

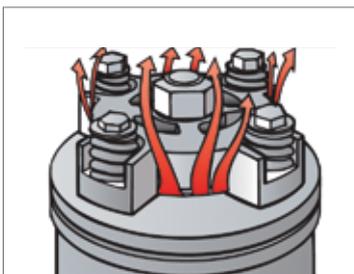
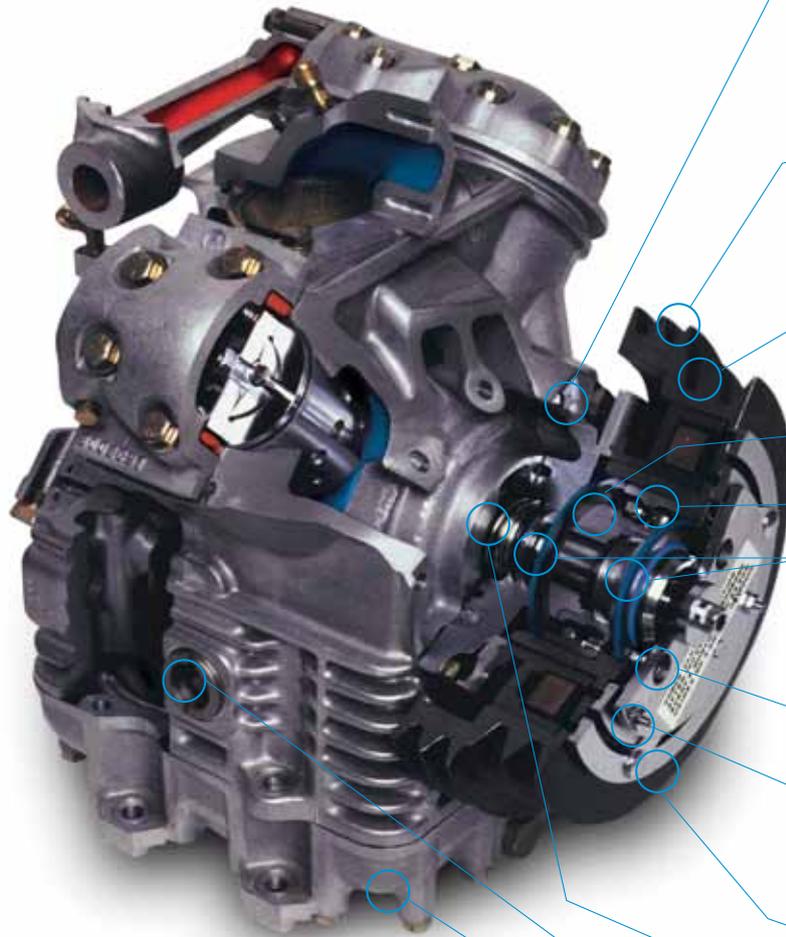
## BUS AIR CONDITIONING COMPRESSOR AND CLUTCH

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.



Engineered exclusively for transport applications  
Built for extended service life  
Reduces fuel consumption  
Less wear and tear on bus transmission and engine  
Fast and easy to service

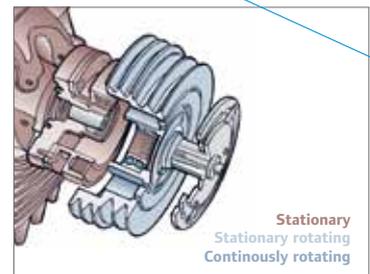
# Thermo King compressors: the inside story



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



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.



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

- **Body mounted clutch reduces wear on compressor parts**

The clutch mounts on the compressor body, not the crankshaft. Minimizes stress and wear on internal compressor parts.

- **Magnetic clutch design saves fuel**

Designed without need for unloaders, simple clutch design and mounting system lets compressor disengage when not required. Reduces load on engine, saves fuel, extends compressor life.

- **Epoxy sealed clutch coil for lower maintenance**

Epoxy sealing of electromagnetic clutch coil eliminates damage caused by moisture.

- **Mounting of clutch bearing ensures even wear, protects against premature wear.**

Because the inner race of the clutch bearing is mounted on the compressor body, it never rotates. Results in a continuous relative bearing motion ensuring even bearing wear, protection against brinelling, and provides longer bearing life.

- **Double row ball bearings add strength, longer life**

Easy replacement if required without complicated and costly machine shop operations.

- **Teflon grease seals increase bearing life**

Superior at holding grease while sealing out harmful contaminants.

- **Ease of lubrication reduces maintenance time**

Grease zerk in front seal is easily accessible without disassembly.

- **Friction plate air gap easily adjusted**

Allows adjustments, resulting in longer operating life of components.

- **Pulley face is easily reconditioned**

Pulley face does not need to be replaced. Can be easily remachined, lowering operating cost.

- **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**

Larger oil reserve protects against oil loss that creates wear. Better lubrication for cold starts.

- **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**

Provides a more durable compressor that can better cope with adverse conditions, enhances overall compressor life.

- **Free-floating suction and discharge valve reeds allow greater gas flow**

Since there are no bending reed valves, metal fatigue is virtually eliminated.

- **Replaceable cylinder sleeves allow overhauling without reboring, lowers cost of repairs**

- **Vanasil alloy ringless pistons for long life performance and high pumping efficiency**

Pistons are machined to close tolerance and expand and contract with the removable cast iron cylinder sleeves, providing increased compression and efficiency. Elimination of rings reduces wear and extends life.

- **Gas cooling lowers piston operating temperature, extends compressor life**

Refrigerant gas circulates around and through the piston and sleeve, reducing the piston operating temperature.

- **Forged steel crankshaft and connecting rods add strength, increase compressor life**

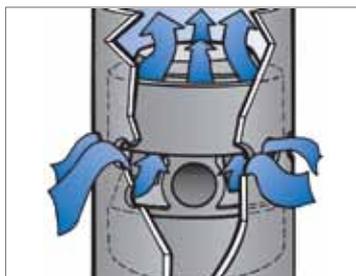
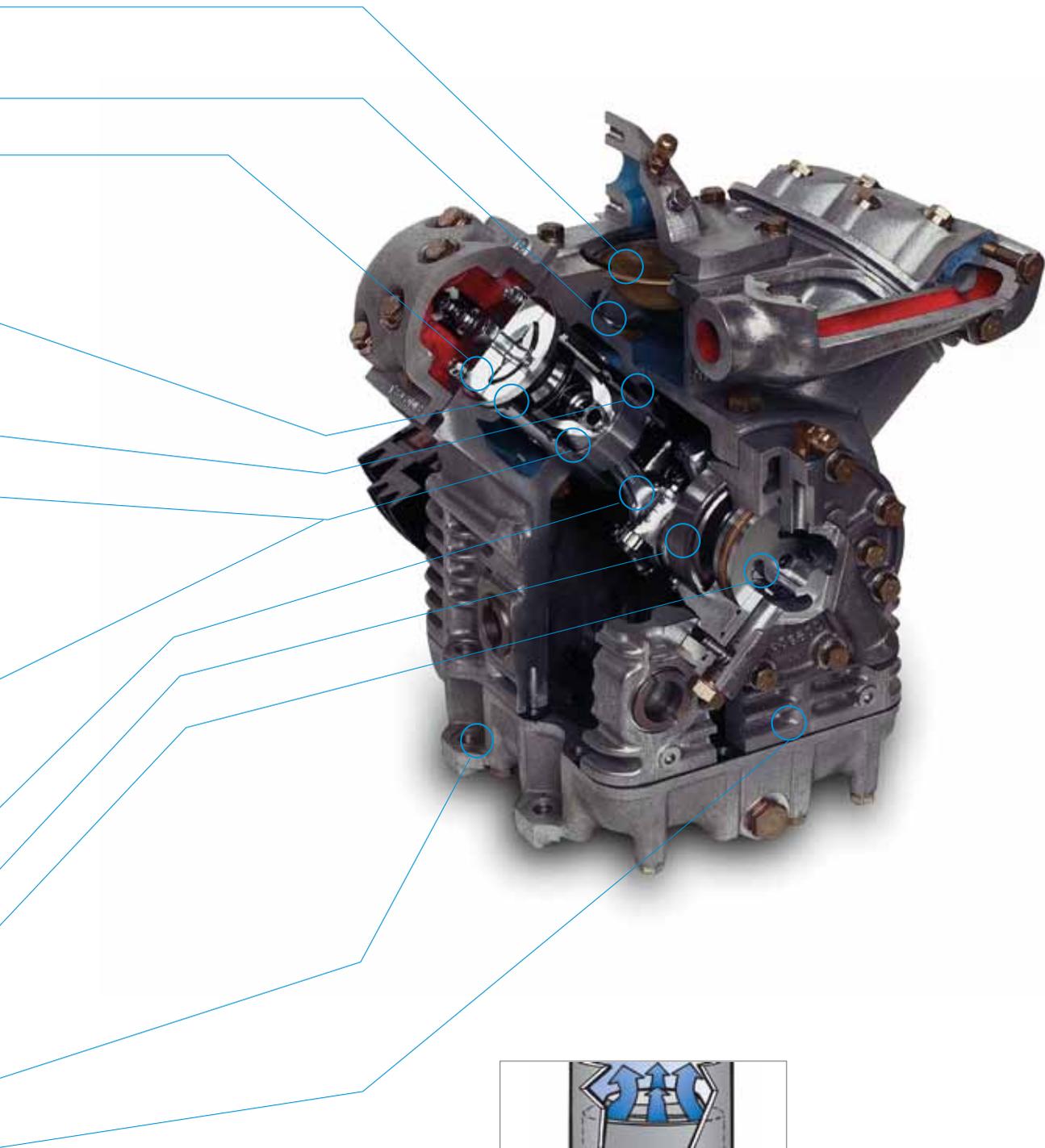
- **Field replaceable crankshaft ball bearings, rather than bushings, results in less expensive overhauls**

- **Gerotor oil pump extends compressor operating life**

Delivers a dependable supply of oil to the connecting rods and front and rear main bearings during critical startup and operation.

- **Drilled oil passages through crankshaft deliver positive lubrication to bearing surfaces extending bearing life.**

- **Lightweight aluminum body transfers heat rapidly for cooler, more efficient operation**



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

# Lower your operating costs

## Engineered exclusively for transport applications

Thermo King compressors are designed exclusively for use in transportation systems. Meaning they're 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 encountered daily in city and intercity bus operations. Reliability translates directly to less downtime, and that adds up to improved operating costs.

## Built for extended service life

In total, top to bottom, inside and out, component by component, Thermo King compressors have been designed and built for extended service life. And fewer repairs mean lower parts and labor costs.

## Reduces fuel consumption

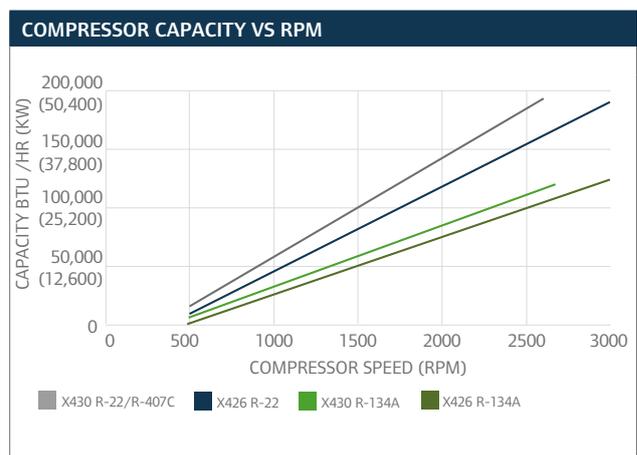
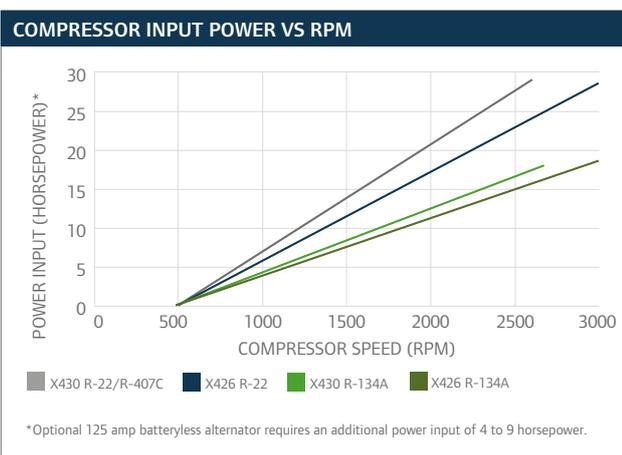
The Thermo King unique clutch design and mounting system allows cycling at any engine speed. This allows the compressor to disengage when cooling isn't needed, reducing the load on the bus engine and thereby conserving fuel. The compressor is sized to provide capacity to do the proper job, but not oversized to where it only 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. Less wear and tear on the transmission and engine means longer life, fewer repairs, fewer replacement parts, and fewer man hours in repair. In short, it means lower operating costs.

## Fast and easy to service

Serviceability has been designed into every Thermo King compressor for ease of maintenance. Records show that when repairs are necessary, 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. Fewer hours in the shop means lower costs.



# Specifications

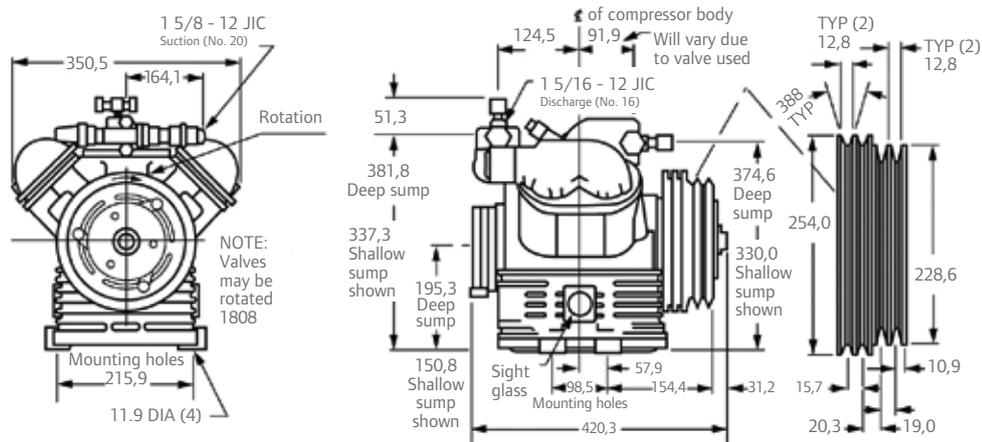
COMPRESSOR	MODEL X426	MODEL X430
Displacement	426 cu. cm	492 cu. cm
Number of cylinders	4	4
Maximum BHP	19 BHP (R-134a) 29 BHP (R-22/R-407C)	19 BHP (R-134a) 29 BHP (R-22/R-407C)
Maximum speed	3.000 rpm (R-134a) 3.000 rpm (R-22/R-407C)	2.600 rpm (R-134a) 2.600 rpm (R-22/R-407C)
Refrigerant	R-134a R-22/R-407C	R-134a R-22/R-407C
Oil capacity	4.2 liter	4.2 liter
Oil pump	Gerotor type	Gerotor type
Oil type	TK Part No. 67-404 (R-22/R-407C) TK Part No. 66-6828 (R-134a)	TK Part No. 67-404 (R-22/R-407C) TK Part No. 66-6828 (R-134a)
Maximum tilt	10° any direction	10° any direction
Drive method	Belt or direct	Belt or direct
Maximum belt side loading	136 kg	136 kg
OPERATING CONDITIONS		
Max. discharge temp.	162.8°C	162.8°C
Max. saturated suction temp.	12.7°C	12.7°C
Max. saturated discharge temp.	68.3°C	68.3°C

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) 0 to 2,600 rpm (X430)
Drive pulley O. D.	229 mm - 197 mm
Available belt types	B type, 2 groove 5V 2 groove
Rotation	Clockwise (viewed from clutch end)
Peak torque	80 ft. lbs.

WEIGHT (APPROXIMATE)	
Model X426	52.2 kg*
Model X430	52.2 kg*

\* (Including oil, service valves and clutch)

## Dimensions (mm)



## WARRANTY SUMMARY

Terms of the Thermo King Express Warranty are available on request. Basic unit and its components are warranted to be free from defects in material and workmanship for a period of two years from date in service. Warranty covers parts and labor only. Manufacturer is not responsible and will not be held liable in contract or in tort (including strict liability and negligence) for any special, indirect or consequential damages including but not limited to injury or damage caused to vehicles, contents or persons, by reason of the installation or use of any Thermo King product or its mechanical failure.