



Unicla

Advanced compressor technology for the world

B Group

UWX Series Compressors





Features

Unicla achieved global recognition for developing the world's first 14-cylinder swashplate compressors with its UWX models, which are built for bus, coach and any commercial applications requiring a large open-drive compressor capacity with lightweight and compact features.

Since then the compressors have undergone significant changes and refinements to make the latest fourth-generation models more robust and durable in a wider variety of applications and conditions.

The UWX compressors come in 508 cc (440 series), 607 cc (550 series) and 675 cc (660 series) capacities. Each weighs just 25.4 kg, with impressively compact dimensions of 324 mm (l) x 188 mm (w) x 303 mm (h). Specific models are available for R134a, R404a and R452a refrigerants. They can be supplied pre-charged with polyalkaline glycol (PAG) or polyol ester (POE) oil.

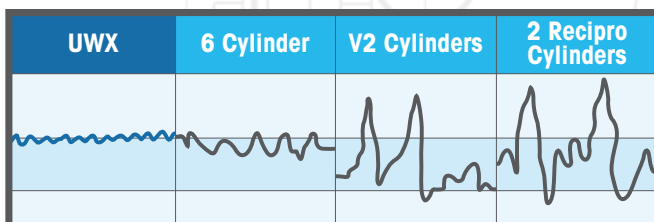
The compressors have a remarkably smooth and quiet operation with the lowest vibration level from any compressors of this size in the market today. With the current demands of modern transport, these compressors allow system designers to meet the most stringent environmental and efficiency requirements.

The UWXF model compressors have been upgraded internally to better suit R404a and R452a low-temperature refrigerants. Features include higher-gauge reed valves, a further refined and polished swashplate and RL32 polyol ester (POE) oil.

Other key features include:

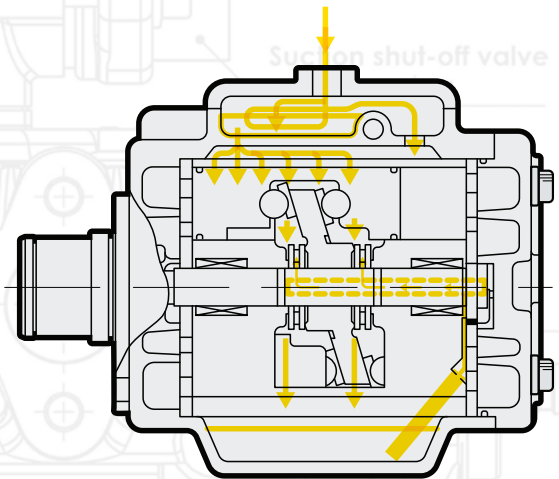
Smooth operation

Typical vibration analysis compared with other compressor types.



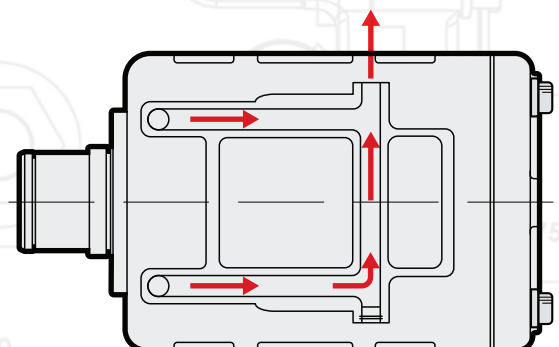
Superior lubrication system

Superior lubrication is achieved by supplying oil to the large swashplate area through two oil chambers. The lower chamber is a traditional sump that feeds an oil pump driven from the rear of the crankshaft, and oil is supplied through the centre of the crankshaft onto the thrust bearings and swashplate. The upper chamber is situated at the suction entry point and features a series of baffles that collect the incoming oil and redirect it directly onto the top of the moving swashplate. Please see the diagram below.



Crossover chamber

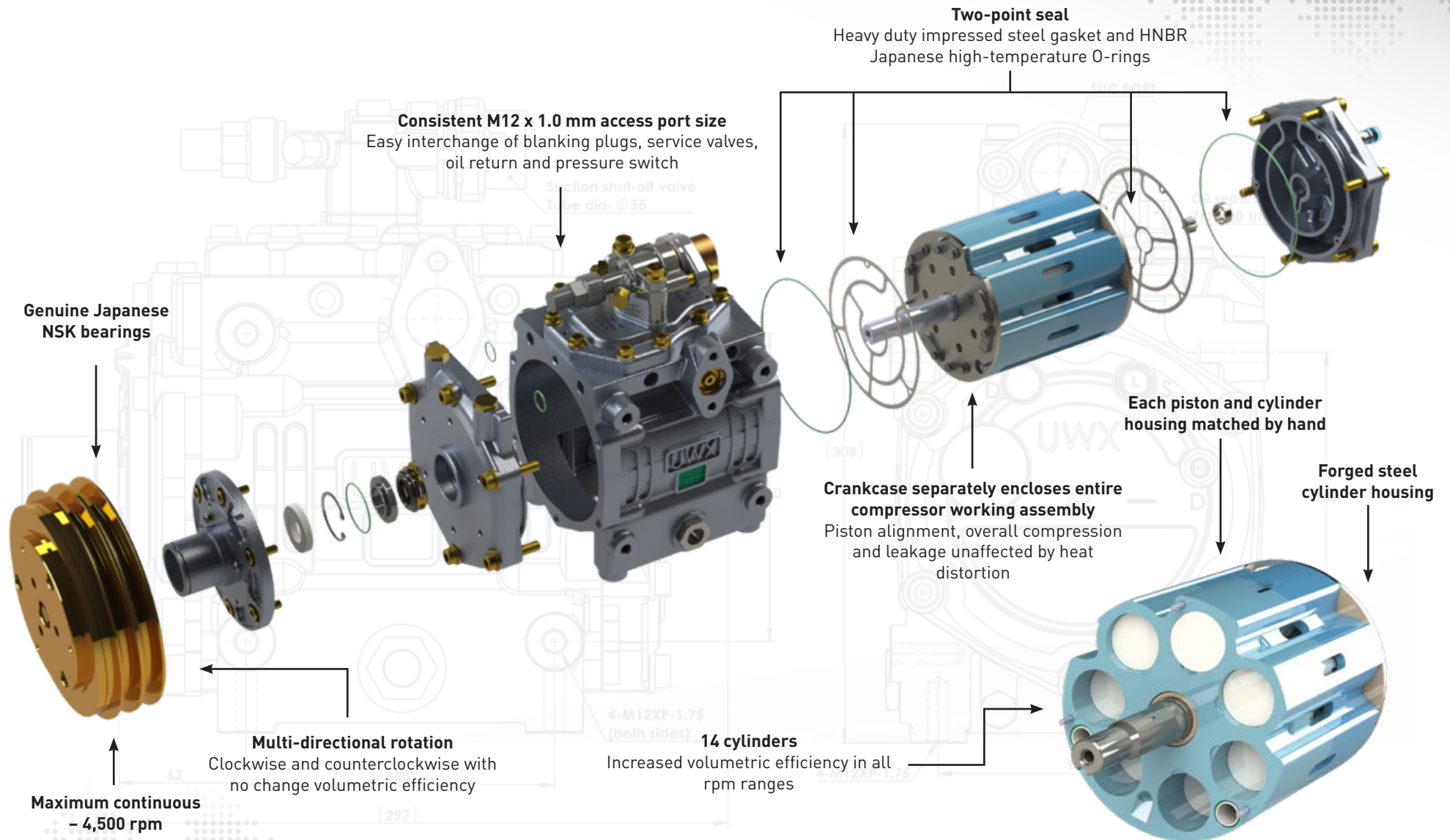
UWX compressors have a unique discharge gas crossover chamber situated at the top of the crankcase, which surrounds the oil chamber carrying incoming suction gas. As the discharge gas flows through the area, sufficient heat is transferred into the suction side to protect the compressor from momentary liquid flooding. The superheat supplied from the crossover chamber is sufficient to convert this liquid refrigerant into a vapour state. Please see the diagram below.

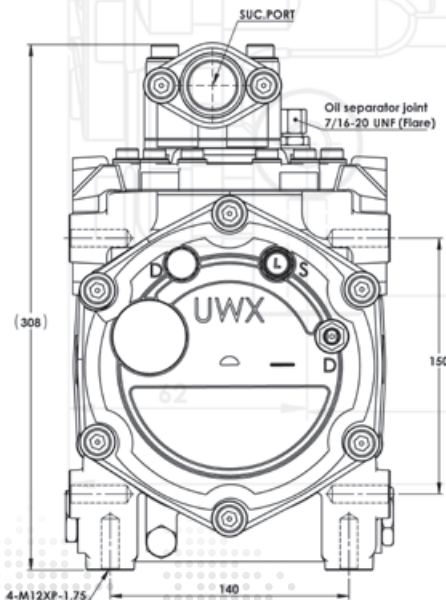
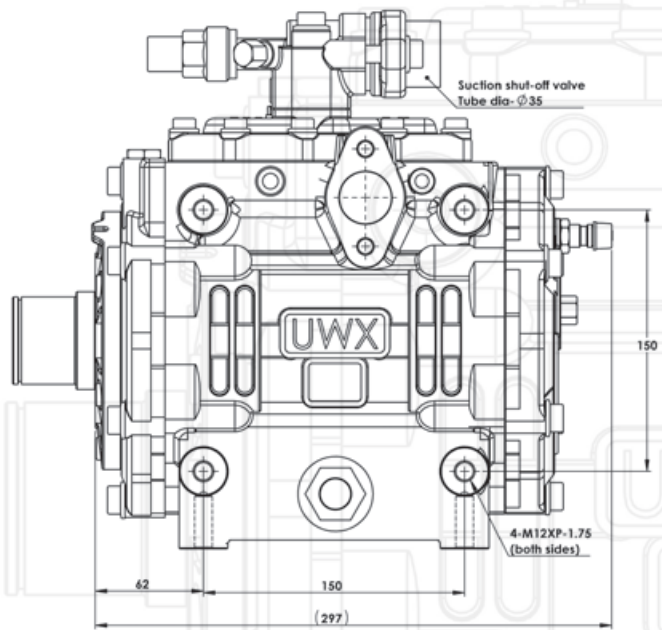




Unicla

Advantages UWX Series Compressors





Features

- Unicla 14-cylinder swashplate
- Suitable for refrigeration and air-conditioning applications with a system capacity requirement of **16-24 kW**
- Displacement: **508 cc/rev**
- Maximum continuous: **4500 rpm**
- Smooth and quiet operation
- High in capacity (508 cc), low in weight (25.4 kg) with compact dimensions of 324 mm x 188 mm x 303 mm
- Clockwise and counterclockwise rotation with no change in volumetric efficiency
- Heavy duty impressed steel gasket and HNBR Japanese high-temperature O-ring (two-point seal)
- Forged steel cylinder housing
- Drop-forged 5050 aluminium pistons with synthetic PTFE heat-treated rings
- Unicla Multi Direct Mounting (MDM)
- Refrigerants: R134a, R404a, R452a
- Pre-charged with PAG or POE oil
- Genuine NSK bearings throughout

Mounting

The Multi Direct Mounting system provides a total of 12 mounting points (four on the left, right and bottom sides). Each mounting point has an M12 x 1.75 mm threaded hole, providing excellent flexibility in engine mounting and bracket design.

Hose ports

The suction port is located on top of the compressor and the discharge port can be taken from either the left or right side. Both ports are fitted with a shut-off manifold assembly with back seating capability via stem valves.

Service valves

Low- and high-side service valves are fitted on the shut-off manifolds, and on the rear cap of the compressor.

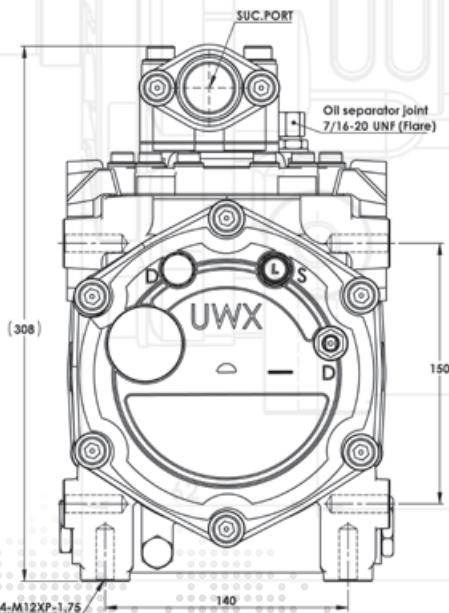
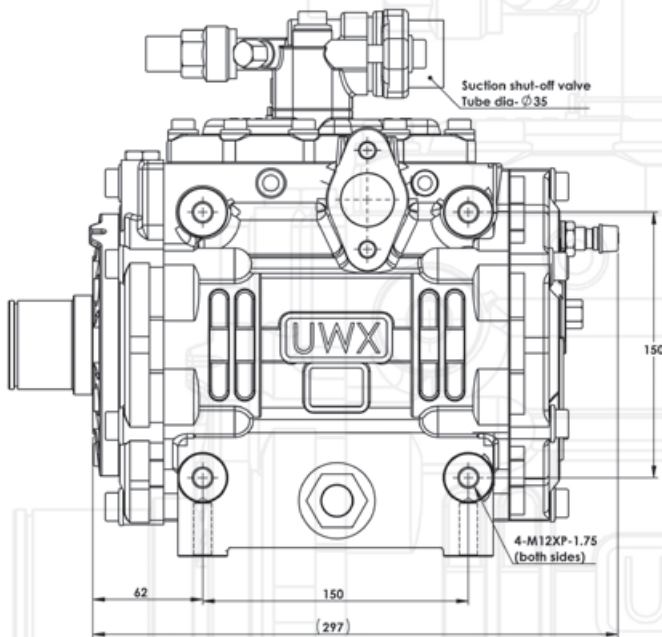
Oil return

An oil return fitting – 7/16-20 UNF male flare (Part No. 42203-000160) – is fitted on top of the compressor. It has a unique flow design suited to the Unicla oil separator (Part No. OS000050) and is interchangeable with the low-side service valve.

Other ports and fittings

Consistent M12 x 1.0 mm access port size. Easy interchange of blanking plugs, service valves, oil return and pressure switch fittings.

R134a refrigerant		
Compressor	Oil	Mounting
UWX440	PAG56 or POE68 (900 ml)	Direct (all sides)
R404a R452a refrigerant		
Compressor	Oil	Mounting
UWXF440	POE32 (900 ml)	Direct (all sides)



Features

- Unicla 14-cylinder swashplate
- Suitable for refrigeration and air-conditioning applications with a system capacity requirement of **18-28 kW**
- Displacement: **607 cc/rev**
- Maximum continuous: **4,500 rpm**
- Smooth and quiet operation
- High in capacity (607 cc), low in weight (25.4 kg) with compact dimensions of 324 mm x 188 mm x 303 mm
- Clockwise and counterclockwise rotation with no change in volumetric efficiency
- Heavy duty impressed steel gasket and HNBR Japanese high-temperature O-ring (two-point seal)
- Forged steel cylinder housing
- Drop-forged 5050 aluminium pistons with synthetic PTFE heat-treated rings
- Unicla Multi Direct Mounting (MDM)
- Refrigerants: R134a, R404a, R452a
- Pre-charged with PAG or POE oil
- Genuine NSK bearings throughout

Mounting

The Multi Direct Mounting system provides a total of 12 mounting points (four on the left, right and bottom sides). Each mounting point has an M12 x 1.75 mm threaded hole, providing excellent flexibility in engine mounting and bracket design.

Hose ports

The suction port is located on top of the compressor and the discharge port can be taken from either the left or right side. Both ports are fitted with a shut-off manifold assembly with back seating capability via stem valves.

Service valves

Low- and high-side service valves are fitted on the shut-off manifolds, and on the rear cap of the compressor.

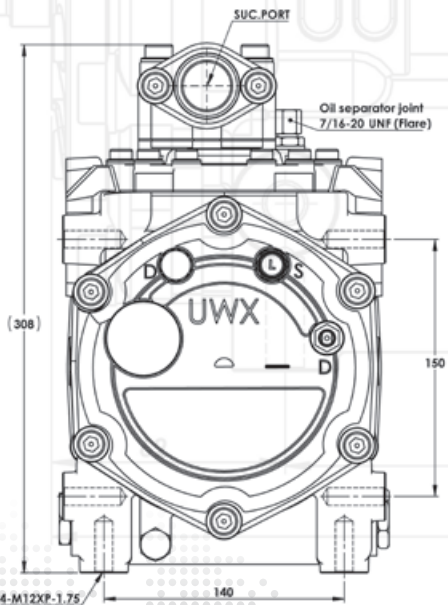
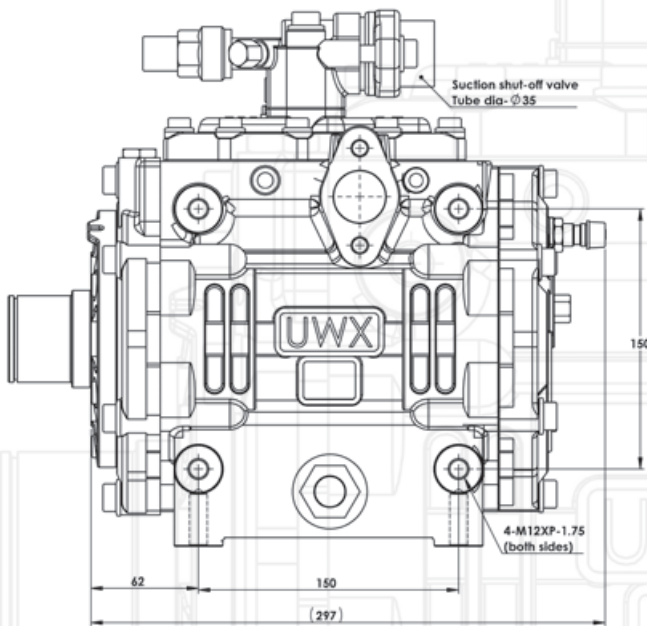
Oil return

An oil return fitting – 7/16-20 UNF male flare (Part No. 42203-000160) – is fitted on top of the compressor. It has a unique flow design suited to the Unicla oil separator (Part No. OS000050) and is interchangeable with the low-side service valve.

Other ports and fittings

Consistent M12 x 1.0 mm access port size. Easy interchange of blanking plugs, service valves, oil return and pressure switch fittings.

R134a refrigerant		
Compressor	Oil	Mounting
UWX550	PAG56 or POE68 (900 ml)	Direct (all sides)
R404a R452a refrigerant		
Compressor	Oil	Mounting
UWXF550	POE32 (900 ml)	Direct (all sides)



Features

- Unicla 14-cylinder swashplate
- Suitable for refrigeration and air-conditioning applications with a system capacity requirement of **20-32 kW**
- Displacement: **675 cc/rev**
- Maximum continuous: **4500 rpm**
- Smooth and quiet operation
- High in capacity (675cc), low in weight (25.4 kg) with compact dimensions of 324 mm x 188 mm x 303 mm
- Clockwise and counterclockwise rotation with no change in volumetric efficiency
- Heavy duty impressed steel gasket and HNBR Japanese high-temperature O-ring (two-point seal)
- Forged steel cylinder housing
- Drop-forged 5050 aluminium pistons with synthetic PTFE heat-treated rings
- Unicla Multi Direct Mounting (MDM)
- Refrigerants: R134a, R404a, R452a
- Pre-charged with PAG or POE oil
- Genuine NSK bearings throughout

Mounting

The Multi Direct Mounting system provides a total of 12 mounting points (four on the left, right and bottom sides). Each mounting point has an M12 x 1.75 mm threaded hole, providing excellent flexibility in engine mounting and bracket design.

Hose ports

The suction port is located on top of the compressor and the discharge port can be taken from either the left or right side. Both ports are fitted with a shut-off manifold assembly with back seating capability via stem valves.

Service valves

Low- and high-side service valves are fitted on the shut-off manifolds, and on the rear cap of the compressor.

Oil return

An oil return fitting – 7/16-20 UNF male flare (Part No. 42203-000160) – is fitted on top of the compressor. It has a unique flow design suited to the Unicla oil separator (Part No. OS000050) and is interchangeable with the low-side service valve.

Other ports and fittings

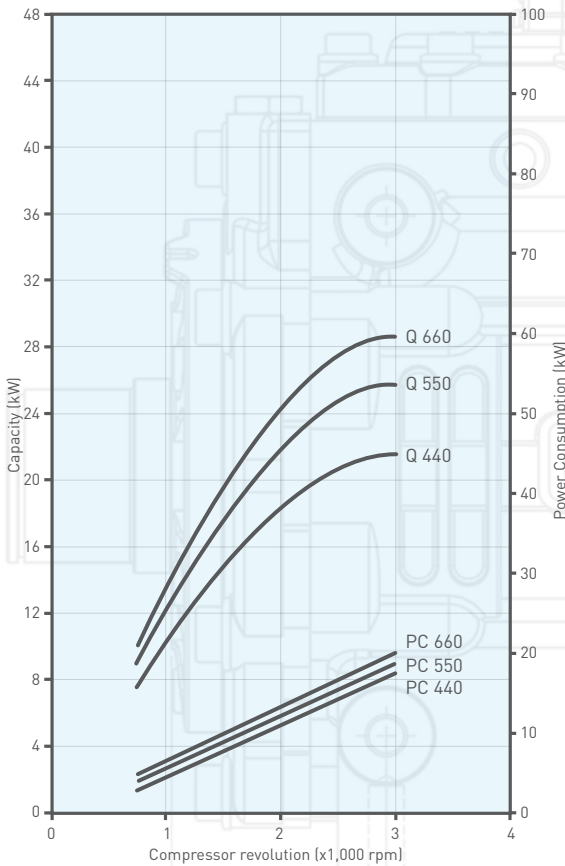
Consistent M12 x 1.0 mm access port size. Easy interchange of blanking plugs, service valves, oil return and pressure switch fittings.

R134a refrigerant		
Compressor	Oil	Mounting
UWX660	PAG56 or POE68 (900 ml)	Direct (all sides)
R404a R452a refrigerant		
Compressor	Oil	Mounting
UWXF660	POE32 (900 ml)	Direct (all sides)



440-550-660 Series Performance - R134a refrigerant

Condition 1

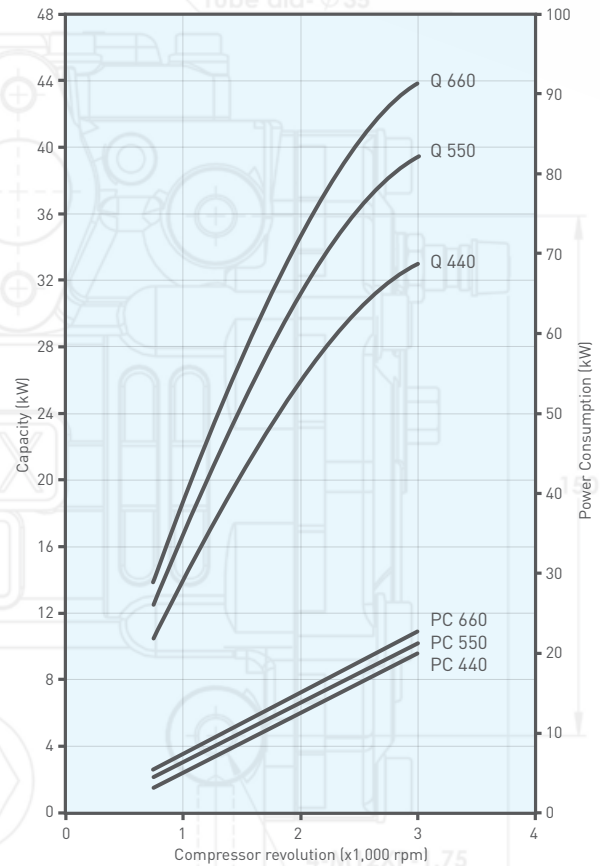


*Based on 9°C suction vapour temperature and 5°C subcooling.
Q - Cooling capacity
PC - Power Consumption

Conditions*	
Discharge pressure	15.2 bar
Condensing temperature	58°C
Suction pressure	1.82 bar
Evaporating temperature	-1°C

440-550-660 Series Performance - R134a refrigerant

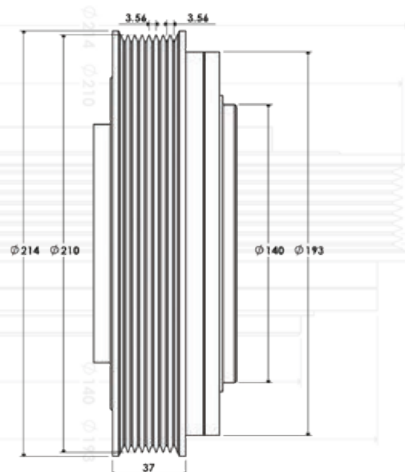
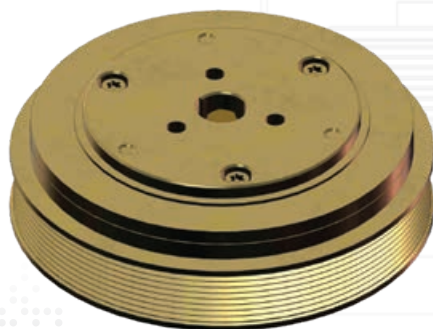
Condition 2



*Based on 15°C suction vapour temperature and 5°C subcooling.
Q - Cooling capacity
PC - Power Consumption

Conditions*	
Discharge pressure	15.2 bar
Condensing temperature	58°C
Suction pressure	2.49 bar
Evaporating temperature	5°C

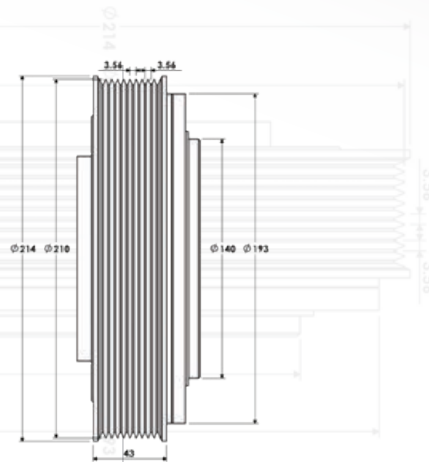
210-8PG-HD



Rated voltage	12/24V DC
Static friction torque	≥ 280 Nm
Power consumption	≤ 60 W
Max speed	4500 rpm

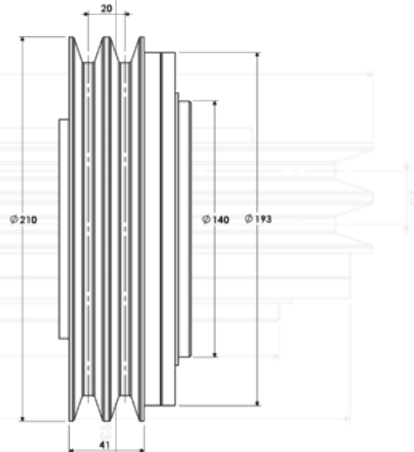
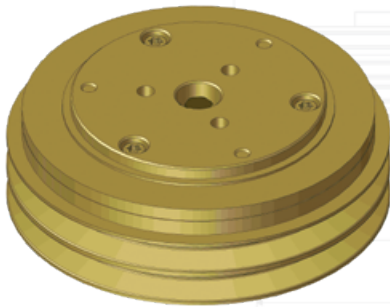


210-10PG-HD



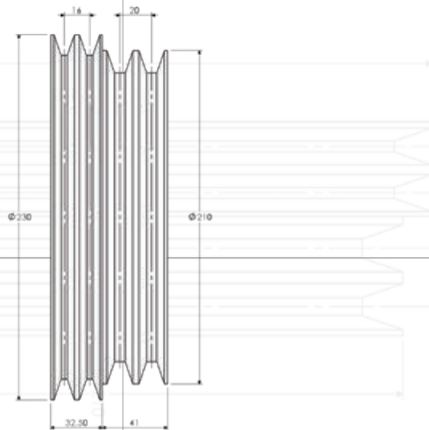
Rated voltage	12/24V DC
Static friction torque	≥ 280 Nm
Power consumption	≤ 60 W
Max speed	4500 rpm

210-BB-HD



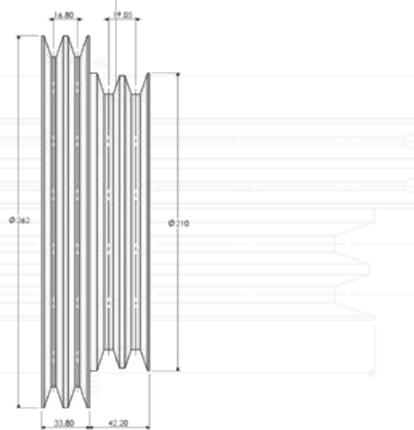
Rated voltage	12/24V DC
Static friction torque	≥ 280 Nm
Power consumption	≤ 60 W
Max speed	4500 rpm

230AA-210BB-HD



Rated voltage	12/24V DC
Static friction torque	≥ 240 Nm
Power consumption	≤ 62 W
Max speed	4500 rpm

262AA-210BB-HD



Rated voltage	12/24V DC
Static friction torque	≥ 240 Nm
Power consumption	≤ 62 W
Max speed	4500 rpm



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