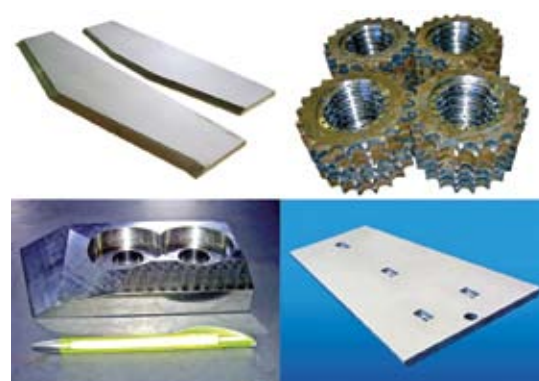


# MILUX® DATASHEET Miilux 400 | 450 | 500 | 530

## Datasheet Miilux 400 | 450 | 500 | 530

Miilux -products are dimensionally accurate, ready for installation abrasion resistant components and abrasion resistant steel plates. At production of components, hardening is carried out as the last work phase which makes the products hard from edge to edge and extends length of products life. When making order of Miilux -products you can tell your request for extra marking, extra tests, bundle, packing and unloading information etc. depending your specific needs.

Wearing steel plates, lip plates for shovel buckets, crusher sidecuts and other wearing parts, gravel and stone platform structures, wearing parts of mining machines, other components according to customer's requirements.



### Chemical composition content maximum (%) ladle analysis

Steel grade	Thickness	C	Si	Mn	P	S	Cr	Ni	Mo	B
<b>Miilux® 400</b>	5 – 30 mm	0,20	0,70	1,70	0,030	0,015	1,50	0,40	0,50	0,004
<b>Miilux® 400</b>	30 – 120mm	0,24	0,70	1,70	0,030	0,015	1,50	0,70	0,50	0,004
<b>Miilux® 450</b>	5 – 120mm	0,26	0,70	1,70	0,030	0,015	1,50	0,70	0,50	0,004
<b>Miilux® 500</b>	5 – 120mm	0,30	0,70	1,70	0,030	0,015	1,50	0,80	0,50	0,004
<b>Miilux® 530</b>	20 – 40 mm	0,34	0,70	1,70	0,030	0,015	1,50	0,50	0,25	0,004

### Typical mechanical properties and carbon equivalent

Steel grade	Thickness	Yield strength R <sub>p0,2</sub> N/mm <sup>2</sup>	Tensile strength R <sub>m</sub> N/mm <sup>2</sup>	Elongation A <sub>5</sub>	Impact strength Charpy-V – 40°C longitude	Hardness range HBW	CEV
<b>Miilux® 400</b>	5 – 12 mm	1000	1250	10	40 J	360 – 420	0,45
<b>Miilux® 400</b>	12 – 30 mm	1000	1250	10	30 J	380 – 450	0,45
<b>Miilux® 400</b>	30 – 120mm	1100	1400	8	30 J	380 – 480	0,56
<b>Miilux® 450</b>	5 – 120mm	1200	1450	8	25 J	425 – 485	0,58
<b>Miilux® 500</b>	5 – 120 mm	1250	1600	8	25 J	450 – 540	0,64
<b>Miilux® 530</b>	20 – 40 mm	1350	1750	8	20 J	490 – 550	0,60

## Identification

On every Miilux plate has at least:

- the order information
- the steel designation
- the dimensions
- the melting number and the rolled plate number

**M12345  
MIILUX500  
40X2450X6000  
98765-43-21**

## Test report

Test report EN 10204-2.2 which shows chemical composition in hot rolled condition before quenching but it doesn't tell mechanical properties test results. Attachment of test report is hardness test as every production run.

## Testing

Brinell hardness test, HBW according to EN ISO 6506-1, on a milled 0,5–2 mm below plate surface is done per every production run. New hardness test is done every time when production parameters change.

## Tolerances

Hot rolled plate products: EN 10051 Plate products: EN 10029 Class A.

## Surface quality

EN 10163-2 requirements according to Class A3. Repair welding is not allowed.

## Dimensions and delivery condition

Miilux -products are supplied in plate thicknesses of 5–100 mm. Maximum width and length for the delivered plates are 2500 mm and 6100 mm. Miilux-products can also be delivered as ready to installation components in a way the deal and order says.

## Customer service

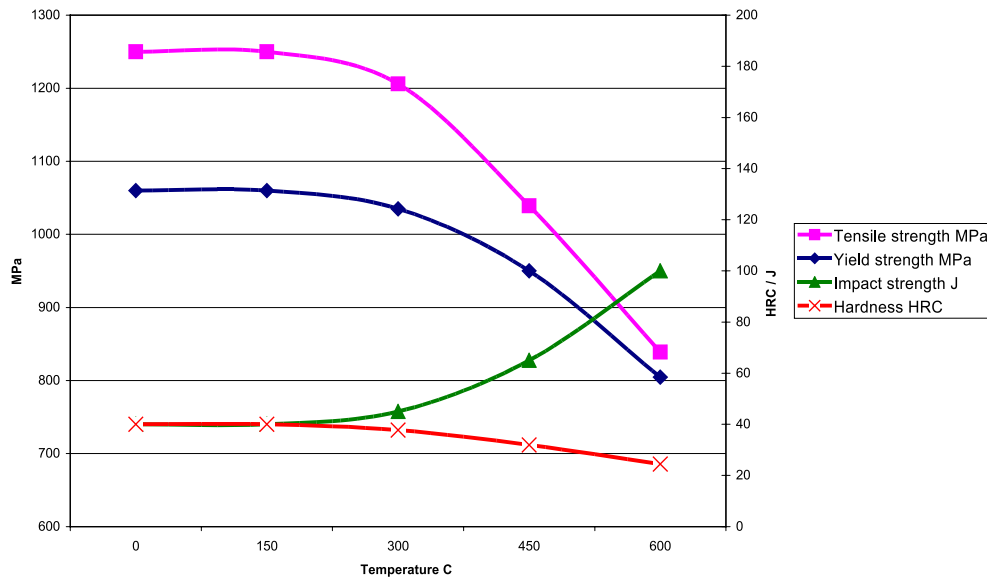
Our customer service helps you when you have questions about product properties and usability. Tel: +358 8 2113 500.



## Heat treatment

Miilux -products shouldn't be heated up after production. The steel can be heated up to about 200 °C without any substantial drop of hardness. When temperature goes over 200 °C hardness, toughness and wear resistant drops as picture 1 show.

### Miilux® 400 typical behavior in the heat treatment.



## Welding and flame cutting

Miilux® 400 can be welded well. Miilux® 500 is more limited with heat input and maximum welding energy. With Miilux® 400 pre-heating is needed when combined plate thickness is more than 40 mm and with Miilux® 500 when plate thickness is more than 20 mm. Recommended working temperatures are in next table. Preheating temperature should be at least 70 % at working temperature and weld ending temperature shouldn't exceed much more than 30 % working temperature.

### Recommended working temperatures

Combined plate thickness	20 mm	30 mm	40 mm	50 mm	60 mm	80 mm
<b>Miilux® 400</b>			100 °C	125 °C	125 °C	150 °C
<b>Miilux® 450</b>		100 °C	125 °C	125 °C	150 °C	200 °C
<b>Miilux® 500</b>	100 °C	125 °C	150 °C	175 °C	200 °C	200 °C

## Miilux-products

Miilux-products have as good weld properties as other wear resistant steel plates on the market. You find more detailed welding information from Miilux-welding recommendations brochure. In flame cutting preheating temperatures are same as in welding.

## Machining

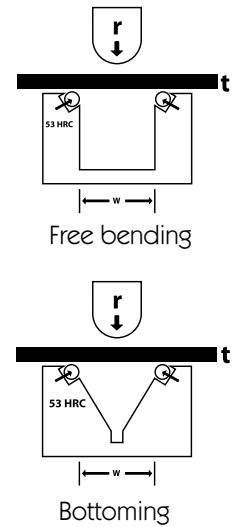
Miilux-products can be machined with rapid steel and hard metal (HSS) drills with a satisfactory service life if the drill advance and cutting speed are correspondingly accommodated.

# Cold forming

Miilux-products have to be cold formed as big as possible rounding radius values. It's also very important to remember good machine shop technique, condition of tools and good planning. Our customer service gives you information at cold forming of more than 20 mm thick plates.

## Cold forming directive limits

Steel grade	Plate thickness	Free bending <90° rounding radius of press/plate thickness R/t Bending line to rolling direction		Free hole width/ plate thickness W/t		Bending V-hole 90°
		Transverse	Longitudinal	Transverse	Longitudinal	
<b>Miilux® 400</b>	5–20 mm	3,0	4,0	9,0	11,0	~ 15,0
<b>Miilux® 450</b>	5–20 mm	4,0	5,0	11,0	13,0	~ 15,0
<b>Miilux® 500</b>	2,5–20 mm	~ 10,0	~ 12,0	23,0	27,0	-



- Bending should be done with one press
- Slow pressing speed is recommended
- Lower tool should be roller-type (see drawing)



**Hard from edge to edge**

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ISO 9001  
ISO 14001  
ISO 3834-2  
OHSAS 18001

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All information as to the properties and utilization of materials and products mentioned in this brochure are for the purpose of description only.

