SUM Guard®

product guide

Contents:

SUM Poland

SUM Poland LLC was established in 2006 as a subsidiary company of SUM Canada Enterprises LTD, a market leader in production and delivery of reusable insulation jackets to the Alberta Oil & Gas sector. Our traditions reach back to the early 1990's and involve two generations of family ownership and development. Globally we hire over 100 employees including many people with physical disabilities spanning more than 20 nationalities. The production staff consists of highly trained specialists operating cutting edge machines including CNC cutting plotters and TQM systems. The company has its own design and construction office where all design work is carried out in an integrated CAD-CAM environment.

Quality, versality, functionality

SUM Poland Sp. z o.o. (LLC) specializes in the design, production and assembly of custom-made reusable thermal insulation covers that are used to insulate industrial fittings (valves, gate valves, flange connections), pumps, turbines, heat exchangers and all technical devices and installations regardless of their dimensions, complexity or functions. **SUM Guard®** covers are well thought-out custom made products and tailored to the needs and requirements of the user. **SUM Guard®** products are used in all branches of industry and are delivered to recipients all over the world. Only proven, top quality raw materials sourced from Europe and North America are used for production.

SUM Guard®

- unrestricted access to insulated devices thanks to the possibility of immediate and tool free removal of the insulation and its reassembly
- the ability to insulate complex shapes
- a wide range of operating temperatures (from -35 to 1250 °C)
- no upper size limitations
- resistance to impacts, vibrations, dents, deformation
- no sharp edges
- easy installation, especially in tight spaces
- self-supporting construction - no need for installation of ribs, brackets or other auxiliary elements required
- shorter installation time then traditional insulation
- no waste and no fabrication work on the installation site
- resistance to weather conditions, aggressive chemical substances, UV radiation (depending on the materials used)

Quality
confirmed by certificates

PN-EN ISO 9001 ISOCERT CERTYFIKAT

PN-EN ISO 14001 ISOCERT CERTYFIKAT

PN-N-18001 ISOCERT CERTYFIKAT

OHSAS 18001 ISOCERT CERTYFIKAT

Typical SUM Guard® Cover Construction

Inner 1 **and outer** 4 **fabric** cladding - there is a wide range of glass and silicate fabrics available in various impregnation versions and in various coatings (silicone, PTFE, PU, Alu etc.) The choice of fabric suitable for a given application determines thermal and chemical resistance.

Insulation filling 2 - in 80% of products, a glass-fiber (E-Glass) mechanically needled matt is used, which unlike standard mineral wools is characterized by :

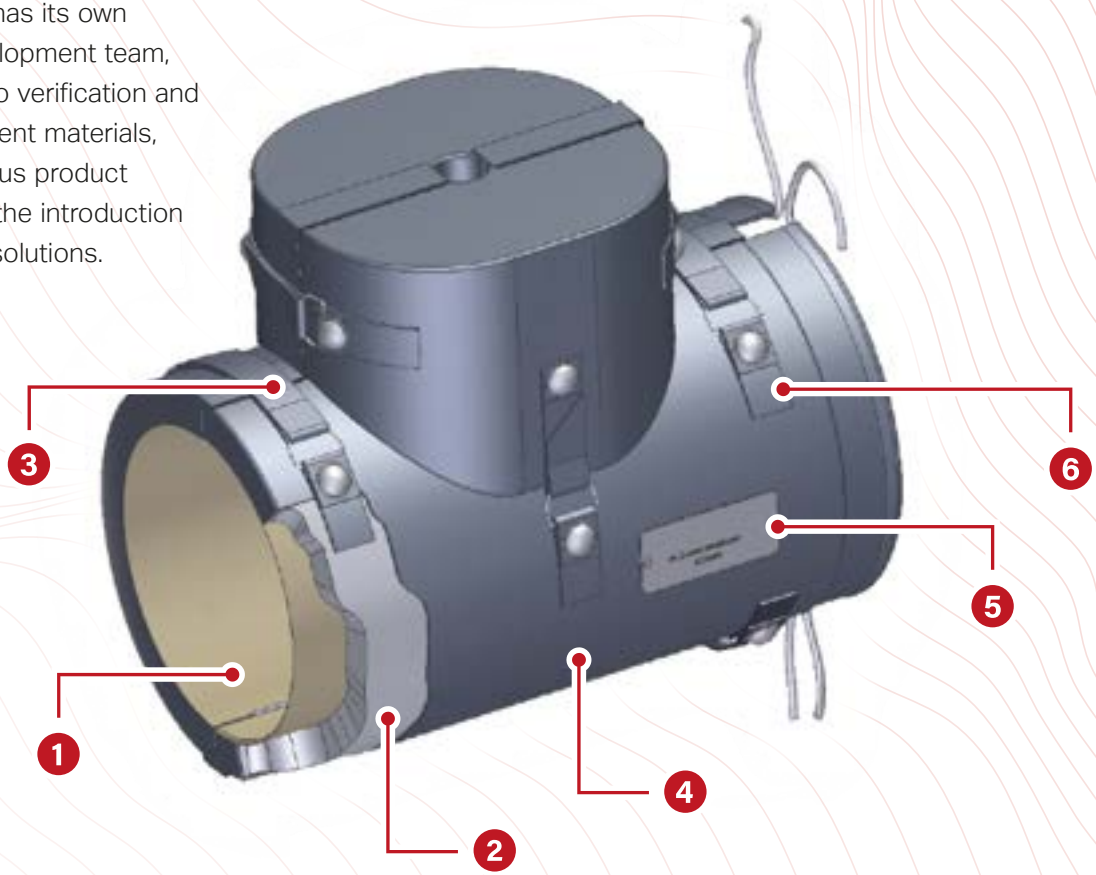
- **high density:** from 130 up to 180 kg/m3
- **resistance to water** - even under complete submersion in water, after drying it recovers 100% of insulating properties
- **durability and mechanical integrity** - it does not deform under the influence of bending, does not undergo delamination and defragmentation.

Other materials used: silicate mats, synthetic rubber, aerogels and others.

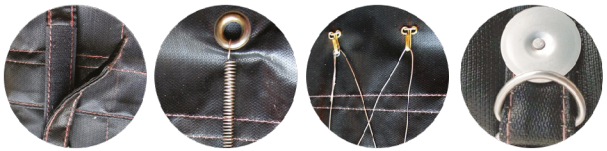
Fasteners and closing system 3 is always adapted to the application, taking into account the temperature, accompanying architecture and individual needs of the user. Industrial hook and loop tape, belts with stainless steel buckles (as standard), drawcord ties, stainless steel hooks, etc. are used. **Nameplate** 5 **-** each unit receives a unique serial number, and its properties are stored indefinitely in the SUM database allowing for quick retrieval in case of replacement. The plate can also contain any information required by the user (location, numbering of fittings, etc.). All **fittings** 6 in each version of the SUM Guard covers are made of stainless steel.

Extremely strong seams made of stainless steel Kevlar® braided threads ensure long life and high thermal resistance.

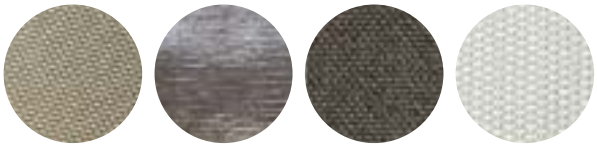
SUM Poland LLC has its own research and development team, which in addition to verification and testing of component materials, works on continuous product improvement and the introduction of new functional solutions.



Fasteners and closing system:



Different types of fabrics:



SUM Maintenance Guard®

STANDARD TYPE OF COVER

SUM Maintenance Guard® covers are designed for continuous work on fittings and devices with working temperature up to 260°C. The cladding is made of glass fiber fabric coated on both sides or one-sided with silicone, which ensures resistance to weather conditions and chemicals, which can be most commonly found in industrial conditions (oils, greases, water, etc.). They are most often used for the insulation of water, steam and thermal oil installations.

SUM Maintenance Guard® covers are a perfect complement to traditional insulation, in combination with which they form a coherent and continuous structure. They provide users with ease of use and free access to insulated elements, such as.:

- valves, filters, flange connections
- pumps, heat exchangers, tanks
- measuring and regulating equipment
- other high maintenance devices

Effectiveness for OHS protection

Cover thickness	Temperature on the surface of the cover	
	T medium = 100°C	T medium = 150°C
25 mm	36°C	43°C
50 mm	31°C	35°C

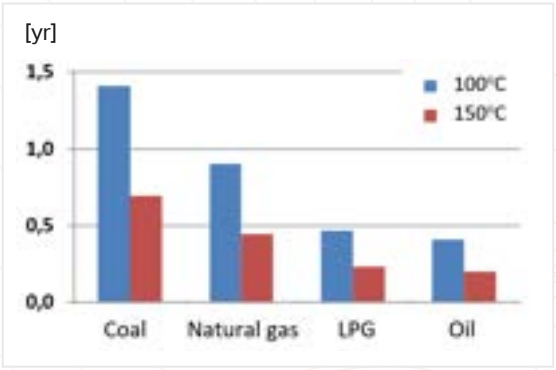
Typical DN80 valve

Energy loss in annual terms (8,000 hrs of work)

	T = 100°C	T = 150°C
No insulation loss	12.43 GJ	24.89 GJ
Loss with SUM Guard	1.35 GJ	2.44 GJ
Energy gain	**11.08 GJ**	**22.45 GJ**

Average refund period for SUM Guard®

depending on the energy source and the temperature of the medium:



effective, economical, sustainable

SUM Chemical Guard®

CHEMICALPROOF COVER

SUM Chemical Guard® covers thanks to the use of PTFE-coated glass fabrics (Teflon®) display high resistance to chemically aggressive substances such as acids, alkalis, solvents and alcohols. They are adapted for continuous work on fittings and devices up to 290°C.

Similarly to standard SUM covers, **SUM Chemical Guard®** are most often used for the insulation of pipeline components as well as structures and devices found in the chemical industry, such as:

- reactor domes, tanks, inspection hatches
- valves, filters, flange connections
- pumps, control and measuring apparatus

SUM Chemical Guard® covers significantly improve the work of maintenance teams offering instant access to, for example, flange gasket leaks, allow quick identification of the leak, its repair and re-installation of insulation. SUM covers do not undergo any degradation during such operations and allows for performing of routine inspections and maintenance work without the participation of outside insulators.

Modern technical fabrics make it possible to produce special versions of the SUM Chemical Guard covers that signal gasket rupture through a color change in the exterior cladding - the perfect solution for insulating flange connections.

SUM Antistatic Guard®

ANTISTATIC COVER

SUM Antistatic Guard® covers are adapted for installation in explosion hazard zones. Thanks to the cladding made of a specialized glass fabric coated with conductive PTFE and well--thought-out construction elements, the covers are able to discharge electrostatic charges from their entire surface. As standard, they are equipped with connecting points for the grounding conductor.

SUM Antistatic Guard® covers are characterized by the same chemical resistance as the SUM Chemical Guard series, thanks to which they are perfect for installations and devices in the chemical and petrochemical industry, where they are used, among others, for insulation:

- all fittings and piping equipment
- wellheads in oil and gas mines
- rotary loaders
- heads of exchangers, ejectors, etc.

SUM Antistatic Guard® covers are made of a fabric with a surface resistance of 3 * 105 Ω.

The use of Kevlar® sewing threads with metallic multi- filament cores and stainless steel fixing nails connecting both (outer and inner) fabric layers, ensures full continuity of conductivity.

The electrical ground for the cover, i.e. the method of discharging electrostatic charges from its surface, can even be a device on which the covers will be mounted, if certain conditions are met:

- the device is made of conductive materials,
- the device is equipped with its own grounding installation,
- points of device contact with the SUM Antistatic Guard covers is not coated with paints/primers/laminations or impurities that prevent free flow of electrical charges

SUM Higienic Guard®

HYGIENIC COVER

SUM Higienic Guard® is a series of covers designed for applications in the food processing and pharmaceutical industries. In addition to the typical, excellent thermal and functional properties, the **SUM Higienic Guard®** covers are additionally:

- easy to clean
- adapted for pressure washing
- resistant to water, oils and acids
- equipped with bright Velcro fasteners to facilitate the assessment of dirtiness
- dust-free and safe in applications in the immediate vicinity of food products

SUM Higienic Guard® covers hold a **Hygienic Certificate** issued by:

PZH NARODOWY INSTYTUT ZDROWIA PUBLICZNEGO od 1918 r.

SUM Higienic Guard® covers allow for effective reduction of heat or cold losses on devices that are usually left without insulation due to the tighthened hygiene requirements in the immediate vicinity of food and pharmaceutical production lines.

Thanks to the use of special insulating materials, **SUM Higienic Guard®** is widely used on ammonia, glycol or ice water installations. They eliminate the problem of sublimation or the growth of ice encasement often found on exposed parts of cooling installations. They significantly reduce the time of possible service actions and increase the energy efficiency of transmission lines.

SUM Exhaust Guard®

EXHAUST SYSTEMS INSULATION

SUM Exhaust Guard® are used as heat insulating covers for all elements of engine exhaust systems:

- collectors and exhaust pipes
- silencers, particulate filters (DPF), catalytic converters
- turbochargers (exhaust side)
- flexible connectors and compensators

SUM Exhaust Guard® covers are characterized by high temperature resistance in the range from 450°C to 1000°C due to the use of reinforced glass (HT, HTM), silicate and ceramic fabrics.

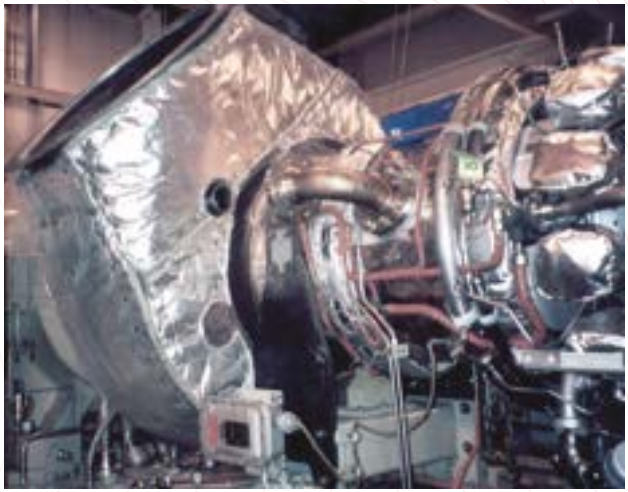
The task of the SUM Exhaust Guard® covers is:

- provide protection to the surroundings from undesirable thermal radiation
- increase efficiency / performance of filters and catalytic converters by maintaining them at an optimally high operating temperature
- extending the life of the elements by stabilizing their operating temperature

The **SUM Exhaust Guard®** series is often adapted for use in other types of applications where high temperatures occur.

Applications of SUM Exhaust Guard® :

- industrial power generators
- rail vehicles
- heavy mining and construction equipment
- military vehicles
- agricultural vehicles
- marine propulsion units



SUM Heating Guard®

COVERS WITH A HEATING SYSTEM

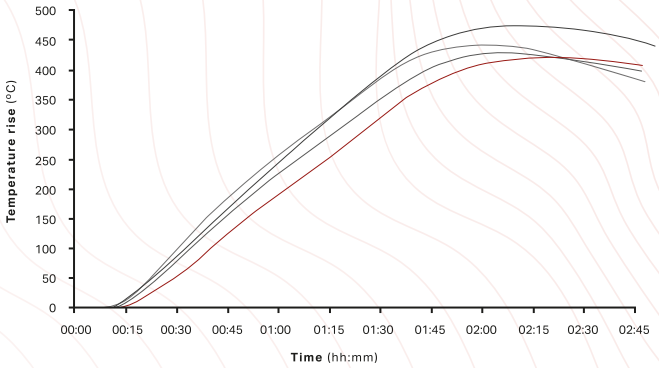
SUM Heating Guard® covers are not just passive insulation, but a complete system of protection against crystallization and freezing. The heating elements are combined with the inner jacket of the cover, while on the outside there is an electronic thermostat with a power cord - a ready-made plug & play system.

SUM Heating Guard® covers are used as an active set, which in addition to the insulating function is able to protect the device against a temperature drop below a set value. What is very important - the cover can be quickly dismounted from the device (along with the entire heating system) and allow unhindered access for service or inspection work. **SUM Heating Guard®** are also used as covers for transport containers (barrels, mauzer type containers, etc) to heat the contents before unloading or to prevent the contents from solidifying.

SUM Fire Guard®

PASSIVE FIRE PROTECTION

SUM Fire Guard® covers are designed to protect and drastically extend the time of failure-free operation of essential control infrastructure components in the event of a fire. The material composition and the specific, certified structure is completely non-flammable and maintains consistency even after prolonged exposure to direct flames at 1000°C.



In such conditions, a temperature increase of 100°C inside the **SUM Fire Guard®** cover is reached after up to **30 minutes!**

ISO 22899-1:2007

Heating & power engineering

SUM Guard® covers are also used to insulate fittings and piping in district heating chambers, where their mechanical resistance, hydrophobic properties and resistance to brine flooding, flexibility and durability provide advantages compared to other insulation solutions. Regardless of the conditions, they effectively reduce heat losses and increase the efficiency of both old and newly constructed district heat transmission lines. The durability of SUM covers in these difficult operating conditions exceeds the majority of traditional solutions.

This technology is the only one that ensures maintenance teams always have free access to any part of the installation without tedious and waste-generating insulation destruction.

Insulation in the form of SUM covers:

- does not require the use of support elements on the turbine body
- is completely vibration resistant
- is adapted for cyclical disassembly during maintenance shutdowns and reassembly – insignificant cost of re-insulation
- is easy to clean due to PTFE coatings
- the time of its assembly is incomparably shorter than other insulation techniques
- its prefabrication takes place entirely in the SUM plant and does not interfere with ongoing renovation activities at the installation site
- is suitable for insulation of both new and previously operated equipment
- is not limited to the turbine housing, but also can be prepared for the accompanying fittings, flanges and piping

The technology of thermal insulation covers is now widely recommended by practically all turboset manufacturers.

Special projects

The technology of tailor made covers is one of the most versatile and universal insulation methods. Many years of SUM experience and the implemented CAD / CAM digital techniques allow us to meet virtually any challenge.

SUM Guard® covers can be used as a comprehensive insulation of closed technological lines, devices with extremely difficult and complex shapes and as modular insulation, which can be dismantled in a piecemeal way and adapted to current needs on an ongoing basis.

We are eager to undertake difficult challenges, develop prototypes, create new solutions and support our clients with our knowledge.

SUM LTD

Insulating responsibly

Dozens of companies and institutions have trusted us:

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