Maximum performance in minimum space

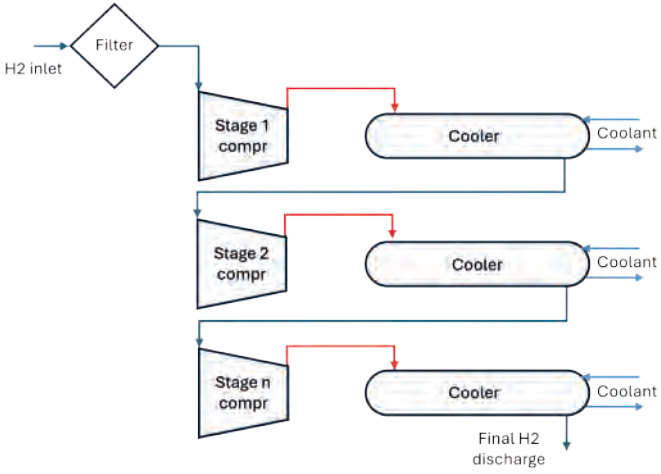
DEEP PHOTO CHEMICAL ETCHING
PRINTED CIRCUIT DIFFUSION BONDED DEVICES

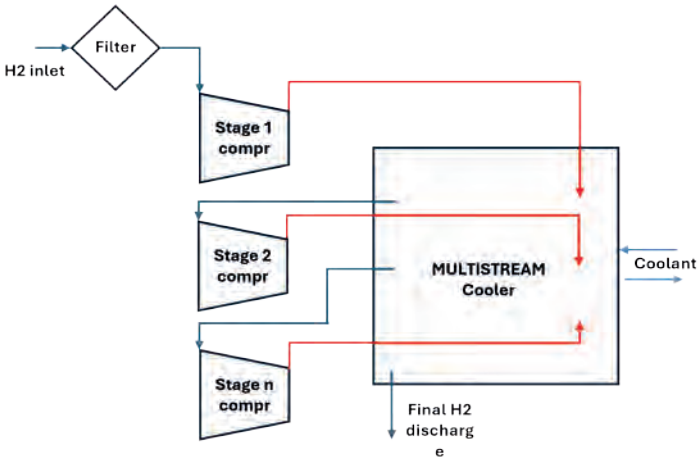
Microchannel Devices

MULTISTREAM COOLERS FOR MULTI-STAGE COMPRESSORS

Whenever a gas is compressed at high and very high pressures, interstage cooling is required
Usual approach consists of using an interstage gas cooler (intercooler) for each compression stage.
This solution leads to lay-out complexity, space needs, costs and quality issues due to complex tubing and connections.
Microchannel Devices has developed a portfolio of Printed Circuit Heat Exchangers which can incorporate in a single unit all the interstage coolers, called Multi-Stream PCHE.
The main advantages of Microchannel Devices' solution are:

- Very compact solution (up to 10 times less space required)
- Low coolant flow requirements
- Less coolant quantity required –> lower costs of procurement and disposal and less risk of spillage
- Less coolant junctions -> less risk of leaks
- High pressure resistant AISI 316L construction – high compatibility with hydrogen

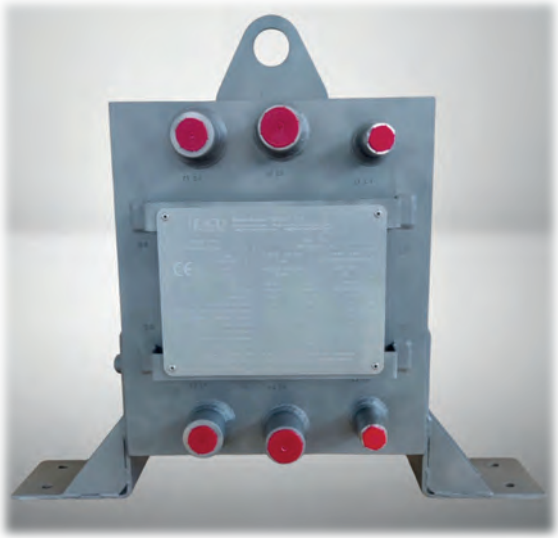




MSE33 - MULTI-STREAM PRINTED CIRCUIT HEAT EXCHANGER

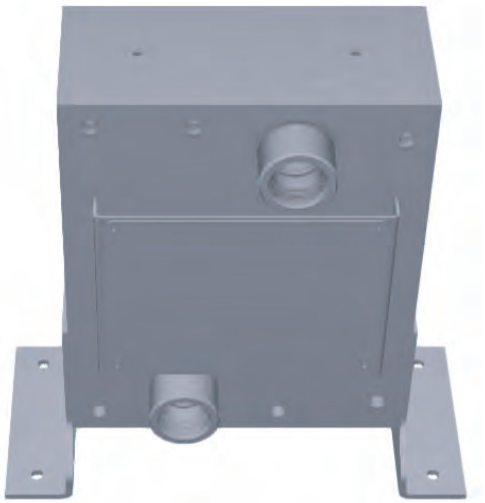
• HYDROGEN LOOPS:	3
• COOLANT LOOPS:	1
• MAX WORKING PRESSURE:	500 bar(g)
• DESIGN PRESSURE:	550 bar(g)
• MAX WORKING TEMPERATURE:	160 °C
• MAX DESIGN TEMPERATURE:	220 °C
• H2 FLOW RATE/STREAM (typical):	60 kg/h
• Coolant flow rate (typical):	4800 kg/h
• Max pressure drop:	1 bar
• Mass:	240 kg
• COOLANT TYPE:	Water+glycole

MSE34 - MULTI-STREAM PRINTED CIRCUIT HEAT EXCHANGER



• HYDROGEN LOOPS:	2
• COOLANT LOOPS:	1
• MAX WORKING PRESSURE:	550 bar(g)
• DESIGN PRESSURE:	650/700 bar(g)
• MAX WORKING TEMPERATURE:	170 °C
• MAX DESIGN TEMPERATURE:	250/200 °C
• H2 FLOW RATE/STREAM (typical):	50 kg/h
• Coolant flow rate (typical):	3200 kg/h
• Max pressure drop:	1 bar
• Mass:	148 kg
• COOLANT TYPE:	Water+glycole

MSE43 - MULTI-STREAM PRINTED CIRCUIT HEAT EXCHANGER



• HYDROGEN LOOPS:	3
• COOLANT LOOPS:	1
• MAX WORKING PRESSURE:	300 bar(g)
• DESIGN PRESSURE:	350 bar(g)
• MAX WORKING TEMPERATURE:	150 °C
• MAX DESIGN TEMPERATURE:	170 °C
• H2 FLOW RATE/STREAM (typical):	30 kg/h
• Coolant flow rate (typical):	5500 kg/h
• Max pressure drop:	1 bar
• Mass:	122 kg
• COOLANT TYPE:	Water+glycole

MSE44 - MULTI-STREAM PRINTED CIRCUIT HEAT EXCHANGER

• HYDROGEN LOOPS:	4
• COOLANT LOOPS:	2
• MAX WORKING PRESSURE:	450 bar(g)
• DESIGN PRESSURE:	550 bar(g)
• MAX WORKING TEMPERATURE:	130 °C
• MAX DESIGN TEMPERATURE:	170 °C
• H2 FLOW RATE/STREAM (typical):	50 kg/h
• Coolant flow rate (typical):	3300 kg/h
• Max pressure drop:	1 bar
• Mass:	165 kg
• COOLANT TYPE:	Water+glycole

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