Metso
Crushing and screening solutions

Making the big difference to our customers
Right where you need us
We supply competitiveness

At Metso, we know that the only real measure of our worth is in the results we deliver to our customers. Our expertise is rooted in more than a century of experience that today provides our customers with an unparalleled knowledge base, rock-solid financial resources, plus the engineering know-how, innovative technologies and worldwide locations to ensure that your crushing and screening operations will profit.

Metso’s products are built to last. Our crushers and screens are highly engineered and precisely tested to ensure that they run and deliver 24 hours a day, 365 days a year. Metso’s experience and competence in crushing and screening technology ensures that we provide equipment that is the best in the world. The use of premium-quality components ensures that your Metso equipment runs at high performance, cost efficiently and safely.

With Metso equipment, you can be sure that your operations – and profit – stay up and running. Uninterrupted.
Nordberg® C Series™
Why choose Metso's jaw crusher?

Reliability
- Pinned and bolted, non-welded frame construction
- Outstanding fatigue strength
- Excellence in casting engineering
- Premium-quality components

Productivity
- Excellent material intake capability
- Steep cavity cross section for excellent bite
- Aggressive pitman motion for efficient compression
- Reliability, high availability

Easy installation
- Compact crusher module
- Easy to install in place of an existing crusher
- Possible to ship to the site in pieces (for example, in case of underground installation)

Safety
- Lifting tools for jaw dies, cheek plates and toggle plate as standard
- Optional flywheel and drive guards
- Optional maintenance platform
- Safe, quick and easy setting adjustment system
- Metso IC™ crusher automation
Nordberg® C Series™ jaw crushers are engineered for the toughest feed materials. They are proven to be reliable and productive in thousands of real mining, quarrying, recycling and industrial applications. You can rely on the Nordberg C Series jaw crusher as the backbone of your process.

**Uncompromised reliability and productivity**

The reliability of Nordberg C Series jaw crushers is based on a revolutionary pinned and bolted, non-welded frame construction. This design provides excellent fatigue strength even in toughest quarrying or mining applications.

Metso’s foundry expertise enables continuous steel casting development to ensure the best casting designs and quality in terms of strength and fatigue life. High level of engineering combined with top-of-the-line commercial components, such as spherical roller bearings, ensure the reliability that Nordberg C Series jaw crushers are known for.

Nordberg C Series jaw crushers are the most productive and cost-efficient jaw crushers for any primary crushing application. C Series jaw crushers were originally developed to crush the hardest ores and rocks so they perform extremely well also in less demanding applications, such as soft rock, recycling and slag.

**Benefits**

- Reliability
- Productivity
- Easy Installation
- Safety
Nordberg® C Series™
Jaw crushers

Nordberg C Series jaw crushers are engineered to deliver maximum productivity at the lowest operating costs. Reliability combined with great performance, low operating costs and easy maintenance ensure the best result in a real primary crushing application.

Excellent material intake capacity
Feed opening depth, which typically defines the top feed size, is well balanced with the width and height of the crusher. A good feed opening depth enables excellent material intake capacity and ensures that the rocks enter the cavity without restrictions.

Excellent bite in the cavity
The steep nip angle, the angle between the movable and fixed jaw dies, ensures good bite and good material flow down in the cavity. On top of great performance, a good nip angle also reduces wear on the jaw dies — and that has a direct impact on operating costs.

High production and reduction
Nordberg C Series jaw crushers are well known for the aggressive motion of the pitman and long stroke in the bottom of the cavity. The stroke is amplified from the top to the bottom, which means that the stroke is always longest in the bottom of the cavity. This boosts the capacity as well as the reduction ratio, resulting in high production and better end-product gradation.

Easy to maintain
Areas where any wear is anticipated are engineered to be easy to replace or protected by sacrificial wear items. This ensures that maintenance of C Series jaw crushers is easy and cost efficient over the long lifetime of the crusher. These designs protect the most expensive main components from wear and shorten maintenance time. And a shorter maintenance time means higher uptime.

Benefits of Nordberg C Series
• High production
• High reduction ratio
• Easy maintenance
• High uptime
Nordberg® C Series™
Significant space, time and cost savings in installation

Nordberg C Series jaw crushers offer multiple benefits that save space, time and money. This makes the Nordberg C Series the most economical choice in both greenfield and brownfield applications. The modular structure is ideally suited to open-pit installations and adds even more value when installed underground.

Installation made easy
Nordberg C Series jaw crushers are easily installed into either new plants or to replace older jaw crushers to extend plant lifetime and boost production. The modular concept makes the C Series jaw crushers easy to install. The crusher can be installed as one compact module that includes all the necessary auxiliaries around the crusher itself. The crusher can be installed within a few days, minimizing on-site engineering and fabrication. Ultimately, this leads to a significant savings in time and installation costs.

Wide range of options
C Series jaw crushers can be customized with options for any application. Safe flywheel and drive guards protect operators from moving objects. An optional integrated motor base allows installation of the crusher drive motor directly to the back of the crusher. The motor moves in sync with the crusher so the V-belt life is enhanced and alignment and tensioning are always perfect. An optional feed chute is engineered for uninterrupted material flow from the feeder into the crusher.

Favored in underground mining
Nordberg C Series jaw crushers are very popular in underground mining applications. The possibility to dismantle the jaw crushers for transport makes them especially easy to use in underground installations. Moving the dismantled components into the tunnel requires less space in the tunnel and shaft and less heavy lifting. The crusher can be installed and commissioned in its final destination within a few days. These factors make the C Series the most favored jaw crushers for underground operations.

Easy installation
- Modular structure
- Wide selection of options
- Savings in transport, installation and on-site engineering costs
Nordberg® C Series™

Nordberg® C Series™ jaw crushers are delivered with lifting tools for jaw dies and cheek plates.

In addition, an optional Maintenance platform makes wear part change safe and easy.

Technical specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Power</th>
<th>Speed</th>
<th>Basic crusher weight</th>
<th>Operational crusher weight</th>
<th>Nominal feed opening</th>
</tr>
</thead>
<tbody>
<tr>
<td>C80™</td>
<td>75 kW (100 hp)</td>
<td>330 rpm</td>
<td>7,670 kg (16,900 lbs)</td>
<td>9,520 kg (21,000 lbs)</td>
<td>Width 800 mm (32&quot;) Depth 510 mm (20&quot;)</td>
</tr>
<tr>
<td>C96™</td>
<td>90 kW (125 hp)</td>
<td>280 rpm</td>
<td>9,759 kg (21,520 lbs)</td>
<td>11,870 kg (26,170 lbs)</td>
<td>Width 930 mm (37&quot;) Depth 580 mm (23&quot;)</td>
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<tr>
<td>C106™</td>
<td>110 kW (150 hp)</td>
<td>240 rpm</td>
<td>14,350 kg (31,650 lbs)</td>
<td>17,050 kg (37,590 lbs)</td>
<td>Width 1,060 mm (42&quot;) Depth 700 mm (28&quot;)</td>
</tr>
<tr>
<td>C120™</td>
<td>132 kW (175 hp)</td>
<td>220 rpm</td>
<td>18,600 kg (40,920 lbs)</td>
<td>21,500 kg (47,300 lbs)</td>
<td>Width 1,150 mm (45&quot;) Depth 760 mm (30&quot;)</td>
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<tr>
<td>C130™</td>
<td>160 kW (200 hp)</td>
<td>220 rpm</td>
<td>21,500 kg (47,300 lbs)</td>
<td>29,300 kg (64,700 lbs)</td>
<td>Width 1,200 mm (47&quot;) Depth 870 mm (34&quot;)</td>
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<tr>
<td>C150™</td>
<td>160 kW (200 hp)</td>
<td>220 rpm</td>
<td>26,000 kg (57,200 lbs)</td>
<td>35,200 kg (77,120 lbs)</td>
<td>Width 1,300 mm (51&quot;) Depth 1,000 mm (39&quot;)</td>
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<tr>
<td>C160™</td>
<td>200 kW (300 hp)</td>
<td>200 rpm</td>
<td>28,600 kg (62,640 lbs)</td>
<td>44,000 kg (96,800 lbs)</td>
<td>Width 1,400 mm (55&quot;) Depth 1,200 mm (47&quot;)</td>
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<tr>
<td>C200™</td>
<td>250 kW (350 hp)</td>
<td>220 rpm</td>
<td>31,650 kg (69,300 lbs)</td>
<td>57,200 kg (126,100 lbs)</td>
<td>Width 1,600 mm (63&quot;) Depth 1,200 mm (47&quot;)</td>
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<tr>
<td>C300™</td>
<td>400 kW (500 hp)</td>
<td>220 rpm</td>
<td>40,100 kg (88,500 lbs)</td>
<td>108,500 kg (238,000 lbs)</td>
<td>Width 2,000 mm (79&quot;) Depth 1,500 mm (59&quot;)</td>
</tr>
</tbody>
</table>

*) Crusher without options **) Crusher with options ***) Actual feed opening depths are cavity specific
Discharge conveyor sized to convey maximum crusher capacity
5: Adequate crusher discharge area
4: Sufficient feeder capacity and width
3: Controlled feed rate
2: Proper feed gradation
1: Proper selection of the jaws

gradation. The following factors will enhance crusher capacity and performance:

requires. For a performance estimation for your specific application please simulate with

Bruno™ process simulation program or contact Metso.

material

Crusher throughput capacity, non-scalped feed material

Benefits of primary crushing with scalping
• Better total capacity in all applications
• Better wear part wear profile
• Longer lifetime of wear parts
• Better total economy
• Lower risk of packing

Material size [mm] Cumulative % passing

Target size [mm]

Smaller closed side settings may possibly be used depending on application and product requirements. For a performance estimation for your specific application please simulate with Bruno™ process simulation program or contact Metso.

The above figure represents the crusher capacities, which are based on a feed material with an average specific gravity of 2,7 t/m³, a maximum feed size that will enter the crusher without bridging and material finer than the crusher closed side setting removed. The capacity may vary depending on the feedstuff method and on feed characteristics such as particle size, density and grain size. Measurement of crusher's closed side setting varies depending on the feeding method and on feed characteristics such as gradation, bulk density and moisture, clay content and crushability. Measurement of crusher's closed side setting requires. For a performance estimation for your specific application please simulate with Bruno™ process simulation program or contact Metso.

The above figure represents the crusher capacities, which are based on a feed material with an average specific gravity of 2,7 t/m³, a maximum feed size that will enter the crusher without bridging and with feed gradation illustrated on the graph on the right. The capacity may vary depending on the feedstuff method and on feed characteristics such as particle size, density and grain size. Measurement of crusher's closed side setting requires. For a performance estimation for your specific application please simulate with Bruno™ process simulation program or contact Metso.

Material size [mm] Cumulative % passing

Target size [mm]

Smaller closed side settings may possibly be used depending on application and product requirements. For a performance estimation for your specific application please simulate with Bruno™ process simulation program or contact Metso.

The above figure represents the crusher capacities, which are based on a feed material with an average specific gravity of 2,7 t/m³, a maximum feed size that will enter the crusher without bridging and with feed gradation illustrated on the graph on the right. The capacity may vary depending on the feedstuff method and on feed characteristics such as particle size, density and grain size. Measurement of crusher's closed side setting requires. For a performance estimation for your specific application please simulate with Bruno™ process simulation program or contact Metso.
Metso
Rock breakers
Metso Rock breaker solutions

Metso rock breaker solutions are complete functional packages for rock breaking in the primary crushing stage. The breaker booms and hammers are engineered to meet the requirements set by rough primary crushing applications. These packages are optimized to work together and support Metso primary crushers, ensuring the best productivity of the whole primary crushing station.

**Significant improvement to plant capacity**

Long-term plant production is significantly improved when the primary station is equipped with a rock breaker solution. Downtime due to build-ups and blockages can be easily cut to a minimum. This ensures a steady material flow through the primary station to the next process stages. The huge economic impact as a result of improved productivity means that the investment pay-back time is typically very short.

**The safest way to manage build-ups**

A rock breaker solution is clearly the safest way to manage blockages and build-ups and to clear the crusher cavity. The remote-controlled boom and hammer with the radio remote control, which is part of standard scope of delivery, means that the boom and hammer can be operated from a location that gives the operator unlimited visibility into the area where the rocks are moved or broken. Metso rock breaker solutions are also engineered safe and easy to maintain, with single-point lubrication of the boom joints as a standard feature.

**A complete, optimized solution**

Metso rock breaker solutions are complete functional packages optimized for primary crushing applications. Each component, breaker boom, rock breaker, hydraulic power unit and radio remote control, is optimized to work most efficiently with the other components. And each complete solution is optimized to work most efficiently with certain Metso crushers. Each component is engineered to meet the requirements set for the equipment used in rough primary crushing applications.

**Benefits of Metso’s rock breaker solutions**

- Safety
- Complete, optimized solution
- Engineered to Metso’s standards

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**Technical specifications**

<table>
<thead>
<tr>
<th>Breaker boom</th>
<th>MB293™</th>
<th>MB302™</th>
<th>MB352™</th>
<th>MB432™</th>
<th>MB655™</th>
<th>MB676™</th>
<th>MB1059™</th>
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</thead>
<tbody>
<tr>
<td>Boom reach</td>
<td>2.9 m (9’ 6”)</td>
<td>3.0 m (9’ 10”)</td>
<td>3.5 m (11’ 6”)</td>
<td>4.3 m (14’ 2”)</td>
<td>6.5 m (21’ 5”)</td>
<td>6.7 m (22’ 1”)</td>
<td>10.5 m (34’ 7”)</td>
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<td>Hammer weight</td>
<td>400 kg (880 lbs)</td>
<td>300 kg (660 lbs)</td>
<td>400 kg (880 lbs)</td>
<td>400 kg (880 lbs)</td>
<td>1,100 kg (2,420 lbs)</td>
<td>750 kg (1,650 lbs)</td>
<td>2,200 kg (4,840 lbs)</td>
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<td>Power unit</td>
<td>MPU18™</td>
<td>MPU18™</td>
<td>MPU18™</td>
<td>MPU30™</td>
<td>MPU30™</td>
<td>MPU37™</td>
<td>MPU45™</td>
</tr>
<tr>
<td>Power rating</td>
<td>18 kW (25 hp)</td>
<td>18 kW (25 hp)</td>
<td>18 kW (25 hp)</td>
<td>30 kW (40 hp)</td>
<td>30 kW (40 hp)</td>
<td>55 kW (74 hp)</td>
<td>55 kW (74 hp)</td>
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<tr>
<td>Optimized for</td>
<td>*</td>
<td>Nordberg® C80 / C96 / C106 / C116</td>
<td>Nordberg® C120™ / C130™</td>
<td>Nordberg® C150™</td>
<td>Nordberg® C160™</td>
<td>Nordberg® C200™</td>
<td>SUPERIOR® Primary Gyratory</td>
</tr>
</tbody>
</table>

*Please contact Metso for more information.*
Nordberg® NP Series™
Why choose Metso's impact crusher?

**High performance**
- High capacity
- High reduction ratio
- Less sensitive to sticky material than other machines
- High-quality end product, cubical shape

**High efficiency**
- Quick and easy installation
- Easy to operate
- High mechanical reliability
- High machine availability

**Maintenance friendly**
- Easy blow bar attachment
- Self Rotor Rotation (SRR)
- Safety devices

**Adaptable to all applications**
- Wide choice of blow bars and liners
- Third breaker plate
- Full hydraulic setting
- Metso IC™ crusher automation

Adaptable to all applications
Metso’s focus on customer success is clearly demonstrated in the development of the Nordberg® NP Series™ impact crusher. We have been building impact crushers for 60 years, so we know that our customers are looking for high performance to boost profitability. By combining the best technical solutions, our crushers provide a reliability that lets you focus on your operations.

**Crusher efficiency**
Nordberg NP Series impact crushers have a unique blow-bar attachment system that provides a higher degree of reliability. NP Series impact crushers are designed to minimize maintenance, to improve adjustment operations and to deliver unbeatable performance in primary, secondary, tertiary and recycling applications.

**Plant profitability**
NP Series impact crushers feature a unique combination of heavy rotor and crushing chamber design in addition to materials selected for their outstanding wear resistance. This combination has proved revolutionary in improving capacity and product quality while further reducing operating and wear costs.

**Benefits**
- Process performance
- Maintenance friendly
- Easy operation
Nordberg® NP Series™
Impact crushers

Nordberg NP Series impact crushers feature a unique combination of heavy rotor design, materials selected for good wear resistance and crusher chamber design. This combination has proven revolutionary in improving capacity and product quality and in reducing operating and wear costs. NP Series impact crushers deliver unbeatable performances in primary, secondary, tertiary and recycling applications.

Configured for your needs
NP Series impact crushers are the solution when output and productivity demands are increasingly stringent, from quarry to industrial applications and from mining to recycling. It’s easy to build your own crusher configuration – by adding options for your application – like a full hydraulic breaker plate adjustment setting, a third breaker plate or different grades of steel and cast iron for the blow bars with the possibility for ceramic inserts. The Self Rotor Rotation system (SRR) is available across the NP range and is part of Metso’s ongoing effort to innovate and find ways to enhance the quality, ease of use, and safety of its products. Metso IC™ crusher automation controls the crusher operation and gives a perfect and complete overview of performance.

High performance from NP Series
NP Series impact crushers feature a unique blow-bar attachment system. Combined with perfect blow-bar alignment on the crossbeam contact faces, this reduces risks of breakage and makes it possible to push the use of cast iron for blow bars beyond conventional limits. The rotor with high inertia improves crushing reduction and provides stability in the process, reducing energy consumption and increasing long-term performance.

Reduced plant operating costs
Continuous collaboration with research laboratories results in state-of-the-art technical innovations in terms of durability of wear parts and reliability of mechanical components. Higher reduction with fewer crushing stages lowers your capital costs and saves energy. Mechanical reliability, and simplified process, easy machine operation, and easy and safe maintenance increase the global availability of the plant and profitability.

Benefits of Nordberg NP Series
- High end product value
- High plant availability
- Adaptable for all applications
- High quality for low CAPEX
### Nordberg® NP Series™

**Clearance dimensions (mm/inch)**

<table>
<thead>
<tr>
<th>NP Model</th>
<th>Primary range</th>
<th>Secondary range</th>
<th>Technical data</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP1315™</td>
<td>1187 x 850 mm (46 1/2 x 33 1/8&quot;)</td>
<td>1770 x 1300 mm (70 x 51&quot;)</td>
<td>1.230 x 500 mm (48&quot;)</td>
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<tr>
<td>NP1415™</td>
<td>1250 x 850 mm (49 1/2 x 33 1/8&quot;)</td>
<td>1830 x 1300 mm (72 1/4 x 51&quot;)</td>
<td>1.300 x 500 mm (51&quot;)</td>
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<td>NP1515™</td>
<td>1313 x 850 mm (52 x 33 1/8&quot;)</td>
<td>1900 x 1300 mm (75 x 51&quot;)</td>
<td>1.300 x 500 mm (51&quot;)</td>
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<tr>
<td>NP1620™</td>
<td>1386 x 850 mm (54 1/2 x 33 1/8&quot;)</td>
<td>2050 x 1300 mm (80 x 51&quot;)</td>
<td>1.300 x 500 mm (51&quot;)</td>
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<tr>
<td>NP2023™</td>
<td>2000 x 1300 mm (79 x 51&quot;)</td>
<td>2600 x 1300 mm (102 x 51&quot;)</td>
<td>1.500 x 500 mm (59&quot;)</td>
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<tr>
<td>NP1313™</td>
<td>1320 x 1225 mm (52&quot; x 48 1/4&quot;)</td>
<td>900 x 1300 mm (35&quot; x 51&quot;)</td>
<td>1.500 x 500 mm (59&quot;)</td>
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<tr>
<td>NP1413™</td>
<td>1386 x 1225 mm (54 1/2&quot; x 48 1/4&quot;)</td>
<td>1050 x 1300 mm (41 1/2&quot; x 51&quot;)</td>
<td>1.500 x 500 mm (59&quot;)</td>
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<tr>
<td>NP1513™</td>
<td>1430 x 1225 mm (56 3/4&quot; x 48 1/4&quot;)</td>
<td>1100 x 1300 mm (43 1/2&quot; x 51&quot;)</td>
<td>1.500 x 500 mm (59&quot;)</td>
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<tr>
<td>NP1520™</td>
<td>1500 x 1225 mm (60&quot; x 48 1/4&quot;)</td>
<td>1150 x 1300 mm (45&quot; x 51&quot;)</td>
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<td>NP1620™</td>
<td>1538 x 1225 mm (60 5/8&quot; x 48 1/4&quot;)</td>
<td>1200 x 1300 mm (47 1/2&quot; x 51&quot;)</td>
<td>1.500 x 500 mm (59&quot;)</td>
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<td>NP2023™</td>
<td>2000 x 1300 mm (79 x 51&quot;)</td>
<td>2600 x 1300 mm (102 x 51&quot;)</td>
<td>1.500 x 500 mm (59&quot;)</td>
</tr>
</tbody>
</table>

Nordberg® HP Series™

Why choose Metso's cone crusher?

Reliability
- Field-proven design
- Hydraulic safety system
- Bronze bushings

Performance
- Capacity
- Reduction ratio
- Final production yield
- Shape
- Power efficient

Energy efficient
- High-yield production
- Large stroke
- High-efficiency motors

Maintenance friendly
- Versatility
- One-piece main frame
- Dismantling from top
- No backing liners
- Metso IC™ crusher automation
Metso is committed to driving customer success. Nordberg® HP Series™ cone crushers help Metso demonstrate this value by offering unprecedented performance: high capacity, superior end-product quality and energy efficiency.

**Highest performance**
Nordberg HP Series cone crushers feature a unique combination of crusher speed, throw, crushing forces and cavity design. This combination is renowned for providing higher capacity and superior product quality in all secondary, tertiary and quaternary applications. Field proven for years, HP series cone crushers are built to perform.

**Cost effective**
In a size-class comparison, the HP Series crushers have a higher output capacity, higher density in the crushing chamber and better reduction ratio, producing higher on-spec yield end products with the same energy consumption. HP Series cone crushers are equipped with the latest high-efficiency motors, making them efficient and ecological crushing machines.

**Maintenance friendly**
Designed for your needs, HP Series cone crushers are safe and easy to maintain. Fast and easy access to all the main components from the top, dual-acting hydraulic cylinders, and no backing material significantly reduce downtime and are more environmentally friendly.

**Benefits**
- Performance
- Reliability
- Energy efficient
- Less downtime
- Easy to maintain

Cone crushers
Nordberg®
HP Series™
Metso is once again on the cutting edge of innovative technology and leading the way with a new generation of cone crushers. Its new-generation HP Series cone crushers are high performers.

**Making success happen**
In today’s dynamic crushing and screening environment, Metso is focused on customer success. We listen to our customers to find out what they need to succeed and then develop solutions to make it happen.

**HP for high performance**
HP Series cone crushers produce finer products by limiting crushing stages, which lowers your investment cost and saves energy. This is achieved through a combination of optimized speed, large throw, crushing chamber design and increased crushing force. The efficient crushing action of the HP Series gives it the best power utilization per cone diameter.

**More power with less energy**
Increasing the stroke, the power and the retaining force while improving crusher body design and weight to withstand the force are principles of kinematics. A higher density in the crushing chamber improves the inter-particle crushing action, resulting in superior product shape, high reduction ratio and high capacity.

**More uptime, more confidence**
Another way the HP Series cone crushers deliver is through less downtime and increased operator confidence.

Dual-acting hydraulic tramp-release cylinders are used to let the crusher pass tramp iron and to provide a large clearing stroke if needed. The double accumulator combination provides better reactivity of the hydraulic system.

**User friendly maintenance**
Because we are working in potentially hazardous environments, HP Series cone crushers are designed to ensure maximum operator safety and easy maintenance. Accessibility from the top of the crusher to the principal components, easy access for liner maintenance, mechanical rotation of the bowl for removal with a simple press of a button, no backing compound on liners, and full protection with Metso IC™ crusher automation make the Nordberg HP Series the most reliable cone crushers.

**Benefits of Nordberg HP Series**
- Large stroke
- Strong crushing force
- Attrition
- Reduction ratio
- Antispin
- Dual-acting cylinders

Nordberg® HP Series™ Cone crushers
## Nordberg® HP Series™

### Technical specifications

<table>
<thead>
<tr>
<th>HP3™</th>
<th>HP4™</th>
<th>HP5™</th>
<th>HP6™</th>
<th>HP100™</th>
<th>HP200™</th>
<th>HP300™</th>
<th>HP400™</th>
<th>HP500™</th>
<th>HP600™</th>
<th>HP600™</th>
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<tbody>
<tr>
<td>Head diameter</td>
<td>1,000 mm (39&quot;)</td>
<td>1,120 mm (44&quot;)</td>
<td>1,250 mm (49&quot;)</td>
<td>1,400 mm (55&quot;)</td>
<td>735 mm (29&quot;)</td>
<td>940 mm (37&quot;)</td>
<td>1,120 mm (44&quot;)</td>
<td>1,320 mm (52&quot;)</td>
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<tr>
<td>Power</td>
<td>250 kW (335 hp)</td>
<td>315 kW (400 hp)</td>
<td>370 kW (500 hp)</td>
<td>500 kW (650 hp)</td>
<td>90 kW (125 hp)</td>
<td>132 kW (200 hp)</td>
<td>220 kW (300 hp)</td>
<td>315 kW (400 hp)</td>
<td>355 kW (500 hp)</td>
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<td>Head openings</td>
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### Notes:
- *Complete crusher weight: crusher + sub frame, motor sub frame, guards, feed and discharge arrangements.

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### Nordberg® HP5™

- Head diameter: 1,000 mm (39")
- Power: 250 kW (335 hp)
- Crusher weight: 16,100 kg (35,600 lbs)
- Feed opening: 220 mm (8 3/4")
- Capacity: 6 mm - 45 - 55 Mtph
Nordberg® GP Series™
Why choose Metso's cone crusher?

**Cost effective installation**
- Low installation height due to patented piston design
- Reduced need of steel structures and conveyor lengths
- Easy to install in place of an existing crusher

**High and stable performance**
- Robustly constructed design guarantees durability in high-power applications
- Stable performance throughout the liner life

**Versatility**
- Use the same crusher as a secondary, tertiary or quaternary machine, simply by changing the cavity
- A wide selection of strokes, depending on application
- Can be operated on/off feed

**Easy and safe to use and maintain**
- Metso IC™ crusher automation
- Dynamic setting adjustment
- Dismantling from top
- Quick, easy, and cost-effective liner change, no backing material

**Environmentally friendly**
- Energy optimized due to stroke adjustment
- Effective utilization of natural raw materials both in design and performance
- No backing material
Nordberg® GP Series™ cone crushers have been developed to crush feed materials into desired end products efficiently, reliably, and economically.

Optimized for your needs

Metso, the global leader in rock crushing technology, has developed the Nordberg GP Series cone crushers for all rock types. Incorporating the latest crusher know-how, the GP Series crushers combine the highest crushing efficiency and end-product quality with the lowest production costs per ton.

Nordberg GP Series cone crushers embody Metso’s 100+ years of commitment to first-class crusher design and product development. As a result, the GP Series offers several outstanding features that enable you to work efficiently in any secondary, tertiary or quaternary crushing application. Nordberg GP Series crushers are optimized for your crushing needs, whether your aggregate or mining process requires high reduction, first-class cubicity or great capacity.

Nordberg GP Series crushers provide you with unlimited possibilities in smooth process adaptation and full crushing process automation. All of this is backed by our worldwide, comprehensive pre- and aftersales support services. Take a closer look at the Nordberg GP Series crushers. We know you’ll find a GP cone crusher that is ideal for your needs.

Benefits

- High and stable performance
- Versatility
- Cost-effective installation
- Easy and safe to use and maintain
- Environmentally friendly
Best long-term performance
Optimized cavity designs by the industry leader provide maximum yields for required high-quality end products. The stroke and cavity change feature allows crusher throughput to be easily adjusted to work in harmony with the rest of the crushing plant.

The steep head angle in secondary GP cone crushers guarantees trouble-free operation in varying feed conditions with a high reduction ratio. Continuing process and crusher control ensures high availability with optimum production levels of desired end products.

The Nordberg GP Series cone crusher is the right machine to maximize your profitability.

Increased production of desired end-product fractions
The robust design of Nordberg GP Series cone crushing makes it possible to maintain high crushing power and pressure that leads to higher end-product capacity. Nordberg GP Series secondary crushers are designed especially for efficient secondary crushing or primary gravel crushing applications.

The crushers provide maximum feed opening for undisturbed operation with big feed, calibrating material to a consistent, easy-to-process size for the following crushing and screening stages.

Superior reliability
The reliability and safe operation of Nordberg GP Series cone crushers are the result of their unique design and high-quality steel. Their reliability in demanding crushing applications is guaranteed by Metso’s acclaimed metallurgical know-how, and ongoing development of manganese materials, metallurgical compounds and geometrical design.

Benefits of Nordberg GP Series secondary crushers
- Best long-term performance
- Reliability in demanding applications
- First-class end-product shape
- High reduction ratio

The robust design of Nordberg GP Series cone crushers makes it possible to maintain high power levels that result in high productivity. The proven heavy-duty design and the use of high-quality Metso components with optimized wear parts keep production up and operating costs down.
The highest performance and excellent end-product quality
The optimized design of the Nordberg GP Series castings enables the use of a higher power rating than any other cone crusher with an equal head diameter. The castings design together with high-quality Metso components make it possible to maintain high crushing performance in the toughest conditions. High crushing forces, excellent cavity geometry and proven kinematics in tertiary applications result in first-class end-product shape and increased production of desired end-product fractions.

The dynamic setting control maintains excellent, stable end-product quality. The crusher setting can be continuously adjusted under load in all Nordberg GP Series cone crushers. Metso IC™ crusher automation maintains a high power draw and compensates for liner wear during crushing without interruptions.

One crusher for the secondary, tertiary and quaternary crushing stage
Nordberg GP Series cone crushers are always adapted to your specific production requirements. A high power rating with a wide selection of cavities and strokes enables the use of the same crusher for the 2nd, 3rd or 4th crushing stages. The stroke change feature allows crusher throughput to be easily adjusted to work in harmony with the rest of the crushing plant. The adjustable stroke also allows you to attain proper choke feed conditions and optimum crusher settings, ensuring the maximum yield of a required end-product size.

Guaranteed performance
Nordberg GP Series crushers are designed to be easy to maintain and service. When OEM parts are used, a long lifetime is guaranteed. Metso IC crushe automation ensures that your GP cone crusher runs at its optimal performance level.

Benefits of Nordberg GP Series tertiary crushers:
• The highest performance and excellent end-product quality
• One crusher for stages 2, 3 and 4
• Reliability in demanding applications
• First-class end-product shape
• Wide range of cavities

Nordberg® GP Series™
Tertiary cone crushers

The robust design of the GP Series cone crushers enables high power levels and high productivity. The proven heavy-duty design and use of high-quality components with optimized wear parts keep operating costs down.
**Technical specifications**

### Power
- 75 - 90 kW (100 - 125 hp)
- 110 - 160 kW (150 - 225 hp)
- 132 - 250 kW (175 - 350 hp)
- 200 - 355 kW (275 - 475 hp)
- 375 - 560 kW (500 - 750 hp)
- 75 - 90 kW (100 - 125 hp)
- 132 - 220 kW (175 - 300 hp)
- 250 - 315 kW (325 - 425 hp)
- 250 - 400 kW (325 - 500 hp)

### Basic crusher weight *)
- 7 350 kg (16 200 lbs)
- 10 900 kg (24 000 lbs)
- 16 200 kg (35 700 lbs)
- 33 300 kg (73 400 lbs)
- 62 000 kg (137 000 lbs)
- 5 800 kg (12 800 lbs)
- 10 200 kg (22 500 lbs)
- 15 700 kg (34 600 lbs)

### Feed opening

<table>
<thead>
<tr>
<th>Size</th>
<th>Cavity Feed opening</th>
<th>EF</th>
<th>F</th>
<th>MF</th>
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<th>C</th>
<th>EC</th>
<th>EC-LS / EC-TR</th>
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<tr>
<td>520 x 46 mm (1 13⁄16&quot;)</td>
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<td>58 mm (2 5⁄16&quot;)</td>
<td>68 mm (2 ¾&quot;)</td>
<td>89 mm (3 ½&quot;)</td>
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<td>520 x 53 mm (2&quot;)</td>
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<td>85 mm (3 ½&quot;)</td>
<td>95 mm (3 ¾&quot;)</td>
<td>107 mm (4 1/4&quot;)</td>
<td>113 mm (4 7/16&quot;)</td>
<td>118 mm (4 5/8&quot;)</td>
<td>141 mm (5 9/16&quot;)</td>
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<td>520 x 95 mm (3 1/2&quot;)</td>
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<td>101 mm (4&quot;)</td>
<td>107 mm (4 1/4&quot;)</td>
<td>113 mm (4 7/16&quot;)</td>
<td>118 mm (4 5/8&quot;)</td>
<td>141 mm (5 9/16&quot;)</td>
<td>147 mm (5 5/8&quot;)</td>
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<tr>
<td>520 x 206 mm (8 1/8&quot;)</td>
<td>206 mm (8 1/8&quot;)</td>
<td>141 mm (5 9/16&quot;)</td>
<td>118 mm (4 5/8&quot;)</td>
<td>135 mm (5 5/8&quot;)</td>
<td>152 mm (6&quot;)</td>
<td>192 mm (7 9/16&quot;)</td>
<td>250 mm (9 13/16&quot;)</td>
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### Stroke
- 16 mm (5/8")
- 20 mm (13/16")
- 25 mm (1")
- 18 mm (7/8")
- 22 mm (1 7/64")
- 25 mm (1 1/4")
- 28 mm (1 13/32")
- 32 mm (1 9/16")

### Capacity
- 6 mm 1/16" 35 - 50
- 8 mm 5/16" 40 - 65 70 - 90 105 - 145
- 10 mm 3/8" 45 - 73 80 - 130 110 - 190 140 - 250
- 15 mm 7/8" 50 - 95 105 - 175 130 - 260 160 - 310
- 20 mm 1" 55 - 115 150 - 250 180 - 340 200 - 370
- 25 mm 1 3/16" 60 - 165 230 - 450 260 - 570 300 - 700
- 30 mm 1 3/8" 65 - 220 240 - 460 270 - 510 320 - 640
- 35 mm 1 5/8" 70 - 280 270 - 560 300 - 690 360 - 800
- 40 mm 1 9/16" 75 - 340 300 - 700 330 - 930 400 - 1000
- 45 mm 1 11/16" 80 - 400 330 - 900 360 - 1050 450 - 1200
- 50 mm 2" 85 - 450 370 - 1150 400 - 1300 500 - 1800

*) Crusher without options
**) Please contact Metso for more information

### Notes
- *K* 1 1/4" x 3 1/16"
- *C* 1 3/8" x 3 7/16"
Barmac® B Series™
Why choose Metso’s VSI crusher?

Maximized availability
- Orange Series rotor - Uptime can be significantly increased through shorter maintenance breaks and longer life of wear parts
- Metso IC™ crusher automation

High-quality products
- Unique rock-on-rock principle results in superior cubical shape
- Performance is easy to fine-tune by rotor speed or cascade ratio
- Parts wear has no effect on product gradation or quality

Easy to install and maintain
- Minimal foundation requirements
- Maintenance lifting tools available
- Inspection door for rotor access
- Orange Series rotor for quick & easy maintenance and maximized uptime

Safety
- Interlocking device prevents the access when operating
- Specialized tools for rotor service and crusher top half lifting
Barmac® B Series™ Vertical Shaft Impactor (VSI) is the original rock-on-rock impactor. It has become synonymous with high-quality products in quarrying and minerals processing industries.

Proven producer of premium quality
The crushing process makes Barmac VSI unique. Whereas most other types of crushers use metallic parts to crush rock, Barmac VSI uses the rock fed into the machine to crush itself. This autogenous crushing action offers the lowest possible cost per ton of any impact crushing method. The high velocity impact crushing achieved in a Barmac VSI improves the soundness and shape of the material and produces the highest quality end products on the market today. It is widely known that the more cubical your product, the better its performance in concrete, asphalt and base mixtures.

Barmac VSI is usually applied in the last phase of the crushing circuit. The quarrying and construction industry has always been Barmac VSI’s main application area with thousands of units operating around the world, followed by many demanding manufactured sand, heap leaching, pre-grinding, industrial minerals and recycling applications. This is possible because of the unique free-impact crushing and grinding action combined with the ability to accept fines in the feed and to fine-tune the crusher’s performance by simply changing the rotor speed or cascade ratio.

Benefits
- Produces a product of superior cubical shape
- Ability to control product grading
- Low wear costs due to unique rock-on-rock crushing
- Accepts fine material in feed
Barmac® B Series™ VSI
Your competitive advantage

Barmac B Series VSI is unbeatable when you require maximum availability, low operational costs, consistent high-quality products, and a VSI crusher that meets all the latest safety requirements.

The heart of success
The Barmac VSI rotor has been developed to prolong the lifetime of its wear parts and to increase the operational availability by reducing the time needed for parts changes. Deep rotor technology (DTR) makes it possible to reach the highest possible capacities with the lowest possible power consumption.

Genuine premium-quality Metso parts assure trouble-free operation. The right materials and profiles can be supplied for a long lifetime of crushing.

Cascading optimizes quality
The primary path for the feed material is through the rotor where material can be accelerated up to rotor tip speeds of 80 m/s (262 ft/s) before being discharged into the crushing chamber. Additionally, material may be cascaded into the crushing chamber, bypassing the rotor. The cascade feature enables the operator to optimize the capacity and power consumption and to manipulate the product grading and shape to meet all specification requirements.

User-friendly and minimizes downtime
Barmac B Series VSI is designed with ease of installation in mind. Foundation requirements are minimal due to the low static and dynamic forces in operation.

Service time is drastically reduced with quick access to the rotor parts via a safe-to-use inspection door. The roof lifter and rotor service arm eliminate the requirement for an external crane in regular maintenance and give easy access to the internal workings and rapid rotor changes. Simple and reliable automatic lubrication handles the daily greasing of the main shaft. Metso IC™ crusher automation ensures safe operation and condition monitoring.

Benefits of Barmac B Series
• Deep rotor technology maximizes capacity (DTR)
• Fine-tune product with cascading
• Multiple optional features to help installation and maintenance
• Genuine premium-quality Metso parts for trouble-free operation

Cascading optimizes quality
The primary path for the feed material is through the rotor where material can be accelerated up to rotor tip speeds of 80 m/s (262 ft/s) before being discharged into the crushing chamber. Additionally, material may be cascaded into the crushing chamber, bypassing the rotor. The cascade feature enables the operator to optimize the capacity and power consumption and to manipulate the product grading and shape to meet all specification requirements.
Barmac® B Series™

Technical specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>B6150SE™</th>
<th>B7150SE™</th>
<th>B9100SE™</th>
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<tr>
<td><strong>Maximum feed size</strong>)</td>
<td>37 mm (1 ½&quot;)</td>
<td>40 mm (1 ½&quot;)</td>
<td>50 mm (2&quot;)</td>
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<tr>
<td><strong>Speed</strong></td>
<td>1,500 - 2,500 rpm</td>
<td>1,100 - 2,000 rpm</td>
<td>1,000 - 1,800 rpm</td>
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<tr>
<td><strong>Power</strong></td>
<td>75 - 160 kW (100 - 200 hp)</td>
<td>160 - 320 kW (200 - 400 hp) ***)</td>
<td>320 - 600 kW (400 - 800 hp) ***)</td>
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<td>**Operational crusher weight ****)</td>
<td>6,400 kg</td>
<td>14,400 kg</td>
<td>27,300 kg</td>
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**Capacity**

- **Minimum capacity** | 60 Mtph | 125 Mtph | 263 Mtph |
- **Maximum capacity with cascade** | 217 Mtph | 545 Mtph | 775 Mtph |

* Square mesh
** Up to 220 kW [300 hp] single-drive configuration
***) Including motors

Metso’s new Orange Series Rotor is a user-friendly and cost-effective solution for your VSI application. Uptime can be significantly increased through shorter maintenance breaks and longer life of wear parts.
Metso IC™ crusher automation

Crusher automation
A comprehensive range of Metso IC™ intelligent crusher automation solutions is available for Metso crushers. Metso IC automation ensures full performance and is precisely designed to meet your expectations and crushing plant requirements for consistent performance, safety and easy control of crusher parameters.

The automation brings precision and consistency to your crusher operations. This leads to predictable and stable production and end product quality, and thus ensures profitable operation of the crusher and the whole crushing plant. With optimized start-up and shut-down procedures and sequences integrated into the IC automation, you can be sure that the crusher is working correctly in all circumstances and that the downtime of the cruiser is minimal.

Metso IC crusher automation allows you to maximize the performance of your high-quality Metso crushers. This is done with carefully defined safety parameters for oil temperature, power draw and oil pressure, which are indicators of the actual crusher load. Metso IC crusher automation monitors the crusher condition and gives an early indication if there’s a problem in the cruiser. This can help solve a problem before it becomes serious and costly.

Metso IC crusher automation can be easily connected to any plant automation system used in the crushing and screening industry. This enables centralized control of the crusher and the whole plant, allowing the operator to safely control and alter crusher operating parameters according to production needs from a single location.

Easy integration to any plant automation system is one of the benefits of Metso IC crusher automation.
Metso feeders and screens deliver optimal uptime and the lowest total cost to operate with trouble-free, reliable designs and high availability of wear and spare parts.

Dependable screening performance
In addition to being a provider of crushing and complete rock and mineral processing solutions, Metso has also gained a worldwide reputation as a specialist in vibrating equipment. As an example, more than 3000 units of the highly recognized and robustly designed Metso PREMIER CVB™ screen have been sold and now deliver reliable screening results all around the world.

Maintenance friendly
Our well proven Metso modular MV™ vibrators with the cardan shaft design are uniquely easy to maintain. Unlike conventional designs, our MV vibrators have doubled bearings that ensure extended bearing life. The modular design and highly available wear and spare parts combined with a low-stress designed screen body provide for maximize uptime.

Worker safety
Ease of maintenance and worker safety are a priority, and Metso’s vibrating solutions lead the way. Whatever your process requirements, Metso has the right solution - from dependable inclined, high-energy horizontal or high-capacity banana screens. Just name your application, and Metso’s professionals will find the most productive and cost-effective vibrating equipment for you.

Benefits
- Reliability
- Availability
- Performance
- Lowest total cost
- Worker safety
Metso PREMIER and COMPACT screens

Why choose Metso's screen?

**Performance**
- Easy adjustability of stroke & speed
- Extensive selection of screening panels type
- Extensive selection of upgrade options

**Worker safety**
- Comfortable room between the decks
- High safety belt guards design
- Safety coil spring covers
- Rubber stabilizers as standard
- Configured to be equipped with dust and noise protection

**Durability**
- MV™ vibrators: long bearing life (double bearing design)
- Weld free side plates and huck-bolted assembly
- Robust deck frame design
- Uncompromised wear protection standard

**Maintenance friendly**
- Modular MV™ vibrators and cardan shaft design
- Easy access and quick replacements of screening media
- Easily replaceable modular crossbeam protection
- Modular wear and impact resistance rubber linings
- Centralized and conveniently located greasing manifold
Inclined screens
Metso PREMIER CVB™

The Metso PREMIER CVB™ is the screen for you when you want a versatile and durable partner in your screening process.

Lowest total cost of your screening operation
Metso PREMIER CVB™ has one of the industry’s strongest legacies in the industry of delivering dependable screening performance. Its uniquely robust deck frames are an example of its enhanced durability and reliability. The shaft line is positioned at the center of gravity, a perfect circular motion results on all points on the screen. Combined with an adjustable slope angle from 12-22° this circular motion gives very good screening efficiency for all types of applications, such as primary, technical and final screening. The weld-free crossmember sections reduce the risk of fatigue stress and optimize the product lifetime. In addition, the CVB Series has weld-free side plates, which increases the screen’s durability and stress tolerance. Huck-bolting gives you perfect and homogeneous assembling conditions and eliminates the risk of detachment. Size for size, the CVB Series inclined screens are often the most economical in terms of capital expenditure and power consumption compared to other types of screens.

Metso PREMIER CVB has been designed to deliver the lowest total cost to operate with its trouble-free design and high availability of wear and spare parts, which eliminates expensive downtime due to high-cost customized items with low availability.

Benefits
- Circular motion with up to 4G
- Adjustable incline 15°-30°
- High safety design
- High-quality wear protection
- Metso MV™ vibrators
Ramp up your screening efficiency with the revolutionary, high-energy elliptical motion Metso PREMIER ES™ screen.

High-efficiency screening
Metso PREMIER ES™ screens feature two unbalanced shaft lines rotating in opposite directions to generate a high-energy elliptical motion. This deceptively simple solution is more efficient than conventional horizontal screens that have a linear motion, and the ES Series is more reliable than other elliptical motion screens. What’s more, the ES Series separates your materials with consistency and accuracy, even in damp and sticky conditions. The high-energy elliptical motion of the ES Series gives you up to 25% greater capacity than a conventional screen of the same size. In difficult screening conditions – such as wet screening or screening of sticky and dirty materials – the ES Series provides exactly the kind of aggressive screening action you need. Capable of handling all kinds of material, from quarry solid to gravel, you can trust the ES Series to perform reliably in applications that require a high level of screening accuracy. The ES Series is designed to keep downtime and maintenance to a minimum, as there is no mechanical timing device, no gears, no belt and no oil leakage. Quite simply, there’s very little that can go wrong.

Compared with other elliptical motion screens, the ES Series is designed with up to 50% more space between the decks.

Benefits
• Elliptical motion with up to 6G
• High-energy screening
• Adjustable incline 0-5°
• Easy maintenance and safe access
• Metso MV™ vibrators
The Metso PREMIER TS™ is what you need when you are looking for uniquely designed high-capacity screens.

Multi-slope screens

Metso PREMIER TS™

High-capacity screening

The Metso PREMIER TS™ banana screen is a triple-slope screen ensuring a fast travel speed with an elliptical motion in the first slope, medium travel speed and circular motion in the second slope, and a low travel speed, backwards rotating elliptical motion in the last section. The slower travel speed and strong stratification effect ensures more time and more surface to screen the near-size particles. A single shaft located above the center of gravity generates the elliptical motion with variable angles.

The TS Series banana screen delivers up to 40% more capacity than a standard inclined screen — especially when the feed material contains a high percentage of fines. Creating a safe working environment is one of Metso’s top priorities. Safety solutions are not an add-on, but part of our standard offering. This is another factor that puts the TS Series ahead of the competition. The feedbox, discharge spout and cardan shaft come with high-quality, impact-resistant rubber linings as standard. Upgrade options, such as replaceable modular crossbeam protection and Trellex® LS™ modular screening media, make the screen well suited for high-capacity applications with ensured uptime.

Benefits

- Elliptical motion up to 6G
- High-energy screening
- Multi-slope inclines: 25°-20°-15°
- Easy maintenance and safe access
- Metso MV™ vibrators
Optimize your screen
Multiple options for your needs

A wide offering of options enables you to customize your screen to meet your needs. Full and appropriate use of these options helps to optimize the efficiency and uptime of your plant.

Modular screening media
- Trellex® CRF polyurethane

Crossmember protection
- Trellex® CRP polyurethane

Dust sealing system
- Trellex® dust control

Side tensioning media
- Trellex® CO RJ and PU

Spray pipe unit
- Ideal package for wet screening

Automatic greasing kit
- Electrical power grease unit

Anti-blinding system kit
- Trellex® ABR polyurethane anti-blinding rods

Modular rail-wear protection
- Trellex® polyurethane HD upgrade strip

Galvanization treatment
- Optimal corrosion protection

A wide offering of options enables you to customize your screen to meet your needs. Full and appropriate use of these options helps to optimize the efficiency and uptime of your plant.
Metso COMPACT™ screens

Metso COMPACT CVB-M™ inclined screens fit into a single container, making moving them fast and easy.

**Metso COMPACT CVB-M™ screens**

Inclined screens with circular motion offer one of the most versatile screen arrangements to provide high reliability. The compact design is optimized for high portability without sacrificing performance.

An extremely versatile solution

In many applications, the set-up time is crucial, as the application and process needs change from location to location. The design of the Metso COMPACT CVB-M™ inclined screens includes features so that it can be quickly put into operation. These features include fast and efficient change of the screening media, and the ability to adjust stroke and RPM parameters within a wide range to optimize performance quickly.

As part of the Metso COMPACT screen series, the FS™ horizontal screens are designed for integration into tight spaces, both with fixed and mobile plants. The FS screens include carefully selected features in a standard configuration, for easy and reliable operation.

A high accuracy screen

Metso COMPACT FS™ flat screens are horizontal elliptical motion screens. This screen is extremely compact for the best portability. Its tri-shaft line generates a high-energy elliptical vibration. The combination of horizontal decks + high acceleration + aggressive elliptical vibration provides a strong stratification of the bed depth, which leads to high screening accuracy.

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### Metso COMPACT CVB-M™ inclined screens

<table>
<thead>
<tr>
<th>Range</th>
<th>Deck dimensions</th>
<th>Area (ft²)</th>
<th>Decks</th>
<th>MV vibrator</th>
<th>Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVB1540-3M™</td>
<td>1.50 x 4.00 m</td>
<td>6.6 ft²</td>
<td>3</td>
<td>2 x MV2</td>
<td>8 800 kg (19 400 lbs)</td>
</tr>
<tr>
<td>CVB1540-4M™</td>
<td>1.80 x 4.50 m</td>
<td>12 ft²</td>
<td>4</td>
<td>2 x MV2</td>
<td>11 500 kg (25 400 lbs)</td>
</tr>
<tr>
<td>CVB1845-3M™</td>
<td>2.00 x 5.00 m</td>
<td>12 ft²</td>
<td>3</td>
<td>2 x MV3</td>
<td>10 400 kg (22 900 lbs)</td>
</tr>
<tr>
<td>CVB1845-4M™</td>
<td>2.00 x 5.00 m</td>
<td>12 ft²</td>
<td>4</td>
<td>2 x MV3</td>
<td>13 500 kg (30 000 lbs)</td>
</tr>
</tbody>
</table>

### Metso COMPACT FS™ horizontal screens

<table>
<thead>
<tr>
<th>Range</th>
<th>Deck dimensions</th>
<th>Area (ft²)</th>
<th>Decks</th>
<th>MV vibrator</th>
<th>Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS252P™</td>
<td>1.80 x 4.90 m</td>
<td>6.9 ft²</td>
<td>2</td>
<td>6 x MV2</td>
<td>9 100 kg (20 000 lbs)</td>
</tr>
<tr>
<td>FS253™</td>
<td>1.80 x 4.90 m</td>
<td>6.9 ft²</td>
<td>3</td>
<td>6 x MV2</td>
<td>11 900 kg (26 200 lbs)</td>
</tr>
<tr>
<td>FS303™</td>
<td>2.10 x 6.10 m</td>
<td>11.8 ft²</td>
<td>3</td>
<td>6 x MV3</td>
<td>10 400 kg (23 000 lbs)</td>
</tr>
<tr>
<td>FS353™</td>
<td>2.10 x 6.10 m</td>
<td>11.8 ft²</td>
<td>3</td>
<td>6 x MV3</td>
<td>13 500 kg (29 800 lbs)</td>
</tr>
<tr>
<td>FS403™</td>
<td>2.40 x 6.10 m</td>
<td>14.9 ft²</td>
<td>3</td>
<td>6 x MV3</td>
<td>17 500 kg (38 600 lbs)</td>
</tr>
</tbody>
</table>

*Values are indicative only. Please contact Metso for more information.
Metso VG™ primary scalpers have been designed for the toughest applications, high capacity and the ability to process abrasive material, either in stationary or mobile plants.

Primary scalpers
Metso VG™

High scalping efficiency means more tonnage
Metso VG™ primary scalpers are able to maximise the efficiency of the primary plant across a wide variation of applications.

VG primary scalpers can be used with different types of feeders, such as push feeders, apron feeders or vibrating pan feeders.

The speed and stroke are easily adjustable, ensuring optimal feed control of the primary crusher. A long stroke capability means better scalping efficiency, delivering a linear motion with high G force (5.5 G). Our scalping grizzlies are slightly inclined at 5° to reduce blinding when feed is sticky and contains fines (increased capacity). It can be fitted with various grizzly bar options that ensure wide separation flexibility. The vibrator beam is weld-free and fully huck-bolted to ensure optimal, robust performance. The MV vibrator and cardan shaft design ensure a much more reliable operation than a direct belt-drive design.

Benefits
- Metso MV™ vibrators
- High G force
- Adjustable stroke
- Fully huck-bolted design
- Easy maintenance
Metso VF™ grizzly feeders have been designed for the toughest applications, high capacity and the ability to process abrasive material, either in stationary or mobile plants.

Maximized efficiency of the primary section
A long stroke capability means better scalping efficiency, especially when feed material contains a high ratio of flaky material. In addition to delivering good process control and flexibility for your operation, our VF™ feeders are designed to ensure easy maintenance and secured reliability.

The primary feeds are equipped with our acclaimed MV vibrators with a cardan shaft design, similar to our screens. The MV design not only ensures high availability of spare parts but also an unbeatable combination of easy maintenance and excellent durability.

Our vibrating units can be optimized for your specific needs through a wide range of options. You can choose an electrical or hydraulic drive, a steel or rubber lining, a vibrating chute underneath the grizzly section and an automatic greasing unit.

Benefits
• Metso MV™ vibrators
• Various grizzly bar options
• Adjustable stroke
• Fully huck-bolted design
• Easy maintenance

Grizzly feeders
Metso VF™
<table>
<thead>
<tr>
<th>Jaw crusher</th>
<th>Grizzly feeder</th>
<th>Separate feeder + grizzly scalper</th>
<th>Recommended for</th>
<th>Capacity *)</th>
<th>Top feed size *)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C80™</td>
<td>TK8-27-2V</td>
<td>TK8-32-2V</td>
<td>Stationary</td>
<td>Stationary</td>
<td>300 mm ph (160 in)</td>
</tr>
<tr>
<td>C90™</td>
<td>TK9-32-2V</td>
<td>TK9-38-2V</td>
<td>Stationary</td>
<td>Stationary</td>
<td>350 mm ph (160 in)</td>
</tr>
<tr>
<td>C114™</td>
<td>TK11-42-2V</td>
<td>DET10-08</td>
<td>VG40-2V</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C150™</td>
<td>TK12-42-2V</td>
<td>DET10-08</td>
<td>VG40-2V</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C160™</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Impact crusher</td>
<td>Grizzly feeder</td>
<td>Separate feeder + grizzly scalper</td>
<td>Recommended for</td>
<td>Capacity *)</td>
<td>Top feed size *)</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------</td>
<td>---------------------------------</td>
<td>----------------</td>
<td>-------------</td>
<td>----------------</td>
</tr>
<tr>
<td>NP110M™</td>
<td>TK9-42-2V</td>
<td>X</td>
<td>X</td>
<td>460 mm ph (180 in)</td>
<td>600 mm (24&quot;)</td>
</tr>
<tr>
<td>NP1213M™</td>
<td>TK11-42-2V</td>
<td>X</td>
<td>X</td>
<td>540 mm ph (210 in)</td>
<td>600 mm (24&quot;)</td>
</tr>
<tr>
<td>NP1313™</td>
<td>X</td>
<td>X</td>
<td>620 mm ph (240 in)</td>
<td>900 mm (36&quot;)</td>
<td></td>
</tr>
<tr>
<td>NP1415™</td>
<td>X</td>
<td>X</td>
<td>750 mm ph (29.5&quot;)</td>
<td>1000 mm (40&quot;)</td>
<td></td>
</tr>
<tr>
<td>NP1620™</td>
<td>X</td>
<td>X</td>
<td>1000 mm ph (39&quot;)</td>
<td>1300 mm (51&quot;)</td>
<td></td>
</tr>
<tr>
<td>NP2023™</td>
<td>X</td>
<td>X</td>
<td>1800 mm ph (70&quot;)</td>
<td>2000 mm (79&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

*) Note: Maximum feed rates are given for material bulk density of 1.6 t/m³ in dry conditions and are indicative only.
Metso
Application expertise
Bruno™ process simulation tool helps you to maximize crushing plant production

Metso’s Bruno process simulation tool helps you to choose the right Metso equipment and helps you to optimize the performance of the crushing plant. The competence and calculation models behind the software are based on thousands of real crushing and screening test results.
Application examples
Services
Maximizing your return on investment

Our comprehensive services offering includes everything from original spare and wear parts to customizable service solutions fine-tuned to your specific needs. You can count on Metso’s expertise and support, available through our worldwide network of service centers, distribution facilities and regional warehouses. So if it’s wear or spare parts support, engineered service solutions, a tailored Equipment Protection Plan or a long term Life Cycle Services contract that you are looking for, we’ll make sure that your investments get the attention they deserve.

Spare and wear part support

Our OEM parts help maintain the performance and availability of your equipment, resulting in a lower production cost per ton. Based on a long-term mutual commitment, you can take advantage of benefits such as preferential access to the most critical spare and wear parts.

Metso parts are manufactured according to specific design parameters using high-quality materials, tools and techniques. The use of OEM parts assures optimal performance and equipment availability, resulting in a lower production cost per ton.

Our crusher chamber/liner optimization solution is tailored to your process. This is a continuous improvement program, since the characteristics of the aggregates or the crushing process may vary. Depending on your needs, we can set goals, such as longer wear life, higher capacity throughput, finer material, or shorter downtime on liner changes.

Field Services

We understand our customers’ real issues and that success comes from helping you reach your operational and financial goals. Combining our global service network and deep industry knowledge with your operational expertise ensures that we provide the best solutions to deliver quality aggregate and increased productivity, eliminate waste and reduce risk.

We offer a comprehensive set of field services to help meet your maintenance, repair and refurbishment needs, offering a cost-effective alternative to purchasing new or replacement equipment. These services are available at our global service facilities or on site through our experienced field service staff. Backed by years of experience, we can repair broken or damaged equipment to “like-new” condition and restore worn or irreparable equipment to perfect operating condition.
Life Cycle Services

Our Life Cycle Services (LCS) take the entire range of services Metso provides to our aggregates customers and conveniently bundle them into customizable, easily manageable packages, ranging from the basics to more complete solutions, depending on the scale of your needs. Metso implements industry best practices at each step of your operation to achieve optimum performance and guaranteed results.

Our Life Cycle Services offering includes equipment support, maintenance services and maintenance and optimization packages.

Equipment Protection Plan

EPP is a reliability assurance program that covers key components of your Metso equipment, representing up to 75% of the complete crushing equipment value. Standard freight and service supervisory work are included in the program coverage.

Scheduled equipment inspection visits from a Metso-certified inspector are part of the program, and ensure that any issues are caught early. Certified inspectors help optimize your equipment’s life cycle productivity to enable the lowest sustainable cost of production.
The Metso Way –
Making the big difference to our customers

Everything we do is based on deep industry knowledge and expertise that makes the big difference to our customers. Decades of close customer collaboration and adapting to our customers’ ever changing needs have transformed us into a knowledge company.