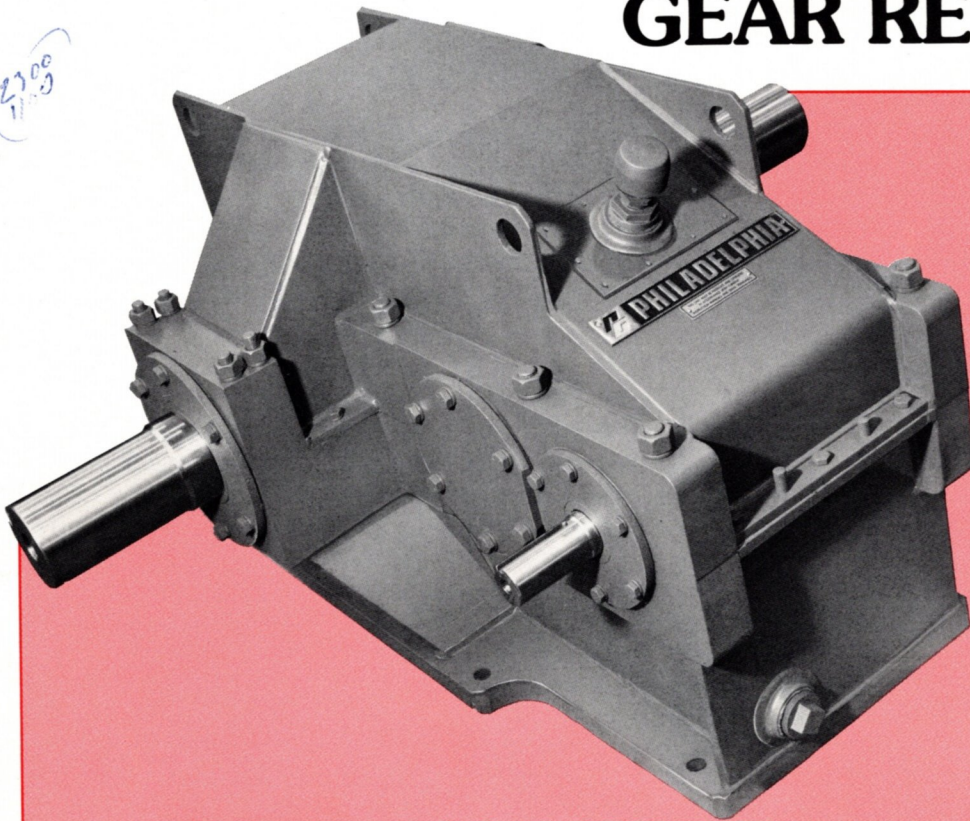


philadelphia

OIL WELL PUMPING UNIT GEAR REDUCERS

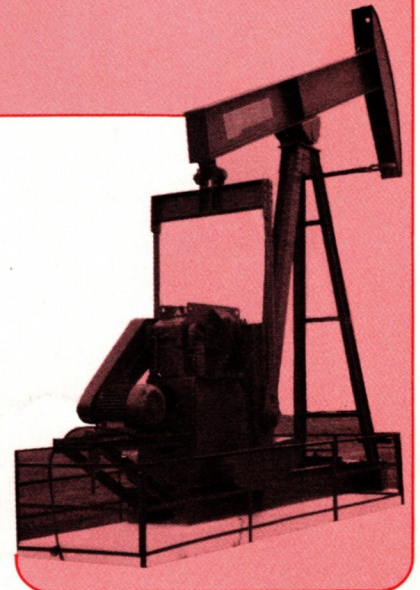


**A PROVED CONCEPT For
OIL PUMPING UNIT REDUCERS**

Dallas B. Kay + Associates
655 Tourmaline ST., Apt 4F
San Diego, Calif 92109

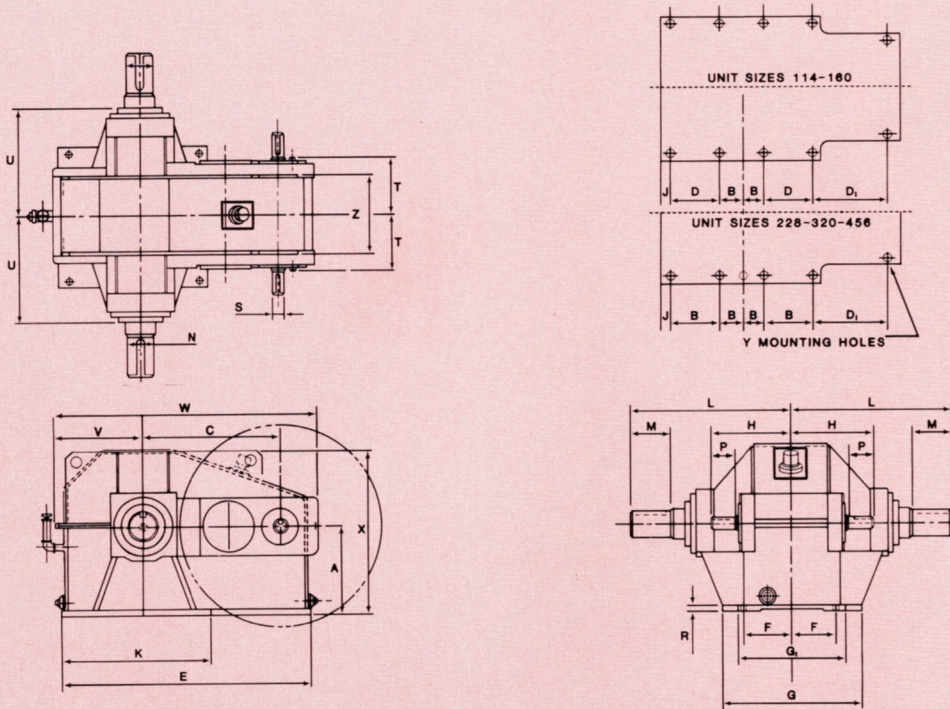
619-272-0637 278-2824

**From
PHILADELPHIA GEAR**



DIMENSIONS

Philadelphia Gear Reducers For Oil Well Pumping Unit Service



SEE SPECIFICATION SHEETS FOR DETAILS OF DESIGN FEATURES.

UNIT SIZE	A	B	C	D	D _i	E	F	G	G _i	H	J	K	L	M
114HOP	15 ¹¹ / ₃₂	4	24 ⁷ / ₃₂	8 ¹ / ₂	14 ¹ / ₂	44	8 ¹ / ₄	25	19	14 ⁷ / ₁₆	1 ⁷ / ₈	28 ¹ / ₈	28	8 ¹ / ₄
160HOP	18 ⁵ / ₁₆	5 ¹ / ₄	26 ³ / ₃₂	10 ¹ / ₂	14 ¹ / ₄	50 ³ / ₄	9 ³ / ₈	32	21 ¹ / ₄	16 ⁵ / ₈	2 ¹ / ₂	35 ¹ / ₄	29 ¹ / ₂	8 ¹ / ₄
228HOP	18 ²³ / ₃₂	8 ¹ / ₂	30 ²⁹ / ₃₂	—	18	57	10 ¹ / ₈	37	23 ¹ / ₄	18 ²⁷ / ₃₂	2 ¹ / ₂	38	33 ¹ / ₂	8
320HOP	21	10 ¹ / ₄	34 ²⁷ / ₃₂	—	18 ¹ / ₄	63 ¹ / ₄	11 ¹ / ₂	43	26	23	1 ¹ / ₂	44	35 ¹ / ₂	8
456HOP	28	11 ³ / ₈	39 ³ / ₃₂	—	25 ¹ / ₈	75 ³ / ₈	13 ¹ / ₄	46 ¹ / ₂	29 ¹ / ₂	23 ¹ / ₂	3 ¹ / ₄	50 ¹ / ₄	42 ¹ / ₂	8 ¹ / ₂
UNIT SIZE	N	P	R	S	T	U	V	W	X	Y	Z	H.S. Shaft Keyway	L.S. Shaft Keyway	Weight
114HOP	5	4 ¹ / ₄	1 ¹ / ₂	2 ¹ / ₈	10 ³ / ₁₆	19	15 ⁵ / ₈	46 ² / ₃₂	29 ¹ / ₁₆	10-1 ¹ / ₁₆	13 ²⁷ / ₃₂	1/2x1/4x4	1 ¹ / ₄ x ⁷ / ₁₆ x8	3,275
160HOP	5 ⁷ / ₁₆	5 ¹ / ₂	1 ¹ / ₂	2 ³ / ₁₆	11 ¹ / ₄	19 ⁷ / ₈	19 ³ / ₄	54	33 ¹³ / ₁₆	10-1 ³ / ₈	15 ⁷ / ₃₂	1/2x1/4x5 ¹ / ₄	1 ¹ / ₄ x ⁷ / ₁₆ x8	4,600
228HOP	6	6 ¹ / ₄	1 ³ / ₄	2 ⁷ / ₁₆	12 ⁹ / ₁₆	23 ⁵ / ₈	21 ¹ / ₄	60 ³ / ₄	37	12-1 ³ / ₈	17	5/8x ⁵ / ₁₆ x6	1 ¹ / ₂ x ¹ / ₂ x7 ³ / ₄	6,200
320HOP	6 ⁷ / ₁₆	8	2	2 ¹⁵ / ₁₆	12 ¹ / ₂	24 ³ / ₄	23 ³ / ₄	67	40 ⁵ / ₈	12-1 ¹ / ₂	18 ¹ / ₈	3/4x ³ / ₈ x7 ³ / ₄	1 ¹ / ₂ x ¹ / ₂ x7 ³ / ₄	9,110
456HOP	7	8 ¹ / ₁₆	2 ¹ / ₂	3 ⁷ / ₁₆	15	32	27 ⁵ / ₈	75 ¹ / ₂	51	12-1 ³ / ₈	21 ¹ / ₂	7/8x ⁷ / ₁₆ x7 ¹³ / ₁₆	1 ³ / ₄ x ⁵ / ₈ x8 ¹ / ₄	13,500

FOR INSTALLATION PURPOSES USE CERTIFIED DIMENSIONS ONLY. ALL DIMENSIONS ARE IN INCHES.

1800⁰⁰
2300⁰⁰
2800⁰⁰
3500⁰⁰

philadelphia: Evolution Of A NEW STANDARD Of Reliability For OIL PUMPING UNIT GEAR REDUCERS

The first Philadelphia Gear Oil Pumping unit gear reducer built in the 1930s was designed and manufactured using technology and methods of that era. The units we manufactured then under API Certificate No. 4007 provided years of trouble free service. The type of service and high reliability demanded by oil pumping applications has not changed since those days but gear manufacturing technology has.

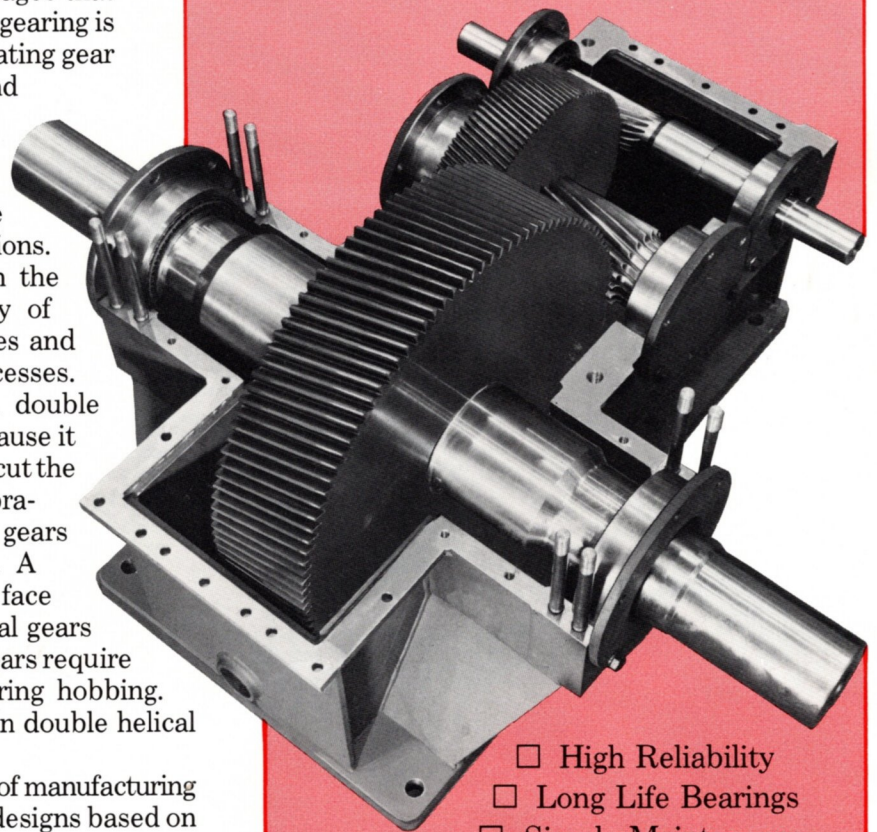
The new Philadelphia HOP oil pumping unit reducer line was designed from the beginning with high reliability and simplicity as the primary goals and Philadelphia Gear experience as the standard. Fabricated steel housings were selected for strength and durability. Long life, tapered roller bearings were chosen to accommodate

heavy loads while maintaining shafts concentric with the housing and the gearing in mesh. Contact lip shaft seals are more effective with tapered roller bearings because the shaft is held concentric with the housing. This means less possibility of dirt and moisture entering the unit or oil leaking out. Single helical gearing in the HOP means no chance of cyclic, uneven loading of the gear teeth as can occur in double helical gearing. The end result is a reducer designed specifically to meet the rigorous demands of oil pumping unit service but using the most modern manufacturing methods. The new Philadelphia Gear HOP design takes advantage of all developments in manufacturing and design since the first generation of oil pump reducers to provide years of trouble free service.

SINGLE HELICAL VS. DOUBLE HELICAL VS. HERRINGBONE

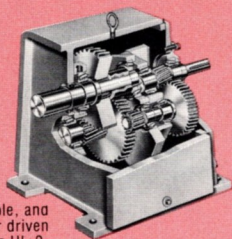
Gearing has evolved over the years to meet the ever increasing demands for higher speeds and power. Each type of gearing has advantages and disadvantages that must be considered. Herringbone or Sykes cut gearing is a type that provides load capacity while eliminating gear thrust with opposed rows of helical teeth and without the gap required for tool clearance in double helical gearing. However, herringbone gears cannot be machined following hardening to improve the gear accuracy and therefore are suitable for only a limited number of applications. Double helical and single helical gearing, on the other hand, can be used in a wide variety of applications with different material hardnesses and surface finishes achieved by machining processes. Single helical gearing is more precise than double helical gearing made on the same machine because it is not necessary to reposition the work piece to cut the opposite helix. Greater precision means less vibration, less noise and longer life with single helical gears than double helical or herringbone designs. A single helical gear also has more active tooth face width, load bearing surface, than double helical gears of the same width because the double helical gears require a gap between helices for tool clearance during hobbing. Single helical gears are therefore stronger than double helical gears of the same overall width.

As one of the few gear manufacturers capable of manufacturing all types of gearing, Philadelphia Gear selects designs based on the best type for each application. The Philadelphia HOP oil pumping unit reducer line is a product of careful study and our experience over many years. Every detail of design has been selected for long life, simple maintenance and above all, reliability. Your Philadelphia Gear sales representative can provide details of our design on request.

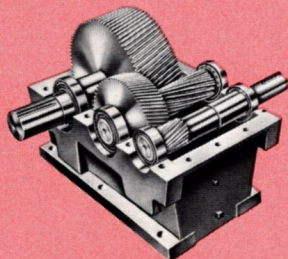


- High Reliability
- Long Life Bearings
- Simple Maintenance
- Interchangeable
With Existing Designs
- Fabricated Steel Housings

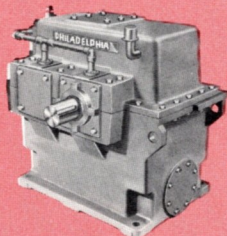
Other Philadelphia Gear products



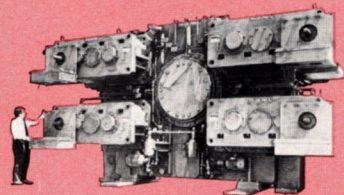
IN-LINE SPEED REDUCERS—Single, double, triple, and quadruple reductions. Can be direct coupled or driven indirectly. Refer to catalog HL-2.



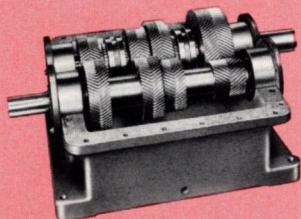
"M" SERIES PARALLEL SHAFT SPEED REDUCERS—Available in single, double, triple and quadruple reductions with ratios ranging from 1.22:1 to 985:1. Refer to catalog M-79.



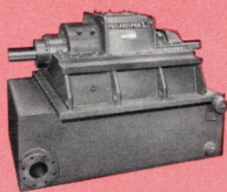
HI-SPEED REDUCERS AND INCREASERS—Designed and built to operate at speeds up to 20,000 RPM and at ratios up to 10:1 ranging from 100 HP to 30,000 HP. Refer to catalog HS-2.



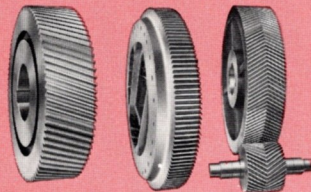
BASIC OXYGEN FURNACE DRIVES—These shaft mounted drives eliminate costly mounting platforms and many alignment problems. Refer to bulletin No. 400.



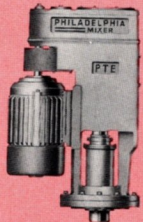
CHANGE SPEED GEAR UNITS—Available with 2, 3 or 4 gear combinations for increase or reduction of output speed. Refer to catalog CSU-2.



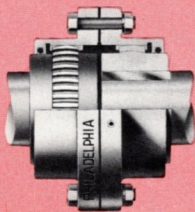
SYNCHRODRIVE—Sizes from 100 to 20,000 HP, offers a reliable, field proven unit for all types of variable speed and soft start applications. Does not require slip to produce torque. Write for catalog SD-2.



PHILADELPHIA APPLICATION ENGINEERED GEARING—Over 80 years of gear manufacturing experience goes into producing these major gear types: spur, helical, double helical, herringbone, bevel, hypoid, zerol, and worm.



PHILADELPHIA PTE MIXER—Extremely versatile, unusually reliable. Standard speeds from 20 to 280 RPM. Refer to catalog PTE-3.



FLEXIBLE COUPLINGS—Long experience has proven that a Philadelphia designed and manufactured flexible coupling is the ultimate in service and reliability. Refer to catalog C-79.

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philadelphia
gear corporation

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