

Bidding and bytes belong together



Cement distribution

Obtaining offers is a science in itself. Even the precise invitation to tender presents a challenge due to the huge diversity of components involved.

Based on its Engineering Base platform, the German software vendor Aucotec AG headquartered in Hanover has created a tool that significantly shortens the bidding procedure not only for owner/operators but also for its contractors.

The procedure has always been highly time-consuming: The client inviting tenders starts by creating a process flow diagram (PFD) or flow-sheet from which data-sheets are usually generated for all the machinery and plant equipments intended for inclusion in the tender. These data-sheets are output mostly, but not consistently, in .xls format. It is not unusual for a single invitation to tender to contain 600 of such specification spread-sheets.

Firms wishing to tender must first identify their own area of expertise within the data-sheets. That alone may take a while with hundreds of sheets. The firms wishing to tender then complete these sheets manually. They specify their components depending on their own product range. Sometimes, they amend the flow-sheet on the basis of their own calculations, for example, by matching a drive or the surface area of a filter to the requirements. The party inviting tenders then has to manually compare the proposals received from the various suppliers ('proposal engineering'). This can take weeks because the various offers must not only be compared, but also the deviations of the offered devices and components from the invitation to tender. This comparison often involves several specialists whose expertise would also be needed urgently for other tasks. Nevertheless, it is often the case that something is overlooked.

After this initial comparison, the same procedure is repeated at least once at a higher level with the most interesting tenderers. This means even more attributes, and even more time both for the tenderers as well as for the subsequent comparison that is required yet again. In the end, the tenderer who is awarded the contract must edit the

documentation once again for his final specifications, which then form the basis of the final agreement. Taking the cement industry as an example, the first stage of tendering can cost a big supplier as much as 100 000 US dollars, while the second stage can swallow ten times that amount in time, manpower and money.

Single input – repeated time saving

Together with one of the largest cement plant operators in the world, Aucotec has created a solution for this challenge, which markedly simplifies and accelerates the whole tendering process – a tool that supports tendering with its principle of central data storage.

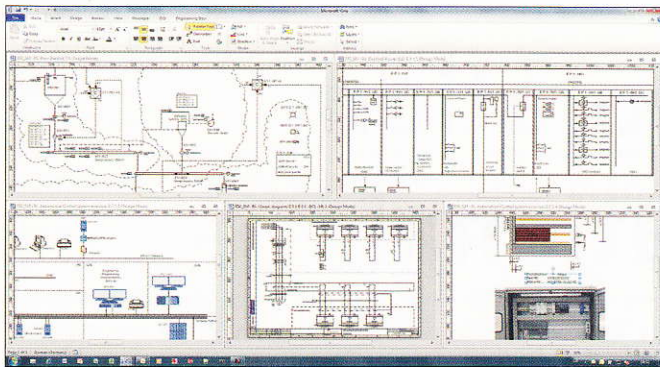
The starting point for the newly developed process is the flow-sheet or PFD, which the firm inviting the tenders creates with the Engineering Base (EB) platform based on the design specifications of the feasibility study. Then you can generate a tender project from the EB flow-sheet at your fingertips. The tenderers can import this project into their EB database in order to fill its data model with their specifications. To this end, they have around 7 000 attributes available, which take into account the special features of the specifications of mechanical, process, and also electrical engineering components. All entries for a certain component must be made once only, and nothing can be overlooked or forgotten. Any representation of an object, whether in a list or as a graphic, always resorts to the same underlying data. In the new tendering process, all data-sheets are referenced to the flow diagram, which is not possible in the conventional process. This linking is just as important for navigating in the project as it is for the change management. Note: A printed PFD

can be up to 20 m long, which makes every search very time-consuming. The database-driven EB automatically adopts changes in the flow-sheet for all associated data-sheets and vice versa. Thus, for example, modifications to such predefined properties of the materials to be processed as granularity, moisture content, weight, density, or temperature, have to be corrected at only one point. These properties are visible in every mechanical component. If only one minor thing changed in one of the specifications – and this happens continually! – one would have to locate every data-sheet in which this property is entered and then also correct it under the conventional method. With EB, a single change at any point suffices because all repeated representations or mentions are changed automatically.

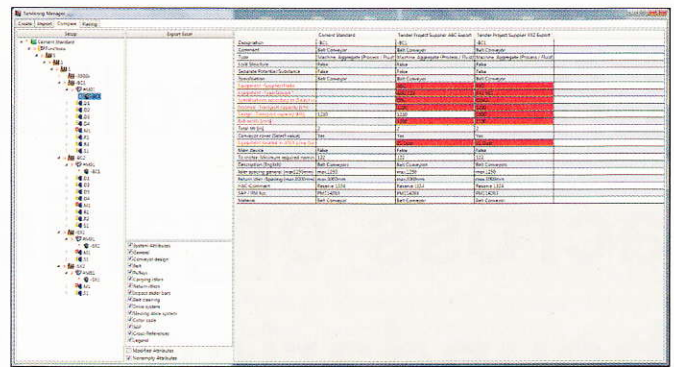
Filter, find, detail

The attributes to be completed are edited by the tenderer directly in the tender project. The suppliers can select various filters and procedures so that they do not have to go through hundreds of data-sheets to identify the areas relevant to them. A simple click on a specific object from the flow-sheet is sufficient to find its equivalent in the associated data-sheet. The reverse route leads just as easily from the data-sheet to the exact position in the PFD.

For one thing, a tenderer can filter out topics which are of interest to him in relation to the data-sheets. Thus the relevant expert could, for example, submit his offer for a particular machine and sort it according to associated data-sheets. The other option would be a list output where, for example, all conveyors requested for the future plant are combined. The possible engine power, belt widths and lengths or production capacity and every-



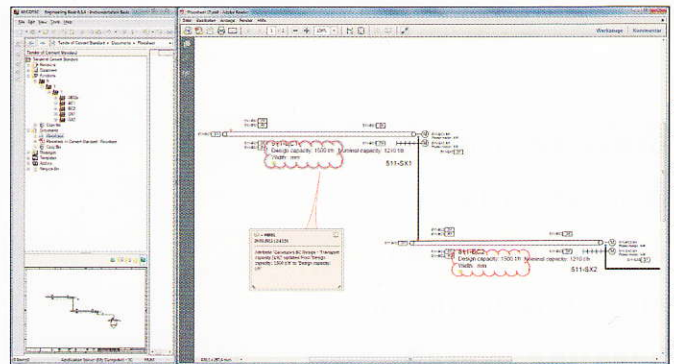
All the usual plant documents can already be used in the tendering process



Comparison of the results of the tendering with the Tendering Manager

	Current Standard	Tender Project Supplier 1	Tender Project Supplier 2
1. Designation	AC1	AC1	AC1
2. Comment	Belt Conveyor	Belt Conveyor	Belt Conveyor
3. Additional Comment			
4. Device Class			
5. Type	Machine, Aggregate (Process / Fluid)	Machine, Aggregate (Process / Fluid)	Machine, Aggregate (Process / Fluid)
6. Lock Structure	False	False	False
7. Sequence Potential/Substance	False	False	False
8. Specification	Belt Conveyor	Belt Conveyor	Belt Conveyor
9. Equipment - Supplier/Make			
10. Transport - Type/Design			
11. Specifications according to (Select value)			
12. Nominal Transport capacity [t/h]			
13. Design Transport capacity [t/h]			
14. Bulk weight [t/m³]			
15. Conveying speed (if the speed drive) [m/s]			
16. Conveying speed range (if VSD) [m/s]			
17. Trough angle [°]			
18. Horizontal center distance [m]			
19. Total lift [m]			
20. Inclination - Maximum [°]			
21. Inclination - At feed point [°]			
22. Conveyor cover (Select value)	Yes	Yes	Yes
23. Conveyer located on ATCA cover (Select value)	Yes	Yes	Yes
24. Main device	False	False	False
25. To motor: Minimum required POWER from mechanical equipment [kW]	122	122	122
26. To motor: Minimum required RCD/AFRM SPEED from mechanical equipment [12m/s]			
27. To motor: Minimum required TORQUE from mechanical equipment [Nm]			
28. Description (English)	Belt Conveyors	Belt Conveyors	Belt Conveyors
29. Comments / Remarks			

Comparison of changes at your fingertips as MS Excel output



Markup of delta changes also in the Flowsheet

Pictures: iStock.com/epsnell / Aucotec (4)

thing else that goes with them can then be entered here. In many cases, the EB project specifies all possible variants, thus the tenderer can save time yet again by simply selecting an option. All supplier specifications are then imported automatically by EB into the original tender project for the firm inviting tenders.

Support of the different pre-sales phases

The level of detail of the requested information increases with the various tendering stages. In the first stage, the rough material requirements are usually requested, thus belts, drives, filters, hoppers and silos and so on required for a specific plant section to transport 3 000 tons per hour. The next stage would go so far into detail that the basic concept of a plant with significantly more precise information, for example, drive power and precise dimensions, could be derived from it without further ado. Up to now, all of these rather sophisticated elaborations had to be entered manually into the actual planning project after the tendering stage. Data that was generated in the tendering stage by subsequently selected suppliers can also be easily reused by EB in the actual planning because it is still the same project data.

Minutes rather than weeks

At the end of the tendering process, EB's Tendering Manager imports all tenderer information and automatically compares each individual attribute of the object data

entered – and that can easily be more than 20 000 due to the repeated use of the same components in a plant. If about 15 conveyors are installed in a cement plant and each has about 100 attributes, it is easy to imagine the rapid increase in the amount of data to be processed and the processing complexity. Within a few minutes, the Tendering Manager displays the differences that would otherwise take weeks of work in sifting, sorting and assessment, all without switching between formats and tools, and without endless paper lists and lengthy searches. There are labour-saving choices here also. At your fingertips, the user can let the Tender Manager display only the offers which differ from the invitation to tender, only the rows that are filled, or only the specifications that differ from each other. Or all offers for specific components. Only EB enables such a clear overview for tendering. In the lists that the Tender Manager outputs, all offers are listed next to each other, thus no specification can be forgotten or overlooked. In the process flow diagram, the firm inviting tenders can compare extremely thoroughly each individual offer project, which has resulted from the specifications of the supplier, with its original project because the revision management displays all changes after the import of the supplier data into the project. This overview of deviations is also unique and extremely time-saving. The acceptance of the tender project and the completion of the data-sheets are thus simplified and streamlined significantly in a

standard format process for all persons involved – firms inviting tenders as well as tenderers.

Benefit for tenderers

Tenderers also benefit several times from the tendering tool developed for and with an owner/operator. A pilot customer from the cement supplier industry who used EB and its tendering support immediately became 20 percent faster.

The tenderer has to manage only one project and does not, as usual, have to enter his specifications laboriously into different systems. The time saved by the standard approach increases substantially if the supplier of the supplier submits his offers and specifications in turn on the same basis, which can then simply be accepted in the parent project. This is due to the fact that EB facilitates cooperation with partners because sub-projects can be outsourced simply. The aforementioned automatic updates and the extremely fast finding of one's way and navigating in all documentation also markedly accelerates the bidding process. Furthermore, the suppliers benefit from a better overview, just like the firms inviting tenders, and they can be sure of always submitting an appropriate offer in the correct context.

REFERENCES

Are you interested in an easy way of tendering? Please visit www.aucotec.com