

TỔNG CÔNG TY CỔ PHẦN
DỊCH VỤ KỸ THUẬT DẦU KHÍ VIỆT NAM
CÔNG TY CỔ PHẦN
DỊCH VỤ KỸ THUẬT PTSC THANH
HÓA

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Thanh Hóa, ngày 30 tháng 06 năm 2025

Số: 3006/TH-QLT&VHBD
V/v Đề nghị chào giá PSV và Control Valve

Kính gửi: Quý Nhà Cung cấp

Công ty Cổ phần Dịch vụ Kỹ thuật PTSC Thanh Hóa (PTSC Thanh Hóa) hiện đang có nhu cầu Mua sắm PSV và Control Valve cho Dự án thiết kế, mua sắm, lắp đặt, tiền chạy thử và chạy thử cụm máy phát điện tuabin hơi số 3 (EPC - STG#3) tại Nhà máy Lọc hóa dầu Nghi Sơn kính mời Quý Công ty tham gia chào giá cung cấp hàng hóa, cụ thể như sau:

Stt	Tên	Thông số kỹ thuật	Đơn vị	Số lượng	Ghi chú
1.	Mua sắm PSV và Control Valve cho Dự án thiết kế, mua sắm, lắp đặt, tiền chạy thử và chạy thử cụm máy phát điện tuabin hơi số 3 (EPC - STG#3) tại Nhà máy Lọc hóa dầu Nghi Sơn	Chi tiết bảng kê 01 đính kèm			

1. Phạm vi công việc/ phạm vi cung cấp: PSV và Control Valve cho Dự án thiết kế, mua sắm, lắp đặt, tiền chạy thử và chạy thử cụm máy phát điện tuabin hơi số 3 (EPC - STG#3) tại Nhà máy Lọc hóa dầu Nghi Sơn

2. Yêu cầu kỹ thuật:

- Hàng mới 100%, chưa qua sử dụng.
- Bảo hành theo tiêu chuẩn của nhà sản xuất.

3. Tài liệu/chứng chỉ: CO, CQ (Bản gốc hoặc Sao y bản chính) và các tài liệu khác như bảng kê đính kèm;

4. Hồ sơ năng lực, kinh nghiệm của NCC (nếu yêu cầu): Vui lòng cung cấp hồ sơ năng lực, kinh nghiệm cung cấp hàng tương tự (nếu được yêu cầu);

5. Điều kiện và điều khoản hợp đồng/đơn hàng:

- Thanh toán trong vòng 30 ngày kể từ ngày đầy nhận đầy đủ giấy tờ hồ sơ hợp lệ;
- Đúng yêu cầu kỹ thuật ...

6. Đồng tiền chào giá: Việt Nam Đồng (VNĐ);

7. Điều kiện chào giá:

- Giá chào chưa bao gồm thuế VAT theo quy định hiện hành.
- Giá đã bao gồm toàn bộ chi phí liên quan đến việc cung cấp hàng hóa đến địa chỉ giao hàng, bao gồm nhưng không giới hạn:
 - Chi phí vận chuyển và giao hàng đến Công ty PTSC Thanh Hóa, tại: Cảng PTSC Thanh Hóa – Thôn Nam Sơn, Phường Nghi Sơn, Tỉnh Thanh Hóa.
 - Thuế hải quan, thuế nhập khẩu/xuất khẩu (nếu có).
 - Thuế thu nhập doanh nghiệp, thuế thu nhập cá nhân hoặc các loại thuế, phí khác có liên quan.

8. Điều kiện và thời gian giao hàng:

- Nhà cung cấp cần nêu rõ thời gian giao hàng trong báo giá, tính từ ngày ký kết Hợp đồng/Đơn đặt hàng..
- Người liên hệ nhận hàng: Ông Nguyễn Việt Ước – SĐT: 0822 711 166.

9. Điều kiện thanh toán: Thanh toán bằng hình thức chuyển khoản.

10. Thời gian nộp chào giá: Thư chào giá phải được gửi đến PTSC Thanh Hóa trước **10h00 ngày 11/07/2025**.

11. Thời gian hiệu lực của chào giá: Tối thiểu **30 ngày** kể từ ngày nộp chào giá

12. Chào giá của Quý Công ty phải được ký bởi đại diện có thẩm quyền và gửi về Công ty PTSC Thanh Hóa **bằng phong bì kín, niêm phong** theo thời gian nêu tại mục 10 nói trên, người nhận Ông Nguyễn Việt Ước – Nhân viên thương mại, Phòng QLT&VHBD.

Trân trọng cảm ơn!

[GIÁM ĐỐC]

Nơi nhận:

- Như trên
- Lưu VT,.....

Tài liệu gửi kèm (nếu có):

- Phạm vi công việc
- Tài liệu kỹ thuật PSV & Control Valve như đính kèm

Bảng kê 01/ Attachment 01 : Danh sách hàng hóa/List of Goods

STT	Title	Valve Type	Tag Name	Drawing	Series	Kích thước Valve	Rate/Class	Part No	PART NAME	Chất liệu	Số lượng	Đơn vị	Hãng sản xuất	REMARK
1	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7330	20140 4505-03-2	2014 484505	1"-3/4"	150-150	2	DISC	K-MONEL	1	PC	FUKUI SEISAKUSHO	
2	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7330	20140 4505-03-2	2014 484505	1"-3/4"	150-150	8	ADJUSTING RING	SUS316-TP	1	PC	FUKUI SEISAKUSHO	
3	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7330	20140 4505-03-2	2014 484505	1"-3/4"	150-150	11	LOWER SPRING WASHER	SUS316	1	PC	FUKUI SEISAKUSHO	
4	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7330	20140 4505-03-2	2014 484505	1"-3/4"	150-150	12	UPPER SPRING WASHER	SUS316	1	PC	FUKUI SEISAKUSHO	
5	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7330	20140 4505-03-2	2014 484505	1"-3/4"	150-150	13	SPRING	INCONEL-X750EQ.	1	PC	FUKUI SEISAKUSHO	
6	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7330	20140 4505-03-2	2014 484505	1"-3/4"	150-150	18	O-RING	FKM	1	Set	FUKUI SEISAKUSHO	
7	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7330	20140 4505-03-2	2014 484505	1"-3/4"	150-150	25	GASKET	V7010			FUKUI SEISAKUSHO	
8	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7330	20140 4505-03-2	2014 484505	1"-3/4"	150-150	26	GASKET	V7010			FUKUI SEISAKUSHO	
9	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7330	20140 4505-03-2	2014 484505	1"-3/4"	150-150	27	GASKET	V7010			FUKUI SEISAKUSHO	
10	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7340	20140 4506-03-2	2014 484506	1"-3/4"	150-150	2	DISC	K-MONEL	1	PC	FUKUI SEISAKUSHO	
11	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7340	20140 4506-03-2	2014 484506	1"-3/4"	150-150	8	ADJUSTING RING	SUS316-TP	1	PC	FUKUI SEISAKUSHO	
12	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7340	20140 4506-03-2	2014 484506	1"-3/4"	150-150	11	LOWER SPRING WASHER	SUS316	1	PC	FUKUI SEISAKUSHO	
13	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7340	20140 4506-03-2	2014 484506	1"-3/4"	150-150	12	UPPER SPRING WASHER	SUS316	1	PC	FUKUI SEISAKUSHO	
14	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7340	20140 4506-03-2	2014 484506	1"-3/4"	150-150	13	SPRING	INCONEL-X750EQ.	1	PC	FUKUI SEISAKUSHO	
15	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7340	20140 4506-03-2	2014 484506	1"-3/4"	150-150	18	O-RING	FKM	1	Set	FUKUI SEISAKUSHO	
16	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7340	20140 4506-03-2	2014 484506	1"-3/4"	150-150	25	GASKET	V7010			FUKUI SEISAKUSHO	
17	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7340	20140 4506-03-2	2014 484506	1"-3/4"	150-150	26	GASKET	V7010			FUKUI SEISAKUSHO	
18	PSV TYPE RECL161-B(A)	PSV, FF, Type: RECL161-B(A)	113-PSV-7340	20140 4506-03-2	2014 484506	1"-3/4"	150-150	27	GASKET	V7010			FUKUI SEISAKUSHO	
19	PSV TYPE RECL161-(A)	PSV, RF, Type: RECL161-(A)	113-PSV-7367B	20140 4721-02-2	2014 484721	1"-3/4"	150-150				1	PC	FUKUI SEISAKUSHO	
20	PSV TYPE RECL161-(A)	PSV, RF, Type: RECL161-(A)	113-PSV-7367D	20140 4722-02-2	2014 484722	1"-3/4"	150-150				1	PC	FUKUI SEISAKUSHO	
21	PSV TYPE REC371-S-STM (C)	PSV, RF, TYPE REC371-S-STM (C)	113-PSV-7314	20150 0318-01-2	2015 580318	6"-4"	300-300				1	PC	FUKUI SEISAKUSHO	
22	PSV TYPE REC581-S-STM (C)	PSV, RTJ-RF, TYPE REC581-S-STM (C)	113-PSV-7309A	20140 4719-03-2	2014 484719	6"-4"	300-900	2	DISC	B637-N07750	1	PC	FUKUI SEISAKUSHO	
23	PSV TYPE REC581-S-STM (C)	PSV, RTJ-RF, TYPE REC581-S-STM (C)	113-PSV-7309A	20140 4719-03-2	2014 484719	6"-4"	300-900	3	DISC HOLDER	SUS304	1	PC	FUKUI SEISAKUSHO	
24	PSV TYPE REC581-S-STM (C)	PSV, RTJ-RF, TYPE REC581-S-STM (C)	113-PSV-7309A	20140 4719-03-2	2014 484719	6"-4"	300-900	6	GUIDE	SUS304-TP	1	Set	FUKUI SEISAKUSHO	
25	PSV TYPE REC581-S-STM (C)	PSV, RTJ-RF, TYPE REC581-S-STM (C)	113-PSV-7309A	20140 4719-03-2	2014 484719	6"-4"	300-900	7	GUIDE FLANGE	SUS304			FUKUI SEISAKUSHO	
26	PSV TYPE REC581-S-STM (C)	PSV, RTJ-RF, TYPE REC581-S-STM (C)	113-PSV-7309A	20140 4719-03-2	2014 484719	6"-4"	300-900	8	ADJUSTING RING	SUS304-TP	1	PC	FUKUI SEISAKUSHO	
27	PSV TYPE REC581-S-STM (C)	PSV, RTJ-RF, TYPE REC581-S-STM (C)	113-PSV-7309A	20140 4719-03-2	2014 484719	6"-4"	300-900	11	LOWER SPRING WASHER	SUS304	1	Set	FUKUI SEISAKUSHO	
28	PSV TYPE REC581-S-STM (C)	PSV, RTJ-RF, TYPE REC581-S-STM (C)	113-PSV-7309A	20140 4719-03-2	2014 484719	6"-4"	300-900	12	UPPER SPRING WASHER	SUS304			FUKUI SEISAKUSHO	
29	PSV TYPE REC581-S-STM (C)	PSV, RTJ-RF, TYPE REC581-S-STM (C)	113-PSV-7309A	20140 4719-03-2	2014 484719	6"-4"	300-900	13	SPRING	SKD4 EQ.	1	PC	FUKUI SEISAKUSHO	
30			No 113-TV-7305						CONTROL VALVE NPS 1 EZ 667 Size 30i DVC6200 Factory Mfgs DVC7K/DVC6200/DVC2000 167DA Series Acc		1	PC	Fisher - Emerson	

BẢNG KÊ 02/ ATTACHMENT #2: YÊU CẦU KỸ THUẬT/ TECHNICAL PART
(Đính kèm Thư mời chào giá số: 2008/TH-QLT&VHBD)

**KEY: (C) = "COMPLIANT"; (A) = "ACCEPTABLE";
(N) = "NOT COMPLAINT"; (NA) = "NOT ACCEPTABLE"; (I) = "FOR INFORMATION"**

DESCRIPTION AND PROJECT REQUIREMENT

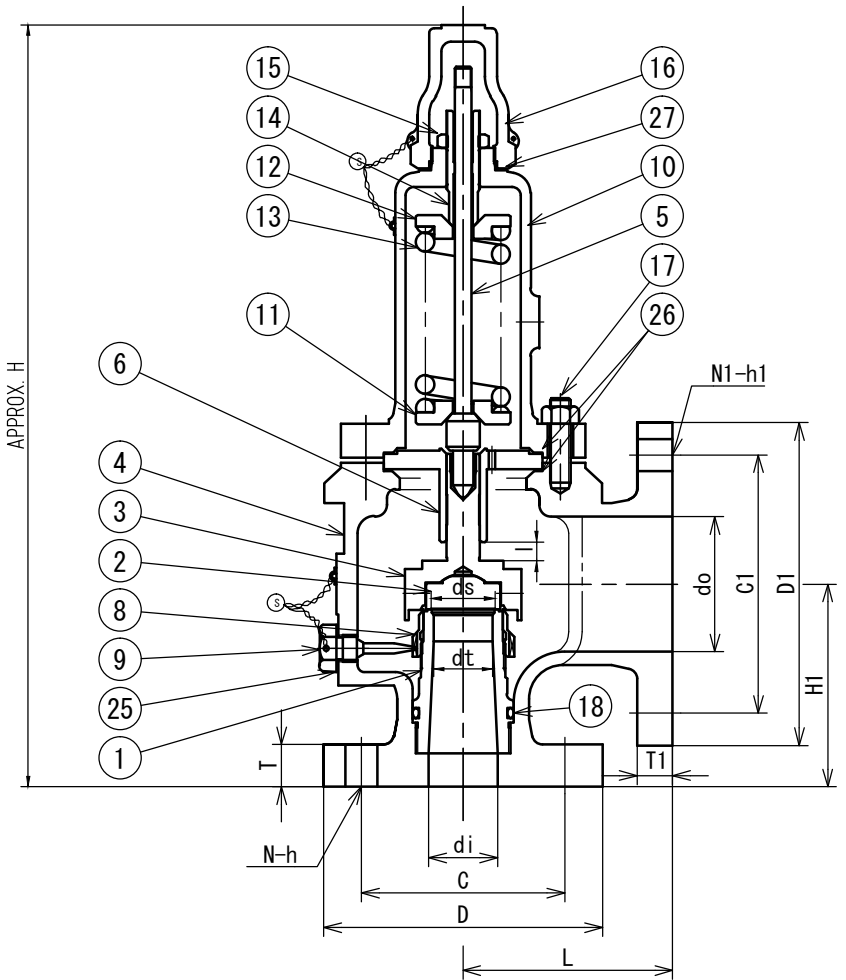
Item	Criteria	Specification Requirement	Status
1	GENERAL REQUIREMENTS		
1.1	Quotation Reference and Date	Bidder to advice, Quotation shall be submit to PTSC Thanh Hoa no later than 10h00 Aug 26 2025	
1.2	Delivery time as per the requirement	Before 10/01/2026 for Control Valve Item 30 (As per Attachment 1: List of Goods) Before 30/04/2026 for other Items	
1.3	Guarantee period	From delivery date to 30/11/2029	
1.4	Document to be submitted with Goods		
	Original Warranty Certificate	- Guarantee period: as item 1.3 above - Beneficiaries: PTSC Thanh Hoa and NSRP	
1.4.1	Document for Item 1 to 29 (As per Attachment 1: List of Goods)	Bidder to submit at delivery date	
	a) Certified true copies stamped by the direct importer of the Packing List, Bill of Lading, and Customs Declaration with price removed.	Bidder to submit at delivery date	
	b) Original or Electronic Certificate of Origin (CO) issued by the Chamber of Commerce of the manufacturing country or exporting country.	Bidder to submit at delivery date	
	c) Original or Electronic Certificate of Quality (CQ) or Certificate of Conformity (COC) issued by the Manufacturer	Bidder to submit at delivery date	
	d) Original or Electronic Test Report issued by the Manufacturer	Bidder to submit at delivery date	
1.4.2	Document for Item 30 (As per Attachment 1: List of Goods)	Bidder to submit at delivery date	
	a) Certified true copies stamped by the direct importer of the Packing List, Bill of Lading, and Customs Declaration with price removed.	Bidder to submit at delivery date	
	b) Original or Electronic Certificate of Origin (CO) issued by the Chamber of Commerce of the manufacturing country or exporting country.	Bidder to submit at delivery date	
	c) Certificate of Quality (CQ) issued by the Manufacturer and/or Type 3.1 Test Report (MTC type 3.1) issued by the Manufacturer in accordance with EN 10204:2004, and/or Certificate of Conformity (COC) issued by the Manufacturer (Copy).	Bidder to submit at delivery date	
	d) General Arrangement Drawing.	Bidder to submit at delivery date	
	e) Inspection and Test Plan (ITP).	Bidder to submit at delivery date	
	f) Certificate of Compliance for Fabricated Items	Bidder to submit at delivery date	
	g) Material Certificates and Material Test Reports	Bidder to submit at delivery date	
	h) Non-destructive Examination Reports – RT&MT	Bidder to submit at delivery date	
	i) Repair Reports(If any)	Bidder to submit at delivery date	
	j) Heat Treatment Reports	Bidder to submit at delivery date	
	k) Pressure Test Records	Bidder to submit at delivery date	

	l) Function, Mechanical & Performance Test Reports	Bidder to submit at delivery date	
	m) Painting / Coating / Galvanizing Records	Bidder to submit at delivery date	
	n) Instrument Certificates and Test Reports	Bidder to submit at delivery date	
	o) Miscellaneous Certificates and Test Reports , (If any))	Bidder to submit at delivery date	
2	SCOPE OF SUPPLY		
2.1	Scope of supply	As per Scope of Supply in Attachment #01 MTO (bidder shall supply the goods of vendor list from the stated OEM and Specification as per attached Drawings and Datasheets)	
2.2	Transportation and Shipping	DDP Term Delivery Location: NSRP Refinery	
3	TECHNICAL REQUIREMENT		
3.1	Specification for PSV	Tag: 113-PSV-7309A - Drawing No. 20140 4719-03-2 Tag: 113-PSV-7314 - Doc No. S-113-1223-0504S Tag: 113-PSV-7330 - Drawing No. 20140 4505-03-2 Tag: 113-PSV-7340 - Drawing No. 20140 4506-03-2 Tag: 113-PSV-7367B - Doc.No. S-113-1223-0504S Tag: 113-PSV-7367D - Doc.No: S-113-1223-0504S	
3.2	Specification for Control Valve	Tag: 113-TV-7305 - P&ID No. VS2158-412-A-213 - Doc. No. S-113-1374-0101S Rev.1	
3.3	Bidder Data Requirement	All the materials, (Exx-stock or new) shall have completed Bidder document required	
3.4	Material	Material shall be 100% new, unused, free of damage, sharp edges and defects Material shall be according to the OEM from the attached Drawing and Datasheet	

Note: All criteria shall be status (A) or (C) is acceptable

INDEX
11 AUGUST
24 BUILT
AS BUILT

Code : ASME SEC. 8 / API-2008
Design Type : Conventional
Quantity : 1



27	GASKET	1	V7010	
26	GASKET	2	V7010	
25	GASKET	1	V7010	
24				
23				
22				
21				
20				
19				
18	O-RING	1	FKM	
17	STUD BOLT & NUT	4	A307-B, A563-A	
16	CAP	1	CAC406	
15	ADJ. SCREW LOCK NUT	1	SUS316	
14	ADJUSTING SCREW	1	SUS316	
13	SPRING	1	INCONEL-X750EQ.	
12	UPPER SPRING WASHER	1	SUS316	
11	LOWER SPRING WASHER	1	SUS316	
10	BONNET	1	B148-C95800	
9	ADJ. RING LOCK BOLT	1	SUS316	
8	ADJUSTING RING	1	SUS316-TP	
7				
6	GUIDE	1	SUS316	
5	SPINDLE	1	SUS316	
4	BODY	1	B148-C95800	
3	DISC HOLDER	1	SUS316	
2	DISC	1	K-MONEL	
1	NOZZLE	1	K-MONEL	

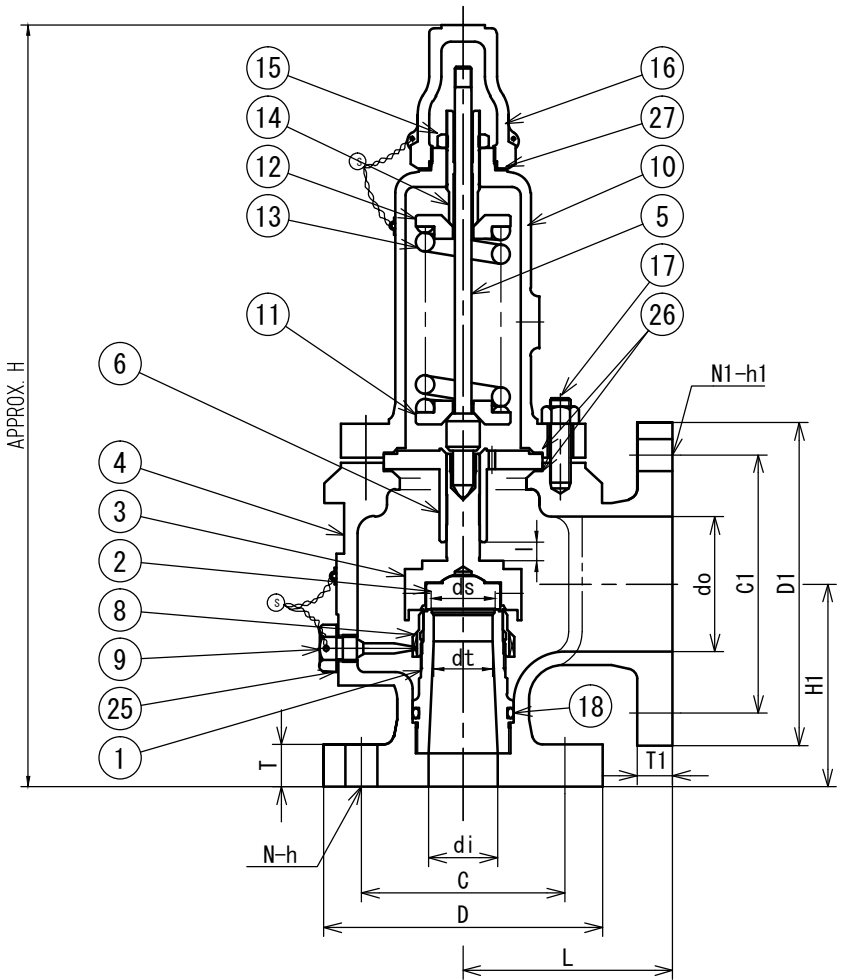
NO.	ITEM	NO. OF REQ.	MATERIAL	REMARKS
TYPE		RECL161-B(A)		
TAG NO.		113-PSV-7330		
DWG. NO.		20140 4505-03-2		
MFG. NO.		484505		

UNIT : mm

SIZE	INLET DIA.	OUTLET DIA.	SEAT DIA.	THROAT DIA.	LIFT	INLET FLANGE : ASME 150LB FF			OUTLET FLANGE : ASME 150LB FF			DRAIN HOLE	THREAD SIZE	CENTER TO FACE		APPROX HEIGHT	APPROX NET WEIGHT	SAFETY RELIEF VALVE		FORMAT NO.		
	di	do	ds	dt	l	D	T	C	N	h	D1	T1	C1	N1	h1	Rc	Rp	L	H1	H	Wt	REC161_ASC
3/4*D*1	20	25	19.5	10.6	2.7	98	19	70	4	16	108	14.5	79.5	4	16			96	81	310	9kg	FUKUI SEISAKUSHO CO., LTD.*

INDEX
113 PSV
20140308
AS-BUILT

Code : ASME SEC. 8 / API-2008
Design Type : Conventional
Quantity : 1



27	GASKET	1	V7010	
26	GASKET	2	V7010	
25	GASKET	1	V7010	
24				
23				
22				
21				
20				
19				
18	O-RING	1	FKM	
17	STUD BOLT & NUT	4	A307-B, A563-A	
16	CAP	1	CAC406	
15	ADJ. SCREW LOCK NUT	1	SUS316	
14	ADJUSTING SCREW	1	SUS316	
13	SPRING	1	INCONEL-X750EQ.	
12	UPPER SPRING WASHER	1	SUS316	
11	LOWER SPRING WASHER	1	SUS316	
10	BONNET	1	B148-C95800	
9	ADJ. RING LOCK BOLT	1	SUS316	
8	ADJUSTING RING	1	SUS316-TP	
7				
6	GUIDE	1	SUS316	
5	SPINDLE	1	SUS316	
4	BODY	1	B148-C95800	
3	DISC HOLDER	1	SUS316	
2	DISC	1	K-MONEL	
1	NOZZLE	1	K-MONEL	

NO.	ITEM	NO. OF REQ.	MATERIAL	REMARKS
TYPE		RECL161-B(A)		
TAG NO.		113-PSV-7340		
DWG. NO.		20140 4506-03-2		
MFG. NO.		484506		

UNIT : mm

SIZE	INLET DIA.	OUTLET DIA.	SEAT DIA.	THROAT DIA.	LIFT	INLET FLANGE : ASME 150LB FF			OUTLET FLANGE : ASME 150LB FF			DRAIN HOLE	THREAD SIZE	CENTER TO FACE		APPROX. HEIGHT	APPROX. NET WEIGHT	SAFETY RELIEF VALVE		FORMAT NO.		
	di	do	ds	dt	l	D	T	C	N	h	D1	T1	C1	N1	h1	Rc	Rp	L	H1	H	Wt	REC161_ASC
3/4*D*1	20	25	19.5	10.6	2.7	98	19	70	4	16	108	14.5	79.5	4	16			96	81	310	9kg	FUKUI SEISAKUSHO CO., LTD.*



**PRESSURE RELIEF VALVE
CALCULATION SHEET**

Contractor Doc. No. : S-113-1223-0504S

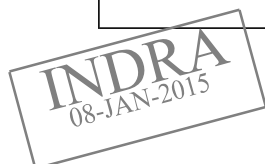
Unit No. : 113

REV	DATE	Prep'd	App'd	REV	DATE	Prep'd	App'd
0	07/JAN/15	HSJ	MJK				

Rev

General Data			
Item Number(s)	113-PSV-7367B	Design Pressure	1000 kPa [g]
Service	SCW TO HTR	Design Temperature	76 °C
Valves Required	Online: 1 Spare: -	Operating Pressure	335 kPa [g]
Type of Valve	Conventional	Operating Temperature	47 °C
Design Code / Practice:	ASME VIII / API STD 520	Atmospheric Pressure	101.3 kPa [a]
Relief Conditions	Units	Thermal Expansion	
Max Accumulated Pressure, %		110	
Accumulated Pressure	kPa [a]	1201	
PRV Inlet Cond	Inlet Relieving Pressure	kPa [a]	1201
	Inlet Temperature	°C	76
	Vapor Mass Rate	kg/h	-
	Molecular Weight		18.0
	Compressibility Factor		-
	k = Cp/Cv		-
	Liquid Volume Rate	m³/h	0.3
Sp Gr (water = 1.000)		0.992	
Relief Header Cond	Liquid Viscosity	cP	0.58
	Temperature	°C	-
	Vapor Mass Rate	kg/h	-
	Molecular Weight		-
	Liquid Volume Rate	m³/h	-
Sp Gr (water = 1.000)		-	
Kd, Coefficient of Discharge		0.717	
Kb, BP Correction Factor (vap)		-	
Kw, BP Correction Factor (liq)		1	
Kv, Viscosity Correction Factor (liq)		1.00	
KSH, Steam Superheat Correction		-	
Required Relief Orifice Area	cm²	0.02	
Valve			
Pset (1st & Spare Valve)	1000	kPa [g]	
Pset (Other Valves)	-	kPa [g]	
API Orifice Designation	D		
Total Effective Orifice Area	0.88	cm²	
Inlet Size, Rating, Facing	3/4 CL 150 RF		
Outlet Size, Rating, Facing	1 CL 150 RF		
Discharge Conditions			
Valve Discharges to	ATM		
Superimposed Back Pressure	0	kPa [g]	
Built-Up Back Pressure	100	kPa [g]	
Maximum Total Back Pressure	100	kPa [g]	

Notes





**PRESSURE RELIEF VALVE
CALCULATION SHEET**

Contractor Doc. No. : S-113-1223-0504S

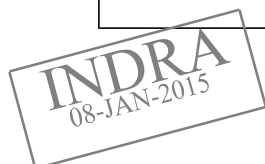
Unit No. : 113

REV	DATE	Prep'd	App'd	REV	DATE	Prep'd	App'd
0	07/JAN/15	HSJ	MJK				

Rev

General Data					
Item Number(s)	113-PSV-7367D		Design Pressure	1000	kPa [g]
Service	SCW TO HTR		Design Temperature	76	°C
Valves Required	Online:	1	Spare:	-	
Type of Valve	Conventional		Operating Pressure	335	kPa [g]
Design Code / Practice:	ASME VIII / API STD 520		Operating Temperature	47	°C
			Atmospheric Pressure	101.3	kPa [a]
Relief Conditions	Units	Thermal Expansion			
Max Accumulated Pressure, %		110			
Accumulated Pressure	kPa [a]	1201			
PRV Inlet Cond	Inlet Relieving Pressure	kPa [a]	1201		
	Inlet Temperature	°C	76		
	Vapor Mass Rate	kg/h	-		
	Molecular Weight		18.0		
	Compressibility Factor		-		
	k = Cp/Cv		-		
	Liquid Volume Rate	m³/h	0.3		
Relief Header Cond	Sp Gr (water = 1.000)		0.992		
	Liquid Viscosity	cP	0.58		
	Temperature	°C	-		
	Vapor Mass Rate	kg/h	-		
	Molecular Weight		-		
Kd, Coefficient of Discharge			0.717		
	Kb, BP Correction Factor (vap)		-		
Kw, BP Correction Factor (liq)			1		
Kv, Viscosity Correction Factor (liq)			1.00		
KSH, Steam Superheat Correction			-		
Required Relief Orifice Area	cm²		0.02		
Valve					
Pset (1st & Spare Valve)	1000	kPa [g]			
Pset (Other Valves)	-	kPa [g]			
API Orifice Designation	D				
Total Effective Orifice Area	0.88	cm²			
Inlet Size, Rating, Facing	3/4	CL 150 RF			
Outlet Size, Rating, Facing	1	CL 150 RF			
Discharge Conditions					
Valve Discharges to	ATM				
Superimposed Back Pressure	0	kPa [g]			
Built-Up Back Pressure	100	kPa [g]			
Maximum Total Back Pressure	100	kPa [g]			

Notes





**PRESSURE RELIEF VALVE
CALCULATION SHEET**

Contractor Doc. No. : S-113-1223-0504S

Unit No. : 113


REV	DATE	Prep'd	App'd	REV	DATE	Prep'd	App'd
A	27/AUG/14	HJL	MJK				
0	07/JAN/15	HSJ	MJK				

Rev		General Data					
0	Item Number(s)	113-PSV-7314		Design Pressure(2)	500	kPa [g]	
	Service	GSS FROM 113ST301		Design Temperature	450	°C	
0	Valves Required(+)	Online:	1	Spare:	-		
	Type of Valve	Conventional		Operating Pressure(2)	30	kPa [g]	
	Design Code / Practice:	ASME VIII / API STD 520		Operating Temperature	436	°C	
				Atmospheric Pressure	101.3	kPa [a]	
Relief Conditions		Units	Blocked Outlet				
Max Accumulated Pressure, %			110				
Accumulated Pressure		kPa [a]	651				
0	PRV Inlet Cond	Inlet Relieving Pressure	kPa [a]	651			
		Inlet Temperature	°C	450			
		Vapor Mass Rate(2)	kg/h	2000			
		Molecular Weight		18.0			
		Compressibility Factor		-			
		k = Cp/Cv		1.28			
		Liquid Volume Rate	m³/h	-			
0	Relief Header Cond	Sp Gr (water = 1.000)		-			
		Liquid Viscosity	cP	-			
		Temperature	°C	-			
		Vapor Mass Rate	kg/h	-			
		Molecular Weight		-			
0	KSH, Steam Superheat Correction	Liquid Volume Rate	m³/h	-			
		Sp Gr (water = 1.000)		-			
0	Kd, Coefficient of Discharge		0.869				
0	Kb, BP Correction Factor (vap)		1.00				
	Kw, BP Correction Factor (liq)		-				
	Kv, Viscosity Correction Factor (liq)		-				
0	Required Relief Orifice Area (+)	cm²	8.49				
Valve							
	Pset (1st & Spare Valve)(2)	500	kPa [g]				
	Pset (Other Valves)	-	kPa [g]				
0	API Orifice Designation (+)	J					
0	Total Effective Orifice Area (+)	9.62	cm²				
	Inlet Size, Rating, Facing (+)	3	CL 300 RF				
	Outlet Size, Rating, Facing (+)	4	CL 300 RF				
Discharge Conditions							
	Valve Discharges to	ATM					
	Superimposed Back Pressure	0	kPa [g]				
	Built-Up Back Pressure	50	kPa [g]				
	Maximum Total Back Pressure	50	kPa [g]				

Notes

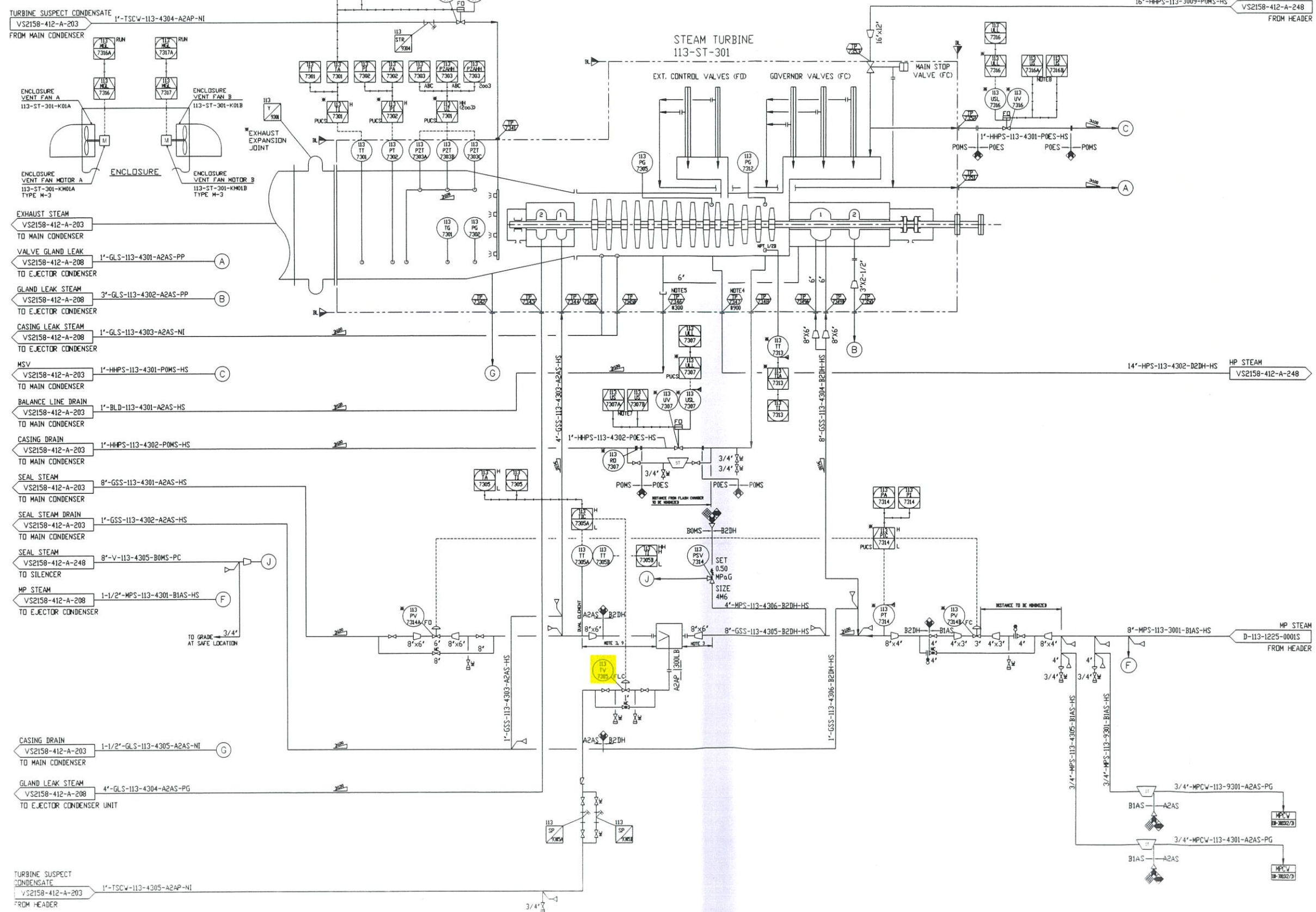
- 0 1. To be confirmed by vendor- Deleted.
- 0 2. To be confirmed later- Deleted.



GENERAL	1	Tag No	P&ID No.		113-TV -7305	VS2158-412-A-213		
	2	Service	MPS TO 113ST301DS01					
	3	Design Pressure	kPa-g	Min.	Max.	1000		
	4	Design Temperature	°C	Min.	Max.	85		
	5	Air Supply Pressure		Min.	Max.	450		
	6	Elec. Haz. Area Class. STD/Zone/Method/Gr./Temp.	ATEX		Zone 2	EEx d	Group IIB	T3
PROCESS CONDITIONS	7	Fluid Name	Fluid State	Fluid Phase		TURBINE SUSPECT CONDENSAT/Water		Single phase
	8			Min.	Nor.	Max.		
	9	Flow		kg/h	30.14	155	170	
	10	Inlet Pressure @ Flow		kPa-g	606	605.2	605.1	
	11	Diff. Pressure @ Flow		kPa	481	479.3	479	
	12	Inlet Temperature		°C	50			
	13	Viscosity		cP	0.547			
	14	Density (Liq.)		kg/m³	988.3			
	15	Vap. Press. (Liq.)		kPa-a	12.35			
	16	Cp / Cv (Gas/Steam)		-				
	17	Z factor (Gas/Steam)		-				
	18	Shut-off Press. Max.	Solid		1000	kPa	%	
	19	Critical Press. (Liq.)	Outlet Flashing		22049	kPa-a	%	
20	MW (Gas/Steam)	Outlet Vap. MW		18.02				
CALC. RESULTS	21	Cv @ Flow	Min.	Nor.	Max.			
	22	Lift @ Flow %	Min.	Nor.	Max.			
	23	Noise @ Flow dBA	Min.	Nor.	Max.			
BODY AND TRIM	24	Body Type	Globe					
	25	Size	Rating	1	in	CL 150		
	26	Body/Bonnet Material	A216 WCC					
	27	Corrosion Allowance	3.0 mm					
	28	Bonnet Type	Standard					
	29	Trim Type	Size	Std No. 154	3/16 in			
	30	Material	S31600SST/CoCr-A					
	31	Packing Material	EnviroSeal-PTFE					
	32	Selected Cv	0.181					
	33	Characteristics	Equal %					
PROCESS CONNECTION	34	TSO	Leakage Class	No	Class IV			
	35	Flow Direction	Up					
	36	Conn. In	Size	Rating	1	in	CL 150	
ACTUATOR	37	Type	RF ASME B16.5					
	38	Conn. Out	Size	Rating	1	in	CL 150	
	39	Type	RF ASME B16.5					
SOLENOID VALVE	40	MFR	Fisher					
	41	Type	Spring & Diaphragm					
	42	Travel Stop	N/A @ %					
	43	Air Failure Position	Last					
	44	Hand Wheel	No					
LIMIT SWITCH	45	MFR	Model	Fisher	DVC6200			
	46	Type	E/P -HART					
	47	Signal Type	4-20 mA					
ACCESORIES	48	Increase Signal Valve	Open					
	49	Ingress Protection	IP 65					
	50	Electrical Connection	Metric 20mm x 1.5 ISO					
	51	Pneumatic Connection	1/4" NPT					
	52	NACE Requirement	No					
LINE	53	Quantity						
	54	Tag No.						
	55	MFR	Model					
	56	Type	Coil					
	57	When De-Energ. Valve						
PURCHASE	58	Ingress Protection						
	59	Electrical Connection						
	60	Pneumatic Connection						
FAB. NOTE	61	Manual Reset						
	62	Tag No.						
	63	O/C Position						
	64	MFR	Model					
	65	Type						
PROC. NOTE	66	Ingress Protection						
	67	Electrical Connection						
	68	Air Reservoir	No					
FAB. NOTE	69	Air Set	Set Pressure	Yes	230 kPag			
	70	Air Set Connection	3/8" NPTF					
	71	Air Set Material	Aluminum					
	72	Surge Protection	No					
	73	Air Lock Device	N/A					
FAB. NOTE	74	Inlet Line	Number	1"-TSCW-113-4305-A2AP-NI				
	75	Size	Class Sch.	1	in	A2AP	160	
	76	Outlet Line	Number	1"-TSCW-113-4305-A2AP-NI				
FAB. NOTE	77	Size	Class Sch.	1	in	A2AP	160	
	78	Manufacturer	FISHER					
	79	Model	EZ 667					
FAB. NOTE	80	Requisition No.	RS2174-101					
	81	PWHT Requirement	Yes (B31.3)					
Notes:								
INSTRUMENT SPECIFICATION Control Valve								

INDRA
16-APR-2011
13:00

113-ST-301-KM01A/B
ENCLOSURE VENT FAN MOTOR
MOTOR SIZE 2.2 kW



- NOTES
- SCOPE: CUSTOMER (MECH) ONLY RAW MATERIAL SUPPLY BY MES; LOOSE SUPPLY BY MES.
 - DELETED
 - STRAIGHT RUN TO BE PROVIDED AS FOLLOWS:
UPSTREAM OF 113-ST-301-DS01: 800 MM
DOWNSTREAM OF 113-ST-301-DS01: 4000 MM
 - 8900 FLANGE SHALL BE PROVIDED AT TP-7347 EVEN PIPING CLASS IS 1500.
 - 8300 FLANGE SHALL BE PROVIDED AT TP-7346 EVEN PIPING CLASS IS 1500.
 - EXHAUST SPRAY VALVE 113-UV-7304 WILL BE OPENED WHEN EXHAUST STEAM TEMPERATURE 113-TT-7301 > 75 DEGC, AND WILL BE CLOSED WHEN EXHAUST STEAM TEMPERATURE 113-TT-7301 < 70 DEGC.
 - CASING DRAIN VALVE 113-UV-7307 WILL BE OPENED WHEN GENERATOR POWER < 5 MW OR MSV OPEN, AND WILL BE CLOSED WHEN GENERATOR POWER > 5 MW.
 - MSV DRAIN VALVE 113-UV-7316 WILL BE OPENED WHEN - FROM MSV CLOSE TO GENERATOR CB CLOSE - MAIN STOP VALVE OPEN WILL BE CLOSED WHEN GENERATOR CB ISOL CLOSE.
 - MIN. DISTANCE FROM 113-ST-301-DS01 OUTLET NOZZLE TO TEMPERATURE SENSOR: 8000 MM
 - THIS PID IS DEVELOPED FROM VS2158-412-A-139 REV.6 (FOR CONSTRUCTION).

SK engineering & construction

AS BUILT

BY: MECH./J.G.KIM DATE: 10/FEB/18

REFERENCE DRAWINGS

VS2158-412-A-019	PIPING CONNECTION & LINE LIST
VS2158-412-A-021	INSTRUMENTATION LIST
VS2158-412-A-050	PIPING MATERIAL SPECIFICATION
VS2158-412-A-058	EQUIPMENT LIST
VS2158-412-A-074	VALVE LIST

PROJECT (JOB No. 0-6495-20)

DOCUMENT CLASS	Z
ISSUE PURPOSE	AB
RESULT CODE	A, B, R, F
NEXT STATUS	FA, FR, FI, FC, AB
REVISION DATE	
RESPONSIBLE DEPT./PERSON	
Review Date	

Approved without Comment; B Approved with Minor Comment; R Not Approved; F Not Subject to Review

Rev. No.	DATE	REVISIONS	BY
4	Feb 7/18	As-Built	T.Kudo
3	Apr 18/17	As-Built	T.Kudo
2	Nov 26/15	As-Built	T.Kudo
1	Nov 13/15	Issued For Construction	T.Kudo
0	Dec 23/15	Issued For Approval	T.Kudo

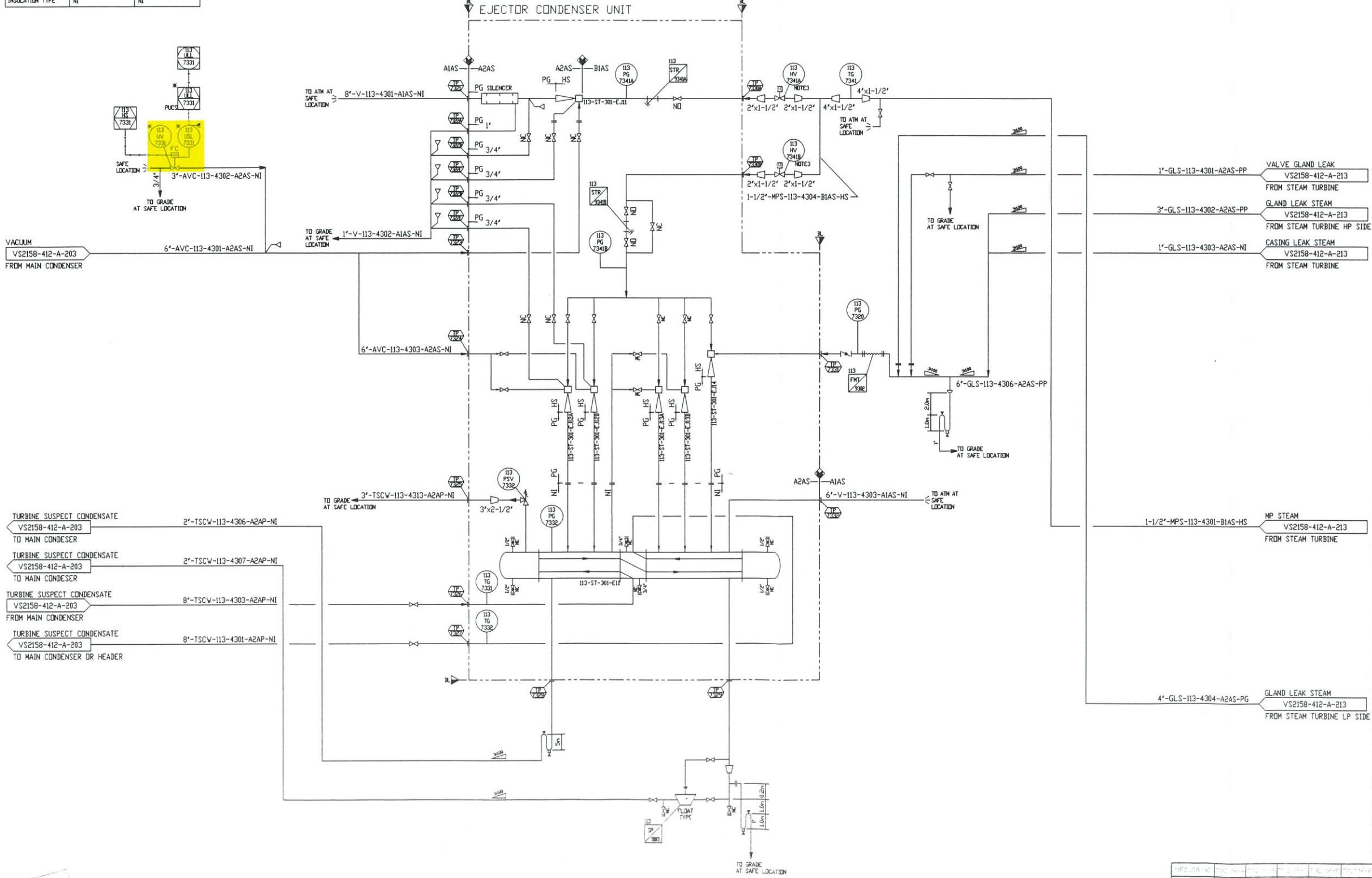
Contractor Job Code	0-6495-20	Responsible Company	SK		
Prepared by	Kudo	Checked by		Approved by	Vietnabe

NSRP Complex Project Nghi Son Refinery and Petrochemical Limited Liability Company

Plant Location	Nghi Son, Vietnam				
Project Name	NSRP Complex Project				
P.O. No.	0-6495-PS2158-412-A100	ITEM NO.	113-A-003		
Drawing Title	PIPING & INSTRUMENT DIAGRAM STEAM TURBINE SYSTEM				
Vendor DWG No.	IST07638	Sheet No.	Rev. 4		
Contractor DWG No.	VS2158-412-A-213	Sheet Size	A1	Scale	

113-ST-301-EJ1 STARTING EJECTOR		113-ST-301-EJ2A/B 1ST TWIN EJECTOR		113-ST-301-EJ3A/B 2ND TWIN EJECTOR		113-ST-301-EJ4 GLAND EJECTOR	
CODE	HE1	CODE	HE1	CODE	HE1	CODE	HE1
DESIGN CAPACITY (kg/h)	495.4	DESIGN CAPACITY (kg/h)	55.3	DESIGN CAPACITY (kg/h)	78.8	DESIGN CAPACITY (kg/h)	1371

113-ST-301-E11 EJECTOR CONDENSER			
CODE	HE1, ASME SEC.VIII DIV. 1, HAWKER'S STD.		
TYPE	TEMA BEM		
SIZE (DIAMETER/TUBE LENGTH/MT.AREA)	REFER TO VS2158-412-A-098		
DESIGN DUTY			
SIDE	SHELL	TUBE	
DESIGN PRESSURE	0.77 MPaG + FV	1.0 MPaG	
DESIGN TEMPERATURE	375 degC	95 degC	
INSULATION TYPE	NI	NI	



NOTES

1) SCOPE
 YES CUSTOMER YES ONLY RAW MATERIAL SUPPLY BY MES
 * LOOSE SUPPLY BY MES

2) INCHING TYPE

3) THIS PID IS DEVELOPED FROM VS2158-412-A-108 REV.6 (FOR CONSTRUCTION).

SK engineering & construction

AS BUILT

BY: MECH./J.G.KIM DATE: 10/FEB/18

- 1'-GLS-113-4301-A2AS-PP VALVE GLAND LEAK FROM STEAM TURBINE VS2158-412-A-213
- 3'-GLS-113-4302-A2AS-PP GLAND LEAK STEAM FROM STEAM TURBINE HP SIDE VS2158-412-A-213
- 1'-GLS-113-4303-A2AS-NI CASING LEAK STEAM FROM STEAM TURBINE VS2158-412-A-213
- 1-1/2"-MPS-113-4301-BIAS-HS MP STEAM FROM STEAM TURBINE VS2158-412-A-213
- 4'-GLS-113-4304-A2AS-PG GLAND LEAK STEAM FROM STEAM TURBINE LP SIDE VS2158-412-A-213

Rev	Date	Description	NDM	NLT	APD
5	Aug.23/18	As Built			

REFERENCE DRAWINGS

VS2158-412-A-019	PIPING CONNECTION & LINE LIST
VS2158-412-A-021	INSTRUMENTATION LIST
VS2158-412-A-050	PIPING MATERIAL SPECIFICATION
VS2158-412-A-058	EQUIPMENT LIST
VS2158-412-A-074	VALVE LIST
VS2158-412-A-098	EJECTOR CONDENSER
VS2158-412-A-200	PI DIAGRAM ABBREVIATION

PROJECT (JOB No.)	0-6495-20	Z
ISSUE CLASS		AB
ISSUE CODE	A, B, R, F	()
NEXT STATUS	FA, FR, FI, EC, AB	()
REVISION DATE	()	()
RESPONSIBLE DEPT./PERSON	()	()
Review Date	()	()

Approved without Comment B Approved with Minor Comment
 R Not Approved/ F Not Subject to Review

Purchaser	DATE	PURCHASE ORDER NO.	SERIAL	REV.
Y		VS2158-412-A	BOB	4

REVISIONS

Rev	Date	Description	Prep'd	Chk'd	App'd
4	Feb.7/18	As-Built	T.Kudo	K.vatanabe	K.Tanaka
3	Apr.18/17	As-Built	T.Kudo	K.vatanabe	K.Tanaka
2	Nov.26/15	As-Built	T.Kudo	K.vatanabe	K.Tanaka
1	Nov.13/15	Issued For Construction	T.Kudo	K.vatanabe	K.Tanaka
0	Oct.23/15	Issued For Approval	T.Kudo	K.vatanabe	K.Tanaka

Contractor JOB Code: 0-6495-20 Responsible Company: SK

Prepared by: Kudo Checked by: Vatanabe Approved by: Vatanabe

NSRP Complex Project Nghi Son Refinery and Petrochemical Limited Liability Company

SK engineering & construction MITSUBI ENGINEERING & SHIPBUILDING CO., LTD.

Plant Location	Nghi Son, Vietnam		
Project Name	NSRP Complex Project		
P. I. No.	0-6495-PS2158-412-4100	ITEM	ND 113-A-003
Drawing Title	PIPING & INSTRUMENT DIAGRAM EJECTOR CONDENSER UNIT		
Vendor DWG No.	1ST07633	Sheet No.	Rev. 5
Contractor DWG No.	VS2158-412-A-208	Sheet Size	Scale