Flexible Impeller Pumps
one design - four types

UNISTAR - COMBISTAR - NIROSTAR - ACOSTAR
ZUWA-Zumpe GmbH

The family run enterprise ZUWA-Zumpe GmbH has been manufacturing high quality pumps and innovative pump systems for more than 65 years. The ample experience in designing and producing high end products enables us to offer a wide range of different devices.

The entire product range consisting of pumps, fuelling stations, plant protection systems as well as charging and flushing stations is in high demand all over the world. ZUWA is working in accordance with the ISO 9001:2008 quality management system, regularly controlled by TÜV SÜD. Process safety and constant quality is guaranteed.

The close contact with our customers provides us with proposals and impulses to improve and further develop our products. In house production and shop floor enable us to meet customer specific requirements, manufacture custom made products and complete repair jobs. Competent contact persons and lean management make for quick and reliable service.

All data, descriptions, photos, images and dimensions of the entire brochure are non binding and shall be used for visualisation only. We reserve the right for amendments and can not be held liable for printing errors.
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.

1. **Suction:**
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.

2. **Transfer:**
The rotating impeller transfers the liquid from the inlet to the outlet port of the pump.

3. **Press:**
On the pressure side the impeller vanes are compressed and the fluid is discharged constantly from the pump.

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 metres and more. The suction depth is max. 7 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.

- **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 and DC 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 continuous operation in our workshop. Top quality materials guarantee for a long durability.

- **Easy maintaining**
For cleaning and maintenance work the pumps are quickly and easily disassembled. Replacement parts can be ordered individually. Low operation costs!

- **Sturdy**
Impeller pumps will readily pump fluids with a wide range of viscosity, 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 max. 90°C. A short dry-run of up to one minute can be tolerated.
Pump types

UNI-, COMBI-, NIRO- and ACOSTAR

Where Impeller Pumps are being used

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

Pump types

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

COMBISTAR
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 fluids.

ACOSTAR
The synthetic pump is for a wide variety of applications in the chemical sector. Perfect for fluids with various viscosities plus aggressive acids, bases and solvents.

For all applications the right Impeller material

NBR /Acrylonitrile-Butadiene-rubber (Perbunan®, Buna-N®):
for water, antifreeze, heat transfer fluid, vegetable oil and grease high impact elasticity and good mechanical strength good for applications involving high pressures up to max. 5 bar

EPDM /Ethylene-Propylene-Diene-rubber (Keltan®, Buna EP®):
for high temperatures, for acids and bases. high elasticity and very good mechanical stability

CR /Chloroprene-rubber (Neoprene®, Baypren®):
preferably used for applications in the food industry. flame retardant, tearproof, durable

FKM or FPM /Fluor-rubber (Viton®, Fluorel®):
for oil, diesel, fuel oil, palm oil, soybean oil and oil emulsive wood preservatives very good chemical resistance, less mechanical resistance

Plastic
for water, mineral and vegetable oils, diesel fuel, heat transfer fluid and several chemicals. Extremely tear resistant and good mechanical resistance (not suitable for abrasive fluids) maximum fluid temperature 60°C
### Materials

#### UNISTAR

<table>
<thead>
<tr>
<th></th>
<th>2000-A, B and C</th>
<th>2001-A, B and C</th>
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<tbody>
<tr>
<td>Pump housing</td>
<td>AlMgSi1</td>
<td></td>
</tr>
<tr>
<td>Pump cover*</td>
<td>AlMgSi1</td>
<td></td>
</tr>
<tr>
<td>Pump shaft</td>
<td>AISI 430 F</td>
<td>AISI 316 L</td>
</tr>
<tr>
<td>Rotary shaft seal</td>
<td>✔ ✔</td>
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</tr>
<tr>
<td>Impeller wheel: NBR, EPDM, FKM, CR, Plastic</td>
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#### COMBISTAR

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<td>AlMgSi1</td>
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<tr>
<td>Pump shaft</td>
<td>AISI 430 F</td>
<td>AISI 316 L</td>
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<tr>
<td>Rotary shaft seal</td>
<td>✔ ✔</td>
<td>✔ ✔</td>
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<tr>
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#### NIROSTAR

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<th>2001-D, E and F 2001-A and B</th>
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<td>AISI 316 L</td>
<td>C = AISI 316, D-F = AISI 304</td>
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<td>Pump cover*</td>
<td>AISI 316 L</td>
<td>C = AISI 316, D-F = AISI 304</td>
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<tr>
<td>Pump shaft (directly flanged)</td>
<td>AISI 430 F</td>
<td>AISI 304</td>
</tr>
<tr>
<td>Pump shaft (with pump carrier)</td>
<td>AISI 316 L</td>
<td>x x</td>
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<td>Rotary shaft seal</td>
<td>✔</td>
<td>x</td>
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<tr>
<td>Floating shaft seal</td>
<td>x</td>
<td>✔</td>
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<tr>
<td>Impeller wheel: NBR - Perbunan®</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>EPDM - Keltan®</td>
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<td>optional</td>
</tr>
<tr>
<td>FKM - Viton®</td>
<td>optional</td>
<td>x</td>
</tr>
<tr>
<td>CR - Neoprene®</td>
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<td>optional</td>
</tr>
<tr>
<td>Plastic</td>
<td>optional</td>
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#### ACOSTAR

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<td>Pump cover*</td>
<td>POM</td>
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<td>Pump shaft</td>
<td>NIRO 1.4104 with ceramic (AK99.5) shaft bush</td>
</tr>
<tr>
<td>Rotary shaft seal</td>
<td>VITON®</td>
</tr>
<tr>
<td>rod seal</td>
<td>VITON®</td>
</tr>
<tr>
<td>Impeller wheel:</td>
<td>VITON®</td>
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</table>

*For UNISTAR and COMBISTAR: to protect the aluminium pump covers the pump chamber is sealed with stainless steel discs (AISI 316). The POM lids are covered by Ceramic discs on the side in touch with the fluid.*

✔ = standard, ❌ = not available
Electric motors

ZUWA Impeller Pumps are available with electric motors of various specifications. The pump casing can either be directly flanged to the motor or is connected via a special adapter housing.

Drives are available as follows:
- 230 Volt AC
- 400 Volt AC
- 12 or 24 Volt DC

Pump carrier

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

Gear motor

- single or two stage
- variably adjustable

Hydraulic motor

Hydraulic motor for connection to hydraulic systems of commercial vehicles.

Bidirectional motor

It is possible to pump in both directions by reversing rotation: tanks can be drained and filled easily without changing hoses.

The pumps of series A and B can be mounted to a bidirectional motor on option. For the pumps of series C to F a bidirectional motor is standard equipment.

Pneumatic motor

Handy and extremely light pump of series 2001-A with a powerful pneumatic drive, especially made for garages where compressed air is available.

The pump is fixed in a similar way as with the drill adapter and depth stop (see next page).
All ZUWA impeller pumps are also available without electric motors, enabling the pump to be connected to any type of alternative drive unit.

**Drive Options:**
- power drill
- V-belt drive
- gear motor
- hydraulic motor
- pneumatic drive

**Transmission for V-belt drive**
Transmission with 24 mm stainless steel shaft (AISI CA 6 NM) for pulley carrier. The motor shaft is mounted with a double angular ball bearing and is fixed by the bearing housing. Thereby the axial forces barely affect the pump shaft and abrasion is minimized.

**Drill driven Impeller Pumps**

The pump series 2001-A and 2001-B are ideally driven with a drill. The shaft 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 drill adapter**
The adapter fixes the pump with the depth stop.

2. **with regraded support and mounting feet**
The pump is mounted to a regraded support along with the drill (the support is not part of the standard equipment).

Adapter and regraded support separately available for back fitting.
UNISTAR

2000-A | 2000-B | 2000-C

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

Applications
► filling solar collectors
► irrigation
► rain water harvesting
► domestic water supply
► drain flooded basements
► decanting barrels
► sewerage disposal
► fuelling vehicles
► draining waste oil
► dispose off cooling lubricants
► draining water beds
► car wash
► cleaning tanks
► draining tanks

Fluids
► water, seawater
► waste water
► diesel fuel, biodiesel
► vegetable oils
► heating and motor oil
► detergents
► antifreeze
► heat transfer fluid
► cooling lubricants

UNISTAR 2000-A/B
bidirectional motor as standard

Characteristic curves:

Flow rate max. (l/min) | 15 | 30 | 15 | 30 | 15 | 30 | 30 | 60 | 30 | 60 | 30 | 60 | 30 | 60 | 30 | 60 | 30 | 60 | 30 | 60 | 30 | 60 | 30 | 60 | 30 | 60 | 90
Pressure max. (bar)* | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5
connections | ¾” | 1” | 1¼”
Volt | 230 | 400 | 12 | 24 | 230 | 400 | 12 | 24 | 230 | 400 | 12 | 24
Rpm | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 |
Ampere | 3,2 | 2,1 | 1,9 | 39 | 42 | 12 | 18 | 4,4 | 4 | 2,8 | 2,4 | 50 | 49 | 23 | 8,8 | 2,7
Motor power | 0,37 kW | 0,25 kW | 0,55 kW | 0,37 kW | 1,1 kW
Temperature max. | 90°C | 90°C | 90°C
Weight | 9 kg | 9,2 kg | 13 kg

* with Perbunan-Impeller
UNISTAR without drive unit

Applications
► refill solar collectors
► irrigation
► rain water harvesting
► domestic water supply
► drain flooded basements
► decanting barrels
► draining waste oil
► sewerage disposal
► fuelling vehicles
► car wash
► draining aquariums
► dispose off cooling lubricants
► bilge pump
► booster pump

Fluids
► water, seawater
► waste water
► diesel fuel, biodiesel
► vegetable oils
► heating and motor oil
► detergents
► antifreeze
► heat transfer fluid
► cooling lubricants

Technical details

<table>
<thead>
<tr>
<th>UNISTAR</th>
<th>2001-A</th>
<th>2001-B</th>
<th>2001-C</th>
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<tbody>
<tr>
<td>Flow rate max. (l/min)</td>
<td>30</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>Pressure max. (bar)*</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>connections</td>
<td>¾&quot;</td>
<td>1&quot;</td>
<td>1¼&quot;</td>
</tr>
<tr>
<td>minimum drive power</td>
<td>500 W</td>
<td>700 W</td>
<td>1.400 W</td>
</tr>
<tr>
<td>rpm</td>
<td>max. 2.800</td>
<td>max. 2.800</td>
<td>max. 2.800</td>
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<tr>
<td>temperature max.</td>
<td>90°C</td>
<td>90°C</td>
<td>90°C</td>
</tr>
<tr>
<td>weight</td>
<td>0,6 kg</td>
<td>0,8 kg</td>
<td>2,4 kg</td>
</tr>
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</table>

* with Perbunan-Impeller

Additional information on these products is available in our detailed brochure for Drill Driven Pumps (sent to you on request) or can be downloaded from www.zuwa.de
This pump is particularly suitable for all fluids containing abrasives. All components getting in contact with the medium are made of stainless steel. 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
► dispose off cooling lubricants

Fluids
► descaler
► grinding emulsions
► coolant
► lime water
► diluted soluble oil
► galvanising sludge
► waste oil
► cooling lubricants

Characteristic curves:

![Characteristic curves graph]

Technical details

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<tr>
<td>Flow rate max. (l/min)</td>
<td>15 30 15 30 15 30 30 60 30 60 30 60 30 60 30 60 30 60 30 60</td>
<td>4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5</td>
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<td></td>
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<tr>
<td>Pressure max. (bar)*</td>
<td>4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5</td>
<td>4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>connections</td>
<td>¾“ 1“</td>
<td>¾“ 1“</td>
<td>¾“ 1“</td>
<td></td>
</tr>
<tr>
<td>Volt</td>
<td>230 400 12 24</td>
<td>230 400 12 24</td>
<td>230 400 12 24</td>
<td></td>
</tr>
<tr>
<td>rpm</td>
<td>1.400 2.800 1.400 2.800 1.400 2.800 1.500 3.000 1.500 3.000 1.500 3.000 1.500 3.000 1.500 3.000</td>
<td>1.400 2.800 1.400 2.800 1.400 2.800 1.500 3.000 1.500 3.000 1.500 3.000</td>
<td>1.400 2.800 1.400 2.800 1.400 2.800 1.500 3.000 1.500 3.000 1.500 3.000</td>
<td></td>
</tr>
<tr>
<td>Ampere</td>
<td>3.2 2.1 1.9 39 42 12 18</td>
<td>4.4 1.400 2.4 49 23</td>
<td>0.37 kW 0.25 kW 0.55 kW 0.37 kW</td>
<td></td>
</tr>
<tr>
<td>motor power</td>
<td>0.37 kW 0.25 kW 0.55 kW 0.37 kW</td>
<td>90°C 90°C 90°C</td>
<td>90°C</td>
<td></td>
</tr>
<tr>
<td>temperature max.</td>
<td>90°C 90°C 90°C</td>
<td>90°C</td>
<td></td>
<td></td>
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</tbody>
</table>
| weight           | 9.4 kg 10 kg 1 kg 1.6 kg

* with Perbunan-Impeller
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, drinks
► mash
► chemicals, acids, bases
► liquid fertilizers
► dyes, glues
► vegetable oils
► cooling lubricants
► fire fighting foam agents

Characteristic curves:

<table>
<thead>
<tr>
<th>Pump head in m</th>
<th>Flow rate in l/min</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>4</td>
<td>2.4</td>
</tr>
<tr>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>3.6</td>
</tr>
<tr>
<td>7</td>
<td>4.2</td>
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Technical details

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<td>Flow rate max.  (l/min)</td>
<td>15</td>
<td>30</td>
<td>15</td>
<td>30</td>
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<td>5</td>
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<td>¾&quot;</td>
<td>1&quot;</td>
<td>¾&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td>Volt</td>
<td>230</td>
<td>400</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>rpm</td>
<td>1,400</td>
<td>2,800</td>
<td>1,400</td>
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<tr>
<td>Ampere</td>
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<td>3,9</td>
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<td>0,25 kW</td>
<td>0,55 kW</td>
<td>0,37 kW</td>
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<tr>
<td>temperature max.</td>
<td>90°C</td>
<td>90°C</td>
<td>90°C</td>
<td>90°C</td>
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<tr>
<td>weight</td>
<td>9,8 kg</td>
<td>10,4 kg</td>
<td>1,5 kg</td>
<td>2 kg</td>
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</table>

* with Perbunan-Impeller

1) For more information about the Star Handles - Page 16
Applications
► clean tanks
► cleaning ponds
► delivering
► filtering
► dosing
► decanting
► draining

Fluids
► heating oil, diesel fuel
► food, drinks
► mash
► chemicals
► acids
► bases
► liquid fertilizers
► dyes, glues
► vegetable oils
► surface treatment
► cooling lubricants
► fire fighting foam agents
► concrete admixtures

Connections
On request available with following pipe fittings: BSP male thread, hygienic connection acc. to DIN 11851, Garolla fitting, SMS fitting, BSM (RJT) fitting and further optional connections.

NIROSTAR C - F

NIROSTAR 2000-C
NIROSTAR 2000-D
NIROSTAR 2001-D

Technical details

<table>
<thead>
<tr>
<th>NIROSTAR</th>
<th>2000-C*</th>
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<td>Volt</td>
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<td>400</td>
<td>24</td>
</tr>
<tr>
<td>rpm</td>
<td>900</td>
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<tr>
<td>Ampere</td>
<td>5</td>
<td>7,1</td>
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<td>weight</td>
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* bidirectional motor
Characteristics curves:

**NIROSTAR C and D**

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<th>Pump head in m</th>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
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<tr>
<td>4</td>
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<td>6</td>
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<tr>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
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- Type C with 900 rpm
- Type C with 1400 rpm
- Type D with 900 rpm
- Type D with 1400 rpm

**NIROSTAR E and F**

<table>
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<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

- 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 details**

<table>
<thead>
<tr>
<th>NIROSTAR</th>
<th>2000-E*</th>
<th>2000-F*</th>
<th>2001-E</th>
<th>2001-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate max. (l/min)</td>
<td>200</td>
<td>300</td>
<td>375</td>
<td>600</td>
</tr>
<tr>
<td>Pressure max. (bar)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>connections</td>
<td>2&quot;</td>
<td>3&quot;</td>
<td>2&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>Volt</td>
<td>400</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rpm</td>
<td>470</td>
<td>700</td>
<td>900</td>
<td>470</td>
</tr>
<tr>
<td>Ampere</td>
<td>6,9</td>
<td>6</td>
<td>5,5</td>
<td>9,5</td>
</tr>
<tr>
<td>motor power</td>
<td>1,25 kW</td>
<td>1,5 kW</td>
<td>1,87 kW</td>
<td>3,3 kW</td>
</tr>
<tr>
<td>temperature max.</td>
<td>90°C</td>
<td>90°C</td>
<td>90°C</td>
<td>90°C</td>
</tr>
<tr>
<td>weight</td>
<td>38 kg</td>
<td>31 kg</td>
<td>31 kg</td>
<td>69 kg</td>
</tr>
</tbody>
</table>

*bidirectional motor*
ACOSTAR

2000-A

Synthetic impeller pump - for a wide variety of applications in the chemical sector. Perfect for fluids with various viscosities plus aggressive acids, bases and solvents.

Suitable only for fluids compatible with PTFE (TEFLON®) and FPM/FKM (VITON®)!

Applications
- conveying
- filtering
- dosing
- decanting
- draining

Fluids
- acids
- bases
- solvents
- fluids with various viscosities

Characteristic curves:

<table>
<thead>
<tr>
<th>Flow rate in l/min</th>
<th>Pump head in m</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
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<tr>
<td>30</td>
<td>30</td>
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<tr>
<td>40</td>
<td>40</td>
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<tr>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>70</td>
<td>70</td>
</tr>
</tbody>
</table>

Technical details

<table>
<thead>
<tr>
<th>ACOSTAR</th>
<th>2000-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate max. (l/min)</td>
<td>15</td>
</tr>
<tr>
<td>Pressure max. (bar)</td>
<td>3</td>
</tr>
<tr>
<td>connections</td>
<td>¾&quot; male thread or hose fitting ½&quot;</td>
</tr>
<tr>
<td>Volt</td>
<td>230</td>
</tr>
<tr>
<td>rpm</td>
<td>1400</td>
</tr>
<tr>
<td>Ampere</td>
<td>3,2</td>
</tr>
<tr>
<td>motor power</td>
<td>0,37 kW</td>
</tr>
<tr>
<td>temperature max. (with dry run protection)</td>
<td>max.60°C</td>
</tr>
<tr>
<td>weight</td>
<td>9,4 kg</td>
</tr>
</tbody>
</table>

NEW!

bidirectional motor available on request
**Variable flow rate**

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

**Features**

► reversion of rotation
► overload protection
► precise drive
► compact design

**Integrated frequency converter:**

**External frequency converter:**

---

**Characteristic curves for Pumps with frequency converter:**

- **Typen 2000-A**
- **Typen 2000-B**
- **UNISTAR 2000-C**
- **NIROSTAR 2000-C**
- **NIROSTAR 2000-D**
- **NIROSTAR 2000-E**
- **NIROSTAR 2000-F**

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**ZUWA**
Impeller pumps can be equipped with a dry run protection. A sensor switch interrupts the power supply before overheating. Easy retrofitting of existing pumps.

**Dry run protection**

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. Device just works with 400 V motor.

- **Switching pressure:** adjustable from 1-10 bar
- **Material:** stainless steel or brass

**Pressure switch**

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. (for NIROSTAR A and B)

**Star handles**

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

**Tool for changing the impeller**

adjusted to a specific quantity. The flow meter is integrated in the housing.

- **Flow rate:** 8 - 30 l/min or 10 - 40 l/min
- **Connection:** 2 x 1” male thread
- **operating pressure max.:** 10 bar
- **Material:** brass (approved for drinking water)

**Flow control**


**Carrying handle**
Remote control

For frequency converter
Remote control with 15 meter cable to control speed and sense of rotation.

Remote control for pump
10 metre extension cable with ON/OFF switch.

Remote control
Handy little transmitter with receiver.

Flow Meters

Electronic and mechanical meters for various fluids and applications. All electronic meters also available in pulser version.

Transport cart
Trolley with removable push rod and handy cable reel.
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
► Operating pressure max.: 3 bar
► Weight: only 3.1 kg

Features:
► dry self-priming impeller pump
► 3 pole connector plug
► ON/OFF switch with thermal motor protection
► 2” barrel connection (on option)

(barrel and battery not included with the delivery)

Flat suction kits

Effective aid to flooded basements. Also available with oil resistant hose for oil contaminated fluids. For larger areas two or more mats can be connected to the pump in parallel.

Application:
► drain flooded basements
► suck off flat roofs
► clean sludgy ponds

Features:
UNISTAR 2000-B, spiral hose, flat suction mat and euro container with cover.
On option: pump control, dry run protection and pumps with higher capacity or superior materials (COMBISTAR and NIROSTAR also for fluids with abrasive particles).

Additional information on these products is available in our detailed brochure for Flat suction kits (sent to you on request) or can be downloaded from www.zuwa.de

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: 120 litres

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

(battery not included)
Special Applications

HVAC Filling and Flushing Stations

Additional information regarding these products is available in our detailed brochure for HVAC professionals (sent to you on request) or can be downloaded from www.zuwa.de