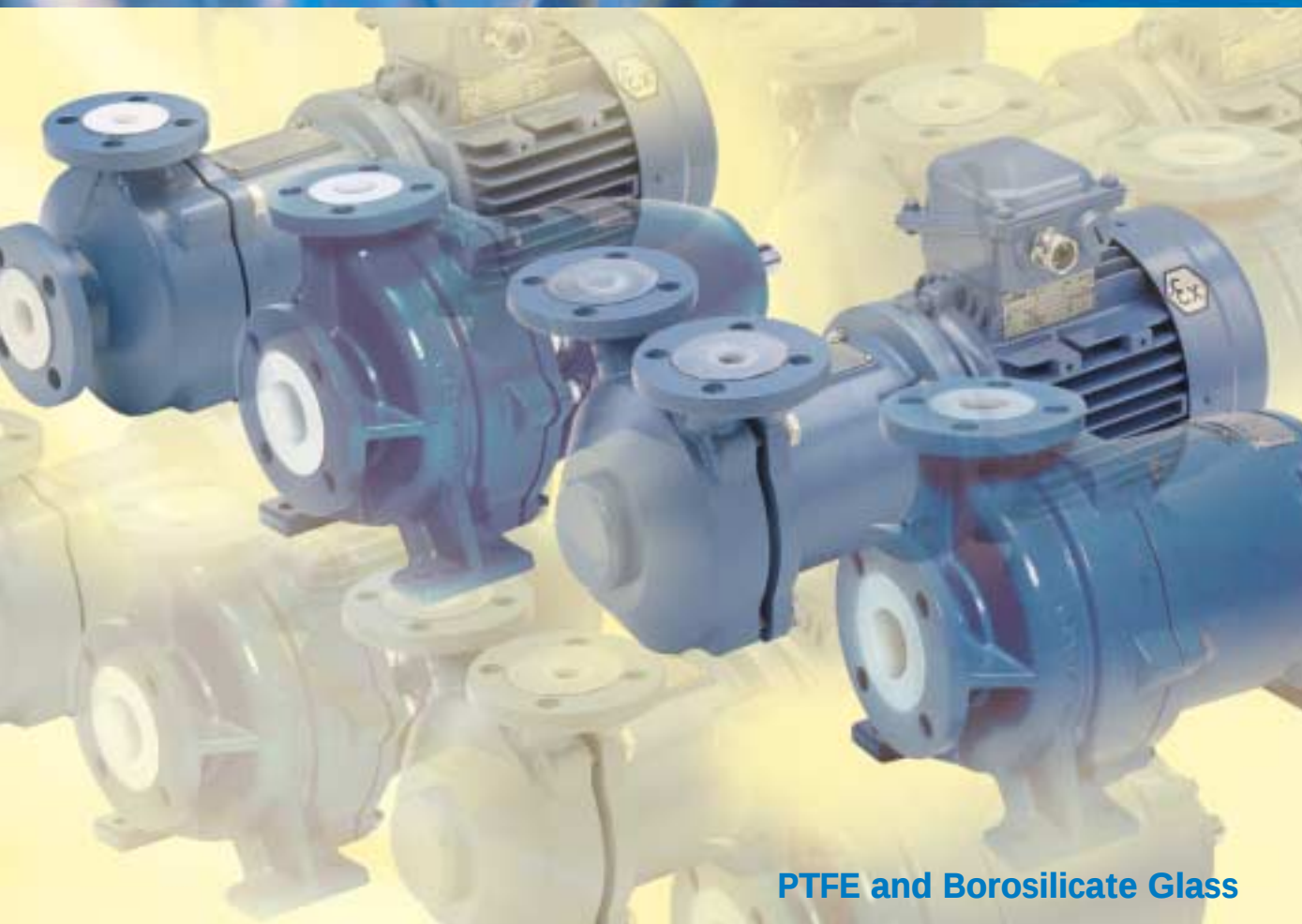


STERLING

STERLING *ISOLined* - Product Summary



PTFE and Borosilicate Glass

STERLING FLUID SYSTEMS GROUP

PTFE-lined chemical process pumps are not only extremely corrosion-resistant but also of very high quality and reliability. They are therefore used throughout industry for applications to pump dangerous, toxic and pungent media such as acids, alkalis and solvents. These include not only pure or slightly contaminated liquids but also those containing a significant degree of solids.

The product range described below includes both magnetically-coupled pumps and pumps with a single or double mechanical seal.

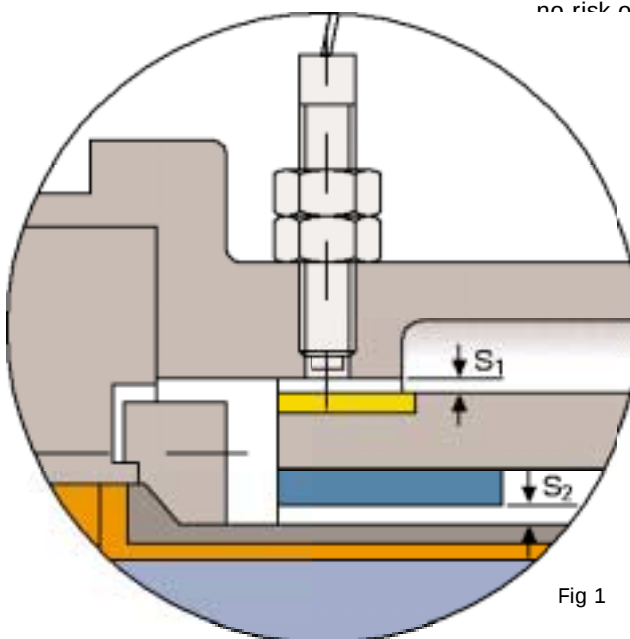
CHEMICAL PROCESS PUMPS WITH MAGNETIC COUPLINGS

By eliminating any risk of atmospheric contamination, magnetically driven pumps are ideal for handling highly corrosive, toxic, inflammable and pungent media. Furthermore, the design of such centrifugal pumps has been dramatically improved over recent years in terms of reliability, durability, and solids handling capability.

CONTAINMENT CAN PROTECTION

In the standard design of magnetically coupled chemical pumps, the most hazardous situation is a ruptured containment shell and subsequent leak of process liquid. This can occur when the outer magnet assembly comes into contact with the containment shell due to damaged bearings.

Magnetic drive pumps within the *ISOlined* range, however, can be built with an intrinsic safety feature that avoids such an occurrence. By ensuring that the clearances between the outer magnet (S_1) and the bearing frame are less than those of the containment can (S_2), no collision with the latter can occur. Furthermore, since the exterior of the outer magnetic drive rotor is shrouded with a suitable non-sparking material such as brass, there is no risk of explosion.



Additionally, the proximity transducer allows continuous monitoring of the running clearance in order to detect any significant bearing wear. By switching off the motor at a pre-determined value of S_1 , or sounding an appropriate alarm, the bearings can be replaced before any damage occurs.

Fig 1 Protection by early diagnostic warning system (Distance $S_1 < S_2$)

INTERNAL SILICON CARBIDE BEARING WITH DRY RUNNING PROTECTION

Probably the most frequent cause of internal bearing failure, with magnetically driven pumps, is inadequate lubrication of the internal bearings. However, by utilising the optional Sterling Fluid Systems innovative treatment of silicon carbide for the internal bearings, dry running is now possible.

Essentially this configuration offers the following advantages:

- Total dry running capability for up to thirty minutes without any damage to the internal bearings caused by thermal stress.
- Prolonged operation of the pump with minimal internal lubrication that can occur, for example, at the final stages of tanker emptying.
- Due to the extremely low coefficient of friction between the internal bearings, heat generation is small. Therefore it is possible to pump liquids that are close to their boiling point.
- Direction of rotation can be checked by switching the unit on, without the need to fill the system with liquid.



CHEMICAL PROCESS PUMPS WITH MECHANICAL SEAL

Since the mechanical seal requires a flow of liquid across its faces for lubrication, there will always be a small amount of atmospheric contamination. Although magnetically coupled configurations eliminate this problem, they will not tolerate media that incorporate a high solids content. Double-acting mechanical seals, however, allow liquids containing solids to be pumped without any atmospheric contamination by protecting the seal faces against abrasion with a pressurised barrier fluid. Furthermore, by forcing the seal liquid into the pump, there is no product leakage out of the pump since the lubrication path is reversed.

SHAFT SEAL

The single shaft seal is an external PTFE bellows-type mechanical seal suitable for either direction of rotation. It is recommended only for solids-free pumping and limits the operating pressure and temperature range of the pump.

The double mechanical shaft seal is also an unbalanced mechanical seal suitable for either direction of rotation, enabling media containing solids to be pumped. The seal is configured in a back-to-back arrangement and incorporates a pumping ring.

FURTHER INFORMATION

Detailed technical information can be found in our individual brochures which are available on request.

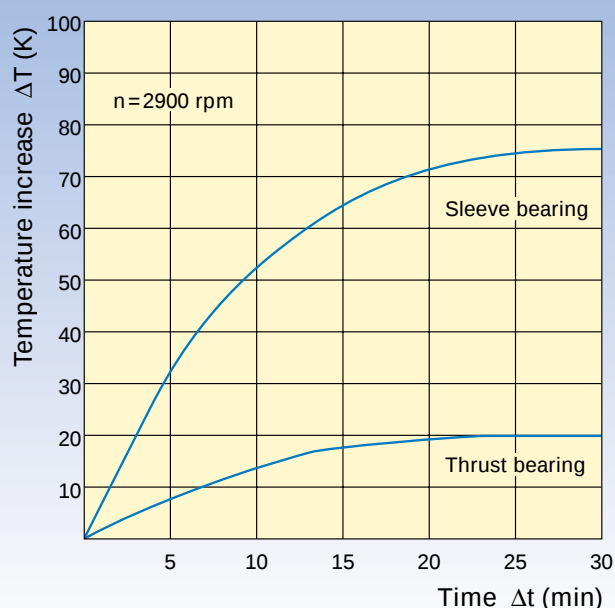
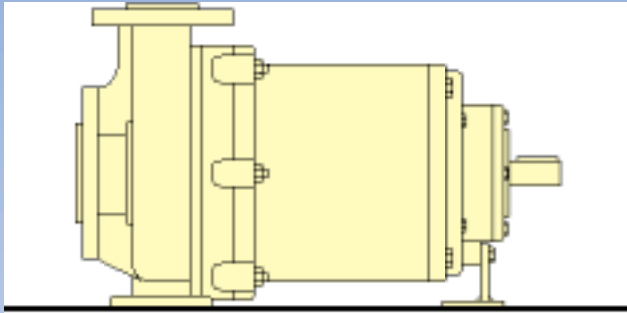


Fig 2 Temperature increase in the bearing whilst dry running

MAGNETICALLY-COUPLED CHEMICAL PROCESS PUMPS

LONG-COUPLED/CLOSE-COUPLED PUMP TYPES CLM/CLE



DESIGN FEATURES

- Pump body made from S.G. Iron with PTFE lining
- PTFE impeller
- Pump shaft available in either ceramic or silicon-free silicon carbide
- Shaft bearings available in silicon-free silicon carbide
- Can available in either carbon fibre-reinforced plastic (CFRP) or 320/S1 stainless steel
- Can lining made from PTFE
- PTFE lined magnetic rotor, hermetically sealed in PTFE
- Dimensions in accordance with DIN 24256/ISO 2858
- Flanges to BS 4504, DIN 2501, PN16

MAXIMUM PERMISSIBLE OPERATING CONDITIONS

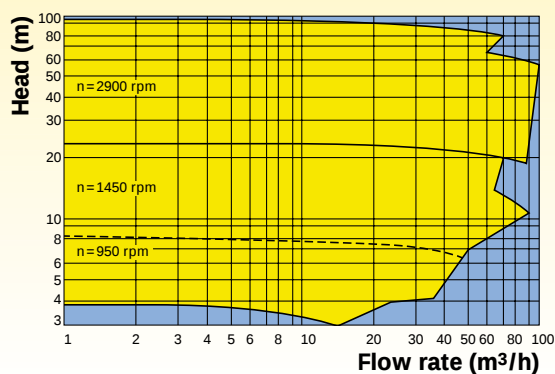
Can in CFRP/PTFE	10 bar/120 °C
Can in stainless steel	10 bar/150 °C
1.4571/PTFE	

PUMP SIZES

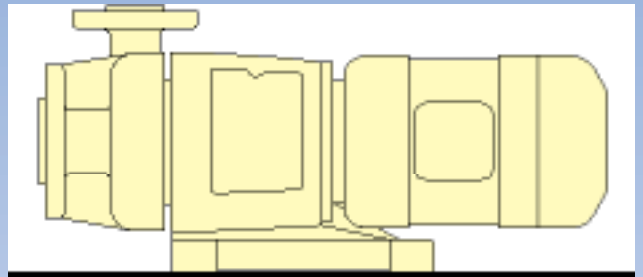
32-125, 32-160, 40-200, 50-160, 50-200, 50-250, 100-200

Also available with/for

- Dry running protection (see page 3)
- Containment can protection (see page 2)
- Pumping of liquids containing solids (see page 3)



CLOSE-COUPLED PUMP TYPE CLE



DESIGN FEATURES

- Pump body made from S.G. Iron with PTFE lining
- PTFE impeller
- Shaft bearing available in silicon-free silicon carbide
- Can in material 1.4571 (Type CLE 015070 and 020105)
- Can in CFRP material (Type CLE 025130 and 032180)
- Casing in material PTFE (Type CLE 015070 and 020105)
- Casing in material PFA (Type CLE 025130)
- Can lining made of PTFE
- PTFE coated magnetic rotor, hermetically encapsulated in PTFE
- Flange mounted standard three-phase A.C. motor,
- Flanges in accordance with BS4504, DIN 2501, PN16

MAXIMUM PERMISSIBLE OPERATING CONDITIONS

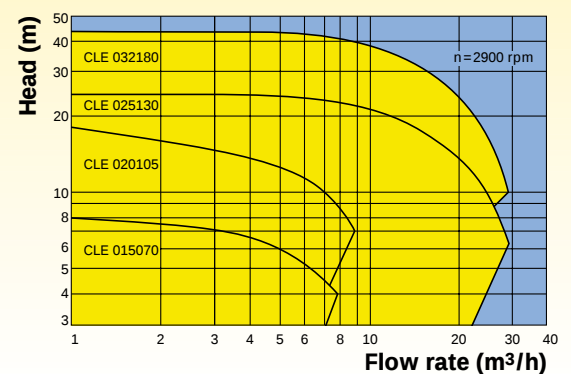
10 bar/150 °C

PUMP SIZES

015070, 020105, 025130, 032180

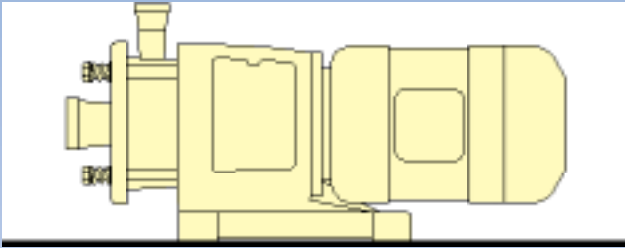
Also available with

- Dry running protection (see page 3)
- Containment can protection (see page 2)



MAGNETICALLY-COUPLED CHEMICAL PROCESS PUMPS

CLOSE-COUPLED PUMP TYPE GLM



DESIGN FEATURES

- Volute casing in borosilicate glass with tangential discharge
- PTFE impeller
- Sleeve bearings in silicon-free silicon carbide
- Thrust bearings in PTFE
- Containment can in stainless steel
- Can lining made of PTFE
- Magnetic rotor, hermetically sealed in PTFE
- Flange mounted standard three-phase A.C. motor
- DN 25 suction, DN 15 discharge for connection to a glass pipeline

MAXIMUM PERMISSIBLE OPERATING CONDITIONS

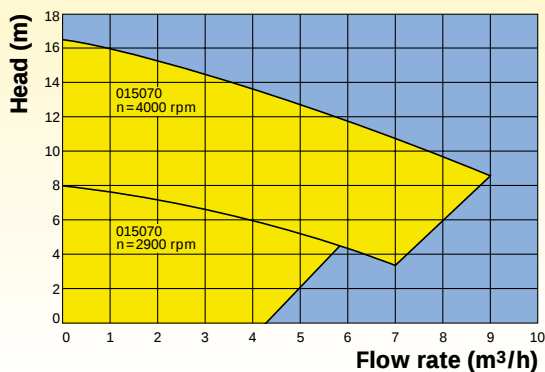
3.5 bar/150 °C

PUMP SIZES

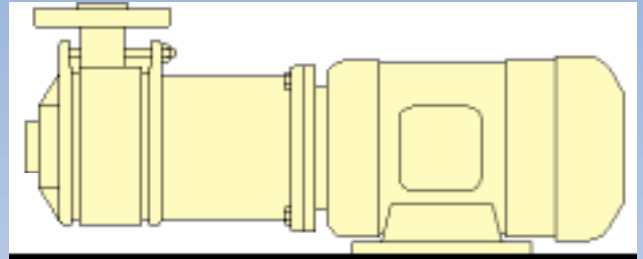
015070

Also available with

- Containment can protection (see page 2)



PERIPHERAL PUMP TYPE ALM A



DESIGN FEATURES

- Pump body made from S.G. Iron with PTFE lining
- PTFE impeller
- Inner rotor bearings made from silicon-free silicon carbide
- Can available in carbon fibre reinforced plastic (CFRP)
- Can lining available in PTFE
- Magnetic rotor, hermetically sealed in PTFE
- Flange mounted three-phase standard A.C. motor
- Suction and discharge flanges DN 15 and DN25 respectively in accordance with BS4504, DIN 2501, PN16

MAXIMUM PERMISSIBLE OPERATING CONDITIONS

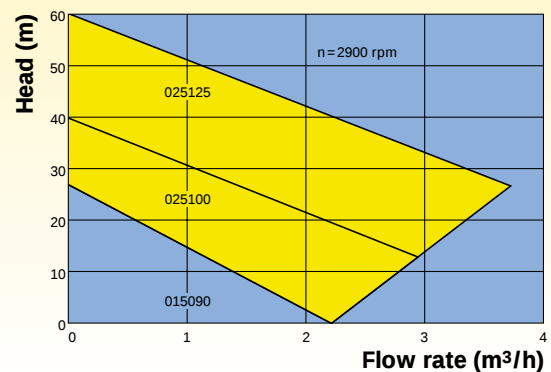
10 bar/125 °C

PUMP SIZES

015090, 025100, 025125

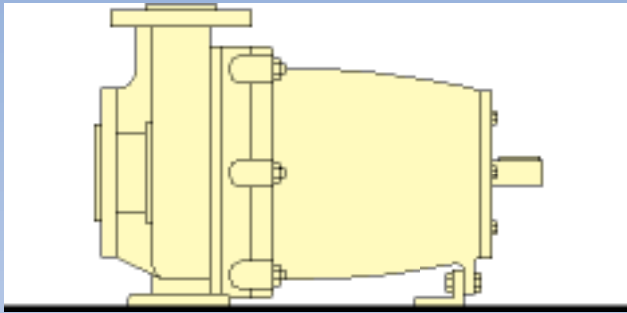
Also available with

- Dry running protection (see page 3)



CHEMICAL PROCESS PUMPS WITH MECHANICAL SEAL

LONG-COUPLED/CLOSE-COUPLED PUMP TYPES CLS/CLB



DESIGN FEATURES

- Pump body made from S.G. Iron with PTFE lining
- PTFE impeller
- Shaft protection sleeve in either ceramic oxide or silicon-free silicon carbide
- Shaft seal with either single PTFE bellows-type mechanical seal or double mechanical seal
- Dimensions DIN 24256/ISO 2858
- Flanges in accordance with BS4504, DIN 2501, PN 16

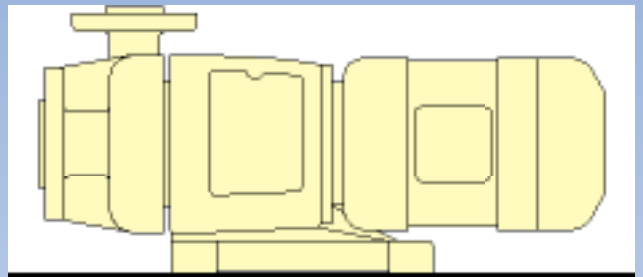
MAXIMUM PERMISSIBLE OPERATING CONDITIONS

10 bar/150 °C

PUMP SIZES

32-125, 32-160, 40-200, 50-160

CLOSE-COUPLED PUMP TYPE CLB



DESIGN FEATURES

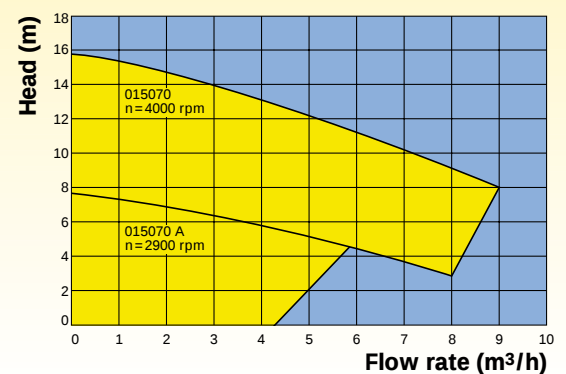
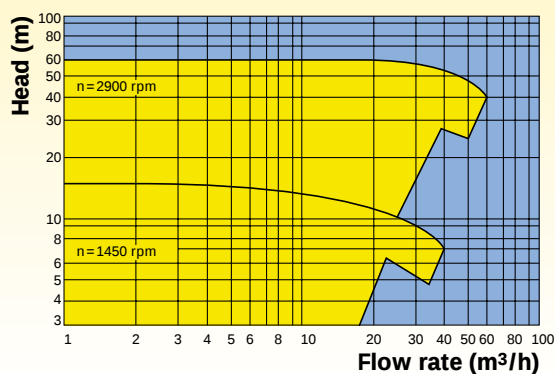
- Pump body made from S.G. Iron with PTFE lining
- PTFE impeller
- Shaft sleeve in ceramic oxide
- Shaft seal with either single or double PTFE bellows-type mechanical seal
- Flange mounted three-phase standard A.C motor type TEFC IP55
- Flanges in accordance with BS4504, DIN 2501, PN 16 DN25 suction, DN15 discharge

MAXIMUM PERMISSIBLE OPERATING CONDITIONS

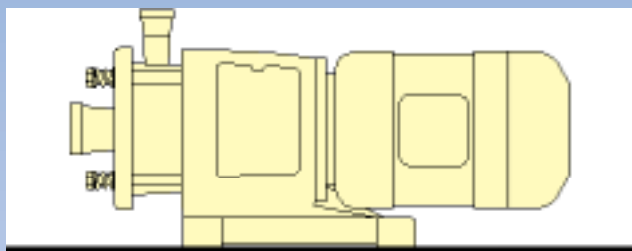
10 bar/150 °C

PUMP SIZES

015070 A, 015070 at 4000 rpm with belt drive



CLOSE-COUPLED PUMP TYPE GLK



DESIGN FEATURES

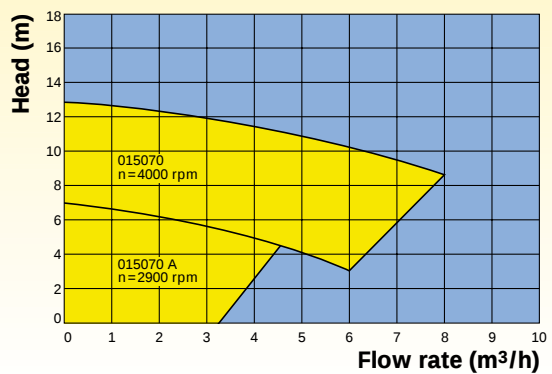
- Volute casing in borosilicate glass with tangential discharge
- PTFE impeller
- Shaft sleeve in ceramic oxide
- Shaft seal with either single or double PTFE bellows-type mechanical seal
- Flange mounted three-phase A.C. standard motor
- DN 25 suction, DN 15 discharge, for connection to glass pipelines

MAXIMUM PERMISSIBLE OPERATING CONDITIONS

3.5 bar.150 °C

PUMP SIZES

015070 A, 015070 at 4000 rpm with belt drive



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