



INDOOR FLEX

FLEXIBLE SOLUTIONS

FOR DOMESTIC NATURAL GAS INSTALLATIONS



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Product examination certificate

CERT

Gasprüfzertifikat

DG-4602CO0521
Registration Number
Registriernummer

Tic. A.S.
R-34555 Hadimköy / Istanbul

Hadimköy / Istanbul

(02)

Stainless Steel Hoses (AISI 316L) Conform to EN 15266 Standard

Ayvaz's Indoor-flex domestic natural gas connection system is certified as to conform the EN 15266 European Standard which specifies the requirements for material, design, manufacture, testing, marking and documentation of stainless steel pliable corrugated gas tubing kits for buildings with a maximum operating pressure (MOP) less than or equal to 0,5 bar and a nominal size range from DN 10 to DN 50.

The aim of the standard (EN 15266) is to improve the safety level of domestic natural gas connections in the buildings and to provide countless benefits for both users and installers.

Safe and Reliable Flexibility at Every Bend (Acc. to 15266)

Delivering natural gas to the using points in domestic applications has always been a worry for the installers in various aspects, because of using black pipe and fittings. Classic natural gas installations by such materials is time consuming and labour intensive, creating service points at every turn and connection.

Today, Ayvaz offers a great solution for all needs of contractors and installers which is a much more flexible, reliable and effective way of natural gas installation and distribution for domestic applications by its Stainless steel corrugated hose named Indoor-flex.

Indoor-flex is a continuous and highly flexible natural gas distribution system that brings remarkable performance and installation advantages over rigid pipe products also delivers a safer installation for especially, earthquake prone regions.

ADVANTAGES OF INDOOR-FLEX

- Indoor-flex requires less time and labouring, saves time and money. The system prevents heavy lifting, extensive measuring, cutting, threading and extra workers to position and install. Connections can be completed with simple hand tools safely and quickly.
- Indoor-flex contains stainless steel hose, fittings, supportive elements, valves, cutting tools, hose crushing and preparing tools for connections also installation tubes. It is one smart system with many advantages for both new buildings and maintenance works in domestic applications.
- Indoor-flex eliminates potential gas leaks. A typical rigid pipe installation has so many 90° elbows, tee and coupling fittings that change the direction of the gas or join two straight pipes together. Each of those cast fittings can be the source of a leak. Indoor flex minimizes the number of fittings and leak potential accordingly.

FLEXIBLE INSTALLATION EVERYWHERE

Sizing the domestic gas lines properly delivers the perfect performance along with. Indoor-flex makes sure the shortest and most direct connection from the gas meter to the appliances.

Indoor-flex can be installed in non-visible areas

- Attics
- Basements
- Interior and exterior wall spaces and surfaces

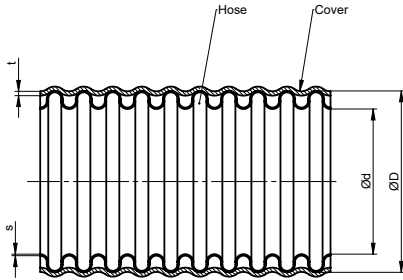
Stainless Steel Flexible Hose

Stainless steel hose AISI 316L (1.4404) DIN EN ISO 10380 with soft PVC cover.

A Safe Main Line Connection for All Domestic Gas Appliances

Ayvaz's Indoor-flex hoses can be used for the main gas lines of;

- Fixed appliances such as furnaces, stoves, and gas burning fireplaces
- Cookers, grills, patio heaters, fire pits
- Combi-boilers and water heaters



DN	Article	ØD (ID)	ØD (OD)	S (Wall Thickness)	t (Cover Thickness)	Tolerance (+/-)	Min. Bending Radius
12	601.007.520.047	11,8	15,8	0,20	0,8-1	0,20	15
16	601.007.520.060	15,5	20,3	0,20	0,8-1	0,20	20
20	601.007.520.080	20,7	26,45	0,22	1-1,2	0,30	25
25	601.007.520.095	25,2	31,7	0,20	1-1,3	0,30	30
32	601.007.520.123	33,2	39,7	0,22	1-1,3	0,30	40

Indoor-flex domestic natural gas connection hose and all related equipment (fittings, gaskets, clamps, etc...) must be checked carefully before the use and to be kept in their original packages in a dry and safe place until installation. The system elements must be preserved as them to avoid contacting with corrosive substances.

PVC coated stainless steel hose should not be left outdoor for long time and must be avoided from direct sun light. The ends of the hose must be covered by caps or adhesive tapes in order to seal from foreign substances. Applying excessive force while unrolling the indoor-flex hose may case deformation through the hose corrugations, the hose must be unrolled gently.

PACKAGING INSTRUCTIONS

Ayvaz's indoor-flex hoses may be provided as the bobbins and coils.

DN	10MT	200MT
12	coils in boxes	coils in boxes
16	coils in boxes	coils in boxes
20	coils in boxes	N/A
25	coils in boxes	N/A
32	coils in boxes	N/A



“MONTAGE BAG” KESTAK FITTINGS SET (BAG)



ITEM	DIMENSION	PIECE
KESTAK Piston	1/2" , 3/4" , 1"	1
Cutting Device	-	1
Crushing Tool	DN 12 - DN 16	2
	DN 20 - DN 25	
NUT	DN 12 - DN 16	10 EA
	DN 20 - DN 25	
Clamping Washer	DN 12 - DN 16	10 EA
	DN 20 - DN 25	
Gasket	DN 12 - DN 16	10 EA
	DN 20 - DN 25	

* For bigger sizes please contact to sales office.

PRESSURE DROP PERFORMANCE

Test Item	Nominal Diameter	Test Medium	Test Pressure	Flow Rate	Pressure Drop
5 m	DN 12	Air	500 mbar	0,1 m ³ /h	0,1 mbar
				0,3 m ³ /h	0,3 mbar
				0,5 m ³ /h	0,5 mbar
				0,9 m ³ /h	1,4 mbar
				1,5 m ³ /h	3,6 mbar
5 m	DN 12	Air	500 mbar	0,1 m ³ /h	0,1 mbar
				0,3 m ³ /h	0,5 mbar
				0,5 m ³ /h	0,6 mbar
				0,9 m ³ /h	2,2 mbar
				1,5 m ³ /h	5,7 mbar
5 m	DN 15	Air	500 mbar	0,1 m ³ /h	0,3 mbar
				0,3 m ³ /h	0,4 mbar
				0,5 m ³ /h	0,6 mbar
				0,9 m ³ /h	0,8 mbar
				1,5 m ³ /h	1,6 mbar
10 m	DN 15	Air	500 mbar	0,1 m ³ /h	0,2 mbar
				0,3 m ³ /h	0,4 mbar
				0,5 m ³ /h	0,5 mbar
				0,9 m ³ /h	1,1 mbar
				1,5 m ³ /h	2,2 mbar
5 m	DN 20	Air	500 mbar	0,3 m ³ /h	0,1 mbar
				0,9 m ³ /h	0,3 mbar
				1,5 m ³ /h	0,5 mbar
				2 m ³ /h	0,7 mbar
				3,5 m ³ /h	1,3 mbar

Test Item	Nominal Diameter	Test Medium	Test Pressure	Flow Rate	Pressure Drop
10 m	DN 20	Air	500 mbar	0,3 m ³ /h	0,1 mbar
				0,9 m ³ /h	0,3 mbar
				1,5 m ³ /h	0,8 mbar
				2 m ³ /h	1,6 mbar
				3,5 m ³ /h	3,8 mbar
5 m	DN 25	Air	500 mbar	0,7 m ³ /h	0,1 mbar
				2 m ³ /h	0,3 mbar
				2,5 m ³ /h	0,4 mbar
				3,5 m ³ /h	0,6 mbar
				6,5 m ³ /h	2,1 mbar
10 m	DN 25	Air	500 mbar	0,7 m ³ /h	0,2 mbar
				2 m ³ /h	0,4 mbar
				2,5 m ³ /h	0,5 mbar
				3,5 m ³ /h	1,1 mbar
				6,5 m ³ /h	3,2 mbar
5 m	DN 32	Air	500 mbar	1,7 m ³ /h	0,1 mbar
				4 m ³ /h	0,2 mbar
				5 m ³ /h	0,3 mbar
				7 m ³ /h	0,5 mbar
				13 m ³ /h	1,1 mbar
10 m	DN 32	Air	500 mbar	1,7 m ³ /h	0,2 mbar
				4 m ³ /h	0,4 mbar
				5 m ³ /h	0,5 mbar
				7 m ³ /h	0,9 mbar
				13 m ³ /h	2,1 mbar

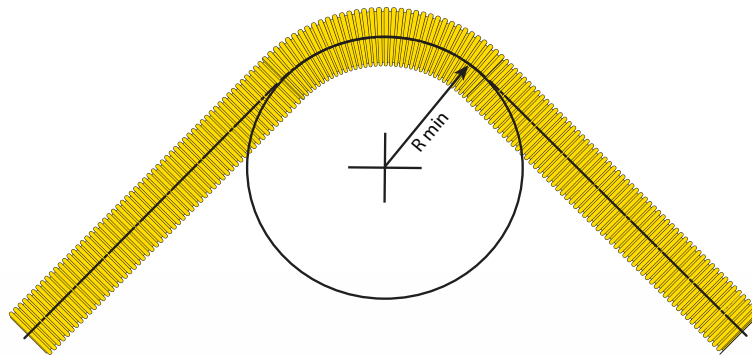
Test conditions: Test medium air, test pressure 500 mbar

Allowed measurement uncertainty: Flow rate $\pm 2\%$, temperature $\pm 2\%$, pressure $\pm 2\%$

BENDING FEATURES OF THE HOSE

Thanks to its flexible corrugated structure, indoor-flex domestic natural gas hose can easily be adopted the direction changes through the connection line with requiring no additional fittings (elbows, etc).

The hose can easily be bent in the limits of bending radius characteristics, but must not be exposed repeated bending.



Nominal Dimension (DN)	Min. Bending Radius (R min) mm
12	20
16	28
20	32
25	40
32	50

CONNECTION TYPES

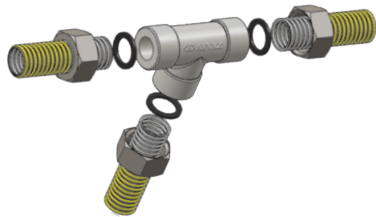
1. Connection through Male simple screw:

The picture below illustrates the connection of two indoor-flex hoses through an M/M adapter with double ISO 228G thread and plane end. Sealing is provided by NBR gaskets.



2. Connection through Tee connector:

Three indoor-flex hoses may be connected each other by using Tee connectors with ISO 228 G male thread and plane end. It is possible to connect lower diameter hoses to one or more ends of the tee using Female reducing nuts with ISO 228G thread with reduction of the flow diameter. Sealing is provided by NBR gasket.



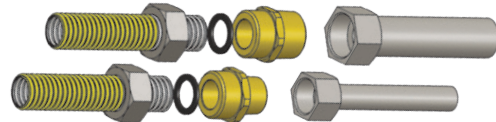
3. Connection through nipple adapter:

The picture below illustrates the connection of two indoor-flex hoses through an nipple adapter with ISO 228G thread and plane end. Sealing is provided by NBR gasket.



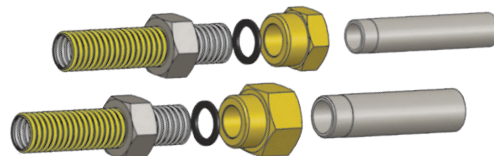
4. Connection between Indoor-flex and rigid gas pipe through M/M adapter

Indoor-flex domestic gas distribution hose can be connected to rigid gas pipes through M/M adapters with ISO 228G thread and plane end, the connection adapters may also reduce the diameter of the connection. Sealing on the hose side is provided by NBR gasket, pipe side of the male adapter has EN 10226 R (ISO 7R) or ISO 228G male taper thread, no gasket is required for sealing on this side.



5. Connection between Indoor-flex and Male threaded rigid gas pipe through M/F Nipple

Indoor-flex domestic gas distribution hose can be connected to rigid gas pipes through M/F adapters with ISO 228G thread and plane end, the connection adapters may also reduce the diameter of the connection. Sealing on the hose side is provided by NBR gasket, female side of the adapter has EN 10226 R (ISO 7Rp) female thread, no gasket is required for sealing on this side.

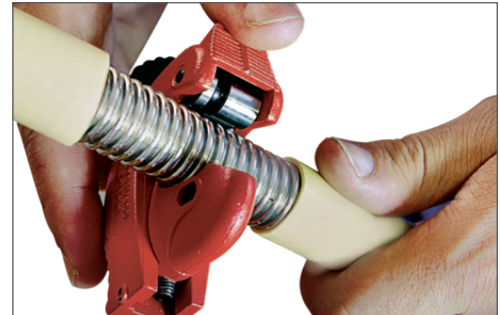


A PERFECTLY RELIABLE CONNECTION IN MINUTES

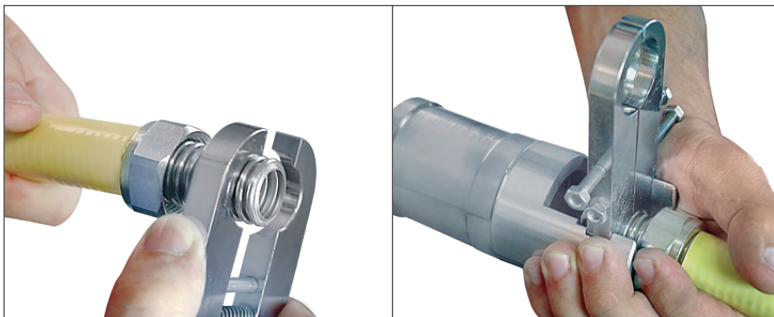
PREPARING THE KES-TAK ASSEMBLY



1. Remove the coating as at least 8 or 9 corrugations to stay uncovered.



2. Cut the hose to the required size in the middle of two corrugations.



3. Slide the nut over the hose with the thread on the side of the end to be flanged and insert the apparatus on the second wing of the hose to compress two corrugations.



4. Insert the apparatus in the crushing piston and operate a few times on the piston, sliding it out and pressing it in to achieve a sealing surface (flange).

A PERFECTLY RELIABLE CONNECTION IN MINUTES

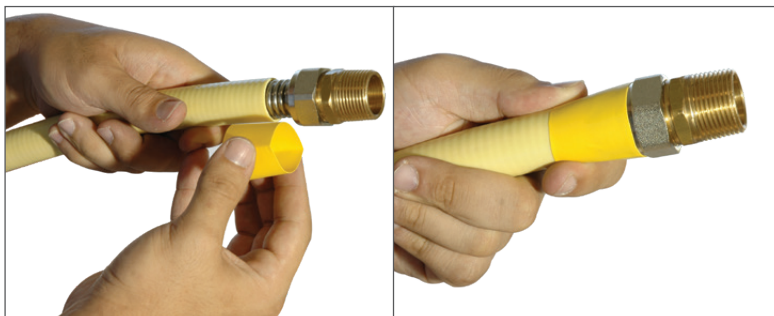


Fit the clamping washer around the depressed corrugations.

Fit the NBR gasket and complete the female fitting.



Screw in the male adapter through the nut for the male connection end.



7. Cover up the hose corrugations before the fitting by heat shrink tube in order to protect the hose against corrosion.

*** The seating surface areas of the ball valves and the gaskets must be considered carefully.**

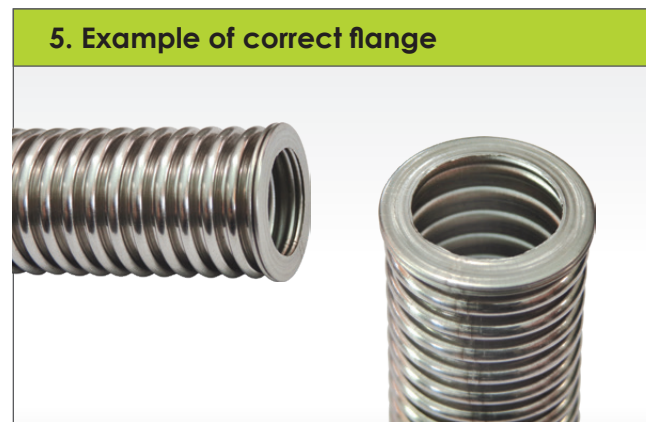
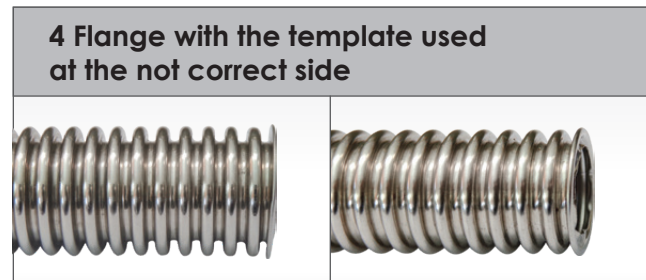
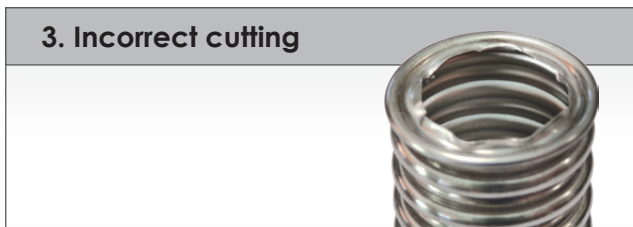
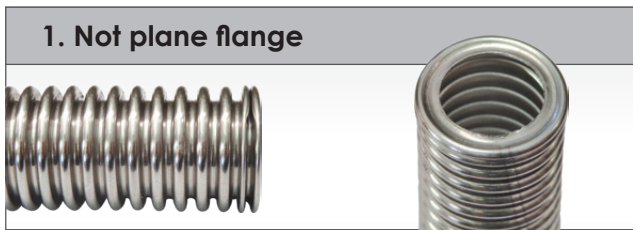
***It is advised to use the ball valves and intermediate connection parts manufactured by Ayvaz.**

A PERFECTLY RELIABLE CONNECTION IN MINUTES

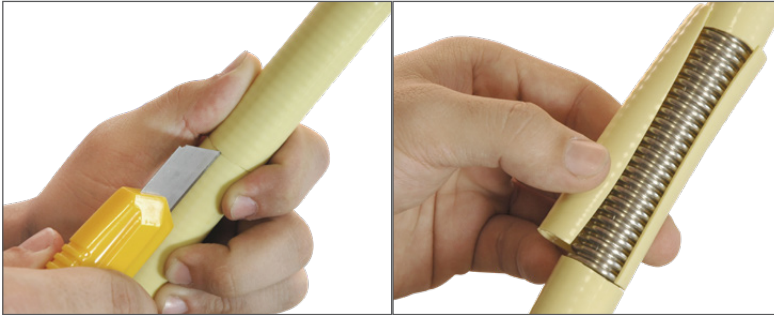
Providing the required tightness is crucial for corrugated pipe connections. In order to grant leak-proof connection, a smooth, flat and well pressed gasket surface should be prepared. Besides of automated flanging tools Ayvaz offers manual gasket surface preparing tool to the installers. This manual system is very easy to use and carry to the all places where the workers can handle easily.

At the end of the gasket surface preparing, the installers must make sure to get a completely flat and circular surface without burr.

Some examples of correct and incorrect and defective flanges are shown in following pictures; in cases of the wrong flanging occurs, the incorrect surface should be removed and flanging operation must be repeated again.

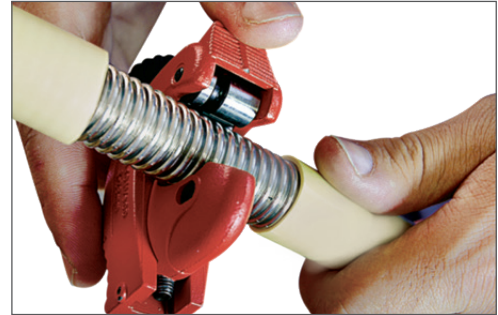


PREPARING THE PUSH-FIT ASSEMBLY



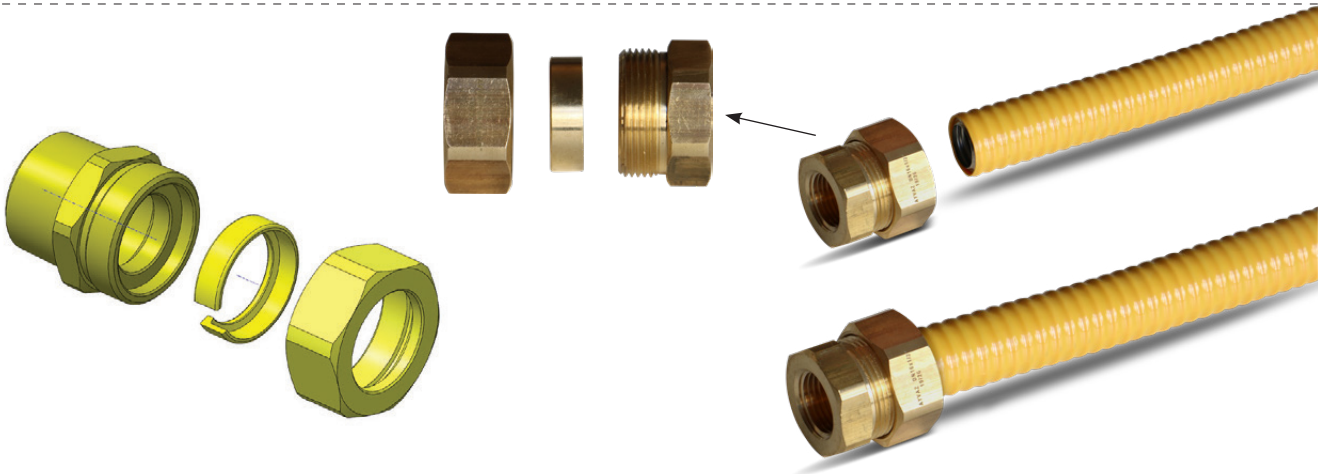
1. Remove the coating as at least 8 or 9 corrugations to stay uncovered.

EASY ASSEMBLY SAFE WITHOUT GASKET LONG LIFE



2. Cut the hose to the required size in the middle of two corrugations.

EASY ASSEMBLY



1. Insert half ring into nut as it seen in the figure
2. Tighten the nut into the fitting gently.
3. Push the hose into the nut until you hear click sound and finish tightening.

A PERFECTLY RELIABLE CONNECTION IN MINUTES

Nut



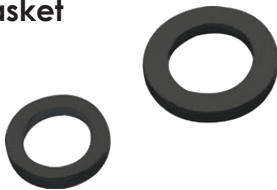
Code	Material	Size
601SMN613402	Nickel Coated Brass	1/2"
601SMN613003	Nickel Coated Brass	3/4"
601SMN613004	Nickel Coated Brass	1"
601SMN613005	Nickel Coated Brass	1 1/4"

Clamping Washers



Code	Material	Size
601160101012	AISI 304	1/2"
601160101016	AISI 304	3/4"
601160101020	AISI 304	1"
601160101025	AISI 304	1 1/4"

Gasket



Code	Material	Size
601140201020	NBR	1/2"
601140201030	NBR	3/4"
601140201054	NBR	1"
601140101051	NBR	1 1/4"

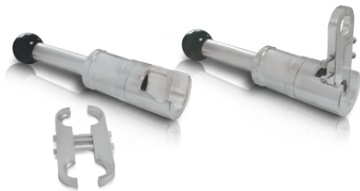
Ball Valve



Code	Material	Size
708146100020	Nickel Coated Brass	1/2"
708146100030	Nickel Coated Brass	3/4"
708146100040	Nickel Coated Brass	1"
708146100050	Nickel Coated Brass	1 1/4"

A PERFECTLY RELIABLE CONNECTION IN MINUTES

Crushing Tool



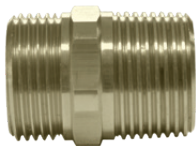
Code	Material	Size
601200104001	Ni Coated Carbon Steel	
601200104016	Ni Coated Carbon Steel	For DN12-16 Hose
601200104025	Ni Coated Carbon Steel	For DN20-25 Hose

Nipple Adapters (MxM)



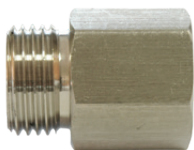
Code	Material	Size
601010472022	Nickel Coated Brass	G 1/2"
601010472032	Nickel Coated Brass	G 3/4"
601010472041	Nickel Coated Brass	G 1"
601010472052	Nickel Coated Brass	G 1 1/4"

Nipple Adapters (MxM)



Code	Material	Size
601ADN601373	Nickel Coated Brass	G 1/2" x R 1/2"
601ADN601376	Nickel Coated Brass	G 3/4" x R 3/4"
601ADN601379	Nickel Coated Brass	G 1" x R 1"
601ADN601382	Nickel Coated Brass	G 1 1/4" x R 1 1/4"

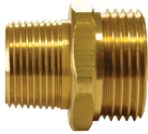
Plane End Adaptor (MxF)



Code	Material	Size
601ADR601273	Nickel Coated Brass	G 1/2" x R 1/2"
601ADR601276	Nickel Coated Brass	G 3/4" x R 3/4"
601ADR601279	Nickel Coated Brass	G 1" x R 1"
601ADR601282	Nickel Coated Brass	G 1 1/4" x R 1 1/4"

A PERFECTLY RELIABLE CONNECTION IN MINUTES

Reduced Nipple (M-M)



Code	Material	Size
601RDN602274	Brass	R 1/2" x G 3/4"
601RDN602277	Brass	R 3/4" x G 1"
601RDN602280	Brass	R 1" x G 1 1/4"

Heat Shrink Tube



Code	Material	Size
606000001101	Polyolefin Tube Yellow	DN12
606000001101	Polyolefin Tube Yellow	DN16
606000001103	Polyolefin Tube Yellow	DN20
606000001102	Polyolefin Tube Yellow	DN25

Nipple Adapter



Code	Material	Size
601628180100	Brass	G 1/2"XDN12
601628180101	Brass	G 3/4"XDN16
601628180102	Brass	G 1"XDN20
601628180103	Brass	G 1 1/4"XDN25

Pipe Clips



Code	Material	Size
601200112001	Rubber Coated Metal	DN12 (1/2")
601200112002	Rubber Coated Metal	DN16 (3/4")
601200112003	Rubber Coated Metal	DN20 (1")
601200112004	Rubber Coated Metal	DN25 (1 1/4")

Cutting Device



Code	Material	Size
601200112008	For DN12, DN16 and DN20 Hose	1/2" & 3/4" & 1"
601200112009	DN25 Hose	1 1/4"

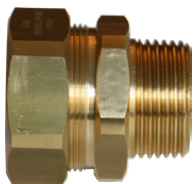
Tee



Code	Material	Size
601230301100	Ni Coated Carbon Steel	1/2" x 1/2" x 1/2"
601230301600	Ni Coated Carbon Steel	1/2" x 1/2" x 3/4"
601230301300	Ni Coated Carbon Steel	3/4" x 3/4" x 1/2"
601230301700	Ni Coated Carbon Steel	3/4" x 1/2" x 3/4"
601230301800	Ni Coated Carbon Steel	3/4" x 3/4" x 3/4"
601230301900	Ni Coated Carbon Steel	1" x 1" x 1"

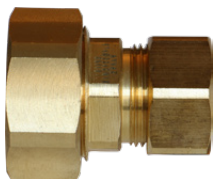
PUSH FIT CONNECTION PRODUCTS

Male



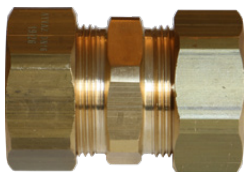
Code	Connection T.	Material	Size
701056120021	Male	CW614N	1/2"xDN12
701056130021	Male	CW614N	3/4"xDN12
701056120031	Male	CW614N	1/2"xDN16
701056130031	Male	CW614N	3/4"xDN16
701056140041	Male	CW614N	1"xDN16
701056130041	Male	CW614N	3/4"xDN20
701056140051	Male	CW614N	1"xDN20
701056140060	Male	CW614N	1"xDN25
701056140061	Male	CW614N	1 1/4"xDN25

Female



Code	Connection T.	Material	Size
701056220021	Female	CW614N	1/2"xDN12
701056230021	Female	CW614N	3/4"xDN12
701056220031	Female	CW614N	1/2"xDN16
701056230031	Female	CW614N	3/4"xDN16
701056240041	Female	CW614N	1"xDN16
701056230041	Female	CW614N	3/4"xDN20
701056240051	Female	CW614N	1"xDN20
701056240060	Female	CW614N	1"xDN25
701056240061	Female	CW614N	1 1/4"xDN25

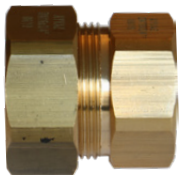
Adapter



Code	Connection T.	Material	Size
701056310011	Adapter	CW614N	DN12
701056320021	Adapter	CW614N	DN16
701056330031	Adapter	CW614N	DN20
701056340041	Adapter	CW614N	DN25

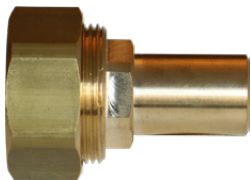
PUSH FIT CONNECTION PRODUCTS

Ern. Copper Connection



Code	Connection T.	Material	Size
701056221521	Ern. Coper Con.	CW614N	1/2"xØ15xDN12
701056231821	Ern. Coper Con.	CW614N	3/4"xØ18xDN12
701056242221	Ern. Coper Con.	CW614N	1"xØ22xDN12
701056221531	Ern. Coper Con.	CW614N	1/2"xØ15xDN16
701056221631	Ern. Coper Con.	CW614N	1/2"xØ16xDN16
701056231831	Ern. Coper Con.	CW614N	3/4"xØ18xDN16
701056242231	Ern. Coper Con.	CW614N	1"xØ22xDN16
701056231841	Ern. Coper Con.	CW614N	3/4"xØ18xDN20
701056242241	Ern. Coper Con.	CW614N	1"xØ22xDN20
701056231851	Ern. Coper Con.	CW614N	3/4"xØ18xDN25
701056242251	Ern. Coper Con.	CW614N	1"xØ22xDN25

Welding End Connection



Code	Connection T.	Material	Size
701056101521	Welding End	CW614N	Ø15xDN12
701056101831	Welding End	CW614N	Ø18xDN16
701056102231	Welding End	CW614N	Ø22xDN16
701056102241	Welding End	CW614N	Ø22xDN20
701056102251	Welding End	CW614N	Ø22xDN25
701056101851	Welding End	CW614N	Ø18xDN25

TEE Connection



Code	Con. T.	Material	Size
701057094016	TEE	EN15266-CW614N	DN20xDN16xDN16
701057094020	TEE	EN15266-CW614N	DN20xDN20xDN20
701057094025	TEE	EN15266-CW614N	DN25xDN20xDN20
701057094030	TEE	EN15266-CW614N	DN25xDN25xDN20
701057094035	TEE	EN15266-CW614N	DN25xDN25xDN25



INDOOR FLEX



HEAD OFFICE - FACTORY

Atatürk Sanayi Bölgesi Hadımköy Mahallesi Mustafa İnan 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