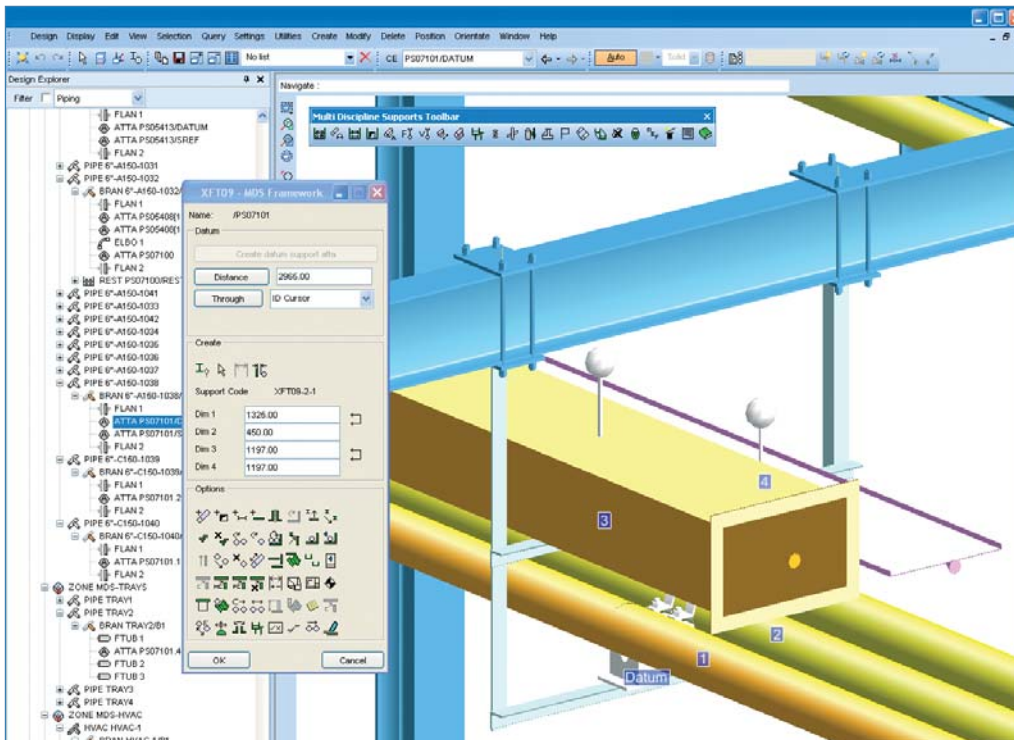# AVEVA **Multi-Discipline Supports 12.0**

Accurate and efficient design and detailing for all types of supports

The design of supports for piping, ducting, and cable trays is a highly specialised activity which has a significant impact on project costs and schedules.

AVEVA Multi-Discipline Supports (MDS) is a highly productive application for the design of all kinds of supports, from a complicated framework encompassing integral hangers to a simple u-bolt. It delivers cost and schedule reductions in design man-hours, materials and rework during construction and erection, and integrates completely with AVEVA PDMS and AVEVA Outfitting.

With an emphasis on maximising design consistency and productivity, the MDS application requires a minimum number of design decisions to create reliable and fully-detailed hanger and support designs. Support drawings are produced automatically with all the necessary data for fabrication and erection of the support, including Material Take Offs and cut lengths.

MDS is highly configurable and is delivered with an extensive range of standard support configurations.

Support designers work within the 3D multi-discipline AVEVA PDMS and AVEVA Outfitting environment
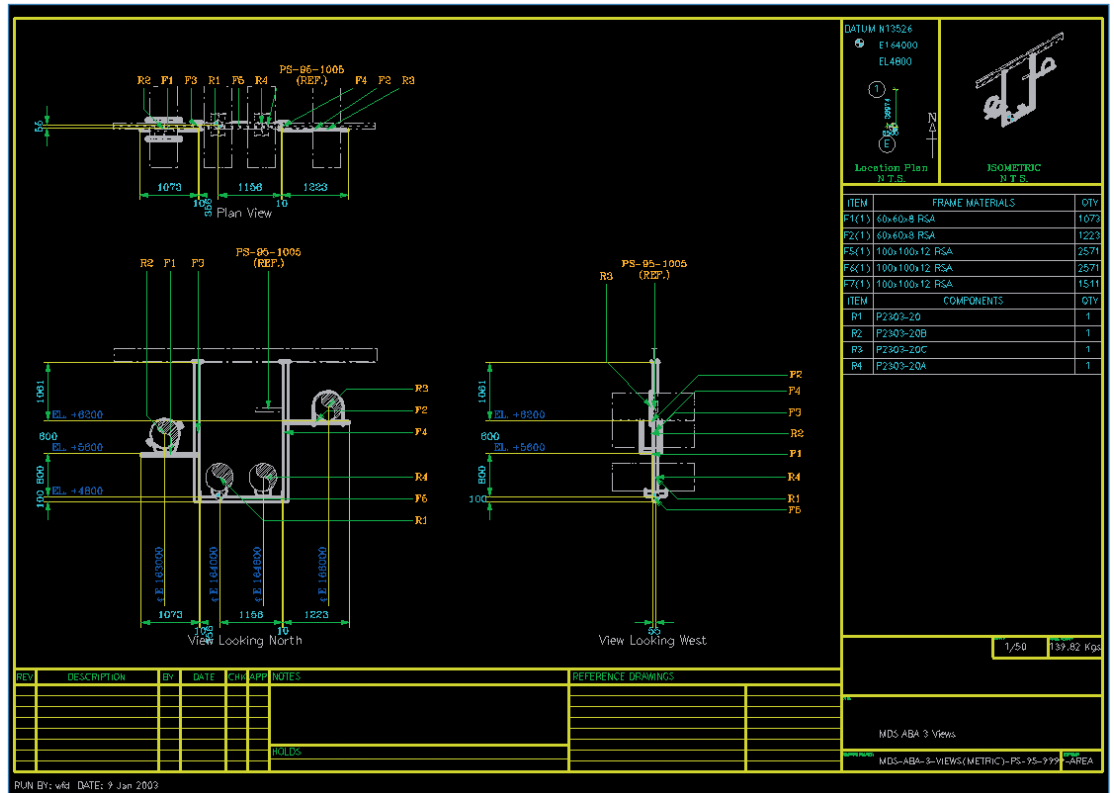
Business Benefits

- Integrated multi-discipline design environment. Support designers work in the same 3D design environment as all other layout and detail design disciplines (such as structural, piping and ducting), so they can see the latest revision of the full design at all times, and work together with related engineering disciplines.

- Integrity and clash-checking tools allow the support design to be automatically checked.

- Automatic fabrication drawings with complete Material Take Off (MTO) information.

- All MDS data is created within the multi-discipline model database. All of the sophisticated data-management, work-sharing, access and change-management controls are fully available for managing support design.

- Supports are often one of the last parts of the design to be completed, but one of the first things to be needed on site. MDS allows support designers to complete their design within reduced timescales, and to integrate their work effectively with designers in other areas if late changes are made in these disciplines.

- Accurate materials information eliminates over-ordering and material shortages during construction.

- Errors and inconsistencies in support design cost man-hours, and can seriously affect project schedule times during construction. The MDS Integrity and clash-checking tools help eliminate such errors.
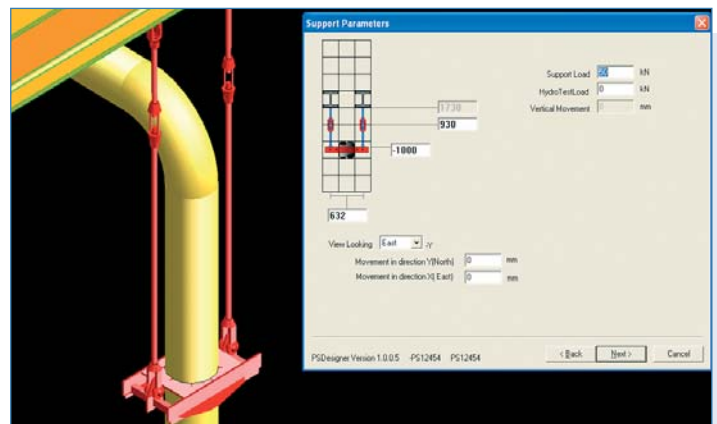
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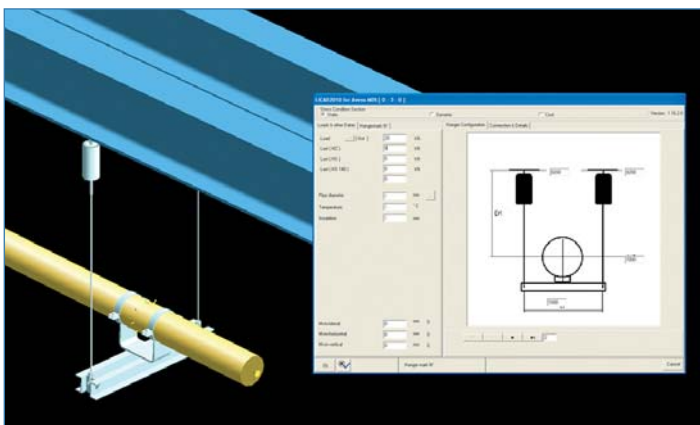
www.aveva.com

Key Features

- MDS is a specialist support design product for the design of pipe, ducting, cable tray and multi-discipline supports.

- MDS operates entirely within the 3D, colour-shaded, multi-discipline environment of PDMS and Outfitting. All MDS users have access to all its features and facilities at all times, and all MDS data is created, controlled and maintained within the database.

- Support designers work by placing instances of standard support configurations into the 3D model, and connecting them to the required structure and the appropriate piping, ductwork or cable tray systems.

- Supports are created by selecting the parts to be supported, then the supporting structure and, finally, the type of standard support to be used. The application then automatically models the support to fit the selected location and supported items and creates all of the required components.

- Each support that is created in the 3D model contains sufficient components and detail to allow the entire support to be fully detailed and a complete Material Take Off to be generated. This includes any structural framework, together with ancillaries such as shoes, u-bolts, anchors, slip units, guides, stops, springs, reinforcing plates and trunnions.

- Support design takes place as an integral part of the overall detail design process and is fully coordinated across all engineering disciplines. Support designers can see all details of the structure and the piping, ducting and other systems.
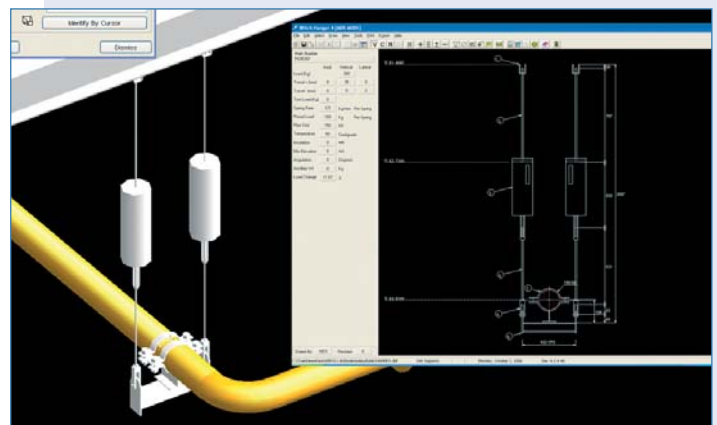

Automatically generated support drawing

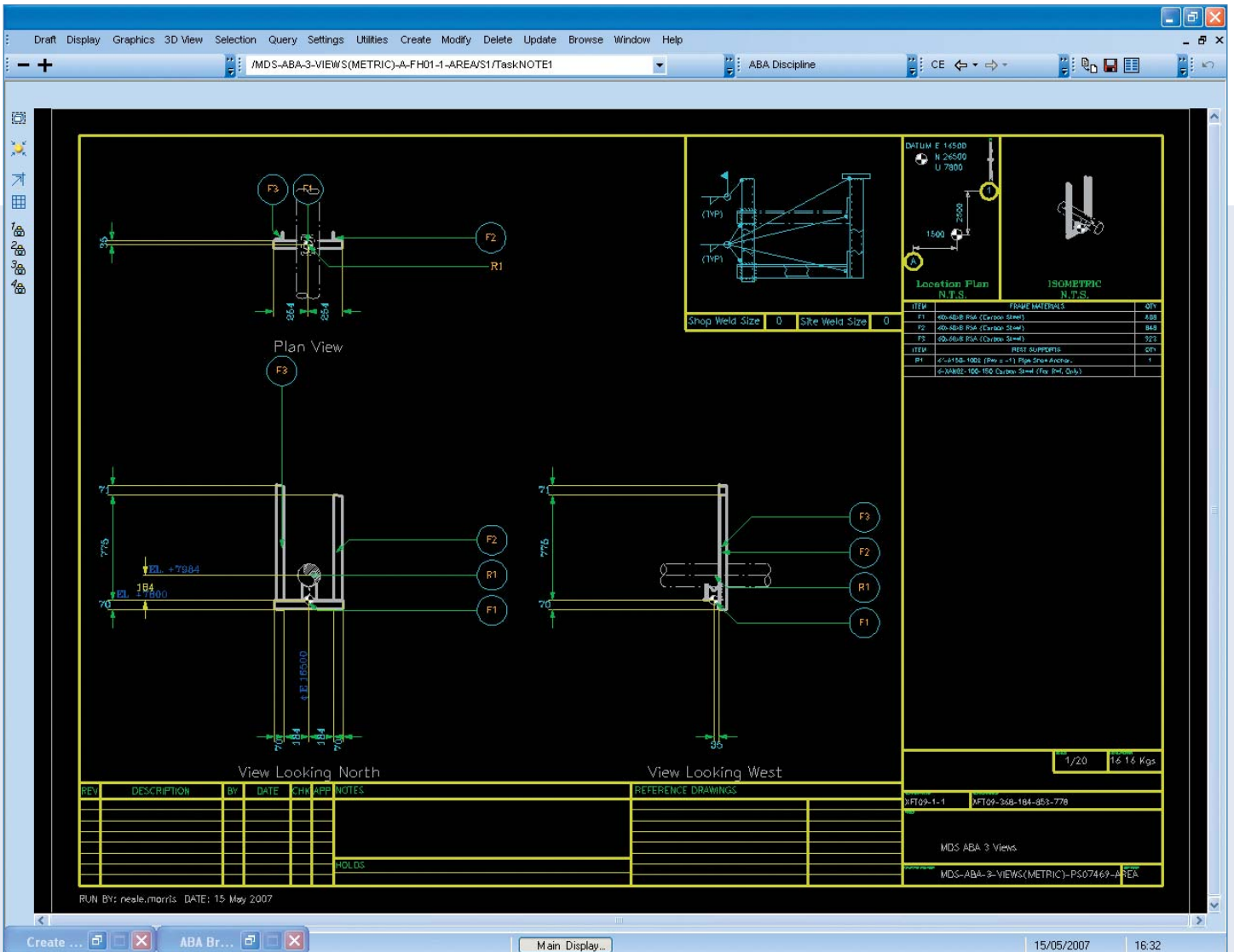AVEVA MDS with Manufacturer Interface for Pipe Supports Limited – PSDesigner

AVEVA MDS with Manufacturer Interface for Lisega – Licad

AVEVA MDS with Manufacturer Interface for Carpenter and Paterson's – WitchHanger

- Each support configuration includes a number of support-specific rules that govern the way in which the support can be applied. These rules are provided to ensure that only the appropriate supports are applied to pipes, depending upon factors such as material, temperature or insulation.

- Supports can be designed according to the rules in selected support manufacturers' software which have been interfaced to MDS. Currently supported are the design rules for Lisega, Carpenter & Patterson and Pipe Supports Limited (PSL). The work process in the application is as follows:

  1. Identify pipe to be supported and the steelwork/civil connection.

  2. Read all the information from the design model and pass it to the support manufacturers' software, where the user designs the support.

  3. On exiting the manufacturers' software, the application builds the support in the model.

- A wide range of predefined support configurations are supplied with the MDS product, ranging from complex configurations such as multi-level structural frameworks to simple cantilevers. Sample catalogues are provided for many structural steel standards.

- Although most supports will be based on the support standards for an individual company or project, MDS also includes the facility to quickly and easily create 'specials' to deal with any exceptional project requirements.

- Supports can be combined with user-modelled structures to build up special support structures.

- Powerful modification capabilities allow supports to be modified at any time, for example, to carry additional pipes, to connect to pipes that were not included in the design when the support was first placed, or to adjust to new geometrical constraints.

Support fabrication and installation drawing

Key Features (continued)

- Integrity and clash-checking tools allow the support designers to check and validate their design, including the support of all connections into the main structure, and all connections into the system they support. Checks can be rerun at any time, to ensure that the effects of late design are quickly and correctly identified.

- Fabrication and erection drawings, complete with annotation, dimensions and detailed Material Take Off information can be produced fully automatically.

- All kinds of reports, including Material Take Offs by area, can be produced using standard reporting tools.

- Fabrication and erection drawings for all the supports are produced directly from the model database, ensuring consistency between design and drawing.

- In addition to the required dimensioning and annotations, there are options to include detail views, full Material Take Off, weights, line identifications, fabrication details, location plans, isometric views and drawing schedules for shoes, u-bolts and more, on the drawings.

- The MDS application can be configured to automatically place weld symbols together with sizes.

- Piping isometric drawings generated from PDMS and Outfitting include the location and description of each support created by MDS.

- Trunnions of all configurations are handled. They can, for example, be placed under tees, reducers, elbows and tube. Details such as offsetting trunnions on pipe elbows and creating reinforcing pads on elbows or straight pipes are also taken into consideration. The minimum and maximum allowable lengths of trunnions can be controlled. Ancillary supports can be created on trunnions. Finally, accurate Material Take Offs with true cut lengths are available.

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