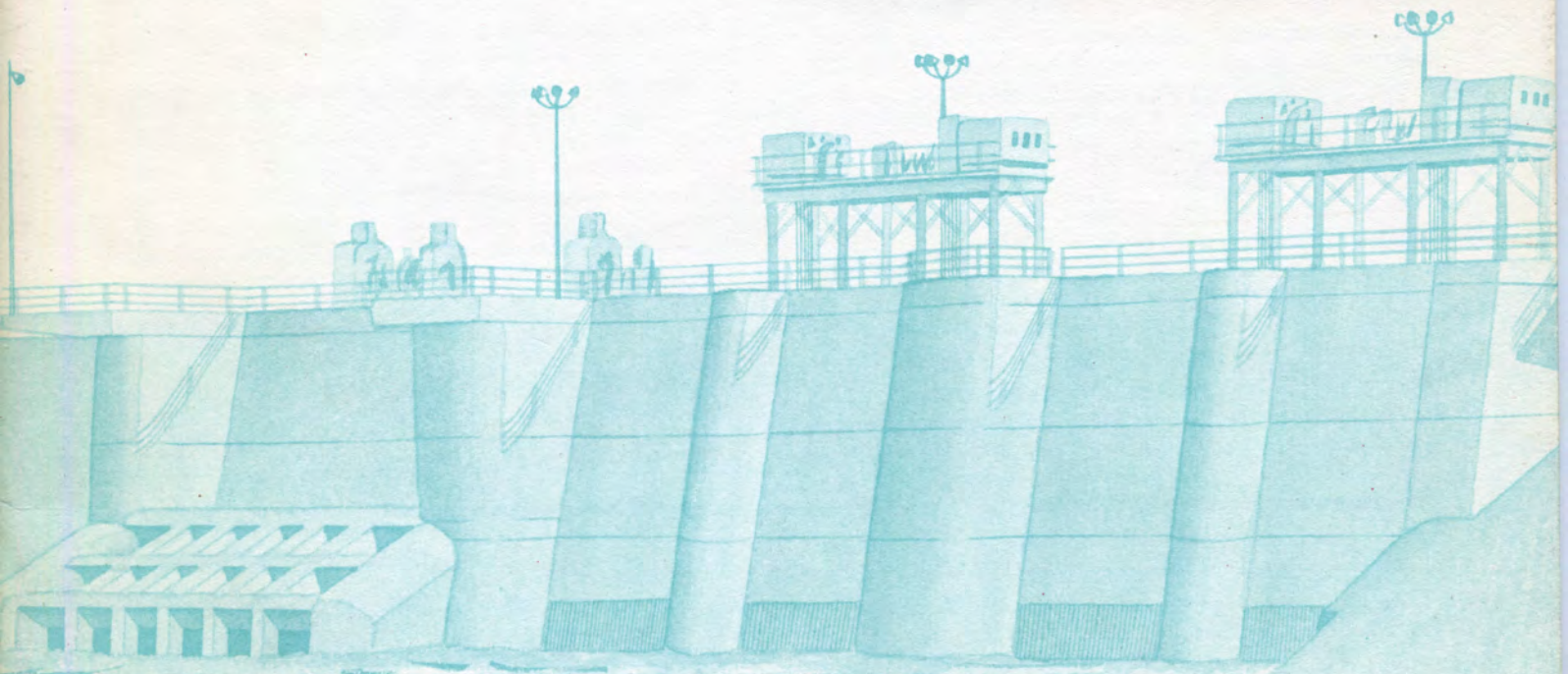
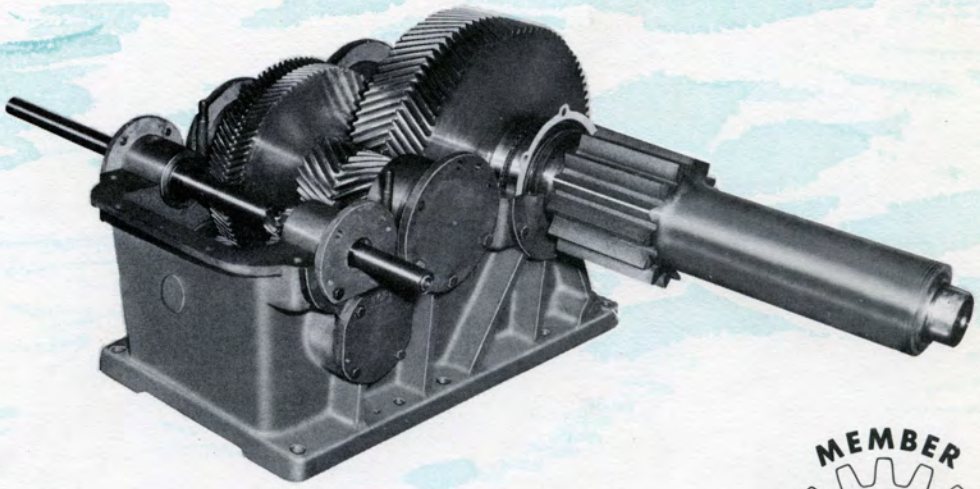
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LUFKIN GEARS



DAM GATE HOIST APPLICATION



CATALOG NO. G-31

MEMBER AGMA

LUFKIN FOUNDRY AND MACHINE COMPANY
LUFKIN, TEXAS

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DAM GATE HOIST

Gear Reducers

I. SINGLE REDUCTION REDUCERS, TYPE S
Ratios 2:1 to 10:1
Pages 6–8

II. DOUBLE REDUCTION REDUCERS, TYPE D
Ratios 10:1 to 75:1
Pages 9–11

III. TRIPLE REDUCTION REDUCERS, TYPE T
Ratios 75:1 to 300:1
Pages 12, 13

LUFKIN FOUNDRY & MACHINE CO.

Factory and Executive Offices

LUFKIN, TEXAS

ANACO, VENEZUELA, S.A.
Apartado No. 46

ATLANTA, GEORGIA 30310
1313 Sylvan Road, S.W.
Phone: 755–6681

BAKERSFIELD, CALIFORNIA 93302
2500 Parker Lane
P. O. Box 444
Phone: 327–3563

BENGHAZI, LIBYA
Sahara Oilfield Services Company of Libya, Ltd. (Serrag & Co.)
P. O. Box 184
Phone: 3411

BOGOTA, COLOMBIA, S. A.
Calle 92,No. 21–40
Phone: 361–303

BUENOS AIRES, ARGENTINA, S. A.
MATPETROL
Esmeralda 155
Phone: 45–4822

CALGARY, ALBERTA, CANADA
3414 Lane Crescent
Phone: 242–2101

CASPER, WYOMING 82601
100 Warehouse Road
P. O. Box 1849
Phone: 234–5346

CLEVELAND, OHIO 44116
226 Suburban–West Building
20800 Center Ridge Road
Phone: 331–5722

CRYSTAL LAKE, ILLINOIS 60014
65 North Williams Street
P. O. Box 382
Phone: 459–4033

DALLAS, TEXAS 75201
800 Vaughan Building
Phone: 748–5127

DENVER, COLORADO 80202
2027 Security Life Building
Phone: 222–9589

EDMONTON, ALBERTA, CANADA
9950 – 65th Avenue
Phone: 433–3694

ESTEVAN, SASKATCHEWAN, CANADA
1021 Hillcrest Drive
Phone: 634–5595

GREAT BEND, KANSAS 67530
North Main Street
(Hwy. 281)
P. O. Box 82
Phone: 793–5622

HOBBS, NEW MEXICO 88240
1212 E. Lincoln Road
P. O. Box 97
Phone: 393–5211

HOUSTON, TEXAS 77002
1108 C & I Building
Phone: 222–0108

KILGORE, TEXAS 75662
P. O. Box 871
Phone: 984–3875

LAFAYETTE, LOUISIANA 70505
P. O. Box 1353 OCS
Phone: 234–2846

LA PAZ, BOLIVIA, S. A.
MATPETROL, Ltda.
Calle Bueno 144
Phone: 9943

LOS ANGELES, CALIFORNIA 90001
5959 South Alameda
Phone: 585–1201

MARACAIBO, VENEZUELA, S. A.
Apartado No. 1144
Phone: 3132

MEXICO 4, D. F.
Equipos Especializados, S. A.
Vallarta #1–909–B
Phone: 46–51–19 and 46–52–58

MIDLAND, TEXAS 79701
2519 Neeley Street
Phone: 682–3042

NATCHEZ, MISSISSIPPI 39120
P. O. Box 804
Phone: 445–4691

NEW YORK, NEW YORK 10001
350 Fifth Avenue
Empire State Building
Room 3904
Phone: 695–4745

ODESSA, TEXAS 79760
1020 West Second Street
P. O. Box 1632
Phone: 337–8649

OKLAHOMA CITY, OKLAHOMA 73108
1317 West Reno
P. O. Box 82337
Phone: 236–4541

PAMPA, TEXAS 79066
P. O. Box 2212
Phone: 665–4120

PITTSBURGH, PENNSYLVANIA 15235
Penn Center, Room 301
201 Penn Center Boulevard
Phone: 241–5131

RIO DE JANEIRO, BRAZIL, S. A.
MAQUIP (Commercial de Maquinas e Equipamentos) S. A.
Caixa Postal 2508
Phone: 23–5840

SHREVEPORT, LOUISIANA 71105
207 Beck Building
P. O. Box 5578
Phone: 424–3297

SIDNEY, MONTANA 59270
Highway 16
P. O. Box 551
Phone: 482–2707

TALARA, PERU, S.A.
OILFIELD IMPORTS, S.A.
Apartado No. 1A

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

TRIPOLI, LIBYA
Sahara Oilfield Services Company of Libya, Ltd. (Serrag & Company)
P. O. Box 800
Phone: 4–2711

WICHITA FALLS, TEXAS 76307
727 Oil & Gas Building
P. O. Box 2465
Phone: 322–1967

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GENERAL SPECIFICATIONS

HOUSINGS

Housings are made of controlled specification high tensile gray iron castings in two sections with accurately machined joint at split between base and cover. Interior surfaces are throughly sand-blasted, cleaned and painted to insure absolute freedom from sand and foreign particles. Wall sections are of generous thickness and substantially ribbed for rigidity. Housings are bored in husky precision built boring fixtures to assure accuracy and precise duplication of parts.

GEARS

Gears are herringbone type generated on Sykes Machines. Final finishing of teeth is done slowly with freshly-ground cutters for better finish. Gears are made of high tensile alloy steel castings and forgings.

PINIONS AND SHAFTS

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

BEARINGS

Tapered roller bearings are used on the slow speed shaft. On pinion shafts, solid roll straight type anti-friction bearings are used which permit perfect alignment of the herringbone gears. Bearings are designed for long, trouble-free life when properly lubricated.

LUBRICATION

The gear for each reduction set 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. On units with extended shut down periods, grease fittings are furnished on each bearing carrier for lubricating the bearings. Attached shaft driven and separate motor driven lubricating oil pumps are available when required. See Lubrication Instructions on Page 14 for recommended lubricants.

RATINGS

Units are rated in accordance with the American Gear Manufacturers Association Standards. Ratings shown in this catalog are for a Service Factor of ''1'' which would be the proper rating for a gear unit being driven by an electric motor up to 10 hours per day driving a machine classified as uniform load.

The load carrying capacity of a set of gears for a given size speed reducer 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.

All components of the gear reducers shown in the catalog are designed to withstand 285% of the catalog ratings at starting or momentarily during operation without exceeding 75% of the yield strength of the materials used.

Thermal Horsepower ratings of the units are not shown in this catalog since dam hoist gears are not generally operated continuously for periods exceeding three hours.

SERVICE FACTORS

For most dam gate hoist applications, a service factor of 1.0 is used. When the stall torque is considerably less than 285% of the normal operating torque, a smaller service factor can be used. All applications using a service factor less than 1.0 should be submitted to Lufkin for recommendations.

OVERHUNG LOAD

Lufkin dam gate hoist reducers can be furnished with overhung load capacities to suit the application. Generally, an outboard bearing is used due to the magnitude of the overhung loads in most hoist applications. Reducers with an overhung load acting in an upward direction generally will require additional foundation bolts in the reducer base. When this condition exists, a Type ''U'' unit must be specified. All overhung load requirements should be submitted to Lufkin for recommendations.

EFFICIENCY

The mechanical efficiency of single reduction Type S reducers is 98% to 98.5%. Double reduction Type D reducers have an efficiency of 97% to 97.5%. Triple reduction Type T reducers have an efficiency of 96% to 96.5%.

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SELECTION OF GEAR REDUCERS

In selecting a gear reducer for dam gate hoists, the following steps should be followed:

1. Determine horsepower requirements of the drive using lifted load and speed together with applicable efficiency.

2. Check the stall conditions of the drive by dividing the motor locked rotor torque by 2.85 to get an equivalent required torque rating. Convert this value to an equivalent horsepower at input speed.

3. Determine required ratio by dividing input RPM by output RPM. If the ratio is less than 10:1, use the single reduction Type S rating tables on Pages 6 and 7; if the ratio is between 10:1 and 75:1 use the double reduction Type D rating tables on Pages 10 and 11. If the ratio is higher than 75:1, use the Type T rating tables on Pages 12 and 13.

4. Using the greater of the two horsepower values determined in Steps 1 and 2, refer to the proper rating tables 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 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.

5. In the event the output shaft of the reducer drives a drum hoist, sprocket, or external pinion, the overhung load requirements of the reducer must be calculated.

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

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

Where OL = Overhung load, lbs.

K = Constant for type of external drive

= 1.0 for sprocket or hoist drum

= 1/cosine pressure angle for pinion

HP = Actual horsepower load

D = Diameter of sprocket, pinion, or drum, inches

RPM = Revolutions per minute of shaft being checked.

The overhung load should be specified for Normal operation and Stall conditions.

EXAMPLES OF REDUCER SELECTION

A gear reducer is required for a tainter gate hoist. The reducer will drive the drum hoist through a 9" pitch diameter, 20° pressure angle, external pinion and will be driven by a 10 horsepower, design D electric motor with a locked rotor torque rating of 2990 in. lbs. Motor speed is 580 RPM with a required external pinion speed of 3 RPM. The calculated normal operating power requirement is 8 horsepower based on lifted load, gate speed, and efficiency.

Equivalent horsepower at stall conditions

$$= \frac{\text{Stall Torque} \times \text{Input RPM}}{2.85 \times 63{,}000}$$

$$= \frac{2990 \times 580}{2.85 \times 63{,}000} = 9.67 \text{ HP}$$

Since the equivalent horsepower at Stall conditions exceed the required normal operating horsepower, the 9.67 HP requirement will be used for reducer selection.

$$\text{Required ratio} = \frac{580}{3} = 193.5$$

Referring to page 14 under Type T triple reduction units and a 194.6:1 ratio, select a T250D reducer with a horsepower rating of 11.3 at 580 RPM.

Using the formula given, the normal overhung load due to the external pinion would be:

$$K = \frac{1}{\text{cosine } 20^\circ} = \frac{1}{.93969} = 1.064$$

$$OL = 1.064 \times \frac{126{,}000 \times 8}{9 \times 3} = 39{,}720 \text{ lbs.}$$

This is the normal operating overhung load. The Stall condition overhung load would be:

$$\text{Stall Horsepower} = \frac{2990 \times 580}{63{,}000} = 27.5 \text{ HP}$$

$$\text{Stall OL} = 1.064 \times \frac{126{,}000 \times 27.5}{9 \times 3} = 136{,}550 \text{ lb.}$$

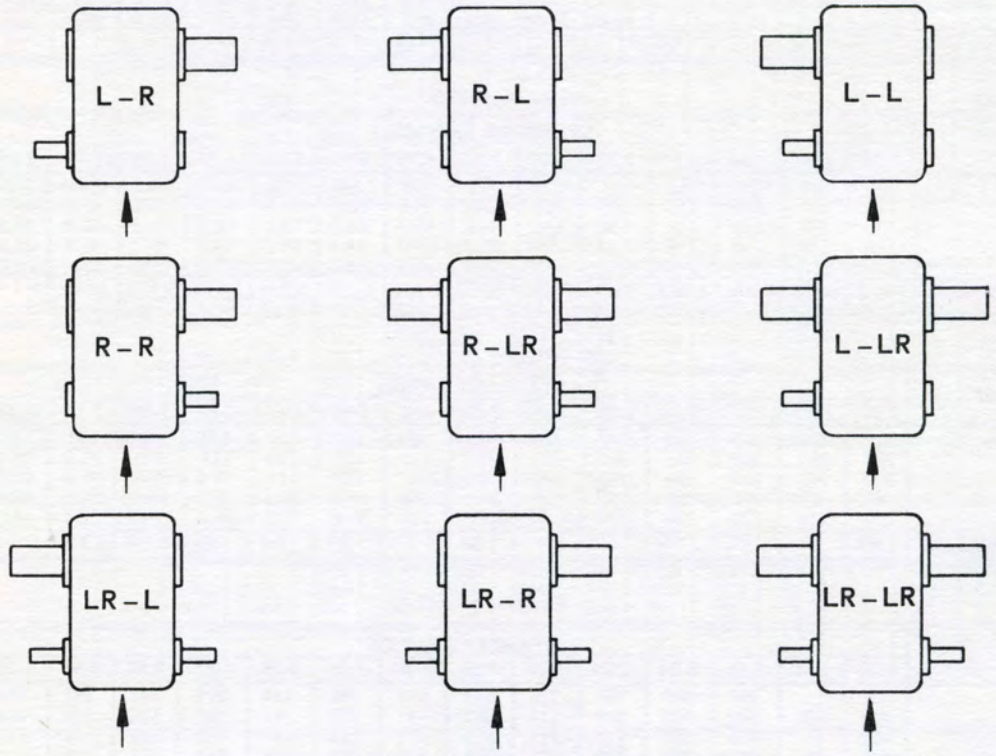
The following information should be submitted to Lufkin with the request for quotation: The normal and stall overhung loads, the pinion diameter and pressure angle, pinion location in relation to reducer centerline, and outboard bearing location (if used).

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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 and stall conditions of the drive.
2. Input speed and reducer output speed, or speed of either shaft and gear ratio.
3. Direction of rotation (clockwise or counterclockwise, looking at extended end of high speed shaft).
4. Type of shaft connection (coupling, sprocket, or gear).
5. If flexible couplings also purchased from us, furnish diameter and key dimensions of connecting shafts.
6. If connection other than direct through coupling, furnish diameter of pinion or sprocket and direction of external load. Also the location of the overhung load and outboard bearing (if used) in relation to the centerline of the reducer.
7. Shaft extensions should be specified per shaft arrangement diagrams shown on this page.



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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HORSEPOWER RATING TABLES

TYPE S—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 4 and 5 for information on selecting reducers.

Size No. S63D

	STANDARD RATIOS															
Motor R.P.M.	1.22	1.50	1.84	2.24	2.72	3.00	3.36	4.14	5.00	5.67	6.20	7.00	7.73	8.60	9.29	10.29
1750	170	170	170	152	124	111	96.4	74.5	58.9	48.2	41.4	34.3	30.0	25.7	22.0	19.0
1150	112	112	112	107	86.0	77.0	66.9	51.2	39.5	33.7	28.6	24.5	20.8	17.3	15.1	13.0
870	83.5	83.5	83.5	83.5	68.4	60.7	52.9	40.7	32.0	26.4	22.6	19.1	16.2	13.6	12.0	10.1
720	69.5	69.5	69.5	69.5	57.5	51.9	45.2	35.2	27.6	22.3	18.8	16.1	13.6	11.7	10.1	8.5
580	55.5	55.5	55.5	55.5	46.8	42.5	36.3	28.1	21.8	18.0	15.5	13.0	10.8	9.5	8.2	6.9
High Speed Shaft Diameter	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1	1	7/8	7/8	7/8	7/8

Size No. S84D

	STANDARD RATIOS															
Motor R.P.M.	1.22	1.50	1.84	2.27	2.73	3.00	3.36	4.16	5.00	5.67	6.27	7.00	7.73	8.60	9.24	10.29
1750	265	265	265	265	265	239	210	165	126	108	92.2	78.5	68.0	56.5	50.0	44.0
1150	175	175	175	175	175	169	148	113	86.6	73.5	64.0	55.6	47.0	38.4	33.0	29.7
870	131	131	131	131	131	131	116	89.6	68.7	58.8	50.6	43.5	36.0	28.5	24.8	23.6
720	110	110	110	110	110	110	99.0	76.7	59.4	50.0	43.1	36.5	31.4	25.2	20.3	19.7
580	87.0	87.0	87.0	87.0	87.0	87.0	80.0	62.1	48.0	40.5	35.0	30.0	25.0	20.8	16.4	16.0
High Speed Shaft Diameter	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-1/2	1-1/2	1-1/2	1-1/4	1	1

Size No. S105D

	STANDARD RATIOS															
Motor R.P.M.	1.22	1.50	1.86	2.24	2.72	3.00	3.38	4.16	5.00	5.67	6.27	7.00	7.57	8.47	9.00	10.43
1750	.....	400	400	400	400	400	392	304	239	202	174	147	131	112	101	78.5
1150	265	265	265	265	265	265	265	216	167	140	121	103	91.0	78.4	70.0	54.5
870	200	200	200	200	200	200	200	167	132	111	95.4	80.9	71.4	61.0	55.0	41.7
720	165	165	165	165	165	165	165	144	113	95.1	80.9	68.6	61.5	51.0	47.5	35.4
580	130	130	130	130	130	130	130	117	91.6	77.3	66.4	55.1	49.1	42.3	37.6	29.1
High Speed Shaft Diameter	2	2	2	2	2	2	2	2	2	2	2	1-3/4	1-1/2	1-1/2	1-1/2	1-1/2

Size No. S126D

	STANDARD RATIOS															
Motor R.P.M.	1.22	1.50	1.85	2.24	2.73	3.00	3.36	4.14	5.00	5.55	6.27	7.00	7.57	8.33	9.29	10.43
1750	....	....	900	900	795	722	643	497	384	339	292	244	217	184	152	133
1150	600	600	600	600	570	514	454	357	272	231	195	169	149	128	109	93.4
870	455	455	455	455	451	411	353	272	218	191	161	133	120	102	85.4	72.6
720	380	380	380	380	380	355	308	238	185	161	137	115	101	86.0	73.5	60.8
580	305	305	305	305	305	289	252	193	150	130	112	93.4	82.5	68.5	58.9	50.4
High Speed Shaft Diameter	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2	2	1-3/4	1-3/4	1-1/2

Size No. S147D

	STANDARD RATIOS															
Motor R.P.M.	1.33	1.50	1.84	2.23	2.73	3.00	3.36	4.16	5.00	5.67	6.26	7.00	7.62	8.33	9.18	10.20
1750	....	....	....	1360	1200	1100	954	752	581	500	428	362	325	282	241	202
1150	880	880	880	880	865	780	684	526	418	355	299	258	225	196	168	141
870	670	670	670	670	670	619	541	415	319	270	235	202	180	154	132	111
720	555	555	555	555	555	540	470	361	279	238	205	173	150	133	112	94.3
580	445	445	445	445	445	437	384	295	226	190	161	139	128	108	92.1	75.8
High Speed Shaft Diameter	3	3	3	3	3	3	3	3	3	3	3	2-5/8	2-1/2	2	2	2

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HORSEPOWER RATING TABLES (cont'd.)

TYPE S—SINGLE REDUCTION UNITS

Size No. S168D

Motor R.P.M.	STANDARD RATIOS															
	1.29	1.50	1.84	2.25	2.73	3.00	3.36	4.16	5.00	5.67	6.27	7.00	7.62	8.33	9.24	10.20
1750	....	....	....	....	1700	1550	1380	1080	845	714	625	517	460	406	340	292
1150	....	1130	1130	1130	1130	1110	980	778	600	500	441	367	333	283	245	204
870	860	860	860	860	860	860	800	625	480	392	348	294	259	224	185	161
720	710	710	710	710	710	710	660	540	420	346	297	250	218	190	159	138
580	570	570	570	570	570	570	555	425	327	278	242	202	176	155	128	112
High Speed Shaft Diameter	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	2-3/4	2-3/4	2	2

Size No. S189D

Motor R.P.M.	STANDARD RATIOS															
	1.50	1.84	2.22	2.72	3.00	3.36	4.14	5.00	5.67	6.20	7.00	7.57	8.42	9.29	9.80	10.45
1750	....	....	....	....	....	1855	1460	1120	935	844	722	645	543	456	426	373
1150	....	1730	1730	1660	1505	1315	1035	800	666	589	501	455	380	325	295	257
870	1310	1310	1310	1310	1205	1070	820	640	536	470	395	358	290	255	236	203
720	1080	1080	1080	1080	1060	930	716	551	455	411	337	302	250	218	201	174
580	880	880	880	880	851	755	580	450	370	329	269	250	204	175	164	141
High Speed Shaft Diameter	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-1/4	2-5/8	2-5/8	2-5/8	2-1/2

Size No. S2010D

Motor R.P.M.	STANDARD RATIOS														
	1.50	1.86	2.24	2.72	3.00	3.36	4.16	5.00	5.67	6.27	7.00	7.57	8.60	9.37	10.43	....
1750	....	....	....	....	....	....	1865	1485	1245	1095	935	821	709	605	499	....
1150	....	....	1730	1730	1730	1730	1340	1075	888	771	675	590	510	430	355	....
870	1310	1310	1310	1310	1310	1310	1060	825	699	600	521	450	375	331	278	....
720	1080	1080	1080	1080	1080	1080	930	723	612	523	456	393	332	287	238	....
580	880	880	880	880	880	880	761	600	499	429	365	319	275	233	191	....
High Speed Shaft Diameter	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-1/4	2-5/8	2-5/8	....

Size No. S2211D

Motor R.P.M.	STANDARD RATIOS														
	1.50	1.84	2.24	2.73	3.00	3.40	4.18	5.00	5.67	6.33	7.00	7.80	8.43	9.27	10.0	....
1150	....	....	....	2720	2480	2210	1665	1290	1135	971	845	709	645	563	485	....
870	....	2280	2280	2170	2000	1725	1340	1080	910	776	656	567	492	437	387	....
720	1880	1880	1880	1840	1725	1515	1165	920	796	670	572	496	430	370	330	....
580	1510	1510	1510	1510	1400	1200	930	760	660	545	470	397	349	298	266	....
High Speed Shaft Diameter	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	3-3/4	3-3/4	3-3/4	3-3/4	....

Size No. S2411D

Motor R.P.M.	STANDARD RATIOS															
	1.50	1.85	2.24	2.73	3.00	3.36	4.19	5.00	5.67	6.27	7.00	7.62	8.60	9.29	10.08	11.00
1150	....	....	....	3000	2920	2540	2010	1580	1330	1195	985	850	716	649	567	485
870	....	2280	2280	2280	2280	2050	1600	1270	1060	921	788	661	573	495	440	388
720	1880	1880	1880	1880	1880	1760	1385	1110	933	806	680	576	502	432	373	330
580	1510	1510	1510	1510	1510	1435	1145	890	751	668	554	473	401	350	300	266
High Speed Shaft Diameter	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	4-1/2	3-3/4	3-3/4	3-1/4	3-1/4

Size No. S2712D

Motor R.P.M.	STANDARD RATIOS															
	1.50	1.84	2.24	2.72	3.00	3.36	4.19	5.00	5.75	6.20	7.00	7.53	8.53	9.22	10.25	11.27
1150	....	....	....	....	....	3430	2730	2100	1735	1485	1250	1115	940	830	727	634
870	....	....	3125	3125	3130	2730	2155	1680	1390	1205	1055	961	769	645	570	499
720	....	2600	2600	2600	2600	2370	1785	1480	1215	1105	930	835	676	600	504	426
580	2080	2080	2080	2080	2080	1935	1530	1190	976	850	730	665	543	485	405	348
High Speed Shaft Diameter	5	5	5	5	5	5	5	5	5	5	5	5	5	4-1/2	4	3-3/4

Ratios listed are standard but intermediate ratios are available.

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

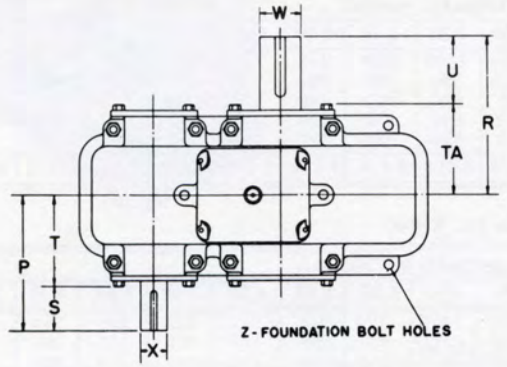
All units may be operated at speeds lower than the minimum shown. The selection of a reducer for a lower speed may be accomplished by multiplying the desired horsepower by 580 and dividing by the desired RPM. The result will be the equivalent horsepower at 580 RPM which can be found in the above tables.

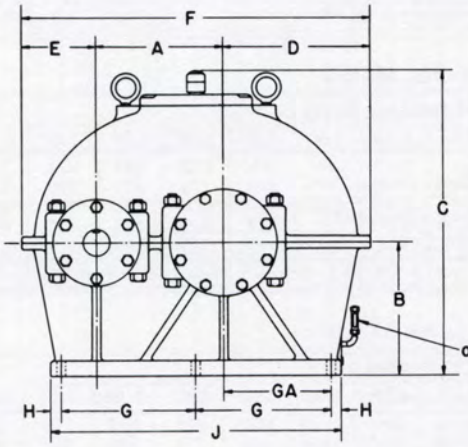
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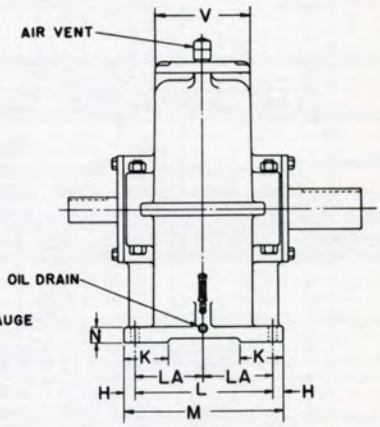
GENERAL DIMENSIONS

Type S

SINGLE REDUCTION HERRINGBONE GEAR REDUCERS







Size No.	A	B	C	D	E	F	G	GA	H	J	K	L	LA	M	N	P	R	S	T	TA	U	V	W	X**	Slow Speed Shaft Keyway	Z Bolt Holes	Weight
S63D	6	8	16 15/16	7 1/2	4 1/2	18	13 1/2	5 1/4	3/4	15	3	8 1/2	4 1/4	10	7/8	8 5/8	9 3/4	3 1/16	5 9/16	5 9/16	4 3/16	6	2	For High Speed Shaft Dia. See Table of H.P. Ratings Pages 6 and 7	1/2 x 1/4 x 3 7/8	4–1 1/16	280
S84D	8	10 1/2	22 1/2	10	5 1/2	23 1/2	17 1/2	7	1	19 1/2	3 1/4	9 1/2	4 3/4	11 1/2	1	9 1/2	10 1/4	3 3/8	6 1/8	6 1/8	4 1/8	6 3/4	2 1/2		5/8 x 5/16 x 3 7/8	4–1 3/16	500
S105D	10	12 1/2	27 3/8	12 1/2	7	29 1/2	11	8 3/4	1	24	4	11 1/2	5 3/4	13 1/2	1 1/2	12 1/2	13 3/4	4 3/4	7 3/4	7 7/8	5 7/8	8 1/2	3		3/4 x 3/8 x 5	6–1 3/16	875
S126D	12	15	32 1/4	15	8	35	14	11 1/2	1	30	4	13	6 1/2	15	1 1/2	14 1/2	16 1/4	5 9/16	8 15/16	8 15/16	7 5/16	9 3/4	3 1/2		7/8 x 7/16 x 5 1/2	6–1 3/16	1,380
S147D	14	17	37	16 1/2	8 1/2	39	15 1/2	12 1/2	1 1/4	33 1/2	4 1/2	15 1/2	7 3/4	18	2	16 1/2	18	6 1/2	10	10	8	11 1/2	4		1 x 1/2 x 7 1/2	6–1 1/16	1,950
S168D	16	19	40 3/8	18 1/2	9 1/2	44	17	13 1/2	1 1/2	36 1/2	5	16	8	18 1/2	1 3/4	16 1/2	20	5 1/4	11 1/4	11 1/2	8 1/2	12	5		1 1/4 x 7/16 x 7 1/2	6–1 1/16	2,600
S189D	18	21	45 1/8	20	10	48	19	15	1 1/2	41	5 1/2	17 1/2	8 3/4	20 1/2	2	18	22	6 1/2	11 1/2	11 1/2	10 1/2	13	5 1/2		1 1/4 x 7/16 x 9	6–1 5/16	2,975
S2010D	20	23	50 1/8	22 1/2	11	53 1/2	22	17 3/4	1 1/2	47	5	19	9 1/2	22	2	19	24	6 1/2	12 1/2	12 1/2	11 1/2	14	6		1 1/2 x 1/2 x 9	6–1 5/16	4,300
S2211D	22	25	52 1/2	24 1/2	12 1/2	59	23	18	2	50	7	21	10 1/2	25	3	21	26	8 1/4	12 3/4	13 1/4	12 3/4	15	7		1 3/4 x 5/8 x 10	6–1 9/16	5,600
S2411D	24	27	58 15/16	26 1/2	13 1/2	64	25 1/2	20	1 3/4	54 1/2	6	21	10 1/2	24 1/2	2 3/4	21	26	8	13	13 1/2	12 1/2	15	7		1 3/4 x 5/8 x 10	6–1 9/16	6,200
S2712D	27	28	59 1/8	29	14	70	*	22	2	60	8	26	13	30	3	22 1/2	29 1/2	8 1/2	14	14 1/2	15	17	8		2 x 3/4 x 12 1/2	8–1 9/16	8,800

All dimensions are in inches.

* The S2712D has 8 foundation holes spaced 16-24-16.

** For shaft keyways, see Table of Standard Keyways page 14.

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

Type U units having a heavy overhung load acting up are available with extra foundation holes. Consult Lufkin for location.

Slow speed shaft size shown is standard. For heavy overhung load conditions, a larger shaft can be furnished.

Above dimensions are not to be used for Installation.

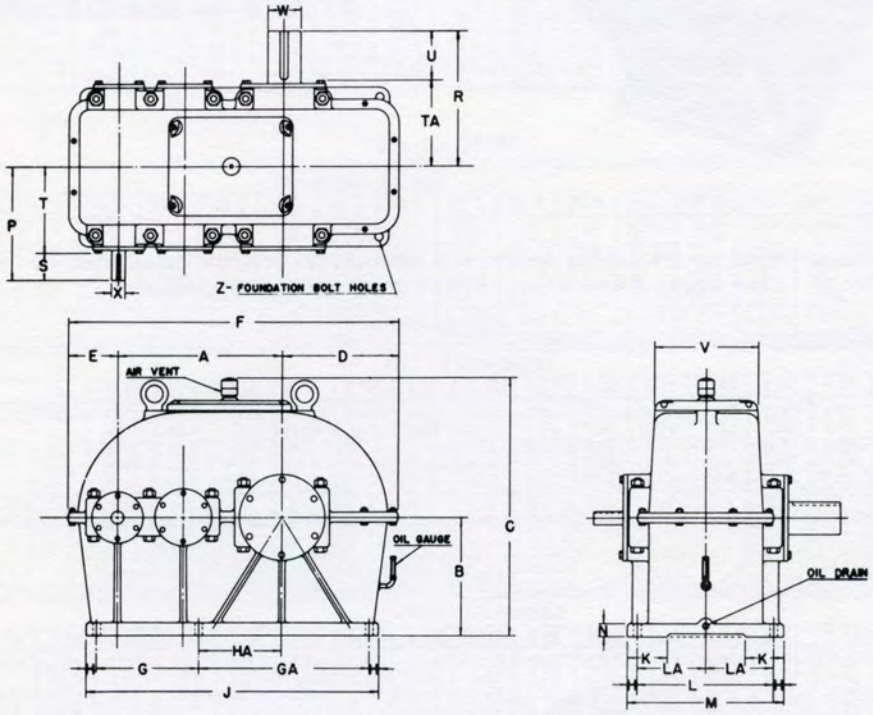
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GENERAL DIMENSIONS

Type D

DOUBLE REDUCTION HERRINGBONE GEAR REDUCERS



Size No.	A	B	C	D	E	F	G	GA	H	HA	J	K	L	LA	M	N	P	R	S	T	TA	U	V	W	X**	Slow Speed Shaft Keyway	Z Bolt Holes	Weight
D100D	10	8	17 9/16	7 1/2	3 3/4	21 1/4	8 1/4	8 1/4	3/4	3 1/8	18	*	10	5	11 1/2	1	8 1/2	10 3/4	2	6 1/2	6 1/2	4 1/4	8	2	For High Speed Shaft Dia. See Table of H.P. Ratings on Pages 10 and 11	1/2 x 1/4 x 3 7/8	6-9/16	250
D120D	12	9 1/2	21 7/16	9	4 1/2	25 1/2	9 3/4	9 3/4	7/8	3 3/4	21 1/4	3 1/2	12	6	13 3/4	1	9 1/2	11 1/2	2 3/16	7 5/16	7 5/16	4 3/16	9 1/2	2 1/2		5/8 x 5/16 x 3 7/8	6-13/16	600
D145D	14 1/2	10 1/2	24 1/8	11	6	31 1/2	12	12	1	4 3/4	26	4	13 1/2	6 3/4	15 1/2	1 1/4	10 3/4	14	2 1/4	8 1/2	8 3/4	5 1/4	10 1/2	2 3/4		5/8 x 5/16 x 4 7/8	6-13/16	925
D170D	17	12 1/2	28 3/16	12	6 1/2	35 1/2	14	14	1	5 3/4	30	4	15	7 1/2	17	1 1/2	13	15 1/2	3 1/2	9 1/2	9 3/4	5 3/4	12	3		3/4 x 3/8 x 5	6-13/16	1,300
D195D	19 1/2	14	30 5/8	14	6 1/2	40	17	15	1 1/4	5	34 1/2	4 1/2	17 1/2	8 3/4	20	1 1/2	14 1/2	18 1/2	3 3/4	10 3/4	10 7/8	7 5/8	14	3 1/2		7/8 x 7/16 x 5 1/2	6-1 1/16	1,700
D220D	22	15	35 3/8	15	7 1/2	44 1/2	14 1/2	21	1 1/4	10 1/2	38	5	19	9 1/2	21 1/2	1 3/4	16 1/2	18 1/2	4 7/8	11 5/8	11 3/4	6 3/4	15	4		1 x 1/2 x 5 1/2	6-1 1/16	2,300
D250D	25	17	39 3/8	17	8	50	17	23	1 1/2	11	43	6	21	10 1/2	24	2	17 3/4	21 1/2	4 3/4	13	13 1/4	8 1/4	15	5		1 1/4 x 7/16 x 7 1/2	6-1 5/16	2,900
D290D	29	20	44 9/16	19	9	57	20	27	1 1/2	13	50	6 1/2	24	12	27	2 1/2	19 1/2	24	5 1/4	14 1/4	14 1/2	9 1/2	18	5 1/2		1 1/4 x 7/16 x 9	6-1 5/16	4,000
D340D	34	23	51 1 1/16	21 1/2	10	65 1/2	23	30	2	14 3/4	57	7	27	13 1/2	31	2 3/4	21	25 1/2	5 1/2	15 1/2	15 3/4	9 3/4	20 1/2	6		1 1/2 x 1/2 x 9	6-1 9/16	6,000
D390D	39	27	58 5/16	26 1/2	10 1/2	76	***	***	2	19 1/2	67	8	30	15	34	3	23	28 1/2	6	17	17 1/2	11	23	7		1 3/4 x 5/8 x 10	8-1 9/16	8,500
D440D	44	30	63 1 1/16	29	12	85	****	****	2	22	74	9	34	17	38	3 1/4	24 1/2	32	6	18 1/2	19	13	25	8		2 x 3/4 x 12 1/2	8-1 9/16	11,500

All dimensions are in inches.

* D100D Base is not recessed on bottom.

** For shaft keyways see table of Standard Keyways page 14.

*** The D390D has 8 foundation bolt holes spaced 23-1/2 – 23-1/2 – 16.

**** The D440D has 8 foundation bolt holes spaced 26-1/2 – 26-1/2 – 17.

Type U units having a heavy overhung load acting up are available with extra foundation holes. Consult Lufkin for location.

Slow speed shaft size shown is standard. For heavy overhung load conditions, a larger shaft can be furnished.

Above dimensions are not to be used for Installation.

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HORSEPOWER RATING TABLES

TYPE D — 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 4 and 5 for information on selecting reducers.

Size No. D100D

	STANDARD RATIOS																			
Motor R.P.M.	10.7	11.8	12.9	14.2	16.5	18.3	20.3	22.7	25.5	28.7	32.5	37.0	40.5	46.1	49.0	....	....	....	....	....
1750 . .	33.5	33.5	32.3	29.8	25.9	23.4	20.6	17.8	15.4	13.4	11.7	9.90	8.70	7.55	7.06	....	....	....	....	....
1150 . .	22.1	22.1	21.9	20.2	17.5	15.8	14.1	12.3	10.5	8.81	7.60	6.56	5.91	5.09	4.78	....	....	....	....	....
870 . .	16.6	16.6	16.6	15.8	13.6	12.1	10.5	9.20	7.94	6.95	6.00	5.01	4.52	3.86	3.54	....	....	....	....	....
720 . .	13.8	13.8	13.8	13.4	11.6	10.3	8.90	7.75	6.84	5.85	4.90	4.15	3.66	3.16	3.00	....	....	....	....	....
580 . .	11.1	11.1	11.1	11.0	9.40	8.20	7.25	6.50	5.66	4.75	4.04	3.37	3.04	2.63	2.48	....	....	....	....	....
H.S. Shaft Dia.	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	3/4	3/4	3/4	3/4	3/4	....	....	....	....	....

Size No. D120D

	STANDARD RATIOS																			
Motor R.P.M.	10.7	12.1	13.8	15.8	18.1	20.5	22.4	25.7	27.3	31.4	36.4	42.1	45.3	47.5	50.7	53.7	61.1	....	....	....
1750 . .	64.5	57.6	51.1	44.6	38.0	32.5	29.7	25.3	23.3	19.5	16.3	13.7	13.0	12.1	11.1	10.4	8.70	....	....	....
1150 . .	44.9	39.0	34.4	29.8	26.0	23.0	20.5	17.3	16.2	13.8	11.0	9.21	8.54	8.01	7.61	7.00	5.95	....	....	....
870 . .	34.2	30.4	27.6	23.8	20.0	17.5	15.6	13.3	12.5	10.4	8.47	7.08	6.48	5.96	5.55	5.13	4.40	....	....	....
720 . .	29.2	25.8	22.6	19.9	16.6	14.6	13.1	11.2	10.4	8.66	7.10	5.80	5.40	5.10	4.79	4.36	3.63	....	....	....
580 . .	24.0	21.1	18.5	16.0	13.6	12.0	10.6	8.90	8.31	7.19	5.83	4.83	4.32	4.01	3.81	3.56	3.02	....	....	....
H.S. Shaft Dia.	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1	1	1	7/8	7/8	7/8	7/8	7/8	....	....	....

Size No. D145D

	STANDARD RATIOS																			
Motor R.P.M.	10.7	11.8	13.2	14.7	16.4	19.4	22.0	25.0	28.6	30.5	32.9	37.2	42.4	45.6	49.0	52.5	60.0	64.6	....	....
1750 . .	104	103	88.4	77.0	71.1	59.0	51.6	45.1	37.9	35.1	32.1	27.4	23.5	21.7	20.2	18.4	15.4	13.7	....	....
1150 . .	73.8	71.5	60.5	54.8	47.8	41.3	34.8	29.6	25.7	24.0	22.0	18.9	16.1	14.6	13.5	12.3	10.4	9.44	....	....
870 . .	56.5	55.4	46.5	41.7	37.3	31.9	27.6	24.4	20.0	18.7	16.8	14.7	12.3	11.3	10.4	9.46	7.73	6.46	....	....
720 . .	48.5	47.2	39.5	35.6	32.0	26.4	23.0	20.0	17.1	15.7	14.1	12.2	10.3	9.33	8.40	7.66	6.56	5.95	....	....
580 . .	39.7	39.6	32.6	29.2	25.6	21.2	18.5	16.3	13.4	12.5	11.4	9.97	8.29	7.56	6.89	6.40	5.40	4.79	....	....
H.S. Shaft Dia.	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/4	1-1/4	1-1/4	1-1/4	1	1	1	1	....	....

Size No. D170D

	STANDARD RATIOS																			
Motor R.P.M.	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 . .	167	143	133	112	102	89.0	79.2	66.9	58.3	55.0	47.9	41.0	34.3	31.5	29.5	27.2	23.6	22.2	....	....
1150 . .	115	101	89.1	79.5	70.6	61.8	55.2	47.5	40.6	38.3	31.8	27.4	23.4	21.4	19.7	18.2	16.2	14.2	....	....
870 . .	89.8	78.5	69.6	60.1	53.9	47.1	40.8	36.6	30.6	29.4	25.2	21.1	17.6	16.1	15.5	13.8	12.1	10.6	....	....
720 . .	77.0	65.7	58.6	51.6	45.0	39.6	35.0	29.9	25.4	23.9	20.0	17.2	14.3	13.5	12.4	11.5	9.98	8.85	....	....
580 . .	62.1	53.7	48.0	41.9	37.3	31.6	28.4	24.2	20.0	19.5	16.5	14.1	11.9	11.3	10.3	9.24	8.07	7.41	....	....
H.S. Shaft Dia.	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-1/2	1-1/2	1-1/4	1-1/4	1-1/4	1-1/4	1	1	1	1	....	....

Size No. D195D

	STANDARD RATIOS																			
Motor R.P.M.	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 . .	237	214	193	167	149	128	113	98.6	86.6	75.0	66.7	60.7	50.4	45.0	41.8	36.9	31.8	29.2	....	....
1150 . .	164	146	127	114	102	88.7	78.6	68.5	61.0	52.5	45.6	40.7	34.1	31.0	29.0	25.4	21.6	20.0	....	....
870 . .	124	113	100	88.1	77.5	68.5	60.5	52.5	45.5	38.8	34.2	30.2	25.2	23.3	22.4	19.1	15.6	14.9	....	....
720 . .	106	97.5	87.1	74.0	66.1	57.5	50.4	44.0	38.5	32.4	29.5	25.6	21.2	19.3	18.4	15.9	13.2	12.4	....	....
580 . .	88.0	79.9	70.4	60.1	54.3	47.3	41.2	36.6	32.4	26.8	23.8	20.4	17.2	15.8	15.0	12.8	11.1	10.2	....	....
H.S. Shaft Dia.	2	2	2	2	2	2	2	2	2	1-3/4	1-3/4	1-3/4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/4	1-1/4	....	....

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HORSEPOWER RATING TABLES (cont'd.)

TYPE D — DOUBLE REDUCTION UNITS

Size No. D220D

Motor R.P.M.	STANDARD RATIOS																		
	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	322	292	264	238	203	183	158	133	111	96.5	84.1	74.1	68.9	61.0	55.1	51.4	47.0	43.5	40.7	38.6
1150	226	204	182	163	138	124	109	92.0	77.0	67.0	58.5	49.8	46.5	41.1	38.3	34.5	32.8	29.7	27.2	25.5
870	174	156	140	126	108	96.2	84.4	71.0	58.7	51.7	44.5	37.4	35.2	31.4	29.0	27.0	24.2	23.2	20.7	19.2
720	147	133	119	109	91.0	81.6	70.9	60.0	49.8	43.5	37.9	32.2	28.8	26.0	24.4	22.3	20.2	18.7	16.9	16.0
580	121	111	99.4	88.2	74.1	65.7	59.0	49.5	39.7	34.8	30.8	26.2	23.4	21.4	19.7	18.0	17.0	15.4	13.8	12.0
H.S. Shaft Dia.	2-1/4	2-1/4	2-1/4	2-1/4	2-1/4	2-1/4	2-1/4	2-1/4	2-1/4	1-3/4	1-3/4	1-3/4	1-3/4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2

Size No. D250D

Motor R.P.M.	STANDARD RATIOS																		
	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	452	400	355	325	296	251	223	193	173	152	123	112	97.0	90.1	77.9	72.0	66.5	63.3	59.2	55.0
1150	317	272	244	222	197	175	155	134	117	104	91.9	76.6	66.6	63.7	55.0	51.1	48.2	44.9	41.0	37.4
870	242	208	186	172	155	134	121	104	92.4	79.6	68.0	58.5	50.9	48.9	42.0	39.4	36.8	35.3	30.6	28.3
720	206	179	161	148	134	113	101	87.1	78.4	66.5	57.0	48.1	41.1	39.5	34.9	33.1	31.0	28.6	26.1	23.5
580	169	147	132	121	110	94.8	83.1	71.9	64.4	54.0	44.7	39.7	34.5	31.6	28.2	26.8	24.7	23.0	21.1	19.1
H.S. Shaft Dia.	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/4	2-1/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-1/2

Size No. D290D

Motor R.P.M.	STANDARD RATIOS																		
	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	617	572	528	457	394	337	295	254	236	208	183	162	139	121	112	105	94.9	90.5	84.0	79.9
1150	431	395	365	318	275	226	200	178	161	143	126	110	96.3	84.4	78.3	71.9	66.0	61.1	58.0	53.0
870	338	306	284	244	215	178	153	135	124	110	98.0	86.0	75.6	64.8	58.1	55.1	50.5	47.5	44.0	41.3
720	286	260	244	208	180	149	131	116	100	91.6	81.0	70.1	60.1	53.5	49.6	46.6	42.0	40.2	37.6	34.0
580	234	213	199	171	148	124	108	96.1	84.6	76.0	67.0	57.5	49.5	43.7	40.3	37.7	34.3	32.6	30.4	28.2
H.S. Shaft Dia.	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-1/2	2-1/2	2-1/2	2-1/2	2-1/4	2-1/4	2-1/4	2-1/4	2

Size No. D340D

Motor R.P.M.	STANDARD RATIOS																		
	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	970	870	786	722	630	540	485	443	382	337	290	255	225	211	196	172	159	141	129	121
1150	690	605	552	515	448	367	324	297	261	235	199	173	153	143	133	121	112	97.3	87.3	82.3
870	537	480	424	391	348	294	262	233	206	181	153	136	120	111	102	91.6	83.9	71.6	66.7	61.6
720	455	403	368	336	290	246	219	199	169	148	130	114	98.4	91.8	85.8	77.0	71.1	61.5	57.0	51.5
580	380	337	304	276	242	199	181	163	142	126	107	91.3	80.0	75.2	69.1	63.2	59.0	51.2	46.2	41.1
H.S. Shaft Dia.	3	3	3	3	3	3	3	3	3	3	3	3	2-5/8	2-5/8	2-5/8	2-5/8	2-1/2	2-1/2	2-1/2	2-1/2

Size No. D390D

Motor R.P.M.	STANDARD RATIOS																		
	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	1489	1290	1198	1060	930	841	755	676	600	513	455	400	355	330	294	264	234	215	202	194
1150	1031	881	819	728	654	590	522	465	418	352	323	283	245	228	204	185	162	148	138	130
870	814	696	644	570	510	459	415	361	324	284	249	224	191	178	158	142	122	113	105	100
720	685	596	545	488	427	382	344	310	279	232	206	185	161	148	133	119	101	95.0	88.6	83.0
580	570	487	450	397	347	316	282	253	224	192	169	152	132	119	107	97.0	86.2	77.7	72.0	68.1
H.S. Shaft Dia.	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3	3	3	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-1/2

Size No. D440D

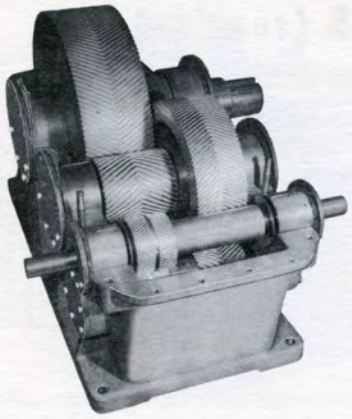
Motor R.P.M.	STANDARD RATIOS																		
	11.7	13.0	14.5	16.2	18.2	20.6	22.4	25.4	30.4	33.4	36.7	40.6	45.2	48.6	53.3	56.5	60.0	65.2	68.9	72.0
1750	1914	1750	1585	1420	1270	1115	1020	890	730	656	588	517	453	411	368	340	317	290	270	255
1150	1330	1210	1088	980	883	786	717	620	505	453	400	356	312	280	252	235	221	198	187	176
870	1053	955	860	775	690	606	555	479	388	351	311	273	243	219	197	182	168	151	142	134
720	880	805	725	650	584	513	467	411	330	294	262	228	202	183	165	154	140	127	119	112
580	727	658	595	537	481	427	391	339	273	243	217	188	167	154	135	125	115	104	97.2	92.1
H.S. Shaft Dia.	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-3/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3	3	3

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.

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TYPE T

TRIPLE REDUCTION UNITS

The Type T reducer assembly is a modification of the Type D assembly. The dimensions are the same as those shown for Type D assemblies on page 9.

HORSEPOWER RATING TABLES

TYPE T — 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 4 and 5 for information on selecting reducers.

Size No. T145D

	STANDARD RATIOS						
Motor R.P.M.	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	16.5	13.7	11.0	8.8	7.1	5.6	4.7
1150	11.3	9.5	7.4	6.0	4.7	3.9	3.2
870	8.5	7.3	5.7	4.6	3.5	3.0	2.4
720	7.1	5.8	4.6	3.7	3.0	2.4	2.0
580	5.8	5.0	3.8	3.1	2.4	2.0	1.6
High Speed Shaft Diameter	1	1	1	1	1	1	7/8

Size No. T170D

	STANDARD RATIOS						
Motor R.P.M.	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	28.6	22.3	17.5	14.0	11.2	9.0	7.5
1150	18.5	14.7	11.9	9.6	7.6	6.0	5.1
870	14.5	11.5	9.0	7.3	5.7	4.6	3.8
720	12.0	9.4	7.5	5.9	4.8	3.8	3.1
580	9.8	7.5	6.1	4.9	3.9	3.1	2.6
High Speed Shaft Diameter	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1

Size No. T195D

	STANDARD RATIOS						
Motor R.P.M.	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	39.6	30.5	24.9	20.2	16.5	12.9	11.0
1150	26.5	20.4	16.7	13.1	10.8	8.8	7.2
870	21.0	16.1	12.8	10.4	8.5	6.9	5.5
720	16.7	13.0	10.7	8.5	7.0	5.6	4.6
580	14.4	11.0	8.5	7.0	5.8	4.5	3.8
High Speed Shaft Diameter	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/4

Size No. T220D

	STANDARD RATIOS						
Motor R.P.M.	86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	53.0	41.7	34.0	28.0	22.7	18.1	14.9
1150	35.5	28.0	23.0	19.0	15.0	11.1	10.0
870	27.0	21.5	17.5	14.5	11.4	9.3	7.7
720	23.0	18.7	15.1	12.0	9.5	7.7	6.4
580	18.5	15.0	11.7	9.8	8.0	6.3	5.1
High Speed Shaft Diameter	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2

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HORSEPOWER RATING TABLES (cont'd.)

TYPE T — TRIPLE REDUCTION UNITS

Size No. T250D

Motor R.P.M.	STANDARD RATIOS 86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	75 3	60 1	48 8	39 5	32 4	27 0	21 6
1150	50 0	41 0	32 9	27 0	21 9	17 6	14 4
870	38 8	31 3	25 1	20 0	16 6	13 4	11 0
720	32 5	26 3	20 9	16 9	13 7	11 1	9 1
580	26 7	21 0	17 0	14 0	11 3	9 0	7 4
High Speed Shaft Diameter	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-1/2

Size No. T290D

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

Size No. T340D

Motor R.P.M.	STANDARD RATIOS 86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	170	137	113	91	76	62	49
1150	115	94	76	61	49	40	32
870	89	73	59	46	38	31	24
720	74	61	49	39	32	26	20
580	60	50	40	31	26	21	16
High Speed Shaft Diameter	2-1/2	2-1/2	2-1/2	2-1/2	2-1/4	2	2

Size No. T390D

Motor R.P.M.	STANDARD RATIOS 86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	260	210	169	137	112	91	74
1150	178	142	113	90	74	60	50
870	136	109	88	70	57	47	38
720	114	91	73	58	48	39	32
580	93	74	59	48	39	31	26
High Speed Shaft Diameter	2-5/8	2-5/8	2-5/8	2-5/8	2-5/8	2-1/2	2-1/4

Size No. T440D

Motor R.P.M.	STANDARD RATIOS 86.5	105.9	129.7	158.9	194.6	238.4	291.9
1750	350	283	235	187	151	122	102
1150	237	191	153	124	102	83	69
870	183	147	116	92	74	60	51
720	153	123	100	81	65	52	44
580	125	100	80	64	53	44	35
High Speed Shaft Diameter	3	3	3	3	3	2-3/4	2-1/2

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 speed. The result will be the equivalent horsepower at 580 RPM which can be found in the above tables.

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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.

For units with extended shut-down periods, grease lubrication is furnished for the bearings. These bearings are packed at the factory but they require periodic re-lubrication. After the first two weeks of operation, remove the inspection covers on the reducer and pump grease into the bearings until it begins to pass the grease retainer rings built into each bearing carrier on the inside of the reducer housing. Repeat this procedure every six months thereafter. Avoid over-greasing since the excess grease will pass the retainer ring and enter the oil in the reducer sump.

Use a good quality NLGI No. 1 lithium soap base grease with suitable rust and oxidation inhibitors and extreme pressure additives.

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.
S63D, S84D	2	280–360	3	490–700
S105D, S126D, S147D, S168D, S189D, S2C10D, D100D, D120D	2	280–360	4	700–1000
S2211D, S2411D, S2712D, D145D, D170D, D195D, D220D, D250D, D290D, D340D, D390D, T145D, T195D	3	490–700	4	700–1000
T220D, T250D, T290D, T340D, T390D, T440D	4	700–1000	5	1000–1500

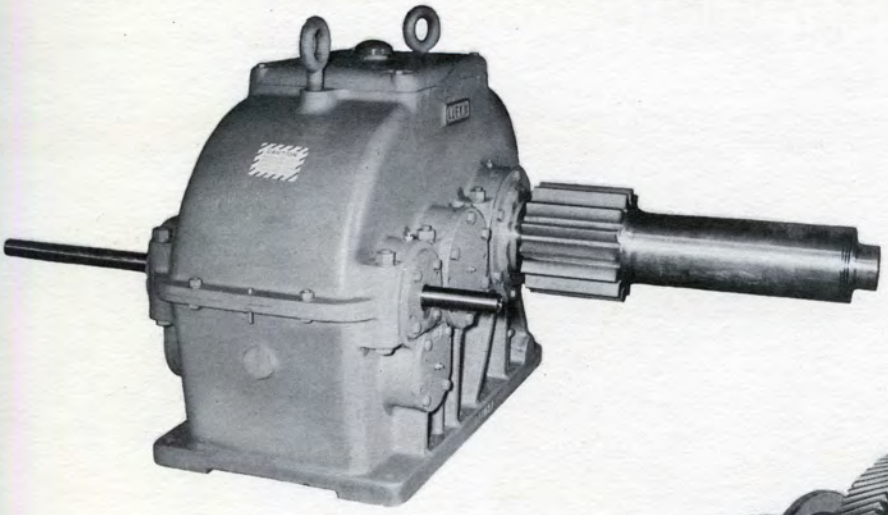
AGMA STANDARD KEYWAYS

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

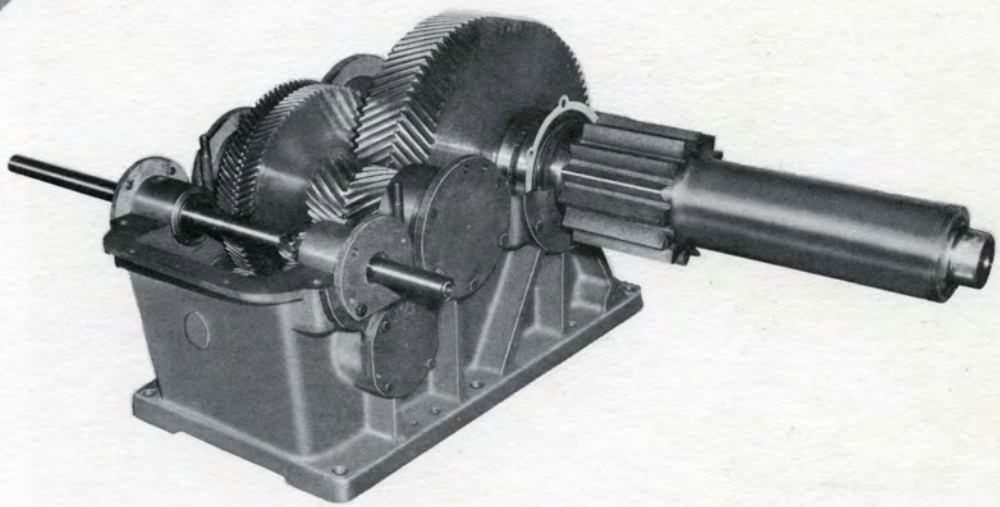
Diameter of Shafts, Inclusive	RECOMMENDED STANDARD KEYWAYS Width	Depth	Key Stock
2 13/16 to 3 1/4"	3/4	3/8	3/4 x 3/4
3 5/16 to 3 3/4"	7/8	7/16	7/8 x 7/8
3 13/16 to 4 1/2"	1	1/2	1 x 1
4 9/16 to 5 1/2"	1 1/4	7/16	1 1/4 x 7/8
5 9/16 to 6 1/2"	1 1/2	1/2	1 1/2 x 1
6 9/16 to 7 1/2"	1 3/4	5/8	1 3/4 x 1 1/4
7 9/16 to 8 15/16"	2	3/4	2 x 1 1/2

Lufkin Commercial Gear Reducers and Increasers 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.

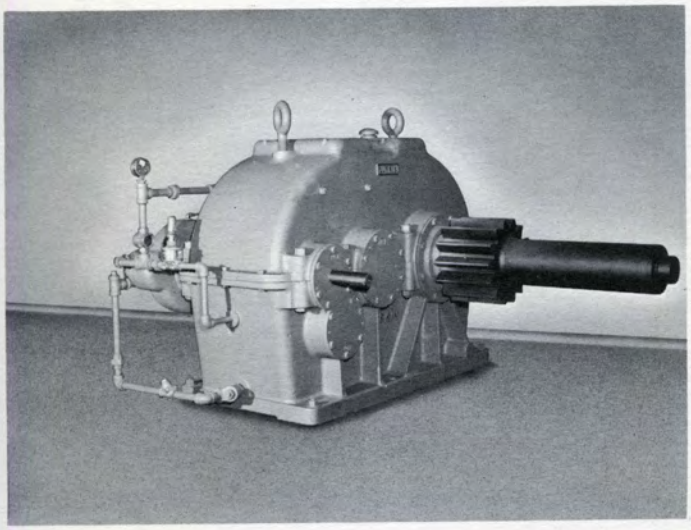
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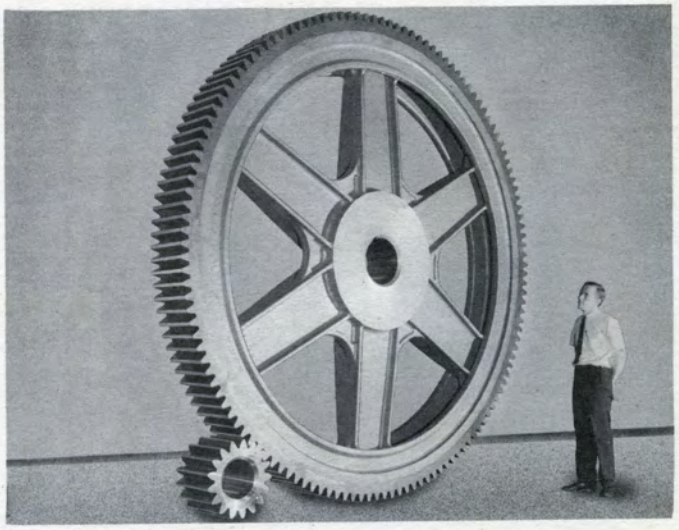
Lufkin T220D triple reduction Dam Gate Hoist reducer with double extended high speed shaft and output pinion cut integral with slow speed shaft.



Lufkin T220D triple reduction Dam Gate Hoist reducer with cover removed.



Lufkin Dam Gate Hoist reducer with gear driven lube oil pump.



Drum Hoist bull gear with forged steel gear ring and cast ductile iron spider. Gear is 134" P.D., 1 D.P., 13-1/2" Face Width, with a finished weight of 17,800 pounds.

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LUFKIN MILESTONES OF GROWTH

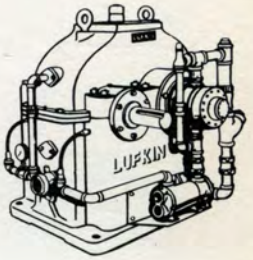
Lufkin Foundry & Machine Company founded 1902 as a repair shop for sawmill and railroad machinery .... guided by progressive leadership ... gifted with technical ability ... located strategically in the growing Southwest ... of humble origin ... this company has grown proudly in scope and stature with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

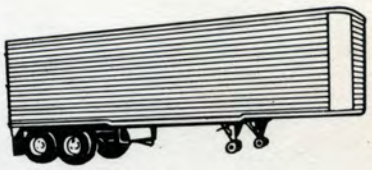


OILFIELD DIVISION
1923



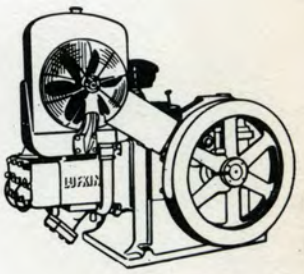
GEAR DIVISION
1939





TRAILER DIVISION
1939

ENGINE
DIVISION
1940



767

LUFKIN

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