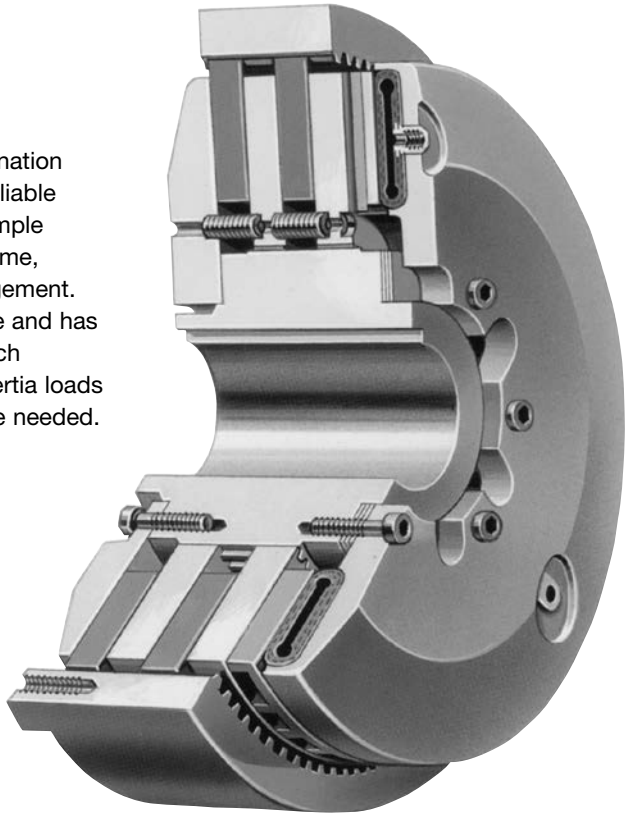
Standard Vent Clutches

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.

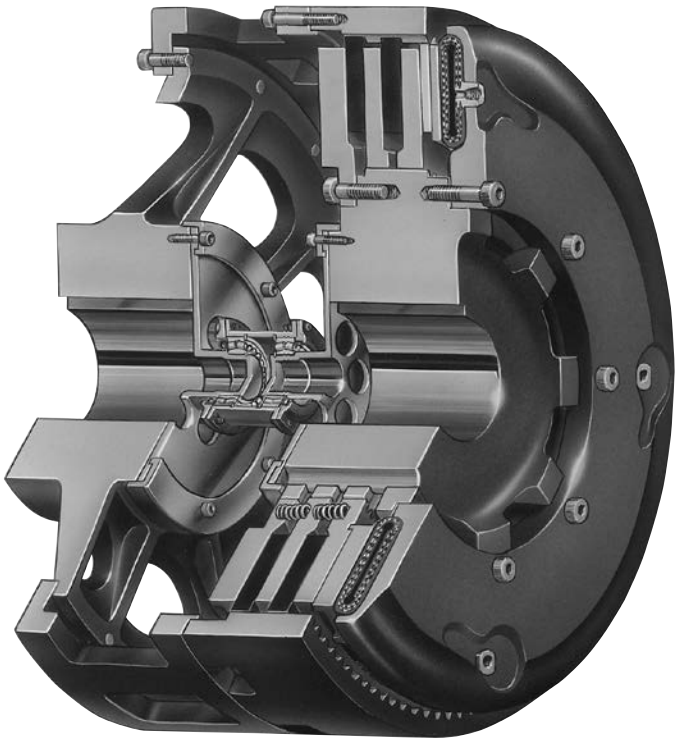
See pages 131 thru 135.



Grinding Mill Clutches

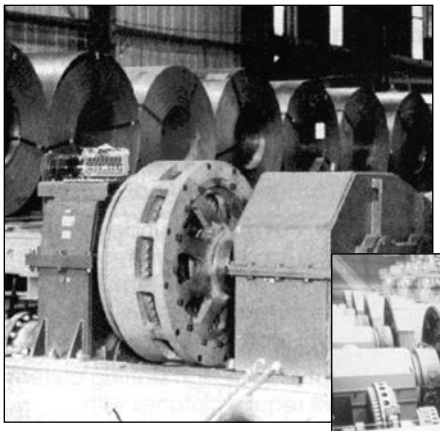
Wichita Grinding Mill Clutches are specially designed to provide quick, smooth starts with limited current surge for heavy duty grinding mills. The clutch is adaptable to remote control allowing centralized operation through simple air or electric circuits.

See pages 136 thru 143.

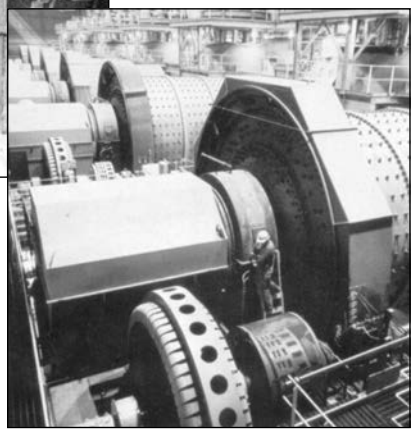


Typical Applications

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/100 RPM, 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

Standard Vent Clutches

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 123) 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 125-126).

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	1,000	.45
5	1,175	.43
6	1,330	.4
7	1,485	.38
8	1,630	.37
9	1,770	.36
10	1,900	.34

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

Calculations

$$\text{Engine torque} = \frac{(HP)\ (63{,}000)}{RPM} = \frac{(325)\ (63{,}000)}{1800}$$

Engine torque = 11,375 lb.in.

Clutch torque required while slipping:

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

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.

$$\text{Clutch heat HP} = \frac{(T_C)\ (\text{input RPM})}{63{,}000}\ (1/2)$$

$$\text{Clutch heat HP} = \frac{(11{,}375)\ (1{,}800)}{63{,}000}\ (1/2)$$

$$= 162.5\ \text{HP}$$

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

HP / in.^{2} = .4

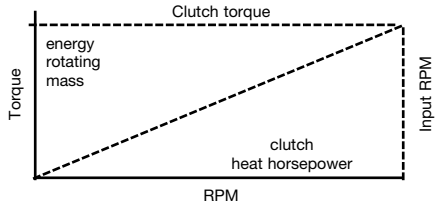
$$\text{Area required} = \frac{162.5}{.4} = 406\ \text{in.}^2$$

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 126-127 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 inches. Consult the column head “Lining Area” in Specification Table (pages 126-127). 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:
   $$\text{HP/100 RPM} = \frac{325}{1{,}800}\ (100)\ \text{HP}$$
   HP/100 = 18 HP/100 RPM

Clutches selected with this application horsepower are as follows:

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

$$\text{Contact velocity} = \frac{(\text{clutch size})\ (\pi)\ (1{,}800)}{12}$$

$$= 6{,}597\ \text{ft./min.}$$

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.

E

Standard Vent Clutches

Coupling and Grinding Mill Clutch Selection

Specifications

Chart C

Model Size ATD–	Slip Torque lb.in. at 100 PSI .3 CF	Max. Horsepower Per 100 RPM Duty A	B	C	D	Recom-mended Clear-ances 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
116 STVC	40,400	64	45	22	11	1/16-1/8	2,200	189	62	41	23	228
216 STVC	80,800	134	90	44	22	3/32-5/32	2,200	272	87	90	47	456
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
221STVC	175,300	278	195	97	49	3/32-5/32	1,650	500	256	127	114	724
321 STVC	263,000	417	300	150	84	1/8-3/16	1,650	735	360	210	185	1,086
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	1,148
324H STVC	461,100	731	540	270	120	5/32-7/32	1,400	1000	680	270	300	1,722
227 STVC	345,000	548	383	192	96	1/8-3/16	1,400	890	700	200	275	1,460
327 STVC	517,500	821	600	300	165	5/32-7/32	1,400	1,200	945	265	350	2,190
230H STVC	654,000	1,038	760	380	200	1/8-3/16	1,100	1,375	1,350	265	460	1,664
330H STVC	981,000	1,557	1,150	570	300	3/16-1/4	1,100	2,500	2,325	380	570	2,496
336 STVC	1,524,000	2,418	1,800	885	495	3/16-1/4	900	2,700	3,770	540	1,260	3,450
342 STVC	2,179,000	3,458	2,550	1,275	705	3/16-1/4	800	3,600	7,700	1,100	3,375	4,212
248 STVC	2,805,000	4,452	3,200	1,600	915	1/8-3/16	700	4,500	11,200	785	3,130	4,020
348 STVC	4,207,500	6,678	4,800	2,400	1,370	3/16-1/4	700	5,590	13,850	1,140	4,360	6,030
260 STVC	5,950,000	9,440	6,950	3,470	1,940	3/16-5/16	550	7,525	24,700	1,665	9,400	7,240
360 STVC	8,925,000	14,160	10,400	5,200	2,900	1/4-3/8	550	9,350	32,250	2,500	14,020	10,850
460 STVC	11,900,000	18,880	13,900	6,940	3,880	5/16-7/16	550	12,000	41,000	2,900	16,615	14,480
560 STVC	14,875,000	23,611	16,528	8,264	4,132	1/2-9/16	550	11,750	—	—	—	18,100
372 STVC	13,965,000	22,167	15,517	7,758	3,879	5/16-7/16	400	—	—	—	—	14,460

Note: Maximum air pressure – 100 PSI

Coupling and Grinding Mill Clutch Selection

Specifications

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
890	1.7	880	1.6	5,100	2.2	1,000	.032	2	8,200	.04	2.8	4,930	.048	2.8
456	2	825	2.2	300	1.75	3,180	.068	3	8,270	.076	3.5	8,000	.088	3.7
456	2	825	2.2	300	1.75	3,180	.068	3	8,270	.076	3.5	8,000	.088	3.7
9,600	3.1	1,560	2.4	9,600	3.8	44	.068	1.4	40	.072	1.4	34	.08	1.4
1,350	2.5	1,350	2.5	1,350	2.5	113	.052	1.6	36	.064	1.3	630	.076	2.5
1,350	2.5	1,350	2.5	1,350	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
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
28	1.8	22	1.8	20	1.8	24	264	2.4	10	.304	2.3	9.9	.352	2.2

E

Standard Vent Clutches

Coupling and Grinding Mill Clutch Selection

Specifications

Model Size ATD-	Clutch Mounting Options	Assembly Number	Drawing Number
STV 108	Clutch only	6-208-100-110-0	-900-9
	Clutch w/ SDA	6-208-100-302-0	-901-9
STV 208	Clutch only	6-208-200-103-0	-900-9
	Clutch w/ SDA	6-208-200-309-0	-901-9
STV 308	Clutch only	6-208-300-101-0	-900-9
	Clutch w/ SDA	6-208-300-304-0	-901-9
STV 111	Clutch only	6-211-100-101-0	-900-9
	Clutch w/ QCDA	6-211-100-303-0	-904-9
	Clutch w/ SDA	6-211-100-304-0	-905-9
STV 211	Clutch only	6-111-200-101-0	-902-9
	Clutch w/ QCDA	6-111-200-311-0	-912-9
	Clutch w/ SDA	6-111-200-312-0	-913-9
STV 311	Clutch only	6-111-300-103-0	-901-9
	Clutch w/ QCDA	6-111-300-303-0	-903-9
	Clutch w/ SDA	6-111-300-304-0	-904-9
STV 114H	Clutch only	6-115-180-102-0	-902-9
	Clutch w/ QCDA	6-115-100-300-0	-903-9
	Clutch w/ SDA	6-115-100-301-0	-904-9
STV 214H	Clutch only	6-115-280-104-0	-903-9
	Clutch w/ QCDA	6-115-200-300-0	-907-9
	Clutch w/ SDA	6-115-200-301-0	-908-9
	Clutch w/ DIC Flange Ring	6-115-204-301-0	-900-9
STV 314H	Clutch only	6-115-380-100-0	-901-9
	Clutch w/ QCDA	6-115-304-300-0	-900-9
	Clutch w/ SDA	6-115-300-100-0	-100-9
	Clutch w/ DIC Flange Ring	6-115-300-104-0	-904-9
STV 116	Clutch only	6-116-100-112-0	-900-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 216	Clutch only	6-116-200-121-0	-900-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 316	Clutch only	6-116-300-118-0	-901-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 118	Clutch only	6-118-100-120-0	-904-9
	Clutch w/ QCDA	—	
	Clutch w/ DIC Flange Ring	6-118-100-304-0	D-3545
STV 218	Clutch only	6-118-200-143-0	-909-9
	Clutch w/ QCDA	—	
	Clutch w/ DIC Flange Ring	6-118-204-300-0	-901-9
STV 318	Clutch only	6-118-300-309-0	-908-9
	Clutch w/ QCDA	—	
	Clutch w/ DIC Flange Ring	6-118-300-311-0	-909-9
STV 118H	Clutch only	6-119-100-100-0	-900-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 218H	Clutch only	6-119-200-100-0	D-3709
	Clutch w/ QCDA	6-119-200-106-0	-106-9
	Clutch w/ SDA	—	
STV 318H	Clutch only	6-119-300-100-0	
	Clutch w/ QCDA	—	
	Clutch w/ SDA	6-119-304-305-0	-908-9
STV 121	Clutch only	6-121-100-106-0	D-2769
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 221	Clutch only	6-121-200-143-0	-903-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 321	Clutch only	6-121-300-120-0	-904-9
	Clutch w/ QCDA	—	
	Clutch w/ DIC Flange Ring	6-121-300-312-0	-912-9
STV 124H	Clutch only	6-125-100-110-0	-900-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 224H	Clutch only	6-125-200-129-0	-915-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 324H	Clutch only	6-125-300-113-0	-912-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 127	Clutch only	6-127-100-112-0	-901-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 227	Clutch only	6-127-200-130-0	-905-9
	Clutch w/ QCDA	6-127-200-127-0	-905-9
	Clutch w/ SDA	—	
STV 327	Clutch only	6-127-300-112-0	-903-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 130H	Clutch only	6-131-100-101-0	D-4008
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 230H	Clutch only	6-131-200-307-0	-903-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	
STV 330H	Clutch only	6-131-300-303-0	-904-9
	Clutch w/ QCDA	—	
	Clutch w/ SDA	—	

Note: QCDA - Quick Change Driving Adapter. A favorite of OEMs for the extra clearance gap between the clutch and Quick Change Driving Adapter, making the clutch maintenance less time consuming. SDA - Standard Driving Adapter. A close couple design where clutch maintenance is not of prime importance.

Coupling and Grinding Mill Clutch Selection

Specifications

Model Size ATD-	Clutch Mounting Options	Assembly Number	Model Size ATD-	Clutch Mounting Options	Assembly Number
STV 430H	Clutch only	—	STV 248	Clutch only	6-148-200-100-0
	Clutch w/ QCDA	—		Clutch w/ QCDA	—
	Clutch w/ SDA	—			
STV 236	Clutch only	6-136-200-107-0	STV 348	Clutch only	6-148-300-100-0
	Clutch w/ QCDA	—		Clutch w/ QCDA	—
	Clutch w/ SDA	—			
STV 336	Clutch only	6-136-300-109-0	STV 448	Clutch only	—
	Clutch w/ QCDA	—		Clutch w/ QCDA	—
	Clutch w/ SDA	—			
STV 336H	Clutch only	6-137-300-300-0	STV 260	Clutch only	6-160-200-307-0
	Clutch w/ QCDA	6-137-300-301-0		Clutch w/ QCDA	—
	Clutch w/ SDA	—			
STV 242	Clutch only	6-142-200-301-0	STV 360	Clutch only	6-160-300-304-0
		—		Clutch w/ QCDA	—
	Clutch w/ SDA	—			
STV 342	Clutch only	6-142-300-300-0	STV 460	Clutch only	—
	Clutch w/ QCDA	—		Clutch w/ QCDA	6-160-430-301-0
	Clutch w/ SDA	—			
STV 442	Clutch only	—	STV 560	Clutch only	—
	Clutch w/ QCDA	—		Clutch w/ QCDA	6-160-582-300-0
	Clutch w/ SDA	—			

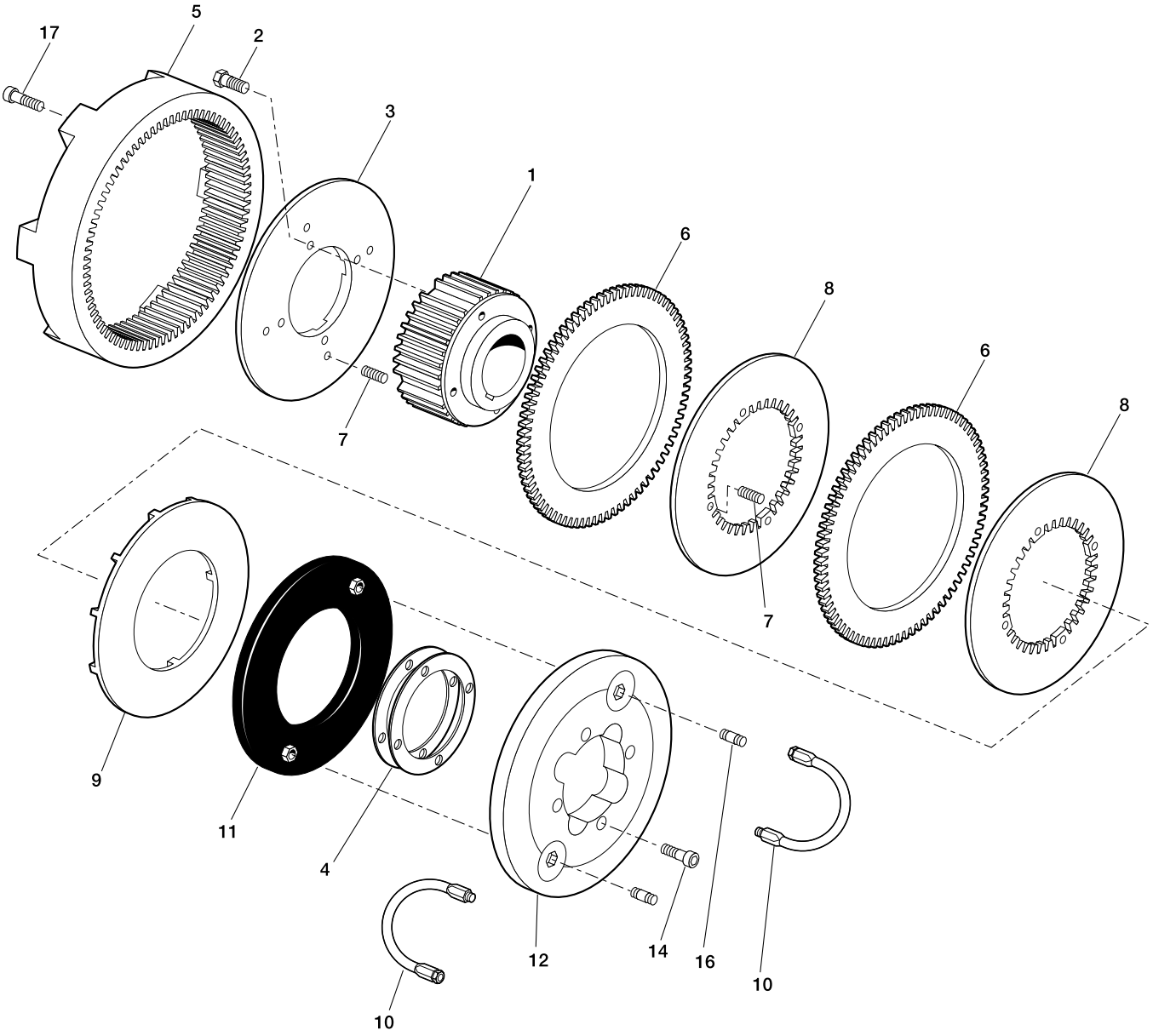
Note: QCDA - Quick Change Driving Adapter. A favorite of OEMs for the extra clearance gap between the clutch and Quick Change Driving Adapter, making the clutch maintenance less time consuming. SDA - Standard Driving Adapter. A close couple design where ease of clutch maintenance is not of prime importance.

E

Standard Vent Clutches

Coupling and Grinding Mill Clutch Selection

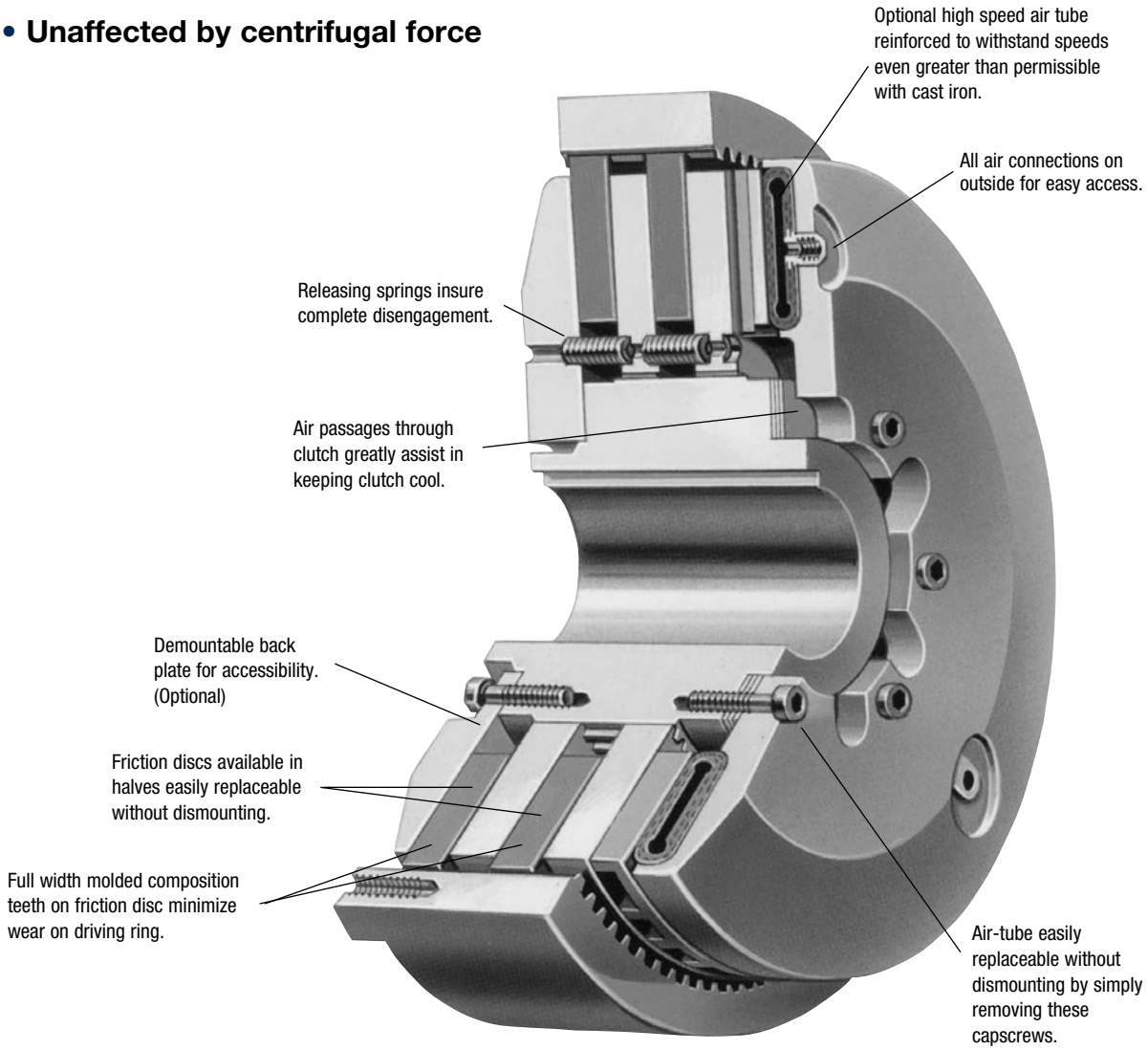
Component Parts



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.

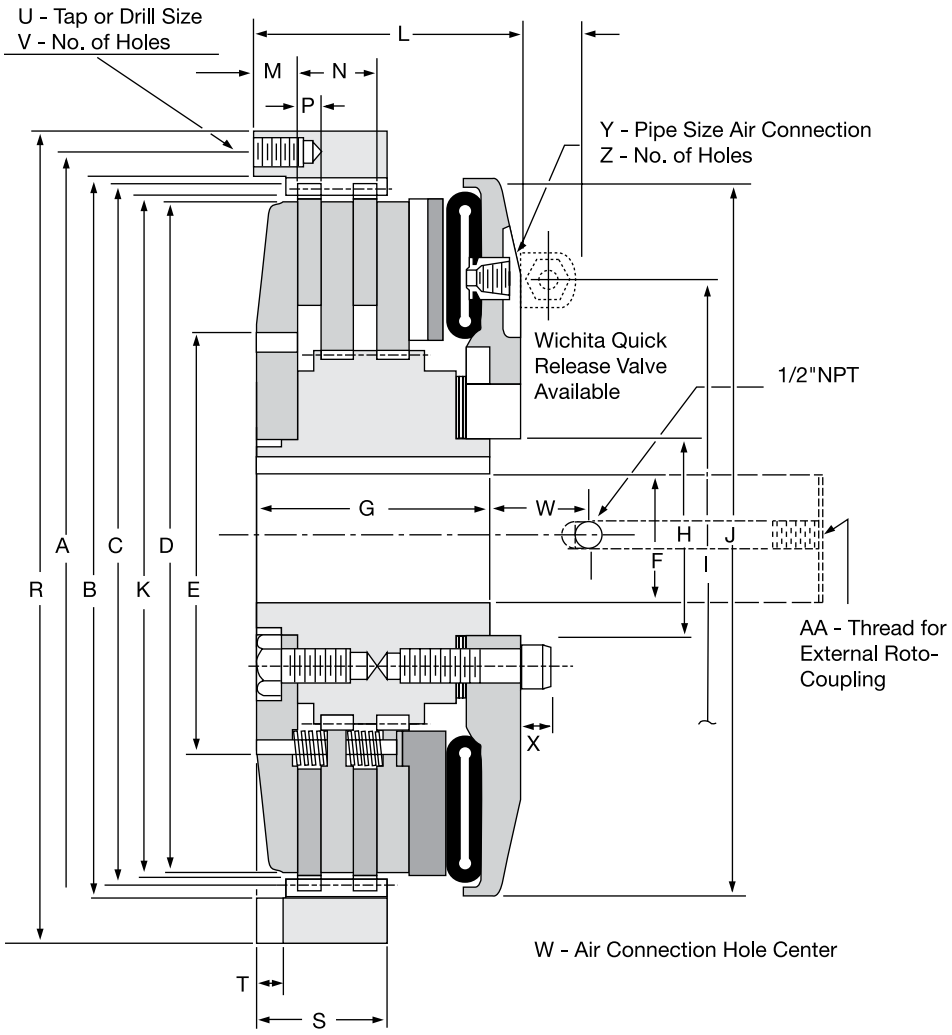
The Wichita air-tube disc design combines all the best features of a disc type clutch with all the advantages of direct air engagement. It is the simplest and most trouble-free method of applying air pressure yet designed.

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.

E

Standard Vent Clutches

Coupling Clutches



Notes:

1. Air Hose Kits, page 141.
2. Quick Release Valves, page 144.
3. Roto-couplings, page 144.

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

Dimensions: inches (Consult factory for drawing before final layout.)

Model Size ATD–	A	+.003" -.000" B	C	D	E	Max Bore Rect. Key F	G	H	I	J
108 STVC	9.625	8.873	8.50	8	8	1.93	2.75	1.938	6.625	9.625
208 STVC	9.625	8.873	8.50	8	8	1.93	4.125	1.938	6.625	9.625
308 STVC	9.625	8.873	8.50	8	8	1.93	5.50	1.938	6.625	9.625
111 STVC	13.375	12.375	12	11	11	3.00	3	3	8.50	11.938
211 STVC	13.375	12.375	12	11	11	3.00	4.25	3	8.50	11.938
311 STVC	13.375	12.375	12	11	11	3.00	5.563	3	8.50	11.938
114H STVC	16.25	15.125	14.67	14	9.375	3.38	4.313	4.50	12.50	16.313
214H STVC	16.25	15.125	14.67	14	9.375	3.38	5.75	4.50	12.50	16.313
314H STVC	16.25	15.125	14.67	14	9.375	3.38	7.188	4.50	12.50	16.313
118 STVC	20.75	19.500	18.75	18	11.50	4.00	4.75	5.25	14	19.375
218 STVC	20.75	19.500	18.75	18	11.50	4.00	6.25	5.25	14	19.375
118H STVC	20.75	19.500	18.75	18	11.50	4.00	4.75	5.25	16	21.625
218H STVC	20.75	19.500	18.75	18	11.50	4.00	6.25	5.25	16	21.625
318H STVC	20.75	19.500	18.75	18	11.50	4.00	7.75	5.25	16	21.625
321 STVC	23.75	22.500	21.75	21	14	5.38	9.125	7	16	21.625
124H STVC	26.75	25.500	24.75	24	16	5.38	5.875	7	21	27
224H STVC	26.75	25.500	24.75	24	16	5.38	7.25	7	21	27
324H STVC	26.75	25.500	24.75	24	16	5.38	9.375	7	21	27
327 STVC	29.75	28.500	27.75	27	19.50	7.00	9.75	9	21	27
230H STVC	32.75	31.500	30.75	30	22.50	7.00	8.50	9	24.75	32.375
330H STVC	32.75	31.500	30.75	30	22.50	7.00	11.50	9	24.75	32.375
336H STVC	39.75	38.500	37.50	36	28	8.00	12.625	13.50	30.50	38.25
342 STVC	47.25	45.000	44	42	42	10.00	11.875	21	35	44.125
248 STVC	54	52.000	51	48	35	12.00	10.875	21	40	52.375
348 STVC	54	52.000	51	48	35	12.00	13.625	21	40	52.375
260 STVC	64.75	62.750	62	60	36.125	14.00	16.25	22.625	46.50	61.50
360 STVC	64.75	62.750	62	60	36.125	14.00	20	22.625	46.50	61.50
460 STVC	64.75	62.750	62	60	36.125	14.00	23.50	22.625	46.50	61.50

Model Size ATD–	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
108 STVC	8.247	4	.75	—	.438	10.375	1.375	.50	1/2 NC	6	2.25	.50	1/2	2
208 STVC	8.247	5.313	.75	1.75	.438	10.375	2.625	.50	1/2 NC	6	2.25	.50	1/2	2
308 STVC	8.247	6.625	.75	3.063	.438	10.375	3.875	.50	1/2 NC	6	2.25	.50	1/2	2
111 STVC	11.763	4.125	.875	—	.50	14.375	1.50	.50	5/8 NC	8	2.50	.438	1/2	2
211 STVC	11.763	5.25	.875	1.75	.50	14.375	2.875	.50	5/8 NC	8	2.50	.438	1/2	2
311 STVC	11.763	6.75	.875	3	.50	14.375	4.25	.50	5/8 NC	8	2.50	.438	1/2	2
114H STVC	14.451	5.125	1.125	—	.625	17.50	1.875	.625	5/8 NC	6	2.25	.75	1/2	2
214H STVC	14.451	6.50	1.125	2	.625	17.50	3.25	.75	5/8 NC	6	2.25	.75	1/2	2
314H STVC	14.451	8	1.125	3.375	.625	17.50	4.75	.75	5/8 NC	6	2.25	.75	1/2	2
118 STVC	18.375	5.625	1.313	—	.625	22	1.938	.75	5/8 NC	6	2.438	1	1/2	3
218 STVC	18.375	7.125	1.313	2.125	.625	22	3.50	.75	5/8 NC	6	2.438	1	1/2	3
118H STVC	18.375	5.625	1.313	—	.625	22	1.938	.75	5/8 NC	6	2.438	1	1/2	3
218H STVC	18.375	7.25	1.313	2.125	.625	22	3.50	.75	5/8 NC	6	2.438	1	1/2	3
318H STVC	18.375	8.688	1.313	3.75	.625	22	5.125	.75	5/8 NC	6	2.438	1	1/2	3
321 STVC	21.350	10.125	1.625	4.25	.75	25	6.125	1	5/8 NC	6	2.375	1	1/2	3
124H STVC	24.312	6.563	1.625	—	.875	28	2.813	.75	5/8 NC	6	2.75	1	1/2	3
224H STVC	24.312	8.625	1.625	2.75	.875	28	4.50	.75	5/8 NC	6	2.75	1	1/2	3
324H STVC	24.312	10.563	1.625	4.625	.875	28	6.25	.75	5/8 NC	6	2.75	1	1/2	3
327 STVC	27.361	10.75	1.625	4.625	.875	31	6.50	1.375	5/8 NC	12	2.375	1	1/2	3
230H STVC	30.361	10.125	1.625	3.75	1.25	34	5.625	1.125	5/8 NC	12	2.875	1	1/2	4
330H STVC	30.361	12.75	1.625	6.25	1.25	34	8.125	1.125	5/8 NC	12	2.875	1	1/2	4
336H STVC	37.159	14.375	1.938	7.125	1.375	41	9	1.50	5/8 NC	16	2.875	1	1/2	4
342 STVC	43.627	14	2	7.375	1.375	49.25	9.625	1.75	1" NC	12	3.50	1.25	1/2	4
248 STVC	50.815	13.75	2.625	4.125	1.375	56	7.125	2	1" NC	12	3.50	1.25	1/2	4
348 STVC	50.815	15.75	2.625	6.875	1.375	56	9.875	2	1" NC	12	3.50	1.25	1/2	4
260 STVC	61.700	16.25	3	5.50	3	66.75	9	2.50	1" NC	24	2	2	1/2	6
360 STVC	61.700	20	3	9	3	66.75	13	2.50	1" NC	24	2	2	1/2	6
460 STVC	61.700	23.375	3	12.50	3	66.75	16.50	2.50	1" NC	24	2	2	1/2	6

Standard Vent Clutches

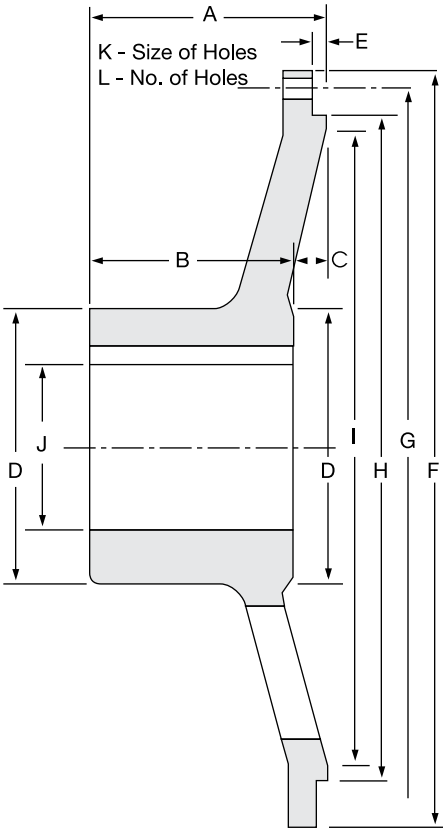
Coupling Clutches

Standard Driving Adapters

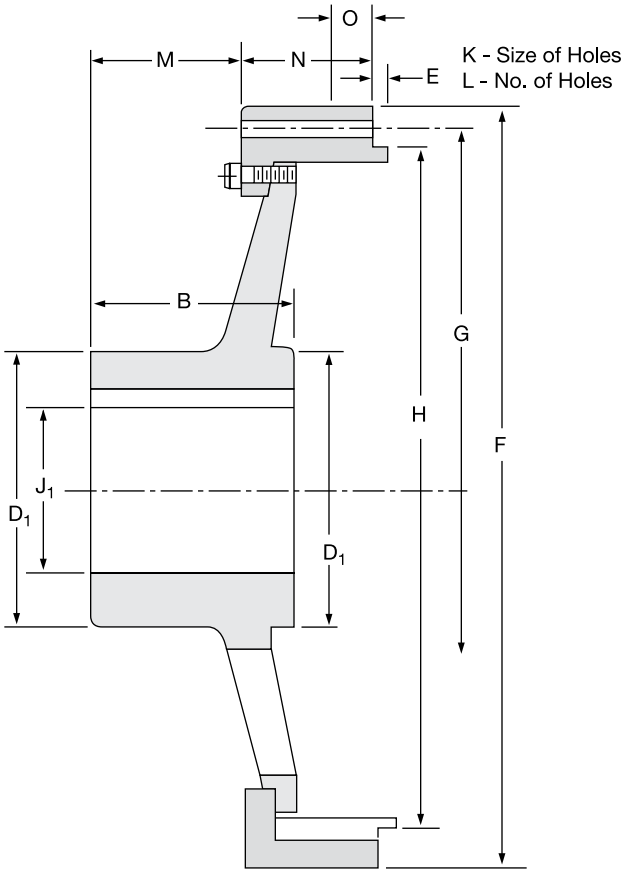
The driving adapter is designed to allow the clutch to be used in a shaft-to-shaft or through-shaft coupling arrangement.

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)

Dimensions: inches

Size	A	B	C	D	D_1	E	F	G	+.003" -.000" H
8	3.125	3	.125	3.75	—	.125	10.375	9.625	8.869
11	3.625	3.25	.375	6.25	5	.125	14.375	13.375	12.371
14H	5.375	4.75	.625	7	6.25	.25	17.50	16.25	15.121
18	6.875	5.75	1.125	8	8	.375	22	20.75	19.496
18H	6.875	5.75	1.125	8	8	.375	22	20.75	19.496
21	6.75	6	.75	9.50	9	.25	25	23.75	22.496
24H	8.375	7.313	1.063	10	12	.25	28	26.75	25.495
27	8.75	7.75	1	11	11.50	.25	31	29.75	28.495
30H	9.25	8.75	.50	14	14	.25	34	32.75	31.495
36	10.50	10	.50	15	14	.25	41	39.75	38.495
42	11	10	1	15	15	.25	49.25	47.25	44.995
48	—	13.625	—	—	20	.50	56	54	52.000
60	—	16.25	—	24	—	.375	66.75	64.75	62.750

Size	I	Max. Bore Rect. Key J	J_1	K	L	M	N	O
8	8.375	2.50	—	.531	6	1.875	*	—
11	11.75	4.13	3.375	.656	8	2	2.50	—
14H	14.50	4.75	4.125	.656	6	2.125	3.125	—
18	18.50	5.25	5.25	.688	6	4.375	3.50	—
18H	18.50	5.25	5.25	.688	6	4.375	3.50	—
21	21.75	6.25	6	.688	6	4	6.25	—
24H	24.50	6.63	6.625	.688	6	5.188	5.50	—
27	27.75	7.25	7.625	.688	12	5.563	4.625	—
30H	30.50	9.25	9.25	.688	12	6.50	5.75	—
36	37.50	10.00	9.25	.688	16	7.875	4.125	—
42	44	10.00	10	1.031	12	7.438	5.688	—
48	—	—	15	1.031	12	10.125	6.125	—
60	—	18.00	—	1.031	24	12.25	11.50	2.50

* Consult Factory

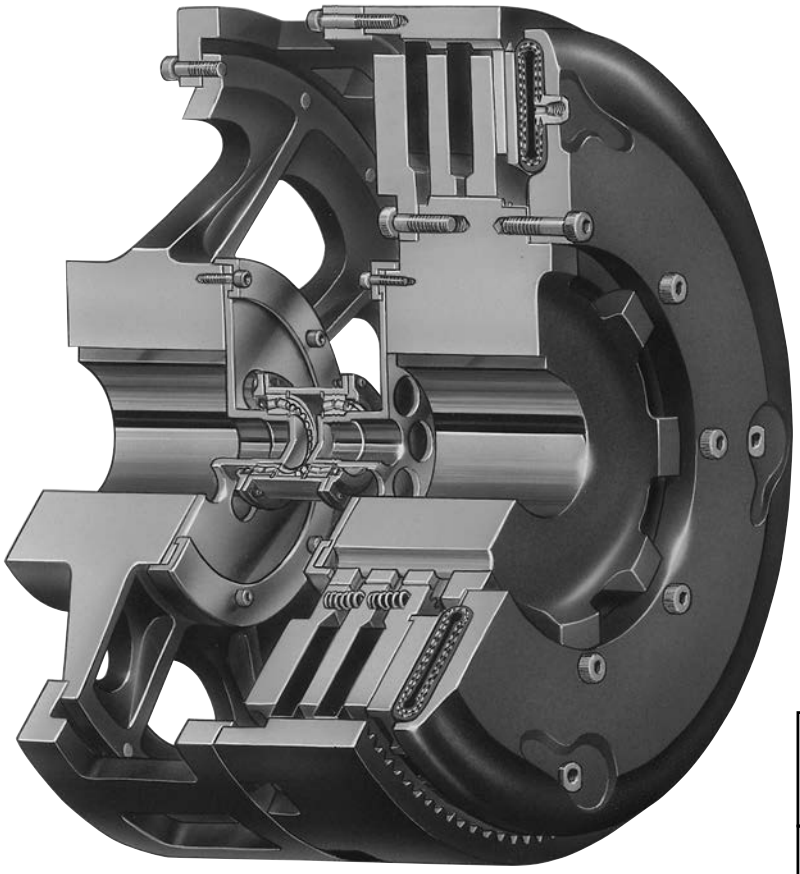
Note: For mounting, use socket head capscrews conforming to the ASTM-574-97a.

E

Standard Vent Clutches

Grinding Mill Clutches

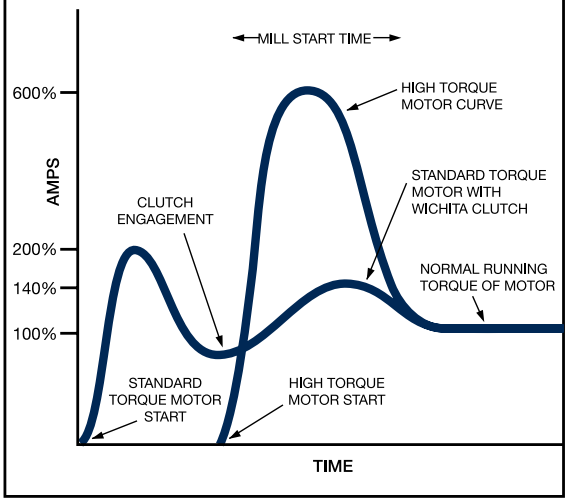
- **Designed for heavy duty applications**
- **Quick, smooth starting**
- **High heat dissipation for jogging and inching**



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
- New high coefficient, high energy absorbing friction material standard for grinding mill applications

Standard Torque Motor with Wichita Clutch vs. High Torque Motor



Grinding Mill Clutches

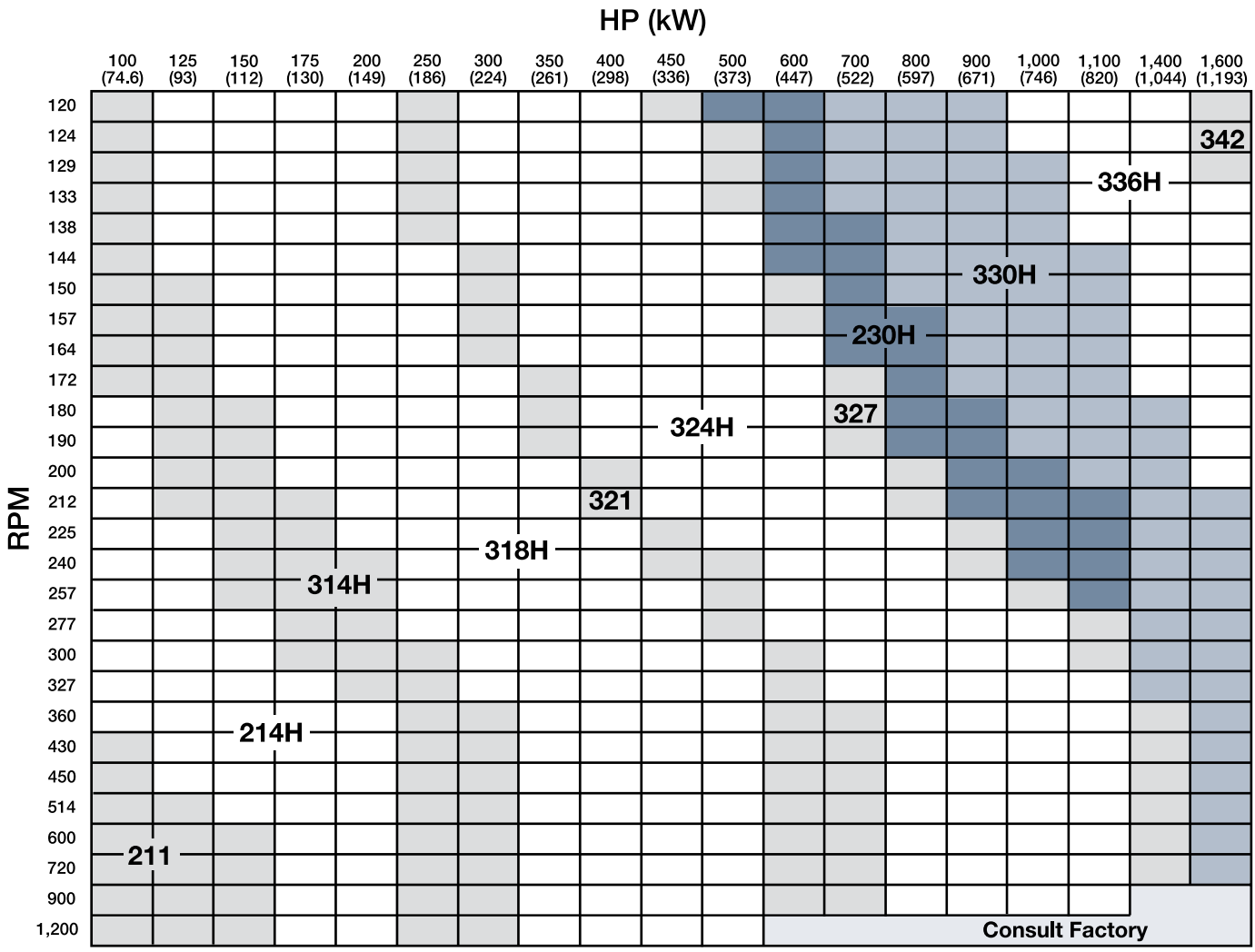
Specifications

Technical						Capacity				
Model Size ATD–	Air Supply	Total Weight lb.	Total WR^2 $lb.ft.^2$	Driving Adapter Ring & Disc Wt.	Driving Adapter Ring & Disc WR^2	Diameter Friction Disc-in.	Max. Speed (RPM) For 6000 FPM @ Fric Disc O.D.	HP per 100 RPM	Lining Area $in.^2$	Rated Torq. in.lbs. 100 PSI
211-X GMC	5/8"-18	130	24	57	16	11	2,100	18	228	42,294
214H-X GMC	5/8"-18	333	111	152	58	14	1,640	40	336	95,228
314H-X GMC	5/8"-18	385	132	190	75	14	1,640	60	504	142,842
318H-X GMC	1"-14	727	333	356	220	18	1,275	120	792	299,250
321-X GMC	1"-14	980	663	500	280	21	1,100	150	1,086	349,790
324H-X GMC	1"-14	1,350	970	590	600	24	950	270	1,722	613,130
327-X GMC	1"-14	1,580	1,130	675	540	27	850	300	2,190	688,275
230H-X GMC	1"-14	2,126	2,046	1,036	1,150	30	760	380	1,664	869,820
330H-X GMC	1"-14	2,600	2,100	1,125	1,250	30	760	570	2,496	1,304,730
430H-X GMC	1"-14	3,578	2,980	1,497	1,148	30	760	760	3,328	1,739,640
336H-X GMC	1"-14	3,550	4,650	1,510	2,215	36	640	885	3,450	2,134,650
342-X GMC	1-1/2"-12	4,815	10,505	2,315	6,130	42	540	1,275	4,212	2,898,070
248-X GMC	1-1/2"-12	6,580	16,275	2,825	9,523	48	475	1,600	4,020	3,730,650
348-X GMC	1-1/2"-12	7,540	18,470	3,274	9,700	48	475	2,400	6,030	5,595,975
448-X GMC	1-1/2"-12					48	475	3,200	8,040	7,461,300
260-X GMC	1-1/2"-12	10,600	37,300	5,750	23,600	60	380	3,470	7,240	7,913,500
360-X GMC	1-1/2"-12	13,390	47,850	5,900	27,550	60	380	5,200	10,850	11,870,250
460-X GMC	1-1/2"-12	16,860	57,705	7,500	33,238	60	380	6,940	14,480	15,827,000
560-X GMC	1-1/2"-12	20,050	78,642	8,300	28,512	60	380	8,675	18,100	19,783,750
372-X GMC	1-1/2"-12					72	300	7,758	14,460	18,573,450
472-X GMC	1-1/2"-12					72	300	10,344	19,280	24,764,600
572-X GMC	1-1/2"-12					72	300	12,930	24,100	30,955,750

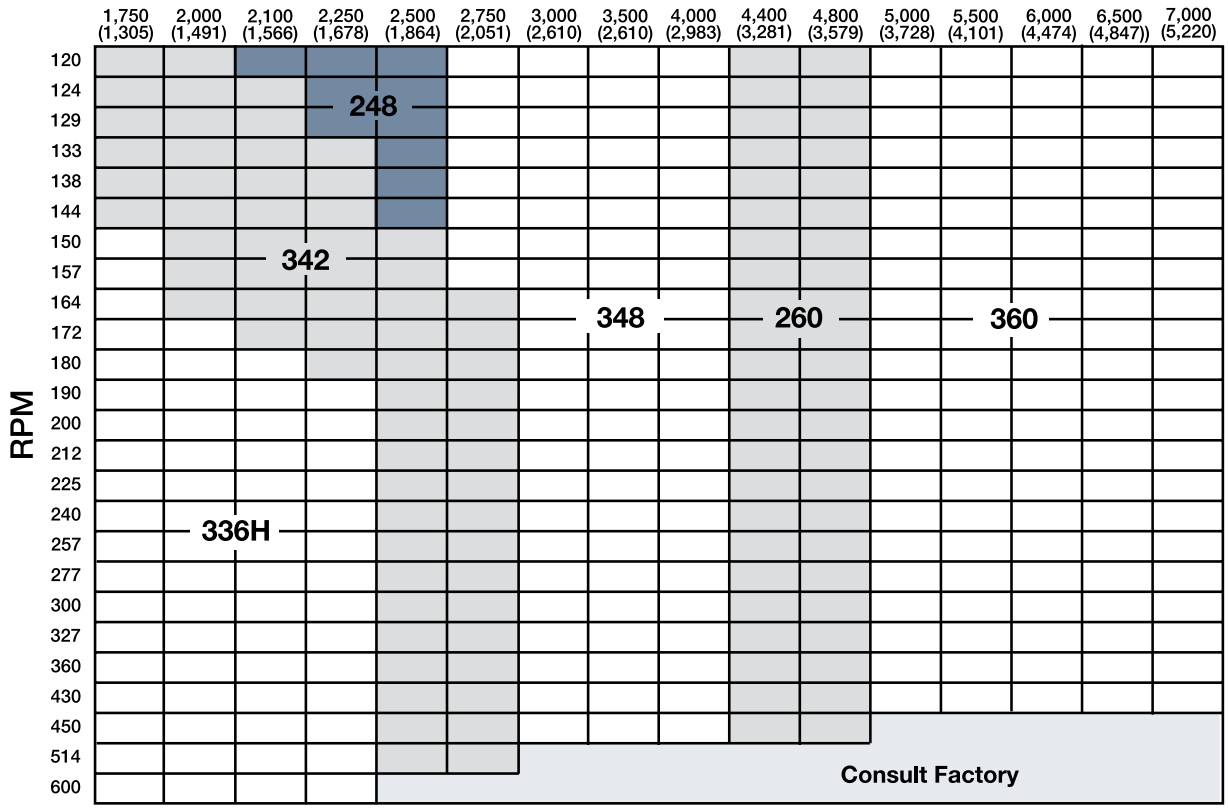
E

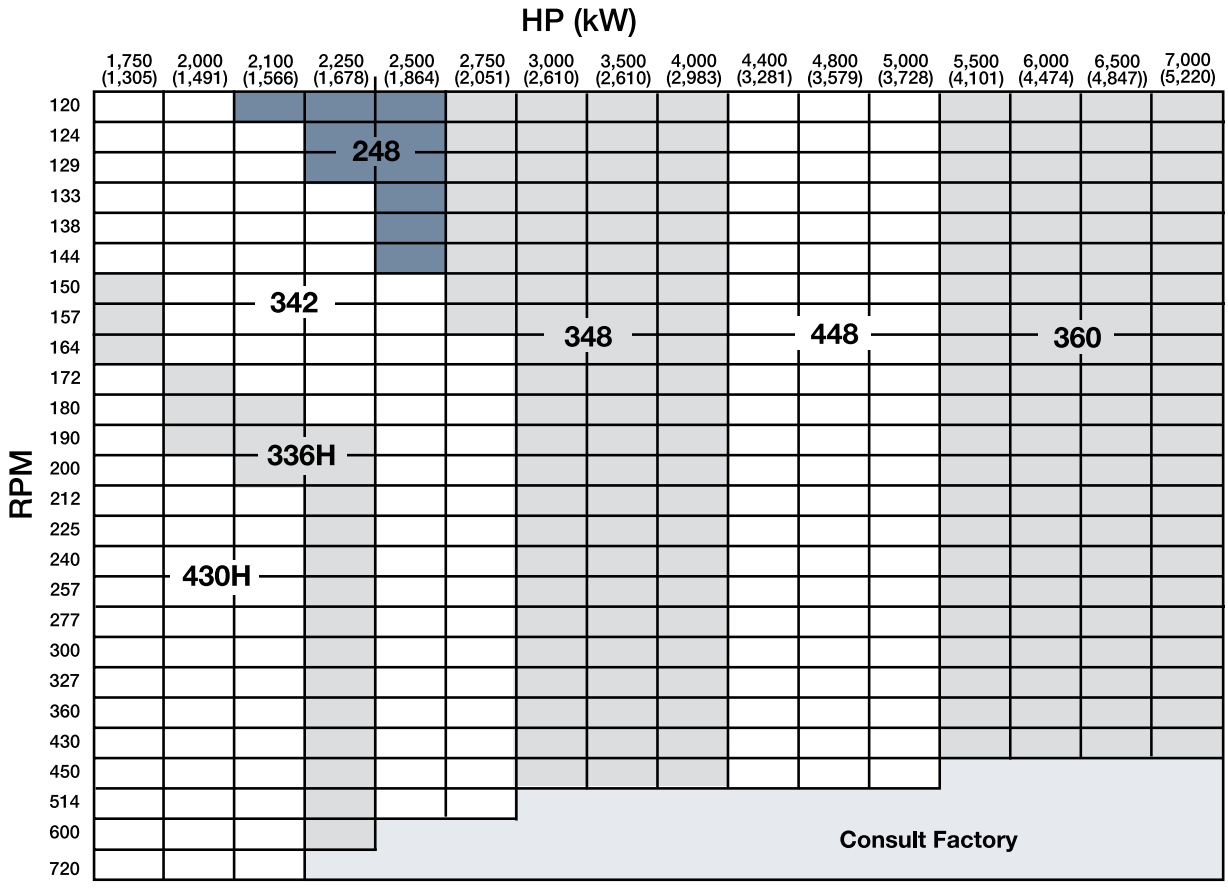
Standard Vent Clutches

Grinding Mill Quick Selection Chart



Grinding Mill Quick Selection Chart

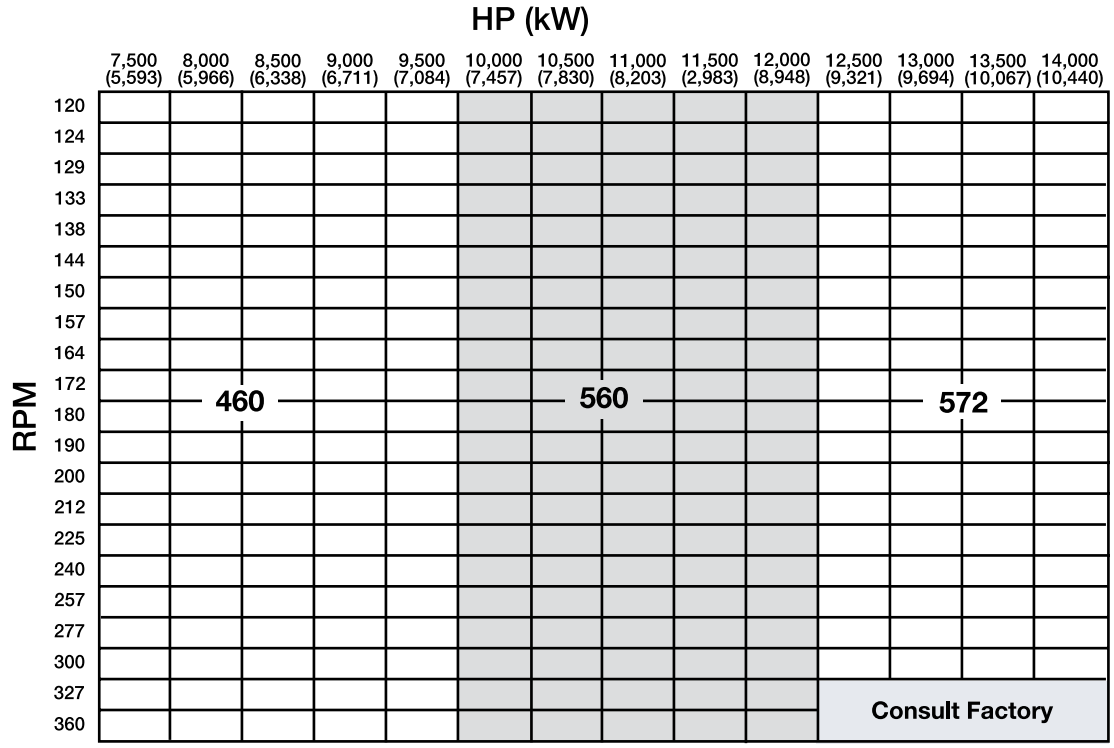


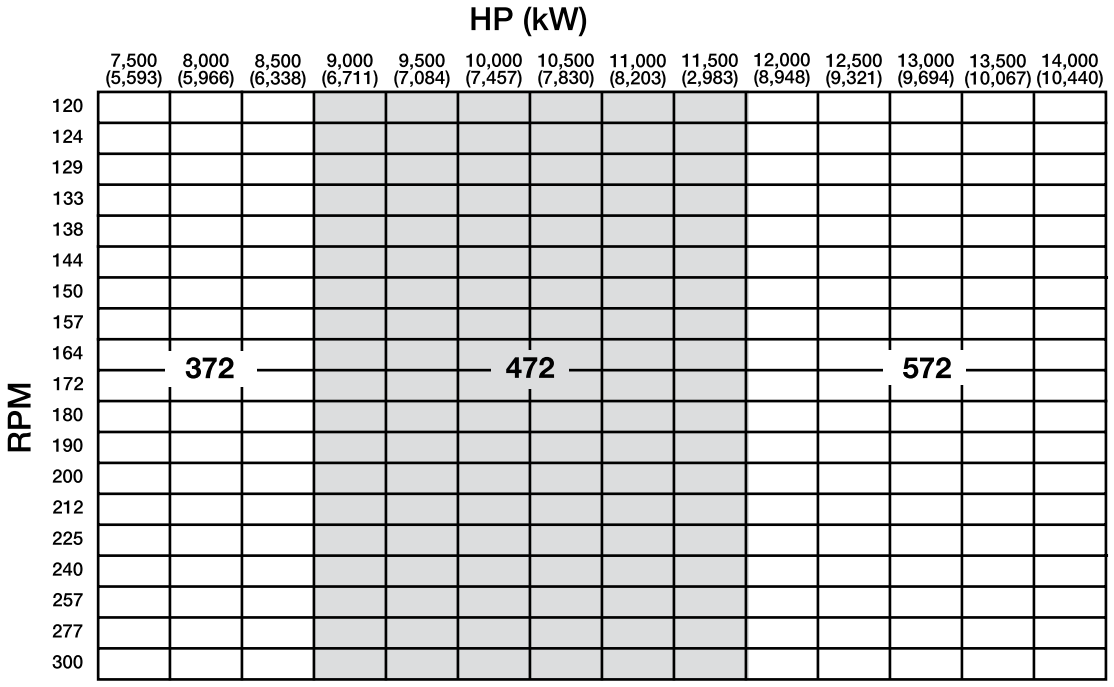


E

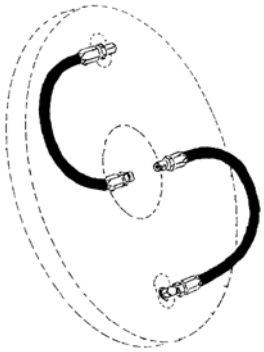
Standard Vent Clutches

Grinding Mill Quick Selection Chart

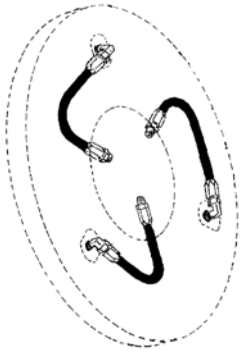




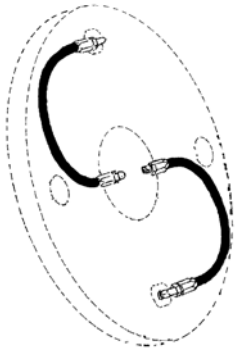
Air Hose Kits



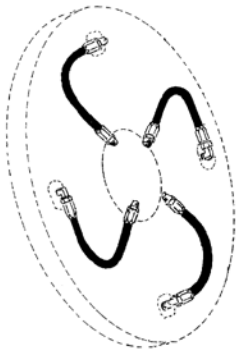
Model	Part Number
8”	8-908-812-200-3 8-908-821-200-4 QRV 8-911-813-200-3 HS
11”	8-911-812-200-4 8-911-821-200-5 QRV 8-911-813-200-3 HS
14”	8-914-812-201-5 8-914-821-202-5 QRV 8-914-813-204-3 HS



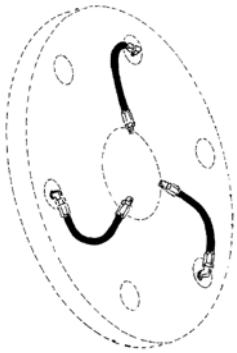
Model	Part Number
18”	8-918-812-301-5 8-918-821-300-5 QRV 8-918-815-301-3 HS
21”/18H	8-921-812-301-5 8-921-821-302-5 QRV 8-921-812-300-5 HS
24”	8-924-812-300-5 8-924-821-302-5 QRV
27”/24H	8-927-812-300-5 8-927-821-301-5 QRV 8-927-812-302-5 HS



Model	Part Number
30”	8-930-815-201-5
30”H	8-931-821-200-5 QRV 8-931-812-200-5 HS
36”	8-936-815-200-5 8-936-821-200-5 QRV 8-936-815-201-5 HS
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

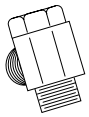


Model	Part Number
60”	8-960-812-300-5 8-960-834-300-5 QRV

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

Optional Quick Release Valves can replace elbows on most units (see page 144).

Roto-couplings (see page 144).



1 Spud Hose Kits

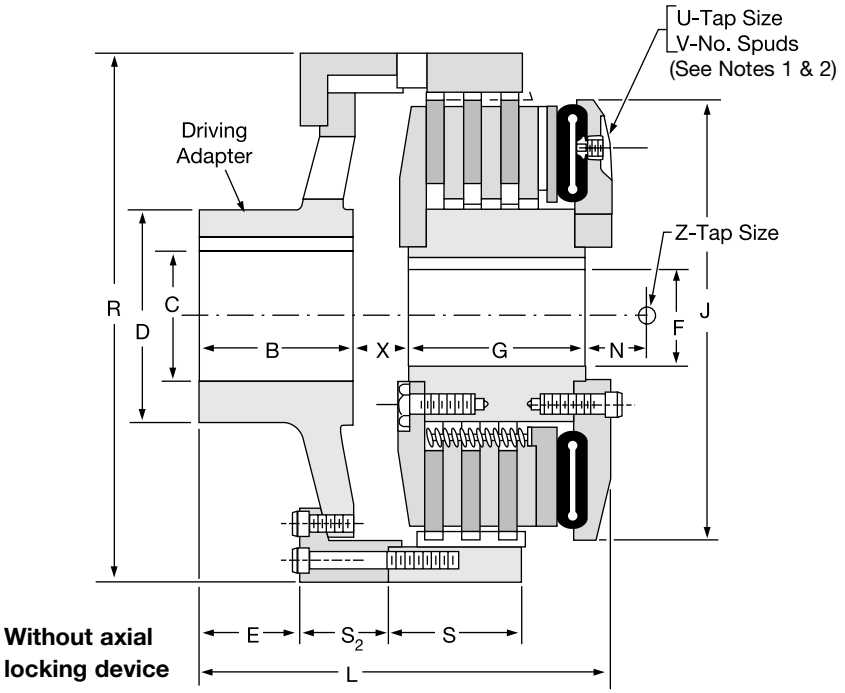
Model	Part Number
18” 21”	8-918-815-101-3 HS 8-921-815-101-3 HS

Standard Vent Clutches

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.



Dimensions: inches (Consult factory for drawing before final layout.)

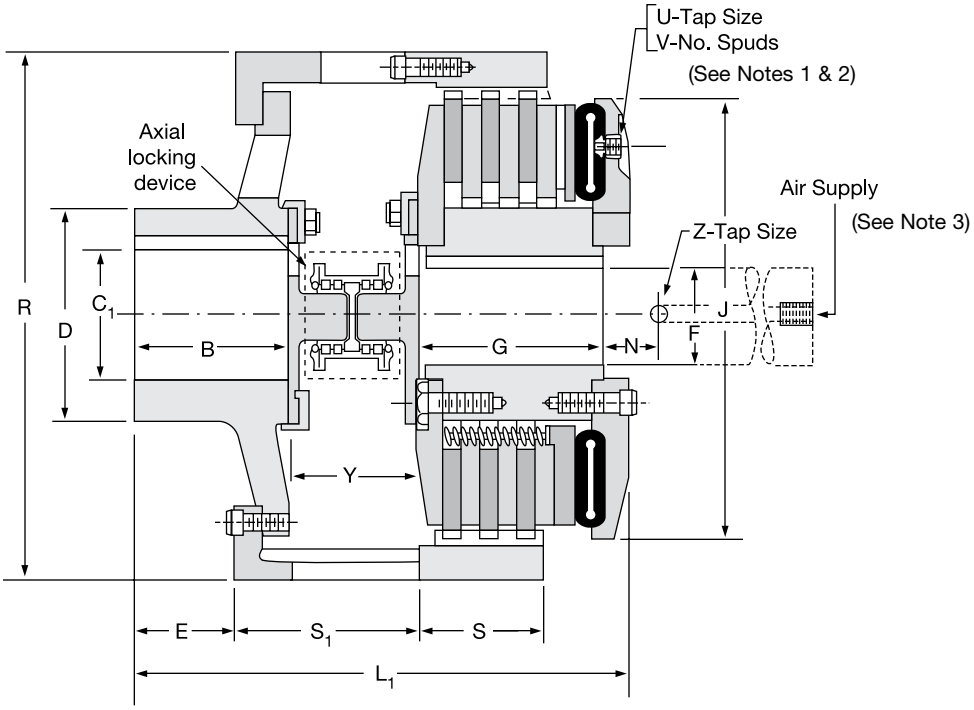
Model Size ATD–	B	C* Max. Bore Rect. Key	C1* Max. Bore Rect. Key	D	E	F* Max. Bore Rect. Key	G	J	L	L_1
211 GMC	3.00	3.00	—	5.00	2.00	3.00	4.25	11.94	10.00	—
214H GMC	3.25	4.13	—	6.25	2.13	3.38	5.75	16.31	11.88	—
314H GMC	3.25	4.13	—	6.25	2.13	3.38	7.18	16.31	13.38	—
318H GMC	6.00	4.00	—	6.00	4.38	4.00	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
560 GMC	20.25	17.00	17.00	30.00	16.25	17.00	27.00	61.50	—	57.20

* Maximum bore uses rectangular key, contact Wichita Engineering.

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

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:

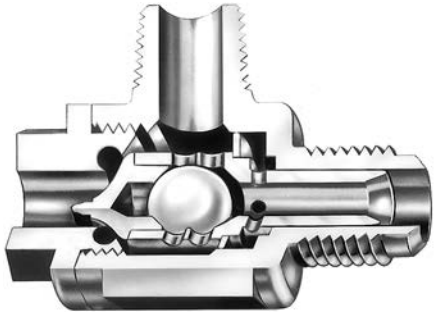
1. Air Hose Kits, page 141.
2. Quick Release Valves, page 144.
3. Roto-couplings, page 144.

Model Size ATD–	N	R	S	S_1	S_2	U tap size	V spuds	X	Y	Z tap size	Air Supply
211 GMC	2.25	13.63	N/A	—	5.38	1/2" NPT	2	1.62	—	1/2" NPT	5/8"-18
214H GMC	2.25	17.50	3.25	—	3.13	1/2" NPT	2	2.13	—	1/2" NPT	5/8"-18
314H GMC	2.25	17.50	4.75	—	3.13	1/2" NPT	2	2.13	—	1/2" NPT	5/8"-18
318H GMC	2.43	22.00	5.88	—	3.50	1/2" NPT	3	3.06	—	1/2" NPT	1"-14
321 GMC	2.38	25.00	6.25	—	6.25	1/2" NPT	3	4.75	—	1/2" NPT	1"-14
324H GMC	2.75	28.00	6.25	—	5.50	1/2" NPT	3	4.50	—	1/2" NPT	1"-14
327 GMC	2.38	31.00	6.50	—	4.63	1/2" NPT	3	3.75	—	1/2" NPT	1"-14
230H GMC	2.75	34.00	5.63	5.75	5.75	1/2" NPT	4	4.25	5.00	1/2" NPT	1"-14
330H GMC	2.88	34.00	8.13	7.43	5.75	1/2" NPT	4	4.25	5.00	1/2" NPT	1"-14
336H GMC	2.88	41.00	9.13	12.13	4.00	1/2" NPT	4	2.50	10.00	1/2" NPT	1"-14
342 GMC	3.50	49.25	9.63	12.69	5.69	1/2" NPT	4	3.50	10.00	1/2" NPT	1-1/2"-12
248 GMC	3.75	56.00	7.38	13.25	6.13	1/2" NPT	4	2.75	10.00	1/2" NPT	1-1/2"-12
348 GMC	3.50	56.00	9.88	13.38	6.13	1/2" NPT	4	2.75	10.00	1/2" NPT	1-1/2"-12
260 GMC	2.00	66.75	9.00	14.00	11.50	1/2" NPT	6	7.50	10.00	1/2" NPT	1-1/2"-12
360 GMC	2.00	66.75	13.00	14.00	11.50	1/2" NPT	6	7.50	10.00	1/2" NPT	1-1/2"-12
460 GMC	2.00	66.75	16.50	14.00	11.50	1/2" NPT	6	7.50	10.00	1/2" NPT	1-1/2"-12
560 GMC	4.0	74.25	20.13	14.60	—	1/2" NPT	6	—	10.00	1/2" NPT	1-1/2"-12

Standard Vent Clutches

Grinding Mill Clutches

Quick Release Valve



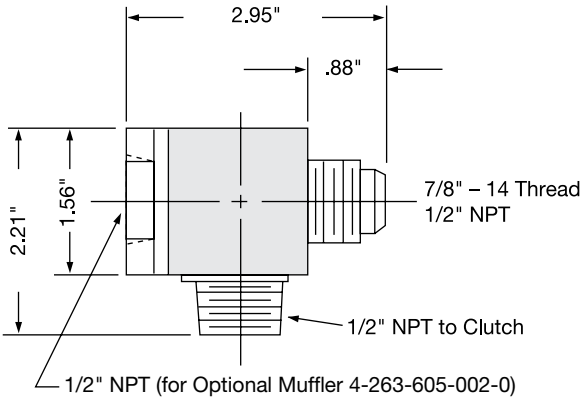
8-263-610-011-1 7/8” – 14 Thread
8-263-610-021-1 1/2” NPT

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.

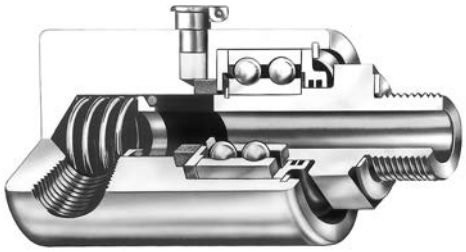
Quality Material

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



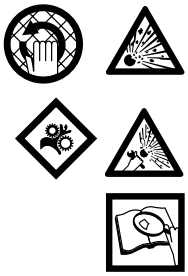
Standard thread arrangement of 1/2” size. 1/2” pipe thread on the tube connection and choice of 1/2” pipe thread, or standard 7/8-14NF thread for flared fitting thread on inlet connection. (Fits standard No. 10 high-pressure hose fitting.)

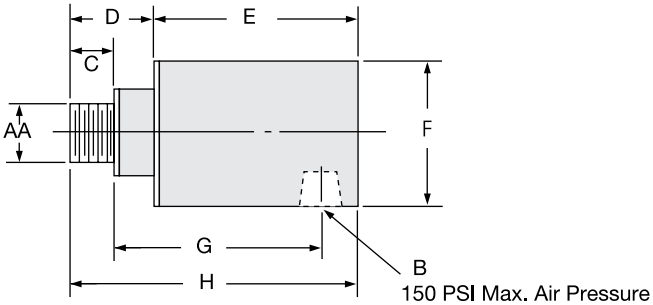
Roto-Couplings



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	3,500
8-240-705-001-1	1”-14 NF	1/2” NPT	.75	1.250	3.188	2.500	3.00	4.438	3,500
8-240-708-001-1	1”-14 NF	3/4” NPT	.75	1.313	4.688	2.875	3.69	5.440	3,500
8-240-710-002-1	1-1/2”-12 NF	1” NPT	1.13	1.937	4.875	3.250	3.44	6.812	2,500
8-240-712-001-1	2”-12 NF	1-1/2” NPT	1.13	2.813	5.250	4.250	5.38	8.062	2,500
8-240-714-001-3	2” NPT	2” NPT	1.50	3.000	7.062	4.625	7.00	10.062	1,000
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