

**PARAMINA HIGH PRESSURE COMPRESSORS
CYCLONE SERIES TECHNICAL DATA**

Cyclone



1. **High-pressure piston compressor for breathing air, air cooled, 4-staged, oil lubricated, soundproof, stationary**, manufactured by PARAMINA, model Cyclone Silent 24E, **suitable for all shipping, diving and fire-fighting applications** with CE certificate.

Technical Data:

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|---|---|
| Model | : Cyclone Silent 24E |
| Max. Working Pressure | : 350 bar |
| Air Delivery FAD | : 400 lit/min, 24,0m ³ /h |
| Stages | : 4 |
| Cylinders | : 4 |
| Cylinder Arrangement | : W |
| 1 st stage cylinders diameter | : 105 mm |
| 2 nd stage cylinder diameter | : 55 mm |
| 3 rd stage cylinder diameter | : 36 mm |
| 4 th stage cylinder diameter | : 14 mm |
| Piston Stroke | : 90 mm |
| <u>Speed Rotation</u> | : 800 rpm |
| 1 st Stage Pressure | : 2,2 bar |
| 2 nd Stage Pressure | : 10,4 – 10,5 bar |
| 3 rd Stage Pressure | : 52,0 – 54,0 bar |
| Transmission | : V Belt |
| Motor (Class F, IP 55) | : 7.5kW-10Hp/ 400V/50Hz or 440V/60Hz |
| Oil Capacity | : 3,0ltr. synthetic compressor oil |
| Air outlet temperature | : 5 - 8 °C above ambient temperature |
| Max. permissible ambient temp. | : +5 ⁰ to +45 ⁰ C |
| Cooling air flow min required approximately | : 2700m ³ /hr |
| Max. inclination of compressor | : 15 ⁰ |
| Noise Level | :72 dB |
| Dimensions (L-W-H) | : 81x124x178 cm |
| Weight | : 498 - 510 Kg |
| Filling Time of 1 Cyl.10ltr @ 225bar | : 5,6 min ± 5% |
| Filling Time of 1 Cyl.10ltr @ 300bar | : 7,5 min ± 5% |

Standard Equipment:

- Micronic Air Intake Filter.
- **Condensate Separators after 1st, 2nd & 3rd Stage.**
- **Final – 4th stage condensate separator.**
- Safety valves in all stages.
- **Combined BA Filter Ø110X740 including Coalescing Pre-filter** (0,5mg/m³ oil residual) and 2x large (Active Carbon / Molecular Sieve) cartridge Ø65X260 each, with the supply of absolutely clean air exceeding by far the requirements of EN 12021:2014.
- High efficiency aluminum cooler after 1st and 2nd stage.
- Large Stainless Steel Intercoolers - aftercooler at 3rd and 4th stage.
- **Secondary large fan (630mm diam.) with independent motor for optimum compressor's cabinet cooling, making it capable for continuous operation.**
- **Inter stage pressure sensors in all stages providing emergency shutdown in case of overpressure.**
- High Temperature Alarm & Shutdown error via Analogue temperature sensor at final stage, for additional safety and accurate indications.
- **Automatic Condensate Drains with manual backups in all stages.**
- **Automatic stop at the desirable pressure via analogue pressure sensor 400bar**
- **Automatic restart at the desirable pressure via analogue pressure sensor 400bar**
- Pressure maintaining & non-return valve after final BA filter for extended BA filter lifetime.
- **Five (5) Kevlar* Filling Hoses (1.2m each)** complete with DIN and INTERNATIONAL "A" clamp Adaptors and lever operated on/off valves with automatic ventilation.
*Kevlar hoses are manufactured with very strong & resistant material and are pin pricked for air relief in atmosphere in case of damage.
- **Inter-stage manometers.**
- Built-In Vibration Pads.
- Condensate collecting tank with level indication.
- Soundproof insulation ensuring very low noise level.
- Automatic belt tensioning system.
- **Low oil level Sensor / Alarm / Shut down (auto stop).**
- **Start/Delta starting system.**
- 24V secondary voltage providing safety during routine operation.
- Motor thermal overload protection.
- Emergency Stop button.
- Electronic Controller incorporating:
 - Digital Display.
 - Start/Stop button.
 - Reset button.
 - Menu button.
 - Easy adjustment of all the parameters of the controller through a menu.



- Filling pressure index (by a transmitter) / protection in case of overpressure.
- Interstage pressure index/ protection in case of overpressure.
- Operating temperature index / protection in case of wiring faults and overheating.
- Operating hours index.
- Remaining hours for service index.
- Warning of BA filter change.
- Warning of oil change.
- Recording of last 15 alarms / trips (malfunctions).
- Remote Start/Stop – Remote Load/Unload.
- Leakage, Safety valves and condensate drains test.

Remark for service index: The controller warns every 38 operating hours for replacement of the BA cartridge. If the compressor reaches 40 operating hours and the BA cartridge is not replaced yet, it stops automatically and we notice a trip code number at the display.

The controller also warns every 490 operating hours for oil change, and if at 500 operating hours the oil is not changed yet, the compressor stops automatically and we notice another trip code number at the display.

2. High-pressure piston compressor for breathing air, air cooled, 4-staged, oil lubricated, soundproof, stationary, manufactured by PARAMINA, model Cyclone Silent 30E, suitable for all shipping, diving and fire-fighting applications with CE certificate.

Technical Data:

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|---|---|
| Model | : Cyclone Silent 30E |
| Max. Working Pressure | : 350 bar – (420 bar version) |
| Air Delivery FAD | : 500 lit/min , 30,0m ³ /h (550 lit/min, 33,0m ³ /h @420 bar version) |
| Stages | : 4 |
| Cylinders | : 4 |
| Cylinder Arrangement | : W |
| 1 st stage cylinders diameter | : 105 mm |
| 2 nd stage cylinder diameter | : 55 mm |
| 3 rd stage cylinder diameter | : 36 mm |
| 4 th stage cylinder diameter | : 14 mm |
| Piston Stroke | : 90 mm |
| <u>Speed Rotation</u> | : 1000 rpm |
| 1 st Stage Pressure | : 2,2 bar |
| 2 nd Stage Pressure | : 10,4 – 10,5 bar |
| 3 rd Stage Pressure | : 52,0 – 54,0 bar |
| Transmission | : V Belt |
| Motor (Class F, IP 55) | : 11kW-15Hp/ 400V/50Hz or 440V/60Hz |
| Oil Capacity | : 3,0ltr. synthetic compressor oil |
| Air outlet temperature | : 5 - 8 °C above ambient temperature |
| Cooling air flow min required approximately | : 3960m ³ /hr |
| Max. permissible ambient temp. | : +5 ⁰ to +45 ⁰ C |
| Max. inclination of compressor | : 15 ⁰ |
| Noise Level | :73 dB |
| Dimensions (L-W-H) | : 81x124x178 cm |
| Weight | : 546 - 560 Kg |
| Filling Time of 1 Cyl.10ltr @ 225bar | : 4,5 min ± 5% |
| Filling Time of 1 Cyl.10ltr @ 300bar | : 6,0 min ± 5% |
| Filling Time of 1 Cyl.10ltr @ 420bar | : 7,6 min ± 5% |

Standard Equipment:

- Micronic Air Intake Filter.
- **Condensate Separators after 1st, 2nd & 3rd Stage.**
- **Final – 4th stage condensate separator.**
- Safety valves in all stages.
- **Combined final BA Filter Ø110X740 including Coalescing Pre-filter (0,5mg/m³ oil residual) and 2x large (Active Carbon / Molecular Sieve) cartridge Ø65X260 each, with the supply of absolutely clean air exceeding by far the requirements of EN 12021:2014.**
 - **Combined BA filter Ø110x740 480 bar max. (420bar version)**
- High efficiency aluminum cooler after 1st and 2nd stage.
- Large Stainless Steel Intercoolers - aftercooler at 3rd and 4th stage
 - **3rd stage intercooler extra (420b version)**
 - **4th stage aftercooler extra (420b version)**
- **Secondary large fan (630mm diam.) with independent motor for optimum compressor's cabinet cooling, making it capable for continuous operation.**
- **Inter stage pressure sensors in all stages providing emergency shutdown in case of overpressure.**
- **Improved heatsink at 3rd stage valve/cylinder head (350 & 420b version)**
- **Improved heatsink at final (4th) stage valve head (350 & 420b version)**
- **Improved heatsink at final (4th) stage cylinder head (350 & 420b version)**
- High Temperature Alarm & Shutdown error via Analogue temperature sensor at final stage, for additional safety and accurate indications.
- **Automatic Condensate Drains with manual backups in all stages.**
 - **400bar solenoid valve @ final stage (420bar version)**
- **Automatic start & stop at the desirable pressure via analogue pressure sensor 400bar**
 - **600bar analogue pressure sensor (420bar version)**
- Pressure maintaining & non-return valve after final BA filter for extended BA filter lifetime.
- **Five (5) Kevlar* Filling Hoses (1.2m each) complete with DIN and INTERNATIONAL "A" clamp Adaptors and lever operated on/off valves with automatic ventilation.**

*Kevlar hoses are manufactured with very strong & resistant material and are pin pricked for air relief in atmosphere in case of damage.
- **Inter-stage manometers.**
- Built-In Vibration Pads.
- Condensate collecting tank with level indication.
- Soundproof insulation ensuring very low noise level.
- Automatic belt tensioning system.
- **Low oil level Sensor / Alarm / Shut down (auto stop).**
- **Start/Delta starting system.**
- 24V secondary voltage providing safety during routine operation.
- Motor thermal overload protection.
- Emergency Stop button.



- Electronic Controller incorporating:
 - Digital Display.
 - Start/Stop button.
 - Reset button.
 - Menu button.
 - Easy adjustment of all the parameters of the controller through a menu
 - **Filling pressure index (by a transmitter) / protection in case of overpressure.**
 - Interstage pressure index/ protection in case of overpressure.
 - Operating temperature index / protection in case of wiring faults and overheating.
 - Operating hours index.
 - Remaining hours for service index.
 - Warning of BA filter change.
 - Warning of oil change.
 - Recording of last 15 alarms / trips (malfunctions).
 - Remote Start/Stop – Remote Load/Unload.
 - Leakage, Safety valves and condensate drains test.

Remark for service index: The controller warns every 28 operating hours for replacement of the BA cartridge. If the compressor reaches 30 operating hours and the BA cartridge is not replaced yet, it stops automatically and we notice a trip code number at the display.

The controller also warns every 490 operating hours for oil change, and if at 500 operating hours the oil is not changed yet, the compressor stops automatically and we notice another trip code number at the display.

3. **High-pressure piston compressor for breathing air, air cooled, 4-staged, oil lubricated, soundproof, stationary**, manufactured by PARAMINA, model Cyclone Silent 36E, **suitable for all shipping, diving and fire-fighting applications** with CE certificate.

Technical Data:

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|---|---|
| Model | : Cyclone Silent 36E |
| Max. Working Pressure | : 350 bar |
| Air Delivery FAD | : 600 lit/min , 36,0m ³ /h |
| Stages | : 4 |
| Cylinders | : 4 |
| Cylinder Arrangement | : W |
| 1 st stage cylinders diameter | : 105 mm |
| 2 nd stage cylinder diameter | : 55 mm |
| 3 rd stage cylinder diameter | : 36 mm |
| 4 th stage cylinder diameter | : 14 mm |
| Piston Stroke | : 90 mm |
| <u>Speed Rotation</u> | : 1200 rpm |
| 1 st Stage Pressure | : 2,2 bar |
| 2 nd Stage Pressure | : 10,4 – 10,5 bar |
| 3 rd Stage Pressure | : 52,0 – 54,0 bar |
| Transmission | : V Belt |
| Motor (Class F, IP 55) | : 15kW-20Hp/ 400V/50Hz or 440V/60Hz |
| Oil Capacity | : 3,0ltr. synthetic compressor oil |
| Air outlet temperature | : 5 - 8 °C above ambient temperature |
| Max. permissible ambient temp. | : +5 ⁰ to +45 ⁰ C |
| Cooling air flow min required approximately | : 5400m ³ /hr |
| Max. inclination of compressor | : 15 ⁰ |
| Noise Level | :73 dB |
| Dimensions (L-W-H) | : 81x124x178 cm |
| Weight | : 551 - 585 Kg |
| Filling Time of 1 Cyl.10ltr @ 225bar | : 3,7 min ± 5% |
| Filling Time of 1 Cyl.10ltr @ 300bar | : 5,0 min ± 5% |

Standard Equipment:

- Micronic Air Intake Filter.

- **Condensate Separators after 1st, 2nd & 3rd Stage.**
- **Final – 4th stage condensate separator.**
- Safety valves in all stages.
- **Combined final BA Filter Ø110X740 including Coalescing Pre-filter (0,5mg/m³ oil residual) and 2x large (Active Carbon / Molecular Sieve) cartridge Ø65X260 each, with the supply of absolutely clean air exceeding by far the requirements of EN 12021:2014.**
- High efficiency aluminum cooler after 1st and 2nd stage.
- Large Stainless Steel Intercoolers - aftercooler at 3rd and 4th stage.
- **Secondary large fan (630mm diam.) with independent motor for optimum compressor's cabinet cooling, making it capable for continuous operation.**
- **Inter stage pressure sensors in all stages providing emergency shutdown in case of overpressure.**
- High Temperature Alarm & Shutdown error via Analogue temperature sensor at final stage, for additional safety and accurate indications.
- **Automatic Condensate Drains with manual backups in all stages.**
- **Automatic stop at the desirable pressure via analogue pressure sensor 400bar**
- **Automatic restart at the desirable pressure via analogue pressure sensor 400bar**
- Pressure maintaining & non-return valve after final BA filter for extended BA filter lifetime.
- **Five (5) Kevlar* Filling Hoses (1.2m each) complete with DIN and INTERNATIONAL "A" clamp Adaptors and lever operated on/off valves with automatic ventilation.**
*Kevlar hoses are manufactured with very strong & resistant material and are pin pricked for air relief in atmosphere in case of damage.
- **Inter-stage manometers.**
- Built-In Vibration Pads.
- Condensate collecting tank with level indication.
- Soundproof insulation ensuring very low noise level.
- Automatic belt tensioning system.
- **Low oil level Sensor / Alarm / Shut down (auto stop).**
- **Start/Delta starting system.**
- 24V secondary voltage providing safety during routine operation.
- Motor thermal overload protection.
- Emergency Stop button.
- Electronic Controller incorporating:
 - Digital Display.
 - Start/Stop button.
 - Reset button.
 - Menu button.
 - Easy adjustment of all the parameters of the controller through a menu
 - Filling pressure index (by a transmitter) / protection in case of overpressure.



- Interstage pressure index/ protection in case of overpressure.
- Operating temperature index / protection in case of wiring faults and overheating.
- Operating hours index.
- Remaining hours for service index.
- Warning of BA filter change.
- Warning of oil change.
- Recording of last 15 alarms / trips (malfunctions).
- Remote Start/Stop – Remote Load/Unload.
- Leakage, Safety valves and condensate drains test.

Remark for service index: The controller warns every 18 operating hours for replacement of the BA cartridge. If the compressor reaches 20 operating hours and the BA cartridge is not replaced yet, it stops automatically and we notice a trip code number at the display.

The controller also warns every 490 operating hours for oil change, and if at 500 operating hours the oil is not changed yet, the compressor stops automatically and we notice another trip code number at the display.

Optional Equipment - All Models:

- Dual pressure filling facility, allowing 225/330 bar simultaneous filling via pressure regulator.
- Extra Combined final BA Filter Ø90x770 including Coalescing Pre-filter (0,5mg/m³ oil residual) and 2x large (Active Carbon / Molecular Sieve) cartridge Ø65X260 each, with the supply of absolutely clean air exceeding by far the requirements of EN 12021:2014.
- Special Voltage/Frequency: 230V/50– 60Hz – 3x230V/60Hz
- **3rd Final stage condensate separator in replacement of the BA Filter (industrial use)**
- High Pressure outlet in replacement of filling hoses

Recommended Spares All Models:

- Paramina HPS Oil p.n.:112001001 (3,0ltr per replacement - replacement every 500 working hours and every 6 months irrespective of the working hours)
- AC/MS Cartridge p.n.:137000080 (2 pcs per replacement) or AC/MS/HP Cartridge p.n.:137000100 (2 pcs per replacement)

Cyclone 24E: replacement every 40 working hours @ 20 °C ambient temperature and once per year irrespective of the working hours

Cyclone 30E: replacement every 30 working hours @ 20 °C ambient temperature and once per year irrespective of the working hours

Cyclone 36E: replacement every 20 working hours @ 20 °C ambient temperature and once per year irrespective of the working hours

- Coalescing pre-filter cartridge p.n.:306049631 (1 pc per replacement-replacement every 200 working hours and once a year irrespective of the working hours)
- Air intake cartridge p.n.:109460302 (1 pc per replacement-replacement every 200 working hours and once a year irrespective of the working hours)