ENGINEERING
TOMORROW

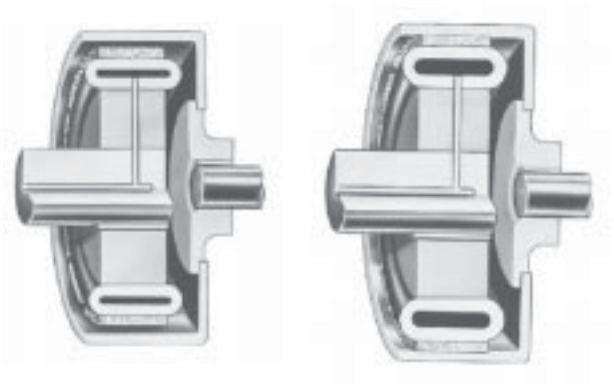
Airflex® Expanding Type Clutches and Brakes

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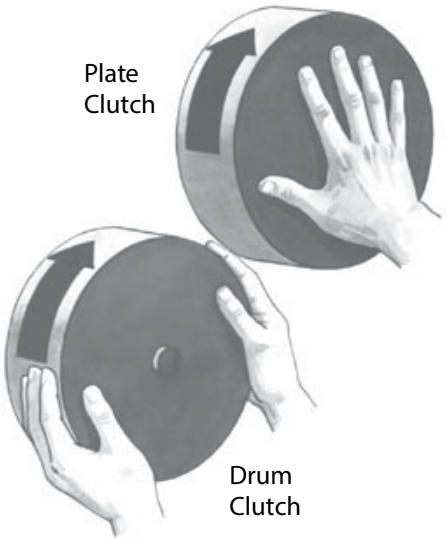
Airflex® Expanding Features

How They Work

E, EB, ER and VE elements utilize a rugged tire-like neoprene and cord tube that expands radially outward when pressur - ized. 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.

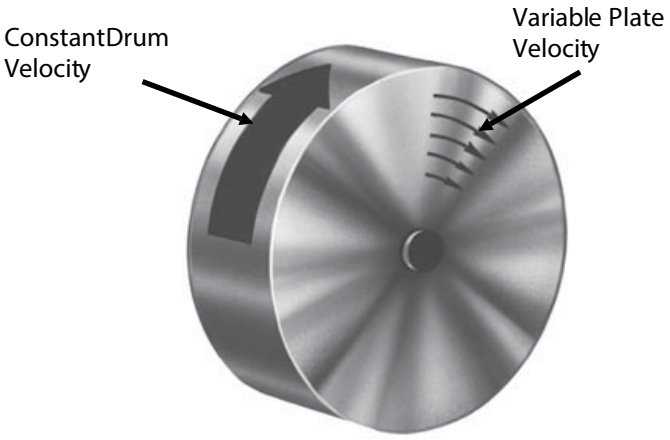


Design Features



- **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.



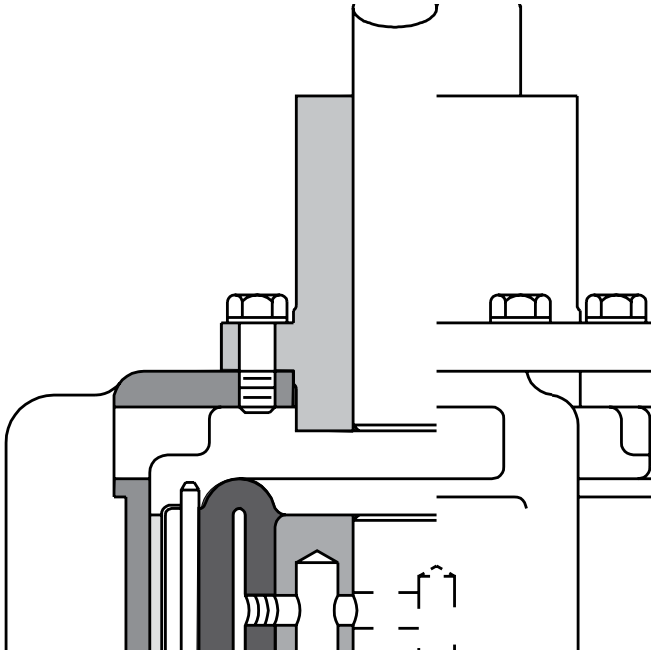
- **Uniform contact velocity**

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.

Airflex® Expanding Features

- **Heat Dissipation**

Heat, generated at the inner drum surface, is quickly con - ducted 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**

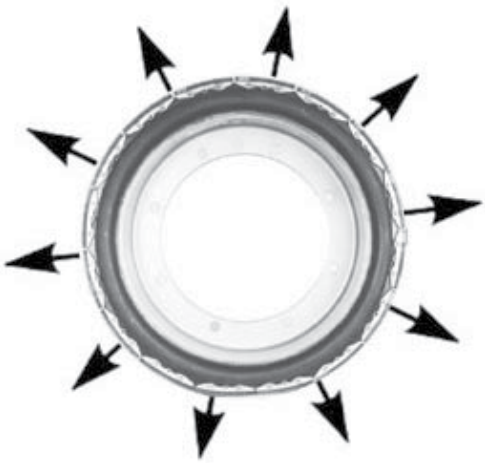
Drum design permits operation in any plane. A plate type unit operates best in a vertical plane.

- **Self-adjustment**

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

- **No lubrication**

There are no close fitting sliding components which require lubrication.



Airflex® E and VE Construction



E Elemen t



VE Element

E and VE Construction

Type E and VE elements combine rugged design and rigid construction features which make them ideal for moderate to heavy duty clutch and brake service. They are suited for medium speed cyclic applications which are subject to large thermal loads. When used with an air agitating ventilated drum they provide excellent slip clutch and tension brake service.

A neoprene rubber and cord tube is contained by two side housings. Friction shoes are held in position on the tube periphery by leaf springs which pass through the shoe back plates and side housings. The springs counteract centrifugal force acting on the shoes and insure shoe disengagement. Torque is transmitted by torque bars which are held in position by the side housings. 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 element's operating speed determines the spring force required to retract the shoes upon tube exhaust. When a large spring force is required, side housings with reinforced spring slots are furnished

The VE element differs from the E element in that the VE side housings and friction shoe backing plates have open construction and ventilating features which permits a greater flow of cooling air and greater heat dissipation.

Element torque is dependent upon the applied pressure, release spring force and speed. Catalog ratings are given at 75 psi (5,2 bar) and zero rpm. Maximum recommended pressure is 125 psi (8,6 bar). Adjustment for operating pressure, spring force and speed is explained under Selection Procedure.

E elements are available in 10 sizes; VE elements in 3 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 16E475 is designed to expand to a 16 inch diameter drum and has a friction lining width of 4.75 inches. The smallest E element will expand to a 12 inch (305 mm) diameter drum and the largest to a 40 inch (1016 mm) diameter drum.

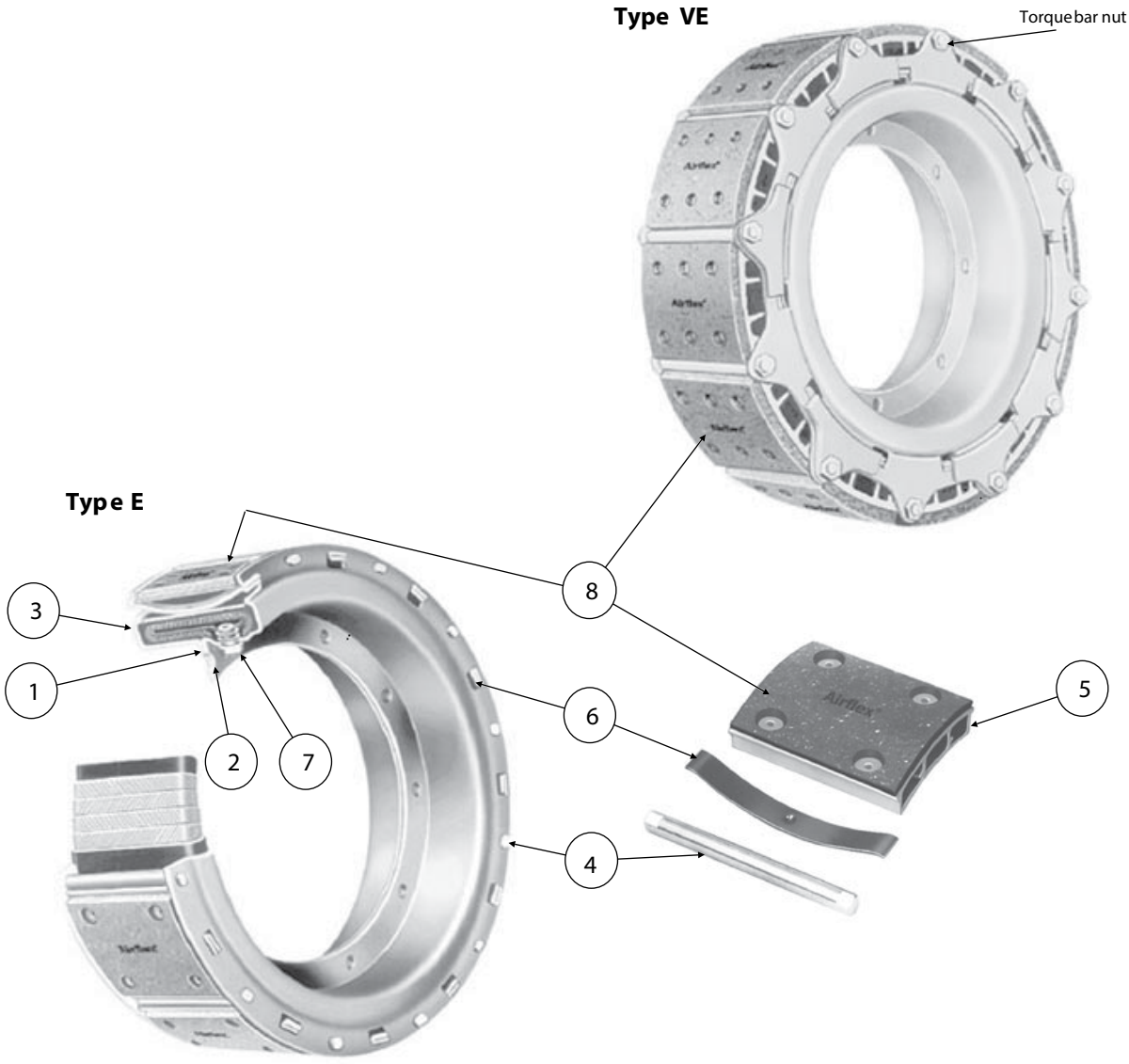
Two elements can be bolted to an adapter ring to form a dual element having twice the torque capacity of a single element.

E elements are available with split side housings. They are used in applications having limited axial access for element maintenance. Butt end actuating tubes are also available for replacement purposes.

Where used:

- Construction Equipment
- Marine Winches
- Metalworking Machinery
- Slip Clutches
- Tension Brakes

Airflex® E and VE Component Descriptions



Size	Torque Rating	
	English	**SI**
	lb · in @75 psi	**N · m @ 5, 2 bar**
12E475	11300	1280
14E475	16000	1810
16E475	21500	2430
19E475	31500	3560
21.5E475	40500	4580
24E475	52000	5880
27E475	67000	7570
30E600	106000	12000
34E600	137000	15500
40E700	225000	25400
19VE475	25500	2880
24VE475	45200	5110
27VE475	58500	6610

Item	Component Description
1	Housing half
2	Housing half with valve hole
3	Tube
4	Torque bar (nuts required for VE)
5	Friction shoe assembly
6	Release spring
7	Tube nut
8	Friction block & rivet kit
4, 5, 6	Torque bars, friction shoes & release springs kit

Airflex® Single E Elements

Form E 601 — Technical Data — Sizes 12 to 40

English		lb · in @75psi	rpm	psi/rpm ^{2}	lb · ft ^{2}	lb	in ^{2}	in	in	in ^{3}	in
12E475	142314	11300	1800	1.0 E-06	5	25	151	0.18	0.06	50	12.09
14E475	142213	16000	1500	1.2 E-06	8	32	139	0.37	0.18	55	14.09
16E475	142214	21500	1300	1.3 E-06	14	42	167	0.37	0.18	70	16.09
19E475	142215	31500	1100	2.1 E-06	26	53	202	0.37	0.18	85	19.13
21.5E475	142395	40500	975	2.4 E-06	39	60	236	0.37	0.18	100	21.63
24E475	142216	52000	875	2.2 E-06	56	67	257	0.37	0.18	110	24.13
27E475	142334	67000	775	2.4 E-06	79	75	289	0.37	0.18	125	27.18
30E600	142336	106000	700	4.1 E-06	160	125	434	0.37	0.18	175	30.18
34E600	142335	137000	620	4.3 E-06	261	156	496	0.37	0.18	310	34.18
40E700	142452	225000	525	9.1 E-06	520	174	864	1.25	1.06	315	40.18
Size	❶ Part Number	❷❻ M_r Torque Rating	❼ Maximum Speed	C_s Centrifugal Gain Constant	Wk ^{2} J	Weight Mass	Friction Area	Lining Thickness		❺ Air Tube Cavity	Maximum Drum Diameter
								New	**Worn**		
12E475	142314	1280	1800	0,1 E-06	0,21	11	974	5	2	0,82	307
14E475	142213	1810	1500	0,1 E-06	0,34	14	897	9	5	0,90	358
16E475	142214	2430	1300	0,1 E-06	0,59	19	1077	9	5	1,15	409
19E475	142215	3560	1100	0,1 E-06	1,09	24	1303	9	5	1,39	486
21.5E475	142395	4580	975	0,2 E-06	1,64	27	1522	9	5	1,64	549
24E475	142216	5880	875	0,2 E-06	2,35	30	1658	9	5	1,80	613
27E475	142334	7570	775	0,2 E-06	3,32	34	1864	9	5	2,05	690
30E600	142336	12000	700	0,3 E-06	6,72	57	2799	9	5	2,87	767
34E600	142335	15500	620	0,3 E-06	10,96	71	3199	9	5	5,08	868
40E700	142452	25400	525	0,6 E-06	21,84	79	5573	32	27	5,17	1021
SI		N · m @ 5,2 bar	rpm	bar/rpm ^{2}	kg · m ^{2}	kg	cm ^{2}	mm	mm	dm ^{3}	mm

Notes:

❶ Refers to basic part number only. When ordering, the release spring force and type of friction linings must be specified.

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

❸ Tolerances for sizes:
12 thru 27
+0.010/-0.000 in (+0,25/-0,00 mm)
30 thru 40
+0.005/-0.000 in (+0,13/-0,00 mm)

❹ American National Pipe Thread

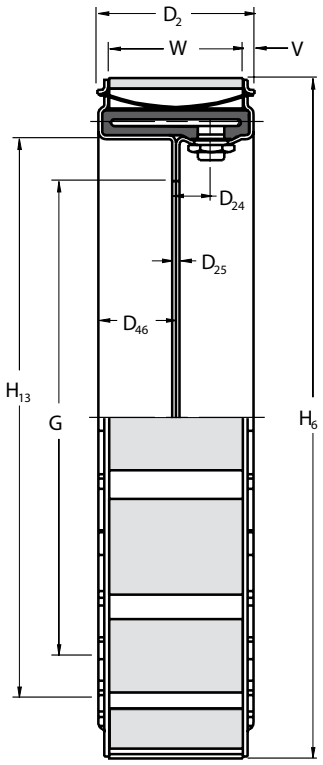
❺ Drum contact with worn shoes

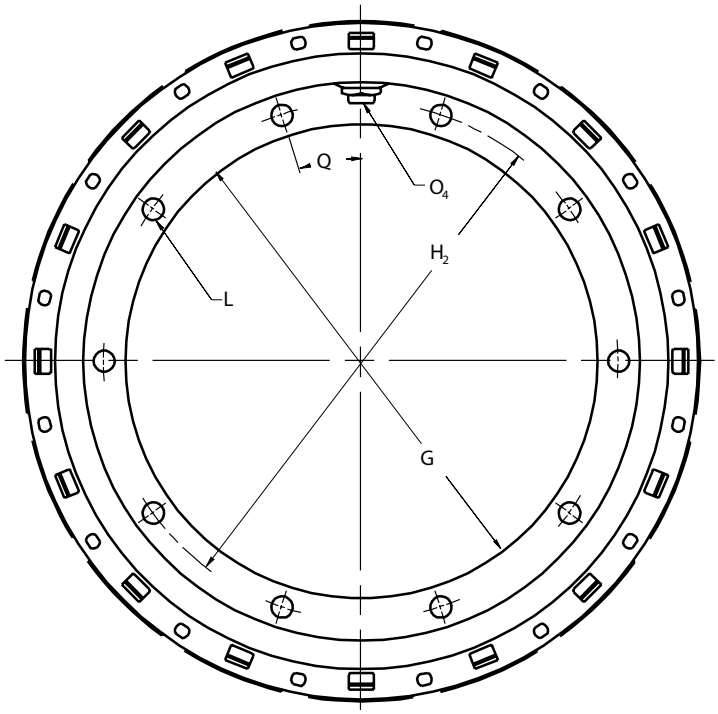
❻ Figures shown are with teflon or graphite slip linings. Multiply values by 1.5 for standard linings, and contact factory for possible need of reinforced housings.

❼ Refer to page C-42 for maximum idle RPM.

Airflex® Single E Elements

Form E 601 — Dimensional Data — Sizes 12 to 40





English		lb · in @ 75 psi	Dimensions in inches														
12E475	142314	11300	5.50	1.25	0.27	2.75	6.000	7.000	11.91	8.04	10	0.38	1/4-18	18.00	0.38	8	4.75
14E475	142213	16000	5.50	1.25	0.27	2.75	7.625	8.750	13.91	9.73	12	0.38	1/4-18	15.00	0.38	10	4.75
16E475	142214	21500	5.50	1.25	0.27	2.75	9.625	10.750	15.91	11.73	8	0.50	3/8-18	22.50	0.38	12	4.75
19E475	142215	31500	5.50	1.25	0.27	2.75	12.125	13.750	18.91	14.73	10	0.50	3/8-18	18.00	0.38	12	4.75
21.5E475	142395	40500	5.50	1.25	0.27	2.75	14.250	15.750	21.41	17.23	8	0.75	3/8-18	22.50	0.38	14	4.75
24E475	142216	52000	5.50	1.25	0.27	2.75	16.750	18.250	23.91	19.73	10	0.75	3/8-18	18.00	0.38	16	4.75
27E475	142334	67000	5.50	1.25	0.27	2.75	19.750	21.250	26.91	22.73	12	0.75	3/8-18	15.00	0.38	18	4.75
30E600	142336	106000	7.00	1.63	0.31	3.50	21.000	23.000	29.91	24.94	14	0.75	1/2-14	12.86	0.50	14	6.00
34E600	142335	137000	7.00	1.63	0.31	3.50	25.000	27.000	33.91	28.94	16	0.75	1/2-14	11.25	0.50	16	6.00
40E700	142452	225000	8.13	1.75	0.31	4.06	30.000	32.000	39.91	34.63	18	0.75	1/2-14	10.00	0.56	18	7.00
Size	❶ Part Number	❷❻ M_r Torque Rating	D_2	D_{24}	D_{25}	D_{46}	❸ G	H_2	H_6	H_{13}	L		❹ O_4	Q (Deg.)	V	W	
											No.	**Dia.**				**No.**	**Width**
12E475	142314	1280	140	32	7	70	152,4	177,8	303	204	10	10	1/4-18	18,00	10	8	121
14E475	142213	1810	140	32	7	70	193,7	222,3	353	247	12	10	1/4-18	15,00	10	10	121
16E475	142214	2430	140	32	7	70	244,5	273,1	404	298	8	13	3/8-18	22,50	10	12	121
19E475	142215	3560	140	32	7	70	308,0	349,3	480	374	10	13	3/8-18	18,00	10	12	121
21.5E475	142395	4580	140	32	7	70	362,0	400,1	544	438	8	19	3/8-18	22,50	10	14	121
24E475	142216	5880	140	32	7	70	425,5	463,6	607	501	10	19	3/8-18	18,00	10	16	121
27E475	142334	7570	140	32	7	70	501,7	539,8	684	577	12	19	3/8-18	15,00	10	18	121
30E600	142336	12000	178	41	8	89	533,4	584,2	760	633	14	19	1/2-14	12,86	13	14	152
34E600	142335	15500	178	41	8	89	635,0	685,8	861	735	16	19	1/2-14	11,25	13	16	152
40E700	142452	25400	206	44	8	103	762,0	812,8	1014	879	18	19	1/2-14	10,00	14	18	178
SI		N · m @ 5,2 bar	Dimensions in millimeters														

Airflex® Dual E Elements

Form E 603 — Technical Data — Sizes 12 to 34

English	lb · in @75psi	rpm	psi/rpm ^{2}	lb · ft ^{2}	lb	in ^{2}	in	in	in ^{3}	in
12E475	22600	1800	1.0 E-06	12	88	302	0.18	0.06	100	12.09
14E475	32000	1500	1.2 E-06	20	128	278	0.37	0.18	110	14.09
16E475	43000	1300	1.3 E-06	38	156	334	0.37	0.18	140	16.09
19E475	63000	1100	2.1 E-06	79	212	404	0.37	0.18	170	19.13
21.5E475	81000	975	2.4 E-06	118	236	472	0.37	0.18	200	21.63
24E475	104000	875	2.2 E-06	202	321	514	0.37	0.18	220	24.13
27E475	134000	775	2.4 E-06	302	384	578	0.37	0.18	250	27.18
30E600	212000	700	4.1 E-06	567	603	868	0.37	0.12	350	30.18
34E600	274000	620	4.3 E-06	964	765	992	0.37	0.12	620	34.18
Size	❶❻ M_r Torque Rating	❽ Maximum Speed	C_s Centrifugal Gain Constant	Wk ^{2} J ❹	Weight Mass	Friction Area	LiningThickness New	LiningThickness Worn	❺ Air Tube Cavity	Maximum Drum Diameter
12E475	2550	1800	0,1 E-06	0,50	40	1948	5	2	1,64	307
14E475	3620	1500	0,1 E-06	0,84	58	1793	9	5	1,80	358
16E475	4860	1300	0,1 E-06	1,60	71	2154	9	5	2,30	409
19E475	7120	1100	0,1 E-06	3,32	96	2606	9	5	2,79	486
21.5E475	9150	975	0,2 E-06	4,96	107	3044	9	5	3,28	549
24E475	11800	875	0,2 E-06	8,48	145	3315	9	5	3,61	613
27E475	15100	775	0,2 E-06	12,68	174	3728	9	5	4,10	690
30E600	24000	700	0,3 E-06	23,81	273	5599	9	3	5,74	767
34E600	31000	620	0,3 E-06	40,49	347	6398	9	3	10,2	868
SI	N · m @ 5,2 bar	rpm	bar/rpm ^{2}	kg · m ^{2}	kg	cm ^{2}	mm	mm	dm ^{3}	mm

Notes:

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

❷ Tolerance +0.005/-0.000 (+0,13/-0,00 mm)

❸ Refer to Form E613. Integral adapter hub used which is bored and keyed for direct shaft mounting.

❹ Includes two elements and dual adapter.

❺ Drum contact with worn shoes.

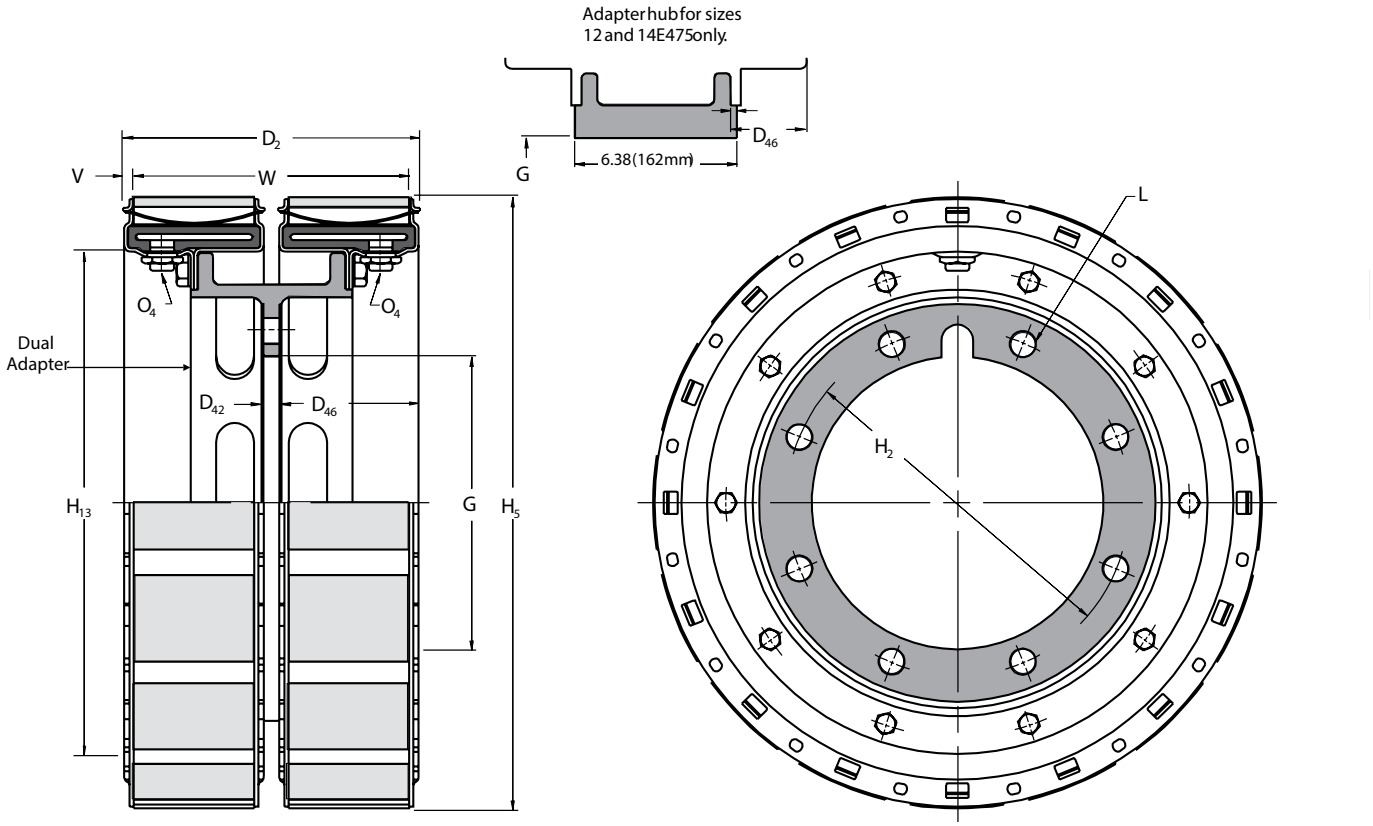
❻ Figures shown are with teflon or graphite slip linings. Multiply values by 1.5 for standard linings, and contact factory for possible need of reinforced housings.

❼ American National Pipe Thread Size 40 has four inlet valves.

❽ Refer to page C-42 for maximum idle RPM.

Airflex® Dual E Elements

Form E 603 — Dimensional Data — Sizes 12 to 34

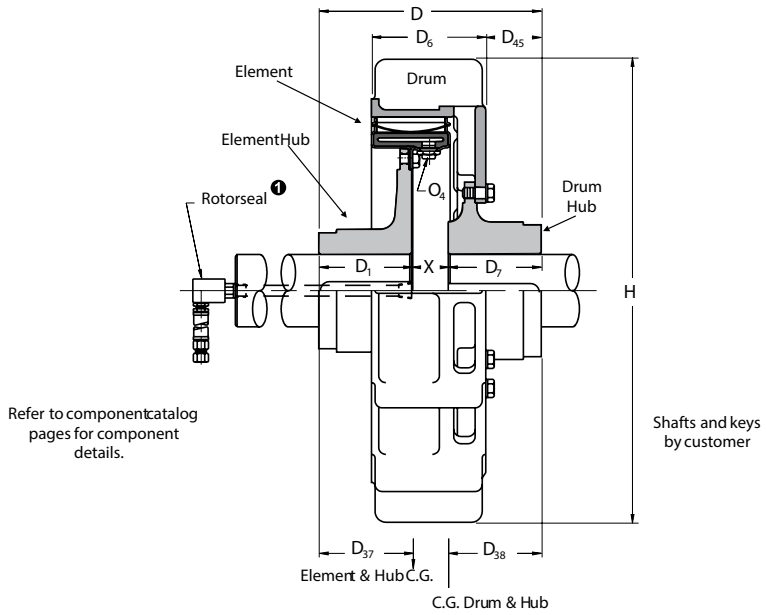


English	lb · in @ 75 psi	Dimensions in inches												
12E475	22600	11.75	N/A	N/A	❸	❸	11.91	8.40	N/A	N/A	1/4-18	0.38	16	11.00
14E475	32000	11.75	N/A	N/A	❸	❸	13.91	9.73	N/A	N/A	1/4-18	0.38	20	11.00
16E475	43000	11.63	0.50	5.56	5.500	6.750	15.91	11.73	8	0.78	3/8-18	0.38	24	10.88
19E475	63000	11.63	0.50	5.56	8.000	9.500	18.91	14.73	10	0.78	3/8-18	0.38	24	10.88
21.5E475	81000	11.63	0.63	5.50	9.625	11.000	21.41	17.23	6	0.78	3/8-18	0.38	28	10.88
24E475	104000	11.63	0.63	5.50	11.500	13.500	23.91	19.73	8	1.03	3/8-18	0.38	32	10.88
27E475	134000	11.63	0.63	5.50	14.625	16.000	26.91	22.73	8	0.78	3/8-18	0.38	36	10.88
30E600	212000	14.81	0.75	7.03	15.000	17.000	29.91	24.94	12	1.03	1/2-14	0.50	28	13.81
34E600	274000	14.81	0.75	7.03	19.000	21.000	33.91	28.94	12	1.03	1/2-14	0.50	32	13.81
Size	❶❻ M_r Torque Rating	D_2	D_{42}	D_{46}	❷ G	H_2	H_6	H_{13}	L		❹ O_4	V	W	
									No.	**Dia.**			**No.**	**Width**
12E475	2550	298	N/A	N/A	❸	❸	303	213	N/A	N/A	1/4-18	10	16	279
14E475	3620	298	N/A	N/A	❸	❸	353	247	N/A	N/A	1/4-18	10	20	279
16E475	4860	295	13	141	139,7	171,5	404	298	8	20	3/8-18	10	24	276
19E475	7120	295	13	141	203,2	241,3	480	374	10	20	3/8-18	10	24	276
21.5E475	9150	295	16	140	244,5	279,4	544	438	6	20	3/8-18	10	28	276
24E475	11800	295	16	140	292,1	342,9	607	501	8	26	3/8-18	10	32	276
27E475	15100	295	16	140	371,5	406,4	684	577	8	20	3/8-18	10	36	276
30E600	24000	376	19	179	381,0	431,8	760	633	12	26	1/2-14	13	28	351
34E600	31000	376	19	179	482,6	533,4	861	735	12	26	1/2-14	13	32	351
SI	N · m @ 5,2 bar	Dimensions in millimeters												

Airflex® E Clutch Application

Form E 604 — Coupling Arrangement — Dimensional Data Sizes

12 to 40



English	lb · in @75psi		lb	Dimensions in inches													
12E475	11300	B3	150	1.50	2.50	1.50	2.75	10.25	3.75	8.00	3.75	3.20	4.12	1.25	18.00	1/4-18	2.75
14E475	16000	B3	183	1.50	3.00	1.50	3.00	10.75	3.75	8.00	4.25	3.21	4.30	1.75	20.00	1/4-18	2.75
16E475	21500	B3	237	1.75	3.50	1.75	3.25	12.00	4.25	8.00	5.00	3.72	4.70	3.50	22.00	3/8-18	2.75
19E475	31500	B3	327	2.25	4.50	2.25	4.75	14.44	5.75	8.00	6.00	4.60	5.10	4.50	25.00	3/8-18	2.68
21.5E475	40500	B3	383	2.25	4.50	2.75	4.75	14.44	5.75	8.00	6.00	4.75	5.20	3.50	29.50	3/8-18	2.68
24E475	52000	B3	514	3.00	6.50	2.75	5.25	18.06	6.50	8.00	9.00	5.19	5.33	6.37	32.00	3/8-18	2.68
27E475	67000	B3	580	2.75	5.25	2.75	5.50	16.56	6.50	8.00	7.50	5.30	6.21	4.87	35.00	3/8-18	2.56
30E600	106000	C2	740	2.75	5.50	2.75	5.50	17.31	6.50	9.75	7.50	5.60	6.04	4.62	38.00	1/2-14	3.31
34E600	137000	C2	947	3.00	6.00	3.00	6.00	20.31	8.00	9.75	9.00	6.90	7.07	6.12	42.00	1/2-14	3.31
40E700	225000	C2	1592	3.75	7.00	3.75	7.00	22.75	9.00	10.75	10.00	8.13	7.50	7.12	48.00	1/2-14	3.75

Size	❷❺ Mr Torque Rating	❶ Rotor seal Size	❸ Weight Mass	Drum Hub Bore		Element Hub Bore		D	D_1	D_6	D_7	D_{37}	D_{38}	D_{45}	H	❹ O_4	X
				Min.	**Max.**	**Min.**	**Max.**										
12E475	1280	B3	68	38	64	38	70	260	95	203	95	81	105	32	457	1/4-18	70
14E475	1810	B3	83	38	76	38	76	273	95	203	108	82	109	44	508	1/4-18	70
16E475	2430	B3	107	44	89	44	83	305	108	203	127	94	119	89	559	3/8-18	70
19E475	3560	B3	148	57	114	57	121	367	146	203	152	117	130	114	635	3/8-18	68
21.5E475	4580	B3	173	57	114	70	121	367	146	203	152	121	132	89	749	3/8-18	68
24E475	5880	B3	233	76	165	70	133	459	165	203	229	132	135	162	813	3/8-18	68
27E475	7570	B3	263	70	133	70	140	421	165	203	191	135	158	124	889	3/8-18	65
30E600	12000	C2	335	70	140	70	140	440	165	248	191	142	153	117	965	1/2-14	84
34E600	15500	C2	429	76	152	76	152	516	203	248	229	175	180	155	1067	1/2-14	84
40E700	25400	C2	721	95	178	95	178	578	229	273	254	207	191	181	1219	1/2-14	95
SI	N · m @ 5,2 bar	kg	Dimensions in millimeters														

Notes:

❶ Refer to Rotorseal Section for mounting and dimension info.

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

❸ Total weight or mass with minimum hub bores. Rotorseal and hose not included.

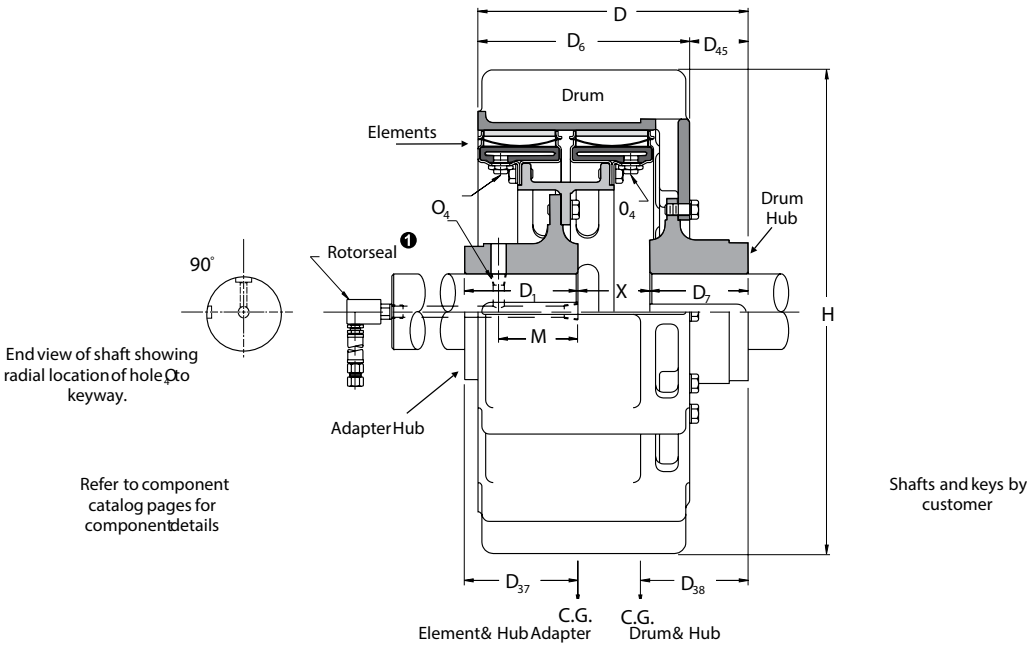
❹ American National Pipe Thread.

❺ Figures shown are with teflon or graphite slip linings. Multiply values by 1.5 for standard linings, and contact factory for possible need of reinforced housings.

Airflex® E Clutch Application

Form E 605 — Coupling Arrangement — Dimensional Data

Sizes Dual 12 to Dual 34



English	lb · in @75psi		lb	Dimensions in inches												❺		
12E475	22600	B3	253	1.50	2.50	2.50	3.75	15.25	6.38	14.00	3.75	3.20	6.31	1.25	18.00	❺	1/4-18	2.50
14E475	32000	B3	349	1.50	3.00	2.50	3.75	15.75	6.38	14.00	4.25	3.20	6.43	1.75	20.00	❺	1/4-18	2.50
16E475	43000	B3	457	1.75	3.50	1.50	3.00	16.50	4.25	14.00	5.00	3.88	7.25	2.50	22.00	5.25	3/8-18	4.88
19E475	63000	C2	599	2.25	4.50	2.25	4.50	17.50	6.00	14.00	6.00	5.22	7.69	4.50	25.00	5.25	3/8-18	4.81
21.5E475	81000	C2	670	2.25	4.50	2.25	4.50	17.50	6.00	14.00	6.00	5.40	7.50	3.50	29.50	5.25	3/8-18	4.88
24E475	104000	C2	883	3.00	6.50	2.75	5.50	20.38	7.50	14.00	9.00	6.29	7.15	4.00	32.00	6.38	3/8-18	4.88
27E475	134000	C2	1010	2.75	5.25	2.75	4.75	18.88	6.75	14.00	7.50	6.14	8.62	4.88	35.00	5.25	3/8-18	4.75
30E600	212000	C2	1496	2.75	5.50	2.75	5.50	22.38	7.50	17.75	7.50	6.83	9.13	4.63	38.00	6.44	1/2-14	6.72
34E600	274000	3/4 RH	1747	3.00	6.00	2.75	5.50	23.88	7.50	17.75	9.00	7.01	10.88	6.13	42.00	6.44	1/2-14	6.72
Size	❷❻ Mr Torque Rating	❶ Rotor seal Size	Weight / Mass	Drum Hub Bore		Adapter Hub Bore		D	D_1	D_6	D_7	D_{37}	D_{38}	D_{45}	H	M	❹ O_4	X
				Min.	**Max.**	**Min.**	**Max.**											
12E475	2550	B3	115	38	64	64	95	387	162	356	95	81	160	32	457	❺	1/4-18	64
14E475	3620	B3	158	38	76	64	95	400	162	356	108	81	163	44	508	❺	1/4-18	64
16E475	4860	B3	207	44	89	38	76	419	108	356	127	99	184	64	559	133	3/8-18	124
19E475	7120	C2	271	57	114	57	114	445	152	356	152	133	195	114	635	133	3/8-18	122
21.5E475	9150	C2	304	57	114	57	114	445	152	356	152	137	191	89	749	133	3/8-18	124
24E475	11800	C2	400	76	165	70	140	518	191	356	229	160	182	102	813	162	3/8-18	124
27E475	15100	C2	458	70	133	70	121	480	171	356	191	156	219	124	889	133	3/8-18	121
30E600	24000	C2	678	70	140	70	140	568	191	451	191	173	232	118	965	164	1/2-14	171
34E600	31000	3/4 RH	791	76	152	70	140	607	191	451	229	178	276	156	1067	164	1/2-14	171
SI	N · m @ 5,2 bar		kg	Dimensions in millimeters														

Notes:

❶ Refer to Rotorseal Section for mounting and dimension info.

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

❸ Total weight or mass with minimum hub bores. Rotorseal and hose not included.

❹ American National Pipe Thread.

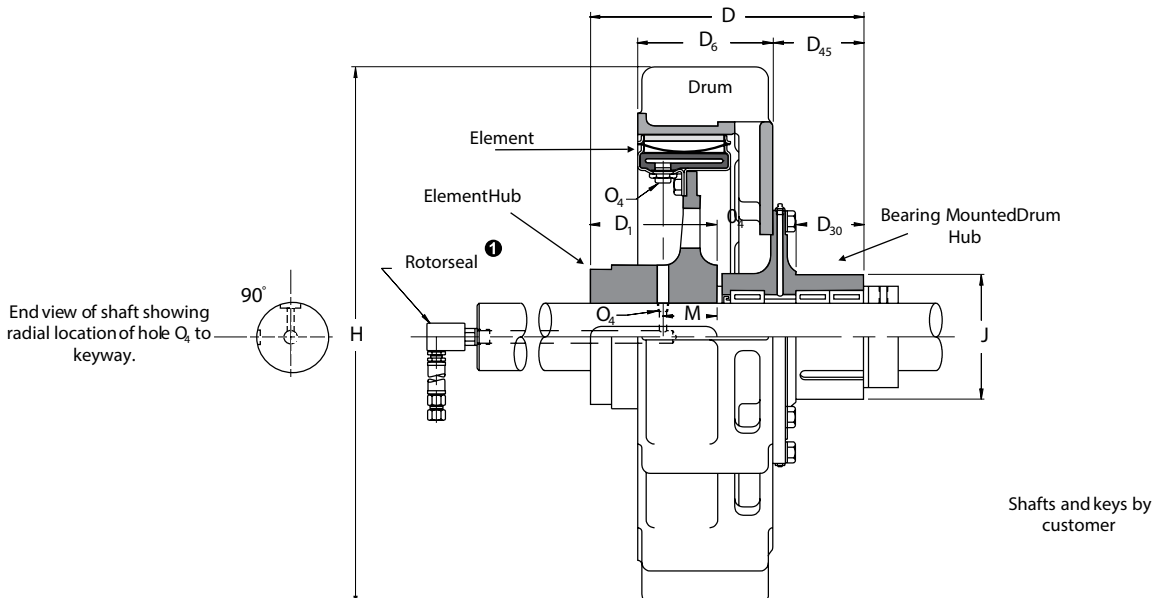
❺ Locate radial shaft hole just beyond element hub.

❻ Figures shown are with teflon or graphite slip linings. Multiply values by 1.5 for standard linings, and contact factory for possible need of reinforced housings.

Airflex® E Clutch Application

Form E 606 — Bearing Mounted Arrangement — Dimensional Data

Sizes 12 to 40



English	lb · in @ 75 psi	lb	Dimensions in inches										
	11300	165	B3	1.50	2.19	10.81	4.75	8.00	1.25	2.63	18.00	3.875	❹	1/4-18
14E475	16000	210	B3	1.50	3.00	11.31	4.75	8.00	1.75	3.13	20.00	5.875	❹	1/4-18
16E475	21500	275	B3	1.75	3.50	12.44	5.25	8.00	2.50	3.88	22.00	5.875	3.16	3/8-18
19E475	31500	390	B3	2.25	4.50	14.94	6.75	8.00	3.50	4.88	25.00	6.875	3.25	3/8-18
21.5E475	40500	450	B3	2.25	4.50	14.94	6.75	8.00	3.50	4.88	29.50	6.875	3.19	3/8-18
24E475	52000	650	B3	3.00	5.00	16.19	7.50	8.00	4.00	5.38	32.00	7.375	3.31	3/8-18
27E475	67000	700	B3	2.75	5.25	17.19	7.50	8.00	4.88	6.38	35.00	8.375	3.31	3/8-18
30E600	106000	900	C2	2.75	5.50	18.19	7.50	9.75	4.88	6.38	38.00	8.875	3.75	1/2-14
34E600	137000	1160	C2	3.00	6.00	21.19	9.00	9.75	6.38	7.88	42.00	9.375	3.75	1/2-14
40E700	225000	1920	C2	5.00	7.00	23.63	10.00	10.75	7.38	8.88	48.00	10.875	3.88	1/2-14
Size	❷❻ M, Torque Rating	❸ Weight — Mass	❶ Rotor seal Size	Bore Range		D	D_1	D_6	D_{30}	D_{45}	H	J_{MAX}	M	❺ O_4
				Min.	**Max.**									
12E475	1280	75	B3	38	56	275	121	203	32	67	457	98,4	❹	1/4-18
14E475	1810	95	B3	38	76	287	121	203	44	80	508	149,2	❹	1/4-18
16E475	2430	125	B3	44	89	316	133	203	64	99	559	149,2	80	3/8-18
19E475	3560	177	B3	57	114	379	171	203	89	124	635	174,6	83	3/8-18
21.5E475	4580	204	B3	57	114	379	171	203	89	124	749	174,6	81	3/8-18
24E475	5880	294	B3	76	127	411	191	203	102	137	813	187,3	84	3/8-18
27E475	7570	317	B3	70	133	437	191	203	124	162	889	212,7	84	3/8-18
30E600	12000	408	C2	70	140	462	191	248	124	162	965	225,4	95	1/2-14
34E600	15500	525	C2	76	152	538	229	248	162	200	1067	238,1	95	1/2-14
40E700	25400	870	C2	127	178	600	254	273	187	226	1219	276,2	99	1/2-14
SI	N · m @ 5,2 bar	kg	Dimensions in millimeters											

Notes:

❶ Refer to Rotorseal Section for mounting and dimension info.

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

❸ Total weight or mass with minimum hub bores. Rotorseal and hose not included.

❹ Locate radial shaft hole just beyond element hub.

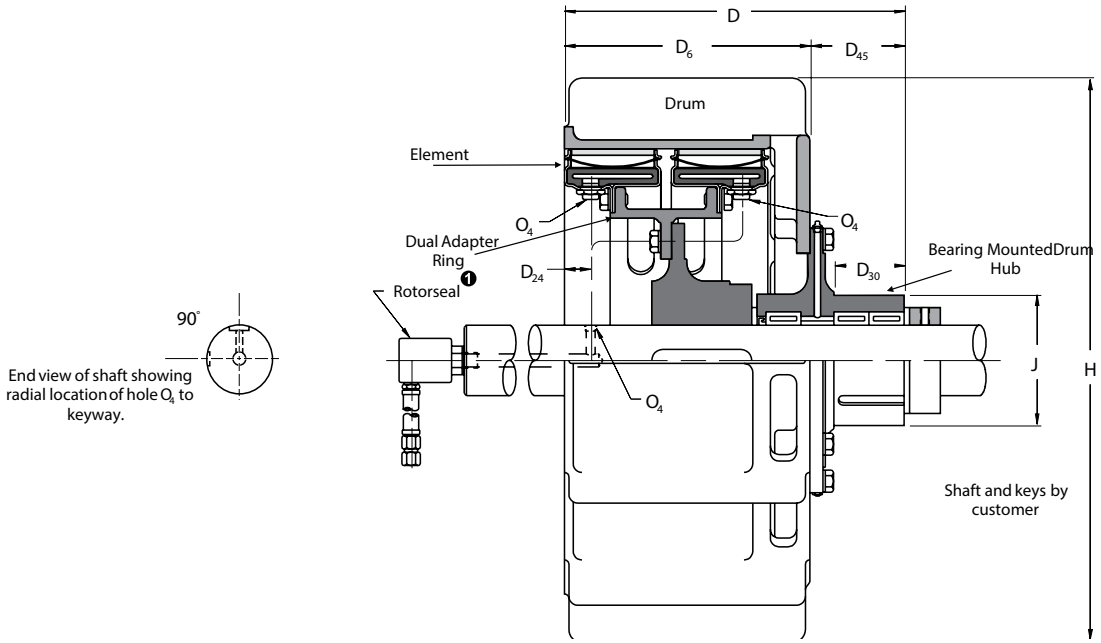
❺ American National Pipe Thread

❻ Figures shown are with slip linings. Multiply values by 1.5 for standard linings, and contact factory for possible need of reinforced housings.

Airflex® E Clutch Application

Form E 607 — Bearing Mounted Arrangement — Dimensional Data

Sizes Dual 12 to Dual 34



English	lb · in @ 75 psi	lb		Dimensions in inches									
12E475	22600	270	B3	1.50	2.19	16.63	14.00	1.47	1.25	2.63	18.00	3.875	1/4-18
14E475	32000	450	B3	1.50	3.38	17.13	14.00	1.47	1.75	3.13	20.00	5.875	1/4-18
16E475	43000	560	B3	1.75	3.50	17.88	14.00	1.47	2.50	3.88	22.00	5.875	3/8-18
19E475	63000	690	C2	2.25	4.75	18.88	14.00	1.50	3.50	4.88	25.00	6.875	3/8-18
21.5E475	81000	840	C2	2.75	4.75	18.88	14.00	1.50	3.50	4.88	29.50	6.875	3/8-18
24E475	104000	1080	C2	2.75	5.00	19.38	14.00	1.50	4.00	5.38	32.00	7.375	3/8-18
27E475	134000	1130	C2	2.75	6.00	20.38	14.00	1.50	4.88	6.38	35.00	8.375	3/8-18
30E475	212000	1660	C2	2.75	7.00	24.13	17.75	1.88	4.88	6.38	38.00	8.875	1/2-14
34E475	274000	1960	3/4 RH	3.00	7.00	25.63	17.75	1.88	6.38	7.88	42.00	9.375	1/2-14
Size	❷❺ M_r Torque Rating	❸ Weight / Mass	❶ Rotor seal Size	Bore Range		D	D_6	D_{24}	D_{30}	D_{45}	H	J_{MAX}	❹ O_4
				Min.	**Max.**								
12E475	2550	122	B3	38	56	422	356	37	32	67	457	98,4	1/4-18
14E475	3620	204	B3	38	86	435	356	37	44	80	508	149,2	1/4-18
16E475	4860	254	B3	44	89	454	356	37	64	99	559	149,2	3/8-18
19E475	7120	313	C2	57	121	480	356	38	89	124	635	174,6	3/8-18
21.5E475	9150	381	C2	70	121	480	356	38	89	124	749	174,6	3/8-18
24E475	11800	489	C2	70	127	492	356	38	102	137	813	187,3	3/8-18
27E475	15100	512	C2	70	152	518	356	38	124	162	889	212,7	3/8-18
30E475	24000	752	C2	70	178	613	451	48	124	162	965	225,4	1/2-14
34E475	31000	888	3/4 RH	76	178	651	451	48	162	200	1067	238,1	1/2-14
SI	N · m @ 5,2 bar	kg		Dimensions in millimeters									

Notes:

❶ Refer to Rotorseal Section for mounting and dimension info.

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

❸ Total weight or mass with minimum hub bores. Rotorseal and hose not included.

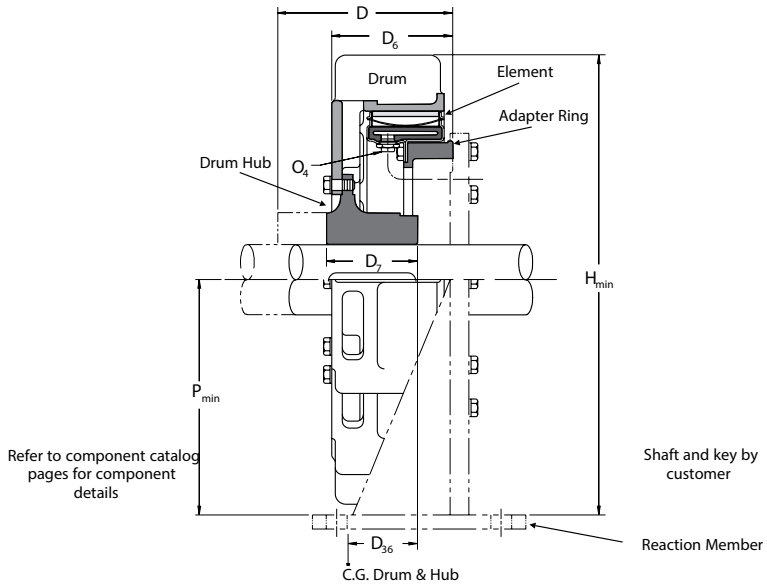
❹ American National Pipe Thread.

❺ Figures shown are with slip linings. Multiply values by 1.5 for standard linings, and contact factory for possible need of reinforced housings.

Airflex® E Brake Application

Form E 608 — Air-Cooled Arrangement — Dimensional Data

Sizes 12 to 40



English	lb · in @ 75 psi	lb	Dimensions in inches								
12E475	11300	151	1.50	2.50	9.81	8.56	3.75	3.79	18.50	1/4-18	9.50
14E475	16000	186	1.50	3.00	10.31	8.56	4.25	3.86	20.50	1/4-18	10.50
16E475	21500	238	1.75	3.50	11.06	8.56	5.00	3.92	22.50	3/8-18	11.50
19E475	31500	306	2.25	4.50	12.00	8.50	6.00	3.59	25.50	3/8-18	13.00
21.5E475	40500	379	2.25	4.50	12.06	8.56	6.00	3.47	30.25	3/8-18	15.50
24E475	52000	494	3.00	6.50	15.75	8.63	9.00	3.42	32.75	3/8-18	16.75
27E475	67000	573	2.75	5.25	13.50	8.63	7.50	3.39	35.75	3/8-18	18.25
30E600	106000	794	2.75	5.50	15.03	10.41	7.50	3.81	38.75	1/2-14	19.75
34E600	137000	1010	3.00	6.00	16.53	10.41	9.00	3.83	42.75	1/2-14	21.75
40E700	225000	1660	3.75	7.00	18.53	11.41	10.00	3.98	48.75	1/2-14	24.75
Size	❶❺ M_r Torque Rating	❷ Weight / Mass	Bore Range		❸ D	D_6	D_7	D_{38}	H	❹ O_4	P
			Min.	**Max.**							
12E475	1280	68	38	64	249	217	95	96	470	1/4-18	241
14E475	1810	84	38	76	262	217	108	98	521	1/4-18	267
16E475	2430	108	44	89	281	217	127	100	572	3/8-18	292
19E475	3560	139	57	114	305	216	152	91	648	3/8-18	330
21.5E475	4580	172	57	114	306	217	152	88	768	3/8-18	394
24E475	5880	224	76	165	400	219	229	87	832	3/8-18	425
27E475	7570	260	70	133	343	219	191	86	908	3/8-18	464
30E600	12000	360	70	140	382	264	191	97	984	1/2-14	502
34E600	15500	458	76	152	420	264	229	97	1086	1/2-14	552
40E700	25400	752	95	178	471	290	254	101	1238	1/2-14	629
SI	N · m @ 5,2 bar	kg	Dimensions in millimeters								

Notes:

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

❷ Total weight or mass with minimum hub bores.

❸ Maximum length with drum hub reverse mounted.

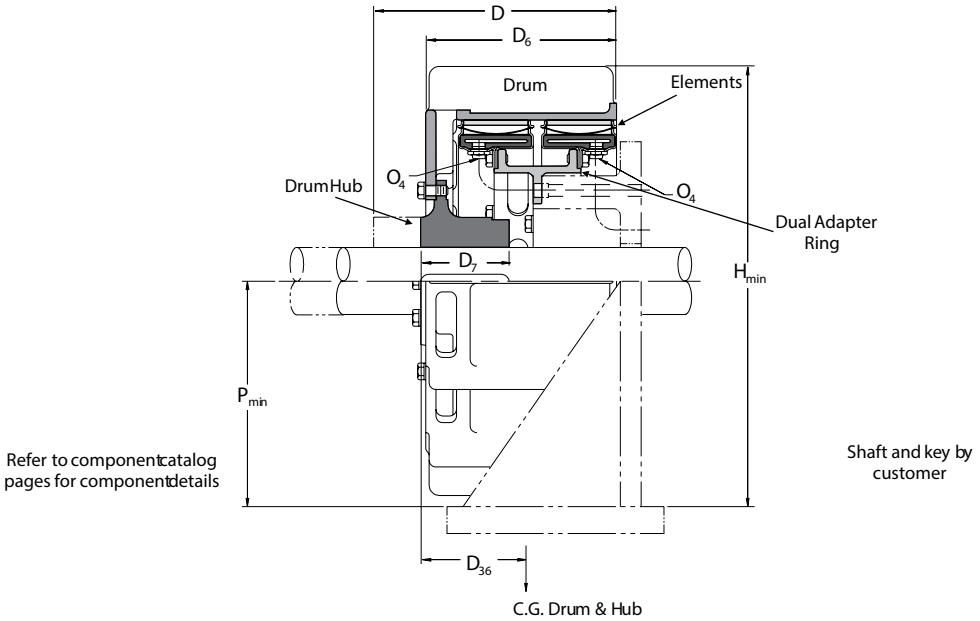
❹ American National Pipe Thread.

❺ Figures shown are with slip linings. Multiply values by 1.5 for standard linings, and contact factory for possible need of reinforced housings.

Airflex® E Brake Application

Form E 609 — Air-Cooled Arrangement — Dimensional Data

Sizes Dual 12 to Dual 34



English	lb · in @ 75 psi	lb	Dimensions in inches								
12E475	22600	253	1.50	2.50	15.25	14.00	3.75	3.52	18.50	1/4-18	9.50
14E475	32000	349	1.50	3.00	15.75	14.00	4.25	3.81	20.50	1/4-18	10.50
16E475	43000	429	1.75	3.50	16.50	14.00	5.00	4.35	22.50	3/8-18	11.50
19E475	63000	551	2.25	4.50	17.50	14.00	6.00	5.00	25.50	3/8-18	13.00
21.5E475	81000	608	2.25	4.50	17.50	14.00	6.00	5.02	30.25	3/8-18	15.50
24E475	104000	767	3.00	6.50	20.38	14.00	9.00	5.12	32.75	3/8-18	16.75
27E475	134000	934	2.75	5.25	18.88	14.00	7.50	6.01	35.75	3/8-18	18.25
30E600	212000	1363	2.75	5.50	22.38	17.75	7.50	6.35	38.75	1/2-14	19.75
34E600	274000	1622	3.00	6.00	23.88	17.75	9.00	7.17	42.75	1/2-14	21.75
40E700	450000	2788	3.75	7.00	27.13	20.00	10.00	7.71	48.75	1/2-14	24.75
Size	❶❺ M_r Torque Rating	❷ Weight / Mass	Bore Range		❸ D	D_6	D_7	D_{38}	H	❹ O_4	P
			Min.	**Max.**							
12E475	2550	115	38	64	387	356	95	89	470	1/4-18	241
14E475	3620	158	38	76	400	356	108	97	521	1/4-18	267
16E475	4860	194	44	89	419	356	127	110	572	3/8-18	292
19E475	7120	250	57	114	445	356	152	127	648	3/8-18	330
21.5E475	9150	275	57	114	445	356	152	128	768	3/8-18	394
24E475	11800	347	76	165	518	356	229	130	832	3/8-18	425
27E475	15100	423	70	133	479	356	191	153	908	3/8-18	464
30E600	24000	617	70	140	568	451	191	161	984	1/2-14	502
34E600	31000	735	76	152	606	451	229	182	1086	1/2-14	552
40E700	50900	1263	95	178	689	508	254	196	1238	1/2-14	629
SI	N · m @ 5,2 bar	kg	Dimensions in millimeters								

Notes:

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

❷ Total weight or mass with minimum hub bores.

❸ Maximum length with drum hub reverse mounted.

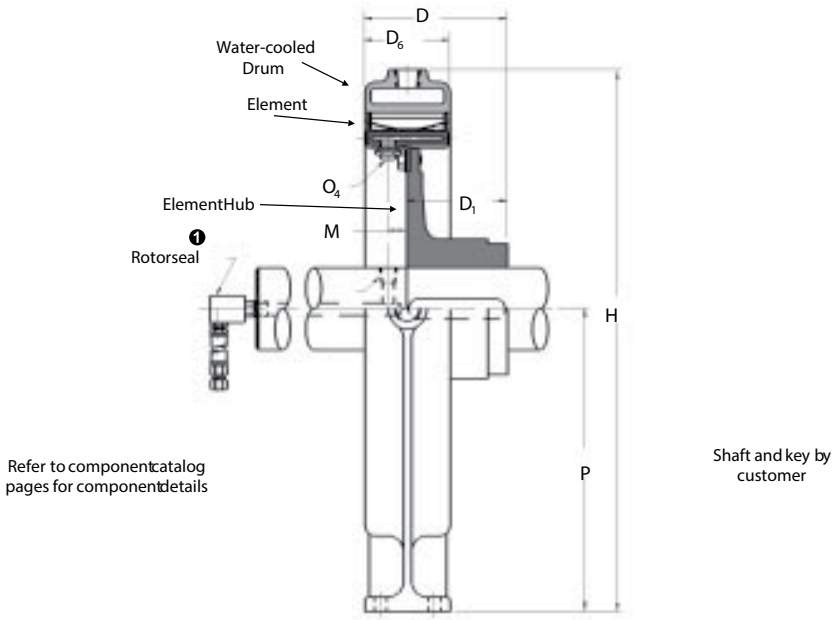
❹ American National Pipe Thread.

❺ Figures shown are with slip linings. Multiply values by 1.5 for standard linings, and contact factory for possible need of reinforced housings.

Airflex® E Brake Application

Form E 610 — Water cooled Arrangement — Dimensional Data

Sizes 12 to 34



English	lb · in @ 75 psi		lb	Dimensions in inches								
12E475	11300	B3	149	1.50	2.75	6.47	3.75	5.50	21.13	1.22	1/4-18	12.50
14E475	16000	B3	165	1.50	3.00	6.47	3.75	5.50	23.13	1.22	1/4-18	13.50
16E475	21500	B3	234	1.75	3.25	6.97	4.25	5.50	28.00	1.22	3/8-18	16.00
19E475	31500	B3	280	2.25	4.75	8.94	5.75	5.50	28.13	1.19	3/8-18	16.00
21.5E475	40500	B3	324	2.75	4.75	8.44	5.75	5.50	30.63	1.19	3/8-18	17.25
24E475	52000	B3	391	2.75	5.25	9.19	6.50	5.50	33.13	1.19	3/8-18	18.50
27E475	67000	B3	443	2.75	5.50	9.19	6.50	5.50	36.13	1.19	3/8-18	20.00
30E600	106000	C2	552	2.75	5.50	9.94	6.50	7.00	39.13	1.56	1/2-14	21.50
34E600	137000	C2	655	3.00	6.00	11.44	8.00	7.00	43.13	1.56	1/2-14	23.50
Size	❷❺ M_r Torque Rating	❶ Rotorseal Size	❸ Weight Mass	Bore Range		D	D_1	D_6	H	M	❹ O_4	P
				Min.	**Max.**							
12E475	1280	B3	67	38	70	164	95	140	537	31	1/4-18	318
14E475	1810	B3	75	38	76	164	95	140	587	31	1/4-18	343
16E475	2430	B3	106	44	83	177	108	140	711	31	3/8-18	406
19E475	3560	B3	127	57	121	227	146	140	714	30	3/8-18	406
21.5E475	4580	B3	147	70	121	214	146	140	778	30	3/8-18	438
24E475	5880	B3	177	70	133	233	165	140	841	30	3/8-18	470
27E475	7570	B3	201	70	140	233	165	140	918	30	3/8-18	508
30E600	12000	C2	250	70	140	252	165	178	994	40	1/2-14	546
34E600	15500	C2	297	76	152	291	203	178	1095	40	1/2-14	597
SI	N · m @ 5,2 bar		kg	Dimensions in millimeters								

Notes:

❶ Refer to Rotorseal Section for mounting and dimension info.

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

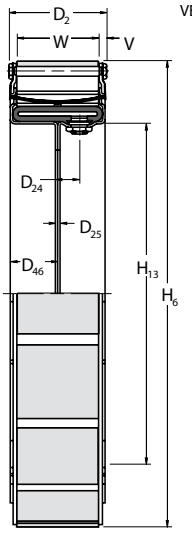
❸ Total weight or mass with minimum hub bores. Rotorseal and hose not included.

❹ American National Pipe Thread.

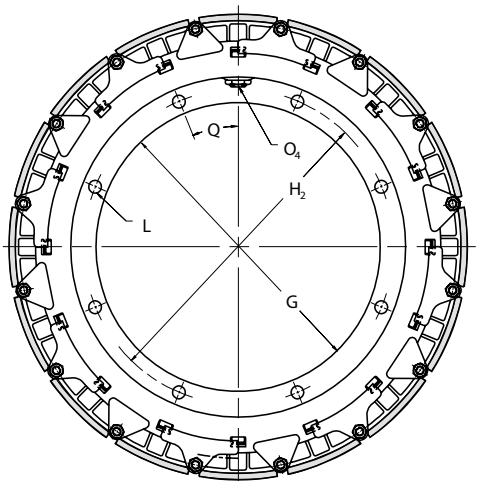
❺ Figures shown are with teflon or graphite slip linings. Multiply values by 1.5 for standard linings, and contact factory for possible need of reinforced housings.

Airflex® VE Element

Form VE 602 — Dimensional Data — Sizes 19 to 27



VE Elements can be furnished in the clutch and brake applications shown for the E elements.



English		lb · in @ 75 psi	Dimensions in inches														
19VE475	143215	25500	5.69	1.25	0.19	2.72	9.625	10.750	18.91	11.81	8	0.50	3/8-18	22.50	0.44	12	4.69
24VE475	143216	45200	5.69	1.25	0.25	2.75	14.250	15.750	23.91	17.25	8	0.75	3/8-18	22.50	0.44	14	4.69
27VE475	143334	58500	5.69	1.25	0.27	2.75	16.750	18.250	26.91	19.73	10	0.75	3/8-18	18.00	0.44	16	4.75
Size	❶ Part Number	❷❻ M_r Torque Rating	D_2	D_{24}	D_{25}	D_{46}	❸ G	H_2	H_6	H_{13}	L		❹ Q_4	Q	V	L	
											No.	**Dia.**				**No.**	**Width**
19VE475	143215	2880	145	32	5	69	244,5	273,1	480	300	8	13	3/8-18	22,50	11	12	119
24VE475	143216	5110	145	32	6	70	362,0	400,1	607	438	8	19	3/8-18	22,50	11	14	119
27VE475	143334	6610	145	32	7	70	425,5	463,6	684	501	10	19	3/8-18	18,00	11	16	121
SI		N · m @ 5,2 bar	Dimensions in millimeters														

English		lb · in @ 75 psi	rpm	psi/rpm ^{2}	lb · ft ^{2}	lb	in ^{2}	inches		in ^{3}	in
19VE475	143215	25500	1100	3.3 E-06	20	58	230	0.43	0.25	70	19.13
24VE475	143216	45200	875	5.6 E-06	61	77	295	0.37	0.18	100	24.19
27VE475	143334	58500	775	5.9 E-06	75	90	333	0.37	0.25	110	27.25
Size	❶ Part Number	❷❻ M_r Torque Rating	Maximum Speed	C_s Centrifugal Gain	Wk^2 J	Weight Mass	Friction Area	Lining Thickness		❺ Air Tube Cavity	Maximum Drum Diameter
								New	**Worn**		
19VE475	143215	2880	1100	0,2 E-06	0,84	26	1484	11	6	1,1	486
24VE475	143216	5110	875	0,4 E-06	2,56	35	1903	9	5	1,6	614
27VE475	143334	6610	775	0,4 E-06	3,15	41	2148	9	6	1,8	692
SI		N · m @ 5,2 bar	rpm	bar/rpm ^{2}	kg · m ^{2}	kg	cm ^{2}	millimeters		dm ^{3}	mm

Notes:

❶ Refers to basic part number only. When ordering, the release spring force and type of friction linings must be specified.

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

❸ Tolerances for sizes:
12 thru 27
+0.010/-0.000 in (+0,25/-0,00 mm)
30 thru 40
+0.005/-0.000 in (+0,13/-0,00 mm)

❹ American National Pipe Thread.

❺ Drum contact with worn shoes.

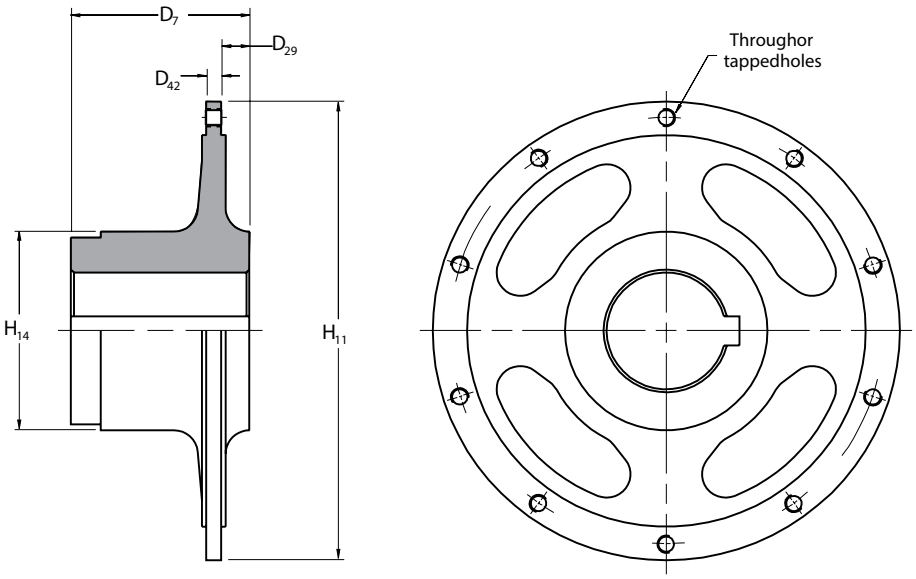
❻ Figures shown are with teflon or graphite slip linings. Multiply values by 1.5 for standard linings, and contact factory for possible need of reinforced housings.

❼ Refer to page C-42 for maximum idle RPM.

Airflex® E and VE Mounting Components

Form E 611 — Element Hubs — Dimensional and Technical Data

Sizes 12 to 40



English	Thru Holes	Tapped Holes	lb	lb · ft ²	Dimensions in inches				
12E475	402241	402242	20	0.8	4.75	1.13	0.63	7.75	4.38
14E475	402244	402245	22	1	4.75	1.13	0.63	9.50	5.00
16E475	402247	402248	36	3	5.25	1.13	0.75	11.63	5.50
19E475	401476	401477	74	6	6.75	1.19	0.63	14.56	7.50
21.5E475	401478	401479	86	12	6.75	1.19	0.63	17.00	7.50
24E475	401480	401481	122	19	7.50	1.19	0.63	19.63	8.50
27E475	401482	401483	145	34	7.50	1.19	0.63	22.63	9.00
30E600	401484	401485	138	38	7.50	1.22	0.56	24.50	9.00
34E600	401486	401487	183	58	9.00	1.22	0.56	28.50	9.50
40E700	402250	402251	263	98	10.00	1.22	0.56	33.50	11.00
19VE475	402247	402248	36	3	5.25	1.13	0.75	11.63	5.50
24VE475	401478	401479	86	12	6.75	1.19	0.63	17.00	7.50
27VE475	401480	401481	122	19	7.50	1.19	0.63	19.63	8.50
			Weight ❶	Wk ²					
Size	Part Number		Mass	J	D_7	D_{29}	D_{42}	H_{11}	H_{14}
12E475	402241	402242	9,1	0,03	121	29	16	197	111
14E475	402244	402245	10	0,04	121	29	16	241	127
16E475	402247	402248	16	0,12	133	29	19	295	140
19E475	401476	401477	34	0,24	171	30	16	370	191
21.5E475	401478	401479	39	0,48	171	30	16	432	191
24E475	401480	401481	55	0,81	191	30	16	498	216
27E475	401482	401483	66	1,42	191	30	16	575	229
30E600	401484	401485	63	1,60	191	31	14	622	229
34E600	401486	401487	83	2,45	229	31	14	724	241
40E700	402250	402251	119	4,12	254	31	14	851	279
19VE475	402247	402248	16	0,12	133	29	19	295	140
24VE475	401478	401479	39	0,48	171	30	16	432	191
27VE475	401480	401481	55	0,81	191	30	16	498	216
SI	Thru Holes	Tapped Holes	kg	kg · m ²	Dimensions in millimeters				

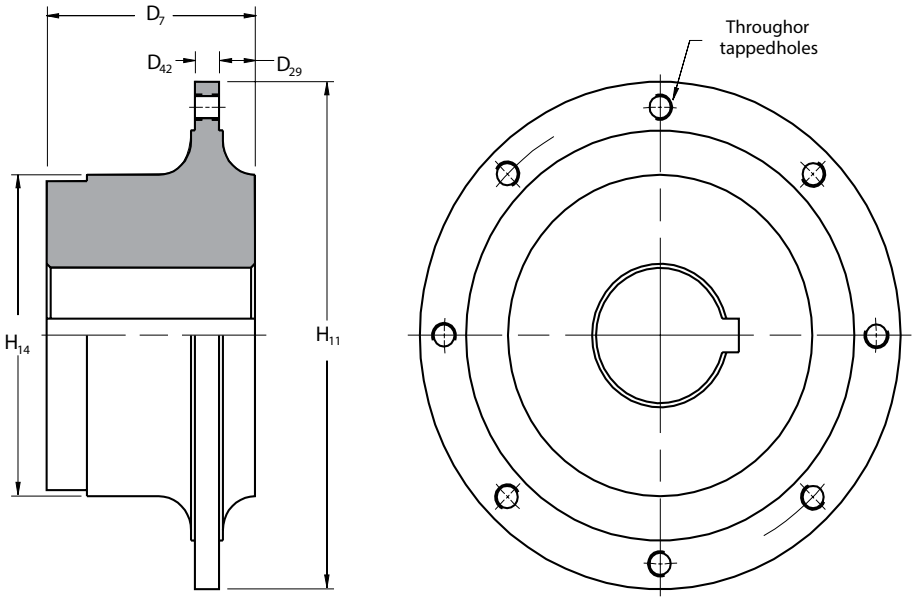
Notes:

❶ Based upon minimum bores.

Airflex® E and VE Mounting Components

Form E 614 — Drum Hubs — Dimensional and Technical Data

Size 12 to 40



English	Thru Holes	Tapped Holes	lb	lb · ft ²	Dimensions in inches				
12E475	404351	402262	13	0.3	3.75	1.125	0.63	6.25	4.00
14E475	404352	402264	25	1.0	4.25	1.125	0.63	8.25	5.00
16E475	404353	402266	38	1.5	5.00	1.125	0.63	9.25	6.00
19E475	404354	402268	64	5	6.00	1.125	0.63	11.50	7.00
21.5E475	404355	402270	71	6	6.00	1.125	0.63	13.50	7.00
24E475		404638	133	18	9.00	1.125	0.63	15.00	9.50
27E475	403194	402274	121	15	7.50	1.125	0.75	15.00	8.50
30E600	404357	402276	162	35	7.50	1.125	0.75	20.00	9.00
34E600	404358	402278	214	59	9.00	1.125	0.75	23.00	9.50
40E700	404359	402280	330	139	10.00	1.125	0.75	28.50	11.00
19VE475	404353	402266	38	1.5	5.00	1.125	0.63	9.25	6.00
24VE475	404355	402270	71	6	6.00	1.125	0.63	13.50	7.00
27VE475	404356	402272	72	9	6.50	1.125	0.63	15.00	7.50
			Weight ❶	Wk ²					
Size	Part Number		Mass	J	D_7	D_{29}	D_{42}	H_{11}	H_{14}
12E475	404351	402262	5,9	0,01	95	28,6	15,9	159	102
14E475	404352	402264	11	0,04	108	28,6	15,9	210	127
16E475	404353	402266	17	0,06	127	28,6	15,9	235	152
19E475	404354	402268	29	0,19	152	28,6	15,9	292	178
21.5E475	404355	402270	32	0,26	152	28,6	15,9	343	178
24E475		404638	60	0,74	229	28,6	15,9	381	241
27E475	403194	402274	55	0,62	191	28,6	19,1	381	216
30E600	404357	402276	73	1,47	191	28,6	19,1	508	229
34E600	404358	402278	97	2,48	229	28,6	19,1	584	241
40E700	404359	402280	149	5,84	254	28,6	19,1	724	279
19VE475	404353	402266	17	0,06	127	28,6	15,9	235	152
24VE475	404355	402270	32	0,25	152	28,6	15,9	343	178
27VE475	404356	402272	33	0,38	165	28,6	15,9	381	191
SI	Thru Holes	Tapped Holes	kg	kg · m ²	Dimensions in millimeters				

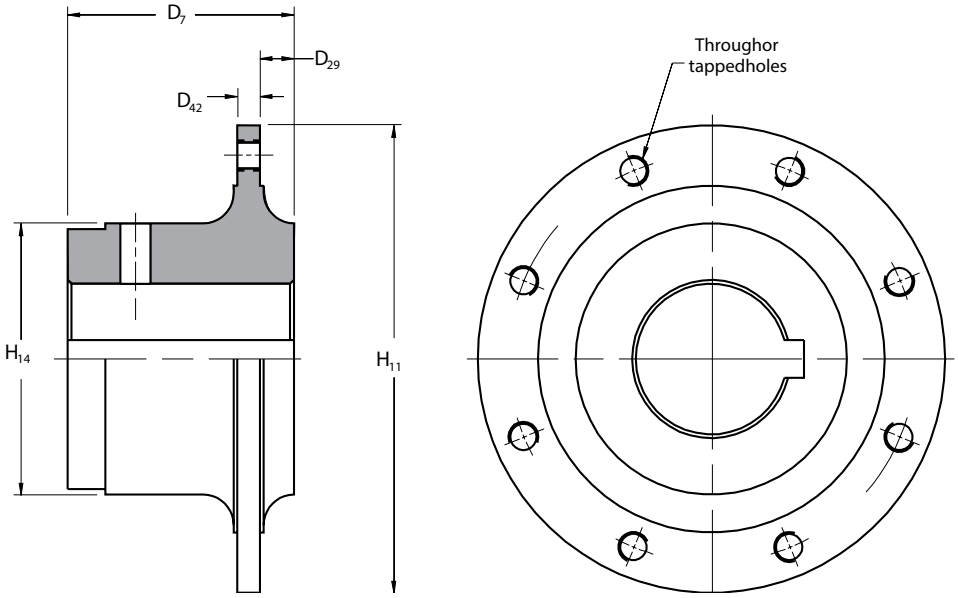
Notes:

❶ Based upon minimum bores.

Airflex® E and VE Mounting Components

Form E 618 — Dual Adapter Ring Hubs — Dimensional and Technical Data

Sizes 16 to 34



English	Thru Holes	Tapped Holes	lb	lb · ft ²	Dimensions in inches				
16E475	402290	402291	28	1	4.25	1.13	0.63	8.25	5.00
19E475	402292	402293	48	3	6.00	1.13	0.63	11.00	7.00
21.5E475	402294	402295	62	5	6.00	1.13	0.63	12.50	7.00
24E475	402296	402297	116	10	7.50	1.13	0.75	15.50	9.00
27E475	401447	401448	72	16	6.75	1.13	0.75	17.50	7.50
30E600	402298	402299	133	26	7.50	1.13	0.75	19.00	9.00
34E600	402300	402301	125	51	7.50	1.13	0.75	22.88	9.00
19VE475	402290	402291	28	1	4.25	1.13	0.63	8.25	5.00
24VE475	402294	402297	62	5	6.00	1.13	0.63	12.50	7.00
27VE475	402296	402297	116	10	7.50	1.13	0.75	17.50	7.50
			Weight ❶	Wk ²					
Size	Part Number		Mass	J	D_7	D_{29}	D_{42}	H_{11}	H_{14}
16E475	402290	402291	13	0,04	108	28,6	15,9	210	127
19E475	402292	402293	22	0,11	152	28,6	15,9	279	178
21.5E475	402294	402295	28	0,21	152	28,6	15,9	318	178
24E475	402296	402297	53	0,41	191	28,6	19,1	394	229
27E475	401447	401448	32	0,67	171	28,6	19,1	445	191
30E600	402298	402299	60	1,09	191	28,6	19,1	483	229
34E600	402300	402301	56	2,14	191	28,6	19,1	581	229
19VE475	402290	402291	13	0,04	108	28,6	16,0	209,6	127,0
24VE475	402294	402295	28	0,21	152	28,6	16,0	317,5	177,8
27VE475	402296	402297	53	0,42	191	28,6	19,1	444,5	190,5
SI	Thru Holes	Tapped Holes	kg	kg · m ²	Dimensions in millimeters				

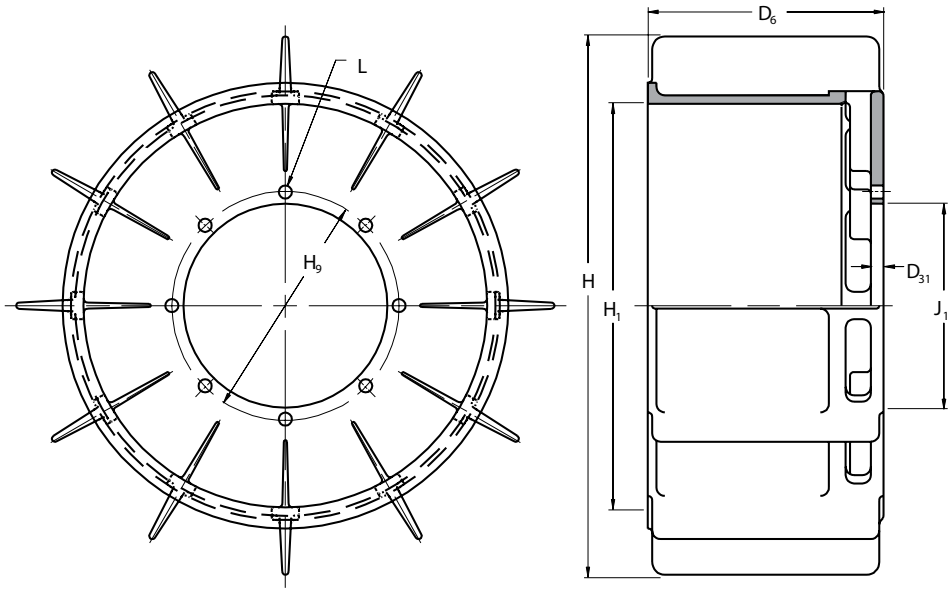
Notes:

❶ Based upon minimum bores.

Airflex® E and VE Mounting Components

Form E 615 — Ventilated Drums — Dimensional and Technical Data —

Sizes 12 to 40



English	Dimensions in inches							Holes	Thru Holes	Tapped lb	lb	lb ft²	in	Thru Holes	Tapped Holes	lb	lb ft²	in
12E475	0.75	18.00	12.00	5.063	4.187	6	0.53	1/2-13	510363	510536	95	30	8.00	401313	N/A	155	45	14.00
14E475	0.75	20.00	14.00	7.250	6.250	6	0.53	1/2-13	510079	510417	105	45	8.00	401315	402033	200	70	14.00
16E475	0.75	22.00	16.00	7.750	6.250	6	0.78	3/4-10	510364	510453	120	60	8.00	401317	402034	235	155	14.00
19E475	0.75	25.00	19.00	10.000	8.250	8	0.78	3/4-10	412715	413328	140	85	8.00	401319	402035	275	190	14.00
21.5E475	0.75	29.50	21.50	12.000	10.750	6	0.78	3/4-10	510365	510537	170	140	8.00	401321	402036	300	285	14.00
24E475	0.75	32.00	24.00	13.500	12.125	8	0.78	3/4-10	401303	401534	195	220	8.00	401323	402037	315	330	14.00
27E475	0.75	35.00	27.00	13.500	12.125	8	0.78	3/4-10	510077	510418	240	275	8.00	401325	402038	430	570	14.00
30E600	1.00	38.00	30.00	18.500	16.750	10	0.78	3/4-10	401307	401536	315	615	9.75	401327	402039	600	960	17.75
34E600	1.00	42.00	34.00	21.500	19.500	14	0.78	3/4-10	401309	401537	395	730	9.75	401329	402040	645	1300	17.75
40E700	1.00	48.00	40.00	27.000	25.000	18	0.78	3/4-10	401712	401538	480	1210	10.75	401331	402041	775	2170	20.00
19VE475	0.75	25.00	19.00	10.000	8.250	8	0.78	3/4-10	412715	413328	140	85	8.00	401319	402035	275	190	14.00
24VE475	0.75	32.00	24.00	13.500	12.125	8	0.78	3/4-10	401303	401534	195	220	8.00	401323	402037	315	330	14.00
27VE475	0.75	35.00	27.00	13.500	12.125	8	0.78	3/4-10	510077	510418	240	275	8.00	401325	402038	430	570	14.00

Size	D_{31}	H	H_1	H_9	J_9 ❶	No.	Thru L	Tapped	Part Number		Weight	Wk^2	D_6	Part Number		Weight	Wk^2	D_6
									Single Element Drum					Dual Element Drum				
						No.	Thru	Tapped	Part Number		Mass	J	D_6	Part Number		Mass	J	D_6
12E475	19	457	305	128,6	106,3	6	13	1/2-13	510363	510536	43	1,26	203	401313	N/A	70	1,89	356
14E475	19	508	356	184,2	158,8	6	13	1/2-13	510079	510417	48	1,89	203	401315	402033	91	2,94	356
16E475	19	559	406	196,9	158,8	6	20	3/4-10	510364	510453	54	2,52	203	401317	402034	106	6,51	356
19E475	19	635	483	254,0	209,6	8	20	3/4-10	412715	413328	63	3,57	203	401319	402035	125	7,98	356
21.5E475	19	749	546	304,8	273,1	6	20	3/4-10	510365	510537	77	5,88	203	401321	402036	136	11,97	356
24E475	19	813	610	342,9	308,0	8	20	3/4-10	401303	401534	88	9,24	203	401323	402037	143	13,86	356
27E475	19	889	686	342,9	308,0	8	20	3/4-10	510077	510418	109	11,55	203	401325	402038	195	23,94	356
30E600	25	965	762	469,9	425,5	10	20	3/4-10	401307	401536	143	25,83	248	401327	402039	272	40,32	451
34E600	25	1067	864	546,1	495,3	14	20	3/4-10	401309	401537	179	30,66	248	401329	402040	292	54,60	451
40E700	25	1219	1016	685,8	635,0	18	20	3/4-10	401712	401538	217	50,82	273	401331	402041	351	91,14	508
19VE475	19	635	483	254,0	209,6	8	20	3/4-10	412715	413328	63	3,57	203	401319	402035	125	7,98	356
24VE475	19	813	610	342,9	308,0	8	20	3/4-10	401303	401534	88	9,24	203	401323	402037	143	13,86	356
27VE475	19	889	686	342,9	308,0	8	20	3/4-10	510077	510418	109	11,55	203	401325	402038	195	23,94	356

SI	Dimensions in millimeters							Holes	Thru Holes	Tapped	kg	$kg.m^2$	mm	Thru Holes	Tapped Holes	kg	$kg\ m^2$	mm

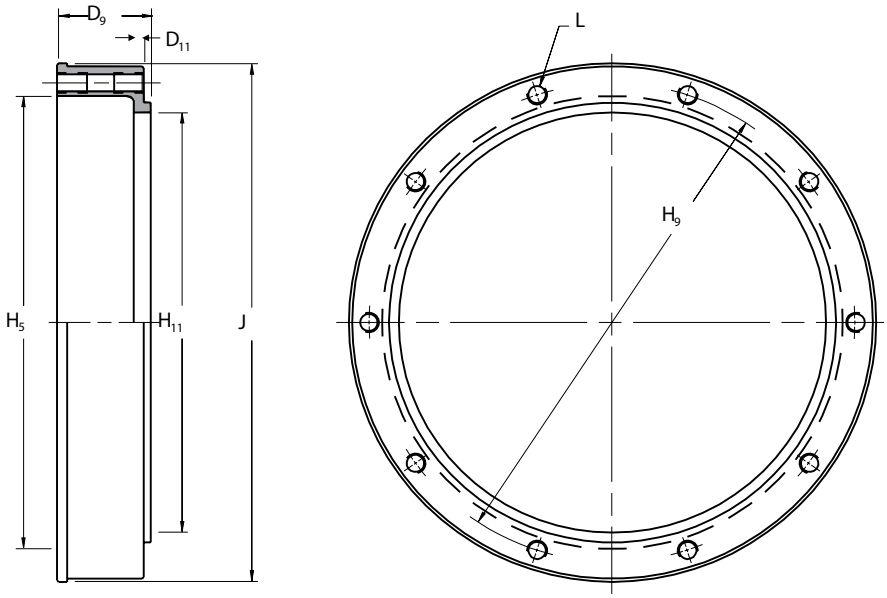
Notes:

❶ Tolerance +0.005/-0.000 in (0,13/-0,00 mm)

❷ American National Standard for Unified Screw Threads.

Airflex® E and VE Mounting Components

Form E 612 — Adapter Rings — Dimensional and Technical Data — Sizes 12 to 40



English		lb	lb · ft ²	Dimensions in inches								
12E475	12117	21	2	3.38	.19	6.25	7.00	5.50	8.120	10	3/8-16	0.75
14E475	12118	25	3	3.38	.19	8.00	8.75	7.13	9.745	12	3/8-16	0.63
16E475	12119	37	6	3.38	.19	9.75	10.75	9.13	11.745	8	1/2-13	0.88
19E475	12120	53	14	3.38	.25	12.75	13.75	11.63	14.745	10	1/2-13	1.00
21.5E475	12121	82	28	3.44	.25	14.25	15.75	13.75	17.120	8	3/4-10	1.12
24E475	12122	102	50	3.50	.25	16.75	18.25	16.00	19.745	10	3/4-10	1.12
27E475	12123	138	80	3.50	.25	19.75	21.25	18.00	22.620	12	3/4-10	1.12
30E600	12124	192	145	4.31	.31	21.50	23.00	20.00	24.870	14	3/4-10	1.12
34E600	12125	246	240	4.31	❸	25.50	27.00	24.00	28.870	16	3/4-10	1.25
40E700	12126	331	445	4.88	.31	30.50	32.00	29.00	33.745	18	3/4-10	1.50
19VE475	12199	37	6	3.38	❸	9.75	10.75	9.13	11.745	8	1/2-13	0.88
24VE475	12121	82	28	3.44	❸	14.25	15.75	13.75	17.120	8	3/4-10	1.12
27VE475	12122	102	50	3.50	❸	16.75	18.25	16.00	19.475	10	3/4-10	1.12
		Weight	Wk ²						❶			
Size	Part Number	Mass	J	D_9	D_{11}	H_5	H_9	H_{11}	J	L ❷		
										No.	**Size**	**Depth**
12E475	12117	9,5	0,07	86	4,83	159	178	140	206,2	10	3/8-16	19
14E475	12118	11	0,11	86	4,83	203	222	181	247,5	12	3/8-16	16
16E475	12119	17	0,26	86	4,83	248	273	232	298,3	8	1/2-13	22
19E475	12120	24	0,57	86	6,35	324	349	295	374,5	10	1/2-13	25
21.5E475	12121	37	1,19	87	6,35	362	400	349	434,8	8	3/4-10	28
24E475	12122	46	2,10	89	6,35	425	464	406	501,5	10	3/4-10	28
27E475	12123	63	3,37	89	6,35	502	540	457	574,5	12	3/4-10	28
30E600	12124	87	6,09	109	7,87	546	584	508	631,7	14	3/4-10	28
34E600	12125	111	10,08	109	❸	648	686	610	733,3	16	3/4-10	32
40E700	12126	150	18,69	124	7,87	775	813	737	857,1	18	3/4-10	38
19VE475	12199	17	0,26	86	❸	248	273	232	298,3	8	1/2-13	22
24VE475	12121	37	1,19	87	❸	362	400	349	434,8	8	3/4-10	28
27VE475	12122	46	2,10	89	❸	425	464	406	494,7	10	3/4-10	28
SI		kg	kg · m ²	Dimensions in millimeters								

Notes:

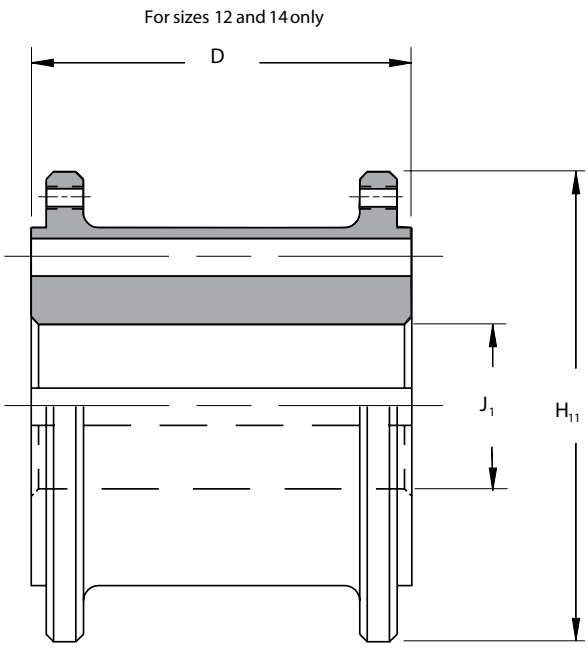
❶ Tolerance +0.000/-0.005 in (+0,00/-0,13 mm)

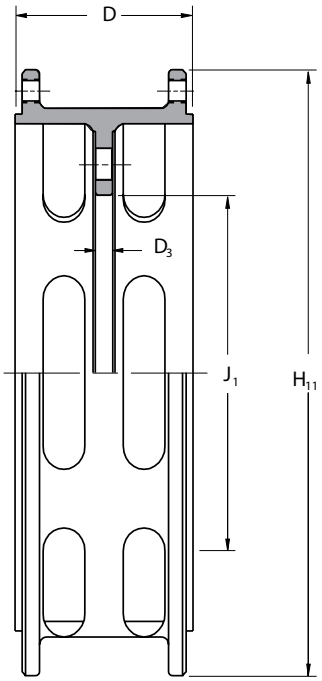
❷ American National Standard for Unified Screw Threads.

❸ Contact factory for this dimension.

Airflex® E and VE Mounting Components

Form E 613 — Dual Adapter Rings — Dimensional and Technical Data — Sizes 12 to 34





English		lb	lb · ft ²	Dimensions in inches						
12E475	400234	38 ❶	2 ❶	6.38	N/A	N/A	7.88	❸	N/A	N/A
14E475	400476	64 ❶	5 ❶	6.38	N/A	N/A	9.50	❸	N/A	N/A
16E475	012135	72	10	6.25	0.50	6.75	11.63	5.500	8	0.78
19E475	012208	106	30	6.38	0.50	9.50	14.63	8.000	10	0.78
21.5E475	012098	116	40	6.38	0.63	11.00	17.13	9.625	6	0.78
24E475	012209	187	90	6.38	0.63	13.50	19.62	11.500	8	1.03
27E475	012210	234	145	6.38	0.63	16.00	22.63	14.625	8	0.78
30E600	012211	353	250	8.13	0.75	17.00	24.50	15.000	12	1.03
34E600	012212	453	445	8.13	0.75	21.00	28.50	19.000	12	1.03
		Weight	Wk ²							
Size	Part Number	Mass	J	D	D_{31}	H_9	H_{11}	❷ J_1	L	
									No.	**Dia.**
12E475	400234	17 ❶	0,91 ❶	162	N/A	N/A	200	❸	N/A	N/A
14E475	400476	29 ❶	2,27 ❶	162	N/A	N/A	241	❸	N/A	N/A
16E475	012135	33	4,53	159	13	171	295	140	8	20
19E475	012208	48	13,59	162	13	241	372	203	10	20
21.5E475	012098	53	18,12	162	16	279	435	244	6	20
24E475	012209	85	40,77	162	16	343	498	292	8	26
27E475	012210	106	65,69	162	16	406	575	371	8	20
30E600	012211	160	113,3	207	19	432	622	381	12	26
34E600	012212	205	201,6	206	19	533	724	483	12	26
SI		kg	kg · m ²	Dimensions in millimeters						

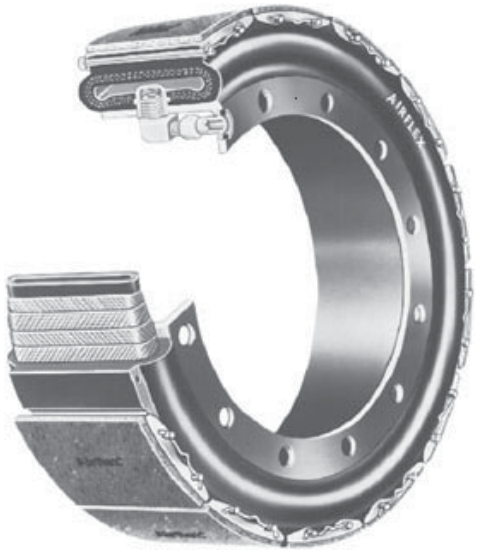
Notes:

❶ Based upon minimum bores.

❷ Tolerance +0.005/-0.000 in (+0,13/-0,00 mm)

❸ Adapter ring bored and key seated for shaft mounting. Bore 2.75 in (70 mm) minimum, 3.75 in (95 mm) maximum.

Airflex® EB and ER Construction



EB Element



ER 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 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.

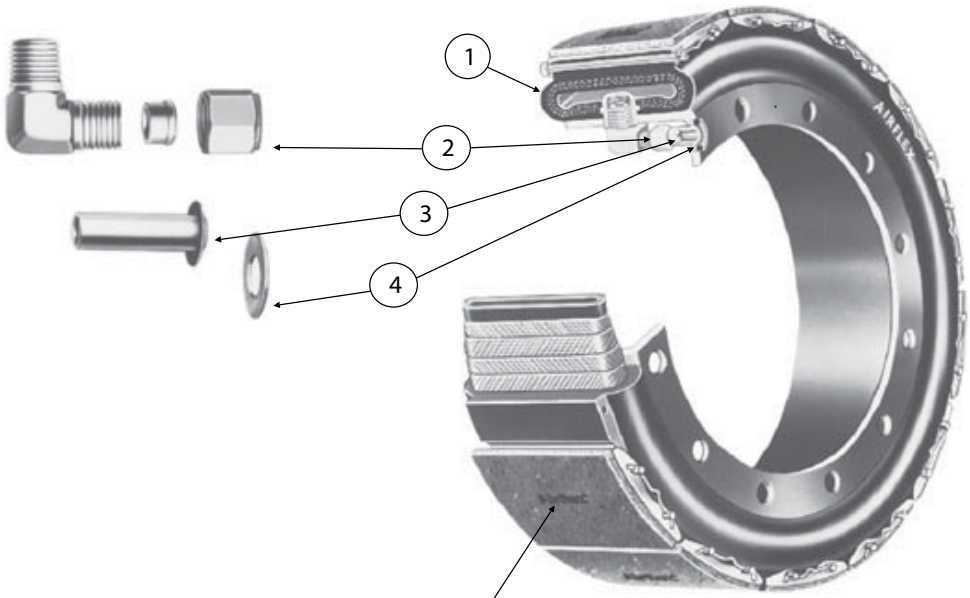
ER elements are used as shaft couplings or holding brakes where engagement occurs at zero speed differential between element and drum. They are ideal for applications in which a disconnect is required without stopping the prime mover or in which the driving and or driven equipment must be frequently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

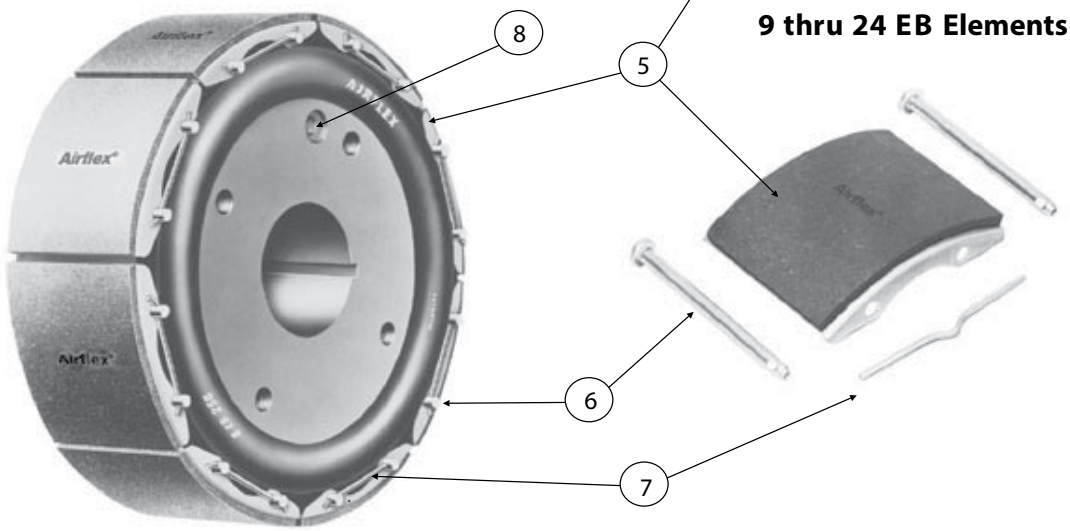
Where Used:

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

Airflex® EB Components Descriptions



9 thru 24 EB Elements



4, 6 & 8 EB Elements

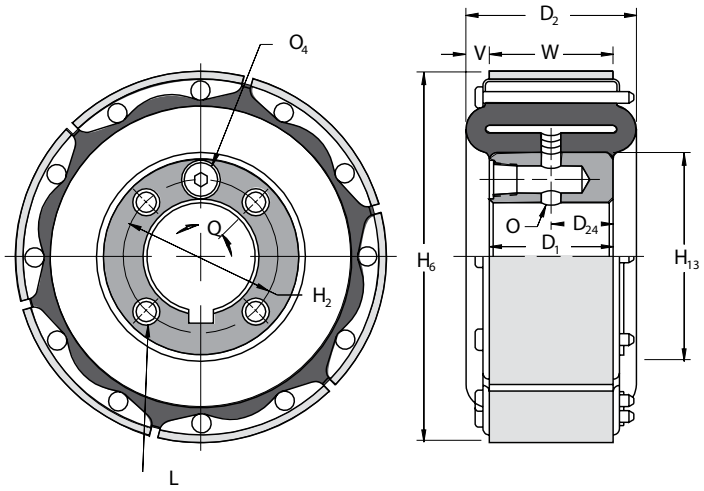
Size	Torque Rating	
	English	**SI**
	lb · in @ 75 psi	**N · m @ 5, 2 bar**
4EB125	390	44,1
6EB200	910	103
8EB250	2220	251
9EB325	3750	424
10EB300	4275	483
12EB350	7500	848
14EB400	12000	1360
16EB475	18750	2120
19EB475	27000	3050
21.5EB475	36000	4070
24EB475	45000	5090

Size	Torque Rating	
	English	**SI**
	lb · in @ 75 psi	**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

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	❶ Part Number	❷ M_r Torque Rating	Bore Range		D_1	D_2	D_{24}	H_2	H_6	H_{13}	L ❸		O	❹ Q_4	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															

English		lb · in @ 75 psi	rpm	psi/rpm ^{2}	lb · ft ^{2}	lb	in ^{2}	inches		in ^{3}	in
4EB125	143019	390	1800	*	0.01	2.3	13	❻	❻	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	❶ Part Number	❷ M_r Torque Rating	Maximum Speed	C_s Centrifugal Gain	Wk ^{2} ❺ J	Weight Mass	Friction Area	LiningThickness		❼ Air Tube Cavity	Maximum Drum Diameter
								New	**Worn**		
4EB125	143019	44,1	1800	*	0,004	1,0	84	❻	❻	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 ^{2}	kg · m ^{2}	kg	cm ^{2}	millimeters		dm ^{3}	mm

Notes:

❶ Refers to basic part number only. When ordering, it must be specified which air entry hole, O or Q_4 is to be used

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

❸ American National Standard for Unified Screw Threads..

❹ American National Pipe Thread.

❺ Based upon minimum bores.

❻ Lining molded into rubber tube. Complete element should be replaced when dimension H_6 is worn to 3.88 in (98 mm) diameter.

❼ Drum contact with worn shoes.

Airflex® EB Elements

Form EB 702 — Technical Data — Sizes 9 to 24

English		lb · in @ 75 psi	rpm	psi/rpm ^{2}	lb · ft ^{2}	lb	in ^{2}	inches		in ^{3}	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	❶ Part Number	❷ M_r Torque Rating	Maximum Speed	C_s Centrifugal Gain	Wk^2 J	Weight Mass	Friction Area	LiningThickness		❹ 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 ^{2}	kg · m ^{2}	kg	cm ^{2}	millimeters		dm ^{3}	mm

Notes:

❶ Refers to basic part number only.

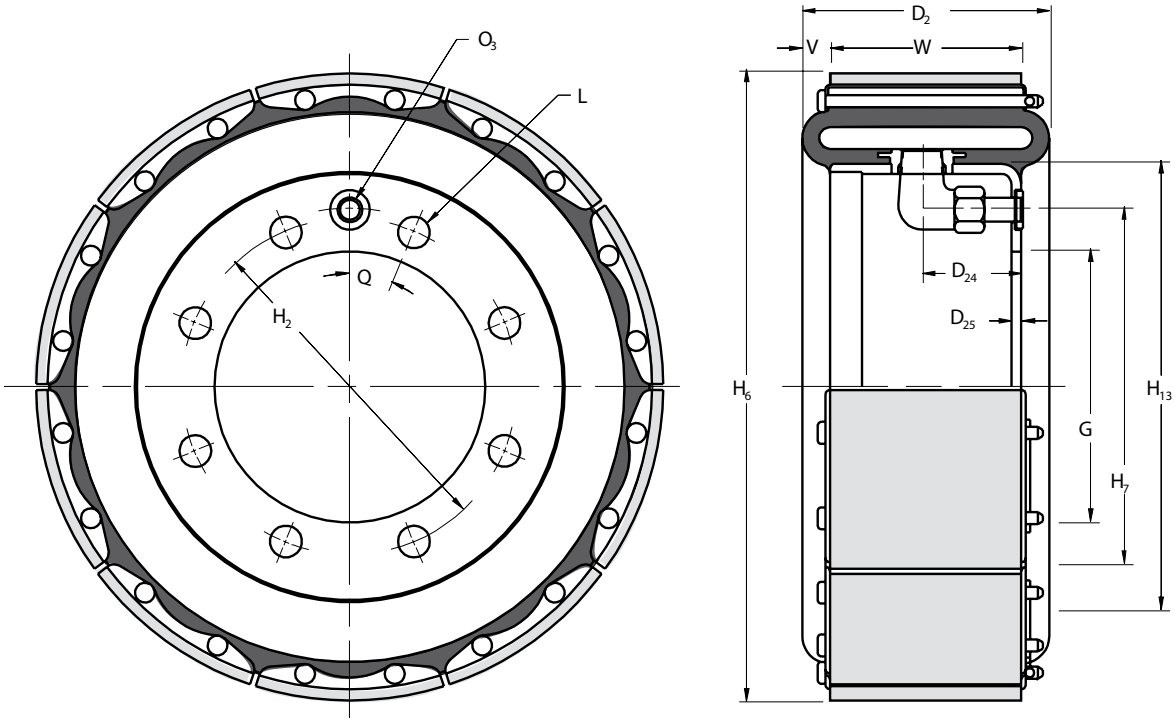
❷ Dynamic torque shown, static torque approximately 25% greater. Torque in each application is dependent upon air pressure and speed.

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

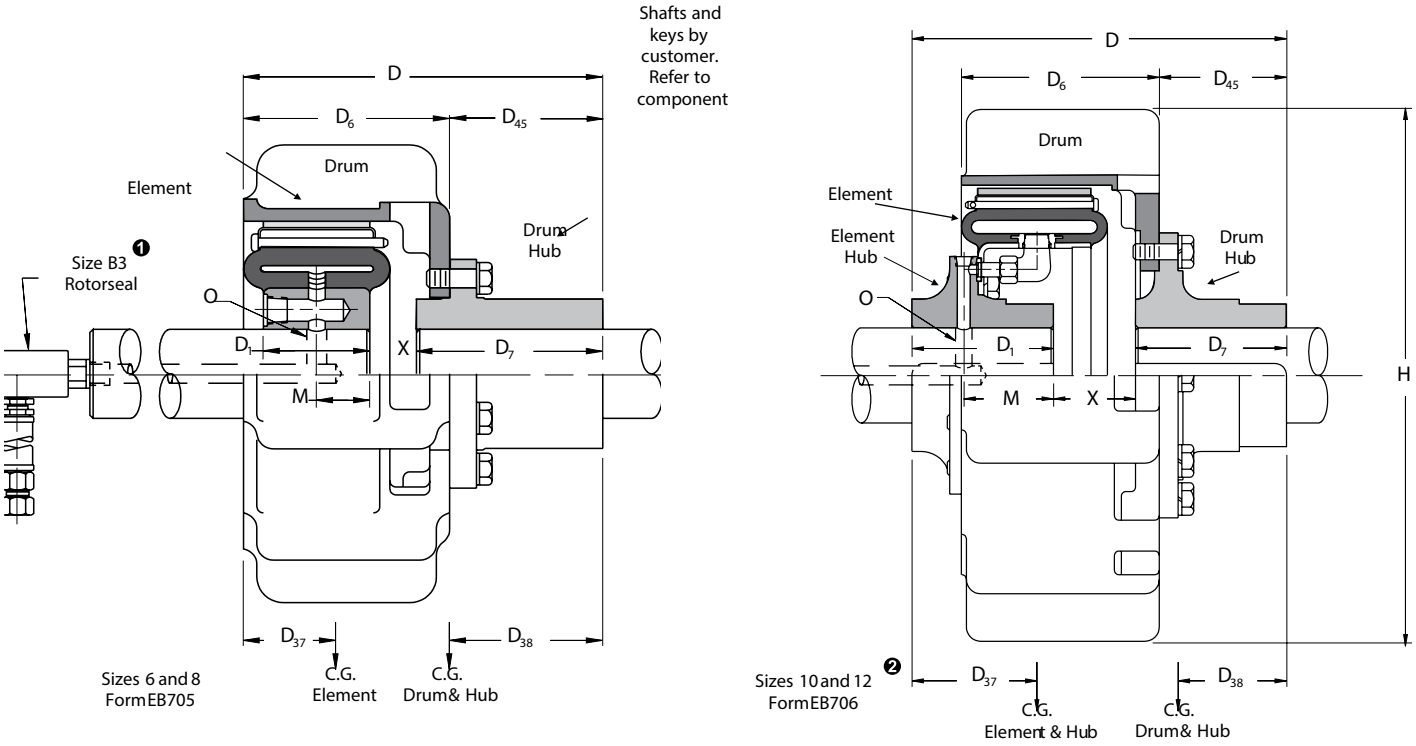
Form EB 702 — Dimensional Data — Sizes 9 to 24



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	❶ Part Number	❷ M_r Torque Rating	D_2	D_{24}	D_{25}	❸ G	H_2	H_6	H_7	H_{13}	L		O_3	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														

Airflex® EB Clutch Application

Forms EB 705 and 706 — Coupling Mounting Arrangement — Dimensional Data — Sizes 6 to 12



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	❸ Part Number	❹ M_r Torque Rating	❺ Weight Mass	Bore Range		D	D_1	D_6	D_7	D_{37}	D_{38}	D_{45}	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												

Notes:

❶ Refer to Rotorseal Section for mounting and dimension info.

❷ For larger sizes, it is recommended that the E product line be used. See Form E604.

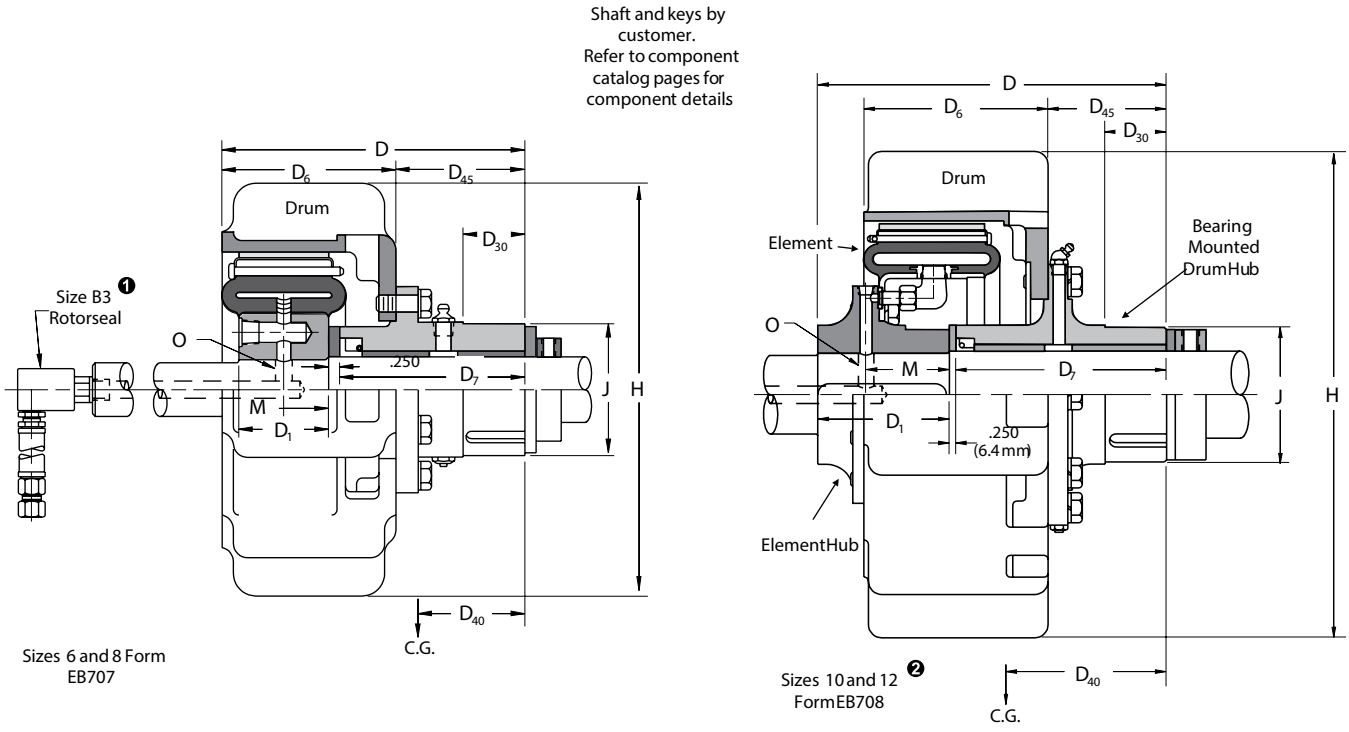
❸ Refers to basic part number only and does not include the rotorseal and hose.

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

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

Airflex® EB Clutch Application

Forms EB 707 and 708 — Bearing Arrangement — Dimensional Data — Sizes 6 to 12



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	❸ Part Number	❹ M_r Torque Rating	Weight Mass ❺	Bore Range		D	D_1	D_6	D_7	D_{30}	D_{40}	H	J_{MAX}	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											

Notes:

❶ Refer to Rotorseal Section for mounting and dimension info.

❷ For larger sizes, it is recommended that the E product line be used. See Form E604.

❸ Refers to basic part number only and does not include the rotorseal and hose.

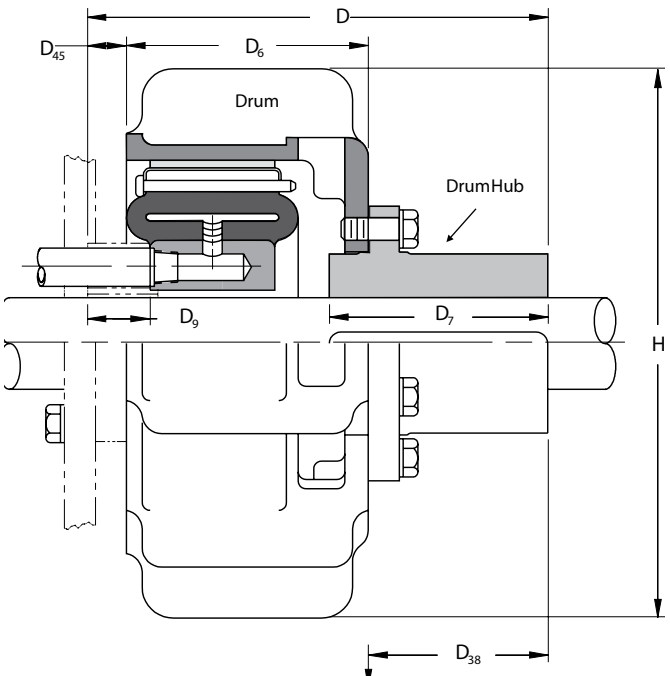
❹ Dynamic torque shown, static torque approximately 25% greater. Torque in each application is dependent upon air pressure and speed.

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

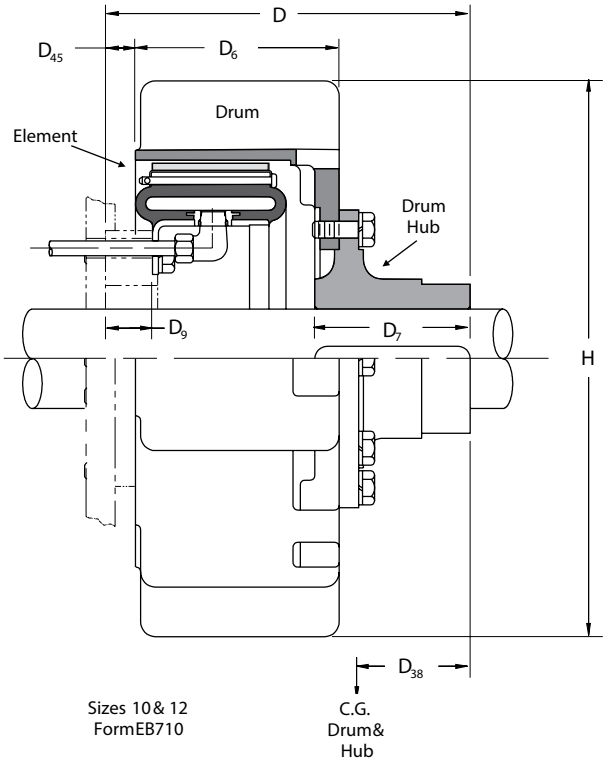
Airflex® EB Brake Application

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

Shaft, key, and reaction membersby customer.
Refer to componentcatalog pages
for componen t details



Sizes 6 & 8
Form EB 709



Sizes 10 & 12
Form EB710

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	❶ Part Number	❷ M_r Torque Rating	Weight ❸ Mass	Bore Range		D	D_6	D_7	D_9	D_{38}	D_{45}	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								

Notes:

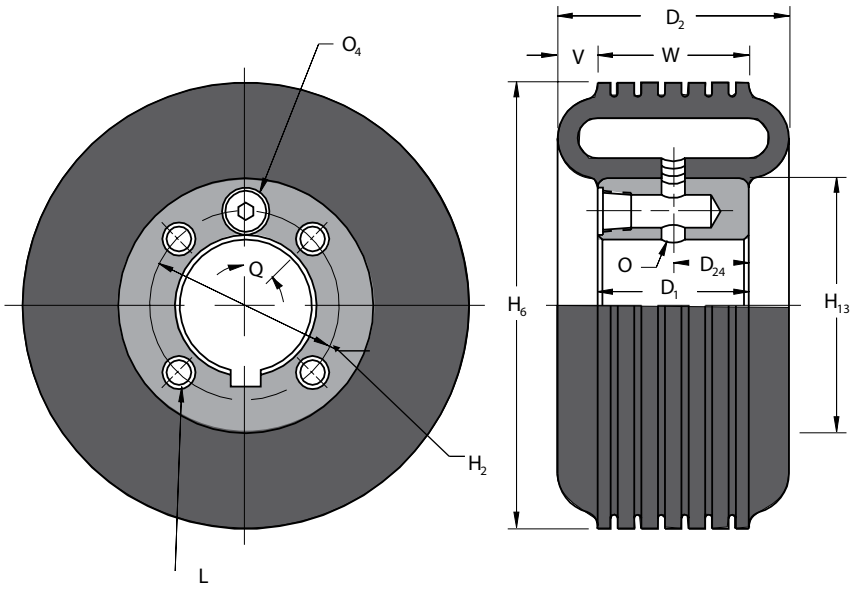
❶ Refers to basic part number only.

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

❸ Based upon minimum bores.

Airflex® ER Elements

Form ER 703 — Dimensional and Technical Data — Sizes 3 to 8



English		lb · in @ 75 psi	Dimensions in inches																
3ER125	512175	400	-	0.98	1.50	1.75	0.75	NA	2.94 ❼	1.75	NA	NA	NA	0.38	NA	NA	0.25	1.25
6ER200	145158	1540	0.88	1.75	2.00	3.06	1.00	2.50	5.91	3.38	4	3/8-16	0.62	0.31	1/4-18	45.0	0.53	2.00
8ER250	145159	3550	1.25	3.50	2.50	3.56	1.25	4.38	7.91	5.38	4	3/8-16	0.88	0.31	1/4-18	22.5	0.53	2.50
Size	❶ Part Number	❷ M_t Torque Rating	Bore Range		D	D_1	D_{24}	H_2	H_6	H_{13}	L ❸			O	❹ O_4	Q (Deg)	V	W
			Min	**Max.**							**No.**	**Size**	**Depth**					
3ER125	512175	45,2	-	25	38	44	19	NA	75 ❼	44	NA	NA	NA	10	NA	NA	6	32
6ER200	145158	174	22	44	51	78	25	64	150	86	4	3/8-16	16	8	1/4-18	45.0	13	51
8ER250	145159	401	32	89	64	90	32	111	201	137	4	3/8-16	22	8	1/4-18	22.5	13	64
SI		N · m @ 5,2 bar	Dimensions in millimeters															

English		lb · in @75psi	rpm	lb · ft ^{2}	lb	in ^{3}	in
3ER125	512175	400	1800	0.01	1.1	4	3.09
6ER200	145158	1540	1800	0.1	7	20	6.09
8ER250	145159	3550	1800	0.5	18	35	8.09
Size	❶ Part Number	❷ M_t Torque Rating	Maximum Speed	Wk ^{2} J ❻	Weight Mass	❺ Maximum Air Cavity	Maximum Drum Diameter
3ER125	512175	45,2	1800	0,001	0,5	0,07	78
6ER200	145158	174	1800	0,004	3,2	0,33	155
8ER250	145159	401	1800	0,02	8,2	0,57	205
SI		N · m @ 5,2 bar	rpm	kg · m ^{2}	kg	dm ^{3}	mm

Notes:

❶ Refers to basic part number only. When ordering, it must be specified which air entry hole, O or O_4 is to be used.

❷ Static torque.

❸ American National Standard for Unified Screw Threads.

❹ American National Pipe Thread

❺ Drum contact with worn shoes.

❻ Based upon minimum bores.

❼ This element has six equally spaced rubber pads on the tube diameter instead of circumferential grooves.

Airflex® ER Elements

Form ER 704 — Technical Data — Sizes 10 to 24

English		lb · in @ 75 psi	rpm	lb · ft2	lb	in³	in
10ER300	145161	6600	1800	0.8	8	75	10.09
12ER350	145164	12300	1800	2	13	80	12.09
14ER400	145168	22600	1500	4	17	105	14.09
16ER475	145171	32600	1300	7	31	135	16.13
19ER475	145174	47600	1100	15	39	330	19.13
21.5ER475	145177	63000	1000	27	52	335	21.63
24ER475	145180	83500	900	41	61	375	24.13

Size	❶ Part Number	❷ Mr Torque Rating	Maximum Speed	Wk² J	Weight Mass	❸ Air Tube Cavity	Maximum Drum Diameter
10ER300	145161	746	1800	0,03	3,6	1,23	256
12ER350	145164	1390	1800	0,08	5,9	1,31	307
14ER400	145168	2550	1500	0,17	7,7	1,72	358
16ER475	145171	3680	1300	0,29	14	2,21	410
19ER475	145174	5380	1100	0,63	18	5,41	486
21.5ER475	145177	7120	1000	1,13	24	5,49	549
24ER475	145180	9440	900	1,72	28	6,15	613
SI		N · m @ 5,2 bar	rpm	kg · m²	kg	dm³	mm

Notes:

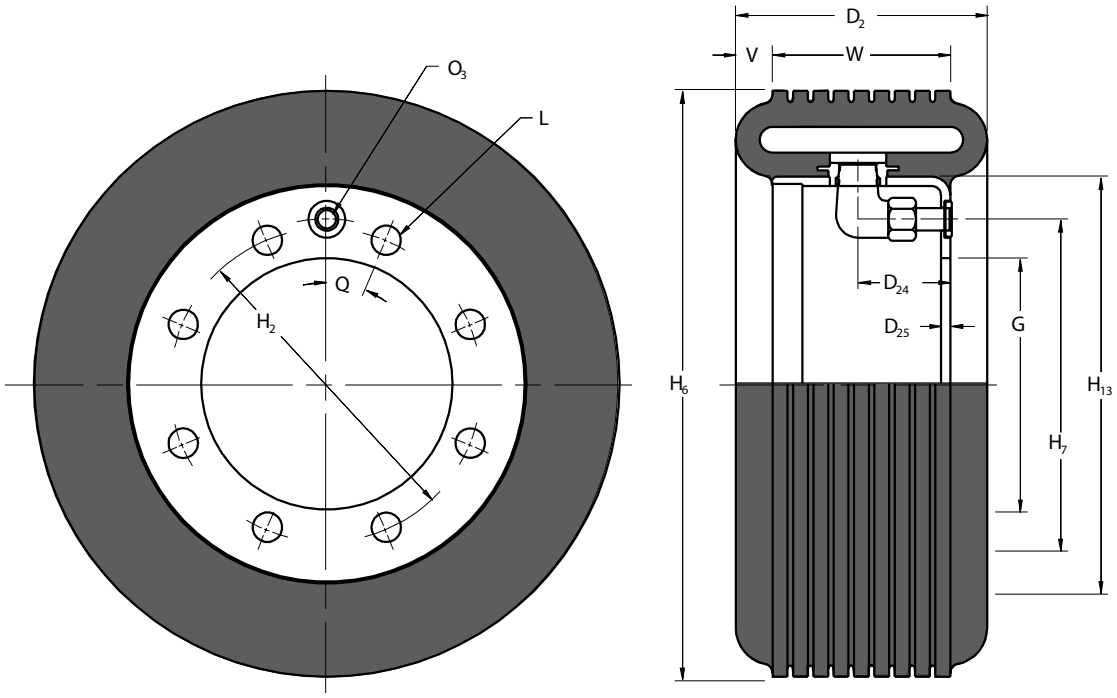
❶ Refers to basic part number only.

❷ Static torque.

❸ Drum contact with worn shoes.

Airflex® ER Elements

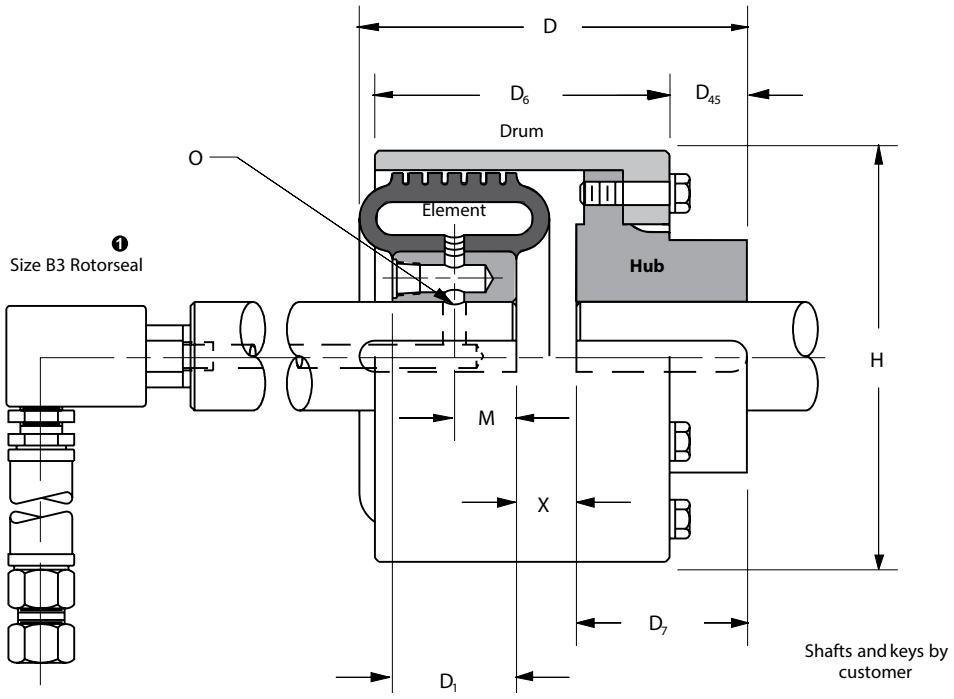
Form ER 704 — Dimensional Data — Sizes 10 to 24



English		lb · in @ 75 psi	Dimensions in inches													
10ER300	145161	6600	4.25	1.56	0.16	4.250	5.25	9.90	5.56	7.00	8	0.50	0.31	22.5	0.63	3.00
12ER350	145164	12300	4.75	1.88	0.19	6.250	7.25	11.90	7.56	9.00	12	0.50	0.31	15.0	0.63	3.50
14ER400	145168	22600	5.25	1.88	0.19	8.250	9.25	13.91	9.56	11.00	12	0.50	0.31	15.0	0.63	4.00
16ER475	145171	32600	6.63	2.50	0.25	8.250	9.63	15.81	9.62	11.38	8	0.50	0.38	22.5	0.94	4.75
19ER475	145174	47600	6.63	2.50	0.25	9.625	11.00	18.81	11.00	14.38	6	0.75	0.38	30.0	0.94	4.75
21.5ER475	145177	63000	6.63	2.50	0.31	12.125	13.50	21.31	13.50	16.88	8	0.75	0.38	22.5	0.94	4.75
24ER475	145180	83500	6.63	2.50	0.31	14.625	16.00	23.81	16.00	19.38	8	0.75	0.38	22.5	0.94	4.75
Size	❶ Part Number	❷ M_r Torque Rating	D_2	D_{24}	D_{25}	G	H_2	H_6	H_7	H_{13}	L		O_3	Q	V	W
											No.	**Dia**				
10ER300	145161	746	108	40	4	108,0	133	251	141	178	8	13	8	23	16	76
12ER350	145164	1390	121	48	5	158,8	184	302	192	229	12	13	8	15	16	89
14ER400	145168	2550	133	48	5	209,6	235	353	243	279	12	13	8	15	16	102
16ER475	145171	3680	168	64	6	209,6	245	402	244	289	8	13	10	23	24	121
19ER475	145174	5380	168	64	6	244,5	279	478	279	365	6	19	10	30	24	121
21.5ER475	145177	7120	168	64	8	308,0	343	541	343	429	8	19	10	23	24	121
24ER475	145180	9440	168	64	8	371,5	406	605	406	492	8	19	10	23	24	121
SI		N · m @ 5,2 bar	Dimensions in millimeters													

Airflex® ER Coupling Application

Form ER 716 — Dimensional Data — Sizes 6 and 8



English	lb · in @ 75 psi	lb	Dimensions in inches								
6ER200	1540	30	6.00	2.00	4.50	2.75	1.25	6.63	1.00	0.28	0.75
8ER250	3550	50	7.00	2.50	5.00	3.25	1.75	8.63	1.25	0.28	0.75
	❷ M_r Torque	Weight ❸									
Size	Rating	Mass ❸	D	D_1	D_6	D_7	D_{45}	H	M	O	X
6ER200	174	14	152	51	114	70	32	168	25	7	19
8ER250	401	23	178	64	127	83	44	219	32	7	19
SI	@ 5,2 bar	kg	Dimensions in millimeters								

Notes:

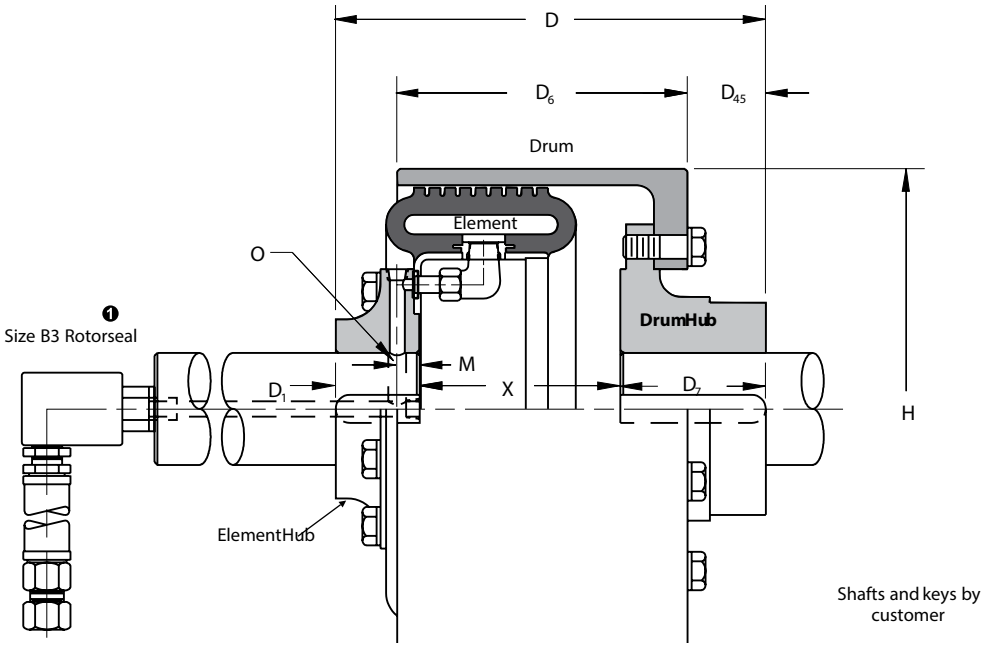
❶ Refer to Rotorseal Section for mounting and dimension information.

❷ Static torque.

❸ Based on minimum bores.

Airflex® ER Coupling Application

Form ER 717 — Dimensional Data — Sizes 10 to 24



English	lb · in @ 75 psi	lb	Dimensions in inches										
10ER300	6600	70	1.50	2.50	10.75	2.88	6.50	3.25	1.75	10.75	1.38	0.34	4.63
12ER350	12300	120	1.50	3.00	13.50	3.38	7.00	5.00	3.50	12.75	1.38	0.34	5.13
14ER400	22600	185	1.75	4.50	16.63	5.13	7.50	5.75	4.75	14.75	1.38	0.44	5.75
16ER475	32600	220	2.25	4.50	18.00	5.13	9.00	5.75	4.75	16.75	1.38	0.34	7.13
19ER475	47600	275	2.25	4.50	18.00	5.13	9.00	5.75	4.75	19.75	1.38	0.34	7.13
21.5ER475	63000	360	2.25	4.50	19.50	5.88	9.00	6.50	5.50	22.25	1.44	0.34	7.13
24ER475	83500	390	2.75	4.75	19.50	5.88	9.00	6.50	5.50	24.75	1.44	0.34	7.13
Size	❷ M_r Torque Rating	Weight ❸ Mass	Bore Range		D	D_1	D_6	D_7	D_{45}	H	M	O	X
			Min.	**Max.**									
10ER300	746	32	38	64	273	73	165	83	44	273	35	9	117
12ER350	1390	54	38	76	343	86	178	127	89	324	35	9	130
14ER400	2550	84	44	114	422	130	191	146	121	375	35	11	146
16ER475	3680	100	57	114	457	130	229	146	121	425	35	9	181
19ER475	5380	125	57	114	457	130	229	146	121	502	35	9	181
21.5ER475	7120	163	57	114	495	149	229	165	140	565	37	9	181
24ER475	9440	177	70	121	495	149	229	165	140	629	37	9	181
SI	N · m @ 5,2 bar	kg	Dimensions in millimeters										

Notes:

❶ Refer to Rotorseal Section for mounting and dimension information.

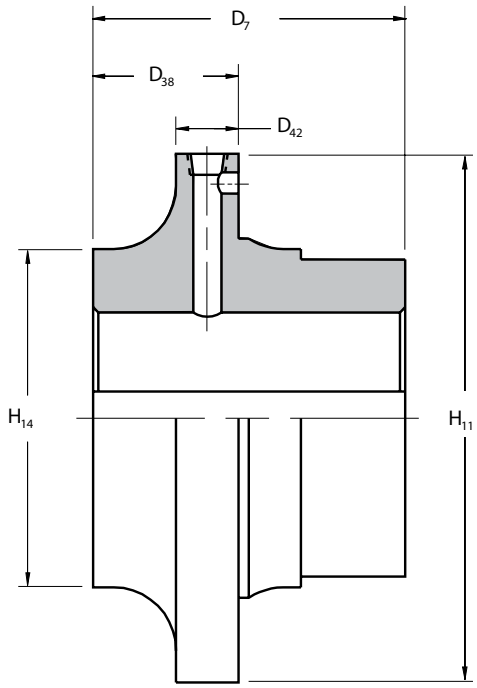
❷ Static torque.

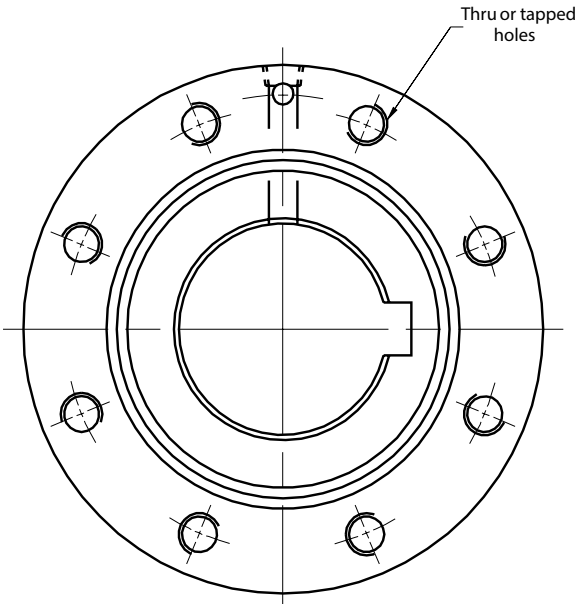
❸ Based upon minimum bores.

Airflex® EB and ER Mounting Components

Form EB 711 — Element Hub — Dimensional and Technical Data

Sizes 10 to 24





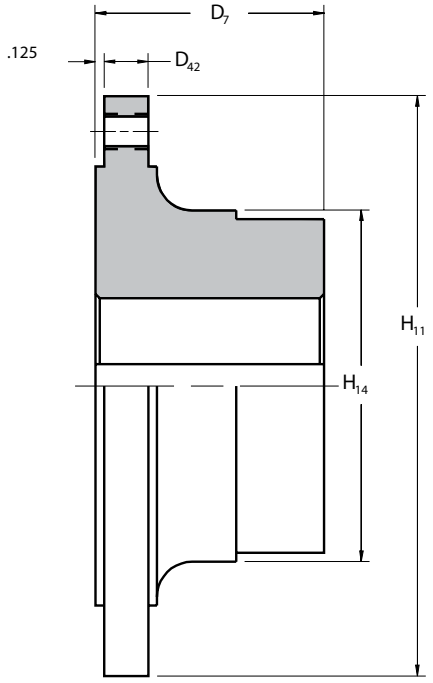
English	Thru Holes	Tapped Holes	lb	lb · ft ²	Dimensions in inches				
10EB&ER300	402469	402470	12	0.5	3.75	1.75	0.75	6.25	4.00
12EB&ER350	402471	402472	24	1	4.25	1.75	0.75	8.25	5.00
14EB&ER400	402473	402474	55	3	6.00	1.75	0.75	10.38	7.00
16EB&ER475	402475	402476	56	4	6.00	1.75	0.75	10.63	7.00
19EB&ER475	402477	402478	64	5	6.00	1.75	0.75	12.50	7.00
21.5EB&ER475	402479	402480	85	10	6.75	1.88	0.88	15.00	7.00
24EB&ER475	402481	402482	99	16	6.75	1.88	0.88	17.50	7.50
			Weight	Wk ² ❶					
Size	Part Number		Mass	J	D_7	D_{29}	D_{42}	H_{11}	H_{14}
10EB&ER300	402469	402470	5,4	0,02	95	44	19	159	102
12EB&ER350	402471	402472	11	0,04	108	44	19	210	127
14EB&ER400	402473	402474	25	0,13	152	44	19	264	178
16EB&ER475	402475	402476	25	0,17	152	44	19	270	178
19EB&ER475	402477	402478	29	0,21	152	44	19	318	178
21.5EB&ER475	402479	402480	39	0,42	171	48	22	381	178
24EB&ER475	402481	402482	45	0,67	171	48	22	445	191
SI	Thru Holes	Tapped Holes	kg	kg . m ²	Dimensions in millimeters				

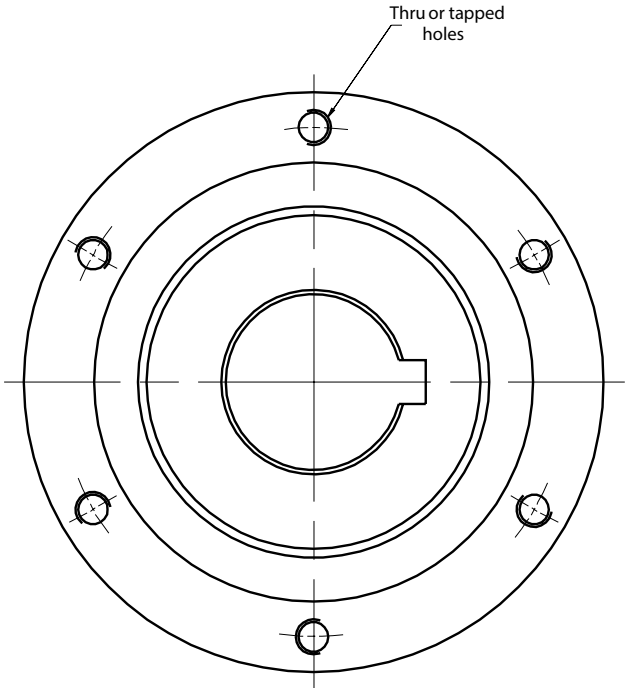
Notes:

❶ Based upon minimum bores.

Airflex® EB and ER Mounting Components

Form EB 712 — Hub for Non-Ventilated Internal Flange Drum — Dimensional and Technical Data — Sizes 6 to 24





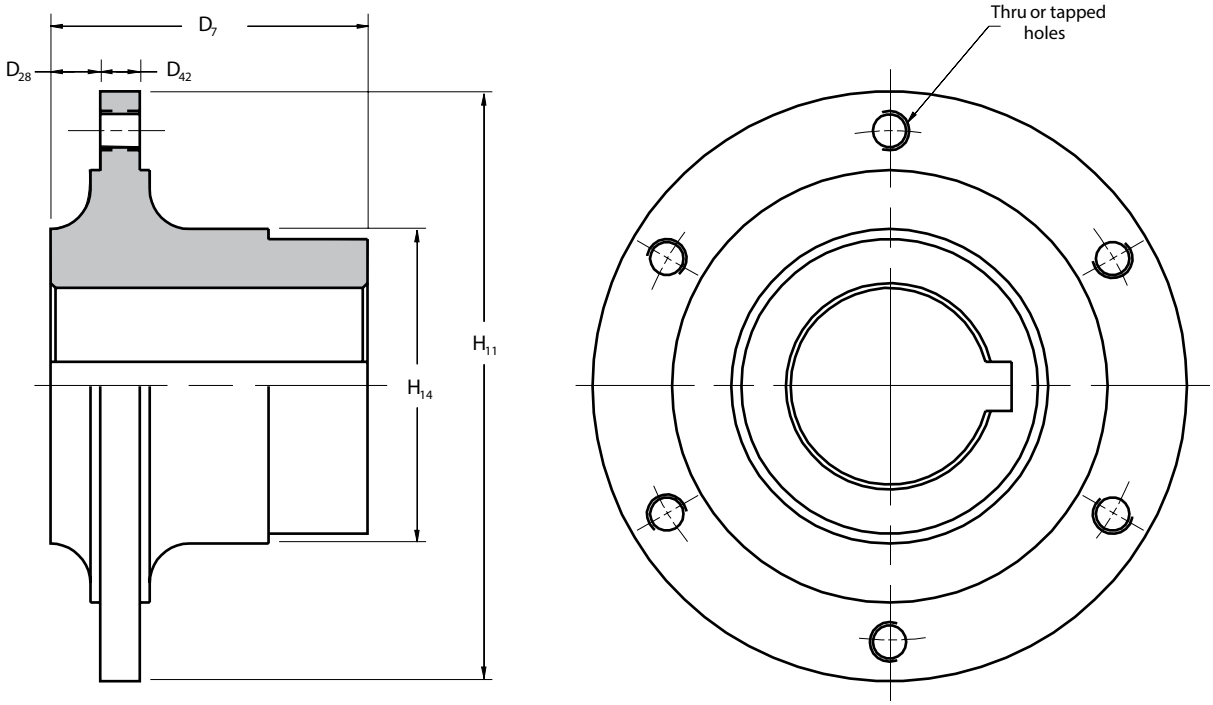
English	Thru Holes	Tapped Holes	lb	lb · ft ²	Dimensions in inches			
6EB&ER200	406900	406901	12	0.5	2.75	0.63	6.00	4.00
8EB&ER250	N/A	416087	18	0.9	3.25	0.63	8.25	5.00
10EB&ER300	406902	406903	18	0.9	3.25	0.63	8.25	5.00
12EB&ER350	406904	406905	46	3.5	5.00	0.63	10.25	7.00
14EB&ER400	406906	406907	68	6.5	5.75	0.75	13.50	7.00
16EB&ER475	406908	406909	74	6.5	5.75	0.75	15.00	7.50
19EB&ER475	406910	406911	93	8.5	5.75	0.75	17.50	7.50
21.5EB&ER475	406912	406913	131	29	6.50	0.75	20.00	8.50
24EB&ER475	406916	406917	132	30	6.50	0.75	21.50	8.50
			Weight	Wk ² ❶				
Size	Part Number		Mass	J	D_7	D_{42}	H_{11}	H_{14}
6EB&ER200	406900	406901	5,4	0,02	70	16	152	102
8EB&ER250	N/A	416087	8,2	0,04	83	16	210	127
10EB&ER300	406902	406903	8,2	0,04	83	16	210	127
12EB&ER350	406904	406905	21	0,15	127	16	260	178
14EB&ER400	406906	406907	31	0,27	146	19	343	178
16EB&ER475	406908	406909	34	0,27	146	19	381	191
19EB&ER475	406910	406911	42	0,36	146	19	445	191
21.5EB&ER475	406912	406913	59	1,22	165	19	508	216
24EB&ER475	406916	406917	60	1,26	165	19	546	216
SI	Thru Holes	Tapped Holes	kg	kg . m ²	Dimensions in millimeters			

Notes:

❶ Based upon minimum bores.

Airflex® EB Mounting Components

Form EB 713 — Hub for Ventilated Internal Flange Drum — Dimensional and Technical Data — Sizes 6 to 12



English	Thru Holes	Tapped Holes	lb	lb · ft ²	Dimensions in inches				
6EB200	402540	402541	7	0.05	3.50	0.63	0.50	4.50	2.94
8EB250	402542	402543	15	0.2	4.00	0.63	0.50	6.25	4.00
10EB300	402544	402545	16	0.3	4.00	0.63	0.50	7.50	4.00
12EB350	402264	402433	25	0.5	4.25	1.13	0.63	8.25	5.00

Size	Part Number		Weight Mass	Wk ² ❶ J	D_7	D_{29}	D_{42}	H_{11}	H_{14}
6EB200	402540	402541	3,2	0,0021	89	16	13	114	75
8EB250	402542	402543	6,8	0,01	102	16	13	159	102
10EB300	402544	402545	7,2	0,01	102	16	13	191	102
12EB350	402264	402433	11	0,02	108	29	16	210	127

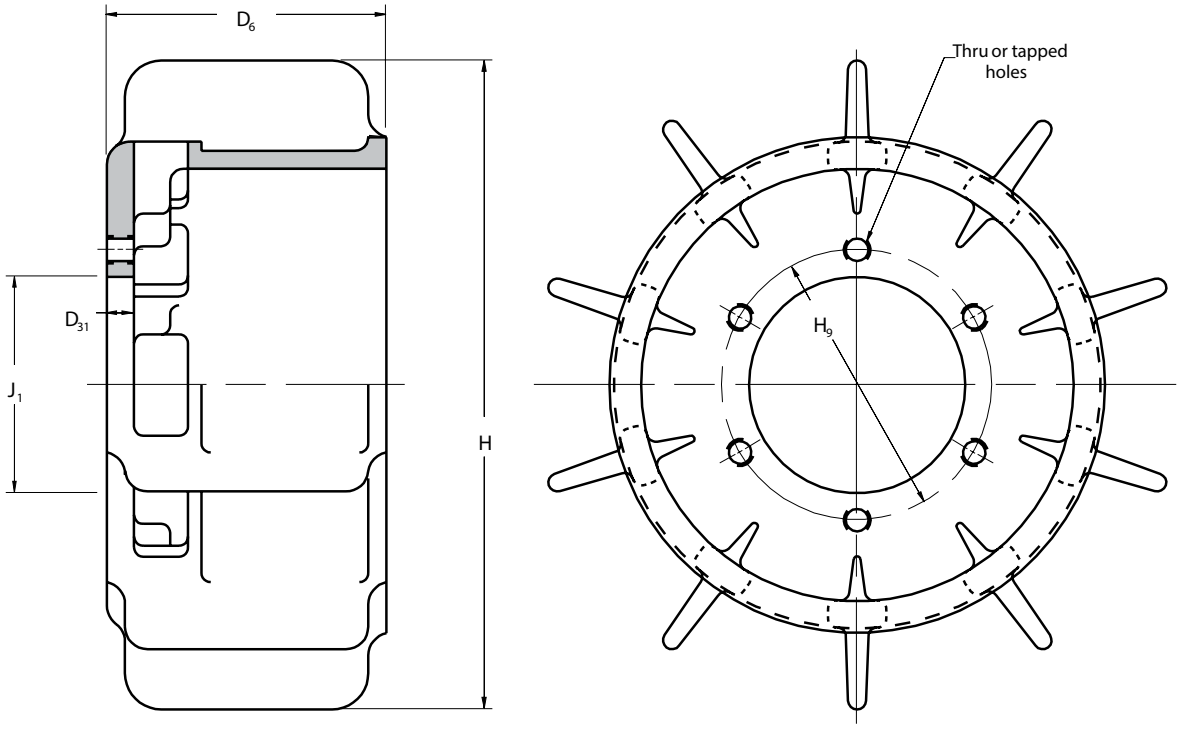
SI	Thru Holes	Tapped Holes	kg	kg . m ²	Dimensions in millimeters				

Notes:

❶ Based upon minimum bores.

Airflex® EB Mounting Components

Form EB 714 — Ventilated Internal Flange Drum — Dimensional and Technical Data — Sizes 6 to 12



English	Thru Holes	Tapped Holes	lb	lb · ft ²	Dimensions in inches							
6EB200	402226	402632	11	1	3.88	0.38	3.000	9	3.75	6	0.41	3/8-16
8EB250	402228	402633	14	2	4.38	0.38	4.750	11	5.50	6	0.41	3/8-16
10EB300	413255	413451	25	5	5.25	0.50	5.500	14	6.50	6	0.53	1/2-13
12EB350	402231	402635	39	10	6.00	0.50	6.250	16	7.25	6	0.53	1/2-13
			Weight	Wk ² ❶								
Size	Part Number		Mass	J	D_6	D_{31}	J_1	H	H_9	L ❷		
										No.	**Thru**	**Tapped**
66EB200	402226	402632	5,0	0,04	99	10	76,2	229	95	6	10	3/8-16
8EB250	402228	402633	6,3	0,08	111	10	120,7	279	140	6	10	3/8-16
10EB300	413255	413451	11	0,21	133	13	139,7	356	165	6	13	1/2-13
12EB350	402231	402635	18	0,42	152	13	158,8	406	184	6	13	1/2-13
SI	Thru Holes	Tapped Holes	kg	kg . m ²	Dimensions in millimeters							

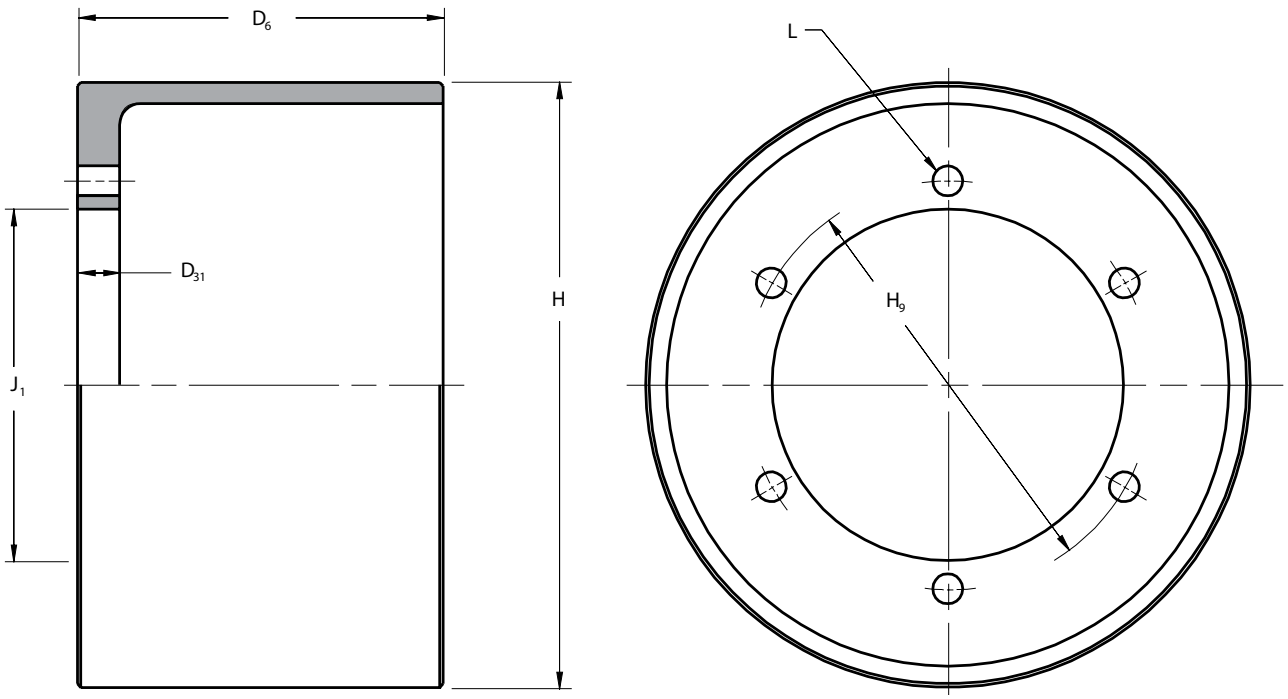
Notes:

❶ Tolerance +0.005/-0.000 in (0,13/-0,00 mm)

❷ American National Standard for Unified Screw Threads.

Airflex® EB and ER Mounting Components

Form EB 715 — Non-Ventilated Internal Flange Drum —
Dimensional and Technical Data — Sizes 6 to 24



English	Thru Holes	Tapped Holes	lb	lb · ft ²	Dimensions in inches							
6EB&ER200	10236	9365	10	0.8	4.50	0.75	4.250	6.63	5.25	8	0.41	3/8-16
8EB&ER250	10237	9366	15	1.4	5.00	0.75	5.500	8.63	6.50	6	0.53	1/2-13
10EB&ER300	9367	10238	30	5	5.38	0.75	6.250	10.75	7.25	6	0.53	1/2-13
12EB&ER350	9368	10239	38	9	7.00	0.75	8.250	12.75	9.25	6	0.53	1/2-13
14EB&ER400	9369	10240	45	15	7.50	0.75	10.750	14.75	12.00	6	0.78	3/4-10
16EB&ER475	9370	10241	61	26	9.00	0.75	12.130	16.75	13.50	8	0.78	3/4-10
19EB&ER475	10142	10242	77	46	9.00	0.75	14.630	19.75	16.00	8	0.78	3/4-10
21.5EB&ER475	10144	10243	90	69	9.00	0.75	16.750	22.25	18.50	10	0.78	3/4-10
24EB&ER475	10145	10244	98	95	9.00	0.75	19.500	24.75	21.50	14	0.78	3/4-10
			Weight	Wk ² ❶								
Size	Part Number		Mass	J	D_6	D_{31}	J_1 ❶	H	H_9	L ❷		
										No.	**Thru**	**Tapped**
6EB&ER200	10236	9365	4,5	0,03	114	19	108,0	168	133	8	10	3/8-16
8EB&ER250	10237	9366	6,8	0,06	127	19	158,8	219	165	6	13	1/2-13
10EB&ER300	9367	10238	14	0,21	137	19	139,7	273	184	6	13	1/2-13
12EB&ER350	9368	10239	17	0,38	178	19	209,6	324	235	6	13	1/2-13
14EB&ER400	9369	10240	20	0,63	191	19	273,1	375	305	6	20	3/4-10
16EB&ER475	9370	10241	28	1,09	229	19	308,1	425	343	8	20	3/4-10
19EB&ER475	10142	10242	35	1,93	229	19	371,6	502	406	8	20	3/4-10
21.5EB&ER475	10144	10243	41	2,90	229	19	425,5	565	470	10	20	3/4-10
24EB&ER475	10145	10244	44	3,99	229	19	495,3	629	546	14	20	3/4-10
SI	Thru Holes	Tapped Holes	kg	kg . m ²	Dimensions in millimeters							

Notes:

❶ Tolerance +0.003/-0.000 in (0,08/-0.00 mm

❷ American National Standard for Unified Screw Threads

Airflex® Selection Procedure

Element Torque Calculations

General

Technical Section Y of the catalog contains useful information pertaining to the selection, mounting, alignment and control of clutches and brakes in general. Formulas, symbols and units are also identified. It is recommended that Section Y be reviewed before attempting to size a specific product for an application.

Operating Speed

Design of expanding type elements allows them to behave as centrifugal clutches. To counteract the centrifugal effect and to permit them to idle or freewheel when disengaged, E and VE elements are furnished with release springs. Available springs and the resulting maximum element idle speeds are given in the following table.

E and VE Element Idle rpm

Size	Spring Force (lb)		
	30 lb	**80 lb**	**150 lb**
12E475	450	720	1010
14E475	400	640	900
16E475	390	620	870
19E475	300	480	690
21.5E475	280	450	640
24E475	300	480	680
27E475	280	450	640
30E600	N/A	350	N/A
34E600	N/A	340	N/A
40E700	N/A	230*	N/A
19VE475	390	620	N/A
24VE475	280	450	N/A
27VE475	300	480	N/A

*100 lb. spring

EB and ER elements rely upon the resiliency of their rubber actuating tube to counteract the centrifugal effect. Their idle speeds are given in the following table.

Size	Idle RPM
3ER125	1200
4EB125	1100
6EB&ER200	800
8EB&ER250	650
9EB325	600
10EB&ER300	520
12EB&ER350	420
14EB&ER400	340
16EB&ER475	270
19EB&ER475	200
21.5EB&ER475	120
24EB&ER475	100

ER elements utilize rubber friction couples. They are intended for use as holding brakes or shaft couplings and are only to be engaged at zero speed differential between element and drum.

Element Torque Adjustment

The catalog element torque ratings $\mathbf{M_r}$ are based upon an effective pressure $\mathbf{P_r}$ of 75 psi (5,2 bar). Torque ratings must be adjusted for operating pressure $\mathbf{P_o}$, parasitic loss $\mathbf{P_p}$ and operating speed **n.**

Maximum allowable operating pressure is dependent upon element construction and frequency of engagement. In gen - eral, the pressures listed in the following table should not be exceeded.

Maximum Allowable Pressure

Model	English	SI
	psi	**bar**
E&VE	125	8,6
EB&ER	110	7,6

The elements have an inherent parasitic pressure $\mathbf{p_p}$ required to cause friction shoe contact with its drum which represents the pressure to overcome resiliency of the actuating tube and, for the E and VE elements, the pressure to overcome friction shoe release springs. Parasitic pressures are given in the following tables and must be deducted from the operating pressure.

E and VE
Parasitic Pressure pp vs Spring Force

Spring Force (lb)	English	SI
	psi	**bar**
30	2	0,14
80	5	0,34
100	5	0,34
150	10	0,68

Parasitic Pressure P_p

Size	English	SI
	psi	**bar**
3ER125	20	1,38
4EB125	20	1,38
6and8EB&ER	7	0,48
10 and 12 EB & ER	6	0,41

The listed torque ratings are for E and VE elements with slip linings. Torque ratings for elements with standard linings are 50% higher. Contact the factory for the possible requirement of reinforced housings if non-slip linings are used.

Airflex® Selection Procedure

Thermal Capacities

A rotating element must have its torque rating adjusted to include the additional torque resulting from centrifugal effects. The method used is to calculate a centrifugal pressure **P_c** and add its value to the applied pressure.

$P_c = C_s \cdot n^2$

where P_c = centrifugal pressure
(psi or bar)
C_s = speed constant obtained from
element catalog page
(psi/rpm^2 or bar/rpm^2)
n = element rpm

Adjusted element torque **M_e** is then calculated from:

$$M_e = \frac{P_o - P_p + P_c}{P_r} \cdot M_r$$

The adjusted element torque **M_e** must then be equal to or greater than the required clutch torque **M_c** or brake torque **M_b**.

Example 1 at the end of this section illustrates the use of the above formulas.

Continuous Thermal Capacity

Expanding elements, when used in combination with air agitating vaned drums, are ideally suited for continuous thermal dissipation. The air agitating vaned drum should be located on the driving side in a clutch application and on the shaft to be stopped in a brake application. Thermal ratings **P_t** vary with operating speed and are shown on the Thermal Power Graphs. Refer to Section X, Tensioning to determine the thermal requirements for an application. For good lining life, limit operating pressure to 20 psi (1,4 bar) and the friction couple slipping velocity to 1600 fpm (8 mps).

For the water-cooled brake application shown on Form E 610 use a friction lining thermal loading of 0.15 HP/in2 (0,017 kW/cm2). Dividing the application thermal requirement by the allowable thermal loading determines the friction area requirement of the brake element. Limit operating pressure to 30 psi (2 bar) and friction couple slipping velocity to 2000 fpm (10,1 mps).

Slip (Lo-Co) friction material must be specified for elements intended for continuous slip service.

Examples 2 and 3 at the end of this section illustrates the above procedure and use of the graphs.

Cyclic Thermal Capacity

Because the expanding elements have only one tube inlet, the rate at which they can be cycled is limited. Allowable rates should be no greater than 10 times per minute. Use the Thermal Power graphs for determining cyclic capacity **P_c**.

Examples

Example 1

Determine the dynamic torque of a 16E475 element having 80 lb springs and rotating at 1000 rpm with an applied pres - sure of 100 psi (6,9 bar).

$$M_e = \frac{P_o = P_p + P_c}{P_r} \cdot M_r$$

$$P_c = C_s \cdot n^2$$

$$= 1.3 \cdot E\text{-}06 \cdot 1000^2$$

$$= 1.3 \text{ psi}$$

$$M_e = \frac{100 - 5 + 1.3}{75} \cdot 21500$$

$$= 27600 \text{ lb} \cdot \text{in}$$

Example 2

A tension brake application requires continuous dissipation of 30 HP at 200 rpm. What size E element can be used?

The thermal requirement exceeds the capacity of either a single or dual element; therefore, a water-cooled application is required.

Area required = 30/0.15 = 200 in^2

Selected either a single 19E475 or a dual 12E475 element for use in the Form E610 arrangement.

Example 3

A 14E475 element is tentatively selected to accelerate a load up to operating speed in 8 seconds. The thermal energy which must be absorbed is 600,000 ft\ cdot \lb. Is the 14E475 element capable of handling the thermal load?

$$\frac{W_t}{A} = \frac{600000}{139} = 4320 \frac{\text{ft} \cdot \text{lb}}{\text{in}^2}$$

$$P_t = \frac{W_t}{550 \cdot t} = \frac{600000}{550 \cdot 8} = 136 \text{HP}$$

$$P_{ave} = \frac{P_t}{A} = \frac{136}{139} = 0.978 \frac{\text{HP}}{\text{in}^2}$$

The point (W_t/A, P_{avc}) falls outside the acceptable area of the Non-Cyclic Energy Chart; therefore, the 14E475 element is not capable of handling the thermal load. Either a dual 12E475 or a single 21.5E475 element should be used.

Example 4

A shaft coupling is required to transmit 50 HP at 900 rpm. The type of service indicates that a 2 service factor is required.

$$P_D = P_p \cdot SF$$

$$P_D = 50 \cdot 2 = 100 \text{ HP}$$

From Power Capacity graphs select the 12ER350 element.

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Local address:

Danfoss
Power Solutions (US) Company
2800 East 13th Street
Ames, IA 50010, USA
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Danfoss
Power Solutions GmbH & Co. OHG
Krokamp 35
D-24539 Neumünster, Germany
Phone: +49 4321 871 0

Danfoss
Power Solutions ApS
Nordborgvej 81
DK-6430 Nordborg, Denmark
Phone: +45 7488 2222

Danfoss
Power Solutions Trading (Shanghai) Co., Ltd.
Building #22, No. 1000 Jin Hai Rd
Jin Qiao, Pudong New District
Shanghai, China 201206
Phone: +86 21 2080 6201

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