MATERIALS HANDLING SOLUTIONS
Our Engineering Know-How Makes All the Difference
Specialists in Materials Handling

A Network of Experience and Knowledge

Clyde Bergemann offers a worldwide network of experience and knowledge and provides a comprehensive portfolio of systems and solutions for materials handling applications.

Global Centre of Competence for Materials Handling

Clyde Bergemann Materials Handling (CBD), headquartered in Doncaster/UK is the group’s global centre of competence for materials handling solutions.

Our expertise in pneumatic conveying utilises both positive and negative pressure dense and lean phase conveying techniques.

Our service is characterised by an emphasis on delivery, a proactive attitude, excellent communication skills, robust planning and management processes, professionalism, and customer focus.

Centre of Competence for Mechanical Bulk Materials Handling

Clyde Bergemann EP Tech (CBEPT) based in Italy is the centre of competence for mechanical bulk material handling.

CBEPT’s main business is the complete design, engineering, supply and commissioning of mechanical bulk materials handling systems for biomass, waste, ash, mill rejects, limestone, gypsum, cement and coal.

A Complete Range of Solutions for an Efficient business.

Both Clyde Bergemann Materials Handling and Clyde Bergemann EP Tech are completely oriented to the needs of the customers, offering a complete and efficient range of solutions.

Our understanding of the design and construction process from initial survey to ultimate delivery including operate and maintain, and our ability to bring relevant expertise to a project gives us the capacity to deliver cost-effective projects that meet client requirements on time and within budget.

Our Industries Served:

- Waste-to-Energy
- Biomass
- Non-Ferrous processing
- Iron & Steel
- Minerals

Providing an Extensive Solution Portfolio

Our solution portfolio exemplarily shown at a typical cement plant:

- Road tanker unloading
- Cement and fly ash conveying
- Gypsum conveying
- Ferrous sulphate dosing
- Ground blast furnace slag conveying
- Raw meal conveying
- Fuel feeding into Kiln
- Pulverised coal conveying
- Kiln dust conveying
- Fly ash / GGBS, cement blending
- Sorbent feed for emission abatement
- Mechanical conveyors
- Air pollution control
Mechanical Conveying Solutions for Solid Fuels, Limestone and Gypsum

We provide complete, robust and efficient solutions for solid fuels feeding such as coke, waste/refuse derived fuel, biomass, limestone, gypsum, cement and coal.

Our systems cater for the most difficult kind of materials including coarse, hot, abrasive, sticky and humid bulk materials.

The product range includes

• Drag Chain Conveyor
• Apron Conveyor
• Belt Conveyor/Topper Car/Shuttle Conveyor
• Screw Conveyor
• Water-cooled Screw Conveyor

We supply complete systems for mechanical materials handling in the heaviest conditions, not only in coal-fired power plants, in incinerators and biomass plants but also in other industrial sectors.

Upon the above, our mechanical systems for ash extraction are engineered for easy maintenance and long life.

Your Advantage

• Suitable for high temperatures
• Affordable costs
• Low power consumption
• Tailor-made design
• Dependable technologies

DRYCON™, is Clyde Bergemann’s high temperature conveying solution.

DRYCON™ can be retrofitted into existing applications where space is a premium therefore contributing to the continued life span of the power generation facility.

Sophisticated Construction and Valuable Features:

• The modular construction principle allows flexible adaptation of length-width ratio
• Design of the apron plate conveyor avoids direct heat transfer and dust wear into the drive chain, support idlers and other moving parts
• Impacts of large material lumps are directed onto impact beams - no stress to any important moving parts

Your Advantages

• Unique product cooling design
• No precious water wasted for conveying and avoidance of all related water treatment costs
• Low life-cycle costs
Industry’s most specified cut-off valve

In the harsh world of abrasive mineral and powder handling, Clyde Bergemann’s heavy-duty Dome Valve has achieved an enviable reputation. Its reliability and consistent performance in applications where a positively sealed cut-off valve is required, has made the Dome Valve the solution of choice. It’s reliability and consistent performance in applications where a positively sealed cut-off valve is required, has made the Dome Valve the solution of choice. The Dome Valve is successfully operational in Cement, Gypsum, Paper, Water, Minerals, Metals industries.

Economic

The Dome Valve was designed specifically for Clyde Bergemann DensPhase pneumatic materials handling systems but its versatility has seen its use spread far beyond this. It has provided significant cost savings when retrofitted to other conveying systems, thus ending the frequent and expensive valve failures to which they are often prone.

Versatile

The Dome Valve performs equally well when retrofitted to vessel inlets, vents or outlets where it has been used for differential pressures of up to 30 bar(g) and material temperatures of up to 480°C. It is also used extensively as a silo discharge control valve and as an isolation valve within material-conveying pipelines.

Your Advantages

- Maintenance cost savings – generally only an inflatable seal change once per year
- Simple, fully proven reliable design
- Easy to install - Easy to maintain
- Long operation life - generally > 10 years
- Cuts through moving and some static columns of material
- Fully guaranteed when installed under approved conditions
- Ultimately configurable to suit a customer’s application and process

When used with the Clyde Bergemann range of pneumatic conveying technology, the Dome Valve commonly provides up to 1,000,000 machine operating cycles between major overhauls with the only maintenance generally being an inflatable seal change once per year, giving a reputation which cannot be matched by any other valve in the market place.

A Range of Options to Suit Applications

When it comes to conveying bulk material, irrespective of how abrasive, fragile or difficult to handle they are, Clyde Bergemann’s pneumatic conveying systems are state of the art and proven worldwide throughout many industrial applications.

Dense-phase Solutions

Our dense-phase solutions use modern technology and high pressure air to convey ‘plugs’ of materials through smaller pipes. Handling of materials/powders can be carried out by using one of our specifically designed pressure vessel systems to convey the material up to and above 1,000 metres into a storage silo. This technology is designed to convey a vast array of materials from many different processes.

Our dense-phase family are all equipped with the world-renowned Clyde Bergemann Dome Valve.

We engineer and supply comprehensive solutions including all necessary key and auxiliary components like pipes, bends, switch valves, dump valves and terminal boxes.

Advantages of Dense-Phase Technology:

- Pipe savings: small standard pipes sufficiently less wear
- Maintenance savings: 50-80% savings due to less wear and reduced equipment
- Standard compressed air requirements: more easily obtained and less standby equipment required
- Energy savings: 30-50% reduction in real costs

Lean-phase Solutions

Lean-phase conveying is the method of choice when special process requirements have to be met.

Lean-phase conveying systems can be offered as pressure or vacuum systems. Our systems feature special abrasion resistant elbows and valves to extend life and minimize maintenance.

Advantages of Lean-Phase Technology:

- Low headroom at pick-up points
- Little to no “dusting”. Leaks are inward
- Clean and reliable technology
- Can be designed to handle varying particle sizes

Dome Valve

Flexibility in Pneumatic Conveying Solutions
Continuous Feeding Technology

CLYDE BERGMANN'S RANGE OF FEEDING SOLUTIONS OFFERS BOTH PNEUMATIC AND MECHANICAL OPTIONS FOR EFFICIENT INJECTION OF VARIOUS MATERIALS.

SMARTfeed Injection

The SMARTfeed technology has applications in the feed of limestone and other fuels – wherever direct material feed into the process is required.

Some of the main highlights of the technology include:

- Continuous feeding rate accuracy ± 2.0% by volume
- Handles wet or dry, power or granular material
- Conveying rates up to 100 tph of distances up to 500 metres
- Feed rates unaffected by pressure fluctuations
- Back pressures up to 20 bar(g) installed
- Low air consumption and high materials-to-air ratio
- High accuracy loss-in-weight control available ± 0.5% by weight
- Can be designed for explosion containment

Some of the main highlights of the technology include:

- Even flow distribution, using patented splitter technology
- Capable of up to 8 splits for even distribution into the boiler/furnace
- Reliable equipment designed for 24 hour operation
- Over 40 years of continuous injection system experience
- Extreme rotary valve: Fully adjustable rotor to shoe clearances allowing for factory like clearances at each adjustment.
- Motive air source: Positive displacement blowers operating at under 1 bar (g)
- PERMA/flo abrasion resistant pipe & fittings available for extended wear life in the convey line.

PERMA/flo Extreme Rotary Valve Injection

PERMA/flo extreme rotary valve injection (utilizing SPLIT / flo FLO / proportioner splitter technology) has applications in the injection of coal, other fuels, biomass, limestone and bed sand into the re-injection of ashes and grits into fluidised bed combustors, the injection of limestone into FGD processes, and any other applications where direct material feed into the process is required.

Some of the main highlights of the technology include:

- Even flow distribution, using patented splitter technology
- Capable of up to 8 splits for even distribution into the boiler/furnace
- Reliable equipment designed for 24 hour operation
- Over 40 years of continuous injection system experience
- Extreme rotary valve: Fully adjustable rotor to shoe clearances allowing for factory like clearances at each adjustment.
- Motive air source: Positive displacement blowers operating at under 1 bar (g)
- PERMA/flo abrasion resistant pipe & fittings available for extended wear life in the convey line.

Vessels & Pumps

<table>
<thead>
<tr>
<th>Process Considerations</th>
<th>Description</th>
<th>AV-Pump</th>
<th>MD-Pump</th>
<th>Dens-Phase</th>
<th>PD-Pump</th>
<th>D-Pump</th>
<th>TD-Pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conveying Rate</td>
<td>tons / hour</td>
<td>&lt; 50 tph</td>
<td>&lt;100 tph</td>
<td>&lt; 100 tph</td>
<td>&lt;250 tph</td>
<td>&lt;250 tph</td>
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<tr>
<td>Conveying Distance</td>
<td>metres (vertical + horizontal)</td>
<td>&lt; 250 m</td>
<td>&lt; 1000 m</td>
<td>&lt; 250 m</td>
<td>&lt; 750 m</td>
<td>&lt; 750 m</td>
<td>&lt; 1500 m</td>
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<tr>
<td>Very fine powder</td>
<td>d50 &lt; 5 microns</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Fine powder</td>
<td>d50 &lt; 10 microns</td>
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<td>Yes</td>
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<td>Fine unfluidizable powder</td>
<td>60 &gt; d50 &lt; 140 microns</td>
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<td>Pellets</td>
<td>1 to 40 mm</td>
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<td>No</td>
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<td>Granular free flowing product</td>
<td>1 to 5 mm</td>
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<td>Yes</td>
<td>No</td>
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<td>Yes</td>
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<td>Lumpy product</td>
<td>5 to 100 mm</td>
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<td>Yes</td>
<td>Yes</td>
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<td>Abrasive materials</td>
<td>cement, silicas, fly ash, gravel</td>
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<td>Yes</td>
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<td>Wet materials</td>
<td>30% moisture, coal, sand</td>
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<td>No</td>
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<td>No</td>
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<td>Damp materials</td>
<td>2-30% moisture</td>
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<td>No</td>
<td>Yes</td>
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<td>Materials sensitive to moisture</td>
<td>Hydrated lime, slags</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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</tr>
<tr>
<td>Conveying air pressure</td>
<td>bang</td>
<td>3</td>
<td>4.5</td>
<td>2.5 - 3.5</td>
<td>3.5 - 6.0</td>
<td>0.5 - 4.5</td>
<td>S</td>
</tr>
</tbody>
</table>
Clyde Bergemann offers a wide spectrum of services to accompany the entire lifecycle of its customers’ facilities to ensure the equipment maintains its value and is also fitted according to their individual demands.

Spare Parts
Individual parts suffer wear and tear. For this reason, Clyde Bergemann provides all replacement and spare parts and makes them readily available, allowing customers to have complete confidence in their plant capacity and rely on continuous product quality.

The Range of Products and Services Includes:
- Consultation for the selection of spare parts
- Start-up kits for new installations
- Custom-made individual packages
- Full maintenance support
- Original replacement and spare parts
- Fast worldwide delivery

Service & Aftermarket Team
We have a very experienced and focussed team who are there to offer you a full range of services to help keep production up and running when you need us.

Clyde Bergemann Offers:
- Refurbishment – on site and off site
- Commissioning
- Personal service
- Periodic plant inspection contracts
- Agreements defining a customer-focused, plant-specific range of services and spare parts which are then made available “on demand”
- Fixed-price maintenance contracts: Based on an initial detailed review of the equipment, desired parameters are defined jointly with the customer. These may include an equipment availability guarantee, spare parts storage plans, an on-call response service or staff training. A custom fixed-price offer addressing this specific scope is then developed by our service team.

Customer Benefits:
- Reduced administrative procedures at the ordering and payment stages
- Short repair response times
- Short lead times
- Fixed cost for annual budgeting purposes
- High availability is contractually guaranteed

Training
Training personnel to operate and maintain equipment properly and safely is the most effective way to ensure reliable plant performance.

We offer a variety of training programs for our systems for your operations and maintenance personnel.

Clyde Bergemann’s Offer Includes:
- Full training programs designed to instruct your personnel to operate, overhaul and maintain the equipment supplied
- Individual training to create more efficient personnel
- Lectures as well as hands-on-training
- On-site mobile training
Clyde Bergemann is represented in over 40 countries worldwide.