



# SANDEN

Delivering Excellence

## B Group

200 Series  
Compressors



Manufactured by

**Unicla**



## Features

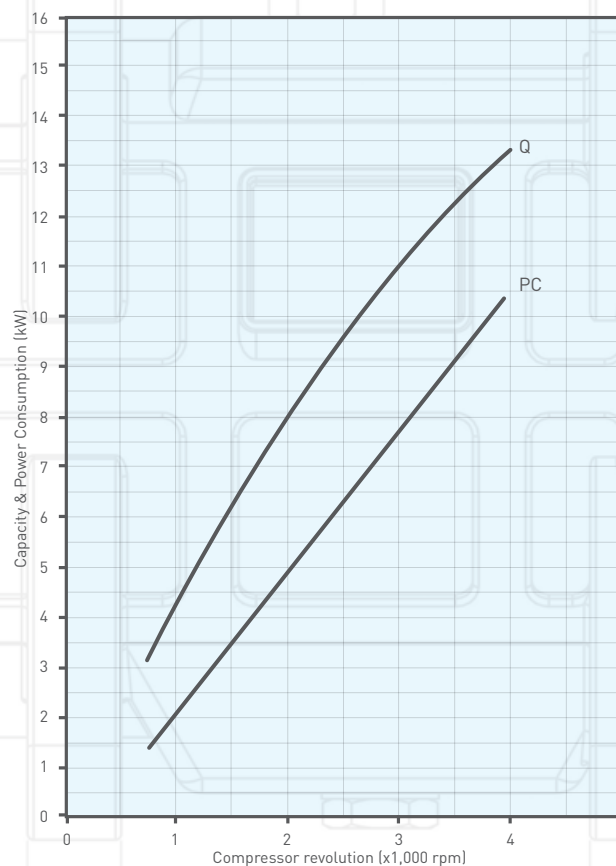
The Sanden 200 series compressors are designed to meet the demands of larger mid-range single and twin air-conditioning systems, and refrigeration applications where the system capacity requirement is **6-11 kW**.

Many transport refrigeration and air-conditioning systems in service today have compressors that are either too small or too large. The Sanden 200 series has always solved this 'gap' in compressor sizing and has continued to be known as the most reliable, highest capacity 200 cc compressor suitable for heavy duty transport refrigeration, military, marine, minibus, mining and agricultural applications.

Refrigerant leakage from compressor body O-rings is eliminated by separately enclosing the entire compressor working assembly in a one-piece crankcase, which also reduces the chance of heat distortion to the outer housing. This results in the compressor maintaining piston alignment and high compression for the duration of its service life, a feature Sanden is well known for.

The UPF, UMF and UXF model 200 series compressors have been upgraded internally to 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.

**200 Series Performance  
- R134a refrigerant**



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

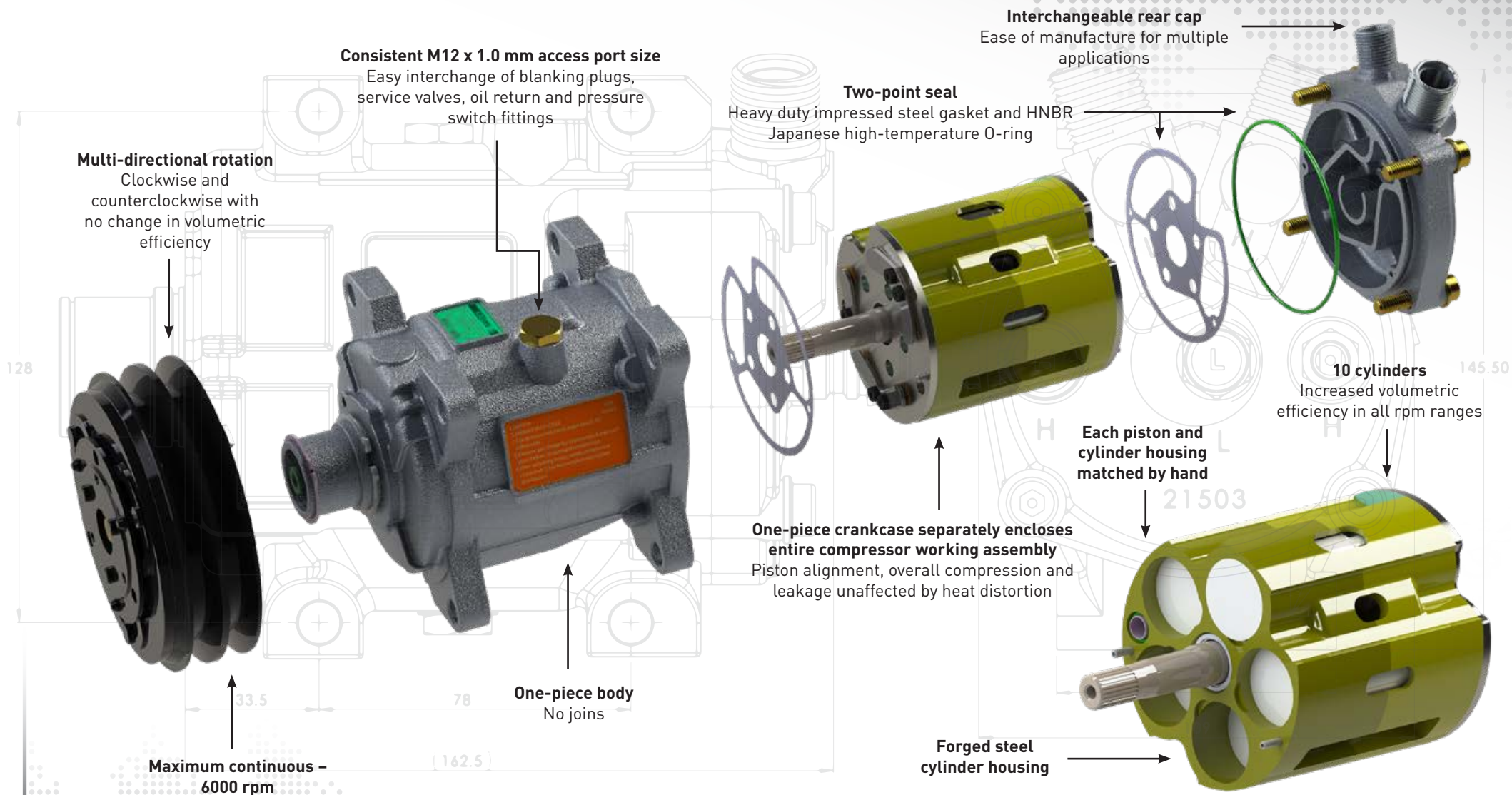
**Conditions\***

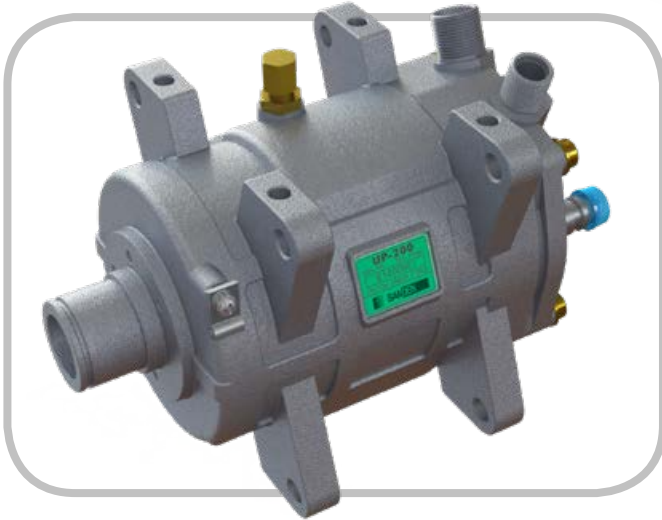
Discharge pressure	15.2 bar
Condensing temperature	58°C
Suction pressure	1.82 bar
Evaporating temperature	-1°C



# SANDEN

## Advantages 200 Series Compressors





### Features

- Sanden 10-cylinder swashplate
- Suitable for applications with a system capacity requirement of **6-11 kW**
- Displacement: **200 cc/rev**
- Maximum continuous: **6000 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

The UP and UPF models are compatible with mounting brackets designed for compressors with 80 mm lug spacings and can be interchanged with many compressors used in various applications.

### Service valves

Low- and high-side service valves are fitted to the rear cap, including a high-pressure relief valve.

### Oil return

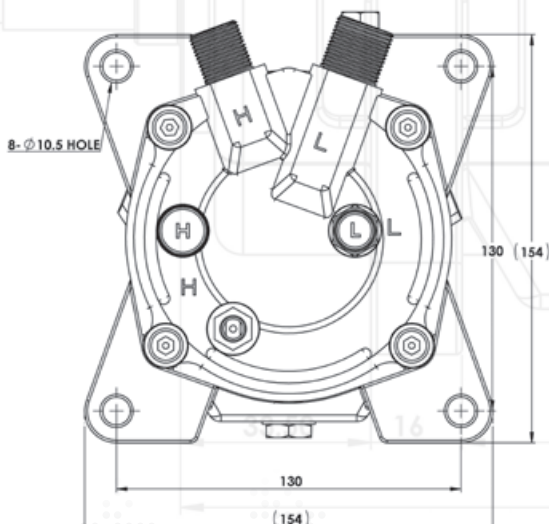
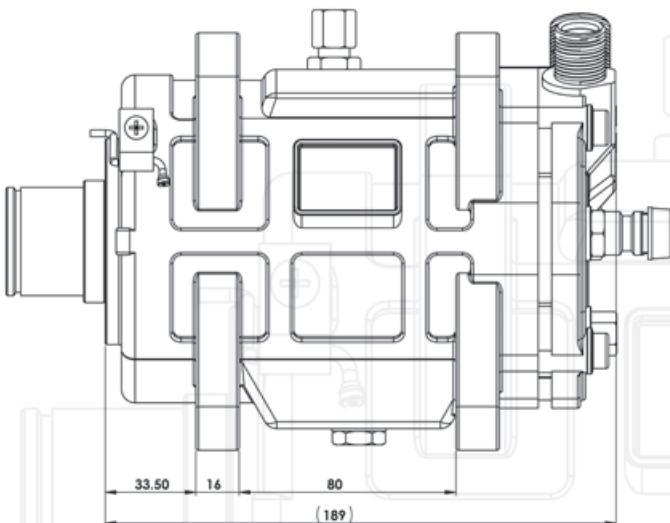
An oil return fitting – 7/16-20 UNF male flare (Part No. 42203-000160) – is fitted on top of the compressor. It has a unique flow design suited to the Sanden oil separator (Part No. OS000010) and is interchangeable with the low-side service valve.

### 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.

### Hose ports

Please see *Clutch, rear cap and hose port options* on page 8.



R134a refrigerant		
Compressor	Oil	Mounting
UP200	PAG56 (180 ml)	Ear mount
R404a   R452a refrigerant		
Compressor	Oil	Mounting
UPF200	POE32 (180 ml)	Ear mount





### Features

- Sanden 10-cylinder swashplate
- Suitable for applications with a system capacity requirement of **6-11 kW**
- Displacement: **200 cc/rev**
- Maximum continuous: **6000 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

The UM and UMF model compressors feature a new mounting configuration of four conventional bolt-through mounting points that have been narrowed to 92 mm at the top and 87 mm at the bottom. They are directly compatible with TM21 and QP21 compressors.

### Service valves

High-pressure relief valve fitted, service valves not fitted.

### Oil return

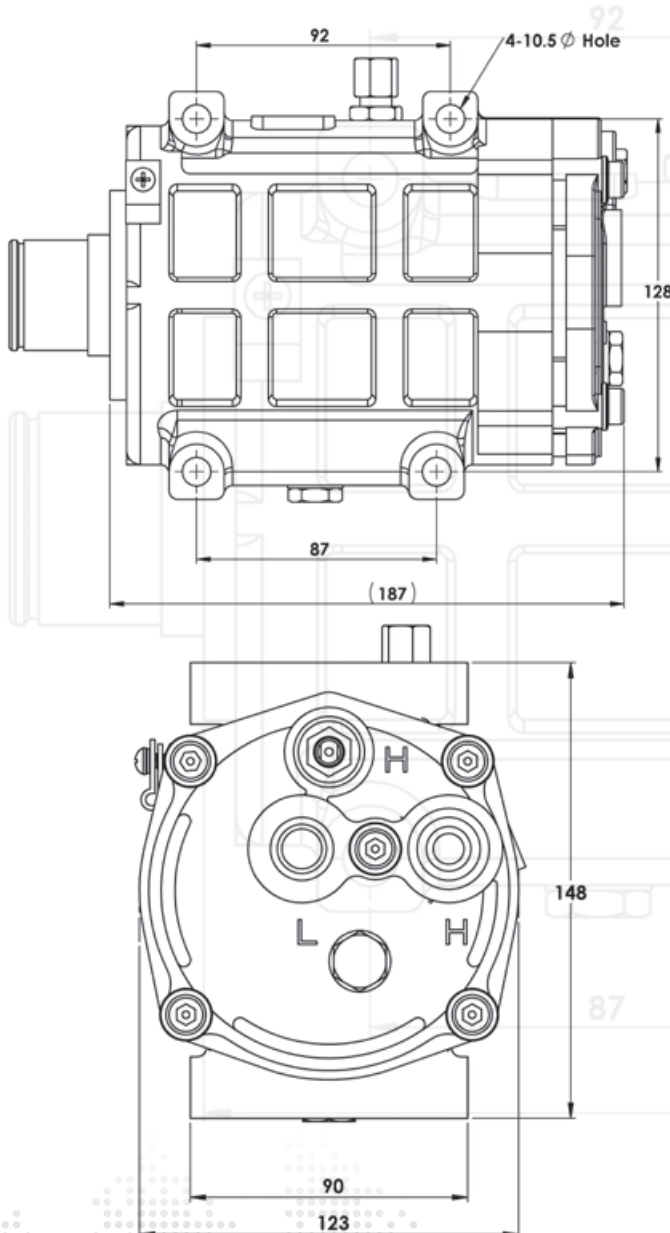
An oil return fitting – 7/16-20 UNF male flare (Part No. 42203-000160) – is fitted on top of the compressor. It has a unique flow design suited to the Sanden oil separator (Part No. OS000010) and is interchangeable with the low-side service valve.

### Other ports and fittings

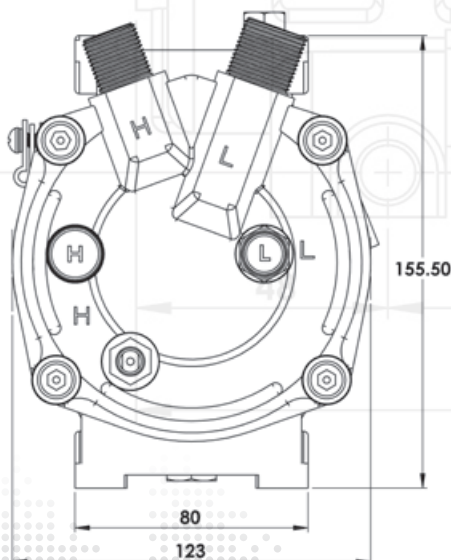
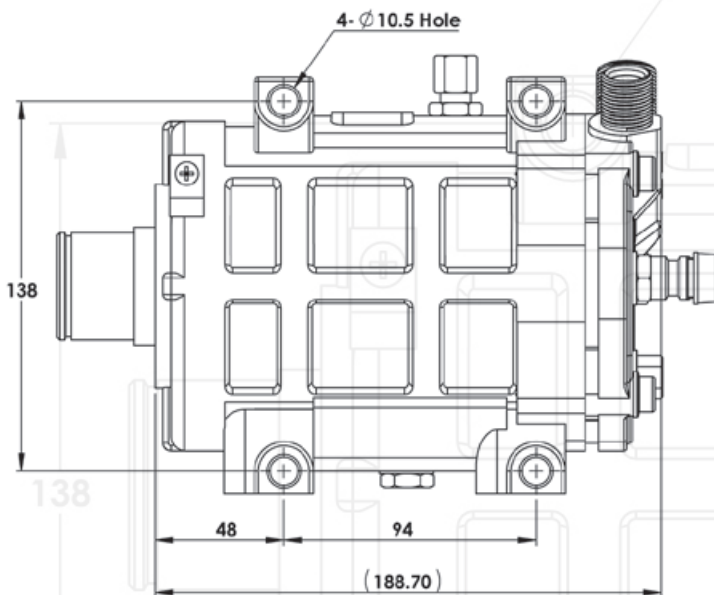
Consistent M12 x 1.0 mm access port size. Easy interchange of blanking plugs, service valves, oil return and pressure switch fittings.

### Hose ports

Please see *Clutch, rear cap and hose port options* on page 8.



R134a refrigerant		
Compressor	Oil	Mounting
UM200	PAG56 (180 ml)	TM/QP21 compatible
R404a   R452a refrigerant		
Compressor	Oil	Mounting
UMF200	POE32 (180 ml)	TM/QP21 compatible



### Features

- Sanden 10-cylinder swashplate
- Suitable for applications with a system capacity requirement of **6-11 kW**
- Displacement: **200 cc/rev**
- Maximum continuous: **6000 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

The UX and UXF models are direct mount (bolt-through) and have side mounting points 94 mm apart.

### Service valves

Low- and high-side service valves are fitted to the rear cap, including a high-pressure relief valve.

### 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 Sanden oil separator (Part No. OS000010) and is interchangeable with the low-side service valve.

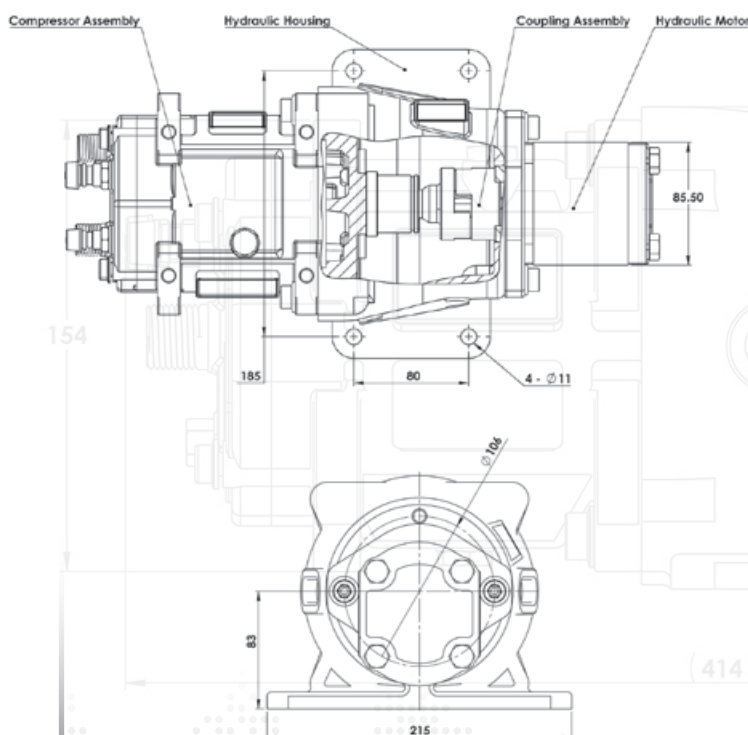
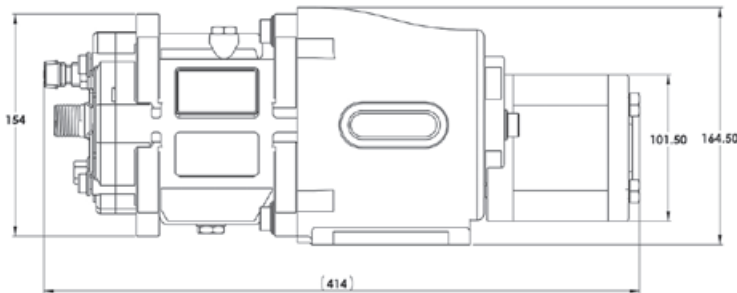
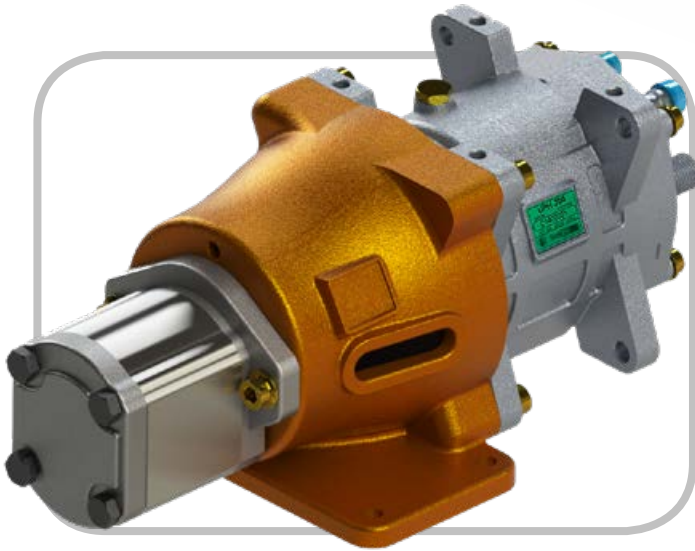
### Other ports and fittings

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

### Hose ports

Please see *Clutch, rear cap and hose port options* on page 8.

R134a refrigerant		
Compressor	Oil	Mounting
UX200	PAG56 (180 ml)	Direct mount
R404a   R452a refrigerant		
Compressor	Oil	Mounting
UXF200	POE32 (180 ml)	Direct mount



### Features

The Sanden 200 series Hydraulic Drive compressors are universally adaptable and can be driven by any 11-15 cc hydraulic motor with a standard SAE twin-bolt A-type mounting configuration and 5/8" nine-tooth shaft. The unit can be supplied as a complete housing and compressor kit without the hydraulic motor, or the hydraulic drive housing kit on its own without the compressor.

- Sanden 10-cylinder swashplate
- Suitable for applications with a system capacity requirement of **6-11 kW**
- Displacement: **200 cc/rev**
- Maximum continuous: **6000 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

The UPH and UPHF models are designed to mount to a solid base plate at four points equal to or greater than 185 x 80 mm in diameter.

### Service valves

Low- and high-side service valves are fitted to the rear cap, including a high-pressure relief valve.

### Oil return port

An oil return fitting – 7/16-20 UNF male flare (Part No. 42203-000160) – is supplied as standard on both UPH and UPHF models. It has a unique flow design suited to the Sanden oil separator (Part No. OS000010) 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.

### Hose ports

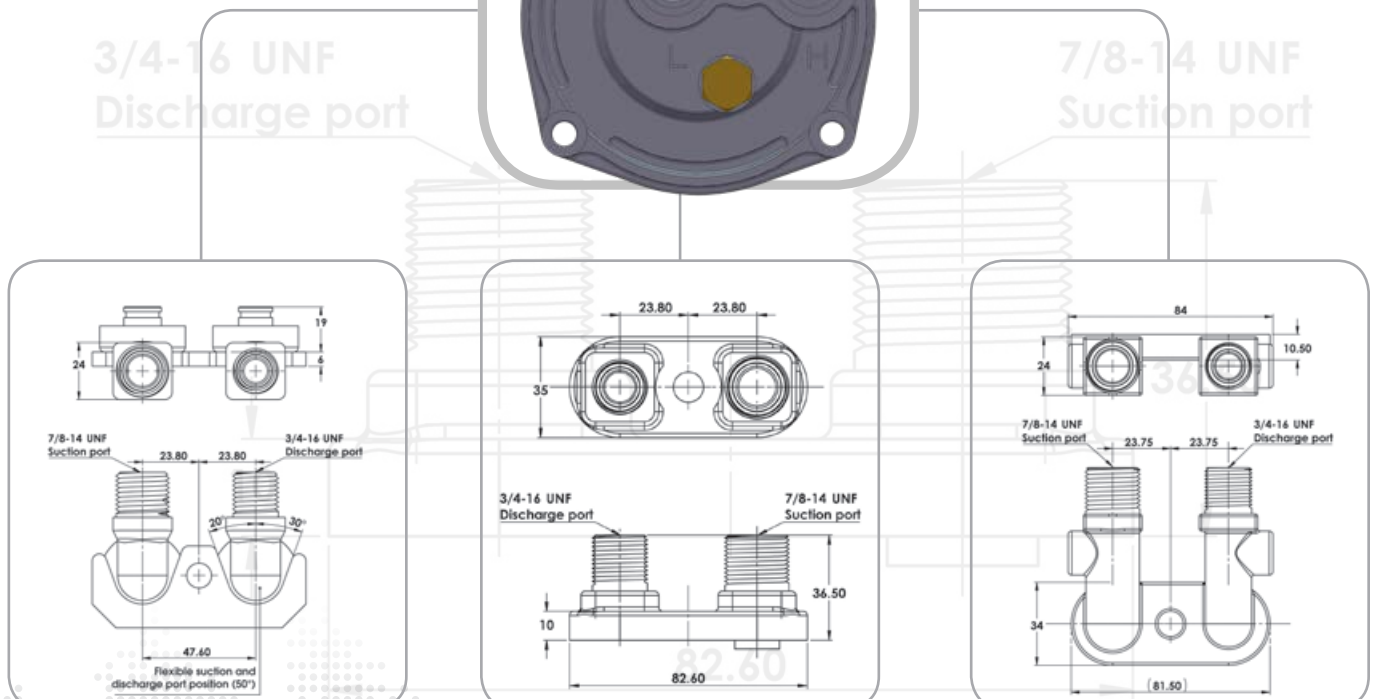
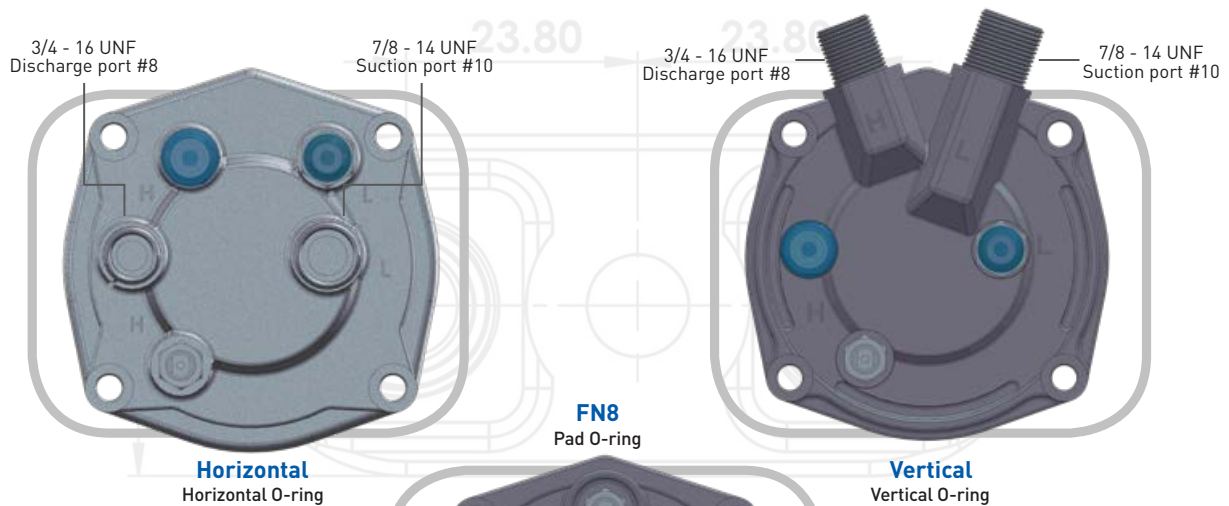
Please see *Clutch, rear cap and hose port options* on page 8.

R134a refrigerant		
Compressor	Oil	Mounting
UPH200	PAG56 (180 ml)	Base mount
R404a   R452a refrigerant		
Compressor	Oil	Mounting
UPHF200	POE32 (180 ml)	Base mount



### Clutches available for 200 Series Compressors

Type	125	135	145	152	12V	24V
AA-Groove			✓		✓	✓
B-Groove			✓		✓	✓
BB-Groove			✓		✓	✓
6-Groove	✓				✓	✓
8-Groove		✓			✓	✓
10-Groove		✓			✓	✓







**SANDEN**

[www.sanden.com](http://www.sanden.com)

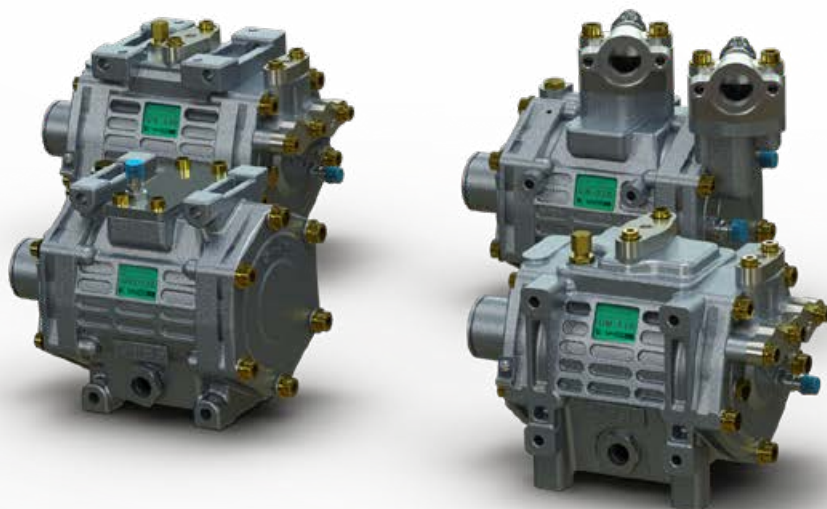


# SANDEN

Delivering Excellence

## B Group

### 300 Series Compressors



Manufactured by

**Unicla**



## Features

The Sanden 300 series compressors are the ideal choice for designers of air-conditioning and refrigeration systems in larger commercial applications where the system capacity requirement is **10-16 kW**. For systems with two or even three evaporators, Sanden 300 series compressors can be used as a single unit or mounted in twin or triple configurations.

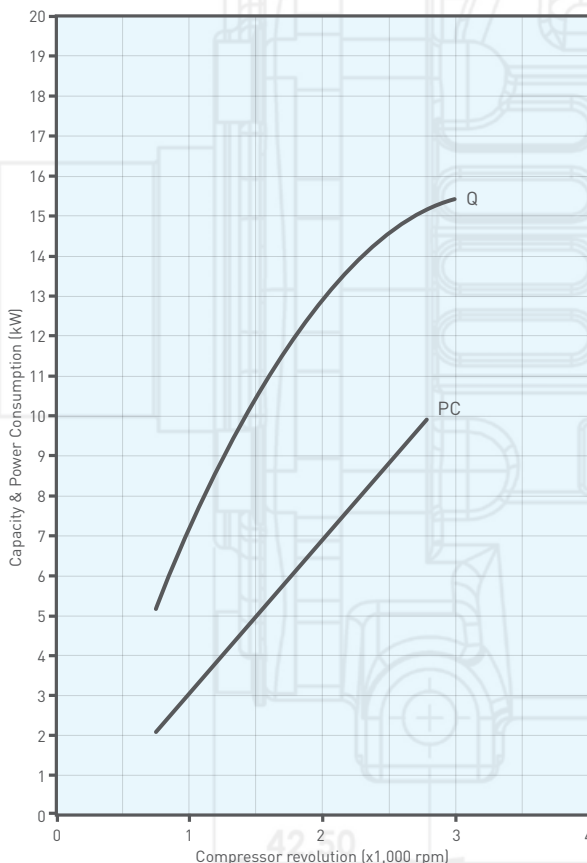
The 300 series has porting for horizontal or vertical hose connections as standard, and heavy duty blanking plates installed on outlets that are not in use.

These compressors feature the world-renowned Sanden 10-cylinder swashplate design that delivers extremely quiet and smooth operation with unbeatable volumetric efficiency through all revolution ranges – especially at low rpm – in either clockwise or counterclockwise direction.

Refrigerant leakage from compressor body O-rings is eliminated by separately enclosing the entire compressor working assembly in a one-piece crankcase, which also reduces the chance of heat distortion to the outer housing. This results in the compressor maintaining piston alignment and high compression for the duration of its service life, a feature Sanden is well known for.

The UXF and UMF model 300 series compressors have been upgraded internally to 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.

### 330 Series Performance - R134a refrigerant

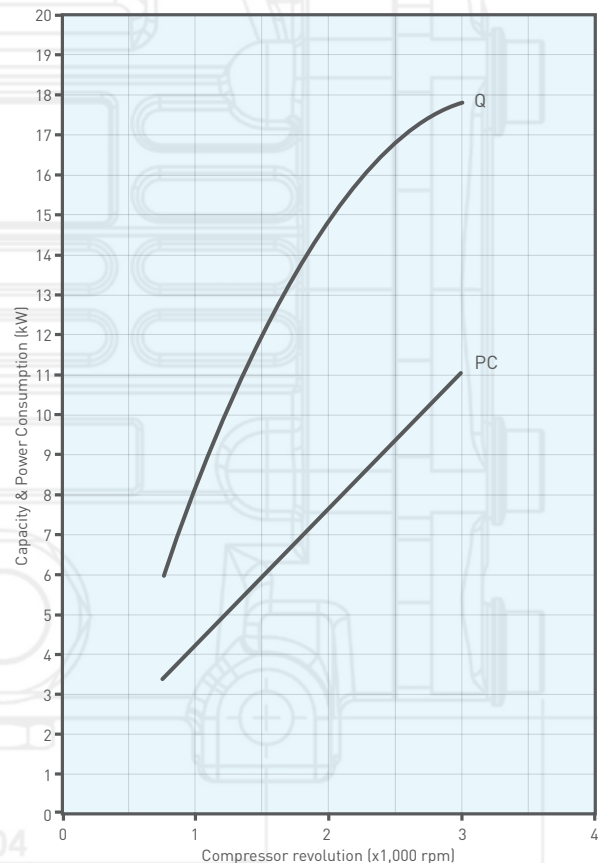


\*Based on 9°C suction vapour temperature and 5°C subcooling.

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

### 380 Series Performance - R134a refrigerant



\*Based on 9°C suction vapour temperature and 5°C subcooling.

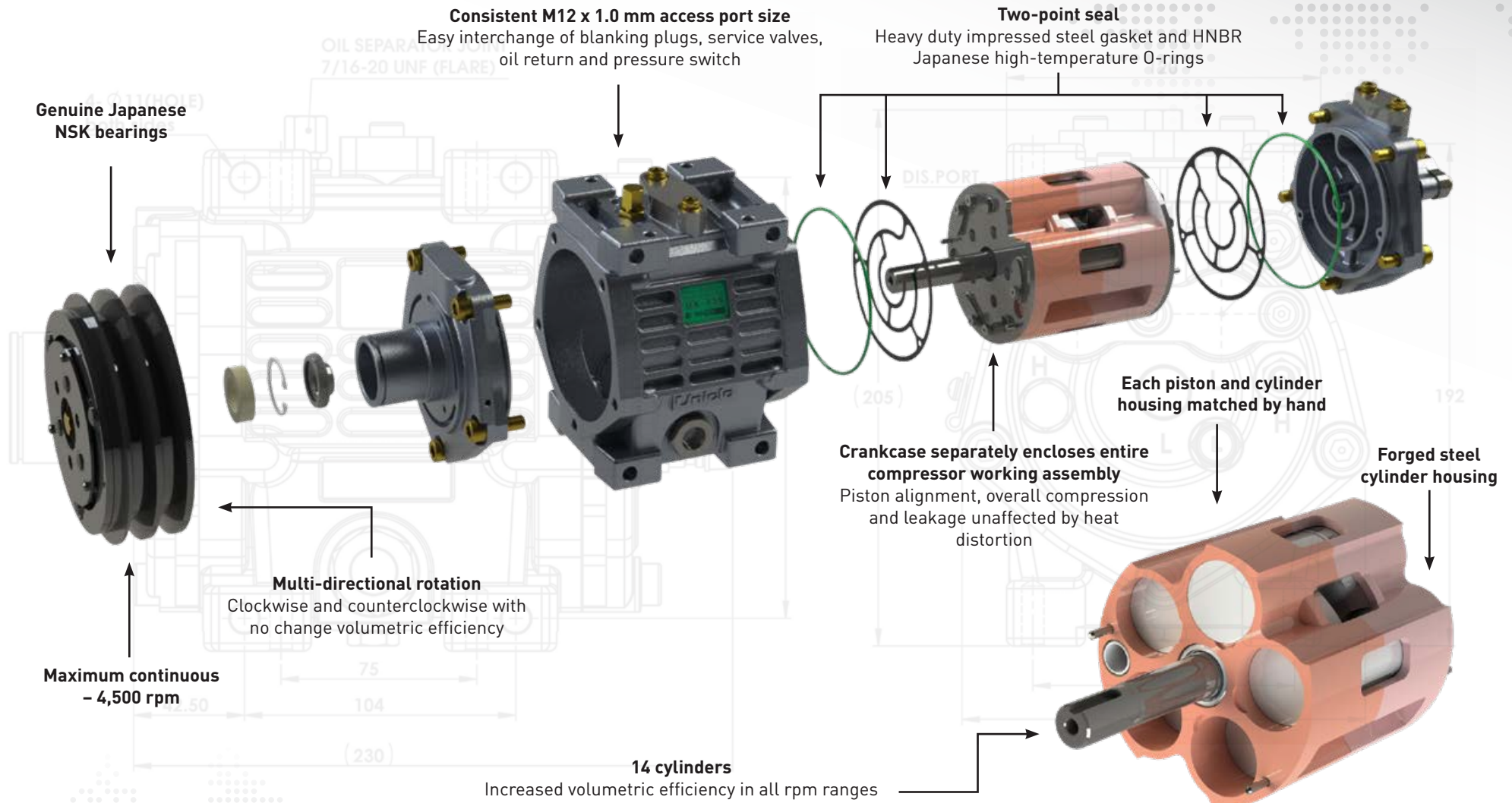
Q - Cooling capacity  
PC - Power Consumption

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

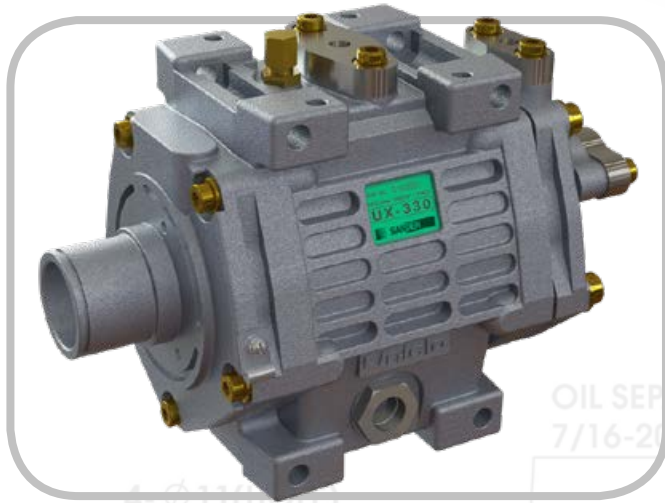


# SANDEN

## Advantages 300 Series Compressors







### Features

- Sanden 10-cylinder swashplate
- Suitable for larger commercial applications with a system capacity requirement of **10-14 kW**
- Displacement: **330 cc/rev**
- Maximum continuous: **4500 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

Suited to all mounting brackets made for direct mount (bolt-through) compressors with bolt holes 104 mm apart, including four M10 x 1.5 mm threaded holes top and bottom 75 mm apart.

### Hose ports

Porting for horizontal or vertical hose connections are standard, achieved by heavy duty blanking plates installed on outlets that are not in use. A range of standard hose port manifolds is available. Please see *Clutch and hose port options* on page 12.

### Service valves

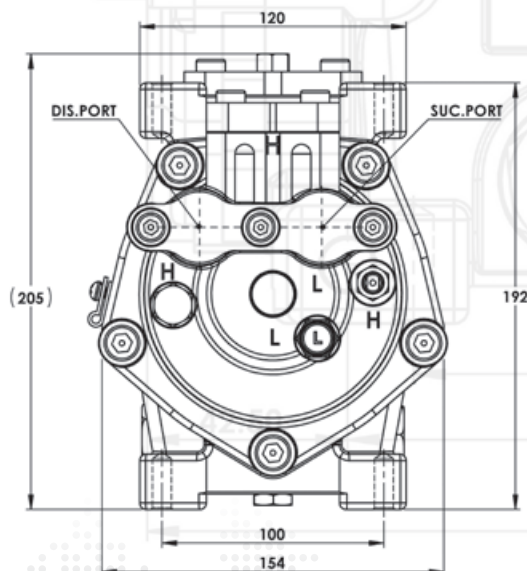
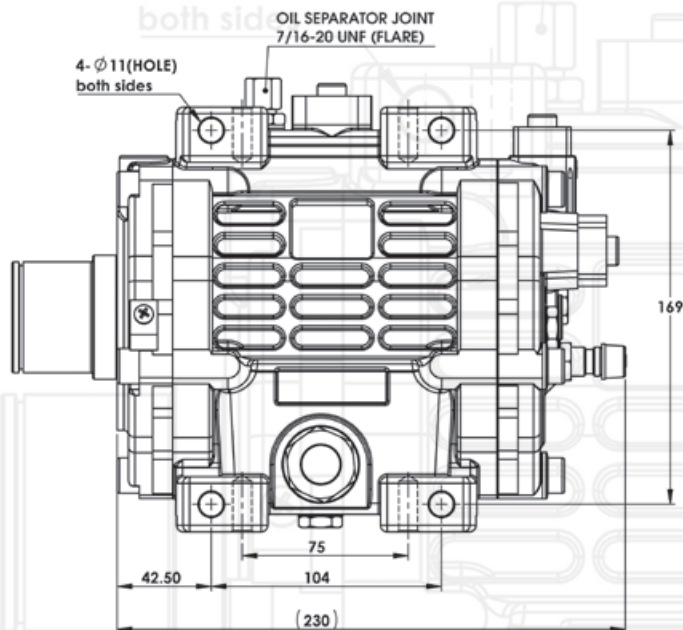
A low-side service valve is fitted to the rear cap, including a high-pressure relief valve.

### 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 Sanden oil separator (Part No. OS000030) 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
UX330	PAG56 or POE68 (600 ml)	Direct (all sides)
R404a   R452a refrigerant		
Compressor	Oil	Mounting
UXF330	POE32 (600 ml)	Direct (all sides)



### Features

- Sanden 10-cylinder swashplate
- Suitable for larger commercial applications with a system capacity requirement of **10-14 kW**
- Displacement: **330 cc/rev**
- Maximum continuous: **4500 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

The Multi Direct Mounting system on UM models provides a total of 12 mounting points (four on the left, right and bottom sides) enabling direct compatibility with TM31 and QP31 compressors. Each mounting point has an M10 x 1.5 mm threaded hole, providing excellent flexibility in engine mounting and bracket design.

### Hose ports

Porting for horizontal or vertical hose connections are standard, achieved by heavy duty blanking plates installed on outlets that are not in use. A range of standard hose port manifolds is available. Please see *Clutch and hose port options* on page 12.

### Service valves

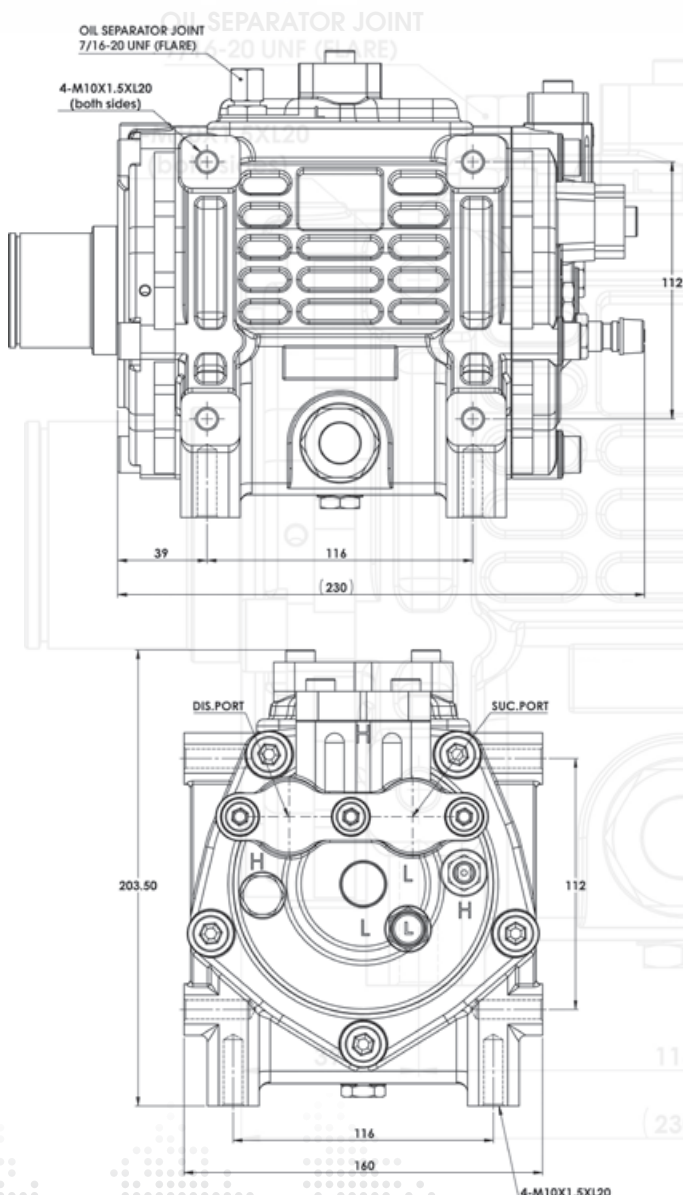
A low-side service valve is fitted to the rear cap, including a high-pressure relief valve.

### Oil return

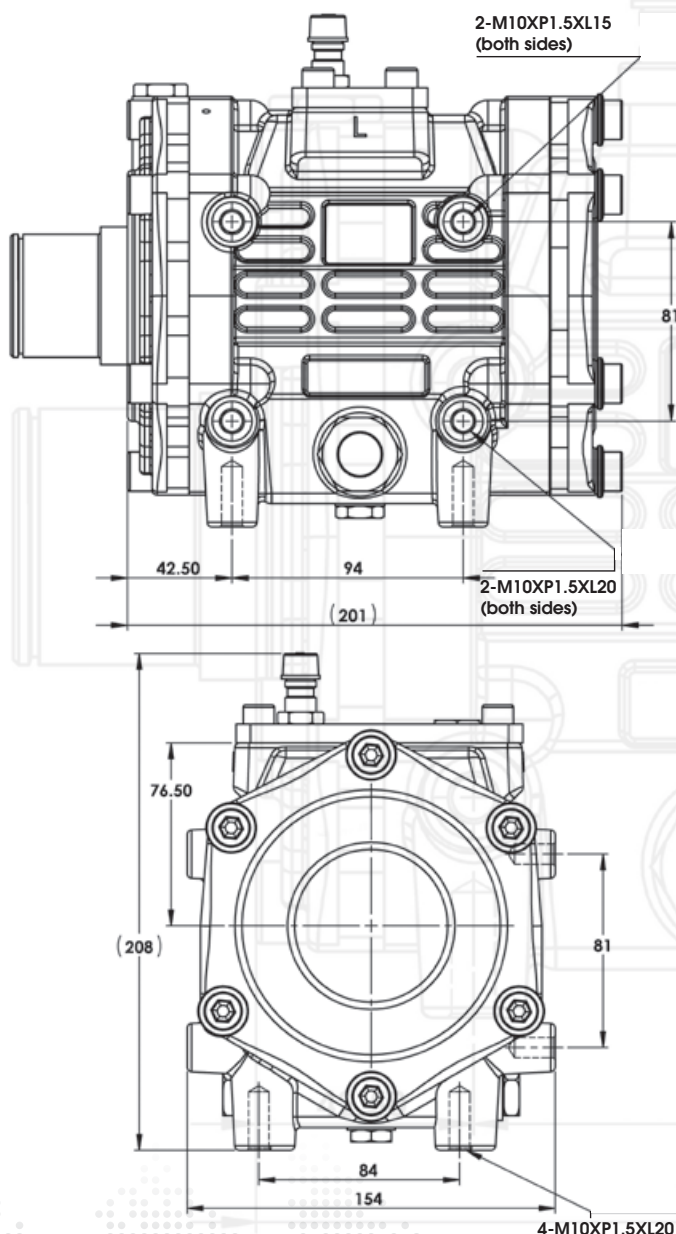
An oil return fitting – 7/16-20 UNF male flare (Part No. 42203-000160) – is fitted on top of the compressor. It has a unique flow design suited to the Sanden oil separator (Part No. OS000030) and is interchangeable with the low-side service valve.

### 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
UM330	PAG56 or POE68 (600 ml)	TM/QP31 compatible
R404a   R452a refrigerant		
Compressor	Oil	Mounting
UMF330	POE32 (600 ml)	TM/QP31 compatible



### Features

- Sanden 10-cylinder swashplate
- Suitable for larger commercial applications with a system capacity requirement of **10-14 kW**
- Displacement: **330 cc/rev**
- Maximum continuous: **4500 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

The Multi Direct Mounting system on UN models provides a total of eight mounting points (four on both the left and right sides), enabling direct compatibility with Denso 10P30B compressors. Mounting points on each side of the compressor are 94 mm and 81 mm apart.

### Hose ports

A single piece manifold is available. Please see *Clutch and hose port options* on page 12.

### Service valves

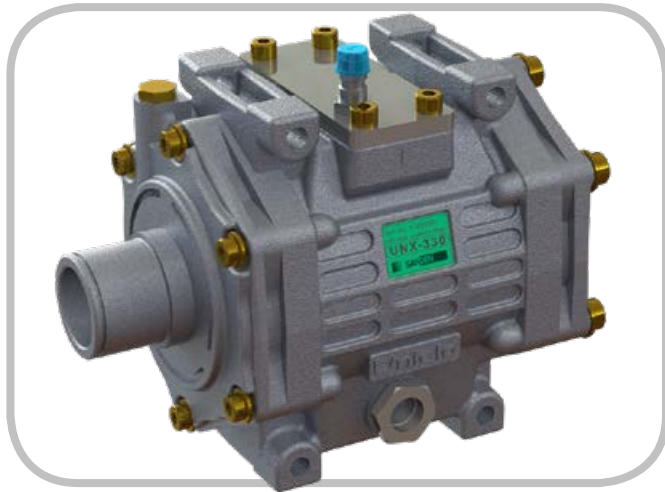
A low-side service valve is fitted to the top.

### Oil return and other ports

An oil return port is not fitted.

R134a refrigerant		
Compressor	Oil	Mounting
UN330	PAG56 or POE68 (600 ml)	Denso 10P30B compatible





### Features

- Sanden 10-cylinder swashplate
- Suitable for larger commercial applications with a system capacity requirement of **10-14 kW**
- Displacement: **330 cc/rev**
- Maximum continuous: **4500 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

The direct mounting system (bolt-through) on the UNX provides a total of eight mounting points (four on both the left and right sides), enabling direct compatibility with Denso 10P30C compressors. Mounting points on each side of the compressor are 104 mm and 169 mm apart.

### Hose ports

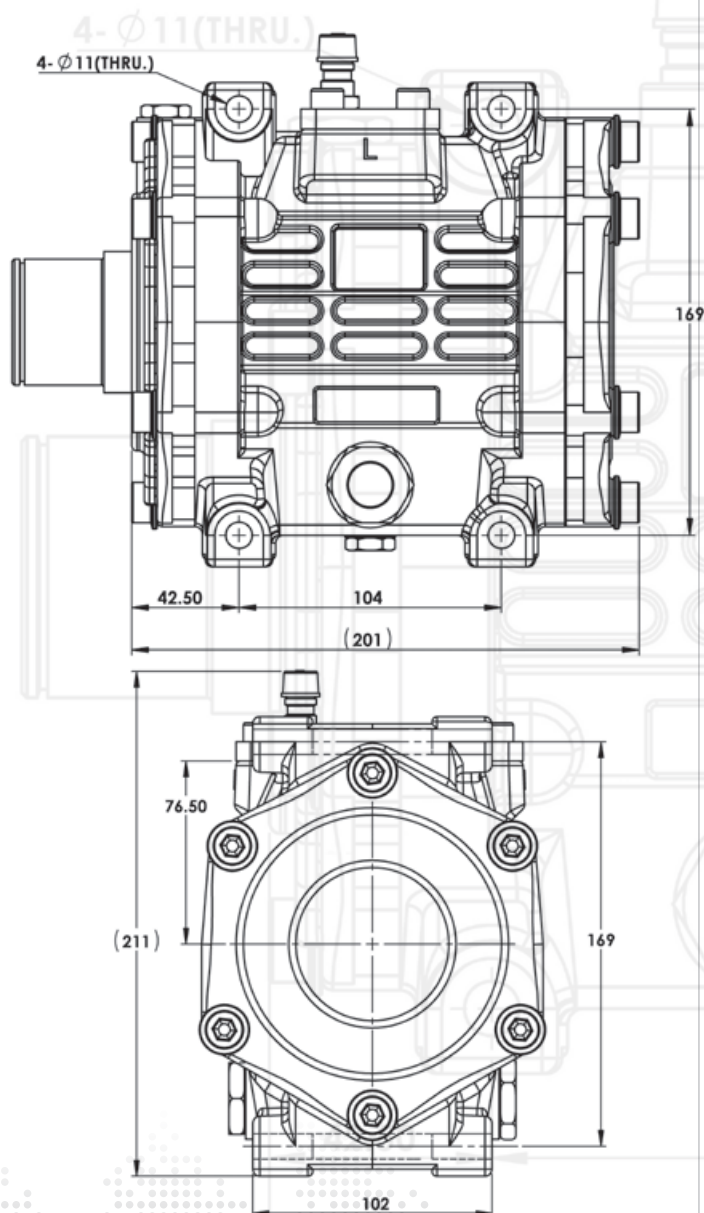
A single-piece manifold is available. Please see *Clutch and hose port options* on page 12.

### Service valves

A low-side service valve is fitted to the top.

### Oil return and other ports

An oil return port is not fitted.



R134a refrigerant		
Compressor	Oil	Mounting
UNX330	PAG56 or POE68 (600 ml)	Denso 10P30C compatible





### Features

- Sanden 10-cylinder swashplate
- Suitable for larger commercial applications with a system capacity requirement of **12-16 kW** and can be fitted into the same position as a Sanden UX330 or UXF330
- Displacement: **380 cc/rev**
- Maximum continuous: **4500 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

Suited to all mounting brackets made for direct mount (bolt-through) compressors with bolt holes 104 mm apart, including four M10 x 1.5 mm threaded holes top and bottom 75 mm apart.

### Hose ports

Porting for horizontal or vertical hose connections are standard, achieved by heavy duty blanking plates installed on outlets that are not in use. A range of standard hose port manifolds is available. Please see *Clutch and hose port options* on page 12.

### Service valves

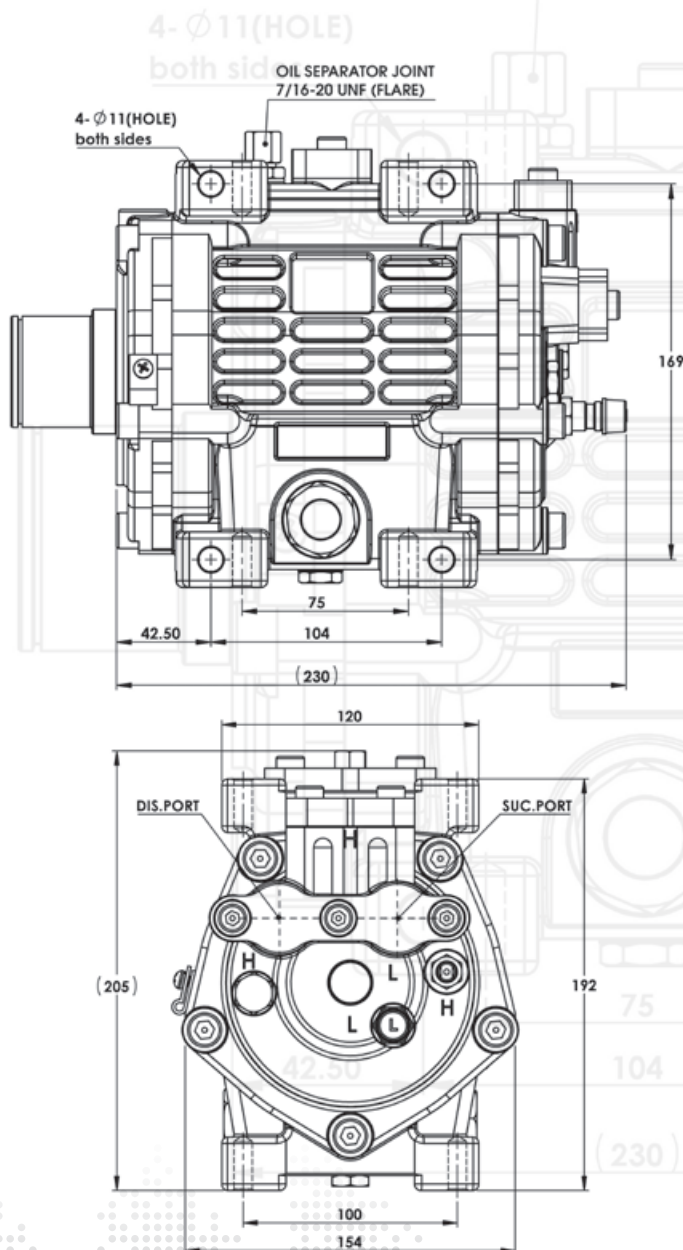
A low-side service valve is fitted to the rear cap, including a high-pressure relief valve.

### 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 Sanden oil separator (Part No. OS000030) 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
UX380	PAG56 or POE68 (600 ml)	Direct (all sides)
R404a   R452a refrigerant		
Compressor	Oil	Mounting
UXF380	POE32 (600 ml)	Direct (all sides)



### Features

- Sanden 10-cylinder swashplate
- Suitable for larger commercial applications with a system capacity requirement of **12-16 kW** and can be fitted into the same position as a Sanden UM330 or UMF330
- Displacement: **380 cc/rev**
- Maximum continuous: **4500 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

The Multi Direct Mounting system on UM models provides a total of 12 mounting points (four on the left, right and bottom sides) enabling direct compatibility with TM31 and QP31 compressors. Each mounting point has an M10 x 1.5 mm threaded hole, providing excellent flexibility in engine mounting and bracket design.

### Hose ports

Porting for horizontal or vertical hose connections are standard, achieved by heavy duty blanking plates installed on outlets that are not in use. A range of standard hose port manifolds is available. Please see *Clutch and hose port options* on page 12.

### Service valves

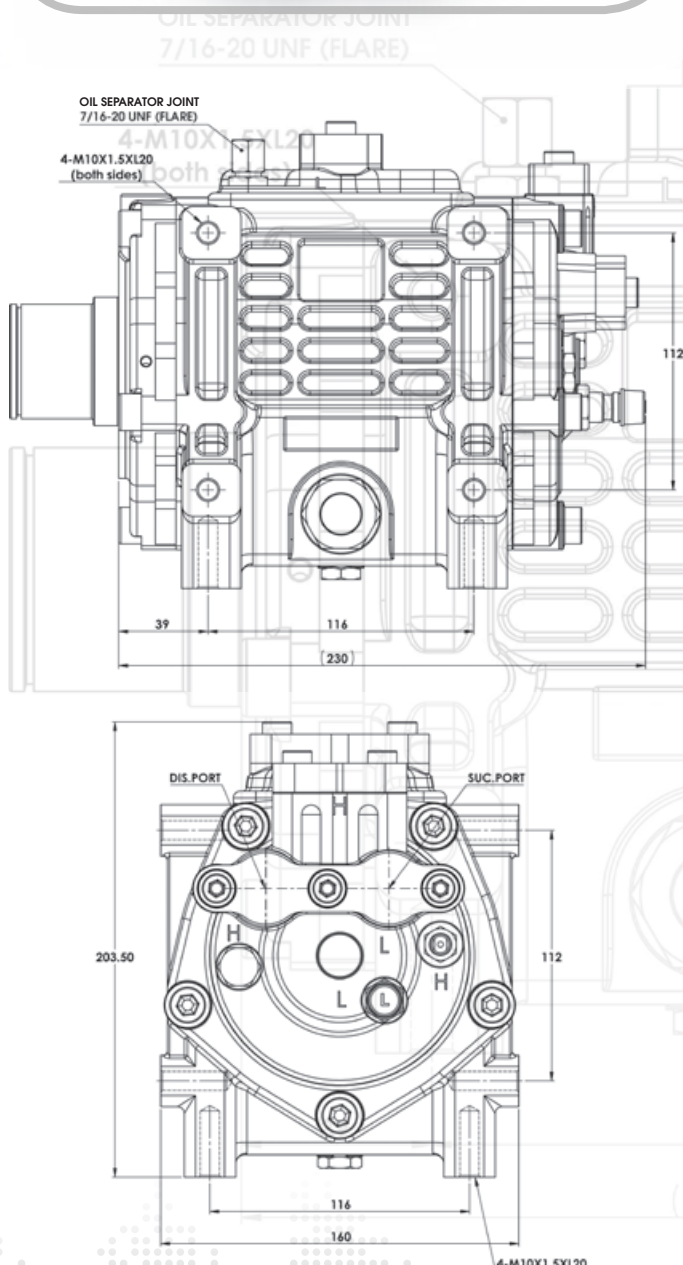
A low-side service valve is fitted to the rear cap, including a high-pressure relief valve.

### 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 Sanden oil separator (Part No. OS000030) 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
UM380	PAG56 or POE68 (600 ml)	TM/QP31 compatible
R404a   R452a refrigerant		
Compressor	Oil	Mounting
UMF380	POE32 (600 ml)	TM/QP31 compatible



### Features

- Sanden 10-cylinder swashplate
- Suitable for larger commercial and bus applications with a system capacity requirement of **12-16 kW**
- Displacement: **380 cc/rev**
- Maximum continuous: **4500 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

The Multi Direct Mounting system on UN models provides a total of eight mounting points (four on both the left and right sides), enabling direct compatibility with Denso 10P30B compressors. Mounting points on each side of the compressor are 94 mm and 81 mm apart.

### Hose ports

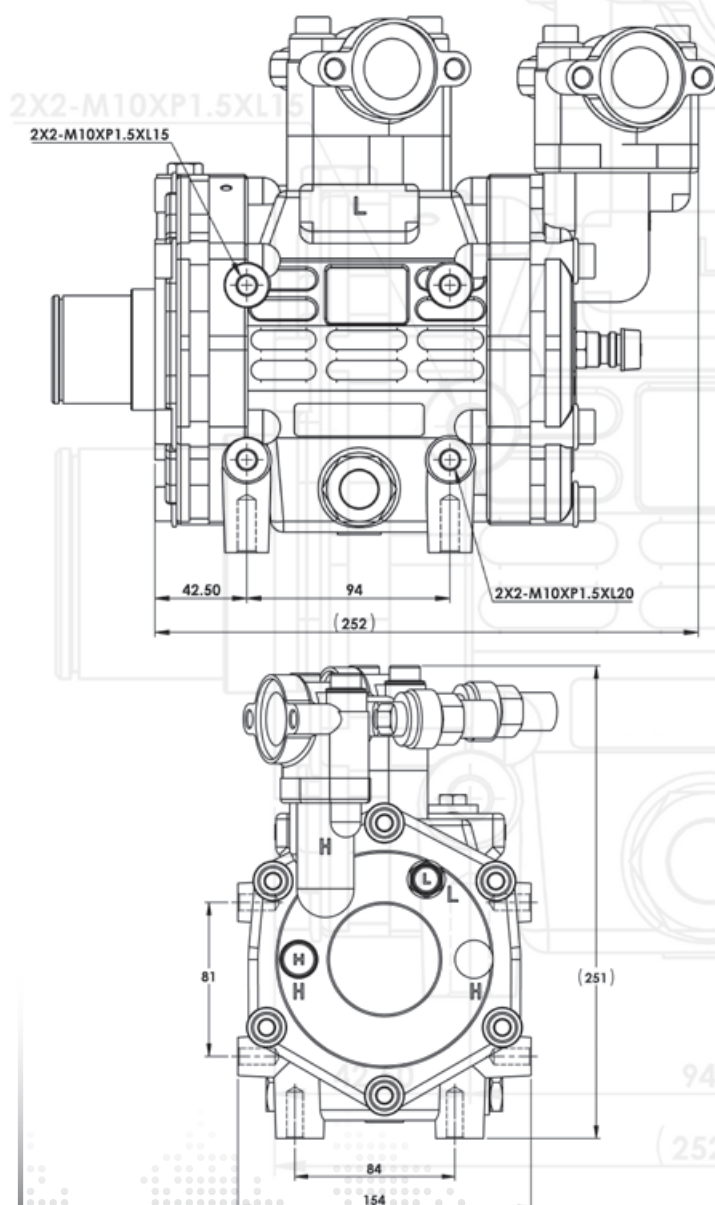
Both ports are fitted with a shut-off manifold assembly with back seating capability via stem valves.

### Service valves

Low- and high-side service valves are fitted to the rear cap.

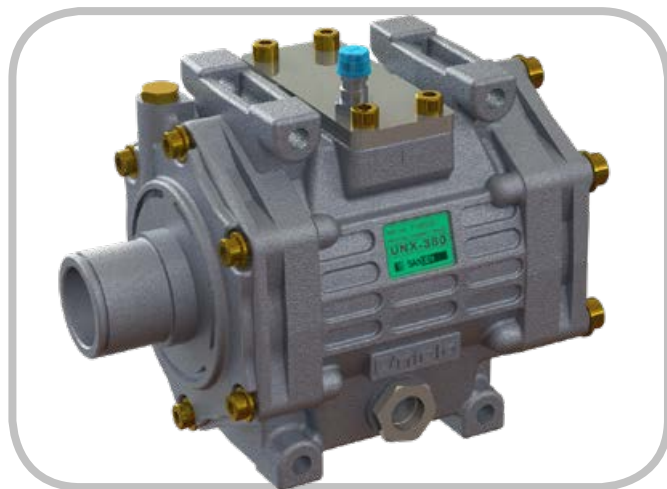
### Oil return and other ports

An oil return port is not fitted.



R134a refrigerant		
Compressor	Oil	Mounting
UN380	PAG56 or POE68 (600 ml)	Denso 10P30B compatible





### Features

- Sanden 10-cylinder swashplate
- Suitable for larger commercial applications with a system capacity requirement of **12-16 kW**
- Displacement: **380 cc/rev**
- Maximum continuous: **4500 rpm**
- Smooth and quiet operation with excellent performance through all rev ranges
- 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
- Lip seal with high tolerance to heat and operational fatigue
- Genuine NSK bearings throughout

### Mounting

The direct mounting system (bolt-through) on the UNIX provides a total of eight mounting points (four on both the left and right sides), enabling direct compatibility with Denso 10P30C compressors. Mounting points on each side of the compressor are 104 mm and 169 mm apart.

### Hose ports

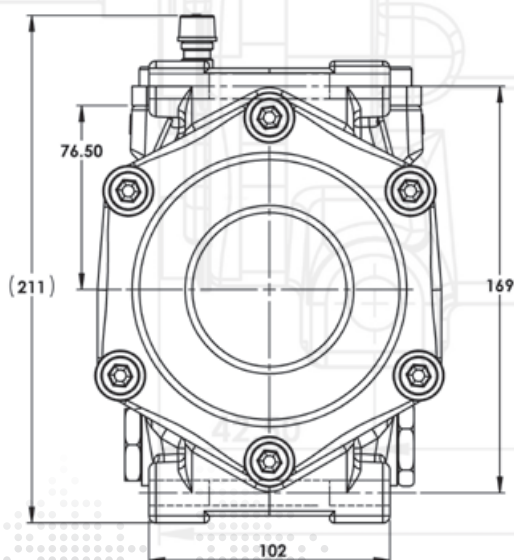
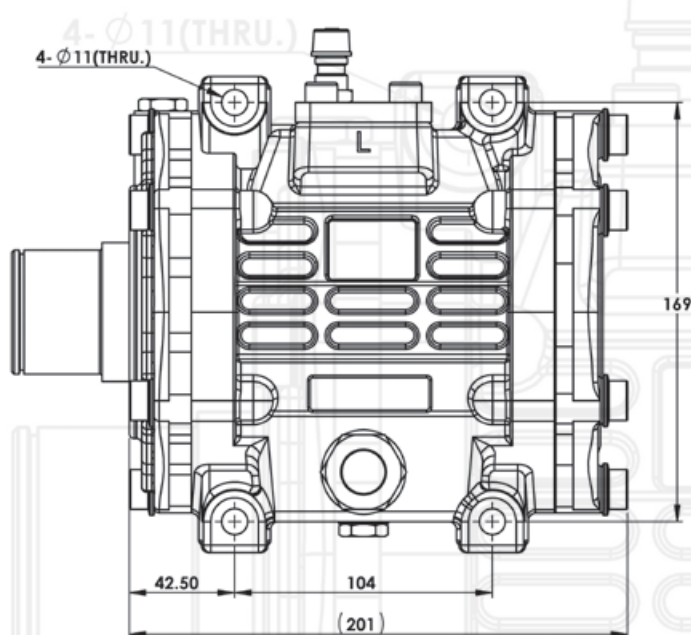
A single-piece manifold is available. Please see *Clutch and hose port options* on page 12.

### Service valves

A low-side service valve is fitted to the top.

### Oil return and other ports

An oil return port is not fitted.



R134a refrigerant		
Compressor	Oil	Mounting
UNIX380	PAG56 or POE68 (600 ml)	Denso 10P30C compatible

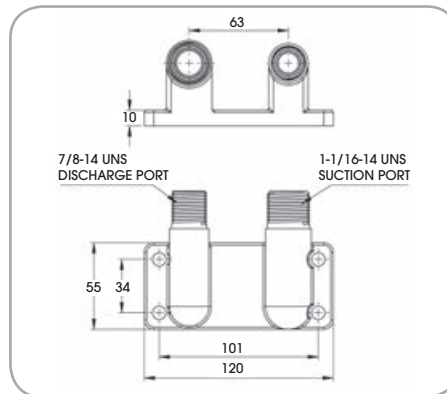




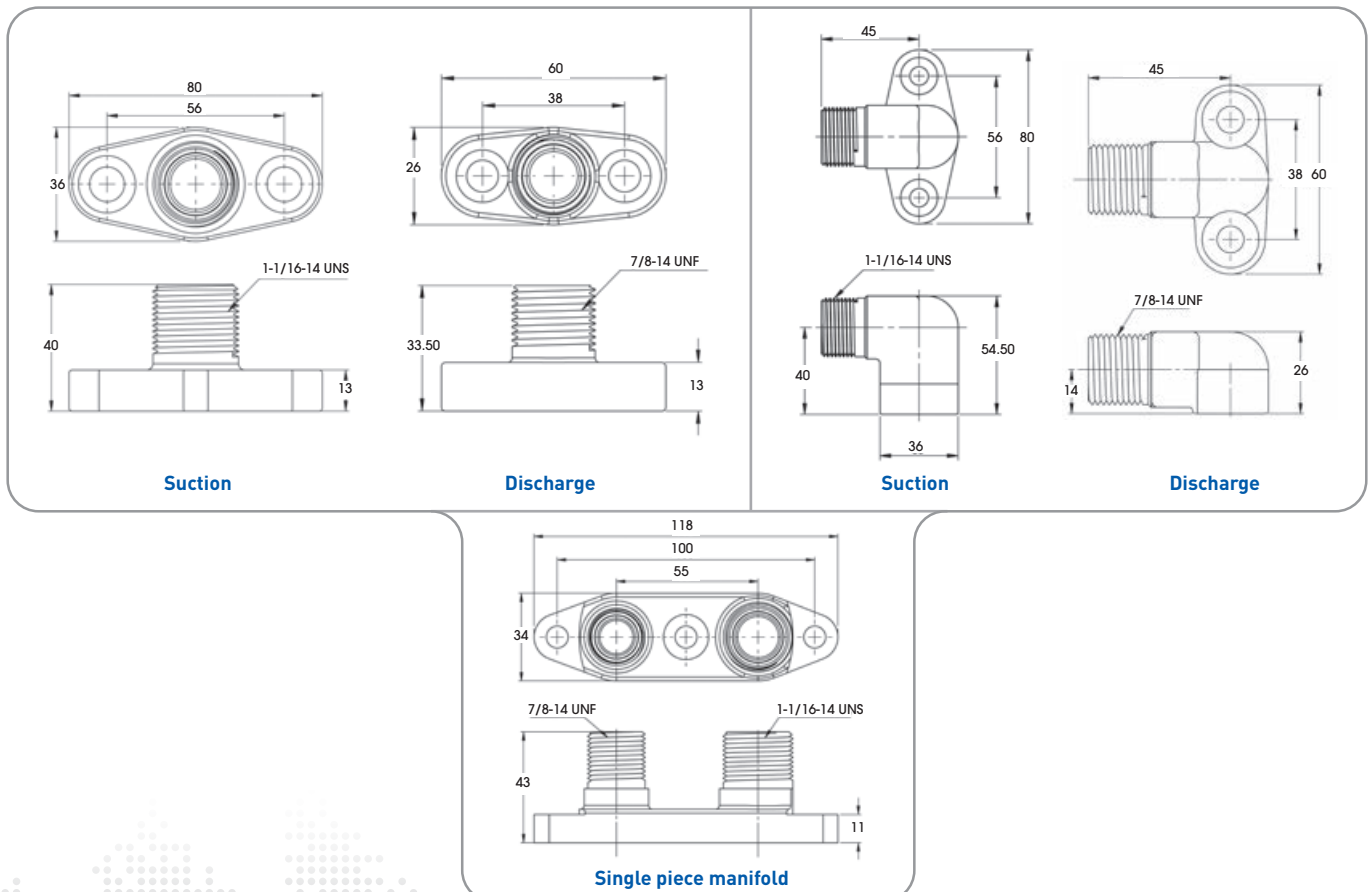
### Clutches available for Sanden 330-380 Series Compressors

330-380 Series							
Type	158	168	178	210	12V	24V	HDC
AA-Groove		✓			✓	✓	
B-Groove							
BB-Groove		✓	✓	✓	✓	✓	✓
M-Groove	✓						
6-Groove							
8-Groove		✓		✓			✓

### Single piece hose port manifold available for UN330, UNX330, UN380 and UNX380



### Hose port manifolds available for UM330, UX330, UM380 and UX380





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# SANDEN

**Delivering Excellence**

## **B Group**

**UWX Series  
Compressors**



Manufactured by

**Unicla**



### Features

Sanden 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.

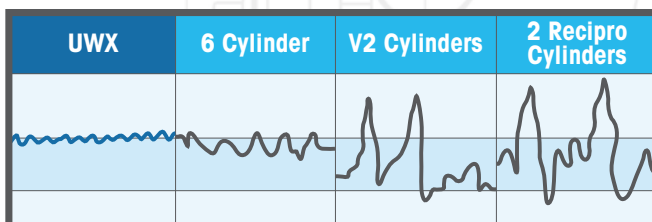
The compressors have a remarkably smooth and quiet operation with the lowest vibration level from any compressors of this size in the market today. With the current demands of modern transport, these compressors allow system designers to meet the most stringent environmental and efficiency requirements.

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:

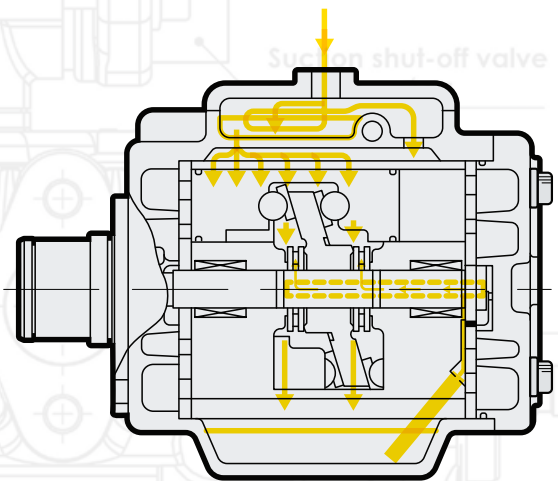
### Smooth operation

Typical vibration analysis compared with other compressor types.



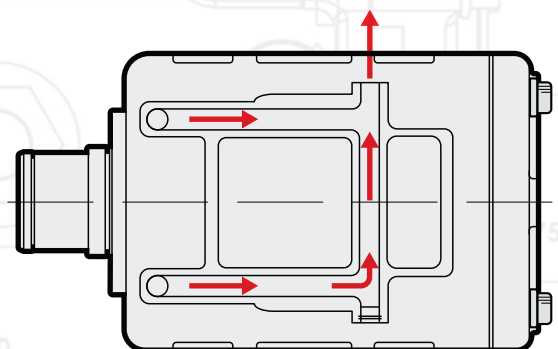
### Superior lubrication system

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.

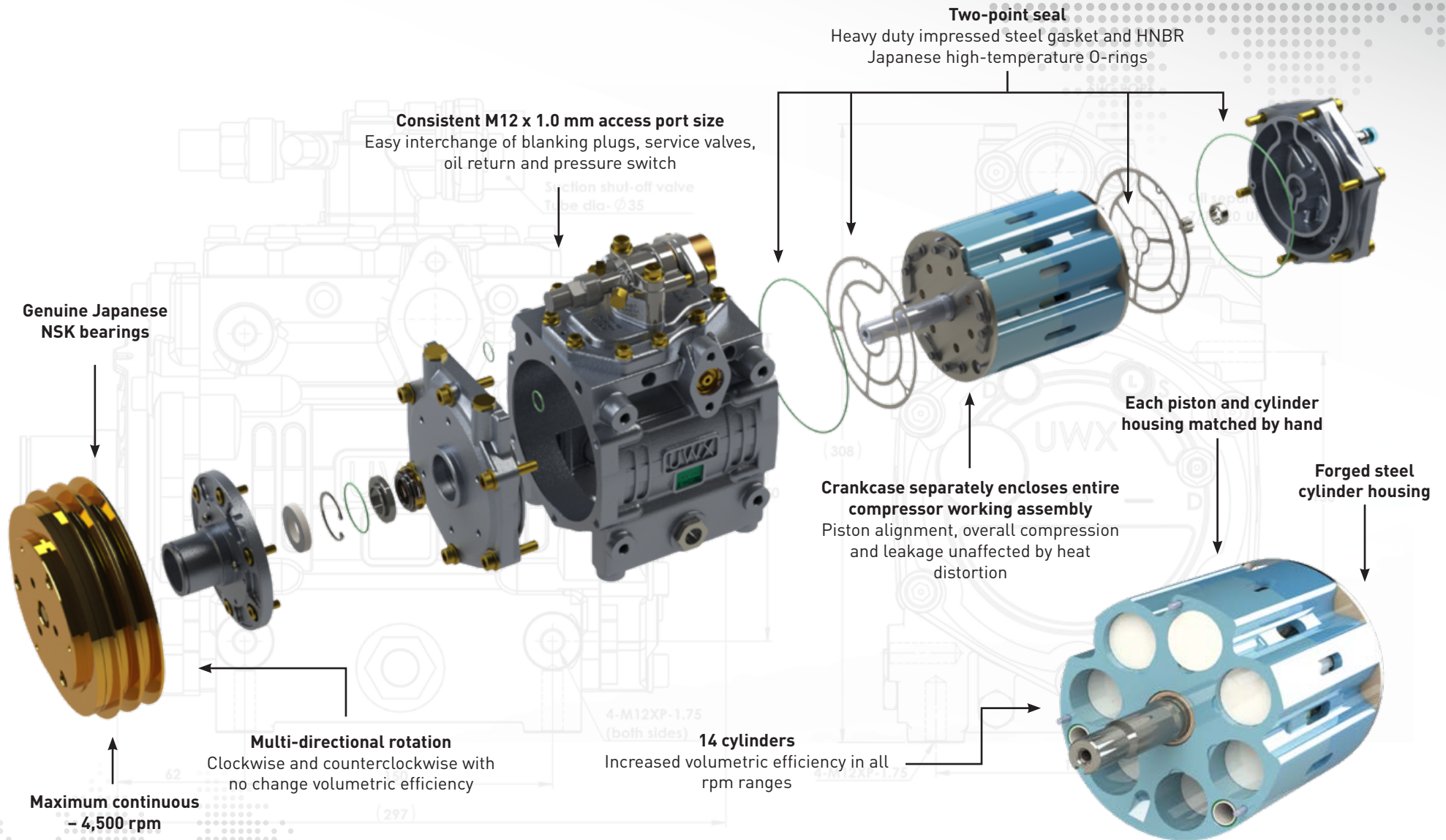






# SANDEN

## Advantages UWX Series Compressors





### Features

- Sanden 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
- Sanden 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

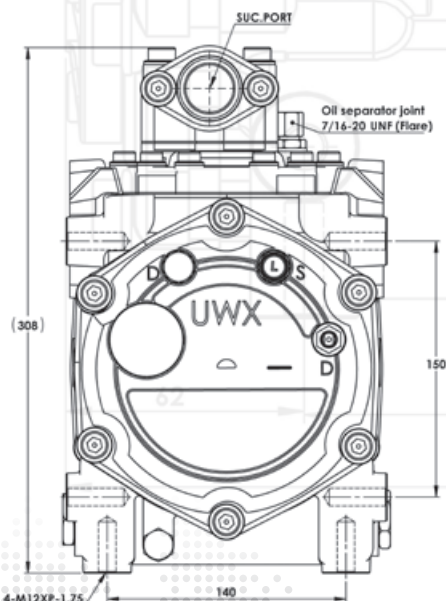
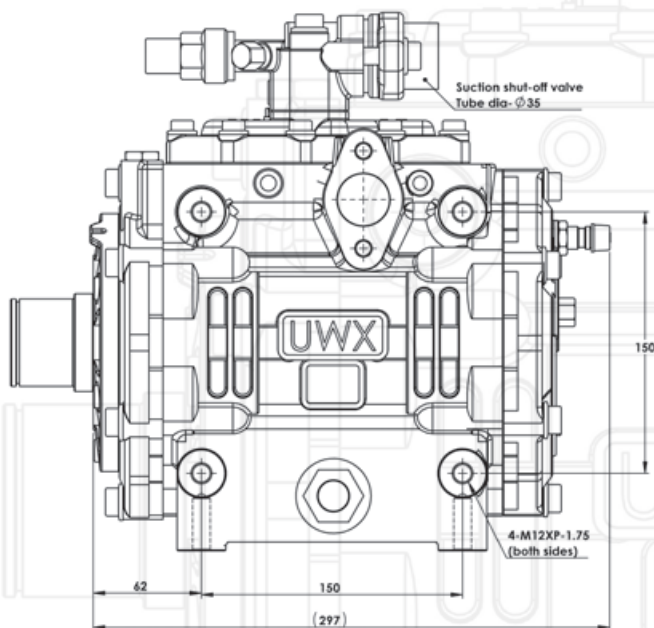
Low- and high-side service valves are fitted on the shut-off manifolds, and on the rear cap of the compressor.

### Oil return

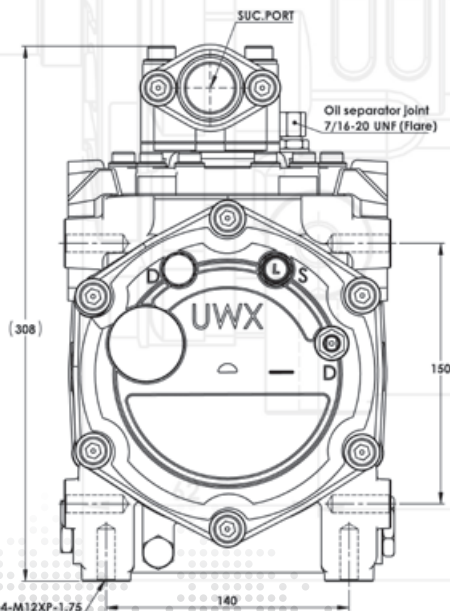
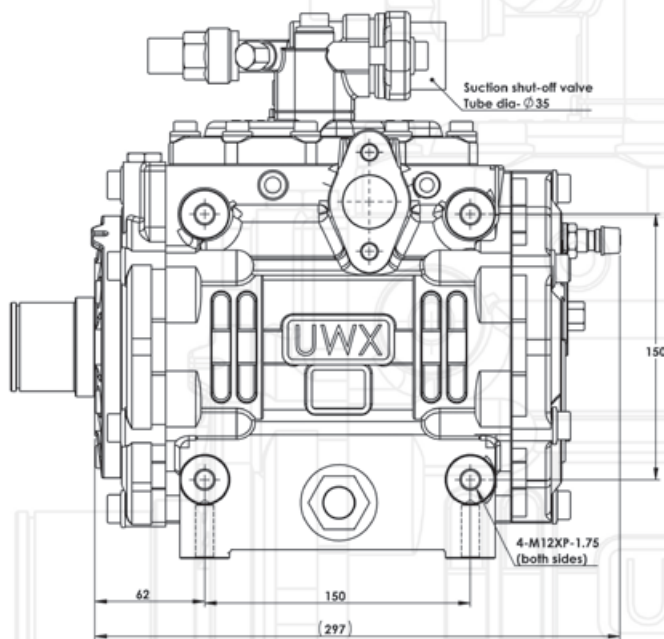
An oil return fitting – 7/16-20 UNF male flare (Part No. 42203-000160) – is fitted on top of the compressor. It has a unique flow design suited to the Sanden oil separator (Part No. OS000050) and is interchangeable with the low-side service valve.

### 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

- Sanden 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
- Sanden 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

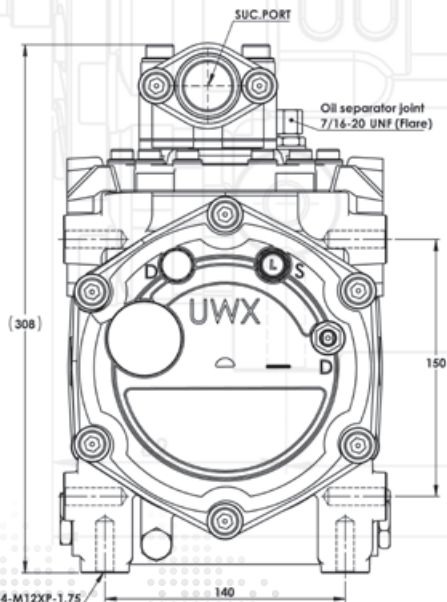
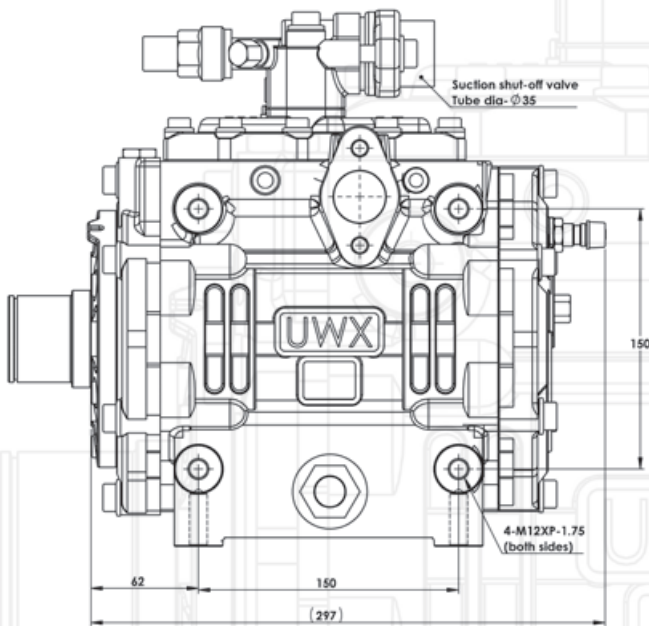
An oil return fitting – 7/16-20 UNF male flare (Part No. 42203-000160) – is fitted on top of the compressor. It has a unique flow design suited to the Sanden oil separator (Part No. OS000050) and is interchangeable with the low-side service valve.

### 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

- Sanden 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
- Sanden 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 Sanden 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.

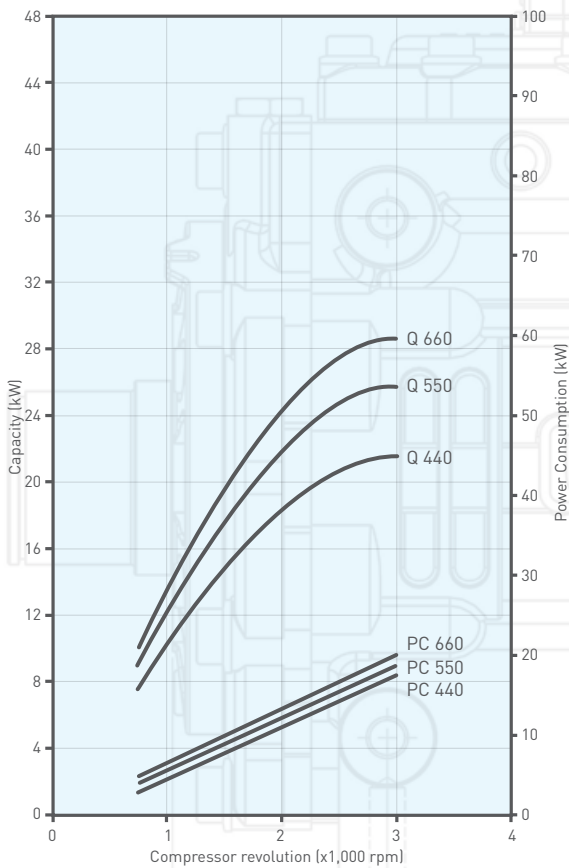
R134a refrigerant		
Compressor	Oil	Mounting
UWX660	PAG56 or POE68 (900 ml)	Direct (all sides)
R404a   R452a refrigerant		
Compressor	Oil	Mounting
UWXF660	POE32 (900 ml)	Direct (all sides)





### 440-550-660 Series Performance - R134a refrigerant

#### Condition 1

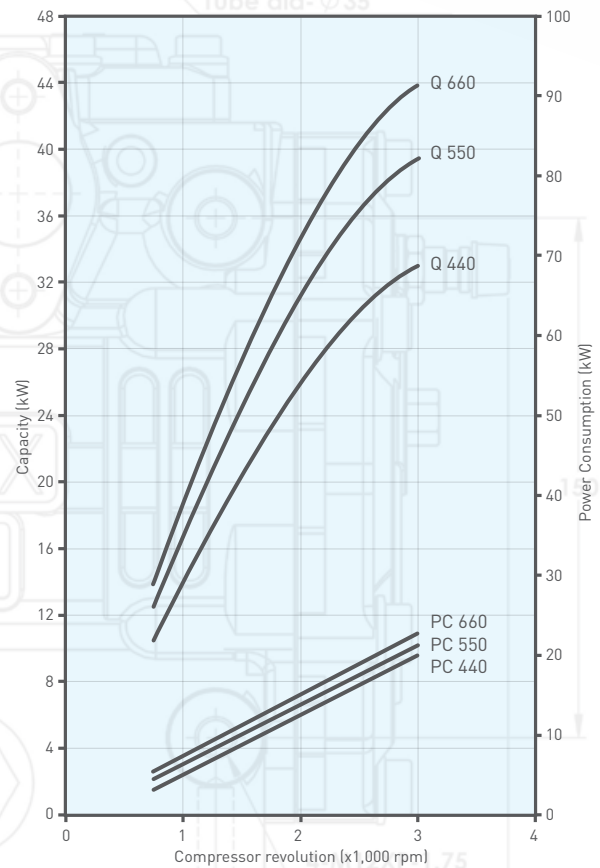


\*Based on 9°C suction vapour temperature and 5°C subcooling.  
Q - Cooling capacity  
PC - Power Consumption

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

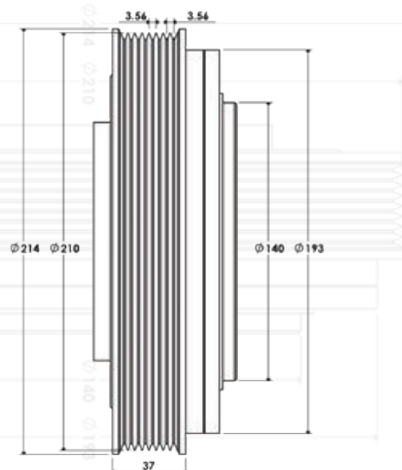
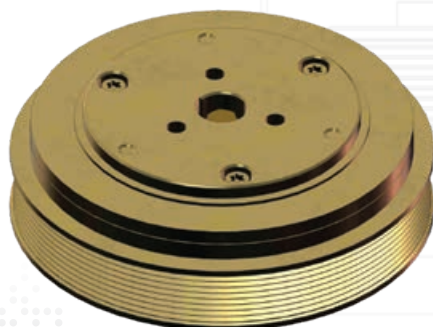
#### Condition 2



\*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

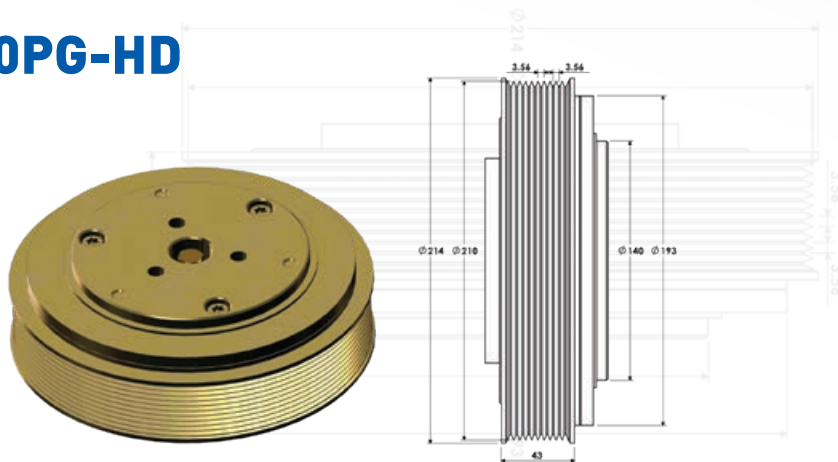
## 210-8PG-HD



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

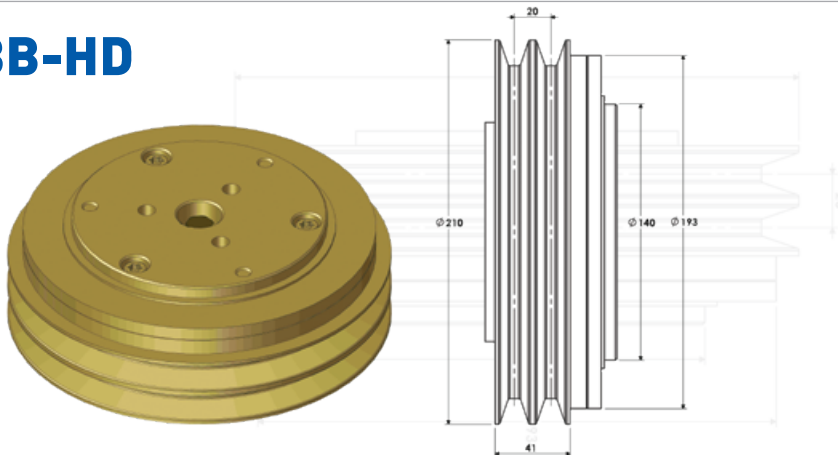


### 210-10PG-HD



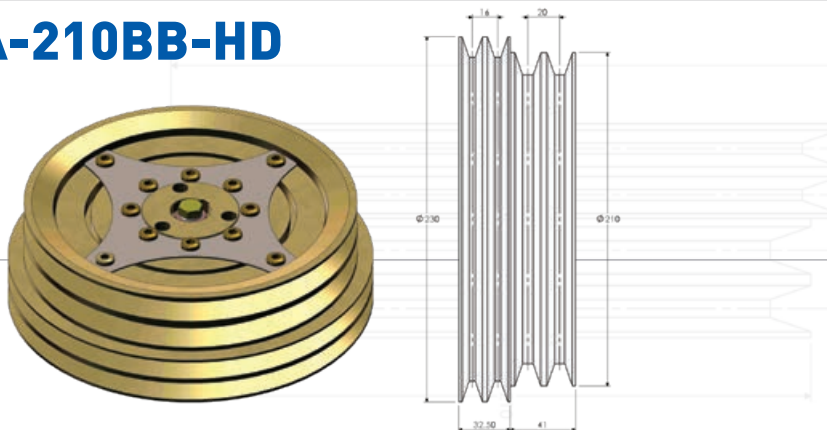
Rated voltage	12/24V DC
Static friction torque	$\geq 280$ Nm
Power consumption	$\leq 60$ W
Max speed	4500 rpm

### 210-BB-HD



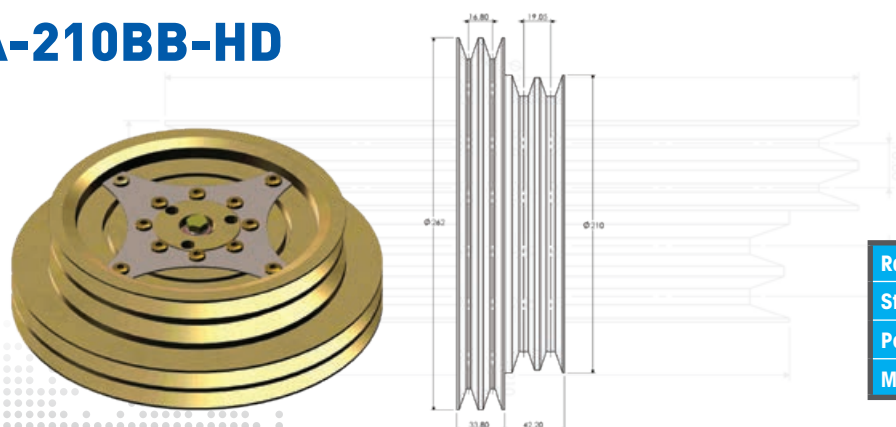
Rated voltage	12/24V DC
Static friction torque	$\geq 280$ Nm
Power consumption	$\leq 60$ W
Max speed	4500 rpm

### 230AA-210BB-HD



Rated voltage	12/24V DC
Static friction torque	$\geq 240$ Nm
Power consumption	$\leq 62$ W
Max speed	4500 rpm

### 262AA-210BB-HD



Rated voltage	12/24V DC
Static friction torque	$\geq 240$ Nm
Power consumption	$\leq 62$ W
Max speed	4500 rpm



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