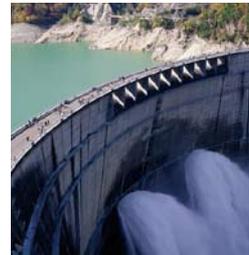


Elastomeric spray coatings and repair materials to protect surfaces against wear, erosion, corrosion and cavitation

MetaLine® Series 700 Cartridge Spray Coating

... a new coating generation for the seamless rubber-like surface protection





MetaLine® Series 700

Elastomeric, on site sprayable wear protective coatings to solve erosion, corrosion and multiple surface problems

For more than 50 years, MetaLine has been concerned with synthetic coating materials to recover and protect surfaces in danger of wear and tear.

MetaLine Series 700 is a material concept combining the efficiency and performance of vulcanized rubber coatings with the simple processing of epoxy-ceramics with extreme lifetime improvements! In connection with the novel cartridge spraying process, this presents a **milestone** in the protection of metal structures!

Natural rubber is a proven wear and corrosion protection material. However, with **seams** that can fail, restricted reparability and its equipment intensive need for field vulcanization. Rapid in-situ lining is generally not possible. When repairs need to be carried out, quite often epoxy-ceramic products are used due to the ease of application. However, replacing rubber by plastic filling compounds is a questionable approach and not generally to be recommended . . .

MetaLine Series 700 is an elastomeric material system that offers a different solution. This new product combines rubber quality features with a novel cartridge spray process. Using this technique, it is possible to apply **sprayable elastomer wear protection coatings** - directly on site - professionally, **rapidly** and **seamlessly**. The product is based on a special PUR-Elastomer technology that does not require vulcanization.

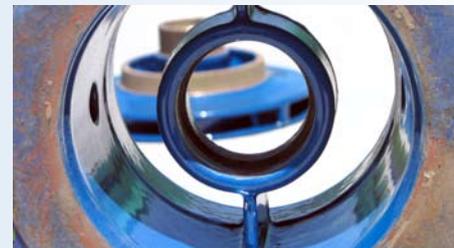
By means of the MetaLine cartridge spray gun, the coating is mixed and sprayed automatically. This results in hydro-dynamically resilient protective coatings, developing an **erosion and cavitation resistance** so far not yet achieved. The stability is exceeded by up to **50 times (*)** in comparison with epoxy-ceramics!

MetaLine Series 700 is extremely convincing owing to its simple spray application process and the extraordinary **surface smoothness** and resultant improvement in **flow efficiency**. Efficiency increases of up to 3.5 % has been proven.

The process is suitable for the complete protection of metal components as well as for the repair of existing rubber linings.



The daily repair routine with conventional epoxy ceramic products applied by an old-fashioned process which no designer wants to see anymore . . .



This is how it should be instead - MetaLine surfaces are smoother than any steel casting and also approximately 500 % more wear-resistant than conventional steel () . . .*

**) Proven by independent research laboratories and OEM tests, including pump manufacturers KSB (Technik kompakt, 12/2004) and ANDRITZ*



Material-Details

MetaLine Series 700



The Product

MetaLine Series 700 is a **solvent-free** two-component elastomer. Application is carried out by spraying, injection or casting. Polymerization begins after 1 minute so that even on vertical surfaces layer thicknesses between 1 and 20 mm can be realized without the material sag. Processing can be realized under almost **any climatic** conditions (including high humidity) directly on site.

MetaLine Series 700 adheres to almost any substrate, including steel, brass, aluminum, bronze, concrete, rubber and most plastics. It is not necessary to heat the components to be coated. After approximately 5 minutes, the coating is dry to touch and commissioning can be carried out after 24 hours (at 20 °C). Temperature resistance is between **-50 °C and +120 °C**, depending on the relevant application.

MetaLine Series 700 cures without any tension and develops in addition to its chemical adhesion a mechanical **memory effect**. This pulls the coating permanently against the substrate thus counteracting any separation tendency as it is the case with conventional rubber tiles. In addition, MetaLine Series 700 can be recoated and repaired!

There are 3 different degrees of hardness available:

- **MetaLine 760** (60 Shore A) serves to repair damaged soft rubber linings or overhaul conveyor belts
- **MetaLine 785** (85 Shore A) is the first choice for the protection of components subjected to wear, erosion or cavitation
- **MetaLine 795** (95 Shore A) develops non-stick properties owing to the low coefficient of static friction and prevents bridging, e.g. in hoppers

MetaLine Series 700 coatings are particularly user friendly having been assessed by the US authorities as drug and **food-safe** according to FDA standards.

The strength of MetaLine Series 700 lies in its erosion and cavitation resistance which is **comparable** with high-alloy steels and **armors**. With a density of 1.05 g/cm³ it is the most **lightweight** duroplastic wear protection concept available and potential energy savings when applied to impellers and rotors, are considerable.



Application Process

The novel MetaLine cartridge spray process is based on **low-pressure spraying** in connection with pneumatically controlled material conveying.

By means of the MetaLine **cartridge spray gun** the two-component coating is automatically and precisely mixed with no possibility of 'off-ratio' problems that can be associated with conventional two-component products.

Similar to a 'DIY' spray can, only the required amount of material is removed. There is no mixed waste, and opened cartridges can be used again at a later point in time.

Mixing is undertaken via an in-line plastic disposable mixer acting in conjunction with an atomizer nozzle. The spray gun does not come into contact with the coating material so that the **tool does not have to be cleaned** after finishing the work.

Spraying is similar to wet-paint processing, although no solvents are used here. Merely compressed air with 5 bar pressure and a volume amounting approximately to 300 liters is necessary.

The MetaLine cartridge gun has been designed for rough working atmospheres and is maintenance free. Investment cost is below 1.200- EUR!



Abrasion / erosion-resistant

Permanently elastic

Minimizing cavitation

Shock-absorbing

Glide enhancing or slip-resistant

Corrosion-resistant



MetaLine® Series 700 Spray Elastomers

	MetaLine 760	MetaLine 785	MetaLine 795
Hardness sprayed /cast on (A.S.T.M. D2240-68)	60 / 65 Shore A	82 / 85 Shore A	95 / 98 Shore A
Density (DIN 53 479)	1.10 g/cm ³	1.05 g/cm ³	1.05 g/cm ³
Tensile strength (A.S.T.M. D412-68)	20 N/mm ²	20 N/mm ²	24 N/mm ²
Tensile Modulus at 100 % elongation (A.S.T.M. D412-68)	6 N/mm ²	7 N/mm ²	13 N/mm ²
Tear resistance (DIN 53 515)	68 N/mm	55 N/mm	68 N/mm
Elongation at break (A.S.T.M. D412-68)	650 %	380 %	275 %
Bashore resilience (DIN 53 512)	63 %	45 %	27 %
Coefficient of thermal conductivity (DIN 52 612)	0.2 W/K·m	0.2 W/K·m	0.2 W/K·m
Dielectric surface resistivity (DIN 53 482)	7 x 10 ¹⁰ Ohm	7 x 10 ¹⁰ Ohm	7 x 10 ¹⁰ Ohm
Dielectric breakdown voltage (DIN 53 841)	> 5 Kv/mm	> 5 Kv/mm	> 5 Kv/mm
Temperature resistance (dry / wet)	+100 °C / +60 °C	+120 °C / +60 °C	+120 °C / +60 °C
Abrasion according to Taber (A.S.T.M. D1-044-73 - Rad H-22, dry, 1 kg, 1.000 U)	n.d.	8.2 mg	10.5 mg
Abrasion (DIN 53 516)	80 mm ³	70 mm ³	n.d.
Coefficient of static friction (DIN EN ISO 8295)	$\mu(0)$ = approx. 0.7	$\mu(0)$ = approx. 0.6	$\mu(0)$ = approx. 0.2
Solids contents (DIN EN ISO 3251)	100 %	100 %	100 %
Processing time (at 50 °C)	7 minutes	1 minutes	1 minute
Solidification (at 20 °C - dependent on stress)	> 1.5 days	> 1 day	> 1 day
Coverage (theoretically per mm film thickness)	1.20 kg/m ²	1.20 kg/m ²	1.20 kg/m ²



Fields of Application

MetaLine Series 700



MetaLine® Series 700 - protective coating system for the repair of damaged metallic or rubber components. Suitable as elastomeric lining against wear & tear as well as scratching forces

- Tribofinishing Equipment
- Pump Impellers / Casings
- Robotic Grippers
- Automation Accessories
- Vibratory Chutes
- Hydroturbines
- Gritblasting Systems
- Screw Conveyors
- Cylinders / Rollers
- Screening Drums
- Filter Equipment
- Tanks / Silos
- Propellers
- Fans / Blowers
- Transport Vehicles / Trucks
- Floating Equipment / Air Cushions
- Fittings / Valves
- Hoppers / Chutes
- Biomass Conveyors
- Pipe Bends / Flanges
- Vibratory Feederbowls
- Tool Carriers / Dies
- Mixers
- Cyclones / Separators
- Lifting Hooks
- Special Tools
- Sensors / Cathodes
- Conveyor Belts



Wear protection

Corrosion prevention

Shock absorption

Breakage minimization

Scratch protection

Noise deadening

Processing & Cost

MetaLine Series 700



A process from professionals for professionals

The use of highly functional coatings requires competent **surface preparation**. MetaLine Series 700 can be applied under almost any climatic conditions, even under high humidity or increased temperatures. The surfaces to be coated need to be dry, clean, free of grease and desalinated as well as **having a surface profile**.

For producing the appropriate surface profile over small areas or areas difficult to access, the handy **MetaLine blasting gun SP 1** is recommended. Areas up to approximately 1.5 m² can be treated professionally with a minimum of time. Corundum with a particle size of approximately 2 mm is to be used as abrasive.



MetaLine SP1 grit blasting gun. Small, quick and cost effective – that is how to prepare surfaces!

Successfully coating in 3 easy steps!

- 1 First of all, metal substrates are coated with MetaLine 924 offering borderline penetration protection. This **electro-chemically active corrosion protection** prevents borderline penetration on coating edges and protects partially damaged areas against rusting.
- 2 After drying, MetaLine 900 Universal Primer is applied with a single coat on solid surfaces or MetaLine 910 on elastomer surfaces.
- 3 Finally, MetaLine 700 protective coating with the required film thickness is applied. Let it cure - ready!

And what about the material cost?

With smaller coating areas, the MetaLine Series 700 product cost amount to roughly 165 EUR/m² for a 1 mm thick coating. When comparing prices with conventional repair methods, the MetaLine technology is very convincing owing to **cost savings of up to 60 %**. Particularly in regard to epoxy-ceramic compounds or synthetic rubber repair grouts, MetaLine stands for a so far unachieved cost efficiency.



For first-time users, we recommend the **MetaLine Starterkit 10**. This is a fully equipped kit including cartridge gun, cleaning agent, primer, spare nozzles, processing instructions and also 10 kg of coating material (see illustration to the left):

The shelf life of the components amounts up to 2 years so that the system can also be used as a mere repair variant – if the need arises. With MetaLine, you can make sure that damaged parts are no longer useless . . .





- Protect
- Repair
- Save

For more than 50 years

MetaLine has its headquarters near Stuttgart (Southern Germany), and through our sales partners, we are represented in more than **70 countries**.

When handling our coating materials, we attach great importance on expert **instruction** and customer liaison. To realise this objective, we offer expert **training that lasts from one to several days** at our premises or if more convenient, on-site. Our experienced trainers are at your disposal!

Trainings can be held in German, English, French, Spanish and Italian. Also, we are able to offer discussions about concrete problems and product demonstrations by means of **online video conferences**.

Do not hesitate to contact us!

MetaLine[®]
protect ■ repair ■ save
proven coating systems since 1960

You will find MetaLine products in most industrial areas such as automation technology, mining industry and mining technology, pulp & paper, marine, petro-chemical, power plant technology, foodstuff processing, concrete production, municipal technology, pharmaceuticals, chemical industry, recycling technology, plastics processing, electrical engineering, glass processing, conveyor technology, fertilizer production, ceramic industry, surface technology, occupational safety, automotive manufacture, metal foundries, packaging technology, aeronautical engineering, textile machinery construction . . .

MetaLine Surface Protection GmbH
Robert-Bosch-Strasse 7-11
D-71157 Hildrizhausen / Germany
Phone +49-(0)7034-31000
Fax + 49-(0)7034-31005
info@metaline.com
www.metaline.com
Skype „metaline-sales“

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