



X426 and X430 Compressor and Clutch

Air conditioning compressors and clutches for bus applications.





Lower your operating costs.

Today, in the bus transportation business, “operating costs” are critically important. Finding ways to reduce operating costs will have a positive influence on profitability. Thermo King understands that, which is why you should know all the ways Thermo King compressors work to keep your operating costs down. Here’s how:

Designed Exclusively for Bus Transportation Applications

- Fast and easy to service
- Extended service life
- More efficient operation
- Reduces fuel consumption
- Environmentally friendly HFC refrigerants

Engineered exclusively for transport applications

Built for continuous duty, reliable operation, and long life in an environment that features extreme fluctuations in operating temperatures, constant shock and vibration, dirt, dust, and other potential contaminants. Reliability translates directly to less downtime and lower operating costs.

Built for extended service life

Thermo King compressors have been designed and built for extended service life. And fewer repairs mean lower parts and labor costs.

Reduces fuel consumption

The Thermo King unique clutch system allows cycling at any engine speed. This allows the compressor to disengage when cooling isn’t needed, reducing the load on the bus engine and conserving fuel. The compressor is sized to provide capacity, but not oversized to where it increases fuel consumption and operating costs.

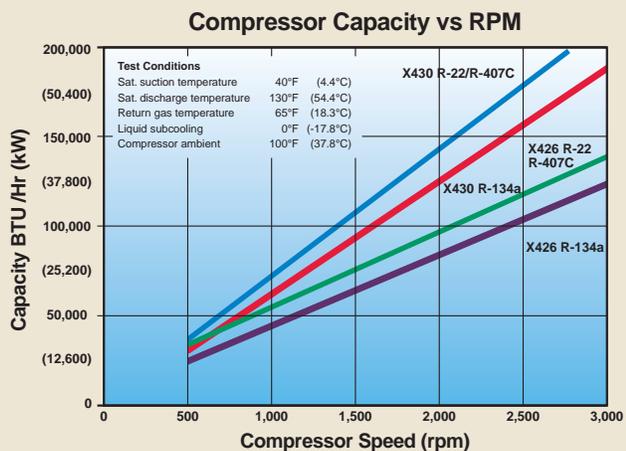
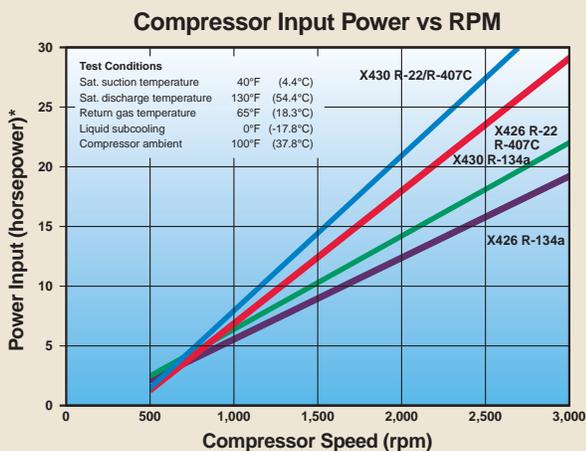
Less wear and tear on bus transmission and engine

The in-line, V-type, four-cylinder reciprocating design of Thermo King compressors, coupled with top center positioning of pistons every 90 degrees relative to the crankshaft, results in smooth even torque load on the bus transmission and engine crankshaft for longer life, fewer repairs, fewer replacement parts, and fewer man hours in repair.

Fast and easy to service

A Thermo King compressor can be completely overhauled by one mechanic (using common shop tools) in less than four (4) hours, without the need for complicated and costly machining.

How environmentally friendly refrigerants perform.

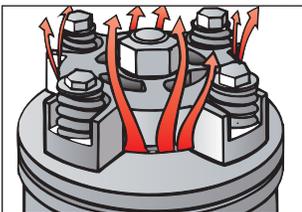


*Optional 125 amp batteryless alternator requires an additional power input of 4 to 9 horsepower.

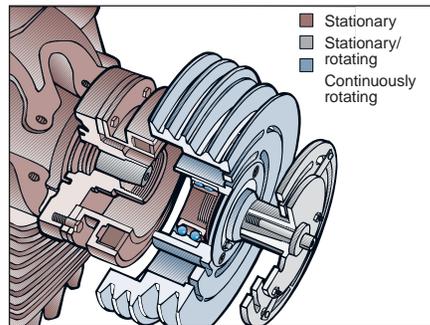
How Thermo King compressors help lower operating costs.



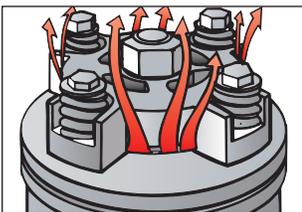
- ✓ Body mounted clutch reduces wear on compressor parts.
- ✓ Magnetic clutch design saves fuel.
- ✓ Epoxy sealed clutch coil for lower maintenance.
- ✓ Mounting of clutch bearing ensures even wear, protects against premature wear.
- ✓ Double row ball bearings add strength, longer life.
- ✓ Teflon grease seals increase bearing life.
- ✓ Ease of lubrication reduces maintenance time.
- ✓ Friction plate air gap easily adjusted.
- ✓ Pulley face is easily reconditioned.
- ✓ Stainless steel bellows seal for improved reliability.
- ✓ Multiple sight glass assures vision will not be blocked when checking oil.
- ✓ Deep oil sump results in fewer breakdowns, longer compressor life.
- ✓ Suction strainer and refrigerant oil filter prevent recirculation of harmful particulates, extends compressor life.
- ✓ Check valves limit oil escape, increases lubrication during startup, extends compressor life.
- ✓ Spring-loaded discharge valve cage relieves pressure if hydraulic pressure develops in cylinder.
- ✓ Free-floating suction and discharge valve reeds allow greater gas flow.
- ✓ Replaceable cylinder sleeves allow overhauling without reboring, lowers cost of repairs.
- ✓ Vanasil alloy ringless pistons for long life performance and high pumping efficiency.
- ✓ Gas cooling lowers piston operating temperature, extends compressor life.
- ✓ Gerotor oil pump extends compressor operating life.
- ✓ Drilled oil passages through crankshaft deliver positive lubrication to bearing surfaces extending bearing life.
- ✓ Forged steel crankshaft and connecting rods add strength, increase compressor life.
- ✓ Field-replaceable crankshaft ball bearings, rather than bushings, results in less expensive overhauls.
- ✓ Lightweight aluminum body transfers heat rapidly for cooler, more efficient operation.



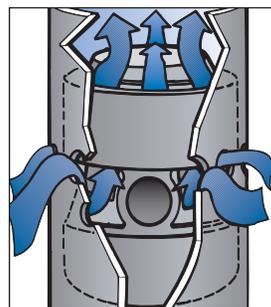
During normal operation, the discharge valve lifts to allow compressed gas to exit the cylinder.



Weight of the clutch and belt side load is supported directly by the rigid compressor body. Only the friction plate and retaining bolt are mounted on the shaft, reducing the amount of stress on the crankshaft, increasing overall life of other compressor components.



Under abnormal conditions, when extreme pressure is created by liquid refrigerant or oil entering the cylinder, the entire discharge valve cage lifts to vent the excessive pressure. This 2-stage pressure relief system helps extend overall compressor life.



Cool refrigerant gas enters the chamber around and through the piston, reducing the operating temperature and resulting in a cooler, more efficient running compressor.

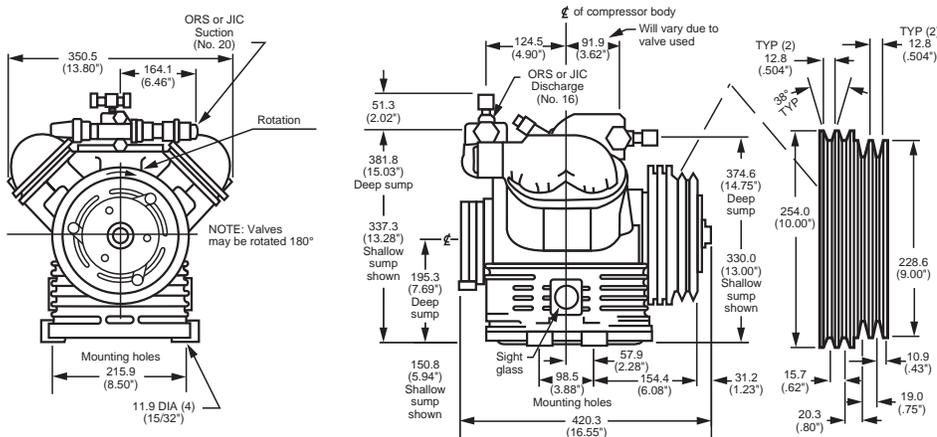
Bus Air Conditioning Compressor and Clutch Specifications

| Compressor | Model X426 | Model X430 |
|------------------------|--|---|
| Displacement | 426 cu. cm (25.9 cu. in.) | 492 cu. cm (30 cu. in.) |
| Number of cylinders | 4 | 4 |
| Maximum BHP | 19 BHP (R-134a) 29 BHP (R-22/R-407C) | 19 BHP (R-134a) 29 BHP (R-22/R-407C) |
| Maximum speed | 3,000 rpm (R-134a) 3,000 rpm (R-22/R-407C) | 3,000 rpm (R-134a) 3,000 rpm (R-22/R-407C) |
| Refrigerant | R-134a R-22/R-407C | R-134a R-22/R-407C |
| Oil capacity | 4.2 liter (8.9 pints) | 4.2 liter (8.9 pints) |
| Oil pump | Gerotor type | Gerotor type |
| Oil type | TK Part No. 67-404 (R-22) Alkybenzene TK Part No. 203-513 (R-134a/R-407C) Polyolester | TK Part No. 67-404, (R-22) Alkybenzene TK Part No. 203-513 (R-134a/R-407C) Polyolester |
| Maximum tilt | 10° any direction | 10° any direction |
| Drive method | Belt or direct | Belt or direct |
| Max. belt side loading | 136 kg (300 lbs.) | 136 kg (300 lbs.) |

Operating Conditions

| | | |
|--------------------------------|-----------------|-----------------|
| Max. discharge temp. | 162.8°C (325°F) | 162.8°C (325°F) |
| Max. saturated suction temp. | 12.7°C (55°F) | 12.7°C (55°F) |
| Max. saturated discharge temp. | 68.3°C (155°F) | 68.3°C (155°F) |

Dimensions: millimeters (inches)



Clutch Assembly

| | |
|----------------------|---|
| Type | Electro-magnetic |
| Voltage | 12V dc/24V dc |
| Current draw | 5.0 amps/2.5 amps |
| Engagement speed | 0 to 3,000 rpm (X426/X430) |
| Drive pulley O.D. | 229 mm (9.0 in.) 197 mm (7.75 in.) |
| Available belt types | B type, 2 groove 5V, 2 groove |
| Rotation | Clockwise or counter-clockwise (clutch end) |
| Peak torque | 80 ft. lbs. |

Weight: (approximate)

Model X426 52.2 kg (115 lbs.)
Model X430 52.2 kg (115 lbs.)
(Including oil, service valves and clutch)

Worldwide Service Organization

Thermo King backs its equipment and customers with a highly-trained, worldwide service organization. This assures you the support of factory authorized service facilities and a stock of factory parts and factory trained mechanics.

Warranty Summary

Terms of the Thermo King Warranty are available on request from your local Thermo King dealer. Please reference document TK50049 for the Thermo King Bus Unit Warranty.



Providing equipment and services to manage controlled-temperature environments for food and other temperature-sensitive products, our Climate Control Technologies sector encompasses both transport and stationary refrigeration solutions. Our product brands include Thermo King®, a world leader in transport temperature control systems, and Hussmann®, a manufacturer of refrigeration and food merchandising equipment.