



winkler



**PILZ® HEATING MANTLES
FOR LABORATORY AND INDUSTRY**

Dear Business Partner,

with the 2023 version we would like to introduce to you the latest innovation from our company - the new PILZ® Protect-Line.

As the name „Protect“ already suggests, the focus of these new generation of heating mantles have been entirely developed on the topic of protection and safety. For the first time, a laboratory heating mantle now offers a flexible heating element that provides a snug fitting to the glass round-bottom flask and electrical protection class I. Until now, protection class I could only be achieved by using tubular heating elements, with all the associated disadvantages.

In daily practice, this means even greater protection in the event of flask breakage or the penetration of electrically conductive liquid into the heating element area. This results in an even faster tripping of the residual current device (RCD) and thus offers the safest protection against electric shock.

The PILZ® heating mantles of the Classic-Lines, which have been on the market for over 80 years, are still available. From now on, these will bear the designation PILZ® Classic-Line for the best possible recognition.

As usual, you will find everything in this catalog that characterizes the traditional PILZ® brand; reliability, innovation, safety - in short: quality!

As a further highlight, from the first of May all PILZ® Classic-Line heating mantles are supplied with residual current device (RCD) connected - and an additional Schuko plug adapter enclosed.

After a considerable gain in production efficiency, we pass on the achieved savings to you by large extent in the form of lower prices - we are especially pleased to have this opportunity! Because we appreciate your loyalty just as much as you have been loyal for decades to our original „PILZ® heating mantles“.

PILZ® laboratory heaters, including accessories, are continually manufactured according to the latest safety regulations and standards. They are delivered, ready for operation „heated out“ and have passed last step testing during our final inspection. You can therefore assume the responsibility, as demanded of every distributor by the legal situation, towards your customers.

As a manufacturer with more than 40 years of experience, we will be pleased to continue offering individual special designs - adapted to your application or place of use.

Please send all your inquiries and orders to our central sales office at sales@winkler.org, which will ensure prompt processing.

Our warehouse stocks both heating mantle series and heating tapes for you.

With best regards from Heidelberg

Mit den besten Grüßen aus Heidelberg

Jack Shilling (aka Heating Jack)

Produktmanager Standard Produkte

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Important information

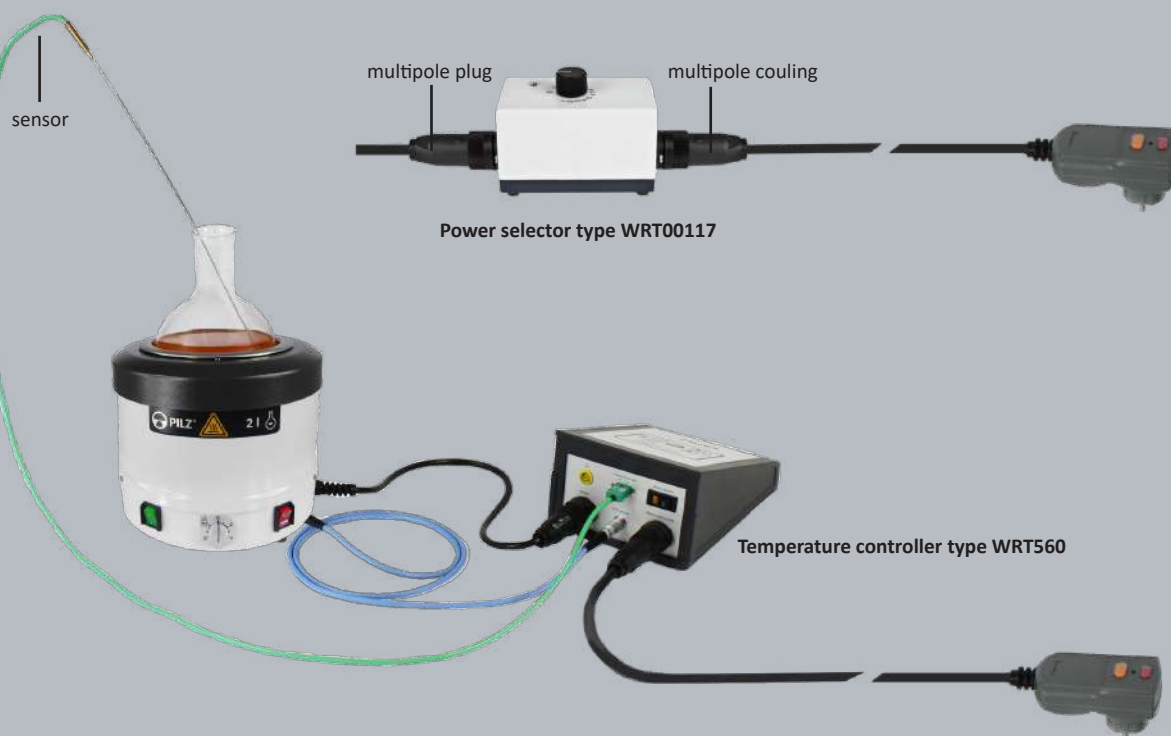
- Our sales terms and delivery conditions apply exclusively for all sales and deliveries (see www.winkler.org)
- We reserve the right to technical changes without notice
- Unless expressly stated otherwise, the products from Winkler AG are to be connected to 230V/50Hz operating voltage



CONNECTING SYSTEMS FOR PILZ® HEATING MANTLES



OPTIONAL POWER SELECTOR OR TEMPERATURE CONTROLLER



NEW: PROTECT LINE - PILZ® HEATING MANTLES WITH PROTECTION CLASS I

You ask yourself why change away from proven technology?
New times always bring with it new demands and regulations regarding technology and safety. The desire to be able to obtain a particularly electrically safe and sustainable heating mantle was not only primarily brought to us by training centers and schools, but also from the industry.

With the new generation „Protect-Line“, we combine traditional quality with a new level of electrical safety by introducing the protection class I into the metal-cased heating mantles.
All innovations can be found in the following overview.



SERIE WHLP2 - STANDARD

T_{max} = 450°C

- hand crocheted heating element made of glass silk in **protection class I**
- powder-coated, robust metal housing, with high chemical resistance
- **NEW:** unremovable warning labels with volume identification
- **NEW:** two-part design with liquid-tight top part
- **NEW:** all switches are protected against unwanted operation; designed as safety switches

Device features

- master switch
- one heating zone switch with integrated operation status light „Heated“ ► heating zone 1 or heating zone 1+2
- detachable plug-in connection (cable lenght 0.5 m)
- **NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W ±10%)	Heating zones	Dimensions Ø x H (mm)	Article No. 230 VAC*
50	51	60	1	160 x 185	WHLP2XXX-230XX450-000050DE
100	64	90	1	160 x 185	WHLP2XXX-230XX450-000100DE
250	85	150	2	160 x 185	WHLP2XXX-230XX450-000250DE
500	105	200	2	205 x 205	WHLP2XXX-230XX450-000500DE
1.000	131	300	2	205 x 205	WHLP2XXX-230XX450-001000DE
2.000	166	500	2	280 x 230	WHLP2XXX-230XX450-002000DE
3.000	185	600	2	280 x 230	WHLP2XXX-230XX450-003000DE



SERIES WHLP2ER - WITH INTEGRATED POWER SELECTOR

$T_{\max} = 450^{\circ}\text{C}$

- hand crocheted heating element made of glass silk in **protection class I**
- powder-coated, robust metal housing, with high chemical resistance
- NEW:** unremovable warning labels with volume identification
- NEW:** two-part design with liquid-tight top part
- NEW:** all switches are protected against unwanted operation; designed as safety switches

Device features

- master switch
- integrated mechanical power selector
 - infinitely variable power (0-100%)
- one heating zone switch with integrated operation status light „Heated“ → heating zone 1 or heating zone 1+2
- detachable plug-in connection (cable length 0.5 m)
- NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W ±10%)	Heating zones	Dimensions Ø x H (mm)	Article No. 230 VAC*
50	51	60	1	160 x 185	WHLP2ERX-230XX450-000050DE
100	64	90	1	160 x 185	WHLP2ERX-230XX450-000100DE
250	85	150	2	160 x 185	WHLP2ERX-230XX450-000250DE
500	105	200	2	205 x 205	WHLP2ERX-230XX450-000500DE
1.000	131	300	2	205 x 205	WHLP2ERX-230XX450-001000DE
2.000	166	500	2	280 x 230	WHLP2ERX-230XX450-002000DE
3.000	185	600	2	280 x 230	WHLP2ERX-230XX450-003000DE

SERIES WHLP2TC - WITH INTEGRATED TEMPERATURE SENSOR

$T_{\max} = 450^{\circ}\text{C}$

- hand crocheted heating element made of glass silk in **protection class I**
- powder-coated, robust metal housing, with high chemical resistance
- NEW:** unremovable warning labels with volume identification
- NEW:** two-part design with liquid-tight top part
- NEW:** all switches are protected against unwanted operation; designed as safety switches

Device features

- master switch
- one integrated temperature sensor type K
- one heating zone switch with integrated operation status light „Heated“ → heating zone 1 or heating zone 1+2
- detachable plug-in connection (cable length 0.5 m)
- NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W ±10%)	Heating zones	Dimensions Ø x H (mm)	Article No. 230 VAC*
50	51	60	1	160 x 185	WHLP2TCX-230XX450-000050DE
100	64	90	1	160 x 185	WHLP2TCX-230XX450-000100DE
250	85	150	2	160 x 185	WHLP2TCX-230XX450-000250DE
500	105	200	2	205 x 205	WHLP2TCX-230XX450-000500DE
1.000	131	300	2	205 x 205	WHLP2TCX-230XX450-001000DE
2.000	166	500	2	280 x 230	WHLP2TCX-230XX450-002000DE
3.000	185	600	2	280 x 230	WHLP2TCX-230XX450-003000DE

*other voltages on request

FOR OVER 80 YEARS: CLASSIC LINE - THE PILZ® - HEATING MANTLES WITH CROCHETED OUTER JACKET

The forerunner of our standard series WHG2 was first developed for laboratory applications more than 80 years ago. It was also the basis for most of the other series. Continuous improvements in materials technology, high level of functionality and safety against accidents make this series an integral part of any laboratory facility.

The product line is rounded off by a large range of accessories and suitable control devices. As from size 500 ml through to 20 litres, the heating mantles have a base opening. Except for the smallest models with volumes of 25 ml and 50 ml (one heating zone) the heating mantles are always equipped with two heating zones.



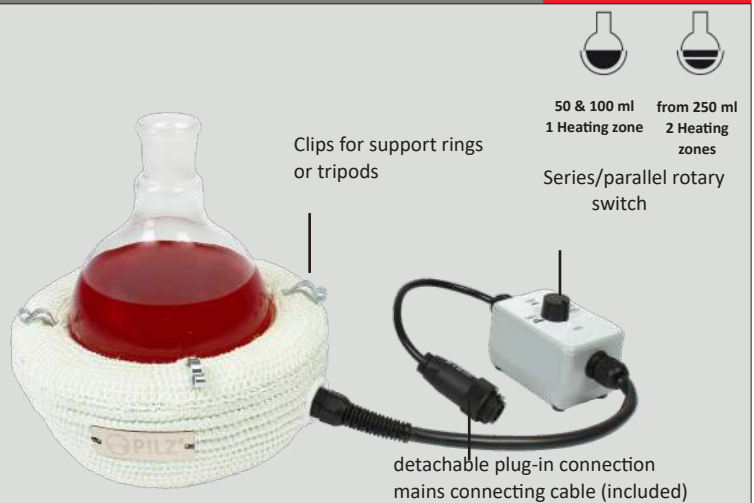
SERIES WHG2 - STANDARD

T_{max} = 450°C

- hand crocheted heating mantles made of glass silk for round bottom flask for optimal heat transfer

Device features

- 25 and 50 ml heating mantles with rotary switch
 - selectable power (OFF/50/100%)
 - one heating zone
- 100 to 1,000 ml with series/ parallel rotary switch
 - selectable power (OFF/25/50/100%)
 - 25% = heating zone 1+2 serially connected
 - 50% = lower heating zone
 - 100% = heating zone 1+2 parallel connected
- detachable plug-in connection (cable length 0.5 m)
- NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)
- from 2,000 ml with series parallel rotary switch
 - selectable power (OFF/25/50/100%)
 - heating zone 1 or heating zone 1 + 2
- detachable plug-in connection (length of cable 0,50 m)
- including personal protection plug with RCD function (length of cable 1,00 m)



Volume (ml)	Flask Ø (mm)	Power (W ±10%)	Heating zones	Base opening Ø × H (mm)	Article No. 230 VAC*
25	41	40	1	-	WHG2XXXX-230XX450-000025DE
50	51	70	1	-	WHG2XXXX-230XX450-000050DE
100	64	110	2	-	WHG2XXXX-230XX450-000100DE
250	85	200	2	-	WHG2XXXX-230XX450-000250DE
500	105	300	2	62	WHG2XXXX-230XX450-000500DE
1.000	131	450	2	62	WHG2XXXX-230XX450-001000DE
2.000	166	700	2	62	WHG2XXXX-230XX450-002000DE
3.000	185	800	2	62	WHG2XXXX-230XX450-003000DE
4.000	207	1.000	2	62	WHG2XXXX-230XX450-004000DE
5.000	223	1.200	2	62	WHG2XXXX-230XX450-005000DE
6.000	236	1.400	2	62	WHG2XXXX-230XX450-006000DE
10.000	279	2.000	2	62	WHG2XXXX-230XX450-010000DE
20.000	345	2.800	2	62	WHG2XXXX-230XX450-020000DE



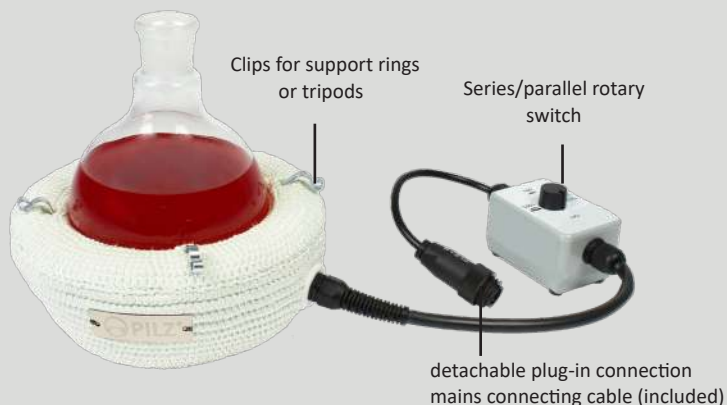
SERIES WHG2H - WITH INCREASED POWER AND OPERATING TEMPERATURE

T_{max} = 900°C

- hand crocheted heating mantles made of silicate yarn for round bottom flask for optimal heat transfer
- same design as WHG2, but with a maximum permissible temperature of 900°C

Device features

- series/parallel rotary switch
 - selectable power (OFF/25/50/100%)
 - 25% = heating zone 1+2 serially connected
 - 50% = lower heating zone
 - 100% = heating zone 1+2 parallel connected
- detachable plug-in connection (cable length 0.5 m)
- NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W ±10%)	Heating zones	Base opening Ø × H (mm)	Article No. 230 VAC*
250	85	300	2	-	WHG2HXXX-230XX900-000250DE
500	105	500	2	62	WHG2HXXX-230XX900-000500DE
1.000	131	750	2	62	WHG2HXXX-230XX900-001000DE
2.000	166	1.200	2	62	WHG2HXXX-230XX900-002000DE
4.000	207	1.800	2	62	WHG2HXXX-230XX900-004000DE
6.000	236	2.500	2	62	WHG2HXXX-230XX900-006000DE

*other voltages on request

SERIES WHLG2 - STANDARD METAL-CASED HEATING MANTLES

$T_{\max} = 450^{\circ}\text{C}$

- powder-coated, robust metal housing, with high chemical resistance
- hand crocheted heating mantles made of glass silk

Device features

- master switch
- integrated heating zone switch
 - heating zone 1 or heating zone 1+2
- detachable plug-in connection (cable length 0.5 m)
- **NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W $\pm 10\%$)	Heating zones	Dimensions Ø x H (mm)	Article No. 230 VAC*
50	51	50	1	160 x 185	WHLG2XXX-230XX450-000050DE
100	64	100	2	160 x 185	WHLG2XXX-230XX450-000100DE
250	85	150	2	160 x 185	WHLG2XXX-230XX450-000250DE
500	105	200	2	205 x 205	WHLG2XXX-230XX450-000500DE
1.000	131	300	2	205 x 205	WHLG2XXX-230XX450-001000DE
2.000	166	500	2	280 x 230	WHLG2XXX-230XX450-002000DE
3.000	185	600	2	280 x 230	WHLG2XXX-230XX450-003000DE
4.000	207	700	2	340 x 180	WHLG2XXX-230XX450-004000DE
5.000	223	860	2	340 x 180	WHLG2XXX-230XX450-005000DE
6.000	236	1.000	2	340 x 180	WHLG2XXX-230XX450-006000DE
10.000	279	1.400	2	400 x 190	WHLG2XXX-230XX450-010000DE
20.000	345	2.400	2	430 x 220	WHLG2XXX-230XX450-020000DE

SERIES WHLG2ER - WITH INTEGRATED POWER SELECTOR

$T_{\max} = 450^{\circ}\text{C}$

- powder-coated, robust metal housing, with high chemical resistance
- hand crocheted heating mantles made of glass silk

Device features

- master switch
- integrated heating zone switch
 - heating zone 1 or heating zone 1+2
- integrated mechanical power selector
 - infinitely variable power (0-100%)
- detachable plug-in connection (cable length 0.5 m)
- **NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W $\pm 10\%$)	Heating zones	Dimensions Ø x H (mm)	Article No. 230 VAC*
50	51	50	1	160 x 185	WHLG2ERX-230XX450-000050DE
100	64	100	2	160 x 185	WHLG2ERX-230XX450-000100DE
250	85	150	2	160 x 185	WHLG2ERX-230XX450-000250DE
500	105	200	2	205 x 205	WHLG2ERX-230XX450-000500DE
1.000	131	300	2	205 x 205	WHLG2ERX-230XX450-001000DE
2.000	166	500	2	280 x 230	WHLG2ERX-230XX450-002000DE
3.000	185	600	2	280 x 230	WHLG2ERX-230XX450-003000DE



SERIES WHLMG3ER - FUNCTIONAL FOR 3 FLASKSIZES

$T_{\max} = 450^{\circ}\text{C}$

- Variable-volume, metal-cased heating mantle for different flask sizes (see ordering data)
- powder-coated, robust metal housing, with high chemical resistance
- hand crocheted heating mantles made of glass silk

Device features

- master switch
- integrated heating zone switch
 - heating zone 1 or heating zone 1+2 or heating zone 1+2+3
- integrated mechanical power selector
 - infinitely variable power (0-100%)
- detachable plug-in connection (cable length 0.5 m)
- NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W ±10%)	Heating zones	Dimensions Ø x H (mm)	Article No. 230 VAC*
50-250	51-85	150	3	160 x 185	WHLMG3ER-230XX450-000250DE
250-1.000	85-131	360	3	205 x 205	WHLMG3ER-230XX450-001000DE
1.000-3.000	131-185	600	3	280 x 230	WHLMG3ER-230XX450-003000DE

SERIES WHLSG2ER - WITH METAL SHELL

$T_{\max} = 450^{\circ}\text{C}$

- suited for baths or catching leaking fluid due to vessel breakage
- powder-coated, robust metal housing, with high chemical resistance
- corrosion-resistant with optimal thermal conductivity heating shell

Device features

- master switch
- integrated heating zone switch
 - heating zone 1 or heating zone 1+2
- integrated mechanical power selector
 - infinitely variable power (0-100%)
- detachable plug-in connection (cable length 0.5 m)
- NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W ±10%)	Heating zones	Dimensions Ø x H (mm)	Article No. 230 VAC*
250	85	120	2	160 x 185	WHLSG2ER-230XX450-000250DE
500	105	200	2	205 x 205	WHLSG2ER-230XX450-000500DE
1.000	131	300	2	205 x 205	WHLSG2ER-230XX450-001000DE
2.000	166	500	2	280 x 230	WHLSG2ER-230XX450-002000DE

*other voltages on request



SERIES WHU2ER METAL-CASED HEATING MANTLES FOR ROUND-BOTTOM FLASKS

T_{max} = 450°C

- rectangular housing design for large volumes
- powder-coated, robust metal housing, with high chemical resistance
- hand crocheted heating mantles made of glass silk

- Device features**
- master switch
 - integrated heating zone switch
 - ▶ heating zone 1 or heating zone 1+2
 - integrated mechanical power selector
 - ▶ infinitely variable power (0-100%)
 - detachable plug-in connection (cable lenght 0.5 m)
 - **NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W ±10%)	Heating zones	Dimensions Ø x H (mm)	Article No. 230 VAC*
4.000	207	700	2	270 x 175	WHU2ERXX-230XX450-004000DE
5.000	223	860	2	290 x 185	WHU2ERXX-230XX450-005000DE
6.000	236	1.000	2	300 x 195	WHU2ERXX-230XX450-006000DE
10.000	279	1.400	2	350 x 215	WHU2ERXX-230XX450-010000DE
20.000	345	2.400	2	430 x 250	WHU2ERXX-230XX450-020000DE





SERIES WHRE4 MULTI-PLACE HEATING MANTLE WITH 4 HEATING PLACES

 $T_{\max} = 450^{\circ}\text{C}$

- powder-coated, robust metal housing, with high chemical resistance
- stainless steel front and cover plate
- hand crocheted heating mantles made of glass silk
- 4 heating places

Device features

- master switch
- integrated mechanical power selector per heating place
 - ▶ infinitely variable power (0-100%)
- detachable plug-in connection (cable length 0.5 m)
- rod clamp STK 2 per heating place (without rod)
- **NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W $\pm 10\%$)	Heating zones	Dimensions Ø x H (mm)	Article No. 230 VAC*
100	64	4 x 110	1	620 x 220 x 130	WHRE4ERX-230XX450-000100DE
250	85	4 x 220	1	620 x 220 x 130	WHRE4ERX-230XX450-000250DE
500	105	4 x 330	1	765 x 260 x 130	WHRE4ERX-230XX450-000500DE
1.000	131	4 x 495	1	765 x 260 x 130	WHRE4ERX-230XX450-001000DE

SERIES WHRE6 MULTI-PLACE HEATING MANTLE WITH 6 HEATING PLACES

 $T_{\max} = 450^{\circ}\text{C}$

- powder-coated, robust metal housing, with high chemical resistance
- stainless steel front and cover plate
- hand crocheted heating mantles made of glass silk
- 6 heating places

Device features

- master switch
- integrated mechanical power selector per heating place
 - ▶ infinitely variable power (0-100%)
- detachable plug-in connection (cable length 0.5 m)
- rod clamp STK 2 per heating place (without rod)
- **NEW:** including personal protection plug with RCD function and cable with Schuko plug type E/F (cable length 1.0 m)



Volume (ml)	Flask Ø (mm)	Power (W $\pm 10\%$)	Heating zones	Dimensions Ø x H (mm)	Article No. 230 VAC*
100	64	6 x 110	1	870 x 220 x 130	WHRE6ERX-230XX450-000100DE
250	85	6 x 200	1	870 x 220 x 130	WHRE6ERX-230XX450-000250DE
500	105	6 x 330	1	1146 x 260 x 130	WHRE6ERX-230XX450-000500DE
1.000	131	6 x 495	1	1146 x 260 x 130	WHRE6ERX-230XX450-001000DE

* other voltages on request

SERIES WHI INDUSTRIAL HEATING MANTLES

T_{max} = 450°C

This series of heating mantles has the same basic design as the laboratory heating mantles. However, due to its size, it is mechanically reinforced by a stable support ring.

Four eyebolts are movably connected to the support ring and serve as mounting brackets.

- Outer jacket made of PTFE coated glass fabric (other outer jacket materials upon request)
- Heating cable hand crochet into glass silk yarn heating mantle

Features include:

- Electrical termination housing
- 2,0 m power supply cable equipped with 10-pole industrial plug
- for connection to WRTI7xxx series control unit



Volumen (l)**	Flask Ø (mm)	Power (W ±10%)	Heating zones	Bottom hole Ø (mm)	Artikel-No. 230 VAC*
10	280	1.600	3	Must be specified if different from standard	WHI3X280-230XK450-0010XXXX
20	350	2.400	3		WHI3X350-230XK450-0020XXXX
20	365	2.400	3		WHI3X360-230XK450-0020XXXX
50	490	4.500	3		WHI3X490-230XK450-0050XXXX
50	510	4.500	3		WHI3X510-230XK450-0050XXXX
100	610	6.000	4	Standard: Ø 60 mm	WHI4X610-230XK450-0100XXXX
200	750	9.000	5		WHI5X750-230XK450-0200XXXX
200	760	9.000	5		WHI5X760-230XK450-0200XXXX

SERIES WHIS INDUSTRIAL HEATING MANTLES

T_{max} = 300°C

The safety heating mantle with up to 5 heating zones is regulated at 300 °C using the WRTI72 control unit from Winkler. This reduces tension in the glass bulb. In case of inadmissibly large tensions, there is a risk that the glass bulb will break.

- Outer jacket made of PTFE coated glass fabric (other outer jacket materials upon request)
- Heating cable hand crochet into glass silk yarn heating mantle

Features include:

- Electrical termination housing
- 2,0 m power supply cable equipped with 10-pole industrial plug
- for connection to WRTI7xxx series control unit
- 2,0 m cable with sensor plug
- One temperature sensor for each heating zone
 - Standard: Thermoelement Type K (NiCr-Ni)
 - Option: Thermoelement Type J (Fe-CuNi) ► Option: Temperatursensor Pt 100 (2-wire / 4-wire)



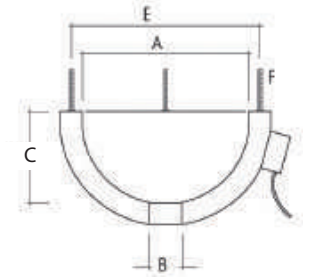
Volume (l)**	Flask Ø (mm)	Power (W ±10%)	Heating zones	Bottom hole Ø (mm)	Artikel-No. 230 VAC*
10	280	1.600	3	Muss angegeben werden, wenn vom Standard abweichend	WHI3S280-230DK300-0010XXXX
20	350	2.400	3		WHI3S350-230DK300-0020XXXX
20	365	2.400	3		WHI3S365-230DK300-0020XXXX
50	490	4.500	3		WHI3S490-230DK300-0050XXXX
50	510	4.500	3		WHI3S510-230VK300-0050XXXX
100	610	6.000	4	Standard: Ø 60 mm	WHI4S610-230VK300-0100XXXX
200	750	9.000	5		WHI5S750-230FK300-0200XXXX
200	760	9.000	5		WHI5S760-230FK300-0200XXXX

* other voltages upon request
** other columns upon request



A Flask Ø*	B Bottom Hole	C Height*	E Evebolt to evebolt*	F Evebolt
280	Must be specified if different from standard	150	315	4 x M12
350		190	398	4 x M12
365		200	405	4 x M12
490		265	555	4 x M12
510		275	575	4 x M12
610	Standard: Ø 60 mm	325	670	4 x M12
750		395	825	4 x M12
760		400	830	4 x M12

*all dimensions in mm



Schematic construction of an industry heating mantle

SERIE WRTI71 CONTROL UNIT FOR INDUSTRIAL HEATING MANTLES

Industrial heating mantles are operated with the control unit series WRTI71.

- Benchtop controller made of plastic-coated, robust metal housing with high chemical resistance
- Front panel made of aluminum

Features include:

- main switch
- digital temperature display for undermost heating zone
- 3 to 5 power controllers with display lamp showing the heating zone operation status
- 1,50m power supply cable with three phase 16A CEE plug, 3×230V/50Hz
- 10-pole industrial socket for factory terminated industrial heating mantle plug

Dimensions in mm

W 400 × H 180 × D 250

Heating Zones	Article Number 230 VAC *
3	WRTI7103-2W4XK000
4	WRTI7104-2W4XK000
5	WRTI7105-2W4XK000



SERIE WRTI72 CONTROL UNIT FOR INDUSTRIAL HEATING MANTLES

WHIS safety industrial heating mantles are operated with the control unit series WRTI72. The temperature of the individual heating zones are limited to 300°C via a safety control.

- Benchtop controller made of plastic coated, robust metal housing with high chemical resistance
 - Front panel made of aluminum
- Features include:**
- main switch
 - 3 to 5 digital temperature display for Medium Temperature
 - 3 to 5 power controllers with display lamp showing the heating zone operation status
 - 1,50m power supply cable with three phase 16A CEE plug, 3×230V/50Hz
 - 10-pole industrial socket for factory terminated industrial heating mantle plug

WRTI72 additional features

- 10-pole sensor socket
- cable entry for signal contact temperature monitoring
- Lemo socket size 1; 4-pole; termination according to Namur (connection for external sensor for measuring the medium temperature)
- Overall control takes place via the freely selectable medium temperature
 - ▶ Tmax = 300 °C
- Temperature is limited by built-in temperature controllers
 - ▶ 300 °C for each heating zone

Dimensions in mm

B 400 × H 180 × T 250

Heating zones	Artikel-No. 230 VAC
3	WRTI7203-2W4DK000
4	WRTI7204-2W4VK000
5	WRTI7205-2W4FK000



Accessoires

POWER SELECTOR SERIES WRT00116

- plug-in power selector made of impact-resistant polystyrene
- sturdy switching mechanism

Device features

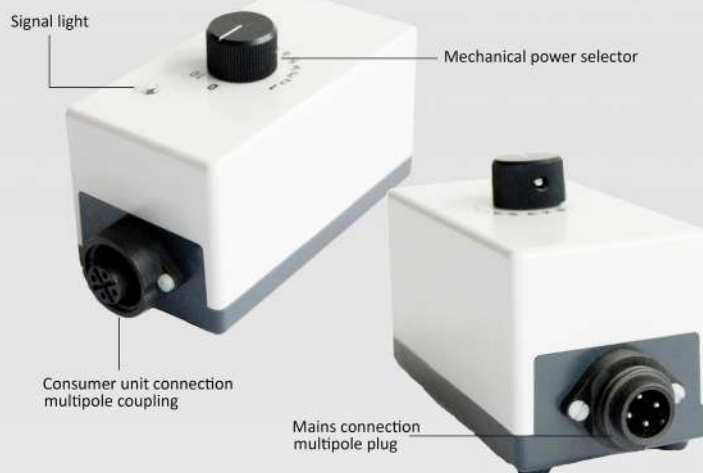
- integrated mechanical power selector with bimetal element
→ infinitely variable power (0-100%)
- signal light for control status indication
- cable with grounding type plug → cable length 1.4 m

Technical Data

Dimensions in mm B x H x T	120 x 56 x 57
Nominal voltage	230 VAC
Nominal current	13 A ohmic load
Nominal frequency	50 Hz
Nominal switching capacity	3,000 W
Mains connection	grounding type plug
Consumer unit connection	socket

Artikel-Nr.

WRT00116-230XX013
WRT00116-230XX0CH



POWER SELECTOR SERIES WRT00117 (SUITABLE FOR MULTI-POLE PLUG-IN SYSTEM)

- plug-in power selector made of impact-resistant polystyrene
- sturdy switching mechanism

Device features

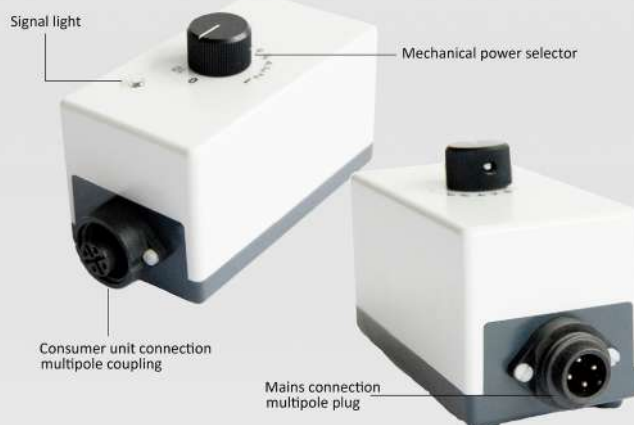
- integrated mechanical power selector with bimetal element
→ infinitely variable power (0-100%)
- signal light for control status indication

Technical Data

Dimensions in mm B x H x T	120 x 56 x 57
Nominal voltage	230 VAC
Nominal current	10 A ohmic load
Nominal frequency	50 Hz
Nominal switching capacity	2,300 W
Mains connection	Multipole plug
Consumer unit connection	Multipole coupling

Article No.

WRT00117-230XX010



RCD SAFETY PLUG



Cable length	Current	Article No.
1.0 m	10 A	WHZA1000

To be used if the user's mains network is **not** protected by a residual current device.

PLUG WITH MULTIPOLE COUPLING



Cable length	Current	Article No.
1.0 m	10 A	WHZA2000
1.0 m	10 A	WHZA20CH

May be employed when the user's mains network is protected by a residual current device.
(Adapter available with country code -CH / -UK / -US / etc.)

**SERIES WHZT SUPPORTING RING**

Flask volume (ml)	Article No.
25	WHZT0025
50	WHZT0050
100	WHZT0100
250	WHZT0250
500	WHZT0500
1.000	WHZT1000
2.000	WHZT2000
3.000	WHZT3000
4.000	WHZT4000

ROD CLAMP - STK 2

Material	Article No.
Plastic	WHZSTK02

Clamping device made of plastic for support rods between \varnothing 10-12 mm.

SERIE WHZD TRIPOD

Flask volume (ml)	Article No.
100	WHZD0100
250	WHZD0250
500	WHZD0500
1.000	WHZD1000
2.000	WHZD2000
3.000	WHZD3000
4.000	WHZD4000
5.000	WHZD5000
6.000	WHZD6000
10.000	WHZD0010
20.000	WHZD0020

TEMPERATURE CONTROLLERS

Functions

- Single-channel controller
- Fast Adaptive Tuning (FAT) adapts to the controlled system automatically and permanently
- Intuitive operation via LCD display
- Menu languages: DE, EN, FR, ES, JP
- **Increased safety during operation due to additional safety cut-off relay and with a long service life of >2.5 million switching cycles**

Sensor inputs

- Lemo socket size 1 (ERA.1S.302.CYM) and miniature connector
- Thermocouples: K, J, N, E
- Resistance sensors: Pt100, Pt1000, Nickel 120, NTC10k, NTC100k

Device features

- On / off switch
- Connection cable (length 1.5 m) with Schuko plug (only for WRT570SW)
- Earth socket
- Digital temperature display, actual and setpoint temperature

TABLE-TOP CONTROLLER - SERIES T-500

Technical Data			
Dimensions in mm B x H x T	199 x 100 x 158		
Nominal voltage	90-260 VAC 50/60 Hz		
Nominal current	10 A / 6,3 A ohmic load		
Fuse protection	built-in thermal fuse		
Power input / standby	<2 VA		
Ambient temperature	0-50 °C		
Mains switch	all-pole disconnection		
Protection standard	IP 40		
Protection class	I		
Article No.	Nominal current	Article No.	Nominal current
WRT560SW	10 A	WRT570SW	6,3 A

TABLE-TOP CONTROLLER - SERIES T-700 WITH MONITOR/LIMITER (COMING SOON)

Functions in addition to T-500

- Controller/monitor operation
- Enhanced safety due to additional all-pole switching safety cut-off relay
- additional functions

Information service on availability to:

m.walter@winkler.eu, keyword „Market Launch T-700“



Article No.	Nominal current	Article No.	Nominal current
WRT760SW	10 A	WRT770SW	6,3 A



TEMPERATURE SENSORS

Temperature measurement and control

Temperature sensors measure the temperature at the location to be monitored. This can be on a pipe, a reactor or as well on a PILZ laboratory heater. The temperature range to be measured, the type of installation of the heater and connection of the sensor, as well as the use of suitable control technology, among other things, must be taken into account.

Please contact us -

We will be happy to advise you on efficient and safe heating!

Resistance sensors

Such as Pt100 designed in two-wire technology do not have a defined polarity and also offer more exact measuring results compare to the thermocouples. Handling with short connection lengths is therefore simple.

Thermocouples

When using them, care must be taken to ensure correct polarity. For the sensor connection cable, the corresponding compensating cable should always be used. The maximum operating temperature for type K is up to 1,250 °C at the sensor tip.

PT100 SENSOR - READY FOR CONNECTION FOR TABLE-TOP CONTROLLER T-500

$T_{\max} = 500^{\circ}\text{C}$

Sensor assembled with Lemo plug
suitable for T-500

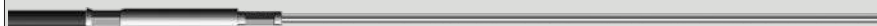


Sensor length	Sensor diameter	Cable length	Type	T_{\max}	Article No.
50 mm	3.5 mm	1.8 m	Pt100 two-wire	250°C	WFMP6999-000XX050
35 mm	4.8 mm	1.5 m	Pt100 two-wire	500°C	WFMP6999-000XX035

THERMOCOUPLE TYPE K - READY FOR CONNECTION FOR TABLE-TOP CONTROLLER T-500

$T_{\max} = 1000^{\circ}\text{C}$

Sensor assembled with miniature plug
suitable for T-500



Sensor length	Sensor diameter	Cable length	Type	T_{\max}	Article No.
300 mm	1.5 mm	1.2 m	Type K (NiCr-Ni)	1000°C	WFSK6999-000XX012
500 mm					

PT100 SENSOR

$T_{\max} = 500^{\circ}\text{C}$

Without plug



Sensor length	Sensor diameter	Cable length	Type	T_{\max}	Article No.
50 mm	3.5 mm	5 m	Pt100 two-wire	250°C	WFMP1250-000XX050
35 mm	4.8 mm	1.5 m	Pt100 four-wire	500°C	WFMP1500-000XX015

THERMOCOUPLE -TYPE K AND TYPE J

$T_{\max} = 1000^{\circ}\text{C}$

Without plug



Sensor length	Sensor diameter	Cable length	Type	T_{\max}	Article No.
300 mm	1.5 mm	1.2 m	Type J (Fe-CuNi)	500 °C	WFSJ1500-000XX012
300 mm	1.5 mm	1.2 m	Type K (NiCr-Ni)	1000 °C	WFSK1999-000XX012

HEATING TAPES AND HEATING CABLES

Application

In laboratories and experimental facilities where an easily employed system is desired to heat shapes and parts to high temperatures or where it is important to ensure short heating-up periods.

Advantages

- very high and constant heating power output per meter
- high operating temperature
- extremely flexible
- quick and easy installation
- cost effective

Please note:

- the high power output (W/m) requires a good heat-transfer contact with the object to be heated.
- to avoid overheating, heating tapes or cables must be installed in such a way that they are not in contact with each other or overlapping.
- the surface temperature of the switched on heating system is always higher than the pipe temperature.
- series resistance heating cables and tapes must be operated with a temperature controller

*other voltages on request

HEATING TAPE TYPE WBS00202

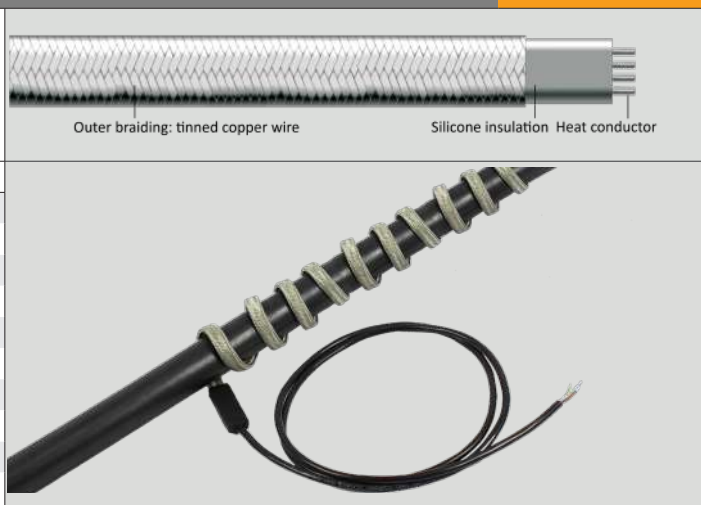
T_{max} = 200°C

Structure

- 4 heat conductors
- Silicone-insulated
- Outer braid: tinned copper wires (except WBS00201)
- Factory-terminated, vulcanised mains connection

Technical Data

Heat conductor temperature	max. 200 °C
Heating power	50 / 75 / 100 W/m
Nominal voltage	230 VAC*
Power tolerance	± 10%
Heating tape length	according to list
Mains connection	ready for connection - 1.5 m
Insulation material	silicone rubber with protective braiding
Construction type	moisture resistant
Dimensions	13.0 x 5.0 mm
Min. bending radius	> 15 mm



Heating tape type WBS00202 (50 W/m)

Length (m)	Power (W ±10%)	Article No. 230 VAC*
0.9	50	WBS00202-230XX200-00900050
1.8	100	WBS00202-230XX200-01800100
2.7	130	WBS00202-230XX200-02700130
4.0	200	WBS00202-230XX200-04000200
6.3	320	WBS00202-230XX200-06300320
9.5	470	WBS00202-230XX200-09500470
13.5	670	WBS00202-230XX200-13500670
16.0	780	WBS00202-230XX200-16000780

Heating tape type WBS00202 (75 W/m)

Length (m)	Power (W ±10%)	Article No. 230 VAC*
1.1	80	WBS00202-230XX200-01100080
2.2	160	WBS00202-230XX200-02200160
3.1	230	WBS00202-230XX200-03100230
4.6	350	WBS00202-230XX200-04600350
7.3	550	WBS00202-230XX200-07300550
11.0	820	WBS00202-230XX200-11000820
15.5	1,160	WBS00202-230XX200-15501160
18.3	1,370	WBS00202-230XX200-18301370

Heating tape type WBS00202 (100 W/m)

Length (m)	Power (W ±10%)	Article No. 230 VAC*
0.9	100	WBS00202-230XX200-00900100
1.8	200	WBS00202-230XX200-01800200
2.7	270	WBS00202-230XX200-02700270
4.0	410	WBS00202-230XX200-04000410
6.3	640	WBS00202-230XX200-06300640
9,5	950	WBS00202-230XX200-09500950
13,5	1.340	WBS00202-230XX200-13501340
16,0	1.570	WBS00202-230XX200-16001570



HEATING CABLE TYPE WKG00401

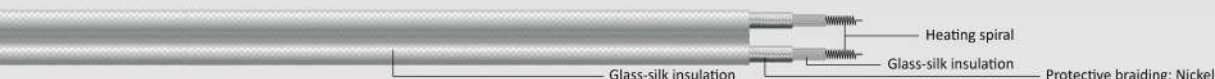
 $T_{\max} = 400^{\circ}\text{C}$ **Structure**

- one heating spiral
- glass-silk insulated
- outer braiding: flexible glass silk (two layers)
- both sides assembled; length 1,0 m

Technical Data

Heat conductor temperature	max. 400 °C	Length (m)	Power (W $\pm 10\%$)	Article No. 230 VAC*
Heating power	150 W/m	0.5	75	WKG00401-230XX400-00500075
Nominal voltage	230 VAC*	1.0	150	WKG00401-230XX400-01000150
Power tolerance	$\pm 10\%$	1.5	225	WKG00401-230XX400-01500225
Heating tape length	according to list	2.0	300	WKG00401-230XX400-02000300
Mains connection	ready for connection - 2x 1 m	2.5	375	WKG00401-230XX400-02500375
Insulation material	glass silk	3.0	450	WKG00401-230XX400-03000450
Construction type	not moisture resistant	4.0	600	WKG00401-230XX400-04000600
Dimensions	\varnothing ca. 6.0 mm	5.0	750	WKG00401-230XX400-05000750
Min. bending radius	> 6 mm	6.0	900	WKG00401-230XX400-06000900

HEATING CABLE TYPE WBG00402

 $T_{\max} = 400^{\circ}\text{C}$ **Structure**

- two heat conductors arranged in parallel/heating spirals
- glass-silk insulated
- protective braiding: Nickel
- outer braiding: flexible glass silk

Technical Data

Heat conductor temperature	max. 400 °C	Length (m)	Power (W $\pm 10\%$)	Article No. 230 VAC*
Heating power	250 W/m	0.5	125	WBG00402-230XX400-00500125
Nominal voltage	230 VAC*	1.0	250	WBG00402-230XX400-01000250
Power tolerance	$\pm 10\%$	1.5	375	WBG00402-230XX400-01500375
Heating tape length	according to list	2.0	500	WBG00402-230XX400-02000500
Mains connection	ready for connection - 0.4 m	2.5	625	WBG00402-230XX400-02500625
Insulation material	glass silk	3.0	750	WBG00402-230XX400-03000750
Construction type	not moisture resistant	5.0	1,250	WBG00402-230XX400-05001250
Dimensions	35 x 5 mm			
Min. bending radius	> 15 mm			

HEATING TAPE TYPE WBQ00901

 $T_{\max} = 900^{\circ}\text{C}$ **Structure**

- two heating spirals arranged in parallel
- silicate-fibre insulated
- outer braiding: flexible silicate fibre
- without protective conductor

Technical Data

Heat conductor temperature	max. 900 °C	Length (m)	Power (W $\pm 10\%$)	Article No. 230 VAC*
Heating power	350 W/m	0.5	175	WBQ00901-230XX900-00500175
Nominal voltage	230 VAC*	1.0	350	WBQ00901-230XX900-01000350
Power tolerance	$\pm 10\%$	1.5	525	WBQ00901-230XX900-01500525
Heating tape length	according to list	2.0	700	WBQ00901-230XX900-02000700
Mains connection	ready for connection - 0.4 m	2.5	875	WBQ00901-230XX900-02500875
Insulation material	silicate fibre	3.0	1,050	WBQ00901-230XX900-03001050
Construction type	not moisture resistant			
Dimensions	30 x 8 mm			
Min. bending radius	> 10 mm			

New bulk heater series „The green Choice“

$T_{\max} = 90^{\circ}\text{C} \mid 200^{\circ}\text{C}$



Drum heater
standard and customized



IBC-Heater
1 or 2 heating zones



Canister Heaters
all heaters with electronic
controllers available too

Temperature Controllers



Our Best-seller up to 16 A
long-life & additional safety-relay
Series W-500



Universal IR remote control
one for all new series

Inline-controller up to 10/20 A
compact & robust
Series L-300 (AC)/ L-200 (DC)



Our powerful one up to 40 A
wear-free electronic switch
Series W-600

PILZ® Laboratory Heating Mantles

$T_{\max} = 450^{\circ}\text{C}$

$T_{\max} = 900^{\circ}\text{C}$



Our classic PILZ® heating mantles
best fitting and for high temperatures Series WHG



Table Top controller
for PILZ® heating mantles
Serie T-500



Metal-cased heating mantles
available with power selector or sensor
Serie WHLP2



Heated Lines and Hoses

$T_{\max} = 600\text{ }^{\circ}\text{C}$



Heated Analysis Lines

Use case: Exhaust measurement and engine test benches

Construction and outer sheet mesh made from stainless steel. Best to use in high temperature engine testing and roller test bench applications.



Heated Hoses

Use case: Pharmaceutical-and Food production

Robust white or blue, detectable silicon outer sheets with good cleaning properties. Inner Hose with FDA-approval.

PTFE-coated

Heating and Insulation

$T_{\max} = 900\text{ }^{\circ}\text{C}$



Appropriated for use in Vacuum and cleanroom applications.



Aluminium-coated

Robust and e.g. for the use in engine test centres.



Glass Fibre Fabric

High temperature materials for the use up to $900\text{ }^{\circ}\text{C}$. Further materials are available on request - small and big sizes.

Hazardous Area Heater (ATEX)

ATEX EC

Type Examination Certificate

all ATEX-Products for zones 1/2 (gas) and 2/2 (dust) Series WEX



SAFETY

By purchasing a PILZ® heating mantle you have chosen a reliable and safe product. The materials employed are designed to suit the type of application and undergo constant quality control inspections at our works. In order to ensure safe and trouble-free operation of the PILZ® heating mantle over a long period of time, you should observe the rules and conditions set out in the operating instructions supplied with the heating mantle.

The operating instructions are an important part of the device and must be made available from the manufacturer to the user. In addition, you will find many practical tips regarding the operation and maintenance of our laboratory heating mantles. Compliance with the operating instructions will help you avoid dangers and increase the reliability and service life of the PILZ® heating mantle.

It is up to the operator to assess the associated dangers according to the conditions of use and application and to ensure safe operation of a PILZ® heating mantle.

PILZ® heating mantles are equipped with high specific power outputs to achieve the specified operating temperatures. In the event of prolonged uncontrolled operation for a longer period of time, the maximum operating temperatures can be exceeded. In order to avoid this, we recommend the use of suitable temperature controllers or power selectors. These can also positively influence the efficiency and quality when carrying out experiments with the heating mantles.

Due to the crocheted heating element, our PILZ® heating mantles have a certain flexibility and fit snugly up to the glass round-bottom flask. This ensures a perfect, efficient and gentle heating process. Due to their design, the heating mantles are not protected against moisture.

Our heating mantles are delivered with a permanently connected residual current device and thus comply with the valid safety standards according to the RL 2014/35/ EU Low Voltage Directive. Thanks to the detachable round plug-in connection, the Schuko plug adapter (that has been supplied as standard since 01.05.2021) can be easily replaced and used directly.

The use of the supplied adapter without an integrated residual current device requires the operator's mains supply to be protected by a residual current device (< 30 mA).

The RCD safely prevents a potential, foreseeable danger (coming in contact with electrical current flow) in the event of a fault due to overflow, piston breakage, insulation defects, etc. .

The following harmonized standards are observed for the designated products (each respectively in the valid version):

2014/30/EU

Electromagnetic Compatibility

2014/35/EU

Low Voltage Directive

EN IEC 60519-1:2020-12

(VDE 0721-1:2020-12)

Safety in installations for electroheating and electromagnetic processing

Part 1: General requirements

EN 61010-2-010 VDE 04011-2:2022-12

Safety requirements for electrical equipment for measurement, control, and laboratory use

Part 1: General requirements

EN IEC 61010-2 VDE 0411-2-010:2022-12

Safety requirements for electrical equipment for measurement, control, and laboratory use

Part 2-010: General requirements for laboratory equipment for the heating of materials



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Winkler AG – who we are and what distinguishes us

Winkler AG is an independent, medium-sized company based in Heidelberg. We develop, produce and distribute a wide range of flexible, electrical heating solutions for OEM and end users.

Users always receive a customized and ready-to-use solution. In most cases, this already includes heating element, insulation, temperature sensor, connection cable, fastening and, if desired, an integrated control.

Winkler stands for experience, reliability and innovation. Our drive is to find the best solution - precisely tailored to the respective application. We also achieve this by using our own temperature controllers, which we have designed in many years of development for plug & play use. Our company history of over 40 years and a steadily growing number of loyal and satisfied customers shows that our company philosophy is the right one. But no matter where; we are in close contact with every customer. Because the better we fulfil your requirements, the more convincing the results. And that is what matters most importantly for us.



Your contact:

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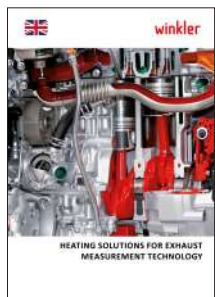
sales@winkler.org
www.winkler.org

Jack Shilling

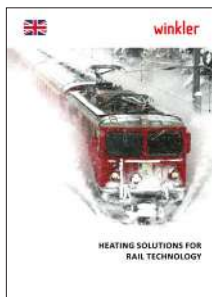
Product Manager
Standard Products

Phone: +49-6221-3646-58
mobile: +49-151-65655084

Our product range



Heating solutions for exhaust measurement technology



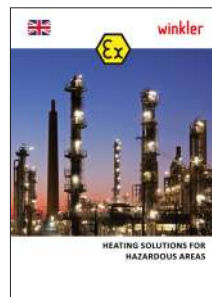
Heating solutions for rail technology



Heating solutions for chemical and thermal process engineering



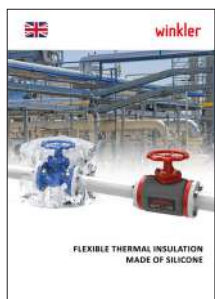
Heating solutions for process and environmental measurement



Heating solutions for hazardous areas



Drum and IBC heaters



Flexible thermal insulation made of silicone



Heated hoses for glueing technology and for filling and dosing systems



Parallel heating tapes



PILZ Heating mantles for laboratory and industry



Silicone heaters and heating foils



Temperature controllers

Winkler in AUSTRIA

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