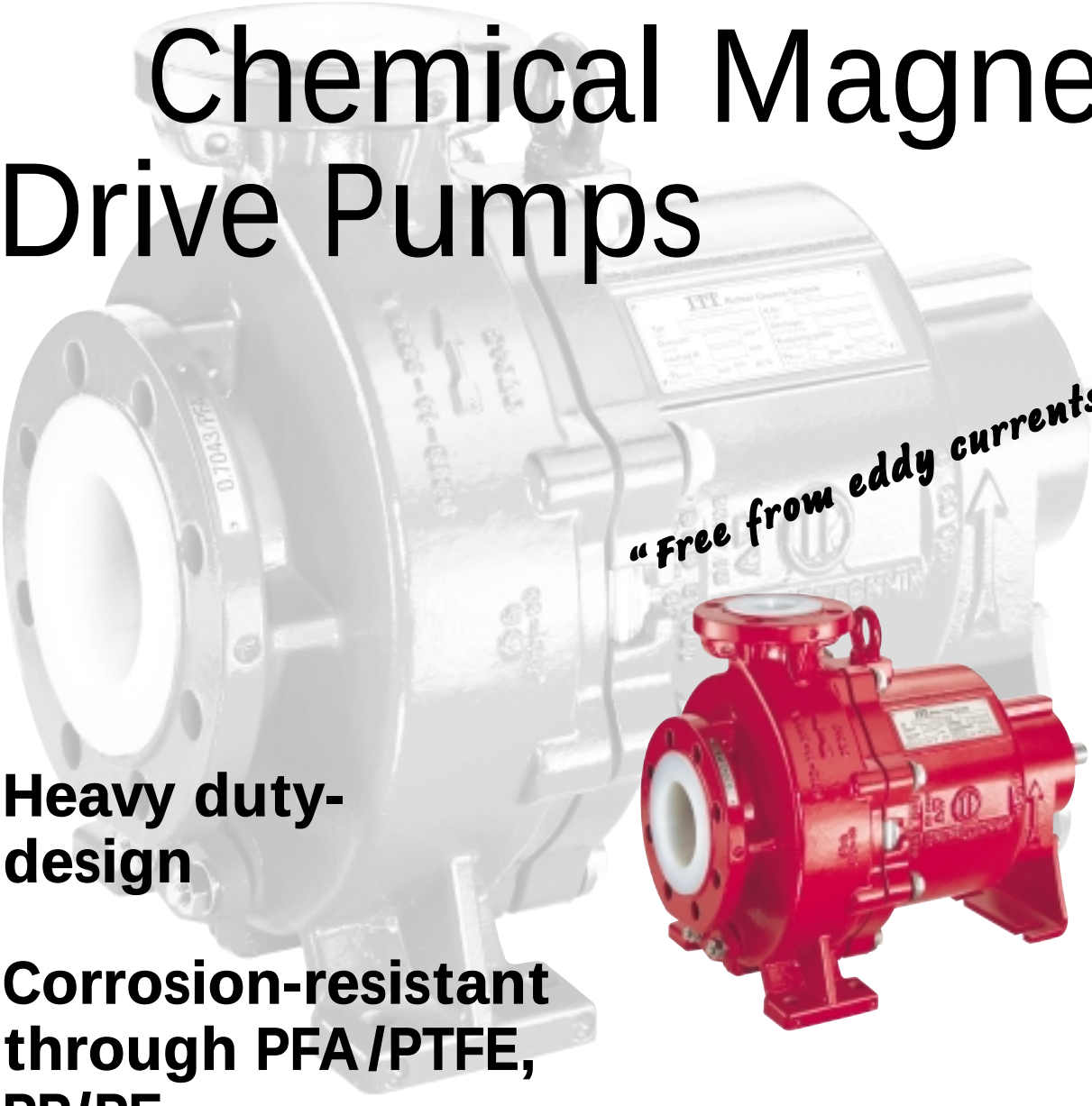
MNK, MNK-B

Richter Sealless Chemical Magnetic Drive Pumps



"Free from eddy currents"

Heavy duty-design

Corrosion-resistant through PFA/PTFE, PP/PE

Richter

ITT Industries

Engineered for life

Performance curves

Richter magnetic drive pumps of the MNK family are among the most efficient and universally suitable pumps of their kind.

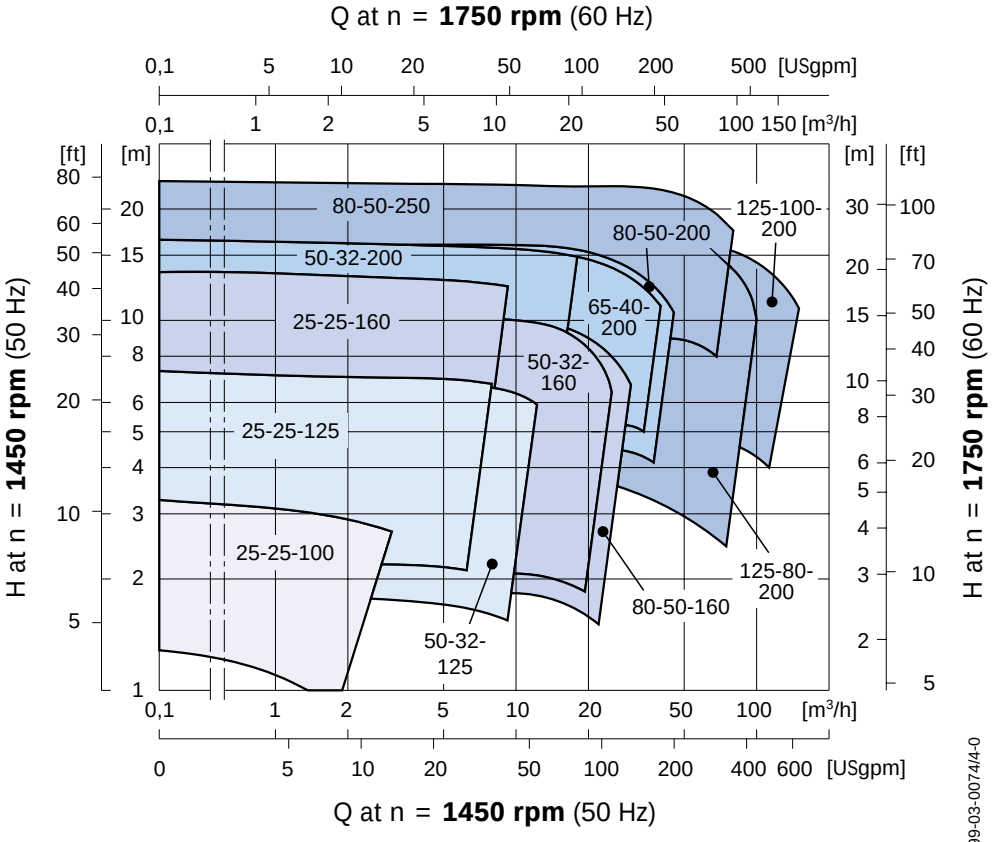
The MNK is a heavy-duty series and has become well-established in the chemical and process engineering industries – especially thanks to its admitted reliability, good hydraulics and comprehensive range of problem-oriented options.

12 well graduated pump sizes
from 25-25-100 up to 125-100-200 permit a tailor-made pump selection. They are supplemented by the peripheral pump MPB 25-25-115 with delivery heads of up to 115 m (380 ft) LC.

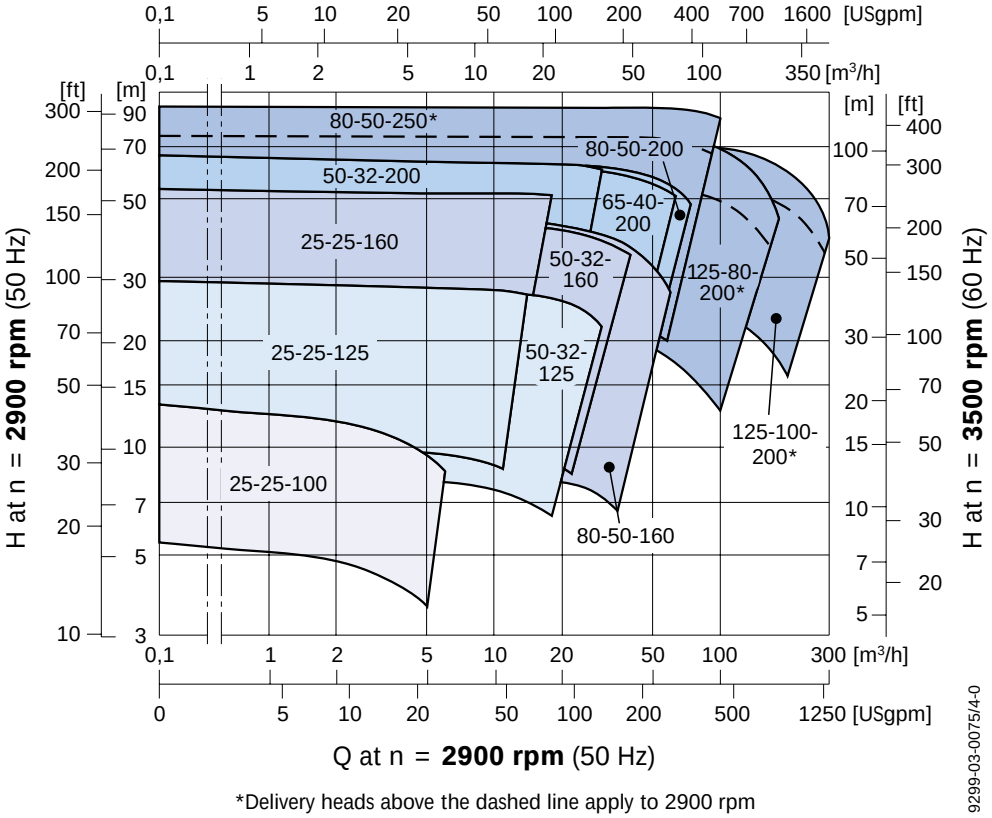
The pump curves relate to a viscosity of 1 mm²/s.

The sizes 25-25-125 to 80-50-200 are alternatively and size 25-25-100 is generally available as close-coupled pumps of compact design.

Performance curves 1450/1750 rpm



Performance curves 2900/3500 rpm



*Delivery heads above the dashed line apply to 2900 rpm

Sealless Richter chemical magnetic drive pumps

Fields of application
Conveyance of corrosive, hazardous, polluted and pure media in the chemical, pharmaceutical, petrochemical, water treatment, pulp and metal processing, and waste disposal/recycling industries.

The Richter MNK series is rated
- for medium to difficult operating conditions
- for media where stainless steel does not have sufficient corrosion resistance
- as an alternative to pumps made of expensive exotic metals (Hastelloy, Monel, tantalum etc.)
- for solids-laden, crystallising, toxic, hot or otherwise critical media.

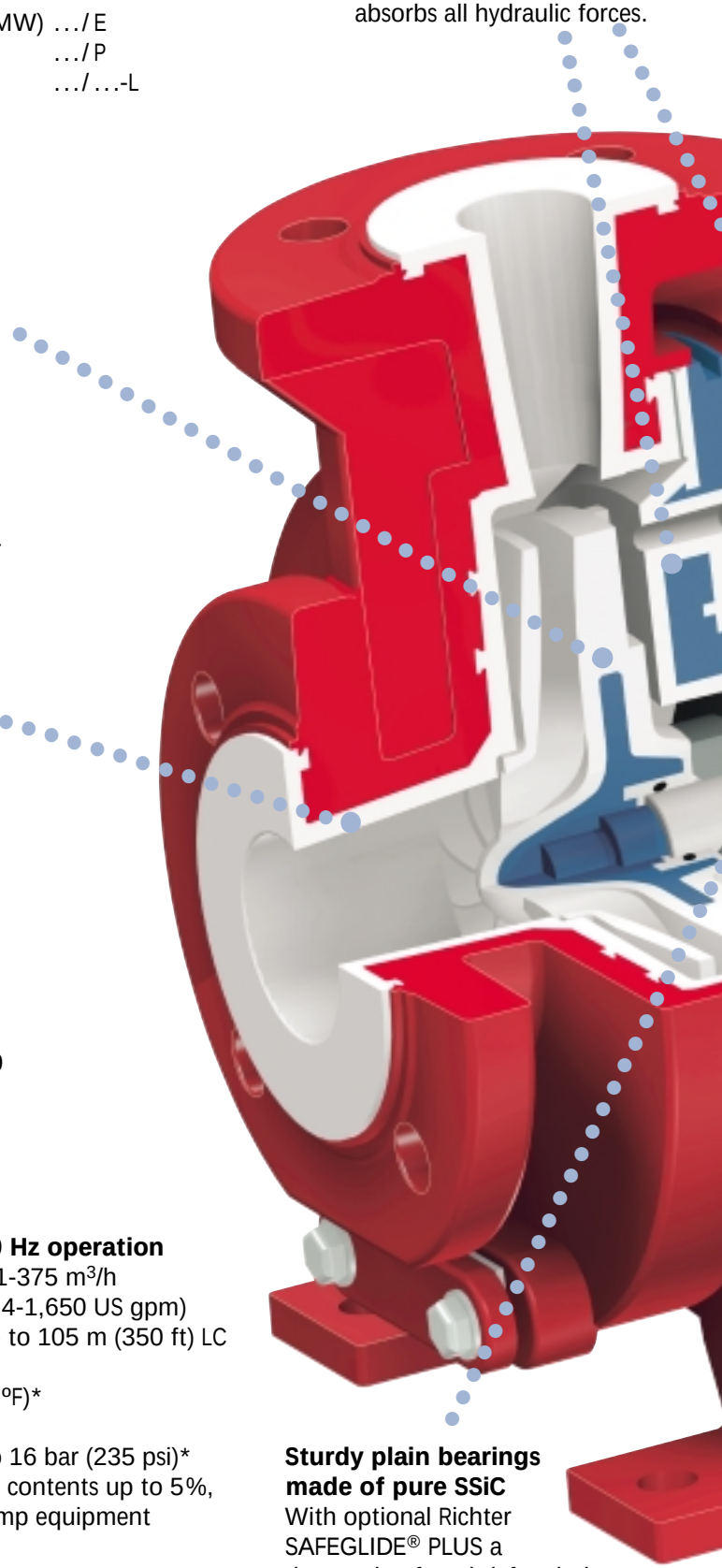
Type codes, materials
- Frame-mounted design MNK/...
- Close-coupled design MNK-B/...

Linings:
- Perfluoralkoxy (PFA) .../F
- Polytetrafluorethylene (PTFE) .../F
- Polyethylene, ultra-high molecular weight (PE-UHMW) .../E
- Polypropylene (PP) .../P
- Antistatic lining .../...-L

Closed impeller
with optimised vane channels for high efficiency and low NPSH values. The large metal core increases the mechanical strength considerably. Secured screw connection to the shaft.

Thick-walled housing lining
- Anchored in the armouring
- Vacuum-resistant to 0 bar at standstill vacuum
- Full-surface armouring bears system pressure and pipe forces. No need for expansion joints
- Housing drain and heating optional.

Plain bearing pedestal and inner magnet assembly
with stable metal core and complete and seamless thermoplastic lining. The plain bearing pedestal absorbs all hydraulic forces.



Design
Single-stage, plastic-lined, magnetic drive chemical centrifugal pump. Dimensions and performance data to EN 22858/ ISO 2858/ISO 5199.

Heavy-duty horizontal design. Sealless. Free from eddy currents.

Alternatively
- of close-coupled design MNK-B
- as ANSI ASME B73.1 series MNKA / MNKA-B
- as self-priming MNK-S
- as vortex pump MNK-X

Ultra-pure media
e.g. in pharmaceutical and chip manufacturing: special MNK version available

Wetted parts:
PFA, PTFE, PE-UHMW, PP, SSiC, FKM/FFKM.

Pressure-bearing parts:
Ductile cast iron EN-JS 1049 (0.7043/GGG-40.3), carbon-fibre composite.

Operating range

50 Hz operation	**60 Hz operation**
0,1-300 m^3/h	0,1-375 m^3/h
(0.4-1,320 US gpm)	(0.4-1,650 US gpm)
up to 90 m (300 ft) LC	up to 105 m (350 ft) LC

- Operating temperatures: -60/+180 °C (-75/+360 °F)* depending on lining
- Operating pressures up to 16 bar (235 psi)*
- Solids up to 50% and gas contents up to 5%, depending on specific pump equipment

*Higher operating temperatures and pressures available on request.

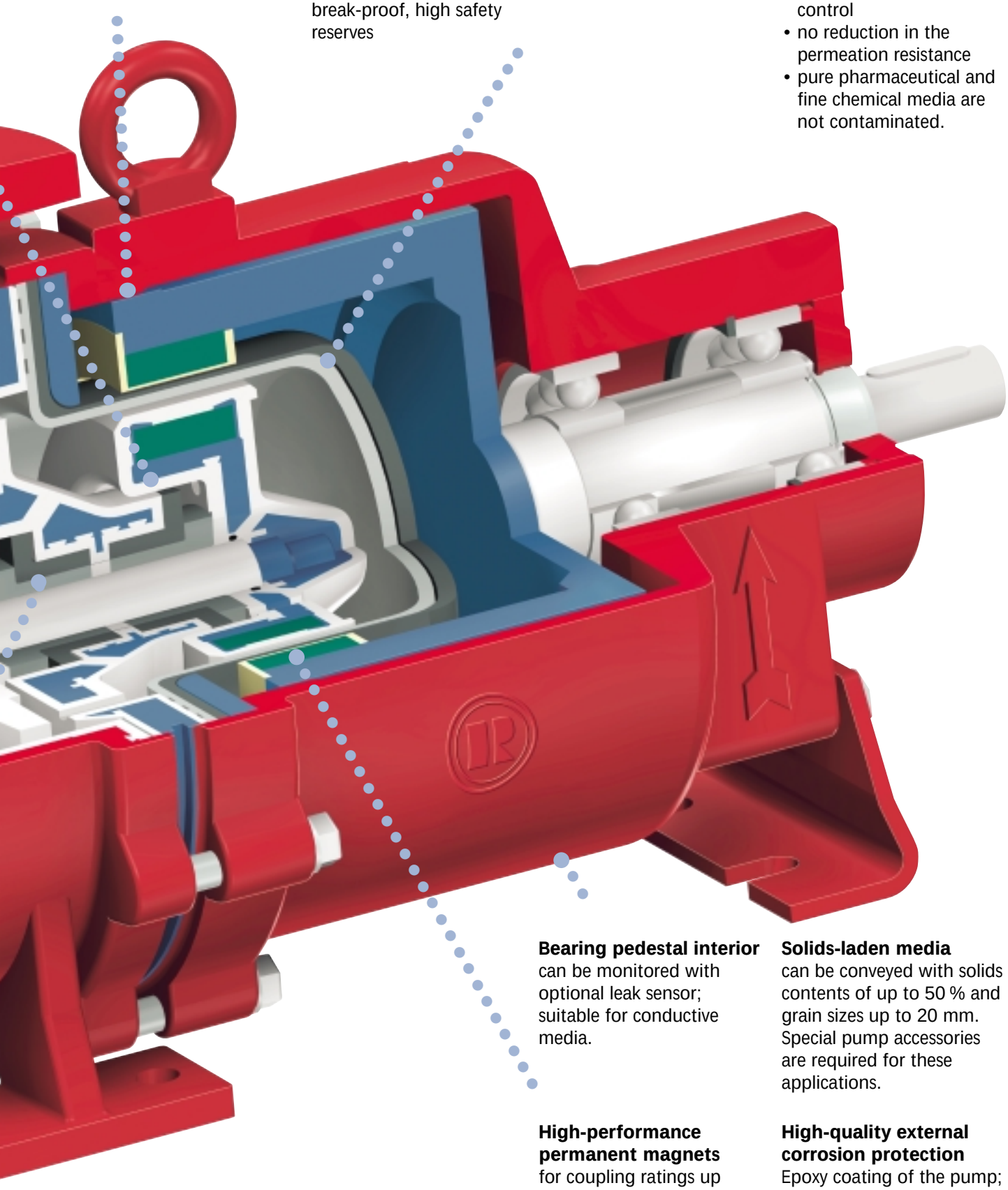
Sturdy plain bearings made of pure SSiC
With optional Richter SAFEGLIDE® PLUS a dry-running for a brief period will not cause damages.

The radial rubbing safety surface protects - in the event of a rolling bearing failure - the can from damage by a possibly tumbling drive magnet assembly.

Non-metallic double can system
- wetted: PTFE
- pressure-bearing: carbon-fibre reinforced plastic (CFRP); pressure-resistant, break-proof, high safety reserves

Free from eddy currents
- No heating of the medium
- High secondary corrosion resistance
- Optional can monitoring

Virgin, unfilled lining plastics
The linings need no stabilising fillers. Therefore,
- considerably easier and more reliable quality control
- no reduction in the permeation resistance
- pure pharmaceutical and fine chemical media are not contaminated.



Bearing pedestal interior can be monitored with optional leak sensor; suitable for conductive media.

Solids-laden media can be conveyed with solids contents of up to 50 % and grain sizes up to 20 mm. Special pump accessories are required for these applications.

High-performance permanent magnets for coupling ratings up to 90 kW (at 2900 rpm). Patented magnet attachment.

High-quality external corrosion protection Epoxy coating of the pump; screws and drive shaft made of stainless steel.

MNK, MNK-B

The pump housing
with ductile cast iron armouring absorbs all the hydraulic forces and the pipe forces to DIN/ISO 5199/Europump 1979.
In contrast to partially or non-armoured plastic pumps, no expansion joints are required.
Flanges with service-minded through holes to DIN; ANSI; BS; JIS.

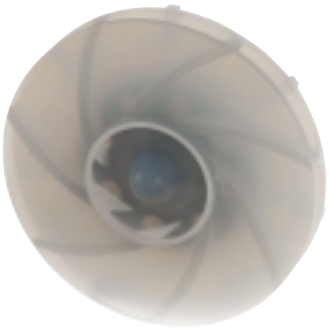
Available on request:
- Housing drain, can also be used as a cleaning and monitoring connection.
- Heating jacket, e.g. for crystallising or polymerising media.
  Can also be retrofitted.

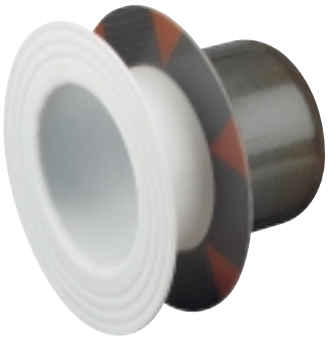
Impeller with curved vanes
The large metal core ensures dimensional stability, even at elevated temperatures and high flow rates.

Axial forces are reduced by back-vanes.

The metal core is protected by thick-walled seamless plastic lining.

The impeller is secured against loosening if the pump is started up in the wrong direction of rotation or in case of back-flowing media.





Eddy current-free double can
The metal-free can system does not induce any eddy currents and thus avoids unnecessary heat generation.

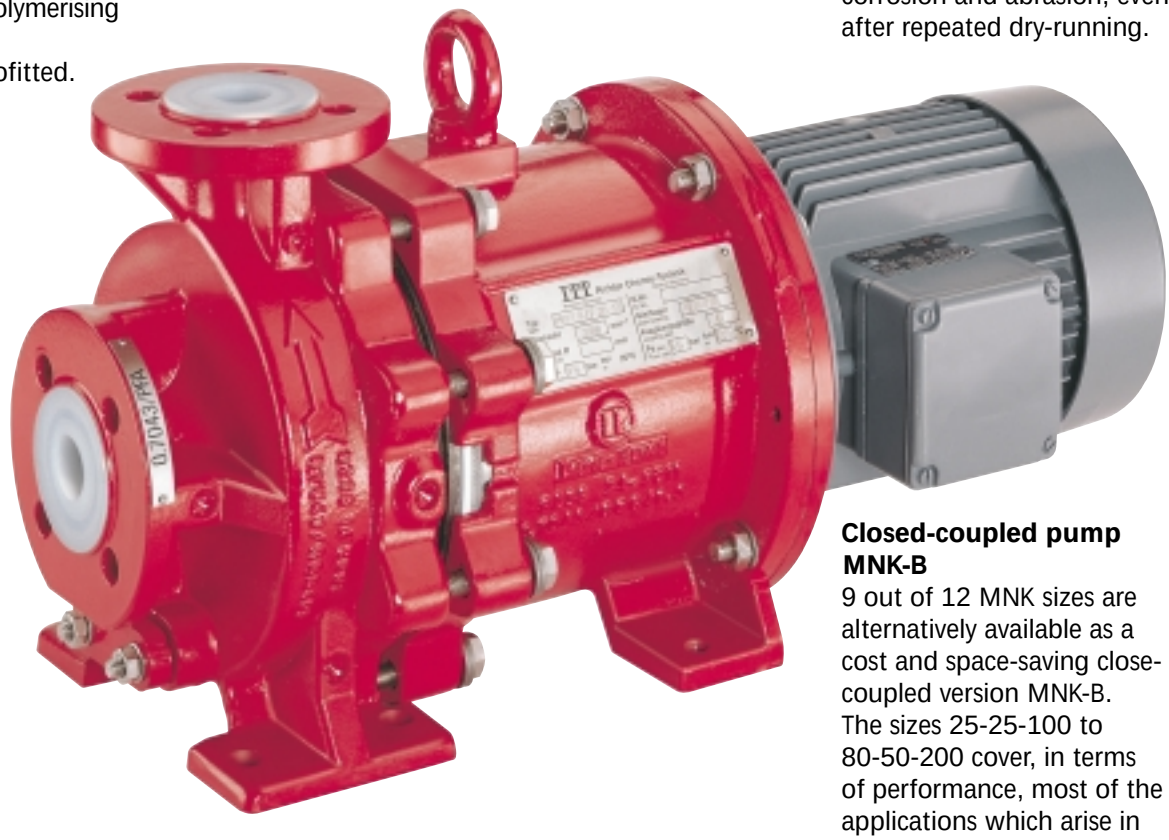
Efficiency and operational reliability benefit from this. Even low flow rates or media near their boiling points can therefore be conveyed without the introduction of heat.

Optional can and bearing pedestal monitors increase safety for particularly hazardous media.

Plain bearings of pure SSiC
with optional
Richter SAFEGLIDE® PLUS dry-running optimisation feature
They make a decisive contribution to operational reliability and long service life of the pump. Richter has gained experience in thousands of applications.

Pure SSiC as a base material produces maximum dimensional stability; the optional Richter SAFEGLIDE® PLUS System offers protection against damage from dry-running. This further optimised feature of the second generation has even withstood dry-run trials lasting 30 to 60 min. (at 2900 rpm).

SSiC and SAFEGLIDE® PLUS are extremely resistant to corrosion and abrasion, even after repeated dry-running.



Closed-coupled pump MNK-B
9 out of 12 MNK sizes are alternatively available as a cost and space-saving close-coupled version MNK-B.
The sizes 25-25-100 to 80-50-200 cover, in terms of performance, most of the applications which arise in chemical and similar processes.

Other Richter pumps

Richter magnetic drive and mechanical seal pumps are – just like Richter chemical shut-off and control valves – at home in a host of different chemical and related processes.

This pump range also includes more specialised designs. The plant operator can thus choose from Richter pumps even for difficult applications.

Plastic lined pumps

Mechanical seal pumps
up to 300 m^3/h (1,320 gpm) and 90 m (300 ft) LC at 2900 rpm. Also for solids-laden media.

Close-coupled pumps
as space-saving alternative to frame-mounted designs. 0.1 to 80 m^3/h (0.4–350 gpm) and up to 115 m (380 ft) LC at 2900 rpm.

Self-priming pumps
for emptying containers and basins from the top. Suction height up to 6 m WC, suction back pressure up to 18 m WC. Up to 33 m^3/h (145 gpm) and 40 m (130 ft) LC at 2900 rpm.

Magnetic drive pumps
- to EN 22858/ISO 2858 up to 300 m^3/h (1,320 gpm) and 90 m (300 ft) LC at 2900 rpm and up to 375 m^3/h (1,650 gpm) at 3500 rpm
- to ASME B73.1 for ANSI plants, up to 90 m^3/h (395 gpm) and 140 m (460 ft) LC at 3500 rpm.

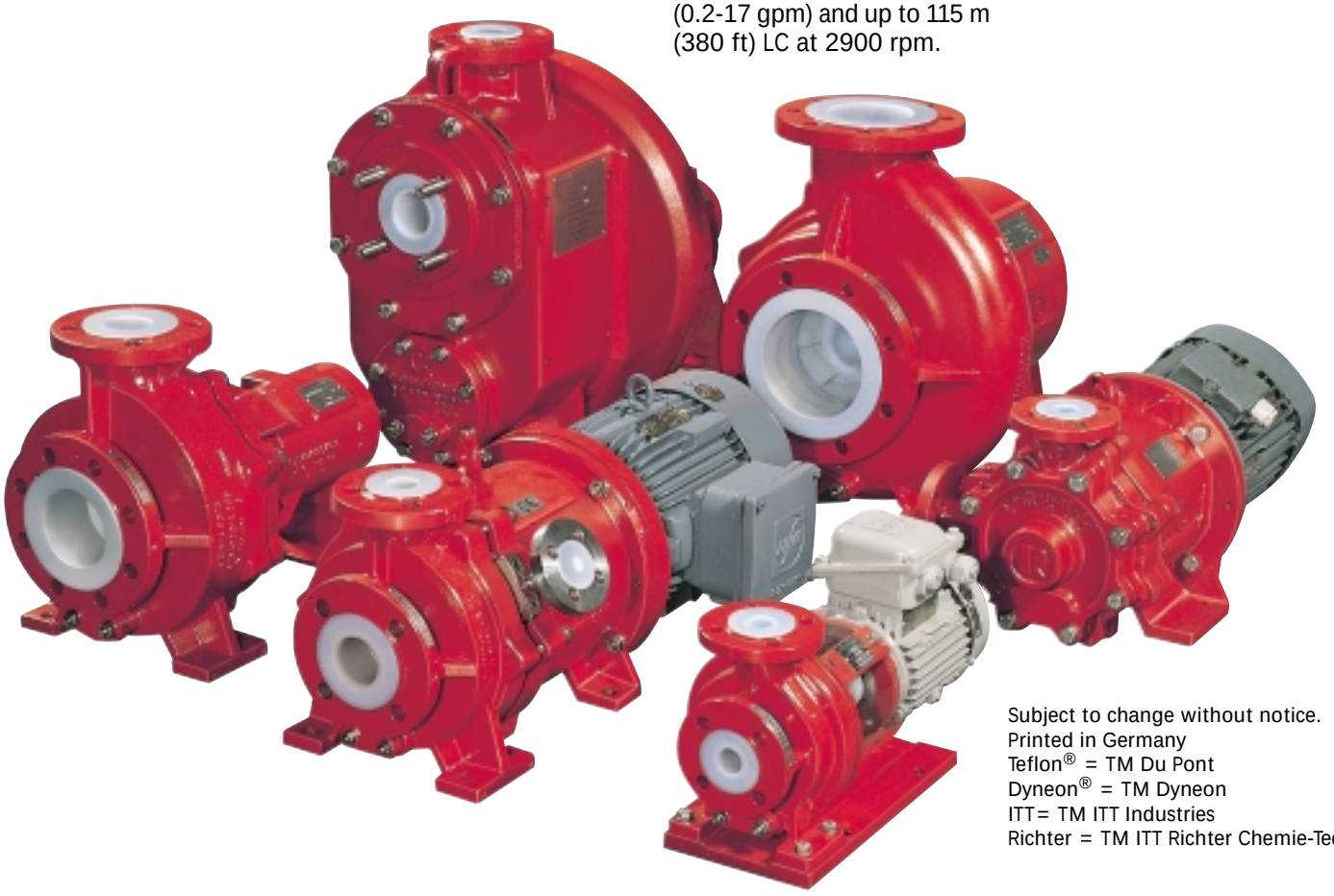
Vortex pumps
time-tested with, e.g. higher solids contents, lumpy particles and gas contents of up to 5%. Up to 200 m^3/h (880 gpm) and 85 m (280 ft) LC at 2900 rpm.

Peripheral pumps
for low flows at high delivery heads. 0.05 - 4 m^3/h (0.2-17 gpm) and up to 115 m (380 ft) LC at 2900 rpm.

Metallic pumps

Magnetic drive pumps
made of stainless steel, Hastelloy, ductile cast iron etc. up to 300 m^3/h (1,320 gpm) and 150 m (490 ft) LC at 2900 rpm. Pressure to 25 bar (535 psi).

Mechanical seal pumps
made of stainless steel, ductile cast iron, Hastelloy etc. up to 600 m^3/h (2,650 gpm) and 150 m (490 ft) LC at 1450/2900 rpm. Pressure to 25 bar (535 psi).



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