

# Thermal-Elements

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## Steam generators and accessories









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## 01 Steam generators



Art. No.	Illustration	Designation and short description
01.10		<p><b>Article description:</b> Jumag steam generator DG120</p> <p>Jumag steam generator DG120, with maintenance-free centrifugal pump and water space evaporation system (no coiled pipe)</p> <p>Technical data: - Steam generating capacity up to 120 kg/h            - Firing / thermal output 75 / 67 kW            - Working pressure max. 11 bar            - EC type-examination according to 97/23/EC</p> <p>* without burners and without exhaust gas economiser</p>
01.20		<p><b>Article description:</b> Jumag steam generator DG160</p> <p>Jumag steam generator DG160, with maintenance-free centrifugal pump and water space evaporation system (no coiled pipe)</p> <p>Technical data: - Steam generating capacity up to 160 kg/h            - Firing / thermal output 98 / 90 kW            - Working pressure max. 11 bar            - EC type-examination according to 97/23/EC</p> <p>* without burners and without exhaust gas economiser</p>
01.30		<p><b>Article description:</b> Jumag steam generator DG200</p> <p>Jumag steam generator, DG200, with maintenance-free centrifugal pump and water space evaporation system (no coiled pipe)</p> <p>Technical data: - Steam generating capacity up to 200 kg/h            - Firing / thermal output 120 / 110 kW            - Working pressure max. 11 bar            - EC type-examination according to 97/23/EC</p> <p>* without burners and without exhaust gas economiser</p>
01.40		<p><b>Article description:</b> Jumag steam generator DG260</p> <p>Jumag steam generator DG260 with maintenance-free centrifugal pump and water space evaporation system (no coiled pipe)</p> <p>Technical data: - Steam generating capacity up to 260 kg/h            - Firing / thermal output 175 / 160 kW            - Working pressure max. 11 bar            - EC type-examination according to 97/23/EC</p> <p>* without burners and without exhaust gas economiser</p>
01.50		<p><b>Article description:</b> Jumag steam generator DG320</p> <p>Jumag steam generator DG320, with maintenance-free centrifugal pump and water space evaporation system (no coiled pipe)</p> <p>Technical data: - Steam generating capacity up to 320 kg/h            - Firing / thermal output 218 / 200 kW            - Working pressure max. 11 bar            - EC type-examination according to 97/23/EC</p> <p>* without burners and without exhaust gas economiser</p>
01.60		<p><b>Article description:</b> Jumag steam generator DG360</p> <p>Jumag steam generator DG360, with maintenance-free centrifugal pump and water space evaporation system (no coiled pipe)</p> <p>Technical data: - Steam generating capacity up to 360 kg/h            - Firing / thermal output 245 / 2250 kW            - Working pressure max. 11 bar            - EC type-examination according to 97/23/EC</p> <p>* without burners and without exhaust gas economiser</p>

## 02 Steam generator equipment


Art. No.	Illustration	Designation and short description
02.10		<p><b>Article description:</b> Autom. Boiler ON &amp; OFF switching mechanism</p> <p>Time-controlled boiler - ON &amp; OFF - switching mechanism as well as change-over to manual boiler operation (simple input of the desired operation periods)</p> <p>Note: Only in connection with the autom. feed water supply module SZM</p>
02.20		<p><b>Article description:</b> Autom. Feed water supply module, SZM</p> <p>Automatic feed water supply module consisting of:</p> <ul style="list-style-type: none"> <li>- Electrical cold water solenoid valve, size 1"</li> <li>- Dirt trap, size 1", with fine screen</li> </ul> <p>electrically wired and piped ready for installation</p>
02.30		<p><b>Article description:</b> Clarifying mechanism, ASA</p> <p>Automatic boiler clarifying unit consisting of:</p> <ul style="list-style-type: none"> <li>- Ball valve with electrical control drive 230V/50Hz</li> <li>- SPS control module with adjustable automatic timer, completely wired and piped directly on the steam generator.</li> </ul> <p>If requested the controller can be additionally equipped with potential-free in- and outputs.</p>

## 03 Oil and gas burners and accessories



Art. No.	Illustration	Designation and short description
03.11 ----- 03.12 ----- 03.13		<p><b>Article description:</b> Weishaupt oil ventilation burners, type WL</p> <p>Light oil-driven Weishaupt ventilation burners, including boiler control and a one-strang oil filter</p> <p>03.11 single-stage design (only for type DG120)</p> <p>-----</p> <p>03.12 two stage design, for all Jumag types</p> <p>-----</p> <p>03.13 two stage Low-Nox design, for all Jumag types</p>
03.20		<p><b>Article description:</b> Oil counter module, OEZM</p> <p>Oil counter module with second solenoid valve, factory-installed directly on the Weishaupt burner</p> <p>Note: only in connection with an oil burner</p>
03.31 ----- 03.32		<p><b>Article description:</b> Weishaupt gas ventilation burners, Type WG</p> <p>Natural gas or liquid gas-driven Weishaupt ventilation burner, including gas controlled system and boiler control</p> <p>03.31 single-stage design (only for type DG120)</p> <p>-----</p> <p>03.32 two stage design (for all Jumag types)</p>

03.41 ----- 03.42 ----- 03.43		<p><b>Article description:</b> Gas quantity counter module, GZM</p> <p>Gas quantity counter for the measurement of the gas throughput, necessary for the optimal setting of the burner performance.</p> <p>03.41 for max. 25 m<sup>3</sup> gas throughput ----- 03.42 for max. 40 m<sup>3</sup> gas throughput ----- 03.43 for max. 65 m<sup>3</sup> gas throughput</p>	----- -----
03.51 ----- 03.52 ----- 03.53		<p><b>Article description:</b> Gas pressure reduction module, GMM</p> <p>Gas pressure reduction module, for the reduction of the gas pressure to less than 300 mbar, (only necessary, if the prevailing gas pressure is larger than 300 mbar), consisting of shut-off valve, pressure reducer, pressure gauge and safety valve</p> <p>03.51, for max. 25 m<sup>3</sup> gas throughput ----- 03.52, for max. 40 m<sup>3</sup> gas throughput ----- 03.53, for max. 65 m<sup>3</sup> gas throughput</p>	----- -----


#### 04 Economiser (Waste-gas heat exchangers)

Art. No.	Illustration	Designation and short description	
04.11 ----- 04.12		<p><b>Article description:</b> Economiser (waste-gas heat exchanger) AWT</p> <p>Waste gas economiser (bank of tubes heat exchanger, no coil) made of high-quality high-grade steel, for the preliminary heating of the cold and warm feed water, lowering of the exhaust gas temperature and improvement of the overall efficiency to approx. 90% - 95%</p> <p>04.11. Heat exchange area 1.0 m<sup>2</sup> for the types DG120 / 160 / 200 ----- 04.12, Heat exchange area 1.9 m<sup>2</sup> for the types DG260 / 320 / 360</p>	-----




#### 05 Clarifying and decompression vessels and accessories

Art. No.	Illustration	Designation and short description	
05.11 ----- 05.12 ----- 05.13 ----- 05.14		<p><b>Article description:</b> Clarifying / decompression vessel, ASG</p> <p>Two-chamber clarifying / decompression vessel, complete with damping filling and pipe connection for cold water supply</p> <p>05.11, Size 1, made of steel, for types DG120/160/200 ----- 05.12, Size 1, made of high-grade steel, for types DG120 / 160 / 200 ----- 05.13, Size 2, made of steel, for types DG260 / 320 / 360 ----- 05.14, Size 2, made of high-grade steel, for types DG260 / 320 / 360</p>	----- ----- -----
05.20		<p><b>Article description:</b> Cold water supply module, KZM</p> <p>Simple temperature-controlled regulation for an automatic cold water supply to the clarifying vessel, consisting of:</p> <ul style="list-style-type: none"> <li>- Adjustable thermostat, setting range 30-90 °C</li> <li>- Dirt trap before solenoid valve</li> <li>- Electrical cold water solenoid valve ½", completely wired and piped on the clarifying vessel</li> </ul>	





## 06 Untreated water input module

Art. No.	Illustration	Designation and short description
06.10		<p><b>Article description:</b> Untreated water input module, REM</p> <p>Untreated water input module, REM for filtration, counting and return flow prevention of the untreated water, consisting of:</p> <ul style="list-style-type: none"> <li>- Slide valve 3/4", with drain valve (EUR 25,00)</li> <li>- Return rinsing filter including filter cartridge (EUR 190,00)</li> <li>- Impeller meter (cold water clock), certified (EUR 90,00)</li> <li>- Pipe disconnecter with pressure gauge according to DIN 1988 (EUR 369,00)</li> <li>- Slide valve 3/4", with drain valve (EUR 25,00)</li> </ul> <p>completely piped ready to be installed, connection internal thread 3/4"</p>


## 07 Feedwater softening plant



Art. No.	Illustration	Designation and short description
07.11 ----- 07.12 ----- 07.13		<p><b>Article description:</b> Semiautomatic feedwater softening plant, HEA</p> <p>Semiautomatic feedwater softening plant, type HEA with diverse sized capacities, to be set to the soft water consumption and to the local total hardness, consisting of:</p> <ul style="list-style-type: none"> <li>- Ion exchanger (resin bottle) with semiautomatic control valve head</li> <li>- Brine reservoirs with sieve insert, brine valve and connection tubes</li> </ul> <p>07.11 Type HEA100, with a capacity of 100 m<sup>3</sup> / 1°dH ----- 07.12 Type HEA200, with a capacity of 200 m<sup>3</sup> / 1°dH ----- 07.13 Type HEA300, with a capacity of 300 m<sup>3</sup> / 1°dH</p>
07.21 ----- 07.22 ----- 07.23		<p><b>Article description:</b> Fully automatic feedwater softening plant, WATs</p> <p>Fully automatic, sensor-controlled (expanding resin) feedwater softening plant, type WATs with diverse capacities, consisting of:</p> <ul style="list-style-type: none"> <li>- Ion exchanger also fully autom., sensor-controlled control valve head</li> <li>- Brine reservoirs with sieve insert, brine valve and connection tubes</li> </ul> <p>07.21 Type WATs 100, with a capacity of 100 m<sup>3</sup> / 1°dH ----- 07.22 Type WATs 200, with a capacity of 200 m<sup>3</sup> / 1°dH. .... ----- 07.23 Type WATs 300, with a capacity of 300 m<sup>3</sup> / 1°dH. ....</p>
07.31 ----- 07.32 ----- 07.33 ----- 07.34		<p><b>Article description:</b> Fully automatic double pendulum softening VAD</p> <p>Fully automatic double pendulum feedwater softening plant, type VAD with diverse capacities consisting of:</p> <ul style="list-style-type: none"> <li>- 2 resin bottles with water quantity-controlled Fleck control valve (up to 8 m<sup>3</sup> or up to 40 m<sup>3</sup>) and automatic switchover</li> <li>- Brine reservoirs with sieve insert, brine valve and connection tubes</li> </ul> <p>07.31 Type VDA 10, with a capacity of 40 m<sup>3</sup> / 1°dH ----- 07.32 Type VDA 30, with a capacity of 120 m<sup>3</sup> / 1°dH. .... ----- 07.33 Type VDA 45, with a capacity of 180 m<sup>3</sup> / 1°dH. .... ----- 07.34 Type VDA 60, with a capacity of 240 m<sup>3</sup> / 1°dH. ....</p>

## 08 Dosing pump, solutions and measuring instruments


Art. No.	Illustration	Designation and short description
08.10		<p><b>Article description:</b> Wall dosing station, WDS</p> <p>Wall dosing station for the selective mixing of correction means in the boiler feed water, consisting of:</p> <ul style="list-style-type: none"> <li>- Adjustable dosing pump with wall holder,</li> <li>- Suction lance for 30-kg can,</li> <li>- Inoculation valve of high-grade steel and inoculation line, 2.5 m</li> </ul>
08.20		<p><b>Article description:</b> Dosing solution, non-vapour-volatile, NDF</p> <p>30 kg can non-vapour-volatile dosing chemical for already softened feed water, for oxygen and residual hardness bonding, avoidance and/or decomposition of deposits and for the reduction of corrosion within the boiler area, not in steam and condensate lines.</p> <p>Suitable for application in the foodstuffs sector</p>
08.21		<p><b>Article description:</b> Dosing solution, vapour-volatile, DF</p> <p>30 kg can vapour-volatile dosing chemical for already softened feed water, for oxygen and residual hardness bonding, avoidance and/or decomposition of deposits and for the reduction of corrosion within the boiler area as well as steam and condensate lines.</p> <p>Not suitable for application in the foodstuffs sector</p>
08.31 ----- 08.32 ----- 08.33 ----- 08.34 ----- 08.35		<p><b>Article description:</b> Water test measuring instruments</p> <p>Measuring instruments for the examination of the feed and/or boiler water and the condensate</p> <p>08.31, Hardness-test measuring instruments, double-pack each 20 ml -----</p> <p>08.32, Sulphite measuring instruments, (oxygen verification), 20 ml -----</p> <p>08.33, pH measuring instruments, (carbon dioxide verification), 20 ml -----</p> <p>08.34, Iron measuring instruments, (iron content verification), 20 ml -----</p> <p>08.35 Test measuring instrument set with electrical pH measuring instrument</p>

## 09 Feed water vessels and accessories



Art. No.	Illustration	Designation and short description
09.11 ----- 09.12 ----- 09.13 ----- 09.14		<p><b>Article description:</b> Feed water/condensate vessel, SWG</p> <p>Feed water /condensate vessel of V4A high-grade steel 1.4571, complete with lockable sight glass, thermometer, access opening, fresh water, condensate and ventilation ducts as well as wall holder, without level regulation, s. accessories, for</p> <p>09.11 with 200 litres content, for types DG120 / 160 / 200 -----</p> <p>09.12 with 270 litres content, for types DG260 / 320 / 360 -----</p> <p>09.13 with 360 litres content, for Jumag multiple use units -----</p> <p>09.14 Surcharge for 15 mm strong isolation of the cylinder area</p>

09.21 ----- 09.22		<p><b>Article description:</b> Level regulation for the feed water, NR</p> <p>Level regulation of the feed water in the condensate container (all types)</p> <p>09.21 on electro-capacitive basis, with water level electrode, switch relay, adjustable time relay and ½" solenoid valve</p> <p>-----</p> <p>09.22 on electro-hydrostatic basis (water pressure), including Pressostat, pitot tube and ½" solenoid valve</p>	-----
09.30		<p><b>Article description:</b> Feed water preheating module, SVM</p> <p>Steam-heated preliminary heating of the feed water in the condensate vessel, consisting of:</p> <ul style="list-style-type: none"> <li>- Steam injector pipe, connection size 1",</li> <li>- Temperature-controlled control unit without auxiliary energy,</li> <li>- Control range (93-98 °C),</li> </ul> <p>piped ready for assembly on the feed water vessel (for all types)</p>	

## 10 Water purification module



Art. No.	Illustration	Designation and short description	
10.11 ----- 10.12 ----- 10.13		<p><b>Article description:</b> Water purification module, WAM</p> <p>Complete water purification module, consisting of:</p> <ul style="list-style-type: none"> <li>- Stable square tube construction frame, primed and painted</li> <li>- Feed water container made of high-grade steel, complete with sight glass,</li> <li>- Thermometer, access opening and level regulation I</li> <li>- As standard with semiautomatic feedwater softening plant, Type HEA 100, with brine vessel and brine valve, (larger or fully automatic units possible with surcharge )</li> <li>- Dosing device for the mixing of correction means including suction lance and inoculation valve for 30 kg cans</li> <li>- Non-vapour-volatile 30 kg dosing solution (initial filling), everything piped and electrically wired ready for assembly</li> </ul> <p>10.11 WAM 270, size W1250 x D700 x H2200 for DG120 - DG320</p> <p>-----</p> <p>10.12 WAM 360, size W1750 x D700 x H2100 for multiple use units</p> <p>-----</p> <p>10.13 Additional price for 15 mm isolation of the SWG cylinder</p>	-----

## 11 Steam distributor



Art. No.	Illustration	Designation and short description	
11.10		<p><b>Article description:</b> Steam distributor made of steel, DVS</p> <p>Steam distributor made of steel, St 37.2, with:</p> <ul style="list-style-type: none"> <li>- One steam inlet DN25, flange DIN 2633</li> <li>- Two steam outlets DN25-40, flange DIN 2633</li> </ul> <p>without shut-off valves (each 95,- €) and without condensate drain module ( 290,- €).</p> <p>Each further steam out- and/or inlet EUR 75,00</p>	
11.20		<p><b>Article description:</b> Steam distributor made of high-grade steel DVE</p> <p>Steam distributor made of high-grade steel V4A, 1.4571, with:</p> <ul style="list-style-type: none"> <li>- One steam inlet DN25, flange DIN 2633</li> <li>- Two steam outlets DN20-40, flange DIN 2633</li> </ul> <p>without shut-off valves (each 165,- €) and without condensate drain module (290,- €)</p> <p>Each further steam out- and/or inlet of VA EUR 95,00</p>	




## 14 Flue installations


Art. No.	Illustration	Designation and short description
14.10		<p><b>Article description:</b> High-grade steel flue for DG120 / 160 / 200 High-grade steel flue, three-shelled with ceramic thermal insulation and high sound insulation, for interior and exterior mounting, Di 200 mm De 250 mm and at least 6 m effective height, consisting of:</p> <ul style="list-style-type: none"> <li>- Ground and/or wall holder as well as access opening</li> <li>- Boiler connection element and 6 meter-element pieces</li> <li>- Open outlet end</li> </ul> <p>including flue calculation and construction sketch (each further 1-Meter-flue element EUR 170,00)</p>
14.20		<p><b>Article description:</b> High-grade steel flue for DG260 / 320 / 360 High-grade steel flue, three-shelled with ceramic thermal insulation and high sound insulation, for interior and exterior mounting, Di 250 mm De 300 mm and at least 6 m effective height, consisting of:</p> <ul style="list-style-type: none"> <li>- Ground and/or wall holder as well as access opening</li> <li>- Boiler connection element and 6 meter-element pieces</li> <li>- Open outlet end</li> </ul> <p>including flue calculation and construction sketch (each further 1-Meter-flue element EUR 190.00)</p>

## 15 Oil tank units




Art. No.	Illustration	Designation and short description
15.11 ----- 15.12 ----- 15.13		<p><b>Article description:</b> GFK safety oil tank, ÖTE Safety oil tank made of GFK with 25 years guarantee, installable without additional oil tray (not in water protection zones) individual installation or as oil tank group in different sizes</p> <p>15.11 Safety tank with 1000 litres inclusive fittings ----- 15.12 Safety tank with 1500 litres inclusive fittings ----- 15.13 Safety tank with 2000 litres inclusive fittings</p>
15.21 ----- 15.22 ----- 15.23		<p><b>Article description:</b> Double casing oil tank, ÖTD Double casing safety oil tank made of GRP with 30 years guarantee, installable without additional oil tray (also in water protection zones), individual installation or as oil tank group like</p> <p>15.21 Double casing tank with 750 litres, inclusive fittings ----- 15.22 Double casing tank with 1000 litres, inclusive fittings. .... ----- 15.23 Double casing tank with 1500 litres, inclusive fittings. ....</p>


## 16 Steam generating unit types

Art. No.	Illustration	Designation and short description
16.10 16.11 16.12 16.13 16.14 16.15		<p><b>Article description:</b> Single steam generator unit, EDA Jumag single unit steam generator, unattended operation, registration and permission-free (FRG), in the following 6 performance levels:</p> <ul style="list-style-type: none"> <li>- Jumag DG120, thermal output 70 kW, steam capacity up to 120 kg/h</li> <li>- Jumag DG160, thermal output 90 kW, steam capacity up to 160 kg/h</li> <li>- Jumag DG200, thermal output 110 kW, steam capacity up to 200 kg/h</li> <li>- Jumag DG260, thermal output 160 kW, steam capacity up to 260 kg/h</li> <li>- Jumag DG320, thermal output 200 kW, steam capacity up to 320 kg/h</li> <li>- Jumag DG360, thermal output 225 kW, steam capacity up to 360 kg/h</li> </ul>

16.21 16.22 16.23 16.24 16.25		<p><b>Article description:</b> Multiple steam generator unit, MDA</p> <p>Jumag multiple steam generator units, unattended operation and permission-free (FRG) with steam generating capacities of</p> <p>16.21. .... 400 kg/h, 2 x Jumag DG200, oil or gas-heated  16.22. .... 520 kg/h, 2 x Jumag DG260, oil or gas-heated  16.23. .... 720 kg/h, 2 x Jumag DG360, oil or gas-heated  16.24. .... 780 kg/h, 3 x Jumag DG260, oil or gas-heated  16.25. .... 1080 kg/h, 3 x Jumag DG360, oil or gas-heated</p>	
16.30		<p><b>Article description:</b> Compact steam generator unit, KDA</p> <p>Combination steam generating unit with up to 360 kg/h steam and or 2250 kW thermal output, unattended operation and permission-free within the FRG, oil or gas-heated, completely installed ready for installation on a base frame, size W1600 x L1800 x H 2350 mm, weight 1.3 t, consisting of:  Jumag steam generator, waste-gas heat exchanger, water purification module, clarifying / decompression vessel and pressure reduction station with working pressure range 0.5 to 11 bar</p>	
16.40		<p><b>Article description:</b> Vessel steam generating unit, CDA</p> <p>Vessel steam generating unit, unattended operation and permission-free (FRG), oil or gas-heated, completely installed ready for installation, with Jumag steam generator, water purification, clarifying / decompression vessel, ventilation, high-grade steel flue, etc. in</p> <ul style="list-style-type: none"> <li>- Steam generating capacities up to 360 kg/h, in vessel with the measurements  L 3.0 m X W 2.5 m X H 2.6 m total weight approx.. 3.5 t</li> <li>- Steam generating capacities up to 720 kg/h, in vessel with the measurements  L 4.5 m X W 2.5 m X H 2.6 m total weight approx.. 4.5 t</li> <li>- Steam generating capacities up to 1080 kg/h, in vessel with the measurements  L 6.0 m X W 2.5 m X H 2.6 m total weight approx.. 5.5 t</li> </ul>	


## 17 Steam unit accessories

Art. No.	Illustration	Designation and short description	
17.10		<p><b>Article description:</b> Steam pipe accessories, DLZ</p> <ul style="list-style-type: none"> <li>- Steam valves of GG-25 or GGG-40, in different sizes</li> <li>- Ball valves, heavy design in different sizes</li> <li>- Dirt traps with fine screen, in different sizes</li> <li>- Check valves, for pipe coupling or flange connection</li> <li>- Condensate drain and sight glasses in different sizes</li> </ul>	
17.20		<p><b>Article description:</b> Condensate drain module KAM</p> <p>Complete condensate drain module consisting of:</p> <ul style="list-style-type: none"> <li>- Shut-off valve, heavy design</li> <li>- Dirt trap with fine screen, 60 µm</li> <li>- Ball condensate drain</li> <li>- Check valve, metallic sealing in 1/2" - design. (3/4" - design for 330, - €)</li> </ul>	
17.30		<p><b>Article description:</b> Steam pressure hose, DDS</p> <p>Flexible steam pressure hose, suitable for temperatures up to 250°C and pressures up to 22 bar, in different connection sizes and couplings including test certificate</p>	

17.40		<p><b>Article description:</b> Steam pipe isolation, DLI</p> <p>Steam pipe isolation, approximately 30 mm thick mineral wool, on the exterior, aluminium-covered, for the reduction of heat losses and danger of burns, simple processing and mounting for different pipe cross sections, suitable up to 250°C pipe line temperature</p>	
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## 18 Miscellaneous

Art. No.      Illustration      Designation and short description

20.10		<p><b>Article description:</b> Foreign processing</p> <p>Foreign processing, (customs handling, product special equipment etc.....) for countries not belonging to the European Community</p>	
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## 19 Notes

## 20 References

Brewing and beverage industry

Distillers and wineries

Biotechnological enterprises

Concrete and gravel works

Bakeries and malthouses

Chemical industry

Delicatessen and butcher's shops

Feed manufacturers

Large-scale catering establishments

Heating air works

Wood and chip board industry

Cosmetic and filling industry

Foodstuffs industry



Medical-technical industry

Metal cleaning industry

Dairy / cheese factories

Air conditioning

Schools and Universities

Textile preparation/refinement

Drying enterprises

Form engineering

Research centres and academies

Vulcanisation industry

Laundries and cleaners

Wax industry

Road and sewer reconstruction



## 21 Unit examples



Jumag steam generator three-fold unit  
960 kg/h steam generating capacity  
Saxonia Medical, Radeberg



Jumag steam generator DG320  
Complete with water purification  
Weingut Anselmann, Edesheim



Jumag steam generator complete unit  
Steam generating capacity 360 kg/h  
Textilaufbereitung Surauer, München



Jumag steam generator  
two-fold unit with 2 x 160 kg/h  
Schwan-Stabilo, Heroldsberg



Jumag Container three-fold unit  
Steam generating capacity 960 kg/h  
BEWAG, Berlin



Jumag Container steam generating unit  
Steam generating capacity 320 kg/h  
RAG-Österreich

## 22 Terms of trade



All articles include the operating and maintenance instructions as well as possibly necessary certificates. The guarantee is valid for 24 months from delivery date.



Our invoices are payable according to agreement. The terms of payment and delivery of the Thermal-Elements are otherwise applicable.



We normally ship orders for spare parts, which are received before 1 p.m. on the same day. Our spare part delivery warranty is 20 years.



The return of series spare parts is affected according to arrangement. For the examination and storage we charge 10% of the net product value, but at least 15,- Euro. Already installed products or special designs cannot be taken back.



The delivery of components is affected according to agreement directly by ourselves or by a carrier.



Our mobile service team is available for you within the FRG, but also in all neighbouring countries. The burner service is taken on by the Weishaupt – branch in your vicinity.

## **Conditions Thermal-Elements**

Standard conditions of delivery and payment issued by Thermal-Elements,  
Filed at the chamber of comers in Den Haag on 1 October 2004.  
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### **Article 1: Applicability**

- 1.1. These conditions apply to all offers made by Thermal-Elements and to all agreements they conclude and to all agreements that may be the result thereof. The offer/supplier is Thermal-Elements who use these conditions. Thermal-Elements is designated in these conditions as the contractor or seller. The other party is designated as the customer or buyer.
- 1.2. These conditions may be used only by Thermal-Elements.
- 1.3. The standard conditions of the customer shall not apply and are expressly rejected.

### **Article 2: Offers**

- 2.1. All offers are made without engagement.
- 2.2. If the customer supplies data, drawings etc. to the contractor, the contractor may assume them to be correct and may base his offer upon them.
- 2.3. The prices referred to in the offer are based on delivery ex works in accordance with Incoterms 2000. The prices are exclusive of turnover tax and packaging.
- 2.4. If his offer is not accepted, the contractor has the right to charge the customer for all the costs which he has had to incur in order to make his offer.

### **Article 3: Intellectual property rights**

- 2.1. Unless agreed otherwise, the contractor retains the copyright and all industrial property rights in the offers made by him and in designs, illustrations, drawings, models, test models, software etc. supplied by him.
- 3.2. The rights to the data referred to in paragraph 1 shall remain the property of the contractor irrespective of whether costs are charged to the customer for their production. Such data may not be copied, used or shown to third parties without the express consent of the contractor. If this provision is infringed, the customer shall owe the contractor a penalty of EUR 25,000. This penalty may be claimed in addition to any compensation owed by law.
- 3.3. The customer must return the data supplied to him as referred to in paragraph 1 at the first request of the contractor within the period specified by the contractor. In the event of an infringement of this provision the customer shall owe the contractor a penalty of EUR 1,000 per day. This penalty may be claimed in addition to any compensation owed by law.

### **Article 4: Advice, designs and materials**

- 4.1. The customer cannot derive any rights from advice and information obtained from the contractor if they do not relate directly to the order.
- 4.2. The customer is responsible for the drawings and calculations made by him or on his behalf and for the functional suitability of the materials prescribed by him or on his behalf.
- 4.3. The customer shall indemnify the contractor against any claim by its third parties relating to the use of drawings, calculations, samples, models and so forth supplied by or on behalf of the customer.
- 4.4. The customer may, at his own expense, examine (or arrange for the examination of) the materials which the contractor wishes to use before they are processed. If the contractor suffers damage as a result, this shall be borne by the customer.

### **Article 5: Delivery period**

- 5.1. The delivery period quoted by the contractor is approximate.
- 5.2. In fixing the delivery period the contractor assumes that he can execute the order in the circumstances known to him at that time.
- 5.3. The delivery period starts when agreement has been reached on all technical details, all necessary data, final drawings etc. are in the possession of the contractor, the agreed payment or instalment has been received and the necessary conditions for execution of the order have been fulfilled.
- 5.4.
  - (a) If circumstances occur other than those known to the contractor when he fixed the delivery period, the contractor may extend the delivery period by the time necessary to execute the order in the circumstances. If the work cannot be fitted into the planning schedule of the contractor, it shall be completed as soon as his planning schedule permits this.
  - (b) If there is extra work, the delivery period shall be extended by the time that is necessary to supply (or arrange for the supply of) the materials and parts for this purpose and to carry out the additional work. If the extra work cannot be fitted into the planning schedule of the contractor it shall be completed as soon as his planning schedule permits this.

- (c) If there is a suspension of obligations by the contractor, the delivery period shall be extended for the duration of the suspension. If continuation of the work cannot be fitted into the planning schedule of the contractor, the work shall be completed as soon as his planning schedule permits this.
  - (d) If work is impossible owing to weather conditions, the delivery period shall be extended for the term of the delay that has occurred as a result.
- 5.5. If the agreed delivery period is exceeded, this shall not under any circumstances confer entitlement to compensation unless this has been agreed in writing.

#### **Article 6: Transmission of risk**

- 6.1 In the case of delivery ex works, in accordance with Incoterms 2000, the risk in relation to the goods shall pass at the moment when the seller makes them available to the buyer.
- 6.2 Irrespective of the provisions of the previous paragraph, the customer and the contractor agree that the contractor shall arrange for the carriage. The risk of storage, loading, carriage and unloading shall be borne by the customer in this case too. The customer may insure himself against these risks.
- 6.3. Even if the seller installs and/or assembles the goods sold, the risk in relation to the goods shall pass at the moment when the seller makes them available to the buyer at the business premises of the seller or at another agreed place.
- 6.4. If a purchase involves a trade-in and the buyer continues to use the goods to be traded in pending delivery of the new goods, the risk in relation to the goods to be traded in shall continue to be borne by the buyer until the moment at which he transfers them to the possession of the seller.

#### **Article 7: Price changes**

- 7.1. If four months have passed since the date on which the agreement was concluded and its performance has not yet been completed by the contractor, an increase in the price-determinants may be passed on to the customer.
- 7.2. Payment of the price increase as referred to in paragraph 1 shall take place together with payment of the principal or the last instalment.
- 7.3. If goods are supplied by the customer and the contractor is prepared to use them, the contractor may then charge a maximum of 20 percent of the market price of the delivered goods.

#### **Article 8: Impossibility of performance**

- 8.1. The contractor shall be entitled to suspend performance of his obligations if he is temporarily prevented from performing them by circumstances that could not be foreseen at the time of the conclusion of the agreement and which are beyond his control.
- 8.2. Circumstances which could not be foreseen by the contractor and which are beyond his control are deemed to include failure of his suppliers and/or subcontractors to fulfil their obligations or to do so in good time, weather conditions, earthquakes, fire, loss or theft of tools, loss of processed materials, road blockades, strikes or work stoppages and import or trade restrictions.
- 8.3. The contractor shall not be entitled to suspend performance if performance is permanently impossible or if a temporary impossibility has lasted for longer than six months. The agreement may then be terminated in respect of such part of the obligations as have not yet been performed. In that case the parties shall not be entitled to compensation for damage suffered or yet to be suffered as a result of the termination.

#### **Article 9: Scope of the work**

- 9.1. The contractor shall ensure that all licences, exemptions and other decisions that are necessary in order to carry out the work are obtained in good time.
- 9.2. The price of the work does not include:
  - (a) the costs of groundwork, pile-driving, cutting, breaking, foundation work, bricklaying, woodwork, plastering, painting, wallpapering, repairs or other construction work;
  - (b) the costs of gas, water or electricity connections and other infrastructure facilities;
  - (c) the costs of preventing or mitigating damage to goods present at or near the work;
  - (d) the costs of removing materials, building materials or refuse;
  - (e) travelling and accommodation expenses.

#### **Article 10: Alterations to the work**

- 10.1. Alterations to the work shall result in any event in extra work or reduced work if:
  - (a) there is an alteration to the design or the specifications;
  - (b) the information provided by the customer does not correspond with the reality;
  - (c) the quantities diverge by more than 10% from the estimates.
- 10.2. Extra work shall be calculated on the basis of the value of the price determinants applicable at the time when the extra work is carried out. Reduced work shall be calculated on the basis of the value of the price determinants applicable at the time when the agreement was concluded.
- 10.3. If the increase and decrease in the work results on balance in a decrease the contractor may charge the customer in the final invoice 10% of the difference in the balances. This provision does not apply in the case of a reduction in the work that is a result of a request of the contractor.

## **Article 11: Execution of the work**

- 11.1. The customer shall ensure that the contractor can carry out his activities without interruption and at the agreed time and that in the execution of the work he has access to the requisite facilities such as:
  - gas, water and electricity;
  - heating;
  - a lockable and dry storage room;
  - facilities prescribed under the Working Conditions Act and other health and safety regulations under that Act.
- 11.2. The customer shall be liable for all damage as a result of the loss, theft or burning of or damage to tools, materials and other property of the contractor located at the place where the work is performed.
- 11.3. If the customer fails to discharge his obligations as referred to in the previous paragraphs and the work is delayed as a result, the work shall be executed as soon as the contractor's planning schedule permits this. In addition, the customer shall be liable for all loss or damage suffered by the contractor as a result.

## **Article 12: Completion of the work**

- 12.1. The work shall be deemed to have been completed when:  
the customer has approved the work; the work has been used by the customer; if the customer uses only part of the work, such part shall be deemed to have been completed; the contractor gives written notice to the customer that the work has been completed and the customer does not indicate in writing within 14 days of the notice whether or not the work has been approved; the customer does not approve the work on account of minor defects or missing parts which can be repaired or supplied within 30 days and which do not prevent the use of the work.
- 12.2. If the customer does not approve the work, he shall be obliged to give written notice of this to the contractor specifying the reasons.
- 12.3. If the customer does not approve the work he shall give the contractor the opportunity to complete the work anew. The provisions of this article shall then apply once again.

## **Article 13: Liability**

- 13.1. The contractor is liable for damage which the customer suffers and which is the direct and sole result of a failure attributable to the contractor. However, only loss or damage for which the contractor is insured or for which he should reasonably have been insured will be eligible for compensation.
- 13.2. The following are not eligible for compensation: consequential loss or damage, including for example loss or damage due to business standstills and loss of profit; damage to goods which are being worked on or to goods which are in the vicinity of the place where the work is being carried out; damage caused by the intent or deliberate recklessness of auxiliaries.
- 13.3. The customer indemnifies the contractor against all claims of third parties on account of product liability due to a defect in a product which has been supplied by the customer to a third party and consisted wholly or partly in products and/or materials supplied by the contractor.

## **Article 14: Warranty**

- 14.1. The contractor warrants the proper execution of the agreed performance for a period of twelve months after delivery or completion.
- 14.2. If the agreed performance consists in the carrying out of contracted work, the contractor warrants the soundness of the delivered construction and the materials used in the construction for the period referred to in paragraph 1, provided that he was free to choose such materials.  
If it transpires that the delivered construction or the materials used are unsound, the contractor shall repair or replace them. The parts which the contractor is to repair or replace must be sent to him free of charge. The dismantling and assembly of these parts and any travelling and accommodation expenses incurred shall be borne by the customer.
- 14.3. If the agreed performance consists in the processing by the contractor of materials supplied by the customer, the contractor warrants the soundness of the processing for the period referred to in paragraph 1.  
If it transpires that processing has not been carried out in a sound manner, the contractor shall choose whether: to carry out the processing anew, in which case the customer must supply new material at his own expense; to repair the defect, in which case the customer must return the material free of charge to the contractor; to provide the customer with a credit note for a proportionate part of the invoiced amount.
- 14.4. If the agreed performance consists in the delivery of an item of goods, the contractor shall warrant the soundness of the delivered item during the period referred to in paragraph 1.  
If it transpires that the delivery has not been sound, the item of goods must be returned free of charge to the contractor. Thereafter the contractor shall choose whether:
  - to repair the item of goods;
  - to replace the item of goods;
  - to provide the customer with a credit note for a proportionate part of the invoiced amount.
- 14.5. If the agreed performance consists in part or in whole of the installation and/or assembly of a delivered item of goods, the contractor warrants the soundness of the installation and/or assembly for the period referred to in paragraph 1.  
If it transpires that the installation and/or assembly has not been carried out in a sound manner, the contractor shall repair it. Any travelling and accommodation expenses shall be borne by the customer.

- 14.6 The factory warranty shall apply to parts in respect of which this has been expressly agreed in writing by the customer and the contractor. If the customer has had the opportunity to take cognisance of the content of the factory warranty, this shall take the place of the warranty under this article.
- 14.7 The customer must in all cases offer the contractor the opportunity to repair the defect or to carry out the processing anew.
- 14.8 The customer may invoke the warranty only after he has complied with all his obligations to the contractor.
- 14.9 No warranty is given for defects that are a result of:
- normal wear and tear;
  - injudicious use;
  - non-maintenance or defective maintenance;
  - installation, assembly, modification or repair by the customer or by third parties.
- No warranty is given for delivered items of goods that were not new at the moment of delivery.

#### **Article 15: Claims**

The customer may no longer invoke an instance of non-performance if he does not lodge a written claim with the contractor within 10 days of the date on which he receive the products and service, or could reasonably be expected to discover it.

#### **Article 16: Uncollected goods**

If goods have not been collected by the time the delivery period expires, they shall continue to be held available for the customer. Uncollected goods shall be stored at the expense and risk of the customer. The contractor may always make exercise the power referred to in article 6:90 Civil Code.

#### **Article 17: Payment**

- 17.1. Payment shall be made at the place of business of the contractor or by remittance to an account designated by the contractor.
- 17.2. Unless agreed otherwise, payment shall be made as follows:
- (a) cash in the case of an over-the-counter sale;
  - (b) if payment in instalments has been agreed:
    - 35% of the total price at the time the order is placed;
    - 40% of the total price after the material is supplied;
    - 25% of the total price upon completion;
  - (c) in all other cases: within 30 days of the date of the invoice.
- 17.3. Regardless of the agreed terms of payment, the customer shall be obliged, at the request of the contractor, to provide such security for the payment as the contractor deems sufficient for the payment. If the customer fails to do so within the specified period, he shall be deemed to be immediately in default. The contractor shall in that case have the right to terminate the agreement and recover his loss or damage from the customer.
- 17.4. The customer does not have the right to set off claims against the contractor, unless the contractor has been declared bankrupt.
- 17.5. The full claim for payment shall be immediately due and exigible if: a payment period has been exceeded; the customer has been declared bankrupt or has applied for a suspension of payments; the property or accounts receivable of the customer are seized; the customer (being a legal entity) is wound up or liquidated; the customer (being a natural person) is made the subject of a guardianship order or dies.
- 17.6. If payment has not been made within the agreed period for payment, the customer shall immediately owe interest to the contractor. The interest shall be 10% per year or the statutory rate of interest, whichever is the higher. For the purpose of calculating the interest, part of a month shall be treated as a full month.
- 17.7. If payment has not been made within the agreed period for payment, the customer shall owe the contractor all extra judicial costs of recovery, subject to a minimum of EUR 50.  
The costs shall be calculated on the basis of the following table:
- |   |     |     |
|---|-----|-----|
| - on the first EUR 3,000                    |     | 15% |
| - on any additional amount up to EUR 6,000  | 10% |     |
| - on any additional amount up to EUR 15,000 | 8%  |     |
| - on any additional amount up to EUR 60,000 | 5%  |     |
| - on any additional amount over EUR 60,000  | 3%  |     |
- If the extra judicial costs actually incurred are higher than those in the above-mentioned table, the costs actually incurred shall be owed.
- 17.8. If the contractor is held to be in the right in legal proceedings, all costs which he has incurred in connection with the proceedings shall be borne by the customer.

#### **Article 18: Reservation of title and right of lien**

- 18.1. After delivery of the goods the contractor shall retain title to them as long as the customer:
- fails or will fail to perform his obligations under this agreement or other similar agreements;
  - fails or will fail to pay for activities performed or yet to be performed under such agreements;
- Has not paid claims that result from the non-observance of the above-mentioned agreements such as damage, penalties, interest and costs.

- 18.2. As long as title to delivered goods is retained by the contractor, the customer may not encumber them other than in the normal course of his business.
- 18.3. After the contractor has invoked his reservation of title, he may retake possession of the delivered goods. The customer shall allow the contractor to enter the place where the goods are situated.
- 18.4. If the contractor is unable to invoke his reservation of title because the delivered goods have been mingled, distorted or changed by way of accession (*accessio*), the customer shall be obliged to grant the contractor a lien on the newly created goods.

#### **Article 19: Termination**

If the customer wishes to terminate the agreement in circumstances where the contractor is not in default and the contractor agrees to this, the agreement shall be terminated by mutual consent. The contractor shall in that case be entitled to compensation of all pecuniary damage, such as any loss suffered, loss of profit and costs incurred.

#### **Article 20: Applicable law and choice of forum**

- 20.1. The law of the Netherlands is applicable.
- 20.2. The Vienna Convention on Contracts for the International Sale of Goods (CIGS) is not applicable, nor is any other international regulation the exclusion of which is permissible.
- 20.3. Only the civil court that has jurisdiction in the place of establishment of the contractor may take cognisance of disputes, unless this would be contrary to peremptory law. The contractor may deviate from this rule of jurisdiction and apply the statutory rules governing jurisdiction.
- 20.4. The parties may agree a different form of dispute resolution such as arbitration or mediation.