



GF HAKAN FLEXA®
CROSS-LINKED PEX-B PIPING SYSTEMS

GF HAKAN PLASTİK is one of the world's largest plastic piping systems manufacturers. The company develops, produces and markets a comprehensive range of piping systems and components in a variety of materials used worldwide to transport water and gas at the highest quality, service and the right price. GF HAKAN PLASTİK operates in three core segments of piping systems; Building Technology, Utility and Agriculture. Its certified products are used in more than 70 countries in 5 continents worldwide.

With more than 10.000 products, GF HAKAN PLASTİK manages a land and maritime transport operation seamlessly and is able to meet the needs of its clients fully wherever they may be in the world.

▪ **HISTORY**

HAKAN PLASTİK was founded in 1965 by the Karadeniz family. Since its foundation, Hakan Plastik has continuously expanded its presence in the manufacturing and sales of plastic piping systems with a focus on innovation.

In 2002, the company invested in a state of art modern facility in Çerkezköy Industrial Zone (ÇOSB), one of the three largest industrial zones in Turkey. To increase its production capacity, HAKAN PLASTİK opened up its second facility in Şanlıurfa. Both facilities totally cover an area of 170.000 m².

In 2013, the leading plastic pipe manufacturer of Europe and the Middle East, HAKAN PLASTİK and the world's leading manufacturer of piping systems, Swiss-based Company, GEORG FISCHER joined forces under the name of "**GF HAKAN PLASTİK**" to provide a unique platform for further growth worldwide.

GEORG FISCHER, founded in 1802 is headquartered in Switzerland and has 125 companies, 48 of which are production facilities, in 32 countries with a workforce of 13,500 employees. The company generated sales of 3.6 billion Swiss francs in 2012. Georg Fischer operates in three core businesses GF Piping Systems, GF Automotive and GF Machining Solutions.

GF Piping System Division is a global supplier of plastic piping systems for the conveyance of liquids and gases in industry, building technology and utility applications. With over 5,000 employees, GF Piping Systems generated sales of about CHF 1.3 billion in over 100 countries in 2012.

▪ **ABOUT GF HAKAN PLASTİK**

GF HAKAN PLASTİK operates in 2 production facilities equipped with the latest manufacturing technologies in Çerkezköy and Şanlıurfa with a workforce of 730 employees. Its headquarters is in Çerkezköy. The company has 6 regional directorates, offices and warehouses in Turkey.

The company has taken its place among the top 500 Enterprises in Turkey according to the worldwide known, prestigious Fortune 500 ranking and also one of the Top 500 Largest Companies in Turkey according to "Istanbul Chamber of Industry (ISO)."



GF Hakan Plastik Çerkezköy Factory

The system quality of GF HAKAN PLASTİK has been certified by BVQI, ISO 9001 and ISO 14001. As a result of a meticulous quality control approach and continuous research and development, product quality of GF HAKAN PLASTİK is confirmed by its international quality certificates.



The company gives top priority to using the highest standards of technology to manufacture user-friendly products with the highest quality and service.

APPROVALS & CERTIFICATES



TURKEY
TURKISH STANDARTS INSTITUTE
[TS 10762-2 14.31.34/8740]



RUSSIA
GOST-R
[POCC TR.AB28.B13130]



TURKEY
TURKISH STANDARTS INSTITUTE
CERTIFICATE OF CONFORMANCE
TO CRITERIA
[34/3759]



RUSSIA
HYGIENE
[RU.67.CO.01.013.E.003950.05.12]



UKRAINE
HYGIENE
[05.03.02-03/113736]



TURKEY
HIFZISSIHHA INSTITUTE
[579 / 325]



UKRAINE
UKR SEPRO
[UA1.081.0067713-09]

GF HAKAN PLASTİK FLEXA is a flexible heating and cooling pipe system made of crosslinked polyethylene. At GF Hakan Plastik, crosslinking process is performed with silane process (pex-b).

GENERAL INFORMATION

- Flexa is manufactured in outer diameters from 16mm to 32mm in two types
 - **Standard Flexa Pex-b pipes**
 - **Oxygen Barriered Flexa Pex-b pipes**
- Flexa pipes are manufactured in accordance with EN ISO 15875-2 / DIN 16892 system standard.
- Flexa coils come in white and other various colors depending on country preferences. They are available with or without spiral covers.

BENEFITS

- Resistance to high temperatures 120 °C
- Min. 50 year lifespan under suitable conditions in PN 10 bars
- High performance against abrasion
- Smooth surface low roughness coefficient
- Smaller diameters than other regular pipe systems
- High resistance to chemicals
- Light weight
- Quick and easy installation
- Low transportation cost
- 100% hygienic
- Environmentally friendly
- Economic
- Low heat conductivity
- High heat transfer coefficient
- Memory effect
- Low maintenance cost
- Increased property value
- No corrosion
- Availability of spiral cover pipe
- Oxygen barrier can be coated and prevents the oxygen within water from passing from the pipe to water

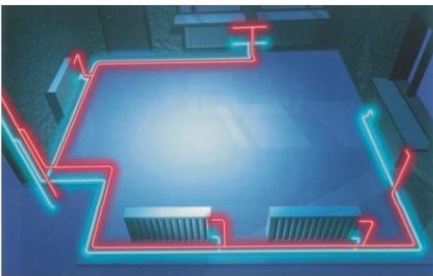


FIELDS OF APPLICATION

- Residential and commercial hot and cold water distribution systems
- Low/high temperature heat transfer applications
- Radiant floor heating
- Snow melting
- Ice rinks
- Potable water systems
- Radiators, airconditioners, chillers
- Transferring of chemical materials
- Heating systems

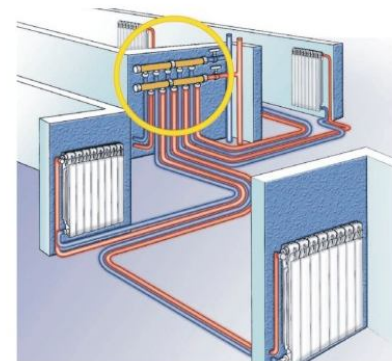
UNDERFLOOR HEATING SYSTEMS (Closed-Circuit)

Domestic floor heating network of Flexa pipes operated from a closed-circuit hot water source.



RADIATOR HEATING SYSTEMS - OVER PLASTER (Closed-Circuit)

Domestic heating with radiators. Operated from a closed-circuit hot water source.



RADIATOR HEATING SYSTEMS - UNDER PLASTER (Closed-Circuit)

Domestic heating with radiators. Operated from a closed-circuit hot water source.



POTABLE WATER SYSTEMS (Open-Circuit)

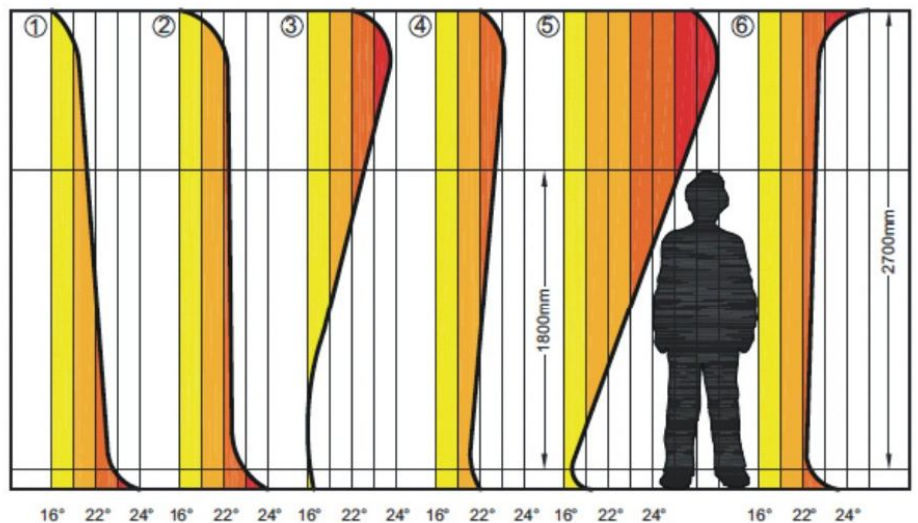
Operated from an open-circuit hot and cold water sources. (Bathroom and shower, etc.)

PHYSIOLOGY OF HEATING

The purpose of every heating system is to provide comfortable indoor conditions, necessary for a greater degree of warmth to be provided to the lower part of the body than the upper (warm feet cool head). It is equally important that there is a low temperature difference between the temperature of the air within the room and the surface temperature of the surrounding walls.

The requirements for comfortable room surroundings are represented in graph form by the vertical temperature profile “ideal curve” shown in figure 1. The temperature profile for underfloor heating is the only curve which almost perfectly coincides with the ideal.

1. Theoretical ideal heating curve.
2. Underfloor heating.
3. Heating by radiators internal walls.
4. Heating by radiators external walls.
5. Warm air heating.
6. Ceiling heating.

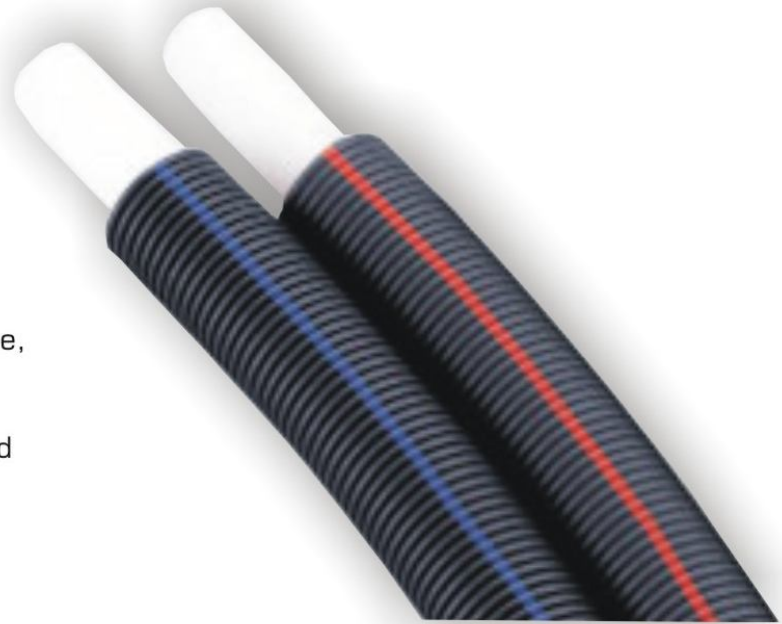


- Heating with low operating and surface temperatures can provide a cost effective solution with lower energy consumption of our buildings.
- Underfloor heating creates more space as the system is invisible under the floor.
- Underfloor heating provides optimum health benefits for people with allergies, asthma and excellent safety care for children.
- It is also increases value of your property. It has always been a great selling point because people will always consider it state-of-the-art and not something that would be seen in every home.

PRODUCT PROPERTIES

CROSS-LINKED PEX-B PIPES WITH SPIRAL COVER

- In case of damage in the plumbing systems, the spiral cover pipe allows replacing the pipes without damaging the floor surfaces.
- Provides heat insulation by creating an air gap between trench and pex pipe, reduces heat loss of water.
- Allows expansion of the pipe by heat and prevents expansion stress.



LOW HEAT CONDUCTIVITY

Low heat conductivity of Flexa restricts dissemination of the heat. Flexa provides the most appropriate usage in underfloor heating systems.

CROSSLINKING

Crosslinking increases the resistance of the pipe against pressure and high temperatures (120 ° C).

MEMORY EFFECT

Crosslinked Polyethylene (Pex) pipe is the pipe which stores the process conditions in its memory. In case of any physical deformation which occurs during usage or application, the pipe can be returned to its original condition by heating as below.



PRODUCT PROPERTIES

CROSS-LINKED PEX-B PIPES WITH OXYGEN BARRIER

Oxygen and water are two main components of living beings. They can not live if there is no oxygen.

All plastic materials transmit oxygen in definite proportions.

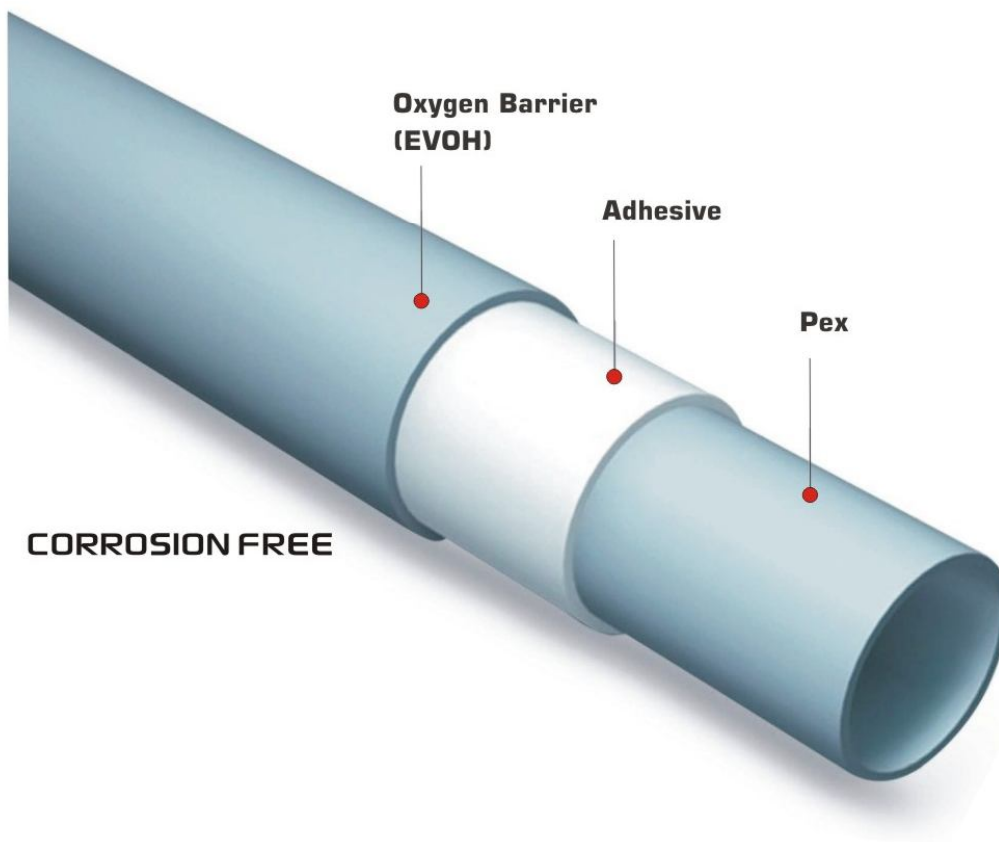
The permeability varies depending on the molecular structure of the plastic.

The oxygen passing through the pipe, melts in water and has two effects on the system.

Firstly, it provides the living for micro-organisms, multiplicity of microbes and moss breeding.

Secondly, the oxygen in water which circulates in the heating system, causes corrosion on installation components and defects the valves of radiator.

Therefore a barrier is created in food packaging and pipe system to prevent oxygen passing. EVOH (Ethyl Vinyl Alcohol) is mostly used as barrier.



The PEX pipe with Oxygen Barrier is multilayered.

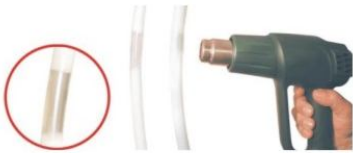
GF HAKAN FLEXA Pex-b material used in inner layer. An Additional adhesive layer is placed on inner layer in order to cure full adhesion of oxygen barrier layer. For all of the GF HAKAN FLEXA Pipe systems, same fittings can be used.

EASY AND RAPID INSTALLATION

GF HAKAN PEX-B Pipes should be supported by corner conduit in 90° bendings. A corner conduit removes internal tensions by providing compensation of expansion of the pipe. It prevents cracking of the pipe which may later lead to water leakage. GF HAKAN PEX-B Pipes corner conduits can be connected to each other and they provide esthetic appearance under the radiator and manifold connections.



Mounting in Screwed Systems



Cut vertically



Ream and clean.



Place the nut and ring.



**Insert the O-ring part.
Use undamaged O-rings.**



Tighten nut with a wrench.

Installation of Underfloor Heating System

After laying out insulation material which maintains head and sound insulation between layers on the base concrete which was previously cleaned and smoothed, then it is covered with polyethylene folio.

- 1) GF HAKAN PEX-B Pipes are assembled with the help of fish plates according to installation project and collector connection is fixed.
- 2) Fish plates with clips are assembled according to installation project.



- 3) After tightness test, system becomes ready for screed.



The volume increase in the frozen part causes an increase in internal pressure up to 80 bars. This value is higher than pipe resistance level. Therefore; to protect the system, the water shall be removed during the installation

PRODUCT RANGE



CROSS-LINKED PEX-B PIPES

CODES	DIAMETER (mm)	PACKING (m)
6000001600131	16	160
6000001800131	18	100
6000002000231	20	100
6000002500331	25	50
6000003200431	32	50



CROSS-LINKED PEX-B PIPES WITH SPIRAL COVER

CODES	DIAMETER (mm)	TYPE	PACKING (m)
6004001601631	16	Blue Striped	100
6004002002031	20	Blue Striped	100
6012001601631	16	Red Striped	100
6012002002031	20	Red Striped	100



CROSS-LINKED PEX-B PIPES WITH OXYGEN BARRIER

CODES	DIAMETER / Wall Thickness (mm)	PACKING (m)
6200001600131	16x2	160
6220001600131	16x2,2	160
6230001600131	16x2,5	160
6200001800231	18x2	160
6200002000331	20x2	100
6200002500431	25x2,5	100
6200003200531	32x2	50



CROSS-LINKED PEX-B PIPES WITH OXYGEN BARRIER AND SPIRAL COVER

CODES	DIAMETER (mm)	TYPE	PACKING (mt)
6204001600131	16	Blue Striped	100
6204002000231	20	Blue Striped	100
6204002500331	25	Blue Striped	100
6212001600131	16	Red Striped	100
6212001600131	20	Red Striped	100
6212001600131	25	Red Striped	100



SPIRAL PIPE

CODES	DIAMETER (mm)	TYPE	PACKING (m)
6112002500131	25	Red Striped	100
6104002500131	25	Blue Striped	100
6112003200231	32	Red Striped	50
6104003200231	32	Blue Striped	50

PRODUCT RANGE



MALE NIPPLE

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
6401901608782	16X1/2"	100
6401901608882	16X3/4"	75
6401901808982	18X1/2"	75
6401902009082	20X1/2"	50
6401902009182	20X3/4"	75
6401902509282	25X3/4"	50
6401902509382	25X1"	25
6401903209482	32X1"	25
6401903209582	32X1.1/4"	25



MALE ELBOW

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
6401101600122	16X1/2"	75
6401101600222	16X3/4"	50
6401102000322	20X1/2"	50
6401102000422	20X3/4"	50
6401102500522	25X3/4"	25
6401102500622	25X1"	50
6401103200722	32X1"	25
6401103200822	32X1.1/4"	25



FEMALE NIPPLE

CODES	DIAMETER (mm)	PACKING (PCS)
6401901609682	16X1/2"	100
6401901609782	16X3/4"	75
6401901809882	18X1/2"	75
6401902009982	20X1/2"	75
6401902010082	20X3/4"	75
6401902510182	25X3/4"	50
6401902510282	25X1"	50
6401903210382	32X1"	25
6401903210482	32X1.1/4"	25



FEMALE ELBOW

CODES	DIAMETER (mm)	PACKING (PCS)
6401101600922	16X1/2"	100
6401101601022	16X3/4"	75
6401102001122	20X1/2"	75
6401102001222	20X3/4"	50
6401102501322	25X3/4"	75
6401102501422	25X1"	50
6401103201522	32X1"	25
6401103201622	32X1.1/4"	25

PRODUCT RANGE



MALE TEE

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
6401901610582	16x1/2"x16	25
6401901610682	16x3/4"x16	25
6401901810782	18x3/4"x18	25
6401902010882	20x1/2"x20	25
6401902010982	20x3/4"x20	25
6401902511082	25x3/4"x25	25
6401902511182	25x1"x25	25



FEMALE TEE

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
6401901611282	16x1/2"x16	25
6401901611382	16x3/4"x16	25
6401901811482	18x3/4"x18	25
6401902011582	20x1/2"x20	25
6401902011682	20x3/4"x20	25
6401902511782	25x3/4"x25	25
6401902511882	25x1"x25	25



RADIATOR VALVE

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
6401800003282	16x1/2"	25



FEMALE WALL PLATE ELBOW

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
6401101602422	16x1/2"	50
6401101602522	16x3/4"	50
6401102002522	20x1/2"	25
6401102002622	20x3/4"	25

PRODUCT RANGE



MALE MINI BALL VALVE

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
640180003122	16x1/8"	50



FEMALE MINI BALL VALVE

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
640180003022	16x1/8"	50



TEE

CODES	DIAMETER (mm)	PACKING (PCS)
6401901611982	16x16x16	25
6401901812082	18x18x18	25
6401902012182	20x20x20	60
6401902512282	25x25x25	25
6401903212382	32x32x32	25



REDUCING TEE

CODES	DIAMETER (mm)	PACKING (PCS)
6401901612482	16x20x16	25
6401901812582	18x20x18	25
6401902012682	20x16x16	25
6401902012782	20x16x20	25
6401902012882	20x18x20	25
6401902012992	20x20x16	25
6401902012082	20x20x18	25



**MECHANICAL VALVE
FOR AIR OUTLET**

CODES	DIAMETER (Inch)	PACKING (PCS)
6401900000682	3/8"	500



EQUAL NIPPLE

CODES	DIAMETER (mm)	PACKING (PCS)
6401901613182	16x16	100
6401902013382	20x20	75
6401902513482	25x25	25
6401903213582	32x32	50

PRODUCT RANGE



REDUCING NIPPLE

CODES	DIAMETER (mm)	PACKING (PCS)
6401901813682	18x16	50
6401902013782	20x16	50



EQUAL ELBOW

CODES	DIAMETER (mm)	PACKING (PCS)
6401101601722	16x16	75
6401101801822	18x18	50
6401102001922	20x20	50
6401102502022	25x25	25
6401103202122	32x32	25



REDUCING ELBOW

CODES	DIAMETER (mm)	PACKING (PCS)
6401102002222	20x16	25
6401102002322	20x18	25



NIPPLE FOR RADIATOR CONNECTION PIPE

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
6401900000182	16x1,8 - 1/2"	100



CORNER CONDUIT

CODES		DIAMETER (mm)	PACKING (PCS)
4300900030021	Type 1	20	120
4300900030022	Type 2	20	120



RADIATOR CONNECTION PIPE

CODES	SIZE (cm)	PACKING (PCS)
6401900001882	40	50
6401900000582	60	50
6401900000782	90	50

PRODUCT RANGE



NICKEL PLATED MANIFOLDS



CONNECTOR ELBOW BOX

CODES	WAYS (PCS)	PACKING (PCS)
640190000882	2	40
6401900001082	3	40
6401900001182	4	40
6401900001282	5	20
6401900001382	6	20
6401900001482	7	20
6401900001682	9	20
6401900001782	10	20

CODES	SIZE (Inch)	PACKING (PCS)
6401900008622	1/2"	24



COLLECTOR SINGLE PIPE CLIP PLASTIC



DOUBLE MANIFOLD BRACKET

CODES	PACKING (PCS)
6401900008122	20

CODES	DIAMETER (Inch)	PACKING (PCS)
6401900013882	1"	50



PIPE CLIP RAILS



MANIFOLD CABINET

CODES	SIZE (cm)	PACKING (PCS)
6401900002122	33	400

CODES	SIZE (cm)	PACKING (PCS)
6401900013982	40	1
6401900014082	60	1
6401900014182	80	1

PRODUCT RANGE



PIPE HOLDER

CODES	PACKING (PCS)
6401900000222	8000



BLADE HOLDER

CODES	PACKING (PCS)
6401900000822	500



BENDING SPRING

CODES	DIAMETER (mm)	PACKING (PCS)
6401901614582	16	75
6401902014682	20	*
6401902514782	25	*



SINGLE MOUNTING WALL PLUG

CODES	DIAMETER (mm)	PACKING (PCS)
6401900008522	25	8000



COLLECTOR WITH VALVE

CODES	WAYS (PCS)	PACKING (PCS)
6401900003582	2	*
6401900003682	3	*
6401900003782	4	*
6401900003882	5	*
6401900003982	6	*
6401900004082	7	*
6401900004182	8	*
6401900004282	9	*
6401900004382	10	*
6401900004482	11	*
6401900004582	12	*



DOUBLE OUTLET COLLECTOR WITH SELF VALVE (PLASTIC)

CODES	WAYS (PCS)	PACKING (PCS)
6401900006282	2	14
6401900006382	3	14
6401900006482	4	14
6401900006582	5	14
6401900006682	6	14
6401900006782	7	14
6401900006882	8	14
6401900006982	9	14
6401900007082	10	14
6401900007182	11	14
6401900007282	12	14
6401900007382	13	10

PRODUCT RANGE



RADIATOR ELBOW VALVE (BALL)

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
4300802045522	20x1/2"	80



BALL VALVE

CODES	DIAMETER (Inch)	PACKING (PCS)
6401800003382	1"	14



RADIATOR FLAT ELBOW VALVE (BALL)

CODES	DIAMETER (mm/Inch)	PACKING (PCS)
4300802045022	20x1/2"	80



SINGLE OUTLET COLLECTOR WITH SELF VALVE

CODES	WAYS (PCS)	PACKING (PCS)
6401900005082	2	14
6401900005182	3	14
6401900005282	4	14
6401900005382	5	14
6401900005482	6	14
6401900005582	7	14
6401900005682	8	14
6401900005782	9	14
6401900005882	10	14
6401900005982	11	14
6401900006082	12	14
6401900006182	13	10



NICKEL PLATED MANIFOLDS (FEMALE)

CODES	WAYS (PCS)	PACKING (PCS)
6401900009082	2	40
6401900009182	3	40
6401900009282	4	40
6401900009382	5	40
6401900009482	6	40
6401900009582	7	40
6401900009682	8	40
6401900009782	9	40
6401900009882	10	40
6401900009982	11	40
6401900010082	12	40

PRODUCT RANGE



DOUBLE HOOK WITH WALL PLUG

CODES	DIAMETER (Inch)	PACKING (PCS)
6401900008322	1"	1000



DOUBLE MOUNTING WALL PLUG

CODES	DIAMETER (mm)	PACKING (PCS)
6401900008422	25	5000



AL PEX CORNER VALVE

CODES	DIAMETER (Inch)	PACKING (PCS)
6401800011382	1/2"	25



PEX CORNER VALVE

CODES	DIAMETER (Inch)	PACKING (PCS)
6401800011482	1/2"	25



CORNER RADIATOR VALVE

CODES	DIAMETER (Inch)	PACKING (PCS)
6401800011582	1/2"	25

PRODUCT RANGE



TAP EXTENSION

CODES	DIAMETER (Inch)	PACKING (PCS)
6401900010182	1/2" L10	40
6401900010282	1/2" L15	40
6401900010382	1/2" L20	40
6401900010482	1/2" L25	40
6401900010582	1/2" L30	40
6401900010682	1/2" L40	40
6401900010782	1/2" L50	40
6401900010882	1/2" L60	40
6401900010982	1/2" L70	40
6401900011082	1/2" L80	40
6401900011182	1/2" L90	40
6401900011282	1/2" L100	40



PIPE NIPPEL

CODES	SIZE (cm)	PACKING (PCS)
6401700003022	40	100
6401700003122	60	100
6401700003222	80	100

+GF+

hakan
PLASTİK

Quality Certificates

 GERMANY - DVGW

ORGANIZED BY
 GERMANY - SKZ

 FRAUNHOFER
IGB GERMANY
FRAUNHOFER INSTITUT

 RUSSIA, BELARUS,
UKRAINE GOST-r

 SCANDINAVIAN
COUNTRIES - SWEDCERT

 BULGARIA
BULGARKONTROLA

• INSTA-CERT •
SCANDINAVIAN COUNTRIES
INSTA-CERT

 SCANDINAVIAN
COUNTRIES
NORDIC POLYMARK

 HUNGARY - EMI

AENOR SPAIN - AENOR

 SOUTH AFRICA
SABS

 GERMANY, RUSSIA
HYGENE INSTITUT

 GREECE
EBETAM

 SWEDEN
SP REPORT

 TURKEY - TSE

 TURKEY - TSEK

 TURKEY
YILDIZ TECHNICAL
UNIVERSITY REPORT

 TURKEY
HIFZISSIHA REPORT

 POLAND
REKOMENDACJA

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UKR - SEPRO

 GERMANY
HOCH

 TURKEY
AGRICULTURAL CREDIT REPORT

 UKRAINE
HYGIENE

 UNITED KINGDOM
WRAS

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