



WEICON Product Overview

# PLASTIC METAL



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# PLASTIC METAL

## 2-component epoxy resin systems

Epoxy resin adhesives belong to the group of reactive adhesives. The two-component systems presented here consist of a resin and a hardener and are called WEICON Plastic Metal.

These special 2-component epoxy resin systems can be used in a very wide range of applications due to their versatile formulation options. That way, they can be customised to the respective application. They are suitable for many different areas of industry.

The term plastic metal is used to imply that the material can be mechanically processed in its cured state – just like metal. You can drill, mill, grind or file the cured adhesive – depending on the application.

Depending on the type, the resin component of the plastic metal is mixed with steel, aluminium powder or mineral fillers, all of which improve the technical characteristics. For example, a particularly high abrasion resistance, impact strength, compressive strength or a very high temperature resistance can be achieved.

Depending on the formulation, the epoxy resin systems have a pasty, viscous or liquid, spreadable consistency.

After mixing the two components, the material cures at room temperature at different speeds, depending on the type, to form a solid metal-like material that adheres immediately to almost any surface. That way, a wide variety of materials can be firmly and permanently bonded.





## Versatile use

In industrial construction and manufacturing, epoxy resin systems are used in many areas.

The 2C systems can be used for adhesive bonding, as casting compound, as coating and for fast and durable repairs on various materials.

For example, they can be used for tool production, for model and mould making, machine construction, in metal work, in filter construction, for use on mills and pumps, or for the chemical industry.

The different types are used, for example, for repairing and reconditioning broken metal threads, damaged plastic parts, broken housings or leaks in pipes. They can also be used as aids for mould making for rubber and injection moulded parts or for making embossing dies, templates, models, gauges and clamping devices.

A typical field of application for epoxy resin systems is the coating of heavily stressed parts. Due to its high resistance to aggressive substances, plastic metal can be used in very demanding applications.

In modern shipbuilding, the materials used must be able to permanently withstand extreme stresses, such

as contact with salt water or salty air. In waste water systems or exhaust pipes, both aggressive substances and suspended particles have an effect on the installed materials. These influences cause severe corrosion, pitting and abrasion, for example on pump housings, fans or valves.

The resulting damage makes it necessary to replace or repair components at regular intervals. Coating the parts with the epoxy resin system beforehand can lead to a significant increase in service life.

Due to its rather uncomplicated application, plastic metal is a real alternative to build-up welding, as there is no heat distortion during the processing of the epoxy resin as with welding.



With the application of WEICON Plastic Metal, many problems can be solved quickly and easily. The variety of epoxy resin systems allows an individual adjustment to the respective repair or maintenance. The so-called cold-metal repair eliminates many time-consuming operations, such as welding, dismantling, new acquisition, etc.

Simply find solutions  
with our  
WEICON App



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# REPAIR, MOULDING AND REBUILDING OF METAL





Processing of a bearing seat for a cement combustion chamber/ cement oven, weight approx. 500 t  
**WEICON HB 300**



Repair of a hairline crack on a pump housing  
**WEICON WR 2**



Roller in a paper factory. Corrections of uneven and porous spots resulting from wear.  
**WEICON C**

	Steel			
	pasty	viscous	very fast curing	high temperature resistance
	 <b>WEICON A</b>	<b>WEICON B</b>	 <b>WEICON SF</b>	<b>WEICON HB 300</b>
Keyfacts	highly filled, trowelable, certified by DNV	self-levelling, exact reproduction of details (reproduces the finest details)	pasty, certified by DNV	pasty, non-drip, resistant to high temperatures up to +280 °C for a short period of time
Max. layer thickness per work step	20 mm	30 mm	10 mm	20 mm
Pot life*	60 minutes	60 minutes	5 minutes	30 minutes
Final strength after*	24 hours	24 hours	6 hours	24 hours
Temperature resistance	-35 °C to +120 °C	-35 °C to +120 °C	-35 °C to +90 °C	-35 °C to +200 °C briefly up to +280 °C
Specific properties	universal epoxy resin system for repair and maintenance work	casting compound for general repair work	extremely short curing time for quick emergency repairs on unpressurised systems	non-drip and temperature-resistant epoxy resin system for areas exposed to high thermal stresses
Applications	<ul style="list-style-type: none"> <li>- removal of corrosion damage and pitting</li> <li>- repairing holes and blowholes</li> <li>- ideal for use in sewer systems where pipes and pipelines are exposed to strong influences of different substances</li> </ul>	<ul style="list-style-type: none"> <li>- detailed reproduction in model and mould making</li> <li>- production of tools, clamping devices, fastening system, templates, gauges and prototypes</li> <li>- filling of cavities and microporosities on castings and steel parts</li> </ul>	<ul style="list-style-type: none"> <li>- fast repairs and repair work on leaking pipelines, housings, gearboxes and anchorages</li> <li>- production of clamping devices</li> </ul>	<ul style="list-style-type: none"> <li>- can be applied to vertical surfaces</li> <li>- repair and bonding of cast and metal parts</li> <li>- filling blowholes and repairing damage to tanks, engines, car bodies and machine parts</li> <li>- sealing pumps and pipes</li> </ul>



### Application areas:

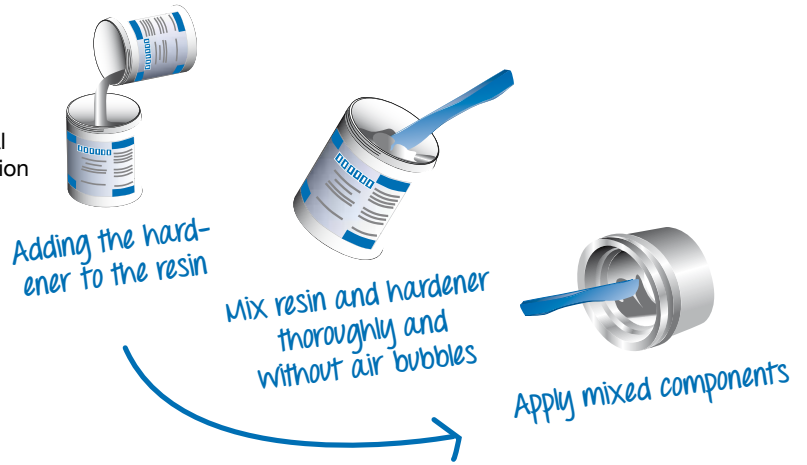
- ▶ automotive industry, agricultural technology, mechanical engineering, food technology, tool and mould construction

### Areas of use:

- ▶ repair of cavitation and corrosion damage, repair of moulds / press moulds and holding devices, pipe repair

### Advantages: selection

- ▶ different fillers
- ▶ different viscosities
- ▶ different curing speeds
- ▶ different temperature ranges



Aluminium			Mineral-Filled		Filler		
high temperature resistance	high thermal conductivity	flowable	underwater application	wear resistant	bronze	stainless steel	titanium
WEICON C	WEICON F	WEICON F2	WEICON UW	WEICON WR2	WEICON BR	WEICON ST	WEICON TI
flowable, self-levelling, temperature-resistant up to +220 °C	pasty, trowelable, non-corrosive	self-levelling, non-corrosive	pasty, adheres to wet and moist surfaces	pasty, trowelable	pasty, non-corrosive, colour: bronze metallic	viscous, trowelable, anti-corrosive	pasty, trowelable, high pressure resistance, temperature-resistant up to +200 °C, short term up to +260 °C
10 mm	30 mm	10 mm	10 mm	20 mm	12 mm	10 mm	10 mm
60 minutes	60 minutes	60 minutes	30 minutes	30 minutes	60 minutes	60 minutes	120 minutes
12 hours	36 hours	72 hours	36 hours	12 hours	12 hours	12 hours	16 hours
-35 °C to +220 °C	-35 °C to +120 °C	-35 °C to +120 °C	-35 °C to +160 °C	-35 °C to +120 °C	-35 °C to +120 °C	-35 °C to +120 °C	-35 °C to +200 °C briefly up to +260 °C
epoxy resin system for areas exposed to high thermal stresses	particularly suited for applications on components made of aluminium, aluminium alloys, magnesium and other light metals	epoxy resin systems for aluminium, aluminium alloys, magnesium and other light metals	fast-curing epoxy resin system for repairs on wet and damp surfaces and under water	wear protection especially for areas where processing casting compounds is not possible	meets the usual requirements of an epoxy resin system and is additionally suitable for decorative applications in the bronze area	ideal for use on machine parts and workpieces made of stainless steel	epoxy resin system for applications requiring high temperature and pressure resistance as well as good chemical resistance
- for large-surface applications - casting of moulds and manufacture of fixing devices and tools	- for filling cavities on light metal castings - for all metals requiring high thermal conductivity - reconstruction of components	- casting of models, moulds and templates - repairing porous and damaged castings - manufacture of prototypes and holding devices - pouring out dies to check for accuracy	- repairs and repair work e.g. on pipes, pumps, tanks and containers	- repair of conveyors, guides and sliding ways - protection against wear on metal surfaces exposed to high abrasion and erosion - wear-resistant base layer before the final coating with WEICON Ceramic BL	- for filling blowholes and rebuilding bronze parts and bronze cast parts - reproduction of bronze cast parts - use throughout the marine and inland waterway sectors as well as in many industrial areas	- versatile repairs and touch-up work on tanks, pipes, vessels, funnels and flanges - wide-ranging areas of application, such as the chemical industry, marine and inland shipping sectors, waste water plants and paper industry	- repairs to pumps, valves, wear plates, ball bearing seats, shafts, propellers and exhaust systems - lining of pump housings and plain bearings



Sealing of a truck bed  
WEICON HP



Bonding stainless steel filter caps  
WEICON C

# ADHESIVE

## Application areas:

- ▶ mechanical engineering, prototyping, building technology

## Areas of use:

- ▶ building maintenance, prototype construction, series production

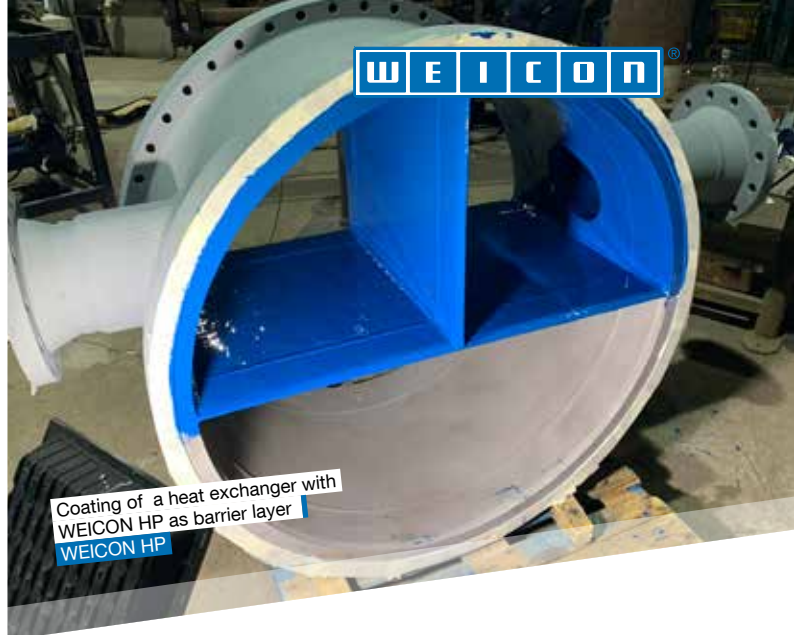
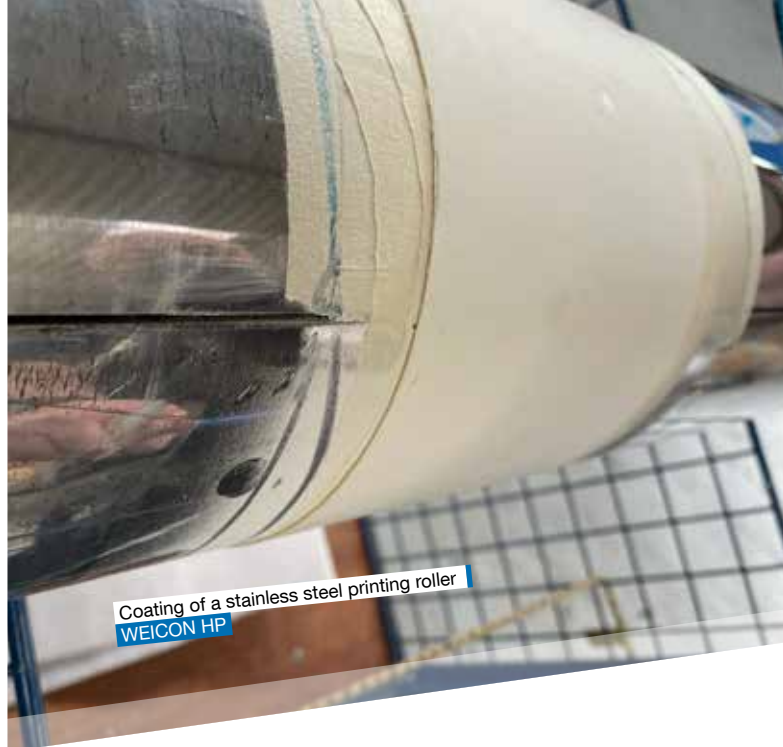
## Advantages: selection

- ▶ high temperature range
- ▶ high initial strength
- ▶ high strength

Find our application videos on YouTube!

### Contour Spatula Flexy

Versatile use, e. g. for coating and processing 2C adhesives. The spatula is perfect for applying adhesives on large or small surfaces. The spatula is made of wear-resistant polyamide.



	Aluminium		Mineral-Filled	Steel	Stainless Steel
	high temperature resistance	high thermal conductivity			
	WEICON C	WEICON F	WEICON HP	WEICON HB 300	WEICON ST
Keyfacts	flowable, self-levelling, temperature-resistant up to +220°C	pasty, trowelable, non-corrosive	pasty, trowelable, impact-resistant, adheres to wet and moist surfaces	pasty, non-drip, resistant to high temperatures up to +280 °C for a short period of time	viscous, trowelable, anti-corrosive
Max. layer thickness per work step	10 mm	30 mm	10 mm	20 mm	10 mm
Pot life*	60 minutes	60 minutes	30 minutes	30 minutes	60 minutes
Final strength after*	12 hours	36 hours	36 hours	24 hours	12 hours
Temperature resistance	-35 °C to +220 °C	-35 °C to +120 °C	-35 °C to +160 °C	-35 °C to +200 °C briefly up to +280 °C	-35 °C to +120 °C
Specific properties	for use in industrial areas that are subject to high thermal stresses	- particularly suited for applications on components made of aluminium, aluminium alloys, magnesium and other light metals - adhesive for all metals where thermal conductivity is required	epoxy resin system with very high adhesive strength, impact strength, elongation at break and residual elasticity, which can also be used as an adhesive on wet and damp surfaces and under water	epoxy resin system for areas exposed to high thermal stresses	repair, protection and bonding of stainless steel machine parts and workpieces
Applications	adhesive for large-surface applications	- for filling cavities on light metal castings - reconstruction of components	well suited for bonding, repairs and for lining heavily stressed equipment	- can be applied to vertical surfaces - repair and bonding of cast and metal parts - filling blowholes and repairing damage on tanks, engines, car bodies and machine parts - sealing pumps and pipes	- versatile repairs and touch-up work on tanks, pipes, vessels, funnels and flanges - wide-ranging or versatile areas of application, such as the chemical industry, marine and inland shipping sectors, waste water plants and paper industry



# WEAR, EROSION AND CORROSION PROTECTION



Maintenance of a vibration plate in mining  
**WEICON WP**



Protective coating of the elevator buckets in a mine  
**WEICON BL**



Catamaran stern repair  
**WEICON HP**

## Application areas:

- ▶ mining, conveyor technology, construction industry, marine

## Areas of use:

- ▶ protection against cavitation and corrosion (pump, chute and bulk coating)
- ▶ protection against slipping and hitting movements

## Advantages: selection

- ▶ different fillers (coarse and fine particles)
- ▶ different consistencies
- ▶ different strengths (rigid to impact-resistant)
- ▶ protection against abrasion or erosion by coarse or fine particles

IN COMBINATION WITH WEICON CERAMIC BL, WEICON GL AND GL-S

## **i** ARE PERFECT AS CONTROL LAYER





	Flowable				Pasty	
	system build-up				for slipping movements (e.g. dust, fine particles)	in case of impact (e.g. debris, coarse dust)
	surface finish	sprayable with short processing time	brushable with longer processing time	high temperature resistance		
	  <b>WEICON Ceramic BL</b>	<b>WEICON GL</b>	<b>WEICON GL-S</b>	<b>WEICON Ceramic HC 220</b>	<b>WEICON Ceramic W</b>	<b>WEICON WP</b>
Keyfacts	flowable, extremely wear-resistant, temperature-resistant up to +180 °C	flowable, sprayable, short processing time, extremely wear-resistant, temperature-resistant up to +180 °C	flowable, brushable, longer processing time, temperature-resistant up to +180 °C	flowable, surface coating, temperature-resistant up to +220 °C	pasty, wear-resistant	pasty, high-strength, ceramic-filled, extremely wear-resistant, viscoplastic and impact-resistant
Filler	silicium carbide, zirconium silicate	mineral-filled	silicium carbide, zirconium silicate	silicium carbide, zirconium silicate	mineral-filled	ceramic beads
Max. layer thickness per work step	10 mm	10 mm	10 mm	10 mm	10 mm	20 mm
Pot life*	55 minutes	30 minutes	55 minutes	45 minutes	120 minutes	30 minutes
Final strength after*	12 hours	8 hours	12 hours	10 hours	24 hours	36 hours
Temperature resistance	-35 °C to +180 °C	-35 °C to +180 °C	-35 °C to +180 °C	-35 °C to +220 °C	-35 °C to +200 °C briefly up to +260 °C	-35 °C to +120 °C
Specific properties	WEICON Ceramic BL is filled with silicium carbide and zirconium silicate, resistant to chemicals and offers extreme wear protection and high abrasion resistance. Wear-resistant final coating for all plastic metal types	- control layer and primer for absorbent substrates in combination with WEICON Ceramic BL - provides high abrasion resistance and serves as wear protection for heavily used surfaces - high adhesive strength and chemical resistance	- control layer and primer for absorbent substrates in combination with WEICON Ceramic BL - can be used wherever spraying is not possible - extreme wear protection, high abrasion resistance and chemical resistance	- high abrasion, protection for heavily stressed surfaces - temperature-resistant up to +220 °C - high adhesive strength and chemical resistance	non-drip wear protection with high abrasion resistance and temperature resistance	protective coating for heavily stressed surfaces with high strengths against wear and abrasion
Applications	- lining of heavily stressed pump housings - protection for slide bearings, slides, funnels, pipes and tanks - repair of castings, valves and blower fans - is suitable for a system build-up in combination with WEICON GL and WEICON GL-S as control layer	- lining of heavily stressed pump housings - protection for slide bearings, slides, funnels, pipes and tanks - repair of castings, valves and blower fans	- lining of heavily stressed pump housings - protection for slide bearings, slides, funnels, pipes and tanks - repair of castings, valves and blower fans	- lining of heavily stressed pump housings - protection for slide bearings, slides, funnels, pipes and tanks - repair of castings, valves and blower fans	- bonding or lining of aluminium oxide bricks in mill construction - lining of heavily stressed pump housings - wear protection for sliding bearings, slides and pipes	- prevents metal loss and, depending on the application, replaces common wear-resistant alloys, ceramic tiles, rubber linings or welded metal coatings - reconstruction of worn metal surfaces - wear-resistant coating with particularly good protection against wear caused by laterally impacting particles



Repair of a water boiler  
WEICON WR

# CASTING, RELINING AND GAP COMPENSATION

**Application areas:**

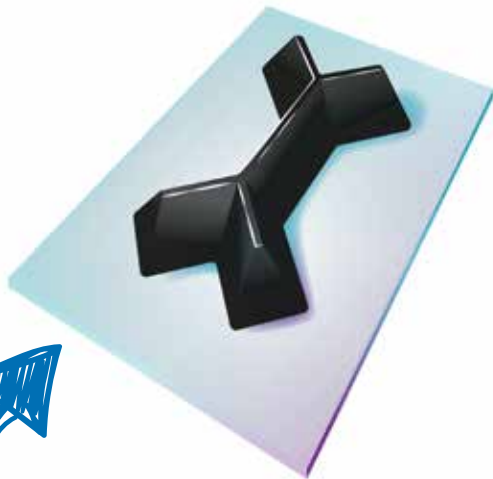
- ▶ bridge repair, steel construction, track construction, crane systems

**Areas of use:**

- ▶ abutment repairs, levelling, levelling of unevenness, pouring/foundation work

**Advantages:**

- ▶ high flowability
- ▶ high pressure resistance
- ▶ anti-corrosive
- ▶ high adhesion



roof-shaped material application of a pasty epoxy resin for uniform material expansion








Gap compensation on a flange joint  
WEICON WR



Lining a machine robot stand  
WEICON CBC



	Pasty		Flowable		
	steel-filled	mineral-filled	wear resistant	repair	foundation
	WEICON A	WEICON WR2	WEICON WR	WEICON F2	WEICON CBC 
Keyfacts	pasty, trowelable, highly filled, certified by the DNV	trowelable, wear-resistant, highly abrasion-resistant	liquid, steel-filled	aluminium-filled, non-corrosive, anti-magnetic	vibration-resistant, impact-resistant, anti-corrosive, anti-magnetic, certified by ABS
Filler	steel	mineral-filled	steel	aluminium	aluminium
Max. layer thickness per work step	20 mm	20 mm	10 mm	10 mm	30 mm
Pot life*	60 minutes	30 minutes	40 minutes	60 minutes	30 minutes
Final strength after*	24 hours	12 hours	16 hours	72 hours	24 hours
Temperature resistance	-35 °C to +120 °C	-35 °C to +120 °C	-35 °C to +120 °C	-35 °C to +120 °C	-40 °C to +160 °C
Specific properties	ideally suited for levelling unevenness as well as universal use for repair and maintenance work	ideal for use in gap levelling where processing casting compounds is not possible	for areas where metal parts are exposed to strong wear due to friction	epoxy resin systems for aluminium, aluminium alloys, magnesium and other light metals	<ul style="list-style-type: none"> <li>- has a low viscosity, is very flowable and self-levelling</li> <li>- provides a permanent high-static stability as well as ageing resistance</li> <li>- high pressure and chemical resistance</li> <li>- temperature-resistant +160 °C</li> </ul>
Applications	<ul style="list-style-type: none"> <li>- can be applied to vertical surfaces</li> <li>- removal of corrosion damage and pitting</li> <li>- repairing holes and blowholes</li> <li>- ideal for use in sewer systems where pipes and pipelines are exposed to strong influences of different substances</li> </ul>	<ul style="list-style-type: none"> <li>- repair of conveyors, guides and sliding ways</li> <li>- protection against wear on metal surfaces exposed to high abrasion and erosion</li> <li>- wear-resistant base layer before the final coating with WEICON Ceramic BL</li> </ul>	<ul style="list-style-type: none"> <li>- repairs and casting of shafts</li> <li>- for casting bearings, cutting and punching tools</li> <li>- for the production of casting and profile milling models as well as moulds</li> <li>- backfilling of machines and foundations</li> <li>- wear-resistant base layer before the final coating with WEICON Ceramic BL</li> </ul>	<ul style="list-style-type: none"> <li>- casting of models, moulds and templates</li> <li>- repairing porous and damaged castings</li> <li>- manufacture of prototypes and holding devices</li> <li>- pouring out dies to check for accuracy</li> </ul>	<ul style="list-style-type: none"> <li>- serves as a replacement for fittings, such as metal or other materials, and ensures direct contact to foundation plates</li> <li>- shimming and backfilling of difficult to align equipment in the industrial and maritime sector</li> </ul>

**WEICON GmbH & Co. KG**  
(Headquarters)

Königsberger Str. 255 · DE-48157 Münster  
P.O. Box 84 60 · DE-48045 Münster  
Germany  
phone +49 (0) 251 9322 0  
WhatsApp + 49 (0) 251 9322 393  
info@weicon.de

**JELN GmbH**

Vogelsrath Weg 25 · DE-41366 Schwalmatal  
Germany  
phone +49 (0) 2161 898 857  
info@jeln.de · www.jeln.de

**WEICON Middle East L.L.C.**

Jebel Ali Ind Area 1  
P.O. Box 118 216 · Dubai  
United Arab Emirates  
phone +971 4 880 25 05  
info@weicon.ae

**WEICON Inc.**

20 Steckle Place · Unit 20  
Kitchener · Ontario N2E 2C3 · Canada  
phone +1 877 620 8889  
info@weicon.ca

**WEICON Kimya Sanayi Tic. Ltd. Şti.**

Orhan Gazi Mahallesi 16. Yol Sokak No: 6  
34517 Hadimköy-Esenyurt · Istanbul  
Türkiye  
phone +90 (0) 212 465 33 65  
info@weicon.com.tr

**WEICON Romania SRL**

Str. Podului Nr. 1  
547176 Budiu Mic (Targu Mures) · Romania  
phone +40 (0) 3 65 730 763  
office@weicon.com

**WEICON SA (Pty) Ltd**

Unit No. D1 · Enterprise Village  
Capricorn Drive · Capricorn Park  
Muizenberg 7945 (Cape Town) · South Africa  
phone +27 (0) 21 709 0088  
info@weicon.co.za

**WEICON South East Asia Pte Ltd**

7 Soon Lee Street  
#01-11 iSPACE · Singapore 627608  
Phone (+65) 6710 7671  
info@weicon.com.sg

**WEICON Czech Republic s.r.o.**

Teplická 305  
CZ-417 61 Teplice-Bystřany  
Česká republika  
phone +42 (0) 417 533 013  
info@weicon.cz

**WEICON Ibérica S.L.**

Av. de Somosierra 18, Nave 6  
San Sebastián de los Reyes  
28703 Madrid · Spain  
phone +34 (0) 914 7997 34  
info@weicon.es

**WEICON Italia S.r.L.**

Via Capitano del Popolo, 20  
16154 Genova · Italy  
phone +39 010 2924 871  
info@weicon.it

[www.weicon.com](http://www.weicon.com)



Management System  
ISO 9001:2015  
ISO 14001:2015

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WEICON Handbook

**Plastic Metal**

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