

AEROLINE[®]

TUBE SYSTEMS
B A U M A N N G M B H

AEROLINE[®] SOLAR

The perfect connection technology for solar hot water



Pipe systems for solar, heating, heat pumps and air-conditioning technology

fast | simple | reliable

ASSEMBLY OPTIONS

Applications:

On-roof, in-roof and flat roof assembly,
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TROUBLE SHOOTING

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AEROLINE® SOLAR

The perfect connection technology for solar hot water.

AEROLINE® Solar pipe systems stand for continuous development and in practice approved technology. The completely pre-insulated line sets with feed and return are easily to connect to any common solar components – no special tools are required - just to connect without sweating, soldering, etc.

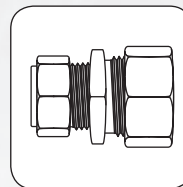
Your advantage: Reduces costs, faster assembly, excellent heat insulation.

The highlights at a glance:



Lowest thermal loss

The thermal loss of the twin tube system AEROLINE® Split 100 (DN 16 / DN 20) is as low as that of two individually laid pipes completed with 26 mm thick thermal insulation.



Metal-to-metal sealing

Safe connection with isiclick®.



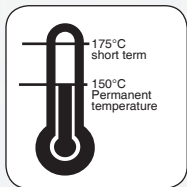
UV-resistance

Either a UV-resistant braiding or a polyolefin jacket is protecting the insulation of the AEROLINE®-line sets.



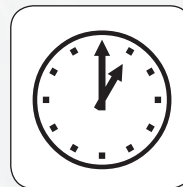
No special tools

isiclick® connections are just ingenious, no special tools are required.



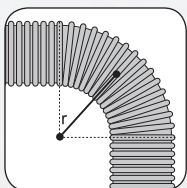
High temperature resistance

Permanent temperature resistance up to 150°C, short term up to 175°C.



Fast and simple assembly

The complete line set is fast and easily to install – also in very narrow spaces.



Minimum bending radius

Space saving and flexible in narrow space installations.



Robust jacket

Special feature for use outside: the robust mesh protection AEROLINE PRO®.



Made in Germany

The portion of added value in Germany is higher 50%.

Installation options

The perfect system for any situation

The AEROLINE® line sets are absolutely versatile.
Examples for frequently used solutions:

ON ROOF - & FLAT ROOF INSTALLATIONS

AEROLINE® COMBI SPLIT PRO

- Direct connection to the collector
- Fast assembly
- Protection against damage caused during mounting



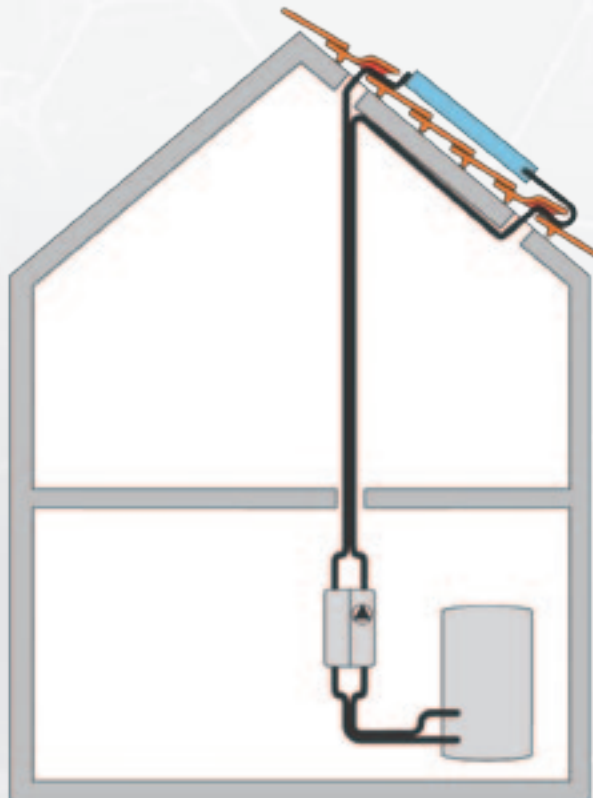
AEROLINE® PRO

- Protection against gnawing animals
- Weather resistant



AERORAPID® PRO

- Protection against gnawing animals
- Weather resistant
- Extra flexible



Preferred applications:

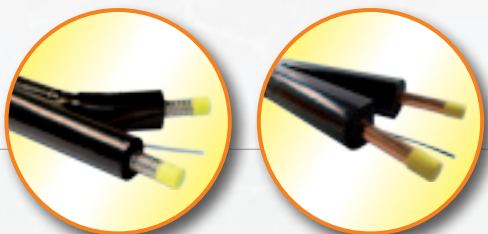
Installation options Products					
	On-Roof	In-Roof	Flat Roof	Stand-alone systems	Heating
AEROLINE® SPLIT Copper/INOX	○	●	○	○	○
AEROLINE® PRO Copper/INOX	●	○	●	○	○
AEROLINE® COMBI SPLIT/PRO INOX	●	○	○	○	○
AERORAPID® CLASSIC INOX	○	●	○	○	●
AERORAPID® PRO INOX	●	○	●	○	○

● Recommended ○ Possible

IN-ROOF INSTALLATION

AEROLINE® SPLIT

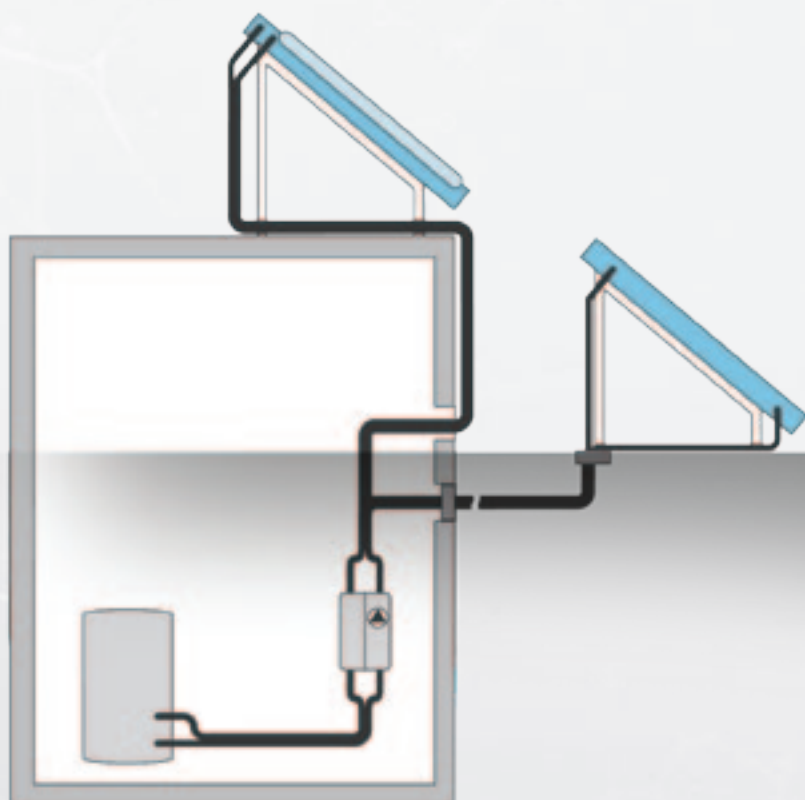
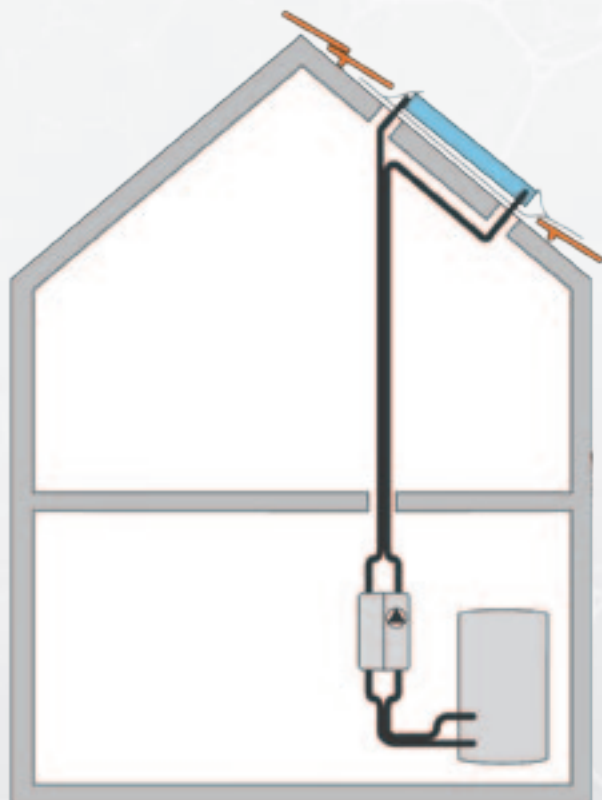
- Direct connection to the collector
- Fast assembly
- Protection against damage caused during mounting



FLAT ROOF & STAND-ALONE SYSTEMS

AERORAPID® CLASSIC / AERORAPID® PRO

- Protection against damage caused during mounting
- Minimum bending radius



It depends on the appropriate insulation!

The CFC-free insulation for the AEROLINE®-systems is made of a AEROFLEX® special EPDM caoutchouc, and guarantees optimum energy efficiency. The excellent weather resistance allows outdoor installations without further protection measures.

The highlights at a glance:

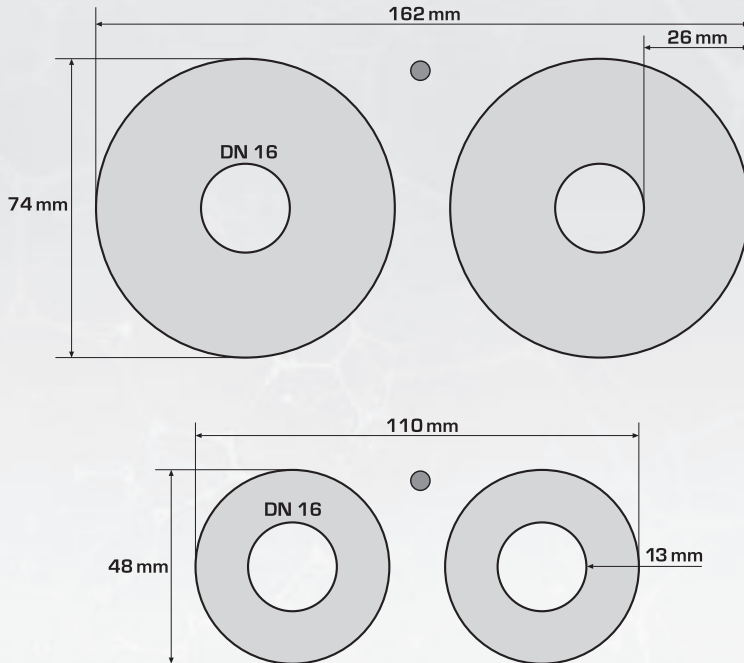
- Excellent handling characteristics
- Many years of experiences in the heating, air conditioning and solar application
- High temperature resistance
- Outdoor installation
- Highest insulation values
- Short term temperature resistance up to 175°C
- UV and weather resistance
- Reference values of thermal conductivity at $\lambda_{40^{\circ}\text{C}} = 0,040 \text{ W/mK}$
- No embrittlement of copper and stainless steel tubes according to DIN 1988 Part 7
- Quality control by an independent material inspection institute



Twin tubes – the consequence of continuous development!

There are various possibilities how to connect a solar thermal system.

Conventional solution



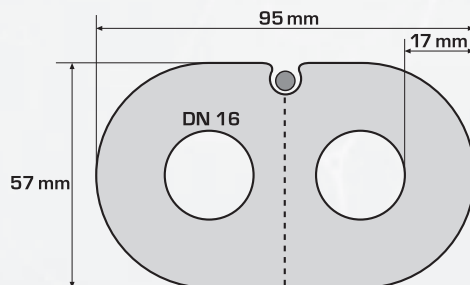
Single tube connection with 26 mm insulation

- approx. 16 W loss of thermal heat per double meter*
- space requirement 120 cm²
- surface approx. 0,46 m²

Single tube connection with 13 mm insulation

- approx. 23 W loss of thermal heat per double meter*
- space requirement 53 cm²
- surface approx. 0,30 m²

Optimum solution by AEROLINE®:

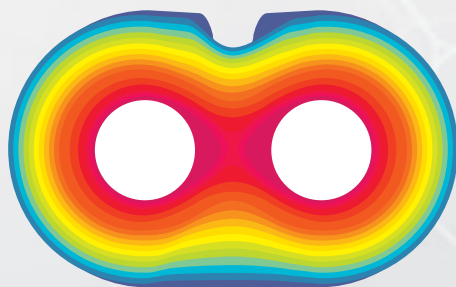


AEROLINE® SPLIT 100, Twin tube system, with optimal insulation

- approx. 16 W loss of thermal heat per double meter*
- space requirements approx. 54 cm² (approx. -55%)
- surface approx. 0,26 qm (approx. -43%)

*The values indicated for thermal loss and the dimension apply for twin tube systems of DN16 corrugated stainless steel tubes, evaluated in accordance with VDI 2055.
The characteristic value of thermal conductivity at 40°C, $\lambda_{40^\circ\text{C}} = 0,037 \text{ W/mK}$.

Simulation according to VDI 2055:



AEROLINE® combines purpose and regulations

All products of the AEROLINE® product range correspond to the now valid norms. The layouts for products made by the Research Institute for Thermal Protection in Munich (FIW) guarantee to installers and customers to work with optimized products.

The thermal loss of the twin tube system AEROLINE® SPLIT 100 (DN 16 / DN 20) is as low as that of two individually laid pipes completed with 26 mm thick thermal insulation.

AEROLINE® CU SPLIT 100

AEROLINE® CU SPLIT 20

Splitable for easier connection to collector, solar station and storage tank.

Dimension \ Length	10 m	15 m	20 m	25 m
Copper tube 10 x 0,7	●	●	●	●
Copper tube 12 x 0,8	●	●	●	●
Copper tube 15 x 0,8	●	●	●	●
Copper tube 18 x 1,0	●	●	●	●



AEROLINE® INOX SPLIT 100

AEROLINE® INOX SPLIT 20 (DN 16, DN 20, DN 25)

Splitable for easier connection to collector, solar station and storage tank.

Dimension \ Length	10 m	15 m	20 m	25 m	50 m
Corrugated stainless steel tube DN 12	●	●	●	●	●
Corrugated stainless steel tube DN 16	●	●	●	●	●
Corrugated stainless steel tube DN 20	●	●	●	●	●
Corrugated stainless steel tube DN 25	●	●	●	●	—

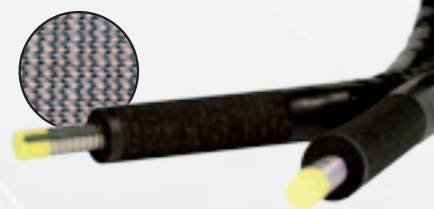


AEROLINE® INOX COMBI SPLIT 100/PRO

AEROLINE® INOX COMBI SPLIT 20/PRO

The flexible solution with extra outdoor protection.

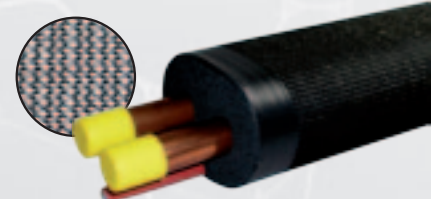
Dimension \ Length	15 m	20 m	25 m
Corrugated stainless steel tube DN 16	●	●	●
Corrugated stainless steel tube DN 20	●	●	●



AEROLINE® CU PRO 100

Strongest assembly protection made of robust polyester wire mesh.

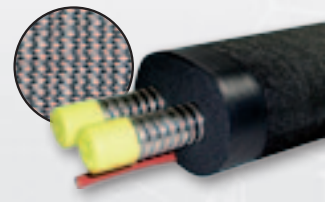
Dimension \ Length	10 m	15 m	20 m	25 m
Copper tube 12 x 0,8	●	●	●	●
Copper tube 15 x 0,8	●	●	●	●
Copper tube 18 x 1,0	●	●	●	●



AEROLINE® INOX PRO 100

With a neat surface protection (polyester wire mesh) for the use in particularly rough conditions.

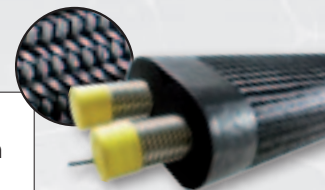
Dimension \ Length	10 m	15 m	20 m	25 m	50 m
Corrugated stainless steel tube DN 16	●	●	●	●	●
Corrugated stainless steel tube DN 20	●	●	●	●	●
Corrugated stainless steel tube DN 25	●	●	●	●	●



AEROLINE® INOX PRO GS

With robust surface protection (braid of polyester) ideal for outdoor use.

Dimension \ Length	10 m	15 m	20 m	25 m	50 m
Corrugated stainless steel tube DN 32 GS	●	●	●	●	—



AERORAPID® CLASSIC

Already pre-insulated for solar thermal applications. Protection by polyolefin jacket.

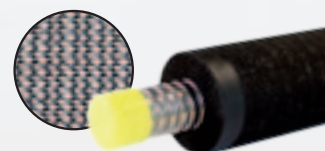
Dimension \ Length	Insulation mm	10 m	25 m	50 m
Corrugated stainless steel tube DN 16	13 / 25	●	●	●
Corrugated stainless steel tube DN 20	13 / 25	●	●	●
Corrugated stainless steel tube DN 25	19	●	●	●
Corrugated stainless steel tube DN 32	19	●	●	—
Corrugated stainless steel tube DN 40	25	●	●	—



AERORAPID® PRO

With a neat surface protection (polyester wire mesh) for the use in particularly rough conditions.

Dimension \ Length	Insulation mm	10 m	25 m	50 m
Corrugated stainless steel tube DN 16	13 / 25	●	●	●
Corrugated stainless steel tube DN 20	13 / 25	●	●	●



AERORAPID® PRO GS

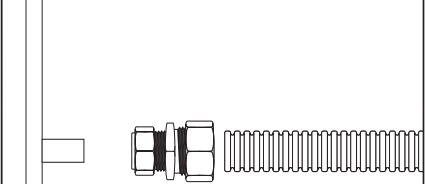
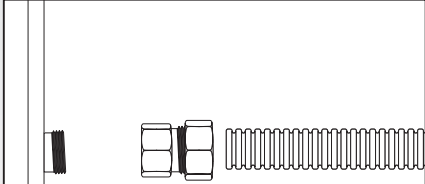
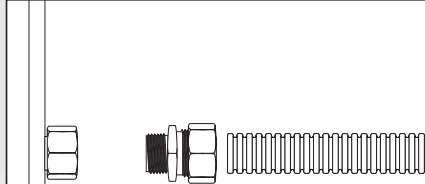
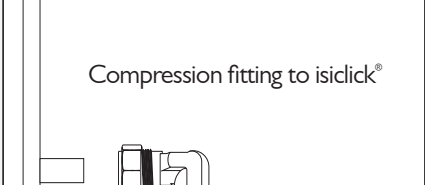
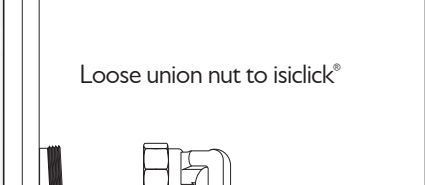

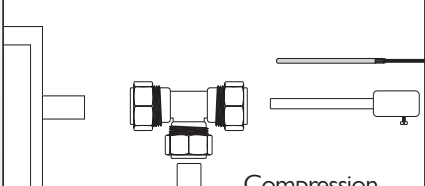
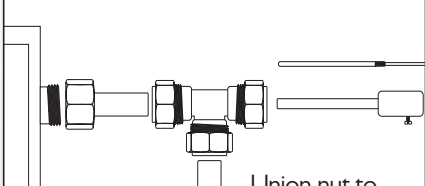
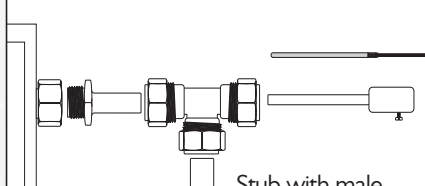
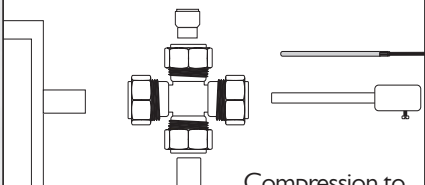
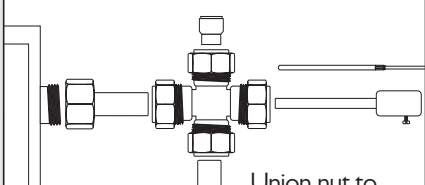
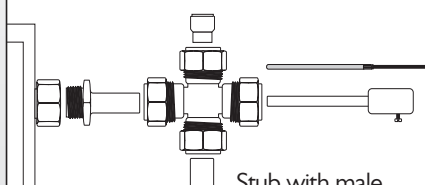
With robust surface protection (braid of polyester) ideal for outdoor use.

Dimension \ Length	Insulation mm	10 m	25 m
Corrugated stainless steel tube DN 25 GS	19	●	●
Corrugated stainless steel tube DN 32 GS	19	●	●
Corrugated stainless steel tube DN 40 GS	25	●	●




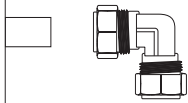
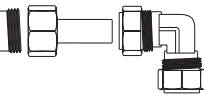
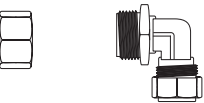
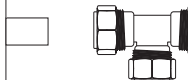
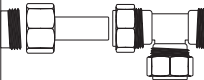
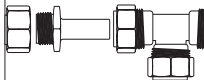
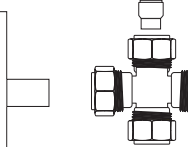
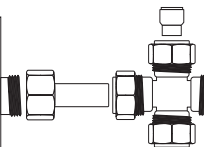
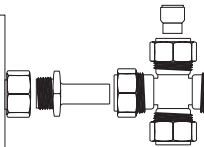


Connection options

Connection options for the pipe systems with corrugated stainless steel pipes

Collector with pipe end	Collector with male thread, flat sealing	Collector with union nut, flat sealing
 <p>Compression fitting to isiclick®</p>	 <p>Female thread to isiclick®</p>	 <p>Male thread to isiclick®</p>
 <p>Compression fitting to isiclick®</p>	 <p>Loose union nut to isiclick®</p>	 <p>Male thread to isiclick®</p>
 <p>Compression fitting to isiclick® and immersion sleeve</p>	 <p>Union nut to compression fitting, isiclick®-stub and immersion sleeve</p>	 <p>Stub with male thread to compression fitting, isiclick® with stub and immersion sleeve</p>
 <p>Compression to isiclick®, immersion sleeve and vent valve</p>	 <p>Union nut to compression, isiclick®-stub, immersion sleeve and vent valve</p>	 <p>Stub with male thread to compression, isiclick® with pipe end, immersion sleeve and vent valve</p>

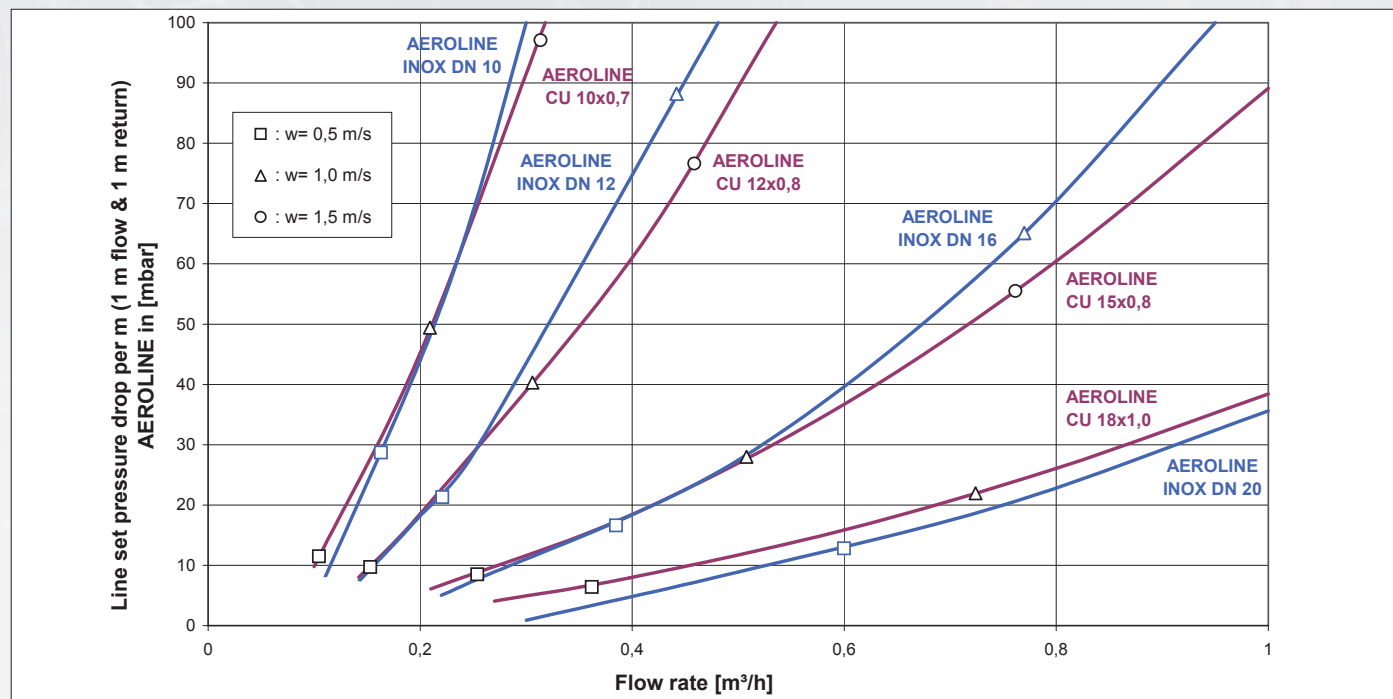
Connection options for copper pipe systems

Collector with pipe end	Collector with male thread, flat sealing	Collector with union nut, flat sealing
 <p>Compression to compression</p>	 <p>Female thread to compression</p>	 <p>Male thread to compression</p>
 <p>Compression to compression</p>	 <p>Loose union nut to compression</p>	 <p>Male thread to compression</p>
 <p>Compression fitting and immersion sleeve</p>	 <p>Union nut to compression fitting and immersion sleeve</p>	 <p>Stub with male thread to compression fitting and immersion sleeve</p>
 <p>Compression fitting, immersion sleeve and vent valve</p>	 <p>Union nut to compression fitting, immersion sleeve and vent valve</p>	 <p>Stub with male thread to compression, immersion sleeve and vent valve</p>

Pressure drops

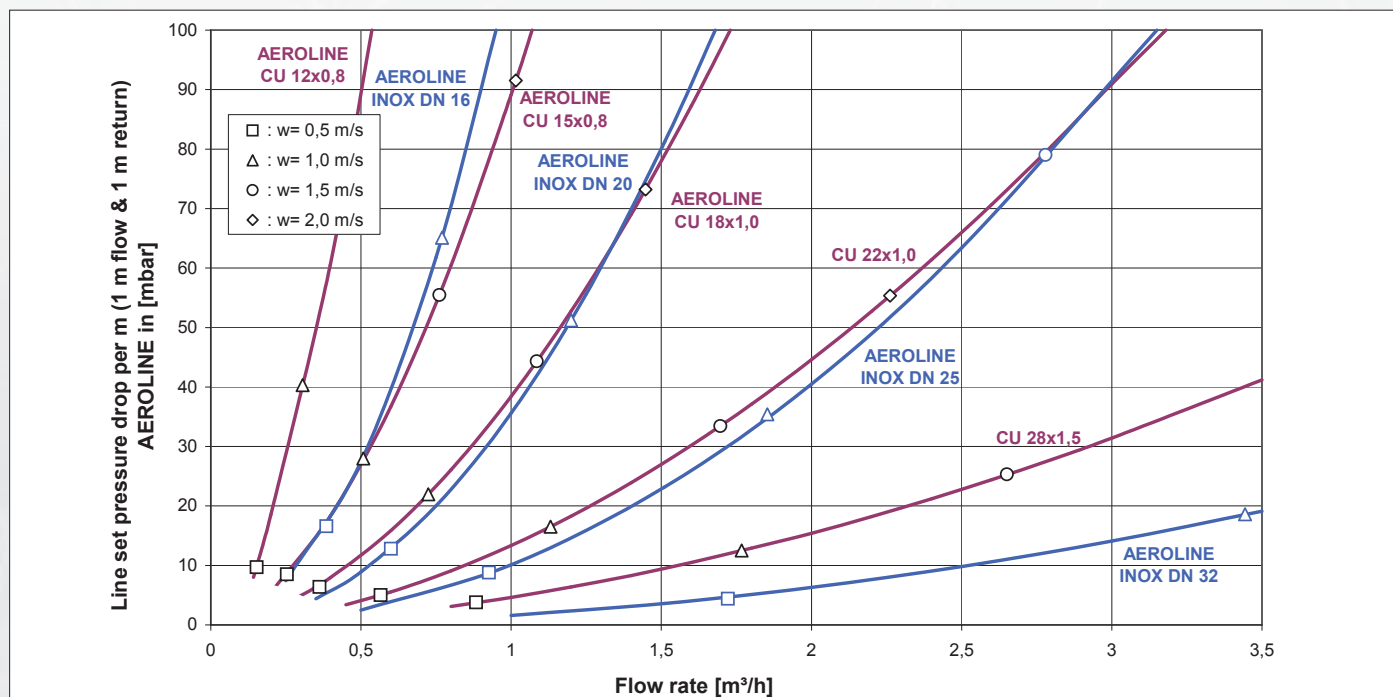
AEROLINE® INOX & AEROLINE® CU

These diagrams apply for **1 linear meter** straight laid **twin tubes** and a mixture of **water-Tyfacor L (60/40)** at a temperature of 40°C



AEROLINE® INOX & AEROLINE® CU

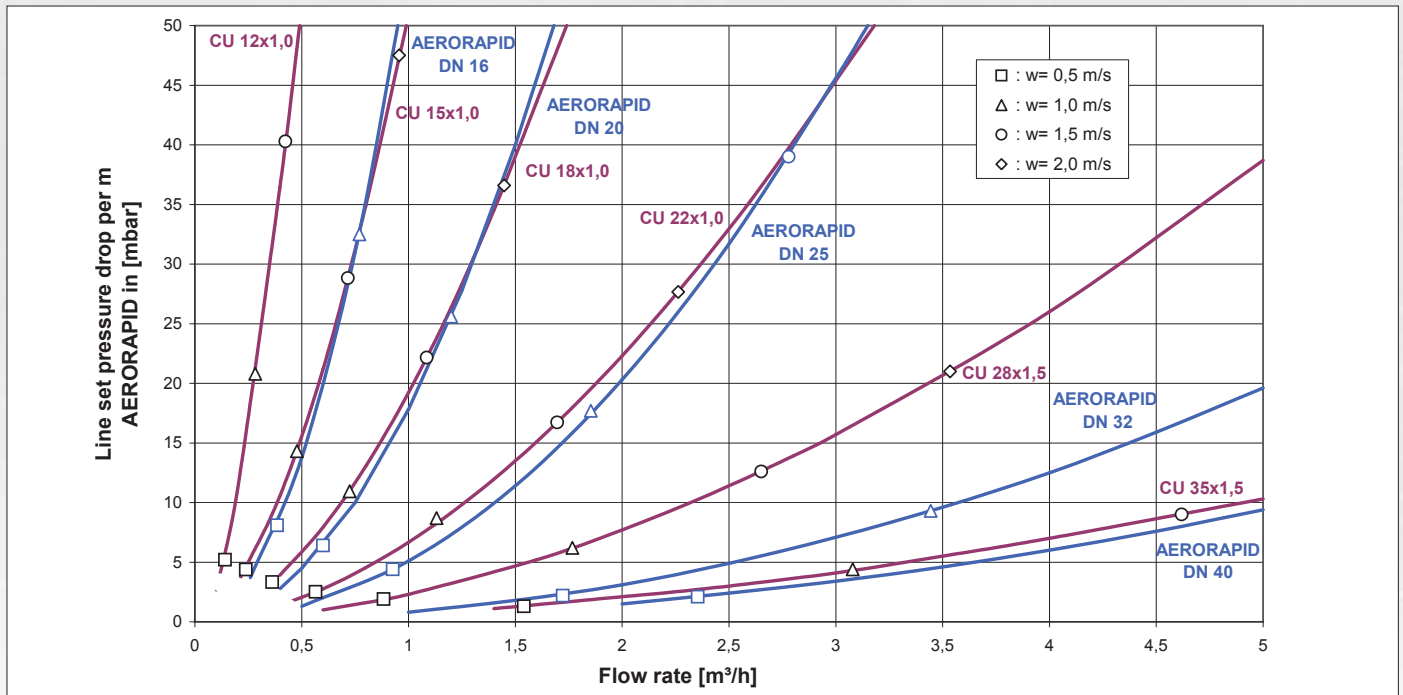
These diagrams apply for **1 linear meter** straight laid **twin tubes** and a mixture **water-Tyfacor L (60/40)** at a temperature of 40°C



Please consider the total pressure drops of all components (collector, heat exchanger, stop valves, check valves, pipe bends, etc.)

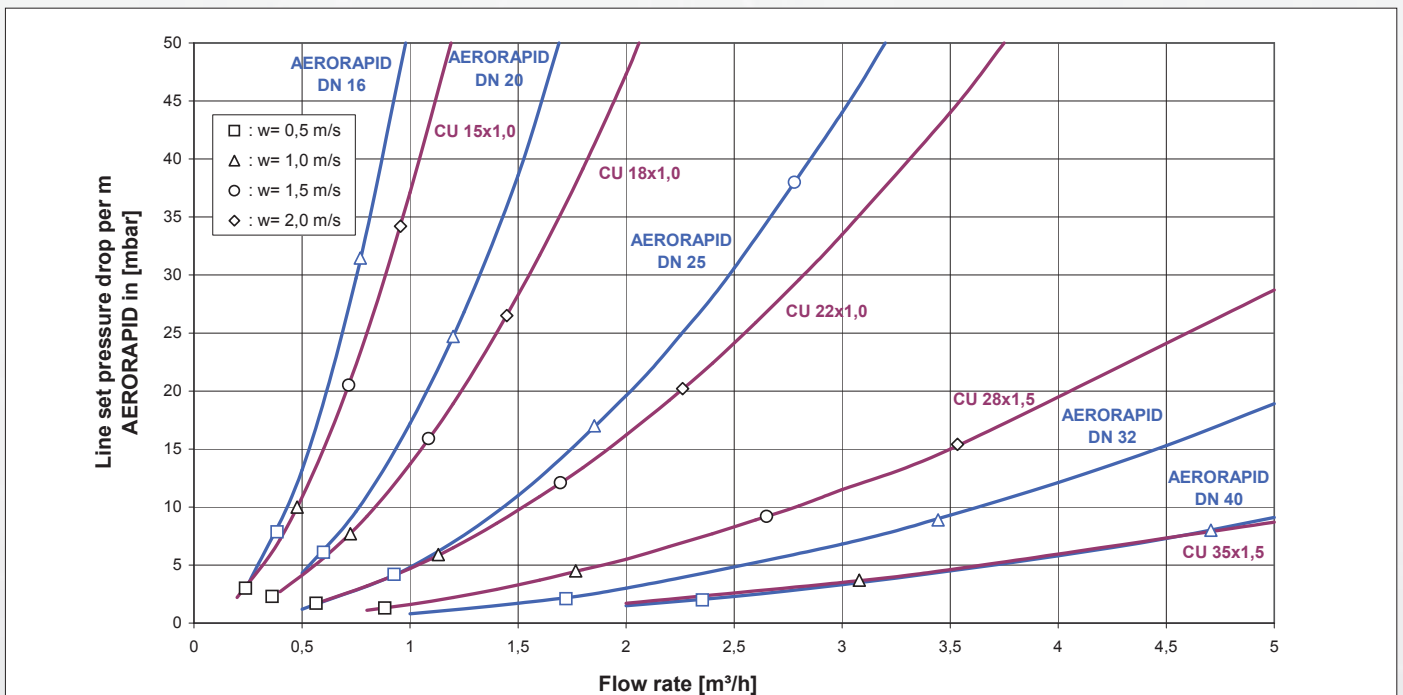
AERORAPID® & RAPID®

These diagrams apply for **1 linear meter** straight laid **tube** and a mixture of **water-Tyfocor L (60/40)** at a temperature of 40°C



AERORAPID® & RAPID®

These diagrams apply for **1 linear meter** straight laid **tube** with **water** at a temperature of 40°C



Please consider the total pressure drops of all components (collector, heat exchanger, stop valves, check valves, pipe bends, etc.)

Conception

AEROLINE® CU

High-Flow-Solar systems Flow rate 40 l/m ² h with EC-high efficiency pump Wilo Stratos ECO-ST 25/1-5 or pump Wilo Star-ST 25/6 respectively Grundfos UPS Solar 25-60	Maximum length of the line set (twin tube in metres) at	Collector surface
AEROLINE® CU 10 mm	10 m 15 m 25 m	5 m ² 4 m ² 3 m ²
AEROLINE® CU 12 mm	10 m 15 m 25 m	7 m ² 6 m ² 5 m ²
AEROLINE® CU 15 mm	10 m 15 m 25 m	12 m ² 10 m ² 8 m ²
AEROLINE® CU 18 mm	10 m 15 m 25 m	18 m ² 16 m ² 14 m ²

AEROLINE® INOX

High-Flow-Solar systems Flow rate 40 l/m ² h with EC-high efficiency pump Wilo Stratos ECO-ST 25/1-5 or pump Wilo Star-ST 25/6 respectively Grundfos UPS Solar 25-60	Maximum length of the line set (twin tube in metres) at	Collector surface
AEROLINE® INOX DN 12	10 m 15 m 25 m	7 m ² 6 m ² 5 m ²
AEROLINE® INOX DN 16	10 m 15 m 25 m	12 m ² 10 m ² 8 m ²
AEROLINE® INOX DN 20	10 m 15 m 25 m	20 m ² 18 m ² 16 m ²
AEROLINE® INOX DN 25	10 m 15 m 25 m	32 m ² 28 m ² 24 m ²
AEROLINE® INOX DN 32	10 m 15 m 25 m	58 m ² 50 m ² 44 m ²

Special note:

This reference conception is just for the pre-selection of your system and does not replace any pressure drop calculation for the complete system. Please consider the total pressure drops of all components (collector, heat exchanger, stop valves, check valves, tube elbows, etc.).

For **Low-Flow-systems** (flow rate 20 l/m²h with EC-high efficiency pump Wilo Stratos ECO-ST 25/1-5 or pump Wilo Star-ST 25/6 respectively Grundfos UPS Solar 25-60) the collector surface may be almost doubled.

For **Drain-Back-systems** please follow the instructions of the manufacturer.

Technical Data

Corrugated stainless steel tube:

- Material no. 1.4404,
- Temperature range of -270°C up to +600°C,
- Maximum working pressure at 200°C: DN 16/11 bar; DN 20/11 bar, DN 25/10 bar, DN 32/6 bar, DN 40/3,6 bar
- Bursting pressure DN 16/20/25 higher 33 bar, DN 32/40 higher 20 bar

Copper pipe:

According to EN 12449 (R220).

Insulation:

Insulation AEROFLEX®, made of EPDM:

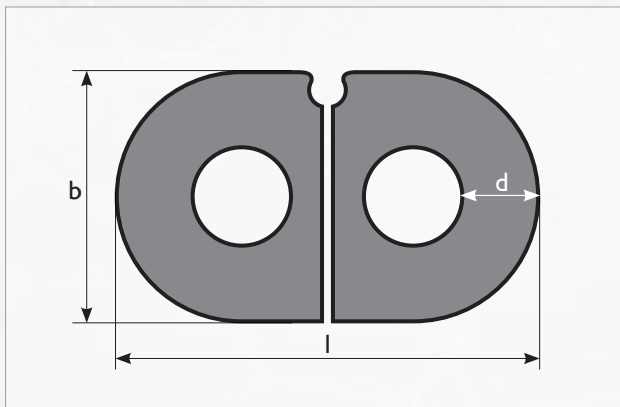
- Light, flexible, closed-cell synthetic rubber,
- Free of PVC and CFC (according to legal requirements),
- Fire protection: Euroclasse E according to EN 13501-1,
- No embrittlement of copper and stainless steel tubes according to DIN 1988 Part 7,
- Dimensions on the basis of EN 14304,
- Long-term thermal stability up to + 150 °C; short-term up to + 175 °C (stagnation temperature of collectors),
- Very good ozone resistance, UV-resistant;

Thermal protection:

- The thermal loss is equal to that of two individually laid pipes completed with 20 mm thick insulation (SPLIT 20) / 26 mm thick insulation (SPLIT 100 / DN 16/DN 20).
- The characteristic value of thermal conductivity at +40°C, $\lambda_{40^\circ\text{C}} = 0,040 \text{ W/mK}$, at 0°C, $\lambda_{0^\circ\text{C}} = 0,036 \text{ W/mK}$.

Sensor cable:

Copper tubes: Silicone sensor line 2 x resp. 3x 0,75² VDE 0295, class 5;
Corrugated stainless steel tubes: Sensor line, 2 x resp. 3x 0,75² VDE 0295, class 5,
3x 0,75² VDE-Reg.-Nr. 7507.



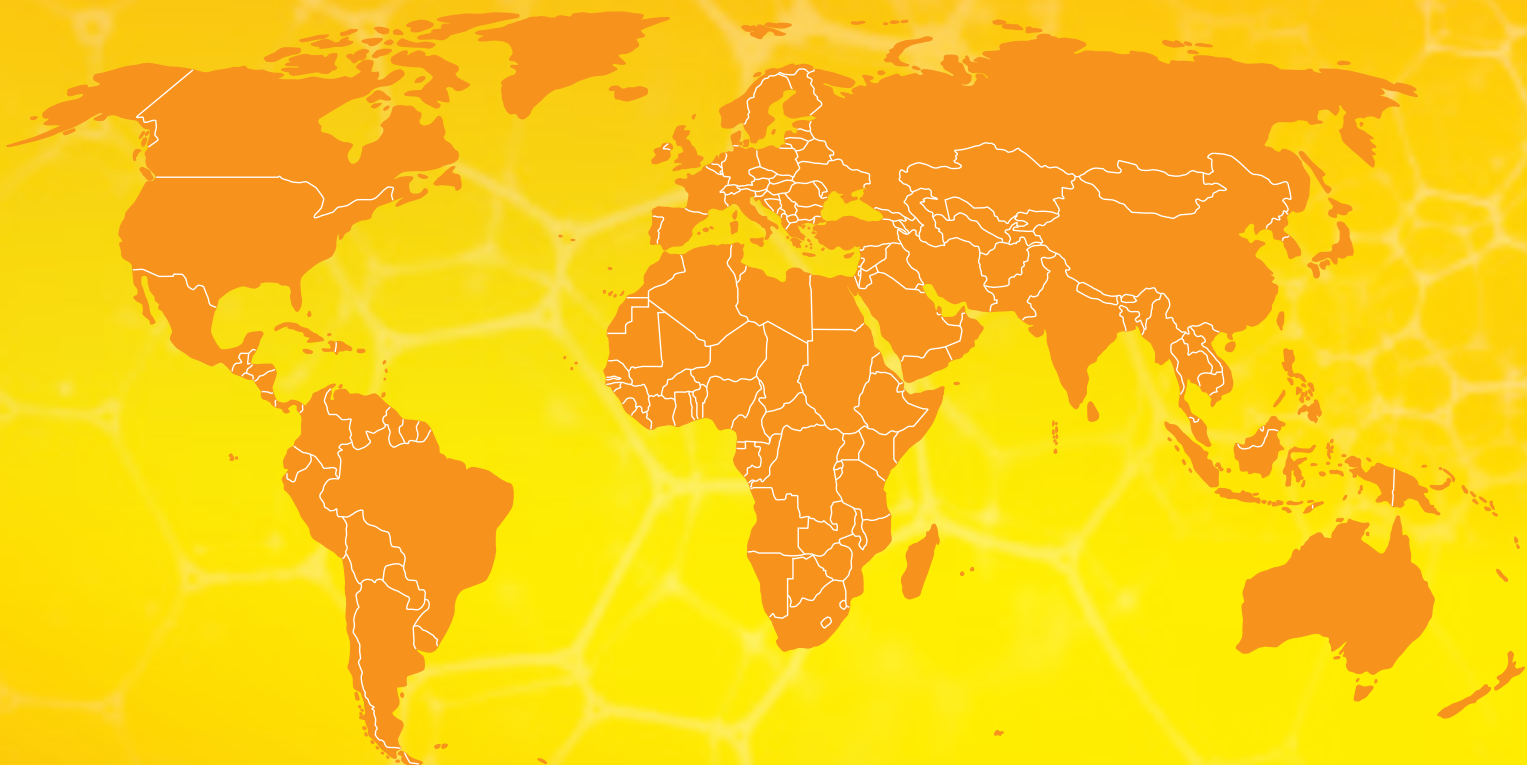
Dimensions on the basis of EN 14304.

Dimension	Category	Insulation thickness (d)	Length (l)	Width (b)
AEROLINE® CU 10 mm	Cu SPLIT 100	14 mm	63 mm	40 mm
	Cu PRO 100	14 mm	63 mm	40 mm
	Cu SPLIT 20	13 mm	58 mm	36 mm
AEROLINE® CU 12 mm	Cu SPLIT 100	15 mm	67 mm	42 mm
	Cu PRO 100	15 mm	67 mm	42 mm
	Cu SPLIT 20	13 mm	62 mm	38 mm
AEROLINE® CU 15 mm	Cu SPLIT 100	15 mm	74 mm	45 mm
	Cu PRO 100	15 mm	74 mm	45 mm
	Cu SPLIT 20	13 mm	70 mm	41 mm
AEROLINE® CU 18 mm	Cu SPLIT 100	16 mm	82 mm	51 mm
	Cu PRO 100	16 mm	82 mm	51 mm
	Cu SPLIT 20	13 mm	76 mm	45 mm

Dimension	Inner diameter	Outer diameter	Maximum operation pressure at 200°C	Minimum bending radius
CU 10 mm	8,6 mm	10,0 mm	56 bar	60 mm
CU 12 mm	10,4 mm	12,0 mm	53 bar	72 mm
CU 15 mm	13,4 mm	15,0 mm	42 bar	90 mm
CU 18 mm	16,0 mm	18,0 mm	44 bar	108 mm

INOX DN 10	10,6 mm	13,1 mm	10 bar	28 mm
INOX DN 12	12,5 mm	15,7 mm	10 bar	32 mm
INOX DN 16	16,5 mm	20,4 mm	11 bar	40 mm
INOX DN 20	20,6 mm	24,8 mm	11 bar	50 mm
INOX DN 25	25,6 mm	30,5 mm	10 bar	60 mm
INOX DN 32	34,4 mm	41,0 mm	6 bar	55 mm
INOX DN 40	40,8 mm	49,3 mm	3,6 bar	60 mm

Dimension	Category	Insulation thickness (d)	Length (l)	Width (b)
AEROLINE® INOX DN 12	INOX SPLIT 100	15 mm	74 mm	45 mm
AEROLINE® INOX DN 16	INOX SPLIT 100	17 mm	95 mm	57 mm
	INOX COMBI SPLIT 100/PRO	17 mm	95 mm	57 mm
	INOX PRO 100	17 mm	95 mm	57 mm
	INOX SPLIT 20	13 mm	84 mm	48 mm
	INOX COMBI SPLIT 20/PRO	13 mm	84 mm	48 mm
AEROLINE® INOX DN 20	INOX SPLIT 100	18 mm	107 mm	64 mm
	INOX COMBI SPLIT 100/PRO	18 mm	107 mm	64 mm
	INOX PRO 100	18 mm	107 mm	64 mm
	INOX SPLIT 20	13 mm	96 mm	55 mm
	INOX COMBI SPLIT 20/PRO	13 mm	96 mm	55 mm
AEROLINE® INOX DN 25	INOX SPLIT 100	25 mm	134 mm	85 mm
	INOX PRO 100	25 mm	134 mm	85 mm
	INOX SPLIT 20	19 mm	126 mm	73 mm
AEROLINE® INOX DN 32	INOX PRO GS	25 mm	160 mm	95 mm



AEROLINE[®]

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