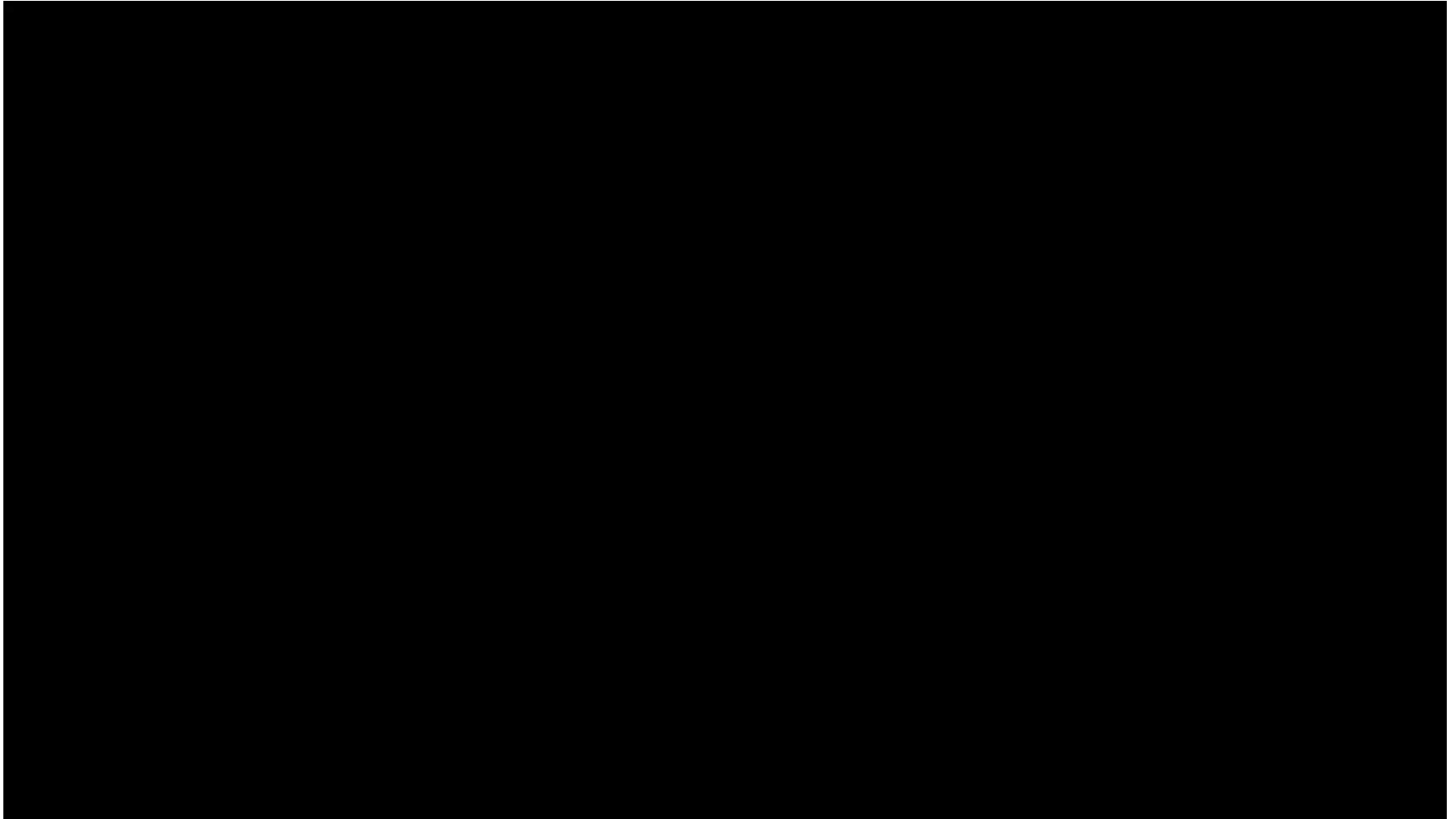


KONARSKY  PALOVIC

 **argo** IPS

Revolúcia v mletí

# ARGO MILL



# REVOLÚCIA V MLETÍ

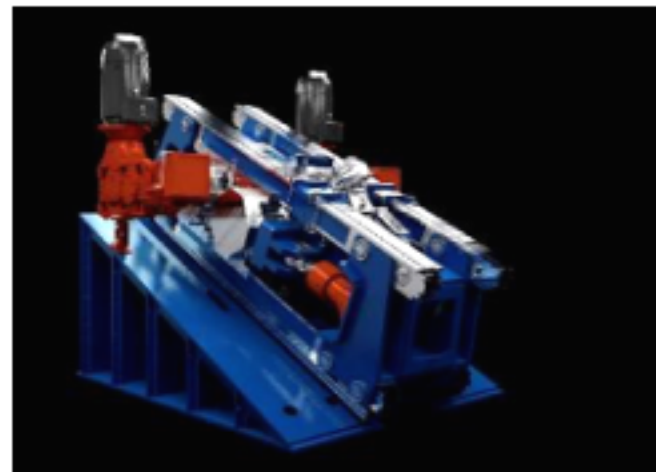
VÁLCOVÝ MLYN, MLETIE TLAKOM IDEÁLNE PRE TVRDÉ A KREHKÉ MATERIÁLY

SLINOK, TROSKA, ŽELEZNÁ RUDA, MEDENÁ RUDA A ĎALŠIE, MINERÁLY A RECYKLOVATEĽNÉ MATERIÁLY (SKLO)

PREDOMIEĽANIE, HYBRIDNÉ, ALEBO FINÁLNE MLETIE

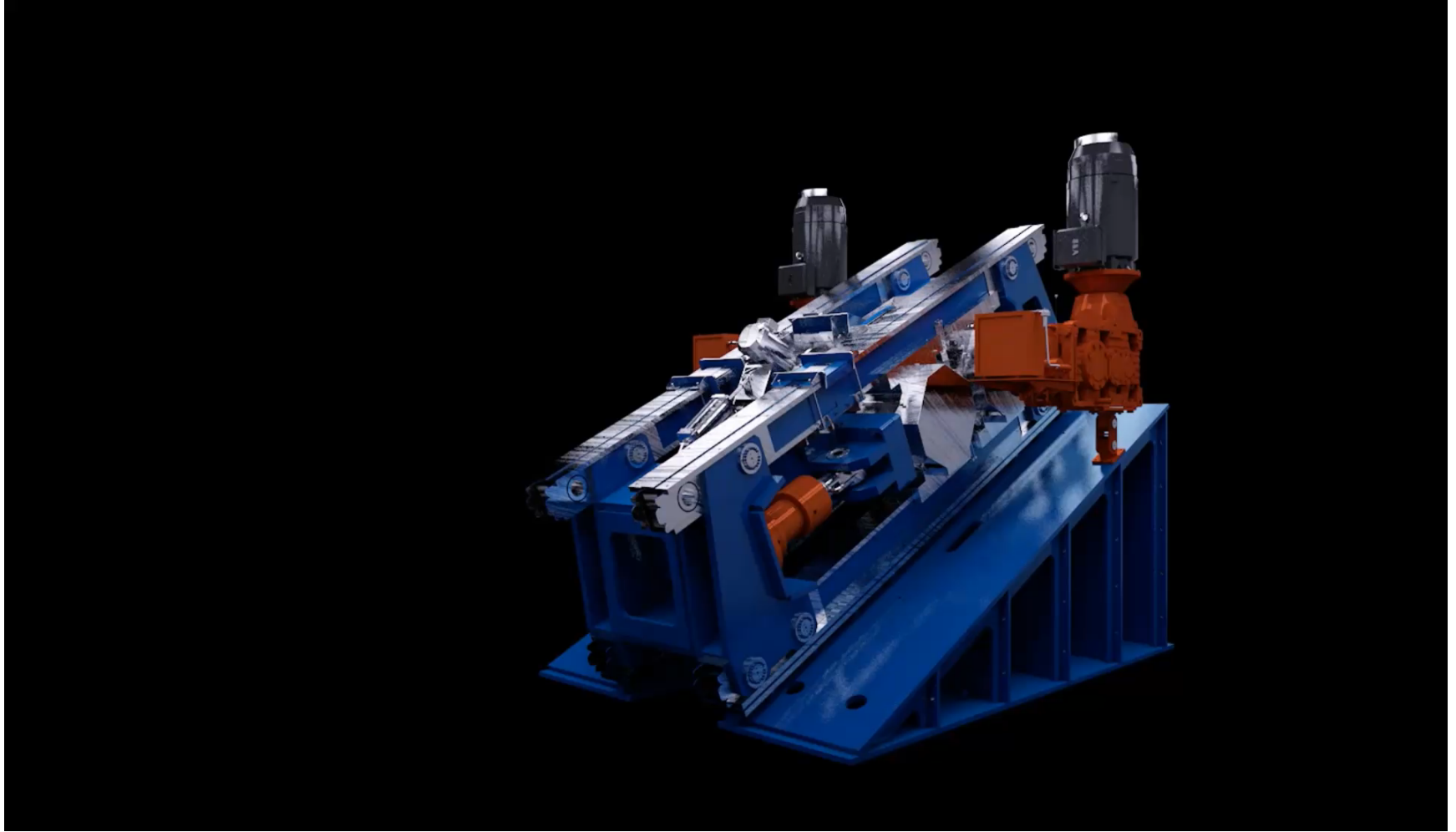
MATERIÁL JE SPRACOVÁVANÝ MEDZI DVOMI PROTISMERNÝMI VÁLCAMI

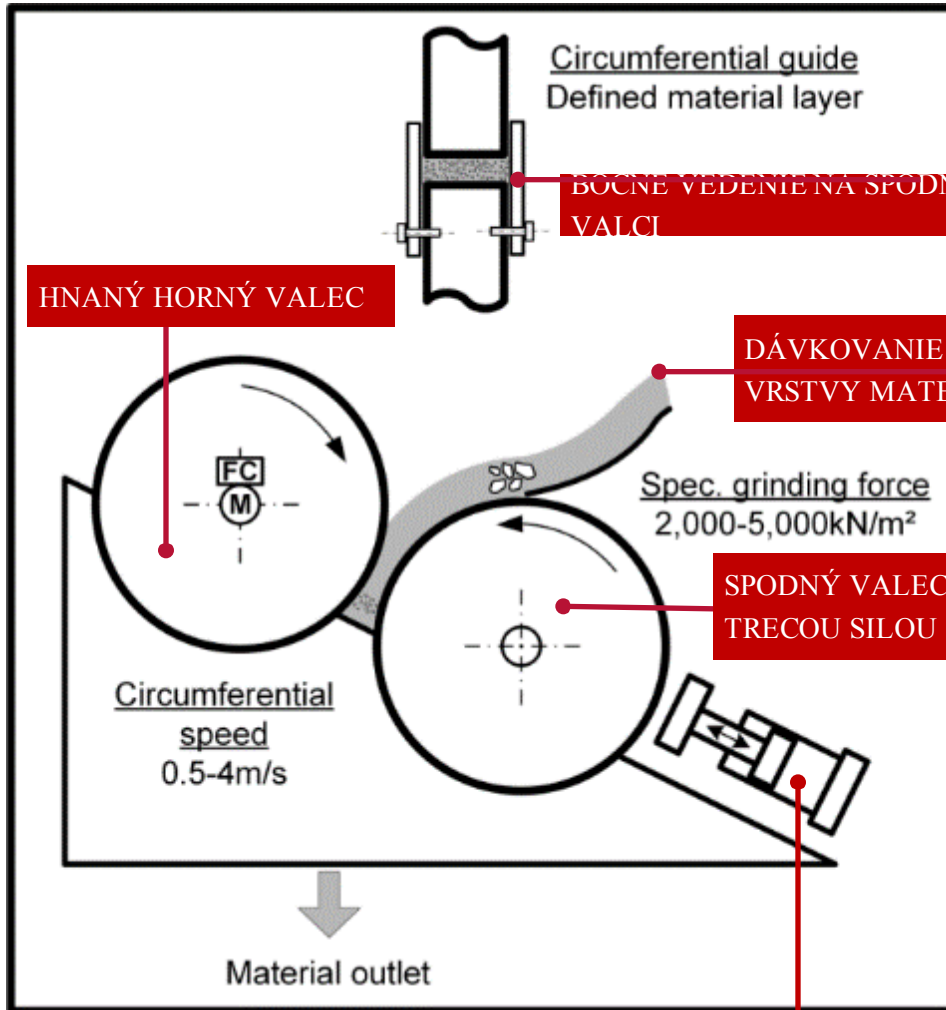
- NAJNIŽŠIA MOŽNÁ SPOTREBA ENERGIE
- ZNÍŽENÉ OPOTREBENIE
- HLADKÝ CHOD BEZ VIBRÁCIÍ
- RÝCHLE ZMENY VO VÝROBE
- PREVÁDZKA S ČIASTOČNÝM VÝKONOM





AGSL





NASTAVITEĽNA SILU PRITLAKU, RYCHLOST OTACANIA A VRSTVA MATERIÁLU

### Mletie tlakom :

Ideálna metóda pre mletie tvrdých a krehkých materiálov

### Nastaviteľná rýchlosť:

Umožňuje prevádzku s redukovaným výkonom pri súčasnom znížení spotreby energie

### Nastaviteľná mlecia sila:

Prispôsobí sa jednotlivým druhom materiálov a rôznej záťaži mlecieho okruhu

### Nastaviteľná hrúbka vrstvy materiálu medzi valcami:

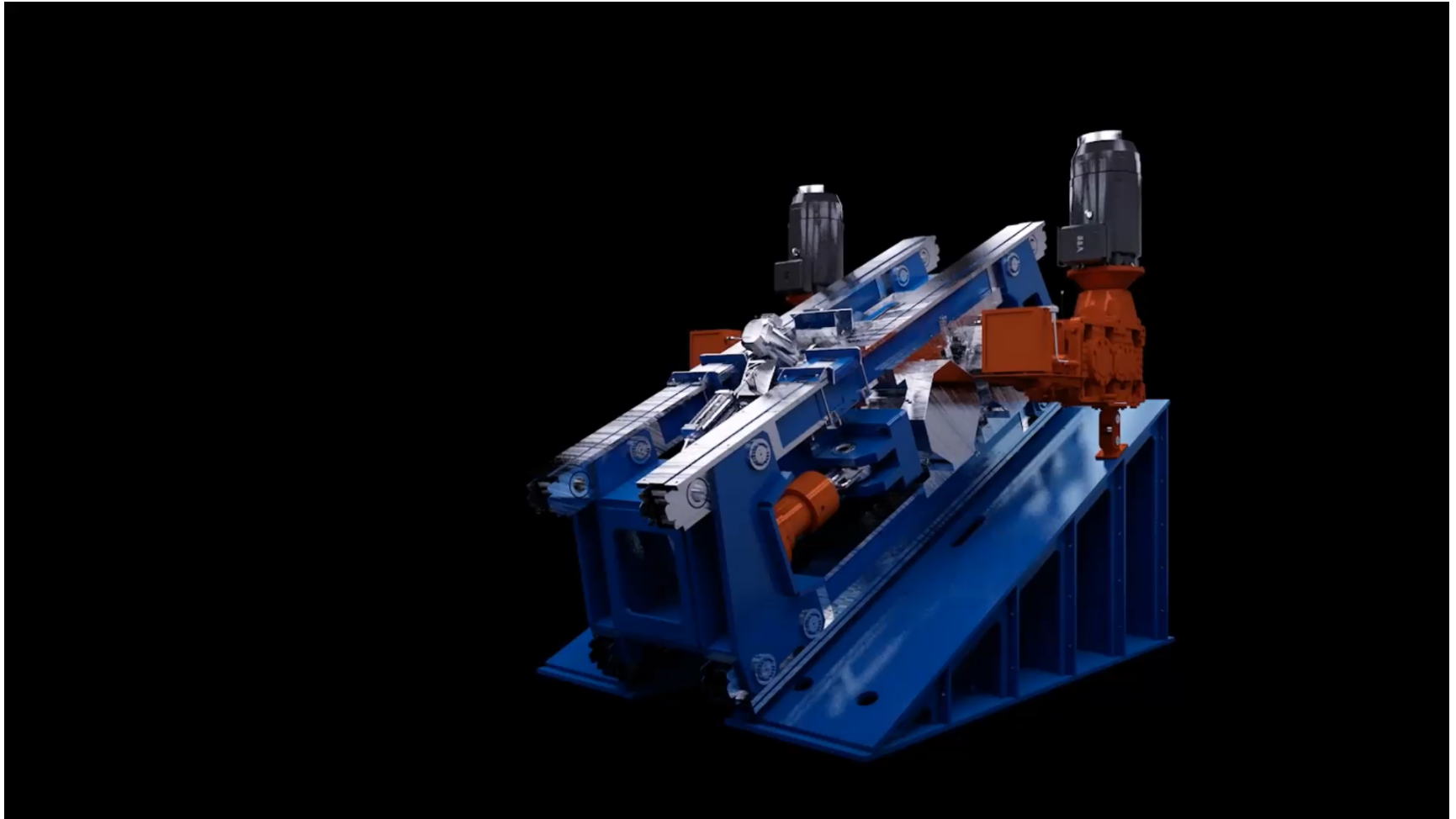
Vďaka možnosti prispôbiť obvodovú rýchlosť a dávkované množstvo

## Bočné vedenie

Umožňuje presne nastaviť vrstvu materiálu a dávkovanie rovnakou rýchlosťou, ako je obvodová rýchlosť valcov. Tým sa dosahuje vyššia rýchlosť a znížené vibrácie. Výsledok sa prejavuje vo vyššej efektívnosti mletia a zníženému opotrebeniu povrchu valcov.



# Valce



## Valce

**Štandard:** Kované telo valca, naváraná medzivrstva, naváraná vrchná tvrdá vrstva.

Použitie: vápenec, cement.

**Vysoká ochrana:** Telo vyrobené odstredivým liatím, hladká vnútorná vrstva a naváraná tvrdá vonkajšia vrstva.

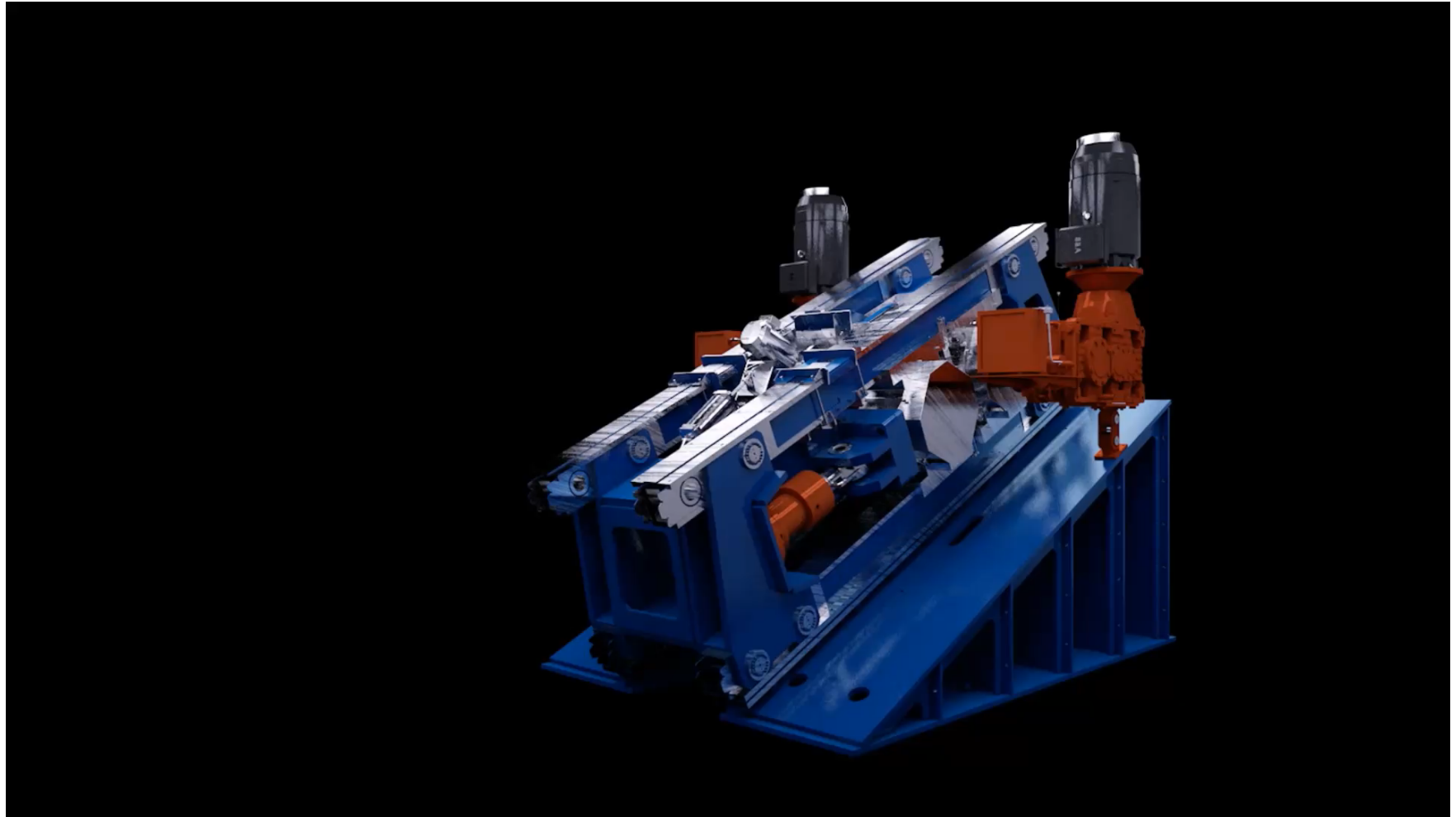
Použitie: troska, sklo.

**Špeciálne:** klinecovaná vrchná vrstva (Stud Lining)

Použitie: ťažobný priemysel.

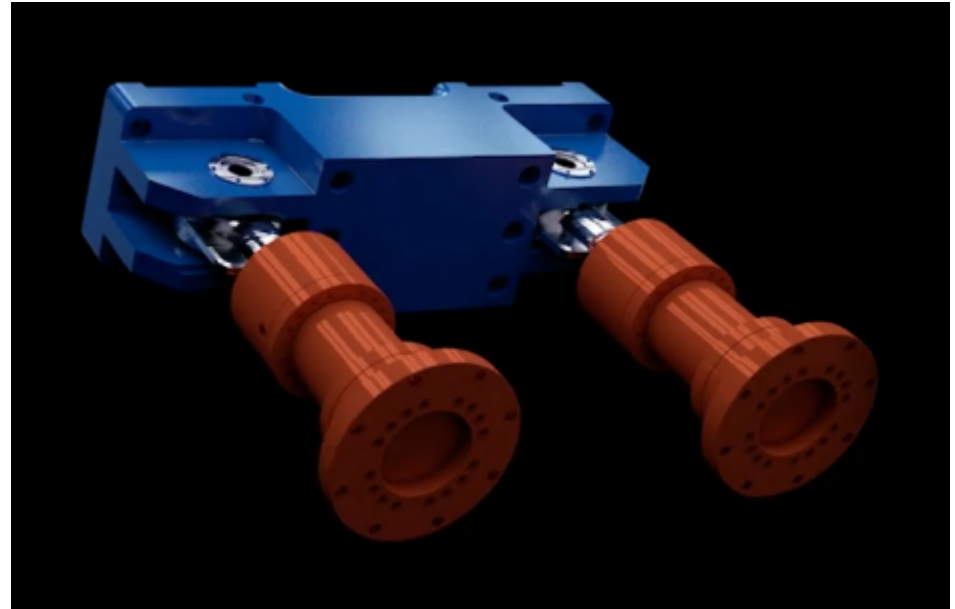






## Hydraulika

Ovladací systém hydrauliky sa stará o presné dávkovanie prílačnej sily v závislosti na výrobnom procese a zároveň chráni valce pred poškodením cudzími predmetmi.



## Ekológia

Vďaka AGSL, je prevádzka Argo mlyna hladká, so zníženými vibráciami a opotrebením. To znamená aj nižší hluk a emisie.

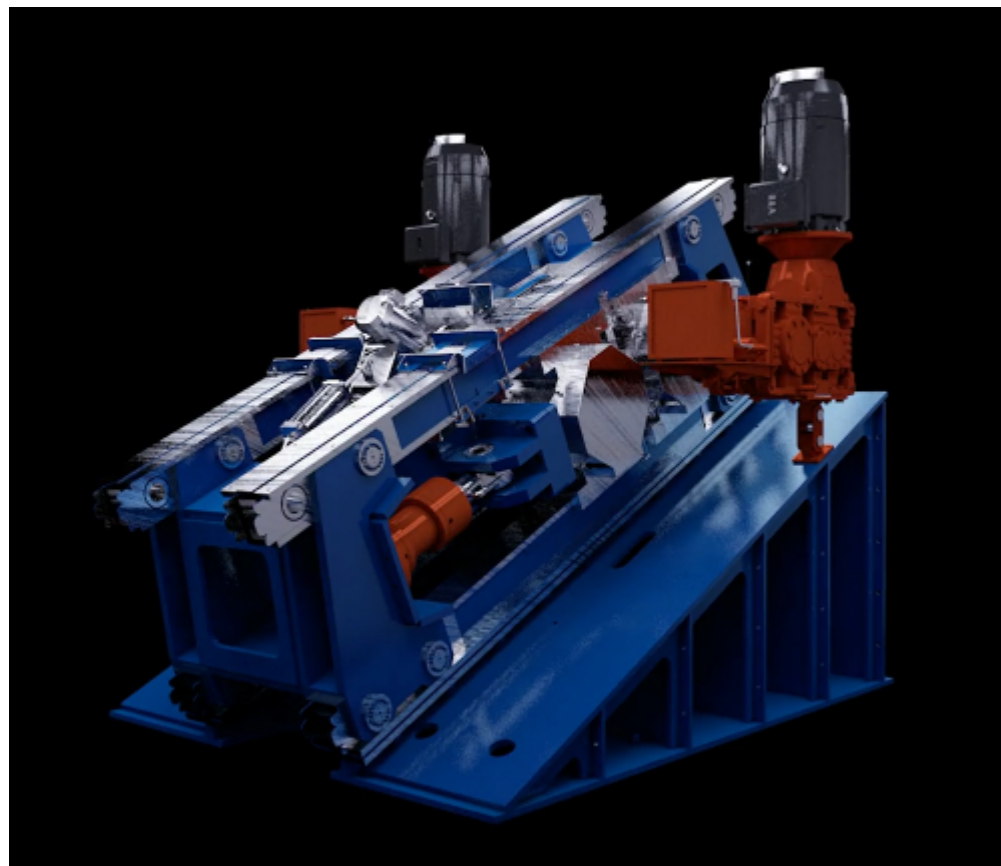
Ďalšie výhody jedinečného designu:

Menej prašnosti

Menej odstávok a odpadného materiálu

Nižšie nároky na priestor

Nižšie stavebné nároky na základy mlyna a infraštruktúru



## ARGO MLYNY V PREVÁDZKE



AM100



AM150

AM500



AM220

## GRINDING CIRCUITS

### PREDOMIELANIE PRE GUĽOVÝ MLYN

1 GUĽOVÝ MLYN S OKRUHOM

DO + 30% KAPACITA, DO -15% ŠPECIFICKÁ SPOTREBA ENERGIE

### HYBRIDNÉ MLETIE

1 GUĽOVÝ MLYN S OKRUHOM, 1 TRIEDIČ

DO + 70% KAPACITA, DO -20% ŠPECIFICKÁ SPOTREBA ENERGIE

### HYBRIDNÉ MLETIE

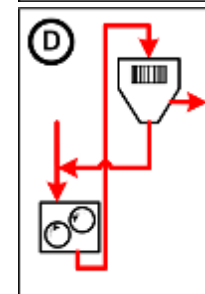
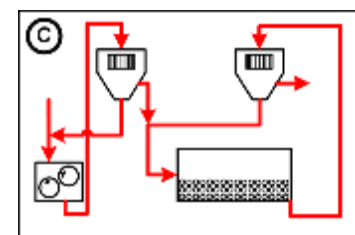
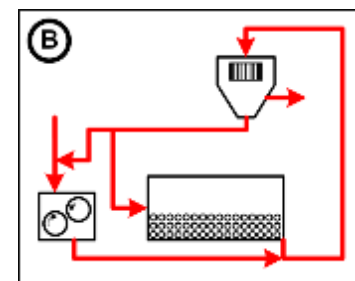
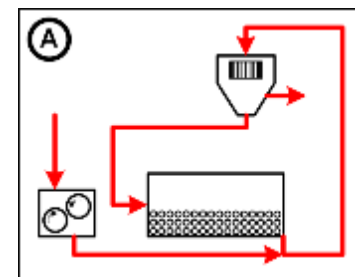
1 GUĽOVÝ MLYN S OKRUHOM, 2 TRIEDIČE

70-200% NÁRAST KAPACITY, DO - 40% ŠPECIFICKÁ SPOTREBA ENERGIE

### FINÁLNE MLETIE

ARGO MLYN S OKRUHOM

MIN 50% EFEKTÍVNEJŠÍ V POROVNANÍ S GUĽOVÝM MLYNOM

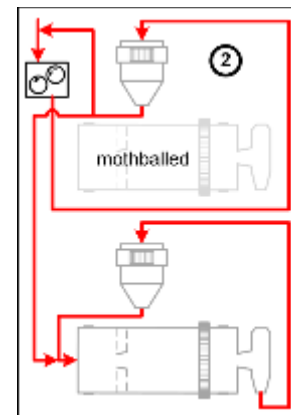


## GRINDING CIRCUITS

### HYBRIDNÉ MLETIE S DVOMI GUĽOVÝMI MLYNMI

2 PARALELNÉ GUĽOVÉ MLYNY S OKRUHMI

ROVNAKÁ KAPACITA, DO -35% ŠPECIFICKÁ SPOTREBA  
ENERGIE



## ARGO SYSTEMS & HARDWARE: PROJECTS



# ARGO SYSTEMS & HARDWARE. PROJECTS



## RECYCLING INDUSTRY, GERMANY

AM 100. ARGO MILL

AQS 6 ARGO CLASSIFIER

- RAW MEAL FOR FOAM GLASS GRAVEL
- FINISH GRINDING OF GLASS FROM RECYCLED BOTTLES IN CLOSED CIRCUIT WITH AIR CLASSIFIER
- REPLACEMENT OF OPEN CIRCUIT VIBRATION TUBE MILL

	MICRO MINERAL
	HUSUM, GERMANY

PRODUCES OVER 16,000 T/YR OF GLASS MEAL FOR FOAM GLASS GRAVEL PRODUCTION

IMPROVEMENT OF PRODUCTION GOING AHEAD WITH SIGNIFICANT REDUCTION OF WEAR COSTS AND ENORMOUS SAVINGS ON ENERGY CONSUMPTION

COMPLETE PLANT INCL. ARGO MILL AND ARGO CLASSIFIER DESIGNED AND BUILD BY ARGO

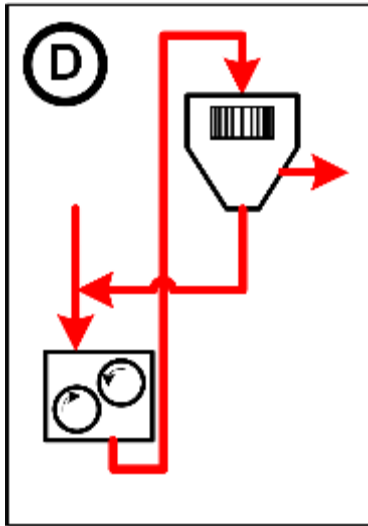
SOLUTION INCORPORATED AN ENTIRELY NEW TYPE OF MILLING TECHNOLOGY, THE PROTOTYPE AM100.

PRODUCTION DATA		
ENERGY		
BEFORE	55	KWH/T
AFTER	15	KWH/T
PRODUCTION		
BEFORE	1.5	T/H
AFTER	4-5	T/H
COMMISSIONING		
JULY 2011		

-73%

+233%



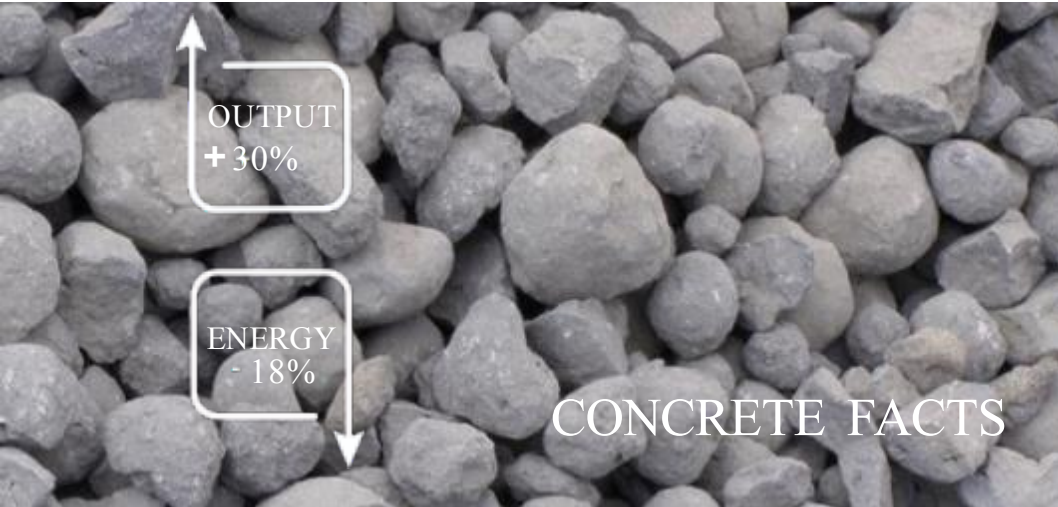


AM 100. ARGO MILL	
ROLLERS	1.000/750 X100MM
DRIVE	1 X 55 KW
BOND-INDEX	22KWH/T,
THROUGHPUT	30T/H



AQS6. ARGO CLASSIFIER	
RECIRCULATION AIR	7.500M³/H
FINENESS	P80 =63µm
PRODUCTION	4-5T/H
MATERIAL	GLASS MEAL





CEMENT PRODUCTION, GERMANY  
AM 150 ARGO MILL. 2 X 55KW

- HYBRID GRINDING OF CEMENT RECIPE IN COMBINATION WITH AN EXISTING BALL MILL AND AIR CLASSIFIER
- CEMENT CLINKER, LIMESTONE, SLAG, GYPSUM, REJECTS

DORNBURGER ZEMENT	
DORNBERG-CAMBURG, GERMANY	

FIRST CEMENT APPLICATION WITH THE NEW ARGO MILL

COMBINATION WITH EXISTING OLD BALL MILL AND 2<sup>ND</sup> GENERATION CLASSIFIER

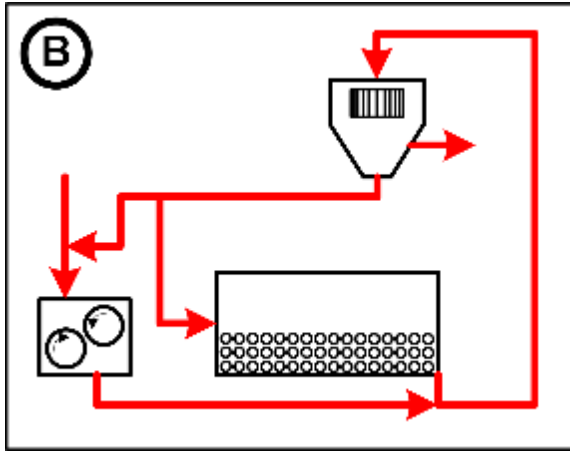
PROJECT REQUIRED A PARTICULAR FOCUS ON SLAG AND CEMENT TYPES WITH HIGH SLAG CONTENT.

ALL RAW MATERIALS PRE-GROUND ON ARGO MILL WITH RECIRCULATION OF PART OF THE CLASSIFIER REJECTS

REACHED VALUES		
ENERGY		
BEFORE	45	
	KWH/T	
AFTER	38	
	KWH/T	
PRODUCTION (CEM II AS 42.5N)		
BEFORE	20	
	T/H	
AFTER	27	
	T/H	
COMMISSIONING		
AUGUST 2013		

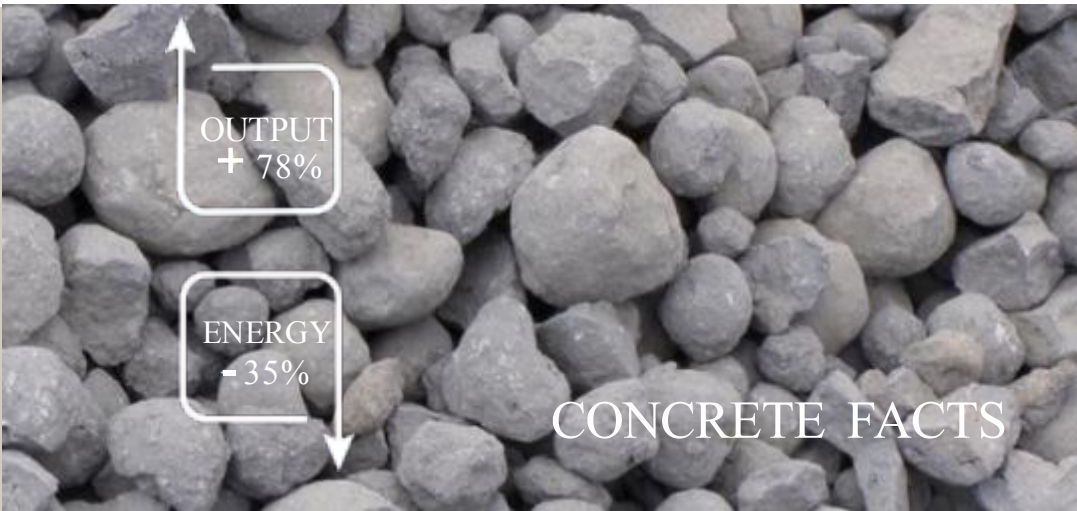
-17%

+35%



AM 150. ARGON MILL	
ROLLERS	1.000/750 X 150MM
DRIVE	2 X 55KW
BOND-INDEX	14KWH/T
PRODUCTION	40T/H
THROUGHPUT	100T/H





**CEMENT PRODUCTION**  
AM500 ARGO MILL 2 X 400KW

INTERMEDIATE GRINDING OF CEMENT RECIPE IN COMBINATION WITH BALL MILL AND 2 AIR CLASSIFIERS  
CEMENT CLINKER, LIMESTONE, SLAG, GYPSUM, REJECTS.

- OPTION FOR SPECIAL HYBRID AND FINISHED GRINDING

INSTALLATION OF THE FIRST AM 500 IN A CEMENT PLANT.

MAIN TARGET OF THE PROJECT WAS THE REDUCTION OF SPECIFIC ENERGY CONSUMPTION

PLANT WITH 2 PARALLEL BALL MILLS WAS CONVERTED INTO AN INTERMEDIATE GRINDING PROCESS.

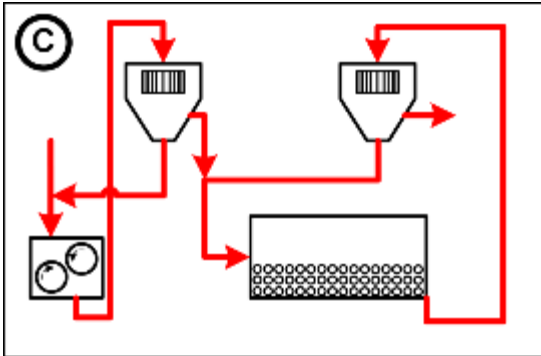
1 BALL MILL OF 4.5MW SHUT-DOWN AND REPLACED BY A 800KW ARGO MILL INTEGRATED INTO THE CIRCUIT OF THE BALL MILL

CRH ( FORMER HOLCIM)
ROHOZNIK SLOVAKIA

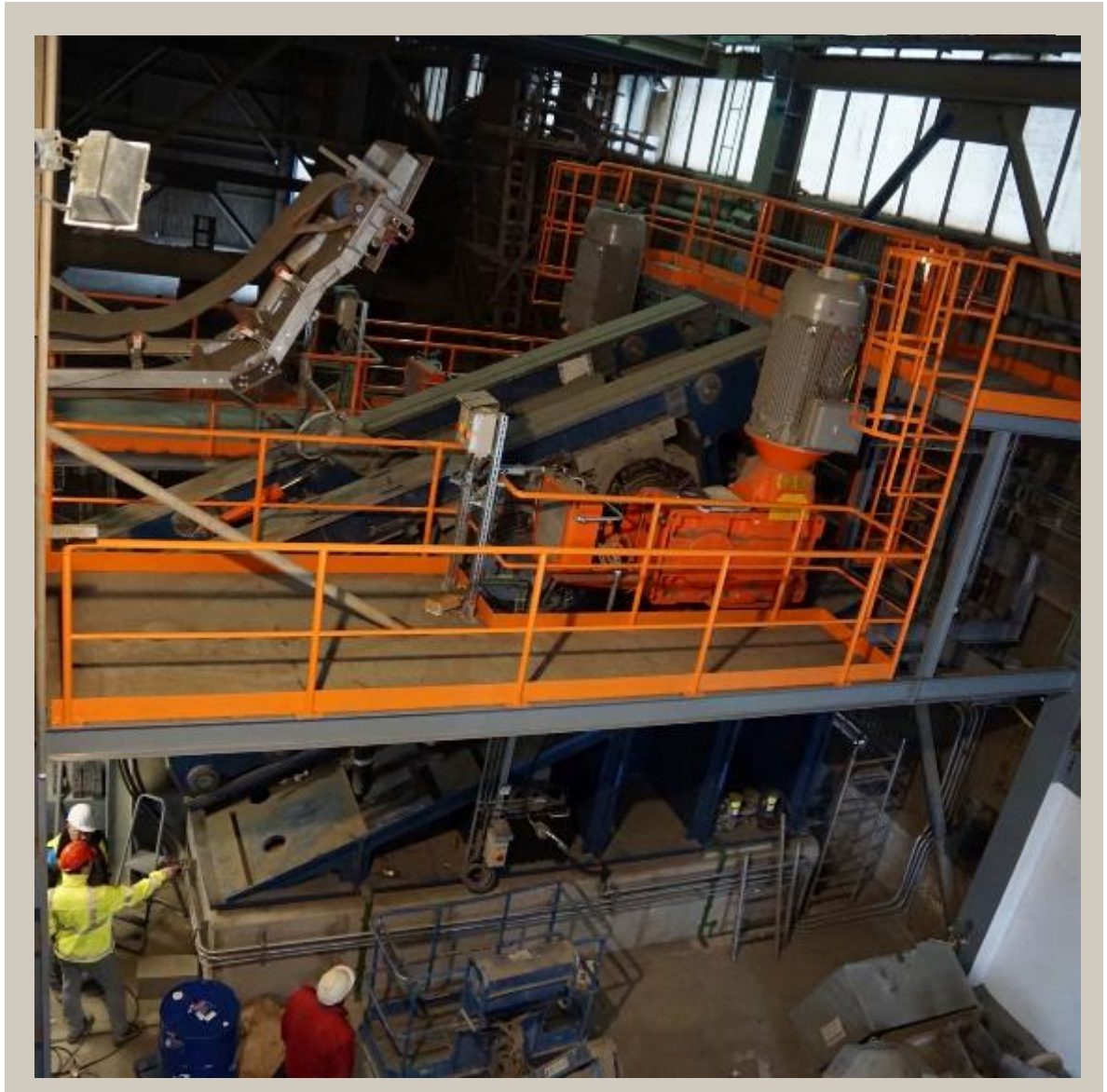
<b>GUARANTEED VALUES:</b>		
<b>ENERGY</b>		
BEFORE	50 KWH/T	
AFTER	35 KWH/T	
<b>PRODUCTION</b>		
BEFORE	85 T/H	
AFTER	145 T/H	
<b>COMMISSIONING</b>		
MARCH 2015		

-35%

+78%



AM 500 ARGO MILL	
ROLLERS	1.400/1.050X 500MM
DRIVE	2 X 400KW
BOND-INDEX	14KWH/T,
PRODUCTION	160T/H,
THROUGHPUT	450T/H





## CEMENT PRODUCTION

### AM220 ARGO MILL 2 X 55 KW

FINISH GRINDING OF HARD BURNT LIME IN CLOSED CIRCUIT WITH AIR CLASSIFIER

REPLACEMENT OF AN OLD BALL MILL  
 •SIGNIFICANT REDUCED NOISE EMISSIONS ALONGSIDE PARALLEL TARGETS TO REDUCE SPECIFIC ENERGY CONSUMPTION AND INCREASE PRODUCTION

	CALCIS
	WARSTEIN, GERMANY

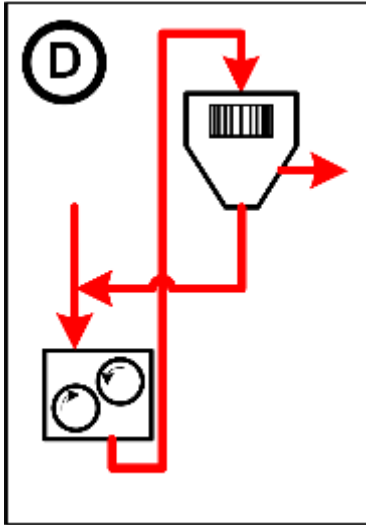
SUSTAINABLE PRODUCTION AT BUSINESS, HEART  
 NEW TECHNOLOGIES TO IMPROVE PRODUCT QUALITY AT THE SAME TIME AS MEETING ENVIRONMENTAL RESPONSIBILITIES.

REPLACEMENT OF ENERGY-INEFFICIENT 1960'S GENERATION BALL MILL AT QUICKLIME PLANT. CITY PROXIMITY DEMANDED MORE ENERGY EFFICIENT REPLACEMENT TO EXCEED STRINGENT DUST AND NOISE EMISSIONS DEMANDS

ARGO WAS PROUD TO BE INVITED TO MEET THE VERY SPECIFIC CHALLENGES DEMANDED BY CALCIS



<b>PRODUCTION</b>		
<b>BEFORE</b>		
HARD BURNT LIME 12T/H, 2% R90 µm		
SOFT BURNT LIME 15T/H, 2% R90 µm		
<b>AFTER</b>		
AVERAGE PRODUCTION 20,0T/H, 2% R90 µm		
(FOR BOTH PRODUCTS)		
<b>COMMISSIONING</b>		
JANUARY 2016		



AM 220 ARGO MILL	
ROLLERS	1.000/750X 220MM
DRIVE	2 X 55KW
BOND-INDEX	11KWH/T,
PRODUCTION	20T/H,
THROUGHPUT	100T/H

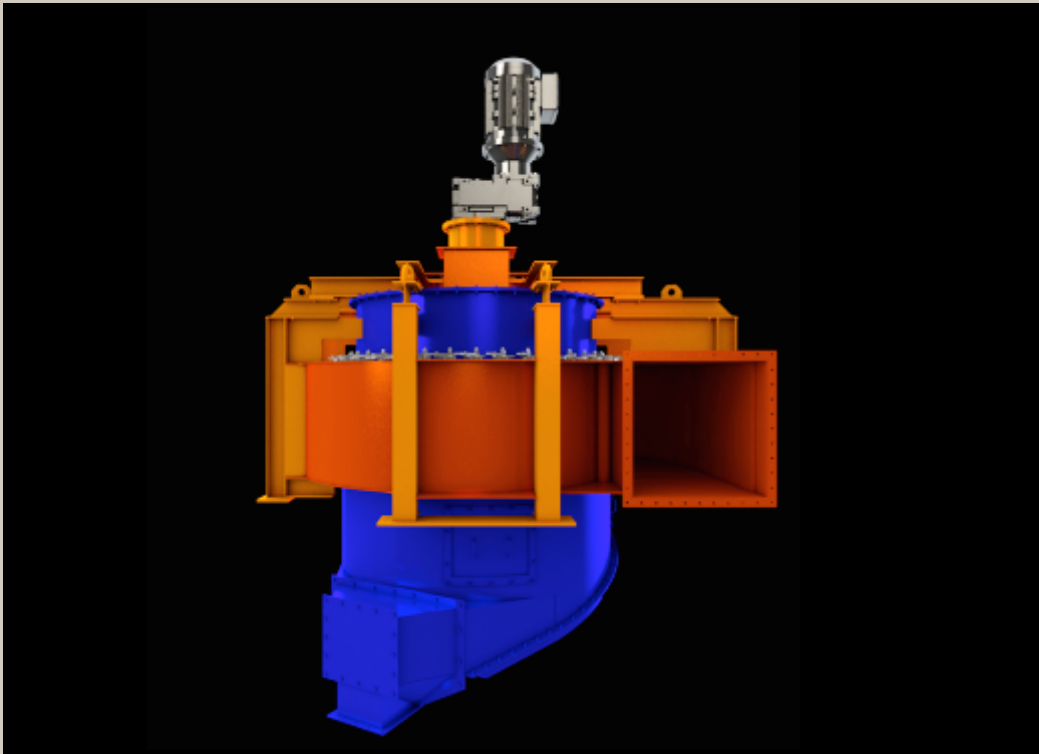


ARGO HARDWARE: CLASSIFIER





## ARGO SYSTEMS THE ARGO CLASSIFIER



THE ARGO AIR CLASSIFIER IS A SPECIALLY DESIGNED 3<sup>RD</sup> GENERATION CLASSIFIER, WORKING ACCORDING TO THE CROSS-FLOW PRINCIPLE.

ITS FEATURES ARE SPECIFICALLY ADAPTED TO BE USED IN GRINDING CIRCUITS WITH THE ARGO MILL

IT CAN BE USED AS STAND-ALONE UNIT, TO UPGRADE OR OPTIMISE EXISTING PLANTS OR FOR NEW INSTALLATIONS TOGETHER WITH THE ARGO MILL

ARGO CLASSIFIER GALLERY



KONARSKY  PALOVIC

 argo IPS

Thank you for your attention