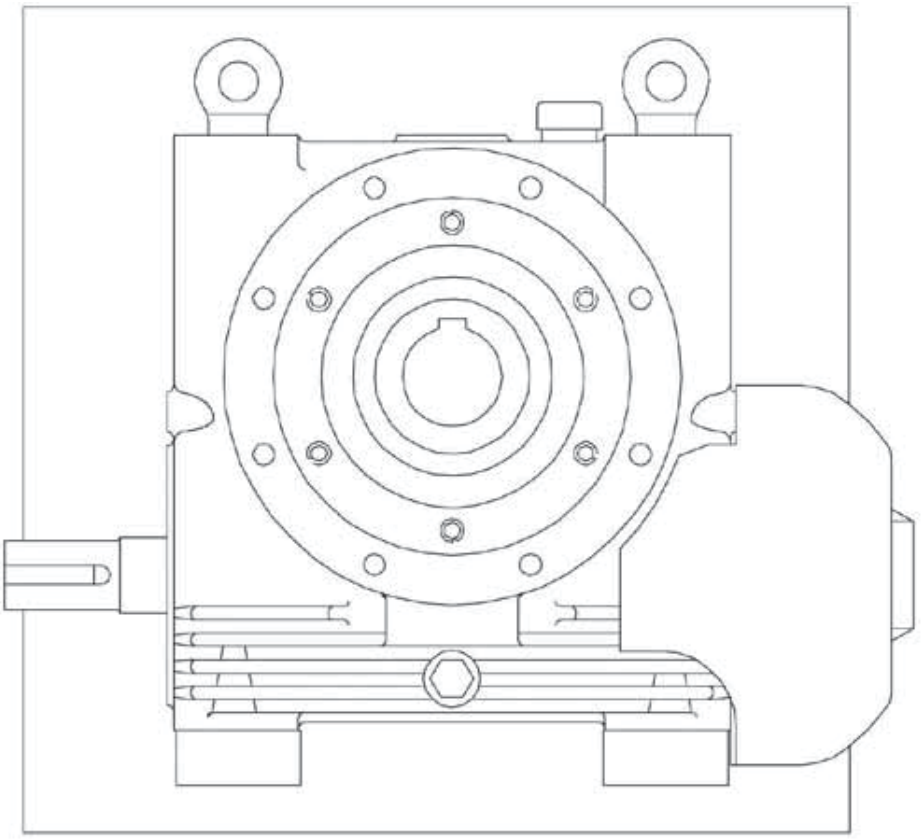
MOMENTS OF INERTIA (lb.in^2) Referred to Input Shaft

SINGLE REDUCTION

RATIO	A1002	A1252	A1602	A2002
5 . 0	6.14	17.10	41.42	98.15
7 . 5	4.72	12.99	26.49	60.37
1 0 .	3.77	10.53	21.88	48.72
1 2 .	3.46	9.59	18.87	40.65
1 5 .	3.41	8.60	18.23	34.97
2 0 .	2.94	8.06	17.82	32.94
2 5 .	3.20	8.22	16.14	29.94
3 0 .	2.93	7.98	18.26	33.95
4 0 .	2.84	7.21	16.10	28.27
5 0 .	2.65	7.02	14.41	25.71
6 0 .	2.60	6.78	13.93	24.28
7 0 .	2.71	6.64	14.89	23.40

DOUBLE REDUCTION

RATIO	A1002	A1252	A1602	A2002 REDUCER	A2002 MOTORIZED
75.00	0.54	1.23	2.90	5.94	12.75
100.00	0.53	1.21	2.88	5.87	12.62
125.00	0.54	1.22	2.81	5.75	8.19
150.00	0.28	0.57	1.45	3.73	5.95
200.00	0.27	0.57	1.45	3.71	12.45
225.00	0.22	0.51	1.18	3.40	6.33
250.00	0.24	0.58	1.28	3.23	5.90
300.00	0.27	0.40	0.90	2.93	8.06
350.00	0.52	1.16	2.76	5.51	7.56
375.00	0.24	0.57	1.28	3.21	7.43
400.00	0.27	0.40	0.90	2.93	12.39
450.00	0.21	0.51	1.18	3.39	6.29
500.00	0.27	0.40	0.89	2.92	5.87
600.00	0.17	0.36	0.88	2.84	1.00
625.0	0.24	0.57	1.28	3.20	7.42
700.00	0.14	0.31	0.71	2.71	7.54
750.00	0.15	0.32	0.75	2.65	4.36
800.00	0.17	0.36	0.88	2.84	5.87
900.00	0.14	0.31	0.70	2.60	6.28
1000.00	0.17	0.36	0.88	2.84	5.86
1200.00	0.17	0.36	0.88	2.84	5.86
1250.00	0.15	0.32	0.75	2.65	1.25
1400.00	0.14	0.31	0.71	2.71	7.03
1500.00	0.14	0.31	0.70	2.60	1.25
1600.00	0.17	0.36	0.88	2.84	1.85
1750.00	0.14	0.31	0.71	2.71	7.03
1800.00	0.14	0.31	0.70	2.60	1.38
2000.00	0.15	0.32	0.75	2.65	5.63
2100.00	0.14	0.31	0.71	2.71	1.04
2400.00	0.14	0.31	0.70	2.60	0.99
2500.00	0.15	0.32	0.75	2.64	1.25
2800.00	0.14	0.31	0.71	2.71	2.02
3000.00	0.14	0.31	0.70	2.60	1.25
3500.00	0.14	0.31	0.71	2.70	1.24
3600.00	0.14	0.31	0.70	2.60	1.04
4200.00	0.14	0.31	0.71	2.70	1.04



INSTALLATION & MAINTENANCE

SERIES A

1 GENERAL INFORMATION

The following instructions will help you achieve a satisfactory installation of your Series A unit, Insuring the best possible conditions for a long and trouble free operation.

All units are tested and checked prior to shipping, a great deal of care is taken in packing and shipping arrangements to ensure that the unit arrives at the customer in the approved condition.

Series A units will perform satisfactorily if subjected to full load immediately after installation. How- ever, optimum performance is best achieved by a process of gradual load increments, up to the full value, over the first 50 hours or so of their working life. During these early stages of running, sensible precautions should be taken to avoid overloads.

The gear unit operating temperature may be higher during this period of run-in. A progressive reduc- tion in temperature may occur over many hours until the unit has reached its highest efficiency.

2 MOUNTING OF COMPONENTS TO EITHER THE UNIT INPUT OR OUTPUT SHAFT

Shaft dimensions below 1.750 inches are held to limits of +0.0000 -0.0005. Shaft diameters of 1.750 inches and above are held to limits of +0.000 -0.001.

- Items (such as gears, sprockets, couplings etc) should not be hammered onto these shafts since this would damage the shaft support bearings.
- The item should be pushed onto the shaft using a screw jack device fitted into the threaded hole provided in the end of the shaft.
- Items being fitted may be heated to 176/212°F to aid assembly further.

THREADED HOLE DETAILS

UNIT SIZE	INPUT SHAFT (SINGLE REDUCTION)	INPUT SHAFT (DOUBLE REDUCTION)	OUTPUT SHAFT
A1002	5/8"UNF x 1.25 deep		3/4"UNF x 1.5 deep
A1252	5/8"UNF x 1.25 deep		3/4"UNF x 1.5 deep
A1602	5/8"UNF x 1.25 deep		7/8"UNF x 1.75 deep
A2002	5/8"UNF x 1.25 deep	5/16"UNF x 0.63 deep	7/8"UNF x 1.75 deep

3 WEATHER PROTECTION OF UNIT

All Series A units are provided with protection against normal weather conditions. Where units are to operate in extreme conditions, or where they are to stand for long periods without running, eg during plant construction, we should be notified when ordering so that arrangements for adequate protection can be made.

4 INSTALLATION

4.1 MOTORIZED AND REDUCERS

- Sizes A1002, 1252, 1602 and 2002 single reduction will be oil filled by client.
- Sizes A1002, 1252, and 1602 double reduction, primary unit will be factory filled for life with synthetic lubricant, secondary unit will be filled by client.
- Size A2002 double reduction, primary and secondary unit will be oil filled by client.

If the unit is to be mounted in a different position to that originally intended then the amount of lubricant in the unit will require amending

- See Page 66 of this document for the revised quantities

4.2 MOUNTNG TO CUSTOMER EQUIPMENT

Mounting the Gearhead flange facing or feet to the customer equipment use screws to ISO grade 8.8 minimum.

Torque tighten to:-

Screw Size	
M12	750 lb-ins
M16	1770 lb-ins
M20	3100 lb-ins
M24	5400 lb-ins

4.3 MOTOR CONNECTIONS TO MAINS

Connection of the electric motor to the mains supply should be made by a qualified person. The current rating of the motor will be identified on the motor plate, and correct sizing of the cables to electrical regulations is essential.

4.4 FOOT-MOUNTED UNITS

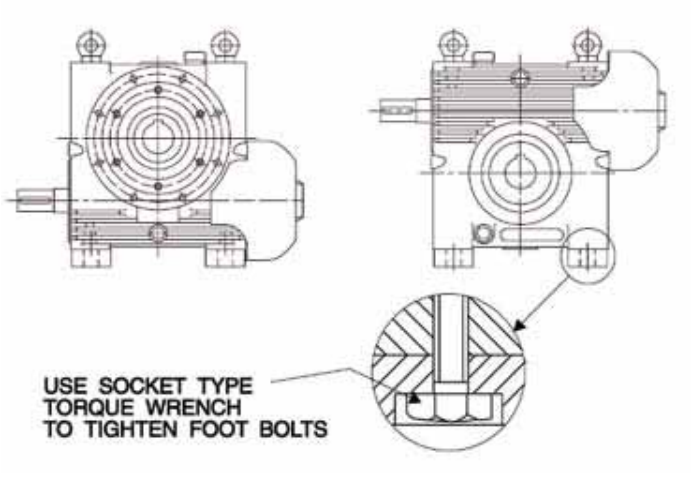
The following procedure is recommended for all foot mounted units.
Foot mounted units are supplied either as free standing units, or if required, mounted on a standard baseplate with a foot mounted motor correctly aligned and connected by a flexible coupling.

a) Clean shaft extensions and breather when fitted.
b) Secure unit, or baseplate if fitted to a rigid foundation using heavy duty bolts to ISO grade 8.8 minimum.
c) Insure baseplate is not distorted
   Note: Units not supplied on baseplates should if possible be mounted on the same bedplate as the prime mover.
d) Align unit (see pages 69 & 70)
   Note: It is important to insure when aligning unit on baseplate that all machined mounting points are supported over their full area. If steel packings are used these should be placed either side of the foundation bolt as close as possible. During the final bolting insure the unit or baseplate is not distorted this will cause strains in the gear case resulting in errors of alignment of shafts and gearing.
e) For units mounted on bedplates after alignment select any two diagonally opposite feet, drill ream and dowel in position.
f) Fit guards in accordance with the regulations.
g) Check motor wiring for correct direction of rotation this is important when a holdback device is fitted.
h) Fill gear unit with oil as detailed on page 65.

4.5 FITTING FEET ON UNITS MOUNTED IN POSITIONS 1 AND 2

Series A mid range units are mounted with detachable feet in mounting positions 1 and 2. These are normally factory fitted to clients specification, but if for any reason the feet are supplied separately, or dismantling is necessary after supply, they should be re-fitted and torque tightened to the following settings.

TIGHTENING TORQUES FOR FEET BOLTS			
Size	Nm	lbf.in	Bolt Size
A1002	350	3097	M20
A1252	350	3097	M20
A1602	610	5400	M24
A2002	610	5400	M24



4.6 REPLACEMENT OF OIL SEALS

Connection of the electric motor to the mains supply should be made by a qualified person.
The current rating of the motor will be identified on the motor plate, and correct sizing of the cables to electrical regulations is essential.

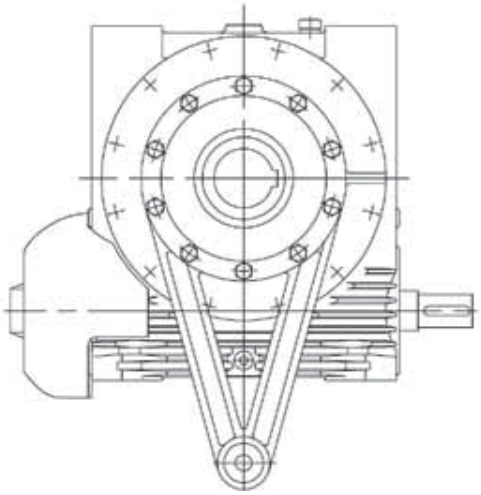
1. Clean and drain the unit.
2. Remove the holding screws and withdraw cover.
   NOTE: Take care not to damage the shims and do not alter the shaft position. Check for burrs or scratches on the shaft which could damage the new seal.
3. Tap the old seal out of the housing or cover using an appropriate sized drift.
4. Insure that joint faces and shims are clean and position the shims in the cover.
5. Coat joint faces of cover and case with a good jointing compound, replace oil catcher and tighten screws.
6. Smear oil seals with grease (See page 67).
7. Fit replacement seal on a seal guide, slide it along the shaft and press the seal into the housing or cover.
8. Fill with the correct amount of an approved lubricant, see page 66.

4.7 SHAFT MOUNTED UNITS

The following procedure is recommended for all shaft and foot/shaft mounted units.

a) Clean shaft extensions, bore and breather when fitted.
b) Locate in position, using the most convenient method available see page 68, insuring it is as close as possible to the bearing on the driven machine.
c) Secure unit onto the shaft using chosen method from page 68.
d) Fit torque arm to the side of the unit adjacent to the driven machine where possible, as detailed below.

Note: Unless specified otherwise, the torque arm will be supplied loose.



FOR SIZES A1002, A1252, A1602 and A2002

- Clean torque arm & bearing housing facings with Lowtox or Loctite 7061.
- Fit torque arm as shown (unless order states otherwise) with bolts provided

Torque to:

Unit Size	Bolt Size	Torque
A1002, A1252	M12	750 lb-ins
A1602, A2002	M16	1770 lb-ins

e) Anchor case to a secure point by means of the torque arm.
f) Fit guards in accordance with the regulations.
g) Check motor wiring for correct direction of rotation, this is important when a holdback device is fitted.
h) Fill gear unit with oil (if not factory filled) as detailed on page 65.

4.8 BACKSTOPS

NOTE: Oils containing E.P. additives must not be used on Series A units mounted with backstop devices. These oils severely affect the antifriction properties of the device and therefore reduce its efficiency.

When it becomes necessary to replace the Sprag backstop where fitted, it is essential to check that the shaft meets with the following requirements.

1. The shaft diameter must be within the tolerances shown below.

UNIT SIZE	1002	1252	1602	2002
Shaft Diameter. (inches)	1.5000	1.9578	2.1564	
	1.4995	1.9573	2.1559	

2. Surface hardness must be HV30 650 - 750 (58RC - 62RC).
3. Surface finish must be 13 - 20 micro inches CLA (.3-.5 µm CLA).
4. Taper must not exceed 0.0003 inches per inch (.003 mm. per cm).
5. If there is any doubt as to whether the shaft complies with these requirements it should be replaced or returned to us for examination and/or reconditioning.

NOTE: Excessively worn shaft bearings can also have an adverse effect on the operation of direct mounted clutches and such bearings should be replaced. Backstops MUST NOT be fitted to units mounted in the overdriven (2) position due to potential lubricant starvation. For units in this position external anti-runback devices are recommended - contact us.

5 LUBRICATION AND MAINTENANCE

5.1 LUBRICATION

- Sizes A1002, 1252, 1602 and 2002 single reduction will be oil filled by customer
- Sizes A1002, 1252, and 1602 double reduction, primary unit will be factory filled for life with synthetic lubricant, secondary unit will be filled by customer
- Size A2002 double reduction, primary and secondary unit will be oil filled by customer

5.2 PERIODIC INSPECTION

a. Check oil level weekly and if necessary top up with the recommended grade of lubricant.
b. Add two shots of grease monthly to units having grease lubricated bearings.

5.3 OIL CHANGES

On all sizes regular oil changes are essential and the following factors should be used to determine the frequency at which these are carried out.

a. Oil temperature - unit operating under load.
b. Type of oil.
c. Environment - humidity, dust, etc.
d. Operating conditions - shock, loading, etc.

At elevated temperatures the effective life of the oil is very much reduced. This is most pronounced with oils containing fatty and E.P. additives. To prevent damage to the unit through lubricant breakdown the oil should be renewed as detailed in the following table:

UNIT OPERATING TEMPERATURE °F	RENEWAL PERIOD
	SYNTHETIC OIL
158 or less	26000 HOURS OR 3 YEARS
167	22000 HOURS OR 3 YEARS
176	15000 HOURS OR 3 YEARS
185	10500 HOURS OR 3 YEARS
194	7500 HOURS OR $2^1/_2$ YEARS
203	6000 HOURS OR 2 YEARS
212	4500 HOURS OR 18 MONTHS
NB: INITIAL FILL OF OIL SHOULD BE CHANGED IN A NEW GEAR UNIT AFTER 1000 HOURS OPERATION OR ONE YEAR OR HALF THE ABOVE LIFE WHICHEVER IS THE SOONEST	

Note:
Figures quoted are for oil temperatures when the unit has attained normal running temperature when operating under load. These figures are based on normal running but where conditions are particularly severe it may be necessary to change the oil more frequently. When changing lubricant, if same lubricant is not used then unit must be flushed out and filled only with one type of lubricant.

5.4 LUBRICANT QUANTITY

The quantity of lubricant required by size and mounting position is given in Table 4 and 5, page 66.
A diagram showing mounting position designations is on pages 7 and 9.

5.5 APPROVED LUBRICANTS

Table 3 on page 66 gives the lubricants approved for use in the gear unit.

5.6 APPROVED GREASES

Page 67 gives the greases approved for use in the unit.

6 NOISE

The range of Series A product satisfies a noise (sound pressure level) of 85 dB(A) or less when measured at 1 meter from the unit surface. Measurements taken in accordance with B.S.7676 Pt1:1993 (ISO 8579-1:1993), (AGMA 299.01).

7 CLEANING

With the drive stationary periodically clean any dirt or dust from the gear unit and the electric motor cooling fins and fan guard to aid cooling.

TABLE 1 - OIL GRADE
SINGLE REDUCTION UNITS, DOUBLE REDUCTION WORM/ WORM, SECONDARY UNITS SIZES 1002, 1252, AND 1602

Ambient Temperature	Wormshaft speed*		
	Above 750 rev/min	750 rev/min - 300 rev/min	Below 300 rev/min
-22 to 68ºF	4G	5G	6G
32 to 95ºF	5G	6G	7G
68 to 122ºF	6G	7G	8G

* The secondary wormshaft speed for the worm/worm units can be calculated using the primary unit ratios given on page 10

TABLE 2 - OIL GRADE
TRIPLE REDUCTION HELICAL/WORM/WORM SIZE 2002
DOUBLE REDUCTION WORM/WORM SIZE 2002

Ambient Temperature	Wormshaft speed*		
	Above 1800 rev/min	1800 rev/min - 500 rev/min	Below 500 rev/min
-22 to 68ºF	4G	5G	6G
32 to 95ºF	5G	6G	7G
68 to 122ºF	6G	7G	8G

TABLE 3 - APPROVED LUBRICANTS
TYPE G - POLYGLYCOL BASE SYNTHETIC

* Only one grade available hence no grade designation

LUBRICANT SUPPLIER	LUBRICANT RANGE NAME	TEXTRON POWER TRANSMISSION GRADE No				
		4G	5G	6G	7G	8G
Batoyle Limited	Helicol W	* (-15)				
Boxer Services Limited	Boxergear W	150 (-25)	220 (-25)	320 (-25)	460 (-23)	
BP Oil Limited	Enersyn SG-XP		220 (-31)			
Caltex	Synthetic Gear Lubricant		* (-25)			
Carl Bechem GmbH	Berusynth EP	150 (-26)	220 (-25)	320 (-25)	460 (-25)	680 (-28)
Castrol International	Alphasyn PG	150 (-34)	220 (-34)	320 (-31)	460 (-28)	
Esso/Exxon	Glycolube	150 (-25)	220 (-25)	320 (-25)	460 (-23)	
Fina	Cirkan S	150 (-40)	220 (-43)	320 (-43)	460 (-37)	
	Giran S	150 (-30)	220 (-27)	320 (-25)	460 (-19)	
Fuchs Lubricants (UK) Plc	Renogear PGW	120 (-23)				
Fuchs Mineraloelwerke GmbH	Renolin PG	150 (-34)	220 (-34)	320 (-34)	460 (-34)	680 (-28)
Gulf Oil (GB) Limited	Synthetic Gear Lub	* (-25)				
International Speciality Chemicals	Breox Worm Gear Lube	65 (-15)				
	Breox Industrial Lubricant Sw	150 (-25)	220 (-25)	320 (-25)	460 (-23)	
Klüber Lubrication	Klübersynth GH6	150 (-30)	220 (-25)	320 (-25)	460 (-20)	680 (-20)
Kuwait Petroleum International	Q8 Gade		220 (-22)	320 (-22)	460 (-22)	
Mobil Oil Company Limited	Glygoyle	22 (-25)	30 (-22)	HE320 (-30)	HE460 (-35)	
Optimol Ölwerke GmbH	Optiflex A	150 (-31)	220 (-28)	320 (-28)	460 (-28)	680 (-28)
Shell Oils	Tivela	SA (-25)	SB (-25)	SC (-25)	SD (-23)	
Texaco Limited	Synlube CLP	150 (-37)	220 (-34)	320 (-31)	460 (-28)	680 (-31)
Tribol, Molub-Alloy	Tribol 800	150 (-37)	220 (-27)	320 (-25)	460 (-25)	680 (-25)

Number in brackets indicates recommended minimum operating temperature (ºC)

TABLE 4 - LUBRICANT QUANTITY (Litres) SINGLE REDUCTION

Mounting Position See Pages 9, 10 & 11	Size of Unit			
	1002	1252	1602	2002
1	1.8 (2.3)	3.2 (4.1)	5.4 (7.9)	8.0 (12)
2	2.0 (3.3)	4.0 (6.6)	7.0 (13)	11.4 (21.5)
3 & 4	1.7 (2.1)	3.6 (3.7)	6.6 (7.8)	10 (11.5)
5, 6 & Cooling Tower	REFER TO TEXTRON POWER TRANSMISSION			
Agitator	1.8 (2.1)	3.8 (4.0)	6.7 (7.4)	9.2 (10.7)

Conversion Table
Litres to US gallons = litres x 0.26
Litres to Imperial gallons = litres x 0.22

Figures in brackets refer to
- Mounting position 2 with output shaft speed of 100rev/min and below (A1002 & A1252) or 150rev/min and below (A1602 & A2002)
- Mounting positions 1 3 & 4 with input shaft speed of 600rev/min and below

- enter **D** in column 19

TABLE 4 - LUBRICANT QUANTITY (Litres) DOUBLE REDUCTION

Textron Mounting Position See Pages 9, 10 & 11		Unit stage	Size of Unit				
Secondary Unit	Primary Unit		1002	1252	1602	2002 Reducer	2002 Motor zed
1	1 and 5	Primary	*	*	*	1.8 (2.3)	3.8
	2 and 8	Primary	*	*	*	†	6.5
	3 and 7	Primary	*	*	*	2.0 (3.3)	4.4
	4 and 6	Primary	*	*	*	†	4.4
	//////////	Secondary	2.3	4.1	7.9	12	12
2	1 and 5	Primary	*	*	*	1.8 (2.3)	3.8
	2 and 8	Primary	*	*	*	†	6.5
	3 and 7	Primary	*	*	*	2.0 (3.3)	4.4
	4 and 6	Primary	*	*	*	†	4.4
	//////////	Secondary	3.3	6.6	13.0	21.5	21.5
3 & 4	1 and 5	Primary	*	*	*	1.8 (2.3)	3.8
	2 and 8	Primary	*	*	*	†	6.5
	3 and 7	Primary	*	*	*	2.0 (3.3)	4.4
	4 and 6	Primary	*	*	*	†	4.4
	//////////	Secondary	2.1	3.7	7.8	11.5	11.5
5 & 6	1 and 5	Primary	REFER TO TEXTRON POWER TRANSMISSION				
	2 and 8	Primary					
	3 and 7	Primary					
	4 and 6	Primary					
	//////////	Secondary					

† Refer to Textron Power Transmission * No oil required factory filled with lubricant
Figures in brackets are for the primary units with an output speed 100 rev / min and below.

APPROVED BEARING GREASES

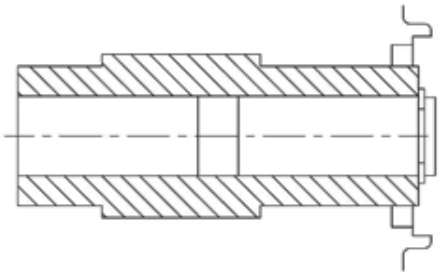
SUPPLIER	LUBRICANT RANGE	ALLOWABLE OPERATING TEMPERATURE RANGE °F (°C)	
		ABOVE	TO
BP Oil International Limited	Energrease LS-EP	-22 (-30)	266 (130)
Caltex	Multifak EP	32 (0)	248 (120)
Castrol International	LMX Grease	-40 (-40)	302 (150)
	Spheerol AP	-22 (-30)	230 (110)
	Spheerol EPL	-14 (10)	248 (120)
Fuchs Lubricants	Renolit EP	-13 (-25)	212 (100)
Klüber Lubrication	Klüberlub BE 41-542	-4 (-20)	284 (140)
Mobil Oil Company Limited	Mobilgrease XHP	-5 (15)	302 (150)
	Mobilith SHC	-4 (-20)	356 (180)
Omega Manufacturing Division	Omega 85	-40 (-40)	466 (230)
Optimol Ölwerke GmbH	Longtime PD	-49 (-45)	284 (140)
Shell Oils	Albida RL	-4 (-20)	302 (150)
	Alvania EP B	-4 (-20)	248 (120)
	Nerita HV	-22 (-30)	266 (130)
Texaco Limited	Multifak All Purpose EP	-22 (-30)	284 (140)

Notes:

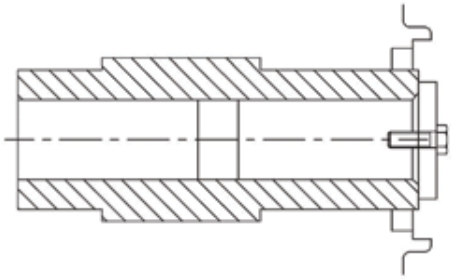
1) All the above greases are NLGI grade 2.

2) Contact our Application Engineers if the unit is operating in an ambient temperature outside the range of -22°F to 122°F (-30°C to 50°C).

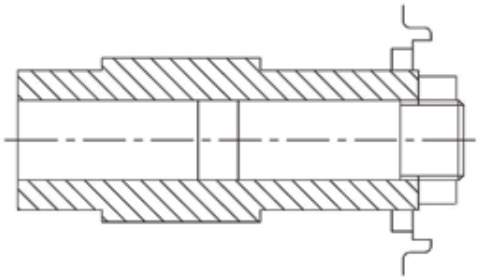
SHAFT MOUNT UNITS
ALTERNATIVE SHAFT MOUNTING METHODS



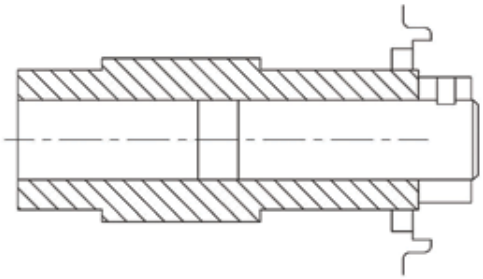
SHAFT MOUNT UNITS RETAINED WITH A SNAP RING



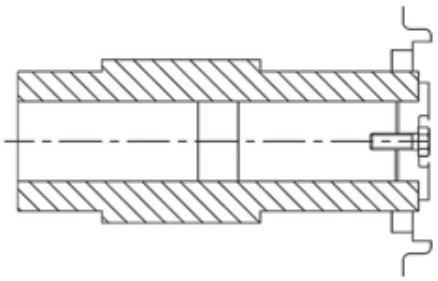
SHAFT MOUNT UNITS RETAINED WITH A BOLT AND PLATE



SHAFT MOUNT UNITS RETAINED WITH A LOCKNUT



SHAFT MOUNT UNITS RETAINED WITH A COLLAR AND SET SCREW



SHAFT MOUNT UNITS RETAINED WITH A RECESSED PLATE AND BOLT

SHAFT ALIGNMENT

Errors of alignment fall into categories of angularity (see figure 1) and eccentricity (see figure 2) or a combination of both.

Errors of angularity should be checked for and corrected before errors of eccentricity

Alignment in accordance with the following procedure will ensure vibration levels meeting those set out in SO 10816 Part 1.

Errors of Angularity

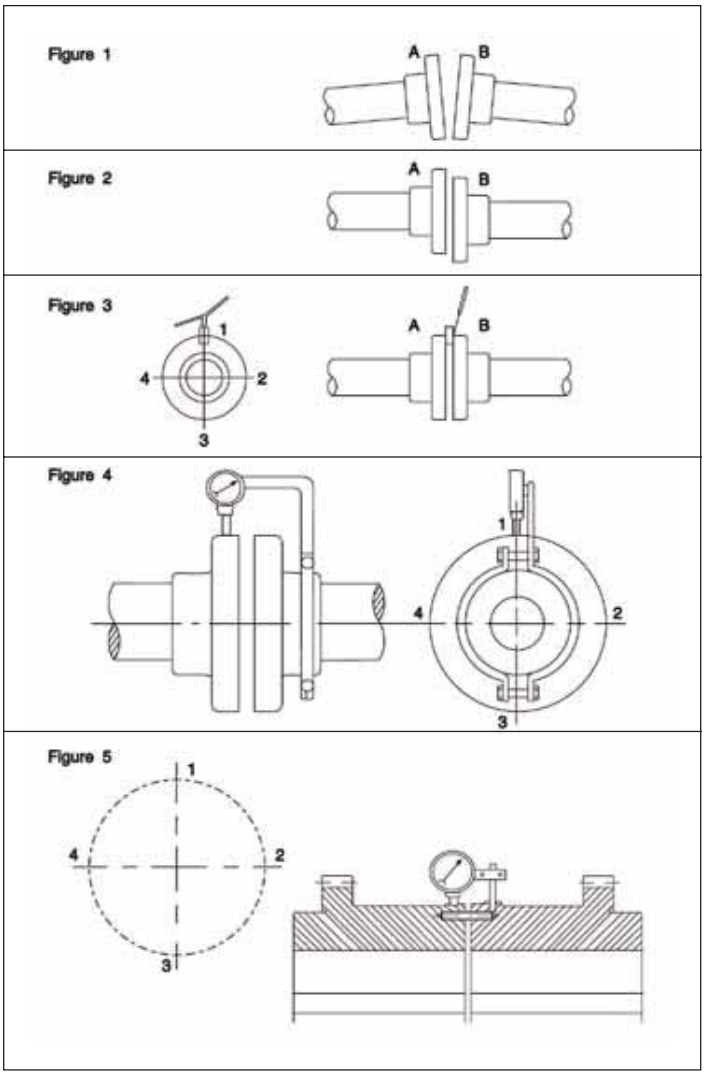
If the faces are perfectly true the angularity can be checked by keeping both shafts stationary and taking measurements with a block gauge and feelers at the four points 1, 2, 3 and 4 as shown in figure 3. The difference between the readings 1 and 3 will give the error of alignment in the vertical plane over the length of the shaft equal to the diameter of the coupling flanges and from this the difference in the relative heights of the feet of the motor or other connected machine can be found by proportion. Similarly the difference between the readings 2 and 4 gives the amount of sideways adjustment necessary to correct any errors of alignment in the horizontal plane.

Generally however the coupling faces will not be absolutely true and whilst any errors so found could be allowed for in checking angularity by the stationary method an easier method presents itself. This con- sists in marking the points 1 on both “A” and “B” and rotating both half couplings keeping the marked points together. By taking measurements each quarter-revolution the errors in the vertical and horizontal planes are again found.

The permitted angularity error is as follows

TYPE OF COUPLING	ALLOWABLE GAP (G) (Inches or mm)
Rigid coupling	G = 0.0005 0
All other types	Please see appropriate installation and maintenance manual for coupling type fitted

NOTE: 0 is the diameter (mm) at which the gap is measured.



NOTE: Check the alignment after running the unit until it has attained its normal working temperature. Any discrepancies can then be rectified.

Errors of Eccentricity

The procedure for measuring eccentricity is precisely analogous to that used for angularity. In this case, however, the measurements are taken in a radial direction and the most convenient and accurate means of doing this utilises a dial indicator suitably clamped to one half coupling, and bearing on the hub or flange of the other, as shown in figures 4 and 5 on page 69.

Care must, however, be taken to ensure the support for the dial indicator is sufficiently rigid to prevent the weight of the indicator from causing deflection and, in consequence, inaccurate readings. Extra care should be taken where taper roller bearings are fitted to ensure that alignment is checked with shafts in mid-point position and a final check made with the unit at operating temperature.

The permitted eccentricity error which can be accommodated in addition to that of the angularity error is as follows :-

TYPE OF COUPLING	UNIT SIZE	ALLOWABLE ECCENTRICITY (Inches)
Rigid	1002 and 1252	0.001
	1602 and 2002	0.0012
All other types	Please see appropriate installation and maintenance manual for coupling type fitted	

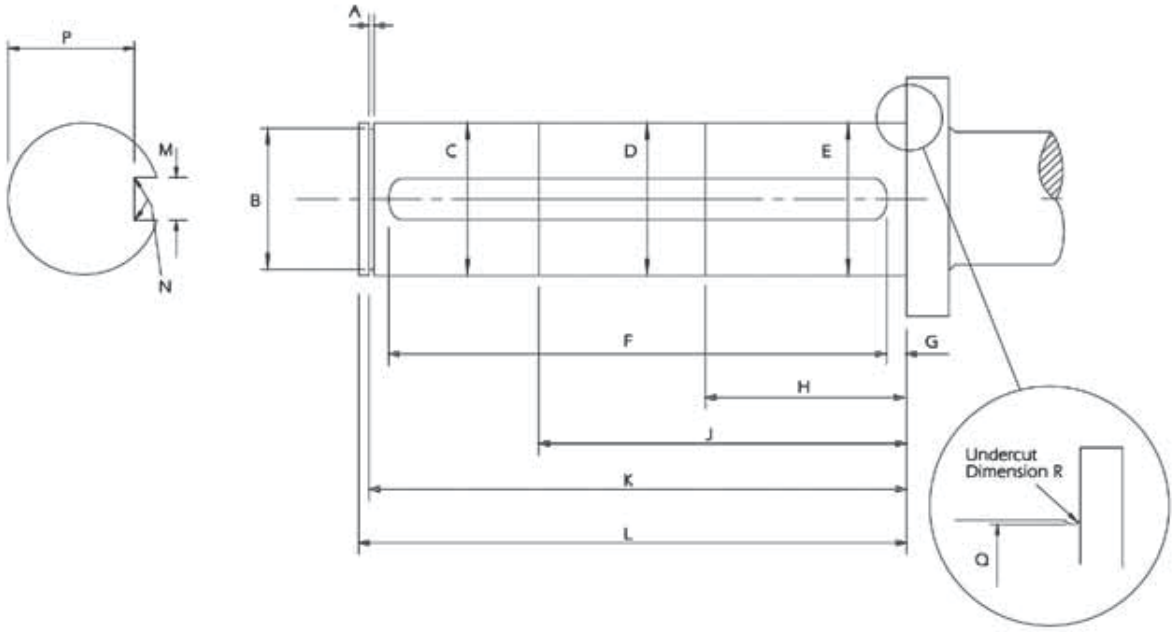
SPECIAL NOTE CONCERNING RIGID COUPLINGS

In lining up elements involving rigid couplings it is important that no attempt is made to correct errors of alignment or eccentricity greater than those above by tightening of the coupling bolts (This applies when the system is cold or at operating temperature). The result is mis-alignment and the setting up of undue stresses in the shaft, coupling and bearings. This will be revealed by the springing apart of the coupling faces if the bolts are slackened off. A check on the angularity of a pre-assembled job, after bolting down, can be obtained in the case of rigid couplings by slackening off the coupling bolts, when any mis-alignment will cause the coupling faces to spring apart. This check may not, however, reveal any strains due to eccentricity owing to the constant restraint imposed by the spigot.

SERIES X COUPLINGS

Textron Power Transmission, produce standard flexible couplings to cover the complete range of Textron units, please contact Textron Power Transmission for details.

SHAFT MOUNT UNITS
CUSTOMER SHAFT DETAIL



SIZE	A	B	C	D	E	F	G	H		K	L	M	N	P	Q	R
A1002	0.072	1.891	2.0000	1.985	2.0000	8.020	0.28	3.11	5.47	8.654	8.86	0.500	0.02R	1.718	1.920	0.05R
	0.068	1.881	1.9988	1.975	1.9988	8.000				8.652		0.499		1.712		
A1252	0.091	2.245	2.3750	2.360	2.3750	9.270	0.28	3.54	6.30	9.930	10.16	0.625	0.02R	2.021	2.275	0.05R
	0.086	2.233	2.3741	2.350	2.3741	9.250				9.928		0.624		2.015		
A1602	0.108	2.608	2.7500	2.735	2.7500	11.270	0.28	4.23	7.58	11.913	12.17	0.625	0.02R	2.402	2.670	0.05R
	0.103	2.596	2.7491	2.725	2.7491	11.250				11.911		0.624		2.396		
A2002	0.108	3.082	3.2500	3.235	3.2500	13.020	0.39	5.22	8.56	13.882	14.13	0.750	0.02R	2.831	3.170	0.05R
	0.103	3.070	3.2488	3.225	3.2488	13.000				13.880		0.749		2.825		

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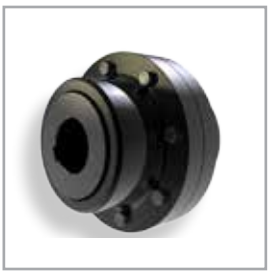

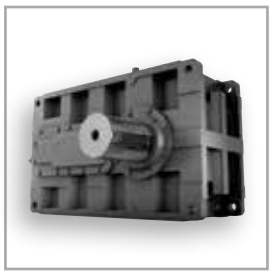



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