

Start-up and Commissioning Services

Coal Systems and Applications.

Before the Sale

Site Application Review

Thermo experts solicit information and work with the plant's quality and operations staff to determine the optimal equipment specification and application to maximize the benefit.

The deliverable for this service is a detailed technical report that includes plant-specific flow and interconnect diagrams and outlines where in the process the recommended Thermo products and services can be applied to achieve a quantifiable economic benefit.

Prior to Delivery

On-site "Kick-off" Meeting

A one-day on-site "Kick-Off" Meeting is arranged with the Lead User(s) and Project Manager(s) prior to the commencement of the Project. Specific activities include: review Project time line, establish critical path and significant aspects of the Project, identify special requirements for radiation licensing or documentation, review the Site Preparation Manual and estimate on-site resources required for success.

Thermo's business philosophy emphasizes preparation, knowledge, and communication to accomplish efficient and cost-effective benefit realization.

Pre-Installation Training

This three-day course held at the Factory Training Facility examines the specific requirements for physical installation on site and provides hands-on training on the manufacturing floor focused on the start-up and use of the system. Specific topics include: Theory of Operation, review of major components and system interconnection, plant-specific interface, initial software configuration, and Static Performance Testing. Lead User(s) and Project Manager(s) are recommended to attend in advance of physical installation at site, preferably prior to shipment of the actual purchased system.

The increased knowledge and confidence gained from this program allows for a more cost-effective System Start-Up and Commissioning.

Delivery Services

Installation Supervision

Thermo engineers conduct the following from the factory and at-site:

- Prepare / review site-specific drawings and documentation
- Oversee unpacking, inventory, and physical placement of major components
- Provide training for receipt and storage of radioactive sources
- Verify completion of the Site Preparation Checklist

System Start-up

Thermo engineers conduct the following from the factory and at-site:

- Prepare / review site-specific drawings / documentation and plant interface protocol
- Install all electronics and computer hardware
- Install radioactive sources and perform a radiation survey
- Power up and test components, signals, and software operation; establish system communications link
- Establish interface with plant systems (if possible)
- Provide training for Radiation Safety and Basic Operation
- Revise site-specific drawings / documentation

System Commissioning

Thermo engineers conduct the following at-site or from the factory:

- Verify interface with plant systems
- Develop the scope and plan for dynamic calibration and dynamic performance monitoring to insure that process goals are achieved
- Complete the dynamic calibration and validate system performance (as applicable)
- Provide training related to on-going dynamic calibration and dynamic performance monitoring

- Test system interfaces and response of plant equipment
- Tune process control software
- Provide training related to on-going control system operation

Notes:

- All products with prices indicated as "typical" will be quoted specifically prior to purchase.
- The paid price for the Site Application Review may be applied to the Purchase Price of the related Thermo system.
- An alternate venue for the "Kick-off" Meeting and Pre-Installation Training may be arranged to accommodate the customer's preferences.
- Travel & Living Expenses: All prices for on-site services are exclusive of Travel & Living Expenses. Customers are responsible for all Travel & Living Expenses when visiting the Factory location.

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