Skew Accessories B.V., 7384 DL Wilp, The Netherlands

Modular system provides Con-Form accuracy and flexibility for their reinforcement elements

Today, Con-Form AS is one of the leading precast plants in Norway. The Con-Form Group, with approximately 400 employees, manufactures nearly 100.000 tonnes of structural elements for the Norwegian market a year. The Orkanger plant is responsible for almost 40.000 tonnes of this production, of which 22.500 tonnes consist of slabs and 12.500 tonnes of double walls. The remaining tonnage is built up from structural precast elements such as beams, columns, balcony elements and stairs.

Due to this extensive production portfolio Con-Form is able to use its considerable expertise to manufacture high quality precast elements to the modern standard. For manual reinforcement assembly, two types of Skew Jig Systems were implemented to provide the required flexibility, speed, and accuracy.

Flexible production

Con-Form has a constant focus on lean assembly to optimise the assembly process. Various practices have been implemented to limit the wastes in material, labour, and resources, stimulating continuous improvement. Con-Form also highly values a safe, ergonomic workspace for efficient production, therefore, the Skew Jig Systems fit in seamlessly.
"With the ever-changing production requirements, we strive to standardise without losing focus on flexibility", says Jomar Fugløy, Production Manager of the Orkanger plant. It is a common challenge in the precast industry to streamline a production process without limiting your production capabilities. Con-Form has found ways of using pre-cut and pre-bent reinforcement, together with standard mesh in their reinforcement assembly. The production management chooses the most labour effective assembly method per reinforcement element type. The steel fixers receive drawings with instructions on what reinforcement will be delivered to the plant and what rebar will be added manually in-house.

Con-Form Orkanger plant

"In structural precast we have observed that there is not a single, universal method applicable for all fabrication", says Bernd Worm, Managing Director of Skew. "Experience teaches us how to utilise machines, personnel, and tooling most efficiently. This often means that a variety of reinforcement processing methods are required. Furthermore, the material flow, including temporary storage, needs to be limited to save valuable manufacturing floor space. The challenge is to have the right equipment per job readily available to make the assembly as efficient and ergonomic as possible." Being adaptable, the Skew Jig System can evolve along with your production changes by adapting, rebuilding, or adding components to match the ever-varying demand.

JIG Table Setup for Double Walls and Slabs

For the manufacturing of the reinforcement, various production methods are used. Con-Form mainly uses mesh for the slabs and the more standard double wall assembly. Standard meshes are fast and easy in use. Yet the standard spacing and diameter range make their application often limited as well. Loose bars can be used in any diameter range and spacing. On top, meshes are typically limited to six-meter lengths, where bars can be utilised up to their maximum length, without having to splice meshes.
In 2021 Con-Form secured a large project for the manufacturing of heavy double walls. Containing bars up to 20mm, in various spacings, the double walls are assembled from individual bars and stirrups. Skew supplied a tailored table setup of 10.8 x 3.6m. The Skew Jig System accommodates a 25mm grid in two directions. Adjustable stop plates also allow the positioning of L-bars and U-bars for reinforcement edging.

With each wall element being different, setting out the reinforcement spacing would be a labour-intensive job. On the Skew Jig System, however, the bars are easily placed in the correct positions by using the provided coloured markers to visually support the steel fixers. The reinforcement grips make sure each bar stays in position throughout the production process, before being permanently fastened.

Double wall assembly on the Skew Jig System

Stirrups for beams are positioned on the Skew Jig System grid

A strategic combination of tying guns, traditional ties, and welding allows the reinforcement to be fastened efficiently. Again, Con-Form deliberately does not limit itself by only depending on one rebar fastening method.
Having the option of making the double walls and slabs both from mesh and from loose bars gives Con-Form the possibility to manufacture their elements to any desirable specification. This makes them an interesting supplier.

JIG Bench Setup for Beams and Columns

In 2019 a first Skew Jig System was implemented at Con-Form for the assembly of beams and columns. In this instance, a method was preferred of making up the element from individual stirrups and bars, where complex stirrups are pre-welded together for easy placement on the bench setup.

Elements of up to 8.4 meters long and 1.2 meters wide, but with a wide range of measurements and a variety of stirrup shapes are all made on the same bench setup. A high diversity in length, width and rebar spacing of the production is not a problem using the workbench as all standard Skew Jigs accommodate a 25mm positioning grid.

The Skew Jig System is highly modular, which means all parts can be used in infinitive configurations. For future projects, both of Con-Form's JIG Setups can be re-assembled to accommodate following projects. Con-Form has thus secured the ability to adapt easily according to its customer demand as it will evolve over the years to come. ■

FURTHER INFORMATION

CON FORM

Con-Form Produksjon avd. Orkanger
Furumoen 27, 7300 Orkanger, Norway
www.con-form.no

SKEW JIG SYSTEMS

SKEW Accessories B.V.
Zonnenbergstraat 34, 7384 DL Wilp, The Netherlands
T +31 571 260115
info@skew.nl, www.skew.nl