

Industrial Solutions

# sepol<sup>®</sup> high-efficiency separator

High selectivity and optimum  
economic viability



thyssenkrupp



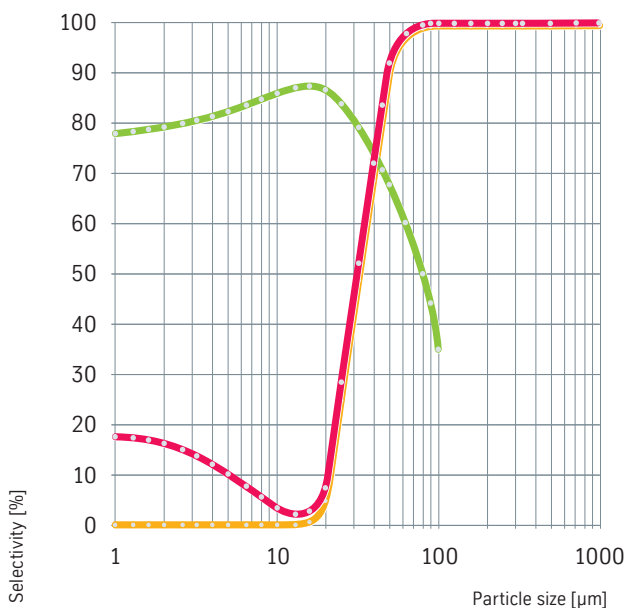
# More than 100% separation is not possible.

The higher the demands placed on the quality of the ground material and the lower the desired energy requirement of the overall grinding system, the more important the efficiency of the separator is.

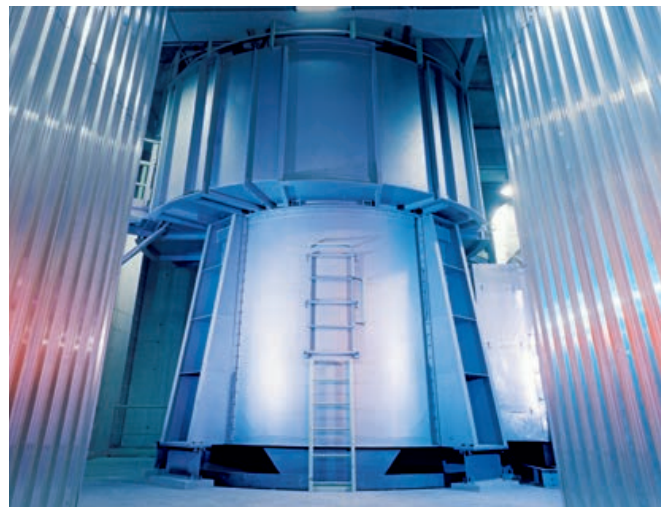
High availability, high selectivity, low specific energy consumption, simultaneous product separation, cooling and drying, as well as short amortization periods combined with relatively low capital expenditure, are the defining features of the sepol® high-efficiency separator.

All requirements defining a future-proof system configuration are precisely fulfilled by the sepol® high-efficiency separator.

The separator plays a key role in grinding systems equipped with tube mills, roller mills and high-pressure grinding rolls. Over 1,000 sepol® separators installed around the world are confirming its effective functional principle.



— Separation curve  
— Separation curve  
— Efficiency curve  
— Reduced separation curve



Of course, sepol® can not change the laws of physics – but it can use them for its tasks without any compromises.

sepol® consistently works on the principle of optimum separation utilizing physical laws at its best.

The separator can be adapted to the indifferent feed material by adjustment of the centrifugal and flow forces.

An extremely steep slope of the Tromp curve has been proven and confirms the performance of the sepol® separator (left figure).

Reliable separation into fine and coarse material allows maximum utilization of the grinding plant's capacity and therefore high cost effectiveness.

The fineness and the granulometric composition of the finished material can be infinitely varied over a large range, primarily by altering the rotor speed and secondarily by controlling the separating air flow rate.

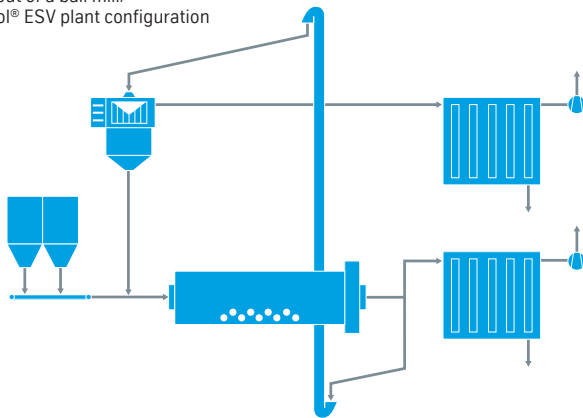
The outstanding efficiency of the sepol® separator is one of the decisive factors for the overall grinding system performance.

## sepol® ESV: the expert for ball mills

The main field of application of the sepol® ESV is in ball mill plant configurations to meet the highest requirements for the finished product with regard to fineness, residue and product temperature. The separation process takes place by means of fresh air and filter separation, or by means of cyclone circulating air.

The sepol® separator has also proven an ideal solution for plant conversions and modernization projects with limited space conditions, thanks to its modular design and flexible arrangement possibilities.

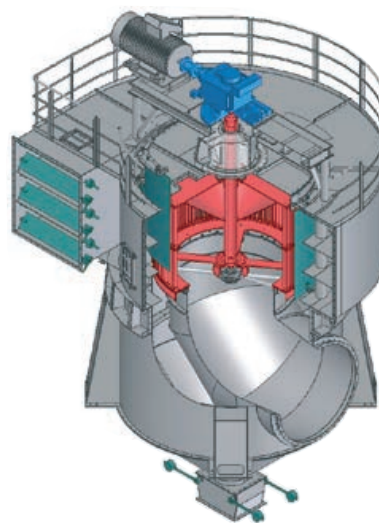
Layout of a ball mill/  
sepol® ESV plant configuration



sepol® ESV performance parameters

sepol® ESV	Rotor area [m <sup>2</sup> ]	Separating air flow rate [m <sup>3</sup> /h]
130	3.6	44,000
155	5	63,000
170	6	77,000
185	7.1	89,000
200	8.4	105,000
215	9.7	121,000
230	11.1	138,000
250	13.1	164,000
270	15.3	191,000
290	17.6	220,000
310	20.2	253,000
330	22.8	285,000
350	25.6	320,000
380	30.2	380,000
410	35.2	440,000
440	40.5	506,000
480	48.3	603,000

With flexible configuration possibilities, the sepol® is predestined for both new and replacement investments.

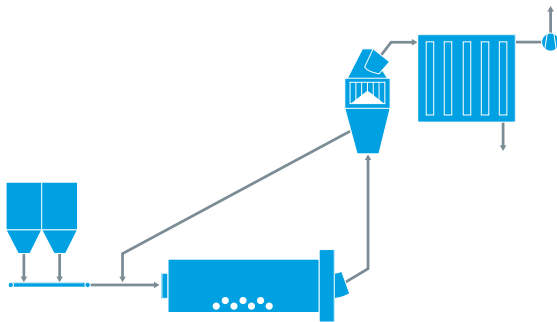


Construction of the  
sepol® ESV

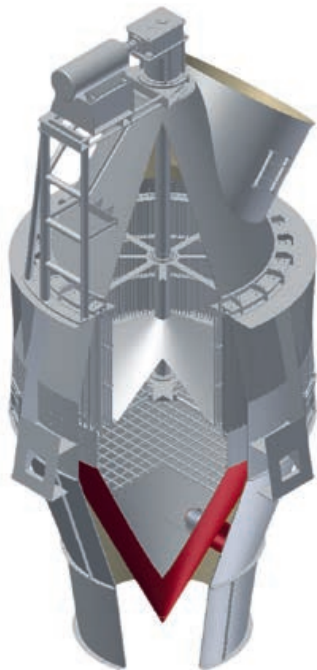
## sepol<sup>®</sup> LM: the specialist for the product that is already dispensed in air.

Thanks to its versatile application possibilities, the sepol<sup>®</sup> LM makes a convincing choice. In addition to the classic application in conjunction with an air-swept mill, this separator type is also successfully in use downstream of flash dryers or flash coolers.

One ATEX series of the type sepol<sup>®</sup> LM has successfully proven its effectiveness in the case of coal grinding plants.



Layout of an air-swept mill/sepol<sup>®</sup> LM plant configuration



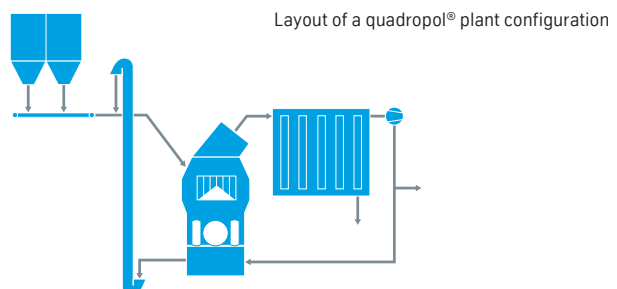
Construction of the sepol<sup>®</sup> LM

### sepol<sup>®</sup> LM performance parameters

sepol <sup>®</sup> ESV	Rotor area [m <sup>2</sup> ]	Separating air flow rate [m <sup>3</sup> /h]
110	2.5	32,000
130	3.6	44,000
155	5	63,000
170	6	77,000
185	7.1	89,000
200	8.4	105,000
215	9.7	121,000
230	11.1	138,000
250	13.1	164,000
270	15.3	191,000
290	17.6	220,000
310	20.2	253,000
330	22.8	285,000
350	25.6	320,000
380	30.2	380,000
410	35.2	440,000
440	40.5	506,000
480	48.3	603,000
520	56.7	709,000
560	65.6	820,000
610	78	975,000

## sepol<sup>®</sup> QM and RM: the compact one for roller mills

Whether it is a roller mill for coal, limestone, granulated blast furnace slag or cement grinding, the sepol<sup>®</sup> QM or RM high-efficiency separator is integrated into the mill housing of our roller mills.



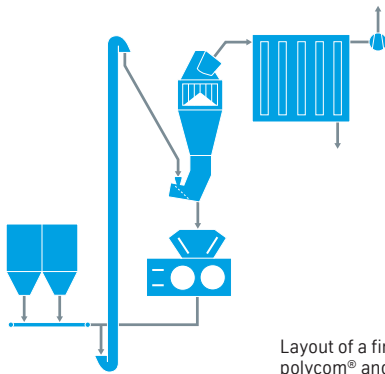
Layout of a quadropol<sup>®</sup> plant configuration

## sepol® PC: the combiner for high-pressure grinding rolls

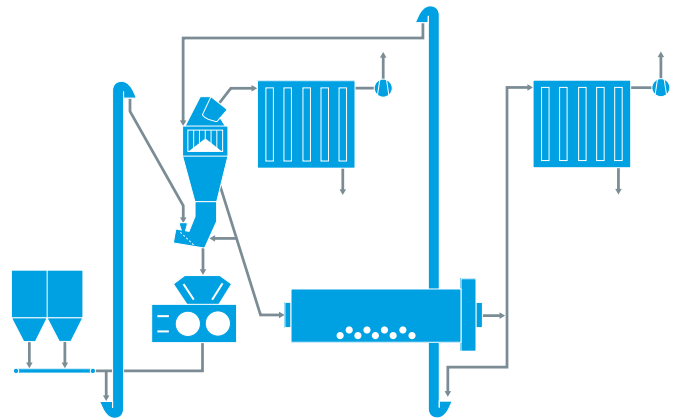
The sepol® PC makes a convincing choice in a grinding circuit with a polycom® high-pressure grinding roll. The PC version is a combination of a compact static cross-flow separator with a dynamic rotor separator.

The benefits of two-stage separation are:

- high efficiency with only one separating system,
- the achievement of the highest product requirements and
- the ability to optimally guide the streams of material (feed material, finished material, grits).



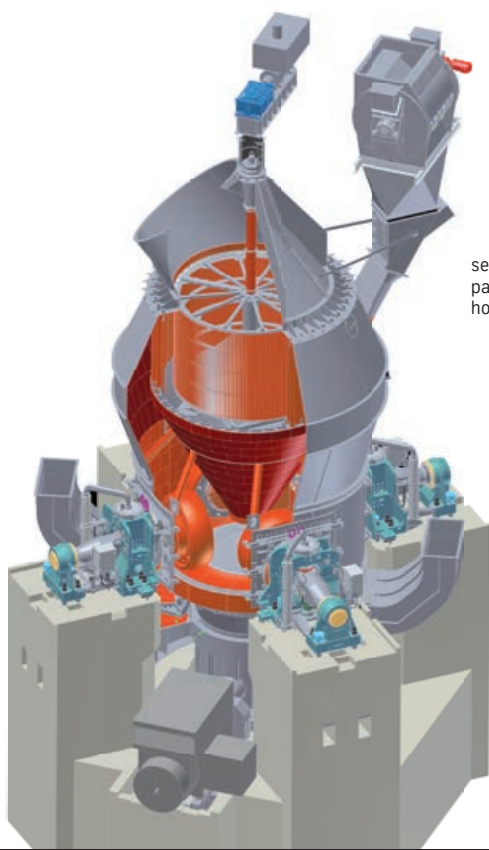
Layout of a finish-grinding system with polycom® and sepol® PC



Layout of a combi-grinding system for cement, with polycom®, ball mill and sepol® PC

Appropriate plant configurations enable the highly economical implementation of finish-grinding and combi-grinding systems.

- The fresh feed material and the compacted cakes from the HPGR are disagglomerated and homogenized in the integrated feed system of the sepol® PC.
- The compact design, in particular the static cross-flow separator, also reduces the construction volume of the grinding plant to a minimum.
- Drying by means of the connection of a separate hot gas generator is possible.



sepol® QM as an integral part of the quadropol® mill housing



Construction of the sepol® PC



## Efficient – safe – reliable

On the basis of more than 1,000 sepol® installations, our engineers develop customized, innovative and nevertheless well-proven plant solutions – this applies in equal measure to new plants, the upgrading of existing facilities and the opening-up of new fields of application for proven technologies and services.

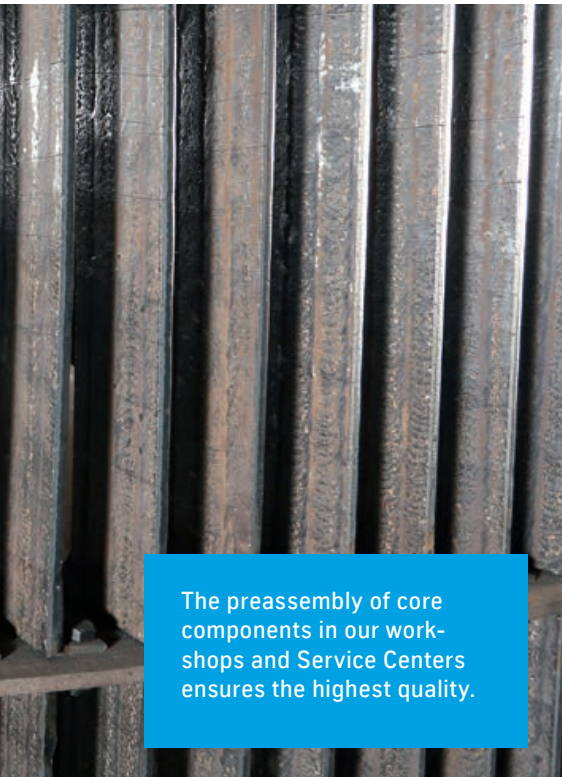
### **Smooth running – a characteristic feature of sepol®**

The sepol® separator is characterized by smooth running, thanks to a design that perfectly meets the requirements concerning manufacturing, assembly and, in particular, process technology.

### **Greatest possible flexibility**

sepol® separators are operated by a variable speed drive. In addition to the setting of the process-determined rotor speed, the frequency control enables gentle start-up and shut-down processes.

The modular design of the separating system enables sepol® to always meet the current requirements for future product and process developments.



The preassembly of core components in our workshops and Service Centers ensures the highest quality.

# Perfection down to the finest detail

## **Tested safety**

During the design engineering process, individual components, their connections and entire machines are designed for fatigue strength and optimized in terms of process parameters by means of state-of-the-art calculation tools. Prior to operation, special load conditions such as pressure shock resistance for applications in hazardous areas are simulated as well.

## **Actively influencing the separating zone**

The separation process, i.e. the flow-optimized supply of air to the separating zone, can be influenced using adjustable curved guide vanes as an air guidance system. This also results in an individual process optimization and thus higher efficiency.



Optimum air distribution thanks to curved guide vanes

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