



FMS series  
**Microwave level switches**

**FEEJOY**  
*Feel the joy of innovation*

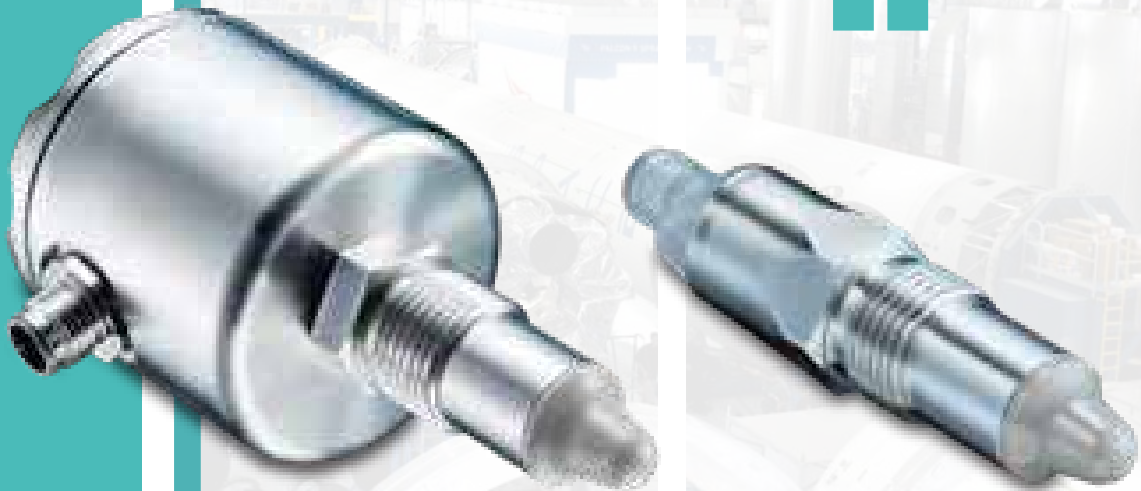
# Truly intelligent level switches

Feejoy Technology's FMS series [microwave level switch](#) take you into a new era of level detection technology—easy to use, accurate and efficient, and maintenance-free.

At present, the widely used vibration tuning fork level switch needs to ensure that a considerable part of it is inserted into the material to be measured. Because viscous materials are easy to stick to these forks, it often causes measurement errors. Coarse granular media such as corn is easily piled up between the tuning fork bodies, and measurement errors will also occur. In addition, the tuning fork is not only difficult to clean, but also different substances such as liquid and powder must use different tuning fork structures.



***Timeless level detection technology!  
Terminator of vibration and  
rotation level switches!***



# Revolutionary innovative products — Better measurement performance

Only one product is needed to meet all switch detection requirements!

## **1** Good reliability

- ▶ Not affected by foam, adhesive, flow, turbulence, suspended particles
- ▶ Extremely high temperature stability and repeatability
- ▶ Shock and vibration resistant

## **2** Strong functionality

- ▶ LED switch alarm indicator
- ▶ Fast response time (<100ms)
- ▶ Rugged, corrosion-resistant housing
- ▶ Fully integrated electronic components
- ▶ No moving parts

## **3** High cost performance

- ▶ A perfect product for almost all media

## **4** Great flexibility

- ▶ Provide a variety of flexible process connection methods

# The perfect solution to meet your requirements

Feejoy Technology's FMS series products take you into a new era of level detection technology-easy to use, accurate and efficient, and maintenance-free.

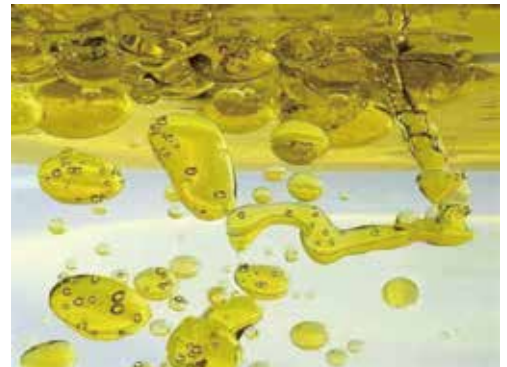
## ▶ Level detection of storage tanks, containers and pipelines

Generally speaking, storage tanks, buffer tanks and filling tanks are equipped with level switches to detect the level of the level. The extremely short response time of the sensor enables accurate and reliable level control.



## ▶ Medium separation and phase separation detection

For some specific processes, the material will have different phases. These phases may need to be identified (such as the oil phase floating on the water surface), or they may need to be ignored (such as the foam layer).



## ▶ Prevent medium pollution

Media contamination is not only related to the safety and hygiene of food and pharmaceutical media, but also to the convenience of cleaning and disinfection. The hygienic design of the product is very important.

## ▶ Prevent the pump from idling

Pump idling is a serious process problem, as it may cause deviations in the ingredients or damage the pump. However, even if it is a viscous medium or the medium is easy to crystallize, this difficulty can still be solved.



# Level switch suitable for almost all media

Feejoy Technology's FMS series level switches meet customers' long-cherished dreams:



**A sensor**

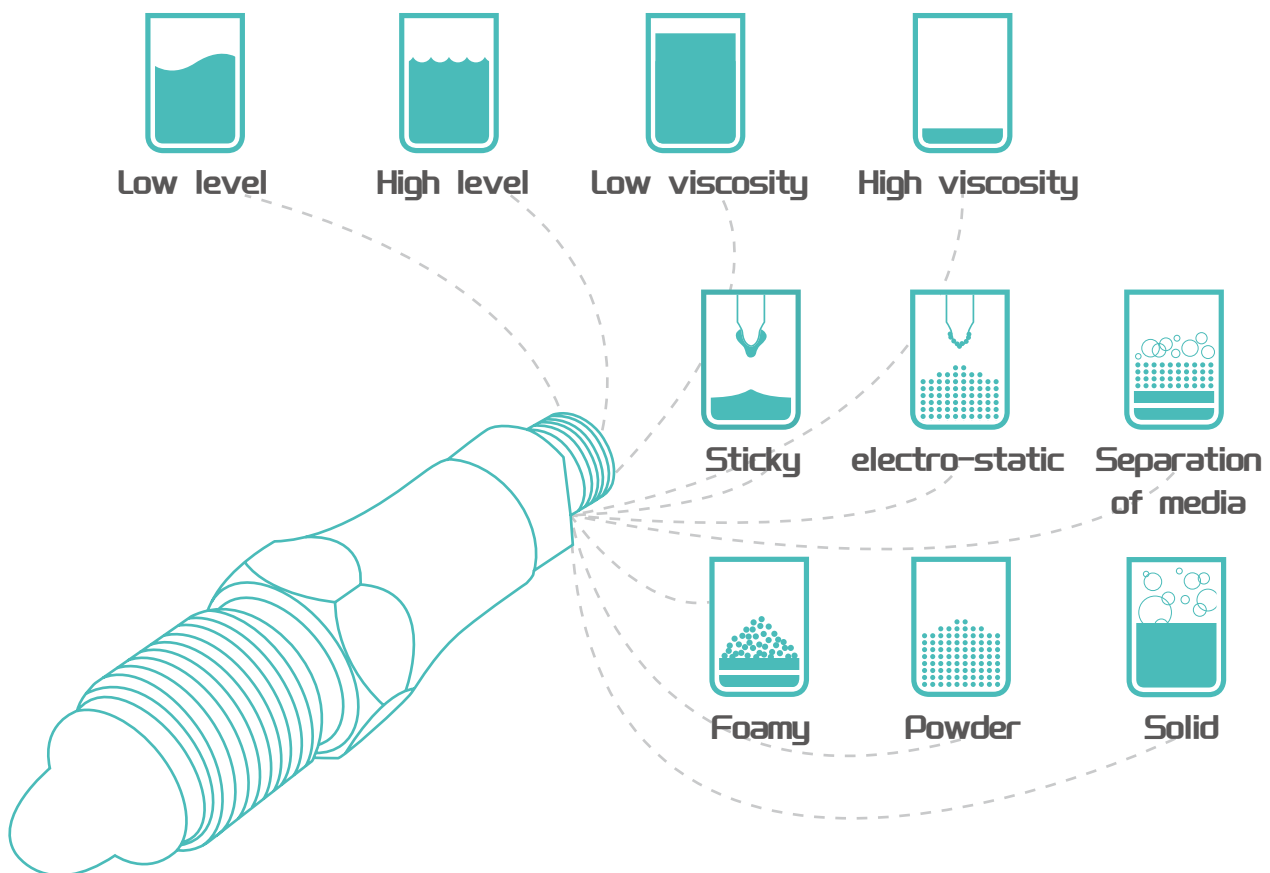
**Complete almost all level detection tasks**



There are as many requirements on the sensor as there are media.

Is it possible to use only one sensor to complete the tasks of level detection, media separation and pump idling protection at the same time? The revolutionary Feejoy innovative products make it easy to achieve. No matter the medium is bulk material, foam or liquid, regardless of the viscosity of the medium, the product can be used freely.

Reduce your sensor inventory, but not the requirements.



# Sensors for all applications

Feejoy sensors use high-quality stainless steel and PEEK and other high-quality housing materials to meet all requirements of food and beverage, pharmaceutical, medical, semiconductor and other industries.

When Feejoy engineers developed Feejoy technology level switches based on frequency scanning technology, they poured all their passion for sensors, and at the same time dedicated to meet the needs of users.

Compared with other measuring methods such as tuning fork and capacitive sensors, this technology has decisive advantages. The sensor contains no vibrating parts and is not affected by changes in conductivity or temperature. In addition, the sensor is suitable for various applications, so you can use the same sensor throughout the process, thereby reducing the sensor inventory.



## The uniqueness of the Feejoy FMS series

Allows triggering under multiple media conditions (e.g. stirring vessel).

Ability to detect changes in the Dk value of the medium (e.g. to measure the purity of lube oil).

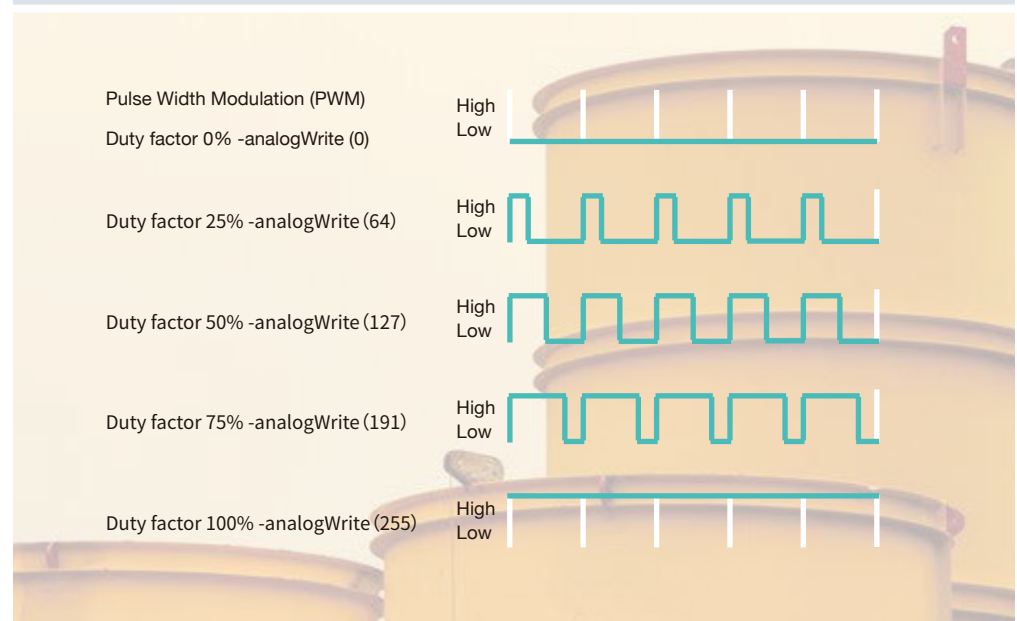
## Special use of Feejoy FMS series

Identify the specific medium (eg water, milk, CIP fluid, etc.).

If the medium is contaminated by another medium, take measures (eg oil is contaminated with water).

## Can detect different media

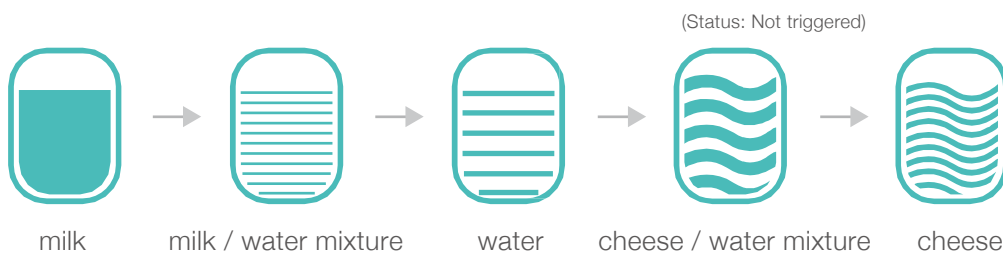
Using pulse width modulation (PWM) technology, users can detect different media in the same processing line or processing tank in order to separate the final product (such as various fish sauces, various beer, etc.). The detection adopts analog time signal, which is convenient for continuous measurement. In addition, the time signal can be changed according to the Dk value (dielectric constant) of the medium.





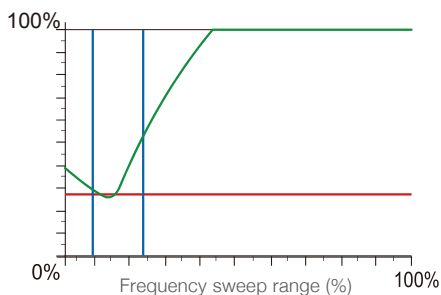
## Application examples

Dairy factories often use water to separate two different products in the pipeline. The PWM technology can continuously measure the Dk value to ensure that only products mixed with water are discharged into the waste water system without wasting qualified products without dilution, thus minimizing the amount of waste products.

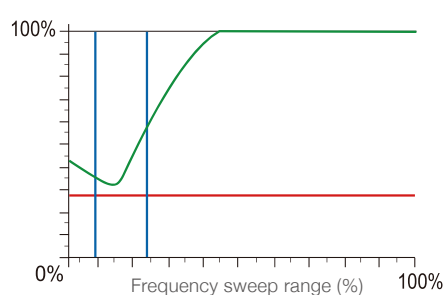


## Distinguish two very similar media

Medium: Beer  
(Status: Triggered)



Medium: Water  
(Status: Not triggered)



Sometimes, the Dk value of the two media may be the same. So how to separate? Setting two independent switch points does not help (two blue lines).

Feejoy Technology's FMS series level switch is the only solution. Using frequency scanning technology and its ability to analyze signal strength, different media use different signal dumps. Therefore, even if the Dk values of the two related media are the same, the switch still only captures the specific media signal, which is unique in the sensor industry.

# Reliable level monitoring independent of media

Feejoy FMS series products meet the requirements of the most demanding applications

At present, many industrial facilities use automated systems for online monitoring throughout the day. In industrial processing, it is often necessary to detect the filling level of liquids and bulk materials, including trains and ships that need to control storage tanks and hydraulic machinery.

Feejoy Technology's FMS series level switches use frequency scanning technology, suitable for high viscosity liquids and solid or liquid media. The probes of these sensors are extremely small and can even be integrated into small diameter pipes.

These sensors are not affected by turbulence, sedimentation, bubbles, foam, suspended or floating particles, so they can meet the requirements of the most demanding applications.



- Locomotive
- Ocean Engineering
- Heavy Machinery



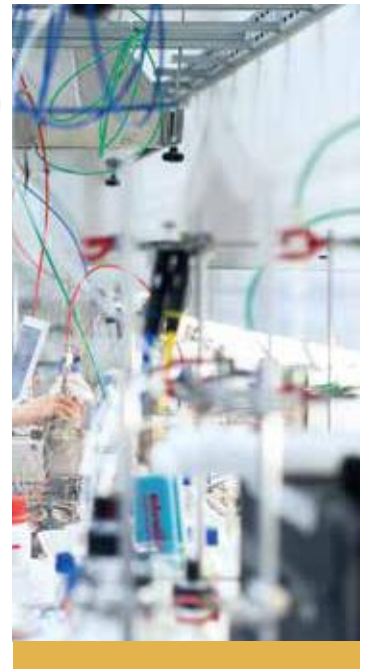


# We provide clean solutions for hygienic applications

Feejoy sensors use high-quality stainless steel and PEEK and other high-quality housing materials to meet all requirements of food and beverage, pharmaceutical, semiconductor, medical and other industries.

The sensor probe is made of approved special PEEK plastic and only extends 15 mm into the inside of the process. Therefore, the blocking of material flow or shadow interference caused by the sensor is completely eliminated.

Sensor start-up and operation are equally simple. All media can be set before the factory for analog configuration. If the user needs extended functions such as media separation or PWM, then the software can be used to easily configure.



- Food
- Laboratory
- Pharmaceutical

# Feejoy Technology FMS series level switch overview

Different product shapes to meet various working conditions

	Ordering information	Process connection	Process temperature	Application field
	FMSxxxx	G1/2", G3/4", 3/4"NPT, G1", M18	-40...+115 °C	Industrial
	FMSxxxx	G1/2" Sanitary	-40...+115 °C	hygiene
	FMSxxxx	G1/2" for reverse installation	-40...+115 °C	Industrial
	FMSxxxx	M18x1	-40...+115 °C	Industrial
	FMS3101	G1/2" Sanitary	-40...+115 °C	hygiene
	FMS3102	G1/2" sliding connection	-40...+200C	hygiene
	FMS3103	3A DN38	-40...+115 °C	hygiene


# Easily meet your process connection requirements

Feejoy sensors support a variety of standard installation requirements while satisfying process connections compatible with common brands.

Feejoy's instrument products support almost every existing process connection. Feejoy has more than 40 ready-made connection types for you to choose from, you don't need to make any modification to the existing system design. The Feejoy Connection Identifier (BCID) system provides you with a convenient and safe way to help you choose the appropriate process connection in order to install the Feejoy sensor in your actual application.

**Examples of Feejoy connector identification (BCID) system**

- Sensor thread**  
G1/2Bsanitary type (BCID:A03)
- Chuck connection adapter**  
G1/2Bhygienic type (BCID:A03), inverted to chuck connection DN38,ISO2852 (BCID:C04)
- Gasket**  
DN38,ISO2852 (BCID:C04)
- Clamp**  
DN38,ISO2852 (BCID:C04)
- Clamp ferrule**  
DN38,ISO2852 (BCID:C04)



## How to choose a suitable process connection?

First, you need to determine which process connection is required: threaded, clamp, or welded connection. For more information, please see the table on the next page. You can find the corresponding BCID code in the Selection Guide according to the selected connection method. Each adapter and welding base also have corresponding BCID codes. All connectors with the same BCID code, whether they are adapters, clamp ferrules, clamps or gaskets, are matching installation accessories.

**Threaded connection**

Hygienic cone seal connection	G 1/8 B male thread hygienic	A01	
	M12×1.5 Sanitary	A02	
	G 1/2 A hygiene	A03	
	G1 A hygiene	A04	
Industry Standard	G1/8AISO228-1	G01	
	G1/4AISO228-1	G03	
	G1/2AISO228-1	G06	
	G 1/2 A ISO 228-1 BSC	G07	
	G 1/2 A ISO 228-1 with tapered seal	G08	
	G 1/2 A DIN 3852-E, with O-ring at the front	G09	
	G 3/4 A ISO 228-1	G10	
	G 1 A ISO 228-1	G11	
	G 1 A DIN 3852-E, with O-ring at the front	G12	
	G11/4AISO228-1	G13	
	G11/2AISO228-1	G14	
	G 2 A ISO 228-1	G16	
	G1/8AISO228-1 internal thread	G20	
	G1/4AISO228-1 internal thread	G21	
	G1/2AISO228-1 internal thread	G23	
	G3/4AISO228-1 internal thread	G24	
	G 1/4 B EN 837-1	G30	
	G 1/2 B EN 837-1	G31	
	G 3/8 B EN 837-1	G32	
	G 1/2 A DIN 3852-A	G44	
	G 1/4 A DIN 3852-E	G50	
	G 1/2 A DIN 3852-E	G51	
	G1ADIN3852-E	G54	
	Thread adapter designed for replacing tuning fork	G1AISO228-1(EHFTLGW2)	T03
		G 3/4 A ISO 228-1 (EH FTL GQ2)	T04
		G3/4 A ISO228-1(VS Ø 21.3)	T06
		G 1 A ISO228-1 (VS Ø 21.3)	T07
Reverse installation (thread seal)	G 1/2 A ISO 228-1,	T10	
Gland nut	Conical seal M18×1.5	T44	
	Compression fitting ø 6	T52	
	Sleeve ø 5.8 mm	T64	
	Sleeve ø 6 mm	T65	
	Sleeve ø 8 mm	T66	
Metric thread	Sleeve ø 10 mm	T67	
	M12×1.5, metric fine thread, DIN 837	M02	
	M12×1.5, metric fine thread, DIN 3852-E	M03	
	M14×1.5, 60° cone seal	M05	
	M18×1.5ISO261/ISO965	M07	
	M20×1.5ISO261/ISO965	M08	
UTS((Uniform Thread Standard)	M18×1 ISO 261 / ISO 965	M11	
	7/16-20 UNF, With cone seal (SAE 4)	U01	
	7/16-20UNF, With O-ring (SAE4)	U02	
	9/16-18 UNF, With O-ring (SAE 6)	U04	
	NPT(ANSI/ASMEB1.20.1)	1/4-18 NPT	N01
1/2-14 NPT		N02	
3/4-14 NPT		N03	
1-11 1/2 NPT		N04	
1/4-18 NPT female thread		N20	
1/2-14 NPT female thread		N21	

## BCID

### Clamp connection and union nut connection

Feejoy hygienic connection	BHC 3A DN 38 BHC 3A DN 76	B01 B02
ISO 2852 (Tri-Clamp)	DN 21.3, Ø 34.0 DN 25, Ø 50.5 DN 33.7 / 38, Ø 50.5 DN 40 / 51, Ø 64.0	C02 C03 C04 C05
DIN 32676-A (Tri-Clamp)	DN 20, Ø 34.0 DN 25 / 32 / 40, Ø 50.5 DN 50, Ø 64.0	C02 C04 C05
DIN 32676-B (Tri-Clamp)	DN 26.9, Ø 50.5 DN 33.7, Ø 50.5 DN 42.4 / 48.3, Ø 64.0	C03 C04 C05
DIN 32676-C (Tri-Clamp)	DN 3/4", Ø 24.9 DN 1", Ø 50.5 DN 1 1/2", Ø 50.5 DN 2", Ø 64.0	C01 C03 C04 C05
DIN 11851 (Special pipeline connection for dairy products)	DN 25 DN 32 DN 40 DN 50 DN 65	D01 D02 D03 D04 D05
DIN 11864-1-A (Sterile union nut)	DN 25 DN 32 DN 40 DN 50 DN 50, Female thread DN 65	H01 H02 H03 H04 H14 H05
DIN 11864-3-A (Sterile clamp connection)	DN25, Ø 50.5 DN25, Ø 50.5, Female thread	H41 H51
SMS 1145	SMS 1145, DN 38 SMS 1145, DN 51	S01 S02
VARIVENT®	VARIVENT® DN 25; 1" (F type), Ø 50 VARIVENT® DN 32 ...125; 1 1/2" ...6" (N type), Ø 68	V01 V02

## BCID

### Welded connection

Thin wall storage tank	Ø 16 × 12.2 Ø 25 × 17 Ø 45 × 34	W01 W05 W20
Thick wall storage tank	Ø 26.5 × 15 Ø 26.5 × 25 Ø 30 × 26 Ø 45 × 34 Ø 30 × 34 Ø 35 × 20 Ø 50 × 23 Ø 55 × 23 Ø 60 × 20.5 Ø 55 × 32 Ø 120 × 32	W07 W08 W10 W20 W21 W35 W45 W46 W50 W65 W70
Tilting installation	Ø 35 × 34	W30
Pipeline without welding boss	DN25, Ø16	W02
Pipeline with welding boss	DN 25 ... 50, Ø 29 × 36.5 DN 65 ... 150, Ø 30 × 36.5 DN 40 ... 50, Ø 40 × 28 DN 65 ... 150, Ø 41 × 28 DN 38, Ø 38 × 40	W25 W26 W40 W41 W60



***Proven and sophisticated products, first-class precision and expert consulting services  
—Feejoy meets all the above requirements.***

With a rich product range, we provide customers with reliable and tailor-made one-stop solutions to meet their special needs. Our long-term professional technology, practical experience and technical leadership can help you maximize equipment performance and capacity, and minimize downtime and maintenance workload.

***Customization—we know your needs well.***

Our business spreads all over the world and has set up branches all over the world. We are always by your side to provide you with strong on-site support. Customers are at the core of our services, and we are committed to taking action quickly and efficiently to respond to customer needs. In addition to the standard product portfolio, we are particularly good at producing personalized products for your application needs.

