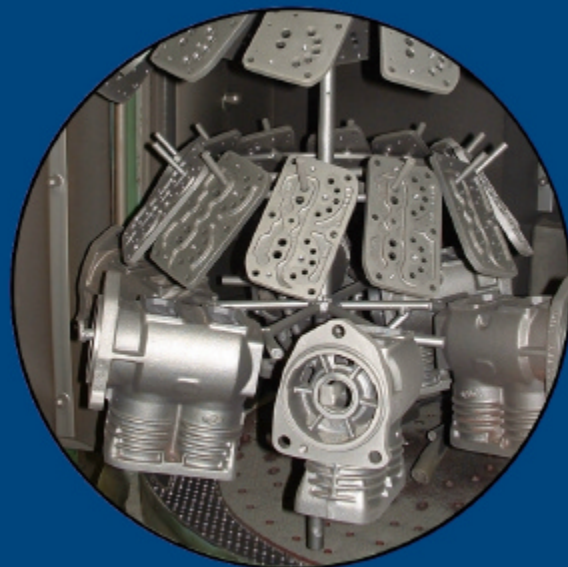


Remanufacturing Portfolio



Stripping:

Product assemblies of up to 80kg can be handled safely in the Knorr-Bremse stripping section where returned 'exchange' units are dismantled for the recovery of reusable parts.

All parts not suitable for remanufacture, such as rubber seals, diaphragms, etc. are disposed of by specialist licensed waste disposal contractors.

All metal components including large fasteners, brackets, bearings casings etc. can be reclaimed and reused (subject to approval).

Any rejected or damaged ferrous and non ferrous metal components are sent away for metal recycling.



Washing:

At the heart of the remanufacturing process are two high capacity washing machines, each with 1300mm square work baskets which can hold components up to 450mm high.

To deal with the extreme contamination of returned units high temperatures and an aggressive wash media is required.

A specialist degreaser is used which is heated to 85 deg C and then delivered via high pressure pumps to the spray nozzles.

Cycle times of around 15-20min per load are sufficient to remove all but the most stubborn of debris. A weaker clean wash solution is used as a final rinse to the products, leaving the products free of surface contamination ready for the next stage of the process.

A wide range of material can be cleaned in these machines from ferrous, non ferrous to plastic (providing the form is stable at the temperatures involved).



Furnaces:

Cast iron and steel generally require a different form of treatment than most non ferrous materials. These components are often hot dipped or electrophoretically painted. Before reprocessing this paint must be removed.

The solution to this is to burn off the paints leaving a bare metal surface which can easily be reconditioned.

During this burn process any oils, grease or other forms of contamination are also incinerated.

Knorr-Bremse has two 800 deg C. blast furnaces, each capable of holding a stillage of material.

Four hour cycles are required for this process, with no limit to size or shape of components. Due to the high temperatures involved, some thin materials may not be suitable for this process due to possible distortion.



Shot blasting:

Using the highest grade of shot available, the shot blast facility is amongst the leaders in this form of reprocessing.

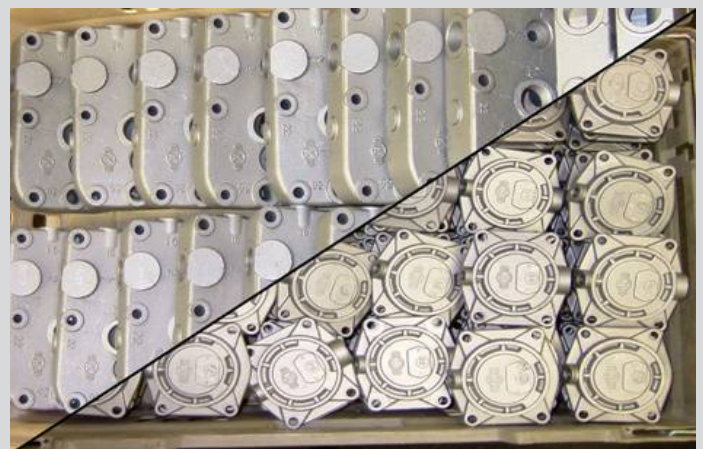
Most materials can be treated from cast iron to aluminium, and in around 4 – 5 minutes per load, component surfaces can literally be regenerated “as new”.

The finishes achieved by this process are extremely smooth and leave the components in the ideal condition for repainting or in the case of aluminium, can be left in the natural as-cast state.

Gasket faces are left with a perfect finish to create leak proof joints and machined faces have the absolute minimum of material removed leaving the original geometry intact.

Machined bores may need only the lightest of skimming to be reclaimed.

Small, simple or light components can be ‘tumbled’ whilst larger, heavy or complex components are fixtured and rotated in the shot path.



Re-processing & Assembly:

Knorr-Bremse can offer a wide range of re-processing options to complete the remanufacturing cycle, ranging from the more traditional machines - milling, grinding, drilling, etc. to flexible modern equipment including :

Twin pallet multi axis
Horizontal & Vertical CNC
machine centres.

CNC lathes

Diamond Honing

Rotary welding

Painting services can also be provided in-house with two waterwash spray booths available for use.

A purpose built drying room is used to accelerate the drying process.

If required, Knorr-Bremse can complete the entire remanufacturing process by final re-assembly & packaging of your product.

Our own assembly lines are configured in line with industry 'best practice' - featuring single piece flow and 'U' shape lines achieving optimum productivity levels and lead times whilst operating with minimum inventory in a 5S environment.

Depending on the complexity of the assembly, fixturing and purpose designed testing facilities may need to be developed for this process to be undertaken.

Summary:

Whether you require simply reclaim of valuable components for re-use or a full remanufacturing and assembly service, Knorr-Bremse can provide the solution.

Accredited to QS9000, ISO/TS16949 and the environmental standard ISO14001, you can be assured that Knorr-Bremse has the knowledge, capability and experience to remanufacture your products to the highest possible standards.

To discuss your individual requirements, please contact :

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