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DA QA Procedure Procedure for Packing_Shipping and Transportation of TCPH Assembly


This document contains packing scheme for TCPH assembly.

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<i>Change Log</i>			
Procedure for Packing, Shipping and Transportation of TCPH Assembly (9EL9BX)			
<i>Version</i>	<i>Latest Status</i>	<i>Issue Date</i>	<i>Description of Change</i>
v1.0	Approved	15 Nov 2023	
v1.1	Approved	12 Mar 2024	Revised as mark R2 to address the reviewer's comments <ul style="list-style-type: none"> - Protection from water ingress from lug area included at clause 7.0 - Bellow protection added at clause 8.3 - Report format added


VACUUM
 TECHNIQUES Pvt. Ltd.

 Procedure for Packing , Shipping
 and Transportation of TCPH
 Assembly

Type of document	: Procedure for Packing , Shipping and Transportation of TCPH Assembly
Document Ref. number	: VTPL/E-190172/PFP/ITER (I)/01
Project Name	DESIGN, FABRICATION AND SUPPLY OF TORUS CRYOPUMP HOUSING(TCPH) WITH BELLOWS AND OTHER LOOSE ITEMS
Contract Number	: I-I/LOI/TN/19002/TCPH/2019-20
Revision Number	

2	12-03-2024	Comments Made by I-I/O are incorporated.	Sultan 	M Khan 
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0	09-09-2023	FIRST ISSUE	Sultan 	M Khan 
REV.	DATE	CONTENT	PREPARED BY	APPROVED BY

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**1.0. Purpose:**

The purpose of this procedure is to established sea Worthy packing of TCPH assemblies, loose items and handling during equipment transportation.

**2.0. Scope:**

This procedure applies for TCPH assemblies and other loose items associated with TCPH supply.

**3.0. Reference Documents**

- Appendix-II-TCPH-APB3-09, Labelling, Cleaning, Packing shipping and Handling
- ITER Vacuum Handbook RDB3_07, ITER_D_2EZ9UM_v2.3
- Handling Analysis report reference: NEPL/VTPL/NR-02/210623/R1
- Transport fixture drawing No.: F-19138-TCPH-TS-01-00

4.0. Packing Material Planning

Packing materials required for are follows, shall be arranged

- Bubble sheet-35GSM.
- VCI sheet -65Micron
- LD power shrink. (Milky white or Transparent)-300 Microns
- Silica Gel- Desiccant
- Clear tape-2 inch

**5.0. Pre packing Verification**

- 4.1. All inspection and testing activities shall be completed prior to start of packing
- 4.2. TCPH assembly shall be cleaned externally as per the approved procedures soon after factory acceptance test and components shall be packed immediately to protect component cleanliness.
- 4.3. TCPH assembly shall be placed on the support structure manufactured for the transportation purpose.

**6.0. Multi wrap Packing Procedure:**

- 6.1. TCPH along with Bellows shall be transported in closed condition duly filled with dry nitrogen gas (<100 ppm water) at a positive pressure of 0.1 kg/cm².
- 6.2. All loose items will be Packed in a separate wooden box with the following same procedures
- 6.3. Spread the LD power shrink sheet, then followed by 35 GSM bubble sheet And VCI sheet. foam sheet of suitable thickness to be added on TCPH at sharp corners to avoid rupture as shown in the figure-1 below

**Figure-1**

- 6.4. Place the Silica gel at different place on the product as shown in figure-2 below

**Figure-2**



Procedure for Packing , Shipping and Transportation of TCPH Assembly

6.5. The product is cover with VCI sheet & bubble sheet, as shown in figure-3

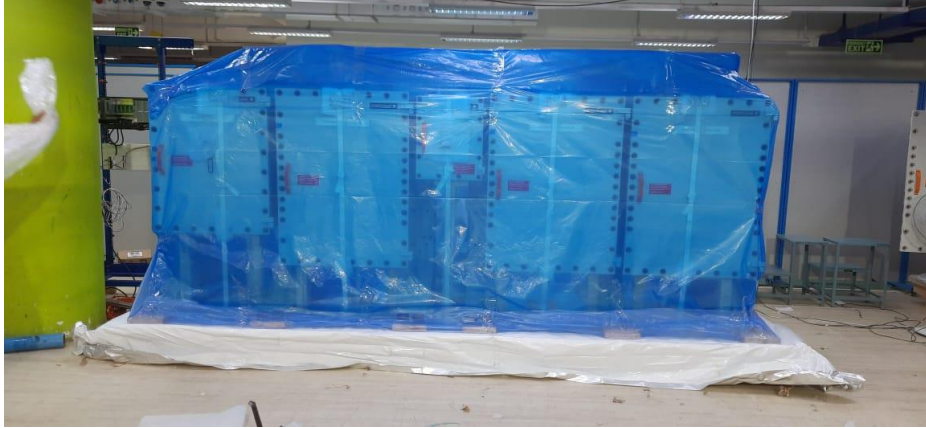


Figure-3

6.6. Then the product is covered by LD power shrink then do heat shrinkprocess. As shown in figure-4



Figure-4

6.7. Before loading into cargo, ensure cargo cleaned properly.

7.0. Post Packing of Handling of TCPH

Lifting of post packing of TCPH components shall be lifted with lifting lugs outside the packing as shown in Figure-5.

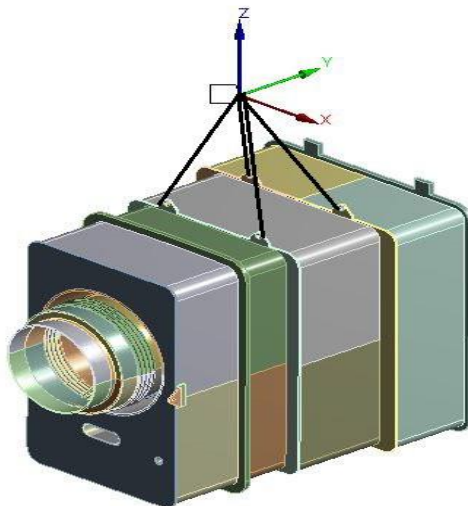


Figure-5

R2 Capping shall be provided for the lifting lug outside along with a temporary cover as shown in figure-6 to protects from possible water ingress from lug area.
 After packing of Product, product will be lifted and place on the vehicle. Cover the lifting lugs outside with packing material and finally cover with Duct tape, It avoids water particles and moisture to go inside.

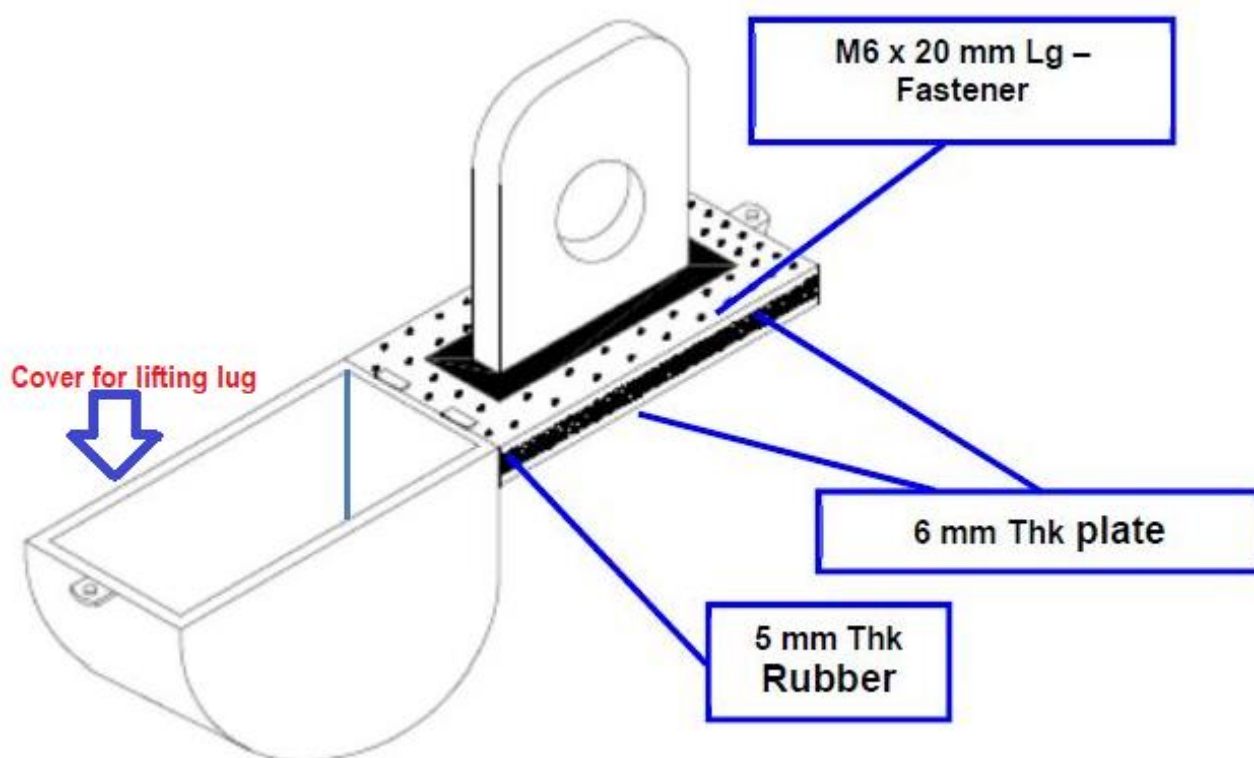



Figure-6

Precautions shall be taken to protect from humidity & water ingress from handling lugs & arrangement of shall be protected by covering components with shrink fit layer.

 **8. Bellow and seating surface protection during the shipping and Transportation**

8.1. All machined interfaces including seating surfaces of Cryo pump flange are to be protected against damage using temporary suitable arrangement/covers. Any damage observed on these surfaces due to these arrangements shall be rectify by VTPL.

8.2. Accelerometer will installation.



8.3. Welded bellow assembly will be protected with tie rods to avoid possible damages of bellow due to vibration during the transportation, bellows ply will be covered with the poly foam packing wrap.

8.4. All packed components shall be stored in a covered and protected area to prevent any damage or erosion to packing.

 **9. Product data sheets of packing materials**

- Material Safety data sheet of Dry Care Desiccant-Annexure-1
- Technical Data sheet of VCI-Corrosion Protection film-Annexure-2
- Technical Data sheet/Test Report of LD Shrink roll-Annexure-3

Tentative Service Provider for the packing : Pronk Multiservice India Pvt. Ltd
Bangalore



Procedure for Packing , Shipping and Transportation of TCPH Assembly

10. Packing Format



Shipping From: Vacuum Techniques Pvt. Ltd, Bangalore	Invoice No.& Date:
Consignee: ITER Organization	Work Oder No.:
	Country of Origin:
	Country of Final designation:
Pre carriage by:	Handling Instruction(if any):
	Place of receipt of pre carriage:
Container no:	Port of landing:
Photos of Consignment(Pre packing stage)	Photos of Consignment(After packing)

Container No./identification	No. of Packages	Description of Goods	Quantity	Sizes L x H x B
Net Weight:			Gross weight:	
Quality Assurance Vacuum Techniques Pvt. Ltd.		Despatch In Charge Vacuum Techniques Pvt. Ltd.		Inspection Agency-ITER-India/TPI

Annexture-1**Material Safety Data Sheet
DRY CARE - DESICCANT****1. Product & Company Identification****Commercial Product Name**

Dry Care : This product is in granular form and packed in different size and bag material is Tyvek^R Dupont. For use as a desiccant.

Component	CAS No.	OSHA/PEL	ACGIH/TLV
<u>montmorillonite</u>	1302-78-9	5.0 mg/m ³ .in. respirable form	5.0 mg/m ³ .in. respirable form

Company Identification

D K S Desiccant Pvt Ltd.

B – 81 Sector – 60 ,

Noida.

2. Composition / Information on ingredients

Consist of a highly performance natural clay

Hazards identification : No hazard..

3 Hazards Identification

Ingestion : Nil

Skin Contact : Normal handling of product will have no negative effect.

Fire : Not combustible

Explosion : Nil

4 First Aid Measures

Skin Contact : No Negative effect

Eye Contact : Rinse with plenty of water.

5. Accidental Release measures

Personal precautions :

No special environmental precautions required.

Environmental precacutions :

No special environmental precautions required.

Methods for cleaning UP :

Shovel or sweep up. Shovel into suitable container for disposal. Avoid dust forming. Dispose of as normal trade waste in compliance with local & national regulations.

6. Fire- Fighting measures

Suitable Extinguishing Media :

Standard procedure for fires.

Specific hazards :

None

Special protective Equipment for firefighter:

Wear self-contained breathing apparatus & protective suit.

7. Handling & Storage

Handling safe handling advice

Avoid contact with eyes. Do not breathe dust.

Ensures adequate ventilation

Storage Technical measures / Storage condation

Keep container or package tightly closed, being stored in dry environment.

Incompatible product

N.A.

8. Exposure controls / Personal protection

Control parameters exposure limit (s)

Not available.

Personel protection Equipment Hygiene measures.

Avoid contact with eyes. Avoid dust formation

9. Physical & Chemical properties

Color	: Brown
Odour	: None
pH	: 7
pb	: Below 30ppm
Particle size	: 1-4 mm irregular granular
Physical Appearance	: Brown
Vapour pressure	: Negligible
Relative Density	: 0.95 – 1.05

10. Stability & Reactivity

Conditions to avoid

Keep condition dry & tightly closed to avoid moisture.
Absorption and contamination (hygroscopic)

Material to avoid

N.A.

Hazardous decomposition products

N.A.

11. Toxicological information

Acute toxicity	:	N . A.
Local effects	:	Eye irritation.
Sensitization	:	No data available
Chronic toxicity	:	No Data available
Human experience	:	No negative effect

12. Ecological Information

Persistence / Degradability	:	Stable
Bioaccumulation	:	No data available
Mobility	:	No data available

13. Disposal considerations

Contaminated packaging

In accordance with local and national regulations.

Waste from residues / Unused products

In accordance with local and national regulations

14. SARA 313 Chemical Breakdown

SARA Chemical Name

SARA Concentration

BRANOfol M3, R3

VCI-Corrosion Protection Film

Premium

Customized

Basic



Characteristics

BRANOfol M3 and **BRANOfol R3** are blue dyed, special polyethylene film with double-sided active VCI corrosion protection which effectively protect metal parts from corrosion during transport or storage.

They are water-proof, weldable and suitable for automatic packaging as well as bag production. **BRANOfol M3** and **BRANOfol R3** are available from 40 to 300 µm and also available as VCI-embossing film.

BRANOfol products continuously release small amounts of corrosion protection agents (VCI: Volatile Corrosion Inhibitors), helping to provide effective protection against corrosion for metal parts during transport or storage.

The protecting atmosphere is, depending on the volume of the package, available after a short time. This holds true even after having opened the package for a short time – the protecting atmosphere will be rebuilt immediately afterwards.

Duration of Protection

Depending on climate conditions and how well the packaging is sealed, **BRANOfol M3, R3** can offer protection for up to twelve months. The duration of protection can be extended if the application, storage and transport are well known.

BRANOfol M3

- nitrite free
- surpass test standard DIN EN ISO 6270-2

Protects steel, cast iron (only on contact), zinc plated steel, tin, aluminium, chromium, zinc, copper and its alloys reliably against corrosion.

The scope of protection can be extended if the used materials and alloys are known in detail.

BRANOfol R3

- contains nitrite (TRGS 615 compliant)
- surpass test standard DIN EN ISO 6270-2
- complies with TL8135-0043, level 3

Has been increasingly developed for the iron protection. It protects steel, chromium, tin, pure aluminium and cast iron against corrosion.

The scope of protection can be extended if the used materials and alloys are known in detail.

Advantages

- Environmentally friendly corrosion protection without oiling and greasing
- Packaging material and corrosion protection in one
- Metal parts are ready for use immediately
- Time efficient packaging process
- Easy to dispose and recyclable
- Protects against humidity
- Non-hazardous material
- High elasticity and tear strength
- Development of customized solutions possible



Branopac
Solutions with System

BRANOfol M3, R3



Product Information

Delivery Forms

Flat film, sheets, bags, half tubes, hoods, tubes, side-pleated Tubes, pallet liners, Boxed hoods, elastic string bags, zip lock bags.

Storage

Cool and dry, protected from direct sunlight. Shelf-life in the original packaging up to three years.

Disposal

BRANOfol M3, R3 can be recycled. Soiled film has to be disposed through waste incineration.

Operation Safety

BRANOfol M3, R3 corresponds to TRGS 615. Please see for further information the safety information sheet.

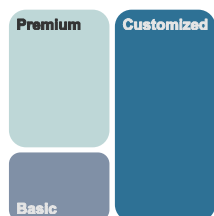
Types

BRANOfol M3	M3	-	standard
	M3 S	-	shrinkable
	M3 XS	-	highly tear-proof
	M3 SXS	-	highly tear-proof and shrinkable
	M3 XA	-	dissipative, ESD-D
	M3 ESD	-	conductive, ESD-C
	M3 FL	-	flame retardant
	M3 KL	-	cross-laminated
	M3 UV	-	UV-stable
	M3 XE	-	extra elastic
	M3 SUV	-	shrinkable and UV stable
BRANOfol R3	R3	-	standard
	R3 XS	-	highly tear-proof
	R3 SXS	-	highly tear-proof and shrinkable
	R3 XA	-	dissipative, ESD-D

Facts

Parameter	Test method	Unit	BRANOfol
Tensile strength lengthwise/transversely	DIN EN ISO 527-3/2/500	MPa	> 25
Stretching lengthwise/transversely	DIN EN ISO 527-3/2/500	%	> 600
Dart-Drop	ASTM D1709/A	g	> 550
Water vapour permeability	DIN EN ISO 5106 (23 °C, 85 % r. F.)	g/m ² * d	≤ 1
Operating temperature	Temporary: max. 70 °C Constantly: -10 °C bis 40 °C		
The mechanic parameters surpass the specifications of the norm DIN 55530.			

The information corresponds with typical values of BRANOfol M3.10XS/ R3.10 XS
Binding are the respective product specifications.



According to your requirements, you have the choice between three BRANOpac solutions: BRANOpac Basic, Premium or Customized.

Please pay close attention to thickness and impermeability to water vapour when selecting your VCI films. Both of these parameters are of decisive importance for corrosion protection and should therefore be selected with the specific application in mind.

All of the information contained herein is based on current knowledge and is not binding. Modification may be necessary to suit conditions at the location of use. No claims for damages can be made in this regard.

More information available at:

www.branopac.com
www.branopedia.com
www.facebook.com/BRANOpacGmbH

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 Solutions with System

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**Annexture-03****SEAPAC SYSTEMS***Packaging Solutions*

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Email: seapacsystems@gmail.com GST No: 29ABXFS3371E1ZL

Report No.	001	Date :	18-08-2023
Issued To	Pronk Multiservice India Pvt Ltd [E] Electronic City	Invoice No. :	SPS23241207
Product	LD Shrink Roll [Natural]	Quantity :	66.7 Kg

Inspection Report of LD Shrink [Natural]

SI No	Properties Of Test	Test Method	Tolerance	Values Reported
1.	Width	IS – 2508	1500mm +/-25mm	1503 mm
2.	Thickness	IS – 2508	300 Mic +/-30 Mic	300 Mic
	Mechanical Properties			
1.	Tensile Strength	ASTM D 882		
	MD		240 Kg/Cm2 +/-10%	255kg/Cm2
	TD		220Kg/Cm2 +/-10%	235 kg /cm2
2	Elongation	ASTM D 882		
	MD		950% +/- 100%	1020 %
	TD		1050 % +/- 100 %	1040 %
3	COF	ASTM D 1894	0.2 +/- 0.05	0.238
4	Dart	ASTM D 1709	1300 gms +/- 100gms	1410 gms
5	Seal Strength	ASTM D F88	80 N	98 N
6	Tear Strength	ISO 6383 -1		
	(MD)		42 N	45 N
	(TD)		45 N	49 N

Note : ASTM : American Society for Testing & Materials

TD : Transverse Direction

MD : Machine Direction

COF : Coefficient of friction