

## Cooling Fans

REDUCER SIZES 50 thru 2195

## SPEED REDUCERS

Parallel Shaft • Right Angle  
Types GHB, Y, YF, YB, YBX

Subject to change without notice

146-731

SPECIFICATIONS  
May 1970

Supersedes 4-67

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Apply the appropriate multiplier listed below to the bulletin thermal horsepower ratings when reducers are equipped with Falk cooling fans.

### THERMAL HP MULTIPLIERS\*

UNIT SIZE	Ratio Range	Type & Reduction	Multiplier	
			One Fan	Two Fans
1080-1155	1.34 thru 7.59:1	YF1	1.25	2.5
1160-1165	3.38 thru 7.59:1	YF1	1.10	1.75
1160-1165	3.38 thru 7.59:1	YFN1	1.25	2.5
1170-1175	4.13 thru 7.59:1	YF1	1.10	1.75
1170-1175	4.13 thru 7.59:1	YFN1	1.25	2.5
1180-1185	5.06 thru 7.59:1	YF1	1.10	1.75
1180-1185	5.06 thru 7.59:1	YFN1	1.25	2.5
2050-2155	1.34 thru 47.08:1	Y1 & Y2	1.25	2.5
2160-2195	9.30 thru 47.08:1	Y2	1.10	1.75
2160-2195	9.30 thru 47.08:1	YN2	1.25	2.5
2050-2120	1.50 thru 5.06:1	GHB1	2.0	...
2050-2195	5.06 thru 31.39:1	YB2	2.0	...
50-195	5.06 thru 31.39:1	YBX2	2.0	...

\* Cooling fans are also available for tabulated sizes in the "T" series (reducers equipped with extra capacity bearings). Cooling fans are not available for sizes and ratios not listed. Refer to Factory for fan speeds above 1750 rpm.

**Thermal horsepower** is the actual horsepower (without Service Factor) that a speed reducer will transmit continually for three hours or more without overheating. If a reducer creates heat faster than it can be dissipated, severe damage may occur.

**Falk cooling fans** provide a simple and inexpensive way to utilize the mechanical rating of speed reducers by lowering operating temperatures, thus increasing thermal horsepower capacity. Cooling fans have been successfully used on electric motors and other related machinery for many years. They eliminate the need for water or oil cooling, pumps and external piping.

### APPLICATION FEATURES

**Low initial cost and upkeep** — In addition to low initial cost and negligible maintenance, cooling fans eliminate the need to provide liquid cooling and piping to and from the reducer.

**High efficiency** — Less than one quarter of one per cent catalogued horsepower rating required to drive the fans on Type Y units, and only one-eighth of one per cent required for the fan on YB units.

**Minimum space** — Overall dimensions are the same as those of reducers without fans, except for Type Y double reduction units. For these units, the overall length is increased a maximum of 2 inches, depending on unit size.

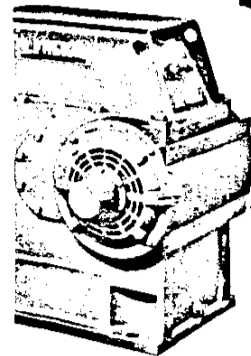
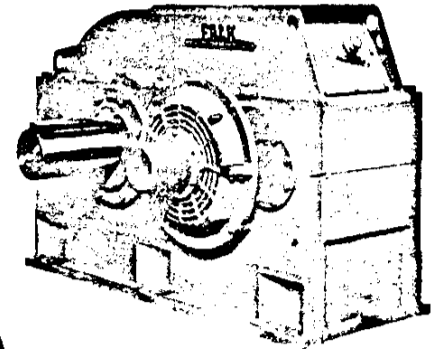
**Built-in safety** — Falk cooling fans have been designed to meet all known safety codes. The unused end of the high speed shaft is covered with a shaft guard. Openings in the fan guards and two-piece expanded metal grills on the inside of the fan guards are designed to prevent a  $\frac{1}{2}$ " ball from passing through the openings that are 4" or less from the moving parts.

**Coupling guard provisions** — Four pads are provided on the fan guards so expanded metal coupling guards can be bolted directly to the fan guards, if desired.

**Simple disassembly** — Fan parts can generally be added or removed without dismantling the gear drive. Fans and shaft guards slide over the shaft ends; split fan guards lift off.

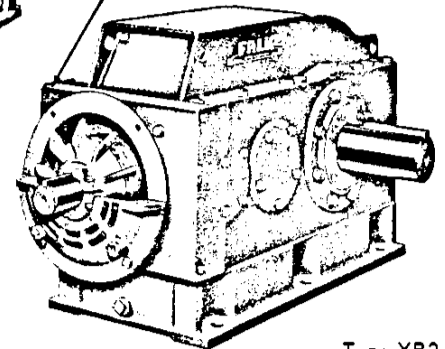
**Choice of seals** — Standard or tandem type seals can be used on fan cooled units.

Type Y1



Type Y2

AIR DEFLECTOR



Type YB2

### DESIGN DETAILS

**Aluminum alloy fans** — Cast aluminum alloy fans with either 10 or 12 radial blades and split hubs are mounted close to the housing wall on the reducer high speed shaft.

**Cast iron fan guards** — Two-piece cast iron fan guards enclose the fans and direct the air flow over the sides of the reducer. Fan guards are attached to the unit housing with bolts and spacers. For Type Y units, both sides of the housing are drilled and tapped for the bolts when fans are required; for right angle units, holes are drilled and tapped at the H.S. end.

**Units in the field** — Fans can be added to existing units in the field after drilling and tapping mounting holes.

**Air deflectors** — Type Y2 and all right angle units employ an air deflector around the high speed end of the housing for additional cooling.

**Cast iron shaft guards** — The unused end of the high speed shaft on Type Y units is covered with a cast iron shaft guard (the same as other shaft guards, oil retainers and end covers on all Falk units).

**Coupling hub engagement** — The addition of a fan reduces the usable high speed shaft length when compared to units without a fan. Some larger coupling hubs will overhang the high speed shaft, but all hub engagements meet engineering requirements.

**Sound level** — The sound level at 1750 rpm is about the same as that from fans on totally enclosed fan cooled driving motors.

# Long Term Lubrication For Steelflex Couplings

**STEEFLEX COUPLINGS**

All Types

Subject to change without notice

**428-012**

SERVICE MANUAL

February 1972

NEW

## LONG TERM LUBRICATION OF STEEFLEX COUPLINGS WITH RESIDUAL ASPHALTIC BASE LUBRICANTS

### INTRODUCTION

Residual asphaltic base lubricants (also known as still bottom lubricants) are the final product of naphthenic crude oil distillation. They are often confused with greases, but are actually very viscous fluids and not greases.

The residual lubricants listed in Table 2 are recommended for "Long Term" lubrication of Falk Steelflex couplings. However, as shown in Table 1, their useful life is related to temperature. At temperatures in excess of 120°F (49°C), residual lubricants offer no advantage over a NLGI #2 grease, which is the normal lubricant recommendation.

Residual lubricants that are thinned with a diluent are unsatisfactory for Falk Steelflex couplings. Diluents can not escape from the sealed coupling cover.

### RECOMMENDATIONS

**Minimum Lubricant Viscosity** — 2000 SSU @ 210°F (99°C)

**Maximum Lubricant Viscosity** — 4000 SSU @ 210°F (99°C)

**Temperature Range** — 60 to 120°F (16 to 49°C)

**Additives** — Residual lubricants with EP additives or additives that improve adhesiveness and water resistance may be used.

**DO NOT USE RESIDUAL LUBRICANTS WITH DILUENTS**

Table 1 LUBRICATION INTERVALS

Ambient Temperature	Lubrication Interval*
120°F (49°C)	2 Years
100°F (38°C)	4 Years
60 to 80°F (16-27°C)	8 Years

\* Couplings operating with substantial amounts of misalignment may experience leakage past seals and as a result require shorter lubrication intervals.

**Lubricant Quantity** — Use the same quantities as recommended for NLGI #2 greases in the Falk service manual.

**Method of Lubrication** — After assembling the coupling as instructed in the service manual, heat the lubricant (and grease gun) to approximately 110°F (43°C), pour the lubricant into gun and pump it into the coupling. The coupling temperature should be over 70°F (21°C) during lubrication.

**Typical Lubricants** — Table 2 lists typical lubricants meeting Falk specifications.

Lubricants listed may not be suitable for use in food processing industry; check with lube manufacturer for approved lubricants.

Table 2 RESIDUAL LUBRICANTS FOR STEEFLEX COUPLINGS

Manufacturer	Residual Asphaltic Base Lubricants Ambient temperature range of 60° to 140°F (16° to 60°C)	Viscosity @ 210°F (99°C)
American Oil Co.	AMOCO Compound 299	3000 SSU
Chevron Oil Co.	Chevron Pinion Grease 250	2520 SSU
Cities Service Oil Co.	CITGO Open Gear Compound #2	1900/2185 SSU
Continental Oil Co.	CONOCO COGLUBE #9	2200 SSU
Gulf Oil Co.	Gulf Lubcote #2	1904 SSU
Gulf Oil Canada Ltd.	Gulf Lubcote 200X	1950/2430 SSU
Humble Oil Co.	Surett N-3050	3000 SSU
Shell Oil Co.	Cardium Compound E	1905/1990 SSU
Shell Canada Ltd.	Cardium Compound F	2000 SSU
Texaco Inc.	Crater 2X	2040 SSU
Texaco Canada Ltd.	Crater 2X	2100 SSU