Scrap is the most expensive production, therefore use our efficient after-treatments for the foundry industry.
DIAMANT Metallplastic GmbH

The specialist for polymeric metals in the foundry industry.
Company presentation
Since 1886 we supply satisfied customers with high-quality polymers. Our main application fields are foundries, machine tool manufacturers, steel- and bridge constructions as well as maintenance for machines and plants in general.

Product overview
Our product solutions restore the function of castings and thereby significantly reduce your scrap. The DIAMANT polymeric solution includes products for impregnating and sealing leakages, as well as repairs of blow holes and surface treatments with a perfect metallic finish. Moreover, we offer high-resistance coatings for thermal, abrasive and chemical wear.

Leakages
dichtol is a versatile high-performance polymer for the deep impregnation of castings. The treatment of the surface with dichtol allows to seal leaks completely. dichtol is ready to use, transparent and applicable through dipping, brushing, spraying or injecting.

Blow hole and surface defects
Polymeric metals are very suitable for repairs of blow holes and surface treatments with a perfect metallic finish. Our extensive assortment includes products for aesthetic corrections of surfaces, technically demanding repairs of blow holes and large-scale repairs.

Wear protection and services
Polymeric protective and repair coatings are easily applicable and significantly increase the lifetime of machines and plants. The highly flexible coating systems are extremely resistant to thermal, abrasive and chemical wear.
Since 1886 in family tradition

The history of the company DIAMANT Metallplastic GmbH goes back to the year 1886 when Robert Schulz formed his company as a small foundry which turned 1892 into the „Robert Schulz Drogerie“ (drugstore). Knowing the problems when casting, he formulated the very first repair „cements“ at the end of the 19th century in his drugstore offering them to the many local foundries for „casting cosmetics“.

1951

... first Epoxies and Polyester resins have successfully been introduced to the market. 1950s first export business was made with East-Europe and in the mid 1970s they renamed and modernised the company into „DIAMANT Metallplastic GmbH“ and marketing was widened to the USA and Far East countries.

Today

... we supply satisfied customers from different branches around the globe with a wide assortment of polymeric metal systems. Contrary to the trend we keep on producing in Germany, Mönchengladbach. This is on the one hand to maintain our traditional values and on the other hand to ensure constantly high quality levels. DIAMANT Products „Made in Germany“ are nowadays exported to over 60 industrialized countries worldwide. Besides the production, we have made it to our business to offer best consultancy, application-orientated trainings, reliable on-site services as well as customer-orientated product developments.

Our vision

Since 1886 we supply worldwide satisfied customers with excellent materials for the metal-working industries. Our main fields of activity are foundries, machine tool manufacturers, maintenance for machines and plants in general as well as steel and bridge constructions. In these four disciplines we are setting new standards with our innovative and practice-orientated solutions.

In our area of expertise we are leading in the customer- and solution-orientated support, whereby we can guarantee best outcomes to the advantage of our customers.
DIAMANT solutions

We are one of the most experienced Full-Service-Suppliers of high-performance polymeric systems for the foundry industry. We accompany you starting at the problem description, over the technical feasibility to the point of product choice and on-site application. By choosing a DIAMANT product you can always be certain to have the right contact for reliable repairs in the foundry industry.

Our product solutions restore the function of castings and thereby we significantly reduce your scrap. Polymer-bound metals are easily applicable and save time as well as money in the production.

We have made it that our business brings an essential asset to our customers. Identifying a variety of customer request we combine our polymer-bound metals with a customer-orientated support mechanism. This concept guarantees best outcomes to the advantage of our customers. You can choose between our varied service features.

- A matching product line with compatible accessories
- Research and development of customized products for your application
- Detailed consultancy with the possibility to train your personell on-site
- On-site application by our experienced technical staff
Our products at one glance.

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<thead>
<tr>
<th>Product</th>
<th>Benefits</th>
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<tr>
<td>dichtol</td>
<td>- Impregnate capillary-active</td>
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<td>- Possible applications</td>
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<td>- Dipping</td>
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<td>- Punctual impregnation</td>
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<td>- Low investment costs</td>
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<td>- Transparent</td>
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<td>- Temporary rust protection</td>
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<td>- Drinking water approved</td>
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<th>liquid metals</th>
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<td>- Best metallic character</td>
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<td>- 1-component-material</td>
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<td>- Fast curing</td>
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<th>plasticmetal superior</th>
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<td>- Very high proportion of metallic fillers</td>
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<td>- Machineable like metal</td>
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<td>- Variable viscosity</td>
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Flexible on-site, precise in the application.

Due to the reason that no general solution exists for technical challenging applications - we have made it to our business to develop a specialized assortment for the foundry industry. With our product solutions you impregnate capillary-active, correct surface defects, fill up blow holes and repair extensive defects on castings. Furthermore you can prevent as well as repair thermal, abrasive and chemical wear with our polymer bound coating systems and thereby significantly increase the lifetime of machines and your plant.
### Plasticmetal
- For fine and medium repairs
- Vertical: up to 3cm
- Horizontal: up to 5cm
- Benefits:
  - Good metallic character
  - Very high proportion of metallic fillers
  - Excellent technical characteristics
  - Fast curing
  - Machineable like metal
  - Variable viscosity

### Ultrametal
- For medium and extensive repairs
- Vertical: any desired
- Horizontal: any desired
- Benefits:
  - Extra long pot life
  - Excellent technical characteristics
  - Machineable like metal

### Iron Cement
- Extremely resistant to thermal wear
- Benefits:
  - Approved for coquilles and combustion plants
  - Resistant up to 1600°C
  - Easily applicable by hand or spatulas
  - 1-component-material
  - Physiologically harmless

### Legend

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<th>Light</th>
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Leakages

Micro pores, cracking and porosities.

The foundry industry is changing constantly due to the increasing complexity of customer requirements concerning casting products. At low costs a constant product quality has to be guaranteed. Often casters reach the limits of technical feasibility. Thereby frequently occurring problems are leakages – so called porosities. Porosities are a general term for air inclusions whereby leakages in castings may occur, gas- and fluid-carrying parts have to be declared as scrap. These parts burden the budget of the production and meanwhile significantly decrease the profitability of the whole company.

According to this the demand for efficient after-treatment solutions is steadily increasing. The most common methods to impregnate metals are the vacuum and the capillary-active impregnation systems. Both methods differ in consideration of technical and economical practicability – which has to be evaluated from case to case.

The capillary-active impregnation provides:

- Versatile application of the capillary impregnation system
  - Dipping
  - Brushing
  - Injecting
  - Spraying
- Punctual serial impregnation
- Individual impregnation (of large parts), also on the spot
- Low investment costs
- Enhanced surface and varnish properties
- Most efficient consumption of polymeric material
- Temporary corrosion protection (transport protection)
- Location-independent, usable everywhere
- Transparent, Invisible
- No maintenance and lead time
- Very high chemical, thermal and physical loads
- Drinking water approved

The traditional vacuum impregnation provides basic advantages in the serial impregnation of small or medium castings with undetermined porosities.
If the porosities are locatable or remain unchanged after the serial impregnation – the DIAMANT capillary-active impregnation is the best improvement.
**dichtol - capillary-active impregnation**

By using the DIAMANT capillary-active impregnation a high-resistance polymer, in combination with volatile components is applied on the porous surface. Based on the excellent capillary action dichtol penetrates deeply into the casting and impregnates right away. After curing the polymer is highly resistant to thermal, physical and chemical strain – even with alternating temperatures.

**Versatile**
dichtol is a highly flexible and ready for use 1-component-system which can be use-orientated formulated. The easy and versatile application of dichtol (dipping, brushing, injecting, spraying) allows a reliable impregnation – even on complex structures.

**Performance**
Regardless of whether small or large pores – dichtol impregnates form-locking and restores the pressure tightness of castings. dichtol has been formulated for the needs of the foundry industry and is therefore specifically resistant to physical, thermal and chemical strain. In contrast to welding dichtol is extremely gentle to castings and enhances the surface and varnish properties of castings.

**Quality management**
dichtol increases the profitability of the production by reducing scrap significantly. With the objective to guarantee best outcomes and minimize costs – dichtol has been an integral part of the innovative quality management in the foundry industry.

**Economical**
The capillary-active characteristic of dichtol allows the polymer to deeply penetrate into the casting - without any expensive energy costs. If the porosities are locatable or remain unchanged in the serial production you can realize with the punctual impregnation the minimal consumption of material. Additionally dichtol substitutes the need for high investment costs such as an in-house vacuum impregnating line. Moreover, our on-site impregnation solution avoids annoying maintenance and lead times, which could occur by using an out-sourced impregnation plant.
Blow holes and surface defects

Annoying, but unavoidable.

Blow holes are contraction cavities, which occur during the transition of liquid to solid state. These defects are caused by volume shrinkage during the solidification of the casting. Even with the state-of-the-art technology cavitation shrink holes are unavoidable. That’s why foundries take a multiplicity of arrangements to transfer these casting defects to the surface and afterwards correct them. Blow holes can be located on the surface or enclosed into the casting. Closed blowholes become a problem after mechanical processing whereby the functionality of the casting can be limited. While the repair through welding is complex and restricted – the application of polymer bound metals is a proven alternative to eliminate blow holes and surface defects.

Surface roughness
We define the term “roughness” as an irregular texture of castings which have to be optically corrected. Within this application field we propose to use putty polymer bound metals for optical corrections onto the surface. After hardening the polymer ensures a perfect metallic character of the surface.

Open blow holes
Open blow holes are located on the surface of the casting and are filled with a polymeric metals.

Closed blow holes
Closed blow holes are closed cavities within the casting which are detectable through mechanical processing or non-destructive test methods such as ultrasonic sound and x-rays. Closed blow holes can be easily filled with polymer bound metals after the mechanical processing.

No blow hole and no application is like the other – for this reason we have made it to our business to develop a wide range of special solutions for the treatment of metallic surfaces. The concerted assortment includes solutions for the optical correction of surface roughness, optical and technical challenging reparations of blow holes and extensive repairs.
liquid metals - optical corrections

liquid metals are ready for use 1-component-polymers for the reliable correction of surface roughness. The high-value metallic fillers of liquid metals allow a best possible adaption onto the casting surface.

- Best metallic character
- Ready for use
- Fast hardening
- Very good adhesion on metallic surfaces
- Perfect for optical corrections (up to 2mm lamination strength)

plasticmetal - fill blow holes

plasticmetal is a fast hardening and polymer bound metal for the removal of blow holes. After hardening the high-performing polymer machinable like metal. The excellent resistance to physical, thermal and chemical strain has especially been developed for the requirements of the foundry industry. plasticmetal is an extremely flexible system which can be mixed and applied in small quantities as well as combined with 9 different hardeners.

- Combine 12 metal powders individually with 9 hardeners
- Best metallic character
- Excellent technical characteristics
- Fast hardening
- Variable viscosity (liquid to putty)

ultrametal - extensive repairs

ultrametal is a highly resistant 2-component repair system. The polymer is characterized by a not measureable shrinkage as well as an extended processing time, whereby we can guarantee best outcomes for extensive repairs.

- Extended processing time
- Excellent technical characteristics
- Perfect for extensive blow holes and fashioning defects
Maintain your plant, minimize costs

The extreme conditions in foundries can lead to accelerated material fatigue, erosion as well as corrosion. Often, these technical difficulties result into prolonged downtimes, an added safety risk and a decreasing product quality. At the bottom line these problems cause significant economic losses in the production which have a serious impact on the cost structure of the whole company. Wear as a generic term stands for the mass loss of a surface through thermal, abrasive or chemical strain.

Thermal wear
Thermal wear particularly appears at high temperatures and concurrently mechanical strain. The softening of base material leads to a plastic deformation which can limit or completely remove the functionality of the casting. Therefore moldable coating systems with a high thermal resistance should be applied to significantly reduce the damages through thermal wear.

Abrasive wear
Abrasive wear occurs whenever hard and squared substances are delivered whereby cracks and micro cutting are caused at the friction partner. Abrasive wear particularly can be found in pipelines and pumps which transport water with suspended solids for example sand preparation plants. To reduce damages caused by abrasive wear it is recommended to use ceramic polymer-metal coatings which show best results due to their superior tribological properties for this application field.

Chemical wear
Chemical wear occurs once the base material reacts with the delivered substances and over the time gets washed away. To reduce these damages caused by chemical wear it is recommended to use coating systems with highly cross-linked polymers and specially formulated additives.

With the DIAMANT coating system you can take advantage of the following benefits:

- Guarantees a constant product quality and trouble-free operation
- Extended running time of machines and plants
- Coatings minimize the safety risk in the production
- Applicable as protection and repair coating

Wear and material fatigue can force whole plants to shut down. That’s why it will pay off to early think about preventative measures to protect your investments. With DIAMANT polymeric protection coatings you can be certain to have the right choice for every sort of wear. In the case of existing damages caused by wear at pumps, pipelines, container tanks or machines we offer a wide assortment for reliable repairs and maintenance. With the DIAMANT polymeric repair coating you can remove material damages and restore the functionality.
**iron cement - Protection against thermal wear**

Iron cement is a highly temperature resistant 1-component-material and is used to minimize thermal wear at coquilles and combustion plants. The ready for use material has application temperatures up to 1600°C and has been successfully been used in foundries and metallurgies for decades now.

- Protects the basic material from thermal wear
- Increases demonstrable the running time of coquilles and combustion plants
- Wear protection even with changing temperatures up to 1600°C
- Easily applicable through hand or spatula
- Physiologically harmless

**RepaCoat PH - Protection against abrasive wear**

RepaCoat PH is a highly wear resistant and ceramic filled polymer coating. The 2-component-polymer is available in different grain sizes whereby the material can be easily adjusted to your application. RepaCoat PH is frequently used for damages caused by abrasive wear through bouncing particles in gaseous or liquid substances. Due to the reason that the high-performing polymer can be easily and reliably applied – even on complex structures – it’s often used as the perfect substitute for ceramic tiles.

- Protects the basic material from abrasive wear
- Increases demonstrable the running time of pumps, tanks and conveyors
- Easily applicable through a spatula or brush
- Filled with highly wear resistant ceramic materials

**RepaCoat CH - Protection against chemical wear**

RepaCoat CH is a fluid 2-component polymer which is extremely resistant to chemical strain. The excellent chemical resistance is reached by the help of highly cross-linked polymers and specially formulated additives.

- Protects the basic material against aggressive substances
- Extremely resistant to solvents
- Best material characteristics up to 170°C
- Increases demonstrable the running time of pumps, tanks and conveyors
- Easily applicable through brushing or spraying
Services

Order our services, assure your quality.

An exceptionally customer-orientation is the core of our unique solutions for the foundry industries. If you choose for a DIAMANT product – you can be certain to have always a competent partner for reliable repairs and maintenance.

The DIAMANT service team:
- Identifies and solves the problem
- Consults product- and application orientated
- Trains your staff
- Implements customer requests on-site

We have made it to our business to be an essential asset to our customers. We have recognized that top quality products are only effective with a support mechanism. Identifying this customer request, we recommend a combination of products and services. Through focused trainings you assure best quality - at lowest costs.

Your benefits at one glance:
- Field approved processing quality of the DIAMANT products
- Save valuable time in the application
- Benefit from the long experience of our qualified technicians
- One contact for product- and services
The DIAMANT guarantee of quality.

In order to stick to the family tradition of DIAMANT we decided to keep our production site in Germany, disregarding the trend of globalization. Therewith we continue to ensure our high quality level and supply our customers with products “made in Germany”. Furthermore we keep close contact to our customers to satisfy any demands arising during application and use the gained information to consistently improve and customize our products for professional use in the foundry industry.

Our company is DIN-certified with the German DIN EN ISO 9001 standard, which serves as the foundation of our quality management processes. Our principles are:

1. Customer orientation
2. Responsibility
3. Individual Solutions
4. Process orientation
5. System-oriented Management
6. Continuous improvements
7. Factual decision-making
8. Supplier relations

The German institute for hygiene is responsible for the quality assessment of water, soil and air. It analyses the hygienic applicability of materials that food and water are exposed to as well as those which are used for construction. We are therefore proud to say that our polymer-bound metals conform to highest German standards and are therefore approved for many fields of application.