Leviat®
A CRH COMPANY

Ancon®

Ancon EdjPro EPHIMax

Edge Lifting System

The optimum solution for heavy, plain and step-joint precast panels

The EdjPro EPHIMax Edge Lifting System has been specifically developed to be used in the New Zealand construction industry for 125 - 200mm thick precast panels.The unique I-shaped anchor maximum capacity and stiffness with a narrow anchor design for thin, heavily reinforced panels. As with all anchors in the Ancon EdjPro series, the EPHIMax complies with NZ Good Practice Guidelines for Safe Work with Precast Concrete (Oct 2018)

Ultra narrow, HI working load

- 11.5T WLL, 55mm wide anchor, 65mm recess
- For all panels from 125mm thickness

New I-beam head

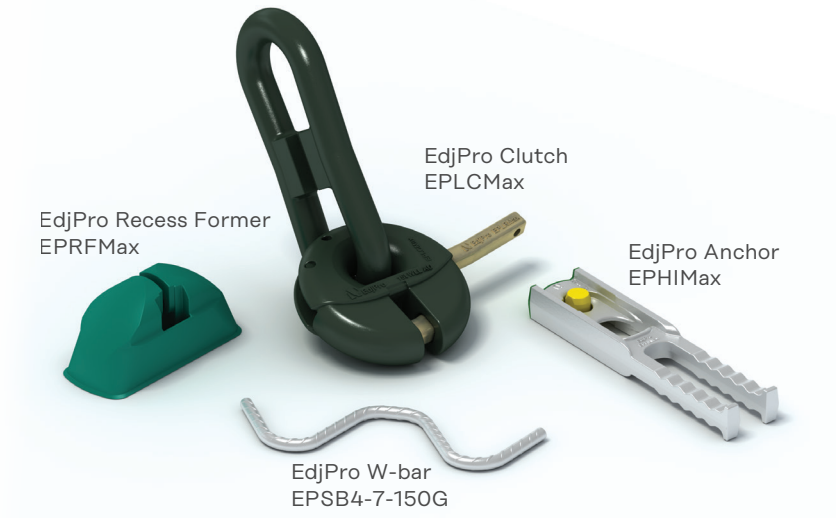
- Restricts clutch rotation
- Lowers the risk of concrete cracking and spalling

Plain & 'Step-Joint' Panels

- Perfect solution for step-joint, 'weather seal' panels
- Narrow shape for maximum edge distances
- EdjPro clutch clears the concrete when edge lifting
- Stronger performance: factory, transportation and erection

Safe

- Up to 11.5T WLL
- Complies with NZ Good Practice Guidelines for Safe Work with Precast Concrete 2018



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Ancon EdjPro EPHIMax

HD16 and HD20 Tension Bar details

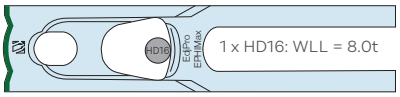
The EdjPro Max anchor must be used with either a HD16 or HD20 tension bar in accordance with AS/NZS 4671:2019 Grade 500E. The nominated leg length required is 500mm for HD16 and 750mm for HD20. The use of this tension bar is to ensure that the anchor meets with the ultimate strength as required in Worksafe NZ Good Practice Guidelines for Safe Work with Precast Concrete (Oct 2018). Leviat recommends a 45 degrees bend refer to Diagrams 1 and 2 but can alternatively be bent at 30-60 degrees refer Diagram 3. If further information is required please contact Leviat.

System Performance

Working Loads in Tension

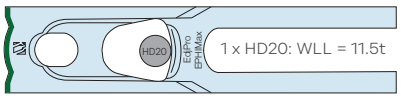
EPHIMax - HD16 Hanger Bar WLL in Tension

Panel Thickness (mm)	Anchor Working Load, FoS = 3.0 Concrete Compressive Strength fcm at time of lift				
	12MPa	15MPa	20MPa	25MPa	32MPa
125	5.4t	5.6t	6.0t	6.6t	7.0t
150	5.4t	6.0t	7.0t	**8.0t**	**8.0t**
175	6.1t	6.6t	7.4t	**8.0t**	**8.0t**
200	6.7t	7.2t	**8.0t**	**8.0t**	**8.0t**
250	7.4t	**8.0t**	**8.0t**	**8.0t**	**8.0t**



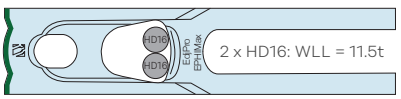
EPHIMax - HD20 Hanger Bar WLL in Tension

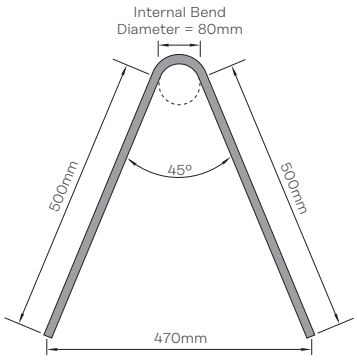
Panel Thickness (mm)	Anchor Working Load, FoS = 3.0 Concrete Compressive Strength fcm at time of lift				
	12MPa	15MPa	20MPa	25MPa	32MPa
150	7.7t	8.1t	8.9t	9.6t	**10.4t**
175	8.3t	8.7t	9.4t	**10.1t**	**10.8t**
200	9.0t	9.2t	9.9t	**10.6t**	**11.1t**
250	9.4t	**9.8t**	**10.5t**	**11.3t**	**11.5t**



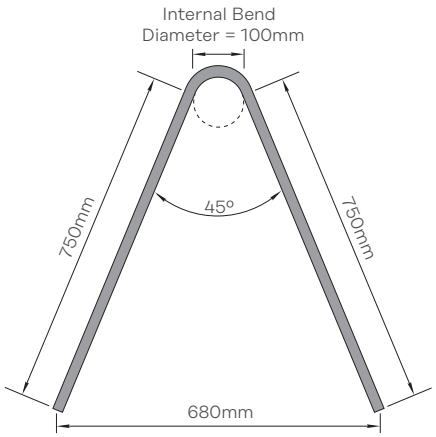
EPHIMax - 2 x HD16 Hanger Bar WLL in Tension

Panel Thickness (mm)	Anchor Working Load, FoS = 3.0 Concrete Compressive Strength fcm at time of lift				
	12MPa	15MPa	20MPa	25MPa	32MPa
150	9.2t	9.6t	10.3t	10.8t	**11.5t**
175	9.8t	10.2t	10.8t	**11.5t**	**11.5t**
200	10.5t	10.9t	11.5t	**11.5t**	**11.5t**
250	11.0t	**11.5t**	**11.5t**	**11.5t**	**11.5t**

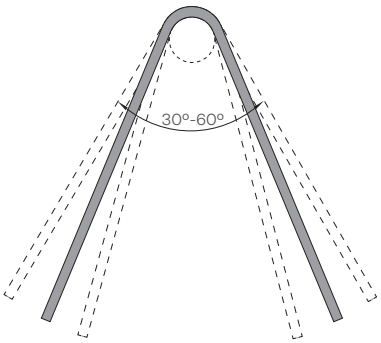




Recommended HD16 Tension Bar
Diagram 1



Recommended HD20 Tension Bar
Diagram 2



HD16 or HD20 Tension Bar Variations
Diagram 3

Ancon EdjPro EPHIMax

Working Load Limits in Shear (tonnes)

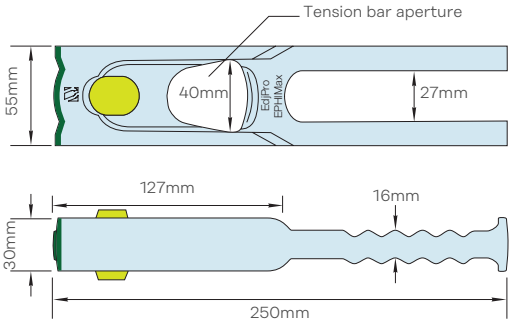
Panel Thickness (mm)	Trimmer bar (perimeter bar)	Shear Reinforcement	Concrete strength at time of lift f_{lift}					
			12MPa	15MPa	20MPa	25MPa	30MPa	40MPa
150	HD16	Trimmer bar only	2.0t	2.25t	2.6t	2.9t	3.15t	3.65t
		Trimmer bar + N12 Shear Bar	2.3t	2.55t	2.95t	3.3t	3.6t	4.2t
175	HD16	Trimmer bar only	2.25t	2.5t	2.9t	3.25t	3.55t	4.1t
		Trimmer bar + N12 Shear Bar	2.55t	2.85t	3.3t	3.7t	4.05t	**4.6t**
200	HD16	Trimmer bar only	2.5t	2.8t	3.25t	3.6t	3.95t	**4.6t**
		Trimmer bar + HD16 Shear Bar	2.85t	3.2t	3.7t	4.1t	4.55t	**4.6t**
225	HD16	Trimmer bar only	2.8t	3.1t	3.6t	4.0t	4.4t	**4.6t**
		Trimmer bar + HD16 Shear Bar	3.2t	3.55t	4.1t	**4.6t**	**4.6t**	**4.6t**
250	HD16	Trimmer bar only	3.05t	3.4t	3.95t	**4.4t**	**4.6t**	**4.6t**
		Trimmer bar + HD16 Shear Bar	3.5t	3.9t	4.5t	**4.6t**	**4.6t**	**4.6t**

Notes: N12 shear 'omega' bars and edge reinforcement e.g. hooked or U-bars help control shear cracking at higher loads. The standard shear bar is optimised for 120-150mm thick panels. Multiple bars or larger diameter bars with deeper embedment may improve crack control in thick (175-200mm) panels. Panel cracking and shear spalling is possible if the designed loads are exceeded. Some anchor deflection is normal, particularly at large sling angles.

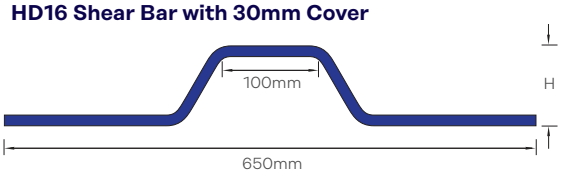
For other panel thicknesses, please consult the Leviat technical team for design advice. The WLLs shown in the tables above are based on a minimum distance equal to the panel thickness between an anchor and any edge or penetration (e.g. a duct) and twice this distance between any two anchors.

EdjPro EPHIMax Anchor

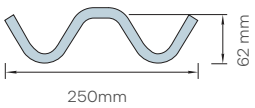
Narrow body and high capacity, perfect for thin panels.



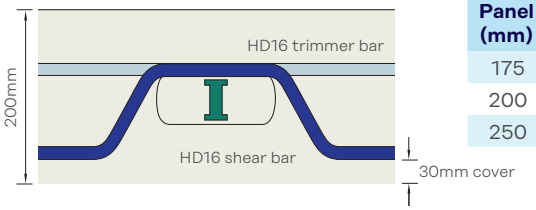
HD16 Shear Bar with 30mm Cover



Standard HDG N12 'W' Shear Bar



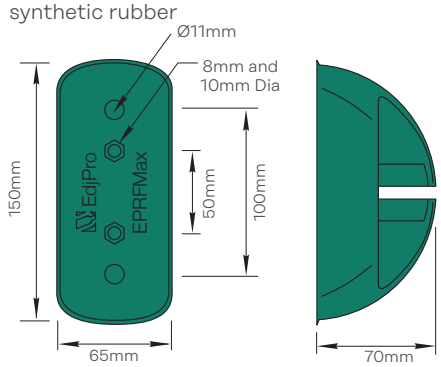
EPHIMax HD16 Trimmer and HD16 Shear Bar 200mm Panel



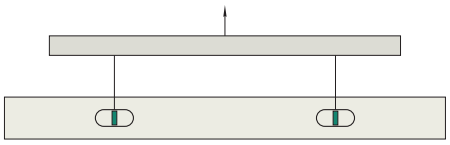
Panel (mm)	H (mm)
175	85
200	100
250	125

EdjPro Recess Former EPRFMax

Ultra narrow design, oil resistant synthetic rubber

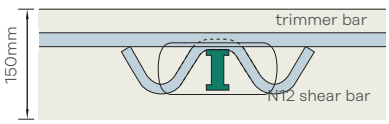


Preferred Rigging: Use a Beam to Minimise Stresses



A lifting beam rigged with vertical slings is always preferred i.e. sling angle =0° minimises concrete stress in the thin edge. Always limit sling angles to 60° when lifting with or without a beam.

EPHIMax HD16 Trimmer, EPSB4-7150G Shear Bar in 150mm Panel



Important! The EPHIMax must be installed with the EPRFMax recess and lifted with the EPLCMax clutch (or the compatible but now superseded EPNLC10). This system is not compatible with other components without written authorisation from Leviat.