

# 實習船冷凍與冷藏系統維護手冊

實習船維護手冊

**REFRIG-TRAIN-00000-00**

**Issue No. 001, 2025-09-10**

Produced by: 船舶中心

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## Refrigeration System

### *Single Function Pressure Controls*

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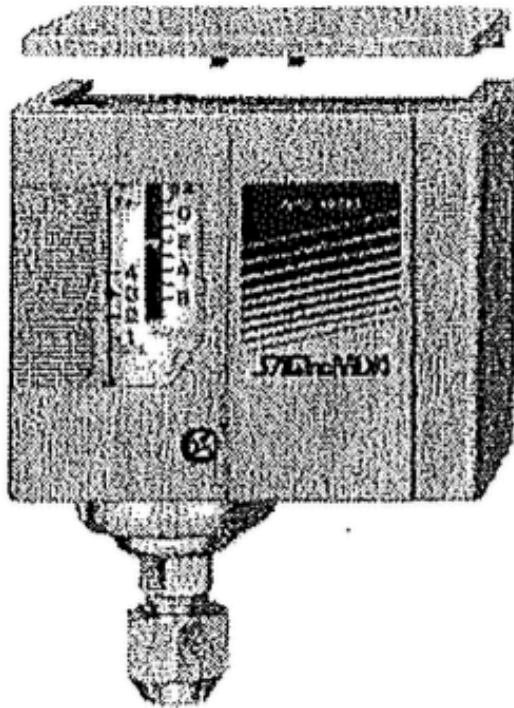
### ***References***

*Table 1 References*

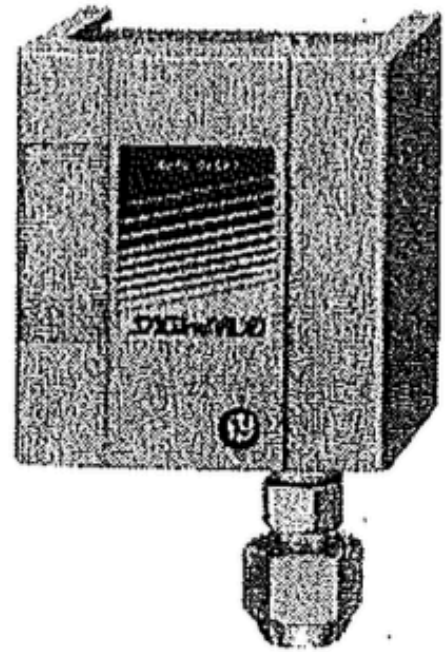
Data module/Technical publication	Title
None	

### ***Description***

- 1 Single Function Pressure Controls**  
 This data module describes the single function pressure controls used in the refrigeration system, including Type SNS and HNS pressure switches.



Type SNS



Type HNS

ICN-REFRIG-A-10-00-00-00A-040A-D-001-01

*Fig 1 Type SNS and HNS Pressure Controls*

## 1.1 General Description

- For use with fluorinated refrigerants as well as with air and water. (Allowable fluid temp.: -20 to 120°C)
- Type SNS for universal application.
- Type HNS for high pressure safety cut out.
- Available drip proof enclosure for marine application or explosion proof enclosure for special application.
- Mounting bracket is supplied as standard.
- With SPDT contact mechanism.

- IP44 with upper lid (option).
- Stainless Steel models available upon request.
- CE mark applicable (available upon request)
- UL recognized (available upon request)

## 1.2 Type SNS - Automatic Reset Type Specifications

Catalog No.	Range Min.	Range Max.	Differential Min.	Differential Max.	Factory Setting Off(On)	Factory Setting On(Off)	Max. Working Pressure
SNS-C101X	-0.06(-50cmHg)	0.1(1)	0.015 (0.15)	0.05(0.5)	0.025(0.25)	0.05(0.5)	0.3(3)
SNS-C102X	-0.02(-20cmHg)	0.2(2)	0.025 (0.25)	0.15(1.5)	-	-	0.5(5)
SNS-C103X	-0.06(-50cmHg)	0.3(3)	0.035 (0.35)	0.05(0.5)	0.15(1.5)	-	1.1(11)
SNS-C104X	-0.06(-50cmHg)	0.4(4)	0.04 (0.4)	0.1(1)	0.2(2)	-	1.5(15)
SNS-C106X	-0.06(-50cmHg)	0.6(6)	0.06 (0.6)	0.2(2)	0.3(3)	0.6(6)	Diagram 1
SNS-C110X	0.1(1)	1(10)	0.1 (1)	0.3(3)	0.4(4)	0.6(6)	0.33
SNS-C120X	0.5(5)	2(20)	0.2 (2)	0.5(5)	1.2(12)	1.5(15)	3(30)
SNS-C130X	0.5(5)	3(30)	0.3 (3)	1(10)	2(20)	2.5(25)	3.3(33)
SNS-C135X	1(10)	3.5(35)	0.5 (5)	1.5(15)	2.5(25)	3(30)	3.8(38)

Unit: MPa (kgf/cm<sup>2</sup>)

### 1.3 Type SNS - Manual Reset Type

Catalog No.	Range Min.	Range Max.	Manual Reset	Factory Setting Off	Max. Working Pressure
SNS-C102XM2	-0.02(-20cmHg)	0.2(2)	Automatic operation on pressure decrease, and manual reset.	0.025(0.25)	0.5(5)
SNS-C106XM2	-0.06(-50cmHg)	0.6(6)	Manual operation on reset	manual reset	1.5(15)
SNS-C130XM2	0.5(5)	3(30)	Manual reset at 2(20)	manual reset	3.3(33)

\* Based on the 1-3 terminal connection.

Unit: MPa (kgf/cm<sup>2</sup>)

### 1.4 Type HNS - Automatic Reset Type

Catalog No.	Range Min.	Range Max.	Differential	Factory Setting Off	Factory Setting On	Max. Working Pressure
HNS-C130X	0.8(8)	3(30)	0.3 to 0.5 fixed (3 to 5 fixed)	2(20)	1.6(16)	3.3(33)

\* Based on the 1-3 terminal connection.

Unit: MPa (kgf/cm<sup>2</sup>)

### 1.5 Type HNS - Manual Reset Type

Catalog No.	Range Min.	Range Max.	Manual Reset	Factory Setting Off	Factory Setting On	Max. Working Pressure
HNS-C130XM1	0.8(8)	3(30)	Automatic operation on pressure increase, and manual reset.	2(20)	manual reset	3.3(33)

\* Based on the 1-3 terminal connection.

\* Enclosure: IP20

\* Drip Proof Models: Available upon request. (Refer to Pages 46, 47.)

Unit: MPa (kgf/cm<sup>2</sup>)

# NOFIRNO Multi-Cable Transit System

## Sealing Series

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## References

*Table 1 References*

Data module/Technical publication	Title
None	

## Description

### 1      Product Physical Properties

顏色	紅標
比重	1.40 ± 0.03 g/cm <sup>3</sup>
表層硬化	0.5 - 1 小時（體溫與環空氣濕度而定）
使用溫度	-50 °C 至 +180 °C
抗拉強度	1.5 MPa



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斷裂伸長率	200%
硬度	蕭氏硬度45度A
彈性變形	大約 50%
抗性	抗紫外線、臭氧、極地條件
老化	20年後
供應規格	310 ml 罐裝
儲藏方式	置於陰涼乾燥處，最低/最高溫 +5/+30 °C
儲藏期限	製造日期後6個月；若於製造日期6個月內使用，必須檢查是否化學變化。若正確儲藏，保存期限為12個月。由於我們無法控制儲藏，我們只能保證6個月。

## 2 Product Appearance



ICN-REFRIG-A-30-00-00-00A-040A-D-001-01

*Fig 1 NOFIRNO Sealant*

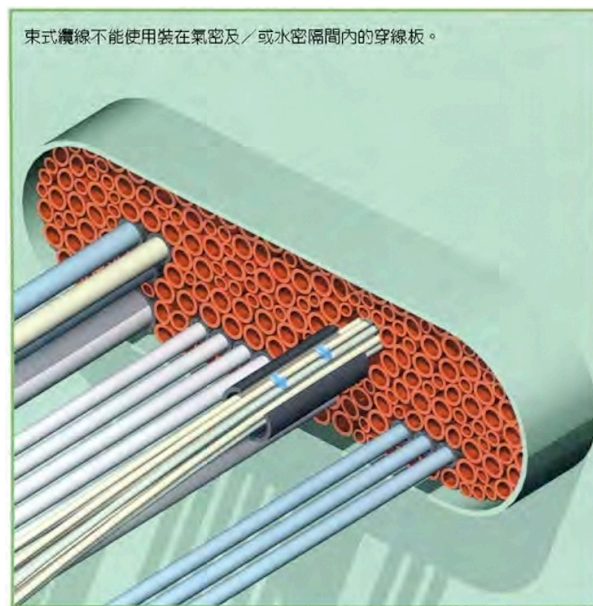
NOFIRNO 為一種容易使用的糊狀複合物，具有均衡的黏性，可朝順部塗佈。此種密封劑塗佈後，可用濕布或手將之整平順。由於它乾得非常慢，使用前必須以水將布和雙手潤濕，以免黏到密封劑。

### 3 Best Choice for Worst Case Scenarios

NOFIRNO密封系列通過國際海事組織決議案 A.754(18)的束式穿線組測試。無其在穿線較大量的小直徑網路線時，可節省許多時間，因為不須將每條纜線都裝上RISE插入套管。穿線板可穿過最多25條外徑 5-6 mm 緊緊細成最大35 mm的網路纜線組。

然後把一個RISE插入套管裝在纜線組上，再插入穿線板。這種束式纜線不能使用氣密及/或水密穿線板。NOFIRNO系列通過A-0級、H-0級甚至噴射火焰測試，不受嚴重影響。由於本公司各種系列的性能均屬異質，NOFIRNO密封系列可輕易與RISE和RISE/ULTRA結合，成為所謂的MULTI-ALL-MIX系列，將所有種類的管路和纜線穿過一個導管。

NOFIRNO密封系列為本公司產品系列中最先進的系列。



ICN-REFRIG-A-30-00-00-00A-040A-D-002-01

Fig 2 Multi-Cable Transit System Diagram



ICN-REFRIG-A-30-00-00-00A-040A-D-003-01

*Fig 3 Fire Test*

# Refrigeration System

## *Outline Drawing of Condensing Unit 8518H*

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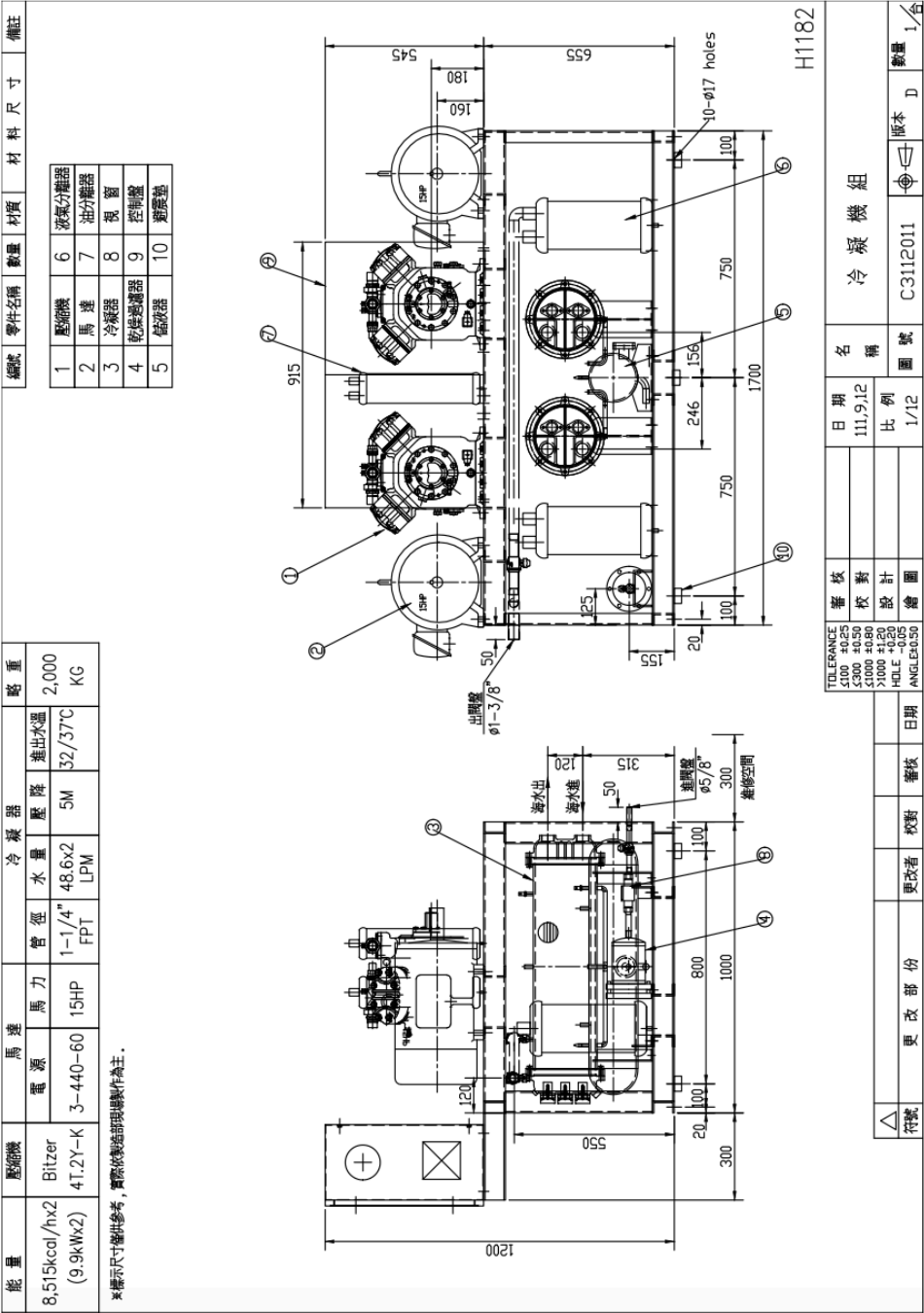
## ***References***

*Table 1 References*

<b>Data module/Technical publication</b>	<b>Title</b>
None	

Description

1 Outline Drawing of Condensing Unit 8518H



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Fig 1 Condensing Unit 8518H - Outline Drawing