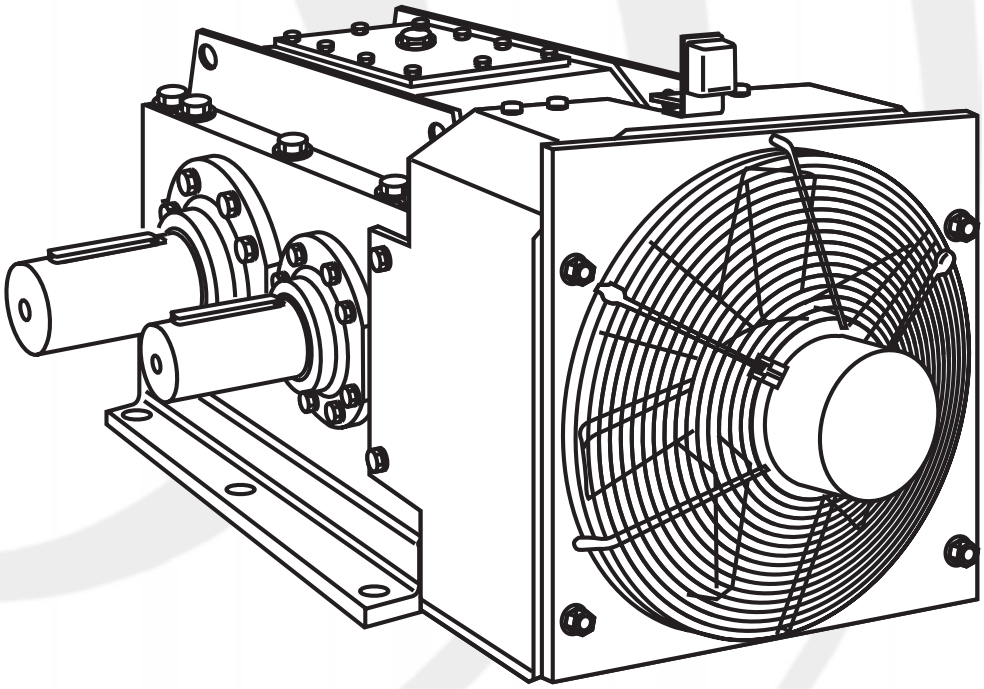
FALK™ ELECTRIC COOLING FANS | SELECTION GUIDE

Type A & B



REXNORD

Standard electric cooling fans

This selection guide contains electric cooling fan selection and engineering information for drive Types A, AR, AXV, AB, ABR & ABX.

With the development of higher horsepowers and speeds in today's compact gear drives, it is necessary to dissipate an increasing amount of thermal energy to realize the maximum mechanical capabilities of the drive. To accomplish this, Falk™ offers shaft driven cooling fans, electric cooling fans, cooling tubes, and water cooled or air cooled heat exchanger assemblies.

Shaft driven or electric cooling fans provide a simple, inexpensive means of lowering operating temperatures and increasing thermal capacities to utilize the available mechanical horsepower ratings.

The series of standard Falk™ electric cooling fan assemblies in this selection guide achieve thermal capacities up to twice that of shaft driven fans and are furnished as standard with a sump temperature switch. The temperature switch permits thermostatic control of the fan, shutting it off when it is not required.

Electric fans provide a greater air flow at higher velocity than shaft driven fans and are independent of drive speed or direction of shaft rotation. Air is directed at a greater amount of surface area including across the bottom of the housing.

With an electric fan, the magnitude of air velocity is generally great enough to prevent an accumulation of dust particles on the exterior surfaces of the gear drive even under the most severe conditions. Dust accumulations, which frequently occur under normal conditions, act as insulation and cause drive temperatures to increase.

Type A, AR & AXV electric fans can be mounted on either the high speed end or low speed end of a drive, permitting full use of usable shaft extensions. An electric fan may be used to provide fan cooling for Sizes 385A1 through 525A1 single reduction drives where shaft driven fans are not available.

The following is a brief description of the components of an electric cooling fan assembly:

- Fan Type — The standard electric fan is a high quality industrial-duty fan selected to provide the maximum air cooled thermal horsepower capacity for a given drive. Fan housing, motor support arms, and motor housing are made of high quality die cast aluminum.
- Fan Impeller — A specially designed polypropylene impeller provides maximum air flow while minimizing noise and vibration. It is non-sparking and yields high efficiency.
- Fan Motor — A unique, high efficiency electric motor has a totally enclosed non-ventilated (TENV) die cast aluminum frame suitable for outdoor applications and water washdown.

  Once a gear drive size and reduction have been selected, use Tables 1 and 2 on Page 4 to determine the diameter and electrical specifications of the standard fan offered by Falk™ (standard selections are shaded gray in Table 2). Table 2 also lists alternate fan selections of the same diameter, but different electrical specifications. Motor starters are not furnished by Falk™.

  A motor protection switch, provided by the customer, is required for three-phase selections. Single-phase motors are capacitor start.

Caution: *Consult with and follow all local and national electric codes.*

When the standard fan voltage is not readily available it is common practice to use a step-down transformer incorporated into the prime mover electrical controls to provide the necessary voltage. Specific information for this is available from a motor control distributor and/or manufacturer.

Special fan assemblies can be provided with standard NEMA motors for unique electrical requirements, environmental considerations, or air flow characteristics. Consult Factory for price and delivery.

- Sump Temperature Switch — The electric fan is furnished as standard with a Barksdale Model T2H-S251-3-A temperature switch or equivalent, Falk™ part number 932716. A remote bulb with armored capillary detects the oil sump temperature. For further details on this switch, see Page 4.

  The remote bulb is mounted in a standard supplied thermowell, Falk™ part number 932126, in the gear drive sump and retained with a split nut, Falk™ part number 932127.

  The sump temperature switch conserves energy by shutting off the electric fan when the drive oil sump is cool. The switch features dual settings for two independent single-pole, double-throw circuits. Only one circuit is used to control the fan. The remaining circuit may be used to control a warning light, an alarm, or a motor shut-down switch if the temperature setting is exceeded.
- Fan Location — On the Type A drive, the fan may be located on either the high speed or low speed end of the drive housing. The preferred location is on the high speed end. This location directs the air flow to the area with the highest bearing and shaft speeds. It also permits normal access to the standard oil level dipstick. As an alternative, the fan may be mounted on the low speed end of the Type A drive with no difference in the thermal rating.

  For Types AR & AXV drives, most accessories are mounted on the high speed end, therefore the preferred mounting position of the electric fan is on the low speed end.

  The low speed end is the only location available for Type AB, ABR and ABX drives due to the position of the high speed shaft extension. In this location, access to the standard oil level dipstick is not possible. Instead, a standpipe dipstick is provided on the side of the drive near the low speed end. With the fan located on the low speed end the only accessible oil drain hole is located on the high speed end of the drive.
- Fan Shroud — A heavy gauge steel fan shroud supports the fan and directs the air flow to the required drive surface areas. The shroud also acts as a guard for the fan, in compliance with OSHA.
- Installation & Maintenance of Electric Cooling Fans
  See Falk™ Service Manual 138-320. Includes a proposed wiring diagram for temperature switch.

Cooling options

The following cooling devices can be furnished with Falk™ drives to suit the requirements of the application. Note that the illustrations at right depict the Type A drive:

1. Shaft Driven Fan
2. Electric Cooling Fan
3. Pump Only
4. Fans and Pump
5. Cooling Tubes
6. Pump and Cooler

Fans Only — Falk™ shaft driven or electric cooling fans provide a simple and inexpensive way to utilize the mechanical rating of drives by lowering operating temperatures, thus increasing thermal horsepower capacity. However, if additional cooling is required, use a Falk™ drive with cooling tubes or a pump and cooler assembly.

Pump Only — Some drives, as indicated in the drive selection tables of the selection guide, require a pump for jet lubrication. Check the thermal rating of the drive to determine if cooling may also be required.

Fans and Pump — This is a combination of the preceding two items...fans for cooling and the pump assembly for jet lubrication.

Cooling Tubes — Falk™ patented cooling tubes are an economical alternative for thermal requirements beyond the range of fans. A series of straight, finned tubes are provided directly in the sump of the drive. Water is circulated through these tubes to cool the oil. An oil pump is not required.

Pump and Cooler — For cooling beyond the range of fans and cooling tubes, use a standard Falk™ pump and cooler assembly.

Electric Cooling Fan Selections — Select electric cooling fans from Tables 1 & 2, on Page 4.

Refer to the following dimension sheets for electric fan clearance:

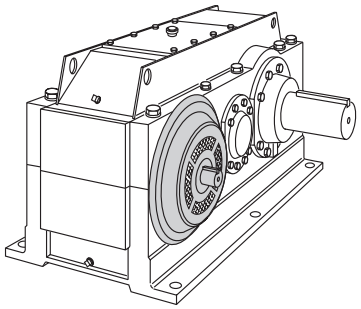
Type A — Dimension Sheet 135-412

Types AR & AXV — Dimension Sheet 135-452

Type AB — Dimension Sheet 235-412

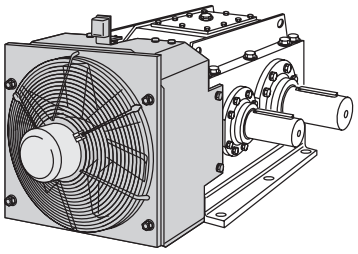
Type ABR & ABX— Dimension Sheet 235-452

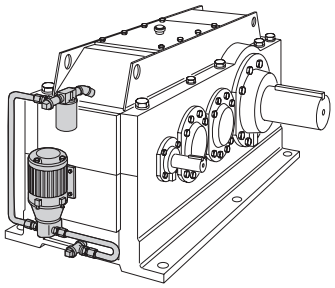
Refer to Selection Guide 131-110 for thermal ratings of gear drives equipped with electric cooling fans.



1. Shaft Driven Fan

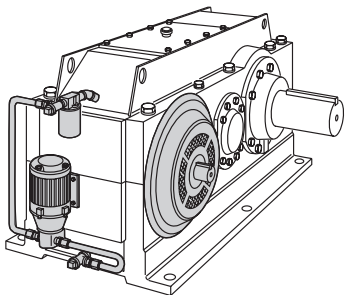
2. Electric Cooling Fan

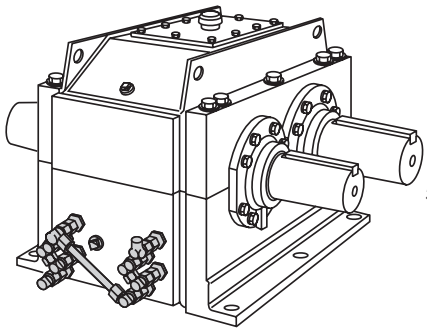




3. Pump Only

4. Pump & Fan





5. Cooling Tubes

6. Pump & Cooler

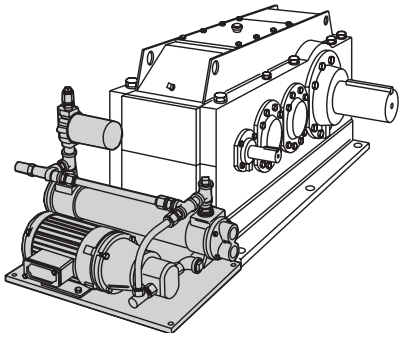


TABLE 1 — Electric Cooling Fan Selections

DRIVE SIZE	Reduction		Fan Diameter (Inches)
	Types A, AR & AXV	Types AB, ABR & ABX	
305	1, 2, 3	. . .	12
325	1, 2, 3	. . .	12
345	1, 2, 3	. . .	12
365	1, 2, 3	. . .	14
385	1 2, 3, 4	2 3 & 4	16 14
405	1 2, 3, 4	2 3 & 4	18 14
425	1 2, 3, 4	2 3 & 4	20 16
445	1 2, 3, 4	2 3 & 4	22 18
465	1 2, 3, 4	2 3 & 4	24 20
485	1 2, 3, 4	2 3 & 4	24 22
505	1 2, 3, 4	2 3 & 4	28 24
525	1 2, 3, 4	2 3 & 4	28 24
545	2 & 3	. . .	28
565	2 & 3	. . .	28
585	2 & 3	. . .	28

Table 2 — Specification for Electric Fans

Fan Dia (Inches)	Falk™ Part Number	Phase	Volts		HZ	Watts	Fan Motor HP	Amps	
12	2918161	1	220	. . .	50	100	0.13	0.5	
	2919425	3	220	380	50	100	0.13	0.5	0.3
	2908807	1	120	. . .	60	110	0.15	1.1	
	2908808	1	240	. . .	60	110	0.15	0.5	
	2908809	3	220	380	60	110	0.15	0.4	0.2
	2914243	3	265	460	60	130	0.17	0.5	0.3
14	2916526	1	220	. . .	50	150	0.20	0.9	
	2919426	3	220	380	50	170	0.23	0.9	0.5
	2908394	1	120	. . .	60	180	0.24	1.7	
	2908395	1	240	. . .	60	180	0.24	0.9	
	2908396	3	220	380	60	170	0.23	0.9	0.5
	2914728	3	265	460	60	210	0.28	0.9	0.5
16	2918313	1	220	. . .	50	220	0.30	1.1	
	2919427	3	220	380	50	220	0.30	1	0.6
	2909003	1	120	. . .	60	250	0.34	2.3	
	2907078	1	240	. . .	60	230	0.31	1.1	
	2907079	3	220	380	60	220	0.30	0.9	0.5
	2914729	3	265	460	60	300	0.40	1	0.6
18	2926835	1	220	. . .	50	310	0.42	1.6	
	2919428	3	220	380	50	310	0.42	1.2	0.7
	2907602	1	120	. . .	60	330	0.44	3	
	2907603	1	240	. . .	60	340	0.46	1.5	
	2907604	3	220	380	60	300	0.40	1.1	0.6
	2914730	3	265	460	60	390	0.52	1.2	0.7
20	2916525	1	220	. . .	50	440	0.59	2.2	
	2919429	3	220	380	50	430	0.58	1.9	1.1
	2908401	1	120	. . .	60	470	0.63	4.4	
	2906811	1	240	. . .	60	430	0.58	2.1	
	2908402	3	220	380	60	420	0.56	1.6	0.9
	2914857	3	265	460	60	490	0.66	1.9	1.1
22	2926836	1	220	. . .	50	460	0.62	2.4	
	2919432	3	220	380	50	980	1.31	3.4	1.9
	2908171	1	240	. . .	60	560	0.75	2.9	
	2919430	3	220	380	60	940	1.26	3.4	1.9
	2919431	3	265	460	60	900	1.21	3.4	2
24	2926837	1	220	. . .	50	1450	1.94	6.6	
	2919433	3	220	380	50	1480	1.98	5	2.9
	2906800	1	240	. . .	60	1900	2.55	8.6	
	2907185	3	220	380	60	1750	2.35	5.2	3
	2914732	3	265	460	60	1650	2.21	5	2.9
28	2919434	3	220	380	50	2171	2.91	8.2	4.7
	2908614	3	220	380	60	2400	3.22	8.3	4.8
	2914724	3	265	460	60	2500	3.35	8.3	4.8

Shaded selections are standard, and will be furnished unless otherwise specified.

Specifications for Sump Temperature Switch

Barksdale Temperature Switch ‡

Barksdale No. T2H-S251-3-A
NEMA 4/13 Enclosure

Falk™ No. 932716

Dual Setting — Two independent SPDT circuits

Remote bulb and 3 foot armored capillary

Temperature Range • — 50° to 250°F (10° to 121°C)
Adjustable differential from 4° to 15°F (-15° to -9°C)

Thermowell – Brass, Falk™ Part No. 932126
Split Nut, Falk™ No. 932127

‡ Or equivalent.

• At assembly, both switches will be set to 140°F (60°C). The switch differential will be set to the maximum 15°F (9°C). When only one circuit is used, set the unused switch to 250°F (121°C).