

JORDAHL® Edge Confinement JEC



JORDAHL®
anchored in quality

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General information

JORDAHL® Edge Confinement JEC delivers a significant increase in the concrete edge breakout capacity of JORDAHL® JTA anchor channels. The concrete edge breakout resistance is increased up to a factor of 3.9 (compared to anchor channels without edge reinforcement) and 2.8 (compared to anchor channels with edge reinforcement).

A detailed comparison is shown in Figure 1.

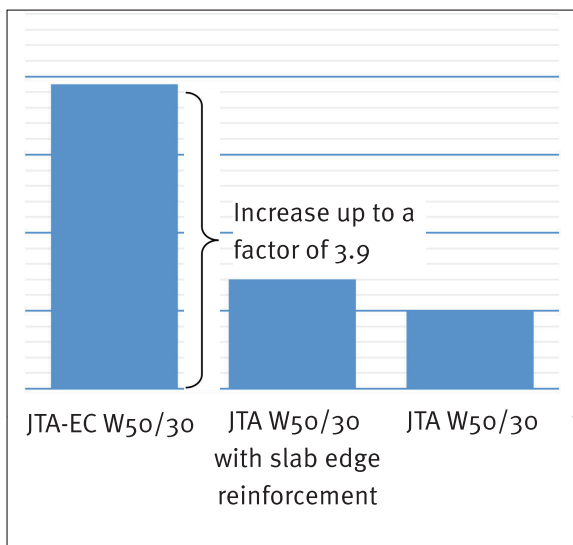


Figure 1: Performance comparison, concrete edge breakout resistance (Input data: Concrete 3000 psi, edge distance 4", slab thickness 5")

The JEC is specifically engineered for top of slab curtain wall applications where high wind loads need to be anchored at small edge distances. This solution addresses the most demanding curtain wall connection conditions including thin slabs, reduced edge distances and lightweight-concrete. JEC provides full installation adjustability which is a characteristic of JORDAHL® JTA anchor channels.

JORDAHL® Edge Confinement JEC is available with anchor channels profiles: JTA W40/22, W40+, W50/30, W50+ and W53/34.

Main advantages:

The increased strength creates numerous possibilities for design optimization, such as:

- Reduced edge distances
- Reduced bracket length
- Shorter anchor channels
- Increased mullion spacing

System description:

The JORDAHL® JEC Edge Confinement elements (Figure 2) are placed at every anchor of the channel (Figure 3).

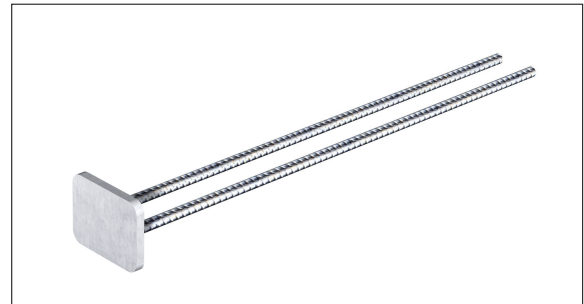


Figure 2: JORDAHL® Edge Confinement JEC

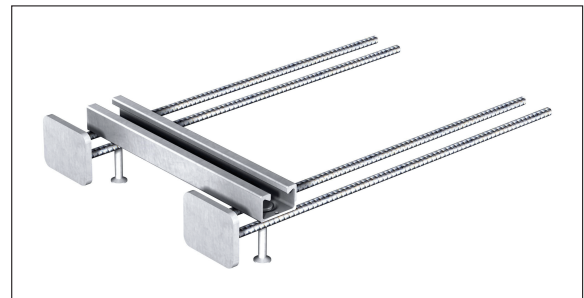


Figure 3: Assembled JORDAHL® anchor channel and two JORDAHL® Edge Confinement JEC elements

JEC confines the concrete in front of the anchor channel allowing the load forces to be transferred to the reinforcing bars and then into the concrete structure. This effectively increases the concrete edge breakout resistance in shear which is one of the main limitations in anchoring curtain wall applications.

Design description:

The design concept for JTA-EC combines engineering methodologies from the reinforced concrete structures code (ACI318/EN1992-1) with the current anchor channel design standard (AC232/EN1992-4). The conventional design checks on the basis of ESR-2854/ETA-09/0338 have been amended with advanced design checks to account for increased concrete edge breakout strength. The new design model was developed together with the University of Stuttgart and IEA (Engineering Office of Elgehausen and Asmus) institutions which have decades of experience in designing and certifying anchorage to concrete. Tests carried out at the material testing institute MPA Stuttgart in Germany successfully verified the design model (Figures 4 & 5).

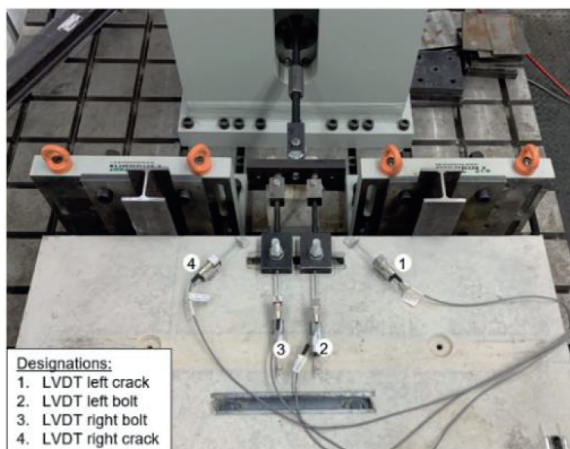


Figure 4: Test setup



Figure 5: Test setup

Software:

The JEC design option is included in the JORDAHL® EXPERT design software for fast and easy calculation. For the design select “JTA-EC” from the drop-down menu (Fig. 6).

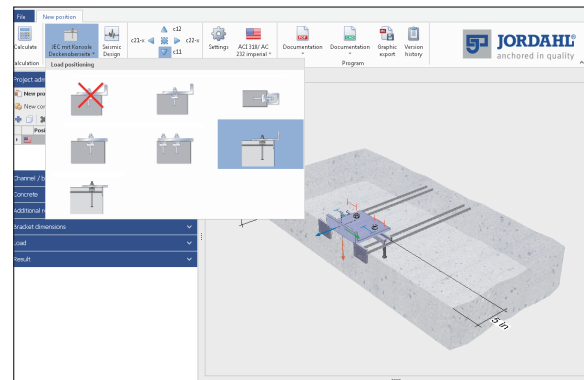


Figure 6: JORDAHL® EXPERT design software

If you have any questions, regarding the JORDAHL® EXPERT design software, feel free to contact our technical department: engineering@jordahlusa.com

BIM and CAD files:

BIM and CAD files can be found on our website: www.jordahlusa.com

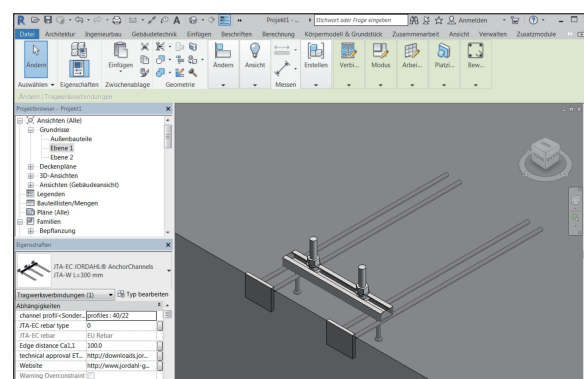


Figure 7: Anchor channel JTA-EC-W50/30-300-2A-HDG with JORDAHL® JTA-EC Edge Confinement Elements - BIM element

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