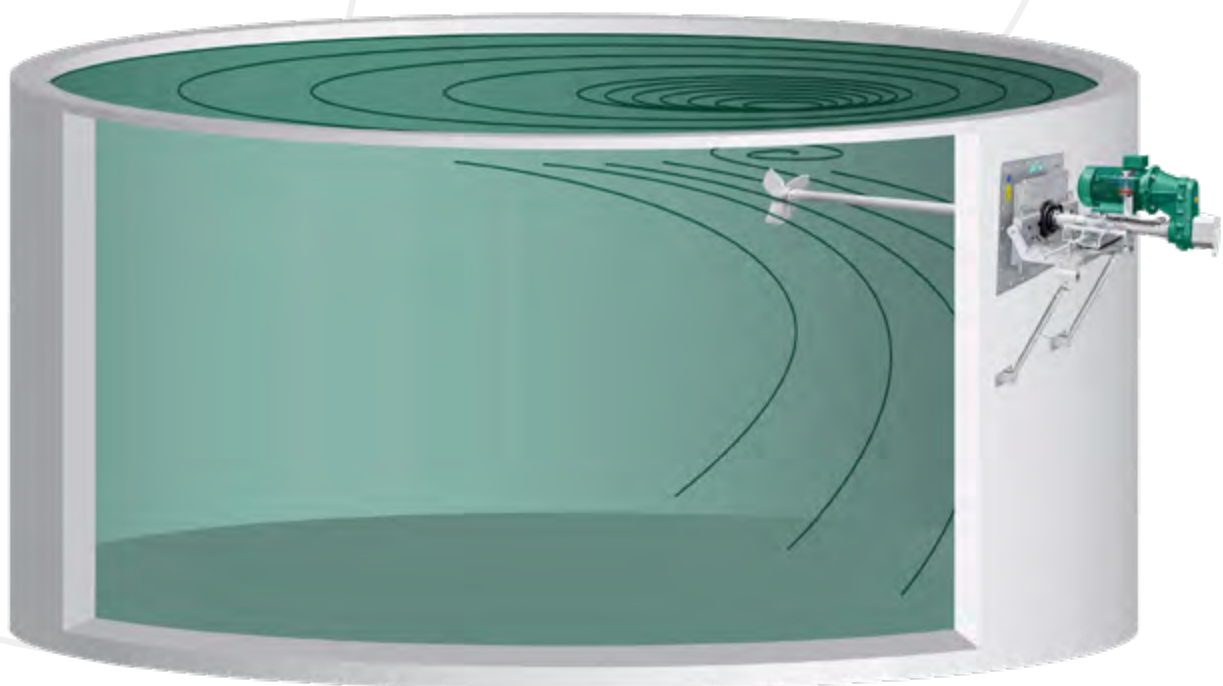


Agitators & Pumps for biogas

Our service range



AGITATORS FOR BIOGAS

Thanks to our years of experience, as the first inventor and manufacturer of the electric agitator, we collect great knowhow and have the possibility to optimize our products throughout.

Our biogas agitators are specially designed for use in fermenter, secondary fermenter, digestate tanks as well as pre-pits and hydrolysis. This enables us to guarantee you optimum homogenization of the substrate for maximum gas yields.





Our propellers

The propeller influences the efficiency and the result of agitation like no other component of the agitator. However, depending on the tank, the agitator location and the substrate properties, the requirements on the agitator blade vary significantly. We provide you a large selection of varieties. So we can offer you the perfect solution for your application.

We develop and manufacture suction and push propeller as well as aerodynamically optimised high-performance blades (HD+). Diameters from 230 mm to 900 mm and speeds from 1,450 rpm to 180 rpm allow specific configurations. All our agitator blades are precisely balanced. This guarantees bearing-friendly energy-saving operation.

The material of the propeller must be suitable for the pH value of the substrate. Depending on the aggressiveness of the medium, either steel, galvanised, painted, hardened, or stainless steel is suitable.

However, stirring blades are also wearing parts. Therefore, we design our propellers to be downward compatible. Your SUMA agitator can always be retrofitted with a new propeller.



Propeller LT 1400



Propeller XT 1200



Propeller XT 1600



Propeller
polymer coated



Propeller
spray coated

TANK TYPES



Closed
Tank



Tank concrete
Top



Open
Tank



Steel
Tank



Open
Lagoon



Slalom
Channel

Long axis agitators for the biogas sector



GIANTMIX FR light



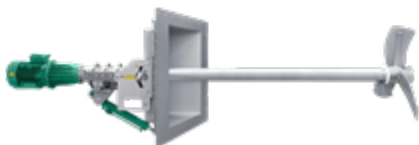
GIANTMIX FR SP



GIANTMIX FR 30°



GIANTMIX FR stationary



GIANTMIX FTX |
FTX Top mounting



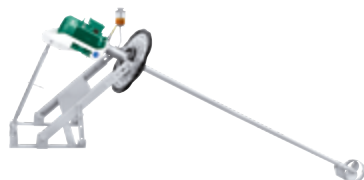
GIANTMIX FT |
FT Top mounting



GIANTMIX AMX |
AMX Top mounting



REKORDMIX



REKORDMIX B1



GIANTMIX BG2 |
BG2 Top mounting



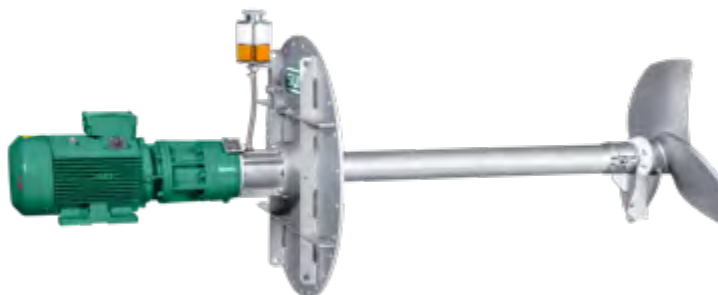
GIANTMIX Z5



GIANTMIX Z6



GIANTMIX FR light



Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
FR 40-180	4.0 kW	700 mm	180 rpm	1.0 1.5 m	101.6 x 5.74 mm
FR 40-250	4.0 kW	620 mm	250 rpm	1.0 1,5 m	101.6 x 5.74 mm
FR 75-280	7.5 kW	700 mm	280 rpm	1.0 1.5 m	101.6 x 5.74 mm
FR 75-380	7.5 kW	520 mm	380 rpm	1.0 1.5 m	101.6 x 5.74 mm

- Especially for concrete- or steel tanks with nearly constant substrate levels
- For dry matter content up to 12 %
- Installation depth up to 6 m beneath substrate level
- Easy assembly and maintenance outside the tank
- Optional available without engine and only with PTO connection



FR light - Closed tank



FR light - Concrete tank



GIANTMIX FR SP | FR HY SP



Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
FR1	7.5 kW	850 mm	200 rpm	3.0 4.0 m	101.6 x 4.0 mm
FR3	11.0 kW	800 620 mm	275 400 rpm	3.0 4.0 m	101.6 x 4.0 mm
FR4	15.0 kW	850 660 mm	275 400 rpm	3.0 4.0 m	101.6 x 4.0 mm
FR5	18.5 kW	880 700 mm	275 400 rpm	3.0 4.0 m	101.6 x 4.0 mm
FR6	22.0 kW	750 mm	400 rpm	3.0 4.0 m	101.6 x 4.0 mm

- Mainly for fermenter and end storages with nearly constant substrate levels
- For dry matter content up to 14 %
- Installation depth up to 8 m beneath substrate level
- Horizontally adjustable $\pm 25^\circ$
- Vertically adjustable through upper link $\pm 11^\circ$
optional $\pm 30^\circ$ through hydraulic cylinder or pinion rack
- Easy assembly and maintenance outside the tank
- Optional available without engine and only with PTO connection (FR HY SP)
60 - 88 kW | 540 or 750 rpm | Ø-Propeller 560 - 700 mm



FR SP - Concrete tank



FR SP - Steel tank

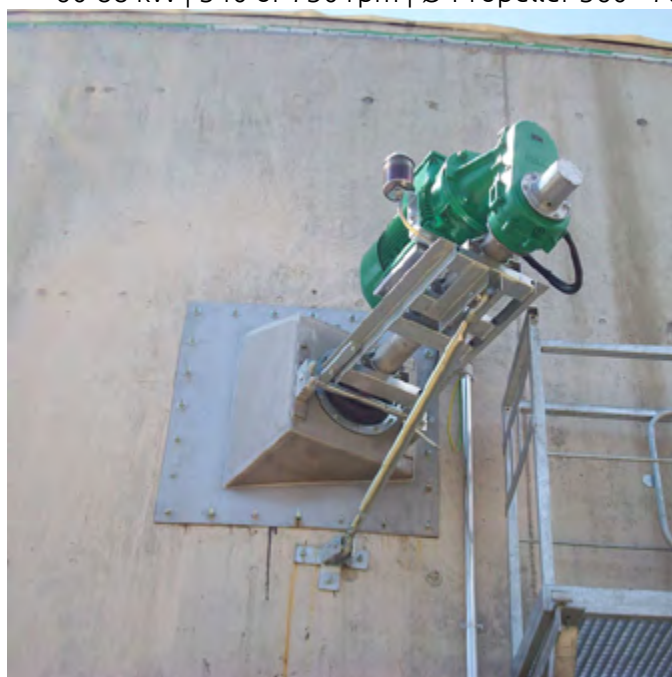


GIANTMIX FR 30° | FR HY 30°



Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
FR1	7.5 kW	850 mm	200 rpm	3.0 4.0 m	101.6 x 4.0 bzw. 5.7 mm
FR3	11.0 kW	800 620 mm	275 400 rpm	3.0 4.0 m	101.6 x 4.0 bzw. 5.7 mm
FR4	15.0 kW	850 660 mm	275 400 rpm	3.0 4.0 m	101.6 x 4.0 bzw. 5.7 mm
FR5	18.5 kW	880 700 mm	275 400 rpm	3.0 4.0 m	101.6 x 4.0 bzw. 5.7 mm
FR6	22.0 kW	750 mm	400 rpm	3.0 4.0	101.6 x 4.0 bzw. 5.7 mm

- Specially for fermenter and secondary fermenter with nearly constant substrate
- For dry matter content up to 14 %
- Installation depth up to 1.5 m beneath substrate level
- Vertical inclination $\pm 11^\circ$ through upper link or optional $\pm 25^\circ$ through rack winch
- Optional PTO with protection for an alternative tractor operation
- Optional without engine only with PTO (FR HY 30°)
60-88 kW | 540 or 750 rpm | Ø-Propeller 560 - 700 mm



FR 30° - Concrete tank



FR HY-30° - Concrete tank



GIANTMIX FR stationary | FR HY stationary



Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
FR3	11.0 kW	580 mm	400 rpm	2.5 3.0 m	101.6 x 4.0 bzw. 5.7 mm
FR4	15.0 kW	620 mm	400 rpm	2.5 3.0 m	101.6 x 4.0 bzw. 5.7 mm
FR5	18.5 kW	660 mm	400 rpm	2.5 3.0 m	101.6 x 4.0 bzw. 5.7 mm

- Together with installation console for the stationary installation
- For dry matter content up to 14 %
- Installation depth up to 8 m beneath substrate level
- Optional PTO with protection unit for alternative tractor operation
- Optional without engine only with PTO (FR HY stationary)
60-88 kW | 540 or 750 rpm | Propeller 560 - 700 mm



FR stationary - Closed tank



FR HY stationary - Concrete tank



GIANTMIX FTX | FTX top mount



Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
FTX	15.0 kW	1,200 mm	135 rpm	4.0 - 6.0 m	159 x 5 mm

GIANTMIX FTX

- For highly viscous substrates with dry matter content up to 15 %
- Installation depth up to 8 m beneath substrate level
- Vertical inclination through hydraulic cylinder +5° / -30°
- Thrust of 6.5 kN
- IE4-motor with efficiency of 93.3 %

GIANTMIX FTX top mounting

- For highly viscous substrates with dry matter contents up to 15 %
- For installation on tank top
- Thrust of 6.5 kN
- IE4-motor with efficiency of 93.3 %



FTX - Concrete tank



FTX top mounting



GIANTMIX FT | FT HY



Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
FT1	7.5 kW	850 mm	200 rpm	4.0 5.0 5.5 6.0 m	159 x 5 mm
FT3	11.0 kW	800 mm	275 rpm	4.0 5.0 5.5 6.0 m	159 x 5 mm
FT4	15.0 kW	850 660 mm	275 400 rpm	4.0 5.0 5.5 6.0 m	159 x 5 mm
FT5	18.5 kW	880 700 mm	275 400 rpm	4.0 5.0 5.5 6.0 m	159 x 5 mm
FT6	22.0 kW	750 mm	400 rpm	4.0 5.0 5.5 6.0 m	159 x 5 mm

- For dry matter content up to 14 %
 - Installation depth up to 8 m beneath substrate level
 - Horizontal adjustment up to $\pm 30^\circ$ through handspindle
 - Vertical adjustment up to $\pm 30^\circ$ through hydraulic cylinder
 - Optional PTO with protection for alternative operation with tractor
 - Optional without engine only with PTO (FT HY)
- 72 - 100 kW | 540 or 750 rpm | Ø-Propeller 580 - 750 mm

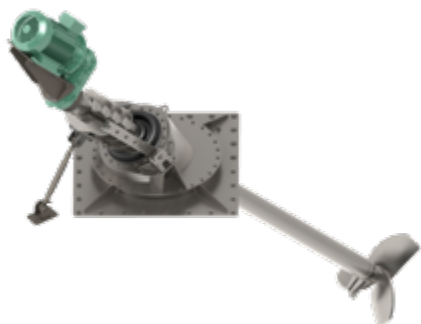


FT - Concrete tank



FT HY with hydraulic cylinder upwards - Concrete tank

GIANTMIX FT top mounting



Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
FT3	11.0 kW	800 mm	275 rpm	4.0 5.0 5.5 6.0 m	159 x 5.0 mm
FT4	15.0 kW	850 660 mm	275 400 rpm	4.0 5.0 5.5 6.0 m	159 x 5.0 mm
FT5	18.5 kW	880 700 mm	275 400 rpm	4.0 5.0 5.5 6.0 m	159 x 5.0 mm
FT6	22.0 kW	750 mm	400 rpm	4.0 5.0 5.5 6.0 m	159 x 5.0 mm

- Especially for an installation on top of the tank
- For dry matter content up to 14 %
- Low noise spur gear
- Oil expansion vessel for lubrication and monitoring of the sea



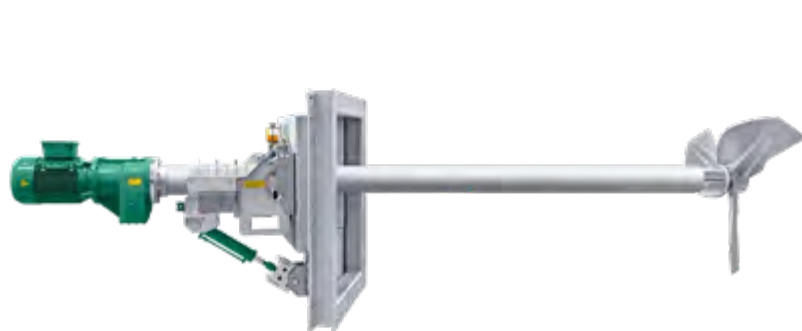
FT top mounting



FT top mounting



GIANTMIX AMX | AMX top mounting



Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
AMX4	15.0 kW	1.600 mm	82 obr/min	4.0 5.0 6.0 m	220 x 8 mm
AMX5	18.5 kW	1.600 mm	82 obr/min	4.0 5.0 6.0 m	220 x 8 mm
AMX6	22.0 kW	1.600 mm	82 obr/min	4.0 5.0 6.0 m	220 x 8 mm

- Especially for highly viscous substrates with high dry matter content up to 16 %
- Installation depth up to 6 m beneath substrate level
- Vertical inclination through hydraulic cylinder +5° / -30°
- GIANTMIX AMX top mounting for installation on top of the tank



AMX - Closed tank



AMX top mounting - Closed tank



Rekordmix



Optional with trolley
Standard 100 cm / Narrow 58 cm

Optional with hanging rack EB2

Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
L1	4.0 kW	320 mm	945 rpm	2.25 - 4.25 m	70 x 3 mm
L2	5.0 kW	275 mm	1.450 rpm	2.25 - 4.25 m	70 x 3 mm
L3	7.5 kW	300 mm	1.450 rpm	2.25 - 4.25 m	70 x 3 mm

- Application in small tanks with low dry matter content of up to 8 %
- Motor handle with handhold
- Multiple bearing stub shaft in oil bath
- Optional mobile version with trolley
- Optional mounting on tank wall or opening through brackets for dowelling or hanging rack EB2



REKORDMIX - Closed tank with concrete top



REKORDMIX with trolley

REKORDMIX B1



Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
B1	4.0 kW	320 mm	950 rpm	3.75 4.25 m	70 x 3 mm

- Especially for lagoons
- For dry matter content up to 10 %
- Vertical adjustment through upper link
- Gastight lead through using EPDM membrane with ring flanges on the foil reduces the risk of cracking due to vibrations



B1 - Closed lagoon



B1 - Open lagoon



GIANTMIX BG2 | BG2 top mounting



Type	Power	Ø Propeller	Speed	Tube length	Ø Tube
BG2	4.0 kW	700 620 mm	180 250 rpm	4.0 5.0 m	101.6 x 5.7 mm
BG2	7.5 kW	700 520 mm	280 380 rpm	4.0 5.0 m	101.6 x 5.7 mm
BG2	10.0 kW	750 580 mm	280 380 rpm	4.0 5.0 m	101.6 x 5.7 mm

GIANTMIX BG2

- Especially for lagoons
- For dry matter content up to 12 %
- Vertical adjustment through upper link
- Gastight lead through using EPDM membrane with ring flanges on the foil reduces the risk of cracking due to vibrations

GIANTMIX BG2 top mounting

- Especially for installation on top of concrete- and steel tanks
- For dry matter content up to 12 %



BG2 - Steel tank



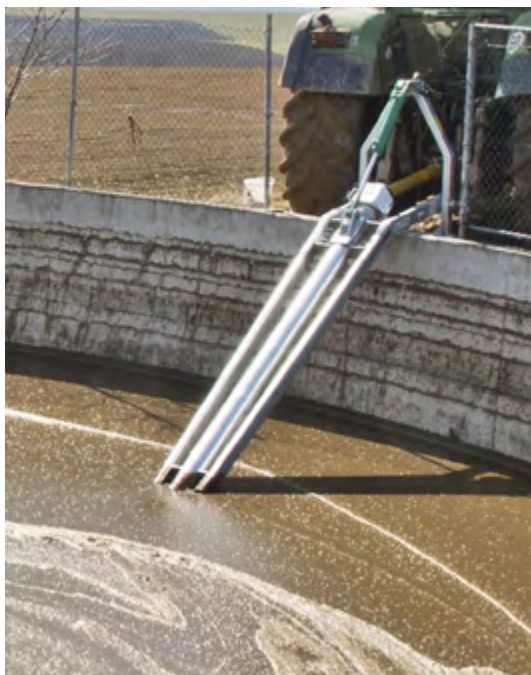
BG2 top mounting - Concrete tank

GIANTMIX Z5 | Z6



Type	Tractor power	Ø Propeller	Speed	Tube length	Ø Tube
Z5	100 kW	660 620 mm	750 1,000 rpm	6.0 - 8.0 m	159.0 x 6.3 mm
	130 kW	700 660 mm	750 1,000 rpm		
	160 kW	700 mm	1,000 rpm		
Z6	160 kW	780 700 mm	750 1,000 rpm	7.5 9.0 m	193.7 x 6.3 mm
	170 kW	850 720 mm	750 1,000 rpm		
	200 kW	850 mm	1,000 rpm		

- Long axis agitator for open tanks and lagoons
- Installation depth up to 6 m (Z5) or 7 m (Z6)
- Three-point-frame with hydraulic cylinder for vertical adjustment max. 45°
- Agitator completely modular designed
- Lubrication by oil bath in the agitator tube, intermediate bearings and balanced agitator propellers guarantee smooth running



Z5 - Open pit



Z6 - Lagoon with foil cover

Submersible agitators for the biogas sector



OPTIMIX 2G 3 | 4 kW



OPTIMIX 2A 3 | 4 kW



OPTIMIX 2G



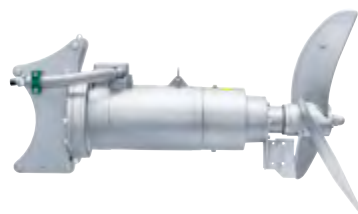
OPTIMIX 2A



OPTIMIX 2G 90-75



OPTIMIX 3G



OPTIMIX 3A



OPTIMIX 4G



GDD



MGD



Suspension mounting
frame EV

Submersible agitator OPTIMIX

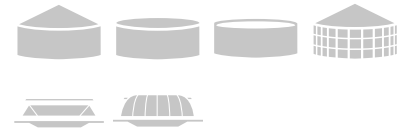
Thanks to our modular design, our submersible mixers can be individually combined in regard to motor power, gear, propeller and mast size. This enables us to offer an agitator that is optimally matched to your needs.

All our submersible mixers are suitable for substrate temperatures of up to 55°C and have separated oil chambers for motor, gear and bearing housing. Our special SUMA mechanical seal SiC/SiC seals the rotating shaft to the bearing flange and prevents substrate from entering the agitator blade bearing.

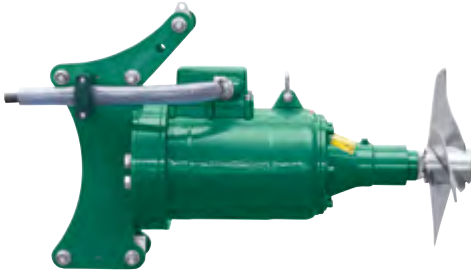
Microbe-resistant cable includes as standard in the delivery.

① 4-roller guide unit





OPTIMIX 2G | 2A 3 / 4 kW

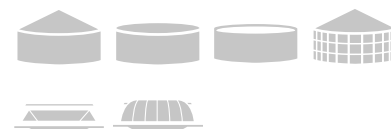


Type	Power	Ø Propeller	Speed
2G 2A	3.0 kW	380 mm	710 rpm
2G 2A	4.0 kW	310 mm	950 rpm

- Especially for smaller tanks
- For dry matter content up to 8 %
- OPTIMIX 2A completely made of stainless steel for aggressive media with low pH values



2A 3 / 4 kW - Closed tank



OPTIMIX 2G | 2A



Cast iron housing



Stainless steel housing

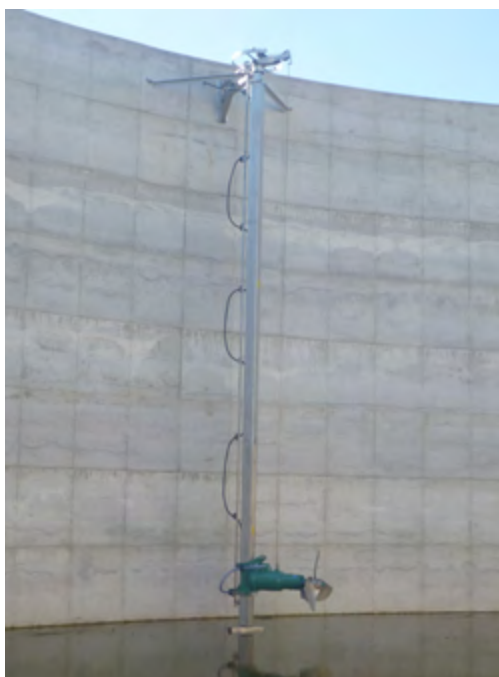
Type	Power	Ø Propeller	Speed
2G 2A	4.0 kW	700 620 mm	180 250 rpm
2G 2A	9.0 kW	800 580 mm	280 380 rpm
2G	11.0 kW	820 620	280 380 rpm
2G	15.0 kW	850 mm	275 rpm
2G 2A	15.0 kW	660 mm	380 rpm
2A	13.5 kW	800 620 mm	280 380 rpm

OPTIMIX 2G

- For dry matter content up to 12 %
- Optional available as direct rotor without gear

OPTIMIX 2A

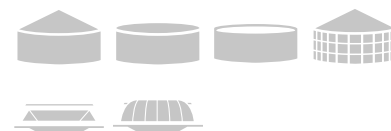
- For aggressive media with low pH values
- For dry matter content up to 12 %
- OPTIMIX 2A 13.5 kW authorized for Ex-Zone 1



2G with EV



2A with EV

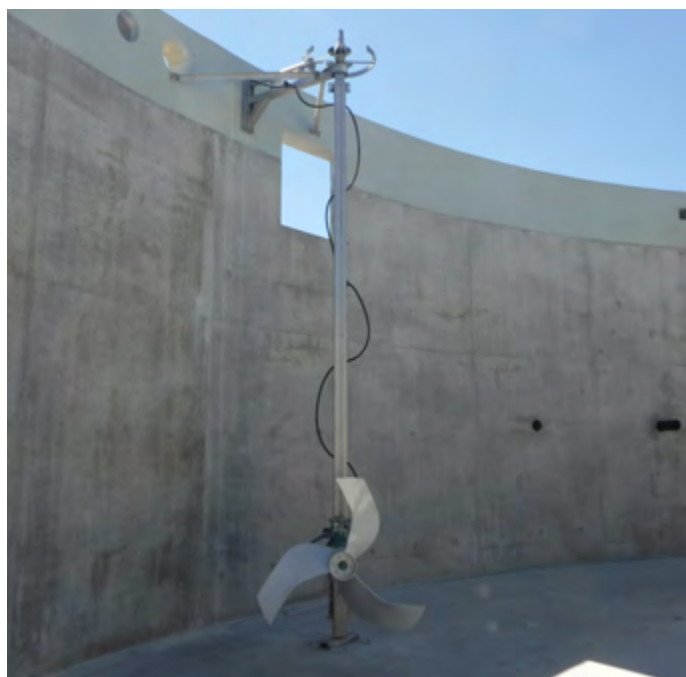


OPTIMIX 2G 90-75



Type	Power	Ø Propeller	Speed
2G	5.5 kW	1.400 mm	75 rpm
2G	9.0 kW	1.400 mm	75 rpm

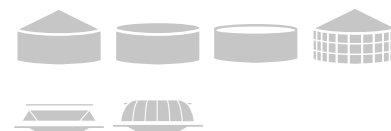
- Mainly for flow preservation in combination with other agitators
- For dry matter content up to 12 %
- 3-bladed LT 1400 propeller galvanized, stainless steel or hardened steel



2G - Closed tank



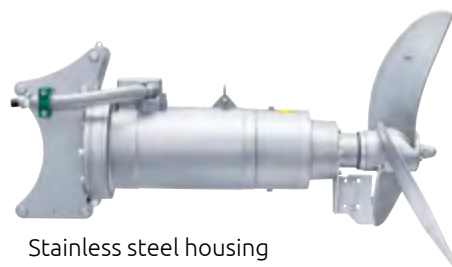
2G - Open lagoon



OPTIMIX 2G | 2A



Cast iron housing



Stainless steel housing

Type	Power	Ø Propeller	Speed
3G 3A	25.0 kW	900 mm	270 rpm

OPTIMIX 2G

- For dry matter content up to 12 %
- Optional available as direct rotor without gear

OPTIMIX 2A

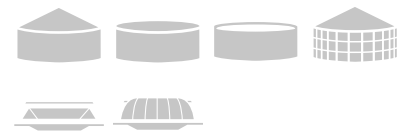
- For aggressive media with low pH values
- For dry matter content up to 12 %
- OPTIMIX 2A 13.5 kW authorized for Ex-Zone 1



2G with EV



2A with EV



OPTIMIX 4G 150-135

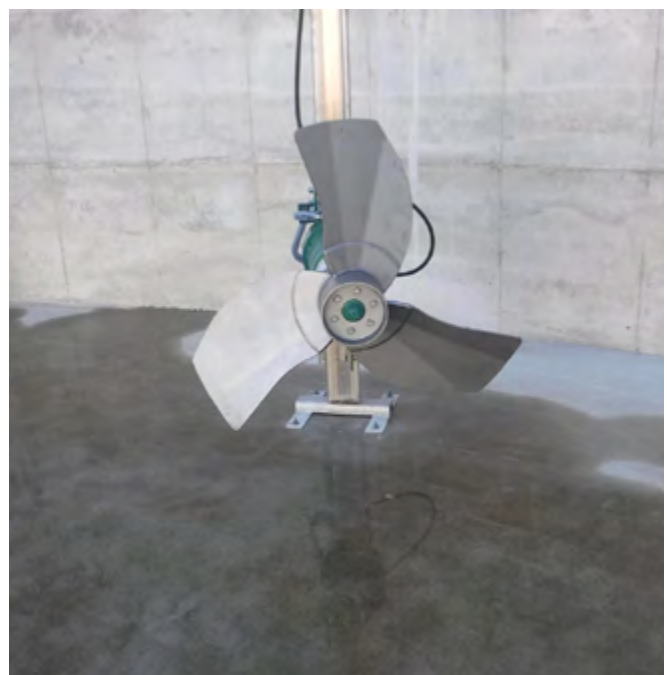


Type	Power	Ø Propeller	Speed
4G	15.0 kW	1,200 mm	135 rpm

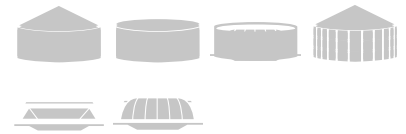
- Submersible agitator especially for viscous substrate
- For dry matter content up to 14 %
- IE4 motor with efficiency of 93.3%



4G with EV - Closed tank



4G - Open tank



Gastight ceiling lead through GDD



- Especially for closed tanks, lagoons with bridges and other special tanks up to 12 m depth
- Lateral adjustment up to 360°
- SUMA height indication to determine the exact agitator height in the tank
- For all OPTIMIX series applicable
- Optional available access cover reduces the loss of gas while maintenance
- Optional other heights on request



GDD - Concrete tank



GDD - Steel tank



Mast gastight wall lead through MGD



- Guide mast with base frame for tanks with a depth up to 14 m
- External vertically rotation 240°
- Adjustable in height through cable winch
- Optional SUMA height indication to determine the exact agitator height in the tank
- Optional angle display to determine the exact angle position of the agitator
- Optional other hights on request











MGD - Concrete tank with 2G



MGD - Concrete tank with 2G

Suspension mounting frame EV



Type	Doweling	Tank height	Cable guidance	Tank types
EV3	Wall support inside	4-12 m	on the rope / mast	  
EV4	Wall support outside	4-12 m	on the rope	 
EV5	Wall support inside	4-12 m	on the rope / mast	  

- For a 4-12 m container height
- Lateral rotation $\pm 60^\circ$
- SUMA cable guidance and strain relief behind the guide mast
- Easy maintenance of the agitator without draining off the substrate or descending into the tank
- The whole OPTIMIX series are suitable
- Optional height indication to determine the exact height of the agitator within the tank



EV3



EV4



EV5

Overview Accessories

GIANTMIX Z-series



Drive shaft



Protection ring

Z5	Normal drive shaft W 2500 (L=1010) max. 162 kW / 220 PS with 1,000 rpm	√
	Normal drive shaft W 2600 (L=1210) max. 193 kW / 263 PS with 1,000 rpm	
Z6	Normal drive shaft W 2600 max. 193 kW / 263 PS with 1,000 rpm	√

REKORDMIX



Protection ring



Bracket



Trolley



Hanging rack

EFFECTIVE PROTECTION FROM ABRASION SUMA POM PROTECTION

Additional protection

As additional protection against long-fibered impurities, we offer an abrasion protector made of polyoxymethylene (POM). The POM protection prevents damages caused by abrasion to the blade socket.

Easily mounted

The protective clamp is used for many SUMA shaft-agitators and submersible mixers. It can also be installed in already running systems. The POM can be mounted in a few and simple work steps. The pictured instruction is included in the delivery.



GIANTMIX / OPTIMIX



Star-delta switch



Soft start



POM-Protection

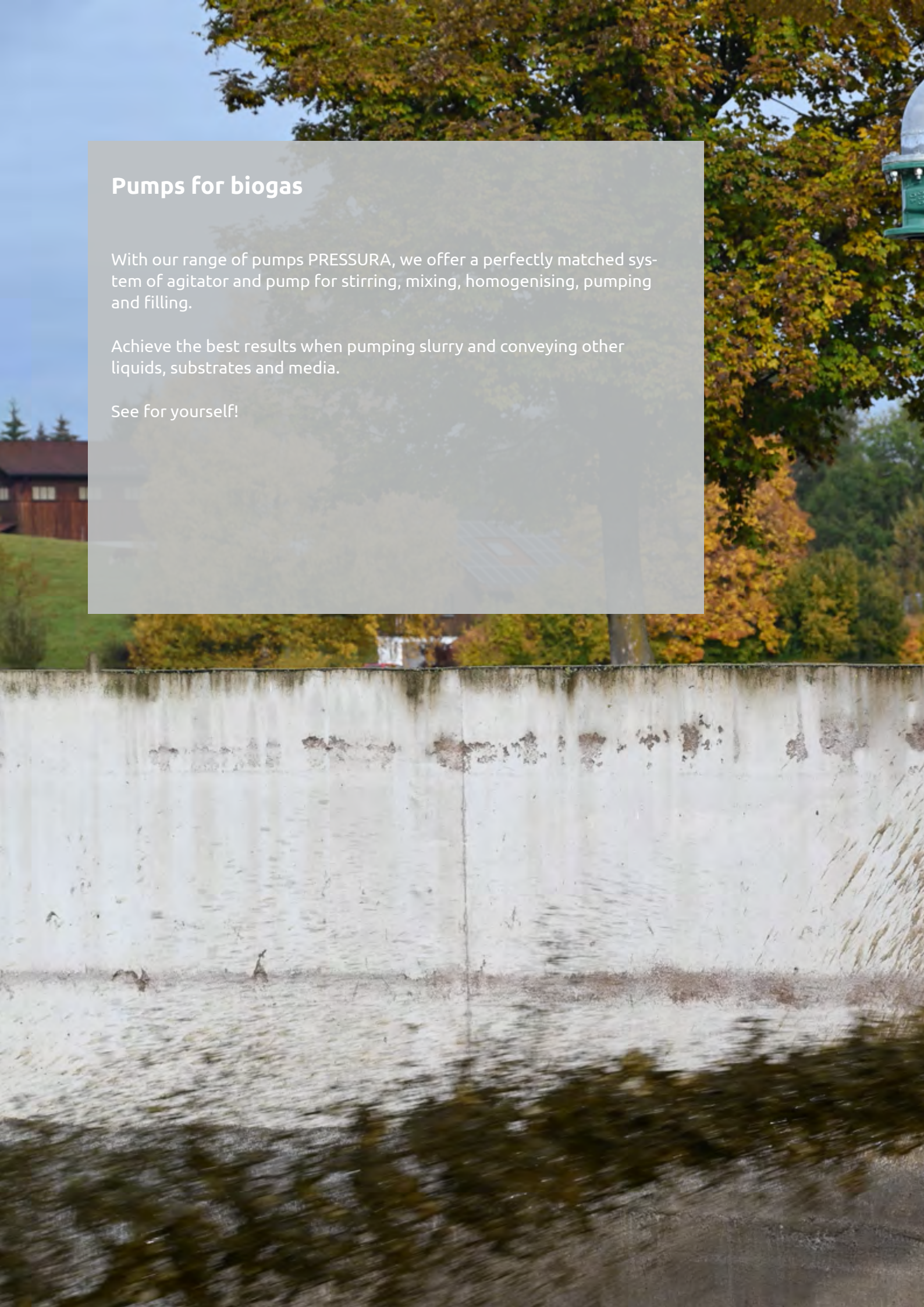
OPTIMIX 2G 2A	√	√	√
OPTIMIX 3G 3A		√	√

Pumps for biogas

With our range of pumps PRESSURA, we offer a perfectly matched system of agitator and pump for stirring, mixing, homogenising, pumping and filling.

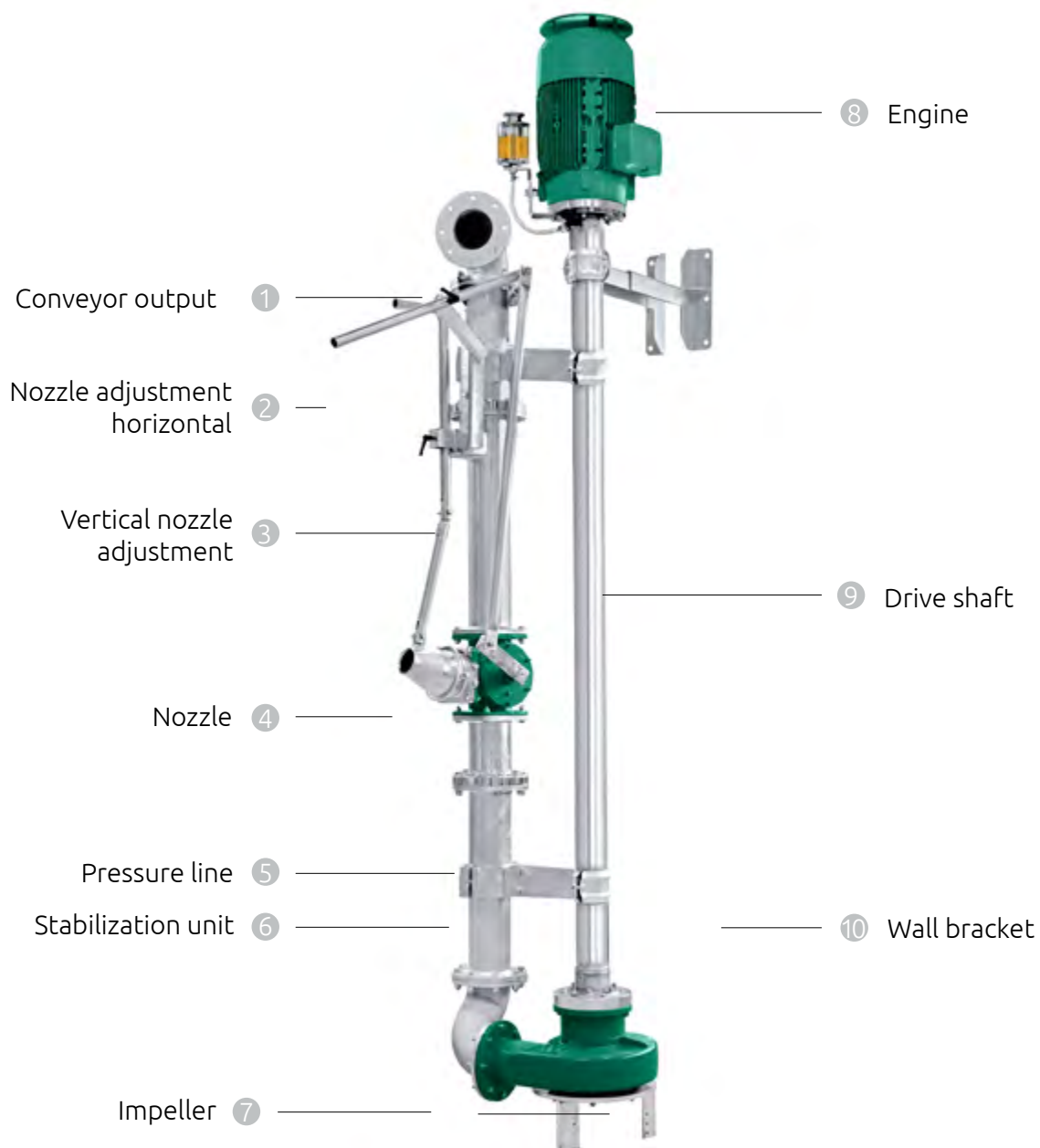
Achieve the best results when pumping slurry and conveying other liquids, substrates and media.

See for yourself!





Long shaft pump



PRESSURA LW - Concrete tank

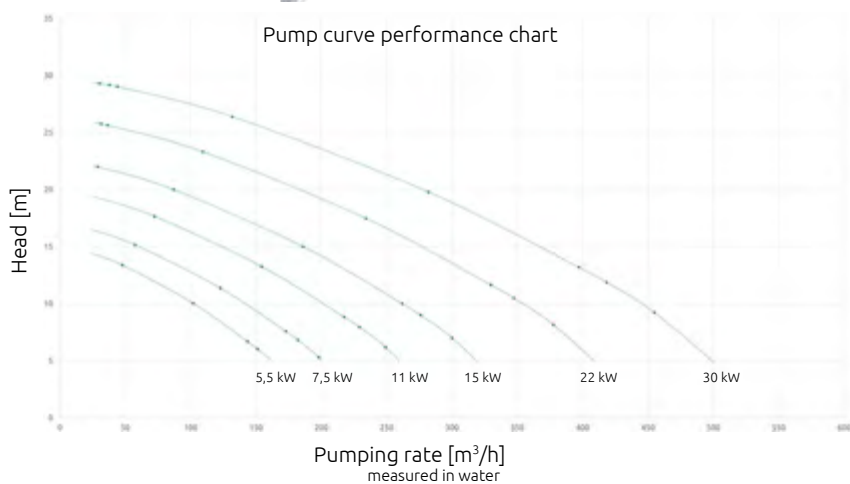


PRESSURA LW - With lifting frame in Pit



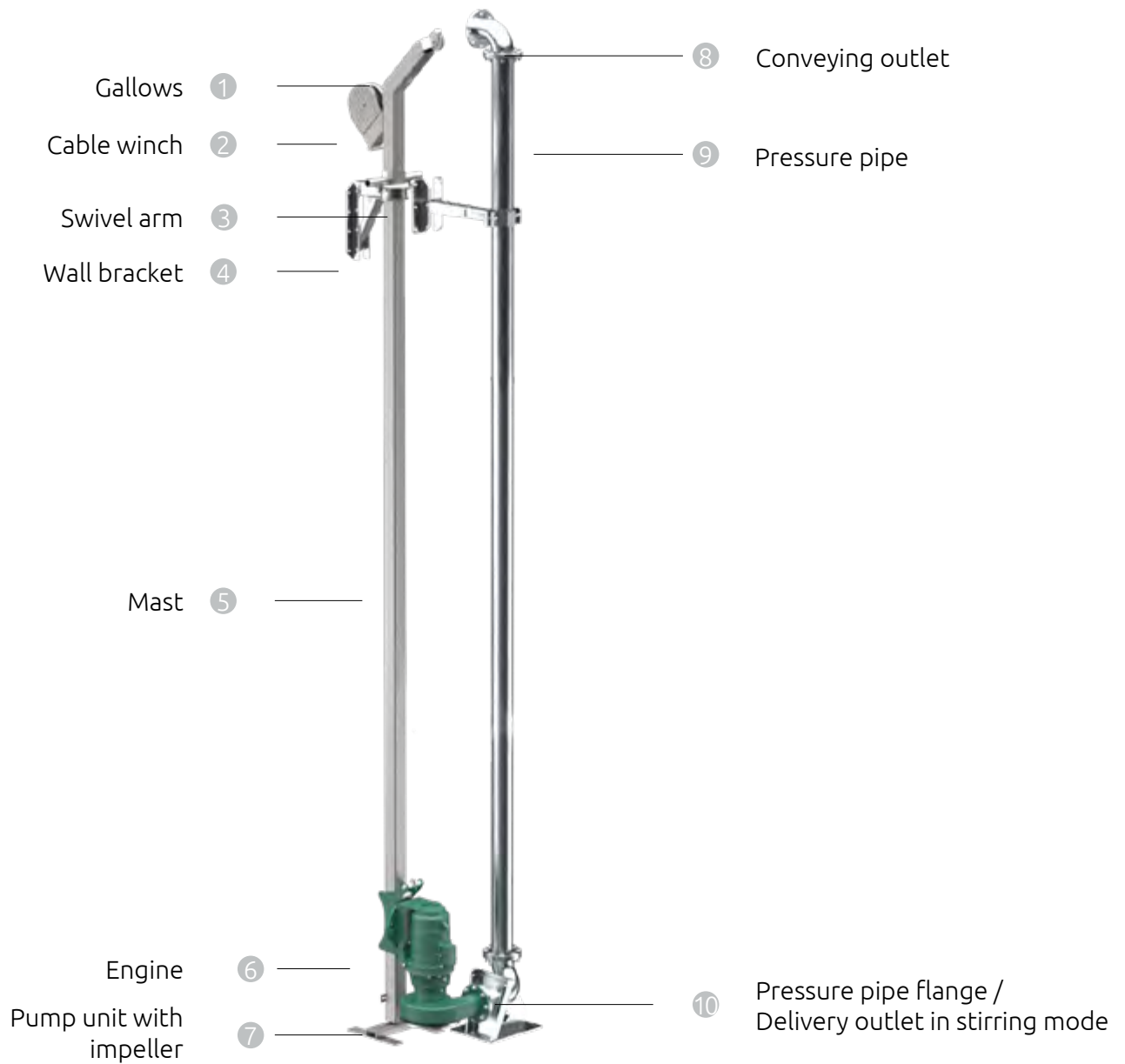
PRESSURA LW

- Long-shaft pump
- Stirring, mixing, homogenising, pumping, filling
- For pit depth from 1.5 - 8.0 m
- Max. head 15 - 30 m
- Max. pumping rate 192 - 531 m³/h
- Available with or without nozzle
- Vertically $\pm 25^\circ$ and horizontally 260° adjustable
- Selectable nozzle height
- Adjustable wall brackets
- Optional lifting frame available



Type	Rated power	Rotation speed	Max. pumping rate	Max. head	Ø Impeller	Flange connection
LW 55	5.5 kW	1,458 rpm	192 m ³ /h	15 m	200 mm	100 DN
LW 75	7.5 kW	1,458 rpm	231 m ³ /h	17 m	211 mm	100 DN
LW 110	11.0 kW	1,458 rpm	291 m ³ /h	20 m	235 mm	125 DN
LW 150	15.0 kW	1,458 rpm	350 m ³ /h	22 m	250 mm	125 DN
LW 220	22.0 kW	1,458 rpm	440 m ³ /h	26 m	270 mm	150 DN
LW 300	30.0 kW	1,458 rpm	531 m ³ /h	30 m	287 mm	150 DN

Submersible pump



PRESSURA TP - Concrete Tank

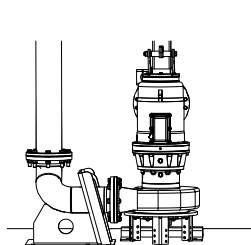


PRESSURA TP - Concrete Tank

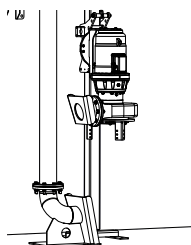


PRESSURA TP

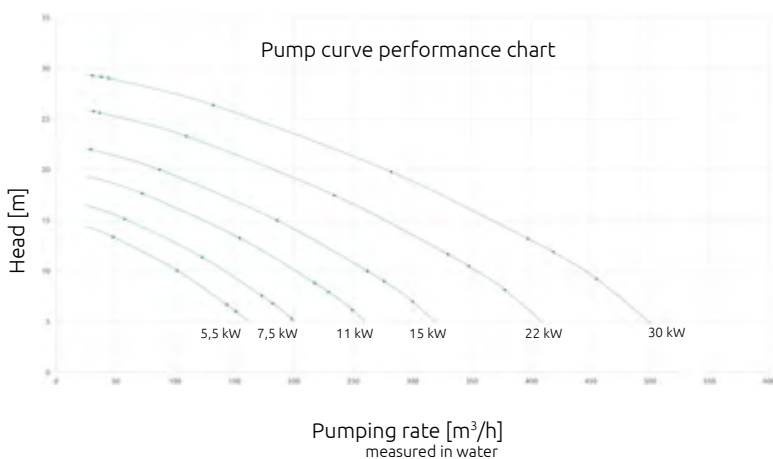
- Submersible pump
- Stirring, mixing, homogenising, pumping, filling
- For pit depths from 1.5 - 8.0 m
- Max. head 15 - 30 m
- Max. pumping rate 192 - 531 m³/h
- Guidance system: Suspension mounting frame EV3
- Vertical adjustment with rope winch
- Horizontal adjustment up to $\pm 60^\circ$
- Optional: Completely made of stainless steel



Stirring adjustment



Pumping adjustment



Type	Rated power	Rotation speed	Max. pumping rate	Max. head	Ø Impeller	Flange connection
TP 55	5.5 kW	1,458 rpm	192 m ³ /h	15 m	200 mm	100 DN
TP 75	7.5 kW	1,458 rpm	231 m ³ /h	17 m	211 mm	100 DN
TP 110	11.0 kW	1,458 rpm	291 m ³ /h	20 m	235 mm	125 DN
TP 150	15.0 kW	1,458 rpm	350 m ³ /h	22 m	250 mm	125 DN
TP 220	22.0 kW	1,458 rpm	440 m ³ /h	26 m	270 mm	150 DN
TP 250	25.0 kWv	1,458 rpm	531 m ³ /h	30 m	287 mm	150 DN

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