

Nordberg C Series jaw crushers





- C80
- C100
- C96
- C106
- C116
- C3054
- C120
- C125
- C140
- C150
- C160
- C200

The world's favourite jaw crusher

Metsä'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.

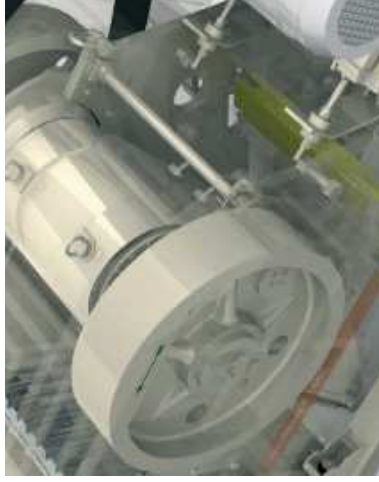
Whatever your crushing needs – from hard and abrasive rock to various recycling materials – you'll find the optimum solution with the Nordberg C Series jaw crushers. Take a closer look at the world's favourite jaw crusher!

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The modular, non-welded frame construction ensures excellent durability.



The robust pitman assembly ensures the greatest reliability even under the most severe crushing conditions.



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!

Durable pitman assembly

The pitman is made of high-quality cast steel and is propelled by two massive eccentric shaft 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 consistently 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 pitman, crusher frames, and bearing housings are made of high-quality cast steel.



All C Series jaw crushers incorporate larger and sturdier eccentric shaft bearings than other crushers of comparable size.



Initially developed for tough Scandinavian hard rock conditions, C Series jaw crushers crush even the hardest feed materials efficiently.



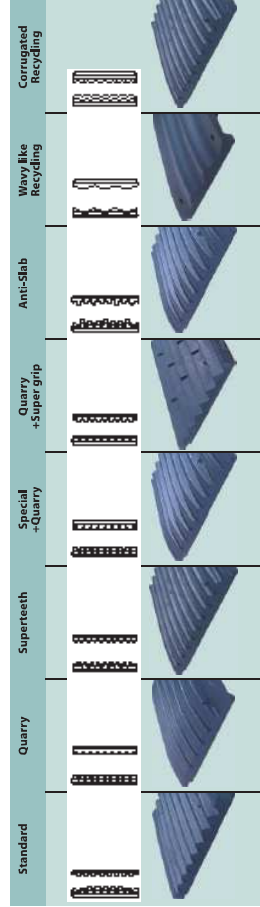
The right cavity design and kinematics are why C Series deliver high performance, time after time.

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.



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".

HIGH PERFORMANCE

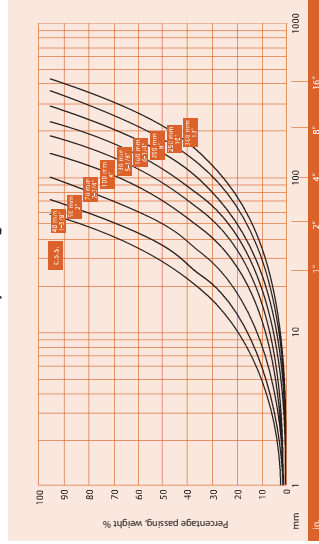
Capacities & Technical specifications

	C80	C100	C96	C106	C116	C3054	C170	C175	C140	C150	C160	C200
Feed opening width mm (in)	800 (32)	1000 (40)	930 (37)	1600 (42)	1150 (45)	1375 (54)	1200 (47)	1250 (49)	1400 (55)	1400 (55)	1600 (63)	2000 (79)
Feed opening depth mm (in)	510 (20)	760 (30)	500 (20)	800 (32)	1100 (43)	800 (32)	800 (32)	800 (32)	1000 (40)	1000 (40)	1200 (47)	1500 (59)
Speed (rpm)	720	1110	900	1110	1300	1600	1600	1600	2000	2000	2500	4000
Product size (mm)	350	200	330	280	260	260	230	220	220	220	220	200
Closed side setting mm (in)												
0-30												
0-35												
0-45												
0-60												
0-75												
0-90												
0-105												
0-120												
0-135												
0-150												
0-165												
0-180												
0-200												
0-225												
0-260												
0-300												
0-340												
0-375												
0-410												
0-450												
0-18												

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

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.

Indicative product gradation



Nordberg C Series jaw crushers fits perfectly for primary crushing stations.

HIGH PERFORMANCE





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.

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.

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 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.



Special rubber dampers and stoppers allow the crusher to move vertically and longitudinally while preventing wear and subsequent damage to the crusher's foundation.

A Nordberg C-140 jaw crusher in a stationary installation.



LOW INSTALLATION AND OPERATING COSTS



The integral motor base reduces space requirements and maintenance costs.



The flywheel guards reduce space requirements around the crusher.

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





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



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

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 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.



C Series jaw crushers, with their primed and bolted design, are easy to transport and maneuver even in narrow underground mines.



C160 at an underground gold mine.

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.



A Norberg C200 jaw crusher being assembled at an underground mine. The crusher was transported in pieces and assembled underground.

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.

C200 in operation in a zinc and copper underground mine, 1400 meters below ground. The crusher is monitored and operated from the surface control room.





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



Mobile crushing with the NW125.

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 crusher mobile plant is a Nordberg C Series jaw crusher,

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.

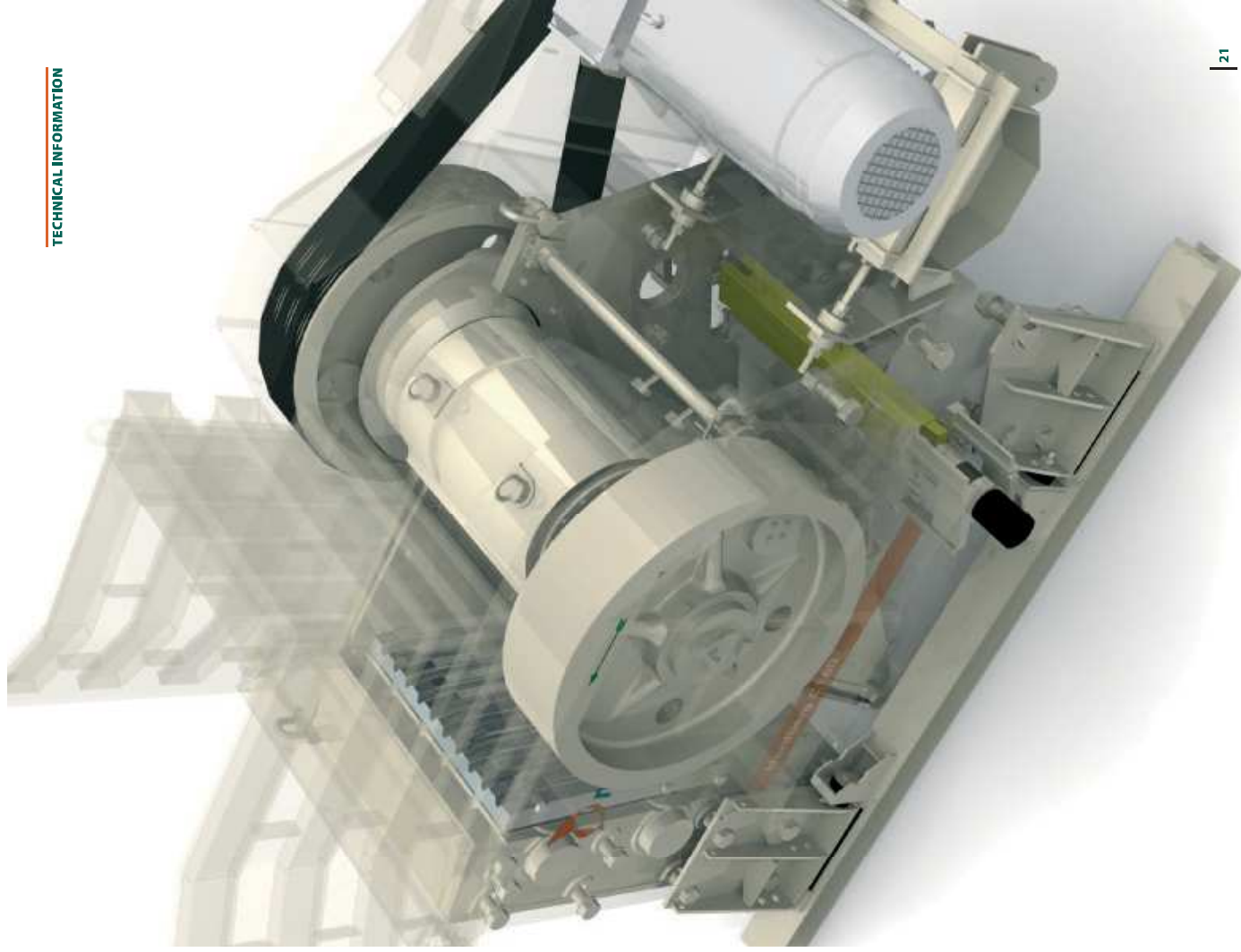
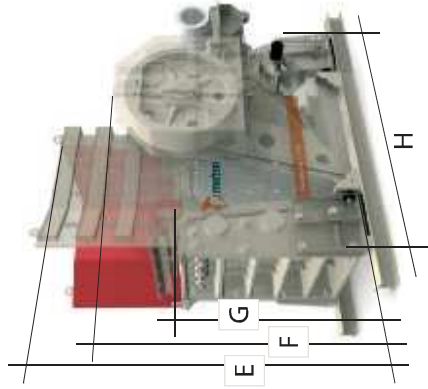
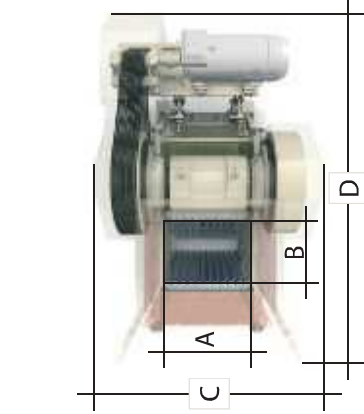
There's a Nordberg mobile plant for every crushing process
Whether the priority requirement is high production capacity, good process adaptability, excellent cubicity or efficient recycle crushing, the Metso mobile plant range can provide the right answer.
From contract crushing to demanding in-pit crushing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



The Lokotrack LT106 at quarry in Finland.

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





Dimensions & Weights

	C80	C100	C96	C106	C116	C3054	C120	C125	C140	C150	C160	C200
A	mm	800	1000	930	1060	1150	1380	1200	1250	1400	1600	2000
	in.	32	40	37	42	45	54	47	50	56	63	79
B	mm	510	760	580	700	800	760	870	950	1070	1200	1500
	in.	21	30	23	28	32	30	34	38	43	47	60
C	mm	1526	2420	1755	2060	2400	2640	2690	2800	3010	3200	4040
	in.	61	96	70	81	95	104	106	111	119	126	160
D	mm	2577	3670	2880	3370	3600	3540	3740	4100	4400	5060	6700
	in.	102	145	114	133	144	140	147	162	174	199	264
E	mm	1990	2890	2120	2490	2675	3130	3220	3440	3950	4500	4950
	in.	79	114	83	98	105	123	127	136	156	177	195
F	mm	1750	2490	1970	2400	2730	2730	2940	2980	3140	3960	4465
	in.	69	99	78	98	107	107	116	118	124	156	176
G	mm	1200	1700	1370	1650	1790	1750	1960	2100	2260	2400	2650
	in.	48	67	54	65	71	69	77	83	89	95	105
H	mm	2100	2965	2500	2630	2885	2950	2820	3470	3755	3710	4280
	in.	83	117	99	104	114	117	111	137	148	146	169
Basic crusher weight ¹⁾	kg	7 670	20 060	9 759	14 350	18 600	25 900	26 000	37 970	47 120	51 200	76 500
	lbs	16 900	44 240	21 520	31 650	40 920	57 100	57 200	83 730	103 900	113 000	168 300
Operational crusher weight ²⁾	kg	9 520	23 300	11 870	17 050	21 500	30 300	29 300	43 910	54 010	61 430	88 500
	lbs	21 000	51 390	26 170	37 590	47 300	66 800	64 700	96 830	119 100	135 200	194 700

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

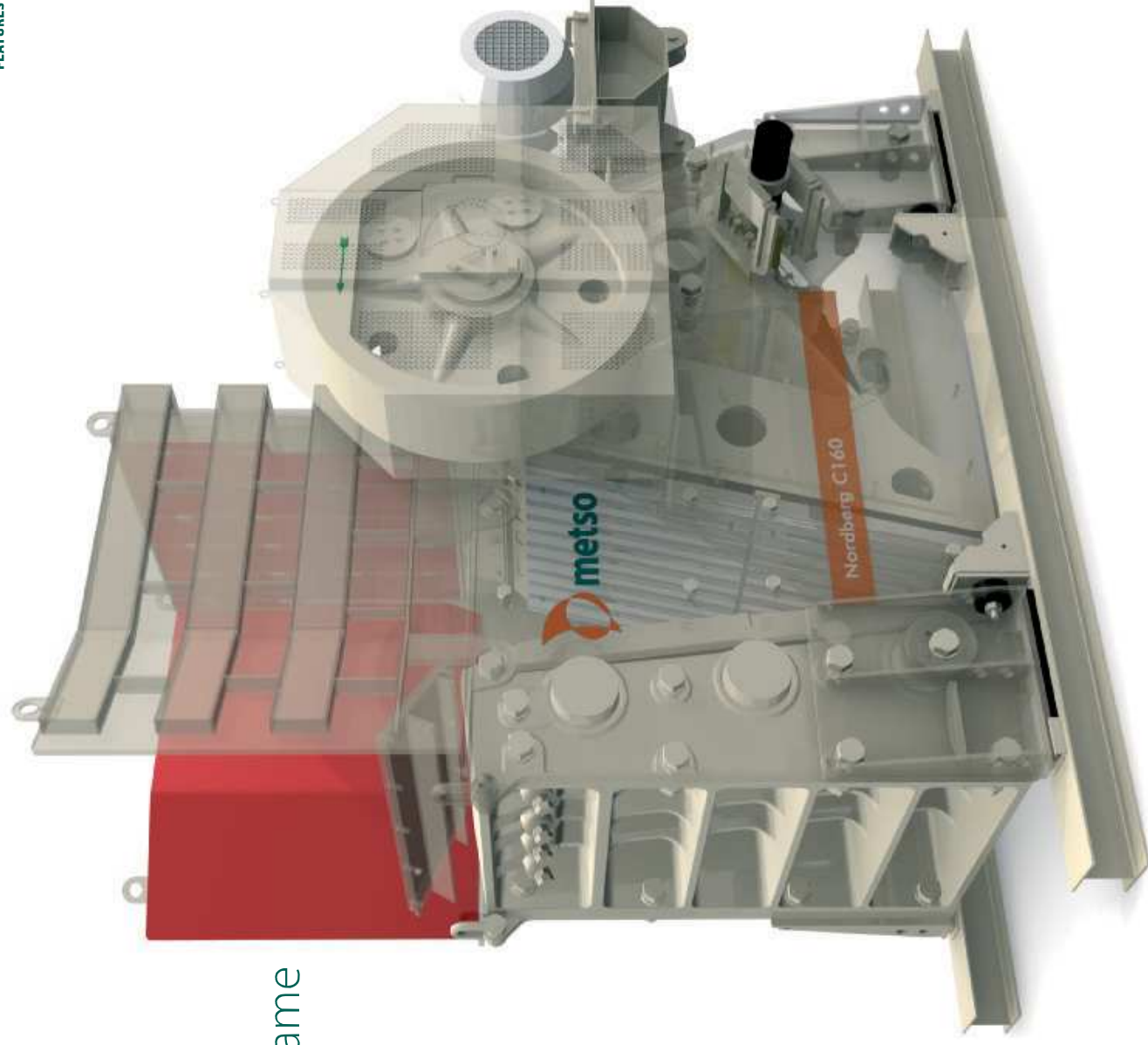
- Efficient cavity designs
- Aggressive kinematics
- Long stroke, optimum speed
- Small allowed crusher settings
- The right jaws and cheek plates for the widest range of applications

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.



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