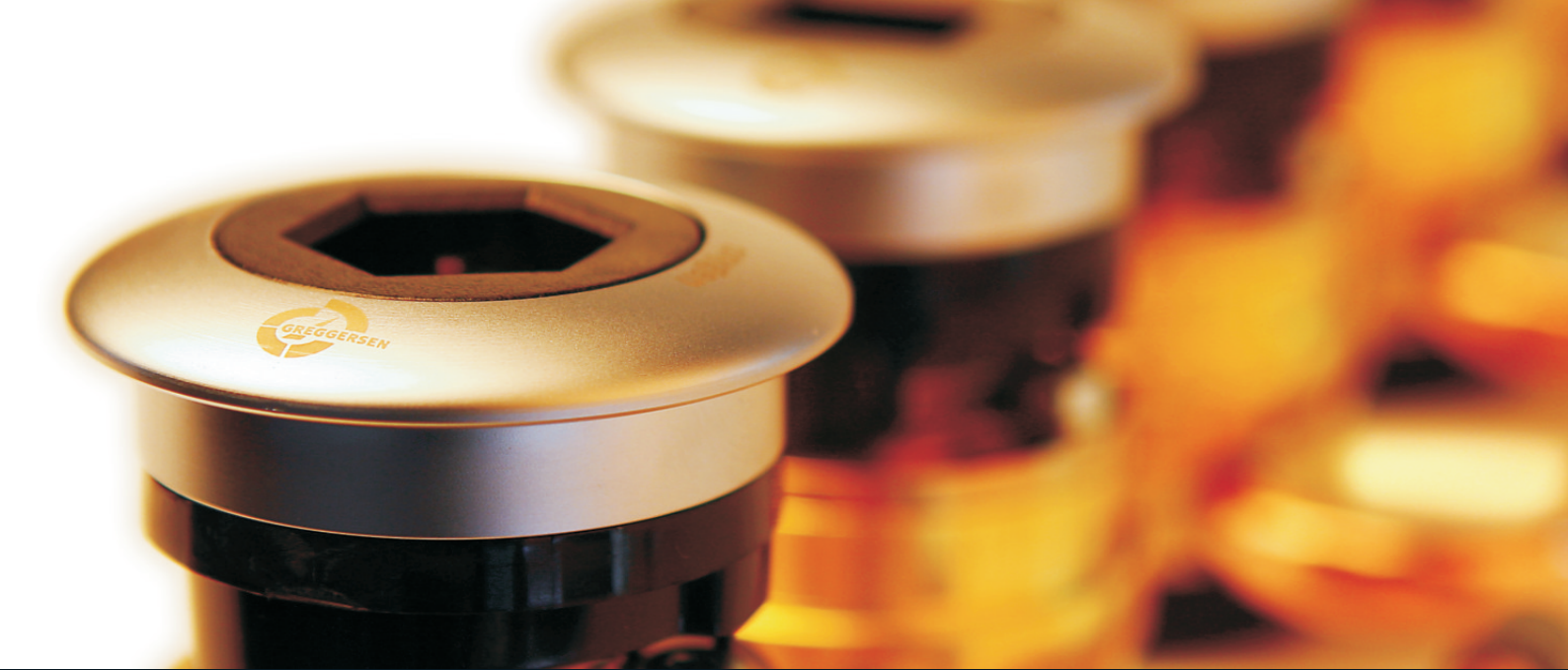


CEGA SYSTEMS  
BY GREGGERSEN



PRODUCT INFORMATION  
FORANO  
BS / BRITISH STANDARD

there is no substitute



## Terminal Unit Forano

IN CONFORMITY WITH BS EN ISO 9170-1

### GENERAL

According to national and international standards, terminal units are the points that connect medical appliances to the gas supply system. The prize-winning FORANO terminal units can be flexibly integrated into every conceivable installation. Ease of handling guarantees smooth running in routine hospital practice. Our Anaesthetic Gas Scavenging System controls the safe use of anaesthetic gases. The Air-Motor system supplies the energy to drive your compressed air-operated tools.

The terminal unit FORANO has won three of the world's most prestigious design awards and has been nominated for the 2010 Design Prize of the Federal Republic of Germany.



reddot design award  
winner 2009



The Chicago  
Architecture  
Museum  
2008



product  
design  
award  
2009



Designpreis  
Deutschland  
2010  
NOMINIERT



## USAGE

The unit is used to withdraw compressed gases and vacuum from a central medical gas supply system in accordance with EN ISO 7396-1; integration of plugs and medical appliances with plug-in connections in line with British Standard BS 5682.

## STRUCTURE AND FUNCTION

The terminal unit comprises a gas-specific basic block (rear part) and a socket unit (front part) which are joined together. The gas-specific basic block includes a non-return and servicing valve. The servicing valve can be screwed into the connecting thread in the rear part of the basic block and interrupts the gas supply to the terminal unit completely. A separate, gas-tight shut-off of the terminal unit is thereby provided for servicing work.

All three o-ring seals are combined in the cartridge assembly, which can easily be replaced by removing the front part. The cartridge is marked with a LOT number so that traceability is guaranteed. The plug in the socket unit is kept either in the parking or the operating position.

## TECHNICAL DATA

Type of construction: pearl gloss, nickel-plated all-metal construction with operating position; unlocking by means of the actuator; single-handed operation when connecting/disconnecting; manually lockable servicing valve.

Types of installation: concealed and hollow wall installation, surface mounting, installation into bed-head units or into ceiling-mounted supply units.

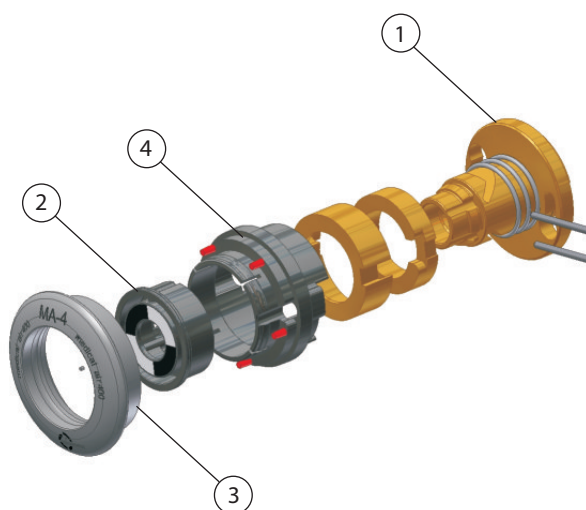
Operating pressure:

400 kPa to 1000 kPa – compressed gases

0 kPa to 99 kPa (absolute pressure) – vacuum

Labelling: Type of gas written out in German and English plus chemical symbol.

Colour coding: In line with ISO 32.

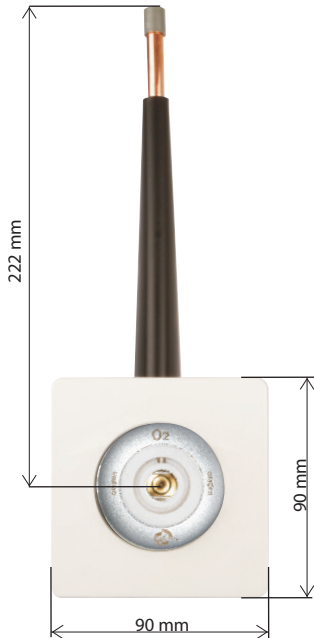


## SOCKET UNIT FORANO

- High stability and load capacity due to sturdy brass flange (1)
- Colour coding inside above the index (2)
- Gas-specific:
  - flange (1) to the rear part
  - actuator (3) to the bush (4)
  - index (2)
- Brass gas-conducting parts (1)

## Terminal Unit Forano BS

CONCEALED / HOLLOW WALL INSTALLATION



### USAGE

The unit is used to withdraw compressed gases and vacuum from a central medical gas supply system in accordance with EN ISO 7396-1; integration of plugs and medical appliances with plug-in connections in line with BS 5682. The Forano terminal unit complies with the requirements of EN ISO 9170-1.

### ADVANTAGES

- Two-part construction: gas-specific basic block and socket unit
- Sophisticated design: all-metal actuator with laser labelling; front panel with wavy lines and diaphragm ring
- Easy installation and servicing: cartridge with sealing elements, replacement possible without blocking the station
- Unique marking: gas-type labelling – laser labelling; chemical symbol + English; colour coding: in line with ISO32

### TECHNICAL DATA

- Input: 8 x 1 mm copper pipe
- Operating pressure: 400 kPa to 1000 kPa – compressed gases  
0 kPa to 99 kPa (absolute pressure) – vacuum

FORANO BS CONCEALED / HOLLOW-WALL – REAR PART (front part has to be ordered separately)

Forano, O2, concealed / hollow wall, type BS	903.350
Forano, MA-4, concealed / hollow wall, type BS	903.351
Forano, VAC, concealed / hollow wall, type BS	903.352
Forano, N2O, concealed / hollow wall, type BS	903.353
Forano, MA-7, concealed / hollow wall, type BS	903.354
Forano, O2/N2O, concealed / hollow wall, type BS	903.357

### ACCESSORIES REQUIRED FOR OPERATION

Front / wave screen to cover the built-in variant UP/HW	903.258
Front / wave screen to cover the built-in variant UP/HW (sales unit = 6 pcs.)	903.259.

All front parts for terminal unit Forano BS, ISO32 colour coding, can be found on page 9 of this product information.

# Terminal Unit Forano BS

SURFACE MOUNTING

## USAGE

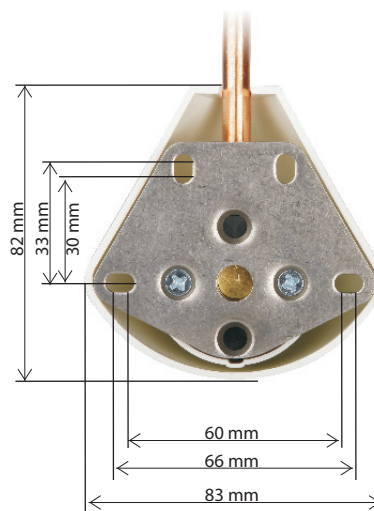
The unit is used to withdraw compressed gases and vacuum from a central medical gas supply system in accordance with EN ISO 7396-1; integration of plugs and medical appliances with plug-in connections in line with BS 5682. The Forano terminal unit complies with the requirements of EN ISO 9170-1.

## ADVANTAGES

- Two-part construction: gas-specific basic block and socket unit
- Sophisticated design: all-metal actuator with laser labelling; front panel with wavy lines and diaphragm ring
- Easy installation and servicing: cartridge with sealing elements, replacement possible without blocking the station
- Unique marking: gas-type labelling – laser labelling: chemical symbol + German + English; colour coding: in line with ISO32

## TECHNICAL DATA

Input: 8 x 1 mm copper pipe  
 Operating pressure: 400 kPa to 1000 kPa – compressed gases  
 0 kPa to 99 kPa (absolute pressure) – vacuum  
 Depth: 72 mm



FORANO BS, SURFACE MOUNTING – REAR PART (front part has to be ordered separately)

FORANO, O <sub>2</sub> , surface installation, type BS	903.340
FORANO, MA-4, surface installation, type BS	903.341
FORANO, VAC, surface installation, type BS	903.342
FORANO, N <sub>2</sub> O, surface installation, type BS	903.343
FORANO, MA-7, surface installation, type BS	903.344
FORANO, O <sub>2</sub> /N <sub>2</sub> O, surface installation, type BS	903.347

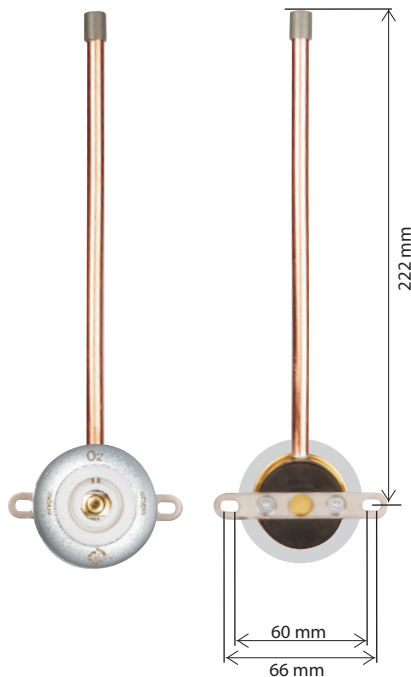
All front parts for terminal unit Forano BS, ISO32 colour coding, can be found on page 9 of this product information.

## Terminal Unit Forano BS

INSTALLATION INTO BED HEAD UNIT

### USAGE

The unit is used to withdraw compressed gases and vacuum from a central medical gas supply system in accordance with EN ISO 7396-1; integration of plugs and medical appliances with plug-in connections in line with BS 5682. The Forano terminal unit complies with the requirements of EN ISO 9170-1.



### ADVANTAGES

- Two-part construction: gas-specific basic block and socket unit
- Sophisticated design: all-metal actuator with laser labelling; front panel with wavy lines and diaphragm ring
- Easy installation and servicing: cartridge with sealing elements, replacement possible without blocking the station
- Unique marking: gas-type labelling – laser labelling: chemical symbol + English; colour coding: in line with ISO32

### TECHNICAL DATA

Input:	8 x 1 mm copper pipe
Operating pressure:	400 kPa to 1000 kPa – compressed gases 0 kPa to 99 kPa (absolute pr.) – vacuum

FORANO BS, PIPE STRAIGHT UP (front part has to be ordered separately)

Forano, O2, bed-head unit pipe straight up, type BS	903.370
Forano, MA-4, bed-head unit pipe straight up, type BS	903.371
Forano, VAC, bed-head unit pipe straight up, type BS	903.372
Forano, N2O, bed-head unit pipe straight up, type BS	903.373
Forano, MA-7, bed-head unit pipe straight up, type BS	903.374
Forano, O2/N2O, bed-head unit pipe straight up, type BS	903.377

FORANO BS, PIPE STRAIGHT BACK (front part has to be ordered separately)

Forano, O2, pipe inline, type BS - marking: English	903.120
Forano, MA-4, pipe inline, type BS - marking: English	903.121
Forano, VAC, pipe inline, type BS - marking: English	903.122
Forano, N2O, pipe inline, type BS - marking: English	903.123
Forano, MA-7, pipe inline, type BS - marking: English	903.124
Forano, O2/N2O, pipe inline, type BS - marking: English	903.127

All front parts for terminal unit Forano BS, ISO32 colour coding, can be found on page 9 of this product information.

## Terminal Unit Forano BS

INSTALLATION IN CEILING PENDANTS

### USAGE

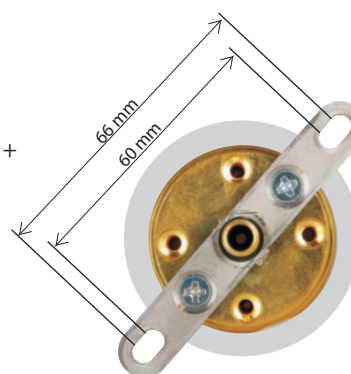
The unit is used to withdraw compressed gases and vacuum from a central medical gas supply system in accordance with EN ISO 7396-1; integration of plugs and medical appliances with plug-in connections in line with BS 5682.

The Forano terminal unit complies with the requirements of EN ISO 9170-1.



### ADVANTAGES

- Two-part construction: gas-specific basic block and socket unit
- Sophisticated design: all-metal actuator with laser labelling; front panel with wavy lines and diaphragm ring
- Easy installation and servicing: cartridge with sealing elements, replacement possible without blocking the station
- Unique marking: gas-type labelling – laser labelling: chemical symbol + English; colour coding: in line with ISO32



### TECHNICAL DATA

Input:	6 mm hose socket (compressed gases)
	8 mm hose socket (vacuum)
Operating pressure:	400 kPa to 1000 kPa – compressed gases
	0 kPa to 99 kPa (absolute pressure) – vacuum

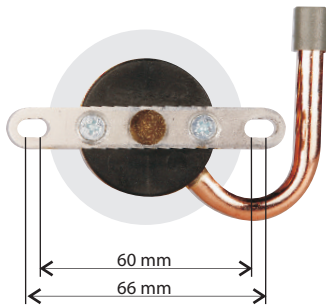
FORANO BS, FOR CEILING PENDANT DVE (front part has to be ordered separately)

Forano, O2, front part, type BS – marking: English	903.120
Forano, MA-4, front part, type BS – marking: English	903.121
Forano, VAC, front part, type BS – marking: English	903.122
Forano, N2O, front part, type BS – marking: English	903.123
Forano, MA-7, front part, type BS – marking: English	903.124
Forano, O2/N2O, front part, type BS – marking: English	903.127

All front parts for terminal unit Forano BS, ISO32 colour coding, can be found on page 9 of this product information.

## Terminal Unit Forano BS

INSTALLATION INTO BED HEAD UNIT (E.G. TRILUX VS 100)



### USAGE

The unit is used to withdraw compressed gases and vacuum from a central medical gas supply system in accordance with EN ISO 7396-1; integration of plugs and medical appliances with plug-in connections in line with BS 5682. The Forano terminal unit complies with the requirements of EN ISO 9170-1.

### ADVANTAGES

- Two-part construction: gas-specific basic block and socket unit
- Sophisticated design: all-metal actuator with laser labelling; front panel with wavy lines and diaphragm ring
- Easy installation and servicing: cartridge with sealing elements, replacement possible without blocking the station
- Unique marking: gas-type labelling – laser labelling: chemical symbol + English; colour coding: in line with ISO32



VS 100 M (A)



VS 100 M (B)

### TECHNICAL DATA

Input:	8 x 1 mm copper pipe
Operating pressure:	400 kPa to 1000 kPa – compressed gases 0 kPa to 99 kPa (absolute pr.) – vacuum

FORANO BS, INSTALLATION INTO BED-HEAD UNIT, TRILUX VS100M (A) right (front part has to be ordered separately)

Forano, O2, Trilux VS100M (A), type BS	903.310
Forano, MA-4, Trilux VS100M (A), type BS	903.311
Forano, VAC, Trilux VS100M (A), type BS	903.312
Forano, N2O, Trilux VS100M (A), type BS	903.313
Forano, MA-7, Trilux VS100M (A), type BS	903.314
Forano, O2/N2O, Trilux VS100M (A), type BS	903.317

FORANO BS, INSTALLATION INTO BED-HEAD UNIT, TRILUX VS100M (B) left (front part has to be ordered separately)

Forano, O2, Trilux VS100M (B), type BS	903.320
Forano, MA-4, Trilux VS100M (B), type BS	903.321
Forano, VAC, Trilux VS100M (B), type BS	903.322
Forano, N2O, Trilux VS100M (B), type BS	903.323
Forano, MA-7, Trilux VS100M (B), type BS	903.324
Forano, O2/N2O, Trilux VS100M (B), type BS	903.327

All front parts for terminal unit Forano BS, ISO32 colour coding, can be found on page 9 of this product information.



# Forano BS

FRONT PARTS FOR ALL INSTALLATION TYPES

## FORANO FRONT PART – SCOPE OF DELIVERY

Each gas-specific front part contains the following components:

- actuator
- cartridge
- gas-specific socket unit
- warning label (not ready for operation)



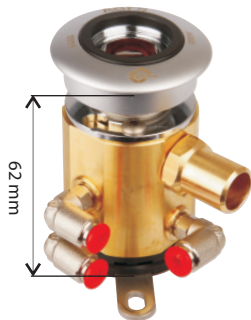
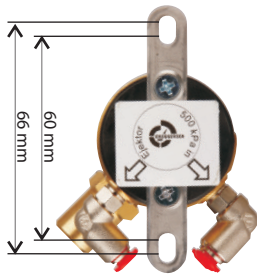
FRONT PART FORANO BS, ISO32 COLOUR CODING (rear part has to be ordered separately)

Forano, O2, front part, type BS - marking: English	903.120
Forano, MA-4, front part, type BS - marking: English	903.121
Forano, VAC, front part, type BS - marking: English	903.122
Forano, N2O, front part, type BS - marking: English	903.123
Forano, MA-7, front part, type BS - marking: English	903.124
Forano, O2/N2O, front part, type BS - marking: English	903.127



## Forano AGSS

ANAESTHETIC GAS SCAVENGING SYSTEM



### USAGE

System for safe disposal of excess anaesthetic gases and anaesthetic vapours from the clinical environment.

All-metal construction, symbols for monitoring operation, with external ejector for vacuum generation. Suction adjustable; single-handed operation when connecting and disconnecting, unlocking via the connector receptacle. Fully mounted in a stainless steel casing, with stainless steel front panel (for concealed or hollow wall installation). Design complies with the requirements of EN ISO 9170-2.

### TECHNICAL DATA

Dimensions:	145 x 120 x 65 mm (WxHxD)
Material:	brass; casing and front panel stainless steel
Capacity:	min. 50 L at 500 kPa
Input:	copper pipe 8 mm
Output:	copper pipe 15 mm
Marking:	colour coding in line with ISO 32 standard magenta

### FORANO AGSS

Forano AGSS, concealed / hollow wall	902.073
Forano AGSS, ceiling pendants, with external ejector	902.074
Forano AGSS, bed-head units	902.075
Forano AGSS, surface mounting	902.076



surface version 130 x 205 x 70 mm



concealed version 175 x 175 mm

## Forano Airmotor

FOR DRIVING COMPRESSED AIR-OPERATED TOOLS IN ENCLOSED SPACES

### USAGE

Terminal unit for supplying and disposing of air used to operate surgical tools. A combination of an outlet assembly (for supply) and an inlet assembly (for disposal), which is connected to a supply and disposal system. A non-return valve in the disposal system prevents return flow of consumed air.



### TECHNICAL DATA

Dimensions:	145 x 120 x 65 mm (WxHxD)
Material:	brass, chrome-plated; casing and front panel stainless steel
Capacity:	min. 350 L at 800 kPa
Input:	copper pipe 8 mm
Output:	copper pipe 15 mm
Marking:	colour coding in line with ISO 32 standard magenta
Operating pressure:	800 – 1000 kPa



### FORANO AIR-MOTOR

Forano Air-Motor for concealed / hollow wall installation	902.090
Forano Air-Motor for ceiling pendants	902.091
Forano Air-Motor for bed-head units	902.092
Forano Air-Motor for surface mounting	902.093



concealed version 175 x 175 mm



surface version 130 x 205 x 70 mm

## Forano BS

### IN TEHALIT WALL DUCT

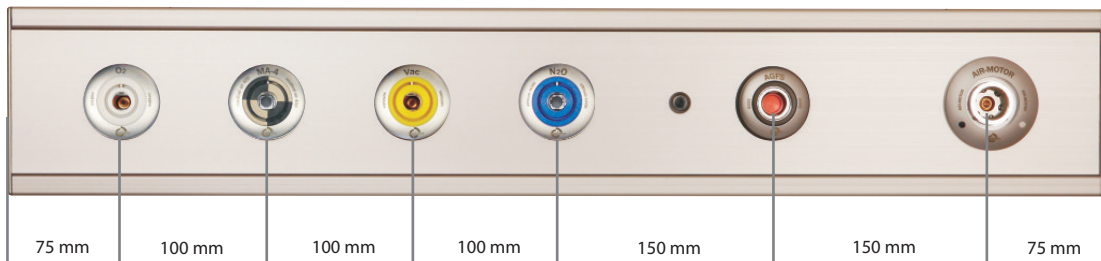
#### USAGE

Wall duct for surface mounting, fully fitted with various terminal units, Air-Motor and/or Anaesthetic Gas Scavenging System (AGSS in line with EN ISO 9170-2 with integrated ejector) in the aluminium duct.

The length of the duct can be customised to suit requirements. The terminal units are ready-installed with piping laid. The feed pipe can come from the left, right, above, below or behind.

#### TECHNICAL DATA

Input:	8 mm (1 terminal unit per gas)
	12 mm (2-3 terminal units per gas)
Output:	Forano terminal unit in accordance with BS 5682
Colour coding:	in line with ISO32



TEHALIT WALL DUCT (Please specify gas type for each outlet)

Wall Duct Tehalit Forano, 2 outlets	903.400
Wall Duct Tehalit Forano, 3 outlets	903.401
Wall Duct Tehalit Forano, 4 outlets	903.402
Wall Duct Tehalit Forano, 5 outlets	903.403
Wall Duct Tehalit Forano, each additional outlet	903.404
Wall Duct Tehalit Forano, add-on 1 x AGSS	903.405
Wall Duct Tehalit Forano, add-on 1 x Air-Motor	903.406
Wall Duct Tehalit, meterage	903.040

## Forano

INTERNATIONAL STANDARDS AND OTHER VARIANTS

GERMAN STANDARD, SCANDINAVIAN STANDARD (AGA), NORME FRANÇAISE, etc.

The Forano terminal unit system is available in several other international standards beside the BS variant. Please contact us directly about the version you require. More information can be found on our website:

[www.greggersen.com/index.php/terminal-units.html](http://www.greggersen.com/index.php/terminal-units.html)



## Forano

### TOOLS AND ACCESSORIES



#### FORANO HEIGHT ADJUSTMENT

In the variant for concealed / hollow wall installation, the basic block is seated in a ring follower. After installation of the housing, the mounting tool can subsequently be used to adjust the mounting depth of the basic block.

Mounting tool for concealed / hollow wall installation – height adjustment

903.300



#### FORANO LEAK TEST

For performing the leak test in line with EN ISO 7396-1. The blind flange is screwed to the basic block and closes up the terminal unit. The test pressure can then be used to check the pipe system for leaks.

Blind flange, brass, for Forano pressure test

903.301



#### FORANO DISMOUNTING TOOL

Special tool used to remove the actuator without damaging the connector receptacle.

Dismounting tool for Forano actuator

903.302



#### FORANO MOUNTING AID

Mounting aid used to place a maximum of 3 or 4 concealed FORANO units next to each other. The mounting aid can be expanded, as required, by being combined with additional mounting aids. The Forano units can be quickly, easily and accurately aligned with each other using this tool. Spacing from Forano centre to Forano centre: 100 mm or 150 mm.

Forano mounting aid

903.303

Forano mounting aid, expansion for AGSS + Air-Motor

903.306

#### FORANO DIAPHRAGM RING

The diaphragm ring made of POM is clicked into a 44 mm hole. It is delivered as standard with the Forano wave screen, but it can also be obtained as a separate component (e.g. for installation into media supply units).



Forano diaphragm ring

802.842

#### KEY FOR CLOSING CONE CAPTURING SCREW



Key for closing cone capturing screw

903.304

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there is no substitute