



## Insulation Technology and Heat Protection

*for demanding industrial processes*



**ALMI** Alfred Michels  
Elektrische Spezialleitungen

# SECURE CABLE PROTECTION



Thermal insulation for cables and driven units in industrial processes have to be reliably protected from extreme environmental conditions, such as, heat radiation, heat conduction, flame contact, sparks, liquid metal and glass spray, as well as aggressive media, such as, oil, grease and chemicals, etc.



ALMI products fulfil these demanding requirements with proven materials, a wide range of individual manufacturing solutions, as well as various product sizes and designs. They are the basis for secure production processes requiring extended lifetimes for cables, pneumatic and hydraulic hoses as well as drive units, such as, motors and gears.

When determining the appropriate product for a particular requirement, ALMI can call upon decades of experience, gathered from a wide range of industrial processes. With the current range of insulation technology and heat protection, we cover a wide variety of applications for different industrial requirements with respect to temperature, stability and safety requirements.





Available are e.g. heat protection covers, insulation mats, protective curtains, protective hydraulic and pneumatic hoses, sleeves, protection hoods for motors and transmissions, seals for industrial ovens and moulds, stamped parts, slab covers, needle mats, etc. Applications in the following areas:

- **Iron and steel**
- **Aluminium, copper, bronze, lead**
- **Foundries and ovens**
- **Plastics**
- **Machinery and plant construction**
- **Conveyer, lift and crane technology**
- **Automobile and commercial vehicle manufacture**
- **Energy production**
- **Paint works**
- **Glass & ceramics**
- **Chemicals**
- **Petrochemicals**
- **Logistics & harbour applications**
- **Recycling & disposal**

### Materials Proven in Practice

ALMI maintains a consistently high product quality through co-operation with experts and in-house process know-how. Insulation and protective equipment for use in temperatures ranging up to +1,300°C, customer and process specific designs (size, shape, material, quantity) as well as a wide range of accessories for all products cover almost every user requirement.

Materials applied achieve highest ratings in, among others, fire protection tests. Special high temperature materials withstand, for example, extreme heat radiation and conduction. Surface coatings, impregnation and lamination contribute additionally to the further optimization of materials. Individually, these processes guarantee:

- **mechanical stability (tensile strength and abrasion resistance)**
- **thermal stability**
- **thermal reflection and insulation effect**
- **water and gas sealing qualities.**

Coated materials allow a flexible configuration with respect to future applications.



# RELIABLE ALMI QUALITY



## Comprehensive Product Range

### Textile Bands, Cords und Mats

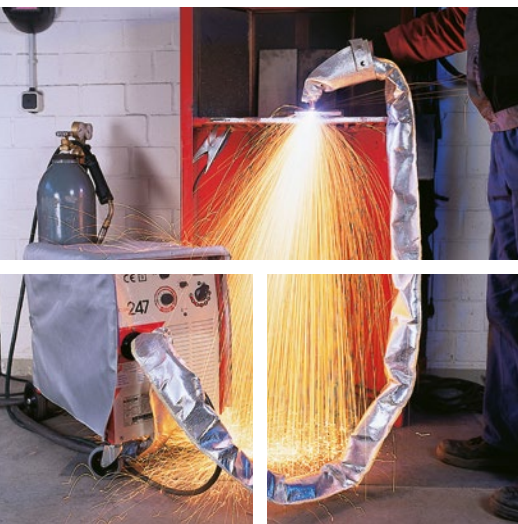
- on rolls and cut to length
- reliable stability up to 1,300°C
- finished with single or double sided coating, impregnation or lamination, e.g. ALUFIX, HYPALON etc., for enhanced thermal and mechanical stability
- **textile bands** e.g. as cable bindings for reduced cable lengths
- **cords** for use as temperature resistant seals
- **stamped components** from high temperature textiles for fitted seals, e.g. on oven doors
- quilted or sewn fleeces and mats with favourable heat transfer values

### Hoses

- ensure an extensive cable movement range
- individual layout (cover, length, diameter) according to type of cable application
- variable accessories available

### Sleeves

- for secure and multi cable installation
- protection by wrapping tools, work machines, drives and complete cable systems
- individual sealing methods such as press studs, Velcro fastener, rotary swivel and others
- applications, e.g. for cranes and lifting devices in various industries



### Hoods

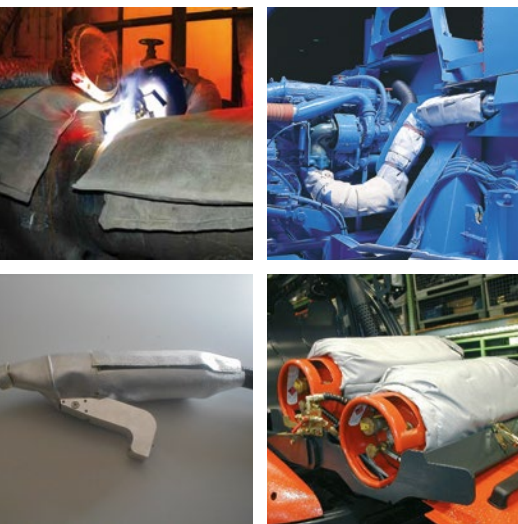
- protection of motors and transmission units, especially from heat and aggressive media
- developed as IduTherm ALMI-TEX solution together with maintenance specialists
- safe, easy use during installation and demolition
- high flexibility with respect to sizes
- corrosion and radiation heat resistant
- minimization of shut-downs due to earth faults
- application, e.g. roller conveyer motor in cold and warm rolling mills

### Curtains and Covers

- protection of larger areas
- protection from sparks and aggressive media spray
- also available as complete enclosures, as, for example, for rotating towers in steel works



# INDIVIDUAL SOLUTIONS



## Versatile Range of Applications

Everywhere, where heat exposure is present, e.g.:

### On welding equipment

- e.g. as covers for welding torches and welding guns
- protection against slag, dust, sparks and oil vapour emissions
- non-conductive protection hoods
- maintain welding process safety

### In automobile and commercial vehicle production

- e.g. as exhaust duct insulation
- for the protection of other machines in the close vicinity
- for the reduction of temperature in the motor area
- additional protection covers for doors, windows and boot lid covers as well as wheel covers during welding and grinding operations

Everywhere, where exposed to open flames and sparking, e.g.:

### In the aluminium and iron and steel production, foundries

- as hoods and sleeves in close proximity of heat zones and open flames
- successfully tested in blast furnaces (hoods, cable sleeves)
- sleeve executions, e.g. for plasma welding
- stamped components and cords for secure sealing of industrial ovens
- foundry mats for slow cooling of preheated cast components
- flame protection mats for temperatures up to approx. 3,000°C

### In machine and plant construction, in the automobile industry, among others

- in particular, protective curtains against industrial welding sparks
- mats for soldering and welding under-covers
- protective hoses for supply cables
- sleeves and slings for cable and pipe attachments





## Versatile Range of Applications

Everywhere, where aggressive media, dampness and oil are present in processes, e.g.:

### For jackets for robots or control equipment

- the protection of articulated axles from damp, dust and oil
- no flexibility restrictions
- secure shielding of control and measurement equipment

### In chemical and petrochemical handling processes, as well as paint works

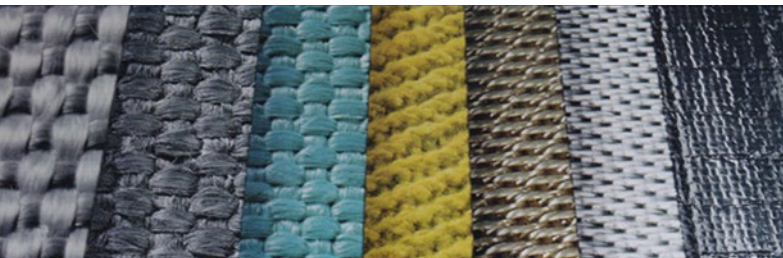
- cable and process auxiliaries with sleeves resistant to aggressive media, acids and brine as well as high temperature
- Hoses as additional protection for cables in wet areas

## Tailor-Made Service

ALMI special cables are designed and manufactured especially for their intended application and according to their thermal, mechanical or chemical exposure. Our standard production programme includes products in large or small series, all supplied in accordance with our usual delivery reliability. Technical textiles are available for stock, either cut to size, or on rolls. ALMI offers reliable and fast assistance in the event of unforeseen problems: We are available 7 days a week, 24 hours a day!

ALMI Insulation & Protection	Material of Inner Sheath	Material of Outer Sheath	Factor Temperature			Factor Durability	
			Temperature Range in Continuous Operation			Chemicals, Solvents	Oils, Grease
			from	to	time limited		
Corrugated Pipe Hose PUR		Polyurethane	-40°C	+90°C	+125°C	++	++
Hose HY	Hypalon, Glass fibre	Hypalon	-40°C	+140°C	+800°C	++	++
Hose HY-S	Glass fibre	Hypalon	-40°C	+140°C	+800°C	++	++
Hose HY-S-GL	Glass fibre	Hypalon	-40°C	+140°C	+800°C	++	++
Hose ALMITUBE LIGHT	Glass fibre	Silicone	-55°C	+260°C	+1200°C	++	+
Hose ALMITUBE II	Glass fibre	Silicone	-55°C	+260°C	+1600°C	++	+
Hose ALMITUBE KS	Calcium silicate fibre	Silicone	-55°C	+300°C	+1600°C	++	+
Hose IdurTherm PRO	Glass fibre	Acrylate coating	-55°C	+500°C		-	-
Hose AR/AL	Aramid fibre	Aluminium lamination		+250°C	+1000°C	+	+
Hose GL/AL	Glass fibre	Aluminium lamination		+180°C	+1000°C	+	+
UI Special Steel Hose		Special steel	-100°C	+600°C		++	++
Heat Protection Tape HB	Glass fibre	Silicone	-70°C	+260°C	+1600°C	++	+
V-Tape		Silicone (self vulcanising)	-55°C	+260°C	+1600°C	+	+
Sleeve HY-S	Hypalon, Glass fibre	Hypalon	-40°C	+140°C	+800°C	++	+
Sleeve GL/SI MEDIUM	Glass fibre	Silicone (medium version)	-55°C	+260°C	+1600°C	++	+
Sleeve GL/SI HD	Glass fibre	Silicone (heavy version)	-55°C	+260°C	+1600°C	++	+
Sleeve AR/AL	Aramid fibre	Aluminium lamination		+250°C	+1000°C	+	+
Sleeve GL/AL	Glass fibre	Aluminium lamination		+180°C	+1000°C	+	+
GL/SI light Plane	Glass fibre	Silicone (light version)	-55°C	+260°C	+1600°C	++	+
GL/SI MEDIUM Plane	Glass fibre	Silicone (medium version)	-55°C	+260°C	+1600°C	++	+
GL/SI HD Plane	Glass fibre	Silicone (heavy version)	-55°C	+260°C	+1600°C	++	+
HY Plane (Material on Roll)	Hypalon, Glass fibre	Hypalon	-40°C	+140°C	+800°C	++	++
Protective Hood					+1600°C	++	++
Protective Curtain					+1600°C	+	+
Protective Cover					+1600°C	+	+
Insulation Mat					+1600°C	+	+
Stamped Components					+1600°C	+	+

++ very good + good - moderately suitable



## The Company

For almost a century, ALMI has been a supplier of special cables and heat protection applications for demanding industrial processes and individual requirements. Our proven product range is constantly being expanded with new products, developed in consultation with our customers and according to their requirements. The fundamentals of all ALMI solutions are high operational security and long service lifetimes. We support our customers with quality products, extensive industrial experience and a tailor-made service!

### Our ALMI Product Information in summary:

- *ALMI Products and Services (d, en, pt)*
- *Special Cables in the Steel Industry (d, en, pt)*
- *Insulation Technology and Heat Protection (d, en, pt)*
- *ALMI Newsletter (d, en)*

Cable and heat protection for demanding processes

**ALMI Alfred Michels GmbH & Co. KG**

Waldbleeke 2

D-45481 Mülheim an der Ruhr

Tel.: +49 (0)208 - 48 61 86

Fax: +49 (0)208 - 48 25 28

E-Mail: [info@almi-kabel.de](mailto:info@almi-kabel.de)

Web: [www.almi-kabel.de](http://www.almi-kabel.de)