

## 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 "Machines CENTRALES Frigorifiques Bsub1":  
- Config. "Centrales frigorifiques Bs1" – Bsub1-1, Bsub1-2, Bsub1-3  
- Config. "Chiller/vis Bs2" – Bsub1-4  
- Config. "Réservoir séparés Bs4" – Bsub1-5  
- Config. "Récupérateurs de chaleur Bs5" - Bsub1-6, Bsub1-7  
  
HFC refrigerants: R507A / R134A / R407F / R407A / R407C / R422A / R417A / R448A / R449A / R450A / R513A

DESIGN STANDARD: 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/240080 ENG**

Original Approval: 19 June 2024

Current Certificate: 19 June 2024

Certificate Expiry: 19 June 2034

LRQA Inspection Iberia, S.A. Notified Body 0094

Mathieu CARRE / LRQA inspection Iberia



## CERTIFICATE SCHEDULE 0094/PED/LYO/240080 ENG

Equipment data:

Product Description:

Assembly (Article 2 para. 6)

Product Type:

Refrigerating System "Machines CENTRALES Frigorifiques Bsub1" :

- Config. "Centrales frigorifiques Bs1" – Bsub1-1, Bsub1-2, Bsub1-3

- Config. "Chiller/vis Bs2" – Bsub1-4

- Config. "Réservoir séparés Bs4" – Bsub1-5

- Config. "Récupérateurs de chaleur Bs5" - Bsub1-6, Bsub1-7  
HFC refrigerants: R507A / R134A / R407F / R407A / R407C / R422A / R417A / R448A / R449A / R450A/ R513A

Maximum Design Pressure/Temperatures:

	HFC			Oil	Water Glycol water
	LP	HP	HP Liquid		
PS R134a / R513a / R450a (bar)	15	19	19	19	10
PS other HFC (bar)	17	28	28	28	10
TS MAX (°C)	38	120	80	80	80
TS MIN (°C)	-50	-10	-10	-10	-40

Assembly components:

**1. Config. Bs1 – Bsub1-1 - Centrales à compresseurs semi-hermétiques à pistons (P&ID SP-P5-0029):**

- 4 (four) Semi-hermetic compressors, No PED.
- 1 (one) Oil Separator, Cat. I~IV.
- 1 (one) Oil Receiver, Cat. II~IV.
- 1 (one) Suction Receiver, Cat. I~IV.
- 1 (one) Heat Recovery Heat Exchanger, Cat. II~IV
- Piping and accessories, Cat. I maxi.
- =====
- 1 (one) Liquid Receiver, Cat. I~IV.

**Boundaries:**

- "FROM SUCTION CUSTOMER" LP inlet connection.
- "FROM CONDENSER" HP inlet connection
- "TO CONDENSER" HP outlet connection
- "LIQUIDE LINE" HP outlet connection
- Water Heat Recovery inlet/outlet connections



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## CERTIFICATE SCHEDULE 0094/PED/LYO/240080 ENG

### 2. Config. Bs1 – Bsub1-2 - Centrales à compresseurs hermétiques (P&ID SP-P5-0030):

- 2 (two) hermetic compressors, No PED or Cat. II.
- **1 (one) Oil Separator, Cat. I~IV**
- **1 (one) Oil Receiver, Cat. II~IV**
- **1 (one) Suction Receiver, Cat. I~IV**
- **1 (one) Heat Recovery Heat Exchanger, Cat. II~IV**
- **1 (one) Subcooler, Cat. I~IV.**
- Piping and accessories, Cat. I maxi.
- =====
- **1 (one) Liquid Receiver, Cat. I~IV.**

#### Boundaries:

- "FROM SUCTION COSTUMER" LP inlet connection.
- "FROM CONDENSER" HP inlet connection
- "TO CONDENSER" HP outlet connection
- "LIQUIDE LINE" HP outlet connection
- "ASPIRATION CENTRALE" LP outlet connection
- "LIGNE LIQUIDE" LP Outlet connection
- Water Heat Recovery inlet/outlet connections

### 3. Config. Bs1 – Bsub1-3 Centrales à compresseurs semi-hermétiques à vis (P&ID SP-P5-0028):

- **1 (one) Oil Separator, Cat. I~IV.**
- 2 (two) Screw semi-hermetic compressors, No PED.
- 2 (two) Air Cooled Heat Exchangers FCA050, Art. 4.3
- **1 (one) Suction Receiver, Cat. I~IV.**
- 1 (one) Heat Recovery Heat Exchanger, Art. 4.3
- 2 (two) Subcoolers, Cat. II~IV.
- Piping and accessories, Cat. I maxi.
- =====
- **1 (one) Liquid Receiver, Cat. I~IV.**

#### Boundaries:

- "ARRIVEE LIQUIDE" HP inlet connections.
- "DEPART LIQUIDE SS REFROIDI" LP outlet connection
- "RETOUR EVAPORATEUR" LP inlet connection.
- "DEPART CONDENSEUR" HP outlet connection
- "LIQUIDE LINE" HP outlet connection
- "FROM CONDENSER" HP inlet connection
- Water Heat Recovery inlet/outlet connections



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### 4. Config. Bs2 – Bsub1-4 Chiller/vis (P&ID SP-P5-0032):

- 4 (four) identical circuits in parallel consisted of:
- 1 (one) Screw Semi-hermetic compressor, No PED.
- 1 (one) Condenser, Art 4.3
- **1 (one) Liquid Receiver, Cat. I~IV.**
- **1 (one) Subcooler, Cat. II~IV**
- Piping and accessories, Cat. I maxi.
- 1 (one) Chiller DM4-518-3, Art 4.3

#### Boundaries:

- Chiller water inlet/outlet connections

### 5. Config. Bs4 – Bsub1-5 Reservoir (P&ID SP-P5-0031):

- 1 (one) Liquid Receiver, Cat. I~IV.
- **1 (one) Subcooler, Cat. II~IV.**
- Piping and accessories, Cat. I maxi.

#### Boundaries:

- “FROM CONDENSOR” inlet connection
- “TO CONSUMER” outlet connection
- “Aspiration centrale” LP outlet connection
- « LIGNE LIQUIDE » LP outlet connection

### 6. Config. Bs5 – Bsub1-6 Echangeur à plaques (P&ID SP-P5-0033):

- **1 (one) Plate Heat Exchanger, Cat. II~IV**
- Piping and accessories, Cat. I maxi

#### Boundaries:

- “RETOUR REF. CENTRALE” inlet connection
- “VERS RESERVOIR” outlet connection
- Water inlet/outlet connections

### 7. Config. Bs5 – Bsub1-7 - Echangeur multitubulaire (P&ID SP-P5-0034):

- **1 (one) Plate Heat Exchanger, Cat. II~IV**
- Piping and accessories, Cat. I maxi.

#### Boundaries:

- “RETOUR CENTRALE” inlet connection
- “VERS RESERVOIR” outlet connection
- Water inlet/outlet connections



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## CERTIFICATE SCHEDULE 0094/PED/LYO/240080 ENG

### Safety devices:

<u>Deviation</u> (and/or causes)	<u>Protection</u> (PED safety device(s) description)	<u>Setting / Capacity / Action(s)</u> (Safety device(s) characteristics)	<u>Device(s)</u> <u>Category</u>
Bsub1-, Bsub1-2 :			
Overpressure on the Assembly induced by the Compressors 1~4	Pressure Switches item 100	Required: <b>setting value: cut-off 0.9 x PS on HP circuit</b> , SIL2, action sequence: shutdown connected compressor	IV
Overpressure on Liquid Receiver due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 11 installed on Liquid Receiver,	Required: <b>setting pressure: 28bar</b> , 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 14 installed on Suction Receiver	Required: <b>setting pressure: 17bar</b> , 10% back pressure max	IV
Overpressure on Oil Separator due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 12, installed on Oil Separator	Required: setting pressure: <b>28 barg</b> , 10% back pressure max,	IV
Overpressure on Oil Receiver due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 17 installed on Liquid Receiver	Required: setting pressure: <b>28 barg</b> , 10% back pressure max,	IV
Bsub1-3:			
Overpressure on the Assembly induced by the Compressors 1~4	Pressure Switches item 100	Required: <b>setting value: cut-off 0.9 x PS on HP circuit</b> , SIL2, action sequence: shutdown connected compressor	IV
Overpressure on Liquid Receiver due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 11 installed on Liquid Receiver	Required: <b>setting pressure: 28bar</b> , 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 14 installed on Suction Receiver	Required: <b>setting pressure: 17bar</b> , 10% back pressure max	IV
Overpressure on Oil Separator due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 12, installed on Oil Separator	Required: setting pressure: <b>28 barg</b> , 10% back pressure max,	IV
Bsub1-4 :			
Overpressure on the Assembly induced by the Compressors 1~4	Pressure Switches item 100	Required: <b>setting value: cut-off 0.9 x PS on HP circuit</b> , SIL2, action sequence: shutdown connected compressor	IV
Overpressure on Liquid Receiver due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 11 installed on Liquid Receiver	Required: <b>setting pressure: 28bar</b> , 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 14 installed on Suction Receiver	Required: <b>setting pressure: 17bar</b> , 10% back pressure max	IV
Overpressure on Chiller due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 17, installed on Chiller	Required: setting pressure: <b>17 barg</b> , 10% back pressure max,	IV
Bsub1-5 :			
Overpressure on Liquid Receiver due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 2 installed on Liquid Receiver	Required: <b>setting pressure: 28bar</b> , 10% back pressure max	IV
Bsub1-6 and Bsub 1-7:			
Overpressure on Heat exchanger HP side due to trapped refrigerant liquid exposed to extreme hot ambient temperature.	Pressure Safety Valve item 2 installed on Liquid Receiver	Required: <b>setting pressure: 28bar</b> , 10% back pressure max	IV



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## CERTIFICATE SCHEDULE 0094/PED/LYO/240080 ENG

Deviation <i>(and/or causes)</i>	Protection <i>(PED safety device(s) description)</i>	Setting / Capacity / Action(s) <i>(Safety device(s) characteristics)</i>	Device(s) Category
*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):

EN378-2: 2016

### Technical File Contents

Title	Document Number		Date
P&ID Centrale Semi hermetique CENTRALE A PISTONS	SP-P5-0029	1	14/06/2024
P&ID Centrale Scroll	SP-P5-0030	0	14/06/2024
P&ID Centrale à vis	SP-P5-0028	0	14/06/2024
P&ID Chiller Vis	SP-P5-0032	0	14/06/2024
P&ID Réservoir	SP-P5-0031	0	14/06/2024
P&ID EQUIP SKID RECUP DE CHALEUR	SP-P5-0033	0	14/06/2024
P&ID EQUIPT CONDENSEUR A PLAQUE	SP-P5-0034	0	14/06/2024
DOSSIER FABRICANT Complément Attestation 14B10117 - Examen UE de type « type de fabrication » -Versions Bs1-Bs2- Bs4 - Bs5 Machines CENTRALES Frigorifiques	DF-P5-0002	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
NOTICE D'INSTRUCTIONS Originale CENTRALES & GROUPES DE CONDENSATION GC HFC	IOM_Centrales GC HFC_FR	2024_06_20	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

### LRQA Reports

Title	Document Number	Date
Design Appraisal Document	PRJ11100429247-1/Bsub1 Issue 02	14/06/2024
Visit Report	PRJ11100512758-1/VR_B_Bsub1 Issue 01	18/06/2024

# CERTIFICATE SCHEDULE 0094/PED/LYO/240080 ENG

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

Mathieu CARRE / LRQA inspection Iberia



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