

# CUTTING GUIDELINE

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How to cut Oglaend System Support Channels,  
Cable Ladders and Cable Trays.



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# SAFETY AND TOOLS

## Introduction

Oglaend System manufacture and deliver Multidiscipline modular bolted support systems, cable trays, cable ladders and accessories for complete installation and containment of Instrument, Electrical, Telecom, HVAC and Piping services. This cutting guideline provides you with the optimal cutting length/intervals for all modular products. This guide should also be applied when designing in 3D plant software to benefit from the same advantages of the modular installation. In short, adapt this guideline and adhere to it in modelling as well as in the real world as standard procedures makes everything easier.

Following the advice given in this cutting guideline will lead to:

- Increased safety and handling
- Reduced weight
- Ease of installation
- Improved logistics
- Optimal performance of products

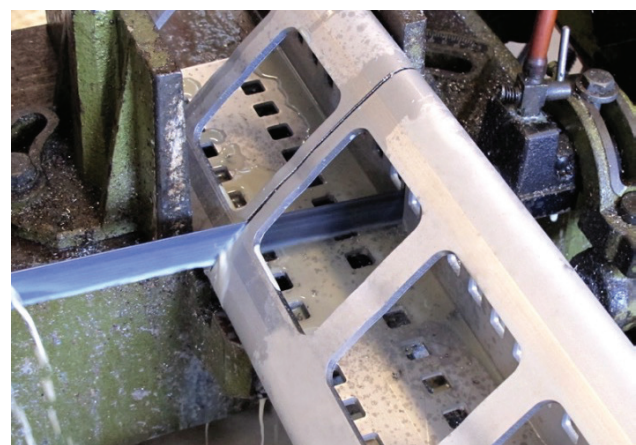
## Safety First

Our systems are carefully designed and manufactured using high tech, modern machine parks. This combination gives a product that typically has no sharp edges prior to cutting. **When products are cut on-site for installation, the cut edges will in many cases be sharp, therefore precautions must be taken to avoid accidents and injuries.** As common practice, we recommend using Kevlar gloves when handling and installing products in addition to eye, head and footwear PPE. Local and national HSE variances must also be observed.

Where products are being cut on site, we recommend using a band saw with an appropriate blade suitable for the material thickness to reduce swarf and burr. Angle grinders with fine cutting wheels can be used (1 mm). **Care should be taken to protect surrounding materials from grinding sparks and overheating.** As best practice, any burr should be removed.

## Preferred Tools/Safety

Unless appropriate safety measures are taken, cutting or grinding metal can be a hazardous activity, with a significant risk of personal injury or damage to the installation. **When available, a band saw is usually the most appropriate tool for cutting thin metal products such as cable ladders and trays.** Using band saws for this purpose results in minimal splatter, and its stability facilitates safe use.





## Selecting the Right Tool



### Cordless Circular Saw

A circular saw is a good option for cutting light channels, cable tray and ladders. The Hilti SCM 22-A circular saw is precise, cordless, easy to handle and has a chip collector to reduce contamination potential. The blade of Hilti's circular saw is guarded for the safety for the worker. It is also equipped with a blade brake that stops the blade in less than 0,5 seconds. The LED lamp in the front section of the blade guard illuminates the cutting line, making it suitable for any environment.



### Angle Grinder

Where other options are impractical, angle grinders may also be used. These offer increased flexibility, but result in more splatter and increased risk of personal injury. Thus it should be noted that safe use of angle grinders require the operator to handle it with both hands at all times. Care should be taken to protect surrounding materials from grinding sparks, and to avoid overheating the materials.



### Bandsaw





















Hilti's cordless bandsaw is an appropriate tool for cutting low height, thin metal products such as cable ladders and trays and support channels. Accurate cutting is achieved with low noise and debris. Hilti SB 4-A22 has a cutting capacity of 63.5 mm.



### Torches




Cutting using torches is **not recommended**, as surface treatments become damaged and the materials may be weakened.

## Matrix - Selecting The Right Tool

Tools	Steel		FRP	
	Support	Trays/Ladders	Support	Trays/Ladders
 Bandsaw				
 Cordless Circular Saw				
 Angle Grinder*				
 Torches				

**Note!** Do not mix cutting blades between stainless steel and carbon steel.

\*Where band saws are unavailable or impractical, angle grinders may also be used. These offer increased flexibility, but result in more splatter and increased risk of personal injury. Angle grinders are not suitable for FRP.

 = Recommended  
 = Can be used  
 = Can not be used

## Corrosion Risks When Cutting Steel

Due to the risk of galvanic corrosion, it is vital to avoid mixing different types of metal such as galvanized carbon steel and stainless steel. Therefore, a single cutting blade should not be used on several different materials. **Nearby products of other steel types should be covered**, in order to avoid particles which can contaminate the material. Damage due to mixing metals depends on the relative difference in standard electrode potential between the metals mixed. More details on the reasons for this are found on our article detailing corrosion.

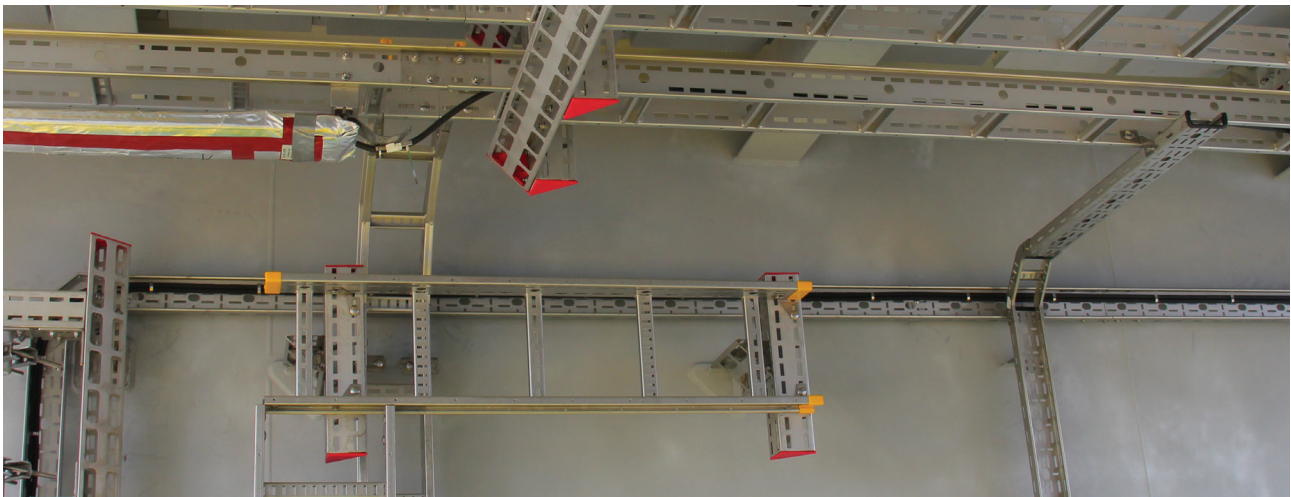
When cutting stainless steel, irrespective of the cutting method, **the saw blade or cutting wheel should be suitable for stainless steel**. It is also important that it hasn't been used previously on carbon steel, as the residue on the blade and wheel might cause galvanic corrosion on the stainless steel surface. **This also applies to files or abrasive wheels used for deburring.**

## After Treatment

### Deburring Steel Products

After metal has been cut, all sharp edges should be deburred to avoid cutting injuries to personnel. To further reduce the risk of injuries to personnel, end caps are also available for all product ranges in high visibility thermoplastic and/or in all metal construction. As a best practice all exposed edges should be covered with end caps.

Where products have to be cut at irregular distances, we recommend having the open cut end placed inside where possible (i.e. open ends of support inside the starter bracket, open ends for ladders and trays not at the end of the cable run). By following our guidelines and Hilti tool recommendations, it positively enhances HSE when cutting Øglaend System steel products.





## Self-healing cut ends of zinc coated steel

### Hot-dip Galvanized Steel

The zinc acts as a sacrificial anode due to its low electrode potential. When zinc coated products are cut or if surface damage occurs to the zinc coating which exposes the underlying steel substrate, the galvanic cell formed will lead to the zinc sacrificially protecting the exposed steel surface, by slowly creeping over the exposed area. As a result small scratches on a galvanized surface will not normally require any repair work to be conducted.

The rate and extent of this self healing from this sacrificial phenomena in traditional hot dip galvanized products depends on both relative surface areas, galvanization thickness, potential difference in the galvanic cell and other environmental conditions.

In instances where the formation of red-rust in the time period until self-healing is completed is not acceptable, cut ends can be sealed with zinc rich paint.

### ZM Coated Steel

Cut edges on products produced from ZM coated sheet metal also benefit from this electrochemical protection. ZM protects exposed cut edges with a thin zinc-based protective film which coats the bare substrate over time. Thus if the coating is damaged or where ends are cut or holes created, the coating slowly migrates over and re-covers the exposed steel. In the period of self-healing, red-rust will form on these cut ends, which will then slowly be replaced by the zinc film. The speed of the self healing process with ZM depends on local environmental conditions, where chloride rich environment reduces the time to self-heal. Substrate thicknesses up to 4 mm thickness have been shown to self-heal effectively.

Larger areas of more serious damage must however be repaired by conventional methods such as application of a zinc rich paint or other protection.



Reference: ArcelorMittal. Dunkerque, France. Marine Environment.

## FRP Cutting Guidelines

FRP products are inherently stable and safe to handle. The dust created when cutting FRP can however cause skin and respiratory irritation. The amount of irritant varies among different individuals, and is easily reduced or eliminated by wearing protective clothing and equipment as shown.

Therefore, when cutting, grinding or sanding fiberglass we recommend to wear appropriate clothing to protect the operator. Safety glasses, dust mask and gloves are necessary.

## Selecting the Right Tool

On-site cutting is easily done with the use of a circular power saw. Diamond or carbide grit edged saw blades and carbide tip drill bits are best suited for fiberglass.



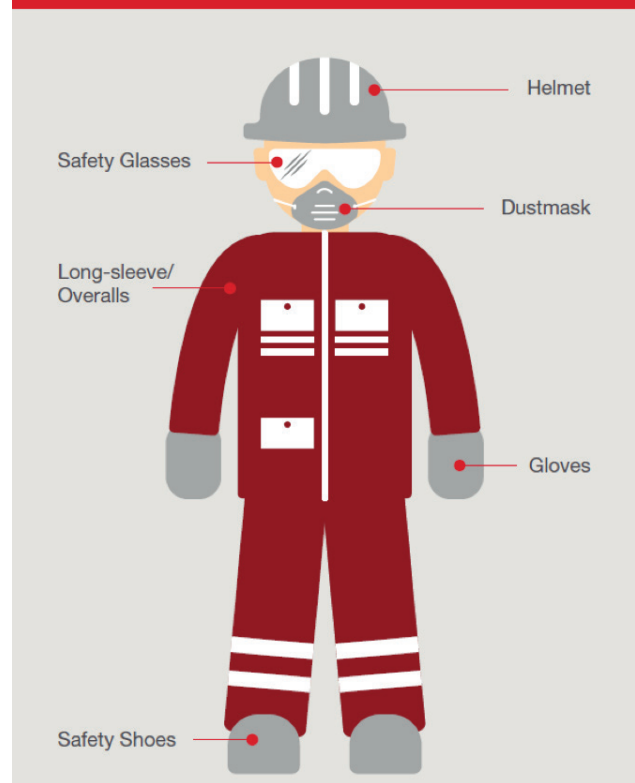
Cordless drill driver  
SF 8M-A22



## After Treatment - FRP Cut Ends

From our extensive testing and on-site experience, the quality of our FRP profiles are such that **cut ends and holes do not require sealant in most harsh environments**. The requirement for additional sealant applied to cut ends and holes should be considered by the specifier, engineering company or owner based on their environmental evaluation, and specified as a scope of work for the installation contractor.

## RECOMMENDED PROTECTIVE GEAR



## Cutting Interval for FRP

FRP Supports and Cable Trays can be cut at any length. For FRP FOE Cable Ladders, please follow the same guidelines as all Cable Ladders by cutting in 300 mm steps for optimal strength and performance. Drilling jigs for splice connections are available.

## Cutting and Drilling

Avoid excessive pressure when sawing or drilling, because this force can wear down the tools.

Refrain from generating excessive heat in any sawing or drilling operation. The heat can soften the resin and produce a rough edge. Excessive heat will also burn the resin and fiberglass.

Provide rigid support for the profile material during the cutting or drilling process. Movement may cause chipping at the profile edge



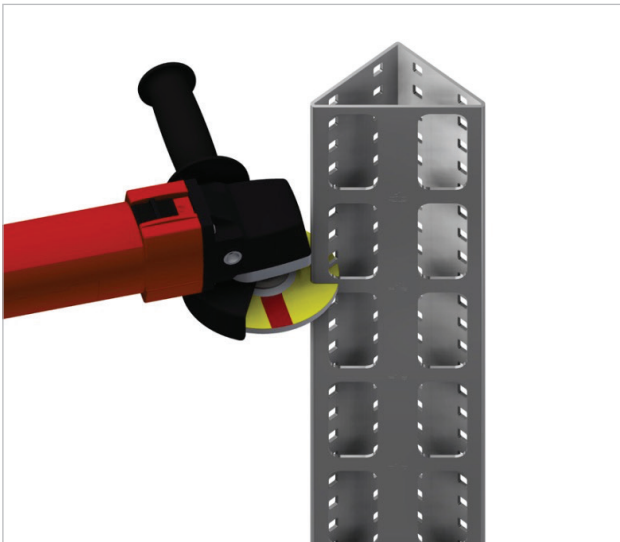
## CUTTING SUPPORT CHANNELS

### Cutting Mekano® Channels

When cutting Mekano® channels, cuts should be made half way between holes and openings to maintain the closed section torsional strength and reduce sharp edges. As with all cutting operations, careful consideration should be made to local health and safety requirements. All appropriate precautions should be taken to prevent accidents.

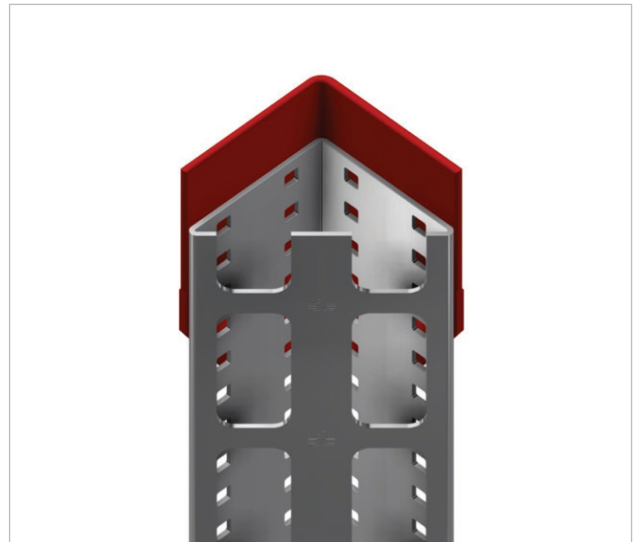
Where channels have to be cut at irregular distances, we recommend having the open cut end placed inside the starter bracket where possible.

#### Recommended cutting:



*Best Practice is to cut between the holes in the back.*

#### If necessary:

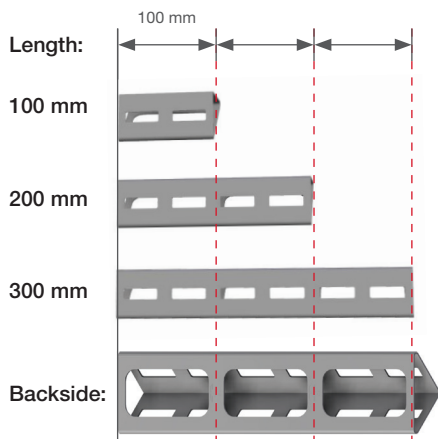


*If channel has to be cut at irregular distance, it is recommended to place the open cut end inside the starter bracket when possible.*

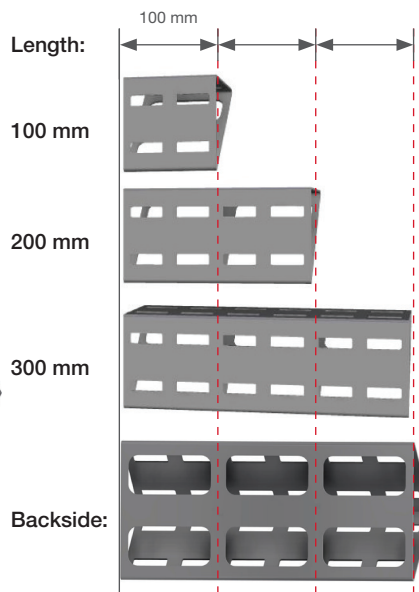
## Mekano® Channels Cutting Guideline

### Channels CH50-2T / CH100-2T / CH100-2T3

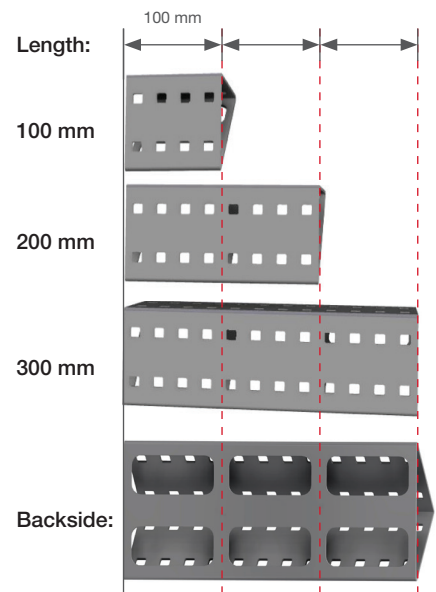
**CH50-2T and CH50-2T 10/6:**  
100 mm cut step



**CH100-2T:**  
100 mm cut step

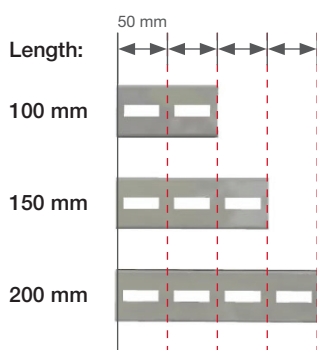


**CH100-2T3 and CH125-2T5:**  
100 mm cut step

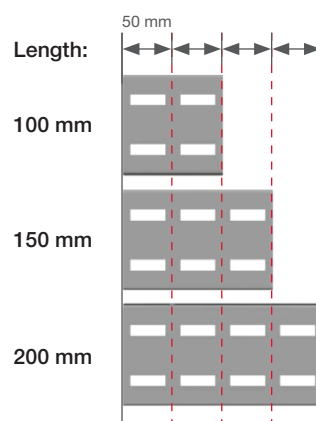


### Channels CH50-1 / CH100-1 / CH100-4 / CH100-Q3

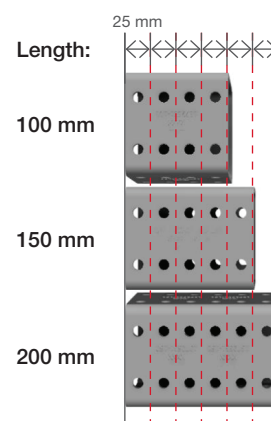
**CH50-1 and CH50-2:**  
50 mm cut step



**CH100-1:**  
50 mm cut step



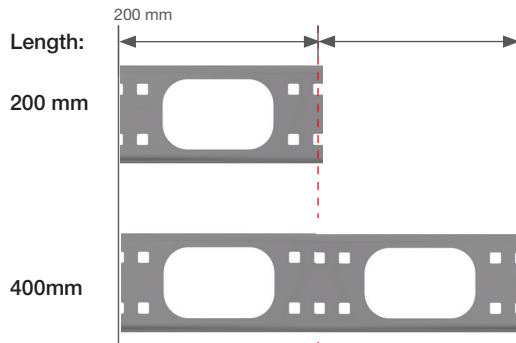
**CH100-4:**  
25 mm cut step



**Note:** Factory cut lengths are in 100 mm increments.

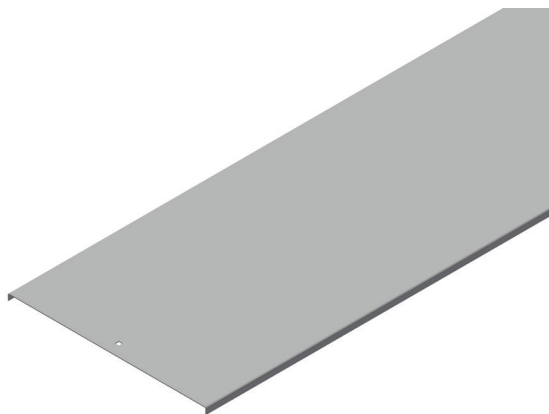
### CH100-3Q:

200 mm cut step



**Note:** The exact cut-line can be placed anywhere as long as it does not conflict with the large holes.

### Covers for cable ladders/trays



There is no cutting interval applicable to covers. Cut at desired location.

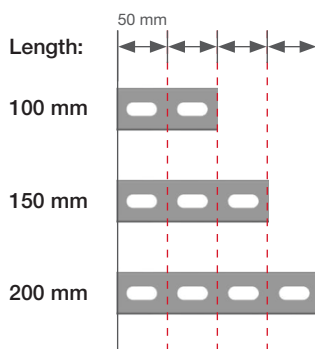


## UNO Channels Cutting Guideline

### Channels UNO U-21 Single / U-21 Double / U-41 Single / U-41 Double

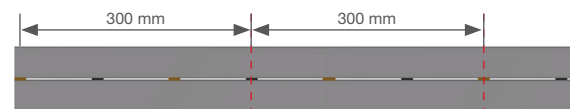
#### Single Channels:

- **Unperforated:** Can be cut at any length
- **Perforated:** 50 mm cut step

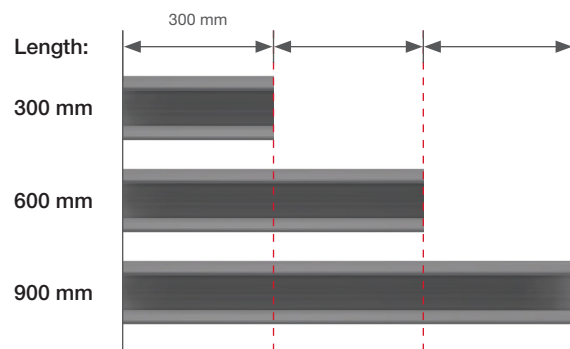


#### Double Channels:

300 mm cut step\*



\*double channels are welded together, for optimal strength leave 4 welds per length. Achieved with 300 mm cut step.



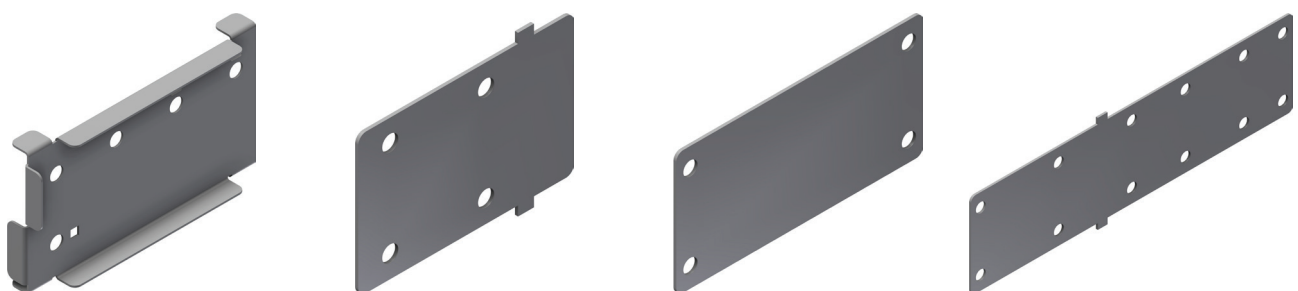
## FRP Channels Cutting Guideline

### Channels CH100-1 / CH100S / CH 53 / CH 42 / All FRP UNO

All channels can be cut at any lengths.

#### FRP drilling jigs for back-to-back FRP channels CH100-1 / CH100S

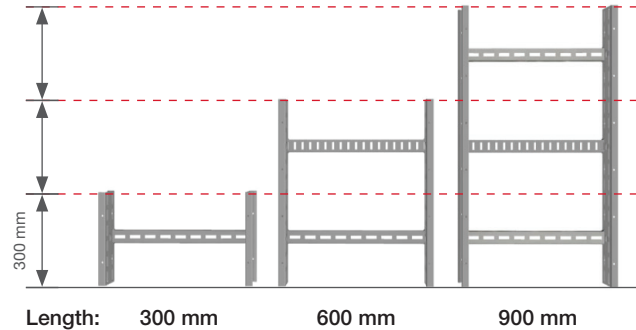
The FRP material is easy to cut and drill, which allows for diverse customisation on site, as needed. Smart drilling jigs are available; these drilling templates provide perfect hole placement for splice plates and gusset plates. See user guides for correct application.



## CUTTING CABLE LADDERS

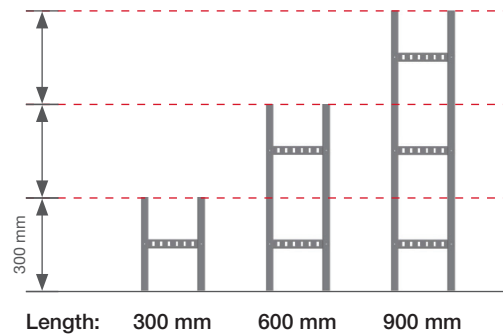
### OE Cable Ladder Cutting Guideline OE 100 / 125 / 150

All widths: 300 mm cut step



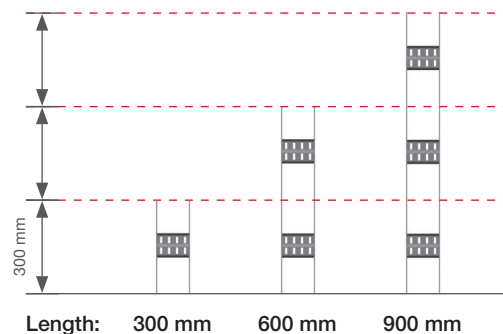
### LOE/TOE Cable Ladder Cutting Guideline LOE 55 / 75 / 100 - TOE 75 / 100

All widths: 300 mm cut step



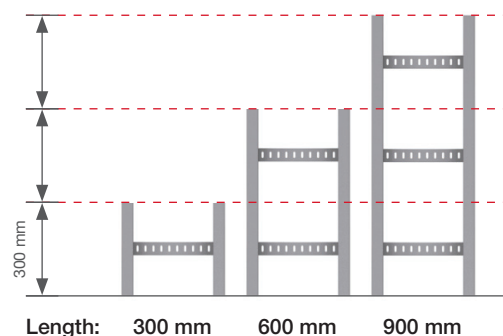
### RZE Shipladder Cutting Guideline RZE-R / RZE-P

All widths: 300 mm cut step



### FOE Cable Ladder Cutting Guideline FOE 70 / 100 / 150 / 200

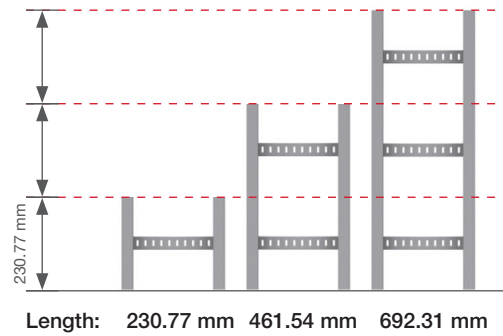
All widths: 300 mm cut step



## OE Nema 20c Cable Ladder Cutting Guideline

### OE 150

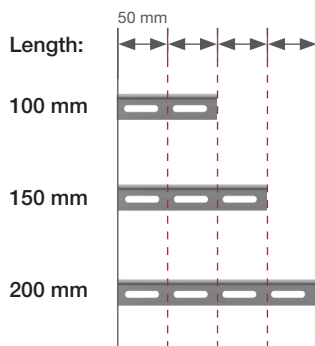
**All widths:** 230.77 mm cut step



## Divider Cutting Guideline

### Metallic

**All widths:** 50 mm cut step



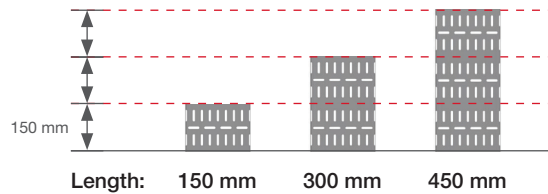


# CUTTING CABLE TRAYS

## SPBE Cable Tray Cutting Guideline

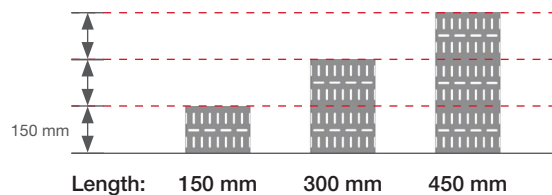
### SPBE20

All widths: 150 mm cut step

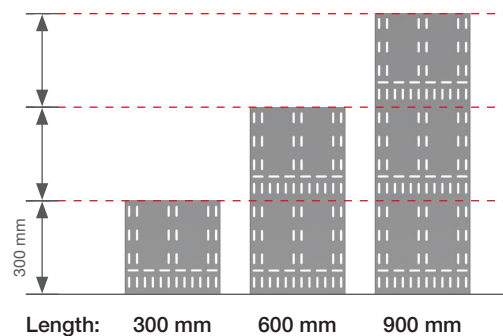


### SPBE40

Widths 50-200 mm: 150 mm cut step



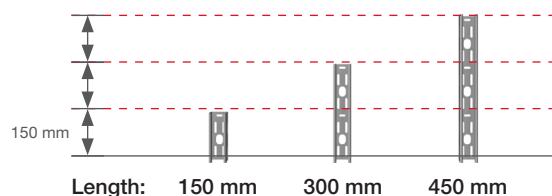
Widths 300-400 mm: 300 mm cut step



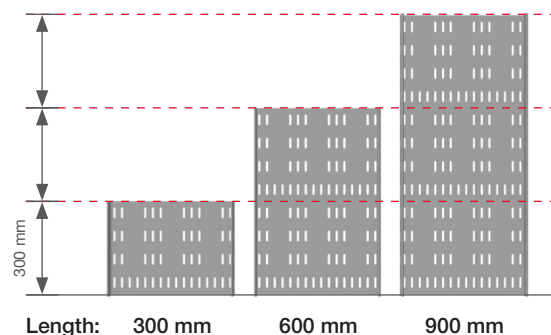
## SPB-RF Cable Tray Cutting Guideline

SPB-RF 40 / 50 / 60 / 75 / 100

Widths 50-200 mm: 150 mm cut step



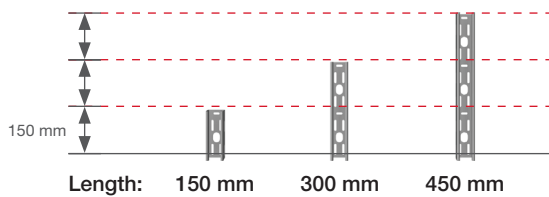
Widths 300-600 mm: 300 mm cut step



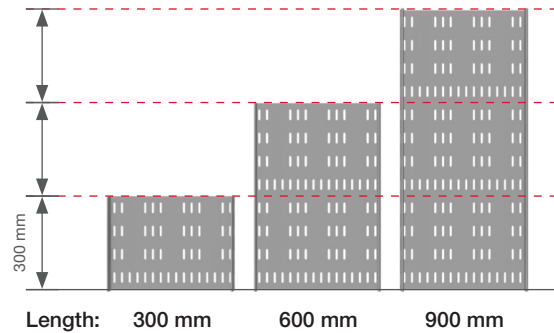
## SPB-LB Cable Tray Cutting Guideline

### SPB-LB 40 / 55

**Widths 50-200 mm: 150 mm cut step**



**Widths 300-600 mm: 300 mm cut step**



## FTE Cable Tray Cutting Guideline

### FTE 50 / 80

**Can be cut at any length.**

Distance between perforations are 300 mm  
(recommended cutting interval).



## Permissible deviations of angular dimension

The following table gives the permissible deviation from a 90 degree cut. (ISO 2769-1, Table 3)  
Designation c should be used.

Tolerance class	Permissible deviations for ranges of lengths, in millimeters, of the shorter side of the angle concerned				
	up to 10	over 10, up to 50	over 50, up to 120	over 120, up to 400	over 400
f - fine	±1°	±0°30'	±0°20'	±0°10'	±0°5'
m - medium					
c - coarse	±1°30'	±1°	±0°30'	±0°15'	±0°10'
v - very coarse	±3°	±2°	±1°	±0°30'	±0°20'

## Permissible cutting distance from holes

Always make sure that the cut is applied such that at least 4mm distance remains to the edge of a hole.



# CUTTING GUIDELINE OVERVIEW

Overview of all the cut lengths in this guideline:

Product type	Name		Product version			Cut step	
Support Channels	Mekano®		CH50-1			50 mm	
			CH50-2			50 mm	
			CH100-1			50 mm	
			CH50-2T			100 mm	
			CH50-2T 10/6			100 mm	
			CH100-2T			100 mm	
			CH100-2T3			100 mm	
			CH100-Q3			200 mm	
			CH100-4			25 mm	
			CH125-2T5			100 mm	
	UNO		Single channels		Unperforated	Any cut length	
					Perforated	50 mm	
			Double channels			300 mm	
	FRP		All channels			Any cut length	
Cable Ladders	OE		OE 100 / 125 / 150			300 mm	
	OE		OE 150 Nema 20c			230.77 mm	
	LOE		LOE 55 / 75 / 100			300 mm	
	TOE		TOE 75 / 100			300 mm	
	RZE		RZE-R / RZE-P			300 mm	
	FOE		FOE 70/100/150/200			300mm	
	FOE		Dividers/covers			Any cut length	
	OE	TOE	LOE	Covers			Any cut length
	OE	TOE	LOE	Dividers			50 mm
Cable Trays	SPB		SPBE 20			150 mm	
			SPBE 40 / 50 / 60 / 75 / 100	width	50-200 mm	150 mm	
					300-400 mm	300 mm	
			SPB-RF 40 / 50 / 60 / 75 / 100	width	50-200 mm	150 mm	
					300-400 mm	300 mm	
			SPB-LB 40 / 55	width	50-200 mm	150 mm	
					300-600 mm	300 mm	
	Divider			50 mm			
	Cover			Any cut length			
	FTE		Cover/divider			Any cut length	
FTE 50 / 80			Any cut length (Rec.: 300 mm)				