

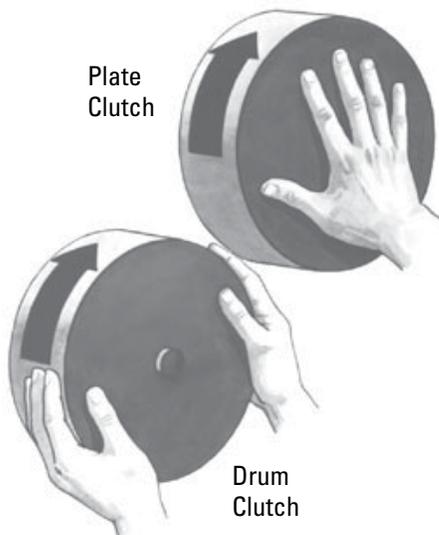
## Airflex® Expanding Features

### Section C

#### How They Work

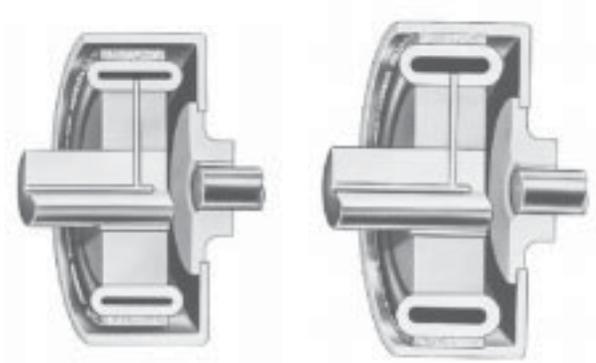
E, EB, ER and VE elements utilize a rugged tire-like neoprene and cord tube that expands radially outward when pressurized. The expanding tube forces a friction surface against an inner cylindrical drum surface. The rate at which the tube is pressurized determines the rate at which element torque increases. Final tube pressure determines the element torque capacity.

#### Design Features



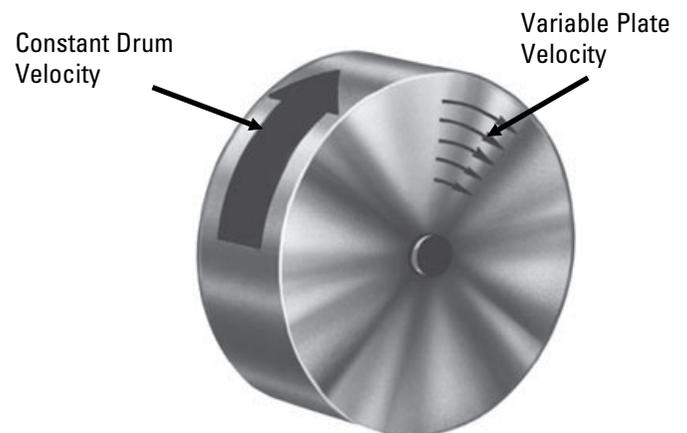
- **Uniform contact velocity**

Friction shoe contact occurs across the cylindrical surface of the drum where the contact velocity is constant unlike plate types where the contact velocity varies across the friction plate face.



- **Force applied at maximum radius from axis**

Airflex expanding elements concentrate the frictional force on the inside drum diameter thereby achieving maximum torque. The torque lever arm is the drum radius, not a reduced radius as occurs in plate clutches. Not only is the force generated at the optimum radius, it is also applied uniformly around the drum circumference.



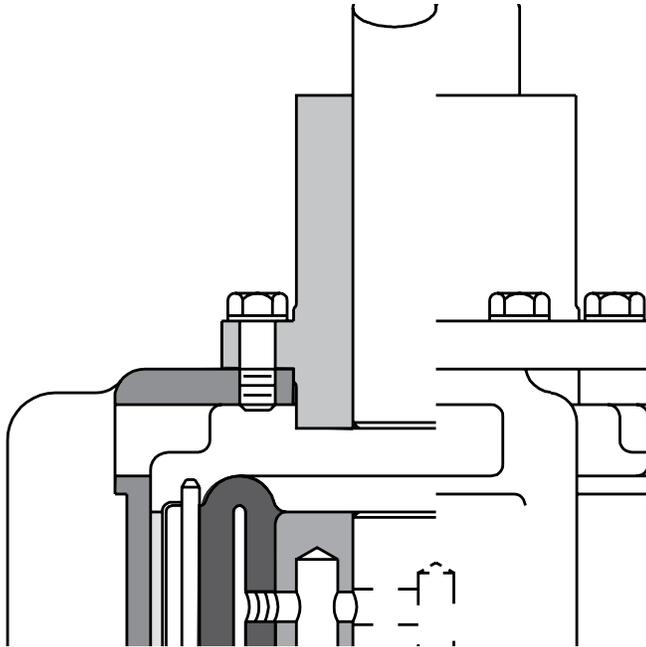
# Airflex® Expanding Features

## Section C



- **Heat Dissipation**

Heat, generated at the inner drum surface, is quickly conducted to the drum's exposed outer surface area where it is dissipated by radiation and convection. This feature is ideal for slip clutch and tension brake applications where heat must be dissipated continuously.



- **Operates in any plane**

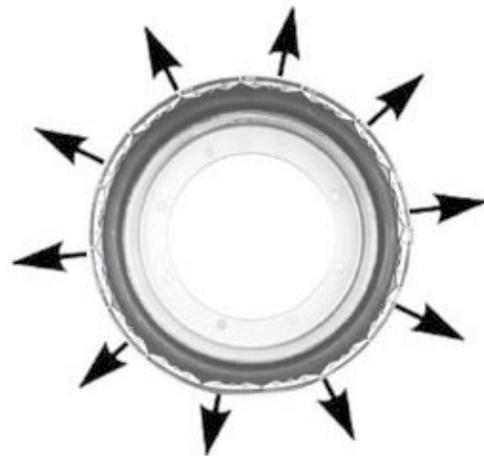
Drum design permits operation in any plane. A plate type unit operates best in a vertical plane.

- **Self-adjustment**

As friction surfaces wear, the tube expands further and compensates for the wear. Normal wear will not reduce torque capacity.

- **No lubrication**

There are no close fitting sliding components which require lubrication.



# Airflex® EB and ER Construction

## Section C



**EB Element**

EB elements are suited to slow speed applications having moderate starting and stopping loads. They are used as slip clutches and tension brakes for lighter torque and horsepower applications.

EB elements are similar in design and construction to the CB elements and have many of the CB features. A neoprene rubber and cord tube is bonded on its inside diameter to a cylindrical surface. Friction shoes are attached with pins and held in position with lockwires to the outside diameter of the tube. Torque is transmitted by the sidewalls of the rubber tube. Pressurizing the tube forces the friction shoes to engage an inside drum diameter.

The expanding design allows the element to behave as a centrifugal clutch. The radial stiffness of the rubber tube determines the element speed at which the friction shoes will retract.

The rubber tubes of the three small elements are bonded to the outside diameters of solid hubs, which, in turn, are bored and keyseated for direct shaft mounting. The pressurizing passage can be either a radial hole thru the hub or a port provided in the hub face. Larger element sizes are attached to the shaft by a separate element hub.

Element torque is dependent upon the applied pressure and speed. Catalog ratings are given at 75 psi (5,2) and zero rpm. Maximum recommended pressure is 110 psi (7,6 bar). Adjustment for operating pressure and speed is explained under Selection Procedure.

EB elements are available in 11 sizes. They are identified by the inside drum diameter in inches to which they expand and the width in inches of their friction lining. For instance, size 16EB475 is designed to expand to a 16 inch diameter drum



**ER Element**

and has a friction lining width of 4.75 inches. The smallest EB element will expand to a 4 inch (102 mm) diameter drum and the largest to a 24 inch (610 mm) diameter drum. Due to its small diameter, the 4EB125 does not have replaceable friction shoes. Instead, the friction material is bonded to its rubber tube.

Construction of the ER element is similar to the EB element, except for friction shoes. ER elements engage their drums directly with the outside rubber surface of their actuating tubes. This interface results in a friction force which provides a large torque in a relatively small package. It also provides electrical isolation between connecting shafts.

ER elements are used as shaft couplings or holding brakes where engagement occurs at zero speed differential between element and drum. They are ideal for applications in which a disconnect is required without stopping the prime mover or in which the driving and or driven equipment must be frequently withdrawn from the drive.

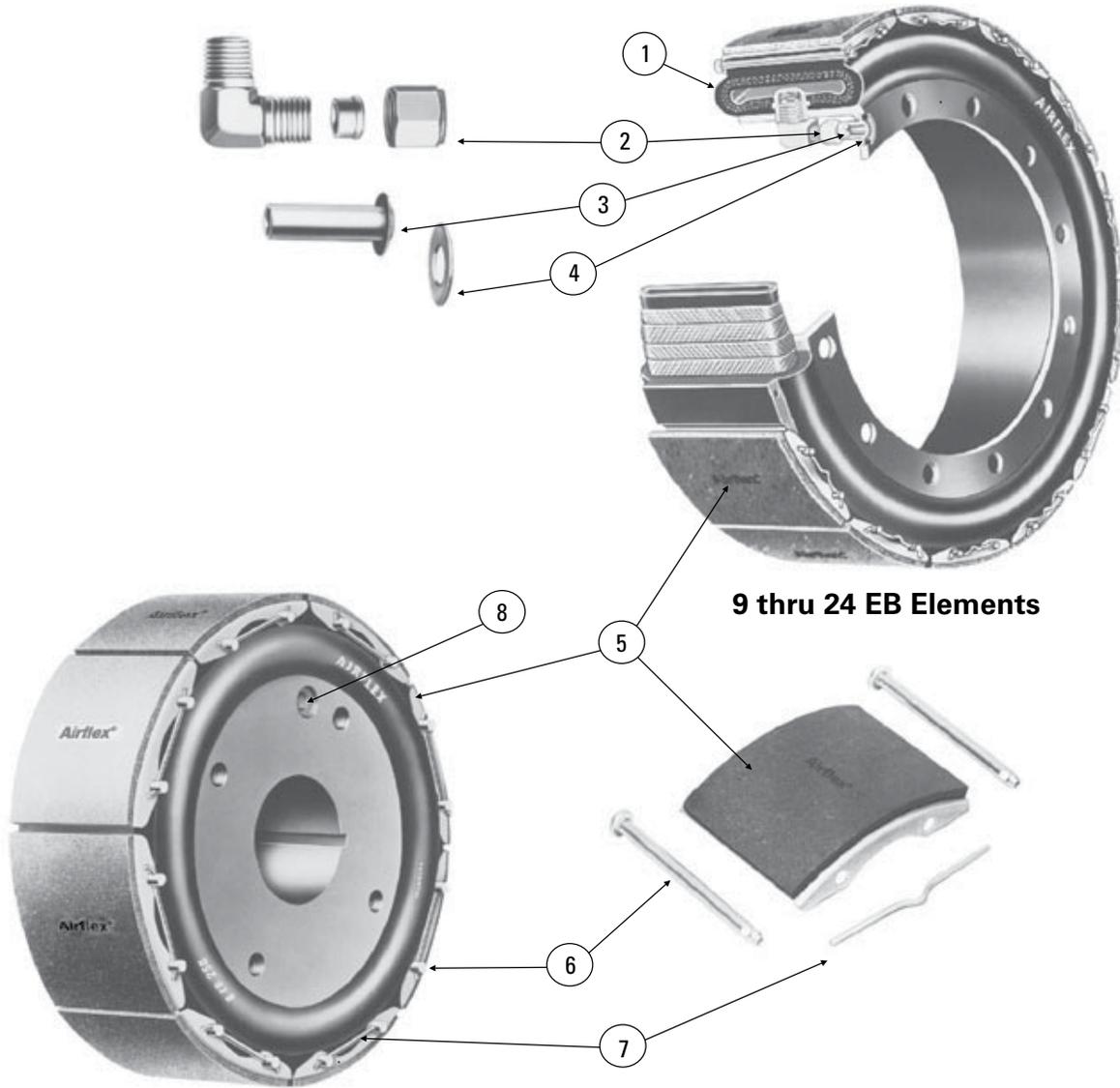
ER elements are identified similar to the EB elements. They are available in ten sizes. The smallest expands to a 3 inch (51 mm) diameter drum and the largest to a 24 inch (610 mm) diameter drum.

#### Where Used:

- Centrifuges
- Core Expanders
- Laundry Machines
- Textile Machines
- Tire Building Machines

# Airflex® EB Components Descriptions

## Section C



**9 thru 24 EB Elements**

**4, 6 & 8 EB Elements**

Size	Torque Rating	
	English lb · in @ 75 psi	SI N · m @ 5, 2 bar
4EB125	390	44,1
6EB200	910	103
8EB250	2220	251
9EB325	3750	424
10EB300	4275	483
12EB350	7500	848
14EB400	12000	1360
16EB475	18750	2120
19EB475	27000	3050
21.5EB475	36000	4070
24EB475	45000	5090

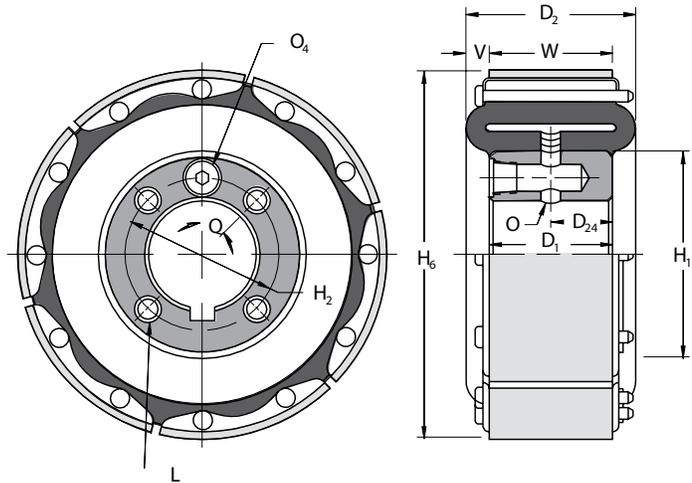
Size	Torque Rating	
	English lb · in @ 75 psi	SI N · m @ 5, 2 bar
3ER125	400	45,2
6ER200	1540	174
8ER250	3550	401
10ER300	6600	746
12ER350	12300	1390
14ER400	22600	2550
16ER475	32600	3680
19ER475	47600	5380
21.5ER475	63000	7120
24ER475	83500	9440

Item	Component Description
1	Rim or hub and tube assembly
2	Elbow assembly
3	Air connection tube
4	Air connection gasket
5	Friction shoe
6	Shoe pin
7	Lockwire
8	Pipe plug
5,6,7	Friction shoe, pin and lockwire kit

# Airflex® EB Elements

## Section C

Form EB 701 — Dimensional and Technical Data — Sizes 4 to 8



English		lb · in @ 75 psi	Dimensions in inches															
4EB125	143019	390	0.88	1.50	1.50	1.75	0.75	2.12	3.94	2.75	4	5/16-18	0.31	1/4-18	45.0	0.25	10	1.25
6EB200	143022	910	0.88	1.75	2.00	2.75	1.00	2.50	5.91	3.38	4	3/8-16	0.31	1/4-18	45.0	0.38	6	2.00
8EB250	143117	2220	1.25	3.50	2.50	3.25	1.25	4.38	7.84	5.38	4	3/8-16	0.31	1/8-27	22.5	0.38	8	2.50

Size	Part Number	M <sub>r</sub> Torque Rating	Bore Range		D <sub>1</sub>	D <sub>2</sub>	D <sub>24</sub>	H <sub>2</sub>	H <sub>6</sub>	H <sub>13</sub>	L	Ø	O	Ø Q <sub>4</sub>	Q (Deg)	V	W				
			Min.	Max.														No.	Size	No.	Width
4EB125	143019	44,1	22	38	38	44	19	54	100	70	4	5/16-18	8	1/4-18	45,0	6	10	32			
6EB200	143022	103	22	44	51	70	25	64	150	86	4	3/8-16	8	1/4-18	45,0	10	6	51			
8EB250	143117	251	32	89	64	83	32	111	199	137	4	3/8-16	8	1/8-27	22,5	10	8	64			

SI		N · m @ 5,2 bar	Dimensions in millimeters														
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English		lb · in @ 75 psi	rpm	psi/rpm <sup>2</sup>	lb · ft <sup>2</sup>	lb	in <sup>2</sup>	inches	in <sup>3</sup>	in	
4EB125	143019	390	1800	*	0.01	2.3	13	⑥	⑥	5	4.09
6EB200	143022	910	1800	1.1	0.25	7	36	0.14	0.06	10	6.09
8EB250	143117	2220	1800	1.2	1.00	19	60	0.12	0.06	15	8.09

Size	Part Number	M <sub>r</sub> Torque Rating	Maximum Speed	C <sub>s</sub> Centrifugal Gain	Wk <sup>2</sup> J	Weight Mass	Friction Area	Lining Thickness		Air Tube Cavity	Maximum Drum Diameter
								New	Worn		
4EB125	143019	44,1	1800	*	0,004	1,0	84	⑥	⑥	0,08	104
6EB200	143022	103	1800	0,1	0,11	3,2	232	4	2	0,16	155
8EB250	143117	251	1800	0,1	0,45	8,6	387	3	2	0,25	205

SI		N · m @ 5,2 bar	rpm	bar/rpm <sup>2</sup>	kg · m <sup>2</sup>	kg	cm <sup>2</sup>	millimeters	dm <sup>3</sup>	mm
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### Notes:

- ① Refers to basic part number only. When ordering, it must be specified which air entry hole, O or O<sub>4</sub> is to be used
- ② Dynamic torque shown, static torque approximately 25% greater. Torque in each application is dependent upon air pressure and speed.
- ③ American National Standard for Unified Screw Threads.
- ④ American National Pipe Thread.
- ⑤ Based upon minimum bores.
- ⑥ Lining molded into rubber tube. Complete element should be replaced when dimension H<sub>6</sub> is worn to 3.88 in (98 mm) diameter.
- ⑦ Drum contact with worn shoes.

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# Airflex® EB Elements

## Section C

Form EB 702 — Technical Data — Sizes 9 to 24



English		lb · in @ 75 psi	rpm	psi/rpm <sup>2</sup>	lb · ft <sup>2</sup>	lb	in <sup>2</sup>	inches		in <sup>3</sup>	in
9EB325	143274	3750	1800	1.6 E-06	1	9	88	0.20	0.06	30	9.09
10EB300	143119	4275	1800	2.2 E-06	1	10	91	0.20	0.06	47	10.09
12EB350	143122	7500	1800	3.4 E-06	3	16	126	0.20	0.06	45	12.09
14EB400	143126	12000	1500	4.3 E-06	5	23	167	0.20	0.06	55	14.09
16EB475	143129	18750	1300	6.4 E-06	11	40	232	0.26	0.06	195	16.13
19EB475	143131	27000	1100	10 E-06	20	49	270	0.26	0.06	235	19.13
21.5EB475	143134	36000	1000	13 E-06	34	62	306	0.26	0.06	280	21.63
24EB475	143137	45000	900	20 E-06	39	68	344	0.26	0.06	315	24.63

Size	Part Number	M. Torque Rating	Maximum Speed	C. Centrifugal Gain	Wk <sup>2</sup> J	Weight Mass	Friction Area	Lining Thickness		Max. Air Cavity	Max. Drum Diameter
								New	Worn		
9EB325	143274	424	1800	0,1 E-06	0,042	4,1	568	5	2	0,49	231
10EB300	143119	483	1800	0,2 E-06	0,042	4,5	587	5	2	0,77	256
12EB350	143122	848	1800	0,2 E-06	0,126	7,2	813	5	2	0,74	307
14EB400	143126	1360	1500	0,3 E-06	0,210	10	1077	5	2	0,90	358
16EB475	143129	2120	1300	0,4 E-06	0,462	18	1496	7	2	3,20	410
19EB475	143131	3050	1100	0,7 E-06	0,840	22	1742	7	2	3,85	486
21.5EB475	143134	4070	1000	0,9 E-06	1,43	28	1974	7	2	4,59	549
24EB475	143137	5090	900	1,4 E-06	1,64	31	2219	7	2	5,17	626

SI		N · m @ 5,2 bar	rpm	bar/rpm <sup>2</sup>	kg · m <sup>2</sup>	kg	cm <sup>2</sup>	millimeters		dm <sup>3</sup>	mm
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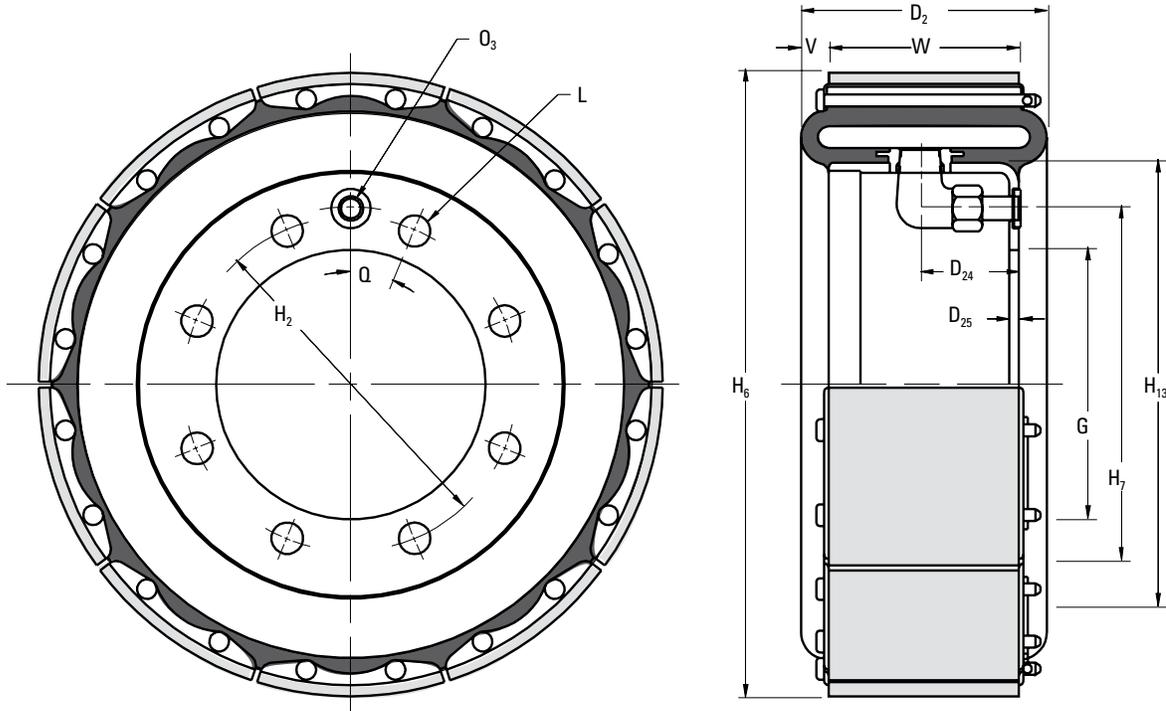
### Notes:

- ❶ Refers to basic part number only.
- ❷ Dynamic torque shown, static torque approximately 25% greater. Torque in each application is dependent upon air pressure and speed.
- ❸ Tolerances for sizes:  
9 thru 14  
+0.005/-0.000 in (0,13/-0,00 mm)  
16 thru 24  
+0.010/-0.000 in (0,25/-0,00 mm).
- ❹ Drum contact with worn shoes.

# Airflex® EB Elements

## Section C

Form EB 702 — Dimensional Data — Sizes 9 to 24



English		lb · in @ 75 psi	Dimensions in inches														
9EB325	143274	3750	4.13	1.86	0.19	3.500	4.62	8.84	4.62	6.00	8	0.50	0.31	22.5	0.44	9	3.25
10EB300	143119	4275	3.88	1.56	0.16	4.250	5.25	9.84	5.56	7.00	8	0.50	0.31	22.5	0.44	10	3.00
12EB350	143122	7500	4.38	1.88	0.19	6.250	7.25	11.84	7.56	9.00	12	0.50	0.31	15.0	0.44	12	3.50
14EB400	143126	12000	4.88	1.88	0.19	8.250	9.25	13.84	9.56	11.00	12	0.50	0.31	15.0	0.44	14	4.00
16EB475	143129	18750	6.38	2.50	0.25	8.250	9.63	15.81	9.62	11.38	8	0.50	0.38	22.5	0.81	12	4.75
19EB475	143131	27000	6.38	2.50	0.25	9.625	11.00	18.81	11.00	14.38	6	0.75	0.38	30.0	0.81	14	4.75
21.5EB475	143134	36000	6.38	2.50	0.31	12.125	13.50	21.31	13.50	16.88	8	0.75	0.38	22.5	0.81	16	4.75
24EB475	143137	45000	6.38	2.50	0.31	14.625	16.00	23.81	16.00	19.38	8	0.75	0.38	22.5	0.81	18	4.75

Size	Part Number	M <sub>T</sub> Torque Rating	D <sub>2</sub>	D <sub>24</sub>	D <sub>25</sub>	Q	H <sub>2</sub>	H <sub>6</sub>	H <sub>7</sub>	H <sub>13</sub>	L	O <sub>3</sub>	Q (Deg)	V	W	No.	Dia.	No.	Width
9EB325	143274	424	105	47	5	88,9	117	225	117	152	8	13	8	22,5	11	9	83		
10EB300	143119	483	99	40	4	108,0	133	250	141	178	8	13	8	22,5	11	10	76		
12EB350	143122	848	111	48	5	158,8	184	301	192	229	12	13	8	15,0	11	12	89		
14EB400	143126	1360	124	48	5	209,6	235	352	243	279	12	13	8	15,0	11	14	102		
16EB475	143129	2120	162	64	6	209,6	245	402	244	289	8	13	10	22,5	21	12	121		
19EB475	143131	3050	162	64	6	244,5	279	478	279	365	6	19	10	30,0	21	14	121		
21.5EB475	143134	4070	162	64	8	308,0	343	541	343	429	8	19	10	22,5	21	16	121		
24EB475	143137	5090	162	64	8	371,5	406	605	406	492	8	19	10	22,5	21	18	121		

SI **N · m**  
@ 5,2 bar Dimensions in millimeters

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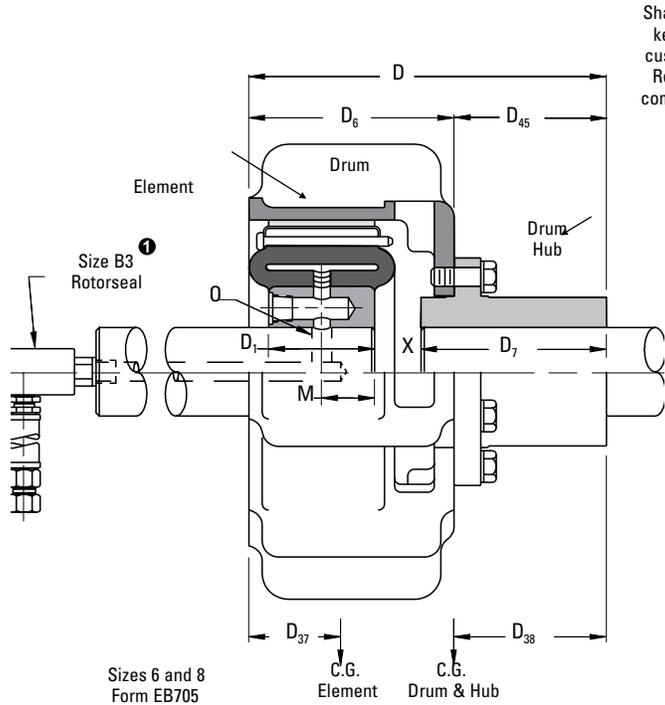
# Airflex® EB Clutch Application



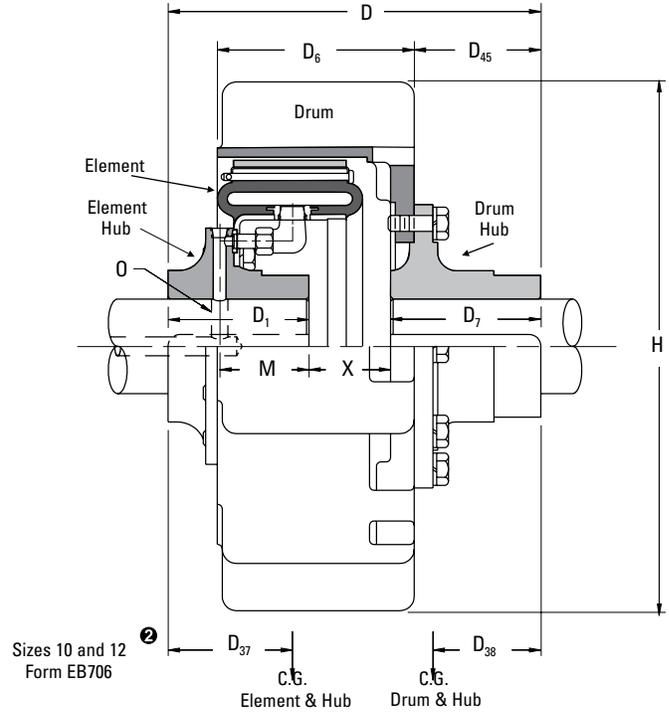
## Section C

Forms EB 705 and 706 — Coupling Mounting Arrangement —

Dimensional Data — Sizes 6 to 12



Shafts and keys by customer. Refer to component



English		lb · in @ 75 psi	Dimensions in inches													
6EB200	104305	910	25	0.88	1.75	6.75	2.00	3.88	3.50	1.4	3.4	2.87	9.00	1.00	0.38	0.88
8EB250	104306	2220	43	1.25	2.50	7.75	2.50	4.38	4.00	1.6	3.7	3.37	11.00	1.25	0.38	0.88
10EB300	105575	4275	63	1.50	2.50	10.00	3.75	5.25	4.00	2.6	4.3	3.38	14.00	2.38	0.44	2.25
12EB350	104307	7500	104	1.63	3.00	10.50	4.25	6.00	4.25	3.2	4.3	3.13	16.00	2.88	0.44	2.00

Size	Part Number	M <sub>r</sub> Torque Rating	Weight Mass	Bore Range		D	D <sub>1</sub>	D <sub>6</sub>	D <sub>7</sub>	D <sub>37</sub>	D <sub>38</sub>	D <sub>45</sub>	H	M	O	X
				Min.	Max.											
6EB200	104305	103	11	22	44	171	51	99	89	36	86	73	229	25	10	22
8EB250	104306	250	19	32	64	197	64	111	102	41	94	86	279	32	10	22
10EB300	105575	480	29	38	64	254	95	133	102	66	109	86	356	60	11	57
12EB350	104307	850	47	41	76	267	108	152	108	81	109	80	406	73	11	51

SI		N · m @ 5,2 bar	kg	Dimensions in millimeters													
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### Notes:

- ① Refer to Rotorseal Section for mounting and dimension information.
- ② For larger sizes, it is recommended that the E product line be used. See Form E604.
- ③ Refers to basic part number only and does not include the rotorseal and hose.

④ Dynamic torque shown, static torque approximately 25% greater. Torque in each application is dependent upon air pressure and speed.

⑤ Based upon minimum bores. Rotorseal and hose not included.

# Airflex® EB Clutch Application

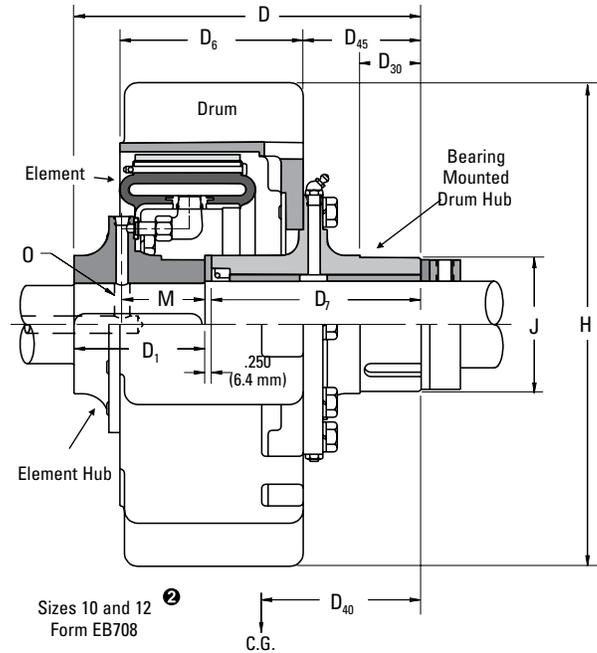
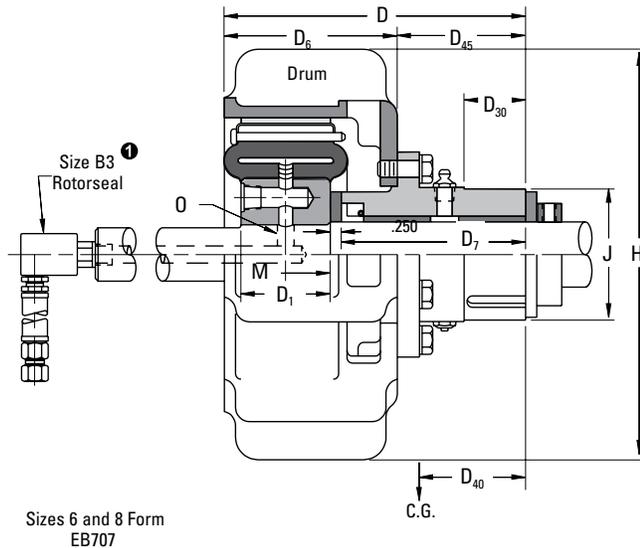
## Section C

Forms EB 707 and 708 — Bearing Arrangement — Dimensional Data —

Sizes 6 to 12



Shaft and keys by customer.  
Refer to component catalog pages for component details.



English		lb · in @ 75 psi	lb	Dimensions in inches											
6EB200	106914	910	25	0.88	1.75	6.75	2.00	3.88	4.13	1.38	3.8	9.00	2.875	1.00	0.38
8EB250	106915	2200	49	1.25	2.50	7.75	2.50	4.38	4.63	1.88	4.3	11.00	3.875	1.25	0.38
10EB300	106935	4275	69	1.50	2.50	10.00	3.75	5.25	6.00	1.75	5.4	14.00	3.875	2.38	0.44
12EB350	106936	7500	110	1.63	3.00	10.50	4.25	6.00	6.00	1.63	5.7	16.00	4.875	4.25	0.44

Size	Part Number	M, Torque Rating	Weight Mass	Bore Range		D	D <sub>1</sub>	D <sub>6</sub>	D <sub>7</sub>	D <sub>30</sub>	D <sub>40</sub>	H	J <sub>MAX</sub>	M	O
				Min.	Max.										
6EB200	106914	103	11	22	44	171	51	99	105	35	97	229	73,0	25	10
8EB250	106915	249	22	32	64	197	64	111	118	48	109	279	98,4	32	10
10EB300	106935	483	31	38	64	254	95	133	152	44	137	356	98,4	60	11
12EB350	106936	848	50	41	76	267	108	152	152	41	145	406	123,8	108	11

SI		N · m @ 5,2 bar	kg	Dimensions in millimeters											
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### Notes:

- ① Refer to Rotorseal Section for mounting and dimension information.
- ② For larger sizes, it is recommended that the E product line be used. See Form E604.
- ③ Refers to basic part number only and does not include the rotorseal and hose.
- ④ Dynamic torque shown, static torque approximately 25% greater. Torque in each application is dependent upon air pressure and speed.
- ⑤ Based upon minimum bores. Rotorseal and hose not included.

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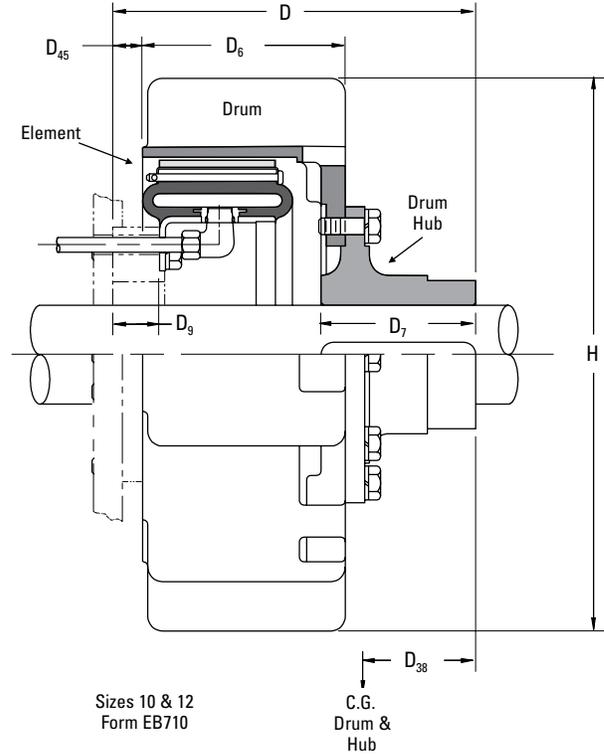
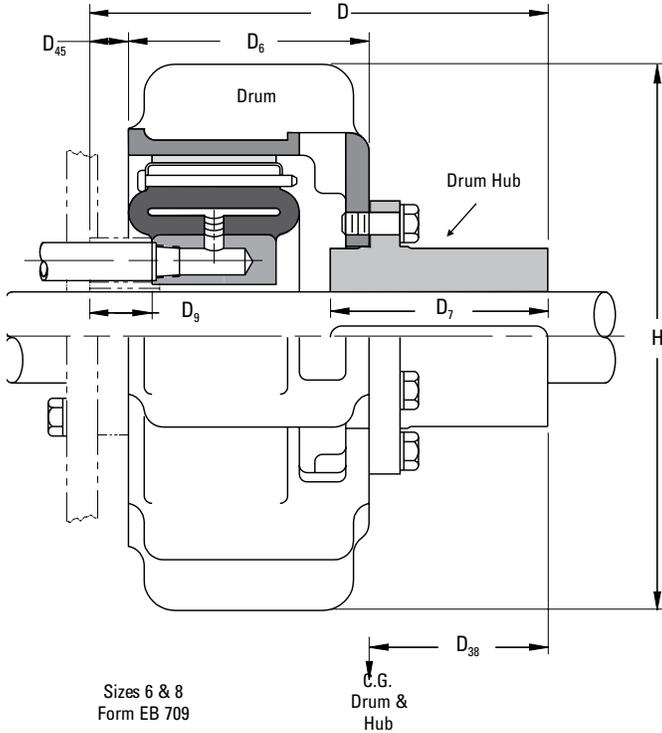
# Airflex® EB Brake Application

## Section C

Forms EB 709 and 710 — Dimensional Data — Sizes 6 to 12



Shaft, key, and reaction members by customer.  
Refer to component catalog pages  
for component details.



English		lb · in @ 75 psi	lb	Dimensions in inches								
6EB200	104308	910	25	0.88	1.75	7.38	3.88	3.50	1.00	3.25	0.63	9.00
8EB250	104309	2220	48	1.25	2.50	8.38	4.38	4.00	1.00	3.50	0.63	11.00
10EB300	104310	4275	51	1.50	2.50	9.38	5.25	4.00	1.13	4.00	0.75	14.00
12EB350	104311	7500	80	1.63	3.00	9.88	6.00	4.25	1.06	4.00	0.75	16.00

Size	① Part Number	② M <sub>t</sub> Torque Rating	Weight Mass <sup>③</sup>	Bore Range		D	D <sub>6</sub>	D <sub>7</sub>	D <sub>9</sub>	D <sub>38</sub>	D <sub>45</sub>	H
				Min.	Max.							
6EB200	104308	103	11	22	44	187	99	89	25	83	16	229
8EB250	104309	251	22	32	64	213	111	102	25	89	16	279
10EB300	104310	483	23	38	64	238	133	102	29	102	19	356
12EB350	104311	848	36	41	76	251	152	108	27	102	19	406

SI		N · m @ 5,2 bar	kg	Dimensions in millimeters								
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### Notes:

- ① Refers to basic part number only.
- ② Dynamic torque shown, static torque approximately 25% greater.  
Torque in each application is dependent upon air pressure and speed.
- ③ Based upon minimum bores.