



# TWO CONFIGURATIONS IN ONE PRISEC™ HSI CRUSHERS



# ONE VERSATILE CRUSHER WITH TWO CONFIGURATIONS

The Prise Horizontal Shaft Impactor (HSI) range of crushers have been developed in response to our customer demands and also to further build on the rock solid foundation of the P&S series they now replace.

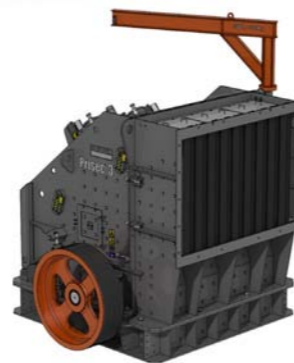
This Prise range of crushers have established us as market leaders in the design and development of HSI crushers, offering high reduction ratios, reduced power consumption, easier and safer maintenance and a range of wear parts that ensure optimum operating costs even in the recycling industries. The range is of a modularised design, where many components are utilised across the range, thus ensuring minimal stockholding of wear parts.

A complete range of crushers accepting feed sizes up to 1,000 mm (39 3/8") and throughputs of 700

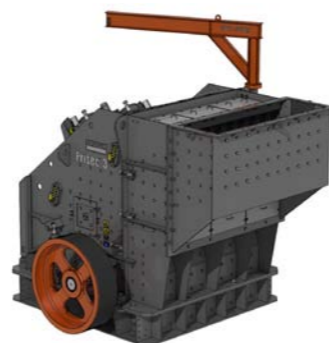
TPH (772 STPH) nominally, ensure that we have a range of crushers to suit our customer's requirements.

All crushers in the new range have the ability to be configured into either a primary or secondary crusher operating mode. This unique patented design is exclusive to us and offers the customer amazing adaptability for ever changing future production requirements.

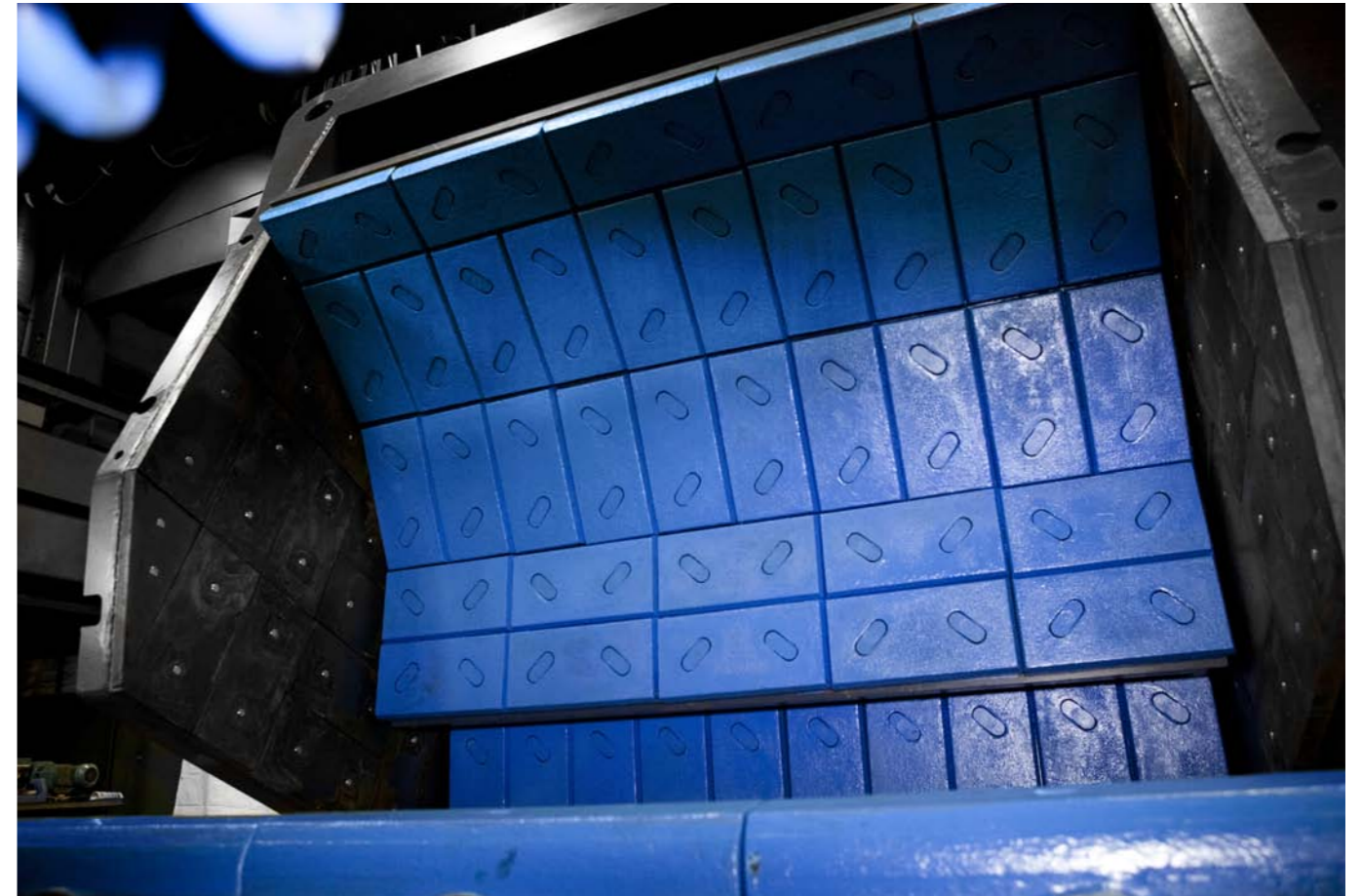
**AMAZING REDUCTION RATIOS**  
Our all new revolutionary design of crushing chamber ensures even greater reduction ratios than previously obtainable. The new Prise crusher can easily produce with two uniquely designed extra heavy duty curtains, the throughput and reduction ratios that our competitors require three curtains to produce. This of course means fewer wear parts and reduced maintenance.



Prise™ 3 Primary Configuration



Prise™ 3 Secondary Configuration



CI512 Secondary Crusher

# SINGLE STAGE CRUSHING USING ONE CRUSHER SET IN PRIMARY

With the ability to recirculate material to the Primary Prisec range of crushers, it is now possible to achieve single stage crushing.

This will allow customers to set up a plant for minimal capital outlay and start producing aggregates quickly and simply, thus enabling a relatively quick return on investments.

Typical applications could be making a Type 1 aggregate 0–40 mm (0–1 15/16"), or Railway Ballast 40–70 mm (1 15/16"–2 3/4"). All this means: Low capital outlay, low maintenance, fewer screens and conveyors, quick return on investment.

## ENERGY EFFICIENT OVERLOAD PROTECTION

Both first and second curtains are infinitely adjustable via our patented adjustment / braking system, located on the cross beams of the crusher. This system gives hydraulic

adjustment of both curtains, via the standard supply electric hydraulic power pack.

Once set, the curtains are held in place by a unique friction brake system. This system ensures that the curtains are held in place for normal operation.

Should an uncrushable object enter the crusher, the braking system is designed to allow the curtains to lift, thus allowing the object to pass through the crusher without causing severe damage.

A major advantage of this system, is that once the curtains have been set hydraulically to the required setting, the hydraulic motor is switched off, saving power (nominally 2.2 kW) during the operation of the crusher.

## CRUSHER BLOCKAGE?

This has always historically been a problem, especially when operating

in a primary configuration. Removal of the blockage with the combined downtime and health and safety risks encountered are now eliminated with the new Prisec crusher. If a blockage occurs, then with the crusher still running, it is possible to start the electrical hydraulic system, extend the relevant curtain setting cylinder / piston, which in turn lifts an internal compression plate within the cross beam assembly.

This has the effect of raising the curtain, to allow the blockage to pass. Once the blockage has cleared, the cylinder / piston is retracted and the curtains return automatically to the previously set position. The electrical hydraulic system is then switched off and the crusher continues running.

No stopping of the crusher, no operator intervention inside the crusher, no heavy lifting gear, resulting in maximum uptime!



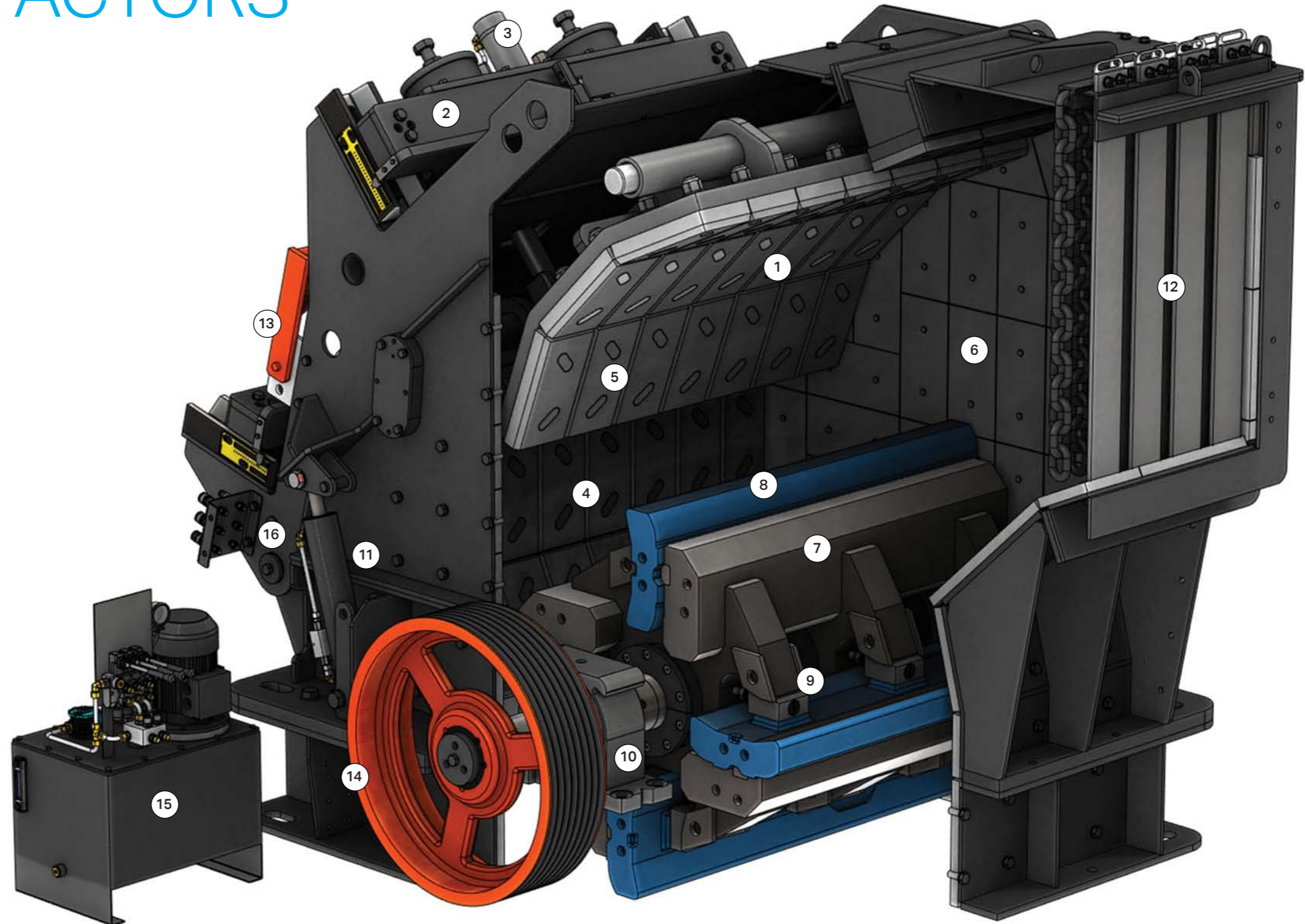
Curtain Position Indicator



Hydraulic Curtain Adjustment and Frame Opening

# SANDVIK PRISEC™ CRUSHERS HORIZONTAL SHAFT IMPACTORS

- ① First Curtain
- ② First Curtain Cross Beam
- ③ First Curtain Adjustment Cylinder
- ④ Second Curtain
- ⑤ Curtain Liners
- ⑥ Frame Liners
- ⑦ Rotor
- ⑧ Hammer
- ⑨ Hammer Locking Wedge
- ⑩ Bearing Housing
- ⑪ Pivot Frame Cylinder
- ⑫ Primary Feed Hopper
- ⑬ Hammer Lifting Jib
- ⑭ Drive Pulley
- ⑮ Electric Hydraulic Powerpack
- ⑯ Quick Release Hydraulic Fittings



# EASY AND SAFE MAINTENANCE

A unique key time delayed safety interlock system ensures safe maintenance of the crusher especially in multiple installations. The pivot frame (with self locking latch) and all access and inspections doors are fitted with time delayed locks, thus preventing access to the crusher whilst the rotor is turning.

The crusher has, as standard, a rotor locking device for locking the rotor during maintenance and specialised tools to facilitate the removal of the hammers and locking wedges from the rotor. All adjustment fixings on the crusher are manufactured from Stainless Steel to give years of trouble free operation.

## ROTOR AND HAMMERS

The rotor and hammers can be considered as the heart of the crusher, which is why we've ensured that both are robust and efficient. Rotors have superior weight and diameter, essential for delivering the high inertia required for optimum crusher performance. Our unique design heavy duty primary rotor is also used for our secondary crusher range (most of our competitors fit smaller lightweight rotors into their secondary crushers). Heavy duty rotor discs and backing bars, ensure stability and smooth operation during production.

The rotor is of an open rotor design. This design ensures stable power consumption as mentioned, combined with the ability to handle reinforcing bar etc. in recycling applications. Hardened steel, replaceable hammer locating strips set into the backing bar, ensure positive hammer location in all planes, combined with the ability to replace them when worn. This saves on costly rotor repair and downtime.

Thanks to easy access, combined with the facility to reverse and lift the hammers vertically, (a great benefit in confined spaces) the maintenance of both rotor and hammers is thus facilitated. The unique Banana shaped hammer design helps to keep the contact heads sharper during operation. This unique hammer design is also self sharpening throughout its life, resulting in more effective shearing of the incoming material and hence improved production. The hammers have a two edge (two life) facility, again maximising the life of the hammers.

## CRUSHER BEARINGS AND HOUSINGS

Crusher bearings are housed in a heavy duty purpose made housing incorporating labyrinth seals with V and O rings, to ensure no ingress of dust / dirt etc. The housings

are fixed to the crusher base via a machined mounting surface.

This ensures perfect alignment with no requirement for shimming etc, resulting in extended bearing life and easier future maintenance.

## WEAR PARTS

The modularised construction method of the crusher, ensures that all of the hardened cast liners within the crusher are of a single uniform size. All liners can be interchanged to compensate for areas of unequal wear rate within the crusher.

A comprehensive range of stocked wear parts, ensures optimum selection combined with timely delivery, to best suit each customers individual application requirements.

In addition the world leading technology in the hammer material composition, provides options far surpassing old industry standards of Manganese.

# KOELGAMRAMOR – THE MARBLE KING

In November 2013 the company "Koelgamramor" put into operation the first Russian impact crusher with a horizontal shaft, the Sandvik Prisec CI512. The main task that faced the leading Russian manufacturer of marble and micro, was a significant increase in the quality and quantity of the products.

## BACKGROUND

"Koelgamramor" – one of the oldest companies engaged in mining and processing of white marble on the territory of the Russian Federation. This year the company celebrates its 90th anniversary. Key areas of activity – is the manufacture of products from marble, as well as the production of marble rubble and micro. At the moment "Koelgamramor" is the market leader in micro-powders and tends to hold its ground, constantly updating equipment fleet and expanding production capacity.

Every month the company sells more than 40 thousand tons of micro-powders and up to 25 thousand tons of rubble various fractions. Crushed basically acquire construction enterprises for the production of home-building panels or concrete floors with marble chips. The marble that is mined in Koelginskoe deposit, is a fully analogue marble brand,

"Bianco Carrara", produced in Italy. By the total volume of the rock mass, to be processed for the extraction of marble blocks, Koelginskoe deposit is the largest in the world.

## STRIVING FOR HIGH PERFORMANCE

Since the mid-sixties of the last century, the company has commissioned impact crusher, but it quickly broke down. Then, the function was assigned to the cone crusher, which in turn did not live up to expectations, due to insufficient quality of the final product, and low productivity.

Last year the company decided to return to the "rotor" based crusher on the recommendation of "Mine-Service", the official distributor of Sandvik Construction in Russia. Specialists advised the company to pay attention to the model Prisec CI512 from Sandvik, a novelty in the line of impact crushers horizontal shaft production, which is great for primary and secondary crushing of soft rocks, including marble.

## THE SANDVIK SOLUTION

The company thoroughly prepared for the new production: Extended conveyors and partially modernized factory. The crusher works around

the clock in two shifts of 11 hours. In between, operators lubricate necessary components, check protection before starting to work again. Compared with cone crushers, Prisec CI512 allowed the company to get high quality crushed stone with a high on the cuboid and significantly reducing the noise level during its manufacture. In general, productivity growth was 40–50%. Moreover because of the low abrasiveness of marble consumable components do not require frequent replacement.

## THE FIRST DELIVERY

The crusher Prisec CI512 is the first item acquired from Sandvik by the company. Specialists of "Mine-Service" have trained operators and carried out the process of commissioning. The shredding process is managed by one operator that takes raw materials and at the same time regulates the supply with the trucks. During the day, the company continuously conduct laboratory control of particle size distribution, with an emphasis on fractions between 0–2.5 mm, which is used for the production of micro-powders. The fine fraction is checked from two to four times a day, depending on the feedstock.

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Detail of Prisec™ 3 rotor



Mechanical safety interlock system



The CI512 Secondary Crusher



# TECHNICAL SPECIFICATIONS

## TONNEAGES VS SETTINGS

PRIMARY	Max feed Size	Settings												
		20 (3/4")	30 (1 3/16")	40 (1 9/16")	50 (2")	60 (2 3/8")	70 (2 3/4")	80 (3 1/8")	90 (3 1/2")	100 (3 15/16")	150 (6")	160 (6 5/16")	180 (7 1/16")	200 (7 7/8")
Throughput MTPH (STPH)														
CI511	600 (23 5/8")	100 (110)	113 (125)	125 (138)	137 (151)	150 (165)	163 (180)	175 (193)	188 (207)	200 (220)	-	-	-	-
CI521	900 (35 7/16")	200 (220)	225 (247)	250 (276)	275 (303)	300 (331)	325 (358)	350 (386)	375 (414)	400 (441)	-	-	-	-
CI531	1000 (39 3/8")	285 (314)	315 (347)	344 (380)	373 (431)	403 (446)	432 (480)	461 (570)	491 (538)	520 (573)	610	628	664	700 (772)

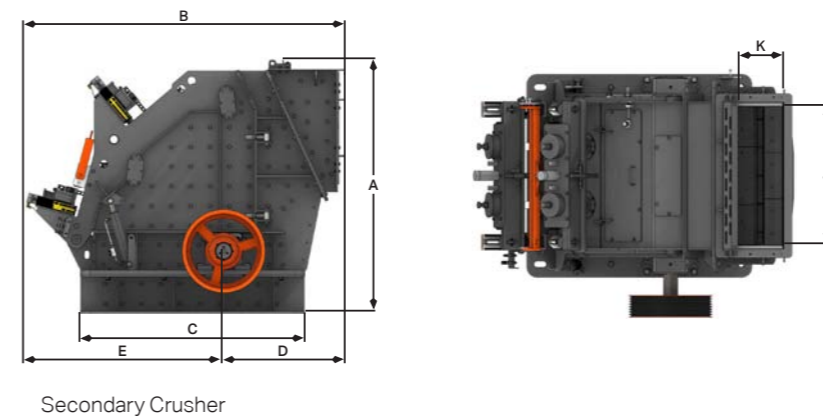
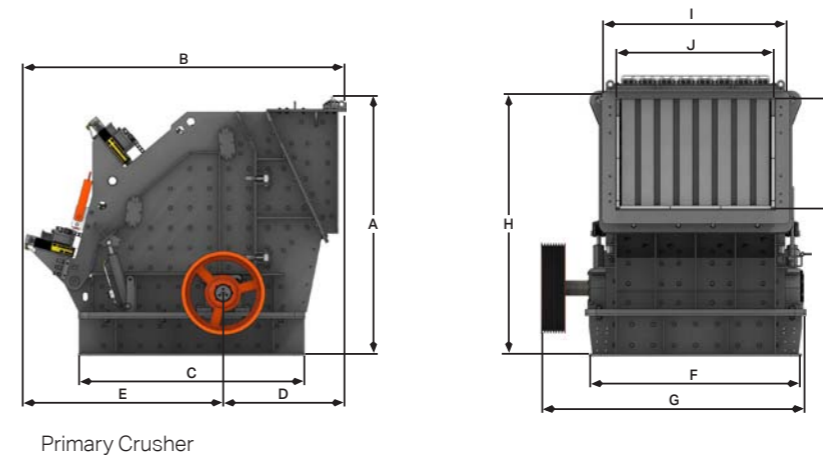
SECONDARY	Feed Size	Settings								
		7 (9/32")	8 (5/16")	10 (3/8")	15 (9/16")	20 (3/4")	25 (1")	30 (1 3/16")	40 (1 9/16")	50 (2")
Throughput MTPH (STPH)										
CI512	300 (11 7/8")	45 (50)	60 (66)	92 (101)	121 (132)	150 (166)	-	-	-	-
CI522	350 (13 3/4")	72 (79)	100 (110)	154 (170)	202 (223)	250 (276)	-	-	-	-
CI532	350 (13 3/4")	113 (125)	144 (159)	205 (226)	300 (331)	372 (408)	427 (463)	468 (518)	523 (573)	572 (628)

## TECHNICAL DATA

Dimensions mm (in)	CI511 primary	CI512 secondary	CI521 primary	CI522 secondary	CI531 primary	CI532 secondary
A	2293 (90 1/4")	2293 (90 1/4")	2514 (99")	2514 (99")	2825 (111 1/4")	2840 (111 13/16")
B	2836 (111 5/8")	2836 (111 5/8")	3118 (122 3/4")	3118 (122 3/4")	3205 (126 3/16")	4070 (160 1/4")
C	1810 (71 1/4")	1810 (71 1/4")	2200 (86 5/8")	2200 (86 5/8")	2630 (103 1/2")	2630 (103 1/2")
D	1067 (42")	1081 (42 9/16")	1189 (46 13/16")	1189 (46 13/16")	1115 (43 7/8")	1980 (77 15/16")
E	1844 (72 5/8")	1844 (72 5/8")	1930 (76")	1930 (76")	2090 (82 5/16")	2090 (82 5/16")
F	1452 (57 1/8")	1452 (57 1/8")	1900 (74 13/16")	1900 (74 13/16")	2565 (101")	2565 (101")
G	2003 (78 7/8")	2003 (78 7/8")	2370 (93 1/4")	2370 (93 1/4")	3224 (126 15/16")	3224 (126 15/16")
H	2096 (82 1/2")	2096 (82 1/2")	2317 (91 1/4")	2317 (91 1/4")	2825 (111 1/4")	2840 (111 13/16")
I	1264 (49 3/4")	1264 (49 3/4")	1664 (65 1/2")	1664 (65 1/2")	2185 (86")	2165 (85 1/4")
J	980 (38 9/16")	980 (38 9/16")	1360 (53 1/2")	1360 (53 1/2")	1935 (76 3/16")	1935 (76 3/16")
K	819 32 1/4")	434 (17 1/16")	960 (37 3/4")	436 (17 3/8")	1357 (53 7/16")	600 (23 5/8")
Weight kg (lbs)	11005 (24262)	11184 (24656)	16000 (35274)	16256 (35838)	27750 (61178)	29650 (65367)
Max. Feed Size mm (in)	600 (23 5/8")	300 (11 7/8")	900 (35 1/2")	350 (13 3/4")	1000 (39 3/8")	350 (13 3/4")
Rotor Diameter mm (in)	1005 (39 1/2")	1005 (39 1/2")	1150 (45 1/4")	1150 (45 1/4")	1390 (54 3/4")	1390 (54 3/4")
Rotor Width mm (in)	950 (37 3/8")	950 (37 3/8")	1330 (52 3/8")	1330 (52 3/8")	1900 (74 13/16")	1900 (74 13/16")
Nominal Capacity tph (st)	< 200 (< 221)	< 150 (< 165)	200 – 400 (221 – 441)	150 – 250 (165.3 – 276)	400 – 700 (441 – 772)	250 – 400 (276 – 441)

## TECHNICAL DATA

Crusher Designation	Minimal Installed Power	Maximum Installed Power
CI511 kW (HP)	90 (121)	200 (268)
CI512 kW (HP)	90 (121)	200 (268)
CI521 kW (HP)	185 (248)	250 (335)
CI522 kW (HP)	185 (248)	250 (335)
CI531 kW (HP)	220 (295)	440 (590)
CI532 kW (HP)	220 (295)	440 (590)



## SUPPORT THAT GIVES YOU PEACE OF MIND

For most people, service is a matter of being available when problems occur. However, we see it as a matter of being proactive. Investment in, for instance, scheduled inspections and maintenance will help you protect your business from unexpected risks.

We offer a comprehensive insurance package "Security +". Details of this can be obtained through your local Sandvik representative. The patented Priseq HSI crusher series gives many real advantages over existing HSI crushers. Continuous research and development combined with customer feedback ensure Sandvik are setting the industry standard that others try and follow.

From use in Cement and Aggregate plants in Europe to recycling Asphalt and Concrete in the USA in fact all around the world in a variety of applications, Priseq crushers are in action.

