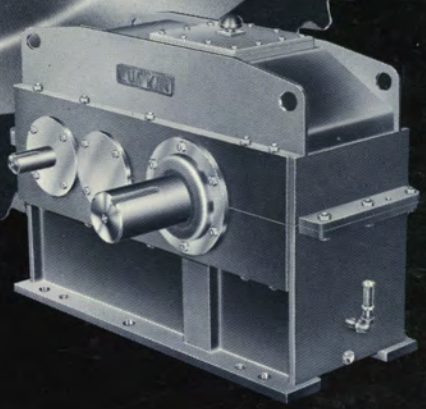
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LUFKIN

GEARS



FABRICATED
STEEL HOUSINGS

GEAR
CATALOG
G-29

MEMBER OF AGMA

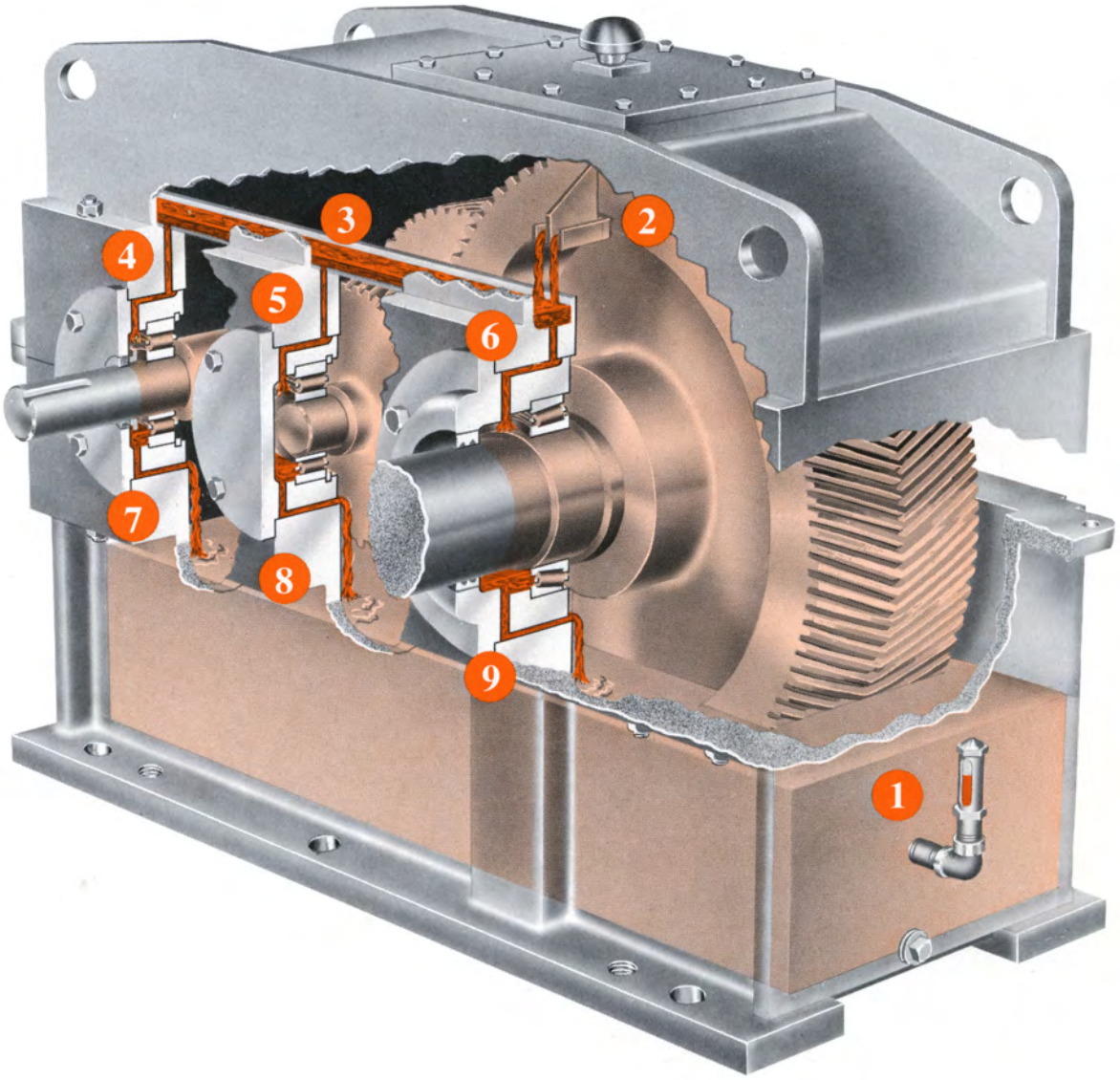
LUFKIN FOUNDRY & MACHINE COMPANY

LUFKIN, TEXAS

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TYPES SF, DF, TF AND QF REDUCERS

Lubrication System



The housing is filled with oil until the level is visible in glass gage 1. The gear dips into the bath of oil, lubricating the gear teeth. The film of oil which adheres to the side of the gear rim is deflected by wiper 2 into oil trough 3 which is integral with the cover. Oil flows by gravity from the trough through oil passages 4, 5 and 6 into all bearings and returns to the sump by oil-return passages 7, 8 and 9.

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2C03

Commercial Gear Reducers

Fabricated Steel Housings

I. SINGLE REDUCTION REDUCERS, TYPE SF
Ratios 1.2:1 to 7.5:1
Pages 11-17

II. DOUBLE REDUCTION REDUCERS, TYPE DF
Ratios 7.5:1 to 75:1
Pages 18-23

III. TRIPLE REDUCTION REDUCERS, TYPE TF
Ratios 57:1 to 290:1
Pages 24-29

IV. QUADRUPLE REDUCTION REDUCERS, TYPE QF
Ratios 238:1 to 1810:1
Pages 30-34

V. SPECIAL LUFKIN UNITS
Pages 36-39

VI. OTHER LUFKIN GEAR PRODUCTS
Page 40

LUFKIN FOUNDRY & MACHINE CO.

Factory and Executive Offices

LUFKIN, TEXAS

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Phone: 361303

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MAQUIP (Commercial de Maquinas e Equipamentos) S. A.
Caixa Postal 2508
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OILFIELD IMPORTS, S. A.
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Phone: LUther 7-7171

TRIPOLI, LIBYA
Sahara Oilfield Services Company of Libya, Ltd. (Serrag & Co.)
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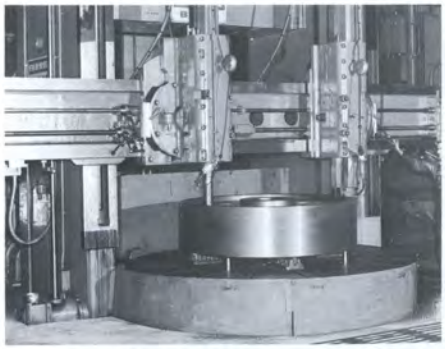
PLANT FACILITIES

From an humble beginning in 1902 as a small repair shop for sawmill and railroad machinery, LUFKIN Foundry & Machine Company today occupies a modern plant covering over 80 acres with approximately 18 acres under roof. This plant is equipped with every facility necessary for the manufacture of quality and precision gears. Pioneering the adaptation of the gear reducer to the oil well pumping unit in 1923, LUFKIN has placed over 90,000 of these units in service covering every oil producing country in the world. LUFKIN has gained over these years both the know-how and facilities for producing quality and dependable gears for any industry or application, and has specialized in the production of commercial gears since 1939.

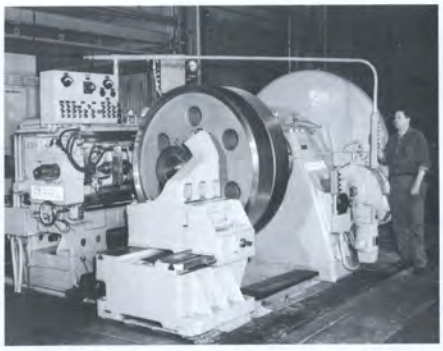
MACHINE SHOP



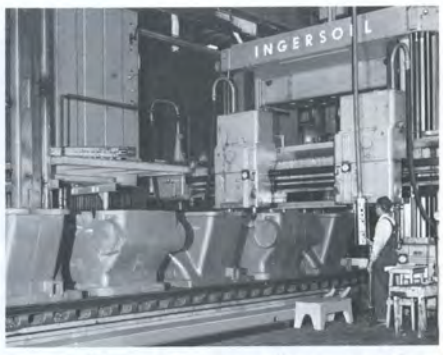
The main bay of the Machine Shop is 905 feet long and has over 200,000 square feet of floor space. Over 175 modern production machines are in use here. Among these are 21 Sykes herringbone gear generators and a hobbing machine with the capacity to cut a 16 foot pitch diameter, 48 inch face gear.



Vertical Boring Mill.
Capacity: 10′ - 6″ diameter.



10T Sykes Gear Generator. Capacity: 10 feet diameter x 24 inch face.



Large Planer Type Milling Machine. Capacity: 9 feet wide x 8 feet high x 26 feet travel.

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Scheiss Hobbing Machine, Capacity: 16 Feet Diameter x 48 Inch Face.

MACHINE SHOP



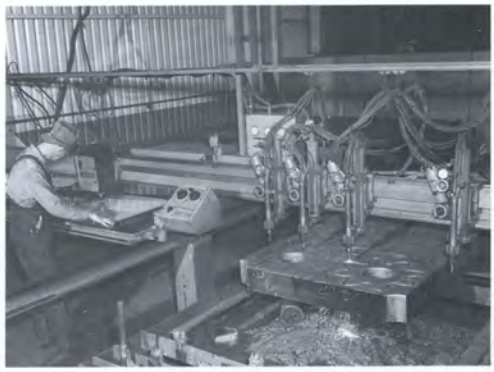
Standard Stocked Gears in Finished Material Warehouse.



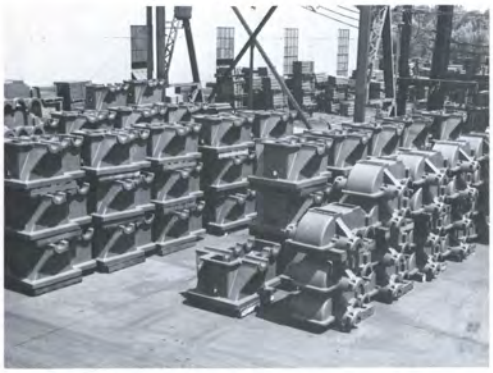
Inside View of Structural and Welding Shop.

STRUCTURAL SHOP

All cutting, welding and fabricating of structural parts is performed in the main structural building. This building has three acres under one roof. The structural shop is equipped with all modern equipment for the fabrication of large structural items.



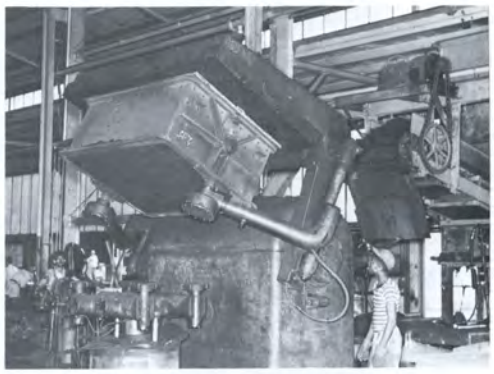
Torch Cut Gears for Slow Speed Application.



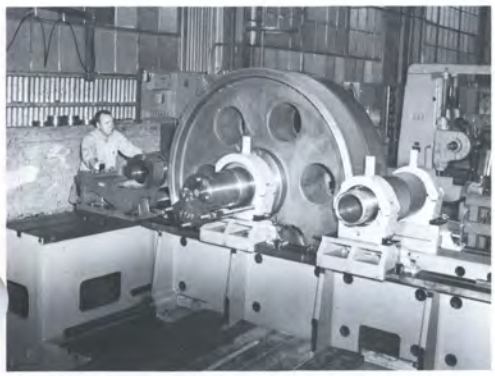
Reducer housing and cover castings on Foundry Yard.

FOUNDRY

The Foundry is equipped with the most modern equipment available for the production of gray and nodular iron castings, with a capacity of 175 tons per day.



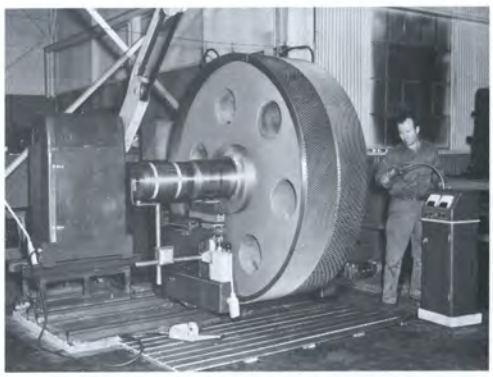
Large Moulding Machine. Capacity: 12,000 Pounds.



Lapping two pinions with large propulsion gear on special variable center lapper.

GEAR FINISHING

Complete facilities are available for balancing, assembling and testing gear units; all components are thoroughly inspected and tested before shipment.



Dynamic Balancing Machine. Capacity: 10 feet diameter, 13,000 pounds.

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GENERAL SPECIFICATIONS

HOUSINGS

Housings are made of heavy steel plate with joint between base and cover accurately machined. Interior surfaces of housings are thoroughly shot-blasted, cleaned, and painted to insure absolute freedom from scale, slag, and other foreign particles. Housings are bored using precision-built boring fixtures to assure accuracy and precise duplication of parts.

GEARS

Gears are herringbone type generated on Sykes machines, or double helical cut on hobbing machines. The gear teeth are cut after the gear has been pressed on its shaft and finish turned to assure concentricity between pitch circle and shaft. Final cutting of teeth is done slowly with freshly ground cutters for a better finish. Final finish of teeth is done in lapping machine to insure perfect mating contact between tooth surfaces. Finished gears are carefully balanced. Gear blanks are made of heat treated high tensile alloy steel castings, forgings, or fabricated using steel plate and forged alloy rims.

PINIONS

Except for very low ratios which result in large pinion diameters, pinions are made integral with their shafts. Material is heat treated alloy steel Pinion shaft extensions are ground to nominal dimensions shown in rating tables with tolerance of plus or minus .0005".

BEARINGS

Tapered roller bearings are used on the slow speed shaft with the bearing adjusting shims on the side opposite the shaft extensions. On pinion shafts, solid-roll straight type anti-friction bearings are used which permit perfect alignment of the herringbone gears. All anti-friction bearings are mounted in individual bearing carriers. Bearings are designed for long, trouble-free life when properly lubricated.

LUBRICATION

The slow speed gear runs in a bath of oil in the bottom of the housing and provides constant lubrication to the gear-mesh. This splash also furnishes a generous amount of oil to the troughs on the inside of the cover and from these troughs all bearings are lubricated by gravity flow. Oil seals eliminate oil leakage and the entrance of dirt. A protected glass oil level gauge permits instantaneous determination of oil level by visual inspection. The lubrication system is simple, positive and fool-proof so long as the housing is filled with the correct lubricant to a level which is visible in the glass gauge. See Lubrication Instructions on page 35 for recommended lubricants.

MOTOR BASES

One-piece structural steel bases are available for mounting both the gear reducer and prime mover. These are fabricated by electric welding using heavy section steel plate or structural sections and are stress-relieved after welding. All bases are custom-built to suit each individual job. In some cases common bases can be provided to accommodate the driven machine also.

EFFICIENCY

The mechanical efficiency of the Type SF, DF, TF, and QF reducers are approximately as shown below:

Type SF	98 to 98.5%
Type DF	97 to 97.5%
Type TF	96 to 96.5%
Type QF	95 to 95.5%

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EXPLANATION OF RATING TABLES

The Horsepower, Torque and Overhung-Load capacities of all Lufkin Gears are based on the latest Standard Practices of the American Gear Manufacturers Association of which Lufkin has been a member for several years. These ratings are shown for the different units on the following pages:

Single Reduction, Type SF.....Pages 11-17
Double Reduction, Type DF.....Pages 18-23
Triple Reduction, Type TF.....Pages 24-29
Quadruple Reduction, Type QF.....Pages 30-34

MECHANICAL RATINGS

The Mechanical Horsepower Ratings listed in the Rating Tables are for a Service Factor of 1 which would be the proper factor for a gear unit being driven by an electric motor up to 10 hours per day and driving a machine classed as a Uniform Load. For any other type of prime mover or driven machine or for any other duration of service the horsepower load would have to be modified by an appropriate Service Factor, as explained on the following pages, before the proper gear reducer could be selected.

The load carrying capacity of a set of gears for a given size housing varies with ratio and speed. Therefore, the Rating Tables show the horsepower ratings for each size reducer at the several standard ratios and motor speeds. The gears will stand 100% overload at starting or momentarily during operation.

OUTPUT TORQUE RATINGS

The Output Torque ratings are based on the mechanical horsepower ratings and must be modified by an appropriate Service Factor before the proper gear reducer can be selected. The gears will stand 100% torque overload at starting or momentarily during operation. The Output Torque ratings are shown immediately following the horsepower ratings.

THERMAL RATINGS

The Thermal Horsepower rating tables are shown immediately following the Output Torque Ratings. These ratings vary with unit speed and ratio. The Thermal Horsepower rating is the average load the unit will deliver continuously without overheating. The **actual horsepower transmitted** by the gear unit may not be greater than the Thermal Horsepower rating unless the unit is equipped with an oil pump and cooler. The Type QF reducers when operated within the speeds and ratios listed, will never require oil pump and cooler.

SERVICE FACTORS

The selection of a gear unit for a certain job depends upon (1) the type of prime mover, (2) the character of the driven machine and (3) the number of hours per day the unit will operate. These variables enter into the selection of Reducers through the use of Service Factors.

A tabulation of the Character of Load for various types of machinery generally driven by gear units is shown in Table 1, page 10. Table 2, page 10, shows the Service Factors based on the three variables listed above.

In selecting a gear reducer the actual horsepower load to be transmitted is multiplied by the appropriate Service Factor to determine the Equivalent Horsepower. A reducer is then selected from the Rating Tables which has a tabulated rating equal to or greater than the Equivalent Horsepower. Conversely, the tabulated mechanical rating of a reducer divided by the Service Factor will give the Service Rating of that reducer. This Service Rating cannot be higher than the Thermal Horsepower unless means for artificially cooling the oil is provided.

RATIOS

The gear ratios listed in the Rating Tables are standard for each size reducer and these particular ratios are more readily available than any other ratio. The exact ratio required or a very close approximation can be furnished, however. The approximate horsepower rating for intermediate ratios not shown in the tables may be determined by interpolation.

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SELECTION OF GEAR REDUCERS

In order to accurately select the proper gear reducer it is necessary to know:

(1) Horsepower load to be transmitted;
(2) Speed of both input and output shafts, or the speed of one shaft and the gear ratio;
(3) Type of prime mover;
(4) Type of driven machine; and
(5) Hours per day continuous operation.

Knowing the type of driven machine, determine from Table 1, page 10, whether the character of the load is Uniform, Moderate Shock or Heavy Shock. With this information and knowing the type of prime mover and hours of operation, select the proper Service Factor from Table 2, page 10.

Multiply the actual horsepower load to be transmitted by the Service Factor just selected to arrive at the Equivalent Horsepower. This Equivalent Horsepower is the tabulated or catalog rating as listed in the Rating Tables, pages 11 through 34. If the starting load is high, it should also be used as a check to determine Equivalent Horsepower. To do this, divide starting load by two and if the result is higher than the Equivalent Horsepower just calculated, it should be used as the Equivalent Horsepower in making the selection.

Divide the motor speed by the output speed of the reducer to determine ratio. The type unit to select can be determined from the following range of ratios available:

UNIT TYPE	RATIOS AVAILABLE	PAGE
TYPE SF	1.22:1-7.0:1	11-13
TYPE DF	7.59:1-75:1	18-19
TYPE TF	70:1-290:1	24-25
TYPE QF	240:1-1810:1	30-31

Refer to the proper Horsepower Rating Table as specified above. In the column showing a ratio nearest to that required and on a horizontal line with the proper input speed, find a listed horsepower which is equal to or greater than the Equivalent Horsepower required. The size of the reducer is shown at the top of the table in which this horsepower rating is found. For intermediate ratios and speeds between those listed, the approximate horsepower rating may be found by interpolation.

The Thermal Horsepower ratings for the reducer types available are shown on the following pages:

Type SF ..... Page 16
Type DF ..... Page 22
Type TF ..... Page 28

On standard Type QF reducers the Thermal Horsepower capacity will always be greater than the load transmitted. The reducer selected should have a Thermal Rating equal to or greater than the **actual horsepower load** to be transmitted in order to avoid overheating of the unit during operation. It is often necessary to go to a larger size reducer to obtain satisfactory thermal capacity. It is possible to equip a reducer with an oil cooling system and thus increase the Thermal Rating in some cases when because of space limitations it is desirable to use the smallest possible reducer.

OUTPUT TORQUE SELECTION

Reducer selection based on Output Torque is the same as the selection based on mechanical horsepower ratings. The same Service Factors must be used to arrive at the Equivalent Torque load to be transmitted.

The Output Torque Ratings for the reducer types available are shown on the following pages:

Type SF ..... Pages 14-16
Type DF ..... Pages 20-21
Type TF ..... Pages 26-27
Type QF ..... Pages 32-33

The Thermal Horsepower rating of the unit must be checked by converting the transmitted torque to horsepower and referring to the Thermal Horsepower rating tables.

OVERHUNG LOAD

In the event the output shaft of the reducer drives through a pulley, sprocket or gear, the overhung load capacity of the slow speed shaft should be checked. Although standard reducers are designed primarily for straight line torque drive through a flexible coupling, they will stand moderate overhung loads without difficulty.

The following formula will give the actual overhung load imposed on the shaft:

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SELECTION OF GEAR REDUCERS (cont'd.)

$$OL = K \times \frac{126{,}000 \times HP}{D \times RPM}$$

Where OL = Overhung load, lbs.
K = Constant for type of external drive
= 1.0 for Sprocket
= 1.25 for pinion
= 1.5 for V-belts
= 2.5 for flat belt
HP = Actual horsepower load
D = Diameter of sprocket, pinion or pulley, inches
RPM = Revolutions per minute of shaft being checked.

If the result of the above calculation shows the overhung load to be higher than the standard reducer will permit as shown in the Overhung Load ratings shown in the tables on pages 13, 22, 28 and 34, the Heavy Overhung load type reducer should be specified. The Heavy Overhung load rating is twice the ratings shown in the tables for Standard Overhung Load ratings.

It might be that the actual load is also higher than the heavy overhung load capacity and in such an event it will be necessary to either increase the diameter of the pulley, sprocket or pinion, or go to the Outboard Bearing Type Assembly.

OUTBOARD BEARING ASSEMBLY

In the event the external load is excessive, the reducer shaft may be extended to an outboard bearing. The outboard bearing is supported by a pedestal which is generally built integral with the motor and reducer base. The bases for these units are made of fabricated steel, electric welded, and are especially built for each application.

When the actual overhung load is more than double the capacities shown in the Overhung Load Tables on pages 13, 22, 28 and 34, the Outboard Bearing Assembly should be specified.

MOTOR BASES

If a Base for mounting the motor and reducer is desired, it is not necessary to make a selection of a Base. Bases are not made in specific sizes but are custom built for each application. This procedure is economical since the Bases are made of fabricated steel.

To obtain the proper Base on an order, it is only necessary that a certified setting plan for the motor be furnished.

EXAMPLES OF REDUCER SELECTION

Types SF, DF, TF and QF

Example 1

A gear reducer is required to drive a paper machine calender. Electric motor input speed 1150 RPM and reducer output speed 202 RPM. Actual load 250 HP.

Service Factor: Refer to Table 1, Page 10, for Character of Load and note that Calender is classified as Moderate Shock. Paper machines operate twenty-four hours per day; so, in Table 2, Page 10, the Service Factor for electric motor operating twenty-four hours per day with a Moderate Shock Load is found to be 1.5.

Equivalent Horsepower = Service Factor X Actual HP load = 1.5 X 250 = 375 HP

$$\text{Gear Ratio} = \frac{\text{Input Speed, RPM}}{\text{Output Speed, RPM}} = \frac{1150}{202} = 5.69$$

Refer to the Rating Tables for Type SF Reducers pages 11-14. Follow down the column showing a ratio nearest 5.69 and observe the horsepower ratings listed for 1150 RPM. Note that the reducer showing an Equivalent or Catalog Horsepower rating equal to or greater than the 375 horsepower required is the SF148 which has a rating of 391 horsepower at a ratio of 5.67.

Check the Thermal Horsepower Capacity on page 16 and note that this reducer has a thermal rating higher than the actual transmitted horsepower.

The SF148 is, therefore, the proper selection.

Example 2

A gear reducer having a ratio of 3:1 is desired to drive a single cylinder reciprocating compressor. The prime mover is a 1400 RPM multi-cylinder engine and will deliver 285 horsepower twenty-four hours per day.

Service Factor: From Table 1 the Character of the Load is Heavy Shock and from Table 2 the Service Factor is found to be 2.25.

Equivalent Horsepower = 2.25 × 285 = 641 HP.

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EXAMPLES (cont'd.)

Refer to the Rating Tables for Single Reduction units and observe that at a ratio of 3:1, the SF127 is the smallest reducer with a Catalog Rating of at least 641 horsepower at the desired ratio and speed. Since the input speed of 1400 RPM is not listed for the SF127 reducer, the approximate Catalog Rating can be found by direct interpolation as follows, observing that at 3.00:1 ratio it has a rating of 840 horsepower at 1750 RPM and at 1150 RPM it has a rating of 597 horsepower:

$$\frac{1400-1150}{1750-1150}\times(840-597)+597=698 \text{ HP}$$

Check the Thermal Horsepower Rating on page 16. At 3.00:1 ratio the SF127 reducer has a Thermal Rating of 217 horsepower. Since the Thermal Rating is less than the actual transmitted horsepower, a pump and cooler must be used or the SF169 reducer must be selected which has a Thermal Rating of 308 horsepower.

Example 3

A gear reducer is required to drive a belt conveyor delivering foundry sand. It is probable that the belt will not be loaded at a uniform rate. The prime mover is a 10 horsepower electric motor running 1750 RPM, but the actual load on the drive will not exceed 9 horsepower. The output gear shaft is to operate at approximately 14 RPM and will be equipped with 7.63" pitch diameter sprocket. The conveyor will operate twenty-four hours per day.

Service Factor: From Table 1 the Character of Load is Moderate Shock and from Table 2 the Service Factor is 1.5.

Equivalent Horsepower = 1.5 × 9 = 13.5 HP.

(Note that the actual load to be transmitted and not the motor rating is multiplied by the Service Factor to get Equivalent Horsepower. However, if there is a possibility that the prime mover can deliver and the driven machine can absorb more horsepower than the actual load as calculated, the possibility of overload should be taken into account in making a reducer selection.)

$$\text{Gear Ratio}=\frac{1750 \text{ RPM}}{14 \text{ RPM}}=125$$

Refer to the Rating Tables for Type TF Triple Reduction Units on pages 24 and 25. Under a ratio of 129.7 and at a speed of 1750 RPM it is found that the TF170 Reducer has a mechanical rating of 17.5 horsepower which is satisfactory.

Check the overhung load on the slow speed shaft due to the chain drive:

$$\text{OL}=\text{K}\times\frac{126{,}000\times\text{HP}}{\text{D}\times\text{RPM}}$$

$$=1\times\frac{126{,}000\times 9}{7.63\times 14}=14{,}850$$

Refer to the Overhung Load Table for Triple Reduction Reducers on page 28 and note that the capacity of the slow speed shaft on the TF170 Reducer is 12,650 pounds which is less than the actual load imposed.

The TF170 reducer can be used if the Heavy Overhung load unit is specified.

Example 4

A gear reducer is required to drive a uniformly fed belt conveyor requiring 95,000 inch pounds torque. Output speed is 9 RPM using a 1750 RPM motor. The conveyor will operate twenty-four hours per day.

Service Factor: From Table 1, the Character of Load is Uniform and from Table 2 the service factor is 1.25.

Equivalent Torque = 1.25 × 95,000 = 119,000 inch pounds.

$$\text{Gear Ratio}=\frac{1750}{9}=194.5$$

Refer to the Torque rating tables on pages 26 and 27 for Type TF Reducers. Under a ratio of 194.6 it is found that the TF220 Reducer has a torque rating of 159,000 inch pounds.

Checking the Thermal Rating of the reducer;

$$\text{H.P.}=\frac{\text{Transmitted Torque}\times\text{RPM}}{63{,}000}$$

$$\text{H.P.}=\frac{95{,}000\times 9}{63{,}000}=13.55 \text{ H.P.}$$

The Thermal Horsepower rating of the TF220 is greater than the Mechanical Horsepower rating; therefore, the TF220 is the proper selection.

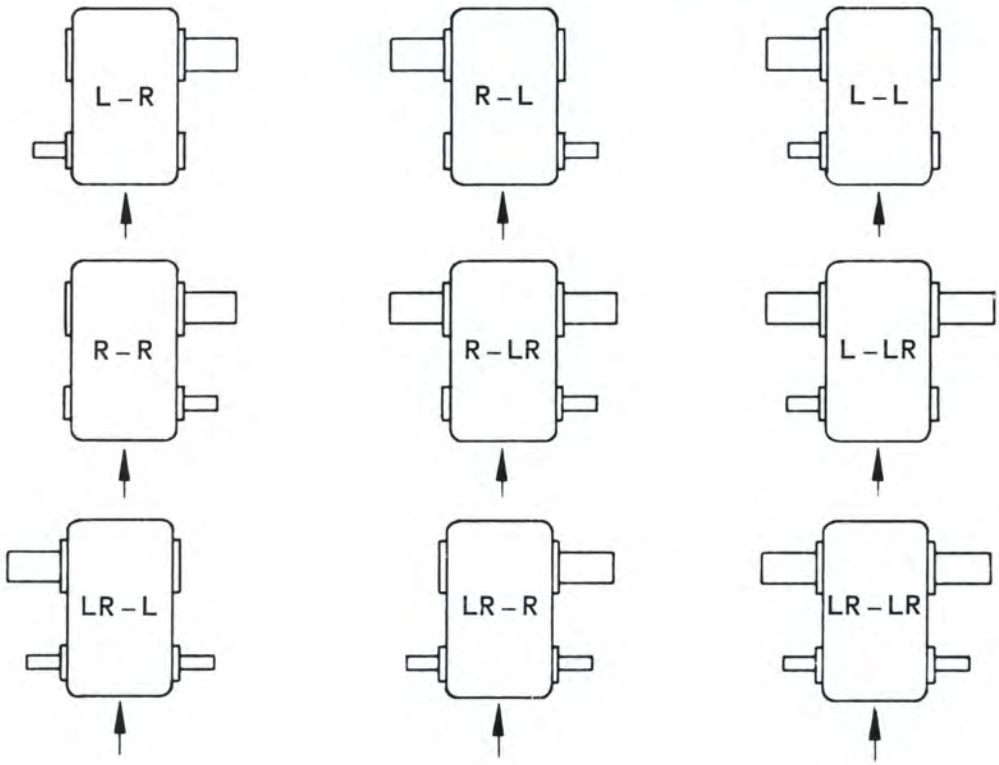
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INFORMATION REQUIRED WITH ORDER OR INQUIRY

The following information should be furnished with a request for a quotation or with a purchase order for a gear reducer in order that we may furnish your exact requirement promptly without the delay of having to request additional information:

1. Actual horsepower load to be transmitted.
2. Speed of prime mover and driven machine, or speed of either shaft and gear ratio.
3. Type of prime mover (if engine, give number of cylinders).
4. Type of driven machine.
5. Number of hours per day reducer to be in continuous operation.
6. Direction of rotation (clockwise or counterclockwise, looking at extended end of high speed shaft).
7. Type of shaft connection (coupling, pulley, sprocket or gear).
8. If flexible couplings also purchased from us furnish diameter and key dimensions of connecting shafts.
9. If connection other than direct through coupling, furnish diameter of pulley, sprocket or gear, and give approximate direction of external load.
10. Shaft extensions should be specified per shaft arrangement designations shown below.
11. If Motor Base required, furnish certified bolting layout for motor.
12. Report any unusual conditions of installation or operation.

SHAFT ARRANGEMENT
TYPE SF, DF, TF, AND QF REDUCERS



NOTES:

1. Code: L = Left; R = Right.
2. Arrows indicate line of sight to determine direction of shaft extensions.
3. Letters preceding the hyphen refer to number and direction of high-speed shaft extensions.
4. Letters following the hyphen refer to number and direction of low-speed shaft extensions.

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SERVICE FACTORS FOR SPEED REDUCER SELECTION

Table 1 below is to be used as a guide for determining the Character of Load imposed on a gear reducer by a representative group of machines generally driven by Gear Reducers. It would be impractical, of course, to list here every machine that might conceivably be driven by a Gear Reducer. It is believed, however, that the list is sufficiently complete so that if a particular machine is not listed it can be determined, by comparison, the character of the load to be imposed on that drive.

For an explanation of the use of these tables in connection with the selection of a Gear Reducer, see pages 6 and 7.

Guide for Selecting Character of Load—Table 1

UNIFORM LOAD

Agitators
Pure Liquids

Blowers
Centrifugal
Vane

Clarifiers

Compressors
Centrifugal

Conveyors
(Uniformly Loaded or Fed)
Apron
Assembly
Belt
Bucket
Chain
Flight
Oven
Screw

Cranes
Main Hoists

Elevators
Bucket—Uniform Load
Bucket—Continuous
Centrifugal Discharge
Escalators
Gravity Discharge

Extruder
Light Duty

Fans
Centrifugal
Light

Feeders
Disc

Generators

Line Shafts
Light

Machine Tools
Auxiliary Drives

Mixers
Constant Density

Paper Mills
Bleacher
Conveyors
Presses
Suction Roll
Winders

Pumps
Centrifugal
Rotary

Rubber and Plastics Industries
Rubber Mill (3 on line)

Sewage Disposal Equipment
Bar Screens
Chemical Feeders
Collectors

Screens
Air Washing
Traveling Water Intake

Stokers

MODERATE SHOCK LOAD

Agitators
Liquids and Solids
Liquids—Variable Density

Blowers
Lobe

Cane Knives

Classifiers

Compressors
Lobe
Reciprocating, Multi-Cylinder

Conveyors—(Heavy Duty Not Uniformly Fed)
Apron
Assembly
Belt
Bucket
Chain
Flight
Oven
Screw

Crusher
Sugar

Dredges
Cable Reels
Conveyors
Maneuvering Winches
Pumps
Stackers
Utility Winches

Elevators
Bucket—Heavy Load
Freight

Extruder
Constant Duty

Fans
Cooling Tower
Induced Draft
Large

Feeders
Apron
Belt
Screw

Hoists
Medium Duty
Skip

Line Shafts
Processing Equipment

Lumber Industry
Barkers—Spindle Feed
Conveyors—Burner
Merry-go-Round
Transfer
Chains—Green
Cut-Off Saws
Feeds-Edger, Trimmer
Planer Feed
Sorting Table
Tipple Hoist
Transfers, Chain, Craneway
Tray Drives

Machine Tools
Bending Roll
Main Drives

Metal Mills
Draw Bench, Carriage and Main Drive
Slitters
Wire Drawing and Flattening Machine
Wire Winding Machine

Mills, Rotary Type
Ball
Cement Kilns
Dryers and Coolers
Kilns
Pebble
Rod, Plain and Wedge Bar
Rubber

Mixers
Concrete
Variable Density

Paper Mills
Agitators
Barker

Paper Mills (Cont'd)
Beater and Pulper
Calenders
Converting Machine except Cutters, Platers
Couch
Cylinders
Dryers
Felt Stretchers
Pulp Machine Reel
Stock Chests
Washers and Thickeners

Pumps
Proportioning
Reciprocating (3 or more cylinders)

Rubber & Plastics Industries
Laboratory Equipment
Refiners
Rubber Calenders
Rubber Mill (2 on line)
Sheeter
Tubers and Strainers
Warming Mills

Sand Muller

Sewage Disposal Equipment
Dewatering Screws
Scum Breakers
Slow or Rapid Mixers
Thickeners
Vacuum Filters

Screens
Rotary-Stone or Gravel

Slab Pushers

Sugar Industry
Cane Knives
Crushers
Mills

Textile Machinery

HEAVY SHOCK LOAD

Compressors
Reciprocating, Single-Cylinder

Conveyors—Heavy Duty
Shaker

Crushers
Ore
Stone

Dredges
Cutter Head Drives
Jig Drives
Screen Drives

Feeders
Reciprocating

Hammer Mills

Hoists
Heavy Duty

Lumber Industry
Barkers—Main Drive
Conveyors—Main Log
Conveyors—Slab
Debarking Drums
Feeds—Gang
Log Deck
Log Hauls—Incline-Well Type
Log Turning Devices
Rolls-Live-Off Brg.-Roll Cases

Machine Tools
Punch Press
Plate Planers
Tapping Machine

Metal Mills
Table Conveyors non-reversing, Individual drives

Mills, Rotary Type
Tumbling Barrels

Paper Mills
Barking Drum
Calenders—Super
Cutters—Platers
Felt Whippers
Jordans
Log Hauls

Pullers
Barge Haul

Rubber and Plastics Industries
Crackers
Mixing Mills

Service Factors—Table 2

Prime Mover	DURATION OF SERVICE	Character of Load on Driven Machine		
		Uniform	Moderate Shock	Heavy Shock
Electric Motor or Turbine	*Occasional ½ Hour per Day	0.50	0.80	1.25
	*Intermittent 3 Hours per Day	0.80	1.00	1.50
	Up to 10 Hours per Day	1.00	1.25	1.75
	24 Hours per Day	1.25	1.50	2.00
Multi-Cylinder Internal Combustion Engine	*Occasional ½ Hour per Day	0.80	1.00	1.50
	*Intermittent 3 Hours per Day	1.00	1.25	1.75
	Up to 10 Hours per Day	1.25	1.50	2.00
	24 Hours per Day	1.50	1.75	2.25
Single Cylinder Internal Combustion Engine	*Occasional ½ Hour per Day	1.00	1.25	1.75
	*Intermittent 3 Hours per Day	1.25	1.50	2.00
	Up to 10 Hours per Day	1.50	1.75	2.25
	24 Hours per Day	1.75	2.00	2.50

* Maximum momentary or starting load must not exceed 200 percent of gear reducer rating (rating meaning Service Factor of 1).

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HORSEPOWER RATING TABLES

TYPE SF—SINGLE REDUCTION UNITS

The Horsepower Ratings listed in the tables below are Mechanical ratings calculated by the A.G.M.A. formula using a Service Factor of 1. See pages 6-8 for information on selecting reducers. See page 16 for Thermal Horsepower Ratings.

Size No. SF127

	STANDARD RATIOS											
Motor R.P.M.	1.22	1.5	1.85	2.24	2.73	3.0	3.36	4.14	5.0	5.55	6.27	7.0
1750	....	....	1335	1130	960	840	740	575	448	388	327	277
1150	1270	1120	955	806	662	597	525	405	315	273	228	194
870	1010	893	785	643	525	473	415	320	249	215	179	153
720	870	765	652	548	448	404	354	273	211	182	152	129
580	730	640	543	457	373	335	294	226	175	151	126	106
High Speed Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3½	3½	3¼	3	2¾

Size No. SF148

	STANDARD RATIOS											
Motor R.P.M.	1.33	1.5	1.84	2.23	2.73	3.0	3.36	4.16	5.0	5.67	6.26	7.0
1750	....	....	....	1660	1360	1230	1085	837	660	555	483	410
1150	1770	1640	1410	1195	975	880	773	595	467	391	340	288
870	1420	1315	1130	950	775	700	613	472	369	308	267	226
720	1220	1130	965	813	663	597	524	402	313	262	227	192
580	1020	945	808	678	552	497	435	333	260	217	187	159
High Speed Shaft Diameter	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3½	3

Size No. SF169

	STANDARD RATIOS											
Motor R.P.M.	1.29	1.5	1.84	2.25	2.73	3.0	3.36	4.16	5.0	5.67	6.27	7.0
1750	....	....	....	....	1890	1710	1508	1165	917	773	659	572
1150	....	2280	1960	1645	1355	1225	1075	830	652	547	475	403
870	2010	1825	1570	1315	1080	975	855	658	515	433	374	318
720	1730	1570	1345	1125	925	835	732	562	438	368	318	270
580	1450	1315	1127	940	772	695	610	466	364	305	263	223
High Speed Shaft Diameter	4¼	4¼	4¼	4¼	4¼	4¼	4¼	4¼	4¼	4¼	4	3½

Size No. SF1810

	STANDARD RATIOS											
Motor R.P.M.	1.5	1.84	2.22	2.72	3.0	3.36	4.14	5.0	5.67	6.2	7.0	....
1750	....	....	....	....	....	2030	1585	1242	1045	923	775	....
1150	....	2640	2245	1840	1660	1458	1130	882	743	653	548	....
870	2465	2120	1800	1470	1330	1162	898	700	588	527	433	....
720	2125	1820	1545	1260	1133	994	767	597	500	440	367	....
580	1785	1528	1295	1055	945	830	640	495	415	364	305	....
High Speed Shaft Diameter	5	5	5	5	5	5	5	5	5	4½	4	....

Size No. SF2011

	STANDARD RATIOS											
Motor R.P.M.	1.5	1.86	2.24	2.72	3.0	3.36	4.16	5.0	5.67	6.27	7.0	....
1750	....	....	....	....	....	....	2045	1615	1362	1185	1010	....
1150	....	....	2900	2395	2155	1900	1465	1153	968	840	715	....
870	3210	2730	2325	1915	1725	1515	1168	915	768	665	565	....
720	2765	2350	2000	1640	1478	1300	997	780	655	567	480	....
580	2325	1975	1670	1375	1235	1075	830	650	544	469	400	....
High Speed Shaft Diameter	5½	5½	5½	5½	5½	5½	5½	5½	5½	5	4½	....

Size No. SF2212

	STANDARD RATIOS											
Motor R.P.M.	1.5	1.84	2.24	2.73	3.0	3.4	4.18	5.0	5.67	6.33	7.0	....
1150	....	....	....	3040	2755	2390	1865	1476	1242	1062	917	....
870	....	3520	2970	2440	2205	1910	1485	1175	985	843	725	....
720	3530	3030	2555	2095	1890	1638	1270	1000	840	718	618	....
580	2970	2545	2145	1760	1583	1370	1060	835	700	596	513	....
High Speed Shaft Diameter	5⅞	5⅞	5⅞	5⅞	5⅞	5⅞	5⅞	5⅞	5⅞	5½	5	....

Ratios listed are standard but intermediate ratios are available.

Ratings for intermediate ratios and speeds may be found by direct interpolation.

All units may be operated at speeds lower than the minimum shown. The selection of a reducer for a lower speed may be accomplished by multiplying the desired horsepower by the lowest RPM shown and by dividing the desired RPM. The results will be the equivalent horsepower at lowest RPM shown which can be found in the above tables.

HORSEPOWER

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE SF—SINGLE REDUCTION UNITS

Size No. SF2413

Motor R.P.M.	STANDARD RATIOS										
	1.5	1.85	2.24	2.73	3.0	3.36	4.19	5.0	5.67	6.27	7.0
1150	....	....	....	3770	3415	3010	2305	1830	1540	1340	1140
870	....	4345	3680	3030	2735	2410	1840	1460	1225	1063	905
720	4370	3740	3170	2600	2350	2065	1575	1247	1048	906	770
580	3690	3150	2665	2180	1970	1730	1315	1040	872	755	642
High Speed Shaft Diameter	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	5½

Size No. SF2714

Motor R.P.M.	STANDARD RATIOS										
	1.5	1.84	2.24	2.72	3.0	3.36	4.19	5.0	5.75	6.2	7.0
1150	....	....	....	....	....	3925	3010	2495	2005	1785	1495
870	....	....	4820	3970	3580	3150	2410	1910	1595	1420	1190
720	....	4920	4140	3420	3080	2700	2065	1638	1367	1210	1013
580	4820	4140	3485	2870	2580	2265	1730	1365	1140	1010	843
High Speed Shaft Diameter	6½	6½	6½	6½	6½	6½	6½	6½	6½	6½	5⅞

Size No. SF3015

Motor R.P.M.	STANDARD RATIOS										
	1.83	2.24	2.75	3.0	3.36	4.17	5.0	5.67	6.27	7.0	....
1150	....	....	....	....	....	3920	3110	2620	2275	1945	....
870	....	....	5080	4630	4080	3145	2480	2090	1815	1545	....
720	6380	5370	4380	3990	3510	2700	2130	1790	1550	1320	....
580	5380	4525	3680	3355	2945	2260	1780	1495	1295	1100	....
High Speed Shaft Diameter	7	7	7	7	7	7	7	7	7	6½	....

Size No. SF3318

Motor R.P.M.	STANDARD RATIOS										
	1.84	2.26	2.75	3.0	3.34	4.15	5.0	5.6	6.17	7.0	....
1150	....	....	....	....	....	5240	4070	3530	3040	2580	....
870	....	....	....	6130	5410	4280	3275	2865	2500	2060	....
720	....	7000	5650	5200	4570	3580	2755	2400	2125	1785	....
580	7075	5820	4830	4325	3840	3010	2395	2065	1755	1475	....
High Speed Shaft Diameter	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¼	....

Size No. SF3824

Motor R.P.M.	STANDARD RATIOS										
	2.25	2.75	3.0	3.37	4.14	5.03	5.61	6.17	7.0	....	....
1150	....	....	....	....	....	6550	5660	4960	4130	....	....
870	....	....	....	8600	7000	5320	4560	3970	3300	....	....
720	....	9380	8500	7450	5930	4480	3880	3380	2870	....	....
580	9275	7820	7030	6230	4935	3820	3210	2950	2435	....	....
High Speed Shaft Diameter	8½	8½	8½	8½	8½	8½	8½	8½	7¾	....	....

Size No. SF4427

Motor R.P.M.	STANDARD RATIOS										
	2.25	2.75	3.0	3.37	4.14	5.0	5.6	6.2	7.0	....	....
1150	....	....	....	....	....	....	8220	6990	5960	....	....
870	....	....	....	....	9870	7630	6630	5670	4770	....	....
720	....	....	....	10750	8520	6530	5690	4820	4080	....	....
580	....	11050	10050	8920	7080	5520	4770	4070	3460	....	....
400	10100	8380	7630	6820	5220	4110	3440	2980	2540	....	....
High Speed Shaft Diameter	9¼	9¼	9¼	9¼	9¼	9¼	9¼	9¼	9¼	....	....

Size No. SF5230

Motor R.P.M.	STANDARD RATIOS										
	2.25	2.75	3.0	3.37	4.14	5.0	5.6	6.2	7.0	....	....
870	....	....	....	....	....	11470	9730	8480	7170	....	....
720	....	....	....	....	12570	9650	8175	7140	6120	....	....
580	....	....	....	12900	10520	8150	6950	6010	5060	....	....
400	15250	12250	11240	10050	7750	5920	5100	4560	3800	....	....
200	8650	7000	6300	5620	4320	3260	2750	2440	2020	....	....
High Speed Shaft Diameter	11	11	11	10	10	10	10	10	10	....	....

Ratios listed are standard but intermediate ratios are available.

Ratings for intermediate ratios and speeds may be found by direct interpolation.

All units may be operated at speeds lower than the minimum shown. The selection of a reducer for a lower speed may be accomplished by multiplying the desired horsepower by the lowest RPM shown and dividing by the desired RPM. The result will be the equivalent horsepower at lowest RPM shown which can be found in the above tables.

HORSEPOWER

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HORSEPOWER RATING TABLES (cont'd.)

TYPE SF—SINGLE REDUCTION UNITS

Size No. SF6033

Motor R.P.M.	STANDARD RATIOS								
	2.25	2.75	3.0	3.37	4.14	5.0	5.6	6.2	7.0
870	.....	.....	.....	.....	.....	.....	.....	11830	10080
720	.....	.....	.....	.....	.....	13880	11900	10250	8580
580	.....	.....	.....	.....	14650	11590	9830	8550	7150
400	21400	17600	16200	14050	10850	8580	7320	6300	5370
200	12000	10000	9200	7920	6100	4730	3980	3430	2860
High Speed Shaft Diameter	12¼	12¼	12¼	11	11	10	10	10	10

Ratios listed are standard but intermediate ratios are available.

Ratings for intermediate ratios and speeds may be found by direct interpolation.

All units may be operated at speeds lower than the minimum shown. The selection of a reducer for a lower speed may be accomplished by multiplying the desired horsepower by the lowest RPM shown and dividing by the desired RPM. The result will be the equivalent horsepower at lowest RPM shown which can be found in the above tables.

OVERHUNG LOAD CAPACITIES

SLOW SPEED SHAFTS

The table below shows Moderate Overhung Load Capacities for Standard Type SF Reducers. It is assumed that the external load is acting one shaft diameter in from the end of the shaft. Special Heavy Overhung Load Capacity Reducers are available with twice the capacity shown below.

The table below does not apply for double extended slow speed shafts. Present your application to us for recommendations.

The actual load imposed on a shaft for a given condition of service may be determined by the formula on the bottom of page 6. For unusual conditions or in case of doubt present your problems to us for recommendations.

Overhung load capacities are figured at the highest speed shown in horsepower rating tables for each size reducer.

Size Number	RATIOS						
	1.5	2.24	3.36	4.16	5.0	6.27	7.0
SF 127	4,800	5,200	6,600	7,400	8,000	8,950	9,800
SF 148	5,100	5,900	7,800	8,500	9,300	10,300	10,900
SF 169	7,100	9,100	9,900	11,000	12,100	13,400	14,000
SF 1810	6,800	8,800	10,000	11,500	12,600	14,000	14,700
SF 2011	11,500	13,250	15,900	16,250	17,650	19,650	20,600
SF 2212	10,750	13,200	15,800	17,700	19,600	21,750	23,000
SF 2413	13,300	16,300	19,000	21,400	23,600	25,300	27,400
SF 2714	12,000	14,900	18,400	21,000	23,000	26,000	27,700
SF 3015	.....	43,000	47,500	48,200	51,500	56,200	58,700
SF 3318	.....	24,400	29,700	30,900	34,800	38,300	40,300
SF 3824	.....	31,000	35,400	40,300	42,800	46,800	50,300
SF 4427	.....	39,000	45,400	49,700	54,800	57,700	61,000
SF 5230	.....	37,400	51,700	54,800	58,700	67,000	71,800
SF 6033	.....	39,000	53,100	57,300	62,200	71,700	74,000

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OUTPUT TORQUE RATING TABLES

1000 INCH POUNDS

TYPE SF—SINGLE REDUCTION UNITS

The Output Torque Ratings listed in the tables below are calculated using a Service Factor of 1. See pages 6-8 for information on selecting reducers. See page 16 for Thermal Horsepower Ratings.

Size No. SF127

Motor R.P.M.	STANDARD RATIOS											
	1.22	1.5	1.85	2.24	2.73	3.0	3.36	4.14	5.0	5.55	6.27	7.0
1750	....	....	89	91.1	94.4	90.6	89.5	85.8	80.6	77.5	73.8	69.9
1150	84.9	92	96.8	99	99	98.4	96.6	92	86.2	83	78.4	74.5
870	82	97	105	104	104	103	101	96	90	86.4	81.4	77.5
720	85.3	100	106	108	107	106	104	99	92.5	88.4	83.5	79
580	89	104.2	109	111	111	109	107	102	95	91	85.9	80.6

Size No. SF148

Motor R.P.M.	STANDARD RATIOS											
	1.33	1.5	1.84	2.23	2.73	3.0	3.36	4.16	5.0	5.67	6.26	7.0
1750	...	...	...	134	134	133	132	125	119	114	109	103
1150	129	135	142	146	146	144	143	136	128	122	117	110
870	137	143	151	154	153	152	149	143	144	127	121	115
720	142	148	155	159	159	157	154	146	137	130	125	118
580	148	154	162	164	164	162	159	151	141	134	127	121

Size No. SF169

Motor R.P.M.	STANDARD RATIOS											
	1.29	1.5	1.84	2.25	2.73	3.0	3.36	4.16	5.0	5.67	6.27	7.0
1750	...	...	...	...	186	185	182	175	165	158	149	144
1150	...	188	198	203	202	202	198	190	179	172	163	154
870	188	199	209	214	214	212	208	198	187	178	170	161
720	195	206	217	222	221	219	216	205	192	183	175	165
580	204	214	225	230	229	226	223	211	198	188	180	170

Size No. SF1810

Motor R.P.M.	STANDARD RATIOS											
	1.5	1.84	2.22	2.72	3.0	3.36	4.14	5.0	5.67	6.2	7.0	....
1750	...	...	...	...	...	246	236	224	214	206	195	...
1150	...	266	273	274	273	268	256	242	231	222	210	...
870	268	282	290	290	289	283	269	254	242	237	219	...
720	279	292	300	300	298	292	278	261	248	239	224	...
580	291	306	312	312	308	303	288	269	260	245	232	...

Size No. SF2011

Motor R.P.M.	STANDARD RATIOS											
	1.5	1.86	2.24	2.72	3.0	3.36	4.16	5.0	5.67	6.27	7.0	....
1750	...	...	...	...	...	...	306	290	278	268	255	...
1150	...	...	356	356	354	350	334	316	300	289	274	...
870	349	368	377	378	374	369	352	331	316	273	286	...
720	363	382	392	391	388	383	363	341	325	282	294	...
580	378	400	405	406	403	393	376	353	335	289	304	...

Size No. SF2212

Motor R.P.M.	STANDARD RATIOS											
	1.5	1.84	2.24	2.73	3.0	3.4	4.18	5.0	5.67	6.33	7.0	....
1150	...	...	...	455	452	445	426	405	387	368	352	...
870	...	470	481	483	479	470	459	425	405	386	367	...
720	464	489	500	501	495	488	464	437	417	397	378	...
580	485	509	521	523	515	516	481	453	431	410	390	...

Ratings shown are in thousands of in. lbs. at low speed shaft.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
For input speeds lower than speeds shown, use torque rating for minimum speed shown in table.

TORQUE

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OUTPUT TORQUE RATING TABLES (cont'd.)

1000 INCH POUNDS

TYPE SF—SINGLE REDUCTION UNITS

Size No. SF2413

Motor R.P.M.	STANDARD RATIOS										
	1.5	1.85	2.24	2.73	3.0	3.36	4.19	5.0	5.67	6.27	7.0
1150	...	...	...	565	560	554	530	501	479	461	438
870	...	580	596	600	595	586	559	529	504	484	459
720	574	605	621	620	616	606	578	545	520	499	472
580	602	582	648	646	642	631	600	575	539	514	489

Size No. SF2714

Motor R.P.M.	STANDARD RATIOS										
	1.5	1.84	2.24	2.72	3.0	3.36	4.19	5.0	5.75	6.2	7.0
1150	...	...	...	...	...	724	691	681	632	606	574
870	...	...	781	784	777	765	731	691	665	637	604
720	...	792	811	815	809	794	766	715	688	656	620
580	786	826	846	846	840	825	786	741	712	680	640

Size No. SF3015

Motor R.P.M.	STANDARD RATIOS										
	1.83	2.24	2.75	3.0	3.36	4.17	5.0	5.67	6.27	7.0	....
1150	....	....	....	....	....	895	850	814	782	745	....
870	....	....	1011	1005	991	950	898	860	825	785	....
720	1020	1052	1052	1048	1030	985	931	890	850	810	....
580	1070	1100	1100	1092	1075	1022	970	920	884	836	....

Size No. SF3318

Motor R.P.M.	STANDARD RATIOS										
	1.84	2.26	2.75	3.0	3.34	4.15	5.0	5.6	6.17	7.0	....
1150	....	....	....	....	....	1190	1115	1080	1028	990	....
870	....	....	....	1330	1310	1285	1185	1160	1119	1045	....
720	....	1385	1360	1365	1335	1300	1205	1175	1150	1090	....
580	1413	1430	1440	1410	1392	1355	1300	1255	1175	1120	....

Size No. SF3824

Motor R.P.M.	STANDARD RATIOS										
	2.25	2.75	3.0	3.37	4.14	5.03	5.61	6.17	7.0	....	....
1150	....	....	....	....	....	1805	1770	1680	1585	....	....
870	....	....	....	2100	2100	1940	1855	1775	1675	....	....
720	....	2255	2230	2200	2150	1970	1910	1830	1760	....	....
580	2265	2335	2290	2280	2220	2085	1960	1945	1850	....	....

Size No. SF4427

Motor R.P.M.	STANDARD RATIOS										
	2.25	2.75	3.0	3.37	4.14	5.0	5.6	6.2	7.0	....	....
1150	....	....	....	....	....	....	2520	2370	2290	....	....
870	....	....	....	....	2960	2760	2690	2550	2420	....	....
720	....	....	....	3170	3090	2860	2790	2620	2500	....	....
580	....	3300	3275	3270	3180	3000	2900	2740	2630	....	....
400	3580	3630	3600	3600	3400	3230	3030	2910	2800	....	....

Size No. SF5230

Motor R.P.M.	STANDARD RATIOS										
	2.25	2.75	3.0	3.37	4.14	5.0	5.6	6.2	7.0	....	....
870	....	....	....	....	....	4150	3950	3805	3640	....	....
720	....	....	....	....	4550	4220	4000	3875	3750	....	....
580	....	....	....	4730	4750	4420	4240	4050	3850	....	....
400	5400	5300	5300	5300	5060	4650	4500	4450	4180	....	....
200	6130	6060	5950	5950	5630	5130	4850	4760	4440	....	....

Ratings shown are in thousands of in. lbs. at low speed shaft.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
For input speeds lower than speeds shown, use torque rating for minimum speed shown in table.

TORQUE

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OUTPUT TORQUE RATING TABLES (cont'd.)

1000 INCH POUNDS

TYPE SF—SINGLE REDUCTION UNITS

Size No. SF6033

Motor R.P.M.	STANDARD RATIOS								
	2.25	2.75	3.0	3.37	4.14	5.0	5.6	6.2	7.0
870	....	....	....	....	....	....	....	5320	5100
720	....	....	....	....	....	6050	5840	5550	5250
580	....	....	....	....	6580	6300	5970	5750	5440
400	7570	7600	7650	7450	7080	6750	6450	6150	5900
200	8500	8650	7800	8400	7950	7450	7020	6600	6300

Ratings shown are in thousands of in. lbs. at low speed shaft.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
For input speeds lower than speeds shown, use torque rating for minimum speed shown in table.

THERMAL HORSEPOWER RATINGS

TYPE SF

The Thermal Horsepower Rating listed here for a particular unit at a given ratio and speed must be equal to or higher than the ACTUAL HORSEPOWER DELIVERED.

The Table below must be used to check the selection of a gear unit after the selection has been made on the basis of mechanical rating shown on pages 11-13.

Size Gear Unit	High Speed Shaft RPM	RATIOS											
		1.22	1.5	1.84	2.24	2.72	3.0	3.36	4.16	5.0	5.67	6.27	7.0
SF127	1750	...	...	172	176	179	183	190	207	219	227	232	236
	1150	224	227	229	235	239	241	248	254	273	....	....	....
	870	246	249	254	260	262	265	272	287	....	....	....	....
	720	258	260	264	271	274	276	287	....	....	....	....	....
	580	266	268	272	278	282	284	291	....	....	....	....	....
SF148	1750	...	...	...	203	208	212	219	243	257	268	275	279
	1150	264	269	275	283	288	291	298	319	330	338	....	....
	870	298	301	307	315	319	320	329	347	358	....	....	....
	720	311	314	321	330	335	337	346	364	....	....	....	....
	580	322	326	333	342	347	349	358	....	....	....	....	....
SF169	1750	...	...	...	....	243	248	260	288	307	319	328	334
	1150	...	332	338	345	348	351	362	386	403	413	418	....
	870	365	369	375	379	384	388	397	423	437	....	....	....
	720	383	387	394	405	412	415	423	447	....	....	....	....
	580	386	402	408	417	425	428	437	462	....	....	....	....
SF1810	1750	...	...	...	....	....	....	288	319	342	356	367	373
	1150	...	...	380	391	395	397	413	442	460	470	482	488
	870	...	423	432	442	444	450	465	490	507	518	....	....
	720	...	453	460	468	473	478	492	518	532	....	....	....
	580	...	467	473	482	492	497	505	533	....	....	....	....
SF2011	1750	...	...	...	....	....	....	....	351	372	392	403	412
	1150	...	...	...	442	448	453	469	502	523	537	548	555
	870	...	485	494	505	508	516	532	561	580	594	603	....
	720	...	515	522	536	542	547	562	593	607	622	....	....
	580	...	533	542	554	565	570	582	613	634	....	....	....
SF2212	1150	...	...	...	....	485	492	512	550	573	587	604	608
	870	...	...	553	564	575	580	602	643	768	687	703	710
	720	...	570	575	592	598	603	620	653	670	690	705	....
	580	...	593	603	617	628	635	647	682	705	....	....	....
SF2413	1150	...	...	...	...	524	528	553	598	618	637	656	660
	870	...	...	592	608	619	625	648	687	705	722	738	745
	720	...	625	630	648	655	662	679	715	735	753	765	....
	580	...	655	665	682	693	700	713	753	779	785	....	....
SF2714	1150	...	...	...	...	...	...	602	652	677	703	717	727
	870	...	...	...	675	682	693	712	763	788	805	825	830
	720	...	...	715	735	740	750	770	812	838	860	873	880
	580	...	748	755	778	785	793	815	858	880	903	918	...
SF3015	1150	...	...	...	...	...	...	...	683	718	748	770	780
	870	...	...	...	...	743	755	783	845	878	898	925	933
	720	...	...	803	818	835	845	870	933	970	995	1020	1030
	580	...	...	840	865	873	883	905	955	980	1005	1030	1035
SF3318	1150	...	...	...	...	...	...	...	753	797	828	862	873
	870	...	...	...	...	...	853	885	960	995	1025	1050	1060
	720	...	...	...	935	955	963	998	1060	1085	1115	1138	1147
	580	...	...	995	1025	1030	1045	1075	1130	1170	1195	1215	1225
SF3824	1150	...	...	...	...	...	...	...	...	810	850	880	900
	870	...	...	...	...	...	...	1000	1095	1155	1195	1235	1250
	720	...	...	...	....	1120	1130	1170	1260	1315	1350	1390	1405
	580	...	...	...	1250	1275	1285	1335	1415	1460	1485	1520	1540
SF4427	Pump and Cooler Required												
SF5230	Pump and Cooler Required												
SF6033	Pump and Cooler Required												

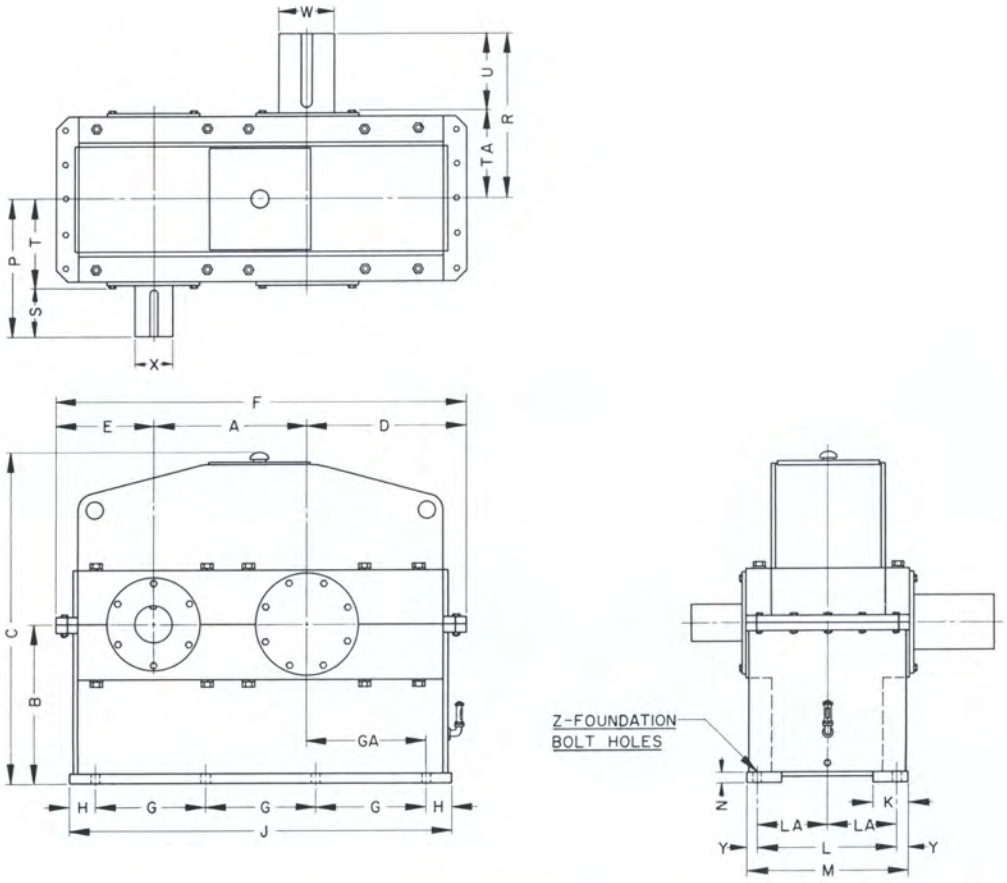
NOTE: Where Thermal Horsepower Ratings are not shown at the right hand side of the above tables, the Thermal Horsepower Rating is higher than the Mechanical Rating of the Reducer shown on pages 11-13 for that ratio and speed.

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GENERAL DIMENSIONS

TYPE SF

SINGLE REDUCTION GEAR REDUCERS



Size No.	A	B	C	D	E	F	G	GA	H	J	K	L	LA	M	N	P	R	S	U	W*	X*	Y	T	TA	Z Bolt Holes	Approximate Oil Capacity, Gallons Min. Ratio	Approximate Oil Capacity, Gallons Max. Ratio	Weight
SF127....	12	15	32	14	9	35	2 @ 12½	9	3½	32	3½	14	7	16	1¼	15	16¾	5¾	7½	5⅛	For High Speed Shaft Dia. See Table of H.P. Ratings Pages 11—13	1	9¼	9¼	6–13/16	7	12	1,600
SF148....	14	17	36	15	10	39	2 @ 14½	10	3½	36	4	15½	7¾	18	1¼	16¼	18¼	6½	8½	6		1¼	9¾	9¾	6–1 1/16	9	16	2,300
SF169....	16	19	39½	17½	11	44½	2 @ 17¼	12½	3½	41½	4	16½	8¼	19	1¼	16¾	19¾	6½	9½	6¾		1¼	10¼	10¼	6–1 1/16	12	20	3,100
SF1810...	18	21	43	19	12	49	2 @ 18¾	13¼	4	45½	5	18	9	21	1¾	18½	22	7	10½	7¼		1½	11½	11½	6–1 5/16	13	24	3,600
SF2011...	20	23	47	20½	13	53½	2 @ 21	14¾	4	50	5	20	10	23	1¾	20½	24½	7½	11½	7¾		1½	13	13	6–1 5/16	16	32	5,100
SF2212...	22	25	51	23½	15	60½	2 @ 23¼	16½	4½	55½	6	22½	11¼	26	1¾	21½	26	8	12½	8⅛		1¾	13½	13½	6–1 9/16	20	41	6,500
SF2413...	24	27	54½	26	16	66	2 @ 26	19	4½	61	6	23½	11¾	27	1¾	22½	26½	8½	12½	9		1¾	14	14	6–1 9/16	25	48	7,600
SF2714...	27	28	58	28	17	72	3 @ 19¼	20⅞	4⅝	67	6	24½	12¼	28	1¾	24½	29	9	13½	9⅝		1¾	15½	15½	8–1 9/16	27	57	10,000
SF3015...	30	30	63	31	17	78	3 @ 21¼	23⅞	4⅝	73	6	25½	12¾	29	1¾	25¾	32	9¾	14½	10½		1¾	16	17½	8–1 9/16	30	60	14,000
SF3318...	33	33	69	34	18	85	3 @ 23½	26¾	5	80½	7	30	15	34	2¾	29	35½	11	16	11½		2	18	19½	8–1 9/16	33	80	20,000
SF3824...	38	38	78	38½	18	94½	3 @ 26¾	31⅜	4⅞	90	7	36	18	40	2¾	33	39½	12	17	12¼		2	21	22½	8–1 9/16	47	115	26,000
SF4427...	44	44	89	44	19	107	3 @ 22½	35½	6	102	7	42	21	46	2¾	38	44½	13	18	13		2	25	26½	10–1 13/16	73	160	34,000
SF5230...	52	50	102	51	20	123	3 @ 27½	42½	6	118	7	46	23	50	2¾	41	47½	14	19	14½		2	27	28½	10–1 13/16	94	170	42,000
SF6033...	60	57	116	58	20	138	3 @ 30¼	49½	6	133	7	49	24½	53	2¾	42½	50	14	20	16½		2	28½	30	10–1 13/16	115	240	50,000

All dimensions are in inches.
* For Shaft Keyways, see Table of Standard Keyways Page 35.

Above dimensions are not to be used for Installation.
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HORSEPOWER RATING TABLES

TYPE DF—DOUBLE REDUCTION UNITS

The Horsepower Ratings listed in the tables below are mechanical ratings calculated by the A.G.M.A. formula using a Service Factor of 1. See pages 6-8 for information on selecting reducers. See page 22 for Thermal Horsepower Ratings.

Size No. DF170

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.1	13.0	14.6	16.4	18.4	21.0	23.6	26.7	30.4	32.1	36.4	41.4	47.5	50.7	53.6	57.4	64.6	69.4	...	...
1750	229	195	167	143	133	112	102	89	79	67	58	55	48	41	34	31	29	27	24	22	...	...
1150	162	134	115	101	89	80	71	62	55	47	41	38	32	27	23	21	19	18	16	14	...	...
870	123	106	90	79	70	60	54	47	41	37	31	29	25	21	18	16	15	14	12	11	...	...
720	106	90	77	66	59	52	45	40	35	30	25	24	20	17	14	13	12	11	10	9	...	...
580	89	74	62	54	48	42	37	32	28	24	20	19	16	14	12	11	10	9	8	7	...	...
High Speed Shaft Diameter	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2	2	1¾	1¾	1½	1½	1½	1¼	1¼	1¼	1¼	1¼	1⅛	...	...

Size No. DF195

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.3	12.5	14.2	16.5	18.3	20.5	22.9	25.8	29.1	33.1	36.1	40.0	46.7	49.8	52.3	59.0	66.7	70.5	...	...
1750	348	286	237	214	193	167	149	128	113	99	87	75	67	60	50	45	42	37	32	29	...	...
1150	231	194	164	146	127	114	102	89	79	69	61	52	46	40	34	31	29	25	22	20	...	...
870	176	149	124	113	100	88	78	68	60	53	46	39	34	30	25	23	22	19	16	15	...	...
720	152	128	106	98	87	74	66	58	50	44	38	32	29	26	21	19	18	16	13	12	...	...
580	125	104	88	80	70	60	54	47	41	37	32	27	24	20	17	16	15	13	11	10	...	...
High Speed Shaft Diameter	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¼	2¼	2	2	1⅞	1⅞	1⅞	1¾	1½	1½	1½	1¼	1¼	...	...

Size No. DF220

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.1	12.3	13.7	15.2	17.9	20.0	22.6	26.0	30.5	34.2	38.6	43.8	46.6	51.2	53.9	58.1	61.4	65.4	70.0	74.1
1750	460	385	322	292	264	238	203	183	158	133	111	97	84	74	69	61	55	51	47	44	41	39
1150	314	262	226	204	182	163	138	124	109	92	77	67	59	50	47	41	38	35	33	30	27	25
870	250	208	174	156	140	126	108	96	84	71	59	52	45	37	35	31	29	27	24	23	21	19
720	212	173	147	133	119	109	91	82	71	60	50	44	38	32	29	26	24	22	20	19	17	16
580	173	141	121	111	99	88	74	66	59	50	40	35	31	26	23	21	20	18	17	15	14	12
High Speed Shaft Diameter	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	3⅛	2¾	2¼	2¼	2	2	1⅞	1⅞	1¾	1¾	1¾	1¾	1½	1½	1½

Size No. DF250

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.3	13.1	14.6	16.0	17.7	20.5	22.7	25.5	28.5	32.1	36.4	40.8	46.2	48.3	53.7	56.4	60.2	63.3	67.8	72.0
1750	635	527	452	400	355	325	296	251	223	193	173	152	123	112	97	90	78	72	67	63	59	55
1150	445	364	317	272	244	222	197	175	155	134	117	104	92	77	67	64	55	51	48	45	41	37
870	342	288	242	208	186	172	155	134	121	104	92	80	68	59	51	49	42	39	37	35	31	28
720	296	246	206	179	161	148	134	113	101	87	78	66	57	48	41	39	35	33	31	29	26	24
580	242	202	169	147	132	121	110	95	83	72	64	54	45	40	35	32	28	27	25	23	21	19
High Speed Shaft Diameter	3¼	3¼	3¼	3¼	3¼	3¼	3¼	2¾	2¾	2¾	2¾	2¾	2¼	2	2	2	2	2	1⅞	1⅞	1¾	1¾

Size No. DF290

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.7	13.0	14.3	16.7	19.1	22.2	24.8	27.7	29.9	33.2	37.0	41.3	46.5	51.5	55.1	58.0	62.4	65.7	68.7	72.6
1750	904	768	617	572	528	457	394	337	295	254	236	208	183	162	139	121	112	105	95	91	84	80
1150	639	527	431	395	365	318	275	226	200	178	161	143	126	110	96	84	78	72	66	61	58	53
870	495	424	338	306	284	244	215	178	153	135	124	110	98	86	76	65	58	55	51	48	44	41
720	427	355	286	260	244	208	180	149	131	116	100	91	81	70	60	54	50	47	42	40	37	34
580	351	289	234	213	199	171	148	124	108	96	85	76	67	58	50	44	40	38	34	32	30	28
High Speed Shaft Diameter	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3⅞	3½	3½	3⅛	3⅛	2⅞	2⅞	2½	2½	2¼	2¼	2	2	2	2	2

Size No. DF340

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.4	12.9	14.7	16.0	18.3	21.2	23.3	25.5	28.7	32.1	36.0	40.1	45.0	47.5	50.7	54.9	58.7	65.7	70.1	74.0
1750	1388	1186	970	870	786	722	630	540	485	443	382	337	290	255	225	211	196	172	159	141	129	121
1150	976	812	690	605	552	515	448	367	324	297	261	235	199	173	153	143	133	121	112	97	87	82
870	750	655	537	480	424	391	348	294	262	233	206	181	153	136	120	111	102	92	84	72	67	62
720	660	545	455	403	368	336	290	246	219	199	169	148	130	114	98	92	86	77	71	62	57	51
580	547	462	380	337	304	276	242	199	181	163	142	126	107	91	80	75	69	63	59	51	46	41
High Speed Shaft Diameter	4½	4½	4½	4½	4½	4½	4½	4¼	4¼	3½	3½	3¼	3¼	3	3	2⅞	2⅞	2⅞	2¾	2½	2½	2½

Ratios listed are standard but intermediate ratios are available.

Ratings for intermediate ratios and speeds may be found by direct interpolation.

All units may be operated at speeds lower than the minimum shown. The selection of a reducer for a lower speed may be accomplished by multiplying the desired horsepower by 580 and dividing by the desired speed. The result will be the equivalent horsepower at 580 RPM which can be found in the above tables.

HORSEPOWER

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HORSEPOWER RATING TABLES (cont'd.)

TYPE DF—DOUBLE REDUCTION UNITS

Size No. DF390

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.5	13.5	14.6	16.6	18.9	20.7	22.7	25.0	27.6	31.5	34.7	38.4	42.8	45.5	50.3	54.8	60.8	64.5	68.6	71.6
1750	2081	1735	1489	1290	1198	1060	930	841	755	676	600	513	455	400	355	330	294	264	234	215	202	194
1150	1450	1212	1031	881	819	728	654	590	522	465	418	352	323	283	245	228	204	185	162	148	138	130
870	1150	973	814	696	644	570	510	459	415	361	324	284	249	224	191	178	158	142	122	113	105	100
720	973	838	685	596	545	488	427	382	344	310	279	232	206	185	161	148	133	119	101	95	89	83
580	819	680	570	487	450	397	347	316	282	253	224	192	169	152	132	119	107	97	86	78	72	68
High Speed Shaft Diameter	5	5	5	5	5	5	5	4¼	4¼	4¼	4	4	3½	3½	3¼	3¼	3	3	2⅞	2⅞	2¾	2¾

Size No. DF440

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.7	13.0	14.5	16.2	18.2	20.6	22.4	25.4	30.4	33.4	36.7	40.6	45.2	48.6	53.3	56.5	60.0	65.2	68.9	72.0
1750	....	2340	1914	1750	1585	1420	1270	1115	1020	890	730	656	588	517	453	411	368	340	317	290	270	255
1150	1940	1620	1330	1210	1088	980	883	786	717	620	505	453	400	356	312	280	252	235	221	198	187	176
870	1500	1280	1053	955	860	775	690	606	555	479	388	351	311	273	243	219	197	182	168	151	142	134
720	1291	1080	880	805	725	650	584	513	467	411	330	294	262	228	202	183	165	154	140	127	119	112
580	1081	897	727	658	595	537	481	427	391	339	273	243	217	188	167	154	135	125	115	104	97	92
High Speed Shaft Diameter	5½	5½	5½	5½	5½	5½	5½	5	5	4½	4½	4	4	3⅞	3⅞	3½	3½	3½	3¼	3	3	3

Size No. DF500

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.3	13.0	14.4	16.7	18.8	21.0	23.5	28.3	31.3	35.0	38.0	42.3	47.2	53.0	57.3	60.0	65.0	69.9	74.0	....
1750	....	....	2815	2465	2285	2030	1771	1572	1380	1138	1020	897	794	698	610	535	488	463	422	393	368	....
1150	2775	2300	1978	1730	1575	1370	1218	1080	950	765	688	614	556	492	434	372	334	315	288	265	245	....
870	2178	1840	1541	1355	1237	1075	955	835	740	607	543	477	427	376	331	292	265	245	222	205	191	....
720	1865	1565	1315	1150	1040	900	800	700	623	515	463	405	366	315	275	244	223	203	186	170	159	....
580	1555	1280	1060	930	850	750	656	587	524	432	385	330	299	260	231	200	181	169	155	141	129	....
High Speed Shaft Diameter	5⅞	5⅞	5⅞	5⅞	5⅞	5⅞	5⅞	5⅞	5⅞	5½	5½	5	5	4½	4¼	4¼	4	4	4	3¾	3¾	....

Size No. DF560

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.3	13.0	14.5	16.5	18.2	21.0	23.5	25.3	28.3	31.3	35.0	38.0	42.3	47.2	53.0	57.3	60.0	65.0	69.9	74.0
1750	....	....	....	3210	2880	2535	2320	1910	1700	1575	1400	1265	1122	1010	902	798	693	617	576	526	490	463
1150	3410	2950	2490	2230	2020	1765	1580	1350	1195	1105	985	868	781	705	620	536	465	419	396	363	335	312
870	2840	2380	1970	1770	1583	1380	1240	1040	912	845	750	680	605	544	477	420	362	333	303	278	256	238
720	2410	1995	1650	1440	1320	1165	1035	880	780	715	630	568	505	460	403	348	306	280	261	237	220	201
580	1995	1645	1370	1220	1100	966	874	760	655	604	540	484	419	372	329	290	252	228	212	194	178	165
High Speed Shaft Diameter	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	5½	5½	5	4½	4½	4¼	4¼	4¼	4¼	4¼

Size No. DF640

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.3	13.0	14.5	16.5	18.2	21.0	23.5	25.3	28.3	31.3	35.0	38.0	42.3	47.2	53.0	57.3	60.0	65.0	69.9	74.0
1750	....	....	....	....	....	3460	3100	2620	2330	2120	1850	1645	1475	1350	1195	1070	934	850	805	740	663	619
1150	....	4000	3330	2925	2700	2375	2160	1840	1575	1440	1275	1135	1025	950	850	753	640	572	551	508	455	418
870	3800	3050	2650	2350	2090	1865	1635	1415	1250	1115	982	878	789	741	642	572	500	450	421	385	358	320
720	2915	2525	2210	1940	1785	1555	1390	1170	1035	950	845	754	685	645	575	500	417	381	353	330	304	270
580	2645	2140	1870	1625	1475	1275	1150	990	880	790	705	645	575	526	455	391	345	298	288	255	245	223
High Speed Shaft Diameter	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	5¾	5½	5½	5	5	5	5	5

Size No. DF720

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.3	13.0	14.5	16.5	18.2	21.0	23.5	25.7	28.3	31.3	35.0	38.0	42.3	47.2	53.0	57.3	60.0	65.0	69.9	74.0
1750	....	....	....	....	....	....	4220	3630	3215	2875	2580	2250	1970	1780	1600	1410	1230	1115	1075	988	900	865
1150	....	5950	4550	3980	3725	3325	2990	2555	2175	1950	1740	1565	1385	1240	1080	945	833	781	745	675	627	574
870	5100	4395	3625	3270	2865	2565	2290	1920	1720	1540	1365	1185	1085	967	875	770	681	621	576	530	491	453
720	4230	3610	3060	2740	2435	2125	1910	1630	1460	1320	1200	1050	934	822	750	660	570	510	495	450	410	384
580	3610	3050	2560	2240	2000	1760	1600	1370	1230	1090	972	856	770	710	616	526	460	421	408	370	338	311
High Speed Shaft Diameter	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6½	5⅞	5⅞	5½	5½	5½	5½	5½

Ratios listed are standard but intermediate ratios are available.

Ratings for intermediate ratios and speeds may be found by direct interpolation.

All units may be operated at speeds lower than the minimum shown. The selection of a reducer for a lower speed may be accomplished by multiplying the desired horsepower by 580 and dividing by the desired speed. The result will be the equivalent horsepower at 580 RPM which can be found in the above tables.

HORSEPOWER

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OUTPUT TORQUE RATING TABLES

1000 INCH POUNDS

TYPE DF—DOUBLE REDUCTION UNITS

The Output Torque Ratings listed in the tables below are calculated using a Service Factor of 1. See pages 6-8 for information on selecting reducers. See page 22 for Thermal Horsepower Ratings.

Size No. DF170

Motor R.P.M.	STANDARD RATIOS																					
	7.59	9.3	11.1	13.0	14.6	16.4	18.4	21.0	23.6	26.7	30.4	32.1	36.4	41.4	47.5	50.7	53.6	57.4	64.6	69.4	....	....
1750	62.5	65.4	66.7	67.0	68.4	67.5	67.5	67.4	67.1	64.5	64.0	63.5	62.9	61.0	58.1	56.6	56.0	55.8	55.9	55.0	..	....
1150	67.4	68.3	69.9	72.0	71.1	71.9	71.5	71.4	71.1	68.7	68.4	66.8	63.8	61.2	59.9	58.3	55.8	56.5	56.6	53.2	....	....
870	67.5	71.5	72.0	74.5	74.0	71.3	72.0	71.5	70.0	71.5	68.3	67.3	66.0	63.0	61.9	58.8	58.3	58.1	56.1	55.2	....	....
720	70.5	73.3	74.8	75.0	75.5	74.6	73.0	73.0	72.3	70.0	66.5	67.5	63.8	61.5	58.2	57.6	56.4	55.1	56.5	54.6	....	....
580	73.4	74.8	75.0	76.2	76.1	75.0	74.0	73.0	71.8	69.5	66.0	66.4	63.3	63.0	61.9	60.6	58.2	56.0	56.1	52.7	....	....

Size No. DF195

Motor R.P.M.	STANDARD RATIOS																					
	7.59	9.3	11.3	12.5	14.2	16.5	18.3	20.5	22.9	25.8	29.1	33.1	36.1	40.0	46.7	49.8	52.3	59.0	66.7	70.5	....	....
1750	95	96	96.2	96.3	98.6	99.4	98.1	94.4	93.0	92.0	91.1	89.4	87.1	86.0	84.0	80.6	79.1	78.6	76.9	73.6	....	....
1150	96	98.9	101.5	99.4	98.9	103.1	102.2	99.9	99.0	97.5	97.3	94.3	91.0	88.0	87.0	84.5	83.1	81.0	80.4	77.2	....	....
870	96.9	100	101	102	104	105	103	101	100	99.1	97.0	93.6	88.8	87.0	84.6	82.9	83.1	81.1	77.2	76.5	....	....
720	101	104	105	107	108	107	106	104	100	99.4	96.6	92.6	92.0	91.0	85.8	82.9	82.4	82.5	76.0	74.0	....	....
580	103	105	108	109	108	108	107	105	102	104	101	97.1	94.2	87.0	86.4	86.5	85.1	83.4	79.6	76.5	....	....

Size No. DF220

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.1	12.3	13.7	15.2	17.9	20.0	22.6	26.0	30.5	34.2	38.6	43.8	46.6	51.2	53.9	58.1	61.4	65.4	70.0	74.1
1750	126	129	129	129	130	130	131	132	128	124	122	120	117	117	116	113	107	107	104	103	103	104
1150	131	134	137	138	137	136	136	136	135	131	129	125	125	120	120	115	112	112	111	107	103	101
870	137	140	140	139	139	139	140	139	138	134	130	129	123	118	118	115	113	114	107	109	107	102
720	141	141	143	143	143	145	143	144	141	136	133	132	127	123	118	117	113	112	107	109	104	104
580	143	142	146	148	147	145	144	144	145	141	133	130	130	124	117	117	117	114	113	107	107	97

Size No. DF250

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.3	13.1	14.6	16.0	17.7	20.5	22.7	25.5	28.5	32.1	36.4	40.8	46.2	48.3	53.7	56.4	60.2	63.3	67.8	72.0
1750	174	177	184	187	187	187	189	185	182	177	178	176	168	164	161	156	151	146	145	144	143	142
1150	185	185	196	195	195	195	194	194	193	188	183	183	180	172	170	169	162	158	159	156	153	146
870	188	194	198	197	197	199	199	199	199	192	190	186	179	174	171	168	164	162	161	161	152	146
720	197	200	204	206	206	207	208	203	201	194	194	186	182	172	166	165	165	163	161	160	153	151
580	200	204	208	209	210	210	212	212	205	200	198	188	178	177	171	166	163	163	163	158	155	149

Size No. DF290

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.7	13.0	14.3	16.7	19.1	22.2	24.8	27.7	29.9	33.2	37.0	41.3	46.5	51.5	55.1	58.0	62.4	65.7	68.7	72.6
1750	247	257	260	268	272	275	272	270	264	255	254	249	244	241	233	225	223	220	214	216	208	209
1150	265	269	276	282	286	291	288	275	272	269	264	260	255	249	244	237	236	229	226	222	219	211
870	272	286	287	288	294	295	297	286	274	270	269	264	263	257	256	243	232	231	230	228	219	216
720	284	289	293	295	306	304	301	290	284	281	275	265	262	253	244	244	241	239	230	230	225	216
580	289	295	297	300	309	310	307	299	291	289	276	274	269	260	253	247	240	240	233	230	224	221

Size No. DF340

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.4	12.9	14.7	16.0	18.3	21.2	23.3	25.5	28.7	32.1	36.0	40.1	45.0	47.5	50.7	54.9	58.7	65.7	70.1	74.0
1750	380	397	398	405	416	415	414	410	408	406	395	390	376	368	365	361	358	340	337	333	326	322
1150	406	415	420	428	445	451	449	421	416	414	410	405	392	380	378	373	369	364	361	348	334	332
870	413	441	443	448	451	453	461	450	442	430	429	421	399	395	392	380	375	366	357	343	341	332
720	437	444	454	455	474	470	465	455	446	444	425	415	410	400	386	383	382	370	365	357	350	330
580	452	465	468	472	476	480	480	462	459	451	445	440	419	397	391	387	380	376	376	364	351	330

Ratings shown are in thousands of in. lbs. at low speed shaft.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
For input speeds lower than speeds shown, use torque rating for minimum speed shown in table.

TORQUE

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OUTPUT TORQUE RATING TABLES (Cont'd.)

1000 INCH POUNDS

TYPE DF—DOUBLE REDUCTION UNITS

Size No. DF390

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.5	13.5	14.6	16.6	18.9	20.7	22.7	25.0	27.6	31.5	34.7	38.4	42.8	45.5	50.3	54.8	60.8	64.5	68.6	71.6
1750	569	581	616	628	630	634	632	626	617	609	596	580	569	553	547	540	531	521	512	500	499	500
1150	602	617	650	651	655	660	676	670	650	637	632	625	614	595	574	568	560	555	540	522	520	510
870	633	655	677	681	681	685	696	689	682	654	649	649	626	622	592	587	575	563	538	529	522	519
720	645	682	688	705	696	708	708	692	685	679	674	640	625	620	604	590	585	571	538	536	535	520
580	675	687	712	715	715	716	712	711	695	687	671	656	638	634	614	589	585	575	568	548	544	530

Size . No. DF440

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.7	13.0	14.5	16.2	18.2	20.6	22.4	25.4	30.4	33.4	36.7	40.6	45.2	48.6	53.3	56.5	60.0	65.2	68.9	72.0
1750	....	782	806	815	820	833	835	830	825	814	799	790	776	756	740	720	706	691	685	680	670	660
1150	805	825	853	860	865	870	881	887	880	865	841	829	805	792	774	745	735	730	725	708	705	690
870	833	861	893	900	905	910	910	904	900	880	854	847	826	804	796	774	760	744	730	714	708	700
720	858	879	900	915	920	925	930	925	916	913	875	860	841	810	799	780	770	760	735	725	717	710
580	892	905	927	932	940	945	952	955	950	935	900	880	864	830	820	800	781	765	750	736	725	720

Size No. DF500

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.3	13.0	14.4	16.7	18.8	21.0	23.5	28.3	31.3	35.0	38.0	42.3	47.2	53.0	57.3	60.0	65.0	69.9	74.0	....
1750	....	....	1145	1155	1185	1222	1200	1190	1167	1160	1150	1130	1083	1060	1040	1020	1002	1000	995	990	980	....
1150	1152	1180	1222	1230	1243	1250	1257	1240	1222	1185	1180	1175	1158	1137	1120	1080	1048	1035	1022	1015	990	....
870	1195	1240	1262	1275	1290	1300	1300	1270	1260	1245	1230	1210	1178	1152	1130	1120	1097	1062	1045	1038	1022	....
720	1238	1272	1302	1310	1310	1315	1320	1285	1280	1275	1265	1240	1218	1165	1135	1130	1118	1065	1055	1040	1030	....
580	1280	1290	1310	1312	1330	1360	1340	1340	1337	1330	1309	1255	1235	1192	1183	1150	1125	1101	1093	1070	1035	....

Size No. DF560

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.3	13.0	14.5	16.5	18.2	21.0	23.5	25.3	28.3	31.3	35.0	38.0	42.3	47.2	53.0	57.3	60.0	65.0	69.9	74.0
1750	....	....	....	1500	1500	1505	1525	1445	1440	1437	1435	1425	1415	1400	1375	1355	1325	1290	1245	1235	1232	1230
1150	1418	1500	1540	1588	1603	1595	1575	1565	1540	1535	1530	1525	1500	1470	1435	1386	1350	1315	1305	1299	1283	1265
870	1560	1601	1610	1670	1665	1645	1635	1580	1560	1550	1545	1540	1535	1498	1460	1435	1390	1380	1320	1308	1295	1275
720	1600	1625	1630	1638	1675	1685	1650	1620	1600	1582	1560	1555	1550	1530	1490	1440	1420	1400	1370	1350	1345	1301
580	1645	1663	1685	1725	1730	1733	1728	1688	1670	1662	1660	1655	1592	1535	1510	1490	1450	1418	1380	1370	1350	1328

Size No. DF640

Motor R.P.M.	STANDARD RATIOS																				
	7.59	9.3	11.3	13.0	14.5	16.5	18.2	21.0	23.5	25.3	28.3	31.3	35.0	38.0	42.3	47.2	53.0	57.3	60.0	65.0	69.9	74.0
1750	....	....	....	....	....	2055	2035	1980	1970	1930	1882	1853	1860	1845	1820	1820	1780	1750	1740	1740	1670	1650
1150	....	2040	2062	2085	2145	2145	2155	2115	2030	2000	1975	1945	1970	1975	1970	1945	1860	1795	1810	1815	1740	1695
870	2085	2055	2170	2210	2190	2230	2155	2155	2125	2042	1942	1990	1995	2040	1970	1960	1920	1868	1835	1810	1810	1715
720	1935	2055	1808	1825	2580	2245	2215	2150	2130	2100	2090	2065	2100	2145	2130	2065	1935	1910	1855	1875	1860	1750
580	2180	2160	2295	2295	2325	2285	2275	2260	2245	2170	2165	2195	2190	2170	2090	2005	1985	1855	1875	1800	1860	1792

Size No. DF720

Motor R.P.M.	STANDARD RATIOS																					
	7.59	9.3	11.3	13.0	14.5	16.5	18.2	21.0	23.5	25.7	28.3	31.3	35.0	38.0	42.3	47.2	53.0	57.3	60	65	69.9	74.0
1750	....	....	....	....	....	....	2755	2745	2720	2660	2625	2535	2485	2435	2440	2400	2350	2335	2320	2320	2320	2320
1150	....	2490	2813	2835	2970	3005	2985	2940	2800	2745	2700	2680	2655	2580	2500	2470	2438	2455	2450	2400	2400	2325
870	2805	2960	2885	3080	3010	3060	3020	2920	2925	2870	2800	2690	2750	2660	2680	2630	2615	2580	2500	2500	2485	2425
720	2805	2940	3030	3120	3085	3070	3045	2990	3000	2965	2970	2880	2860	2735	2770	2725	2640	2560	2600	2550	2505	2490
580	2980	3080	3045	3170	3140	3150	3160	3125	3140	3045	3000	2910	2925	2930	2830	2700	2650	2620	2660	2610	2565	2500

Ratings shown are in thousands of in. lbs. at low speed shaft.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
For input speeds lower than speeds shown, use torque rating for minimum speed shown in table.

TORQUE

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THERMAL HORSEPOWER RATINGS TYPE DF

The Thermal Horsepower Rating listed here for a particular unit at a given ratio and speed must be equal to or higher than the ACTUAL HORSEPOWER DELIVERED.

The Table below must be used to check the selection of a gear unit after the selection has been made on the basis of mechanical rating shown on pages 18 and 19.

Size Gear Unit	High Speed Shaft RPM	RATIOS 7.6	9.3	11.4	13.9	17.1	20.9	25.6	31.4	38.4	47.1	57.7	70.6
DF170	1750	149	156	162	...	...	...	...	...	...	...	...	...
	1150	...	...	...	...	...	...	...	...	...	...	...	...
	870	...	...	...	...	...	...	...	...	...	...	...	...
	720	...	...	...	...	...	...	...	...	...	...	...	...
	580	...	...	...	...	...	...	...	...	...	...	...	...
DF195	1750	183	193	202	204	...	...	...	...	...	...	...	...
	1150	216	232	236	...	...	...	...	...	...	...	...	...
	870	247	...	...	...	...	...	...	...	...	...	...	...
	720	...	...	...	...	...	...	...	...	...	...	...	...
	580	...	...	...	...	...	...	...	...	...	...	...	...
DF220	1750	218	229	237	242	...	...	...	...	...	...	...	...
	1150	268	...	...	...	...	...	...	...	...	...	...	...
	870	...	...	...	...	...	...	...	...	...	...	...	...
	720	...	...	...	...	...	...	...	...	...	...	...	...
	580	...	...	...	...	...	...	...	...	...	...	...	...
DF250	1750	258	270	281	286	299	...	...	...	...	...	...	...
	1150	317	325	...	...	...	...	...	...	...	...	...	...
	870	...	...	...	...	...	...	...	...	...	...	...	...
	720	...	...	...	...	...	...	...	...	...	...	...	...
	580	...	...	...	...	...	...	...	...	...	...	...	...
DF290	1750	322	338	351	357	373	383	...	...	...	...	...	...
	1150	396	407	415	...	...	...	...	...	...	...	...	...
	870	432	...	...	...	...	...	...	...	...	...	...	...
	720	...	...	...	...	...	...	...	...	...	...	...	...
	580	...	...	...	...	...	...	...	...	...	...	...	...
DF340	1750	386	406	422	429	448	460	...	...	...	...	...	...
	1150	475	488	497	507	...	...	...	...	...	...	...	...
	870	517	530	...	...	...	...	...	...	...	...	...	...
	720	542	...	...	...	...	...	...	...	...	...	...	...
	580	563	...	...	...	...	...	...	...	...	...	...	...
DF390	1750	427	447	465	473	495	507	520	533	...	...	...	...
	1150	525	538	548	559	572	582	...	...	...	...	...	...
	870	572	585	593	603	...	...	...	...	...	...	...	...
	720	598	608	617	...	...	...	...	...	...	...	...	...
	580	622	633	...	...	...	...	...	...	...	...	...	...
DF440	1750	...	478	497	506	528	543	557	572	583	...	...	...
	1150	562	575	587	598	612	623	...	...	...	...	...	...
	870	612	626	635	644	653	...	...	...	...	...	...	...
	720	640	650	660	667	...	...	...	...	...	...	...	...
	580	665	675	682	...	...	...	...	...	...	...	...	...
DF500	1750	...	...	540	550	575	590	605	620	633	640	...	...
	1150	610	625	638	650	665	678	690	700	...	...	...	...
	870	665	680	690	700	710	720	730	...	...	...	...	...
	720	695	707	718	725	735	...	...	...	...	...	...	...
	580	723	735	740	750	...	...	...	...	...	...	...	...
DF560	1750	...	...	...	560	585	602	617	633	645	653	...	...
	1150	622	638	650	663	678	690	704	714	723	...	...	...
	870	678	693	704	715	725	735	745	...	...	...	...	...
	720	710	722	732	740	750	760	...	...	...	...	...	...
	580	737	750	755	765	773	...	...	...	...	...	...	...
DF640	1750	...	...	...	...	604	620	635	650	665	673	683	...
	1150	...	657	670	683	698	710	725	735	745	753	...	...
	870	698	713	725	735	745	755	765	777	...	...	...	...
	720	730	742	754	762	773	783	793	...	...	...	...	...
	580	758	772	778	787	795	803	...	...	...	...	...	...
DF720	1750	...	...	...	...	...	632	648	664	677	685	695	707
	1150	...	668	683	695	712	725	738	750	760	768	773	...
	870	717	728	738	748	760	770	782	793	797	...	...	...
	720	743	757	768	775	785	797	808	817	820	...	...	...
	580	775	787	792	800	810	818	823	835	...	...	...	...

NOTE: Where Thermal Horsepower Ratings are not shown at the right hand side of the above tables, the Thermal Horsepower Rating is higher than the Mechanical Rating of the Reducer shown on pages 10, 11 and 12 for that ratio and speed.

OVERHUNG LOAD CAPACITIES SLOW SPEED SHAFTS

The table below shows Moderate Overhung Load Capacities for Standard Type DF Reducers. It is assumed that the external load is acting one shaft diameter in from the end of the shaft. Special Heavy Overhung Load Capacity Reducers are available with twice the capacity shown below.

The table below does not apply for double extended slow speed shafts. Present your application to us for recommendations.

The actual load imposed on a shaft for a given condition of service may be determined by the formula on the bottom of page 6. For unusual conditions or in case of doubt present your problem to us for recommendations.

Overhung load capacities are figured at the highest speed shown in horsepower rating tables for each size reducer.

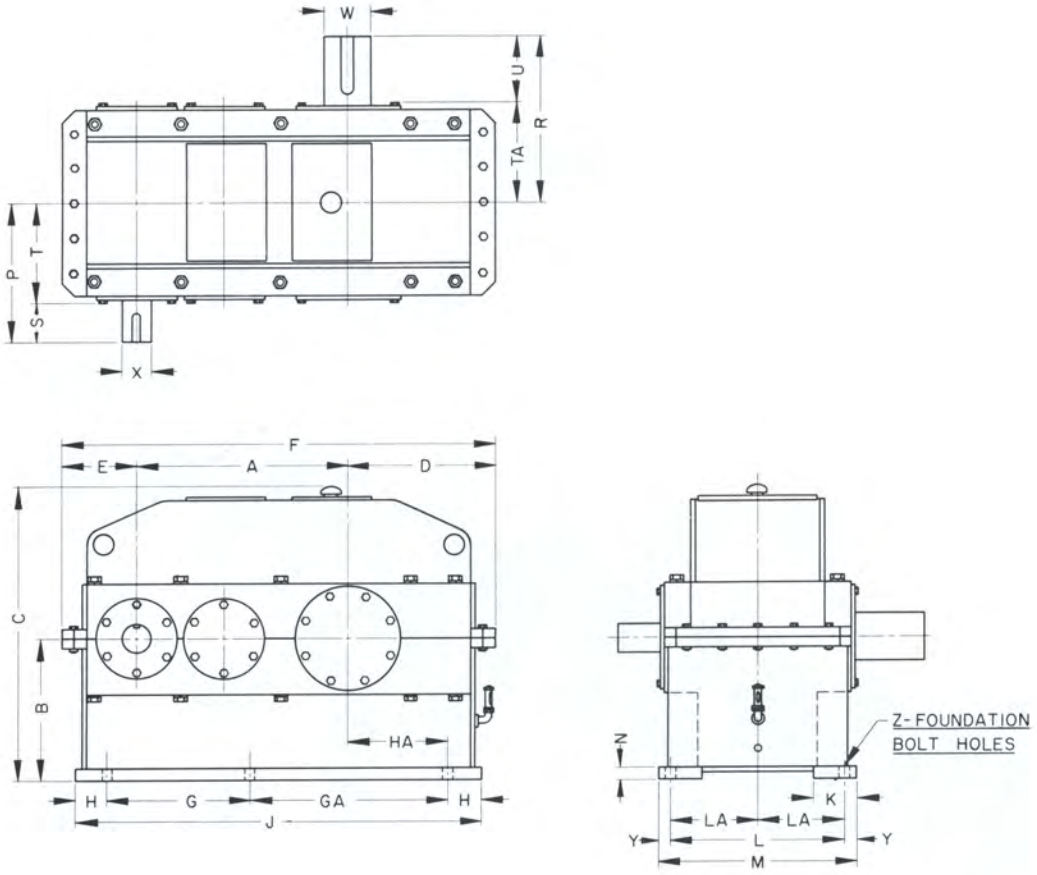
Size No.	RATIOS 7.6	11.4	17.1	25.6	38.4	57.7	70.1
DF170	4,900	5,500	6,550	7,500	8,700	10,000	10,900
DF195	7,750	8,950	10,100	12,000	14,000	15,700	16,800
DF220	10,400	11,900	13,600	15,400	18,200	20,600	21,300
DF250	14,300	16,300	18,600	21,400	24,200	28,000	30,000
DF290	19,600	22,600	25,300	29,000	33,800	37,800	40,000
DF340	22,000	25,000	28,700	32,900	38,300	43,300	46,300
DF390	25,600	29,400	33,200	38,500	44,800	51,000	54,000
DF440	29,000	29,600	33,300	38,700	45,200	51,400	55,000
DF500	65,000	65,500	73,500	83,500	97,000	100,000	100,000
DF560	44,000	48,500	49,500	56,800	67,300	75,500	81,500
DF640	57,000	59,000	60,000	69,000	8,000	91,000	98,000
DF720	69,000	69,000	73,000	82,500	96,000	109,000	117,000

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GENERAL DIMENSIONS

TYPE DF

DOUBLE REDUCTION GEAR REDUCERS



Size No.	A	B	C	D	E	F	G	GA	H	HA	J	K	L	LA	M	N	P	R	S	U	W*	X*	Y	T	TA	Z Bolt Holes	Approximate Oil Capacity, Gallons Min. Ratio	Approximate Oil Capacity, Gallons Max. Ratio	Weight
DF170.....	17	12½	28	13	7½	37½	11½	15½	3½	7¾	34	4	17	8½	19	1¼	14	16	4	6	4	For High Speed Shaft Dia. See Table of H.P. Ratings Pages 18 and 19	1	10	10	6–13/16	12	15	1,400
DF195.....	19½	14	31	14½	8	42	13	18	4	9	39	5	17½	8¾	20	1¼	14½	18	4	7½	4¾		1¼	10½	10½	6–1 1/16	16	19	1,800
DF220.....	22	15	33	15½	9	46½	15½	20	4	10	43½	5	18½	9¼	21	1¼	16	18½	5	7½	5⅛		1¼	11	11	6–1 1/16	19	24	2,400
DF250.....	25	17	37	17½	10	52½	17½	23	4½	11½	49½	5	21	10½	24	1¼	17½	21	5	8½	5¾		1½	12½	12½	6–1 1/16	26	34	3,200
DF290.....	29	20	42	20	11	60	20	28	4½	14	57	5	23	11½	26	1¾	19	23½	5½	10	6¾		1½	13½	13½	6–1 1/16	39	48	4,400
DF340.....	34	23	47½	23	12	69	23	32	5	16	65	7	28½	14¼	32	1¾	22½	27	6½	11	7¾		1¾	16	16	6–1 9/16	58	74	6,800
DF390.....	39	27	55	26½	13	78½	2 @ 22½	19½	5	19½	74½	7	30½	15¼	34	1¾	24½	30	7½	13	9		1¾	17	17	8–1 9/16	94	114	9,000
DF440.....	44	30	61	29	14	87	2 @ 25½	22	5	22	83	7	32½	16¼	36	1¾	26	32	8	14	9⅝		1¾	18	18	8–1 9/16	120	155	12,000
DF500.....	50	32	65½	32	15	97	3 @ 20¾	20¾	5	25	93	7	36½	18¼	40	2¾	29½	37½	8½	15	10½		1¾	21	22½	10–1 9/16	150	190	17,000
DF560.....	56	34	70	35	16	107	3 @ 23¼	23¼	5	28	103	7	38½	19¼	42	2¾	31	39½	9	16	11½		1¾	22	23½	10–1 9/16	168	230	24,000
DF640.....	64	38	78½	40	17	121	3 @ 26	26	6	31½	116	8	42	21	46	2¾	33½	42½	9½	17	12¼		2	24	25½	10–1 13/16	220	300	34,000
DF720.....	72	44	90	45	18	135	3 @ 29½	29½	6	36½	130	8	44	22	48	2¾	35	44½	10	18	13		2	25	26½	10–1 13/16	330	450	46,000

All dimensions are in inches.
* For Shaft Keyways, see Table of Standard Keyways Page 35.

Above dimensions are not to be used for Installation.
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HORSEPOWER RATING TABLES

TYPE TF—TRIPLE REDUCTION UNITS

The Horsepower Ratings listed in the tables below are Mechanical ratings calculated by the A.G.M.A. formula using a Service Factor of 1. See pages 6-8 for information on selecting reducers. See page 28 for Thermal Horsepower Ratings.

Size No. TF170

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	40.3	33.4	28.6	22.3	17.5	14.0	11.2	9.0	7.5
1150	27.2	22.4	18.5	14.7	11.9	9.6	7.6	6.0	5.1
870	20.9	17.0	14.5	11.5	9.0	7.3	5.7	4.6	3.8
720	17.6	14.0	12.0	9.4	7.5	5.9	4.8	3.8	3.1
580	14.0	11.5	9.8	7.5	6.1	4.9	3.9	3.1	2.6
High Speed Shaft Diameter	1½	1½	1½	1½	1½	1¼	1¼	1¼	1⅛

Size No. TF195

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	56.8	47.4	39.6	30.5	24.9	20.2	16.5	12.9	11.0
1150	38.7	32.0	26.5	20.4	16.7	13.1	10.8	8.8	7.2
870	29.4	24.8	21.0	16.1	12.8	10.4	8.5	6.9	5.5
720	24.8	20.0	16.7	13.0	10.7	8.5	7.0	5.6	4.6
580	20.0	16.8	14.4	11.0	8.5	7.0	5.8	4.5	3.8
High Speed Shaft Diameter	1¾	1¾	1¾	1¾	1¾	1½	1½	1½	1¼

Size No. TF220

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	75.8	63.7	53.0	41.7	34.0	28.0	22.7	18.1	14.9
1150	51.6	43.0	35.5	28.0	23.0	19.0	15.0	11.1	10.0
870	39.9	33.4	27.0	21.5	17.5	14.5	11.4	9.3	7.7
720	33.4	27.2	23.0	18.7	15.1	12.0	9.5	7.7	6.4
580	27.2	22.7	18.5	15.0	11.7	9.8	8.0	6.3	5.1
High Speed Shaft Diameter	2	2	2	2	2	1¾	1¾	1¾	1½

Size No. TF250

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	109	92.2	75.3	60.1	48.8	39.5	32.4	27.0	21.6
1150	74.1	62.0	50.0	41.0	32.9	27.0	21.9	17.6	14.4
870	56.3	48.2	38.8	31.3	25.1	20.0	16.6	13.4	11.0
720	48.2	39.1	32.5	26.3	20.9	16.9	13.7	11.1	9.1
580	39.1	32.3	26.7	21.0	17.0	14.0	11.3	9.0	7.4
High Speed Shaft Diameter	2¼	2¼	2¼	2¼	2¼	1⅞	1⅞	1¾	1½

Size No. TF290

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	161	132	109	90	73	58	47	38	32
1150	109	90	75	58	49	39	32	25	21
870	82	71	57	45	37	30	24	20	16
720	71	59	48	37	31	25	20	16	13
580	56	47	39	30	25	20	16	13	11
High Speed Shaft Diameter	2¾	2¾	2¾	2¾	2½	2¼	2¼	2	2

Size No. TF340

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	242	205	170	137	113	91	76	62	49
1150	169	138	115	94	76	61	49	40	32
870	128	109	89	73	59	46	38	31	24
720	109	88	74	61	49	39	32	26	20
580	88	74	60	50	40	31	26	21	16
High Speed Shaft Diameter	3	3	3	3	2¾	2½	2¼	2	2

Ratios listed are standard but intermediate ratios are available.

Ratings for intermediate ratios and speeds may be found by direct interpolation.

All units may be operated at speeds lower than the minimum shown. The selection of a reducer for a lower speed may be accomplished by multiplying the desired horsepower by 580 and dividing by the desired RPM. The result will be the equivalent horsepower at 580 RPM which can be found in the above tables.

HORSEPOWER

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE TF—TRIPLE REDUCTION UNITS

Size No. TF390

Motor R.P.M.	STANDARD RATIOS 57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	375	318	260	210	169	137	112	91	74
1150	255	213	178	142	113	90	74	60	50
870	198	166	136	109	88	70	57	47	38
720	167	135	114	91	73	58	48	39	32
580	135	112	93	74	59	48	39	31	26
High Speed Shaft Diameter	3	3	3	3	3	2¾	2¾	2½	2¼

Size No. TF440

Motor R.P.M.	STANDARD RATIOS 57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	503	430	350	283	235	187	151	122	102
1150	349	285	237	191	153	124	102	83	69
870	265	225	183	147	116	92	74	60	51
720	226	181	153	123	100	81	65	52	44
580	181	151	125	100	80	64	53	44	35
High Speed Shaft Diameter	3½	3½	3½	3½	3½	3	3	2¾	2½

Size No. TF500

Motor R.P.M.	STANDARD RATIOS 57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	700	590	493	411	337	275	220	181	146
1150	493	413	347	287	236	180	144	118	101
870	384	320	265	214	175	136	110	94	76
720	320	259	216	178	148	115	94	76	65
580	260	211	177	145	121	95	76	63	52
High Speed Shaft Diameter	3⅞	3⅞	3⅞	3½	3½	3¼	3¼	2¾	2¾

Size No. TF560

Motor R.P.M.	STANDARD RATIOS 57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	892	746	631	515	423	341	274	222	182
1150	678	523	432	345	281	228	180	149	126
870	494	405	328	268	218	170	137	110	95
720	412	340	279	229	187	142	119	94	80
580	327	278	223	188	150	119	96	76	64
High Speed Shaft Diameter	4¼	4¼	4¼	4	3⅞	3½	3½	3	3

Size No. TF640

Motor R.P.M.	STANDARD RATIOS 57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	1227	1005	843	713	595	486	379	303	253
1150	845	720	602	500	408	321	254	207	176
870	668	555	455	371	305	243	193	161	134
720	565	456	382	315	260	205	167	134	111
580	455	382	323	267	215	168	133	107	90
High Speed Shaft Diameter	4⅝	4⅝	4⅝	4⅝	4¼	4¼	4	3½	3½

Size No. TF720

Motor R.P.M.	STANDARD RATIOS 57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	1690	1370	1153	955	807	672	544	433	352
1150	1150	983	822	691	567	447	350	288	244
870	915	769	646	536	434	336	270	224	184
720	768	645	537	442	357	282	230	184	156
580	645	538	433	349	275	210	178	148	124
High Speed Shaft Diameter	5½	5½	5½	5	5	4⅝	4⅝	4	3⅞

Ratios listed are standard but intermediate ratios are available.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
All units may be operated at speeds lower than the minimum shown. The selection of a reducer for a lower speed may be accomplished by multiplying the desired horsepower by 580 and dividing by the desired RPM. The results will be the equivalent horsepower at 580 RPM which can be found in the above tables.

HORSEPOWER

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OUTPUT TORQUE RATING TABLES

1000 INCH POUNDS

TYPE TF—TRIPLE REDUCTION UNITS

The Output Torque Ratings listed in the tables below are calculated using a Service Factor of 1. See pages 6-8 for information on selecting reducers. See page 28 for Thermal Horsepower Ratings.

Size No. TF170

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	83.6	85.0	89.0	85.0	81.5	80.0	78.5	77.5	78.8
1150	86.1	86.6	87.6	85.2	84.5	83.5	81.0	78.5	81.5
870	87.5	86.9	90.8	88.2	84.5	84.0	80.5	79.5	80.2
720	89.0	86.5	90.9	87.0	84.8	82.0	81.8	79.4	79.1
580	87.9	88.1	92.0	86.0	85.9	84.5	82.4	80.4	82.2

Size No. TF195

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	118	120	123	116	116	115	116	113	116
1150	123	124	126	118	119	114	115	115	116
850	123	127	131	123	120	120	120	119	116
720	125	124	126	120	121	118	119	117	117
580	125	129	136	127	120	121	123	117	120

Size No. TF220

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	158	163	165	159	159	160	159	156	157
1150	164	167	168	162	163	165	160	145	160
870	167	171	169	181	164	167	161	161	163
720	169	168	174	190	171	168	162	161	163
580	171	174	174	173	165	169	169	164	162

Size No. TF250

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	226	234	234	229	228	226	227	232	227
1150	235	240	237	238	234	234	233	230	230
870	235	250	243	240	235	230	234	231	232
720	244	242	246	244	237	235	233	232	232
580	245	248	251	242	239	242	239	233	234

Size No. TF290

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	334	335	339	341	341	332	329	326	336
1150	345	348	356	337	347	339	341	327	335
870	343	363	357	345	347	345	338	346	338
720	359	365	363	343	351	347	340	334	332
580	352	360	366	344	351	345	337	337	349

Size No. TF340

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	502	521	530	520	527	520	532	532	515
1150	525	535	545	545	540	530	522	523	511
870	535	558	557	560	554	530	535	535	506
720	550	544	560	565	555	542	545	544	510
580	552	568	564	575	562	535	549	545	506

Ratings shown are in thousands of in. lbs. at low speed shaft.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
For input speeds lower than speeds shown, use torque rating for minimum speed shown in table.

TORQUE

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OUTPUT TORQUE RATING TABLES (Cont'd.)

1000 INCH POUNDS

TYPE TF—TRIPLE REDUCTION UNITS

Size No. TF390

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	779	809	810	800	790	784	785	782	776
1150	806	825	844	824	803	784	789	785	800
870	826	850	853	836	826	805	804	811	802
720	842	835	862	844	827	806	816	816	817
580	845	859	874	850	830	829	825	802	825

Size No. TF440

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	1045	1091	1090	1078	1095	1030	1058	1050	1070
1150	1102	1101	1123	1108	1086	1080	1088	1085	1102
870	1109	1150	1146	1126	1090	1060	1042	1037	1078
720	1140	1120	1159	1140	1135	1126	1109	1085	1122
580	1136	1159	1175	1150	1125	1102	1120	1140	1110

Size No. TF500

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	1452	1500	1530	1565	1571	1570	1540	1555	1530
1150	1555	1605	1640	1664	1675	1565	1535	1540	1615
870	1605	1635	1630	1640	1645	1565	1550	1620	1605
720	1615	1600	1635	1650	1680	1600	1600	1590	1660
580	1630	1620	1665	1668	1705	1640	1610	1630	1650

Size No. TF560

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	1855	1895	1965	1960	1970	1950	1920	1910	1910
1150	2165	2040	2060	2000	1990	1985	1920	1935	2010
870	2065	2070	2055	2060	2045	1955	1930	1900	2005
720	2085	2100	2110	2120	2120	1975	2025	1960	2040
580	2050	2130	2095	2160	2110	2055	2030	1970	2030

Size No. TF640

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	2545	2560	2625	2715	2780	2785	2660	2600	2660
1150	2670	2790	2855	2900	2900	2790	2700	2705	2810
870	2790	2840	2850	2840	2860	2800	2720	2780	2830
720	2855	2820	2890	2920	2950	2845	2840	2800	2840
580	2855	2930	3035	3065	3020	2990	2810	2780	2850

Size No. TF720

Motor R.P.M.	STANDARD RATIOS								
	57.7	70.6	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	3510	3495	3590	3640	3760	3840	3810	3720	3690
1150	3640	3800	3900	4000	4040	3900	3735	3775	3900
870	3830	3930	4050	4110	4065	3860	3800	3880	3880
720	3880	3985	4070	4100	4050	3920	3920	3840	3980
580	4050	4130	4070	4020	3870	3620	3760	3840	3930

Ratings shown are in thousands of in. lbs. at low speed shaft.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
For input speeds lower than speeds shown, use torque rating for minimum speed shown in table.

TORQUE

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THERMAL HORSEPOWER RATINGS

TYPE TF

The Thermal Horsepower Rating listed here for a particular unit at a given ratio and speed must be equal to or higher than the ACTUAL HORSEPOWER DELIVERED.

The Table below must be used to check the selection of a gear unit after the selection has been made on the basis of mechanical rating shown on pages 24 and 25.

Size Gear Unit	High Speed Shaft RPM	RATIOS					
		57.7	70.6	86.5	105.9	129.7	158.9
TF500	1750	650	...	...	...	...	...
	1150	...	...	...	...	...	...
TF560	1750	662	673	...	...	...	...
	1150	...	...	...	...	...	...
TF640	1750	682	693	700	705	...	...
	1150	760	...	...	...	...	...
	870	...	...	...	...	...	...
TF720	1750	695	707	713	720	725	...
	1150	773	780	785	...	...	...
	870	810	...	...	...	...	...
	720	...	...	...	...	...	...

NOTE: Where Thermal Horsepower Ratings are not shown, the Thermal Horsepower Rating is higher than the Mechanical Rating of the Reducer shown on pages 10, 11 and 12 for that ratio and speed.

OVERHUNG LOAD CAPACITIES

SLOW SPEED SHAFTS

The table below shows Moderate Overhung Load Capacities for Standard Type TF Reducers. It is assumed that the external load is acting one shaft diameter in from the end of the shaft . . . Special Heavy Overhung Load Capacity Reducers are available with twice the capacity shown below.

The table below does not apply for double extended slow speed shafts. Present your application to us for recommendations.

The actual load imposed on a shaft for a given condition of service may be determined by the formula on the bottom of page 6. For unusual conditions or in case of doubt present your problem to us for recommendations.

Overhung load capacities are figured at the highest speed shown in horsepower rating tables for each size reducer.

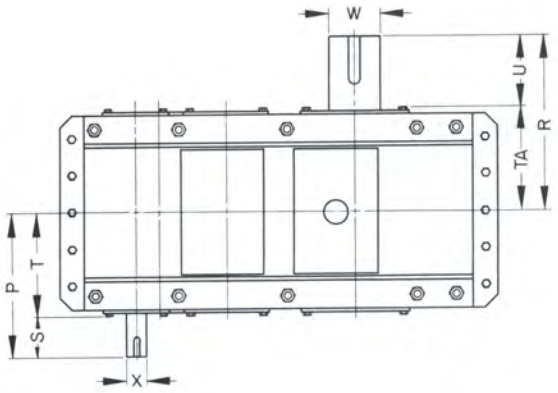
Size No.	RATIOS				
	57.7	86.5	129.7	194.6	291.9
TF170	9,600	11,100	12,650	13,000	13,000
TF195	15,200	17,400	19,500	19,500	19,500
TF220	19,700	23,000	24,000	24,000	24,000
TF250	27,500	30,000	30,000	30,000	30,000
TF290	37,300	42,500	44,000	44,000	44,000
TF340	42,700	48,300	54,700	60,000	60,000
TF390	49,700	56,000	64,500	73,500	82,800
TF440	49,500	55,300	64,500	74,200	84,500
TF500	100,000	100,000	100,000	100,000	100,000
TF560	72,300	82,500	94,800	108,500	124,500
TF640	107,000	122,500	140,000	159,500	172,000
TF720	116,000	133,000	152,000	165,500	205,000

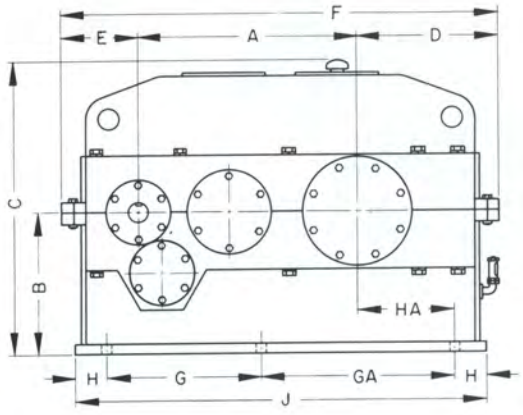
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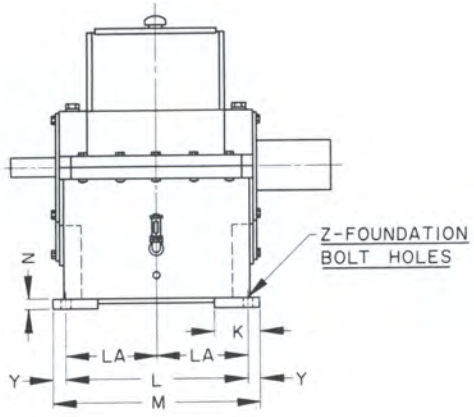
GENERAL DIMENSIONS

TYPE TF

TRIPLE REDUCTION GEAR REDUCERS







Size No.	A	B	C	D	E	F	G	GA	H	HA	J	K	L	LA	M	N	P	R	S	U	W*	X*	Y	T	TA	Z Bolt Holes	Approximate Oil Capacity, Gallons Min. Ratio	Approximate Oil Capacity, Gallons Max. Ratio	Weight
TF170.....	17	12½	27	12	7½	36½	12½	13½	3½	6¾	33	4	17	8½	19	1¼	14	16	4	6	4	For High Speed Shaft Dia. See Table of H.P. Ratings Pages 24 and 25	1	10	10	6–13/16	12	14	1,450
TF195.....	19½	14	30	13½	8	41	14	16	4	8	38	5	17½	8¾	20	1¼	14½	18	4	7½	4¾		1¼	10½	10½	6–1 1/16	15	17	1,900
TF220.....	22	15	33½	15	9	46	16	19	4	9½	43	5	18½	9¼	21	1¼	16	18½	5	7½	5⅛		1¼	11	11	6–1 1/16	19	22	2,500
TF250.....	25	17	36	16½	10	51½	18½	21	4½	10½	48½	5	21	10½	24	1¼	17½	21	5	8½	5¾		1½	12½	12½	6–1 1/16	23	27	3,300
TF290.....	29	20	40½	18	11	58	22	24	4½	12	55	5	23	11½	26	1¾	19	23½	5½	10	6¾		1½	13½	13½	6–1 1/16	33	39	4,600
TF340.....	34	22	45½	22	12	68	24	30	5	15	64	7	28½	14¼	32	1¾	22½	27	6½	11	7¾		1¾	16	16	6–1 3/16	46	55	7,000
TF390.....	39	25	51½	25	13	77	2 @ 22½	18	5	18	73	7	30½	15¼	34	1¾	24½	30	7½	13	9		1¾	17	17	8–1 3/16	60	75	9,400
TF440.....	44	27	56	27½	14	85½	2 @ 25½	20½	5	20½	81½	7	32½	16¼	36	1¾	26	32	8	14	9⅝		1¾	18	18	8–1 3/16	98	110	12,600
TF500.....	50	30	61½	30	15	95	3 @ 20¼	20¼	5	23	91	7	36½	18¼	40	2¾	29½	37½	8½	15	10½		1¾	21	22½	10–1 3/16	130	145	18,000
TF560.....	56	32	66	32½	16	104½	3 @ 22½	23	5	25½	100½	7	38½	19¼	42	2¾	31	39½	9	16	11½		1¾	22	23½	10–1 3/16	140	165	25,000
TF640.....	64	35	73	37	17	118	3 @ 25	26	6	28½	113	8	42	21	46	2¾	33½	42½	9½	17	13		2	24	25½	10–1 1/16	170	205	36,000
TF720.....	72	41	84	42	18	132	3 @ 28¾	28¾	6	33½	127	8	44	22	48	2¾	35	44½	10	18	14½		2	25	26½	10–1 1/16	275	330	48,000

All dimensions are in inches.
* For Shaft Keyways, see Table of Standard Keyways Page 35.

Above dimensions are not to be used for Installation.
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HORSEPOWER RATING TABLES

TYPE QF—QUADRUPLE REDUCTION UNITS

The Horsepower Ratings listed in the tables below are mechanical ratings calculated by the A.G.M.A. formula using a Service Factor of 1. See pages 6-8 for information on selecting reducers.

Size No. QF170

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	10.3	8.6	7.0	5.5	4.5	3.6	3.0	2.4	2.0	1.6	1.3
1150	6.9	5.6	4.7	3.8	3.0	2.4	2.0	1.6	1.3	1.0	.9
870	5.3	4.3	3.5	2.9	2.3	1.9	1.5	1.2	1.0	.8	.7
720	4.3	3.6	3.0	2.3	1.9	1.5	1.2	1.0	.8	.7	.6
580	3.6	2.7	2.2	1.8	1.5	1.2	1.0	.8	.7	.6	.4
High Speed Shaft Diameter	1½	1½	1¼	1¼	1⅛	1⅛	1⅛	15/16	15/16	15/16	15/16

Size No. QF195

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	14.6	12.2	10.0	8.1	6.7	5.3	4.3	3.5	2.9	2.3	1.8
1150	9.6	8.1	6.8	5.5	4.4	3.5	2.9	2.3	1.8	1.5	1.2
870	7.6	6.1	5.0	4.1	3.4	2.7	2.2	1.8	1.4	1.1	.9
720	6.1	5.2	4.3	3.4	2.8	2.3	1.8	1.5	1.2	.9	.8
580	5.2	4.1	3.4	2.7	2.3	1.8	1.4	1.2	1.0	.8	.6
High Speed Shaft Diameter	1¾	1¾	1¾	1¾	1½	1¼	1¼	1⅛	1⅛	1⅛	1⅛

Size No. QF220

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	19.9	16.9	13.4	11.2	9.0	7.1	5.8	4.7	3.9	3.1	2.5
1150	13.1	11.0	9.1	7.1	5.8	4.7	3.8	3.2	2.6	2.1	1.7
870	10.1	8.4	6.8	5.5	4.4	3.6	2.9	2.4	2.0	1.6	1.3
720	8.4	6.9	5.6	4.5	3.8	3.0	2.4	2.0	1.6	1.3	1.1
580	7.0	5.6	4.6	3.6	3.0	2.4	1.9	1.6	1.3	1.1	.8
High Speed Shaft Diameter	2	1¾	1¾	1¾	1½	1½	1½	1¼	1¼	1¼	1¼

Size No. QF250

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	28.6	23.4	19.5	16.0	12.9	10.5	8.4	6.9	5.4	4.4	3.6
1150	19.2	15.6	13.0	10.3	8.5	6.9	5.6	4.5	3.7	2.9	2.4
870	14.7	12.2	10.0	8.0	6.5	5.3	4.3	3.5	2.8	2.3	1.8
720	12.2	10.1	8.1	6.6	5.3	4.4	3.5	2.9	2.3	1.8	1.5
580	10.1	8.1	6.8	5.6	4.4	3.5	2.8	2.4	2.0	1.5	1.2
High Speed Shaft Diameter	2¼	2¼	2	2	1¾	1¾	1¾	1½	1½	1½	1½

Size No. QF290

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	42.3	34.3	28.2	23.3	18.7	14.8	12.2	10.0	8.1	6.5	5.1
1150	27.8	23.1	19.3	15.1	12.5	10.0	8.1	6.5	5.3	4.3	3.5
870	21.4	17.1	14.6	11.7	9.5	7.5	6.3	5.1	4.1	3.3	2.7
720	17.8	14.8	12.0	9.7	7.8	6.3	5.1	4.3	3.4	2.7	2.2
580	14.7	12.0	9.8	7.8	6.3	5.1	4.1	3.5	2.7	2.2	1.8
High Speed Shaft Diameter	2½	2½	2¼	2¼	2	1¾	1¾	1¾	1¾	1¾	1¾

Size No. QF340

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	65.3	54.0	44.0	35.2	29.0	23.1	19.7	16.0	12.5	9.9	8.1
1150	43.1	35.3	30.6	25.0	19.6	15.8	12.8	10.6	8.4	6.7	5.4
870	33.4	27.6	22.2	18.5	14.7	12.1	9.8	8.1	6.3	5.2	4.2
720	27.6	23.2	18.9	15.4	12.2	10.1	8.1	6.7	5.3	4.2	3.5
580	23.2	18.9	15.5	12.1	9.8	8.1	6.4	5.6	4.3	3.5	2.8
High Speed Shaft Diameter	2¾	2¾	2¾	2¾	2½	2¼	2¼	2	2	1¾	1¾

Ratios listed are standard but intermediate ratios are available.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
All units may be operated at speeds lower than the minimum shown. The selection of a reducer for a lower speed may be accomplished by multiplying the desired horsepower by 580 and dividing by the desired speed. The result will be the equivalent horsepower at 580 RPM which can be found in the above tables.

HORSEPOWER

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE QF—QUADRUPLE REDUCTION UNITS

Size No. QF390

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	101.7	82.4	67.7	55.2	45.3	36.3	29.2	24.1	19.4	15.5	12.8
1150	66.2	54.7	45.5	36.8	29.4	23.8	19.3	16.2	13.1	10.6	8.7
870	51.6	39.6	33.6	27.9	22.3	18.0	14.9	12.5	9.9	8.0	6.6
720	43.5	35.9	28.6	23.1	18.7	15.4	12.5	10.1	8.3	6.6	5.4
580	35.9	28.6	23.4	19.4	15.5	12.5	9.8	8.3	6.7	5.4	4.3
High Speed Shaft Diameter	3	3	3	3	2¾	2¾	2½	2¼	2¼	2¼	2

Size No. QF440

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	134	108	89.3	73.3	60.8	48.8	39.8	32.4	26.5	20.9	16.9
1150	89.3	75.3	61.3	50.3	40.0	31.8	26.2	21.6	17.6	14'2	11.6
870	69.7	57.4	46.8	37.2	30.4	24.4	20.5	16.8	13.4	10.9	9.0
720	57.4	47.9	39.0	31.0	24.4	20.8	16.8	13.9	11.2	9.0	7.3
580	47.9	37.9	31.2	24.5	19.7	16.7	13.4	11.4	8.9	7.3	5.9
High Speed Shaft Diameter	3½	3½	3½	3½	3	2¾	2¾	2¾	2¾	2½	2½

Size No. QF500

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	190	160	132	108	89.5	71.3	58.3	47.5	37.5	31.5	25.0
1150	130	107	89.9	72.7	58.8	46.2	38.4	30.9	24.8	20.8	17.7
870	100	82.8	66.7	55.3	44.4	35.7	29.9	24.4	19.7	15.8	13.0
720	82.7	69.3	56.0	45.2	37.0	30.2	24.5	20.7	16.9	13.1	10.9
580	69.3	56.0	45.3	36.4	30.5	24.5	19.2	14.8	13.1	11.0	8.9
High Speed Shaft Diameter	3⅞	3⅞	3¾	3¾	3½	3¼	3	2¾	2¾	2¾	2¾

Size No. QF560

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	244	203	168	134	109	89	73	59	48	38	33
1150	164	136	114	92	74	58	48	39	32	28	22
870	129	105	85	69	55	45	37	32	24	21	16
720	105	89	71	58	47	38	32	25	21	16	14
580	89	71	58	46	37	30	24	19	16	14	11
High Speed Shaft Diameter	4¼	4¼	4¼	4¼	3¾	3½	3½	3	3	3	3

Size No. QF640

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	338	283	235	189	150	116	94	77	67	52	44
1150	228	191	158	126	100	78	62	51	44	35	30
870	176	144	118	97	78	58	48	39	34	28	22
720	147	122	98	80	62	49	39	33	29	23	19
580	125	98	81	63	52	39	32	25	23	20	15
High Speed Shaft Diameter	4⅝	4⅝	4¼	4¼	4	3¾	3¾	3½	3½	3¼	3¼

Size No. QF720

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	468	392	323	264	216	174	143	116	93	75	61
1150	315	262	219	179	143	114	95	77	60	50	41
870	246	208	174	136	109	88	72	59	47	38	32
720	208	173	138	113	91	74	59	49	40	32	28
580	173	138	112	89	73	59	45	35	30	28	22
High Speed Shaft Diameter	5	5	4⅝	4⅝	4¼	4	4	3¾	3¾	3½	3½

Ratios listed are standard but intermediate ratios are available.

Ratings for intermediate ratios and speeds may be found by direct interpolation.

All units may be operated at speeds lower than the minimum shown. The selection of a reducer for a lower speed may be accomplished by multiplying the desired horsepower by 580 and dividing by the desired speed. The result will be the equivalent horsepower at 580 RPM which can be found in the above tables.

HORSEPOWER

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OUTPUT TORQUE RATING TABLES

1000 INCH POUNDS

TYPE QF—QUADRUPLE REDUCTION UNITS

The Output Torque Ratings listed in the tables below are calculated using a Service Factor of 1. See pages 6-8 for information on selecting reducers.

Size No. QF170

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	88.5	90.3	90.0	86.5	87.0	85.0	86.8	85.1	86.9	85.1	84.8
1150	90.3	89.5	92.0	91.0	88.0	86.2	88.0	86.4	86.0	81.0	89.1
870	91.5	90.6	91.6	92.0	89.5	90.4	87.4	85.6	87.4	85.5	91.6
720	89.8	91.9	94.0	88.0	89.2	86.1	84.3	86.1	84.4	90.5	95.0
580	93.5	85.6	85.5	85.6	87.4	85.5	87.3	85.5	91.6	96.3	78.6

Size No. QF195

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	126	128	129	128	130	125	125	124	126	122	117
1150	126	130	133	132	130	126	128	124	119	122	117
870	131	129	130	130	132	128	128	128	122	118	118
720	128	133	135	131	132	132	127	130	127	116	127
580	135	130	132	128	134	128	123	129	131	128	118

Size No. QF220

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	171	177	173	177	174	168	168	167	170	165	163
1150	171	176	168	172	171	169	168	173	172	170	169
870	175	177	176	174	171	171	169	171	175	171	171
720	175	176	175	173	179	172	169	173	169	168	174
580	182	178	179	171	175	171	166	172	171	177	157

Size No. QF250

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	246	246	251	252	249	248	244	245	235	234	235
1150	252	249	254	247	250	248	246	242	244	235	238
870	254	258	255	254	252	252	250	250	244	246	236
720	255	258	253	253	249	253	247	250	243	233	238
580	262	256	264	266	257	250	244	257	262	241	236

Size No. QF290

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	364	360	362	367	362	350	353	355	352	346	332
1150	364	369	377	362	367	359	357	351	350	348	346
870	369	361	378	371	369	357	367	364	358	353	354
720	372	378	376	372	366	362	358	371	359	349	348
580	381	380	380	371	367	364	358	374	353	353	354

Size No. QF340

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	561	566	566	554	560	545	570	568	543	526	528
1150	564	564	600	599	576	568	564	571	555	543	535
870	576	584	575	585	571	575	570	578	550	556	550
720	576	593	590	589	574	580	570	578	560	545	555
580	602	599	601	575	571	577	559	599	564	562	550

Ratings shown are in thousands of in. lbs. at low speed shaft.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
For input speeds lower than speeds shown, use torque rating for minimum speed shown in table.

TORQUE

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OUTPUT TORQUE RATING TABLES (Cont'd.)

1000 INCH POUNDS

TYPE QF—QUADRUPLE REDUCTION UNITS

Size No. QF390

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	874	865	870	870	875	858	844	856	844	825	834
1150	865	875	890	860	865	856	850	875	866	860	861
870	892	835	870	884	866	856	866	892	865	855	865
720	910	918	895	884	880	885	880	871	878	855	856
580	930	905	909	920	904	891	855	889	878	867	845

Size No. QF440

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	1150	1135	1150	1160	1170	1156	1150	1150	1150	1120	1100
1150	1165	1200	1200	1205	1175	1150	1152	1165	1162	1148	1150
870	1204	1210	1210	1179	1180	1160	1192	1200	1172	1165	1180
720	1200	1220	1220	1189	1145	1195	1180	1200	1182	1162	1155
580	1244	1200	1210	1165	1149	1190	1170	1220	1168	1170	1160

Size No. QF500

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	1630	1680	1690	1695	1725	1685	1685	1685	1630	1675	1625
1150	1700	1705	1760	1745	1730	1665	1690	1665	1640	1685	1755
870	1730	1750	1730	1752	1725	1695	1740	1740	1720	1690	1705
720	1728	1768	1750	1730	1735	1745	1720	1780	1785	1690	1730
580	1795	1765	1760	1730	1775	1750	1675	1580	1720	1765	1750

Size No. QF560

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	2100	2130	2160	2110	2105	2105	2115	2090	2090	2020	2150
1150	2140	2155	2230	2210	2180	2085	2115	2105	2120	2250	2180
870	2235	2220	2200	2290	2140	2140	2155	2285	2100	2245	2100
720	2195	2270	2220	2220	2210	2185	2250	2155	2220	2070	2220
580	2310	2250	2255	2190	2160	2140	2095	1980	2100	2165	2165

Size No. QF640

Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	2905	2970	3020	2980	2900	2745	2720	2725	2915	2765	2865
1150	2985	3050	3090	3020	2940	2800	2735	2750	2910	2830	2975
870	3040	3040	3055	3070	3030	2760	2790	2785	2970	3000	2885
720	3070	3110	3060	3060	2910	2815	2740	2845	3160	2975	3010
580	3240	3100	3140	2995	3035	2785	2795	2675	3015	3210	2950

Size No. QF720

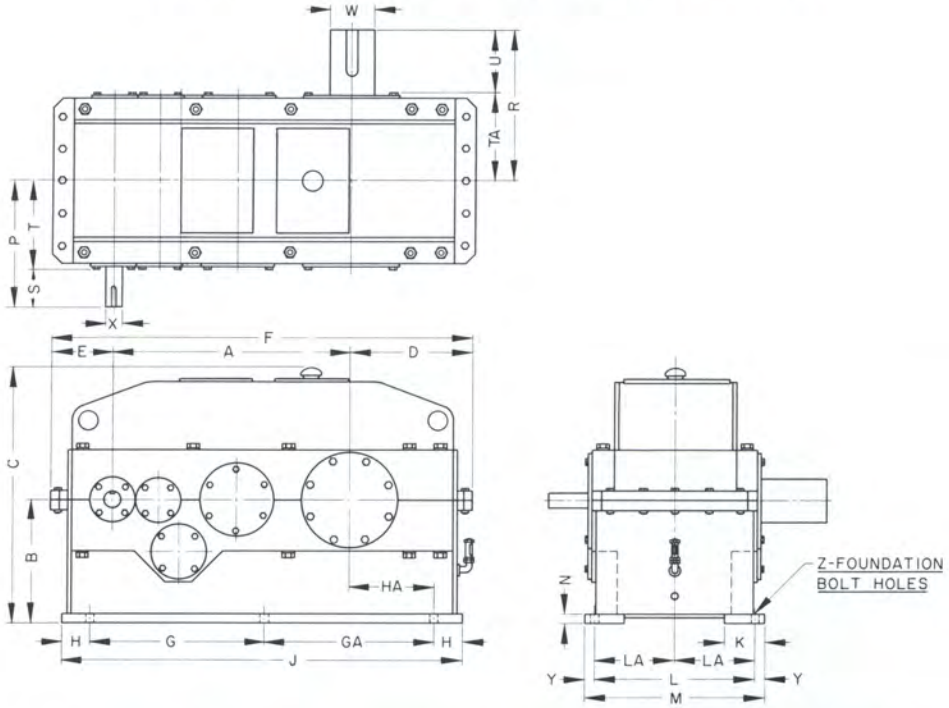
Motor R.P.M.	STANDARD RATIOS										
	238.4	291.9	357.5	437.9	536.3	656.8	804.5	985.3	1207	1478	1810
1750	4030	4115	4150	4155	4170	4110	4150	4110	4030	3990	3980
1150	4110	4180	4290	4295	4200	4100	4185	4155	3970	4050	4060
870	4250	4400	4510	4310	4240	4190	4190	4200	4105	4060	4200
720	4340	4420	4310	4330	4280	4250	4150	4230	4220	4140	4445
580	4490	4375	4350	4235	4260	4220	3920	3745	3940	4500	4320

Ratings shown are in thousands of in. lbs. at low speed shaft.
Ratings for intermediate ratios and speeds may be found by direct interpolation.
For input speeds lower than speeds shown, use torque rating for minimum speed shown in table.

TORQUE

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GENERAL DIMENSIONS
TYPE QF
QUADRUPLE REDUCTION GEAR REDUCERS



Size No.	A	B	C	D	E	F	G	GA	H	HA	J	K	L	LA	M	N	P	R	S	U	W*	X*	Y	T	TA	Z Bolt Holes	Approximate Oil Capacity, Gallons Min. Ratio	Approximate Oil Capacity, Gallons Max. Ratio	Weight
QF170	21¼	12½	27	12	7½	40¾	16¾	13½	3½	6¾	37¼	4	17	8½	19	1¼	14	16	4	6	4	For High Speed Shaft Dia. See Table of H.P. Ratings Pages 31 and 32	1	10	10	6–13/16	11	16	1,500
QF195	24½	14	30	13½	8	46	19	16	4	8	43	5	17½	8¾	20	1¼	14½	18	4	7½	4¾		1¼	10½	10½	6–1 1/16	17	22	2,000
QF220	27½	15	33½	15	8½	51	21	19	4	9½	48	5	18½	9¼	21	1¼	16	18½	5	7½	5⅛		1¼	11	11	6–1 1/16	21	25	2,600
QF250	31¼	17	36	16½	9	56¾	23¾	21	4½	10½	53¾	5	21	10½	24	1¼	17½	21	5	8½	5¾		1½	12½	12½	6–1 3/16	26	30	3,400
QF290	36	20	40½	18	10	64	28	24	4½	12	61	5	23	11½	26	1¾	19	23½	5½	10	6¾		1½	13½	13½	6–1 3/16	37	44	4,800
QF340	42	22	45½	22	11	75	31	30	5	15	71	7	28½	14¼	32	1¾	22½	27	6½	11	7¾		1¾	16	16	6–1 3/16	51	61	7,200
QF390	48	25	51½	25	12	85	2 @ 26½	18	5	18	81	7	30½	15¼	34	1¾	24½	30	7½	13	9		1¾	17	17	8–1 3/16	67	84	9,800
QF440	54	27	56	27½	12½	94	2 @ 29¾	20½	5	20½	90	7	32½	16¼	36	1¾	26	32	8	14	9⅝		1¾	18	18	8–1 3/16	108	122	13,200
QF500	61	30	61½	30	13	104	3 @ 22½	22½	5	23	100	7	36½	18¼	40	2¾	29½	37½	8½	15	10½		1¾	21	22½	10–1 3/16	140	160	19,000
QF560	68	32	66	32½	13½	114	3 @ 25	25	5	25½	110	7	38½	19¼	42	2¾	31	39½	9	16	11½		1¾	22	23½	10–1 3/16	155	180	26,000
QF640	77	35	73	37	14	128	3 @ 27¾	27¾	6	28½	123	8	42	21	46	2¾	33½	42½	9½	17	13		2	24	25½	10–1 1/16	185	225	38,000
QF720	86	41	84	42	14½	142½	3 @ 31	32½	6	33½	137½	8	44	22	48	2¾	35	44½	10	18	14½		2	25	26½	10–1 1/16	300	360	50,000

All dimensions are in inches.
* For Shaft Keyways, see Table of Standard Keyways Page 35.

Above dimensions are not to be used for Installation.
USE CERTIFIED INSTALLATION PRINT.

OVERHUNG LOAD CAPACITIES
SLOW SPEED SHAFTS

The table below shows Moderate Overhung Load Capacities for Standard Type QF Reducers. It is assumed that the external load is acting one shaft diameter in from the end of the shaft. Special Heavy Overhung Load Capacity Reducers are available with twice the capacity shown below.

The table below does not apply for double extended slow speed shafts. Present your application to us for recommendations.

The actual load imposed on a shaft for a given condition of service may be determined by the formula on the bottom of page 6. For unusual conditions or in case of doubt present your problem to us for recommendations.

Overhung load capacities are figured at the highest speed shown in horsepower rating tables for each size reducer.

Size No.	RATIOS 238.4	357.5	536.3	804.5	1207	1810
QF170	13,000	13,000	13,000	13,000	13,000	13,000
QF195	19,500	19,500	19,500	19,500	19,500	19,500
QF220	24,000	24,000	24,000	24,000	24,000	24,000
QF250	30,000	30,000	30,000	30,000	30,000	30,000
QF290	44,000	44,000	44,000	44,000	44,000	44,000
QF340	60,000	60,000	60,000	60,000	60,000	60,000
QF390	77,000	85,000	85,000	85,000	85,000	85,000
QF440	78,500	89,500	99,000	99,000	99,000	99,000
QF500	100,000	100,000	100,000	100,000	100,000	100,000
QF560	116,000	128,000	128,000	128,000	128,000	128,000
QF640	169,000	172,000	172,000	172,000	172,000	172,000
QF720	184,000	208,000	234,000	234,000	234,000	234,000

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LUBRICATION INSTRUCTIONS

The lubricating oils used in Lufkin Gear Units should be high grade, high quality, well refined petroleum oils. It is essential that the oils be clean; they must also be non-corrosive to gears and bearings. They must be neutral in reaction and possess good defoaming properties. When operating temperature is high the oil must have good resistance to oxidation.

Straight mineral type lubricants are to be used under ordinary operating conditions. The tabulation below shows the viscosity of oil to use for all types of Lufkin Gear Units. When operating in the range of 0 to 40° F. ambient temperature, the lubricant should be carefully selected to make certain that the pour point is below the lowest anticipated temperature.

When a new Gear Unit is started in operation the oil should be drained at the end of two weeks and the case thoroughly flushed. The original oil may be used for refilling only if it has been filtered. Under ordinary operating conditions the oil should be changed every 2500 hours of operation or every six months, whichever occurs first.

It is very important to the successful and satisfactory operation of a Gear Unit that careful attention be given to proper lubrication and that the lubricant be kept clean. Every precaution should be taken to prevent water and foreign particles from entering the gear case. In unusually dusty atmospheres and where there is rapid rise and fall in temperatures causing excessive condensation inside the case, it will be necessary to change the oil more frequently than specified above.

RECOMMENDED LUBRICANTS FOR LUFKIN GEAR UNITS

GEAR UNIT NUMBER:	AMBIENT TEMPERATURE			
	15°F.—60°F.		50°F.—125°F.	
	AGMA Lubricant No.	Viscosity S.U.V. Secs. at 100°F.	AGMA Lubricant No.	Viscosity S.U.V. Secs. at 100°F.
SF127, SF148, SF169, SF1810, SF2011	2	280–360	4	700–1000
SF2212, SF2413, SF2714, SF3015, SF3318, SF3824, SF4427, SF5230, SF6033, DF170, DF195, DF220, DF250, DF290, DF340, DF390, DF440, DF500, DF560, DF640, DF720, TF170, TF195, TF220, TF250, TF290, TF340, QF170, QF195, QF220, QF250, QF290, QF340	3	490–700	4	700–1000
TF390, TF440, TF500, TF560, TF640, TF720, QF390, QF440, QF500, QF560, QF640, QF720	4	700–1000	5	1000–1500

AGMA STANDARD KEYWAYS

Diameter of Shafts, Inclusive	RECOMMENDED STANDARD KEYWAYS		
	Width	Depth	Key Stock
5/16 to 7/16″	3/32	3/64	3/32 x 3/32
1/2 to 9/16″	1/8	1/16	1/8 x 1/8
5/8 to 7/8″	3/16	3/32	3/16 x 3/16
15/16 to 1 1/4″	1/4	1/8	1/4 x 1/4
1 5/16 to 1 3/8″	5/16	5/32	5/16 x 5/16
1 7/16 to 1 3/4″	3/8	3/16	3/8 x 3/8
1 13/16 to 2 1/4″	1/2	1/4	1/2 x 1/2
2 5/16 to 2 3/4″	5/8	5/16	5/8 x 5/8
2 13/16 to 3 1/4″	3/4	3/8	3/4 x 3/4
3 5/16 to 3 3/4″	7/8	7/16	7/8 x 7/8

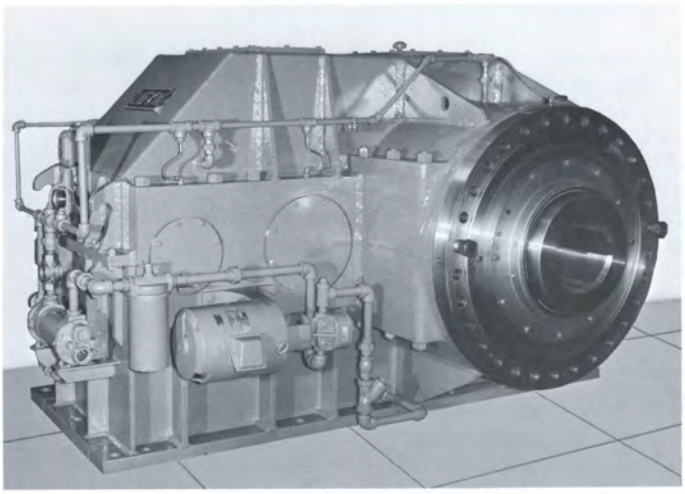
Diameter of Shafts, Inclusive	RECOMMENDED STANDARD KEYWAYS		
	Width	Depth	Key Stock
3 13/16 to 4 1/2″	1	1/2	1 x 1
4 9/16 to 5 1/2″	1 1/4	7/16	1 1/4 x 7/8
5 9/16 to 6 1/2″	1 1/2	1/2	1 1/2 x 1
6 9/16 to 7 1/2″	1 3/4	5/8	1 3/4 x 1 1/4
7 9/16 to 8 15/16″	2	3/4	2 x 1 1/2
9 to 10 15/16″	2 1/2	7/8	2 1/2 x 1 3/4
11 to 12 15/16″	3	1	3 x 2
13 to 14 15/16″	3 1/2	1 1/4	3 1/2 x 2 1/2
15 to 17 15/16″	4	1 1/2	4 x 3
18 to 21″	5	1 3/4	5 x 3 1/2

Lufkin Commercial Gear Reducers are furnished with the above standard keyways in the low speed and high speed shafts. The depth of the keyway in the coupling, pulley or sprocket is the same as the depth of the keyway in the shaft; that is, the depth is one-half of the key height measured from the edge of the keyway.

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SPECIAL LUFKIN GEAR UNITS

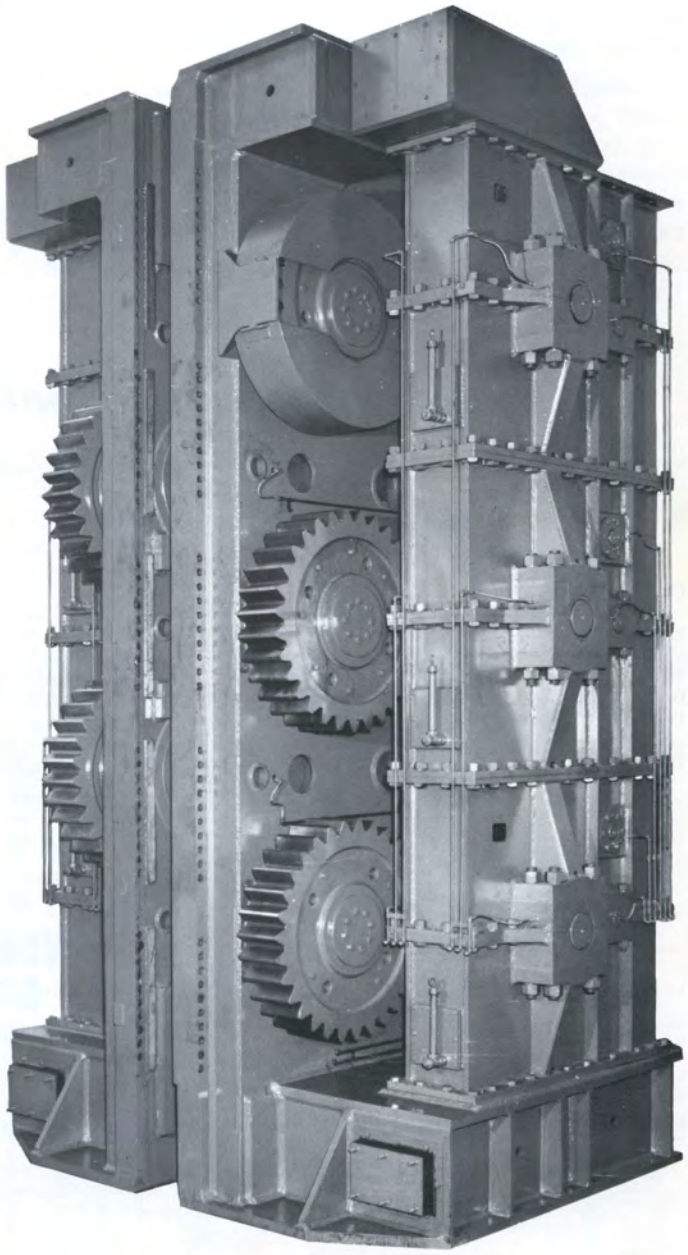
Lufkin Foundry and Machine Company builds special gear units to meet the demands of industry. Lufkin has the facilities and engineering staff to solve the difficult gear problems. The following pages show a few of the custom engineered units that are presently in operation. Lufkin will be happy to quote on your requirements.



Lufkin BL-EX-15 Extruder drive with thrust bearing designed for 1,000,000 lb. thrust load at 60 RPM output speed.



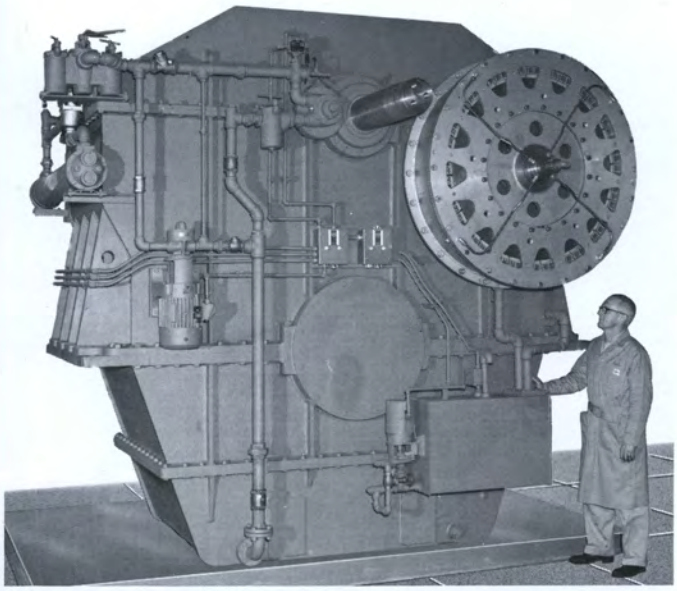
Lufkin VQ6024 Marine Propulsion Gear, Rated 5150 HP at 515 RPM input speed, Ratio 3.94:1.



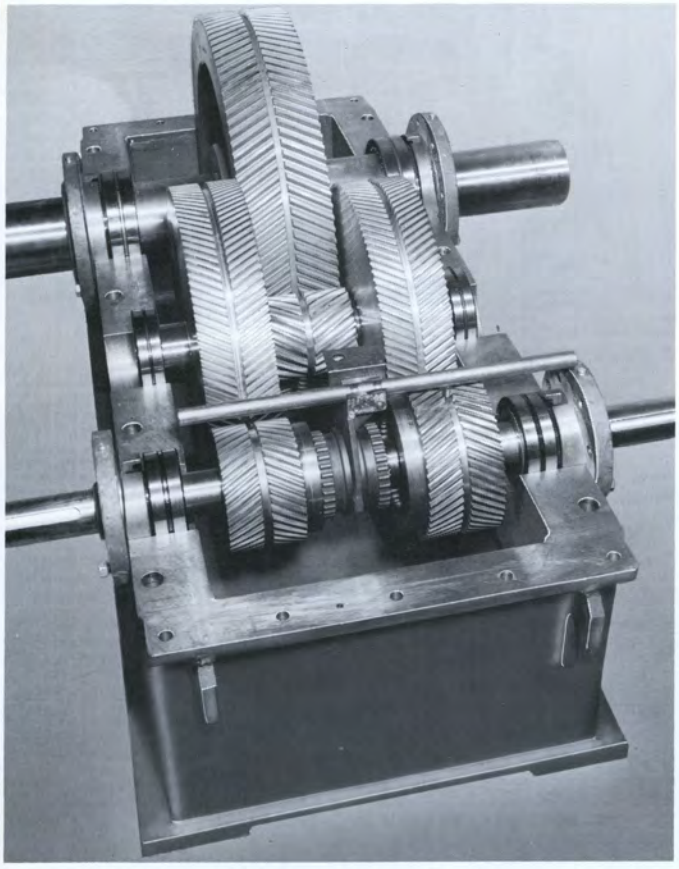
One of 12 similar pinion stands built for elevating off-shore drilling barge. Unit shown is 19 ft. high weighing 146,000 lb. with a lifting capacity of 890 tons. Ratio 6,608:1.

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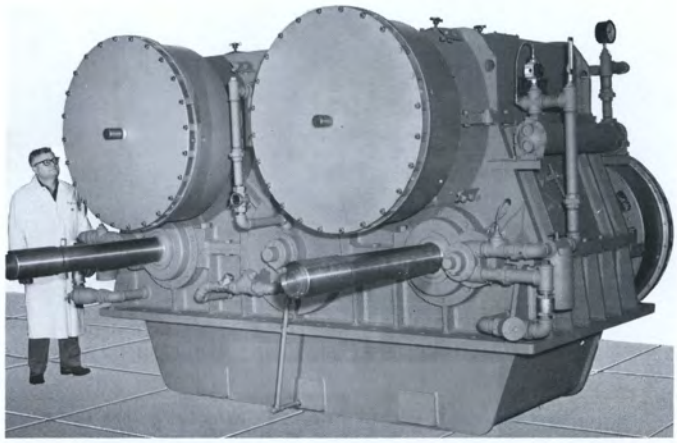
SPECIAL LUFKIN GEAR UNITS



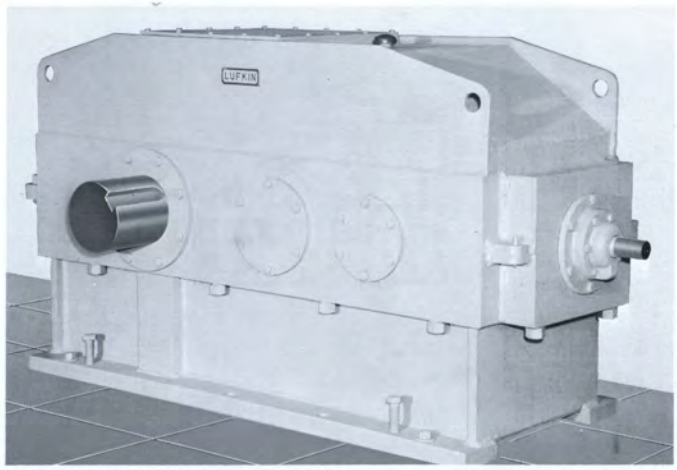
Lufkin RS6024 Marine Propulsion Gear with water cooled clutches for 604 ft. Great Lakes ore boat. Rating 3240 HP, 515 RPM, 4.68:1 Ratio.



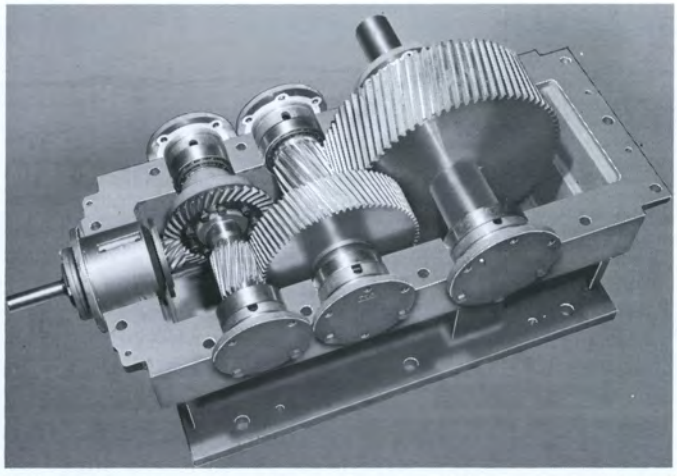
Lufkin D315-2S Speed Reducer. Two ratios for conveyor drive handling coal and salt.



Lufkin RCS8414 Marine Propulsion Gear, Reverse-Reduction compound. Driven by two 1700 HP diesels, 515 RPM, 3.33:1 Ratio.



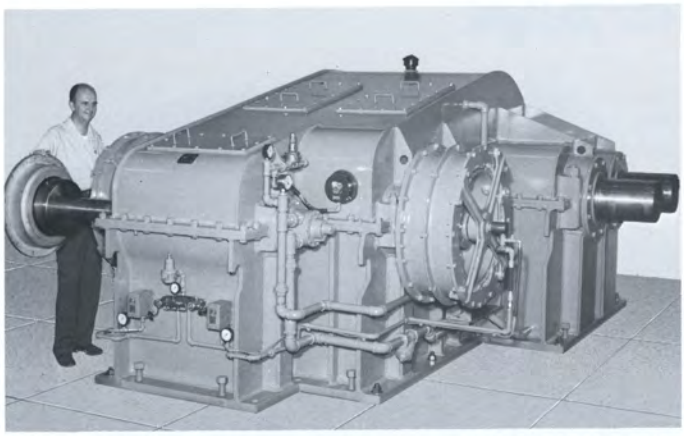
Lufkin THB340 Reducer, Triple reduction, right angle input. Ratio 356:1.



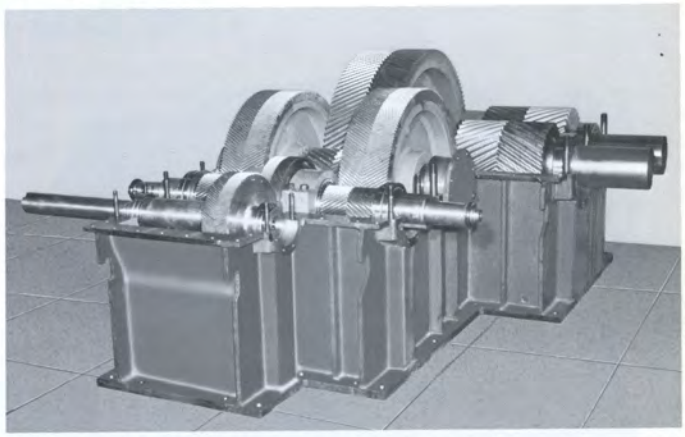
Lufkin Type THB Unit with cover removed showing spiral bevel gears and helical gears in Heavy Fabricated Steel Housing.

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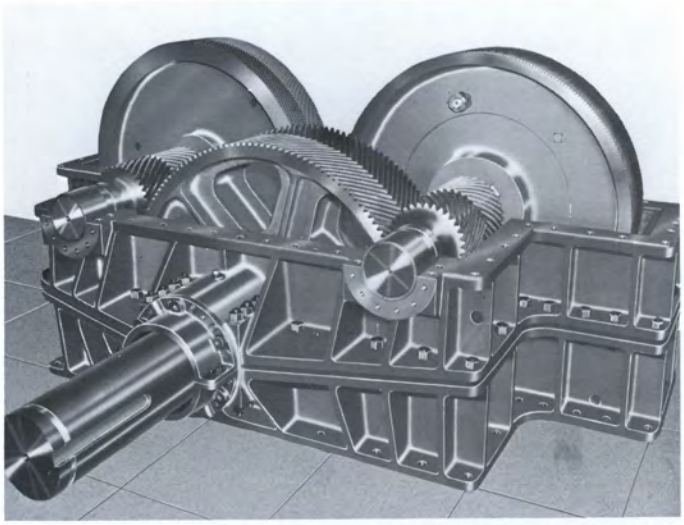
SPECIAL LUFKIN GEAR UNITS



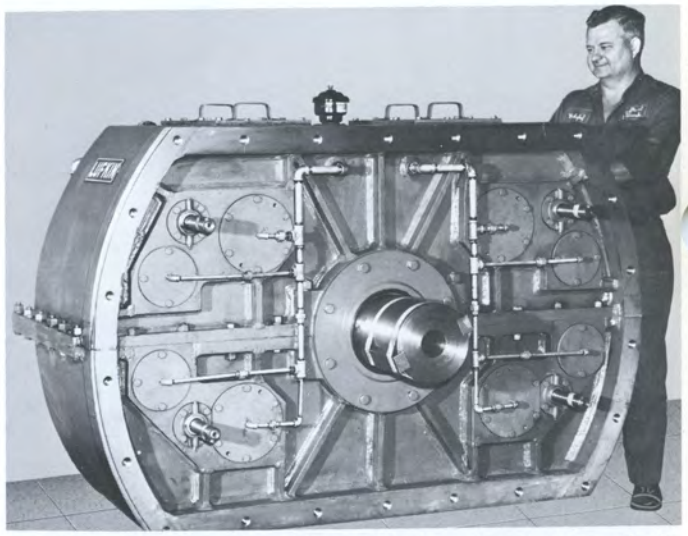
Lufkin Model D860S two speed Reducer with air clutches for driving mixer in rubber mill.



Lufkin Model D860S Two Speed Reducer with cover removed showing gear arrangement.



One of eight identical Lufkin Model DC3620 Double Reduction Compound Gears for driving cutter head in dredging service for a Gulf Coast Dredging Company.



Special Triple Reduction Gear with four input pinion shafts for driving rock boring machine.



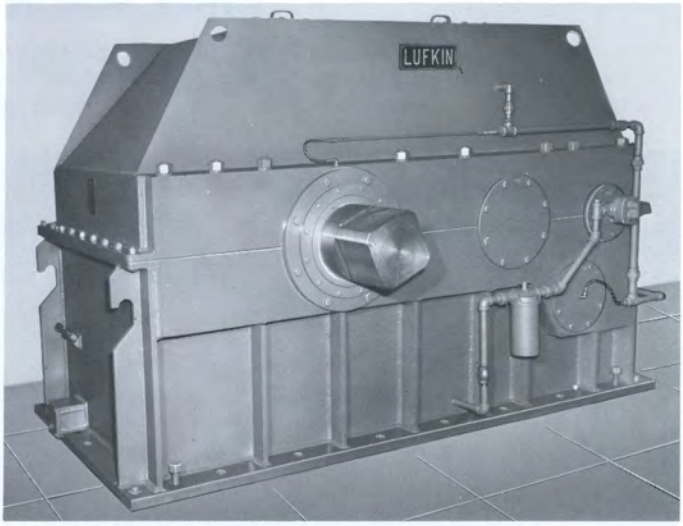
Lufkin DC3620 Dredge Cutter Head Reduction Gear Ratio 32.6:1 Delivering 1200 h.p. at 1200 r.p.m.

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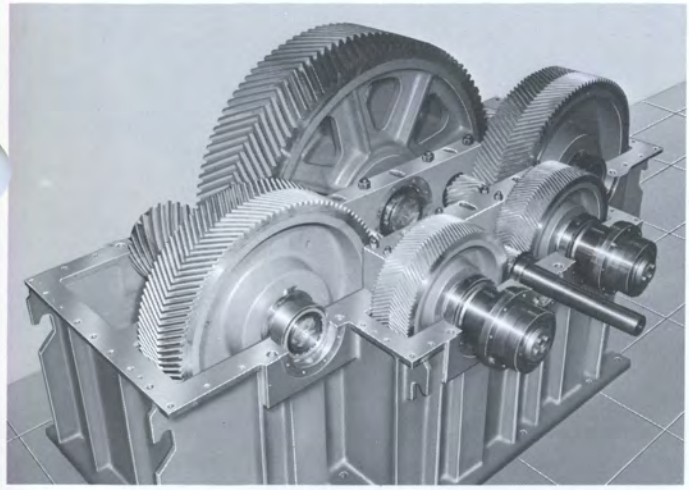
SPECIAL LUFKIN GEAR UNITS



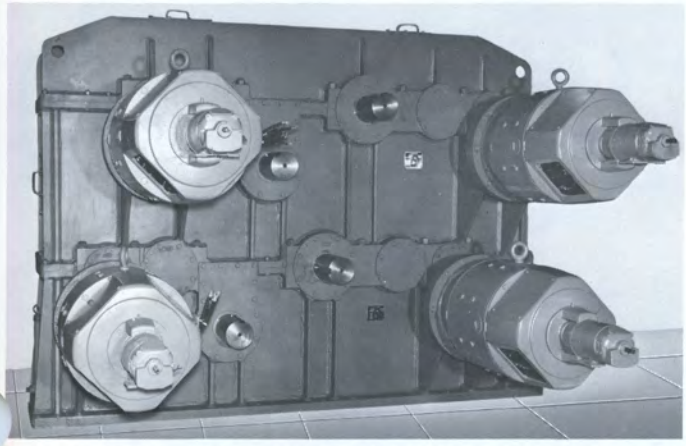
Torch cut gears used for 600,000 lb. welding positioner.



Lufkin T650H Triple Reduction Gear with circulating oil system for sugar mill drive. Rating 250 HP at 1450 RPM input speed, Ratio 236:1.



Lufkin TC4421 Triple Reduction Articulated Unit for sugar mill drive. Rating 508 HP at 689 RPM input.



Lufkin QT290H Triple Reduction, four gear train unit for rubber mill calender drive.

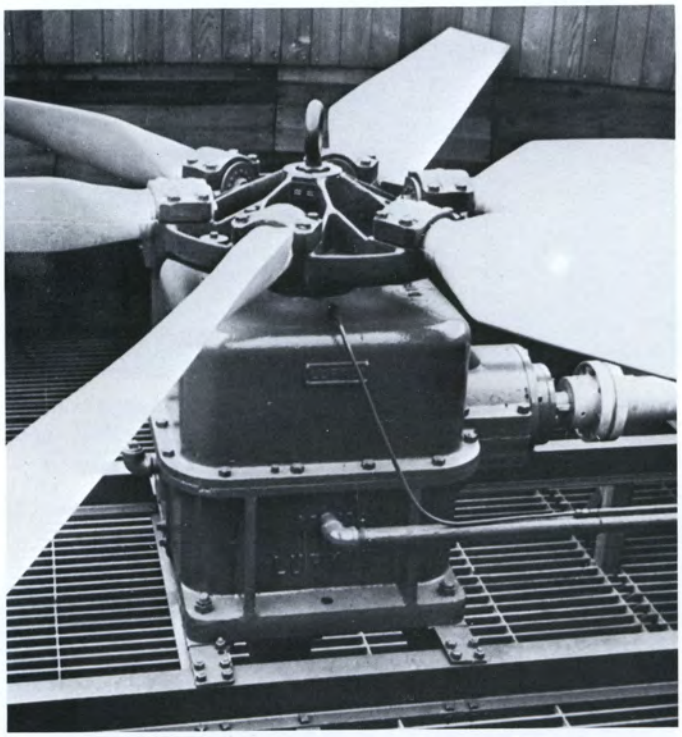


Large replacement open gears for sugar mill in Mexico. 116.39″ pitch diameter, 18″ face, 4.459 circular pitch.

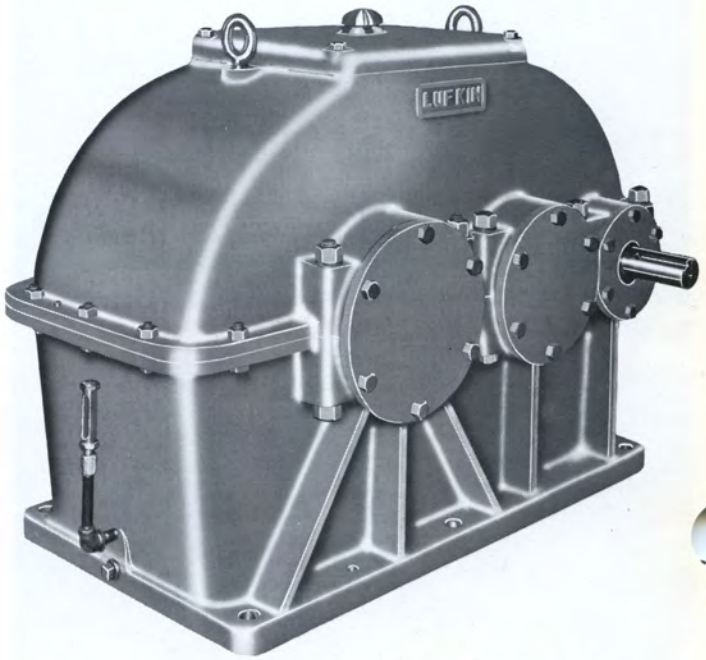
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OTHER LUFKIN GEAR PRODUCTS

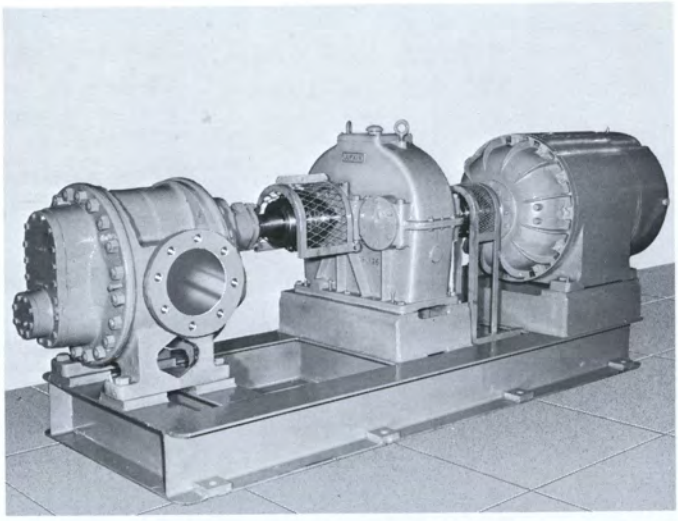
Lufkin Foundry and Machine Company manufactures a complete line of speed reducers and increasers with cast housings. The photos below show some of the types available.



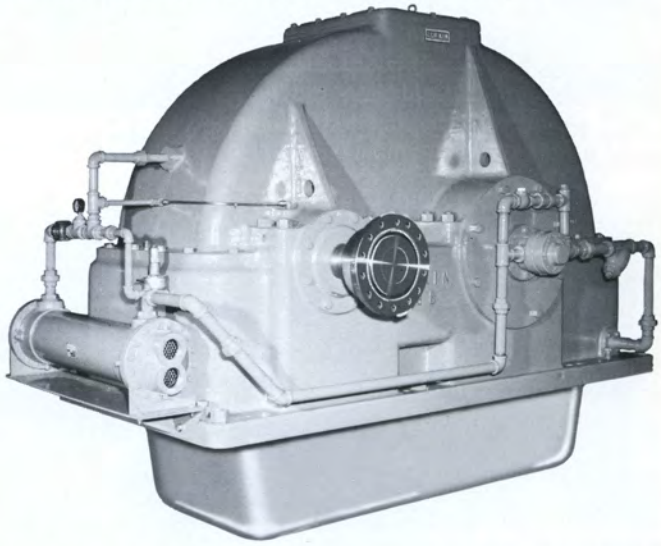
Lufkin Model 115VB Reducer driving 20 foot diameter fan in a large cooling tower.



Lufkin Type D Double Reduction Unit with cast housing is available in 10" to 50" overall center distance units.



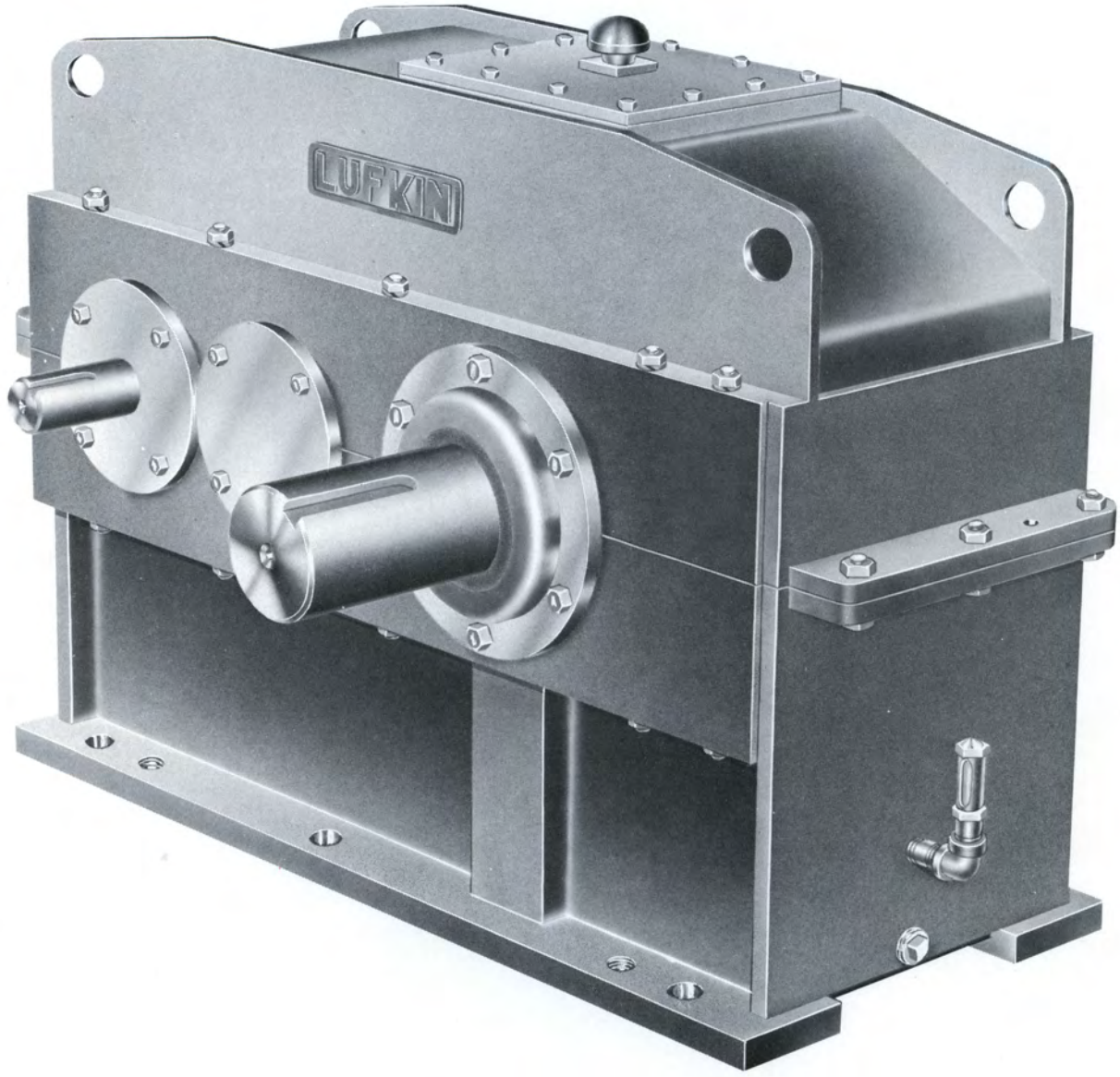
Lufkin Type S Single Reduction Unit with electric motor and gear pump mounted on fabricated base.



Lufkin Type N High Speed Units with oil pump and cooler for pitch line speeds above 5000 feet per minute.

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FABRICATED STEEL GEAR HOUSINGS



Lufkin's Fabricated Steel gear housings are made from heavy steel plate with continuous welds inside and out. The housings are designed for maximum rigidity. After welding, the housings are fully stress relieved for dimensional stability. Interior surfaces are shot blasted, cleaned and painted to insure absolute freedom from scale, slag and other foreign particles. The joint between base and cover is accurately machined and boring is done using rigid precision boring fixtures to assure perfect shaft alignment. The above adds up to long and trouble-free gear life.

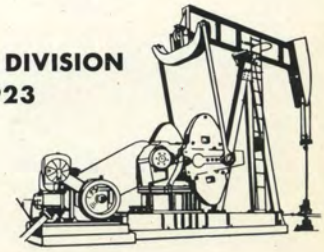
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LUFKIN MILESTONES OF GROWTH

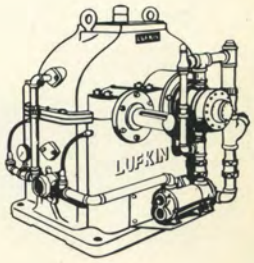
Lufkin Foundry & Machine Company founded 1902 as a repair shop for sawmill and railroad machinery . . . guided by progressive leadership . . . gifted with technical ability . . . located strategically in the growing Southwest . . . of humble origin . . . this company has grown proudly in scope and stature with the advent of each new manufacturing division.

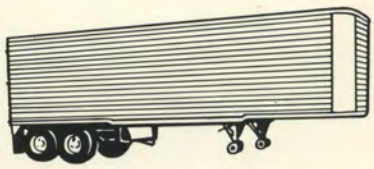


OILFIELD DIVISION
1923



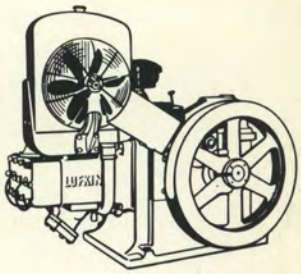
GEAR DIVISION
1939





TRAILER DIVISION
1939

ENGINE
DIVISION
1940



LUFKIN FOUNDRY & MACHINE COMPANY
LUFKIN, TEXAS