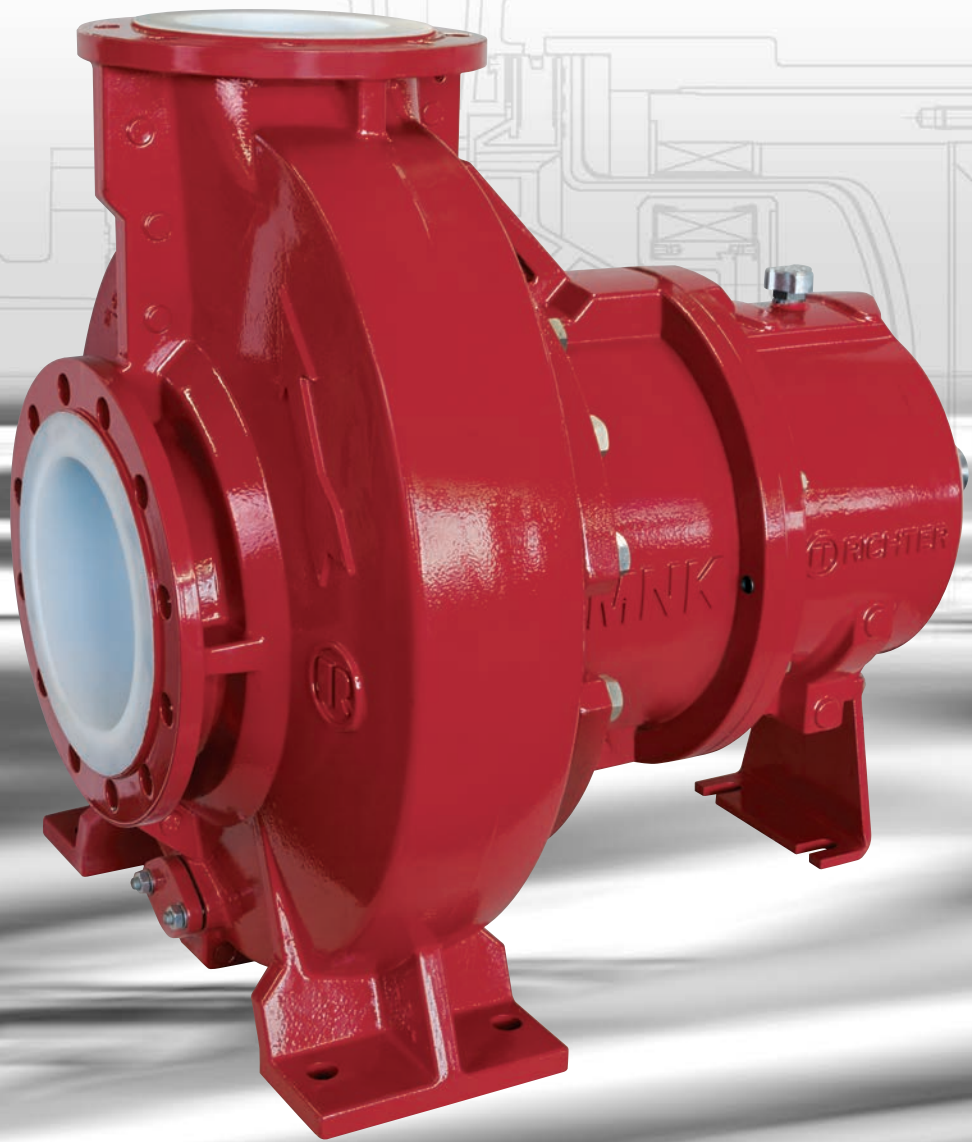


Richter High Capacity Lined Magnetic Drive Pumps

Flow Rates up to 2,650 US gpm

MNK 8 x 6 x 13"



Time-tested and optimized
MNK technology

SAFEGlide® PLUS

dry-run capability

PFA/PTFE lining

Low NPSHr design



RICHTER
Process Pumps & Valves

IDEX
FLUID & METERING

Richter sealless chemical magnetic drive pumps

Fields of application

Transfer of corrosive, hazardous and solids-laden media in the chemical and pharmaceutical industries, water treatment, pulp production and metal processing, waste disposal/recycling:

- Chlorine electrolysis (anolyte and catholyte, precipitation brine, purified brine, bleaching solution)
- Large multi-purpose ("world scale") plants
- H₂SO₄, HCl, NaOH, NaOCl, waste chemicals handling
- MDI and TDI isocyanates production
- Plastic and special fiber production
- Metal pickling solutions
- Petrochemical plants

The Richter MNK series is rated

- for media where stainless steel and special cast iron do not have sufficient corrosion resistance
- as an alternative to pumps made of expensive exotic and metals (Hastelloy®, monel, tantalum, titanium, nickel etc.) or pumps with rubber or other linings
- for solids-laden, crystallizing, toxic or other critical media.

Design

Single-stage, fluoropolymer-lined, magnetic drive chemical centrifugal pump.

Dimensions and performance data to EN 22858/ISO 2858/ISO 5199.

Flanges ISO 7005-2, type B.

Flanges drilled to ASME/ANSI B16.5 Cl.150 RF or to ISO/DIN.

Heavy-duty horizontal design. Sealless. Eddy-current-free.

Double "back pull-out" design.

Operating range

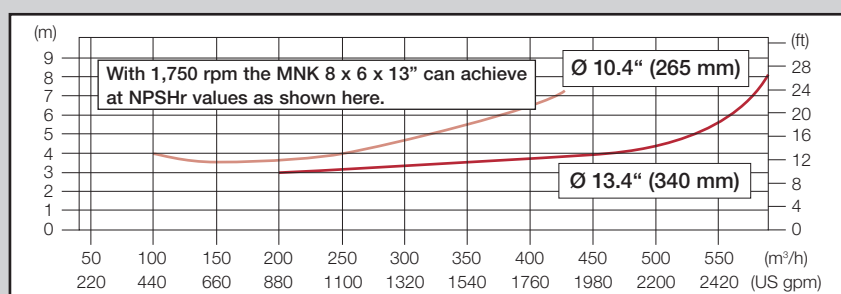
- Flow rates up to 2,650 US gpm (600 m³/h)
- Delivery height up to 245 ft (75 m) LC
- Operating temperatures: -75 to 300 °F (-60 to 150 °C) (observe local rules for ductile iron)
- Operating pressures: up to 230 psi (16 bar)
- Solids and gas contents on request, depending on pump design

Type codes, materials

- Frame-mounted design MNK/...
- Lining PFA, PTFE (perfluoroalkoxy, polytetrafluoroethylene) .../F

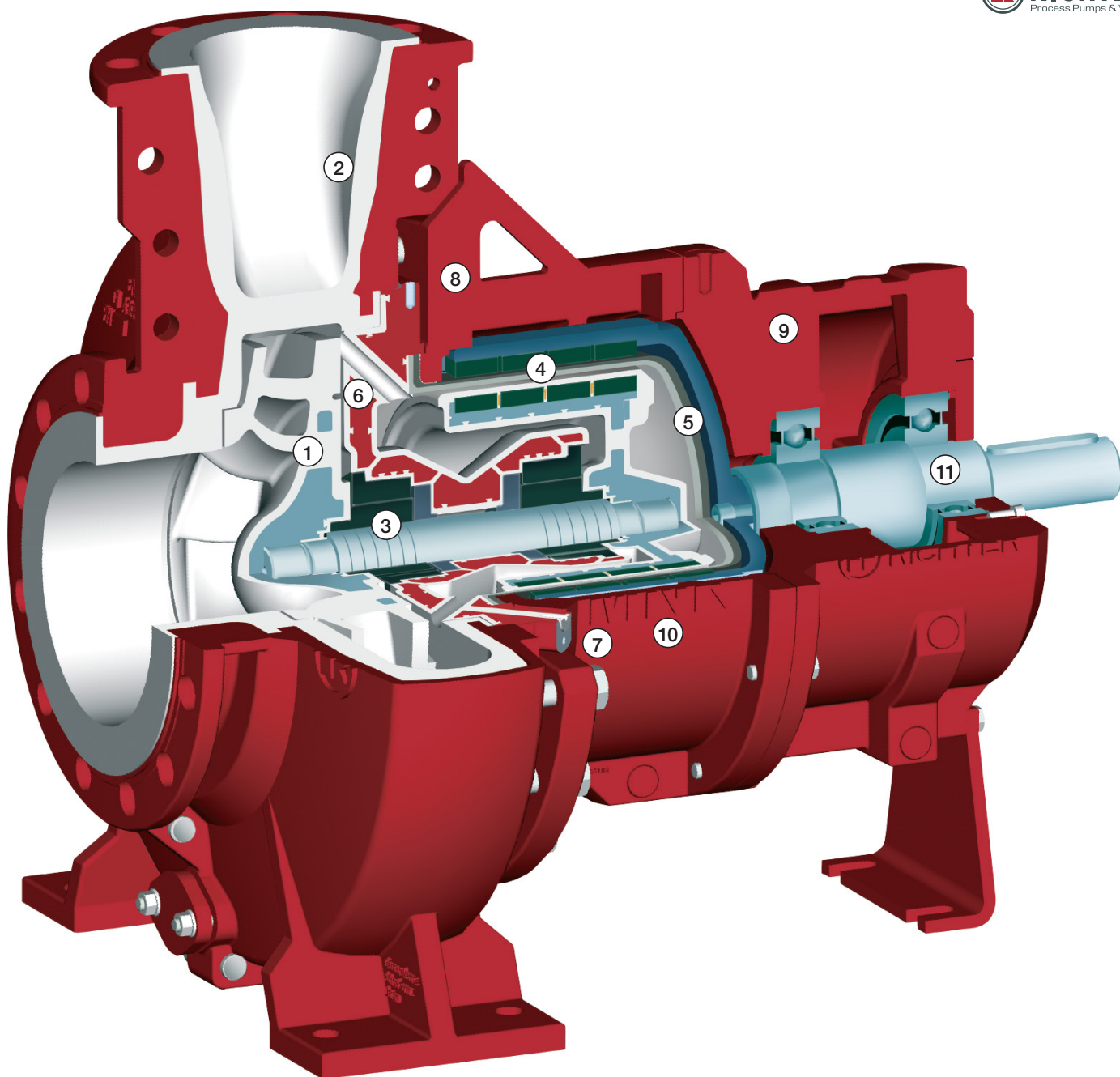
Very low NPSH required ("NPSHr")

The MNK 8x6x13" features 2 specific hydraulics including a configuration providing an extra low NPSHr. Such low NPSH values are required in various processes, e. g. in chlorine electrolysis.



- Closed PFA impeller with flow-optimized vane channels**
 - High efficiency
 - **2 hydraulics, one of which with very low NPSHr, see graph below**

Large metal core. Secured screw connection to the shaft. Back vanes to minimize axial thrust forces.
- Thick-walled virgin PTFE casing lining (optional PE-UHMW), wall thickness up to 0.8" (20 mm)**
 - **Full chemical resistance**
 - **Full outer body** made of ductile cast iron ASTM A395/EN-JS 1049 absorbs system pressure and pipe forces and eliminates the need for expansion joints
 - Casing drain connection Ø 0.59" (15 mm)
 - Heating jacket optional
- Robust sleeve bearings made of pure SSiC**
 - **SAFEGLIDE® PLUS** option to **prevent damage in case of dry-running**
 - Bearing sleeve design with **optimized torque transmission**
 - High load capacity, positive connection, anti-torsion feature. No setting of gap required.
- High-performance permanent magnets** for torques of up to 600 ft-lbs/800 Nm (approx. 195 hp/145 kW at 1,750 rpm, 220 hp/165 kW at 2,000 rpm)
- Double containment shell system**
 - Wetted: modified PTFE, 0.16" (4 mm) thick, considerably **more permeation-resistant** than standard PTFE
 - Pressure-bearing: carbon-fiber reinforced resin CFRP, eddy-current-free, metal-free, break-proof, high safety reserves
- Bearing frame and inner magnet assembly with stable metal core**, with a full and seamless thermoplastic PFA lining, min. 0.2" (5 mm) thick
- Flushing and monitoring connections** as standard features, prepared for sleeve bearing flushing, casing flushing, temperature monitoring, measurement of ball bearing temperature and vibrations.
- Radial bump ring protects –** in the event of a ball bearing failure – **the containment shell unit** from damage by a possibly tumbling drive magnet assembly. Optionally: non-sparking bump ring.



⑨ **Easy maintenance design**

- Double “back pull-out” with separate bearing pedestal
- In-built fault prevention from faults during maintenance work
- Integrated assembly aids: lifting eye, jacking screws, threaded in shaft end for vertical assembly

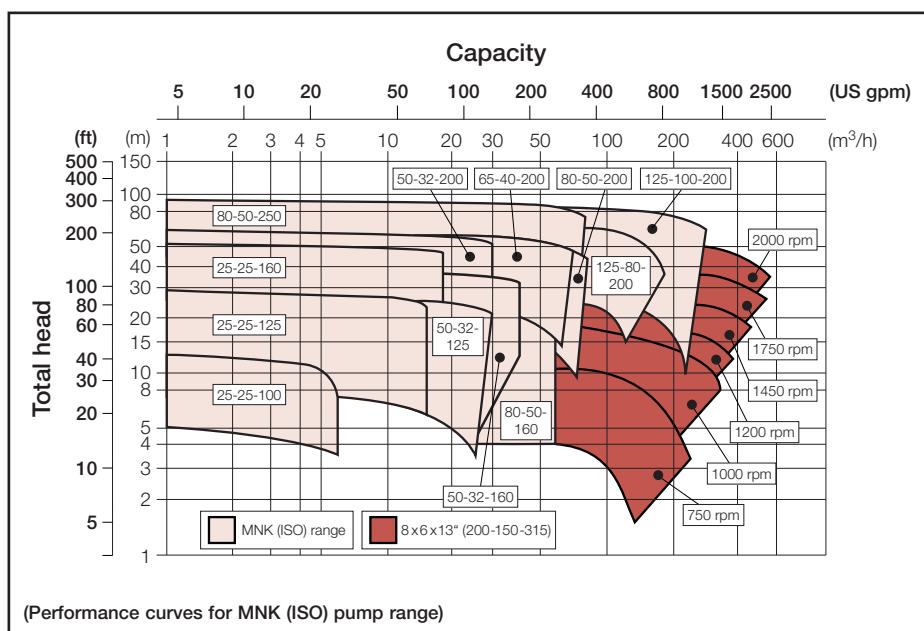
⑩ **Lantern chamber can be monitored as additional containment area for leakage detection** advantageous for extremely hazardous media

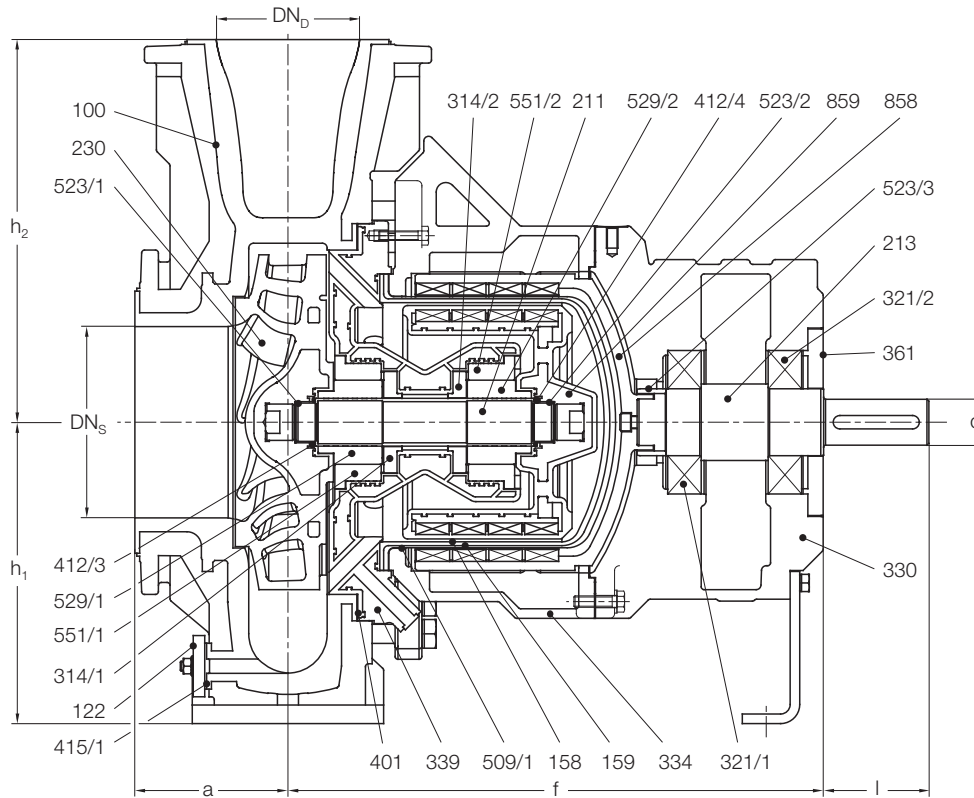
⑪ **Ball bearing lubrication** options

- Greased for life
- Replenishable grease
- Oil bath lubrication

Replaceable hardened races for shaft seals

For fully ASME/ANSI conform pumps with flows to 700 US gpm and heads to 500 ft see Richter pump series RMA and MNKA.





Components and materials

Item	Designation	Material
100	Casing (housing)	Ductile cast iron ASTM A395 (EN-JS 1049)/PTFE ¹⁾
122	Blind cover	Steel
158	Containment shell (can) insert	TFM-PTFE (modified)
159	Containment shell (can)	Carbon-fiber reinforced plastic (CFRP)
211	Pump shaft	Stainless steel/PFA
213	Drive shaft	Hardened steel
230	Impeller	PFA with steel core
321/X	Radial ball bearing	
330	Bearing pedestal	Ductile cast iron ASTM A395 (EN-JS 1049)
344	Lantern	Ductile cast iron ASTM A395 (EN-JS 1049)
339	Plain bearing frame	Ductile cast iron ASTM A395 (EN-JS 1049)/PFA
361	Rear bearing cover	Steel
401	Casing (housing) gasket	PTFE
412/X	O-ring	FFKM (Kalrez® or equivalent)
415/1	Centering gasket	PTFE
509/1	Intermediate ring	PTFE
523/1/2	Shaft sleeve	PEEK (not wetted)
523/3	Bushing	Steel, chromium-oxide coated
529/X, 551/X, 314/X	Bearing sleeve/bearing bush/axial bearing	SSiC/SSiC, optionally with SAFEGLIDE® PLUS
858	Drive magnet assembly	Ductile cast iron ASTM A395/EN-JS 1049/NdFeB ²⁾
859	Inner magnet assembly	Steel/PFA/Co s ²⁾

Kalrez®: Trademark of DuPont; Hastelloy®: Trademark of Haynes
 SAFEGLIDE® and Richter: Trademark of Richter Chemie-Technik GmbH

Dimensions

	inch	mm
DN _s	8	200
DN _p	6	150
a	6.3	160
f	26.4	670
h ₁	12	315
h ₂	16	400
d	1.9	48
l	4.3	110

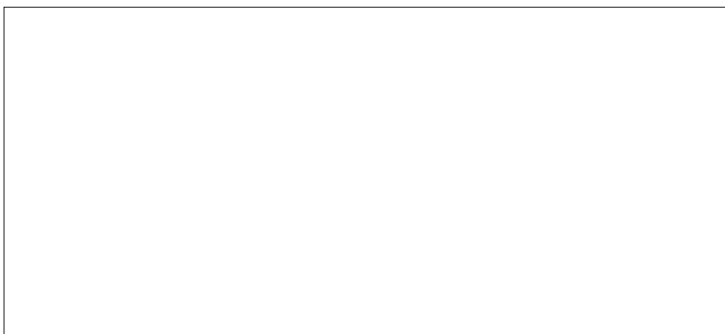
Weights

lbs	kg
880*	400*
without motor	without motor

* with 600 ft-lbs (800 Nm) coupling

¹⁾ PE-UHMW on request
²⁾ NdFeb: neodymium iron boron
 CoSm: cobalt samarium

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