

# RICE PROCESSING PLANTS





# OVER 125 YEARS OF EXPERIENCE

in the processing of grain and pulses



The continuous development of machines and plants makes SCHULE Mühlenbau a competent partner when it comes to processing rice, grain, pulses and much more.

Processing rice requires many different production steps. Besides cleaning and sorting, this also includes shelling, whitening or polishing. SCHULE manufactures all the machines required for rice processing at its production site in Reinbek near Hamburg, which is certified in accordance with DIN EN ISO 9001 – “Made in Germany”. Since 1892, SCHULE Mühlenbau has been well acquainted with all grain-producing countries in the world and with the corresponding processing methods. The patent No. 77,786 for the internationally known table separator made the inventor Friedrich Hermann Schule and his company of the same name well-known at an early stage. Since that time, the SCHULE table separator has been the best-selling machine in the entire product portfolio.



Rice is one of the most widely cultivated crops in the world and is the most important staple food in many countries.



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# PRE-CLEANING MACHINE

Removal of small, coarse and light impurities

The cleaning effect is enhanced by pre-cleaning and a highly effective pre- and post-aspiration system, which sucks off light impurities from the product both at the machine inlet and outlet.

The sucked-off rejects, dust and lightweight particles are separated in a separate expansion chamber and discharged by a conveying screw. This conveying screw is equipped with a multi-flap air lock system to prevent the ingress of false air. All lock flaps and air valves can be adjusted if required. The downstream screen makes it possible to remove small and large impurities using various screen arrangements.

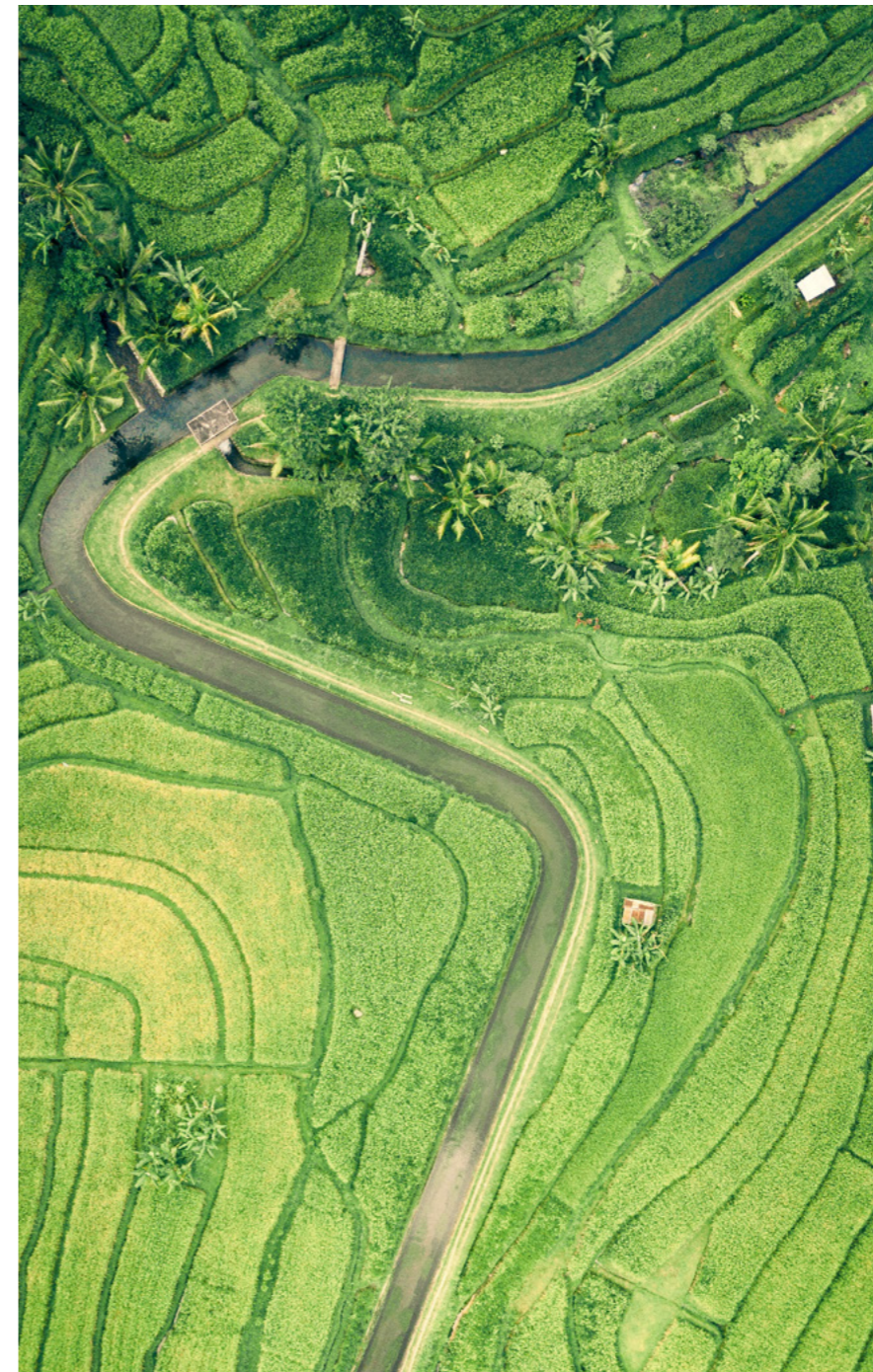


↑ Final product: pre-cleaned paddy



# CIRCULAR SCREEN

The circular screen is used for fine cleaning in rice processing



↑ Agricultural cultivation of rice



SCHULE circular screens can be supplied in different sizes.

The SCHULE circular screen is used for fine cleaning and is characterised by a robust and smoothly operating eccentric drive. The frame as well as the aspiration chamber consist of an all-steel construction. The optimally working screen system features a screen inclination adjustment. The aspiration channel located at the outlet of the circular screens removes remaining light components.



# DESTONER

Removal of stones, clods of soil or other organic substances



↑ Impurities: stones

The high-performance destoners ST and ST D are used to separate heavy parts such as stones or clods of soil from the rice to be processed. The destoner is connected to an aspiration system that creates a vacuum in the destoner's working chamber. The air volume can be finely adjusted. It also includes automatic feeding as well as a height-adjustable, spring-suspended separation table. The machine is driven by one or more vibration motors with swing amplitude adjustment. The screen is easily replaceable on all machine types.



# COMBIHULL

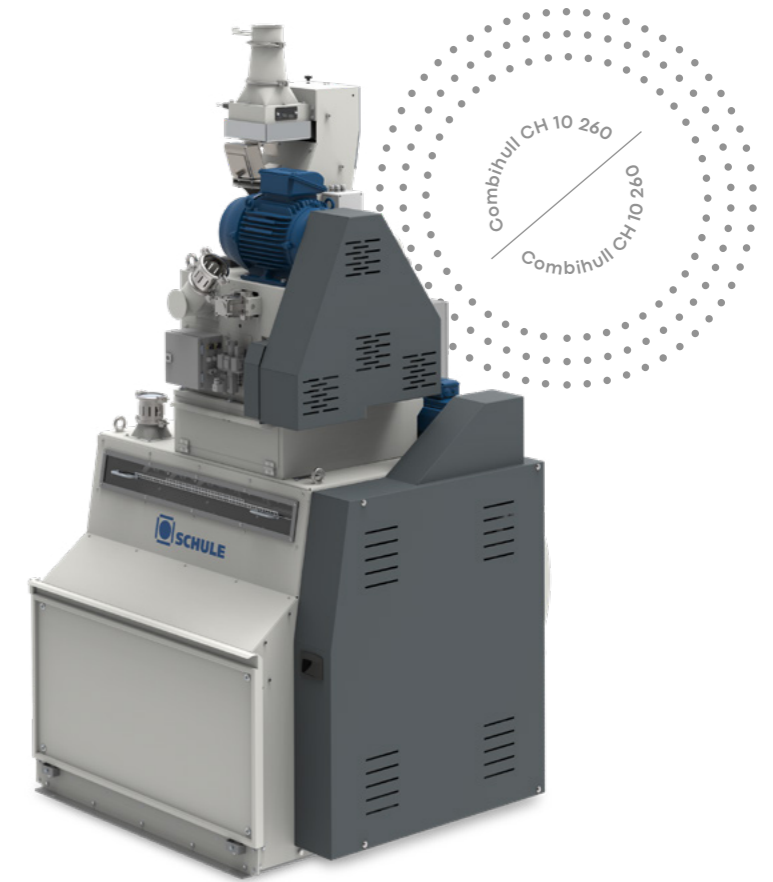
High-quality shelling with the highest degree of shelling and safe separation of the product mixture



↑ By-product: separated rice husks



↑ Final product: brown rice / cargo rice



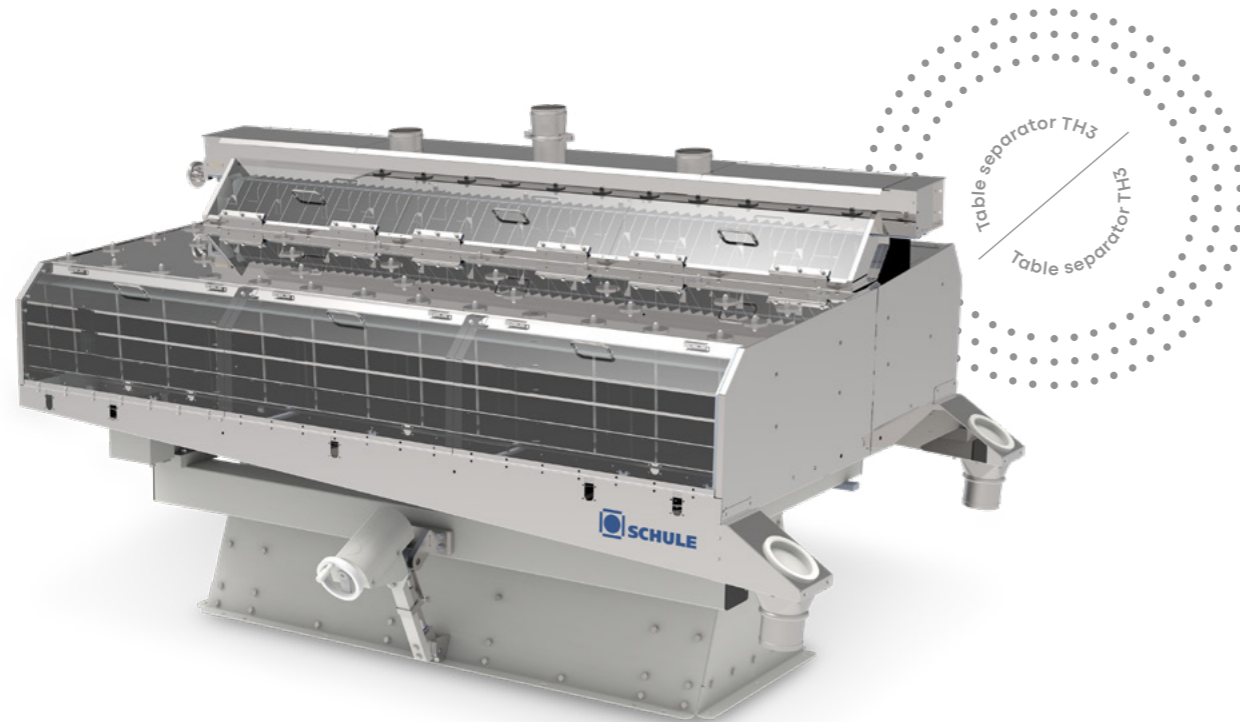
The rubber roll sheller provides maximum operational reliability thanks to an automatic and exclusively pneumatically controlled inlet regulation system. Due to the separate arrangement of the shelling case and the drive unit, smooth running is also ensured. The movable rubber rolls are adjusted linearly to each other and cooled intensively and permanently by a fan. As a result, the Combihull produces a consistently high shelling degree with the minimum amount of broken grains. In addition, there is a constant length double V-belt drive.

The Combihull shells and separates the husked rice from the loose husks and works exclusively in the circulating air system. Additional separation units are not required. The robust all-steel construction with a new separation chamber concept has a special internal fan that operates uniformly across the entire suction width. In this way, the highest degrees of separation are possible.



# TABLE SEPARATOR

125 years of experience for maximum separation precision



↑ Separated paddy



↑ Accepted product: brown rice / cargo rice

With the table separator, SCHULE Mühlenbau continues its more than 125 years of experience in the construction of precision sorting machines. The newly developed design achieves a significantly improved separation precision at a higher throughput rate. The all-steel construction has compartments in a torsion-free design, achieving the highest precision and best separation results. The inlet area is aspirated over the entire length as standard. In addition to a new feeding princi-

ple, the SCHULE table separator has drop channels with a large cross section, which enables uniform loading of the individual compartments and maximum running smoothness. A three-point stroke adjustment, a fine adjustment of the table inclination as well as an electronic speed control provide individual adjustment possibilities for fluctuating product characteristics. Precise longitudinal table guide with smooth running is the basic prerequisite of the working principle.



# VERTICONE

Thanks to an optimum whitening process to the desired surface quality

The conical whitening machine for rice is equipped with abrasive conical whitening stones. The product is cooled by means of specific ventilation and the resulting whitening bran is discharged. The whitening degree is influenced by the adjustable gap between the whitening stones and the screens as well as the position of the counterweight. Up to three whitening passages are possible.



↑ Intermediate product: white rice downstream of Verticone 1st passage



↑ Final product: white rice downstream of Verticone 3rd passage





# POLISHING MACHINE

For efficient polishing and a smooth surface of the rice grain



The rice polishing machine is available as a dry polishing machine or as a water polishing machine. A combination of both is also possible. The polishing machine consists of a horizontal, octagonal working chamber with a polishing rotor. A high-pressure blower is used to cool the product, prevent breakens and support the removal of whitening bran. The water polishing machine type PM RW uses a special water atomisation unit that ensures uniform moistening of the product and the best polishing results.

↑ Final product: polished white rice



# PLANSIFTER

Separation and sorting of broken rice from whole grain rice for consistently high quality



The SCHULE plansifter is used for screening, sifting and classifying many different products.

The SCHULE plansifter offers great performance in a small space and is suitable for many applications. Here it is used to separate broken rice from whole grain rice. The machine can be equipped with different screen frames – depending on the sorting requirements.



↑ Final product: broken rice downstream of the plansifter



↑ Final product: whole grain rice downstream of the plansifter for colour sorting



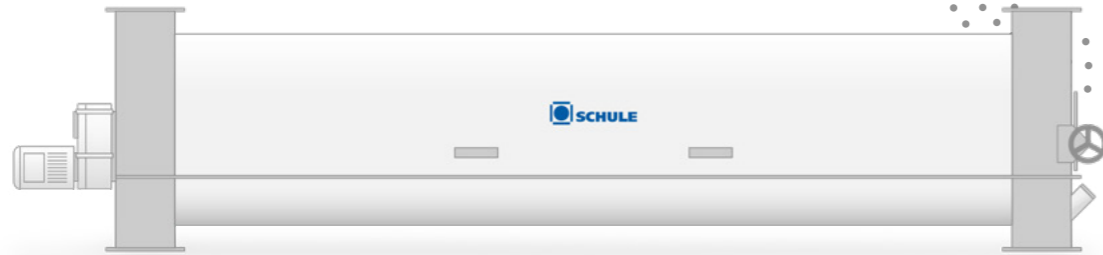
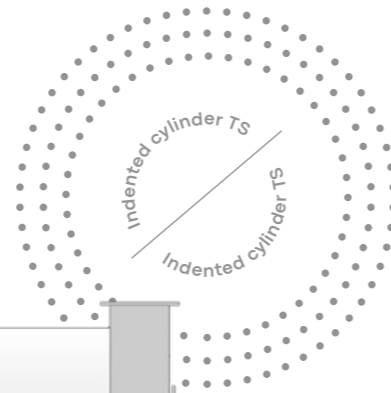
# INDENTED CYLINDER

Indented cylinders are used for uniform length classification

SCHULE uses indented cylinders for uniform length grading in rice processing. They work with high precision of separation. Indented cylinders can be used individually or in a battery. The cylinders are made of special steel in a split design with pressed pocket-shaped cells for the longest possible service life.



The indented cylinder of SCHULE is primarily used for cleaning, but also for classification.



↑ Input product: coarse broken rice downstream of the plansifter for the indented cylinder



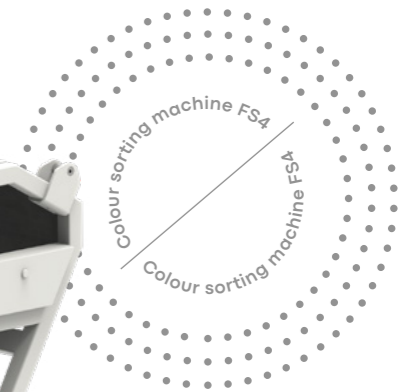
↑ Final product: classified rice after passing the indented cylinder



# COLOUR SORTING MACHINE

For removing discoloured and/or chalky grains

The colour sorting machine removes discoloured rice grains quickly and precisely. A wide range of different camera technologies in combination with corresponding ejection nozzles ensures higher efficiency with minimum product loss.



↑ Final product: ready-to-sell rice

**Do you have questions regarding the SCHULE technology?**

We will be happy to answer them and can be reached here:

info@schulefood.com  
+49 (0)40 727 71-0  
schulefood.com



# REFERENCES

Rice plant: Throughput up to 15 t/h  
(product: white rice)

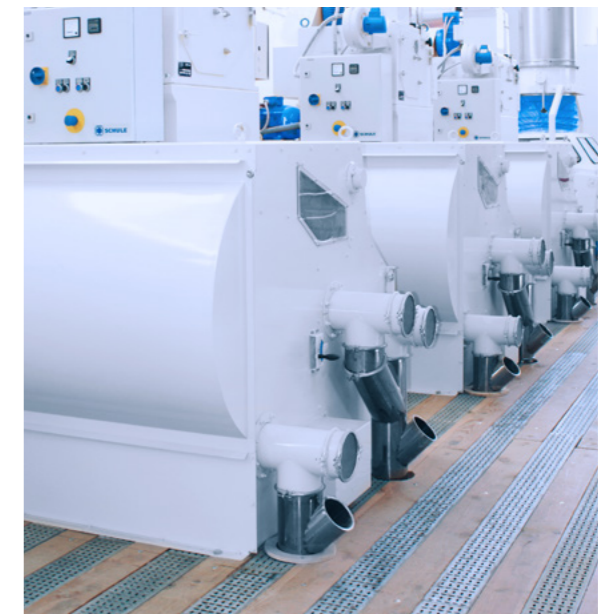
## Reference plant



↑ View into a SCHULE rice plant



↑ Rice polishing machine PM R2



↑ Combihull



↑ Whitening machine VPC 480



↑ Destoner and Combihull





# TECHNICAL DATA

## Rice processing machines

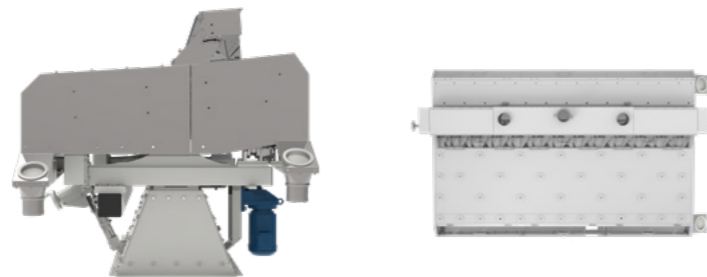
Destoner	ST D
Capacity t/h	up to 15
Motor power kW	up to 2×0.68
Aspiration m <sup>3</sup> /min	up to 240



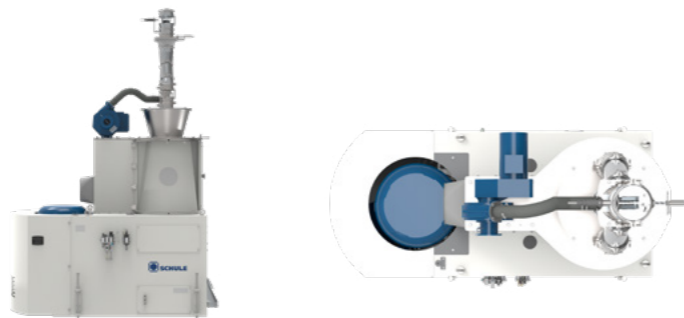
Combihull	CH
Capacity t/h	up to 5.0
Motor power of sheller kW	up to 11.0/0.25
Motor power of closed circuit husk separator kW	up to 3.0
Aspiration m <sup>3</sup> /min	up to 5.0
Compressed air l/stroke	up to 4.2



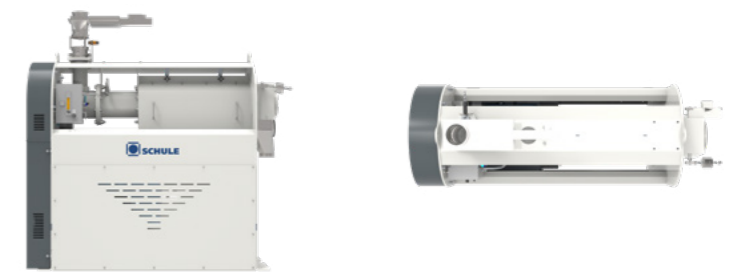
Table separator	TH
Capacity t/h	up to 5.0
No. of compartments pce.	up to 60
Arrangement of compartments pce.	up to 5×12
Motor power kW	3.0
Aspiration m <sup>3</sup> /min	20



Verticone	VPC
Capacity of long grain rice t/h	up to 14.0
Motor power of main drive kW	up to 110.0
Motor power of fan kW	1.5
Power of servomotor kW	0.5
Aspiration m <sup>3</sup> /min	up to 80



Polishing machine	PM R
Capacity t/h	up to 11.0
Motor power kW	up to 75.0
Aspiration m <sup>3</sup> /min	up to 150.0



Plansifter	SI P
Capacity t/h	up to 10.0
Motor power kW	up to 1.5
Aspiration m <sup>3</sup> /min	up to 5.0



Indented cylinder	TR
Capacity t/h	up to 9.0
Motor power kW	up to 4.0
Aspiration m <sup>3</sup> /min	10.0



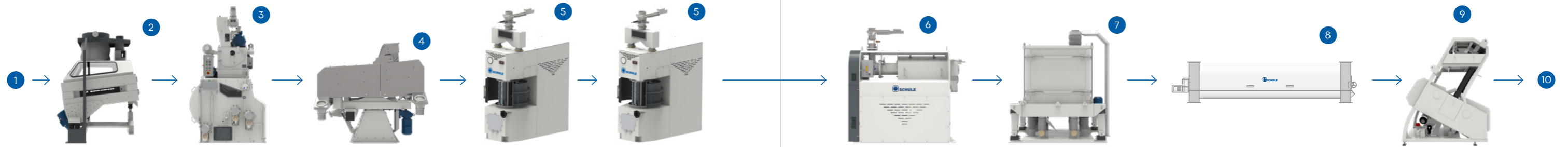
Colour sorting machine	FS
Capacity t/h	up to 14.0
Motor power kW	up to 3.5
Aspiration m <sup>3</sup> /min	30.0
Compressed air l/s	up to 55.0





# PLANT

## Section for rice processing



- 1 Input product: paddy
- 2 Destoner
- 3 Combihull
- 4 Table separator
- 5 Verticone
- 6 Polishing machine
- 7 Plansifter
- 8 Indented cylinder
- 9 Colour sorting machine
- 10 Output product: white rice



↑ Input product



↑ Output product



**F. H. SCHULE Mühlenbau GmbH**

Dieselstrasse 5 – 9  
21465 Reinbek  
Germany

+49 (0)40 727 71-0  
[info@schulefood.com](mailto:info@schulefood.com)  
[schulefood.com](http://schulefood.com)

