Metso’s Mining and Construction, the world’s leading rock and mineral processing group, has installed over 10,000 jaw crushers since the 1920s. Today the Nordberg C Series is indisputably the world’s favourite jaw crusher. Where cost-efficient primary reduction of hard, abrasive materials is concerned, C Series crushers represent the highest technical and manufacturing knowledge.

All C Series jaw crushers are based on a revolutionary modular, non-welded frame construction. This design offers owners the highest possible fatigue strength, excellent reliability and numerous mounting possibilities. This, combined with high-quality cast steel components and premium spherical roller bearings, means exceptionally high crusher availability, cost-efficient crushing and low cost per ton.

There are now two ranges of models in the C Series range. The first is the well-known traditional jaw crusher range that is designed for stationary as well as mobile applications (C80, C100, C3054, C120, C125, C140, C150, C160, C200). The second range is designed specifically to meet the needs of small to medium size mobile crushing (C96, C106, C116). All C Series crushers are designed to crush very hard rock.

Whatever your crushing needs – from hard and abrasive rock to various recycling materials – you’ll find the optimum solution with the Nordberg C Series jaw crushers.

Take a closer look at the world’s favourite jaw crusher!

The world’s favourite jaw crusher

Table of Contents
High quality and reliability ..............................4
High performance ................................................6
Low installation and operating costs ..........10
Surface installations ..........................................14
Underground installations ............................16
Mobile plants ........................................................18
Technical information ......................................20
Not all jaw crushers are the same ............22

Courtesy of Machine.Market
World-class craftsmanship and materials

C Series crushers are premium class crushers due to their design as well as to the materials that are used to produce them. Attention has been paid to even the smallest details, so as to ensure the highest possible functionality and reliability, without any compromises. Those who have owned and operated C Series jaw crushers know that not all jaw crushers are the same!

Modular, non-welded construction
A uniquely modular, non-welded frame construction is a state-of-the-art design with two hot-rolled steel side plates joined to high-quality cast steel frames through robust, precision machined bosses secured with bolts. The absence of stress inducers such as weld seams ensures excellent durability against shock loads.

Durable pitman assembly
The pitman is made of high-quality cast steel and is propelled by two massive cast steel or iron flywheels. A very large eccentric shaft forging and four large spherical roller bearings that are all of the same size ensure the greatest reliability even under the most severe crushing conditions. The grease-lubricated bearings are kept free from contamination by means of well-proven labyrinth seals.

Single piece cast steel frame bearing housings
The single piece cast steel frame bearing housings ensure a perfect fit to the crusher frame. They also prevent unnecessary loads to the frame bearings that are common with 2-piece frame bearing housings.

Repairable crusher construction
C Series crushers constantly fulfill the durability expectations of their owners around the clock, but they will eventually need some care. Due to the use of cast steel components, the crusher can be economically reconditioned or rebuilt after many years of operation. Such repairs are uneconomical or impossible to carry out with crushers of alternative designs.
The right cavity design

C Series jaw crushers are literally designed “from the inside out” because the cavity is the heart and only purpose of the jaw crusher. That is why over the years great attention has been paid to the feed opening dimensions as well as to the cavity height. The right feed opening width to depth ratio ensures minimum blockage and eliminates unnecessary height from the crusher.

Aggressive kinematics and high power. In addition to the right cavity dimensions, the right kinematics must be applied. That is why C Series jaw crushers have a large eccentric throw coupled with a steep toggle plate angle that magnifies the effective stroke at the crusher discharge. The large stroke, combined with the right speed, flywheel inertia and high available crusher power result in truly high crusher performance. Operation at small settings as well as the method of setting measurement results in finer products in comparison to other crushers.

The right jaws for a given application. Many types of jaws have been developed over the years in order to optimize the performance of Nordberg C Series crushers in a very wide range of applications, including conventional quarries, mines, gravel pits, and recycling of demolition material and asphalt. The tooth profiles as well as the thickness of the jaws are optimized and combined with the right manganese steel alloys to maximize throughput and minimize operating costs. Metso also actively develops custom jaws for special applications. Special cheek plates are also available.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Quarry</th>
<th>Super</th>
<th>Special</th>
<th>Quarry</th>
<th>Anti-Slab</th>
<th>Wavy Like</th>
<th>Corrugated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Many types of jaws are available for different applications. For recommendations concerning your specific application please contact Metso.

C Series crushers are designed from the “inside out.”
The above figures represent through 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 crushers closed side setting removed. The capacities may vary depending on the feeding method and on feed characteristics such as gradation, bulk density, moisture, clay content and crushability.

The following factors will enhance crusher capacity and performance:

1. Proper selection of the jaws.
2. Proper feed gradation.
3. Controlled feed rate.
4. Sufficient feeder capacity and width.
5. Adequate crusher discharge area.
6. Discharge conveyor sized to convey maximum crusher capacity.

Measurement of the crusher’s closed side setting varies depending on the jaw profile that is being used and has an impact on the crusher’s capacity and product gradation. The following factors will enhance crusher capacity and performance:

* Smaller closed side settings can be often used depending on application and production requirements. For performance estimation for your specific application, please contact Metso.

This page contains a table and a diagram that provide capacities and technical specifications for Nordberg C Series jaw crushers. The table lists the crusher's feed opening width and depth, product sizes, and capacities for different closed side settings. The diagram illustrates indicative product gradation for various closed side settings.
LOW INSTALLATION AND OPERATING COSTS

Designed to bring your crushing costs down

In addition to bringing you high performance, C Series crushers are also designed to bring your total crushing costs down. Each unique feature of the C Series brings specific benefits that have a direct impact on the bottom line – which means that you will be more profitable. Those who have owned and operated C Series jaw crushers know that not all jaw crushers are the same!

Fast and safe setting adjustment systems
All C Series crushers are equipped with a proven, rugged and fast wedge setting adjustment system. The wedge setting adjustment is simpler, much safer and faster than outdated shim adjustment systems. The crusher’s setting can be manually adjusted with tools that are supplied with the crusher in a matter of minutes, without having to handle dirty and bulky shims. Alternatively, the crusher’s setting can be changed in seconds, from a remote location, even while the crusher is idling! The system is also especially effective at clearing the crusher’s cavity should it stall under load due to interruptions in the supply of electric power.

The most durable bearings available
All C Series jaw crushers incorporate larger and sturdier eccentric shaft bearings than other crushers of comparable size. Their higher load bearing capacity and effective labyrinth seals result in considerably longer bearing lifetimes.

Tired of repairing your jaw crusher’s foundation?
Rubber dampers and stoppers effectively decrease crushing loads to the foundation by absorbing peak shock loads and allowing the crusher to move vertically and longitudinally. This unique and innovative system eliminates the need for anchor bolts, and is a much more desirable solution as all anchor bolts eventually damage jaw crusher foundations.

The manual wedge setting adjustment is faster and safer than outdated shim setting adjustment systems.

The hydraulic wedge setting adjustment allows you to change the setting in seconds even while the crusher is idling.

A Nordberg C140 jaw crusher in a stationary installation.
Versatile integral motor base

An integral motor base is mounted on the main frame of the crusher, thereby reducing the need for space and excessively long v-belts. V-belt lifetime is prolonged because there is no differential movement between the crusher and the integral motor base, and the base pivots on the crusher in order to adjust v-belt tension. It also accommodates both IEC and NEMA electric motors.

Use of the integral motor base allows for the use of standard flywheel guards, thereby eliminating the need for local engineering and fitting.

Compact and service friendly flywheel guards
Flywheel guards are bolted onto the crusher's side plates and effectively protect operators from the potentially dangerous moving parts. View windows and access doors allow service crews to inspect and service the crusher. Their use also gives greater access to the crusher as the guards are not laying on the service platform.

Custom feed chute
The feed chute is designed to effectively guide the feed into the crusher’s cavity. Jaw and cheek plate removal and installation are carried out without having to move or remove the feed chute. The feed chute is bolted to the crusher and can be removed for other maintenance purposes.

Other excellent cost saving features
There are several additional features that will assist you in reaching lower operating and installation costs. Amongst these features are an automatic grease lubrication system, different mounting brackets to accommodate different feeding heights, temperature and speed sensors, protection plates, and intermediate plates in order to maximize the utilization of the manganese jaws. There are even special deflection plates available in order to protect the crusher discharge conveyor belt from sharp steel bars that are often present in recycling applications.

The integral motor base reduces space requirements and maintenance costs.

The flywheel guards reduce space requirements around the crusher.

The feed chute effectively protects the crusher and can be removed from the crusher for maintenance purposes.

A Nordberg C160 jaw crusher in a stationary mine installation.
The right choice for surface installations

Nordberg C Series jaw crushers are the right choice for stationary surface installations at quarries, mines, gravel pits and even recycling plants. Their ease of installation, serviceability and productivity make them especially suitable for existing installations or new green-field primary crushing plants.

The excellent replacement for your existing crusher

Due to their overall space requirements, C Series crushers are an ideal choice for the replacement of existing double and single toggle jaw crushers. Foundation loads, when compared to those of older version crushers, are less and therefore modifications to the existing foundation are rarely required.

An increase in plant capacity, the ability to process a coarser feed and the ability to produce a finer product are common benefits when replacing double toggle as well as single toggle jaw crushers of comparable size.

Comprehensive expertise in complete plants

Metso designs and supplies complete aggregate crushing and screening systems. We are globally local, and manage plant design, equipment selection, sourcing, manufacturing, installation, and commissioning. New primary crushing plants are tailored to each customer’s needs. Various types of feed arrangements, automation, serviceability and overall cost effectiveness are the trademarks of our success.

A C145 during the installation phase at a new primary crushing plant.

A C125 during the installation phase at a new primary crushing plant.

A C200 after replacement of a double toggle jaw crusher. Plant capacity was increased without having to modify the foundations.

A Nordberg C145 jaw crusher in a stationary installation.

A Nordberg C145 jaw crusher in a stationary installation.
The right choice for underground installations

C Series jaw crushers are indisputably the most popular crushers in underground mines and quarries all around the globe. Their productivity, reliability, ease of transport and possibility to automate make them an ideal choice for operations that run 24 hours a day.

Underground assembly
Transportation of C Series crushers to underground installations is greatly simplified as each major component can be handled individually, and final crusher assembly is done underground. This has a direct impact on mine planning that often results in considerable time and cost savings.

Final assembly underground requires typical lifting facilities and a surprisingly short amount of time.

Easy to automate
Due to their hydraulic setting adjustment, C Series jaw crushers can be fully integrated into plant automation systems. The setting of the crusher can be changed from an electrical cabinet next to the crusher, or from the operator’s room, all at the touch of a button, and even while the crusher is idling.

The lubrication of the crusher’s bearings can also be automated. Bearing temperatures, crusher speed and cavity levels can all be measured and fully integrated into plant automation systems.
The leader in primary jaw crusher mobile plants

Metso has pioneered the development of track-mounted, fully mobile crushing plants, and has also supplied wheel-mounted and semi-mobile plants for many decades. The Lokotrack (LT) and Nordberg (NW) mobile jaw plants are used in aggregate production, mining, recycling, cement production and tunnel crushing.

At the heart of every jaw crushe mobile plant is a Nordberg C Series jaw crushe:

**Full mobility with the Lokotrack range**

The Lokotrack Series mobile crushing plant is based on the innovative idea of flexibility, by moving the equipment to the rock face in order to eliminate the need for haulage trucks. Lokotracks can be moved within and between sites, which means lowered material transport costs. Transportability can further be improved with special options like the bogie and split versions. Fully mobile crushing equipment offers considerable benefits, including less quarry traffic, less dust, noise and exhaust emissions. All this combines to create a safer and cleaner working environment.

There’s a Nordberg mobile plant for every crushing process

Whether the priority requirement is high production capacity, good process adaptability, excellent cubicity or efficient recycle crushing, the Metso mobile plant range can provide the right answer. From contract crushing to demanding in-pit crushing applications, Metso has the right mobile plant specified for your capacity and end product needs.

Three stage crushing and screening process with the Lokotrack LT110, LT300GP and LT300GPB.

The gigantic Lokotrack LT160, coupled with Lokolink in-pit mobile conveyors, eliminates the need for haulage trucks.

Mobile crushing with the NW125.

The Lokotrack LT106 at quarry in Finland.
### Dimensions & Weights

<table>
<thead>
<tr>
<th>Model</th>
<th>C80</th>
<th>C100</th>
<th>C96</th>
<th>C106</th>
<th>C116</th>
<th>C3054</th>
<th>C120</th>
<th>C125</th>
<th>C140</th>
<th>C150</th>
<th>C160</th>
<th>C200</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (mm)</td>
<td>800</td>
<td>1000</td>
<td>930</td>
<td>1060</td>
<td>1150</td>
<td>1380</td>
<td>1200</td>
<td>1250</td>
<td>1400</td>
<td>1400</td>
<td>1600</td>
<td>2000</td>
</tr>
<tr>
<td>A (in.)</td>
<td>32 40 37 42 45 47 50 54 56 56 63 79</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B (mm)</td>
<td>510</td>
<td>760</td>
<td>580</td>
<td>700</td>
<td>800</td>
<td>760</td>
<td>870</td>
<td>950</td>
<td>1070</td>
<td>1200</td>
<td>1200</td>
<td>1500</td>
</tr>
<tr>
<td>B (in.)</td>
<td>21 30 23 28 32 30 34 38 43 47 48 60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C (mm)</td>
<td>1526</td>
<td>2420</td>
<td>1755</td>
<td>2060</td>
<td>2400</td>
<td>2640</td>
<td>2690</td>
<td>2800</td>
<td>3010</td>
<td>3200</td>
<td>3700</td>
<td>4040</td>
</tr>
<tr>
<td>C (in.)</td>
<td>61 98 70 81 95 104 106 111 119 126 146 160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D (mm)</td>
<td>2577</td>
<td>3670</td>
<td>2880</td>
<td>3370</td>
<td>3600</td>
<td>3540</td>
<td>3740</td>
<td>4100</td>
<td>4400</td>
<td>5060</td>
<td>5900</td>
<td>6190</td>
</tr>
<tr>
<td>D (in.)</td>
<td>102 145 114 133 144 140 147 162 174 199 233 264</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E (mm)</td>
<td>1990</td>
<td>2890</td>
<td>2120</td>
<td>2490</td>
<td>2675</td>
<td>3130</td>
<td>3220</td>
<td>3440</td>
<td>3950</td>
<td>4500</td>
<td>4580</td>
<td>4950</td>
</tr>
<tr>
<td>E (in.)</td>
<td>79 114 83 98 105 123 127 136 156 177 181 195</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F (mm)</td>
<td>1750</td>
<td>2490</td>
<td>1970</td>
<td>2490</td>
<td>2780</td>
<td>2730</td>
<td>2940</td>
<td>2980</td>
<td>3140</td>
<td>3600</td>
<td>3710</td>
<td>4460</td>
</tr>
<tr>
<td>F (in.)</td>
<td>69 99 78 98 107 107 116 118 124 156 148 176</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G (mm)</td>
<td>1200</td>
<td>1700</td>
<td>1370</td>
<td>1650</td>
<td>1790</td>
<td>1750</td>
<td>1960</td>
<td>2100</td>
<td>2260</td>
<td>2400</td>
<td>2610</td>
<td>2800</td>
</tr>
<tr>
<td>G (in.)</td>
<td>47 67 54 65 71 69 77 83 89 95 105 111</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H (mm)</td>
<td>2100</td>
<td>2965</td>
<td>2500</td>
<td>2630</td>
<td>2885</td>
<td>2950</td>
<td>2820</td>
<td>3470</td>
<td>3755</td>
<td>3710</td>
<td>4280</td>
<td>4870</td>
</tr>
<tr>
<td>H (in.)</td>
<td>83 117 99 104 114 117 111 137 148 146 169 192</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic crusher weight</td>
<td>kg</td>
<td>7670</td>
<td>20060</td>
<td>9759</td>
<td>14350</td>
<td>18600</td>
<td>25900</td>
<td>26000</td>
<td>37970</td>
<td>47120</td>
<td>51200</td>
<td>76500</td>
</tr>
<tr>
<td>Basic crusher weight</td>
<td>lbs</td>
<td>16900</td>
<td>44240</td>
<td>21250</td>
<td>31650</td>
<td>40920</td>
<td>57100</td>
<td>57200</td>
<td>83730</td>
<td>103900</td>
<td>113000</td>
<td>168300</td>
</tr>
<tr>
<td>Operational crusher weight</td>
<td>kg</td>
<td>9520</td>
<td>23300</td>
<td>11870</td>
<td>17810</td>
<td>21500</td>
<td>30300</td>
<td>39300</td>
<td>43910</td>
<td>54010</td>
<td>61400</td>
<td>88500</td>
</tr>
<tr>
<td>Operational crusher weight</td>
<td>lbs</td>
<td>20980</td>
<td>51390</td>
<td>51150</td>
<td>77300</td>
<td>109200</td>
<td>158300</td>
<td>196700</td>
<td>248900</td>
<td>302400</td>
<td>355000</td>
<td>544100</td>
</tr>
</tbody>
</table>

1) **Crusher without options.**
2) **Crusher, hydraulic setting adjustment, flywheel guards, integral motor support, feed chute, automatic grease lubrication system, and typical electric motor.**

Certified general arrangement, foundation and service space requirement drawings are available from Metso.
Not all jaw crushers are the same

Contrary to popular belief, not all jaw crushers are the same. This is certainly the case for Nordberg C-Series jaw crushers, and there is no secret to this success. Take a closer look at the world’s favourite jaw crusher!

**High quality and reliability**
- World-class craftsmanship and materials
- Modular, non-welded construction
- Four equal size bearings that are larger than those of most crushers of comparable size
- Cast steel pitman and crusher frames
- Single-piece cast steel frame bearing housings
- Repairable crusher construction

**Outstanding performance**
- Efficient cavity designs
- Aggressive kinematics
- Long stroke, optimum speed
- Small allowed crusher settings
- The right jaws and cheek plates for the widest range of applications

**Low operating and installation costs**
- Easy to automate
- Fast and safe wedge setting adjustment system
- Protection plates behind the jaw plates
- Rubber damper crusher mounting
- Versatile integral motor base
- Compact and service friendly flywheel guards
- Custom feed chute
- Automatic grease lubrication system

**Used in a wide range of applications, both stationary and mobile**
- Aggregate
- Mining (surface and underground)
- Recycling (concrete, asphalt, etc.)
- Industrial (slag, anodes, etc.)
Metso’s Mining and Construction

crushing and screening equipment

Product families:

Crushers

- C series jaw crushers
- SUPERIOR® gyratory crushers
- GP series cone crushers
- HP series cone crushers
- MP series cone crushers
- NP series horizontal impact crushers
- Barmac series vertical impact crushers

Screens

- DF series screens
- CVB series screens
- FS series screens
- TS series screens
- MF series screens
- RF series screens

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
- Nordberg NW series wheel-mounted crushing and screening plants

Stationary crushing plants

- Complete plants for aggregates production
- Complete plants for recycling applications

All Metso Minerals Oy Tampere Works equipment is produced in accordance with a quality assurance system that complies with the ISO 9001 standard, as certified by Lloyd’s Register Quality Assurance Limited.

AUSTRALIA AND NEW ZEALAND
Metso Minerals (Australia) Ltd
1110 Hay Street
West Perth, WA 6005
Australia
Phone: +61 8 9420 5555
Fax: +61 8 9320 2500

CHINA
Metso Minerals (Beijing) Ltd
19/F, The Exchange Beijing, Tower 4
No. 118 Jian Guo Lu Yi Chaoyang District
100022 Beijing
China
Phone: +86 10 6566 6600
Fax: +86 10 6566 2583

EUROPE, MIDDLE EAST AND AFRICA
Metso Minerals España, S.A.
C/ Rivas N° 4
28032 Madrid
Spain
Phone: +34 91 825 5700
Fax: +34 91 825 5740

INDIA AND ASIA-PACIFIC
Metso Minerals (India) Pvt Ltd
1st Floor, DLF Building No. 10, Tower A, DLF Cybercity
DLF Phase II
Gurgaon 122002
India
Phone: +91 124 235 1541
Fax: +91 124 235 1601

NORTH AND CENTRAL AMERICA
Metso Minerals Industries Inc.
20965 Crossroads Circle
Waukesha, WI 53186
U.S.A.
Phone: +1 262 717 2500
Fax: +1 262 717 2504

RUSSIA AND OTHER CIS COUNTRIES
ZAO Metso Minerals (CIS)
Pulkovskoe shosse, 40/4 “A”
office building “Technopolis”
196158, St. Petersburg
Russia
Phone: +7 812 333 40 00
Fax: +7 812 333 40 01

SOUTH AMERICA
Metso Minerals Indústria e Comércio Ltda
Avenida Independência, 2500 - Eden
18087-050 Sorocaba
Brazil
Phone: +55 15 2102 1300
Fax: +55 15 2102 1696

METSO’S MINING AND CONSTRUCTION
Lokomonkatu 3, P.O.Box 306
FI-33101 Tampere
Finland
Phone: +358 20 484 142
Fax: +358 20 484 143

www.metso.com
minerals.info.csr@metso.com