FORANO

GREGGERSEN
1924

FORANO

Our Terminal Units
FOR MEDICAL GASES

GENERAL

Terminal units provide the connection of medical equipment to the gas supply system. Our award-winning FORANO Terminal units enable flexible installation in all conceivable variants. Simple handling guarantees smooth operation in everyday hospital life. Our anaesthetic gas delivery system (AGSS) ensures the safe use of anaesthetic gases. Our Airmotor system supplies the drive energy for your compressed air-operated tools.

USAGE

For the withdrawal of compressed medical gases and vacuum from a central medical gas supply system according to ISO 7396-1 & 7396-2; accommodation of low pressure hose assemblies and medical equipment with connectors according to specific norms and standards.

DESIGN & FUCTION

The terminal units consists of a gas type-specific basic block (rear part) and a plug socket (front part),

which are connected to each other. The front part can be aligned in different positions. All moving and gas-carrying parts are made of metallic materials. The Forano is thus designed to be very low-wear overall. All wear parts are combined in a maintenance-friendly assembly, the cartridge, which can be replaced easily by removing the front part. The cartridge is marked with a LOT number, so that the age of the sealing elements can be identified immediately. In the plug receptacle, the removal plug is locked either in the parking position or in the operating position.

DESIGN

Pearlescent chrome-plated all-metal version with parking and operating position, release via actuator, one-hand operation when engaging and disengaging, manually lockable maintenance valve.

INSTALLATION TYPES

- Surface mounting
- Concealed & hollow wall
- Bed head units
- Ceiling pendants

OPERATING PRESSURE

400 kPa to 500 kPa - Compressed gases

700 kPa to 1000 kPa - Air motor

800 kPa – AIR800

< 60 kPa (absolute pressure) - Vacuum

MARKING

Print: Chemical symbol + gas type in English

+ CE mark + Logo

COLOUR CODING

Neutral or according to DIN EN ISO 5359.

BEAUTY MEETS TECHNOLOGY

Our FORANO terminal unit has been awarded the most prestigious design prizes worldwide.
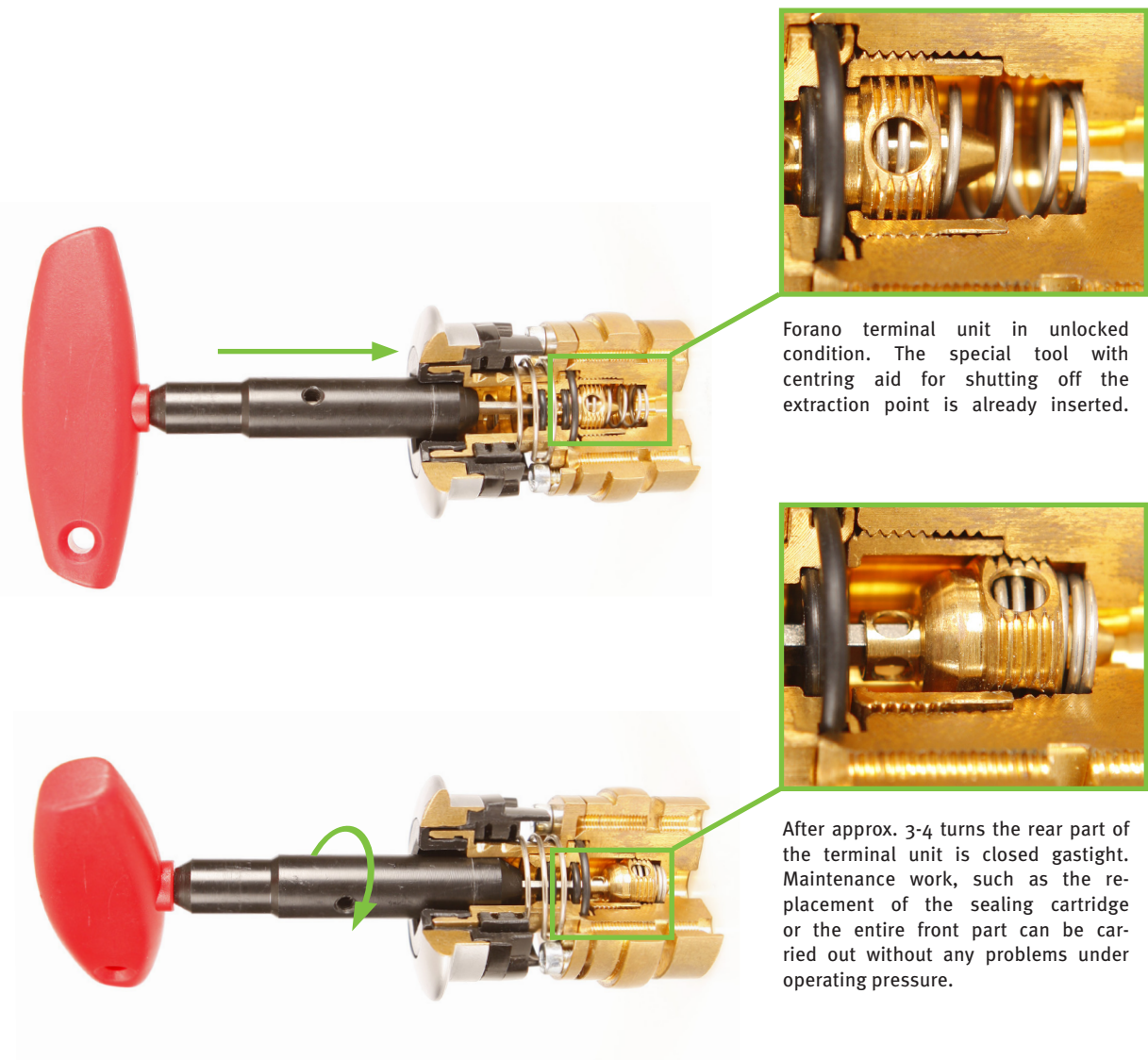
FORANO

Terminal unit Forano
THE INTELLIGENT LOCKING SYSTEM

SAFE & SIMPLE

1. The terminal unit closes when the plug is disconnected.

2. The front part of the terminal unit can be removed for maintenance without interrupting the gas supply.

3. The Forano can be locked using a special key without having to remove the front part.

This means that each terminal unit can be shut off individually, so that there is no need to take individual areas or entire wards of the hospital out of service.

Forano terminal unit in unlocked condition. The special tool with centring aid for shutting off the extraction point is already inserted.

After approx. 3-4 turns the rear part of the terminal unit is closed gastight. Maintenance work, such as the replacement of the sealing cartridge or the entire front part can be carried out without any problems under operating pressure.

---

i

"Out of service" sticker

When shutting off a terminal unit or entire supply sections, the corresponding units must be clearly marked. We offer warning stickers for our FORANO.

See page 16 TOOLS AND ACCESSORIES

TEST KIT FOR GAS TERMINAL UNITS
according to DIN EN ISO 7396-1/2

CONSISTING OF:

- Check sequence with flow tube for compressed gases
- Check sequence with flow tube for vacuum, NGA & AGSS
- Air motor tester
- Tightness measuring device
- Particle tester
- Filter paper
- Gas type specific connectors
- Plug for oxygen (O2)
- Plug for compressed air (AIR)
- Plug for vacuum (VAC)
- Plug for carbon dioxide (CO2)
- Plug for nitrous oxide (N2O)
- AGSS test device with panel for 50 l/min
- AGSS test device with panel for 25 l/min
- AGSS connection test kit according to 7396-2

- Test equipment case with insert

Optional accessories:

1. O2 measuring devices for gas type testing

2. Pressure gauge for leakage testing of the pipeline

Test kit for gas terminal units acc. 7396-1/2 DIN	902.114
Test kit for gas terminal units acc. to British standard	902.128
Test kit for gas terminal units acc. to AGA / Scandinavian standard	902.129

FORANO

Terminal unit Forano
FOR SURFACE & CONCEALED / HOLLOW WALL INSTALLATION

DIN   BS   NF   AGA

Terminal unit Forano
FOR BED HEAD UNIT INSTALLATION

DIN   BS   NF   AGA

FORANO SURFACE INSTALLATION (FRONT PART MUST BE ORDERED SEPARATELY)

Forano, O2, surface installation, DIN	903.240
Forano, AIR, surface installation, DIN	903.241
Forano, VAC, surface installation, DIN	903.242
Forano, N2O, surface installation, DIN	903.243
Forano, CO2, surface installation, DIN	903.245
Forano, N2, surface installation, AGA	903.246
Forano, Ar, surface installation, DIN	903.247
Forano, O2/N2O, surface installation, AGA	903.248

FORANO CONCEALED / HOLLOW WALL (FRONT PART MUST BE ORDERED SEPARATELY)

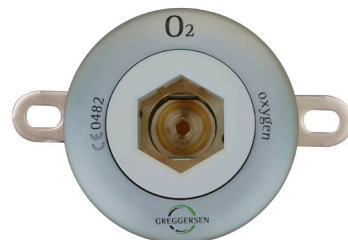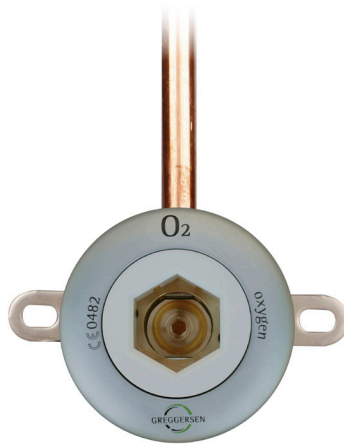|	
Forano, O2, for concealed / hollow wall installation, DIN / AGA / NF	903.250
Forano, AIR, for concealed / hollow wall installation, DIN / AGA / NF	903.251
Forano, VAC, for concealed / hollow wall installation, DIN / AGA / NF	903.252
Forano, N2O, for concealed / hollow wall installation, DIN / AGA / NF	903.253
Forano, CO2, for concealed / hollow wall installation, DIN / AGA / NF	903.255
Forano, N2, for concealed / hollow wall installation, AGA	903.256
Forano, Ar, for concealed / hollow wall installation, DIN	903.257

ACCESSORIES

Forano front plate, design with wave lines	903.258
Forano front plate, design with wave lines (packaging unit 6 pcs.)	903.259

The Forano DIN terminal unit front parts can be found in this brochure on page 9.

Our complete portfolio of international standards for the Forano can be found in the Greggersen CEGA price list.

FORANO, INPUT UP (FRONT PART MUST BE ORDERED SEPARATELY)

Forano, O2, BHU, input up, DIN / AGA / NF	903.200
Forano, AIR, BHU, input up, DIN / AGA / NF	903.201
Forano, VAC, BHU, input up, DIN / AGA / NF	903.202
Forano, N2O, BHU, input up, DIN / AGA / NF	903.203
Forano, CO2, BHU, input up, DIN / AGA / NF	903.205
Forano, N2, BHU, input up, AGA	903.206
Forano, Ar, BHU, input up, DIN	903.207
Forano, O2/N2O, BHU, input up, AGA	903.208

FORANO, INPUT BACK (FRONT PART MUST BE ORDERED SEPARATELY)

Forano, O2, BHU, input back, DIN / AGA / NF	903.260
Forano, AIR, BHU, input back, DIN / AGA / NF	903.261
Forano, VAC, BHU, input back, DIN / AGA / NF	903.262
Forano, N2O, BHU, input back, DIN / AGA / NF	903.263
Forano, CO2, BHU, input back, DIN / AGA / NF	903.265
Forano, N2, BHU, input back, AGA	903.266
Forano, Ar, BHU, input back, DIN	903.267
Forano, O2/N2O, BHU, input back, AGA	903.268

The Forano DIN terminal unit front parts can be found in this brochure on page 9.

Our complete portfolio of international standards for the Forano can be found in the Greggersen CEGA price list.

FORANO

Terminal unit Forano
FOR CEILING PENDANTS & BHU VS100M

DIN   BS   NF   AGA

FORANO DIN CEILING PENDANTS (FRONT PART MUST BE ORDERED SEPARATELY)

Forano, O2, ceiling pendants, DIN / AGA / NF	903.230
Forano, AIR, ceiling pendants, DIN / AGA / NF	903.231
Forano, VAC, ceiling pendants, DIN / AGA / NF	903.232
Forano, N2O, ceiling pendants, DIN / AGA / NF	903.233
Forano, CO2, ceiling pendants, DIN / AGA / NF	903.235
Forano, N2, ceiling pendants, AGA	903.236
Forano, Ar, ceiling pendants, DIN	903.237
Forano, O2/N2O, ceiling pendants, AGA	903.238

FORANO DIN BHU VS100M (A) RIGHT (FRONT PART MUST BE ORDERED SEPARATELY)

Forano, O2, VS100M (A) Typ DIN / AGA / NF	903.210
Forano, AIR, VS100M (A) Typ DIN / AGA / NF	903.211
Forano, VAC, VS100M (A) Typ DIN / AGA / NF	903.212
Forano, N2O, VS100M (A) Typ DIN / AGA / NF	903.213
Forano, CO2, VS100M (A) Typ DIN / AGA / NF	903.215
Forano, N2, VS100M (A) Typ AGA	903.216
Forano, Ar, VS100M (A) Typ DIN	903.217
Forano, O2/N2O, VS100M (A) Typ AGA	903.218

FORANO DIN BHU VS100M (B) LEFT (FRONT PART MUST BE ORDERED SEPARATELY)

Forano, O2, VS100M (B) Typ DIN / AGA / NF	903.220
Forano, AIR, VS100M (B) Typ DIN / AGA / NF	903.221
Forano, VAC, VS100M (B) Typ DIN / AGA / NF	903.222
Forano, N2O, VS100M (B) Typ DIN / AGA / NF	903.223
Forano, CO2, VS100M (B) Typ DIN / AGA / NF	903.225
Forano, N2, VS100M (B) Typ AGA	903.226
Forano, Ar, VS100M (B) Typ DIN	903.227
Forano, O2/N2O, VS100M (B) Typ AGA	903.228

The Forano DIN terminal unit front parts can be found in this brochure on page 9.

Our complete portfolio of international standards for the Forano can be found in the Greggersen CEGA price list.
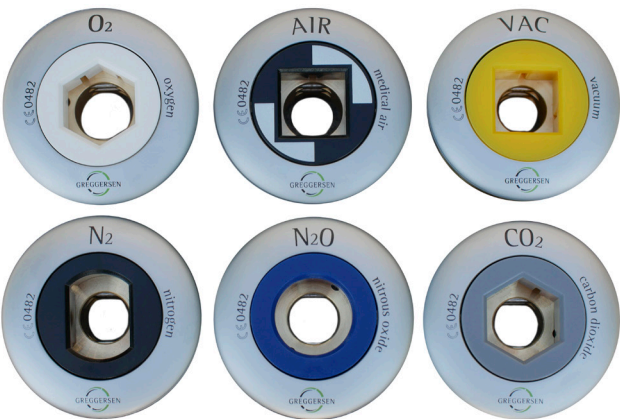
Terminal unit Forano
FRONT PARTS

DIN   BS   NF   AGA

SCOPE OF DELIVERY
The DIN front parts are supplied with
the following components:

• Forano metal actuator

• Cartridge

• Gas type specific connector holder

• Warning sticker (out of service)

FRONT PART FORANO DIN, NEUTRAL COLOUR CODING (BACK PART MUST BE ORDERED SEPARATELY)

Forano, O2, front part, DIN	905.110
Forano, AIR, front part, DIN	905.111
Forano, VAC, front part, DIN	905.112
Forano, N2O, front part, DIN	905.113
Forano, CO2, front part, DIN	905.115
Forano, Ar, front part, DIN	905.117

FRONT PART FORANO DIN, COLOUR CODING ACCORDING TO DIN EN ISO 5359 (BACK PART MUST BE ORDERED SEPARATELY)

Forano, O2, front part, DIN	905.100
Forano, AIR, front part, DIN	905.101
Forano, VAC, front part, DIN	905.102
Forano, N2O, front part, DIN	905.103
Forano, CO2, front part, DIN	905.105

Our complete portfolio of international standards for the Forano can be found in the Greggersen CEGA price list.

Terminal unit Forano AGSS

ANESTHESIA GAS SCAVENGING SYSTEM

USAGE

For the transfer of excess residual gases during inhalation anaesthesia to a suitable disposal point.

All-metal design, display sign for operational control, with ejector for vacuum generation.
One-handed operation during coupling and uncoupling, unlocking via plug sleeve.
Completely mounted in stainless steel housing, with stainless steel front panel
(for flush or hollow wall mounting).
Design of the terminal unit complies with DIN EN ISO 9170-2.

TECHNICAL DATA

Material:	Brass; housing and front plate stainless steel
Capacity:	min. 50 l/min (500 kPa)
Inlet:	Copper tube 8x1 mm / flexible hose PA 6 mm
Outlet:	Copper tube 15x1 mm / corrugated tube 15 mm
Marking:	Colour coding according to DIN EN ISO 9170-2 (standard magenta)

FORANO AGSS

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

Surface mounting 130 x 174* x 80 mm
(*+ 200 mm Cu pipe)

Concealed 175 x 175 mm

Terminal unit Forano Air-motor

FOR COMPRESSED AIR DRIVEN TOOLS

USAGE

For driving compressed air-driven tools in closed rooms; relaxed compressed air is led outside via an exhaust air pipe.
A non-return valve in the disposal system prevents the return flow of the used air.
Design of the extraction point complies with DIN EN ISO 9170-1.
Fitting of plugs and devices with plug connections according to DIN 13260-2

TECHNICAL DATA

Material:	Brass; housing and front plate stainless steel
Capacity:	min. 350 l/min (800 kPa)
Inlet:	Copper tube 8x1 mm / flexible hose PA 6 mm
Outlet:	Copper tube 15x1 mm / corrugated tube 15 mm
Marking:	Colour coding according to DIN EN ISO 9170-1
Operating pressure:	700 to 1000 kPa

FORANO AIR-MOTOR

Forano Air-motor, concealed/hollow wall	902.090
Forano Air-motor, ceiling pendants	902.091
Forano Air-motor, bed-head units	902.092
Forano Air-motor, surface mounting	902.093

Surface mounting 130 x 174* x 80 mm
(*+ 200 mm Cu pipe)

Concealed 175 x 175 mm

FORANO

Terminal unit Forano
WALL DUCT

DIN   BS   NF   AGA

USAGE

Duct for surface mounting, completely equipped with terminal units according to DIN EN ISO 9170-1, Airmotor and/or anaesthetic gas delivery system (model AGSS according to DIN EN ISO 9170-2 with integrated ejector, model Airmotor according to DIN EN ISO 9170-1) in aluminium duct.
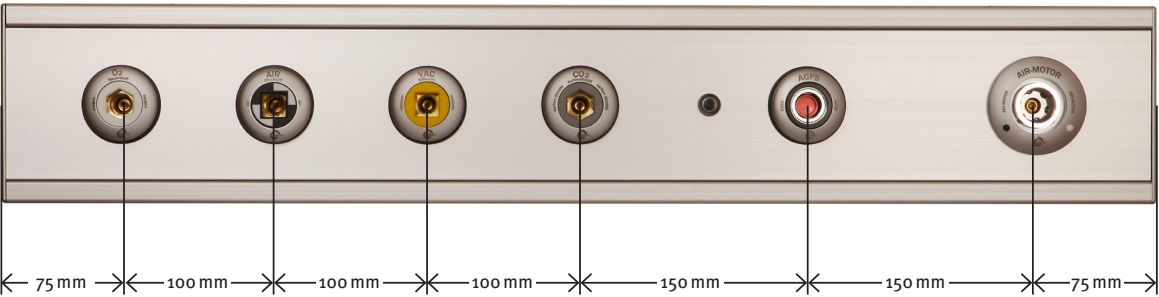
The length of the duct can be designed individually. The terminal units are already installed and piped. The feed can be from the left, right, top, bottom or rear.

TECHNICAL DATA

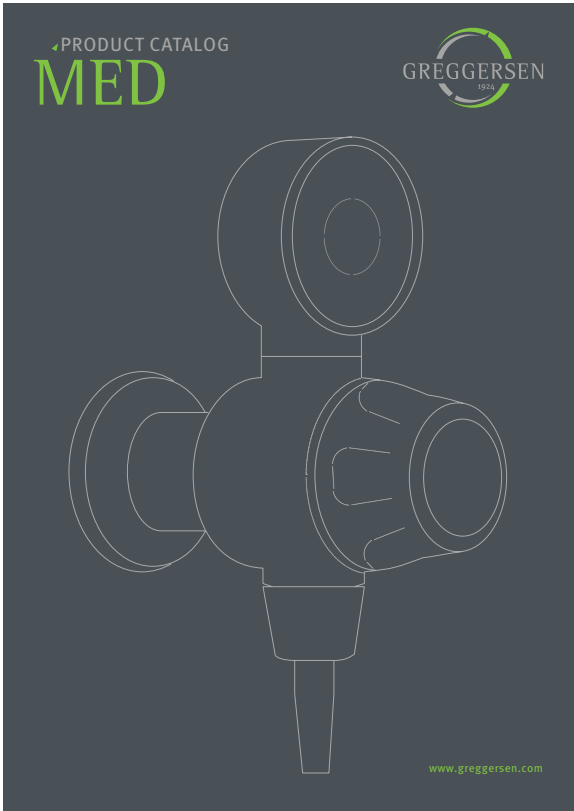|	
Inlet:	8 mm (1 terminal unit per gas)
	12 mm (2-3 terminal units per gas)
Colour coding:	Colour neutral or according to DIN EN ISO 5359

TERMINAL UNIT BLOCK

Block with 2 or 3 terminal units according to DIN EN ISO 9170-1 for receiving plugs and medical devices with plug connections according to DIN 13260-2. Fastening by means of rail claw with knurled nut on a standard equipment rail according to DIN EN ISO 19054 (25x10mm).

| ← 75 mm → | ← 100 mm → | ← 100 mm → | ← 100 mm → | ← 150 mm → | ← 150 mm → | ← 75 mm → |

WALL DUCT (PLEASE SPECIFY GAS TYPES FOR THE TERMINAL UNITS!)

Wall duct Forano, 2 terminals	903.400
Wall duct Forano, 3 terminals	903.401
Wall duct Forano, 4 terminals	903.402
Wall duct Forano, 5 terminals	903.403
Wall duct Forano, additional terminal	903.404
Wall duct Forano, extension 1 x AGSS	903.405
Wall duct Forano, extension 1 x Airmotor	903.406
Wall supply unit, sold by the meter	902.040

Our complete portfolio of International Standards for the Forano can be found in the Greggersen CEGA price list.

You can find the terminal unit block in our MED catalog.

find more information under:

www.greggersen.com

PRODUCT CATALOG
MED

www.greggersen.com

FORANO

Terminal unit Forano
TOOLS AND ACCESSORIES

FORANO HEIGHT ADJUSTMENT TOOL
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 BLIND FLANGE FOR PRESSURE TEST
For performing the leak test in line with DIN 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.

Forano blind flange, brass, for pressure test	903.301

FORANO DISMOUNTING TOOL
Special tool used to remove the actuator without damaging the terminal unit.

Forano actuator dismounting tool	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 and 150 mm

Forano mounting aid	903.303
Forano mounting aid add-on for AGSS + Airmotor	903.306

"OUT OF SERVICE" STICKER FOR FORANO
Sticker to paste over the actuator when shutting off the terminal unit or sections of the mains supply.

"Out of service" sticker for Forano (25 pcs.)	903.309

FORANO CHILD SAFETY LOCK
To secure the FORANO gas terminal units against unauthorized use or for temporary shut-down of a terminal unit, we developed a "child safety lock". This is intended to prevent inadvertent or unauthorized use of the terminal unit.

Forano child safety lock O2, AIR, DIN	903.380
Forano child safety lock VAC, N2O, CO2, DIN	903.381

FORANO SPANNER FOR CHILD SAFETY LOCK
The child safety lock can be removed from the terminal unit using the key.

Forano spanner for child safety lock	903.308

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. However, the diaphragm ring can also be obtained as a separate component (e.g. for installation into media supply units).

Forano diaphragm ring	802.842

FORANO ALLEN KEY
Allen key SW 3 with an additional, removable plastic sleeve. This sleeve guides the key in the front part of the terminal unit, virtually ruling out any "tilting" of the closing cone.

Forano closing cone Allen key	903.305

FORANO SPANNER FOR SEALING CONE RETAINING SCREW

Forano spanner for sealing cone retaining screw	903.304