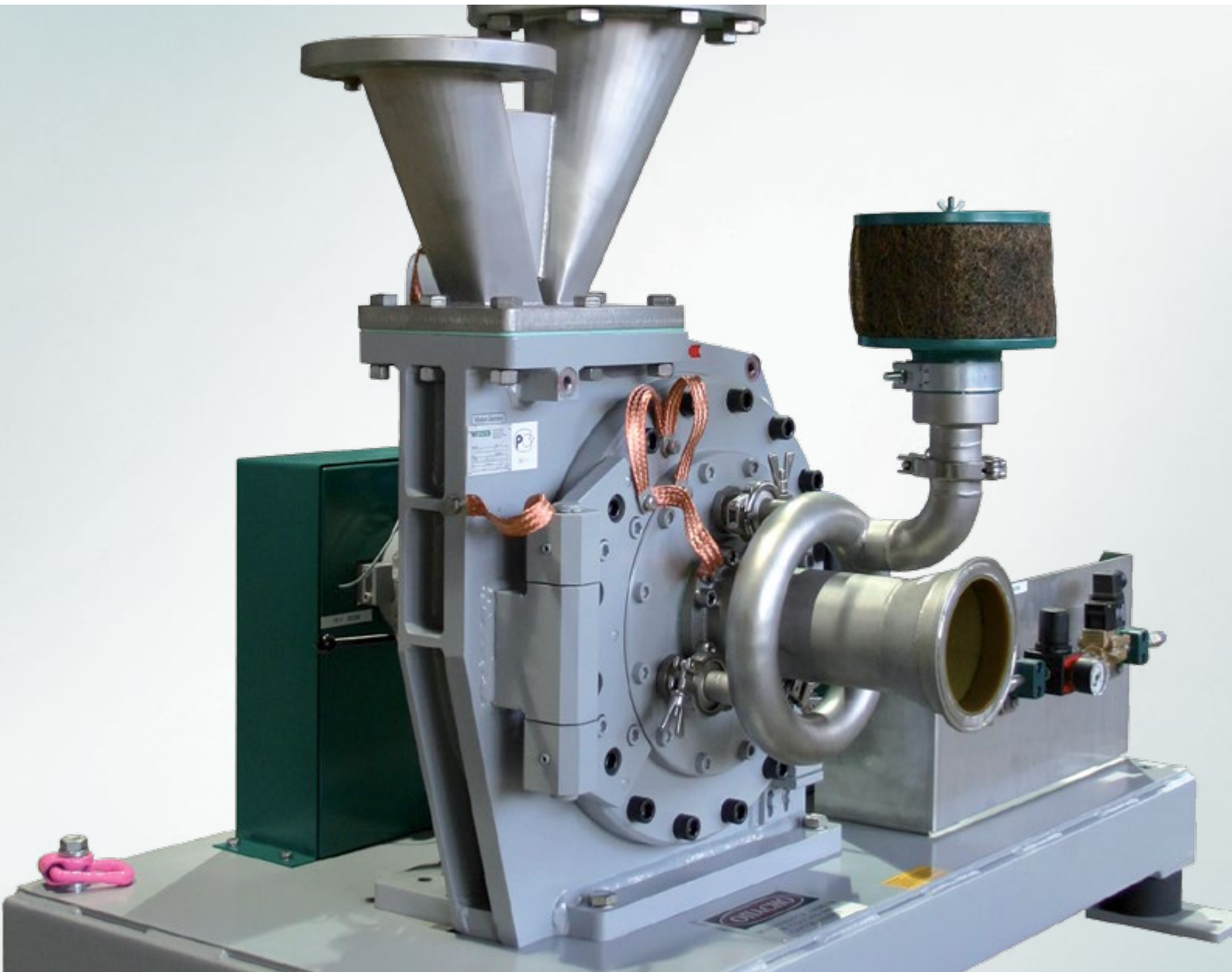


# NETZSCH

Proven Excellence.



## NETZSCH High-efficiency Fine Classifier CFS/HD-S

Highest Quality Superfine Classifying

Business Unit  
GRINDING & DISPERSING

# Efficient and Selective

The High-efficiency Fine Classifier CFS/HD-S (High Dispersion) works very efficiently due to its closely defined sharpness of cut and its very specific product flow. Mixing of the classified coarse material and feed material inside the classifier cannot occur.

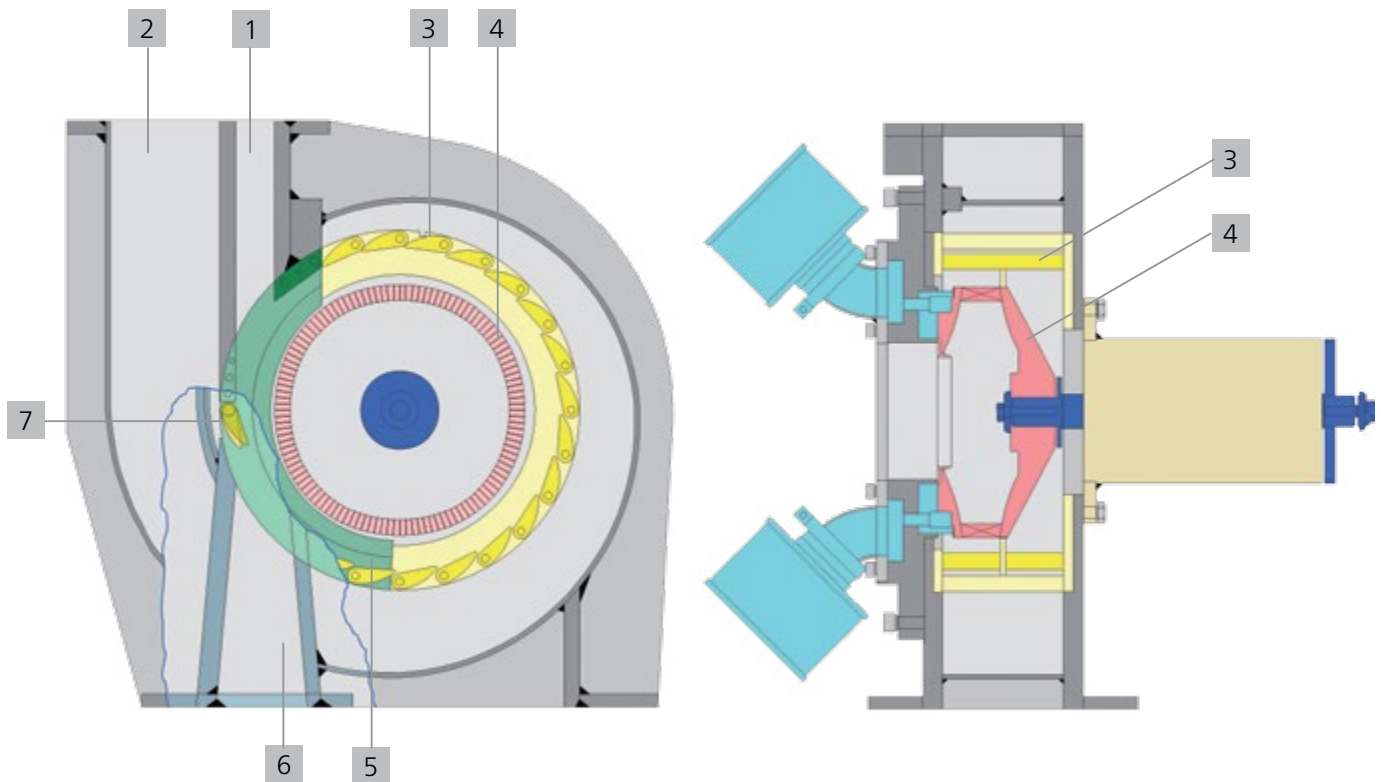
The High-efficiency Fine Classifier type CFS/HD-S proves that effective separation results are easy to achieve with just one classifier wheel.

A significant improvement in through-put has been made possible by a specially designed housing: the screw-shaped design of the housing optimizes the product flow within the unit. This allows large quantities of coarse material to be discharged unhindered through the product outlet. Accessibility and easy cleaning of the machine are guaranteed by the hinged housing door and the removable guide vane basket.

Difficult classification tasks can be accomplished efficiently and economically with this Fine Classifier. The current generation of the High-efficiency Fine Classifier CFS/HD-S is the solution for application problems with large throughputs. A break-through in fine classifying has been achieved with the new High-efficiency Fine Classifier CFS/HD-S. It offers extremely fine classification with a closely defined sharpness of cut.



NETZSCH High-efficiency Fine Classifier CFS 340 HD-S



## Function Description

The product is fed from above via the product inlet (1). The necessary air which disperses the feed product extremely well through the many adjustable guide vane slots of the static guide vane basket (3) and then presents it to the classifier wheel (4) is fed via the air inlet (2). The classifier wheel separates coarse and fine particles according to the adjusted infinitely variable speed of the classifier wheel.

The „fine material“ is discharged via the classifier wheel – mounted on a horizontal shaft – in the centre of the classifier. „Coarse particles“ are rejected by the classifier wheel and are discharged through the screw-shaped machine housing with a separating wall (5) at the back of the machine via the coarse material outlet (6) on the lower part of the housing. For difficult separating applications, the discharge of coarse material can be adjusted by the position of the so-called coarse material flap (7) and in this way the “cleanliness” of the coarse material can be ensured.

# Machines and Plant Variants

## Materials

The material is selected according to the requirements of the product being processed. Carbon-steel as well as corrosion and acid-resistant materials are standard. Special materials are available on request.

## Wear resistance

For the processing of very hard and abrasive products, machines can be supplied with wear protection, e.g. Vulkollan lining of the guide vane basket and ceramic lined guide vanes, product inlet and outlet with ceramic lining, as well as classifier wheels in ceramic or hard metal design.

## Pressure shock resistance

For the processing of dust-explosive products, machines and plants are available in pressure shock resistant design (up to 10 bar).

## Inert gas operation

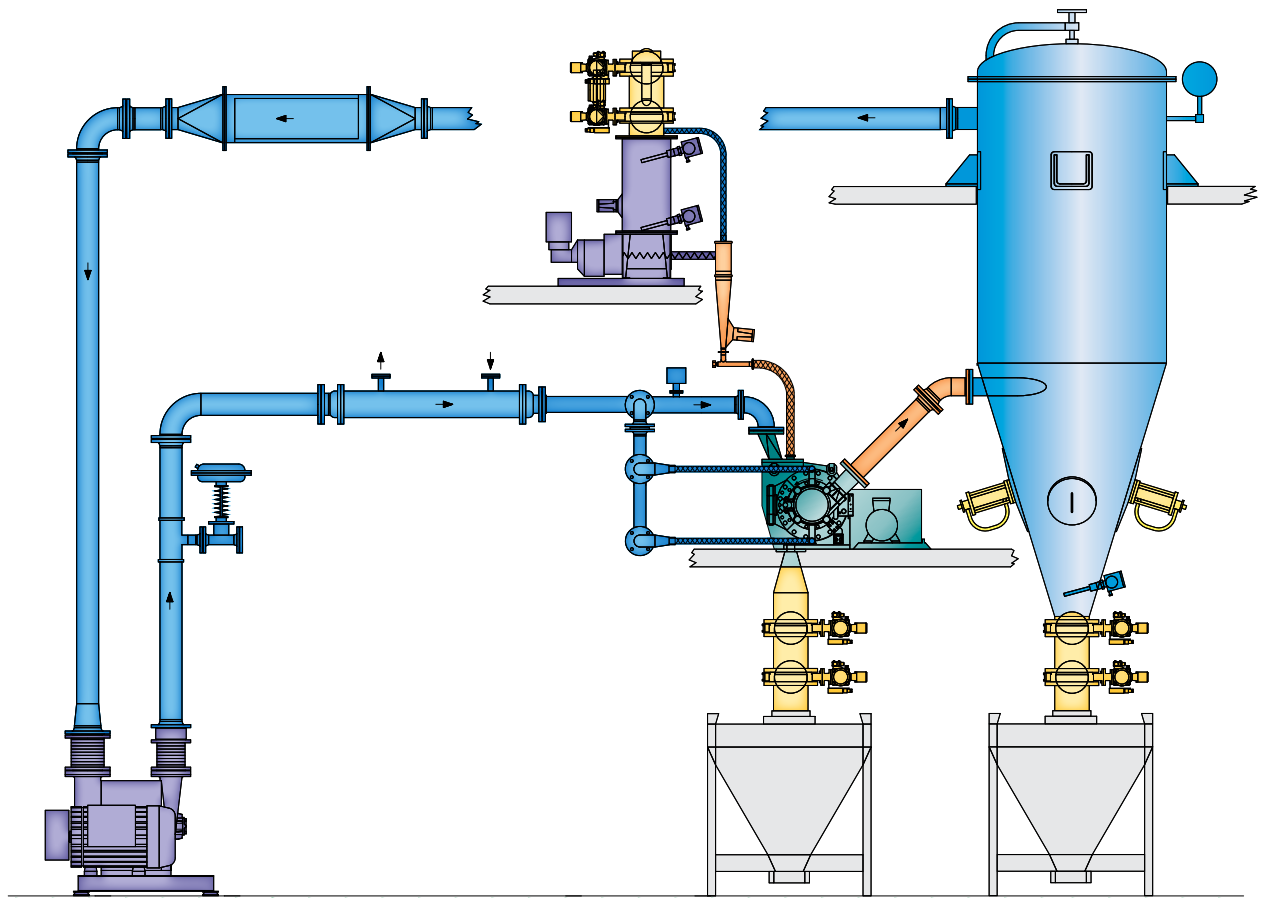
Products, which should not be processed with normal air due to their reaction behavior with oxygen, can be classified by using another process medium such as nitrogen under controlled inert atmosphere. A closed loop gas circulation in the complete plant system reduces the operating costs.

## ATEX conformity

EU-TYPE EXAMINATION CERTIFICATE  
acc. to directive 2014/34/EU

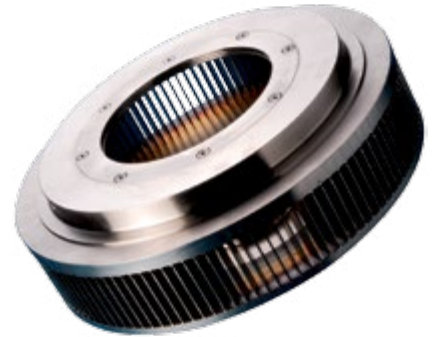


 II 1/2 D Ex h IIIC T100 °C Da/Db  
IBExU04ATEX1186X



Classifying plant for inert gas operation

With the introduction of our new classifier wheel *CONVOR®* – a design which shows constant radial velocity inside the wheel – we were able to advance into a wider range of finenesses that could not previously be reached with vane wheel air classifiers already on the market. In addition, the pressure loss of the complete machine could be reduced considerably, which is advantageous for the purchasing of plant components during the designing of a plant. Well-established features of the classifier wheel construction, such as the very robust mechanical design and the rotating (exchangeable) immersion tube, have of course been retained.



NETZSCH High-efficiency Fine Classifier CFS 30 HD-S



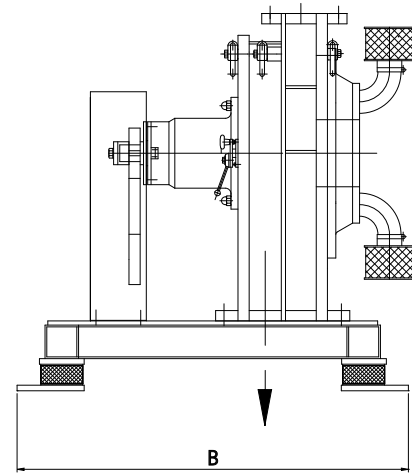
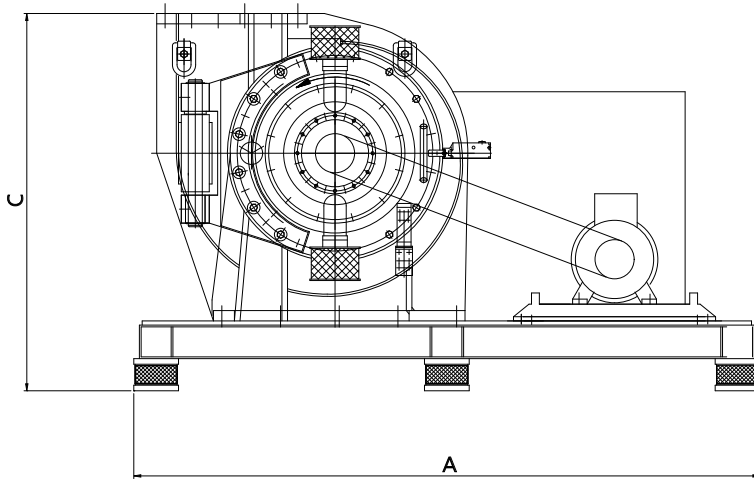
# Applications and Technical Data

Product Examples	Applications	Fines [μm]	Coarse Particles [μm]	Classifier Size	Feed rate [kg h <sup>-1</sup> ]
Aluminum	Extraction of fines	$d_{90} < 17$		CFS 85 HD-S	300
Aluminum	Extraction of fines	$d_{50} = 3$		CFS 85 HD-S	240
Aluminum oxide	Dust Separation		$d_{10} = 41; d_{99} = 161$	CFS 340 HD-S	4 400
Bronze	Extraction of fines	$d_{100} = 5$		CFS 85 HD-S	100 - 350
Calcium carbonate	Extraction of fines	$d_{99,9} = 20$		CFS 170 HD-S	1 500 - 2 400
Calcium carbonate	Extraction of fines	$d_{97} < 3$		CFS 5 HD-S	2 - 8
Calcium phosphate	Extraction of fines	$d_{99} = 5$		CFS 8 HD-S	14
Calcium stearate	Extraction of fines	$d_{90} = 6$		CFS 85 HD-S	400 - 500
Cobalt	Dust Separation		$< 2\% < 16$	CFS 85 HD-S	250
Color toner	Dust Separation		$d_5 = 6; d_{95} = 13$	CFS 170 HD-S	300
Glass flakes	Extraction of fines	$d_{50} < 12.2 - 25$		CFS 85 HD-S	13 - 75
Glass frits	Extraction of fines	$d_{90} = 6.6$		CFS 85 HD-S	200
Graphite	Extraction of fines	$d_{50} = 18.5 - 21$		CFS 85 HD-S	100 - 200
Hard materials	Extraction of fines	$d_{97} = 2.1$		CFS 8 HD-S	27
Iron oxide	Extraction of fines	$d_{97,5} < 45$		CFS 170 HD-S	1 880
Metal powder	Extraction of fines	$< 10$		CFS 30 HD-S	50 - 100
Methyl cellulose (MC)	Extraction of fines	$d_{50} = 67$		CFS 170 HD-S	1 200
Nickel	Extraction of fines	$d_{50} = 1$		CFS 30 HD-S	30
Pea flour	Protein Shifting	$d_{99} = 32 - 40$	$d_{10} = 14 - 17$	CFS 510 HD-S	5 000
Powder coating	Dust Separation		$1\% < 5$	CFS 170 HD-S	943
Silica	Extraction of fines	$d_{97} < 15$		CFS 8 HD-S	5
Silica gel	Dust Separation		$d_{10} = 19; d_{99} = 115$	CFS 30 HD-S	60
Slaked lime	Extraction of fines	$d_{99} < 20$		CFS 1000 HD-S	10 000
Toner	Dust Separation		$10\% < 8$	CFS 85 HD-S	120
Toner	Dust Separation		$7.5\% < 5$	CFS 170 HD-S	240
Toner	Dust Separation		$d_{99} = 15.5$	CFS 85 HD-S	120
Tungsten carbide	Dust Separation	$d_{10} = 8.5; d_{90} = 20$	$d_{10} = 12; d_{90} = 25$	CFS 8 HD-S	50
Wollastonite	Extraction of fines	$d_{97} = 9.5$		CFS 170 HD-S	1 000
Zeolite	Extraction of fines	$d_{99,95} = 44$		CFS 340 HD-S	4 000
Zinc oxide	Extraction of fines	$d_{99} = 21$		CFS 340 HD-S	600




Technical Data	CFS	5 HD-S	8 HD-S	30 HD-S	85 HD-S	170 HD-S	340 HD-S	510 HD-S	750 HD-S	1000 HD-S
Capacity factor	-	-	-	0,35	1	2	4	6	9	12
Air volume min.	m <sup>3</sup> h <sup>-1</sup>	25	40	210	600	1 200	2 400	3 600	5 400	7 200
Air volume max.	m <sup>3</sup> h <sup>-1</sup>	55	85	455	1 300	2 600	5 200	7 800	11 700	15 600
Fineness d97 *)	µm	2.6 - 30	2.6 - 30	2,6 - 30	2,8 - 40	3,0 - 40	3,5 - 40	3,7 - 40	4 - 50	5 - 60
Feed product flow min.	kg h <sup>-1</sup>	-	-	35	100	200	400	600	900	1 200
Feed product flow max.	kg h <sup>-1</sup>	-	-	420	1 200	2 400	4 800	7 200	10 800	14 400
max. Speed	min <sup>-1</sup>	18 000	12 000	7 000	5 100	3 600	2 300	2 200	1 800	1 400
Power classifier	kW	0.55	1.5	3	7,5	15	30	45	75	90
Length (A)	mm	290	410	1 270	1 700	2 200	2 500	2 900	3 200	3 420
Width (B)	mm	380	470	850	1 020	1 200	1 250	2 030	2 200	2 500
Height (C)	mm	420	400	735	900	1 350	1 750	2 200	2 550	3 040
Weight (approx.)	kg	50	80	800	1 500	2 600	3 600	7 500	11 150	14 800

\*) based on limestone (density 2.7 kg/l)



## Tests

Test our High-efficiency Fine Classifier CFS/HD-S. We can run trials with your product on different machine sizes in our laboratory!



The NETZSCH Group is an owner-managed, international technology company with headquarters in Germany. The Business Units Analyzing & Testing, Grinding & Dispersing and Pumps & Systems represent customized solutions at the highest level. More than 4,000 employees in 36 countries and a worldwide sales and service network ensure customer proximity and competent service.

Our performance standards are high. We promise our customers Proven Excellence – exceptional performance in everything we do, proven time and again since 1873.

## Proven Excellence. ■

### Business Unit Grinding & Dispersing – The World's Leading Grinding Technology

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NETZSCH Trockenmahltechnik – Germany  
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NETZSCH Lohnmahltechnik – Germany  
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NETZSCH España – Spain  
ECUTEC – Spain

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