

Instruction Manual

CG16K Barometrically Compensated Capsule Dial Gauge

Description	Item Number
CG16K Capsule Dial Gauge, 0 to 1040 mbar	D35610000
CG16K Capsule Dial Gauge, 0 to 125 mbar	D35611000
CG16K Capsule Dial Gauge, 0 to 50 mbar	D35612000
CG16K Capsule Dial Gauge, 0 to 25 mbar	D35613000
CG16K Capsule Dial Gauge, 0 to 760 Torr	D35630000
CG16K Capsule Dial Gauge, 0 to 100 Torr	D35631000
CG16K Capsule Dial Gauge, 0 to 40 Torr	D35632000
CG16K Capsule Dial Gauge, 0 to 20 Torr	D35633000

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Associated publications

Publication title	Publication number
Vacuum pump and vacuum system safety	P40040100

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1 Introduction

1.1 Scope and definitions

This manual provides installation, operation and maintenance instructions for the Edwards CG16K Capsule Dial Gauge. You must use the Capsule Dial Gauge as specified in this manual.

Read this manual before you install and operate the Capsule Dial Gauge. Important safety information is highlighted as WARNING and CAUTION instructions; you must obey these instructions. The use of WARNINGS and CAUTIONS is defined below.



WARNING

Warnings are given where failure to observe the instruction could result in injury or death to people.

CAUTION

Cautions are given where failure to observe the instruction could result in damage to the equipment, associated equipment and process.

The following IEC warning labels appears on the CG16K:



Warning - refer to accompanying documentation.

The units used throughout this manual conform to the SI international system of units of measurement.

1.2 Description

The CG16K Capsule Dial Gauge measures the total absolute pressure of gas in your vacuum system. The composition of the gas does not affect the measurement; the CG16K Capsule Dial Gauge is therefore useful in applications where you need to measure the pressure of gases other than air.

The CG16K Capsule Dial Gauge is barometrically compensated, so that pressure measurements are unaffected by the ambient atmospheric pressure. This is useful when you need to measure low pressures.

1.3 Construction

Internally, the CG16K has a sealed, evacuated capsule with a mechanical linkage which operates the pointer on the dial. The capsule is enclosed in the case of the gauge.

The case is open to the vacuum system and is sealed from the atmosphere by a sealing ring, which is clamped under the safety glass by a screwed bezel.

2 Technical data

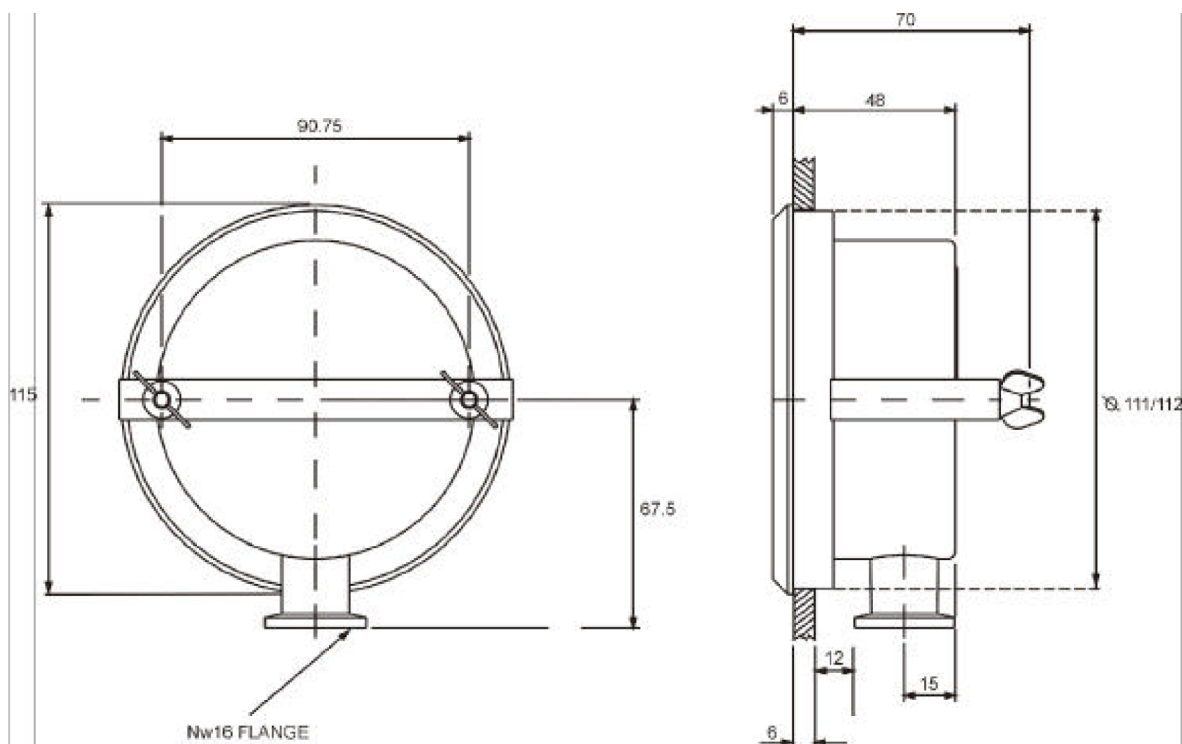
2.1 Mechanical data

Dimensions	See Figure 1
Mass	0.9 kg
Vacuum connection	NW16
Internal volume	160 cm ³
Materials exposed to vacuum	Aluminium, Inconel, glass, Fluoroelastomer, Nical, copper alloy

2.2 Performance

Operating temperature range	10 to 50 °C
Accuracy at 20 °C	± 2% of full-scale deflection
Leak rate into gauge at a differential pressure of 1 bar	< 1 x 10 ⁻⁵ ls ⁻¹
Maximum internal pressure	1 bar gauge (2 bar absolute)

Figure 1 - Dimensions of panel mounted CG16K (mm)



3 Installation

3.1 Unpack and inspect

Remove all packing materials and protective covers and check the CG16K Capsule Dial Gauge.

If the CG16K Capsule Dial Gauge is damaged, notify your supplier and the carrier in writing within three days; state the Item Number of the gauge together with your order number and your supplier's invoice number. Retain all packing materials for inspection. Do not use the gauge.

If the CG16K is not to be used immediately, replace the protective covers. Store the CG16K in suitable conditions as described in [Section 6.1](#).

3.2 Fit the Capsule Dial Gauge

Fit the CG16K as close as possible to the point in the vacuum system at which you wish to measure the pressure. Do not use a narrow pipeline or incorporate angled connections, as these may cause errors in the pressure measurement.

You can fit the CG16K so that it is supported by the vacuum connection. If you fit the CG16K in this way, make sure that the pipeline which connects the CG16K to the vacuum system is as short as possible and that very little vibration can be transmitted to the gauge.

Alternatively, you can fit the CG16K so that it is panel mounted. If you wish to fit the CG16K on a panel, the panel must be at least 2 mm thick. Use the procedure below.

1. Cut a 111 to 112 mm diameter hole in the panel where you wish to locate the gauge.
2. Push the rear of the CG16K through the hole and fit the clamp over the bolts as shown in [Figure 1](#).
3. Secure the CG16K in place with the two wing-nuts.

3.3 Connect to the vacuum system

Note: If you need to connect the CG16K to an SC5 connection, you must use the accessories listed in [Section 7.2](#).

The CG16K has an NW16 flange. Use the NW16 fittings to connect the CG16K to the vacuum system.

Alternatively, use the procedure below to connect the CG16K to 6 mm copper pipe:

1. Unscrew and remove the NW16 flange from the body of the CG16K.
2. Fit a 6 mm pipe union (available as an accessory, see [Section 7.2](#)) to the body of the CG16K.
3. Braze the brass tail piece of the pipe union to the 6 mm copper pipe in your system.

3.4 Leak test the installation



WARNING

Leak test the vacuum system after installation of the CG16K to prevent leakage of hazardous substances out of the system and leakage of air into the system.

Leak test the vacuum system after you have installed the CG16K. Hazardous substances which leak from the system may be dangerous to personnel and there may be a danger of explosion if air leaks into the system.

4 Operation



WARNING

Do not allow the internal pressure to be higher than 1 bar gauge (2 bar absolute). If the pressure in your system can be higher than 1 bar gauge, you must fit a suitable pressure relief valve.

CAUTION

Dust or solid particles in the vacuum system can enter the gauge mechanism and cause the CG16K to malfunction.

CAUTION

Do not use the CG16K to measure the pressure of process gases which are corrosive or have a high concentration of water vapour. If you do, you may get incorrect pressure measurements and you may damage the CG16K.

Once you have installed the CG16K as described in [Section 3](#), the measurement shown on the dial of the CG16K will indicate the total pressure in your vacuum system.

5 Maintenance

5.1 Repairs

The CG16K Capsule Dial Gauge contains no parts which can be serviced by the user.

An exchange/replacement service is available, if your gauge is damaged; contact your supplier or your nearest Edwards company for information.

5.2 Calibration

The CG16K Capsule Dial Gauge must be calibrated regularly to maintain the accuracy (specified in [Section 2.2](#)).

A calibration service is available; contact your supplier or your nearest Edwards company for information.

6 Storage and Disposal

6.1 Storage

Store the CG16K Capsule Dial Gauge in cool, dry conditions until required for use. When required, prepare and install the CG16K as described in [Section 3](#).

6.2 Disposal

Dispose of the CG16K Capsule Dial Gauge and any components removed from it safely in accordance with all local and national safety and environmental requirements.

7 Spares and Accessories

7.1 Introduction

Edwards products, spares and accessories are available from Edwards companies in Belgium, Brazil, Canada, France, Germany, Hong Kong, Italy, Japan, Korea, Switzerland, United Kingdom, U.S.A., and a world wide network of distributors. The majority of these centres employ Service Engineers who have undergone comprehensive Edwards training courses.

Order spare parts and accessories from your nearest Edwards company or distributor. When you order, please state for each part required:

- Model and Item Number of your equipment
- Serial number (if any)
- Item Number and description of part

7.2 Accessories

The accessories listed below allow you to connect the CG16K Capsule Dial Gauge directly to an SC5 fitting; you do not need to make any brazed joints.

Product	Item Number
SC5 to NW10 adapter	C10511435
NW10/16 Co-seal	B27158426
NW10/16 Clamping ring	C10512401

The accessory listed below allows you to connect the CG16K Capsule Dial Gauge to 6 mm copper pipe.

Product	Item Number
6 mm pipe union	D35610201

7.2.1 Return the equipment or components for service

Before you send your equipment to us for service or for any other reason, you must send us a completed Declaration of Contamination of Vacuum Equipment and Components - Form HS2. The HS2 form tells us if any substances found in the equipment are hazardous, which is important for the safety of our employees and all other people involved in the service of your equipment. The hazard information also lets us select the correct procedures to service your equipment.

We provide instructions for completing the form in the Declaration of Contamination of Vacuum equipment and Components - Procedure HS1.

Download the latest documents from www.edwardsvacuum.com/HSForms/, follow the procedure in HS1, fill in the electronic HS2 form, print it, sign it, and return the signed copy to Edwards.

Note: *If we do not receive a completed HS2 form, your equipment cannot be serviced.*

