ALLROUNDER 470/520 C

Tie bar distances: 470 x 470 mm, 520 x 520 mm
Clamping forces: 1300, 1600, 2000 kN
Injection units (according to EUROMAP): 350, 800
Machine dimensions

1) Dimensions apply for 470 C 1300-350
2) Dimension only valid in conjunction with conveyor belt
# Technical data

## Technical data specifications

These technical data specifications refer to the state at the time of printing. We reserve the right to modify specifications in the interest of a continuous program of further development.

## Machine model

<table>
<thead>
<tr>
<th>Model</th>
<th>470 C</th>
<th>470 C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine model</td>
<td>1300-350</td>
<td>1300-800</td>
</tr>
<tr>
<td>EUROMAP size indication</td>
<td>1600-800</td>
<td>2000-800</td>
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## Clamping unit

<table>
<thead>
<tr>
<th>Description</th>
<th>470 C</th>
<th>470 C</th>
<th>470 C / 520 C</th>
<th>520 C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamping force</td>
<td>1300</td>
<td>1300</td>
<td>1600</td>
<td>2000</td>
</tr>
<tr>
<td>Closing force</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Opening force / increased</td>
<td>50 / 520</td>
<td>50 / 520</td>
<td>50 / 520</td>
<td>50 / 520</td>
</tr>
<tr>
<td>Opening stroke</td>
<td>650</td>
<td>650</td>
<td>650</td>
<td>650</td>
</tr>
<tr>
<td>Mould height</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Daylight</td>
<td>900</td>
<td>900</td>
<td>900</td>
<td>900</td>
</tr>
<tr>
<td>Distance between tie bars</td>
<td>470 x 470</td>
<td>470 x 470</td>
<td>470 x 470 / 520 x 520</td>
<td>520 x 520</td>
</tr>
<tr>
<td>Platen size (hor. x vert.)</td>
<td>728 x 728</td>
<td>728 x 728</td>
<td>728 x 728</td>
<td>728 x 728</td>
</tr>
<tr>
<td>Weight of mov. mould half</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
</tr>
<tr>
<td>Ejector force</td>
<td>66</td>
<td>66</td>
<td>66</td>
<td>66</td>
</tr>
<tr>
<td>Ejector stroke</td>
<td>225</td>
<td>225</td>
<td>225</td>
<td>225</td>
</tr>
</tbody>
</table>

## Hydraulics, drive, general

<table>
<thead>
<tr>
<th>Description</th>
<th>470 C</th>
<th>470 C</th>
<th>470 C / 520 C</th>
<th>520 C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive power of the hydraulic pump</td>
<td>22</td>
<td>22</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Dry cycle time for opening stroke(1)</td>
<td>2.6 (2,1)-329</td>
<td>2.6 (2,1)-329</td>
<td>2.7 (2,2)-329</td>
<td>2.8 (2,3)-364</td>
</tr>
<tr>
<td>Total connected load(2)</td>
<td>33.9</td>
<td>38.3</td>
<td>46.3</td>
<td>46.3</td>
</tr>
<tr>
<td>Colour</td>
<td>plastic coated, structure light grey / mint green / canary yellow</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Control cabinet

<table>
<thead>
<tr>
<th>Description</th>
<th>470 C</th>
<th>470 C</th>
<th>470 C / 520 C</th>
<th>520 C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety standard according to</td>
<td>DIN EN 60204</td>
<td>DIN EN 60204</td>
<td>DIN EN 60204</td>
<td>DIN EN 60204</td>
</tr>
<tr>
<td>Socket combination (1 single phase, 1 three-phase)</td>
<td>1 x 16 A</td>
<td>1 x 16 A</td>
<td>1 x 16 A</td>
<td>1 x 16 A</td>
</tr>
<tr>
<td>Injection unit</td>
<td>350</td>
<td>800</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td>Screw diameter</td>
<td>35 / 40 / 45</td>
<td>45 / 50 / 55</td>
<td>45 / 50 / 55</td>
<td>45 / 50 / 55</td>
</tr>
<tr>
<td>Effective screw length</td>
<td>L/D</td>
<td>22 / 20 / 18</td>
<td>22 / 20 / 18</td>
<td>22 / 20 / 18</td>
</tr>
<tr>
<td>Screw stroke</td>
<td>145</td>
<td>200</td>
<td>200</td>
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</table>

## Injection

<table>
<thead>
<tr>
<th>Description</th>
<th>470 C</th>
<th>470 C</th>
<th>470 C / 520 C</th>
<th>520 C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculated injection volume</td>
<td>139 / 182 / 230</td>
<td>318 / 392 / 474</td>
<td>318 / 392 / 474</td>
<td>318 / 392 / 474</td>
</tr>
<tr>
<td>Shot weight</td>
<td>127 / 166 / 210</td>
<td>291 / 359 / 434</td>
<td>291 / 359 / 434</td>
<td>291 / 359 / 434</td>
</tr>
<tr>
<td>Screw torque</td>
<td>350 / 160</td>
<td>350 / 190</td>
<td>350 / 190</td>
<td>350 / 190</td>
</tr>
<tr>
<td>Injection pressure(5)</td>
<td>58 / 67 / 75</td>
<td>56 / 62 / 69</td>
<td>56 / 62 / 69</td>
<td>56 / 62 / 69</td>
</tr>
</tbody>
</table>

## Technical dimensions and weights of the basic machine

<table>
<thead>
<tr>
<th>Description</th>
<th>470 C</th>
<th>470 C</th>
<th>470 C / 520 C</th>
<th>520 C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil capacity</td>
<td>290</td>
<td>290</td>
<td>290</td>
<td>290</td>
</tr>
<tr>
<td>Net weight</td>
<td>6610</td>
<td>6950</td>
<td>6950</td>
<td>7150</td>
</tr>
<tr>
<td>Electrical connection (pre-fused)</td>
<td>100</td>
<td>125</td>
<td>125</td>
<td>125</td>
</tr>
</tbody>
</table>

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1) 1st figure: clamping force (kN), 2nd figure: max. dosage volume (cm³) x max. injection pressure (kbar)
2) Values refer to 400 V/50 Hz. The load is symmetrically distributed on three phases. The specified value applies to the basic machine. The connection value can be increased by additional options which may make 2 separate supply lines necessary (motor + controller/heating)
3) According to EUROMAP for the basic machine. Values shown in parentheses apply for dual-pump technology
4) Measurements in brackets valid in connection with MULTISIFT H
5) A combination of max. injection pressure and max injection flow (max. injection capacity) can be mutually exclusive, depending on the equipment-related motor output
6) Deviations are possible depending upon process settings and material type

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Control system and control cabinet
- SELOGICA control system (modular, graphic multi-processor system)
- Available in different language versions
  - Language change
- Cycle sequence programming with symbols
- Cycle step display in sequence diagram
  - Cycle time diagram
- Swivelling monitor unit, central on the operator's side, with colour monitor
- Process graphics for injection speed, screw stroke and injection pressure
- Quality assurance program with fault evaluation and monitoring chart
- Optimisation and user help, follow-up functions at program end, for freely programmable parameter pages, selectable units
- Modular control cabinet design with self-recognition of plug in circuit board system
- Operating modes:
  - Set up
  - Freely programmed test run
  - Reconfiguration
  - Automatic purging and dosing
- Equipment for switch-over to holding pressure via injection pressure, material pressure with different pressure transducers, or via external switch over signal
- Data set administration via diskette
- Visual warning signal (warning lamp)
- Visual / audible warning signal (flashing light / siren)
- Serial printer interface for hard copy, data record and quality protocol
- Interfaces for: PC keyboard, plotter, robotic system according to EUROMAP 12 or 67, part weighing scale, optical barrier, host processor, AOC, ALLROUNDER® web, colouring unit, LSR dosing system, INJESTER, container change, wiper unit (brush), THERMO/LIFT, hot runner control unit and temperature control units for moulds and cylinder
- Socket combination 1 CEE, 1 Schuko 230 V
  - Socket combination 1 CEE, 1 Schuko or 3 CEE, 3 Schuko 230 V with external supply line
  - 1 additional heating regulation circuit for the nozzle
  - Electric heating regulation circuits for moulds (adaptive) (3, 6, 9, 12, 15, 18); mould heating fused at 10 A
  - Fuses for mould heating 16 A
  - 4 or 8 freely programmable inputs / outputs
  - Core pull programs in many versions integrated in the SELOGICA control system
  - Special processes such as injection coining, mould venting, variotherm temperature control, intruding, marbling
  - Monitoring: Freely-programmable position monitoring
  - Many individual options for special processes

Machine base and hydraulic system
- Free standing machine base on anti-vibration pads
- Ergonomic protection cover with free access to mould and nozzle
- Space for peripheral devices within floor space
- The hydraulic system operates with an energy-saving variable displacement pump and a servo valve for pressure and speed regulation
  - Expansion to up to 2 hydraulic control circuits
  - Expansion to up to 3 hydraulic control circuits
  - ARBURG energy saving system AES (rpm changeable for hydraulic pump drive)
  - Minimum oil volume, oil change interval every 20,000 hours
  - Monitoring of oil level, oil temperature and oil filter contamination
  - Fine mesh oil filter in the return line
- Mechanical regulation of hydraulic oil temperature
  - Electronic regulation of hydraulic oil temperature. Display and monitoring via screen
- Hydraulic oil preheating program to reduce start-up time
  - Separate, continuous oil circulation for additional cooling and filtration
  - Manually adjustable, machine-related cooling water circuits with 4 free mould connections
  - 6 or 8 free cooling water circuits, manually adjustable
  - Programmable, machine and mould-related cooling water circuits
  - 1 or 2 central switch-off valves for cooling water
  - Conveyor belt (electrically driven), height-adjustable in 3 steps, can be integrated into the machine base with or without sorter unit
  - Crane with electric hoist to facilitate mould installation and to swivel or shift the injection unit

Clamping unit
- Centrally applied, fully-hydraulic clamping system with 4 individually-removable tie bars
- Vertical support of the movable mould platens
- Movement profiles for the mould clamping unit are programmable and regulated. They are serially driven using energy-saving one-circuit pump technology (Technology stage 1)
  - Movement profiles for the mould clamping unit are programmable and regulated. They are driven using two-circuit pump technology (Technology stage 2 - servo-regulated). The closing pressure is regulated. Simultaneous movement of nozzle and ejector is possible
  - Hydraulic system with 3 regulating pumps for extended simultaneous movements (T3)
  - Closing and opening profiles are 2-stage programmable (4-stage with Technology stage 2)
  - Intermediate stop possible when closing and opening (standard with T2)
  - Regulated hydraulic mould protection with monitoring of mould protection time. Follow-up functions: Open or stop after 1 or 2 activations of mould protection
  - Extended mould protection (e.g. for spring loaded moulds). Freely-programmable start and end
  - Automatic ramp control during switch-over to a lower speed and during stopping of a movement function
  - Hydraulic ejector with quick release coupling is integrated into the clamping system
  - Hydraulic ejector: Forces and speeds, multiple stroke (up to 10) and ejector advanced at program end are programmable
  - Hydraulic ejector for simultaneous movements regulated with servo valve
  - Mould monitoring via ejector platen safety switch
  - Electro-mechanical servo drive for ejector system, position controlled for simultaneous drive movements
  - Hydraulic core pulls with rapid connect coupling on the movable mould platens
  - Hydraulic core pull movement profiles programmable and regulated
  - Core holding pressure manually adjustable
  - Pressure hold programmable
  - Hydraulic core pull, simultaneous movements regulated
  - Controlled hydraulic unscrewing units for threaded cores in one or two directions of rotation for mounting on fixed or movable clamping platens. Restricted ejector stroke
Equipment

- Unscrewing unit with electro-mechanical servo drive for 2-direction threaded cores for installation on the movable clamping platen for ultra-precise positioning and reproducibility. Restricted ejector stroke
- Attachment option for robotic handling device
- Mechanical rapid clamping system with mould support to facilitate mould installation
- Power-operated safety gate, programmable opening time
- Mould blow unit with pressure relief valve
- Sorter unit (SELECTRON)
- Mechanical mould closing protection

Injection unit
- Central injection unit, can be re-positioned and swivelled as a complete assembly
- Horizontally displaceable injection unit (VARIO principle)
- Adapter for parting line injection
- Plasticising module with universal screw, central coupling and adaptive temperature regulation, available in different diameters
- Thermoplastic cylinder with universal screw in wear resistant execution
- Thermoplastic cylinder complete with very high wear resistant equipment
- Plasticising module for processing thermoset, elastomer and silicone materials
- Thermoplastic screws for special applications, e.g. self-dyeing (mixing section), PVC (shear-sensitive), POM, PA (semi-crystalline)
- Programmable nozzle speeds (advance 2, retract 1 stage) and advance and retract delay
- Monitored nozzle contact
- Continuous nozzle contact during the complete cycle
- Programmable nozzle contact force
- Regulated nozzle contact force
- Regulated injection speed profile, 2 steps programmable with injection delay
- Pressure accumulator for very fast injection
- Position-regulated screw (forced movement of injection axis)
- Injection process control with external sensor
- Measurement, display and monitoring of the injection time, switchover volume and switchover pressure
- Switch over to holding pressure as a volume or time dependent function
- Material cushion monitoring
- Holding pressure profile regulated via polygon with 4 base points
- Programmable delay times for all movements
- Screw circumferential speed display
- Positively and negatively programmable back pressure
- Dosage time display with programmable dosage time monitoring
- Dosage possible before or after nozzle retraction
- Material decompression with programmable decompression speed
- Dosage with electro-mechanical servo drive, energy-saving
- Open nozzle with screw-in tip
- Needle type shut off nozzle, spring force actuated
- Needle type shut off nozzle, hydraulically actuated
- Zone-dependent monitoring of heating circuits for continuity, short circuit and defective sensors
- Temperature monitoring with release tolerance range and zone-dependent monitoring tolerance
- Automatic temperature sink can be selected on error or after automatic switch off
- 50 litre corrosion proof stainless steel material hopper movable to a blocking and emptying position
- Granulate feed zone, programmable and regulated with monitoring

Extended functions
- Extended monitoring of the mechanical sequence of mould and machine for complex applications
- Extended drive movements: Increase in number of movement stages, intermediate stop functions and extended locking force program
- Production control with nominal temperature value control, programmable alarm cycles, programmable switch-on / switch-off sequences as well as time-controlled automatic switch-on/off in second programming level for follow-up batch

Regulated parameters
- Control cabinet temperature
- Hydraulic oil temperature
- Plasticising cylinder temperature (adaptive)
- Screw rotation speed
- Injection flow or injection speed
- Holding pressure
- Movements and force of mould, nozzle and ejector
- Ramp control sequence for mould, ejector and nozzle end position
- Back pressure
- Electrical mould heating circuits (adaptive)
- Mould cooling circuits
- Internal cavity pressure or screw chamber pressure (external sensor)
- Nozzle contact force
- Screw position
- Granulate feed zone temperature
- Ejector

ARBURG robotic systems
- INTEGRALPICKER V: vertical sprue picker operating from above, pneumatic drive
- MULTILIFT H: robotic system operating horizontally from the rear of the machine with pneumatic drives (Z-axis optional with servo-electric drive)
- MULTILIFT V: robotic system operating vertically from above (longitudinal and transverse installation possible) with 3 servo-electric axes

Options
- Basic machine
- Options
470/520 C  Mould and platen layout

1) Dimensions valid for injection unit 800 in thermoset version
Mould and platen layout

470/520 C

Fixed platen

View A / for horizontally displaceable injection unit

View A / for central injection unit

Movable platen

Useable mounting surface with tie bars removed

(1) Dimensions for 520 C
(1) Dimensions valid for injection unit 800 in thermoset version
### Maximum Theoretical Shot Weights

<table>
<thead>
<tr>
<th>Material</th>
<th>Screw Diameter mm</th>
<th>350</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>550</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polystyrene (PS)</td>
<td>127</td>
<td>166</td>
<td>210</td>
<td>291</td>
<td>359</td>
<td>434</td>
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<tr>
<td>Styrene heteropolymerizates (SAN, ABS)</td>
<td>122</td>
<td>160</td>
<td>202</td>
<td>278</td>
<td>344</td>
<td>416</td>
</tr>
<tr>
<td>Polycarbonate (PC)</td>
<td>134</td>
<td>175</td>
<td>221</td>
<td>305</td>
<td>377</td>
<td>456</td>
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<tr>
<td>Polysulphone (PSU)</td>
<td>138</td>
<td>181</td>
<td>229</td>
<td>316</td>
<td>390</td>
<td>471</td>
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<td>Polymers</td>
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<td>PA 6.10, PA 11&lt;sup&gt;1)&lt;/sup&gt;</td>
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<td>154</td>
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<td>Polyoxymethylene (Polyacetal)</td>
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<tr>
<td>Polyethylene terephthalate (PET)</td>
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<td>517</td>
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<tr>
<td>Polyethylene (PE-LD)</td>
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<td>126</td>
<td>159</td>
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<td>Polyethylene (PE-HD)</td>
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<td>130</td>
<td>164</td>
<td>227</td>
<td>280</td>
<td>339</td>
</tr>
<tr>
<td>Polypropylene (PP)</td>
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<td>133</td>
<td>168</td>
<td>232</td>
<td>286</td>
<td>346</td>
</tr>
<tr>
<td>Fluoropolymerides (FEP, PFA, PCTFE)</td>
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<td>266</td>
<td>337</td>
<td>465</td>
<td>574</td>
<td>695</td>
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<td>232</td>
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<td>406</td>
<td>501</td>
<td>606</td>
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<tr>
<td>Polytetrafluoroethylene (PTFE)</td>
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<td>201</td>
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<td>434</td>
<td>525</td>
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<tr>
<td>PVC-U</td>
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<td>186</td>
<td>235</td>
<td>324</td>
<td>401</td>
<td>485</td>
</tr>
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<sup>1)</sup> average value