Metalworking
Productivity and reliability from TOTAL lubricants
Our commitment is to improve your competitiveness in machining

The metalworking industry covers a great variety of processes for the fabrication of metal parts. TOTAL Lubricants offers a full range of oils for all your applications to optimise machining performance and prolong the service life of your tools. Our innovative high performance range, which is renowned throughout the world, helps to improve your productivity and customer satisfaction.

### Ongoing innovation

Always at the forefront of technology, Total Lubrifants has two R&D centres.

- **The Solaize Research Centre (CReS)**, in France, specialises in the development of Metalworking oils.
- **The Osnabrück Research Centre (MWO)**, in Germany, is responsible for the formulation and production of soluble cutting oils, and for the SOLUBLE CHECK analysis service.

### TOTAL fluids serving your productivity through

- **Quality** machining and finish
- **Lower** level of rejects
- **Less** fluid consumption
- **Smaller** cutting forces
- **Longer** tool life
- **Lower** energy consumption
- **Compliance** with current regulations
- **Better** user comfort for operators
LUBRICANTS FOR ALL METALWORKING MARKETS

Ranges for every application

Metalworking needs appropriate products for the metal machined and the severity of operations. Our range guarantees you the best solutions for all your applications, whatever your machining process may be.

<table>
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<th>Application</th>
<th>Rolling</th>
<th>Deformation</th>
<th>Quenching</th>
<th>Cutting: Machining and grinding</th>
<th>Machine tool lubrication</th>
<th>Electro-erosion</th>
<th>Corrosion protection</th>
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<tr>
<td>TOTAL Range</td>
<td>LUBRILAM</td>
<td>MARTOL</td>
<td>DRASTA</td>
<td>VALONA</td>
<td>LACTUCA</td>
<td>SCILIA</td>
<td>SPIRIT</td>
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</tbody>
</table>

The information provided in this document is indicative and does not commit Total Lubrifiants. With the aim of continuous improvement, Total Lubrifiants reserves the right to change the specifications of its products and services to incorporate technological and legal developments. For more information refer to the Technical Data Sheets and Safety Data Sheets.
<table>
<thead>
<tr>
<th>Category</th>
<th>Product</th>
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<tr>
<td>Neat cutting oils</td>
<td>VALONA</td>
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<tr>
<td>Soluble cutting fluids in macro-emulsions</td>
<td>LACTUCA</td>
</tr>
<tr>
<td>Soluble cutting fluids in micro-emulsions</td>
<td>SPIRIT</td>
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<tr>
<td>Synthetic soluble cutting fluids</td>
<td>VULSOL</td>
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<tr>
<td>Multipurpose cutting and lubricating oils</td>
<td>SCILIA</td>
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<tr>
<td>Electro-erosion fluids</td>
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<td>Metal forming oils</td>
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<td>Rolling oils</td>
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<td>FINAROL</td>
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<td>Lubrication of machine tools</td>
<td>DROSERA</td>
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</table>
All the functions of TIG XP 5 Management of cutting tools Fluids monitoring Maintenance management

If you want to improve the availability of your industrial tooling and reduce your production costs, TIG XP 5 METALWORKING software developed by Total Lubrifiants will enable you to:

• plan conditional and corrective maintenance work,
• check the condition of cutting tools closely,
• monitor in-service fluids,
• handle stocks of lubricants and parts,
• analyse full maintenance costs.

Oil analyses

In metalworking it is essential to monitor oils in service regularly, to optimise the quality of your output and reduce your costs by:

• improving operating conditions,
• extending fluid service life,
• reducing your product consumption.

The ANAC INDUS service offers a full range of analyses for your metalworking products and your maintenance oils. To optimise the quality of your output and reduce your costs by improving operating conditions, extending fluid service life, and reducing your product consumption, the ANAC INDUS service offers oil analyses for your metalworking products and your maintenance oils. For soluble cutting oils choose our SOLUBLE CHECK analysis service.

And customised advice

You will benefit from our specialists' expertise in metalworking lubrication through the right services for your operations:

• recommending our products with a view to rationalising stocks,
• technical assistance with lubrication,
• training your teams to use our products,
• monitoring and controlling maintenance work.

Our services will help you gain productivity
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4 good reasons to choose TOTAL

A major company
Total Lubrifiants is a subsidiary of Total. The Group is the world’s fifth largest integrated oil and gas company* and employs more than 92,000 people on five continents. Total Lubrifiants produces and sells its products under the TOTAL brand in more than 160 countries.

Safe and eco-friendly products
Elements designed to reduce the risk of toxicity and VOC emissions and encourage recycling and elimination from the environment are incorporated into the formulation of every new product. Total Lubrifiants renews its ISO 9001 certification every three years, as a guarantee of its long-term commitment.

Innovation
Thanks to a major investment in R&D and close cooperation with equipment manufacturers, Total Lubrifiants creates high-technology products with substantial added value, for optimal performance and protection of your machinery.

Partnership
The wide range of TOTAL products means that you can find the maintenance lubricants or specialized products to meet your every need. By choosing TOTAL, you can be fully confident that our team will work with you to enhance your productivity and reduce your maintenance costs.

* Based on market capitalization (in dollars) as of December 31, 2010.