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FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. N	Manufactured	and ce	ertified	by _	Wuxi Z Par	Zhicheng B k,B Zone Y	iochemic angjianTe	al Engino own,Xish	nan Distr	quipment Co rict, Wuxi City (Name and addre	y, Jiangsu	Provi	/uan F nce 2	Road Mach 14108 Peo	ninery Ed ple's Re	quipme	ent Indus of China	strial a.
2. N	/lanufactured	for _								Not knowr	า							
3. L	ocation of ins	tallatio	n						(Name	and address of I								
0. 2	.oodiion or me	tanatio	. –						Hand	(Name and ad								
4. T	ype			Vertic			(Oil/	steam h	eat exch	exchanger anger W521	B.2)(19-X	-851)				A21-2		
		NA NA		tal, vertica	al, or sphere		ZC21A13	, ,		jkt. vessel, heat e	exch., etc.) 150)		(N	lanufacture	202		
-		(CRI				V V/	(Drawing r		7.1	(1	National Boa		er)	_		(Year b		
5. A	SME Code, S	Section	VIII, [Div. 1	[Edition a	2019 Ed and Addenda, i	ition f applicable	(date)]		(Code Cas				[S _I	oecial serv	NA ice per l	JG-120(d)]	
Iter	ns 6–11 incl.	to be	comp	leted fo					vessels,	shell of heat	exchanger	rs, or c	hambe	er of multic	hamber	vessel	s.	
6. 5	Shell: (a)	Numbe	er of co	ourse(s)			4			(b) Overall I	ength _			3	396mm			
_	Cou	rse(s)				erial /Grade	Thick	ness	L	ong. Joint (Cat		Circ	um. Jo	int (Cat. A, Full, Spot,			eat Treati	ment
No.	Diamete	r	Ler	ngth		Гуре	Nom.	Corr.	Туре	None	Eff.	Тур	ре	None	Eff.	Ter	np.	Time
	See attach																	
1	form U-4 p 1 of 2	age																
	,																	
								Podu	Florages	on Shells								
			T		Flange	Min Hub			How					Bolt			10/	- t
No.	Туре	ID		DD	Thk	Thk	Materia	al I	ttached	Location	Num & S	Size		olting aterial	Wash (OD, ID,		Was Mat	
NA																		
7 H	Heads: (a)					NA				(b)				N	IA			
7.1	reads. (a)		((Material	spec. numbe	r, grade or type	e) (H.T. — ti	me and ten	np.)		(1	Material	spec. n	umber, grade	or type) (H	.T. — tir	me and tem	p.)
	Location (Top,		Thic	kness		Radius	Ellipti	cal	Conical	Hemispherica	al Flat		Side to	Pressure	-		tegory A	
	Bottom, Ends)	1	Min.	Corr	. Crow	n Knuck		io	Apex Angle	Radius	Diameter	Coi	nvex	Concave	Туре		None	Eff.
(a)	NA																	
								Body	Flanges	on Heads				Bolt	ina			
	Location	Ту	/pe	ID	OD	Flange Thk	Min Hu Thk	1 1/4	1aterial	How Attached	Num & S	Size		olting aterial	Wash (OD, ID,			sher erial
(a)	NA																	
8.	Гуре of jacket					NA				Jacket closur	e				NA			
	Chan also discontinu		:61	-141 -1-		la a da la					,	NA	(D	escribe as og	ee and wel	d, bar, e	tc.)	
	f bar, give din	1.2M	Ра	oitea, ae	0.11	1Pa a	t max. tem	.	220°C	220°	°C Min	. desigi	n meta	I temp.	-10℃	8	nt1.	2MPa
10.	Impact test	(Interr	nai)		(Exte	,	Per UHA	·-51(d)(e	e)(h)		iai)		_ at to	est tempera	ture of _		NA	
11.	Hydro., pneu	ı. or co	omb. te	est press		Hydro. To					oof test				NA			
	ms 12 and 13							,		,								
			SA-2	240 S32	2205	7	770mm/7	70mm		50mm/50r	nm							
12.	Tubesheet	[Sta		Material	spec. no.)]	[Diar	(O.D)] -	(Nomina (Nominal thick			/0mm allow.)	<u> </u>			Nelded Ided or bolt	ed)]
				NA			NA			NA		١	۱A			N/		
40	Tubos			material s	spec. no.)]		(Diamet			(Nominal thick	,		allow.) pcs		Strain	(Attach		n)
13.	Tubes				de or type)		(O.D.			(Nominal thick			mber)	er) [Type (straight or U)]				''/
									Chen.	zhengo	ns			Tianga	y wa	ay		
									20	2 hengs 21 . 12 .	22) i any a	er 2	2,2	21	

FORM U-1

									1 OIK	WI 0-1				r	age ₋		_ 01	
	factured by				7404.00		Wux					ng Equipme						
Manu	facturer's Se	erial No)	V	ZA21-20		C	RN		NA		Nat	onal Boar	d No.		1	50	
ltem	s 14–18 inc	l. to be	compl	eted for i	ner chai	nbers	of jacket	ted vesse	ls or chan	nels of heat	excha	angers.						
14. 5				urse(s)			1 (Top/E			(b) Ove			4	27mm/42	27mm	(Top/B	ottom)	
		se(s)			Material		Thick			g. Joint (Cat.			um. Joint (Heat Trea	etment
No.	Diamete	Ť	Length	S	ec./Grad	e	Nom.	Corr.	Туре	Full, Spot,	Eff		T	Full, Spot,	Eff.			Time
140.			Lengu	<u> </u>	or Type		INOIII.	0011.	Туре	None				None	-		emp.	Time
1	1.D. 660mn	n	427mm	n SA	240 S322	:05	6mm	0mm	1	Spot	0.8	1/Man. Fig. 2	App.2 -4(8)	Spot/NA	0.85 NA		NA	NA
2	I.D. 660mm		427mm	n SA	240 S322	:05	6mm	0mm	1	Spot	0.8			Spot/NA	0.85 NA		NA	NA
	0001111											Fig. 2	4(0)		INA	\		
							. T			es on Shells				Bol	Iting			
No.	Туре	ID	00		inge hk	Min Hu Thk	w M	aterial	How Attached	Location	on	Num & Size		lting terial	Wa	asher ID, thk)		/asher aterial
											\neg		ivia	teriai		43.5/I.D.	IVI	ateriai
1	FM	675	770		minal	NA		A-182	Welded	Тор		28&	SA-1	93 B8		5/T3.5	SA-	240 304
		mm	mn	n 76	mm		F	-304				M16X175mm			(m			
																43.5/I.D.		
2	FM	675	770		minal	NA		A-182	Welded	Тор		28&	SA-1	93 B8	17.	5/T3.5	SA-	240 304
		mm	mn	n 76	mm		-	=304				M16X175mm				mm)		
15. F	leads: (a)	Top	: SA-2	40 S322	5 Cold	formi	ng, NO	T PWHT			(b)	Bottom: S	A-240 S3	32205 C	old fo	rming,	NOT PW	/HT
				Material spe					nd temp.)		. ,		rial spec. nu					
	Location		Thick	ness		Radiu	S		Conic	al			Side t	o Pressure	е		Category	А
	(Top, Bottom,		Min.	Corr.	Crow	n K	(nuckle	Elliptical Ratio	Apex Angl	I Rac		Al Flat Diameter	Convex	Conca	ive	Туре	Full, Spo None	ot, Eff.
(a)	Ends) Top	6	.5mm	0mm	R 66		R 66 mm	NA	NA	N.	Α	NA	No	Yes		S	Full	0.85
(b)	Bottom	6	5.5mm	0mm	R 66	0	R 66 mm	NA	NA	N.	A	NA	No	Yes		S	Full	0.85
								F	Rody Flance	es on Heads								
		Т				Fla	ange	Min	ody i lange	How				Во	lting			
	Location	Ту	ре	ID	OD		hk	Hub Thk	Materia	Attach		Num & Size				asher ID, thk)		/asher laterial
(a)	NA														(,	, , ,		
16. N	MAWP	1.2N	IPa		0.1		at max	. temp.	220℃		220°	C Min. o	lesign met	al temp.	-1	10℃	at	1.2MPa
17 I	mpact test	(Inter	nal)		(Externa		lo Perl	JHA-51((Internal d)(e)(h))	(Extern	al)	at te	st tempera	ature of	f	NA	
.,	inpute toot				[Indic				nent(s) impac	ct tested]			ar to	or tompore	ature o	'	147	
18. F	lydro., pneu	., or co	mb. test	t pressure		Hydro.	Test at	1.69MP	a (Horizoi	ntal)	Prod	of test			N.A	4		
19. N	lozzles, insp	pection	, and sa	fety valve	openings													
Pi	urpose		D:					Materia	ı	Nozzle	Thick	ness	,	. At	ttachm	ent Deta	ails	Location
	t, Outlet, in, etc.)	No.	Diame Siz		Туре		Noz	*lo	Flango			Rei	nforcemen Vlaterial	τ				(Insp. Open.)
						_	Nozz	_16	Flange	Nom.	_	Corr.		INC	ozzle	18	ange	,
	attached rm U-4																	
	e 2 of 2																	
			NI A						NIA O			7 1 101						
20. S	upports: Sk	urt –	(Yes or		ıgs (N	4 umber)	Le		MA O umber)	thers	7	7 Lifting lugs (Describe)		_ Attach	ed _		Remarks Where and	
	Manufacture									ed Inspectors	have	been furnishe	d for the fo	ollowing ite	ems of	the repo	ort	
_										NA								
	Remarks _																	
	1, Impact t 2, PWHT a					e)(h).												
	3, The safe					pe sys	stem at	site by u	ser.									
	4, For eac	h desi	gn and	operatin	g conditi	on, se	e attach	ned Form	า U-5.									
	5, UG-46(a 6,The chai									heat excha	ngers	3.						
										z pcs. ers welded	to the	e shell.						
_	,	J - 1							,	4 /	,			~ :		- IAA	pm	

Chenzhengman 7ingung Wang 2021. 12. 22 pecember 22, w2

hydrostatic test of

(National Board Authorized Inspector Commission number)

FORM U-1 Page 3 of 3 Wuxi Zhicheng Biochemical Engineering Equipment Co., Ltd. Manufactured by WZA21-20 CRN NA National Board No. Manufacturer's Serial No. CERTIFICATE OF SHOP COMPLIANCE We certify that the statements 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. 36,922 Expires Sept. 21, 2022 U Certificate of Authorization Number Wuxi Zhicheng Biochemical Engineering Signed Chenzheagn Name 2-21. 12.22 Equipment Co., Ltd. (Manufacturer) CERTIFICATE OF SHOP INSPECTION I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by LRQA Verification Limited have inspected the pressure vessel described in this Manufacturer's Data Report on 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. Commissions _ Al Commission No.: 14743 Date CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE We certify that the statements in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. Expires ___ U Certificate of Authorization Number Name Date CERTIFICATE OF FIELD ASSEMBLY INSPECTION I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by have compared the statements in this Manufacturer's Data Report with the described pressure vessel , not included in the certificate of shop inspection, have been and state that parts referred to as data items inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance

with the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a

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.

(Authorized Inspector)

. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or

Page	1	of	2	

FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Mar	nufactured and co	ertified by	Wuxi Zhicheng B Park,B Zone \			n District	Wuxi City, Ji	angsu P	rovince 214				
2. Mar	nufactured for						ne and address of Not known		urer)				
3. Loc	ation of installation	on					Not known	naser)					
4. Typ	e					Heat e	exchanger						
, , ,		Vertic (Horizontal, vertic		(Oil	steam he	eat excha ank, separat	nger W521B.2 or, heat exch., etc	2)(19-X-(.)	851)	(Man	WZA21-20 anufacturer's serial number)		
		NA (CRN)	W	XZC21A13 (Drawing i		.1	(Nati	150 ional Board	I number)			2021 ar built)	
Data F													
Ite Nun						Re	marks						
Iter													
Sh	ell:												
	Course(s)		Material	Thicl	kness	Lo	ng. Joint (Cat. A	A)	Circum. J	oint (Cat. A,	B, & C)	Heat T	reatment
No.	Diameter	Length	Spec./Grade or Type	Nom.	Corr.	Туре	Full, Spot, None	Eff.	Туре	Full, Spot, None	Eff.	Temp.	Time
1	I.D.660mm	1500mm	SA-240 304	8mm	0mm	1	Spot	0.85	1/ Fig.UW- 13.2(j)	Spot/NA	0.85/ NA	None	NA
2	O.D.906mm/ O.D.676mm	216mm	SA-240 304	8mm	0mm	1	Full	1	1/ 1	Spot/ Spot	0.85/ 0.85	None	NA
3	I.D.660mm	750mm	SA-240 304	8mm	0mm	1	Spot	0.85	1/ 1	Spot/ Spot	0.85/ 0.85	None	NA
4	I.D.660mm	930mm	SA-240 304	8mm	0mm	1	Spot	0.85	1/ Fig.UW- 13.2(j)	Spot/NA	0.85/ NA	None	NA
Certi	ficate of Authoriz	ation: Type	U	No)	36,9	922	Expir	es	S	Sept. 21,	2022	
Date	2021. 1:	2.22	Name				nt Co., Ltd.		Sign	ed Che	mhe (Rep	y www.	5
Date	Delember	22, 22	Signed	Jiangang	,	100	Commissions	S	/Netional B	Al Commiss	sion No.:	14743	una ha ar

Page	2	of	2

FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

Manufactured and certified by			Wuxi Zhicheng B Park,B Zone Y		Xishan Distr	ict, Wuxi City	y, Jiangsu	Province 21					
2. Manufactured	for _				·	Name and addre	wn	acturer)					
3. Location of ins	tallation				(Name	and address of Not kno							
3. Location of ins	lallalloll				1	Name and addre							
4. Type	/H	Vertic		(Oil/ste	am heat exc	it exchanger hanger W52 arator, heat exch	1B.2)(19-2						
		NA		XZC21A13-00		150			(Manufacturer's serial numb				
_	((CRN)	(Drawing number)				(National Bo		_	(Year built			
Data Report													
Item													
Number					1	Remarks							
Item 19	Nozzle	es, inspection	on, and safety valve	openings:									
Purpose Diameter				Mate	erial	Nozzle Th	ickness	Reinforce	Attachm	Location			
(Inlet, Outlet, Drain, etc)			Туре	Nozzle	Flange	Nom.	Corr.	ment Material	Nozzle	Flange	(Insp. Open.)		
S1 Steam inlet	1	O.D. 114.3mm	ASME B16.5- 2013 CI.150 flg. SO RF	SA-312 TP304	SA-182 F304	6.02mm	0mm	SA-240 304	Fig.UW- 16.1(e)	Fig. UW- 21(1)	NA		
S2 Condensate outlet	1	O.D. 114.3mm	ASME B16.5- 2013 Cl.150 flg. SO RF	SA-312 TP304	SA-182 F304	6.02mm	0mm	SA-240 304	Fig.UW- 16.1(e)	Fig. UW- 21(1)	NA		
S3 Shell side vent	1	O.D. 21.3mm	ASME B16.5- 2013 CI.150 flg. SO RF	SA-312 TP304	SA-182 F304	2.77mm	0mm	Integral	Fig.UW- 16.1(c)	Fig. UW- 21(1)	NA		
T1 Product 1+BE inlet	1	O.D. 168.3mm	ASME B16.5- 2013 CI.150 flg. SO RF	SA-790 S32205	SA-182 F60	7.11mm	0mm	SA-240 S32205	Fig.UW- 16.1(e)	Fig. UW- 21(1)	NA		
T2 Product 1+BE outlet	1	O.D. 168.3mm	ASME B16.5- 2013 CI.150 flg. SO RF	SA-790 S32205	SA-182 F60	7.11mm	0mm	SA-240 S32205	Fig.UW- 16.1(e)	Fig. UW- 21(1)	NA		
V1/V2/V3 Tube side vent	3	O.D. 21.3mm	ASME B16.5- 2013 CI.150 flg. SO RF	SA-790 S32205	SA-182 F60	2.77mm	0mm	Integral	Fig.UW- 16.1(c)	Fig. UW- 21(1)	NA		
D1/D2/D3 Tube side drain	3	O.D. 33.4mm	ASME B16.5- 2013 CI.150 flg. SO RF	SA-790 S32205	SA-182 F60	3.38mm	0mm	Integral	Fig.UW- 16.1(c)	Fig. UW- 21(1)	NA		
Certificate of Aut	horizatio	on: Type	U	No.	36	,922	Expi	res	Se	pt. 21, 2022			
Date Zozi	. 12.	22	Name	Wuxi Zhichei Engineering E	quipment Co	o., Ltd.		Signe	ed Chen	zhengm	mg		
Date Delem	ler 2	22 یا, سا	Signed	Jiangang Wa		Commis	sions	Signed Chen 2 hearf many (Representative) Ons (National Board Authorized Inspector Commission number)					

FORM U-5 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET SHELL-AND-TUBE HEAT EXCHANGERS

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

1. Manufactured	and certified		Zhicheng E rk,B Zone \	Biochemical YangjianTov	vn, Xishan Distri	ict. Wuxi City.	Jiangsu Prov	ince 214108 P	achinery Equ eople's Rep	uipment Industrial oublic of China.			
O. Manuela atuma d	f				(Name and address							
2. Manufactured	TOF			Not known (Name and address of Purchaser)									
3. Location of ins	stallation					Not know	wn						
4.Type	Vertic	al			WZA		NA						
	(Horizontal, vertic					's serial number)			(CRN				
WXZ	C21A13-00 I	Rev.1			(National E	_	202 (Year b						
	(Drawing name			EIVED TUBES				(Tean built)					
	Doo	ian/Operating	FIXED TUBESHEET HEAT EXCHANGERS g Pressure Ranges Design/Operating Metal Temperature										
	Des	sign/Operating		es	De	sign/Operating i	vietai remperati	T	Allowable / Differential				
Name of	Shell Side		Tube	e Side	Shell	Channel	Tubes	Tubesheet	Expansion	Range			
Condition	Min.	Max.	Min.	Max.	1			- upoonoot	Min.	Max.			
	(MPa)	(MPa)	(MPa)	(MPa)	(°C)	(°C)	(°C)	(°C)	(mm)	(mm)			
Design	-0.1	1.2	-0.1	1.2	-10/220	-10/220	-10/220	-10/220	0	0			
Operating	/	0.8	/	0.6	175.5/175.4	50/80	50/80	175.5/175.4	0	0			
					-								
Item Number	er					Remarks Remarks							
							·						
Certificate of Auth	orization: T	ype	U	No.	36	5,922	Expires		Sept. 21	, 2022			
Date 221.	12.22	Name			cheng Biochemi g Equipment C			Signed C	hen rh	engning			
Date Jelemin	r 22, 2	√ Signe	d	Jiangang '	(Manufacture) w/ Warg		ions	Al Comn	(Re	presentative)			
				(Authorized Ins				tional Board Author	ized Inspector	Commission number)			