

# **AYVAZ** SOLAR SYSTEM

We follow the sun.



# AYVAZ SOLAR SYSTEMS

## COMPLETE SOLAR CONNECTION SET

Ayvaz offers a complete set to connect all mechanic components of solar systems to each other and the rest of the system. Ayvaz continues working to produce highly efficient connections for solar systems and to provide solutions for the problems that the workers face during the installation in order to save time and money.

## AYVAZ'S SOLAR CONNECTION RANGE

### Nano-Flex/EZ-Flex



Pre-insulated flexible metal hoses between solar panels and heating tank.

### Boiler-Flex



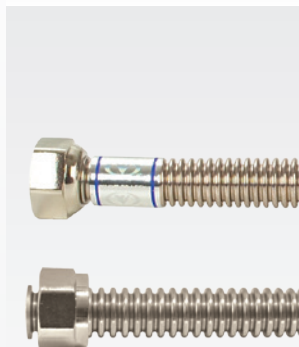
Flexible metal hose, coil designs for water heating tanks or heat exchangers.

### Pan-Flex



Flexible connection parts between solar panels.

### Su-Flex



Flexible metal hoses for expansion vessel connections.

## AYVAZ'S PRE-INSULATED SOLAR CONNECTION HOSES

Flexible metal hoses manufactured from stainless steel AISI 316L, material that are used to transport the hot and cold water between solar thermal panels and hot water storage tank.

### Advantages of Pre-insulated Solar Hoses

- Continuous runs allow for bending around corners and obstacles.
- Minimum energy loss through low thermal conductivity coefficient and high thermal resistance value.
- Pre-insulated metal solar hoses make the installation easier and quicker, especially where the installation space is limited and causes difficulties for the workers such as roofs and attics.
- Easy installation saves on time and the labouring costs accordingly.

OPEN PITCH CORRUGATED HOSE DIMENSIONS

DN	Internal Diameter	Outer Diameter	Tolerance	Minimum Bending Radius	Nominal Bending Radius	Operation Pressure	Nominal Pressure (PN) DIN EN ISO 10380/SF4
	mm	mm	mm	rmin (mm)	m (mm)	P1 (bar) 20°C/SF3	
12	11,8	15,8	0,2	20	165	21	16
16	16,6	21,4	0,2	25	195	13	10
20	20,9	26,4	0,2	30	225	13	10
25	25,1	31,8	0,3	35	260	8	6



# EZ-FLEX INSULATED SOLAR HOSES (2in1 and 1in1)

## APPLICATION AREAS

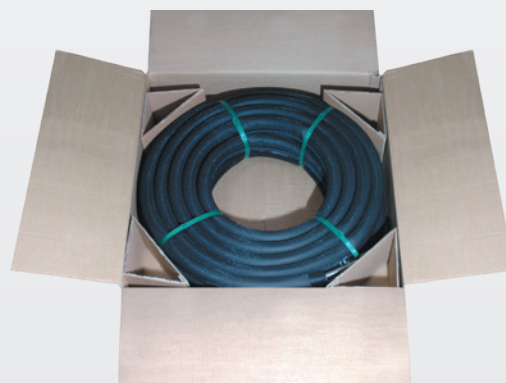
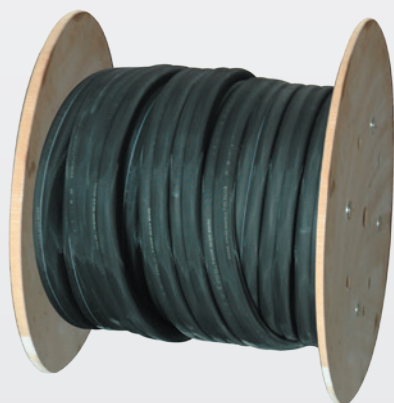
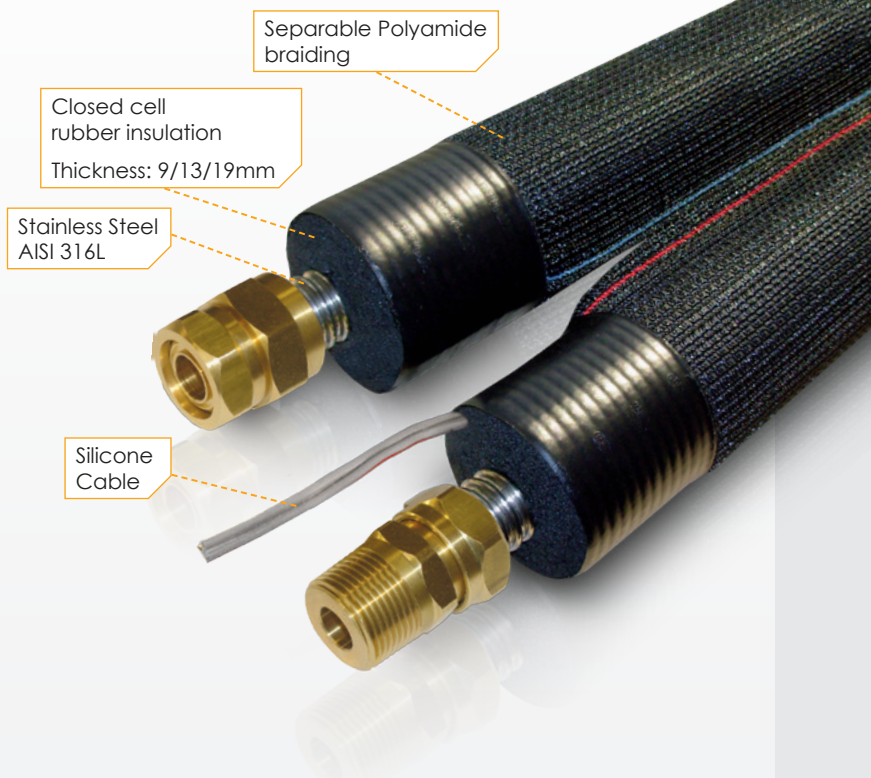
Solar energy applications  
Collector and solar boiler connections  
Hot water applications  
Drinking water connections

# EZ-FLEX

## FEATURES

- UV resistant polyamide braiding prevents the negative effects of the sun and protects the hose and the insulation against mechanical damages.
- Identification marks (red and blue strips) to distinguish supply and return lines.
- Easy to bend and separate with using no additional tools.
- Highly resistant to the birds and other external effects.
- Thermal conductivity coefficient  $\lambda$  (0°C) 0,036 W/m.K
- Closed cell elastomeric rubber insulation minimizes thermal loses and suitable to be applied up to 150 °C (Peak temperature 175 °C)

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### BOBBIN

Diameter (DN)	DN12	DN16	DN20	DN25
Max. Length (m)	150	150	125	100

### COIL

Diameter (DN)	DN12	DN16	DN20	DN25
Max. Length (m)	10-50	10-50	10-50	10-50

## APPLICATION AREAS

Solar energy applications  
Collector and solar boiler connections  
Industrial high temperature applications  
Drinking water connections  
Hot water applications



Open Pitch

## FEATURES

- Nano-flex is produced with one of the world's lightest insulation materials, developed by Aspen Aerogels.

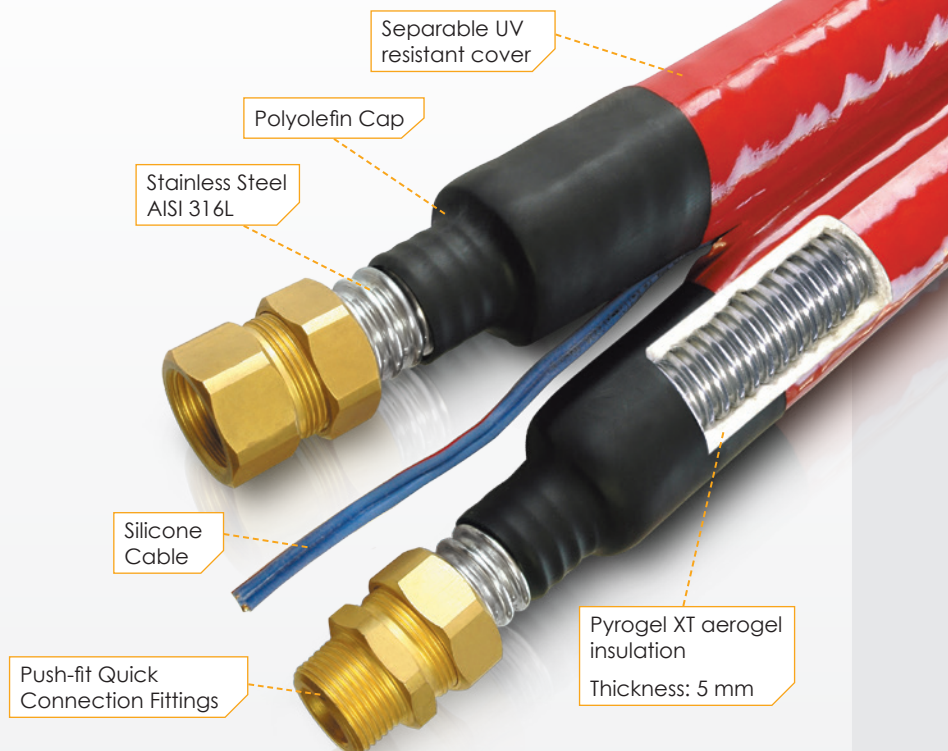
Hi-tech insulation with low thermal conductivity (0.015 W/mK at 0 °C) is suitable for a wide temperature range, from -40 °C up to +650 °C.

- Low thickness of the insulation material (5 mm) reduces the external diameter of the hose and provides a relief on the transportation and the logistics area up to 66%.

- Easily separable compact design requires no additional pipe support during the installation. This shortens the installation time and makes it quicker and easier.

- The UV cover that is applied on the insulation, prevents the negative effects of the sun and protects the hose against birds and other hazardous species.

# NANOFLEX



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CHOOSE YOUR COLOR!



### BOBBIN

Diameter (DN)	DN12	DN16	DN20	DN25
Max. Length (m)	150	150	125	100

### COIL

Diameter (DN)	DN12	DN16	DN20	DN25
Max. Length (m)	10-50	10-50	10-50	10-50

## "PAN-FLEX" FLEXIBLE CONNECTIONS BETWEEN SOLAR PANELS

Pan-flex solar panel connectors are used to connect the solar panel collectors that are located very closely to each other. These highly flexible metal connectors enable installers to complete collector connections safely and reliably in a very short time.

## TYPES

- Threaded Connectors (Male-Male, Female-Female)
- Welded End Connectors
- Press Type, Push-in Connectors

## ADVANTAGES

- Highly reliable, leak-proof connection.
- Easy and quick connection saves on time and labouring costs.
- Long service life, no maintenance required.

## APPLICATION AREAS

### APPLICATION AREAS

Solar collector connections

## PRODUCT FEATURES

Hose Type	Standart pitch corrugated highly flexible metal hose
Hose Material	Stainless Steel AISI 316L
Fittings Material	MS 58 Brass / Stainless Steel
Fittings Types	Female-Female, Male-Male, Welded Ends, Press Type



HOSE DIMENSIONS	DN	CONNECTION	LENGTH (mm)	
			MM/FF	PP/Press/ Push in
	12	1/2"x1/2"	50	100
	16	3/4"x3/4"		
	20	1"x1"	100	

## "PUSH FIT" FITINGS SYSTEM FOR INSULATED SOLAR HOSES WITHOUT GASKET

Ayvaz quick connection set is the new generation push-fit system that reduces the time spent on preparation and installation. It is possible to fit the required connection and complete the assembly within minutes. With push-fit connection set, preparation of the connection end could be completed in three easy steps.

1. Cut the hose into required length
2. Fit the required press-fitting by pushing the hose through the fitting until hearing the click sound.
3. Squeeze the fittings and complete the connection.

## PRODUCT FEATURES

Fittings Material	MS 58 Brass
Fittings Types	Externally Threaded, Internally Threaded, Adapter, Welded End, Ernesto Nut



Male		Female		Adapter		Welded End		Ermeto Nut	
Hose Dia.	Con. Size	Hose Dia.	Con. Size	Hose Dia.	Con. Size	Hose Dia.	Con. Size	Hose Dia.	Con. Size
DN12 x 1/2"		DN12 x 1/2"		DN12 x DN12		DN12 x 15 mm		DN12 x 15 mm	
DN12 x 3/4"		DN12 x 3/4"		DN16 x DN16		DN16 x 15 mm		DN12 x 18 mm	
DN16 x 1/2"		DN16 x 1/2"		DN20 x DN20		DN16 x 18 mm		DN12 x 22 mm	
DN16 x 3/4"		DN16 x 3/4"		DN25 x DN25		DN16 x 22 mm		DN16 x 15 mm	
DN16 x 1"		DN16 x 1"				DN20 x 18 mm		DN16 x 18 mm	
DN20 x 3/4"		DN20 x 3/4"				DN20 x 22 mm		DN16 x 22 mm	
DN20 x 1"		DN20 x 1"				DN25 x 22 mm		DN20 x 18 mm	
DN25 x 1"		DN25 x 1"						DN20 x 20 mm	
DN25 x 1 1/4"		DN25 x 1 1/4"						DN20 x 22 mm	
								DN25 x 18 mm	
								DN25 x 22 mm	



# BOILER-FLEX

In all solar heating systems, there is a horizontal heating tank combined with the collector or an independent vertical solar heating boiler where the heating and domestic water is heated. The water which keeps circling between the collectors and the heating tank transfers its temperature to the system in these places and provides the required heating.

Ayvaz is able to provide the most appropriate boiler-flex application from the cage coiling to the selection of correct fittings type and length to the tank and boiler manufacturers. Please apply our the sales team for your special Boiler-flex designs.

Boiler-flex applications prevent numerous problems that the tank or boiler manufacturers face, because of the use of rigid pipes in their production.

## PRODUCT FEATURES

Hose Type	Parallel corrugated metal hose (Spiral corrugation is optional)
Hose Material	Stainless Steel AISI 316L
Fittings Material	Stainless Steel AISI 316 (AISI 304 is optional)
Fittings Types	Internal and external threaded pipe

# BOILERFLEX

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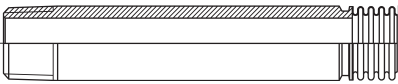
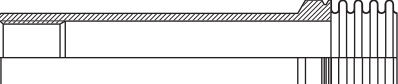
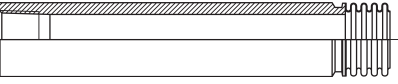
## ADVANTAGES

- Corrugated structure of the hose provides almost doubled surface area in comparison with rigid pipe applications. Greater surface area means better heat transfer capacity and higher efficiency.
- Boiler-flex systems are economical, energy saving applications.
- Hose corrugations keep moving as a result of constant thermal expansion and compression, this movement prevents the lime and residue formation on the hose surface and provides longer service life.
- Stainless steel (AISI 316L) hose is suitable for drinking water application and highly resistant to corrosion.
- With the help of flexibility and low bending radius, the hose can be formed in any form required for various applications.

DN	Ød Internal Diameter (mm)	ØD External Diameter (mm)	Tolerance ± mm	Wall Thickness (mm)	Bending Radius		PN bar	Surface Area	Internal Volume
					rmin (mm)	rn (mm)			
16	16,6	21,3	0,2	0,18	25	195	0-10	0,086 m2	0,274 dm³
20	20,9	26,4	0,2	0,18	30	225		0,112 m2	0,442 dm³
25	25,2	31,7	0,2	0,2	35	260	0-8	0,148 m2	0,639 dm³
25	24,5	31,25	0,2	0,3	35	260		0,147 m2	0,598 dm³
32	32,3	39,8	0,3	0,3	40	300	0-6	0,192 m2	1,018 dm³
40	40,8	49,8	0,4	0,4	58	290		0,241 m2	1,575 dm³
50	50,8	61,2	0,4	0,5	68	300		0,319 m2	2,421 dm³



## BOILER-FLEX

STANDARD CONNECTIONS						
No	Type of Connection		Material	DN (Hose)	inch (Fittings)	Length (mm)
1		External Threaded Pipe DIN EN 10226/1 thread	Stainless Steel	16	1/2" x 1/2"	100
				20	3/4" x 3/4"	
				25	1" x 1"	
				32	1 1/4" x 1 1/4"	150
2		Internal Threaded Pipe DIN EN 10226/1 thread	Stainless Steel	40	1 1/2" x 1 1/2"	
				50	2" x 2"	
				16	3/8" x 3/8"	100
				20	1/2" x 1/2"	
				25	3/4" x 3/4"	
				32	1" x 1"	
		Internal Threaded Pipe DIN EN 10226/1 thread	Stainless Steel	40	1" x 1" 1 1/4" x 1 1/4"	150
				50	1 1/2" x 1 1/2" 2" x 2"	

## SU-FLEX EXPANSION VESSEL CONNECTION HOSE

The water coming from the collectors loses its temperature in the heating tank or the exchanger that causes an expansion in the volume of the water. In order to maintain the system efficiency and the security, this expanded amount of the water is held by an expansion vessel.

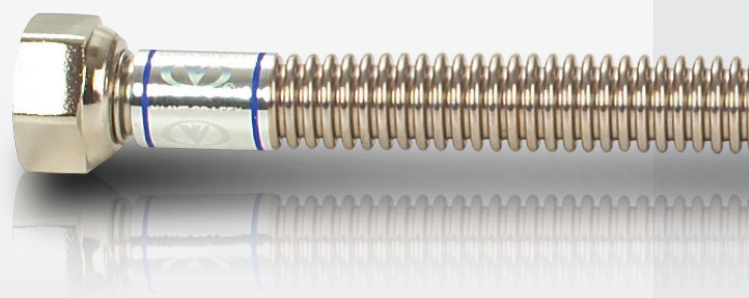
This expanded volume is carried to the vessel by doing a by-pass connection from the cool water line through the solar collectors. This by-pass connection can be completed using flexible metal hose (Su-flex). The flexible structure of the Su-flex provides easy, quick and reliable connection.

### APPLICATION AREAS

Sanitary applications  
Dish washers and washing machines  
Boiler and hot water tank connections  
Radiator connections

### PRODUCT FEATURES

Hose Type	Standard corrugated metal hose
Hose Material	Stainless Steel AISI 316L
Fittings Types	Nut-Nut (Male adapters are available)
Fittings Materials	Nut in Brass EN ISO 228/1
Cover	Non-covered
Gasket	Klingerit



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HOSE DIMENSIONS	DN	CONNECTION	LENGTH (mm)
	12	1/2	200 all sizes are available in between 5000
	16	3/4"	

**HEAD OFFICE - FACTORY**

Atatürk Sanayi Bölgesi Hadımköy Mahallesi Mustafa İnönü Caddesi No: 44 Arnavutköy - İSTANBUL  
Tel: +90 212 771 01 45 (pbx) | Fax: +90 212 771 47 27  
info@ayvaz.com | www.ayvaz.com

**Cona  
Caserta/Italy**

Tel: +39 0823 187 3988  
rmolaro@ayvaz.com

**Ayvaz Germany  
Viernheim/Germany**

Tel: +49 62046014399  
germany@ayvaz.com

**Ayvaz Ukraine  
Kiev/Ukraine**

Tel: +380 44 390 57 57  
info@ayvaz.com.ua

**Tricorr  
Warsaw/Poland**

Tel: +48-32-783-295-1  
tricorr@tricorr.eu

**Ayvaz Azerbaijan  
Baku/Azerbaijan**

Tel: +99 (455) 579-84-32  
ahayatov@ayvaz.com

**Ayvaz Egypt  
Cairo/Egypt**

Tel: +20 122 819 78 29  
andrew.eid@ayvaz.com

**Ayvaz Gulf  
Dubai/U.A.E**

Tel: +971 563550822  
+971 501306871  
mideast@ayvaz.com

**Ayvaz China  
Ningbo/China**

Tel: +86 152 5830 7361  
msahin@ayvaz.com

**Ayvaz Kazakhstan LLP  
Almaty/Kazakhstan**

Tel: +7 (727) 327 97 57  
info\_kz@ayvaz.com

**Ayvaz N  
Isperih/Bulgaria**

Tel: +359 8431 27 32  
office@ayvaz-n.eu

**Ayvaz Serbia  
Belgrade/Serbia**

Tel: +381 61 658 70 52  
yakbiyik@ayvaz.com

**Ayvaz Vietnam  
HCMC/Vietnam**

ggursoy@ayvaz.com  
Tel: +84 89 8508345

**Ayvaz Americas  
Rhode Island/USA**

Tel: +1 401 737 8380  
americas@ayvaz.com