

- **Leading subcontract company  
in cast metal impregnation  
in Scandinavia/ Norden**

**Soundseal** is today the leading subcontract cast metal impregnation company in Scandinavia/Norden. The name **Soundseal** has its origin from 1979, but **Soundseal** has worked with the creator of the PC-504 system and range of sealants since 1973. The impregnation facility at **Soundseal** impregnates small and gross porosity. In variation of cast metal and porous materials. The process involves an environmental friendly recycling sealant in a top load semi-automatic process plant. The system is effluent free, the cold wash water and the hot cure water both have an indefinite life. This is achieved by working with the **Aqua Save** technology, developed by the same people behind the sealant and PC-504 system. **Soundseal** also find a subcontract facility. Miscellaneous component are washed and dried using innovated environmental friendly aqueous cleaner – the wash water also has an indefinite life. This achieved using the **Aqua Save** technology. **Soundseal** use special chemicals supplied by IMP GmbH, an ISO 9000 controlled company. All process at **Soundseal** are carried out in accordance to ISO 9000 and ISO 14001. Among our customers we would like to mention: ABB, SAAB Dynamics, Parker Hannifin, Scania Trucks, Volvo Cars, Volvo Trucks, Borg Warner, Dresser Wayne.



*Gunnar Nilsson,  
founder*

After many years in the foundry business Gunnar Nilsson founded Soundseal AB in 1979. Couple of years before in 1973 Gunnar met Peter Young at an exhibition in London and a discussion about porosity started. The meeting with Peter Young resulted in the introduction of the PC504 system in Scandinavia/Northern.

### **Impregnation, a recognized part of the production**

Today it is fully possible to impregnate/seal all kinds of cast metals, plastics and ceramics. The porosity that will be impregnated/sealed is created during casting of the component and could be caused by contamination of the cast or through the solidifying process of the metal.

The porosity appears mainly when machining of the cast component is made. These porosities can cause leakage through the wall of the casting, for an example a cast pump housing. The porosities can also cause problems during surface treatment of the machined casting which will appear as a rough surface or even patchiness.

Looking at the foundry industries achievement to decrease the material weight of castings, many iron alloy castings have often being replaced by aluminium alloy castings, and to even decrease machining costs a development of complicated shapes of the castings with sections of thin walls has increased. This makes the casting more difficult with increased risk of porosity.

Before in time when there were no cost efficient way of impregnate this kind of porosity much effort and work went to design castings that could live up to the requirement of tightness, the amount of scrap castings were quite high.

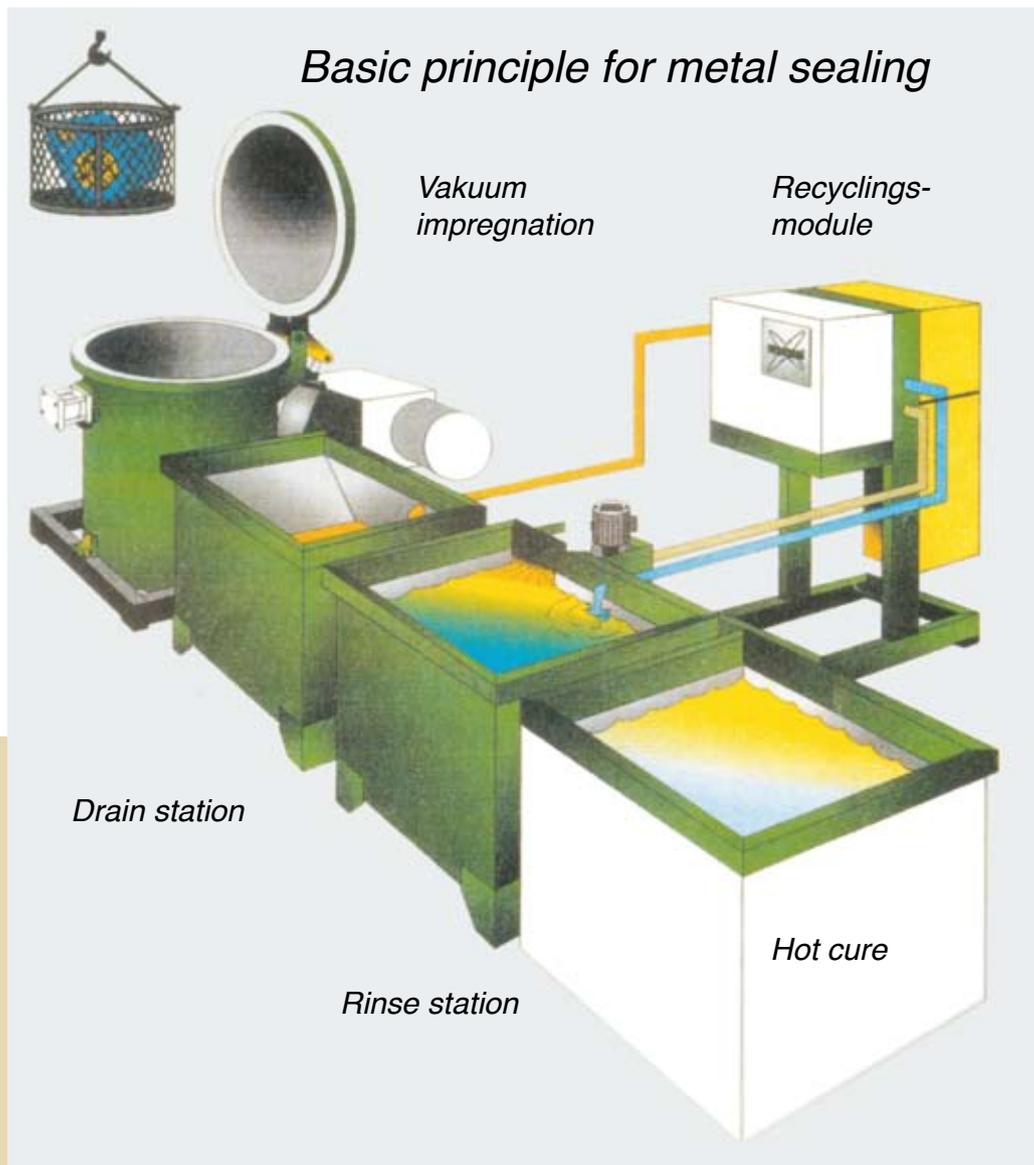
The impregnation sealants lives up to the quality and environmental demands that the industry ask for and are today a step in the manufacturing process of the modern world wide foundry industry.

**Our process is a high technological operation with an excellent sealing capability.**

- Temperature range: -150° up to +200°
- Air pressure tightness: 1.000 bar
- Chemical resistance
- Fluorescent
- Corrosion protection
- Documentation

**Approvals:**

- Underwriter's Laboratory Inc. MH 16455
- Lloyd's Reg/Ship. MAT/05N1002 and WRAS (water quality) approved BS6920:1996.
- IMP:s impregnation process and high quality is guaranteed by an international standard: /DIN EN ISO 9001:2008/.
- GWI Gaswärmeinstitut e.V., Essen/Germany.
- Hygiene-Institut des Ruhrgebietes, Gelsenkirchen/Germany.
- NSF International, Ann Arbor/USA.
- Lloyd's Register, London/England.
- Department of the Navy, Washington D.C./USA (MIL-I-17563B+C).





*Packing of impregnated castings*



*Visual inspection of castings*

### **Additional uses**

Metal impregnation is well known as an application to seal leakage in castings for both gases and liquids.

### **Corrosion protection before surface treatment**

Impregnation of surface porosity before surface treatment protects from rough surface and patchiness due to pickling liquid trapped inside the porosity.

### **Sintered metal**

Impregnation of sintered metal is positive in two ways. Firstly, the surface treated by impregnation prevents rough surface or patchiness, which is a problem with painted or plated items. Impregnation will reduce the effect the surface porosity has for painted and plated components.

Secondly, if the components are to be machined, the tooling life will be substantially improved, which will give major economical savings.

### **Liner bushings, cylinder liners and inserts**

Castings with liner bushings, cylinder liners and inserts can be impregnated and in some cases this will increase the strength in the bond.

### **Hard soldering and welding**

Components such as heat exchangers are often soldered or welded. The soldered or welded seam often contains micro porosity that causes leakage of cooling agent during pressure. These leakages are difficult to seal when the cooling flanges prevents access for the resin. Vacuum impregnation offers an excellent solution for this kind of problem.

### **Microwaves**

Metal impregnation is also used to prevent microwave leakage in waveguide components.



## Porosity in castings can be divided into three categories

These types of porosities could appear in the same casting.

### Enclosed Porosity

A problem only if opened up by machinery operations.

### Blind Porosity

Can cause spotting out of plating and blow out of paint finishes.

### Through Porosity

Which will allow the passage of liquid or air through the wall. It is the latter that concerns us most!



### Sampling of the process

*A series of routine tests are made every morning before impregnation starts, the tests include: The gel test, the viscosity, the specific gravity of the resin. The sealant content and the specific gravity of the cold wash and the chemical balance of the hot cure water.*

In **Soundseal's** business range also provides information of impregnation plants and washing machine for the industry. **Soundseal** have worked with the creator of the PC-504 system since 1973.

Our business partners have simultaneously continually developed both the impregnation resins, the ancillary chemicals and the impregnation equipment that are the benchmark for quality and cost efficiency worldwide.

With the new generation of impregnation plants the impregnation cycle runs in one single chamber, this saves floor space and the technology allows the process chemicals to be concentrated around this process chamber.



*Example of castings suitable for impregnation*



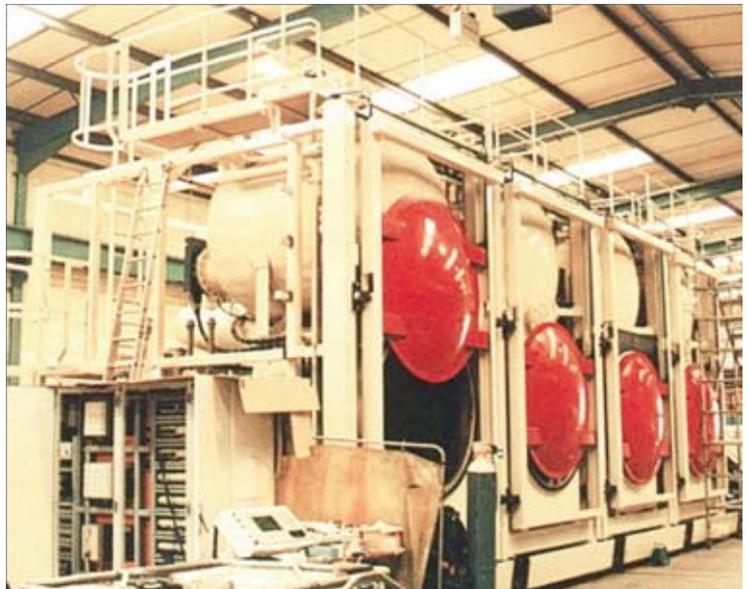
*Process basket ready for cold wash station after impregnation in autoclave*

## The advantage of the new generation of impregnation plants

- One single chamber process plant for metal impregnation..
- Fully automatized process.
- Compact design - less than 2 m<sup>2</sup> floor space.
- High recycling rate of sealant.
- Very low running cost.
- Excellent sealing performance.
- No effluents.
- No cold wash module, saves process water, chemicals and maintenance.
- Ideal for application in automated production lines.



*Our continuously updated process plant*



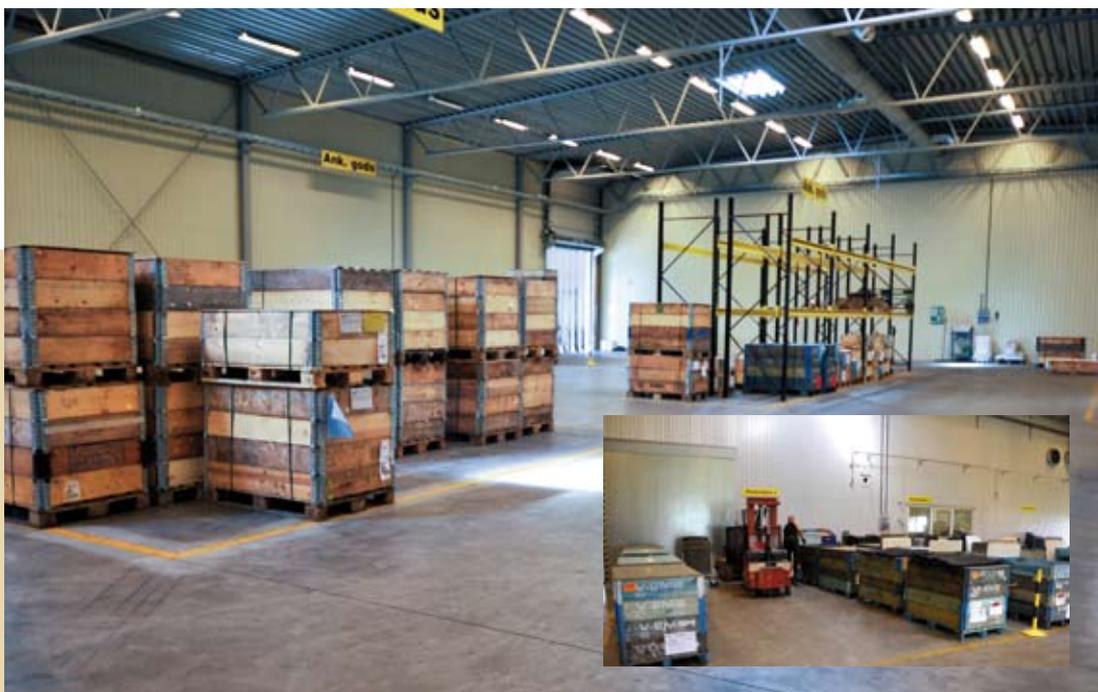
*Largest fully automated front load impregnation plant in Europe, located at Volvo Car block line Skövde. Continual processing from 1996 to 2016.*



*Impregnated castings in process baskets ready for visual inspections prior to returning to the customer*



*Re packed, well wrapped with protecting plastic bags according to customer's demands*



*Arriving and departure of customer's shipment in our storage area*

# Environmental friendly - closed system

**IM4500** Surpasses all the existing sealants on the market both in application and environmental point of view. And with a conjunction with a **Aqua Save** unit even more.

**IM4500** Stands out from porosity sealant being predominantly insoluble in water. More than 85% of the sealant is Recycled and returned to the autoclave, sealant quality is retained indefinitely.

**IM4500** Through the recycling process the volume of sealant loss in effluent is reduced drastically and sealant consumption is approx. 20-30% of a standard sealant.

**IM4500** The Soundseal facility is an environmentally friendly process for impregnation of porosity in cast metal components and miscellaneous parts.





# Soundseal ab



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