

KS-407-H

“ IN STACK ” DESIGN, MULTI-PURPOSE, AIR HEATING / COOLING FILTER HOLDER AND PROBE SHANK FOR ISOKINETIC AEROSOL - DUST SAMPLER MEASURING CIRCUIT



FEATURES

- ✂ **Heated “ in stack ” design filter housing and probe shank applicable in gases of high moisture content, too.**
- ✂ **Filter housing and off-take tube easily dismountable for analytical purposes.**
- ✂ **Surfaces contacting the sample gas made of titanium or corrosion-proof material.**
- ✂ **The probe is particularly suitable also for sampling of gaseous- and steam-state components where heated sampling is specified by standards, e.g. steams of dioxins, furanes, volatile metals, chlorohydric acid, etc.**
- ✂ **Extraordinary dust storing capacity. Quick warming up.**
- ✂ **Small-size “ in stack ” probe head that can be straight positioned even into an Ø 72 [mm] opening.**
- ✂ **Material of thimble filter to be inserted into the indoor filter housing: quartz or borosilicate.**
- ✂ **Measurement of main gas flow rate simultaneously with the sampling.**
- ✂ **Full compatibility to the KS-404 measuring circuit.**
- ✂ **The filter housing, probe shank and the measuring circuit are in conformity with the guidelines of the ISO 9096 and VDI 2066 standards and numerous international technical specifications.**

1. Introduction

The type **KS-407-H** automatic controlled emission measuring circuits are characterised by the indoor filter of high dust storing capacity and the **uniquely small - front side - contour dimensions**. These types in indoor design are equally suitable for "in-stack" isokinetic sampling with or without heating, from flowing gas or air of high- or low moisture content and, total dust content examination.

A special advantage of the **KS-407-H** probe shanks, filter holders is that the complete filter housing and probe shank can be straight inserted through the V.D.I. 2,5" -

Ø 72 [mm] - probe inlet openings. Thus, they can be employed for thick-wall masonry chimneys as well. Application of the so-called swan-neck intake conduits causing the measurement uncertainties is unnecessary.

Another advantage of the type **KS-407-H** air-heated filter housing and probe shank built with dual covering is that they in a unique "in-stack" manner, that is also in indoor design, can be heated or cooled, furthermore, that they are compatible with the type **KS-404** measuring circuit, too.

This means that the **KS-400-S** measuring and control unit, the vacuum pump, thermometer fl, moisture separator and drying column can be used. The measuring circuit, in addition to by-weight, gravimetric determination of the concentration of solid particles and dusts existing in flowing gases and air, is also suitable for simultaneous quick measurement of the velocity of the main gas flow and the flow rate of the sampled medium gas or air.

The filter sleeve of high dust storing capacity of the sampling probe is suitable for storing of 2000 - 4000 [mg] solid particles.

A notebook or personnel computer (PC) using AR-IZO software performs controlling of the isokinetic sampling and documentation of the measurement data.

2. Technical data

2.1. Filter holder and probe

- Nominal volume flow rate : 2,7 [m³/h]
- Measurement range: 1,0 - 4,5 [m³/h]
- Max. temperature: 130 [°C]
- Intake nozzle: Ø 4,5; 5,6; 7,6; 10,7; 14; 17 [mm]
- Thimble filter: Ø 10*110 [mm],
- Mass: 6,1 -10,8 [kg]
- Main dimensions: Ø 63,5*1 000 - 2 000 [mm],
- Probe shank connection: M 18*1,5 MECMAN

• Partial gas flow off-take hose:	Ø 19*4,5 [mm]
• Partial gas flow off-take hose connector:	M 18*1,5 MECMAN
• Hot air blower connection pipe:	Ø 40*2 [mm]
• Pressure drain hose:	Ø 8*2 [mm]
• Quality of materials used:	Titanium, 1.4301
• Gaskets:	PTFE
2.2. Hot air blower	
• Nominal volume flow rate:	26,0 [m³/h]
• Model number:	BOSCH GHG 650 LCE
• Voltage:	230 [V]
• Power consumption:	2 000 [W]
• Blow-out temperature range:	50-650 [°C]
• Mass:	0,9 [kg]
2.3. Digital thermometer or two-point regulator	
• Measurement range with the TP-K01 sensor enclosed:	-50-200 [°C]
• Accuracy:	± 0,75 [%]

3. Technical description

3.1. General description of the equipment

The **KS-407-H** emission-type sampling probe head and probe shank is characterised by the high dust storing capacity and the versatile application possibilities. The usage of this device is **especially recommended for determination of the simultaneous dust concentration existing in flowing air or gas of high moisture content as well as in inlet and exhaust conduits of separation equipment.** **Figures 1. and 2.** illustrate the **KS-407-H** emission sampler probe shank, whilst in **Fig. 3** the complete measurement circuit is shown.

3.2. The removable filter housing and sampling tube consists of the following main parts (**Fig. 4.**):

Denomination	Material quality
• Filter holder (1)	TITAN
• Thimble filter holder (2)	TITAN
• Thimble filter (3)	603 G
• Closing sleeve with confuser (4)	TITAN
• Threaded sleeve (5)	TITAN
• Union nut (6)	1.4301
• Gasket (7)	PTFE
• Tangential head (8)	TITAN



Fig. 1.



Fig. 2.

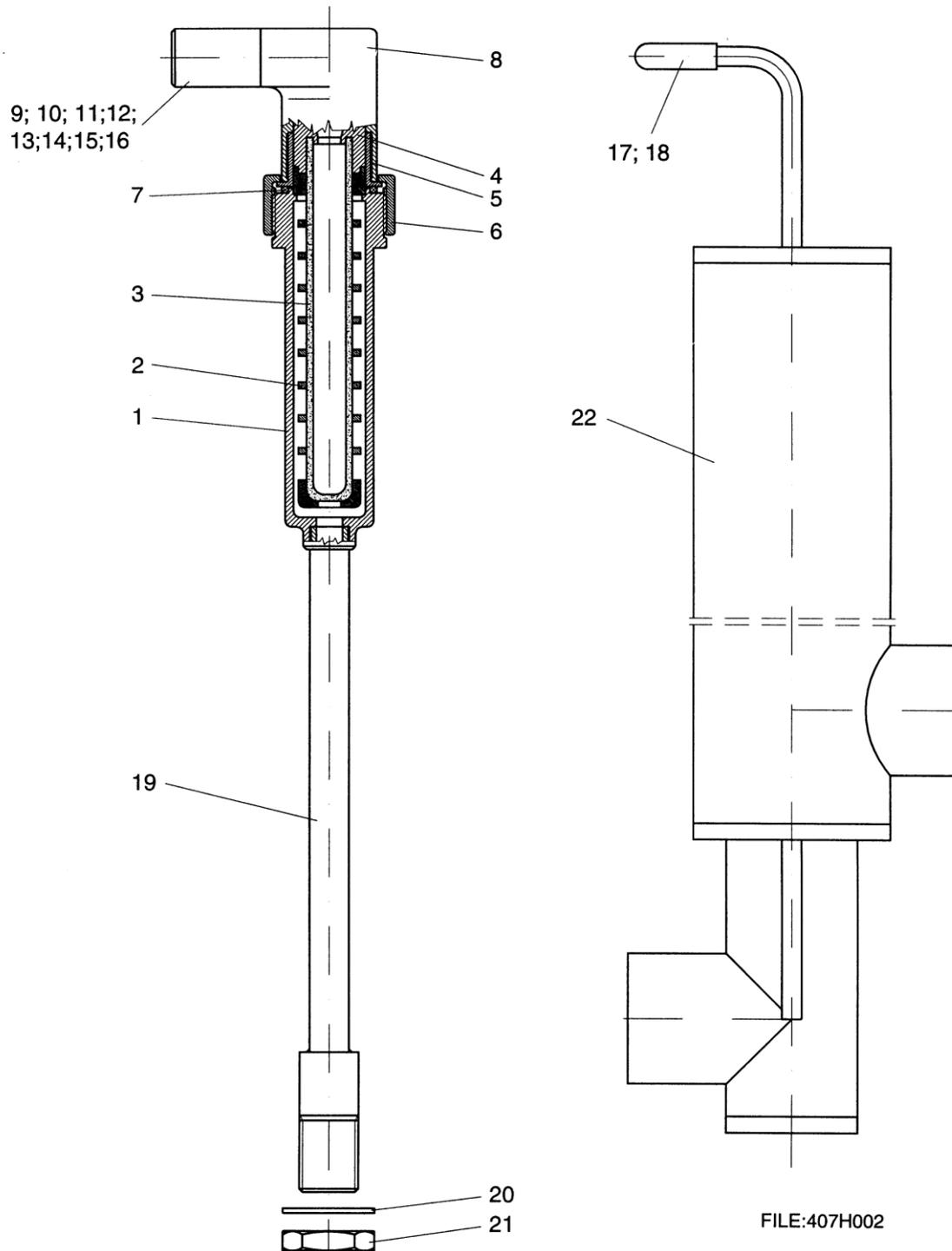


Fig. 4.

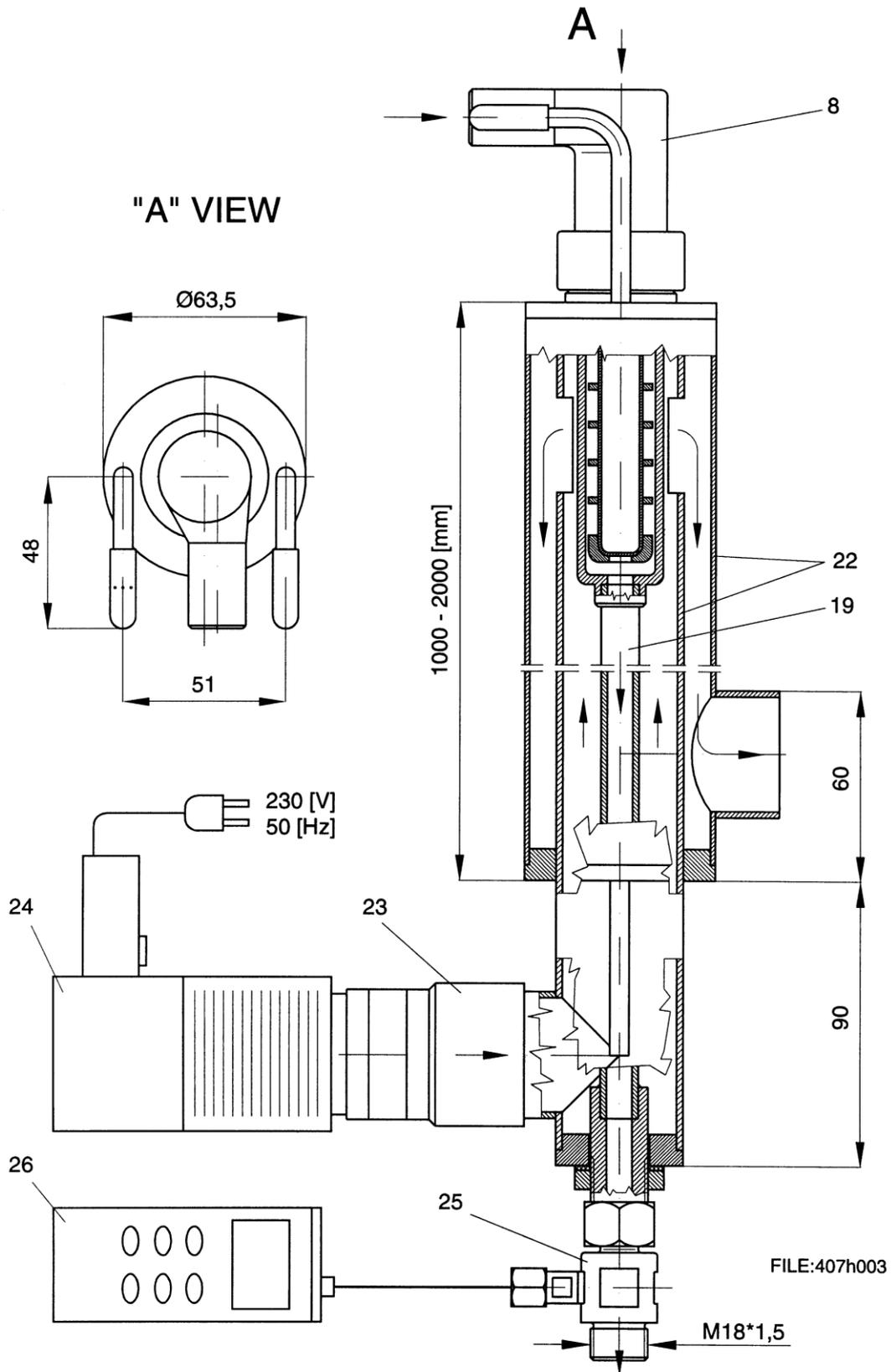


Fig. 5.

- Confuser (9) TITAN
- Intake tubes and closing plug (10),(11),(12),(13),(14),(15),(16) TITAN
Ø 4,5; 5,6; 7,6; 10,7; 14; 17 [mm]
- Pressure exhaust pipes (17) (18) 1.4301
- Partial gas flow exhaust pipe (19) TITAN
- Washer (20) and hexagon nut (21) MECMAN Sr
- Dual-wall probe shank (22) 1.4301

3.3. The air-heated /cooled filter housing and probe consist of the following main parts (**Fig 5.**):

- | Denomination | Material quality |
|---------------------------------------------------------|---------------------|
| • Tangential head (8) | TITAN |
| • Partial gas flow exhaust pipe (19) | TITAN |
| • Dual-wall probe shank (22) | 1.4301 |
| • Connector for the exhaust pipe (21) | MECMAN Sr |
| • Slotted clamping device (23) | 1.4301 |
| • Air heater / cooler device (24) | Bosch GHG 650 |
| • Partial gas flow temperature sensor holder (25) | 1.4301 and Titanium |
| • Heating / cooling controller digital thermometer (26) | VOLTCRAFT 300K |

3.4. Dust storing capacity

The dust storing capacity of the sampler thimble filter depending on density and fraction distribution of the dust particles is shown in **Fig. 6.**

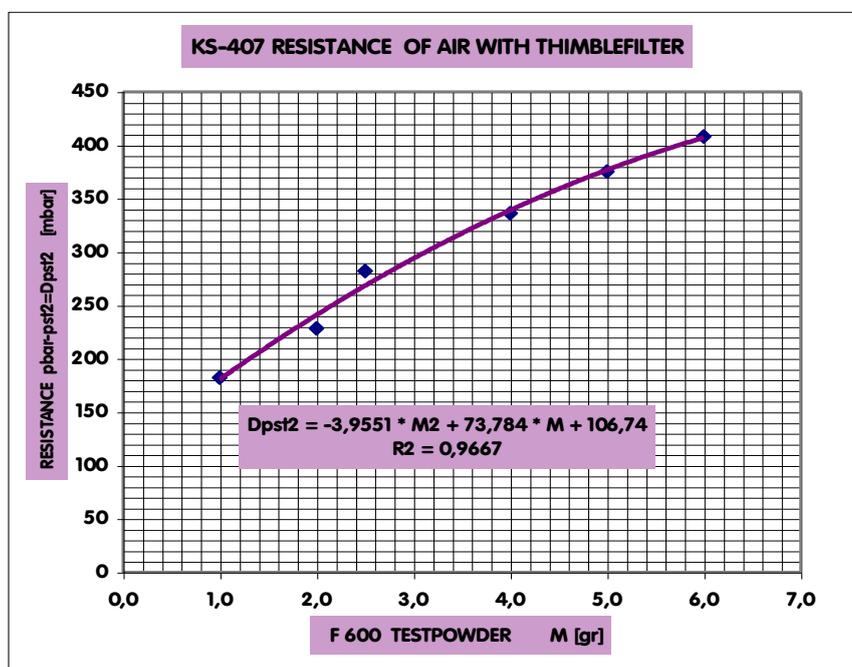


Fig. 6.