

9 Technical Specifications

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| Machine | | M12 | | |
|--|-----------|-----------------------------------|------------|------------|
| | | Steam | Electric | |
| Heating | | | | |
| Filling quantity | kg (lb) | 12 (26.5) | 12 (26.5) | |
| Cage volume | l/ US gal | 240 (63.4) | 240 (63.5) | |
| Cage diameter | mm (in) | 820 (32.3) | 820 (32.3) | |
| Cage depth | mm (in) | 460 (18.1) | 460 (18.1) | |
| Load diameter | mm (in) | 400 (15.7) | 400 (15.7) | |
| Cleaning speed/drying speed | RPM | 40 | 40 | |
| Spinning speed: | RPM | 600 | 600 | |
| Max. g-factor | | 165 | 165 | |
| Low level | l/ US gal | 30 (7.9) | 30 (7.9) | |
| High level | l/ US gal | 60 (15.8) | 60 (15.8) | |
| Operating load (max. at 400 V,50Hz) | | | | |
| Without distillation | kW | 7 | 16 | |
| With distillation | kW | 8 | 27 | |
| Connected loads: | | | | |
| Compressor capacity | kW | 4.0 | 4.0 | |
| Fan capacity HLL /NLL | kW | 2.5 /1.85 | 2.5 /1.85 | |
| Solvent pump capacity | kW | 1.1 | 1.1 | |
| Cage drive capacity | kW | 3.7 | 3.7 | |
| Filter drive capacity | kW | 0.55 | 0.55 | |
| Vacuum pump capacity | kW | 0.37 | 0.37 | |
| Steam generator capacity | kW | - | 10 /8.5 | |
| Dimensions: | | | | |
| Machine: | | | | |
| Width: | Slimline | mm(in) | 1080(42.5) | 1080(42.5) |
| | Crossline | mm(in) | 1840(77.4) | 1840(77.4) |
| Depth: | Slimline | mm(in) | 2165(86.0) | 2165(86.0) |
| | Crossline | mm(in) | 1406(55.3) | 1406(55.3) |
| Height inc. trough | | mm(in) | 2257(89.0) | 2257(89.0) |
| Height inc. trough without fan motor | | mm(in) | 1995(78.5) | 1995(78.5) |
| Floor space: | Slimline | m ² (ft ²) | 2.3(24.8) | 2.3(24.8) |
| | Crossline | m ² (ft ²) | 2.5(26.9) | 2.5(26.9) |
| Filling volumes: | | | | |
| Tank I | filling | l/ US gal | 120 (31.7) | 120 (31.7) |
| Tank II | filling | l/ US gal | 80 (21.2) | 80 (21.2) |
| Tank III | filling | l/ US gal | 90 (23.7) | 90 (23.7) |
| Economy filter 1 | | l/ US gal | 40 (10.6) | 40 (10.6) |
| Economy filter 2 | | l/ US gal | 40 (10.6) | 40 (10.6) |
| Distillation | filling | l/ US gal | 120 (31.7) | 120 (31.7) |
| Cartridge filter | | l/ US gal | 15 (6.6) | 15 (6.6) |
| Jumbo Cartridge Filter | | l/ US gal | 40 (10.5) | 40 (10.5) |

The dimensions given may differ if special options are used

9 Technical Specifications

| Machine | | M12 | M12 |
|---|------------|-------------|------------|
| Heating | | Steam | Electric |
| Consumption for drying: | | | |
| Drying time incl. reduction | min. | 24 | 26 |
| Electric energy drying | kWh | 2.1 | 5.3 |
| Saturated steam drying | kg (lbs) | 4.5 (9.9) | - |
| Cooling water dr.(12 °C/53.6 °F) | l (US gal) | 80 (21.1) | 80 (21.1) |
| Consumption for distillation(1x at low level): | | | |
| Electric energy distillation | kWh | 0.25 | 3.3 |
| Saturated steam distillation | kg (lbs) | 6.5 (14.3) | - |
| Cooling water for dist. (12 °C/53.6 °F) | l (US gal) | 100 (26.4) | 100 (26.4) |
| Consumption per cycle: * | | | |
| Electric energy, total | kWh | 2.85 | 9.1 |
| Saturated steam, total | kg (lbs) | 11.0 (24.2) | - |
| Cooling water, total (12 °C/53.6°F) | l (US gal) | 180 (47.5) | 180 (47.5) |
| Compressed air (6 bar/87 psi) | l (US gal) | 6 (1.6) | 6 (1.6) |
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9 Technical Specifications

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| Machine | | M12 | M12 |
|--|-----------------------------------|---|-------------|
| Heating | | Steam | Electric |
| Other: | | | |
| Distillation throughput (DIN 11916) max. | l/h (US gal/h) | 80 (21.1) | 80 (21.1) |
| Filter throughput | l/h (US gal/h) | 4000 (1056) | 4000 (1056) |
| Filter surface, economy filter 1 | m ² (ft ²) | 2.4 (25.8) | 2.4 (25.8) |
| Filter surface, economy filter 2 | m ² (ft ²) | 2.4 (25.8) | 2.4 (25.8) |
| Weight without solvent: | Slimline | kg(lbs) | 1055(2326) |
| | Crossline | kg(lbs) | 1155(2547) |
| Weight with solvent: | Slimline | kg(lbs) | 1224(2699) |
| | Crossline | kg(lbs) | 1324(2919) |
| Floor space: | Slimline | m ² (ft ²) | 2.3(24.8) |
| | Crossline | m ² (ft ²) | 2.5(26.9) |
| Floor surface: ** | Slimline | m ² (ft ²) | 1.3(14) |
| | Crossline | m ² (ft ²) | 1.3(14) |
| Cage centrifugal force | N(lb) | 8500(1910) | 8500(1910) |
| Floor load, stat. and dyn: | Slimline | N/m ² (lbs/ft ²) | 15800(330) |
| | Crossline | N/m ² (lbs/ft ²) | 16600(346) |
| Noise level | dB (A) | 60 | 60 |
| Heat balance: * | | | |
| Heat to dissipate via cooling water ***: | | | |
| | kJ/cycle | 24800 | 24800 |
| Heat dissipated to the surroundings: | | | |
| | kJ/cycle | 5100 | 5100 |

* Values apply to a standard 2-bath load, 1st bath low level for distillation at cooling water inlet temperature + 12 °C (53.6 °F), steam supply 4 – 5 bar (58.0 – 72.5 psi) overpressure saturated steam, ambient temperature +5 °C to + 40 °C (5 to 104 °F)

** For portion of the floor surface for force transmission, see Installation Instructions, Point. 5.3.1

*** Refers to water without additives

Subject to change!

All values were taken under testing conditions with HC and can deviate in practice! With silicones (e.g. GreenEarth) drying times will be extended by up to 10 minutes.

9 Technical Specifications

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| Machine | | M15 | M15 |
|--|------------|-----------------------------------|------------|
| Heating | | Steam | Electric |
| Filling quantity | kg (lb) | 15 (33.1) | 15 (33.1) |
| Cage volume | l (US gal) | 300 (79.2) | 300 (79.2) |
| Cage diameter | mm (in) | 820 (32.3) | 820 (32.3) |
| Cage depth | mm (in) | 570 (22.4) | 570 (22.4) |
| Load diameter | mm (in) | 400 (15.7) | 400 (15.7) |
| Cleaning speed/drying speed | RPM | 40 | 40 |
| Spinning speed | RPM | 600 | 600 |
| Max. g-factor | | 165 | 165 |
| Low level | l (US gal) | 35 (9.2) | 35 (9.2) |
| High level | l (US gal) | 75 (19.8) | 75 (19.8) |
| Operating load (max. at 400 V, 50 Hz) | | | |
| Without distillation | kW | 7 | 16 |
| With distillation | kW | 8 | 27 |
| Connected loads: | | | |
| Compressor capacity | kW | 4.0 | 4.0 |
| Fan capacity HLL /NLL | kW | 2.5 /1.85 | 2.5 /1.85 |
| Solvent pump capacity | kW | 1.1 | 1.1 |
| Cage drive capacity | kW | 3.7 | 3.7 |
| Filter drive capacity | kW | 0.55 | 0.55 |
| Vacuum pump capacity | kW | 0.37 | 0.37 |
| Steam generator capacity Distill. /drying | kW | - | 10 /8.5 |
| Dimensions: | | | |
| Machine: | | | |
| Width: | Slimline | mm(in) | 1080(42.5) |
| | Crossline | mm(in) | 1840(77.4) |
| Depth: | Slimline | mm(in) | 2165(86.0) |
| | Crossline | mm(in) | 1406(55.3) |
| Height incl. trough | | mm(in) | 2257(89.0) |
| Height incl. trough without fan motor | | mm(in) | 1995(78.5) |
| Floor space: Slimline | | m ² (ft ²) | 2.3(24.8) |
| | Crossline | m ² (ft ²) | 2.5(26.9) |
| Filling volumes: | | | |
| Tank I | filling | l/ US gal | 145 (38.3) |
| Tank II | filling | l/ US gal | 95 (25.1) |
| Tank III | filling | l/ US gal | 90 (23.7) |
| Economy filter 1 | | l/ US gal | 40 (10.6) |
| Economy filter 2 | | l/ US gal | 40 (10.6) |
| Distillation | filling | l/ US gal | 120 (31.7) |
| Cartridge filter | | l/ US gal | 15 (4) |
| Jumbo Cartridge Filter | | l/US gal | 40 (10.5) |

The dimensions given may differ if special options are used

9 Technical Specifications

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| Machine | | M15 | M15 |
|---|------------|------------|------------|
| Heating | | Steam | Electric |
| Consumption for drying: | | | |
| Drying time incl. reduction | min. | 29 | 31 |
| Electric energy drying | kWh | 2.3 | 6.7 |
| Saturated steam drying | kg (lb) | 5.6 (12.3) | - |
| Cooling water drying (12 °C/53.6 °F) | l (US gal) | 90 (23.7) | 90 (23.7) |
| Consumption for distillation(1x at low level): | | | |
| Electric energy distillation | kWh | 0.45 | 4.2 |
| Saturated steam distillation | kg (lb) | 8.4 (18.5) | - |
| Cooling water for distillation (12 °C/53.6 °F) | l (US gal) | 130 (34.3) | 130 (34.3) |
| Consumption per cycle: * | | | |
| Electric energy, total | kWh | 3.25 | 11.4 |
| Saturated steam, total | kg (lb) | 14 (30.8) | - |
| Cooling water, total (12 °C/53.6 °F) | l (US gal) | 220 (58.1) | 220 (58.1) |
| Compressed air (6 bar/87 psi) | l (US gal) | 6 (1.6) | 6 (1.6) |

9 Technical Specifications

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| Machine | | M15 | M15 |
|--|---|-------------|-------------|
| Heating | | Steam | Electric |
| Other: | | | |
| Distillation throughput (DIN 11916) max. | l/h (US gal/h) | 80 (21.1) | 80 (21.1) |
| Filter throughput | l/h (US gal/h) | 4000 (1056) | 4000 (1056) |
| Filter surface, economy filter 1 | m ² (ft ²) | 2.4 (25.8) | 2.4 (25.8) |
| Filter surface, economy filter 2 | m ² (ft ²) | 2.4 (25.8) | 2.4 (25.8) |
| Weight without solvent: | | | |
| Slimline | kg(lb) | 1155(2546) | 1155(2546) |
| Crossline | kg(lb) | 1255(2767) | 1255(2767) |
| Weight with solvent: | | | |
| Slimline | kg(lb) | 1355(2987) | 1355(2987) |
| Crossline | kg(lb) | 1455(3208) | 1455(3208) |
| Floor space: | | | |
| Slimline | m ² (ft ²) | 2.3(24.8) | 2.3(24.8) |
| Crossline | m ² (ft ²) | 2.5(26.9) | 2.5(26.9) |
| Floor surface: ** | | | |
| Slimline | m ² (ft ²) | 1.41(15.2) | 1.41(15.2) |
| Crossline | m ² (ft ²) | 1.41(15.2) | 1.41(15.2) |
| Cage centrifugal force | N(lb) | 10700(2405) | 10700(2405) |
| Floor load, stat. and dyn: | | | |
| Slimline | N/m ² (lbs/ft ²) | 17000(355) | 17000(355) |
| Crossline | N/m ² (lbs/ft ²) | 17700(369) | 17700(369) |
| Noise level | dB (A) | 60 | 60 |
| Heat balance: * | | | |
| Heat to dissipate via cooling water ***: | | | |
| | kJ/cycle | 30400 | 30400 |
| Heat dissipated to the surroundings *: | | | |
| | kJ/cycle | 7100 | 7100 |

* Values apply to a standard 2-bath load, 1st bath low level for distillation at cooling water inlet temperature + 12 °C (53.6 °F), steam supply 4 – 5 bar (58.0 - 72.5 psi) overpressure saturated steam, ambient temperature +5 °C to + 40 °C (41 to 104 °F)

** For portion of the floor surface for force transmission, see Installation Instructions, Point 5.3.1

*** Refers to water without additives

Subject to change!

All values were taken under testing conditions with HC and can deviate in practice! With silicones (e.g. GreenEarth) drying times will be extended by up to 10 minutes.

9 Technical Specifications

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| Machine | | M18 | M18 |
|--|-----------|-----------------------------------|------------|
| Heating | | Steam | Electric |
| Filling quantity | kg (lb) | 18 (39.7) | 18 (39.7) |
| Cage volume | l/ US gal | 360 (95.1) | 360 (95.1) |
| Cage diameter | mm (in) | 820 (32.3) | 820 (32.3) |
| Cage depth | mm (in) | 680 (26.7) | 680 (26.7) |
| Load diameter | mm (in) | 400 (15.7) | 400 (15.7) |
| Cleaning speed/drying speed | RPM | 40 | 40 |
| Spinning speed | RPM | 600 | 600 |
| Max. g-factor | | 165 | 165 |
| Low level | l/ US gal | 45 (11.9) | 45 (11.9) |
| High level | l/ US gal | 90 (23.7) | 90 (23.7) |
| Operating load (max. at 400 V,50Hz) | | | |
| Without distillation | kW | 7 | 16 |
| With distillation | kW | 8 | 27 |
| Connected loads: | | | |
| Compressor capacity | kW | 4.0 | 4.0 |
| Fan capacity HLL /NLL | kW | 2.5 /1.85 | 2.5 /1.85 |
| Solvent pump capacity | kW | 1.1 | 1.1 |
| Cage drive capacity | kW | 3.7 | 3.7 |
| Filter drive capacity | kW | 0.55 | 0.55 |
| Vacuum pump capacity | kW | 0.37 | 0.37 |
| Steam generator capacity | kW | - | 10 /8.5 |
| Dimensions: | | | |
| Machine: | | | |
| Width: | Slimline | mm(in) | 1080(42.5) |
| | Crossline | mm(in) | 1840(77.4) |
| Depth: | Slimline | mm(in) | 2275(89.5) |
| | Crossline | mm(in) | 1540(60.6) |
| Height incl. trough | | mm(in) | 2257(89.0) |
| Height incl. trough without fan motor | | mm(in) | 1995(78.5) |
| Floor space: Slimline | | m ² (ft ²) | 2.4(25.8) |
| | Crossline | m ² (ft ²) | 2.7(29.0) |
| Filling volumes: | | | |
| Tank I | filling | l/ US gal | 170 (44.9) |
| Tank II | filling | l/ US gal | 110 (29) |
| Tank III | filling | l/ US gal | 90 (23.7) |
| Economy filter 1 | | l/ US gal | 40 (10.6) |
| Economy filter 2 | | l/ US gal | 40 (10.6) |
| Distillation | filling | l/ US gal | 120 (31.7) |
| Cartridge filter | | l/ US gal | 15 (6.6) |
| Jumbo Cartridge Filter | | l/ US gal | 40 (10.5) |

The dimensions given may differ if special options are used

9 Technical Specifications

9

| Machine | | M18 | M18 |
|---|------------|-------------|------------|
| Heating | | Steam | Electric |
| Consumption for drying: | | | |
| Drying time incl. reduction | min. | 34 | 36 |
| Electric energy drying | kWh | 2.5 | 8 |
| Saturated steam drying | kg (lbs) | 6.7 (14.7) | - |
| Cooling water drying (12 °C/53.6 °F) | l (US gal) | 100 (26.4) | 100 (26.4) |
| Consumption for distillation(1x at low level): | | | |
| Electric energy distillation | kWh | 0.65 | 5.0 |
| Saturated steam distillation | kg (lb) | 10.3 (22.7) | - |
| Cooling water for distillation (12 °C/53.6 °F) | l (US gal) | 160 (42.2) | 160 (42.2) |
| Consumption per cycle: * | | | |
| Electric energy, total | kWh | 3.65 | 13.5 |
| Saturated steam, total | kg (lb) | 17.0 (37.5) | - |
| Cooling water, total (12 °C(53.6°F) | l (US gal) | 260 (68.6) | 260 (68.6) |
| Compressed air (6 bar/87 psi) | l (US gal) | 6 (1.6) | 6 (1.6) |
| | | | |
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9 Technical Specifications

9

| Machine | | | M18 | M18 |
|--|-----------|---|-------------|-------------|
| Heating | | | Steam | Electric |
| Other: | | | | |
| Distillation throughput (DIN 11916) max. | | l/h (US gal/h) | 80 (21.1) | 80 (21.1) |
| Filter throughput | | l/h (US gal/h) | 4000 (1056) | 4000 (1056) |
| Filter surface, economy filter 1 | | m ² (ft ²) | 2.4 (25.8) | 2.4 (25.8) |
| Filter surface, economy filter 2 | | m ² (ft ²) | 2.4 (25.8) | 2.4 (25.8) |
| Weight without solvent: | Slimline | kg(lb) | 1325(2921) | 1325(2921) |
| | Crossline | kg(lb) | 1355(2987) | 1355(2987) |
| Weight with solvent: | Slimline | kg(lb) | 1556(3430) | 1556(3430) |
| | Crossline | kg(lb) | 1586(3497) | 1586(3497) |
| Floor space: | Slimline | m ² (ft ²) | 2.4(25.8) | 2.4(25.8) |
| | Crossline | m ² (ft ²) | 2.7(29.0) | 2.7(29.0) |
| Floor surface: ** | Slimline | m ² (ft ²) | 1.53(16.4) | 1.53(16.4) |
| | Crossline | m ² (ft ²) | 1.53(16.4) | 1.53(16.4) |
| Cage centrifugal force | | N(lb) | 12800(2877) | 12800(2877) |
| Floor load, stat. and dyn: | Slimline | N/m ² (lbs/ft ²) | 18300(382) | 18300(382) |
| | Crossline | N/m ² (lbs/ft ²) | 18500(386) | 18500(386) |
| Noise level | | dB (A) | 60 | 60 |
| Heat balance: * | | | | |
| Heat to dissipate via cooling water ***: | | | | |
| | | kJ/cycle | 35900 | 35900 |
| Heat dissipated to the surroundings: | | | | |
| | | kJ/cycle | 9000 | 9000 |

* Values apply to a standard 2-bath load, 1st bath low level for distillation at cooling water inlet temperature + 12 °C (53.6 °F), steam supply 4 – 5 bar (58.0 - 72.5 psi) overpressure saturated steam, ambient temperature +5 °C to + 40 °C (5 to 104 °F)

** For portion of the floor surface for force transmission, see Installation Instructions, Point. 5.3.1

*** Refers to water without additives

Subject to change!

All values were taken under testing conditions with HC and can deviate in practice! With silicones (e.g. GreenEarth) drying times will be extended by up to 10 minutes.

10 Settings and Optimum Operating Values

10

| Machine | | M12 | M15 |
|---|-----------------------------------|--------------|----------------|
| Basic value: | | | |
| Steam pressure (saturated steam) | bar(psi) | 4–5(58–72.5) | 4–5(58 – 72.5) |
| Steam temperature (max. permitted) | °C(°F) | 150(302) | 150(302) |
| Cooling water pressure | bar(psi) | 2-4(29-58) | 2-4(29-58) |
| Low cooling water level switch | bar (psi) | 2 (29) | 2 (29) |
| Cooling water temperature, max. | °C(°F) | 25(77) | 25(77) |
| Compressed air | bar(psi) | 6(87) | 6(87) |
| Low air pressure switch (if present) | bar (psi) | 4 (58) | 4 (58) |
| Cage speeds: | | | |
| Cleaning / drying | RPM | 35 | 35 |
| Spinning | RPM | 400 /600 | 400/600 |
| Reversing cycle (cleaning) | sec. | 10/1/10 | 10/1/10 |
| Low level | l(US gal) | 30(7.9) | 35(9.2) |
| High level | l(US gal) | 60(15.8) | 75(19.8) |
| Pump pressure (max.) | bar(psi) | 1.5(22) | 1.5(22) |
| Filter surface, economy filter | m ² (ft ²) | 2.4(34.8) | 2.4(34.8) |
| Tank I: optimum filling volume (high level) | l(US gal) | 60(15.8) | 75(19.8) |
| Tank III: optimum filling volume | l(US gal) | 60(15.8) | 75(19.8) |
| Detergent solution cooler: | | | |
| Detergent solution thermal sensor: | | | |
| Detergent solution cooler ON | °C(°F) | 40(104) | 40(104) |
| Alarm value | °C (°F) | 45 (113) | 45 (113) |
| Refrigeration technology: | | | |
| Filling capacity, cooling agent R 404A | kg(lb) | 4.6(10.1) | 4.6(10.1) |
| Expansion valve: | | | |
| Nozzle size: solvent cooling | no. | 03 | 03 |
| Drying /reduction | no. | 01 | 01 |
| High pressure control switch ON | bar(psi) | 21(304) | 21(304) |
| High pressure control switch OFF | bar(psi) | 25(362) | 25(362) |
| Drying: | | | |
| Cooling water regulator setting: | | | |
| Adjust 4 – 6 min. after start of drying | bar(psi) | 18(261) | 18(261) |
| Temp. sensor, cage entry (gentle drying)* | °C(°F) | 75(167) | 75(167) |
| Temp. sensor after cooler: | | | |
| Alarm value, 1 | °C(°F) | 30(86) | 30(86) |
| Alarm value, 2 | °C(°F) | 35(95) | 35(95) |
| Safety temperature limiter after cooler:* | °C(°F) | 45 (113) | 45 (113) |
| Safety temperature limiter cage inlet:* | °C(°F) | 100 (212) | 100 (212) |

* at flash point >55°C (131°F)

10 Settings and Optimum Operating Values 10

| Machine | | M12 | M15 |
|--|------------|--------------|--------------|
| Distillation | | | |
| Cooling water regulator condenser | °C (°F) | 45 (113) | 45 (113) |
| Thermal sensor: | | | |
| Cycle distillation OFF | °C (°F) | 133 (271) | 133 (271) |
| Still stripping OFF | °C (°F) | 138 (280) | 138 (280) |
| Residue draining | °C (°F) | 55 (131) | 55 (131) |
| Thermal sensor, distilled solvent * | °C (°F) | 45 (113) | 45 (113) |
| Restrictor in steam feeder | mm (in) | 6 (.24) | 6 (.24) |
| Vacuum pressure control | kPa | minus 75 | minus 75 |
| Temperature sensor heater element (electric) | °C(°F) | 230 (446) | 230 (446) |

* at flash point >55°C (131 °F)

10 Settings and Optimum Operating Values 10

| Machine | M18 | |
|---|-----------------------------------|--------------|
| Basic value: | | |
| Steam pressure (saturated steam) | bar(psi) | 4–5(58–72.5) |
| Steam temperature (max. permitted) | °C(°F) | 150(302) |
| Cooling water pressure | bar(psi) | 2-4(29-58) |
| Low cooling water level switch | bar (psi) | 2 (29) |
| Cooling water temperature, max. | °C(°F) | 25(77) |
| Compressed air | bar(psi) | 6(87) |
| Low air pressure switch (if present) | bar (psi) | 4 (58) |
| Cage speeds: | | |
| Cleaning / drying | RPM | 35 |
| Spinning | RPM | 400 /600 |
| Reversing cycle (cleaning) | sec. | 10/1/10 |
| Low level | l(US gal) | 45(11.9) |
| High level | l(US gal) | 90(23.7) |
| Pump pressure (max.) | bar(psi) | 1.5(22) |
| Filter surface, economy filter | m ² (ft ²) | 2.4(34.8) |
| Tank I: optimum filling volume (high level) | l(US gal) | 90(23.7) |
| Tank III: optimum filling volume | l(US gal) | 90(23.7) |
| Detergent solution cooler: | | |
| Detergent solution thermal sensor: | | |
| Detergent solution cooler ON | °C(°F) | 40(104) |
| Alarm value | °C (°F) | 45 (113) |
| Refrigeration technology: | | |
| Filling capacity, cooling agent R 404A | kg(lb) | 4.6(10.1) |
| Expansion valve: | | |
| Nozzle size: solvent cooling | no. | 03 |
| Drying /reduction | no. | 01 |
| High pressure control switch ON | bar(psi) | 21(304) |
| High pressure control switch OFF | bar(psi) | 25(362) |
| Drying: | | |
| Cooling water regulator setting: | | |
| Adjust 4 – 6 min. after start of drying | bar(psi) | 18(261) |
| Temp. sensor, cage entry (gentle drying)* | °C(°F) | 75(167) |
| Temp. sensor after cooler: | | |
| Alarm value, 1 | °C(°F) | 30(86) |
| Alarm value, 2 | °C(°F) | 35(95) |
| Safety temperature limiter after cooler:* | °C(°F) | 45 (113) |
| Safety temperature limiter cage inlet:* | °C(°F) | 100 (212) |

* at flash point >55°C (131 °F)

10 Settings and Optimum Operating Values 10

| Machine | | M18 |
|-------------------------------------|------------|--------------|
| Distillation | | |
| Cooling water regulator condenser | °C (°F) | 45 (113) |
| Thermal sensor: | | |
| Cycle distillation OFF | °C (°F) | 133 (271) |
| Still stripping OFF | °C (°F) | 138 (280) |
| Residue draining | °C (°F) | 55 (131) |
| Thermal sensor, distilled solvent * | °C (°F) | 45 (113) |
| Restrictor in steam feeder | mm (in) | 6 (.24) |
| Vacuum pressure control | kPa | minus 75 |
| Temp. sensor heater element (el.) | °C(°F) | 230 (446) |

* at flash point >55°C (131 °F)

9 Technical Specifications

9

M 21

| Heating | | Steam | Electric |
|--|-----------------------------------|-------------|-------------|
| Filling quantity | kg (lb) | 21 (46.3) | 21 (46.3) |
| Cage volume | l/ US gal | 420 (110.9) | 420 (110.9) |
| Cage diameter | mm (in) | 1000 (39.4) | 1000 (39.4) |
| Cage depth | mm (in) | 535 (21.1) | 535 (21.1) |
| Cleaning speed/drying speed | RPM | 35 | 35 |
| Spinning speed: | RPM | 600 | 600 |
| Max. g-factor | | 200 | 200 |
| Low level | l/ US gal | 52.5 (13.9) | 52.5 (13.9) |
| High level | l/ US gal | 105 (27.7) | 105 (27.7) |
| Operating load (max. at 400 V,50Hz) | | | |
| Without distillation | kW | 12 | 42 |
| With distillation | kW | 13 | 43 |
| Connected loads: | | | |
| Compressor capacity | kW | 5.0 | 5.0 |
| Fan capacity | kW | 1.5 | 1.5 |
| Solvent pump capacity | kW | 1.1 | 1.1 |
| Cage drive capacity | kW | 5.5 | 5.5 |
| Filter drive capacity | kW | 0.55 | 0.55 |
| Vacuum pump capacity | kW | 1.1 | 1.1 |
| Steam generator capacity | kW | - | 30 |
| Dimensions: | | | |
| Machine dimensions: | | | |
| Width with distillation | mm (in) | 2200 (86.6) | 2200 (86.6) |
| Depth | mm (in) | 1500 (59.1) | 1500 (59.1) |
| Height without cartridge filter | mm (in) | 2180 (85.8) | 2180 (85.8) |
| Height with cartridge filter | mm (in) | 2340 (92.1) | 2340 (92.1) |
| Floor space | m ² (ft ²) | 3.3 (35.5) | 3.3 (35.5) |
| Filling volumes: | | | |
| Tank I | filling | l/ US gal | 200 (52.8) |
| Tank II | filling | l/ US gal | 125 (33.0) |
| Tank III | filling | l/ US gal | 200 (52.8) |
| Economy filter 1 | | l/ US gal | 75 (19.8) |
| Economy filter 2 | | | 50 (13.2) |
| Distillation | filling | l/ US gal | 220 (58.1) |
| Cartridge filter 1 (long) | | l/ US gal | 25 (6.6) |
| Cartridge filter 2 (short) | | l/ US gal | 15 (4.0) |
| Jumbo Cartridge Filter | | l/ US gal | 40 (10.5) |

The dimensions given may differ if special options are used

9 Technical Specifications

9

M21

| Heating | | Steam | Electric |
|---|------------|-------------|------------|
| Consumption for drying: | | | |
| Drying time incl. reduction | min. | 26 | 26 |
| Electric energy drying | kWh | 3.1 | 7.7 |
| Saturated steam drying | kg (lbs) | 8.0 (17.6) | - |
| Cooling water drying (12 °C/53.6 °F) | l (US gal) | 130 (34.3) | 130 (34.3) |
| Consumption for distillation(1x at low level): | | | |
| Electric energy distillation | kWh | 0.45 | 8.6 |
| Saturated steam distillation | kg (lbs) | 12.0 (26.5) | - |
| Cooling water for distillation (12 °C/53.6 °F) | l (US gal) | 170 (44.9) | 170 (44.9) |
| Consumption per cycle: * | | | |
| Electric energy, total | kWh | 4.05 | 16.8 |
| Saturated steam, total | kg (lbs) | 20.0 (44.1) | - |
| Cooling water, total (12 °C(53.6°F) | l (US gal) | 300 (79.2) | 300 (79.2) |
| Compressed air (6 bar/87 psi) | l (US gal) | 6 (1.6) | 6 (1.6) |
| | | | |
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9 Technical Specifications

9

M21

| Heating | | Steam | Electric |
|---|--|---------------|---------------|
| Other: | | | |
| Distillation throughput (DIN 11916) max. | l/h (US gal/h) | 180 (47.5) | 180 (47.5) |
| Filter throughput | l/h (US gal/h) | 5000 (1321) | 5000 (1321) |
| Filter surface, economy filter 1 | m ² (ft ²) | 5.0 (53.8) | 5.0 (53.8) |
| Filter surface, economy filter 2 | m ² (ft ²) | 3.5 (37.7) | 3.5 (37.7) |
| Weight without solvent (with 2 economy filters, 2 cartridge filters) | | | |
| | kg (lb) | 2120 (4674.6) | 2120 (4674.6) |
| Weight with solvent (with 2 economy filters, 2 cartridge filters) | | | |
| | kg (lb) | 2500 (5512.5) | 2500 (5512.5) |
| Floor space | m ² (ft ²) | 3.3 (35.5) | 3.3 (35.5) |
| Floor surface ** | m ² (ft ²) | 2.3 (24.8) | 2.3 (24.8) |
| Cage centrifugal force | N (lb) | 18100 (4070) | 18100 (4070) |
| Floor load, static and dynamic | N/m ² (lb/ft ²) | 18500 (386) | 18500 (386) |
| Noise level | dB (A) | 62 | 62 |
| Heat balance: * | | | |
| Heat to dissipate via cooling water ***: | | | |
| | kJ/cycle | 41400 | 41400 |
| Heat dissipated to the surroundings: | | | |
| | kJ/cycle | 11000 | 11000 |

* Values apply to a standard 2-bath load, 1st bath low level for distillation at cooling water inlet temperature + 12 °C (53.6 °F), steam supply 4 – 5 bar (58.0 - 72.5 psi) overpressure saturated steam, ambient temperature +5 °C to + 40 °C (5 to 104 °F)

** For portion of the floor surface for force transmission, see Installation Instructions, Point. 5.3.1

*** Refers to water without additives

Subject to change!

9 Technical Specifications

9

| Machine | | M26 | M30 |
|--|-----------------------------------|-------------|-----------------------|
| Heating | | Steam | Steam |
| Filling quantity | kg (lbs) | 26 (57.3) | 30 (66.2) |
| Cage volume | l (US gal) | 520 (137.3) | 600 (158.4) |
| Cage diameter | mm (in) | 1000 (39.4) | 1000 (39.4) |
| Cage depth | mm (in) | 665 (26.2) | 770 (30.3) |
| Cleaning speed/drying speed | RPM | 35 | 35 |
| Spinning speed: | RPM | 600 | 600 |
| Max. g-factor | | 200 | 200 |
| Low level | l (US gal) | 65 (17.2) | 75 (19.8) |
| High level | l (US gal) | 130 (34.3) | 150 (39.6) |
| Operating load (max. at 400 V, 50 Hz) | | | |
| Without distillation | kW | 12 | 12 |
| With distillation | kW | 13 | 13 |
| Connected loads: | | | |
| Compressor capacity | kW | 5.0 | 5.0 |
| Fan capacity | kW | 1.5 | 1.5 |
| Solvent pump capacity | kW | 1.1 | 1.1 |
| Cage drive capacity | kW | 5.5 | 5.5 |
| Filter drive capacity | kW | 0.55 | 0.55 |
| Vacuum pump capacity | kW | 1.1 | 1.1 |
| Steam generator capacity | kW | - | - |
| Dimensions: | | | |
| Machine dimensions: | | | |
| Width with distillation | mm (in) | 2200 (86.6) | 2200 (86.6) |
| Depth | mm (in) | 1630 (64.2) | 1735 (68.3) |
| Height without cartridge filter | mm (in) | 2180 (85.8) | 2180 (85.8) |
| Height with cartridge filter | mm (in) | 2340 (92.1) | 2340 (92.1) |
| Floor space | m ² (ft ²) | 3.6 (38.7) | 3.8 (40.9) |
| Filling volumes: | | | |
| Tank I | filling | l/ US gal | 225 (59.4) 250 (66.0) |
| Tank II | filling | l/ US gal | 140 (37.0) 155 (40.9) |
| Tank III | filling | l/ US gal | 225 (59.4) 250 (66.0) |
| Economy filter 1 | | l/ US gal | 75 (19.8) 75 (19.8) |
| Economy filter 2 | | l/ US gal | 50 (13.2) 50 (13.2) |
| Distillation | filling | l/ US gal | 220 (58.1) 220 (58.1) |
| Cartridge filter 1 (long) | | l/ US gal | 25 (6.6) 25 (6.6) |
| Cartridge filter 2 (short) | | l/ US gal | 15 (4.0) 15 (4.0) |
| Jumbo Cartridge Filter | | l/ US gal | 40 (10.5) 40 (10.5) |

The dimensions given may differ if special options are used

9 Technical Specifications

9

| Machine | | M26 | M30 |
|---|------------|-------------|-------------|
| Heating | | Steam | Steam |
| Consumption for drying: | | | |
| Drying time incl. reduction | min. | 31 | 36 |
| Electric energy drying | kWh | 3.6 | 4.1 |
| Saturated steam drying | kg (lbs) | 10.0 (22.0) | 12.0 (26.5) |
| Cooling water drying (12 °C/53.6 °F) | l (US gal) | 150 (39.6) | 170 (44.9) |
| Consumption for distillation(1x at low level): | | | |
| Electric energy distillation | kWh | 0.6 | 0.75 |
| Saturated steam distillation | kg (lbs) | 15 (33.1) | 18 (39.7) |
| Cooling water for distillation (12 °C/53.6 °F) | l (US gal) | 220 (58.1) | 260 (68.6) |
| Consumption per cycle: * | | | |
| Electric energy, total | kWh | 4.7 | 5.35 |
| Saturated steam, total | kg (lbs) | 25.0 (55.1) | 30.0 (66.2) |
| Cooling water, total (12 °C(53.6°F) | l (US gal) | 370 (97.7) | 430 (113.5) |
| Compressed air (6 bar/87 psi) | l (US gal) | 6 (1.6) | 6 (1.6) |

9 Technical Specifications

9

| Machine | | M26 | M30 |
|---|--|--------------|--------------|
| Heating | | Steam | Steam |
| Other: | | | |
| Dist. throughput (DIN 11916) max. | l/h (US gal/h) | 180 (47.5) | 180 (47.5) |
| Filter throughput | l/h (US gal/h) | 5000 (1321) | 5000 (1321) |
| Filter surface, economy filter 1 | m ² (ft ²) | 5.0 (53.8) | 5.0 (53.8) |
| Filter surface, economy filter 2 | m ² (ft ²) | 3.5 (37.7) | 3.5 (37.7) |
| Weight without solvent (with 2 economy filters, 2 cartridge filters) | kg (lbs) | 2270 (5005) | 2390 (5270) |
| Weight with solvent (with 2 economy filters, 2 cartridge filters) | kg (lbs) | 2700 (5955) | 2850 (6285) |
| Floor space | m ² (ft ²) | 3.6 (38.7) | 3.8 (40.9) |
| Floor surface ** | m ² (ft ²) | 2.6 (28.0) | 2.8 (30.1) |
| Cage centrifugal force | N (lb) | 22400 (5036) | 25900 (5822) |
| Floor load, static and dynamic | N/m ² (lb/ft ²) | 18800 (390) | 19200 (400) |
| Noise level | dB (A) | 62 | 62 |
| Heat balance: * | | | |
| Heat to dissipate via cooling water ***: | | | |
| | kJ/cycle | 51100 | 59300 |
| Heat dissipated to the surroundings *: | | | |
| | kJ/cycle | 14000 | 18000 |

* Values apply to a standard 2-bath load, 1st bath low level for distillation at cooling water inlet temperature + 12 °C (53.6 °F), steam supply 4 – 5 bar (58.0 - 72.5 psi) overpressure saturated steam, ambient temperature +5 °C to + 40 °C (41 to 104 °F)

** For portion of the floor surface for force transmission, see Installation Instructions, Point 5.3.1

*** Refers to water without additives

Subject to change!

10 Settings and Optimum Operating Values 10

| Machine | | M21 | M26 | M30 |
|---|--------------------------------------|--------------------|--------------------|--------------------|
| Basic values: | | | | |
| Steam pressure (saturated steam) | bar (psi) | 4 - 5 (58 - 72) | 4 - 5 (58 - 72) | 4 - 5 (58 - 72) |
| Steam temperature (max. permitted) | °C (°F) | 150 (302) | 150 (302) | 150 (302) |
| Cooling water pressure | bar (psi) | 2 - 4 (29 - 58) | 2 - 4 (29 - 58) | 2 - 4 (29 - 58) |
| Low cooling water level switch | bar (psi) | 2 (29) | 2 (29) | 2 (29) |
| Cooling water temperature, max. | °C (°F) | 25 (77) | 25 (77) | 25 (77) |
| Compressed Air | bar (psi) | 6 (87) | 6 (87) | 6 (87) |
| Low air pressure switch (if present) | bar (psi) | 4 (58) | 4 (58) | 4 (58) |
| Cage speeds: | | | | |
| Cleaning /drying | RPM | 35 | 35 | 35 |
| Spinning | RPM | 400 /600 | 400 /600 | 400 /600 |
| Reversing cycle (cleaning) | sec. | 10 /5 /10 | 10 /5 /10 | 10 /5 /10 |
| Low level | l (US gal) | 52.5 (13.9) | 65 (17.2) | 75 (19.8) |
| High level | l (US gal) | 105 (27.7) | 130 (34.3) | 150 (39.6) |
| Pump pressure (max.) | bar (psi) | 1.5 (21.7) | 1.5 (21.7) | 1.5 (21.7) |
| Filter surface, economy filter | m ² (ft ²) | 5.0 (53.8) | 5.0 (53.8) | 5.0 (53.8) |
| Tank I: Optimum filling volume (high level) | l (US gal) | 110 (29.0) | 135 (35.6) | 155 (40.9) |
| Detergent solution cooler: | | | | |
| Detergent solution thermal sensor: | Detergent | °C | 40 | 40 |
| solution cooler ON | | (°F) | (104) | (95) |
| | Alarm value | °C | 45 | 45 |
| | | (°F) | (113) | (113) |
| Refrigeration technology: | | | | |
| Filling capacity, cooling agent R 404A | kg (lbs) | 5.2 (11.4) | 5.2 (11.4) | 5.2 (11.4) |
| Expansion valve : | | | | |
| Nozzle size: solvent cooling | No. | 03 | 03 | 03 |
| Drying /reduction | No. | 01 | 01 | 01 |
| High pressure control ON | bar (psi) | 21 (304.6) | 21 (304.6) | 21 (304.6) |
| High pressure control OFF | bar (psi) | 25(362.6) | 25(362.6) | 25(362.6) |
| Low pressure control | bar (psi) | 2 (29) | 2 (29) | 2 (29) |

10 Settings and Optimum Operating Values 10

| Machine | | M21 | M26 | M30 |
|---|--------------|-------------|-------------|-------------|
| Drying: | | | | |
| Cooling water regulator setting: | | | | |
| Adjust 4 – 6 min. after start of drying | bar (psi) | 18 (261) | 18 (261) | 18 (261) |
| Thermal sensor cage entry * | °C (°F) | 75 (167) | 75 (167) | 75 (167) |
| Temp. sensor after cooler: | | | | |
| Alarm value 1 | °C (°F) | 30 (86) | 30 (86) | 30 (86) |
| Alarm value 2 | °C (°F) | 35 (95) | 35 (95) | 35 (95) |
| Safety temperature limiter after cooler * | °C (°F) | 45 (113) | 45 (113) | 45 (113) |
| Safety temperature limiter, cage inlet * | °C (°F) | 100 (212) | 100 (212) | 100 (212) |
| Distillation | | | | |
| Cooling water regulator condenser | °C (°F) | 45 (113) | 45 (113) | 45 (113) |
| Thermal sensor: | | | | |
| Cycle distillation OFF | °C (°F) | 133 (271) | 133 (271) | 133 (271) |
| Still stripping OFF | °C (°F) | 138 (280) | 138 (280) | 138 (280) |
| Residue draining | °C (°F) | 55 (131) | 55 (131) | 55 (131) |
| Thermal sensor, distilled solvent * | °C (°F) | 45 (113) | 45 (113) | 45 (113) |
| Restrictor in steam feeder | mm (in) | 6 (.24) | 6 (.24) | 6 (.24) |
| Vacuum pressure control | kPa | minus 75 | minus 75 | minus 75 |

* at flash point >55°C (131 °F)