High-Performance Rollers
for Metals Processing
About Osborn

Since Osborn’s inception in 1887, success has always been about ensuring that you finish first. Whether it was last century, last week or in the last hour, customers like you need the right solutions and count on us.

As the global leader in surface treatment and finishing solutions, we have more patents on products and processes than all other brush companies combined.

Engineering expertise and manufacturing skills are what set the Osborn brand apart. People experienced in surface treatment solutions and finishing tools, collaborating with customers to achieve optimum results. Matching tough finishing problems with the right solutions when and where you need them.

In addition to more than 10,000 standard products sold in more than 120 countries, we offer local support throughout the world. So, no matter where you or your customers are located, you will always have access to Osborn application expertise and the industry’s best, most practical solutions.

When you start with Osborn, you finish first.

Operations in 14 Countries

Offers access to new ideas, economies of scale, and new techniques to master your surface treatment and finishing needs.

Sales offices in 23 Countries

Servicing more than 120 Countries

2,000 Employees worldwide

through numerous agencies and strong distribution networks. Providing insight into the customs and best practices necessary to succeed anywhere in the world.
Almost 50 years ago, Osborn developed a revolutionary technology using brushes in the continuous rolling process in order to optimally regulate the oxide film on working and back-up rollers in hot rolling mills. As a result, hundreds of hot mills worldwide have been equipped with Osborn technology.

To date, specially designed wire qualities, abrasive multifilaments, individually camber ground surfaces and extensive experience in optimising the use of brushes in numerous individual applications have secured a major technological advantage for us in this field. The benefits from this we can pass on to our customers worldwide.

Osborn’s Helimaster brush rolls are perfect for cleaning work and back-up rolls in wet or dry operated rolling and skin-pass mills. They have been fitted to technological developments worldwide for decades, both in online lines integrated in strip lines as well as stand-alone off-line rolling stands.

The rollers can work sporadically or continuously when designed as a wire or an abrasive brush. Each brush is neutrally ground at the radius and gets axially. This means that it gets either a cylindrical camber ground or, for offsetting the computed roll deflection, a positive and/or negative camber ground.

In the meantime, with Lipprite® abrasive rollers, an alternative technology, has also been developed and manufactured in-house for skin-pass roller cleaning. The brush roller itself is only part of the solution. This technologically demanding application can only be optimally implemented with a precise matching of the brush tool to operational and process parameters. The reproducibility of the specified corrosiveness and brush effect as well as constant tool performance play a crucial role from the first point of use to the exchanging of the roller.

### Brush Roll Applications

<table>
<thead>
<tr>
<th>Application category</th>
<th>Metallurgic field</th>
<th>Process line</th>
<th>Description of application</th>
<th>OSBORN product range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roll cleaning and polishing</td>
<td>Carbon steel</td>
<td>Skin Pass Mill, Temper Mill</td>
<td>Removal of oxides, dirt and rolling residuals</td>
<td>Helimaster® Brush rolls, abrasive or wire-filled; Non-abrasive Brush rolls; Lipprite® abrasive Non-woven rolls</td>
</tr>
<tr>
<td></td>
<td>Stainless steel</td>
<td>Skin Pass Mill, Temper Mill</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aluminum</td>
<td>Cold Roll Mill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roll coating control</td>
<td>Aluminum</td>
<td>Hot Reversing Mill, Hot Reversing Finishing Mill, Hot Continuous Mill</td>
<td>Control of the oxide layer and removal of oxides</td>
<td>Helimaster® Brush rolls abrasive or wire-filled</td>
</tr>
<tr>
<td></td>
<td>Non ferrous</td>
<td>Hot Continuous Mill</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Osborn has a value-add-cooperation with company NCCM, River Falls/WI, United States for manufacturing and service of high-tech Non-woven Mill Rolls. Since 2009 NCCM has the exclusive rights to the original premier yellow non-woven material from 3M Company anywhere in the world. NCCM own a unique technology in the manufacturing of roll coverings using the original 3M high-tech material. Osborn is engineering individually customized High performance Non-woven Rolls for Quality and Process improvement in Coil and Sheet Metal processing in Strip Process Lines, Rolling Mills and automotive press- and blanking systems, using the leading NCCM technology in combination with our comprehensive application know-how. We are assembling, finishing and servicing the original premier yellow rolls in our wide-face Roller manufacturing centers around the world.

NCCM® Premier Yellow Neutral Mill Rolls are the finest general-purpose, Non-woven roll covering for primary metal and original equipment manufacturer (OEM) stamping operations.

NCCM® Premier Yellow Neutral Mill Rolls are porous to absorb debris that can mar the metal strip surface. Once absorbed, the roll heals over so few repairs that reduce productivity are required. If a problem does occur, the rolls can be quickly and easily repaired instead of replaced.

Porosity also makes the NCCM roll compressible which maintains consistently tight contact across the metal strip to winding uniformly. Chemical tank to tank carry-out and the need for auxiliary drying is reduced. The rolls have up to 24 times greater coefficient of friction compared to rubber or urethane rolls to improve material control by reducing metal coil slippage and hydroplaning. One NCCM® Premier Yellow Neutral Mill Roll can last as long as up to 100 rubber rolls making it an exceptional value for the money spent, especially when costly line downtime is taken into account.

NCCM® Mill Roll premium roll covering products optimize countless metal sheet processing applications in primary metals and OEM (original equipment manufacturer) stamping plants. They also show exceptional value in other industries such as lithography.

NCCM® Mill Roll technology is designed to replace traditional roll coverings such as rubber, urethane, Non-wovens and various fabrics. NCCM® Mill Roll technology has features and properties that no other Non-woven rolls offer.

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Cold Rolling Mill

Line-Diagrams for many different applications can be found online at:
Temper Mill

Line-Diagrams for many different applications can be found online at:

- Non-woven Mill Roll
- Brush Roll
- Bridle S-Roll
Cold Reversing Mill

Line-Diagrams for many different applications can be found online at:

SNUBBER/PINCH ROLL, LESS MARKING, NO SLIPPING

WRINGER ROLL, HIGH ABSORBING CAPACITY OF SOLUTION, AVOID QUALITY CLAIM FOR SCRATCHES

Non-woven Mill Roll
Furnace Brush Roll
Bridle S-Roll
The tempering of hot mill plates made of precipitation hardening aluminum alloys through the process of solution annealing, serves the purpose of attaining higher strength and strain values along with a good level of corrosion resistance. Today, this is required for structural parts in aircraft in accordance with the strict requirements of standards AMS 2750D, AMS 2750C and AMS-H-6088.

The careful transportation of these aluminum plates in 'hard metal and hard material technology' roll hearth furnaces takes place as a batch or continuous process at temperatures of up to 800°C on brush transportation rolls. In close cooperation with leading equipment manufacturers, numerous furnaces around the world have been equipped in recent years with Osborn's sophisticated technology. In the process, plates with thicknesses of up to 400mm, lengths of 20 metres and weights of over 10 tonnes do not present a problem for us. Tolerances have been continually reduced and product features optimised, so that now more than ever, the brush roller is an integral and technologically superior component in the overall design of the line.

With brush furnace transportation rolls, Osborn customers can today place their trust in several decades of experience and well known global references. In the complex production of the rolls, some with a total length of over 6000mm and 4000mm of brush length, the highest level of precision and reliability are required in all manufacturing processes.

After the rolls have been manufactured, the later course of the sheet is accurately simulated in advance in our factory. For roll assemblies in new furnace lines, this allows Osborn to guarantee an optimum course of the sheet within tight tolerances even when starting up the run.

<table>
<thead>
<tr>
<th>Application category</th>
<th>Metallurgical field</th>
<th>Process line</th>
<th>Description of application</th>
<th>OSBORN product range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport roll systems for Horizontal Heat Treatment Furnaces</td>
<td>Aluminum</td>
<td>Horizontal Heat Treatment Plate Furnaces</td>
<td>Transportation of hot plates through the heat treatment process; optimized heat transfer; Avoidance of transport roll pick-up and surface damages</td>
<td>Brush transport rolls; Horizontal Heat Treatment brush transport roll systems; Furnace capacity increase concepts</td>
</tr>
<tr>
<td>Transport roll systems for high temp applications</td>
<td>Carbon steel</td>
<td>Continuous Annealing Line, Continuous Hot-dip Galvanising Line</td>
<td>Transportation of high temp strip; Avoidance of transport roll pick-up and surface damages</td>
<td>High temp brush transport rolls; Brush transport roll systems</td>
</tr>
<tr>
<td></td>
<td>Stainless steel</td>
<td>Bright Annealing Line, Cold Strip - Annealing Pickling Line, Continuous Annealing Line, Hot Strip-Annealing Pickling Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aluminum Non ferrous</td>
<td>Horizontal Heat Treatment, conveyor furnace</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Benefits

- Optimum heat transfer between the transport roll and the plate
- Longstanding lifetime without significant wear of the brushes
- Complete avoidance of scale pick-up and spot formation on the surface of the roller, just as it is the case with self-contained roller coverings
- Total-care transportation of the plates during the heat treatment without damaging the surfaces of the plates
In order to guarantee the lowest possible sheet tracking with the ‘re-brushing’ of entire furnace zones the transportation of the sheets is simulated on an in-house test rig just like new lines.

This advanced technology provides a convincing argument for why brushing with heat resistant wires is increasingly establishing itself as a roller cover for furnace transportation rolls.

Aside from the production of new rolls, the recovering and replacement of worn brushes in older lines is also one of our core competences.

PROPERTIES AND ADVANTAGES

• Temperature resistance of up to approx. 1250°C
• Shaft construction with internal cooling
• Extremely dense and accurate neutrally ground surface of the rolls
• Significantly better heat transfer characteristics of the tips of the wires in comparison to full metal surfaces
• No scale pick up (formation of spots) on account of the absorption properties of the exposed brush surface

By precisely measuring the course of the plate as well as the state of the individual rolls within the furnace by means of self-developed test equipment, we are able to optimise plate tracking if needed, which maximizes the output of the entire system.

Roll coverings made from extremely dense stainless steel wires in special alloys and resistant to high temperatures provide specific product features and strong advantages compared to uncoated transportation shafts or furnace rollers with ceramic coatings. These can be used in different horizontal heat treatment lines for strips of steel, stainless steel or non ferrous metals.

CAPACITY OPTIMIZATION AT OLDER FURNACE INSTALLATIONS

By precisely measuring the course of the plate as well as the state of the individual rolls within the furnace by means of self-developed test equipment, we are able to optimise plate tracking if needed, which maximizes the output of the entire system.

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Line-Diagrams for many different applications can be found online at:

- Non-woven Mill Roll
- Furnace Brush Roll
- Bridle S-Roll
The demands relating to the quality and the technical product characteristics of flat rolled steel in the form of cold rolled steel, tin plated steel, electrical steel, galvanized strips or other refined surface materials are steadily rising. Along with increasing processing speeds, optimising the tempering, refinement or coating process of the upstream strip cleaning section also increases.

With the development and introduction of the HDL® brush roller, Osborn has found an answer to these demands, in comparison to conventional brush rollers. HDL® sets new standards in the degreasing and cleaning of strip surfaces. Through the consistent development of quality, by looking at fill material, brush construction and fill density, we achieve significant improvements.
COMPARISON CONVENTIONAL BRUSH VS. OSBORN HDL

<table>
<thead>
<tr>
<th>Conventional Brush (Mono-Filament)</th>
<th>Osborn HDL (Multi-Filament)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improper brushing</td>
<td>Very precise brushing</td>
</tr>
<tr>
<td>Low cleaning performance</td>
<td>High cleaning performance</td>
</tr>
<tr>
<td>Short life-time</td>
<td>Long life-time</td>
</tr>
<tr>
<td>Low contact density</td>
<td>High contact density</td>
</tr>
<tr>
<td>Irregular brushing</td>
<td>Even brushing</td>
</tr>
</tbody>
</table>

LIPPRITE® – THE ABRASIVE COMPLETION FOR A PERFECT SURFACE

When it comes to the optical finishing of strip surfaces in the form of polishing, satinising, finishing or decorative grinding and brushing, you're in good hands with Osborn. Decades of experience in the machining of steel, stainless steel, aluminum and other ferrous or non-ferrous surfaces have given us a technological advantage, from which our customers benefit worldwide today.

Our Liprite® product series represents a completion to brush rollers with wire or abrasive bristle coating. Different combinations of adhesive and abrasive together with nylon web generate diverse products to meet different demands. An absolutely uniform fine final grind and a corresponding homogeneous surface finish can be achieved with the special web construction. With the correct contact pressure, the flexible roller web adapts to the surface like a suspension and is in a position to offset any slight unevenness of the strip (spring action, see picture below).

Various grades of synthetic fibre and abrasive grit are combined and bonded with special resin, firmly fixing the grit particles to the non-woven fibres. The result is an open, flexible structure. The material is self-dressing and suitable for wet and dry processes. New abrasive particles are continually exposed to the surface for a consistent and uniform finish.

Based on many years of experience or by individual tests on our test lines, we are able to specify the right product in a targeted way for almost any surface roughness required. Contact our application engineers.

OverVIEW OF THE ROLLER COVERINGS AND MATERIAL SPECIFICATIONS FOR LIPPRITE® ABRASIVE ROLLERS

<table>
<thead>
<tr>
<th>Aluminum oxide abrasive grain (Al2O3)</th>
<th>Silicon carbide abrasive (SiC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2 (coarse)</td>
<td>S4 (medium)</td>
</tr>
<tr>
<td>A4 (medium)</td>
<td>S6 (fine)</td>
</tr>
<tr>
<td>A6 (fine)</td>
<td>S7 (very fine)</td>
</tr>
<tr>
<td>A7 (very fine)</td>
<td>S8 (super fine)</td>
</tr>
<tr>
<td></td>
<td>S9 (ultra fine)</td>
</tr>
<tr>
<td></td>
<td>S10 (micro fine)</td>
</tr>
</tbody>
</table>

For orientation, the following approximate values for the achievable surface roughness (Ra) are:

- A4 (medium) = 3.1 - 3.9 µm
- A6 (fine)  = 2.9 - 3.6 µm
- A7 (very fine) = 11 - 18 µm

Roughness values vary depending on diameter, pressure, cutting speed, feeding speed, density, etc. Treatment with synthetic resin stiffens the LIPPRITE® Roller improving performance and extending its suitability for a range of applications.

RECOMMENDATIONS CONCERNING THE USE OF ROLLERS:

- Use in wet or dry operations
- Optimum cutting speed 15-25 m/s
- Line (strip) speed or feed speed up to 30 m/min. (max.)
- Processing in the opposite direction to the running direction of the material feed
- Optimum depth of immersion 2-6 mm, depending on the roller diameter and hardness
- Oscillation improves the uniformity of the machining profile

Examples of achieved finishing with standard Liprite®:

Galvanzied Steel

BEFORE

<table>
<thead>
<tr>
<th>Surface</th>
<th>Ra Before</th>
<th>Ra After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine</td>
<td>1.270µm</td>
<td>0.42µm</td>
</tr>
<tr>
<td>Medium</td>
<td>1.370µm</td>
<td>0.99µm</td>
</tr>
<tr>
<td>Coarse</td>
<td>1.390µm</td>
<td>7.37µm</td>
</tr>
</tbody>
</table>
Non-woven Applications

NON-WOVEN VERSUS RUBBER

<table>
<thead>
<tr>
<th>Osborn Mill Rolls</th>
<th>Rubber Rollers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made with NCCM Materials</td>
<td></td>
</tr>
<tr>
<td>Advantages</td>
<td></td>
</tr>
<tr>
<td>Long Life – Compressible resist cutting for more uptime</td>
<td>Short life – Non compressible, susceptible to cuts, causes more downtime</td>
</tr>
<tr>
<td>Line Speed – Porous, open surface for consistent strip contact can allow higher line speeds</td>
<td>Can limit line speed due to hydroplaning because of non porous, closed surfaces</td>
</tr>
<tr>
<td>Repairable for better return on investment</td>
<td>Non-repairable</td>
</tr>
<tr>
<td>Self-healing for superior fluid control</td>
<td>Cuts propagate causing excessive fluid pass-through and reduced lie</td>
</tr>
<tr>
<td>High coefficient of friction on many surfaces, even wet, for better strip control</td>
<td>Low coefficient of friction on wet/oiled surface conditions</td>
</tr>
</tbody>
</table>

APPLICATIONS

Non-woven rolls can be used in all strip lines or rolling mills for steel, stainless steel, aluminium and non-ferrous metals. They include:

- Hot-dip galvanizing lines
- Continuous annealing lines
- Annealing and pickling lines
- Cold rolling mills
- Skin-pass mills
- Colour and/or organic coating systems
- Electrolytic galvanizing lines
- Cleaning or degreasing lines

and a whole range of other types of line. They also significantly contribute to improving product and process quality.

CO-EFFICIENT OF FRICTION

<table>
<thead>
<tr>
<th>Material Condition</th>
<th>Osborn Mill Rolls</th>
<th>Rubber Rolls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry steel</td>
<td>0.52</td>
<td>0.36</td>
</tr>
<tr>
<td>Oiled steel</td>
<td>0.36</td>
<td>0.01</td>
</tr>
<tr>
<td>Dry aluminium</td>
<td>0.52</td>
<td>0.36</td>
</tr>
<tr>
<td>Oiled aluminium</td>
<td>0.23</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Benefits

- Compressible
- Self-healing
- Porous
- Uniformity
- High Coefficient Friction
- Solidity
- Repairable

LOAD RUNNERS

Heavy-Duty Idler Rollers and Rails for High-Capacity Precision Load Handling

Osborn designed the world’s first non-needle roller bearing idler roller more than fifty years ago to solve an internal manufacturing challenge on the company’s foundry equipment. Today Osborn Load Runners® are the ultimate heavy-duty load rail and idler roller solution in the industry, providing precision performance across numerous applications. Load Runners are specially designed to tolerate both radial and thrust loads and are available in all standard configurations - either metric or imperial, stud- or yoke-style – ranging in rolling sizes up to 12 inches. Load Runners® help reduce your design time and lower overall material handling system costs.

Manufactured in the USA, Load Runners® feature heat-treated specialty steel, precision bearings, a maintenance-free lubrication and seal system. Osborn Load Runners® are designed and manufactured using exacting engineering principles with an emphasis on achieving:

Benefits

- Better balance
- Increased bearing life
- Less tread/outer shell wear
- Reduced power consumption
- Smoother operation
- Quieter operation

Along with Osborn Load Rails, precut and drilled to your specifications, Load Runners are the complete solutions for linear motion control.

Find more information and CAD-drawings/models for easy incorporation into your designs on: www.loadrunners.de

Or have a look at our new catalogue at:
Continuous pickling

- Reduces chemical solution on strip, avoiding chemical carry-out and longer life time.
- Less moisture on strip, extended service life, reduced drying action and lower energy consumption.
- Uniform oil film, reducing consumption of oil.

Line-diagrams for many different applications can be found online at:
Cleaning

Line-Diagrams for many different applications can be found online at:

Non-woven Mill Roll
Brush Roll
Annealing

Line-Diagrams for many different applications can be found online at:
Electro-galvanizing

Line-Diagrams for many different applications can be found online at:

- Non-woven Mill Roll
- Brush Roll
- Bridle S-Roll
Hot Dip galvanizing

Line-Diagrams for many different applications can be found online at:
Tinning

Line-Diagrams for many different applications can be found online at:

- Non-woven Mill Roll
- Brush Roll
- Bridle S-Roll

REDUCE THE QUANTITY OF OIL TO AVOID COLLAPSE DEGREASING

REDUCE CHEMICAL SOLUTION ON STRIP, EXTENDED SERVICE LIFE

EXTENDED SERVICE LIFE OF HOLD DOWN ROLLS, HIGH GRIP, BETTER WRINGER

BETTER FRICTION, HIGHER TENSION, LESS SLIPPING

LESS MOISTURE ON STRIP, EXTENDED SERVICE LIFE, REDUCED DRYING ACTION = LOWER ENERGY CONSUMPTION
Hot Annealing & Pickling

Line-Diagrams for many different applications can be found online at:

Non-woven Mill Roll
Brush Roll
Bridle S-Roll
Cold Annealing & Pickling

Line-Diagrams for many different applications can be found online at:
Line-Diagrams for many different applications can be found online at:


- Non-woven Mill Roll
- Brush Roll
- Bridle S-Roll
Copper & Brass Pickling

Line-Diagrams for many different applications can be found online at:

- Non-woven Mill Roll
- Brush Roll
Automotive Press & Blanking Lines

Non-woven and Brush Roll Applications

Blank washing units remove dirt and deposits from the blanks and apply a protective film of oil. The Blank washers are constructed with three to four pair of rolls (6-8 total). The first pair of rolls are Non-woven Rolls which are working as Feeder Rolls to control the blanks. The center rolls are brush rolls and provide the cleaning of the blanks. The exit rolls are Non-woven Rolls which are working as Feeder Rolls to control the blanks. The exit rolls are Non-woven Rolls which are working as Feeder Rolls to control the blanks.

Osborn provides high performance Non-woven Wringer Rolls for optimized cleaning of the blanks. The exit rolls are Non-woven Rolls which are working as Feeder Rolls to control the blanks. The neutral roll is used in pH neutral environments and oil applications. Our Rolls are made in variety of densities and to your specification and roll processing need.

EXPECTED MAXIMUM RESIDUAL OIL

Line speed: 130 m/min, Oil viscosity: 9-11 mm²/s (cStk)

<table>
<thead>
<tr>
<th>Line Pressure (N/mm)</th>
<th>Soft</th>
<th>Medium</th>
<th>Hard</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>2.5 g/mm²</td>
<td>1.7 g/mm²</td>
<td>1.3 g/mm²</td>
</tr>
<tr>
<td>15</td>
<td>2.3 g/mm²</td>
<td>1.6 g/mm²</td>
<td>1.2 g/mm²</td>
</tr>
<tr>
<td>19</td>
<td>2.1 g/mm²</td>
<td>1.4 g/mm²</td>
<td>0.9 g/mm²</td>
</tr>
<tr>
<td>23</td>
<td>1.8 g/mm²</td>
<td>1.0 g/mm²</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>1.5 g/mm²</td>
<td>0.8 g/mm²</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>1.3 g/mm²</td>
<td>0.6 g/mm²</td>
<td></td>
</tr>
</tbody>
</table>

Cost Savings Advantages

- Provide Highly Engineered Film Thickness
  - Maintain film thickness longer over life of the roll
  - Reduce hydrostatic stamping defects
  - Reduce part rework
  - Reduce paint rework

- Drastically Reduce Oil Usage
  - Reduce welding smoke
  - Save oil costs
  - Better part transfer
  - Reduce excess oil in production line
- Longer Life
  - Best total value roll system
  - More damage resistant
  - More consistent performance

Global Network and Process Solutions Experts

<table>
<thead>
<tr>
<th>APPLICATION</th>
<th>POSITION</th>
<th>PURPOSE</th>
<th>ADVANTAGES</th>
<th>LINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning roll, Degreasing HDL Brush roll</td>
<td>Inside of Cleaning section or Blank Washing units</td>
<td>Remove dust from the sheet before coating it.</td>
<td>Narrow strip width are produced on lines of longitudinal shear or slitting lines from a Coil</td>
<td>SLITTING LINES</td>
</tr>
<tr>
<td>Feeder Roll, Brake roll, Cycle Roll</td>
<td>Towards exit end of line (brake rolls). Before the presses or the shear (feeder CYCLE roll).</td>
<td>Rolls supply back-tension so tight finished coils can be wound. Motion Rolls to move the strip or the blanks.</td>
<td>Rectangular or trapozoidal blanks are produced on cut to length lines from a Coil</td>
<td>CUT TO LENGTH</td>
</tr>
<tr>
<td>Oiling Roll, Blank Washer Roll</td>
<td>Inside the Blank Washing unit in front of the presses or inside of oiller unit</td>
<td>To apply an extremely light and uniform coating of lubricant to the blank’s surface. This allows it to be formed into parts of a car’s body or protects the blanks from the rust.</td>
<td>Tailored blanks are only produced on blanking lines using a press and blanking die from a Coil</td>
<td>BLANKING LINES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PRESS LINES</td>
</tr>
</tbody>
</table>

Technical data

- Application data
  - Applicable for liquid categories
    - Water and Oil
    - Water and Oil Winger roll and oiling roll applications
    - Water and Oil Winger rolls, De-oiling and Tensioning rolls
    - Oil and Emulsions
    - De-oiling
    - Acid and Alkalies
    - Acid and Alkalies
  - Main applications
    - Blank washing units remove dirt and deposits from the blanks and apply a protective film of oil. The Blank washers are constructed with three to four pair of rolls (6-8 total). The first pair of rolls are Non-woven Rolls which are working as Feeder Rolls to control the blanks. The center rolls are brush rolls and provide the cleaning of the blanks. The exit rolls are Non-woven Rolls which are working as Feeder Rolls to control the blanks.

- Osborn Non-woven material range
  - Material type: neutral/soft, neutral/medium, neutral/hard, chemical/soft, chemical/medium
  - Technical data

- Maximum operating temperature: 75°C, 125°C, 140°C, 75°C, 100°C
- Max. line loading: 20 N/mm, 30 N/mm, 60 N/mm, 12 N/mm, 16N/mm

- BENDING X/Y-LEVEL

- FORCE

- Too low force: not enough
- Too high force: too much
- To specification: uniform break

- LINE SPEED

- Too low force: not enough
- Too high force: too much
- To specification: uniform break

- Image courtesy MarkOne
Blank Washer

Non-woven Mill Roll
Brush Roll

Line-Diagrams for many different applications can be found online at:
Download our full catalogue range

Highperformance machine brushes

Top-quality machine and special brushes for industrial applications

Novofil Hightech brush

Abrasive nylon brushes with premium abrasives such as diamond, zircon, aluminium oxide, etc.

Solutions for woodworking

Brushes and abrasives, tools and compounds for high-gloss polishing (for power tools and manual finishing)

SnowProtec

Special solutions for rail traffic snow-protection system for points

Load Runners

Load-bearing rollers and heavy-load roller guides

Multizack

Stamped brushes for cleaning, deburring, transporting, sorting, washing and guiding

ATB disc brushes with abrasive filaments

Up to 4 times higher trim density than traditional disc brushes

Micropolishing brushes

Polishing tools and compounds for micropolishing

Novoflex-B

Self-centring honing tools for smooth grinding

Solutions for the pipeline industry

Brushes for the mechanical finishing of PCBs

Retail and Distribution

Brushes for weld seam cleaning and special brushes for the pipeline industry (transport brushes, contact brushes and cutback systems)

Brushes for deburring, cleaning/deoxydising, removal of resin, finishing and cleaning of sheet steel

Machine Brushes, Hand Brushes, Polishing tools and compounds for Retail and Distribution

Strip and sealing brushes

Premium polishing tools, firm pastes and emulsions

Polishing products

Products for agriculture

Professional sweeping solutions for farms and livestock operations