Schematic & Parts List

**Casing** (Approximately £25)

300mm x 600mm clear acrylic – 3mm thickness

600mm x 900mm black acrylic – 3mm thickness

M3 8mm machine screws

16 3D printed brackets (PLA or ABS)

Epoxy Glue (Ideally clear setting)

**Group head** (Approximately £12)

3D printed housing

Brewing gasket (47) (£2.50)- <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/brewing-gasket/product.pl?pid=2793040&path=606454,640993&model_ref=10807013>

Brewing gasket support (48) (£2.50) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/brewing-gasket-support/product.pl?pid=2793148&path=606454,640993&model_ref=10807013>

Diffuser gasket (49) (£2.50) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/diffuser-gasket/product.pl?pid=2793037&path=606454,640993&model_ref=10807013>

Diffuser (52)(£2.50) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/diffuser/product.pl?pid=2793079&path=606454,640993&model_ref=10807013>

**Connections**

Heater connectors (£5)(67&70) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/right-angle-generator-connection/product.pl?pid=2050051&path=606454,640993&model_ref=10807013>

<https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/connector/product.pl?pid=2235094&path=606454,640993&model_ref=10807013>

Spacer x2 (61) (£5) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/spacer/product.pl?pid=2050036&path=606454,640993&model_ref=10807013>

O-ring x4 (62)(£10) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/o-ring/product.pl?pid=2050057&path=606454,640993&model_ref=10807013>

Connector spring x4(35) (£10)- <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/spring/product.pl?pid=956760&path=606454,640993&model_ref=10807013>

Gasket x4 (36) (£10) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/gasket/product.pl?pid=957649&path=606454,640993&model_ref=10807013>

Tubing x2 (71) (£5) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/tube/product.pl?pid=1586494&path=606454,640993&model_ref=10807013>

3-way connector (75)(£2.50) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/3-way-valve-connector/product.pl?pid=2793166&path=606454,640993&model_ref=10807013>

3-way connector spring (74)(£2.50) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/3-way-valve-connector/product.pl?pid=2793166&path=606454,640993&model_ref=10807013>

3-way connector valve(43)(£2.50) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/valve-barm30e/product.pl?pid=827035&path=606454,640993&model_ref=10807013>

3-way connector ring (44)(£2.50) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/ring-for-valve-bar16e/product.pl?pid=486903&path=606454,640993&model_ref=10807013>

3-way connector gasket (46)(£2.50) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/gasket/product.pl?pid=1587016&path=606454,640993&model_ref=10807013>

Water tank tubing (31)(£10) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/tube-elastosil-di4-l270-ec680m-ec680r-ec680b/product.pl?pid=4796201&path=606454,640993&model_ref=10807013>

Water tank gasket(30)(£5) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/gasket-ec680m-ec680r-ec680b/product.pl?pid=4796228&path=606454,640993&model_ref=10807013>

Water tank tray(32)(£2.50) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/gasket-ec680m-ec680r-ec680b/product.pl?pid=4796228&path=606454,640993&model_ref=10807013>

**Water tank**(18)(£8)- <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/water-tank-ec680m-ec680r-ec680b/product.pl?pid=4795247&path=606454,640993&model_ref=10807013>

Piping

Push connectors

**Heater**

Thermoblock (60)(£17) -<https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/generator/product.pl?pid=4061006&path=606454,640993&model_ref=10807013>

**Pump**

3D printed pump housing

Pump (40)(£27) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/pump/product.pl?pid=1224713&path=606454,640993&model_ref=10807013>

Pump alternative (£16) - <https://www.amazon.co.uk/Ulka-EP5-Vibration-Pump-Espresso/dp/B00JPH5YKA>

Spring (42)(£5) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/spring/product.pl?pid=2793181&path=606454,640993&model_ref=10807013>

Over-pressure valve (39)(£5) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/valve/product.pl?pid=5148379&path=606454,640993&model_ref=10807013>

Flow meter (45)(£13) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/switch/product.pl?pid=961309&path=606454,640993&model_ref=10807013>

**Portafilter**(3&6)(£20) - <https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/small-one-cup/product.pl?pid=2793076&path=606454,640993&model_ref=10807013>

<https://www.4delonghi.co.uk/espresso/ec-680m-0132106104/sump-assembly/product.pl?pid=4794515&path=606454,640993&model_ref=10807013>

**Other**

Arduinos x2 (£33) - <https://uk.rs-online.com/web/p/processor-microcontroller-development-kits/7154081/>

SSR (£14) - <https://uk.rs-online.com/web/p/solid-state-relays/9032970/>

MOSFETs x2 (£5) –

Relay (£12) - <https://www.tme.eu/gb/details/g2rvsl70024dc/electromagnetic-relays-sets/omron/g2rv-sl700-24vdc/?brutto=1&gclid=EAIaIQobChMI_5iS5_jz4QIVq7ftCh1IcQuJEAQYASABEgKm7PD_BwE>

Thermocouple shield (£14) - <https://shop.pimoroni.com/products/adafruit-thermocouple-amplifier-max31855-breakout-board?gclid=EAIaIQobChMI9Z3Wyfnz4QIVarHtCh1fDQ6AEAQYAyABEgJKpvD_BwE&utm_campaign=google+shopping&utm_medium=cpc&utm_source=google&variant=288858286>

Thermocouple (£10) - <https://shop.pimoroni.com/products/thermocouple-type-k-glass-braid-insulated-k>

Total cost: £295

Delonghi EC685.M Schematic to aid manufacturing:

