



JCT Analysentechnik GmbH

ANALYTICAL HEATING HOSES



Retaining heat

Providing heat



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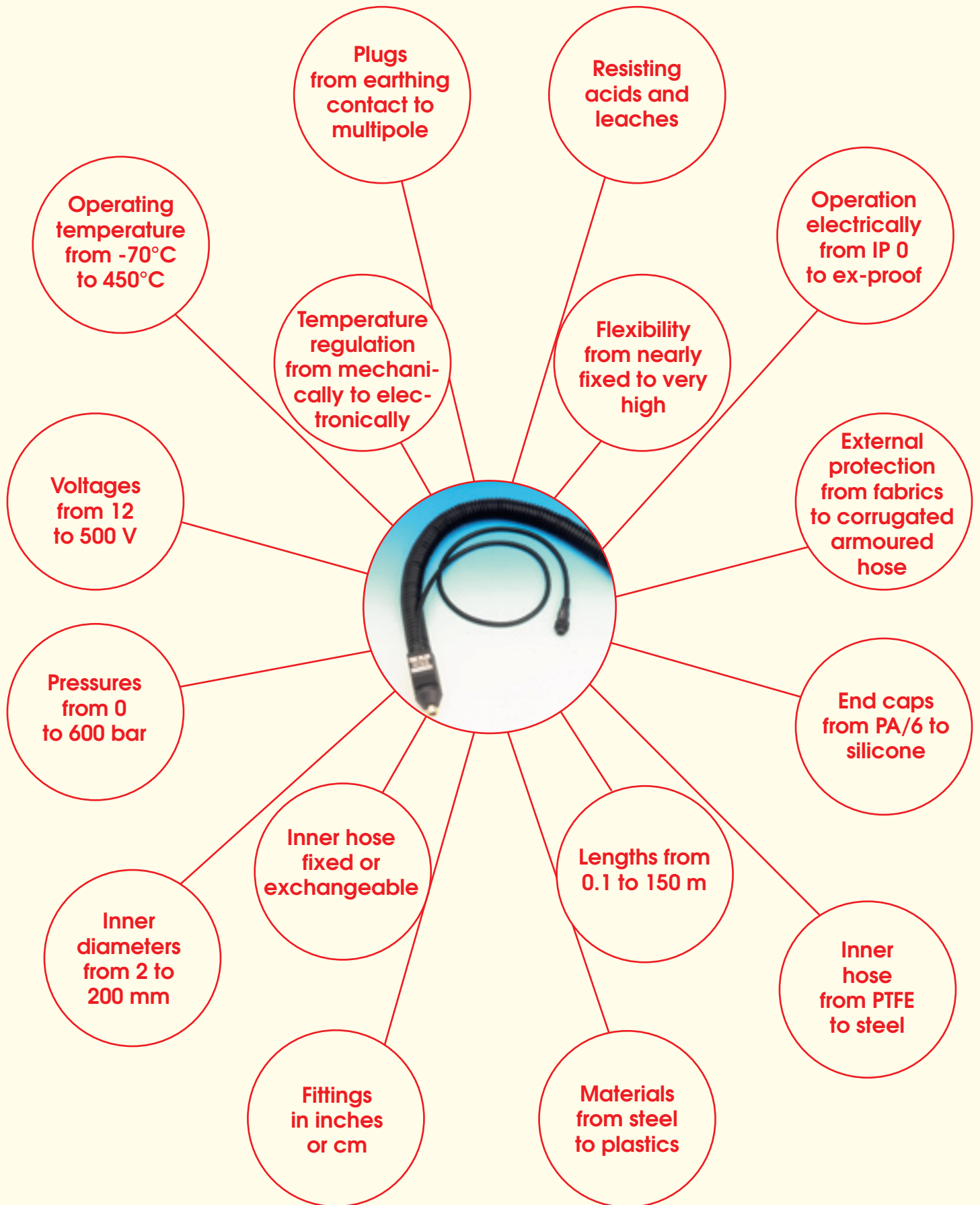
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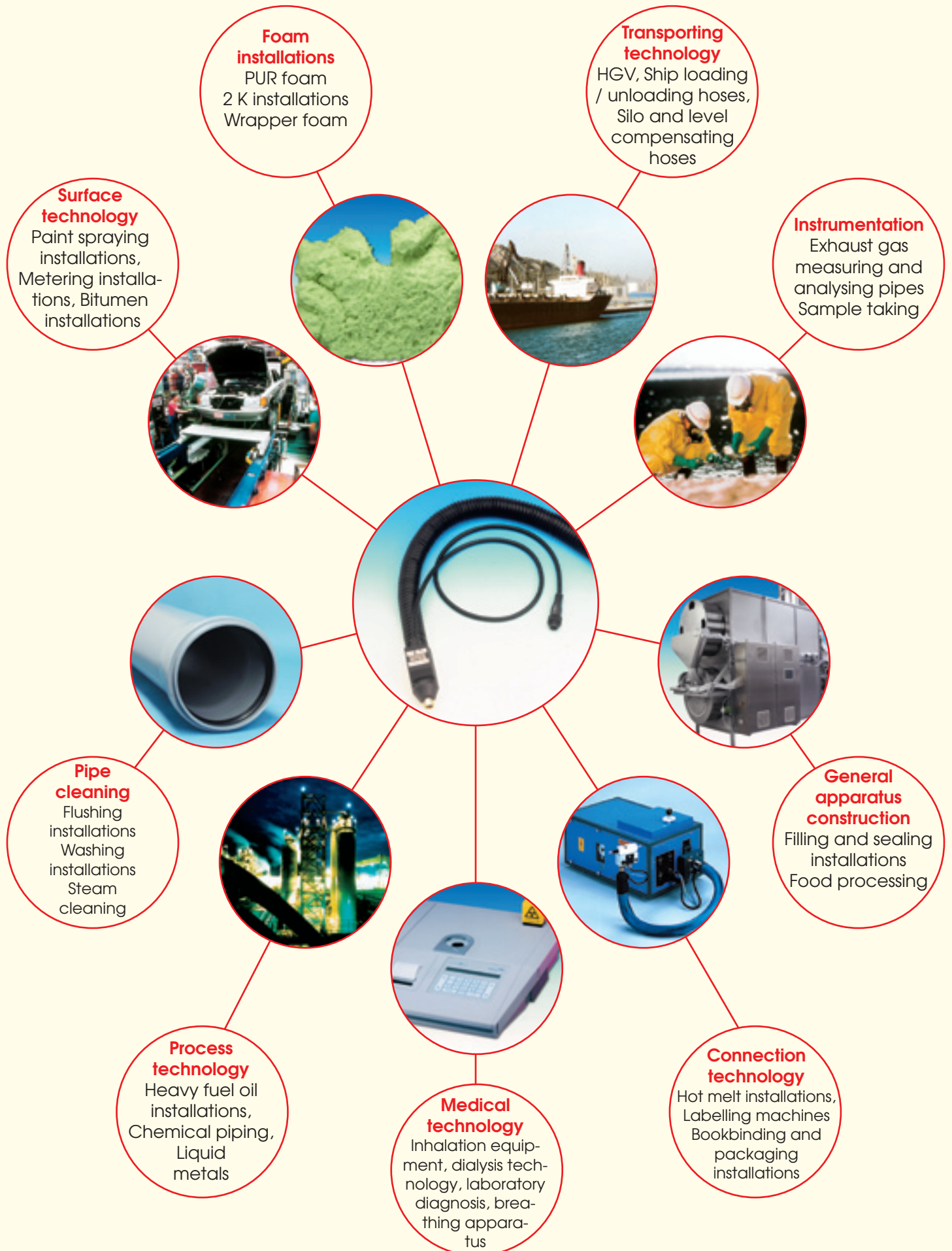
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A complete system - the flexible heating hose system from JCT



Examples and fields of application - heating hoses





Analytical heating hose with RSL fitting and PTFE basic hose

Applications:

Maintaining the temperature of engine exhaust gases, CO₂ measurements, industrial waste gases, blast furnace waste gases, air measurements, environmental measurements, etc.

This heated sampling pipe prevents condensate from being discharged or the temperature from dropping below the dew point, so that no gas components are discharged or lost.

Specification H 300

Application temp.:	100°C / 200°C / 250°C
Basic hose type:	TA/PTFE-core
Inner core:	at 500°C, VA-core, page 10
Rated voltage:	230 Volt (12 - 400 Volt special voltage)
Connection fitting:	RSL V4 A Steel, for cutting ring screw union, without transition
Heating cable:	design according to DIN, moisture protected with protective conductor; 500°C not moisture protected
Temperature sensor:	Fe-CuNi type J, NiCr-Ni type K, PT 100, option HTI
Thermal insulation:	according to installation temperature, heat stabilised, closed pore silicone foam, respectively felt, elastomer foam
External jacket:	polyamide black, options page 12
Power / Control cable:	3 metres with 7-pole plug
Hose end caps:	Silicone or hard cap with strain relief and anti-kink protection, page 13
Test voltage:	2000 Volt high voltage test heating conductor - protective cond.
Capacity:	Watt / metre page 10
Lengths:	up to 50 m

Tolerances:	
Heat capacity:	+5% / -10%
Diameter:	±10%
Length quoted in metres:	±5%
Temperature:	±10°C

Temperature control using our control equipment.

Through special features, additional applications are possible.



Our heating hose H 300 can also be used in a special version in explosion-endangered areas. All end connection techniques on page 13 are possible.



Analytical heating hose with exchangeable inner cores, which protrude at the ends

Applications:

Maintaining the temperature of probe lines for engine exhaust gases, CO₂ measurements, industrial waste gases, blast furnace waste gases, air measurements, etc.

The core of this heating hose continues without interruption or restriction from the discharge point up to analysis.

The heavy-gauge conduit thread cable glands fitted at both ends simplify assembly.

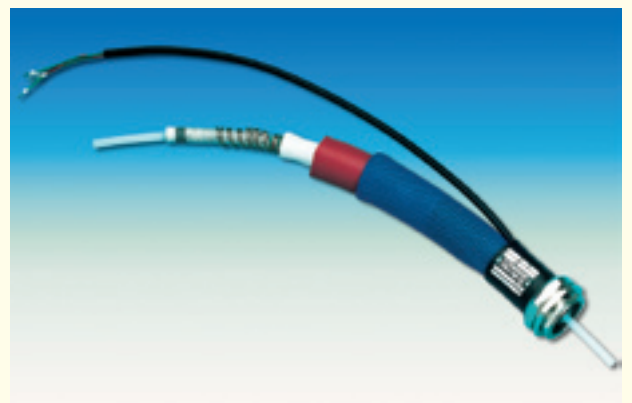
Specification H 300 A

Application temp.:	max. 100°C / 200°C / 250°C
Basic hose type:	PTFE or PFA core
Inner core:	at 500°C, VA-core, page 10
Rated voltage:	230 Volt (12 - 400 V special voltage)
Connection fitting:	core 100 mm protruding, without transition
Heating cable:	design according to DIN, moisture protected with protective conductor; 500°C not moisture protected
Temperature sensor:	Fe-CuNi, type J; NiCr-Ni, type K; PT 100, option HTI
Thermal insulation:	according to installation temperature, heat stabilised, closed pore silicone foam, respectively felt, elastomer foam
External jacket:	Polyamide black, options page 12
Power / Control cable:	3 metres with 7-pole plug
Hose end caps:	strain relief on PG 36, page 13 screwed, borehole Ø 47 mm
Test voltage:	2000 Volt high voltage test heating conductor - protective cond.
Capacity:	Watt / metres, page 10
Lengths:	up to 50 m ; This version permits fast replacement in situ of the inner cores where the inner walls have become soiled

Tolerances:	
Heat capacity:	+5% / -10%
Diameter:	±10%
Length quoted in metres:	±5%
Temperature:	±10°C

Temperature control using our control equipment. Through special features, additional applications are possible.

Diffusion proof when specially requested.



Automatically limiting analytical heating hose with firm PTFE inner core available in reels or by the metre

For self-assembly:

The H 300 B heating hoses can be supplied by the metre in lengths up to 150 m, so that customer can specify the lengths of his heating hose “from the reel” and can fit the end connections in situ using our H 300 B-K assembly set. Parallel heating tapes are used for heating purposes (page 11).

For explosion-endangered areas, the heating hose can be supplied with explosion protection EExd IIC T 6 respectively T 5 up to 65°C, and as T 3 ATEX permit EExe II T 3 / T 5 / T 6 (Plex connections) up to 120°C.



Specification H 300 B

Application temp. according to choice of heating tapes:	max. 65°C / 120°C / 180°C Technical data, page 11
Rated voltage:	230 Volt
Basic hose type:	PT/PTFE core, page 10
Connection fitting:	core 100 mm protruding, without transition
Temperature sensor:	not necessary with HBR! at HKSI sensor Fe-CuNi or PT 100
Thermal insulation:	heat stabilised, closed pore foam, respectively felt
External protection:	Polyamide 6-ring corrugated hose, flame-resistant, halogen-free, temperature -40°C to +120°C, briefly +150°C
Hose end caps:	with strain relief and anti-kink protection in PA 6 or silicone, page 13
External diameter:	42 mm, ±10%

The heating hoses with HBR heating tapes control their heating capacity according to the pertinent degree of heating, so that no further heating takes place when the final temperature is reached, and the temperature is kept constant. Where temperature differences arise on sections of installed heating hoses, the heating capacity adapts to the ambient temperature section by section. Accordingly, this ensures uniform heating overall.



Assembly set H 300 B-K



Analytical heating hose with replaceable inner cores and screw fitting

Applications:

Maintaining the temperature of probe lines for engine exhaust gases, CO₂ measurements, industrial waste gases, blast furnace waste gases, air measurements, etc.

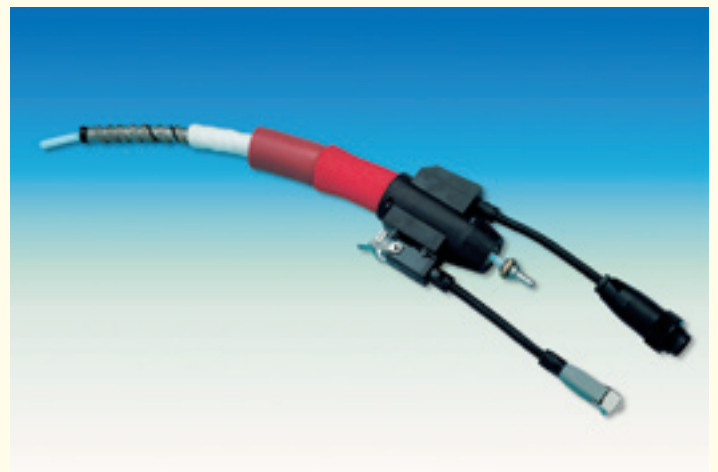
The special fittings of V4 A steel prevents migration and buckling of the PTFE core at the ends of the analytical heating hose. A cutting ring screw union can be fitted. The external braiding provides tension relief.

Specification H 300 C

Application temp.:	max. 100°C / 200°C / 250°C
Rated voltage:	230 Volt (12 - 500 V special voltage)
Basic hose type:	PT/PTFE core, page 10
Connection fitting:	RSL special fitting, V4 A Steel, without transition
Heating cable:	design according to DIN, moisture protected with protective conductor
Temperature sensor:	Fe-CuNi, type J; NiCr-Ni, type K; PT 100 - option - HTI
Thermal insulation:	heat stabilised, closed pore silicone foam, respectively felt or elastomer foam (100°C)
External jacket:	Polyamide black, options page 12
Power / Control cable:	3 metres with 7-pole plug
Hose end caps:	with strain relief and anti-kink protection in PA 6 or silicone, page 13
Test voltage:	2000 Volt high voltage test heating conductor - protective cond.
Capacity:	Watt / metres, page 10

Tolerances:	
Heat capacity:	+5% / -10%
Diameter:	±10%
Length quoted in metres:	±5%
Temperature:	±10°C

Temperature control using our control equipment.



Our heating hose H 300 C can also be used in a special version in explosion-endangered areas. All end connection techniques on page 13 are possible.

Analytical heating hose with integrated filter

Analytical heating hose systems with integrated filter are a further development of the previously separate systems, heated hose and heated filter section. This version has been designed primarily for use with portable measuring equipment. For this purpose, special attention has been placed on a light and flexible design. The version shown is designed for this application.



Specification HAF

Test gas pipes (PTFE core DN 02 / DN 04) and **control pipes** can be fitted as options in this system. The filter housing consists of **V4 A** (1.4571) steel. Versions in **Hasteloy** or with **PTFE coating** are also possible. The heating hoses can be connected to all our governor types. Our **integral system HTI** is preferred. Temperature recording for all other control systems takes place on the filter housing.

For general use in analytical technology, the filter housing can be adapted to other filter dimensions, other hose nominal widths and hose lengths, so that this new development can be adjusted to all existing analytical heating hose systems and covers the **complete range of analytical technology**.

Temperature control using our control equipment, as listed in our separate Temperature Controllers Catalogue.

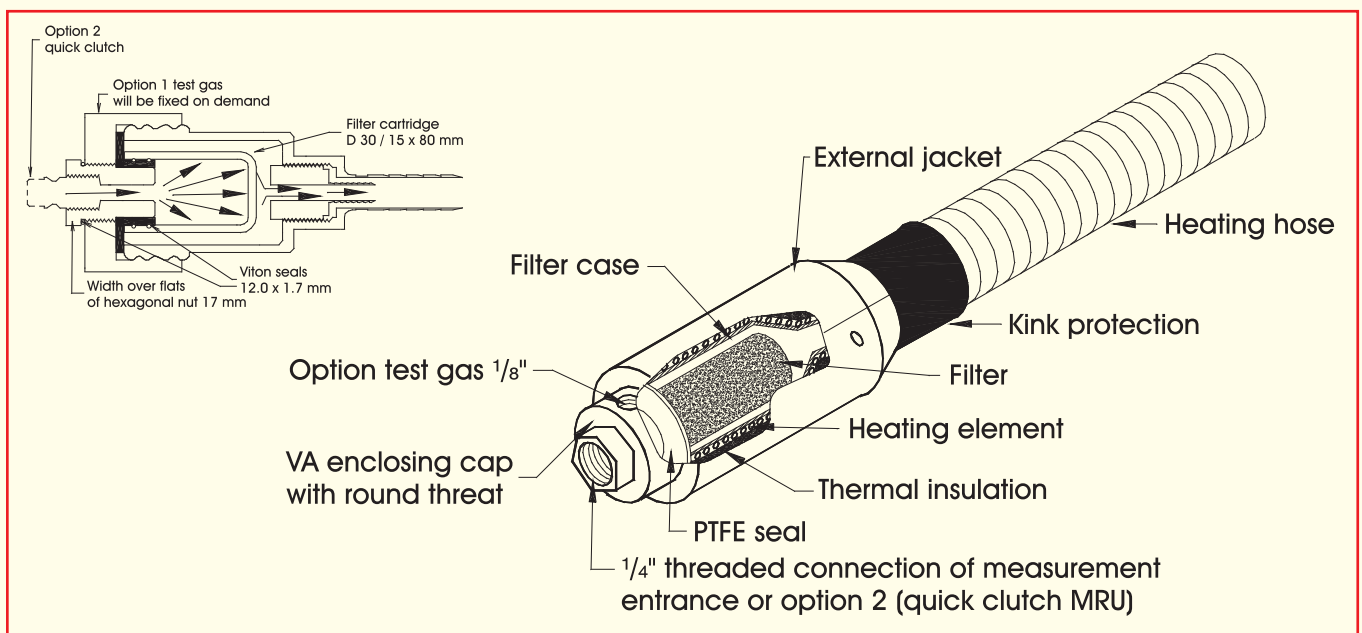
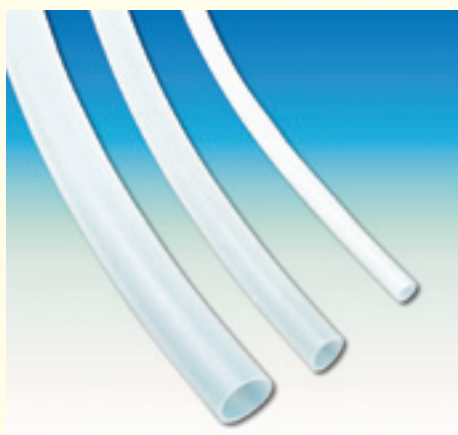


Table capacity Watt / m up to DN 12

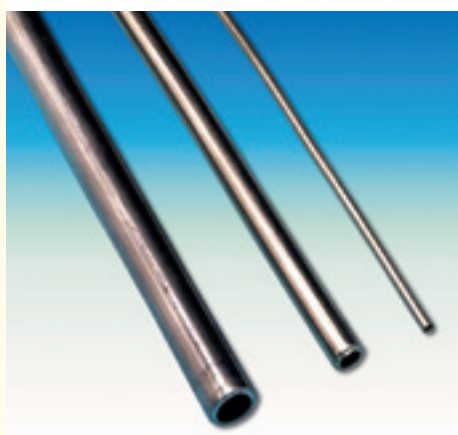
DN (NW)	4	6	8	10	12
100°C Watt / m H 300	100	120	140	160	200
200°C Watt / m H 300 A+C	120	140	160	200	260
350°C Watt / m H 300	200	220	250	280	310
350°C Watt / m H 300 A	220	250	280	310	400



PF/PFA or PT/PTFE core with 1 mm wall thickness

DN (NW)	4	6	8	10	12
Min. bending radius / mm**	200	250	300	350	400
Pressure / bar*	18	13	10	8	6

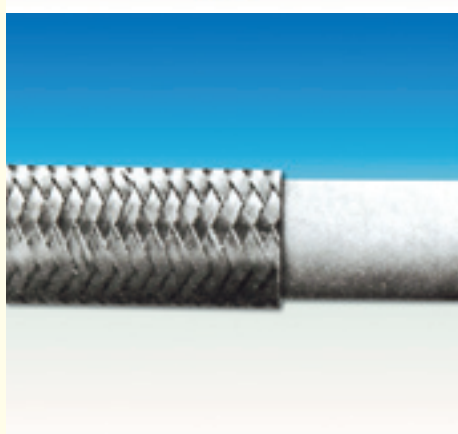
Vacuum 8 mbar



VA/VA core with 1 mm wall thickness (1.4571)

DN (NW)	4	6	8	10	12
Min. bending radius / mm**	300	350	400	500	600
Pressure / bar*	60	60	50	50	40

Vacuum 50 mbar



TF/PFA or TA/PTFE core with a braiding layer of soft steel wire

DN (NW)	2	4	6	8	10	12
Min. bending radius / mm**	40	50	75	100	120	130
Pressure / bar*	20	20	20	15	15	15

Vacuum 8 mbar

The inner cores are partly available in inch dimensions.

PTFE = Polytetrafluoroethylene

PFA = Perfluoralcoxy

* Temperature correction 100°C x 0.9; 200°C x 0.8; 250°C x 0.7; 350°C x 0.6

** Minimum bending radius under static operating pressure in millimetres

Hoses of stainless steel can be employed virtually without limitation in the range from -190°C to max. +600°C for liquid and gaseous media in all industries, and are completely diffusion resistant; not suitable for chlorides, bromides and other halogens.

HKS 70 Ni

max. 180°C

Parallel heating tape, can be cut to size in situ, HTI control without sensor.

Technical data:

Rated capacity / m:	70 W / m at 20°C
Rated voltage:	230 V AC
Process temperature:	180°C (integrally controlled)
Max. surface temperature:	200°C
Max. length of heating circuit:	60 m
Contact clearance:	2.0 m
Class of protection:	I
Degree of protection:	IP 65 (EN 60 529)



HKSP 20

max 60°C

Parallel heating tape, can be cut to size in situ.

Technical data:

Rated capacity / m:	20 W / m
Rated voltage:	230 V AC
Process temperature:	60°C (controlled)
Max. surface temperature:	90°C
Max. length of heating circuit:	140 m
Contact clearance:	0.7 m
Class of protection:	I
Degree of protection:	IP 65 (EN 60 529)



HKSI 40

max. 150°C

Parallel heating tape, can be cut to size in situ.

Technical data:

Rated capacity / m:	40 W / m
Rated voltage:	230 V AC
Process temperature:	150°C (controlled)
Max. surface temperature:	200°C
Max. length of heating circuit:	100 m
Contact clearance:	0.6 m
Class of protection:	I
Degree of protection:	IP 65 (EN 60 529)



HBRT

max. 120°C

Heating tape self-limiting. This heating tape is designed for an operating temperature of 120°C and can thus also be used in installations that are flushed with steam.

Technical data:

Rated temperature:	120°C / 190°C
Metre capacity HBRT:	< 40 W / m at 20°C
Metre capacity HBR-HSB:	45 W / m (Ex-approval)
Protective conductor braiding, moisture-proof, IP 65 (EN 60 529)	



HBRC

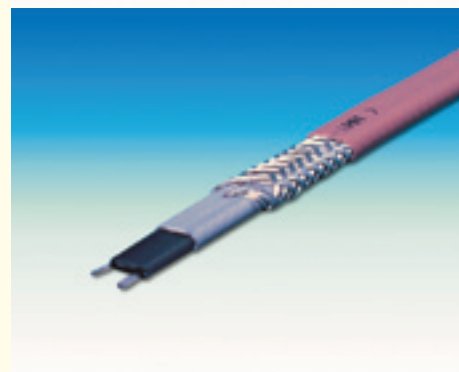
max. 65°C

Heating tape self-limiting, can be cut to size in situ. Through the temperature limitation it is also suitable for use on plastic pipes and tanks.

Technical data:

Rated temperature:	65°C / 85°C
Metre capacity HBRC:	10 W / m, 13 W / m, 26 W / m at 20°C
Metre capacity HBR-PSB:	13 W / m, 26 W / m, 33 W / m (Ex-approval)
Protective conductor braiding, moisture-proof, IP 65 (EN 60 529)	

Max. heating circuit length at 10°C		HB Heating tapes	
10 Watt / m	200 m	33 Watt / m	70 m
13 Watt / m	180 m	40 Watt / m	70 m
26 Watt / m	80 m	45 Watt / m	70 m

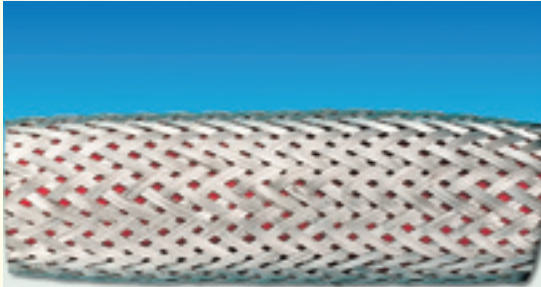




Standard protective braid

Material: PA 6.6, polyamide

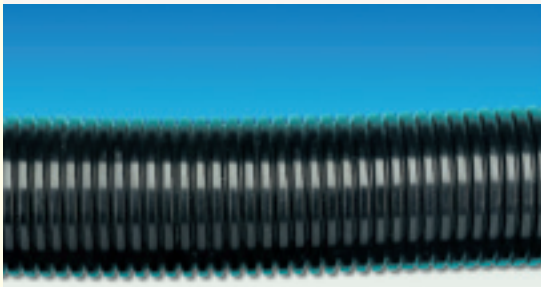
Temperature stability up to +150°C *
very flexible and light
deliverable in different colours



Metal protective braid

Material: steel, galvanized or V2 A steel

Temperature stability from +300°C to +500°C *
very flexible and light
very good protection against abrasion



Plastic corrugated hose

Material: PA 6, (polyamide) or PU (polyurethane)

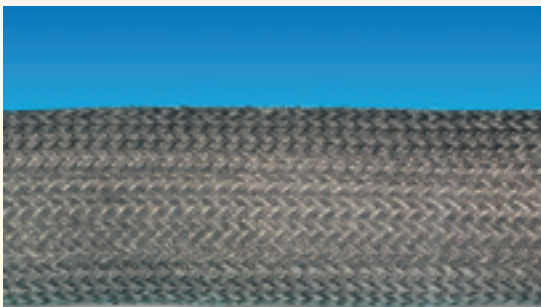
Temperature stability up to +90°C *
very flexible and light
constricts the bending radius, enlarges the outside diameter,
recommendable for robots, non-crush



Metal corrugated hose

Material: galvanized steel

Temperature stability up to +300°C *
very flexible, quite heavy
constricts the bending radius, enlarges the outside diameter,
non-crush, very resistant against chips and sharp objects



Fire resistant protective hose

Material: glass fiber fabric, black

Temperature stability up to +400°C *
very flexible and light
very good protection against abrasion
protection against falling glowing chips etc.
standard for the series H 900

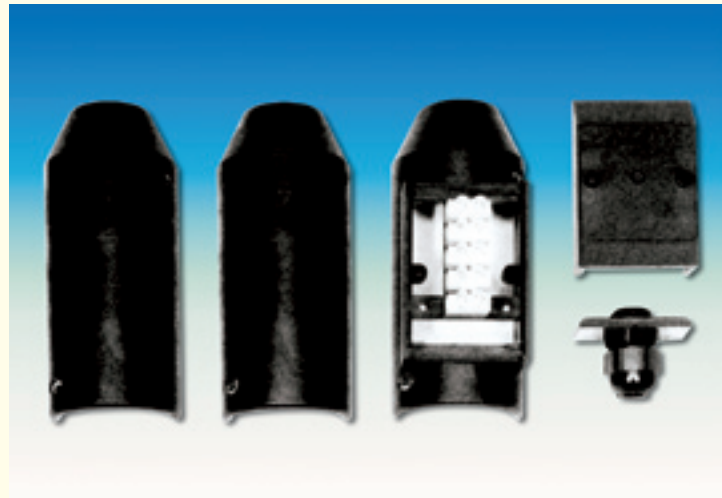
* The temperature stability refers to brief contact with a suitably hot environment. The hose structure must be suitably designed in the event of prolonged use above the operating temperature of the hose.

Terminal technology for type H 300 A + B + C Choices

Terminal caps of silicone -

3 m connection cable ex works

- Order Number H 300 B-S



Terminal caps of polyamide with terminal block in hard cap ex works.

Available as a self-assembly set
H 300 B-K

- Order Number H 300 B-KW

Terminal with heavy-gauge PG 36 screw union ex works.

Borehole \varnothing 47 mm

- Order Number H 300 B-PG 36-PA



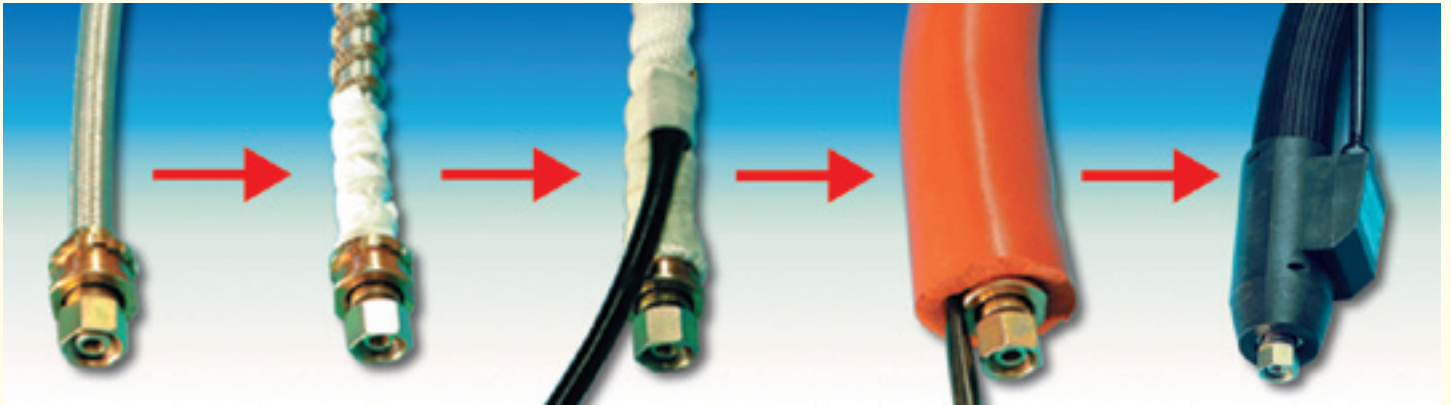
Terminal with movable heavy-gauge PG 42 screw union ex works.

Borehole \varnothing 55 mm

- Order Number H 300 B-PG 42

All terminal techniques can be combined with each other.

JCT heating hoses, solutions for applications with high demands



Pressure hose with stainless steel braiding and fitting.

Mounting of heating element and temperature sensor on pressure hose.

Connection of heating element, mounting of first insulation layer and fitting of control lines.

Insulation according to temperature with elastomere- or silicon foam.

Fitting of desired protective jacket. Mounting of end caps and ready-to-plug connection of connecting cables.

Possible applications of a heating hose:

Whenever media needs to be transported from a device or a system to some other part of the device or system, and the piping cannot be rigidly installed, flexible heated hose lines can be used for transportation purposes.

In the majority of applications, it is a requirement to maintain the product temperature at a constant level, irrespective of the temperature fluctuations in the system or the ambient temperature.

Why are heating hoses used:

- so as to keep media flowable for processing
- to achieve their optimum characteristics for processing
- to avoid the formation of condensate in gaseous media
- to process economically
- to ensure uniform quality
- to enable production or measurement at any location
- to connect moving parts and equipment

Heating:

The heating element is wound around the stainless steel braiding of the medium-carrying inner hose, as a round conductor in a tight gradient around the hose.

Depending on the design of the heating hose, the heating element is insulated with PTFE or PFA and is braided with a nickel-plated copper braiding, which serves simultaneously as the safety earth. The structure of the heating conductor complies with the VDE regulations and is moisture protected. The temperature sensor Fe-CuNi thermocouple (standard) is placed directly in way of the hose, below the heating element.

Insulation:

Depending on the design, several plies of glass-fibre fabric are applied directly on the heating element; depending on the customer requirement, control lines can be installed on the glass-fibre insulation through the hose.

In addition, a synthetic or silicone foam insulation is applied according to the design.

The external protection and finish consists of a standard polyamide braiding, on request of braided metal or corrugated hose. The insulation and mains cable terminates at both ends of the hose in silicone or hard caps. Normally, the wall thickness of the insulation is 10 mm.

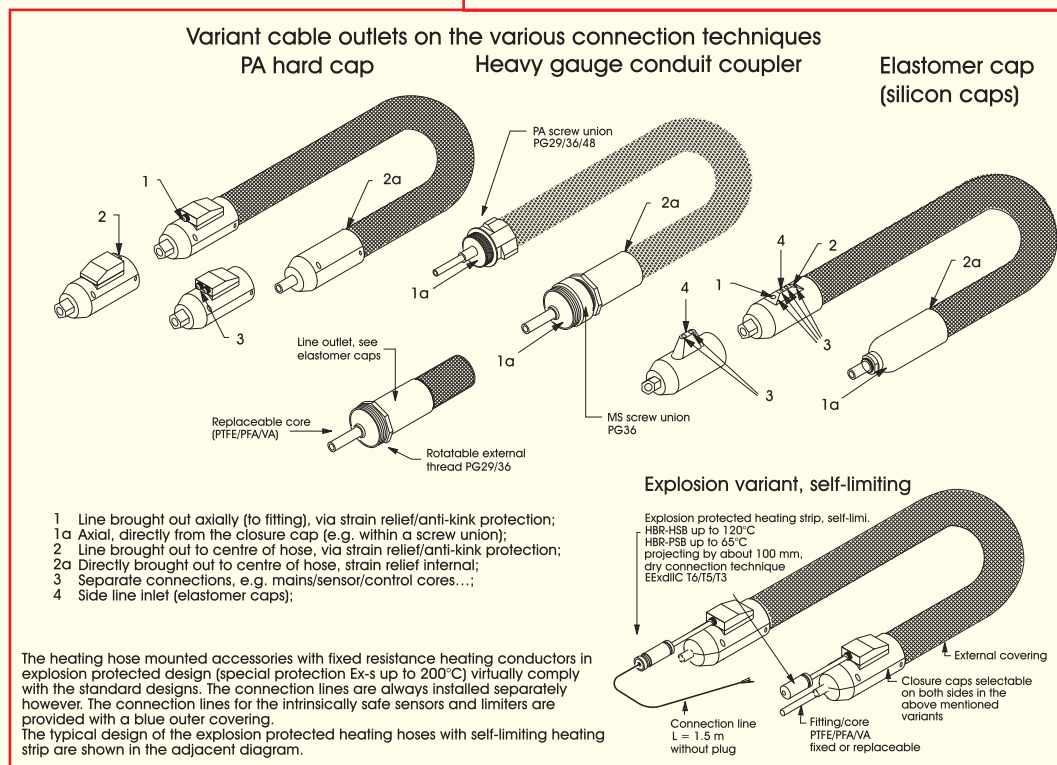
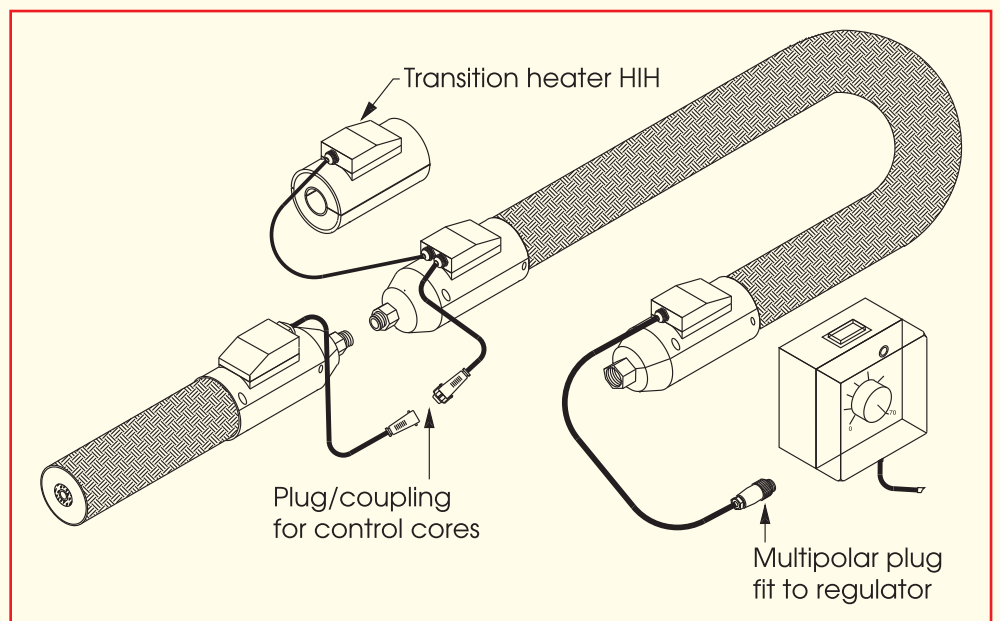
Technical and electrical data

Power Watts / metre at 230 V ~ for standard heating hoses:

Type	DN	4	6	8	10	12	16	20	25	32	40	50
H 100	100°C	80	100	120	140	160	200	260	330	380	440	550
H 700 H 200 H 800	200°C 250°C	100	120	140	160	200	260	330	380	440	550	660
H 900	450°C			220	250	280	310	400	460	610	660	880
Outer-Ø with standard braid:	Outer-Ø mm ± 10%	40	40	40	45	45	50	50	55	60	70	85

Special power and voltages on demand. Power tolerance +5% / -10%.

Coupling example



Cable design examples



Standard heating hose

Applications:

Heating or heat-loss free transport of: oil, grease, wax, resin, tar, paint, water, carbon dioxide, plastics, sealants, etc.

Employable pressurised hoses of PTFE from DN 4 to 50 mm; pressure strain depending on nominal width up to 600 bar.

Specification H 100 / H 700 / H 200 / H 800

Operating temperature: max. 100°C / 170°C / 200°C / 250°C

Hose material: see page 22

Fittings: see page 21

Heater circuit: according DIN, moisture protected, with safety braid

Temperature receptor: Fe-CuNi, type J

Thermal insulation: heat stabilized, compact porous silicone foam -250°C
elastomere foam -100°C

External jacket: polyamide black, page 12

Power / control cable: 1.5 metre, 7-pole plug, suitable for controller HT 43, page 24

End cap: with tension relief and antikink protection in PA 6 or silicone

Power supply: 230 V AC or optional 115 V AC (12 - 500 Volt special voltage)

Test voltage: 2000 V

Power density: Heater element and ground

Watts / metre see page 15

Tolerance limits:

Filament power: +5% / -10%

Outside diameter: ±10%

Length: ±2%

Temperature: ±10°C

Temperature control using our control equipment.

Extended possible use according to customer requirements is possible through special equipment.



Heating hose with stainless-steel pressure hose T 5

Applications:

Heating or heat-loss free transport of: oil, grease, wax, resin, tar, paint, water, carbon dioxide, plastics, sealants, etc.

The pressure hose made of corrugated stainless steel, allows partly very high temperatures of up to 600°C. In addition it is diffusion-proof.



Specification H 900

Operating temperature:	max. 450°C
Pressure hose version:	see page 22, Typ T 5
Fittings:	see page 21
Heater circuit:	construction according DIN, glass insulated with protective ground
Temperature receptor:	Fe-CuNi, type J
Thermal insulation:	glass - silicone
External jacket:	glass black
Power / control cable:	1.5 metres, with 7-pole plug, suitable for controller HT 43
End cap:	silicone with tension relief and antikink
Power supply:	230 Volt (12 - 500 Volt special voltage)
Test voltage:	1000 Volt high voltage testing heater element and ground
Power density:	Watts / metre see page 15
Tolerance limits:	
Filament power:	+5% / -10%
Diameter:	±10%
Length in metres:	±2%
Temperature:	±20°C

Temperature control using our control equipment.

Extended possible use according to customer requirements is possible through special equipment.





Heating hose with explosion approved heating conductors

As a matter of principle, this heating hose must be operated with a governor / limiter system. Our intrinsically safe governor HT 08-Exi is suitable for this purpose.

These specially designed heating hoses can be operated with degree of protection "Special protection" (Ex)s up to the maximum 200°C temperature category T 3.

Heating hose with constant resistor

Specification H 600

Operating temperature:	max. 200°C
Pressure hose:	see page 22
Fittings:	see page 21
Heater circuit:	constant resistor PTFE insulation VDE-controlled
Joint sleeve:	PTB-license
Temperature receptor:	2 x PT 100 controller / limiter
Control:	HT 08-Exi, see description in separate catalogue temperature controllers
Voltage:	230 Volt
Construction:	like standard heating hoses H 100 - H 200



Heating hose with HBR-heating tape

Also available are Ex-heating hoses with self-limiting tape-type heaters, series HBR.

Designs up to 65°C and 120°C. On these designs, costly explosion control equipment is not required, since these heating hoses are self-limiting.

Explosion protection T 3, T 5, T 6, PTB approval.

Heating hose system for co-extrusion for the plastics industry

Will stand very high temperature and pressure strain.

Series H 800 heating hose systems combined with the series T 3 PTFE pressure hose are particularly suitable as connection hoses between a co-extruder and a tool. Rigid connections and a multiplicity of connection elements are eliminated, which would normally need to be individually heated, insulated and controlled. The flexible connection considerably simplifies tool change and maintenance. The heating system can be easily fitted in your installation.



Series H 800 special

Rated voltage: 230 V ~
(special voltages are possible)

Rated capacity: for NW 8 140 W / m
(NW is nominal interior diameter in mm) for NW 10 160 W / m
for NW 12 200 W / m
for NW 16 260 W / m

Application temp.: 250°C

Hose length: available from 0.3 m to 40 m

Sensor: Type J or K, PT 100 and integral control system (HTI) are possible

Fittings: Stainless steel, 1.4305; 1.4571; 1.2316; the fitting is tapered and polished, so that no or very little material can be deposited on it.

Internal fitting diameter: see table

Minimum bending

radius: see table

Controller types: freely selectable, see Temperature Controllers Catalogue.

Flange: loose and fixed flange according to DIN and ASA are possible

Plug connection: multiple pin plug suitable for our control equipment or matching to your existing control

Cable length: 1.5 m

Teflon Tube ID	Fitting metric or BSP Type BDN-KS	Diameter	Operating pressure	Operating pressure	Bending Radius
inside diameter	female swivel, flat seat	outside	at 250°C, dynamic	at 250°C, static	minimum
8 mm / 0.314"	M 16 x 1.5 or BSP 3/8"	40 mm / 1.5"	225 bar / 3300 PSI	360 bar / 5300 PSI	85 mm / 3.34"
10 mm / 0.393"	M 18 x 1.5 or BSP 1/2"	45 mm / 1.77"	204 bar / 3000 PSI	324 bar / 4760 PSI	110 mm / 4.33"
12 mm / 0.472"	M 22 x 1.5 or BSP 1/2"	45 mm / 1.77"	195 bar / 2870 PSI	309 bar / 4550 PSI	140 mm / 5.51"
16 mm / 0.630"	M 26 x 1.5 or BSP 3/4"	50 mm / 1.97"	180 bar / 2650 PSI	288 bar / 4230 PSI	175 mm / 6.89"
20 mm / 0.787"	M 30 x 2 or BSP 1"	50 mm / 1.97"	160 bar / 2340 PSI	252 bar / 3700 PSI	205 mm / 8.07"
25 mm / 0.984"	M 36 x 2 or BSP 1 1/4"	55 mm / 2.16"	126 bar / 1850 PSI	200 bar / 2950 PSI	240 mm / 9.44"

Interior diameter of the fitting					
NW 8 - 6.0 mm	NW 10 - 7.5 mm	NW 12 - 10.0 mm	NW 16 - 12.5 mm	NW 20 - 16 mm	NW 25 - 20.1 mm



Compact foodstuffs hose with integrated heating and optional electronic control

The Series HL foodstuffs hose is another innovation and stands out because of its compact build. The heating element is wound onto the inner liner of the NBR hose and is thus vulcanised in the inner core. There is practically no more difference to an unheated hose either optically or in technical application terms. The temperature sensor is also worked into the hose and captures the temperature directly at the hose wall. This universal hose is suitable to transport fatty (especially animal and vegetable fats & oils) and non-fatty foodstuffs. Also suitable to carry alcoholic and non-alcoholic beverages and fruit juices.

Specification HL 40 / 80

Construction:

- Clear NBR inner liner
- Torsion and pressure-proof fabric carcass
- Integrated heating conductor with PT 100 sensor
- Blue non-scratch, weather-resistant outer
- Optional → black, clear or red outer
- Inside smooth, outside smooth textile patterned
- Suitable for CIP and conventional cleaning
- Short-duration steam cleaning up to 130°C
- Stainless steel fittings of 1.4301 vulcanised bubble-free
- Conical hose connector / groove nut, threaded hose connector, optional flange (aseptic...)
- Operating voltage 230 V AC, optional 115 V or special voltages
- Mains cable 1.5 metres
- All hose materials used meet the requirements of the German Institute for Consumer Health Protection "Empfehlung XXI Kat. 2" by BGVV(D) and FDA Part 177.2600
- Optional: electronic control

Fitting (RD)	DN (mm)	Wall (mm)	BD (bar)	Bending radius ca. (mm)	max. Length (m)	Power up to 40°C (W/m)	Power up to 80°C (W/m)
44 x 1/6"	20	6	10	150	40	30	50
52 x 1/6"	25	6	10	175	40	40	60
58 x 1/6"	32	6	10	224	40	50	75
65 x 1/6"	40	7	10	280	40	60	90
78 x 1/6"	50	7	10	350	40	75	120
95 x 1/6"	65	7	10	455	40	90	150
110 x 1/4"	80	8	10	560	40	110	200
130 x 1/4"	100	8	10	700	40	140	250

On request, we can also supply suction and pressure hoses with steel coil. For higher temperatures, we can also make fluoropolymer (Viton) hoses. Connectors with flanges, rapid-action couplings or exterior threads also available on request. A range of temperature control devices is available, ranging from the HT 54 integrated mini-controller with fixed temperature setting to convenient microprocessor controlled devices.

Fittings

DKR DIN 3863

Universal conical nipple,
union nut inch (BSP) *2

DN (NW)	inch thread	
4	G 1/8"-28	G 1/4"-19
6	G 1/4"-19	
8	G 3/8"-19	
10	G 3/8"-19	G 1/2"-14
12	G 1/2"-14	G 5/8"-14
16	G 3/4"-14	
20	G 1"-11	
25	G 1"-11	G 1 1/4"-11
32	G 1 1/4"-11	G 1 1/2"-11
40	G 1 1/2"-11	

RSL/RSS

Pipe connection, light / heavy duty
series for cutting ring

DN (NW)	light	heavy
4	L-series 6 L	S-series 8 S
6	L-series 8 L	S-series 10 S
8	L-series 10 L	S-series 12 S
10	L-series 12 L	S-series 14 S
12	L-series 15 L	S-series 16 S
16	L-series 18 L	S-series 20 S
20	L-series 22 L	S-series 25 S
25	L-series 28 L	S-series 30 S
32	L-series 35 L	S-series 38 S
40	L-series 42 L	

DKL/DKM/DKS DIN 3863

Universal conical nipple,
union nut metric thread,
light / heavy duty series

DN (NW)	thread DKL	DKM	DKS metr.
4	12 x 1.5		
6	14 x 1.5		18 x 1.5
8	16 x 1.5		20 x 1.5
10	18 x 1.5		22 x 1.5
12	22 x 1.5		24 x 1.5
16	26 x 1.5		30 x 2
20	30 x 2	30 x 1.5	36 x 2
25	36 x 2	38 x 1.5	42 x 2
32	45 x 2	45 x 1.5	52 x 2
40	52 x 2	52 x 1.5	

DKJ

Nipple with 74° conus JIC
union nut UNF thread

DN (NW)	inch thread
4	7/16"-20 UNF
6	1/2"-20 UNF
8	1/2"-20 UNF
8	9/16"-18 UNF
8	5/8"-18 UNF
10	9/16"-18 UNF
10	3/4"-16 UNF
12	3/4"-16 UNF
16	7/8"-14 UNF
20	1 1/16"-12 UNF
25	1 5/16"-12 UNF
32	1 5/8"-12 UNF
40	1 7/8"-12 UNF

BDN

Flanged nut, flat packing,
union nut metric / inch

DN (NW)	inch thread	metric thread
6	G 1/4"	14 x 1.5
8	G 3/8"	16 x 1.5
10	G 3/8"	18 x 1.5
10	G 1/2"	
12	G 1/2"	22 x 1.5
16	G 3/4"	26 x 1.5
20	G 1"	30 x 2
25	G 1 1/4"	36 x 2
32	G 1 1/4"	52 x 2
40	G 1 1/2"	

The stability of the heating hose must include the fitting. Normally, the heating hose fittings are supplied in bichromated, free-cutting steel. Special fittings are available in V2 A and V4 A steel, as well as in brass. In addition, heating hoses can also be supplied with loose and fixed flanges according to DIN and ASA *1.

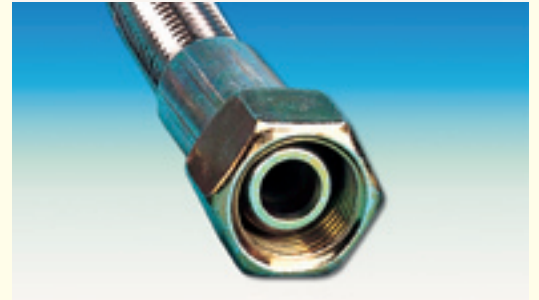
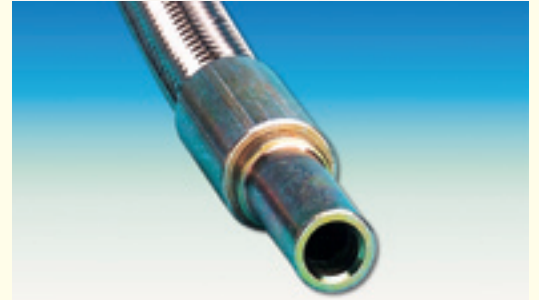
Please note that the fittings cause a reduction in the hose passageway.

Fittings with an internal coating of PTFE *3 or PFA *4 are available. Please ask. Additional special fittings are available on request.

*1 ASA = US Standard
*2 BSP = British Standard Pipe

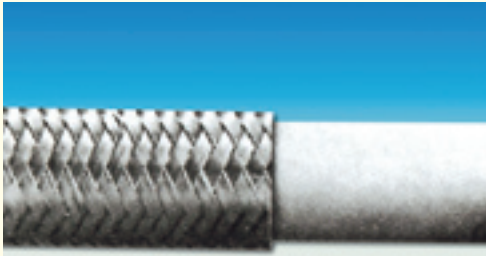
*3 PTFE = Polytetrafluoroethylene
*4 PFA = Perfluoroalkoxy

Components



DN (NW) hose size	inner diametric armature
4	3.0
6	4.5
8	6.0
10	7.5
12	10.0
16	12.5
20	16.0
25	20.1
32	27.5
40	31.5

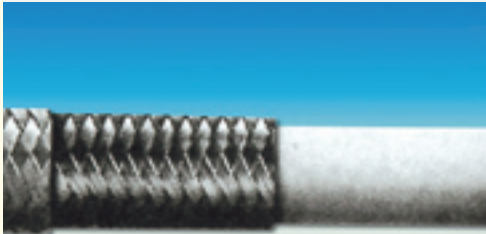
Inner Ø may vary depending on the fitting



T 1

Smooth PTFE hose with one braided layer of stainless steel wire, (1.4301)
max. working temperature 250°C

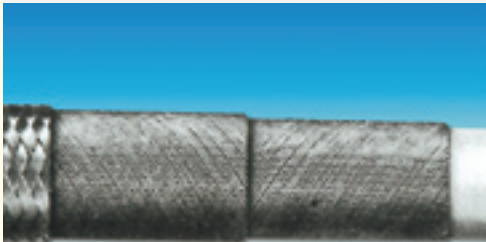
hose size	4	6	8	10	12	16	20	25
working pressure bar	275	240	200	175	150	135	100	80
min. bending radius mm	50	75	100	120	135	160	200	250



T 2

Smooth PTFE hose with two braided layers of stainless steel wire, (1.4301)
max. working temperature 250°C

hose size	6	8	10	12	16	20	25	32	40
working pressure bar	275	250	225	200	175	150	130	70	50
min. bending radius mm	75	100	120	135	160	200	250	500	850



T 3

Smooth PTFE hose with two wound and one braided layer of steel wire,
max. working temperature 250°C, DN 8 to 25 in FEP possible (max. 200°C)

hose size	6	8	10	12	16	20	25
working pressure bar	500	475	475	450	360	275	225
min. bending radius mm	60	85	110	150	175	200	240



T 4

Corrugated PTFE hose with an insulating layer of stainless steel wire. (1.4301)
very flexible

DN (NW)	25	32	40	50
working pressure bar	77	62	51	34
min. bending radius mm	90	100	150	180

Test pressure:

Temp. correcting factor for T 1-T 4:

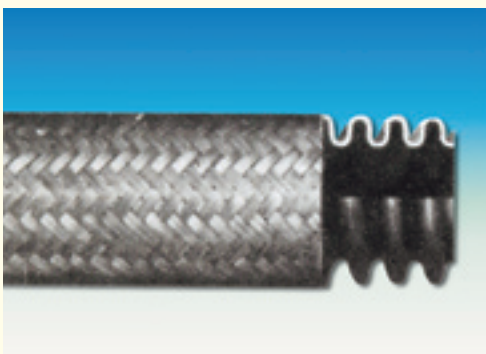
2 x operating pressure

stated pressures at 20°C - 50°C;

at 100°C x 0.9; 200°C x 0.8; 250°C x 0.6

It is essential that you note the minimum bending radius, since if this is exceeded this will cause the pressure hose to leak thus making the complete heating hose unusable, respectively no longer repairable. We accept no liability for such damage.

The hoses of polytetrafluoroethylene PTFE (Teflon™) can be universally employed in a range from -70°C to +250°C, and are characterised by their unusual chemical stability; they are only unstable in the presence of fluorine compounds, as well as the alkaline metals sodium or potassium and halogens.



T 5

Corrugated refined stainless steel hose (1.4541 or 1.4571) with two braided layers of stainless steel wire, (1.4301), max. working temperature 600°C

hose size	8	10	12	16	20	25	32	40	50
* working pressure bar	165	130	95	95	74	90	46	50	35
** min. bending radius mm	100	150	170	190	220	250	290	480	550

* Temperature correction for T 5 100°C x 0.8; 200°C x 0.7; 250°C x 0.6; 350°C x 0.55; 500°C x 0.52

** Minimum bending radius under operating pressure in millimetres

Hoses of stainless steel can be employed virtually without limitation in the range from -190°C to max. + 600°C for liquid and gaseous media in all industries, and are completely diffusion resistant; not suitable for chlorides, bromides and other halogens.

Microprocessor controller

The self-programmable temperature controller HT 41 / 42 is a universal controller due to its free configurability, its optional serial interface and the compact design for machine building, plant and apparatus construction.

Particular attention was given to the limiter function during the design of this device, with a permanent shutdown for unintentional operation according to DIN/VDE 0721 and on the high non-contact switch capacity of 3600 Watts.



Specification HT 41 / 42

Power supply:	230 Volt AC / 50 Hz or 24 Volt DC
Noise immunity:	EN 50 082-2
Emitted interference:	EN 50 081-1
Sensor types:	Fe-CuNi (J), NiCr-Ni (K) with reference point compensation and sensor breakage safeguard, sensor polarity reversal control PT 100, 2 conductors DIN/IEC
Fault limit:	0,1% - 0,2% of the range
Controller outputs:	electrical switch (control) 16 A, mechanical relay 16 A (limit / signal), Alarm output relay 6 A, limit compensation Y3, +/-10 K of rated value
Controller response:	P-PID
Limiter function:	Signal over 2. PT 100
Cutout temperature:	50°C - 500°C adjustable, actuates via mechanical relay

Display current / rated value:	four digit LED-display (13 mm)
Measuring range:	-199 to +999 digits
Deviation display:	7 LED +/-12°C flashes
Operation:	Film keypad, 4 pushbuttons
Housing:	Makrolon
Housing dimensions:	148 x 90 mm
Assembly area:	160 x 100 mm
Fastening:	4 bores for bolts M4
Degree of protection:	IP 65 (DIN 40 050)
Cable inputs / outputs:	HT 41 8-pin socket Mains connection cable 1.2 m
	HT 42 2 x PG 7 2 x PG 9 Glands without mains cable

Setting ex works:

Sensor type: PT 100

	Control range
HT 41	0 - 200°C
HT 42	0 - 200°C

The customer can reprogram these parameters, or we will supply the setting as required (additional charge).



Microprocessor controller

The temperature controller HT 43 is a universal controller for machine building, plant and apparatus construction due to its compact design.

During the design of this device, special attention was paid to simple and clear operation.

The controllers are set in the factory and cannot be reprogrammed.

The non-contact switch capacity is 2300 Watts.

All heating hoses in the standard ranges have a 7-pin plug that fits precisely to this controller.

Specification HT 43

Power supply:	230 Volt AC / 50 Hz or 24 V DC	Controller response:	P-PID
Noise immunity:	EN 50 082-2	Display current / rated value:	four digit LED-display (13 mm)
Emitted interference:	EN 50 081-1	Deviation display:	7 LED +/-12°C flashes
Sensor types:	Fe-CuNi (J), NiCr-Ni (K) with reference point compensation and sensor breakage safeguard, sensor polarity reversal control PT 100, 2 conductors DIN/IEC	Operation:	Film keypad, 4 pushbuttons
Fault limit:	0.1% - 0.2% of the range	Housing:	Makrolon
Controller outputs:	electrical switch (control) (10 A), Alarm output relais 6 A (s. HT 41 / 42), limit compensation Y3, +/-10 K of rated value, Alarm output limit contact set at max. temperature range, Y2	Housing dimensions:	148 x 90 mm
		Assembly area:	160 x 100 mm
		Fastening:	4 bores for bolt M4
		Degree of protection:	IP 65 (DIN 40 050)
		Cable inputs / outputs:	7-pin socket Mains connection cable 1.2 m 1 x PG 7 for signal outputs

Setting at works:

Sensor type: PT 100

	Control range
HT 43 - 10P	0 - 100°C
HT 43 - 20P	0 - 200°C
HT 43 - 25P	0 - 250°C
HT 43 - 50P	0 - 500°C

Sensor type: Fe-CuNi

	Control range
HT 43 - 10F	0 - 100°C
HT 43 - 20F	0 - 200°C
HT 43 - 25F	0 - 250°C
HT 43 - 50F	0 - 500°C
HT 43 - 100F	0 - 999°C

Sensor type: NiCr-Ni

	Control range
HT 43 - 10N	0 - 100°C
HT 43 - 20N	0 - 200°C
HT 43 - 25N	0 - 250°C
HT 43 - 50N	0 - 500°C
HT 43 - 100N	0 - 999°C

Self-programmable microprocessor controller

Maximum protection of high-capacity heaters is achieved through the start-up circuit and subsequent drying phase. Practical functions such as self-optimisation, heating circuit control, setting acceptance where there is a sensor breakage, etc., characterise these controllers to give your equipment and machines maximum safety and reliability as well as helping to lower your production costs or those of your customers.

The electronic controller HT 52 is also available in the dimensions 96 x 48.



Specification HT 52

Power supply: 230 Volt AC / 50 Hz or 24 Volt DC
Noise immunity: EN 50 082-2
Emitted interference: EN 50 081-1
Sensor type: Fe-CuNi (L, J), NiCr-Ni (K), PT 100 DIN/IEC

Sensor breakage safeguard: X > W or X < W, sensor polarity reversal control, sensor short-circuit control

Fault limit: 0.1% - 0.2% of the range
Actual / rated value: 4-digit LED-display (13 mm)

Display / measurement range: -199 up to +999 digits
Deviations: 3°C-steps, 7 LEDs, Variation display for > +/-12°C

Controller outputs: Actuation conditions displayed on 3 LEDs

Controller output 1: 6 A / 230 Volt, actuating output: as a two-point controller relay configuration (factory setting) the heating or cooling (cutout) is connected; as a two-point controller logic configuration (selectable), it has an alarm function, with the setting being input via output 3 (logic)

Controller output 2: 6 A / 230 V, Relay output, in two-point configuration as an alarm output, in three-point configuration as a cooling output

Controller output 3: Analog signals 0 to 20 mA for actual value, rated value or setting of the continuous controller; logic level 0 / 6 V (SSR relay) for alarm functions or the setting of the two / three-point controller

Optional: Serial interface RS 232 or RS 485, pluggable load feeders up to 25 A, also three-phase

Special functions: self-optimizing during control or during run-up, operating hour meter, start-up ramp

Housing material: Noryl, glass-fibre reinforced

Front panel: IP 54, DIN 40 050

Housing: IP 10, DIN 40 050

Front dimensions: 96 x 96 mm according DIN 43 700

Control panel cutout: approx. 92 x 92 mm

Installation depth: approx. 85 mm

Connections: Screw terminals

Working temperature: -15°C to +50°C

Storing temperature: -25°C to +75°C

Weight: app. 250 g

Operation: Parameter assignment and configuration using four pushbuttons



Universal Controller

The device convinces by being optimally matched to our trace heating systems, compact form and simple handling.

Easy mounting using the mounting plate that is designed as cooling unit and modern connection systems are self-evident.

The HTI 16 Temperature Controller controls the temperature of heating conductor. Temperature measurement takes place via the resistance change in the heating wire without further sensors.

Rather than point measurement, the Integral Controller measures the average temperature over the entire length / surface of the heating system directly from the heating wire and registers a temperature change immediately without any delay. The measured value corresponds to the temperature profile of the entire heating system rather than the temperature at a single point.

A special nickel alloy is used as heating wire.

Specification HTI 16

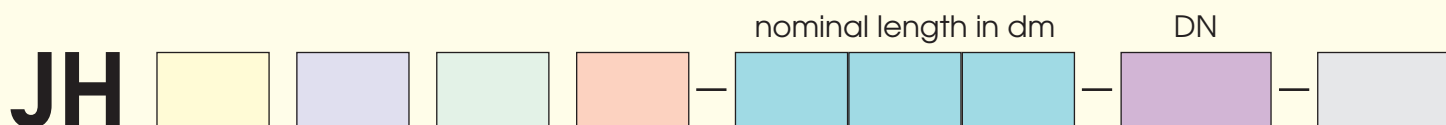
Nominal voltage:	230 V AC (optional 115 V / 400 V AC), 50 ... 60 Hz	Dimensions:	81 x 161 x 65 mm (W x L x H) ABS housing without screw fittings / base plate
Max. Load:	3600 W (max. 16 A resistive load, operating time 70 ... 80%)	Terminal clips:	2.5 mm ²
Min. output current:	1 A resistive load	Control:	Pulse package control with zero passage detection and defined heating pause
Temperature control range:	see type plate (-20 ... +250°C in 4 segments)	Version:	D – Ready to plug in with 3-pole socket K – Terminal clips
Temperature setting:	digital via buttons		
Power unit:	Triac		
Alarm relay:	Change-over relay 230 V AC, 6 A		
Protection class DIN 40 050:	IP 65 in plugged condition according		

The HTI controller is always calibrated on the corresponding heating circuit. On supply of a heating system with an assigned controller system, the device is factory-set. The heating system and the controller are then coded accordingly. Calibration is stored as a mode and can be performed without undue effort in the event of a device change.

The measured value corresponds to the temperature profile of the entire heating system rather than the temperature at a single point.

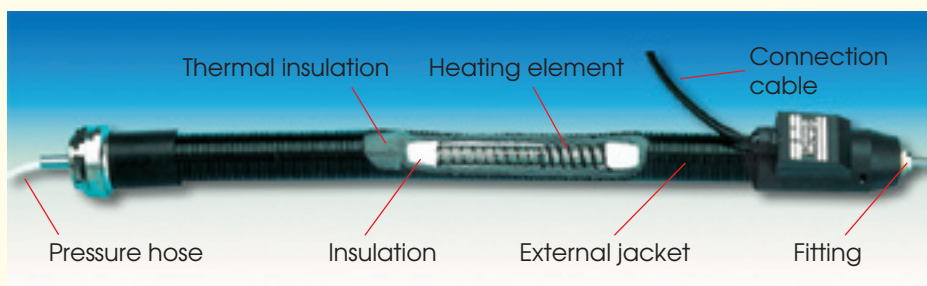
Order form

Heating hose	Sensor	External jacket	Fittings	Inner core
1 = H 100	0 = Fe-CuNi	0 = standard braid	0 = without	TA
2 = H 200	1 = Fe-CuNi + limiter	1 = V2 A braid	1 = DKR steel	VA
3 = H 300	2 = PT 100	2 = steel electrop. braid	2 = RSL/RSS steel	PF
4 = H 400	3 = PT 100 + limiter	3 = corrugated hose PA	3 = DKR-V2 A	PT
5 = H 500	4 = NiCr-Ni	4 = corr. hose steel	4 = RSL/RSS-V2 A	TF
6 = H 600	5 = NiCr-Ni + limiter	5 = glass braid black	5 = DKR-V4 A	
7 = H 700	6 = limiter	6 = PU-corrugated hose	6 = RSL/RSS-V4 A	
8 = H 800	7 = without sensor		7 = DKJ steel	
9 = H 900	8 = controller HTi		8 = DKL steel	
	9 = PT 100 + 2. PT 100		9 = BDN steel	
			A = H 300 A	
			B = H 300 B	
			C = H 300 C	
			F = H 300 F	
			FR = H 300 FR	



Please select product number in the respectively coloured area or manually fill in (nominal length + diameter DN)

Heating tapes for fitment in H 300 B:



Please fill in complete address:

Company:

Salutation:

Prenome:

Name:

Department:

Street:

ZIP-Code: City: Country:

E-mail:

Telephone: Fax:

Order-fax: +43 (0) 2622/872011

Other Products

- ◆ Sample Probe
- ◆ Portabel Gas Cooler / Dryer
- ◆ Gas Cooler / Dryer
- ◆ NO₂ / NO Converter
- ◆ Filter, Pumps
- ◆ Hydrogen Generator
- ◆ Nitrogen & Zero Air Generator
- ◆ CO₂ Purifier
- ◆ FT IR Analyser
- ◆ IR Gas Analyser
- ◆ Oxygen Analyser
- ◆ Total Hydrocarbon Analyser
- ◆ Process TOC Analyser



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