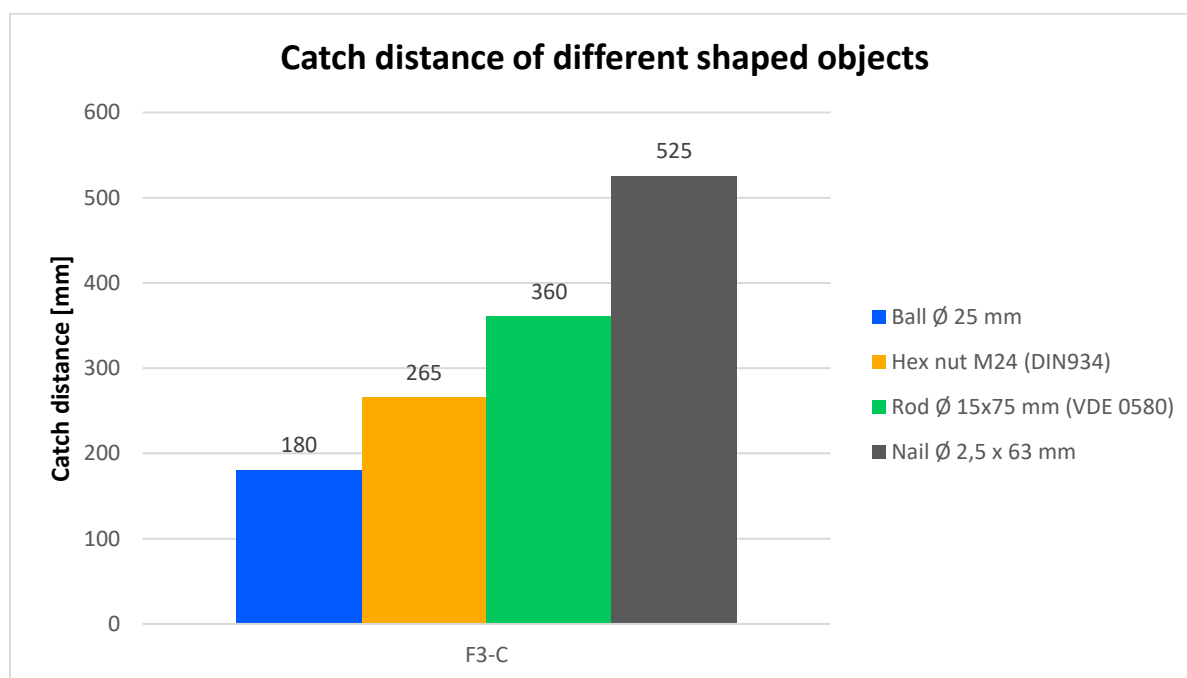


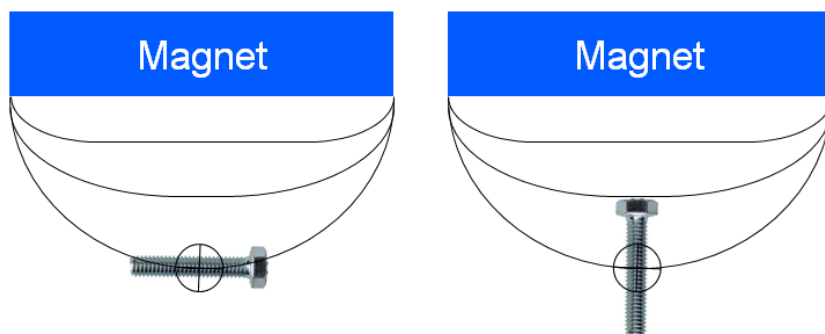
Test engineer	Emil Novák
Test date	22-10-2018
ERP reference	-
Test report number	TR1810223
Product key	ROPZ-F4-I-100-W-G-L-B-B-B-NA
Object of test	A561_C00000
Magnet type	Ferrite tri pole
Tesla meter	HGM09s, ser. number: 01113110
Tesla meter probe	HGM.T02.45.35.6., s.n.: 151113046
Ambient temperature	20 [C°]

Distance of 400 gauss	298	[mm]
Max [Gauss]	-	[mm]



## Orientation:

When measuring a magnet, the orientation of the particle to be caught is very important. We believe that, placing the particle **always** horizontal, and the **centre** of the particle being zero, will give the most representative situation in comparison to the field. A bolt for example can be placed horizontally or vertically. The vertical situation is way easier to catch, but very unlikely to occur in practice.



## Size, shape and material:

The main factor that determines the type of magnet required, is the amount of Force Index ( $\text{Gauss}^2/\text{mm}$ ) that is needed to remove a target size and shape of ferrous from a burden of product material travelling at a certain belt speed.

### Size

The size of an object is far less important than the shape of a ferrous particle to be caught. Theoretically the shape determines the catching distance. However, in the field, a ferrous particle is most likely underneath some material or some material sticks to it, making it heavier. This negatively affects the catching distance. This phenomenon will play a larger role with small sized particles compared to large sized particles.

### Shape

Nails, beams, rods, plates and other oblong shapes are relatively easy to remove as they are easily orientated north-south and present a larger surface area to the magnet. Spherical shaped ferrous like; nuts, cubes, balls and spheres are very difficult to remove.

### Material

Ferrous material is attracted by a magnet. The degree of magnetization of a material in response to a magnetic field is called permeability. Simply stated: the higher the proportion of Fe, the higher the permeability, the easier the particle is to catch.

Test objects	[Gauss <sup>2</sup> /mm]	[10 <sup>-8</sup> Tesla <sup>2</sup> /m]	Photo
Ball Ø 8 mm	3181	31810	
Ball Ø 25 mm	3181	31810	
Hex nut M16 (DIN934)	1650	16500	
Hex nut M20 (DIN934)	1650	16500	
Hex nut M30 (DIN934)	1650	16500	
Nail Ø 2,5 x 63 mm	150	1500	
Ø 15 x 70 mm (VDE 0580)	550	5500	
Ø 20 x 120 mm (VDE 0580)	550	5500	
Hex bolt M20x70	267	2670	
Crown closure	200	2000	
Cube 12x12x12 mm	1600	16000	