

Services For Bulk Material Handling Projects

■ Project Formulation Phase

- Project conceptualization
- Geo-Technical/ Hydrological Investigation
- Techno-Economic Feasibility Studies
- Environmental (EIA/EMP) Studies

■ Project Engineering Phase

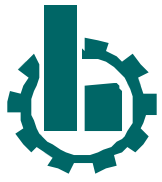
- Basic Engineering
- Procurement Assistance
- Detailed Engineering in Mechanical, Civil and Structural, Process, Electrical, Control and Automation
- Project Planning and Monitoring

■ Project Implementation Phase

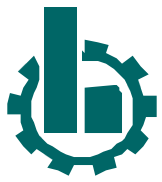
- Project Management and Control.
- Inspection
- Field Supervision
- Commissioning and Plant Stabilizations Assistance

■ Operations Phase

- Plant Operation, Maintenance, Optimization, Capacity Balancing, Plant Modification and Up-gradation
- Asset Management and Performance makeover for exiting Operating Facilities
- Civil and Structural Assessment



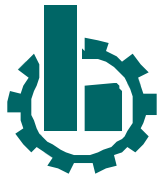
Capabilities in Bulk Material Handling



I. Crushing & Screening

- Various kinds of materials in different physical forms, with & without screening systems.
- Designed crushing systems of all kind and types involving single / multiple stage crushing along with screening and recirculation systems.
- Capacity of crushing systems ranges from 50 TPH to 2,500 TPH for various materials.





II. Conveying Systems

- In any form, from run of mines (+1.5 m³) to powdery
- Mechanical and pneumatic systems ranging from few t/h to 4000 t/h
- Lengths ranging from a few m to several kms
- Materials in different physical forms, including crushed limestone, Coal, Lignite, Gypsum, cement, flyash, laterite, bauxite, Alumina, copper concentrate, rock phosphate, zinc & lead concentrate, etc.

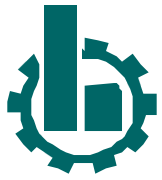




III. Storages

- Bulk storages with mechanized stacking and reclaiming for different materials, linear/ circular, covered/ open etc. of capacities up to 100,000 T.
- All kind and designs of silos for fine and bulk materials, in RCC/ steel, normal/ pre-stressed, single / multiple compartments, with / without under silo loading systems etc. from 1,000 T up to 150,000 T capacities.
- Hoppers designed of different designs/ capacities/physical characteristics both for normal/ sticky materials.

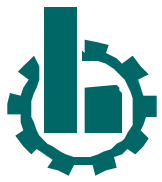




IV. Loading & Unloading

- Designed large capacity systems for loading & unloading on/from trucks, rail wagons (closed & open), and ships, involving bulk & bagged materials including coal, clinker, cement, various minerals
- Designed loading systems using Rapid Wagon Loading System (complete railway rake loaded in about 1 hr), ship loading systems to load ships / barges.
- Fully-automatic packing machines and loading system, with or without palletisation

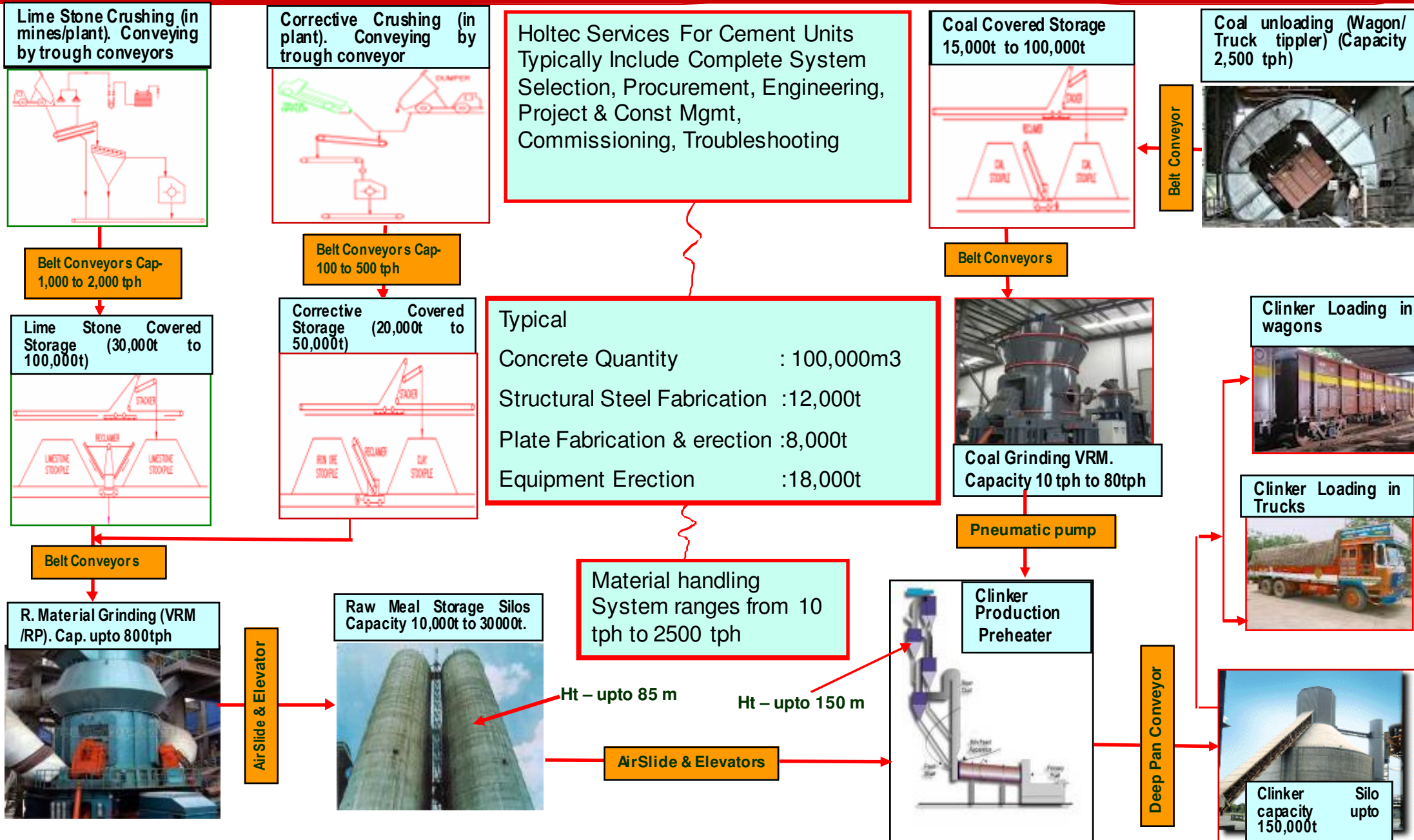


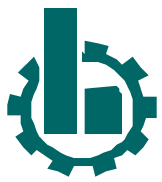


Loading & Unloading (cont.)

- Bulk loading of clinker, cement, laterite, bauxite, copper concentrate, rock phosphate, zinc & lead concentrate etc.
- Loading and unloading from rail wagons (clinker, coal, gypsum, cement, laterite, bauxite, copper concentrate, rock phosphate, zinc & lead concentrate etc.).
- Unloading of rail wagons, both through wagon tipplers as well as Track hoppers in various sizes and capacities.

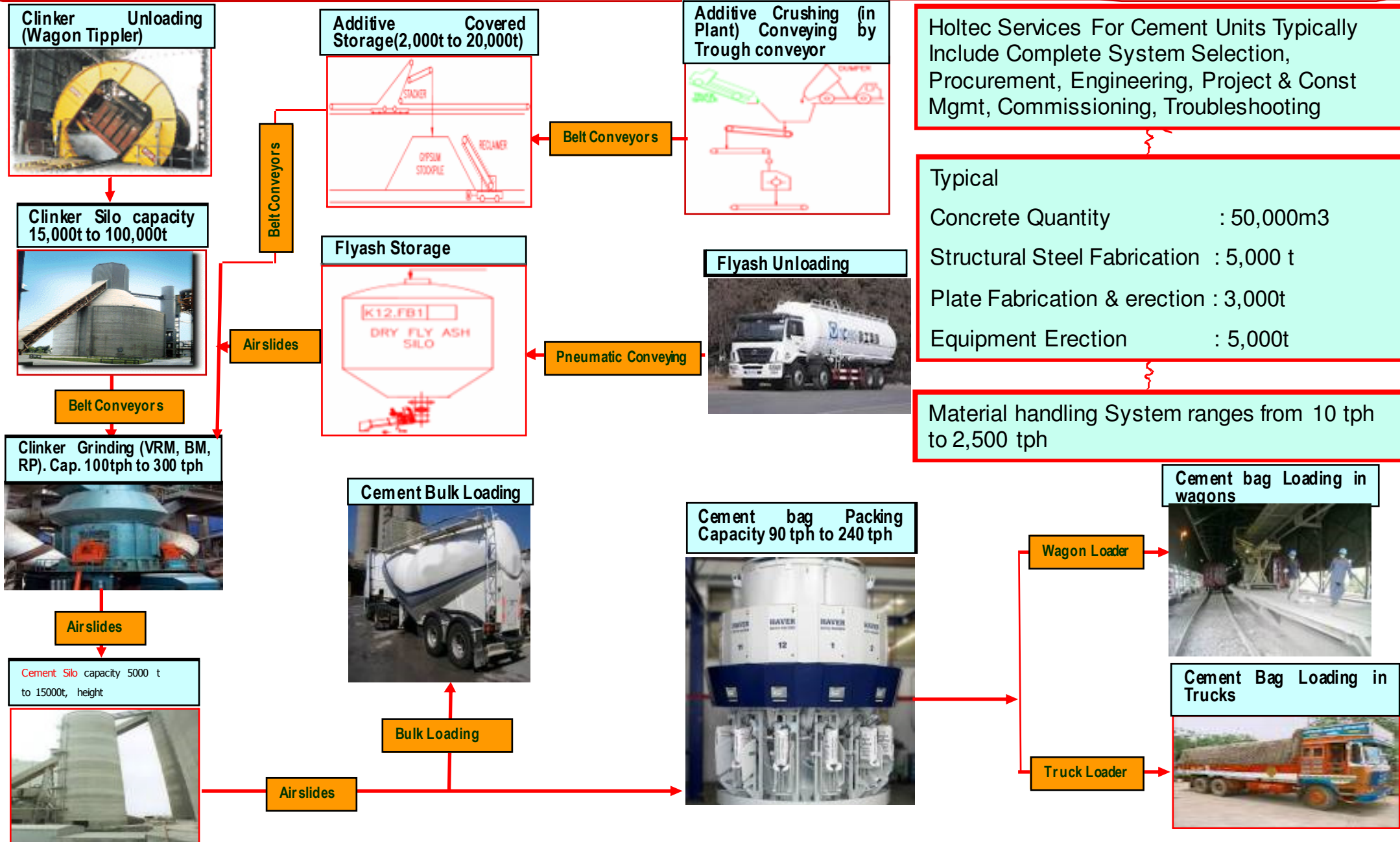


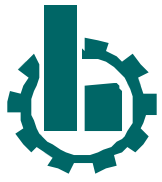




VI . Material Handling for Cement Grinding Units

(40+ numbers executed)





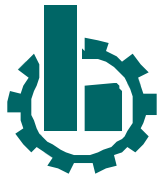
Major Project Profiles



Alumina Handling System at Kakinada Port

| | |
|----------------|--|
| Customer | South India Corporation Ltd |
| Industry | Alumina Export |
| Scope of Work | <p>Engineering Consultancy services for procurement assistance, system design services for Alumina Export terminal. Project involved Powder Alumina unloading from rail wagons, Storage in 3 x 30,000 T RCC silos and ship loading of Alumina at Kakinada Sea Port.</p> <p>Holtec was involved from concept formulation till project commissioning including basic engineering, procurement and detailed engineering</p> |
| Specification | <ul style="list-style-type: none">- Material : Alumina- Project designed for 3 Million TPA- Rail unloading capacities ~ 1000 TPH- Ship loading facilities ~1500 TPH |
| Project Status | Project completed in 2007 |



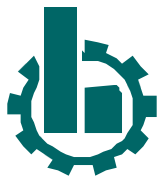


Alumina Handling System at Kakinada Port

WORKING PRINCIPLE OF THE SYSTEM

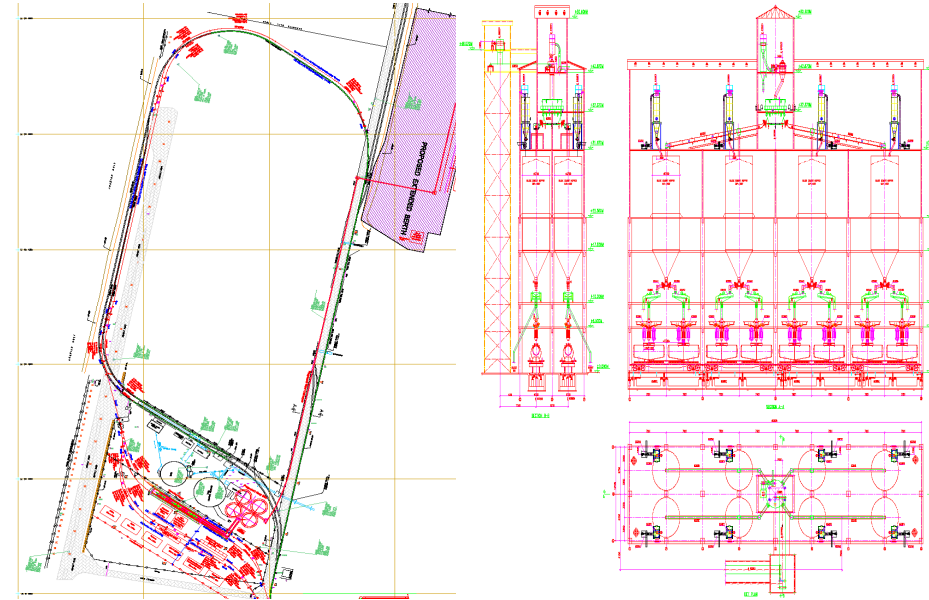
- Material is coming in the wagons and 4 nos. wagons are placed on two railway tracks above hoppers.
- Material is unloading in the track hoppers from bottom discharge wagons.
- Track hoppers are equipped with airslides and material is conveyed to the belt conveyor through set of airslides.
- Material is conveyed to the 3 nos. of silos and distributed in the silos properly.
- Material is extracted from the silos with help of airslides and conveyed to the loading station through belt conveyors.
- Material is loaded by the mechanically operated ship loader in the vessel.
- Proper pollution control system is considered as the standard guidelines.

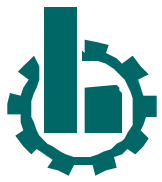




Cement Handling System from Plant to Port

| | |
|-----------------------|---|
| Customer | RITES, India |
| Industry | Cement Plant and Bulk Terminal at Hofuf and Damman port Saudi Arabia |
| Scope of Work | <p>Engineering Consultancy Services encompassing following activities:</p> <ul style="list-style-type: none"> - Detailed Feasibility Report for new cement handling system in the existing plants and Port - Procurement & ordering assistance to client in multi-package mode. |
| Specification | <ul style="list-style-type: none"> - Material : Cement - Pipe conveyor ~ 620 m long of 1500 tph capacity - Two streams of belt conveyor ~ 350 m long of capacity 1000 tph capacity - Two streams of air Slides of capacity 1000 tph and ~ 390 m long - Wagon loading & unloading, Ship loading and conveying system |
| Project Status | Plant portion Completed in 2013. Port portion on Hold. |

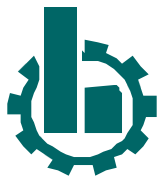




Coal Handling System at Port

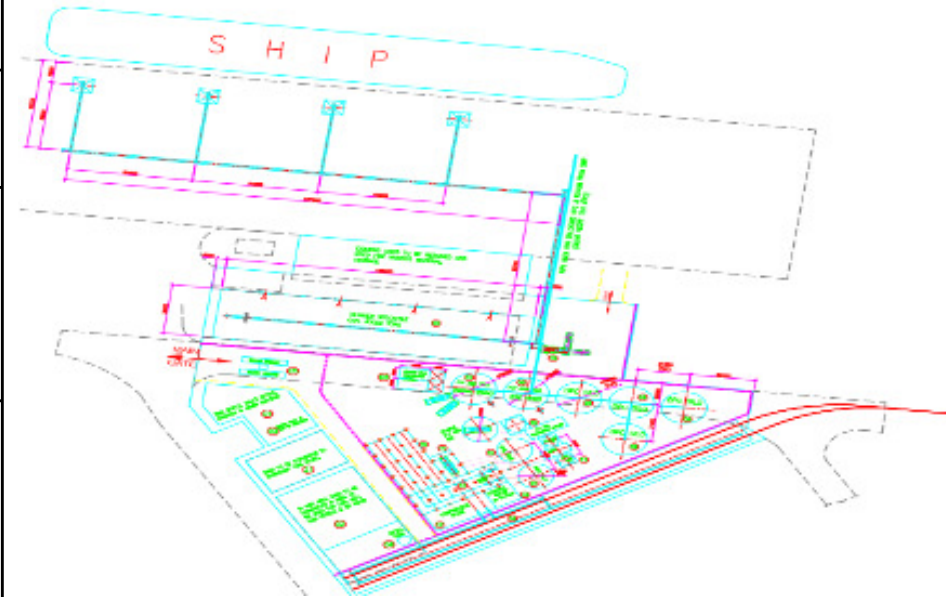
| | |
|----------------|--|
| Customer | Chettinad Logistics Pvt. Ltd. |
| Industry | Chennai Port |
| Scope of Work | Engineering Consultancy Services encompassing following activities: <ul style="list-style-type: none">- Procurement & ordering assistance- Mechanical, civil & electrical detailed engineering- Assistance during commissioning |
| Specification | <ul style="list-style-type: none">- Material : Coal- Conveying Capacity : 1500 tph- Two streams of conveyors (9 numbers), to distribute coal in different hatches.- Also include facilities to receive coal from ship gears and feed the conveyor system. |
| Project Status | Commissioned in 2008 |

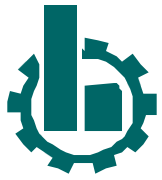




Bulk Cement Terminal & Logistics Hub at Port

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|-----------------------|---|
| Customer | Malabar Cements Limited |
| Industry | Bulk Cement Terminal & Logistics Hub at Cochin Port |
| Scope of Work | Engineering consultancy service for preparation of detailed feasibility report bulk cement terminal & logistics hub at cochin port. |
| Specification | <ul style="list-style-type: none"> - Material : Cement, Coal, Clinker and other raw materials - Pneumatic unloading of cement / flyash from self-equipped pumping system vessels to silos. - Mechanically unloading & loading system for other raw materials and storage silo & stockpiles. - Mechanically & pneumatically conveyed to various process buildings. - 9 nos. silos of capacities from 1000 t to 5000 t. with 1 no. stockpile of 40,000 t. - Underground Restriction: Water table at 1.0 -1.5 m. - Height Restriction: Absolute +23 meter. |
| Project Status | Report Completed in 2017. |

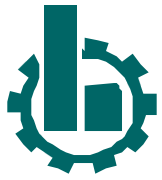




Coal Handling System - Port to Power Plant

| | |
|-----------------------|--|
| Customer | Navayuga Engineering Co Ltd., Krishnapatnam Port |
| Industry | Port , Power Plant |
| Scope of Work | <p>Engineering Consultancy Services encompassing following activities:</p> <ul style="list-style-type: none">- Detailed engineering of mechanical, process, structural, electrical and instrumentation.- Preparation of detailed drawings for mechanical and civil work prior to equipment ordering- Procurement done on multi-package mode |
| Specification | <ul style="list-style-type: none">- Material : Imported Coal- Conveying capacity : 4400 tph at 5.2 m/s- Three streams of 5.5 km length of belt conveyors |
| Project Status | Project on Hold after substantial designs completed. |

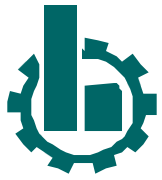




Multi-Material Handling System from Port to Plant

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|----------------|--|
| Customer | Nirma Limited, Gujarat |
| Industry | Port & Chemical Plant |
| Scope of Work | Technical Feasibility study for long distance material handling system from port to Kalatalav plant. |
| Specification | <ul style="list-style-type: none">- Material : Lime Stone, Coal & Pet Coke- Conveying capacity : 700 to 1000 tph- Pipe conveyor ~ 12 km- Belt conveyor ~ 2 km- Ship unloading, Hopper and Conveying system |
| Project Status | Feasibility Completed in 2015 |

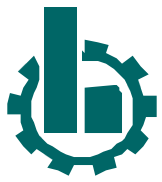




Cross-Country Conveyor from Mines to Plant

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|-----------------------|--|
| Customer | Derba Midroc Cement PLC, Ethiopia |
| Industry | Cement |
| Scope of Work | Engineering Consultancy Services encompassing following activities: <ul style="list-style-type: none">- Procurement & ordering assistance- Mechanical, Civil & Electrical detailed engineering- Project management consultancy services |
| Specification | <ul style="list-style-type: none">- Material : Lime Stone- Conveying capacity : 1250 tph- Conveyor in 4 sections (total length 7 km). Largest section 3 km. Conveyor passes through 2 tunnels and very difficult terrains. Total lift 900 m- Belt Conveyor |
| Project Status | Commissioned in 2012 |

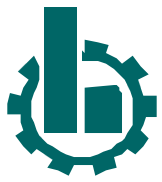




Coal Handling System – Coal Mine

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|-----------------------|--|
| Customer | Rajmahal Coal Mining Limited, Jharkhand |
| Industry | Coal Mine (Eastern Coal Field) |
| Scope of Work | <p>Engineering Consultancy Services encompassing following activities:</p> <ul style="list-style-type: none">- Feasibility study- Basic & Detailed engineering- Procurement assistance- Design Engineering – Civil- Project management- Site supervision- Third Party Inspection services |
| Specification | <ul style="list-style-type: none">- Material :Coal- Conveying capacity : 2200 tph at 3.0 m/s- Two streams of 550 m- Surface mined Coal hopper and Belt conveyors |
| Project Status | Phase -1 Completed in 2016 |

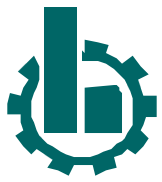




Coal Handling System - Power Plant

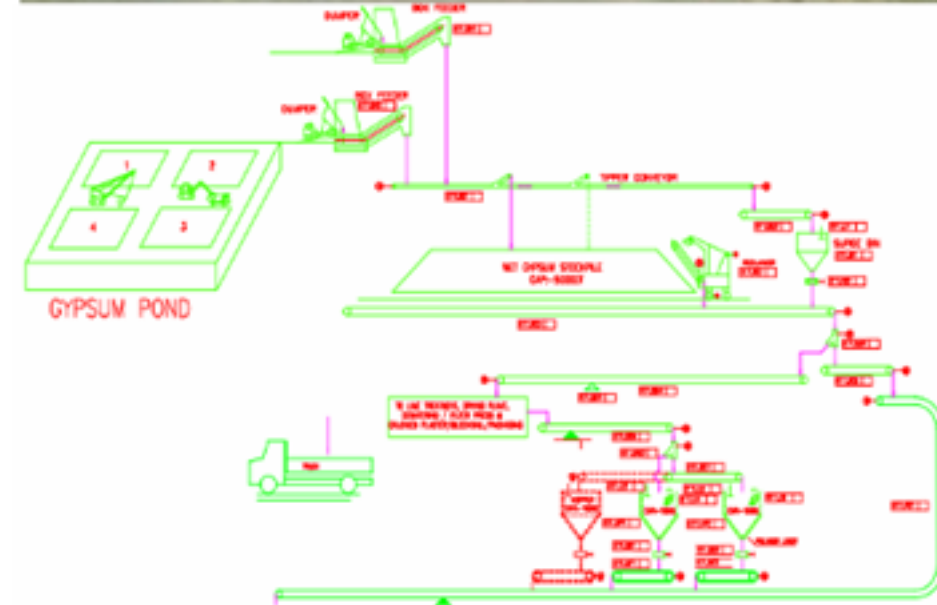
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| Customer | IL&FS Tamil Nadu Power Company Limited, Chennai, India |
| Industry | Power Plant 6 x 600 MW |
| Scope of Work | Engineering Consultancy Services encompassing following activities: <ul style="list-style-type: none">- Technical Feasibility study- Procurement & Ordering assistance- Mechanical, Civil & Electrical detailed engineering- Design Engineering – Civil- Assistance in design approval from IIT-Delhi- Assistance in design approval from Southern Railway |
| Specification | <ul style="list-style-type: none">- Material : Imported Coal- Conveying capacity : 4000 tph at 3.25 m/s- Two streams of 550 m & one stream of 350 m long.- Track Hopper for wagon unloading and Belt conveyors |
| Project Status | Commissioned in Oct 2015 |

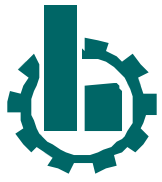




Gypsum Handling System - Fertilizer Plant

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|-----------------------|---|
| Customer | Paradeep Phosphates Ltd., Odisha |
| Industry | Fertilizer Plant |
| Scope of Work | Study of material handling & processing system; System includes pipe & belt conveyor, stacker, reclaimer, wagon loading system, belt press dryers, etc. |
| Specification | <ul style="list-style-type: none"> - Material : Gypsum - Conveying capacity : 200 to 600 tph - Pipe conveyor ~ 1.875 km long - Belt conveyor ~ 2.91 km long - Conveying system and wagon loading |
| Project Status | Completed in 2010 |





Multi-Material Handling in Smelting & Power Plant

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|-----------------------|--|
| Customer | Sterlite Industries India Ltd., Tuticorin, Chennai |
| Industry | Smelting and Power Plant |
| Scope of Work | Engineering Consultancy Services encompassing following activities: <ul style="list-style-type: none">- Procurement & ordering assistance- Mechanical, civil & electrical detailed engineering- Assistance in design approval from IIT-Delhi & Southern Railway- Assistance during commissioning |
| Specification | <ul style="list-style-type: none">- Material : Rock phosphate, Copper concentrate & coal- Belt conveyors of capacity 2500 tph & ~ 1500 m- Pipe conveyors of capacity 1000 tph and ~ 2.6 km long.- Pipe conveyor crosses a national highway, with curved unsupported gallery of about 75 m.- Wagon loading and conveying system |
| Project Status | Partially executed and Under hold from 2013 |

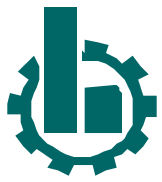




Lignite Handling System from Mine to Power Plant

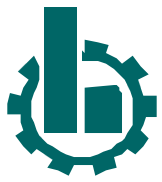
| | |
|-----------------------|--|
| Customer | Chettinad Lignite Transport Services Pvt Ltd. |
| Industry | Mine to Power Plant |
| Scope of Work | Engineering Consultancy Services encompassing following activities: <ul style="list-style-type: none">- Procurement & ordering assistance- Mechanical, civil & electrical detailed engineering- Project management services |
| Specification | <ul style="list-style-type: none">- Material : Lignite- Conveying Capacity : 800 / 2500 tph- Rapid loading & track hopper system- System capacity required 4 / 5 rakes per day of lignite transportation on merry go round basis, including loading, travel and unloading |
| Project Status | Commissioned in 2003 |





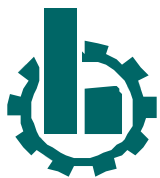
Partial List - Bulk Material Handling Projects

| Customer | Description |
|--|--|
| Hindustan Zinc Ltd | Engineering Consultancy Services for Installation of mechanized lead and zinc concentrate handling system at Chanderia, Chittorgarh India and lead & zinc concentrate loading system at Rampura Agucha, Bhilwara, India. At Zaver mines of HZL upgrading existing in pit conveying system from 125 tph to 200 tph. The conveyor start from – 400 m level till ground level. |
| Jaiprakash Power Ventures Ltd | Engineering Consultancy Services for Installation of Blended Coal Management System |
| Longulf Trading (UK) Ltd | Engineering Consultancy Services for Ras Isaa Grain Terminal for Flour mill ,Silos at Hodeidah, Yemen. |
| Maharashtra State Power Generation Company Ltd | Engineering Services for Pipe Conveyor /Ropeway System for Chandrapur STPS |
| OSM Projects Pvt Ltd | Material handling system at Monnet Ispat, Raigarh, Chattisgarh, India |
| Saurashtra Cement Ltd | Engineering Consultancy Services for Installation of new Clinker Handling System in existing plant located at Ranavav, Gujarat, India |
| Techpro Systems Ltd | Engineering Consultancy Services and Civil Design for 2X4000 T Coal Silos installation for Railways Unloading system |
| Ultratech Cement Ltd | Engineering Consultancy Services for Clinker Bulk Loading System at Awarpur Cement Works |



Partial List - Bulk Material Handling Projects

| Customer | Description |
|---|---|
| CLI Corporation | Engineering support services for Titus Power plant coal blending facility and Additional work, USA |
| CLI Corporation | Engineering support services for material handling system for Black beauty Indiana Project |
| CLI Corporation | Civil Design Engineering for Modular Coal Washery , USA |
| CLI Corporation | Engineering services for design of screening station for Slag handling - Tampa Electric Company Project |
| Jaiprakash Associates Ltd | Engineering Consultancy Services for Alternative Coal Feeding Arrangement at Bina Thermal Power Plant |
| Jaiprakash Associates Ltd. | Review Engineering Services For Aggregate Processing Plant At Tala Hydroelectric Project, Bhutan |
| Jaiprakash Associated Ltd | Engineering Consultancy Services for Aggregate Processing Plant at Teesta Hydro Electric Project , Sikkim, India |
| Metso Minerals Pvt Ltd | Engineering services for preparation of standard Installation drawings for NP crusher station for a project in France |
| Saudi Cement Ltd | Engineering Services for Material handling system. |
| Oriental Structural Engineering Limited | Engineering Consultancy Services for setting up 300 TPH aggregate plant |



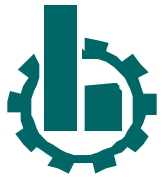
Partial List - Bulk Material Handling Projects

| Customer | Description |
|------------------------------------|---|
| Oriental Structural Engineers Ltd | Engineering Consultancy services for setting up 300 tph Aggregate Processing Plant at Ghatoli, district Bharatpur Rajasthan |
| Sandvik Asia Ltd | Engineering Consultancy Services for Iron Ore crushing & Screening plant at Barbil, Orissa |
| South India Corporation Ltd | Engineering Consultancy services for procurement assistance, system design services for Alumina Export terminal |
| Svedala Industries India Pvt Ltd | Engineering Consultancy Services for Design of Conveyors for 280 tph Aggregate Processing Plant |
| Thermo Electron India Pvt Ltd | Engineering Consultancy services for Installation of Coal Belt Analyzer at Tata Steel West Bokaro |
| Us Aid | Technical Feasibility Study for Fly Ash Transportation system, USA |
| Wellworth Wire Ropes Pvt Ltd | Engineering Consultancy Services for Review and Approval of drawings for Alumina Wagon shutting winches. |
| Jaypee Himachal Cement Projects | Engineering Consultancy services for Pipe Conveyor 150tph , 439 m long for Coal. Engineering Consultancy Services for Limestone 2250 tph , 1088 m long for Limestone |
| Jaypee Super Cement Projects- Dala | Engineering Consultancy services for Pipe Conveyor 300 tph , 1658 m long for Clinker Handling . |



Partial List - Bulk Material Handling Projects

| Customer | Description |
|--------------------------------|---|
| Dalmia Cement (Bharat) Limited | Engineering Consultancy services for Pipe Conveyor for 1200 tph , 148 m long at DalmiaPuram, India -Limestone handling |
| Dalmia Cement (Bharat) Limited | Engineering Consultancy services for Pipe Conveyor for 500 tph , 154 m long at DalmiaPuram, India – Limestone handling |
| Dalmia Cement (Bharat) Limited | Engineering Consultancy services for Pipe Conveyor for 250 tph , 190 m long at DalmiaPuram, India –Gypsum handling |
| Dalmia Cement (Bharat) Limited | Engineering Consultancy services for Pipe Conveyor for 150 tph , 298 m long at DalmiaPuram, India –Coal handling |
| Chamba Cement project | Feasibility Study and Evaluation of Pipe Conveyor and Ropeway System for 600 tph , 4090 m and 700 m down the hill at Chamba, Himachal Pradesh , India –Coal handling. |
| Jaypee Reva Cement Projects | Engineering Consultancy Services for Bicable Ropeway for Limestone / Coal – 600 TPH ,4 KM Long. |
| Wellworth Wire Ropes Pvt Ltd | Engineering Consultancy Services for Review and Approval of drawings for Alumina Wagon shutting winches. |
| Malabar Cement | Engineering Consultancy Services for Selection , Review and Implementation of Ropeway for Limestone Transport – 200 TPH – 6.5 KM Long. |
| Metso Minerals (France) | Engineering support services for Installation drawings for preliminary crusher station (1250 tph) in France |



Summary

- **Holtec Is...**
 - About 50 year old, ISO-9001, **international, engineering & business consulting company** that has a large base of highly-experienced professionals, and state-of-the-art infrastructure that allows it to **execute demanding bulk material handling projects** of all sizes
- **Holtec Has...**
 - **Wide-ranging experience** in executing projects under both EPC and multi-package modes for **various bulk materials** with a large range of throughput rates, storage, transport, loading/unloading requirements
- **Holtec Can...**
 - Provide **all engineering, procurement, project & construction management, commissioning, troubleshooting services** needed to conceptualize and execute bulk material handling projects efficiently
 - Create **customized solutions** integrating different equipment/technologies to optimize project cost and system performance
- **Holtec Will...**
 - Always meet its commitments and remain **singularly focused on client requirements**



Contact Details

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