Loesche America Inc.

FICEM-APCAC

Loesche “The solution for Cement Grinding”

Sept 2012

Guillermo Benjumea

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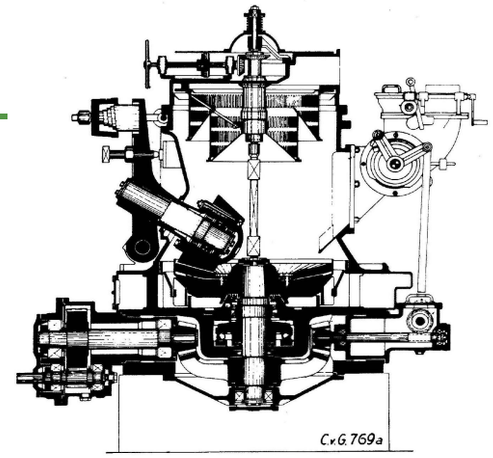
- LM 46.2+2 Kingston, Jamaica Client: Caribbean Cement TCL
- LM 56.2+2 Pacasmayo, Peru Client: Cementos Pacasmayo
- LM 46.2+2 Ventanas, Chile Client: Cementos Melon
- LM 56.3+3 Guayaquil, Ecuador Client: Holcim

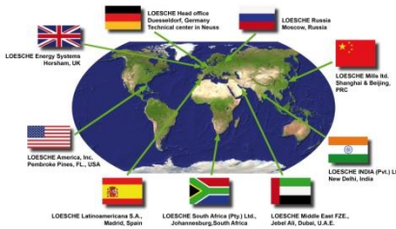
Loesche History & Milestones

- **1906 - Foundation in Berlin:**
  The exclusive European sales rights of the brand new Kent Mill



- LOESCHE GmbH is a privately owned company founded 1906 in Berlin, Germany
- Certified according to DIN EN ISO 9001
- Main shareholder: Dr. Thomas Loesche
- Management: Dr. Thomas Loesche, Dr Joachim Kirichmann
- Employees in Düsseldorf: 250, Worldwide 500
- Exp. Turnover 2007: approx. 600 Million Euro, Worldwide
- Working in Cement, Slag, Minerals, Coal, Lime
- Installed the biggest Vertical Roller Mill in the world

Loesche Offices Worldwide



America

- **LOESCHE America, Inc.**
  Pembroke Pines, Florida, USA

Europe

- **LOESCHE Duesseldorf**
  Head Office, Germany
- **LOESCHE Engergy Systems**
  Horsham, UK
- **LOESCHE Latino-americana S. A.**
  Madrid, Spain
- **LOESCHE**
  Moscow, Russia

Africa

- **LOESCHE South Africa (Pty.) Ltd.,**
  Johannesburg, South Africa

Asia

- **LOESCHE Mills Ltd.**
  Shanghai & Beijing, PRC
- **LOESCHE India (Pvt.) Ltd.**
  New Delhi, India
- **LOESCHE Middle East FZE**
  Dubai, UAE
- **LOESCHE Middle East Tehran Branch Office**
  Tehran, Iran

LOESCHE Vertical Roller Mill

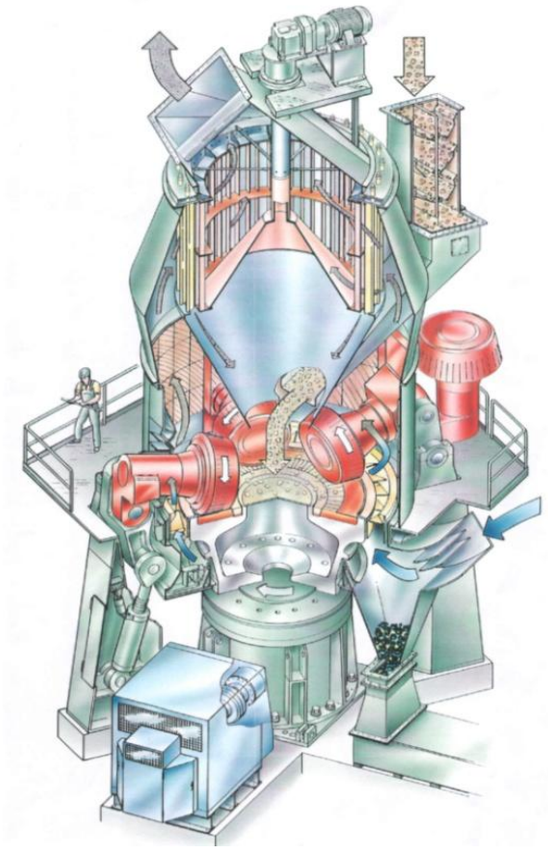
- Applications -

<u>Loesche VRM</u> **are mainly used in :** **Cement industry**

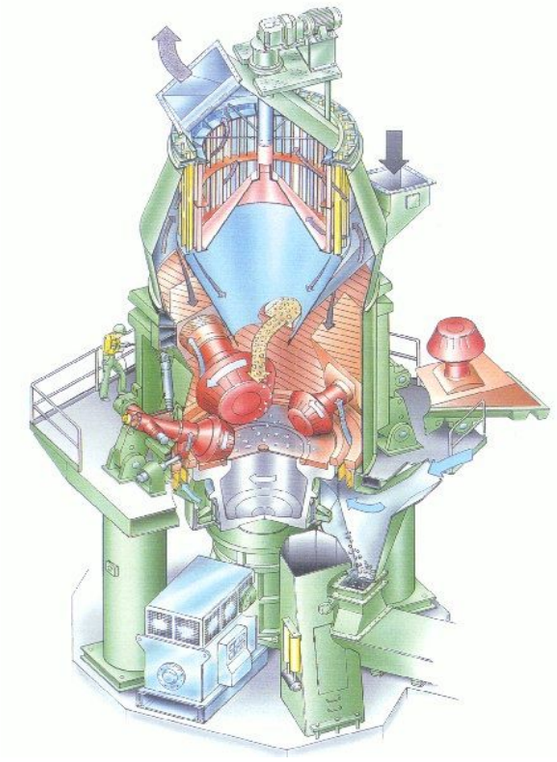
Coal fired power plants

Steel plants with coal injection

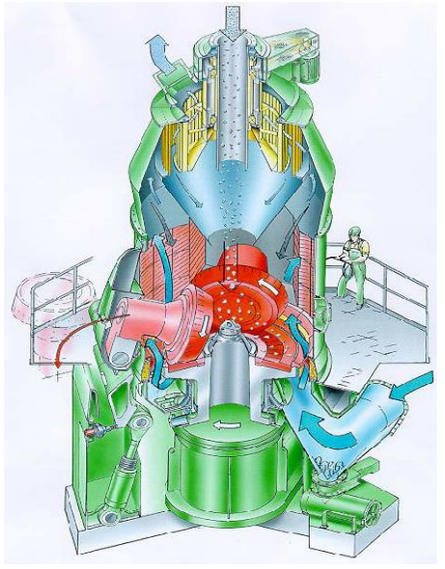
Mineral industry



CRM Mills



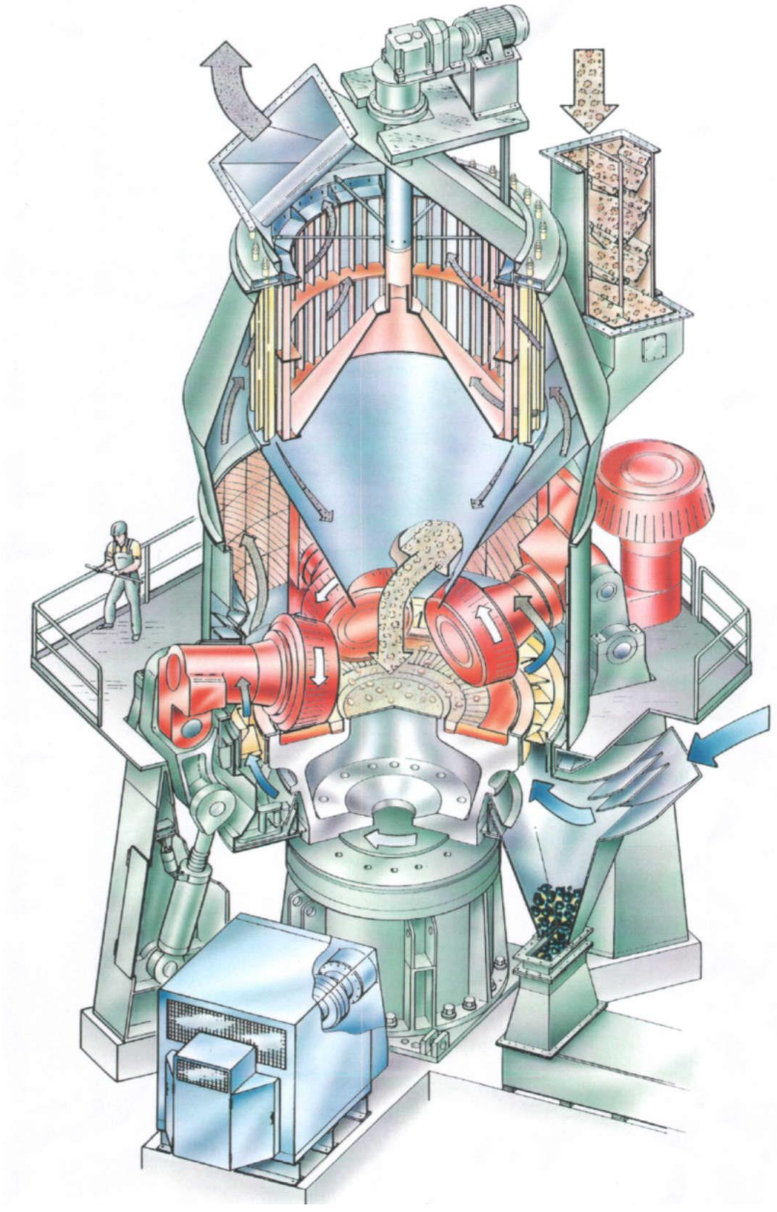
Cement & Slag Mills



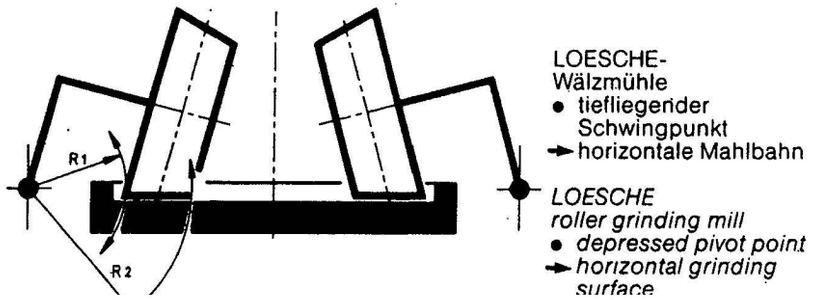
Coal Mills

LOESCHE Vertical Roller Mill

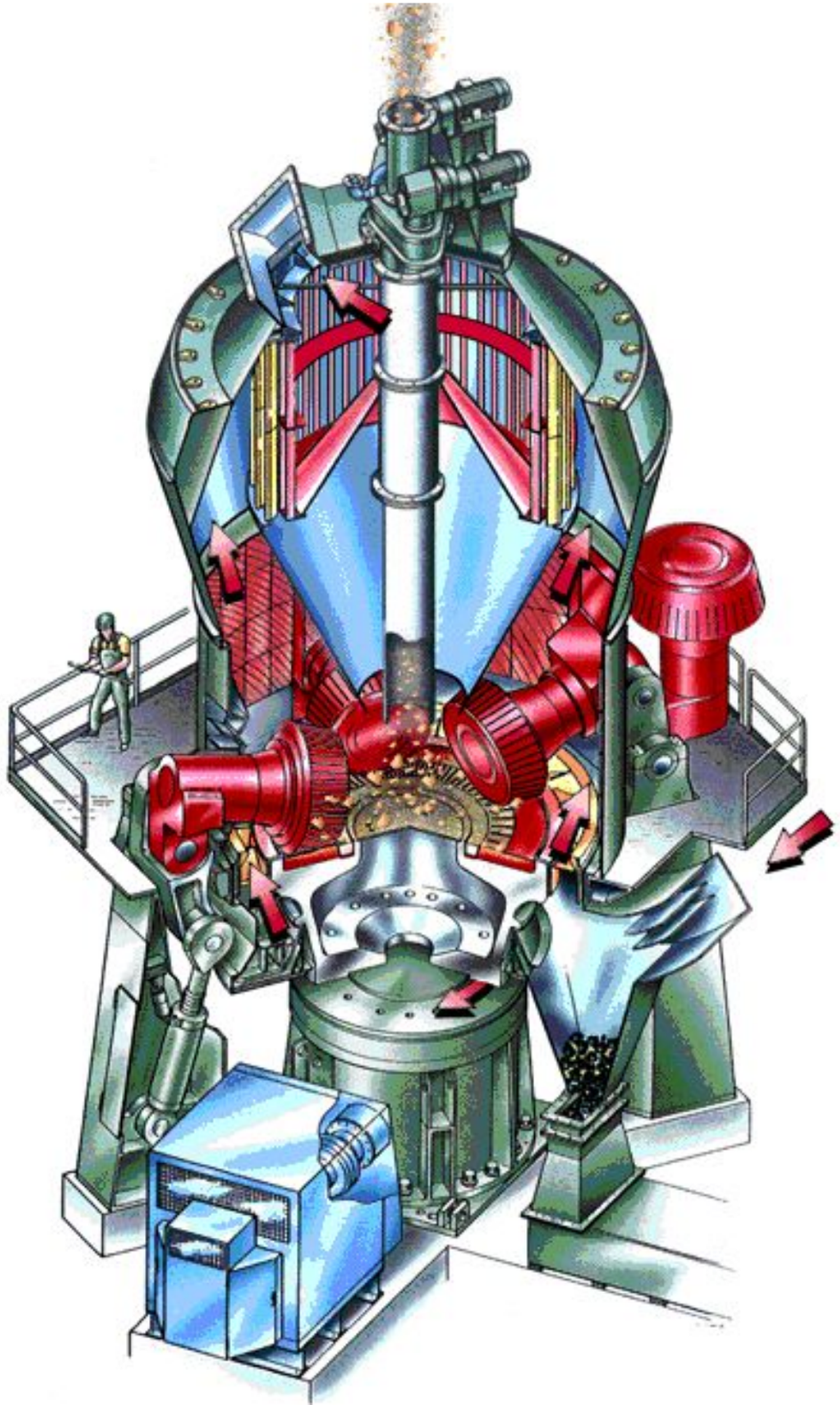
- Special Features -



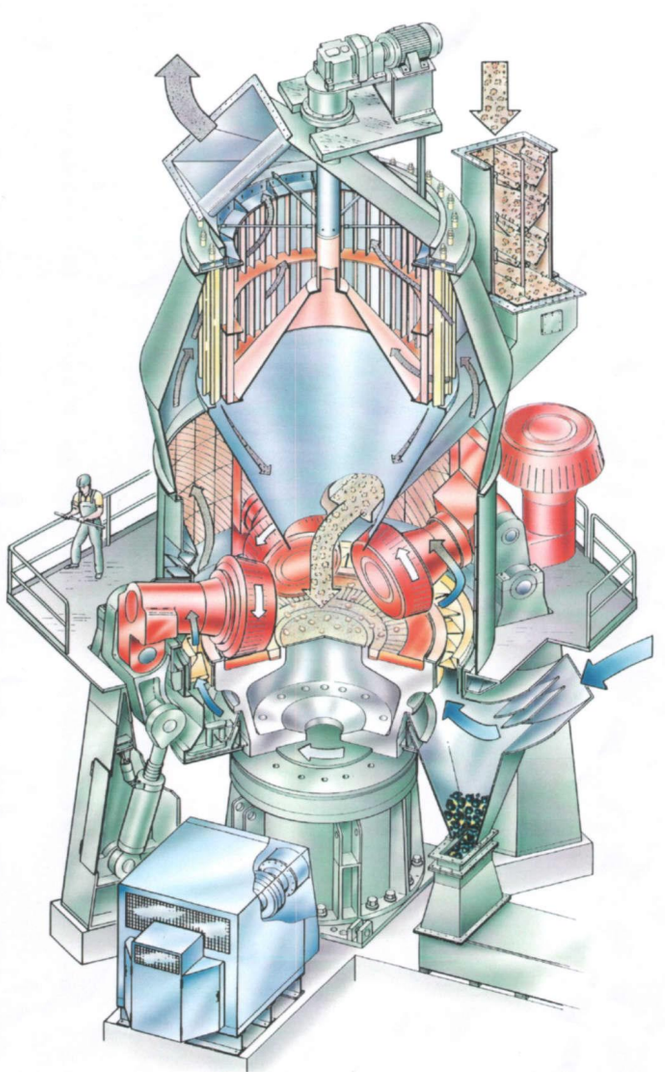
LOESCHE Vertical Roller Mill :



- **Flat grinding table**
- **Large tapered rollers**
- **Combination of compressive and shear forces for comminution**
- **Rollers fixed individually in rocker arms without intermediate frame**
- **low masses, low vibration level**
- **Hydro-pneumatic loading of rollers**
- **Hydraulic swing-out-device for easy replacement of grinding elements**



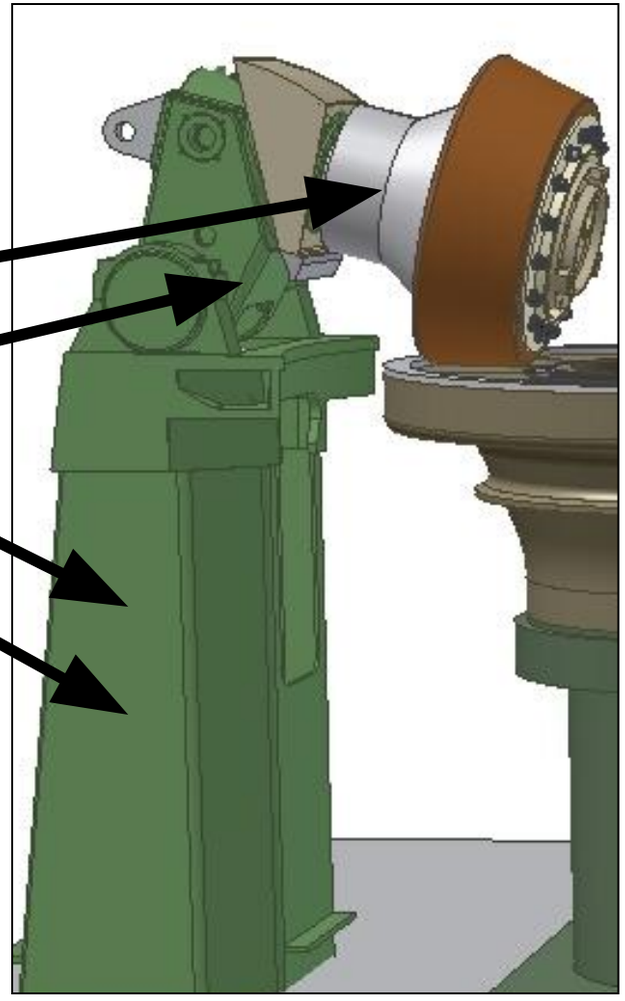
- Roller module concept -



Roller Module

consists of:

- **Roller**
- **Rocker Arm**
- **Spring Unit**
- **Pedestal**



LM-Module

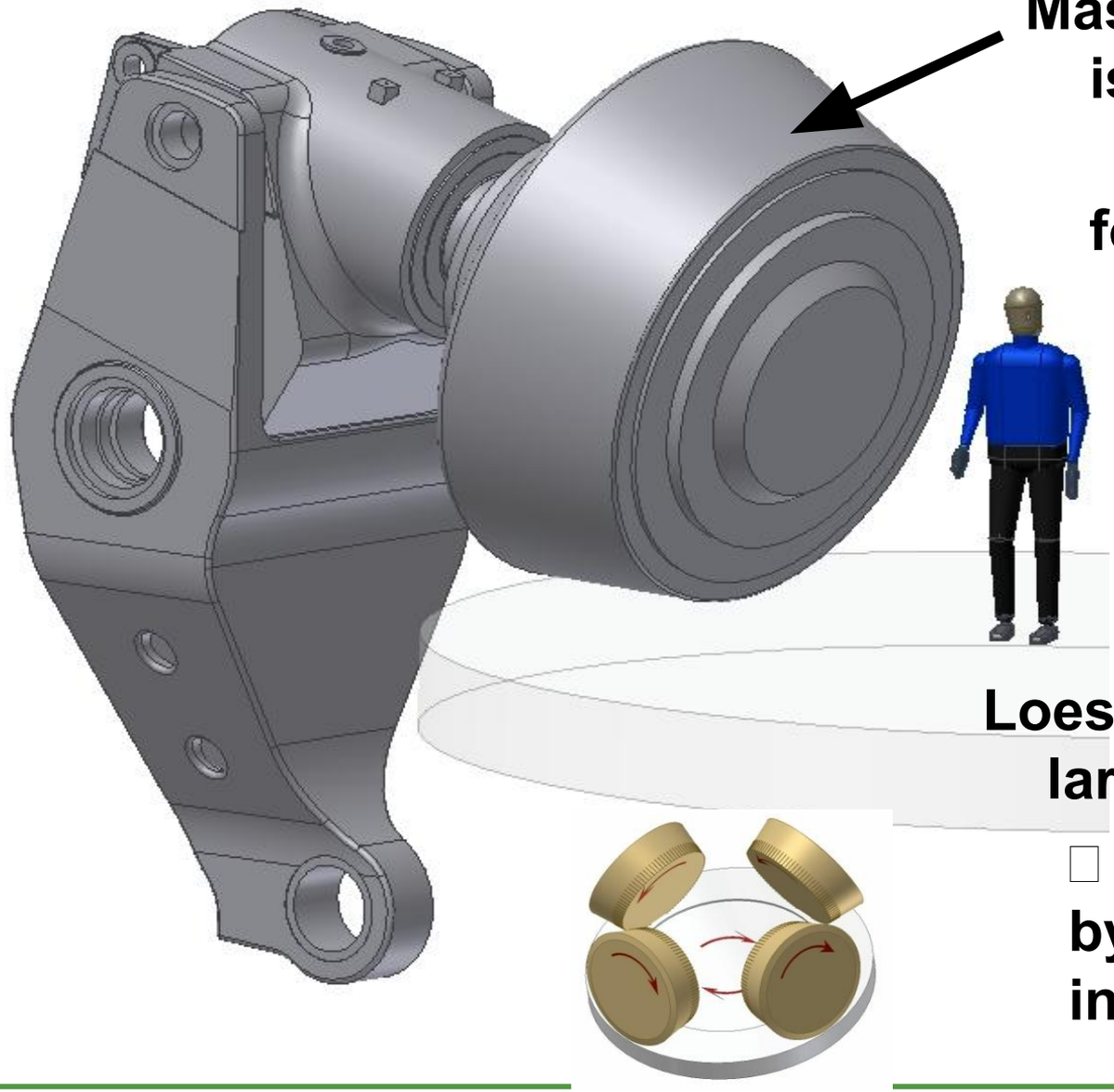
Identical Modules are used in mills grinding

Cement Raw Materials or Cements / Slags

- **Interchangeability of parts**

LOESCHE Vertical Roller Mill

- Influence of roller mass to mill loads -



Mass of parts in motion is responsible for:

- dynamic load to foundation

- required foundation mass

- level of mill vibration

- load on mill structure

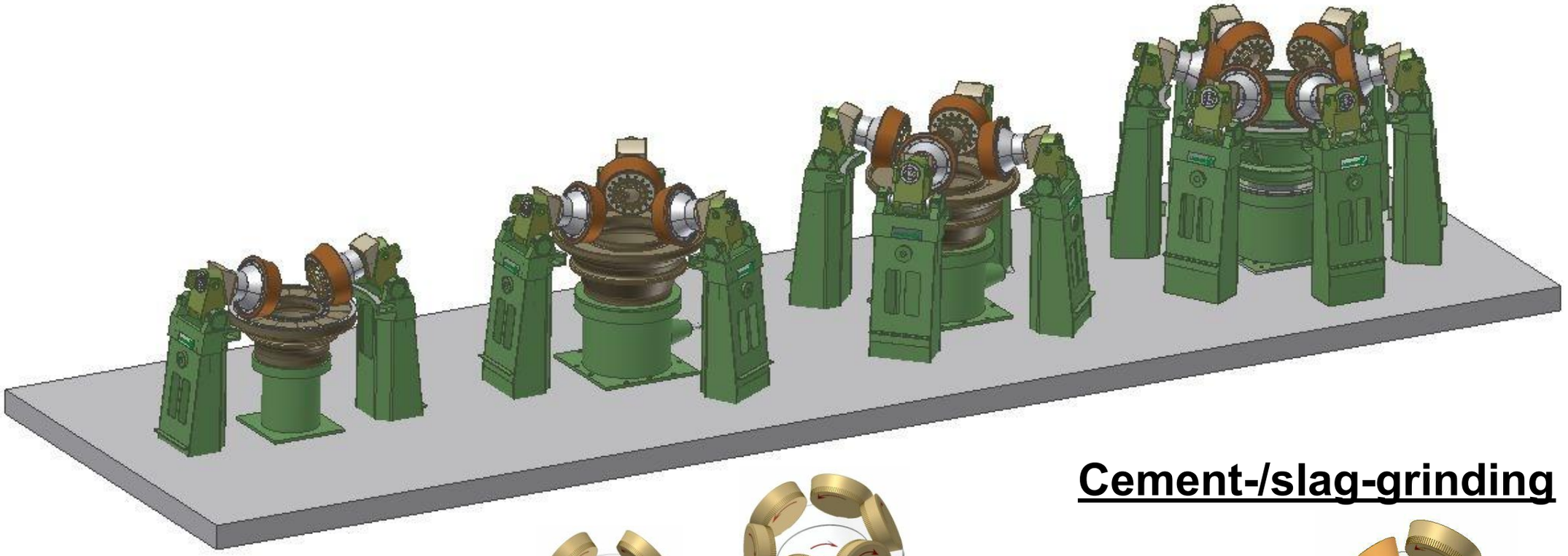
Loesche‘s Concept for larger grinding capacities:

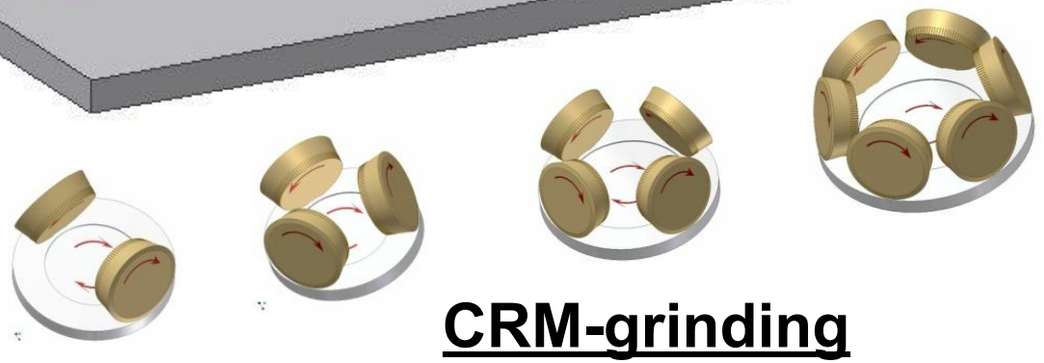
limitation of roller mass by using more rollers instead of larger ones

LOESCHE Vertical Roller Mill

- Flexibility of roller module concept -

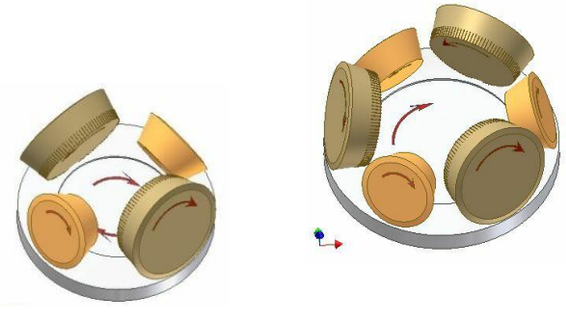
LOESCHE Mills are designed with identical modules



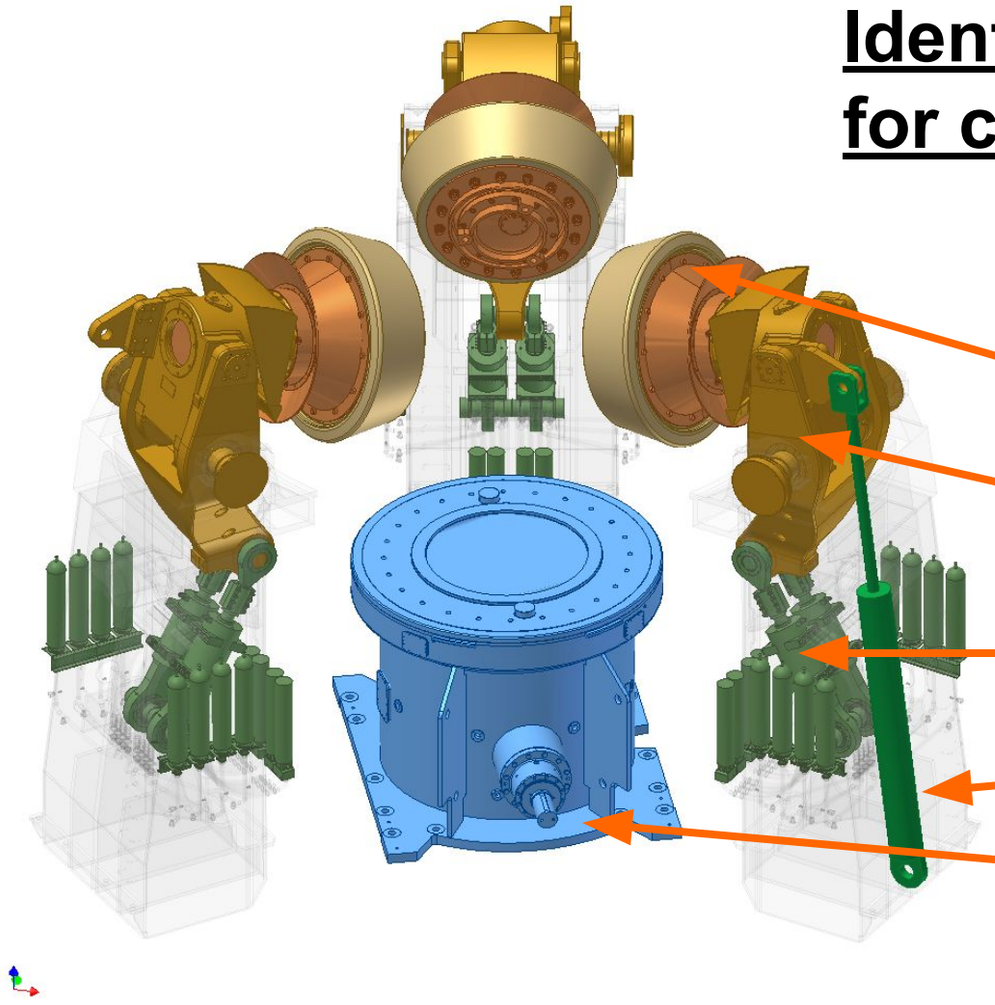


CRM-grinding

Cement-/slag-grinding



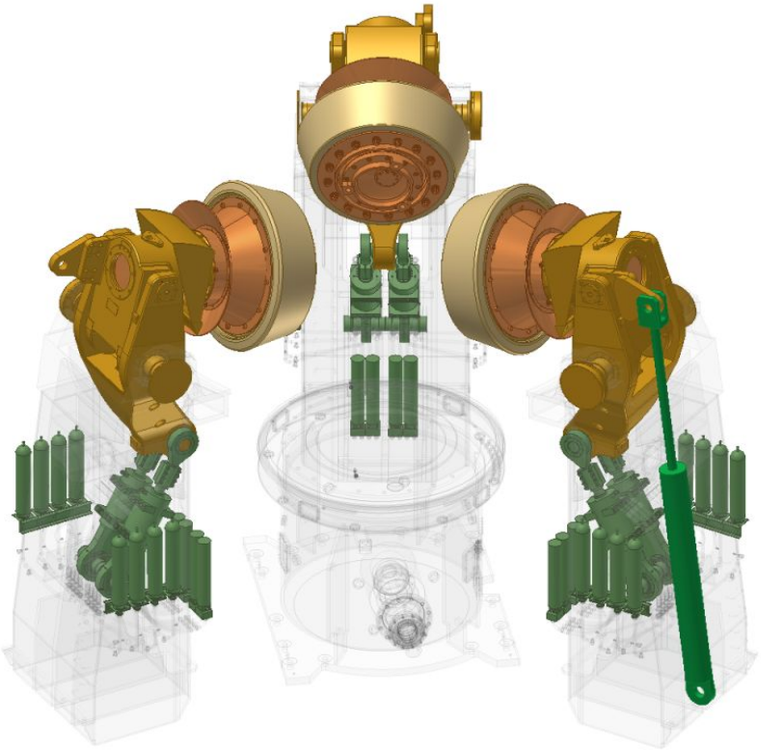
Unification Concept
for CRM- and C/S-mills



Identical parts of LOESCHE mills for cement- or CRM-grinding :

- **rollers**
- **rocker arms**
- **spring assemblies** (main parts)
- **swinging-out device**
- **gearbox** (partly)

Unification Concept
for CRM- and C/S-mills



Module M : **LM 56.4**

LM 60.6

LM 69.6

LM 53.3+3CS

Module L: **LM 56.4**

LM 69.6

LM 46.2+2CS

LM 56.3+3CS

Interchangeable parts: **roller cpl**

rocker arm cpl

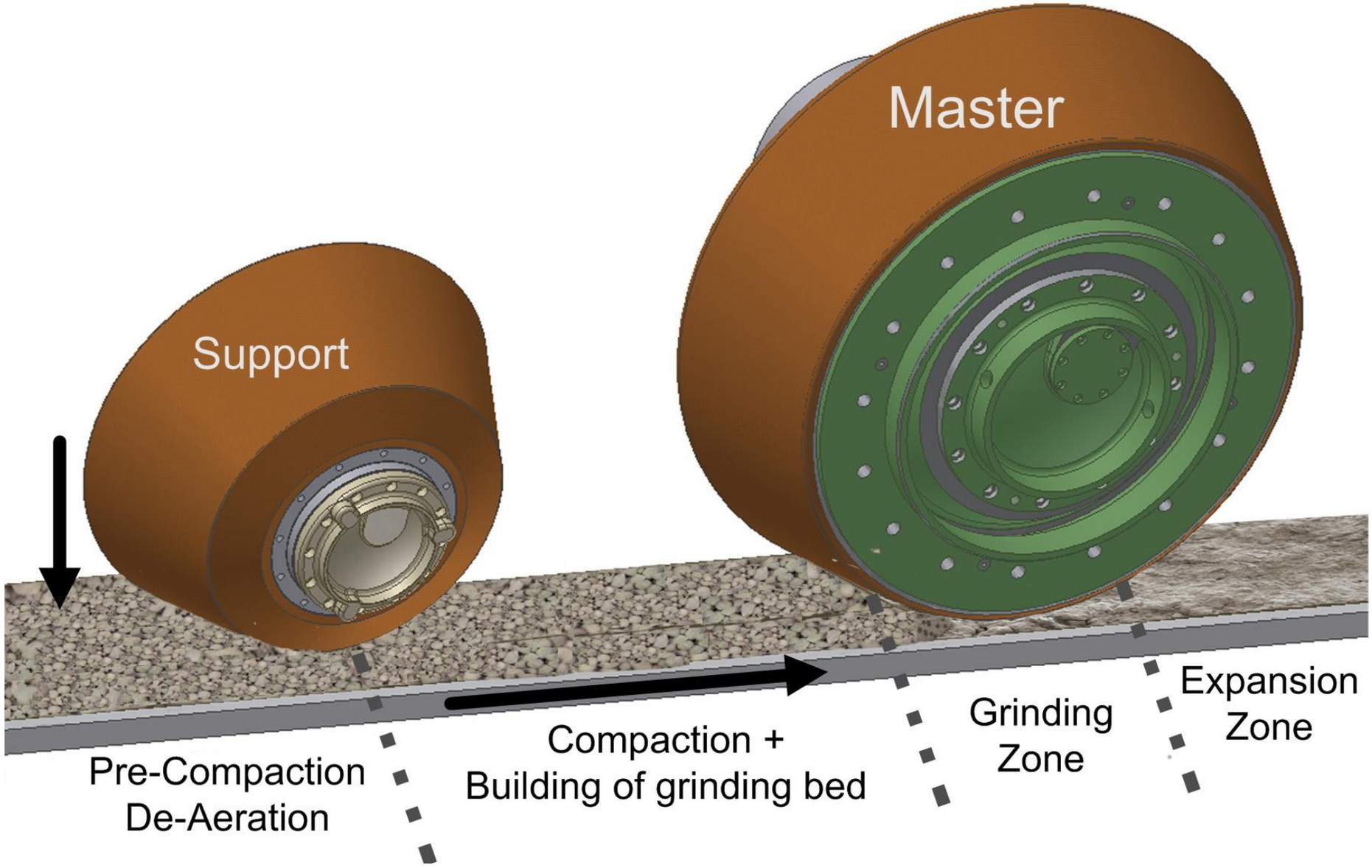
spring assembly (main parts)

swinging-out device

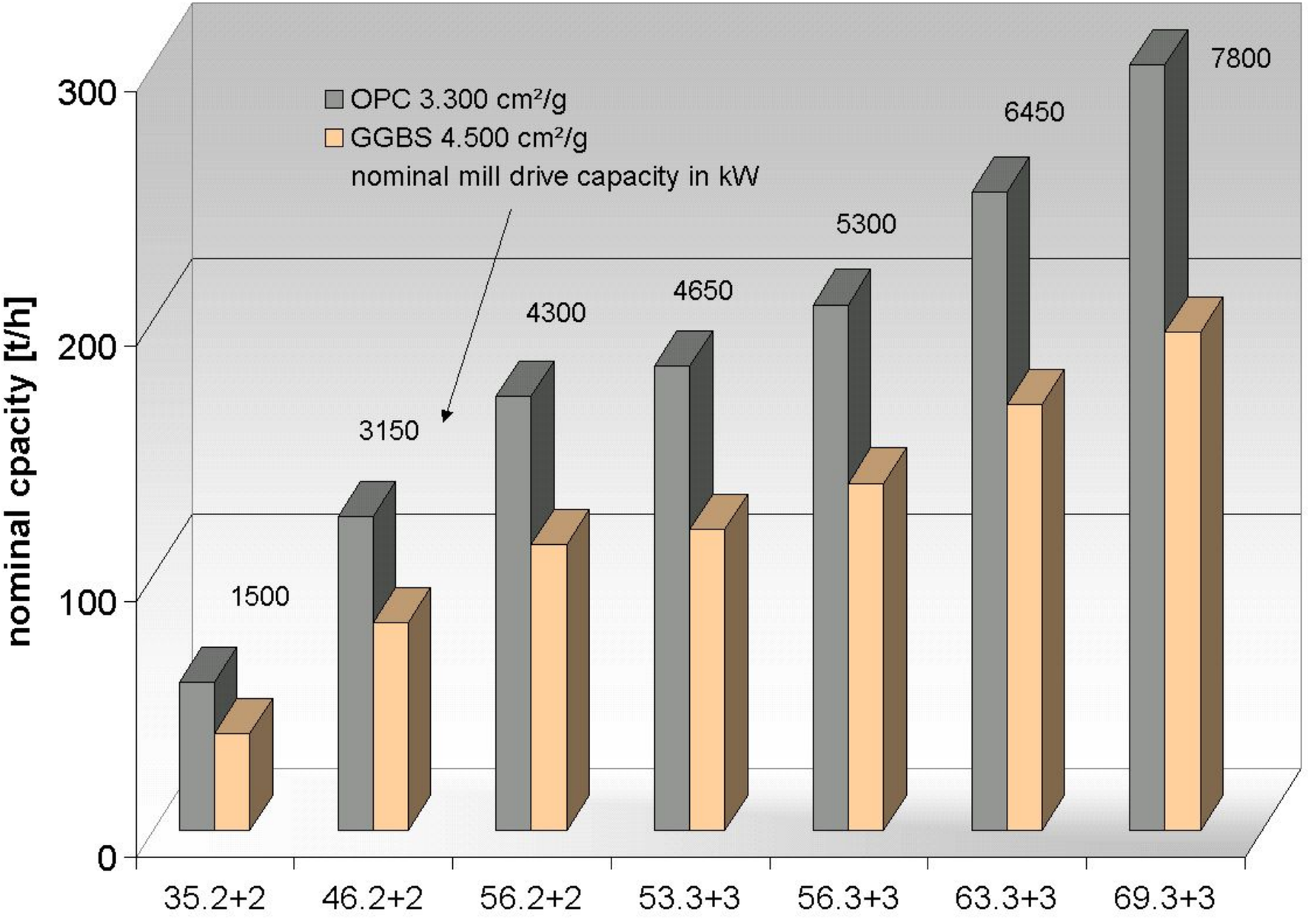
(tyres – only xxC**)**

LOESCHE 2+2 / 3+3-System

- Working Principle -



Mill capacities for LM-CS duty series



Sold 2+2/3+3-mills for clinker/slag grinding

Update: 09/2007

total LM sold				
	Type			
LM	C	C/S	S	total
35.2+2	3	1	4	8
46.2+2	25	12	15	52
53.3+3	15	5	2	22
56.2+2	6	7	5	18
56.3+3	28	3	8	39
63.3+3	3			3
total	80	28	34	142

Saint Lawrence, Canada Holcim

Saint Lawrence

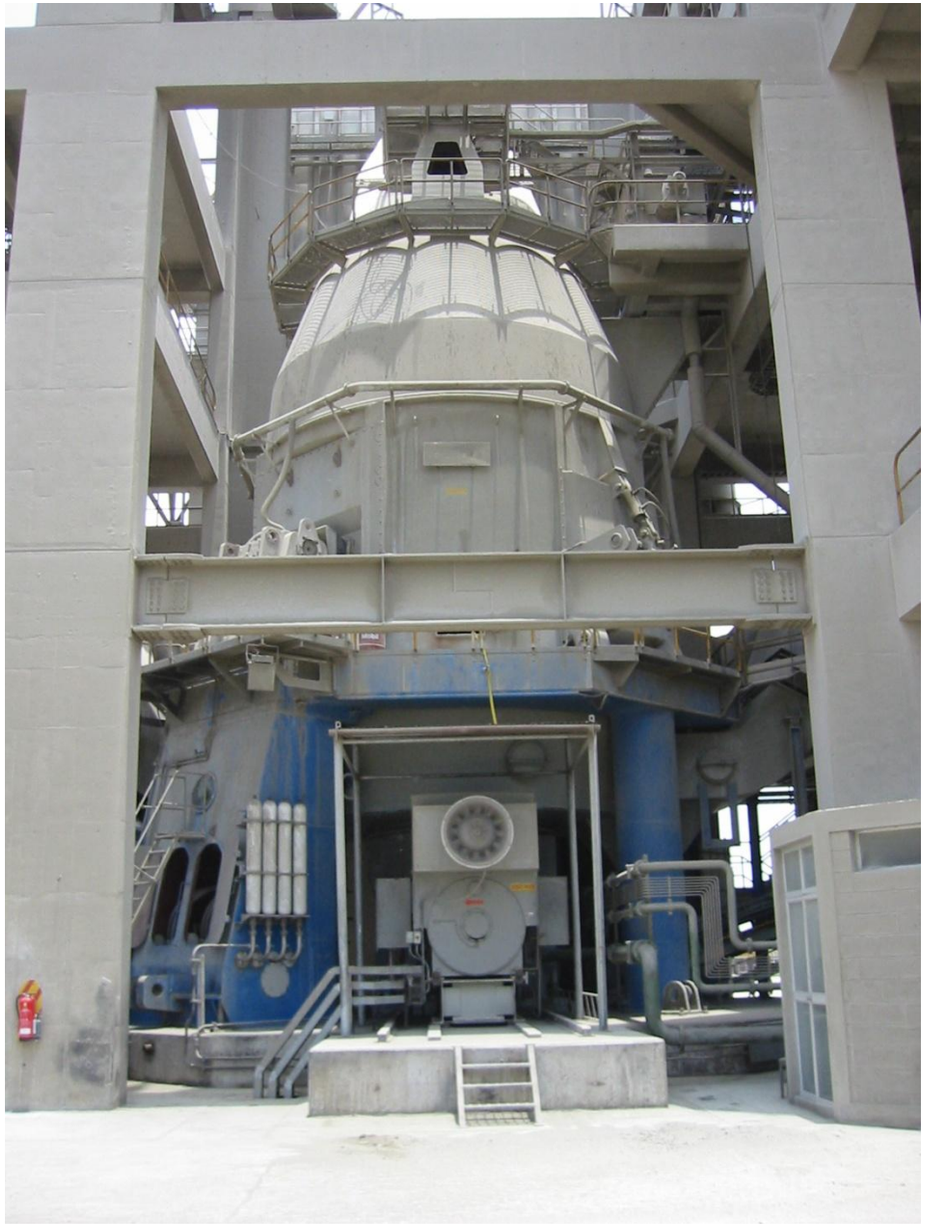
Mill Type	LM56.3+3	
Guarantee tph	100	
Blaine	5200	
Cement Composition	Slag Only	
Year Commissioned	2008	
Energy Consumption		
Current Operation		

Kingston, Jamaica Caribbean Cement TCL

Kingston

Mill Type	LM46.2+2	
Guarantee tph	110	
Blaine	4000	
Cement Composition	Slag Only	
Year Commissioned	2009	
Energy Consumption		
Current Operation		

Cementos Pacasmayo, Peru



Pacasmayo

Mill Type	LM56.2+2	
Guarantee tph	170	
Blaine	4700	
Cement Composition	ICO type	
Year Commissioned	2010	
Energy Consumption		
Current Operation		

Ventanas, Chile cementos Melon

Ventanas

Mill Type	LM46.2+2	
Guarantee tph	107	
Blaine	4650	
Cement Composition	Pozolan Cement	
Year Commissioned	2011	
Energy Consumption		
Current Operation		

Guayaquil, Ecuador Holcim

Guayaquil

Mill Type	LM56.3+3	
Guarantee tph	250	
Blaine	4700	
Cement Composition	Pozolan Cement	
Year Commissioned	2011	
Energy Consumption		
Current Operation		

Loesche Coal remarkable experiences

- 1990 – First central coal grinding plant for gasification of coal in a power station in Buggenum, Netherlands

Loesche Coal remarkable experiences

- 1991 – World‘s largest central coal grinding plant in Taranto, Italy

Loesche Coal remarkable experiences

Edmonton Plant

LOESCHE America, Inc.

1,000,000 t/year of clinker

Extreme cold conditions (commissioning at – 55 °Celsius)

2008 Plant Visit
Union Bridge, MD, USA