

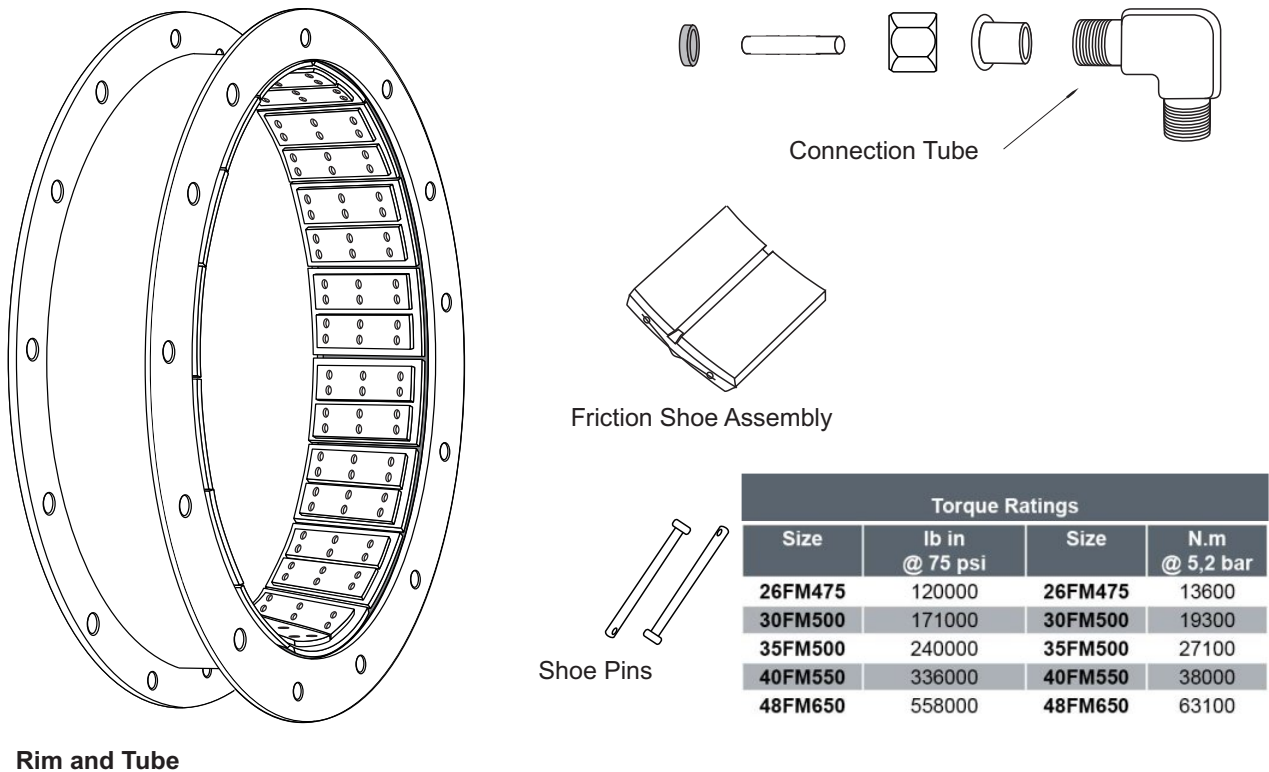


**DELLNER
BUBENZER**

PNEUMATIC CLUTCHES AND BRAKES

- Marine Type FM (CM)

2021.03



The FM elements have the same features as the FK, but with the characteristic that it dissipates heat much quicker. The FM elements are used in applications where moderate slippage is encountered, which would result in the shortened operating life of a FK type element.

The rubber tube is vulcanized on a steel rim, which has male and female keys in order to facilitate the assembly of dual and triple elements. The ventilated friction shoes are mounted to the rubber tube by using two shoe pins that are locked in place by cotter pins.

The capacity of the element to transmit torque depends upon the air pressure being applied and on the speed of revolutions. The ratings shown in the catalog are given at a pressure of 75 psi (5,2 bar) and 0 r.p.m. The construction of the rubber tube of the FM element allows it to work at a higher operating pressure than the type FK element. The maximum recommended pressure is 150 psi (10.3 bar). Adjustments for speed or pressure are explained under the Selection Procedure section of the catalog.

FM elements are available in 5 different sizes that are identified by the drum diameter in inches in which they constrict upon, and the width in inches of its friction shoe. For example, the element **26FM475** is designed to constrict on a drum with a diameter of 26" and with a width of 4,75". The smallest size of FM elements will constrict on a drum with 26" of diameter (660 mm.), and the largest on a 48" (1219 mm) diameter drum.

The FM elements can be bolted together in dual or triple elements, resulting with the capacity to double or triple its capacity to transmit torque compared to that of a single FM element. Due to the fact that the rubber tube is the connecting element between the driven and driving shafts, the FM design offers the following additional aspects to the ones described in this last paragraph.

One single moving component

The tube is the only moving component element; there are no sliding parts.

Cushioning effect

Due to the fact that the tube transmits the torque through its sidewalls, it acts as a shock absorber, cushioning the charging impacts and shock loads, protecting the transmissions components. The rubber tube also dampens and reduces the effects of the tensional vibrations.

Flexible connection

The flexibility of the tube is able to compensate for minor shaft misalignment and absorbs axial movement.

Ventilated construction

The ventilated construction of the friction shoe allows for greater heat dissipation and thermal capacity.

Industry Used In:
Marine Propulsion

FM (CM) Element

Technical data

Size 26 to 48



ENGLISH		ib.in @75 psi	r p m	rs i/rp m ²	lb/ft ²	lb	in ²	Inches		in ²	Inches
								new	worn		
26FM475	103212	124000	1600	40	280	160	302	0.30	0.21	120	125.81
30FM500	103252	176000	1400	48	430	190	379	0.33	0.18	210	29.81
35FM500	103291	247000	1200	58	760	250	433	0.33	0.18	250	34.81
40FM550	103312	340000	1050	68	1150	310	540	0.33	0.18	320	39.81
48FM650	103335	595000	900	79	2020	400	752	0.33	0.18	430	47.75

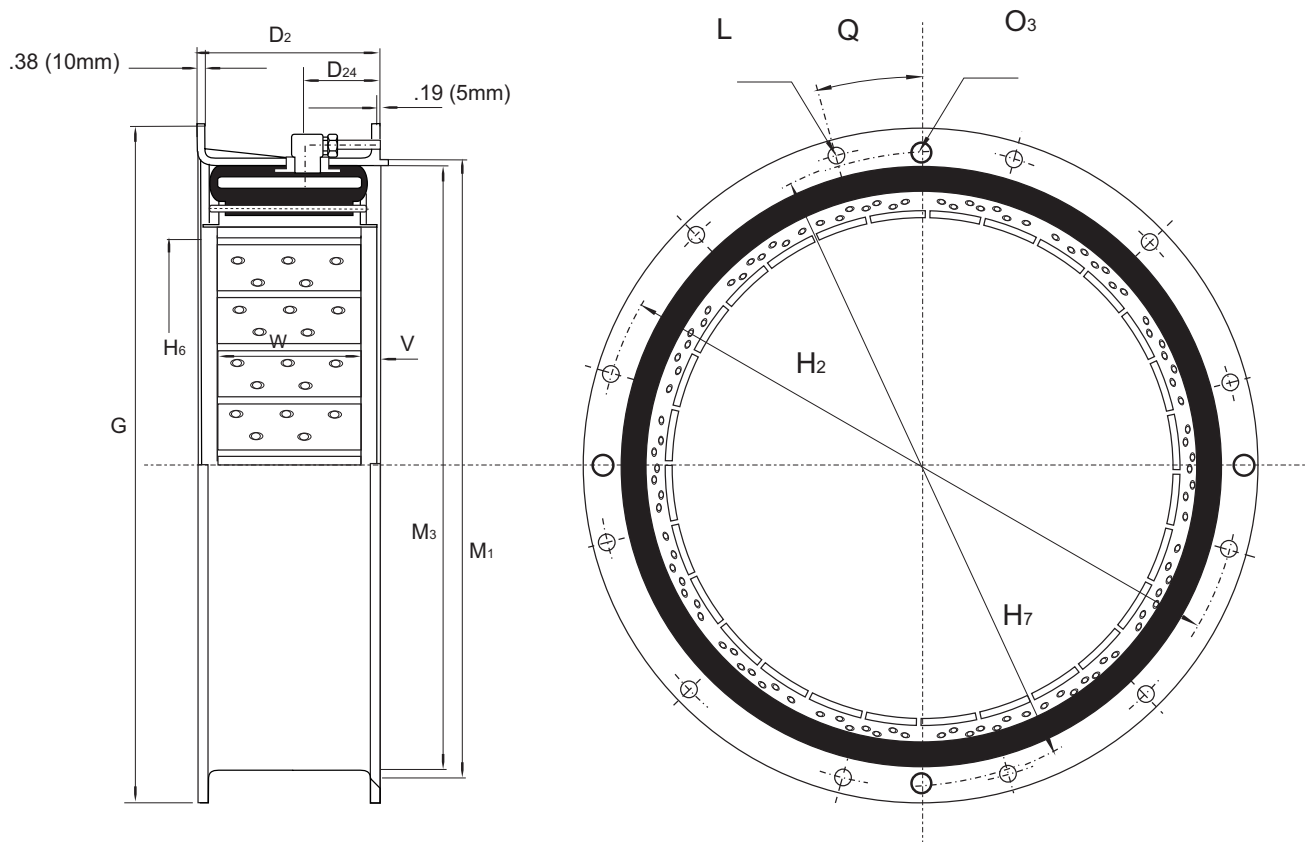
Size	Part number ¹	M.Torque Rating	Max. speed	Cs Centrifugal Loss constant	Wk ²	Weight	Friction area	Friction Lining Thickness		Air Cavity volume ⁵	Minimum Drum diameter
					J	Mass					
26FM475	103212	13600	1600	2.8	11.76	72	2099	8	5	1.97	656
30FM500	103252	19300	1400	3.3	18.06	86	2634	8	5	3.44	757
35FM500	103291	27100	1200	4.0	31.92	113	3009	8	5	4.10	884
40FM550	103312	38000	1050	4.7	48.30	140	3753	8	5	5.25	1011
48FM650	103335	63100	900	5.5	84.84	181	5226	8	5	7.05	1213

SI	N.m @ 5.2 bar	rpm	bar/rpm ²	kg.m ²	kg	cm ²	Milimeters		dm ²	mm
							nuevo	usado		

* The data displayed in the catalog is current and subject to change without previous notice.

NOTES:

- 1- The indicted torque is dynamic, the static torque is approximately 25% greater. The torque in each application depends upon the air pressure and the speed.
- 2- Tolerance + 0,000/-0,006 inches.
(+ 0,00/-0,15 mm).
- 3- Tolerance + 0,005/-0,000 inches.
(+ 0,13/-0,00 mm).
- 4- NPT thread.
- 5- Drum contact with installed drum and worn shoes.



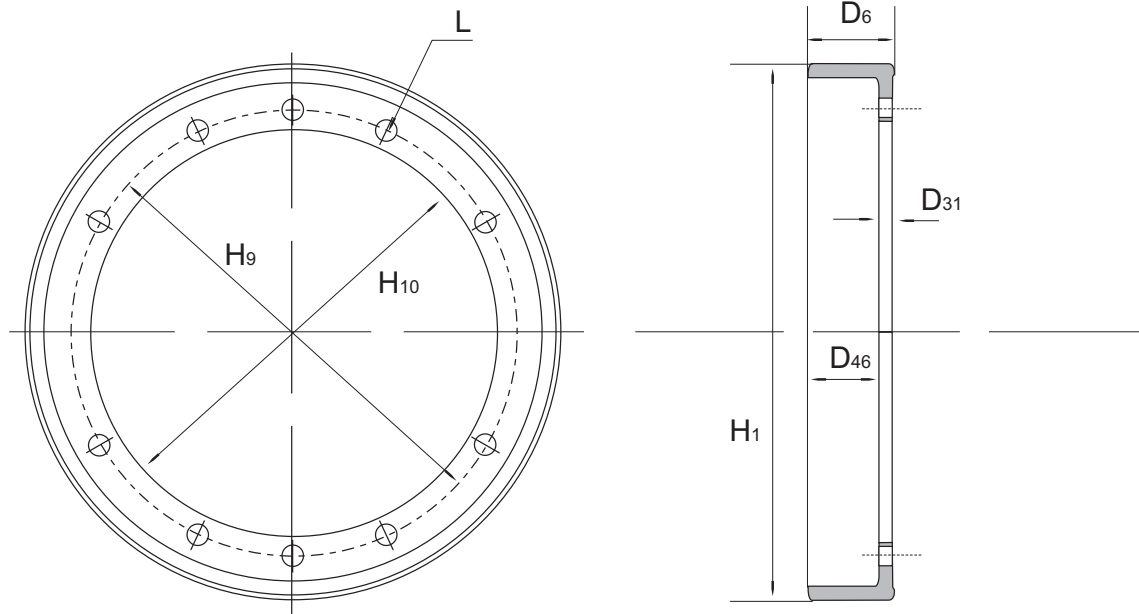
ENGLISH	lb.in @75 psi	Dimensions in inches																	
		D ₂	D ₂₄	G	H ₂	H ₅	H ₇	No.	L	Dia	M ₁	M ₃	O ₃	O ₄	Q (Deg)	v	w	c	
26FM475	103212	124000	6.94	3.38	34.750	33.438	26.19	32.88	12	0.69	31.500	31.125	0.38	3/8-18	15.000	1.00	4.75	12	
30FM500	103252	176000	7.19	3.50	39.375	38.000	30.19	37.50	12	0.81	35.750	35.380	0.50	1/2-14	15.000	1.00	5.00	14	
35FM500	103291	247000	7.69	3.75	45.875	44.375	35.19	43.75	12	0.81	42.000	41.380	0.63	3/4-14	15.000	1.25	5.00	16	
40FM550	103312	340000	8.44	4.13	51.375	49.875	40.19	49.25	12	0.81	47.375	46.755	0.63	3/4-14	15.000	1.38	5.50	18	
48FM650	103335	595000	9.06	4.44	59.500	58.000	48.19	57.25	16	0.81	55.375	54.760	0.63	3/4-14	11.250	1.19	6.50	21	
Size	Part number	M. 1 Torque rating	D ₂	D ₂₄	G	H ₂	H ₅	H ₇	No.	L	Dia	M ₁	M ₃	O ₃	O ₄	Q (Deg)	v	w	c
26FM475	103212	13600	176	86	882.7	849.3	665	835	12	18	800.1	790.6	10	3/8-18	15.000	25	121	12	
30FM500	103252	19300	183	89	1000.1	965.2	767	953	12	21	908.1	898.7	13	1/2-14	15.000	25	127	14	
35FM500	103291	27100	195	95	1165.2	1127.1	894	1111	12	21	1066.8	1051.1	16	3/4-14	15.000	32	127	16	
40FM550	103312	38000	214	105	1304.9	1266.8	1021	251	12	21	1203.3	1187.6	16	3/4-14	15.000	35	140	18	
48FM650	103335	63100	230	113	1511.3	1473.2	1224	1454	16	21	1406.5	1390.9	16	3/4-14	11.250	30	165	21	
SI	N.m @5.2 bar	Dimensions in millimeters																	

The data displayed in catalog is indicative and subject to modification without previous warning.

FM (CM) Element Assembly Components



Drum - Dimensional and technical data



NOTES:

- 1- Tolerance + 0,000/-0.010 in.
(+ 0,00/-0,25 mm).
- 2- Tolerance + 0,003/-0.000 in.
(+ 0,08/-0,00 mm).

ENGLISH	Dimensions in inches											
26FM475	0.75	26	10	0.81	5.25	3.25	16.130	14.750	5.25	4.19	21.630	20.250
30FM500	0.75	30	10	0.88	5.50	3.75	20.130	18.750	5.50	3.88	25.630	24.250
35FM500	1.00	35	10	1.00	6.50	4.25	23.505	21.875	6.69	4.25	30.005	28.375
40FM550	1.25	40	10	1.06	6.50	4.00	26.255	24.375	6.50	3.50	33.755	31.875
48FM650	1.25	48	12	1.06	7.00	3.06	37.760	35.875	7.00	4.50	42.010	40.000
Size	D_{31}	H_1	Forward Drum				Reverse Drum					
			N°	Día	D_e	D_{46}	H_9 ①	H_{10} ②	D_e	D_{46}	H_9 ①	H_{10} ②
26FM475	19	660	10	21	133	83	409.7	374.7	133	106	549.4	514.4
30FM500	19	762	10	22	140	95	511.3	476.3	140	99	651.0	616.0
35FM500	25	889	10	25	165	108	597.0	555.6	170	108	762.1	720.7
40FM550	32	1016	10	27	165	102	666.9	619.1	165	89	857.4	809.6
48FM650	32	1219	12	27	178	78	959.1	911.2	178	114	1067.1	1016.0
SI	Dimensions in millimeters											

* The data displayed in the catalog is current and subject to change without previous notice.

Forward Drum					
Size	Part number	ENGLISH		SI	
		Weight lb	Wk ² lb-ft ²	Mass Kg	J Kg-m ²
26FM475	217014	190	170	86	7.14
30FM500	217016	210	280	95	11.76
35FM500	217090	310	570	140	23.94
40FM550	217039	460	990	208	41.58
48FM650	217120	590	1970	267	82.74

Reverse Drum					
Size	Part number	ENGLISH		SI	
		Weight lb	Wk ² lb-ft ²	Mass Kg	J Kg-m ²
26FM475	217015	145	150	66	6.30
30FM500	217121	175	250	79	10.50
35FM500	217040	245	490	111	20.58
40FM550	217091	350	830	159	34.86
48FM650	217017	500	1750	227	73.50