

# Recycle Gas Compressor Package

non - lubricated



## Customer: GS Engineering & Construction

- Single stage, two cylinders, water-cooled, non lubricated, double acting, vertical design
- Distance piece double type, long, pressure tight up to 0,3 MPa (a), with vent & purge connections, API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 270 kW, 6,6 kV (II 2 G Ex de IIC T4), 590 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit

## Codes & Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

## Special features:

- Closed Cooling / Heating System installed on common base frame together with the compressor
- DOSH Certificate (Malaysian rules) for pressure vessels

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 12.23 / 55.44 / 0
Gas	:	Recycle Gas
Volume flow	:	12433 - 14215 m <sup>3</sup> N/h
Inlet pressure	:	2,8 – 3,06 MPa (g)
Final pressure	:	3,5 – 3,88 MPa (g)
Motor power	:	270 kW
Country of installation	:	Malaysia



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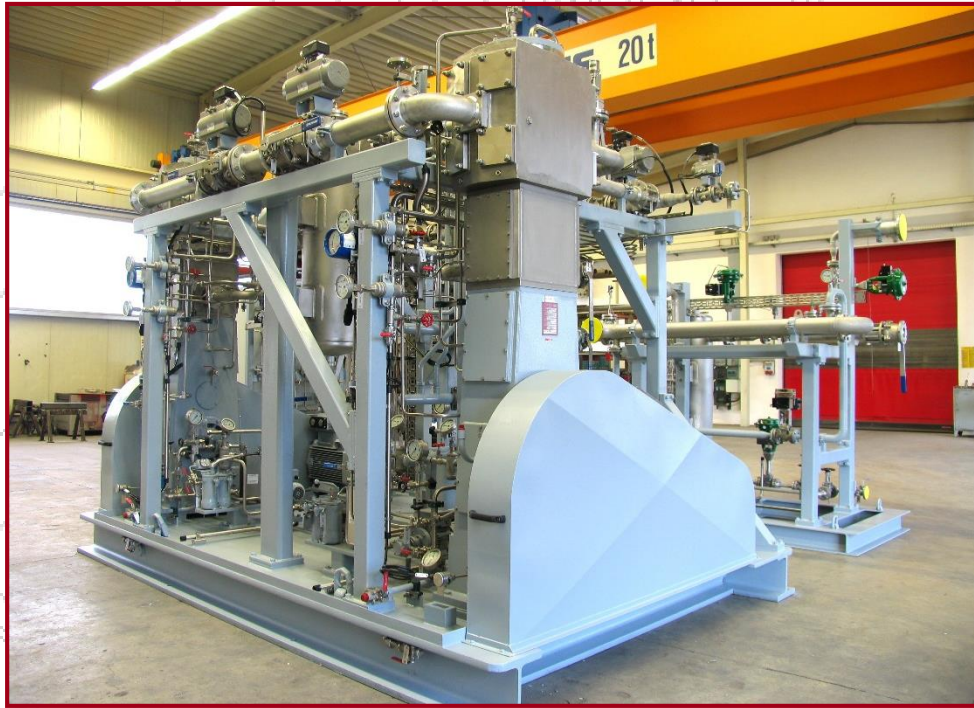
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# Sulphur Dioxide Compressor Package

non lubricated



**Customer: A.H. Lundberg Systems Limited**

- Single stage, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece double type, long, pressure tight up to 0,3 MPa (a), with vent & purge connections, API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 45 kW, 400 V (II 2 G Ex de IIC T3), 1500 rpm, belt driven, antistatic with guard
- Internal piping for gas- and cooling water with connecting flanges at battery limit

Codes & Standards:

- API 618 with deviations
- Pressure Equipment Directive 2014/68/EU (PED) / AD2000
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

Special feature:

- Two identical compressor on common heavy duty steel base frame
- Second steel base frame with heat exchanger and liquid separation unit
- All gas contacting parts are made out of stainless steel

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 5.12 / 8.5 / 0
Gas	:	Sulphur Dioxide
Volume flow	:	327 - 385 m <sup>3</sup> N/h
Inlet pressure	:	Vacuum
Final pressure	:	0,4 MPa (g)
Motor power	:	45 kW
Country of installation	:	Norway



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# Ammonia Mixture Compressor Package

non - lubricated



**Customer: Yantai Wanhua Chengda Chemical Co. LTD.**

- Two stages, two cylinders, water-cooled, non lubricated, step piston design, vertical design
- Distance piece double type, long, pressure tight up to 0,3 MPa (a), with vent & purge connections, API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 200 kW, 380 V (II 2 G Ex de IIC T4), 590 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit

#### Codes & Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

#### Special features:

- Volume flow regulation and unloading start-up by suction valve unloaders stepwise in 0 / 50 / 100% and additionally with frequency transformer for stepless regulation 50...100%

#### Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 12.22 / 44.55 / 1
Gas	:	Ammonia Mixture
Volume flow	:	909 - 1844 m <sup>3</sup> N/h
Inlet pressure	:	1,05 MPa (g)
Final pressure	:	6,25 MPa (g)
Motor power	:	200 kW
Country of installation	:	P.R. China



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# Carbon Dioxid Compressor Package

non lubricated



**Customer: Martin Bauer GmbH & Co. KG**

- Two stages, three cylinders, water-cooled, non lubricated, double acting & step piston, vertical design
- Distance piece, long single compartment, API 618 type B
- Motion work pressure lubricated, including complete piped oil- system
- Motor 260 kW, 400 V, 50Hz, 590 rpm, direct driven via flexible coupling, with guard
  
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N2 system with connecting flanges at battery limit

Codes & Standards:

- Pressure Equipment Directive 2014/68/EU (PED) / AD2000

Special feature:

- Volume flow regulation and unloading start-up by diaphragm type regulation valve, installed in bypass.  
Regulation range 0 / 15...100%
- Closed Cooling / Heating System installed on common base frame together with the compressor, connected to customers heat recovery system

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 14.32 / 442.111 / 5
Gas	:	Carbon Dioxid
Volume flow	:	611 - 4214 m <sup>3</sup> N/h
Inlet pressure	:	0,28 MPa (g)
Final pressure	:	4,60 MPa (g)
Motor power	:	260 kW
Country of installation	:	Germany



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# Hydrogen Compressor Package

non lubricated



**Customer: Messer Industriegase GmbH & RÜTGERS Germany GmbH**

- Two stages, two cylinders, water-cooled, non lubricated, step piston, vertical design
- Distance piece double type, long, pressure tight up to 0,3 MPa (a), with vent & purge connections, API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 180 kW, 400 V, 50Hz (II 2 G Ex de IIC T1), 1500 rpm, belt driven, antistatic with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N2 system with connecting flanges at battery limit

Codes & Standards:

- Pressure Equipment Directive 2014/68/EU (PED) / AD2000
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

Special feature:

- Volume flow regulation via frequency transformer for speed regulation between 50...100%

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 12.22 / 44.11 / 1
Gas	:	Hydrogen
Volume flow	:	867 - 1735 m <sup>3</sup> N/h
Inlet pressure	:	1,4 MPa (g)
Final pressure	:	10,8 MPa (g)
Motor power	:	180 kW
Country of installation	:	Germany



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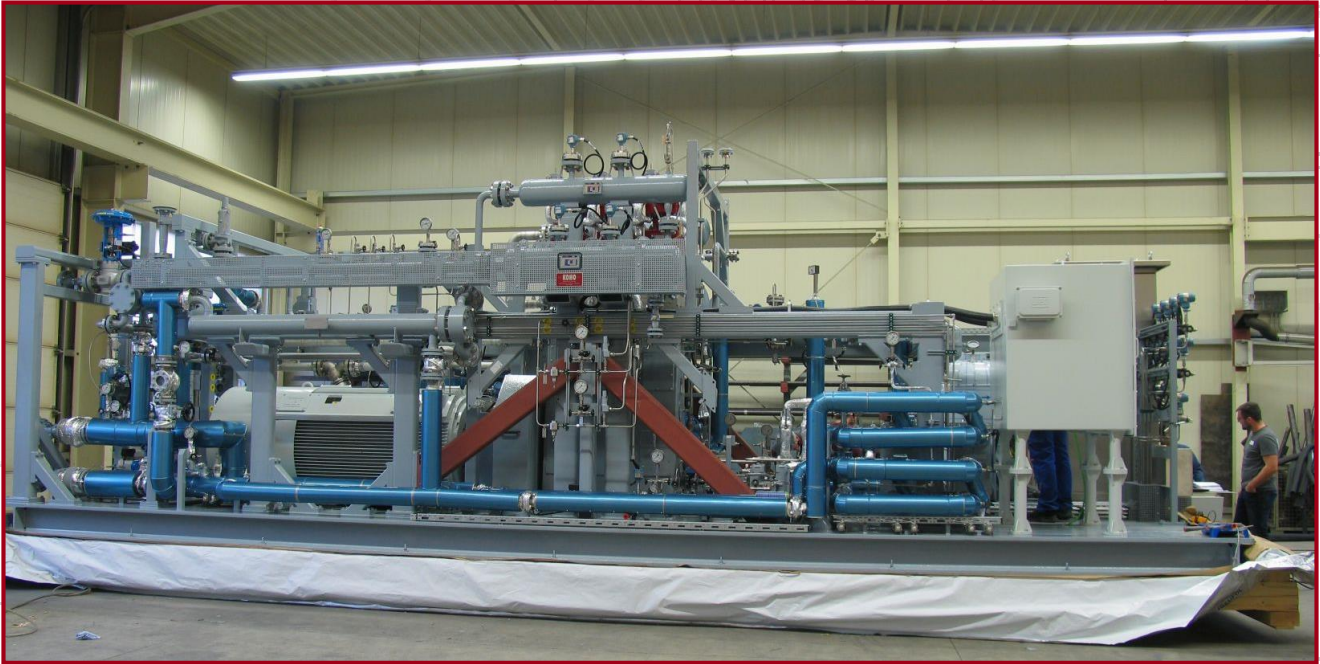
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# Synthesis Gas Compressor Package

non lubricated



**Customer: Pampa Fuels & Proman Gesellschaft für Projektmanagement mbH**

- Two stages, three cylinders, water-cooled, non lubricated, step piston, vertical design
- Distance piece double type, long, pressure tight up to 0,3 MPa (a), with vent & purge connections, API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 400 kW, 4000 V, 60Hz (CSA Class I Division II), 600 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, condensate-, and Nitrogen with connecting flanges at battery limit

#### Codes & Standards:

- ASME Boiler & Pressure Vessel Code VIII/Div.1
- NEC, ANSI, NEMA, IEEE, NFPA, UL and FM
- TEMA C for gas heat exchangers

#### Special feature:

- Closed Cooling / Heating System installed on common base frame together with the compressor
- Thermal insulation and electrical heat tracing for cooling water line and condensate piping
- Pulsation analysis according API 618 5<sup>th</sup> Edition Approach III

#### Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 14.33 / 444.111 / 1
Gas	:	Hydrogen Mixture
Volume flow	:	4218 m <sup>3</sup> N/h
Inlet pressure	:	1,75 MPa (g)
Final pressure	:	8,05 MPa (g)
Motor power	:	400 kW
Country of installation	:	USA



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# Coke Oven Gas Compressor

non - lubricated



## Customer: ThyssenKrupp Industrial Solutions AG Dortmund

- Two stages, single cylinder, water-cooled, non lubricated, step piston, vertical design
- Distance piece, long single compartment, API 618 type B
- Motion work pressure lubricated, including complete piped oil- system
- Motor 22 kW, 1500 rpm, belt driven, antistatic, with guard
  
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas and cooling water with connecting flanges at battery limit
- Volume flow regulation and unloading start-up by diaphragm type regulation valve, installed in bypass.  
Regulation range 0 / 15...100%

## Codes & Standards:

- API 618 with deviations
- Pressure Equipment Directive 2014/68/EU (PED) / AD2000

## Special feature:

- Second steel base frame with liquid separation unit
- Common noise insulation hood with removable wall panels for two compressor packages

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 5.12 / 5.1 / 1
Gas	:	Coke Oven Gas
Volume flow	:	100 - 116 m <sup>3</sup> N/h
Inlet pressure	:	Vacuum
Final pressure	:	0,95 MPa (g)
Motor power	:	22 kW
Country of installation	:	Germany



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# Ammonia Compressor Package

non lubricated



**Customer: TGE Gas Engineering GmbH**

- Single stage, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long single compartment, API 618 type B
- Motion work pressure lubricated, including complete piped oil- system
- Motor 75 kW, 400 V (II 2 G Ex de IIC T4), 1500 rpm, belt driven, antistatic with guard
- Internal piping for gas- and cooling water with connecting flanges at battery limit

Codes & Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

Special feature:

- Two identical compressor on common heavy duty steel base frame
- Second steel base frame with heat exchanger and ammonia collecting vessel as a cooling station
- All gas contacting parts are made out of stainless steel

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 5.12 / 4.6 / 0
Gas	:	Ammonia
Volume flow	:	1052 - 1650 m <sup>3</sup> N/h
Inlet pressure	:	0,51 – 0,8 MPa (g)
Final pressure	:	1,5 MPa (g)
Motor power	:	75 kW
Country of installation	:	Turkey



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# Recycle Gas Compressor Package

non - lubricated



**Customer: H&R Ölwerke Schindler GmbH**

- Single stage, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece double type, long, pressure tight up to 0,3 MPa (a), with vent & purge connections, API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 90 kW, 400 V (II 2 G Ex de IIC T4), 295...590 rpm, belt driven, antistatic with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Volumeflow regulation via frequency transformer for speed regulation between 50...100%

Codes & Standards:

- Pressure Equipment Directive 2014/68/EU (PED) / AD2000
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

Special features:

- Thermosiphon cooling system installed on common cooling system

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 15.11 / 2.6 / 0
Gas	:	Recycle Gas
Volume flow	:	3500 m <sup>3</sup> N/h
Inlet pressure	:	8,4 MPa (g)
Final pressure	:	11,7 MPa (g)
Motor power	:	90 kW
Country of installation	:	Germany



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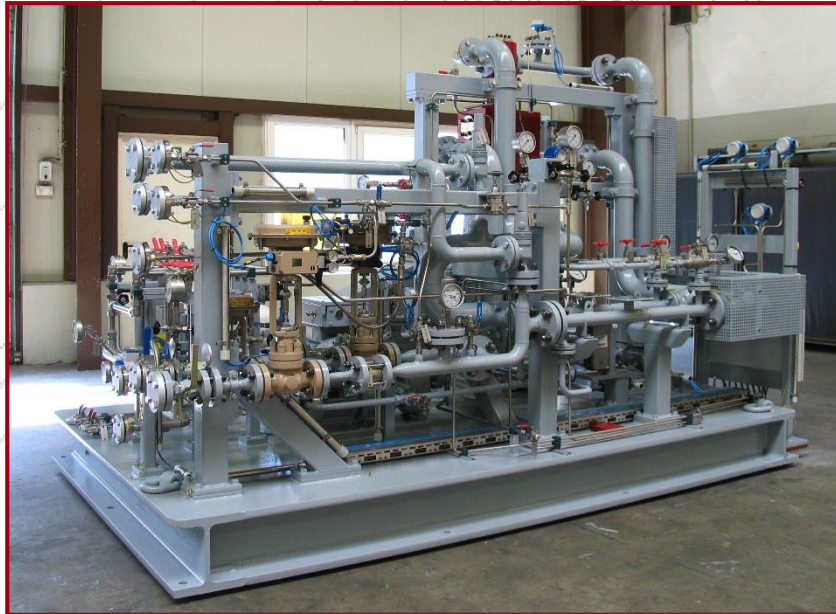
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# Hydrogen Compressor Package

non lubricated



**Customer: Mahler AGS GmbH**

- Two stages, single cylinder, water-cooled, non lubricated, step piston, vertical design
- Distance piece, long single compartment, API 618 type B
- Motion work pressure lubricated, including complete piped oil- system
- Motor 18,5 kW, 400 V (II 2 G Ex de IIC T4), 1500 rpm, belt driven, antistatic with guard
  
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Volume flow regulation and unloading start-up by diaphragm type regulation valve, installed in bypass. Regulation range 0 / 15...100%

Codes & Standards:

- API 618 with deviations
- Pressure Equipment Directive 2014/68/EU (PED) / AD2000
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

Special features:

- Closed Cooling / Heating System installed on common base frame together with the compressor

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 4.11 / 2.1 / 1
Gas	:	Hydrogen
Volumene flow	:	150 m <sup>3</sup> N/h
Inlet pressure	:	0,8 MPa (g)
Final pressure	:	4,5 MPa (g)
Motor power	:	18,5 kW
Country of installation	:	Turkey



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# Ethylene Compressor Package

non - lubricated



**Customer: Yunnan Bojun Chemical Co., Ltd.**

- Two stages, two cylinders, water-cooled, non lubricated, double acting, vertical design
- Distance piece double type, long, pressure tight up to 0,3 MPa (a), with vent & purge connections, API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 280 kW (II 2 G Ex de IIC T4), 590 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Volume flow regulation and unloading start-up by suction valve unloaders (gas tight) in steps 0 / 50 / 100 %

#### Codes & Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

#### Special features:

- Three identical compressor packages
- China Manufacturing Licence (China ML certificate) for pressure vessels

#### Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 16.24 / 42.14 / 3
Gas	:	Ethylene
Volume flow	:	2800 m <sup>3</sup> N/h
Inlet pressure	:	1.2 MPa (g)
Final pressure	:	6.5 MPa (g)
Motor power	:	280 kW
Country of installation	:	P.R. China



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# Ethylene Compressor Package

non - lubricated



**Customer: Linde-KCA-Dresden GmbH**

- Single stage, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece double type, long, pressure tight up to 0,3 MPa (a), with vent & purge connections, API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 160 kW (II 2 G Ex de IIC T4 Gb), 590 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Shell and tube type heat exchanger for gas cooling
- Volume flow regulation and unloading start-up by suction valve unloaders (gas tight) in steps 0 / 50 / 100 %

Codes & Standards:

- API 618 with deviations
- GOST TR and EX GOST R certification
- ASME Boiler & Pressure Vessel Code VIII/Div.1
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

Special features:

- The machine is designed for outdoor operation at -47 up to +45°C ambient temperature
- All compressor parts are made out of low temperature steel materials
- Auxiliary piping systems, such as lube oil system, cooling water instrument tubings are heat traced and insulated.

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 9.12 / 5.6 / 0
Gas	:	Ethylene
Volume flow	:	6000 m <sup>3</sup> N/h
Inlet pressure	:	1.2 MPa (g)
Final pressure	:	3.52 MPa (g)
Motor power	:	160 kW
Country of installation	:	Russian Federation



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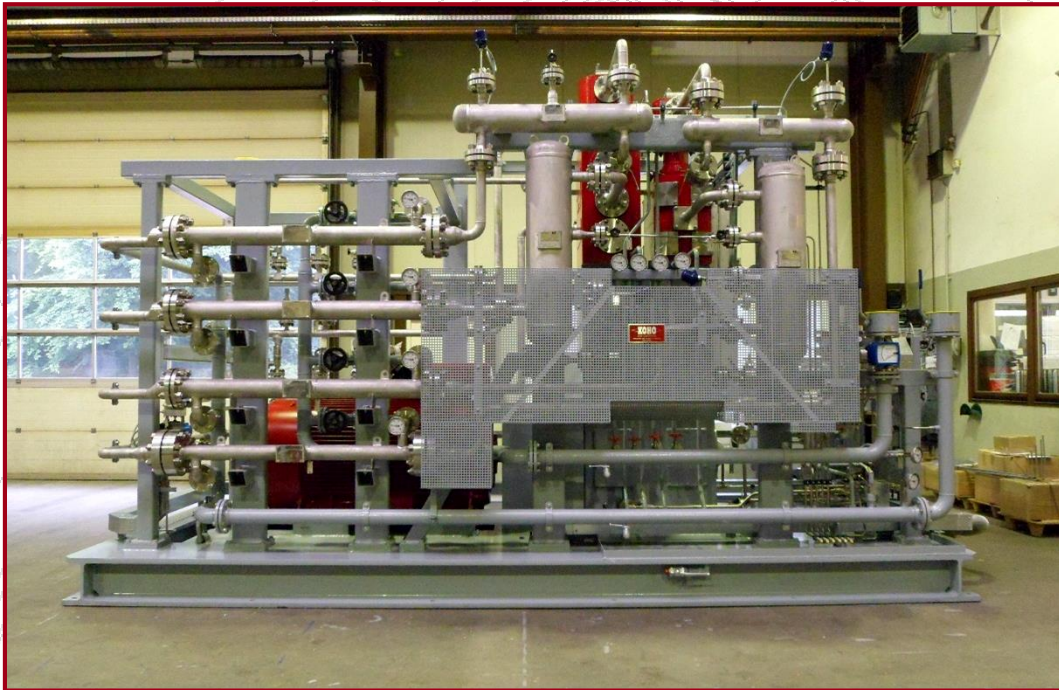
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# Nitrogen Compressor Package

non - lubricated



**Customer: Uhde High Pressure Technologies GmbH**

- Four stages, two cylinders, water-cooled, non lubricated, step piston, vertical design
  - Distance piece, long single-compartment, acc. to API 618 type B
  - Motion work pressure lubricated, including complete piped oil- system
  - Motor 270 kW, 590 rpm, direct driven via flexible coupling, with guard
  - Compressor as package unit on common heavy duty steel base frame
  - Internal piping for gas and cooling water system with connecting flanges at battery limit
  - Shell and tube type heat exchanger for gas cooling
  - Volume flow regulation and unloading start-up by diaphragm type regulation valve, installed in bypass.
- Regulation range 0 / 15...100%

Codes & Standards:

- API 618 with deviations
- Pressure Equipment Directive 2014/68/EU (PED) / AD2000

Special feature:

- Application for food industry, therefore all gas wetted parts are made out of stainless steel

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWV 12.22 / 84.11 / 11
Gas	:	Nitrogen
Mass flow	:	1500 kg/h
Inlet pressure	:	0.5 MPa (g)
Final pressure	:	20.0 MPa (g)
Motor power	:	270 kW
Country of installation	:	Poland



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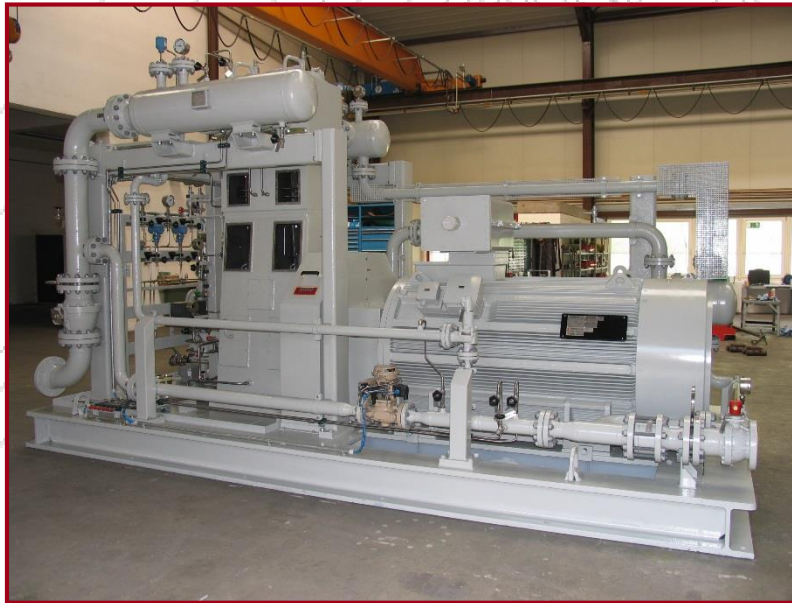
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# Hydrogen Gas Mixture Compressor

non - lubricated



**Customer: Mahler AGS GmbH**

- Two stages, two cylinders, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long two compartment acc. to API 618 type C, incl. N<sub>2</sub> purge system
- Motion work pressure lubricated, including complete piped oil- system
- Motor 420 kW (II 2 G Ex de IIC T4), 590 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Heat exchangers for gas- and oil system. Pulsation dampeners acc. To KoHo pulsation analysis in accordance with API Approach II
- Volumeflow regulation via diaphragm regulation valve in bypass system between 0 / 15...100%

Codes and Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 12.23 / 6.1 / 0
Gas	:	Hydrogen Gas Mixture
Volume flow	:	12700 m <sup>3</sup> N/h
Inlet pressure	:	1.36 MPa (g)
Final pressure	:	2.48 MPa (g)
Motor power	:	420 kW
Country of installation	:	Iran



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# Natural Gas Compressor

non - lubricated



**Customer: Stadtwerke Memmingen**

Gas can be temporarily stored in the pipeline system itself, through a process called line packing. This is done by packing more gas into the pipeline via an increase in the pressure. During periods of high demand, greater quantities of gas can be withdrawn from the pipeline, in order to avoid expensive purchasing peaks. The process of line packing is usually performed during off peak times to meet the next-day's peaking demand

- Two stages, two cylinders, water-cooled, non lubricated, double acting, vertical design
- Long single compartment distance piece
- Motion work pressure lubricated, including complete piped oil- system
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Volume flow regulation via diaphragm regulation valve installed in bypass stepless between 0 / 15...100%
- Ex-Zone 1 accordance to ATEX

Codes & Standards:

- API 618 with deviations
- Pressure Equipment Directive 2014/68/EU (PED) / AD2000
- DVGW- Rules and Standards

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 12.22 / 4.4 / 1
Gas	:	Natural Gas
Volume flow	:	2700 m <sup>3</sup> N/h
Inlet pressure	:	1.3 MPa (g)
Final pressure	:	10.0 MPa (g)
Motor power	:	280 kW
Country of installation	:	Germany



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# Purge Gas Co<sub>2</sub> Compressor

non - lubricated



## Customer: Ferrostahl AG

- Single stage, two cylinders, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long two compartment acc. to API 618 type C, incl. N<sub>2</sub> purge system
- Motion work pressure lubricated, including complete piped oil- system
- Double oil cooler and double oil filter
- Motor 280 kW (II 2 G Ex de IIC T4), 590 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Complete Gas system out of stainless steel
- Volumeflow regulation via suction valve unloaders in steps of 0 / 25 / 50 / 75 / 100%

## Codes & Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1
- API 618 Pulsation analysis approach II
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 12.23 / 2.4 / 0
Gas	:	Purge Gas Co <sub>2</sub>
Mass flow	:	9525 kg/h
Inlet pressure	:	2.4 MPa (g)
Final pressure	:	8.7 MPa (g)
Motor power	:	280 kW
Country of installation	:	Trinidad



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# Make-Up H<sub>2</sub> Compressor

non - lubricated



**Customer: Baoshan Iron & Steel Co. Ltd.**

- Two stages, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long two compartment acc. to API 618 type C, incl. N<sub>2</sub> purge system
- Motion work pressure lubricated, including complete piped oil- system
- V-belt driven, antistatic type for Ex-Zone 1
  
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Volumeflow regulation via
  - gas tight suction valve unloaders in steps of 0 / 50 / 100% in combination with
  - regulation bypass with shell and tube type heat exchanger

#### Codes & Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

#### Special feature:

- China Manufacturing Licence (China ML certificate) for pressure vessels

#### Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 9.12 / 6.1 / 1
Gas	:	Hydrogen
Volume flow	:	966 m <sup>3</sup> N/h
Inlet pressure	:	0.46 MPa (g)
Final pressure	:	3.61 MPa (g)
Motor power	:	110 kW
Country of installation	:	People's Republic of China



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# Ethylene Compressor

non - lubricated



## Customer: Dairen Chemical Corporation

- Single stages, two cylinders, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long two compartment acc. to API 618 type C, incl. N<sub>2</sub> purge system
- Motion work pressure lubricated, including complete piped oil- system
- Direct driven (motor speed = compressor speed)
  
- Compressor as package unit on common heavy duty steel base frame
- Gas heat exchanger, shell and tube type in accordance to TEMA
- Volumeflow regulation via gas tight suction valve unloaders in steps of 0 / 25 / 50 / 75 / 100%

## Codes & Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1 and TEMA for gas heat exchangers
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 12.22 / 22.44 / 0
Gas	:	Ethylene
Volume flow	:	2800 m <sup>3</sup> N/h
Inlet pressure	:	1.76 MPa (g)
Final pressure	:	6.37 MPa (g)
Motor power	:	132 kW, 3000 V
Country of installation	:	Malaysia



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# Nitrogen Gas Mixture Compressor

non - lubricated



**Customer: Zhejiang Hualian Sunshine Petrochemical Company**

- Two stages, two cylinders, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long single compartment acc. to API 618 type B
- Motion work pressure lubricated, including complete piped oil- system
- Motor 315 kW, 590 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Volumeflow regulation via suction valve unloaders in steps of 0 / 50 / 100%
- Local control panel for automatic operation with terminals for analog and digital in- and outgoing signals and Modbus connection to DCS system.

#### Codes & Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1 and TEMA C for gas heat exchangers
- API 618 Pulsation analysis approach II
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

#### Special feature:

- China Manufacturing Licence (China ML certificate) for pressure vessels

#### Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 12.23 / 64.11 / 3
Gas	:	Nitrogen Gas Mixture
Mass flow	:	2712 kg/h
Inlet pressure	:	0.6 MPa (g)
Final pressure	:	4.1 MPa (g)
Motor power	:	315 kW
Country of installation	:	People's Republic of China



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# Hydrocarbon Gas Mixture Compressor

non - lubricated



**Customer: Sasol Germany**

- Two stages, three cylinders, water-cooled, non lubricated, step piston type, vertical design
- Distance piece, long two compartment acc. to API 618 type C, incl. N<sub>2</sub> purge system
- Motion work pressure lubricated, including complete piped oil- system
- Motor 160 kW (II 2 EXx de IIC T4), 1500 rpm, belt driven, antistatic, with guard
  
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Heat exchangers for gas- and oil system. Cyclon separators after each gas cooler, Pulsation dampeners acc. to KoHo pulsation analysis in accordance with API Approach I
- Volumeflow regulation via:
  - frequency transformer for speed regulation between 50...100%
  - diaphragm regulation valve in bypass between 0...50%

Codes & Standards:

- API 618 with deviations
- Pressure Equipment Directive 2014/68/EU (PED) / AD2000

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWZ 14.33 / 8.4 / 8
Gas	:	Hydrocarbon Gas Mixture
Volume flow	:	1100 m <sup>3</sup> N/h
Inlet pressure	:	0.01 MPa (g)
Final pressure	:	1.6 MPa (g)
Motor power	:	160 kW
Country of installation	:	Germany



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# Liquefied Petroleum Gas (LPG) Compressor

non - lubricated



**Customer: TGE Marine Gas Engineering**

- Single stage, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long single compartment, API 618 type B
- Motion work pressure lubricated, including complete piped oil- system
- Motor 110 kW, 1500 rpm, belt driven, antistatic
- Internal piping for gas- and cooling water with connecting flanges at battery limit

Codes & Standards:

- API 618 with deviations
- Pressure Equipment Directive 2014/68/EU (PED) / AD2000

Special feature:

- Two identical compressor on common heavy duty steel base frame.

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 9.12 / 6.1 / 0
Gas	:	LPG
Volume flow	:	410 m <sup>3</sup> N/h
Inlet pressure	:	0.05 MPa (g)
Final pressure	:	2.0 MPa (g)
Motor power	:	110 kW
Country of installation	:	Gas Tanker



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# Hydrogen Gas Mixture Compressor

non - lubricated



**Customer: H & R Chemisch-Pharmazeutische Spezialitäten**

- Single stage, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece double type, long, pressure tight up to 0,3 MPa (a), with vent & purge connections, API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 200 kW (II 2 G Ex de IIC T4 Gb), 590 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas-, cooling water-, and N<sub>2</sub> system with connecting flanges at battery limit
- Shell and tube type heat exchanger for gas cooling
- Volume flow regulation via:
  - frequency transformer for speed regulation between 50...100%
  - diaphragm regulation valve in bypass between 0...50%

Codes & Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 9.12 / 2.5 / 0
Gas	:	Hydrogen Gas Mixture
Volume flow	:	8962 m <sup>3</sup> N/h
Inlet pressure	:	7.5 MPa (g)
Final pressure	:	10.5 MPa (g)
Motor power	:	200 kW
Country of installation	:	Germany



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# Purge Gas CO<sub>2</sub> Compressor

non - lubricated



**Customer: HHV Hallertauer Hopfenveredelungsgesellschaft mbH**

- Single stage, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long single compartment, API 618 type B
- Motion work pressure lubricated, including complete piped oil- system
- Motor 30 kW, 1500 rpm, belt driven, antistatic, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas and cooling water with connecting flanges at battery limit
- Heat exchanger for gas system in combination with condensate separator, Pulsation dampeners acc. to KoHo pulsation analysis in accordance with API Approach I
- Local control panel for automatic operation with terminals for analog and digital in- and outgoing signals
- Volume flow regulation via:
  - frequency transformer for speed regulation between 50...100%
  - suction valve unloaders in steps of 0 / 50 / 100%

Codes & Standards:

- API 618 with deviations
- Pressure Equipment Directive 2014/68/EU (PED) / AD2000

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 8.11 / 2.1 / 0
Gas	:	Purge Gas CO <sub>2</sub>
Volume flow	:	275 m <sup>3</sup> N/h
Inlet pressure	:	1.5 MPa (g)
Final pressure	:	6.0 MPa (g)
Motor power	:	30 kW
Country of installation	:	Germany



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# Ethylene Compressor

non - lubricated



**Customer: CCD (Singapore) Pte. Ltd.**

- Single stage, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long two compartment acc. to API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 132 kW, 590 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas and cooling water with connecting flanges at battery limit
- Heat exchanger for gas system, Pulsation dampeners acc. to KoHo pulsation analysis in accordance with API Approach I
- Volumeflow regulation via suction valve unloaders in steps of 0 / 50 / 100%

Codes & Standards:

- API 618 with deviations
- ASME Boiler & Pressure Vessel Code VIII/Div.1

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 9.13 / 2.4 / 0
Gas	:	Ethylene
Volume flow	:	3200 m <sup>3</sup> N/h
Inlet pressure	:	3.1 MPa (g)
Final pressure	:	7.3 MPa (g)
Motor power	:	132 kW
Country of installation	:	Singapore



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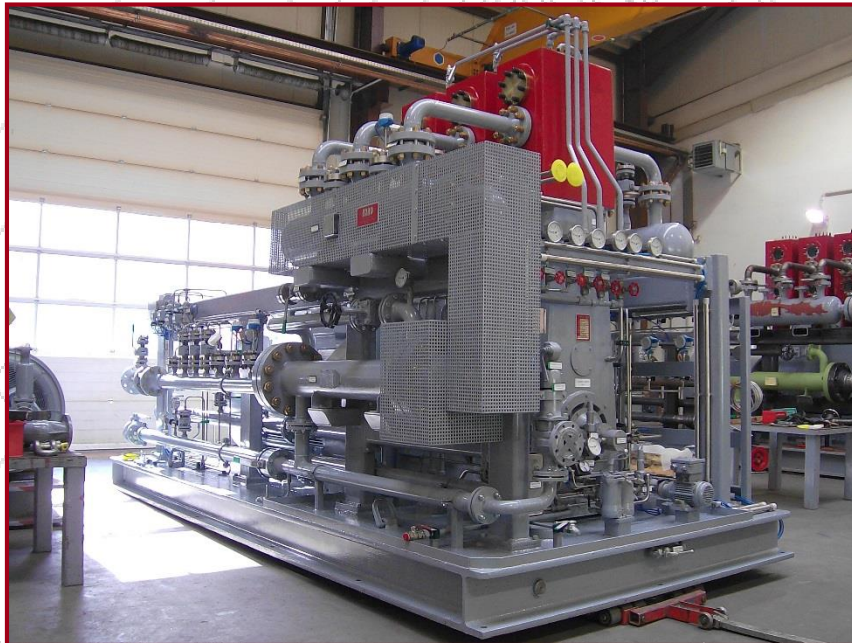
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# Natural Gas Compressor

non - lubricated



## Customer: Vattenfall Ahrensfelde

- Single stage, three cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long single compartment, API 618 type B
- Motion work pressure lubricated, including complete piped oil- system
- Motor 400 kW, 590 rpm, direct driven via flexible coupling, with guard
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas and cooling water with connecting flanges at battery limit
- Heat exchanger for gas system, Pulsation dampeners acc. to KoHo pulsation analysis in accordance with API Approach I
- Volumeflow regulation via frequency transformer for speed regulation between 50...100%

## Codes & Standards:

- API 618 with deviations
- Pressure Equipment Directive 2014/68/EU (PED) / AD2000

## Special feature:

- 3 identical compressors packages.

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 18.33 / 222.444 / 0
Gas	:	Natural Gas
Volume flow	:	15000 m <sup>3</sup> N/h
Inlet pressure	:	2.9 MPa (g)
Final pressure	:	9.9 MPa (g)
Motor power	:	400 kW
Country of installation	:	Germany



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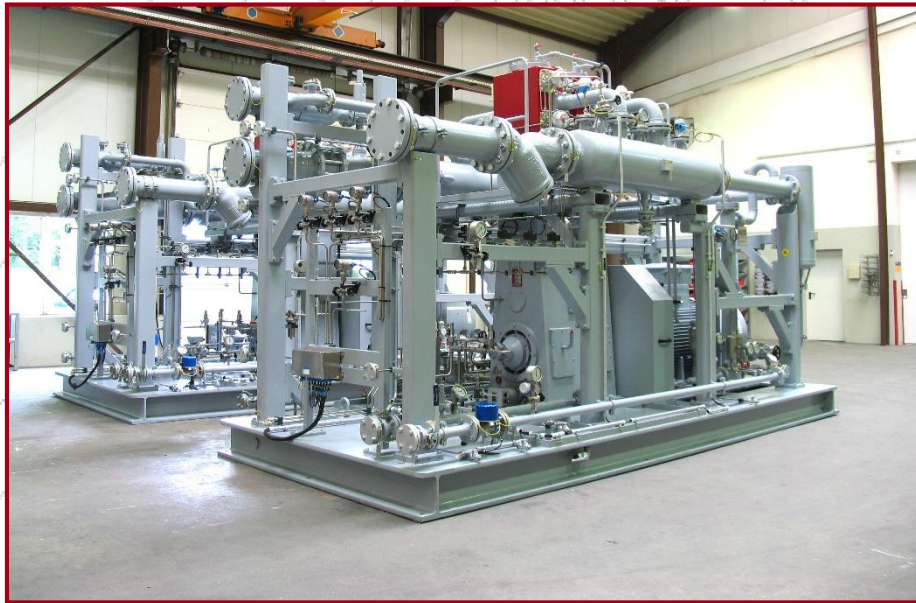
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# Propylene Compressor

non - lubricated



## Customer: Polynar Corporation

- Single stage, two cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long two compartment acc. to API 618 type C
- Motion work pressure lubricated, including complete piped oil- system
- Motor 250 kW, 590 rpm, direct driven via flexible coupling, with guard
  
- Compressor as package unit on common heavy duty steel base frame
- Internal piping for gas and cooling water with connecting flanges at battery limit
- Heat exchanger for gas system, Pulsation dampeners acc. to KoHo pulsation analysis in accordance with API Approach I
- Volumeflow regulation via
  - gas tight suction valve unloaders in steps of 0 / 25 / 50 / 75 / 100% in combination with
  - diaphragm regulation valve in bypass system between 15...100%

## Codes & Standards:

- API 618 with deviations
- Pressure Equipment Directive 2014/68/EU (PED) / AD2000

## Special feature:

- 2 identical compressors packages.

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 12.23 / 66.11 / 0
Gas	:	Propylene
Volume flow	:	10646 m <sup>3</sup> N/h
Inlet pressure	:	0.6 MPa (g)
Final pressure	:	1.6 MPa (g)
Motor power	:	250 kW
Country of installation	:	Iran



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# Natural Gas Compressor

non - lubricated

**Customer: Max Streicher GmbH & Co. KG**

- Single stage, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long single compartment, API 618 type B
- Motion work pressure lubricated, including complete piped oil- system
- Motor 110 kW, 590 rpm, direct driven via flexible coupling, with guard

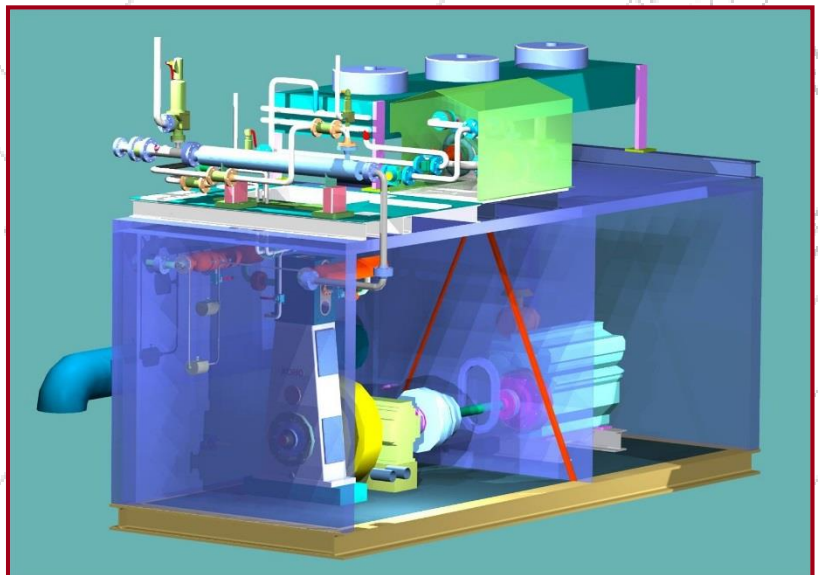
Special features:

- Complete compressor package inside of a standard container with
  - Non Ex gas motor
  - Gas tight bulkhead penetration shaft
  - Turbo coupling
  - Reduction gear
  - Compressor
  - Gas cooler
  - Closed Cooling water system

The use of gas tight bulkhead penetration shaft, gives the possibility to separate the Ex area of the compressor room from the non Ex area of the gas motor room.

The advantage of this design is, that a inexpensive Non Ex gas motor can be used instead of electric ex motor.

The entire unit is installed in a soundproof container. Hereby the installation on site is easy and the time exposure low. The operation on different sites are easier possible.



## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 15.11 / 2.4 / 0
Gas	:	Natural Gas
Volume flow	:	4000 m <sup>3</sup> /h
Inlet pressure	:	4.0 MPa (g)
Final pressure	:	7.0 MPa (g)
Motor power	:	90 kW
Country of installation	:	Switzerland



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# Hydrogen Compressor Package

non lubricated



**Customer: Air Liquide Deutschland GmbH & Haltermann Carless Deutschland GmbH**

- Single stage, single cylinder, water-cooled, non lubricated, double acting, vertical design
- Distance piece, long single compartment, API 618 type B
- Motion work pressure lubricated, including complete piped oil- system
- Motor 90 kW, 400 V (II 2 G Ex de IIC T4), 1500 rpm, belt driven, antistatic with guard
  
- Internal piping for gas- and cooling water with connecting flanges at battery limit

Codes & Standards:

- Pressure Equipment Directive 2014/68/EU (PED) / AD2000
- ATEX EN 94/9/EG and EN 13463-1 and 5, IEC 79-8 Class T3

## Technical Data:

Manufacturer	:	KOHO
Type	:	TWE 5.12 / 2.1 / 0
Gas	:	Hydrogen
Volume flow	:	1300 m <sup>3</sup> N/h
Inlet pressure	:	1,4 MPa (g)
Final pressure	:	4,5 MPa (g)
Motor power	:	90 kW
Country of installation	:	Germany



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