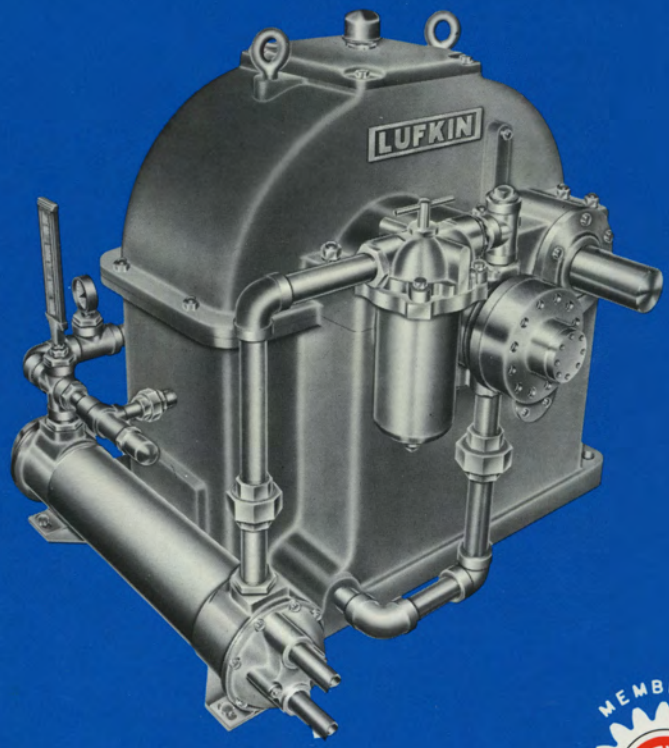
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LUFKIN

HIGH SPEED GEAR UNITS



GEAR
CATALOG
NO.
G-33A

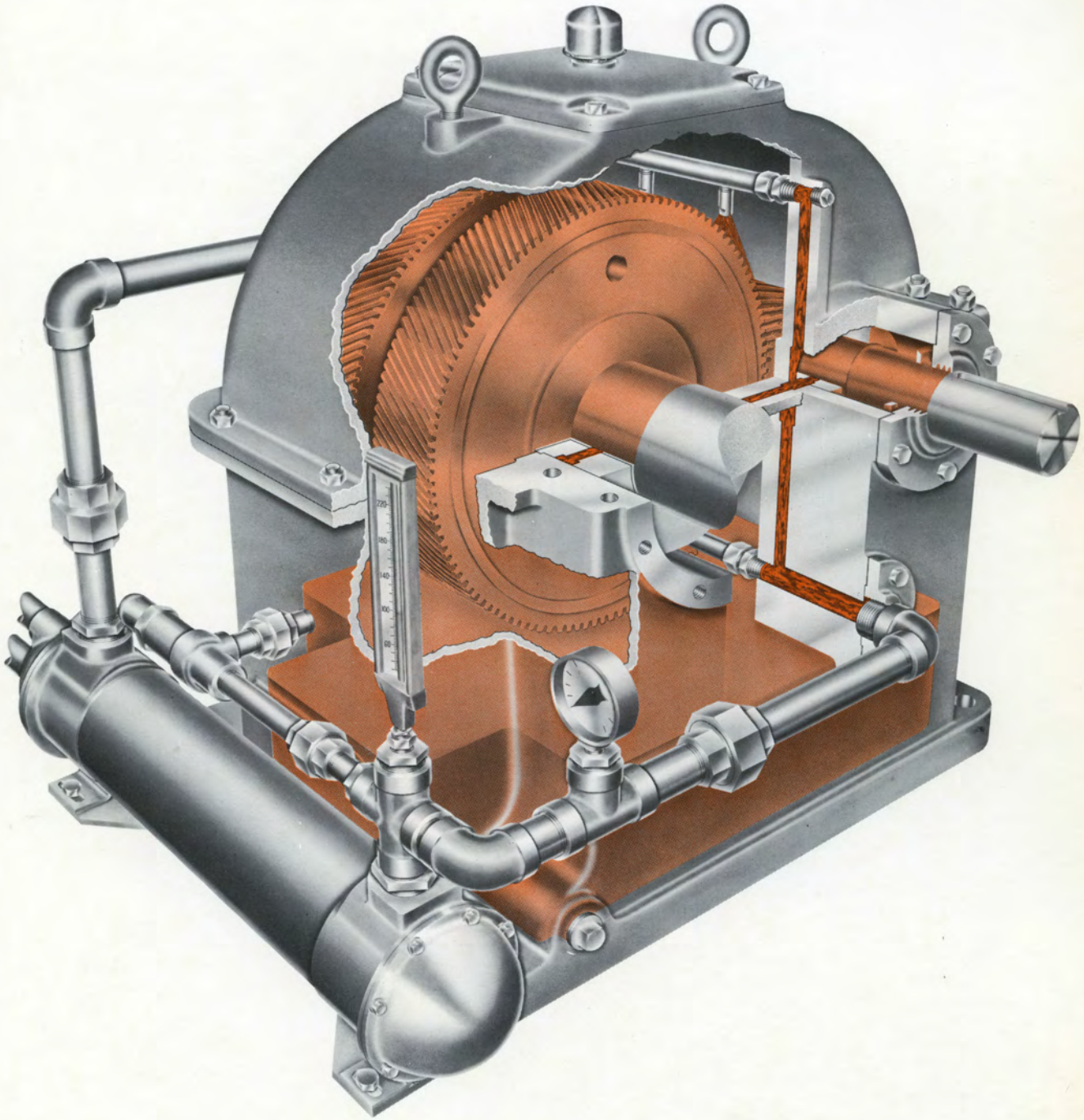
LUFKIN INDUSTRIES, INC.
LUFKIN, TEXAS

MEMBER OF AGMA

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TYPE N HIGH SPEED GEAR UNITS

LUBRICATION SYSTEM



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LUFKIN *High Speed Gear Units*

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VII. SPECIAL LUFKIN UNITS
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LUFKIN INDUSTRIES, INC.

Factory and Executive Offices

LUFKIN, TEXAS
Phone: 713-634-4421

Branch Offices

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Bel Air, Maryland 21014
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MATPETROL, Ltda.
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EQUIPOS ESPECIALIZADOS, S.A.
Vallarta #1-909-B
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Apartado No. 1A

TULSA, OKLAHOMA 74119
1302 Petroleum Club Building
Phone: 918-587-7171

TRIPOLI, LIBYA
Sahara Oilfield Services
Company of Libya, Ltd.
(Serrag & Co.)
P. O. Box 800
Phone: 34874

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PLANT FACILITIES

From an humble beginning in 1902 as a small repair shop for sawmill and railroad machinery, LUFKIN Industries, Inc. today occupies a modern plant covering over 80 acres with approximately 18 acres under roof. This plant is equipped with ever 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 100,000 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 industrial gears since 1939.

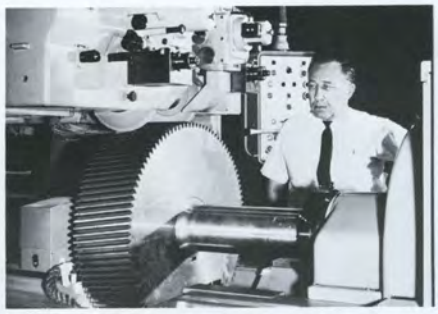
MACHINE SHOP



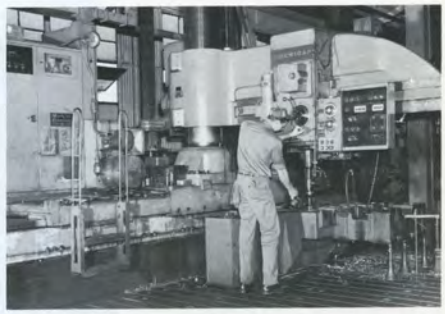
The main bay of the Machine Shop is 905 feet long and has over 200,000 square feet of floor space. Over 175 modern production machines are in use here. Among these are 21 Sykes herringbone gear generators and a hobbing machine with the capacity to cut a 16 foot pitch diameter, 48 inch face gear.



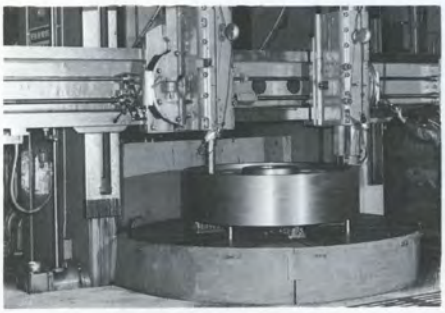
Three Axis Numerically Controlled Horizontal Boring, Milling, and Drilling Machine with Indexing Table.



Maag Grinder for Ultra-Precision Single Helical Gears. Capacity: 32" Pitch Diameter.



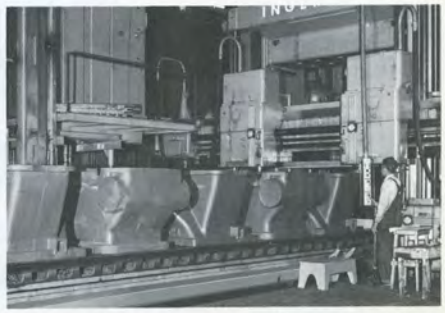
Three Axis Numerically Controlled Drill Press. Capacity: 7 feet x 20 feet Machining Area.



Vertical Boring Mill.
Capacity: 10' - 6" diameter.



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



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

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Gear Checkers used for Controlling Gear Accuracy.

INSPECTION

Quality Control procedures carried out from material purchasing specifications to final assembly assure the highest quality product.



Ultra-Sonic Checking Equipment for Material Quality Control.



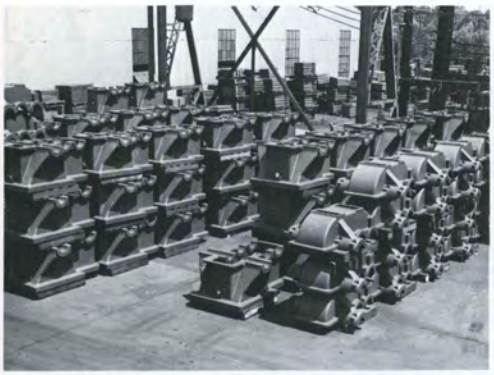
Inside View of Structural and Welding Shop.

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.



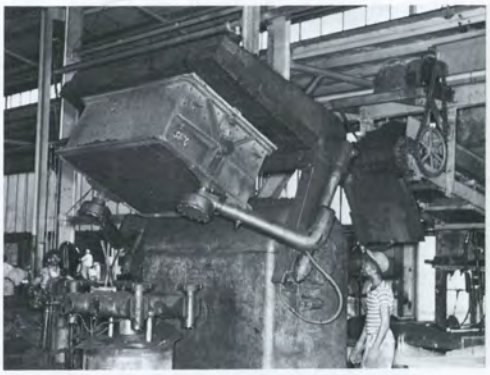
Torch Cut Gears for Slow Speed Application.



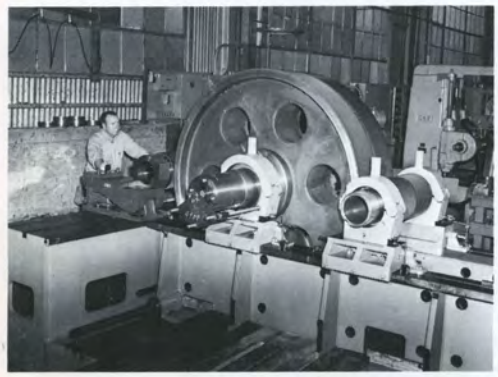
Reducer housing and cover castings on Foundry Yard.

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.



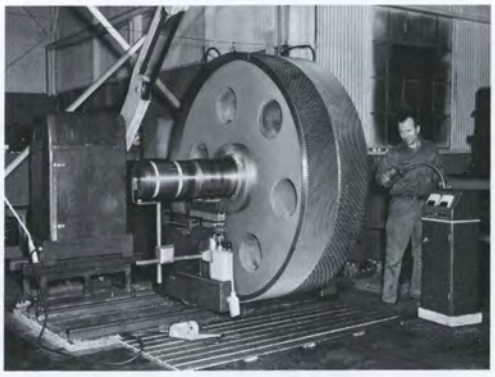
Large Moulding Machine. Capacity: 12,000 Pounds.



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

ENGINEERING

The high speed digital computer is used to assist LUFKIN's design Engineers evaluate each design for maximum practical torque capacity based on the latest AGMA standards. In this analysis, tooth geometry is evaluated to give the user an optimum balance between tooth beam strength and maximum durability rating based on the physical dimensions of the gear set.

APPLICATION

Type N and NM High Speed Gear Units are used for both speed reducing and speed increasing service. These High Speed units must be used when the pinion speed is higher than 3600 RPM or when the pitch line velocity is higher than 5000 feet per minute.

HOUSINGS

Housings are of controlled specification high tensile gray iron carefully stress relieved before maching for dimensional stability during machining and operating life. Housings are two piece construction with joint between housing and cover accurately machined. Interior surfaces are thoroughly shotblasted, cleaned, and painted to insure absolute freedom from foreign particles. Housings are designed for heavy duty service to provide maximum rigidity to assure precision gear alignment. All housings are precision bored and bore alignment is certified before assembly.

Fabricated steel housings are available on special order when required by the application.

Housing design incorporates the necessary oil piping for bearing and mesh lubrication.

GEARS

Type NM gears are the double helical type generated on Sykes gear machines. Type N unit gears are the double helical type cut on precision 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 bearing journals. Lufkin holds tooth profile, spacing, runout, and lead to precise tolerances to assure quiet, troublefree operation. Finished gear assemblies are dynamically balanced to precision machinery standards. All gear blanks are made from high alloy, high tensile steel.

PINIONS

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

BEARINGS

Type NM Units—The slow speed bearings are the self-aligning type mounted in bearing carriers. The high speed bearings are the centrifugally cast babbit type with a solid steel shell.

Type N Units—The slow speed and high speed bearings are centrifugally cast babbit with a split steel shell. A flanged babbitted thrust bearing is used on the low speed shaft for axial alignment and a nominal amount of coupling thrust. When customer specified thrust exceeds standard thrust capacity, a tilting pad or tapered land thrust bearing can be used. When required by operating conditions, high stability anti-whirl bearings are furnished.

LUBRICATION

Type NM and N units use a full pressure lubricating system. A positive displacement pump picks up the oil from the sump section of the gear housing and delivers the oil to bearings and gear mesh. Except for pump and cooler, piping for unit lubrication is internal. For combined lube systems using dry sump units, one flanged inlet and one flanged drain connection is required. The integral lubrication system includes filter, pressure gauge, oil cooler, and thermometer.

AUXILIARY EQUIPMENT

Type NM and N units are available with any of the required auxiliary equipment such as oversize lube oil pump, thermocouples, oil heaters, couplings, low pressure and high temperature switches, special bearing, coupling guards, and sole plates.

EXTREME HIGH SPEED GEAR UNITS

Lufkin manufactures all types of extreme high speed gear units for special applications. These units are available as both single and double helical designs and can be custom designed to the requirements of the application. These units generally use either through hardened or case hardened and ground gearing. Gear grinding is done by the Maag process for the ultimate in accuracy. All extreme high speed gear applications must be submitted to Lufkin for recommendations.

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.

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EXPLANATION OF RATING TABLES

HORSEPOWER RATINGS

The Horsepower Capacities of all Lufkin high speed gears are based on the latest Standard Practices of the American Gear Manufacturers Association of which Lufkin has been a member for many years. The ratings for the different units are shown on the following pages:

Type NM .....Pages 8-12

Type N .....Pages 13-22

The Horsepower Ratings listed in the rating tables are for a service factor of 1.0. For any type of prime mover and driven machine combination, the horsepower load must be modified by the appropriate Service Factor, as explained on the following pages, before the proper gear reducer can be selected.

THERMAL RATINGS

Lufkin High Speed gear units, when furnished with an integral lubrication system, have a thermal rating equal to or greater than the transmitted load. For combined lubrication systems, consult Lufkin for heat rejection rates and required oil flow.

SERVICE FACTORS

The selection of a gear unit for a certain job depends on the type of prime mover and the character of the driven machine. These variables enter into the selection of high speed units through the use of Service Factors.

A tabulation of the required service factors for machinery generally driven by high speed gear units is shown in the table on page 7. In addition to the tabulated service factor, a prime mover overload factor must be applied.

In selecting a high speed gear unit, the tabulated catalog rating of the unit must be equal to or greater than the maximum continuous horsepower capacity of the prime mover multiplied by any overload capacity the prime mover may have. This resulting prime mover capacity then must be multiplied by the required service factor.

RATIOS

The gear ratios listed in the rating tables are AGMA standard. The exact ratio required or a very close approximation, within 3 percent, can be furnished for each application. The approximate horsepower ratings for intermediate ratios not shown in the tables can be determined by interpolation.

SELECTION OF TYPE N AND NM UNITS

1. Standard Type NM Units permit maximum operating speeds up to 6,000 RPM and 7,000 feet per minute pitch line velocity.
2. Standard Type N Units permit speeds up to 20,000 RPM and 20,000 feet per minute pitch line velocity. Higher speeds must be referred to the factory for recommendations.
3. Formula for calculating correct pitch line velocity.

$$\text{Pinion P.D.} = \frac{2 \times \text{Center Distance}}{\text{Ratio} + 1}$$

$$\text{PLV(ft./min.)} = \frac{\text{Pinion P.D.} \times 3.14 \times \text{RPM}}{12}$$

4. Select the required gear service factor from the table on page 7.
5. Calculate the required catalog or AGMA class 1 horsepower rating by multiplying the maximum continuous prime mover horsepower by the service factor and the overload factor. Based on experience, some gear users may prefer a larger service factor than tabulated. In this case, the larger service factor should be used.
6. Determine the required gear ratio by dividing the higher speed by the lower speed.
7. Refer to the rating tables to select a unit size having the required rating at the ratio and high speed RPM of the application. In many cases it will be necessary to interpolate between shaft speeds and ratios.
8. Check the pitch line velocity and be sure the required rating does not fall in the shaded area of the table. All ratings in the shaded area of the NM rating tables require Type N and all ratings in the shaded area of the Type N units must be referred to the factory for recommendations.
9. If ratios higher than those tabulated are required, consult the factory for recommendations.

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Example

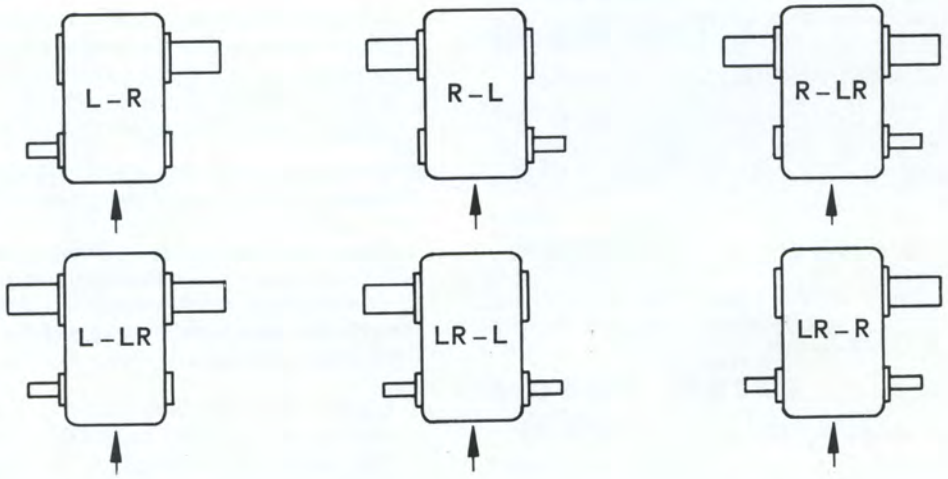
A speed increaser is required to transmit 2500 horsepower from an 1800 RPM electric motor to a centrifugal pump at 6350 RPM. The motor has an overload factor of 1.15.

1. From the table on page 7 a centrifugal pump driven by an electric motor requires a service factor of 1.3. The required AGMA class 1 or catalog horsepower rating is: $2500 \times 1.3 \times 1.15 = 3738$ horsepower
2. The gear ratio is: $6350/1800 = 3.53:1$
3. On page 16, an N1404C has a rating of 3845 H.P. at 6000 RPM and a 3.37:1 ratio. Interpolating for 3.53:1 ratio and 6350 RPM, the catalog or AGMA class 1 rating is 3859 H.P.
4. To check the selection, unit service horsepower rating is $3859/(1.3 \times 1.15) = 2581$ H.P. Since the actual service rating exceeds the required service rating of 2500 H.P., the selection is correct.

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 to be transmitted, maximum torque load due to starting or stall condition, and frequency of maximum torque condition.
2. Prime mover overload factor.
3. Speed of primer mover and driven machine, or speed of either shaft and gear ratio.
4. Type of prime mover (if engine, give number of cylinders).
5. Type of driven machine.
6. Direction of rotation (clockwise or counter-clockwise, looking at extended end of high speed shaft).
7. If flexible couplings also purchased from us furnish diameter and key dimensions of connecting shafts.
8. Shaft extensions should be specified per shaft arrangement designations shown below.
9. If motor base is required, furnish certified bolting layout for motor.
10. Report any unusual conditions of installation or operation.
11. On Dry Sump Units, specify viscosity of oil to be used and inlet oil temperature and pressure.



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 HIGH SPEED UNIT SELECTION

Types N and NM

APPLICATION	SERVICE FACTOR — PRIME MOVER: Motor	Turbine	Internal Combustion Engine (Multi-Cylinder)
BLOWERS			
Centrifugal	1.4	1.6	1.7
Lobe	1.7	1.7	2.0
COMPRESSORS			
Centrifugal-process gas except air conditioning	1.3	1.5	1.6
Centrifugal-air conditioning service	1.2	1.4	1.5
Centrifugal-air or pipe line service	1.4	1.6	1.7
Rotary-axial flow-all types	1.4	1.6	1.7
Rotary-liquid piston (Nash)	1.7	1.7	2.0
Rotary-lobe-radial flow	1.7	1.7	2.0
Reciprocating-3 or more cyl.	1.7	1.7	2.0
Reciprocating-2 cyl.	2.0	2.0	2.3
DYNAMOMETER - test stand	1.1	1.1	1.3
FANS			
Centrifugal	1.4	1.6	1.7
Forced draft	1.4	1.6	1.7
Induced draft	1.7	2.0	2.2
Industrial and mine (large with frequent start cycles)	1.7	2.0	2.2
GENERATORS AND EXCITERS			
Base load or continuous	1.1	1.1	1.3
Peak duty cycle	1.3	1.3	1.7
PUMPS			
Centrifugal (all service except as listed below)	1.3	1.5	1.7
Centrifugal-boiler feed	1.7	2.0	
Centrifugal-descaling (with surge tank)	2.0	2.0	
Centrifugal-hot oil	1.5	1.7	
Centrifugal-pipe line	1.5	1.7	2.0
Centrifugal-water works	1.5	1.7	2.0
Dredge	2.0	2.4	2.5
Rotary-axial flow-all types	1.5	1.5	1.8
Rotary-gear	1.5	1.5	1.8
Rotary-liquid piston	1.7	1.7	2.0
Rotary-lobe	1.7	1.7	2.0
Rotary-sliding vane	1.5	1.5	1.8
Reciprocating-3 cyl. or more	1.7	1.7	2.0
Reciprocating-2 cyl.	2.0	2.0	2.3
PAPER INDUSTRY			
Jordan or refiner	1.5	1.5	
Paper machine-line shaft	1.3	1.3	
Paper machine-sectional drive	1.5		
Pulp beater	1.5		
SUGAR INDUSTRY			
Cane knife	1.5	1.5	1.8
Centrifugal	1.5	1.7	2.0
Mill	1.7	1.7	2.0

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HORSEPOWER RATING TABLES

TYPE NM

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 5 and 6 for information on selecting reducers.

Size No. NM64C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
6000				578	475	379	295	225	168	...
5000			596	503	413	329	256	195	145	...
4000		584	502	423	345	275	213	162	121	...
3600	604	534	463	387	317	...	...	...	...	...
3000	525	464	401	...	...	...	...	...	...	...
2400	441	389	...	...	...	...	...	...	...	...
H.S. Shaft Diameter	2	2	2	2	2	2	2	1½	1¼	...

Size No. NM65C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
6000				709	583	464	362	....	....	....
5000			731	617	507	403	314	....	....	....
4000		716	616	519	423	....	....	....	....	....
3600	740	655	568	474	388	....	....	....	....	....
3000	644	569	492	....	....	....	....	....	....	....
2400	541	477	....	....	....	....	....	....	....	....
H.S. Shaft Diameter	2	2	2	2	2	2	2	...	...	...

Size No. NM66C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
6000				833	685	546	426	....	....	....
5000			859	725	596	474	369	....	....	....
4000		842	724	610	497	....	....	....	....	....
3600	870	770	668	558	457	....	....	....	....	....
3000	757	669	579	....	....	....	....	....	....	....
2400	636	561	....	....	....	....	....	....	....	....
H.S. Shaft Diameter	2	2	2	2	2	2	2	....	....	....

Size No. NM85C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
6000					966	778	613	473	....	....
5000				1020	842	677	532	....	....	....
4000			1028	862	710	570	447	....	....	....
3600		1091	940	796	655	521	....	....	....	....
3000	1072	950	817	690	562	....	....	....	....	....
2400	905	800	687	....	....	....	....	....	....	....
H.S. Shaft Diameter	2½	2½	2½	2½	2½	2½	2½	2	....	....

Size No. NM86C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
6000					1135	914	720	555	....	....
5000				1199	989	795	625	....	....	....
4000			1208	1013	834	670	525	....	....	....
3600		1282	1104	935	769	612	....	....	....	....
3000	1260	1116	960	811	660	....	....	....	....	....
2400	1063	940	808	681	....	....	....	....	....	....
H.S. Shaft Diameter	2½	2½	2½	2½	2½	2½	2½	2	....	....

Size No. NM87C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
6000					1295	1043	822	....	....	....
5000				1368	1129	908	714	....	....	....
4000			1379	1156	952	765	600	....	....	....
3600		1463	1260	1067	878	699	....	....	....	....
3000	1438	1274	1096	926	754	....	....	....	....	....
2400	1213	1073	922	777	....	....	....	....	....	....
H.S. Shaft Diameter	2½	2½	2½	2½	2½	2½	2½	....	....	....

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE NM

Size No. NM106C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000					1459	1178	930	718	544	....
4000				1508	1234	995	784	604	456	....
3600			1642	1378	1139	918	722	555	....	....
3000		1661	1431	1200	990	788	620	....	....	....
2400	1561	1404	1207	1010	832	....	....	....	....	....
1750	1226	1083	944	....	....	....	....	....	....	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	2¼	....

Size No. NM107C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000					1664	1344	1061	820	621	....
4000				1721	1408	1135	894	689	521	....
3600			1873	1572	1300	1047	823	633	....	....
3000		1895	1633	1369	1130	899	707	....	....	....
2400	1781	1601	1378	1152	950	....	....	....	....	....
1750	1398	1236	1077	....	....	....	....	....	....	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	2¼	....

Size No. NM108C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000					1859	1502	1185	916	....	....
4000				1922	1573	1268	999	770	....	....
3600			2092	1756	1452	1170	920	708	....	....
3000		2117	1824	1529	1262	1005	790	....	....	....
2400	1989	1789	1539	1287	1061	....	....	....	....	....
1750	1562	1381	1203	....	....	....	....	....	....	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	....	....

Size No. NM126C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000							1275	989	752	562
4000					1702	1376	1076	833	632	....
3600				1895	1573	1256	993	767	....	....
3000			1970	1653	1371	1093	862	665	....	....
2400		1933	1665	1359	1154	919	....	....	....	....
1750	1687	1493	1307	1091	....	....	....	....	....	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	2½	2½

Size No. NM127C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000							1454	1128	858	641
4000					1942	1570	1228	950	721	....
3600				2162	1794	1433	1133	875	....	....
3000			2248	1886	1564	1247	984	759	....	....
2400		2206	1900	1591	1317	1048	....	....	....	....
1750	1924	1703	1491	1245	....	....	....	....	....	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	2½	2½

Size No. NM128C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000							1624	1260	958	....
4000					2168	1754	1371	1061	806	....
3600				2414	2004	1601	1265	978	....	....
3000			2510	2107	1746	1392	1099	847	....	....
2400		2463	2122	1777	1471	1170	....	....	....	....
1750	2149	1902	1665	1391	....	....	....	....	....	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	2½	....

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE NM

Size No. NM129C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000							1786	1385	....	....
4000					2384	1928	1508	1167	....	....
3600				2654	2203	1760	1391	1075	....	....
3000			2760	2316	1920	1531	1208	932	....	.....
2400		2708	2333	1954	1617	1287	....	....	....	....
1750	2363	2091	1831	1529	....	....	....	....	....	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	....	....

Size No. NM147C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000						2570	1923	1481	1129	845
4000						2056	1611	1250	951	....
3600						1901	1487	1153	876	....
3000				2499	2046	1633	1293	1001	759	....
2400			2477	2077	1726	1376	1087	....	....	....
1750	2557	2265	1949	1630	1351	....	....	....	....	....
1150	1832	1637	....	....	....	....	....	....	....	....
H.S. Shaft Diameter	4	4	4	4	4	4	4	3½	3	3

Size No. NM148C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000						2870	2147	1654	1261	....
4000						2297	1799	1396	1063	....
3600						2123	1661	1288	979	....
3000				2791	2285	1824	1445	1118	848	....
2400			2766	2320	1928	1537	1214	....	....	....
1750	2855	2529	2177	1820	1509	....	....	....	....	....
1150	2046	1828	....	....	....	....	....	....	....	....
H.S. Shaft Diameter	4	4	4	4	4	4	4	3½	3	....

Size No. NM149C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000						3155	2360	1818	1386	....
4000						2524	1977	1534	1168	....
3600						2334	1825	1416	1076	....
3000				3068	2511	2005	1588	1229	932	....
2400			3041	2550	2119	1689	1335	....	....	....
1750	3138	2780	2393	2000	1659	....	....	....	....	....
1150	2249	2010	....	....	....	....	....	....	....	....
H.S. Shaft Diameter	4	4	4	4	4	4	4	3½	3	....

Size No. NM1410C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
5000						3427	2564	1975	1506	....
4000						2742	2148	1667	1269	....
3600						2535	1983	1538	1169	....
3000				3332	2728	2178	1725	1335	1013	....
2400			3303	2770	2302	1835	1450	....	....	....
1750	3409	3020	2599	2173	1802	....	....	....	....	....
1150	2443	2183	....	....	....	....	....	....	....	....
H.S. Shaft Diameter	4	4	4	4	4	4	4	3½	3	....

Size No. NM168C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
4000							2265	1764	1346	1009
3600						2671	2093	1628	1241	....
3000					2865	2330	1823	1416	1077	....
2400				2963	2423	1967	1535	1189	....	....
1750	3606	3198	2755	2332	1901	1512	....	....	....	....
1150	2623	2319	1991	....	....	....	....	....	....	....
H.S. Shaft Diameter	4½	4½	4½	4½	4½	4½	4½	4	3½	3½

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE NM

Size No. NM169C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
4000							2490	1939	1480	....
3600						2936	2301	1790	1364	....
3000					3149	2562	2004	1556	1184	....
2400				3257	2663	2162	1687	1307	....	....
1750	3964	3516	3029	2563	2090	1662	....	....	....	....
1150	2883	2550	2188	....	....	....	....	....	....	....
H.S. Shaft Diameter	4½	4½	4½	4½	4½	4½	4½	4	3½	....

Size No. NM1610C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
4000							2704	2106	1607	....
3600						3189	2498	1944	1482	....
3000					3420	2782	2176	1690	1286	....
2400				3537	2893	2348	1832	1420	....	....
1750	4305	3818	3289	2784	2270	1805	....	....	....	....
1150	3131	2769	2377	....	....	....	....	....	....	....
H.S. Shaft Diameter	4½	4½	4½	4½	4½	4½	4½	4	3½	....

Size No. NM1611C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
4000							2910	2267	1730	....
3600						3432	2689	2092	1595	....
3000					3681	2994	2342	1819	1384	....
2400				3807	3113	2527	1972	1528	....	....
1750	4633	4109	3540	2996	2443	1943	....	....	....	....
1150	3370	2980	2558	....	....	....	....	....	....	....
H.S. Shaft Diameter	4½	4½	4½	4½	4½	4½	4½	4	3½	....

Size No. NM189C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
4000								2372	1817	1366
3600							2851	2192	1677	....
3000						3124	2486	1907	....	....
2400				3996	3305	2640	2097	1605	....	....
1750		4307	3759	3152	2599	2070	1611	....	....	....
1150		3133	2692	2277	....	....	....	....	....	....
870		2520	....	....	....	....	....	....	....	....
H.S. Shaft Diameter		5	5	5	5	5	5	4½	4½	3½

Size No. NM1810C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
4000								2577	1973	1484
3600							3096	2380	1821	....
3000						3393	2700	2071	....	....
2400				4340	3589	2867	2277	1743	....	....
1750		4678	4083	3423	2823	2248	1750	....	....	....
1150		3403	2924	2473	....	....	....	....	....	....
870		2737	....	....	....	....	....	....	....	....
H.S. Shaft Diameter		5	5	5	5	5	5	4½	4½	3½

Size No. NM1811C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
4000								2773	2123	....
3600							3332	2561	1959	....
3000						3651	2906	2229	....	....
2400				4670	3862	3085	2450	1876	....	....
1750		5034	4393	3683	3038	2419	1883	....	....	....
1150		3661	3146	2661	....	....	....	....	....	....
870		2945	....	....	....	....	....	....	....	....
H.S. Shaft Diameter		5	5	5	5	5	5	4½	4½	....

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE NM

Size No. NM1812C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
4000								2962	2269	....
3600							3560	2736	2094	....
3000						3901	3104	2382	....	....
2400				4989	4126	3296	2618	2004	....	....
1750		5378	4694	3935	3246	2585	2012	....	....	....
1150		3912	3361	2843	....	....	....	....	....	....
870		3147	....	....	....	....	....	....	....	....
H.S. Shaft Diameter		5	5	5	5	5	5	4½	3½	....

Size No. NM1813C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
4000								3148	....	....
3600							3783	2908	....	....
3000						4145	3299	2531	....	....
2400				5302	4385	3503	2782	2130	....	....
1750		5715	4988	4182	3449	2747	2138	....	....	....
1150		4157	3572	3021	....	....	....	....	....	....
870		3344	....	....	....	....	....	....	....	....
H.S. Shaft Diameter		5	5	5	5	5	5	4½	....	....

Size No. NM2110C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
3600								3152	2384	1797
3000							3520	2748	2075	....
2400						3765	2975	2280	1746	....
1750			5345	4487	3668	2960	2233	1782	....	....
1150		4458	3835	3254	2650	....	....	....	....	....
870		3596	3086	....	....	....	....	....	....	....
H.S. Shaft Diameter		5½	5½	5½	5½	5½	5½	5	5	4

Size No. NM2111C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
3600								3392	2566	1934
3000							3787	2957	2233	....
2400						4052	3201	2454	1878	....
1750			5752	4828	3947	3186	2510	1917	....	....
1150		4797	4126	3502	2852	....	....	....	....	....
870		3869	3320	....	....	....	....	....	....	....
H.S. Shaft Diameter		5½	5½	5½	5½	5½	5½	5	5	4

Size No. NM2112C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
3600								3624	2741	2066
3000							4046	3160	2385	....
2400						4329	3421	2622	2007	....
1750			6145	5159	4217	3404	2682	2048	....	....
1150		5125	4409	3742	3047	....	....	....	....	....
870		4134	3548	....	....	....	....	....	....	....
H.S. Shaft Diameter		5½	5½	5½	5½	5½	5½	5	5	4

Size No. NM2113C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
3600								3851	2913	....
3000							4300	3358	2535	....
2400						4600	3635	2786	2133	.....
1750			6530	5482	4481	3617	2850	2177	....	....
1150		5446	4685	3976	3238	....	....	....	....	....
870		4393	3770	....	....	....	....	....	....	....
H.S. Shaft Diameter	....	5½	5½	5½	5½	5½	5½	5	5	....

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HORSEPOWER RATING TABLES

TYPE N

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 5 and 6 for information on selecting reducers.

Size No. N504C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
20000	1968	1711	1429	1160	916	705	530	391	....	....
17000	1673	1454	1215	986	778	599	451	332	....	....
14000	1377	1197	1000	812	641	493	371	282	....	....
12000	1181	1026	857	696	549	423	327	251	....	....
10000	984	855	714	580	456	365	285	218	....	....
8000	787	684	571	471	386	308	240	183	....	....
7000	688	598	508	426	348	278	216	165	....	....
6000	590	524	452	379	309	246	192	146	....	....
5000	511	453	393	329	268	213	166	126	....	....
4000	431	382	328	276	225	178	138	105	....	....
3600	398	352	302	254	207	164	127	96	....	....
H.S. Shaft Diameter	1⅞	1⅞	1⅞	1⅞	1⅞	1⅞	1⅞	1½	....	....

Size No. N600C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
20000		2446	2065	1675	1323	1018	766	565	408	291
17000	2413	2079	1755	1424	1124	866	651	480	347	253
14000	1987	1712	1445	1173	926	713	536	395	295	218
12000	1703	1467	1238	1005	794	611	460	347	262	194
10000	1419	1222	1032	837	661	509	394	302	228	168
8000	1135	978	825	670	532	425	333	255	191	141
7000	993	856	722	588	481	385	300	229	172	126
6000	851	733	624	524	428	341	267	203	152	112
5000	709	625	538	456	372	296	231	175	131	96
4000	596	528	454	384	312	249	193	147	109	80
3600	550	487	418	354	288	228	177	134	100	73
H.S. Shaft Diameter	1⅞	1⅞	1⅞	1⅞	1⅞	1⅞	1⅞	1½	1	1

Size No. N602C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
20000		2798	2362	1917	1513	1165	877	646	467	....
17000	2760	2378	2008	1629	1286	991	745	549	397	....
14000	2273	1959	1653	1341	1059	815	613	452	337	....
12000	1948	1678	1416	1150	908	699	526	397	300	....
10000	1624	1398	1180	958	756	582	451	346	260	....
8000	1299	1119	944	766	609	487	381	292	219	....
7000	1136	979	826	673	551	440	343	262	197	....
6000	974	838	714	600	490	390	305	233	174	....
5000	812	715	616	521	426	339	264	201	150	....
4000	682	604	520	439	357	284	220	168	125	....
3600	629	557	479	405	329	261	203	154	114	....
H.S. Shaft Diameter	1⅞	1⅞	1⅞	1⅞	1⅞	1⅞	1⅞	1½	1	....

Size No. N604C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
20000		3143	2653	2153	1700	1309	985	726	....	....
17000	3100	2671	2255	1830	1445	1113	837	617	....	....
14000	2553	2200	1857	1507	1190	916	689	508	....	....
12000	2188	1885	1591	1292	1020	785	591	446	....	....
10000	1824	1571	1326	1076	850	654	507	389	....	....
8000	1459	1257	1061	861	684	547	428	328	....	....
7000	1276	1100	928	756	619	495	386	295	....	....
6000	1094	942	802	674	551	439	343	262	....	....
5000	912	803	692	586	479	381	297	226	....	....
4000	766	679	584	494	402	320	248	189	....	....
3600	707	626	538	455	370	294	228	173	....	....
H.S. Shaft Diameter	1⅞	1⅞	1⅞	1⅞	1⅞	1⅞	1⅞	1½	....	....

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

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE N

Size No. N800C

H.S. Shaft R.P.M.	STANDARD RATIOS 1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
20000				3816	3049	2349	1786	1318	955	681
17000			3996	3243	2592	1996	1518	1120	812	579
14000		3837	3291	2670	2134	1644	1250	922	669	477
12000	3571	2992	2820	2289	1829	1408	1072	790	570	425
10000	2976	2741	2350	1908	1524	1174	893	657	497	370
8000	2381	2192	1880	1526	1219	939	723	556	419	311
7000	2083	1925	1645	1335	1066	826	654	502	378	281
6000	1785	1644	1410	1144	920	736	582	446	336	248
5000	1487	1370	1175	969	803	641	505	387	291	214
4000	1190	1102	976	819	669	539	425	324	243	179
3600	1075	954	901	755	616	496	390	297	223	164
H.S. Shaft Diameter	2½	2½	2½	2½	2½	2½	2½	2	1½	1½

Size No. N802C

H.S. Shaft R.P.M.	STANDARD RATIOS 1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
20000				4423	3535	2723	2071	1528	1107	....
17000			4633	3759	3005	2314	1760	1299	941	....
14000		4516	3815	3096	2474	1906	1449	1069	775	....
12000	4203	3520	3270	2653	2120	1633	1242	916	661	....
10000	3502	3225	2725	2211	1767	1361	1035	762	576	....
8000	2801	2580	2180	1769	1413	1089	839	644	486	....
7000	2451	2257	1907	1547	1236	958	758	583	439	....
6000	2101	1935	1635	1326	1067	854	674	517	389	....
5000	1750	1612	1362	1123	931	743	586	448	337	....
4000	1400	1297	1131	949	775	625	492	376	281	....
3600	1265	1122	1045	876	714	575	453	345	258	....
H.S. Shaft Diameter	2½	2½	2½	2½	2½	2½	2½	2	1½	....

Size No. N804C

H.S. Shaft R.P.M.	STANDARD RATIOS 1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
20000				5008	4002	3083	2345	1730	....	....
17000			5245	4256	3402	2620	1993	1471	....	....
14000		5169	4319	3505	2801	2158	1641	1211	....	....
12000	4811	4030	3702	3004	2401	1849	1407	1038	....	....
10000	4009	3692	3085	2504	2001	1541	1172	863	....	....
8000	3207	2953	2468	2003	1600	1233	950	730	....	....
7000	2806	2584	2159	1752	1400	1085	859	660	....	....
6000	2405	2215	1851	1502	1208	967	764	586	....	....
5000	2004	1846	1542	1272	1054	842	664	508	....	....
4000	1603	1485	1281	1075	878	708	558	426	....	....
3600	1448	1285	1183	992	809	652	513	391	....	....
H.S. Shaft Diameter	2½	2½	2½	2½	2½	2½	2½	2	....	....

Size No. N1000C

H.S. Shaft R.P.M.	STANDARD RATIOS 1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
20000					5150	4073	3102	2312	1677	1198
17000				5142	4377	3462	2637	1965	1425	1018
14000			5003	4235	3605	2851	2172	1618	1173	838
12000		5131	4288	3629	3090	2443	1861	1387	1006	718
10000	5057	4276	3573	3024	2575	2036	1551	1156	838	617
8000	4045	3421	2858	2419	2060	1629	1240	923	699	520
7000	3539	2993	2501	2117	1802	1425	1085	835	631	470
6000	3034	2565	2144	1814	1544	1221	957	736	561	417
5000	2528	2137	1786	1512	1282	1054	834	640	487	361
4000	2022	1710	1429	1229	1026	889	694	538	408	301
3600	1820	1539	1296	1088	947	820	640	495	375	277
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	1⅞	1⅞

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE N

Size No. N1002C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
20000					6202	4830	3678	2741	1989	....
17000				6264	5271	4105	3127	2330	1690	....
14000			6095	5159	4340	3380	2575	1918	1391	....
12000		6251	5224	4421	3721	2897	2206	1645	1193	....
10000	6123	5209	4353	3684	3101	2415	1839	1370	994	....
8000	4899	4167	3482	2948	2480	1931	1471	1094	829	....
7000	4286	3646	3047	2579	2170	1690	1287	990	749	....
6000	3674	3125	2612	2210	1860	1448	1135	873	666	....
5000	3061	2604	2176	1842	1544	1249	989	759	578	....
4000	2449	2083	1741	1497	1235	1054	823	638	484	....
3600	2204	1875	1579	1326	1140	972	759	587	445	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	1⅞	....

Size No. N1004C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
20000					7198	5546	4224	3148	....	....
17000				7329	6118	4714	3591	2676	....	....
14000			7131	6036	5038	3882	2957	2203	....	....
12000		7314	6112	5173	4319	3327	2534	1889	....	....
10000	7135	6095	5093	4311	3599	2773	2112	1574	....	....
8000	5708	4876	4074	3449	2879	2218	1689	1257	....	....
7000	4994	4266	3565	3018	2519	1941	1478	1137	....	....
6000	4281	3657	3056	2586	2159	1663	1304	1003	....	....
5000	3567	3047	2546	2155	1792	1435	1136	872	....	....
4000	2854	2438	2037	1752	1434	1211	946	733	....	....
3600	2568	2194	1848	1552	1324	1117	872	675	....	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	....	....

Size No. N1200C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
17000						5520	4420	3344	2438	1741
14000					5692	4546	3640	2753	2008	1434
12000			7710	6258	4879	3896	3120	2360	1721	1229
10000		7287	6425	5215	4065	3247	2600	1966	1434	1024
8000	6766	5829	5140	4172	3252	2598	2080	1573	1142	853
7000	5920	5101	4497	3650	2846	2273	1820	1376	1033	770
6000	5074	4372	3855	3128	2439	1948	1559	1210	920	685
5000	4228	3643	3212	2607	2032	1623	1337	1054	800	594
4000	3382	2914	2570	2085	1636	1358	1129	883	672	503
3600	3044	2623	2312	1870	1512	1209	994	814	619	462
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	2¼	2¼

Size No. N1202C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
17000						6458	5130	3840	2800	....
14000					6659	5319	4225	3162	2306	....
12000			8983	7291	5707	4558	3621	2710	1976	....
10000		8561	7486	6076	4756	3799	3018	2258	1646	....
8000	7949	6848	5989	4861	3805	3039	2414	1806	1311	....
7000	6955	5993	5240	4253	3329	2659	2112	1581	1187	....
6000	5961	5136	4491	3645	2853	2278	1810	1389	1056	....
5000	4968	4280	3743	3037	2378	1899	1552	1211	918	....
4000	3974	3423	2994	2430	1914	1588	1311	1014	772	....
3600	3577	3082	2694	2178	1769	1414	1153	934	711	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	2¼	....

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE N

Size No. N1204C

H.S. Shaft R.P.M.	STANDARD RATIOS 1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
17000						7346	5802	4309	3142	....
14000					7574	6050	4778	3548	2588	....
12000			10188	8269	6492	5185	4095	3041	2218	....
10000		9767	8490	6891	5410	4321	3413	2534	1848	....
8000	9069	7813	6792	5513	4328	3457	2730	2027	1472	....
7000	7935	6837	5943	4824	3787	3025	2389	1774	1332	....
6000	6801	5860	5094	4134	3246	2592	2047	1559	1186	....
5000	5668	4883	4245	3445	2705	2160	1756	1359	1031	....
4000	4534	3906	3396	2756	2178	1807	1483	1138	867	....
3600	4081	3516	3056	2471	2013	1609	1305	1049	798	....
H.S. Shaft Diameter	3½	3½	3½	3½	3½	3½	3½	3	2¼	....

Size No. N1400C

H.S. Shaft R.P.M.	STANDARD RATIOS 1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
17000							6448	4964	3805	2733
14000						7115	5311	4088	3133	2250
12000				9580	7916	6098	4552	3504	2685	1929
10000			9836	7984	6596	5082	3793	2920	2237	1607
8000	10405	8964	7869	6386	5277	4066	3034	2335	1790	1287
7000	9104	7844	6885	5588	4618	3557	2655	2044	1566	1165
6000	7804	6724	5901	4790	3958	3049	2275	1752	1383	1037
5000	6503	5603	4918	3992	3298	2541	1896	1507	1204	902
4000	5202	4482	3934	3193	2638	2044	1589	1272	1014	761
3600	4682	4033	3540	2874	2374	1889	1466	1173	934	701
H.S. Shaft Diameter	4	4	4	4	4	4	4	3½	2¾	2¾

Size No. N1402C

H.S. Shaft R.P.M.	STANDARD RATIOS 1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
17000							7334	5613	4269	....
14000						8069	6040	4623	3516	....
12000				10929	8977	6916	5177	3962	3013	....
10000			11221	9108	7481	5763	3414	3302	2511	....
8000	11947	10293	8977	7286	5984	4611	3451	2641	2008	....
7000	10453	9006	7854	6375	5237	4034	3019	2311	1757	..
6000	8961	7720	6732	5464	4488	3458	2588	1980	1551	....
5000	7467	6433	5610	4554	3740	2881	2157	1704	1351	....
4000	5973	5146	4488	3642	2992	2318	1807	1439	1138	....
3600	5376	4631	4039	3279	2692	2143	1668	1327	1048	....
H.S. Shaft Diameter	4	4	4	4	4	4	4	3½	2¾	....

Size No. N1404C

H.S. Shaft R.P.M.	STANDARD RATIOS 1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
17000							8173	6229	4710	....
14000						8972	6731	5130	3879	....
12000				12206	9982	7690	5769	4397	3324	....
10000			12532	10172	8318	6408	4808	3664	2770	....
8000	13406	11550	10026	8137	6654	5127	3846	2931	2216	....
7000	11730	10106	8772	7120	5823	4486	3365	2565	1939	....
6000	10055	8663	7519	6103	4991	3845	2884	2198	1712	....
5000	8379	7219	6266	5086	4159	3204	2404	1891	1491	....
4000	6703	5775	5013	4068	3327	2578	2014	1597	1256	....
3600	6033	5197	4511	3662	2994	2383	1859	1473	1157	....
H.S. Shaft Diameter	4	4	4	4	4	4	4	3½	2¾	....

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE N

Size No. N1600C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
14000						10221	8005	5872	4415	3307
12000					11372	8760	6861	5033	3785	2834
10000				11499	9476	7300	5717	4194	3154	2362
8000		13565	11335	9199	7581	5840	4574	3355	2522	1889
7000	12263	11869	9918	8050	6633	5110	4002	2936	2207	1655
6000	10394	10174	8501	6899	5686	4380	3430	2516	1883	1475
5000	8662	8478	7084	5749	4737	3650	2858	2093	1643	1284
4000	6929	6782	5667	4599	3790	2919	2315	1771	1387	1081
3600	6236	6104	5101	4139	3411	2624	2140	1634	1279	996
3000	5197	5086	4250	3449	2861	2289	1864	1421	1109	862
H.S. Shaft Diameter	4½	4½	4½	4½	4½	4½	4½	4	3¼	3¼

Size No. N1602C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
14000						11414	8900	6544	4899	....
12000					12700	9783	7629	5609	4199	....
10000				12903	10583	8153	6357	4674	3499	....
8000		15221	12719	10322	8466	6522	5086	3739	2799	....
7000	13990	13318	11129	9032	7408	5706	4449	3271	2449	....
6000	11991	11415	9539	7741	6350	4891	3814	2804	2089	....
5000	9993	9513	7949	6451	5291	4076	3178	2332	1823	....
4000	7994	7610	6359	5160	4233	3260	2575	1973	1539	....
3600	7194	6849	5723	4645	3810	2931	2379	1821	1419	....
3000	5995	5707	4769	3870	3195	2557	2072	1583	1231	....
H.S. Shaft Diameter	4½	4½	4½	4½	4½	4½	4½	4	3¼	....

Size No. N1604C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
14000						12547	9751	7181	5359	....
12000					13960	10754	8358	6155	4594	....
10000				14234	11633	8962	6965	5129	3828	....
8000		16791	14031	11387	9306	7169	5572	4103	3062	....
7000	15624	14692	12277	9964	8143	6273	4875	3590	2679	....
6000	13392	12593	10523	8540	6980	5377	4179	3077	2286	....
5000	11160	10494	8769	7117	5816	4481	3482	2560	1995	....
4000	8928	8395	7015	5693	4653	3584	2821	2166	1684	....
3600	8035	7556	6314	5124	4188	3222	2607	1999	1553	....
3000	6696	6296	5261	4270	3512	2811	2271	1738	1347	....
H.S. Shaft Diameter	4½	4½	4½	4½	4½	4½	4½	4	3¼	....

Size No. N1800C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.50
14000							10962	8377	6051	4461
12000						12474	9396	7180	5186	3824
10000					12998	10395	7830	5983	4321	3186
8000			14688	13165	10398	8315	6264	4786	3457	2549
7000		15382	12852	11519	9098	7276	5481	4188	3025	2230
6000		13185	11016	9873	7798	6236	4697	3590	2592	1932
5000		10987	9180	8228	6499	5197	3914	2991	2187	1684
4000		8789	7343	6582	5198	4160	3132	2453	1849	1469
3600		7910	6609	5923	4679	3742	2845	2266	1706	1309
3000		6592	5507	4936	3899	3166	2481	1973	1482	1135
H.S. Shaft Diameter	....	5	5	5	5	5	5	4½	3½	3½

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE N

Size No. N1802C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
14000							12049	9177	6640	....
12000						13711	10328	7866	5691	....
10000					14338	11429	8606	6555	4742	....
8000			16404	14522	11470	9140	6885	5244	3793	....
7000		17179	14353	12707	10036	7997	6024	4588	3320	....
6000		14725	12302	10891	8602	6855	5163	3933	2845	....
5000		12270	10252	9076	7169	5712	4302	3277	2399	....
4000		9816	8201	7260	5734	4569	3442	2688	2029	....
3600		8834	7381	6534	5161	4113	3127	2483	1872	....
3000		7362	6150	5445	4301	3480	2727	2161	1626	....
H.S. Shaft Diameter	....	5	5	5	5	5	5	4½	3½	....

Size No. N1804C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
14000							13086	9942	7202	....
12000						14891	11217	8522	6173	....
10000					15614	12409	9347	7101	5144	....
8000			18031	15815	12491	9927	7478	5681	4115	....
7000		18883	15777	13838	10930	8686	6543	4971	3601	....
6000		16186	13523	11861	9368	7445	5608	4261	3086	....
5000		13488	11269	9884	7807	6204	4673	3550	2603	....
4000		10790	9015	7907	6245	4963	3739	2912	2201	....
3600		9711	8114	7116	5621	4467	3397	2690	2031	....
3000		8093	6761	5930	4684	3780	2962	2342	1764	....
H.S. Shaft Diameter	....	5	5	5	5	5	5	4½	3½	....

Size No. N2100C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
12000							13722	10478	7840	5585
10000						15182	11434	8731	6533	4654
8000					14459	12145	9148	6985	5227	3723
7000				16021	12651	10627	8004	6112	4573	3258
6000			16919	13732	10844	9108	6860	5238	3919	2792
5000		15863	14098	11443	9037	7591	5716	4365	3266	2368
4000		12690	11278	9154	7229	6072	4574	3492	2691	2001
3600		11421	10151	8238	6506	5465	4115	3183	2485	1847
3000		9517	8459	6865	5421	4554	3488	2775	2163	1604
2400		7614	6767	5492	4337	3764	2948	2340	1819	1346
H.S. Shaft Diameter	....	5½	5½	5½	5½	5½	5½	5	4	4

Size No. N2102C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
12000							14943	11379	8493	6058
10000						16533	12452	9482	7077	5048
8000					15893	13226	9962	7586	5662	4039
7000				17610	13906	11572	8716	6638	4954	3534
6000			18597	15094	11919	9919	7471	5689	4246	3028
5000		17565	15496	12577	9933	8266	6225	4741	3538	2569
4000		14052	12397	10062	7946	6613	4981	3792	2915	2171
3600		12647	11158	9055	7151	5951	4482	3457	2692	2003
3000		10538	9298	7546	5959	4959	3798	3014	2343	1740
2400		8431	7438	6037	4767	4099	3210	2541	1971	1460
H.S. Shaft Diameter	....	5½	5½	5½	5½	5½	5½	5	4	4

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.

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE N

Size No. N2104C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
12000							16113	12245	9121	6513
10000						17828	13427	10204	7601	5427
8000					17261	14262	10742	8163	6081	4342
7000				19125	15103	12479	9399	7143	5321	3799
6000			20197	16393	12945	10696	8056	6122	4560	3256
5000		19184	16830	13660	10788	8914	6713	5102	3800	2762
4000		15347	13464	10928	8630	7131	5371	4081	3131	2334
3600		13813	12118	9835	7767	6418	4833	3720	2892	2154
3000		11510	10098	8196	6472	5348	4096	3244	2517	1871
2400		9208	8078	6557	5178	4420	3462	2735	2117	1570
H.S. Shaft Diameter	....	5½	5½	5½	5½	5½	5½	5	4	4

Size No. N2400C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
12000								13342	10009	7374
10000							14814	11118	8340	6145
8000						14675	11851	8895	6672	4915
7000					16669	12841	10370	7782	5838	4301
6000				17010	14287	11006	8888	6670	5004	3686
5000			17465	14176	11906	9172	7407	5559	4169	3072
4000			13971	11340	9524	7337	5925	4447	3321	2558
3600			12575	10206	8572	6603	5332	4002	3070	2362
3000			10479	8505	7143	5502	4444	3420	2675	2055
2400			8383	6804	5714	4397	3696	2888	2255	1727
1750			6112	4978	4336	3467	2709	2263	1761	1344
H.S. Shaft Diameter	....	....	6½	6½	6½	6½	6½	6	4¾	4¾

Size No. N2402C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
12000								14529	10870	7988
10000							16283	12108	9058	6656
8000						16131	13026	9686	7246	5325
7000					18322	14144	11398	8475	6340	4659
6000				18836	15704	12098	9769	7264	5434	3993
5000			19339	15697	13087	10081	8141	6054	4528	3327
4000			15471	12557	10469	8065	6512	4842	3606	2772
3600			13924	11301	9422	7258	5861	4358	3334	2559
3000			11603	9418	7852	6048	4884	3724	2906	2226
2400			9282	7534	6281	4833	4063	3145	2449	1871
1750			6768	5513	4766	3811	2977	2465	1912	1456
H.S. Shaft Diameter	....	....	6½	6½	6½	6½	6½	6	4¾	4¾

Size No. N2404C

STANDARD RATIOS

H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
12000								15667	11697	8579
10000							17684	13056	9747	7149
8000						17519	14147	10445	7798	5719
7000					19899	15329	12379	9139	6823	5004
6000				20572	17056	13139	10610	7833	5848	4289
5000			21122	17144	14213	10949	8842	6528	4873	3574
4000			16897	13715	11370	8759	7073	5222	3881	2977
3600			15208	12343	10233	7883	6366	4700	3588	2749
3000			12673	10286	8528	6569	5305	4016	3127	2391
2400			10138	8229	6822	5249	4413	3392	2636	2010
1750			7392	6021	5177	4139	3234	2658	2058	1564
H.S. Shaft Diameter	....	....	6½	6½	6½	6½	6½	6	4¾	4¾

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

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE N

Size No. N3000C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
10000									13350	9789
8000								13580	10680	7831
7000							16094	11882	9345	6852
6000						17296	13795	10184	8009	5873
5000					18528	14413	11496	8487	6674	4894
4000				18765	14822	11530	9196	6790	5339	3915
3600				16885	13340	10377	8276	6111	4805	3562
3000				14074	11117	8648	6897	5092	4053	3106
2400				11259	8893	6918	5517	4177	3426	2551
1750				8209	6484	4847	4279	3287	2687	1994
H.S. Shaft Diameter	....	....	....	7½	7½	7½	7½	6½	6	6

Size No. N3002C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
10000									14462	10605
8000								14831	11569	8484
7000							17577	12977	10123	7423
6000						19011	15066	11123	8676	6363
5000					20366	15842	12555	9269	7230	5302
4000				20627	16292	12674	10044	7415	5784	4242
3600				18563	14663	11406	9039	6674	5205	3858
3000				15469	12219	9505	7533	5561	4391	3364
2400				12376	9775	7604	6025	4562	3712	2764
1750				9023	7128	5670	4674	3590	2910	2160
H.S. Shaft Diameter	....	....	....	7½	7½	7½	7½	6½	6	6

Size No. N3004C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
10000									15531	11389
8000								16028	12424	9111
7000							18995	14024	10871	7972
6000						20646	16281	12020	9318	6833
5000					22118	17205	13568	10016	7765	5694
4000				22401	17694	13764	10854	8014	6212	4555
3600				20160	15924	12387	9768	7212	5590	4144
3000				16800	13270	10322	8140	6010	4715	3613
2400				13440	10616	8258	6512	4930	3986	2968
1750				9799	7741	6157	5051	3879	3126	2320
H.S. Shaft Diameter	....	....	....	7½	7½	7½	7½	6½	6	6

Size No. N3006C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
10000									16569	12150
8000								17182	13255	9720
7000							20363	15034	11598	8505
6000						22217	17454	12886	9941	7290
5000					23800	18514	14545	10738	8284	6075
4000				24105	19040	14811	11636	8591	6627	4860
3600				21694	17136	13330	10472	7732	5964	4421
3000				18078	14280	11108	8727	6443	5031	3855
2400				14463	11424	8887	6981	5285	4253	3167
1750				10545	8330	6626	5415	4159	3335	2475
H.S. Shaft Diameter	....	....	....	7½	7½	7½	7½	6½	6	6

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

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE N

Size No. N3300C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
10000									18329	13956
8000							26208	20215	14662	11165
7000						30153	22932	17688	12830	9769
6000						25845	19656	15161	10997	8373
5000					26088	21538	16380	12634	9164	6978
4000				26429	20870	17230	13104	10107	7331	5582
3600				23786	18783	15507	11793	9096	6597	5024
3000				19822	15653	12922	9828	7580	5497	4325
2400				15857	12522	10337	7862	6069	4597	3652
1750				11563	9130	7523	5958	4785	3612	2860
H.S. Shaft Diameter	....	....	....	8½	8½	8½	8½	7½	6½	6½

Size No. N3302C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
10000									19582	14847
8000							28095	21598	15666	11878
7000						32324	24583	18898	13708	10393
6000						27706	21071	16198	11749	8908
5000					28131	23088	17559	13498	9791	7423
4000				28498	22504	18470	14047	10798	7833	5939
3600				25648	20254	16623	12642	9718	7049	5344
3000				21374	16878	13852	10535	8099	5874	4602
2400				17099	13503	11082	8428	6484	4911	3886
1750				12468	9845	8065	6387	5112	3859	3042
H.S. Shaft Diameter	....	....	....	8½	8½	8½	8½	7½	6½	6½

Size No. N3304C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
10000									20807	15723
8000							29929	22949	16645	12578
7000						34434	26188	20080	14565	11006
6000						29515	22447	17211	12484	9434
5000					30104	24595	18705	14343	10403	7861
4000				30497	24082	19676	14964	11474	8322	6289
3600				27448	21674	17708	13467	10326	7490	5660
3000				22873	18062	14757	11223	8605	6241	4873
2400				18298	14450	11805	8978	6889	5218	4115
1750				13342	10536	8591	6804	5432	4100	3222
H.S. Shaft Diameter	....	....	....	8½	8½	8½	8½	7½	6½	6½

Size No. N3306C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
10000									22013	16590
8000							31728	24279	17610	13272
7000						36504	27762	21244	15409	11613
6000						31289	23796	18209	13208	9954
5000					32027	26074	19830	15174	11006	8295
4000				32445	25621	20859	15864	12139	8805	6636
3600				29201	23059	18773	14277	10925	7924	5972
3000				24334	19216	15644	11898	9104	6603	5142
2400				19467	15373	12515	9518	7289	5521	4342
1750				14195	11209	9108	7213	5747	4338	3400
H.S. Shaft Diameter	....	....	....	8½	8½	8½	8½	7½	6½	6½

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

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HORSEPOWER RATING TABLES (Cont'd.)

TYPE N

Size No. N3800C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
8000									24035	17281
7000								28182	21030	15122
6000							32412	24156	18026	12961
5000						33995	27010	20130	15021	10801
4000				44048	35304	27196	21608	16104	12017	8640
3600			48854	39643	31774	24476	19447	14493	10815	7776
3000			40711	33036	26478	20397	16205	12077	9012	6742
2400			32569	26428	21182	16317	12964	9662	7273	5465
1750			23748	19271	15445	11898	9480	7367	5730	4292
1150			15606	12663	10460	8365	6901	5289	4018	3082
H.S. Shaft Diameter	....	....	9½	9½	9½	9½	9½	8½	7½	7½

Size No. N3802C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
8000									26635	19100
7000								31231	23306	16713
6000							35919	26769	19976	14325
5000						37850	29932	22308	16646	11938
4000				49043	39307	30280	23945	17846	13317	9550
3600			54394	44138	35377	27252	21551	16061	11985	8670
3000			45328	36782	29481	22709	17959	13384	9987	7451
2400			36262	29425	23584	18168	14366	10707	8060	6041
1750			26441	21456	17197	13247	10506	8164	6350	4743
1150			17376	14099	11646	9313	7647	5861	4453	3407
H.S. Shaft Diameter	....	....	9½	9½	9½	9½	9½	8½	7½	7½

Size No. N3804C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
8000									29241	20924
7000								34286	25586	18309
6000							39433	29388	21930	15693
5000						41685	32860	24490	18275	13078
4000				54013	43290	33348	26288	19592	14620	10462
3600			59906	48611	38962	30013	23659	17632	13158	9416
3000			49921	40509	32468	25011	19716	14693	10964	8163
2400			39937	32407	25974	20009	15772	11755	8848	6618
1750			29121	23630	18939	14589	11534	8963	6971	5196
1150			19136	15528	12826	10257	8395	6434	4889	3732
H.S. Shaft Diameter	....	....	9½	9½	9½	9½	9½	8½	7½	7½

Size No. N3806C

	STANDARD RATIOS									
H.S. Shaft R.P.M.	1.22	1.50	1.84	2.25	2.75	3.37	4.13	5.06	6.20	7.59
8000									31847	22749
7000								37342	27866	19906
6000							42947	32007	23885	17062
5000						45529	35789	26673	19904	14218
4000				58993	47282	36423	28631	21338	15923	11374
3600			65429	53093	42554	32781	25768	19204	14331	10237
3000			54524	44244	35462	27317	21473	16003	11942	8875
2400			43619	35395	28369	21854	17178	12803	9637	7195
1750			31806	25809	20686	15935	12562	9762	7593	5650
1150			20901	16960	14009	11203	9144	7008	5325	4058
H.S. Shaft Diameter	....	....	9½	9½	9½	9½	9½	8½	7½	7½

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

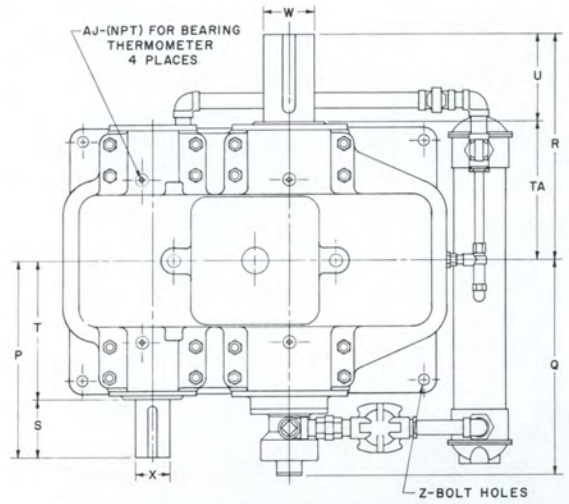
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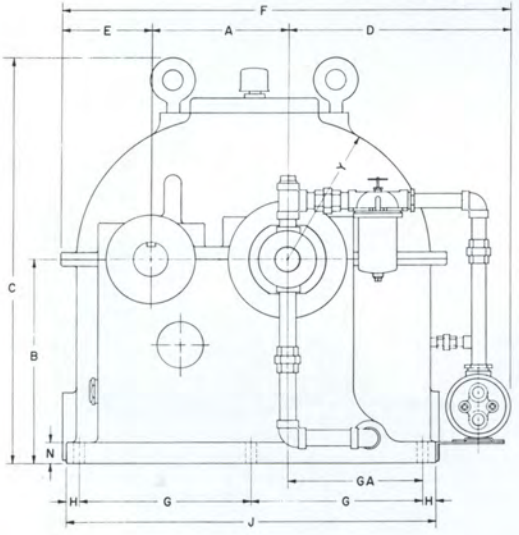
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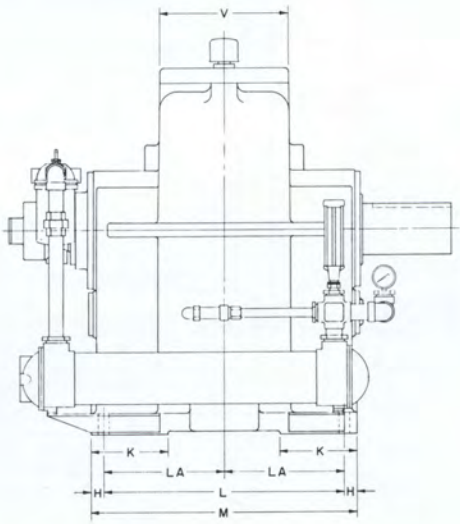
GENERAL DIMENSIONS

TYPE N & NM

WET SUMP UNITS







Size No. N or NM	A	B	C	D	E	F	G	GA	H	J	K	L	LA	M	N	P	Q	R	S	T	TA	U	V	W	X†	Y	AJ	Slow Speed Shaft Keyway	Z Bolt Holes	Weight
5	5	12½	22¾	12¼	5¼	22½	15½	5	1	17½	4	12	6	14	1½	10¼	16	11	2½	7¾	7¾	3¼	9½	2¼	For High Speed Shaft Dia. See Table on Page 8-20.	6	½	½ x ¼ x 2¾	4- ⅞	600
6	6	12½	22¾	11½	5	22½	15½	5½	1	17½	4	12	6	14	1½	10¼	16	12¾	2½	7¾	7¾	5	9½	3		6	½	¾ x ⅜ x 4½	4- ⅞	650
8	8	14	26⅞	16½	6½	31	21	7¾	1¼	23½	5	16½	8¼	19	1¾	13¾	18¼	16	3½	10¼	10¼	5¾	10¾	3½		8½	½	⅞ x 7/16 x 5¼	4-1⅛	1,100
10	10	17	32⅝	18½	8	36½	26½	9¾	1¼	29	6½	20½	10¼	23	2	17½	20½	19¾	5⅛	12⅜	12⅜	7⅜	11¾	4½		10½	½	1 x ½ x 7	4-1⅛	1,850
12	12	20	37	20½	8	40½	30	11½	1½	33	7	21	10½	24	2	18	21½	22	5⅛	12⅞	12⅞	9⅛	12½	5		12½	½	1¼ x 7/16 x 8¼	4-1⅜	2,550
14	14	22	41¼	22½	9	45½	35	13½	1½	38	7½	24	12	27	2¼	20¼	22⅝	24	5¾	14½	14½	9½	13½	5½		14½	½	1¼ x 7/16 x 8¾	4-1⅜	3,550
16	16	24	47⅜	25	10½	51½	20	15¾	1½	43	9	28	14	31	2½	23	24¾	26½	6½	16½	16⅝	9⅞	15	6		16⅝	½	1½ x ½ x 9¼	6-1⅜	4,550
18	18	26	50⅞	27¼	10½	55¾	22	17¼	1½	47	9	29	14½	32	2½	24½	25⅞	28¼	7½	17	17⅛	11⅛	16	6½		18⅛	½	1½ x ½ x 10¼	6-1⅜	5,600
21	21	28	55⅛	30	12	63	24½	19¼	2	53	9	29	14½	33	2¾	26	26	29¾	8½	17½	17⅜	12⅛	16¾	7		20⅝	½	1¾ x ⅝ x 11¼	6-1⅝	6,800
24	24	30	61⅜	34	13	71	29¼	23½	2	62½	10	32	12*	36	3	29¼	27½	32¾	10¼	19	19⅛	13⅜	18½	8		24¾	½	2 x ¾ x 13	6-1⅝	10,200

Type NM Units are not available in sizes 5 and 24.

For units having four foundation bolts the dimension under G is the distance between bolts.

*N24 has center holes spaced 16".

All dimensions are in inches.

†For Shaft Keyways, see Table of Standard Keyways Page 27.

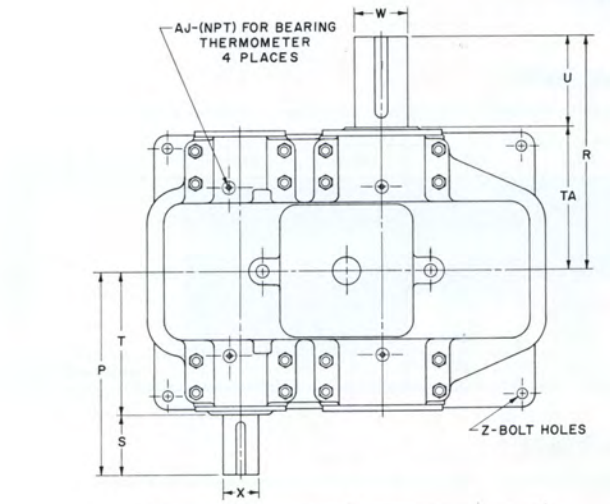
Above dimensions are not to be used for installation.
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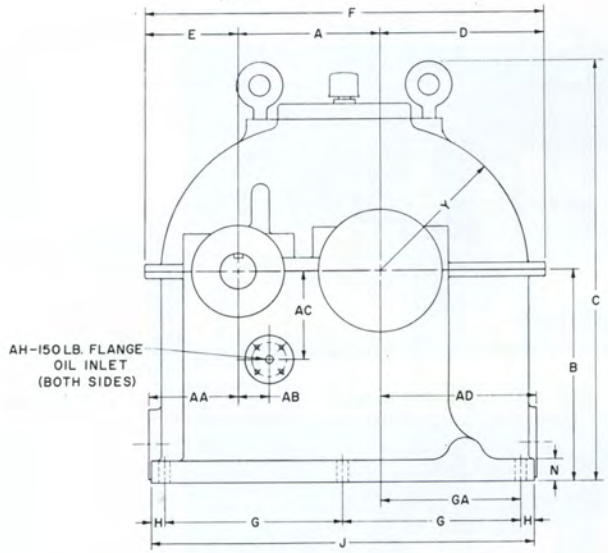
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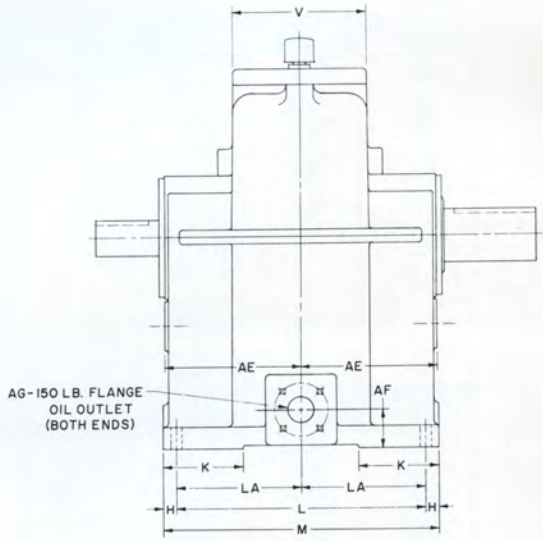
GENERAL DIMENSIONS

TYPE N & NM

DRY SUMP UNITS







Size No. N or NM	A	B	C	D	E	F	G	GA	H	J	K	L	LA	M	N	P	R	S	T	TA	U	V	W	X†	Y	AA	AB	AC	AD	AE	AF	AG	AH	AJ	Slow Speed Shaft Keyway	Z Bolt Holes	Weight
5	5	12½	22¾	12¼	5¼	22½	15½	6¼	1	17½	4	12	6	14	1½	10¼	11	2½	7¾	7¾	3¼	9½	2¼	For High Speed Shaft Dia. See Table on Page 8-20.	6	5 5/16	1	5½	7 1/16	6¾	3½	2	¾	½	½ x ¼ x 2¾	4- ⅞	575
6	6	12½	22¾	7¼	5	18¼	15½	5½	1	17½	4	12	6	14	1½	10¼	12¾	2½	7¾	7¾	5	9½	3		6	5 5/16	1¼	5½	6 11/16	6¾	3½	2	¾	½	¾ x ⅜ x 4½	4- ⅞	625
8	8	14	26⅞	10	6½	24½	21	7¾	1¼	23½	5	16½	8¼	19	1¾	13¾	16	3½	10¼	10¼	5¾	10¾	3½		8½	6 11/16	1½	5½	9 5/16	9¼	3⅝	2	¾	½	⅞ x 7/16 x 5¼	4-1⅛	1,050
10	10	17	32⅝	12	8	30	26½	9¾	1¼	29	6½	20½	10¼	23	2	17½	19¾	5⅛	12⅜	12⅜	7⅜	11¾	4½		10½	8¼	2¼	7	11¼	11¼	4⅜	3	1	½	1 x ½ x 7	4-1⅛	1,800
12	12	20	37	14	8	34	30	11½	1½	33	7	21	10½	24	2	18	22	5⅛	12⅞	12⅞	9⅛	12½	5		12½	8¼	2½	9	13¼	11¾	4⅜	3	1	½	1¼ x 7/16 x 8¼	4-1⅜	2,500
14	14	22	41¼	16	9	39	35	13½	1½	38	7½	24	12	27	2¼	20¼	24	5¾	14½	14½	9½	13½	5½		14½	9¼	3	10	15¼	13¼	4½	3	1	½	1¼ x 7/16 x 8¼	4-1⅜	3,450
16	16	24	47⅜	18½	10½	45	20	15¾	1½	43	9	28	14	31	2½	23	26½	6½	16½	16⅝	9⅞	15	6		16⅝	10	3½	10	17½	15¼	4⅜	3	1½	½	1½ x ½ x 9¼	6-1⅜	4,450
18	18	26	50⅞	20	10½	48½	22	17¼	1½	47	9	29	14½	32	2½	24½	28¼	7½	17	17⅛	11⅛	16	6½		18⅛	10½	4	11½	19	15¾	4⅜	3	1½	½	1½ x ½ x 10¼	6-1⅜	5,450
21	21	28	55⅛	22½	12	55½	24½	19¼	2	53	9	29	14½	33	2¾	26	29¾	8½	17½	17⅝	12⅛	16¾	7		20⅝	11	2	10	21½	16¼	5¼	4	1½	½	1¾ x ⅜ x 11¼	6-1⅝	6,650
24	24	30	61⅜	27	13	64	29¼	23½	2	62½	10	32	12*	36	3	29¼	32¼	10¼	19	19⅛	13⅜	18½	8		24¾	13¼	2½	11	25¾	17¾	5½	4	1½	½	2 x ¾ x 13	6-1⅝	10,000

Type NM Units are not available in sizes 5 and 24.

For units having four foundation bolts the dimension under G is the distance between bolts.

**N24 has center holes spaced 16".

All dimensions are in inches.

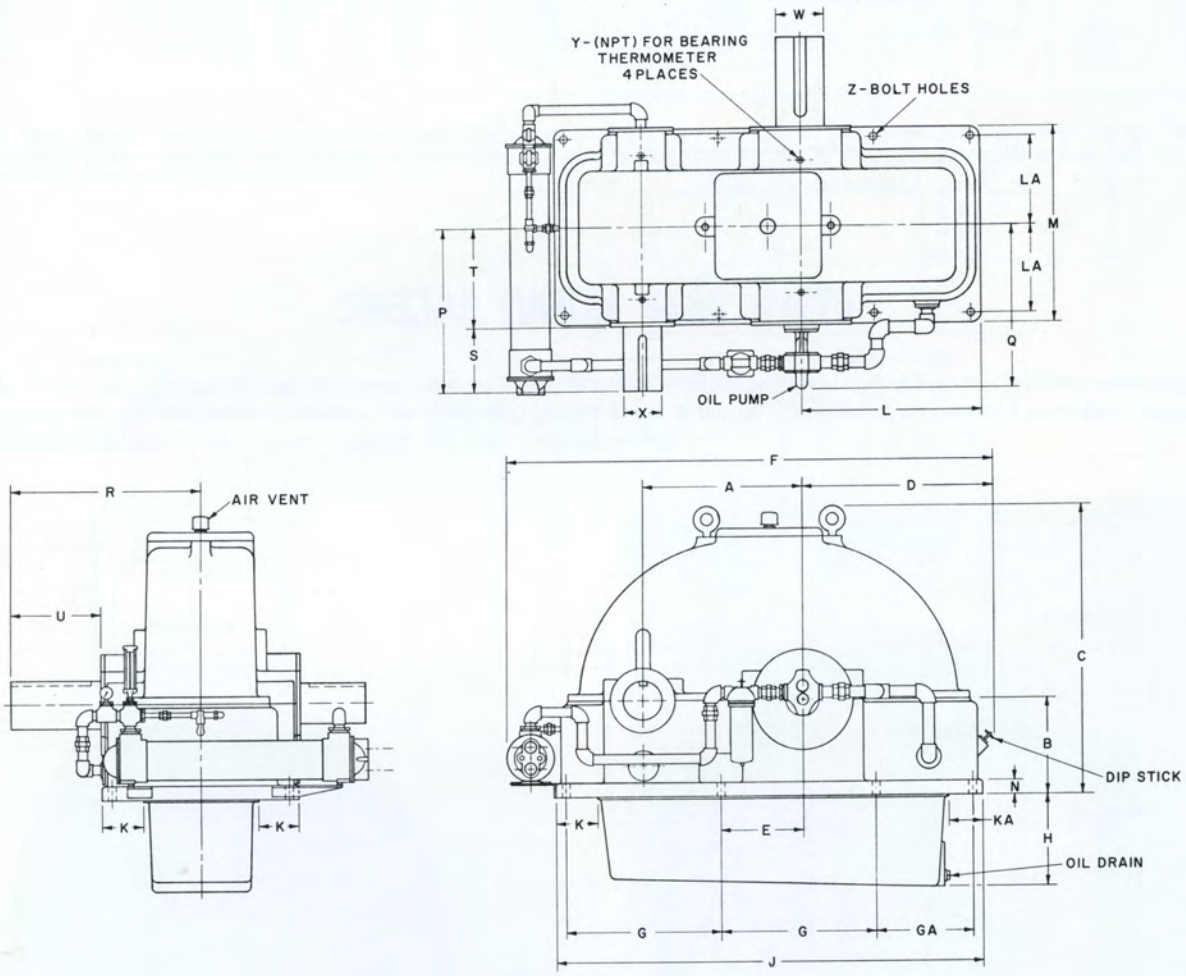
*For Shaft Keyways, see Table of Standard Keyways Page 27.

Above dimensions are not to be used for installation.
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GENERAL DIMENSIONS

LARGE TYPE N



Unit Size	A	B	C	D	E	F	G	GA	H	J	K	KA	L	LA	M	N	P	Q	R	S	T	U	W	X	Y	Slow Speed Shaft Keyway	Z Bolt Holes	Weight
N30	30	20	57½	38	15	92½	30	19	18	83	8½	7	36	16½	37	3	30½	28½	35½	11¼	19¼	15⅞	9	*	½	2½x ⅞x14½	8-1⅝	15,000
N33	33	20	60¼	39½	17	98	32	20	19	88	8½	7	37	18¼	40½	3	34	31¼	39	13	21	17⅜	10	*	½	2½x ⅞x16½	8-1⅝	20,300
N38	38	24	67	44	20	111	37¼	22	20	101	8½	7	41½	22¼	49	3¼	41	34½	45½	15⅝	25⅜	19⅞	11	*	½	3 x1 x18¼	8-1⅝	24,300

*For Shaft Sizes, See Rating Tables on Pages 20-22. For Shaft Keyways, See Table Of Standard Keyways, Page 27.

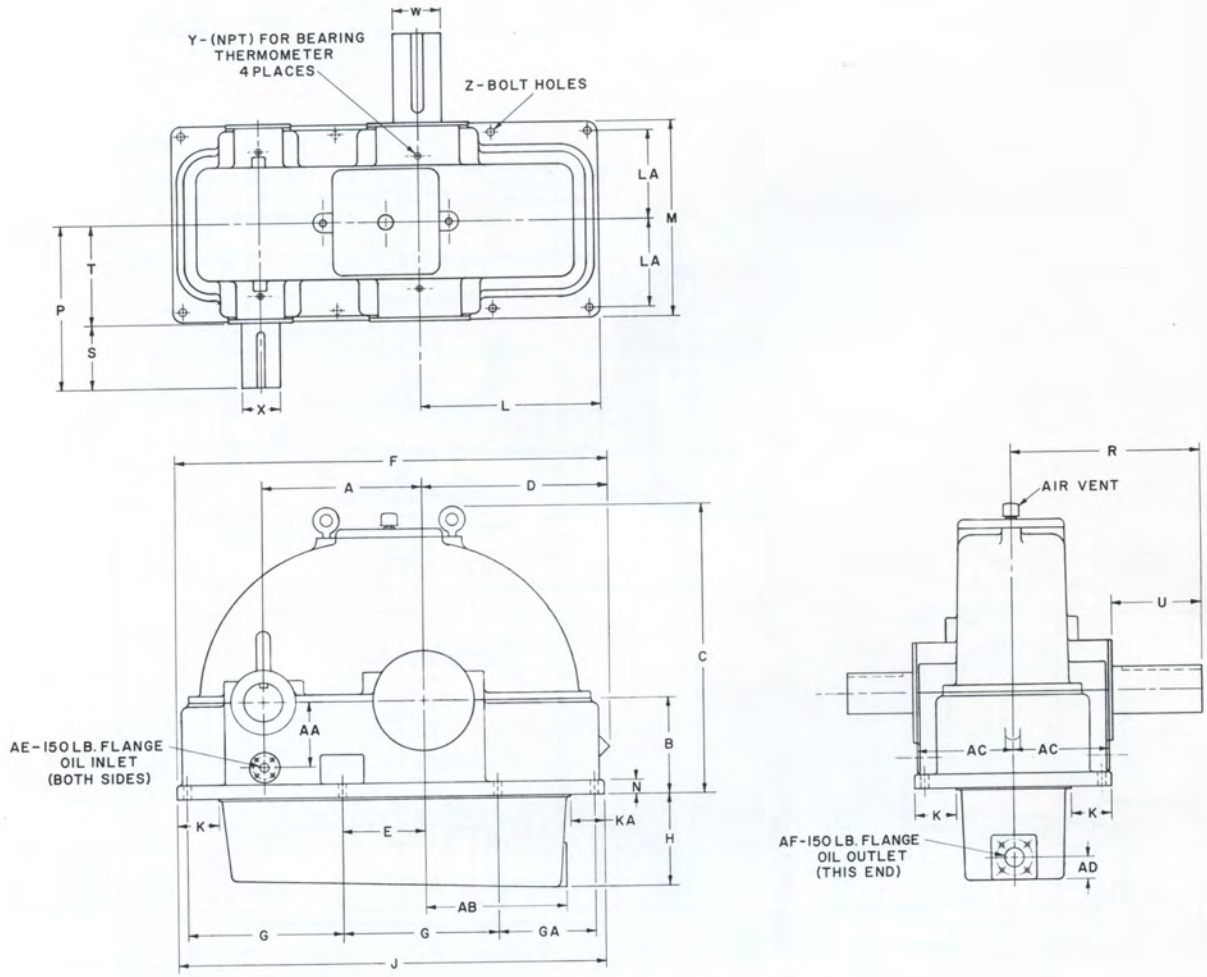
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GENERAL DIMENSIONS

LARGE TYPE N

DRY SUMP UNITS



Unit Size	A	B	C	D	E	F	G	GA	H	J	K	KA	L	LA	M	N	P	R	S	T	U	W	X	Y	AA	AB	AC	AD	AE	AF	Slow Speed Shaft Keyway	Z Bolt Holes	Weight
N30	30	20	57½	38	15	83½	30	19	18	83	8½	7	36	16½	37	3	30½	35½	11¼	19¼	15⅞	9	*	½	13½	28¼	18	4⅝	2	4	2½x ⅞x14½	8-1⅝	14,700
N33	33	20	60¼	39½	17	89	32	20	19	88	8½	7	37	18¼	40½	3	34	39	13	21	17⅝	10	*	½	13½	28¾	19¾	4⅝	2	4	2½x ⅞x16½	8-1⅝	20,000
N38	38	24	67	44	20	102	37¼	22	20	101	8½	7	41½	22¼	49	3¼	41	45½	15⅝	25⅜	19⅞	11	*	½	17¼	32	24	4⅝	2	4	3 x1 x18¼	8-1⅝	24,000

*For Shaft Sizes, See Rating Tables On Pages 20-22. For Shaft Keyways, See Table Of Standard Keyways, Page 27.

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AGMA STANDARD KEYWAYS

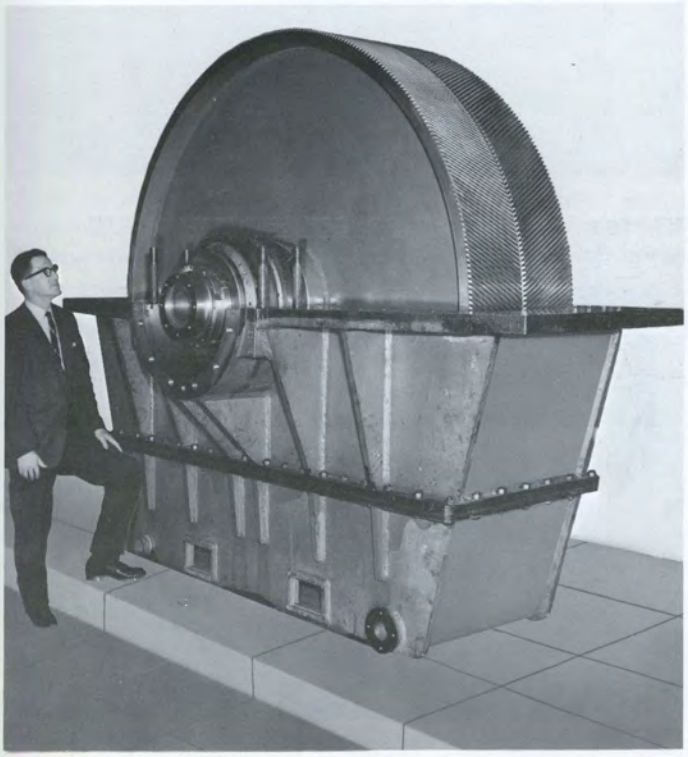
Diameter of Shafts, Inclusive	RECOMMENDED STANDARD KEYWAYS Width	Depth	Key Stock
5/16 to 7/16"	3/32	3/64	3/32 x 3/32
1/2 to 9/16"	1/8	1/16	1/8 x 1/8
5/8 to 7/8"	3/16	3/32	3/16 x 3/16
15/16 to 1 1/4"	1/4	1/8	1/4 x 1/4
1 5/16 to 1 3/8"	5/16	5/32	5/16 x 5/16
1 7/16 to 1 3/4"	3/8	3/16	3/8 x 3/8
1 13/16 to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

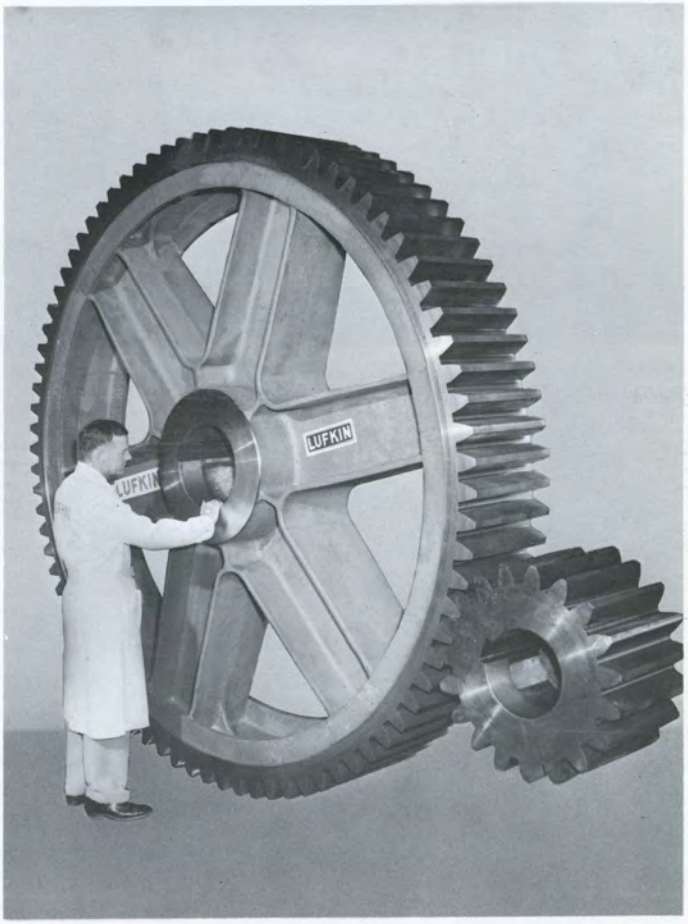
Lufkin High Speed Gear Units are furnished with the above standard keyways in the low speed and high speed shafts. The depth of the keyway in the coupling is the same as the depth of the keyway in the shaft; that is, the depth is one-half of the key height measured from the edge of the keyway.

SPECIAL LUFKIN GEAR UNITS

Lufkin Industries, Inc. 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.



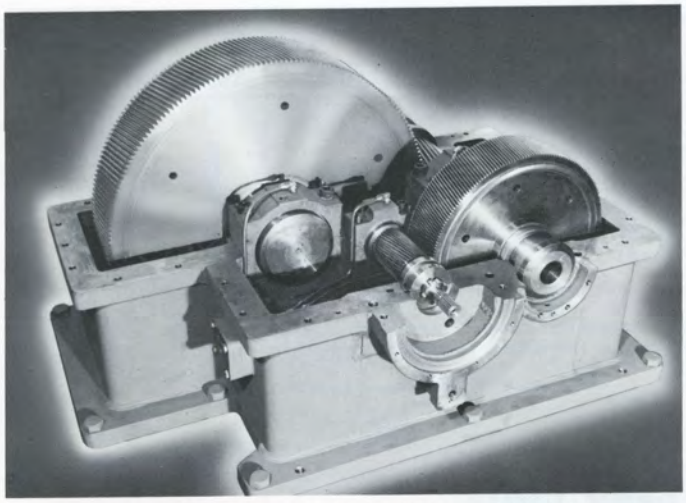
Lufkin VQ6024 Marine Propulsion Gear, Rated 5150 HP at 515 RPM input speed, Ratio 3.94:1.



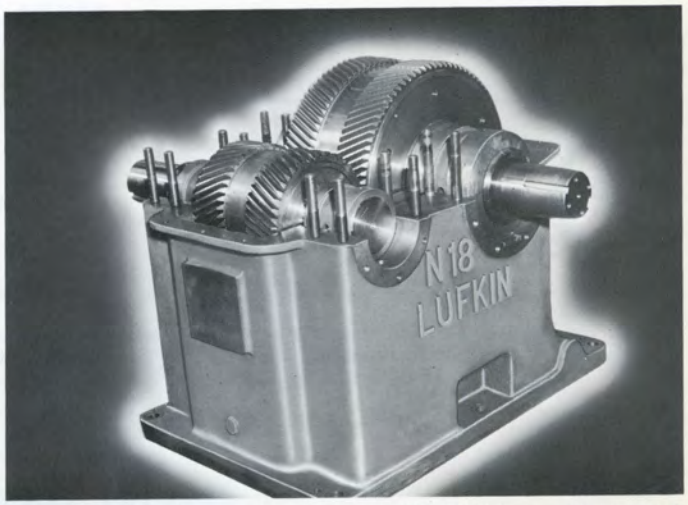
Large replacement open gears for sugar mill in Mexico. 116.39" pitch diameter, 18" face, 4.459 circular pitch.

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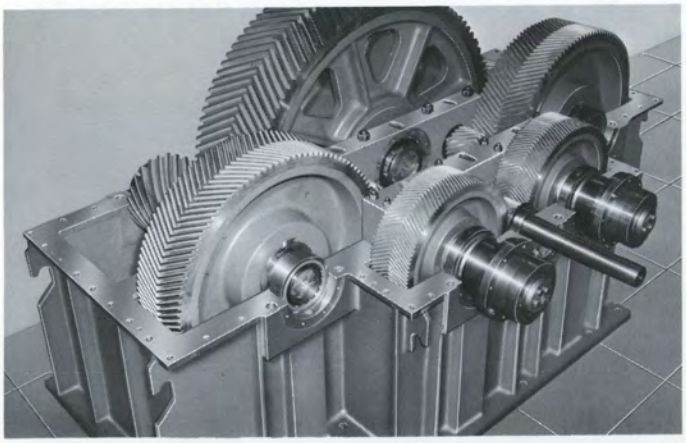
SPECIAL LUFKIN GEAR UNITS



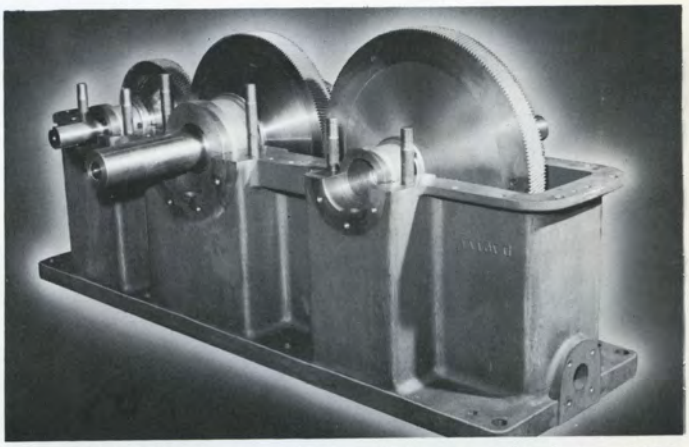
Lufkin NDL330 Reducer, 22,300 RPM input, 700 RPM output. Transmitting 1400 HP from a gas turbine to a four cylinder reciprocating compressor.



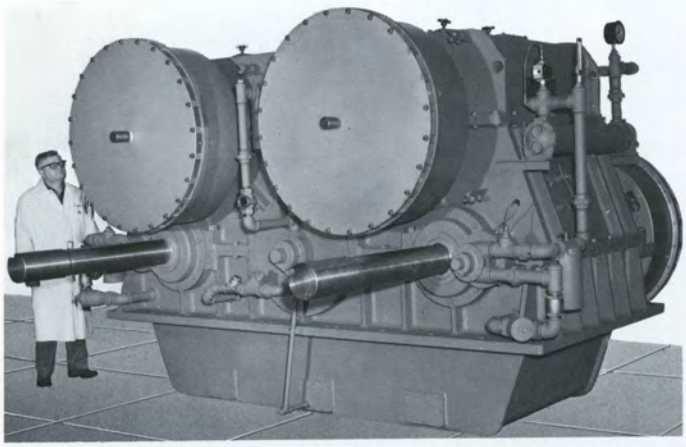
Lufkin N18 High Speed Reducer, 7000 RPM input, 3550 RPM output. Transmitting 7000 HP from a gas turbine to a centrifugal pump.



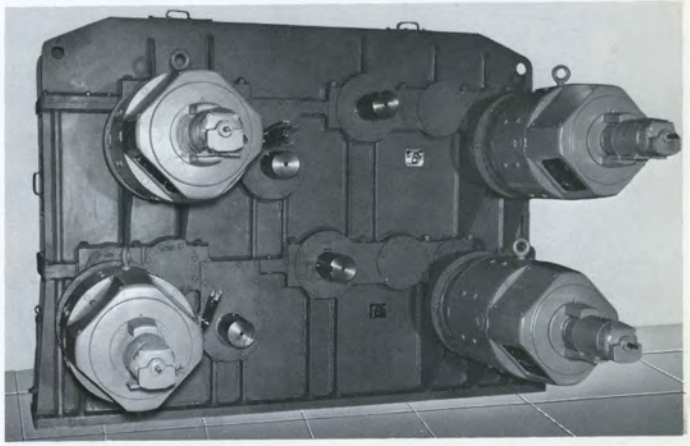
Lufkin TC4421 Triple Reduction Articulated Unit for sugar mill drive. Rating 508 HP at 689 RPM input.



Lufkin NC4545 Compound Speed Increaser/Reducer, 3530 RPM input, 5600/3125 RPM output. Transmitting 1300 horsepower from an electric motor to two screw compressors.



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

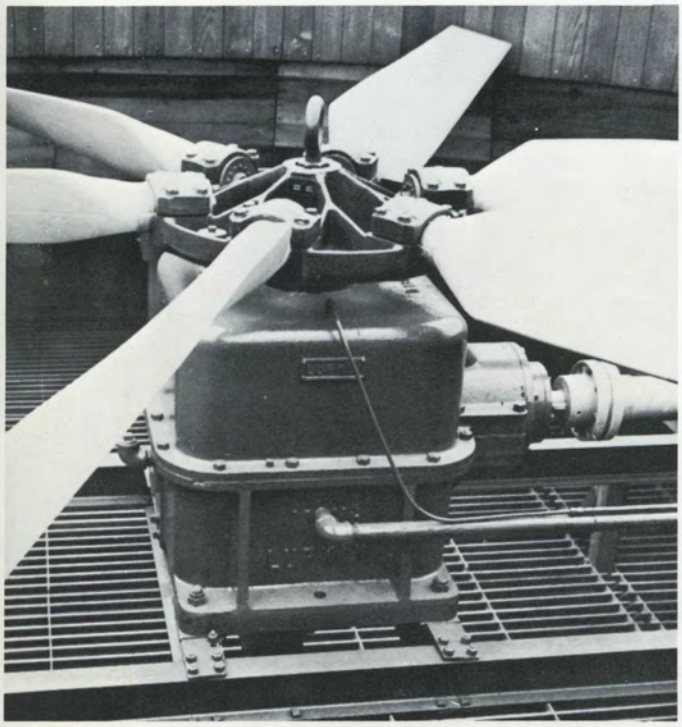


Lufkin QT290H Triple Reduction, four gear train unit for rubber mill calender drive.

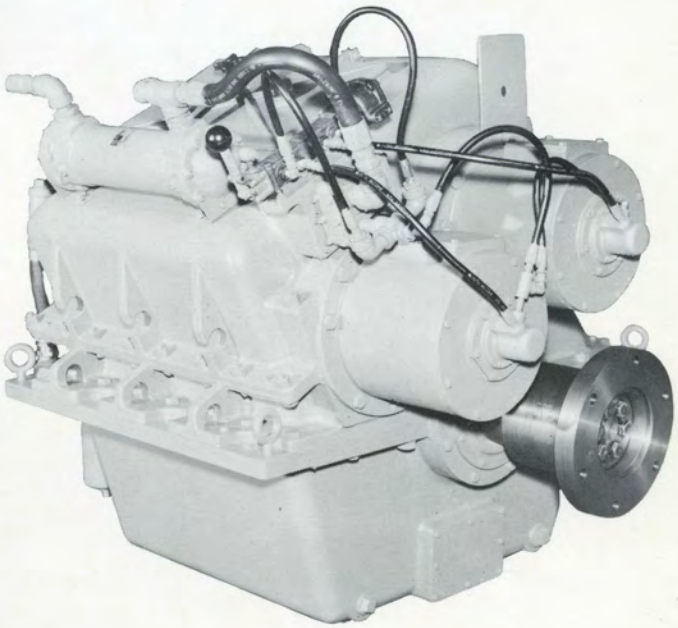
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OTHER LUFKIN GEAR PRODUCTS

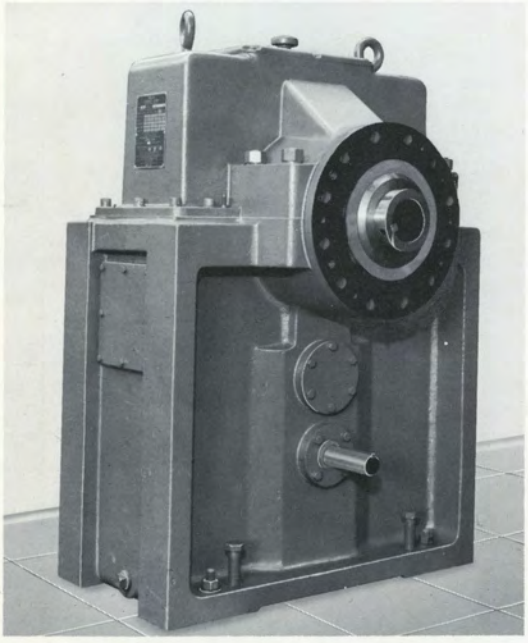
Lufkin Industries, Inc. manufactures a complete line of speed reducers and increasers with cast housings. The photos below show some of the types available.



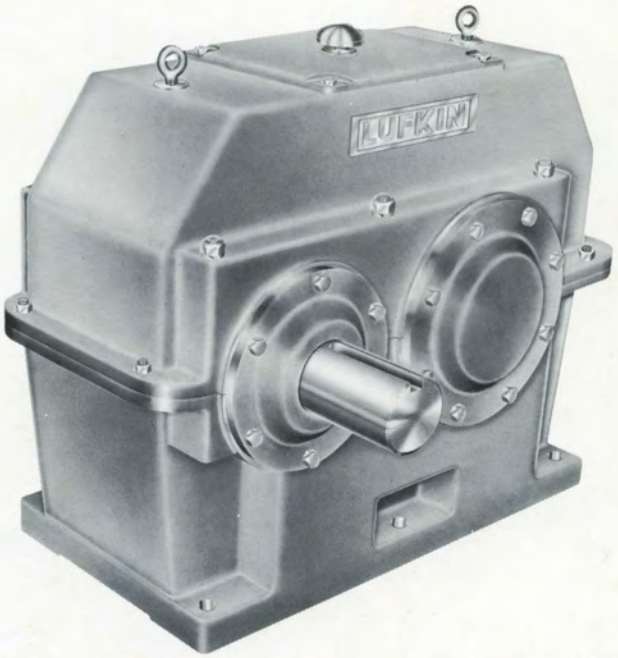
Lufkin Model 115VB Reducer driving 20 foot diameter fan in a large cooling tower.



Lufkin ROS series reverse reduction Marine gears. This series uses hydraulic clutches and is available up to 1800 HP. Smaller units are available with standard SAE flywheel adapters.



Lufkin Model D165-102C Extruder Drive with integral thrust bearing and speed change gears.



Lufkin Manufactures a complete line of Single, Double, Triple and Quadruple reduction units. Request gear catalog G-32.

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LUFKIN MILESTONES OF GROWTH

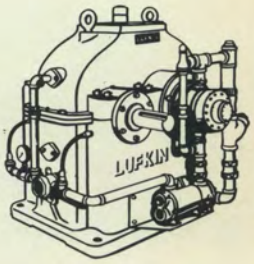
Lufkin Industries, Inc., founded as Lufkin Foundry and Machine Company in 1902 as a repair shop for sawmill and railroad machinery . . . guided by progressive leadership . . . gifted with technical ability . . . located strategically in the growing Southwest . . . of humble origin . . . this company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

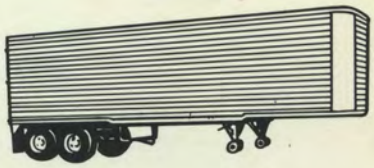


OILFIELD DIVISION
1923



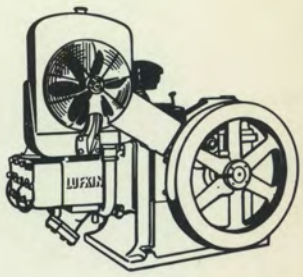
GEAR DIVISION
1939





TRAILER DIVISION
1939

ENGINE
DIVISION
1940



4-72

LUFKIN INDUSTRIES, INC.
LUFKIN, TEXAS