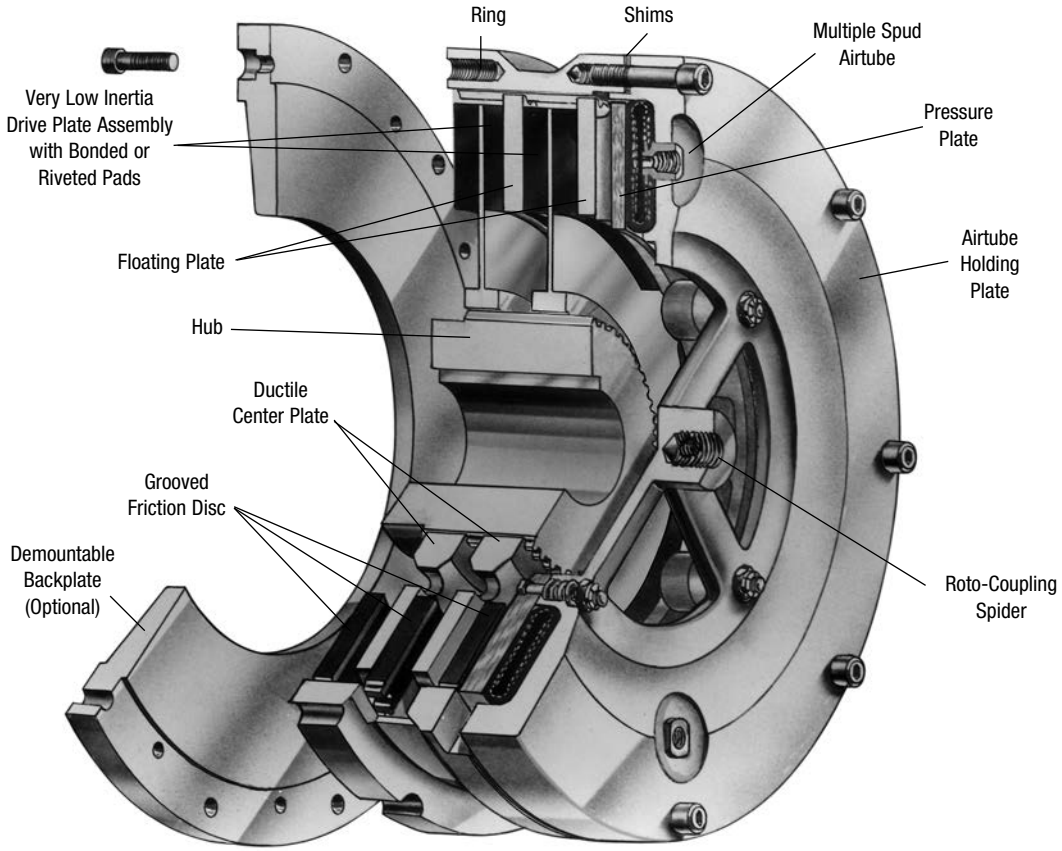
Air Tube Disc Clutches and Brakes

Low Inertia and Very Low Inertia Clutches and Brakes



Operating Features

The Wichita Air-Tube Disc Clutch combines all the best features of the disc type clutch with all the advantages of direct air engagement. The simplest and most trouble-free method of applying air pressure is through direct axial pressure application by compressed air in a special composition full-circle tube.

Wichita Clutches engage smoothly without noise, shock or impact and release completely in a fraction of a second. Extremely fast action is possible because of the small volume of air required.

Clutches may be slipped moderately to control the acceleration rate.

When large inertia loads are powered from electric motors, smooth, controlled slip starts by Wichita Clutches can keep power demands below the allowed maximum.

Heat generated by controlled slipping or high cycle rate operation is dissipated by the centrifugal blower design of these units.

Wichita Low Inertia and Very Low Inertia Clutches and Brakes are designed to be completely free from effects of centrifugal force and self energization.

Torque developed is in direct proportion to air pressure applied.

These clutches and brakes interface well with automated controls through simple air and/or electric circuits.

Water cooled, copper disc clutches are available for use when power transmission needs require excessive or constant slipping which demands higher heat dissipation.

Wichita Clutches operate perfectly when teamed with Wichita Brakes in production situations requiring tension control, cyclic duty, or positioning.

Wichita Brakes have the same outstanding performance characteristics as Wichita Clutches.

Selection Requirements

The selection of a Low Inertia Brake is based on:

1. Torque required to stop a load.
2. Friction area necessary to absorb rotational energy.
3. Contact velocity of rotating discs.
4. Maximum bore capacity of unit.

Selection example

To properly select a Low Inertia Brake for a controlled deceleration application, the following information is needed:

Speed . . . . . .750 RPM
Shaft Dia. . . . . .5 in.
Inertia to Stop. . . . . .2,473 lb.ft.^{2}
Stop Time. . . . . .5 sec.
Air Pressure Available . . . . . .80 PSI

Calculations

$$\text{Avg. HP} = \frac{WR^2 \times (RPM)^2}{3.2 \times 10^6 \times \text{Stop Time}}$$

$$= \frac{2{,}473 \times (750)^2}{3.2 \times 10^6 \times 5 \text{ sec.}} = 87 \text{ HP}$$

$$\text{Swept Friction Area} = \frac{\text{Avg. HP}}{\text{HP absorption rate for 5 seconds (see page 174)}}$$

$$= \frac{87 \text{ HP}}{0.43} = 202 \text{ in.}^2$$

$$\text{Torque} = \frac{WR^2 \times RPM}{25.5 \times \text{Stop Time}}$$

$$= \frac{2.473 \times 750}{25.5 \times 5}$$

$$= 14{,}547 \text{ lb.in.}$$

Using the above calculations, consult the Low Inertia Specifications Chart on pages 26 and 27.

Summary

As calculated, the torque required to stop the load in 5 seconds is 14,547 lb.in. Wichita Low Inertia Brakes are rated at 100 PSI.
This application has only 80 PSI available.

To determine the torque rating of a Low Inertia brake at 80 PSI apply the following formula:

Application: Torque for a Low Inertia Brake

$$= \frac{\text{Torque X Catalog Rated Pressure}}{\text{Available Air Pressure}}$$

$$= 14{,}547 \times \frac{100}{80} = 18{,}183 \text{ lb.in.}$$

Consult pages 26 and 36 for clutch and brake specifications. A Low Inertia model 114 Brake produces 27,625 lb.in. torque at 100 PSI. However, the bore capacity is 4.125 inches. This application requires a 5 inch bore. Therefore, a Low Inertia 118 is to be investigated.

Catalog Torque Rating	= 64, 500 lb.in @ 100 PSI
Maximum Bore Capacity	= 5.25 in.
Catalog Swept Friction Area	= 264 in.^{2}

Calculations show this application needs at least 202 in.^{2} to absorb the heat.

All of these ratings are acceptable for the given application data.

Next, check contact velocity of rotating discs.

$$= \frac{\text{Diameter of center plate X RPM}}{3.82}$$

$$= \frac{18\text{" X } 750}{3.82}$$

$$= 3{,}534 \text{ FPM}$$

Standard material is sufficient up to 6,000 FPM (see page 23). Balancing is recommended above 3,500 FPM.

Therefore, a Low Inertia ATD-118 brake is the optimum choice for this application.

A Spring-Set Air Release Brake is also available (see page 58).

Note:
This application example is for preliminary sizing only. Contact a Wichita Sales Engineer or the factory for final selection.

Air Tube Disc Clutches and Brakes

Low Inertia Clutches

Specifications

Model Size ATD-	Assembly Number	Drawing Number	Slip Torque Capacity lb.in. 80 PSI	Slip Torque Capacity lb.in. 100 PSI	Slip Torque Capacity Nm 5.5 BAR	Slip Torque Capacity Nm 7 BAR	Duty Factors HP/100 RPM A	Duty Factors HP/100 RPM B	Duty Factors HP/100 RPM C	Duty Factors HP/100 RPM D	Max. Bore Rect. Key in.	Max. Bore Rect. Key (mm)
LIC 106	6-006-100-211-0	-100-900-9	3,160	3,950	340	435	6.2	4.4	2.2	1.1	2.00	(50)
LIC 206	6-006-200-200-0	-200-900-9	6,320	7,900	680	870	12.5	8.8	4.4	2.2		
LIC 108	6-008-100-103-0	D-1718	5,600	7,000	620	790	11.1	8	4	2		
LIC 208	6-008-200-101-0	-200-900-9	11,200	14,000	1,240	1,580	22.2	16	8	4	2.25	(57)
LIC 308	6-008-300-103-0	D-2843	16,800	21,000	1,865	2,375	33.3	24	12	6		
LIC 111	6-011-100-102-0	-100-900-9	12,720	15,900	1,400	1,785	25	18	9	5		
LIC 211	6-011-200-102-0	-200-900-9	25,440	31,800	2,800	3,570	50	36	18	10	2.50	(64)
LIC 311	6-011-300-100-0	B-322	38,160	47,700	4,235	5,390	75	54	27	15		
LIC 114	6-014-100-102-0	-100-900-9	22,100	27,625	2,435	3,100	44	31	16	8		
LIC 214	6-014-200-104-0	-200-900-9	44,200	55,250	4,870	6,200	88	62	32	16	3.50	(89)
LIC 314	6-014-300-100-0	B-329	66,300	82,875	7,355	9,365	132	93	48	24		
LIC 116	6-016-100-100-0	D-327	30,270	37,838	3,360	4,275	60	46	24	12		
LIC 216	6-016-200-100-0	-200-900-9	60,541	75,676	6,720	8,550	120	92	48	24	4.00	(102)
LIC 316	6-016-300-100-0	D-1205	90,811	113,514	10,080	12,825	180	139	72	36		
LIC 118	6-018-100-100-0	-100-100-0	51,600	64,500	5,705	7,260	102	75	35	21		
LIC 218	6-018-200-100-0	-200-900-9	103,200	129,000	11,410	14,520	204	150	70	42	4.75	(121)
LIC 318	6-018-300-101-0	D-680	154,840	193,550	17,115	21,780	306	225	105	63		
LIC 121	6-021-100-100-0	D-127	69,887	87,359	7,755	9,870	139	107	55	28		
LIC 221	6-021-200-100-0	-200-900-9	139,775	174,719	15,510	19,740	277	213	111	55	6.00	(152)
LIC 321	6-021-300-100-0	D-783	209,662	262,078	23,265	29,610	416	320	166	83		
LIC 124H	6-025-100-100-0	D-347	122,960	153,700	13,575	17,275	243	180	90	40		
LIC 224H	6-025-200-100-0	-200-900-9	245,920	307,400	27,150	34,550	487	360	180	80	6.00	(152)
LIC 324H	6-025-300-201-0	-300-900-9	368,880	461,100	40,725	51,825	729	540	270	120		
LIC 127	6-027-100-100-0	-100-900-9	137,509	171,886	15,260	19,420	273	210	109	55		
LIC 227	6-027-200-100-0	-200-900-9	275,018	343,773	30,520	38,840	546	420	218	109	6.50	(165)
LIC 327	6-027-300-100-0	D-689	412,527	515,659	45,780	58,260	819	630	327	164		
LIC 130H	6-031-100-100-0	B-195	261,600	327,000	29,630	37,710	519	380	190	100		
LIC 230H	6-031-200-349-0	-200-900-9	523,200	654,000	59,260	75,420	1,038	760	380	200	7.25	(184)
LIC 330H	6-031-300-104-0	-300-902-9	784,800	981,000	88,890	113,130	1,557	1,140	570	300		
LIC 136	6-036-100-100-0	-100-900-9	406,400	508,000	44,920	57,175	805	600	295	165		
LIC 236	6-036-200-100-0	D-570	812,800	1,016,000	89,840	114,350	1,610	1,200	590	330	9.00	(229)
LIC 336	6-036-300-100-0	-300-900-9	1,219,200	1,524,000	134,760	171,525	2,415	1,800	885	495		
LIC 142	6-042-100-303-0	-100-900-9	580,800	726,000	69,160	81,660	1,150	850	425	235		
LIC 242	6-042-200-309-0	-200-900-9	1,162,240	1,452,800	128,320	163,320	2,300	1,700	850	470	14.00	(355)
LIC 342	6-042-300-302-0	-300-303-9	1,742,400	2,178,000	192,480	244,980	3,450	2,550	1,275	705		
LIC 148	6-048-100-300-0	-100-901-9	1,122,000	1,402,500	118,800	151,200	2,225	1,600	800	455		
LIC 248	6-048-200-300-0	-200-906-9	2,244,000	2,805,000	237,600	302,400	4,450	3,200	1,600	915	18.00	(455)
LIC 348	6-048-300-110-0	-300-900-9	3,366,000	4,207,500	356,400	453,600	6,675	4,800	2,400	1,365		
LIC 260	6-060-200-302-0	-200-907-9	4,760,000	5,950,000	473,000	602,000	9,440	5,950	3,470	1,940		
LIC 360	6-060-300-201-0	-300-901-9	7,140,000	8,925,000	709,000	902,300	14,160	8,925	5,205	2,910	19.00	(480)
LIC 460	6-060-400-300-0	E-236	14,280,000	17,850,000	946,000	1,204,000	18,880	11,900	6,940	3,880		

Maximum Air Pressure is 130 PSI / 9 BAR.

Low Inertia Clutches

Specifications

Model Size ATD-	Recommended Clearance in.	Balance Speed RPM	Airtube Type Reg-Speed RPM	Airtube Type High Speed RPM*	Swept Area in.²	Airtube Volume in.³/(cm³) New	Airtube Volume in.³/(cm³) Worn	Total Clutch Wt. lb.	Total Clutch Wt. (kg)	Total Clutch WR²/ J=mr² lb.ft.²	Total Clutch WR²/ J=mr² (kgm²)	Hub & Center Plate Wt. lb.	Hub & Center Plate Wt. (kg)	Hub & Center Plate WR²/ J=mr² lb.ft.²	Hub & Center Plate WR²/ J=mr² (kgm²)
LIC 106	1/16-3/32	2,225	1,800	2,600*	39	1.8 (30)	11.9 (195)	27.5	(12)	2.5	(0.105)	6.40	(2.9)	0.24	(0.010)
LIC 206	3/32-5/32				78			40.5	(18)	3.3	(0.139)	12.17	(5.5)	0.46	(0.019)
LIC 108	1/16-1/8				56	3.4 (56)	18.3 (300)	62	(28)	7.5	(0.315)	11	(5.0)	0.54	(0.023)
LIC 208	3/32-5/32	1,675	1,750	3,000*	112			70	(32)	8.5	(0.357)	19	(8.6)	1.00	(0.042)
LIC 308	1/8-3/16				168			92	(42)	99	(4.174)	28	(12.7)	2.00	(0.084)
LIC 111	1/16-1/8				114	5.5 (90)	30.5 (500)	133	(60)	27	(1.14)	23	(10.4)	2.30	(0.097)
LIC 211	3/32-5/32	1,200	1,400	2,800*	228			170	(77)	34	(1.43)	45	(20.4)	4.50	(0.190)
LIC 311	1/8-3/16				342			208	(94)	52	(2.19)	121	(54.9)	7.00	(0.295)
LIC 114	1/16-1/8				158	7.6 (125)	42.7 (700)	184	(83)	56	(2.36)	46	(20.9)	5.7	(0.240)
LIC 214	3/32-5/32	950	1,200	2,200*	316			233	(106)	70	(2.95)	77	(34.9)	11.0	(0.464)
LIC 314	1/8-3/16				474			292	(132)	80	(3.37)	121	(54.9)	16.7	(0.704)
LIC 116	1/16-1/8				228	9.8 (161)	56.1 (919)	257	(117)	103	(4.34)	59	(26.8)	10.2	(0.430)
LIC 216	3/32-5/32	835	1,200	2,000*	455			326	(148)	125	(5.27)	106	(48.1)	19.6	(0.826)
LIC 316	1/8-3/16				683			358	(162)	125	(5.27)	151	(68.5)	29.6	(1.248)
LIC 118	1/16-1/8				264	15.3 (251)	85.4 (1,400)	311	(141)	158	(6.66)	73	(33.1)	15.0	(0.632)
LIC 218	3/32-5/32	750	1,000	2,000*	528			377	(171)	183	(7.72)	120	(54.4)	28.8	(1.214)
LIC 318	1/8-3/16				792			472	(214)	219	(9.23)	180	(81.6)	43.2	(1.821)
LIC 121	3/32-5/32				362	18.3 (300)	97.6 (1,599)	467	(212)	303	(12.77)	116	(52.6)	32	(1.35)
LIC 221	1/8-3/16	650	900	1,650*	724			582	(264)	356	(15.01)	198	(89.8)	61	(2.57)
LIC 321	5/32-7/32				1,086			730	(331)	450	(18.97)	272	(123.4)	92	(3.88)
LIC 124H	3/32-5/32				574	29.9 (490)	159 (2,606)	637	(289)	468	(19.73)	132	(60.0)	56	(2.4)
LIC 224H	1/8-3/16	550	700	1,400*	1,148			830	(376)	618	(26.05)	260	(117.9)	109	(4.6)
LIC 324H	5/32-7/32				1,722			1,025	(465)	735	(31.00)	379	(172.0)	160	(6.8)
LIC 127	3/32-5/32				730	29.9 (490)	159 (2,606)	770	(349)	706	(29.8)	187	(84.8)	98	(4.1)
LIC 227	1/8-3/16	500	700	1,400*	1,460			950	(431)	862	(36.3)	322	(146.1)	193	(8.1)
LIC 327	5/32-7/32				2,190			1,112	(504)	969	(40.9)	555	(251.7)	285	(12.0)
LIC 130H	3/32-5/32				827	58.6 (960)	311 (5,096)	1,035	(469)	1,170	(49.3)	298	(135.2)	189	(8.0)
LIC 230H	1/8-3/16	450	600	1,100*	1,654			1,411	(640)	1,552	(65.4)	546	(247.7)	370	(15.6)
LIC 330H	5/32-7/32				2,481			1,751	(794)	1,788	(75.4)	810	(367.4)	477	(20.1)
LIC 136	3/32-5/32				1,150	110 (1,803)	415 (6,801)	1,455	(660)	2,368	(99.8)	461	(209.1)	372	(15.7)
LIC 236	1/8 -3/16	375	600	900*	2,300			1,992	(904)	3,247	(136.9)	708	(321.1)	725	(30.6)
LIC 336	5/32-7/32				3,450			2,610	(1,184)	4,057	(171.0)	1,134	(514.4)	1,091	(46.0)
LIC 142	5/32-7/32				1,400	128 (2,098)	488 (7,997)	1,967	(892)	4,721	(199)	680	(308)	705	(30)
LIC 242	3/16-1/4	325	500	800*	2,800			2,732	(1,239)	5,750	(242)	1,197	(543)	1,385	(58)
LIC 342	7/32-9/32				4,200			3,704	(1,680)	9,191	(387)	1,324	(601)	1,809	(76)
LIC 148	1/8-1/4				2,010	217 (3,550)	824 (13,500)	3,158	(1,432)	9,325	(393)	1,101	(499)	1,785	(75)
LIC 248	5/32-7/32	275	400	700*	4,020			4,700	(2,132)	13,775	(581)	1,942	(881)	3,335	(141)
LIC 348	3/16-5/16				6,030			6,540	(2,966)	18,000	(759)	2,950	(1,338)	4,925	(208)
LIC 260	3/16-5/16				7,230	513 (8,407)	1,788 (29,300)	9,453	(4,288)	48,733	(2,055)	2,567	(1,164)	7,077	(298)
LIC 360	1/4-3/8	225	320	550*	10,845			11643	(5,281)	57,286	(2,415)	3,870	(1,755)	10,615	(448)
LIC 460	5/16-7/16				14,460			14500	(6,577)	68,980	(2,908)	5,700	(2,585)	15,070	(635)

* Consult Factory for Special Assembly Number.

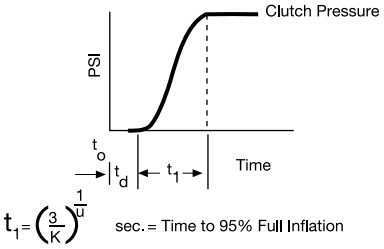
Air Tube Disc Clutches and Brakes

Air System Data

PSI pressure

Inflation

Clutch air pressure during inflation can be closely estimated by the following:



$t_1 = \left(\frac{3}{K}\right)^{\frac{1}{u}}$ sec. = Time to 95% Full Inflation

Clutch pressure = $P_1 \left(1 - \frac{1}{e^{Kt^u}}\right)$ PSI (inflation)

This equation is accurate from 5% up to 95% P_1.

P_1 = Line pressure to clutch PSI

K and U = coefficients for specific clutch and air pressure from Specification Table

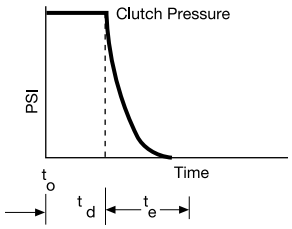
e = Naperian base log

t_o = Time at initiation of signal for inflation sec.

t_d = Time delay of air system – sec.

Exhaust

Clutch air pressure during exhaust can be closely estimated by the following:



Clutch pressure = (P_1) (R) $(E\text{-}t)^v$ PSI (exhaust)

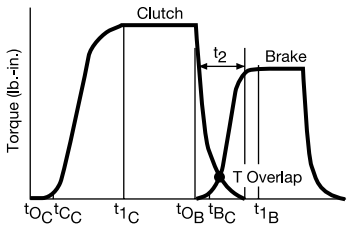
R, E and V = coefficients for specific clutch and air pressurefrom Specification Table

t_e = Time to exhaust = E from Specification Table

t = Time variable – seconds. In the exhaust equation "t" cannot exceed the value of "E" sec.

Overlap

A typical clutch-brake torque curve for a single backshaft press (cyclic application) would appear as shown below.



Time (sec.)

t_{O_C} = time at which disengaged clutch receives signal

t_{C_C} = time of clutch engagement

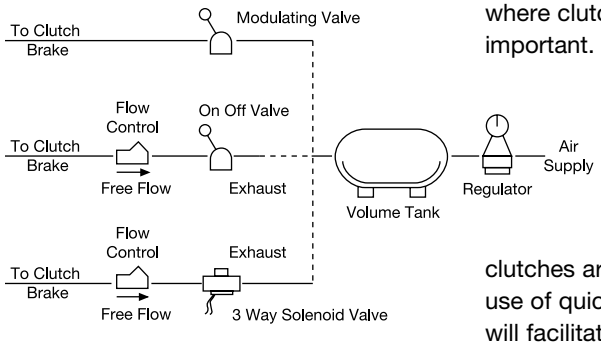
t_{1_C} = time of clutch full inflation

t_{O_B} = time at which disengaged brake receives signal

t_{B_C} = time of brake engagement

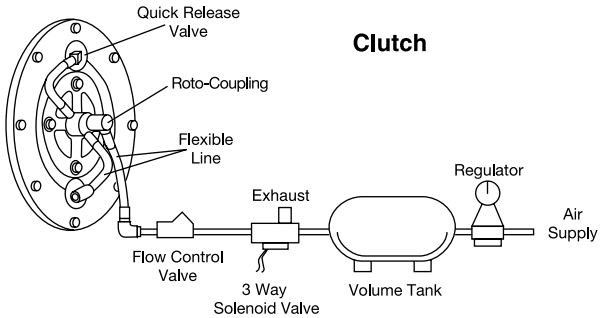
t_{1_B} = time of brake full exhaust

t_2 = overlap time at which clutch and brake are both engaged

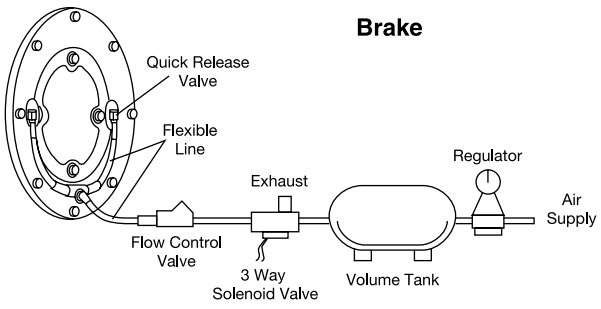


Shown are some of the air systems used on Wichita clutches. These systems are acceptable for remote operation where clutch reaction time is not important. Faster clutch reaction time is accomplished as indicated in the diagram by locating the flow control valve, if required, and the solenoid valve as close as possible to the roto-coupling. Where clutches are located on long shafts, the use of quick release valves on the clutch will facilitate faster clutch response.

Clutch



Brake



B

Inflation Coefficients

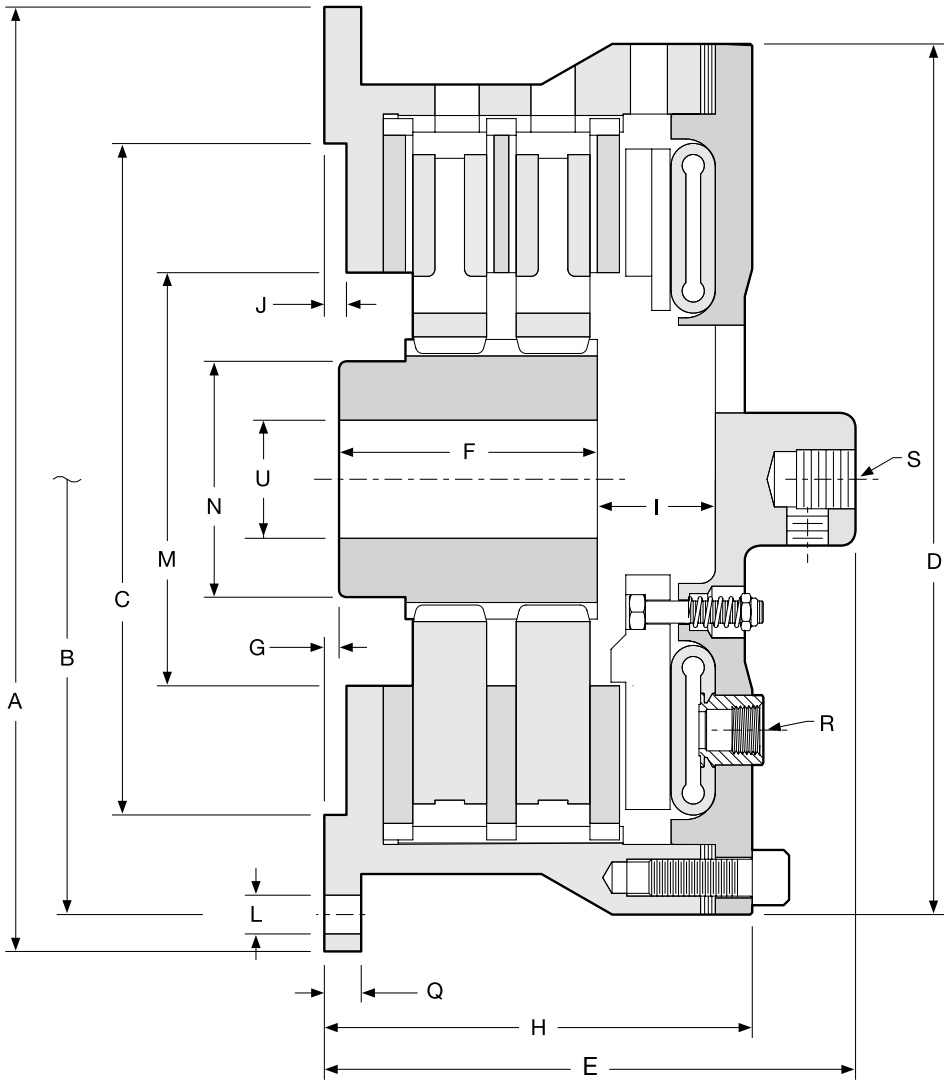
Model Size ATD-	Inflation Coefficients Operating Air Pressure					
	50 PSI		75 PSI		100 PSI	
	K	U	K	U	K	U
108	15,800	2.2	7,100	2	265	1.2
208	15,800	2.2	7,100	2	265	1.2
111	890	1.7	880	1.6	5,100	2.2
211	890	1.7	880	1.6	5,100	2.2
114	980	2.3	980	2.3	980	2.3
214	980	2.3	980	2.3	980	2.3
118	9,600	3.1	1,560	2.4	9,600	3.1
218	9,600	3.1	1,560	2.4	9,600	3.1
124H	145	1.8	90	1.6	87	1.6
224H	145	1.8	90	1.6	87	1.6
130H	185	2	150	2	93	1.8
230H	185	2	150	2	93	1.8
136	170	2	250	2.2	160	2
236	170	2	250	2.2	160	2
142	115	2	125	2	111	2
242	115	2	125	2	111	2
148	25	1.6	22	1.6	26	1.8
248	25	1.6	22	1.6	26	1.8
260	28	1.8	22	1.8	20	1.8
360	28	1.8	22	1.8	20	1.8

Exhaust Coefficients

Model Size ATD-	Exhaust Coefficients Operating Air Pressure								
	50 PSI			75 PSI			100 PSI		
	R	E	V	R	E	V	R	E	V
108	60	.016	1.0	525	.02	1.6	240	.02	1.4
208	60	.016	1.0	525	.02	1.6	240	.02	1.4
111	1,000	.032	2	8,200	.04	2.8	4,930	.048	2.8
211	1,000	.032	2	8,200	.04	2.8	4,930	.048	2.8
114	720	.072	2.5	800	.069	2.5	1,840	.082	3
214	720	.072	2.5	800	.069	2.5	1,840	.082	3
118	44	.068	1.4	40	.072	1.4	34	.08	1.4
218	44	.068	1.4	40	.072	1.4	34	.08	1.4
124H	360	.096	2.5	240	.112	2.5	270	.136	2.8
224H	360	.096	2.5	240	.112	2.5	270	.136	2.8
130H	120	.104	2.1	140	.128	2.4	146	.158	2.7
230H	120	.104	2.1	140	.128	2.4	146	.158	2.7
136	124	.112	2.2	92	.128	2.2	76	.152	2.3
236	124	.112	2.2	92	.128	2.2	76	.152	2.3
142	132	.12	2.3	89	.144	2.3	61	.168	2.3
242	132	.12	2.3	89	.144	2.3	61	.168	2.3
148	20	.224	2	20	.256	2.2	19	.308	2.5
248	20	.224	2	20	.256	2.2	19	.308	2.5
260	24	.264	2.4	10	.367	2.3	9.9	.352	2.2
360	24	.264	2.4	10	.367	2.3	9.9	.352	2.2

Low Inertia Clutches

Sizes 8-36



Low Inertia Clutches

Sizes 8-36

Dimensions: inches (mm)

Model Size ATD-	A	B Hole Circle	C Pilot	D	E	F	G	H
LIC 108	12.13	11.125	8.375 / 8.378	11.13	6.31 (160.3)	2.00 (50.8)	.25 (6.4)	4.56 (115.8)
LIC 208	(308.1)	(282.58)	(212.73 / 212.80)	(282.7)	7.69 (195.3)	3.25 (82.6)	.31 (7.9)	5.94 (150.9)
LIC 111	16.00	14.750	11.375 / 11.378	14.75	7.25 (184.2)	2.75 (69.9)	.13 (3.3)	5.50 (139.7)
LIC 211	(406.4)	(374.65)	(288.93 / 289.00)	(374.7)	9.00 (228.6)	4.38 (111.3)	.25 (6.4)	7.25 (184.2)
LIC 114	18.75	17.500	14.375 / 14.378	17.50	7.56 (192.0)	3.75 (95.3)	.13 (3.3)	6.06 (153.9)
LIC 214	(476.3)	(444.50)	(365.13 / 365.20)	(444.5)	9.38 (238.3)	4.50 (114.3)	.38 (9.7)	7.88 (200.2)
LIC 116	21.25	20.000	16.250 / 16.253	20.00	7.81 (198.4)	4.00 (101.6)	.38 (9.7)	6.31 (160.3)
LIC 216	(539.8)	(508.00)	(412.75 / 412.83)	(508.0)	9.75 (247.7)	4.75 (120.7)		8.25 (209.6)
LIC 316					11.69 (296.9)	6.63 (168.4)		10.19 (258.8)
LIC 118	23.25	22.000	18.250 / 18.253	22.00	8.19 (208.0)	4.00 (101.6)	.44 (11.2)	6.69 (169.9)
LIC 218	(590.6)	(558.80)	(463.55 / 463.63)	(558.8)	10.13 (257.3)	4.75 (120.7)		8.63 (219.2)
LIC 318					12.13 (308.1)	6.50 (165.1)		10.63 (270.0)
LIC 121	27.00	25.500	21.375 / 21.378	24.88	8.88 (225.6)	4.00 (101.6)	.75 (19.1)	7.38 (187.5)
LIC 221	(685.8)	(647.70)	(542.93 / 543.00)	(632.0)	10.94 (277.9)	5.13 (130.3)	.63 (16.0)	9.44 (239.8)
LIC 321					13.25 (336.6)	7.13 (181.1)	.75 (19.1)	11.75 (298.5)
LIC 124H	30.00	28.750	24.375 / 24.378	29.00	9.13 (231.9)	4.00 (101.6)	.69 (17.5)	7.63 (193.8)
LIC 224H	(762)	(730.25)	(619.13 / 619.20)	(736.6)	11.38 (289.1)	5.13 (130.3)	.75 (19.1)	9.88 (251.0)
LIC 324H					13.75 (349.3)	7.50 (190.5)	.75 (19.1)	12.25 (311.2)
LIC 127	32.75	31.500	27.375 / 27.378	31.00	9.38 (238.3)	4.50 (114.3)	.75 (19.1)	7.88 (200.2)
LIC 227	(831.9)	(800.10)	(695.33 / 695.40)	(787.4)	11.88 (301.8)	6.88 (174.8)		10.38 (263.7)
LIC 327					—	—	—	—
LIC 130H	37.00	35.500	30.375 / 30.3783	34.75	12.5	5.00 (127.0)	.63 (16.0)	8.25 (209.6)
LIC 230H	(939.8)	(901.70)	(771.53 / 771.60)	(882.7)	15.94	7.13 (181.1)	1.88 (47.8)	11.69 (296.9)
LIC 330H					—	—	—	—
LIC 136	43.50	42.000	36.375 / 36.378	41.00	12.94 (328.7)	5.63 (143.0)	.63 (16.0)	9.44 (239.8)
LIC 236	(1,104.9)	(1,066.80)	(923.93 / 924.00)	(1,041.4)	16.63 (422.4)	9.00 (228.6)		12.75 (323.9)
LIC 336					19.88 (505.0)	12.38 (314.5)		16.38 (416.1)

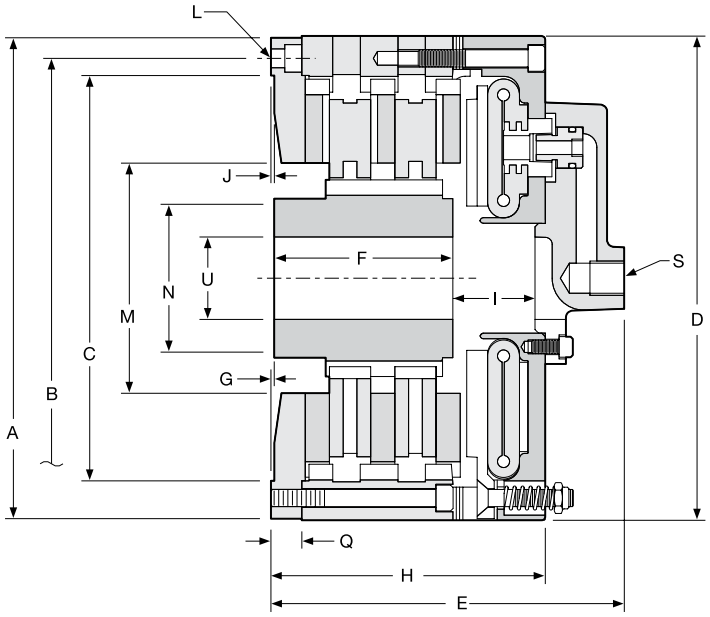
Dimensions: inches (mm)

Model Size ATD-	I	J	L No. - Size	M	N	Q	R No. - Size	S	U Min.	U Max.
LIC 108	1.78 (45.2)	.25	6 - 17/32 (13.5)	5.38	3.50	.50	2 - 1/2 NPT	1”-14NF	1.00	2.00
LIC 208	1.88 (47.8)	(6.4)		(136.7)	(88.9)	(12.7)			(25)	(50.8)
LIC 111	2.00 (50.8)	.38	6 - 11/16 (17.5) 21/32 (16.7)	7.00	4.00	.63	2 - 1/2 NPT	1”-14NF	1.00	2.50
LIC 211		(9.7)		(177.8)	(101.6)	(16.0)			(25)	(63.5)
LIC 114	1.44 (36.6)	.38	8 - 21/32 (16.7)	9.44	5.50	.63	2 - 1/2 NPT	1”-14NF	1.38	3.50
LIC 214	2.13 (54.1)	(9.7)		(239.8)	(139.7)	(16.0)			(35.1)	(88.9)
LIC 116	1.13 (28.7)	.38	12 - 21/32 (16.7)	10.50	6.00	.63	2 - 1/2 NPT	1”-14NF	1.38	4.00
LIC 216	2.31 (58.7)	(9.7)		(266.7)	(152.4)	(16.0)			(35.1)	(101.6)
LIC 316	2.31 (58.7)									
LIC 118	1.25 (31.8)	.38	12 - 21/32 (16.7)	12.50	7.00	.63	3 - 1/2 NPT	1”-14NF	2.00	4.75
LIC 218	2.50 (63.5)	(9.7)		(317.5)	(177.8)	(16.0)			(50.8)	(120.7)
LIC 318	2.75 (69.9)									
LIC 121	1.63 (41.4)	.31	12 - 21/32 (16.7)	14.50	9.00	.75	3 - 1/2 NPT	1”-14NF	2.00	6.00
LIC 221	2.68 (68.1)	(7.9)		(368.3)	(228.6)	(19.1)			(50.8)	(152.4)
LIC 321	2.75 (69.9)									
LIC 124H	1.75 (44.5)	.25	12 - 21/32 (16.7)	14.50	9.00	.75	3 - 1/2 NPT	1”-14NF	2.00	6.00
LIC 224H	2.94 (74.7)	(6.4)		(368.3)	(228.6)	(19.1)			(50.8)	(152.4)
LIC 324H	2.88 (73.2)									
LIC 127	1.38 (35.1)	.25	16 - 21/32 (16.7)	16.25	9.00	.75	3 - 1/2 NPT	1”-14NF	2.50	6.50
LIC 227	1.50 (38.1)	(6.4)		(412.8)	(228.6)	(19.1)			(63.5)	(165.1)
LIC 327	—	—								
LIC 130H	1.81 (46.0)	.25	18 - 25/32 (19.8)	19.25	10.00	.75	4 - 1/2 NPT	1” NPT	2.50	7.25
LIC 230H	1.88 (47.8)	(6.4)		(489)	(254)	(19.1)			(63.5)	(184.2)
LIC 330H	—									
LIC 136	1.38 (35.1)	.25	18 - 25/32 (19.8)	23.63	12.00	.88	4 - 1/2 NPT	1” NPT	6.00	9.00
LIC 236	1.63 (41.4)	(6.4)		(600.2)	(304.8)	(22.4)			(152.4)	(228.6)
LIC 336	1.75 (44.5)									

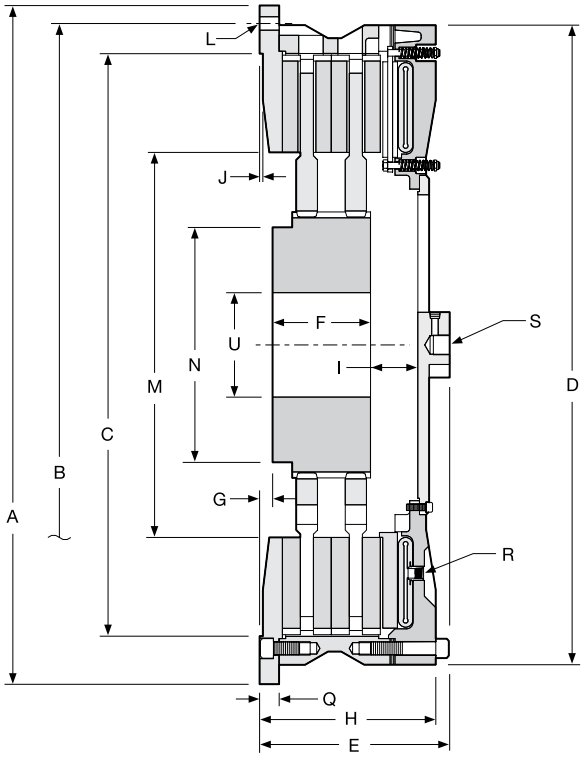
Note: For mounting, use socket head capscrews conforming to the ASTM-574-97a. (Consult factory for drawing before final layout.)

Low Inertia Clutches

Sizes 6, 42-60



Size 6



Size 42-60

Low Inertia Clutches

Sizes 6, 42-60

Dimensions: inches (mm)

Model Size ATD-	A	B Hole Circle	C Pilot	D	E	F	G	H
LIC 106	8.75	8.000	7.377 / 7.379	8.81	5.19 (131.8)	2.00 (50.8)	0.00 (0.0)	3.75 (95.3)
LIC 206	(222.3)	(203.20)	(187.38 / 187.43)	(223.8)	6.43 (163.3)	3.25 (82.6)	0.06 (1.5)	5.00 (127.0)
LIC 142	52.00	49.250	44.625 / 44.628	49.00	10.81 (274.6)	5.63 (143.0)	1.00 (25.40)	9.75 (247.7)
LIC 242	(1,320.8)	(1,250.95)	(1,133.48 / 1,133.55)	(1,244.6)	14.56 (369.8)	7.50 (190.5)		13.5 (342.9)
LIC 148	61.00	58.000	52.000 / 52.005	56.75	14.69 (373.1)	6.00 (152.4)	0.00 (0.0)	10.69 (271.5)
LIC 248	(1,549.4)	(1,473.20)	(1,320.80 / 1,320.93)	(1,441.5)	19.07 (484.4)	8.75 (222.3)	1.00 (25.4)	15.07 (382.8)
LIC 260[1]	70.50	66.500	62.750 / 62.760	70.50	20.30 (515.6)	9.38 (238.3)	0.25 (6.4)	17.99 (456.9)
LIC 360[1]	(1,790.7)	(1,689.10)	(1,593.85 / 1,594.10)	(1,790.7)	22.00 (558.8)	12.25 (311.2)	0.00 (0.0)	19.63 (498.6)
LIC 460[1]					28.25 (717.6)	18.63 (473.2)	0.25 (6.4)	27.13 (689.1)

Dimensions: inches (mm)

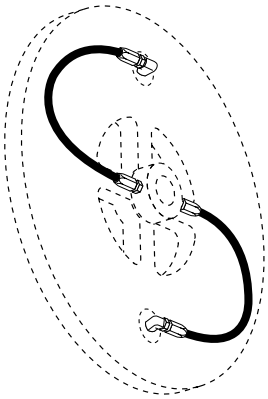
Model Size ATD-	I	J	L No.- Size	M	N	Q	R No. - Size	S	U Min.	U Max.
LIC 106	1.56 (39.6)	0.06	4 - 0.34 (8.6)	4.19	2.69	0.56	—	5/8”-11NF	0.60	2.00
LIC 206	1.50 (38.1)	(1.5)		(106.4)	(68.3)	(14.2)			(15.2)	(50.8)
LIC 142	1.75 (44.5)	0.25	24 - 1.06 (26.9)	29.50	18.00	1.50	4 - 1/2 NPT	1.5”-12NF	8.00	14.00
LIC 242	3.63 (92.2)	(6.4)		(749.3)	(457.2)	(38.1)			(203.2)	(355.6)
LIC 148	3.69 (93.7)	0.25	24 - 1.06 (26.9)	32.00	25.75	1.50)	4 - 1/2 NPT	1” NPT	10.00	18.00
LIC 248	4.32 (109.7)	(6.4)		(812.8)	(654.1)	(38.1			(254.0)	(457.2)
LIC 260[1]	6.17 (156.7)	0.25	24 - 4.5”NC	36.00	27.00	—	6 - 1/2 NPT	2”-12NF	11.00	19.00
LIC 360[1]	5.19 (131.8)	(6.4)		(914.4)	(685.8)				(279.4)	(482.6)
LIC 460[1]	6.38 (162.1)									

[1]Less backplate.

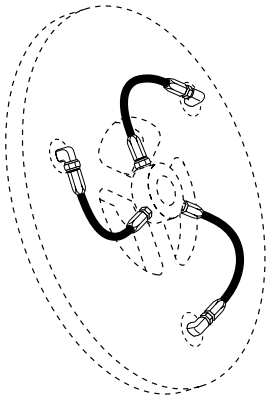
NOTE: For mounting, use socket head capscrews conforming to the ASTM-574-97a.
(Consult factory for drawing before final layout.)

Air Tube Disc Clutches and Brakes

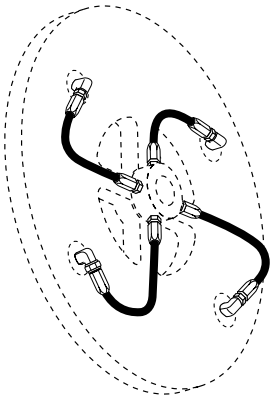
Low Inertia Clutch Air Hose Kits



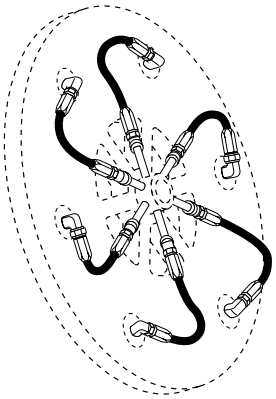
Size	Part Number
8”	8-908-812-200-5 8-908-821-201-5 QRV
11”	8-911-812-201-5 8-911-821-201-5 QRV
14”	8-914-812-200-5 8-914-821-200-5 QRV



Size	Part Number
18”	8-918-812-301-5 8-918-821-300-5 QRV
24”H	8-924-812-300-5 8-924-821-301-5 QRV



Size	Part Number
30”	8-930-812-400-5 8-930-821-400-5 QRV
36”	8-936-821-400-5 QRV
42”	8-942-821-400-5 QRV
48”	8-948-821-400-5 QRV

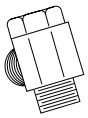


Size	Part Number
60”	8-960-800-500-7 QRV

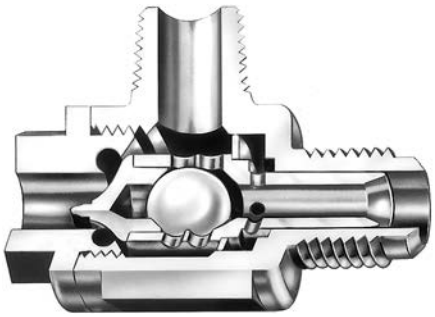
Air hose kits contain all necessary parts (fittings, hoses and extensions) to completely plumb the clutch air system.

Optional Quick Release Valves can replace elbows on most units (see page 35).

Roto-couplings (see page 35).



Quick Release Valve



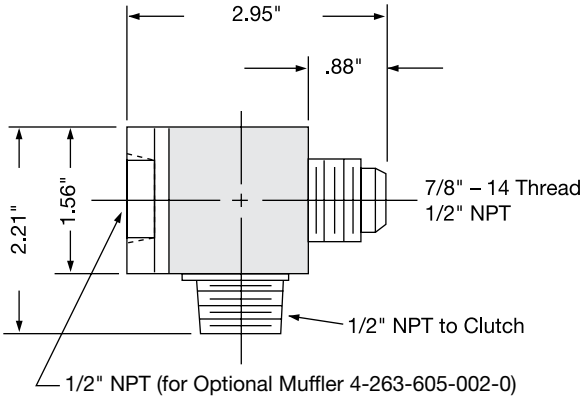
8-263-610-011-1	7/8” – 14 Thread
8-263-610-021-1	1/2” NPT
4-263-605-002-0	Optional Muffler

The Wichita Springless Quick Release Valve discharges twice as fast as any other valve tested in our laboratory and is four to five times faster than some common makes of valves.

This valve will close and seal with less than 20 lbs. pressure. Most others require 25 to 30 lbs. to definitely seal. In actual tests, the Wichita Valve made many hundreds of thousands of engagements and disengagements before the slightest leak occurred, or any parts needed replacement. Other valves which were tested required major replacement in fewer than 20,000 cycles.

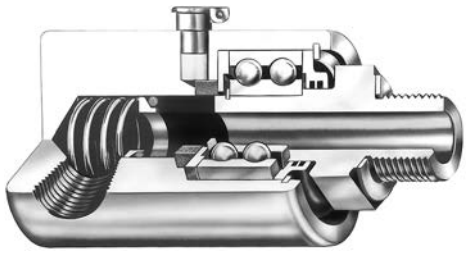
Quality Material

Body and Cap:	High strength aluminum alloy
Stem:	Molded nylon
Check Valve:	Nylon ball
“O” Ring:	Neoprene



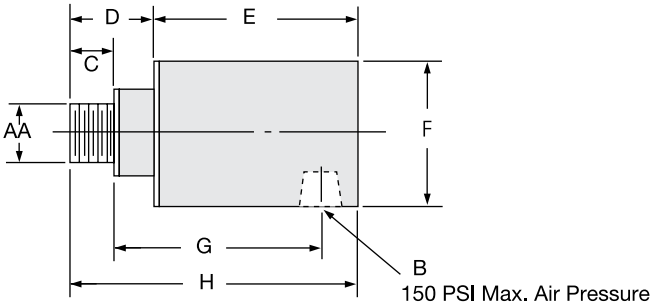
Standard thread arrangement of 1/2” size. 1/2” pipe thread on the tube connection and choice of 1/2” pipe thread, or standard 7/8-14NF thread for flared fitting thread on inlet connection. (Fits standard No. 10 high-pressure hose fitting.)

Roto-couplings



The Wichita Roto-coupling is a device to connect, or couple, a non-rotating air, gas, or fluid line to a rotating shaft.

- Long life, no maintenance.
- Felt seal eliminates bearing contamination.
- Fast, easy installation.



Dimensions: inches

Wichita Part No.	AA	B	C	D	E	F	G	H	Max. RPM
8-240-701-003-1	5/8-18NF	1/4” NPT	.40	1.046	2.250	1.500	2.13	3.297	3500
8-240-705-001-1	1”-14 NF	1/2” NPT	.75	1.250	3.188	2.500	3.00	4.438	3500
8-240-708-001-1	1”-14 NF	3/4” NPT	.75	1.313	4.688	2.875	3.69	5.440	3500
8-240-710-002-1	1-1/2”-12 NF	1” NPT	1.13	1.937	4.875	3.250	3.44	6.812	2500
8-240-712-001-1	2”-12 NF	1-1/2” NPT	1.13	2.813	5.250	4.250	5.38	8.062	2500
8-240-714-001-3	2” NPT	2” NPT	1.50	3.000	7.062	4.625	7.00	10.062	1000
8-240-716-000-3	2-1/2” NPT	2-1/2” NPT	1.88	3.250	9.375	7.000	7.75	12.625	750

Air Tube Disc Clutches and Brakes

Low Inertia Brakes

Specifications

Model Size ATD-	Assembly Number	Drawing Number	Slip Torque Capacity lb.in. 80 PSI	Slip Torque Capacity lb.in. 100 PSI	Slip Torque Capacity Nm 5.5 BAR	Slip Torque Capacity Nm 7 BAR	Duty Factors HP/100 RPM A	Duty Factors HP/100 RPM B	Duty Factors HP/100 RPM C	Duty Factors HP/100 RPM D	Max. Bore Rect. Key in.	Max. Bore Rect. Key (mm)
LIB 104	7-004-100-803-0	-100-901-9	800	1,000	90	113	1.6	1.2	0.6	0.3	1.00	(25)
LIB 204	7-004-200-801-0	B-518	1,600	2,000	90	225	3.2	2.4	1.2	0.6		
LIB 106	7-006-100-203-0	-100-901-9	3,160	3,950	340	435	6.2	4.4	2.2	1.1	2.00	(50)
LIB 206	7-006-200-200-0	D-465	6,320	7,900	680	870	12.5	8.8	4.4	2.2		
LIB 108	7-008-100-108-0	-100-900-9	5,600	7,000	620	790	11.1	8	4	2		
LIB 208	7-008-200-105-0	-200-900-9	11,200	14,000	1,240	1,580	22.2	16	8	4	2.25	(57)
LIB 308	7-008-300-100-0	D-164	16,800	21,000	1,865	2,375	33.3	24	12	6		
LIB 111	7-011-100-107-0	B-105	12,720	15,900	1,400	1,785	25	18	9	5		
LIB 211	7-011-200-102-0	-200-902-9	25,440	31,800	2,800	3,570	50	36	18	10	2.50	(64)
LIB 311	7-011-300-100-0	B-408	38,160	47,700	4,235	5,390	75	54	27	15		
LIB 114	7-014-100-102-0	-100-900-9	22,100	27,625	2,435	3,100	44	31	16	8		
LIB 214	7-014-200-101-0	-200-902-9	44,200	55,250	4,870	6,200	88	62	32	16	3.50	(89)
LIB 314	7-014-300-102-0	B-288	66,300	82,875	7,355	9,365	132	93	48	24		
LIB 116	7-016-100-100-0	D-461	30,270	37,838	3,360	4,275	60	46	24	12		
LIB 216	7-016-200-100-0	-200-904-9	60,541	75,676	6,720	8,550	120	92	48	24	4.00	(102)
LIB 316	7-016-300-100-0	-300-900-9	90,811	113,514	10,080	12,825	180	139	72	36		
LIB 118	7-018-100-100-0	-100-901-9	51,600	64,500	5,705	7,260	102	75	35	21		
LIB 218	7-018-200-100-0	-200-900-9	103,200	129,000	11,410	14,520	204	150	70	42	4.75	(121)
LIB 318	7-018-300-103-0	D-1218	154,840	193,550	17,115	21,780	306	225	105	63		
LIB 121	7-021-100-100-0	D-373	69,887	87,359	7,755	9,870	139	107	55	28		
LIB 221	7-021-200-100-0	D-267	139,775	174,719	15,510	19,740	277	213	111	55	6.00	(152)
LIB 321	7-021-300-100-0	D-740	209,662	262,078	23,265	29,610	416	320	166	83		
LIB 124H	7-025-100-101-0	D-779	122,960	153,700	13,575	17,275	243	180	90	40		
LIB 224H	7-025-200-101-0	D-371	245,920	307,400	27,150	34,550	487	360	180	80	6.00	(152)
LIB 324H	7-025-300-201-0	-300-900-9	368,880	461,100	40,725	51,825	729	540	270	120		
LIB 127	7-027-100-100-0	D-151	137,509	171,886	15,260	19,420	273	210	109	55		
LIB 227	7-027-200-100-0	D-428	275,018	343,773	30,520	38,840	546	420	218	109	6.50	(165)
LIB 327	6-027-300-100-0	D-689	412,527	515,659	45,780	58,260	819	630	327	164		
LIB 130H	7-031-100-100-0	B-312	261,600	327,000	29,630	37,710	519	380	190	100		
LIB 230H	7-031-200-316-0	B-296	523,200	654,000	59,260	75,420	1,038	760	380	200	7.25	(184)
LIB 330H	7-031-300-304-0	-300-904-9	784,800	981,000	88,890	113,130	1,557	1,140	570	300		
LIB 136	7-036-100-100-0	-100-901-9	406,400	508,000	44,920	57,175	805	600	295	165		
LIB 236	7-036-200-100-0	D-722	812,800	1,016,000	89,840	114,350	1,610	1,200	590	330	9.00	(229)
LIB 336	6-036-300-100-0	-300-900-9	1,219,200	1,524,000	134,760	171,525	2,415	1,800	885	495		
LIB 142	7-042-100-303-0	-100-900-9	580,800	726,000	69,160	81,660	1,150	850	425	235		
LIB 242	7-042-200-311-0	-200-901-9	1,162,240	1,452,800	128,320	163,320	2,300	1,700	850	470	14.00	(355)
LIB 342	6-042-300-302-0	-300-303-9	1,742,400	2,178,000	192,480	244,980	3,450	2,550	1,275	705		
LIB 148	7-048-100-300-0	-100-900-9	1,122,000	1,402,500	118,800	151,200	2,225	1,600	800	455		
LIB 248	7-048-200-300-0	-200-901-9	2,244,000	2,805,000	237,600	302,400	4,450	3,200	1,600	915	18.00	(455)
LIB 348	7-048-300-301-0	-300-900-9	3,366,000	4,207,500	356,400	453,600	6,675	4,800	2,400	1,365		
LIB 260	7-060-200-302-0	-200-901-9	4,760,000	5,950,000	473,000	602,000	9,440	5,950	3,470	1,940		
LIB 360	7-060-300-301-0	-300-901-9	7,140,000	8,925,000	709,000	902,300	14,160	8,925	5,205	2,910	19.00	(480)
LIB 460	6-060-400-300-0	E-236	14,280,000	17,850,000	946,000	1,204,000	18,880	11,900	6,940	3,880		

Maximum Air Pressure is 130 PSI / 9 BAR.

Low Inertia Brakes

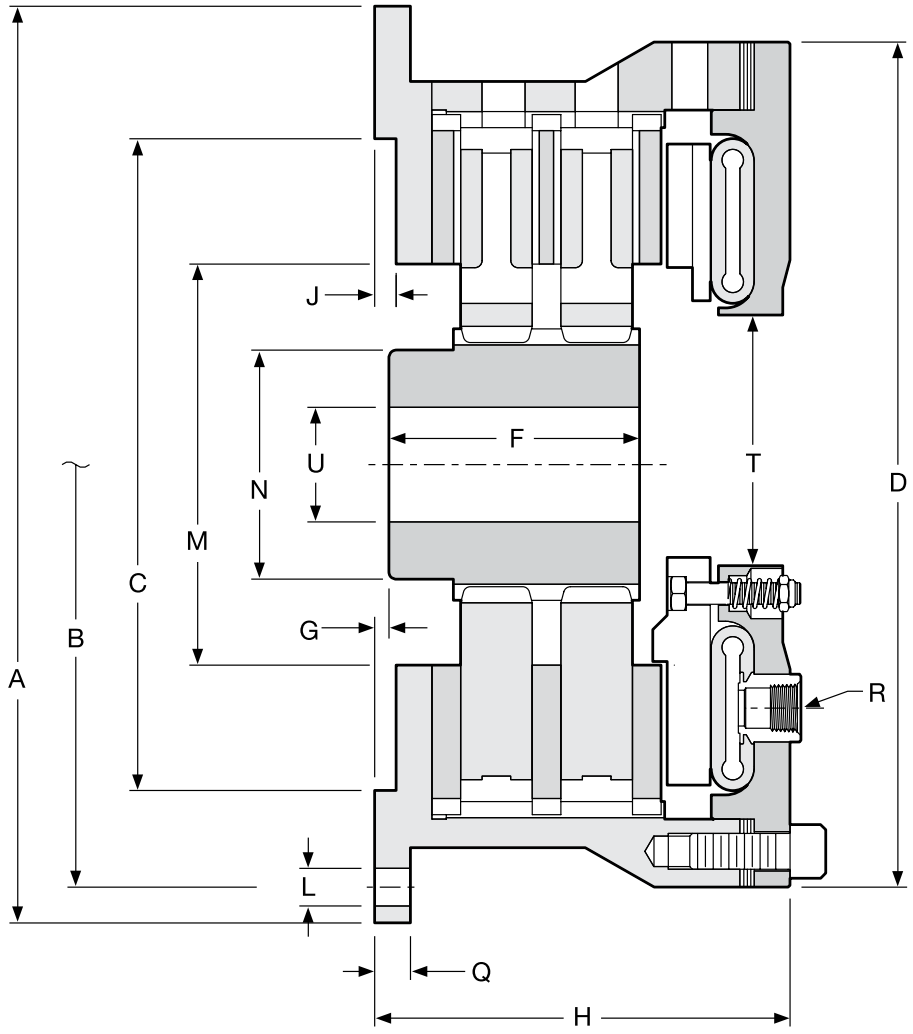
Specifications

Model Size ATD-	Recommended Clearance in.	Balance Speed RPM	Hub & C.P. Reg-Speed RPM	Hub & C.P. High Speed RPM*	Swept Area in.^{2}	Airtube Volume in.^{3}(cm^3) New	Airtube Volume in.^{3}(cm^3) Worn	Total Brake Wt. lb.	Total Brake Wt. (kg)	Hub & Center Plate Wt. lb.	Hub & Center Plate Wt. (kg)	WR^2/ J=mr^2 lb.ft.^{2}	WR^2/ J=mr^2 (kgm^2)
LIB 104	1/32	3,325	5,250	5,250*	17	0.9	3.4	11.0	(7)	1.54	(0.7)	0.021	(0.001)
LIB 204	1/16				34	(14.8)	(56)	14.0	(6)	3.88	(1.8)	0.04	(0.002)
LIB 106	1/16-3/32	2,225	3,800	5,700*	39	1.8	11.9	27.5	(12)	6.40	(2.9)	0.24	(0.010)
LIB 206	3/32-5/32				78	(30)	(195)	40.5	(18)	12.17	(5.5)	0.46	(0.019)
LIB 108	1/16-1/8				56			62	(28)	11	(5.0)	0.54	(0.023)
LIB 208	3/32-5/32	1,675	2,870	4,300*	112	3.4 (56)	18.3 (300)	70	(32)	19	(8.6)	1.00	(0.042)
LIB 308	1/8-3/16				168			87	(39)	28	(12.7)	2.00	(0.084)
LIB 111	1/16-1/8				114			130	(59)	23	(10.4)	2.30	(0.097)
LIB 211	3/32-5/32	1,200	2,090	3,125*	228	5.5 (90)	30.5 (500)	166	(75)	45	(20.4)	4.50	(0.190)
LIB 311	1/8-3/16				342			208	(94)	121	(54.9)	7.00	(0.295)
LIB 114	1/16-1/8				158			184	(83)	46	(20.9)	5.7	(0.240)
LIB 214	3/32-5/32	950	1,640	2,450*	316	7.6 (125)	42.7 (700)	233	(106)	77	(34.9)	11.0	(0.464)
LIB 314	1/8-3/16				474			290	(132)	121	(54.9)	16.7	(0.704)
LIB 116	1/16-1/8				228			254	(115)	59	(26.8)	10.2	(0.430)
LIB 216	3/32-5/32	835	1,430	2,150*	455	9.8 (161)	56.1 (919)	326	(148)	106	(48.1)	19.6	(0.826)
LIB 316	1/8-3/16				683			358	(162)	151	(68.5)	29.6	(1.248)
LIB 118	1/16-1/8				264			311	(141)	73	(33.1)	15.0	(0.632)
LIB 218	3/32-5/32	750	1,270	1,910*	528	15.3 (251)	85.4 (1,400)	377	(171)	120	(54.4)	28.8	(1.214)
LIB 318	1/8-3/16				792			461	(209)	180	(81.6)	43.2	(1.821)
LIB 121	3/32-5/32				362			460	(209)	116	(52.6)	32	(1.35)
LIB 221	1/8-3/16	650	1,090	1,650*	724	18.3 (300)	97.6 (1,599)	575	(261)	198	(89.8)	61	(2.57)
LIB 321	5/32-7/32				1,086			723	(328)	312	(141.5)	122	(5.14)
LIB 124H	3/32-5/32				574			618	(280)	132	(60.0)	56	(2.4)
LIB 224H	1/8-3/16	550	950	1,410*	1,148	29.9 (490)	159 (2,606)	840	(381)	260	(117.9)	110	(4.6)
LIB 324H	5/32-7/32				1,722			1,025	(465)	379	(172.0)	160	(6.8)
LIB 127	3/32-5/32				730			760	(345)	187	(84.8)	98	(4.1)
LIB 227	1/8-3/16	500	850	1,250*	1,460	29.9 (490)	159 (2,606)	924	(419)	329	(149.2)	191	(8.1)
LIB 327	5/32-7/32				2,190			1,112	(504)	555	(251.7)	285	(12.0)
LIB 130H	3/32-5/32				827			972	(441)	298	(135.2)	189	(8.0)
LIB 230H	1/8-3/16	450	765	1130*	1,654	58.6 (960)	311 (5,096)	1,350	(612)	546	(247.7)	370	(15.6)
LIB 330H	5/32-7/32				2,481			1,751	(794)	810	(367.4)	477	(20.1)
LIB 136	3/32-5/32				1,150			1,388	(630)	461	(209.1)	372	(15.7)
LIB 236	1/8 -3/16	375	640	950*	2,300	110 (1,803)	415 (6,801)	1,993	(904)	708	(321.1)	725	(30.6)
LIB 336	5/32-7/32				3,450			2,610	(1,184)	1,134	(514.4)	1,091	(46.0)
LIB 142	5/32-7/32				1,400			1,967	(892)	680	(308)	705	(30)
LIB 242	3/16-1/4	325	545	805*	2,800	128 (2,098)	488 (7,997)	2,732	(1,239)	1,197	(543)	1,385	(58)
LIB 342	7/32-9/32				4,200			3,704	(1,680)	1,324	(601)	1,809	(76)
LIB 148	1/8-1/4				2,010			3,158	(1,432)	1,101	(499)	1,785	(75)
LIB 248	5/32-7/32	275	475	705*	4,020	217 (3,550)	824 (13,500)	4,700	(2,132)	1,942	(881)	3,335	(141)
LIB 348	3/16-5/16				6,030			6,540	(2,966)	2,950	(1,338)	4,925	(208)
LIB 260	3/16-5/16				7,230			9,453	(4,288)	2,567	(1,164)	7,077	(298)
LIB 360	1/4-3/8	225	380	575*	10,845	513 (8,407)	1,788 (29,300)	11,643	(5,281)	3,870	(1,755)	10,615	(448)
LIB 460	5/16-7/16				14,460			14,500	(6,577)	5,700	(2,585)	15,070	(635)

* Consult Factory for Special Assembly Number.

Low Inertia Brakes

Sizes 8-36



Low Inertia Brakes

Sizes 8-36

Dimensions: inches (mm)

Model Size ATD-	A	B Hole Circle	C Pilot	D	F	G	H
LIB 108 LIB 208	12.13 (308.1)	11.125 (282.58)	8.375 / 8.378 (212.73 / 212.80)	11.13 (282.7)	2.00 (50.8) 3.25 (82.6)	.25 (6.4)	4.56 (115.8) 5.94 (150.9)
LIB 111 LIB 211	16.00 (406.4)	14.750 (374.65)	11.375 / 11.378 (288.93 / 289.00)	14.75 (374.7)	2.75 (69.9) 4.38 (111.3)	.13 (3.3) .25 (6.4)	5.44 (138.2) 7.19 (182.6)
LIB 114 LIB 214	18.75 (476.3)	17.500 (444.50)	14.375 / 14.378 (365.13 / 365.20)	17.50 (444.5)	3.75 (95.3) 4.50 (114.3)	.13 (3.3) .38 (9.7)	6.06 (153.9) 8.00 (203.2)
LIB 116 LIB 216 LIB 316	21.25 (539.8)	20.000 (508.00)	16.250 / 16.253 (412.75 / 412.83)	20.00 (508.0)	4.00 (101.6) 4.75 (120.7) 6.63 (168.4)	0.38 (9.7)	6.31 (160.3) 8.25 (209.6) 10.19 (258.8)
LIB 118 LIB 218 LIB 318	23.25 (590.6)	22.000 (558.80)	18.250 / 18.253 (463.55 / 463.63)	22.00 (558.8)	4.00 (101.6) 4.75 (120.7) 6.50 (165.1)	0.44 (11.2)	6.69 (169.9) 8.63 (219.2) 10.63 (270.0)
LIB 121 LIB 221 LIB 321	27.00 (685.8)	25.500 (647.70)	21.375 / 21.378 (542.93 / 543.00)	24.88 (632.0)	4.00 (101.6) 5.13 (130.3) 7.13 (181.1)	.75 (19.1)	7.38 (187.5) 9.31 (236.5) 11.75 (298.5)
LIB 124H LIB 224H LIB 324H	30.00 (762)	28.750 (730.25)	24.375 / 24.378 (619.13 / 619.20)	29.00 (736.6)	4.00 (101.6) 5.13 (130.3) 7.50 (190.5)	.69 (17.5) .75 (19.1) .75 (19.1)	7.63 (193.8) 9.94 (252.5) 12.25 (311.2)
LIB 127 LIB 227 LIB 327	32.75 (831.9)	31.500 (800.10)	27.375 / 27.378 (695.33 / 695.40)	31.00 (787.4)	4.50 (114.3) 6.88 (174.8) —	0.75 (19.1) —	7.88 (200.2) 10.38 (263.7) —
LIB 130H LIB 230H LIB 330H	37.00 (939.8)	35.500 (901.70)	30.375 / 30.378 (771.53 / 771.60)	34.75 (882.7)	5.00 (127.0) 7.13 (181.1) 11.88 (301.8)	.63 (16.0) 1.88 (47.8) .63 (16.0)	8.38 (212.9) 11.81 (300.0) 15.31 (388.9)
LIB 136 LIB 236	43.50 (1,104.9)	42.000 (1,066.80)	36.375 / 36.378 (923.93 / 924.00)	41.00 (1,041.4)	5.63 (143.0) 9.00 (228.6)	0.63 (16.0)	9.50 (241.3) 12.88 (327.2)

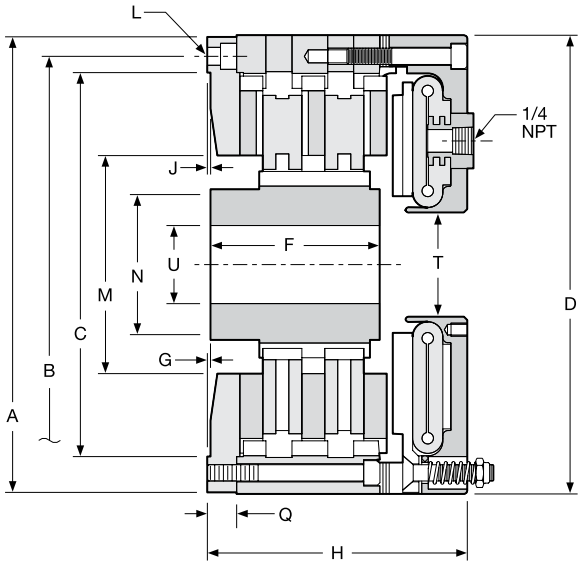
Dimensions: inches (mm)

Model		L					R			U	
Size ATD-	J	No. -	Size	M	N	Q	No.-	Size	T	Min.	Max.
LIB 108 LIB 208	0.25 (6.4)	6 -	17/32 (13.5)	5.38 (136.7)	3.50 (88.9)	0.50 (12.7)	2 -	1/2 NPT	2.25	1.00 (25)	2.00 (50.8)
LIB 111 LIB 211	0.38 (9.7)	6 -	21/32 (16.7) 11/16 (17.5)	7.00 (177.8)	4.00 (101.6)	0.63 (16.0)	2 -	1/2 NPT	3.25	1.00 (25)	2.50 (63.5)
LIB 114 LIB 214	0.38 (9.7)	8 -	21/32 (16.7)	9.44 (239.8)	5.50 (139.7)	0.63 (16.0)	2 -	1/2 NPT	5.06	1.38 (35.1)	3.50 (88.9)
LIB 116 LIB 216 LIB 316	0.38 (9.7)	12 -	21/32 (16.7)	10.50 (266.7)	6.00 (152.4)	0.63 (16.0)	2 -	1/2 NPT	6.13	1.38 (35.1)	4.00 (101.6)
LIB 118 LIB 218 LIB 318	0.38 (9.7)	12 -	21/32 (16.7)	12.50 (317.5)	7.00 (177.8)	0.63 (16.0)	3 -	1/2 NPT	7.75	2.00 (50.8)	4.75 (120.7)
LIB 121 LIB 221 LIB 321	0.31 (7.9)	12 -	21/32 (16.7)	14.50 (368.3)	9.00 (228.6)	.75 (19.1)	3 -	1/2 NPT	9.25	2.00 (50.8)	6.00 (152.4)
LIB 124H LIB 224H LIB 324H	0.25 (6.4)	12 -	21/32 (16.7)	14.50 (368.3)	9.00 (228.6)	.75 (19.1)	3 -	1/2 NPT	13.25	2.00 (50.8)	6.00 (152.4)
LIB 127 LIB 227 LIB 327	0.25 (6.4) —	16 -	21/32 (16.7)	16.25 (412.8)	9.00 (228.6)	.75 (19.1)	3 -	1/2 NPT	13.25	2.50 (63.5)	6.50 (165.1)
LIB 130H LIB 230H LIB 330H	0.25 (6.4)	18 -	25/32 (19.8)	19.25 (489)	10.00 (254)	.75 (19.1)	4 -	1/2 NPT	15.00	2.50 (63.5)	7.25 (184.2)
LIB 136 LIB 236	0.25 (6.4)	18 -	13/16 (20.6) 25/32 (19.8)	23.63 (600.2)	12.00 (304.8)	.88 (22.4)	4 -	1/2 NPT	22.75	6.00 (152.4)	9.00 (228.6)

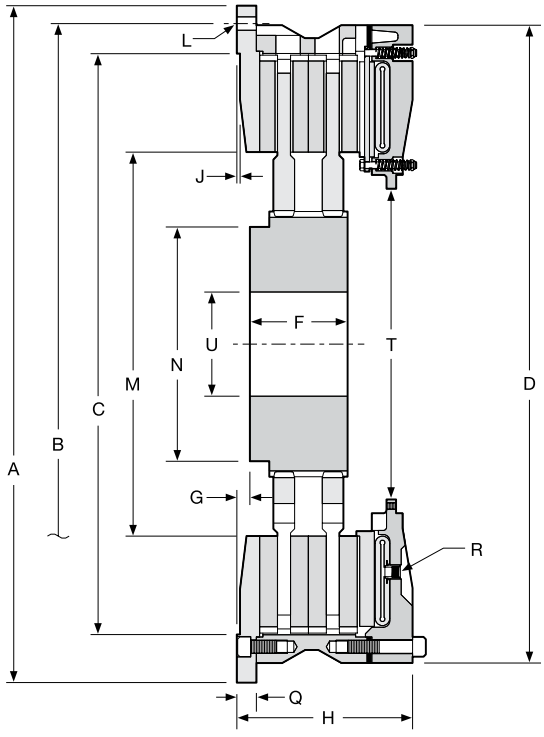
Note: For mounting, use socket head capscrews conforming to the ASTM-574-97a.
(Consult factory for drawing before final layout.)

Low Inertia Brakes

Sizes 6, 42-60



Size 6



Sizes 42-60

Low Inertia Brakes

Sizes 6, 42-60

Dimensions: inches (mm)

Model Size ATD-	A	B Hole Circle	C Pilot	D	F	G	H
LIB 106	8.75	8.000	7.377 / 7.379	8.81	2.00 (50.8)	0.00 (0.0)	3.75 (95.3)
LIB 206	(222.3)	(203.20)	(187.38 / 187.43)	(223.8)	3.25 (82.6)	0.06 (1.5)	5.00 (127.0)
LIB 142	52.00	49.250	44.625 / 44.628	49.00	5.63 (143.0)	1.00 (25.40)	9.75 (247.7)
LIB 242	(1,320.8)	(1,250.95)	(1,133.48 / 1,133.55)	(1,244.6)	7.50 (190.5)		13.5 (342.9)
LIB 148	61.00	58.000	52.000 / 52.005	56.75	6.00 (152.4)	0.00 (0.0)	10.69 (271.5)
LIB 248	(1,549.4)	(1,473.20)	(1,320.80 / 1,320.93)	(1,441.5)	8.75 (222.3)	1.00 (25.4)	15.06 (382.5)
LIB 260	70.50	74.500	60.000 / 59.990	70.50	9.38 (238.3)	3.50 (88.9)	21.25 (539.8)
LIB 360	(1,790.7)	(1,892.30)	(1,524.0 / 1,523.7)	(1,790.7)	12.25 (311.2)		22.88 (581.2)

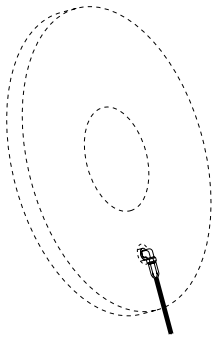
Dimensions: inches (mm)

Model		L					R		U	
Size ATD-	J	No.-	Size	M	N	Q	No. -	Size	T	Min.	Max.
LIB 106	0.06	4 -	0.34 (8.6)	4.19	2.69 (68.3)	0.56	2 -	1/4 NPT	2.00	0.60	2.00
LIB 206	(1.5)			(106.4)		(14.2)			(50.8)	(15.2)	(50.8)
LIB 142	0.25	24 -	1.06 (26.9)	29.50	18.00 (457.2)	1.50	4 -	1/2 NPT	23.88	8.00	14.00
LIB 242	(6.4)			(749.3)		(38.1)			(606.6)	(203.2)	(355.6)
LIB 148	0.25	24 -	1.06 (26.9)	32.00	25.75 (654.1)	1.50	4 -	1/2 NPT	25.25	10.00	18.00
LIB 248	(6.4)			(812.8)		(38.1)			(641.4)	(254.0)	(457.2)
LIB 260	0.38	24 -	2.06 (52.3)	35.50	27.00 (685.8)	3.25	6 -	1/2 NPT	28.5	11.00	19.00
LIB 360	(9.5)			(901.7)	28.15 (715.0)	(797.6)			(723.9)	(279.4)	(482.6)

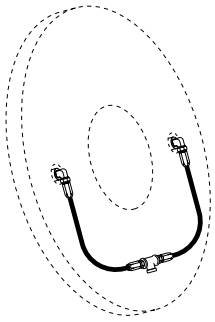
Note: For mounting, use socket head capscrews conforming to the ASTM-574-97a.
(Consult factory for drawing before final layout.)

Air Tube Disc Clutches and Brakes

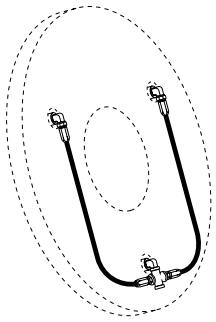
Brake Air Hose Kits



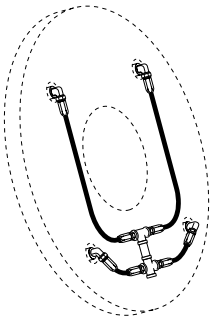
Model	Part Number
8”	8-908-912-100-5 8-908-924-100-5 QRV



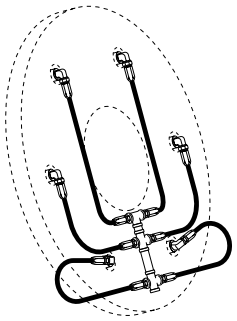
Model	Part Number
6”	8-906-912-200-4 8-906-931-201-5 QRV
8”	8-908-913-200-5 8-908-931-200-5 QRV
11”	8-911-913-200-5 8-911-931-200-5 QRV
14”	8-914-913-200-5 8-914-921-200-5 QRV
16”	8-916-913-200-5 8-916-921-200-5 QRV



Model	Part Number
18”	8-918-912-200-5 8-918-931-200-5 QRV
21”	8-921-913-200-5 8-921-931-200-5 QRV
24”	8-924-913-200-5 8-924-931-200-5 QRV
27”	8-927-913-200-5 8-927-921-200-5 QRV



Model	Part Number
30”	8-930-913-400-5 8-930-931-400-5 QRV
36”	8-936-913-400-6 8-936-931-400-6 QRV
42”	8-942-913-400-6 8-924-931-400-6 QRV
48”	8-948-912-400-6 8-948-923-400-6 QRV

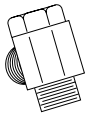


Model	Part Number
60”	8-960-912-500-5 8-960-923-400-6 QRV

Air hose kits contain all necessary parts (fittings, hoses and extensions) to completely plumb the brake air system.

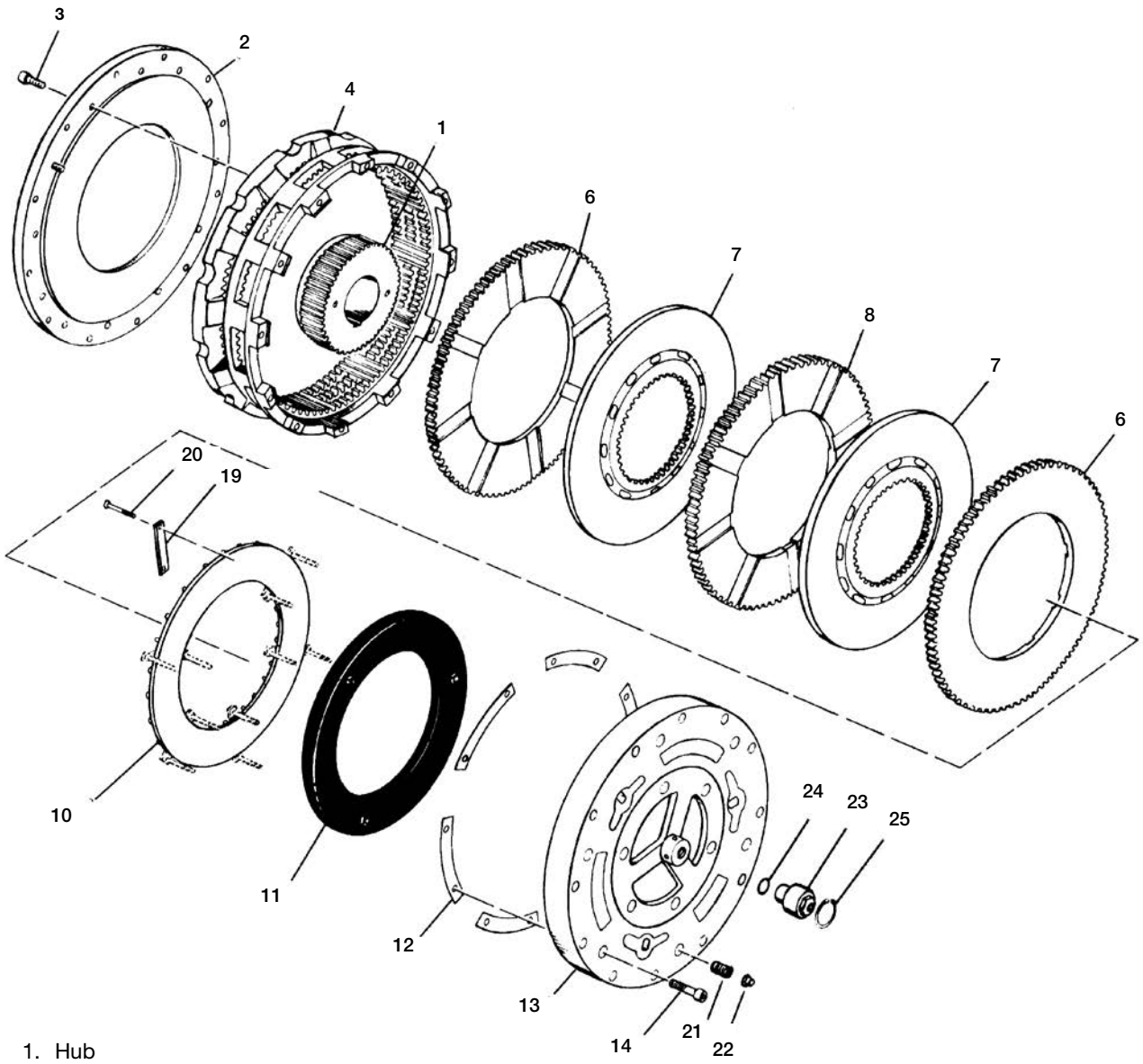
Optional Quick Release Valves can replace elbows on most units (see page 35).

Roto-couplings (see page 35).



Low Inertia Clutches and Brakes

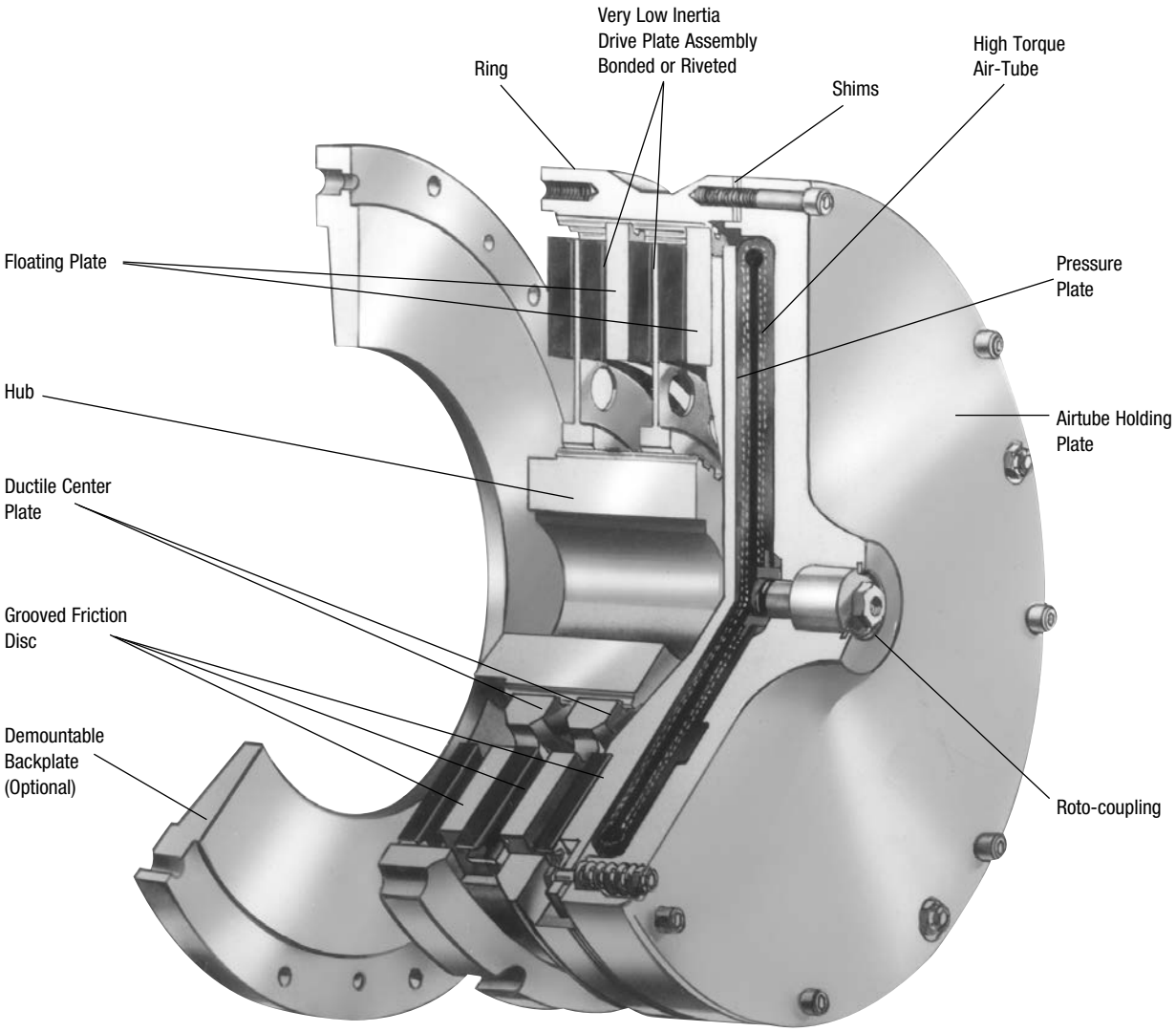
Component Parts



1. Hub
2. Demountable Back Plate
3. Socket Head Capscrews
4. Ring
6. Grooved Friction Disc (grooved on one side)
7. Center Plate
8. Grooved Friction Disc (grooved on both sides)
10. Pressure Plate
11. Airtube
12. Shims
13. Airtube Holding Plate
14. Socket Head Capscrews
19. Pressure Plate Lugs
20. Hex Head Capscrews
21. Release Springs
22. Flexloc Nuts
23. Roto-coupling
24. “O” Ring
25. Snap Ring

Air Tube Disc Clutches and Brakes

High Torque Clutches



Wichita High Torque Clutches provide the highest torque to size ratios of any Wichita Clutch. They provide smooth controlled starts and stops and are designed for minimum power loss due to low rotating inertia.

- Extremely fast response
- No lubrication
- High torque to size ratio
- Low rotating inertia

Selection Requirements

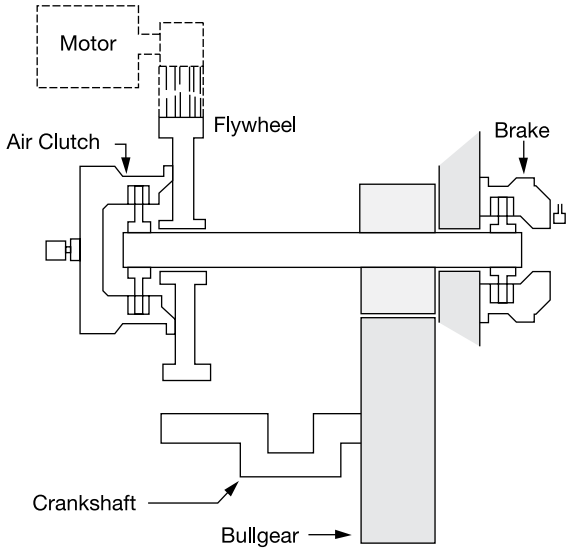
To properly select a High Torque Clutch and Low Inertia Brake, the following information must be determined.

1. Torque necessary to do the work (clutch)
2. Rotating inertia to be stopped and started
3. Heat generated by each stop/start
4. Torque necessary to stop inertia (brake)
5. Shaft size

Selection Example

Data

Rated Tonnage. . . . . As Required
Crankshaft Speed . . . . . 30 RPM
(Continuous Run)
Clutch-Brake Shaft RPM . . . . . 204 RPM
Crankshaft Speed . . . . . 30 RPM
Degrees of Crank to start. . . . . 90°
Degrees of Crank to stop. . . . . 90°
Connecting Rod Length = b. . . . . 36 in.
Stroke. . . . . 6 in.
1/2 of Press Stroke (throw) = a . . . . . 3 in.
WR^2 of Parts on Backshaft. . . . . 78.2 lb.ft.^{2}
WR^2 of Parts on Crankshaft . . . . . 39,091 lb.ft.^{2}
Material Shear Stress. . . . . 45,000 PSI
Blade Width . . . . . 60 in.
Shaft Size. . . . . 4 in.
Maximum Material to be Sheared x
Air Pressure Available . . . . . 100 PSI



Calculations

Torque @ Crank
= (Material Shear Stress) (x) (Blade Width) (Torque Arm)

Torque arm = y = (x) (tan α)

c = a + b – x
= 3 + 36 – .25
= 38.75 in.

Cos α

$$= \frac{b^2 + c^2 - a^2}{2\ bc}$$

$$= \frac{(36)^2 + (38.75)^2 - (3)^2}{(2)\ (36)\ (38.75)}$$

= .99948

α = 1.8478°

Torque Arm = y = (c) (tan α)
= (38.75) (tan 1.8478°)
= (38.75) (.03226)
= 1.25 in.

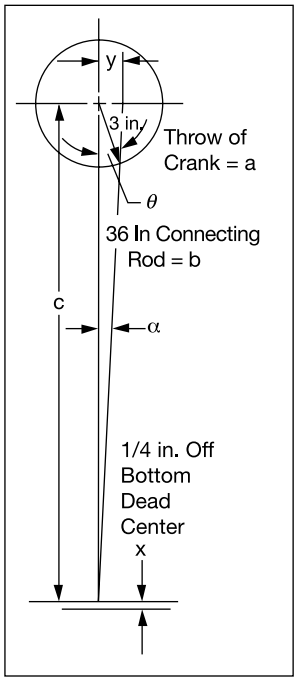
Torque @ Crank
= (Material Shear Stress) (x) (Blade Width) (Torque Arm)
= (45,000) (.25) (60) (1.25)
= 843,750 lb.in.

Torque @ Clutch

$$= (\text{Torque @ Crank}) \div \frac{\text{Clutch RPM}}{\text{Crankshaft RPM}}$$

$$= 843{,}750 \div \frac{204\ \text{RPM}}{30\ \text{RPM}}$$

= 124,081 lb.in.



High Torque Clutches

Clutch Selection

Per the application factors on page 23 a “Back Geared Press is ‘Group C’.”

$$\frac{HP}{100\ RPM} = \frac{Torque}{630} = \frac{124{,}081}{630} = 197$$

The preliminary clutch selection based on 124,081 lb.in. and 197 HP/100 RPM is an ATD-224 Low Inertia High Torque Clutch. (page 48)

A Low Inertia High Torque Clutch was chosen because of the continuous duty (non-cyclic) operation having a relatively low heat HP requirement.

ATD-224 Low Inertia High Torque Clutch = 280 HP/100 RPM

Rated Torque = 480,000 lb.in @ 100 PSI

Required clutch air pressure is:

$$PSI = \frac{\text{Clutch required torque x (100 PSI)}}{\text{Catalog rated torque @ 100 PSI}}$$

Actual required clutch PSI

$$PSI = \frac{124{,}081}{480{,}000} \times (100\ PSI)$$

= 26 PSI minimum is required.

This application has 100 PSI available.

Contact velocity of rotating disc is:

$$V_c = \frac{(\text{Diameter of Center Plate})\ (\pi)\ (RPM)}{12\ \text{in.ft.}}$$

$$= \frac{24}{12}\ (\pi)\ (204) = 1{,}282\ \frac{ft.}{min.}$$

(Ductile iron is not required, see page 23).

Maximum bore for ATD-224 High Torque Low Inertia Clutch = 7 in.

Check clutch inflation time for 90˚ start angle (see page 52, PSI pressure curves)

Estimated time to start

$$= \frac{\text{Start Angle}}{360°}\ \frac{60}{\text{Crankshaft RPM}}$$

$$= \frac{90°}{360°}\ \frac{60}{30} = 0.5\ \text{sec.}$$

P_1 = Line pressure to clutch
P_2 = Required pressure to clutch
LN = Natural log
k = Inflation coefficient (ATD-224 H.T. @ 100 PSI)
= 2,600
u = For ATD-224 H.T. Clutch @ 100 PSI
= 2.5

Time to 26% of line pressure.

$$t = \frac{LN\left[\frac{P_1}{P_1 - P_2}\right]^{\frac{1}{u}}}{k}$$

$$t = \left[\frac{LN\left[\frac{100}{100 - 26}\right]}{2{,}600}\right]^{\frac{1}{2.5}}$$

= 0.027 seconds

Clutch will be fully inflated at 90˚ of crankshaft rotation.

Clutch exhaust time @ 100 PSI = E = .078 (page 52).

Note:
This application example is for preliminary sizing only. Contact a Wichita Sales Engineer or the factory for final selection.

Low Inertia Brake Selection

To properly size a brake, the total rotating inertia reflected to the clutch and brake shaft must be known.

Alternate shaft WR^2 referred to clutch shaft

$$= \frac{\text{Alternate}}{\text{shaft WR}^2} \left[\frac{\text{Alternate shaft RPM}}{\text{clutch shaft RPM}}\right]^2$$

$$= 39{,}091 \left[\frac{30}{204}\right]^2$$

WR^2 referred to clutch-brake shaft = 845.4 $lb.ft^2$ @204 RPM

Total inertia Back shaft WR^2 = 78.2 $lb.ft.^2$

Clutch hub & drive plate WR^2 from Specification Table = 101.0 $lb.ft.^2$

Estimate brake WR^2 (assume same as clutch) = 101.0 $lb.ft.^2$

Total WR^2 referred to clutch-brake = 1,125.66 $lb.ft.^2$ (Estimated)

Estimated time to stop:

$$= \left[\frac{\text{Start Angle}}{360°}\right] \left[\frac{60}{\text{Crankshaft RPM}}\right]$$

$$= \left[\frac{90°}{360°}\right] \left[\frac{60}{30}\right] = .5 \text{ sec.}$$

The deceleration torque is:

$$T = 12 \left[\frac{WR^2}{32.2}\right] \left[\frac{\text{Brake RPM}}{9.5(t)}\right]$$

$$= 12 \left[\frac{1125.6}{32.2}\right] \left[\frac{204}{9.5\ (.5)}\right]$$

Deceleration Torque = 18,015 lb.in.

The HP / 100 RPM for this application is:

$$\frac{\text{HP}}{\text{100 RPM}} = \frac{\text{Torque (lb.in.)}}{630} = \frac{18{,}015}{630} = 29 \text{ HP/100 RPM}$$

Consult the Specification Table on pages 36-37 to select a brake based on torque and HP/100 RPM. Under “Duty C”, an ATD-214 brake has 32 HP/100 capacity and 55,250 lb.in. torque. The rotating inertia of an ATD-214 Low Inertia Brake is 11 $lb.ft.^2$. Therefore, the actual rotating inertia reflected to brake is 1035.6 $lb.ft.^2$.

The actual deceleration torque

$$= 12 \left[\frac{1035.6}{32.2}\right] \left[\frac{204}{9.5}\right]$$

= 16,575 lb. in.

Required air pressure is:

$$\text{Brake} = \frac{\text{Brake required torque x (100 PSI)}}{\text{Catalog rated torque @ 100 PSI}}$$

$$= \frac{16{,}575 \text{ lb. in.}}{55{,}250 \text{ lb. in.}} \times 100$$

= 30 PSI minimum

This application has 100 PSI available.

The average heat HP each stop

$$= \frac{\text{(Brake Torque)}}{63{,}000} \times \text{RPM} \times 1/2$$

$$= \frac{16{,}575}{63{,}000} \times 204 \times .5$$

= 26.8 HP

Friction area necessary to absorb heat = $\frac{\text{Heat HP}}{.7} = \frac{26.8}{.7} = 39 \text{ in.}^2$

$$\frac{\text{heat HP}}{\text{Absorption rate for .5 sec.}}$$

(see page 174)

An ATD-214 Low Inertia Brake has 316 $in.^2$ of friction lining available to absorb heat generated by stopping. Maximum bore for an ATD-214 Low Inertia Brake is 4-1/8 inches.

Based on the given application data and the following calculations, an ATD-224 Low Inertia High Torque Clutch and ATD-214 Low Inertia Brake have been selected as having sufficient torque and heat dissipation capacity with minimum diameter and sufficient bore capacity.

Note:
These application examples are for preliminary sizing only. Contact a Wichita Sales Engineer or the factory for final selection.

B

Air Tube Disc Clutches and Brakes

High Torque Clutches

Specifications

Model Size ATD-	Assembly Number	Slip Torque Capacity lb.in. 80 PSI	Slip Torque Capacity lb.in. 100 PSI	Slip Torque Capacity Nm 5.5 BAR	Slip Torque Capacity Nm 7 BAR	Duty Factors HP/100 RPM A	Duty Factors HP/100 RPM B	Duty Factors HP/100 RPM C	Duty Factors HP/100 RPM D	Max. Bore Rect. Key in.	Max. Bore Rect. Key (mm)
HTC 104	6-004-100-400-0	800	1,000	90	113	1.6	1.2	0.6	0.3	1.00	(25)
HTC 204	6-004-200-802-0	1,600	2,000	180	226	3.2	2.4	1.2	0.6		
HTC 106	6-006-100-400-0	4,000	5,000	475	602	8	5.7	2.8	1.4	2.00	(50)
HTC 206	6-006-200-400-0	8,000	10,000	950	1,204	16	11.4	5.7	2.8		
HTC 108	6-008-100-407-0	8,800	11,000	977	1,243	17	13	6	3		
HTC 208	6-008-200-417-0	17,600	22,000	1,953	2,486	34	25	13	6	2.38	(60)
HTC 308	6-008-300-400-0	26,400	33,000	2,930	3,729	51	38	19	9		
HTC 111	6-011-100-408-0	20,000	25,000	2,220	2,825	38	28	14	7		
HTC 211	6-011-200-422-0	40,000	50,000	4,440	5,650	76	56	28	14	2.63	(67)
HTC 311	6-011-300-406-0	60,000	75,000	6,660	8,475	114	84	42	21		
HTC 114	6-014-100-405-0	38,400	48,000	4,261	5,423	75	55	27	14	4.13	(105)
HTC 214	6-014-200-403-0	76,800	96,000	8,522	10,846	160	114	55	28	3.63	(92)
HTC 314	6-014-300-411-0	115,200	144,000	12,783	16,269	225	165	81	42	4.63	(118)
HTC 116	6-016-100-403-0	59,480	74,350	6,600	8,400	118	91	47	24		
HTC 216	6-016-200-402-0	118,960	148,700	13,200	16,800	236	182	94	47	4.00	(102)
HTC 316	6-016-300-401-0	178,440	223,050	19,800	25,200	354	272	142	71		
HTC 118	6-018-100-400-0	84,000	105,000	9,321	11,863	165	120	60	30		
HTC 218	6-018-200-400-0	168,000	210,000	18,642	23,726	330	240	120	60	4.75	(120)
HTC 318	6-018-300-400-0	252,000	315,000	27,963	35,589	495	360	180	90		
HTC 121	6-021-100-400-0	136,000	170,000	15,091	19,207	270	208	108	54		
HTC 221	6-021-200-401-0	272,000	340,000	30,182	38,414	540	415	216	108	6.00	(152)
HTC 321	6-021-300-400-0	408,000	510,000	45,273	57,621	810	623	324	162		
HTC 124	6-024-100-401-0	192,000	240,000	21,305	27,116	385	280	140	70		
HTC 224	6-024-200-405-0	384,000	480,000	42,610	54,232	770	560	280	140	6.00	(152)
HTC 324	6-024-300-401-0	576,000	720,000	63,915	81,348	1,155	840	420	210		
HTC 424	6-024-400-400-0	768,000	960,000	85,220	108,464	1,540	1,120	560	280		
HTC 127	6-027-100-404-0	289,680	362,100	32,144	40,911	575	442	230	115	6.50	(165)
HTC 227	6-027-200-411-0	579,360	724,200	64,288	81,821	1,150	884	460	230		
HTC 327	6-027-300-402-0	869,040	1,086,300	96,432	122,732	1,724	1,326	690	345	6.00	(152)
HTC 130	6-030-100-400-0	376,000	470,000	41,722	53,101	750	535	270	135	7.25	(184)
HTC 230	6-030-200-408-0	752,000	940,000	83,445	106,203	1,500	1,070	540	270		
HTC 330	6-030-300-415-0	1,128,000	1,410,000	125,167	159,304	2,250	1,605	810	405	8.00	(203)
HTC 136	6-036-100-400-0	752,000	940,000	84,445	106,200	1,555	1,120	560	280	8.00	(203)
HTC 236	6-036-200-409-0	1,504,000	1,880,000	166,890	212,400	3,100	2,240	1,120	560		
HTC 336	6-036-300-404-0	2,256,000	2,820,000	250,335	318,600	4,665	3,360	1,680	840	9.25	(235)
HTC 148	6-048-100-400-0	1,888,000	2,360,000	209,500	266,637	3,745	2,690	1,345	670		
HTC 248	6-048-200-406-0	3,776,000	4,720,000	419,000	533,273	7,490	5,380	2,690	1,345	18.00	(455)
HTC 348	6-048-300-403-0	5,664,000	7,080,000	628,500	799,910	11,235	8,070	4,035	2,010		

Maximum Air Pressure is 100 PSI / 7 BAR.

High Torque Clutches

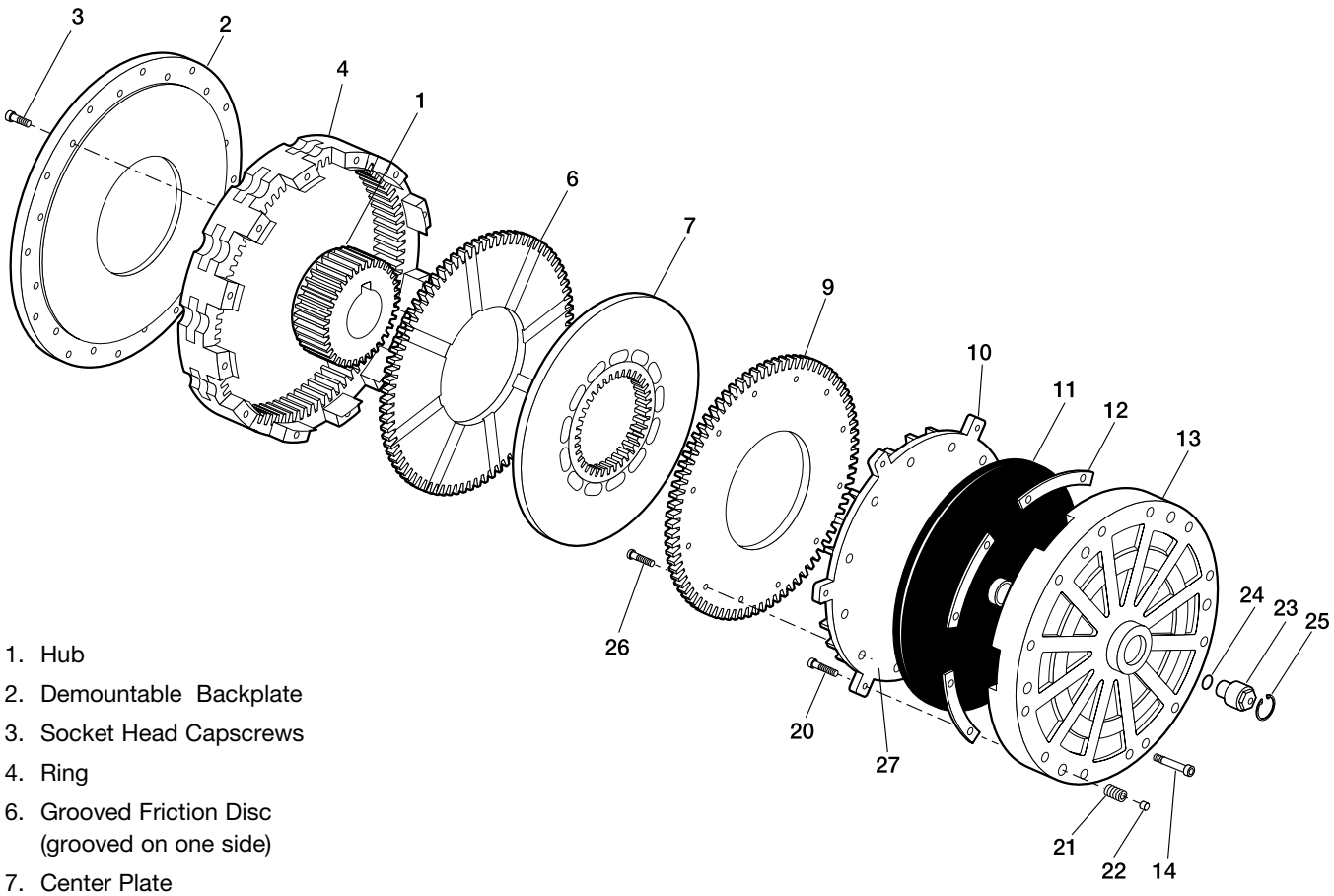
Specifications

Model Size ATD-	Recommended Clearance in.	Balance Speed RPM	Max. Speed Reg-Speed RPM	Max. Speed High Speed RPM*	Swept Area $in.^2$	Airtube Volume $in.^3 (cm^3)$ New	Airtube Volume $in.^3 (cm^3)$ Worn	Total Clutch Wt. lb.	Total Clutch Wt. (kg)	Total Clutch $WR^2/J=mr^2$ $lb.ft.^2$	Total Clutch $WR^2/J=mr^2$ (kgm^2)	Hub & Center Plate Wt. lb.	Hub & Center Plate Wt. (kg)	Hub & Center Plate $WR^2/J=mr^2$ $lb.ft.^2$	Hub & Center Plate $WR^2/J=mr^2$ (kgm^2)
HTC 104	1/32-1/16	NA	2,100	2,600*	17	1.3	5	11.0	(5)	0.4	(0.018)	1.50	(0.7)	0.021	(0.001)
HTC 204	1/32-1/16				34	(21.3)	(82)	14.0	(6)	0.6	(0.023)	3.88	(1.8)	0.04	(0.002)
HTC 106	1/16-3/32	NA	2,100	2,600*	39	3	14	22.5	(10)	1.4	(0.059)	6.40	(2.9)	0.24	(0.010)
HTC 206	3/32-5/32				78	(49)	(229)	44.2	(20)	3.1	(0.131)	12.60	(5.7)	0.50	(0.021)
HTC 108	1/16-1/8				56			109.4	(50)	21.43	(0.903)	15	(6.8)	1.35	(0.057)
HTC 208	3/32-5/32	1,675	1,890	2,500*	112	5	30	148.4	(67)	28.72	(1.211)	30	(13.6)	2.60	(0.110)
HTC 308	1/8-3/16				168	(82)	(492)	140	(64)	30	(1.265)	40.5	(18.4)	4.00	(0.169)
HTC 111	1/16-1/8				114			133	(60)	27	(1.14)	23	(10.4)	2.30	(0.097)
HTC 211	3/32-5/32	1,200	1,430	2,200*	228	8	48	170	(77)	34	(1.43)	45	(20.4)	4.50	(0.190)
HTC 311	1/8-3/16				342	(131)	(787)	208	(94)	52	(2.19)	121	(54.9)	7.00	(0.295)
HTC 114	1/16-1/8				158			120	(54)	31	(1.31)	48	(21.8)	5.6	(0.236)
HTC 214	3/32-5/32	950	1,225	1,930*	316	12	75	265	(120)	70	(2.95)	78	(35.4)	11.2	(0.472)
HTC 314	1/8-3/16				474	(197)	(1,229)	279	(127)	72	(3.04)	31	(14.1)	15.1	(0.637)
HTC 116	1/16-1/8				228			236	(107)	84	(3.54)	50	(22.7)	8.2	(0.346)
HTC 216	3/32-5/32	835	1,080	1,700*	455	10	56	295	(134)	105	(4.43)	107	(48.5)	19.6	(0.826)
HTC 316	1/8-3/16				683	(164)	(918)	357	(162)	120	(5.06)	151	(68.5)	28.6	(1.206)
HTC 118 (0.658)	1/16-1/8				264	18	101	375	(170)	182	(7.67)	80	(36.3)	15.6	
HTC 218	3/32-5/32	750	985	1,530*	528	(295)	(1,655)	485	(220)	200	(8.43)	118	(53.5)	28.8	(1.214)
HTC 318	1/8-3/16				792			530	(240)	250	(10.54)	180	(81.6)	45.0	(1.897)
HTC 121	3/32-5/32				362			557	(253)	334	(14.08)	101	(45.8)	31	(1.31)
HTC 221	1/8-3/16	650	850	1,400*	724	38	201	697	(316)	427	(18.00)	198	(89.8)	61	(2.57)
HTC 321	5/32-7/32				1,086	(623)	(3,294)	757	(343)	400	(16.86)	290	(131.5)	122	(5.14)
HTC 124	3/32-5/32				574			702	(318)	498	(20.99)	134	(60.8)	56	(2.4)
HTC 224	1/8-3/16	550	765	1,210*	1,148	50	250	920	(417)	635	(26.77)	260	(117.9)	110	(4.6)
HTC 324	5/32-7/32				1,722	(819)	(4,097)	1,190	(540)	856	(36.09)	386	(175.1)	163	(6.9)
HTC 424	3/16-1/4				2,296			1,291	(586)	917	(38.66)	466	(211.4)	209	(8.8)
HTC 127	3/32-5/32				730			989	(449)	785	(33.1)	168	(76.2)	98	(4.1)
HTC 227	1/8-3/16	500	700	1,090*	1,460	61	323	1,192	(541)	968	(40.8)	304	(137.9)	191	(8.1)
HTC 327	5/32-7/32				2,190	(1,000)	(5,293)	1,413	(641)	1,183	(49.9)	455	(206.4)	283	(11.9)
HTC 130	3/32-5/32				827			1,525	(692)	1,836	(77.4)	272	(123.4)	186	(7.8)
HTC 230	1/8-3/16	450	620	1,000*	1,654	80	395	1,925	(873)	2,425	(102.2)	529	(240.0)	369	(15.6)
HTC 330	5/32-7/32				2,481	(1,311)	(6,473)	2,240	(1,016)	2,720	(114.7)	800	(362.9)	495	(20.9)
HTC 136	3/32-5/32				1,150			2,190	(993)	3,650	(153.9)	376	(170.6)	368	(15.5)
HTC 236	1/8 -3/16	375	525	800*	2,300	120	770	2,800	(1,270)	4,390	(185.1)	750	(340.2)	755	(31.8)
HTC 336	5/32-7/32				3,450	(1966)	(12618)	3,221	(1,461)	4,866	(205.1)	1,206	(547.0)	1,140	(48.1)
HTC 148	1/8-1/4				2,010			7,326	(3,323)	25,703	(1,084)	1,711	(776)	1,828	(77)
HTC 248	7/32-9/32	275	380	580*	4,020	200	1,430	8,497	(3,854)	28,356	(1,195)	1,994	(904)	3,411	(144)
HTC 348	3/16-5/16				6,030	(3,277)	(23,434)	9,768	(4,431)	32,008	(1,349)	2,708	(1,228)	4,899	(207)

* Consult Factory for Special Assembly Number.

High Torque Clutches

Component Parts



1. Hub
2. Demountable Backplate
3. Socket Head Capscrews
4. Ring
6. Grooved Friction Disc (grooved on one side)
7. Center Plate
9. Grooved Friction Disc
10. Pressure Plate
11. Pancake Air Tube
12. Shims
13. Air Tube Holding Plate
14. Socket Head Capscrews
20. Hex Head Capscrew
21. Release Springs
22. Flexloc Nut
23. Internal Roto-Coupling
24. ”O“ Ring
25. Snap Ring
26. Flathead Socket Capscrew
27. Slotted Flush Nut

Inflation Coefficients

Model Size ATD-	Inflation Coefficients Operating Air Pressure 50 PSI K	50 PSI U	75 PSI K	75 PSI U	100 PSI K	100 PSI U
111	393,000	3	151,000	3	5,100	4
211	393,000	3	151,000	3	5,100	4
114	49,000	3	30,000	3	17,600	3
214	49,000	3	30,000	3	17,600	3
118	5,700	2.8	5,700	2.8	7,500	3
218	5,700	2.8	5,700	2.8	7,500	3
124	10,400	3	5,200	2.7	2,600	2.5
224	10,400	3	5,200	2.7	2,600	2.5
130	940	2.2	1,070	2.2	590	2
230	940	2.2	1,070	2.2	590	2
136	77,000	3.5	58,000	3.5	44,000	3.5
236	77,000	3.5	58,000	3.5	44,000	3.5
148	1,200	2.5	1,240	3.5	800	2.5
248	1,200	2.5	1,240	3.5	800	2.5

Exhaust Coefficients

Model Size ATD-	Exhaust Coefficients Operating Air Pressure 50 PSI R	50 PSI E	50 PSI V	75 PSI R	75 PSI E	75 PSI V	100 PSI R	100 PSI E	100 PSI V
111	480,000	.04	4	180,000	.05	4	*	.056	5
211	480,000	.04	4	180,000	.05	4	*	.056	5
114	5,600	.032	2.5	2,200	.044	2.5	910	.064	2.5
214	5,600	.032	2.5	2,200	.044	2.5	910	.064	2.5
118	4,100	.062	3	9,800	.1	4	8,500	.104	4
218	4,100	.062	3	9,800	.1	4	8,500	.104	4
124	280	.06	2	775	.068	2.5	575	.078	2.5
224	280	.06	2	775	.068	2.5	575	.078	2.5
130	690	.072	2.5	500	.083	2.5	500	.084	2.5
230	690	.072	2.5	500	.083	2.5	500	.084	2.5
136	86	.048	1.5	76	.056	1.5	1,100	.064	1.5
236	86	.048	1.5	76	.056	1.5	1,100	.064	1.5
148	160	.11	2.3	120	.136	2.4	111	.15	2.5
248	160	.11	2.3	120	.136	2.4	111	.15	2.5

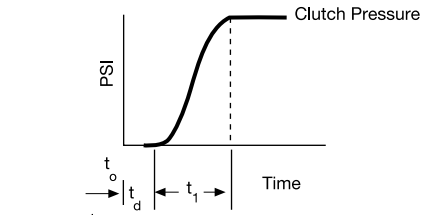
* 1.88×10^6

Air System Data

PSI pressure

Inflation

Clutch air pressure during inflation can be closely estimated by the following:



$t_1 = \left(\frac{3}{K}\right)^{\frac{1}{u}}$ sec. = Time to 95% Full Inflation

Clutch pressure = $P_1 \left(1 - \frac{1}{e^{Kt^u}}\right)$ PSI (inflation)

This equation is accurate from 5% up to 95% P_1.

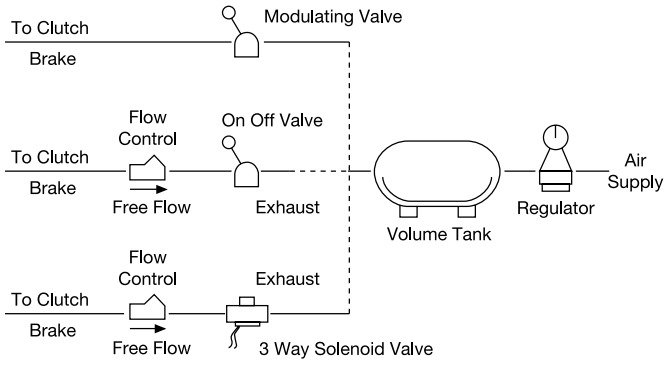
P_1 = Line pressure to clutch PSI

K and U = coefficients for specific clutch and air pressure from Specification Table on page 51.

e = Naperian base log

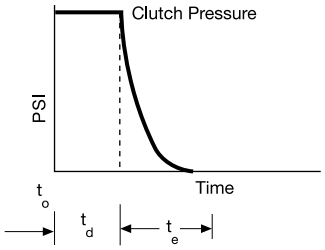
t_o = Time at initiation of signal for inflation sec.

t_d = Time delay of air system – sec.



Exhaust

Clutch air pressure during exhaust can be closely estimated by the following:



Clutch pressure = $(P_1)(R)(E-t)^v$ PSI (exhaust)

R, E and V = coefficients for specific clutch and air pressure from Specification Table on page 51.

t_e = Time to exhaust = E from Specification Table on page 51.

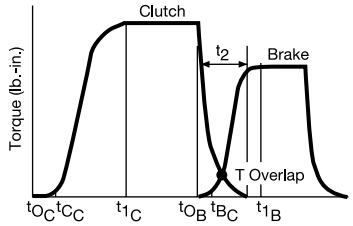
t = Time variable – seconds. In the exhaust equation "t" cannot exceed the value of "E" sec.

Shown are some of the air systems used on Wichita clutches. These systems are acceptable for remote operation where clutch reaction time is not important. Faster clutch reaction time is accomplished as indicated in the diagram by locating the flow control valve, if required, and the solenoid valve as close as possible to the roto-coupling. Where clutches are located on long shafts, the use of quick release valves on the clutch will facilitate faster clutch response.

B

Overlap

A typical clutch-brake torque curve for a single backshaft press (cyclic application) would appear as shown below.



Time (sec.)

t_{Oc} = time at which disengaged clutch receives signal

t_{Cc} = time of clutch engagement

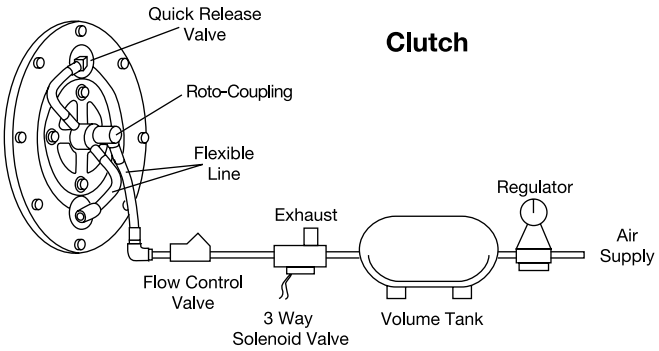
t_{1c} = time of clutch full inflation

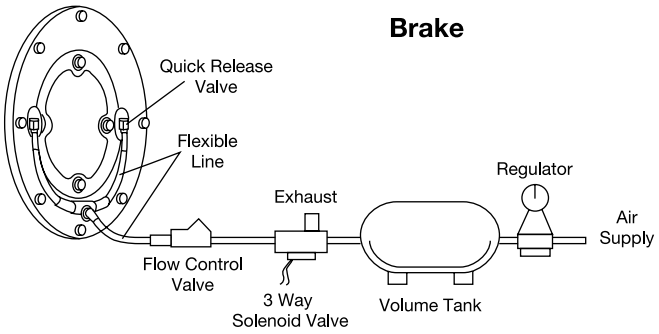
t_{OB} = time at which disengaged brake receives signal

t_{Bc} = time of brake engagement

t_{1B} = time of brake full exhaust

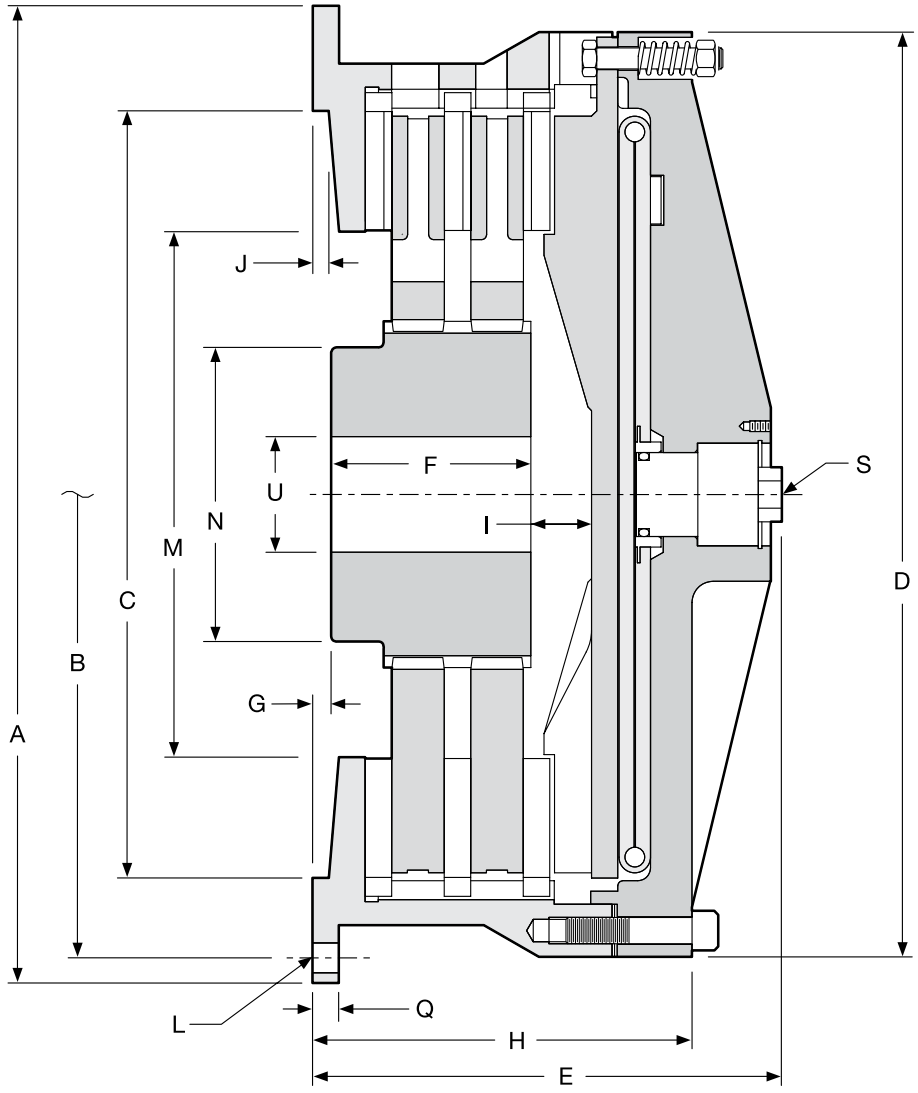
t_2 = overlap time at which clutch and brake are both engaged





High Torque Clutches

Sizes 4-24



High Torque Clutches

Sizes 4-24

Dimensions: inches (mm)

Model Size ATD-	A	B Hole Circle	C Pilot	D	E	F	G	H
HTC 104[2]	7.38	6.875	4.375 / 4.378	6.38	3.38 (85.9)	1.00 (25.4)	0.06 (1.5)	2.50 (63.5)
HTC 204[2]	(187.5)	(174.63)	(111.13 / 111.20)	(162.1)	2.50 (63.5)	1.88 (47.8)	0.00 (0.0)	3.19 (81.0)
HTC 106[3]	8.75	8.000	7.377 / 7.379	8.81	5.03 (127.8)	2.00 (50.8)	0.00 (0.0)	4.53 (115.1)
HTC 206	(222.3)	(203.20)	(187.38 / 187.43)	(223.8)	6.25 (158.8)	3.25 (82.6)	0.06 (1.5)	5.75 (146.1)
HTC 108[1]	12.13	11.125	8.375 / 8.378	11.13	6.21 (157.7)	1.50 (38.1)	0.50 (12.7)	4.37 (111.0)
HTC 208[1]	(308.1)	(282.58)	(212.73 / 212.80)	(282.7)	7.52 (191.0)	2.88 (73.2)		5.68 (144.3)
HTC 111[1]	16.00	14.750	11.375 / 11.378	14.75	7.82 (198.6)	2.00 (950.8)	0.50 (12.7)	5.44 (138.2)
HTC 211[1]	(406.4)	(374.65)	(288.93 / 289.00)	(374.7)	9.63 (244.6)	3.75 (95.3)		7.25 (184.2)
HTC 114[1]	18.75	17.500	14.375 / 14.378	17.50	8.39 (213.1)	3.75 (95.3)	.13 (3.3)	6.06 (153.9)
HTC 214	(476.3)	(444.50)	(365.13 / 365.20)	(444.5)	10.50 (266.7)	4.50 (114.3)	.38 (9.7)	7.88 (200.2)
HTC 314[3]					10.00 (254.0)	4.50 (114.3)	.38 (9.7)	7.88 (200.2)
HTC 116	21.25	20.000	16.250 / 16.253	20.00	9.16 (232.7)	2.75 (69.9)	0.38 (9.7)	6.78 (172.2)
HTC 216	(539.8)	(508.00)	(412.75 / 412.83)	(508.0)	11.16 (283.5)	4.75 (120.7)		8.66 (220.0)
HTC 316					13.06 (331.7)	6.63 (168.4)		10.69 (271.5)
HTC 118	23.25	22.000	18.250 / 18.253	22.00	9.28 (235.7)	2.75 (69.9)	0.44 (11.2)	7.16 (181.9)
HTC 218	(590.6)	(558.80)	(463.55 / 463.63)	(558.8)	11.20 (283.5)	4.75 (120.7)		9.03 (229.4)
HTC 318					12.81 (325.4)	6.50 (165.1)		10.94 (277.9)
HTC 121	27.00	25.500	21.375 / 21.378	24.88	10.19 (258.8)	2.88 (73.2)	0.69 (17.5)	7.56 (192.0)
HTC 221	(685.8)	(647.70)	(542.93 / 543.00)	(632.0)	11.83 (300.5)	5.13 (130.3)	0.75 (19.1)	9.69 (246.1)
HTC 321					14.19 (360.4)	7.13 (181.1)	0.75 (19.1)	12.06 (306.3)
HTC 124	30.00	28.750	24.375 / 24.378	28.00	10.06 (255.5)	3.50 (88.9)	0.38 (9.7)	8.38 (212.9)
HTC 224	(762.0)	(730.25)	(619.13 / 619.20)	(711.2)	12.38 (314.5)	3.50 (88.9)	0.75 (19.1)	10.69 (271.5)
HTC 324					14.69 (373.1)	5.13 (130.3)	0.75 (19.1)	13.00 (330.2)
HTC 424[3]	29.00 (736.6)	26.75 (679.5)	25.500 /25.503 (647.70 / 647.78)	28.00 (711.2)	15.64 (397.3)	8.38 (212.9)	0.72 (18.3)	13.81 (350.8)

Dimensions: inches (mm)

Model Size ATD-	I	J	L No.-	L Size	M	N	Q	S	U Min.	U Max.
HTC 104 HTC 204	.38 (9.7) .63 (16)	0.13 (3.3)	6 -	9/32 (7.1)	2.88 (73.2)	2.58 (65.5)	0.38 (9.7)	5/8-18NF	0.50 (12.7)	1.00 (25)
HTC 106 HTC 206	.94 (23.9) .82 (20.8)	0.06 (1.5)	4 -	11/32 (8.7)	4.19 (106.4)	2.69 (68.3)	0.56 (14.2)	5/8-18NF	1.00 (25)	2.00 (50.8)
HTC 108 HTC 208	.81 (20.6) .75 (19.1)	0.25 (6.4)	6 -	17/32(13.5)	5.38 (136.7)	3.62 (91.9)	0.50 (12.7)	1/4 NPT	1.00 (25)	2.38 (60.5)
HTC 111 HTC 211	1.06 (26.9) 1.12 (28.4)	0.38 (9.7)	6 -	11/16 (17.5)	7.00 (177.8)	4.12 (104.6)	1.13 (28.7)	1/2 NPT	1.00 (25)	2.63 (66.8)
HTC 114	1.06 (26.9)	.38 (9.7)		11/16 (17.5)	9.44 (239.8)	5.62 (142.7)	1.13 (28.7)			4.13 (104.9)
HTC 214	.81 (20.6)	.38 (9.7)	8 -	21/32 (16.7)	9.44 (239.8)	5.50 (139.7)	0.63 (16.0)	1/2 NPT	1.38 (35.1)	3.63 (92.2)
HTC 314	.94 (23.9)	.13 (3.3)		5/8-11NC	9.50 (241.3)	6.66 (169.2)	—			4.63 (117.6)
HTC 116	1.25 (31.8)			11/16 (17.5)						
HTC 216	1.25 (31.8)	0.38 (9.7)	12 -	21/32 (16.7)	10.50 (266.7)	6.00 (152.4)	0.63 (16.0)	1/2 NPT	1.38 (35.1)	4.00 (101.6)
HTC 316	1.13 (28.7)			21/32 (16.7)						
HTC 118				21/32 (16.7)						
HTC 218	1.44 (36.6)	0.38 (9.7)	12 -	11/16 (17.5)	12.50 (317.5)	7.00 (177.8)	0.63 (16.0)	1/2 NPT	2.00 (50.8)	4.75 (120.7)
HTC 318				21/32 (16.7)						
HTC 121	1.50 (38.1)									
HTC 221	1.31 (33.3)	0.31 (7.9)	12 -	21/32 (16.7)	14.50 (368.3)	9.00 (228.6)	0.75 (19.1)	1/2 NPT	2.00 (50.8)	6.00 (152.4)
HTC 321	1.44 (36.6)									
HTC 124	1.13 (28.7)									
HTC 224	1.38 (35.1)	0.25 (6.4)	12 -	21/32(16.7)	14.50 (368.3)	9.00 (228.6)	0.75 (19.1)	1/2 NPT	2.00 (50.8)	6.00 (152.4)
HTC 324	1.56 (39.6)									
HTC 424[3]	1.56 (39.6)	0.13 (3.3)	12 -	5/8-11NC	14.50 (368.3)	9.00 (228.6)	—	1/2 NPT	2.00 (50.8)	6.00 (152.4)

Note: For mounting, use socket head capscrews conforming to the ASTM-574-97a.

[1] Non-Ventilated center plate, "center plate is solid".

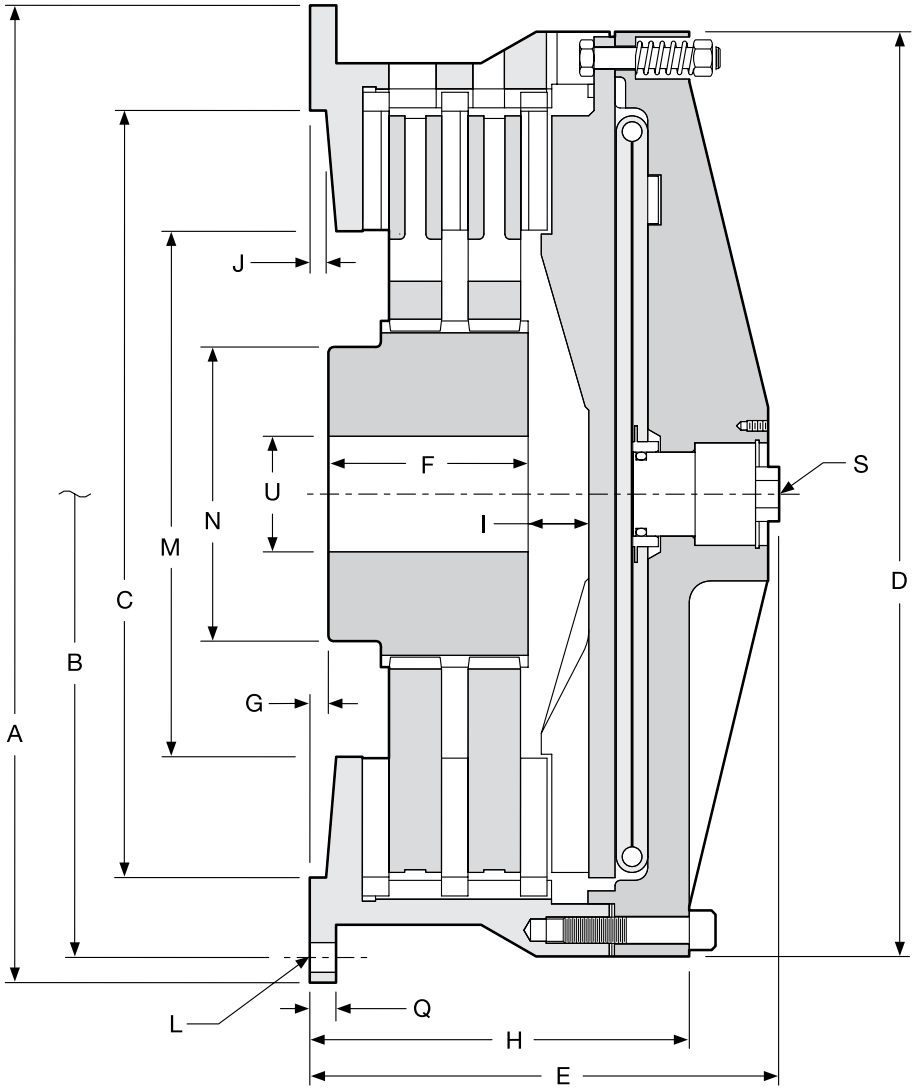
[2] Drive plate assembly, "friction material is attached to a drive plate".

[3] Less backplate.

(Consult factory for drawing before final layout.)

High Torque Clutches

Sizes 27-48



High Torque Clutches

Sizes 27-48

Dimensions: inches (mm)

Model Size ATD-	A	B Hole Circle	C Pilot	D	E	F	G	H
HTC 127	32.75	31.500	27.375 / 27.378	31.00	10.34 (262.6)	3.50 (88.9)		8.50 (215.9)
HTC 227	(831.9)	(800.10)	(695.33 / 695.40)	(787.4)	12.75 (323.9)	5.50 (139.7)	0.75 (19.1)	10.91 (277.1)
HTC 327					15.39 (390.9)	7.94 (201.7)		13.34 (338.8)
HTC 130	37.00	35.500	30.375 / 30.378	36.13	11.44 (290.6)	4.25 (108.0)		10.06 (255.5)
HTC 230	(939.8)	(901.70)	(771.53 / 771.60)	(917.7)	14.75 (374.7)	7.50 (190.5)	0.75 (19.1)	13.38 (339.9)
HTC 330					16.25 (412.8)	9.50 (241.3)		15.13 (384.3)
HTC 136	43.50	42.000	36.375 / 36.378	41.50	11.88 (301.8)	4.13 (104.9)	1.13 (28.7)	11.63 (295.4)
HTC 236	(1,104.9)	(1,066.80)	(923.93 / 924.00)	(1,054.1)	15.31 (388.9)	7.50 (190.5)	1.13 (28.7)	15.06 (382.5)
HTC 336					18.75 (476.3)	10.75 (273.1)	1.25 (31.8)	18.50 (469.9)
HTC 148	61.00 (1,525.0)	58.000 (1,473.2)		59.00 (1,498.6)	26.44(671.6)	6.00 (152.4)	1.00 (25.4)	17.13 (435.1)
HTC 248	62.00 (1,574.8)	60.000 (1,524.0)	52.000 / 52.005 (1,320.8 / 1,320.9)	57.00 (1,447.8)	30.12 (765.0)	8.75(222.3)	1.75 (44.5)	20.81(528.6)
HTC 348[1]	61.00 (1,525.0)	58.000 (1,473.2)		59.00 (1,498.6)	23.44 (595.4)	12.63 (320.8)	0.00 (0.0)	23.44 (595.4)

Dimensions: inches (mm)

Model Size ATD-	I	J	L No. - Size	M	N	Q	S	U Min.	U Max.
HTC 127	1.50 (38.1)				10.50 (266.7)		1/2 NPT	2.50 (63.5)	6.50 (165.1)
HTC 227	1.63 (41.4)	0.25 (6.4)	16 - 21/32 (16.7)	16.25 (412.8)	10.50 (266.7)	.75 (19.1)	1 NPT		6.50 (165.1)
HTC 327	1.63 (41.4)				9.00 (228.6)		1-1/2 -12NF		6.00 (152.4)
HTC 130	1.38 (35.1)				11.00 (279.4)		1/2 NPT	2.50 (63.5)	7.25 (184.2)
HTC 230	1.38 (35.1)	0.25 (6.4)	18 - 25/32 (19.8)	19.25 (489)	11.00 (279.4)	.75 (19.1)	1/2 NPT		7.25 (184.2)
HTC 330	1.00 (25.4)				12.00 (304.8)		1-1/2 -12NF		8.00 (203.2)
HTC 136					12.00 (304.8)			6.00 (152.4)	8.00 (203.2)
HTC 236	1.50 (38.1)	0.25 (6.4)	18- 1-1/32 (26.2)	23.63 (600.2)	12.00 (304.8)	1.50 (38.1)	1/2 NPT		8.00 (203.2)
HTC 336					14.00 (355.6)				9.25 (235.0)
HTC 148	2.70 (68.6)	0.25 (6.4)	24 - 1-1/16 (27.0)	32.00 (812.8)	25.75 (654.1)	1.75 (44.5)	2 NPT	6.00 (152.4)	18.00 (457.2)
HTC 248	3.44 (87.4)					1.50 (38.1)			
HTC 348[1]	3.96 (100.6)	0.23 (5.8)	24 - 1-9/32 (32.5)	31.88 (809.8)	24.00 (609.6)	1.50 (38.1)	2-1/2 NPT	6.00 (152.4)	18.00 (457.2)

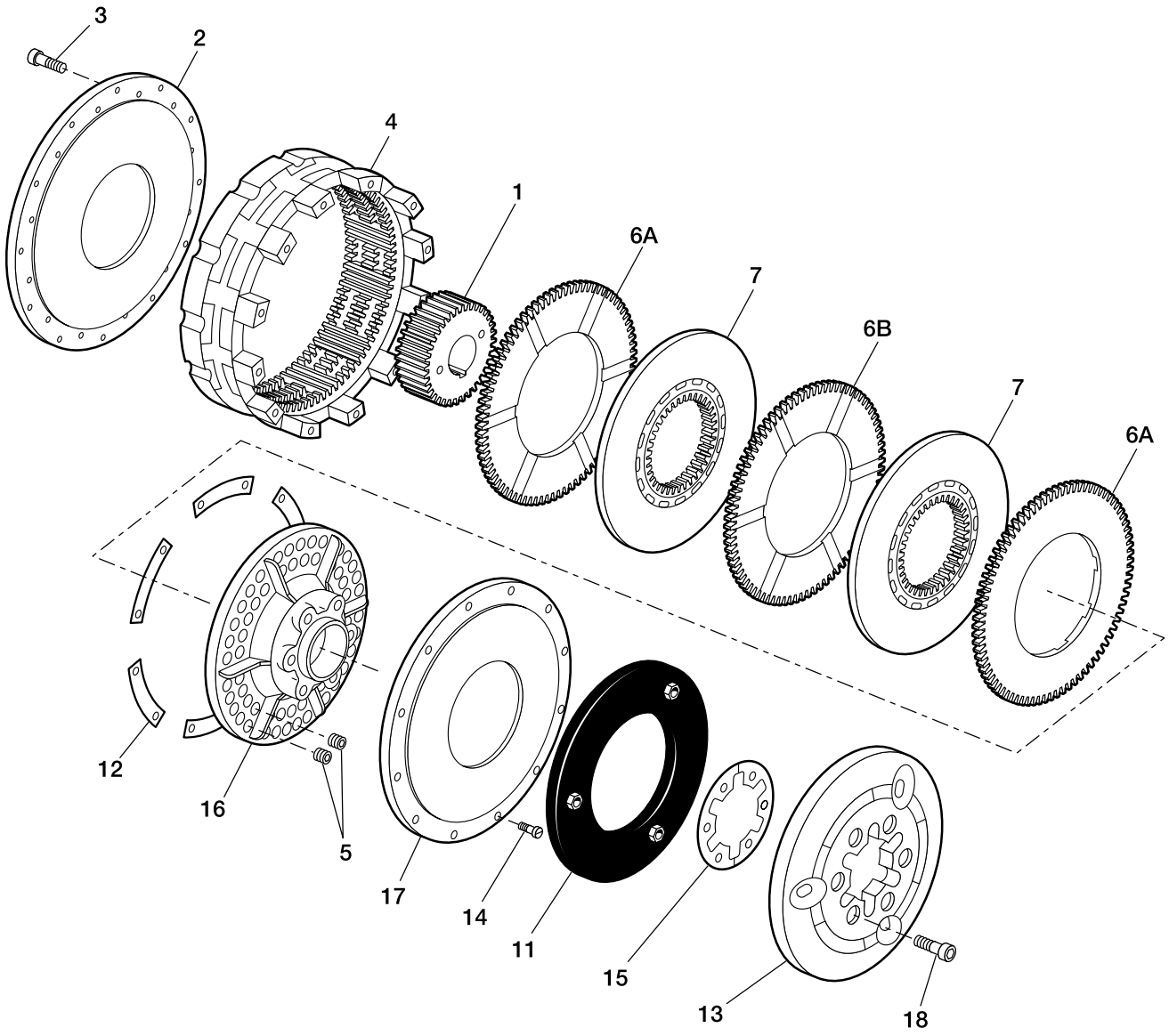
NOTE: For mounting, use socket head capscrews conforming to the ASTM-574-97a.

[1] Less backplate.

(Consult factory for drawing before final layout.)

Air Tube Disc Clutches and Brakes

Low Inertia Spring-Set Brake Component Parts



Component Parts

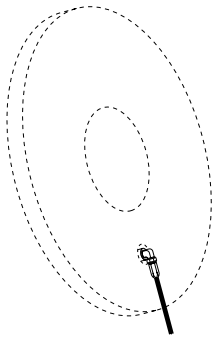
1. Hub
2. Backplate
3. Socket Head Capscrews
4. Ring
5. Springs

6A. Grooved Friction Disc (grooved on one side)

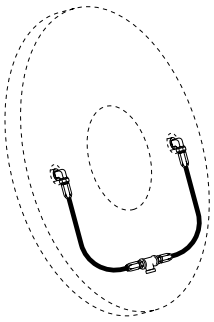
6B. Grooved Friction Disc (grooved on both sides)

7. Center Plate
11. Airtube
12. O. D. Shims
13. Air Tube Holding Plate
14. Socket Head Capscrews
15. I.D. Shims
16. Spring Release Plate
17. Airtube Spring Plate
18. Socket Head Capscrews

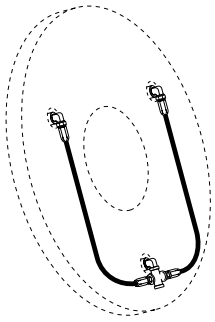
Spring-Set Brake Air Hose Kits



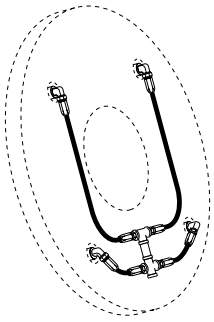
Model	Part Number
8”	8-908-912-100-5 8-908-924-100-5 QRV



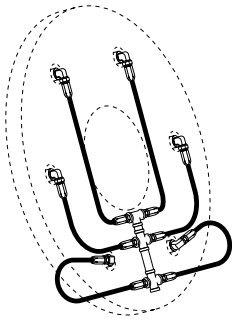
Model	Part Number
6”	8-906-912-200-4 8-906-931-201-5 QRV
8”	8-908-913-200-5 8-908-931-200-5
11”	8-911-913-200-5 8-911-931-200-5 QRV
14”	8-914-913-200-5 8-914-921-200-5 QRV
16”	8-916-913-200-5 8-916-921-200-5 QRV



Model	Part Number
18”	8-918-912-200-5 8-918-931-200-5 QRV
21”	8-921-913-200-5 8-921-931-200-5 QRV
24”	8-924-913-200-5 8-924-931-200-5 QRV
27”	8-927-913-200-5 8-927-921-200-5 QRV



Model	Part Number
30”	8-930-913-400-5 8-930-931-400-5 QRV
36”	8-936-913-400-6 8-936-931-400-6 QRV
42”	8-942-913-400-6 8-924-931-400-6 QRV
48”	8-948-912-400-6 8-948-923-400-6 QRV

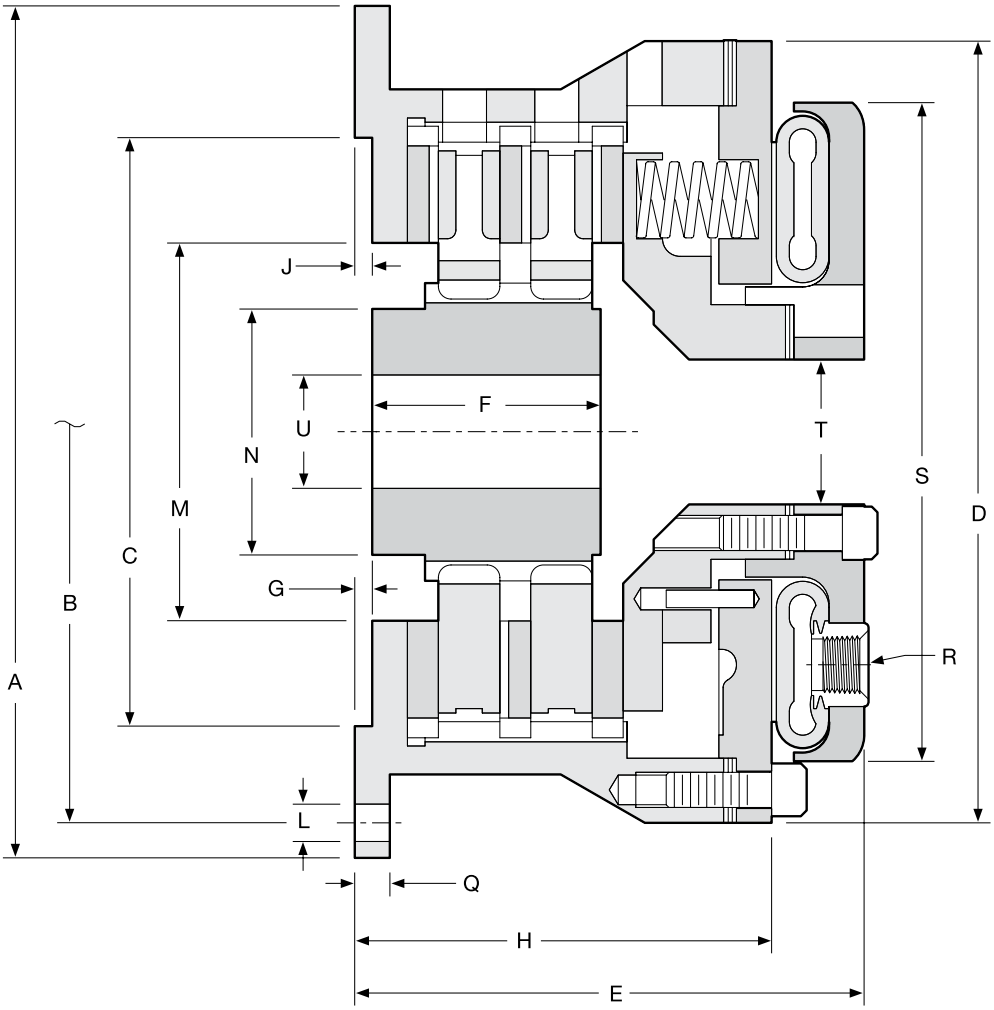


Model	Part Number
60”	8-960-912-500-5 8-960-923-400-6 QRV

Air hose kits contain all necessary parts (fittings, hoses and extensions) to completely plumb the brake air system.

Optional Quick Release Valves can replace elbows on most units (see page 121).

Spring-Set Brakes (Sizes 4H, 8-36)



Dimensions: inches (mm)

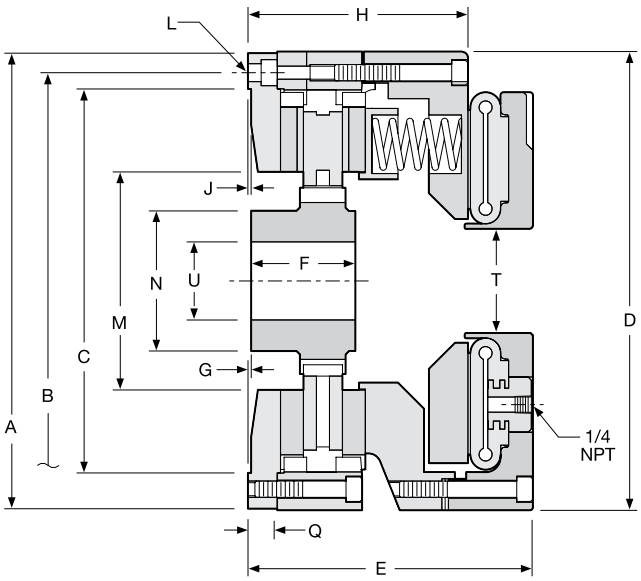
Model Size ATD-	A	B Hole Circle	C Pilot	D	E	F	G	H
SSB 104H	7.09 (180)	6.496 (165)	5.512 / 5.515 (140.00 / 140.06)	7.09 (180)	4.13 (105)	0.98 (25)	0.06 (1.6)	3.78 (96)
SSB 108	12.13	11.125	8.375 / 8.378	11.13	5.88 (149.4)	2.00 (50.8)	0.25 (6.4)	4.56 (115.8)
SSB 208	(308.1)	(282.58)	(212.73 / 212.80)	(282.7)	7.19 (182.6)	3.25 (82.6)		5.94 (150.9)
SSB 111	16.00	14.750	11.375 / 11.378	14.75	6.56 (166.6)	2.75 (69.9)	0.13 (3.3)	5.44 (138.2)
SSB 211	(406.4)	(374.65)	(288.93 / 289.00)	(374.7)	8.56 (217.4)	4.38 (111.3)	0.25 (6.4)	7.25 (184.2)
SSB 114					8.00 (203.2)	3.00 (76.2)	0.13 (3.3)	6.00 (152.4)
SSB 214	18.75 (476.3)	17.500 (444.50)	14.375 / 14.378 (365.13 / 365.20)	17.50 (444.5)	9.89 (251.2)	4.50 (114.3)	0.38 (9.7)	7.81 (198.4)
SSB 314					11.72 (297.7)	6.50 (165.1)	0.38 (9.7)	9.69 (246.1)
SSB 116					8.25 (209.6)	4.00 (101.6)		6.00 (152.4)
SSB 216	21.25 (539.8)	20.000 (508.00)	16.250 / 16.253 (412.75 / 412.83)	20.00 (508.0)	10.06 (255.5)	4.75 (120.7)	0.38 (9.7)	7.87 (199.9)
SSB 316					12.13 (308.1)	6.63 (168.4)		9.88 (251.0)
SSB 118					9.00 (228.6)	4.00 (101.6)	0.44 (11.2)	6.56 (166.6)
SSB 218	23.25 (590.6)	22.000 (558.80)	18.250 / 18.253 (463.55 / 463.63)	22.00 (558.8)	10.70 (271.8)	4.75 (120.7)	0.44 (11.2)	8.45 (214.6)
SSB 318					—	—-	—	—
SSB 121					9.69 (241.6)	4.00 (101.6)	0.75 (19.1)	7.38 (187.5)
SSB 221	27.00 (685.8)	25.500 (647.70)	21.375 / 21.378 (542.93 / 543.00)	24.88 (632.0)	11.88 (301.8)	5.13 (130.3)	0.75 (19.1)	9.57 (243.1)
SSB 321					—	—	—	—
SSB 124H					9.56 (242.8)	4.00 (101.6)	0.75 (19.1)	6.50 (165.1)
SSB 224H	30.00 (762)	28.750 (730.25)	24.375 / 24.378 (619.13 / 619.20)	29.00 (736.6)	11.88 (301.8)	5.13 (130.3)	0.81 (20.6)	9.50 (241.3)
SSB 324H					—	—	—	—
SSB 127					9.94 (252.5)	4.50 (114.3)		7.69 (195.3)
SSB 227	32.75 (831.9)	31.500 (800.10)	27.375 / 27.378 (695.33 / 695.40)	31.00 (787.4)	12.5 (317.5)	6.88 (174.8)	0.75 (19.1)	10.13 (257.3)
SSB 327					15.25 (387.4)	7.94 (201.7)		12.56 (319.0)
SSB 130H					11.00 (279.4)	5.00 (127.0)	0.63 (16)	8.31 (211.1)
SSB 230H	37.00 (939.8)	35.500 (901.70)	30.375 / 30.378 (771.53 / 771.60)	34.75 (882.7)	14.75 (374.7)	7.13 (181.1)	1.88 (47.8)	11.75 (298.5)
SSB 330H					—	—	—	—
SSB 136H					11.75 (298.5)	4.25 (108.0)	0.63 (16)	8.56 (217.4)
SSB 236H	43.50 (1,104.9)	42.000 (1,066.80)	36.375 / 36.378 (923.93 / 924.00)	41.00 (1,041.4)	15.13 (384.3)	9.00 (228.6)	0.63 (16)	12.00 (304.8)
SSB 336H					19.06 (484.1)	12.38 (314.5)	1.00 (25.4)	15.81 (401.6)

Dimensions: inches (mm)

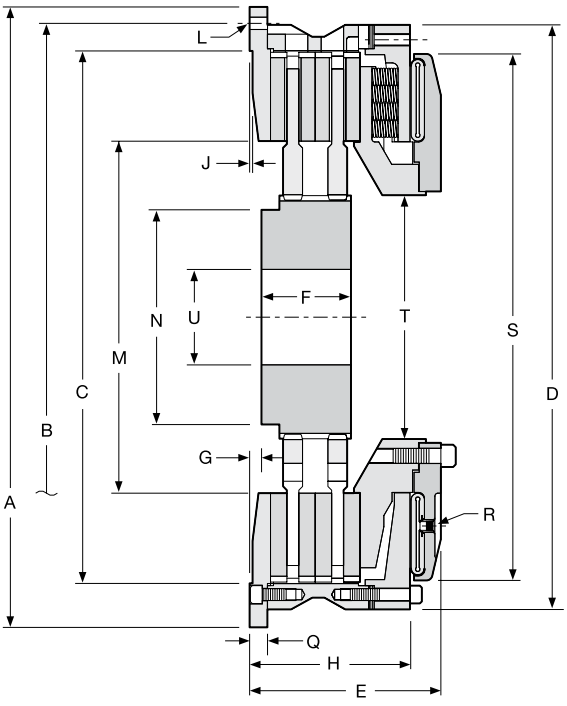
Model Size ATD-	J	L No. - Size	M	N	Q	R No. - Size	S	T	U Min.	U Max.
SSB 104H	0.19 (4.7)	4 - 0.35 (9)	2.99 (76)	1.97 (50)	2.13 (54)	2 - 1/8 NPT	7.09 (180)	1.97 (50)	0.60 (15)	1.00 (25)
SSB 108	0.25 (6.4)	6 - 17/32 (13.5)	5.38 (136.7)	3.50 (88.9)	0.50 (12.7)	2 - 1/2 NPT	9.38 (238.3)	2.06 (52.3)	1.00 (25)	2.00 (50.8)
SSB 208										
SSB 111	0.38 (9.7)	6 - 21/32 (16.7)	7.00 (177.8)	4.00 (101.6)	0.63 (16)	2 - 1/2 NPT	11.94 (303.3)	3.02 (76.7)	1.00 (25)	2.50 (63.5)
SSB 211										
SSB 114								3.88 (98.6)		
SSB 214	0.38 (9.7)	8 - 21/32 (16.7)	9.44 (239.8)	5.50 (139.7)	0.63 (16)	2 - 1/2 NPT	14.38 (365.3)	4.25 (108)	1.38 (35.1)	3.50 (88.9)
SSB 314								3.88 (98.6)		
SSB 116		11/16 (17.5)								
SSB 216	0.38 (9.7)	12 - 11/16 (17.5)	10.50 (266.7)	6.00 (152.4)	0.63 (16)	2 - 1/2 NPT	16.30 (414)	4.38 (111.3)	1.38 (35.1)	4.00 (101.6)
SSB 316		21/32 (16.7)								
SSB 118	0.38 (9.7)									
SSB 218	0.38 (9.7)	12 - 21/32 (16.7)	12.50 (317.5)	7.00 (177.8)	0.63 (16)	3 - 1/2 NPT	19.38 (492.3)	4.88 (124)	2.00 (50.8)	4.75 (120.7)
SSB 318	—									
SSB 121	0.31 (7.9)									
SSB 221	0.31 (7.9)	12 - 21/32 (16.7)	14.50 (368.3)	9.00 (228.6)	0.75 (19.1)	3 - 1/2 NPT	21.31 (541.3)	6.25 (158.8)	2.00 (50.8)	6.00 (152.4)
SSB 321	—									
SSB 124H	0.25 (6.4)									
SSB 224H	0.25 (6.4)	12 - 21/32 (16.7)	14.50 (368.3)	9.00 (228.6)	0.75 (19.1)	3 - 1/2 NPT	26.50 (673.1)	8.25 (209.6)	2.00 (50.8)	6.00 (152.4)
SSB 324H	—									
SSB 127										
SSB 227	0.25 (6.4)	16 - 21/32 (16.7)	16.25 (412.8)	9.00 (228.6)	0.75 (19.1)	3 - 1/2 NPT	27.00 (685.8)	8.25 (209.6)	2.50 (63.5)	6.50 (165.1)
SSB 327										
SSB 130H	0.25 (6.4)									
SSB 230H	0.25 (6.4)	18 - 25/32 (19.8)	19.25 (489)	10.00 (254)	0.75 (19.1)	4 - 1/2 NPT	31.94 (811.3)	8.25 (209.6)	2.50 (63.5)	7.25 (184.2)
SSB 330H	—									
SSB 136H		25/32 (19.8)								
SSB 236H	0.25 (6.4)	18 - 25/32 (19.8)	23.63 (600.2)	12.00 (304.8)	0.88 (22.4)	4 - 1/2 NPT	38.25 (971.6)	12.75 (323.9)	6.00 (152.4)	9.00 (228.6)
SSB 336H		11/16 (17.5)								

Note: For mounting, use socket head capscrews conforming to the ASTM-574-97a.
(Consult factory for drawing before final layout.)

Spring-Set Brakes (Sizes 6, 42-48)



Size 6



Sizes 42-48

Dimensions: inches (mm)

Model Size ATD-	A	B Hole Circle	C Pilot	D	E	F	G	H
SSB 106	8.75	8.000	7.377 / 7.379	8.81	5.47 (138.9)	2.00 (50.8)	0.00 (0.0)	4.22 (107.2)
SSB 206	(222.3)	(203.20)	(187.38 / 187.43)	(223.8)	6.66 (169.2)	3.25 (82.6)	0.06 (1.5)	5.44 (138.2)
SSB 142	52.00	49.250	44.625 / 44.628	49.00	12.28 (311.9)	5.63 (143.0)	1.00 (25.40)	9.69 (246.1)
SSB 242	(1,320.8)	(1,250.95)	(1,133.48 / 1,133.55)	(1,244.6)	16.03 (407.2)	7.50 (190.5)		13.44 (341.4)
SSB 148	61.00	58.000	52.000 / 52.005	56.75	15.00 (381.0)	6.00 (152.4)	0.00 (0.0)	11.19 (284.2)
SSB 248	(1,549.4)	(1,473.20)	(1,320.80 / 1,320.93)	(1,441.5)	19.33 (491.0)	8.75 (222.3)	1.00 (25.4)	15.5 (393.7)
SSB 260[1]	70.50	66.500	62.750 / 62.760	70.50	22.31 (566.7)	9.38 (238.3)	0.25 (6.40)	17.61 (447.3)
SSB 360[1]	(1,790.7)	(1,689.10)	(1,593.85 / 1,594.10)	(1,790.7)	26.88 (682.8)	14.13 (358.9)		22.25 (565.2)

Dimensions: inches (mm)

Model		L				R			U	
Size ATD-	J	No. - Size	M	N	Q	No. - Size	S	T	Min.	Max.
SSB 106	0.06	4 - 0.34 (8.6)	4.19	2.69	0.56	2 - 1/4 NPT	—	2.00	0.60	2.00
SSB 206	(1.5)		(106.4)	(68.3)	(14.2)			(50.8)	(15.2)	(50.8)
SSB 142	0.25	24 - 1.06 (26.9)	29.50	18.00	1.50	4 - 1/2 NPT	44.13	20.44	8.00	14.00
SSB 242	(6.4)		(749.3)	(457.2)	(26.9)		(1,102.9)	(519.2)	(203.2)	(355.6)
SSB 148	0.25	24 - 1.06 (26.9)	32.00	25.75	1.50	4 - 1/2 NPT	52.13	19.00	10.00	18.00
SSB 248	(6.4)		(812.8)	(654.1)	(38.1)		(1,324.1)	(482.6)	(254.0)	(457.2)
SSB 260[1]	0.25	24 - 4.5" NC	36.00	27.00	—	6 - 1/2 NPT	61.50	20.63	11.00	19.00
SSB 360[1]	(6.4)		(914.4)	(685.8)			(1,562.1)	(524.0)	(279.4)	(482.6)

[1] Less backplate.

NOTE: For mounting, use socket head capscrews conforming to the ASTM-574-97a.
(Consult factory for drawing before final layout.)