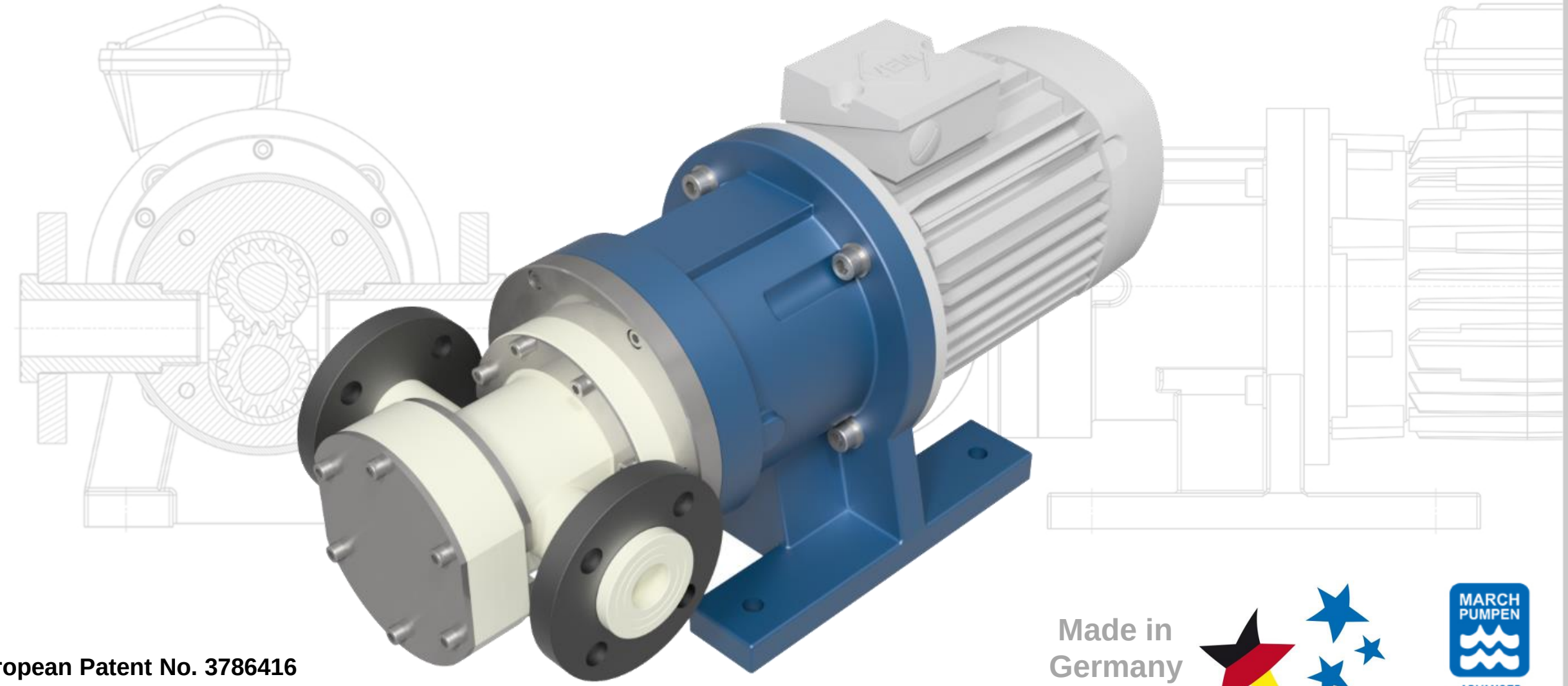
MAGNETICALLY COUPLED GEAR PUMPS

Series: TEF-MAG®

chemical resistant, non-metallic gear pump for harshest industrial applications



European Patent No. 3786416
USA Patent No. US 10,189,005 B2

Made in Germany

MARCH PUMPEN
...ADVANCED SOLUTIONS...

Series: TEF-MAG®

PRODUCT DESCRIPTION

MARCH Series TEF-MAG® pumps are magnetically coupled, rotating positive displacement pumps, external gear type.

Gear pumps generate low flows with middle to high discharge pressures and approximately no pulsation.

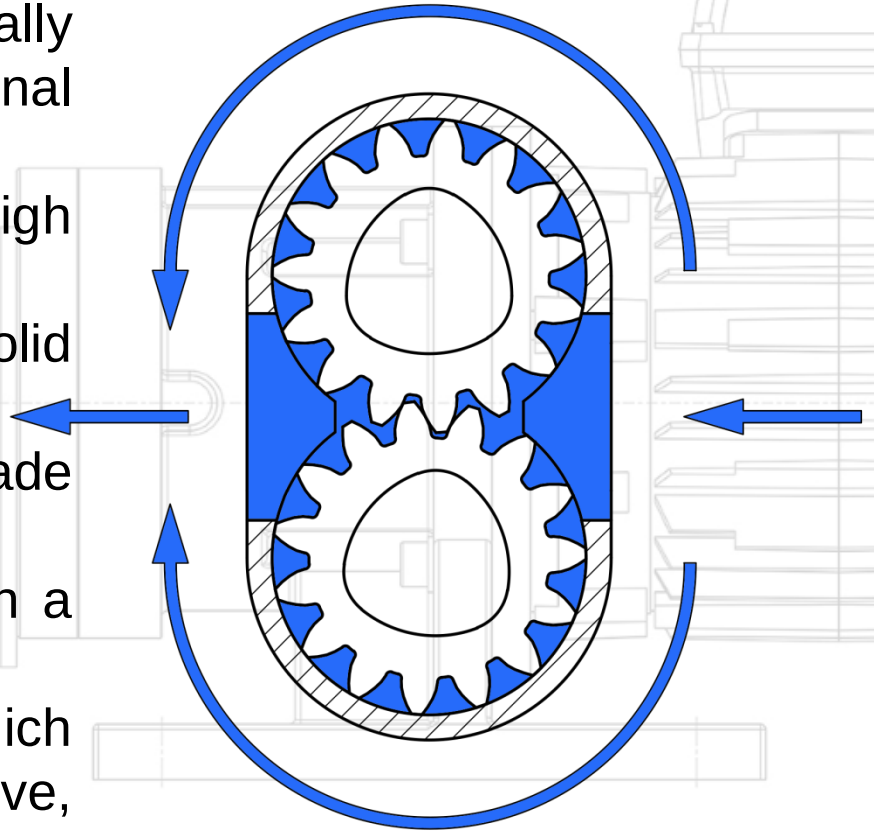
The pump housing is machined of chemical resistant solid block plastics like PP, PE, PVC, PVDF or PEEK.

The hydraulic parts, gears, shafts and bearings are made of non-metallic materials also.

The power transmission of drive and pump happens in a contactless way with strong permanent magnets.

So the pump is able to work without any shaft seals, which guarantees save supplies without any leakage of corrosive, toxic and explosive fluids.

Pumps for potentially explosive areas in zone 1 and 2 are available.



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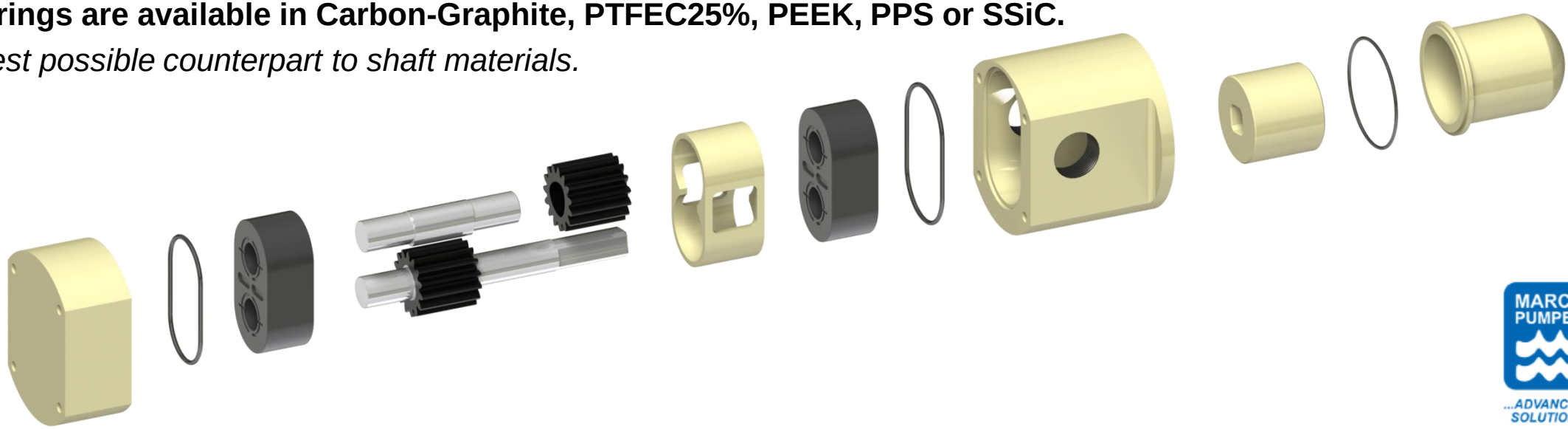
CORROSION RESISTANT DESIGN

- **All wetted pump parts are completely non-metallic.**
  - *best possible resistance against corrosive chemicals.*
- **Pump housings are made of machined solid block plastic materials like PP, PE, PVC, PVDF or PEEK.**
  - *excelent range of materials and availability.*
  - *no need for expensive high alloys prone to corrosion damage.*
- **External gears are made of PEEK, PVDF, PPS or PTFE compounds.**
  - *self-lubricating effect, low-wear, low friction, best chemical resitstance*
- **Shafts are made of alumina ceramic Al2O3 >99% or sintered silicon carbide SSiC.**
  - *best possible chemical resitance and very low wear.*
- **Bearings are available in Carbon-Graphite, PTFEC25%, PEEK, PPS or SSiC.**
  - *best possible counterpart to shaft materials.*



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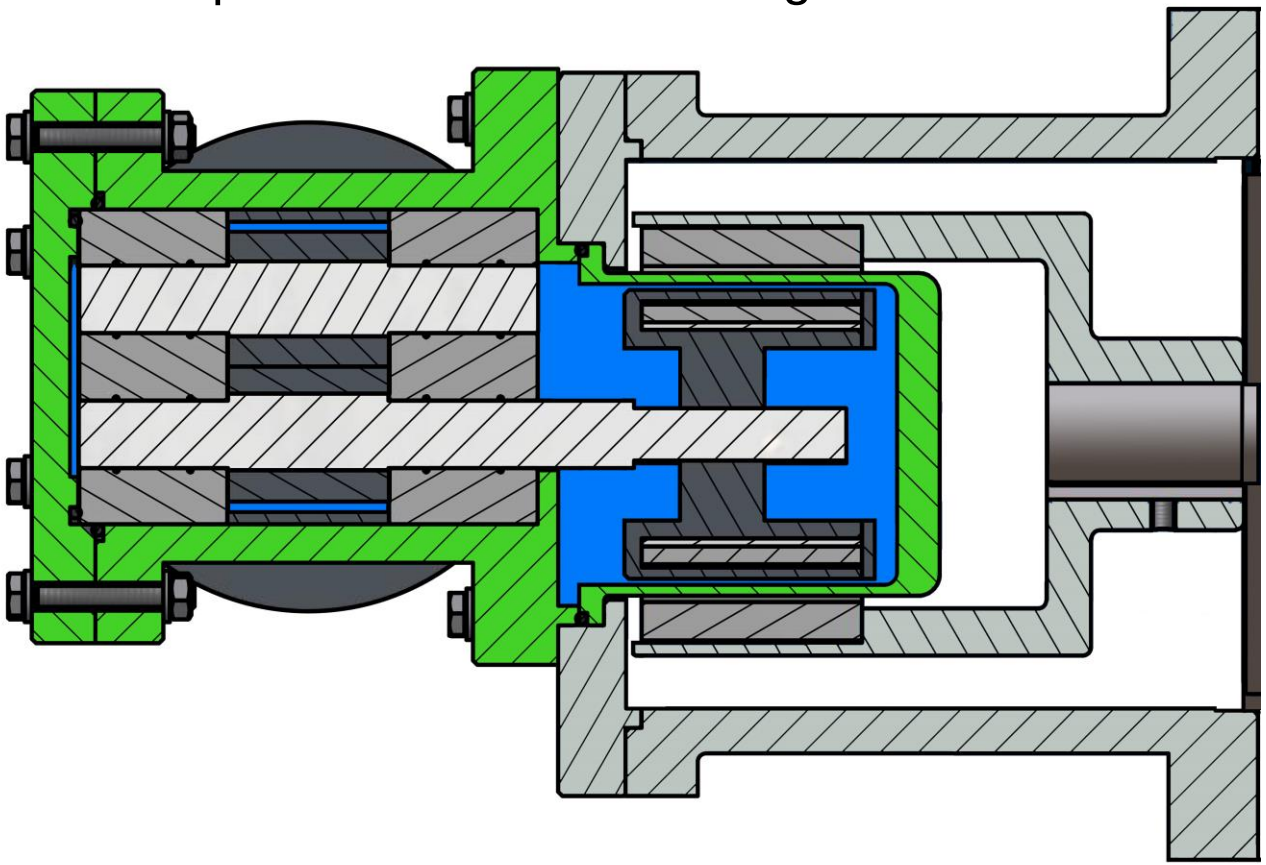
Series: TEF-MAG®

LEAK-FREE, MAGNETIC COUPLED

TEF-MAG® Series pumps are magnetically coupled, meaning there is no mechanical seal with contacting seal faces that are prone to wear and leakage.

Zero leakage, no emissions of hazardous or regulated chemicals.

A non-metallic containment can eliminates energy loss and heat rise due to magnetic losses common in metallic pumps.



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Series: TEF-MAG®

APPLICATIONS

TEF-MAG® Series pumps are built for use in the harshest industrial environments. Designed to be structurally rugged with corrosion-resistant materials, the **TEF-MAG®** is an ideal fit for many medium to highly corrosive liquids used in the chemical processing, petro- and oleochemical industries and environment engineering. Conductive materials are available also, for usage in harzardous ATEX areas. FDA compliant materials are also available upon request.

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APPLICATIONS

HIGH HEAD / LOW FLOW APPLICATIONS

- Chemical waste water treatment or water treatment, such as precipitation, flocculation, coagulation, chlorination, neutralization.
- Metering of highly corrosive catalysts in Bio-Diesel-Production -Plants
- Linear metering applications and transfer of alkalines and pickling agents in surface finishing
- Self-priming suction out of subgrounded tanks of solvents, corrosives, toxic, explosive or environmentally threatening liquids.

- Sulfuric Acid
- Sodium Hydroxide
- Sodium Hypochlorite
- Feric(III)-chloride
- Aluminim Slats
- Hydrochlorit Acid
- Hydrofluoric Acid

- Fatty Acids
- Nitic Acid
- Phosphoric Acid
- Formic Acid
- Boric Acid
- Urea
- Acetic Acid

-Hexafluorosilic Acid
- Sodium Hydroxide
- Sodium Disphosphate
- Chluordioxide
- Chluoros
- Toluene
- and so on…

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ADVANTAGES

No need for…

- **Pulsation dampeners**
- **Expensive steel alloys like Hastelloy C, Duplex or Titan**

Potential for savings…

- **Low maintenance and personnel costs**
- **Long service life**
- **Few spare and wear parts, good availability, short lead times**
- **Optimum efficiency through frequency converter control**
- **Damage prevention through pump monitoring**

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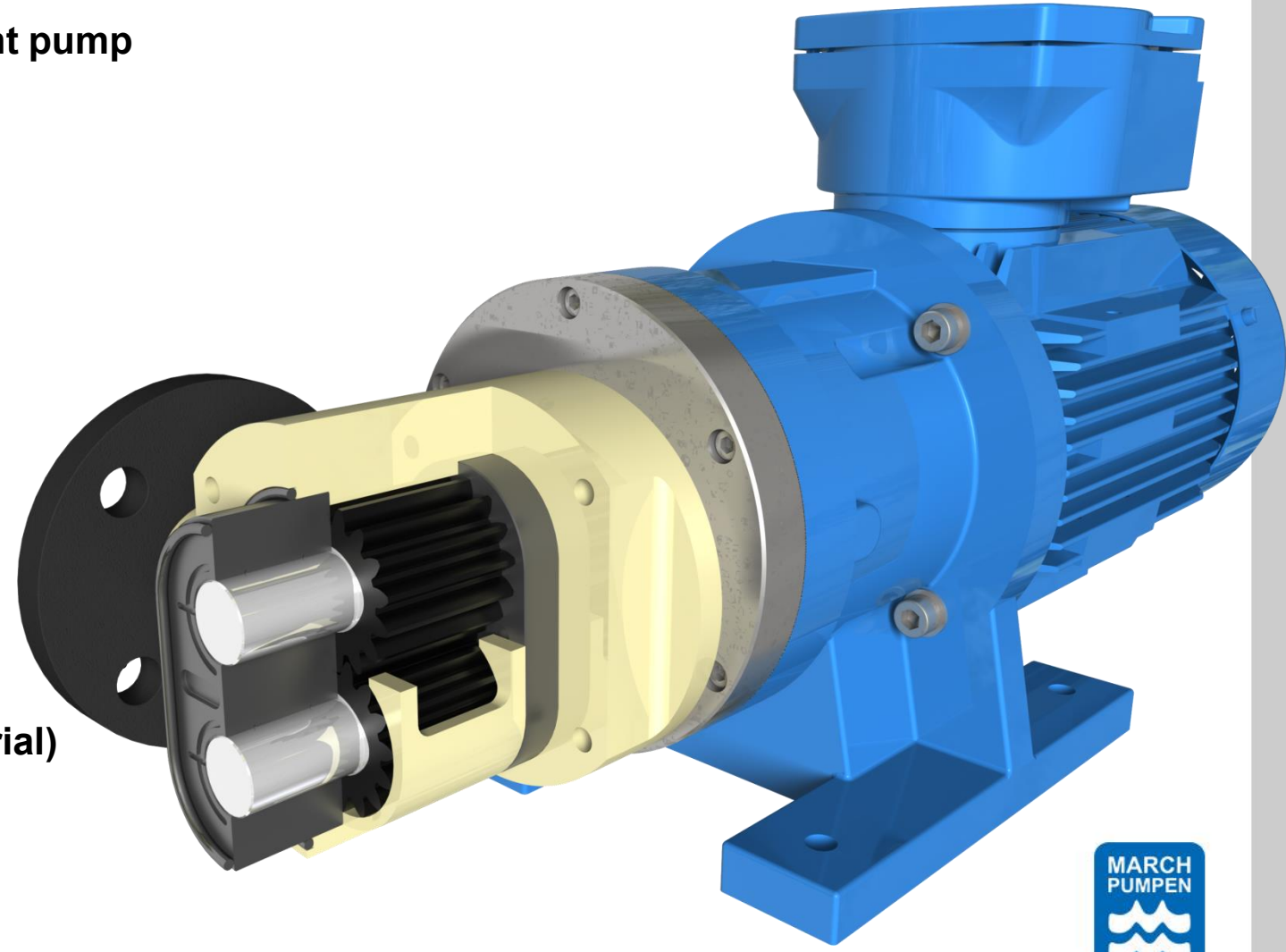
...ADVANCED SOLUTIONS...

Series: TEF-MAG®

DESIGN FEATURES

- Volumetric, rotary positive displacement pump
- External Gear Pump
- Wetted parts completely non-metallic
- Chemical resistant
- Magnetically coupled
- Low flow
- High head
- Nearby pulsation free
- Self-priming (wet)
- Dry running capable (depends on material)
- Most suitable for VFD



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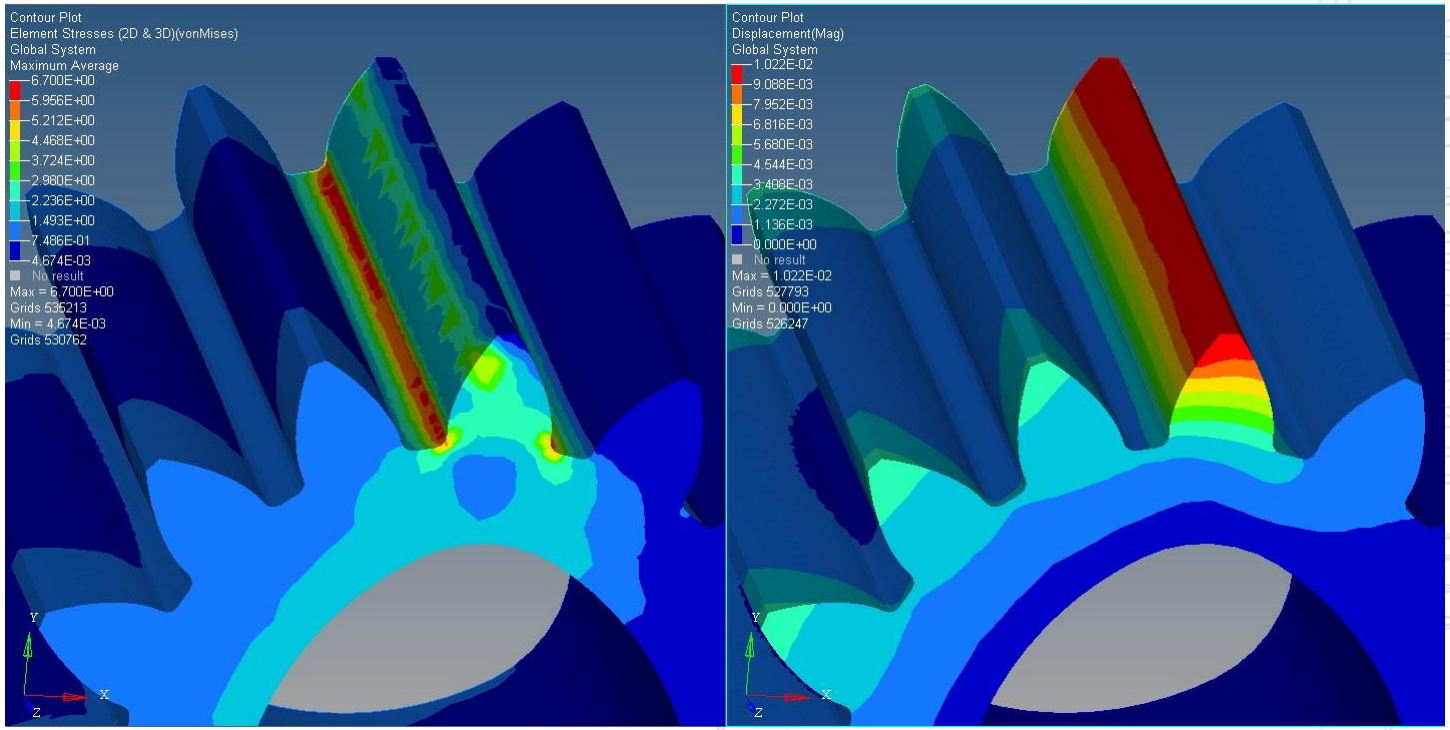
Series: TEF-MAG®

MADE IN GERMANY

- Research and development
- 3D CAD construction
- FEM and CFD analysis
- Materials and sub-suppliers
- Assembly and test
- 100% made in Germay



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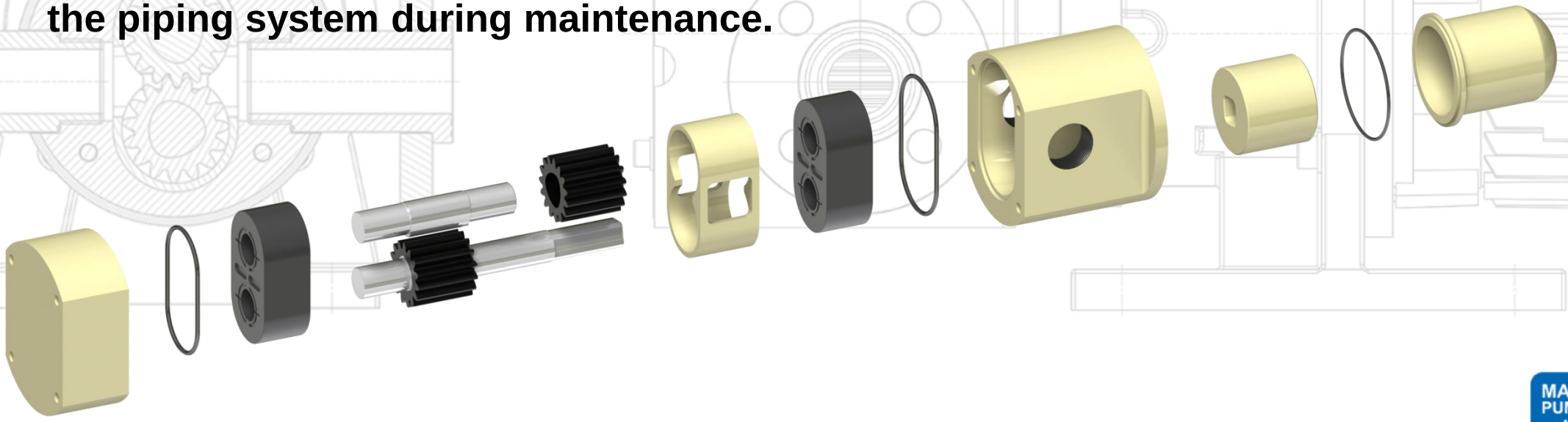
...ADVANCED SOLUTIONS...

Series: TEF-MAG®

SIMPLE DESIGN

- Easy wet-end assembly
- 5 wear parts only (Gears 2x, Bearings 2x, Gear Liner)
- Assembling or maintenence requires no special tools
- Changing kit-spares take 5 minutes only
  No time wasted in assemby of small standard parts
- Pump design allowes, that the pump must not be disassembled from the piping system during maintenance.



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AVAILABLE MATERIALS

- **Housings:** PP, PE, PVC, PVDF, conductive PVDF, PEEK
- **Gears:** PTFEC25%, PEEK, PVDF, PPS
- **Shafts:** Al2O3 >99%, SSiC
- **Bearings:** Carbon-Graphite, PTFE C25%, PEEK, PPS, SSiC
- **Magnets:** encapsulated NdFeB
- **O-Rings:** NBR, EPDM, FKM, FFKM

Other materials available upon request!

(for example: FDA compliant materials, non stated housing materials)

MARCH PUMPEN
...ADVANCED SOLUTIONS...

Series: TEF-MAG®

PERFORMANCE DATA

Volumetric flow: from 10 l/h up to 4,5 m³/h

Differential pressure, max.: 10 bar

Design pressure, max.: 16 bar

Temperature, max.: 65 °C

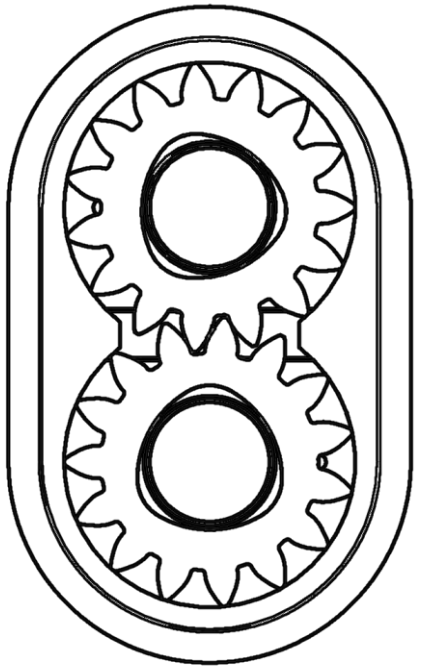
Self-priming (wet), max.: 8 meter

Different pump sizes: TM200, TM1500 und TM3500

Nearby pulsation free

Dry running capable (depends on materials)

ATEX Version available acc. to ATEX2014/34/EU, II2G, Ex h IIC Tx(65°C) Gb



MARCH PUMPEN

...ADVANCED SOLUTIONS...

TEF-MAG 200 TEF-MAG 1500 TEF-MAG 3500

PERFORMQANCE DATA

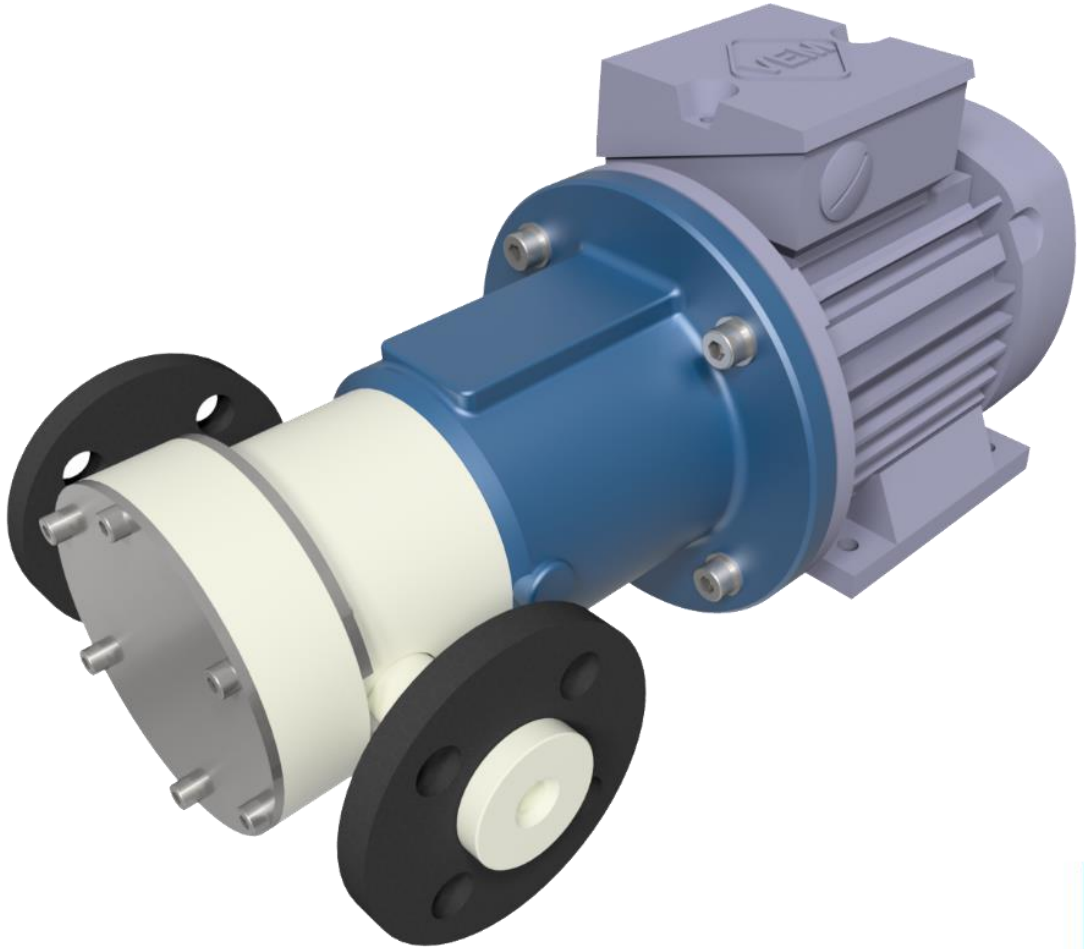
Nominal speed:	1450 1/min (50Hz)
	1750 1/min (60Hz)
Nominal flow:	260 l/h (68.68 us gph)
	330 l/h (87.18 us gph)
Discharge pressure, max.:	10 bar (145 psi)
Design pressure:	PN 16 bar (232 psi)
Temperature, max.:	65°C (149°F)
Density, max.:	1,9 kg/dm³
Viscosity, max.:	5000 cP
NPSHR:	0,5 m
Drive power:	0,25 … 0,55 kW

CONNECTIONS

Threaded:	G3/8“ IG
Flanged:	DN15 PN10/16
	ANSI 1/2“

MOTOR ADAPTION

IEC:	Size 71 B35, 0,25 kW, 6-pole
	Size 71 B35, 0,37 kW, 4-pole
	Size 80 B35, 0,55 kW, 4-pole
NEMA:	Size 56C, 0.5HP, 4-pole



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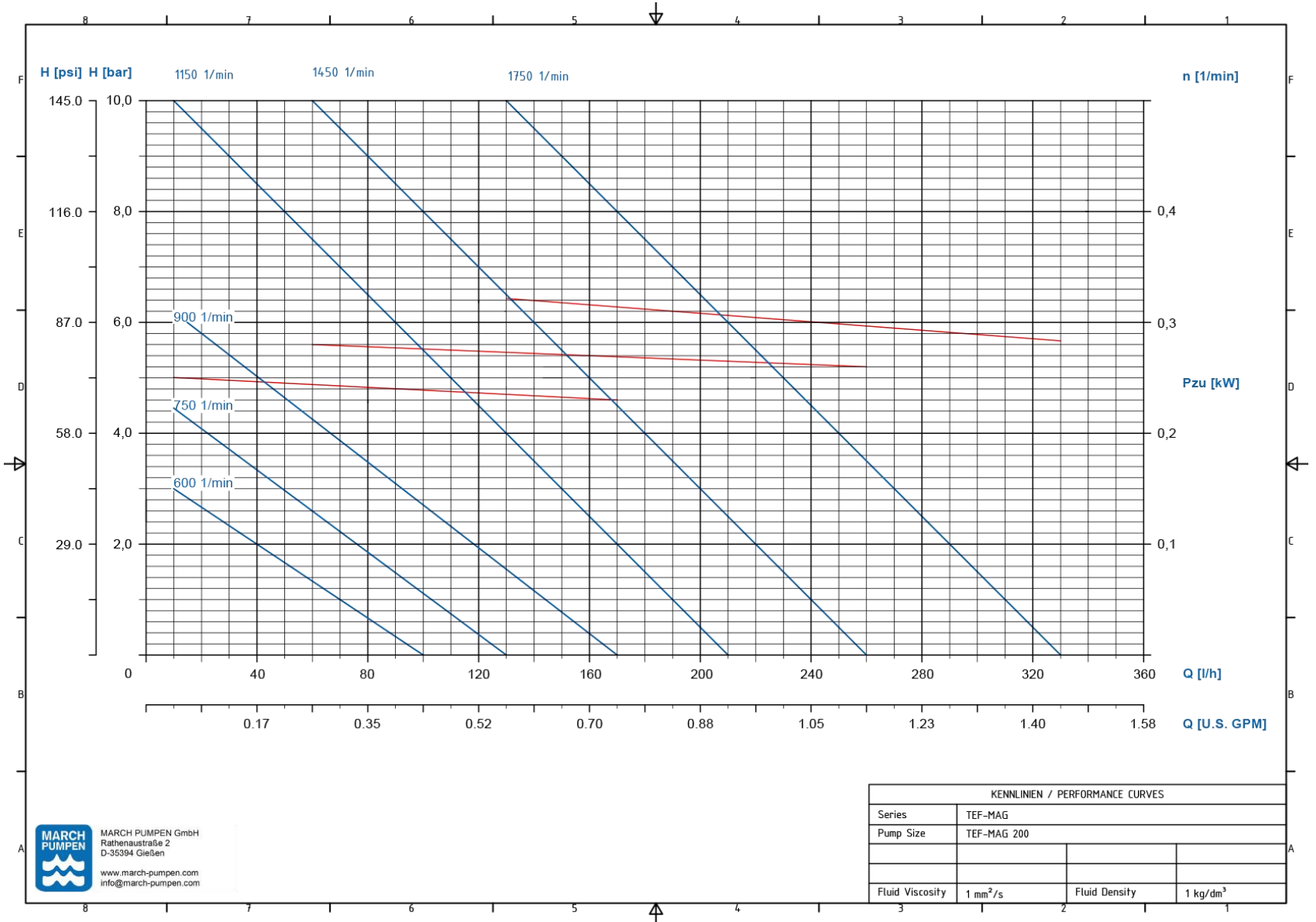
...ADVANCED SOLUTIONS...

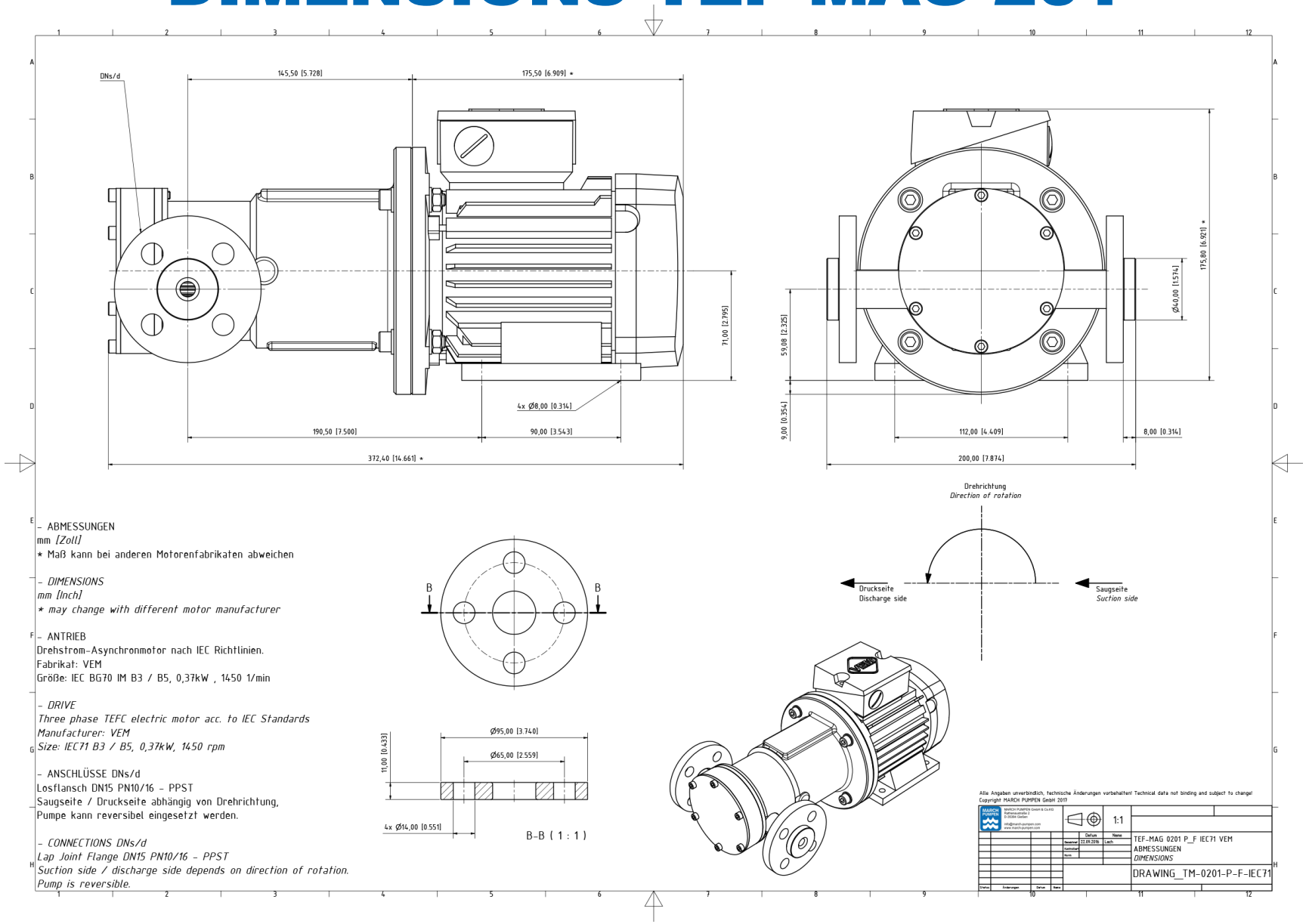
Series: TEF-MAG®

PERFORMANCE CURVES TEF-MAG 200



...ADVANCED SOLUTIONS...

DIMENSIONS TEF-MAG 201



- ABMESSUNGEN
mm *[Zoll]*
* Maß kann bei anderen Motorenfabrikaten abweichen

- *DIMENSIONS*
mm [Inch]
** may change with different motor manufacturer*

- ANTRIEB
Drehstrom-Asynchronmotor nach IEC Richtlinien.
Fabrikat: VEM
Größe: IEC BG70 IM B3 / B5, 0,37kW , 1450 1/min

- *DRIVE*
Three phase TEFC electric motor acc. to IEC Standards
Manufacturer: VEM
Size: IEC71 B3 / B5, 0,37kW, 1450 rpm

- ANSCHLÜSSE DNs/d
Losflansch DN15 PN10/16 - PPST
Saugseite / Druckseite abhängig von Drehrichtung,
Pumpe kann reversibel eingesetzt werden.

- *CONNECTIONS DNs/d*
Lap Joint Flange DN15 PN10/16 - PPST
Suction side / discharge side depends on direction of rotation.
Pump is reversible.

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Series: TEF-MAG®

TEF-MAG 200 TEF-MAG 1500 TEF-MAG 3500

PERFORMANCE DATA

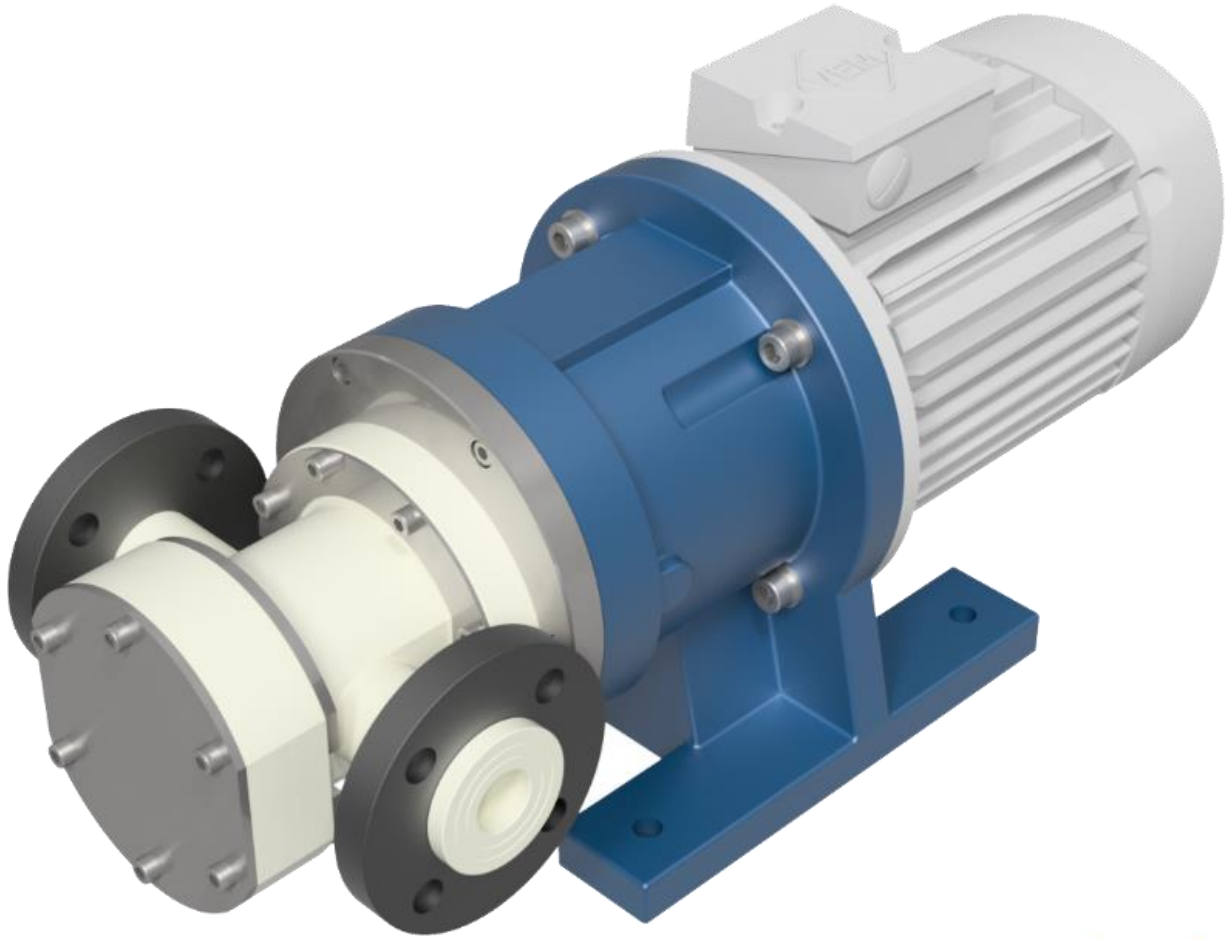
Nominal speed:	1450 1/min (50Hz)
	1750 1/min (60Hz)
Nominal flow:	1350 l/h (356.63 us gph)
	1650 l/h (435.88 us gph)
Discharge pressure, max.:	10 bar (145 psi)
Design pressure:	PN 16 bar (232 psi)
Temperature, max.:	65°C (149°F)
Density, max.:	1,9 kg/dm³
Viscosity, max.:	5000 cP
NPSHR:	0,5 m
Drive power:	0,75 … 2,2kW

CONNECTIONS

Threaded:	G1“ IG
Flanged:	DN25 PN16
	ANSI 1“

MOTOR ADAPTION

IEC:	Size 90 B5, 0,75 kW, 6-pole
	Size 90 B5, 1,55 kW, 4-pole
	Size 100 B5, 2,2 kW, 4-pole
NEMA:	Size 143/145TC, 1.0/1.5/2.0HP, 4-pole



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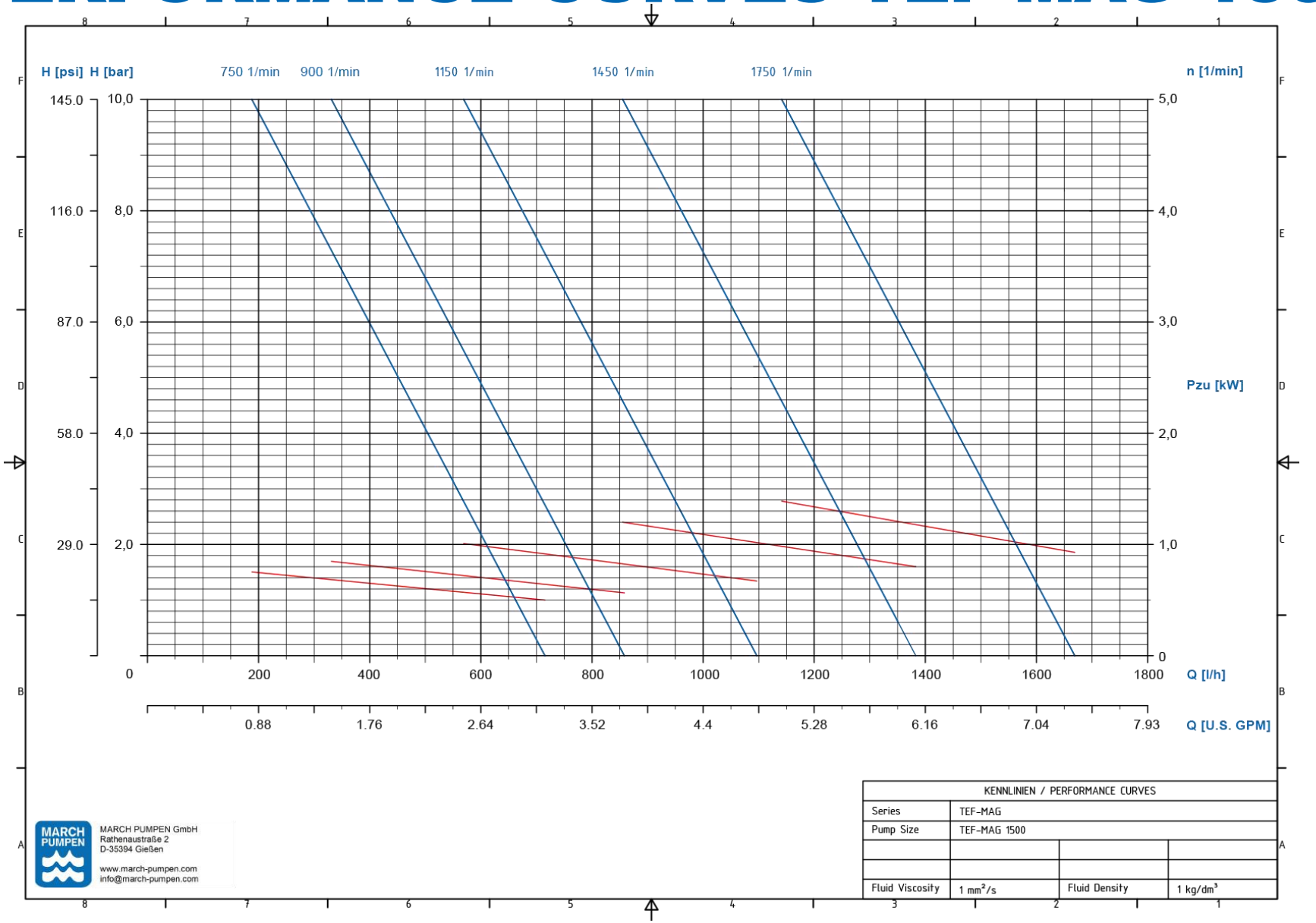
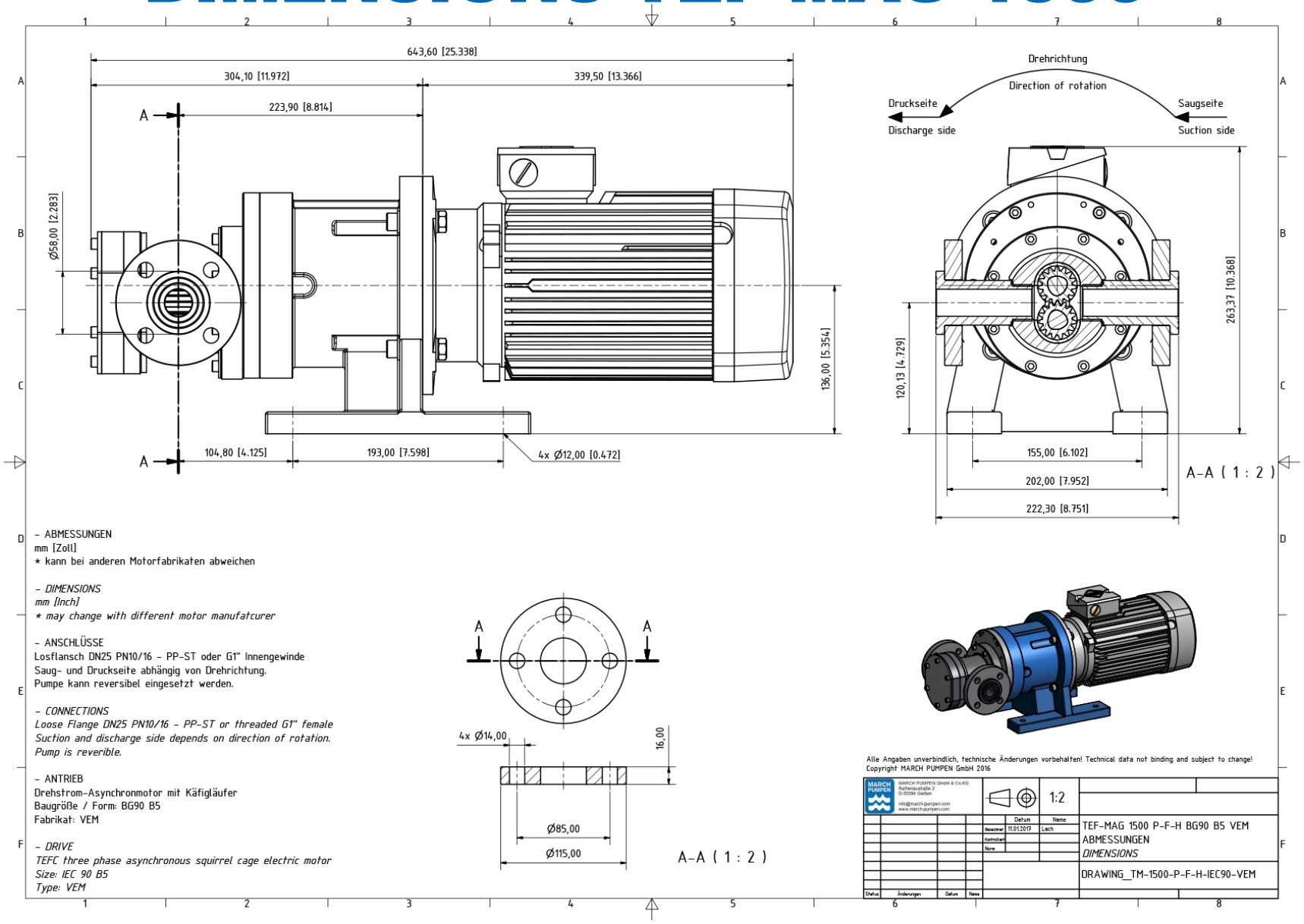
PERFORMANCE CURVES TEF-MAG 1500



...ADVANCED SOLUTIONS...

Series: TEF-MAG®

DIMENSIONS TEF-MAG 1500

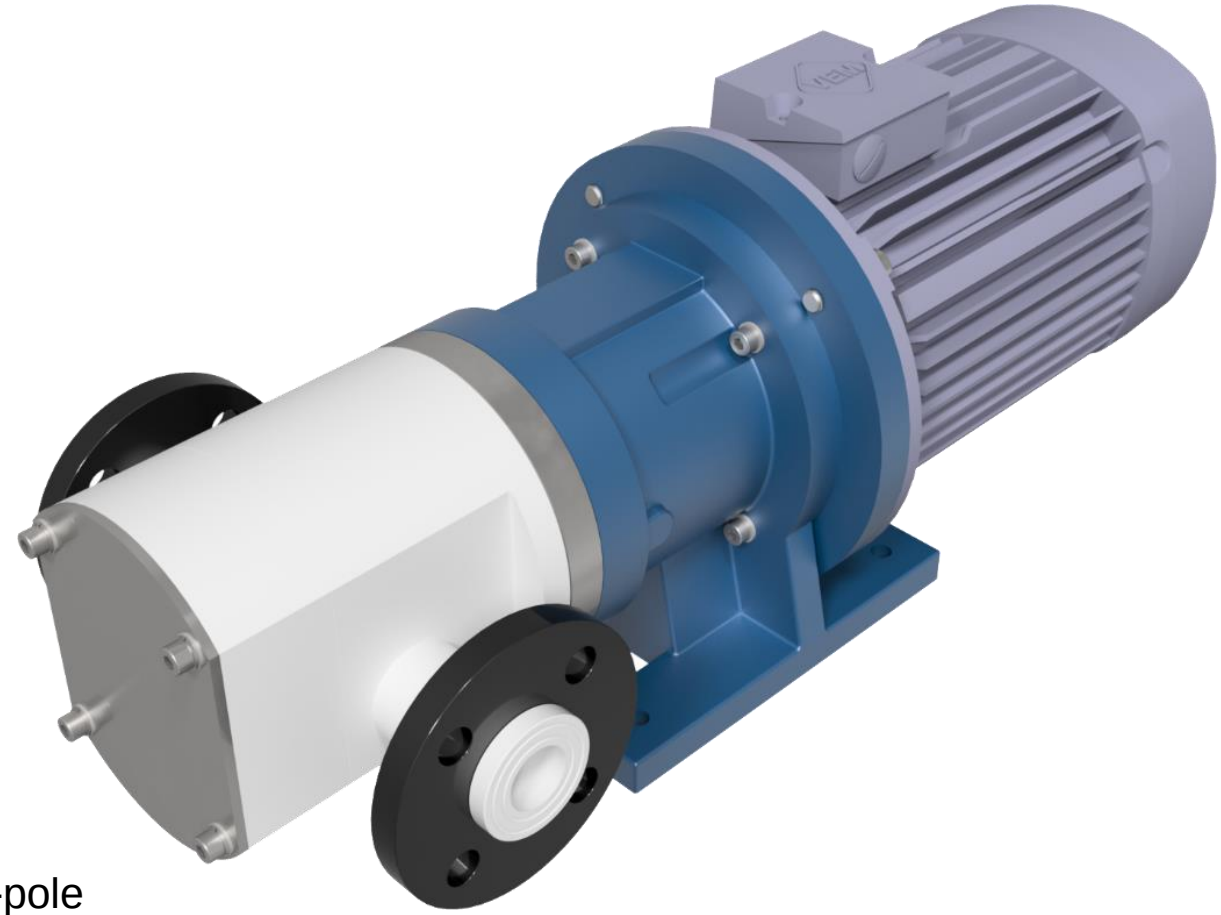


...ADVANCED SOLUTIONS...

TEF-MAG 200 TEF-MAG 1500 TEF-MAG 3500

PERFORMANCE DATA

Nominal speed:	1450 1/min (50Hz)
	1750 1/min (60Hz)
Nominal flow:	3650 l/h (965 us gph)
	4650 l/h (1228 us gph)
Discharge pressure, max.:	10 bar (145 psi)
Design pressure:	PN 16 bar (232 psi)
Temperature, max.:	65°C (149°F)
Density, max.:	1,9 kg/dm³
Viscosity, max.:	5000 cP
NPSHR:	0,5 m
Drive power:	2,2 … 4,0 kW



CONNECTIONS

Threaded:	G1 1/4“ IG
Flanged:	DN32 PN16
	ANSI 1 1/4“

MOTOR ADAPTION

IEC:	Size 100 B5, 2,2kW, 6-pole
	Size 100/112 B5, 3,0…4,0 kW, 4-pole
NEMA:	Size 182/4TC, 3.0 … 4.0 HP, 4-pole

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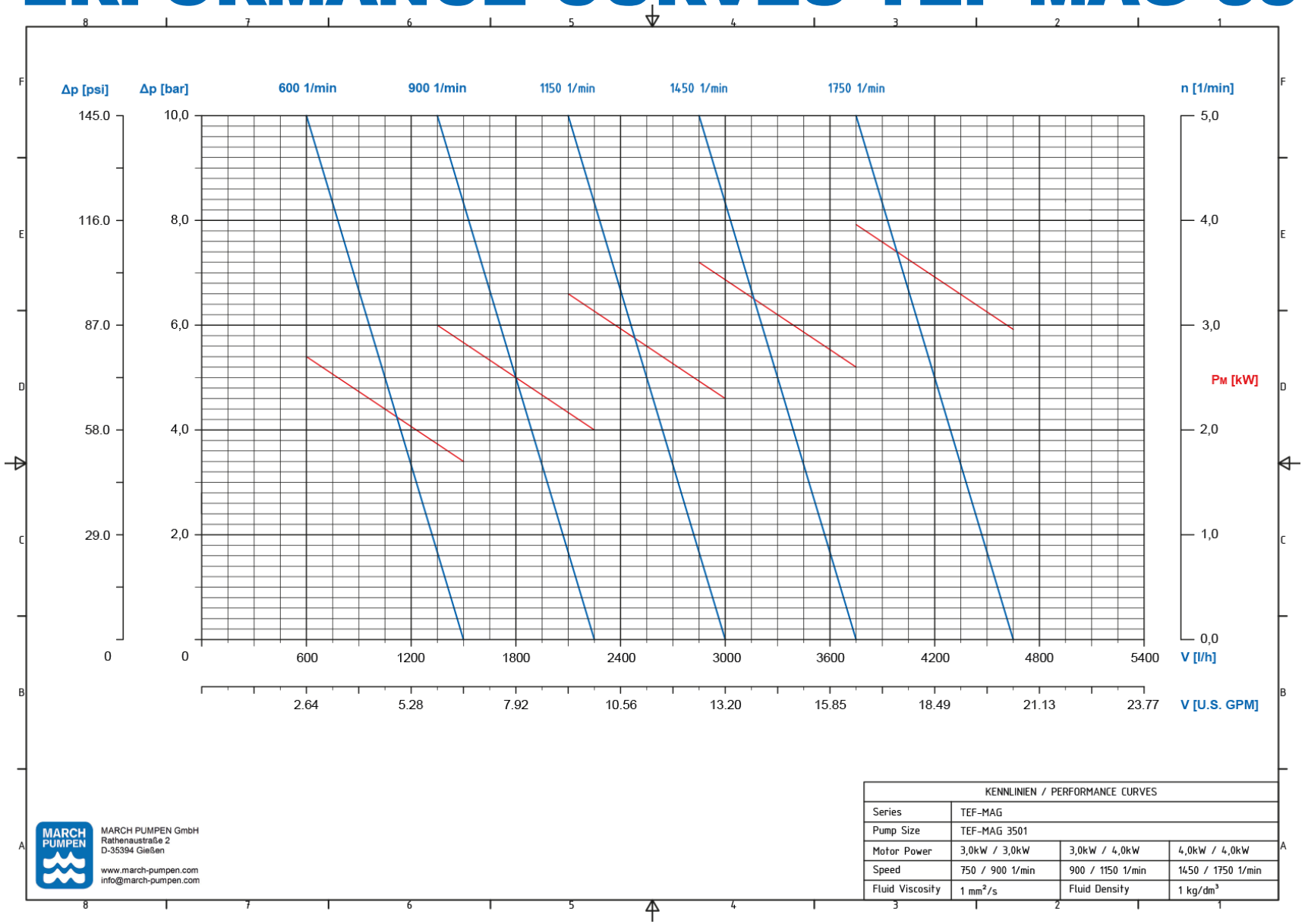
PERFORMANCE CURVES TEF-MAG 3500



KENNLINIEN / PERFORMANCE CURVES			
Series	TEF-MAG		
Pump Size	TEF-MAG 3501		
Motor Power	3,0kW / 3,0kW	3,0kW / 4,0kW	4,0kW / 4,0kW
Speed	750 / 900 1/min	900 / 1150 1/min	1450 / 1750 1/min
Fluid Viscosity	1 mm^2/s	Fluid Density	1 kg/dm^3

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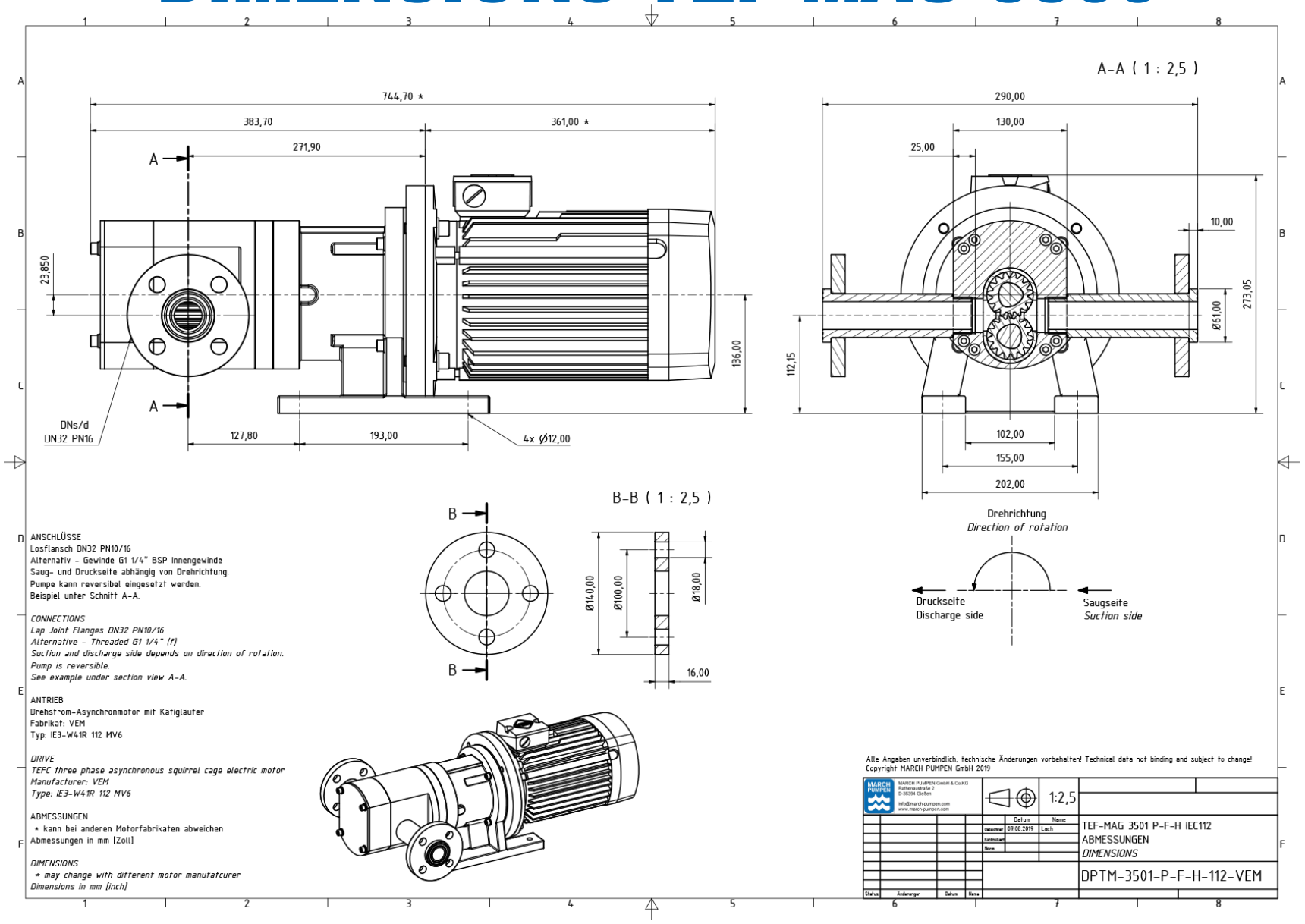
...ADVANCED SOLUTIONS...

Series: TEF-MAG®

DIMENSIONS TEF-MAG 3500



ANSCHLÜSSE
Losflansch DN32 PN10/16
Alternativ – Gewinde G1 1/4" BSP Innengewinde
Saug- und Druckseite abhängig von Drehrichtung.
Pumpe kann reversibel eingesetzt werden.
Beispiel unter Schnitt A-A.

CONNECTIONS
Lap Joint Flanges DN32 PN10/16
Alternative – Threaded G1 1/4" (f)
Suction and discharge side depends on direction of rotation.
Pump is reversible.
See example under section view A-A.

ANTRIEB
Drehstrom-Asynchronmotor mit Käfigläufer
Fabrikat: VEM
Typ: IE3-W41R 112 MV6

DRIVE
TEFC three phase asynchronous squirrel cage electric motor
Manufacturer: VEM
Type: IE3-W41R 112 MV6

ABMESSUNGEN
* kann bei anderen Motorfabrikaten abweichen
Abmessungen in mm [Zoll]

DIMENSIONS
* *may change with different motor manufatcurer*
Dimensions in mm [inch]

MARCH PUMPEN GmbH & Co.KG, Rathenaustraße 2, D-35394 Gießen, info@march-pumpen.com, www.march-pumpen.com	1:2,5
Bearbeiter: 07.08.2019 Lach	TEF-MAG 3501 P-F-H IEC112 ABMESSUNGEN *DIMENSIONS*
	DPTM-3501-P-F-H-112-VEM

MARCH PUMPEN ...ADVANCED SOLUTIONS...

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