

## **FLOTTWEG SEPARATION TECHNOLOGY FOR THE PRODUCTION OF STARCH AND GLUTEN**

High-Quality, Efficiency, and Sustainability



# RECOVERY OF STARCH AND GLUTEN

## Highest Customer Satisfaction Thanks to Flottweg Equipment

Different raw materials are used for manufacturing starch and gluten. At the same time, manufacturers are particularly concerned with achieving effective and economical processing. This is the only way to guarantee a broad range of products and good environmental compatibility. Decanter centrifuges play a central role in this effort.

Our industrial centrifuges are used in the starch and gluten area for the production of:

- Wheat starch and wheat gluten
- Potato starch, potato protein, potato pulp, and potato gratings
- Corn gluten
- Pea starch and pea protein

**For each of these applications, Flottweg develops optimum process lines and provides appropriate decanter centrifuges.** These make it possible to produce A- and B-starch, gluten, bran, and protein in a closed system. You increase your effectiveness while reducing process costs.

### PRODUCTION OF STARCH USING THE FLOTTWEG TRICANTER®

Wheat is one of the most important raw materials in the world for the production of starch and its byproducts. The production of starch involves breaking wheat flour down into its constituents of A-starch, pentosans, and gluten or B-starch. The most effective and efficient method of doing this is using the Flottweg Tricanter®, which impresses customers all over the world with its enormous performance and efficiency. What is more, the Tricanter® has a decisive advantage; it separates starch and other constituents directly in the first process step. The Tricanter® separates the entire A-starch as a concentrate, removes the gluten with the B-starch and separates off the light constituents.

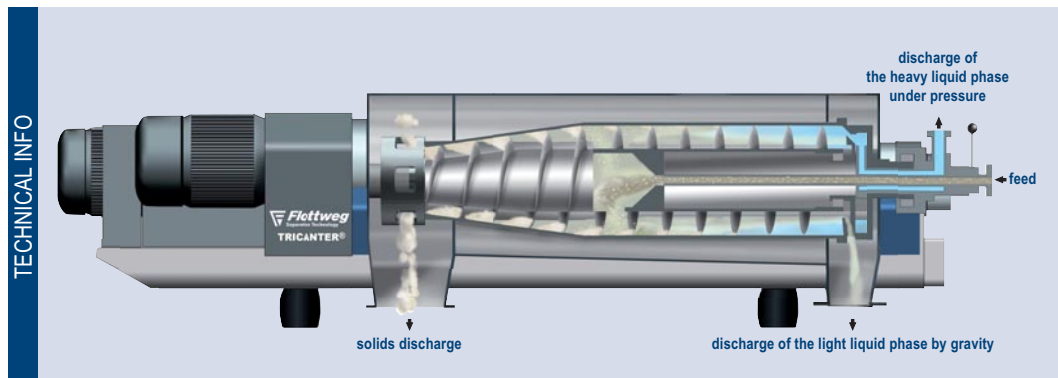
The process steps to recover starch and gluten are explained in detail on page 4.



® = registered trademark for various countries







Flottweg Tricanter® (three-phase decanter)

## The Flottweg Tricanter® and its benefits

- Greatest possible purity of the liquids to be separated and optimum adaptation to changing conditions of the product in the feed by using the adjustable impeller
- Other processing steps / separating stages can be eliminated or are no longer required, offering cost savings for the plant owner
- Optimum centrifuge model for any capacity
- The Flottweg Tricanter® meets current requirements for hygienic processing.
- Developed and manufactured in Germany for the highest possible production quality
- Experience and know-how – Flottweg has been manufacturing the Tricanter® for three phase separation for more than 40 years
- The Flottweg Tricanter® stands for maximum performance, quality, versatility, and continuity.



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Only the Tricanter®, with its adjustable impeller, offers the optimum throughflow and an optimum end product even given a fluctuating feed. Flottweg adapts the process lines to your individual requirements. So Flottweg Customers achieve optimum yields with a minimum of technical equipment.

Possible end products in the manufacture of wheat are:

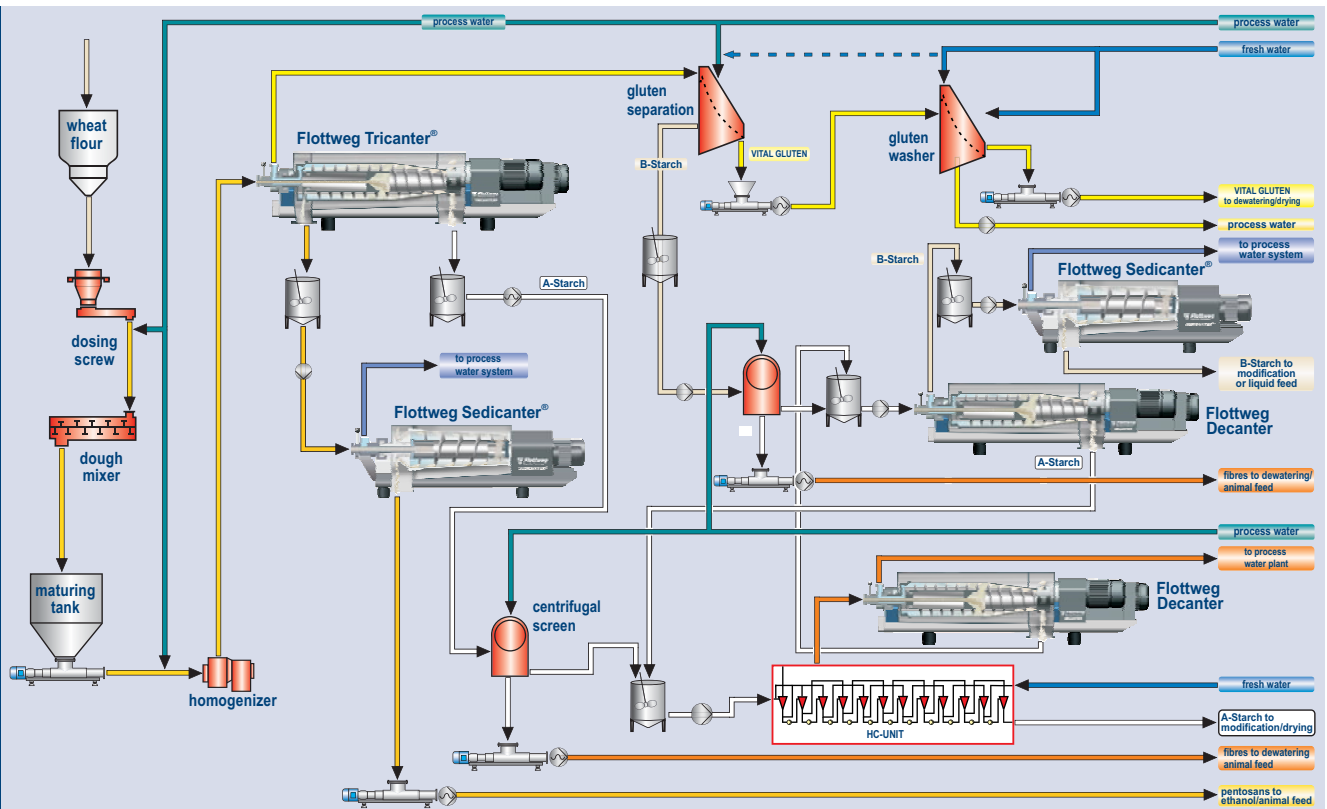
- Cleaned and dewatered vital gluten
- Cleaned A-starch suspension for manufacturing glucose and starch or as the basis for modified starch
- Concentrated B-starch suspension for further processing in ethanol production or as animal feed
- Concentrated pentosan fraction as animal feed

Flottweg is one of the leading manufacturers of complete process lines for wheat starch production. Thanks to decades of experience in three-phase separation, Flottweg Systems for the recovery of wheat starch offer the following advantages:

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- Efficient engineering in close cooperation with final customers and local contractors
- References all over the world and of all well-known wheat starch factories
- Approved cooperation with renowned sub-suppliers
- Reliable support during commissioning and optimization of the system

TECHNICAL INFO



The recovery of wheat starch

# ENGINEERED FOR YOUR SUCCESS

Premium-quality, Efficient and Durable



## EXPERIENCE

Flottweg has been a supplier for the starch industry all over the world for more than 30 years. The old system of gluten separation in the wheat starch process, called the "Martin Process," has been progressively replaced by the modern three-phase process based on the Tricanter®. Flottweg has accompanied this development from the very beginning and has worked with their customers to optimize the processes.

## COMPLETE SYSTEMS

Flottweg is a well-known manufacturer of complete systems in the wheat starch industry, offering a complete process line for the so-called wet process, which starts with flour dosage and ends with the purified final products (humid gluten and starch suspension).

## REFERENCES

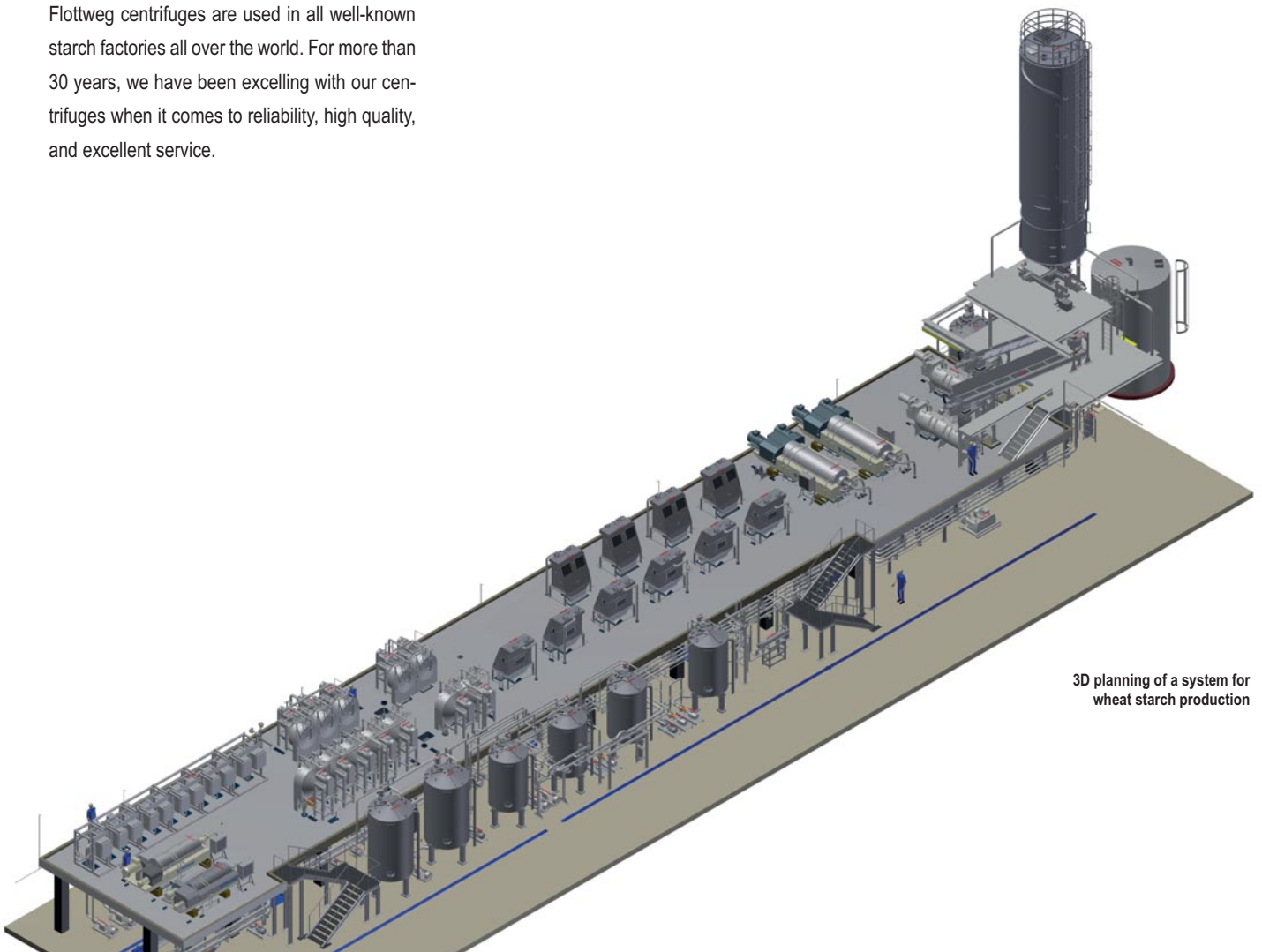
Flottweg centrifuges are used in all well-known starch factories all over the world. For more than 30 years, we have been excelling with our centrifuges when it comes to reliability, high quality, and excellent service.

## ENGINEERING

Mechanical separation technology presents us and our customers with major challenges time and time again. Every process is unique, and the influencing factors vary widely. As a result, an "off the shelf" solution is usually impossible. Flottweg is your partner for individual solutions in mechanical separation technology. We offer you the best solution based on our technology and experience. Together, we'll find the best possible way to achieve the ideal overall process under the general conditions specified. We'll work out processes together and place emphasis on the details. Together, we'll achieve the optimum result.

### Our engineering excels in the following central points:

- Flexibility in the selection of the right equipment considering local circumstances (sub-suppliers, laws etc.)
- Designated contact person during the whole project life span, from placement of order until acceptance
- Modern engineering tools (3D-layout and pipe planning)



3D planning of a system for wheat starch production



# TAKE ADVANTAGE OF OUR EXPERTISE

and Many Years of Experience



Flottweg Separation Technology is used all over the world. Tricanter<sup>®</sup>, disc stack centrifuges, and Sedicanters<sup>®</sup> are important components for consistently high customer satisfaction. Dough mixers, used in wheat starch production, are also designed by Flottweg Experts.



Efficient engineering thanks to close cooperation with final customers and sub-suppliers; worldwide references and excellent service, in short: Engineered For Your Success



Flottweg systems and machines are produced, manufactured, and developed in Germany, thus offering highest quality. Curved screens are used in the production of starch and gluten.



The Flottweg Tricanter<sup>®</sup> has been standing for high performance, quality, versatility, and continuity for more than 40 years.

For more detailed information, please ask our sales engineers.

# FLOTTWEG SEPARATION TECHNOLOGY

Power Meets Quality



## THE FLOTTWEG SEDICANTER®

Soft and flowable solids like proteins, pentosan, and so on are hard to process using a standard decanter. Only the patented Flottweg Sedicanter® can provide an optimum result. Even under changing feed conditions, it gets the best separation results thanks to its adjustable impeller.

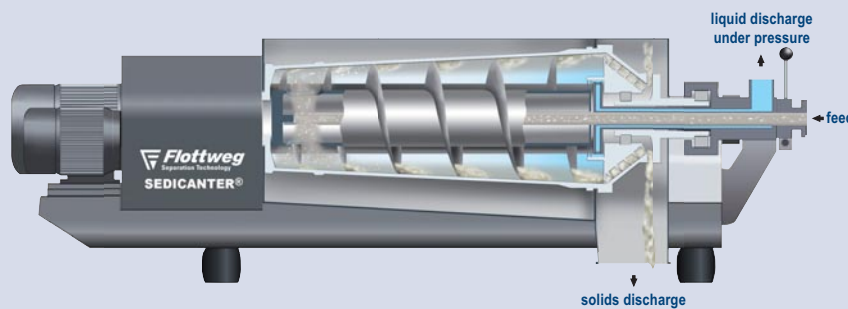
In wheat production, the Flottweg Sedicanter® can be used in the following applications:

- Separation of fine starch from different process waste water
- Clarification and concentration of pentosan
- Clarification of saccharized starch suspensions

## Technical Characteristics of the Flottweg Sedicanter®

- Separation of difficult-to-sediment solids with an acceleration of up to 10,000 g
- Available with the approved Flottweg Simp Drive®
- Available in hygienic design
- Gastight operation is possible
- And many more...

TECHNICAL INFO



Flottweg Sedicanter®



# MECHANICAL SEPARATION TECHNOLOGY ON THE HIGHEST LEVEL

## Flottweg Disc Stack Centrifuges

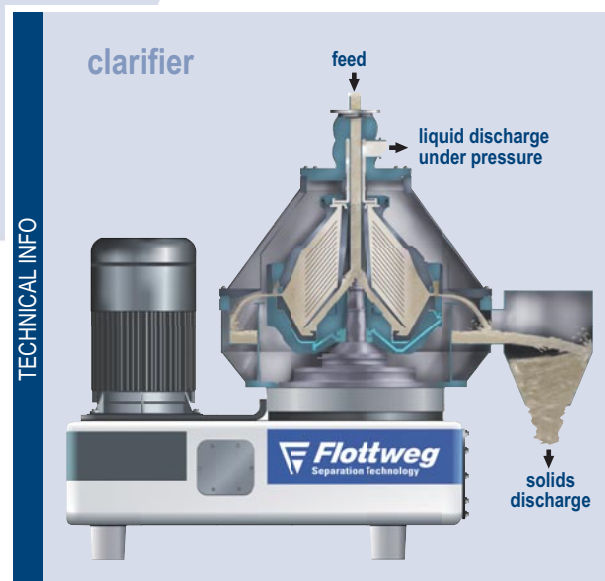
### THE FLOTTWEG DISC STACK CENTRIFUGE

Excess water generated in the process during A-starch separation, B-starch concentration, and the fiber fraction using a Tricanter® can be processed using a Flottweg Disc Stack Centrifuge, separating even the finest of solids. Flottweg Disc Stack Centrifuges meet these requirements with flying colors, making an impression with their high quality and efficiency.

A special characteristic of Flottweg AC Separators is the Soft Shot® discharge system which enables exactly reproducible partial discharges as well as total discharges in any combination. The Soft Shot® makes hardly any noise and can therefore be used in rooms with no special or additional acoustic protection measures.

### The Soft Shot® discharge system and customer benefits

- Solid discharge operations that make hardly any noise
- Precise partial or full discharges in any combination for maximum product yield
- Reduced wear on high-stress components



TECHNICAL INFO



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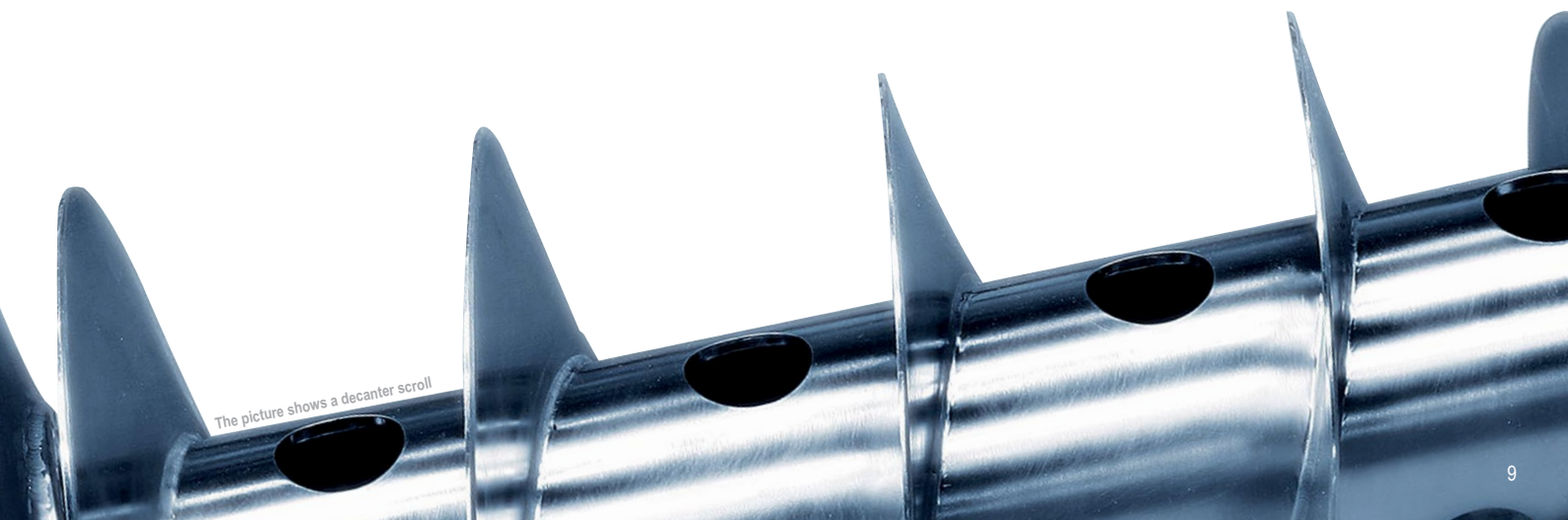


# TECHNICAL DATA

## of the Flottweg Tricanter®

TECHNICAL DATA FOR FLOTTWEG STARCH TRICANTERS®			
Model	Z5E	Z6E	Z8E
Bowl diameter	530 mm	620 mm	770 mm
Rotation speed of the bowl	3500 / min	3200 / min	2650 / min
Materials	All parts in contact with product are made of high-grade stainless steel, e.g. 1.4463 (Duplex), 1.4571 (AISI 316 Ti), etc.		
Dimensions (L x W x H)*	4525 x 1560 x 1140 mm	5200 x 1770 x 1260 mm	6400 x 2000 x 1500 mm
Gross weight*	6200 kg	9750 kg	14400 kg
Motor sizes	75 + 30 kW	90 + 90 kW	160 + 132 kW
Capacity (wheat flour)*	3 – 6 t/h	6 – 11 t/h	10 – 20 t/h
Options	Electropolished surfaces, frame in stainless steel, hydraulic and drive motors		

\* The figures listed are guidelines only. Actual capacity will depend on the individual characteristics of the feed product.



The picture shows a decanter scroll

# GLOBAL AFTERMARKET SUPPORT NETWORK

No Matter Where You Are in the World



## CUSTOMER SERVICE IS OUR STRENGTH

Application-based project planning, high-quality manufacturing and professional after-sales service are prerequisites for a trouble-free operation. Experienced and reliable service engineers from our customer service department are ready to respond quickly if needed. The Flottweg Service Group is also available to perform preventive maintenance in order to avoid interruptions in production.

## QUALITY “MADE IN GERMANY”

Flottweg is ISO 9001 certified and manufactures its products in compliance with the latest technical standards.



## Flottweg Services include:

- Experienced advise on separation processes
- Pilot tests on-site or at the Flottweg Laboratory and Test Center
- Selection and sizing of appropriate equipment
- Customer-specific automation/control systems and process integration
- Design and construction of complete process systems
- Installation, commissioning, maintenance, repair, and spare parts service worldwide





## AFTER-SALES CUSTOMER SERVICE

Even the best machinery needs to be maintained and serviced. Flottweg has established a worldwide service network consisting of its own subsidiaries, branch offices, and representatives to provide our customers with localized service and spare parts.

Our service engineers and technicians are qualified for any kind of installation, commissioning, repair, and maintenance.



Flottweg Service Technicians are always available for you

## FLOTTWEG WORLDWIDE

Flottweg is headquartered in Vilsbiburg (near Munich), Germany, and has branch offices in Cologne and Leipzig as well as subsidiaries in Australia, Brazil, China, France, Italy, Mexico, Poland, Russia, and the United States, along with representatives in nearly all countries worldwide.

Check out our website at [www.flottweg.com](http://www.flottweg.com) to find a competent contact person.





# Flottweg Separation Technology – Engineered For Your Success



Flottweg SE  
Industriestraße 6-8  
84137 Vilsbiburg  
Deutschland (Germany)

Tel.: +49 8741 301-0  
Fax: +49 8741 301-300

mail@flottweg.com  
www.flottweg.com

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