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Airflex

Airflex® DBB & DBA Brakes

These spring-applied, pressure released, disc style brakes develop equal torque in either direction of rotation. Their torque and thermal capacities allow them to be used in the most demanding applications.



DBB Description

Model DBB brakes are spring applied, pressure released, disc style brakes. They develop equal torque in either direction of rotation. Their torque and thermal capacities allow them to be used in the most demanding applications. Brake construction and operation is shown in the figure. Pressurizing the brake compresses the brake springs and withdraws the clamping plates from the brake discs. Standard brakes are furnished with multiple discs, which are free to move axially.

Model DBB uses a conventional piston design to release the brake discs. The rotation component of the DBB style brake is a very low inertia friction disc core with riveted on friction discs. The low inertia of the rotating components coupled with the high heat sink capacity of the stationary members allow these units to provide superior performance in high cyclic applications. In applications requiring higher speed operation or where precise balance of the rotating components is required, the DBBS style is offered, which utilizes a solid rotor and stationary friction material. Similar to the DBAS design, the DBBS should only be used for applications where brake engagement is non-cyclic. Torque ratings listed are for brakes with a standard compliment of springs. The quantity of springs can be varied to customize the torque of the brake to suit a particular application. Consult the factory for brake torque of units with non-standard spring configurations.

Brake sizes are indicated by the number of brake discs and the disc diameter in inches. For instance, size 225DBB has two discs 25 inches in diameter.



Features

Low inertia friction disc assembly

Reduces the overall inertia that must be stopped.

Optional split friction discs

Allows removal of friction discs without disturbing other components of drive system in mid-shaft brake arrangement.

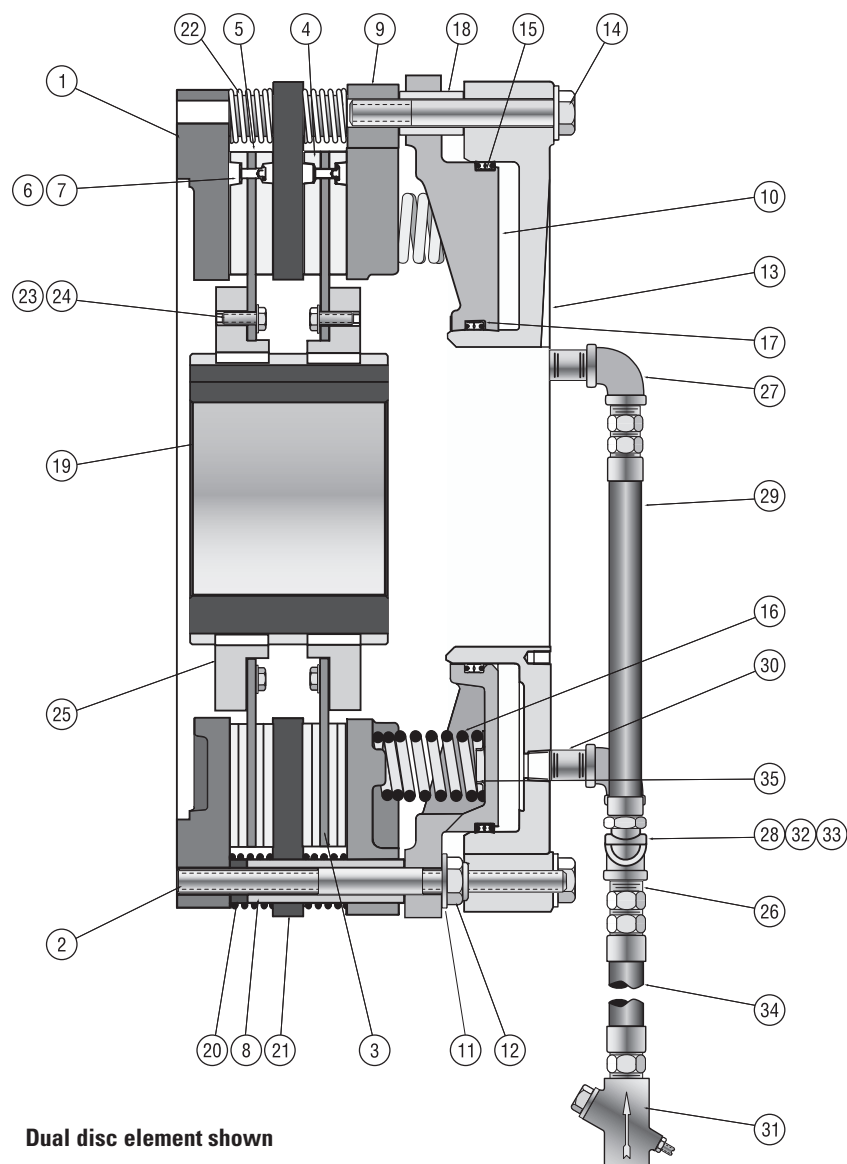
Low wearing, self lubricating PolyPak® seals

Eliminates premature twisting failure and requires no external lubrication.

Where Used:

- Bottling Equipment
- Power Shovels
- Draglines
- Conveyors
- Shears
- Power Presses

DBB Component Parts



Item No.	Description
1	Mounting Flange
2	Stud
3	Friction Disc Sub-Assembly
4	Friction Disc
5	Friction Disc Core
6	Rivet
7	Washer
8	Clamp Tube
9	Pressure Plate
10	Spring Housing
11	Flat Washer
12	Locknut

Item No.	Description
13	Cylinder
14	Hex Head Screw
15	Outer Seal
16	Spring
17	Inner Seal
18	Spacer Tube
19	Gear
20	Wear Spacer
21	Reaction Plate
22	Release Spring
23	Flat Washer
24	Hex Head Screw

Item No.	Description
25	Ring Gear
26	Pipe Nipple
27	Elbow
28	Pipe Cross
29	Hose Assembly
30	Pipe Nipple
31	Flow Control Valve
32	45 Deg. Street Elbow
33	Pipe Reducer
34	Hose Assembly
35	Spring Retainer

DBB Elements

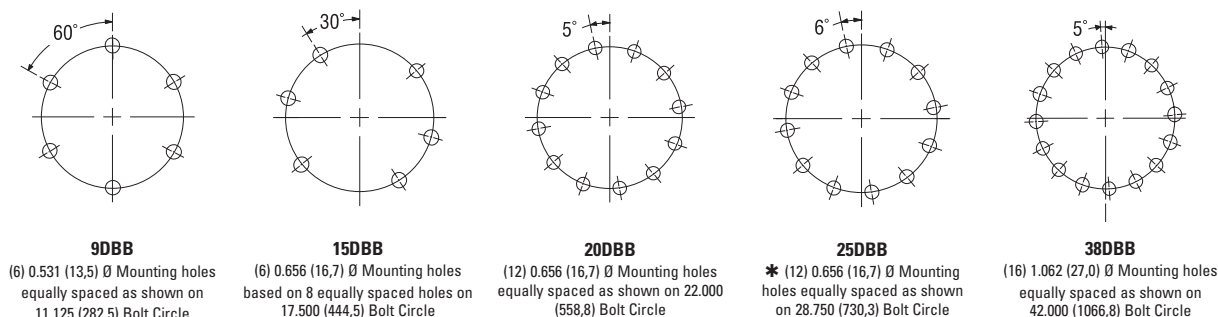
Dimensional Data

English	Dimensions in inches				
109DBB	1.50	2.56	7.26	1.75	6.06
209DBB	1.94	2.56	8.70	4.00	7.53
309DBB	2.13	2.63	10.12	5.25	9.06
115DBB	2.50	4.38	4.38	2.88	7.62
215DBB	3.00	4.25	11.16	4.38	9.23
120DBB	3.00	5.88	10.87	3.00	9.37
220DBB	3.75	6.00	13.04	6.27	11.54
320DBB	4.25	5.88	15.21	8.25	13.68
420DBB	4.50	5.88	17.38	10.31	15.84
125DBB	3.88	7.50	12.07	3.50	10.57
225DBB	4.88	7.56	14.38	7.00	12.88
325DBB	5.50	7.50	16.69	9.31	15.19
425DBB	5.88	7.50	19.00	12.00	17.50
138DBB	6.00	11.00	16.25	5.00	14.25
238DBB	7.38	10.88	19.05	9.00	17.05
338DBB	8.38	10.63	21.85	12.00	19.73
438DBB	9.06	10.63	24.65	5.00	22.52
Size 	Min.	Max.	D 	D ₁	W ₄ 
	Bore Range				

SI	Dimensions in millimeters				
109DBB	38	65	184	44	154
209DBB	49	65	221	102	191
309DBB	54	67	202	133	230
115DBB	64	111	242	73	191
215DBB	76	108	283	111	235
120DBB	76	149	276	76	238
220DBB	95	152	331	159	292
320DBB	108	149	386	210	347
420DBB	114	149	441	262	402
125DBB	99	191	307	89	268
225DBB	124	192	365	178	327
325DBB	140	191	424	236	386
425DBB	149	191	483	305	445
138DBB	152	279	413	127	362
238DBB	187	276	484	229	433
338DBB	213	270	555	305	501
438DBB	230	270	626	381	572
Size 	Min.	Max.	D 	D ₁	W ₄ 
	Bore Range				

English	Dimensions in inches							
9DBB	1.00	0.25	①	3.12	12.125	8.375	12.37	3/8-18
15DBB	1.47	0.38	0.38	6.00	18.375	14.375	18.94	1/2-14
20DBB	1.50	0.38	1.00	8.50	23.250	18.250	23.82	1/2-14
25DBB	1.75	0.25	0.75	11.50	30.630	24.375	30.89	1/2-14
38DBB	2.45	0.25	1.25	16.50	44.750	36.375	45.01	3/4-14
Size	D ₃₁	D ₄₄	D ₄₅	H ₁₆	J ^②	J ₁ ^③	J ₂ ▼	O ₂ ^④
9DBB	25	6	①	79	308.0	212.7	314	3/8-18
15DBB	37	10	10	152	466.7	365.1	481	1/2-14
20DBB	38	10	25	216	590.6	463.5	605	1/2-14
25DBB	44	6	19	292	778.0	619.1	785	1/2-14
38DBB	62	6	32	419	1136.7	923.9	1143	3/4-14
SI	Dimensions in millimeters							

Mounting Bolt Circles

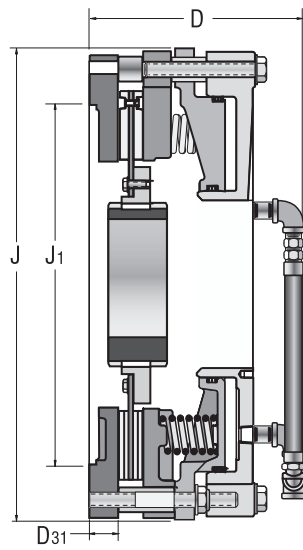


Notes:

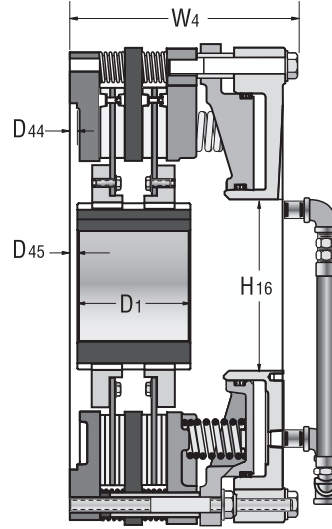
- ① 0.50 in (13 mm) for 109 DBB
0.25 in (6 mm) for 209 DBB
0.00 in (0 mm) for 309 DBB
- ② Tolerance +0.000/-0.003 in (+0,00/-0,08 mm)
- ③ Tolerance +0.003/-0.000 in (+0,08/-0,00 mm)
- ④ American National Pipe Thread.
- ⑤ Brake in disengaged position.
- ⑥ All DBB brakes can be supplied plumbed as shown with a flow control valve having American National Pipe thread ports of 1/2-14 for size 9DBB, 3/4-14 for sizes 15DBB, 20DBB, 25DBB and 1-11 1/2 for size 38DBB.
- ⑦ Basic part number only. Does not include gear. Gear must be ordered separately with the bore and keyway requirements.
- ⑧ Dynamic torque shown. Static torque approximately 15% greater. Torque values are for new linings. Torque decreases with lining wear. At the worn out condition, torque is approximately 0.66 of values shown.
- ⑨ Torque ratings are for units with standard complement of springs. Consult factory for torque ratings of units with non standard spring configurations.
- ⑩ Maximum allowable cylinder pressure is 120 psi (8,3 bar).
- * (12) 0.781 (19,8) Diameter mounting holes equally spaced as shown on 28.75 (730,3) Bolt circle.
- ▲ Absolute volume of releasing cavity.
- ▼ Maximum diameter of "as cast" surfaces.
- ◆ Some high torque applications of three and four disc elements require additional support of the cylinder side of the unit. Contact your local Airflex representative for more details.

DBB Elements

Technical Data

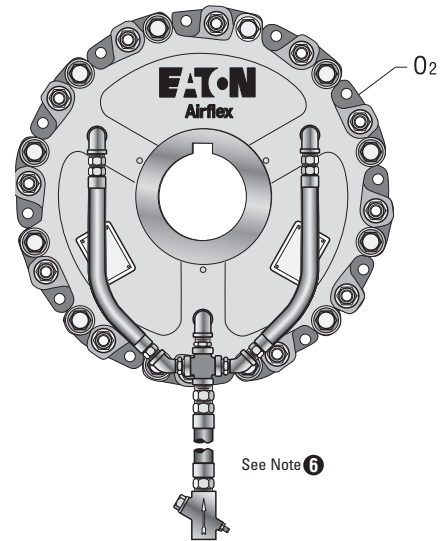


Single Disc Brake



Dual Disc Brake

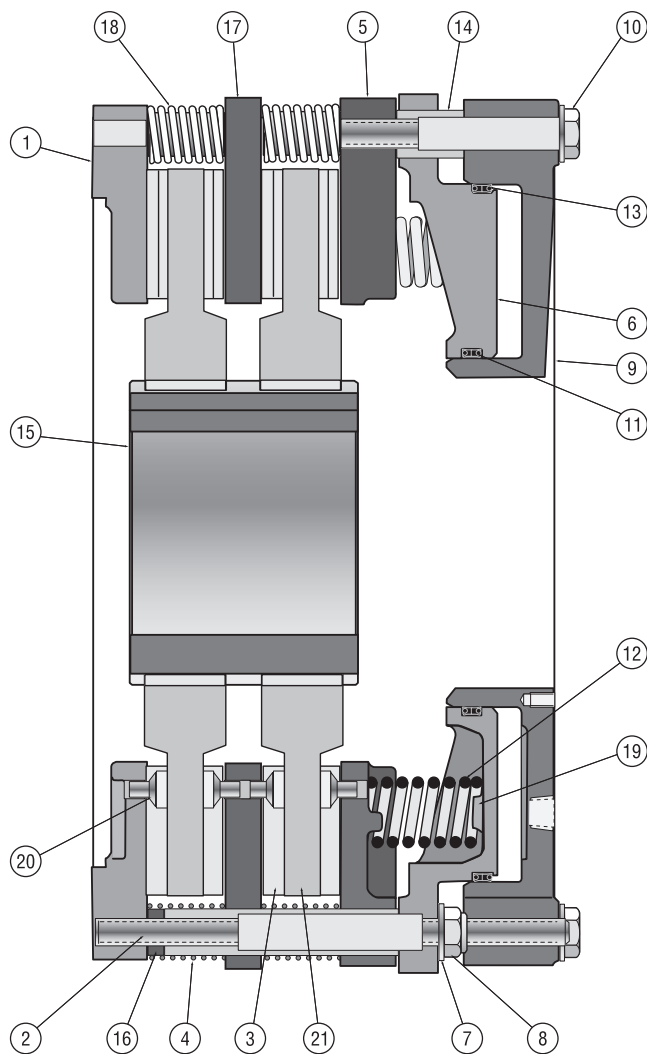
See Note
on pg 4



See Note 6

English			lb•in	psi	in³	in²	lb•ft²	lb		rpm
109DBB	146333	415313	7500	60	30	96	0.5	9	115	3000
209DBB	146334	415314	14000	60	30	192	1	18	145	3000
309DBB	146380	416481	19400	60	30	288	1.83	27	180	3000
115DBB	146222	415454	30000	60	75	238	5	35	225	2400
215DBB	146337	415302	57000	60	75	476	10	64	275	2400
120DBB	146299	415900	53500	60	133	334	17	40	385	1850
220DBB	146300	416059	101500	60	133	668	33	67	487	1850
320DBB	146378	416304	149000	60	133	1002	49	213	590	1850
420DBB	146379	416471	180000	60	133	1336	65	102	695	1850
125DBB	146315	416073	115300	60	259	600	47	78	705	1400
225DBB	146327	416074	219000	60	259	1201	93	148	935	1400
325DBB	146370	416223	303000	60	259	1802	139	403	1120	1400
425DBB	146381	416477	390000	60	259	2403	185	280	1250	1400
138DBB	146295	415068	420000	60	612	1322	287	203	1955	950
238DBB	146296	416069	800000	60	612	2644	562	340	2325	950
338DBB	146386	416241	1153000	60	612	3966	837	1087	3280	950
438DBB	146387	416464	1470000	60	612	5288	1112	1424	3850	950
Size	Part Number	Gear Part Number	7 M _r Torque Rating	8 9 Minimum Releasing Pressure	10 ▲ Releasing Volume	Friction Area	Wk²	Weight	Housing	Maximum Speed
							Disc & Gear			
							J	Mass		
109DBB	146333	415313	847	4,1	0,49	619	0,02	4	52	3000
209DBB	146334	415314	1581	4,1	0,49	1238	0,04	8	66	3000
309DBB	146380	416481	2192	4,1	0,49	1858	0,07	12	82	3000
115DBB	146222	415454	3387	4,1	1,23	1535	0,21	16	102	2400
215DBB	146337	415302	6435	4,1	1,23	3070	0,42	29	125	2400
120DBB	146299	415900	6040	4,1	2,18	2154	0,71	18	175	1850
220DBB	146300	416059	11459	4,1	2,18	4309	1,39	30	221	1850
320DBB	146378	416304	16822	4,1	2,18	6463	2,06	97	277	1850
420DBB	146379	416471	20338	4,1	2,18	8617	2,73	46	315	1850
125DBB	146315	416073	13017	4,1	4,25	3870	1,97	35	320	1400
225DBB	146327	416074	24725	4,1	4,25	7746	3,91	67	424	1400
325DBB	146370	416223	44031	4,1	4,25	11623	5,84	183	508	1400
425DBB	146381	416477	44067	4,1	4,25	15499	7,77	127	567	1400
138DBB	146295	416068	47418	4,1	10,03	8527	12,05	92	887	950
238DBB	146296	416069	90320	4,1	10,03	17054	23,60	154	1055	950
338DBB	146386	416241	130282	4,1	10,03	25581	35,15	493	1488	950
438DBB	146387	416464	166101	4,1	10,03	34108	46,70	646	848	950
SI			n•m	bar	dm³	cm²	kg•m2	kg		rpm

DBBS Component Parts



Dual disc element shown

Item No.	Description
1	Mounting Flange
2	Stud
3	Friction Disc
4	Clamp Tube
5	Pressure Plate
6	Spring Housing
7	Flat Washer
8	Lock Nut
9	Cylinder
10	Hex Head Screw
11	Inner Seal

Item No.	Description
12	Spring
13	Outer Seal
14	Spacer Tube
15	Gear
16	Wear Spacer
17	Reaction Plate
18	Release Spring
19	Spring Retainer
20	Flat Head Screw
21	Disc

DBBS Elements

Dimensional Data

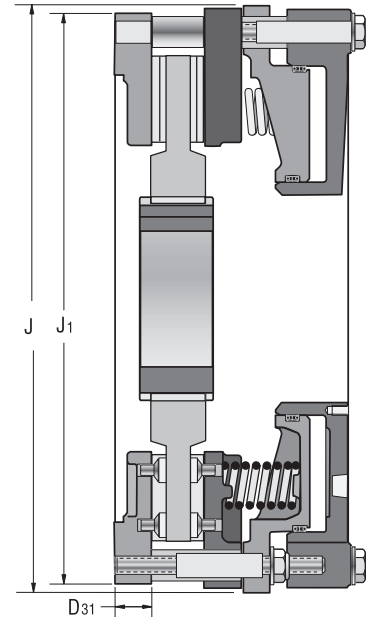
English	Dimensions in inches			
120DBBS	3.50	5.63	10.30	3.00
220DBBS	4.25	5.69	13.48	6.27
320DBBS	4.88	5.75	16.63	10.31
420DBBS	5.13	5.81	19.81	12.50
125DBBS	4.50	7.00	11.49	3.50
225DBBS	5.50	7.13	14.73	7.00
325DBBS	6.13	7.38	17.96	12.00
425DBBS	6.63	7.31	21.19	15.00
138DBBS	8.50	10.06	15.20	5.00
238DBBS	8.50	10.06	18.97	9.00
338DBBS	9.63	9.88	22.60	13.00
438DBBS	10.25	10.25	26.34	18.00
Size	Min. Max.		D	D ₁
	⑥ Bore Range	⑦		
	Min.	Max.		
120DBBS	89	143	262	76
220DBBS	103	145	342	159
320DBBS	124	146	422	262
420DBBS	130	148	503	318
125DBBS	114	177	292	89
225DBBS	140	181	374	178
325DBBS	156	187	456	381
425DBBS	168	186	538	381
138DBBS	216	256	386	127
238DBBS	216	256	482	229
338DBBS	245	251	574	330
438DBBS	260	260	669	457
SI	Dimensions in millimeters			

English	Dimensions in inches							
20DBBS	1.50	0.38	1.00	8.50	23.250	18.250	23.82	1/2-14
25DBBS	1.75	0.25	1.00	11.50	30.630	24.375	30.89	1/2-14
38DBBS	2.45	0.25	1.00	16.50	44.750	36.375	45.00	3/4-14
Size	D ₃₁	D ₄₄	D ₄₅	H ₁₆	J ②	J ₁ ③	J ₂ ④	O ₂ ⑤
20DBBS	38	10	25	216	590.6	463.5	604	1/2-14
25DBBS	44	6	25	292	778.0	619.1	785	1/2-14
38DBBS	62	6	25	419	1135.7	923.9	1143	3/4-14
SI	Dimensions in millimeters							

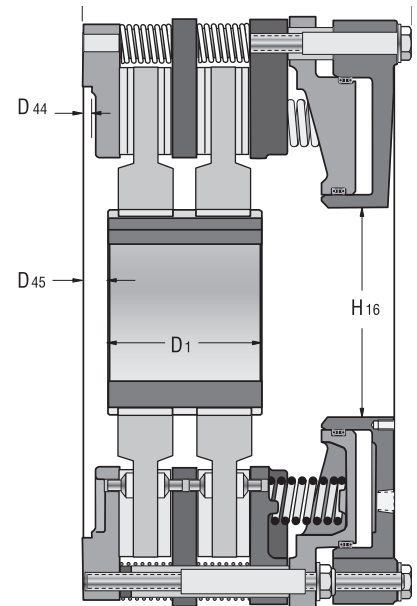
Notes:

- ① Brake in disengaged position.
- ② Tolerance +0.000/-0.003 in. (+0.00/-0.08 mm)
- ③ Tolerance +0.003/-0.000 in (+0.08/-0.00 mm)
- ④ Maximum diameter of "as cast" surfaces.
- ⑤ American National Pipe Thread.
- ⑥ See note 4 on revised page 11
- ⑦ See note 5 on revised page 11

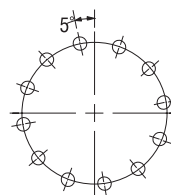
Single Disc Element



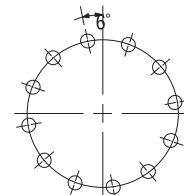
Dual Disc Element



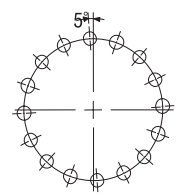
Mounting Bolt Circles



20DBBS
(12) 0.656 (16.7) Ø
Mounting holes equally
spaced, as shown on
22.000 (558.8) Bolt Circle



25DBBS
(12) 0.656 (16.7) Ø
Mounting holes equally
spaced, as shown on
28.750 (730.3) Bolt Circle



38DBBS
(16) 1.062 (27.0) Ø
Mounting holes equally
spaced, as shown on
42.000 (1066.8) Bolt Circle

DBBS Elements

Technical Data

English			lb•in	psi	in ³	in ²	lb•ft ²	lb		rpm
120DBBS	146323	415900	80,000	90	133	346	33	125	400	2200
220DBBS	146322	416059	150,000	90	133	692	65	232	550	2200
320DBBS	146373	416471	224,000	90	133	1,038	120	357	720	2200
420DBBS	146374	416472	270,000	90	133	1,384	159	464	914	2200
125DBBS	146320	416073	173,000	90	259	628	89	212	880	1700
225DBBS	146330	416074	325,000	90	259	1,255	178	416	1,318	1700
325DBBS	146382	416477	455,000	90	259	1,883	309	682	1,585	1700
425DBBS	146383	416470	585,000	90	259	2,510	411	854	1,882	1700
138DBBS	146328	416068	630,000	90	612	1,357	553	583	2,125	950
238DBBS	146329	416069	1,200,000	90	612	2,714	1,094	1,100	3,125	950
338DBBS	146384	416414	1,730,000	90	612	4,071	1,709	1,680	4,085	950
438DBBS	146385	416461	2,200,000	90	612	5,428	2,285	2,264	4,975	950
Size	① Part Number	Gear Part Number	② ③ M, Torque Rating	④ Minimum Releasing Pressure	⑤ Releasing Volume	Friction Area	Wk ²	Weight	Housing	Maximum Speed
							Disc & Gear			
							J	Mass		
120DBBS	146323	415900	9.032	6,2	2,18	2.232	1,39	56	181	2200
220DBBS	146322	416059	16.935	6,2	2,18	4.465	2,74	105	249	2200
320DBBS	146373	416471	25.290	6,2	2,18	6.697	5,06	162	327	2200
420DBBS	146374	416472	30.483	6,2	2,18	8.930	6,70	211	415	2200
125DBBS	146320	416073	19.532	6,2	4,24	4.052	3,75	96	398	1700
225DBBS	146330	416074	36.693	6,2	4,24	8.097	7,50	188	596	1700
325DBBS	146382	416477	51.372	6,2	4,24	12.149	13,03	310	720	1700
425DBBS	146383	416470	66.059	6,2	4,24	16.194	17,34	388	855	1700
138DBBS	146328	416068	71.127	6,2	10,02	8.755	23,30	264	962	950
238DBBS	146329	416069	135.480	6,2	10,02	17.510	46,10	498	1414	950
338DBBS	146384	416414	195.325	6,2	10,02	26.265	72,10	736	1856	950
438DBBS	146385	416461	248.391	5,2	10,02	35.020	96,41	1029	2261	950
SI			N•m	bar	dm ³	cm ²	kg•m ²	kg		rpm

Notes:

- ① Basic part number only. Does not include gear. Gear must be ordered separately with bore and keyway requirements.
- ② Dynamic torque shown. Static torque approximately 15% greater. Torque values are for new linings. Torque decreases with lining wear. At worn out condition, torque is approximately 0.66 of values shown.
- ③ Torque ratings are for units with a standard complement of springs. Consult factory for torque ratings of units with non-standard spring configurations.
- ④ Maximum allowable cylinder pressure is 120 psi (8,31 bar).
- ⑤ Absolute volume of releasing cavity.
- ⑥ Triple and quadruple disc units can also be supplied for each size. Consult factory for dimensional and technical data.