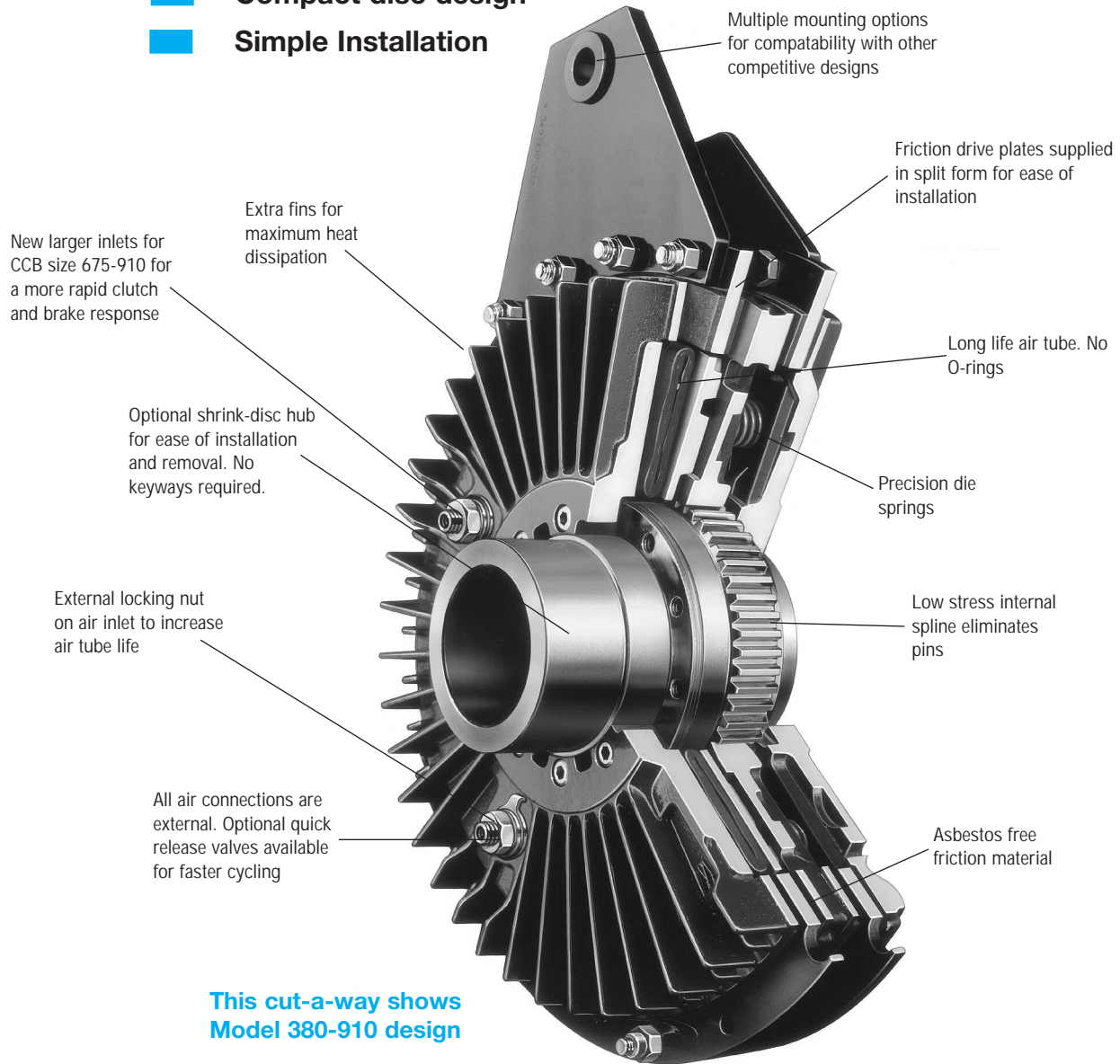


Combination Clutch/Brake

- For metalforming equipment
- Fast, smooth cycling
- Cool running with higher torque
- Compact disc design
- Simple Installation



This cut-a-way shows Model 380-910 design

The Wichita Combination Clutch-Brake provides fast, smooth cycling for stamping presses and metalforming equipment. The simple Wichita air tube concept combines an air actuated clutch and a spring-set brake in a compact disc design.

Design Advantages

- No shaft seals for faster, lower cost installation
- Optional shrink disc mounting for simplified, easier installation
- Cool running for faster cycle rates, higher torques
- Models 380-910 have a single air-tube design that provides long life and high reliability

Operation

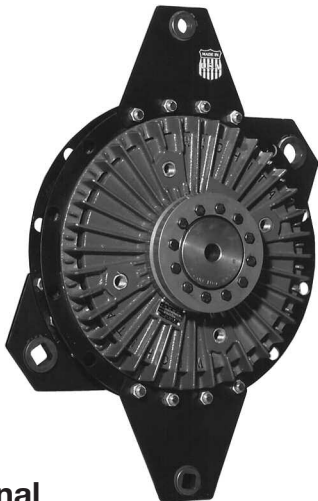
The Wichita Combination Clutch/Brake provides fast, smooth cycling for stamping presses and metalforming equipment.

The simple air-tube concept combines an air actuated clutch and spring-set brake in a compact, pancake assembly that prevents overlap. The extra fins and cooling slots allow for excellent heat dissipation. A low stress spline eliminates driving pins between the shaft and centerplate, while the precision die springs provide consistent long-life braking action.

The high performance air-tube design in sizes 380 and above, with optional quick air-release valves, provides faster cycling than piston and cylinder models. There are no o-rings or piston seals to wear-out and leak, and no lubrication or adjustment is necessary. Worn friction plates can be relined at Wichita's factory on an exchange basis.

Installation of the CCB is also easy. The simple air system has external connections and requires no shaft seals. Metric mounting and SAE fasteners are standard. Available in eight sizes with an optional hub for shrink disc mounting. Clutch capacities through 340,000 lb.in. and brake torque through 250,000 lb.in.

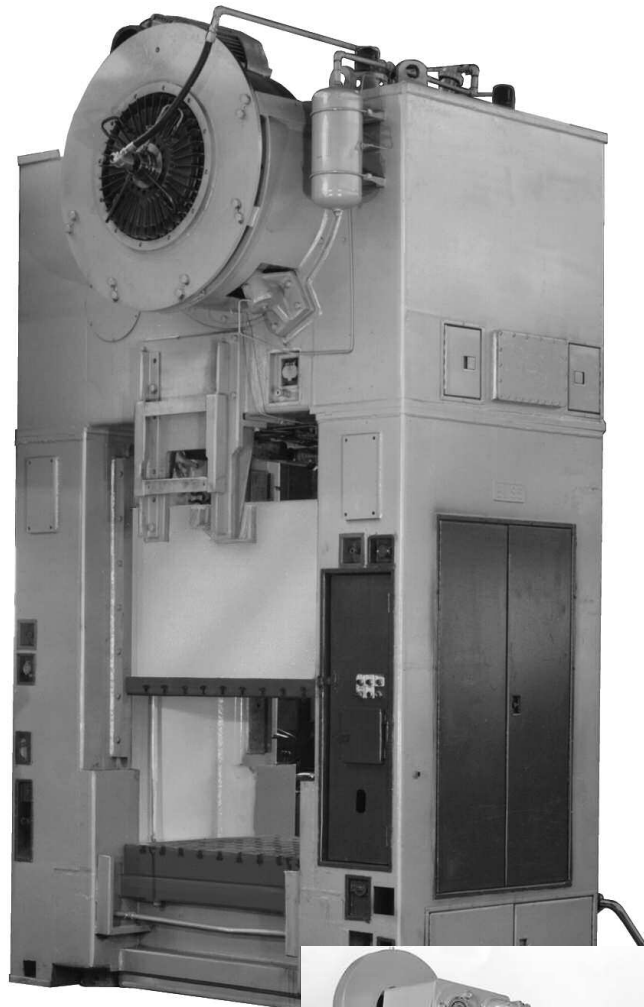
Wichita Combination Clutch/Brakes are manufactured and assembled in the United States and backed by a global sales, service and distributor organization.



Optional

Optional shrink disc hub provides ease of mounting with no keyways.

Typical Applications



Wichita CCB is ideal for retrofit applications.

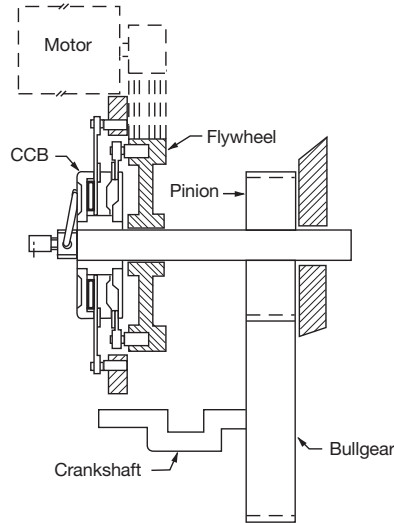


The simple external air system with quick release valves provides smooth, fast cycling.



Clutch/Brake Selection

A typical Combination Clutch/Brake application would be on a geared punch press. To properly select a CCB the following application information is needed.



Application Data

Press Type Geared Punch Press
 Rated Tonnage 200 tons
 Crankshaft Speed 30 RPM
 Degrees of Crank to Start 90°
 Distance Above Bottom – x25 in.
 1/2 of Press Stroke (throw) = a 3 in.
 WR² of Parts on Backshaft 78 lb.ft.²
 Required Clutch Torque. 73,529 lb.in.
 Stroke 6 in.
 Clutch/Brake Shaft. 204 RPM
 Degrees of Crank to Stop 120
 Connecting rod length = b 36 in.
 WR² of Parts on Crankshaft 39,091 lb.ft.²
 Cycles/Minute 7
 Air Pressure Available 100 PSI
 Shaft Size 4.5 in.

Selection

Press clutch and brake selection is based on:

1. Application Duty Factor
2. Application clutch torque
3. Application brake torque necessary to stop
4. Maximum Energy Input
5. Heat generated during cycling
6. Bore size

1. To determine the proper Application Duty Factor for a Geared Punch Press, consult page 16. Under Duty “B” or Normal, the Duty Factor is 1-1/2.
2. To determine the application clutch torque, the following information is needed:

a. Torque @ Crank
 = (Rated Tonnage) (2000 lb./ton) (Torque Arm)

b. Torque Arm = y = (c) (tan α)
 c = a + b - x
 = 3 + 36 - .25
 = 38.75 in.

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

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

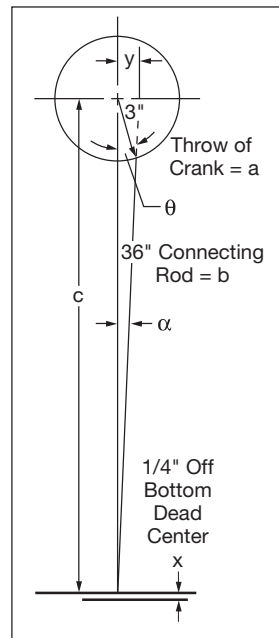
$$= .99948$$

$$= 1.8478^\circ$$

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

Torque @ Crank
 = (Rate Tonnage) (2000 lb./ton)(Torque Arm)
 = (200) (2000) (1.25)
 = 500,000 lb.in.

Required Torque @ Clutch
 = $\frac{(\text{Torque @ Crank}) \times (\text{Crankshaft RPM})}{\text{Clutch Shaft RPM}}$ lb.in.
 = $\frac{(500,000) (30)}{204}$ lb.in.
 = 73,529 lb.in.



1/4" distance above bottom



Application selection torque = the required torque of 73,529 lb. in. x 1.5 = 110,294 lb.in. (Application Duty Factor for “Geared Punch Press”, page 16.

Preliminary selection of CCB based on clutch torque is the CCB 600 with 50% spring compliment. The clutch torque for this model is 124,350 lb.in. @ 80 PSI.

- d. Maximum bore for CCB 600 is 5.0 in. bore acceptable.

3. To determine application brake torque necessary to stop the equipment the following information is needed:

- a. The inertia of rotating parts referred to the backshaft. It is given in the application data that the inertia (WR^2) of parts on the crankshaft is 39,091 lb. ft.² at 30 RPM. To calculate WR^2 referred to the backshaft:

$$\left(\frac{30 \text{ RPM of Crankshaft}}{204 \text{ RPM of Backshaft}} \right)^2 \times 39,091 \text{ lb.ft.}^2$$

$$= 845 \text{ lb.ft.}^2 @ 204 \text{ RPM}$$

Total WR^2 referred to backshaft is:

$$845 \text{ lb.ft.}^2 + 78 \text{ lb.ft.}^2 = 923 \text{ lb.ft.}^2$$

(WR^2 of parts on backshaft from application data)

Total WR^2 to start and stop is:

$$923 \text{ lb.ft.}^2 + 118 \text{ lb.ft.}^2 = 1041 \text{ lb.ft.}^2$$

(WR^2 of CCB-600 from page 15)

- b. The brake stop time required is 120°. (Based on rotation at 30 RPM).

$$\text{Stop Time} = \frac{\text{Angle to Stop}}{360} \frac{60}{\text{crankshaft RPM}}$$

$$= \frac{120}{360} \frac{60}{30} = .5 \text{ sec.}$$

- c. Required deceleration torque =

$$\frac{(WR^2) (\text{CCB RPM})}{(25.6) (\text{Stop Time sec.})} \text{ or } \frac{(1041) (204)}{(25.6)(.5)}$$

$$= 16,590 \text{ lb.in.}$$

- d. Application brake torque = (18,466) (1.5) or 27,700 lb.in.

The CCB 600 has a rated brake torque capacity of 35,850 lb.in. with 50% spring compliment.

4. Calculate energy input required for the combination clutch/brake.

$$\text{a. Kinetic Energy} = \frac{(WR^2)(\text{CCB RPM})^2}{5,873}$$

$$\text{KE} = \frac{(1041)(204)^2}{5,873} = 7,376 \text{ lbs.ft.}$$

- b. Maximum energy input to the CCB 600 is 14,229 ft.lbs. Therefore, CCB 600 has sufficient energy input capacity.

5. To determine the Heat Horsepower Capacity of the CCB at backshaft speed, you need the following information:

- a. Heat HP capacity of CCB 600 @ 200 RPM. (Look up capacity under the 200 RPM heading on page 16.)

$$\text{Heat HP} = 3.7 \text{ Heat HP @ 200 RPM.}$$

- b. To determine the Cycles Per Minute Capacity, you need the following information:

$$\frac{(\text{Heat HP @ CCB speed}) (1.9 \times 10^6)}{(WR^2) (\text{RPM})^2}$$

$$\text{or } \frac{3.7 (1.9 \times 10^6)}{(1041) (204)^2}$$

$$= 16 \text{ CPM}$$

Final Selection:

CCB 600 with 1/2 spring compliment. Also available with shrink disc shaft mounting. (See pages 18–19 for various mounting arrangements).

Note:

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

Specifications

Size 380 thru 910

CCB Model	Spring Compliment %	Clutch Dynamic Slip Torque Capacity @ 80 PSI**		Brake Dynamic Slip Torque Capacity		Swept Friction Area in. ² (cm ²)	Maximum Energy Input lb.ft. (Joules)	Maximum Speed (Balance Speed*) RPM (RPM)
		lb.in.	(Nm)	lb.in.	(Nm)			
380	100%	23,000	(2,600)	18,000	(2,030)	60 (387)	4,640 (6,290)	1,550 (895)
	75%	27,500	(3,100)	13,500	(1,525)			
	50%	32,000	(3,600)	9,000	(1,015)			
	25%	36,500	(4,120)	4,500	(505)			
470	100%	43,400	(4,900)	34,500	(3,890)	120 (774)	9,280 (12,581)	1,250 (725)
	75%	52,000	(5,870)	25,900	(2,920)			
	50%	60,650	(6,845)	17,250	(1,945)			
	25%	69,275	(7,800)	8,625	(975)			
550	100%	68,100	(7,685)	54,000	(6,095)	184 (1,187)	14,229 (19,291)	1,060 (620)
	75%	81,600	(9,210)	40,500	(4,570)			
	50%	95,100	(10,735)	27,000	(3,050)			
	25%	108,600	(12,260)	13,500	(1,525)			
600	100%	88,500	(9,900)	71,700	(8,090)	184 (1,187)	14,229 (19,291)	970 (570)
	75%	106,425	(12,000)	53,775	(6,070)			
	50%	124,350	(14,035)	35,850	(4,045)			
	25%	142,275	(16,060)	17,925	(2,220)			
675	100%	132,000	(14,900)	105,400	(11,910)	308 (1,987)	23,818 (32,291)	860 (500)
	75%	158,350	(17,875)	79,050	(8,930)			
	50%	184,700	(20,845)	52,700	(5,955)			
	25%	211,050	(23,820)	26,350	(2,975)			
760	100%	173,210	(19,570)	156,220	(17,652)	360 (2,323)	27,839 (37,743)	765 (450)
	75%	214,550	(24,240)	117,165	(13,236)			
	50%	255,900	(28,915)	78,110	(8,826)			
	25%	291,115	(32,890)	39,055	(4,415)			
830	100%	254,500	(28,750)	199,000	(22,480)	404 (2,606)	31,241 (42,356)	700 (410)
	75%	309,700	(34,990)	149,300	(16,870)			
	50%	337,300	(38,110)	124,400	(14,055)			
	25%	392,500	(44,345)	74,600	(8,430)			
910	100%	346,800	(39,150)	258,400	(29,160)	462 (2,981)	35,726 (48,437)	640 (375)
	75%	411,400	(46,430)	193,800	(21,870)			
	50%	476,000	(52,725)	129,200	(14,580)			
	25%	540,600	(66,000)	64,600	(7,290)			

Maximum operating pressure is 100 PSI, (7BAR)

* Operating the unit above the Balance speed to Maximum, it is recommended to have the unit balanced. It is suggested to operate the unit in a continuous running, non-cyclic mode. Operating the unit in a cyclic, single-stroking mode, may result in some dusting of the friction material.

** For dry operation only. It is essential to keep the friction material free of lubricants.

Dimensions: inches (mm)

CCB Model	Maximum Bores			Internal Parts Inertia		'R' External Parts Inertia		Total Weight (RR Style)	
	Square Key in. (mm)	Twin Rect. Keys in. (mm)	Shrink Disc in. (mm)	lb.ft. ²	(kgm ²)	lb.ft. ²	(kgm ²)	lb.	(kg)
380	2-7/8 (73)	3-3/16 (81)	3-1/8 (80)	12.4	(.52)	4	(0.17)	99	(45)
470	3-3/8 (86)	3-3/4 (95)	4-1/8 (105)	33.3	(1.4)	16	(0.67)	190	(86)
550	4-1/2 (114)	4-3/4 (121)	5-1/2 (140)	70.2	(3.0)	23	(0.97)	290	(132)
600	5 (127)	5 (127)	6-3/32 (155)	118	(5.0)	72	(3.0)	380	(172)
675	5 (127)	5-1/2 (140)	6-3/32 (155)	209	(8.8)	80	(3.4)	530	(240)
760	6-3/10 (160)	6-7/8 (175)	7-7/8 (200)	370	(15.6)	154	(6.5)	760	(345)
830	6-7/8 (175)	7-1/2 (191)	8-15/32 (215)	455	(19.2)	226	(9.5)	635	(288)
910	7-1/8 (181)	8-3/8 (213)	9-1/4 (235)	820	(34.5)	280	(11.8)	1,190	(540)

Application Duty Factors

Field of Application	Duty B Normal – Factor 1-1/2	Duty C Heavy – Factor 3-1/4	Duty D Extra Heavy – Factor 5-1/2
Metal Production & Forming	Press Brake Non-Geared Punch Press Flywheel Drive* Geared Punch Press Single Back Shaft Drive* Single Reduction Drive* Single Gear Drive*	Shear Back Geared Punch Press Double Back Shaft Drive* Deep Draw Press Transfer Press Toggle Press	Forming Press Forging Press Header Press Knuckle Press

* Alternate common industry name for above machine type

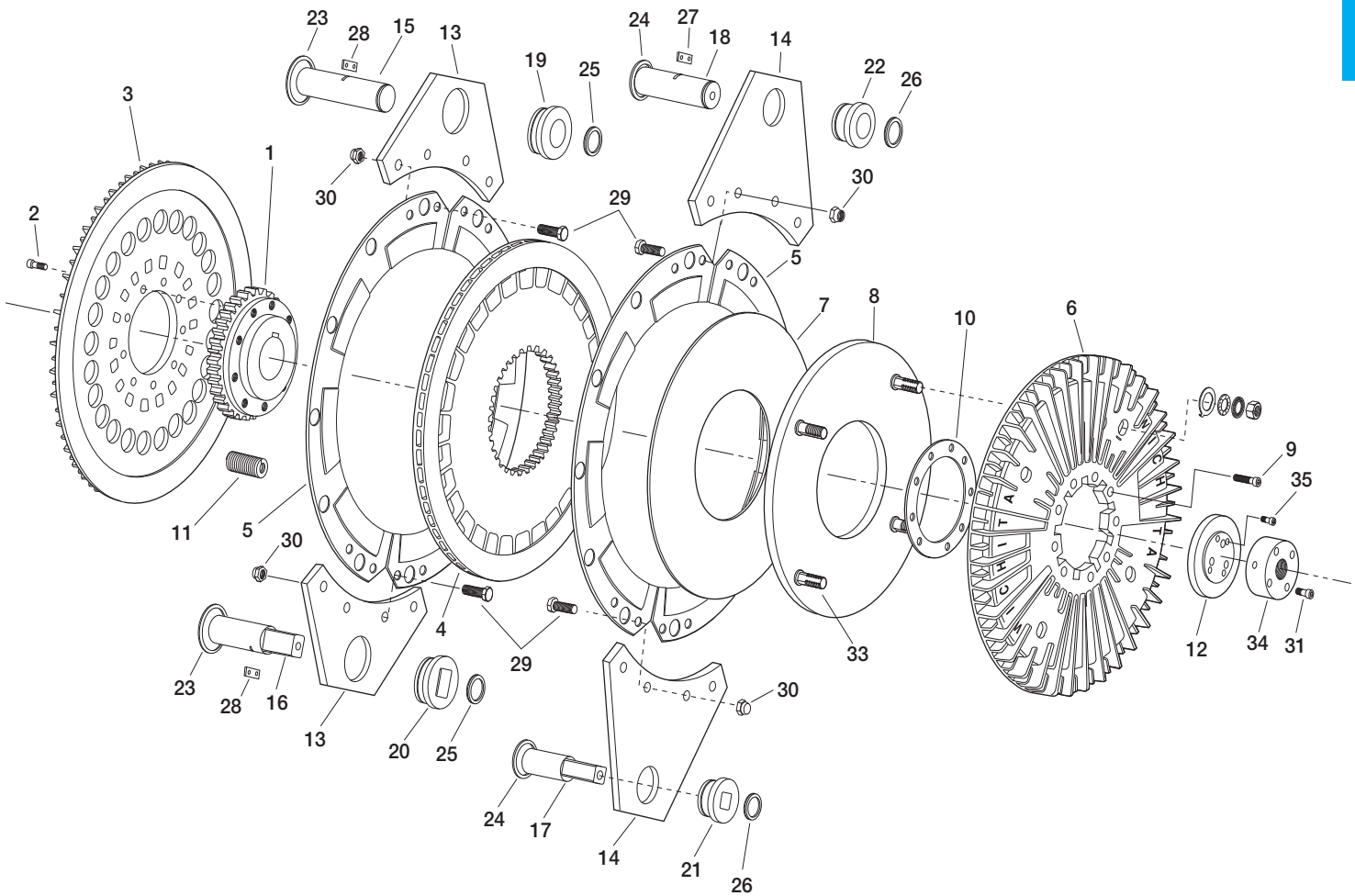
Heat Horsepower Capacity

CCB	Speed – RPM								
	100	200	300	400	500	600	700	800	900
170	.12	.16	.20	.23	.25	.27	.28	.30	.31
190	.16	.21	.25	.28	.30	.32	.34	.35	.36
230	.28	.35	.42	.45	.48	.51	.54	.58	.61
310	.51	.63	.74	.84	.93	.98	1	1.07	1.12
380	1	1.3	1.6	1.8	1.9	2	2	2.4	2.7
470	1.7	2.1	2.4	2.8	3.1	3.4	3.6	3.9	4.2
550	2.5	3.0	3.5	3.9	4.3	4.7	5.1	5.6	6
600	3	3.7	4.3	4.9	5.5	5.9	6.2	6.6	7
675	3.7	4.4	5	5.8	6.5	7.1	7.6	8.1	*
760	5	6.1	7.1	7.7	8.3	8.9	9.5	*	*
830	6.5	7.9	9.3	10.2	11.1	11.9	12.7	*	*
910	8	9.8	11.5	12.8	14	15.2	*	*	*

* Beyond maximum speed limit

Component Parts

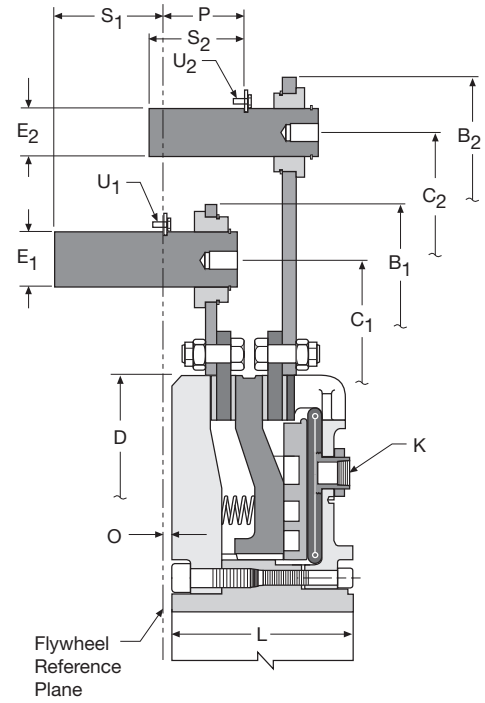
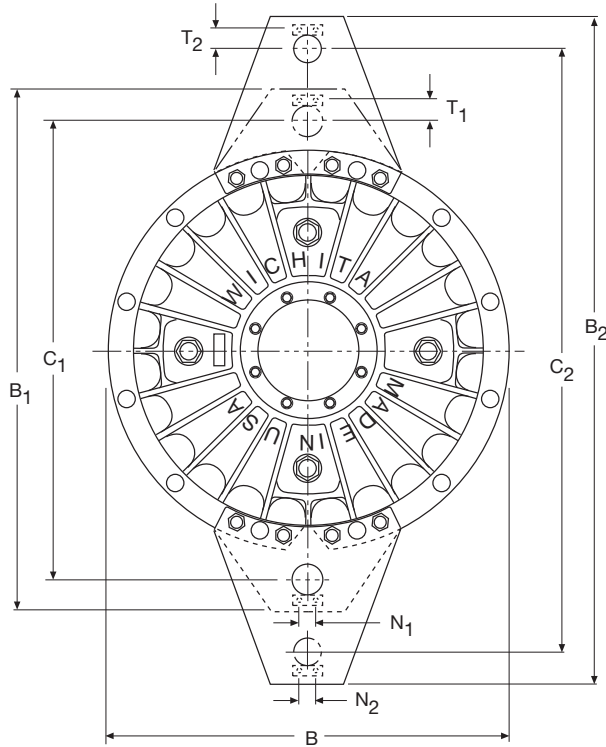
Size 380 thru 910



- | | | |
|---------------------------------|---------------------------------------|--|
| 1. Hub | 15. Drive Pin (Round Clutch) | 29. Hex Head Capscrew (HHCS) |
| 2. Bolt | 16. Drive Pin (Square Clutch) | 30. Flex Lock Nuts |
| 3. Back Plate | 17. Drive Pin (Square Brake) | 31. Socket Head Capscrew (SHCS) |
| 4. Center Plate | 18. Drive Pin (Round Brake) | 33. Air Spud |
| 5. Drive Plate | 19. Drive Bushing (Round Clutch) | 34. Air Manifold |
| 6. Air-Tube Holding Plate | 20. Drive Bushing (Square Clutch) | 35. Socket Head Capscrew (SHCS) |
| 7. Pressure Plate | 21. Drive Bushing (Square Brake) | |
| 8. Air-Tube | 22. Drive Bushing (Round Brake) | Not Shown: |
| 9. Air-Tube Holding Plate Bolts | 23. Snap Ring | • Bolt & Nut between Pressure Plate and Center Plate |
| 10. Shim | 24. Snap Ring | • Clip, Bolt & Nut on Ring Mount |
| 11. Brake Springs | 25. Snap Ring | |
| 12. End Cap | 26. Snap Ring | |
| 13. Short Mounting Bracket | 27. Retainer Plate (Brake Drive Pin) | |
| 14. Long Mounting Bracket | 28. Retainer Plate (Clutch Drive Pin) | |

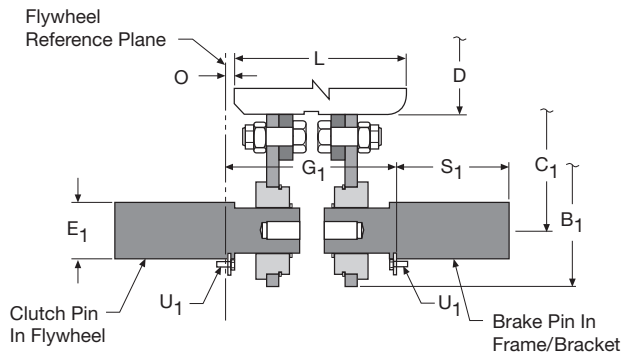


Size 380 thru 910



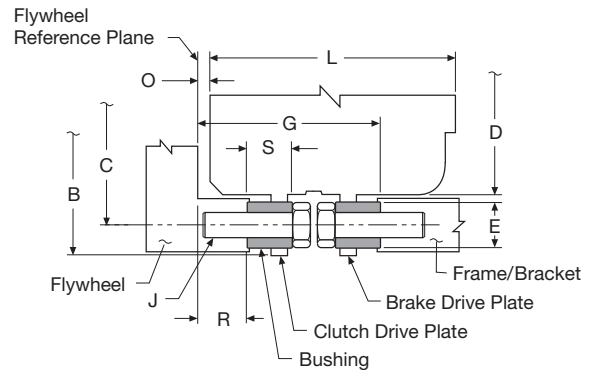
PEP

(Pin to Extended Pin)



PP

(Pin to Pin)



RR

(Ring to Ring)

RP (Ring to Pin)

RR (Ring to Ring)*

PP (Pin to Pin)*

* Dimensions same as RP design
All ring drives to have pins located
in pin size counterbores 0.13" deep.

Dimensions: inches (mm)

Model No.	A Max. Bore*	C, C ₁ , C ₂ dimensions are ± .007 (.18)											
		B	B ₁	B ₂	C	C ₁	C ₂	D	E +.000/ -.002	E ₁ +.001/ -.000	E ₂ +.001/ -.000	G RR	G ₁ PP
380	3.543 (90)	17.13 (435)	22.05 (560)	26.77 (680)	16.063 (408)	19.488 (495)	25.000 (635)	14.94 (380)	0.709 (18)	1.181 (30)	0.866 (22)	3.24 (82.2)	4.32 (109.7)
470	3.740 (95)	21.06 (535)	27.36 (695)	33.66 (855)	19.685 (500)	24.016 (610)	31.102 (790)	18.50 (470)	0.984 (25)	1.575 (40)	1.181 (30)	4.02 (102.1)	4.88 (124.0)
550	4.331 (110)	24.41 (620)	30.71 (780)	37.40 (950)	22.992 (584)	27.362 (695)	34.843 (885)	21.65 (550)	0.984 (25)	1.575 (40)	1.181 (30)	5.06 (128.4)	6.42 (163.1)
600	4.921 (125)	26.77 (680)	34.25 (870)	42.32 (1,075)	25.197 (640)	30.315 (770)	38.976 (990)	23.62 (600)	1.181 (30)	1.772 (45)	1.575 (40)	4.83 (122.6)	6.22 (158.0)
675	5.519 (140)	30.51 (775)	39.37 (1,000)	48.56 (1,235)	28.543 (725)	34.646 (880)	44.685 (1,135)	26.57 (675)	1.378 (35)	2.165 (55)	1.772 (45)	5.39 (136.9)	6.98 (177.3)
760	6.299 (160)	34.06 (865)	42.91 (1,090)	52.56 (1,335)	31.890 (810)	38.189 (970)	48.622 (1,235)	29.92 (760)	1.575 (40)	2.165 (55)	1.772 (45)	5.96 (151.4)	7.50 (190.5)
830	7.087 (180)	37.50 (953)	49.31 (1,252)	63.09 (1,602)	— (—)	43.307 (1,100)	57.087 (1,450)	32.68 (830)	1.772 (45)	2.954 (75)	2.560 (65)	7.19 (182.6)	8.75 (222.3)
910	7.087 (180)	40.35 (1,025)	52.76 (1,340)	65.75 (1,670)	37.992 (965)	46.457 (1,180)	60.039 (1,525)	35.82 (910)	1.772 (45)	2.953 (75)	2.559 (65)	7.43 (188.7)	9.61 (244.1)

Dimensions: inches (mm)

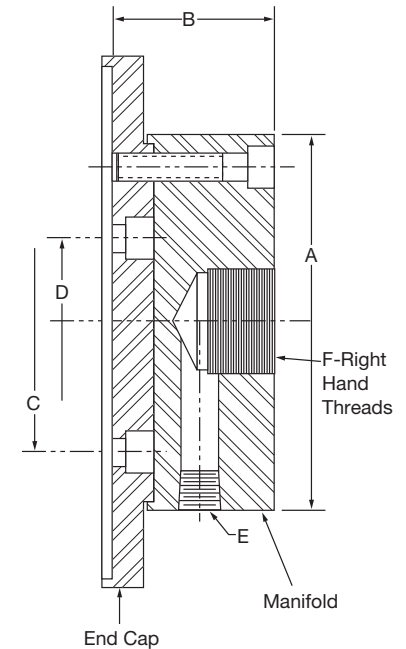
Model No.	Qty.	K Size	Lengths											Thread		
			L	N ₁	N ₂	O	P	R	S	S ₁	S ₂	T ₁	T ₂	J	U ₁	U ₂
380	4	1/2" NPT	4.41 (112)	1.00 (25)	1.00 (25)	0.47 (12)	2.05 (52.0)	0.96 (45.5)	0.75 (19)	2.36 (60)	1.77 (45)	0.79 (20)	0.63 (16)	3/8-16 NC	#10-24 NC	#10-24 NC
470	4	1/2" NPT	5.50 (140)	1.378 (35)	1.00 (25)	0.41 (10.5)	2.60 (66.5)	1.12 (28.5)	0.87 (22)	3.15 (80)	2.36 (60)	1.06 (27)	0.79 (20)	1/2-13 NC	1/4-20 NC	#10-24 NC
550	4	1/2" NPT	6.30 (160)	1.378 (35)	0.984 (25)	0.51 (13.0)	3.17 (80.5)	1.34 (34)	1.18 (30)	3.15 (80)	2.36 (60)	1.06 (27)	0.79 (20)	1/2-13 NC	1/4-20 NC	#10-24 NC
600	4	1/2" NPT	7.28 (185)	1.378 (35)	1.378 (35)	0.49 (12.5)	3.19 (81.0)	1.32 (33.5)	1.06 (27)	3.54 (90)	3.15 (80)	1.16 (29.5)	1.06 (27)	5/8-11 NC	5/16-18 NC	1/4-20 NC
675	4	1" NPT	8.00 (203)	1.772 (45)	1.378 (35)	0.49 (12.5)	3.88 (98.5)	1.42 (36)	1.25 (32)	4.33 (110)	3.54 (90)	1.52 (38.5)	1.16 (29.5)	3/4-10 NC	5/16-18 NC	1/4-20 NC
760	4	1" NPT	9.06 (230)	1.772 (45)	1.378 (35)	0.49 (12.5)	4.23 (107.5)	1.59 (40.5)	1.50 (38)	4.33 (110)	3.54 (90)	1.52 (38.5)	1.16 (29.5)	7/8-9 NC	5/16-18 NC	1/4-20 NC
830	4	1" NPT	8.00 (203)	1.75 (45)	1.75 (45)	0.50 (12.7)	4.32 (109.7)	1.94 (49.3)	1.75 (44.5)	5.91 (150.1)	5.12 (130)	1.71 (43.5)	1.71 (43.5)	1-8 NC	5/16-18 NC	5/16-18 NC
910	3	1" NPT	10.24 (260)	2.362 (60)	1.772 (45)	0.89 (22.5)	4.90 (124.5)	2.10 (53.5)	1.75 (44.5)	5.91 (150)	5.12 (130)	2.07 (52.5)	1.71 (43.5)	1-8 NC	3/8-16 NC	5/16-18 NC

* Maximum bores with square key. Larger bores available with shallow keys.

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

End Cap Air Manifold

Model	Kit No.	A	B	C	D	E	F
380	8-546-021-000-1	4.188	3.12	N/A	.875 H.C. 13/32 Drill 3 at 120°	1/2" NPT 4 at 90°	1"-14 NF
470	8-547-021-000-1	4.188	3.12	N/A	1.250 H.C. 13/32 Drill 3 at 120°	1/2" NPT 4 at 90°	1"-14 NF
550	8-549-021-000-1	4.937 / 4.935	3.12	3.000 H.C. 13/32 Drill 3 at 120°	2.000 H.C. 13/32 Drill 3 at 120°	1/2" NPT 4 at 90°	1-1/2"-12 NF
600	8-552-021-000-1	4.938	3.12	2.875 H.C. 13/32 Drill 3 at 120°	N/A	1/2" NPT 4 at 90°	1-1/2"-12 NF
675	8-552-021-000-1	4.938	3.12	2.875 H.C. 13/32 Drill 3 at 120°	N/A	1/2" NPT 4 at 90°	1-1/2"-12 NF
760	8-553-021-000-1	7.000	3.12	N/A	3.500 H.C. 13/32 Drill 3 at 120°	1/2" NPT 4 at 90°	1-1/2"-12 NF
830	4-555-021-000-3	9.50	4.06	N/A	4.000 H.C. 9/16 Drill 4 at 90°	1" NPT 4 at 90°	1-1/2"-12 NF
910	8-554-021-000-1	7.255 / 7.250	3.12	5.000 H.C. 17/32 Drill 3 at 120°	3.250 H.C. 17/32 Drill 3 at 120°	1/2" NPT 6 at 60°	2"-12 NF



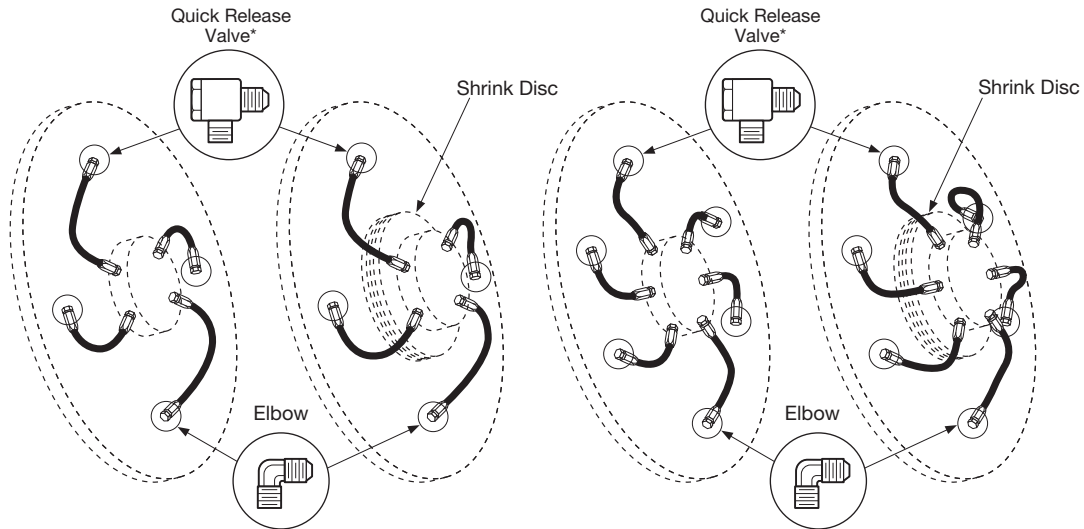
Clearance & Wear Chart

Model	Minimum Clearance		W+	Maximum	Wear			Tank Vol.		Pipe Size		Roto-Coupling* Part No.
	in.	(mm)			K+	in.	(mm)	in. ³	liters	in.	(mm)	
380	1/32	(0.8)	0.1 (2.5)	86	0.12	(3)	100	1.6	3/4	(19)	8-240-708-001-1	
470	1/32	(0.8)	0.1 (2.5)	134	0.16	(4)	155	2.5	3/4	(19)	8-240-708-001-1	
550	3/64	(1.2)	0.11 (2.8)	196	0.20	(5)	250	4.1	1	(32)	8-240-710-002-1	
600	3/64	(1.2)	0.11 (2.8)	215	0.20	(5)	275	4.5	1	(32)	8-240-710-002-1	
675	1/16	(1.6)	0.12 (3.2)	280	0.25	(6)	390	6.4	1	(32)	8-240-710-002-1	
760	1/16	(1.6)	0.12 (3.2)	360	0.25	(6)	500	8.2	1	(32)	8-240-710-002-1	
830	3/32	(2.4)	0.16 (4)	489	0.25	(6)	800	13.1	1-1/2	(38)	8-240-710-002-1	
910	3/32	(2.4)	0.16 (4)	530	0.28	(7)	1000	16.4	1-1/2	(38)	8-240-712-001-1	

*See page 35 for dimensions



Combination Clutch/Brake Air Hose Kits for Sizes 380 thru 910



* Optional Quick Release Valves can replace elbows on most units.

Hose Kit for Air Manifold or Cross Drilled Shaft Mounting		Hose Kit for Shrink Disc Mid-Shaft Mounting		Hose Kit for Air Manifold or Cross Drilled Shaft Mounting		Hose Kit for Shrink Disc Mid-Shaft Mounting	
Model	Part Number	Model	Part Number	Model	Part Number	Model	Part Number
380	8-938-812-402-5 ELB 8-938-820-401-5 QRV	380	8-938-812-401-5 ELB 8-938-822-401-5 QRV	910	8-991-812-502-5 ELB 8-991-820-501-5 QRV	910	8-991-812-503-5 ELB 8-991-822-503-5 QRV
470	8-947-812-402-5 ELB 8-947-820-401-5 QRV	470	8-947-812-401-5 ELB 8-947-822-401-5 QRV				
550	8-955-812-402-5 ELB 8-955-820-401-5 QRV	550	8-955-812-401-5 ELB 8-955-822-401-5 QRV				
600	8-960-812-402-5 ELB 8-960-820-401-5 QRV	600	8-960-812-401-5 ELB 8-960-822-401-5 QRV				
675	8-967-812-402-5 ELB 8-967-820-401-5 QRV	675	8-967-812-401-5 ELB 8-967-822-401-5 QRV				
760	8-976-812-402-5 ELB 8-976-820-401-5 QRV	760	8-976-812-401-5 ELB 8-976-822-401-5 QRV				
830	8-983-813-401-5 ELB 8-983-831-401-5 QRV	830	8-983-813-402-5 ELB 8-983-831-402-5 QRV				

Wichita Air Hose Kits contain all the necessary parts (fittings, hoses and extensions) to completely plumb the brake air system. The Hose Kit part number is determined by model number, type of shaft mounting and whether or not a quick release valve is needed.

