



winkler



**HEATED HOSES FOR GLUEING TECHNOLOGY
AND FOR FILLING AND DOSING SYSTEMS**



2011-06

CODES FOR HEATED HOSES

Codes for the outer cover

Protective braidings ▶ [Pages 6, 8, 11](#)

G 0	polyamide (PA) braiding - black
G 1	polyamide (PA) braiding - red
G 2	polyamide (PA) braiding - orange
G 3	polyamide (PA) braiding - blue
G 4	polyamide (PA) braiding - grey
G 8	Galvanised steel braiding
G 9	Stainless steel braiding

Silicone covers ▶ [Pages 6, 8](#)

S 1	Black silicone skin (DM 33 mm)
S 2	Black silicone skin (DM 42 mm)
S 6	White silicone skin (DM 33 mm)
S 7	White silicone skin (DM 42 mm)
S 7	White silicone skin (DM 50 mm)
I 0	Industrial hose, white
I 1	Industrial hose, red

Corrugated hoses ▶ [Pages 4, 11](#)

W 2	Black PA corrugated hose
W 7	Black PUR spiral hose
W 8	Galvanised steel spiral hose
W 9	Stainless steel spiral hose

Codes for the maximum operating temperature T_{max} in °C

10 = 100°C
20 = 200°C
25 = 250°C

Codes for the inner hose and fittings ▶ [Pages 14-17](#)

0		5
1	PTFE-Inner hose/medium pressure and DKR fittings	6
2	PTFE-Inner hose/high pressure and DKR fittings	7 Type 7 ▶ Page 17
3	PTFE-Inner hose/maximum pressure and DKR fittings	8
4		9

W	S	K	G	0	2	0	1	-	2	3	0	X	P	0	1	6	-	1	5	0	0	S	T	N	D	
Typ			Serial code													The length of the heated hose refers to the total length – including fittings					Configuration STDN = Standard product					
			Special number													Length L (cm) ▶ Page 17										
WSKW			▶ Page 4										Nominal diameter DN ▶ Page 19					Sensor type ▶ Page 20					<div><div>..B = Bimetal limiter</div><div>..S = Thermal fuse</div><div>..C = Capillary sensor</div><div>..V = multiple sensors</div><div>..W = Selectable</div><div>PK = Pt 100+Thermocouple type K</div></div>			
WSKG			▶ Page 7																							
WSKS			▶ Pages 6-7																							
WSGG			▶ Pages 8-9																							
WSGS			▶ Pages 8-9																							
WSR			▶ Page 10																							
WSA			▶ Page 11																							
WEX			▶ Pages 12-13																							

Note:

All the descriptions and illustrations of the products in this catalogue are non-binding and correspond to our current state of knowledge.
Winkler reserves the right to modify the products described here at any time and without prior notice if considered necessary for the purpose of further development or constructional reasons.



only for inside use



Attention!

Nominal diameter DN ▶ [Page 19](#)

Sensor type ▶ [Page 20](#)

..P = Pt 100 (2 wire)	..B = Bimetal limiter
..T = Pt 100 (3 wire)	..S = Thermal fuse
..Q = Pt 100 (4 wire)	..C = Capillary sensor
..M = Pt 1000	..V = multiple sensors
..E = EX-Pt 100	..W = Selectable
..K = Thermocouple type K (NiCr-Ni)	PK = Pt 100+Thermocouple type K
..J = Thermocouple type J (Fe-CuNi)	

Sensor quantity ▶ [Page 20](#)

XX = No sensor	Z.. = Double sensor
YY = Without sensor (is an option)	D.. = Triple sensor
X.. = Single sensor	V.. = Quadruple sensor
	F.. = Quintuple sensor

Operating voltage (V) ▶ [Page 20](#)

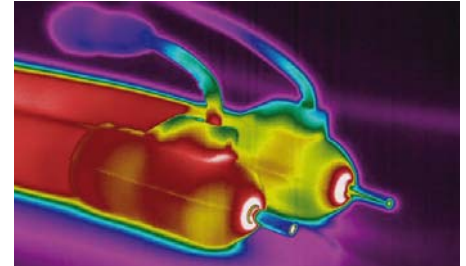
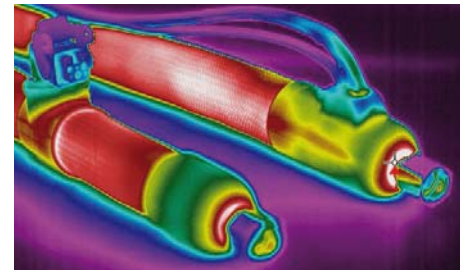
012 = 12 V	115 = 115 V
024 = 24 V	230 = 230 V
048 = 48 V	400 = 400 V
	1W2 = selectable 115V/230 V

WINKLER TECHNOLOGY

Based on more than 30 years of experience, Winkler stands for reliable products and intelligent innovations in industrial heat engineering. We believe that we offer the most comprehensive range of products in the field of flexible heating systems, including control & monitoring equipment and accessories.

Heated hoses from Winkler are employed, e.g., in bonding engineering, filling and dosing technology, in the chemical, pharmaceutical and food industry, in machine construction, medical technology, as well as in research and development. They are used wherever liquid, viscous or melted media have to be transported from one point to another without loss of temperature. In most applications it will be necessary to keep the temperature of the medium at a constant level - regardless of variations in ambient temperature.

Rely on our experience and benefit from the high efficiency of our products!



WINKLER SERVICE

Service is an important part of our cooperation with our customers. Winkler not only supplies reliably functioning products, but also complete solutions from one single source. We see ourselves as service providers to and development partners of our customers. Together with you – and with flexibility and creativity – we will find a solution, even for very complex applications.

As a system supplier to manufacturers of high-standard analytical devices and systems we are familiar with the requirements in practice and the application conditions. Often it is certain details that will make the product ideally suited to a particular task.

Make use of our know-how to stay ahead!

In addition to the options already listed, all the products in this catalogue can be individually adapted to your specific projects. In other words, we can offer you a solution that is exactly tailored to the requirements of your application. This approach is technically more elegant, and in the long run it will normally also prove to be more economic.

Don't hesitate and get in touch with our specialists – they'll be happy to advise you!

Your direct contact to Winkler:

Tel. +49-6221-3646-0

Fax +49-6221-3646-40

E-Mail : sales@winkler.eu

WINKLER QUALITY

The technical experience and high level of quality assurance are reflected in all Winkler products so that our customers can rely on tested and proven products for their applications.

Our heating systems are characterized by an even distribution of heating power and a generously dimensioned heating conductor arrangement. This enables relatively direct and careful heat transfer to the fluid or object to be heated.

We only use high-quality, tried and tested materials and components, and there is no compromise in this respect when it comes to the selection of and cooperation with our suppliers. Our customers are therefore offered excellent and trustworthy products with a long service life, even under heavy load conditions.

Winkler products are 100% routine tested. There are two documented tests already during production, and during the third and final test the heated hoses are again subjected to strict quality inspection. This triple testing procedure ensures a high degree of safety and reliability. And in the long run, these high quality and safety standards are beneficial.

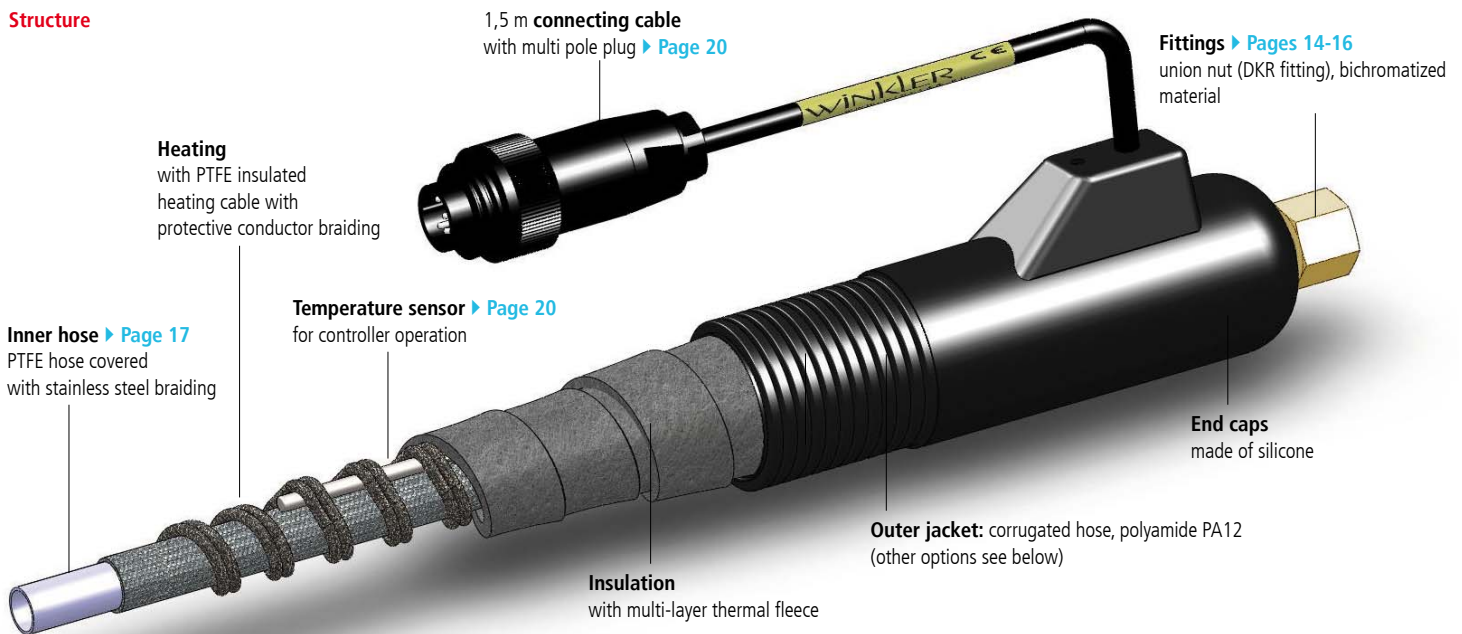
Our quality management system is certified to ISO 9001:2008. Winkler is a certified manufacturer in accordance with Directive 94/9/EC, Appendix VII (ATEX).



Applications

Heated hoses for the transport of liquid and viscous media. Depending on the type of outer jacket, ideally suited for fixed installation – also outdoors – and dynamic application for higher mechanical loads.

Structure

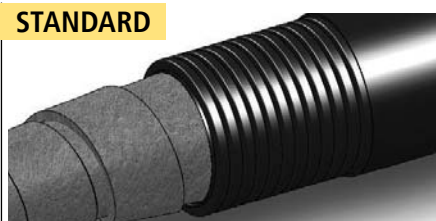


Features and benefits

- Standard insulation structure approx. 43 mm (up to DN 13) and approx. 55 mm (DN 16). Outer jacket options see below.
(100 °C version nominal diameter 20-32 with polyethylene outer jacket; 200 °C version nominal diameter 20-32 with polyamide PA6 outer jacket)
- Large variety of nominal diameters and inner tubes (for instance designed for medium pressure, high pressure and maximum pressure applications)
- Large variety of fittings ▶ [Pages 14-16](#)
- Temperature sensors are freely selectable, "ordering codes for heated hoses" ▶ [Page 2](#)
- Operation only in combination with controller ▶ [Page 21](#)
- Very robust construction made of high-quality, durable materials
- Can be employed both inside and outdoors
- High degree of flexibility, suitable for dynamic movements
- Silicone-free version possible

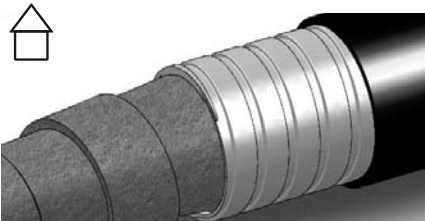
OPTIONS OF PROTECTIVE HOSES FOR THE OUTER COVER OF SERIES WSKW

STANDARD



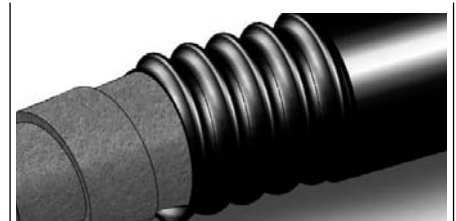
Code
W2

Black polyamide (PA) corrugated hose
Use for standard applications.
Available up to **DN 16**



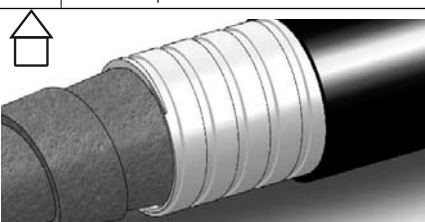
Code
W8

Galvanised steel spiral hose. Crush-resistant.
Use for higher strain.
Available up to **DN 13**



Code
W7

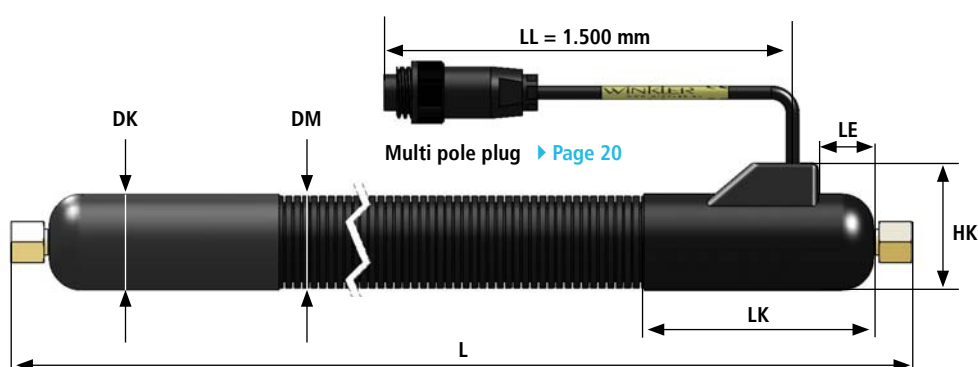
Spiral hose PUR black.
Use for special applications upon request.
Available up to **DN 25**



Code
W9

Spiral hose stainless steel. Crush-resistant.
Ideal for a long-lasting perfect look.
Available up to **DN 13**

TECHNICAL DATA SERIES WSKW



L: Length of the heated hose

DK: Outer diameter of cap

DM: Outside diameter of outer cover

LK: Length of cap

LE: Recess of cable outlet

LL: Length of connecting cable

HK: Height of cap with cable outlet

Dimensions and bend radiuses (Tolerances of length $\pm 2\%$, tolerances of diameter $\pm 5\%$)

DN	4	6	8	10	13 (12*)	16 (15*)	20	25	32
DK	48 mm						88 mm		
DM	43 mm						84 mm		
LK	110 mm						110 mm		
LE	25 mm						25 mm		
HK	64 mm						82 mm	87 mm	92 mm
Min. bend radius**	160 mm				250 mm		450 mm	500 mm	600 mm

*Heated hose with inner tube type 7, corrugated stainless steel hose [Page > 19](#)

** The minimum bend radius depends on the inner hose. (Data applicable to a medium pressure hose)

Maximum operating temperatures and power (Tolerances of power $\pm 10\%$, ambient temperatures -20°C up to $+40^{\circ}\text{C}$)

T _{max}	DN	4	6	8	10	13	16	20	25	32
100 °C	Power	85 W/m	110 W/m		180 W/m		240 W/m		400 W/m	
200 °C	Power	85 W/m	110 W/m		180 W/m		240 W/m		400 W/m	

Other power upon enquiry

Maximum lengths for operating voltages of 230 VAC and 115 VAC with one heating circuit (Tolerance of length $\pm 2\%$)

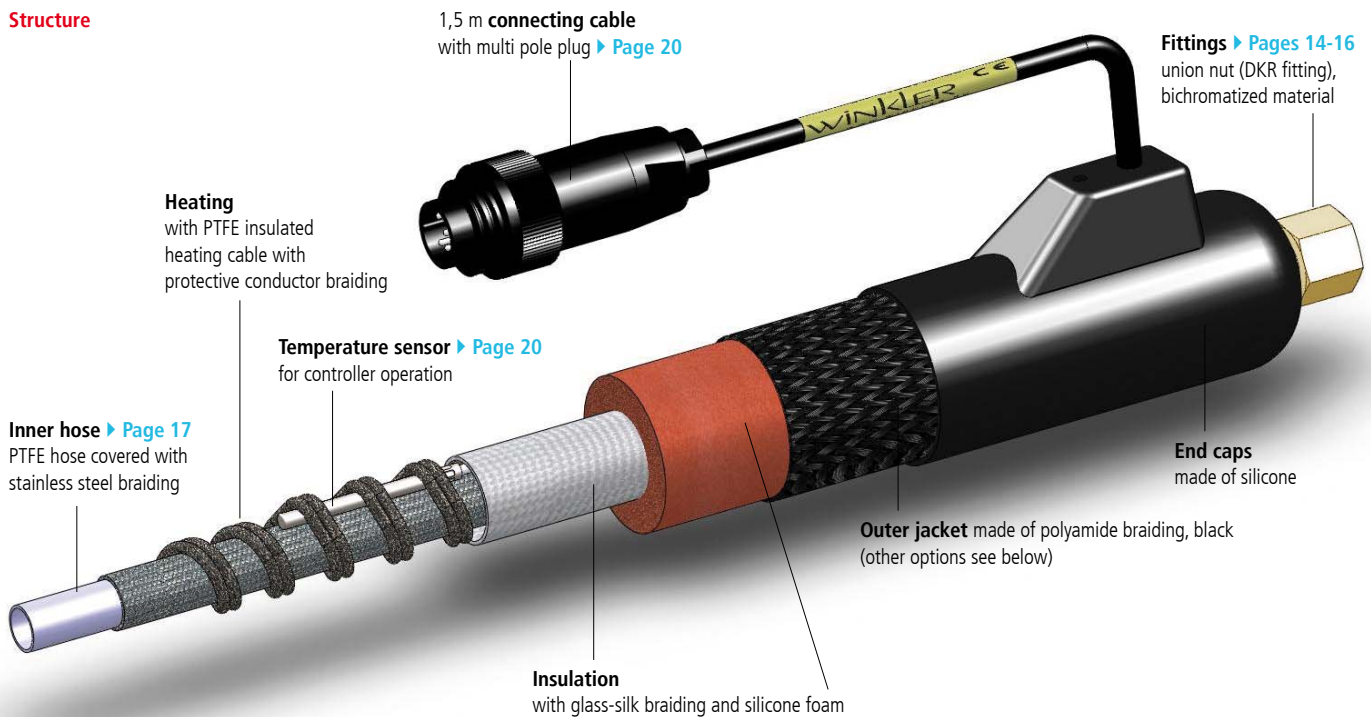
T _{max}	DN	4	6	8	10	13	16	20	25	32
100 °C	230 V	65 m	49 m		30 m		22 m		13 m	
	115 V	30 m	24 m		15 m		11 m		6 m	
200 °C	230 V	65 m	49 m		30 m		22 m		13 m	
	115 V	30 m	24 m		15 m		11 m		6 m	

Other voltages upon enquiry

Applications

Heated hoses for the transport of liquid and viscous media. Ideally suited for fixed installation and well as for mobile and dynamic application – preferably inside buildings – with normal mechanical loads (related to outer jacket).

Structure



Features and benefits

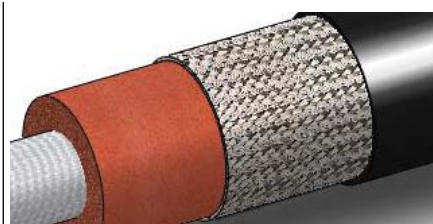
- Standard insulation structure approx. 43 mm (up to DN 16) and approx. 63 mm (up to DN 32). Outer jacket options see below.
- Large variety of nominal diameters and inner tubes (for instance designed for medium pressure, high pressure and maximum pressure applications)
- Large variety of fittings ▶ Pages 14-16
- Temperature sensors are freely selectable, "ordering codes for heated hoses ▶ Page 2
- Operation only in combination with controller ▶ Page 21
- High degree of flexibility, suitable for dynamic movements
- Softy and extremely flexible insulation structure with glass-silk braiding ($T_{max} > 250^{\circ}\text{C}$) and silicone foam hose.

OPTIONS OF PROTECTIVE HOSES FOR THE OUTER COVER OF SERIES WSKG

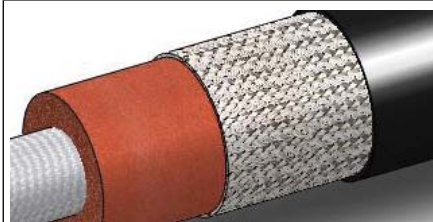
STANDARD



Code G 0	Black polyamide braiding. Use for standard applications. Available up to DN 32
G 1	Red polyamide braiding (up to DN 16)
G 2	Orange polyamide braiding (up to DN 16)
G 3	Blue polyamide braiding (up to DN 16)
G 4	Grey polyamide braiding (up to DN 16)

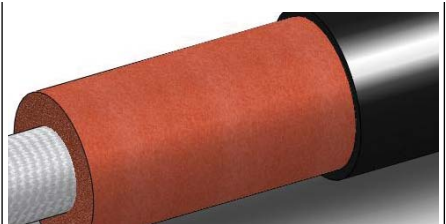


Code G 8	Galvanised steel braiding. Very robust. Use for higher strain. Available up to DN 32
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Code G 9	Stainless steel braiding. Best performance. Ideal for a long-lasting perfect look. Available up to DN 32
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OPTIONS FOR SERIES WSKS

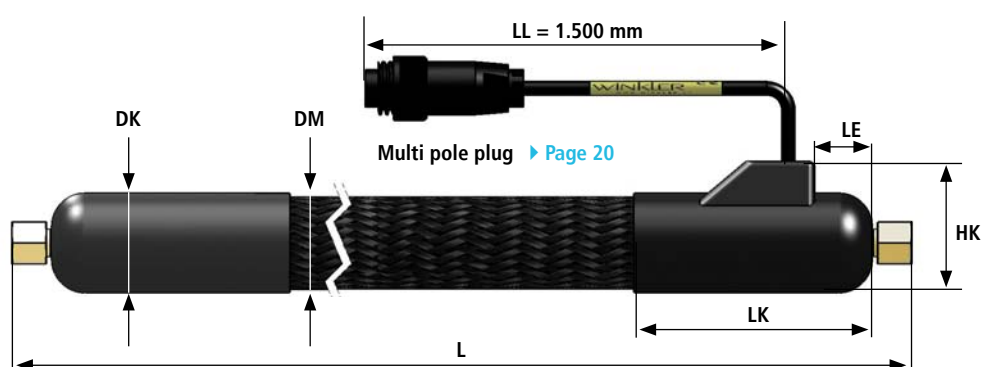


Code S	Red silicon foam. Light and very flexible. Use inside cabinets. Available up to DN 32
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Code S 1	Black silicon skin. Washable. Combines flexibility and durability. Available up to DN 6 and lengths up to 20 m , DM ca. 33mm , $T_{max} = 180^{\circ}\text{C}$
Code S 2	Black silicon skin. Washable. Combines flexibility and durability. Available up to DN 10 and lengths up to 20 m

TECHNICAL DATA SERIES WSKG + WSKS



L: Length of the heated hose

DK: Outside diameter of cap

DM: Outside diameter of outer cover

LK: Length of cap

LE: Recess of cable outlet

LL: Length of connecting cable

HK: Height of cap with cable outlet

Dimensions and bend radiuses (Tolerances of length $\pm 2\%$, tolerances of diameter $\pm 5\%$)

DN	4	6	8	10	13 (12*)	16 (15*)	20	25	32
DK	48 mm						68 mm	73 mm	80 mm
DM	42 mm						62 mm	67 mm	74 mm
LK	110 mm						100 mm		
LE	25 mm						25 mm		
HK	64 mm						82 mm	87 mm	92 mm
Min. bend radius**	160 mm			250 mm			450 mm	500 mm	600 mm

*Heated hose with inner tube type 7, corrugated stainless steel hose [Page > 19](#)

** The minimum bend radius depends on the inner hose. (Data applicable to a medium pressure hose)

Maximum operating temperatures and power (Tolerances of power $\pm 10\%$, ambient temperatures -20°C up to $+40^{\circ}\text{C}$)

T _{max}	DN	4	6	8	10	13	16	20	25	32
100 °C	Leistung	85 W/m	110 W/m		180 W/m		240 W/m		400 W/m	
200 °C	Leistung	85 W/m	110 W/m		180 W/m		240 W/m		400 W/m	
250 °C	Leistung	85 W/m	110 W/m		180 W/m		240 W/m		400 W/m	

Other power upon enquiry

Maximum lengths for operating voltages of 230 VAC and 115 VAC with one heating circuit (Tolerance of length $\pm 2\%$)

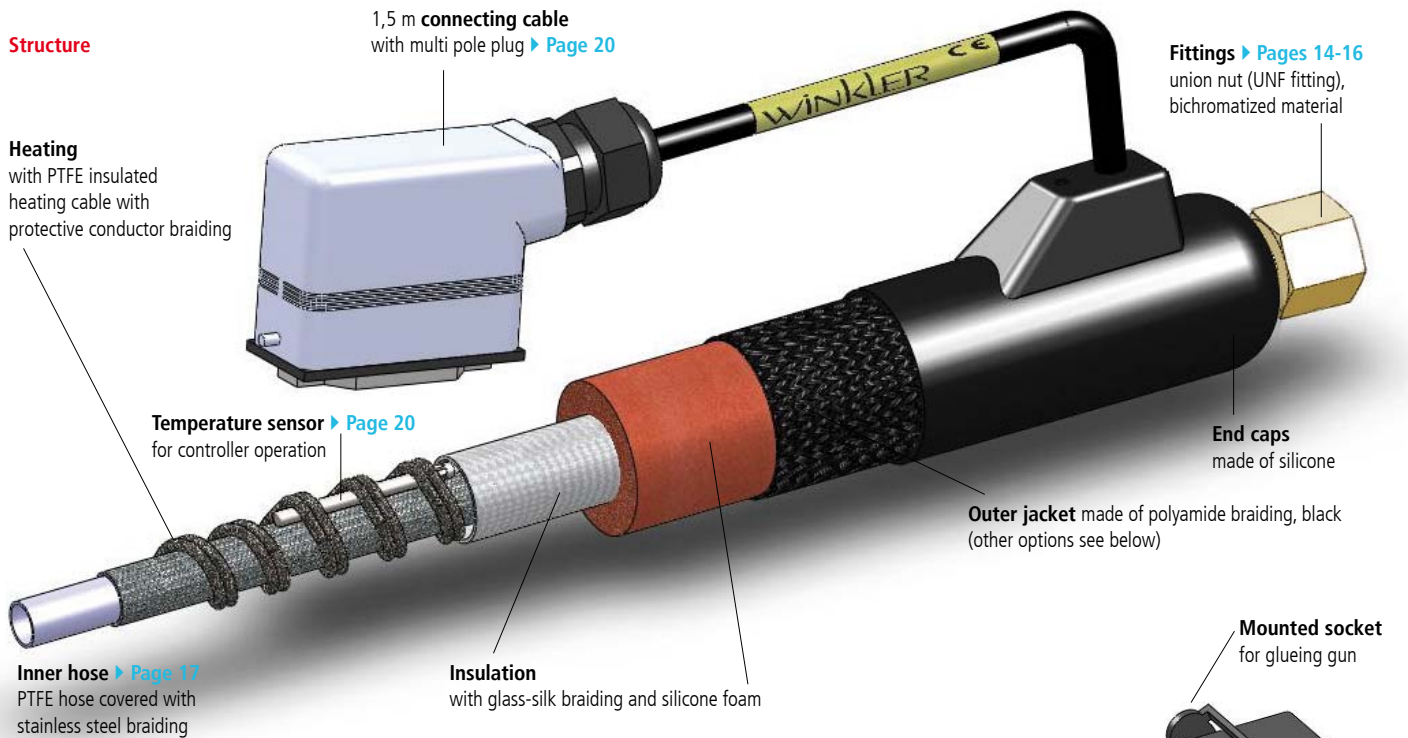
T _{max}	DN	4	6	8	10	13	16	20	25	32
100 °C	230 V	65 m	49 m		30 m		22 m		13 m	
	115 V	30 m	24 m		15 m		11 m		6 m	
200 °C	230 V	65 m	49 m		30 m		22 m		13 m	
	115 V	30 m	24 m		15 m		11 m		6 m	
250 °C	230 V	65 m	49 m		30 m		22 m		13 m	
	115 V	30 m	24 m		15 m		11 m		6 m	

Other voltages upon enquiry

Applications

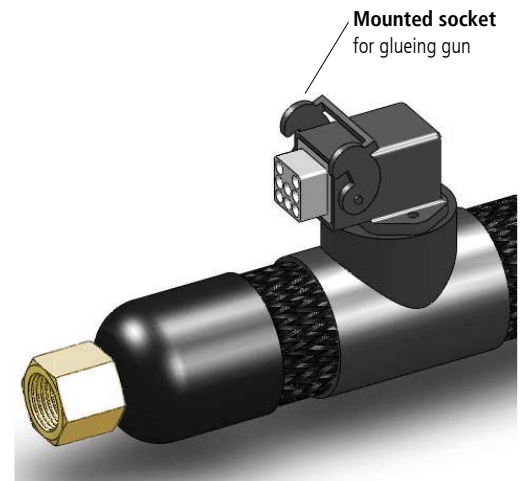
Heated hoses for the temperature maintenance and transport of adhesives. Depending on the type of outer jacket, ideally suited for manual applications and dynamic use, e.g. on robots.

Structure



Features and benefits

- Standard insulation structure approx. 43 mm (up to DN 16) and approx. 63 mm (up to DN 32). Outer jacket options see below
- Large variety of nominal diameters and inner tubes (for instance designed for medium pressure, high pressure and maximum pressure applications)
- Large variety of fittings ▶ Pages 14-16
- Temperature sensors are freely selectable, "ordering codes for heated hoses" ▶ Page 2
- Operation only in combination with controller ▶ Page 21
- High degree of flexibility, suitable for both dynamic movements and manual applications
- Option with control lead and hose end mounted socket (up to DN 16) for activating a glueing head/gun
- Option with integrated compressed-air line for pneumatic control in the glue application area

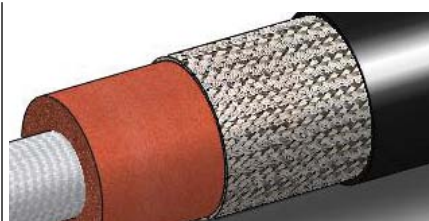


OPTIONS OF PROTECTIVE HOSES FOR THE OUTER COVER OF SERIES WSGG

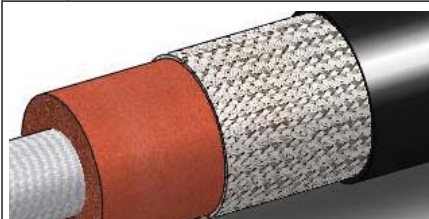
STANDARD



Code G 0	Black polyamide braiding. Use for standard applications. Available up to DN 32
G 1	Red polyamide braiding (up to DN 16)
G 2	Orange polyamide braiding (up to DN 16)
G 3	Blue polyamide braiding (up to DN 16)
G 4	Grey polyamide braiding (up to DN 16)



Code G 8	Galvanised steel braiding. Very robust. Use for higher strain. Available up to DN 32
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Code G 9	Stainless steel braiding, best performance. Ideal for a long-lasting perfect look. Available up to DN 32
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OPTIONS FOR SERIES WSGS



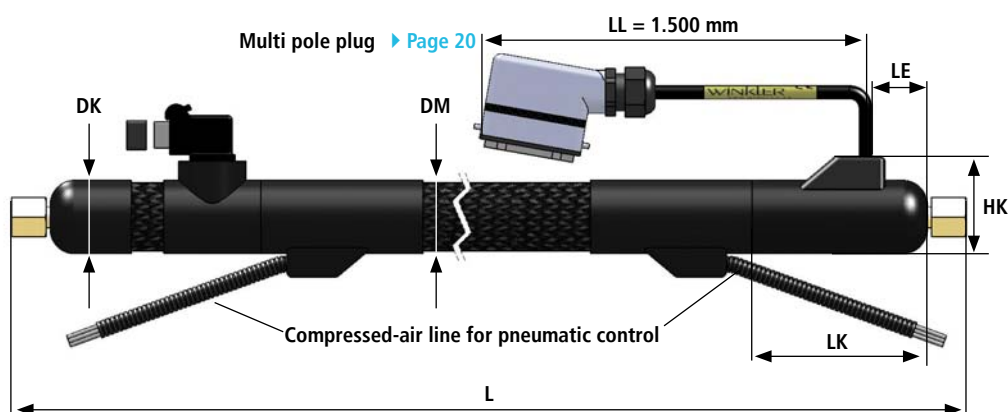
Code S	Red silicon foam. Light and very flexible. Use inside cabinets. Available up to DN 32
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Code S 2	Black silicon skin. Washable. Combines flexibility and durability. Available up to DN 10 and lengths up to 20 m
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TECHNICAL DATA SERIES WSGG + WSGS

More options



L: Length of the heated hose

DK: Outside diameter of cap

DM: Outside diameter of outer cover

LK: Length of cap

LE: Recess of cable outlet

LL: Length of connecting cable

HK: Height of cap with cable outlet

Dimensions and bend radiuses (Tolerances of length $\pm 2\%$, tolerances of diameter $\pm 5\%$)

DN	4	6	8	10	13 (12*)	16 (15*)	20	25	32
DK	48 mm						68 mm	73 mm	80 mm
DM	42 mm						62 mm	67 mm	74 mm
LK	110 mm						100 mm		
LE	25 mm						25 mm		
HK	64 mm						82 mm	87 mm	92 mm
Min. bend radius**	160 mm			250 mm			450 mm	500 mm	600 mm

*Heated hose with inner tube type 7, corrugated stainless steel hose [Page 19](#)

** The minimum bend radius depends on the inner hose. (Data applicable to a medium pressure hose)

Maximum operating temperatures and power (Tolerances of power $\pm 10\%$, ambient temperatures -20°C up to $+40^{\circ}\text{C}$)

T _{max}	DN	4	6	8	10	13	16	20	25	32
100 °C	Leistung	85 W/m	110 W/m		180 W/m		240 W/m		400 W/m	
200 °C	Leistung	85 W/m	110 W/m		180 W/m		240 W/m		400 W/m	
250 °C	Leistung	85 W/m	110 W/m		180 W/m		240 W/m		400 W/m	

Other power upon enquiry

Maximum lengths for operating voltages of 230 VAC and 115 VAC with one heating circuit (Tolerance of lengths $\pm 2\%$)

T _{max}	DN	4	6	8	10	13	16	20	25	32
100 °C	230 V	65 m	49 m		30 m		22 m		13 m	
	115 V	30 m	24 m		15 m		11 m		6 m	
200 °C	230 V	65 m	49 m		30 m		22 m		13 m	
	115 V	30 m	24 m		15 m		11 m		6 m	
250 °C	230 V	65 m	49 m		30 m		22 m		13 m	
	115 V	30 m	24 m		15 m		11 m		6 m	

Other voltages upon enquiry

Applications

Heated hoses for the transport of liquid and viscous pharmaceutical substances or foodstuff while maintaining the desired temperature.

Structure

Heating

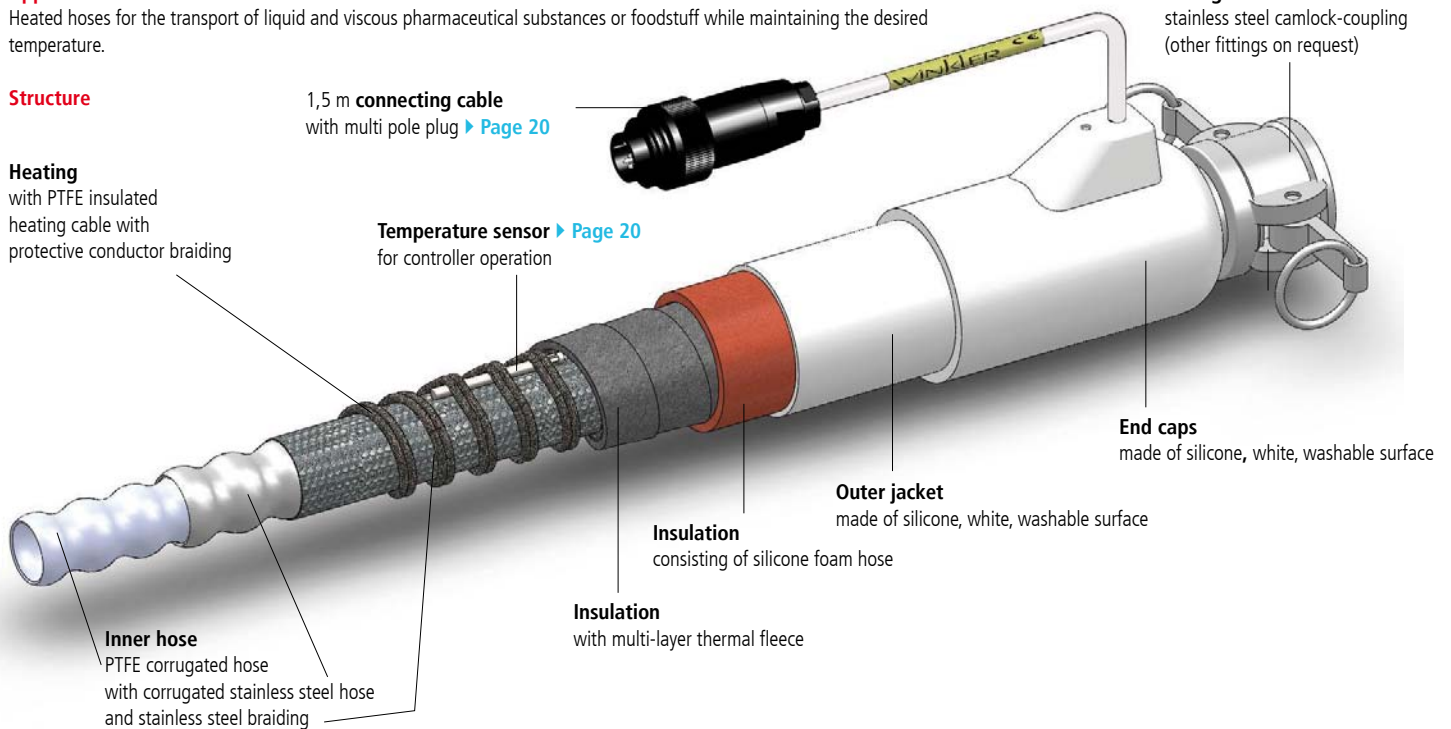
Heated with PTFE insulated heating cable with protective conductor braiding

1,5 m connecting cable with multi pole plug ▶ Page 20

Temperature sensor ▶ Page 20 for controller operation

Fitting stainless steel camlock-coupling (other fittings on request)

End caps made of silicone, white, washable surface

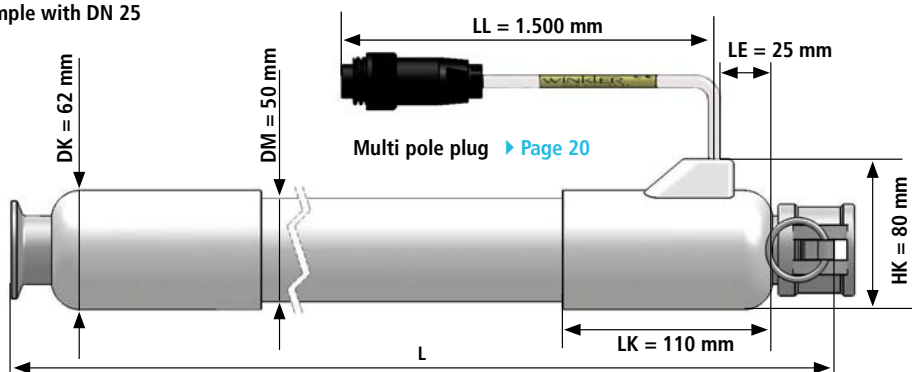


Features and benefits

- Extremely robust, high-quality and durable materials
- Washable surface, protection standard IP 66
- High degree of flexibility, inner tube with FDA approval
- Other fittings are available as desired by the customer
- Different multipole plug versions are available on request
- Temperature sensors are freely selectable ▶ Page 2 "ordering codes for heated hoses"
- Operation only in combination with controller ▶ Page 21

TECHNICAL DATA SERIES WSRS (Tolerances of length $\pm 2\%$, tolerances of diameter $\pm 5\%$)

Example with DN 25



L: Length of the heated hose

DK: Outside diameter of cap

DM: Outside diameter of outer cover

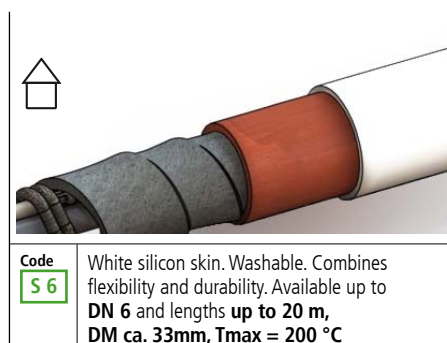
LK: Length of cap

LE: Recess of cable outlet

LL: Length of connecting cable

HK: Height of cap with cable outlet
Min. bend radius 300 mm

OPTIONS FOR SERIES WSRS



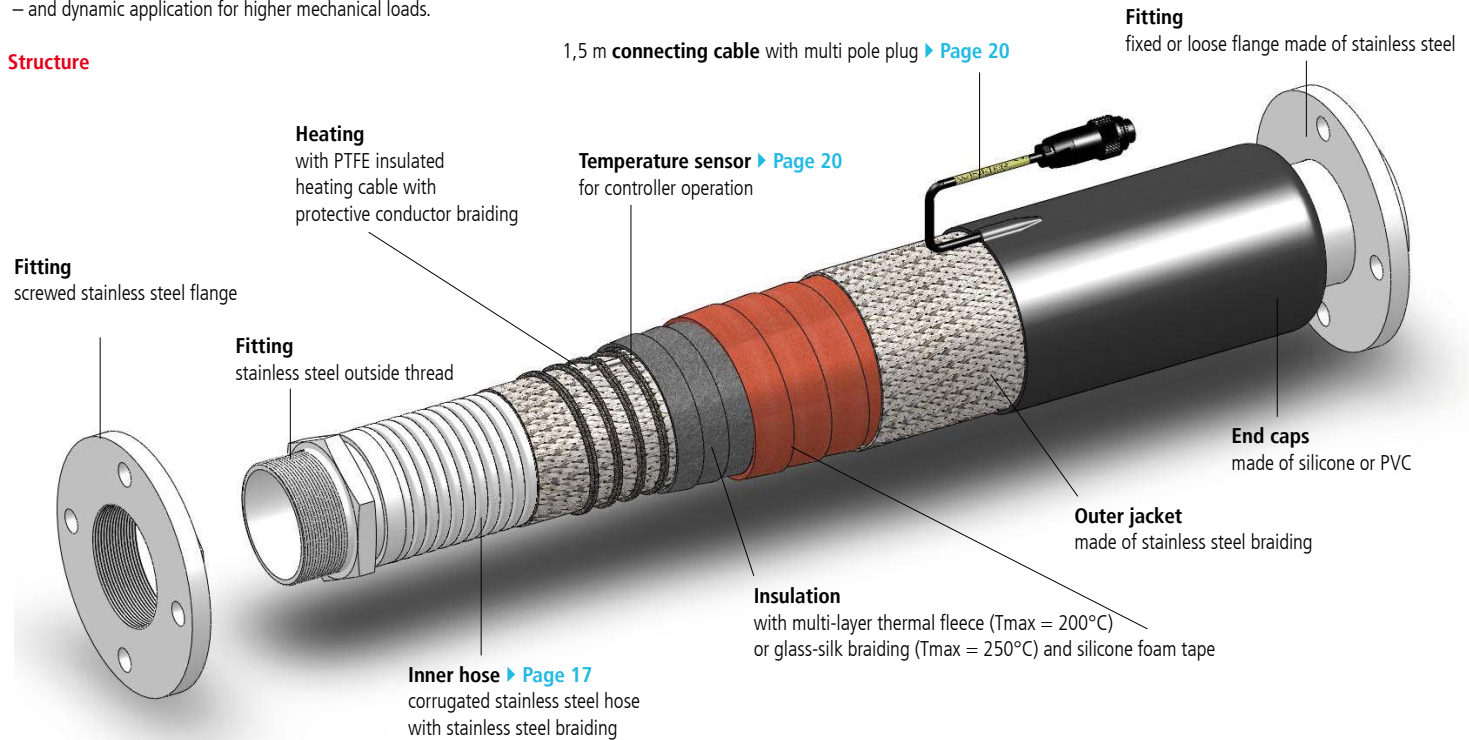
FILLING HOSES SERIES WSA

$T_{max} = 200\text{ °C} \mid 250\text{ °C}$

Applications

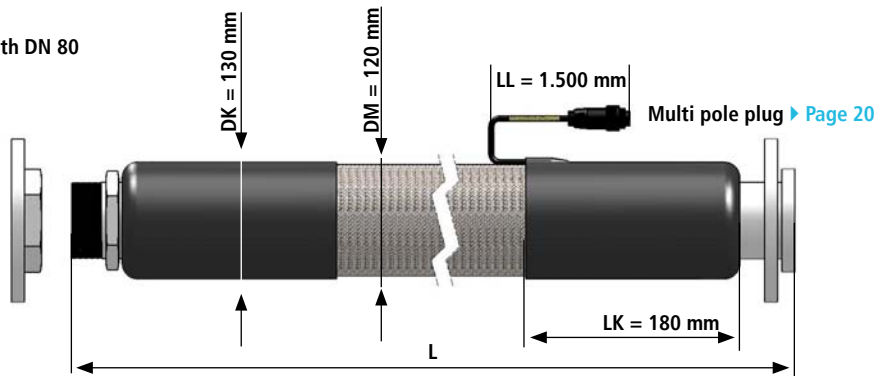
Heated hoses for the transport of liquid and viscous media. Depending on the type of outer jacket, ideally suited for fixed installation – also outdoors – and dynamic application for higher mechanical loads.

Structure



TECHNICAL DATA SERIES WSA (Tolerances of length $\pm 2\%$, tolerances of diameter $\pm 5\%$)

Example with DN 80



- L:** Length of the heated hose
- DK:** Outside diameter of cap
- DM:** Outside diameter of outer cover
- LK:** Length of cap
- LE:** Recess of cable outlet
- LL:** Length of connecting cable
Min. bend radius 800 mm

OPTIONS OF PROTECTIVE HOSES FOR THE OUTER COVER OF SERIES WSA

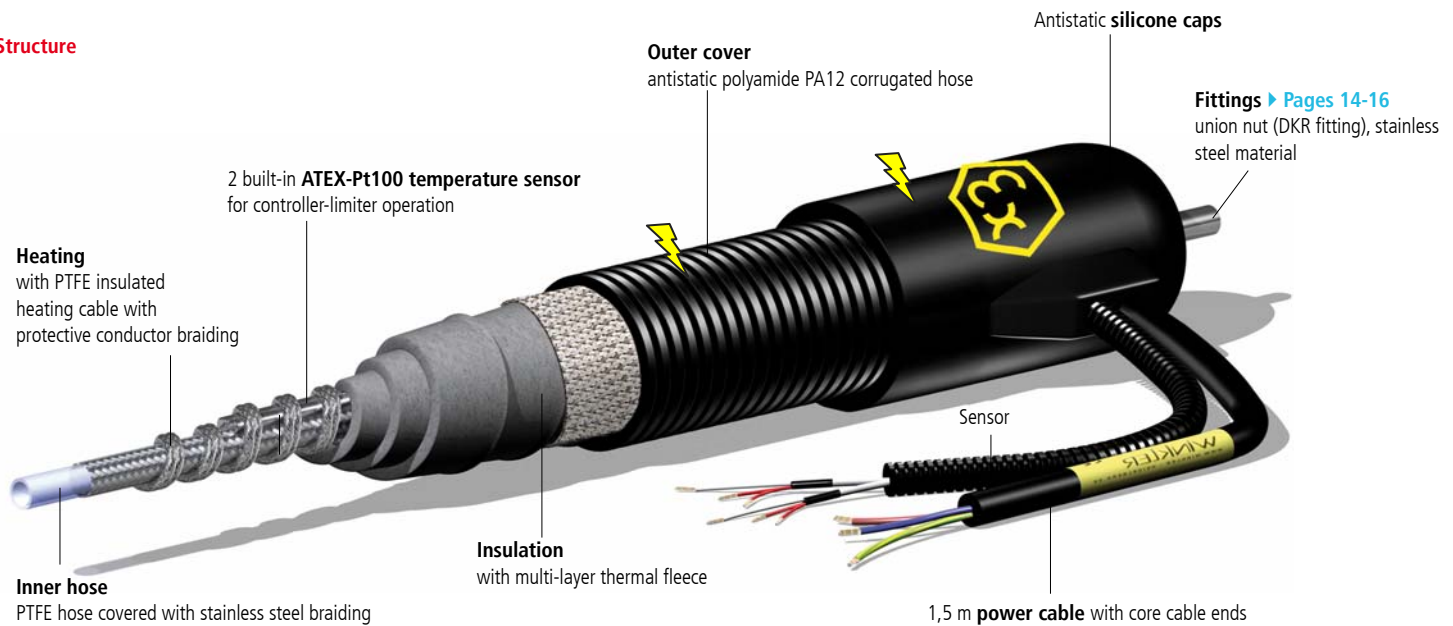
<p>$T_{max} = 250\text{ °C}$</p> <p>Code G9</p> <p>Stainless steel braiding, best performance. Ideal for a long-lasting perfect look. Available from DN 32 to DN 125</p>	<p>$T_{max} = 200\text{ °C}$</p> <p>Code I0</p> <p>Industrial heated hose, white, restricted dynamic use and high mechanical loads. Available from 25 to DN 100</p>	<p>$T_{max} = 200\text{ °C}$</p> <p>Code W6</p> <p>PU hose, crush-resistant with rebound resilience for dynamic application. Available from DN 25 to DN 80</p>
<p>$T_{max} = 200\text{ °C}$</p> <p>Code I1</p> <p>Industrial heated hose, red, for restricted dynamic use and high mechanical loads. Available w DN 25 to DN 100</p>		



Applications

Heated lines for the transport of gas samples in the temperature range up to +200°C to protect from false measurements.
For applications in potentially explosive atmospheres classified zone 1/2 (Gas) and 21/22 (Dust) areas. Not suitable for zone 0 and 20 areas.

Structure

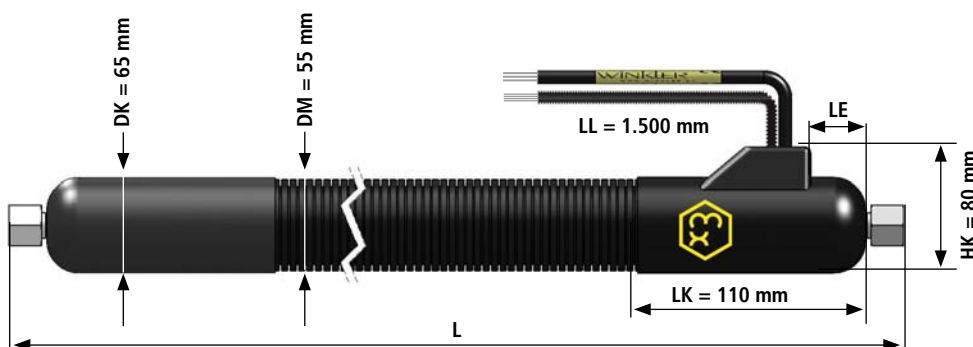


Features and benefits

- Very robust structure made of durable, high-quality materials. Suitable for indoor and outdoor installation. Protection class IP66.
 - Large variety of nominal diameters, inner lines, fittings, terminations and cable exits to cover most applications.
 - High flexibility, very easy installation especially of higher lengths and at low temperatures (up to -20°C)
 - Ready to connect, complete system tested and certified according to ATEX with EC-type examination certificate.
- The lines are supplied fully fitted and terminated and can be directly connected and put into operation without further inspection or approval.
- Operation only with controller and limiter. Two temperature sensors ATEX-Pt100 are built-in at 300 mm from E-side for the temperature control and limitation. (Other sensor positions upon request). Combined temperature controllers/limiters for ATEX areas.

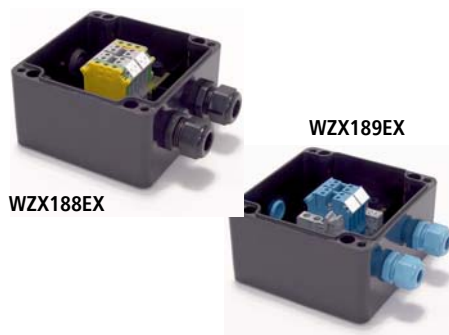
Specifications for 230 VAC (115 VAC upon request, Tolerances: lengths $\pm 2\%$, diameters $\pm 5\%$, power $\pm 10\%$)

Series WEX8 (fix inner hose)	DN 4	DN 6	DN 8	DN 10
Nominal power	100 W/m	100 W/m	100 W/m	100 W/m
Temperature maintained at ambient temperature $T_a = -20\text{ °C}$	+200 °C			
Temperature class	T3			
Max. permissible operating temperature	+200 °C			
Min. installation temperature	-20 °C			
Admissible range of ambient temperatures	-40°C / +85°C			
Max. length L	46 m	46 m	46 m	37 m
Min. admissible bend radius	250 mm			
Marking	CE 0123 Ex II 2G Ex ma e IIC T3 CE 0123 Ex II 2G Ex ma D tD Ta=-40..+85 °C t 200 °C			
EC type examination	TPS 09 ATEX 1006			



- L: Length of the heated hose
- DK: Outside diameter of cap
- DM: Outside diameter of outer cover
- LK: Length of cap
- LE: Recess of cable outlet
- LL: Length of connecting cable
- HK: Height of cap with cable outlet

ACCESSORIES FOR ATEX HEATED HOSES: FIXATION SUPPORTS AND TERMINAL ENCLOSURES



Terminal enclosures for the prolongation of connection cables in potentially explosive atmospheres.
Material: Polyester. Available for higher ambient temperatures

Art.-Nr. WZX188EX Terminal enclosure EExe (Power)
Marking: Ⓔ II 2G Ex e IIC T6
Ⓔ II 2D Ex tD A21 T+80°C IP66
Equipment: 2 cable glands, 2 blind plugs, 6 terminal blocks
Dimensions: 122 x 120 x 90 mm


Art.-Nr. WZX189EX Terminal enclosure EExi (Sensors)
Marking: Ⓔ II 2G Ex ia IIC T6
Ⓔ II 2D Ex tD A21 T+85°C IP66
Equipment: 2 cable glands, 2 blind plugs, 4 terminal blocks
Dimensions: 122 x 120 x 90 mm



Fixation supports for potentially explosive atmospheres classified zone 1/2 and 21/22 areas.
Material: Antistatic polyamide 12. Marking: Ⓔ II 2GD EEx e II
Extremely shock resistant, optimum axial strain relief, quick installation due to single hole fixing.
Versions for normal an heavy load.

	Art.-Nr. WZXS36EX (normale load)	Art.-Nr. WZXL36EX (heavy load)
Useable for	Series WEX0-WEX3 (43 mm outer diameter of the corrugated hose)	
Dimensions	56 x 56 x 20 mm	85 x 75 x 30 mm
	Art.-Nr. WZXS48EX (normale load)	Art.-Nr. WZXL48EX (heavy load)
Useable for	Series WEX8-WEX9 (55 mm Außendurchmesser des Wellschlauchs)	
Dimension	68 x 68 x 20 mm	115 x 90 x 30 mm

TEMPERATURE CONTROL AND LIMITATION, TERMINAL ENCLOSURES

 The respective operating and limiting temperatures of the ATEX heated lines series **WEX8** and **WEX9** must always be monitored with the appropriate equipment. Regulations prescribe temperature controllers and limiters (or combinations of both) with intrinsically safe sensor inputs according to ATEX.



Art.-Nr. WRW0DPCE-230XE000
Controller for hazardous areas in pressure-resistant enclosure.
Suitable for: Series WEX0-WEX3 for optional temperature control.
Enclosure: Polyester - Protection class IP65
Marking: Ⓔ II 2G EEx ed ib m [ib] IIC T4 (controller)
Operating voltage: 230 VAC (50-60 Hz); max. 16 A
Ambient temperature: -5 °C / +40 °C
Dimensions: 255 x 250 x 120 mm



Art.-Nr. WRW0DEPU-230ZE000
Complete solution for temperature control and limitation in hazardous areas in one unit.
Required for: Series WEX8-WEX9 for temperature control and limitation.
Suitable for: Series WEX0-WEX3 for optional temperature control and limitation.
Enclosure: Aluminium - Protection class IP65 - Total weight 6 Kg
Marking: Ⓔ II 2G EEx m e ib [ib] IIC T4
Operating voltage: 230 VAC (50-60 Hz); max. 25 A
Ambient temperature: -20 °C / +40 °C
Dimensions: 260 x 200 x 135 mm

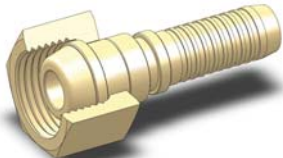


Electric cabinet with all necessary components for the operation outside hazardous areas.

- Controller and limiter
- External signals and alert signals (TU/TO)
- Display for operation in front (Set-point, temperature)
- Main switch in front
- Temperature control possible in front
- Layout for several heating circuits possible
- Other versions upon request


DKL / DKM / DKS

Universal sealing cone, union nut metric light / medium / heavy type series

according to CEL/CES	DN	ID (mm)	DKL		DKM		DKS	
			Thread (metric)	SW (mm)	Thread (inch)	SW (mm)	Thread (metric)	SW (mm)
	4	2,5	M12x1,5	17	—	—	—	—
	6	5	M14x1,5	17	—	—	M18x1,5	22
	8	6	M16x1,5	19	—	—	M20x1,5	24
	10	8	M18x1,5	22	—	—	M22x1,5	27
	13	10	M22x1,5	27	—	—	M24x1,5	30
	16	12,5	M26x1,5	32	—	—	M30x2	36
	20	16	M30x2	36	M30x1,5	36	M36x2	46
	25	21	M36x2	41	M38x1,5	46	M42x2	50
	32	26	M45x2	50	M45x1,5	55	M52x2	60
Material: steel bichromatized*	40	32	M52x2	60	M52x1,5	60	—	—


DKOL / DKOS

Universal sealing cone with O-ring, union nut metric light / heavy type series, according to DIN 3865

according to CEL/CES	DN	ID (mm)	DKOL		DKOS	
			Thread (metric)	SW (mm)	Thread (metric)	SW (mm)
	—	—	—	—	—	—
	6	5	M14x1,5	17	M18x1,5	22
	8	6	M16x1,5	19	M20x1,5	24
	10	8	M18x1,5	22	M22x1,5	27
	13	10	M22x1,5	27	M24x1,5	30
	16	12,5	M26x1,5	32	M30x2	36
	20	16	M30x2	36	M36x2	46
	25	21	M36x2	41	M42x2	50
	32	26	M45x2	50	M52x2	60
Material: steel bichromatized*	40	32	M52x2	60	—	—

CEL / CES

Universal sealing cone (24°), outside thread metric light / heavy type series, according to DIN 3861

according to DKL/DKOL	DN	ID (mm)	CEL		CES	
			Thread (metric)	SW (mm)	Thread (metric)	SW (mm)
	4	2,5	M12x1,5	14	—	—
	6	5	M14x1,5	14	M18x1,5	19
	8	6	M16x1,5	17	M20x1,5	22
	10	8	M18x1,5	19	M22x1,5	22
	13	10	M22x1,5	22	M24x1,5	24
	16	12,5	M26x1,5	27	M30x2	30
	20	16	M30x2	30	M36x2	36
	25	21	M36x2	36	M42x2	46
	32	26	M45x2	46	M52x2	55
Material: steel bichromatized*	40	32	M52x2	55	—	—

Legend:

- DN** Nominal diameter
- ID** Inner diameter
- OD** Outer diameter
- LA** Length of the fitting
- AF** across flats
- *** Fittings are available as an option in stainless steel, 1.4305 (AISI 304) and stainless steel, 1.4571 (AISI 316Ti)

DKR

Universal sealing cone (60°), union nut INCH (BSP)

according to AGR	DN	ID (mm)	Thread (inch) (BSP)	SW (mm)	Thread (inch) Special (BSP)	SW (mm) Special
	4	2,5	G 1/4	17	—	—
	6	5	G 1/4	17	—	—
	8	6	G 3/8	19	—	—
	10	8	G 3/8	19	G 1/2	27
	13	10	G 1/2	27	—	—
	16	12,5	G 3/4	32	—	—
	20	16	G 1	41	G 3/4	32
	25	21	G 1 1/4	50	G 1	41
	32	26	G 1 1/4	50	—	—
	40	32	G 1 1/2	56	—	—
Material: steel bichromatized*						

AGR

Universal sealing cone (60°), outside thread INCH (BSP), according to DIN 3863

according to DKR	DN	ID (mm)	Thread (inch)	SW (mm)
	4	2,5	G 1/8	12
	6	5	G 1/4	17
	8	6	G 3/8	19
	10	8	G 3/8	19
	13	8	G 1/2	22
	16	10	G 1/2	22
	20	12,5	G 3/4	32
	25	16	G 3/4	32
	32	16	G 1	36
	40	21	G 1	41
Material: steel bichromatized*	32	26	G 1 1/4	52
	40	32	G 1 1/2	60

DKJ

JIC sealing cone (37°), union nut inch (UNF), according to JIC standard

according to AGJ	DN	ID (mm)	Thread (inch) (UNF) STDN	SW (mm)	Thread (inch) (UNF) special	SW (mm)
	—	—	—	—	—	—
	6	5	UNF 7/16-20	14	UNF 1/2-20 UNF 9/16-18	17 17
	8	6	UNF 1/2-20	17	UNF 9/16-18	17
	10	8	UNF 3/4-16	24	—	—
	13	10	UNF 3/4-16	22	UNF 7/8-14	27
	16	12,5	UNF 7/8-14	27	UNF1 1/16-12	32
	20	16	UNF1 1/16-12	32	—	—
	25	21	UNF1 5/16-12	38	—	—
	32	26	UNF1 5/8-12	51	—	—
	40	32	UNF1 7/8-12	56	—	—
Material: steel bichromatized*						


AGJ

JIC sealing cone (37°), outside thread inch (UNF), according to JIC standard

according to DKJ	DN	ID (mm)	Thread (inch) (UNF) STDN	SW (mm)	Thread (inch) (UNF) Special	SW (mm)
	—	—	—	—	—	—
	6	5	UNF 7/16-20	14	UNF 1/2-20	14
	8	6	UNF 1/2-20	14	UNF 9/16-18	17
	10	8	UNF 3/4-16	17	—	—
	13	10	UNF 3/4-16	22	—	—
	16	12,5	UNF 7/8-14	24	—	—
	20	16	UNF 1 1/16-12	30	—	—
	25	21	UNF 1 5/16-12	36	—	—
	32	26	UNF 1 5/8-12	46	—	—
	40	32	UNF 1 7/8-12	48	—	—
Material: steel bichromatized*						


AGN

Universal sealing cone (60°) outside thread inch (NPT), according to DIN 3863

according to BDN	DN	ID (mm)	Thread (inch) (NPT) STDN	SW (mm)	Thread (inch) (BSP) special	SW (mm)
	4	2,5	NPT 1/8-27	12	—	—
	6	5	NPT 1/4-18	17	—	—
	8	6	NPT 3/8-18	19	—	—
	10	8	NPT 3/8-18	19	NPT1/2-14	19
	13	10	NPT 1/2-14	24	—	—
	16	12,5	NPT 3/4-14	27	—	—
	20	16	NPT 3/4-14	32	NPT1-11,5	35
	25	21	NPT 1-11,5	35	—	—
	32	26	NPT1 1/4-11,5	45	—	—
Material: steel bichromatized*	40	32	NPT1 1/2-11,5	50	—	—


BDN

Flange nipple flat sealing, outer thread metric / inch (BSP)

according to AGN	DN	ID (mm)	Thread (metric)	SW (mm)	Thread (inch) (BSP) STDN	SW (mm)	Thread (inch) (NPT) special	SW (mm)
	4	2,5	M12x1,5	17	G 1/4	17	—	—
	6	5	M14x1,5	17	G 1/4	17	—	—
	8	6	M16x1,5	19	G 3/8	19	—	—
	10	8	M18x1,5	22	G 3/8	19	G 1/2	27
	13	10	M22x1,5	27	G 1/2	27	—	—
	16	12,5	M26x1,5	32	G 3/4	32	—	—
	20	16	M30x2	36	G 3/4	32	G 1	41
	25	21	M36x2	41	G 1	41	G 1 1/4	50
	32	26	M45x2	50	G 1 1/4	47	—	—
Material: steel bichromatized*	40	32	M52x2	60	G 1 1/2	56	—	—

RSL / RSS

Pipe connector light / heavy type series

	DN	ID (mm)	RSL		RSS	
			OD (mm)	LA (mm)	OD (mm)	LA (mm)
	4	3	6	25	8	27
	6	5	8	25	10	29
	8	7	10	26	12	29
	10	9	12	26	14	33
	13	10	15	28	16	33
	16	12,5	18	30	20	39
	20	16	22	32	25	44
Material: steel bichromatized*	25	21	28	34	30	48

STANDARD BASIC HOSES AND FITTINGS

Example: Type 1 → WSKG0201-230XP016-1500STDN

Available basic hoses and fittings for heated hoses of the types listed. Depending on design, basic hoses with PTFE hose can be employed for fluid temperatures up to 250°C. Heated hoses with stainless steel pipes and corrugated stainless steel hoses are designed for fluid temperatures up to 400°C, depending on the type of insulation. Higher temperatures and special solutions upon enquiry.

	WSKW (DN)	WSKG (DN)	WSKS (DN)	WSA (DN)	WEX (DN)
T_{max} = 200°C  Type 1 Medium pressure hose T1 Type A Medium pressure hose T1 in ATEX design  PTFE hose with single stainless steel braiding + fittings union nut type DKR	4 6 8 10 13 16 20 25	4 6 8 10 13 16 20 25	4 6 8 10	4 6 8 10 13	
T_{max} = 250°C  Type 2 High pressure hose T2 Type B High pressure hose T2 in ATEX design  PTFE hose with double stainless steel braiding + fittings union nut type DKR	6 8 10 13 16 20 25 32 40	6 8 10 13 16 20 25 32 40	6 8 10	6 8 10 13 16 20 25 32 40	4 6 8 10 13
T_{max} = 250°C  Type 3 Maximum pressure hose T3 Type C Maximum pressure hose T3 in ATEX design  PTFE hose with double-wound steel wire and single stainless steel braiding + fittings union nut type DKR	6 8 10 13 16 20 25 32	6 8 10 13 16 20 25 32	6 8 10	6 8 10 13 16 20 25 32	4 6 8 10 13
T_{max} = 450°C  Type 7 Corrugated stainless steel hose with single stainless steel braiding + fittings union nut type DKR	6 8 10 12 15 20 25 32	6 8 10 12 15 20 25 32 40 50 65 80 100 125	6 8 10	6 8 10 12 15 20 25 32 40 50 65 80 100 125	

LENGTHS OF HEATED HOSES L Example: L = 15 m → WSKG0201-230XP016-1500STDN

Lengths of heated hoses

We supply heated hoses to the exact length required, ranging from 0,30 m to 82 m.

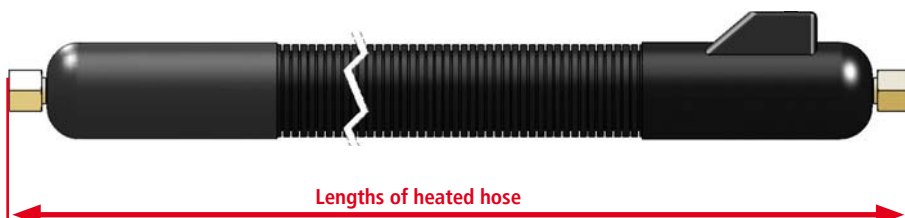
As from certain lengths, several heating circuits or three-phase arrangements will be necessary, depending on voltage, temperature and power.

Manufacturing tolerance: ±2 %

During operation the length of the hose may vary by ± 2 % due to changes in pressure and temperature load.

Measurement of heated hose length

The length of the heated hose refers to the total length – with fittings (see illustration).



MAXIMUM PERMISSIBLE OPERATING PRESSURE FOR BASIC PTFE HOSES

Static operating pressure for medium pressure hose – T1 (bar)

Working temperature	DN 4	DN 6	DN 8	DN 10	DN 13	DN 16	DN 20	DN 25	DN 32	DN 40
24 °C	275	240	200	175	150	135	100	80	—	—
100 °C	261	228	190	166	143	128	95	76	—	—
150 °C	248	216	180	158	135	122	90	72	—	—
200 °C	228	199	166	145	125	112	83	66	—	—
bis 250 °C	206	180	150	131	113	101	75	60	—	—

Dynamic operating pressure for medium pressure hose – T1 (bar)

Working temperature	DN 4	DN 6	DN 8	DN 10	DN 13	DN 16	DN 20	DN 25	DN 32	DN 40
24 °C	173	151	126	110	95	85	63	50	—	—
100 °C	165	144	120	105	90	81	60	48	—	—
150 °C	156	136	113	99	85	77	57	45	—	—
200 °C	144	125	105	92	78	71	52	42	—	—
bis 250 °C	130	113	95	83	71	64	47	38	—	—

Burst operating pressure for medium pressure hose – T1 (bar)

Working temperature	DN 4	DN 6	DN 8	DN 10	DN 13	DN 16	DN 20	DN 25	DN 32	DN 40
24 °C	1100	960	800	700	600	540	400	320	—	—
100 °C	1045	912	760	665	570	513	380	304	—	—
150 °C	990	864	720	630	540	486	360	288	—	—
200 °C	913	797	664	581	498	448	332	266	—	—
bis 250 °C	825	720	600	525	450	405	300	240	—	—

Static operating pressure for high pressure hose – T2 (bar)

Working temperature	DN 4	DN 6	DN 8	DN 10	DN 13	DN 16	DN 20	DN 25	DN 32	DN 40
24 °C	—	275	250	225	200	175	150	130	70	50
100 °C	—	261	238	214	190	166	143	124	67	48
150 °C	—	248	225	203	180	158	135	117	63	45
200 °C	—	228	208	187	166	145	125	108	58	42
bis 250 °C	—	206	188	169	150	131	113	98	53	38

Dynamic operating pressure for high pressure hose – T2 (bar)

Working temperature	DN 4	DN 6	DN 8	DN 10	DN 13	DN 16	DN 20	DN 25	DN 32	DN 40
24 °C	—	173	158	142	126	110	95	82	44	32
100 °C	—	165	150	135	120	105	90	78	42	30
150 °C	—	156	142	128	113	99	85	74	40	28
200 °C	—	144	131	118	105	92	78	68	37	26
bis 250 °C	—	130	118	106	95	83	71	61	33	24

Burst operating pressure for high pressure hose – T2 (bar)

Working temperature	DN 4	DN 6	DN 8	DN 10	DN 13	DN 16	DN 20	DN 25	DN 32	DN 40
24 °C	—	1100	1000	900	800	700	600	520	280	200
100 °C	—	1045	950	855	760	665	570	494	266	190
150 °C	—	990	900	810	720	630	540	468	252	180
200 °C	—	913	830	747	664	581	498	432	232	166
bis 250 °C	—	825	750	675	600	525	450	390	210	150

Static operating pressure for maximum pressure hose – T3 (bar)

Working temperature	DN 4	DN 6	DN 8	DN 10	DN 13	DN 16	DN 20	DN 25	DN 32	DN 40
24 °C	—	500	475	450	400	400	300	275	250	—
100 °C	—	475	451	428	380	380	285	261	238	—
150 °C	—	450	428	405	360	360	270	248	225	—
200 °C	—	415	394	374	332	332	249	228	208	—
bis 250 °C	—	375	356	338	300	300	225	206	188	—

Dynamic operating pressure for maximum pressure hose – T3 (bar)

Working temperature	DN 4	DN 6	DN 8	DN 10	DN 13	DN 16	DN 20	DN 25	DN 32	DN 40
24 °C	—	315	299	284	252	252	189	173	158	—
100 °C	—	299	284	269	239	239	180	165	150	—
150 °C	—	284	269	255	227	227	170	156	142	—
200 °C	—	261	248	235	209	209	157	144	131	—
bis 250 °C	—	236	224	213	189	189	142	130	118	—

Burst operating pressure for maximum pressure hose – T3 (bar)

Working temperature	DN 4	DN 6	DN 8	DN 10	DN 13	DN 16	DN 20	DN 25	DN 32	DN 40
24 °C	—	2000	1900	1800	1600	1600	1200	1100	1000	—
100 °C	—	1900	1805	1710	1520	1520	1140	1045	950	—
150 °C	—	1800	1710	1620	1440	1440	1080	990	900	—
200 °C	—	1660	1577	1494	1328	1328	996	913	830	—
bis 250 °C	—	1500	1425	1350	1200	1200	900	825	750	—

Test pressure:

The test pressure lies 50% above the specified static operating pressure.

The pressure specifications of basic hose type 7 are temperature-dependent and available upon enquiry.

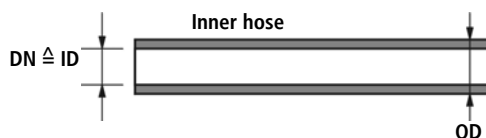
Nominal diameters DN

Example: DN = 16 mm → WSKG0201-230XP016-1500STDN



Important!

The nominal diameter DN of a heated line always refers to the inner diameter ID in mm of the inner hose.



Nominal diameter		Inner diameter ID (mm) Inner hose			Outer diameter OD (mm) Inner hose		
DN	Code	T1	T2	T3	T1	T2	T3
4	004	4,8	—	—	8,2	—	—
6	006	6,4	6,4	6,0	10,0	11,5	11,1
8	008	8,1	8,1	8,0	11,8	13,0	13,3
10	010	10,5	10,5	9,9	14,0	16,0	15,6
13	013	13,0	13,0	12,8	17,5	19,0	19,0
16	016	15,8	15,8	16,0	20,0	22,0	22,4
20	020	20,8	20,8	20,0	26,0	28,0	27,0
25	025	25,0	25,0	23,5	30,0	31,5	30,0
32	032	—	31,5	—	—	39,5	—
40	040	—	38,0	—	—	48,0	—



Important!

The nominal diameter is not to be confused with the dimensions of the fitting.

OPERATING VOLTAGES

STANDARD 230 VAC-50 Hz

Options: 12 VAC, 24 VAC, 48 VAC, 115 VAC, 200VAC, 400 VAC, 480 VAC
12 VDC, 24 VDC, 48 VDC
others are on request

TEMPERATURE SENSORS

STANDARD Sensortypen:

- Temperature sensor Pt 100 (2 wire) (potential free)
- Thermocouple type K (NiCr-Ni) (potential free)
- Thermocouple type J (Fe-CuNi) (potential free)

Code XP
Code XK
Code XJ

Options for types of sensors:

- Temperature sensor Pt 100 (3 wire)
- Temperature sensor Pt 100 (4 wire)
- Bi-metal temperature controller
- Temperature fuse

Code XT
Code XQ
Code XB
Code XS

Options for multiple sensors and sensor combinations:

- Multiple sensors
- 2 x Pt 100 (2 wire)
- 3 x Pt 100 (2 wire)
- 2 x thermocouple type K (potential free)
- ...etc.

Code ZP
Code DP
Code ZK

Sensor combination e.g. Pt100 + thermocouple type K
...etc.

Code PK

BEISPIEL: 230V → WSKG0201-230XP016-1500STDN

STANDARD Ein Heizkreis = eine Heizzone

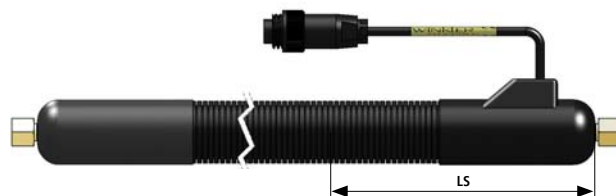
Options: More heating circuits → more heating zones.
Three phase version possible.

BEISPIEL: PT 100 → WSKG0201-230XP016-1500STDN

STANDARD Sensor position:

The sensor position is always measured from the electrical connection side.

- **LS = 300 mm** for heated lines with heating cable.
- **LS = 1.000 mm** for heated lines with parallel heating tape.



Optional sensor positions:

Please indicate your desired sensor position LS in your order.
The correct position of the sensor is particularly important in cases of (partial) installation in switch cabinets, through walls or outdoors.
Please ask our specialists for advice.



Important!

Exposure to wind, as in the case of outdoor installations, can cool down the heated line quite considerably.

Under these conditions, the heated line should be laid with appropriate protection, provided with stronger insulation (see options) and/or more power (W/m), while the temperature sensors have to be strategically placed. If the analytical measurement line runs through areas with different ambient temperatures, the internal hose temperature will vary accordingly. This can be prevented by incorporating different heating zones with separate control.

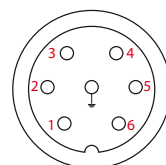
ANSCHLUSSKABEL UND STECKER

STANDARD

- Power- and sensor cable together.
- Cable exit sideways according to type 1.
- Length of connecting cable: 1,5 m
- 7-pin round plug (< 10 A), 5-pin round plug (< 20 A)
- Cable ends with ferrules (serie WEX)

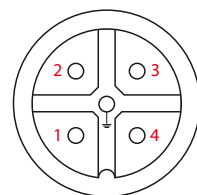
Options:

- Power and sensor cable routed separately.
- Cable exits according to types **2, 3, 4** or **5**
- Other lengths of connecting cable possible from 0,1 m.
- Without plug (cable ends with ferrules)
- Other plugs : You may specify other kinds of plugs required apart from the standard. If the correct type is not known, please send us a sample and the desired pin assignment.



Pin assignment (7-pin round plug)

- | | |
|---------------------|----------------------|
| 1: Power (L) | 5: Sensor (+) |
| 2: Power (N) | 6: Sensor (-) |
| 3: free | PE: Earth |
| 4: free | |



Pin assignment (5-pin round plug)

- | | |
|---------------------|----------------------|
| 1: Power (L) | 3: Sensor (+) |
| 2: Power (N) | 4: Sensor (-) |
| | PE: Earth |



CONTROLLERS

The quality of control and monitoring equipment is decisive for maintaining the exact fluid temperature, protecting the service life of the heated line, and ensuring trouble-free operation of your installation.

Winkler controllers are robust, reliable and designed for continuous duty in industrial environments. Thanks to the clear and user-friendly control panels of our devices, even complex control processes can be carried out quickly and accurately.

We offer a comprehensive range of high-quality control monitoring equipment optimally adapted to our heated lines. Special controllers can be built upon request.

All devices also available for use with 115 V upon request.



Art.-Nr. **WRH00141-230XW000**

- Compact controller with microprocessor for DIN-Rail installation..
- Switching capacity: 230 V, 8 A, 500 W
- Universal sensor entry for Pt 100 and thermocouples.
- 4-digit LED Display 0...999 °C. 4 LED for status indication.
- Quick and easy configuration through foil keyboard.
- Selectable regulation algorithm with self-tuning.



Art.-Nr. **WRW00110-230XP000** for operation with Pt 100 sensor

Art.-Nr. **WRW00110-230XK000** for operation with thermocouple type K

Art.-Nr. **WRW00110-230XJ000** for operation with thermocouple type J

- Controller with microprocessor ready to use for wall installation.
- Switching capacity: 230 V, 10 A, 2.300 W
- Device with plug ready to use. Connection of the heater through 7-pin round socket.
- 4-digit LED Display 0...999 °C. 2 LED for status indication.
- Quick and easy configuration through foil keyboard.



Art.-Nr. **WRW00120-230XW000**

for use with Pt 100 sensor and thermocouples type K / J (selectable)

- Controller with microprocessor for wall installation.
- Switching capacity: 230 V, 10 A, 2.300 W
- Connection of heater through screw type terminals.
- 4-digit LED Display 0...999 °C. 2 LED for status indication.
- Quick and easy configuration through foil keyboard.



Art.-Nr. **WRW00113-230XP000** for use with Pt 100 sensor

Art.-Nr. **WRW00113-230XK000** for use with thermocouple type K

Art.-Nr. **WRW00113-230XJ000** for use with thermocouple type J

- Controller with microprocessor ready to use with solid state relay for wall installation.
- Switching capacity: 230 V, 16 A, 3600 W
- Device with plug ready to use. Connection of the heater through 5-pin round socket.
- 4-digit LED Display 0...999 °C. 2 LED for status indication.
- Quick and easy configuration through foil keyboard. Selectable regulation algorithm.



Art.-Nr. **WRWA6780-230XP000** for use with 2 Pt 100 sensors

Art.-Nr. **WRWA6780-230XK000** for use with 2 thermocouples type K

Art.-Nr. **WRWA6780-230XJ000** for use with 2 thermocouples type J

- Controller and limiter combination with microprocessor ready to use for wall installation.
- Switching capacity: 230 V, 10 A, 2300 W
- Device with plug ready to use. Connection of the heater through 7-pin round socket.
- 4-digit LED Display 0...999 °C. 2 LED for status indication.
- Quick and easy configuration through foil keyboard.

ACCESSORIES AND SPARE PARTS: PLUGS, COUPLINGS AND SOCKETS

Art.-Nr. WZZS0904-2507P10A

Plug 6+PE with cap
250 V, 10 A, IP 65, screw connections, -40 °C / +100°C



Art.-Nr. WZZS0908-2507P10A

Coupling 6+PE with cap
250 V, 10 A, IP 65, screw connections, -40 °C / +100°C



Art.-Nr. WZZS0906-2507P10A

Flange socket 6+PE with cap and screws
250 V, 10 A, IP 65, screw connections, -40 °C / +100°C



Art.-Nr. WZZS0939-4005P20A

Plug 4+PE with cap
400 V, 20 A, IP 65, screw connections, -40 °C / +100°C



Art.-Nr. WZZS0971-4005P20A

Coupling 4+PE with cap
400 V, 20 A, IP 65, screw connections, -40 °C / +100°C



Art.-Nr. WZZS0940-4005P20A

Flange socket 4+PE with cap and screws
400 V, 20 A, IP 65, screw connections, -40 °C / +100°C



Art.-Nr. WZZS0942-4004P16A

Plug 3+PE with cap
400 V, 16 A, IP 65, screw connections, -40 °C / +100°C



Art.-Nr. WZZS0943-4004P16A

Coupling 3+PE with cap
400 V, 16 A, IP 65, screw connections, -40 °C / +100°C



Art.-Nr. WZZS0993-4004P16A

Flange socket 3+PE with cap and screws
400 V, 16 A, IP 65, screw connections, -40 °C / +100°C



ACCESSORIES AND SPARE PARTS: SILICON CAPS

Applications

Covering of line ends, repair of outer covers, strengthening of passages, manufacturing of insulations.

Technical data

Black, smooth, elastic and extremely tear proof. Wall thickness approx. 3 mm. High chemical resistance.

Very low humidity absorption, very good elasticity. Long time temperature stability -60 °C / + 240 °C. Tolerances of dimensions ±10%

Handling

Cut with a sharp knife. Expand slightly to cover and glue with silicon Art.-Nr. WZZ00629-000ST090.

Art.-Nr. WZK00715-028SB034



- Black silicon cap
- without cable outlet
- ID 28 mm
- OD 34 mm
- length 100 mm

Art.-Nr. WZK00709-038SB044



- Black silicon cap
- without cable outlet
- ID 38 mm
- OD 44 mm
- length 110 mm

Art.-Nr. WZK00704-058SB064



- Black silicon cap
- without cable outlet
- ID 58 mm
- OD 64 mm
- length 110 mm

Art.-Nr. WZK00716-028SB034



- Black silicon cap
- with cable outlet
- ID 28 mm
- OD 34 mm
- length 100 mm

Art.-Nr. WZK00708-038SB044



- Black silicon cap
- with cable outlet
- ID 38 mm
- OD 44 mm
- length 110 mm

Art.-Nr. WZK00703-058SB064



- Black silicon cap
- with cable outlet
- ID 58 mm
- OD 64 mm
- length 110 mm

ACCESSORIES AND SPARE PARTS: SILICON FOAM HOSES

Applications

Insulation of pipes, fittings and passages, mechanical protection of sensitive parts.

Technical data

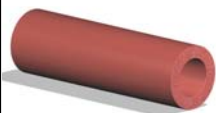
Fine pored, closed cell silicon foam hose sold by the meter. Light, elastic, tear proof. High chemical resistance.

Very low humidity absorption, very good elasticity. Long time temperature stability -60 °C / + 240 °C. Tolerances of dimensions ±10%

Handling

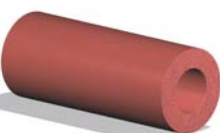
Cut to length with a sharp knife. Fix with Velcro tape Art.-Nr. WZZ00622-005HF020.

Art.-Nr. WZI01336-018SR030



- Red silicon foam hose
- ID 18 mm
- OD 30 mm,
- sold by the meter

Art.-Nr. WZI01313-021SR040



- Red silicon foam hose
- ID = 21 mm
- OD = 40 mm
- sold by the meter

Art.-Nr. WZI01355-030SR040



- Red silicon foam hose
- ID = 30 mm
- OD = 40 mm
- sold by the meter

Art.-Nr. WZI01337-018SB032



- Silicon foam hose with black silicon skin
- ID 18 mm
- OD 32 mm
- sold by the meter

Art.-Nr. WZI01315-021SB042



- Silicon foam hose with black silicon skin
- ID = 21 mm
- OD = 42 mm
- sold by the meter

Art.-Nr. WZI03314-008SB042



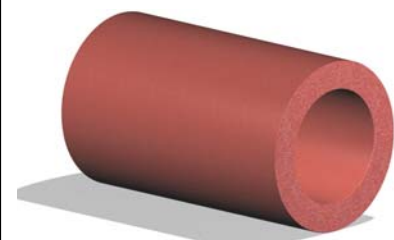
- Silicon foam hose with black silicon skin
- ID = 8 mm
- OD = 42 mm
- sold by the meter

NEW

Art.-Nr. WZI01312-040SR060

Red silicon foam hose

ID 40 mm · OD 60 mm · sold by the meter



Art.-Nr. WZZ00622-005HF020

Velcro tape, hooks on front side · fleece on rear side

· 20 mm wide · 5 mm strong · 5 m reel



Art.-Nr. WZZ00629-000ST090

Transparent silicon glue:

90 ml tube incl. nozzle and winding hook



Winkler GmbH is an independent, medium-sized company located in Heidelberg (Germany). For more than 30 years we have been developing and manufacturing a broad range of electric heating solutions for industry and laboratory applications.

We supply reliable and durable products made of high-quality materials.

We are the right partner for innovative and quick answers to your requirements. Customized solutions and flexible manufacturing are our particular strengths. Our experienced specialists will offer you sound advice and - together with you - develop the heating solution tailored to your application.

Winkler - Your heating solution!



Our headquarter



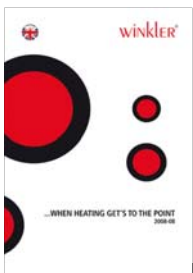
Heidelberg

Winkler GmbH
Englerstrasse 24
D-69126 Heidelberg
Germany

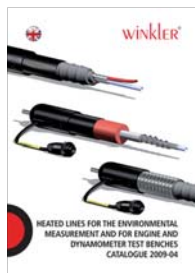
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E-Mail sales@winkler.eu
www.winkler.eu



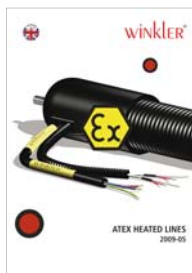
Our product range



Company presentation



Heated lines & heated hoses



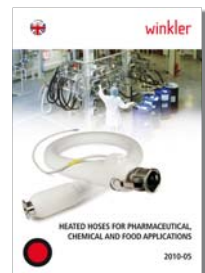
Atex Heated lines



Heated wall bushings



Heated hoses



Heated hoses for pharmaceutical, chemical and food applications



Heating jackets



Silicone heaters & heating foils



Laboratory heaters



Drum and IBC heaters



Heating Solutions for Rail Applications

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