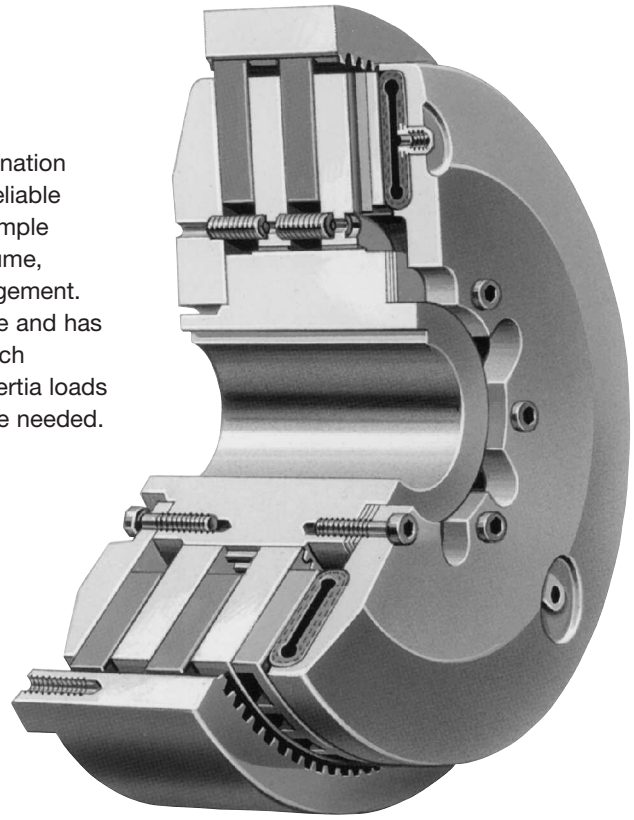


**Coupling Clutches**

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.

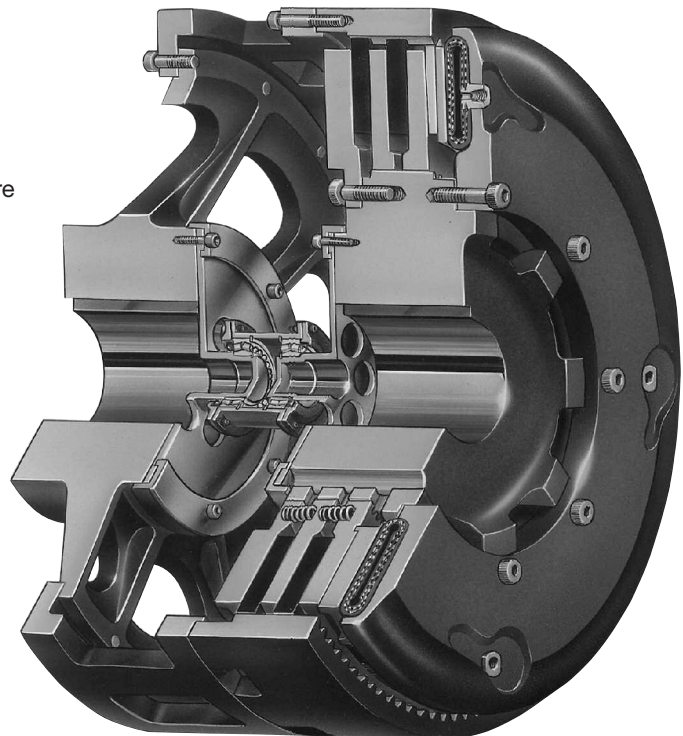
See pages 125 thru 129.



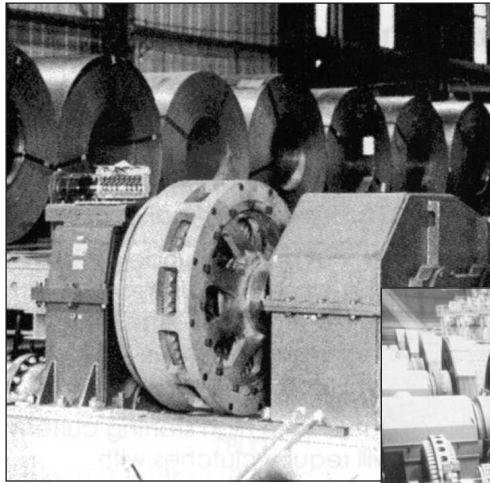
**Grinding Mill Clutches**

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 130 thru 137.



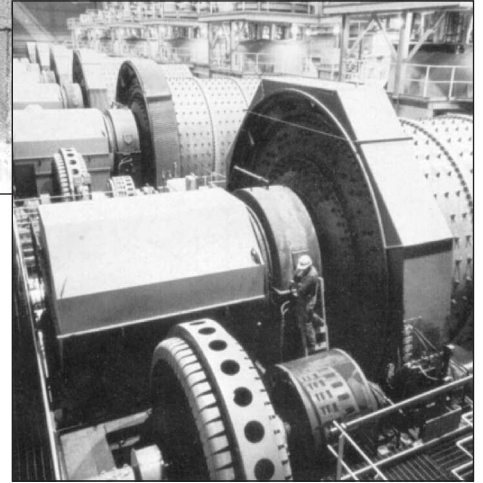
## Typical Applications



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

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

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-g 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 117) 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 120-121).

#### Machine required:

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

WR<sup>2</sup> .....1,000 lb.ft.<sup>2</sup>  
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. <sup>2</sup> | HP in. <sup>2</sup> |
| 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

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

$$\text{Engine torque} = 11,375 \text{ lb.in.}$$

Clutch torque required while slipping:

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

W = Weight to be accelerated lb.

R = Radius of gyration ft.<sup>2</sup>

g = Acceleration of gravity ft./sec.<sup>2</sup>

t<sub>s</sub> = Time of slip, in seconds

T<sub>c</sub> = Clutch torque = 11,707 lb.in.

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

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

$$\begin{aligned} \text{Clutch heat HP} &= \frac{(11,375) (1,800)}{63,000} (1/2) \\ &= 162.5 \text{ HP} \end{aligned}$$

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

$$\text{HP} / \text{in.}^2 = .4$$

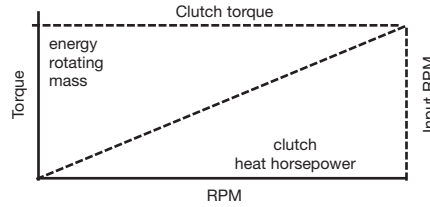
$$\text{Area required} = \frac{162.5}{.4} = 406 \text{ in.}^2$$

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 120-121 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 120-121). Applicable clutches chosen are:  
ATD-218, 528 in.<sup>2</sup>; ATD-124H, 574 in.<sup>2</sup>;  
ATD-314H, 504 in.<sup>2</sup>
2. Determine the application horsepower necessary:  
HP/100 RPM =  $\frac{325}{1,800}$  (100) 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.

$$\begin{aligned} \text{Contact velocity} &= \frac{(\text{clutch size}) (\pi) (1,800)}{12} \\ &= 6,597 \text{ ft./min.} \end{aligned}$$

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.



## Coupling and Grinding Mill Clutch Selection

### Specifications

**Chart C**

| Model Size<br>ATD- | Slip Torque<br>lb.in.<br>at 100 PSI<br>.3 CF | Max. Horsepower<br>Per 100 RPM<br>Duty |        |       |       | Recom-<br>mended<br>Clear-<br>ances<br>Inches | Hi-Spd.<br>Airtube<br>Max.<br>Speed<br>RPM | Total<br>Wt.<br>lb. | Total<br>WR <sup>2</sup><br>lb. ft. <sup>2</sup> | Driving Ring<br>& Friction<br>Disc |                 | Lining<br>Area<br>in. <sup>2</sup> |
|--------------------|--|--|--------|-------|-------|---|--|---------------------|--|------------------------------------|-----------------|------------------------------------|
|                    |  | A                                      | B      | C     | D     |   |  |                     |  | Wt.                                | WR <sup>2</sup> |                                    |
|                    |  | 108 STVC                               | 7,000  | 11.1  | 8     |   |  |                     |  | 4                                  | 2               |                                    |
| 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           | 42,500                                       | 67                                     | 47     | 24    | 12    | 1/16-1/8                                      | 2,200                                      | 189                 | 62   | 41                                 | 23              | 228                                |
| 216 STVC           | 85,000                                       | 134                                    | 94     | 48    | 24    | 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



| Inflation Coefficient<br>Operating Air Pressure |     |        |     |         |      | Exhaust Coefficient<br>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

### Coupling and Grinding Mill Clutch Selection Specifications

| Model Size ATD- | Clutch Mounting Options | Assembly Number | Model Size ATD- | Clutch Mounting Options | Assembly Number |
|-----------------|-------------------------|-----------------|-----------------|-------------------------|-----------------|
| STV 108         | Clutch only             | 6-208-100-110-0 | STV 118H        | Clutch only             | 6-119-100-100-0 |
|                 | Clutch w/ SDA           | 6-208-100-302-0 |                 | Clutch w/ QCDA          | —               |
| STV 208         | Clutch only             | 6-208-200-103-0 | STV 218H        | Clutch w/ SDA           | —               |
|                 | Clutch w/ SDA           | 6-208-200-309-0 |                 | Clutch only             | 6-119-200-100-0 |
| STV 308         | Clutch only             | 6-208-300-101-0 | STV 318H        | Clutch w/ QCDA          | 6-119-304-305-0 |
|                 | Clutch w/ SDA           | 6-208-300-304-0 |                 | Clutch w/ SDA           | 6-119-300-100-0 |
| STV 111         | Clutch only             | 6-211-100-101-0 | STV 121         | Clutch only             | 6-121-100-106-0 |
|                 | Clutch w/ QCDA          | 6-211-100-303-0 |                 | Clutch w/ QCDA          | —               |
| STV 211         | Clutch w/ SDA           | 6-211-100-304-0 | STV 221         | Clutch w/ SDA           | —               |
|                 | Clutch only             | 6-111-200-101-0 |                 | Clutch only             | 6-121-200-143-0 |
| STV 311         | Clutch w/ QCDA          | 6-111-200-311-0 | STV 321         | Clutch w/ QCDA          | —               |
|                 | Clutch w/ SDA           | 6-111-200-312-0 |                 | Clutch w/ SDA           | —               |
| STV 114H        | Clutch only             | 6-111-300-103-0 | STV 124H        | Clutch only             | 6-121-300-120-0 |
|                 | Clutch w/ QCDA          | 6-111-300-303-0 |                 | Clutch w/ QCDA          | —               |
| STV 214H        | Clutch w/ SDA           | 6-111-300-304-0 | STV 224H        | Clutch w/ SDA           | —               |
|                 | Clutch only             | 6-115-180-102-0 |                 | Clutch only             | 6-125-100-110-0 |
| STV 314H        | Clutch w/ QCDA          | 6-115-100-300-0 | STV 324H        | Clutch w/ QCDA          | —               |
|                 | Clutch w/ SDA           | 6-115-100-301-0 |                 | Clutch w/ SDA           | —               |
| STV 116         | Clutch only             | 6-115-280-104-0 | STV 127         | Clutch only             | 6-125-200-129-0 |
|                 | Clutch w/ QCDA          | 6-115-200-300-0 |                 | Clutch w/ QCDA          | —               |
| STV 216         | Clutch w/ SDA           | 6-115-200-301-0 | STV 227         | Clutch w/ SDA           | —               |
|                 | Clutch only             | 6-115-380-100-0 |                 | Clutch only             | 6-127-100-112-0 |
| STV 316         | Clutch w/ QCDA          | —               | STV 327         | Clutch w/ QCDA          | —               |
|                 | Clutch w/ SDA           | —               |                 | Clutch w/ SDA           | —               |
| STV 118         | Clutch only             | 6-116-100-112-0 | STV 130H        | Clutch only             | 6-127-200-130-0 |
|                 | Clutch w/ QCDA          | —               |                 | Clutch w/ QCDA          | 6-127-200-127-0 |
| STV 218         | Clutch w/ SDA           | —               | STV 230H        | Clutch w/ SDA           | —               |
|                 | Clutch only             | 6-116-200-121-0 |                 | Clutch only             | 6-127-300-112-0 |
| STV 318         | Clutch w/ QCDA          | —               | STV 330H        | Clutch w/ QCDA          | —               |
|                 | Clutch w/ SDA           | —               |                 | Clutch w/ SDA           | —               |
| STV 118H        | Clutch only             | 6-118-100-120-0 | STV 130H        | Clutch only             | 6-131-100-101-0 |
|                 | Clutch w/ QCDA          | —               |                 | Clutch w/ QCDA          | —               |
| STV 218H        | Clutch w/ SDA           | —               | STV 230H        | Clutch w/ SDA           | —               |
|                 | Clutch only             | 6-118-200-143-0 |                 | Clutch only             | 6-131-200-307-0 |
| STV 318H        | Clutch w/ QCDA          | —               | STV 330H        | Clutch w/ QCDA          | —               |
|                 | Clutch w/ SDA           | —               |                 | Clutch w/ SDA           | —               |
| STV 108         | Clutch only             | 6-119-300-100-0 | STV 330H        | Clutch only             | 6-131-300-303-0 |
|                 | Clutch w/ QCDA          | —               |                 | Clutch w/ QCDA          | —               |
| STV 208         | Clutch w/ SDA           | —               | STV 330H        | Clutch w/ SDA           | —               |
|                 | Clutch only             | —               |                 | 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.

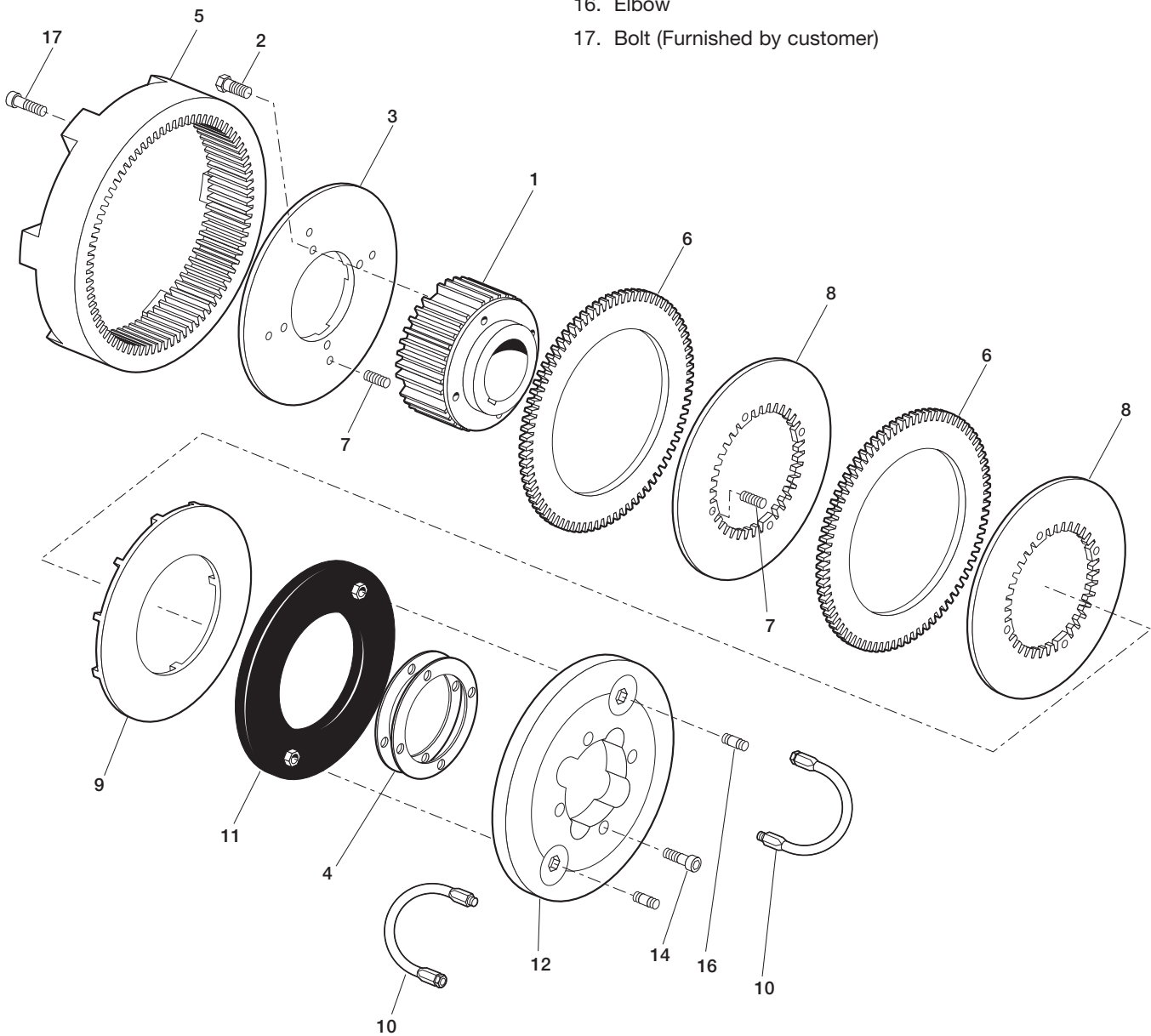
| Model Size ATD- | Clutch Mounting Options | Assembly Number | Model Size ATD- | Clutch Mounting Options | Assembly Number |
|-----------------|-------------------------|-----------------|-----------------|-------------------------|-----------------|
| STV 430H        | Clutch only             | —               | 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           | —               |                 |                         |                 |
|                 | Clutch only             | 6-142-200-301-0 |                 |                         |                 |
| STV 242         | Clutch only             | —               | STV 360         | Clutch only             | 6-160-300-304-0 |
|                 | Clutch w/ SDA           | —               |                 | Clutch w/ QCDA          | —               |
| 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          | 6-160-500-300-  |
|                 | 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.

## Coupling and Grinding Mill Clutches

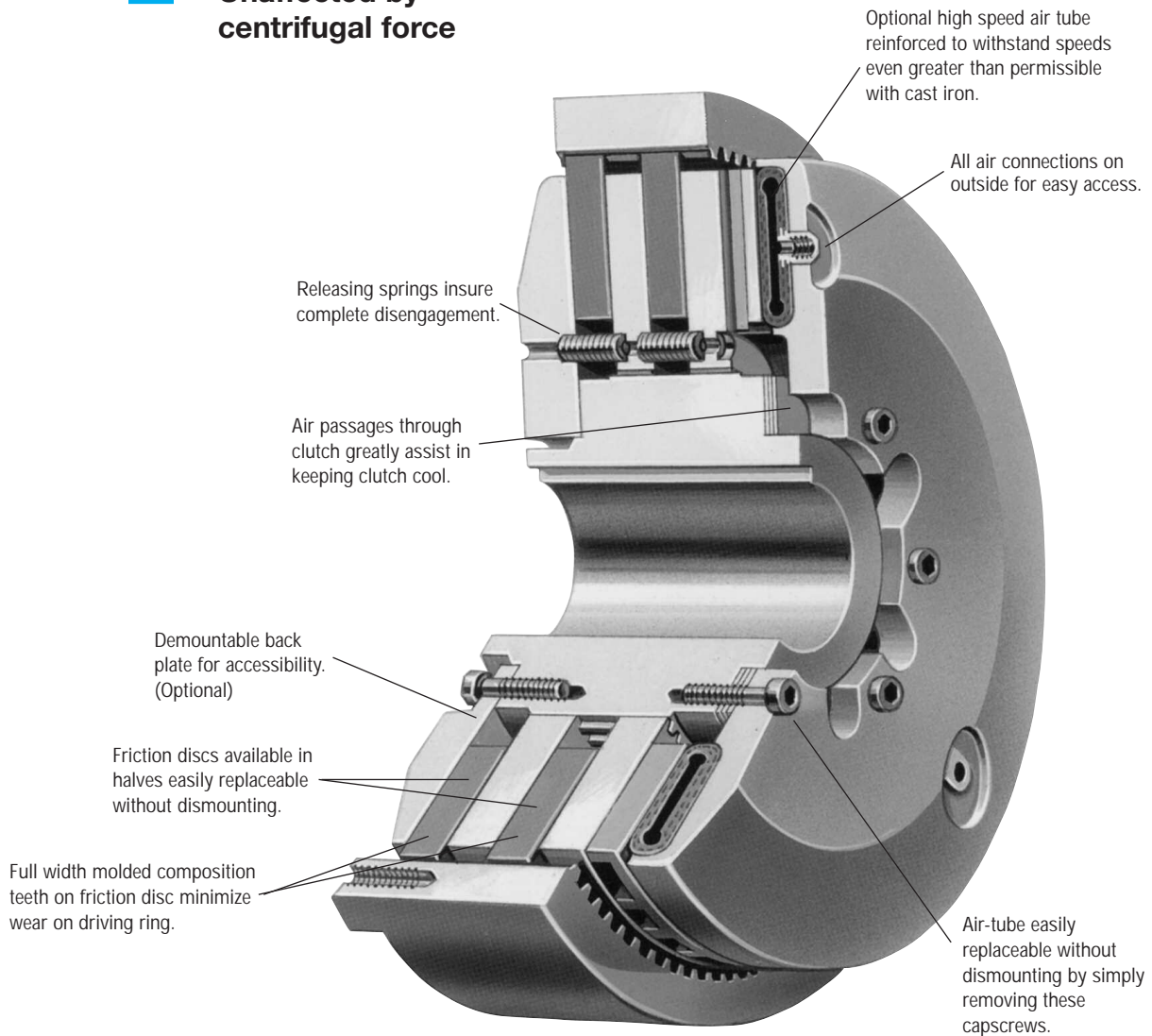
### Component Parts

- |                  |                                  |
|------------------|----------------------------------|
| 1. Hub           | 7. Release Spring                |
| 2. Hex Head Bolt | 8. Center Plate                  |
| 3. Backplate     | 9. Pressure Plate                |
| 4. Shim          | 10. Hose Assembly                |
| 5. Driving Ring  | 11. Air Tube                     |
| 6. Friction Disc | 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**



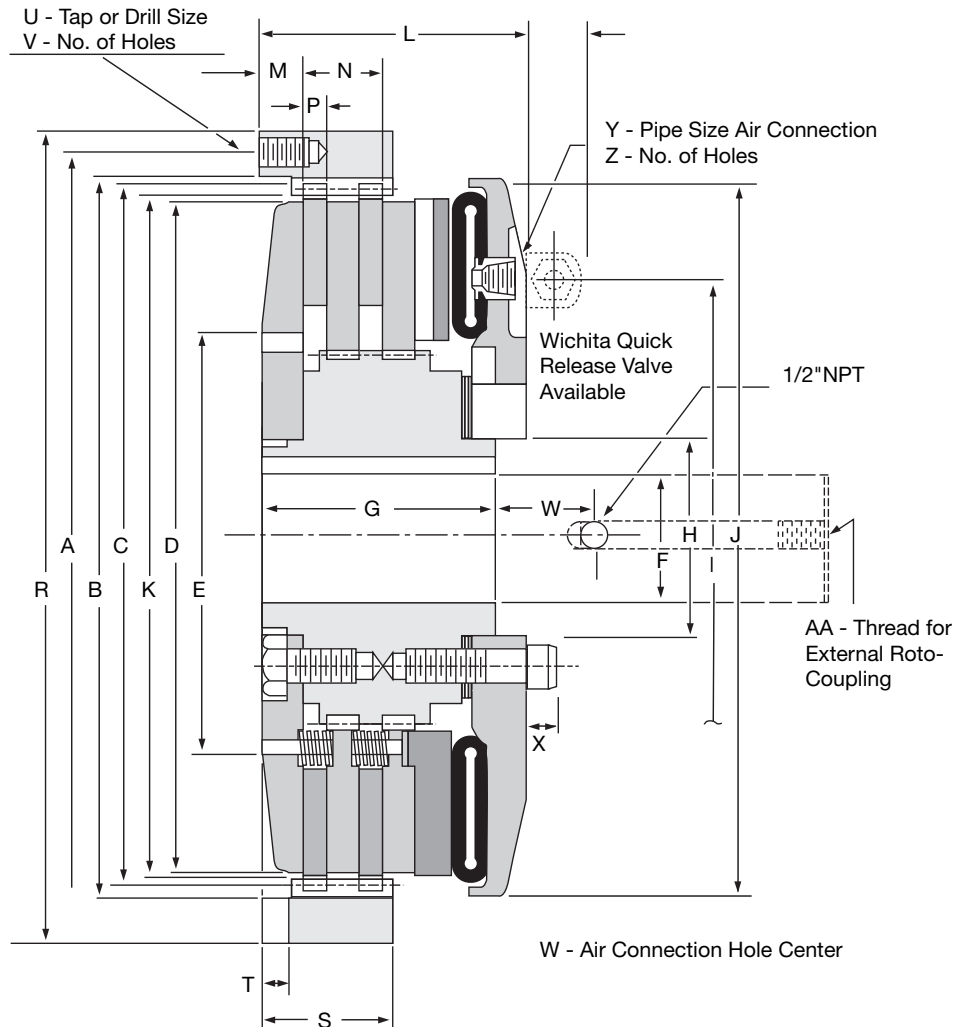
The Wichita Standard Vent Combination Clutch-Coupling is designed for reliable in-line power transmission. The simple air-tube design, with small air volume, speeds engagement and disengagement. It is unaffected by centrifugal force and has no self-energization like drum clutch designs. Ideally suited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

## Coupling Clutches



**Notes:**

1. Air Hose Kits, page 135.
2. Quick Release Valves, page 138.
3. Roto-couplings, page 138.

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

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

| Model<br>Size<br>ATD- | +.003"<br>-.000" |        | Max Bore<br>Rect. Key |    |        |       |        |        |       |        |  |
|-----------------------|------------------|--------|-----------------------|----|--------|-------|--------|--------|-------|--------|--|
|                       | A                | B      | C                     | D  | E      | 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<br>Size<br>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 |

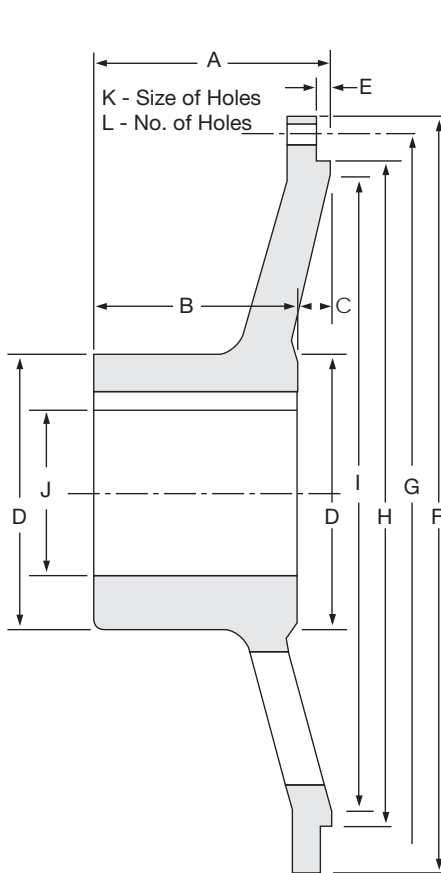
## Coupling Clutches

### Standard Driving Adapters

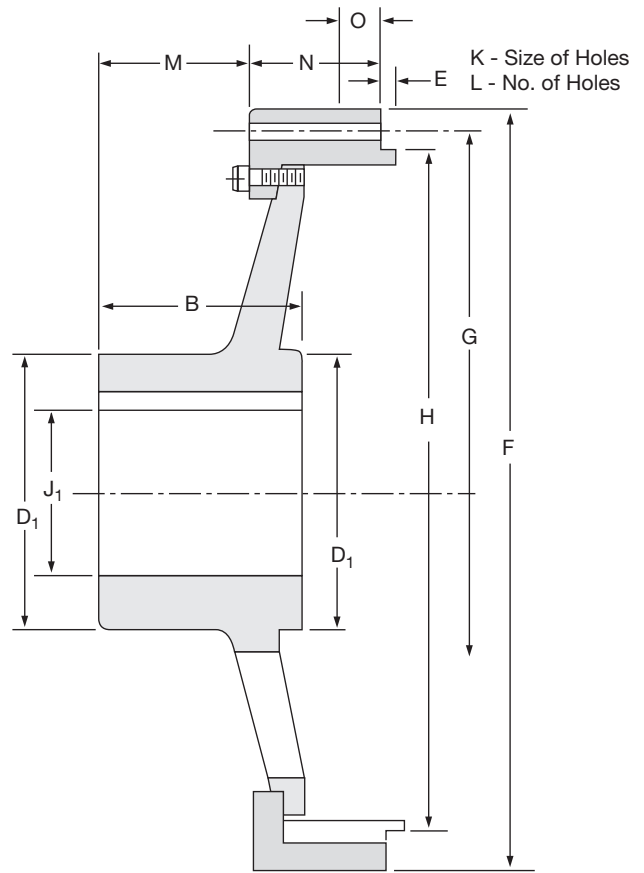
The driving adapter is designed to allow the clutch to be used in a shaft-to-shaft or through-shaft coupling arrangement.

### 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 <sub>1</sub> | E    | F      | G      | H      | +0.003"<br>-0.000" |
|------|-------|--------|-------|------|----------------|------|--------|--------|--------|--------------------|
| 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<br>Rect. Key<br>J | J <sub>1</sub> | 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.