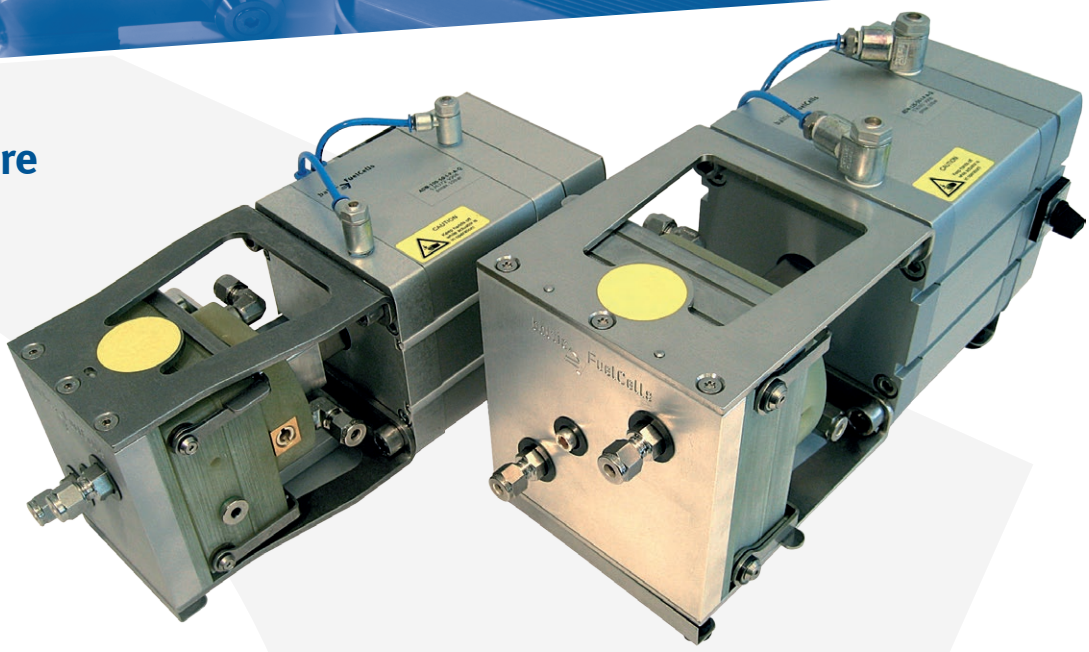
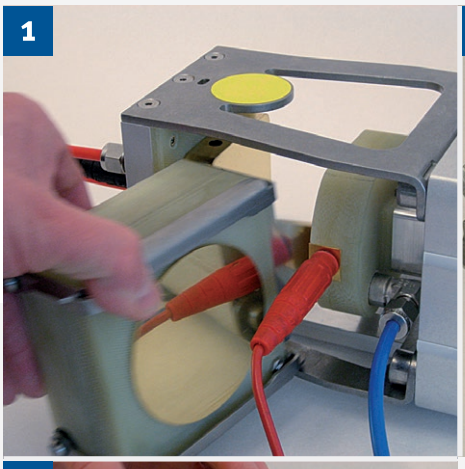
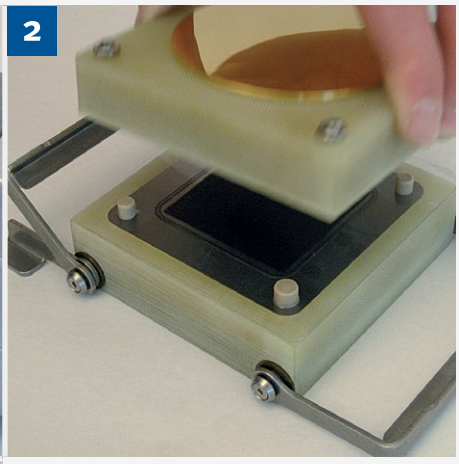
quickCONNECTfixture
qCf **FC25/100 v1.1**
qCf **FC50/125 v1.1**

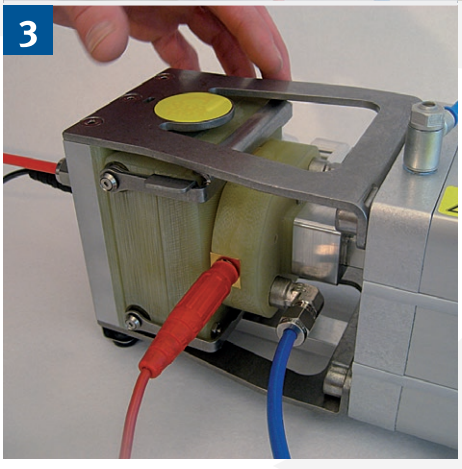
- quality assurance
- reproducibility
- quick & easy assembly
- increased productivity



fit for service
qCf 25 cm² & 50 cm² active fuel cell area







1 easy dismounting of cellFixture from qCf

2 exchange of cell internal components (no tools needed!), assembly of cellFixture via quick clamping

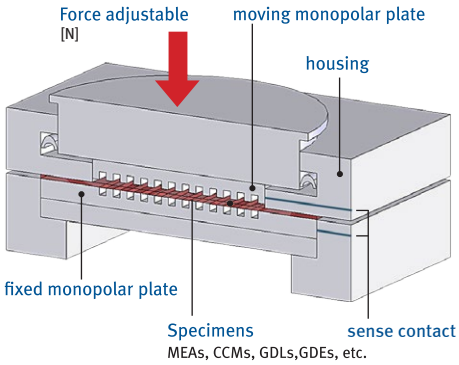
3 mounting of cellFixture into qCf applying of pressure impact to the active fuel cell area (start measuring!)

qCf – quickCONNECTfixture; will be fully connected to the test-stand environment
cF cellFixture – for easy integration of specimens like MEAs, CCMs, GDLs, GDEs, etc.

The quickCONNECTfixture qCf is an invaluable tool in research and development and strong demands of quality assurance. All kinds of PEM fuel cell internal components, like membranes, electrodes and CCMs, MEAs, GDLs can be checked very easily. Enabling fully reproducible test conditions, the contact pressure on the active fuel cell area (25, 50 cm²) can be regulated directly via pneumatic actuator. Flow fields, both standard designs from balticFuelCells and custom-made, can easily be exchanged. Besides the basic models FC 25/100 and FC 50/125, qCf is also available as customised solution with different active fuel cell areas and other customer specific demands.

qCf innovative cell concept

The cross-section of a cellFixture below helps to understand the principle of a qCf. The pressure impact of the pneumatic actuator is applied directly to the active fuel cell area in the cellFixture.



baltic FuelCells
innovation in fuel cell technologies

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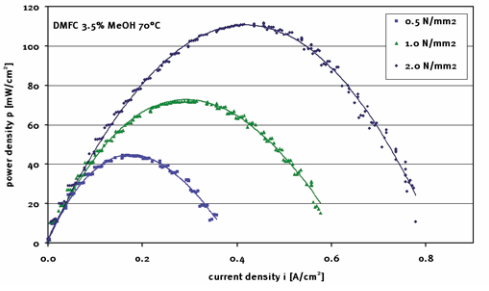
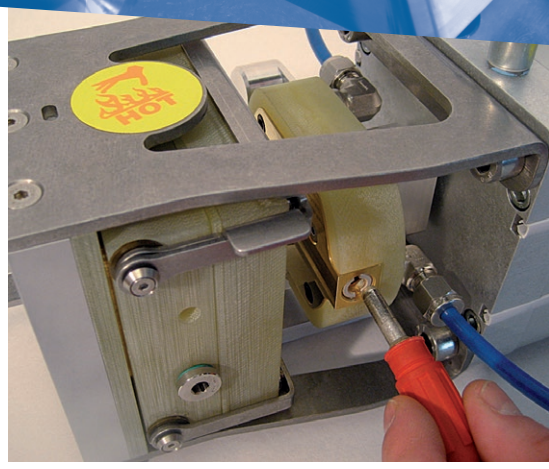
qCf **FC25/100 v1.1**
qCf **FC50/125 v1.1**

- maximum power density by determination of optimum contact pressure on active area
- continuously adjustable contact pressure assures full reproducibility of test conditions
- independence of thickness of internal fuel cell components by self adjusting piston and special sealing concept

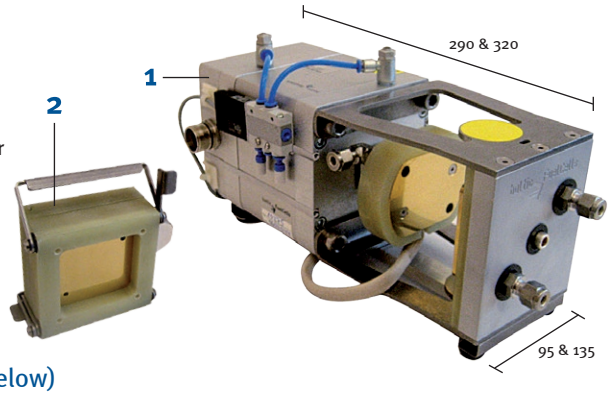


Performance of a balticFuelCells DMFC-CCM
(nobel metal load 1.2 mg/cm² each anode and cathode)
with different contact pressure impact

- no hose coupling and electrical wiring for replacement of cellFixture required
- highly comfortable operation and easy assembly of cellFixture into quickCONNECT fixture qCf – 1st is running, 2nd can be fitted with new components!
- time saving assembly due to quick release and automatic plug connections
- quick and easy clamping/assembly of cellFixture without tools and precise exchange of cell internal components
- designed for strong demands in the area of quality assurance and lab environments



1 qCf – quickCONNECTfixture – connected to the test stand
2 cellFixture – first is in use, another can be equipped with specimens separately



technical data SFPUs (for the integration of standard cellFixtures see table below)

	qCf FC25/100 V1.1	qCf FC50/125 V1.1 LC
weight	5.95 kg	8.55 kg
piston diameter (actuator)	⌀ 100 mm; anti-twist, low friction	⌀ 125 mm; anti-twist, low friction
heating/cooling	200 W (electrical) - 24V DC - temp.-control unit: optional equipment - optional active cooling via external thermostat	- active cooling via external circulating thermostat (available as optional equipment)
temp. sensor	Pt1000; Type K	Pt1000; Type K
max. operating temp.	RT to 180°C (200°C short term)	RT to 180°C (200°C short term)
max. force (@ 8bar/116 psi air supply)	6.28 kN / 616 kg / 1412 lbf	9.82 kN / 963 kg / 2208 lbf
air supply device	⌀ 4 mm; electrical 5/2-way valve	⌀ 4mm; electrical 5/2-way valve
media supply (fuel/air)	⌀ 6 mm Swagelok fitting	⌀ 6mm Swagelok fitting
connecting-, heating elements	stainless steel / lapped , gold-plated, Viton sealents	stainless steel / lapped , gold-plated, Viton sealents
delivery includes	qCf, load plugs (⌀ 6mm / M6; MultiContact), soldering jack for DC-supply and temp. sensor, manual	qCf, load plugs (⌀ 6mm / M6; MultiContact), soldering jack for DC-supply and temp. sensor, manual
liquid cooling	optional	standard

optional equipment

- CMD_compression measurement device (thinning/creeping of specimens)
- CSL_current distribution measurement (by S++)
- DHRE_Pt reference electrode for impedance measurement
- TCU_temperature control unit (450 W el. heating power, PID-controlled)
- HSE_integration of humidity sensor on anode of cF
- flowfield/ flow pattern customising
- integration of liquid heating/cooling
- complete solutions for quality assurance
- MEAs/CCMs/GDEs

technical data cellFixtures (for placement of specimens - use in qCf V1.1)

	cF 5/100 LT/ HT	cF 25/100 LT/ HT	cF 25/100 PEEK	cF 50/125 LT/ HT	cF .../... cd *
application	LT-PEM, HT-PEM, DMFC	LT-PEM, HT-PEM, DMFC	LT-PEM, DAFC	LT-PEM, HT-PEM, DMFC	LT-PEM, HT-PEM, DMFC, etc.
operating temperature	RT...130°C/ 180°C	RT...130°C/ 180°C	RT...155°C	RT...130°C/ 180°C	RT...180°C
fuel	H2, MeOH, reformate	H2, MeOH, reformate	H2, reformate	H2, MeOH, reformate	H2, MeOH, reformate, etc.
active fuel cell are	5 cm²	25 cm²	25 cm²	50 cm²	5...250 cm²
contact pressure	0-2.51 N/mm² / 0-365 psi	0-2.51 N/mm² / 0-365 psi	0-2.51 N/mm² / 0-365 psi	0-1.96 N/mm² / 0-275 psi	customer requirements
flowfield material	graphite compound	graphite compound	gold plated stainless steel	graphite compound	graphite compound, titanium, stainless-steel
flowfield design	1-fold-serpentine	5-fold-serpentine	5-fold-serpentine	5-fold-serpentine	customised
flowfield inlays	changeable	changeable	changeable	changeable	...
shell material (plastic)	epoxi-resin - reinforced	epoxi-resin - reinforced	PEEK	epoxi-resin - reinforced	...

*) For customised cellFixtures › 50 cm² active cell area, a qCf with different pneumatic actuator will be required!

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