Series MNK-X, MNK-XB, SCK-X
Frame-mounted
Chemical Vortex Pumps
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Relevant documents

This supplementary installation and operating manual is only valid in conjunction with these installation and operating manuals:

MNK  long life grease and oil bath lubrication
      9230-050-en

MNK-B close-coupled design
      9230-055-en

SCK  long life grease and oil bath lubrication
      9220-050-en

Appendix to the operating manual

♦ Operational limits 9200-00-3031

1 Technical data

Manufacturer :
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Fax:  +49 (0) 2152 146-190
E-Mail:  richter-info@idexcorp.com
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Authorised person acc. to machinery directive 2006/42/EG: Gregor Kleining

All technical data can be found in the installation and operating manuals for the relevant pumps MNK, MNK-B or SCK.

Designation :
Vortex design of single-stage, plastic-lined centrifugal chemical pumps.
Series:
  MNK-X long life grease or oil bath lubrication
  MNK-XB close-coupled design
  SCK-X long life grease or oil bath lubrication

Heavy-duty horizontal design
Technical specifications to ISO 15783 and DIN ISO 5199
Face to face according to ISO 2858 / DIN EN 22858
Flange connecting dimensions:
DIN EN 1092-2, type B (ISO 7005-2, type B) PN 16 or flanges drilled to ASME 16.5, Class 150
ATEX Directive 94/9/EC
Machine Directive 2006/42/EC

Temperature classes :
See installation and operating manual MNK, MNK-B or SCK in Section 2.6.7

Admissible ambient conditions for pumps acc. to directive 94/9/ EG (ATEX) :
Ambient temperature range:  - 20 °C to + 40 °C
(higher temperature after consulting the manufacturer)
Ambient pressure range:  0,8 bar_{abs} to 1,1 bar_{abs}.
1.1 Intended use

Richter pumps of the series MNK-X, MNK-XB and SCK-X are plastic-lined centrifugal pumps for the conveyance of aggressive, toxic, pure and inflammable liquids.

Vortex pumps are preferably used with highly solids-laden media.

Field of application:

For media with

- high solids content, depending on the grain size and condition
- particle sizes of roughly 10 – 20 mm, depending on the pump size
- long-fibre constituents
- gas contents of up to 5 % by vol. If gas is entrained in an explosive area, it must be ensured that no explosive atmosphere enters the pump as a result of the gas conveyed.

In view of the large number of possible particle properties (size, shape, density etc.) it is not possible to delimit the solids accurately in advance.

Richter therefore recommends the use of motor load monitors, for example, to monitor the pump power.

1.2 Name plate

The stainless steel name plate is firmly riveted to the bearing pedestal.

If the customer attaches his identification, it must be ensured that the pump matches the application in question.

Example of name plate:

<table>
<thead>
<tr>
<th>Series</th>
<th>CE-marking</th>
<th>Manufacturer/ Country</th>
<th>Size</th>
<th>Year of manufacturing / Richter production No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNK-S/F</td>
<td>50-32-160</td>
<td></td>
<td>180 mm</td>
<td>10-149212-2-15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20 Nm</td>
<td></td>
</tr>
</tbody>
</table>

2 Safety, transport, storage and disposal

The relevant chapters in the adjacent installation and operating manuals apply to safety, transport, storage and disposal.

This Supplementary Installation and Operating Manual is only valid, depending on the selected design, in conjunction with the following installation and operating manuals:

- MNK long life grease and oil bath lubrication
  9230-050-en
- MNK-B close-coupled design
  9230-055-en
- SCK long life grease and oil bath lubrication
  9220-050-en

3 Product description

The housing dimensions, power ratings and technical requirements of the pump series MNK-X, MNK-XB and SCK-X comply with ISO 2858 / DIN EN 22858 / ISO 15783 / DIN ISO 5199. The technical requirements of VDMA 24279 are satisfied.

The sectional drawing shows the vortex design. See Section 7.

All components which come into contact with the medium are either plastic-lined or made of other resistant materials, e.g. silicon carbide.
4 Installation

4.1 Safety regulations

Equipment which is operated in potentially explosive areas must satisfy the explosion protection regulations. It is imperative to observe the safety regulations contained in the respective installation and operating manuals.

With magnetic drive pumps MNK-X, MNK-XB:

People with a pacemaker are at risk from the strong magnetic field of the magnetic drive. It may be life-threatening for them to stay at a distance of less than 500 mm from the pump.

5 Commissioning / Shutdown

The general commissioning/shutdown procedures have already been described in the installation and operating manuals of the pumps of the series MNK, MNK-B, SCK. They relate, for example, to work or inspections of the bearing pedestal, coupling and motor.

If the pump is to be evacuated or flushed, observe the local regulations. If the pump is to be returned to the company's own workshops or the manufacturer's, it must be cleaned especially thoroughly. See also Section 3.1.

5.1 Initial commissioning

Normally, the pumps have already been test-run with water. Unless special agreements have been made, there could still be residual amounts of water in the pump. This must be noted in view of a possible reaction with the medium.

5.2 Shutdown

Only close the suction line if the pump is to be evacuated or dismantled.

5.3 Improper operations and their consequences

Inadmissible modes of operation, even for a short time, can result in serious damage to the unit.

In connection with explosion protection, potential sources of ignition (overheating, electrostatic and induced charges, mechanical and electric sparks) may result from these inadmissible modes of operation; their occurrence can only be prevented by adhering to the intended use. Depending on the design selected, refer to the relevant operating manual MNK, MNK-B or SCK.

6 Maintenance

6.1 Notes on dismantling

All repair and maintenance work is to be performed by qualified staff using appropriate tools and original spare parts.

Is the necessary documentation available?

Has the pump been taken out of operation, evacuated and flushed correctly?

See also Section 5.2.

The pump is dismantled and assembled in accordance with the operating manual.

The difference between a standard pump and a vortex pump is:

- vortex impeller 230
- a distance ring 504/3 instead of a housing gasket
- longer hex. screws 901/3 owing to the larger distance in front of the impeller.
7 Sectional drawing

7.1 MNK-X vortex design
7.2 SCK-X vortex design
Baureihe/Series/Série: SCK-X, MNK-X, MNK-XB

Ausführung: Magnetkupplungs- und Gleitringdichtungspumpen
Design: Magnet drive and mechanical seal pumps
Construction: Pompes à entraînement magnétique en à garniture mécanique


SCK-X Einsatzgrenzen der Gleitringdichtung beachten!
Observe the operating limits of the mechanical seal!
<table>
<thead>
<tr>
<th>Legende:</th>
<th>Legend:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Standard&lt;br&gt;Bei Einsatz unter ASME-Bedingungen&lt;br&gt;(Sphäroguss nach A395) kann der&lt;br&gt;Standardbereich auf -30°C und 16bar&lt;br&gt;erweitert werden.</td>
<td>Standard&lt;br&gt;Application under ASME-specification&lt;br&gt;(ductile iron acc. to A395)&lt;br&gt;the standard range can be expanded&lt;br&gt;up to -30 °C and 16 bar.</td>
</tr>
<tr>
<td>2 Höhere Betriebsdrücke durch Druckringe</td>
<td>Higher operating pressure by pressure rings</td>
</tr>
<tr>
<td>3 Tiefere Temperaturen durch Sondermaterial</td>
<td>Lower temperatures by special materials</td>
</tr>
<tr>
<td>4 Höheres Vakuum bei Pumpenstillstand durch&lt;br&gt;Sonderspaltopfseinheit</td>
<td>Higher vacuum at pump standstill by special&lt;br&gt;can unit</td>
</tr>
<tr>
<td>5 Höhere Temperaturen durch CFK-H Spalttopf</td>
<td>Higher temperatures by can of CFK-H</td>
</tr>
</tbody>
</table>