

EU TYPE EXAMINATION CERTIFICATE-PRODUCTION TYPE

This is to certify that **LRQA Inspection Iberia, S.A.** Notified Body for Pressure Equipment Directive 2014/68/UE, did (in accordance with Module B of the Directive) undertake a Type Examination on the stated pressure equipment to ensure its conformity with the requirements of the Directive which apply to it. The equipment identified below was shown to comply.

This certificate is issued to:

APPLICANT: Refrigeration Solutions France (Profroid)
Aubagne (13), France

PRODUCT DESCRIPTION: Assembly (Article 2 para. 6)

PRODUCT TYPE: Refrigerating System "CASCADE CO2 SUBCRITIQUE Bsub3" :
Config. "FLEXICO2OL Bs6"
Config. "COMBICO2OL / COMPACO2OL Bs6"
Config. "Réservoir pompé Bs6"

DESIGN STANDARD: Refrigerant of main circuit: R744 (CO2)
HFC refrigerant for secondary circuit (cooling of CO2): R507A /
R134a / R513A / R450A / R404A / R407F / R407A / R407C /
R422A / R417A / R448A / R449A / R452A
EN 378-2:2016

The attached Schedule details the content of the Technical Documentation and Specified Standards and shall form a part of this certificate.

"This Certificate is not valid for pressure equipment, the design, ratings or operational parameters of which have been varied from the specimen tested. The manufacturer shall notify LRQA Inspection Iberia, S.A. of any modification or changes to the equipment in order to maintain a valid certificate."

"This certificate is valid for ten years from the date of issue."

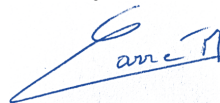
Certificate No: 0094/PED/LYO/240074 ENG

Original Approval: 19 June 2024

Current Certificate: 19 June 2024

Certificate Expiry: 19 June 2034

LRQA Inspection Iberia, S.A. Notified Body 0094



CARRE Mathieu / LRQA inspection Iberia



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CERTIFICATE SCHEDULE 0094/PED/LYO/240074 ENG

Equipment data:

Product Description: Assembly (Article 2 para. 6)
Product Type: Refrigerating System "CASCADE CO2 SUBCRITIQUE Bsub3" :

Config. "FLEXICO2OL Bs6"
Config. "COMBICO2OL / COMPACO2OL Bs6"
Config. "Réservoir pompé Bs6"

Refrigerant of main circuit: R744 (CO2)
HFC refrigerant for secondary circuit (cooling of CO2): R507A / R134a / R513A / R450A / R404A / R407F / R407A / R407C / R422A / R417A / R448A / R449A / R452A

Maximum Design Pressure/Temperatures:

	CO2		Oil	CO2 Cooling Circuit		
	LP	HP		HFC		Water/Glycol Water
				LP	Liquid HP	
PS (bar)	80	80	80	17	28	10
TS MAX (°C)	38	120	80	38	80	80
TS MIN (°C)	-50	-10	-10	-15	-10	-40

Assembly components:

1. Config. FLEXICO2OL or COMBICO2OL / COMPACO2OL (P&ID SP-P5-0022):
 - 5 (five) Compressors maxi, No PED.
 - **1 (one) Oil Separator, Cat. I~IV.**
 - **1 (One) Oil receiver, Cat. II~IV**
 - **1 (one) Liquid Receiver, Cat. I~IV.**
 - **1 (one) Suction Receiver, Cat. I~IV**
 - **1 (one) Desuperheater, Cat. II~IV**
 - **1 (one) Subcooler, Cat. II~IV**
 - **2 (two) Cascade heat exchangers, Cat. II~IV**
 - **1 (one) Subcooler SHLE, Cat. II~IV**
 - Piping and accessories, Cat. I maxi.

Boundaries:

- "RETOUR EVAPORATEUR" CO2 LP inlet connection.
- "DEPART LIQUIDE" CO2 HP outlet connection
- Water Heat Recovery inlet/outlet connections
- "RETOUR ASPI CENTRALE POSITIVE" HFC BP outlet connection
- "ARRIVEE LIQUIDE CENTRALE POSITIVE " HFC HP inlet connection

2. Config. Bs6 – Réservoir Pompé (P&ID SP-P5-0023):



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- 1 (one) Liquid Receiver, Cat. IV.
- 1 (one) Pump, No PED.
- **2 (two) Cascade heat exchangers, Cat. II~IV**
- 1 (one) Level standpipe item 9, no PED
- Piping and accessories, Cat. I maxi.

Boundaries:

- "ARRIVEE CHAMBRE", "ARRIVEE MEUBLES", "ARRIVEE LT" CO2 HP inlet connection
- "DEPART CHAMBRES", "DEPART MEUBLES", "DEPART LT" CO2 HP outlet connection
- "Retour aspi centrale" HFC LP outlet connection
- « Arrivee liquide centrale HFC » LP outlet connection

Safety devices:

Deviation (and/or causes)	Protection (PED safety device(s) description)	Setting / Capacity / Action(s) (Safety device(s) characteristics)	Device(s) Category
Configs. "FLEXICO₂OL Bs6" and "COMBICO₂OL / COMPACO₂OL Bs6"			
Overpressure on the Assembly induced by the Compressors 1~5	Pressure Switches item 100	Required: setting value:cut-off 0.9 x PS CO2 HP SIDE , SIL2, action sequence: shutdown connected compressor	IV
Overpressure on Liquid Receiver due to trapped refrigerant liquid exposed to extreme hot ambient temperature and fluid expansion.	Pressure Safety Valve item 33 installed on Liquid Receiver,	Required: setting pressure: PS HP CO2 side , 10% back pressure max	IV
Overpressure on Suction Receiver (BACL) due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 31 installed on Suction Receiver	Required: setting pressure: PS LP CO2 side , 10% back pressure max	IV
Overpressure on Oil Separator and Oil Receiver due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 32 installed on Suction Receiver	Required: setting pressure: PS Oil , 10% back pressure max	IV
Overpressure on the Assembly induced by the Compressors 1~5	Pressure Switch item 34	Required: setting value:cut-off 0.9 x PS CO2 HP SIDE , SIL2, action sequence: shutdown connected compressor	IV
Overpressure on Subcooler SLHE due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 35 installed on Subcooler SLHE	Required: setting pressure: PS LP HFC side , 10% back pressure max	IV
Config. "Réservoir pompé Bs6"			
Overpressure on Liquid Receiver due to trapped refrigerant liquid exposed to extreme hot ambient temperature and fluid expansion.	Pressure Safety Valve item 33 installed on Liquid Receiver,	Required: setting pressure: PS HP CO2 side , 10% back pressure max	IV
Overpressure on Cascade heat exchanger due to trapped refrigerant liquid exposed to extreme hot ambient temperature and fluid expansion.	Pressure Safety Valve item 35 installed on Liquid Receiver,	Required: setting pressure: PS LP HFC side , 10% back pressure max	IV
*Refer to document SW052 for each safety valve minimum required discharge capacity in function of refrigerant and equipment it protects.			

The undermentioned documents have been reviewed for compliance with the Pressure Equipment Directive 2014/68/EU and following Design Code(s):



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CERTIFICATE SCHEDULE
0094/PED/LYO/240074 ENG
 EN378-2: 2016

Technical File Contents

Title	Document Number	Rev	Date
P&ID FLEXICOOL	SP-P5-0022	0	14/06/2024
P&ID RESERVOIR CO2 POMPE	SP-P5-0023	0	14/06/2024
CE NAMEPLATE DRAWING	MPS-P5-001	-	14/06/2024
DOSSIER FABRICANT Machines FLEXICO2OL	DF-P5-0007	4	14/06/2024
Liste des composants critiques suivant Annexe I de la directive des équipements sous pression 2014/68/UE Directive Machine 2006/42/CE annexe I	LCC-P5-0002	07_03_2024	14/06/2024
CE NAMEPLATE DRAWING	MPS-P5-001	5	14/06/2024
SUBCRITICAL CO2 CASCADE SYSTEMS	IOM_Cent_LT_SH_FR_2024_03_01	-	14/06/2024
Rapport de situation interne	ESS-P5-0003	2	14/06/2024
Rapport de situation interne	SEN378-P5-0006	1	14/06/2024
Evaluation et réduction des risques suivant-Détails de EN378-2 - Art.6.2.6.2	SEN378-P5-0008	13/11/2023	14/06/2024
Evaluation et réduction des risques suivant Annexe I de la directive des équipements sous pression 2014/68/UE	ADR-P5-0001	11/03/2024	14/06/2024
Capacités minimales de décharge requises pour les récipients	SW 052 "RECIPIENTS HFC"	22/02/2023	14/06/2024
Capacités minimales de décharge requises pour les récipients	SW 052 "RECIPIENTS CO2"	22/02/2023	14/06/2024

LRQA Reports

Title	Document Number	Date
Design Appraisal Document	PRJ11100429247-1/Bsub3 Issue 02	14/06/2024
Visit Report	PRJ11100429247-1/VR_B_Bsub3 Issue 01	18/06/2024

Schedule Issue: **Issue 01**
 Date of Schedule Issue: **19 June 2024**
 Notified Body **0094**

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