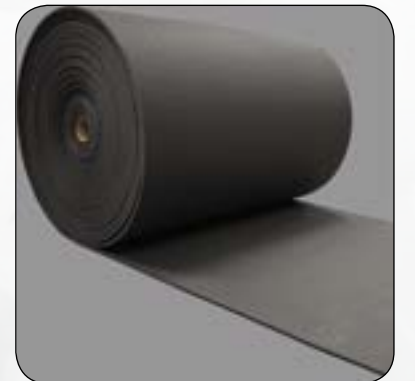


Cross-linked Polyethylene Foam

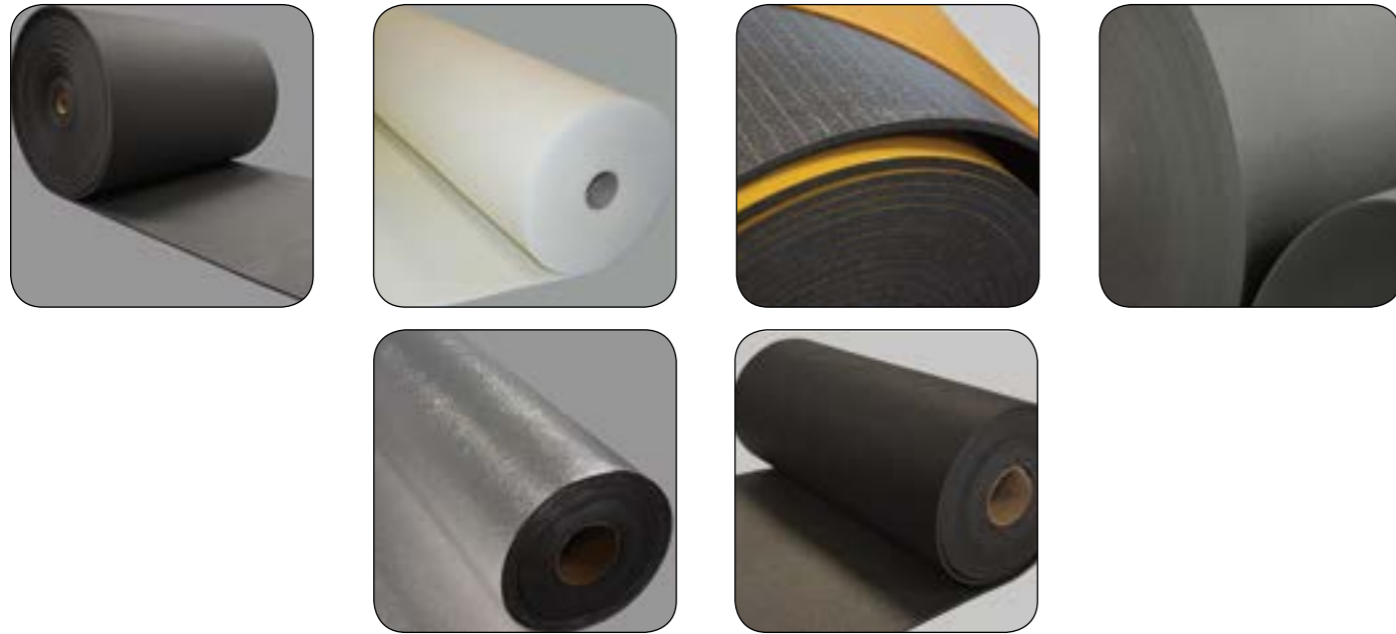


CFC - HCFC
FREE

RoHS

CE

Yalıtımda
dinamik[®]
Çözüm



Cross-linked Polyethylene Foams are produced by admixing selected amount of chemical cross-linking agents and chemical foaming agents in an extruder and conveying the resultant hard plastic polyethylene panel through an oven. Thanks to its production technology, the XLPE foams produced with closed porosity and smooth surface have superior mechanical and thermal properties due to the cross-linking in their structure.

With the Construction and automotive industry being in the first place, DYNFAOAM XPE products are used in many fields as medical white goods and packaging due to their outstanding properties.

This product has closed cell structure and it provides thermal insulation. It is water- and moisture-proof. The capillary water absorption rate is zero. Reduces impact noise. It is environment friendly, and produced without the use of HCFC's or any other harmful/banned chemicals. It does not contain materials harmful to human health. It is anti-bacterial. It is not affected by chemicals and environmental conditions. Due to its flexible structure, it does not deform after impact. It can be shaped by heat. It can be produced in different thicknesses and sizes.

DYNFAOAM XPE Foams can be produced in rolls as uncoated or coated with adhesive sheet, with reinforced mesh as well as in the form of tubes, tapes and sheets laminated with Aluminum foil, Aluminum Plus, PVC, PET, film, fabric etc.



Construction Industry



Under screed Insulation

DYNFAOAM XPE Cross-linked polyethylene foams are used as under screed insulation layers for heat and impact noise insulation. The **DYNFAOAM XPE** products are installed on the floor before laying the levelling screed. During installation the joints are covered with the 5 cm wide DYNFAOAM XPE adhesive tape. According to the screed thickness, the laid **DYNFAOAM XPE** products are raised from the skirting board level. Finally the application is completed by laying the levelling screed.

Under Parquet Insulation

DYNFAOAM XPE Cross-linked polyethylene foams are used as under Parquet insulation layers for heat and impact noise insulation. Depending on the insulation thickness, it contributes to heat and sound insulation. It also increases the service life of moisture-sensitive floor coverings such as laminate and solid parquet.

Wall Insulation

In case it is not possible to apply external thermal insulation, thermal insulation is applied from the inside. **DYNFAOAM XPE** Cross-linked Polyethylene foams with one side covered with decorative film, are glued directly on the internal wall surfaces using appropriate adhesives. Application surface should be cleaned from dirt and all surface defects should be removed. **DYNFAOAM XPE** Cross-linked Polyethylene foams are cut to the desired sizes and applied to the surface using suitable adhesives.

Mechanical Installation Systems Insulation

Due to their optimum density, closed cell structure and excellent water vapor Permeability Resistance, **DYNFAOAM XPE** Cross-linked Polyethylene foams provide heat insulation and condensation control. These products can be used safely for air ducting and piping system insulation. The products can be produced as uncoated or coated with Aluminum foil.

Roof Insulation

Not only the water insulation, but also thermal insulation is very important for roof systems. As they have a reflective surface, **DYNFAOAM XPE** Cross-linked Polyethylene foams reflect the heat back to the interior and provide better insulation. This feature of the product provides a great advantage for end-users and installers.

Others

DYNFAOAM XPE Cross-linked Polyethylene foams are used in buildings for heat-sound and moisture insulation purposes in the following application areas:

- Climate-controlled room insulation
- Door / Window heat, sound and water insulation
- Insulation of floor heating systems
- Balcony and terrace waterproofing and thermal insulation
- Valve Jacket insulation
- Animal shelters



Construction Industry

Heat Insulation

Thermal conditions of working environment directly affect the physical and mental productivity rate of people. It has been determined that very hot or cold working environments reduce work efficiency. Moreover, health problems caused by very cold working environments lead to loss of workforce, and consequently to health expenditures. In addition, it has been determined that indoor temperatures which are too low or too high from the comfort temperature cause work accidents. In order to prevent these accidents, thermal comfort must be provided in the buildings. For a comfortable interior environment, this difference must be 3 degrees maximum. In case the internal wall surface temperature is low, the heat flow occurs towards the cold surfaces and it results in undesirable airflows. These airflows reduce the comfort and may lead to diseases. Contrary to the popular belief, higher indoor temperature does not provide thermal comfort. The important thing is that the temperature average of all the inner surfaces surrounding the interior should be close to the ambient temperature. Because the temperature felt by people is not the ambient temperature, but the average of the ambient temperature

with the internal surface temperatures. So, people can live and produce in a comfortable environment. The temperature felt is calculated by given formula below. In order to live a comfortable life, the ideal thermal comfort condition is accepted as 50% for relative humidity and 20-25 °C for indoor temperature. In winter, the outdoor temperatures are below 20°C while the outdoor temperatures are above 20°C in summer. Heat is a type of energy and as per the second law of thermodynamics, the heat transfers from the environment of higher temperature to the environment of lower temperature. Therefore, while energy losses occur in buildings in winter, the undesired energy gains occur in summer. In order to provide the desired comfort environment within a building, the thermal energy lost in winter should be compensated with a heating system in winter and the heat gained should be removed from indoors with a cooling system in summer. Energy is consumed for both heating and cooling. Limiting the heat gains and losses in a building means reducing the amount of energy to be consumed for heating and cooling purpose, and only with a good INSULATION an efficient use can be provided.

Sound Insulation

Noise control includes all measures that need to be taken to reduce noise level to acceptable levels and to protect people against harmful effects of noise. In order to control noise 3 different methods are used:

- Noise control at the source
- Noise control along the sound path between the source and the receiver
- Noise control at the receiver

In living spaces like house, office, school, hospital or shopping center, the sound is transmitted through building elements like ceiling, walls or floors in 2 different ways:

- Airborne sound transmission: The airborne sound arising from talking, music etc. passes through the air, vibrates the building elements and passes through to another space.
- Impact Sound Transmission: The impact source sets up energy directly in the solid element it contacts, this energy is transmitted over the building supporting structure and spread out to different volumes and converted to airborne sound.

Controlling the noise along the sound path between the source and the receiver is called "sound insulation". Nowadays, organic and inorganic based products are used for sound insulation applications.

DYNAFOAM XPE Cross-linked Polyethylene foams are preferred by end-users and installers, especially in impact sound insulation applications due to their closed cell structure, flexibility and ease of application.

On 31 May 2017, the Ministry of Environment and Urbanization issued the "Regulation on the Protection of Buildings against Noise."

In this context, the rules to be followed against people's exposure to noise, in terms of design, construction, use, maintenance and operation in all kinds of structures, buildings, facilities, and enterprises are determined. The impact sound insulation was also included in the mandatory rules.

Impact sound insulation value for **DYNAFOAM XPE** products is (ΔL_w) 37 dB. This value shows that the products provide high impact sound insulation for under parquet and under floor applications.

Sound Intensity (dB)	Sound Source
40	Talking in whispers
60	Normal Talking
90	Factory working environment
100	Motorway Traffic
120	Aircraft lift off
160	Jet Engine

$t_i - t_v$	Comfort Condition
2	Very comfortable
3	Comfortable
4	Less comfortable
6	Comfortless
8,5	Cold
>8,5	Very cold

Table 1: The effect of temperature differences between indoor and internal surface temperatures on the comfort.



Automotive Industry

DYNAFOAM XPE is used for upper fender insulation pads, seat support pads, under roof sound insulation, trunk insulation, lamp seals, air-conditioner insulation, air ducts insulation, door panels support pads, dashboard insulation, sun visors.



- It provides excellent thermal and sound insulation
- It can be shaped by heat
- It is easily applied
- It has closed cell structure
- It does not deform after impact
- It is environment friendly

Thanks to its lightness and superior sound, heat, moisture, impact insulation properties, **DYNAFOAM XPE** is preferred in many areas of automotive industry and is used extensively to reduce vehicle weight and increase driving comfort.

Vehicle weight reduction studies conducted in order to reduce fuel consumption and provide better performance are at the top of the priorities list of the automotive sector. For many years studies have been conducted to reduce vehicle weights by increasing the use of polymer-based materials. Polymer-based materials with lower density and higher strength/weight ratio than metallic materials have become one of the most important material groups for the sector.

In the recent years, it has been observed that vehicle weights can be further reduced by using Cross linked Polyethylene (XPE) foam. On the other hand, the use of thinner metallic materials in order to reduce the vehicle weight in the automotive industry causes noise problems in the vehicles. Cross linked Polyethylene (XPE) foams provide an excellent solution to the problems frequently seen in the vehicles.

DYNAFOAM XPE meets the high standards of the automotive industry with its features such as water repellency due to its closed cell structure, acoustic insulation and impact damping.

Depending on customer request, our company can perform lamination and sizing processes of **DYNAFOAM XPE** products.



Packaging Industry

DYNAFOAM XPE is preferred for electronic appliance packaging, packaging of the defense industry, insulated bags, separators.



DYNAFOAM XPE panels are used for the packaging of electronic devices such as televisions and computers, measuring and weighing instruments, medical devices, sports equipment that should not be damaged during transportation. DYNAFOAM XPE panels are produced as multipurpose materials and have the ability to absorb mechanical impacts thanks to their flexible structure. As the panel can be cut and shaped easily to be used as packaging material it can protect the products from problems such as crushing, cracking, shrinkage, breaking and scratching.



White Appliances and Electronics

DYNAFOAM XPE is preferred for cooling pipe insulation, insulation pads, adhesive tape seals, impact insulation packaging.



DYNAFOAM XPE products are preferred in the sector of white appliances and electronics with their lightness, flexible structure, superior mechanical properties as well as noise, moisture and impact insulation properties. Depending on customer request, our company can perform lamination and sizing processes such as heat sealing, coating, slitting, slicing, cutting and forming of DYNAFOAM XPE products.



Sport, Recreation and Climbing

DYNAFOAM XPE is preferred for gymnastic mat, kickboard, life vest, floor tiles, kids play mats, soccer pitch insulation blanket, toy, helmet liner, sleeping mats, mats for military purpose.



DYNAFOAM XPE foam products which are light, flexible, anti-bacterial, not containing any harmful materials such as HFCF can be used in sport and recreation sectors and offers limitless product alternatives. Depending on customer request, our company can perform lamination and sizing processes such as heat sealing, coating, slitting, slicing, cutting and forming of DYNAFOAM XPE products.



Bag and Shoes

DYNAFOAM XPE is preferred for sports shoes, ski boots, briefcases, suitcases, artificial leather lamination.



DYNAFOAM XPE products are intensely preferred in bag and shoes industry due to their lightness, being anti-bacterial and odour-free, water repellency, not containing any harmful materials such as HFCF and impact resistance properties. Depending on customer request, our company can perform lamination and sizing processes such as heat sealing, coating, slitting, slicing, cutting and forming of DYNAFOAM XPE products.



Health and Medical Sector

DYNAFOAM XPE is preferred for Medical Packaging, Medical Tapes, Orthopedic and Prosthetic Fills, Wheelchair Pads, medical box liner spaces

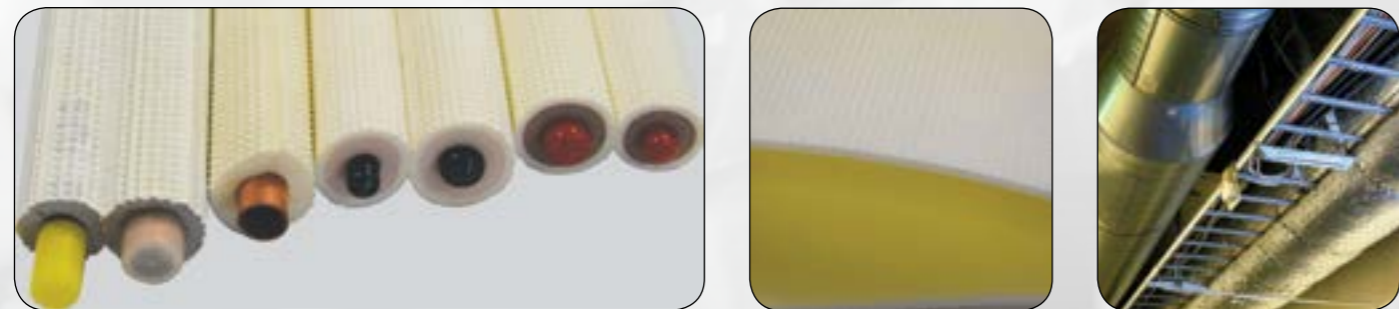


DYNAFOAM XPE products are preferred in Health and Medical sector due to their closed cell and flexible and smooth pore structure, being anti-bacterial, not containing any harmful materials such as HCFC.












HVAC Industry

Since DYNAFOAM XPE products can be produced with one side coated with Aluminum foil, PVC, adhesive sheet and have decorative appearance, they are preferred especially in spaces such as airports, fairgrounds and DIY stores where there are no suspended ceilings.



Air conditioning and ventilation systems are installed in order to provide comfort and increase the productivity of the people who live and work in buildings such as residences, industrial facilities, hotels and shopping centers. The selection of insulation material to be used in heating, ventilation and air conditioning systems (HVAC) of these buildings is important for the system and human health. With its closed cell structure, low water absorption rate, anti-dust surface, water vapor diffusion resistance, DYNAFOAM XPE is intensely preferred in HVAC industry.

PROPERTIES	RELATED STANDARD	VALUES
Density	TS EN 1602	20-200 kg/m ³
Thickness 	TS EN 823	3-15 mm
Roll size 	TS EN 822	Width 1- 1,5 – 2 m ,in required lengths
Thermal Conductivity 	TS EN 12667	0,035W/m.K (0° C) 0,039 W/m.K(+10° C)
Incombustibility (Automotive) 	FMVSS 302	< 100 mm/min.
Incombustibility (Construction and Other Industries) 	TS EN 13501-1	E (Standard product) B1 (Product with FR additive)
Compressive Strength*	TS EN 826	For 30 kg/m ³ ; Min. 32 kPa (% 25 compression) Min. 71 kPa (% 50 compression) Min. 184 kPa (% 75 compression)
Water absorption 	TS EN 1609	0,1 Kg/m ²
Operating Temperature**	-	- 40 / + 100 °C
Impact Sound Insulation Value 	EN 10140 - 3 ISO 717-2	37 dB
Chemical strength	-	It does not react with acid, base or any other chemicals.
Storage	-	Protect from sunlight, keep away from flame source, do not store in poorly-ventilated closed spaces.
Environmental Impacts 	-	Closed porous and cross-linked standard products. Free of Heavy metals, HCFC and CFC
CE 	TS EN 14313	Initial Type tests are conducted in TEBAR Laboratories

The technical values of Dynafoam XPE shown above are subject to change for improvement purpose

*These test values are obtained in our company laboratories

**These test values are obtained in our company laboratories (instantaneous value)

DYNAFOAM XPE SIZES*					
Thickness (mm)	3	5	8	10	15
m ² /Roll	100	60	50	40	30

*According to customer needs, products with different sizes, widths and densities can be produced. The standard product color is gray; please contact us for your different color requirements.



Dinamik Isı A.Ş. was founded in 1991 and started its commercial activities. In 1993, the company entered insulation business which is a special field of expertise and concentrated its efforts in this direction. As of 1994, the company liquidated its other businesses and selected its path to specialize only in isolation business. By 2004 our company became a production company by commissioning the Polyethylene Thermal Insulation Foam plant which has a closed area of 2500 square meters built on a total of 5000 square meters of area in Tire, Izmir. This plant is currently producing **CLIMAFLEX** and **DYNAFLEX PE** branded products.

A short history of Dinamik Isı A.Ş, which is growing day by day by establishing a new plant every year...

- Dinamik Isı AS was founded by Mechanical Engineer Mr. Metin AKDAŞ in 1991
- The company turned towards insulation business in 1993.
- Our company established "Insulation Consultancy Centers" in Izmir and Denizli in 1997.
- Between 1993 and 2003, the company has produced various accessories used for insulation purpose.
- The company took an investment decision in 2003.
- Civil Engineer Mr. Göksel GÜRPINAR joined the company in 2003 as a partner.
- The company commissioned the Polyethylene Thermal Insulation Foam plant which has a closed area of 2500 sqm built on a total of 5000 sqm of area in Tire, Izmir. **CLIMAFLEX** and **DYNAFLEX PE** branded products are started to be produced in this plant in July 2004.
- The company has established ISO 9001-2000 Quality management system and this system has been certified in 2005.
- Our company started export activities in 2005. In 2008, our company was awarded as the company with "the highest export growth rate" by the Aegean Chamber of Industry.
- Our company commissioned the second PE Line in 2006 and started to produce products for the packaging industry under the **DYNAPROFIL** brand name.
- In 2007, our company built a warehouse with 2600 m² closed area which doubled the factory storage capacity.
- In 2008, our company broke into the Installation Insulation Market with Rubber Foam products under **DYNAFLEX RUBBER** brand name and has launched "**DYNAFLEX RUBBER PVC AL-CLAD**" aluminum-clad rubber foam products being produced in Tire plant for the first time in Turkish market.
- In 2008, our company invested in slitting, slicing and lamination equipment and started to produce HVAC tapes.
- In 2008, Our Company introduced Acoustic Foam products in the market under the **DYNAKUSTİK** brand name.
- In 2009, our company built its 3rd Building with 3000 sqm closed area and has moved the converting equipment used for slitting and slicing and lamination into this building.
- In 2010, our company commissioned a new production line to produce Dynafoam Polystyrene products used in floor and interior wall insulation with the support of Izmir Development Agency.



- At the end of 2010, our company decided to invest in the production of XPS Foam which is used in thermal Insulation and started construction of the 4th factory building which will have closed area of 5000 sqm on a total of 10000 sqm land.
- In 2011, our company established ISO 14001-2004 Environmental Management System and certified this system.
- As of 2011, our company has commissioned XPS production plant after Polyethylene, Polystyrene production and Converting plants
- In 2014 our company established its 3rd polyethylene line which has 1000 tons of low density polyethylene processing capacity.
- After ISO9000 Quality Management System and ISO14001 Environmental Management System Certifications in 2015, our company combined OHSAS 18001 and Occupational Health and Safety Management Systems and implemented Integrated Management System.
- Our company has made a new investment in 2015 and increased the production capacity of PE production plant to 5000 Tons per year and with this capacity increase our company has become the only company in Turkey capable of producing polyethylene panels up to 25 mm thickness in one layer.
- With the revision made in XPS production line in 2015 the extruded polystyrene foam panel production capacity increased by 20% and reached 130,000 m³ per year.
- Our company invested in a new PE production line in 2016 and has started the production of high-density trim profile products which are extensively used in furniture, chair and sofa manufacturing under **DYNA PROFIL EDGE** brand.
- By completing the investment of the second XPS line in June 2017, and taking the demands from the industry into consideration Dinamik Isı has reached the capability to produce 75 cm wide panels. With this investment serving different sectors such as sandwich panel production, our company has increased its XPS production capacity to 250.000 m³ per year.
- Dinamik Isı considers development of products that meets the requirements as the part of company improvement and following its investments. In 2017, the company has introduced the **DYNAFOAM FRIGO** product which has been developed to be used as an insulation layer for refrigerated compartments that ensure the safe food delivery to the customers during cold chain, the **DYNAFOAM BRICK** product which is used for the insulation of the buildings covered with decorative brick the **DYNAFOAM X-TILE** product which insulates the tiled roofs safely and the specially designed XPS products to be used as internal filling of sandwich panels used in plastic door manufacturing under **DYNAFOAM PANEL** brand.
- In September 2017, Dinamik Isı A.Ş. decided to make a new investment, made the plan for the production of Crosslink Polyethylene Foam panels which are widely used in many sectors such as Construction, Automotive, Leather, and Electronics and commissioned its production plant in October 2018.
- With its 27 years of experience, Dynamic Isı is committed to being one of the most reliable solution partners for its stakeholders. As a company full of determination moving forward towards the better and as a solution partner always focused on providing the best quality products and the service, Dinamik Isı is adding new investments to its portfolio day by day since 2004. With its experienced staff and people-oriented, work system foreseeing the requirements, Dinamik Isı looks to the future with confidence and is committed to continue its investment thrust with new investments in the coming years.
- As a manufacturer company which has modern production facilities with an open area of 21000 sqm and a closed area of 13000 sqm established in Tire Organized Industrial Zone, our company will determinedly continue to grow and develop in parallel with the growth of our country and our stakeholders and will continue to produce for our country.

Dynafoam

pe Cross-linked
Çapraz Bağlı Köpük Levha

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