

Digital Displacement® Hydraulic Hybrid

Comparison to electric drives & energy storage

ARTEMIS

INTELLIGENT POWER LTD



Drives



UQM are amongst the world leaders in electric machines for series hybrid, working with leading OEMs and demonstrators.

Power density (continuous)

Efficiency @ 20% τ_{max}

Nearterm cost

96cc/rev (200kw) DD Pump/Motor

• > 4 kW/kg

• 93% (2007 test)

• €2.50 /kW (2010 target)

UQM Powerphase 100

• < 0.5 kW/kg

• 90% (2010 target)

• €8.5/kW (2010 target)

Storage



Accumulator

• >20kW/kg

• 4 kJ/kg (11 kJ/kg in carbon fibre)

• 94%

• < €1/kJ

Li Ion Battery

• 0.5 kW/kg

• 150 kJ/kg

• 81%

• ??

Supercap Module

• 2 kW/kg

• 4kJ/kg

• 92%

• €20/kJ

* including internal wiring and cooling

Digital Displacement® Technology

Cost

Service life

Power density

Efficiency

Controllability

Traditionally the technology of choice for controlling large energy flows over a long life

Existing hydraulic technology

Existing electric technology

Digital Displacement adds efficiency and controllability to the recognised strengths of hydraulics

Traditionally the technology of choice for fine control and energy efficiency

Making hybrids an economic, not a lifestyle, choice.