



Electrically heated sample lines type 3/4/5/-5/30/50/80/100/120 (Ex)

**Self regulated, 3 type tubes and
6 temperature versions
from +5 °C to +120 °C
Completely assembled or as sample
line per meter**

- **Self regulated, without thermostat**
- **Completely assembled**
- **Yard ware treated externally**
- **Outer shell corrugated tube of Polyamide**
- **PTFE tube non interchangeable** type 3/
- **PTFE tube interchangeable** type 4/
- **Stainless steel tube non interchangeable** type 5/
- **Tube ø 4/6-10/12 mm** DN ..
- **6 temperature ranges from +5 °C to +120 °C** ...
- **Holding temperature at -20 °C**
- **Ex-version for zone 1/2**

Application

The electrically heated self regulated **M&C**-sample lines **3/4/5/-5/30/50/80/100/120 (Ex)** are used in gas analysis technique for transportation of the sample gas from the sample point to the gas conditioning system. They prevent measurement faults in the lower temperature ranges from +5 °C to +120 °C and protect the system against freeze. A temperature monitoring of the total heated line is not possible due to the function as parallel heater band.

Description

The self regulated **M&C**-sample lines **3/4/5/-5/30/50/80/100/120** are supplied according to clients requirements completely assembled in the factory with connections and endings in a fixed length or as yard ware for treatment by the customer.

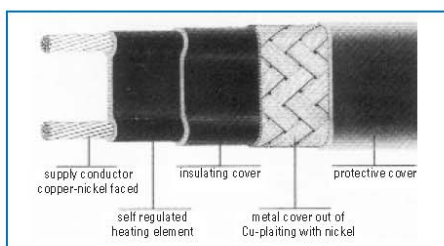
3 tube types (**3/4/5/**) and 6 versions of different temperature ranges (**5/30/50/80/100/120**) are available with respective DN 4 mm, 6 mm or larger (**-4/6/8/10**).

The robust manufacture of the sample line consists of an inner tube/pipe and a self regulated parallel heater band, both covered with thermoconducting aluminium as well as a further thermal insulation and the black coloured corrugated Polyamide-tube outside.

The endings of the completely assembled execution are sealed connections out of silicone.

The explosion-proof versions **3/4/5/-5/30/50/80/100/120 Ex** for use in hazardous area zone 1 and 2 are equipped with **EEx** proved self delimited heater bands. The sample lines assembled in our works have got a connection cable respectively a heater band for the Ex versions of 1 meter leaving the line axially. On both sides, the tube or pipe is jutting out by 500 mm.

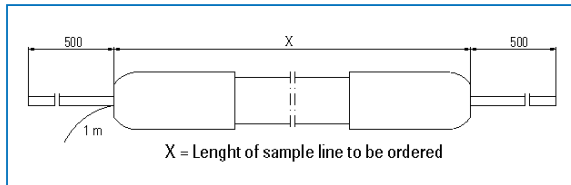
For assembling at the customers' side, the respective accessories are available. The operating temperature (guaranteed minimum temperature) of the self regulated heated sample lines of **M&C** is related to an ambient temperature of -20 °C. It is not necessary to use an external thermostat.



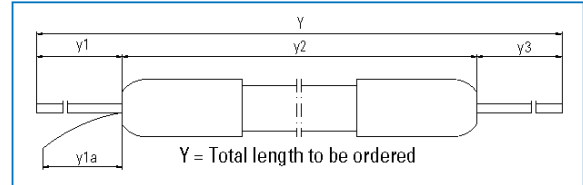
Description of the self regulated heater bands

The self regulated parallel heater bands consist of two parallel supply conductors of copper which are embedded in a cross-linked and with particles of carbon doped plastic heater element with a positive temperature coefficient. The heater element changes its capacity in relation to the ambient temperature. When the temperature increases, the plastic is expanding due to the molecular expansion, the compounds of the carbon particles break up, the resistance increases and, therefore, the capacity is decreasing. When cooling down, this process is reversed and the capacity increases. Thus, the heater band is adapting its temperature everywhere in the sample line according to individual temperature requirement.

Complete treatment of sample line in factory



Assembling of sample line at customers' side



For mounting the EEx version, a 2-pole residual current operated device 300 mA is necessary (M&C recommends 30 mA).

Technical Data

| sample line type 3/4/5... DN4 or 6 | ../5... (Ex) | ../30... (Ex) | ../50... (Ex) | ../80... (Ex) | ../100... (Ex) | ../120... (Ex) |
|--|--|---------------|---------------|---------------|----------------|----------------|
| Inside tube | type 3/4/...: PTFE, ø 4/6 mm or 6/8 mm, type 3/... non interchangeable, type 4/... interchangeable type 5/...: stainless steel 316, ø 4/6 mm or 6/8 mm, non interchangeable when assembled in the factory, tube 500 mm jutting out on both sides | | | | | |
| Holding temperature at -20 °C Ambient temperature | +5 °C | +30 °C | +50 °C | +80 °C | +100 °C | +120 °C |
| Version EX-Temperature class | T6 | T6 | T3 | T3 | T3 | T2 |
| Power consumption, cold start at -20 °C | 16 W/m | 45 W/m | 45 W/m | 54 W/m | 54 W/m | 71 W/m |
| cold start at 0 °C | 13 W/m | 37 W/m | 40 W/m | 49,5 W/m | 49,5 W/m | 66 W/m |
| cold start at +10 °C | 9,2 W/m | 30 W/m | 38 W/m | 47 W/m | 47 W/m | 63 W/m |
| with operating temperature | 11,5 W/m | 20 W/m | 28 W/m | 30,5 W/m | 26 W/m | 35 W/m |
| Max. length allowed for -20 °C ambient temperature | 109 m | 52 m | 65 m | 55 m | 55 m | 40 m |
| Max. length of one piece | 99 m | 99 m | 99 m | 99 m | 99 m | 99 m |
| Max. operating temp. allowed when current supply ON | 65 °C | 65 °C | 120 °C | 120 °C | 120 °C | 120 °C |
| Max. operating temp. allowed when current supply OFF | 85 °C | 85 °C | 180 °C | 180 °C | 180 °C | 180 °C |
| Ambient temperature allowed | standard: -20 °C to +100 °C / version Ex: -20 °C to +40 °C | | | | | |
| Corrugated Polyamide-tube outside, black | ø 42,5 mm o.d. | | | | | |
| Thermal isolation | glass fibre | | | | | |
| Operating pressure | type 3/4/...: max. 3 bar g, type 5/...: max. 100 bar g | | | | | |
| Heater band | self-delimiting, can be cut into every length Ex version: type ELSR..., Ⓜ II 2 G EEx e IIC T6, Certificate of conformity LCIE 01 ATEX6019X or ...XTV2-CT, Ⓜ II 2 G EEx e II T4/T3/250°C (T2), Certificate of conformity PTB, PTB 98 ATEX1105X | | | | | |
| Power supply | 230V 50Hz* or 115V/60Hz, over-current release according to request, max. 25 A time-lag, characteristic C | | | | | |
| Power consumption | depending on version and length of the line: ..W/m x ..length(m)=..W totally | | | | | |
| Electrical connection at type 3/4/5... DN4 or DN6 | direct on the heater band by means of shrinkdown technique; prepared in factory with 1 m connection cable of silicone 3x 1,5 mm ² , heat resistant | | | | | |
| Electrical connection at type 3/4/5... Ex DN4 or DN6 | lead through the heater band and put into Ex-connection box; prepared in factory: 1 m heater band lead out on EEx e connection box, 122x120x90 mm, with 2x M25 cable gland and blind plug each, terminals 6x 2,5 mm ² | | | | | |
| Electrical standard | EN61010, EN 60335-1 / Version Ex: EN50014, EN50018, EN 50019 | | | | | |
| Protection | IP64 EN60529 | | | | | |
| Weight | approx. 0,9 kg per meter plus 1,1 kg for beginning and end connection | | | | | |
| Application fields / smallest bending radius | mobile and stationary, mountage inside and outside / 200 mm | | | | | |

Technical data only for 230V/50Hz, for 115V/60Hz on request

*standard



robecco GmbH, Industriepark 17, 56593 Horhausen

Part numbers

| sample line type 3/4/5... DN4 or 6 | ../5-.. (Ex) | ../30-.. (Ex) | ../50-.. (Ex) | ../80-.. (Ex) | ../100-.. (Ex) | ../120-.. (Ex) |
|---|---|---------------|---------------|---------------|----------------|----------------|
| Part No. type 3/... DN4, lenght 1 meter | 01B6300 | 01B6305 | 01B6310 | 01B6315 | 01B6320 | 01B6325 |
| Part No. type 3/... Ex DN4, lenght 1 meter | 01B6300Ex | 01B6305Ex | 01B6310Ex | 01B6315Ex | 01B6320Ex | 01B6325Ex |
| Part No. type 3/... DN6, lenght 1 meter | 01B6350 | 01B6355 | 01B6360 | 01B6365 | 01B6370 | 01B6375 |
| Part No. type 3/... Ex DN6, lenght 1 meter | 01B6350Ex | 01B6355Ex | 01B6360Ex | 01B6365Ex | 01B6370Ex | 01B6375Ex |
| Part No. type 4/... DN4, lenght 1 meter | 01B6400 | 01B6405 | 01B6410 | 01B6415 | 01B6420 | 01B6425 |
| Part No. type 4/... Ex DN4, lenght 1 meter | 01B6400Ex | 01B6405Ex | 01B6410Ex | 01B6415Ex | 01B6420Ex | 01B6425Ex |
| Part No. type 4/... DN6, lenght 1 meter | 01B6450 | 01B6455 | 01B6460 | 01B6465 | 01B6470 | 01B6475 |
| Part No. type 4/... Ex DN6, lenght 1 meter | 01B6450Ex | 01B6455Ex | 01B6460Ex | 01B6465Ex | 01B6470Ex | 01B6475Ex |
| Part No. type 5/... DN4, lenght 1 meter | 01B6500 | 01B6505 | 01B6510 | 01B6515 | 01B6520 | 01B6525 |
| Part No. type 5/... Ex DN4, lenght 1 meter | 01B6500Ex | 01B6505Ex | 01B6510Ex | 01B6515Ex | 01B6520Ex | 01B6525Ex |
| Part No. type 5/... DN6, lenght 1 meter | 01B6550 | 01B6555 | 01B6560 | 01B6565 | 01B6570 | 01B6575 |
| Part No. type 5/... Ex DN6, lenght 1 meter | 01B6550Ex | 01B6555Ex | 01B6560Ex | 01B6565Ex | 01B6570Ex | 01B6575Ex |
| Options for sample line 3/4/5/... DN4 or 6 | | | | | | |
| Completely assembled for type 3-5/... DN4 or 6 | 01B7050 | 01B7050 | 01B7050 | 01B7055 | 01B7055 | 01B7060 |
| Completely assembled for type 3-5/... Ex DN4 or 6 | 01B7050Ex | 01B7050Ex | 01B7065Ex | 01B7055Ex | 01B7055Ex | 01B7060Ex |
| Accessories for assembling at customers' side for type 3-5/... DN4 or 6 | beginning and end connection-black, 3,2 m connection cable of silicone 3x 1,5 mm ² , end splices, Isolating and small parts, Part-No. 01B7100 | | | | | |
| Accessories for assembling at customers' side for type 3-5/... Ex DN4 or 6 | beginning and end connection-black, end splices, shrinking, isolating and small parts, EEx e connecting box, 122x120x90 mm, with 2x M25 cable glands and blind plugs each, terminals 6x 2,5 mm ² , Part-No. 01B7100Ex | | | | | |

Current 115V/60Hz please specify with order, 230V/50Hz is standard

Further accessories and other executions on request.

To specify with order:

- Type (3/4/5/)
- Current 230V/50Hz or 115V/60Hz
- Tube-ø i/o (-4/6, 6/8, 8/10, 10/12 mm)
- Standard assembling at factory
- Accessories
- Temperature version (5, 30, 50, 80, 100, 120)
- EEx version (Ex)
- Length of sample line in meters X or Y
- Assembling at customers' side

For example:

6x 01B6300 X = 6 m heated, self-regulated sample line version 3/5-4, ø 4/6 mm, +5 °C holding temperature, with PTFE-tube 4/6 non interchangeable, 230V/50Hz. 1x 01B7050 ready-for-use ex factory.

Santa Sanayi Mamulleri Tic. San. Ltd. ùti.

Kazım Karabekir Cad. No : 27/26 Ankara

Tel : 312-342 5250 - Faks : 312-295 9726 - santa.com.tr

santa

