

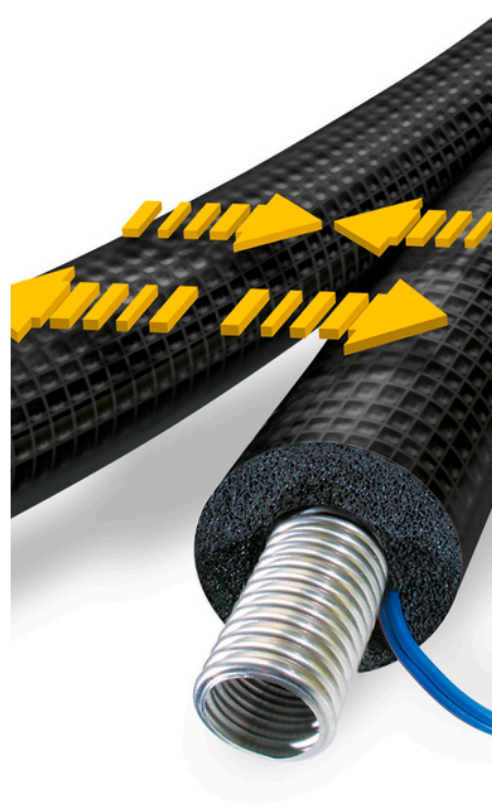
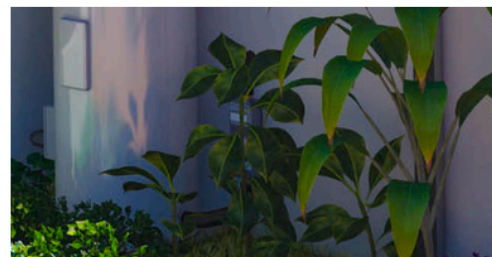


INSTALL IT. OPTIMIZE SOLAR ENERGY.

# ArmaFlex DuoSolar

Provides a full system solution and ease of installation for solar energy applications

- // Specially designed, pre-insulated solar tubing
- // Stainless steel pipe to EN 10088-2
- // Easy and fast to install
- // Wide range of accessories
- // Integrated sensor cable



 **armacell**<sup>®</sup>  
ArmaFlex<sup>®</sup>

INSTALL IT. OPTIMIZE SOLAR ENERGY

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# ArmaFlex DuoSolar



The ArmaFlex DuoSolar range offers reliable and easy-to-install solutions for solar thermal systems. The pre-insulated feed and return pipes connect the solar panel with the thermal storage water heater. They optimize thermal efficiency and increase life time expectancy of the entire system. ArmaFlex DuoSolar for flat solar collectors with up to +150 °C is available as covered corrugated stainless-steel tubing (ArmaFlex DuoSolar VA) and copper piping (ArmaFlex DuoSolar CU). Due to the patented join-split fastening system, the pre-insulated pipes can be split and re-joined easily during the installation process without any damage to the protective foil.

## // DuoSolar 220

While solar pipes for flat plate collectors are only suitable for a maximum application temperature of 150 °C, DuoSolar 220 even withstands the high temperatures of tube collectors of up to 220 °C. Flexible foam insulation materials become brittle at such high temperatures and lose their insulating properties. With DuoSolar 220 Armacell has closed this gap and also provides a twin-pipe system for the high operating temperatures of evacuated tube collectors.

## ArmaFlex DuoSolar e-Save



### // Quick-fitting Couplings

System accessories which are especially tailored to the solar range ensure tight connections. For the installation of ArmaFlex DuoSolar VA Armacell offers quick-fitting couplings:

The flexible pipes can be connected to the system components of solar thermal systems in seconds – simply by tightening a nut. This eliminates the time-consuming flanging of connections and allows considerable cost savings. The couplings provide a permanent and leakproof seal for corrugated stainless steel tubes.

With ArmaFlex DuoSolar e-Save Armacell now provides a space-saving “100% solution”. Based on calculations by FIW Munich using the finite element method, the R&D department developed pre-insulated twin pipes that not only offer high energy savings, but are also extremely space-efficient. ArmaFlex DuoSolar e-Save requires less than half the space needed by separately laid solar pipes to achieve same energy efficiency.



### // Your Benefits

- Space-saving „100% solution“
- Pre-insulated twin pipes
- Maximum energy savings with extreme space-efficiency
- Requires less than half the space needed by separately laid solar pipes



## TECHNICAL DATA - ARMAFLEX DUOSOLAR

Brief description	ArmaFlex DuoSolar is a flexible pre-insulated, UV resistant piping system used to connect solar collectors with the hot-water storage tank in an easy and professional way. The system is offered with a smart join-split system with two stainless steel hoses and includes a sensor cable.
Material type	Factory-made flexible elastomeric foam based on ethylene propylene diene methylene (EPDM), according to EN 14304. Corrugated austenitic stainless steel hose according to EN 10088-2: X 2 CrNiMo 17-12-2 and DIN 17441: 1.4404 // Fullfill EN ISO 10380:2013 and EN 13618 p.B. 7.2. Polyolefin-copolymer coating.
Product colour range	Black
Product range	Pre-insulated corrugated stainless steel hoses in different coil lengths. In the return pipe, a sensor cable [2x0.75 mm <sup>2</sup> ] with halogen free, temperature resistant silicon coating (+180°C) is integrated.
Applications	Piping system to connect solar collectors with the hot-water storage tank, hot-water boiler and for other uses.
Installation	ArmaFlex HT 625 is a certified and compatible adhesive for a long-term performing system.
Remarks	During installation, we strongly recommend that proprietary hangers are used at every one meter distance to support the whole system. The solar system and heat transfer fluid has to be well matched to ensure corrosion- and interference-free operations. We recommend an annual laboratory test of the fluid medium (density, concentration, corrosion, pH value). The heat transfer fluid has to be completely replaced in case the parameters are out of limits. EC Certificate of Conformity no. 0543 of Güteschutzgemeinschaft Hartschaum e.V. Celle

Property	Value / Assessment		Standard / Test method
<b>Temperature range</b>			
Service temperature <sup>1</sup>	Min. °C	Max. °C	EN 14707, EN 14304
	-50	150	
<b>Thermal conductivity</b>			
Declared thermal conductivity	θm	40°C	EN ISO 8497, EN ISO 13787
	λd ≤ [W/(m·K)]	0.042	
	Formula	$\lambda = [36.92 + 0.125 \cdot \theta_m + 0.0008 \cdot (\theta_m - 30)^2] / 1000$	
<b>Fire Performance and Approvals</b>			
Reaction to fire	E(L)		EN 13501-1, EN ISO 11925-2
<b>Physical attributes</b>			
Dimensions and tolerances	In accordance to EN 14304, table 1.		EN 13467
<b>Weather and UV resistance</b>			
UV resistance	Very good		EN ISO 4892-2
<b>Other technical features</b>			
Maintenance	Long term corrosion and failure proof operation of the solar thermal equipment is only possible when the system and heat transfer medium are optimally matched to each other. We recommend an annual laboratory test of the medium (e.g. density, concentration, corrosion protection, pH). The heat transfer medium must be replaced completely, if the parameters do not longer meet the specifications.		
Maximum operating pressure (bar)	CU 12 = 79 // DN 16 = 16 CU 15 = 62 // DN 20 = 10 CU 18 = 65 // DN 25 = 10		

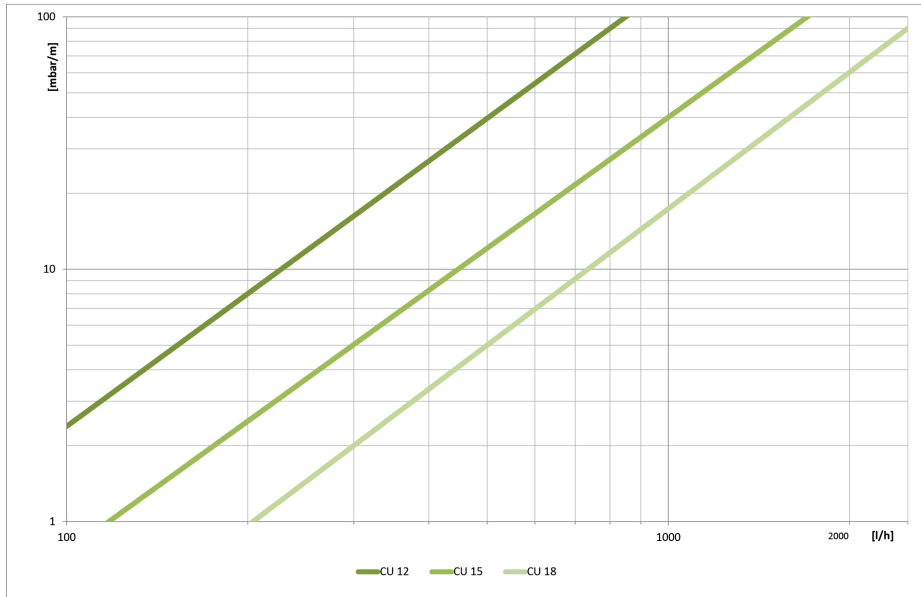
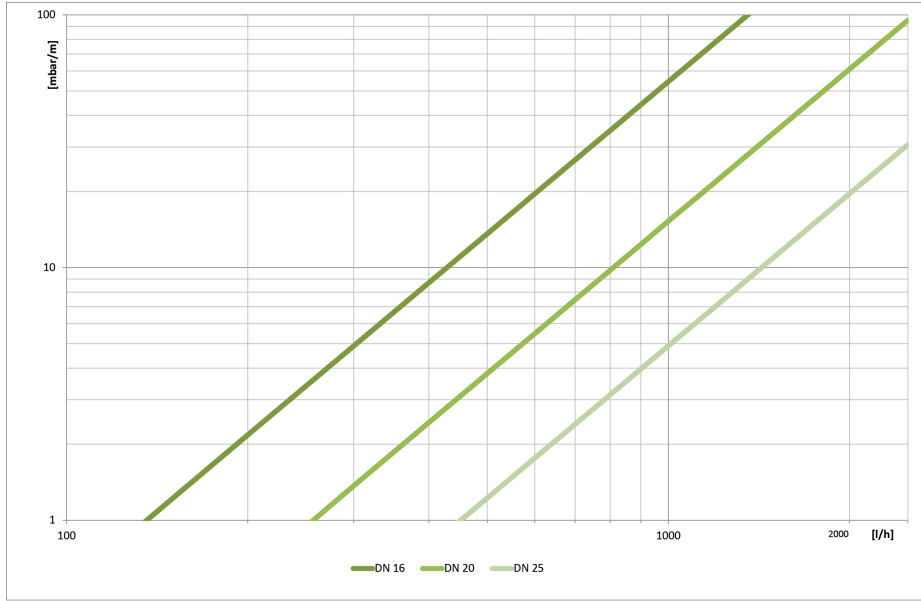


Property

Value / Assessment

Standard / Test method

Maximum operating pressure  
[graph]<sup>2</sup>



Pipe volume [l/m]

CU 12 = 0,085 // DN 16 = 0,272  
 CU 15 = 0,141 // DN 20 = 0,430  
 CU 18 = 0,201 // DN 25 = 0,633

<sup>1</sup>For use in temperatures beyond the maximum and minimum service temperature range indicated in the technical data table, please contact our Customer Service Centre.

<sup>2</sup>Pressure drop [mbar/m] over Volume flow [l/h] for Medium temperature 60°C // Heat fluid 1,2-Propylenglycol // Dynamic Viscosity  $1612.8 \times 10^{-6}$  kg/ms // Weight density 1008 kg/m<sup>3</sup>.

Coil – pre-insulated with stainless steel pipes. Black foam with black covering. Pre-insulated corrugated stainless steel pipes 1.4404 (ASTM 316 L)

Pipe Ø [mm]	Item	Outer diameter [mm]	Thickness [mm]	Length [m]	Content [metric]	Pipe Ø [mm]	Item	Outer diameter [mm]	Thickness [mm]	Length [m]	Content [metric]
21	SO-DV-14X16/E10	50	14	10	10 m	21	SO-DV-20X16/E15	62	20	15	15 m
21	SO-DV-14X16/E15	50	14	15	15 m	-	-	-	-	-	-
21	SO-DV-14X16/E20	50	14	20	20 m	-	-	-	-	-	-
21	SO-DV-14X16/E25	50	14	25	25 m	-	-	-	-	-	-
21	SO-DV-14X16/E50	50	14	50	50 m	-	-	-	-	-	-
27	SO-DV-14X20/E10	55	14	10	10 m	-	-	-	-	-	-
27	SO-DV-14X20/E15	55	14	15	15 m	-	-	-	-	-	-
27	SO-DV-14X20/E20	55	14	20	20 m	-	-	-	-	-	-
27	SO-DV-14X20/E25	55	14	25	25 m	-	-	-	-	-	-
27	SO-DV-14X20/E50	55	14	50	50 m	-	-	-	-	-	-
32	SO-DV-14X25/E15	60	14	15	15 m	-	-	-	-	-	-
32	SO-DV-14X25/E25	60	14	25	25 m	-	-	-	-	-	-

#### VA accessories

Item	Description	Content [quantity]
SO-VA-DNI-16	Double nipple ¾" for DN 16	1 piece
SO-VA-DNI-20	Double nipple 1" for DN 20	1 piece
SO-VA-DNI-25	Double nipple 1¼" for DN 25	1 piece
SO-VA-DNI-32	Double nipple 1½" for DN 32	20 piece
SO-VA-FIT-16/4	Fitting set for DN16 with 4 of each spring rings, union nuts, washers	1 piece
SO-VA-FIT-20/4	Fitting set for DN20 with 4 of each spring rings, union nuts, washers	1 piece
SO-VA-FIT-25/4	Fitting set for DN25 with 4 of each spring rings, union nuts, washers	1 piece
SO-VA-FIT-32/4	Fitting set for DN25 with each spring rings, union nuts, washers	20 piece

#### Clamping ring. Clamping ring for quick fitting coupling

Item	Description	Content [quantity]
SO-SDN16-CR	Clamping ring	50 piece
SO-SDN20-CR	Clamping ring	50 piece

**Clamping ring. Clamping ring for quick fitting coupling**

Item	Description	Content [quantity]
S0-SDN25-CR	Clamping ring	50 piece

**CU accessories**

Item
TRESLE-100

**VA accessories**

Item	Description	Content [quantity]
SCH-DN16-FEF14	Pipe hanger for DN16-FEF14 with hex-head srew M8x80 and raw plugs S10, insulation thickness 14mm	1 piece
SCH-DN16-FEF20	Pipe hanger for DN16-FEF20 with hex-head srew M8x80 and raw plugs S10, insulation thickness 20mm	1 piece
SCH-DN20-FEF14	Pipe hanger for DN20-FEF14 with hex-head srew M8x80 and raw plugs S11, insulation thickness 14mm	1 piece
SCH-DN20-FEF20	Pipe hanger for DN20-FEF20 with hex-head srew M8x80 and raw plugs S11, insulation thickness 20mm	1 piece
SCH-DN25-FEF14	Pipe hanger for DN25-FEF14 with hex-head srew M8x80 and raw plugs S12, insulation thickness 14mm	1 piece

**Fitting for copper pipes. Quick fitting coupling with clamping ring for copper pipes**

Item	Description	Content [quantity]
S0-SDN16-CU12	Plain pipes Ø 12 mm	10 piece
S0-SDN16-CU15	Plain pipes Ø 15 mm	10 piece
S0-SDN16-CU18	Plain pipes Ø 18 mm	10 piece
S0-SDN16-CU22	Plain pipes Ø 22 mm	10 piece
S0-SDN20-CU15	Plain pipes Ø 15 mm	10 piece
S0-SDN20-CU18	Plain pipes Ø 18 mm	10 piece
S0-SDN20-CU22	Plain pipes Ø 22 mm	10 piece
S0-SDN25-CU18	Plain pipes Ø 18 mm	4 piece
S0-SDN25-CU22	Plain pipes Ø 22 mm	4 piece

**Fitting with cylindrical connection. Quick fitting coupling with cylindrical connection piece**

Item	Description	Content [quantity]
S0-SDN16-Z18	Cylindrical connection piece Ø 18 mm	10 piece
S0-SDN20-Z18	Cylindrical connection piece Ø 18 mm	10 piece

**Fitting with female straight internal thread. Quick fitting coupling with female straight internal thread for metal-to-metal or for flat-sealing screw joints**

Item	Description	Content [quantity]
S0-SDN16-I1	Inside thread G1"	10 piece
S0-SDN16-I1/2	Inside thread G½"	10 piece
S0-SDN16-I3/4	Inside thread G¾"	10 piece
S0-SDN20-I1	Inside thread G1"	10 piece
S0-SDN20-I3/4	Inside thread G¾"	10 piece
S0-SDN25-I1	Inside thread G1"	4 piece
S0-SDN25-I1¼	Inside thread G1 ¼"	4 piece

Fitting with male straight thread. Quick fitting coupling with male straight thread for flat-sealing screw joints

Item	Description	Content [quantity]
S0-SDN16-F1	External thread G1"	10 piece
S0-SDN16-F3/4	External thread G¾"	10 piece
S0-SDN20-F1	External thread 1"	10 piece
S0-SDN20-F3/4	External thread G¾"	10 piece

Fitting with male tapered thread. Quick fitting coupling with male tapered thread for metal-to-metal sealing screw joints

Item	Description	Content [quantity]
S0-SDN16-E1	External thread R1"	10 piece
S0-SDN16-E1/2	External thread R½"	10 piece
S0-SDN16-E3/4	External thread R¾"	10 piece
S0-SDN20-E1	External thread R1"	10 piece
S0-SDN20-E3/4	External thread R¾"	10 piece
S0-SDN25-E1	External thread R1"	4 piece
S0-SDN25-E1¼	External thread R1 ¼"	4 piece

VA accessories. Quick fitting coupling for corrugated stainless steel hoses

Item	Description	Content [quantity]
S0-SDN16-DN16	Corrugated stainless steel hoses DN 16	10 piece
S0-SDN20-DN20	Corrugated stainless steel hoses DN 20	10 piece
S0-SDN25-DN25	Corrugated stainless steel hoses DN 25	4 piece
SOL-SDN25-E1	External thread R1"	50 piece
SOL-SDN25-E1¼	External thread R1 ¼"	50 piece
SOL-SDN32-E1½	External thread R1 ½"	30 piece
SOL-SDN32-E1¼	External thread R1 ¼"	30 piece



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## ABOUT ARMACELL

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As the inventor of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With more than 3,300 employees and 25 production plants in 19 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for acoustic and lightweight applications, recycled PET products, next-generation aerogel technology and passive fire protection systems.



For more information, please visit:  
[www.armacell.com](http://www.armacell.com)