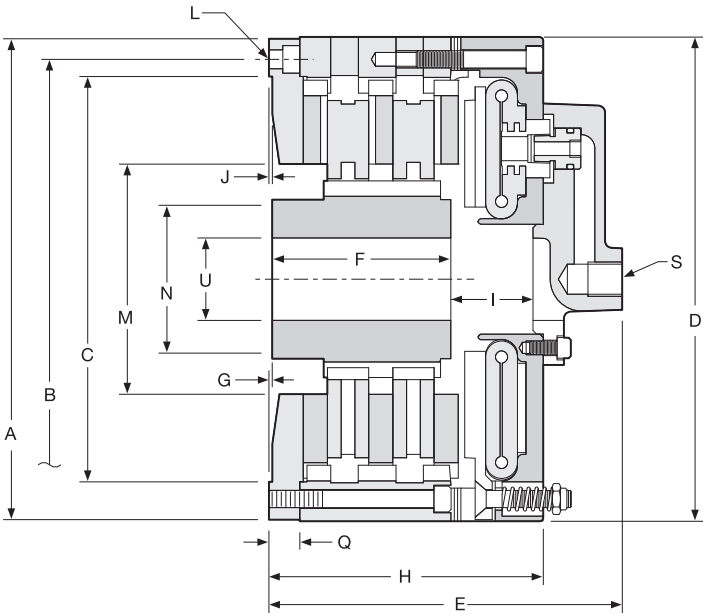


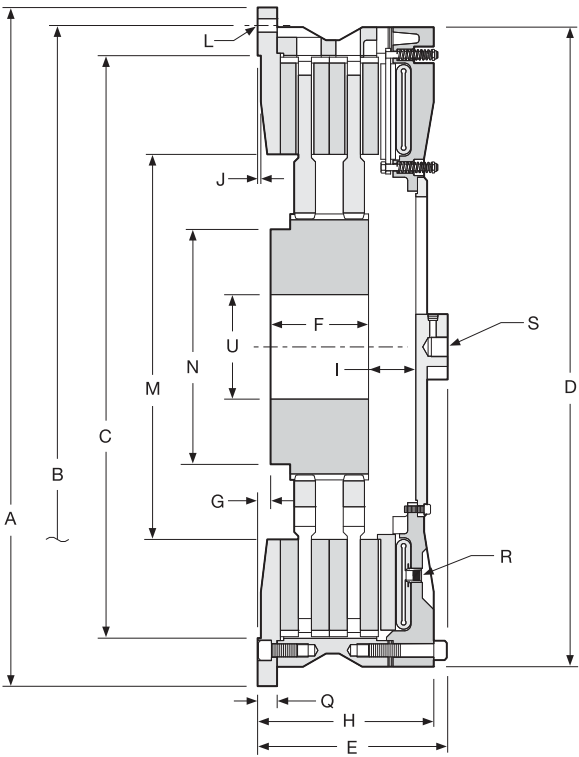
Air Tube Disc Clutches and Brakes

Low Inertia Clutches

Sizes 6, 42-60



Size 6



Size 42-60

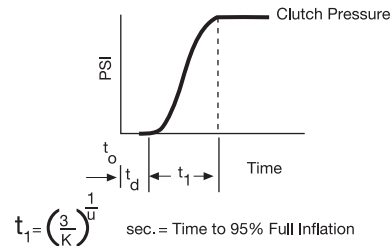
Air Tube Disc Clutches and Brakes

Air System Data

PSI pressure

Inflation

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



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

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

P_1 = Line pressure to clutch PSI

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

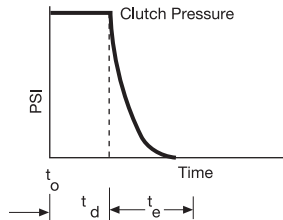
e = Napierian base log

t_o = Time at initiation of signal for inflation sec.

t_d = Time delay of air system – sec.

Exhaust

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



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

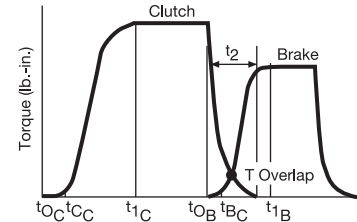
R, E and V = coefficients for specific clutch and air pressure from Specification Table

t_e = Time to exhaust = E from Specification Table

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

Overlap

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



Time (sec.)

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

t_{cC} = time of clutch engagement

t_{1C} = time of clutch full inflation

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

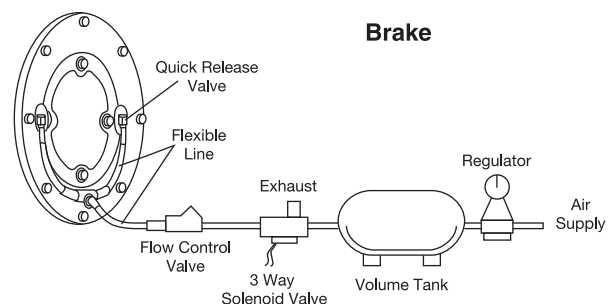
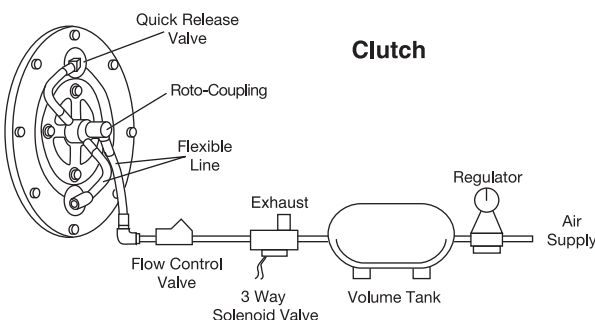
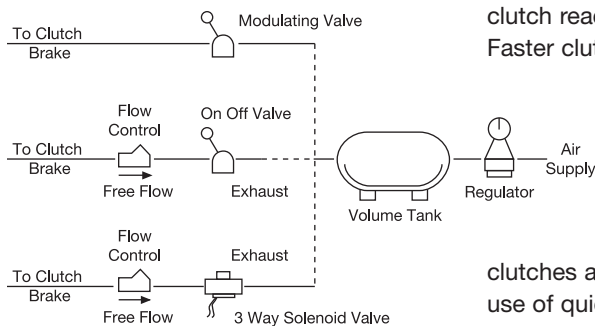
t_{cB} = time of brake engagement

t_{1B} = time of brake full exhaust

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

Shown are some of the air systems used on Wichita clutches. These systems are acceptable for remote operation where clutch reaction time is not important.

Faster clutch reaction time is accomplished as indicated in the diagram by locating the flow control valve, if required, and the solenoid valve as close as possible to the roto-coupling. Where clutches are located on long shafts, the use of quick release valves on the clutch will facilitate faster clutch response.



Air Tube Disc Clutches and Brakes

Low Inertia Clutches

Sizes 8-36

