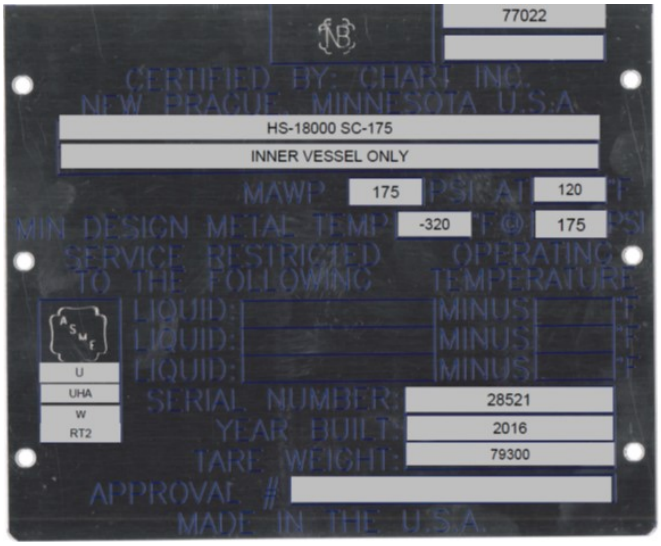
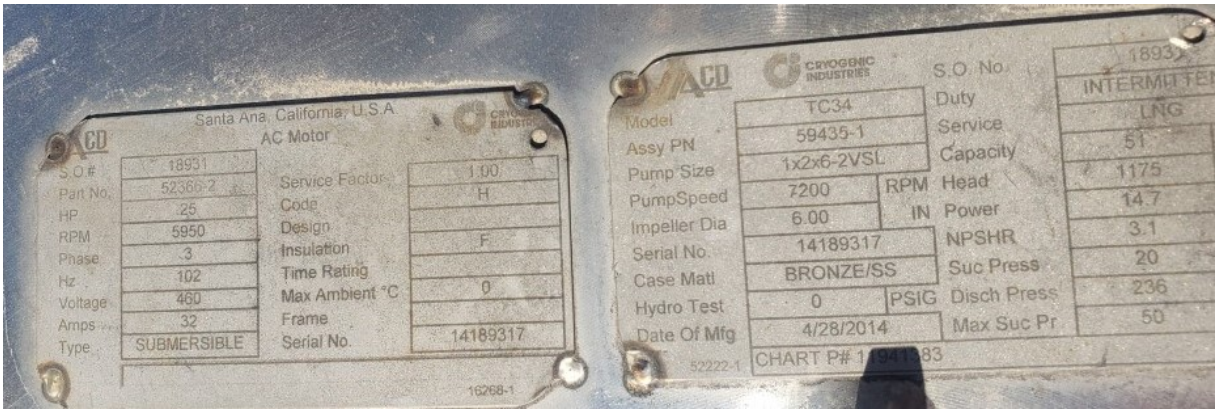
Markey Cryogenic Equipment Co.
www.markeycryo.com.
Ph: 888-471-CRYO
2796
E-mail kevin@markeycryo.com

HS-18000 SC-175 Horizontal LNG Tank

Manufacturer:	Chart USA
Year:	2016
Model:	HS-18000 SC-175
Fluid:	LNG
Capacity:	18,000 US Gallons
N.B.	77022
Serial:	28521
Min. Design Temp.:	-320* F @ 175 PSI
Test Pressure:	249 PSI
MAWP:	175 PSI @ 120* F
Pumps:	2 Submerged ACD TC-34KA

30’8” length | 9’5” inner diameter




Santa Ana, California, U.S.A.
AC Motor
S.O.# 18931
Part No. 52366-2
HP 25
RPM 5950
Phase 3
Hz 102
Voltage 460
Amps 32
Type SUBMERSIBLE
Service Factor 1.00
Code H
Design
Insulation F
Time Rating
Max Ambient °C 0
Frame
Serial No. 14189317
16268-1
CRYOGENIC INDUSTRIES
Model TC34
Assy PN 59435-1
Pump Size 1x2x6-2VSL
PumpSpeed 7200 RPM
Impeller Dia 6.00 IN
Serial No. 14189317
Case Matl BRONZE/SS
Hydro Test 0 PSIG
Date Of Mfg 4/28/2014
52222-1
CHART P# 1194183
S.O. No. 18931
Duty INTERMITTE
Service LNG
Capacity 51
Head 1175
Power 14.7
NPSHR 3.1
Suc Press 20
Disch Press 236
Max Suc Pr 50

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS

(Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by: Chart Inc. 407 Seventh Street NW, New Prague, Minnesota 56071 (Name and address of Manufacturer)
2. Manufactured for: SHELL (Name and address of Purchaser)
3. Location of installation: UNKNOWN (Name and address)

4. Type: HS-18000 (Horizontal or vertical tank) | 28521 (Manufacturer's serial number) | - (CRN) | D21003635 (Drawing Number) | 77022 (National Board Number) | 2016 (Year Built)
5. ASME Code, Section VIII, Division 1 | 2015 EDITION [Addenda, if applicable(date)] | NA (Code Case numbers) | LOW TEMP. SVC. UW2B UHA [Special Service per UG-120(d)]
6. Shell: SA240 T304 (Material spec. number, grade) | .548" (nominal thickness) | 0 (Corr. Allow.) | 9' 5" (Inner diameter) | 30' 8" [Length (overall)]

Body Flanges on Shells

No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Bolting: Num & Size	Bolting: Bolting Material	Bolting: Washer (OD, ID, thk)	Bolting: Washer Material
-	-	-	-	-	-	-	-	-	-	-	-	-

7. Seams: TYPE 1 [Long, (welded, dbl., sngl., lap, butt)] | FULL [R.T. (Spot or Full)] | 100 (Eff(%)) | NA (H.T. Temp.) | NA (Time, hr) | TYPE 2 Girth (welded, dbl., sngl., lap, butt) | SPOT [R.T.(spot, or full)] | 65 (Eff., %) | 7 (No. of Courses)
8. Heads: (a) Material: SA240 T304 (Spec. no., grade) (b) Material: SA240 T304 (Spec. no., grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Apex Ratio	Hemispherical Radius	Flat Diameter	Side to Pressure (convex or Concave)
(a)	END	.545"	0	NA	NA	2:1	NA	NA	NA	CONCAVE
(b)	END	.545"	0	NA	NA	2:1	NA	NA	NA	CONCAVE

Body Flanges on Heads

	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Bolting: Num & Size	Bolting: Bolting Material	Bolting: Washer (OD, ID, thk)	Bolting: Washer Material
(a)	-	-	-	-	-	-	-	-	-	-	-	-
(b)	-	-	-	-	-	-	-	-	-	-	-	-

9. MAWP: 175 (INTERNAL) | - (EXTERNAL) PSI at max. temp. 120 (INTERNAL) | - (EXTERNAL) °F
Min. design metal temp: -320 °F at 175 PSI **Hydro.**, pneu, or comb. Test pressure: 249 PSI
Proof test: NA

10. Nozzles, inspection, and safety valve openings:

Purpose (inlet, Outlet, Drain etc.)	No.	Diameter or Size	Type	Material: Nozzle	Material: Flange	Nozzle Thickness: Nom.	Nozzle Thickness: Corr.	Reinforcment material	Attachment Details: Nozzle	Attachment Details: Flange	Location (Insp. Open.)
NOZZLE	2	12.75"OD	W.E.	SA312 T304	NA	.406"	0	SA240 T304	FIG. UG-40b1	NA	NA
NOZZLE	2	14.00" OD	W.E.	SA312 T304	NA	.594"	0	SA240 T304	FIG. UG-40b1	NA	NA
DRAIN,XRAY,HYDRO	3	2.38"OD	CPLG	SA182 F304	NA	.429"	0	NA	UW16.1e	NA	NA
DRAIN, VENT, TF	3	3.00"OD	W.E.	SA479 T304	NA	.750"	0	NA	UW16.1e	NA	NA
GPL, FT,LPH	3	.840"OD	W.E.	SA312 T304	NA	.188"	0	NA	UW16.1e	NA	NA
RECIRC	1	2.00"OD	W.E.	SA479 T304	NA	.500"	0	NA	UW16.1e	NA	NA
NOZZLE	2	1.05"OD	W.E.	SA312 T304	NA	.154"	0	SA240 T304	FIG. UG-40b1	NA	NA

11. Supports: Skirt: NO (Yes or No) Lugs: NA (Number) Legs: NA (Number) Other: BUMPERS (Describe) Attached: SHELL WELDED (Where and how)

FORM U-1A (Back)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for following items of the report:

WELDED HEADS, BRIGHTON TRU EDGE HEADS, SERIAL NO. 1036495-1 AND 1036495-2; "U" NO. 51949
(Name of part. Item number. Manufacturer's Name and identifying stamp)

VACUUM JACKETED VESSEL. LOW TEMPERATURE SERVICE. INNER VESSEL CODED ONLY. IMPACT TEST EXEMPT PER UHA51(a)(4)(a) . RT-UW-51(A) AND UT PER UW51(A)(4). TEST POSITION IS HORIZONTAL. HYDRO/XRAY PORTS ARE PLUGGED AND SEAL WELDED. FOR NONCORROSIVE SERVICE.

CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certifiy that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number 8377 expires 1/15/2019

Date 9/26/2016 , Co. Name CHART, INC. (Manufacturer) Signed Denise Rynda (Representative)

CERTIFICATE OF SHOP/FIELD INSPECTION

Vessel constructed by Chart Inc at 407 7TH STREET NW, NEW PRAGUE, MINNESOTA 56071

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by ONECIS INSURANCE COMPANY

have inspected the component described in this Manufacturer's Data Report on 9/21/2016 , and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 9/26/2016 Signed (Authorized Inspector) Commissions NB 13148ABN [National Board (incl. endorsements)]

NB#77022

FORM U-2A MANUFACTURER'S PARTIAL DATA REPORT (ALTERNATIVE FORM)

A Part of a Pressure Vessel Fabricated by One Manufacturer for Another Manufacturer

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by: BRIGHTON TRU-EDGE HEADS, 11861 MOSTELLER ROAD, CINCINNATI OH 45241
(Name and address of Manufacturer)

2. Manufactured for: CHART (MN), 407 SEVENTH STREET NW, NEW PRAGUE MN 56071
(Name and address of Purchaser)

3. Location of installation: UNKNOWN
(Name and address)

4. Type: ELLIP HEADS 114.1875"OD x .6250"THK [Description of vessel part (shell, two-piece head, tube bundle)] | 1036495 - 1,2 (Manufacturer's serial number) | (CRN)

(National Board number) | PO# 3411189 (Drawing number) | TG# P/N A-21008662 (Drawing prepared by) | 2016 (Year built)

5. ASME Code, Section VIII, Div. 1: 2015 EDITION [Edition and Addenda (date)] | (Code Case number) | [Special service per UG-120(d)]

6. Shell (a) Number of course(s): _____ (b) Overall length _____

Course(s)			Material	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter	Length	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time

Body Flanges on Shells

No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, Thk)	Washer Material

7. Heads: (a) SA240-304 (SOLUTION ANNEALED PER UHA 44) (Material spec. number, grade or type) (H.T. - time & temp.) (b) _____ (Material spec. number, grade or type) (H.T. - time & temp.)

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)		.5450				2:1						1	FULL	Unk.
(b)														

Body Flanges on Heads

	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, Thk)	Washer Material
(a)												
(b)												

8. MAWP _____ (Internal) _____ (External) at max. temp. _____ (Internal) _____ (External) Min. design metal temp. _____ at _____.

9. Impact test: NO [indicate *yes* or *no* and the component(s) impact tested] at test temperature of _____.

10. Hydro., pneu., or comb. test pressure: NONE Proof test _____

11. Nozzles, Inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	

12. Identification of part(s)

Name of Part	Quantity	Line No.	Mfr's. Identification No.	Mfr's Drawing No.	CRN	National Board No.	Year Built

13. Supports: Skirt _____ (Yes or no) Lugs _____ (Number) Legs _____ (Number) Others _____ (Describe) Attached _____ (Where and how)

14. Remarks: NO DESIGN FUNCTION BY BRIGHTON TRU-EDGE HEADS. * HEADS CONSTRUCTED IN ACCORDANCE WITH APPENDIX 44-6-1 (g).

FORM U-2A (Back)

CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1.

U Certificate of Authorization Number 51,949 Expires 11/25/2018

Date 8-2-2016 Name BRIGHTON TRU-EDGE HEADS (Manufacturer) Signed (Representative)

CERTIFICATE OF SHOP/FIELD INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by The Hartford Steam Boiler Inspection and Insurance Company of Connecticut of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 8-2-2016, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel part in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel part described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 8-2-2016 Signed (Authorized Inspector) Commissions NB10504A (National Board (incl. endorsements))