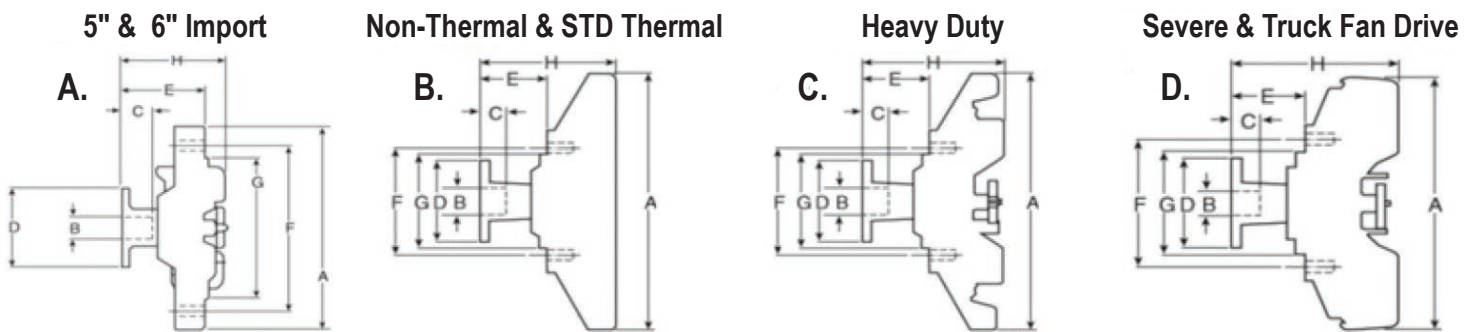


TECH TIP

STANDARD VS. HEAVY VS. SEVERE DUTY

One of the most common questions on fan clutches is, “What is the difference between a Standard Duty, a Heavy Duty, and a Severe Duty fan clutch?”

When installing a fan clutch make certain that the clutch you are using is designed for your application. Using a clutch other than what is recommended can result in undesired operation and possibly result in damage to the engine/cooling system.



When disengaged, a fan clutch is designed to operate at 20 to 30 percent of the driven speed to help reduce the parasitic drain on the engine, increasing fuel economy. One of the primary differences between a Standard Duty, Heavy Duty, and Severe Duty fan clutch is the driven fan speed when engaged.

- A Standard Duty fan clutch will lock up 60 to 70 percent when engaged.
- A Heavy Duty fan clutch will lock up 70 to 80 percent when engaged.
- A Severe Duty fan clutch will lock up 80 to 90 percent when engaged.

An electronic fan clutch is a fan clutch that relies on the PCM to engage an electro-magnetic actuator on the clutch for engagement. This allows for a greater degree of control and accuracy over the engagement/disengagement of the fan clutch. The PCM typically monitors the following parameters; AC demand, transmission temperature, engine temperature, fan speed, and AC head/high side pressure. Nearly all electronic fan clutches are considered to be Severe Duty.

Fan blades with a pitch of under 2 ½", require a Standard Duty fan clutch. Blades with a pitch of over 2 ½" can use either Heavy Duty or Severe Duty clutches. Standard Duty fan clutches are usually installed on cars and light trucks designed with good air flow. The lower air flow requirements of cars and light duty trucks allow for a fan blade with a lower pitch. The pitch on a fan blade can be measured by laying the fan blade on a flat work surface. Measure from the work surface, to the highest portion of the fan blade. Standard duty fan clutch blades are under 2 ½" and the fan clutch is designed to disengage with minimal resistance. Heavy Duty Fan Clutches are applied on vehicles with a higher demand for airflow. Increasing the pitch on the fan blade will increase airflow, additionally the resistance on the fan clutch will also need to be increased. A fan blade with a pitch of 2 ½" or over, will require the use of either a Heavy Duty or a Severe Duty fan clutch. If the wrong fan clutch is installed, the fan may spin freely and fail to produce adequate airflow to cool the engine. Severe Duty Fan Clutches have the same relative operation as Heavy Duty fan clutches. The primary difference between them is in the "Working Area". As a fan clutch spins, it creates heat. The larger the working area the easier the heat is dissipated. Due to the larger working area, the Severe Duty fan clutch runs cooler providing a longer life expectancy.