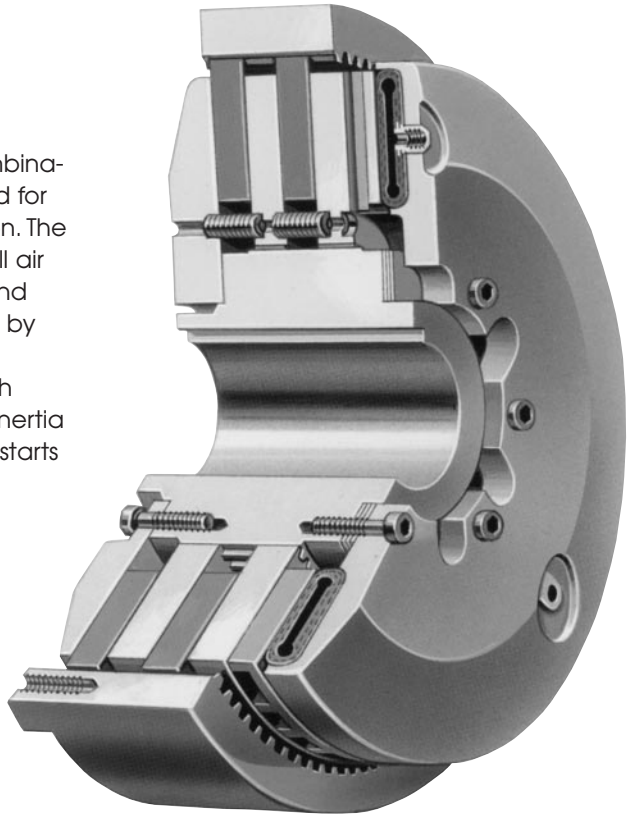
Standard Vent Clutches

Coupling Clutches

The Wichita Standard Vent Combination Clutch-Coupling is designed for reliable in-line power transmission. The simple air-tube design, with small air volume, speeds engagement and disengagement. It is unaffected by centrifugal force and has no self-energization like drum clutch designs. Ideally suited for large inertia loads where smooth controlled starts are needed.

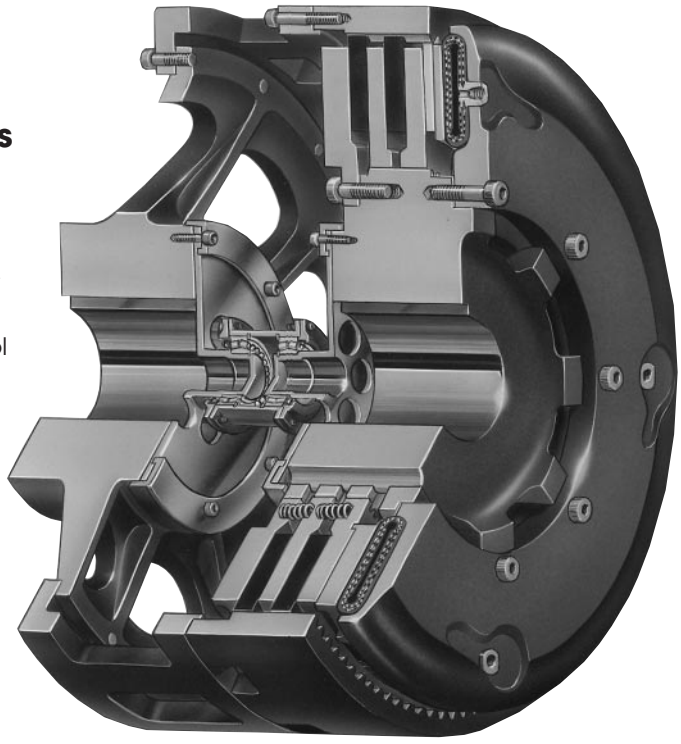
See pages 108 thru 117.



Grinding Mill Clutches

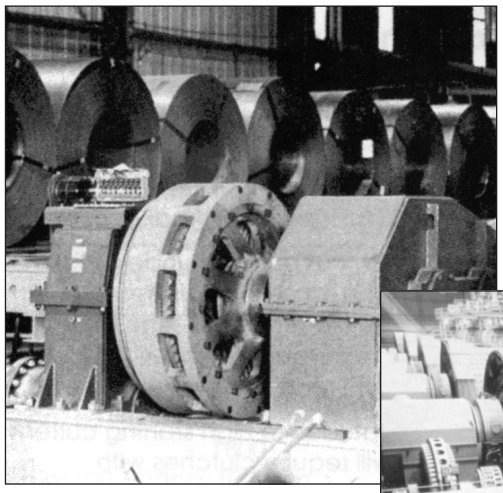
Wichita Grinding Mill Clutches are specially designed to provide quick, smooth starts with limited current surge for heavy duty grinding mills. The clutch is adaptable to remote control allowing centralized operation through simple air or electric circuits.

See pages 118 thru 121.

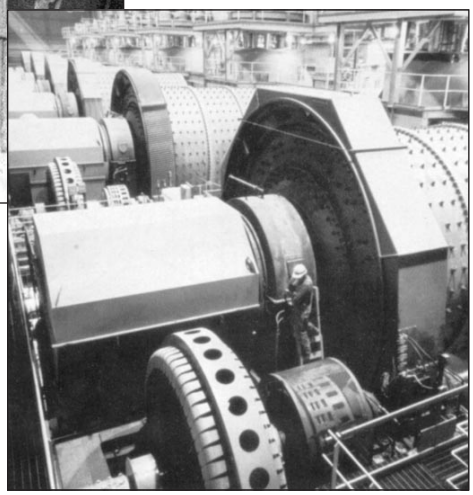


Typical Applications

Reliable, trouble-free Wichita Standard Vent Clutches handle maximum loads on drilling rigs.



Wichita ATD-342 Clutches allow smooth acceleration of coil transporter.



Wichita Grinding Mill Clutches provide shock-free start-up of large inertia loads.

Application Guidelines

Clutch selection is made by knowing the application horsepower/100RPM, the available air pressure, required torque and the clutch heat horsepower. The Requirements Table (Chart A) gives application factors ranging from light duty (the A group) to extra heavy duty (the D group).

Chart A

Field of Application	Group A	Group B	Group C	Group D
Pumps		Centrifugal compressors	Reciprocating compressors over 2 cylinders, centrifugal fans & blowers	Reciprocating compressors one or two cylinders
Agitators	Liquid	Semi-solid	Solids	
Brick manufacturing			Brick press, extruder, pug mill	
Can & bottling machine		Bottle-can feeders, filling, mixers		
Engine driven equipment			Crane, hoist, engine	Crowd
Grinding mills			Ball-rod-sag-pebble	Crushers, shakers
Lumber processing		Yarder	Carriages, conveyers	Chipper, logger
Marine		Propulsion clutch CP wheel	Shaft brakes, propulsion reversing type, anchor winch	
Bulk material handling	Conveyors evenly loaded, line shaft evenly loaded	Feeders	Elevators	
Metal production & metalforming		Coilers, slitters, press brake, non-geared press, geared press	Draw bench, rolling mill, shear, back geared press, deep draw press, transfer press, toggle press	Hammer mill, forming press, forging press, header press, knuckle press
Paper industry dryer sections & calenders consult factory			Fourdrinier to 500 FPM, paper mill plane & smoothing press	Fourdrinier to 1800 RPM press selections, calenders & dryers
Petroleum production		Drilling & service rig master clutches, compound clutches, rotary, drum		Mud pumps, PTO clutches
Rubber manufacturing	Transfer machines evenly loaded		Banberry mixer, drum mixer, extruder, calender	Centrifuge

Coupling and Grinding Mill Clutches

Selection

Clutch sizes are affected by the following variables:

1. Machines that operate under smooth loads require smaller clutches. These machines are driven by either multi-cylinder high speed engines or electric motors with reduced starting current.
2. Drives that require high starting current motors will require clutches with sufficient torque to prevent excessive slipping while starting.
3. Starting torque may be high, which requires fast clutch response time to transmit the required torque or extended clutch slip time to protect the prime mover.
4. Starting torques may be very low compared to the normal torque, which may result in the clutch not being fully pressurized prior to the time of torque requirement. This will cause the clutch to over heat from slippage. Clutch inflation time in this instance is very important.
5. Clutches on most machines are designed to slip prior to damage from shockloads. As a result, the clutch may require periodic maintenance; therefore the clutch should be located, for easy access, in the power train. Clutches should also be located for maximum cooling air. In instances where this is not possible, forced air cooling may be necessary for extended clutch life.
6. Safe operating speeds for clutches should be maintained in design. The following material specifications are recommended for safe operation. The maximum speeds shown are safe operating speeds based upon years of Wichita experience.

Maximum Clutch Contact Velocity FPM	Material
6,000 (Recommended upper limit for slip)	cast iron
9,000	ductile iron
12,000	steel

These velocities are measured at the nominal outside diameter of the clutch plates.

Selection Example

To properly select a clutch for your application, the following information is required:

1. Application horsepower
2. Required air pressure
3. Required torque
4. Clutch heat horsepower
5. Shaft diameter

Chart A (page 107) gives application requirements ranging from light duty (the A group) to extra heavy duty (the D group). This chart will give the initial selection which is then compared with the selection made using the Clutch Heat Horsepower Chart (B) and the Clutch area (see "lining area" column) in the Specification Table (Chart C, page 110-111).

Machine required:

Rock crusher (Grinding mill)
(Group D duty requirement)

WR^2 .....1,000 lb.ft.^{2}
rpm 1,800
Clutch Slip Time .....6 sec.
hp .....325 (diesel 8 cylinder)
Available air pressure.....120 psi

Clutch must slip while bringing equipment up to speed.

Chart B
Clutch heat horsepower absorption rate*

Slip Time Seconds	Heat Input ft. lb. / in.^{2}	Heat Input hp / in.^{2}
0 to 1	380	.7
2	617	.56
3	820	.5
4	1000	.45
5	1175	.43
6	1330	.4
7	1485	.38
8	1630	.37
9	1770	.36
10	1900	.34

*This chart is for use when clutch is at ambient temperature of 120°F max.

Calculations

Engine torque = $\frac{(hp)\ (63{,}000)}{rpm} = \frac{(325)\ (63{,}000)}{1800}$

Engine torque = 11,375 lb.in.
Clutch torque required while slipping:

Clutch torque = $\frac{(WR^2)\ (rpm)\ (\pi)\ lb.in.}{(g)\ (t_s)\ (2.5)}$

W = Weight to be accelerated lb.
R = Radius of gyration ft.^{2}
g = Acceleration of gravity ft./sec.^{2}
t_s = Time of slip, in seconds
T_c = Clutch torque = 11,707 lb.in.

Clutch heat hp is 1/2 of the total area in the diagram.

Clutch heat hp = $\frac{(T_c)\ (input\ rpm)}{63{,}000}$ (1/2)

Clutch heat HP = $\frac{(11{,}375)\ (1800)}{63{,}000}$ (1/2)

= 162.5 hp

From Clutch Heat Horsepower (Chart B) for a 6 second start:

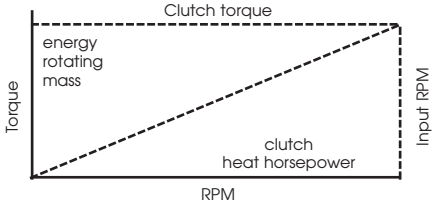
hp / in.^{2} = .4
Area required = $\frac{162.5}{.4}$ = 406 in.^{2}

To properly select a clutch for this rock crusher application, the following information is required:

1. Application horsepower
2. Required air pressure
3. Required torque
4. Clutch heat horsepower
5. Shaft diameter

The Specification Table on pages 110-111 gives application factors ranging from light duty (the A group) to extra heavy duty (the D group). This chart will give the initial selection which is then compared with the selection made using the Clutch Heat Horsepower Chart and the Clutch Area Chart.

How to select



1. The area required is 406 in. Consult the column head "Lining Area" in Specification Table (pages 110-111). Applicable clutches chosen are:
   ATD-218, 528 in.^{2}; ATD-124H, 574 in.^{2}; ATD-314H, 504 in.^{2}
2. Determine the application horsepower necessary:
   hp/100 rpm = $\frac{325}{1800}$ (100) hp
   hp/100 = 18hp/100 rpm

Clutches selected with this application horsepower are as follows:

ATD-214H 18hp/100 rpm, ATD-314H 27hp/100 rpm, ATD-118 21hp/100 rpm. The ATD-314 is selected as having both sufficient area and torque with minimum diameter.

Contact velocity = $\frac{(clutch\ size)\ (\pi)\ (1800)}{12}$

= 6,597 ft/min

Ductile material required.

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

Use engine torque for calculations.
When selecting the proper clutch, heat must be considered. When a clutch is slipped under load, heat is generated within the clutch. This heat as shown to the left is equal to the energy of the mass that was accelerated to speed by the clutch.

In applications where thermal requirements are of concern, consult factory for special ventilated and super ventilated clutch options.

F

Standard Vent Clutches

Coupling and Grinding Mill Clutch Selection

Chart C

Specifications

Model No. ATD–	Slip Torque Lb. In. at 100 PSI .3 CF	Max. Horsepower Per 100 R.P.M. Duty A	B	C	D	Recommended Clearances Inches	Hi-Spd. Airtube Max. Speed RPM	Total Wt. Lb.	Total WR^2 Lb. Ft^{-2}	Driving Ring & Friction Disc WT.	WR^2	Lining Area $In.^2$
108 STVC	7,000	11.1	8	4	2	1/16-1/8	3,000	36	3	8	1.2	56
208 STVC	14,000	22.2	16	8	4	3/32-5/32	3,000	58	38	18	1.8	112
308 STVC	21,000	33.3	24	12	6	3/32-5/32	3,000	80	5.1	28	2.4	168
111 STVC	15,900	25	18	9	5	1/16-1/8	2,800	65	11	20	5	114
211 STVC	31,800	50	37	18	10	3/32-5/32	2,800	106	18	37	10	228
311 STVC	47,700	75	55	27	15	3/32-5/32	2,800	147	25	54	15	342
114H STVC	35,800	56	40	20	9	1/16-1/8	2,200	165	55	38	14	168
214H STVC	71,600	113	80	40	18	3/32-5/32	2,200	220	75	58	24	336
314H STVC	107,400	170	120	60	27	3/32-5/32	2,200	275	85	78	34	504
118 STVC	64,500	102	75	35	21	1/16-1/8	2,000	266	95	47	33	264
218 STVC	129,000	204	150	70	42	3/32-5/32	2,000	390	150	65	63	528
118H STVC	75,000	119	85	40	21	1/16-1/8	1,650	290	103	47	33	264
218H STVC	150,000	238	175	80	42	3/32-5/32	1,650	415	160	65	63	528
318H STVC	225,000	357	260	120	63	1/8-3/16	1,650	540	215	83	153	792
321 STVC	263,000	417	300	150	84	1/8-3/16	1,650	735	360	210	185	1086
124H STVC	153,700	243	180	90	40	3/32-5/32	1,400	580	390	90	100	574
224H STVC	307,400	487	360	180	80	1/8-3/16	1,400	790	535	180	200	1148
324H STVC	461,100	731	540	270	120	5/32-7/32	1,400	1000	680	270	300	1722
327 STVC	517,500	821	600	300	165	5/32-7/32	1,400	1200	945	265	350	2190
230H STVC	654,000	1038	760	380	200	1/8-3/16	1,100	1375	1350	265	460	1664
330H STVC	981,000	1557	1150	570	300	3/16-1/4	1,100	2500	2325	380	570	2496
336 STVC	1,524,000	2418	1800	885	495	3/16-1/4	900	2700	3770	540	1260	3450
342 STVC	2,179,000	3458	2550	1275	705	3/16-1/4	800	3600	7700	1100	3375	4212
248 STVC	2,805,000	4452	3200	1600	915	1/8-3/16	700	4500	11200	785	3130	4020
348 STVC	4,207,500	6678	4800	2400	1370	3/16-1/4	700	5590	13850	1140	4360	6030
260 STVC	5,950,000	9440	6950	3470	1940	3/16-5/16	550	7525	24700	1665	9400	7240
360 STVC	8,925,000	14160	10400	5200	2900	1/4-3/8	550	9350	32250	2500	14020	10850
460 STVC	11,900,000	18880	13900	6940	3880	5/16-7/16	550	12,000	41000	2900	16,615	14,480

Note: Maximum air pressure – 100 PSI

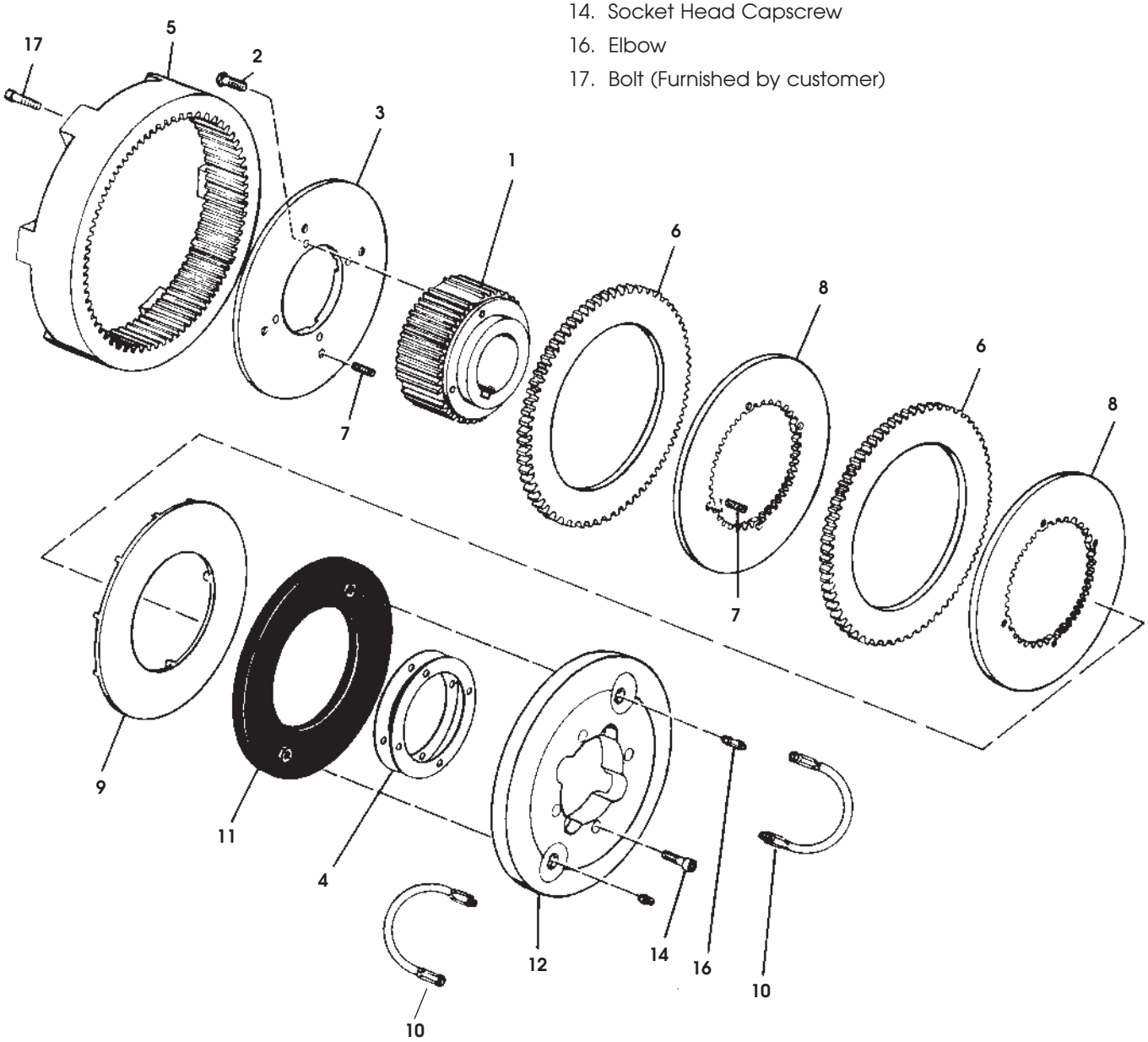
Inflation Coefficient Operating Air Pressure						Exhaust Coefficient Operating Air Pressure								
50 PSI		75 PSI		100 PSI		50 PSI			75 PSI			100 PSI		
K	U	K	U	K	U	R	E	V	R	E	V	R	E	V
15,800	2.2	7,100	2	265	1.2	60	.016	1	525	.02	1.6	240	.02	1.4
15,800	2.2	7,100	2	265	1.2	60	.016	1	525	.02	1.6	240	.02	1.4
15,800	2.2	7,100	2	265	1.2	60	.016	1	525	.02	1.6	240	.02	1.4
890	1.7	880	1.6	5100	2.2	1000	.032	2	8200	.04	2.8	4930	.048	2.8
890	1.7	880	1.6	5100	2.2	1000	.032	2	8200	.04	2.8	4930	.048	2.8
890	1.7	880	1.6	5100	2.2	1000	.032	2	8200	.04	2.8	4930	.048	2.8
456	2	825	2.2	300	1.75	3180	.068	3	8270	.076	3.5	8000	.088	3.7
456	2	825	2.2	300	1.75	3180	.068	3	8270	.076	3.5	8000	.088	3.7
456	2	825	2.2	300	1.75	3180	.068	3	8270	.076	3.5	8000	.088	3.7
9600	3.1	1560	2.4	9600	3.8	44	.068	1.4	40	.072	1.4	34	.08	1.4
9600	3.1	1560	2.4	9600	3.8	44	.068	1.4	40	.072	1.4	34	.08	1.4
1350	2.5	1350	2.5	1350	2.5	113	.052	1.6	36	.064	1.3	630	.076	2.5
1350	2.5	1350	2.5	1350	2.5	113	.052	1.6	36	.064	1.3	630	.076	2.5
1350	2.5	1350	2.5	1350	2.5	113	.052	1.6	36	.064	1.3	630	.076	2.5
1350	2.5	1350	2.5	1350	2.5	71	.07	1.6	26	.077	1.3	490	.084	2.5
145	1.8	90	1.6	87	1.6	360	.096	2.5	240	.112	2.5	270	.136	2.8
145	1.8	90	1.6	87	1.6	360	.096	2.5	240	.112	2.5	270	.136	2.8
145	1.8	90	1.6	87	1.6	360	.096	2.5	240	.112	2.5	270	.136	2.8
145	1.8	90	1.6	87	1.6	360	.096	2.5	240	.112	2.5	270	.136	2.8
185	2	150	2	93	1.8	120	.104	2.1	140	.128	2.4	146	.158	2.7
185	2	150	2	93	1.8	120	.104	2.1	140	.128	2.4	146	.158	2.7
170	2	250	2.2	160	2	124	.112	2.2	92	.128	2.2	76	.152	2.3
115	2	125	2	111	2	132	.12	2.3	89	.144	2.3	6.1	.168	2.3
25	1.6	22	1.6	26	1.8	20	.224	2	20	.256	2.2	19	.308	2.5
25	1.6	22	1.6	26	1.8	20	.224	2	20	.256	2.2	19	.308	2.5
28	1.8	22	1.8	20	1.8	24	264	2.4	10	.304	2.3	9.9	.352	2.2
28	1.8	22	1.8	20	1.8	24	264	2.4	10	.304	2.3	9.9	.352	2.2
28	1.8	22	1.8	20	1.8	24	264	2.4	10	.304	2.3	9.9	.352	2.2

Standard Vent Clutches

Coupling and Grinding Mill Clutches

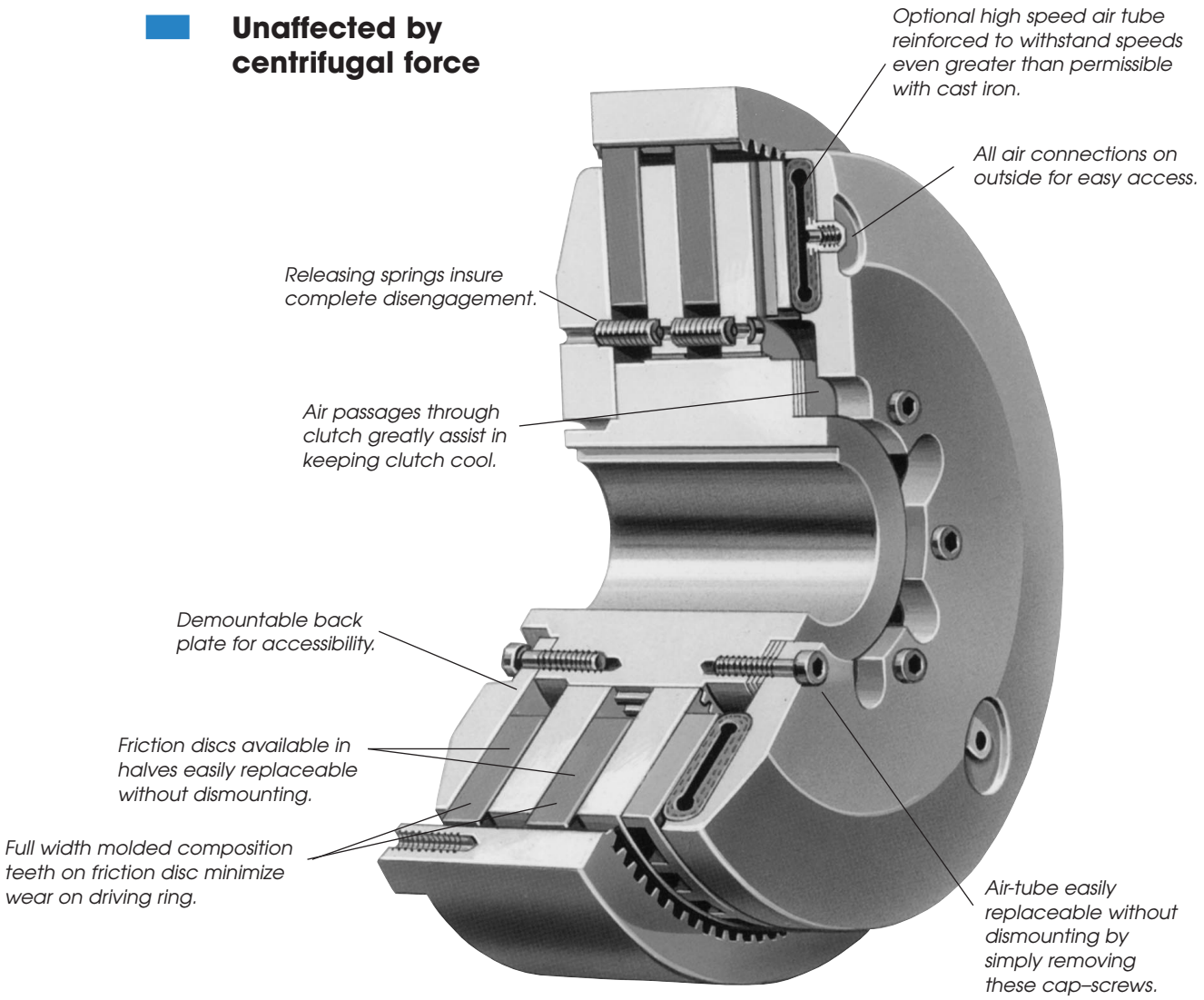
Component Parts

1. Hub
2. Hex Head Bolt
3. Backplate
4. Shim
5. Driving Ring
6. Friction Disc
7. Release Spring
8. Center Plate
9. Pressure Plate
10. Hose Assembly
11. Air Tube
12. Air Tube Holding Plate
14. Socket Head Capscrew
16. Elbow
17. Bolt (Furnished by customer)



Coupling Clutches

- **In-line power applications**
- **Smooth, controlled acceleration**
- **Unaffected by centrifugal force**



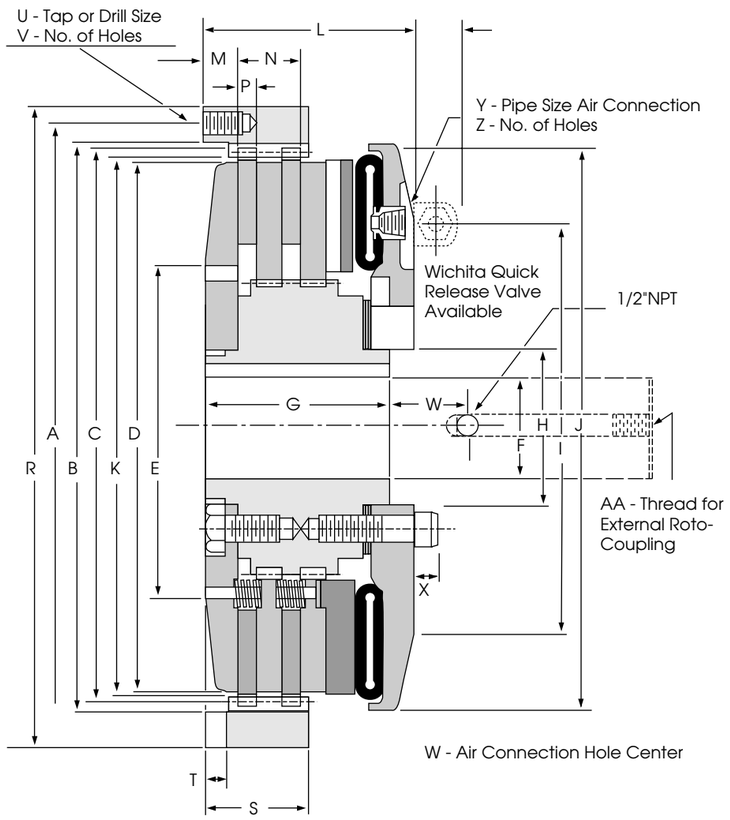
The Wichita Standard Vent Combination Clutch-Coupling is designed for reliable in-line power transmission. The simple air-tube design, with small air volume, speeds engagement and disengagement. It is unaffected by centrifugal force and has no self-energization like drum clutch designs. Ideally suited for large inertia loads where smooth controlled starts are needed.

The Wichita air-tube disc design combines all the best features of a disc type clutch with all the advantages of direct air engagement. It is the simplest and most trouble-free method of applying air pressure yet designed.

Problems of speed, smoothness, engagement or disengagement with all types of loads…problems of compactness …problems of simplifying maintenance and many other problems in a wide range of applications are quickly solved with Wichita clutches or brakes.

F

Coupling Clutches



Notes:

1. Air Hose Kits, page 122.
2. Quick Release Valves, page 123.
3. Roto-couplings, page 123.

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

Dimensions (in) (Consult factory for drawing before final layout.)

Model No. ATD–	A	+.003" -.000" B	C	D	E	Max Bore Rect. Key F	G	H	I	J
108 STVC	9-5/8	8.873	8-1/2	8	8	1.93	2-3/4	1-15/16	6-5/8	9-5/8
208 STVC	9-5/8	8.873	8-1/2	8	8	1.93	4-1/8	1-15/16	6-5/8	9-5/8
308 STVC	9-5/8	8.873	8-1/2	8	8	1.93	5-1/2	1-15/16	6-5/8	9-5/8
111 STVC	13-3/8	12.375	12	11	11	3.00	3	3	8-1/2	11-15/16
211 STVC	13-3/8	12.375	12	11	11	3.00	4-1/4	3	8-1/2	11-15/16
311 STVC	13-3/8	12.375	12	11	11	3.00	5-9/16	3	8-1/2	11-15/16
114H STVC	16-1/4	15.125	14-2/3	14	9-3/8	3.38	4-5/16	4-1/2	12-1/2	16-5/16
214H STVC	16-1/4	15.125	14-2/3	14	9-3/8	3.38	5-3/4	4-1/2	12-1/2	16-5/16
314H STVC	16-1/4	15.125	14-2/3	14	9-3/8	3.38	7-3/16	4-1/2	12-1/2	16-5/16
118 STVC	20-3/4	19.500	18-3/4	18	11-1/2	4.00	4-3/4	5-1/4	14	19-3/8
218 STVC	20-3/4	19.500	18-3/4	18	11-1/2	4.00	6-1/4	5-1/4	14	19-3/8
118H STVC	20-3/4	19.500	18-3/4	18	11-1/2	4.00	4-3/4	5-1/4	16	21-5/8
218H STVC	20-3/4	19.500	18-3/4	18	11-1/2	4.00	6-1/4	5-1/4	16	21-5/8
318H STVC	20-3/4	19.500	18-3/4	18	11-1/2	4.00	7-3/4	5-1/4	16	21-5/8
321 STVC	23-3/4	22.500	21-3/4	21	14	5.38	9-1/8	7	16	21-5/8
124H STVC	26-3/4	25.500	24-3/4	24	16	5.38	5-7/8	7	21	27
224H STVC	26-3/4	25.500	24-3/4	24	16	5.38	7-1/4	7	21	27
324H STVC	26-3/4	25.500	24-3/4	24	16	5.38	9-3/8	7	21	27
327 STVC	29-3/4	28.500	27-3/4	27	19-1/2	7.00	9-3/4	9	21	27
230H STVC	32-3/4	31.500	30-3/4	30	22-1/2	7.00	8-1/2	9	24-3/4	32-3/8
330H STVC	32-3/4	31.500	30-3/4	30	22-1/2	7.00	11-1/2	9	24-3/4	32-3/8
336H STVC	39-3/4	38.500	37-1/2	36	28	8.00	12-5/8	13-1/2	30-1/2	38-1/4
342 STVC	47-1/4	45.000	44	42	42	10.00	11-7/8	21	35	44-1/8
248 STVC	54	52.000	51	48	35	12.00	10-7/8	21	40	52-3/8
348 STVC	54	52.000	51	48	35	12.00	13-5/8	21	40	52-3/8
260 STVC	64-3/4	62.750	62	60	36-1/8	14.00	16-1/4	22-5/8	46-1/2	61-1/2
360 STVC	64-3/4	62.750	62	60	36-1/8	14.00	20	22-5/8	46-1/2	61-1/2
460 STVC	64-3/4	62,750	62	60	36-1/8	14.00	23-1/2	22-5/8	46-1/2	61-1/2

Model No. ATD–	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
108 STVC	8.247	4	3/4	—	7/16	10-3/8	1-3/8	1/2	1/2 NC	6	2-1/4	1/2	1/2	2
208 STVC	8.247	5-5/16	3/4	1-3/4	7/16	10-3/8	2-5/8	1/2	1/2 NC	6	2-1/4	1/2	1/2	2
308 STVC	8.247	6-5/8	3/4	3-1/16	7/16	10-3/8	3-7/8	1/2	1/2 NC	6	2-1/4	1/2	1/2	2
111 STVC	11.763	4-1/8	7/8	—	1/2	14-3/8	1-1/2	1/2	5/8 NC	8	2-1/2	7/16	1/2	2
211 STVC	11.763	5-1/4	7/8	1-3/4	1/2	14-3/8	2-7/8	1/2	5/8 NC	8	2-1/2	7/16	1/2	2
311 STVC	11.763	6-3/4	7/8	3	1/2	14-3/8	4-1/4	1/2	5/8 NC	8	2-1/2	7/16	1/2	2
114H STVC	14.451	5-1/8	1-1/8	—	5/8	17-1/2	1-7/8	5/8	5/8 NC	6	2-1/4	3/4	1/2	2
214H STVC	14.451	6-1/2	1-1/8	2	5/8	17-1/2	3-1/4	3/4	5/8 NC	6	2-1/4	3/4	1/2	2
314H STVC	14.451	8	1-1/8	3-3/8	5/8	17-1/2	4-3/4	3/4	5/8 NC	6	2-1/4	3/4	1/2	2
118 STVC	18.375	5-5/8	1-5/16	—	5/8	22	1-15/16	3/4	5/8 NC	6	2-7/16	1	1/2	3
218 STVC	18.375	7-1/8	1-5/16	2-1/8	5/8	22	3-1/2	3/4	5/8 NC	6	2-7/16	1	1/2	3
118H STVC	18.375	5-5/8	1-5/16	—	5/8	22	1-15/16	3/4	5/8 NC	6	2-7/16	1	1/2	3
218H STVC	18.375	7-1/4	1-5/16	2-1/8	5/8	22	3-1/2	3/4	5/8 NC	6	2-7/16	1	1/2	3
318H STVC	18.375	8-11/16	1-5/16	3-3/4	5/8	22	5-1/8	3/4	5/8 NC	6	2-7/16	1	1/2	3
321 STVC	21.350	10-1/8	1-5/8	4-1/4	3/4	25	6-1/8	1	5/8 NC	6	2-3/8	1	1/2	3
124H STVC	24.312	6-9/16	1-5/8	—	7/8	28	2-13/16	3/4	5/8 NC	6	2-3/4	1	1/2	3
224H STVC	24.312	8-5/8	1-5/8	2-3/4	7/8	28	4-1/2	3/4	5/8 NC	6	2-3/4	1	1/2	3
324H STVC	24.312	10-9/16	1-5/8	4-5/8	7/8	28	6-1/4	3/4	5/8 NC	6	2-3/4	1	1/2	3
327 STVC	27.361	10-3/4	1-5/8	4-5/8	7/8	31	6-1/2	1-3/8	5/8 NC	12	2-3/8	1	1/2	3
230H STVC	30.361	10-1/8	1-5/8	3-3/4	1-1/4	34	5-5/8	1-1/8	5/8 NC	12	2-7/8	1	1/2	4
330H STVC	30.361	12-3/4	1-5/8	6-1/4	1-1/4	34	8-1/8	1-1/8	5/8 NC	12	2-7/8	1	1/2	4
336H STVC	37.159	14-3/8	1-15/16	7-1/8	1-3/8	41	9	1-1/2	5/8 NC	16	2-7/8	1	1/2	4
342 STVC	43.627	14	2	7-3/8	1-3/8	49-1/4	9-5/8	1-3/4	1" NC	12	3-1/2	1-1/4	1/2	4
248 STVC	50.815	13-3/4	2-5/8	4-1/8	1-3/8	56	7-1/8	2	1" NC	12	3-1/2	1-1/4	1/2	4
348 STVC	50.815	15-3/4	2-5/8	6-7/8	1-3/8	56	9-7/8	2	1" NC	12	3-1/2	1-1/4	1/2	4
260 STVC	61.700	16-1/4	3	5-1/2	3	66-3/4	9	2-1/2	1" NC	24	2	2	1/2	6
360 STVC	61.700	20	3	9	3	66-3/4	13	2-1/2	1" NC	24	2	2	1/2	6
460 STVC	61,700	23-3/8	3	12-1/2	3	66-3/4	16.50	2-1/2	1" NC	24	2	2	1/2	6

F

Standard Vent Clutches

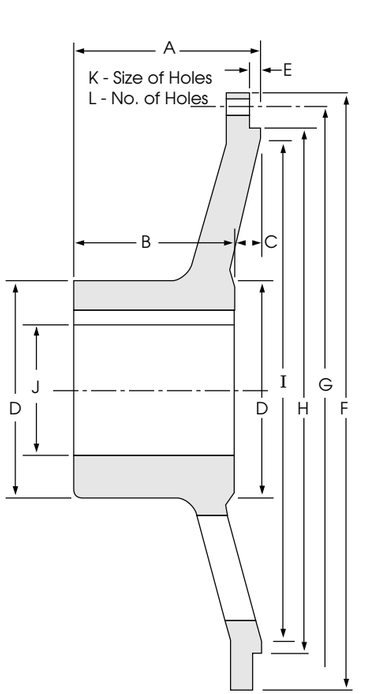
Coupling Clutches

Standard Driving Adapters

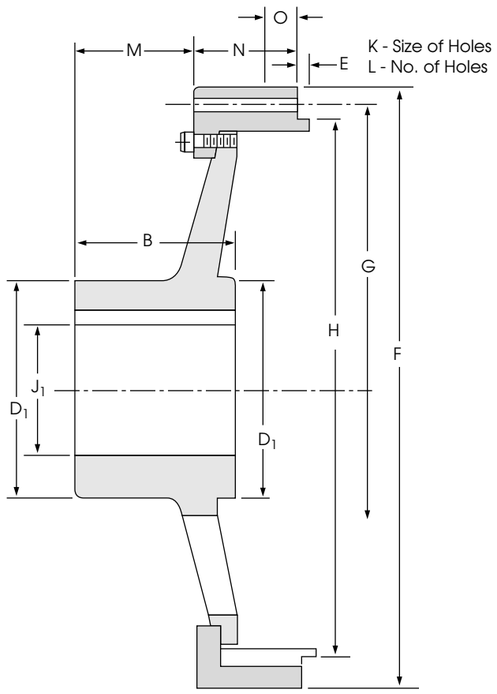
The driving adapter is designed to allow the clutch to be used in a shaft-to-shaft or through-shaft coupling arrangement.

Quick Change Adapters

The quick change feature, using a driving elbow piece between the driving adapter and the clutch driving ring, enables replacement of any wearing clutch part without disturbing either shaft.



Standard Adapter (Standard Gap)



Quick Change Adapter (Access Gap)

Size	A	B	C	D	D_1	E	F	G	+.003" -.000" H
8	3-1/8	3	1/8	3-3/4	—	1/8	10-3/8	9-5/8	8.869
11	3-5/8	3-1/4	3/8	6-1/4	5	1/8	14-3/8	13-3/8	12.371
14H	5-3/8	4-3/4	5/8	7	6-1/4	1/4	17-1/2	16-1/4	15.121
18	6-7/8	5-3/4	1-1/8	8	8	3/8	22	20-3/4	19.496
18H	6-7/8	5-3/4	1-1/8	8	8	3/8	22	20-3/4	19.496
21	6-3/4	6	3/4	9-1/2	9	1/4	25	23-3/4	22.496
24H	8-3/8	7- 5/16	1-1/16	10	12	1/4	28	26-3/4	25.495
27	8-3/4	7-3/4	1	11	11-1/2	1/4	31	29-3/4	28.495
30H	9-1/4	8-3/4	1/2	14	14	1/4	34	32-3/4	31.495
36	10-1/2	10	1/2	15	14	1/4	41	39-3/4	38.495
42	11	10	1	15	15	1/4	49-1/4	47-1/4	44.995
48	—	13 5/8	—	—	20	1/2	56	54	52.000
60	—	16-1/4	—	24	—	3/8	66-3/4	64-3/4	62.750

Size	I	Max. Bore Rect. Key J	J_1	K	L	M	N	O
8	8-3/8	2.50	—	17/32	6	1-7/8	*	—
11	11-3/4	4.13	3-3/8	21/32	8	2	2-1/2	—
14H	14-1/2	4.75	4-1/8	21/32	6	2-1/8	3-1/8	—
18	18-1/2	5.25	5-1/4	11/16	6	4-3/8	3-1/2	—
18H	18-1/2	5.25	5-1/4	11/16	6	4-3/8	3-1/2	—
21	21-3/4	6.25	6	11/16	6	4	6-1/4	—
24H	24-1/2	6.63	6-5/8	11/16	6	5-3/16	5-1/2	—
27	27-3/4	7.25	7-5/8	11/16	12	5-9/16	4-5/8	—
30H	0-1/2	9.25	9-1/4	11/16	12	6-1/2	5-3/4	—
36	37-1/2	10.00	9-1/4	11/16	16	7-7/8	4-1/8	—
42	44	10.00	10	1-1/32	12	7-7/16	5-11/16	—
48	—	—	15	1-1/32	12	10-1/8	6-1/8	—
60	—	18.00	—	1-1/32	24	12-1/4	11-1/2	2-1/2

*Consult Factory

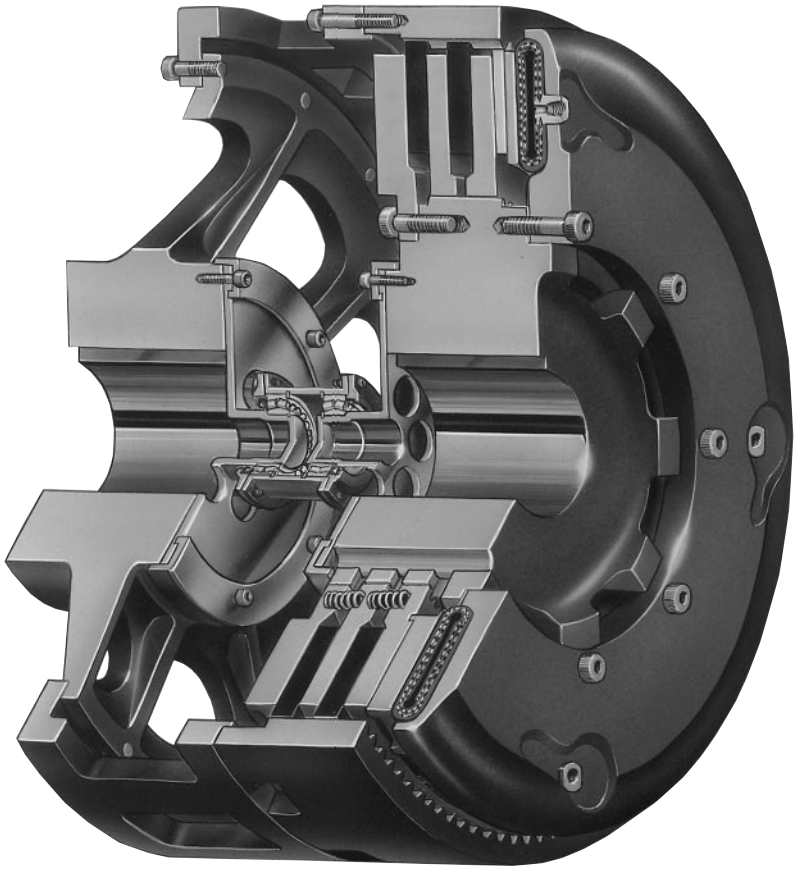
Notes: All dimensions are in inches.
For mounting, use socket head cap screws conforming to the ASTM-574-97a.

F

Standard Vent Clutches

Grinding Mill Clutches

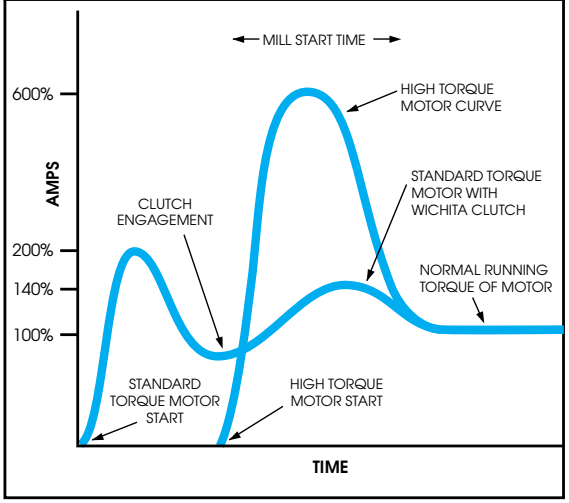
- **Designed for heavy duty applications**
- **Quick, smooth starting**
- **High heat dissipation for jogging and inching**



Wichita Grinding Mill Clutches are specially designed to provide quick, smooth starts with limited current surge for heavy duty grinding mills. The clutch is adaptable to remote control allowing centralized operation through simple air or electric circuits.

- No adjustment or lubrictation
- Eliminates need for special high torque motors.
- Torque capacity not affected by centrifugal force.
- High heat dissipation for jogging and inching.

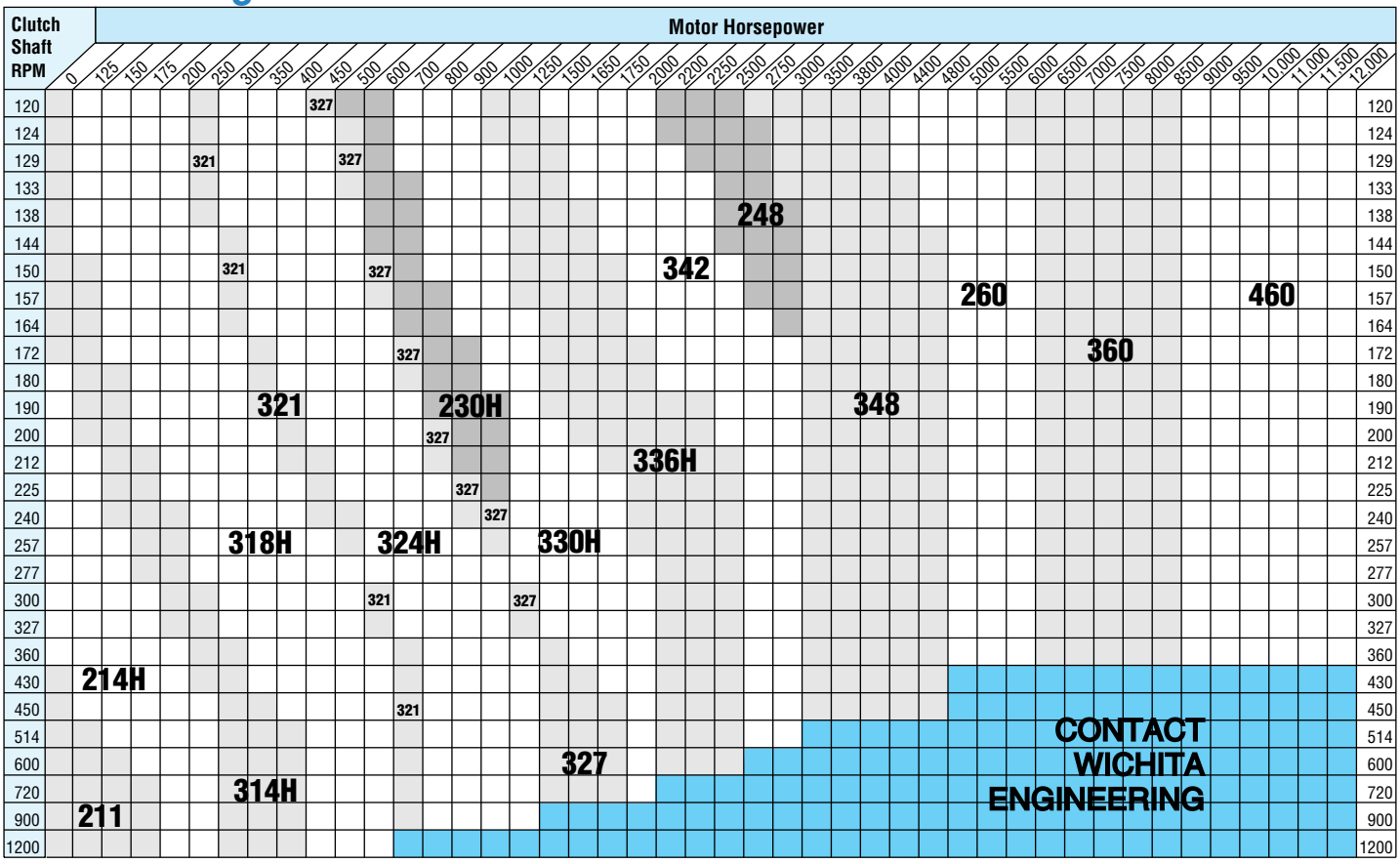
Standard Torque Motor with Wichita Clutch vs. High Torque Motor



Specifications

Technical						Capacity				
Model No. ATD–	Air Supply	Total Weight Lb.	Total Wr^2 Lb.Ft.^{2}	Driving Adapter Ring & Disc weight	Driving Adapter Ring & Disc wr^2	Diameter Friction Disc-In.	Max. Speed (RPM) For 6000 FPM @ Fric Disc O.D.	H.P. per 100 RPM	Lining Area In.^{2}	Rated Torq. inch lbs. 100 PSI
211 GMC	5/8"-18	130	24	57	16	11	2,100	50	228	31,800
214H GMC	5/8"-18	333	111	152	58	14	1,640	114	336	71,600
314H GMC	5/8"-18	385	132	190	75	14	1,640	170	504	107,400
318H GMC	1"-14	727	333	356	220	18	1,275	357	792	225,000
321 GMC	1"-14	980	663	500	280	21	1,100	417	1,086	263,000
324H GMC	1"-14	1,350	970	590	600	24	950	732	1,722	461,000
327 GMC	1"-14	1,580	1,130	675	540	27	850	821	2,190	517,500
230H GMC	1"-14	2,126	2,046	1,036	1,150	30	760	1,038	1,664	654,000
330H GMC	1"-14	2,600	2,100	1,125	1,250	30	760	1,557	2,496	981,000
336H GMC	1"-14	3,550	4,650	1,510	2,215	36	640	2,419	3,450	1,813,500
342 GMC	1-1/2"-12	4,815	10,505	2,315	6,130	42	540	3,459	4,212	2,179,000
248 GMC	1-1/2"-12	6,580	16,275	2,825	9,523	48	475	4,452	4,020	2,805,000
348 GMC	1-1/2"-12	7,540	18,470	3,274	9,700	48	475	6,679	6,030	4,207,500
260 GMC	1-1/2"-12	10,600	37,300	5,750	23,600	60	380	9,444	7,240	5,950,000
360 GMC	1-1/2"-12	13,390	47,850	5,900	27,550	60	380	14,167	10,850	8,925,000
460 GMC	1-1/2"-12	16,860	57,705	7,500	33,238	60	380	18,888	14,480	11,900,000

Rod & Grinding Mill Quick Selection Chart*



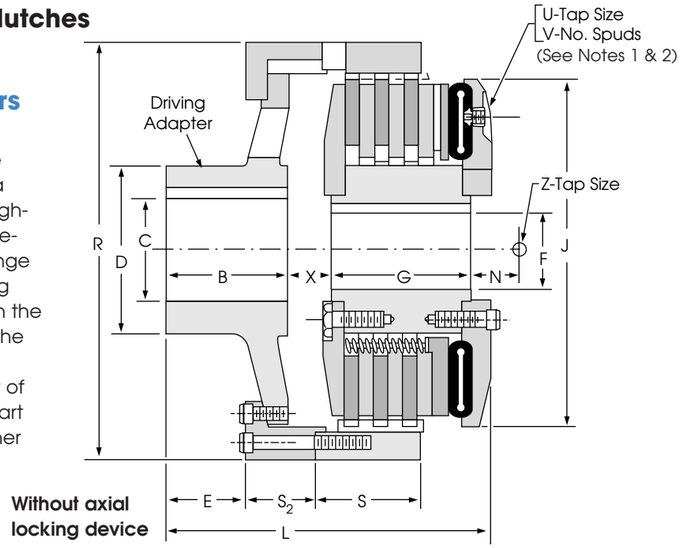
* For preliminary recommendations only — subject to approval of Wichita Clutch.
All selections based on 100 PSI operating air pressure and 200% motor torque.

F

Grinding Mill Clutches

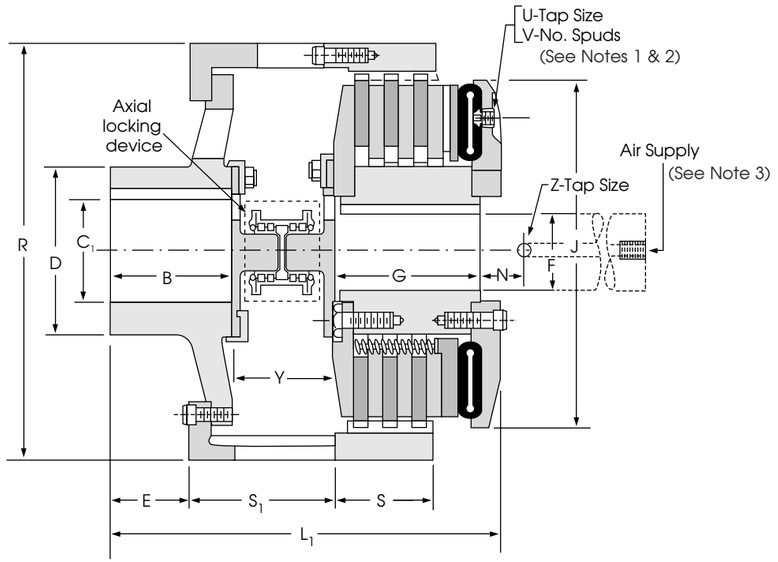
Driving Adapters

The driving adapter is designed to allow the clutch to be used in a shaft-to-shaft or through-shaft coupling arrangement. The quick-change feature, using a driving elbow piece between the driving adapter and the clutch driving ring, enables replacement of any wearing clutch part without disturbing either shaft.



With axial locking device

The axial locking device is an optional feature offered by Wichita. This device prevents damage to the mill motor bearings during motor start-up by axially locking the armature to magnetic center.



Notes:

1. Air Hose Kits, page 122.
2. Quick Release Valves, page 123.
3. Roto-couplings, page 123.

Dimensions (in) (Consult factory for drawing before final layout.)

Model Size ATD–	B inches	C* max bore	C_1* max bore	D inches	E inches	F* max bore	G inches	J inches	L inches	L_1 inches
		rect. key	rect. key			rect. key				
211 GMC	3.00	3.00	—	5.00	2.00	3.00	4.25	11.94	10.00	—
214H GMC	3.25	4.13	—	6.25	2.13	3.38	5.75	16.31	11.88	—
314H GMC	3.25	4.13	—	6.25	2.13	3.38	7.18	16.31	13.38	—
318H GMC	6.00	4.00	—	6.00	4.38	4.00	7.31	21.31	17.43	—
321 GMC	6.00	6.50	—	9.00	4.00	5.38	8.63	21.31	20.50	—
324H GMC	7.31	7.50	—	10.00	5.56	5.38	8.43	27.00	21.56	—
327 GMC	7.31	7.63	—	11.50	5.56	7.00	9.00	27.00	20.94	—
230H GMC	8.75	9.38	9.38	14.00	6.50	7.00	7.88	32.38	22.63	24.43
330H GMC	8.75	9.38	9.38	14.00	6.50	7.00	10.88	32.38	25.25	26.94
336H GMC	10.00	9.38	9.38	14.00	7.88	8.00	12.88	38.25	26.75	34.75
342 GMC	10.00	12.00	12.00	18.00	7.43	10.00	11.88	44.13	27.63	34.50
248 GMC	13.63	15.00	13.25	20.00	10.13	12.00	10.88	52.38	29.63	36.88
348 GMC	13.63	15.00	13.25	20.00	10.13	12.00	13.63	52.38	32.13	39.50
260 GMC	16.25	18.00	15.00	24.00	12.25	14.00	16.25	61.50	40.00	42.50
360 GMC	16.25	18.00	15.00	24.00	12.25	14.00	20.00	61.50	43.75	46.25
460 GMC	16.25	18.00	15.00	24.00	12.25	14.00	23.50	61.50	47.13	49.63

Model Number ATD–	N inches	R inches	S inches	S_1 inches	S_2 inches	U tap size	V spuds	X inches	Y inches	Z tap size
211 GMC	2.25	13.63	N/A	—	5.38	1/2 NPT	2	1.62	—	1/2 NPT
214H GMC	2.25	17.50	3.25	—	3.13	1/2 NPT	2	2.13	—	1/2 NPT
314H GMC	2.25	17.50	4.75	—	3.13	1/2 NPT	2	2.13	—	1/2 NPT
318H GMC	2.43	22.00	5.88	—	3.50	1/2 NPT	3	3.06	—	1/2 NPT
321 GMC	2.38	25.00	6.25	—	6.25	1/2 NPT	3	4.75	—	1/2 NPT
324H GMC	2.75	28.00	6.25	—	5.50	1/2 NPT	3	4.50	—	1/2 NPT
327 GMC	2.38	31.00	6.500	—	4.63	1/2 NPT	3	3.75	—	1/2 NPT
230H GMC	2.75	34.00	5.63	5.75	5.75	1/2 NPT	4	4.25	5.00	1/2 NPT
330H GMC	2.88	34.00	8.13	7.43	5.75	1/2 NPT	4	4.25	5.00	1/2 NPT
336H GMC	2.88	41.00	9.13	12.13	4.00	1/2 NPT	4	2.50	10.00	1/2 NPT
342 GMC	3.50	49.25	9.63	12.69	5.69	1/2 NPT	4	3.50	10.00	1/2 NPT
248 GMC	3.75	56.00	7.38	13.25	6.13	1/2 NPT	4	2.75	10.00	1/2 NPT
348 GMC	3.50	56.00	9.88	13.38	6.13	1/2 NPT	4	2.75	10.00	1/2 NPT
260 GMC	2.00	66.75	9.00	14.00	11.50	1/2 NPT	6	7.50	10.00	1/2 NPT
360 GMC	2.00	66.75	13.00	14.00	11.50	1/2 NPT	6	7.50	10.00	1/2 NPT
460 GMC	2.00	66.75	16.50	14.00	11.50	1/2 NPT	6	7.50	10.00	1/2 NPT

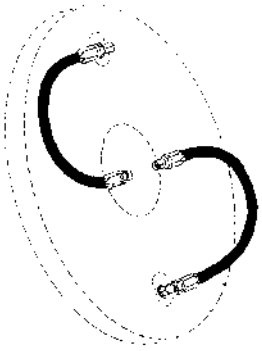
* Maximum bore uses rectangular key, contact Wichita Engineering.

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

F

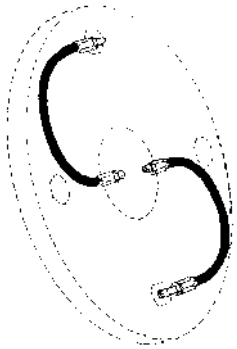
Standard Vent Clutches

Air Hose Kits

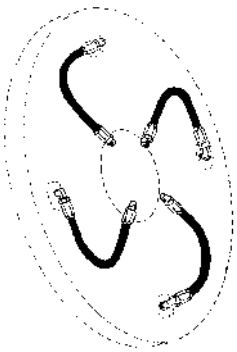


Model	Part Number
8"	8-908-812-200-3 8-908-821-200-4 QRV
11"	8-911-812-200-4 8-911-821-200-5 QRV
14"	8-914-812-201-5 8-914-821-202-5 QRV

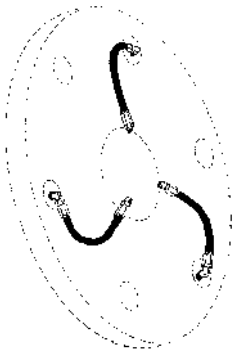
Model	Part Number
18"	8-918-812-301-5 8-918-821-300-5 QRV
21"	8-921-812-301-5 8-921-821-302-5 QRV
24"	8-924-812-300-5 8-924-821-302-5 QRV
27"	8-927-812-300-5 8-927-821-301-5 QRV



Model	Part Number
30"	8-930-815-201-5
30"H	8-931-821-200-5 QRV
36"	8-936-815-200-5 8-936-821-200-5 QRV
42"	8-942-815-200-5 8-942-821-200-5 QRV
48"	8-948-815-200-5 8-948-821-200-5 QRV



Model	Part Number
30"H	8-931-821-400-5 QRV

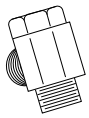


Model	Part Number
60"	8-960-812-300-5

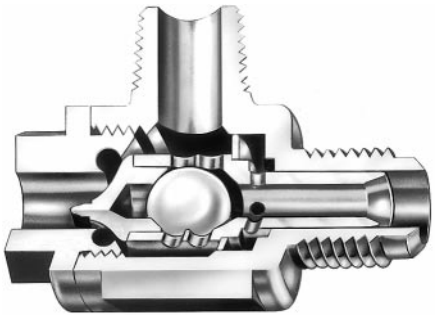
Air hose kits contain all necessary parts (fittings, hoses and extensions) to completely plumb only the clutch.

Optional Quick Release Valves can replace elbows on most units (see page 123).

Roto-couplings (see page 123).



Quick Release Valve



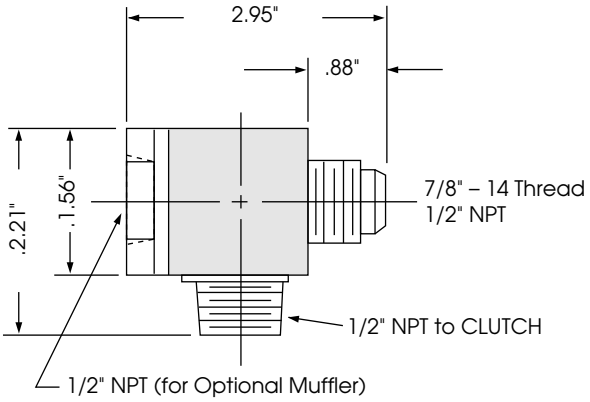
8-263-610-011-1 7/8" – 14 Thread
8-263-610-021-1 1/2" NPT

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.

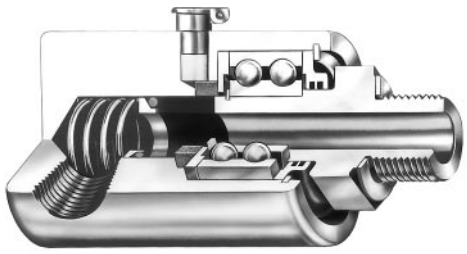
Quality Material

Body and Cap: High strength aluminum alloy
Stem: Moulded nylon
Check Valve: Nylon ball
"O" Ring: Neoprene



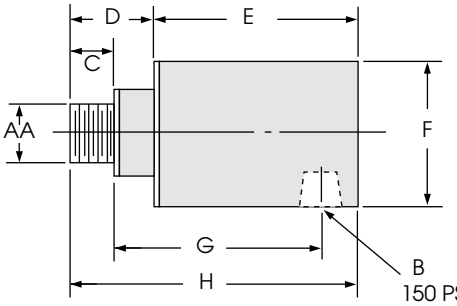
Standard thread arrangement of 1/2" size. 1/2" pipe thread on the tube connection and choice of 1/2" pipe thread, or standard 7/8-14NF thread for flared fitting thread on inlet connection. (Fits standard No. 10 high-pressure hose fitting.)

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.



Wichita Part No.	AA	B	C	D	E	F	G	H	Max. R.P.M.
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

Note: All measurements are in inches.