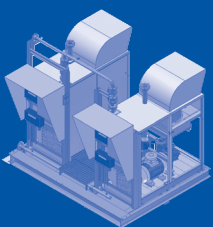
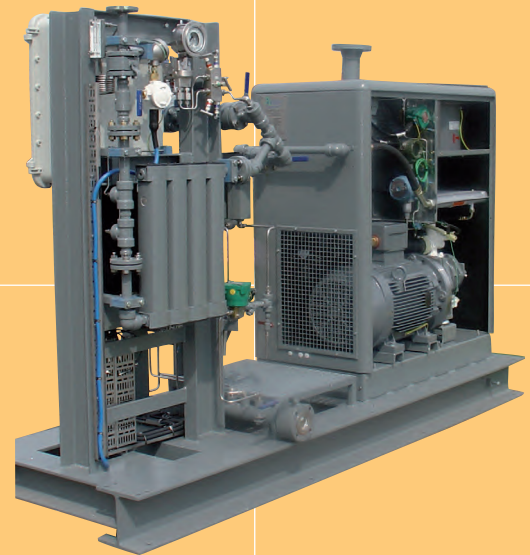
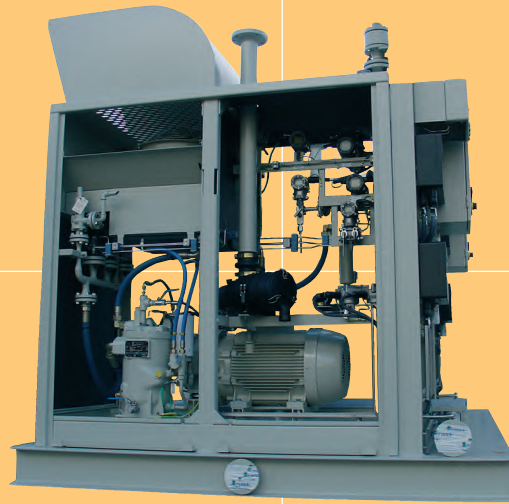


# oil flooded screw compressors



# oil flooded screw compressors

## AIR COMPRESSOR PACKAGES WITH OIL FLOODED SCREW COMPRESSORS

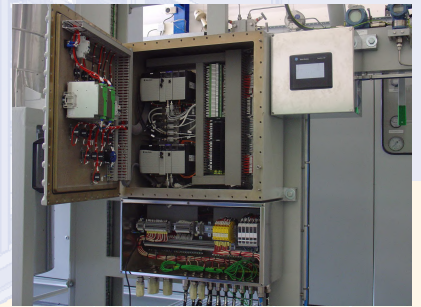
Screw compressors operate on the principle of positive displacement. Each screw compressor consists of a male and female screw. The male screw with driven shaft drives the female screw. For lubrication and cooling, oil is injected during compression. As the cooling takes place during the compression the discharge temperature can be maintained around 100°C, which results in a higher efficiency.

Each compressor is provided with an oil/air cooler in order to keep the temperature at 100°C in order to avoid condensation during the compression. An after cooler is placed downstream the compressor to cool the compressed air to a workable level and to condensate the surplus of water in the air. A separator with auto drain is mounted downstream the cooler. The cooler can be air- or water cooled.

Each oil free rotary screw compressor is designed specially according to customers specifications and applicable climate conditions (e.g. hazardous area, very low or high ambient temperatures, offshore environment).

To decrease the total investment costs and to increase practical use of an oil flooded screw compressor versus an oil free screw compressor, the following items should be considered:

- **Combination with dryer:**  
Higher pressure and capacity (maximum pressure of an oil free screw compressor is 10 bar(g)).
- **Ambient conditions:**  
An oil free screw compressor should not be applied in an earthquake sensible area or in a high ambient temperature environment, because of its small tolerance opening between the touch free screws.
- **Capital investments:**  
Considerable lower for oil flooded screw compressors.
- **Reliability:**  
Oil flooded screw compressors are better heat resistant.
- **Space requirements:**  
Due to the small air end (compressor block) space requirements are kept to a minimum.
- **Nitrogen production:**  
For nitrogen production oil free air must be applied (breathing air quality: Class 1 of ISO 8573). Oil free screw or centrifugal compressors should be applied. Above a pressure of 10 bar(g) oil free piston compressors are the correct choice.



### AIRPACK OPTIONS

- Compressor drive by LV, MV or HV electric motor, diesel engine or turbine
- Stainless steel components like enclosure panels, oil system, process piping, coolers and separators (e.g. offshore applications)
- ATEX explosion proof, suitable for operation in Zone 1 or Zone 2 environment
- Control by redundant and/or SIL certified PLC with HMI (human machine interface) for operation via touch screen
- Hydrogen Sulfide (H<sub>2</sub>S) compressor intake filters
- Winterization enclosure, for extreme low temperatures (-45°C)
- Tropicalization for extreme high ambient temperature up to 60°C
- Control by DCS (distributed control system)
- Vibration monitoring system by 4-20 mA detectors or sophisticated Bentley Nevada monitoring system
- Provision of complete closed cooled water system with water chiller (if required)

Groeneweegje 25  
Industrieterrein 'Zuid'  
4301 RN Zierikzee  
The Netherlands

Phone: (31) (0) 111 - 415455  
Fax: (31) (0) 111 - 413338  
E-mail: [airpack@airpack.nl](mailto:airpack@airpack.nl)  
Internet: [www.airpack.nl](http://www.airpack.nl)

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## AIR COMPRESSOR PACKAGES WITH OIL FLOODED SCREW COMPRESSORS

The available oil flooded screw compressors are mentioned in the table below.

Model	Capacity [Nm <sup>3</sup> /hr] at working pressure			Cooling	Sound level [dB(A)]
	8	10	13		
<b>COMP-6</b>	33	29	22	Air	70
<b>COMP-8</b>	50	43	35	Air	72
<b>COMP-10</b>	71	64	55	Air	72
<b>COMP-15</b>	81	87	75	Air	74
<b>COMP-20</b>	144	124	102	Air	76
<b>COMP-25</b>	168	147	123	Air	76
<b>COMP-30</b>	201	171	147	Air	76
<b>COMP-40</b>	303	258	222	Air	76
<b>COMP-50</b>	360	324	267	Air	76
<b>COMP-60</b>	408	366	315	Air	76
<b>COMP-75</b>	546	468	408	Air	76
<b>COMP-100</b>	726	630	552	Air	76
<b>COMP-125</b>	942	822	720	Air	76
<b>COMP-150</b>	1104	978	852	Air	76
<b>COMP-180</b>	1398	1248	1068	Air	76
<b>COMP-220</b>	1674	1506	1302	Air	77
<b>COMP-270</b>	1956	1740	1542	Air	77
<b>COMP-360</b>	2350	1950	-	Water	72
<b>COMP-400</b>	2450	2250	1850	Water	73
<b>COMP-460</b>	2950	2550	2150	Water	74
<b>COMP-520</b>	3250	2850	2450	Water	75
<b>COMP-575</b>	3550	3150	2650	Water	76

*Special constructions can be offered on request.*



oiled screw  
compressors

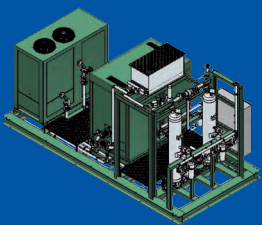
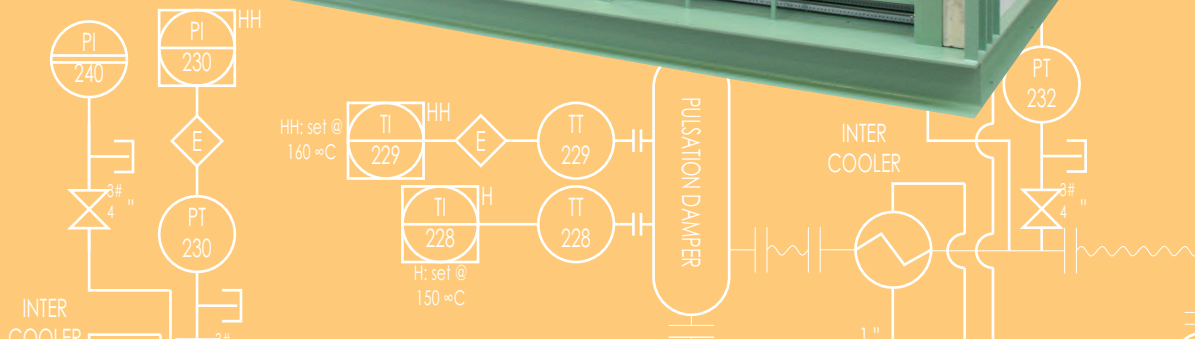
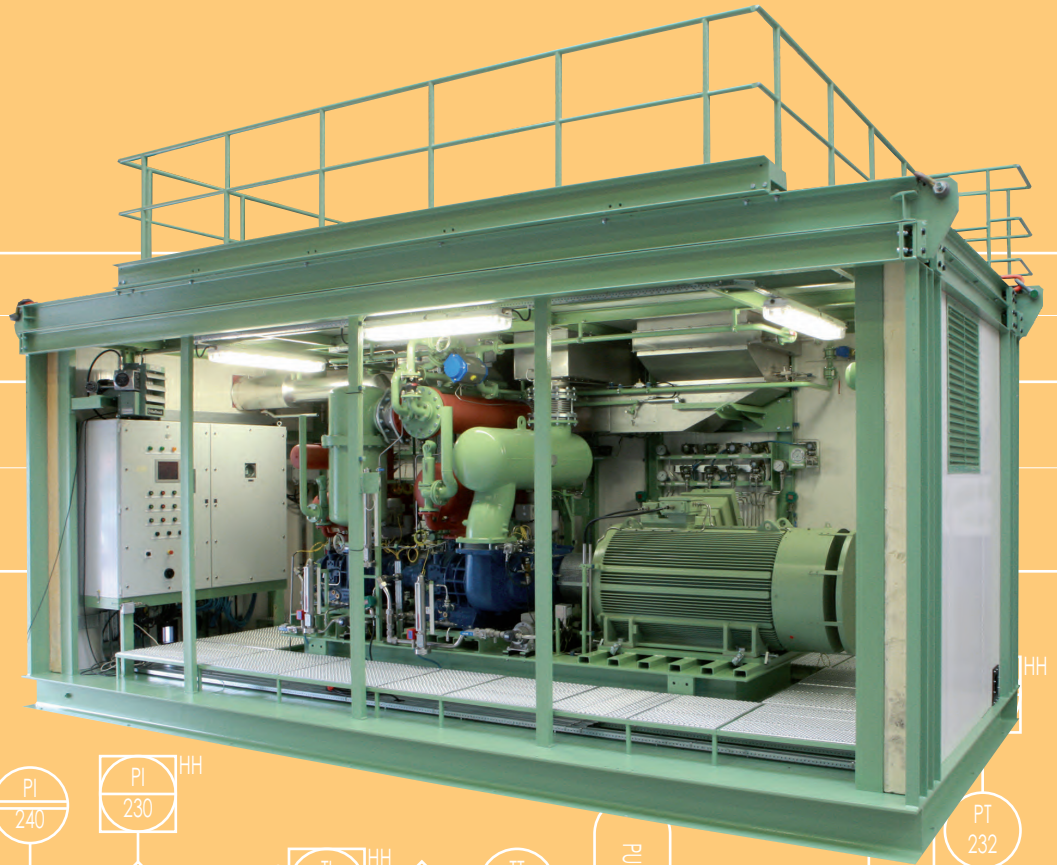
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Industrieterrein 'Zuid'  
4301 RN Zierikzee  
The Netherlands

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Fax: (31) (0) 111 - 413338  
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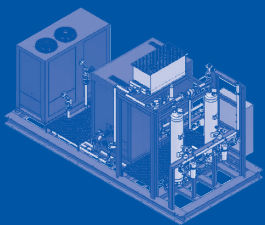
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# oil free screw compressors



# oil free screw compressors

## AIR COMPRESSOR PACKAGES WITH OIL FREE SCREW COMPRESSORS

Screw compressors operate on the principle of positive displacement. Each screw compressor consists of a male and female screw. As no oil is injected during compression, the screw rotors may not touch each other, which is achieved by gears. As there is no cooling provided by the injected oil, oil free screw compressors are equipped with two compression stages. Special attention is required for cooling downstream each compression stage.

The rotors are driven by time gears in order to achieve the best efficiency. These gears are lubricated and cooled by oil. Each air end can provide a certain capacity range by changing the gear ratio.

Each compressor is provided with an oil cooler, inter cooler and after cooler, which can be of an air- or water cooled type.

Each oil free rotary screw compressor is designed specially according to the customer specifications and applicable climate conditions (e.g. hazardous area, very low or high ambient temperatures, offshore environment).

### AIRPACK OPTIONS

- Compressor drive by LV, MV or HV electric motor, diesel engine or turbine
- Stainless steel components like enclosure panels, oil system, process piping, coolers and separators (e.g. offshore applications)
- ATEX explosion proof, suitable for operation in Zone 1 or Zone 2 environment
- Control by redundant and/or SIL certified PLC with HMI (human machine interface) for operation via touch screen
- Hydrogen Sulfide (H<sub>2</sub>S) compressor intake filters
- Winterization enclosure, for extreme low temperatures (-45°C)
- Tropicalization for extreme high ambient temperature up to 60°C
- Control by DCS (distributed control system)
- Vibration monitoring system by 4-20 mA detectors or sophisticated Bently Nevada monitoring system
- Provision of complete closed cooled water system with water chiller (if required)

The available oil free rotary screw compressors are mentioned in the table on the next page. For low capacities (< 55 kW) oil free tooth compressors are available.



# oil free screw compressors

Groeneweegje 25  
Industrieterrein 'Zuid'  
4301 RN Zierikzee  
The Netherlands

Phone: (31) (0) 111 - 415455  
Fax: (31) (0) 111 - 413338  
E-mail: [airpack@airpack.nl](mailto:airpack@airpack.nl)  
Internet: [www.airpack.nl](http://www.airpack.nl)

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## AIR COMPRESSOR PACKAGES WITH OIL FREE SCREW COMPRESSORS

The total investment costs and practical use of an oil injected screw versus and oil free screw can be considered:

- **Combination with dryer:**  
Higher pressure and capacity (maximum pressure of an oil free screw compressor is 10 bar(g)).
- **Ambient conditions:**  
An oil free screw compressor should not be applied in an earthquake sensible area or in a high ambient temperature environment, because of its small tolerance opening between the touch free screws.
- **Capital investments:**  
Considerable lower for oil flooded screw compressors.
- **Reliability:**  
Oil flooded screw compressors are better heat resistant.
- **Space requirements:**  
Due to the small air end (compressor block) space requirements are kept to a minimum.
- **Nitrogen production:**  
For nitrogen production oil free air must be applied (breathing air quality: Class 1 of ISO 8573). Oil free screw or centrifugal compressors should be applied. Above a pressure of 10 bar(g) oil free piston compressors are the correct choice.

Model	Capacity [Nm <sup>3</sup> /hr] at working pressure		Number of Stages	Cooling	Sound level [dB(A)]
	7,5	10			
COMP-25-OF	210	150	2	Air & Water	65
COMP-50-OF	380	320	2	Air & Water	65
COMP-75-OF	475	405	2	Air & Water	65
COMP-100-OF	645	580	2	Air & Water	65
COMP-125-OF	780	695	2	Air & Water	65
COMP-150-OF	1020	840	2	Air & Water	66
COMP-180-OF	1182	1002	2	Air & Water	67
COMP-200-OF	1266	1074	2	Air & Water	67
COMP-220-OF	1512	1236	2	Air & Water	68
COMP-275-OF	1866	1614	2	Air & Water	69
COMP-340-OF	2352	2010	2	Air & Water	70
COMP-400-OF	2596	2304	2	Water	70
COMP-500-OF	3180	2832	2	Water	71
COMP-550-OF	3510	3144	2	Water	72
COMP-600-OF	4206	3504	2	Water	73
COMP-700-OF	4644	4002	2	Water	75
COMP-850-OF	5778	4932	2	Water	76
COMP-1000-OF	6948	5706	2	Water	76

Special constructions can be offered on request.

Oil free screw  
compressors

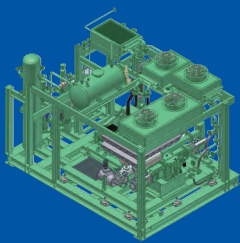
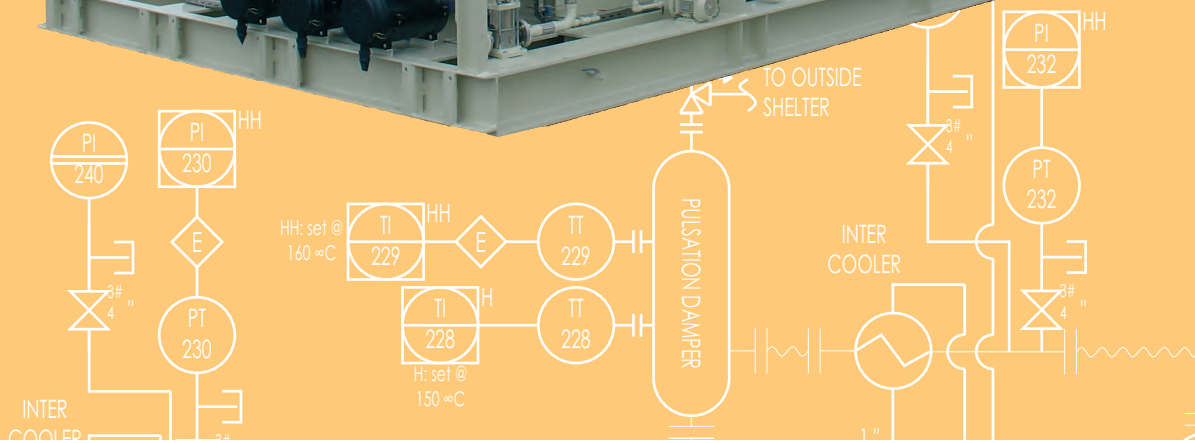
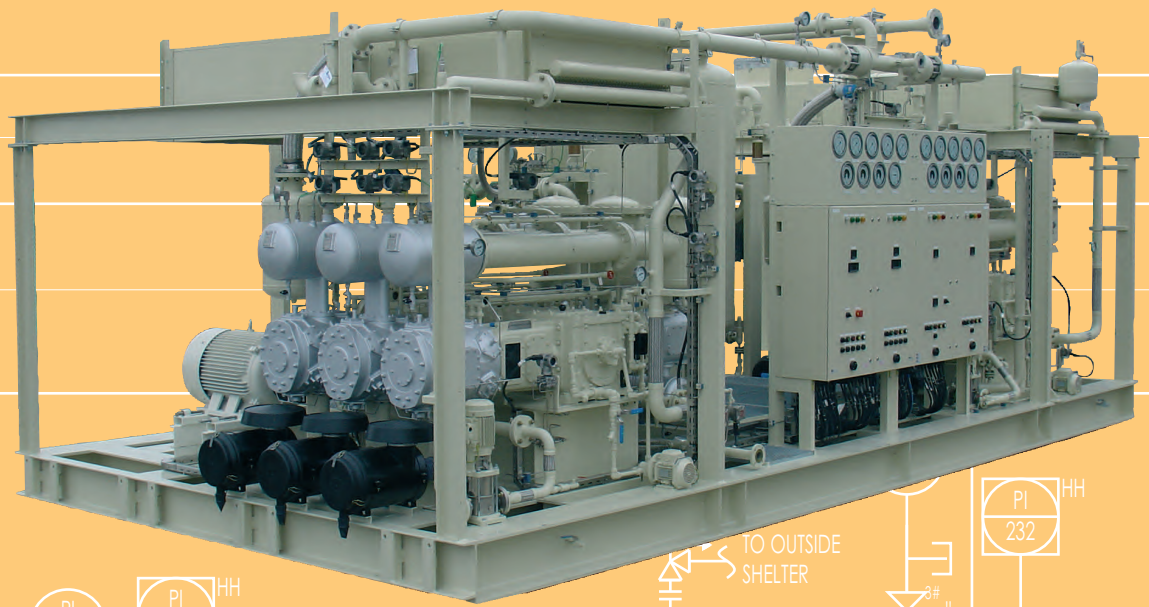
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Industrieterrein 'Zuid'  
4301 RN Zierikzee  
The Netherlands

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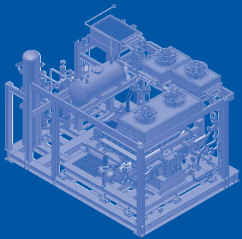
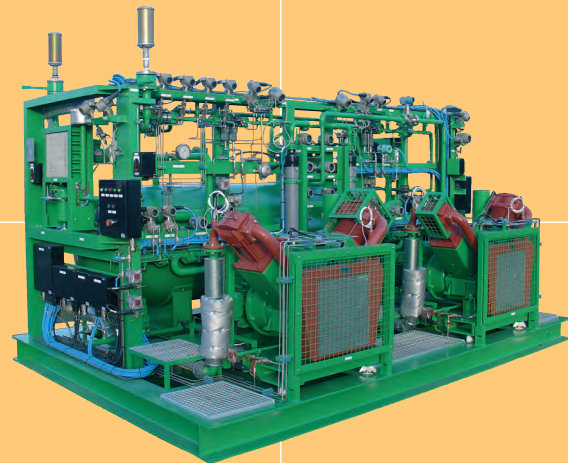
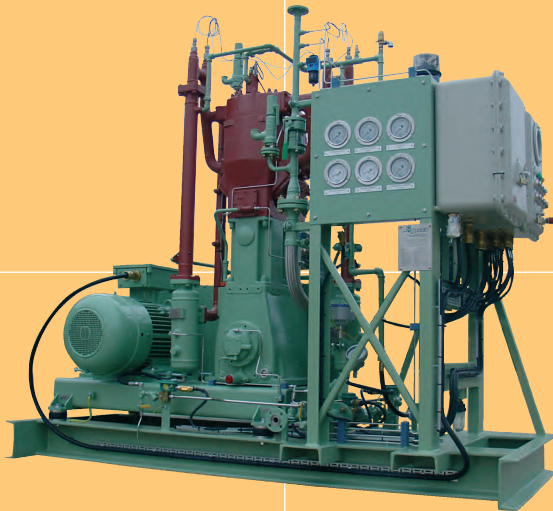
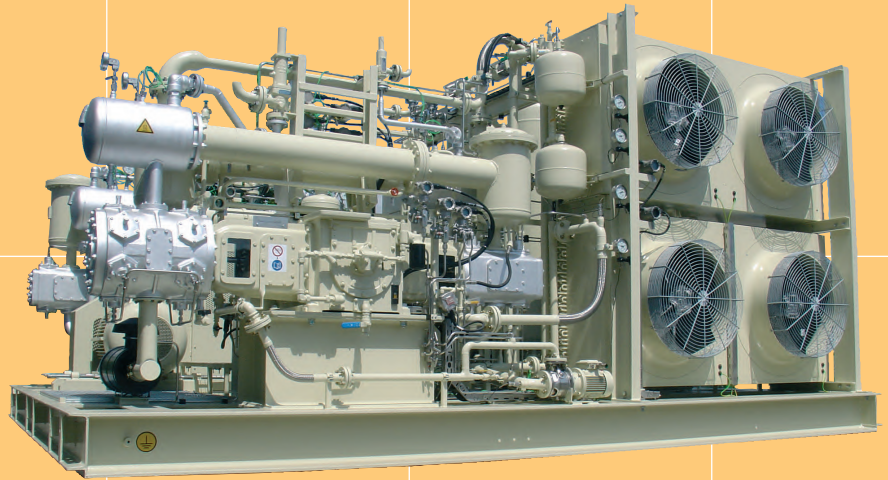
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# piston compressors



# piston compressors

## AIR COMPRESSOR PACKAGES WITH PISTON COMPRESSORS

The following piston compressors are manufactured and supplied by Airpack Nederland B.V.:

- Horizontal piston compressors, oil free and oil lubricated
- Vertical piston compressors, oil free and oil lubricated
- V type compressors, oil free and oil lubricated

We are specialized in providing this equipment for hazardous areas, desert/tropical/artic environments and earthquake sensible areas.

The compressor(s) will be driven via a coupling, gearbox, V-belt, an electric motor, diesel engine or turbine. Accessories like oil- and air coolers (forced by cooled air or cooled water), oil- and water pumps in duplex or single configuration, oil- and air filters in duplex or single configuration, pressure vessels, separators, pulsation dampers, control panels, PLC's, instruments, valves etc. can be applied to all materials, types and can be made available to market.

For small compressed air or gas applications we apply V-type or vertical compressors while for larger applications horizontal compressors will be used. Both oil free and lubricated piston compressors are available.

The motion work i.e. crankshaft and bearings require lubrication in any case. A double seal prevents any oil entering into the cylinders.

Compressors with small capacities will be air cooled and the compressors with larger capacities will be water cooled by closed or open systems.

### AIRPACK OPTIONS

- Compressor drive by LV, MV or HV electric motor, diesel engine or turbine
- Stainless steel components like enclosure panels, oil system, process piping, coolers and separators (e.g. offshore applications)
- ATEX explosion proof, suitable for operation in Zone 1 or Zone 2 environment
- Control by redundant and/or SIL certified PLC with HMI (human machine interface) for operation via touch screen
- Hydrogen Sulfide (H<sub>2</sub>S) compressor intake filters
- Winterization enclosure, for extreme low temperatures (-45°C)
- Tropicalization for extreme high ambient temperature up to 60°C
- Control by DCS (distributed control system)
- Vibration monitoring system by 4-20 mA detectors or sophisticated Benly Nevada monitoring system
- Provision of complete closed cooled water system with water chiller (if required)



Groeneweegje 25  
Industrieterrein 'Zuid'  
4301 RN Zierikzee  
The Netherlands

Phone: (31) (0) 111 - 415455  
Fax: (31) (0) 111 - 413338  
E-mail: [airpack@airpack.nl](mailto:airpack@airpack.nl)  
Internet: [www.airpack.nl](http://www.airpack.nl)

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**AIR COMPRESSOR PACKAGES WITH PISTON COMPRESSORS**

**ADVANTAGES OF HORIZONTAL PISTON COMPRESSORS**

The horizontal compressors are balanced opposed and have the following advantages:

**1. Balanced opposed**

The horizontal reciprocating compressors are basically composed of two opposed cylinder centrelines.

Each line is operated by two adjacent crankpins opposed at 180°C. The staggering of the crankpins is calculated in order to obtain equal compression forces at each line.

The pistons and motion work of same line have equivalent masses.

**2. Axial torque without reactions on bearings**

Whether in single or multi-stage compressors, the forces resulting from compression and from the inertia of the moving parts are always balanced in the two cylinders of the same line.

Their resultant forces are equal and produce an axial torque without reaction on the bearings.

**3. Balanced lines**

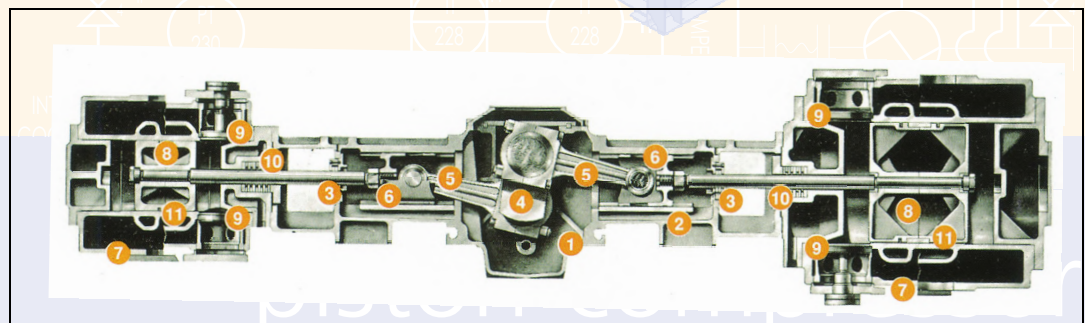
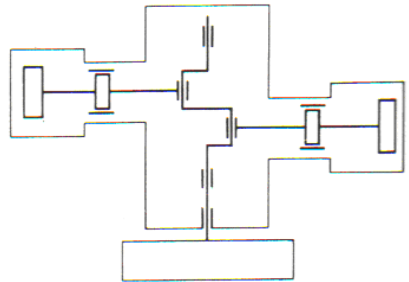
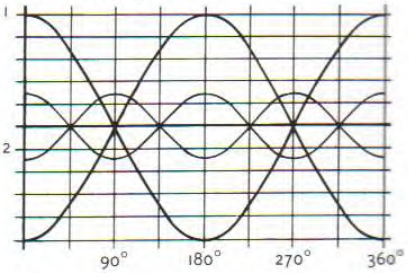
The two pistons of the same line move in opposite directions.

Primary and secondary inertia or acceleration forces counterbalance one another and eliminate any vibration or knocking.

**4. Water cooled cylinders**

Discharge temperatures are within the limits of API-680. On request the units can be equipped with a closed cooled water system.

1. Primary forces  
2. Secondary forces



1. Frame	5. Connecting rods	9. Valves
2. Crosshead guides	6. Crossheads	10. Piston rod packing
3. Oil wiper rings	7. Cylinder and cylinder heads	11. Packings
4. Crankshaft	8. Pistons	

Groeneweegje 25  
Industrieterrein 'Zuid'  
4301 RN Zierikzee  
The Netherlands

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Fax: (31) (0) 111 - 413338  
E-mail: [airpack@airpack.nl](mailto:airpack@airpack.nl)  
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**AIR COMPRESSOR PACKAGES WITH PISTON COMPRESSORS****OIL FREE PISTON COMPRESSORS**

The available different configurations along with the details are mentioned in the tables below.

**a) Oil free piston compressors:**

Model	Capacity [Nm <sup>3</sup> /hr]	Pressure [Bar(g)]	Number of Stages	Maximum compressor speed [rpm]	Cylinder Arrangement
AL-20	20	8-15	2	750	vertical
AL-65	65	8-15	2	750	vertical
AL-115	115	8-15	2	750	vertical
AL-135	135	8-15	2	750	vertical
AL-175	175	8-15	2	750	vertical
AL-235	235	8-15	2	750	vertical
AL-270	270	8-15	2	750	vertical
AL-320	320	8-15	2	750	vertical
AP-115	135	8-15	2	1000/1500	V-type
AP-130	235	8-15	2	1000/1500	V-type
AP-195	195	8-15	2	1000/1500	V-type
AP-390	390	8-15	2	1000/1500	V-type
AP-515	515	8-15	2	1000/1500	V-type
HA-550-LT	550	8-15	2	750	horizontal
HA-800-LT	800	8-15	2	750	horizontal
HA-1060-LT	1060	8-15	2	750	horizontal
HA-1450-LT	1450	8-13	2	750	horizontal
HA-1865-LT	1865	8-10	2	750	horizontal
HA-2100-LT	2100	8-10	2	750	horizontal
HA-2700-LT	2700	8-10	2	750	horizontal
HA-5400-LT	5400	8-10	2	750	horizontal
HA-350-LT-3	350	18	3	750	horizontal
HA-575-LT-3	575	18	3	750	horizontal
HA-1550-LT-3	1550	18	3	750	horizontal
HA-1800-LT-3	1800	18	3	750	horizontal

*Special constructions can be offered on request.*

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Industrieterrein 'Zuid'  
4301 RN Zierikzee  
The Netherlands

Phone: (31) (0) 111 - 415455  
Fax: (31) (0) 111 - 413338  
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## AIR COMPRESSOR PACKAGES WITH PISTON COMPRESSORS

## LUBRICATED PISTON COMPRESSORS

## b) Lubricated piston compressors:

Model	Capacity [m <sup>3</sup> /hr]	Pressure [Bar(g)]	Number of Stages	Maximum compressor speed [rpm]	Cylinder arrangement
LB-140	140	8	2	1500	V-type
LB-230	234	8	2	1500	V-type
LB-300	296	8	2	1500	V-type
LB-400	396	8	2	1500	V-type
LB-465	468	8	2	1500	V-type
LB-600	594	8	2	1500	V-type
MB-180	184	10	2	1000	V-type
MB-230	222	10	2	1500	V-type
MB-300	294	10	2	1000	V-type
MB-375	368	10	2	1000	V-type
MB-450	442	10	2	1000	V-type
MB-600	603	10	2	1500	V-type
HB-140	136	15	2	1000	V-type
HB-230	204	15	2	1500	V-type
HB-300	271	15	2	1000	V-type
HB-400	406	15	2	1500	V-type

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