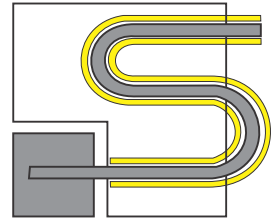


HORST Heating Hoses

Heating hoses are flexible, heated linking components. They are primarily designed to avoid a temperature loss of warm media during their transport. To certain extents they can also be applied to heat-up the medium flowing through the hose. Heating hoses are produced customer-specified using standardized components and are available from 0.3 to 50 m. All heating hoses will be individually adapted to the conditions at their operation environment.

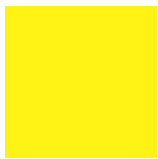


To select an appropriate model for your application, the following questions can be helpful:



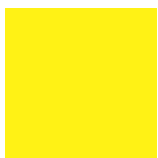
Which components should the heating hose include?

Basically, a heating hose consists of a pressure hose, connection armatures on both sides, a heating conductor and an outside mantle. To assemble the suitable components, the requested nominal width, the type of connection armatures and the expected operating pressure have to be determined. The installed heater power and the thickness of the integrated heat insulation will then be calculated by means of the desired operating temperature. The inner pressure hose will be selected in accordance with these criteria: for the temperature range up to 250 °C medium-leading pressure hoses made of PTFE, FEP or PFA will be used. For temperatures higher than 250 °C, corrugated stainless steel hose will be applied. The outside mantle will be designed considering criteria like flexibility, mechanical stability or watertightness.



Are there special requirements the heating hose has to meet?

For exhaust measurements, heating hoses with exchangeable medium-leading inner hoses will be produced. On demand, they can also be equipped with an integrated filter. Furthermore, some types of heating hoses are available that can be individually cut by the end user. These hoses have an integrated self-limiting heating element and are thus especially suitable for applications where the finishing has to be carried out on-site. However, heating hoses can also be adapted to other uses, such as in the food area or as antifreeze water pipes.



Which kind of temperature regulation will be requested?

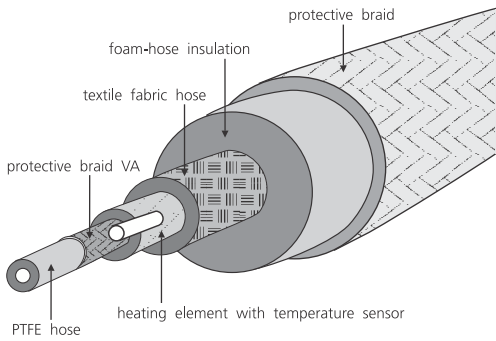
Heating hoses must be operated temperature-controlled. Therefore, all heating hoses can be equipped with one or several thermoelements or with a Pt 100 sensor. If an overheating of the heating hose could cause damage in case of a failing temperature regulator, an additional protection against overheat will be necessary.

Please note that design and installation have to be carried out by an electrically skilled person to guarantee a safe operation of the components.

We shall be glad to assist you in selecting appropriate components by phone or e-mail.

Heating Hoses

Construction of a Heating Hose - for Example Series H 13 / H 13 A



The medium-transporting PTFE core is coated with a protective braiding on which the heating conductor is mounted in narrow leads. According to the VDE Norms, the heating conductor also has its own protective braiding. Additionally, the whole construction is humidity-proof.

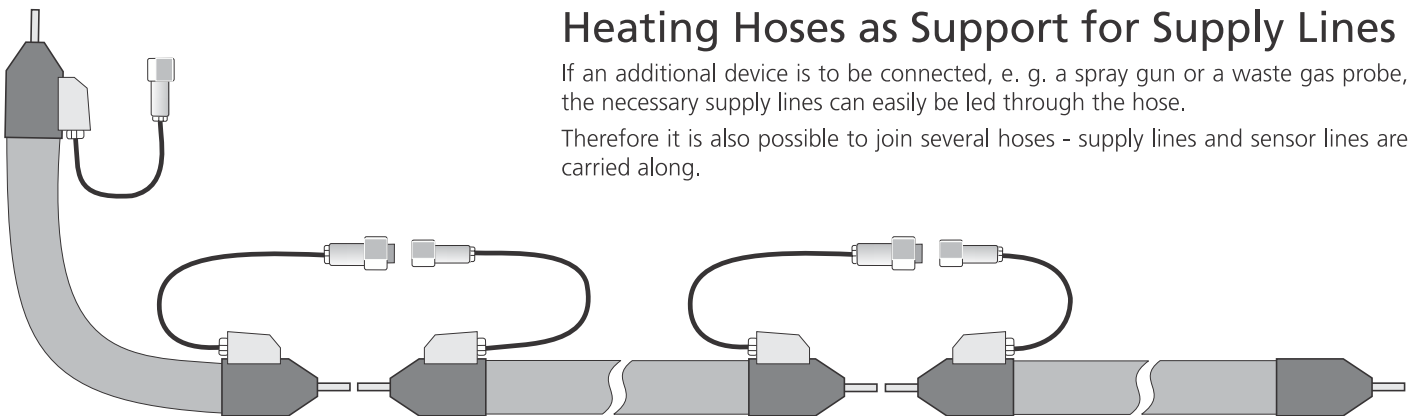
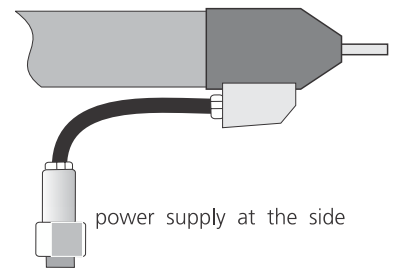
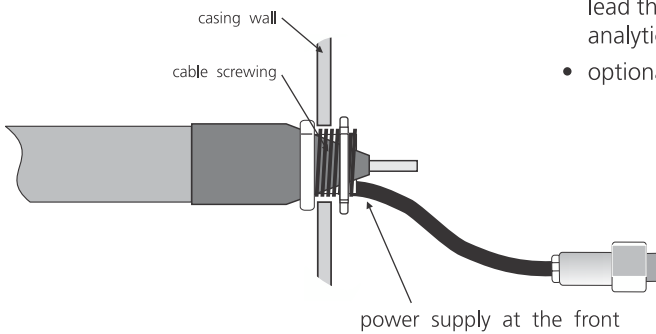
The heater capacity is adapted to the special heat requirements at the different parts of the heating hose.

The temperature sensor is positioned directly on the inner hose, 300 mm from the mains supply (hoses > 10.0 m: 3000 mm). The thermal insulation consists of a multi-layer glass yarn fabric and a 10 mm hose made of synthetics or silicone foam. The polyamide braiding protects the whole construction. In case of high mechanical stress, galvanised steel braidings or V2A can be used. On both ends, silicone caps or polyamide hard caps are mounted.

Power Supply

The power supply of the standard heating hose is situated at the end of the hose. Three different types are possible:

- power supply at the side
- power supply at the front, mostly combined with a cable screwing, which allows to lead the hose together with the power supply through the casing wall of e. g. an analytic instrument. This is the standard type of the H 13 A heating hose series.
- optional: set-back, according to customer's instructions.



Heating Hoses as Support for Supply Lines

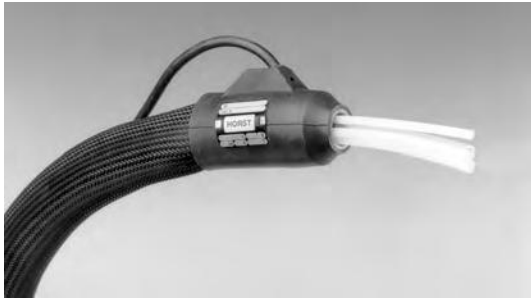
If an additional device is to be connected, e. g. a spray gun or a waste gas probe, the necessary supply lines can easily be led through the hose.

Therefore it is also possible to join several hoses - supply lines and sensor lines are carried along.

Temperature Regulation

Basically, no heating hose should be used without temperature control. Therefore, all heating hoses are equipped with a Fe-CuNi thermocouple sensor. However, other sensors are also possible on demand.

For the temperature regulation, we recommend our HT MC 1 regulating device (p. 48), especially in case of higher switching powers (up to 3450 W) as well as for continuous operation. An economically-priced alternative will be HT 20 (p. 51), which was also designed for an operation with heating hoses. This temperature regulator does not work wear-free, but with a rather robust two-pole switching mechanical relay.



Connections

Control Cables, Plug Connections

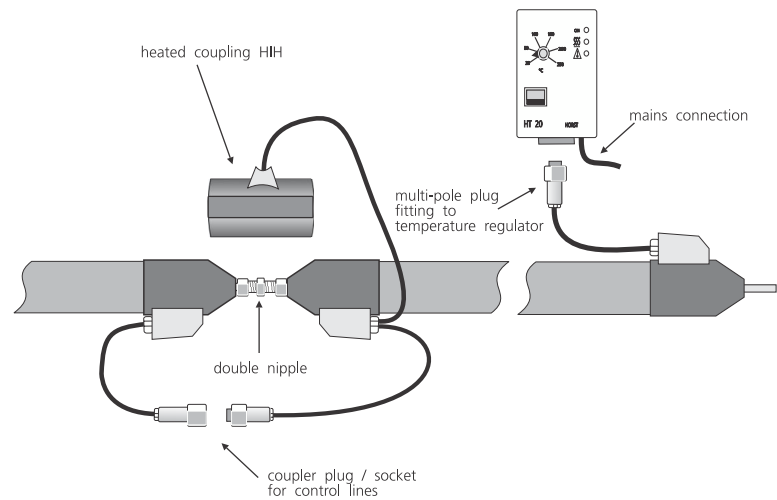
It is possible to incorporate control cables or single-wire conductors into the heating hose, which are led out at the end of the hose. These allow the operation of a current-consuming device with temperature sensor.

Usually, a 7-pole circular connector is mounted at the power supply of the heating hose, which fits the sockets of our temperature regulators. On request, we can also deliver other connector types.

Power Supply Line, Sensor Connecting Cable

The standard cable length is 1.5 m, except for the H 13 and H 13 A series, which have a mains supply line of 3 m. On request, other lengths are possible.

In addition, mains and sensor can be led out separately. In this case, each line needs its own plug.



End Caps Made of Polyamide 6

These end caps made of hard polyamide 6 can be placed either at the front sides of the hose or centric. All electrical connections are easily accessible, the connecting cable is strain-relieved, due to a cable screwing.

The hard cap is fixed at the base hose, thus, the cap cannot be torn out or twisted as a result of thermal expansion or strong motions of the heating hose. The bending point is set far behind the armature, which relieves the critical transition between hose and armature.

HIH

Heated Couplings

Heated couplings are required when heating hoses are connected to each other and the temperature in the connecting element must be kept constant. The inner part of the heated coupling consists of two aluminium shells, insulated with silicone foam, on which the heating is fixed. The outer casing is made of PA 6 formed parts. The couplings can be opened and are screwed together after the installation. Inside the terminal block is a clamped connection for the power supply and the cable lead-through.

The power is selected to make sure that the temperature in the coupling remains constant at 200 °C. Thus, in most cases, a regulator is not necessary but can be used on demand. The nominal voltage is 230 V~.

On request, heated couplings can also be produced with sparings, which allow the heating of special branchings.

order no.	type	power	inner diameter	heated length	total length
80 10 00	HIH 08	12 W	22 mm	70 mm	96 mm
80 10 01	HIH 16	24 W	40 mm	90 mm	120 mm

Heating Hoses

Pressure Hoses

When choosing a pressure hose, please observe the stated minimum bending radius. An overrun will lead to leakage.



T1

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

nominal diameter	4	6	8	10	12	16	20	25
* operating pressure [bar]	275	240	200	175	150	135	100	80
min. bending radius [mm]	50	75	100	120	135	160	200	250
* temperature correction value:	100 °C x 0.9	200 °C x 0.8	250 °C x 0.6					



T2

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

nominal diameter	6	8	10	12	16	20	25	32	40
* operating pressure [bar]	275	250	225	200	175	150	130	70	50
min. bending radius [mm]	75	100	120	135	160	200	250	500	850
* temperature correction value:	100 °C x 0.9	200 °C x 0.8	250 °C x 0.6						



T3

Smooth PTFE- or FEP-hose (from NW 8) with two winded and one braided layer of steel wire (1.4301), max. operating temperature: FEP 200 °C, PTFE: 250 °C.

nominal diameter	6	8	10	12	16	20	25
* operating pressure [bar]	500	475	475	450	360	275	225
min. bending radius [mm]	85	110	140	175	205	240	
* temperature correction value:	100 °C x 0.9	200 °C x 0.8	250 °C x 0.6				



T5

Corrugated stainless steel hose (1.4541 or 1.4571) with one braided layer of stainless steel wire (1.4301), max. operating temperature 600 °C

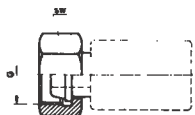
nominal diameter	4	6	8	10	12	16	20	25	32	40	50
* operating pressure [bar]	100	150	100	80	64	64	50	40	30	25	20
min. bending radius [mm]	80	80	100	150	170	190	220	250	290	480	550
* temperature correction value:	100 °C x 0.8	200 °C x 0.7	250 °C x 0.6	350 °C x 0.55	500 °C x 0.52						

nominal diameter DN	inner diameter armature
4	3.0 mm
6	4.5 mm
8	6.0 mm
10	7.5 mm
12	10.0 mm
16	12.5 mm
20	16.0 mm
25	20.1 mm
32	27.5 mm
40	31.5 mm

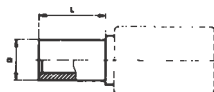
Armatures

Our standard heating hoses have armatures made of bichromate machining steel. As an alternative, we also offer armatures made of stainless steel (1.4301 / 1.4571) or brass. The durability of the heating hose and armature should, however, correspond. On request, the heating hoses can be equipped with loose flanges or integral flanges, corresponding DIN and AS.

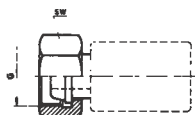
Please consider that armatures narrow the passage of the hose! see table left side



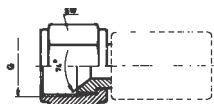
DKR DIN 3863
Universal conical nipple,
union nut inch (BSP)



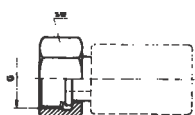
RSL/RSS
pipe connection,
light/heavy duty series
for clamp ring



DKL/DKM/DKS
DIN 3863
Universal conical nipple,
union nut metric thread,
light/heavy duty series



DKJ
Nipple with 74° conus JIC,
union nut UNF thread



BDN
Flanged nut, flat packing,
union nut metric/inch

nominal diameter DN	inch thread	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

nominal diameter DN	inch thread	inch thread
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	

nominal diam. DN	outside diameter of tube light	outside diameter of tube heavy
4	6	8
6	8	10
8	10	12
10	12	14
12	15	16

nominal diam. DN	outside diameter of tube light	outside diameter of tube heavy
16	18	20
20	22	25
25	28	30
32	35	38
40	42	

nominal diameter DN	DKL	DKM	DKS
4	12 x 1.5		
6	14 x 1.5		
8	16 x 1.5		18 x 1.5
10	18 x 1.5		22 x 1.5
12	22 x 1.5		24 x 1.5

nominal diameter DN	DKL	DKM	DKS
16	26 x 1.5		30 x 2
20	30 x 2		36 x 2
25	36 x 2		38 x 1.5
32	45 x 2		45 x 1.5
40	52 x 2		52 x 1.5

nominal diameter DN	inch thread	metric 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	

nominal diameter DN	inch thread	metric thread
12	3/4" 16 UNF	
16	7/8" 14 UNF	
20	1 1/16" 12 UNF	
25	1 3/16" 12 UNF	
32	1 5/8" 12 UNF	
40	1 7/8" 12 UNF	

nominal diam. DN	inch thread	metric thread
4	R 1/4" 14 x 1.5	
8	R 3/8" 16 x 1.5	
10	R 3/8" 18 x 1.5	
10	R 1/2" 22 x 1.5	
12	R 1/2" 22 x 1.5	

nominal diam. DN	inch thread	metric thread
16	R 3/4" 26 x 1.5	
20	R 1" 30 x 2	
25	R 1 1/4" 36 x 2	
32	R 1 3/4" 52 x 2	
40	R 1 1/2" 52 x 2	

order no.	option: armatures V2A on both sides
89 20 25	nominal diameter NW 04 - 10
89 20 26	nominal diameter NW 12 - 16
89 20 27	nominal diameter NW 20

order no.	option: armatures V4A on both sides
89 20 28	nominal diameter NW 04 - 10
89 20 29	nominal diameter NW 12 - 16
89 20 30	nominal diameter NW 20

Outside Protective Braids

Approximate values of standard outside protective braids, for example series H12:

nominal diameter DN	04	06	08	10	12	16	20	25	32	40	50
outer Ø mm ± 10 %:	40	40	40	45	45	50	50	55	60	70	85

If other outside protective braids or a different heating hose series is used, the outside diameter might increase by up to 10 mm.

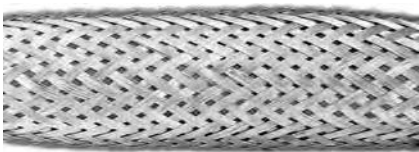
Standard Protective Braid

Material: PA 6, polyamide. Heat-resistant up to 150 °C, very flexible and light, usually black - but also deliverable in other colors.



Metal Protective Braid

Material: steel, galvanized or V2A. Heat-resistant from 300 °C to 500 °C, very flexible and light, very good protection against abrasion.



order no.	option: metal protective braid, V2A	order no.	option: metal protective braid, steel, galvanized
89 20 10	nominal diameter NW 04 - 10	89 20 13	nominal diameter NW 04 - 10
89 20 11	nominal diameter NW 12 - 16	89 20 14	nominal diameter NW 12 - 16
89 20 12	nominal diameter NW 20 - 25	89 20 15	nominal diameter NW 20 - 25

Plastic Corrugated Hose

Material: PA 6, polyamide. Heat-resistant up to 120 °C, very flexible, hard-wearing, flame retardant, halogen-free.



order no.	option: plastic corrugated hose, PA 6
89 20 16	nominal diameter NW 04 - 10
89 20 17	nominal diameter NW 12 - 16
89 20 18	nominal diameter NW 20 - 25

PU Corrugated Hose

Material: PU, polyurethane. Heat-resistant up to 90 °C, very flexible, very suitable for applications on robots, hard-wearing, flame retardant, halogen-free.



order no.	option: PU corrugated hose
89 20 60	nominal diameter NW 04 - 10
89 20 64	nominal diameter NW 12 - 16
89 20 68	nominal diameter NW 20 - 25

Metal Corrugated Hose

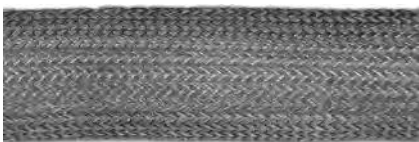
Material: galvanized steel. Heat-resistant up to 300 °C, very flexible, hard-wearing, very resistant against sharp objects and chips.



order no.	option: metal corrugated hose
89 20 19	nominal diameter NW 04 - 10
89 20 20	nominal diameter NW 12 - 16
89 20 21	nominal diameter NW 20 - 25

Glass Fabric Protective Hose

Material: glass fiber, black. Temperature stability up to 400 °C, very flexible with very good protection against abrasion. Protection against down-falling glowing chips.



order no.	option: glass fabric protective hose
89 20 22	nominal diameter NW 04 - 10
89 20 23	nominal diameter NW 12 - 16
89 20 24	nominal diameter NW 20 - 25

Optional Equipment

order no.	
89 20 01	Pt 100 sensor instead of Fe-CuNi
89 20 02	thermal switch (opener), limit values: 80 °C, 100 °C, 180 °C, 200 °C
89 20 03	control cable per conductor and meter heating hose 0.75 Ø
89 20 00	control cable per conductor and meter heating hose 1.5 Ø
89 20 04	control cable from the outlet per meter 3-conductor
89 20 05	control cable from the outlet per meter 5-conductor
89 20 06	control cable from the outlet per meter 7-conductor
89 20 07	7-pole coupling "Binder S693", mounting for control cable included
89 20 08	power supply extension over standard per meter
89 20 09	mains / sensor separated with 7-pole diode plug

Heating Hoses



H 12 Heating Hose Series

Universal Heating Hose

This series comprises different heating hoses for temperature ranges up to 350 °C. They are commonly used in research and industry and are particularly suitable not only for viscous media like oils, greases, waxes, resins, but also for plastics, water and other liquids.

The standard type has a T1 pressure hose and a pipe socket (RSL) made of bichromate machining steel. On page 36 you will find a list of the different pressure hoses and further armatures.

Technical Data

nominal diameter (DN): 4 ... 50 (larger ones on request)

temperature sensor: Fe-CuNi (J)

armatures: see list on page 36

connection: 1.5 m, 5-conductor silicone-foam cable with sensor line and multi-pole plug (suitable for HT 20 regulators on page 51 and HT MC1 on page 48)

outside protective hose: polyamide, black (others for an extra charge) see p. 37

Ordering instructions:

The price for a heating hose is calculated by the basic price plus the product of length x price per meter. You can find the order numbers in the list beside.

The pressure hoses T1, T2, T3 and T5 stand for different inner hoses (also see page 36).

Heating hoses with T5 pressure hose need armatures made of stainless steel. The order number for this armature (for an extra charge) is listed on page 36.

For a surcharge, it is also possible to equip the heating hose with non-standard outside protective hoses. The respective order numbers are listed on page 37.

Further optional equipment is shown on page 37.

Sample Configuration 1:

6 m H12 heating hose, max. temp. 200 °C, T2 pressure hose, nominal diameter: 16 mm, outside protective hose: metal corrugated hose

order no..	quantity	
89 15 86	1	basic price H12 - 200 °C, DN 16, T2
89 16 06	6	price per meter H12 - 200 °C, DN 16, T2
89 20 20	6	surcharge: metal corrugated hose DN 12-16

Sample Configuration 2:

5 m H12 heating hose, max. temp. 250 °C, T5 pressure hose, nominal diameter: 10 mm, outside protective hose: metal protective braid

order no..	quantity	
89 17 44	1	basic price H12 - 250 °C, DN 10, T5
89 17 64	5	price per meter H12 - 250 °C, DN 10, T5
89 20 25	1	surcharge for pressure hose T5: armatures V2A, DN 04-10
89 20 10	5	surcharge: metal protective braid DN 04-10

H 12 - max. 100 °C

DN	W/m	pressure hose T1 order numbers		pressure hose T2 order numbers		pressure hose T3 order numbers		pressure hose T5 order numbers	
		basic price	price per m	basic price	price per m	basic price	price per m	basic price	price per m
4	80	89 13 81	89 14 01						
6	100	89 13 82	89 14 02	89 14 22	89 14 42			89 15 02	89 15 22
8	120	89 13 83	89 14 03	89 14 23	89 14 43	89 14 63	89 14 83	89 15 03	89 15 23
10	140	89 13 84	89 14 04	89 14 24	89 14 44	89 14 64	89 14 84	89 15 04	89 15 24
12	160	89 13 85	89 14 05	89 14 25	89 14 45	89 14 65	89 14 85	89 15 05	89 15 25
16	200	89 13 86	89 14 06	89 14 26	89 14 46	89 14 66	89 14 86	89 15 06	89 15 26
20	260	89 13 87	89 14 07	89 14 27	89 14 47	89 14 67	89 14 87	89 15 07	89 15 27
25	330	89 13 88	89 14 08	89 14 28	89 14 48	89 14 68	89 14 88	89 15 08	89 15 28
32	380			89 14 29	89 14 49			89 15 09	89 15 29
40	440			89 14 30	89 14 50			89 15 10	89 15 30
50	550			89 14 31	89 14 51			89 15 11	89 15 31

H 12 - max. 200 °C

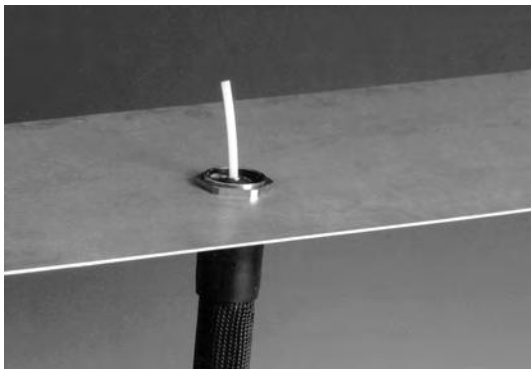
DN	W/m	pressure hose T1 order numbers		pressure hose T2 order numbers		pressure hose T3 order numbers		pressure hose T5 order numbers	
		basic price	price per m	basic price	price per m	basic price	price per m	basic price	price per m
4	100	89 15 41	89 15 61						
6	120	89 15 42	89 15 62	89 15 82	89 16 02		89 16 62	89 16 82	
8	140	89 15 43	89 15 63	89 15 83	89 16 03	89 16 23	89 16 43	89 16 63	89 16 83
10	160	89 15 44	89 15 64	89 15 84	89 16 04	89 16 24	89 16 44	89 16 64	89 16 84
12	200	89 15 45	89 15 65	89 15 85	89 16 05	89 16 25	89 16 45	89 16 65	89 16 85
16	260	89 15 46	89 15 66	89 15 86	89 16 06	89 16 26	89 16 46	89 16 66	89 16 86
20	330	89 15 47	89 15 67	89 15 87	89 16 07	89 16 27	89 16 47	89 16 67	89 16 87
25	370	89 15 48	89 15 68	89 15 88	89 16 08	89 16 28	89 16 48	89 16 68	89 16 88
32	440			89 15 89	89 16 09			89 16 69	89 16 89
40	550			89 15 90	89 16 10			89 16 70	89 16 90
50	660							89 16 71	89 16 91

H 12 - max. 250 °C

DN	W/m	pressure hose T1 order numbers		pressure hose T2 order numbers		pressure hose T3 order numbers		pressure hose T5 order numbers	
		basic price	price per m	basic price	price per m	basic price	price per m	basic price	price per m
4									
6	120			89 17 02	89 17 22			89 17 42	89 17 62
8	140			89 17 03	89 17 23	89 18 21	89 18 31	89 17 43	89 17 63
10	160			89 17 04	89 17 24	89 18 22	89 18 32	89 17 44	89 17 64
12	200			89 17 05	89 17 25	89 18 23	89 18 33	89 17 45	89 17 65
16	260			89 17 06	89 17 26	89 18 24	89 18 34	89 17 46	89 17 66
20	330			89 17 07	89 17 27	89 18 25	89 18 35	89 17 47	89 17 67
25	370			89 17 08	89 17 28	89 18 26	89 18 36	89 17 48	89 17 68
32	440			89 17 09	89 17 29			89 17 49	89 17 69
40	550			89 17 10	89 17 30			89 17 50	89 17 70
50	660			89 17 11	89 17 31			89 17 51	89 17 71

H 12 - max. 350 °C

DN	W/m	pressure hose T1 order numbers		pressure hose T2 order numbers		pressure hose T3 order numbers		pressure hose T5 order numbers	
		basic price	price per m	basic price	price per m	basic price	price per m	basic price	price per m
4									
6	190							89 17 82	89 18 02
8	220							89 17 83	89 18 03
10	250							89 17 84	89 18 04
12	280							89 17 85	89 18 05
16	310							89 17 86	89 18 06
20	400							89 17 87	89 18 07
25	460							89 17 88	89 18 08
32	610							89 17 89	89 18 09
40	660							89 17 90	89 18 10
50	880							89 17 91	89 18 11



H 13 A Series

Heated Sampling Hose with Exchangeable PTFE Core

The PTFE core of this heated sampling hose runs without being interrupted by metal screwings from the gas take-off point to the analyzer. In case of a choking, it can easily be exchanged.

The inner side of the heated carrier hose, through which the core is led, consists of a continuous metal corrugated hose. This metal hose offers a very good heat conduction, a homogenous heat distribution to the entire length, a light weight and an enormous flexibility.

Cable screwings on both sides allow an easy mounting. In addition, the heating hose can be vertically fixed on a chimney with these cable screwings (please mind the strain-relief). In the same way, the heating hose can be fixed at the side wall of an analytic instrument.

The maximum operating temperature of PTFE is 250 °C. For higher temperatures, tubes made of VA, titanium or similar materials should be used.

Technical Data

max. length:	50 m	fixing:	screwings
nominal diameter (DN):	4 ... 20	borehole:	Ø 47 mm
nominal voltage:	230 V~		
temperature sensor:	Fe-CuNi (J)		
connection:	silicone hose line (3 m) with integrated sensor line and multi-pole plug (e. g. for HT20 temperature regulator (p. 51) and MC1 (p. 48))		
outside protective hose:	polyamide, black		
optional equipment:	see page 37		

Ordering Instructions:

The price for a heating hose is calculated by the basic price plus the product of length x price per meter. You can find the order numbers in the list beside.

For a surcharge, it is also possible to equip the heating hose with non-standard outside protective hoses. The respective order numbers are listed on page 37. Further equipment is also stated on page 37.

Sample Configuration:

6 m H13 A heating hose, max. temp. 200 °C, nominal diameter: 16 mm, outside protective hose: metal corrugated hose.

order no..	quantity	
89 11 46	1	basic price H13 A - 200 °C, DN 16
89 11 66	6	price per meter H13 A - 200 °C, DN 16
89 20 20	6	surcharge: metal corrugated hose DN 12-16

H 13 A - max. 100 °C

with PTFE core		order numbers	
DN	W/m	basic price	price per m
4	100	89 11 01	89 11 21
6	120	89 11 02	89 11 22
8	140	89 11 03	89 11 23
10	160	89 11 04	89 11 24
12	200	89 11 05	89 11 25
16	260	89 11 06	89 11 26
20	330	89 11 07	89 11 27

H 13 A - max. 200 °C

with PTFE core		order numbers	
DN	W/m	basic price	price per m
4	120	89 11 41	89 11 61
6	140	89 11 42	89 11 62
8	160	89 11 43	89 11 63
10	200	89 11 44	89 11 64
12	260	89 11 45	89 11 65
16	330	89 11 46	89 11 66
20	380	89 11 47	89 11 67

H 13 A - max. 250 °C

with PTFE core		order numbers	
DN	W/m	basic price	price per m
4	120	89 11 81	89 12 01
6	140	89 11 82	89 12 02
8	160	89 11 83	89 12 03
10	200	89 11 84	89 12 04
12	260	89 11 85	89 12 05
16	330	89 11 86	89 12 06
20	380	89 11 87	89 12 07

H 13 A - max. 350 °C

with VA core		order numbers	
DN	W/m	basic price	price per m
4	170	89 12 21	89 12 41
6	200	89 12 22	89 12 42
8	220	89 12 23	89 12 43

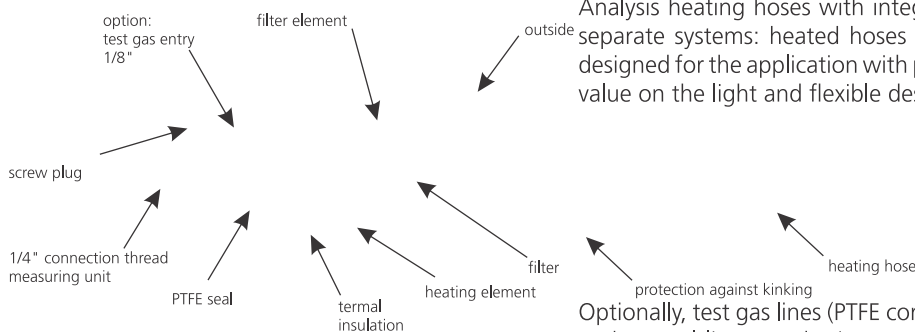
pressure load / bar			min. bending radius / mm		
inner hose			inner hose		
DN	PTFE	VA	DN	PTFE	VA
4	18	60	4	200	300
6	13	60	6	250	350
8	10	50	8	300	400
10	8	50	10	350	500
12	6	40	12	400	600

Replacement Cores

NW	order no. (running meter)	
	PTFE	VA
4	80 00 10	80 00 20
6	80 00 11	80 00 21
8	80 00 12	
10	80 00 13	
12	80 00 14	
16	80 00 15	

Analysis Heating Hose with Integrated Filter

Analysis heating hoses with integrated filters are a combination of two previously separate systems: heated hoses and heated filter elements. Above all, they were designed for the application with portable measuring instruments. Thus, we set great value on the light and flexible design.



Optionally, test gas lines (PTFE core with 2/3 mm or 4/6 mm inner or outer diameter) and control lines can be incorporated into this system. The filter housing is made of V4A (1.4571) steel but it is also possible to produce them out of Hasteloy or with PTFE coating. The heating hoses can be easily connected to several HORST temperature regulators.

Naturally, the filter housing can be adapted to different filter dimensions, hose diameters and hose lengths. This series is adaptable to our complete range of analysis hoses and is therefore suitable for various analysis applications.

Heating Hoses



H 13 Series

Heated Sampling Hose

These flexible sampling hoses have an irremovable PTFE core and a pipe socket made of V4A stainless steel (1.4571) for the fixing of cutting-ring screwings.

Technical Data

nominal diameter: 4 ... 12, larger ones on request
 nominal voltage: 230 V~
 temperature sensor: Fe-CuNi (J)
 armatures: RSL V4A pipe connection
 connection: silicone hose line (3 m) with integrated sensor line and multi-pole plug (e. g. for HT20 temperature regulator (p. 51) and MC1 (p. 48))
 outside braiding: polyamide, black

	DN 4	DN 6	DN 8	DN 10	DN 12
pressure load:	20 bar	20 bar	20 bar	15 bar	15 bar
min. bending radius:	50 mm	75 mm	100 mm	120 mm	130 mm

H 13 - max. 100 °C

DN	W/m	order numbers	
		basic price	price per m
4	80	89 12 61	89 12 81
6	100	89 12 62	89 12 82
8	120	89 12 63	89 12 83
10	140	89 12 64	89 12 84
12	160	89 12 65	89 12 85

H 13 - max. 200 °C

DN	W/m	order numbers	
		basic price	price per m
4	100	89 13 01	89 13 21
6	120	89 13 02	89 13 22
8	140	89 13 03	89 13 23
10	160	89 13 04	89 13 24
12	200	89 13 05	89 13 25

Ordering Instructions:

The price for a heating hose is calculated by the basic price plus the product of length x price per meter. You can find the order numbers in the list beside.

For a surcharge, it is also possible to equip the heating hose with non-standard outside protective hoses. The respective order numbers are listed on page 37. Further optional equipment is also stated on page 37.

Sample Configuration:

6 m H13 heating hose, max. temp. 200 °C, nominal diameter: 12 mm, outside protective hose: metal corrugated hose

order no..	quantity	
89 13 05	1	basic price H13 - 200 °C, DN 12
89 13 25	6	price per meter H13 - 200 °C, DN 12
89 20 20	6	surcharge: metal corrugated hose DN 12-16

H 13 - max. 250 °C

DN	W/m	order numbers	
		basic price	price per m
4	100	89 13 41	89 13 61
6	120	89 13 42	89 13 62
8	140	89 13 43	89 13 63
10	160	89 13 44	89 13 64
12	200	89 13 45	89 13 65



H 13 C Series

Exchangeable PTFE core and V4A RSL Special Armature

The pipe ends of this heating hose are equipped with a special armature made of V4A steel, on which a cutting-ring screwing can be fixed. By this, a breaking or movement of the PTFE core at the ends of the heating hose can be avoided. H 13 C heating hoses are also deliverable with cable screwings on one or on both sides.

Technical Data

max. length: 50 m
 nominal diameter: 4 ... 8
 nominal voltage: 230 V~
 connection: silicone hose line (3 m) with integrated sensor line and multi-pole plug (e. g. for HT20 temperature regulator (p. 51) and MC1 (p. 48))
 outside braiding: polyamide, black, further optional equipment on page 37

	DN 4	DN 6	DN 8	DN 10	DN 12
pressure load:	18 bar	13 bar	10 bar	8 bar	6 bar
min. bending radius:	200 mm	250 mm	300 mm	350 mm	400 mm

H 13 C - max. 100 °C

DN	W/m	order numbers	
		basic price	price per m
4	100	89 18 71	89 18 81
6	120	89 18 72	89 18 82
8	140	89 18 73	89 18 83

H 13 C - max. 200 °C

DN	W/m	order numbers	
		basic price	price per m
4	120	89 18 91	89 19 01
6	140	89 18 92	89 19 02
8	160	89 18 93	89 19 03

Ordering Instructions:

The price for a heating hose is calculated by the basic price plus the product of length x price per meter. You can find the order numbers in the list beside.

For a surcharge, it is also possible to equip the heating hose with non-standard outside protective hoses. The respective order numbers are listed on page 37. Further optional equipment is also stated on page 37.

Sample Configuration:

6 m H13 C heating hose, max. temp. 200 °C, nominal diameter: 6 mm, outside protective hose: metal corrugated hose

order no..	quantity	
89 18 92	1	basic price H13 C - 200 °C, DN 6
89 19 02	6	price per meter H13 C - 200 °C, DN 6
89 20 19	6	surcharge: metal corrugated hose DN 04-10

H 13 C - max. 250 °C

DN	W/m	order numbers	
		basic price	price per m
4	120	89 19 11	89 19 21
6	140	89 19 12	89 19 22
8	160	89 19 13	89 19 23



H 13 B Series

Self-Limiting Heating Hose with Irremovable PTFE Core

Self-limiting heating hoses regulate their heater power in accordance to the respective temperature levels. Thus, as soon as the desired temperature is reached, there will be no further heating-up and the value will be held persistently. In case that temperature differences occur in some sections of the mounted heating hose, the heater power will be adapted section by section to the ambient temperature. The result is a homogenous heating-up.

Up to a length of 100 m, H 13 B heating hoses are also deliverable as yard ware for the self-finishing. Thus, the length of the heating hose can be determined on the spot and it can be finished with an optionally deliverable finishing set.

Technical Data

max. length:	100 m					
operating temperature:	max. 65 °C, 120 °C					
nominal diameter:	4 ... 8					
nominal voltage:	230 V~					
outside diameter:	42 mm					
end caps:	with strain-relief and bend protection in PA 6 or silicone					
outside protection:	polyamide 6 corrugated hose, flame-retardant, halogen-free					
	temp.: -40 °C to +120 °C, temporary +150 °C					
		DN 4	DN 6	DN 8	DN 10	DN 12
pressure load:		18 bar	13 bar	10 bar	8 bar	6 bar
min. bending radius:		200 mm	250 mm	300 mm	350 mm	400 mm



option: finishing set series H 13 B

Ordering Instructions:

The price for an H 13 B heating hose is calculated by the product of length x price per meter plus the price for the ready-made finishing or the finishing set for the self-mounting. You can find the order numbers in the list beside.

For a surcharge, it is also possible to equip the heating hose with non-standard outside protective hoses. The respective order numbers are listed on page 37.

Further optional equipment is also stated on page 37.

Sample Configuration:

6 m H13 B heating hose, temp. 120 °C, nominal diameter: 12 mm, with ready-made finishing, outside protective hose: metal corrugated hose

order no..	quantity	
89 18 55	6	price per meter H13 B - 120 °C, DN 12
89 18 63	1	ready-made finishing DN 12 - 16
89 20 20	6	surcharge: metal corrugated hose DN 12-16

H 13 B - 65 °C

DN	order no..	price per m
4	89 18 41	
6	89 18 42	
8	89 18 43	
10	89 18 44	
12	89 18 45	
16	89 18 46	

H 13 B - 120 °C

DN	order no..	price per m
4	89 18 51	
6	89 18 52	
8	89 18 53	
10	89 18 54	
12	89 18 55	
16	89 18 56	

H 13 B - Finishing

order no.	
89 18 61	ready-made finishing nominal diameter DN 4 - 6
89 18 62	ready-made finishing nominal diameter DN 8 - 10
89 18 63	ready-made finishing nominal diameter DN 12 - 16
89 18 65	finishing set for self-mounting

Heating Hoses



H 14

High-Quality Industrial Hoses, Vulcanized and Heated

This heating hose series differs completely from other **HORST** heating hoses.

Design

These heating hoses are manufactured on a thorn and wound. After the production procedure, the single layers are vulcanized and are then inseparable. The result is a very homogenous, flexible hose with great mechanical stability.

Materials

Materials that come into contact with the medium are chosen with reference to their stability against greases, chemicals and food. The outside layer fulfils the following requirements: ozone-resistant, abrasion-proof and conductive.

A selection of the used materials: NR (natural rubber), SBR (styrol- butadiene rubber), NBR (butadiene-acrylnitril-rubber), EPDM (ethylene-propylene-diene-rubber).

Armatures

All common armatures and customized armatures can be fitted, e. g. couplings from Storz or Kamlock, tanker couplings, loose and fixed flanges.

Heating

The special feature of this heating hose is that the PTFE insulated heating conductor is a fixed component of the vulcanized hose construction.

As a result of the proximity to the medium, a good heat transfer is guaranteed. On the outside, heat-insulating materials are used, which limit the handiness only insignificantly. In this series, the armatures are included in the heating.

The heating hoses must operate temperature-controlled. In our range of products, we also have devices that are suitable for many different applications.

Application

As simple, antifreeze-heated water hose, as certified fresh water or food hose, as heated hose for waste water and chemicals.

Availability

Even individual items can be produced for a reasonable price and within a short period of time.

If you wish to receive an offer, please let us have the following information:

- supply voltage
- medium
- nominal diameter
- length
- armatures
- pressure
- temperature
- application