



Flexible Impeller Pumps



UNISTAR • COMBISTAR • NIROSTAR

one Design — three types



ZUWA Impeller Pumps



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About ZUWA

ZUWA-Zumpe GmbH is a family owned and run company with more than 60 years of experience in developing and manufacturing pumps. We are in constant communication with our customers both locally and abroad and are able to provide them with information regarding all questions concerning pumps.

Taking our customers requirements into consideration and continually improving our products enables us to provide and guarantee first class service and quality for all our products.

With our inhouse production we are able to meet the specific requirements of our customers, enabling us to design and purpose build pumps and specific pump applications. Our experienced staff provides an efficient and reliable service to our customers.

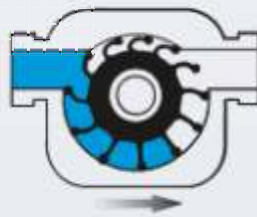
Principles of Operation

Flexible impeller pumps are displacement pumps. The rotor with flexible vanes is mounted concentrically in a circular housing which has a flattened area at one side. This provides the eccentric path for the impeller, thereby squeezing the flexible blades on this side.

As the impeller vanes are constructed of flexible material it can handle fluids with solids in suspension without damaging the medium or pump.



The impeller rotation and the straightening of the vanes upon leaving the cam creates a vacuum on the suction side drawing the fluid into the pump chamber.



The rotating impeller transfers the liquid from the inlet to the outlet port of the pump.



The squeezing of the vanes against the cam causes pressure at the delivery side and the fluid is pressed out in continuous operation.



The Advantages of an Impeller Pump

Dry self-priming

What makes Impeller pumps outstanding – they do not need to be filled prior to operation. Impeller pumps are dry self priming from a depth of three meters. Pre filling is required for a suction depth of three meters and more. The maximum suction depth is seven metres.

High capacity

Depending on type and model our pumps are capable of transferring from between 3 litres up to 730 litres per minute. Tanks will be drained down to the last drop.

Easy maintaining

For cleaning and maintenance work the pumps are quickly and easily disassembled.

Replacement parts can be ordered individually. Low operation costs!

Versatile

Useful for many different fluids and applications. Materials of impellers, seals and pump housings can be selected according to the individual needs and applications required. ZUWA Impeller pumps are available with AC, DC and alternate current motors with various revolutions per minute.

Gentle

Fluids are transferred absolutely free of pulsation. Smaller amounts of air or other gaseous fluids can be handled on the suction side.

Reliable

All pumps are tested for permanent operation in our work shop. Top quality materials guarantee for a long durability.

Sturdy

Impeller pumps will readily pump fluids with a wide viscosity range, even highly viscous liquids such as oil or honey (up to 20 000 mPAS) as well as liquids containing solids. The approved media temperature is 90°C maximum. A short dry-run of up to one minute can be tolerated.

Where Impeller Pumps Are Being Used

- galvanising
- boating, marine engineering
- workshop, machine shop
- biotechnology
- heating and sanitary
- agriculture and horticulture
- water and sewerage treatment
- food and beverage industry
- manufacturing, industrial plants and construction
- chemical, pharmaceutical and cosmetics industry



impeller wheel type A in full scale: 56 mm

Three Pump Types

UNISTAR

A multi-purpose pump designed for transferring clean or contaminated liquids. Not suitable for handling abrasive or corrosive fluids.

COMBISTAR

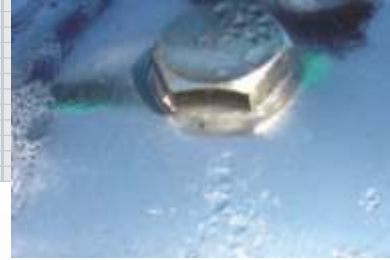
This pump is particularly suitable for all fluids that may also contain abrasive particles. It is an economic alternative to the NIROSTAR series for transferring abrasive or slightly corrosive fluids.

NIROSTAR

A high quality stainless steel pump with numerous applications in industrial plants and production facilities, the appropriate choice for transferring corrosive fluids.

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Features



Drives



directly 2anged



*with pump carrier
(only for types A and B)*



with frequency converter

Electrically Driven Pumps

ZUWA Impeller Pumps are available with electric motors of various specifications. The pump casing can either be directly 2anged to the motor or is connected via a pump carrier.

Pump Carrier

Carrier to connect pumps with standardized motors with installation size M71 B3/B14.

Frequency Converter

Flexible 2ow rate controlled by a frequency converter – the exact 2ow rate can be adjusted when pump is used for 2lling or dosing. The rotation of the impeller can be reversed if required.



with air motor



with drill and support



with V-belt pulley

Pumps without Drive Units

All ZUWA impeller pumps are also available without electric motors, enabling the pump to be connected to any type of alternative drive unit.



with drill and adapter

Drive Options

- electric drill or screw driver
- V-belt pulley
- gearbox
- hydraulic motor
- pneumatic drive

Impeller Materials

NBR /Acrylnitril-Butadien-Kautschuk (Perbunan®, Buna-N®):

For water, antifreeze, heat transfer fluid and fats. High impact resilience and good mechanical resistance, best choice for high pressure applications up to 5 bar.

EPDM /Ethylen-Propylen-Dien-Kautschuk (Keltan®, Buna EP®):

For high temperatures, for acids and bases. High elasticity and very good mechanical resistance.

CR /Chloropren-Kautschuk (Neoprene®, Bayprene®):

Preferably used for applications in the food industry. Flame resistant, good resistance to aging and tear

FKM oder FPM /Fluor-Kautschuk (Viton®, Fluorel®):

For oil, diesel, fuel oil, palm oil, soy bean oil and oil emulsive wood preservatives. Very good chemical resistance, less mechanical resistance.



	pump housing	pump cover *	pump shaft	rotary shaft seal	floating ring seal	impeller					
						NBR	EPDM	FKM	CR		
UNISTAR 2000-A	AlMgSi1	AlMgSi1	AISI 430F	?	?	?	★	★	★		
UNISTAR 2000-B				?	?	?	★	★	★		
UNISTAR 2000-C				?	?	?	★	★	★		
UNISTAR 2001-A			AlMgSi1	AlMgSi1	AISI 316Ti	?	?	?	★	★	★
UNISTAR 2001-B						?	?	?	★	★	★
COMBISTAR 2000-A						?	?	?	★	★	★
COMBISTAR 2000-B			AlMgSi1	AlMgSi1	AISI 430F	?	?	?	★	★	★
COMBISTAR 2001-A						?	?	?	★	★	★
COMBISTAR 2001-B					AISI 316Ti	?	?	?	★	★	★
NIROSTAR 2000-A directly ?anged	AISI 316Ti	AISI 430F				?	?	?	★	★	★
NIROSTAR 2000-A with pump carrier	AISI 316Ti	AISI 316Ti	AISI 316Ti	?	?	?	★	★	★		
NIROSTAR 2000-B directly ?anged				AISI 430F	?	?	?	★	★	★	
NIROSTAR 2000-B with pump carrier			AISI 316Ti	?	?	?	★	★	★		
NIROSTAR 2001-A				?	?	?	★	★	★		
NIROSTAR 2001-B			?	?	?	★	★	★			
NIROSTAR 2000-C			AISI 316	AISI 316	AISI 304	?	?	?	★	?	★
NIROSTAR 2000-D	AISI 304	AISI 304	?	?		?	★	?	★		
NIROSTAR 2000-E			?	?		?	★	?	★		
NIROSTAR 2000-F			?	?		?	★	?	★		

* for UNISTAR and COMBISTAR: to protect the aluminium pump covers the pump chamber is sealed with stainless steel discs (1.4404).

? = standard, ? = not available, ★ = on request



UNISTAR 2000-A/B

A multi-purpose pump designed for transferring clean or contaminated fluids without abrasive particles (suitable for all non-corrosive and non-abrasive fluids).

Fluids

- water, salt water
- waste water
- diesel fuel, biodiesel
- vegetable oils
- fuel- and motor oil
- detergents
- antifreeze
- heat transfer fluid

Applications

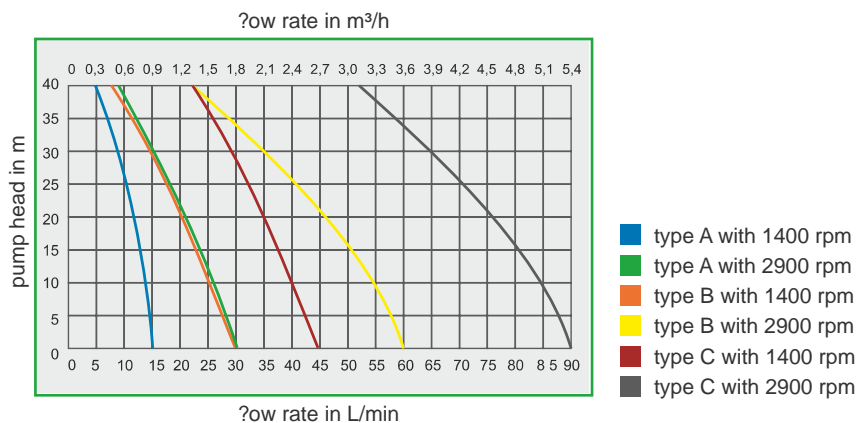
- filling solar collectors
- irrigation
- rain water harvesting
- domestic water supply
- de-watering basements
- decanting barrels
- draining waste oil
- sewerage disposal
- fuelling vehicles
- car wash
- draining pond/pool
- cleaning tanks
- draining tanks

New: higher capacity!



UNISTAR 2000-C

AC motor (230 V) is provided with clockwise and anticlockwise rotation as standard



Technical Data	UNISTAR 2000-A								UNISTAR 2000-B								UNISTAR 2000-C		
	230		400		12		24		230		400		12		24		230 V		
max. flow rate	30 L/min								60 L/min								90 L/min		* with perbunan impeller
max. pressure	5 bar *								5 bar *								5 bar *		
connections	"								1"								1 "		
rpm	1.400	2.800	1.400	2.800	1.500	3.000	1.500	3.000	1.400	2.800	1.400	2.800	1.500	3.000	1.500	3.000	2.800		
Ampere	3,2	3,2	2,1	1,9	39	42	12	18	4,4	4	2,8	2,4	50	49	23	23	5,3		
motor power (kW)	0,37				0,25				0,55				0,37				0,75		
max. temperature	90°C								90°C								90°C		
weight	9 kg								9,2 kg								13 kg		

Drill driven UNISTAR 2001

The shaft of the UNISTAR 2001 can easily be fixed to the chuck of each regular electric or cordless drill and screwdriver. The pump is available in two versions:

1. with mounting stands
The pump is mounted to a regraded support along with the drill (the support is not part of the purchased parts package).
2. with adapter **New!**
The adapter fixes the pump with the depth stop (the adapter is available separately for back fitting).



UNISTAR 2001 with mounting stands



new adapter



example for application with adapter and drill



example for application with regraded support



example for application with adapter and cordless screwdriver

Technical Data	UNISTAR 2001-A	UNISTAR 2001-B
max. flow rate	30 L/min	60 L/min
max. pressure	4 bar	4 bar
connections	"	1"
minimum drive power	500 W	700 W
rpm	--	--
motor power	--	--
Ampere	--	--
max. temperature	90°C	90°C
weight	0,6 kg	0,8 kg

COMBISTAR

2000-A | 2000-B | 2001-A | 2001-B



COMBISTAR 2000-A/B

This pump is particularly suitable for all fluids containing abrasives. It is an economic alternative to the NIROSTAR series for transferring abrasive or slightly corrosive liquids.

Applications

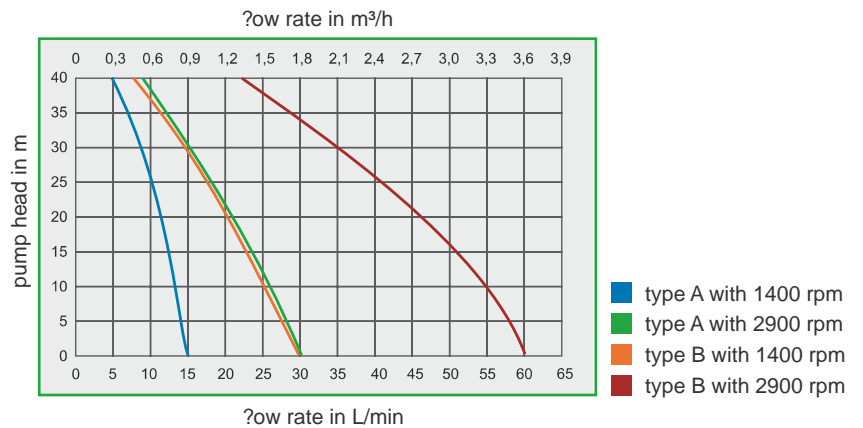
- cleaning machines
- oil disposal
- whitewashing stables
- draining tanks
- cleaning tanks
- galvanizing tanks
- draining waste oil

Fluids

- descaler
- grinding emulsions
- coolant
- lime water
- diluted soluble oil
- galvanising sludge
- waste oil



COMBISTAR 2001-A/B



Technical Data	COMBISTAR 2000-A								COMBISTAR 2000-B				COMBISTAR 2001-A	COMBISTAR 2001-B					
	max. flow rate		max. pressure		connections		Volt		rpm		Ampere		motor power (kW)			max. temperature		weight	
max. flow rate	30 L/min								60 L/min				30 L/min	60 L/min	* with perbunan impeller				
max. pressure	5 bar *								5 bar *				4 bar	4 bar					
connections	"								1"				"	1"					
Volt	230		400		12		24		230		400		12			24		--	--
rpm	1.400	2.800	1.400	2.800	1.500	3.000	1.500	3.000	1.400	2.800	1.400	2.800	1.500	3.000		1.500	3.000	--	--
Ampere	3,2	3,2	2,1	1,9	39	42	12	18	4,4	4,0	2,8	2,4	50	49		23	23	--	--
motor power (kW)	0,37				0,25				0,55				0,37				--	--	
max. temperature	90°C								90°C				90°C	90°C					
weight	9,4 kg								10 kg				1 kg	1,6 kg					



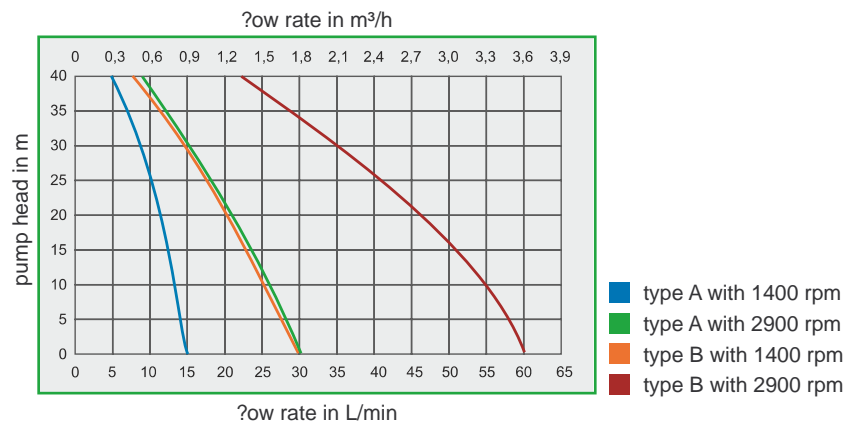
A high quality stainless steel pump with numerous applications in industrial plants and production facilities, the appropriate choice for transferring corrosive fluids. Frequently used in food and beverage industry.

Applications

- delivering
- filtering
- dosing
- decanting
- draining

Fluids

- food, beverages
- mash
- chemicals, acids, bases
- liquid fertilizers
- dyes, glues
- vegetable oils
- surface treatment



Star Handles

The quick release star handles, available for all NIROSTAR pumps shown on this page, allow for easy opening of the pump by hand without using tools. For this operation it is not necessary to remove the pump from its installed position. This provides an easy access for cleaning, inspection and maintenance.

Technical Data	NIROSTAR 2000-A								NIROSTAR 2000-B								NIROSTAR 2001-A	NIROSTAR 2001-B	
max. flow rate	30 L/min								60 L/min								30 L/min	60 L/min	
max. pressure	5 bar *								5 bar *								4 bar	4 bar	
connections	"								1"								"	1"	
Volt	230		400		12		24		230		400		12		24		--	--	
rpm	1.400	2.800	1.400	2.800	1.500	3.000	1.500	3.000	1.400	2.800	1.400	2.800	1.500	3.000	1.500	3.000	--	--	
Ampere	3,2	3,2	2,1	1,9	39	42	12	18	4,4	4,0	2,8	2,4	50	49	23	23	--	--	
motor power (kW)	0,37				0,25				0,55				0,37				--	--	
max. temperature	90°C								90°C								90°C	90°C	
weight	9,8 kg								10,4 kg								1,5 kg	2 kg	

* with perbunan impeller

NIROSTAR

2000-C | 2000-D | 2001-D



NIROSTAR 2000-C

Applications

- cleaning tanks
- cleaning ponds
- delivering
- filtering
- dosing
- decanting
- draining

Fluids

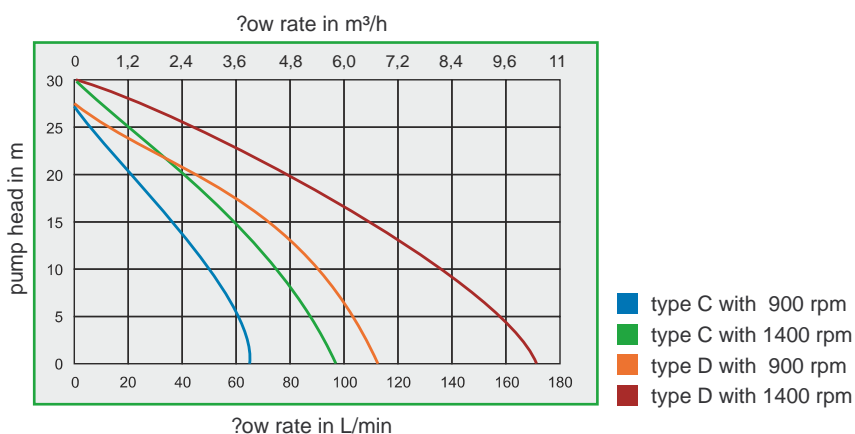
- fuel oil
- diesel fuel
- food
- beverages
- mash
- chemicals
- acids
- bases
- liquid fertilizers
- dyes
- glues
- vegetable oils
- surface treatment



NIROSTAR 2000-D



NIROSTAR 2001-D



Technical Data	NIROSTAR 2000-C						NIROSTAR 2000-D			NIROSTAR 2001-D
	max. flow rate	96 L/min						166 L/min		
max. pressure	3 bar						3 bar			3 bar
connections	1"						1"			1"
Volt	230		400		24		230	400		--
rpm	900	1.400	700	900	1.400	900	900	900	1.400	--
Ampere	5	7,1	n. A.	1,7	2,1	30	13	4,1	3,8	--
motor power kW	0,56	0,75	n. A.	0,55	0,75	0,56	1,5		--	
max. temperature	90°C						90°C			90°C
weight	15 kg						20 kg			4,5 kg

Fluids

- fuel oil
- diesel fuel
- food
- beverages
- mash
- chemicals
- acids
- bases
- liquid fertilizers
- dyes
- glues
- vegetable oils
- surface treatment

Applications

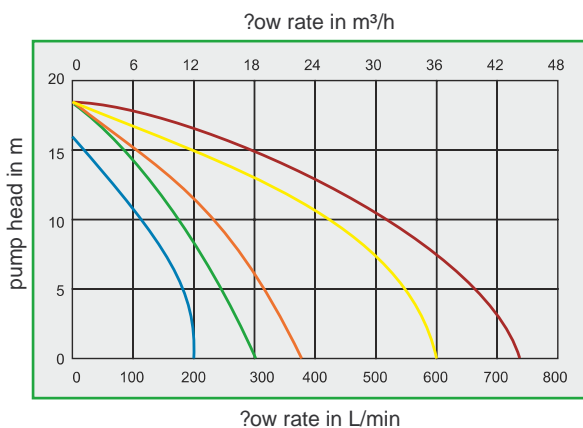
- cleaning tanks
- cleaning ponds
- delivering
- filtering
- dosing
- decanting
- draining



NIROSTAR 2000-E



NIROSTAR 2000-F
with frequency converter and
dry run protection



- type E with 470 rpm
- type E with 700 rpm
- type E with 900 rpm
- type F with 470 rpm
- type F with 600 rpm

Technical Data	NIROSTAR 2000-E			NIROSTAR 2000-F		NIROSTAR 2001-E	NIROSTAR 2001-F
max. flow rate	375 L/min			730 L/min		375 L/min	730 L/min
max. pressure	2 bar			2 bar		2 bar	2 bar
connections	2"			3"		2"	3"
Volt	400			400		--	--
rpm	470	700	900	470	600	--	--
Ampere	6	6	5,5	9,5	8,2	--	--
motor power kW	1,12	1,5	1,87	3,3	3,5	--	--
max. temperature	90°C			90°C		90°C	90°C
weight	30 kg			69 kg		8,5 kg	14,5 kg



Dry Run Protection

For impeller pumps of the series 2000-A and 2000-B a dry run protection is available. To protect the impeller a sensor switch interrupts the power supply before overheating. A reset button restarts the pump after eliminating the fault. Easy retrofitting of existing pumps.



Pressure Switch

The pressure switch shuts off the pump when reaching a preset pressure level. As soon as the pressure drops again by 30% the pump automatically starts anew.

switching pressure: adjustable from 1-10 bar
material: stainless steel or brass



Flow Control

With a flow control the flow rate of a pump can be controlled and adjusted within a specified range. A flow indicator is integrated in the housing.

flow rate: 8 - 30 L/min or 10 - 40 L/min
connection: 2 x 1" male thread
max. operating pressure: 10 bar
material: brass (approved for drinking water)



Carrying Handle

Carrying handle with rubber pads - convenient transport for all impeller pumps of the series 2000 (except for NIROSTAR 2000-E and NIROSTAR 2000-F).



Changing the Impeller

A useful tool to install the impeller easily into the casing. Suitable for all ZUWA impellers type A and B



*NIROSTAR 2000-C with frequency converter,
remote control and flow meter*

Frequency Converter

Frequency converter for speed regulation and exact adjustment of flow rate for decanting and dosing. The rotation of the impeller can be reversed if required.

Remote Control

Remote control with 15 m cable to control speed and sense of rotation.

Flow Meter

Electronic meter made of stainless steel particularly suitable for food and acids. Different sizes from 3/4" to 3" male thread.



NIROSTAR 2000-F with gearbox motor

Gearbox Motor

- single or two stage
- variably adjustable



NIROSTAR 2001-E with hydraulic motor

Hydraulic Motor

Hydraulic motor for connection to hydraulic systems of commercial vehicles.

Special Applications



Barrel Pump for Battery Drive

Extremely lightweight and efficient pump for mobile applications with battery drive 12 or 24 Volt. For continuous duty approved.

Flow rate max.: 15 L/min with 12 V — 30 L/min with 24 V
pressure max.: 3 bar
weight: only 3,1 kg

Features:

- dry self-priming impeller pump
- three-pin connector
- On/Off switch with thermal motor protection
- 2" barrel connection

(barrel and battery not included in scope of delivery)



Flat Suction Kits

Effective aid to flooded basements. Also available with oil resistant hose for oil contaminated fluids.

Application:

- draining flooded basements
- removing residue water from flat roofs
- cleaning of sludgy ponds

Features:

UNISTAR 2000-B, spiral hose, flat suction mat, euro container with cover and pump control (optional)



Watering Cart

Low noise watering and fertilizing of large areas with 12/24 Volt battery drive.

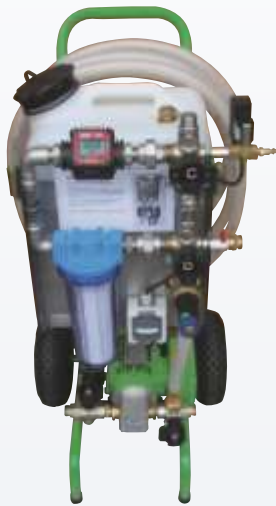
Features:

UNISTAR 2000-A with ZUMATIC pump control switching the pump on and off automatically.
tank content: 100 litres

Pump UNISTAR with pump control and 12 or 24 Volt drive separately available.

(battery not included)

HPAC Filling and Flushing Stations



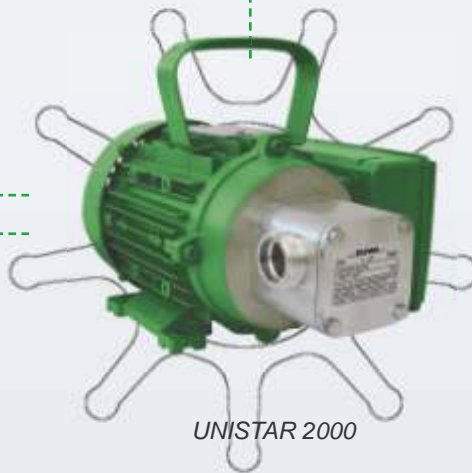
FLUSH PRO



Solarcheck Mobilcenter



DESCAL



UNISTAR 2000



CHP Oil Change Kit

Additional information on these products are available in our detailed brochure for HPAC professionals (sent to you on request) or can be downloaded under www.zuwa.de



Oil Change Mobilcenter