

## Areas of application

### Functional benefits

- new or improved mechanical properties of components (waterproof, chemically resistant, UV and humidity resistant)
- long-term stability
- significant increase of strength and stiffness up to 10 times
- weight reduction, yet metallic look
- galvanofforming
- cost savings through usage of affordable plastic substrate

### Decorative

- esthetic finishing for design purposes
- attractive metal look with nickel and/or copper



### Electrical

- EMV shielding
- conductivity



## Added value by metal coating

$$1 + 1 = 3$$

plastic + metal coating = hybrid component

#### plastic:

- low density
- no corrosion
- design freedom
- chemical resistance
- recyclability

#### hybrid:

- low weight
- electrical conductivity
- prevents humidity penetration
- high strength
- thermal conductivity

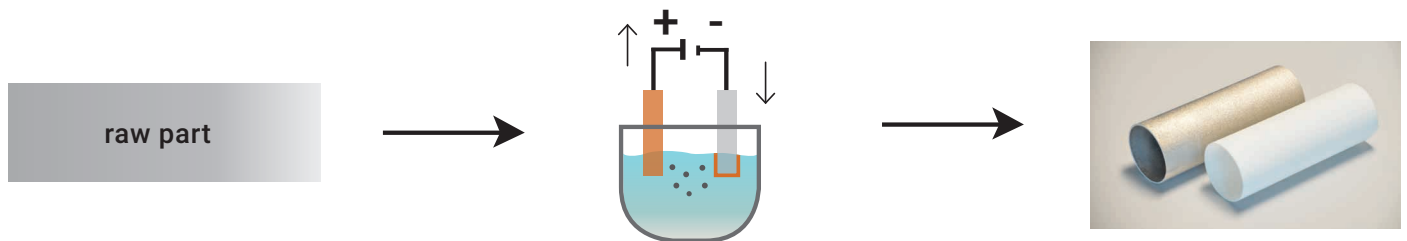
#### metal coating:

- electrical conductivity
- high strength
- thermal conductivity
- prevents humidity penetration
- low tendency to crack
- low coefficient of thermal expansion

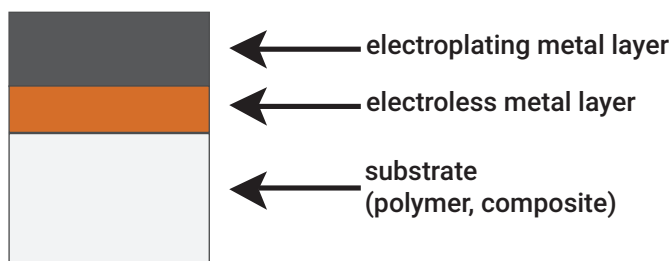
## Improved mechanical properties of components by galvanization

Test element with layer thickness of coating [μ]	Tensile strength [MPa]
not galvanized	47 MPa
galvanized 100 μ	90 MPa
galvanized 150 μ	118 MPa
galvanized 200 μ	182 MPa

## Technology & benefits of the process



### Direct metal coating



### Benefits:

- excellent adhesion
- excellent electrical conductivity
- uniform and accurate plating
- supports full or selective plating
- low cost process
- scalable
- supports 3DP objects

## Available substrates

Rapid Prototyping	Plastic	Metal
<ul style="list-style-type: none"> <li>• SLA</li> <li>• SLS</li> <li>• FDM</li> <li>• vacuum casting</li> <li>• FLT</li> </ul>	<ul style="list-style-type: none"> <li>• ABS</li> <li>• ABS/PC</li> <li>• PEEK</li> <li>• PVC</li> <li>• PC</li> <li>• PE</li> </ul>	<ul style="list-style-type: none"> <li>• brass</li> <li>• aluminum</li> <li>• steel</li> </ul>

## Technical characteristics

coating material	copper
	nickel
	sandwich layers of copper and nickel
layer thickness of coating	50 – 300 μ (more on request)
component size	1000 mm x 400 mm x 400 mm (bigger on request)
offset	offset parts against additional layer thickness of coating
surface	rough
	slightly rough
	shiny
	high gloss

## Inquiry form



**Data transfer to:** prototyping@pro-fit.de

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**Raw part:**  by FIT  produced by customer  
(provides component with offset)

**Substrate:** .....

**Manufacturing method:** .....

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**Quantity:** .....

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**Coating:**

type → material → layer thickness

<input type="checkbox"/> single layer	<input type="checkbox"/> nickel	<input type="checkbox"/> 50 μ	<input type="checkbox"/> 100 μ	<input type="checkbox"/> 200 μ	<input type="checkbox"/> 300 μ
<input type="checkbox"/> sandwich (nickel/copper)	<input type="checkbox"/> copper	<input type="checkbox"/> 50 μ	<input type="checkbox"/> 100 μ	<input type="checkbox"/> 200 μ	<input type="checkbox"/> 300 μ

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**Surface:** technical decorative

<input type="checkbox"/> rough	<input type="checkbox"/> shiny
<input type="checkbox"/> slightly rough	<input type="checkbox"/> high gloss

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**Comments:** .....

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