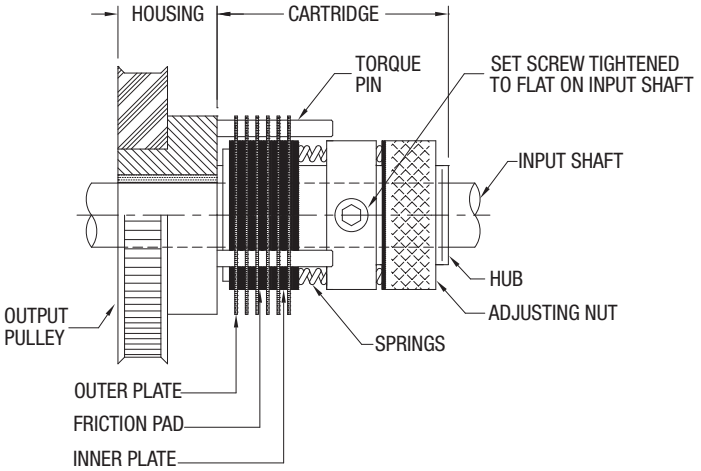
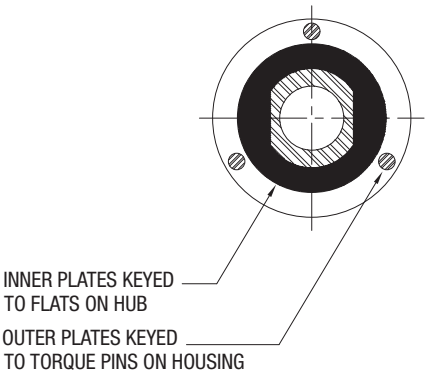
SLIP CLUTCH OPERATION





CONSTRUCTION

The clutch consists of two assemblies: a cartridge and a housing (see above). The cartridge is set screwed or keyed to the input shaft. The housing is either set screwed or keyed to the output shaft or, (as shown), attached to the output gear or pulley, with a bronze bearing to allow relative motion between the input shaft and the output gear/pulley. Torque is transmitted from the flats on the hub to the mating flats on the inner plates, through the friction pads to the outer plates, through the torque pins to the housing and the output gear/pulley. The torque level is controlled by compressing the springs with the adjusting nut. For a fixed torque clutch, a collar is attached to the hub in a fixed position, instead of the adjusting nut. In operation, either the input shaft or the housing can be the input member, with the other member being driven. All Polyclutch slip clutch torques are calibrated to ± 20% but can be held to closer tolerances. Backlash of 6° is standard for both slipper and series 16 slipper and 2° for the Slip-Ease line. Slipper models can be held to 2° if required.

INSTALLATION

Shaft to Pulley versions – Insert input shaft into cartridge and tighten set screws. Insert housing around input shaft, with torque pins engaging holes in outer plates. Input shaft will keep the cartridge and housing aligned.

Shaft to Shaft versions – Insert input shaft into cartridge and tighten set screws. Insert output shaft into housing and tighten set screws. Input and output shafts must be properly journaled with centerlines within ±.010 T.I.R.

Do not lubricate the clutch. Friction materials are designed to run without additional lubrication. Lubrication will cause a change in torque and erratic behavior. The inherent axial loaded design will keep dirt and dust out of the friction surfaces.

IDENTIFICATION

1	2	3	4	5	6
S	A	S	24	6	8

- 8 is the housing bore in sixteenths of an inch to be used only if different from cartridge bore.
- 6 is the cartridge bore in sixteenths of an inch. (6 = .375 inch; 8 = .500 inch; etc.) For metric bore add MM after bore sizes (ex. SAS 24-6MM).
- 24 is the outside diameter in sixteenths of an inch. Standard sizes are 16, 20, 24, 32, 44, and 52.
- "S" is shaft to shaft. "O" is shaft to pulley or gear. "Y" is cartridge alone.
- "A" is adjustable torque.
  "F" is factory preset torque.
- Type of Slip Clutch
  S = Multi-Plate P = Single-Plate
  E = "Slip-Ease" A = Air Actuated
  R = Double Plate

CAPACITY

The clutch capacity as noted in this catalog is based on continuous operation at 50 RPM for over 25 million cycles. Torque, RPM, duty cycle and life are interdependent. A reduction of any of these will allow an increase in any other. (Running at 25 RPM will allow twice the torque, or running for only 10% of the cycle will allow higher RPM, etc.) The limit is based on heat buildup measured in watts per: Watts = Torque (inch pounds) x RPM x .011. Please consult factory for high torque, high RPM and rapid cycling applications.

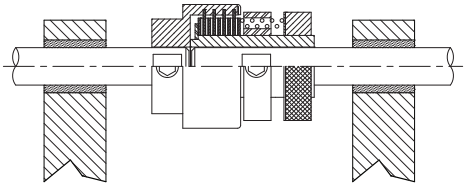
MECHANICAL AND PNEUMATIC
SLIP CLUTCHES

MOUNTING OPTIONS

All Polyclutch slip clutches perform the basic function of controlling the torque between two elements. They can be supplied as a shaft-to-shaft coupling or a shaft to pulley, gear, or sprocket model. Polyclutch custom slip clutches can be provided with non-standard bore sizes, keyways, low backlash or higher torque, minus housings and with pulley, gear or sprocket.

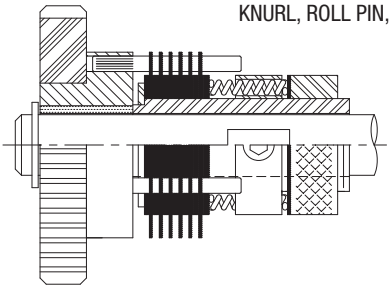
A

SHAFT TO SHAFT
SHAFTS MUST BE SUPPORTED
AND ALIGNED WITHIN .010-.015



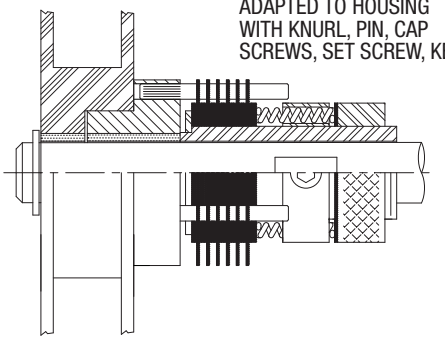
B

GEAR/PULLEY/SPROCKET
ADAPTED TO HOUSING WITH
KNURL, ROLL PIN, CAP SCREWS, ETC.



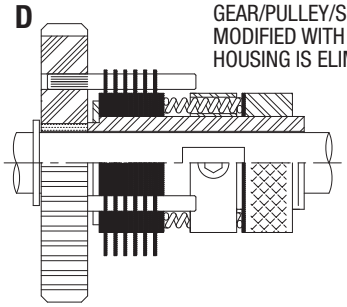
C

SUPPLY or REWIND SPOOL
ADAPTED TO HOUSING
WITH KNURL, PIN, CAP
SCREWS, SET SCREW, KEY, ETC.



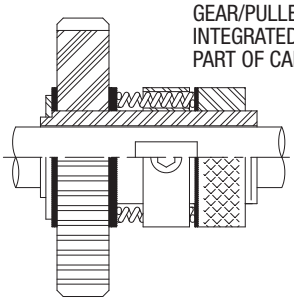
D

GEAR/PULLEY/SPROCKET
MODIFIED WITH PINS FOR ENGAGEMENT
HOUSING IS ELIMINATED



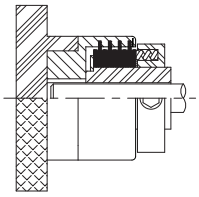
E

GEAR/PULLEY/SPROCKET
INTEGRATED AS
PART OF CARTRIDGE



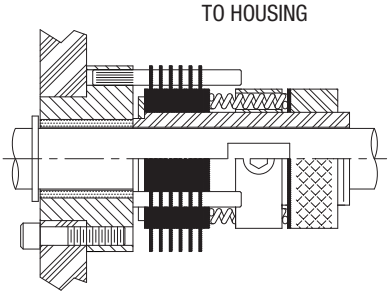
F

KNOB ADAPTED TO HOUSING
KNURL, SET SCREW, PIN, ETC.



G

MACHINE FRAME
ADAPTED WITH CAP SCREWS
TO HOUSING



H

ROTARY POSITION HOLDER
(HINGE)