nHT SERIES
HIGH-THROUGHPUT
DIFFUSION PUMPS

edwardsvacuum.com
THE PARTNER OF CHOICE

Edwards is a world leader in the design, technology and manufacture of vacuum pumps for industrial applications with over 100 years’ history.

We believe in delivering results that bring value to our customers by using our breadth of industry experience to identify and apply solutions. Using the most innovative and up-to-date modelling techniques, we can optimise the pumping configuration for customers to provide a system design giving the maximum performance in the most reliable and cost-effective way.
nHT SERIES

NEXT-GENERATION HIGH-THROUGHPUT DIFFUSION PUMPS

The Edwards nHT series diffusion pumps provide stable high-throughput vacuum performance. Designed for optimum energy efficiency, flexibility and low maintenance, the nHT series is the ideal solution for a variety of demanding industrial applications.

ENERGY EFFICIENCY

The nHT series diffusion pumps have been designed for optimum heat transfer to the oil, resulting in faster heat-up times and a significant reduction in energy consumption. In addition, the use of the Energy Efficiency Controller (EEC) provides further reduction in power consumption – up to 30% without the loss of pumping performance.

Energy Efficiency Controller

Cut energy consumption by up to 30%

- 100% power during the warm-up phase
- 70% power on reaching the required oil temperature
- Further energy reduction with the use of standby mode
- USB interface and Ethernet connectivity
- Ease of operation and control
BENEFITS

**Performance and stability**

Optimised pumping speed and high throughput with good stability between $10^2$ and $10^3$ mbar – critical for many applications.

**Economy**

Significant energy savings through innovative heating design providing faster warm-up time. When used with the Energy Efficiency Controller a further energy saving can be achieved – up to 30%.

**Reliability**

Smart temperature control and on-board sensors as standard ensure minimum load with a longer lifetime for heaters and oil. Increased productivity through long maintenance intervals with non-wearing components and easy-to-change heater cartridges.

ADVANTAGES

- High-throughput pumping performance
- Energy efficiency
- Fast warm-up time
- High system uptime
- Easy to operate
- Low and simple maintenance
- Control capability via Energy Efficiency Controller (optional accessory)

**Flexibility**

Available in both ANSI and ISO flange options with voltage variants to cover global requirements. A broad range of accessories is available.

**Control**

The Energy Efficiency Controller enables ease of use and operating convenience along with effective monitoring with USB and Ethernet interface.
APPLICATIONS

Metallurgy
- Sintering, precision investment casting (PIC)

Heat treatment
- Quenching, tempering, annealing

Welding
- E-beam welding, plasma welding

Coating
- Glass coating
- Surface coating (plasma, spray, surface activation, hard coating, reflective, decorative, plasma deposition)
- Roll/web coating, optical/ophthalmic coating, display coating

Vacuum drying

Research & development
FEATURES

- **Integrated cold cap**
  Prevents fluid back migration to ensure a clean vacuum system.

- **High-precision jet assembly**
  Ensures high stability and consistent jet performance.

- **Converging backing cone**
  Increases the critical backing pressure, enabling effective cross-over from the backing pump.

- **Ejector stage**
  Ensures high-pressure pumping speed and greater resistance to pressure surges from the backing pump.

- **Terminal box/Energy Efficiency Controller interface**
  Provides connectivity options for both the OEM and end-user.

- **Oil sight glass**
  Combined with a drain and fill port allows easy viewing and maintains oil level and quality.

- **Innovative cartridge heating system**
  Provides optimum heat transfer into the oil resulting in faster heat-up times, reducing energy consumption.
## TECHNICAL DATA

<table>
<thead>
<tr>
<th></th>
<th>nHT10</th>
<th>nHT16</th>
<th>nHT20</th>
<th>nHT32</th>
<th>nHT35</th>
</tr>
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<tbody>
<tr>
<td><strong>Inlet connection</strong></td>
<td>10&quot; ANSI</td>
<td>16&quot; ANSI</td>
<td>20&quot; ANSI</td>
<td>32&quot; ANSI</td>
<td>35&quot; ANSI</td>
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<tr>
<td><strong>Backing connection</strong></td>
<td>2&quot; ANSI</td>
<td>3&quot; ANSI</td>
<td>4&quot; ANSI</td>
<td>6&quot; ANSI</td>
<td>6&quot; ANSI</td>
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<tr>
<td><strong>Pumping speed</strong></td>
<td>Nitrogen &lt;10⁻⁴ mbar</td>
<td>3,000</td>
<td>6,800</td>
<td>10,000</td>
<td>21,000</td>
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<td></td>
<td>Argon &lt;10⁻⁴ mbar</td>
<td>2,750</td>
<td>6,350</td>
<td>9,000</td>
<td>18,000</td>
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<td></td>
<td>Helium &lt;10⁻⁴ mbar</td>
<td>4,500</td>
<td>9,500</td>
<td>17,000</td>
<td>30,000</td>
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<tr>
<td><strong>Gas throughput</strong></td>
<td>mbar l/s</td>
<td>8</td>
<td>11</td>
<td>17</td>
<td>36</td>
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<tr>
<td><strong>Operating range</strong></td>
<td>mbar</td>
<td>&lt;10⁻¹ to 10⁻⁷</td>
<td>&lt;10⁻¹ to 10⁻⁷</td>
<td>&lt;10⁻¹ to 10⁻⁷</td>
<td>&lt;10⁻² to 10⁻⁷</td>
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<tr>
<td><strong>Ultimate pressure</strong></td>
<td>(Edwards 704)</td>
<td>mbar</td>
<td>&lt; 5 x 10⁻¹</td>
<td>&lt; 5 x 10⁻¹</td>
<td>&lt; 5 x 10⁻¹</td>
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<tr>
<td><strong>Critical backing pressure</strong></td>
<td>(Edwards 704)</td>
<td>mbar</td>
<td>5 x 10⁻¹</td>
<td>5 x 10⁻¹</td>
<td>5 x 10⁻¹</td>
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<tr>
<td><strong>Heating power</strong></td>
<td>kW</td>
<td>3.6</td>
<td>7.2</td>
<td>10.8</td>
<td>21.6</td>
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<td><strong>Heating cartridges</strong></td>
<td>qty</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>18</td>
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<tr>
<td><strong>Warm-up period</strong></td>
<td>min</td>
<td>&lt; 15</td>
<td>&lt; 15</td>
<td>&lt; 25</td>
<td>&lt; 25</td>
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<tr>
<td><strong>Weight</strong></td>
<td>kg</td>
<td>105</td>
<td>185</td>
<td>210</td>
<td>570</td>
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<td><strong>Recommended oil</strong></td>
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<td></td>
<td></td>
<td>Edwards 704</td>
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<tr>
<td><strong>Recommended holding pump</strong></td>
<td></td>
<td></td>
<td></td>
<td>E2M40</td>
<td>E2M40</td>
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<td><strong>Recommended backing pump</strong></td>
<td></td>
<td></td>
<td></td>
<td>nES200, E2M80, EDS200, EH1200</td>
<td>nES200, E2M175, EDS200, EH1200</td>
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</table>

* Measures as per DIN 28 427

## ORDERING INFORMATION

<table>
<thead>
<tr>
<th>nHT series diffusion pumps</th>
<th>nHT10</th>
<th>nHT16</th>
<th>nHT20</th>
<th>nHT32</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage variant</strong></td>
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<tr>
<td>380–415V, 230V (50 Hz/60 Hz)</td>
<td>B31130400</td>
<td>B31132400</td>
<td>B31230400</td>
<td>B31232400</td>
<td>B31340400</td>
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<td>440–480V (50/60 Hz)</td>
<td>B31130460</td>
<td>B31132460</td>
<td>B31230460</td>
<td>B31232460</td>
<td>B31340460</td>
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<table>
<thead>
<tr>
<th>nHT Series Accessories</th>
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<th></th>
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<tbody>
<tr>
<td><strong>Inlet valve</strong></td>
<td>B61130100</td>
<td>B61132100</td>
<td>B61230100</td>
<td>B61232100</td>
<td>B61430100</td>
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<tr>
<td><strong>Extended cold cap</strong></td>
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<td>B61233100</td>
<td>B61433100</td>
<td>B61633100</td>
<td>B61533100</td>
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<td><strong>Inlet baffle</strong></td>
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<td>B61234100</td>
<td>B61434100</td>
<td>B61634100</td>
<td>B61534100</td>
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<tr>
<td><strong>Energy Efficiency Controller (EEC)</strong></td>
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<td></td>
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<td>B61001100 (accessory cables not included)</td>
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<td><strong>Cooling fail switch</strong></td>
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<td><strong>Water flow monitor</strong></td>
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</table>
DIMENSIONS

**nHT10**

```
320 ISO-K

63 ISO-K

370

95

39

172

300

788

480

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**nHT16**

```
500 ISO-K

100 ISO-K

550

130

265

1092

480

102

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EDWARDS  nHT Diffusion pumps
SERVICE AND SUPPORT

The nHT series diffusion pumps are designed with a number of features that enable routine maintenance to be conducted, ensuring optimum performance and safe operation. Scheduled routine maintenance shall include activities deemed beneficial to the continued performance and longevity of the product. All work must be completed by suitably trained personnel. Before any maintenance operations are carried out, the pump must be isolated from the electrical supply and vacuum system.

Our field service teams carry out essential maintenance, repair and commissioning service at your site. We can also assist site staff in performing routine maintenance.

We offer original spares kits for the nHT series diffusion pumps. This enables your maintenance team to start work with all the materials they need to complete the job successfully, saving time, reducing cost and extending the life of your product.