

Metso

Nordberg® NP Series™

Horizontal shaft impact (HSI) crushers



Nordberg® NP Series™ Horizontal shaft impact (HSI) crushers

Nordberg® NP Series™ horizontal shaft impact (HSI) crushers are known for high reduction ratios when processing all type materials. They deliver unbeatable performance in primary, secondary and tertiary crushing in aggregates production, mining operations, as well as recycling applications.

High performance

Nordberg® NP Series™ HSI crushers consist of heavy rotor, wear resistant materials, and an optimal crushing chamber design. This combination has proven revolutionary in improving capacity and product quality, as well as in reducing operating and wear costs.

Nordberg® NP™ crushers have a unique blow bar attachment system. With an optimal blow bar alignment on the backing beam contact faces, the attachment system reduces risks of breakage and enables pushing the use of cast iron in blow bars beyond conventional limits.

At nominal speed, the high inertia, heavy duty rotor improves crushing reduction and provides stability in the process, reducing energy consumption and increasing long-term performance.

Reduced plant operating costs

Long experience in crushing, and continuous collaboration with customers and research laboratories have resulted in technical innovations that improve Nordberg® NP™ crushers' reliability.

High capacity combined with high reduction ratio results in high performance crusher. In addition, whenever tertiary crushing stage can be avoided, the capital costs and need for energy drop notably.

Durable wear parts and mechanical components reduce maintenance costs. Mechanical reliability, simplified process and machine operation, as well as easy and safe maintenance increase the global availability of the plant and profitability.

Configured for your needs

Nordberg® NP crusher is an excellent choice especially if your output and productivity demands are stringent.

The crusher configuration can be adjusted for your requirements. Options like full hydraulic adjustment, third breaker plate, different grades of steel and cast iron for the active wear parts, enable customizing the crusher exactly for your needs.

Furthermore, Metso IC™ crusher automation can control the crusher operation and give a complete overview of the crushing performance. It also allows adjusting Nordberg® NP crusher from a distance.

Nordberg® NP Series™ HSI crushers for primary range

Horizontal Shaft Impact (HSI) crusher primary range has been designed to increase the crushing process productivity thanks to its high reduction ratio. Usually utilized in the first crushing stage of the size reduction process in aggregates production, recycling and mining operations. The Primary range consists of tailored primary crusher Nordberg® NP1620™ and customizable primary crusher Nordberg® NP1415™.



High performance

High reduction ratio. Good quality end products.



Reduced plant operating costs

Durable wear parts and mechanical components.



Configured for your needs

Crusher settings can be customized for any requirements.



Easy maintenance

Faster service reduce downtime and increase production capacity.



Nordberg® NP Series™ HSI crushers for secondary and tertiary crushing

Nordberg® NP13, NP15 & NP20 Impact crushers.

Nordberg NP13, NP15 and NP 20 impact crushers provide significant improvements for your productivity, safety, and uptime.

More throughput, less recirculation

The Nordberg NP13, NP15 and NP20 impact crushers have been designed in an innovative way that increases feed material penetration to the rotor. Especially for secondary and tertiary applications, the optimized, steeper design enables greater benefits, as the discharge curve is less sensitive to blow bar wear. This enables you to produce more consistent end products without changing the blow bars too early. To further improve your productivity, the maximum available power has been increased to 315 kW for the NP13, to 355 kW for the NP15 on a single drive and 630 kW on a dual drive. For the use of NP-Crushers in manufactured sand applications there are some recommendations. Particle shape from an NP Crusher can be described as generally excellent – It is more angular than rounded. As a process machine, NP is less sensitive to fines in the feed and is a nearly ideal machine for closed circuit operations. The NP-Crushers are very reliable machines and not sensitive to feed fluctuations and sticky materials possible to treat process as well.

HSI has been used for years to produce crushed fines, it is a very popular technology utilized in low abrasion and soft rocks to produce aggregates and coarse manufactured sand <6mm very utilized in industrial and asphalt sands.

The Metso HSI technology is also utilized in those types of applications worldwide even in hard and medium abrasion materials as secondary and tertiary crushers.

Quick, easy, and safe maintenance; higher uptime

Metso developed an advanced two-part rear frame for the NP13, NP15, and NP20. The extra-large opening of the new frame gives greater access to the breaker plates during wear parts replacement.

Metso has also innovated a new breaker plate cassette. This patented solution consists of a removable assembly that allows an easy and safe breaker plate liner change outside the crusher.

The new maintenance bridge gives you safe access to the rotor while changing blow bars. The maintenance bridge also gives you easy access to the sideliners, including the ones located at the highest point. The patented Self-Rotor position system (RPS) is the centralized point for adjusting the crusher setting and changing blow bars, further increasing operator safety.





IC20C crusher automation

Metso IC™ crusher automation brings precision and consistency to your crushing 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.

The leading crusher automation solution

A comprehensive range of Metso IC™ intelligent crusher automation solutions is available for Metso crushers. 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. 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 crusher is minimal.

Our IC™ crusher automation allows you to maximize the performance of your high-quality Metso crushers. This is done with carefully defined safety parameters for bearing temperature, and power draw, which are indicators of the actual crusher load.

This crusher automation monitors the crusher condition and gives an early indication if there's a problem in the crusher. This can help solve a problem before it becomes serious and costly.

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.



Cost-effectiveness and high Metso quality

The Metso IC™ 20C crusher automation ensures high availability with just a single touch of a screen command. The system remarkably increases your long-term profitability and gives you better control of the crusher, along with a complete view of the operating parameters for more accurate crusher monitoring. Among other benefits, the automatic setting calibration ensures accurate control of the discharge product curve, even when crushing abrasive materials.

The unique feature of proximity sensors tells the automation system the “zero” calibration point to define the real calibration distance between the top of the hammer and the breaker plate. This operator’s pre-defined crusher setting will be maintained constant during the whole crushing operating cycle by the IC20C control and monitoring system.

When the machine is re-started for the next crushing shift, the automation system repeats this procedure again to ensure another period of the crusher operating at the right and real setting calibration.

The proximity switches are maintenance-free and are not subject to mechanical interaction with the crusher breaker plates adjusting system, making it very reliable and easy to access from the outside of the crusher.

The wide selection of seven different blow bars gives you the assurance of having the right tool for all applications, regardless of the abrasiveness of the processed feed material.

You can choose manganese, martensitic steel, or chromium iron for the blow bar material in combination with ceramic inserts.



Technical data

Nordberg® NP Series™ HSI crushers technical specifications

Model	Crushing range	Rotor weight*	Rotor diameter	Rotor width
Nordberg® NP1415™	Primary	7 880 kg	1 370 mm	1 500 mm
Nordberg® NP1620™	Primary	15 020 kg	1 610 mm	2 005 mm
Nordberg® NP13™	Secondary and tertiary	4 575 kg	1 205 mm	1 285 mm
Nordberg® NP15™	Secondary and tertiary	6 070 kg	1 307 mm	1 505 mm
Nordberg® NP20™	Secondary and tertiary	10 960 kg	1 516 mm	2 005 mm

*Rotor weight including Shaft line, Rotor and set of blow bars

Nordberg® NP Series™ HSI crushers technical specifications

Model	Crushing range	Weight*	Nominal installed power	Maximum installed power	Feed opening	Feed angle	Maximum recommended feed size
Nordberg® NP1415™	Primary	22 330 kg	250 kW	315 kW	1 140 x 1 540 mm	40°	1 000 mm
Nordberg® NP1620™	Primary	40 500 kg	400 kW (2x200 kW)	630 kW (2x315 kW)	1 430 x 2 040 mm	40°	1 300 mm
Nordberg® NP13™	Secondary and tertiary	11 900 kg	250 kW	315 kW	561 x 1 320 mm	50°	350 mm
Nordberg® NP15™	Secondary and tertiary	15 700 kg	315 kW	355 kW	594 x 1 540 mm	50°	400 mm
Nordberg® NP20™	Secondary and tertiary	26 000 kg	500 kW (2x250 kW)	630 kW (2x315 kW)	700 x 2 040 mm	50°	400 mm

*Weight for complete basic crusher (with 2 breaker plate Mechanical setting with hydraulic assistance) without options

Production table (% passing)

Crusher settings													
Crusher products (for Open circuit)	mm	200	150	125	100	80	60	50	40	30	25	20	15
	350	100	100	10	100	100	100	100	100	100	100	100	100
	250	90	98	100	100	100	100	100	100	100	100	100	100
	200	80	90	97	100	100	100	100	100	100	100	100	100
	150	72	83	90	97	100	100	100	100	100	100	100	100
	125	63	74	81	90	97	100	100	100	100	100	100	100
	100	54	66	82	81	90	98	100	100	100	100	100	100
	80	45	55	64	70	79	90	95	99	100	100	100	100
	63	41	49	53	64	74	84	90	97	100	100	100	100
	50	32	41	47	55	63	73	82	90	97	100	100	100
	40	29	33	40	46	52	61	72	80	90	95	99	100
	31,5	25	29	34	41	49	55	66	76	85	90	97	100
	25	20	24	28	34	40	46	57	66	76	84	90	97
	20	16	19	24	28	33	38	48	56	64	75	83	90
	16	15	18	21	25	30	35	46	52	60	67	77	85
	12,5	11	14	17	20	24	29	37	44	50	56	64	68
	10	9	12	14	17	20	25	32	39	44	49	56	60
	8	7	10	12	14	17	21	28	34	38	42	48	53
	6,3	6	9	10	12	14	18	24	30	33	37	42	46
	5	5	8	8	11	13	16	21	26	29	32	37	40
	4	4	5	6	7	9	11	15	17	20	23	25	29
	2	2	2	3	3	4	5	5	6	7	8	8	9

Product gradation curve values are estimated depending on feed material density and crushability, rotor speed, installed power, and with new installed blow bars.

Maximum Tonnage table (Tons / Hours)

Primary (Top feed size = 480x800x1250mm)	Settings (mm)	200	150	125	100	80	60
	NP1620	1185	995	885	775	685	545
	NP1415	725	605	540	470	405	330

Secondary (Top feed size = 120x200x320mm)	Settings (mm)	100	80	60	50	40	30	25	20	15
	NP20	1260	1130	945	850	720	645	580	500	425
	NP15	710	635	535	480	410	365	320	275	235
	NP13	630	565	470	425	360	330	280	250	200

Tonnage values are estimated depending on feed material size & gradation curve, rock crushability, material density, installed power, and proper crusher setting.



Wear and spare parts

Crusher wear parts for NP Series horizontal shaft impact (HSI) crushers

Available wear parts

Blow bars

Frame liners

Breaker plate liners

Lifting tools for safer and more efficient maintenance

Nordberg® NP Series™ horizontal shaft impact (VSI) crushers are originally supplied with all lifting tools but these are also still available as spare tools. We offer lifting tools for blow bars and breaker plate liners. Specially designed, fit-for-purpose tools makes wear part change-outs safer and more efficient, leading to shortened maintenance times and reduced downtime.

Impact crusher spare parts

Metso's impact crusher spare parts are known for ease of maintenance and reliability. They enable better process control and a stable production pace when processing rock, sand, gravel or recycled materials.

Main components

- Frames
- Rotor

Common component

- Automation capable
- Automatic lubrication

Parts fastening kit

- Blow bar fastening package (NP)



Learn more



Metso is a frontrunner in providing sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By helping our customers increase their productivity, improve their energy and water efficiency and environmental performance with our process and product expertise, we are the **partner for positive change**.

Metso

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