



# 작업지시서

ORDER NO.	16 - 299 - SIVA
M-NO.	07 - 35
발주처	SIVA ENG
작성일자	2016년 7월 28일

아래와 같이 작업지시서를 제출합니다.

결 재	작 성	검 토	승 인
	JAGAN		
	07월 28일	/	/

PROJECT	SIVA-379	납 기	16.08.15
NO.	ITEM	Q'TY	
1	Restriction Orifice plate	1ea	

## ※ 기타주의사항(설계부)

## ※ INSPECTION / TEST REPORT

1. Ex-work
2. Combine with 16-260, 273 & 291
3. Tag Type: DH Std.

- \* Dimension Inspection ☒
- \* Mill Certificate ☒
- \* NDE : PT ☐ RT ☐ UT ☐ MT ☐ 공인기관 ☐
- \* Hydrostatic Test ☐
- \* Calibration ☐
- \* PMI Report ☐ \* Wooden Packing 열처리 ☒

## ※ 기타주의사항(관리부)

## ※ 기타주의사항(생산부)

가공	용접	조립	검수	포장

SEE

SIVA EASTERN ENGINEERING CO.,LTD.

HEAD OFFICE ADDRESS: 16/10, TAKSINMAHARAJ RD, T.THA PRADU, A.MUANG, RAYONG 21000 TEL; 089-401-1239

TAX ID No.0215556007631

PURCHASE ORDER

TO : DAEHAN INSTRUMENT CO.,LTD	PO NO. : SIVA_379
ADDRESS : #473-7 Musong-dong,Hwaseong-Si, Gyeonggi-Do, Korea	DATE : 26/07/2016
TEL : 82-31-357-8431, FAX : 82-31-357-8432	REF. QUOTATION NO.160121 - 0024

ORDER DETAIL : RO

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
1.1	Restriction Orifice Plate Model DHRO-SH-N-4B-6L-015 Type Element(Plate) / Concentric Square Edge. Material Element 316LSS F'Rating ANSI 150 RF Line size 4B(100A) Thickness 3mm Tag no. 60-FE-7001	1 EA	120 USD	120.00
			Special Discount	
Note : DH Tag Type			TOTAL	120.00
			GRAND TOTAL	120.00

DELIVERY TERM: Exwork

DELIVERY TIME: 15.08.2016

PAYMENT TERM : T/T ( 100% after approval all documents and notice of shipment date )

WARRANTY PERIOD : 12 Months after delivery.

CONTACT : Mr.Jagan

NAME :	
	( APPROVED BY )
DATE :	26/07/2016

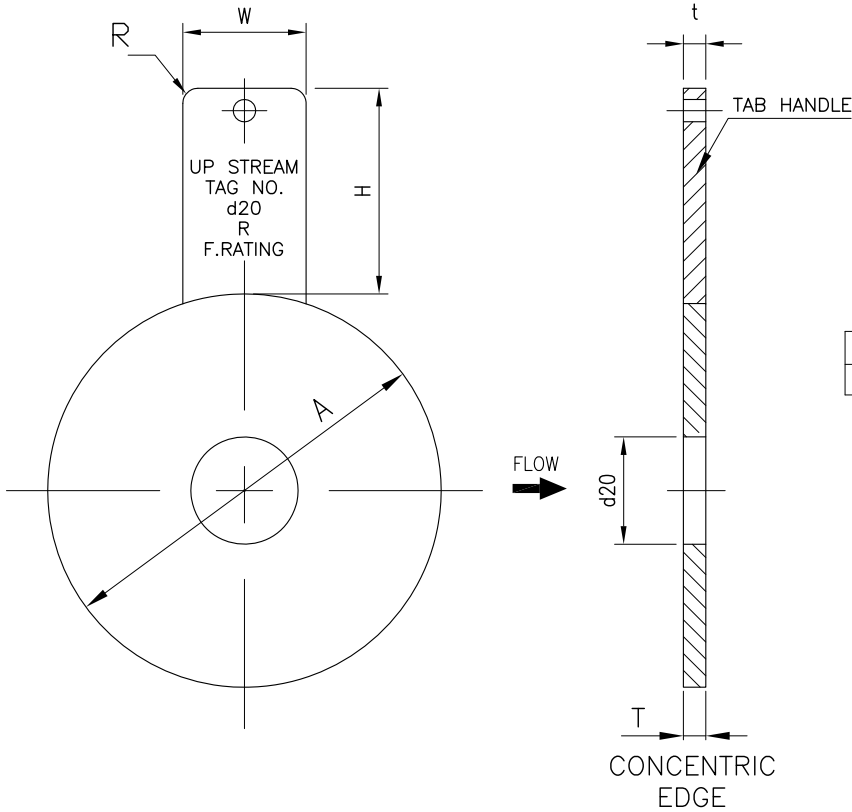
NAME :	
	( ACKNOWLEDGE BY SUPPLIER )
DATE :	

Note : Please return acknowledge to us within 3 days after receipt PO by Email: seeproc@gmail.com and sales@sivaengineer.com

# RESTRICTION ORIFICE PLATE ANSI 150#

UNIT : mm

Approved by Mr. Wasu  
Dated on 27/07/2559



SIZE	TAG NO	d20	PIPE I.D	Q'TY
4B	60-FE-7001	58.17	102.26	1

NOMINAL PIPE SIZE	OUTSIDE DIAMETER OF PLATE A	THICKNESS OF PLATE T	TAB HANDLE		
			WIDTH W	HEIGHT H	THICKNESS t
1 1/2	85.9	3	25	95	3
2	104.8	3	25	95	3
3	136.5	3	32	95	3
4	174.6	3	38	105	3
6	222.2	3	38	105	3
10	339.7	6	44	120	6

PROJECT NAME

SIVA-379 (IS2)

TITLE

RESTRICTION ORIFICE

REV.	DATE	REV. DESCRIPTION	DRAWN	CHECKED	REVIEWED	APPROVED	DRAWN	CHECKED	REVIEWED	APPROVED	SCALE	REV. No
1	16.07.26	Issued for Approval	G. Jagan	E. J. KIM	E. J. KIM	J. SONG	Jagan Gopi	Kim Eun Jae	Kim Eun Jae	Song June	N/S	1
DATE : 16. 07. 26							MODEL		DRAWING NO		MATERIAL	
SHEET : 1 OF 1							DHRO-SH-N		RO-150#-1.dwg		SS316L	



DAEHAN INSTRUMENT CO.,LTD.

## YOKOGAWA (THAILAND)

Tel: Fax:  
email:

Customer : YOKOGAWA (THAILAND)

TAG	: 60-FE-7001	PO	:
TAG Fluid	: ProducedWater	Doc	:
Fluid Ref.	: ENTER ProducedWater	Sales Order	:
Pipe	: Carbon Steel	Service	:
Meter	: Pipe Taps, Restrictive Orifice	Primary	: 316 Stainless Steel
Coeff Eq	: Stolz	Taps	: 2 1/2 & 8 D
Preparer	: SEE	Calculation	: SIZE
		Printed	: 1/20/2016 80CR1431

----- Max/Design/Normal -----	
Flow Rate	60.0000 m^3/h(Flow Volume)
Differential	0.3000 Bar
Pipe Reynolds Number	199055.

----- Measurements -----	
Pressure pG	7.0000 Bar,gage
Barometric	1.0133 Bar,abs
Temperature (Flowing)	55.0000 degC

----- Fluid Properties -----	
Density (Flowing)	959.60000kg/m^3
Viscosity	1.00000 cP

----- Factors -----	
Sizing Factor(SM)	0.25643 @ Normal Flow
Discharge Coefficient(C)	0.74927 @ Normal Flow
Pipe Thermal Expansion(FaD)	1.00039
Bore Thermal Expansion(Fad)	1.00058

----- Flow Meter Constant (for AGA/API C'=FMC) -----	
FMC=(m^3/h)/(dp)^ 0.5	109.5445

----- Design Information -----	
Pipe Diameter(D)	102.26000mm@20.degC
Bore Diameter (d)	58.17899 mm@20.degC
Plate thickness-Flange Mounted Plate	3.1750 mm@20.degC
Beta	0.56893 @20.degC
Pipeline Velocity (Max)	2.03 m/s
Overall Pressure Loss(Max)	0.3000 Bar
Energy Cost	8760. \$/year@2.00/kwh
Noise @ 3 ft /one metre	61. dBA

Computation for dBA is compatible with ISA SPA SP39.1

Stress and deflection should be checked based on actual thickness, material, and process conditions

Orifice plate thickness is calculated using ROARK Stress/Strain equations. Shown thickness is within the required limits for the plate material

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