Industry 3D modeling - Level of detail

December 2016

We have vast experience in conducting as-built surveys of all kinds of industrial sites. When it comes to converting the point cloud into CAD models, it's crucial to understand that this is still very time consuming process. At the stage of submitting the quotation we would like to know the purpose of the project and have good understanding of the client requirements. The more we know the better price we can offer also deliverable is more customized to the certain client.

Point cloud survey is very accurate often CAD deliverable plotted from the cloud is "too accurate". For most applications showing some small deformations on the structural elements my turn to be a disadvantage. Small bent on the pipes or displacement of structural elements shown as B-spline surfaces are generating heavy CAD files. If there is a need to swap file formats B-spline surfaces are often troublesome. It's crucial to specify maximum acceptable deviation between created model and point cloud. The accuracy have also an impact on the time, The higher accuracy (smaller deviation), the project is more time consuming.

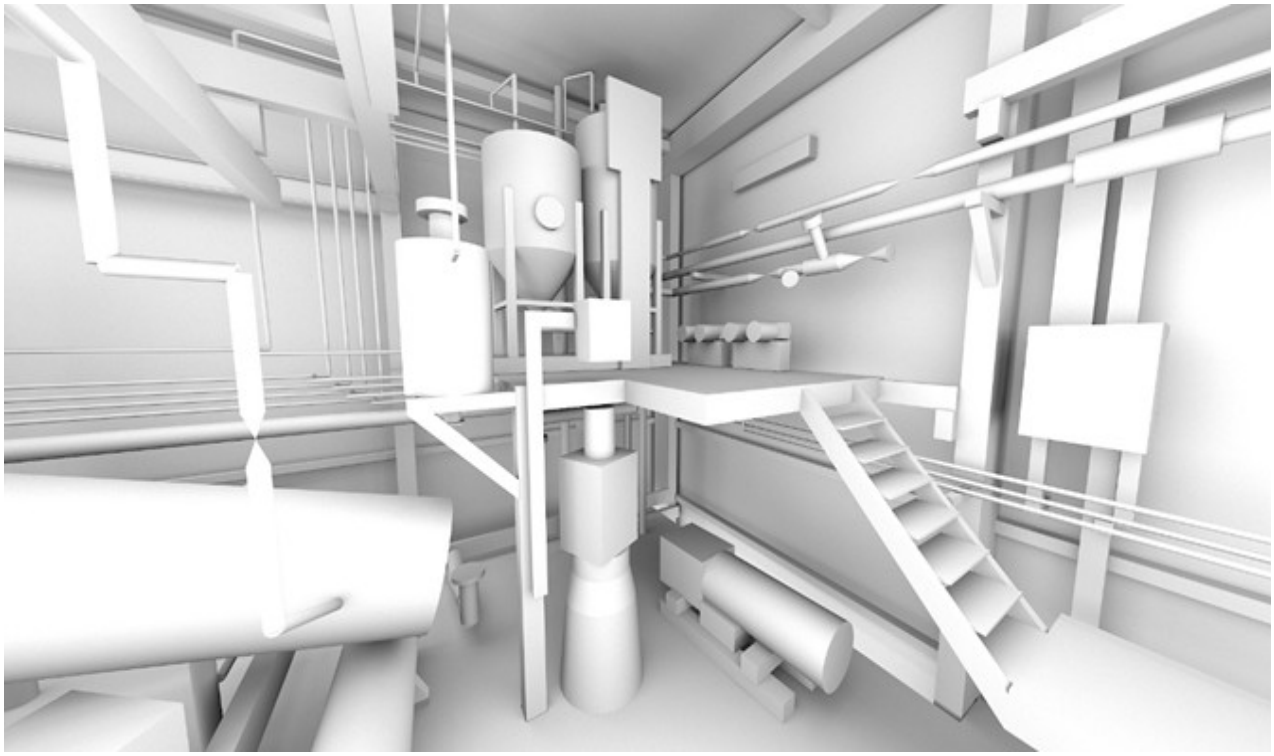
Depending on site conditions, size of parts, access of area etc. This level is recommended for models which will be used for visualizations, or for very sensitive designing works. On request in some project we could model more but the client need to be aware this will have considerable impact on the budget of the project.

The three levels of details we present above is an arbitrary categorization, we've done it to simplify the process of quotation, but we are flexible some chosen elements or areas can be modeled with higher accuracy and better details, this is just the matter of discussion with the client.

For better estimation of time needed to process the data, it is important to determine level of detail of model. Below you will find a list where we visualize the most common single elements for industrial projects, divided into three (in some cases two) levels of detail. Below you will find a short form to choose the level of detail of selected industrial components, facilitating the valuation process and clarifying the requirements of the study.

Level 1:

- presents only overall shapes of modeled parts and is often utilized for general studies of larger installations and for clash detection applications.



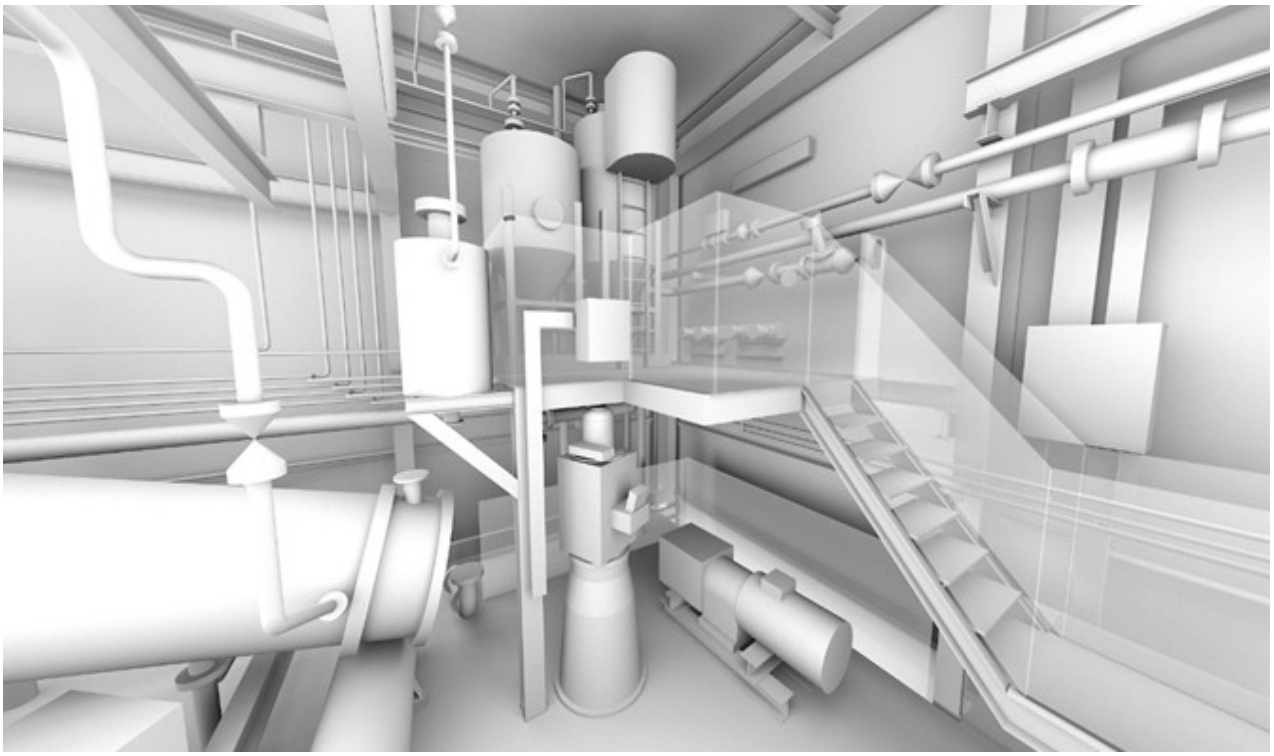
3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

mail@3deling.com
pawel@3deling.pl
www.3deling.com

Level 2:

- is the most popular type we do. It is balanced between decent level of detail and time (cost) consumption. In most applications level two is sufficient.



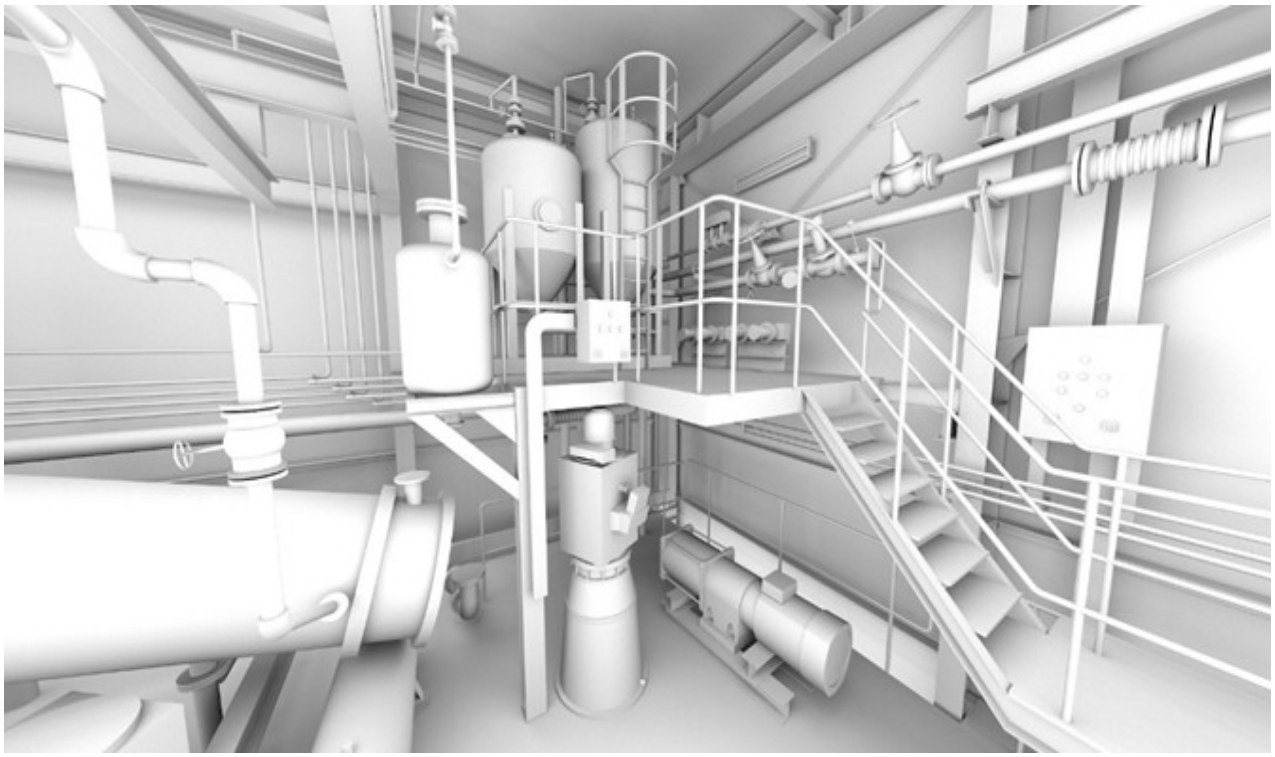
3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

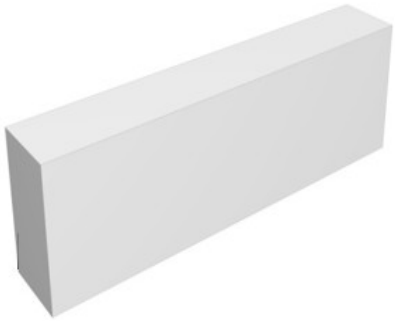
mail@3deling.com
pawel@3deling.pl
www.3deling.com

Level 3:

- is the highest one, where we present a lot of details on the model.

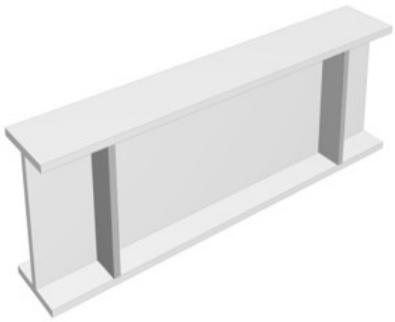


Structure



☐ Level 1

☐ Level 2



☐ Level 3

Beam joint

☐ Level 1

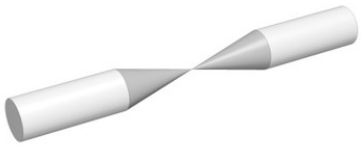
☐ Level 2

3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

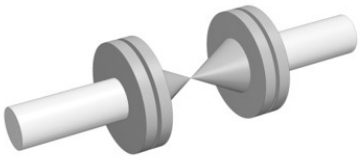
M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

mail@3deling.com
pawel@3deling.pl
www.3deling.com

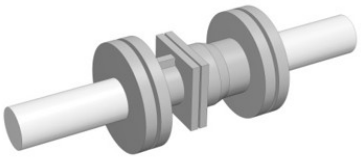
Valve



☐ Level 1



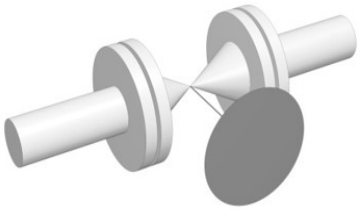
☐ Level 2



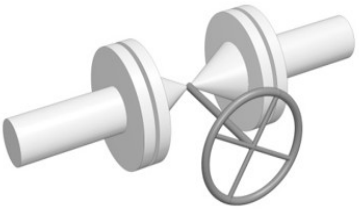
☐ Level 3

Valve handle

☐ Level 1
(not indicated)



☐ Level 2



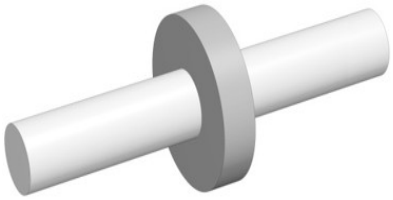
☐ Level 3

3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

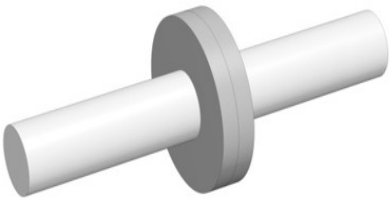
M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

mail@3deling.com
pawel@3deling.pl
www.3deling.com

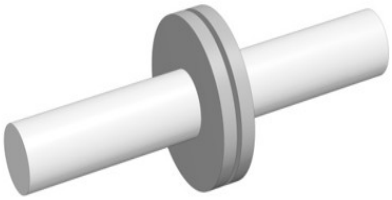
Flange



☐ Level 1

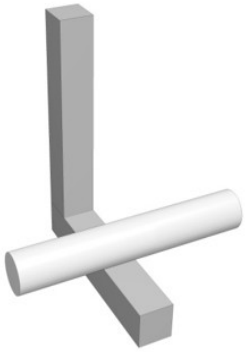


☐ Level 2
(tangent)

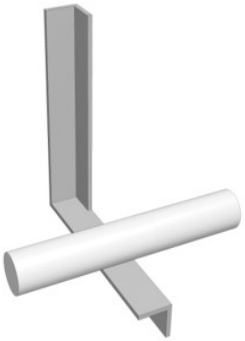


☐ Level 3
(with gap)

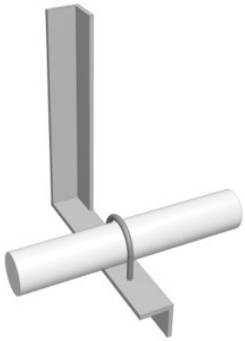
Support



☐ Level 1



☐ Level 2



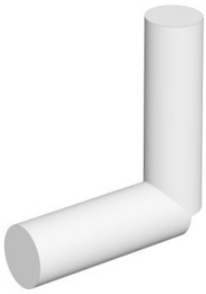
☐ Level 3

3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

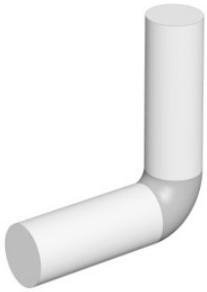
M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

mail@3deling.com
pawel@3deling.pl
www.3deling.com

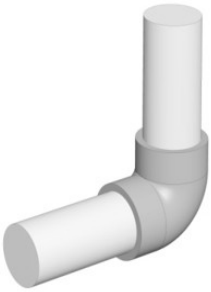
Elbow



☐ Level 1



☐ Level 2



☐ Level 3

Ladder

☐ Level 1

☐ Level 2

☐ Level 3

3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

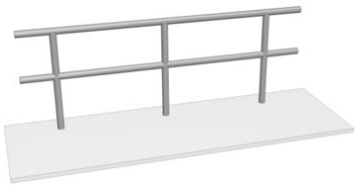
M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

mail@3deling.com
pawel@3deling.pl
www.3deling.com

Barrier

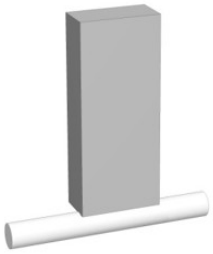
☐ Level 1

☐ Level 2

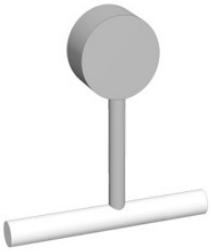


☐ Level 3

Pipe equipment



☐ Level 1



☐ Level 2

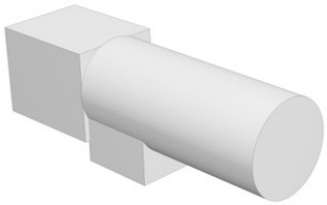
☐ Level 3

3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

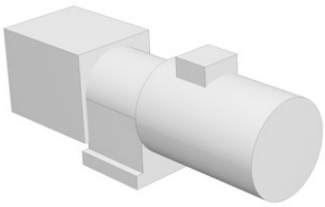
M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

mail@3deling.com
pawel@3deling.pl
www.3deling.com

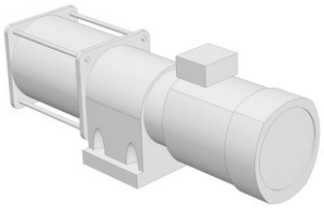
Pump



☐ Level 1



☐ Level 2



☐ Level 3

Electracal box

☐ Level 1/2

☐ Level 3

3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

mail@3deling.com
pawel@3deling.pl
www.3deling.com

Cable Tray

☐ Level 1/2

☐ Level 3

Lamp

☐ Level 1

☐ Level 2

☐ Level 3

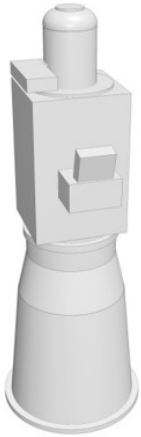
3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

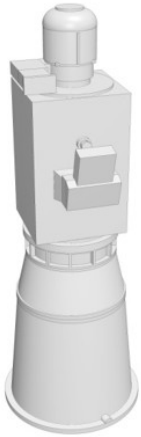
mail@3deling.com
pawel@3deling.pl
www.3deling.com

Other equipment

☐ Level 1



☐ Level 2



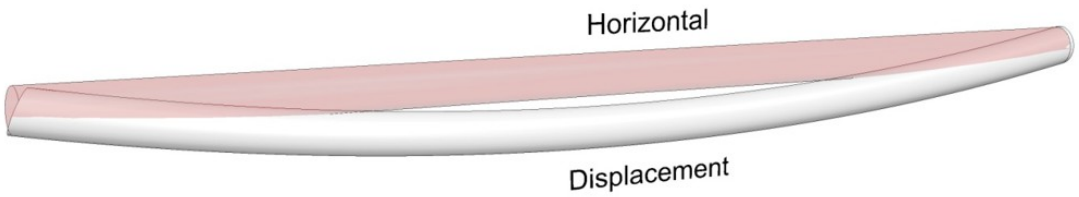
☐ Level 3

3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

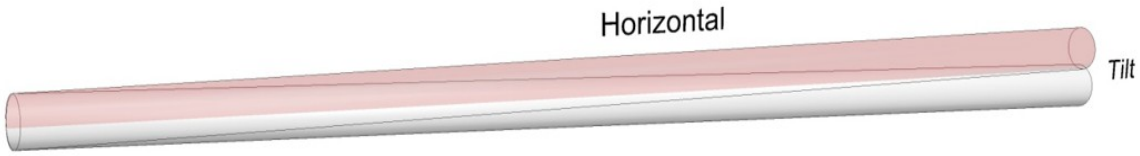
mail@3deling.com
pawel@3deling.pl
www.3deling.com

Pipeline accuracy - displacement



☐ Level 1 (35 mm) ☐ Level 2 (25 mm) ☐ Level 3 (15 mm)

Pipeline accuracy - tilt



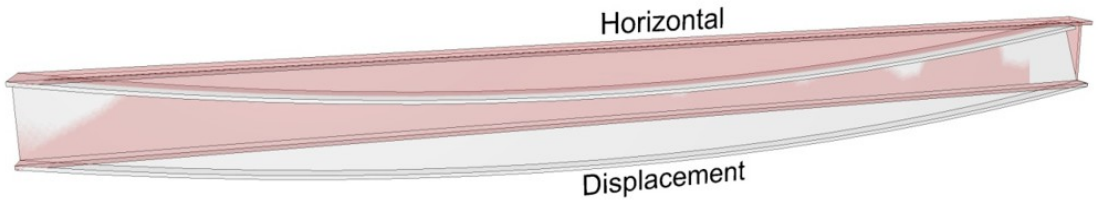
☐ Level 1 (35 mm) ☐ Level 2 (25 mm) ☐ Level 3 (15 mm)

3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

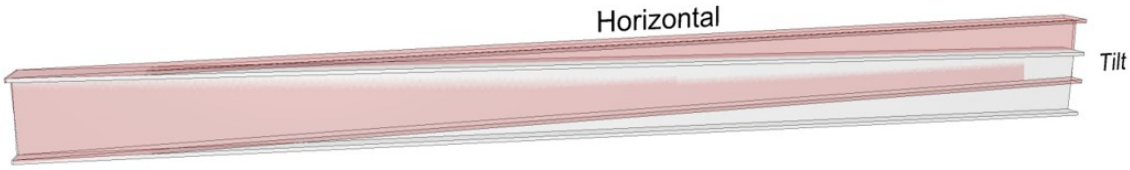
mail@3deling.com
pawel@3deling.pl
www.3deling.com

Structural beam accuracy - displacement



☐ Level 1 (35 mm) ☐ Level 2 (25 mm) ☐ Level 3 (15 mm)

Structural beam accuracy - tilt



☐ Level 1 (35 mm) ☐ Level 2 (25 mm) ☐ Level 3 (15 mm)

3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

mail@3deling.com
pawel@3deling.pl
www.3deling.com

Comments:

3Deling Ltd
ul. Wincentego Pola 7/46
31-532 Krakow, Poland

M +48 793 398 768
F +48 12 376 73 22
EU VAT: PL 675 144 21 15

mail@3deling.com
pawel@3deling.pl
www.3deling.com