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## FMH SERIES

TWIN SCREW PUMPS  
FOR HYGIENIC SERVICE

- EHEDG STANDARD
- 3A STANDARD

  
PERA-PRINZ®

 **PRINZ**®  
PUMPS MANUFACTURING COMPANY

## WORKING PRINCIPLE

The Screws Pair rotates inside the Pump Enclosure, creating several separate chambers and pushing the fluid trapped inside in accordance with the progression of the screws pitch.

The flow rate is particularly uniform and pulsation-free, and the pumped fluid flows in an axial direction (not circumferentially, as it happens in the centrifugal pumps)

The result of the screws rotation is a gentle movement of the displaced volume, in not turbulent conditions, making it ideal for handling shear-sensitive fluids or liquids easily subject to emulsification.

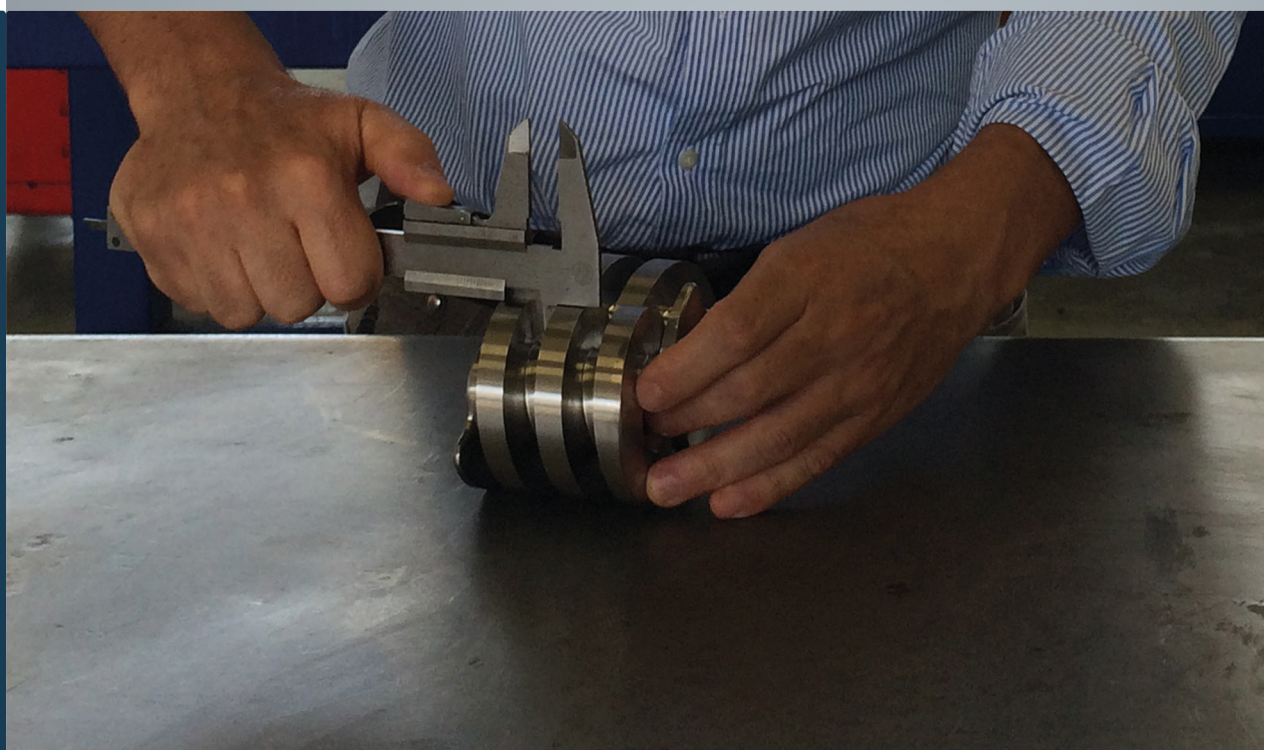
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### Executions:

- EHEDG
- 3A

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3P Prinz FMH Hygienic  
twin screw pumps are  
self-priming and  
reversible



## 3P PRINZ MANUFACTURES PUMPS THAT WORK THE WAY YOU WISH THEY WOULD

The PERA-PRINZ<sup>®</sup> FMH Screw Pumps are Rotating Positive Displacement Pumps, externally and internally supported. One or Two Pairs of Screws, which operate without being in contact with each other, ensure a constant flow, pulsation-free, together with a high suction lift capability with very low NPSH values.

## MAIN ADVANTAGES

The Trim design is modular with a high degree of interchangeability of parts between their variants, inside the same Pump Series.

Each pump can be customized for a specific application allowing the customer to be served in an optimal way.

External supports and gears is supplied as a Standard.

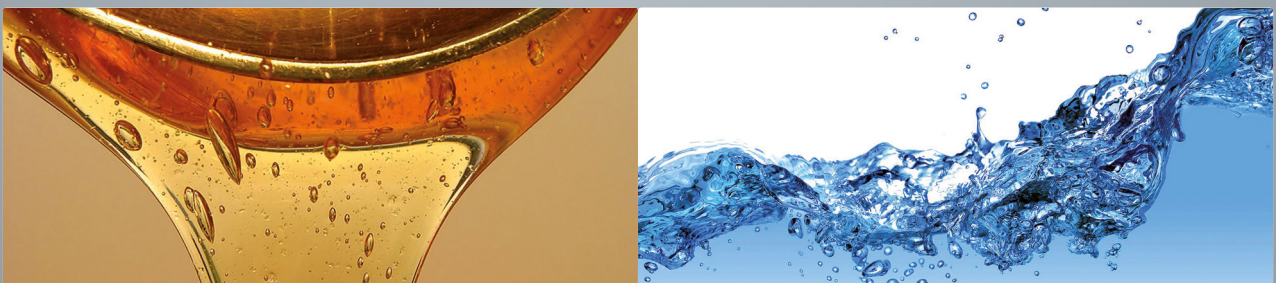


### EASY CLEANING

Compact Design and Dimensions,  
Easy Access for Maintenance.  
The Pump is suitable to CIP and SIP and can be used as a CIP Pump.

### PULSATION FREE AND GENTLE MOVEMENT

Thanks to the absence of pulsations, the pumped product does not suffer of changes of volume, texture, aspect and properties. Since the Screws are contactless, the pumped product is not squeezed or smashed, so its physical properties are maintained after it is pumped.



### HIGH VISCOSITY PRODUCTS

Suitable to pump fluids with low, medium, high and very high viscosity, up to 1.000.000 cSt.

### SUCTION PERFORMANCE

High Suction Lift Capability – generally from 7 to 8,5 meters (the pump NPSH being very low).



## ADVANCED SOLUTIONS MAXIMUM PERFORMANCE

Thanks to the absence of pulsations, to the low flow internal velocities, to the minimization of the turbulent movements and to the absence of contact between the screw rotors, the pumped product does not suffer of changes of volume, texture, aspect and properties.

Thanks to the low inertia of the rotating parts, the Screw Pumps can work at rotating speeds higher than other Positive Displacement Pumps of equivalent volume chambers.

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**A gentle and hygienic production and an even more operating efficiency.**

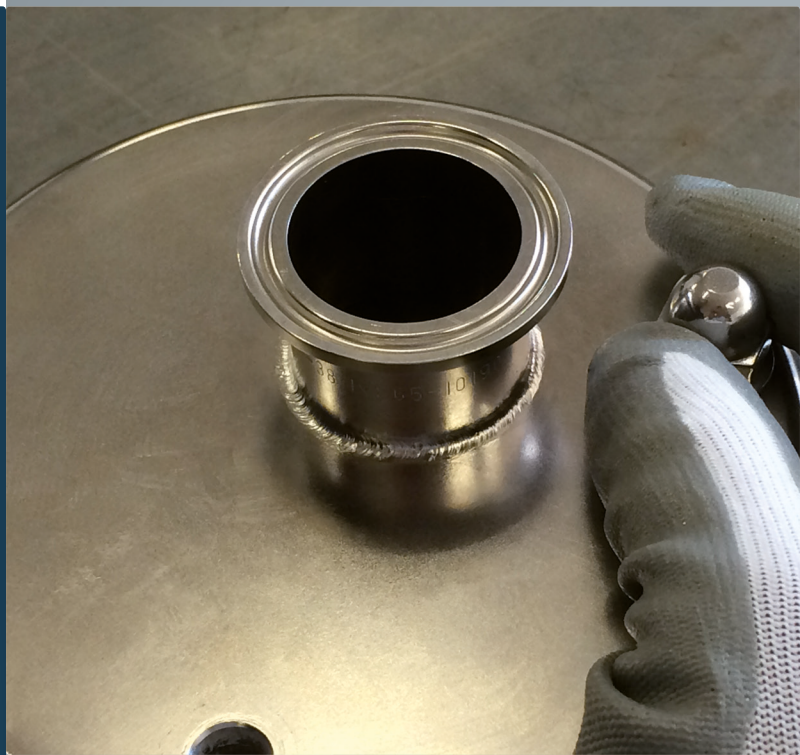
## CLEAN

Fully cleanable in place (CIP) and Sterilisable in place. (SIP)

Cleaning-In-Place (CIP) and Sterilization-In-Place (SIP) are pumps procedures for cleaning and disinfecting without major disassembly and assembly work.

The FMH Twin Screw Pump can be used also as a CIP Pump, with the benefit of eliminating the need of another Pump dedicated only to CIP (and any eventual accessories that would be needed for that).





The Components of the PERA-PRINZ® Screw Pumps are machined with very accurate tolerances and with very high quality surface finishing, in order to reduce the clearance and minimize the leakages and backflow.



## VERSATILITY

The PERA-PRINZ® Screw Pumps can also be used as Dosing Pumps and Metering Pumps, in particular applications in which the pressure and fluid viscosity are constant during the operation.

For Viscous Fluids, simply by changing the rotation speed, flow rates directly proportional to velocity can be achieved, with a good repeatability too.

Thanks to their working principle, the Screw Pumps can suction also good percentages of Air, Gas or Vapors that are entrapped in the fluid.

The FMH Screw Pumps are capable of dry running, making them versatile for a wide range of applications and installations.

# SCREW PUMPS FOR FOOD AND PHARMACEUTICAL INDUSTRY

Each pump can be customized for a specific application allowing the customer to be served in an optimal way.

Several Screws Profiles and several materials available allow them to be optimized for each particular application.



## **FOOD INDUSTRY**

Soups, Sauces, Dressings, Ketchup, Mustard, Mayonnaise, Cream of wheat, Dough, Marmalade, Yogurt, Butter, Baby food, COncentrates, Jam, Liquid Sugar, Molasses, Caramel & Fudge, Chocolate, Yeast, Dairy Products, Milk, Ground and Minced Meat, Sausages, Oils and Fats, Pet Food and more.



## **BEVERAGE INDUSTRY**

Juices, Pulp, Concentrates, Syrups, Wines, Sparkling wine, Malt extract



## **PHARMACEUTICAL INDUSTRY**

Raw materials, Personal care, Cosmetics Bio-Pharma



## MAKING THE DIFFERENCE

Twin screw pumps are predestinated by their operation mode and the construction for low shearing and smooth handling of sensitive products. The axial transporting movement, without changing direction, as well as the non-contacting intermeshing screws, provide optimum results.

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Thanks to its modular system, 3P PRINZ offers various pump sizes and different screw sets that cover a capacity range up to 60 m<sup>3</sup>/h (265 GPM).



  
PERA-PRINZ®

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The specific construction makes it possible to handle a wide range of flow capacities with the same viscosities, operating pressures and rotation speeds.

# PERFORMANCE DATA

<b>PUMP TYPE</b>	2-SCREW PUMPS FOR HYGIENIC SERVICE (Series FMH)		
<b>PUMP SERIES</b>	FMH 100 Series:	FMH 200 Series	FMH 300 Series
<b>INSTALLATION OPTIONS:</b>	Horizontal		
EXECUTIONS:	Standard compliant with 3A and EHEDG		
<b>OPTIMIZED FOR APPLICATIONS IN:</b>	Food & Beverage, Pharmaceutical		
Suitable to Fluid having the following properties:	Abrasive Corrosive Low / Medium / High Viscosities Not Lubricating or Lubricating Medium percentage of Gas or Air dissolved in Liquid Dirty (small and medium soft solid particles, up to 20-25 mm diameter)		
<b>ADVANTAGES OF THE OPERATING PRINCIPLE:</b>	Self priming without any auxiliary devices (when pump is filled) High Suction Lift Capacity (suitable to conditions with low NPSH available) Capable to pump very viscous fluids (up to 1.000.000 cSt) thanks to its smooth and low-pulsation movement High Rotating Speeds are possible thanks to the low inertia of the screws Screws are contact-less so wear-out is minimized, pump parts are not dissolved into product and Pump Life is extended Pulsations are minimized and flow rate is uniform, allowing to handle fluids that are very viscous and sensitive to shear stresses or turbulences, avoiding emulsions or fluid damage Reversible Low noise level		
<b>PUMP SERIES</b>	FMH 100 Series:	FMH 200 Series	FMH 300 Series
Maximum differential pressure:	Up to 16 barg	Up to 16 barg	Up to 16 barg
Flow rates:	Up to 16 m3/h	Up to 30 m3/h	up to 60 m3/h
Viscosity of the pumped fluid:	up to 1.000.000 cSt		
Rotation speed:	from 100 up to 3600 rpm		
Temperature range:	-20 / +140 °C (160°C with Oil Cooler)		
Pulsations:	Minimized (almost zero)		
Dosing capability:	Good		
Bearing types:	External Bearings and Gears in oil bath		
Flange type	Suction 2" tri-clamp Discharge 1"1/2 tri-clamp	Suction 3" tri-clamp Discharge 2"1/2 tri-clamp	Suction 4" tri-clamp Discharge 3" tri-clamp
	<b>MORE FLANGE CONNECTIONS UPON REQUEST</b>		
Construction	Stainless steel 316L for wetted parts - on Request: Hastelloy C-276		
Cleaning	CIP (Cleaning in Place) and SIP (Sterilisation in Place) cleaning		
<b>APPLICATION FIELDS:</b>	Food & Beverage:	Vegetable and Animal Oils Animal Fats Alcohol Sauces and Dough Syrups and Molasses Caramel and Fudge Fluids with pieces in suspension	Fruit Juices, Pastes, Jam, Pulp Lecithin Chocolate Dairy Products Cream Wines & Beers Ground meat and similar
	Pharmaceutical & Cosmetics:	Cosmetics Pastes & Creams	Ointments, Emulsions Soaps and Detergents

FMH SERIES – CONSTRUCTION			
Standard Material Combinations:	Housing	Screws	Shaft / Shafts
	Stainless Steel SS316L grade	Stainless Steel SS316L grade	Stainless Steel 17-4 PH
	NOTE: all parts in contact with the fluid are in SS316L grade.		Hastelloy C-276
	Hastelloy C-276		
	Other hardenings available depending on application		

FMH SERIES – MAIN SPECIFICATION	
Maximum differential pressure:	Up to 16 bar [232 PSI] Higher Pressures available on request
Flow rates:	up to 60 m <sup>3</sup> /h [up to 264 GPM]
Viscosity of the pumped fluid:	up to 1.000.000 cSt
Rotation speed:	up to 3600 rpm
Temperature range:	-20 / +140 °C (160°C with Oil Cooler)
Handling Solid Particles & Dirty Fluids:	Yes
Handling Aggressive Fluids:	Yes
Pulsations:	Minimized (almost zero)
Dosing capability:	Good
Flange Type:	From 1" 1/2 tri clamp to 4" tri clamp)
Bearing types:	Bearings in Oil Bath
Construction	Stainless steel 316L for wetted parts - Hastelloy C-276 on request

## FMH - HYGIENIC PUMPS SERIES

TWO PAIRS OF SCREWS – SINGLE END

EXTERNAL BEARINGS AND GEARS

3PPRINZ.COM

3P PRINZ  
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