

# BAROCEL 7000 SERIES CAPACITANCE GAUGES

**EDWARDS**







## EDWARDS THE PARTNER OF CHOICE

**Edwards is a world leader in the design, technology and manufacture of vacuum gauges and pumps, with over 100 years' history and more than 80 years' manufacturing experience.**

We believe in delivering results that bring value to our customers by using our breadth of industry experience to identify and apply solutions to your problems. With our wide range of vacuum gauges we can deliver you a solution tailored to your application. And now with the Barocel range we can offer an unprecedented level of accuracy.

# CONTROL AND STABILITY

Edwards Barocel 7000 series is our most accurate offering ever in vacuum gauging

Barocel Gauges have been introduced based on customers needs for ever more accurate measurement and control of systems. With ambient and heated offerings we can offer superior performance and reliability that means you can fit and forget it.

## Superior performance

Excellent zero stability and accuracy

## Flexible solutions

From compact to heated and everything between

## System enhancement

Simple integration with dual set points for enhanced control

## Low cost of ownership

Zero maintenance required



7025m



7025



7045, 7100

## Applications

### Semiconductor

- Load lock, PVD, CVD, Etch

### High energy physics

- Beam lines, accelerators, laser evacuation, medical systems

### Analytical

- Mass spectrometry and electron microscopy

### Quality & control

- Reference vacuum, batch control

### Industrial

- Coating systems, furnaces, sterilisation, food processing, oxidation

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



# ADVANCED TECHNOLOGY

The Barocel 7000 series has 3 main variants, the 7025m, the 7025 and the 7045/7100. These are available in a range of full-scales from 1000 to 0.1 mbar/torr (100 to 10 for the 7025m) and with a number of flange options. This enables pressure measurement and control over 7 decades and simplicity when fitting to your system.



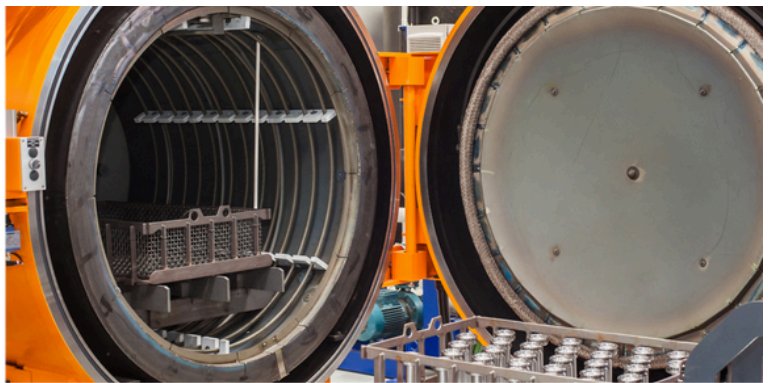
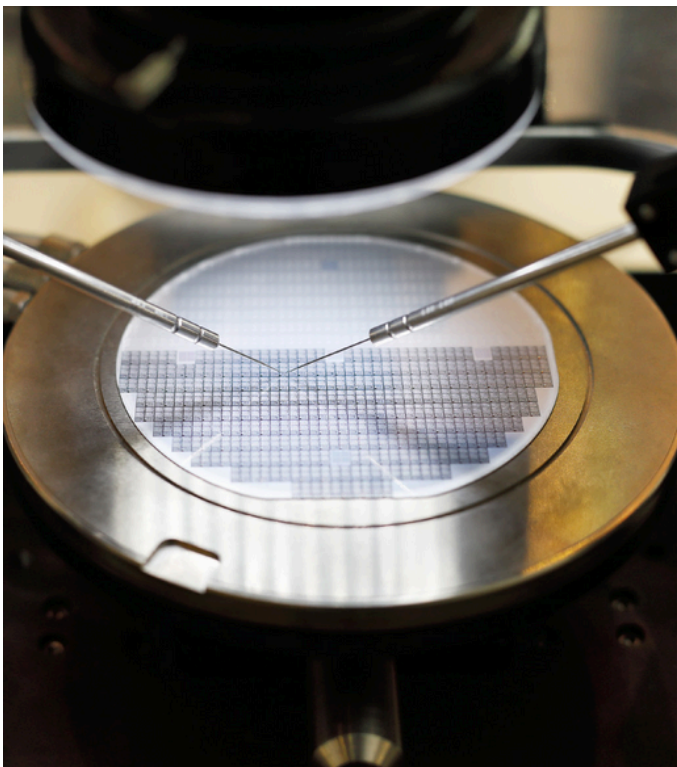
**Barocel 7025m - miniaturised accuracy** For those who need measurement accuracy on a budget, the 7025m is the gauge for you. Built on the same principles as the higher end Barocel 7000 gauges, this shares its ceramic sensing technology and excellent zero stability. Recognising the market need for an smaller more cost effective solution, this provides you with the first step on the way to a more efficient system.



**Barocel 7025 - benchmark performance** Designed to give repeatable high performance, this is the gauge which sets the standard in a wide range of applications. Giving high levels of accuracy, it has been designed to be fit and forget, with multiple levels of internal protection; Baffle, coatings and shielding fitted as standard along with the excellent zero stability and any orientation mounting.



**Barocel 7045 & 7100 - temperature control** Using the same measuring cell found in the 7025, these gauges then have integrated heaters to hold the gauges at fixed temperatures. For applications with harsh gasses, where condensation could cause issue, we have implemented two levels of heated gauges. Heated to steady temperatures of either 45°C (7045) or 100°C (7100), these provide you with piece of mind that you will not get condensates in the gauge that could lead to damage to your control network.



## Technical specifications

	7025m	7025			7045		7100	
FS options	1000/100/10	1000/100/10	1	0.1	1000/100/10/1	0.1	1000/100/10/1	0.1
Accuracy (% of reading)	1	0.2		0.5	0.15	0.15	0.2	0.4
Temperature effect								
On zero (percentage FS/°C)	0.02	0.005	0.015	0.02	0.0025	0.005	0.0025	0.005
On span (% of reading/°C)	0.02	0.01		0.03	0.01		0.02	
Resolution (percent FS)	0.05	0.003			0.003		0.003	
Lowest reading (percent FS)	0.05	0.05			0.05		0.05	
Admissible temps								
Ambient (°C)	0 to +70	+5 to +50			+10 to +40		+10 to +50	
Bakeout (at flange) (°C)	<110	<110			<110		<110	
Storage (°C)	-20 to +85	-40 to +65			-20 to +65		-20 to +65	
Burst pressure (bar) absolute	6	5			6		6	
Supply voltage V (dc)	+13 to +30		+13 to +30		+14 to +30 or +-15V		+14 to +30 or +-15V	
Power consumption								
During heat up (W)	N/A	N/A			<12		<15	
At normal operation (W)	<0.3	<1			<8		<10	
Output signal V (dc)	+0 to +10	+0 to +10			+0 to +10		+0 to +10	
Response time (ms)	100	30			30		30	
IP rating	40	30			40		40	
Dimensions NW16 (mm)	28.3x28.3x99	55x55x113			82x82x142		82x82x142	
Set points								
Numbers of	N/A	2			2		2	
Relay contact (V (dc))	N/A	30			30		30	
Hysteresis (percent F.S)	N/A	1			1		1	
Materials exposed to vacuum	Aluminium oxide ceramic (Al2O3), stainless steel 1.4404 (AISI 316L)							

# Controllers and accessories

The TIC instrument controller (D39702000) offers comprehensive control and display of up to 6 compatible Edwards gauges. See below for the various set ups you can run with a single controller

- 6 x Edwards active vacuum gauges
- 3 x BAROCEL 7025m or 7025\* and any 3 other Edwards active vacuum gauges
- 1 x BAROCEL 7045\* or 7100\*, 2 x BAROCEL 7025\* or 7025m and any 3 other Edwards active vacuum gauges

The TIC has RS232 interfaces and analogue outputs for ease of integration into any system, alongside the clear on-board display with push button control. The TIC PC monitor then allows for data logging and monitoring alongside other control aspects and can be integrated into your wider network using the LABVIEW driver available via the National instruments site.

The unit may be either rack or bench mounted and provides a useful hub for the flexible operation of a wide range of vacuum system configurations.

\* when using these models you must also use Barocel Adapter Cable D40003050



Alongside the Barocel range we can cover pressures down to  $1e-12$  mbar with our vacuum range to offer complete vacuum measurement and control.

# Ordering information

## Barocel 7025m selection tree

w	6	0	1	1					0
<div><div>Pressure unit</div><div>1 = Torr</div><div>2 = mbar</div></div> <div><div>Full scale (F.S)</div><div>1 = 1000/1100</div><div>2 = 100</div><div>3 = 10</div></div> <div><div>Flange</div><div>1 = NW16</div><div>2 = 8VCR</div><div>3 = DN16CF</div></div> <div><div>Connector</div><div>1 = RJ45</div><div>3 = D-Sub 9 pin</div></div> <div><div>Output</div><div>0 = Standard</div></div>									

Note: 1100 full scale only available in mbar

## Barocel 7025 selection tree

w	6	0	2	1					0
<div><div>Pressure unit</div><div>1 = Torr</div><div>2 = mbar</div></div> <div><div>Full scale (F.S)</div><div>1 = 1100</div><div>2 = 100</div><div>3 = 10</div><div>4 = 1</div><div>5 = 0.1</div><div>6 = 1000****</div></div> <div><div>Flange</div><div>1 = NW16****</div><div>2 = 8VCR</div><div>3 = DN16CF</div></div> <div><div>Connector</div><div>2 = D-Sub 15 pin</div><div>5 = D-Sub 15 pin &amp; Dual RJ45*</div></div> <div><div>Output</div><div>0 = Standard**</div><div>5 = EtherCAT***</div></div>									

\*Only selectable with pressure units of torr and Output of “EtherCAT”.

\*\*Only available with D-Sub 15 pin.

\*\*\*Only available with D-SUB 15 pin & Dual RJ45.

\*\*\*\*Only available with NW16 flange and D-SUB 15 pin and standard output

Note: 1100 full scale only available in mbar

## Barocel 7045/7100 selection tree

w	6	0	3	1					0
<div><div>Heated Temperature (C)</div><div>2 = 45</div><div>3 = 100</div></div> <div><div>Pressure unit</div><div>1 = Torr</div><div>2 = mbar</div></div> <div><div>Flange (F.S)</div><div>1 = 1000/1100</div><div>2 = 100</div><div>3 = 10</div><div>4 = 1</div><div>5 = 0.1</div></div> <div><div>Flange</div><div>1 = NW16</div><div>2 = 8VCR</div></div> <div><div>Connector</div><div>2 = D-Sub 15 pin</div><div>5 = D-Sub 15 pin &amp; Dual RJ45*</div></div> <div><div>Output</div><div>0 = Standard**</div><div>5 = EtherCAT***</div></div>									

\*Only selectable with pressure units of torr and Output of “EtherCAT”.

\*\*Only available with D-Sub 15 pin.

\*\*\*Only available with D-SUB 15 pin & Dual RJ45.

Note: 1100 full scale only available in mbar



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