

# **Successful commissioning of the OK vertical roller mill at PT Semen Gresik in Indonesia**

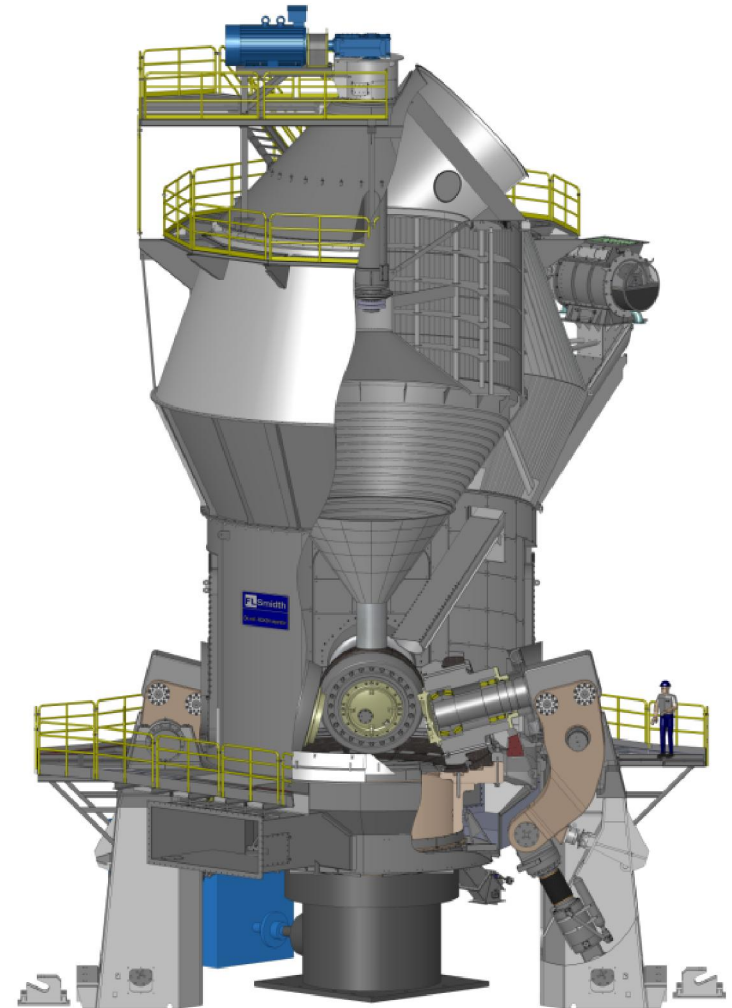
***By Rune Damborg Hurttia  
General Manager,  
FLSmidth A/S***

## The OK mill at PT Semen Gresik



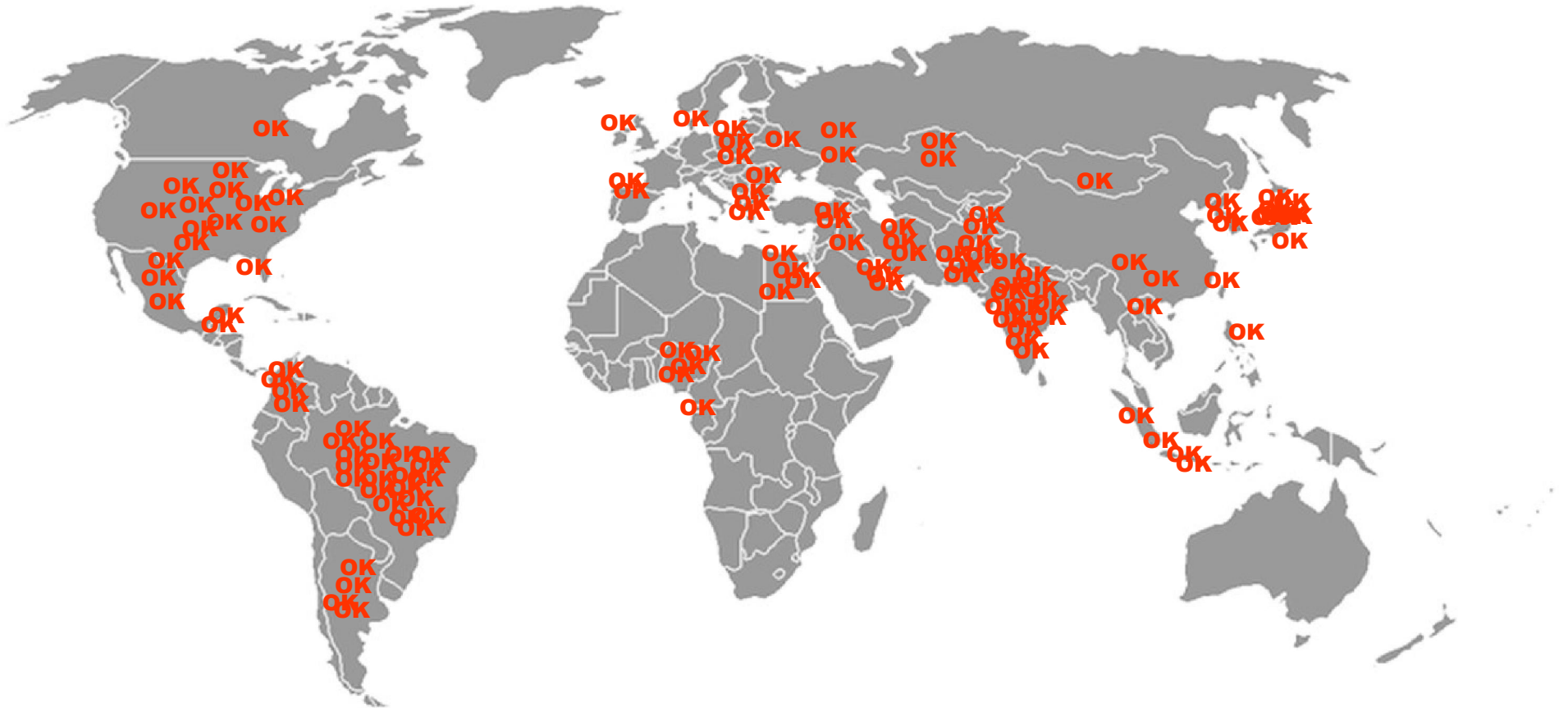
## The unique OK mill

1. Best grinding efficiency of any VRM on the market
2. Most versatile & reliable VRM
3. PT Semen Gresik  
Commissioning result





# OK mill references: more than 130 sold worldwide



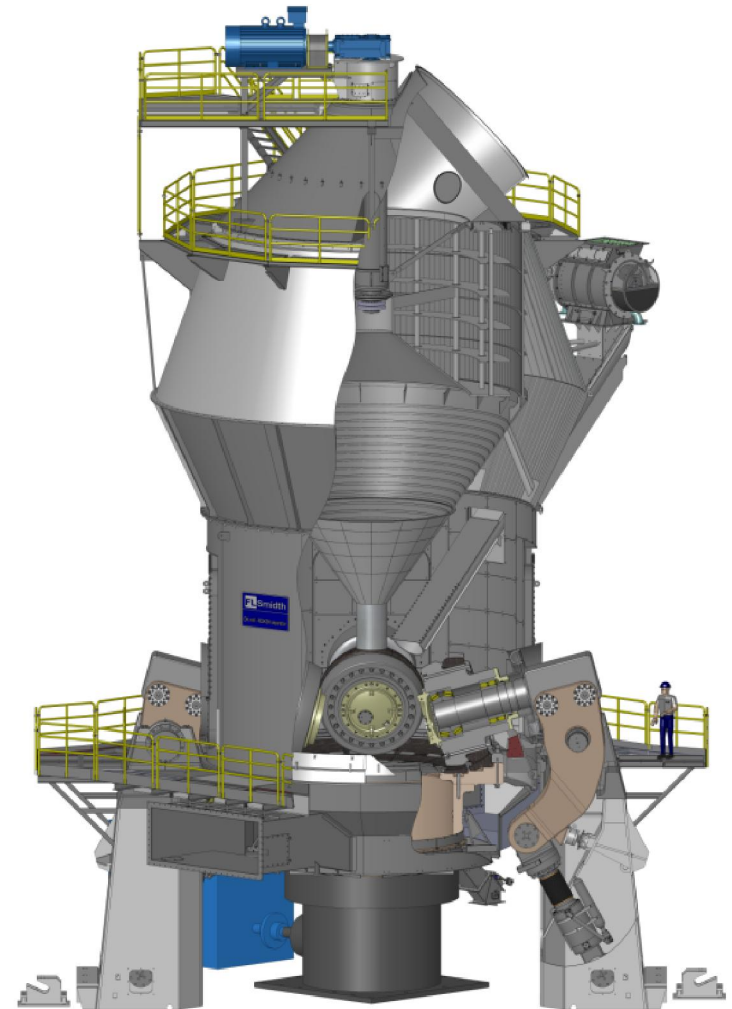
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One Source

[www.ximang.vn](http://www.ximang.vn) - [www.cement.vn](http://www.cement.vn)

## Why choose the OK mill?

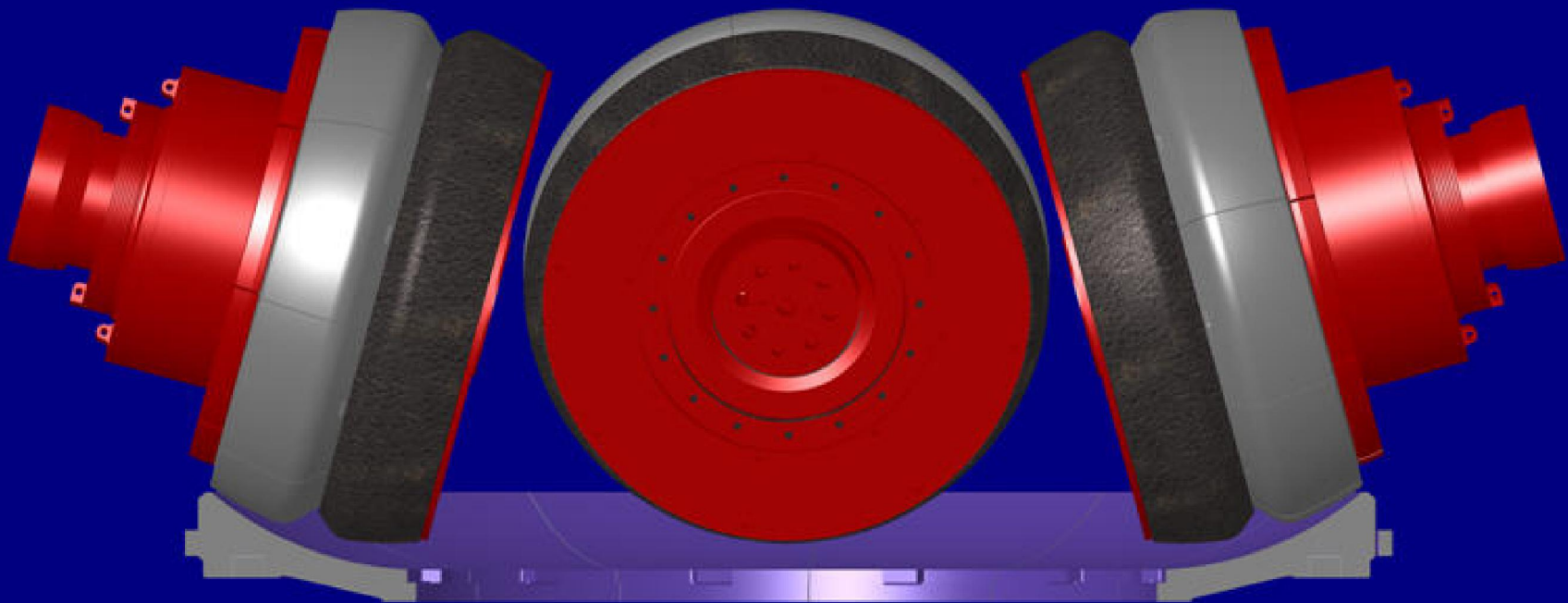
- 1. Best grinding efficiency of any VRM on the market**
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# How?

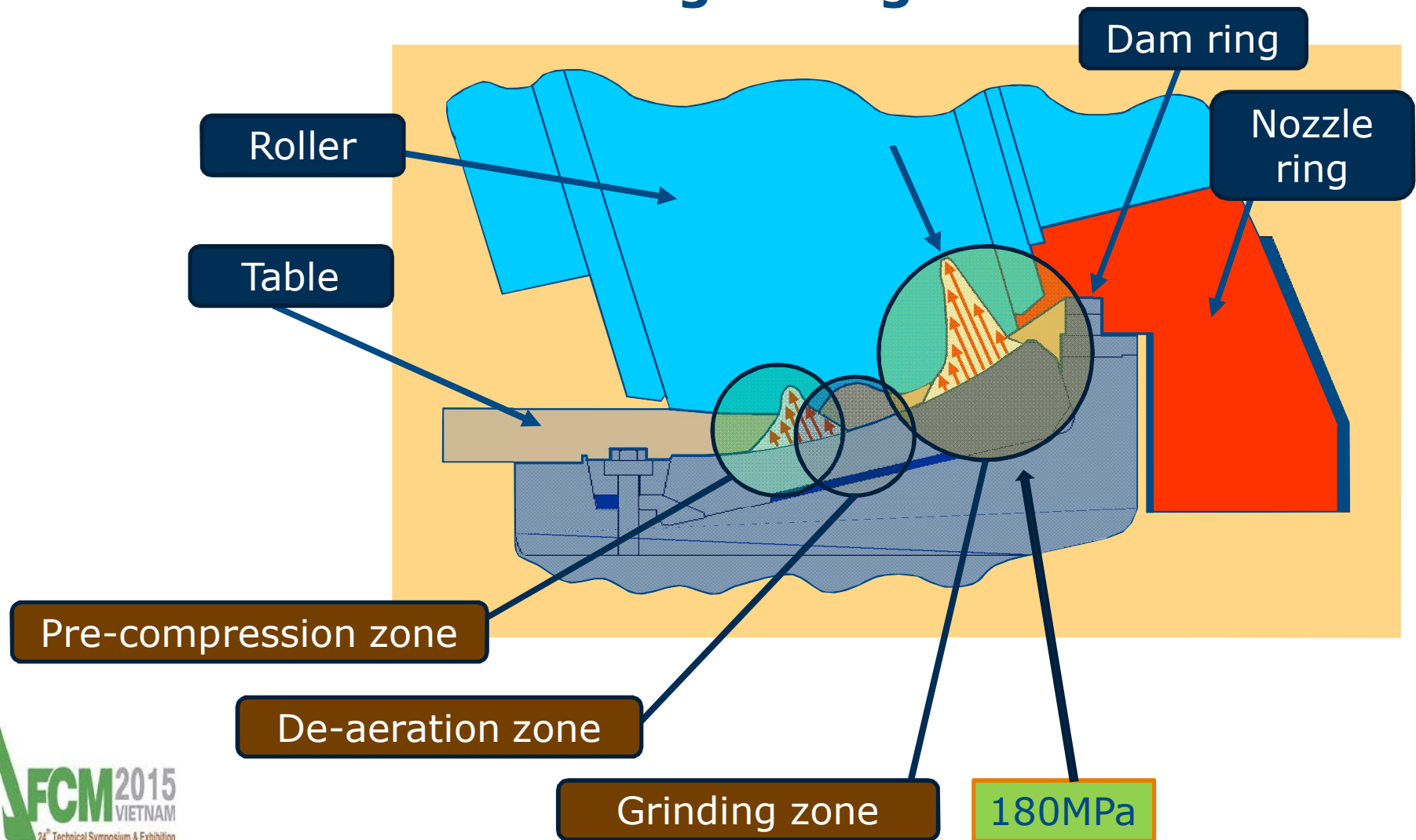


The grinding portion is significantly different from all cement grinding machines on the market





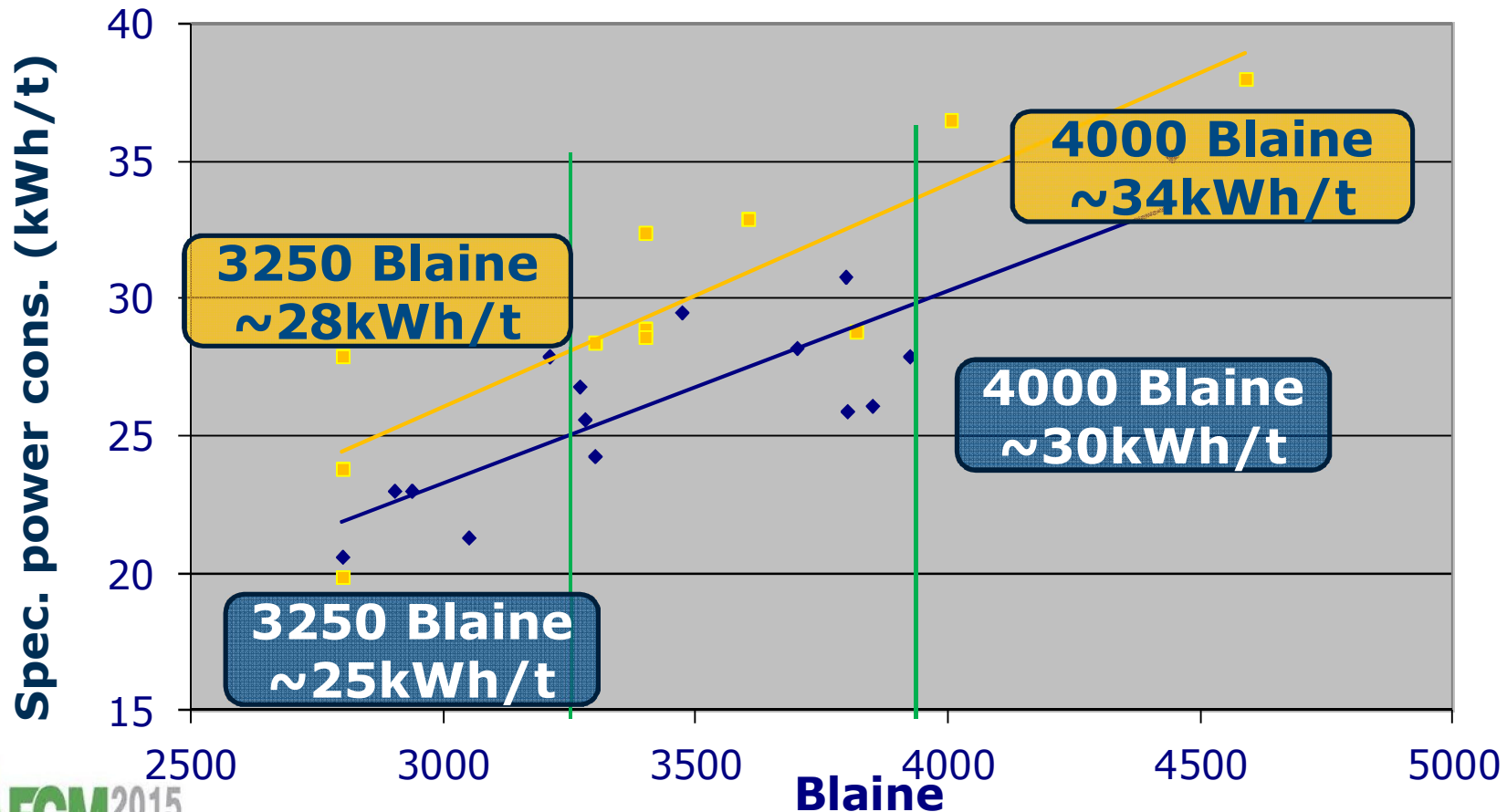
# Pressure distribution in the OK mill grinding bed





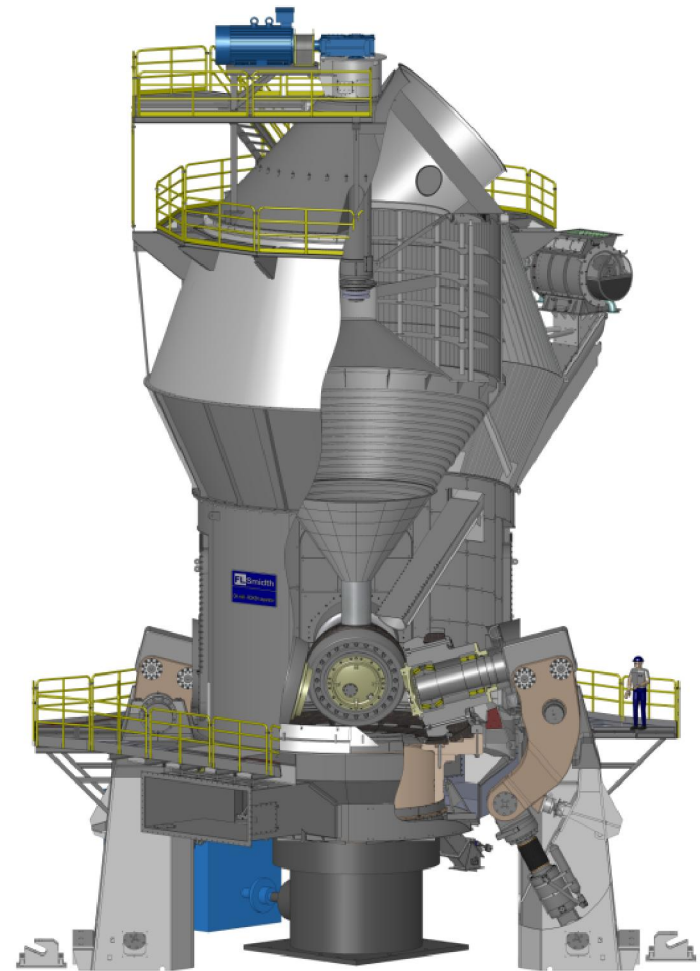
# Best grinding efficiency: OK vs. *mills with flat rollers*

Specific power consumption for mill, fan and separator

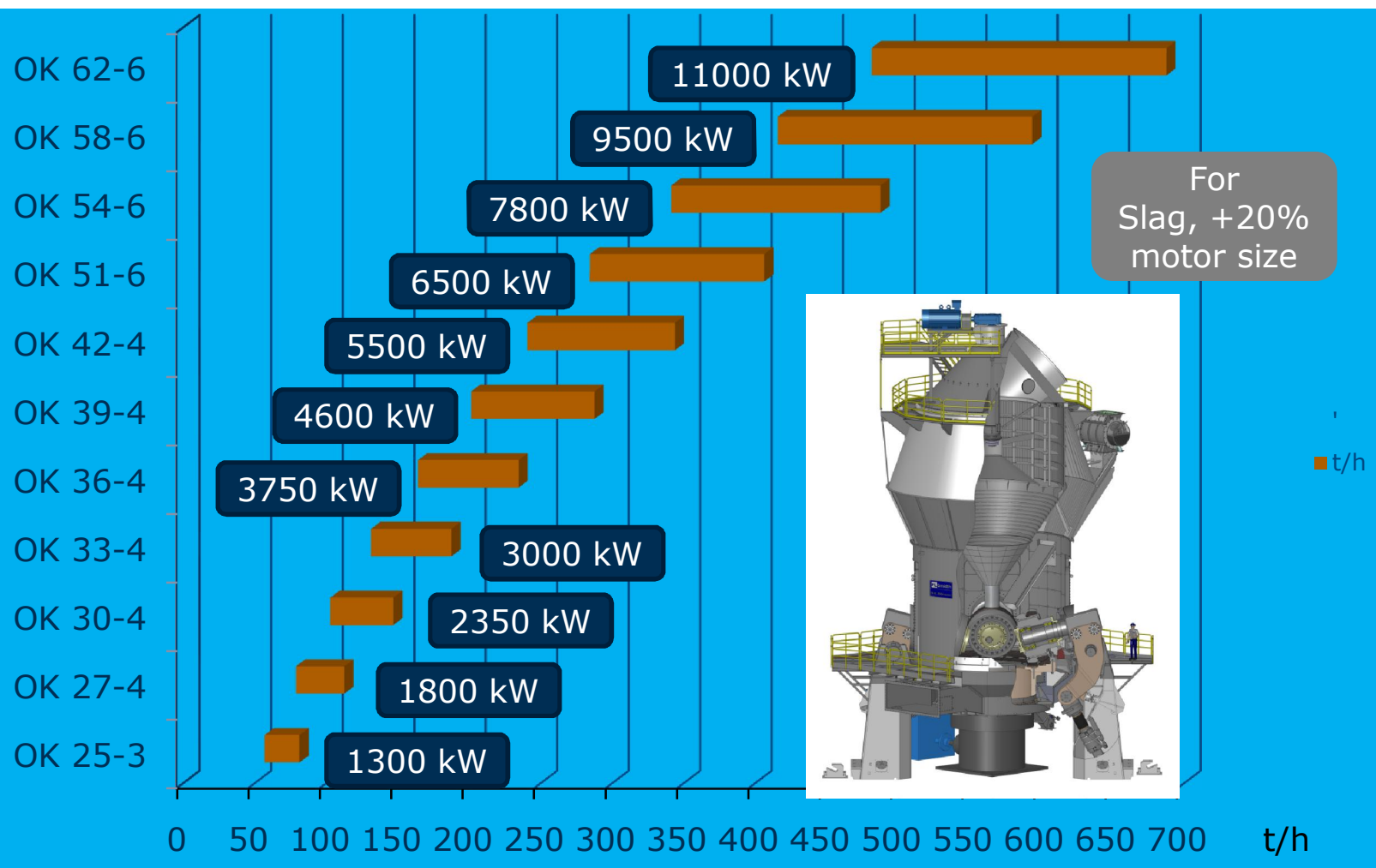


## Why choose the OK mill?

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- 2. Most versatile & most reliable VRM**
3. PT Semen Gresik Commissioning result



# OK mill capacity range (reference OPC cement)



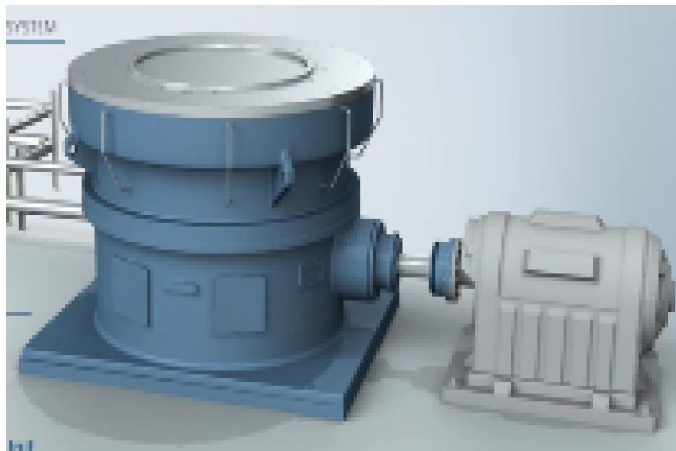
24<sup>th</sup> Technical Symposium & Exhibition

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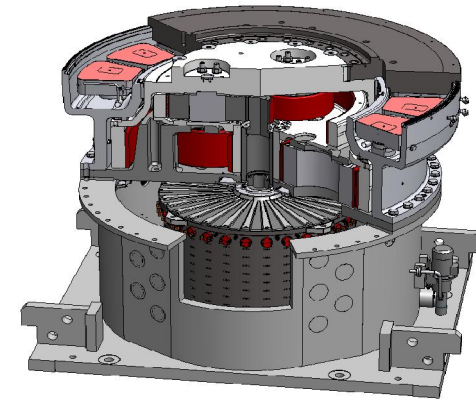
**One Source**

# OK Mill – Drive options

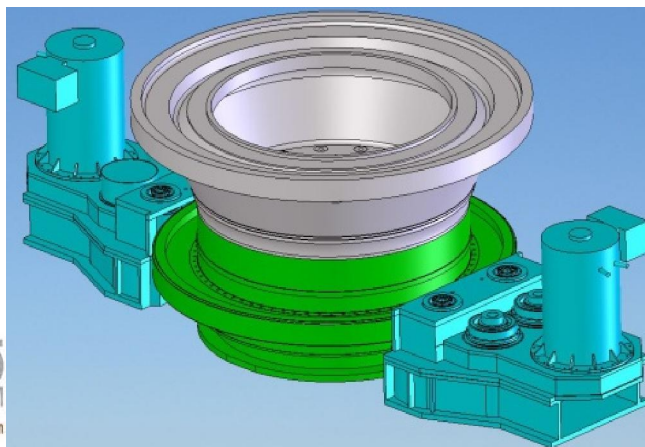
Conventional gear solution up to 8-9 MW



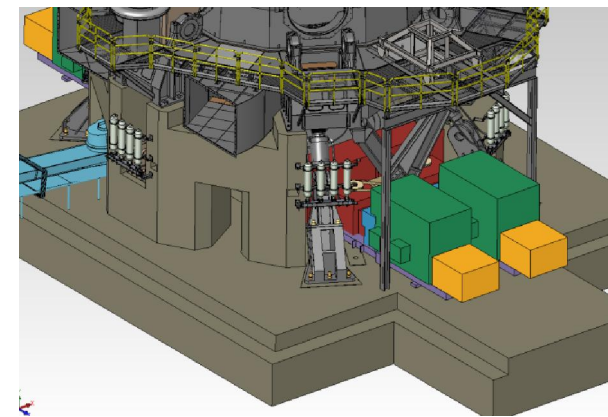
MAAG CEM Drive  
up to 14 MW



MAAG MAX Drive up to 14 MW.



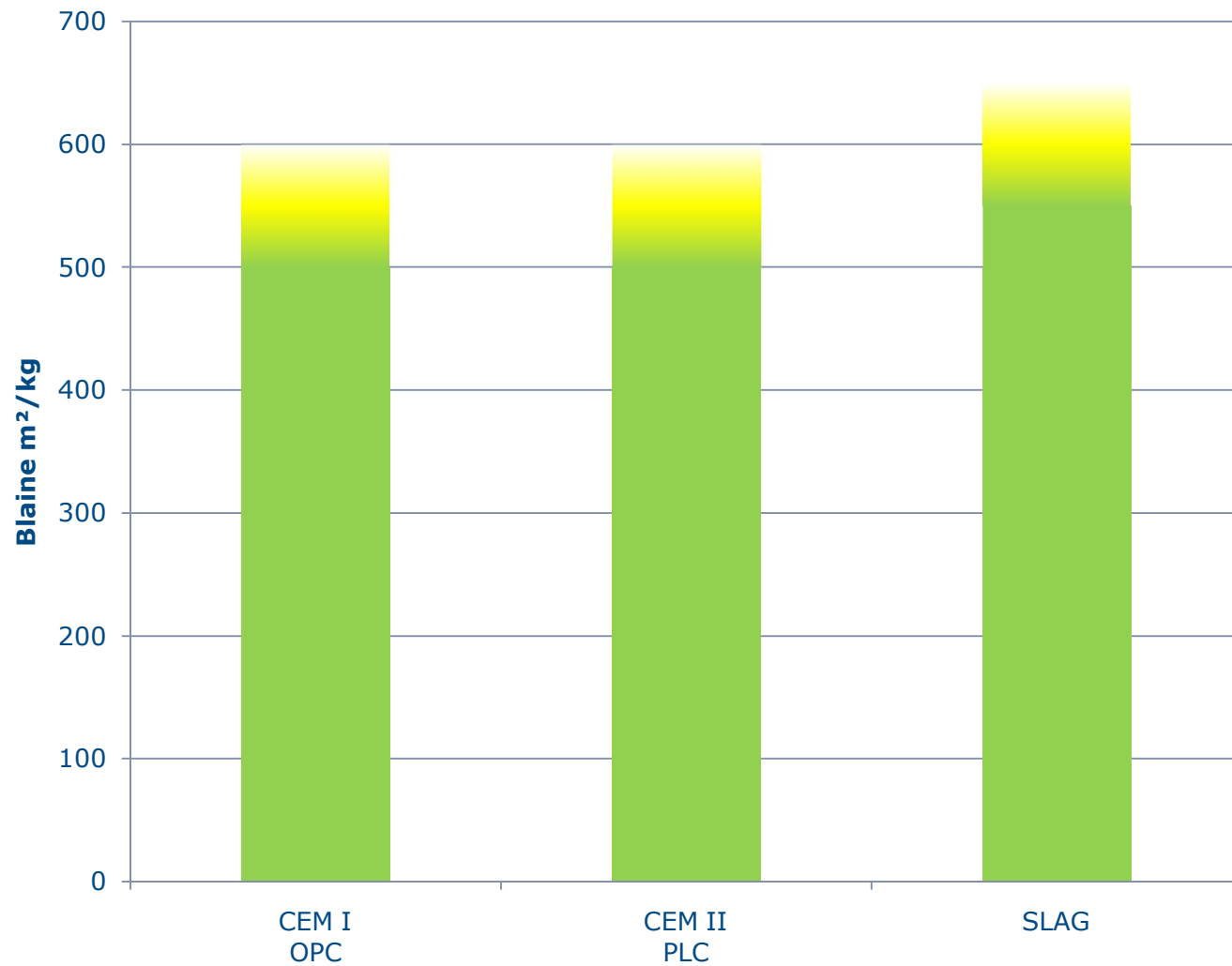
Siemens MultipleDrive up to 16 MW.



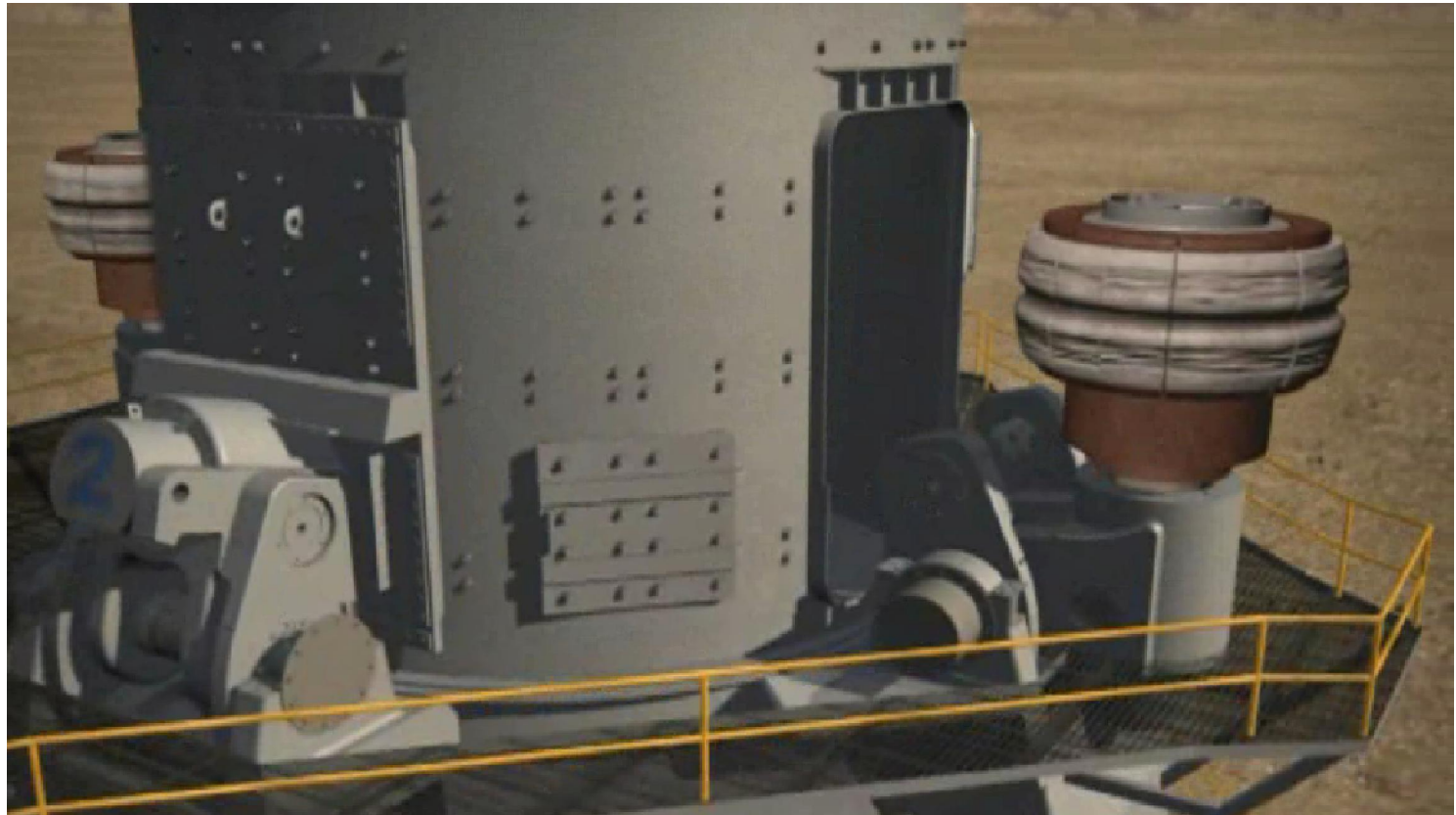
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# Demonstrated fineness on OK mill **FLSmidth**



# OK 33-4 operation with 2 and 4 rollers



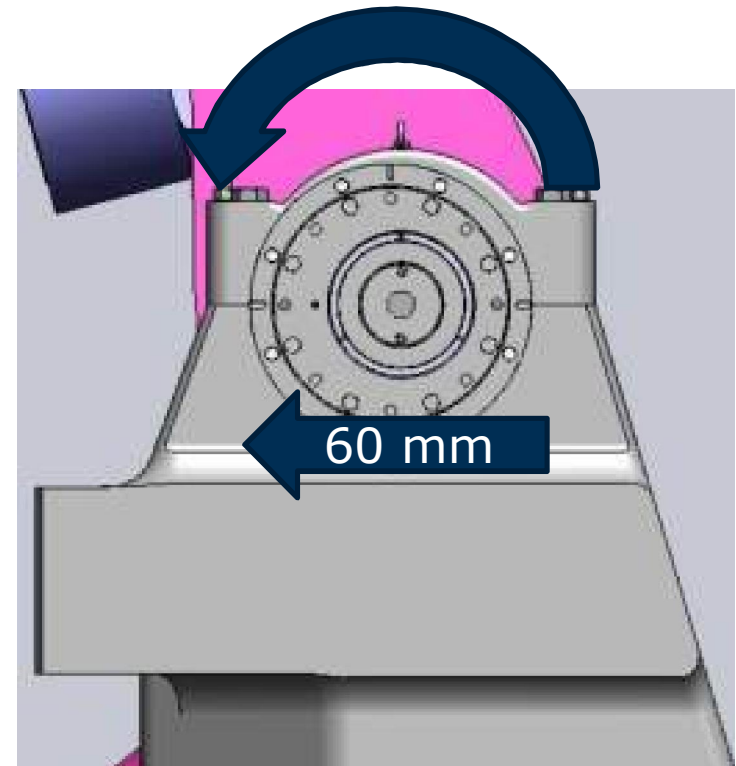
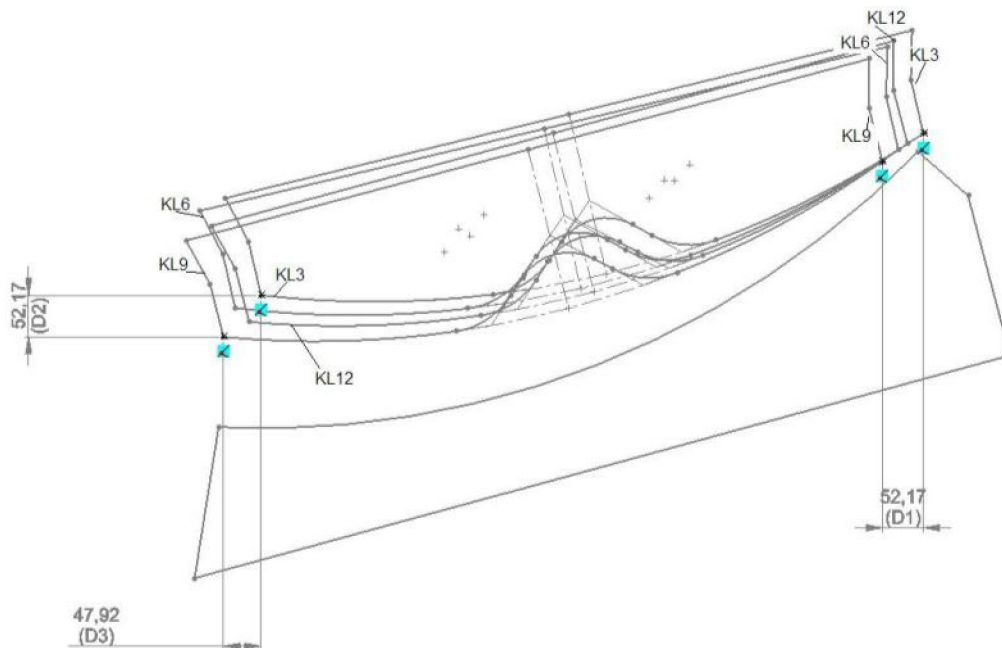
Condition	Production t/h	% res. 45 µm	Blaine cm <sup>2</sup> /g	kWh/t mill	kWh/t fan	kWh/t sep.	Total kWh/t	Grinding aid. %
<b>2 rollers</b>	92	3.8	3600	15.2	13.6	0.7	29.4	0.025
<b>4 rollers</b>	144	3.5	3800	16.1	8.7	0.6	25.4	0.025
<b>Guaran.</b>	140	7.0	-	17.2	-	0.6	-	-



One Source

# Adjustable fulcrum shaft

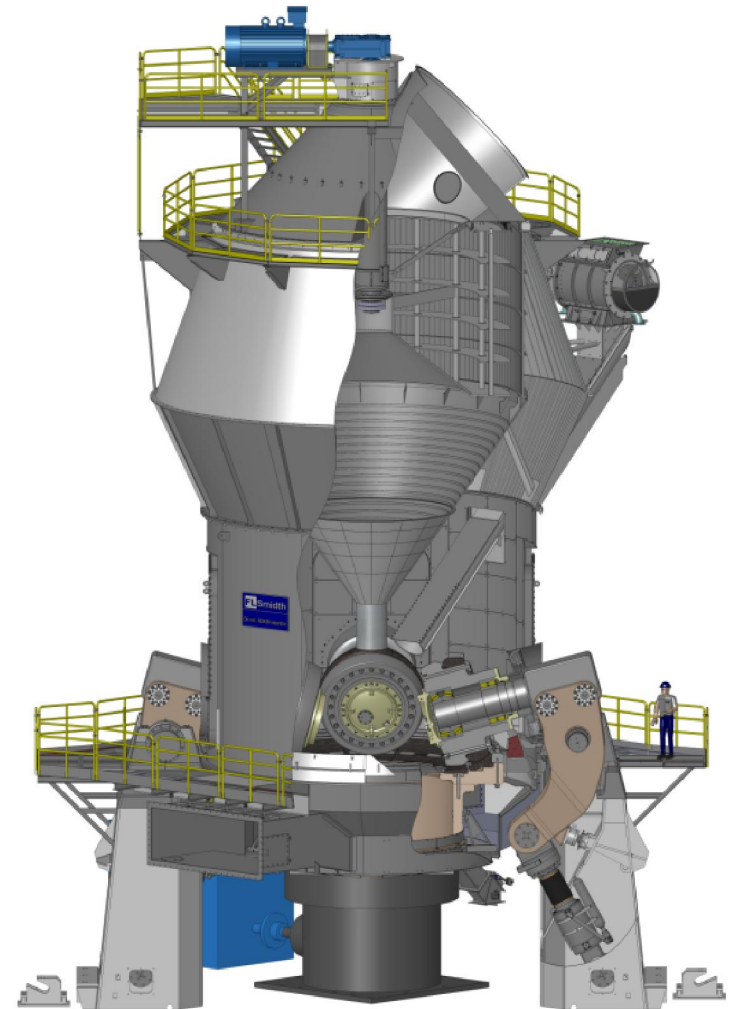
Eccentric bushing allows change of roller position on table extending the running time of the mill between refurbishment



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### 3. PT Semen Gresik Commissioning result





# PT Semen Gresik OK mill Performance



PT Semen Gresik	Mill size: OK 42-4	
Ordinary OPC cement	Performance figures	
	Guaranteed	Achieved
Composition:		
Clinker	95%	95%
Gypsum	5%	3%
Lime stone		2%
Grinding aid	Yes	No
Production, tph	250	253
Blaine cm <sup>2</sup> /g	3500	3555
Spec energy consumption		
Mill (kWh/t)		17.0
Separator (kWh/t)		0.1
Fan (kWh/t)		6.9
Total (kWh/t)	26.8	24.0



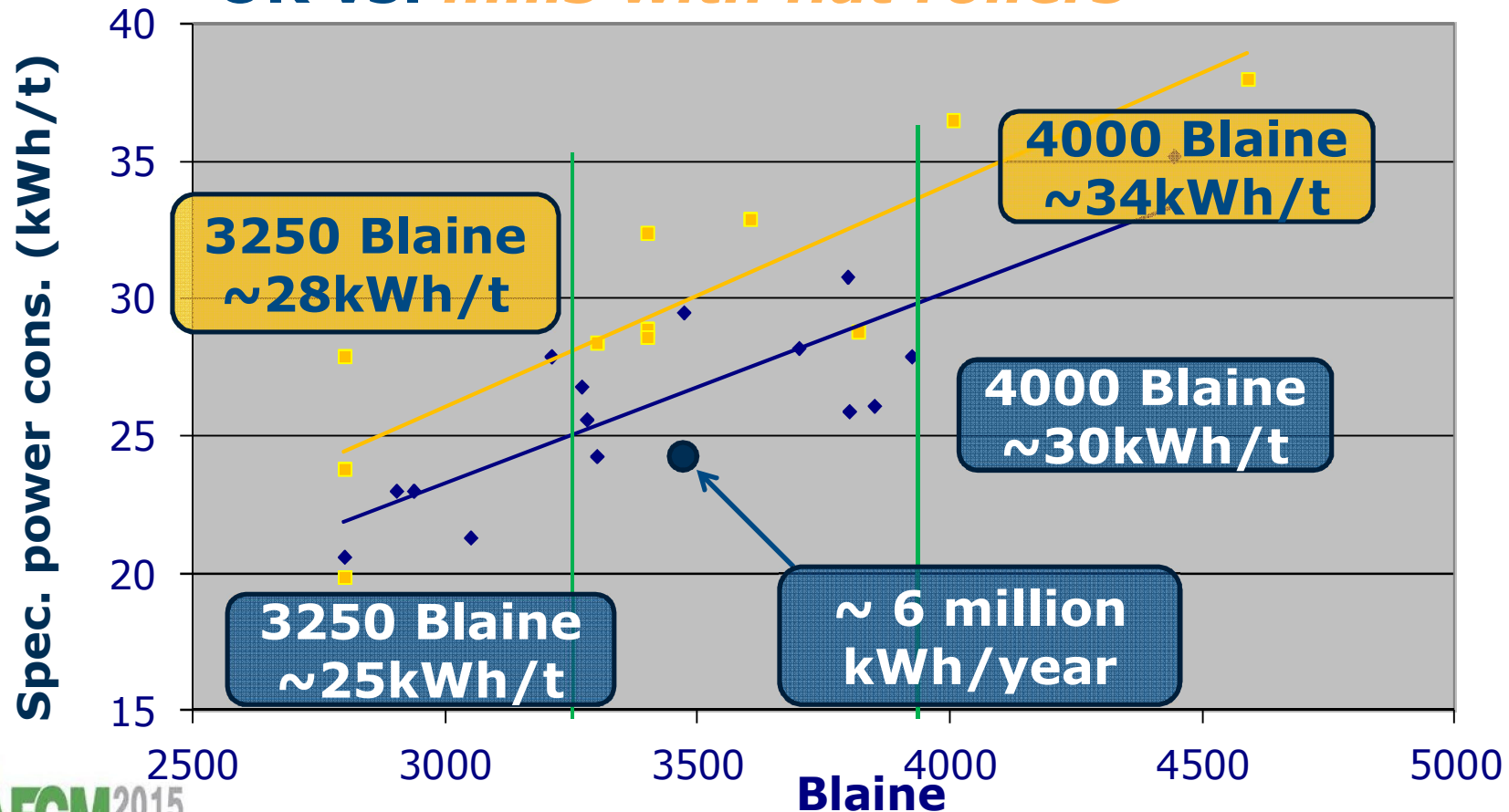
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# Saving energy is part of Sustainable Development



**OK vs. *mills with flat rollers***



# PT Semen Gresik Performance on PPC

<b>PT Semen Gresik</b>	<b>OK 42-4</b>
<b>Blended cement PPC: Clinker: 74.5% Gypsum: 3.4%, Limestone: 3.3%, Trass: 18.8%</b>	<b>Achieved</b>
<b>Grinding aid</b>	<b>No</b>
<b>Production tph</b>	<b>302</b>
<b>Blaine</b>	<b>3690</b>
<b>Specific energy consumption</b>	
<b>Mill (kWh/t)</b>	<b>13.5</b>
<b>Separator (kWh/t)</b>	<b>0.1</b>
<b>Fan (kWh/t)</b>	<b>5.3</b>
<b>Total (kWh/t)</b>	<b>18.9</b>

# Thank you for your attention

