Nordberg cone crushers
HP3, HP4 & HP6

Keeping you ahead!
There’s no better choice than a cone crusher when it comes to . . .
- high productivity,
- low operating and wear costs,
- long service life, and high product yield with desired shape and gradation.

Metso leads this market with its high performance HP Series cone crushers for the aggregate and mining markets. HP (High Performance) Series cone crushers feature a unique combination of crusher speed, throw, and cavity design. This combination is renowned for providing higher capacity and superior product quality, and having a wider range of application suitability:
- limestone to taconite,
- road ballast to manufactured sand,
- compact portable plant to the largest stationary.

Field-proven HP series cone crushers provide unbeatable performance in secondary, tertiary, and quaternary applications. They provide the highest capacity, the best product shape, the highest on-spec yield, easy automation, and the greatest possible reliability and flexibility.

The next generation
The HP3 follows successful HP4 and HP6 as the third model of an all-new range of high performance cone crushers, which benefits from the very latest in Metso crushing technology. Its heavy duty design is a tribute to our 70+ years of experience with the Symons cone, known world-over for its rugged construction and application versatility. Labor saving features such as hydraulic setting adjustment, tramp release and cavity clearing recall the innovative Nordberg Omnicone and first generation of HP crushers.

But the next generation achieves new heights with unique features that produce the highest reduction ratios, ease of operation and low maintenance requirements. New cone delivers the highest performance and lowest operating costs. Make more product, better product at the same time improving the workplace and helping the environment.

Designed for your needs
Fact. In today’s dynamic crushing and screening environment, you adapt and innovate or you fall behind. That’s why Metso listens to its customers, to find out what they need to succeed. To be honest, a lot of you seemed conflicted, wanting a high capacity tertiary/quaternary machine with:
- a small profile,
- tight settings,
- minimized operating costs, and
- the versatility for recrushing.

Metso’ research and development team met that challenge with the new cone crushers. No more conflict. Designed for maximum versatility and hardest applications, it provides maximized productivity while minimizing operating costs.

Why new generation cone crushers?
- Highest performance
- Less downtime
- Easy to maintain
- Power efficient
- Versatility
FEATURES & BENEFITS

Crusher working benefits

**Highest performance**
The new cone crushers enable you to produce much finer products with fewer crushing stages, thereby lowering your investment and saving energy. How is this possible? With a combination of optimized speed and large throw, HP new generation provides the highest reduction ratios of any current cone crusher. Due to its super-efficient crushing action, the HP3, HP4 and HP6 have the best power utilization per cone diameter. So you save twice with lower kWh per ton of crushed end product and with lower recirculation load. Higher cavity density improves interparticular crushing action for end products with more consistent gradation and superior shape.

The new cone crushers maintain the proven threaded rotating bowl design. Comparative tests show equalized wear and more consistent setting around the entire circumference of the crushing chamber. Also the use of a newly designed tramp release system, with fixed return point, makes sure that the crusher setting is instantaneously maintained even after passing a piece of tramp iron.

**Easy to maintain**
Bronze bushings used throughout provide superior load capability in the dusty, highshock crushing environment. They cost less than rolling element bearings and are easy to replace in the field with normal tools. The new cone crushers are easy to disassemble. All components are accessible from the top or side. The bowl and head are easily removed; no interference fit to contend with.

**Power efficient**
As well as being fitted with the latest in high-efficiency motors, HP new generation crushers enable a higher output of finished product than any other cone crusher with the same power input. The result is improved overall efficiency (less power consumed, more yield), and as a bonus, less carbon dioxide emission, making this generation of HP cone crushers the most ecological crushing machines on the market.
1 - Feed arrangement
2 - Safety shield
3 - Feed bowl hopper
4 - Clamping ring
5 - Adjustment ring
6 - Bowl
7 - Main frame
8 - Socket
9 - Eccentric bushing
10 - Countershaft
11 - Countershaft bushings
12 - Gear and pinion
13 - Main shaft
14 - Eccentric
15 - Eccentric thrust bearing
16 - Tramp release assembly
17 - Counterweight guard
18 - Lower head bushing
19 - Antispin device
20 - Head
21 - Upper head bushing
22 - Mantle
23 - Hydraulic adjustment motor
24 - Bowl liner
25 - Bowl liner fixation
26 - Cone feed plate
FEATURES & BENEFITS

Versatility
Due to their strength, speed range and ease of converting from coarse to extra fine applications, the new crushers provide application flexibility that was unheard of until now.

- Save stockpile space by recrushing excess or slowmoving products without an intermediate crushing stage.
- Converting from coarse to extra fine application and back again just by changing liners and rpm.
- Liner and rpm combinations go from secondary applications to sand manufacturing.

Asset protection
The new tramp release design also protects the main frame from uncrushables by smoothing out the impact forces and returns the bowl to its original position after passing tramp iron. Inside, a new fixed guard protects counterweight and seals out dust. An optional cover around the crusher protects employees from casual contact with adjustment and tramp release mechanisms. It also helps protect the workplace with reduced dust emissions. The environment benefits too from the advanced fastening system for mantle and bowl liner that do not require backing material.

IC7000 automation
- IC7000 "basic" automation: basic control system with fundamental crusher control features (sequence start/stop, power overload, temperature protection and diagnostics).
- IC7000 "advanced" automation: advanced control system with full range of crusher control features, including crusher setting control, feeder control, power mode, winter mode.
### Technical informations

<table>
<thead>
<tr>
<th></th>
<th>Nominal feed opening</th>
<th>Motor size up to</th>
<th>Crusher weight</th>
<th>Complete crusher weight*</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP3</td>
<td>220 mm</td>
<td>220 kW</td>
<td>13 040 kg</td>
<td>17 600 kg</td>
</tr>
<tr>
<td>HP4</td>
<td>252 mm</td>
<td>315 kW</td>
<td>19 810 kg</td>
<td>25 800 kg</td>
</tr>
<tr>
<td>HP6</td>
<td>330 mm</td>
<td>450 kW</td>
<td>33 000 kg</td>
<td>45 400 kg</td>
</tr>
</tbody>
</table>

* Complete crusher weight: crusher + subframe, motor sub frame, covers, feed and discharge arrangement

### Cavities

<table>
<thead>
<tr>
<th>Cavity</th>
<th>HP3</th>
<th>HP4</th>
<th>HP6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra-coarse</td>
<td>25 (1.00)</td>
<td>20 (0.79)</td>
<td>15 (0.59)</td>
</tr>
<tr>
<td>Coarse</td>
<td>28 (1.10)</td>
<td>33 (1.26)</td>
<td>10 (0.39)</td>
</tr>
<tr>
<td>Medium</td>
<td>30 (1.20)</td>
<td>13 (0.52)</td>
<td>9 (0.35)</td>
</tr>
<tr>
<td>Fine</td>
<td>220 (7.89)</td>
<td>183 (7.20)</td>
<td>156 (6.15)</td>
</tr>
<tr>
<td>Extra-fine</td>
<td>200 (7.89)</td>
<td>163 (6.42)</td>
<td>137 (5.39)</td>
</tr>
</tbody>
</table>

### Crusher capacities

The capacity figures given are approximate only and give an idea of what the crusher is able to produce. They apply for open circuits and dry material with a spec. gravity (2.65) of usual Granite. As a crusher is part of a process, its performance depends on crushability and density of the material, proper selection and operation of feeders, conveyors, screens, supporting structure, electric motors, drive components and surge bins. **Contact us for choosing the right machine for your application.**

### Closed side setting

<table>
<thead>
<tr>
<th>Model</th>
<th>CSS</th>
<th>8 mm (5/16&quot;)</th>
<th>10 mm (3/8&quot;)</th>
<th>13 mm (1/2&quot;)</th>
<th>16 mm (5/8&quot;)</th>
<th>19 mm (3/4&quot;)</th>
<th>22 mm (7/8&quot;)</th>
<th>25 mm (1&quot;)</th>
<th>32 mm (1 1/4&quot;)</th>
<th>38 mm (1 1/2&quot;)</th>
<th>45 mm (1 3/4&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP6</td>
<td>220-300</td>
<td>280-380</td>
<td>335-450</td>
<td>370-490</td>
<td>410-535</td>
<td>450-590</td>
<td>470-630</td>
<td>490-690</td>
<td>515-715</td>
<td>570-790</td>
<td>630-870</td>
</tr>
</tbody>
</table>

### Gradation curves*

* The gradation and capacities shown are dependant on the feed gradation, the crushing chamber, the material density, the material cleanliness, its moisture and its crushability.
Metso’s Mining and Construction
crushing and screening equipment

Product families:
Unit crushers
- C series jaw crushers
- Primary gyratory crushers
- GP series cone crushers
- HP series cone crushers
- MP series cone crushers
- NP series horizontal impact crushers
- Barmac series vertical impact crushers

Unit screens
- DF series screens
- CVB series screens
- ES series screens
- TS series screens
- MF series screens
- RF series screens

Unit feeders
- TK series feeders
- VF series feeders
- LH.G series feeders
- VG series feeders
- PF series feeders
- HRBM series feeders

Mobile crushing and screening plants
- Lokotrack LT series track-mounted crushing plants
- Lokotrack ST series track-mounted screening plants
- Lokotrack CT and CW series track- and wheel-mounted conveyors
- NW series wheel-mounted crushing plants

Stationary crushing plants
- Complete plants for aggregate production
- Complete plants for recycling applications

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Subject to alteration without prior notice.
Brochure No. 2008-05-13-ESBL/Mâcon-English
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