

EYE Compact Brackets Guide



Introduction

The purpose of this document is to provide guidance when constructing brackets before installing an EYE Compact system. Since there are a variety of machines on the market, individually made brackets need to be created for each machine. Therefore, this document should instead be read as inspiration of different ways of constructing brackets.

Note that Eltex does not manufacture or sell any brackets, but we can provide drawings of brackets constructed for CMC tufting machines.

Possible gauges for EYE Compact are 1/10" to 5/8" (see chart). A 3/32" gauge has been tested and works but should be considered as an "experimental" gauge since the sensors can not be placed any closer than 1/10". Because of this the pitch and tilt angle will be the same as for a 1/10" gauge. With a 3/32" gauge the mounting of the sensors will become slightly wider than the carpet width without affecting the operation of the sensors.

When using double feed on machines a gauge of 1/12" could be used.

EYE Compact brackets for 3/32" - 5/8" gauges

Gauge (inch)	* 3/32"	1/10"	1/8"	5/32"	3/16"	1/5"	1/4"	5/16"	3/8"	5/8"
Gauge (mm)	2,38	2,54	3,175	3,97	4,76	5,08	6,35	7,94	9,53	15,88
Pitch (mm)	40,64 (1,6")	40,64 (1,6")	50,8 (2")	63,5 (2 ½")	76,2 (3")	81,3 (3 1/5")	101,6 (4")	127 (5")	152,4 (6")	254 (10")
Tilt angle	28°	28°	20°	0°	0°	0°	0°	0°	0°	0°

When the sensors are mounted on the machine they should be distributed as evenly as possible over the entire width of the machine. The reason why this is desirable is because the angle of the threads in the sensor eyes needs to be equal across all ceramic eyes.

To have large variations in yarn angles between eyelets can create problems when installing the EYE Compact system because different sensitivity settings needs to be applied. With the use of the table on the next page, it is possible to see the correct distance between the sensors to achieve an even distribution.

Considerations

Yarn friction on the ceramic eyelets is what produces each position's signal. Therefore, all yarns must pass through the eyelets at a slight angle to maintain yarn to eyelet contact.

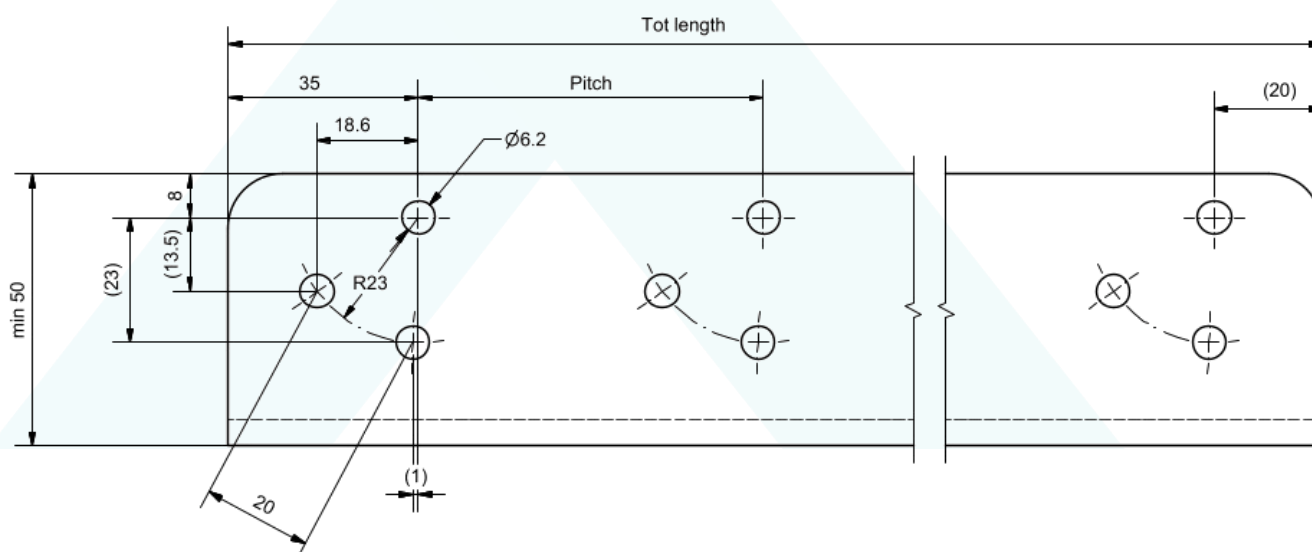


Above picture shows an example where the yarn angles are less optimal. These sensors were mounted on a 3/8" gauge machine, which means that the tilt angle should be 0°. See examples below. The distance between the sensors (pitch) could also be shorter, see table above. It is desirable that the yarns have as equal angle through the sensor's ceramic eyelets as possible, to avoid having to use different sensitivity settings.

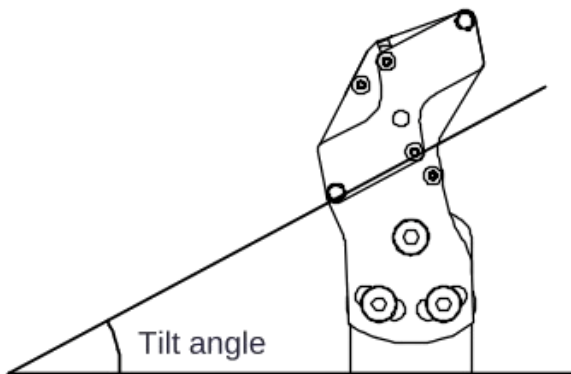
Explanations

Gauge refers to the distance between the needles, and EYE Compact can be mounted on machines with down to 1/10" (3/32").

Pitch refers to the distance between the sensors when they are mounted on the machine. The pitch varies depending on the gauge. When determining the **total length** of the bracket, the following calculation can be used, $n-1 \times \text{pitch} + 20$, where n refers to the number of sensors (see below picture).



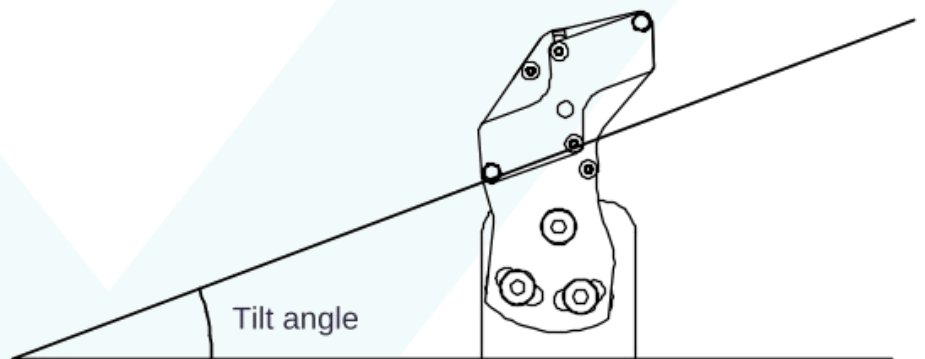
Tilt angle refers to the degree to which the sensor must be angled based on the machine's gauge. For 1/10" and 1/8" gauges the sensors need to be tilted 28 and 20 degrees respectively to be mounted on the machine, but for gauges between 5/32" and 5/8" there is no need to tilt the sensors, as below pictures illustrates.



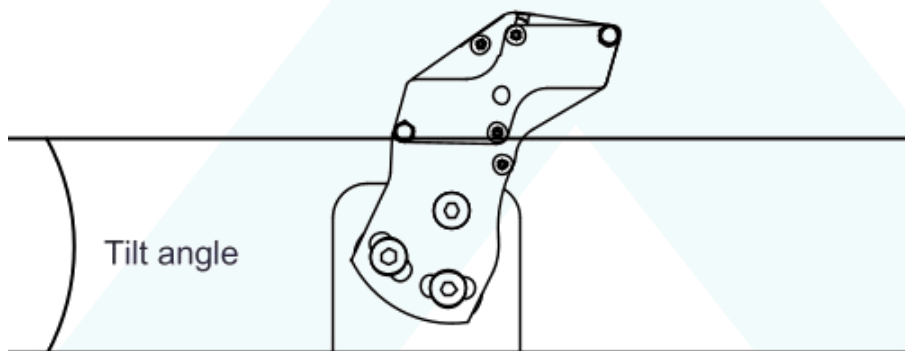
1/10" gauge (3/32")

Hole pattern yields a nominal 28° sensor tilt angle

1/8" gauge



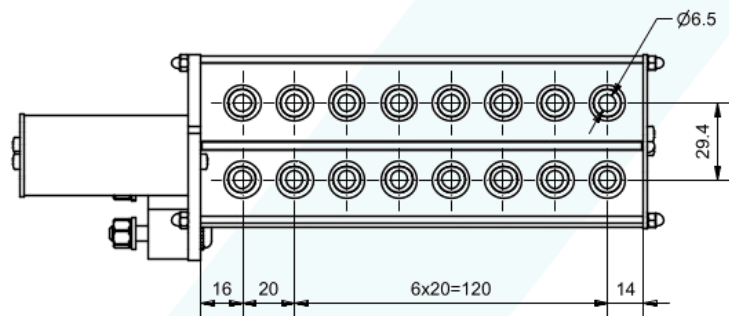
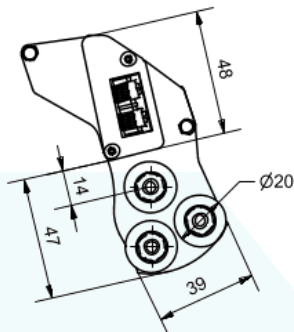
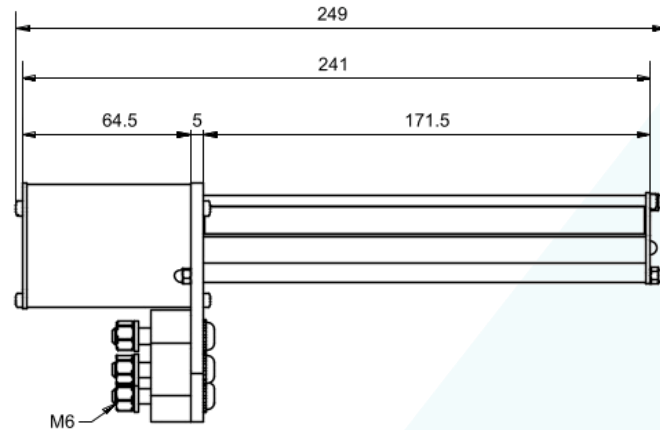
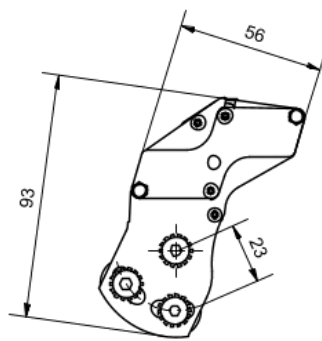
Hole pattern yields a nominal 20° sensor tilt angle



5/32" – 5/8" gauge

Hole pattern yields a nominal 0° sensor tilt angle,
i.e. sensor is parallel with bracket

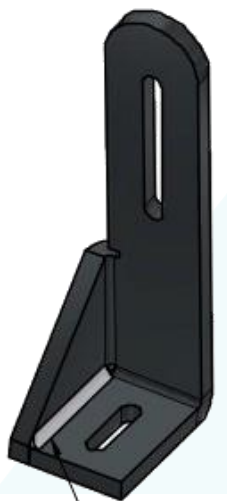
EYE Compact dimensions (mm)



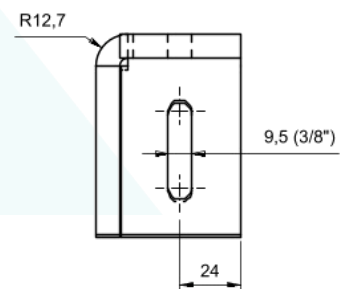
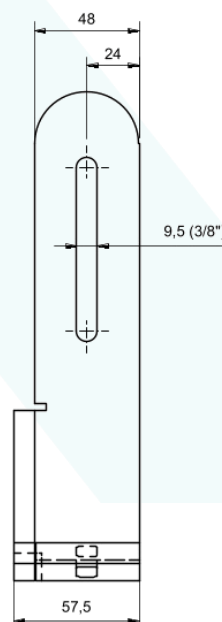
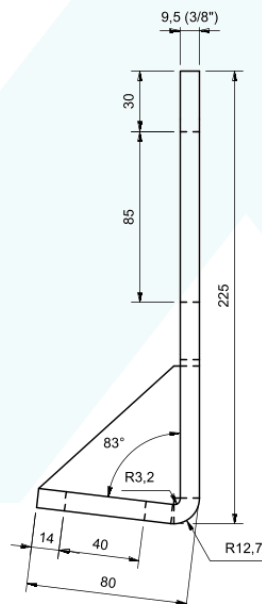
CMC Brackets for EYE Compact (Scale 1:2)

General tolerance: ISO 2768-m (Material: Steel 3/8")

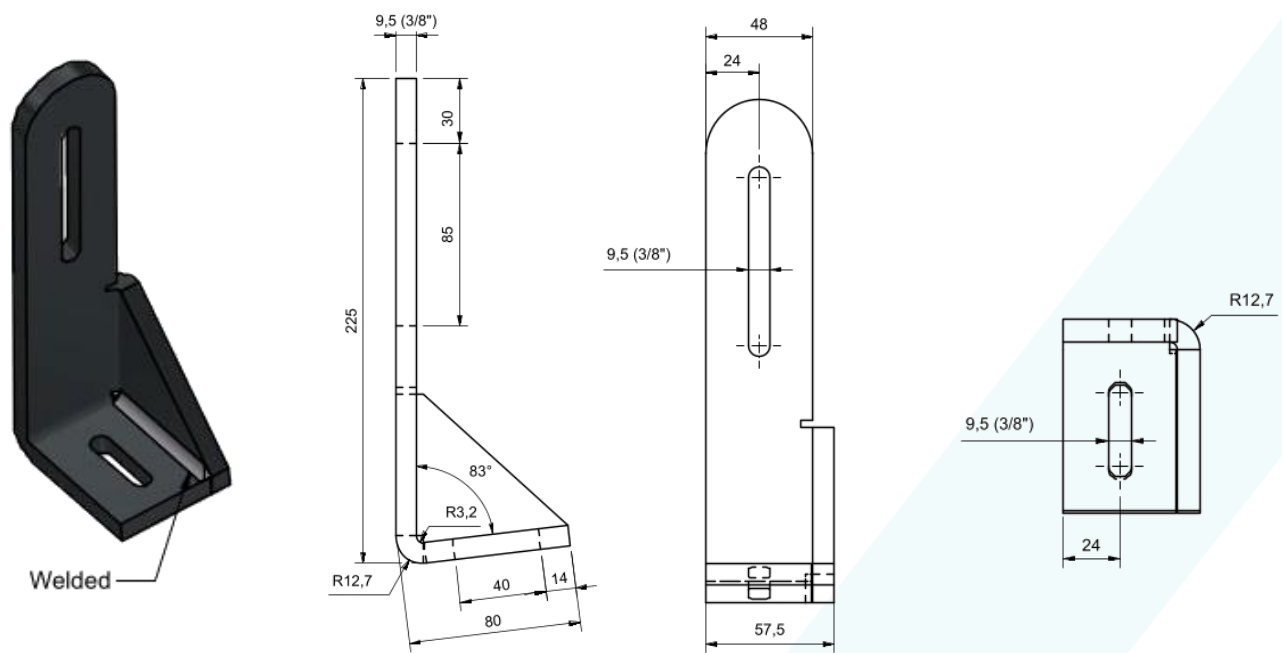
Left holder



Welded

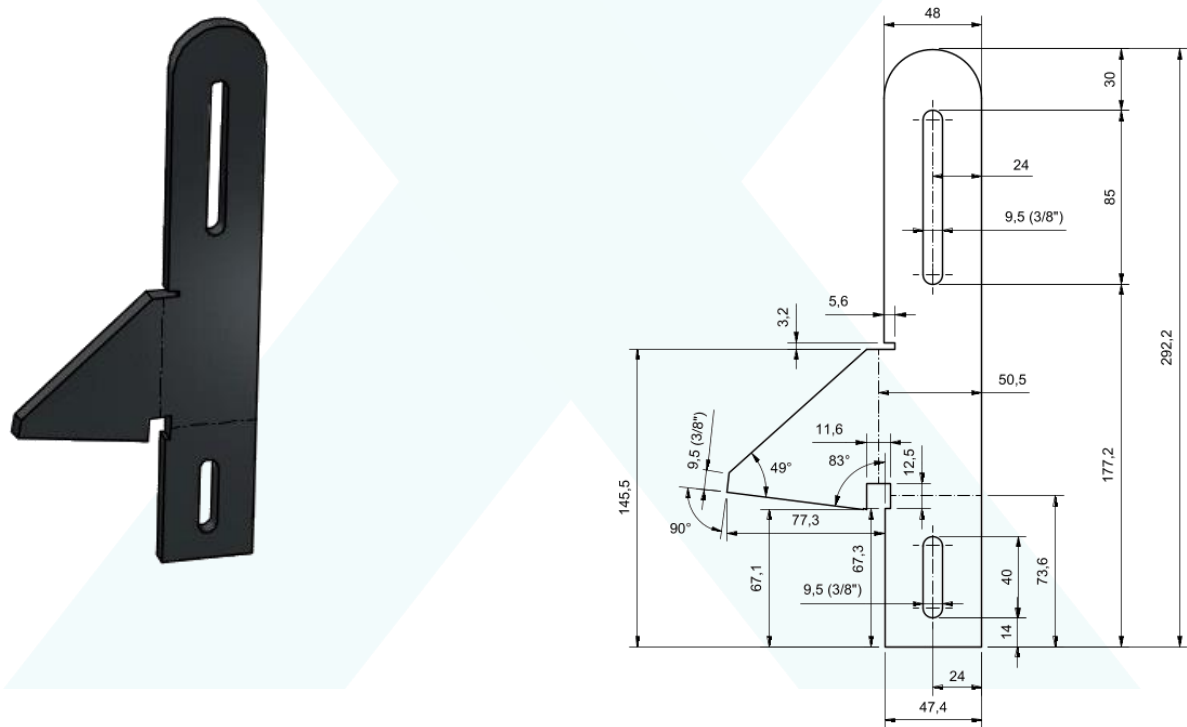


Right holder



Flattened holder

This is how the holder looks before it's been bent and welded.



Bracket examples



Advanced construction with both vertically and horizontally adjustable brackets.



Bracket construction on a rail.



Brackets for CMC machines.



Bracket rail constructed by Eltex.



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