BUSEAL WRAP

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Contents

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What is Buseal Wrap?

Product Name

- BUSEAL WRAP

Application

- Vapour barrier
- Insulation protection cover
- Technical Liner
- Mechanical Protection

Main Properties

- Laminated Aluminum foil + Vulcanized butyl rubber
- Zero Water and vapour permeability
- Fire Rate : IMO Fire Test / Class 1 or A
- Very Easy installation

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Product performance

Color	Black / Gray	Elongation	15% ≤
Type	Butyl Rubber+25㎛PE+50㎛Al+25㎛PE	Tensile strength	4.5N/mm ≤
Density	1.50 ± 0.05 g/cm3	Butyl Heat Resistance	Flow ≤ 3mm @ 5 ℃ . Flow ≤ 3mm @ 70 ℃
Solid	100%	Service Temperature Limits	(Temperature at coated surface) - 40 ~ 121℃
Dimension	Thickness : 1.25mm ± 5%	Water Vapour Performance (ASTM E96, Pro-E)	0.00(zero) metric perm
	Width : 1 meter (Max) (Others available on requests)	Surface Burning Characteristics	IMO Fire Test / Class 1 or A (Flam spread index:0 , Smoke development index:0)
	Length : 15 meter	Adhesion Strength (Tested Value)	21 kgf/cm on Stainless steel
Bonding Time	Max. 24hr		16 kgf/cm on PIR

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Advantage

Cost	Use basic tools only (scissors, knife, ruler etc.) without accessories and special tools – Cost saving No Pre-fabrication needed – Cost and time saving for fabrication of general outer jacketing Lower price than general outer jacketing material – High level of Cost-effectiveness
Installation	No special skills needed - Easy to install No additional work needed (e.g. screw, silicon, rivet, UV-curing etc.) - Save the Man hours
Self Adhesion	Good adhesion strength to most materials such as various insulations, metal, glass and etc. No additional accessories and tools for adhesion required Excellent application to HVAC Joint – Perfect Watertight & Durability
Flexible	Flexible application to all parts such as Hull, Pipe, Vessel, HVAC etc.
Lead Time	Short lead time as domestic product (1-2 weeks) → Supply without a shortage on stock
Protection	Offer protection from Mechanical damage due to aluminum and tough PE film except for high-impact

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Comparison

	Buseal Wrap	Galva Sheet	GRP
Vapour barrier	O	O	O
Insulation Protection cover	O	O	O
Process	X	O	O
Accessory	X	O	O
Tool	X	O	O
Skill	X	O	O
Production & Delivery	1~2 Week	2~3 Week	2~3 Week

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Reference List

No.	Site.	Project.	Application.	View.
1	DSME	H3507~3510 Drillship	Insulation[Rockwool pipe section] cladding for L.O Purfier Pipe Line	PDF
2	DSME	P6302 Petronas F-LNG	Insulation[Amaflex] cladding for Tubing line	PDF
3	DSME	P3305 Maersk Jack-up Rig	Insulation cladding [Firemaster] for weather part	PDF
4			Insulation cladding[Mineral wool] for Duct	
5			Insulation cladding[Firemaster] for wall in elec. Room.	PDF
6	DSME	P6054 Ichthys Inpex FPSO	GRP1000 Combination for termination sealing	
7			GRP1000 Combination for Patch	
8			Insulation[Rockwool] cladding for HVAC Room	
9	DSME	P6058 Gina Krog F/P	Insulation[Rockwool] cladding for wall	PDF
10			Technical Liner instead of Galva sheet.	PDF

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Reference List

No.	Site.	Project.	Application.	Plan.
11	DSME	P6056 Mariner F/P	Insulation[Rockwool] cladding for Wall	
12			Technical Liner instead of Galva sheet	
13			Insulation[Rockwool] cladding for Duct	
14			GRP1000 Combination for Patch	
15	DSME	H3511 Trans Ocean Drillship	Insulation [Firemaster] cladding for Weather Part	
16			Mechanical Protection layer for coated steel	
17	SHI	P7108 Ichthys Inpex CPF	GRP1000 Combination for termination sealing	
18			GRP1000 Combination for Patch	
19	SHI	P2030 Shell prelude F-LNG	Vapour barrier for SBM Offshore_Turret HVAC System.	

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Reference_ Weather part insulation protection cover






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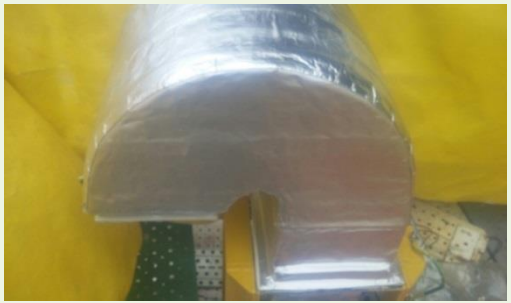
Reference_ Duct insulation Vapour barrier



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Reference_ Pipe insulation protection cover






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Reference_ Combination with GRP 1000






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Test Report

E-84 fire Test Report	IMO Test Report	Oil Test Report	Adhesion Test BUSEAL & GRP	Buseal Wrap MSDS
View	View	View	View	View

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THANK YOU !

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Testing. calibrating. advising

ASTM E 84 Surface Burning Characteristics of "Buseal Wrap" Aluminum Faced Butyl-Based Wrap

A Report To:	**SAM HWA CHEMICALS Co., Ltd.** 212-2, Cheonjeong-ri, Mokcheon-eup Dongnam-gu, Cheonan-si Chungcheongnam-do Korea 330-841
Phone:	+82-41-581-7742
Attention: E-mail:	H.S. Lee mir614@gmail.com
Submitted by:	Exova Warringtonfire North America
Report No.	14-002-693 4 Pages
Date:	December 2, 2014

ACCREDITATION To ISO/IEC 17025 for a defined Scope of Testing by the International Accreditation Service

SPECIFICATIONS OF ORDER

Determine the Flame Spread and Smoke Developed Indices based upon a single test conducted in accordance with ASTM E 84-14, as per Exova Warringtonfire North America Quotation No. 14-002-325,010 dated October 29, 2014.

SAMPLE IDENTIFICATION (Exova sample identification number 14-002-S0693)

Aluminum faced butyl-based tape material, applied to a cement board substrate, identified as: "Buseal Wrap"

TEST PROCEDURE

The method, designated as ASTM E 84-14 "Standard Method of Test for Surface Burning Characteristics of Building Materials", is designed to determine the relative surface burning characteristics of materials under specific test conditions. Results are expressed in terms of Flame Spread Index (FSI) and Smoke Developed (SD).

Although the procedure is applicable to materials, products and assemblies used in building construction for development of comparative surface spread of flame data, the test results may not reflect the relative surface burning characteristics of tested materials under all building fire conditions.

SAMPLE PREPARATION

The 0.05 inch (1.3 mm) thick material was adhered a 6 mm thick fiberglass reinforced cement board substrate using the peel-and-stick method. The test specimen consisted of a total of 3 sections of material, each approximately 21 inches (533 mm) in width by 96 inches (2438 mm) in length. The sections were butted together during testing to form the requisite specimen length. Prior to testing, the specimen was conditioned to constant weight at a temperature of 73 ± 5°F (23 ± 3°C) and a relative humidity of 50 ± 5%. During testing the specimen was self-supporting and the aluminum surface was exposed to the test flame.

The testing was performed on: 2014-12-02

SUMMARY OF TEST PROCEDURE

The tunnel is preheated to 150 ± 5°F (66 ± 2.8°C), as measured by the floor-embedded thermocouple located 23.25 feet (7087 mm) downstream of the burner ports, and allowed to cool to 105 ± 5°F (40.5 ± 2.8°C), as measured by the floor-embedded thermocouple located 13 feet (3962 mm) from the burners. At this time the tunnel lid is raised and the test sample is placed along the ledges of the tunnel so as to form a continuous ceiling 24 feet (7315 mm) long, 12 inches (305 mm) above the floor. Three 8 foot (2438 mm) sections of 0.25 inch (6 mm) cement board are then placed on the back side of the sample end-to-end, to protect the tunnel lid, and the lid is then lowered into place.

EXOVA

SUMMARY OF TEST PROCEDURE (continued)

Upon ignition of the gas burners, the flame spread distance is observed and recorded every second. Flame spread distance versus time is plotted. Calculations ignore all flame front recessions and Flame Spread Index (FSI) is determined by calculating the total area under the curve for the test sample. If the area under the curve (A) is less than or equal to 97.5 min·ft, then FSI = 0.515·A; if greater, FSI = 4900/(195-A). FSI is then rounded to the nearest multiple of 5.

Smoke Developed (SD) is determined by dividing the total area under the obscuration curve by that of red oak, and multiplying by 100. SD is then rounded to the nearest multiple of 5 if less than 200. SD values over 200 are rounded to the nearest multiple of 50.

TEST RESULTS

SAMPLE	Flame Spread Index (FSI)	Smoke Developed (SD)
"Buseal Wrap"	0	0

Observations of Burning Characteristics

- The sample ignited approximately 70 seconds after exposure to the test flame.
- The flame front did not propagate past the base line.

Authorities having jurisdiction usually refer to these categories:

	Flame-Spread Index	Smoke Development
Class 1 or A	0 - 25	450 Maximum
Class 2 or B	26 - 75	450 Maximum
Class 3 or C	76 - 200	450 Maximum

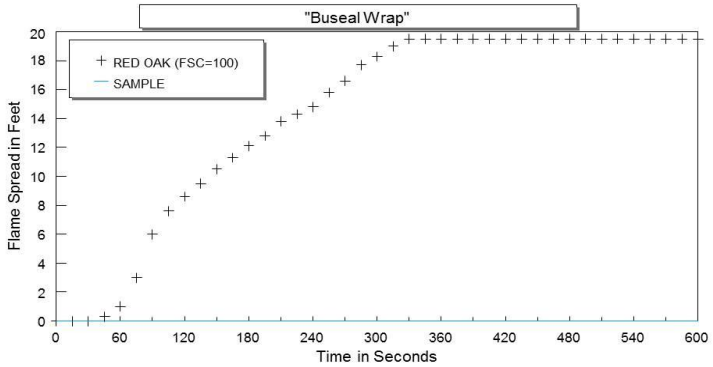
Note: This is an electronic copy of the report. Signatures are on file with the original report.

Robert A. Carleton,
Technologist.

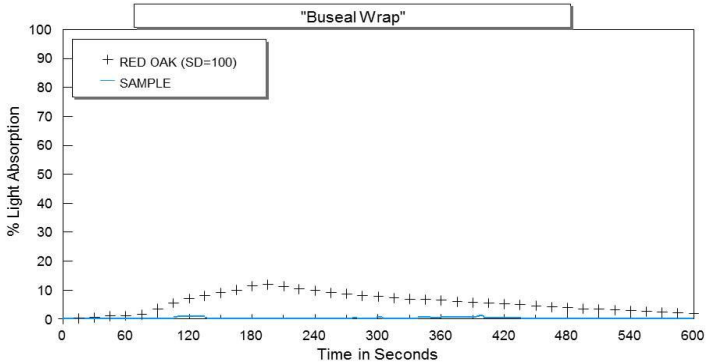
Ian Smith, Technical Manager.

Note: This report and service are covered under Exova Canada Inc. Standard Terms and Conditions of Contract which may be found on the Exova website (www.exova.com), or by calling 1-866-263-9268.

FLAME SPREAD INDEX



SMOKE DEVELOPED



Flame Spread Index (FSI)	**Smoke Developed (SD)**
0	0

Test Report

Korea Marine Equipment Research Institute
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(Tel:+82-51-400-5000 Fax:+82-51-400-5091)

Report No. : KOMERI-0402-1ST3530
Page (1)/(19)Pages

1. Applicant
   - o Company Name :
   - o Address :
   - o Date of Receipt : 2015. 10. 30

2. Equipment under Test
   - o Name of Product : BUSEAL
   - o Model : BUSEAL
   - o Serial No. : -

3. Test Standards : IMO Res. MSC. 307(88) 2010 / ANNEX 1 / Part5

4. Use of Report : Performance check, Quality management

5. Test Period : 2015. 11. 1

6. Environment : Temperature (22 ± 1) ℃, Humidity (52 ± 1) % RH

7. Test Result : Refer to TEST RESULT 17

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

Affirmation	Tested by	Technical Manager
	Name : Do-Jin MOON (Signature)	Name : Tai-Jin CHOI (Signature)

This test certificate is the accredited test results by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.

Date of Issue : 2015. 11. 27

Accredited by KOLAS, Republic of KOREA

The President of Korea Marine Equipment Research Institute (Signature)

Test Report

Korea Marine Equipment Research Institute
435, Haeyang-ro, Yeongdo-gu, Busan 49111, Rep. of KOREA
(Tel:+82-51-400-5000 Fax:+82-51-400-5091)

Report No. : KOMERI-0402-15T3529
Page (1)/(26)Pages

1. Applicant
   - o Company Name :
   - o Address :
   - o Date of Receipt : 2015. 10. 30
2. Equipment under Test
   - o Name of Product : BUSEAL
   - o Model : BUSEAL
   - o Serial No. : -
3. Test Standards : IMO Res. MSC. 307(88):2010 (Refer to Test Summary)
4. Use of Report : Performance check, Quality management
5. Test Period : 2015. 11. 20 ~ 2015. 11. 21
6. Environment : Temperature (23 ± 2) ℃ , Humidity (51 ± 1) % R.H.
7. Test Result : Refer to the "1.8. 2.7 TEST RESULT"

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

Affirmation	Tested by	Technical Manager
	Name : Jun-Pyo JEON (Signature)	Name : Tai-Jin CHOI (Signature)

This test certificate is the accredited test results by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.

Date of issue : 2015. 12. 01

Accredited by KOLAS, Republic of KOREA

The President of Korea Marine Equipment Research Institute (Signature)

TECHNICAL SERVICE REPORT

Sam Hwa Chemicals Laboratory

작성	검토	승인

DATE SU : Feburary, 27, 2015

BJECT PU : SHC Buseal wrap CHEMICAL & OIL RESISTANCE TEST

RPOSE P : To investigate the effect of oil on the SHC Buseal wrap

ERIOD : 02/23/2015 ~ 02/27/2015

- Test method :	1. Observation and assessment after dropping the each liquids for test on the surface of SHC Buseal wrap
	2. Assessment after a substantial amount of time for steeping SHC Buseal wrap in the beaker of detergent oil

1. Test items	WATER-tap/sea (Water resistance)	KOKOSOL (Oil resistance)	KOH solution (Alkali resistance)	HCI (Acid resistance)
Chemical resistance	OK	OK	OK	OK

2. Test items	Detergent oil (surface)	Detergent oil (Steeping)
Oil repellency	OK	OK

Water resistance | Acid / Alkali resistance | Oil resistance

Detergent oil - surface | Detergent oil - Steeping

Conclusion	As you can see in the picture, Even though the surface of SHC Buseal wrap is exposed to various chemicals and oil, it doesn't get damaged.

TECHNICAL SERVICE REPORT

Prepared by	Reviewed by	Approved by

DATE OF REPORT : 10th Apr, 2015 (Fri.)

TEST NAME : Adhesion Test between BUSEAL and GRP

OBJECT : Check if BUSEAL is compatible for attaching the surface of GRP in various forms

TEST DATE : 2015. 04. 03 ~ 10

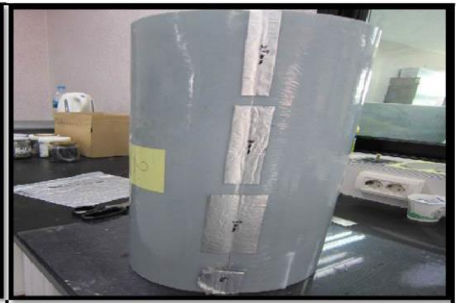
- TEST Method :	1. Examine the adhesive condition after attaching BUSEAL to the surface of GRP
	2. Examine the adhesive condition as time passes after attaching BUSEAL to the surface of GRP
	3. Examine the adhesive condition after attaching BUSEAL to the joints of GRP

1. TEST Item	GRP surface + BUSEAL
Adhesive condition	Good Adhesion

2. TEST Item	GRP surface + BUSEAL + Time progress
Adhesive condition	Better Adhesion strength as time goes by
Comment	Characteristics of BUSEAL

3. TEST Item	GRP joints + BUSEAL
Adhesive condition	Good Adhesion
Comment	-There are some contortions after attaching BUSEAL due to a gap from the joints of GRP, but we expect there is no problem if main pipe supports them well. -We think there is no issue of this strange phenomenon after attaching BUSEAL if minimize the gap of joints -Consider the width of BUSEAL as per the application condition.

TEST. 1, 2 photo



TEST. 3 photo

MATERIAL SAFETY DATA SHEET

REVISION DATE: 01-02-2011 SUPERSEDES: 02-26-2003

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMPANY INFORMATION
SamHwa Chemicals Co., Ltd.

PRODUCT INFORMATION

PRODUCT NAME: BUSEAL

PRODUCT DESCRIPTION: Butyl Rubber Protective Wrap/Tape

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS #	PERCENT
Butyl Rubber	Not Available	10 - 30
Rubber Based Adhesive	Not Available	0 - 20
Resin	Not Available	10 - 30
Additives	Not Available	5 - 20
Aluminum	Not Available	0 - 15
Polyester	Not Available	0 - 15

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Under normal conditions of use and handling, this product is not expected to create any health or safety hazards.

POTENTIAL HEALTH EFFECTS BY ROUTE OF ENTRY

EYE: Not applicable

SKIN: Not applicable

INHALATION: Not applicable

INGESTION: Not applicable

SECTION 4: FIRST AID MEASURES

IF IN EYES: Not applicable

IF ON SKIN: Not applicable

IF VAPORS INHALED: Not applicable

IF SWALLOWED: Product is not intended to be ingested or eaten. If this product is i ngested, severe irritation of the gastrointestinal (GI) tract may occur, and should be tr eated symptomatically. Seek medical attention.

SECTION 5: FIRE FIGHTING MEASURES

AUTOIGNITION TEMPERATURE:	Not established
LOWER EXPLOSIVE LIMIT (% in air): Not established U	
PPER EXPLOSIVE LIMIT (% in air): Not established	
UNUSUAL FIRE AND EXPLOSION HAZARDS:	There is no potential for spontaneous fire or explosion.
SPECIAL FIRE FIGHTING INSTRUCTIONS:	No special procedures are expected tprotective equipment.

MATERIAL SAFETY DATA SHEET

REVISION DATE: 01-02-2011 SUPERSEDES: 02-26-2003

SECTION 6: ACCIDENTAL RELEASE MEASURES

SPECIAL PROTECTION: No special procedure necessary

CLEAN-UP: No special procedure necessary

SECTION 7: HANDLING AND STORAGE

Handling: No special procedure necessary

Storage: Store in a cool, dry, ventilated location.

Consult the Technical Data Sheet for specific storage instructions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: Not required

SKIN PROTECTION: Not required

GLOVES: Not required

RESPIRATORY PROTECTION: Not required

VENTILATION: Not required

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Solid

COLOR: Bright Aluminum

ODOR: Rubber Odor

MATERIAL SAFETY DATA SHEET

REVISION DATE: 01-02-2011 SUPERSEDES: 02-26-2003

ODOR THRESHOLD:	Not established
SPECIFIC GRAVITY:	1.55
SOLIDS (% by weight):	100%
pH:	Not established
BOILING POINT (deg. C): FREEZING/	Not established
MELTING POINT (deg. C): VAPOR PR	Not established
ESSURE (mm Hg):	Not established
VAPOR DENSITY: EV	Not established
APORATION RATE:	Not established
OCTANOL/WATER COEFFICIENT:	Not established

SECTION 10: STABILITY AND REACTIVITY

STABILITY:	Stable under normal conditions.
HAZARDOUS POLYMERIZATION: HAZARDOU	Will not occur.
S DECOMPOSITION PRODUCTS:	Carbon monoxide, carbon dioxide

SECTION 11: TOXICOLOGICAL INFORMATION

Chronic Toxicity: None known

SECTION 12: ECOLOGICAL INFORMATION

OVERVIEW: No ecological information available

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal via incineration is recommended. Consult your state, local, or provincial authorities for more restrictive requirements.

MATERIAL SAFETY DATA SHEET

REVISION DATE: 01-02-2011 SUPERSEDES: 02-26-2003

SECTION 14: TRANSPORTATION INFORMATION

Consult Bill of Lading for transportation information.

DOT: NOT REGULATED

IATA: NOT REGULATED

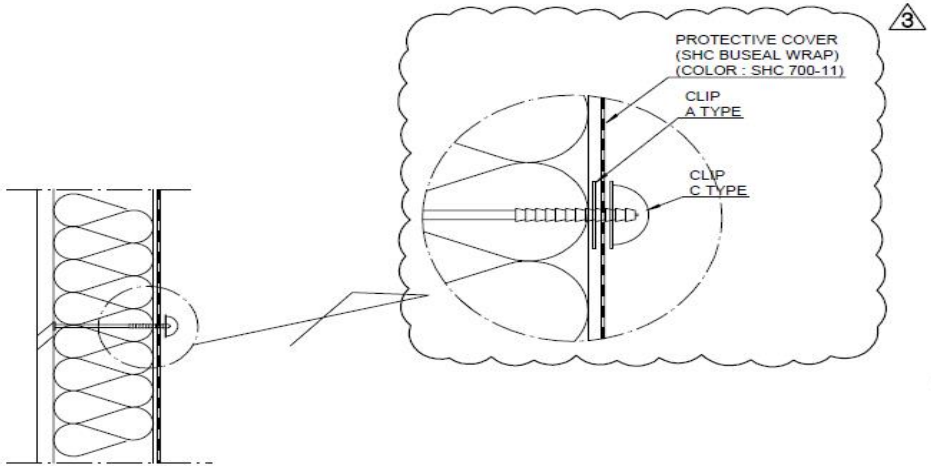
SECTION 15: REGULATORY INFORMATION

Not Regulated

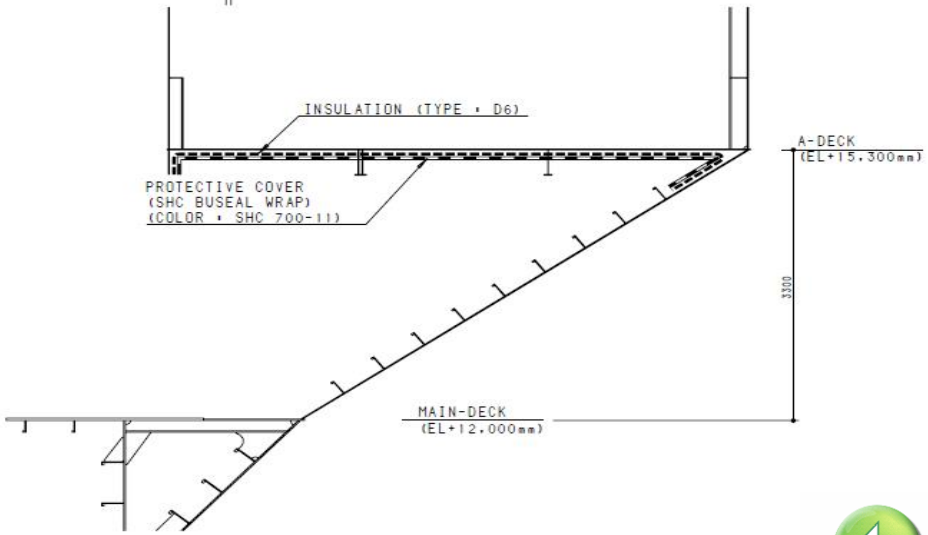
DETAIL OF PROTECTIVE COVER (SHC BUSEAL WRAP)

DWG NO.	3305DA511A101
SHEET	18 of 40

PLAN FOR PROTECTIVE COVER

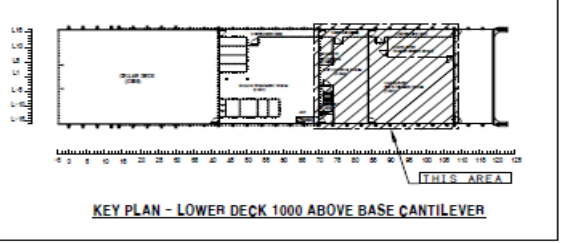


DETAIL "A"



SECTION "Z"-"Z" (PAGE 20)
SCALE=1/50

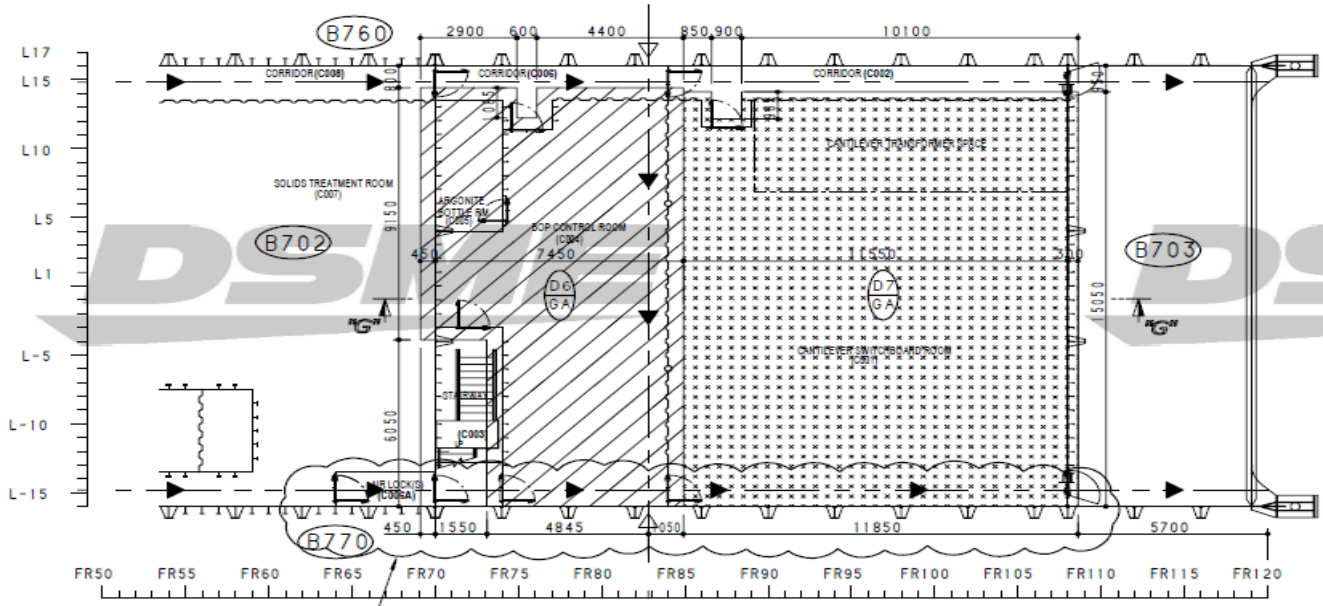
DWG NO.	3305DW70AA002
SHEET	31 of 33



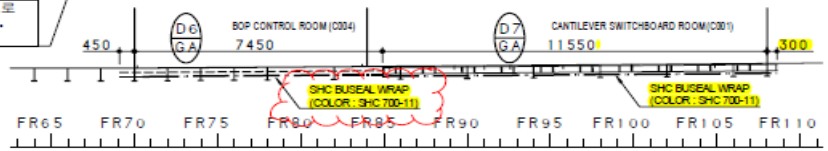
KEY PLAN - LOWER DECK 1000 ABOVE BASE CANTILEVER

BLOCK NO. B704 - LOWER DECK 1000 ABOVE BASE CANTILEVER

SCALE = 1/150



NOTE: 500 GRADE 이상 특이강재이므로 WPS(예열/용접) 에따라 설치바람. ("예열온도 TABLE" 표지불참)



SECTION "G"-"G"

SCALE = 1/150

NOTE

1. 각 SYMBOL에 대한 상세 DETAIL (PAGE 06 ~ 09)을 참고하여 시공할 것. (보온재 철이는 보온재 두께 +5㎜임)
2. WALL INSULATION 설치표준 SYMBOL의 화살표시가 지시하는 방향임.

TYPE		SYMBOL	DESCRIPTION (THICK.•DENSITY)	REMARK
BULKHEAD INSULATION	W1	W1	A-60 60T•80KG/M3	FINISH MATERIAL : GA ⇨ GLASS CLOTH W/AL. FOIL (ABT. 0.16T. VISIBLE AREA)
	W2	W2	THERMAL 60T•80KG/M3	
	W3	W3	SOUND 50T•128KG/M3	AF ⇨ AL. FOIL (ABT. 0.04T. INVISIBLE AREA)
	W4	W4	A-60/SOUND (40•60) T •128KG/M3	
	W5	W5	THERMAL/SOUND 60T•128KG/M3	GC ⇨ GLASS CLOTH (ABT. 0.12T. SOUND AREA)
	W6	W6	A-60 60T•96KG/M3	
	W7	W7	THERMAL 60T•96KG/M3	
	W8	W8	SOUND (50•50) T •128KG/M3	
	W9	W9	SOUND 50T•96KG/M3	
STEEL DECK INSULATION	D1	D1	A-60 (20•45) T •64KG/M3	FINISH MATERIAL : GA ⇨ GLASS CLOTH W/AL. FOIL (ABT. 0.16T. VISIBLE AREA)
	D2	D2	THERMAL (20•45) T •64KG/M3	
	D3	D3	SOUND 50T•128KG/M3	AF ⇨ AL. FOIL (ABT. 0.04T. INVISIBLE AREA)
	D4	D4	A-60/SOUND (55•45) T •128KG/M3	
	D5	D5	THERMAL/SOUND (20•45) T •128KG/M3	GC ⇨ GLASS CLOTH (ABT. 0.12T. SOUND AREA)
	D6	D6	A-60 (20•45) T •96KG/M3	
	D7	D7	THERMAL (20•45) T •96KG/M3	
	D8	D8	SOUND (50•50) T •128KG/M3	
▼▼▼▼▼▼▼▼▼▼▼			BHD HEAT BRIDGE	
▽▽▽▽▽▽▽▽▽▽▽			DECK HEAT BRIDGE	

SYMBOL LIST FOR INSULATION – OVERHEAD DECK (2/2)

DWG NO.	3511DA511A313
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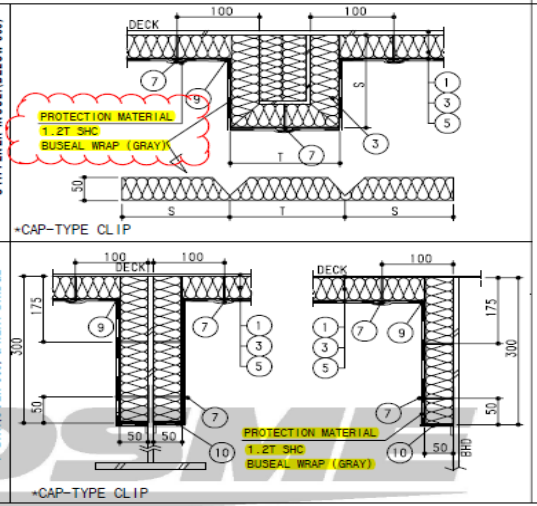
APPLICATION	TYPE & SYMBOL	TYPICAL DETAIL
PROTECTIVE COVER FOR WEATHER EXPOSED INSULATION	D5 –	STIFFENER INSUL.(BELOW 300)
		T-BAR(OVER 300) & HEAT BRIDGE

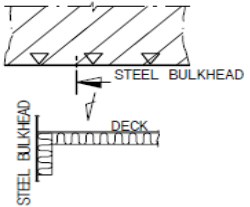


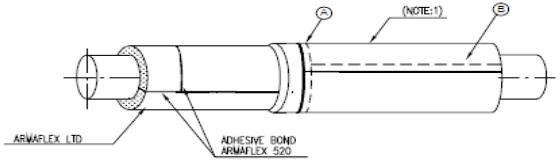
REMARK

1. STEEL DECK OR WALL
2. 50T GLASS WOOL (DENSITY:24KG/M³)
3. 50T MINERAL WOOL (DENSITY:80KG/M³)
4. 45T AES WOOL FIRE MAST MARINE PLUS BLANKET (DENSITY: 64KG/M³)
5. ALUMINIUM FOIL SHEET (THICK. ABT. 0.02T) OR GLASS CLOTH COATED WITH ALUMINIUM FOIL SHEET (THICK. ABT. 0.13t)
6. INSULATION PIN (50L) W/ CLIP (3.2Ø)
7. INSULATION PIN (60L) W/ CLIP (3.2Ø)
8. INSULATION PIN (100L) W/ CLIP (3.2Ø)
9. ALUMINIUM FOIL TAPE OR GLASS CLOTH W/AL.FOIL TAPE
10. FIBER GLASS CLOTH W/ AL.FOIL SHEET AND AL. FOIL TAPE

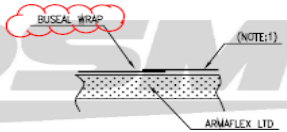
ADDITIONAL SYMBOL

DECK HEAT BRIDGE SYMBOL

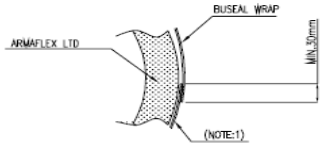




TYPICAL INSULATION OF HORIZONTAL AND VERTICAL TUBING



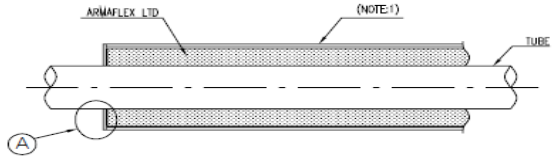
DETAIL "A"

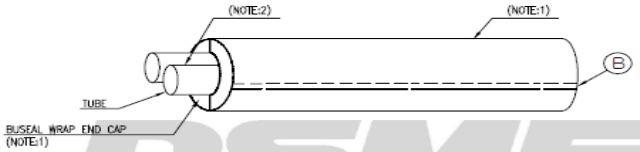


DETAIL "B"

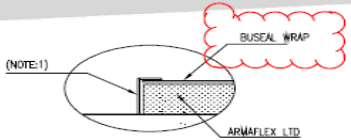
NOTE :
1. BUSEAL WRAP IS SELF ADHESIVE TYPE.
THEREFORE, NO NEED TO APPLY ADDITIONAL ADHESIVE AT JOINT.

DSME
DAEWOO SHIPBUILDING & MARINE ENGINEERING CO., LTD.
PETRONAS FLNG PROJECT
PIPING & EQUIPMENT INSULATION PROCEDURE
HEAT TRACING INSULATION FOR TUBING

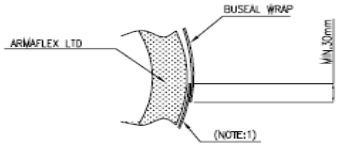




TYPICAL INSULATION OF END POINT



DETAIL "A"

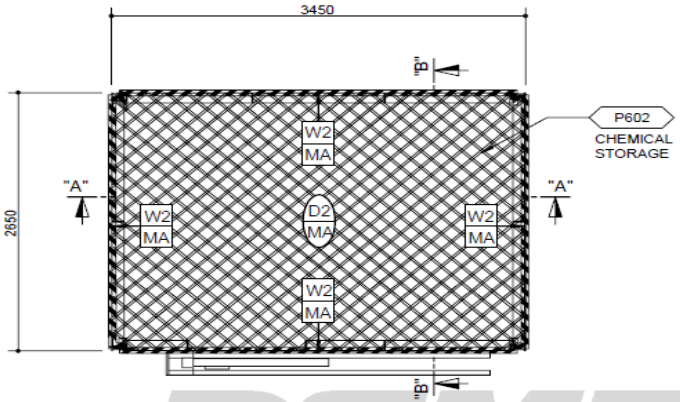


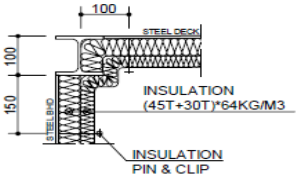
DETAIL "B"

NOTE :
1. BUSEAL WRAP IS SELF ADHESIVE TYPE.
THEREFORE, NO NEED TO APPLY ADDITIONAL ADHESIVE AT JOINT.
2. IF TWO TUBES ARE INSULATED TOGETHER,
GAP BETWEEN TUBES AT END CAP POINT TO BE SEALED WITH SILICONE .

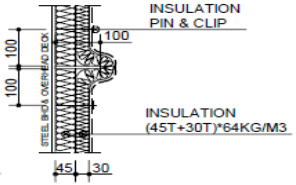
DWG NO.	6058DW70MA002
SHEET	22 of 23

P600
SCALE : 1/40

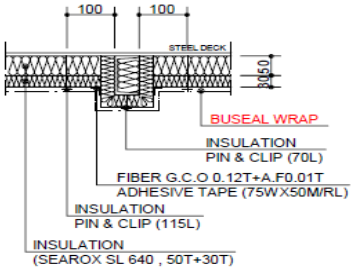




DETAI L "1"
SCALE : 1/10



DETAI L "2"
SCALE : 1/10

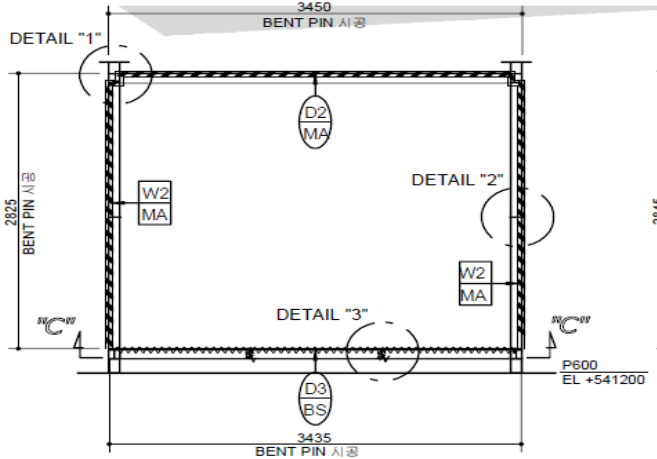


DETAI L "3"
SCALE : 1/10

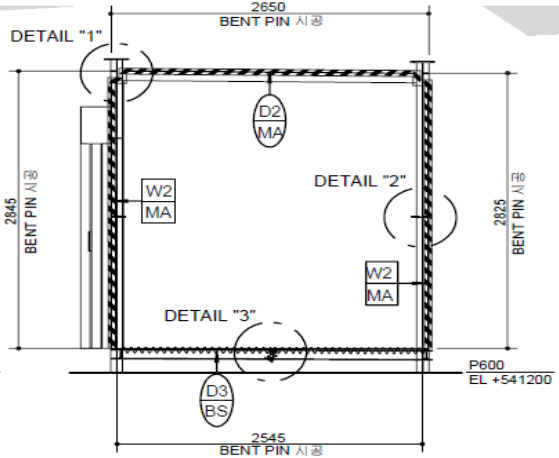
TYPE		SYMBOL	DESCRIPTION (THICK.*DENSITY)	REMARK
BULKHEAD	W1	W1	A-60 (45T+30T)*64KG/M3	FINISH MATERIAL : SS304 WIRE MESH W/ FIBER GLASS REINFORCED AL. FOIL SHEET
	W2	W2	THERMAL (45T+30T)*64KG/M3	FINISH MATERIAL : FIBER GLASS REINFORCED AL. FOIL SHEET
DECK	D1	D1	A-60 (45T+30T)*64KG/M3	
	D2	D2	THERMAL (45T+30T)*64KG/M3	BUSEAL WRAP W/ SEAROX SL 640
	D3	D3	THERMAL (50T+30T)	
				BHD HEAT BRIDGE FOR DECK INSUL.
				DECK HEAT BRIDGE FOR BHD INSUL.
				DRAFT STOP

* NOTE

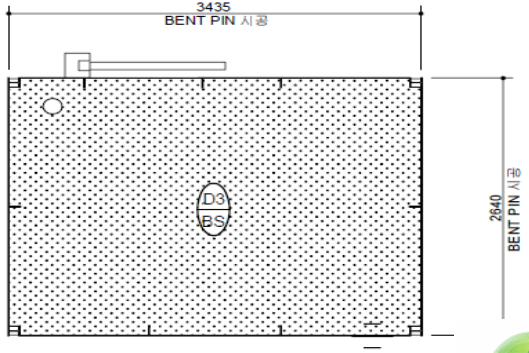
1. 각 SYMBOL 에 대한 설치 DETAIL (PAGE "6"~"9") 을 참고 하여 시공 할 것.
2. INSULATION 설치면은 SYMBOL의 화살표시가 지시하는 방향임.
3. 상세 DETAIL에 준하여 부재와 INSULATION 사이의 공간을 채울 경우, 절단하고 남은 자재를 이용하여 설치 할 것.
4. SECTION "C"-"C"에 설치되는 INSULATION (SEAROX SL640 W/ BUSEAL WRAP) , 모든 PIN 은 VENDOR에서 설치 함.
5. SECTION "C"-"C"를 제외한 모든 INSULATION은 OFFSHORE 설치 물량 임.



SECTION "A"-"A"
SCALE : 1/40



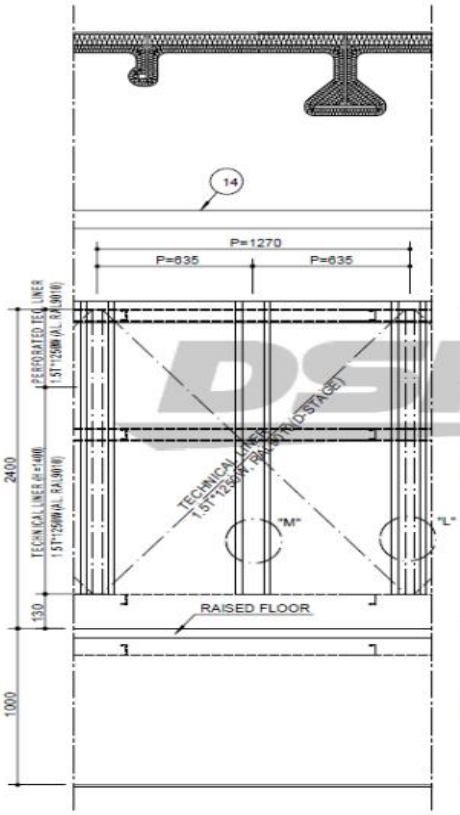
SECTION "B"-"B"
SCALE : 1/40



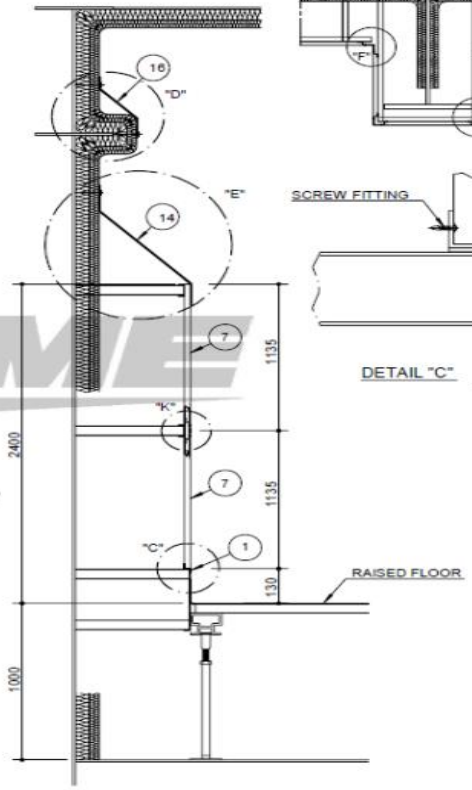
SECTION "C"-"C"
SCALE : 1/40

INSTAL. OF ALUMINUM TECHNICAL LINER

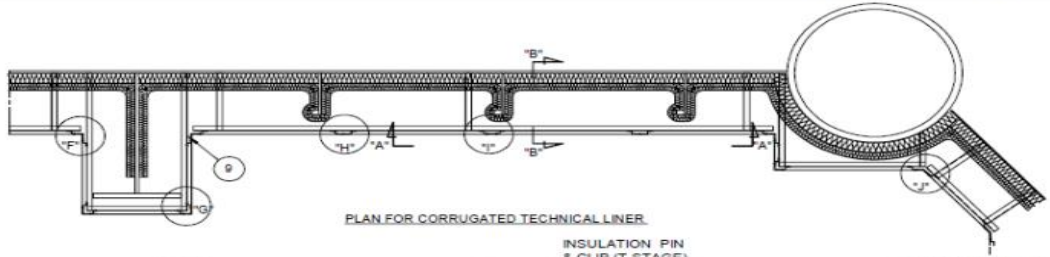
DWG NO.	6058DW73FA002
SHEET	16 of 24



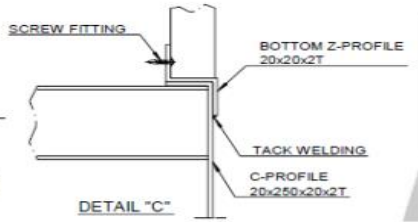
SECTION "A"-"A"



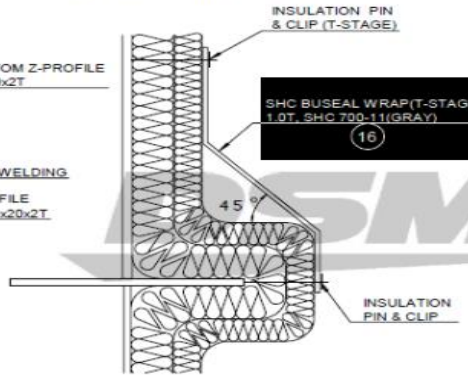
SECTION "B"-"B"



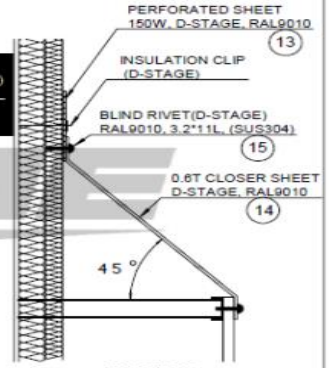
PLAN FOR CORRUGATED TECHNICAL LINER



DETAIL "C"



DETAIL "D"



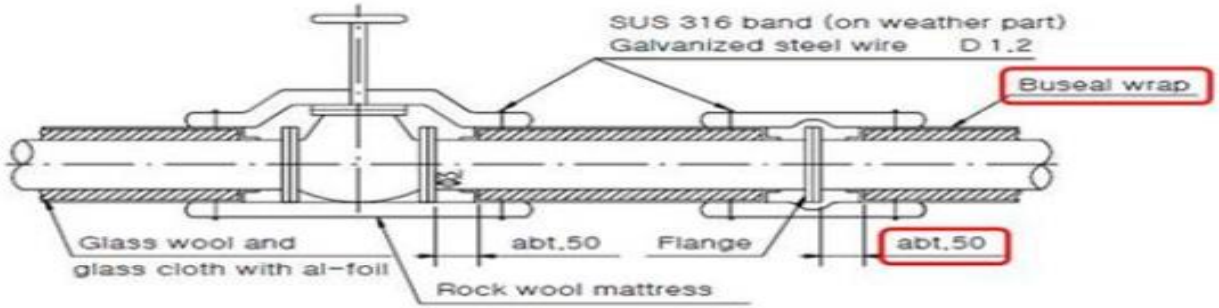
DETAIL "E"

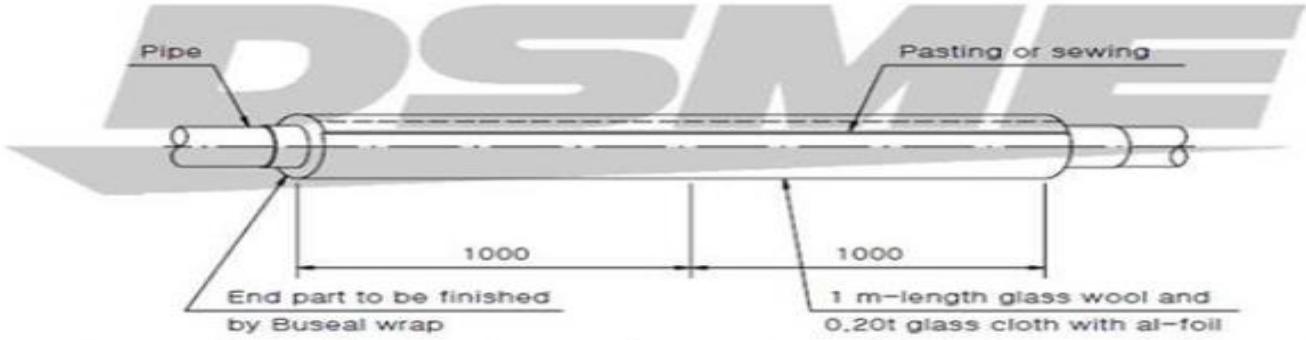
NO.	DESCRIPTION	SIZE	MATERIAL	STAGE	REMARK
1	BOTTOM Z-PROFILE(BZ-TYPE)	2.0T*20*20*20	SUS316L	P	BOTTOM (MFG)
2	LINEN SUPPORT(VJ-TYPE)	1.6T*110*16*2300L	SUS316L	D	V-JOINT (MFG)
3	LINEN SUPPORT(VC-TYPE)	1.6T*110*17.5*2300L	SUS316L	D	V-CENTER (MFG)
4	LINEN SUPPORT(HJ-TYPE)	1.6T*110*14.4*564L	SUS316L	D	H-JOINT (MFG)
5	IN-CORNER SUPPORT(IC-TYPE)	1.6T*70*70*2300L	SUS316L	D	IN-CORNER (MFG)
6	OUT-CORNER SUPPORT(OC-TYPE)	1.6T*70*70*2300L	SUS316L	D	OUT-CORNER (MFG)
7	TECHNICAL LINER(SOLD&PER.)	1.5T*1250W*2300H	AL-ALLOY	D	RAL9010 (BOM)
8	TECHNICAL LINER(SOLD)	1.5T*1250W*2300H	AL-ALLOY	D	RAL9010 (BOM)
9	TECHNICAL LINER(PERFORATED)	1.5T*1250W*2300H	AL-ALLOY	D	RAL9010 (BOM)
10	VERT. DMEGA(CTL0101)	1.5T*64*4*2300L	AL-ALLOY	D	RAL9010 (BOM)
11	VERT. DMEGA CORN.(CTL0112)	1.5T*47*47*2300L	AL-ALLOY	D	RAL9010 (BOM)
12	VERT. DMEGA CORN.(CTL0121)	1.5T*48*48*2300L	AL-ALLOY	D	RAL9010
13	PERFORATED SHEET	0.6T*150H*2438L	SS400	D	RAL9010
14	CLOSER SHEET	0.6T*XXXH*2438L	SS400	D	RAL9010
15	BLIND RIVET	3.2*11L	SUS304	D	ASI
16	SHC BUSEAL WRAP	1.0T*1000W*15M	700-11	D	GRAY (B
1	BOTTOM Z-PROFILE	2.0T*20*20*20	ST		

NAME : OA-FORM-A3

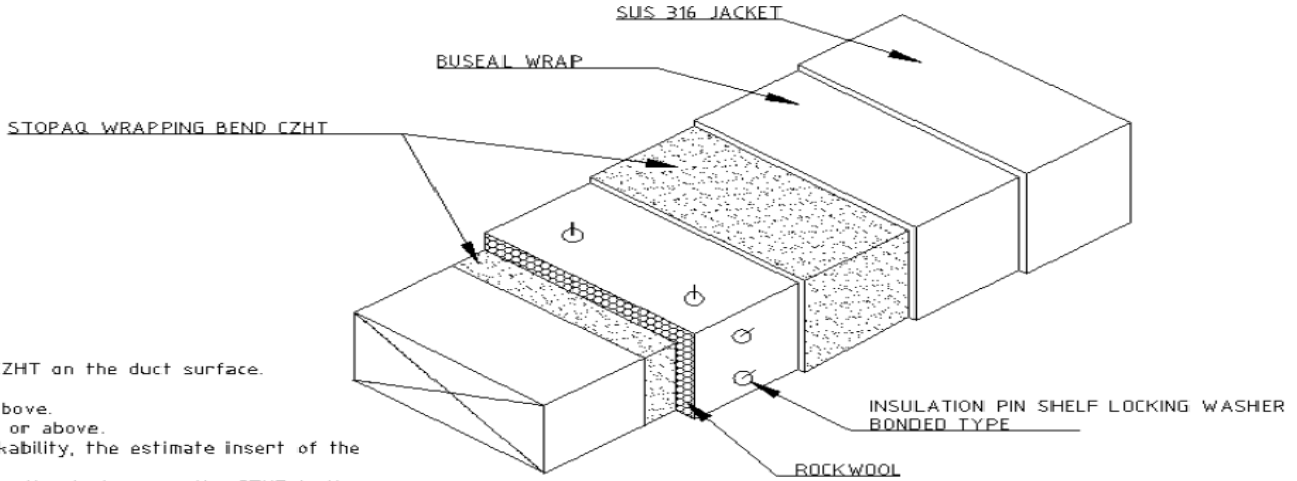
H3507~3510 Drill ship_ Cladding for L.O Purfier Pipe Line

1.4.3. Insulation for LO(Lubrication Oil) system



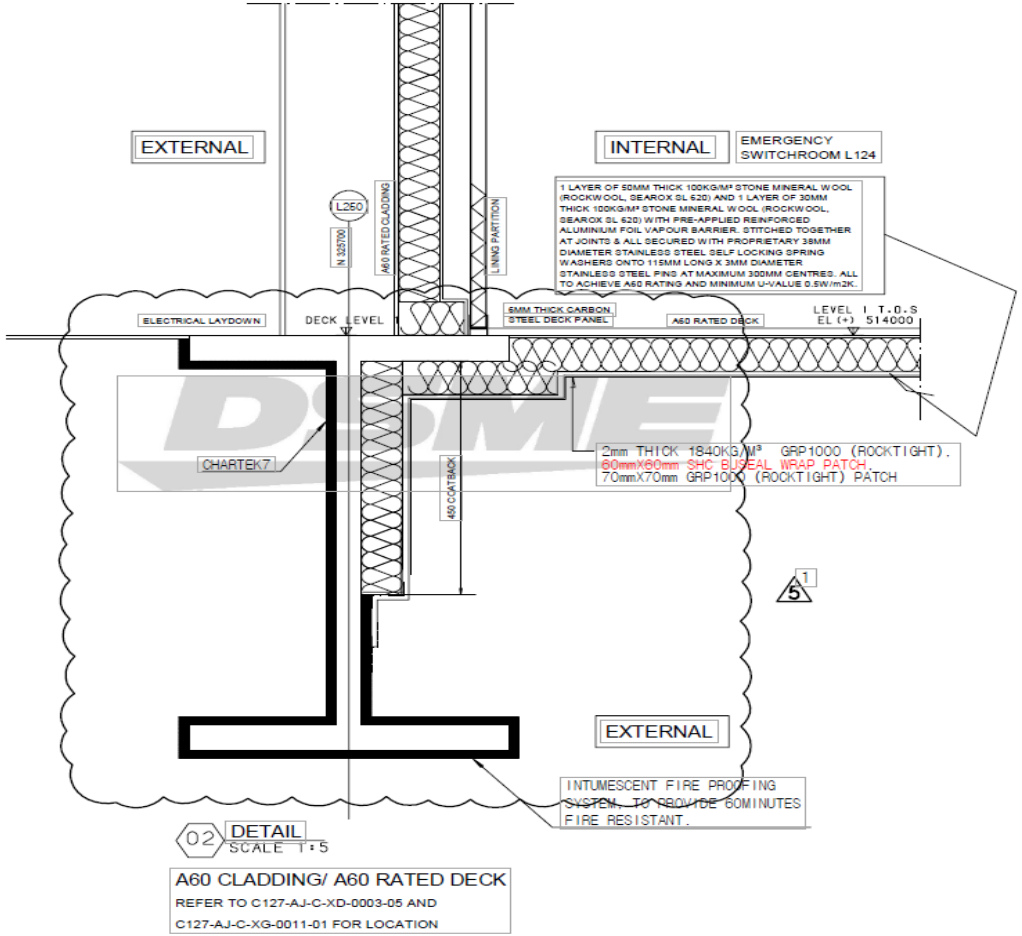


P2030 Shell prelude F-LNG_ Vapour barrier for SBM Offshore_Turret HVAC System



1. Wrap the STOPAQ wrapping-bend CZHT on the duct surface.
   - Side-by-Side overlap : 10mm or above.
   - Consecutive Rolls overlap : 50mm or above.
   - Considering the handling and workability, the estimate insert of the width is about Max. 200mm.
   - Penetrate the insulation pin on to the duct, press the CZHT in the small hole with your hand.
2. Utilize the Rockwool SL970 Alu. product to perform thermal insulation.
3. Install STOPAQ wrapping-bend CZHT same way as the NO.1 above on to the insulation, make sure you finalize the bending of the penetrated insulation pin.
4. Measure & Cut the buseal wrap accordingly to the insulation and cover it.
   - Overlap amount will be applied as same the STOPAQ wrapping-bend.
5. First you will measure & cut the SS316 accordingly before the insulation.
6. Install the SS316 removable cover where it is necessary.

PROJECT NO.	PROJECT NAME	CUSTOMER	CLASS
APPROVADE	-		
CHECKED	TITLE	DATE	2, Apr, 2016
DRAWING B.G NAM	INSTALLATION PROCEDURE FOR DUCT INSULATION	SCALE	
PNK ENGINEERING CO., Ltd			



A60 CLADDING/ A60 RATED DECK

REFER TO C127-AJ-C-XD-0003-05 AND C127-AJ-C-XG-0011-01 FOR LOCATION