

New Generation Crushers  
HP3 Cone Crushers









# HP3 cone crushers

## Creative Performance

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 HP5 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 HP3 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's research and development team met that challenge with the new HP3. No more conflict. Designed for maximum versatility and hardest applications, it provides maximized productivity while minimizing operating costs.

### Why HP3 cone crushers?

- High capacity
- Quality end product shape
- Reduced maintenance down time



# Crusher working benefits

## Highest performance

The HP3 cone crusher enables 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, HP3 provides the highest reduction ratios of any current cone crusher. Due to its super-efficient crushing action, the HP3 has 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 (cubicity).

The new HP3 maintains 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.

## Less downtime

Another way the new HP3 delivers is less downtime and increased operator

confidence. Dual-acting hydraulic tramp release cylinders let the HP3 pass tramp iron that would stall, or damage, many other crushers. If the crusher does stop under load, the dual-acting cylinders provide a large clearing stroke, independent of liner wear, to quickly clear the crushing cavity.

An advanced fastening system for the mantle and bowl liner makes backing material unnecessary, and makes liner changes faster. Thicker liners mean more material to wear. When liners are changed or the crusher is reconfigured, the same hydraulic motors that rotate the bowl for setting adjustment will rotate the bowl completely out of the adjustment ring threads, greatly simplifying liner replacement.

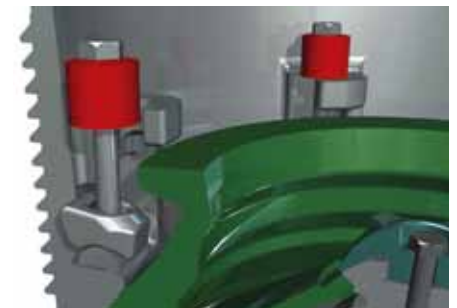
If you pull the head you will find a new fixed counterweight guard that protects the counterweight and seals out dust.

## Easy to maintain

Bronze bushings used throughout provide superior load capability in the dusty, high-shock crushing environment. They cost less than rolling element bearings and are easy to replace in the field with normal tools. The HP3 is 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.



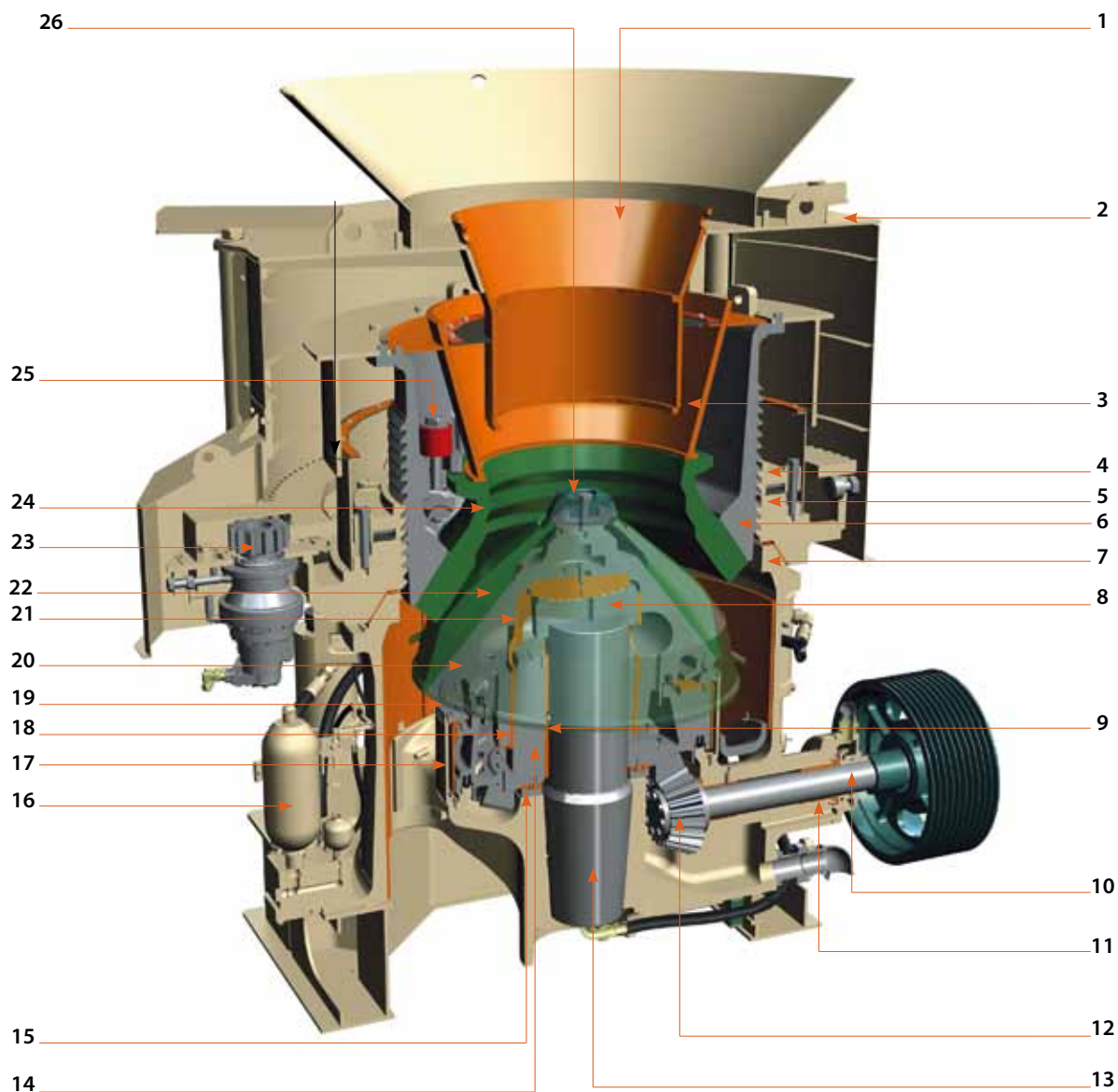
High crushing force



Liner change



Dismantling of crusher



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 its strength, speed range and ease of converting from coarse to extra fine applications, the HP3 provides 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.



Tramp release

### IC7000 Automation

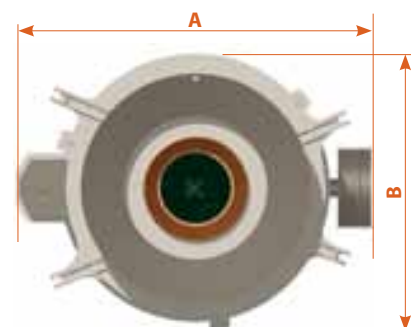
- **IC7000 basic automation:** basic control system with fundamental crusher control features (sequence start/stop, power overload, temperature protection and diagnostics).
- **IC7000 advanced automation:** advanced control system with full range of crusher control features, including crusher setting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



IC7000 automation

## Dimensions

HP Model	A	B	C	D
HP3	2 778 mm 109.37"	2 146 mm 84.49"	2 475 mm 97.44"	2 817 mm 110.90"



## Technical data

HP Model	Nominal feed opening	Motor size up to	Crusher weight	Complete crusher weight*
HP3	220 mm (8.65")	220 kW (300 hp)	13 280 kg (29 277 lbs)	16 446 kg (36 257 lbs)



## Cavities

HP Model	Cavity	Minimum setting	Feed opening
HP3	Extra Coarse	25 mm (0.99")	200 mm (7.89")
	Coarse	20 mm (0.79)	183 mm (7.20)
	Medium	15 mm (0.59")	156 mm (6.15")
	Fine	11 mm (0.43")	95 mm (3.74")
	Extra Fine	8 mm (0.31")	18 mm (0.78")

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

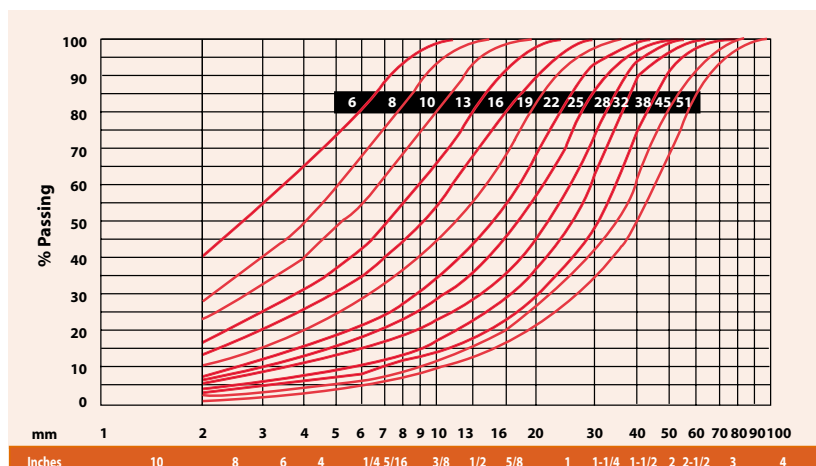
## Crusher Capacities

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

HP Model	CSS	8 mm (5/16")	10 mm (3/8")	13 mm (1/2")	16 mm (5/8")	19 mm (3/4")	22 mm (7/8")	25 mm (1")	32 mm (1 1/4")	38 mm (1 1/2")	45 mm (1 3/4")
HP3	mtph	94-122	108-147	136-185	164-220	182-241	199-262	210-279	217-307	251-349	279-388
	stph	104-135	119-162	150-204	181-243	200-266	219-289	231-308	239-339	277-385	308-427

## 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 Mining and Construction Technology crushing equipment

### Our Nordberg, Barmac and Lokotrack brand ranges:

#### 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
- B-Series vertical impact crushers
- Laboratory crushers

#### Mobile equipment

- LT Series mobile crushing plants
- NW Series portable plants

#### Complete plants

- Complete plants for aggregate production
- Complete plants for recycling

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