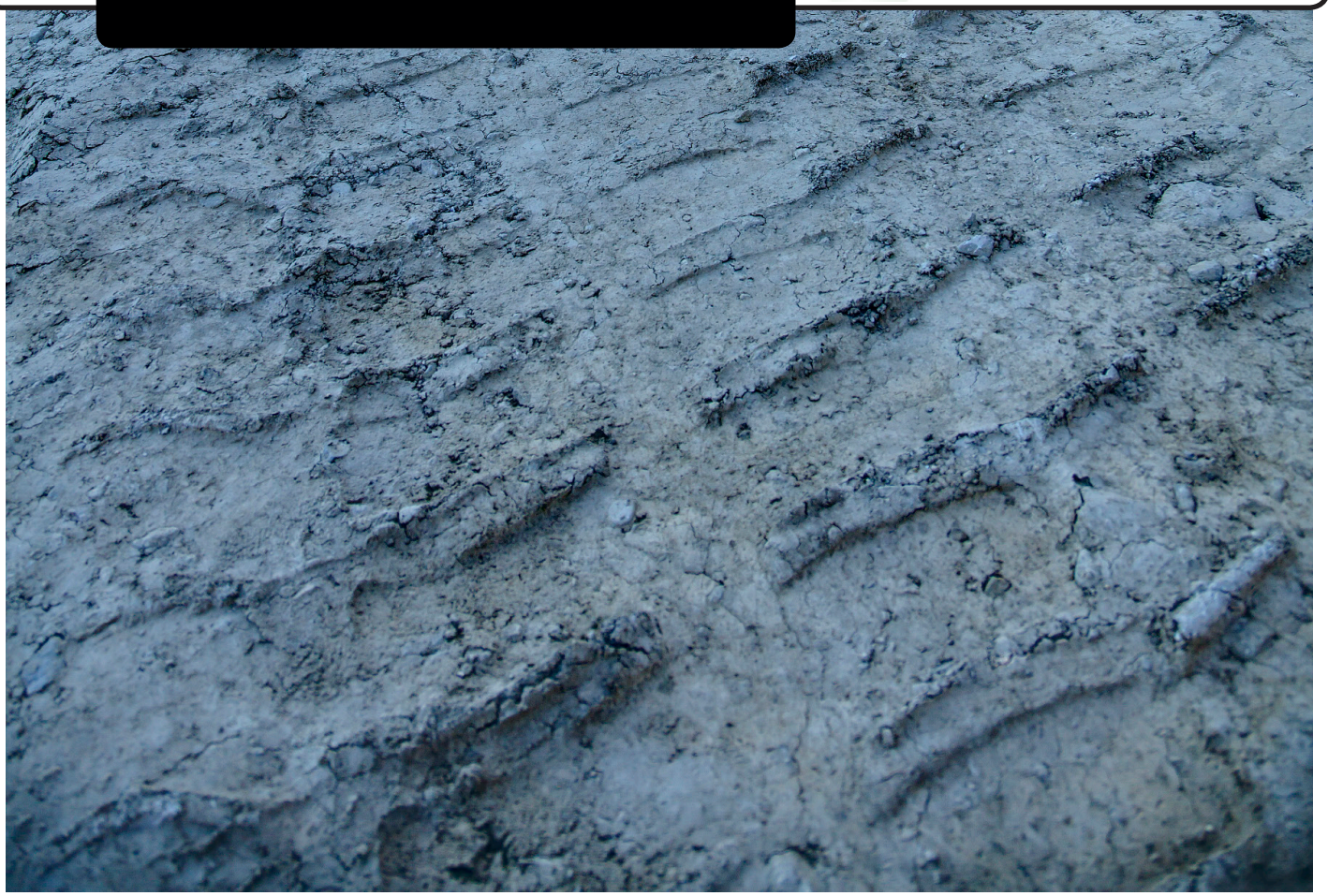
MINING & MINERAL

THURNE
TEKNIK



Our delivery program is very suitable for certain applications within the field of Mining and Mineral.

In both dry handling and wet handling we can be your partner for the most appropriate process solutions.

"Nature teaches more than she preaches. There are no sermons in stones. It is easier to get a spark out of a stone than a moral."

John Burroughs

Dry Handling

SIEVES AND CLASSIFIERS

There are occasions where you need to make sure that there are no impurities in your material and other occasion where you need to classify your product in different fractions. We have a full range from Vibrating Energy Separators to rotating inline security screeners.

Technical details:
Capacities from 1 kg/h to 50 tons/h

EMPTYING AND FILLING

Emptying stations are used to automatically empty Big Bags and small sacks in a dust-free and safe way, while filling stations are used to automaticaly fill Big Bags - guaranteeing an operator-secure environment.

Technical details:
Stations in different materials, for different demands and different designs (hygienic version) for tailor made solutions are available.

PRESSURE CONVEYING TECHNOLOGY

Complete systems and individual components for wear resistant pneumatic transfer of abrasive mineral powders. Rotary valves and diverter valves in ceramic, tungsten carbide or hard chrome.

Technical details:
Throughputs up to 300.000 kg/h

FLUID BED DRYERS

Fluid Bed Dryers can be used to process all kinds of granular products with a wide range of grain sizes and are used for example drying, cooling, baking, pasteurizing and much more (food, minerals, chemicals, etc.)

Technical details:
The particles can be dried to > 90% dry solids (DS), the exhaust gas flow is extremely low (approximately 100-200 m3/h).

MILLING & SIEVING

Milling, micronizing and security screening of wet or dry ingredients and products is possible to do in a contained way, minimizing dust and product exposure by using our in-line cone mills and sieves.

Technical details:
The mills/sieves can be connected with split valves or placed directly in-line for active transport through the equipment with vacuum transport systems. Capacities from 1kg/h to 100 t/h.

Wet Handling

GLASS REACTORS & REACTOR SYSTEMS

Borosilicate glass is transparent, corrosion resistant and catalytically inert and has a smooth and easily cleaned surface. These features make the material well suited for synthesis of fine chemicals and API's.

Technical details:
Reactor size from 1 to 630 L (with glass or glass-lined reactor bottom part) available either as stand-alone unit or as complete skid mounted system with ATEX certification and CE labeling.

GLASS-LINED AND METAL REACTORS

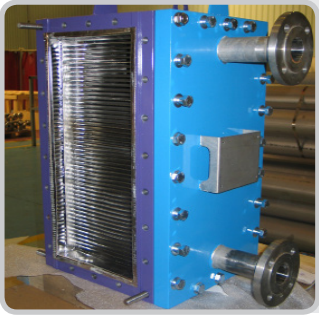
With a glass-lined reactor, the transparency is lost and instead pressure resistance is gained. Other materials such as steel alloys or reactive metal solutions (Ti, Ta, Zr) can be offered.

Technical details:
DIN range of glass-lined reactors of type AE, BE and CE covers nominal sizes from 63 L to 40 m3 and OPX (Optimix) range with three integrated baffles covers the same size range. Metal reactors are flexible in size and design.

FILTER PRESS

For solid/liquid separation using the principle of pressure drive, provided by a slurry pump. Basic components are the frame, filter plate pack, closing device, and optional additional features.

Technical details:
Sizes 250 x 250 to 2,600 x 2,600 mm and filtration pressures up to 60 bar.
Available from simple manual to fully automated equipment designs.



HEAT EXCHANGERS

Full range of heat exchangers covering blocks, plates and shell and tubes. Plate types include both gasketed and welded versions.

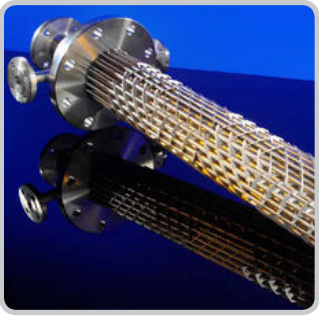
Technical details:
Available in many different materials, such as Graphite, SiC, Tantalum, Zirconium, Titanium, Nickel alloys, Stainless steel and Carbon steel.

SOLID/LIQUID SEPARATION

Mechanical separation of solids from a liquid phase is a common unit operation and a centrifuge with a filter media cloth offers a way of doing so with efficient washing of the product cake and high throughput.

Technical details:
Continuous operation with a pusher centrifuge or operation in cycles with a vertical or horizontal peeler machine or a horizontal pharma centrifuge.

Components



STATIC MIXERS

The static mixer is a good choice for mixing fluids and/or gases directly in the pipeline. The mixer has no moving parts, but uses the flow energy of the media to do the mixing.

Technical details:
Diameters from 3 mm to several m. Materials available are steels (inox, carbon steel, high-grade metals) and plastics (PTFE, PP, PE, PVC).

BURSTING DISCS

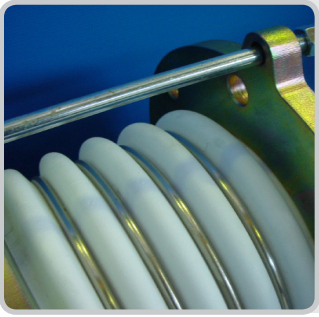
Properly designed and manufactured bursting discs offer your process equipment and piping an "engineered weak spot" to protect it from unexpected pressure variations. For corrosive processes, graphite bursting discs are a good alternative.

Technical details:
The discs come in a wide range of dimensions, materials and bursting pressures from very low pressures up to >5000 bar.

RANDOM PACKING

Column internals of type random packing are often used for absorption, distillation and extraction applications. One very typical specific application is cleaning of gases by scrubbing.

Technical details:
Several types of packing, i.e. Raschig Rings, Pall Rings, Saddles, Tall Pak and Medal Pak in ceramic, metal or plastic material. Typical size range is between 3 mm and 90 mm.



BELLOWS/COMPENSATORS

Bellows and compensators remove mechanical stress on piping and equipment and make installation procedures easier. Bellows made in PTFE are excellent for use in any pipelines for aggressive liquids or gases.

Technical details:
Standard sizes available in DN20 – DN600 with various flange sizes. Different models with internal and/or external reinforcements for full vacuum resistance and high pressure resistance.

PROCESS CARTRIDGE FILTERS

Filters provide security to your process and remove any unwanted particles from your process streams. The filter types vary from nominal rated depth filters to very highly controlled membrane filters.

Technical details:
Filter cartridges from 2.5" to 40" and pore size ratings from 0.1 um up to 1000 um are available. The materials vary from PP, PE, Nylon and cellulosic materials (depth filters) to PTFE and PES membranes.

Service & Support

SAFETY DAYS

We can provide a free of charge audit at your site to make a report on all rupture disc applications in order to verify that the right type of rupture disc is chosen for each application. This audit also includes training for your staff in rupture disc technology and contains guides for the design of safety systems.

FILTRATION SCHOOL

It is one thing to understand a filter itself as a product, and it is another thing to understand how it works when fulfilling a filtration task. Therefore, Thurne Teknik offers a basic filtration course in order to explain the theoretical background of separation by filtration. The theory is varied with practical examples. The duration of the course is half a day.

COURSE FOR USERS OF GLASS-LINED EQUIPMENT

The target group for the course consists of users of glass-lined equipment, i.e. process operators, process engineers and maintenance staff. During the course, we will learn about enamel, how glass-lined equipment is manufactured and practical advice will be given by using examples from reality. The duration of the course is half a day.

INSPECTION OF STATUS OF ENAMEL

Glass-lining is controlled visually and by using Quick Glass Test, which works with the principle of measuring a leak rate of current that depends of the size of the glass failure. Test results and observations are compiled in a formal inspection report issued by Thurne Teknik.

TEST UNITS

When making decision on what powder processing equipment to use is always our recommendation to perform tests to evaluate the technology as well as find out capacities and need for conceptual changes in the system. Therefore we have at Thurne Teknik several machines for rental for making trails on your site. Contact our office's for more information about rental proposals and schedules.

SUPPLIERS
Mining & Mineral

THURNE TEKNIK

Some equipment may not be available from Thurne Teknik in certain geographical areas.

SOLUTIONS WITH PROCESS UNDERSTANDING.

Traditionally, we are strong in process equipment for corrosive environments and therefore the purification of precious metals has been in our focus for many years.

Today, we even cover applications within the Mining and Mineral Industry with solutions both for dry and liquid handling. Typical examples are Heat Exchangers for heat recovery, systems for closed handling of toxic powder, scrubber solutions and sieving of particles.

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