

MASTER YOUR OUTPUT
CRUSHER SELECTION QUICK GUIDE





A CHOICE FOR TODAY AND TOMORROW

A crusher is a major investment, so it's essential to select one with the potential to meet your needs into the future. This guide covers a few of the key points to consider before making a decision. But remember that your crusher is just one part of a wider process – always consider crushing in conjunction with screening and transport.

THE PROCESS – WHAT AND WHEN

The first considerations are at what point in the process the crusher will be used, the type of material, and the output required. Use the table below as a guide.

MACHINE	1	2	3	4	5	6	7	8	9	10	11	12	13
APPLICATION	<i>Primary crushing, blasted, abrasive mtrl. above 800 mtph 1.5</i> <i>Primary crushing, blasted, abrasive mtrl. below 800 mtph 1.5</i> <i>Primary crushing, blasted, non-abrasive mtrl. 1.6</i> <i>Secondary crushing, abrasive mtrl. 2.5</i> <i>Secondary crushing, non-abrasive mtrl. (Limestone) 2.6</i> <i>Fine crushing, maximize fines, abrasive mtrl. 3.5.7</i> <i>Fine crushing, maximize fines, non-abrasive mtrl. 3.6.7</i> <i>Fine crushing - Moist and sticky feed 3</i> <i>Fine crushing, low amount of fines in product.</i> <i>Manufactured sand, abrasive mtrl. 1.4</i> <i>Manufactured sand, non-abrasive mtrl. 2.4</i> <i>Cubicizing, abrasive mtrl. 1</i> <i>Crushing ferro-alloys, minimize amount of 0-Xmm 7</i>												
Primary Gyratory Crusher	B	G	G										
Primary Jaw Crusher	G	B	G										
Primary HSI Impact Crushers	P	P	B										
Secondary Cone Crushers S-type				B	G								
Secondary HSI Impact Crushers				P	B	P	G	G				P	
Cone Crushers H-type				B	G	G	P		B	G	P	G	G
Impact Crushers - VSI						B	B	G	P	B	B	B	

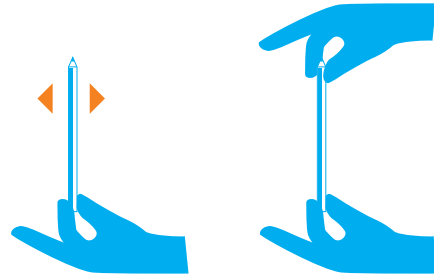
Recommendations: Best (B), Good (G), Possible (P)

1. A typical example of primary crushing is reducing topsize from 900 to 300 mm.
2. A typical example of secondary crushing is reducing topsize from 300 to 100 mm.
3. A typical example of fine crushing is producing concrete aggregates in fractions below 30 mm.
4. Manufactured sand is typically smaller than 5 (often 2) mm.
5. Typical abrasive rocks are Granite, Quartzite, Diorite, Trap rock, Basalt, Gneiss - Abrasion index above 0.10
6. Typical non-abrasive rock is clean Limestone (Marble) - Abrasion Index below 0.10
7. Fines or "0-X mm" material is normally below 2 mm. -0.075 mm is called filler



WHICH CRUSHER DESIGN?

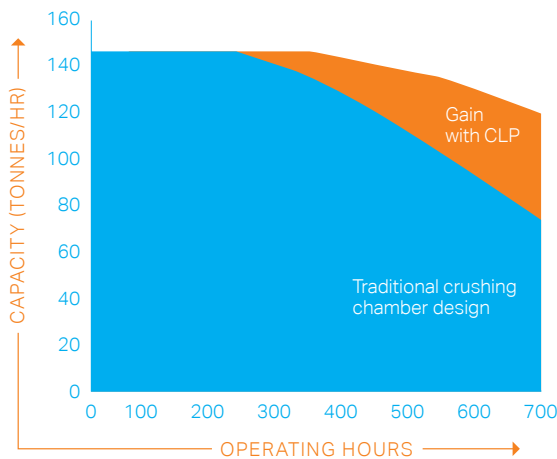
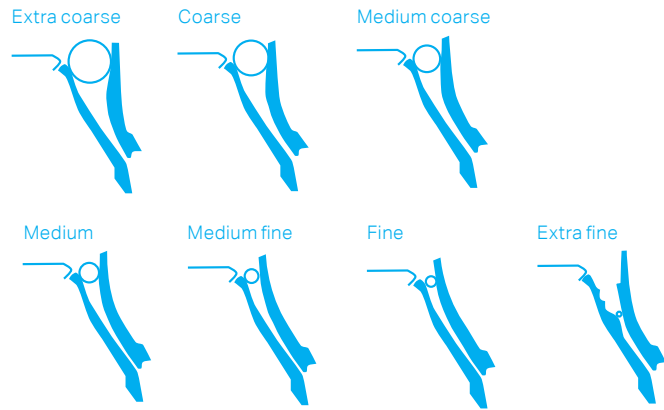
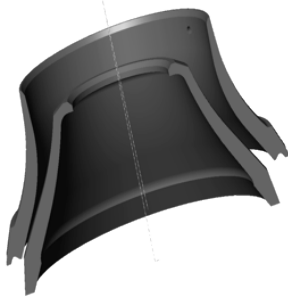
Is it a heavy duty application with a lot of wear and tear? Consider whether you need top and bottom mounted rather than bottom only.



Top and bottom mounting increases robustness. The principle can be illustrated as above.

WHICH CHAMBER?

Different materials and outputs demand different crushing chamber designs. Don't accept 'close enough' – select a supplier with the right match.

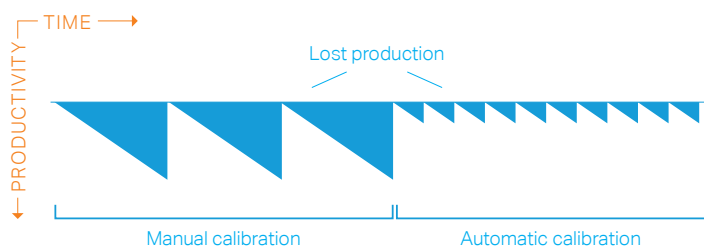


MAINTAINING OUTPUT OVER TIME

Capacity and reduction ratio can decrease with mantle wear. For consistent production, choose a crusher with a design that delivers CLP (Constant Liner Performance) through the entire product lifetime.

AUTOMATE!

Modern automation systems constantly adjust the CSS (Closed Side Setting) with no need to shut the machine down. Compensates for variations in feed material and wear in wear parts.





PLAN YOUR OUTPUT

You can only choose the right crusher if you know exactly what you want to achieve. Overall profitability depends on the balance between fractions and fines.

Consider this:

- ▶ Higher quality means more fines – what balance will give you the best total result?
- ▶ Production time, energy costs and wear and tear from recirculation all affect your bottom line.

INCREASE REDUCTION OR REDUCE FINES – CONSIDER YOUR OPTIMAL OUTPUT

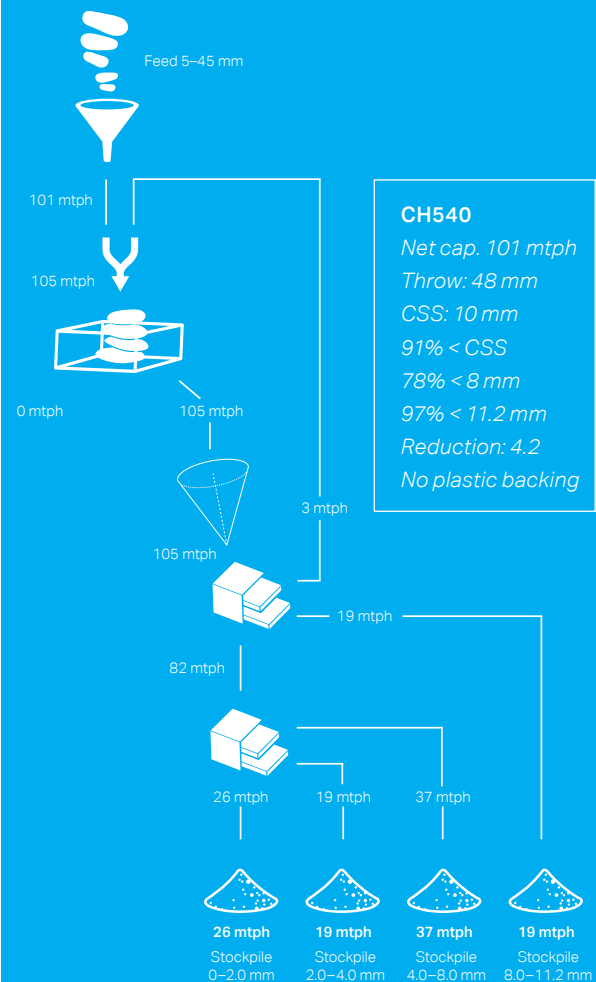
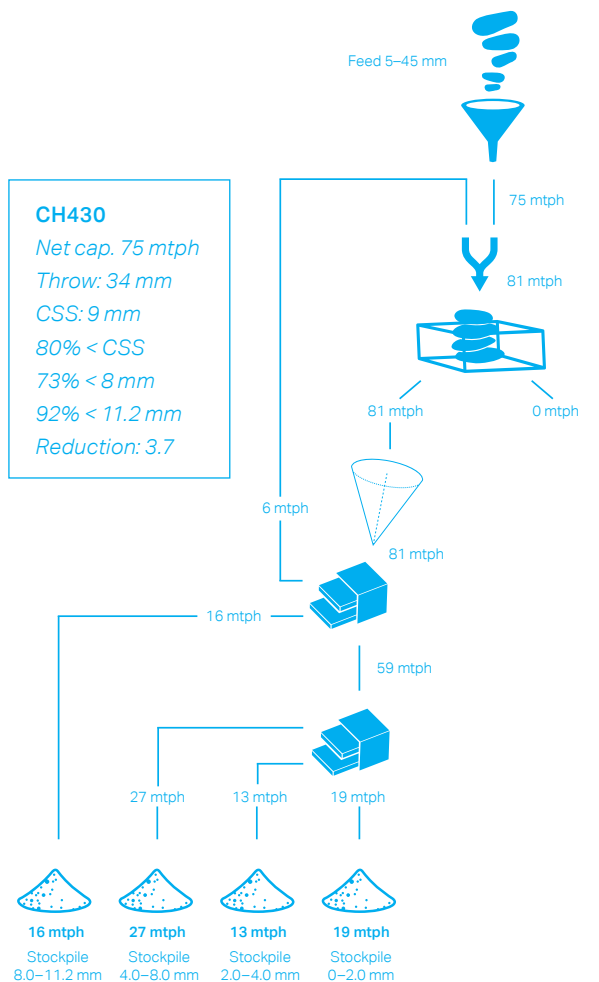
To illustrate the benefits of optimising your set-up, we compare Sandvik's CH540 and CH430 crushers.

Additional sales generated by the CH540:
26 mtp/h x 1500 h/year x 8 Euro/ton = €312,000/year

The bottom line:
Fast ROI and a significant increase in sales.

Additional cost CH540 vs. CH430:
Investment cost approx. €40,000
Cost wear and tear approx. €10,000
Energy cost approx. €10,000*

**Annual cost based on Swedish prices*



DON'T MISS HIDDEN COSTS

Time spent on changing parts during service and maintenance, and the number of people it takes, also affect profitability. Premium machines are often designed for easy fitting and maintenance, saving time and costs.

Energy use is also an important factor – new crushers should be equipped with IE3 motors.

A mantle lifting device is one way to save time and increase safety.



PROFITABLE QUARRYING: GET THE BIG PICTURE

Great athletes never stop striving to get closer to perfection. Neither do we. We believe that there is always room for improvement – a tweak here and a tweak there. We've always been driven to make better and better equipment. But today, we make an even bigger difference by understanding how the entire process works together.

Time to take a fresh look at your quarry or mobile crusher operation?
Contact your local representative or visit crushology.sandvik