

# SAO SERIES SHIP (Maker : Mag GREGOR)

- Seal type : Flex Seal type

## 2.8 Sealing

Sealing between the hatch covers and the coaming is achieved by means of a weathertight seal, which is fitted to the panel and tightens against a compression bar on the coaming top.

The seals are of MacGregor FlexSeal type.



MacGregor FlexSeal.

### 2.8.10.1. The required maintenance actions for hatch covers Seals

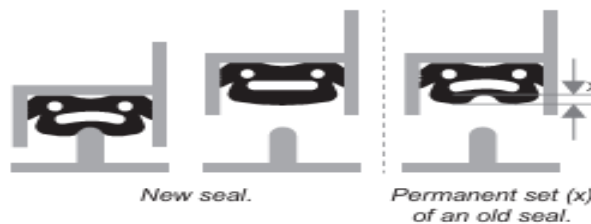
Maintenance action	Interval	Notes
Check the seals for wear and mechanical damage.	1 month	See note 1)
Check the seals for shape and elasticity.		
Apply silicon grease to end and corner seals at joint.	1 month	See note 2)
Make a tightness test.	1 year	See note 3)

#### Notes:

1) Replace the damaged seals immediately (before next voyage), see repair instructions below.

Ageing of rubber material has an effect on the mechanical strength and elasticity of the seals. **Replace the seals when the permanent set is greater than 5 mm.** A tightness test is recommended as the change of the seal geometry might be difficult to verify.

When replacing the seals acting against coaming, check / repair the hatch cover Bearing Pads too. Worn Bearing Pads cause over-compression of the seals resulting in shortened lifetime of the seals.



New seal.

Permanent set (x) of an old seal.

2) For smooth sliding against the compression bars, to the end seals and the corner seals at the panels' joints should be applied with silicon grease at regular intervals. This will extend the lifetime of the sealing system and to secure proper weather tightness.

3) Make a tightness test annually and always after repair or replacement of the seals to check the weathertightness of the sealing system.

Two widely used methods are a hose test and an ultrasonic tightness test. The following parameters can be used for a hose test: water pressure 2 bar, nozzle size 15...18 mm, spraying distance 1...1.5 m.

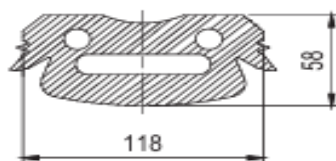
The hatch cover tightness is determined by not only the condition of the seals but also by the clearances in the cleats, horizontal and vertical stoppers.

For a professional inspection of hatch cover weathertightness, contact MacGregor service. A number of MacGregor inspectors have been certificated by a classification society for ultrasonic tightness testing of hatch covers (the classification society approval in accordance with IACS UR Z17).

MacGregor SHERLOG, a type approved ultrasonic testing equipment, is also available through MacGregor service.

### STRAIGHT PACKING K104063

1:3



RUBBER COMPRESSION : 13±5 mm

영구변형율 : 13.5mm x 50% = 6.7~ 7.2mm

## HHDG/ HBRG (Maker : SMS CO., LTD)

### - SEAL TYPE : SOLID RUBBER TYPE

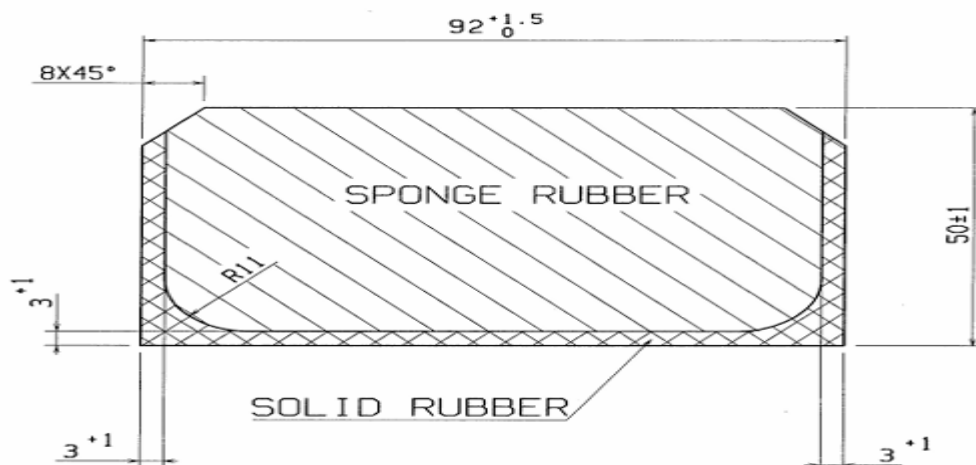
도면에 영구 변형율이 표기 되어 있지 않으므로 하기 산식을 이용하여 적용

401-8	RUBBER GASKET 94x50 EPDM	11044mm	RUBBER	2		MAKER
401-7	RUBBER GASKET 94x50 EPDM	11156mm	RUBBER	2		MAKER
401-6	RUBBER GASKET 94x50 EPDM	17334mm	RUBBER	1		MAKER
401-5	RUBBER GASKET 94x50 EPDM	17634mm	RUBBER	2		MAKER
	DESCRIPTION	SPEC.	MAT'L	Q'TY	WEIGHT (kg/EA)	SUPPLIER

- 패킹의 SIZE : 94 X 50mm
- 압축률 30% 적용 :  $50 \times 30\% = 15\text{mm}$
- 교체한계값 : 압축률의 50% 적용  $15\text{mm} \times 50\% = 7.5\text{ mm}$   
또는 원래의 높의 15%적용시 ( $50\text{mm} \times 15\% = 7.5\text{ mm}$ )

## HTBO / HBRZ (MAKER : SEOHAE)

### - SEAL TYPE : SOLID RUBBER TYPE



SKIN : SOLID RUBBER : NEOPRENE (CR) WITH 45±5 SHORE A  
CORE : SPONGE RUBBER : NK-SBR (NATURAL RUBBER WITH STYROL BUTADIEN RUBBER)  
COMPRESSION : 12MM ± 5 MM

영구변형율 :  $12\text{MM} \times 50\% = 6.5\text{ mm}$

## HSAL /HBAL (Maker : Mag GREGOR)

SEAL TYPE : SOLID RUBBER

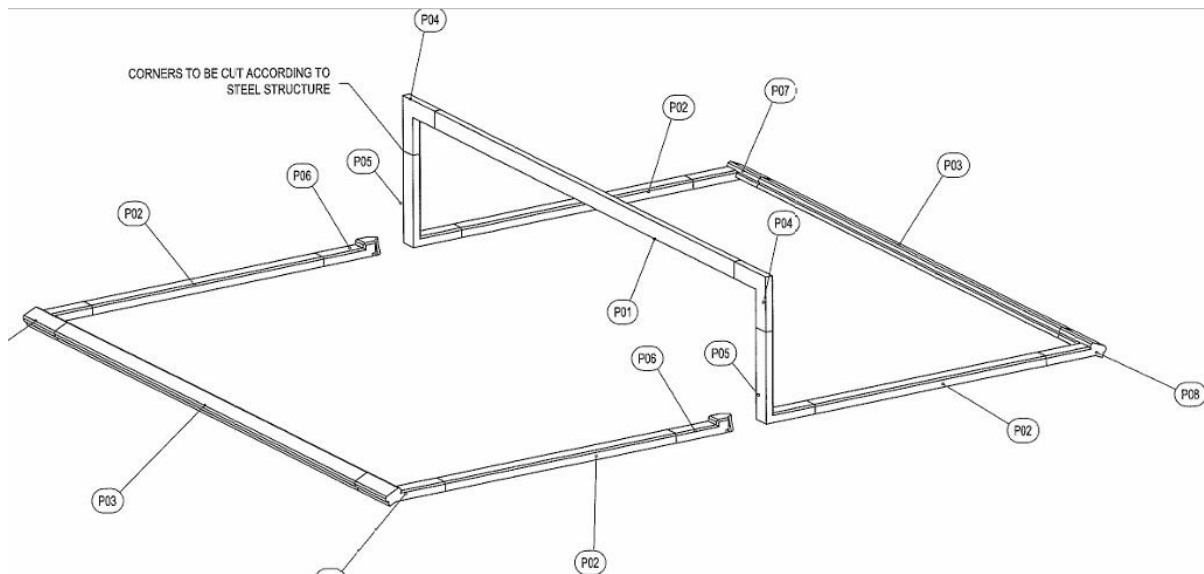
- 선박의 실제 Rubber packing size 확인 필요

- 90 x 50MM 가정시

압축률 30% 적용 :  $50 \times 30\% = 15\text{mm}$

교체한계값 : 압축률의 50% 적용  $15\text{mm} \times 50\% = 7.5\text{ mm}$

또는 원래의 높의 15%적용시 ( $50\text{mm} \times 15\% = 7.5\text{ mm}$ )



P11	2	1022146	SIKAFLEX 221 0.4kg				
P10	2	1032266	MCG GLUE 20G				
P09	3	1021569	MACGREGOR GLUE TITE 5.0L				
P08	2	1021569	RUBBER SEAL K100175-R CORNER			SOLID RUBBER	2.4
P07	2	1021568	RUBBER SEAL K100175-L CORNER			SOLID RUBBER	2.4
P06	2	1021573	RUBBER SEAL K100169 END PIECE			SOLID RUBBER	1.4
P05	2	1021572	RUBBER SEAL K100168			SOLID RUBBER	3.3
P04	2	1021571	RUBBER SEAL K100167 CORNER			SOLID RUBBER	2.4
P03	2	M300102	RUBBER SEAL K100174 L=16.6m			SOLID RUBBER	64.6
P02	4	M300103	RUBBER SEAL K100166 L=8.7m			SOLID RUBBER	34.8
P01	1	M300103	RUBBER SEAL K100166 L=16.6m			SOLID RUBBER	64.2
ITEM	QTY	CODE	DESCRIPTION	TYPE	SIZE/DIMENSIONS	MATERIAL	MASS