ENGINEERING
TOMORROW

User Guide

Airflex®
Failsafe Caliper Brake



VICKERS
by Danfoss

Table of Contents

Description 3
Where used 3
Technical Data sheet 4
Basic information 5
Brake Assembly 6
Brake Sub Assembly 7
Brake Assembly Dimensions 8
Model code 9
Options 9
Revision 10
Notes 11

Description

Airflex© failsafe caliper is a spring applied, hydraulically released brake. The Airflex© brake is ideal for emergency stopping or static holding. Loads can be stopped quickly or in a controlled manner and held safely. Variable spring force kits, friction options and disc sizes allow for custom adaptation to any application. Sensors are available for monitoring pad wear and on/off brake status.



Where used

- Oil & Gas
- Mining
- Metal Processing
- Cranes & Hoists
- Marine
- Anywhere dependable, failsafe braking is needed

Technical Data sheet

Size 3								
Clamp force [1]		Brake force [2]	Loss of force per mm	Operating pressure		Balance pressure		
kN (min)	kN (max)	kN	%	Bar	psi	MPa	Bar	psi
20.0	23.0	16.0	5	40	580	2.3	22.7	330
24.8	27.3	19.8	4	45	653	2.8	28.2	409
30.0	33.5	24.0	5	50	725	3.4	34.1	494
40.0	44.0	32.0	4	65	943	4.5	45.5	659
46.0	50.0	36.8	4	75	1088	5.2	52.3	758
50.0	55.0	40.0	6	80	1160	5.7	56.8	824
56.0	60.0	44.8	6	90	1305	6.4	63.6	923
60.0	66.0	48.0	5	95	1378	6.8	68.2	989
70.0	77.0	56.0	4	115	1668	8.0	79.5	1154
80.0	88.0	64.0	7	130	1885	9.1	90.9	1319
85.0	95.0	68.0	7	140	2031	9.7	96.6	1401
90.0	98.5	72.0	13	145	2103	10.2	102.3	1483
100.0	109.0	80.0	11	160	2321	11.4	113.6	1648
110.0	119.0	88.0	10	175	2538	12.5	125.0	1813
120.0	130.0	96.0	9	190	2756	13.6	136.4	1978

1) All figures are based on 1mm air gap
2) Braking force is based on minimum clamping force, nominal coefficient of friction μ = 0.4 and 2 brake surfaces

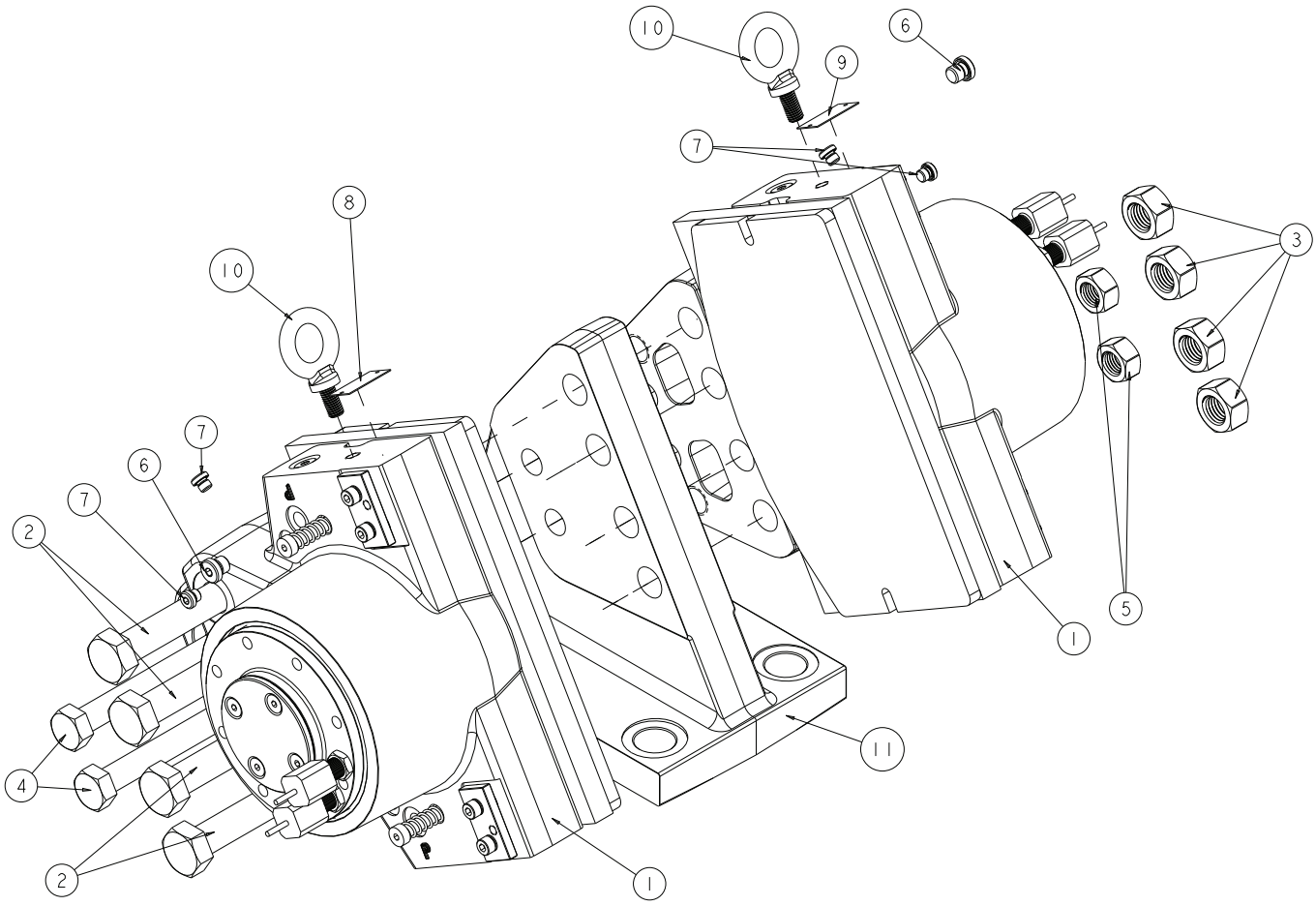
Brake Torque
Brake torque (T) can be calculated from below formula.
T (Nm) = N x F x (D-0.2)/2

Where:
N = Number of brakes
F = Brake force (Newtons)
D = Disc outer diameter (Meters)

Basic information

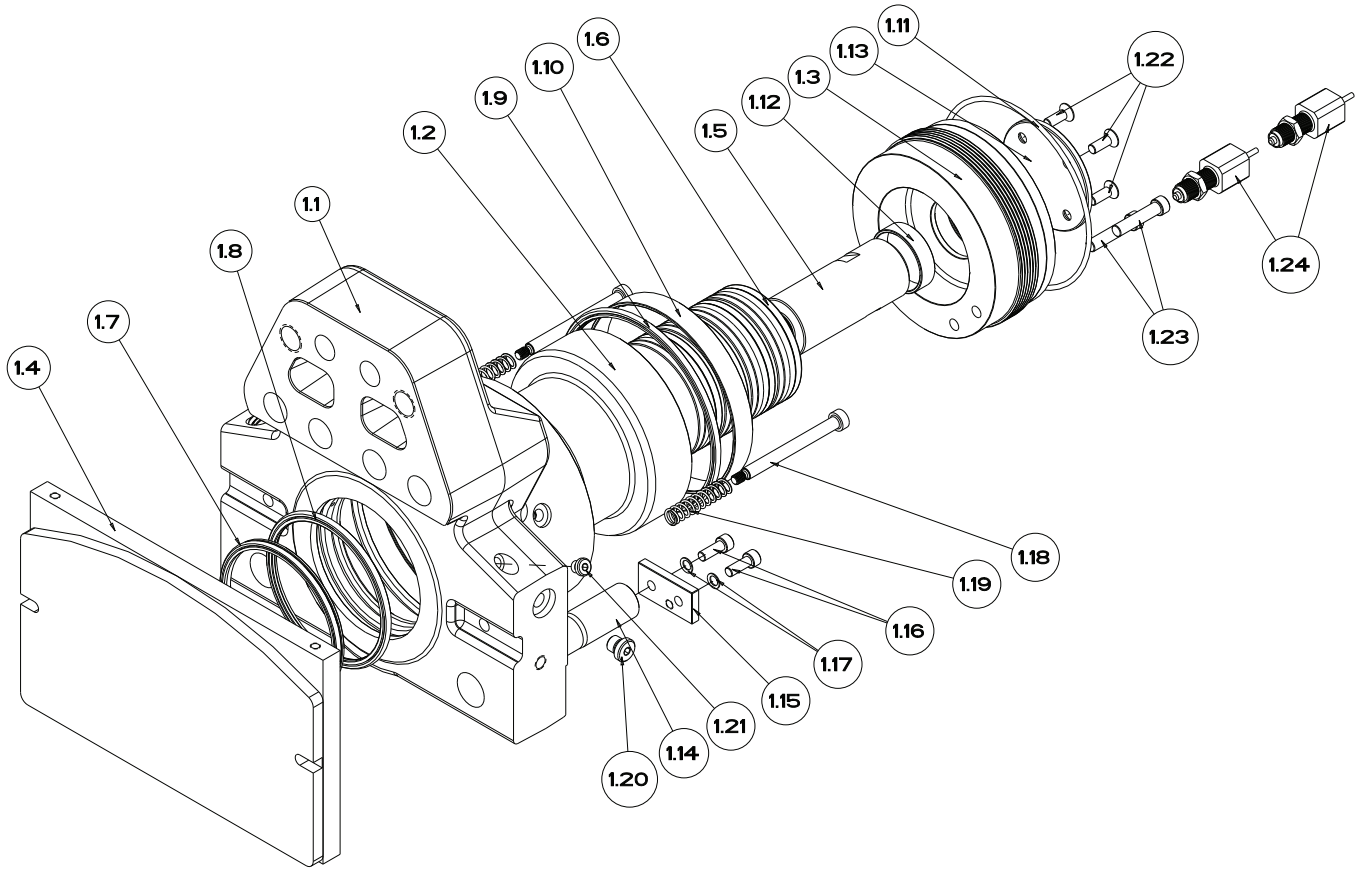
Size 3		
Weight of caliper (without bracket)	-	150 kg
Pad area (organic)	-	59534 mm2
Max. wear of pad (organic)	-	10 mm
Pad area (sintered)	-	35948 mm2
Max. wear of pad (sintered)	-	10 mm
Nominal air gap	-	1 mm
Nominal coefficient of friction	-	0.4
Total piston area each caliper half	-	88 cm2
Total piston area each caliper	-	176 cm2
Volume for each caliper at 1 mm stroke	-	17.6 cm3
Actuating time (approximate)	-	0.3s
Pressure connection/port	-	1/4" BSP
Drain connection/port	-	1/8" BSP
Operating temperature range	-	-20°C to +70°C
Max operating pressure	-	230 Bar (23MPa)

Brake Assembly



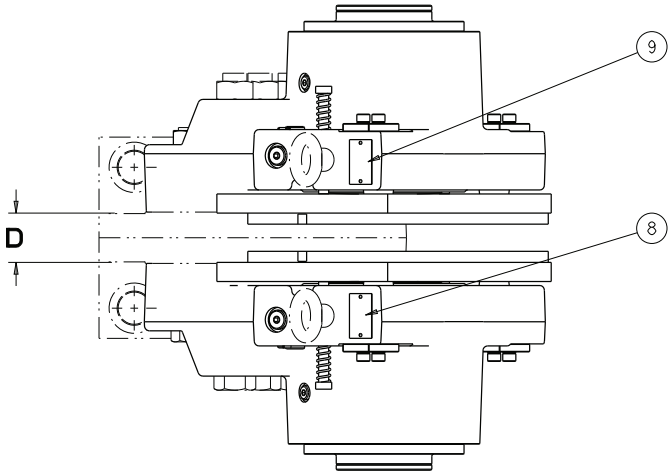
ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	BRAKE SUB ASSEMBLY	7	1/8 "BSP PLUG
2	M24 MOUNTING BOLT	8	NAME PLATE
3	M24 MOUNTING NUT	9	WARNING PLATE
4	M20 MOUNTING BOLT	10	EYE BOLT
5	M20 MOUNTING NUT	11	MOUNTING BRACKET
6	1/4 "BSP PLUG		

Brake Sub Assembly

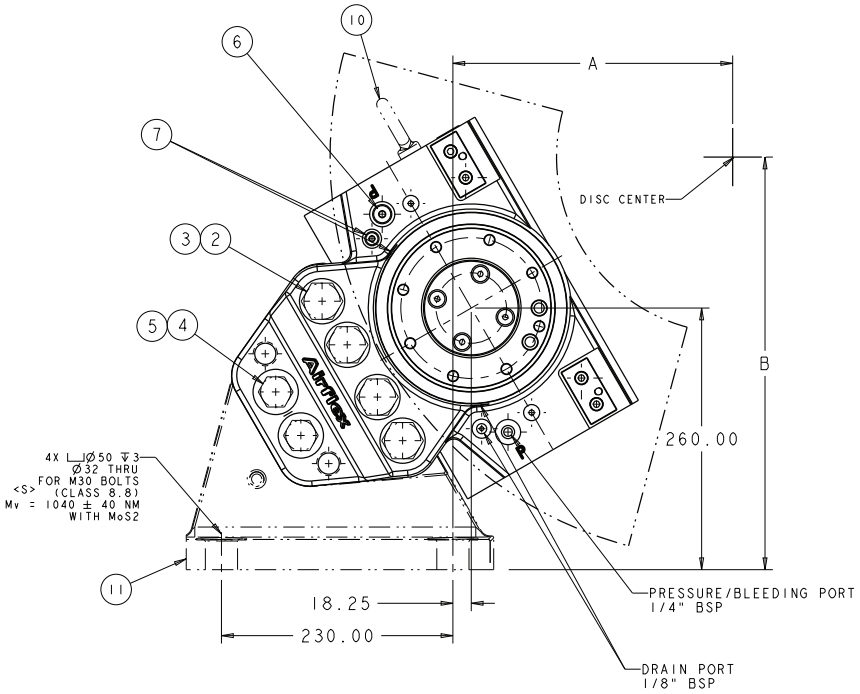


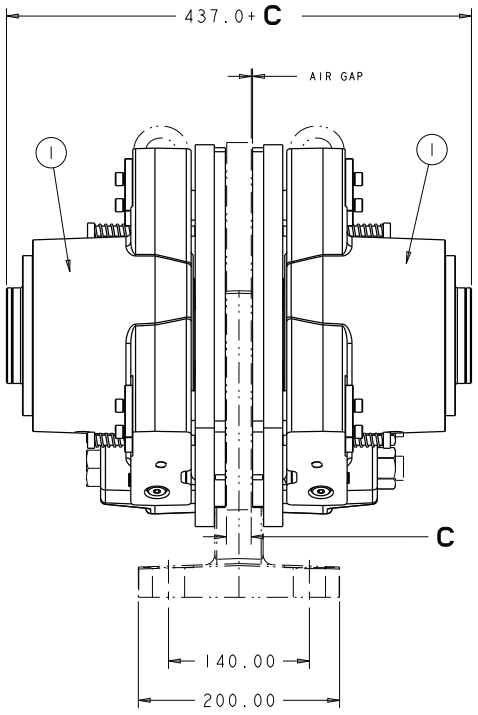
ITEM	DESCRIPTION	ITEM	DESCRIPTION
1.1	BODY	1.13	TOP COVER
1.2	PISTON	1.14	SHEAR PIN
1.3	END CAP	1.15	KEEPER PLATE
1.4	FRICTION SUB ASSEMBLY	1.16	M8 BOLT
1.5	CENTER ROD	1.17	LOCK WASHER
1.6	DISC SPRING KIT	1.18	SHOULDER BOLT
1.7	SCRAPER SEAL	1.19	RETURN SPRING
1.8	ROD SEAL 1	1.20	1/4 "BSP PLUG
1.9	ROD SEAL 2	1.21	1/8 "BSP PLUG
1.10	BEARING RING 1	1.22	M8 FLAT HEAD SCREW
1.11	O-RING	1.23	SENSOR PIN
1.12	BEARING RING 2	1.24	SENSOR

Brake Assembly Dimensions



Distance from center of brake disc (R = disc radius)
A = 0.866*(R-100) + 18.3
B = 0.5*(R-100) + 260
C = Brake disc thickness
D = Mounting surface width = C+26





All dimensions are in mm, unless stated otherwise.

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6	1/4 "BSP PLUG		

Model code

ACB - F - D - 3 - 060 - V - 2 - D - 1 - A - A - O - A

1-3 | 4 | 5 | 6 | 7-9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17

1, 2, 3 - Prefix	
ACB	Airflex Caliper Brake
4 - Brake Type	
F	Failsafe
5 - Configuration	
D	Dual
6 - Brake Size	
3	20 KN – 120 KN
7, 8, 9 - Clamp Force (KN)	
020	20 KN Clamp force (size-3)
024	24.8 KN Clamp force (size-3)
030	30 KN Clamp force (size-3)
040	40 KN Clamp force (size-3)
046	20 KN Clamp force (size-3)
050	50 KN Clamp force (size-3)
056	26 KN Clamp force (size-3)
060	60 KN Clamp force (size-3)
085	85 KN Clamp force (size-3)
090	90 KN Clamp force (size-3)
100	100 KN Clamp force (size-3)
110	110 KN Clamp force (size-3)
120	120 KN Clamp force (size-3)

10 - Mounting	
D	Danfoss mount
V	V - mount
11 - Friction	
1	Organic friction
2	Sintered Friction
12 - Sensor	
A	None
B	Brake ON/OFF sensor
C	Wear Sensor
D	Brake ON/OFF and wear sensor
13 - Hydraulic Port Thread	
1	Inlet port – 1/4" BSPP thread
14 - Wear Compensation	
A	Manual
15 - Environment	
A	Standard
16 - Special Feature	
O	None
17 - Paint	
A	Standard

Options

- Sensors- Wear, On/Off
- Mounting Bracket
- Discs

Revision

CO	Date	By	REV	Description
			A	Initial Release

Notes

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Products we offer:

- Cartridge valves
- DCV directional control valves
- Electric converters
- Electric machines
- Electric motors
- Gear motors
- Gear pumps
- Hydraulic integrated circuits (HICs)
- Hydrostatic motors
- Hydrostatic pumps
- Orbital motors
- PLUS+1 controllers
- PLUS+1 displays
- PLUS+1 joysticks and pedals
- PLUS+1 operator interfaces
- PLUS+1 sensors
- PLUS+1 software
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