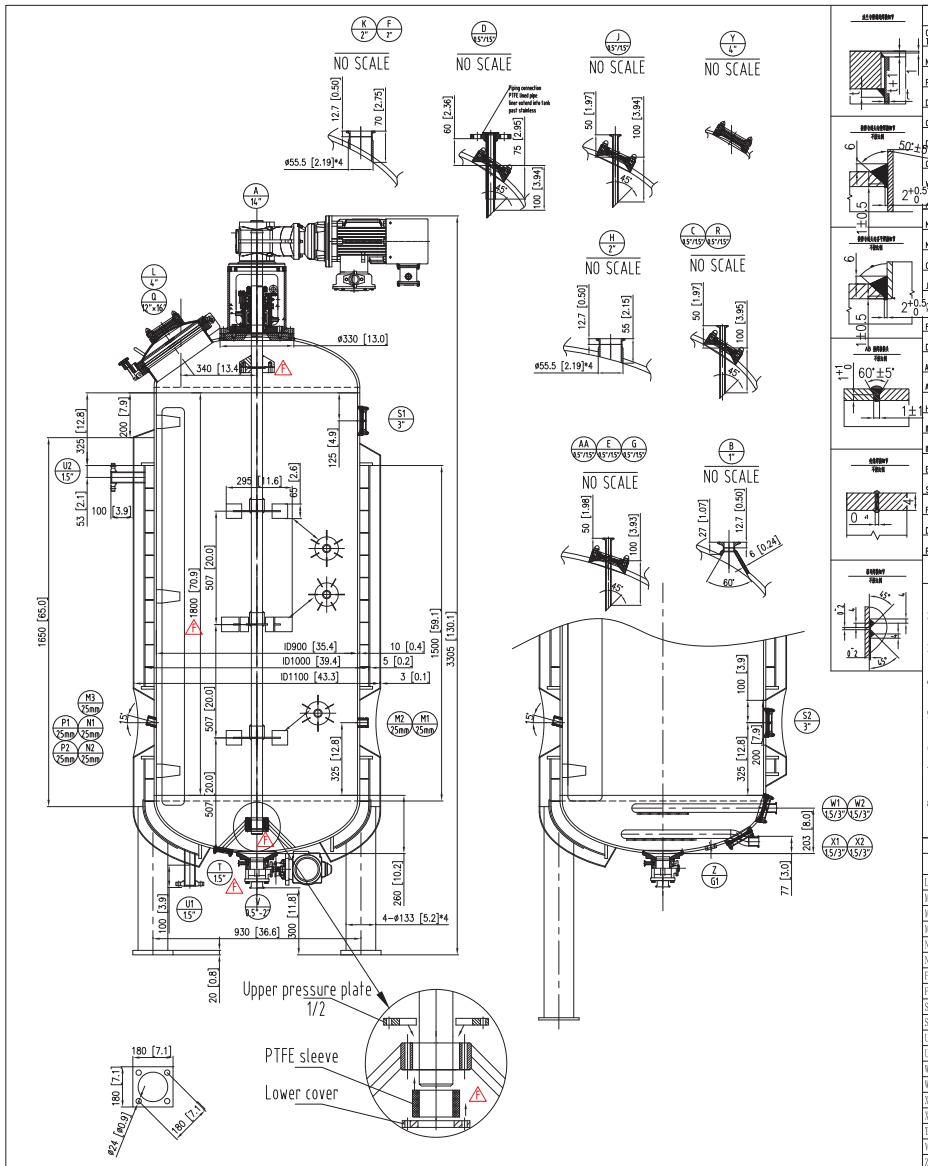
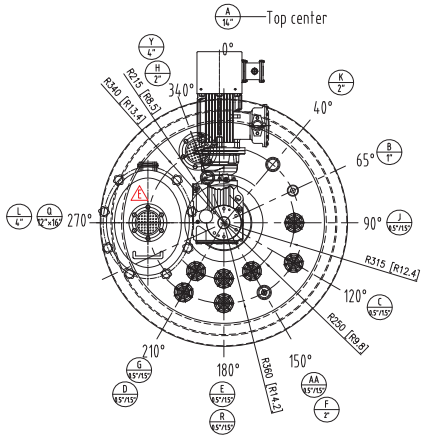
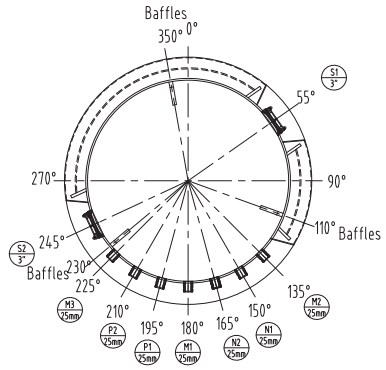
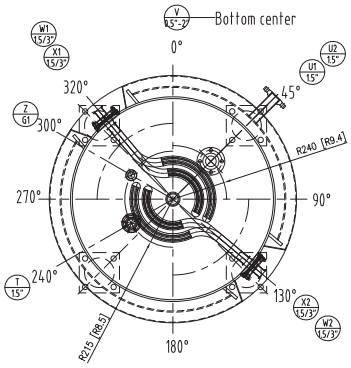
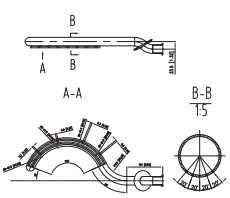




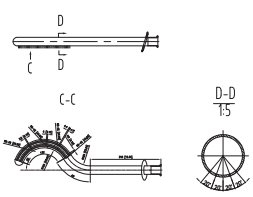




X1,X2 Feed gas sparger



W1,W2 Air sparger



DESIGN DATA SHEET

CERTIFICATION MARK WITH THE U DESIGNATOR		YES/NO	YES	DESIGN, FABRICATION AND INSPECTION STANDARDS & CODES
NB REGISTRATION REQUIRED		YES/NO	YES	1,ASME SEC.VIII DIV.1 2023ED
PARAMETER NAME		VESSEL	JACKET	
DESIGN PRESSURE	MPa	-0.1/0.42	-0.1/0.35	
OPERATING PRESSURE	MPa	-0.1/0.4	-0.1/0.3	
DESIGN TEMPERATURE	°C	135	135	
OPERATING TEMPERATURE	°C	0~121	0~135	
WORKING MEDIUM		Fermentation broth Steam	coolant & steam	
MEDIUM CHARACTERISTIC		NON-LETHAL	NON-LETHAL	
MAIN MATERIAL SPECIFICATION		SA-240M 316L	SA-240M 304	
MAIN MATERIAL STANDARD		ASME	ASME	
CORROSION ALLOWANCE	mm	0	0	
JOINT EFFICIENCY	(SHELL/HEAD)	0.85/1.0	0.85/1.0	
CAPACITY	m^3	~1.4	0.26	
FILL COEFFICIENT		0.7	/	
DESIGN RUPTURE PRESSURE	MPa	0.42	/	
AGITATOR TYPE		3KW, Schneider servo motor		
AGITATOR REV	rpm	50~300		
HEAT TRANSFER AREA	m^2	3.1		
INSULATION MATERIAL		ROCK WOOL		
INSULATION THICKNESS	mm	50		
EMPTY WEIGHT	kg	/		
STAINLESS STEEL MASS	kg	/		
FULL WATER MASS	kg	/		
DESIGN SERVICE LIFE(SHELL)	mm	10		
PAINTING TRANSPORT AND PACKING		JB/T4711-2003		

WELDING SPECIFICATION		ASME
N.D.E STANDARD		ASME

FABRICATION AND INSPECTION REQUIREMENTS

WELDING MATERIAL	FILLER METALS HAVE CHEMICAL COMPOSITIONS、MECHANICAL PROPERTIES MATCHED WITH THOSE OF THE BASE METALS . FOR DETAIL OF WELDING MATERIAL TYPE、SEE WPS.						
NDE	WELDED JOINTS CATEGORY		TEST RATIO		TEST MEANS		CLASS
	VESSEL	A&B	SHELL	SPOT	RT	UW-52	/
			HEAD	/	/	/	/
			C,D	/	/	/	/
				/	/	/	/
	JACKET	A&B	SHELL	SPOT	RT	UW-52	/
			HEAD	/	/	/	/
			C,D	/	/	/	/
				/	/	/	/
	本设备按GB 150.4-2011和TSG 21-2016及THE OTHER REQUIREMENTS SEE GB150.4-2011 SECTION 10.						
TEST	TEST METHODS					VESSEL	JACKET
	HYDRO. TEST PRESSURE				MPa	0.53	0.45
	LEAK TEST PRESSURE				MPa	/	/
HEAT TREATMENT					YES/NO	NO	NO
ORIENTATION OF NOZZLES AND SUPPORTS						See drawing	

TECHNIQUE REQUIEMENT SHEET

1. FOR TRUE NOZZLE ORIENTATION SEE TOP VIEW ONLY.
2. ALL UNINDICAED OR WELDS IN PRESSURE RELATING PARTS SHALL BE FULL PENETRATION WELDS, AND SHALL BE WELDED USING THE APPLICATION WPS SPECIFIED IN JOINT.
3. UNINDICATED BOLT HOLES STRADDLE TO TANK CENTER LINES(THE LINE 0°-180°) OR ITS PARALLEL AXIS OR ITS PLUMB AXIS.
4. THE DESIGN AND SYMBOLS OF WELDING IN THE FIGURE ARE ACCORDING TO GB/T 324-2008. AND ALL WELDS OF TYPE A.B. ARE FULLY WELDED.
5. UNLESS OTHERWISE SPECIFIED, THE HEIGHT OF FILLET WELDS IS NO LESS THAN THE THICKNESS OFTHE THINNER WELDED PART.
6. EXPOSED INSIDE EDGES SHALL BE CHAMFERED OR ROUNDED,INSIDE BUTT WELD GRINDED SMOOTH.
7. BOTH THE VERTICALITY TOLERANCE FOR INSTALLATION AND THE LINEAR TOLERANCE OF THIS EQUIPMENT ARE NOT MORE THAN 1/1000 HEIGHT.
8. THE STAINLESS STEEL EQUIPMENT SHALL BE DRAINED AND DRAINED IMMEDIATELY AFTER PASSING THE TEST FOR WATER LEAKAGE TEST; OTHERWISE THE CHLORIDE ION CONTENT SHALL NOT EXCEED 25 MG/L.

NOZZLE SCHEDULE

MARK	NPS(DN)	TYPE&FACE	SERVICE
L	4"	NA	Sight Glass
M1	25mm	INGOLD	Sample Valve
M2	25mm	INGOLD	Spare Port
M3	25mm	INGOLD	Spare Port
N1	25mm	INGOLD	pH Sensor A
N2	25mm	INGOLD	pH Sensor B
P1	25mm	INGOLD	DO Sensor A
P2	25mm	INGOLD	DO Sensor B
S1	3"	NA	Spray ball 1
S2	3"	NA	Spray ball 2
U1	1.5"	ANSI RF SO-Class150	CWS to cooling jacket
U2	1.5"	ANSI RF SO-Class150	CWR from cooling jacket
W1	1.5"/3"	NA	Air sparger 1
W2	1.5"/3"	NA	Air sparger 2
X1	1.5"/3"	NA	Feed gas sparger 1
X2	1.5"/3"	NA	Feed gas sparger 2
T	1.5"	NA	Temperature
Y	0.5"- 2"	Weld Valve	Tank Bottom Valve
Z	G1	IFM 30122	Bottom Pressure Sensor
A	14"	Pad Flange	Agitator flange
AA	0.5"/1.5"	TC / NA	Seed Inoculation line
B	1"	TC	Process Water
C	0.5"/1.5"	TC / NA	Sodium Hydroxide
D	0.5"/1.5"	ANSI RF SO-Class150 / TC	Sulfuric acid
E	0.5"/1.5"	TC / NA	Spare Port
F	2"	TC	Vent line
G	0.5"/1.5"	TC / NA	Anti Foaming agent
H	2"	TC	Foam High Level switch
J	0.5"/1.5"	TC / NA	Trace Nutrient feed
K	2"	TC	Rupture disk/PSV line
Q	12"X16"	12"X16"	Manway
R	0.5"/1.5"	TC / NA	Combined feed
Y	4"	TC	Sight glass LED light

KETTLE TRANSMISSION DATA

REDUCER BRAND	SEW	REDUCER MODEL	KAF67AMS213_215
OUTPUT SPEED	209rpm	MOTOR POWER	5.5 KW
MOTOR VOLTAGE	230/460V/ delta/star	MOTOR FREQUENCY	60 Hz
SERVICE FACTOR SEW-FB	1.5	RATED MOTOR SPEED	1758 rpm
ENERGY EFFICIENCY LEVEL	IE3	OVERALL GEAR RATIO	8.37
INSULATION/PROTECTION LEVEL	155(F)/55	FLANGE DIAMETER	250mm

SIGN.	QTY.	DOCUMENT NO.	NAME	DATE
DRAWING				
DESIGNED				
CHECKED				
APPROVED				
RELEASED BY				
AI				

Cedarstone Industry, LLC
7432 Fairbanks North Houston Road
Houston, Texas 77040

1000L Fermentor

MAT.	316L+304		
WEIGHT	KG		
SCALE	1:22		
REV.	F		
SIZE	A3		
PROJECT NO.	FL24-094		
DWG NO.	FL24094.01		
SER NO.	FL24-094-1-2		

借通用件登记
借通用件登记
蓝图
描图
底图
校图
旧底图总号
旧底图总号
底字
签字
日期
日期