

# nXDS DRY SCROLL PUMPS





# EDWARDS THE PARTNER OF CHOICE

**Edwards is a world leader in the design, technology and manufacture of vacuum pumps with over 95 years' history and more than 75 years' manufacturing experience.**

Edwards believes in delivering results that bring value to our customers by using our breadth of industry experience to identify and apply solutions to your problems. 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.

# THE INTELLIGENT CHOICE

## Edwards nXDS is the great new shape of dry vacuum pumping

The nXDS has taken scroll vacuum technology to the next level. Improved performance, exceptional pumping capability, quiet operation and extended service intervals make nXDS the ultimate dry choice.

Quiet operation

### **Better working environment**

Hermetically sealed for a lubricant-free vacuum environment

### **Contamination free process and no oil to dispose of**

Low power consumption

### **Low cost of ownership**

Intelligent and easy to use controls

### **Flexibility of operation**

Superior vapour handling

### **Wider range of applications**

Long service intervals

### **Maximised up-time**

## Applications

You can be assured Edwards has the application expertise and the vacuum pump or integrated system solution to meet your needs.

### **Mass spectrometry**

- GCMS, LCMS, ICPMS, MALDI, RGA, surface science, leak detectors

### **Electron microscopy**

- TEM, SEM, sample coatiers

### **Sample preparation**

- Gel dryers, glove boxes, rotary evaporators, centrifuges

### **Research and development**

- Chamber evacuation, coating systems, turbopump backing

### **High energy physics**

- Beam lines, accelerators, mobile pump carts, turbopump backing, laser evacuation

### **Industrial**

- Gas recovery and recirculation, glove boxes, brake line and air conditioning evacuation, coating systems, freeze drying, gas bottle filling/emptying, refrigeration system manufacture, degassing/curing (oil, epoxy resin)

### **Chemical**

- Gel dryers, glove boxes, rotary evaporators, centrifuges, solvent recovery, distillation/extraction/filtration

# nXDS scroll pump sectional view

Optimum bearing placement for long lifetime and easy replacement

High efficiency radial air-gap motor for low power consumption

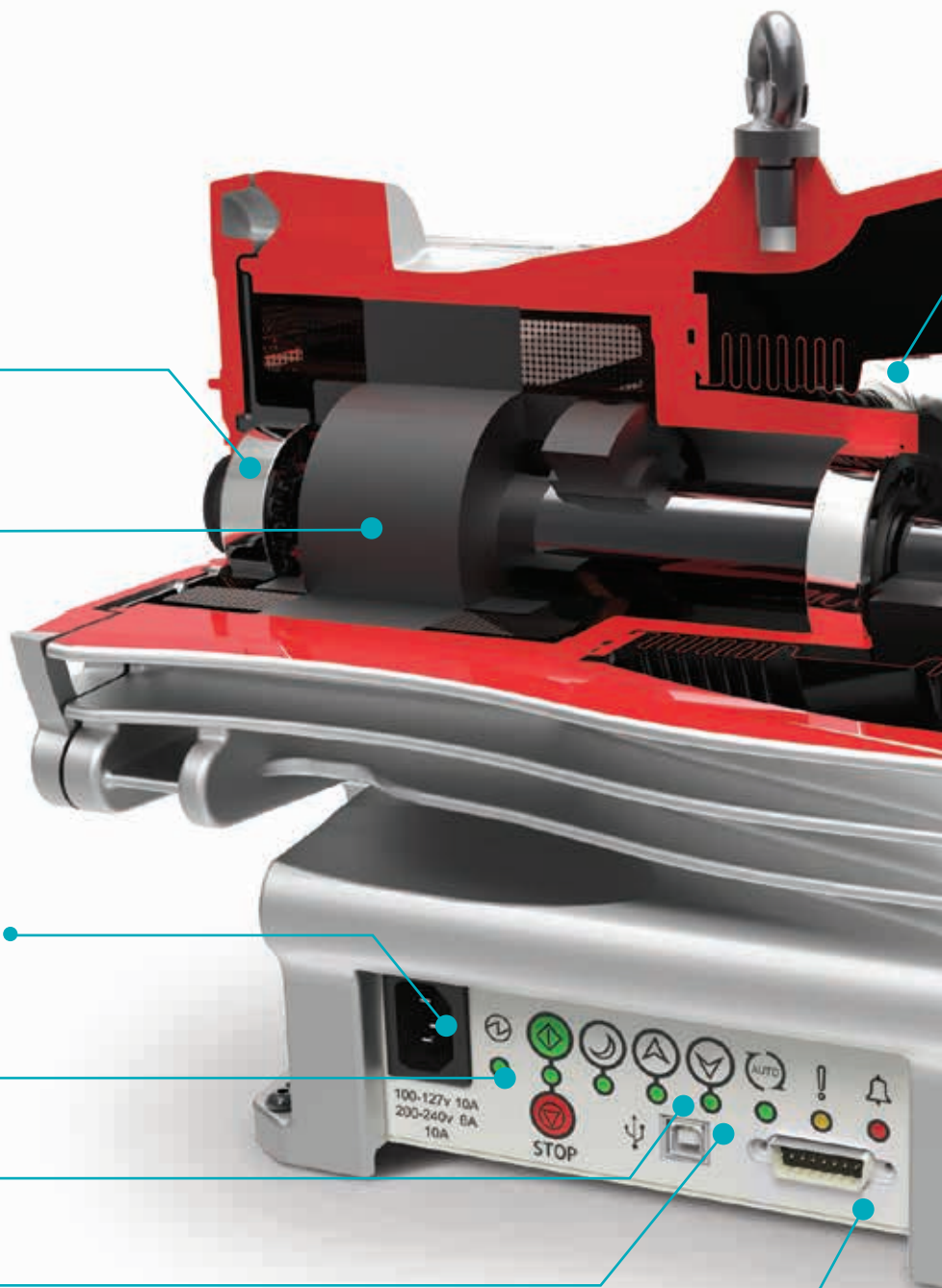
Wide range voltage input with automatic selection for simple operation

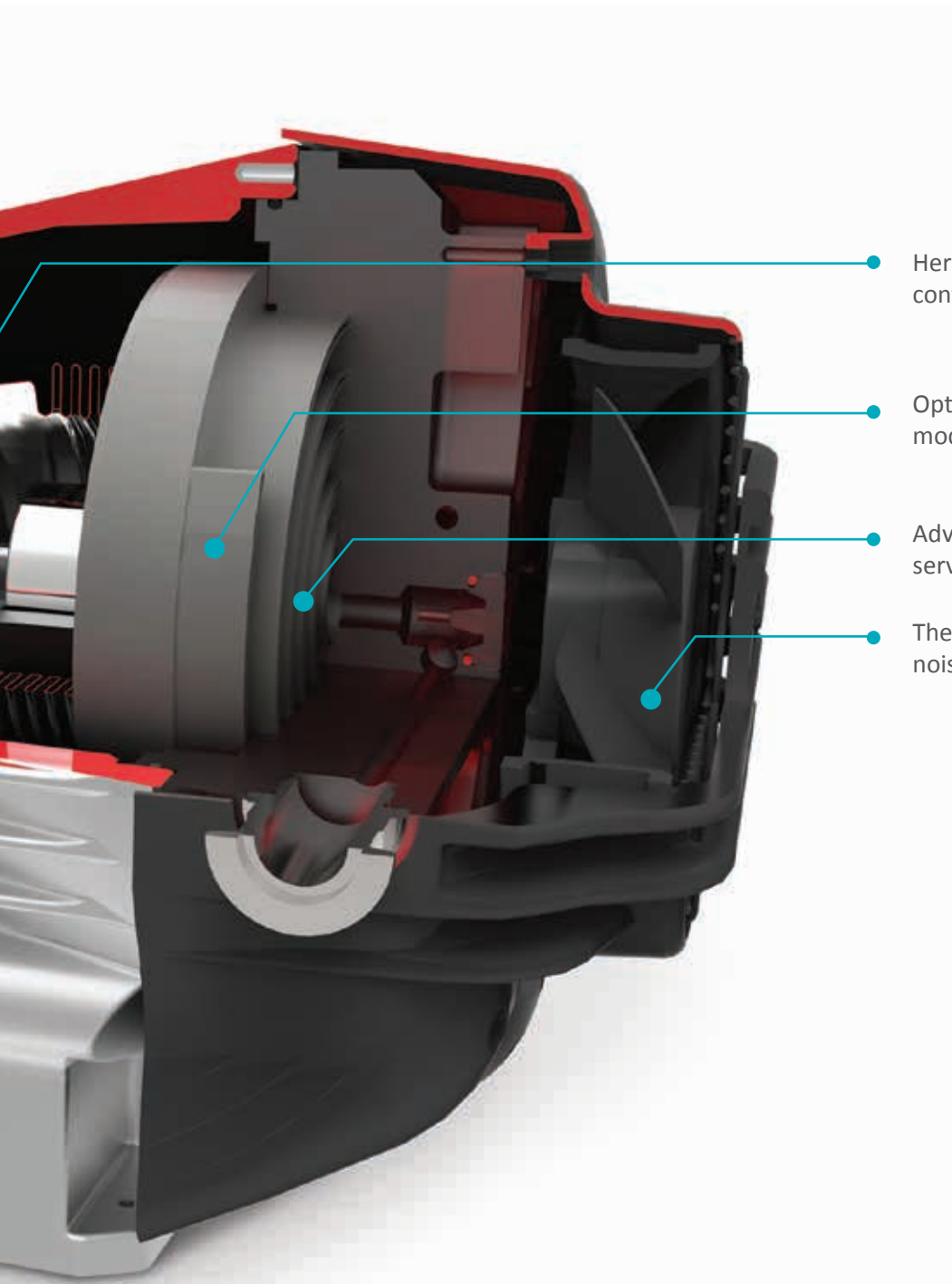
Easy to use manual control buttons

Standby speed control buttons for efficient processtuning

USB port for service use only

Remote control interface for convenience of operation





Hermetic bellows sealing for contamination free vacuum

Optimised scroll profiles for each model to maximise performance

Advanced tip-seal technology for long service lifetime

Thermally controlled fan for reduced noise



# Performance

nXDS has been designed to combine the latest advances in scroll technology with an intelligent drive coupled with the long established, truly dry, hermetically sealed mechanism of the XDS series.

Class leading pumping speeds are an improvement over previous XDS models and, with the drive, are of course consistent worldwide. Likewise, ultimate vacuum pressures which are below  $10^{-2}$  mbar are now comparable with those of oil-sealed rotary vane pumps – without the inconvenience of oil.

Hermetic sealing ensures that the vacuum environment is not contaminated by bearing lubricant and, conversely, the bearings are not contaminated by any process gas being pumped.

## Quiet running

The modern laboratory is often a busy place with many other appliances running, all contributing to the background noise. With its low noise power level of 52 dB(A), the nXDS pump makes only a very small contribution to the total noise. This level is up to twenty times less than those of competitor products.

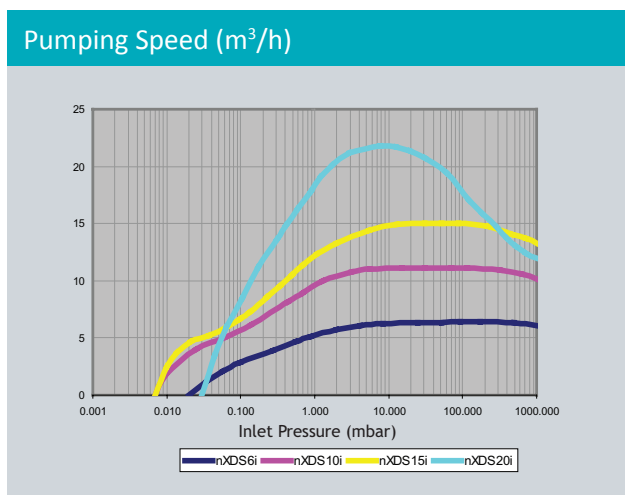
## nXDS is available in four sizes:

- nXDS6i
- nXDS10i
- nXDS15i
- nXDS20i

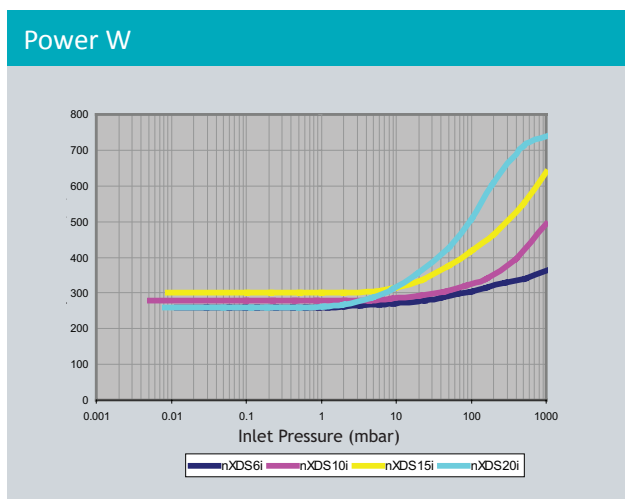
## Other variants

For more aggressive applications, 'C' Variants are available which feature Chemraz® internal valves and stainless steel fittings for extra protection from the pumped media.

R variants are available for specialist applications such as gas recirculation, rare gas pumping and recovery or other applications where the dilution of the pumped gas is undesirable, or where sealing is integral to minimising potential gas loss.



Summary of pump speeds



Summary of input powers

# Pump controller

The advanced controller allows for several modes of control:

## Manual

Push button START, STOP and STANDBY. Accurate speed control of 1% of maximum running speed.

## Parallel remote

From your own control system via the 15 way d-sub connector giving the same START, STOP and STANDBY with the option of analogue speed control.

## Serial communication remote

Option of either RS232 or RS485 with a choice of Edwards' proprietary 'DX' protocol or industry standard Modbus protocol. A USB port has been included for service use only.

The pump controller is able to accept voltages from 100-127 and 200-240V (+/- 10%) without the need for intervention.



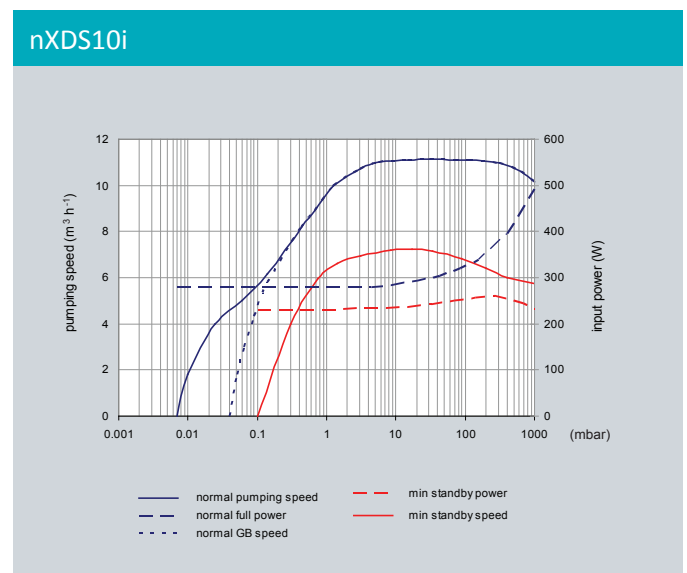
# Technical data

|  |   | nXDS6i                    | nXDS10i       | nXDS15i       | nXDS20i       |
|--|---|---------------------------|---------------|---------------|---------------|
| Nominal rotational speed                                     |   | 1800 rpm                  |               |               |               |
| Displacement   | m <sup>3</sup> h <sup>-1</sup> (ft <sup>3</sup> min <sup>-1</sup> ) | 6.8 (4.0)                 | 12.7 (7.5)    | 17.1 (10.1)   | 28.0 (16.5)   |
| Peak pumping speed   | m <sup>3</sup> h <sup>-1</sup> (ft <sup>3</sup> min <sup>-1</sup> ) | 6.2 (3.6)                 | 11.4 (6.7)    | 15.1 (8.9)    | 22.0 (13.0)   |
| Ultimate vacuum (total pressure)                             | mbar (Torr)   | 0.020 (0.015)             | 0.007 (0.005) | 0.007 (0.005) | 0.030 (0.022) |
| Minimum standby rotational speed                             | rpm   | 1200                      |               |               |               |
| Speed control resolution (percentage of full rotation speed) | %   | 1                         |               |               |               |
| Max inlet pressure for water vapour                          | mbar  | 35                        | 35            | 35            | 20            |
| Max water vapour pumping rate                                | gh <sup>-1</sup>  | 110                       | 145           | 240           | 220           |
| Maximum continuous inlet pressure                            | mbar  | 200                       | 200           | 200           | 50            |
| Voltage input  | V   | 100-127, 200-240 (+/-10%) |               |               |               |
| Voltage frequency  | Hz  | 50/60                     |               |               |               |
| Motor power 1-ph*  | W   | 260                       | 280           | 300           | 260           |
| Power connector 1-ph   |   | IEC EN60320 C13           |               |               |               |
| Recommended fuse   |   | 10A, 250V a.c. rms        |               |               |               |
| Weight   | kg (lb)   | 26.2 (58)                 | 25.8 (57)     | 25.2 (56)     | 25.6 (56)     |
| Inlet flange   |   | NW25                      |               |               |               |
| Exhaust flange   |   | NW25                      |               |               |               |
| Noise level**  | dB(A)   | 52                        |               |               |               |
| Vibration at inlet flange                                    | mms <sup>-1</sup> (rms)   | < 4.5                     |               |               |               |
| Leak tightness (static)                                      | mbar ls <sup>-1</sup>   | < 1x10 <sup>-6</sup>      |               |               |               |
| Operating temperature range                                  | °C (°F)   | +5 to +40 (+41 to +104)   |               |               |               |

\* Typical. See graphs on page 6.

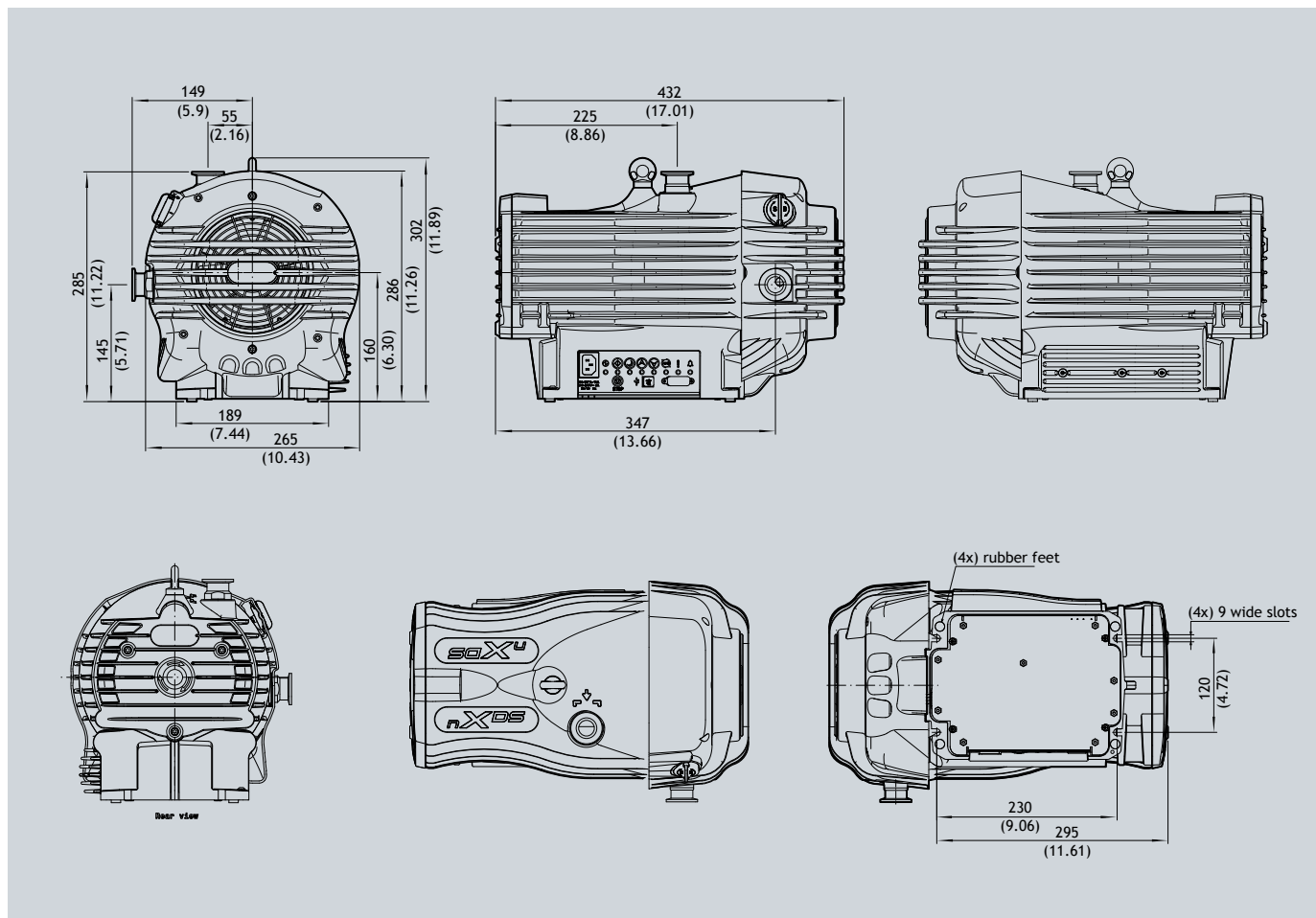
\*\* For low fan speed, typical at ultimate end when load/ambient conditions allow.

## Pumping speed and power curves

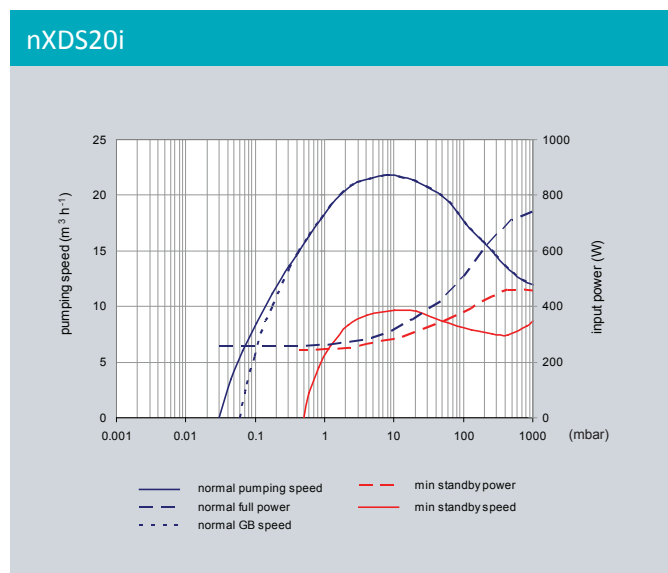




# Dimensions



All variants are the same Dimensions in mm (in)

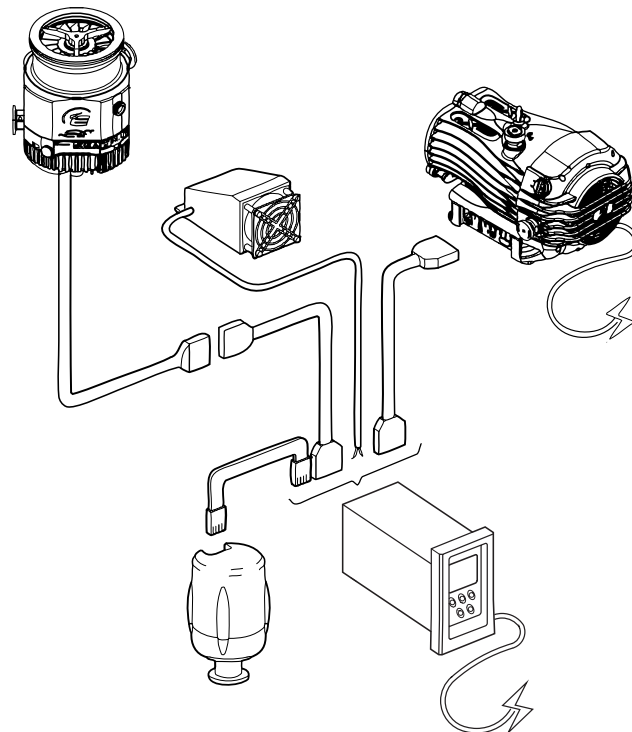


# Controllers

The TIC (Turbo and Instrument Controller) automatically recognises the nXDS pump when connected to the backing pump connector as the controller adopts serial communications mode when connected to the nXDS. There is no need to use a relay box to interface to nXDS.

Speed control and pump run hours etc can be readily accessed from the display. The TIC can also control an nEXT turbopump plus, up to three gauges at the same time as a nXDS pump.

Customers already owning a TIC can upgrade their software to enable interfacing to nXDS.



## Ordering information

| Standard product |             | Corrosion resistant (C) variants |             | (R) Variants without gas ballast |             |
|------------------|-------------|----------------------------------|-------------|----------------------------------|-------------|
| nXDS6i           | A735 01 983 | nXDS6iC                          | A735 02 983 | nXDS6iR                          | A735 03 983 |
| nXDS10i          | A736 01 983 | nXDS10iC                         | A736 02 983 | nXDS10iR                         | A736 03 983 |
| nXDS15i          | A737 01 983 | nXDS15iC                         | A737 02 983 | nXDS15iR                         | A737 03 983 |
| nXDS20i          | A738 01 983 | nXDS20iC                         | A738 02 983 | nXDS20iR                         | A738 03 983 |

## Spares and accessories

|   |             |
|---|-------------|
| TIC (Turbo) 200W                                | D397 12 000 |
| TIC (Turbo and Instruments) 200W                | D397 22 000 |
| Gas ballast adaptor blank (nXDS)                | A735 01 806 |
| Gas ballast adaptor (nXDS) 0.25 mm hole         | A735 01 809 |
| Gas ballast adaptor blank (nXDS) no restriction | A735 01 811 |
| Silencer (NW25)                                 | A505 97 000 |
| Inlet/outlet filter 5µm (NW25/NW25)             | A505 97 805 |
| Tip seal service kit                            | A735 01 801 |
| Bearing service kit                             | A735 01 802 |

|   |             |
|---|-------------|
| nXDS exhaust and gas ballast kit                | A735 01 803 |
| Electrical supply cable 2m, UK                  | A505 05 000 |
| Electrical supply cable 2m, North Europe        | A505 06 000 |
| Electrical supply cable 2m, North America/Japan | A505 07 000 |
| Electrical supply cable 2m, no plug             | A505 08 000 |
| TIC interface cable 1.0m                        | D397 00 835 |
| TIC interface cable 2.0m                        | D397 00 836 |
| TIC interface cable 5.0m                        | D397 00 837 |

## Service

Your business success depends on maximum equipment uptime and minimum total cost of ownership, and we constantly strive to support those objectives. As a global leader in vacuum technology and processes, we understand how vacuum pumps and systems perform in real life. Our wide portfolio of services is designed with you in mind: to help keep your processes and equipment running in the most economical and environmentally efficient manner.

### Services include:

- Overhaul and repair using genuine Edwards OEM parts
- OEM spares and kits available for immediate despatch
- Remanufactured products available for cost-effective expansion and backups
- Global network of expert field service engineers available to respond quickly to unexpected equipment failures
- Extended warranty, to help manage the cost of the unexpected

Our Expert Advantage Service Plans provide you with the on-going support necessary to continuously improve your operational efficiency and meet your business objectives. As service offerings may vary slightly from product to product, please contact your Edwards representative to discuss your specific requirements.





## GLOBAL CONTACTS

Publication Number: 3601 0088 01  
 © Edwards Limited 2018. All rights reserved  
 Edwards and the Edwards logo are trademarks of  
 Edwards Limited

Whilst we make every effort to ensure that we  
 accurately describe our products and services,  
 we give no guarantee as to the accuracy or  
 completeness of any information provided in  
 this brochure.

Edwards Ltd, registered in England and Wales  
 No. 6124750, registered office: Innovation Drive,  
 Burgess Hill, West Sussex, RH15 9TW, UK.

### EMEA

|                |   |
|----------------|---|
| <b>UK</b>      | +44 1444 253 000<br>(local rate) 08459 212223 |
| <b>Belgium</b> | +32 2 300 0730                                |
| <b>France</b>  | +33 1 4121 1256                               |
| <b>Germany</b> | 0800 000 1456                                 |
| <b>Italy</b>   | + 39 02 48 4471                               |
| <b>Israel</b>  | + 972 8 681 0633                              |

### ASIA PACIFIC

|                  |                  |
|------------------|------------------|
| <b>China</b>     | +86 400 111 9618 |
| <b>India</b>     | +91 20 4075 2222 |
| <b>Japan</b>     | +81 47 458 8836  |
| <b>Korea</b>     | +82 31 716 7070  |
| <b>Singapore</b> | +65 6546 8408    |
| <b>Taiwan</b>    | +886 3758 1000   |

### AMERICAS

|               |                  |
|---------------|------------------|
| <b>USA</b>    | +1 800 848 9800  |
| <b>Brazil</b> | +55 11 3952 5000 |