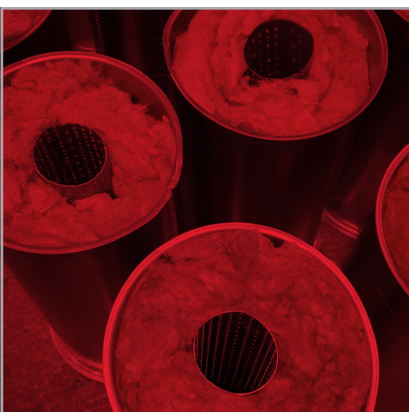


# Industrial Insulation





## Industrial Insulation

It is aimed to use the industrial process investment in the most profitable and most efficient way in the factories such as production factories and power generation plants.

The simplest way to improve the energy efficiency and performance of an industrial process is to ensure proper insulation. Correctly insulated process lines and equipment provide minimum energy consumption to the plant, while also extending the lifecycle of the equipment.





## Increased Safety and Efficiency

Minimizing heat losses in heat transfer and storage significantly reduces total energy consumption. Thermal insulation of the equipment and process line in the process contributes to efficiency by preventing temperature changes. As a result, the efficiency of the process line increases. Correct thermal insulation also helps to reduce the maintenance work of plant and process lines. With the application of the right thermal insulation solution, the corrosion caused by moisture is significantly

reduced, and the efficiency and service life of the enterprise is extended.

The thickness of the insulating material has a significant effect on process efficiency. As a result of the calculations, with the right thickness insulation made with **BONUS Stone Wool** products in the process lines, a great improvement in energy efficiency is achieved. The increase in energy efficiency provides significant savings.

## Quality Environment

The fact that the natural resources used is decreasing has made it necessary to use energy more efficiently and economically in both the buildings and industrial facilities. The benefit of the right insulation solution for a world that is more environment-friendly is an undeniable fact. Thanks to the thermal insulation applied in industrial facilities, harmful emission gases from the processes of the plant

are reduced. The reduced energy consumption of insulated equipment contributes to a significant reduction in greenhouse effect caused by waste released into nature.

By improving industrial insulation solutions, CO<sub>2</sub> emissions can be significantly reduced. According to research conducted by the European Union, the insulation of uninsulated

parts and the replacement of worn insulating materials with new energyefficient solutions can save the same amount of CO<sub>2</sub> produced by 10 million vehicles per year. **BONUS** technical insulating products save up to 500 times the energy used to produce these products during their lifetime.



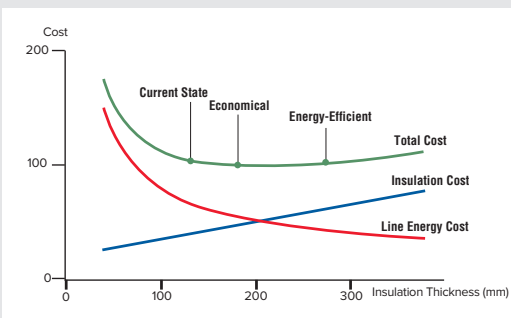
# Industrial Insulation Solutions with BONUS Stone Wool and Energy Efficiency

**BONUS Stone Wool** products are offered by the environmentally friendly factory which is equipped with the latest technology contributing to the sustainable future.

In the insulation made with stone wool, the excellent thermal insulation quality of the material and its resistance to high temperatures are particularly valuable for demanding industrial applications. This feature makes stone wool the required insulation material for solution needs. Insulation with stone wool, which is class A1 fireproof material, has a positive effect on all fire safety in the plant.

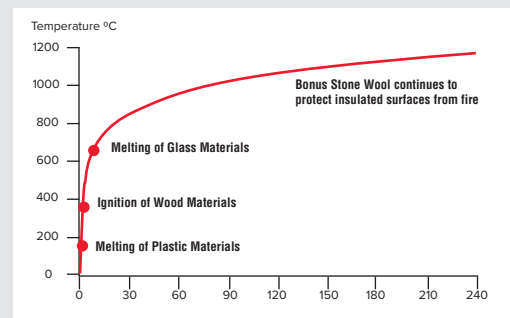
The main purpose of thermal insulation is to prevent heat transfer of the application area with the environment. Thermal conductivity coefficient value of thermal insulation material is one of the most important features. **BONUS Stone Wool** provides high level of insulation with low thermal conductivity coefficient values.

**BONUS Stone Wool** provides high resistance against heat transfer with its superior insulation feature. Reducing the heat transfer from the equipment provides direct savings on energy efficiency and costs.



**BONUS Stone Wool** obtained by melting of volcanic rocks does not catch fire and does not transfer flames. It does not ignite; it also protects the insulated surfaces against fire.

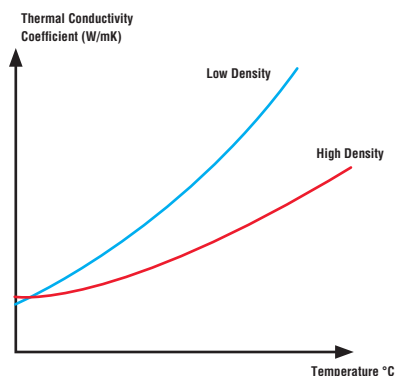
**BONUS Stone Wool** is in A1 class which is the highest fire performance class for building materials. It maintains this feature throughout the lifecycle of the plant.



## Long-Term Protection with Intact Properties

The need for industrial applications is that the product should not sag and maintain its dimensions during and after application.

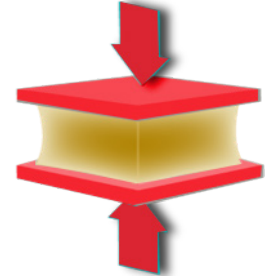
For high-temperature process lines up to 650°C high density stone wool products will be the right choice.



## Compression Strength

In industrial applications, high compression strength is important for long-term performance. High compression strength also assists in the precise assembly of the coating element and increases resistance to mechanical distortion.

Insulation boards for tank insulation, particularly for roofs that are suitable for walking on, must show good resistance to compression and must meet outdoor requirements. The declared values for compression strength should be tested according to EN 826 test standards.



## Effective Protection Against Sound

High-speed airflow and fluid movements in industrial processes create a high level of noise that can adversely affect the working environment. Thanks to its porous structure, **BONUS Stone Wool** products provide better sound insulation and create a favorable working environment.



## Environment Friendly

**BONUS Stone Wool** products are manufactured from completely natural materials. Because they are environmentally friendly, they do not release harmful gases during or after use, which harm nature. There are no non-recyclable components in the stone wool structure.



## Harmless to Human Health

**BONUS Stone Wool** products are safe to use. CFC or HCFC group gases are not used in the manufacturing of the products. Stone wool insulation materials are not classified as carcinogenic and they are asbestos free.

**BONUS Stone Wool** has RoHS certificate. For health and safety data sheets of **BONUS Stone Wool** products, please visit our website at [www.bonusyalitim.com.tr](http://www.bonusyalitim.com.tr)

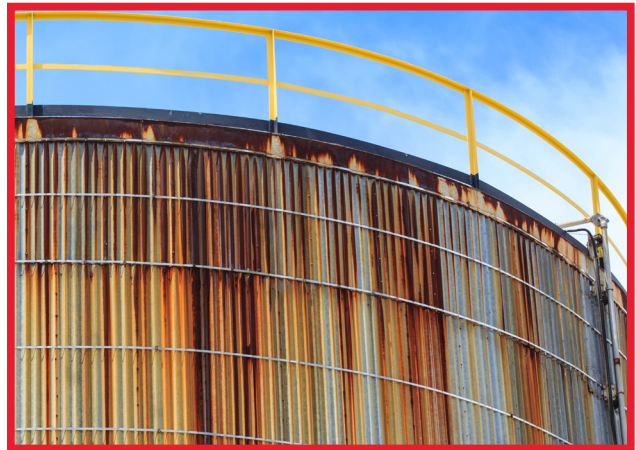


### Low Water Absorption

Stone wool used in industrial areas is generally used in outdoor environment. It is highly likely to come into contact with water and be exposed to high humidity. Therefore, stone wool must have low water absorption values. Damage to the coating material that protects the insulation causes the underlying insulation layer to come into contact with water/moisture. If the insulation material is water-retaining/absorbent, it causes both corrosion and the thermal conductivity of the insulation material to be adversely affected. **BONUS Stone Wool** fulfills the requirements of EN 12087 long-term water absorption and EN 1609 short-term water absorption tests.

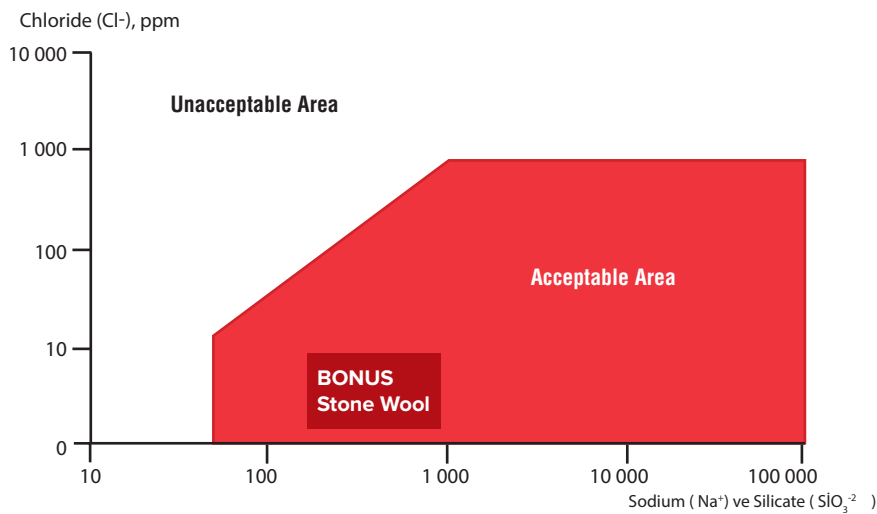
### Corrosion Protection

Moisture causes corrosion in poorly insulated and uninsulated process pipes, ducts and equipment. Large maintenance and repair costs lead to production and efficiency losses in the industry. The key to protecting insulated metal surfaces from exposure to moisture and other harmful substances is using highly water-repellent, chemically resistant insulating materials.



All **BONUS** branded industrial insulation products conform to CE declaration. They fulfill the quality requirements of EN 14303 Mineral Wool Products Standard.

The amount of Cl<sup>-</sup>, Na<sup>+</sup>, SiO<sub>3</sub><sup>-2</sup> ions present in the product is in the acceptable area of "Karnes Diagram" table below according to ASTM C795-92 standard..



# Important Notes

## Declaration Values

Technical values such as

- Thermal conductivity coefficient
- Fire response class
- Dimensions and tolerances
- Water absorption value
- Compression strength
- Water vapor diffusion coefficient
- ASTM C795-92 standard in Karnes diagram can be found in our declaration forms.

Tested according to EN 14303, **BONUS Stone Wool** industrial products meet the performance demands required by international standards.



## Quality and Environment

The process of melting volcanic rocks, combining them with different resins to shape them into boards or blankets is a process that requires experience, knowledge and skills. In this scope, with the robust experience of many years of production **BONUS** Insulation offers high quality insulation products in order to meet the insulation needs varying in details in all areas it serves without compromising on quality.

**BONUS Stone Wool** production plant is certified according to ISO 9001 Quality Management System and ISO 14001 Environmental Management System standards.

## Low Maintenance Costs with Quality Products

The service life of the equipment insulated with **BONUS Stone Wool** products is noticeably increased. Even at very high operating temperatures, the **BONUS Stone Wool** does not lose its properties and continues to protect the equipment.

**BONUS Stone Wool** insulation products are designed to make the installation process as quick and easy as possible. **BONUS Stone Wool** provides savings and unconditional confidence. At the same time, thanks to the advantage of non-dissipating property of the products, it helps easy installation on various surfaces and increases the long-term reliability of insulation.

## Technical Support and Service

As **BONUS** Insulation we meet your insulation needs with the products we produce and we also offer you the solutions for your technical information needs. We keep increasing our product range with your feedbacks. For all your inquiries about products, details and services, please contact us via our hot line **444 1 521** or website at [www.bonusyalitim.com.tr](http://www.bonusyalitim.com.tr) You can find current product information, technical data sheets, product quality declarations and product brochures on our website [www.bonusyalitim.com.tr](http://www.bonusyalitim.com.tr)



## Applications

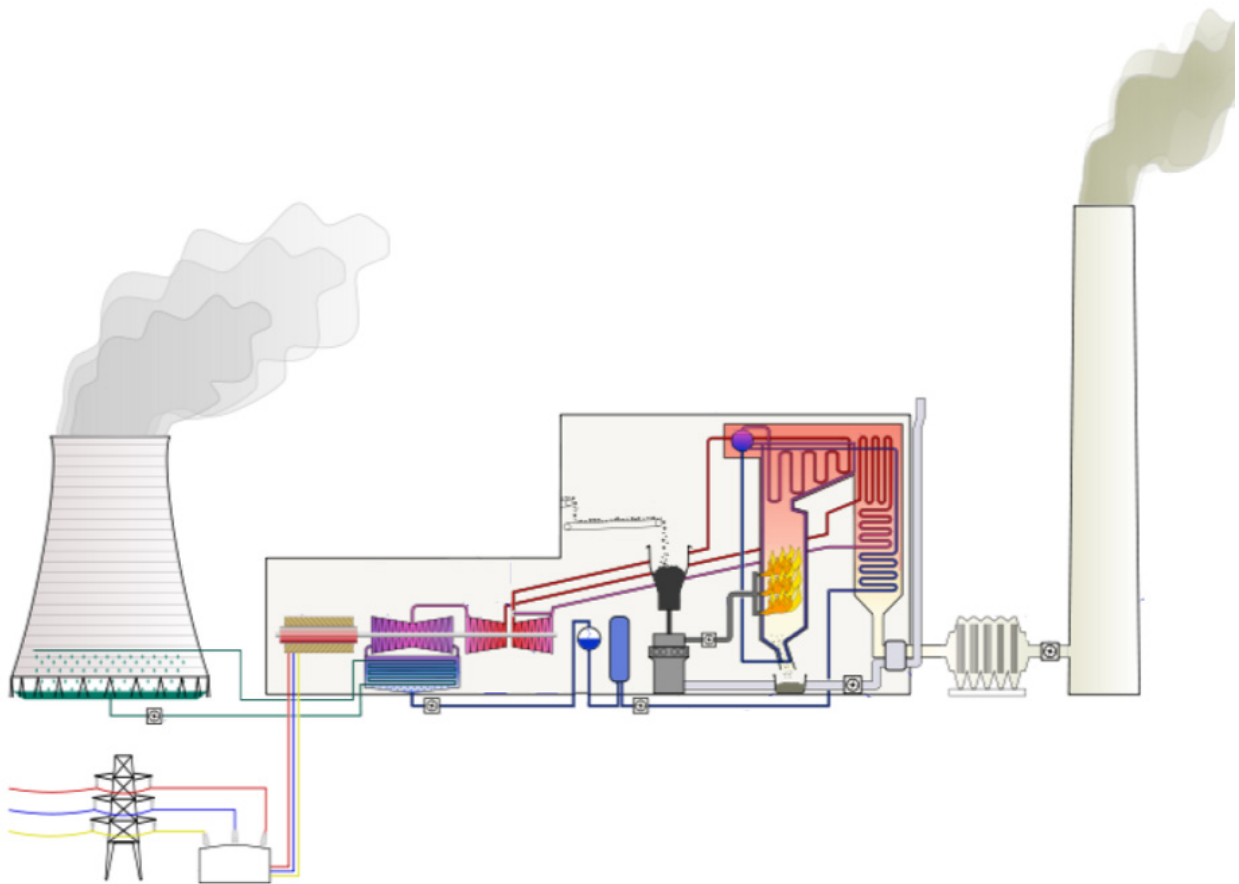
### Industrial Facilities, Power Plants

Accurate and reliable insulation solutions can meet the needs of industrial structures such as industrial facilities and power plants. The temperature in the pipeline should remain within certain parameters in most cases, heat loss should be minimized and the whole process should be reliable, durable and safe.

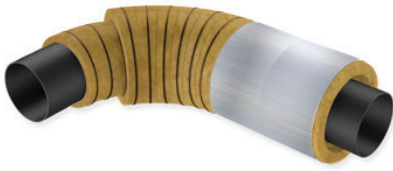
Industrial insulation products manufactured by Eryap Group under the **BONUS** brand offer a wide range of solutions in the process line and help to maintain performance.

Power plants are operated with high service temperatures. It is inevitable to implement extensive insulation solutions in these facilities.

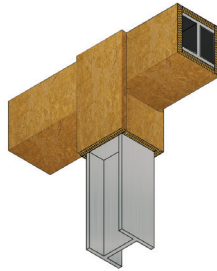
For example; boilers need flexible multi-layer solutions. Tanks require a variety of product solutions in different densities with higher compression pressures. **BONUS** Insulation; develops various insulation solutions for boilers, tanks, chimneys in order to increase the efficiency, service life and reliability of the plant.



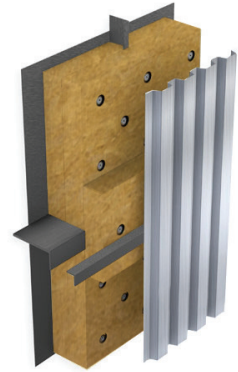
**Pipe Bends**



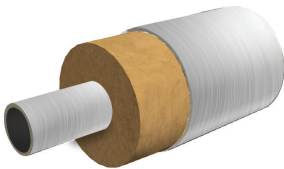
**Steel Beams**



**Exhaust Gas Filtration  
Section Walls**



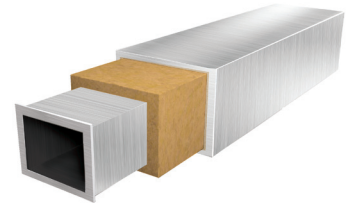
**Heated Pipelines**



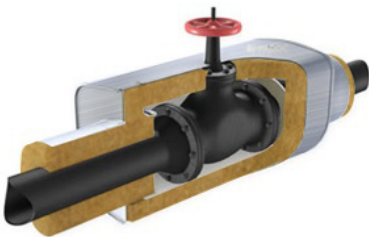
**Tank Walls**



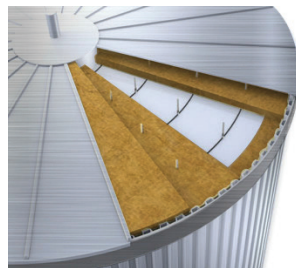
**Flue gas  
Ventilation Ducts**



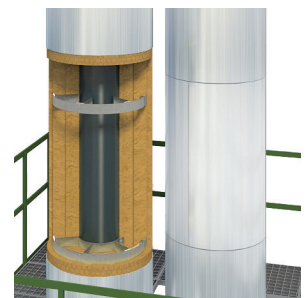
**Valve Connections**



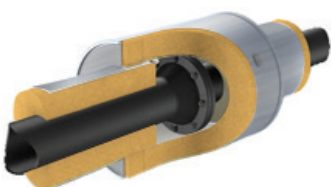
**Tank Roofs**



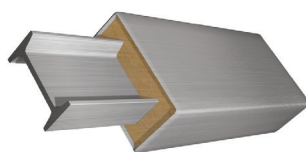
**Industrial Chimneys**



**Flange Connections**



**Steel Columns**



**Silo and Boiler Walls**



## Pipe, Pipe Bends, Heated Pipelines, Valve and Flange Connections, Heat Exchangers

Pipes and connection equipment and process line routing elements are very important components in industrial processes. These items of equipment are present in large quantities in every area of the process line. Due to the fact that they can be found in outdoor environments, these items of equipment must be insulated correctly and reliably. Accurate insulation of process lines is a prerequisite for proper operation of equipment and low maintenance costs.

Thermal Conductivity Coefficients of Different Density Industrial Blankets at Different Temperatures

| Product Type      | Density           | Thermal conductivity coefficient |       |
|-------------------|-------------------|----------------------------------|-------|
|                   | kg/m <sup>3</sup> | °C                               | W/mK  |
| INDUSTRIAL MW 650 | 80                | 50                               | 0,039 |
|                   |                   | 100                              | 0,049 |
|                   |                   | 150                              | 0,058 |
|                   |                   | 200                              | 0,069 |
|                   |                   | 250                              | 0,080 |
|                   |                   | 300                              | 0,090 |
|                   |                   | 350                              | 0,110 |
| INDUSTRIAL MW 700 | 90                | 50                               | 0,039 |
|                   |                   | 100                              | 0,049 |
|                   |                   | 150                              | 0,057 |
|                   |                   | 200                              | 0,066 |
|                   |                   | 250                              | 0,077 |
|                   |                   | 300                              | 0,085 |
|                   |                   | 350                              | 0,102 |
| INDUSTRIAL MW 720 | 100               | 50                               | 0,038 |
|                   |                   | 100                              | 0,048 |
|                   |                   | 150                              | 0,056 |
|                   |                   | 200                              | 0,065 |
|                   |                   | 250                              | 0,075 |
|                   |                   | 300                              | 0,082 |
|                   |                   | 350                              | 0,096 |
| INDUSTRIAL MW 750 | 125               | 50                               | 0,037 |
|                   |                   | 100                              | 0,047 |
|                   |                   | 150                              | 0,054 |
|                   |                   | 200                              | 0,063 |
|                   |                   | 250                              | 0,073 |
|                   |                   | 300                              | 0,080 |
|                   |                   | 350                              | 0,094 |



The thickness of the insulation products is selected according to the operating temperature of the pipe.

Before selecting the insulation material thickness, thermal insulation calculation must be made and the correct thermal insulation material thickness should be determined according to this calculation. Thermal conductivity coefficient values according to process line temperatures are shown in the table on the left.

Most often single-layer solutions are suitable, but double-layer or multi-layer solutions are required for more challenging features. Reducing the heat transfer provides direct savings on energy efficiency and costs.

## INDUSTRIAL INSULATION

Fluids with high viscosity must be heated along the pipelines to be transported in the process line. The pipes equipped with heating cables and sensors must be coated with aluminum foil to ensure good heat quality. Then the insulating material should be mounted on the pipe taking into account the outer diameter.

The protective sheet material wrapped around the insulation material should be fixed to the pipes with rings.

The main purpose of the ring system is to preserve the integrity of the insulating layer and to prevent the gravitational deformation over time.





## **BONUS Stone Wool Industrial MW Blanket with Wire Mesh;**

- With its flexible structure, it adapts to sharp turns on the equipment surface.
- Thanks to the uniform fiber distribution in the product, it helps to keep the heat loss to a minimum.
- The wire mesh wrapped on the blanket ensures the integrity of the material, preventing disintegration.
- Thanks to temperature control in process lines, process efficiency increases.
- With minimum heat loss, CO<sub>2</sub> emission is also minimized.
- Easy installation, flexibility and adaptability to details offer an economical solution.
- It provides convenient transportation and ease of use with its roll-shaped packaging.
- Low water absorption and low chloride content in the products minimize the risk of corrosion.
- Various small parts of equipment such as heat exchangers can be insulated with wire mesh stone wool blanket.
- Provides long-lasting solutions with low maintenance costs.



## **High Temperature Pipelines and Turbine**

Turbines operate at high temperatures up to 540 °C and require multilayer thermal insulation solutions. Insulation thickness is around 200 mm - 300 mm. Insulation is applied as 2 or 3 layers.

The insulation and coating must be fixed to the surface. Because the turbine has high service temperatures as well as vibrations during operation. High-density, double or multi-layer insulation solutions are recommended to isolate pipelines such as turbine tubes which operate at very high temperatures. Turbine casings have complex forms with round shapes and large number of outlets. Such high temperature equipment should be insulated with high density **BONUS Stone Wool Industrial MW** industrial blankets with wire mesh. The intrusions and protrusions on the surfaces of the equipment make the use of industrial blanket with wire mesh an excellent solution. It is very important to fix the insulation material and the outer coating, especially due to vibration.



## Insulation Solutions for Tanks

Storage tanks of various shapes and sizes are integral parts of many industrial processes. Storage tanks are used in a wide temperature range according to the type of products they store. The temperature of the stored products may vary depending on the process requirements. Therefore, it requires a thermal insulation solution that performs well. **BONUS Stone Wool** boards and blankets provide the optimum solution for the insulation details on the cylindrical and flat surfaces of tanks.

**BONUS Stone Wool** is fibrous due to its natural structure. At higher service temperatures, as the density of the product increases, the change in thermal conductivity coefficient is less than that of low density products. For this reason, the preferred industrial stone wool insulation products should be high density in the areas such as tank surface where the temperature values are high.

The water-repellent and fire-resistant properties of stone wool provide more protection to the tank and extend the service life. It provides cost advantage with easy application during installation phase.

**BONUS Stone Wool** offers a wide range of products for densities requested on walls and roofs of tanks. For insulation of roof areas of tanks, high density load bearing roof boards are recommended. Due to the temperature differences in the gap between the insulation and the coating, the upward chimney effect of



the air may occur. This phenomenon occurs especially on high tank walls. In order to maintain the maximum service life of the stone wool, it is necessary to use high density boards and blankets for more protection from the generated air movement.

Tank wall insulation can be made with different fixing and supporting methods. Connection methods vary from country to country.



### In tank insulation, **BONUS** Insulation products

- Offer tight solutions with no gap in joints and minimum heat loss.
- Deliver maximum performance in the most demanding conditions.
- As the temperature of the tank is controlled, energy efficiency is ensured in terms of storage.
- Effective in reducing CO<sub>2</sub> emissions with low thermal conductivity coefficient values.
- Provides resistance to the loads for tank roofs during maintenance with its high compression strength.
- Provides long-lasting solutions with low maintenance costs.



## SOUND INSULATION

High speed airflow or high pressure steam pipelines create disturbing noise in the environment and need to be insulated. **BONUS Stone Wool** products are the right solution for these applications. Additional measures for sound insulation other than mineral wool can cause thermal bridges. **BONUS Stone Wool** offers the solution to meet the needs for sound insulation.

### Insulation of Pressure Vessels

Industrial blankets with wire mesh are generally used in insulation for pressure vessels. Industrial boards can be used for larger surfaces. The method of fixing the insulation material to the surface depends on whether or not welding is allowed on the tank surface. When possible, welded pins are the easiest option, while another alternative method is fixing with steel bands.

### Insulation Solutions for Boilers

The high temperatures of the boilers, broad and various surface intrusions require solutions for specific areas. The boiler body and sanitary installation constantly move due to vibrations caused by heat expansion and additional equipment such as burners and fans. In addition to the very high temperatures in the boiler, temperature distribution may vary in different parts of the boiler structure.

### Effective Solutions for Special Needs

Due to the high service temperatures in boilers, it may be necessary to apply several insulation layers to provide a sufficiently strong and robust solution. This varies depending on the type of the boiler. **BONUS** Insulation offers stone wool insulation boards and blankets designed for boilers in its product range.

Usually 2 - 4 layer insulation solutions are required. The inner layer may be a blanket with wire mesh and depending on the smoothness of the surface, the outer layers may be blankets with wire mesh or boards. The insulation layer must be flexible, allowing thermal expansion. Aluminum foil surface coating between the insulation layers also helps to prevent heat radiation.

The boiler must be heated with intervals of 50 °C per hour at the first operation. There are a number of pipe connections around boilers. These pipe connections must be resolved with special insulation details in the boiler room. While insulation is normally provided with the use of blankets with wire mesh only, it can also be provided with the combined use of boards and blankets.

### Insulation of Ducts

In buildings or in many process lines, ducts provide transfer of a large amount of air or gases. For example, in the production processes of paper and cardboard manufacturing machines, protection of the heat energy transmitted through the ducts is very important in terms of efficiency. Because of their high energy consumption, appropriate insulation thicknesses should be chosen. In the ventilation ducts to be used for cooling purposes, foil should be used on the outside of the insulation material. Using foiled stone wool will prevent condensation. It is suitable to use **BONUS Stone Wool** in the density of 70 kg/m<sup>3</sup> - 110 kg/m<sup>3</sup> in the insulation of the ducts. **BONUS Stone Wool** can be fixed with pins and washers. High flow rates in the process, fluctuations in temperature and pressure require high mechanical strength of the ducts.



## Insulation of Equipment and Filters

The thermal insulation design on the walls of flue-gas cleaning equipment is critical for the service life and functionality of the equipment. In a good insulation solution, the fluid in contact with the inner wall will not condense. Cold areas will not form on the interior. The gases passing through the equipment can be very hot. If there is no good insulation, there will be cold surfaces which will cause the gas to condense on the chimney walls. The gas contacting the cold surface combines with the water vapor causing condensation and this concentrated solution is usually the acidic solution that damages the equipment. Elimination of condensation in the flue passages is vital for the lifecycle of the equipment.

Generally, a minimum of 2 layers of insulation with wire mesh blankets should be applied.

Functional properties of **BONUS Stone Wool** are ideal for industrial applications. It provides excellent and continuous thermal insulation. It offers excellent thermal insulation in variable temperature ranges of flue gas. It is moisture resistant.

It provides extra solutions with high compression strength in roof structures where high load resistance is required.

In addition, **BONUS Stone Wool** has very low chloride and fluoride content. This helps prevent corrosion.

In order to prevent the condensation of acidic vapor, any heat bridges that may occur should be eliminated. Critical areas such as wall joint details, complex shaped surfaces, access covers are often effectively insulated using double layer or multi-layer insulation solutions.

In case of two layers of boards, it is possible to combine the surfaces with wire mesh blanket. The solution for large flat surfaces can be applied using boards and blankets.

**BONUS Stone Wool** products are extremely suitable for use in desulphurization equipment. Electrostatic precipitators can be insulated with wire mesh **BONUS Stone Wool** products.

In some cases, wire mesh blankets or boards can be used to have multiple layers. The insulation is fixed with pins or washers. All heat transfer bridges that may occur must be minimized.

## Insulation Solutions for Industrial Chimneys

Insulation of the concrete chimneys in industrial facilities should be performed at the best level. The primary consideration in the insulation of industrial chimneys is to prevent the presence of abrasive acidic drop condensations in the internal steel channels. Preventing such condensation drips will prolong the lifecycle of the chimney.

### Insulation with Wire Mesh Stone Wool

Round internal structures of the chimneys should generally be insulated with wire mesh stone wool insulation products and must be used to prevent the formation of abrasive acid droplets.

**BONUS** Wire Mesh Stone Wool is the ideal product to isolate round channels in concrete chimneys.



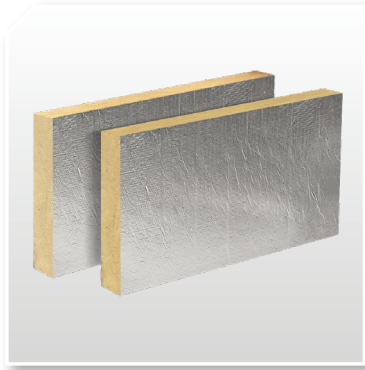
## BONUS STONE WOOL INDUSTRIAL MW

It is an insulation board used in boilers, installation and exhaust pipes, electro-filters, ducts, steel construction structures, double walled vessels, ovens and industrial facilities.

### Technical Specifications

| Product Type      | Density           |        |        |        | Thickness<br>mm | Thermal Conductivity Coefficient |             |        |        | Width x Length<br>mm x mm | Thickness Class | Compressive Strength<br>kPa | Normal Tensile Strength<br>kPa |        |
|-------------------|-------------------|--------|--------|--------|-----------------|----------------------------------|-------------|--------|--------|---------------------------|-----------------|-----------------------------|--------------------------------|--------|
|                   | MW 650            | MW 700 | MW 720 | MW 750 |                 | °C                               | MW 650      | MW 700 | MW 720 |                           |                 |                             |                                | MW 750 |
|                   | kg/m <sup>3</sup> |        |        |        |                 |                                  | W/mK        |        |        |                           |                 |                             |                                |        |
| INDUSTRIAL MW 650 | 80                | 90     | 100    | 125    | 30 - 40         | 50                               | 0,039       | 0,039  | 0,038  | 0,037                     | 1000 x 8000     | T1                          | NPD                            | NPD    |
| INDUSTRIAL MW 700 |                   |        |        |        |                 | 100                              | 0,049       | 0,049  | 0,048  | 0,047                     |                 |                             |                                |        |
| INDUSTRIAL MW 720 |                   |        |        |        |                 | 150                              | 0,058       | 0,057  | 0,056  | 0,054                     |                 |                             |                                |        |
| INDUSTRIAL MW 750 |                   |        |        |        | 50 - 60         | 200                              | 0,069       | 0,066  | 0,065  | 0,063                     | 1000 x 5000     |                             |                                |        |
|                   |                   |        |        |        |                 | 250                              | 0,080       | 0,077  | 0,075  | 0,073                     |                 |                             |                                |        |
|                   |                   |        |        |        |                 | 70 - 120                         | 300         | 0,090  | 0,085  | 0,082                     |                 |                             |                                |        |
|                   | 350               | 0,110  | 0,102  | 0,096  | 0,094           |                                  | 1000 x 3000 |        |        |                           |                 |                             |                                |        |





### BONUS STONE WOOL PRIVATE

It is an aluminum foil coated insulation board used in air conditioning and ventilation channels.

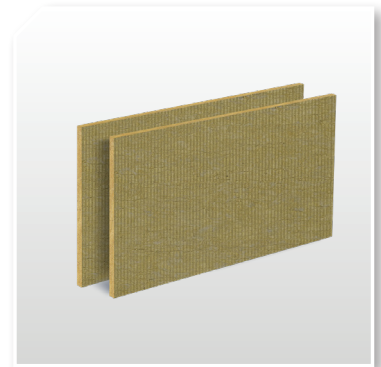
#### Teknik Özellikler

| Product Type | Density           | Thickness | Width x Length | Thermal conductivity coefficient* | Thickness Class | Compressive Strength | Normal Tensile Strength |
|--------------|-------------------|-----------|----------------|-----------------------------------|-----------------|----------------------|-------------------------|
|              | kg/m <sup>3</sup> | mm        | mm x mm        | W/mK                              |                 | kPa                  | kPa                     |
| PRIVATE      | 70                | 25 - 50   | 600 x 1200     | 0,035                             | T4              | NPD                  | NPD                     |

\*Thermal Conductivity Coefficient is TSE TYPE 1 declaration value.

### BONUS STONE WOOL INDUSTRIAL BATT

It is an insulation board used in boilers, installation and exhaust pipes, electrofilters, ducts, steel construction structures, double-walled vessels, ovens and industrial facilities.

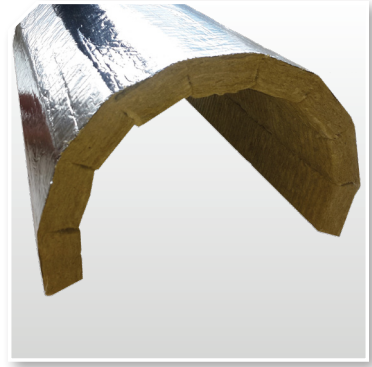


#### Technical Specifications

| Product Type        | Thickness | Density | Thermal conductivity coefficient |       | Width x Length | Thickness Class | Compressive Strength | Normal Tensile Strength |
|---------------------|-----------|---------|----------------------------------|-------|----------------|-----------------|----------------------|-------------------------|
|                     | mm        |         | kg/m <sup>3</sup>                | °C    |                |                 |                      |                         |
| INDUSTRIAL BATT 70  | 25 - 120  | 70      | 50                               | 0,040 | 600 x 1200     | T4              | NPD                  | NPD                     |
|                     |           |         | 100                              | 0,050 |                |                 |                      |                         |
|                     |           |         | 150                              | 0,058 |                |                 |                      |                         |
|                     |           |         | 200                              | 0,061 |                |                 |                      |                         |
|                     |           |         | 250                              | 0,082 |                |                 |                      |                         |
|                     |           |         | 300                              | 0,095 |                |                 |                      |                         |
| INDUSTRIAL BATT 110 | 25 - 120  | 110     | 50                               | 0,040 | 600 x 1200     | T4              | NPD                  | NPD                     |
|                     |           |         | 100                              | 0,047 |                |                 |                      |                         |
|                     |           |         | 150                              | 0,054 |                |                 |                      |                         |
|                     |           |         | 200                              | 0,063 |                |                 |                      |                         |
|                     |           |         | 250                              | 0,073 |                |                 |                      |                         |
|                     |           |         | 300                              | 0,080 |                |                 |                      |                         |
|                     |           |         | 350                              | 0,094 |                |                 |                      |                         |

## BONUS STONE WOOL FLEXIBLE ALU

It is a high density insulation board covered with aluminum foil which is used in thermal insulation of chimneys and high temperature industrial pipes.



### Teknik Özellikler

| Product Type | Thickness | Density | Thermal conductivity coefficient |       | Width x Length<br>mm x mm | Thickness Class | Compressive Strength<br>kPa | Normal Tensile Strength<br>kPa |
|--------------|-----------|---------|----------------------------------|-------|---------------------------|-----------------|-----------------------------|--------------------------------|
|              | mm        |         | kg/m <sup>3</sup>                | °C    |                           |                 |                             |                                |
| FLEXIBLE ALU | 25        | 100     | 50                               | 0,040 | 950 x 8400                | T5              | NPD                         | NPD                            |
|              |           |         | 100                              | 0,050 |                           |                 |                             |                                |
|              |           |         | 150                              | 0,058 |                           |                 |                             |                                |
|              |           |         | 200                              | 0,061 |                           |                 |                             |                                |
|              |           |         | 250                              | 0,082 |                           |                 |                             |                                |
|              |           |         | 300                              | 0,095 |                           |                 |                             |                                |
|              |           |         | 350                              | 0,117 |                           |                 |                             |                                |



## BONUS LOOSE WOOL

It is insulating material used in double walled vessels, laboratory devices, household electrical appliances, ovens, electrical cables, installations and exhaust pipes.

### Technical Specifications

| Product Type | Thermal conductivity coefficient |
|--------------|----------------------------------|
|              | W/mK                             |
| LOOSE WOOL   | 0,036                            |





# References



**MODERN KARTON**



**STAR REFINERY**



**ÇAN THERMAL POWER PLANT**



**MANİSA SOMA THERMAL POWER PLANT**



**AFYON ÇİMSA**



**MUĞLA - YATAĞAN THERMAL POWER PLANT**



**ALIĞA NATURAL GAS  
COMBINED CYCLE POWER PLANT**



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**AKSA BOLU GÖYNÜK  
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