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HEAVY OVERHUNG LOAD CAPACITIES

Type S

SINGLE REDUCTION HERRINGBONE GEAR REDUCERS
SLOW SPEED SHAFTS

The table below shows Heavy Overhung Load Capacities for Special Type S Reducers equipped with double slow speed bearings. The reducers are standard in every respect except slow speed bearing and bearing carrier and slow speed shaft.

Reducer No.	Input R.P.M.	REDUCTION RATIOS 2	3	4	5	6	7	8	9	10	11
S63	1750	2390	2660	2830	2850	2850	2850	2850	2850	2850	....
	1150	2610	2820	2850	2850	2850	2850	2850	2850	2850	....
	870	2690	2850	2850	2850	2850	2850	2850	2850	2850	....
	720	2710	2850	2850	2850	2850	2850	2850	2850	2850	....
	580	2850	2850	2850	2850	2850	2850	2850	2850	2850	....
S84	1750	2870	3020	3020	3020	3020	3020	3020	3020	3020	....
	1150	3020	3020	3020	3020	3020	3020	3020	3020	3020	....
	870	3020	3020	3020	3020	3020	3020	3020	3020	3020	....
	720	3020	3020	3020	3020	3020	3020	3020	3020	3020	....
	580	3020	3020	3020	3020	3020	3020	3020	3020	3020	....
S105	1750	2820	3110	3300	3390	3430	3690	4020	4300	4510	....
	1150	3060	3225	3325	3350	3860	4290	4660	4925	5160	....
	870	3090	3210	3230	3785	4315	4760	5105	5370	5580	....
	720	3070	3140	3440	4090	4640	5100	5410	5660	5850	....
	580	2990	2955	3670	4410	4960	5400	5670	5890	6080	....
S126	1750	3680	4090	4380	4620	4730	4800	5100	5500	5770	....
	1150	3940	4450	4615	4690	4730	5425	5900	6290	6610	....
	870	4240	4475	4540	4725	5425	6010	6510	6850	7000	....
	720	4265	4450	4450	5125	5875	6475	6910	7000	7000	....
	580	4240	4340	4750	5775	6360	6875	7000	7000	7000	....
S147	1750	4630	5130	5530	5840	6090	6285	6400	6790	7115	....
	1150	5110	5640	6040	6230	6300	6660	7325	7755	8135	....
	870	5430	5950	6110	6210	6680	7490	8040	8450	8780	....
	720	5640	5950	6070	6025	7200	7990	8520	8890	9000	....
	580	5780	6110	6100	6750	7400	8420	8975	9000	9000	....
S168	1750	7240	8100	8760	9270	9700	10090	10410	10720	11000	....
	1150	8080	9000	9690	10215	10670	11000	11000	11000	11000	....
	870	8630	9590	10290	10830	11000	11000	11000	11000	11000	....
	720	9020	9975	10700	11000	11000	11000	11000	11000	11000	....
	580	9460	10450	11000	11000	11000	11000	11000	11000	11000	....
S189	1750	7870	8785	9500	10070	10540	10930	11290	11600	11880	....
	1150	8860	10540	10510	11080	11570	11980	12320	12500	12500	....
	870	9380	10410	11160	11745	12230	12500	12500	12500	12500	....
	720	9800	10840	11600	12190	12500	12500	12500	12500	12500	....
	580	10275	11345	12100	12310	12500	12500	12500	12500	12500	....
S2010	1750	8560	9745	10580	11210	11735	12200	12610	12960	13260	....
	1150	9730	10855	11720	12380	12930	13410	13810	14000	14000	....
	870	10440	11640	12480	13140	13680	14000	14000	14000	14000	....
	720	10910	12120	12990	13650	14000	14000	14000	14000	14000	....
	580	11460	12680	13550	14000	14000	14000	14000	14000	14000	....
S2411	1150	....	11780	12690	13420	14010	14530	14960	15330	15850	16730
	870	....	12550	13490	14250	14870	14370	15660	16490	17160	17820
	720	....	13140	14090	14840	15430	15560	16560	17360	18000	18000
	580	....	13740	14700	15260	15260	16040	17430	18000	18000	18000
	400	....	14570	14800	14480	16060	17500	18000	18000	18000	18000
S3012	1150	....	12390	13400	14140	14790	15355	15820	16230	16470	16700
	870	....	13290	14285	15060	15720	16200	16340	16400	17080	17500
	720	....	13860	14880	15670	16140	16300	16140	16960	17500	17500
	580	....	14540	15560	15920	16020	15780	16500	17500	17500	17500
	400	....	15200	15500	15200	14870	16600	17500	17500	17500	17500

OVERHUNG LOAD CAPACITIES

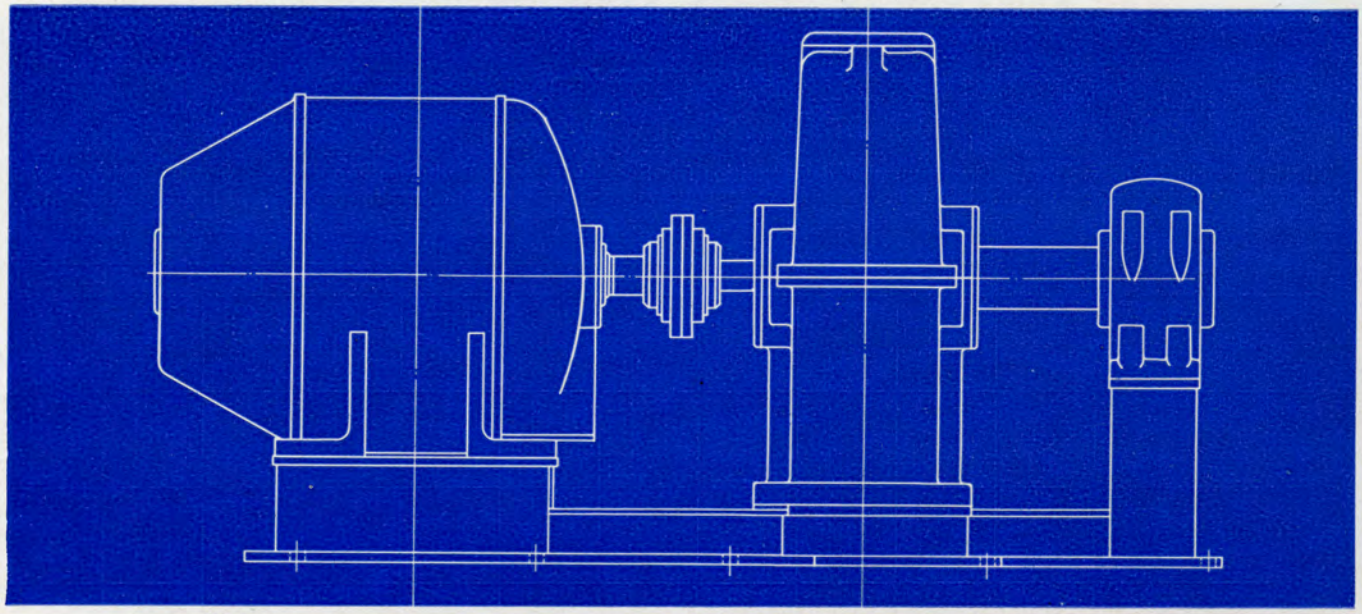
Type D

DOUBLE REDUCTION HERRINGBONE GEAR REDUCERS
SLOW SPEED SHAFTS

Overhung Load	REDUCER NO. D100	D120	D145	D170	D195	D220	D250	D290	D340	D390	D440
Moderate	2140	2510	3000	3500	4400	5300	6600	7130	7700	8350	8900
Heavy	2480	4840	5000	5730	8480	11250	14000	15200	16400	17760	18750

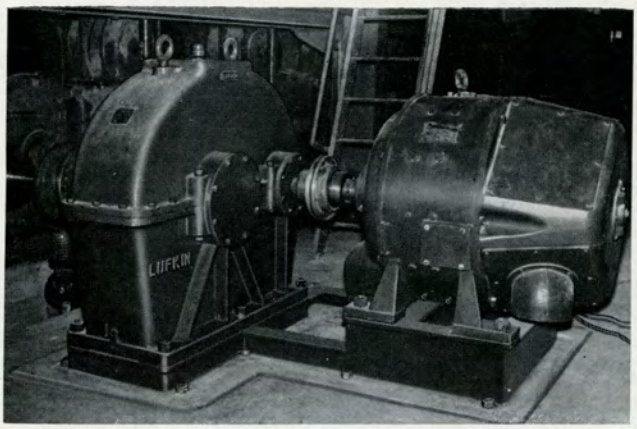
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LUFKIN OUTBOARD BEARING ASSEMBLY

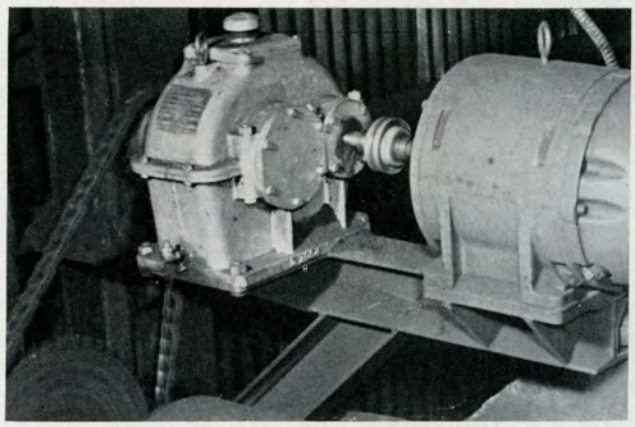


Bases for outboard bearing drives are custom built for each application.

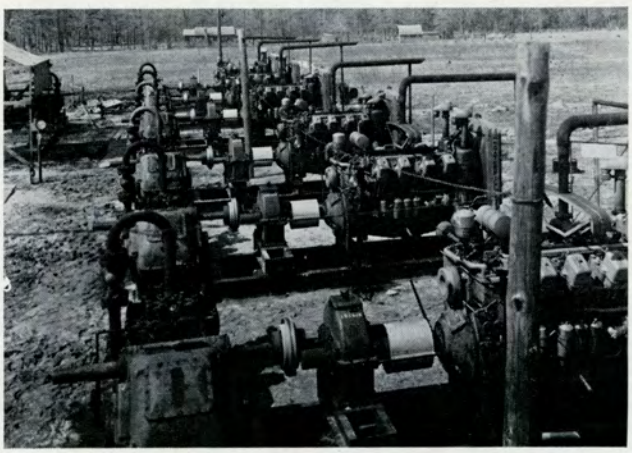
TYPICAL TYPE S INSTALLATIONS



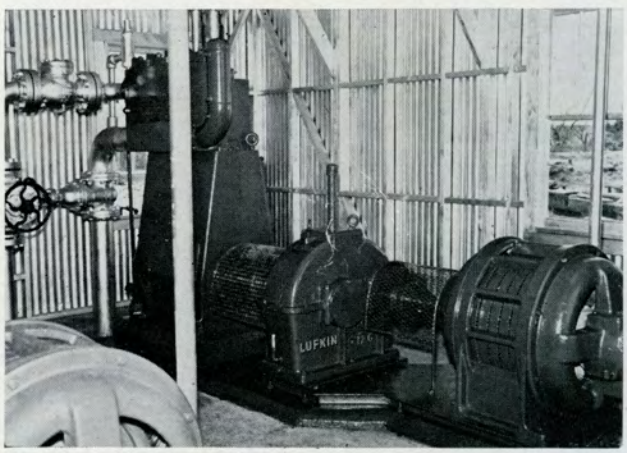
Reducer S2411 driving Paper Machine Dryer Section.



S63 Reducer in foundry sand conveyor system.



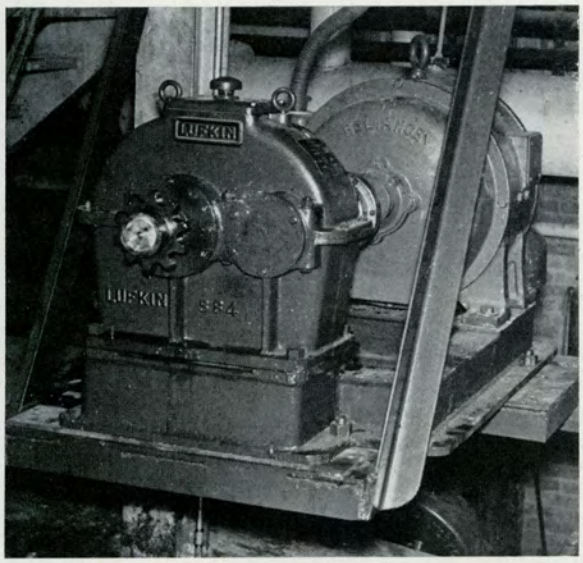
Six Lufkin Reducers—a part of portable pump station assembly.



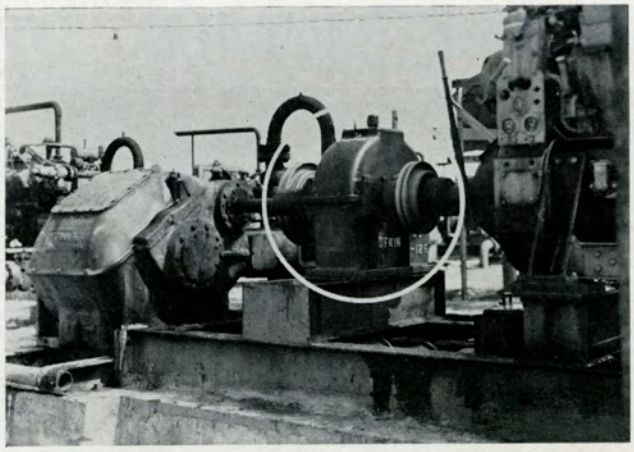
S126 Reducer driving high pressure pump in salt water disposal plant.

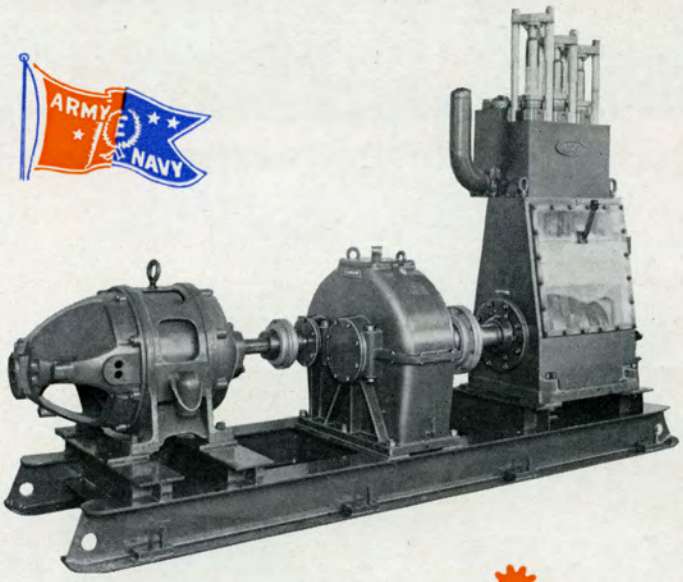
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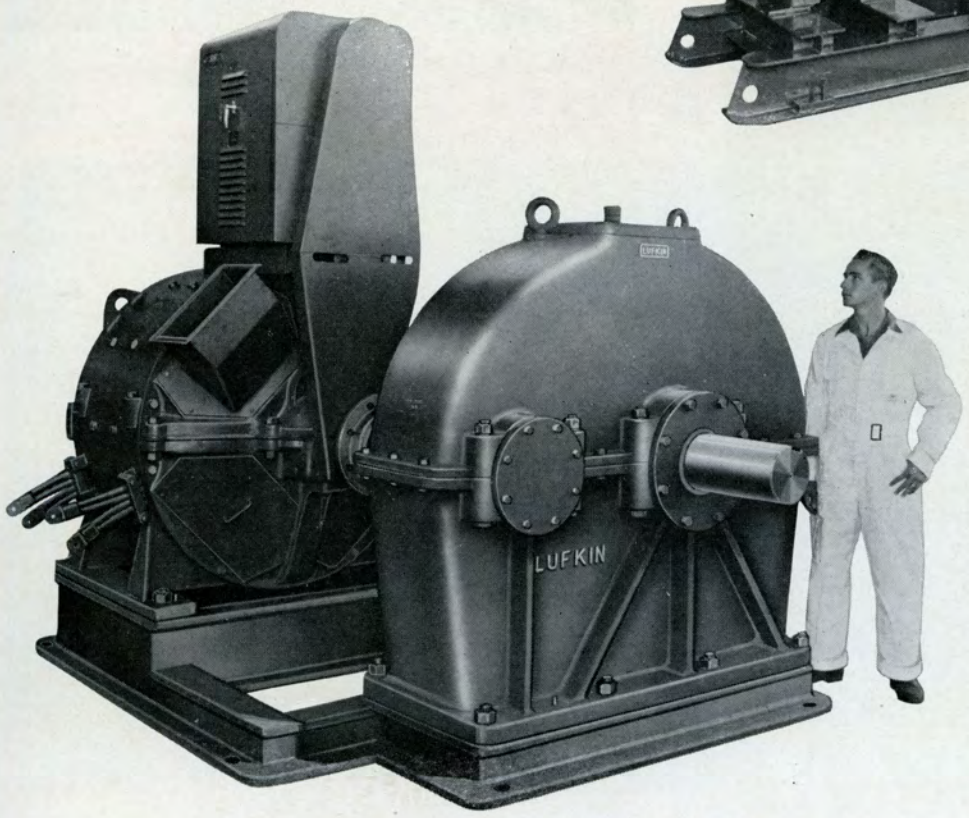
TYPICAL INSTALLATIONS OF LUFKIN TYPE S SINGLE REDUCTION REDUCERS.



Lufkin S84 Reducer—auxiliary drive on wet-end kraft paper machine.







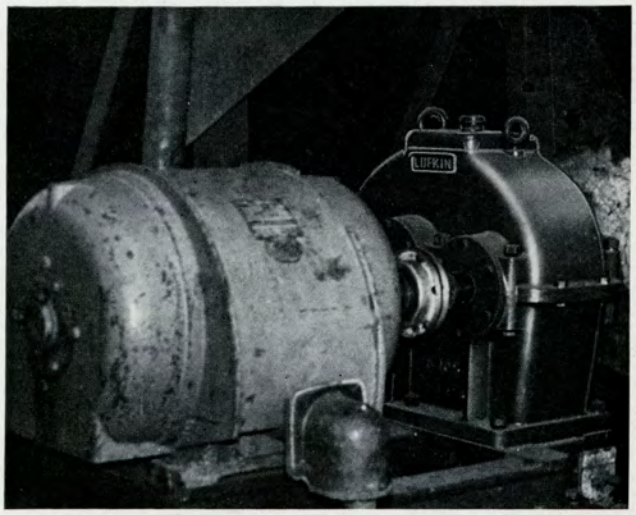
TOP: S126 Reducer driven by Diesel Engine in portable Booster Station Assembly.

CENTER: Lufkin S168 Reducer on Special Base with high pressure pump and motor for salt water disposal plant.

LEFT: Lufkin's largest Standard Commercial Reducer—S3012—with Base and motor assembly for Couch drive on Texas newsprint machine.

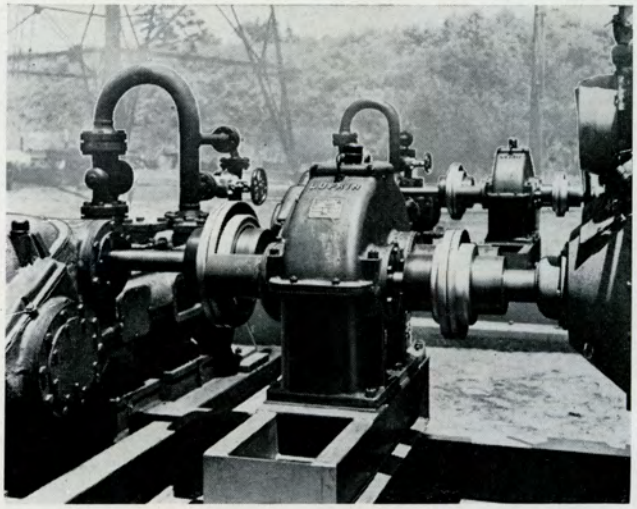
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MISCELLANEOUS TYPE S INSTALLATIONS

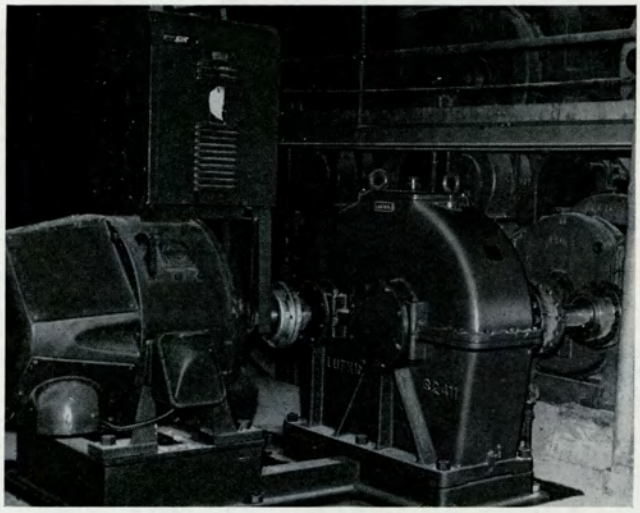


S105 Gear Unit driving log conveyor in pulpwood yard.

There is a Standard Lufkin Gear Reducer for every application requiring a horizontal parallel shaft assembly. If you cannot readily select a satisfactory reducer for your job consult our nearest representative or our factory at Lufkin, Texas.

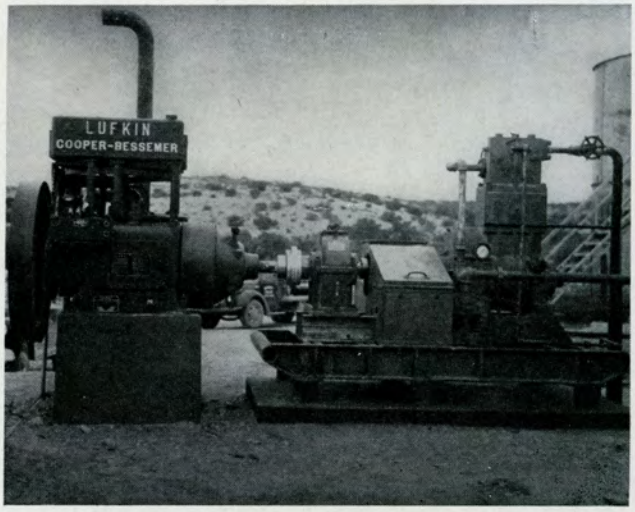


Two S126 Reducers in pipe line pumping service.



Lufkin Gears give the dependable service required of constant-duty Paper Mill service where down-time for repairs cuts deeply into profits.

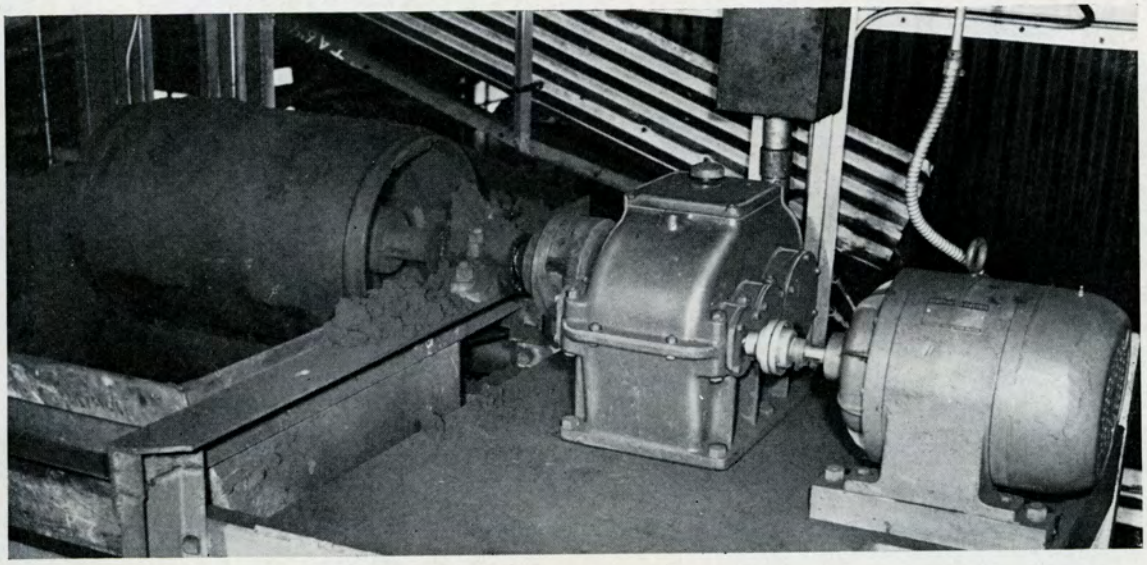
Lufkin Type S Single Reduction Herringbone Gear Reducers are built in ten sizes with a complete range of ratios from 2 up to 10.



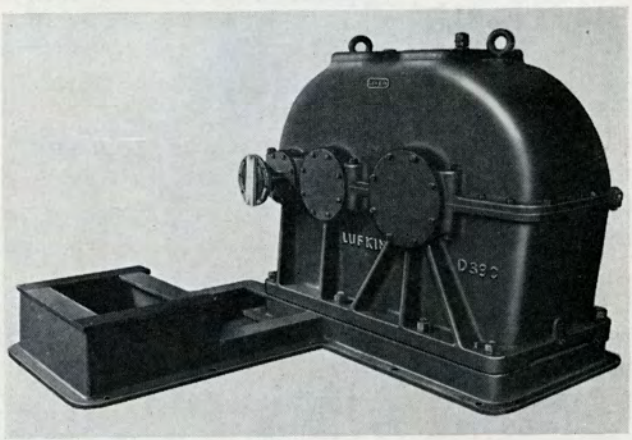
High pressure pump and Lufkin Gear being driven by Lufkin Engine.

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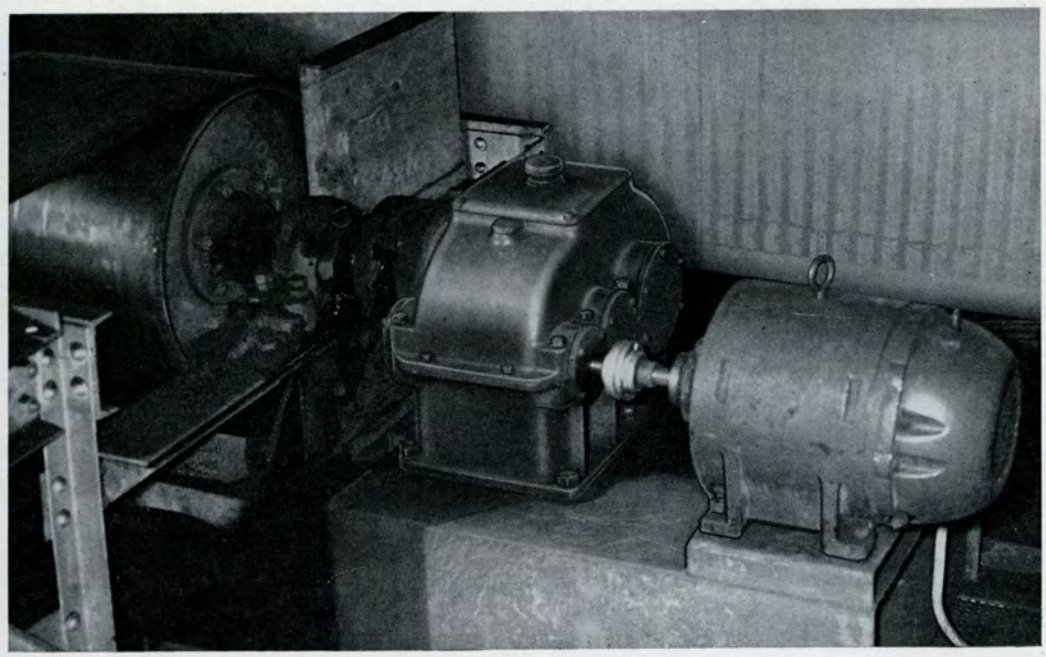
MISCELLANEOUS TYPE D INSTALLATIONS



ABOVE AND BELOW: Lufkin D120 Double Reduction Herringbone Gear Reducers driving Foundry sand belt conveyors.



Lufkin Type D Double Reduction Herringbone Gear Reducers are built in eleven sizes with a complete range of ratios from 10 up to approximately 75.



ABOVE: Large Double Reduction Gear Reducer with Motor Base for Georgia paper mill.

Wherever Lufkin Gears are used they have been proclaimed by experienced gear users as having outstanding merit and unusual dependability.

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MEDIUM SPEED HERRINGBONE GEAR REDUCERS AND SPEED INCREASERS

Type M

APPLICATION

Type M Medium Speed Reducers and Increasers are applicable for:

1. **Speeds higher than permitted with standard Type S Reducers and lower than required for Type N High Speed Reducers.**
2. **Applications where the horsepower load is somewhat higher than the Thermal Rating of a standard Type S reducer, requiring the addition of an oil circulating and cooling system.**

SPECIFICATIONS

The Type M assembly is a modification of the Type S assembly. The gear case is exactly the same. The specifications covering all other items except the high speed bearings are also the same as for Type S Reducers. The high speed bearings are straight roller anti-friction similar to those used in the slower speed units but are a type which will permit higher speeds. The rotating elements are more carefully balanced and the gear teeth are more accurately finished to accommodate the higher speed.

Except for the diameter of the high speed shaft the dimensions of Type M reducers are identical with the Type S reducers shown on page 22. The high speed shaft diameters are shown with the Type M Rating Tables on pages 32 and 33.

These medium speed units are furnished with an oil pan to prevent excessive splashing of the oil.

LIMITATIONS

Type M units are applicable for speeds higher than shown in the Type S Rating Tables. The top speed must be less than 3600 R.P.M. and 4000 feet per minute pitch line velocity. If the speed should reach these values, use the Type N assembly.

SELECTION OF UNITS

The selection of a Type M Gear Reducer for a particular job is done in the same way as outlined for Type S Reducers on pages 14 and 15 using the same Service Factors on page 17.

For Speed Increasing service the selection is made in the same manner except the next larger Service Factor (.25 higher) should be used.

EXAMPLE: A Speed Increaser is required to deliver 52 horsepower, driving a centrifugal circulating pump at 2900 RPM and driven by a multi-cylinder engine at 1200 RPM, operating 24 hours per day.

SOLUTION: From Character of Load Table 1, page 17, it is found that the driven machine is a Uniform Load and from Table 2 on the same page the Service Factor for speed reducing service is found to be 1.50. For speed increasing service the Service Factor is .25 higher or 1.75.

Equivalent Horsepower $= 1.75 \times 52 = 91$ Hp.

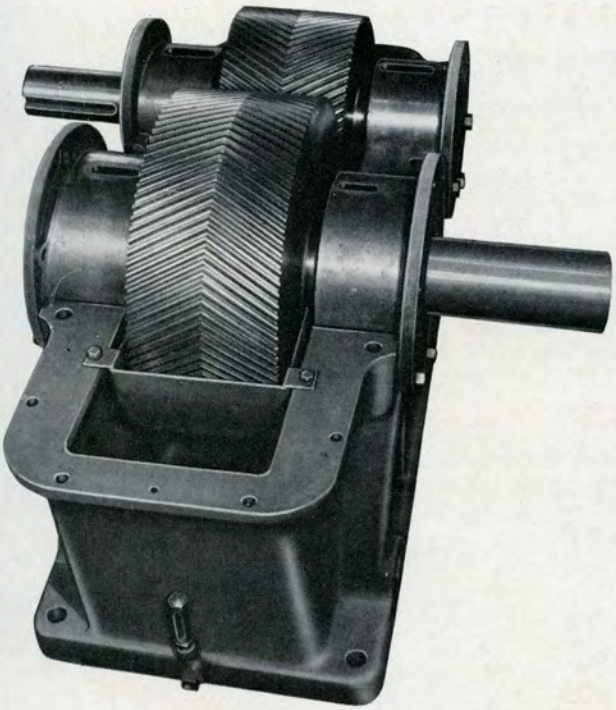
$$\text{Ratio} = \frac{2900}{1200} = 2.42$$

Look in the Rating Tables, page 32, for a unit having a Thermal Rating of at least 52 hp. It is found that the M84 fills this requirement with a Thermal Rating of 63 hp. At 3000 RPM and a ratio of 2.48 this unit has a Mechanical Rating of 180 hp. which is almost double the 91 hp. required.

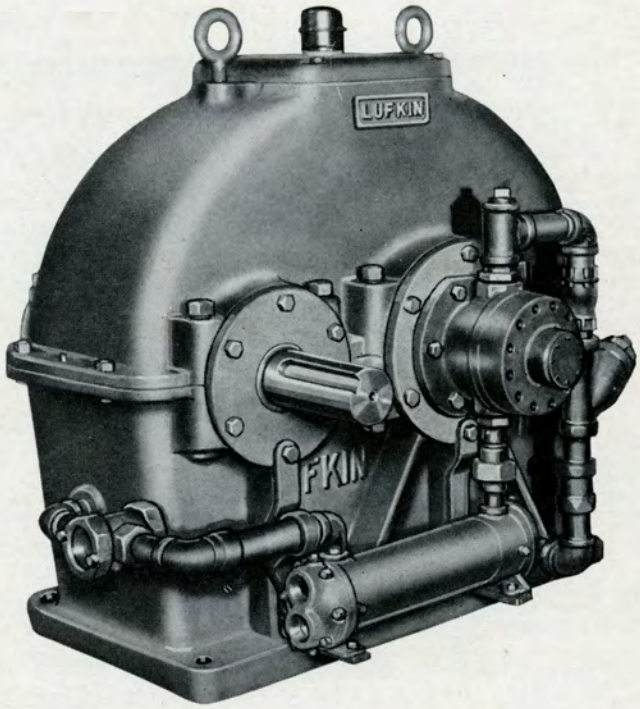
The M84 with ratio 2.48 is, therefore, the proper selection.

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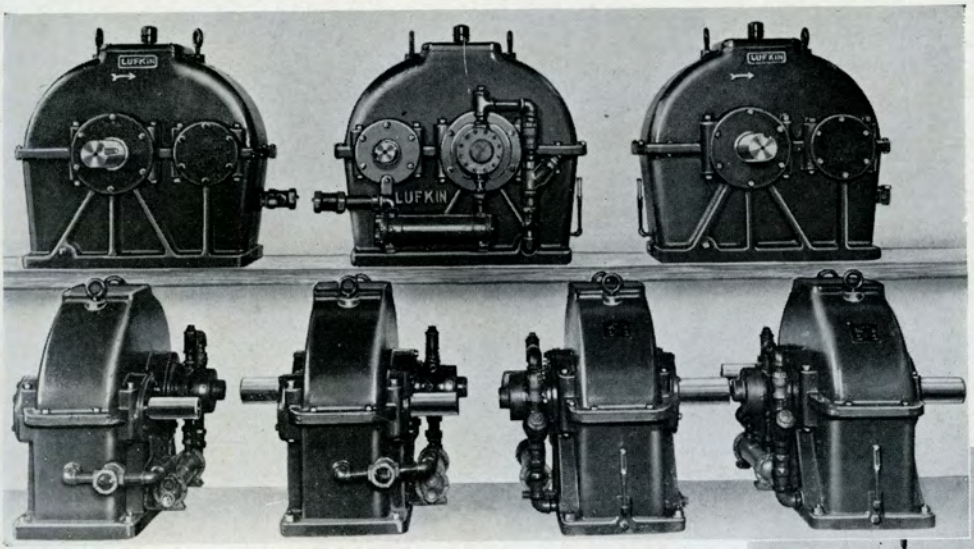
TYPE M ASSEMBLIES



Typical Medium Speed Reducer Showing oil pan.



M147 Medium Speed Reducer with oil cooling system. This oiling system is not standard for Type M but is furnished as an extra in special cases to obtain slight increases in thermal capacity.



Type M units are modified Type S reducers to permit higher speeds.

ABOVE: Part of a group of 20 identical reducers for driving rotary compressors in gas line booster stations.



RIGHT: M84 Speed Increasers driving centrifugal pumps at 2500 R.P.M. in California absorption plant.

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HORSEPOWER RATING TABLES

Type M — Single Reduction Units

MEDIUM SPEED HERRINGBONE GEAR REDUCERS AND SPEED INCREASERS

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 page 30 for information on Selection of Units.

Unit No. M63

Thermal Rating H.P.	Motor R.P.M.	STANDARD RATIOS																					
		2.00	2.35	2.69	3.00	3.36	3.57	4.05	4.65	5.00	5.40	5.86	6.11	6.38	7.00	7.73	8.14	8.60	9.67	10.29	.....	.....	.....
38	3500	88	88	88	88	86	81	68	57	51	46	41	38	36	32	28	25	23	18	16	.....	.....	.....
	3000	74	74	74	74	74	70	59	50	45	41	36	34	32	28	24	22	20	16	14	.....	.....	.....
	2400	60	60	60	60	60	60	51	43	39	35	31	29	27	24	20	19	17	14	12	.....	.....	.....
High Speed Shaft Diameter		1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1¼	1	1	⅞	⅞	⅞	⅞	¾	.....	.....	.....

Unit No. M84

Thermal Rating H.P.	Motor R.P.M.	STANDARD RATIOS																					
		2.02	2.48	2.72	3.00	3.57	4.05	4.65	5.00	5.40	5.86	6.11	6.38	7.00	7.35	7.73	8.14	8.60	9.67	10.29	.....	.....	.....
63	3500	.....	.....	.....	180	176	151	126	115	104	93	87	82	71	66	61	57	52	42	37	.....	.....	.....
	3000	.....	180	180	180	155	132	111	102	91	81	75	72	63	59	54	50	46	38	33	.....	.....	.....
	2400	180	180	180	164	134	115	96	86	77	70	65	62	54	50	46	43	39	31	27	.....	.....	.....
	1750	180	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Speed Shaft Diameter		1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1¼	1¼	1¼	1¼	1	1	.....	.....	.....

Unit No. M105

Thermal Rating H.P.	Motor R.P.M.	STANDARD RATIOS																					
		2.03	2.33	2.70	3.00	3.44	3.76	4.00	4.33	4.71	5.00	5.32	5.67	6.06	6.50	7.00	7.57	7.89	8.23	9.00	9.43	10.43	.....
88	3500	.....	.....	.....	.....	.....	300	280	258	229	211	195	178	162	148	133	118	112	103	90	83	65	.....
	3000	.....	.....	.....	300	295	266	247	223	200	186	170	157	143	130	115	102	97	92	80	74	58	.....
	2400	.....	300	300	298	255	231	214	194	173	161	148	135	120	110	98	88	83	79	68	63	49	.....
	1750	300	300	262	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Speed Shaft Diameter		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1½	1½	1½	1½	1¼	1¼	.....

Unit No. M126

Thermal Rating H.P.	Motor R.P.M.	STANDARD RATIOS																					
		2.00	2.31	2.69	3.00	3.36	3.80	4.00	4.45	5.00	5.32	5.67	6.06	6.50	7.00	7.57	7.89	8.23	8.60	9.00	9.43	10.43	.....
118	3500	.....	.....	.....	.....	.....	.....	.....	.....	345	321	289	266	242	217	195	183	171	160	148	138	106	.....
	3000	.....	.....	.....	.....	.....	420	400	350	300	278	252	232	212	190	169	158	148	138	129	119	95	.....
	2400	.....	.....	.....	420	420	368	350	300	260	240	220	200	184	163	144	134	126	118	111	103	79	.....
	1750	420	420	420	380	333	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Speed Shaft Diameter		2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2	2	2	1½	1½	.....

Unit No. M147

Thermal Rating H.P.	Motor R.P.M.	STANDARD RATIOS																					
		2.06	2.50	3.00	3.31	3.67	4.09	4.33	4.60	5.09	5.36	5.67	6.00	6.37	6.78	7.00	7.48	8.03	8.33	9.00	9.37	10.20	.....
150	3500	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	430	400	370	340	326	297	267	250	226	210	170	.....
	3000	.....	.....	.....	.....	.....	.....	.....	500	440	410	380	354	327	295	283	256	232	220	195	183	152	.....
	2400	.....	.....	.....	.....	570	500	470	437	378	358	330	307	282	258	245	220	200	190	166	156	127	.....
	1750	.....	570	560	500	450	395	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1150	570	480	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Speed Shaft Diameter		2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2¼	2	.....

Ratios listed are standard but intermediate ratios are available at slight extra cost. Special ratios lower than minimum shown, down to 1.25 in some cases, are also available. For ratios lower than the minimum shown the horsepower rating cannot be higher than that shown for the minimum ratio.

Ratings for intermediate ratios and speeds may be found by direct interpolation. When selection falls in the blank space above the ratings listed, the High Speed Type N Units shown on page 37 must be used. When the selection falls in the blank space below the ratings listed, the Standard Type S Units shown on pages 18 and 19 may be used.

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HORSEPOWER RATING TABLES

Type M — Single Reduction Units

MEDIUM SPEED HERRINGBONE GEAR REDUCERS AND SPEED INCREASERS

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 page 30 for information on Selection of Units.

Unit No. M168

Thermal Rating H.P.	Motor R.P.M.	STANDARD RATIOS																					
		2.00	2.50	3.00	3.31	3.67	4.09	4.33	4.82	5.10	5.40	5.74	6.11	6.53	7.00	7.26	7.53	8.14	8.85	9.24	9.67	10.64	.....
182	3000	.....	.....	.....	.....	.....	.....	.....	.....	.....	580	530	488	443	405	385	364	324	287	269	252	196	.....
	2400	.....	.....	.....	.....	.....	710	660	580	540	500	460	423	386	350	333	316	280	247	230	217	163	.....
	1750	.....	.....	750	710	640	556	527	455	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1150	750	680	576	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Speed Shaft Diameter		2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2½	2½	2¼	.....

Unit No. M189

Thermal Rating H.P.	Motor R.P.M.	STANDARD RATIOS																					
		2.00	2.60	3.00	3.50	3.80	4.14	4.40	4.68	5.00	5.30	5.63	6.00	6.41	6.88	7.13	7.40	8.00	8.33	8.69	9.50	10.45	.....
220	3000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	620	550	520	496	450	425	400	350	300	.....
	2400	.....	.....	.....	.....	.....	.....	.....	800	760	700	645	590	535	480	460	430	390	366	346	302	249	.....
	1750	.....	.....	.....	900	840	758	698	649	590	540	507	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1150	900	900	786	658	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	870	900	716	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Speed Shaft Diameter		3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	2¾	2½	.....

Unit No. M2010

Thermal Rating H.P.	Motor R.P.M.	STANDARD RATIOS																					
		2.03	2.51	3.00	3.44	3.76	4.00	4.33	4.71	5.00	5.32	5.67	6.06	6.50	7.00	7.48	7.75	8.03	8.33	9.00	9.37	10.20	.....
258	3000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	718	650	613	585	554	494	466	385	.....
	2400	.....	.....	.....	.....	.....	.....	.....	.....	.....	900	830	755	687	620	561	534	505	478	430	402	322	.....
	1750	.....	.....	.....	.....	1020	1020	920	830	773	705	645	588	538	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1150	1020	1020	1020	880	780	720	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	870	1020	980	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Speed Shaft Diameter		3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼	2¾	.....

Unit No. M2411

Thermal Rating H.P.	Motor R.P.M.	STANDARD RATIOS																					
		2.00	2.53	3.00	3.44	3.62	4.00	4.33	4.71	5.00	5.40	5.86	6.02	6.58	7.00	7.47	7.73	8.00	8.60	9.29	9.67	10.08	11.00
325	2400	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	990	915	832	796	755	680	604	568	532	433
	1750	.....	.....	.....	.....	.....	.....	.....	1150	1120	1020	915	868	775	710	650	640	590	530	472	450	414	336
	1150	.....	.....	1150	1150	1150	1065	970	875	820	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	870	1150	1150	1150	1030	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	720	1150	1150	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Speed Shaft Diameter		3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¾	3¼	3¼

Unit No. M3012

Thermal Rating H.P.	Motor R.P.M.	STANDARD RATIOS																					
		3.00	3.36	3.61	4.00	4.46	4.77	5.00	5.38	5.67	6.14	6.50	6.89	7.33	7.57	8.09	8.37	9.00	9.71	10.11	10.54	11.00	11.50
420	2000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1285	1175	1120	1015	965	865	770	720	675	630	590
	1750	.....	.....	.....	.....	.....	.....	.....	.....	.....	1300	1250	1145	1050	1000	910	860	786	696	660	614	576	538
	1150	.....	.....	1300	1300	1300	1300	1285	1162	1080	980	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	870	1300	1300	1300	1300	1190	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	720	1300	1300	1300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Speed Shaft Diameter		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Ratios listed are standard but intermediate ratios are available at slight extra cost. Special ratios lower than minimum shown, down to 1.25 in some cases, are also available. For ratios lower than the minimum shown the horsepower rating cannot be higher than that shown for the minimum ratio.

Ratings for intermediate ratios and speeds may be found by direct interpolation. When selection falls in the blank space above the ratings listed, the High Speed Type N Units shown on page 37 must be used. When the selection falls in the blank space below the ratings listed, the Standard Type S Units shown on pages 18 and 19 may be used.

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LUFKIN HIGH SPEED REDUCERS AND INCREASERS

Type N

APPLICATION

Type N High Speed Gear Units are used for both speed Reducing and speed Increasing service. This type assembly must be used when the pinion speed is 3600 R.P.M. and higher or when the pitch line velocity is 4000 feet per minute and higher.

Type N units are sometimes used at operating speeds lower than those stated above especially when extremely quiet operation is essential. They are also used frequently in preference to Medium Speed Type M or Standard Type S Units when the actual horsepower load exceeds the standard Thermal Rating of the Type M or Type S Unit.

SPECIFICATIONS

HOUSINGS are high tensile gray iron castings. They are very substantially built, with generous wall sections, heavy ribs and wide bases, for rigidity. These castings are all stress-relieved before machining.

GEARS are continuous tooth herringbone type, made of high tensile alloy steel castings and forgings. Finished gears are very carefully and accurately Dynamically Balanced.

PINIONS are heat-treated alloy steel and are also Dynamically Balanced. The pinion shaft extension is ground to a tolerance of ± .0005″.

Standard Type N Units permit speeds up to 9,000 RPM and 10,000 feet per minute pitch line velocity. Higher speeds may be obtained, however, at extra cost.

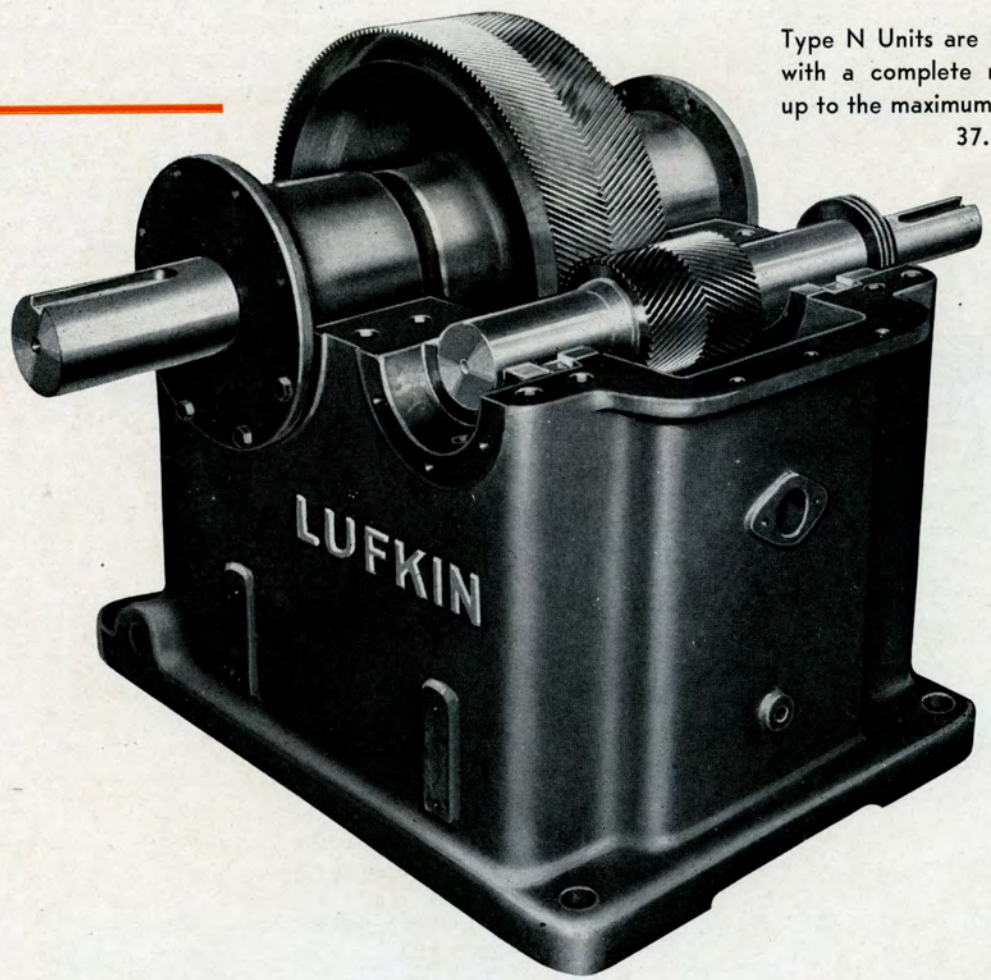


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SHAFTS are heat treated alloy steel and are ground to a tolerance of ± .0005″.

BEARINGS: The slow speed bearings are self-aligning roller type mounted in bearing carriers. The high speed bearings are precision babbitted type with cast iron shells.

LUBRICATION is accomplished by means of a positive feed rotary pump direct connected to the stub end of the slow speed shaft. Oil under pressure is delivered to the high speed babbitted bearings and to the gear mesh. An oil trough inside the cover above the slow speed bearing catches oil from the spray and lubricates the slow speed bearing. The oil is circulated through an oil cooler of generous size which maintains the oil temperature at only a few degrees higher than that of the cooling water. The oil line is equipped with strainer, flow indicator, pressure gauge and pressure relief valve. The gear housing is sufficiently large for a generous supply of oil below the sweep of the gear. A protected glass oil level gauge permits visual determination of oil level.



Type N Units are built in 33 sizes with a complete range of ratios up to the maximum shown on page 37.

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SELECTION OF TYPE N UNITS

Explanation of Rating Table

The Horsepower Ratings of Type N Gear Units are given in the Rating Table on the following page. For simplicity, these ratings are tabulated in horsepower per 1000 R.P.M. of the high speed shaft.

To select the proper size gear unit, find the Required Tabulated Rating as follows:

$$\text{Required Tabulated Rating} = \frac{\text{HP Load} \times 1000}{\text{RPM of Pinion} \times \text{Service Factor}}$$

Select the proper Service Factor from the table below.

The required ratio is found by dividing the R.P.M. of the high speed shaft by the R.P.M. of the slow speed shaft.

After calculating the Required Tabulated Rating and finding the required ratio, refer to the Rating Table on the following page. In the column under the ratio nearest to the required ratio, find the horsepower which is equal to or greater than the Required Tabulated Rating just calculated. On a horizontal line with this horsepower rating, in the extreme left hand column, will be found the size of the unit required.

The horsepower ratings for intermediate ratios not listed in the table may be found by direct interpolation.

The Ratios shown in the Rating Table do not constitute the entire list of ratios available. Any ratio required, or a very close approximation, will be furnished without extra charge.

SERVICE FACTORS

DRIVEN MACHINE	Electric Motor	Steam Turbine	Internal Combustion Engine
Compressor—Centrifugal	.85	.85	.63
Compressor—Rotary	.63	.63	.55
Compressor—Refrigerant Air Conditioning Service	.90	.....	.....
Fan—Forced Draft	.85	.85	.70
Fan—Induced Draft	.75	.75	.63
Generator	.....	1.10	.63
Pump—Centrifugal Circulating	.95	.95	.75
Pump—Descaling (with Surge Tank)	.55	.55	.....
Pump—Pipe Line (Centrifugal)	.75	.75	.63
Pump—Waterworks (General Purpose)	.75	.75	.63

EXAMPLE

REQUIRED: A speed increaser to deliver 550 horsepower driving a centrifugal pipe line pump at 3750 R.P.M., driven by a multi-cylinder engine at 625 R.P.M.

SOLUTION: Required Tabulated Rating =

$$\frac{550 \times 1000}{3750 \times .63} = 233 \text{ Hp.}$$

$$\text{Required Ratio} = \frac{3750}{625} = 6$$

Refer to the Rating Table and follow down the column under a ratio of 6 looking for a Tabulated Rating of at least 233 horsepower. It is found that 245 horsepower is the next higher rating and this is for the size N2110 assembly. The N2110 is, therefore, the proper selection.

To find the Actual Service Rating of this unit under the above conditions:

$$\text{Service Rating} = \frac{\text{Tabulated Rating} \times \text{RPM of Pinion} \times \text{Service Factor}}{1000}$$

$$= \frac{245 \times 3750 \times .63}{1000} = 579 \text{ Hp.}$$

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HORSEPOWER RATING TABLE

Type N

HIGH SPEED REDUCERS AND SPEED INCREASERS

Horsepower per 1000 R.P.M. of High Speed Shaft

Size No.	RATIO																							
	2	2.25	2.5	2.75	3	3.25	3.5	3.75	4	4.25	4.5	4.75	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	11	12
N64	33	30	26	24	22	19	17	16	14	13	12	11	10	9	8	7	6	...	...	...	...	...	...	...	...
N65	42	37	33	30	27	24	22	20	18	17	15	14	13	11	...	...	...	...	...	...	...	...	...	...	...
N66	51	45	40	36	32	29	26	24	22	20	18	...	...	...	...	...	...	...	...	...	...	...	...	...	...
N85	75	66	59	52	47	43	39	36	32	30	27	25	22	20	17	15	14	12	...	...	...	...	...	...	...
N86	90	79	71	63	57	52	47	43	39	36	33	30	27	24	21	...	...	...	...	...	...	...	...	...	...
N87	105	91	81	73	66	61	55	50	45	42	38	35	31	...	...	...	...	...	...	...	...	...	...	...	...
N106	141	125	111	100	90	81	73	67	61	56	52	48	44	38	34	29	26	23	21	...	...	...	...	...	...
N107	164	144	129	115	104	94	86	78	71	65	60	56	51	44	38	34	...	...	...	...	...	...	...	...	...
N108	188	165	148	132	119	108	98	89	81	75	69	64	59	51	...	...	...	...	...	...	...	...	...	...	...
N126	203	178	160	143	129	116	106	96	88	81	74	69	64	55	48	42	37	33	30	27	25	22	20	...	...
N127	237	208	187	167	150	135	123	112	102	94	86	80	74	64	56	49	43	39	35	...	...	...	...	...	...
N128	271	238	214	191	172	155	141	128	117	108	99	92	85	73	64	56	50	...	...	...	...	...	...	...	...
N147	324	283	254	227	204	185	166	152	139	128	117	109	105	87	76	67	60	53	48	43	39	35	32	...	...
N148	368	323	286	259	233	211	190	174	159	146	135	124	115	100	87	77	68	60	55	49	...	...	...	...	...
N149	415	364	326	291	263	237	213	196	179	165	151	140	130	112	98	86	76	68	...	...	...	...	...	...	...
N168	481	422	378	338	305	275	248	227	208	191	176	162	150	131	113	100	89	79	71	64	58	53	49	...	...
N169	541	478	426	381	344	310	279	255	234	215	198	182	169	147	128	112	100	89	80	72	...	...	...	...	...
N1610	602	532	474	423	382	344	310	284	260	239	220	203	188	163	142	125	111	99	...	...	...	...	...	...	...
N189	685	600	540	481	435	392	356	324	296	272	250	232	214	185	162	143	127	112	102	91	84	76	69	...	...
N1810	761	675	598	535	483	436	395	360	329	302	278	258	238	206	180	159	141	125	113	102	...	...	...	...	...
N1811	837	743	660	589	531	480	434	396	362	332	306	284	262	226	198	175	155	138	124	...	...	...	...	...	...
N1812	913	801	719	642	578	522	473	431	394	362	334	308	286	247	216	190	169	...	...	...	...	...	...	...	...
N2110	...	910	817	729	657	593	538	489	448	411	379	350	324	280	245	216	191	171	154	139	126	115	105	...	...
N2111	...	999	898	800	722	652	592	537	493	452	417	385	356	308	270	237	210	188	169	152	138	126	...	...	...
N2112	...	...	980	875	788	711	645	586	538	493	455	420	388	336	294	259	229	205	185	167	...	...	...	...	...
N2410	...	...	...	952	859	775	703	640	585	537	495	457	423	367	320	282	250	222	201	181	165	150	137	117	100
N2411	...	...	...	...	944	852	773	704	643	591	544	502	465	404	352	310	275	245	221	200	181	165	150	128	...
N2412	...	...	...	...	...	930	843	767	702	644	592	548	507	439	383	338	300	268	241	217	198	180	164	...	...
N2413	...	...	...	...	...	...	913	830	760	697	642	593	550	475	415	366	325	290	261	235	214	...	...	...	...
N3010	...	...	...	...	...	...	...	998	914	840	773	715	662	572	500	440	391	348	314	283	258	234	214	182	156
N3011	...	...	...	...	...	...	...	...	999	924	850	786	728	630	550	484	430	382	345	311	283	257	235	200	171
N3012	...	...	...	...	...	...	...	...	...	...	927	857	783	687	599	528	469	418	377	340	309	280	257	218	188
N3013	...	...	...	...	...	...	...	...	...	...	999	930	860	744	650	572	508	452	408	368	335	304	278	236	...

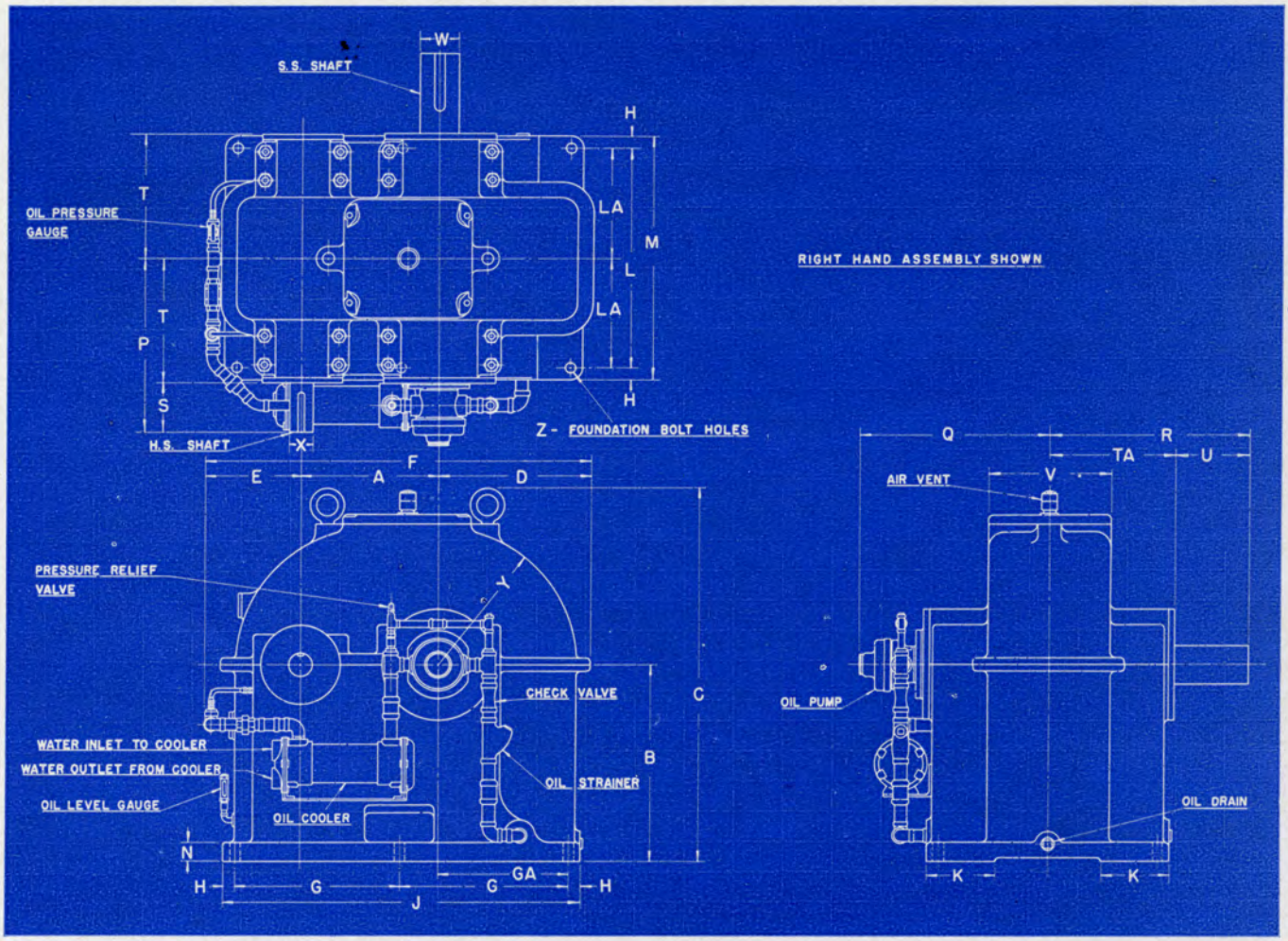
The first one or two figures in the above size number indicate center distance between shafts and the last one or two figures indicate face width of gears.

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GENERAL DIMENSIONS

Type N

HIGH SPEED REDUCERS AND SPEED INCREASERS

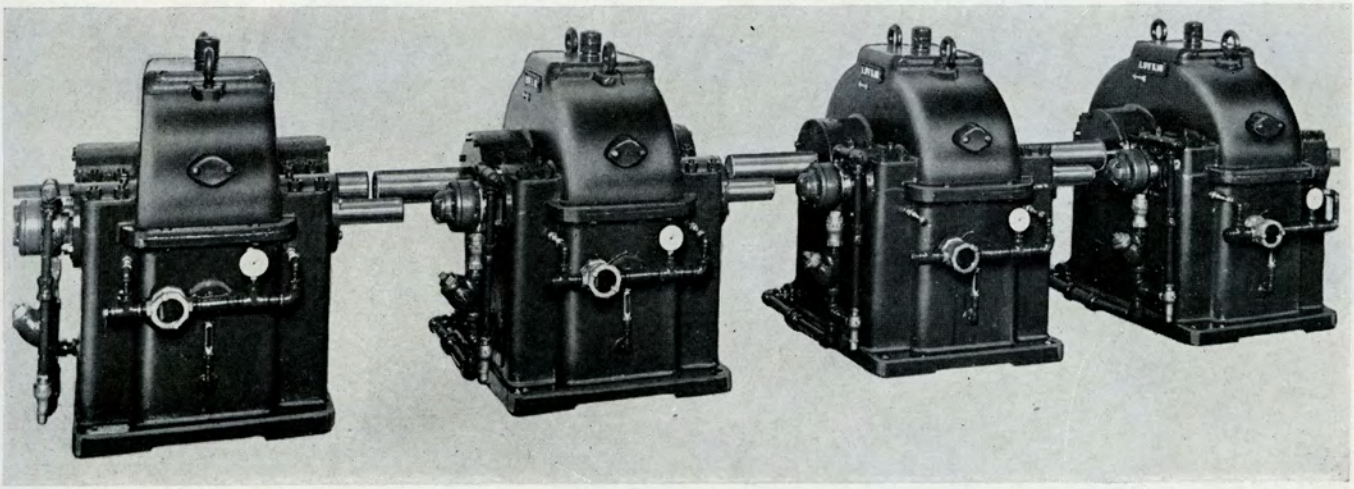


Size No.	A	B	C	D	E	F	G	GA	H	J	K	L	LA	M	N	P	Q	R	S	T	TA	U	V	W	X	Y	Slow Speed Shaft Keyway	Z Bolt Holes	Wts.
N6	6	12½	22¼	8½	7⅛	21⅝	17	6¾	1	19	5½	15	7½	17	1½	12½	15	14	3¼	9¼	9¼	4¾	9½	2	For High Speed Shaft Dia. See Table of Shaft Dimensions Page 39	7⅜	½x¼x3⅜	4—$\frac{13}{16}$	675
N8	8	14	25⅜	10	8⅝	26⅝	21	7¾	1¼	23½	6	17½	8¾	20	1¾	15	17$\frac{5}{16}$	16½	4¼	10¾	10¾	5¾	11	2½		8⅝	⅝x$\frac{5}{16}$x5	4—1$\frac{1}{16}$	800
N10	10	17	30$\frac{13}{16}$	12½	9⅛	31⅝	26½	10¼	1¼	29	6½	19½	9¾	22	2	16½	18$\frac{13}{16}$	17½	4¾	11¾	11¾	5¾	12	3		11	¾x⅜x5	4—1$\frac{1}{16}$	1,050
N12	12	20	36⅝	14	9⅝	35⅝	30	11½	1½	33	7	21	10½	24	2	19	20$\frac{5}{16}$	20	6	13	13	7	12½	3¾		12½	$\frac{7}{16}$x$\frac{7}{16}$x5½	4—1$\frac{5}{16}$	1,950
N14	14	22	39½	16	10¾	40¾	35	13¾	1½	38	7½	22	11	25	2¼	19½	20$\frac{13}{16}$	20½	6	13½	13½	7	13½	4		14⅝	1x½x5½	4—1$\frac{5}{16}$	2,800
N16	16	24	45⅜	18	11¾	45¾	20	15¾	1½	43	8	25	12½	28	2½	21	22$\frac{5}{16}$	23½	6	15	15¼	8¼	14½	4½		16⅝	1x½x7½	6—1$\frac{5}{16}$	3,600
N18	18	26	49⅝	20	12¼	50¼	22	17¼	1½	47	9	29	14½	32	2½	23	24$\frac{5}{16}$	26½	6	17	17¼	9¼	16	5		18⅛	1¼x$\frac{7}{16}$x7½	6—1$\frac{5}{16}$	4,650
N21	21	28	54⅞	23½	13½	58	25	20	2	54	9	29	14½	33	2¾	24½	25$\frac{5}{16}$	27½	7	17½	17¾	9¾	17	5¾		21¼	1½x½x8¾	6—1$\frac{5}{16}$	5,900
N24	24	30	59½	27	17¼	68¼	28¼	23¼	2	60½	8	24	12	28	3	23	22$\frac{7}{8}$	25½	8	15	15¼	10¼	17	6⅜		24¾	1½x½x9	6—1$\frac{5}{16}$	7,350
N30	30	36	71⅝	33	19¾	82¾	25	29¾	2	79	11	36	18	40	3½	29½	28$\frac{13}{16}$	32½	8½	21	21¼	11¼	18½	6⅞		30¾	1¾x⅝x10	8—1$\frac{5}{16}$	11,700

All dimensions are in inches.
The external dimensions shown are the same for each Housing Assembly regardless of the face width of gears.
For units having four foundation bolts the dimension under G is the distance between bolts.
N30 units have eight foundation bolts spaced 25-25-25.
The above dimensions are not to be used for installation.
USE CERTIFIED INSTALLATION PRINT.

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TYPE N UNITS



N128 Speed Increasers to deliver 850 Hp. in pipe line pumping service.

HIGH SPEED SHAFT DIMENSIONS

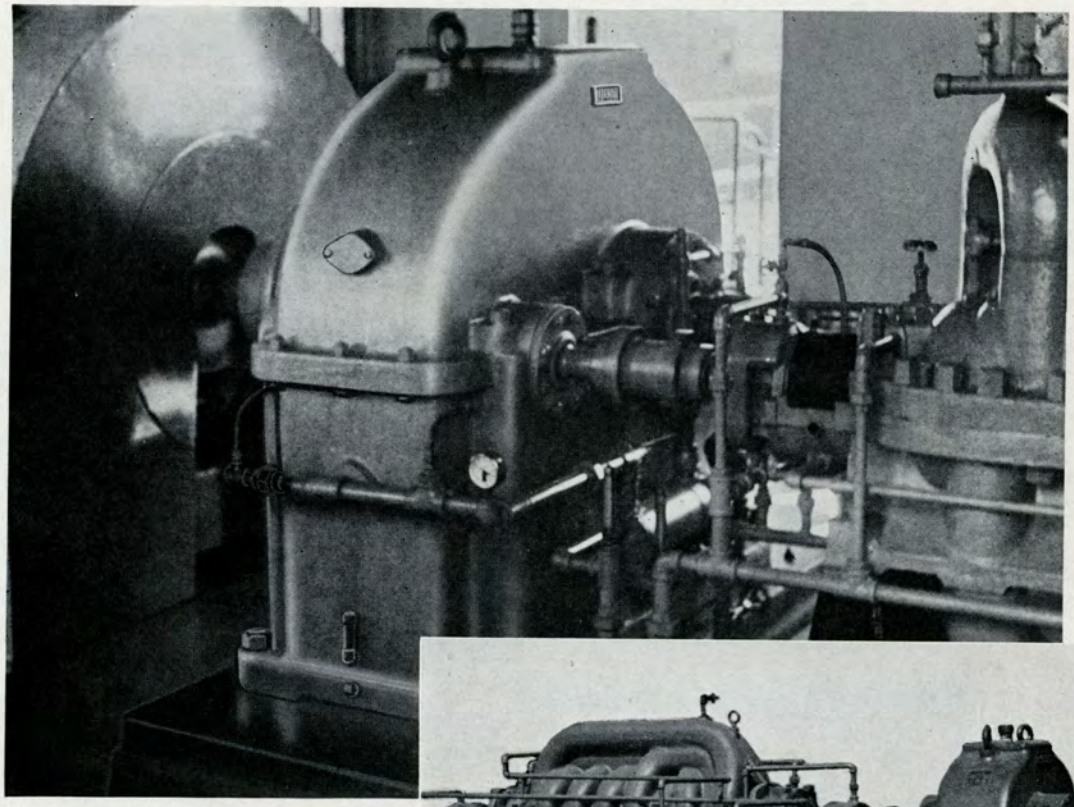
Type N Speed Increasers and High Speed Reducers

	RATIO 2.0:1 TO 4.0:1		RATIO 4.1:1 TO 7.0:1		RATIO 7.1:1 TO 10.0:1		RATIO 10.1 :1 AND OVER	
Size No.	Dia.	Keyway	Dia.	Keyway	Dia.	Keyway	Dia.	Keyway
N6	1.750	3/8x3/16x3	1.250	1/4x1/8x3	....	.....	....	.....
N8	2.000	1/2x1/4x3 3/4	1.500	3/8x3/16x3 1/4	1.250	1/4x1/8x3	....	.....
N10	2.500	5/8x5/16x3 7/8	2.000	1/2x1/4x3 3/4	1.500	3/8x3/16x3 1/4	....	.....
N12	2.500	5/8x5/16x5	2.500	5/8x5/16x5	1.750	3/8x3/16x3 3/4	....	.....
N14	3.000	3/4x3/8x5	2.500	5/8x5/16x5	2.000	1/2x1/4x3 7/8	....	.....
N16	3.500	7/8x7/16x5	3.000	3/4x3/8x5	2.500	5/8x5/16x4 7/8	....	.....
N18	3.500	7/8x7/16x5	3.000	3/4x3/8x5	2.500	5/8x5/16x4 7/8	....	.....
N21	4.000	1x1/2x5 1/2	3.500	7/8x7/16x5 1/2	3.000	3/4x3/8x5 1/2	....	.....
N24	4.000	1x1/2x5 1/2	3.500	7/8x7/16x5 1/2	3.000	3/4x3/8x5 1/2	2.500	5/8x5/16x5
N30	4.500	1x1/2x7 1/2	4.000	1x1/2x7 1/2	3.500	7/8x7/16x5 1/2	3.000	3/4x3/8x5 1/2

Shaft Diameter Tolerance is +.0005" —.0005"
All Dimensions are in Inches.
Shaft Dimensions are the same for each Housing Size.

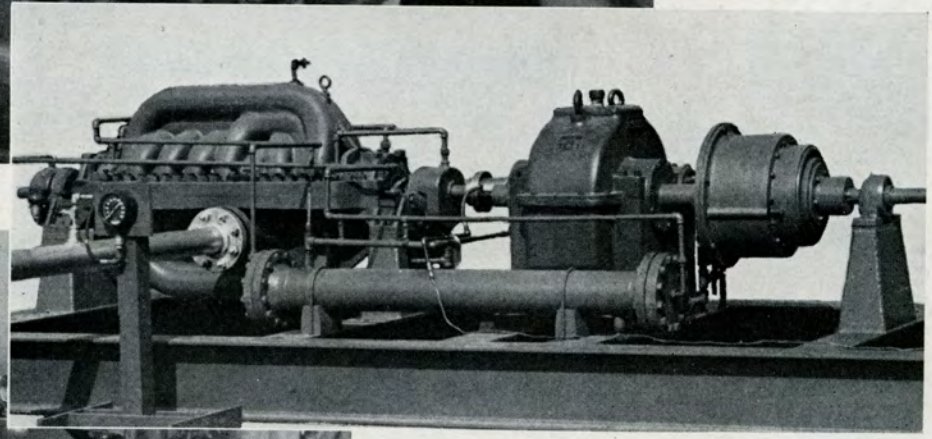
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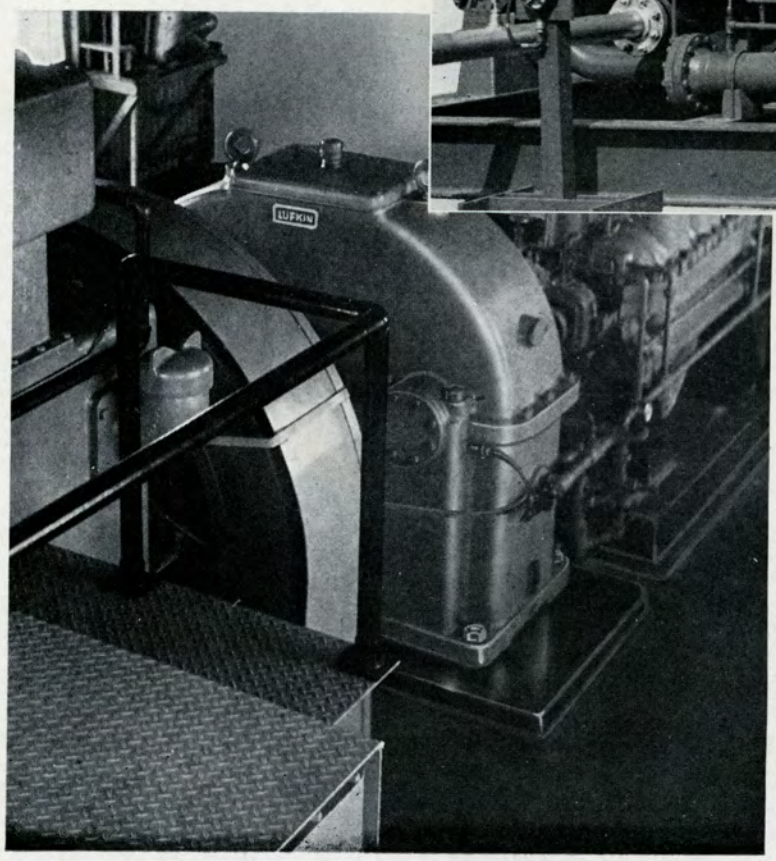
TYPE N UNITS



LEFT: LUFKIN N2412 Speed Increaser driven by 350 Hp. Diesel Engine in Pipe Line Pumping Service.

Type N Gear Units are designed to give dependable and trouble-free service continuously year after year.





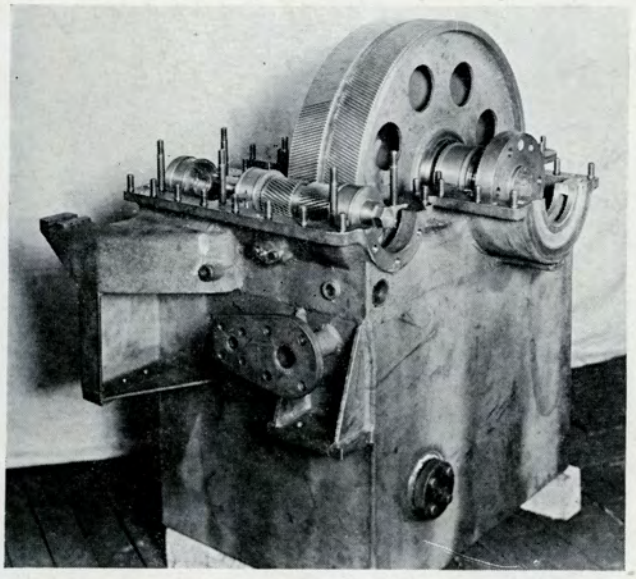
ABOVE: One of a group of twelve LUFKIN N128 Speed Increaser driving centrifugal pipe line pumps at 3550 R.P.M.

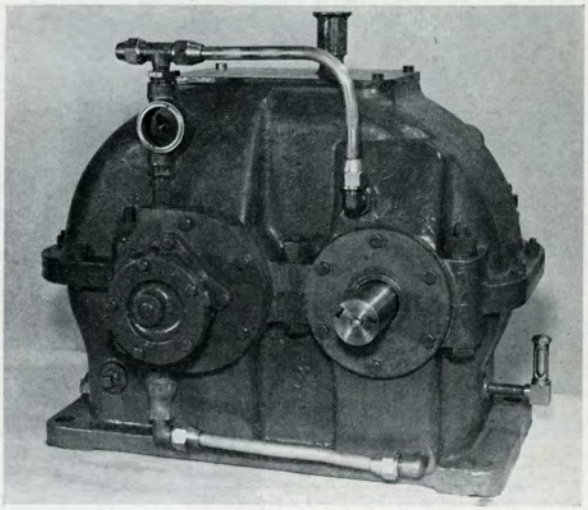
LEFT: LUFKIN N2412 Speed Increaser driving centrifugal pump at 3550 R.P.M. Gear ratio 10.2:1.

LUFKIN TYPE N SPEED INCREASERS are especially applicable for driving high speed centrifugal pumps in pipe line pumping service.

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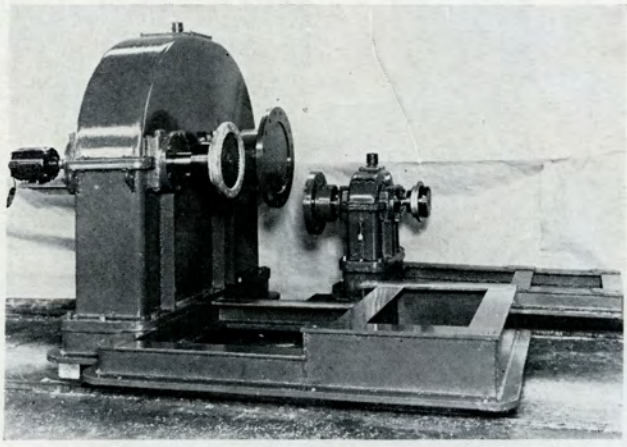
MISCELLANEOUS LUFKIN GEAR ASSEMBLIES





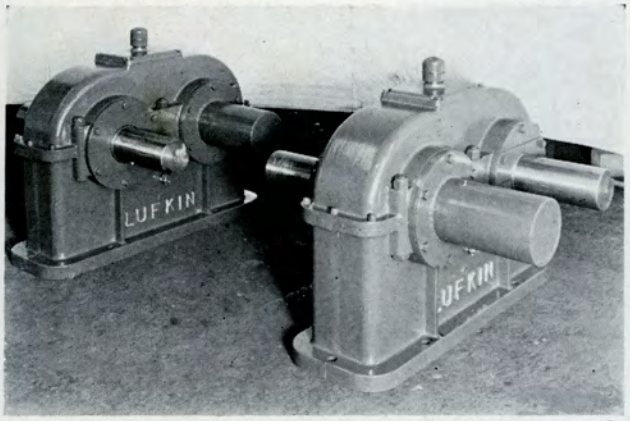
ABOVE: Turbo-Generator Gear Reducer. Pinion speed 10,000 r.p.m.; 240 K.W. Ninety-five units produced on one order.

These are special gears designed and built for special jobs. Let us have a look at your special gear requirements.

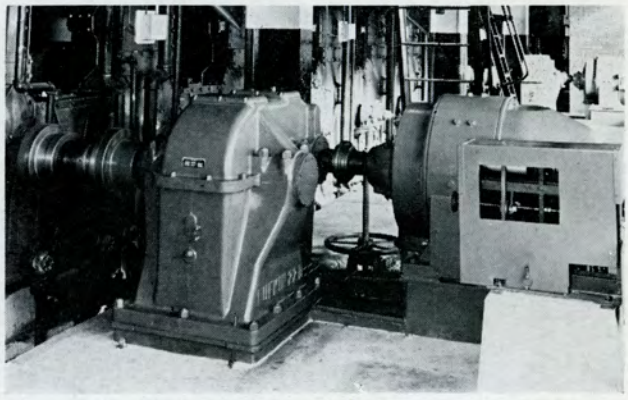


ABOVE: Special Speed Increaser for pipe line pumping service, delivers 175 Hp. and increases speed from 900 r.p.m. to 3600 r.p.m.

LEFT: The large and the small of nine similar Reducer and Motor Base Assemblies for Paper Mill in Georgia.



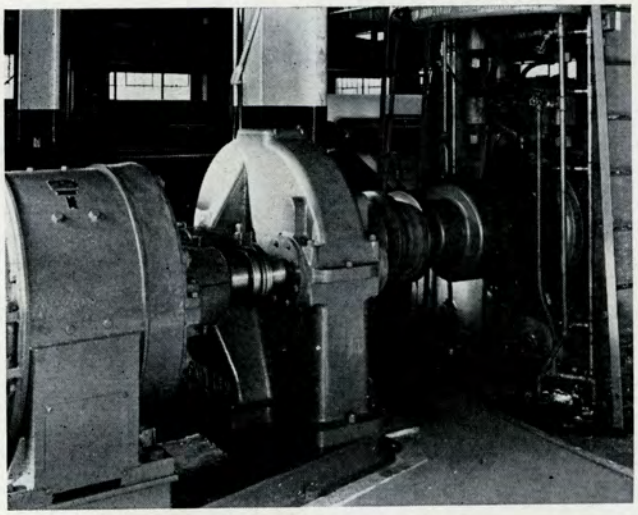
Two of several Special 1:1 ratio gear assemblies going to Louisiana chemical plant.



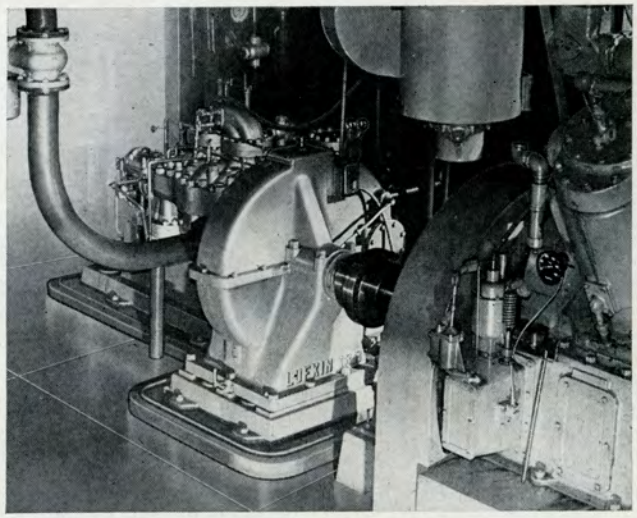
Gear Reducer for Newsprint Machine driving Dryer Section.

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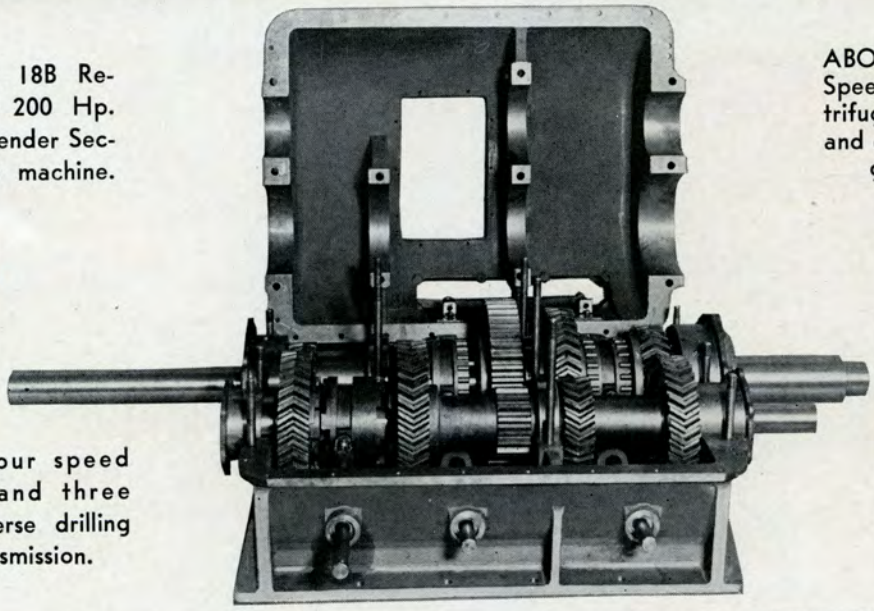
MISCELLANEOUS LUFKIN GEAR ASSEMBLIES



ABOVE: LUFKIN 18B Reducer driven by 200 Hp. motor driving Calender Section of newsprint machine.

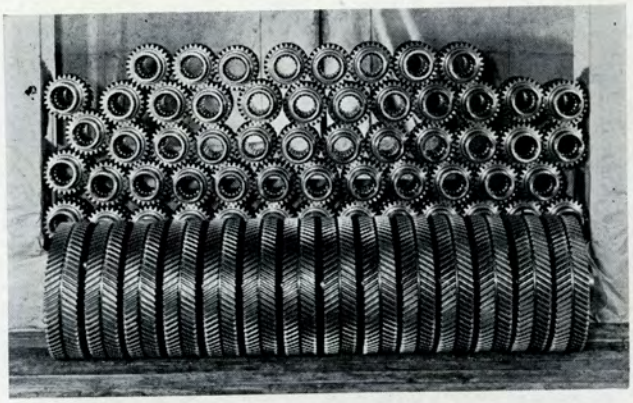


ABOVE: Special 400 Hp. Speed Increaser driving centrifugal pump at 3500 r.p.m. and driven by 400 r.p.m. engine in forge plant.

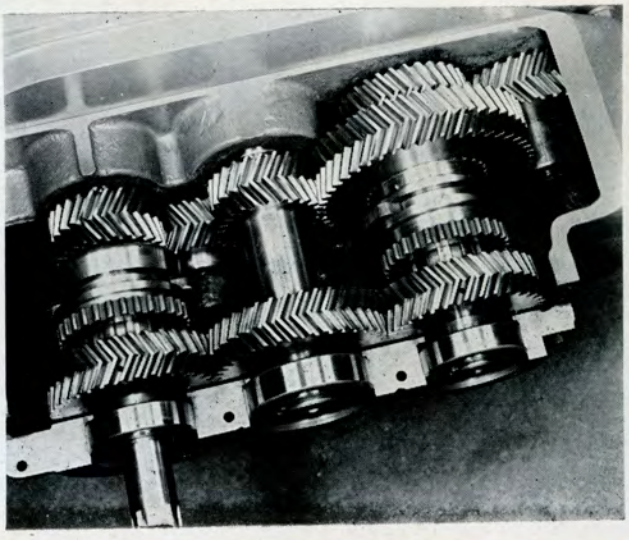


RIGHT: Four speed forward and three speed reverse drilling rig transmission.

BELOW: Two speed forward and two speed reverse Herringbone Gear Transmission for Lufkin Model 125 Tractor Winch.

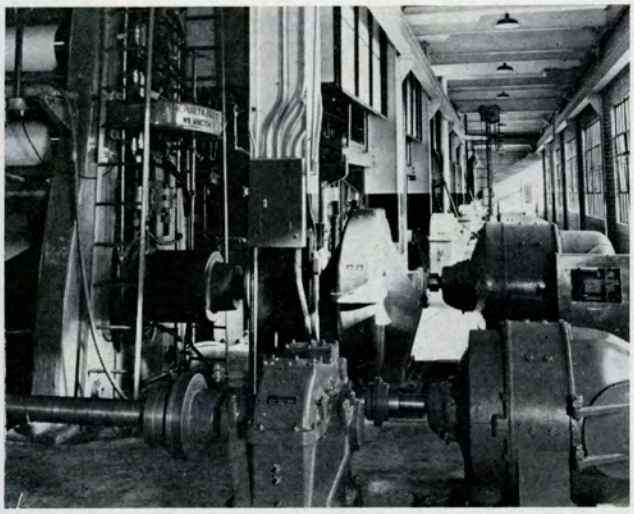


A small group of a total production of 37,000 Pair Final Drive Herringbone Gears for Medium Tank.

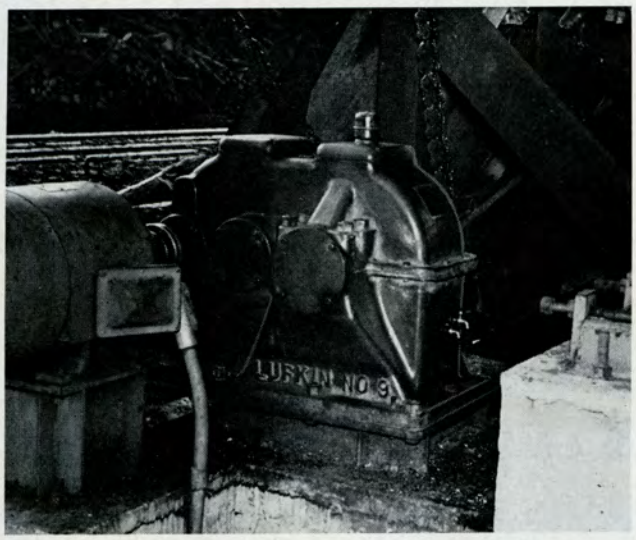


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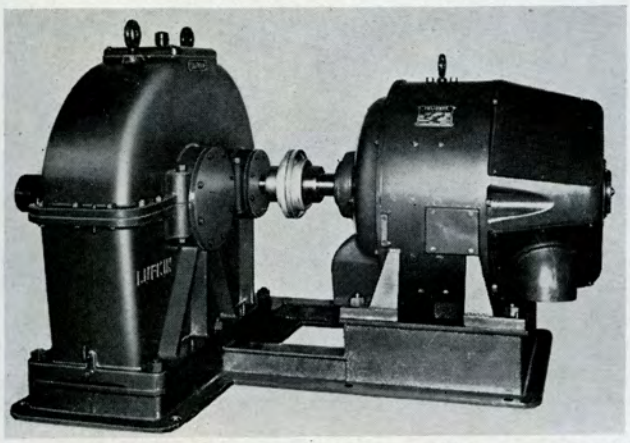
MISCELLANEOUS LUFKIN GEAR ASSEMBLIES



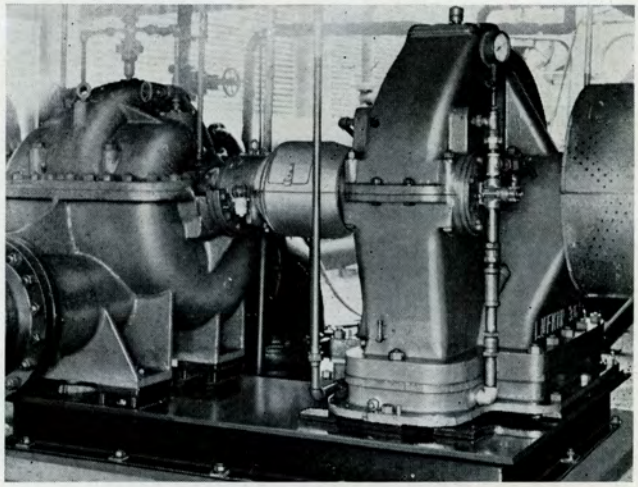
Line of Lufkin Gears driving paper machine.



Lufkin No. 9 Reducer driving Log Slasher.

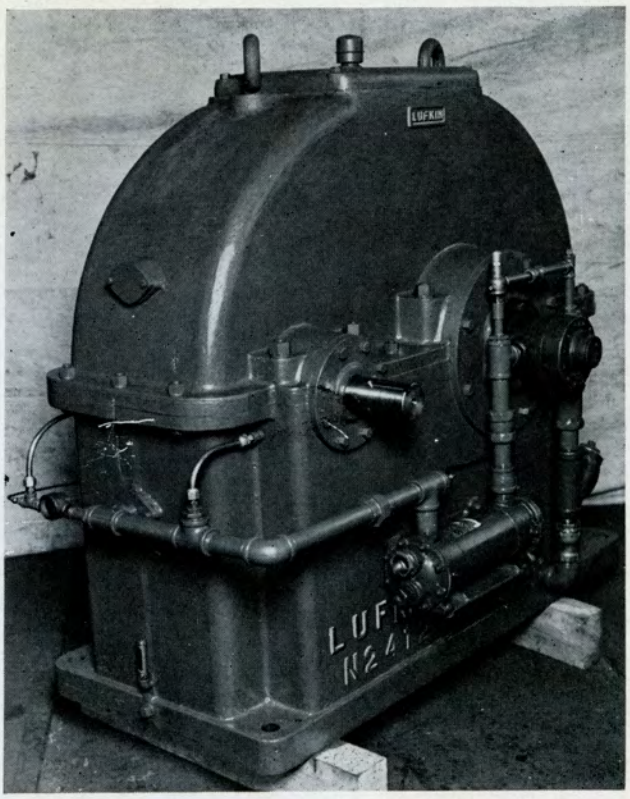


S2411 Speed Reducer to deliver 200 Hp. at 1150 r.p.m. input and 10.08:1 ratio.



Special Speed Increaser in Gulf Coast refinery delivering 660 Hp. to centrifugal pump.

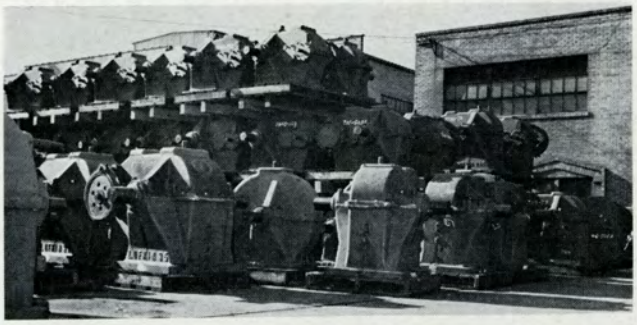
See page 1 for our nearest factory representative and consult him about your gear problem.



N2412 Speed Increaser.

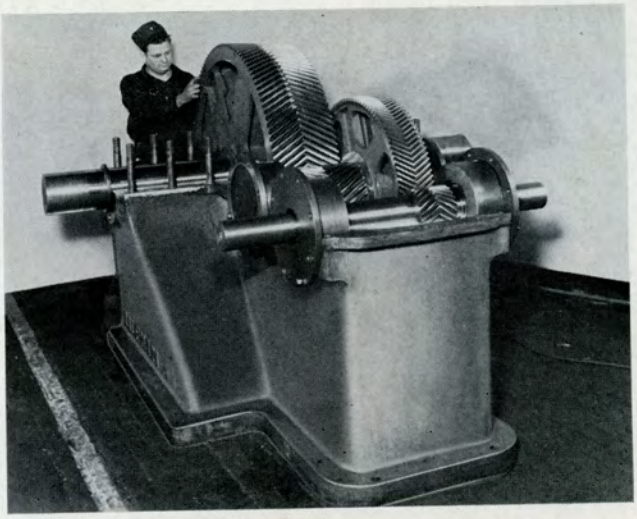
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MISCELLANEOUS LUFKIN GEAR ASSEMBLIES

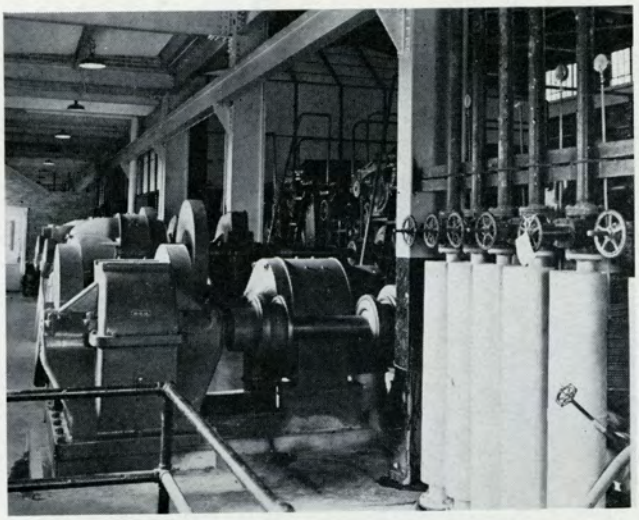


Stock of Standard Lufkin Reducers.

GEAR REDUCERS shown above are especially designed for oil field pumping service. These units are often used for industrial gear applications as illustrated below. They are always in stock and available for immediate delivery. See page 47 for brief description.



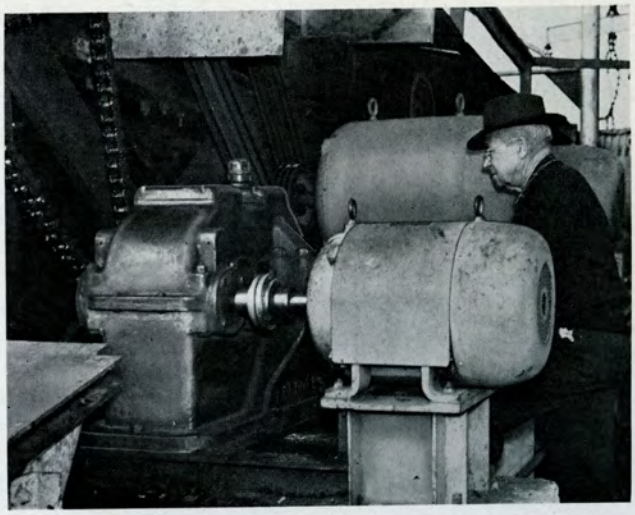
Lufkin No. 71—World's largest oil field pumping unit gear reducer.



Lufkin Gear Units driving Couch and Press Sections of newsprint machine.

Workmanship on all LUFKIN GEAR UNITS is of the highest quality. Only gears measuring up to the highest standards of accuracy and precision are used, thus insuring Long Life and Dependability.

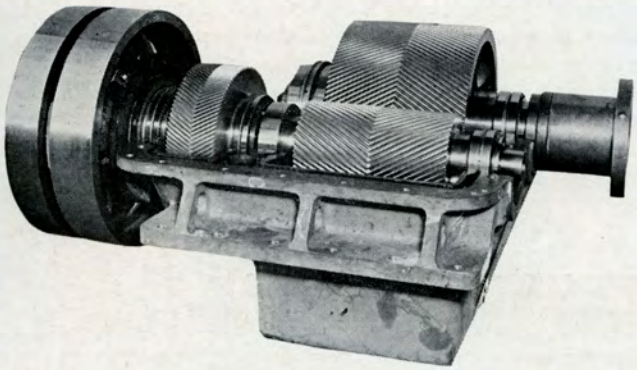
LUFKIN GEAR REDUCERS AND INCREASERS have demonstrated their Economy and Dependability in the field.



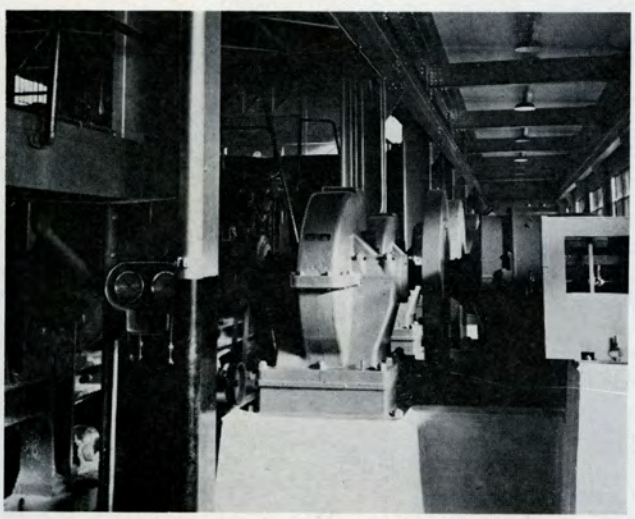
Special Lufkin Double Reduction Gear Reducer driving conveyor in pulp wood yard.

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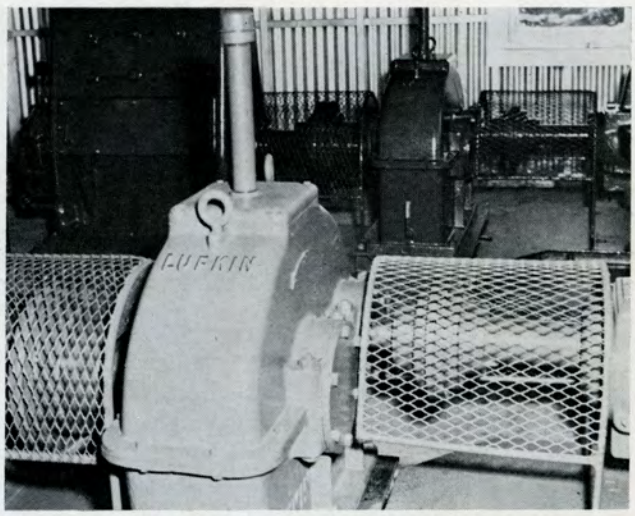
LUFKIN-BUILT GEARS are used where dependable and uninterrupted service is essential. Shown below and to the right are typical applications where LUFKIN GEAR REDUCERS have proved their merit and reliability.



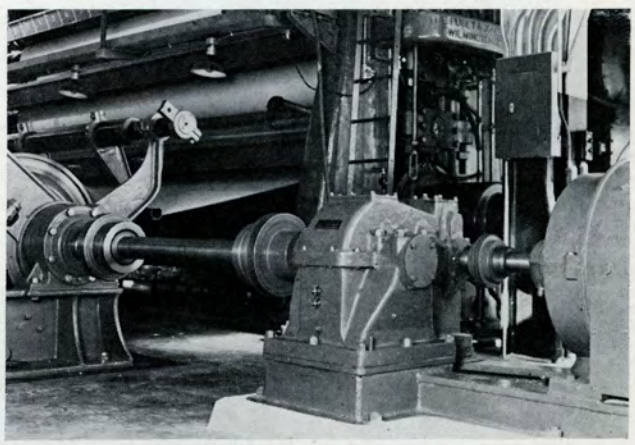
Forward and Reverse Ship Propulsion Gear Reducer.



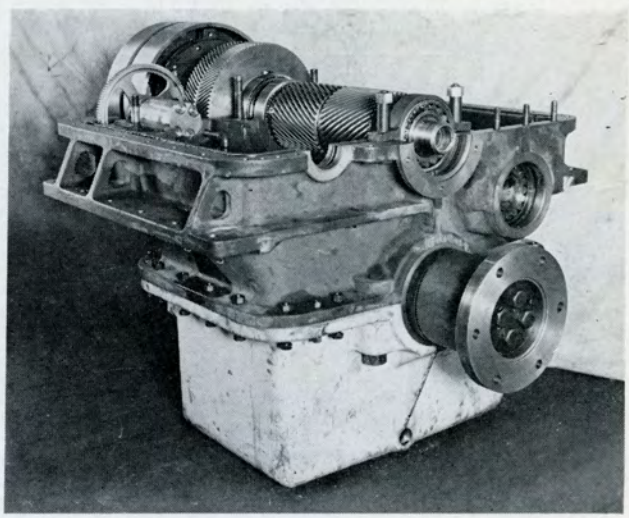
Lufkin Gear Reducers with heavy flywheels driving Dryer Sections of paper machine.



Two Lufkin S126 Gear Reducers driving triplex pumps.



Special Reel Drive for paper machine.



Forward and Reverse Ship Propulsion Gear Reducer.

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LUBRICATION INSTRUCTIONS

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

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

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

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

RECOMMENDED LUBRICANTS FOR LUFKIN GEAR UNITS

GEAR UNIT NUMBER	AMBIENT TEMPERATURE						
	0 °F.—40 °F.			41 °F.—100 °F.			
	AGMA Lubricant No.	Viscosity S.U.V. Secs. at 100 °F.	Approx. S.A.E. No.	AGMA Lubricant No.	Viscosity S.U.V. Secs. at 100 °F.	Viscosity S.U.V. Secs. at 210 °F.	Approx. S.A.E. No.
S63 Through S2010; D100 Through D340	2	280-360	20	4	700-1000	.....	40
S2411—S3012—D390—D440	3	490-700	30	5	.....	80-105	50
All Type M Units	2	280-360	20	3	490-700	.....	30
All Type N Units	1	180-240	10	2	280-360	.....	20

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
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

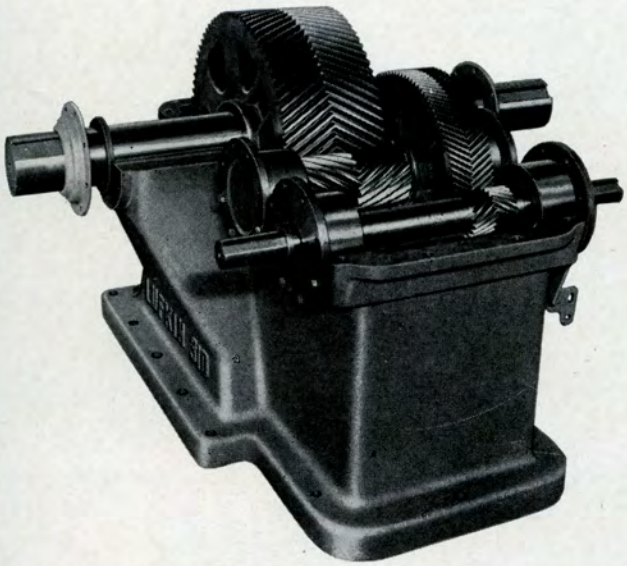
Lufkin Commercial Gear Reducers and Increasers are furnished with the above standard keyways in the low speed and high speed shafts. The depth of the keyway in the coupling, pulley or sprocket is the same as the depth of the keyway in the shaft: that is, the depth is one-half of the key height measured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

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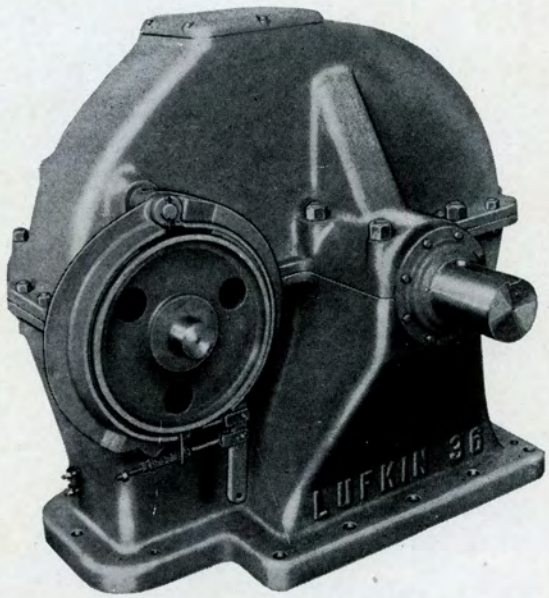
SPEED REDUCERS FOR OIL FIELD PUMPING SERVICE

Oil Field Pumping Unit Speed Reducers are especially designed for the heavy duty service required of them. Generous factors of safety are employed as it is generally impossible to predict accurately the actual load to be imposed on the unit. In design and appearance the oil field reducers are very much like the commercial reducers except the slow speed bearing is a long sleeve bronze bushing to take care of the unusually heavy crank load. Many thousands of this type reducer have been produced.

These units may also be employed as commercial reducers for any type power transmission within the speed range of the Standard Commercial Types S and D. Since these standardized units are manufactured in large quantities for pumping units they are always on hand for immediate shipment. The tabulation below shows the A.G.M.A. Horsepower rating based on a Service Factor of 1 and a pinion speed of 870 r.p.m. as an aid in determining approximate size. For any other speed the approximate capacity may be found by increasing or decreasing the horsepower rating in proportion to the speed.



Double Reduction Gear Units are built in ten sizes with ratios approximately 29:1.

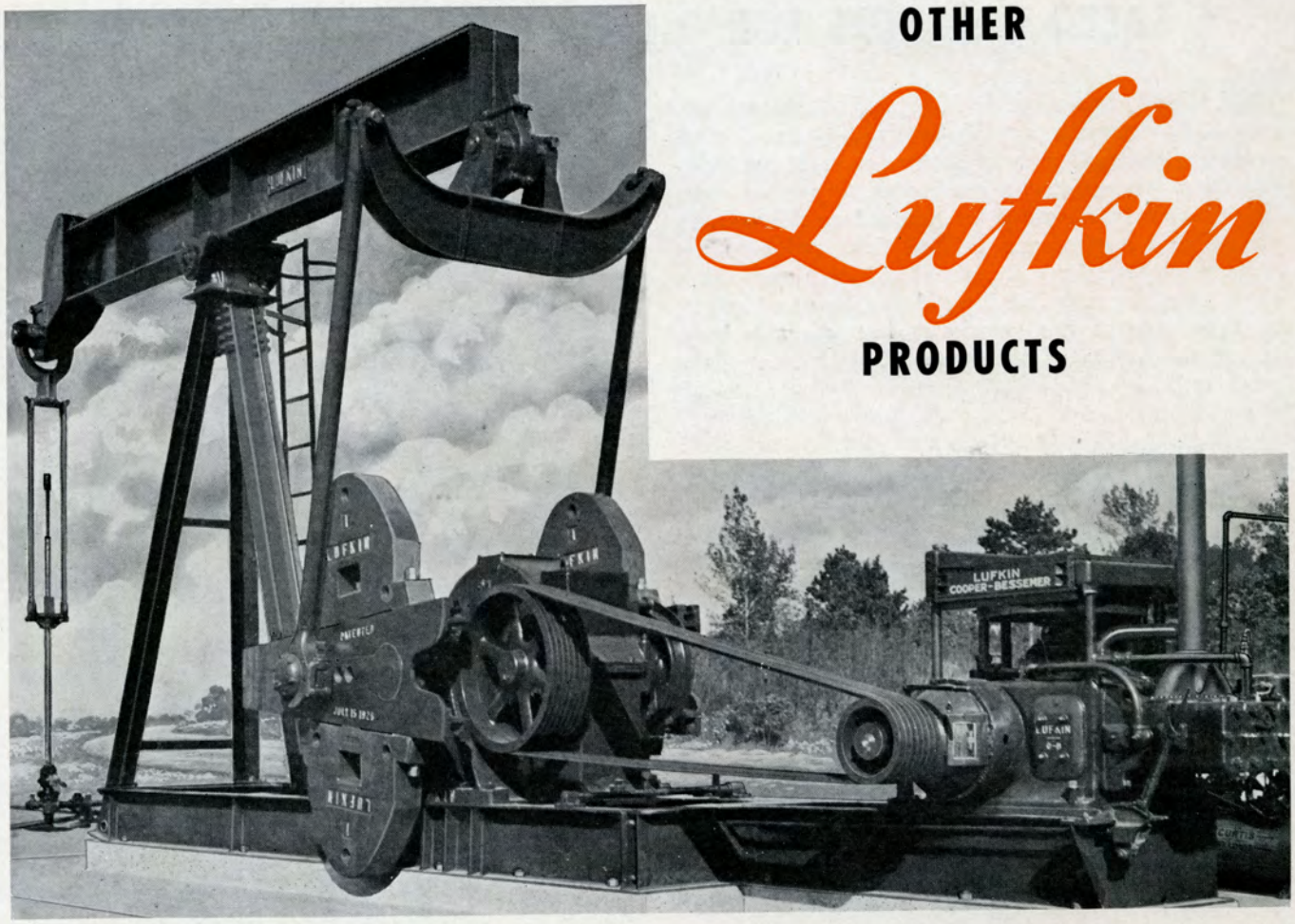


Single Reduction Gear Units are built in six sizes with ratios approximately 10:1.

DOUBLE REDUCTION						SINGLE REDUCTION					
A.P.I. Size	AGMA H.P. 870 R.P.M. Input	Thermal Rating, H.P.	Ratio	Dia. Crank Shaft	Dia. Pinion Shaft	A.P.I. Size	AGMA H.P. 870 R.P.M. Input	Thermal Rating, H.P.	Ratio	Dia. Crank Shaft	Dia. Pinion Shaft
25D	7.7	23	28.9	3	$1\frac{3}{8}$						
40D	13.5	34	29.2	4	$1\frac{11}{16}$	57S	60.3	130	10	4	$2\frac{7}{16}$
57D	20.8	46	29.32	4	$1\frac{11}{16}$	114S	106	180	9.67	$4\frac{7}{16}$	$2\frac{11}{16}$
80D	28.7	58	29.15	$4\frac{7}{16}$	$1\frac{15}{16}$	160S	132	215	10.5	$5\frac{7}{16}$	$2\frac{15}{16}$
114D	41.4	70	29.4	$4\frac{7}{16}$	$1\frac{15}{16}$	228S	232	280	9.94	6	$3\frac{3}{16}$
160D	50.0	92	28.67	$5\frac{7}{16}$	$2\frac{3}{16}$	320S	296	332	9.4	$6\frac{7}{16}$	$3\frac{7}{16}$
228D	84	130	28.45	6	$2\frac{7}{16}$	456S	379	385	9.54	$6\frac{7}{16}$	$3\frac{15}{16}$
320D	110	159	30.12	$6\frac{7}{16}$	$2\frac{15}{16}$						
456D	183	214	28.6	7	$3\frac{7}{16}$						
640D	250	270	28.72	$7\frac{7}{16}$	$4\frac{3}{16}$						

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OTHER Lufkin PRODUCTS



Lufkin Oil Field Pumping Unit built in sixteen sizes, powered by Lufkin-Cooper-Bessemer Gas Engine built in two sizes as Vertical engine and one size as horizontal engine.



LEFT: Lufkin Tractor Winches, worm gear drive, built in two sizes: for 125,000 lb. line pull and 60,000 lb. line pull.

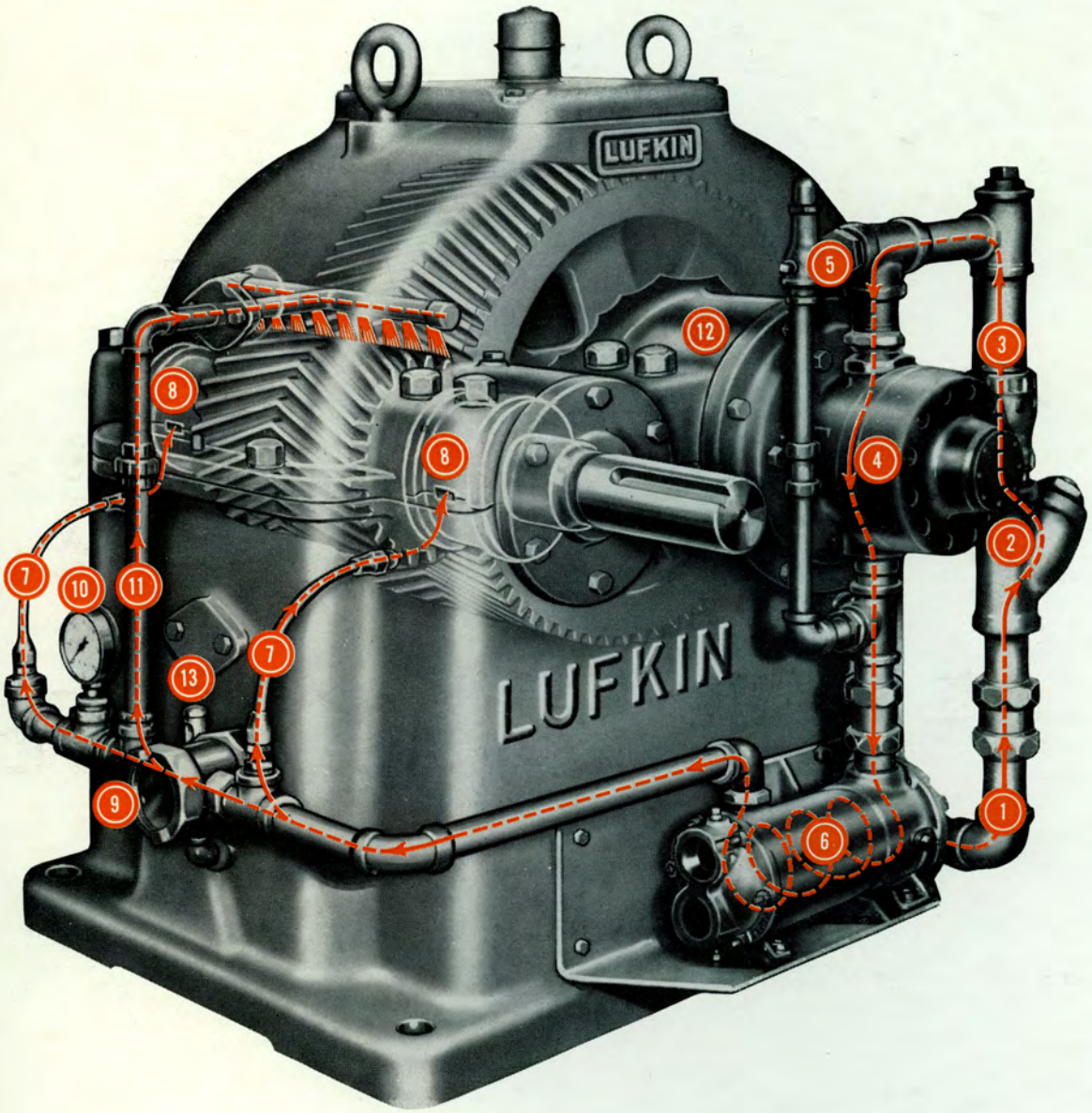


Lufkin Custom Built Truck Trailers: Vans, floats, low-boys, and bodies.

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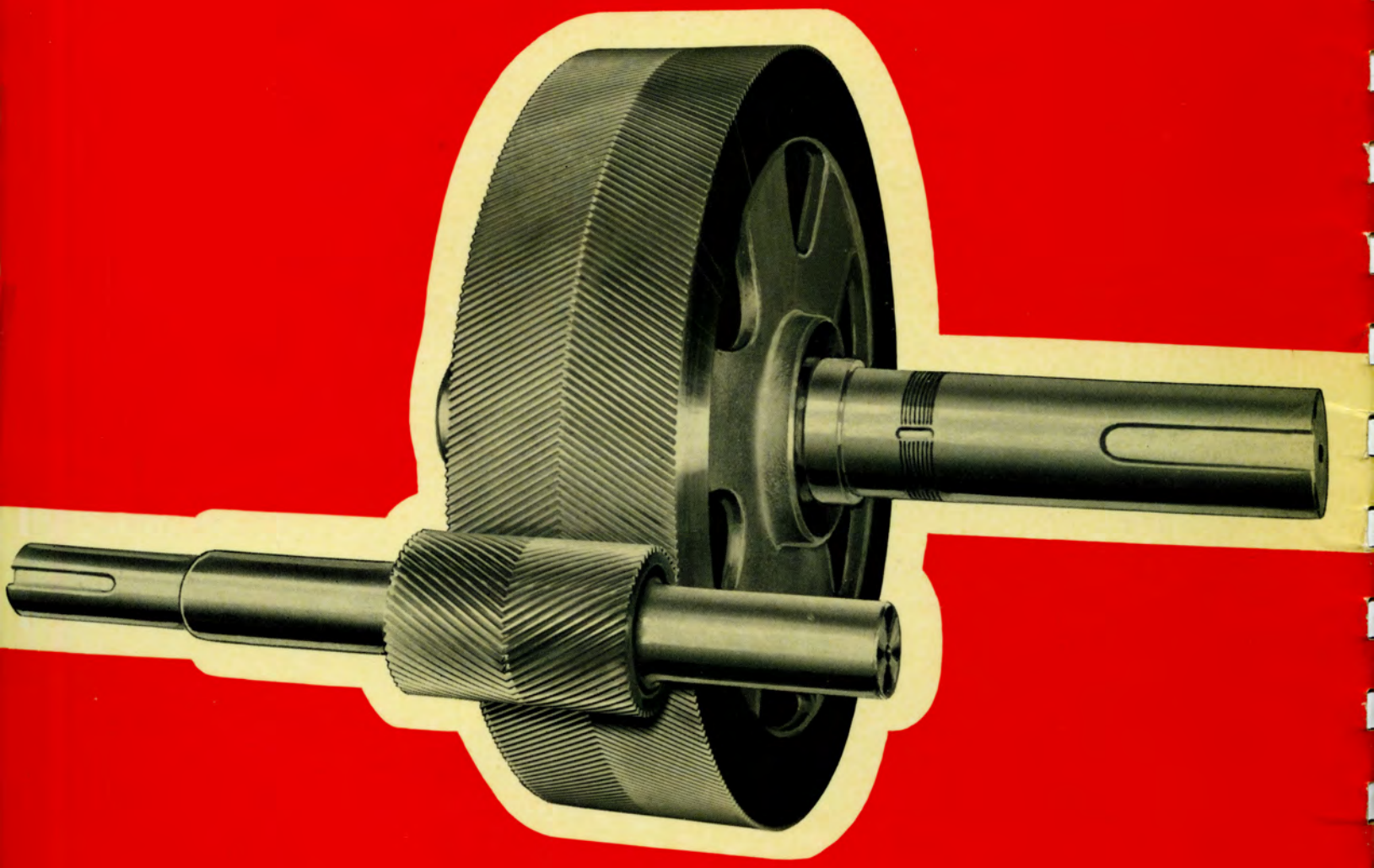
TYPE N SPEED INCREASERS

Lubrication System



Oil is stored in the bottom of the housing below the sweep of the gear. The oil leaves the storage by Pipe 1 through Strainer 2 and past Check Valve 3 into the positive displacement Pump 4 which is driven by the slow speed shaft. A Pressure Relief Valve is at 5. Oil passes around the tubes in Cooler 6 while cooling water is circulated through the tubes. Oil under pressure passes through Pipes 7 into babbitt-type high speed Bearings 8. A visual Oil Flow Gage is at 9 and Pressure Gage at 10. Through Pipe 11 oil flows to a Spray Pipe and lubricates and cools the gear teeth. The slow speed self-aligning Roller Bearing 12 is lubricated by an oil trough which catches oil from the spray. The oil level in the storage sump is determined by the protected glass gage 13.

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LUFKIN

HIGHEST QUALITY SINCE 1900