Page	1	of	3	

## 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. 1	Manufactured	and ce	ertified by	y	Wuxi Z Park	hicheng Bio	ochemic angjianT	cal Engine own,Xish	eering E nan Dist	Equipment Co trict, Wuxi Cit (Name and addr	y, Jiangsı	u Province	n Road Mach 214108 Peo	inery Ed ple's Re	quipme	ent Indus of China	trial
2. I	Manufactured	for _								Not know	n	acturery					
3. 1	_ocation of in:	stallatio	n						(Nam	e and address of Not kno	,						
										(Name and ac							
							(S	oft water		at exchanger heat exchang	ger W521	HW)					
4.	Гуре	(H		Vertical I, vertical,	or sphere)		-	(Tank,		19-X-762) , jkt. vessel, heat	exch., etc.)		(M	WZ. anufacture	A21-24		
		NA			_			7-00 Rev			15				2021	,	
5	ASME Code,	(CRN	,	, 1		2019 Edit	(Drawing r	number)		( N	National Boa	ard number)			(Year bu	iilt)	
			,			id Addenda, if	applicable			(Code Cas	e number)			ecial servi			
					ingle wal	l vessels, ja		jacketed	vessels	, shell of heat		rs, or cham			essels		
6. 8			r of cour	rse(s)			4			(b) Overall I				898mm			
No.	Diamete	rse(s)	Lengt	th	Mate Spec./0			kness		Long. Joint (Car Full, Spot,	Í		Joint (Cat. A, E Full, Spot,			eat Treatm	
IVO.			Lengi	uı	or Ty	/ре	Nom.	Corr.	Туре	None	Eff.	Туре	None	Eff.	Ten	ip.	Γime
1	See attach																
	1 of 2																
_								Body	Flanges	on Shells							
No.	Туре	ID	OD		lange	Min Hub	Materia	al I	How	Location			Bolting Bolting	ng Washe	r	Wash	nor.
	.,,,,		-		Thk	Thk	Widtoni	Att	tached	Location	Num & S			(OD, ID,		Mater	
NA																	
7. F	Heads: (a)					NA				(b)			N/	A			
	T					grade or type)	(H.T. — tii	me and tem	p.)		(1		number, grade o	r type) (H.			)
	Location (Top,		Thickne	ess		Radius	Ellipti	ical I	onical Apex	Hemispherica	l Flat	Side t	o Pressure			egory A	
	Bottom, Ends)	M	lin.	Corr.	Crown	Knuckle	Rati	10 1	Angle	Radius	Diameter	Convex	Concave	Туре		ıll, Spot, None	Eff.
(a)	NA																
	-							Body I	Flanges	on Heads							
	Location	Тур	ne l	ID	OD	Flange	Min Hu	ıh	aterial	How			Bolting	ng Washe	-	Mach	
		.,,,,				Thk	Thk			Attached	Num & S	NZE I	-	(OD, ID,		Wash Mater	
(a)	NA																
8. T	ype of jacket					NA				Jacket closure			Describe as oge	NA	h1-	`	
If	bar, give dim	ensions	s; if bolte	ed, desci	ribe or ske	etch					١	۱A	Describe as oger	e and weld	, bar, etc	i.)	
9. N	1AWP	1.2MP	'a		0.1MP	a atı	max. tem	ip. 2	20℃	220°		design met	al temp.	-10℃	at	1.21	MPa
10		(Interna	ıl)		(Externa	·			nternal)	(Extern	al)		. –		_		
10.	Impact test				[Indi	cate yes or no		-51(d)(e) omponent(s)		ested]		at	test temperatu	ire of _		NA	
11.	Hydro., pneu	, or con	nb. test	pressure		Hydro. Tes	st at 1.69	9MPa (H	orizonta	al) Pro	oof test			NA			
Iten	ns 12 and 13	to be c	complete	ed for tu	ıbe sectio	ons.											
12	Tubesheet			40 340 Bottom	n)	36	6mm/36 (O.D.			48mm/48m (Nominal)		0mm/0mr	n	Mal	ded/W	alded.	
12.	- abconcer			aterial spe		[Diame		t to press.)]		(Nominal thickn		(Corr. allow.				ed or bolted)	)]
		[Floa		IA erial spec	:. no.)]		NA (Diamete	er)		NA (Nominal thickne	ess)	NA (Corr. allow.	)	(,	NA Attachme	ent)	
13.	Tubes	SA	A-213 T	ΓP304L			19.05m	nm		1.65mm		58 pcs				000mm)	
		Material	spec. no.	., grade oi	r type)		(O.D.)	1	lonz	(Nominal thickness	ess)	(Number)			e (straigh		
										henrim			)im)			- 21	
								2	m.	12.22			Dean	nber ?	ll,	100	

WC	RPAR											1002	32498	3.000 /	Pag	e 2 o	† 6	
									FOR	VI U-1					Page	2	of _	3
Manu	factured by						V	/uxi Zhiche	eng Bioche	mical Engin	eering	g Equipme	ent Co.,	Ltd.				
Manu	facturer's S	erial N	lo		WZ	A21-24						Na					155	
							-	keted vess		nels of heat		•		217mm/	12.47mm	m /Tan/	Dettems	
14. 3	`	rse(s)	iber or	course(s		aterial		ickness		(b) Ove g. Joint (Cat.			lais	217mm/		11 ( 1 op/1		
No.	Diame		Leng	ath		c./Grade	Nom		Type	Full, Spot,	Eff.			rt (Cat. A, Full, Spo	t T			reatment
140.			Leng	-	or	Туре			Туре	None	E11.		pe	None	" Ef		Temp.	Time
1	O.D. 273m		217n	nm	SA-3	12 TP304	9.27 mm	0mm	S	None	1		App.2	Spot/NA	Α	85/ IA	NA	NA
2	0.D. 273m		347n	nm	SA-3	12 TP304	9.27 mm	0mm	S	None	1	1/Man	2-4(8) . App.2 2-4(8)	Spot/N/	Δ 0.8	85/ IA	NA	NA
									Body Flange	oc on Challe		1 19. 4				-		
	T			T	Flang	ne Mir	1 Hub		How	es on Shells				E	Bolting			
No.	Туре	ID		DD	The		hk	Material	Attached	Locatio	n	Num & Size		Bolting Material		Vasher D, ID, thk		Washer Material
		276		366	Nami	nol		CA 182				400				D.39/I.D.	<i>'</i>	
1	FM	mm		nm	Nomi 38m		NA	SA-182 F304	Welded	Тор	N	12& //14X125mi	m SA	\-193 B8		5.5/T2.5 (mm)	S	A-240 304
		276	3	366	Nomi	nal		SA-182				12&			0.0	D.39/I.D.		
2	FM	mm		mm	38m		NA	F304	Welded	Тор	N	//14X125mi	m SA	\-193 B8		5.5/T2.5 (mm)	S	A-240 304
15. H	leads: (a)	То	p: SA			old formir		PWHT H.T. — time :	and temp.)	(	0) _	Bottom: (Mat		304 Col				
	Location	$\neg$	Thi	ickness		Ra	idius							e to Pressi		, ,	Catego	
	(Top, Bottom,		Min.		orr.	Crown	Knuckl	Elliptica Ratio	Apex	lHemisp		Flat				T	Full, S	not
	Ends)		IVIIII.		OII.				Angle	e Rau	us	Diameter	Conve	ex Con	cave	Туре	Non	e Eff.
(a)	Тор		5mm	0	mm	R 273 mm	R 27.3 mm	NA	NA	N.A	4	NA	No	Y	es	S	Ful	0.85
(b)	Bottom		5mm	0	mm	R 273 mm	R 27.3	NA	NA	N/	4	NA	No	Y	es	S	Ful	0.85
									Body Flange	s on Heads								
	Location	T	ype	ID		OD	Flange	Min Hub	Material	How				Bolting	Bolting V	Vasher		Washer
					-		Thk	Thk		Attache	a	Num & Size		Material		D, ID, thk		Material
(a)	NA																	
16. N	MAWP		MPa ernal)	_	-	0.1 (External)	at m	ax. temp.	220°C (Internal)		220°C Externa		design m	netal temp.		-10°C	at _	1.2MPa
17. lı	mpact test						No, Pe	r UHA-51	(d)(e)(h)				at	test tempe	erature	of	N	A
10 1	ludes essential								onent(s) impac							1.0		
	lydro., pneu lozzles, ins				_		iro. rest	at 1.69MF	Pa (Horizor	1(a)	Proof	test			N	IA		
		Pection	T, and .	salety ve	T	eriiriga.												Location
(Inle	urpose t, Outlet, iin, etc.)	No.		meter or Size		Туре	N	Materia ozzle	al Flange	Nozzle Nom.		ess Re	inforcem Material	ent	Attachr  Nozzle	ment De	tails lange	(Insp. Open.)
See	attached																	
foi	rm U-4																	
pag	e 2 of 2																	
20. S	upports: Si	kirt	(Yes	or no)	Lugs	s4	er)	_egs	NA Ot	thers	7	Lifting lug	S	Attac	ched		Remar Where an	
			rtial Da	ta Repoi	ts pro	perly ident	fied and	signed by C		d Inspectors I					items o			,

22	Rem	ark
	1 (0111	ai i i

- 1, Impact test exempted per UHA-51(d)(e)(h).
  2, PWHT are exempted by UHA-32.

- The safety valve is to be installed at pipe system at site by user.
   For each design and operating condition, see attached Form U-5.
   UG-46(a)" when inspection openings are omitted in fixed tube sheet heat exchangers.
- 6,The channel flange gaskets:O.D.308/I.D.288X3mm,GARLOCK 3510,2 pcs.
- 7,4 Lifting lugs welded to the Top head and bottom channel shell, the others welded to the shell.

Chenzhengony

December 22, 221

WURPAR				100	JZ3Z496.00C	77 Fage	3 01 0	
			FORM U-1			Page _	of	3
Manufactured by		Wuxi Zhicheng	Biochemical E	ngineering Equip	oment Co., Ltd.			
Manufacturer's Serial No.	WZA21-24	CRN	NA		National Board No.		155	
		CERTIFICAT	E OF SHOP C	OMPLIANCE				
We certify that the statements conform to the ASME BOILER AND PI				design, mater	ial, construction	, and work	manship o	f this vessel
U Certificate of Authorization Number		36,922	Expires	Sept. 21, 202	22			
Date 201. 12. 2V	Name		chemical Engin nt Co., Ltd. <sub>(facturer)</sub>	eering	Signed Chen	Thengn (Repre	esentalive)	
		CERTIFICAT	TE OF SHOP IN	ISPECTION				
I, the undersigned, holding a v LRQA Ve	alid commiss	ion issued by the N			Pressure Vessel	Inspector: UK	s and emp	loyed by
have inspected the pressure state that, to the best of my kno PRESSURE VESSEL CODE, Sect or implied, concerning the pressube liable in any manner for any person Date	wledge and b ion VIII, Divisi ire vessel des	elief, the Manufactur on 1. By signing this c cribed in this Manufa	rer has constricertificate neith cturer's Data Fany kind arising f	ucted this press er the Inspector eport. Furtherm	sure vessel in according to the last sure vessel	yer makes inspector no	any warrant or his/her er ion No.: 147	ty, expressed mployer shall
		CERTIFICATE OF F	FIELD ASSEMI	BLY COMPLIAN	ICE			
We certify that the statements in to of ASME BOILER AND PRESSURE V			field assembly	construction of a	all parts of this ves	sel conform	ns with the	requirements
U Certificate of Authorization Number				Expires				
Date	Name				Signed			
			(Assembler)			(	Representative	<u>‡</u> )
		CERTIFICATE OF	FIELD ASSEM	BLY INSPECTION	ON			
I, the undersigned, holding a va	lid commissio	on issued by the Nat	tional Board o	f Boiler and Pre	essure Vessel Ins	spectors ar	nd employe	ed by
of	hav	ve compared the stat	tements in this	Manufacturer's	Data Report with	the describ	oed pressur	re vessel
and state that parts referred to as data	items			, not	included in the cert	ificate of sho	op inspectio	n, have been
inspected by me and to the best	of my knowle	dge and belief, the N	Manufacturer h	as constructed	and assembled the	nis pressur	e vessel in	accordance

with the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a . By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or hydrostatic test of 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.

Signed (Authorized Inspector) Date

Commissions (National Board Authorized Inspector Commission number)

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## 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

i. ivia	nuiactured and c	ertified by	Park,B Zone Y	angjianTo	wn,Xisha	an District	Wuxi City, Jime and address of	angsu F	rovince 21	oad Machir 4108 Peopl	iery Equ le's Repu	ipment Inc ublic of Ch	dustrial iina.
2. Ma	nufactured for					(Name and	Not known	accer)					
3. Loc	cation of installati	on					Not known	iasei)					
4. Тур	pe	Vertic (Horizontal, vertic		(S		Heat e steam heg (19-	exchanger at exchanger X-762)		W)	(Man	WZA2	1-24 serial numbe	
		NA		XZC21A17	7-00 Rev		or, mode oxon., etc.	155		(IVIGIT		2021	1)
		(CRN)		(Drawing	number)		(Nati	onal Board	d number)		(Ye	ar built)	
	Report em												
	nber					Re	marks						
	m 6					110							
	ell:												
	Course(s)		Material	Thicl	kness	Lo	ng. Joint (Cat. A	4)	Circum. J	loint (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	O.D.273mm	1363mm	SA-312 TP304	9.27 mm	0mm	S	Full	1	1/ Fig.UW- 13.2(j)	Spot/NA	0.85/ NA	None	NA
2	O.D.456mm/ O.D.273mm	86mm	SA-240 304	8mm	0mm	S	Full	1	1/ 1	Spot/ Spot	0.85/ 0.85	None	NA
3	O.D.456mm/ O.D.273mm	86mm	SA-240 304	8mm	0mm	S	Full	1	1/ 1	Spot/ Spot	0.85/ 0.85	None	NA
4	O.D.273mm	1363mm	SA-312 TP304	9.27 mm	0mm	S	Full	1	1/ Fig.UW- 13.2(j)	Spot/NA	0.85/ NA	None	NA
Certif	ficate of Authoriz		U	No	_	36,9		Expire			ept. 21,		
Date	2=21. 12	. 22	Name 			neng Biod Equipmer	nemical it Co., Ltd.		Signe	ed Ches	rhen	mm	4
Date	2=21. 12	22, 22		Jiangang (Authorized li	)i wy y Wang	anufacturer)	Commissions			Al Commiss	ion No.:		ımber)

_	_		_
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

2. Manufactured for South Control (Name and address of Purchasers) 3. Location of Installation	Date Date	uniher V	2,221	Signed	Jiangang Wa	ng lu	· .	sions	AI	Commission	(Representation No.: 14743	
Communication   Communicatio	Date 2021.	12.2	л 	Name		quipment Co	o., Ltd.		Signe	ed Chem	zhengn	ring
Namural cutured for	Certificate of Au	ıthorizatio	on: Type	U	No.	36	,922	Expi	res	Se	pt. 21, 2022	
Note and address of Not known   Not know		2		2013 CI.150 flg.			3.38mm	0mm	Integral	_	-	NA
Name and address of Main/Lectured For   Not Know   No		2		2013 CI.150 flg. SO RF			2.77mm	0mm	Integral		_	NA
Name and address of Michaeles   Note Note   Note		1		ASME B16.5- 2013 CI.150 flg.			6.02mm	0mm				NA
Name and address of Name and address of Name Authority		1		2013 CI.150 flg.			6.02mm	0mm			_	NA
Note		1		2013 CI.150 flg.			2.77mm	0mm	Integral		_	NA
Not known   Not	Condensate	1		2013 CI.150 flg.			6.02mm	0mm			-	NA
(Name and address of Manufacturer)  Not known  (Name and address of Purchaser)  3. Location of installation  Not known  Name and address  Heat exchanger  (Soft water/steam heat exchanger W521HW)  (Horizontal, vertical, or sphere)  (Tank, separator, heat exch., etc.)  (Manufacturer's serial number)  NA WXZC21A17-00 Rev.1 1.55 2021  (CRN) (Drawing number) (National Board number)  (Year built)  Data Report  Item  Number  Remarks  Item 19 Nozzles, inspection, and safety valve openings:  Material Nozzle Thickness Reinforce ment (Insp., Drain and p. Curter)  Material Nozzle Thickness Reinforce ment (Insp., Drain and p. Curter)  Location (Insp., Drain and p. Curter)  Not known  Name and address of Manufacturer')  Not known  Name and address of Manufacturer')  Neare and address of Manufacturer's serial number (Manufacturer's serial number)  WZA21-24  (Manufacturer's serial number)  (Manufacturer's serial number's serial		1		2013 CI.150 flg.			6.02mm	0mm			_	NA
(Name and address of Manufacturer)  Not known (Name and address of Purchaser)  3. Location of installation  Not known Name and address)  Heat exchanger 4. Type  Vertical (Horizontal, vertical, or sphere) (CRN)  Not known Name and address)  Heat exchanger (Soft water/steam heat exchanger W521HW) (19-X-762) (19-X-762) (Manufacturer's serial number)  NA WXZC1A17-00 Rev.1 155 2021 (CRN) (Drawing number) (National Board number) (Year built)  Data Report Item Number  Remarks  Item 19 Nozzles, inspection, and safety valve openings:	(Inlet, Outlet,	No.	or Size	Туре					ment			(Insp.
Not known   Not known	Item 19	Nozzl	es, inspectio	on, and safety valve	· •	arial	Nozzlo Th	icknoss		Attachm	ont Dotoila	
Company   Comp	Item						Remarks					
(Name and address of Manufacturer)  2. Manufactured for Not known (Name and address of Purchaser)  3. Location of installation Not known Name and address) Heat exchanger  4. Type (Soft water/steam heat exchanger W521HW) Vertical (19-X-762) WZA21-24 (Horizontal, vertical, or sphere) (Tank, separator, heat exch., etc.) (Manufacturer's serial number)  NA WXZC21A17-00 Rev.1 155 2021	Data Report		(CRN)		(Drawing numb	per)		(National Bo	ard number)		(Year built	)
(Name and address of Manufacturer)  2. Manufactured for  Not known (Name and address of Purchaser)  3. Location of installation  Not known Name and address)  Heat exchanger			Horizontal, vertic	cal, or sphere)		(Tank, sep	19-X-762)	n., etc.)		(Manu	ufacturer's serial n	umber)
2. Manufactured for Not known (Name and address of Manufacturer)  (Name and address of Purchaser)					(Soft	Hea	Name and addre	ess)	HW)			
(Name and address of Manufacturer)	3 Location of in	- nstallation	1			(Name	and address of	Purchaser)				
1. Manufactured and certified by Wuxi Zhicheng Biochemical Engineering Equipment Co.,Ltd. No.8 Baoyuan Road Machinery Equipment Industrial Park,B Zone YangjianTown,Xishan District, Wuxi City, Jiangsu Province 214108 People's Republic of China.	2 Manufactured	d for	-	Park,B Zone `	YangjianTown	Xishan Distr,	rict, Wuxi Cit (Name and addr	y, Jiangsu ess of Manufa	Province 21	4108 People	e's Republic o	of China.

## 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

. Manufactured	and certified	by Wuxi Pa	Zhicheng Erk,B Zone	Biochemical YangjianTov	Engineering Eq n,Xishan Distri	uipment Co.,L	_td. No.8 Bad Jiangsu Prov	oyuan Road Ma vince 214108 P	achinery Equ	uipment Industrial
. Manufactured	for				(1	Name and address  Not know	of Manufacturer	)		
					(Name	and address of Pu				
Location of ins						Not know	vn			
.Type	Vertice Horizontal, vertice					321-24 's serial number)			NA (CRN	
	C21A17-00 F					55			202	
	(Drawing numb					loard number)		_	(Year b	
				FIXED TUBES	SHEET HEAT EX	CHANGERS				
	Des	ign/Operating	Pressure Ra	inges	Des	sign/Operating N	Metal Tempera	tures	Allowable A	Avial
Name of	Shell	Side	Tub	e Side	Shell	Channel	Tubes	Tubashast	Differential Expansion	Thermal
Condition	Min.	Max.	Min.	Max.	_ Sileii	Chamilei	rupes	Tubesheet	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	/	0.7	175.5/170.5					
Operating	/	0.0		0.7	1/5.5/1/0.5	30/96	30/96	175.5/170.5	0	0
Data Repor	t									
Item Numbe						Remarks				
22						Remarks 4	1			
			Ш	No	36	922	Evnires		Sont 21	2022
ertificate of Autho	orization: T	ype	U	No.	36	,922	Expires		Sept. 21,	2022
ate.				_	heng Biochemic		Expires	Signed		
ertificate of Authorite	orization: T	ypeName		 Wuxi Zhic	heng Biochemic g Equipment Co	cal o., Ltd.	Expires	Signed	Sept. 21,	
2021.	12. 22	Name		 Wuxi Zhic	heng Biochemic	cal o., Ltd.	Expires	Signed 2		
2021.		Name	e	 Wuxi Zhic	heng Biochemic g Equipment Co (Manufacture	cal o., Ltd.		L		engnul presentative)