# Operating and Installation Instructions (BMA) Pump combination Z-PK 2020 and Z-PK 2021





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Technical details are subject to change!

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### 1.Technical description

#### 1.1. General

The pump combinations Z-PK / 2020 (230V) and Z-PK / 2021 (400V) are further developments of previous pump combinations. The pump combinations are protected by utility patents. A major feature of this new development is the joint pump carrier to support the electric centrifugal pump and the hand vane pump. No pipes and no shut-off systems are necessary between the centrifugal pump and the hand vane pump.

This newly designed configuration has the following advantages:

- compact configuration of the pump combination
- replacement made easy by the installation-friendly spherical valves with isolating screw connection
- easily accessible priming and discharge outlets
- factory trial run with leakage and pressure tests carried out at the test bench
- no change-over required to switch from electric to manual operations
- reduction in weight and required housing space



The pump body is equipped with 2 DN 25 / G1" (female thread) inlets on the intake side in addition to one DN 20 / G 3/4" (female thread) outlet on the pressure side as well as M10 priming and discharge outlets.



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### 1.3 Technical data

		Z-PK-2020		Z-PK-2021	
	units	centrifugal pump	hand vane pump	centrifugal pump	hand vane pump
flow rate	ltr./min.	5 50	15	5 50	15
delivery height	m Fls.	35 10	ca. 10	35 10	ca. 10
suction height	m	6	4	6	4
voltage	V	230		400	
current	А	5,0		2,0	
frequency	Hz	50		50	
electrical power	kW	0,6		0,6	
RPM	RPM	2900		2900	

#### 1.4 Pump characteristic curve



### 1.5 Areas of application

The pump combinations Z-PK / 2020 (230V) and Z-PK / 2021 (400V) are primarily used for pumping diesel fuel and EL heating oil. A wide range of applications results from the good pumping capacity of up to approx. 40-50 ltr./min. at approx. 5 m delivery height or approx. 5 ltr./min. at approx. 35 m delivery height. The ambient temperature of the pump combination is + 5°C to + 30°C. Available versions are 230 V; 50 Hz and 400 V; 3-phase AC; 50 Hz.

### 2. Construction

The main components of the pump combination are:

- pump body
- centrifugal pump
- hand vane pump

The body of the pump is made of grey cast iron and machined on CNC machines. This guarantees durability and exact interchangeability of the pump combination and its individual components. The pump body is used to attach the pump combination to flat, vertical walls. It also accommodates the centrifugal pump and the hand vane pump. The impeller diameter of the centrifugal pump is 90 mm, the hand vane pump works double-acting through 4 flap valves.

### 3. Assembly and commissioning

### 3.1 Assembly of the pump combination

The assembly of the pump combination takes place within enclosed buildings.

The operating temperatures mentioned in subheading 1.5 are to be complied with. The pump combination is fixed to vertical load-bearing walls, consoles or other suitable brackets with 4 screws. The pump body is factory-fitted with 4 holes Ø 11 mm for this purpose.

The pressure connection of the pump combination leads vertically upwards.

The electrical connection of the centrifugal pump may only be carried out by specialist electrical companies. The connection values of the centrifugal pump's motor have to match the existing mains voltage. The electrical connections must be installed and fused in accordance with the electrical motor. When using the variation with three-phase AC motors, the direction of the engine rotation is to be examined. When looking at the fan of the motor, the rotor has to turn to the right (clockwise).

### 3.2 Drilling pattern for fixing dowels





### 3.5 Suction pipeline

The suction pipeline has to be protected from air intake and has to be laid in a way that prevents the forming of air pockets. It has to continually rise toward the pump combination. Cross-sectional constrictions and sharp curvature should be avoided. The nominal diameter of the suction pipe should be designed at least according to the nominal connection diameter of the pump combination (DN25). Local conditions may also require larger cross-sections.

A non-return value or a foot value must be installed to prevent the pumped medium from flowing back and the pump from running backwards when the centrifugal pump is at a standstill. The foot value must be installed in such a way that neither deposits from the tank bottom nor air (at low liquid level) can be sucked in.

A shut-off valve (e. g. ball valve) must be provided at each suction pipe of the pump combination. The shut-off valve of the required suction port must be fully opened during operation. It does not serve to regulate the flow.

#### 3.6 Pressure pipeline

Cross-sectional constrictions and sharp curvature should be avoided. The nominal diameter of the suction pipe should be designed at least according to the nominal connection diameter of the pump combination (DN20).

Local conditions may also require larger cross-sections of the pressure pipe.

A shut-off valve (e. g. ball valve) must be provided at each pressure pipe of the pump combination. The shut-off valve must be fully opened during operation. It does not serve to regulate the flow. The shut-off valve of the unused suction port is to be closed.

#### 3.7 Commissioning of the pump combination

Before commissioning the pump combinations Z-PK / 2020 (230V) and Z-PK / 2021 (400V) a visual examination regarding the proper mounting of the pump combination, the electrical connections and the piping has to be carried out. Afterwards the shut-off valve on the pressure side as well as the corresponding one on the suction side are to be fully opened. During the first commissioning the plug of the priming outlet has to be opened. After filling the pump body with the transport medium the priming outlet is once again closed.

Attention! The Z-PK is to be protected from dry running via appropriate measures (e. g. deactivation in the abscence of a transport medium).





#### 4. Maintenance and care

The pump combinations Z-PK / 2020 (230V) and Z-PK / 2021 (400V) work largely maintenance-free. However, there are a few notes to keep in mind to uphold a constant operational readiness and achieve a long service life:

- ensuring the cleanliness of the system and the pumped media
- routinely checking the sealing of the pumps and connections

The hand wing pump must be operated at least every 3 months.

Significant deviations of the actual performance from the technical data are rarely exclusively caused by the pump itself. When in doubt it is recommended to contact the manufacturer stating the production number and year of manufacturing.

Before starting maintenance or repair work of any kind on the pump combination or the connected pipelines, disconnect the mains voltage.

Close the shut-off valves on the suction and pressure sides of the pump combination. The pump combination is drained by unscrewing the drain plug. Please note that residues of the pumped liquid may remain in the pump body.

If pipes or the pump combination itself are dismantled, all openings must be closed with suitable plugs. This is the only way to reliably prevent foreign bodies from entering the pump combination and pipelines.

Attention! - the gland on the hand pump must be checked regularly for leaks and retightened - the re-commissioning of the pump combination has to be carried out in accordance with subheadings 3.1 to 3.8 of these instructions.

### 5. Drip tray

The drip tray is mounted to a solid, load-bearing wall alongside the pump combination. The drip tray is mounted behind the pump combination and installed on the wall through the two lower mounting points of the pump combination.



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#### EC DECLARATION OF CONFORMITY

We,

Krampitz Tanksystem GmbH Dannenberger Str. 15 21368 Dahlenburg Germany,

hereby declare that the product described below, as put into circulation by us and by virtue of its de sign and construction, complies with the relevant fundamental safety and health requirements of the EC directives. In case of a change to the product without prior agreement, this declaration shall lose its validity. The below-mentioned product is intended for installation or assembly with other machines Its commossioning is prohibited until it has been established that the system complies with applicable EC directives.

<u>z</u>piduue.

description: Z-PK pump combination for the transportation of non-flammable, liquid, lubricating media, e. g. heating oil EL, diesel

characteristics: flow rate: 5 - 50 L/min voltage: 230V / 400 V, 50Hz

applicable EC directives:

EC - Machinery Directive 2006/42/EC

EC - Low Voltage Directive 2014/35/EU

EC - Electromagnetic Compatibility (EMC) Directive 2014/30/EU

Applied harmonising standards and specifications, particularly:

DIN EN 292 Safety of machinery

DIN EN 809 Common safety requirements

DIN EN 61000-6-2 Immunity standard for industrial environments

DIN EN 61000-6-3 Emission standard for residential, commercial and industrial environments

DIN EN 60529 (IEC 529) Degrees of protection provided by enclosures

14th October 2020

date

signature / stamp

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