

Industrial Solutions

# RollSizers

Crushing with a difference



thyssenkrupp



# Our solutions for the hardest jobs

When it comes to the crunch, crushing systems from thyssenkrupp Industrial Solutions offer the ultimate in performance, reliability and cost-effectiveness. With us as your partner, you can expect the optimum, customized solution for even the most demanding of jobs.

Call on our services and you can count on a wealth of experience and constant innovative drive. As a leading manufacturer of machines and plants for the mining, quarrying, aggregate and cement industries, we supply well-engineered crushing systems that have stood the test of time in the hardest service conditions. At the same time, we invest in intensive research and development work to make proven solutions even better and to adapt to changing demands.

Semi-mobile RollSizer crushing plant, DRS 660 x 1500 CenterSizer, for the primary crushing of limestone. Throughput rate: 550 t/h



Whether a standard or special design thyssenkrupp Industrial Solutions can provide the optimum solution to meet your needs. Our flexibility is a major plus: We act on your specific requirements and adapt our systems to suit the material to be crushed and the product size required, optimizing proven technology according to your specifications. The benefits of our systems are numerous: high throughput coupled with low costs, minimum maintenance, ease of operation and maximum reliability.



Lignite processing plant built by thyssenkrupp Industrial Solutions with four RollSizers, DRS 660 x 3700 SideSizers, in operation.

# Fields of application and design characteristics

thyssenkrupp RollSizers are used for primary, secondary and tertiary crushing of medium-hard as well as sticky and soft materials.

The low height of the RollSizer is optimally designed for easy integration into existing crushing plants, whether mobile, semi-mobile or stationary. In addition to the standard model, thyssenkrupp also offers variants tailored to meet a customer's specific challenges.



## Applications

- Coal preparation
- Limestone and cement industries
- Natural stone industry
- Mineral processing

## Features

- Reliable, rugged, high-performance technology
- Compact, flat design
- Low fines content in the crushed product due to the low circumferential speed of the rolls
- Reduced dust generation compared to other crushing methods
- High shear and tensile forces at a low crushing roll speed
- Crusher and grizzly combined in one machine
- High throughput rates at low operating costs
- Low wear due to optimized geometry of crushing tools and careful selection of materials used in their manufacture
- Low-wear crushing method (bending and tensile forces, low circumferential speeds)
- Reversible operation

RollSizer, DRS 800 x 1500 CenterSizer, for the primary crushing of silicate rocks. Throughput rate: 700 t/h

RollSizers can be designed for up to 10,000 t/h, depending on the material to be crushed and the required throughput rate.

# Operating principle of the CenterSizer

The CenterSizer crushes the feed material between the crushing teeth in the middle of the crushing chamber.

The shear and tensile forces required are generated by high rotor torques at low circumferential speeds. Through the configuration of the individual crushing tools, the fines contained in the feed material pass between the crushing rolls without being crushed any further, in a similar manner to a screening process. The specific power requirement, wear rate and fines content in the end product are thus much lower compared to other crushers.

### CenterSizers for primary and secondary crushing

CenterSizers produce a clearly defined product size with a low oversize content and can be used for a required final grain size of up to approx. 50 mm. The crushing ratio that can be achieved with CenterSizers ranges between 3:1 and 6:1 depending on the design and application. There are various types of CenterSizer available, allowing throughput rates of up to 10,000 t/h to be achieved using feed lumps with edge lengths of up to 2,000 mm.

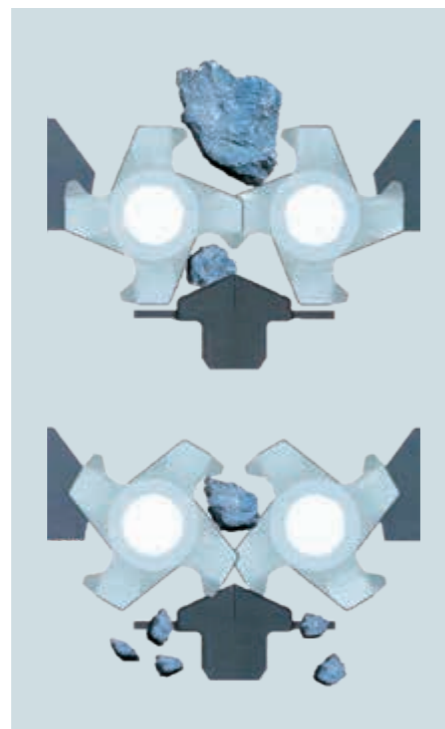
### CenterSizer and SideSizer drives

The crushing rolls are driven either by a synchronization stage and one drive train or by two independent drive trains. The electrical or hydraulic drive trains can be arranged on one or on both sides of the crusher housing.

### CenterSizer crushing tools

The design of the crushing chamber (arrow or spiral arrangement of the crushing tools) and the systems for attaching the crushing teeth are selected to suit the application and the arrangement of the CenterSizer in relation to the flow of material. The two options available are replaceable tooth picks and fully replaceable teeth rings.

The materials used for the crushing tools are selected according to the application in order to achieve the longest possible service lives.



From left:

Crushing principle of the CenterSizer with breaker bar

RollSizer DRS 660 x 2000 designed as a CenterSizer for primary crushing

RollSizer DRS 800 x 1500 designed as a CenterSizer for primary crushing

# Operating principle of the SideSizer

The SideSizer crushes the feed material between the crushing teeth and the adjustable crushing combs arranged at the longitudinal sides.

Fine feed material can also pass through the rolls without further crushing, resulting in an extremely low fines and dust content in the finished product. As in the CenterSizer, the material is crushed by means of shear and tensile forces as well as additional cutting forces generated by high rotor torques at low circumferential speeds.

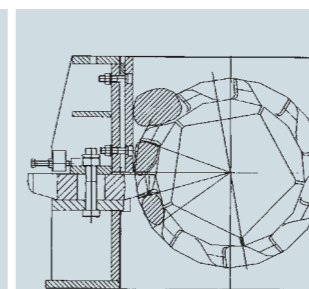
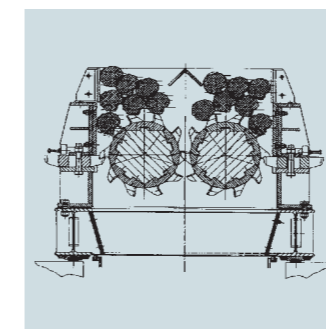
### SideSizers for secondary and tertiary crushing

Due to the exactly determined geometry of the lateral crushing comb, SideSizers produce a clearly defined product size and can be used for a required final grain size of up to approx. 30 mm. The additional adjustability of the crushing combs ensures a highly

flexible range in the final product size. The crushing ratio that can be achieved with SideSizers ranges between 3:1 and 4:1 depending on the design and application. There are various types of SideSizer available, allowing throughput rates of up to 2,500 t/h to be achieved.

### Crushing tools for the SideSizer

Easily replaceable toothed segments as well as toothed combs are the preferred option for the SideSizer. And of course, the materials used for the SideSizer are also selected according to the application in order to ensure the longest possible service lives and low operating costs.



From left:

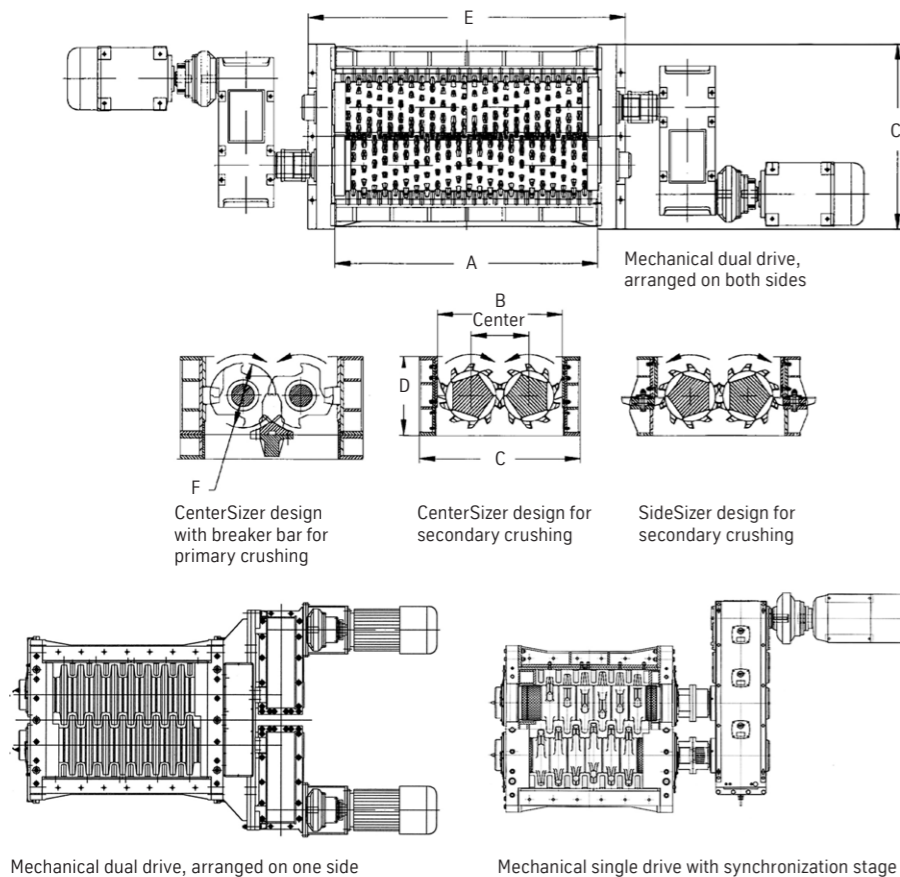
Crushing principle of the SideSizer

RollSizer DRS 660 x 3000 designed as a SideSizer for secondary crushing



# Technical data

RollSizer	Type	A	B	C	D	E	F	Max. feed size <sup>1)</sup> CenterSizer (SideSizer)	Throughput rate	Total installed power	RollSizer weight <sup>2)</sup>
		approx.	approx.	approx.	approx.	approx.	tip Ø approx.	[mm]	[t/h]	[kW]	approx. [t]
500		1,000				1,660					4
		1,500	1,100	1,500	600	2,100	590	480 – 650	to 1,500	55 – 220	5
		2,000				2,600		(200)			7
660		1,500				2,300					17
		2,000	1,500	2,200	900	2,900	750	650 – 850	to 2,500	160 – 500	20
		3,000				3,900		(300)			25
800		1,500				2,500					27
		2,000	1,800	2,400	1,100	3,100	920	750 – 1,050	to 3,500	200 – 630	32
		3,000				4,100					40
1,000		2,000	2,100	2,600	1,300	3,200	1,050	950 – 1,300	to 5,000	250 – 700	42
		3,000				4,200					51
1,250		2,000	2,800	3,600	1,600	3,700	1,450	1,200 – 1,600	to 7,500	450 – 800	81
		3,000				4,700					100
1,500		3,000	3,550	4,400	2,000	3,700	1,800	1,400 – 2,000	to 10,000	750 – 1,200	125
		4,000				4,700					150



- <sup>1)</sup> Max. feed size depends on tooth configuration
- <sup>2)</sup> Weight of the RollSizer without drive

The throughput rate and motor power depend on the feed material, feed size, granulometric composition and required product size. The given data are intended as a guide for medium-hard limestone (fines content of 50% in the feed material) and are based on a crushing ratio of 5:1. Subject to change!  
(Throughput by way of example based on a bulk density of 1.6 t/m<sup>3</sup>)

# Our services keep things running smoothly!

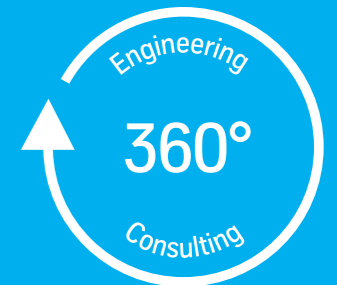
We offer our customers not only optimum, customized technical solutions, but also comprehensive, tailored service ranging from the engineering of individual crushers and entire plants to their operation, and modification if needed.

We usually start out by analyzing the storage areas and the feed material. Using state-of-the-art processes we characterize the respective material, which forms the basis for selecting the right crusher and any customer-specific adaptations that may be required. Then we perform testing under field conditions using a clever control and diagnostic system to check the main operating parameters again.

Whenever you need us, the maintenance and repair crews from thyssenkrupp Industrial Solutions are on hand to cater to your needs, from specialist advice, inspections and modifications through modernizations and performance enhancement to damage analyses and repairs, which are performed exclusively by our highly qualified assembly personnel using high-quality, certified spare parts. If necessary, we will maintain and repair your crusher at one of our service centers. You can call on these services not only for crushers from our own production lines, but also for machines manufactured by other suppliers.

Increase the productivity of your machines and plants! Our services will assist you in doing so.

One-stop-shop service



- Asset Management
- Spare Parts Supply & Management
- Service Center & Field Services
- Revamps



From left:  
Development of crushing rolls  
Equipment for material analysis  
Installation of a RollSizer

