

# Improved machinability PROFI for stainless steel round bars



## Advantages of using these steels:

- increase efficiency by up to 50% depending on grade
- much lower cost per machined part
- significant increase in tool life
- easier chip breakage
- increase in cutting speeds
- decrease in cutting forces
- much less chips sticking to the tools
- parts with a finely machined surface
- all deliveries in the same guaranteed quality

As standard, these steels are produced with a higher sulphur content, which negatively affects weldability and corrosion resistance. Despite the increased machinability of the material, these sulphides are hard and abrasive, machining performance varies widely and optimising cutting conditions is very difficult.

The steels we supply with increased machinability are manufactured with precise control of the entire production process from the very beginning. Special production know-how is used in the melting process, hot rolling and other production operations. Hard or abrasive inclusions are removed during the manufacturing process. Malleable inclusions of special oxides with a low melting point are formed in the material, which act as a lubricant during machining. At high cutting

speeds, the melting of these oxides allows perfect lubrication of the cutting tools, which extends their life and makes them easier to break off splints. The controlled production process allows a balanced percentage distribution of these oxides.

- Extension of these special oxides in hot rolling
- Special oxides with low melting points
- Controlled special oxides are very ductile
- They reduce friction and form a layer of lubricant on tools during machining
- They cause a protective layer that counteracts chemical diffusion

**Grades delivered with improved machinability:**

- 1.4005 - AISI 416
- 1.4006 - AISI 410
- 1.4021 - AISI 420
- 1.4028 - AISI 420
- 1.4034 - AISI 420
- 1.4057 - AISI 431
- 1.4104
- 1.4116
- 1.4301 - AISI 304
- 1.4305 - AISI 303
- 1.4306 - AISI 304 L
- 1.4307
- 1.4362
- 1.4401 - AISI 316
- 1.4404 - AISI 316 L
- 1.4435 - AISI 316 LMo
- 1.4509 - AISI 441
- 1.4511 - AISI 430 LNb
- 1.4541 - AISI 321
- 1.4542 - AISI 630
- 1.4567 - AISI 304 Cu
- 1.4570
- 1.4571 - AISI 316 Ti
- 1.4598

**These materials can be supplied in a special quality for machine tools on request:**

- chamfered both ends
- increased flatness 0.5 mm/m (0.3 mm on request)
- lower ovality
- inspection of surface defects by eddy currents
- lengths 3000 mm (other on request), tol. -0/+50 mm (for drawn rods)

These features eliminate possible vibrations of the material during machining and increase the efficiency of the work.

## Technical support

In cooperation with the manufacturer, our company provides technical support for the use of these materials.

- setting the optimum cutting conditions of the machines
- use of tools
- lubrication (we cooperate very closely with a prominent dealer of lubricants brands MOBIL, OMV, TIGROL and HOUGHTON)