

XI. Compressors

Compressor Valeo **TM-08**

Compact and adaptable for Off Road equipment

The TM series compressors were designed to cover a wide range of applications, ideal for any customer requiring adaptation flexibility. The TM compressors incorporate the latest design improvements to better meet the needs of today's Heavy Duty systems.

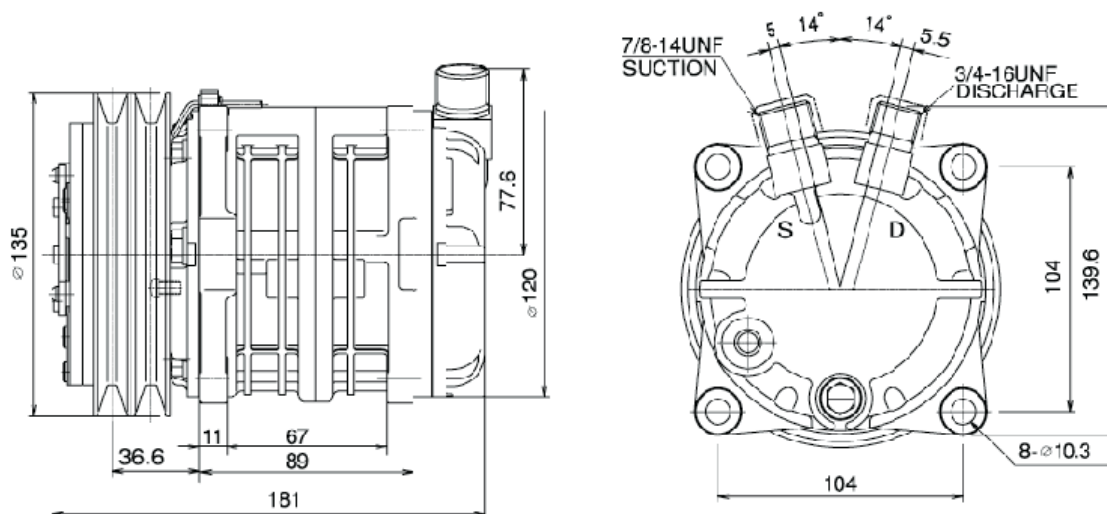
The TM family boasts extends to:

- The drive end, through a wide range of interchangeable pulley profiles (A, B and PKP), pitch diameters and bi-directional clutch plates
- The refrigerant connections end, through a range of back caps or a wide range of fittings that are pad-mounted to the back cap



Features

- High efficiency and performance
- Lightweight and compact compressor
- Many adaptations with a large choice of clutches and fittings
- High reliability
- Low vibrations and noise
- Suitable for heavy duty applications



Technical Data

Rotation	CW / CCW
Max speed	700 – 6000 rpm
Clutch coil	12 or 24 VDC
Displacement	5 in ³ (82 cm ³)
Number of pistons	6
Refrigerant	R134a
Pulleys ^[1]	125-2AG 135-1AG 135-2AG 137-1bg 119 (4PK / 6PK / 8PK)
Mounting	EAR
Unloading steps	N/A
Oil charge	ZXL 100PG PAG OIL 5.3 oz (150 cm ³)
Weight (without clutch)	9 lbs (4.1 kg)

[1] Outside diameters

Compressor Valeo **TM-13**

Heavy duty for Truck and Off Road equipment

The TM series compressors were designed to cover a wide range of applications, ideal for any customer requiring adaptation flexibility. The TM compressors incorporate the latest design improvements to better meet the needs of today's heavy duty systems.

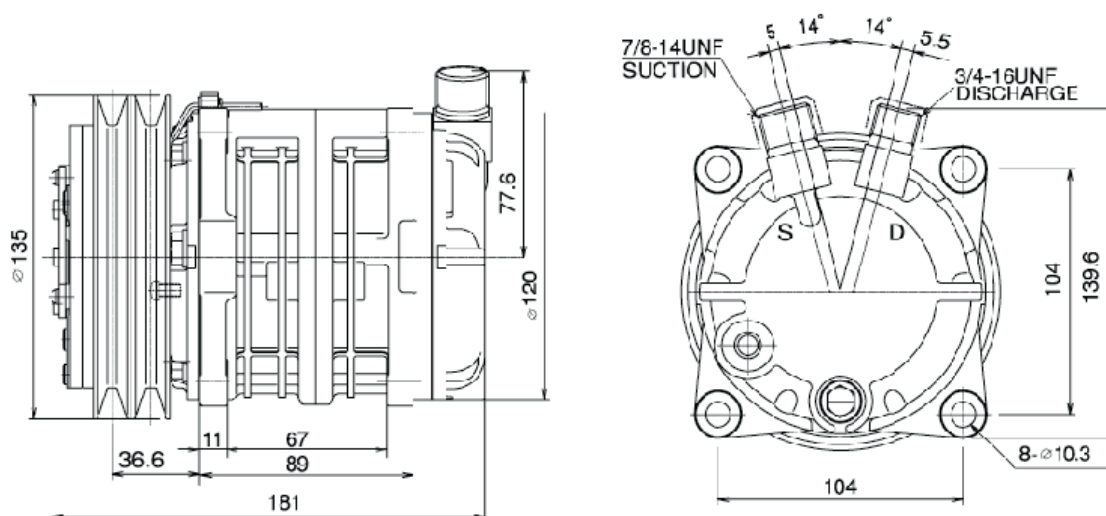
The TM family boasts extends to:

- The drive end, through a wide range of interchangeable pulley profiles (A, B and PKP), pitch diameters and bi-directional clutch plates
- The refrigerant connections end through a range of back caps or a wide range of fittings that are pad-mounted to the back cap
- Two alternative mounting provisions: Ear or Direct



Features

- Adaptable heavy duty compressors
- High efficiency and performance
- Lightweight and compact
- High reliability
- Low vibrations and noise



Technical Data

Rotation	CW / CCW
Max speed	700 – 6000 rpm
Clutch coil	12 or 24 VDC
Displacement	8 in ³ (131 cm ³)
Number of pistons	6
Refrigerant	R134a
Pulleys ^[1]	135-1AG 135-2AG 137-1bg 119 (4PK / 6PK / 8PK)
Mounting	Ear or Direct
Unloading steps	N/A
Oil charge	ZXL 100PG PAG OIL 5.3 oz (150 cm ³)
Weight (without clutch)	10 lbs (4.4 kg)

[1] Outside diameters

Compressor Valeo TM-15

Heavy duty for Truck, Bus and Off Road equipment

The TM series compressors were designed to cover a wide range of applications, ideal for any customer requiring adaptation flexibility. The TM compressors incorporate the latest design improvements to better meet the needs of today's Heavy Duty systems.

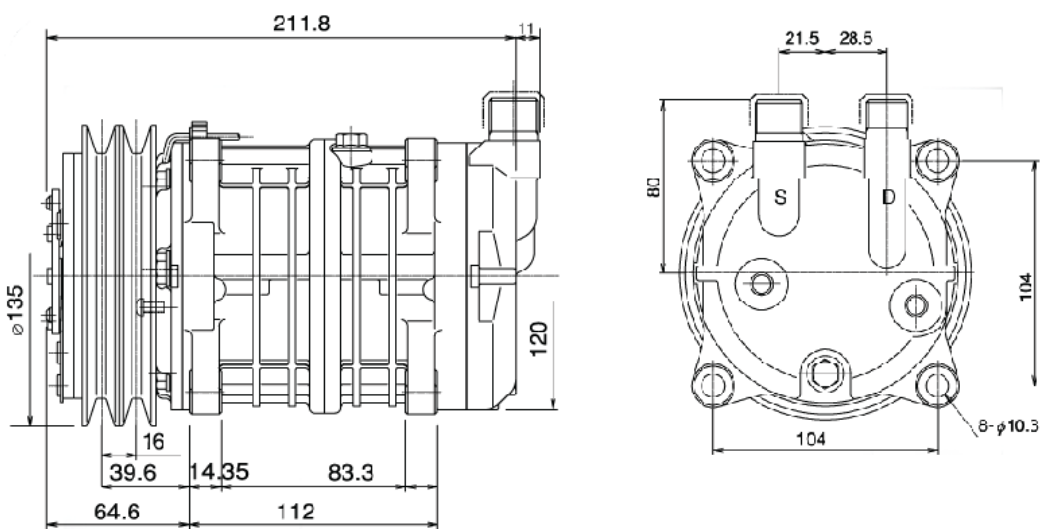
The TM family boasts extends to:

- The drive end, through a wide range of interchangeable pulley profiles (A, B and PKP), pitch diameters and bi-directional clutch plates
- The refrigerant connections end through a range of back caps or a wide range of fittings that are pad-mounted to the back cap
- Two alternative mounting provisions: Ear or Direct



Features

- Adaptable heavy duty compressors
- High efficiency and performance
- Lightweight and compact
- High reliability
- Low vibrations and noise



Technical Data

Rotation	CW / CCW
Max speed	700 – 6000 rpm
Clutch coil	12 or 24 VDC
Displacement	9 in ³ (147 cm ³)
Number of pistons	12 (6 x 2)
Refrigerant	R134a
Pulleys ^[1]	135-1AG 135-2AG 137-1bg 119 (4PK / 6PK / 8PK)
Mounting	Ear or Direct
Unloading steps	N/A
Oil charge	ZXL 100PG PAG OIL 5.3 oz (150 cm ³)
Weight (without clutch)	10 lbs (4.4 kg)

[1] Outside diameters

Compressor Valeo **TM-16**

Provides the largest cubic displacement in its class

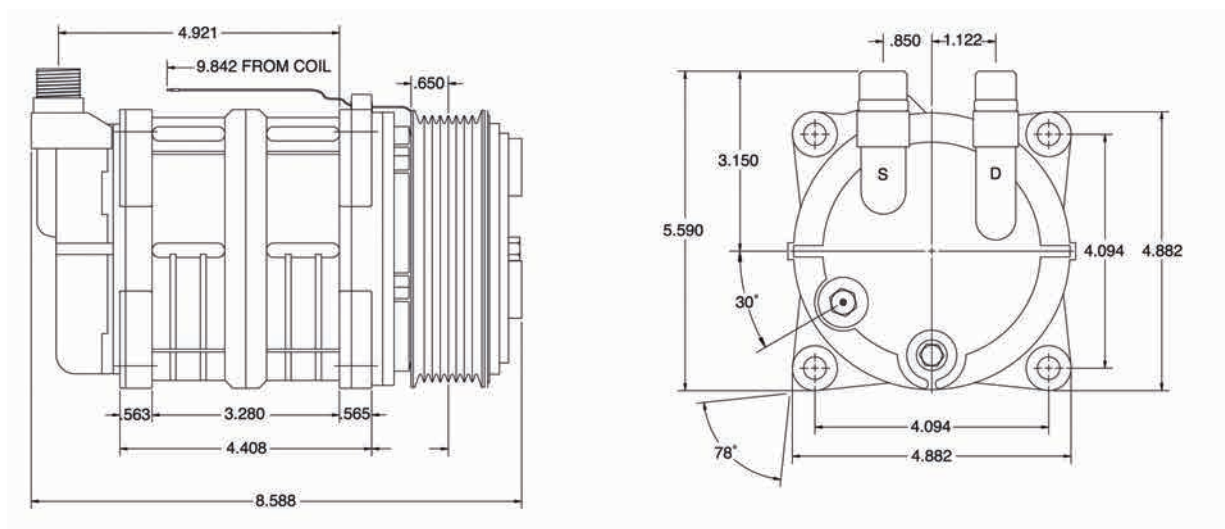
At 10 in³ (164 cm³) displacement, the TM-16 compressor has the largest displacement in the light transit segment today.

Its capacity at idle is virtually unmatched in the marketplace and has a proven track record of superior durability.



Features

- Six cylinder, balanced swash plate design offers low pulsation noise, quiet and smooth operation, less vibration and lower horsepower requirements
- Ball and shoe design promotes lubrication for better compressor durability
- Lip shaft seal assures excellent sealing integrity and extends compressor life
- Needle bearings ensure high durability for long life and high-speed operation
- Coated steel swash plate provides additional protection during liquid slugging, and high load conditions



Note: Dimensions in mm only.

Technical Data

Rotation	CW or CCW
Max speed	700 – 6000 rpm
Clutch coil	12 or 24 VDC
Displacement	10 in ³ (164 cm ³)
Number of pistons	6
Refrigerant	R134a
Pulleys	2A/6PK/8PK/10PK
Mounting	Ear or direct
Unloading steps	N/A
Oil charge	ZXL 6.6 fl.oz (180 cm ³)
Weight (with clutch)	15.7 lbs (7.1 kg)

Compressor Valeo **TM-21**

Provides the largest cubic displacement in its class

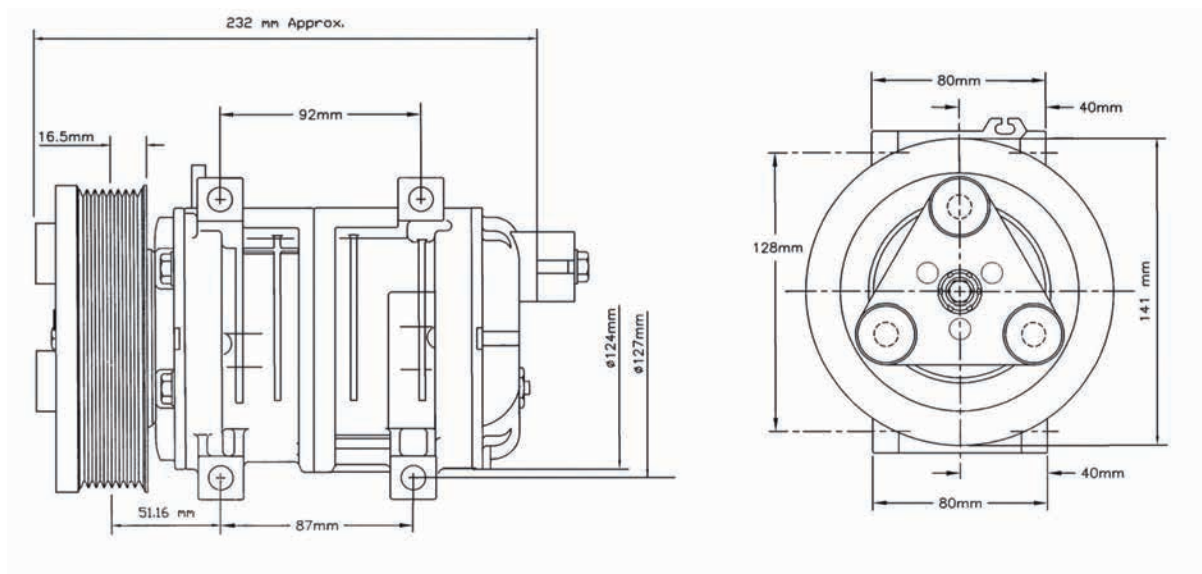
At 13.1 in³ (215 cm³) displacement, the TM-21 compressor has the largest displacement in the light transit segment today.

Its capacity at idle is virtually unmatched in the marketplace and it has a proven track record of superior durability.



Features

- Ten cylinder axial configuration
- The positive pressure gear-driven lubrication system provides superior lubrication to cylinder walls, pistons, bearings, and shaft seals
- Lip shaft seal assures excellent sealing integrity and extends compressor life
- Needle bearings insure high durability for long life and high-speed operation
- Coated steel swash plate provides additional protection during liquid slugging, and high load conditions
- Pulleys available are Type A or Poly-V



Technical Data

Rotation	CW or CCW
Max speed	700 – 6000 rpm
Clutch coil	12 or 24 VDC
Displacement	13.1 in ³ (215 cm ³)
Number of pistons	10
Refrigerant	R134a
Pulleys	2A/6PK/8PK/10PK
Mounting	Direct
Unloading steps	N/A
Oil charge	ZXL 6.6 fl.oz (180 cm ³)
Weight (with clutch)	17.9 lbs (8.1 kg)

Compressor Valeo **TM-31**

Provides the largest cubic displacement in its class

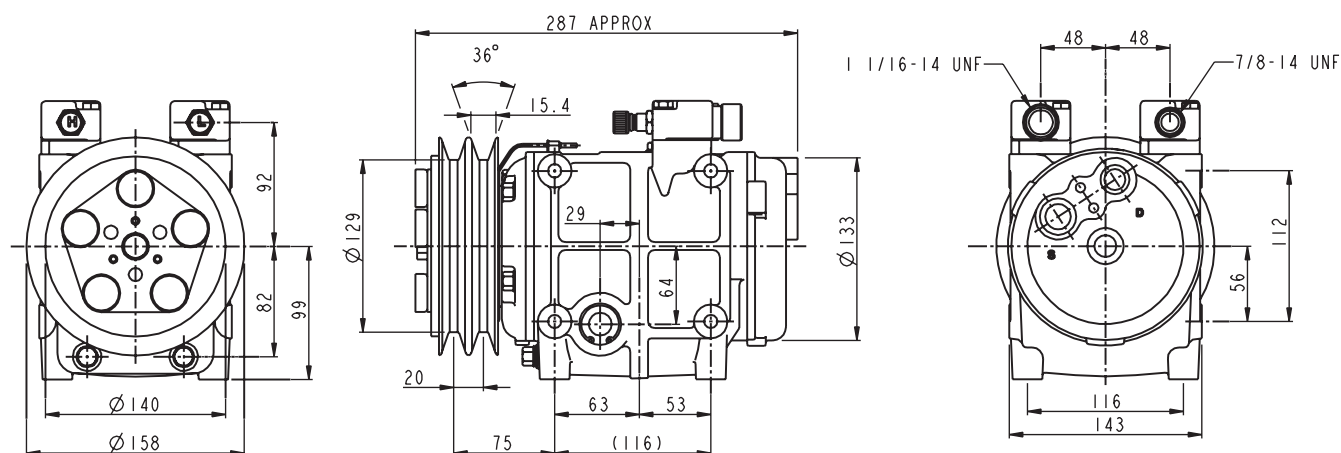
At 19.1 in³ (313 cm³) displacement, the TM-31 compressor has the largest displacement in the light transit segment today. Its capacity at idle is virtually unmatched in

the marketplace and has a proven track record of superior durability.



Features

- Ten cylinder axial configuration
- The positive pressure gear driven lubrication system provides superior lubrication to cylinder walls, pistons, bearings, and shaft seals
- Lip shaft seal assures excellent sealing integrity and extends compressor life
- Needle bearings ensure high durability for long life and high-speed operation
- Coated steel swash plate provides additional protection during liquid slugging, and high load condition
- Pulleys available are Type A, Type B or Poly-V
- Standard oil sight glass provides ease of maintenance



Technical Data

Rotation	CW
Max speed	700 – 5000 rpm
Clutch coil	12 or 24 VDC
Displacement	132.2 in ³ (313 cm ³)
Number of pistons	10
Refrigerant	R134a
Pulleys	2A/1B/2B/6PK/8PK
Mounting	Direct
Unloading steps	N/A
Oil charge	ZXL 16.9 fl.oz (500 cm ³)
Weight (with clutch)	34 lbs (15.5 kg)

Compressor Valeo **TM-55**

Heavy duty for Transit and Coach application

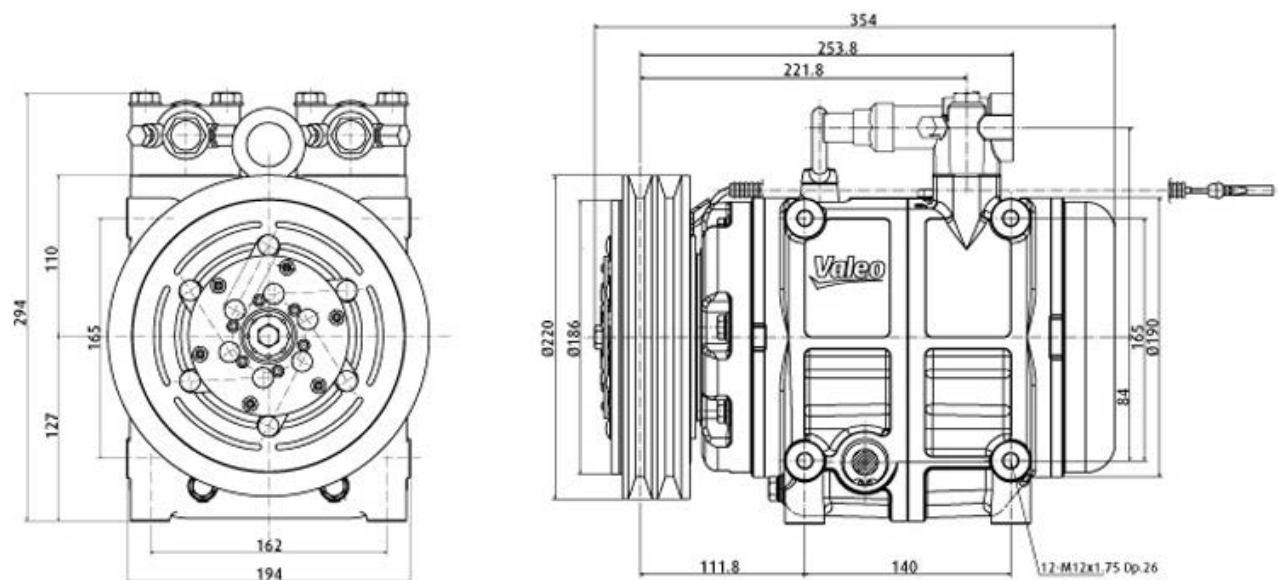
The TM-55 compressor is a heavy duty bus compressor whose design is an extension of the highly reputable smaller TM series compressor family. A lightweight aluminum casting encasing a durable swash-plate mechanism with the minimum of moving

parts and a force-feed lubrication system providing an exceptional cooling performance for buses and coaches along with less cost; reduced noise and vibration compared to reciprocating compressors.



Features

- Best efficiency, reliability and durability
- High cooling capacity
- Lightweight and compact
- Excellent performance cost ratio
- Balanced 14 cylinders design
- perfect compatibility and premium quality product
- Valeo warranty and competitive pricing



Technical Data

Rotation	CW
Max speed	600 - 4000 rpm
Clutch coil	12 or 24 VDC
Displacement	132.2 in ³ (313 cm ³)
Number of pistons	14
Refrigerant	R134a
Pulleys ^[1]	220-2BW+260-2AW 220-2BW+250-2AW 220-2BW 196-8PK
Mounting	Direct
Unloading steps	N/A
Oil charge	ZXL 100PG PAG OIL 53 oz (1500 cm ³) - force-feed
Weight (without clutch)	40 lbs (18.1 kg)

[1] Outside diameters

Compressor **05G**

The only compressor you'll ever need!



The Mobile Climate Control 05G bus air conditioning compressor is a perfect example of Mobile Climate Control's leadership in advanced compressor design.

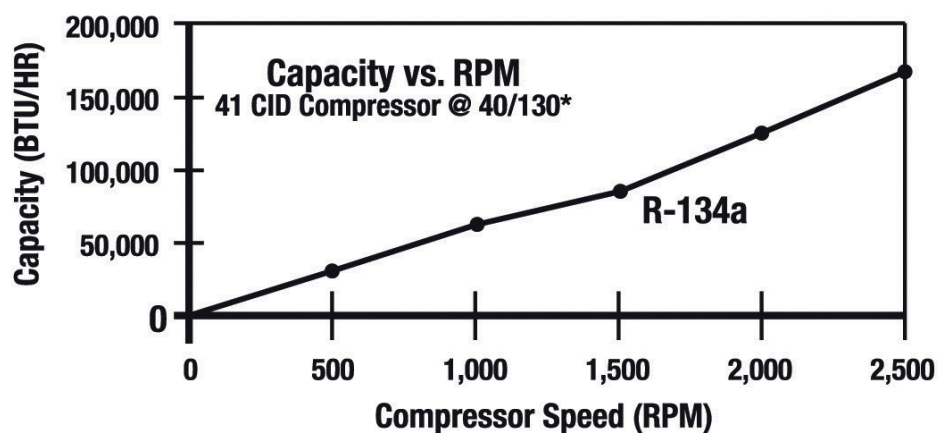
Proven in more than 50000 air conditioning installations, it's recognized as the industry standard for superior performance and exceptional reliability.

In fact, the 05G is virtually indestructible. It features time proven, heavy-duty construction for extended life, and the highest reliability in the transport air conditioning industry. And, the 05G's exclusive 6-cylinder design features uncommonly smooth, balanced operation.

No other manufacturer of air conditioning compressors has the experience backed by the advanced R&D, engineering, and technological leadership of Mobile Climate Control.

Features

- High capacity, efficiency at lower speeds. Cooling capacities are equal to or better than any competitive model, with operating speeds at least 30% lower
- Superior efficiency significantly reduces horsepower drain on the bus engine, reduces maintenance, extends life – and saves fuel
- Exclusive, balanced six-cylinder design
- Balanced crankshaft design minimizes torque pulsations for smoother operation, less wear on the bus engine and transmission
- Extended maintenance, lower operating costs. Lower operating speeds, lower vibration, and less wear mean less maintenance and considerable savings on parts and labor over the life of the bus
- Low oil-circulation rate. Less than 1%. Ensures superb operating efficiency
- Large-capacity oil pump. Self-priming, reversible design provides dependable oil flow under cold or flooded start-up conditions, and more than ample pressure even when operating at low rpm
- Housing-mounted clutch and large clutch bearing provide longer life
- Exclusive compressor unloading. Saves fuel, increases efficiency, virtually eliminates coil freezing, and produces uniform temperature distribution for greater passenger comfort
- Industry-leading warranty. MCC's warranty provides the most extensive parts and labor coverage in bus air conditioning.
- Certified for use with R134a refrigerant



* 40°F (4°C) Saturated Suction Temperature/
130°F (54°C) Saturated Condensing Temperature.

Technical Data

Rotation	CW or CCW
Max speed	400 – 2200
Clutch coil	12 or 24 VDC
Displacement	41 in ³ (671 cm ³)
Number of pistons	6
Refrigerant	R134a
Pulleys	2A-2B/Various
Unloading steps	3 steps (100% – 66% - 33%)
Oil charge	POE 5.8 pints (2.6 l)
Dimensions (L x W x H)	17.6" (447 mm) x 17.2" (436.9 mm) x 16.1" (408 mm)
Weight	137 lbs (62 kg) (with clutch)

Specifications are subject to change without notice.

Compressor **05K**

A new dimension in proven performance



A product of MCC's leadership in advanced compressor design, the 05K compressor brings you the next generation for bus model of superior performance and exceptional reliability, from MCC.

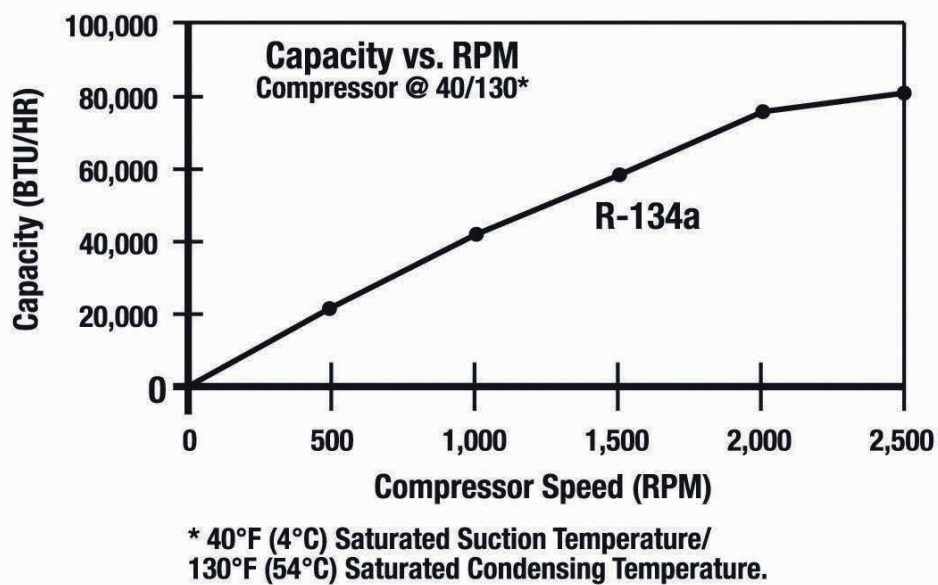
Engineered to withstand punishing conditions, the 05K is

virtually indestructible. Based on the 05G, the industry standard for high reliability, the 05K features time-proven, heavy-duty construction. And its exclusive four-cylinder design ensures exceptionally smooth, balanced operation.

No other manufacturer of air conditioning compressors has the experience backed by the advanced R&D, engineering, and technological leadership of Mobile Climate Control.

Features

- High capacity, efficiency at lower speeds. Superior efficiency significantly reduces horsepower drain on the bus engine, reduces maintenance, extends life and saves fuel
- Exclusive, balanced four-cylinder design
- Extended maintenance, lower operating costs. Lower operating speeds, lower vibration, and less wear mean less maintenance and considerable savings on parts and labor over the life of the bus
- Large-capacity oil pump. Self-priming, reversible design provides dependable oil flow under cold or flooded start-up conditions
- Housing-mounted clutch and large clutch bearing provide longer life
- Low oil-circulation rate. Less than 1%. Ensures superb operating efficiency
- Exclusive compressor unloading. Saves fuel, increases efficiency, virtually eliminates coil freezing, and produces uniform temperature distribution for greater passenger comfort
- Industry-leading warranty. MCC's warranty provides the most extensive parts-and -labor coverage in bus air conditioning
- Certified for use with R-134a refrigerant



Technical Data

Rotation	CW or CCW
Max speed	400 – 2200
Clutch coil	12 or 24 VDC
Displacement	24.4 in ³ (400 cm ³)
Number of pistons	4
Refrigerant	R134a
Pulleys	2A-2B/Various
Unloading steps	2 steps (100% – 50%)
Oil charge	POE 5.5 pints (2.6 L)
Dimensions (L x W x H)	17.6" (447 mm) x 17.2" (436.9 mm) x 16.1" (408 mm)
Weight	137 lbs (62 kg)

Compressor Sanden **SD-7**

Combines durability and versatility

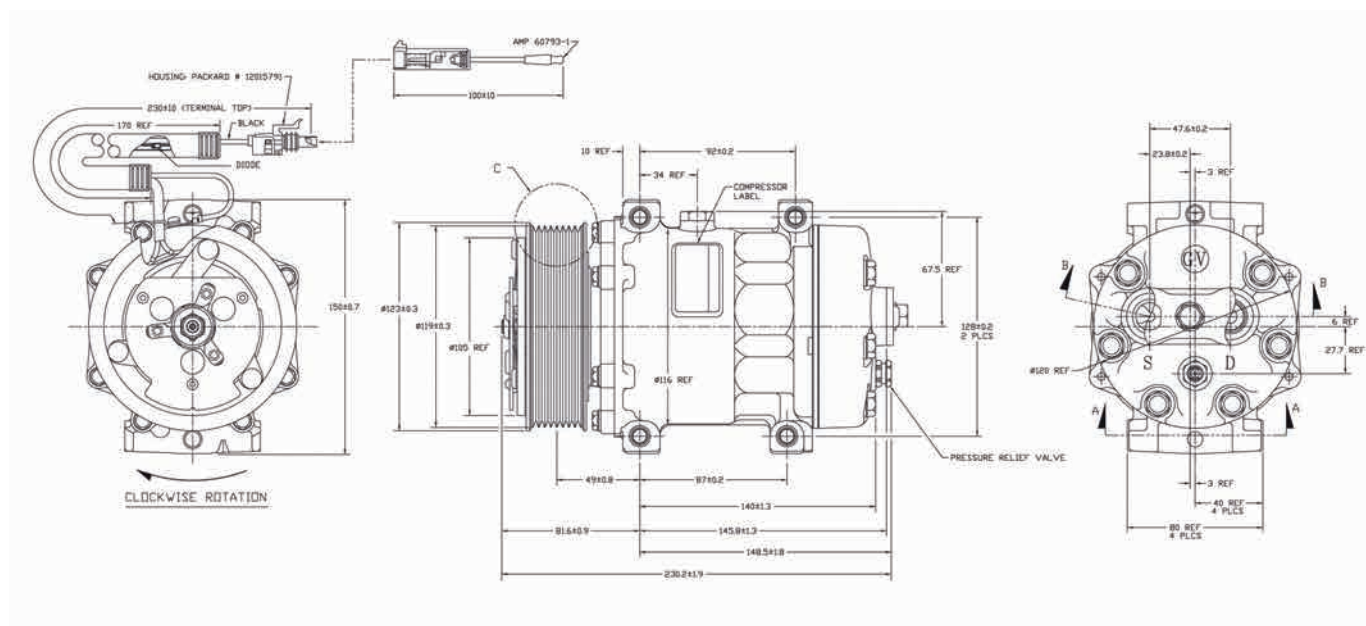
At 9.5 in³ (155 cm³) displacement the SD-7 series of compressors combine durability and versatility that enable them to service a wide range of mobile air conditioning ap-

plications, from passenger cars to buses and trucks to off-highway bulldozers.



Features

- Equipped with an all-new environmental intrusion package to prevent dust and other invasive materials from collecting on the clutch armature and from potential penetration to the clutch bearing and compressor shaft seal behind the clutch coil
- 7-cylinder design offers low pulsation, less vibration and lower horsepower requirements
- Exclusive crankcase design promotes superior lubrication for increased durability
- Shaft dual lip seal for greater leak prevention and extends compressor life
- Sanden pulley is machined from a single steel forging providing durability in high vibrating diesel applications
- Mounting ears are a continuous 14.3 mm for added strength



Technical Data

Rotation	CW
Max speed	700 – 6000 rpm
Clutch coil	12 or 24 VDC
Displacement	9.5 in ³ (155 cm ³)
Number of pistons	5
Refrigerant	R134a
Pulleys	2A/6PK/8PK/10PK
Mounting	Ear or direct
Unloading steps	N/A
Oil charge	PAG 6.8 fl.oz (200 cm ³)
Weight (with clutch)	16.8 lbs (7.6 kg)

Compressor **Bock¹ FKX40 and FKX50 Bus Air Conditioning**

World class performance, compact and robust design

The product of extensive experience in the transport refrigeration and air conditioning market, the Bock FKX40 and FKX50 open drive compressor models offer world class performance and durability. The four cylinder FKX40 and 6

cylinder FKX50 are available in a variety of displacement levels and can be sized to meet a wide range of application levels. The Bock Compressors offer many valued features sought after in the transport air conditioning market.



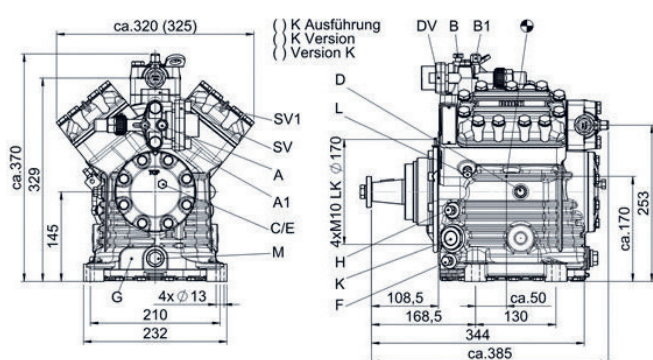
FKX40



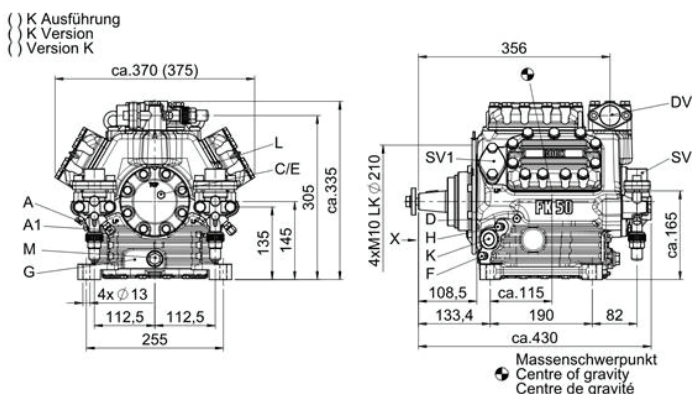
FKX50

Features

- High efficiency and reliable operation
- Lightweight and compact aluminum design
- Robust lubrication and valve design
- Forced-feed lubrication
- Proven shaft seal designed for long life and ease of service
- Optimized for R134a, R407C
- Special K-valve plate system
- Practical drain through a feely accessible flexible tube (no dismantling of the clutch necessary)



FKX40



FKX50

Technical Data

	Bock ¹ FKX40	Bock ¹ FKX50
Rotation	CW/CCW	CW/CCW
Max speed	3500 rpm	3500 rpm
Clutch coil	24 VDC	24 VDC
Displacement	39.7 in ³ (650 cm ³)	50.7 in ³ (830 cm ³)
Number of cylinders	4	6
Refrigerant	R134a, R407C	R134a, R407C
Pulleys	2-SPB, 2 – 5 V	2-SPB, 2 – 5 V
Oil charge	67.6 oz (2000 cm ³)	67.6 oz (2000 cm ³)
Dimensions (L x W x H)	15.2" (386.08 mm) x 12.8" (325.12 mm) x 14.6" (370.84 mm)	16.9" (429.26 mm) x 14.8" (375.92 mm) x 13.2" (335.28 mm)
Weight (without clutch)	73 lbs (33 kg)	93 lbs (42 kg)

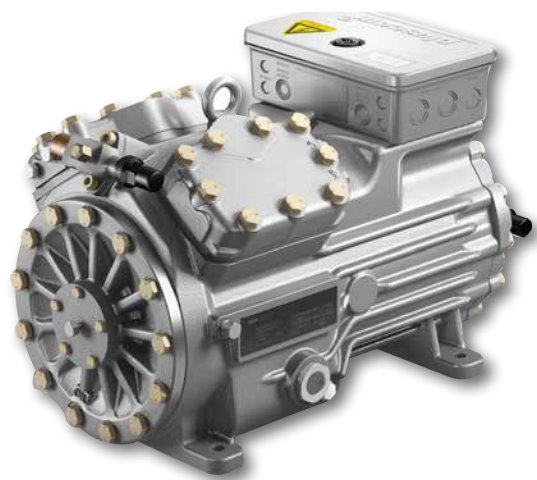
¹⁾ Bock Compressors are now part of the Global GEA Companies

Compressor **Semi-hermetic HG**

Powerful lightweight semi-hermetic compressors for mobile application

The product of extensive experience in the transport refrigeration and air conditioning market, the Bock HG34 is a V-4 semi-hermetic compressor that offers world class performance and durability. It is available in three displacement levels. The HG34 is designed to operate at a variable speed across a wide range of frequency driven by a suction gas-cooled 3-phase induction motor on a

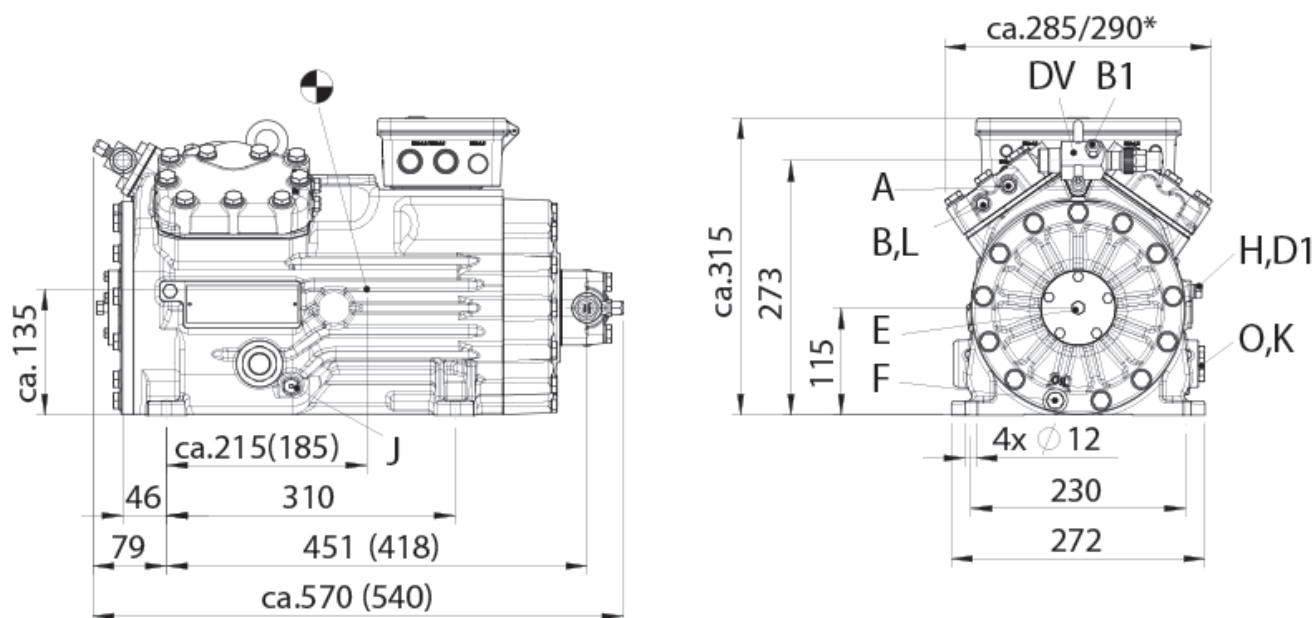
common shaft. Along with an optional unloader on one cylinder bank, the compressors offers the most versatile and most energy saving method of capacity control in the industry. The Bock Compressors offer many valued features sought after in the transport air conditioning market.



HG34

Features

- High efficiency and reliable operation
- Compact and lightweight aluminum design
- Robust lubrication system and bearing
- Extremely low noise and vibration
- Optimized for R134a, R-407C
- Special K-valve plate optimized for air conditioning applications



Technical Data

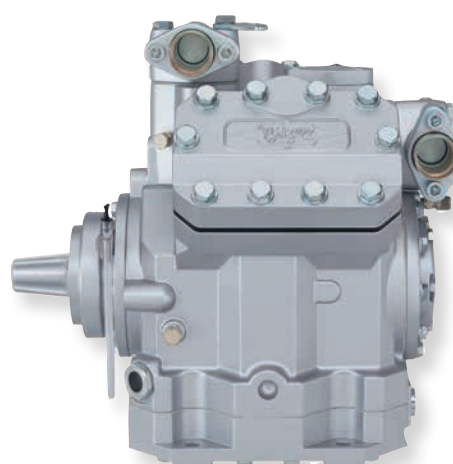
	Semi-hermetic HG	
Compressor type	Reciprocating, 4-cylinder, V-arrangement	
Swept volume	255 - 315 - 380 cm ³ (15.6 - 19.2 - 23.2 in ³)	
Speed (frequency) range	(N _s) 900 - 3600 min ⁻¹ (15 - 60 Hz)	
Sense of rotation	Bi-directional (insensitive to phase sequence)	
Motor type	3-phase induction, 2-pole	
Motor voltage	400 - 3 - 50 (480 - 3 - 60)	Other voltages available
Refrigerant	R134a, R407C	
Lubrication	Forced, bi-directional gerotor pump	
Oil type and charge	POE, 1300 cm ³ (44 oz)	
Dimensions (L x W x H)	570 x 290 x 315 mm (22.4 x 11.4 x 12.4 in)	
Weight (without clutch)	59 kg (130 lbs)	

Compressor **Bitzer 4NFCY and 6NFCY Bus Air Conditioning**

Providing a lightweight and flexible engine mounted solution

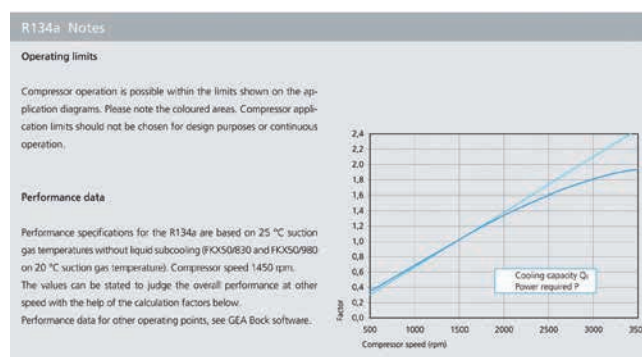
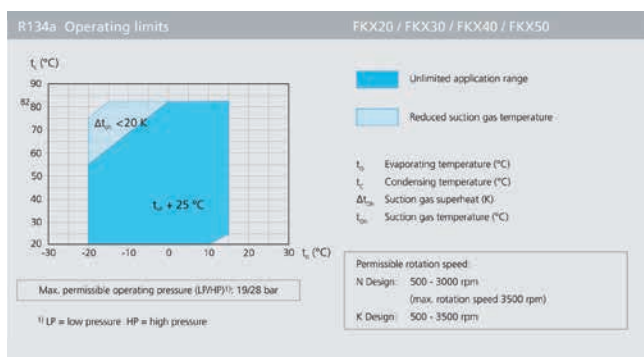
Bitzer is the world's leading bus A/C compressor manufacturer with over 70,000 units produced per year in 4 factories: USA, Brazil, Germany, and China. The four cylinder 4NFCY and six cylinder 6NFCY compressor models are

transit duty compressors designed specifically meet the demands of this harsh application. Each compressor can be configured to meet a wide variety of capacity and system applications to assure optimum performance.



Features

- High efficiency and smooth operation
- Lightweight and compact aluminum design
- Wide Speed Range 500 – 3500 RPM continuous
- Forced-feed lubrication
- Optimized for R134a
- Patented shaft seal with secondary oil barrier for trouble free operation



Technical Data

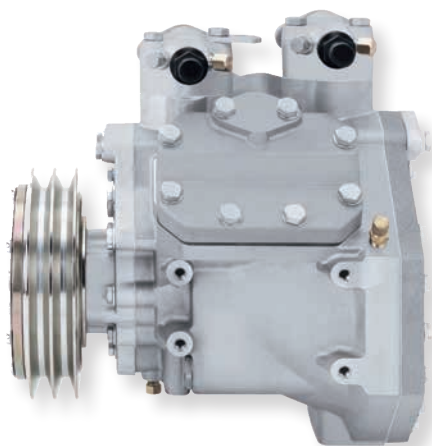
	4NFCY	6NFCY
Rotation	CW	CW
Swept volume	39 in ³ (647 cm ³)	59 in ³ (970 cm ³)
Max speed	500 – 3500 rpm	500 – 3500 rpm
Clutch coil	24 VC	24 VC
Displacement (1750/3000 RPM)	2395/4110 CFM (68/116 m ³ /hr)	3600/6165 CFM (102/175 m ³ /hr)
Number of cylinders	4	6
Refrigerant	R134a	R134a
Pulleys	2-5 V, 2-SPB	2-5 V, 2-SPB
Oil charge	88 fl. oz (2602.5 cm ³)	88 oz (2602.5 cm ³)
Dimensions (W x H x D)	12.09" (307 mm) x	14.45" (367 mm) x
	14.84" (377 mm) x	13.43" (341 mm) x
	15.83" (402 mm)	17.56" (446 mm)
Weight (without clutch)	73 lbs (33 kg)	88.0 lbs (40 kg)

Compressor **Bitzer F-400 Bus Air Conditioning**

Providing a lightweight and flexible engine mounted solution

With the extensive experience gained from the Bitzer 4UFC and 4NFC compressor series over many successful years of service, an alternative lightweight and compact compressor has been developed for small and medium capacity bus air conditioning systems. The F-400Y compressor series offers the perfect balance of low weight, high efficiency, reliability, and durability – all in a very compact package.

With its extremely compact design, the F-400(Y) is ideally suited to front engine applications which typically have had to settle for single or dual automotive style compressors. This coupled with its extended speed range of up to 4500 RPM, allows superior capacity performance even at engine idle.



Features

- Very compact design
- Lightest weight in its class – only 51 lbs (23 kg)
- Widest speed range – 4500 RPM
- Certified for use with R134a
- Housing mounted clutch
- 3 mounting positions for better mounting flexibility



Rotation	CW or CCW
Swept volume	24 in ³ (400 cm ³)
Max speed	500 – 4500 rpm continuous
Clutch coil	12 or 24 VDC
Displacement (1450/3000 RPM)	1230/2540 CFM (35/72 m ³ /hr)
Number of pistons	4
Refrigerant	R134a
Pulleys	2-SPB
Oil charge	35.2 fl.oz (1000 cm ³)
Dimensions (W x D x H)	11.34" (288 mm) x 13.86" (352 mm) x 15.20" (386 mm)
Weight (without clutch)	51 lbs (23 kg)

Compressor **MasterFlux Sierra (xx) – 0434 and 0982**

Excellence in high-efficiency refrigeration and air conditioning

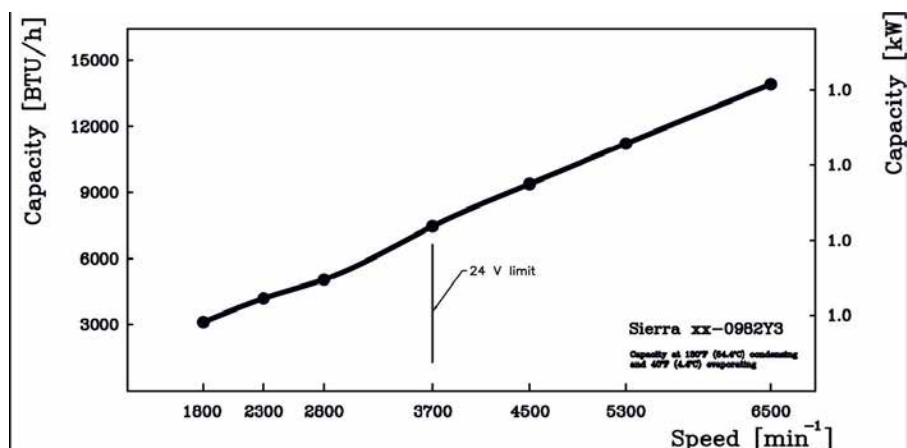
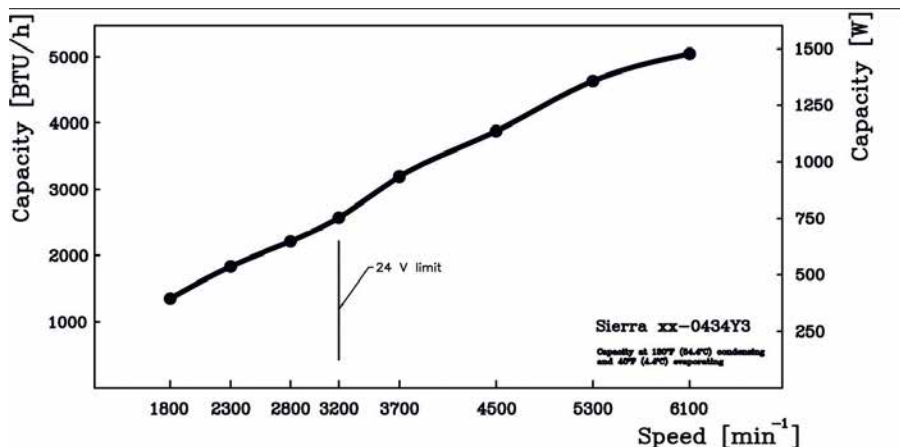
The MasterFlux Sierra hermetic compressor models offer world class performance and durability. The rotating piston construction is a proven long-life design that has a wide

range for optimum energy utilization, making it one of the most energy-conserving compressors in the industry



Features

- High efficiency permanent magnet motor and rotating piston compressor
- Wide range of capacity control (variable speed)
- Leak free hermetic construction
- State of the art PVE lubricant for increased service life
- Integrated suction accumulator
- Optimized for R134a



Technical Data

	Sierra (xx) – 0434	Sierra (xx) - 0982
Construction	Hermetic – rotating piston	Hermetic – rotating piston
Swept volume	0.434 in ³ (7.1 cm ³)	0.434 in ³ (7.1 cm ³)
Refrigerant	R134a	R134a
Capacity control	Variable speed: (1800 to 3200 min ⁻¹) – 24 V (1800 to 6100 min ⁻¹) – 48 V	Variable speed: (1800 to 4300 min ⁻¹) – 24 V (1800 to 6500 min ⁻¹) – 48 V
Oil Charge	PVE - 9.8 fl.oz (290 cm ³)	PVE - 9.8 fl.oz (290 cm ³)
Dimensions (L x W x H) (without rubber mounts)	7.1" (180 mm) x 7.7" (195 mm) x 6.5" (165 mm)	6.1" (155 mm) x 8.7" (220 mm) x 7.4" (188 mm)
Weight (without drive)	10.5 lbs (4.8 kg)	14.1 lbs (6.4 kg)
Motor	3-phase permanent magnet	3-phase permanent magnet
Voltage (supply to drive)	12/24/48 VDC	24/48 VDC
Sensitivity to phase sequence	Yes	Yes