



**DICKOW
PUMPEN**



**Side Channel Pumps
with Magnetic Coupling**

Type WPM

General

The DICKOW-pump, type WPM, is a selfpriming horizontal side-channel pump with magnetic coupling. The side-channel pump with its high differential head has the advantage of operating more economical than normal centrifugal pumps for low capacities and high heads.

Due to these facts, the side-channel pumps are appropriate to solve many pumping problems in chemical and petrochemical industries.

The WPM-pump is suitable for handling clean liquids without solids. Sealless magnetic driven pumps are designed to improve plants and personnel safety, especially when handling toxic, explosive or other dangerous liquids which react on contact with the atmosphere. For all such services, the static containment shell replaces double acting mechanical seals with external fluid reservoirs or barrier fluid circulating systems.

Application limits

WPM 10/20: max. 16 bar

WPM 23: max. 110 bar

Operating temperature: max. 150°C

Side-channel impellers

The rotating star-shaped side-channel impellers are fitted in a chamber between the suction and pressure discs and keyed to the pump shaft in floating position. No hydraulic thrust loads exist.

To achieve selfpriming capability, best efficiency and rated differential pressure, tight clearances between the rotating impeller and the stationary discs are required.

During operation with properly filled pump, a stable fluid film between the impellers and the discs will center the impeller in the chamber and avoid metallic contact between rotating and stationary parts, seizing of the impellers and decoupling of the magnets.

Suction- and pressure discs

The suction- and pressure discs are sealed to the atmosphere by confined O-rings with metal to metal fit, to prevent blow outs. The differential head is built up in the side-channel of the pressure disc.

Bearings

The outer magnets are mounted directly on motor shaft. The internal slide bearing set consists of SiC bushing and coated metal shaft sleeve.

Suction- and pressure casing

The fluid connections are available with different threads and flange ratings.

Magnetic coupling

The single elements of the multipolar magnetic coupling are manufactured of permanent magnet material "NdFe B" with unlimited lifetime. The internal magnets are completely encapsulated, no contact with liquid. Energy is transmitted to the hermetically sealed liquid end by a bank of external magnets passing motive force through the containment shell to a bank of internal magnets. Inner and outer magnet rings are locked together by magnetic forces and work as a synchronous coupling. The inner magnet ring transmits the required torque direct to the impeller.

Internal circulation

When the pump is in operation, it generates eddy currents which heat up the containment shell and the product in the magnet area. This heat is dissipated by an internal circulation. The circulation flow is led from discharge through the magnet area and the pump shaft to the suction disc of the last stage.

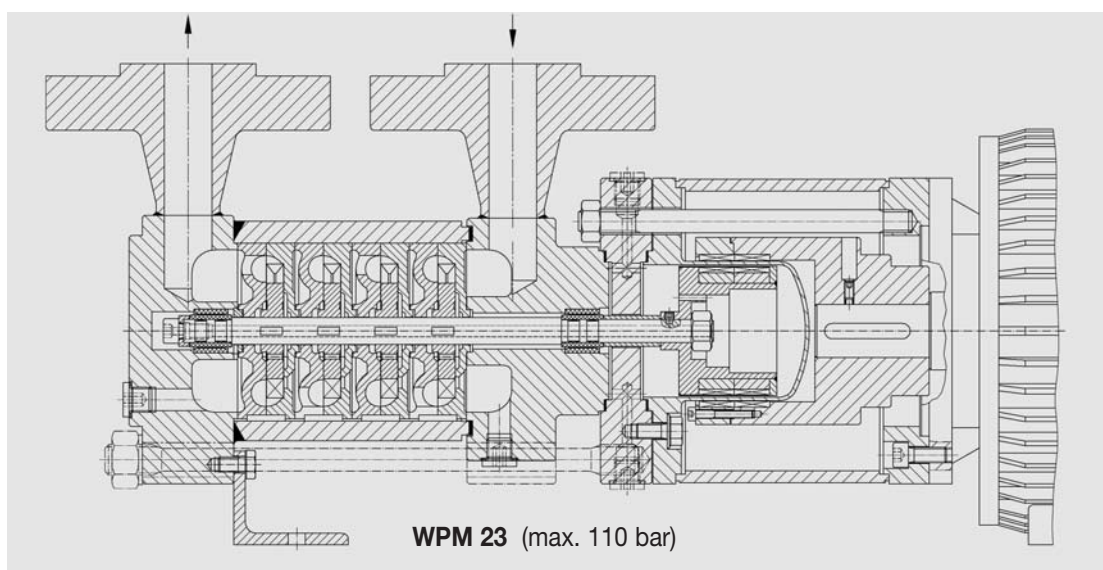
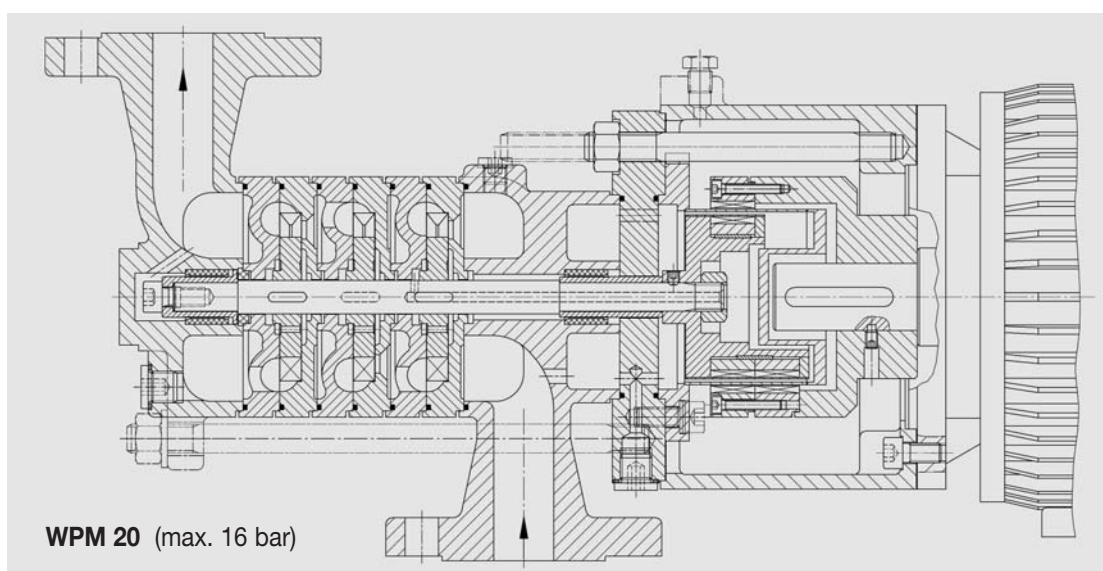
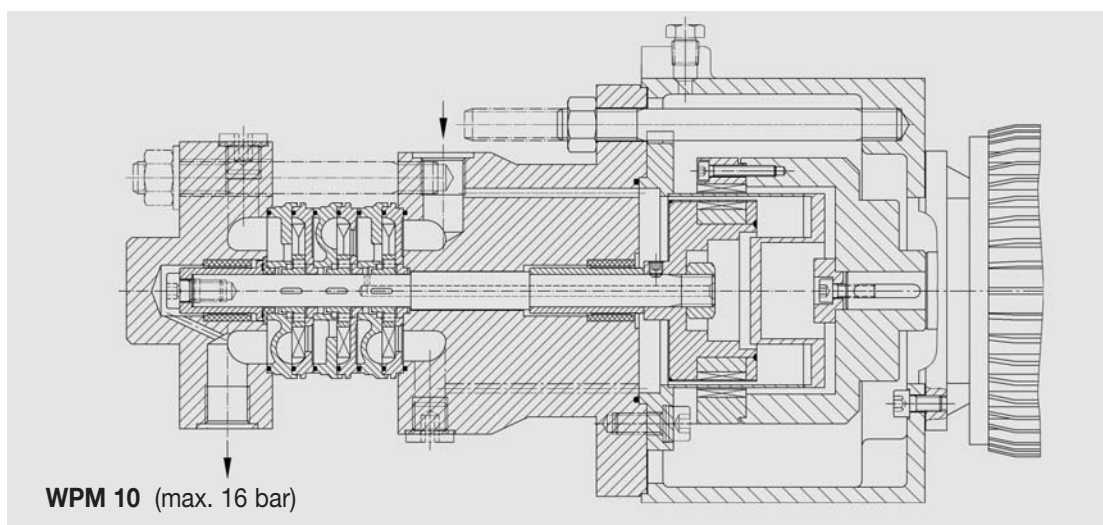
Hazardous area

Together with the required Ex-drive motors, the WPM-pumps can be applied in hazardous area Group II, Category 2. The pumps meet the basic safety and health requirements of Explosion-proof Directive 94/9 EC and Machinery Directive 98/37 EC and are suitable for plants with increased safety requirement.

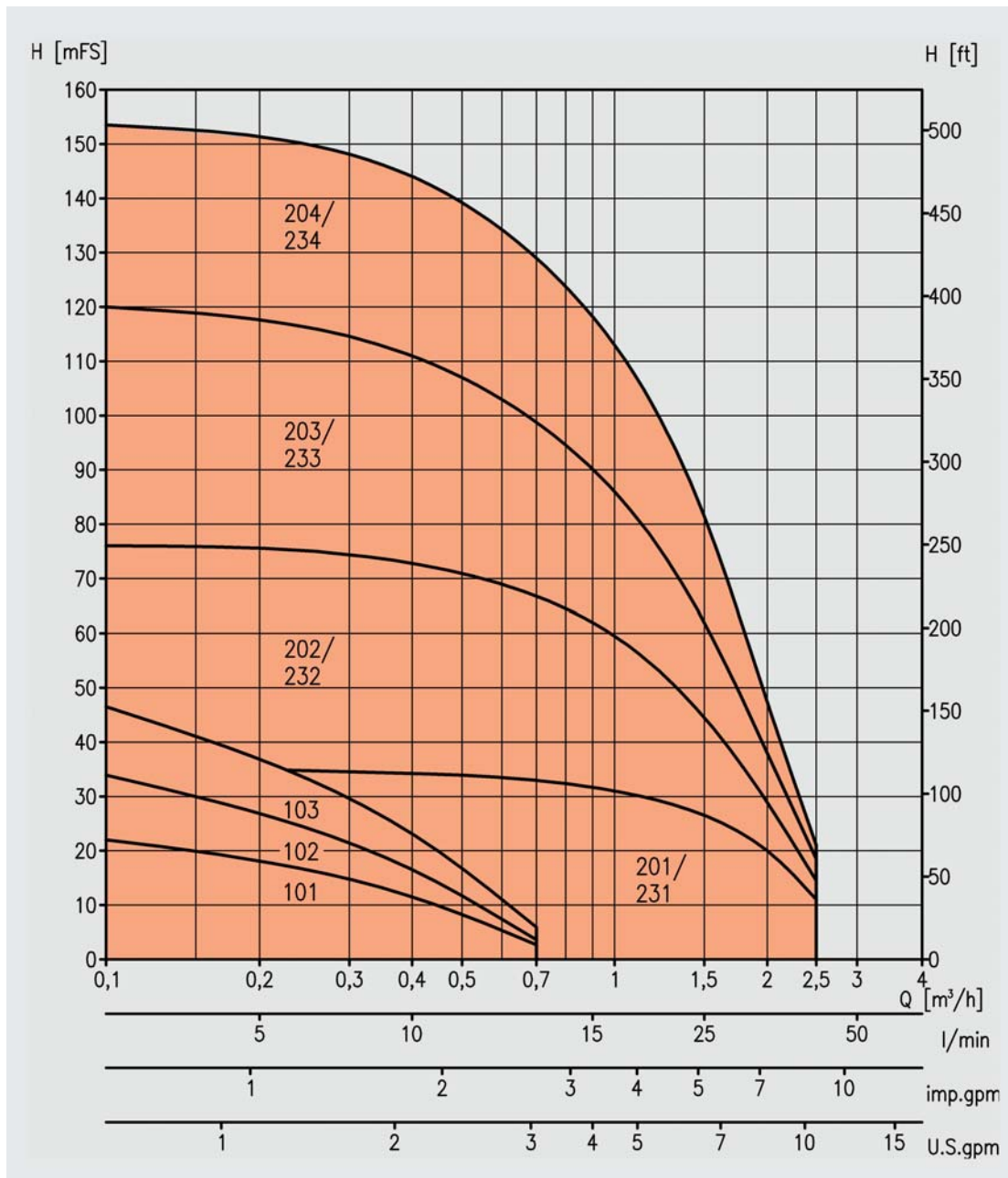
Materials

Wetted parts are available in stainless steel (1.4408 / 1.4457) and hastelloy (2.4686) material.

Sectional drawings



Performance range



More information about characteristics are shown on the performance curve of each type.

