Eco-Friendly High Efficiency Turbo Blowers and Compressors

Turbo Blower NX Series
Turbo Compressor NC Series
Customer satisfaction is our number one priority at Neuros which is the secret behind every blower that we make. NX and NC series are the embodiment of highest efficiency and quality.

**THE HIGHEST PERFORMANCE**

With many years of experience in the research and development of gas turbine engines, used in aircraft, and production know-how of turbo machineries, Neuros’ Turbo Blowers and Turbo Compressors provide the world best performance reaching up to 75% of total efficiency.

**EXCELLENT RELIABILITY**

Its Award Winning High Speed Turbo Blowers are considered the industry reference for high quality thanks to the use of proven state-of-the-art air bearing, PMSM and blower aeration control system technologies.

**ECONOMICAL LIFE CYCLE COST**

NX and NC series provide the end users with significant reduction in operating costs through energy savings of up to 40% (according to third party studies), low installation and maintenance costs – only air filters need periodical cleaning or replacing.

**CUSTOMER ORIENTED TECHNOLOGY**

User-friendly PLC for easy control, monitoring and diagnostics. Eco-friendly technology with low noise and vibration and no lubricating oil required.
Neuros’ Turbo Blower and Compressor technology was founded and utilized in the aerospace and defense industry, making the technology tested and reliable. Consequently, Neuros acquired a premium brand reputation by providing sustainable and energy efficient solutions to its customers.

Neuros will continue providing value-added energy efficient solutions through the continuous improvement, development and innovation of industrial turbo machineries as well as the commercialization of the next generation turbo charger and the environmental control system in the field of automation and aviation industry.
THE HIGHEST PERFORMANCE

The ultimate turbo machinery integrating the state-of-the-art aerospace high performance technologies.

High Efficiency Impeller with Aerodynamic Optimization Design

- The design of the impeller and diffuser plays a key role in maximizing the efficiency of the turbo machinery.
- Impeller has higher integrity and higher fatigue life, as well as a larger diameter and precise impeller shape combined with optimal specific speed resulting in higher efficiency.
- Impeller’s structural integrity is verified by a Spin Test at a rotational speed of 120%.
- Most suitable material, forged Aluminum Alloy, is used for the high-speed turbo machinery to manufacture the impeller, which is machined with a 5-axis CNC machine to minimize tip clearance.
- A hard anodizing coating on the impeller and casing improves corrosion resistance and durability.

High Speed PMSM

- Self-developed Permanent Magnet Synchronous Motor (PMSM) has a high efficiency and power factor of more than 95%.
- Permits continuous operation with low current loss and offers excellent speed control.
- There is negligible mechanical loss during operation thanks to the rotor of motor and impeller being directly coupled.

High Efficiency VFD

- The Variable Frequency Drive (VFD) conserves energy by controlling the rotational speed of the PMSM in order to adjust the discharge pressure and flow rate to meet customer needs.
- Inverter start of below 100% current at the time of initial start
- Rapid load response
EXCELLENT RELIABILITY

Proven air bearing and patented cooling system ensures continued trouble-free operation.

Aerospace Air Bearing Technology

- Non-contact air bearing that utilizes the dynamic pressure of air fluid. It is composed of two parts: a corrugated bump foil and high temperature alloy inner foil. As the rotor speeds up, a thin film of air creates a cushion between the shaft and the bearing surface.
- 100% Oil-Free Compressed Air – no lubricating oil or associated maintenance required.
- Reliable and proven technologies used in Aircraft Environmental Control Systems and Air Cycle Machines. (Neuros air bearing used in a small-size turbo compressor installed in a fuel cell vehicle passed a 1,000,000 start/stop test.)

Patented Cooling System

- The blower motor, VFD and other electrical components are cooled off using blower inlet air.
- No heat emission from the blower to the surroundings
- Cooling System Patent No. 10-0572849

Surge Protection Logic

- Built-in Protection Logic in the blower to prevent surge during its operation by controlling its speed or blowing off air automatically.
ECONOMICAL LIFE CYCLE COST

Low LCC thanks to the blower’s energy savings and low maintenance costs.

- **Neuros Turbo Blower**

  ![Graph showing reduced LCC for Neuros Turbo Blower compared to Conventional Blower.

Return on Investment

- **NX and NC series** can maximize the profitability of end users through significant reduction of LCC.
- Neuros’ Turbo Compressors save customers 50 to 70% of energy in applications that require a more flexible operation with air pressure of 120 - 250 kPa by replacing conventional compressors which produce 700 – 1,000 kPa.

Low Maintenance Cost

- Regular maintenance involves only cleaning or replacing air filters.
- No expenditures on the replacement of oil, oil filters and water cooling systems.
- Reduced labor costs

### Improved Filter System

- NX and NC series use a Two-Stage filtration system to protect the mechanical and electrical components and increase their efficiency.
- An alarm will alert the operator when the differential pressure goes above a preset point indicating that the filter needs to be replaced.

### New Filtration System

<table>
<thead>
<tr>
<th>Filter Type</th>
<th>Pre Filter</th>
<th>Main Filter</th>
<th>Remarks</th>
<th>Applying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filtration Efficiency</td>
<td>80% @ 100 μm</td>
<td>99% @ 2 μm</td>
<td>ASHRAE 52.2-1999</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Coarse</td>
<td>Fine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Non-woven Fabric</td>
<td>Synthetic Fiber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage</td>
<td>2 Stages (Pre Filter + Main Filter)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>Air Wash once a month</td>
<td>Replacement every 3-6 months</td>
<td>Warning &amp; Fault Alarms</td>
<td>Depending on Circumstances</td>
</tr>
</tbody>
</table>
CUSTOMER ORIENTED TECHNOLOGY

Easy to use control system and eco-friendly technology.

Control System to Meet Various Customer Demands

• Programmable Logic Controller is the central control point of the blower. It allows the end users to run the blower in automated mode at constant speed, pressure, flow or dissolved oxygen control mode.
• It is equipped with an easy to use touch screen which allows for easy control, monitoring and diagnostics to view all blower parameters and conditions.
• The blowers and compressors can be controlled and monitored remotely using a Master Control Panel through communication protocols such as Ethernet, Modbus, Profibus, and Hard Wiring.
• Various languages are available including English, Chinese, Japanese, Korean, Turkish and Russian.

Eco-Friendly & User-Friendly Design

• Thanks to the patented non-contact air bearing and enclosure, the blower has very low vibration of less than 1mm/s without the special foundations and noise levels below 85 dBA.
• Patent No. 10-0572850
• No environmental pollution thanks to the 100% Oil-Free System
• CO₂ emission reduction thanks to the energy savings
• Construction, electricity and plumbing costs are reduced thanks to the smaller footprint.
• Plug & Play operation with “all-in-one package”

Optional Items

• Master Control Panel (MCP) can be used to control up to 12 blowers giving the operator one point of control and monitoring, and each machine can be controlled through the remote communication with SCADA.
• Harmonic Filter can be installed inside or outside the enclosure of NX and NC series which provides an additional level of protection from harmonic distortion, removing harmonics generated during operation below the levels of THD_V 5%, THD_I 18%.
Eco-Friendly High Efficiency Turbo Blowers and Compressors

- Blow-Off Silencer
- Air Outlet
- Blow-Off Valve
- Discharge Cone
- VFD
- LCP (PLC+Touch Screen)
- VFD Cooling Air Inlet
- Air Inlet
- Sinus Filter (Optional)
- Harmonic Filter (Optional)
Eco-Friendly High Efficiency Turbo Blowers and Compressors

Are a Smart Choice for Mankind and the Environment

Turbo Blower
NX Series
- Suction Flow Rate: 9-532 m³/min
- Discharge Pressure: 0.3-1.0 kgf/cm²G
- Turndown: 45-100%
- Noise Level: Below 85dB(A)
- 100% Oil-Free System

Turbo Compressor
NC Series
- Suction Flow Rate: 12-230 m³/min
- Discharge Pressure: 1.1-2.0 kgf/cm²G
- Turndown: 70-100%
- Noise level: Below 85dB(A)
- 100% Oil-Free System
Product Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Specifications</th>
<th>Dimensions and Weights (standard)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cooling</td>
<td>Suction Flow (m³/min)</td>
</tr>
<tr>
<td>NX30</td>
<td>Air</td>
<td>9 ~ 23</td>
</tr>
<tr>
<td>NX50</td>
<td>Air</td>
<td>19 ~ 45</td>
</tr>
<tr>
<td>NX75</td>
<td>Air</td>
<td>28 ~ 62</td>
</tr>
<tr>
<td>NX100</td>
<td>Air</td>
<td>42 ~ 98</td>
</tr>
<tr>
<td>NX150</td>
<td>Air</td>
<td>63 ~ 129</td>
</tr>
<tr>
<td>NX200</td>
<td>Air</td>
<td>85 ~ 167</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>85 ~ 167</td>
</tr>
<tr>
<td>NX250</td>
<td>Air</td>
<td>98 ~ 169</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>98 ~ 169</td>
</tr>
<tr>
<td>NX300</td>
<td>Air</td>
<td>131 ~ 257</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>131 ~ 257</td>
</tr>
<tr>
<td>NX350</td>
<td>Air</td>
<td>144 ~ 266</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>144 ~ 266</td>
</tr>
<tr>
<td>NX400</td>
<td>Air</td>
<td>170 ~ 334</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>170 ~ 334</td>
</tr>
<tr>
<td>NX500</td>
<td>Air</td>
<td>196 ~ 337</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>196 ~ 337</td>
</tr>
<tr>
<td>NX600</td>
<td>Air</td>
<td>262 ~ 514</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>262 ~ 514</td>
</tr>
<tr>
<td>NX700</td>
<td>Air</td>
<td>288 ~ 532</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>288 ~ 532</td>
</tr>
<tr>
<td>NC50</td>
<td>Air</td>
<td>12 ~ 14</td>
</tr>
<tr>
<td>NC100</td>
<td>Water</td>
<td>26 ~ 33</td>
</tr>
<tr>
<td>NC300</td>
<td>Water</td>
<td>82 ~ 115</td>
</tr>
<tr>
<td>NC600</td>
<td>Water</td>
<td>164 ~ 230</td>
</tr>
</tbody>
</table>

※ Discharge Pressure: NX series(0.3 ~ 1.0 kgf/cm²G), NC series(1.1 ~ 2.0 kgf/cm²G)
※ Reference Conditions: 1.033 kgf/cm²A, 20ºC, 65% RH
※ Tolerance: Air Flow ±4%, Power ±5%
※ Compliant with ISO5389, ASME PTC 10
※ The specification of the product may be changed for improvement of performance without notice.
Reference Sites

1. Water and Waste Water Treatment Plant

- Daejeon WWTP [NX200], Korea
- Hoeya WWTP [NX150], Korea
- Suji WWTP [NX300], Korea
- Sudokwon Landfill Site [NX150], Korea
- Hollister [NX100/NX150], USA
- Rupert [NX300], USA
- He Dong [NX300], China
- Chang Sha [NX300], China
- Podolsk [NX300], Russia
- Malaty 2 OSB [NX300], Turkey
- Kyowa [NX300], Japan
- Abu Dhabi [NX300], UAE

2. Industry

- Honam Petrochemical [NX50], Korea
- LG Chemical Ulsan [NX150], Korea
- POSCO 4CGL [NX150], Korea
- Nisshin Steel [NX100], Japan

3. Dual Core

- American Bottoms [NX600], USA
- Cincinnati [NX500], USA
- Tuzla Deri OSB 2 [NC600], Turkey
- Yuhan-Kimberly [NC500], Korea
Global Sales Network

Neuros has the most experience in the world with over 2,500 units installed in 18 different countries, including over 700 units in North America alone in the field of High Speed Turbo Blower. Neuros is an export-driven company with more than 75% of its sales generated from exports.

For details, please contact to:

KANKYO SOLUTIONS CO., LTD
68 Soi Rinrada, Srinakarin Rd., Suanluang Sub-District, Suanluang District, Bangkok 10250
Tel. 02-730-8440-1, Fax. 02-730-8442