

# Water jet cutting

## Outokumpu PSC Nordic

Outokumpu PSC Nordic is specialized in water jet cutting of Moda, Core, Supra, Forta and Ultra range stainless steel grades.

### Outokumpu PSC Nordic offers

- CAD-CAM-steered cutting of various components
- Complex shapes with very narrow tolerances
- Thicknesses up to 150 mm
- Lengths up to 13 000 mm
- Equal and clear cuts
- Maintained mechanical properties
- High yields – less scrap
- Specialist knowledge of stainless steel
- High strength steel, wear plate and other metals
- Stocking of standard and special grades
- Experienced and knowledgeable staff

### Capacity

Using up to 4 nozzles makes it possible to cut out identical details simultaneously. Outokumpu PSC Nordic is equipped with 4 large water jet cutting machines which many times produce material 24 hours a day.

### What is water jet cutting?

Water jet cutting is a completely cold processing method which do not give any heat input to the material. This means that the material properties are maintained in the whole workpiece, all the way to the cut surface. Even small components, for example smaller than 150 x 150 mm remain cold. In addition water jet cutting does not lead into cutting cracks. The method is well suited to cut out complicated profiles and for making holes of varying kinds.

### Maintained material properties

Since water jet cutting is a cold process it does not lead to any heat affected zone (HAZ). This means:

- maintained material properties (hardness) for the whole work piece
- minimal risk for cracks
- no oxidation
- completely cold detail without deformations or changes in hardness – especially important for smaller details

### Less scrap

In each cut surface less material is consumed compared to other cutting methods. This is of special importance for Ultra range stainless steel grades and smaller details and water jet cutting is in such cases a very competitive cutting method.

### Material

Outokumpu PSC Nordic is specialized in water jet cutting of Moda, Core, Supra, Forta and Ultra range stainless steel grades. In addition to this water jet cutting can be made of high strength steels, wearing steels and other metals. As an extra advantage we also have access to an extensive stock of starting material.

### Cut surface / cutting speed

The quality of the water jet cut surface is dependent on the cutting speed – lower speed provides smoother cut surface. The cutting speed also affects the cost for the cutting – lower speed gives a higher cost.

### Decreased production costs

Water jet cutting components are most often more cost effective than alternative cutting methods combined with post cutting operations. The cost for water jet cutting is independent of the steel grade while the cost for traditional cutting is strongly dependent of the steel grade being machined/cut. Water jet cutting as a method is therefore ideally suited for cutting highly alloyed or hardened steel grades.

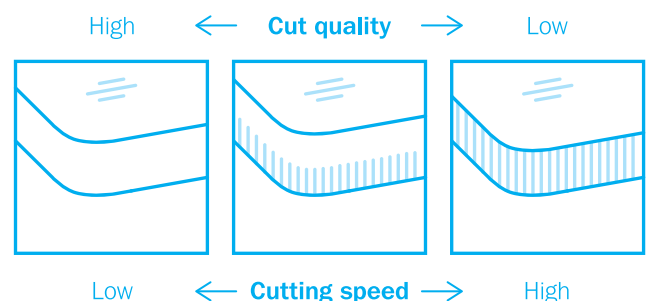


Fig. 1.

## Tolerances

Table 1

Cut types	A	B	C	D
Material thickness, mm	High	Cut quality		Low
0 – 5	+/- 0,4	+/- 0,5	+/- 0,5	+/- 0,7
5,1 – 15	+/- 0,4	+/- 0,5	+/- 0,5	+/- 0,8
15,1 – 25	+/- 0,5	+/- 0,5	+/- 0,7	+/- 1,0
25,1 – 35	+/- 0,5	+/- 0,6	+/- 0,7	
35,1 – 45	+/- 0,6	+/- 0,6	+/- 0,8	
45,1 – 50	+/- 0,6	+/- 0,7	+/- 0,9	
50,1 – 60	+/- 0,7	+/- 0,8	+/- 1,0	
60,1 – 70	+/- 0,8	+/- 0,9	+/- 1,1	
70,1 – 80	+/- 0,9	+/- 1,0	+/- 1,2	
80,1 – 90	+/- 1,0	+/- 1,1	+/- 1,3	
90,1 – 100	+/- 1,0	+/- 1,2	+/- 1,4	
	Low	Cutting speed		High

Table 2

	Cutting table size	Number of sets	Bevel head
Machine 1	13 000 x 5 500 mm	4 st	+/- 45°
Machine 2	6 950 x 3 050 mm	3 st	
Machine 3	7 870 x 5 500 mm	4 st	
Machine 4	14 000 x 3 700 mm	3 st	



# Own notes

A series of horizontal dotted lines for writing notes.

# Working towards forever.

We work with our customers and partners to create long lasting solutions for the tools of modern life and the world's most critical problems: clean energy, clean water, and efficient infrastructure. Because we believe in a world that lasts forever.

outokumpu  
classic

**Moda**

Mildly  
corrosive  
environments

**Core**

Corrosive  
environments

**Supra**

Highly  
corrosive  
environments

outokumpu  
pro

**Forta**

Duplex  
& other  
high strength

**Ultra**

Extremely  
corrosive  
environments

**Dura**

High  
hardness

**Therma**

High  
service  
temperatures

**Prodec**

Improved  
machinability

**Deco**

Special  
surfaces

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high performance stainless steel



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