Airflex By Danfoss

Floating Housing Brake Parts Manual

ENGINEERING TOMORROW



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Airflex By Danfoss FHB Brake Elements

Dimensional & Technical Data



Overview

Airflex by Danfoss has introduced a revolutionary new design in disc brake technology called the Floating Housing Brake (FHB). The spring applied (power off), air-cooled disc brake is suited for applications in Surface Mining, Oilfield, winch applications and other heavy-duty industrial machinery designs.

The FHB is an air cooled spring applied brake with exceptional friction life and rapid friction replacement capability. It is supplied with long wearing, organic friction material and a rugged solid cast, rotating disc that provides lower inertia than typical caliper brakes.

Features

- Rated for over 430,000 lb-in of torque
- Patented braking concept uses a floating housing instead of a floating rotor
- Multiple brake installation designs exist for industry leading motors
- Fixed hub and rotor design

Benefits

- Ability to quickly change the friction pads reduces down time on dragline from 3 hours to 1 hour
- Reduced maintenance cost with elimination of spline tooth or gear wear
- Longer friction pad wear life due to a full 360° annular disc
- Faster and safer installation with exclusive shaft lock assembly for ease of mounting and removal
- Virtually no wear during free wheeling, allows high product life

Technical Introduction

The FHB brake is offered for applications with non-cyclic brake engagement that require higher speed operation or precise balance of the rotating components. It uses a solid rotor and stationary friction material to develop equal torque in either direction of rotation. The disc is mounted on the shaft which is to be stopped while the brake assembly is attached to the machine frame. Pressurizing the brake compresses the brake springs and withdraws the clamping force from the brake disc so the shaft can rotate freely. As air pressure is exhausted, the springs force the pressure plate towards the mounting flange and the spring housing which in turn forces the floating plate away from the mounting flange, clamping the disc and the friction pad assembly.

Typical Applications

Draglines
- Hoist
- Drag
- Swing
- Propel (Walk)

Electric Shovels
- Hoist
- Crowd
- Swing
- Propel

Winches

English			lb-in			psi	in^3	in^2	in^3	$lb\text{-}ft^2$	lb		rpm
138FHB	146562	417385-01	432,900	0.81	36	80	612	1122	280	504	514	3641	950
138FHB	146562A	417385-02	345,000	0.81	28	65	612	1122	280	517	581	3332	950
138FHB	146562B	417385-03	432,900	0.81	36	80	612	1122	280	531	576	3337	950

Size	Part Number	Taper Lock Number	M_r ■ Torque ▲ Rating	Worn Torque Multiplier	Number of Spring Sets	Minimum ● Release Pressure	□ Releasing volume	Friction Area	Usable Friction volume	Wk^2 Disc	Weight Disc & Taper Lock	Weight Housing	Max. Speed
138FHB	146562	417385-01	48,912	0.81	36	5.5	10.02	7239	4597	21.24	233	1643	950
138FHB	146562A	417385-02	38,980	0.81	28	4.5	10.02	7239	4597	21.79	263	1511	950
138FHB	146562B	417385-03	48,912	0.81	36	5.5	10.02	7239	4597	22.38	261	1518	950
SI			N-m			bar	dm3	cm2	cm3	kg-m2	kg		rpm

Notes:

■ Dynamic torque shown. Static torque approximately 15% greater. Torque values are for new linings. Torque decreases with the lining wear. At worn out condition, torque is approximately 0.81 of values shown, unless otherwise noted.

▲ Torque ratings are for units with a standard compliment of springs. Consult factory for torque ratings of units with non-standard spring configurations.

● Maximum allowable cylinder pressure is 120 psi (8.31 bar).

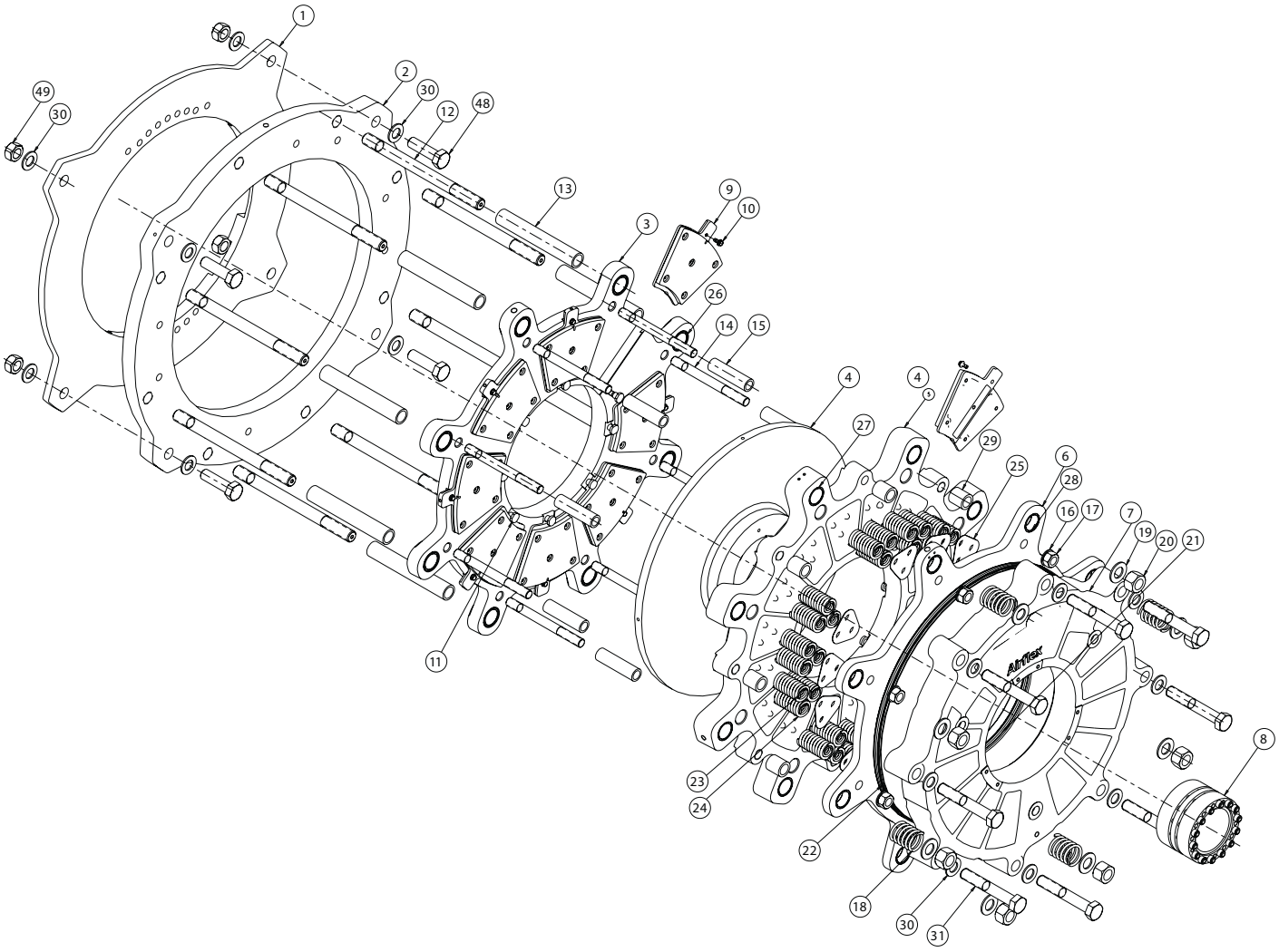
□ Absolute volume of releasing cavity.

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FHB Component Parts

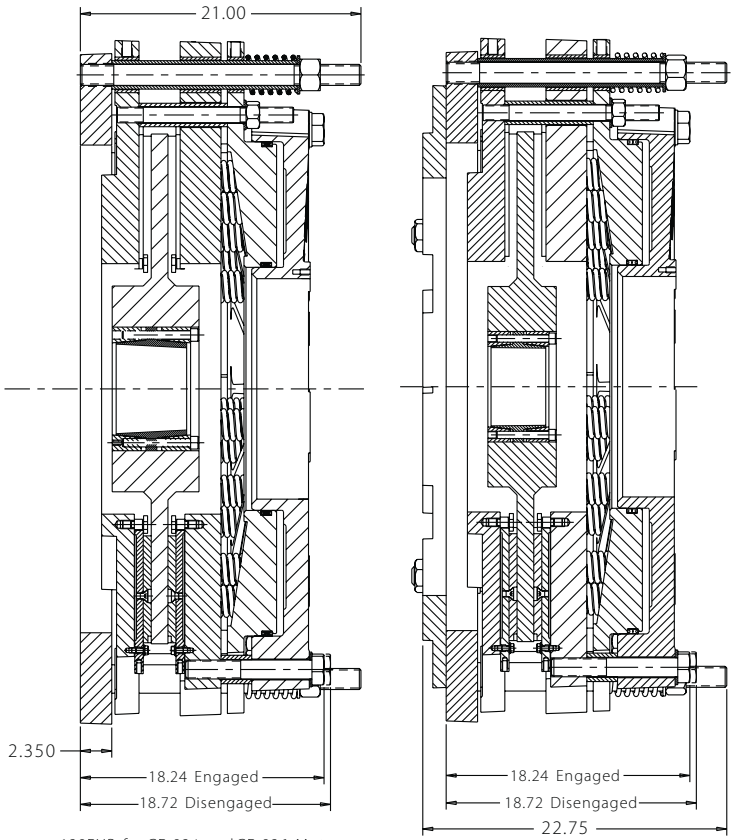
Item	Qty.	Description	Part Number
1	1	Adaptor Plate	See Table on Page 5
2	1	Mounting Flange	515532
3	1	Floating Plate	515503
4	1	Disc	515536
5	1	Pressure Plate	515505
6	1	Spring Housing	515507
7	1	Cylinder	515509
8	1	Taper shaft lock	417385-02
9	16	Friction Pad Assembly	308589
10	16	Special Flanged Screw	308602
11	16	Shoulder Screw	308593
12	8	Main Stud.	308593
13	8	Large Clamp Tube	308586-01
14	8	Support Stud	308592-01
15	8	Spacer	308590-01
16	8	Flat Washer	000067X0063

Item	Qty.	Description	Part Number
17	8	Self Locking Nut	000414X0013
18	4	Release Spring	416751-04
19	8	Flat Washer	000067X0065
20	8	Sleeve Nut	000414X0004
21	2	Inner Seal	000402X0005
22	2	Outer Seal	000402X0006
23	36	Inner Spring	416751-08
24	36	Outer Spring	416751-07
25	12	Spring Retainer	415635
26	8	Floating Plate Bushing	204214-01
27	8	Pressure Plate Bushing	204214-02
28	8	Spring Housing Bushing	204214-03
29	8	Power Head Spacer	308599-01
30	8	Power Head Washer	000067X0064
31	8	Power Head Screw	000391X3602



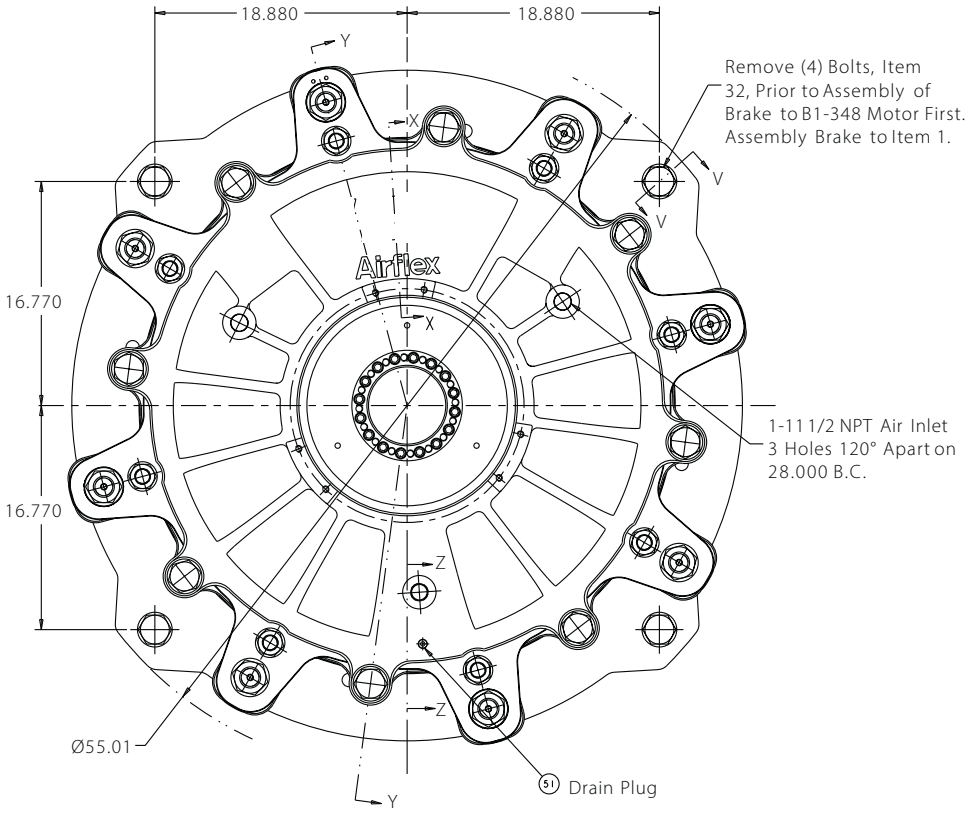
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138FHB Specifications and Dimensions Illustrated



138FHB for GE-824 and GE-826 Motor

138FHB for Siemens B1-348 Motor



Bill of Materials

Item	Qty.	Description	Part Number
*1	1	Adaptor Plate	See Table
*2	1	Mounting Flange	See Table
3	1	Floating Plate	515503
*4	1	Disc	See Table
5	1	Pressure Plate	515505
6	1	Spring Housing	515507
7	1	Cylinder	515509
*8	1	Taper shaft lock	See Table
9	16	Friction Pad Assembly	308589
10	16	Special Flanged Screw	308602
11	16	Shoulder Screw	308593
12	8	Main Stud.	308601-01
13	8	Large Clamp Tube	308586-01
14	8	Support Stud	308592-01
15	8	Spacer	308590-01
16	8	Flat Washer	000067X0063

*Part number may vary - depending on application/Motor. See Table below

Item	Qty.	Description	Motor	Part Number
*1	1	Adaptor Plate	GE-824	NA
			GE-826	NA
			Seimens BI-348	515531
*2	1	Mounting Flange	GE-824	515532
			GE-826	515590
			Seimens BI-348	515532
*4	1	Disc	GE-824	515536
			GE-826	515538
			Seimens BI-348	515511
*8	1	Taper shaft lock	GE-824	417385-02
			GE-826	417385-03
			Seimens BI-348	417385-01

Item	Qty.	Description	Part Number
17	8	Self Locking Nut	000414X0013
18	4	Release Spring	416751-04
19	8	Flat Washer	000067X0065
20	8	Sleeve Nut	000414X0004
21	2	Inner Seal	000402X0005
22	2	Outer Seal	000402X0006
**23	36	Inner Spring	416751-08
**24	36	Outer Spring	416751-07
**25	12	Spring Retainer	415635
26	8	Floating Plate Bushing	204214-01
27	8	Pressure Plate Bushing	204214-02
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29	8	Power Head Spacer	308599-01
30	8	Power Head Washer	000067X0064
31	8	Power Head Screw	000391X3602

**Quantity may vary - depending on application requirement

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- PLUS+1® sensors
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