

  中国天辰工程有限公司 中国化学 CHINA TIANCHEN ENGINEERING CORPORATION LTD. 	PKT 300KTA Soda Ash Project RFQ For Belt Filter	Code	T24B25		
		Doc. No.	T24B25-PS86-01		
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带式滤碱机请购技术文件

Belt Filter Material Requisition

R03	Issued For Approval					01-08-2025
R02	Issued For Review	MHR	CJW	FHD		14-07-2025
R01	Issued For Review	MHR	CJW	FHD		06-06-2025
版次 REV.	说明 DESCRIPTION	编制 PRE' D	校核 CHK' D	审核 REVIEW	审定 APPR	日期 DATE

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修改记录

Change Log

Rev.	Date	Description of Change
R02	14-07-2025	Answer some questions and update the document
R03	01-08-2025	Answer some questions and update the document

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Comments and Reply

Date	Rev.	Page/Section	Owner Comments	Contractor Reply
14-07-2025	R02	Section 1.3	To ensure alignment with the Project	Agree and follow the typical order of reference.
14-07-2025	R02	Section 2.2	What materials are used for Belt Filter	The material of each component of the belt filter is detailed in the following table. The details will be confirmed during the purchase stage.
14-07-2025	R02	Section 2.2	Is it possible if we get some drawing like other requisition?	During the purchase stage relevant drawing will be provided.
14-07-2025	R02	Section 5.1	Add belt, gasket, bearing, vacuum seal, and instrument sensors for start-up	The detailed list of spare parts for start-up needs to be confirmed with the vendor during the purchase stage.
14-07-2025	R02		Others	Agreed.
01-08-2025	R03	Section 4.1.2	Shall also provide in minimum and maximum pressure (in range)	The pressure usually provided by the manufacturer is the range from the minimum to the maximum value.
01-08-2025	R03		Others	Agreed.

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1 概述 General

本请购技术文件用于带式滤碱机的请购，其设计、采购、制造、质量控制、检验、测试、包装与运输等都必须严格遵照本请购技术文件的要求及其所有附件。本文件的所有附件均为本请购技术文件的一部分，供应商须满足其中的要求。

This Requisition is issued to obtain quotation for Belt Filter. Its design, engineering, procurement and supply of materials, fabrication, quality control, inspection, test, packing and shipment of complete should be strictly accordance with requirements of this requisition and all of its attachments. All documents attached hereto are an integral part of this Requisition and shall be taken into consideration.

供货商给出的设备与材料方案需要严格按照本请购技术文件及其所有附件执行。

Vendor's proposal for equipment and/or materials shall be in strict accordance with this requisition and any attached documents.

1.1 项目信息 Project Information

项目名称：印尼 PKT 30 万吨/年纯碱项目

Project: PKT 300KTA Soda Ash Project

项目地点：印尼东加里曼丹（Kaltim）

Project Location: East Kalimantan, Indonesia

业主名称：PKT

Owner: PKT

1.2 请购设备清单 Equipment List

本次请购的请购设备清单如下表所示：

The scope of this requisition is shown as below:

序号 NO.	位号 Tag NO.	设备名称 Service of Equipment	数量 Quantity
1	512 装置 512 Unit		
1.1	512-X-01AB	带式滤碱机 Belt Filter	2

1.3 工艺描述 Process Description

碳化取出液从出碱槽进入到带滤机内，依靠真空机不断抽气，提供负压条件。碳化取出液中的碳酸氢钠颗粒留到滤布上，液体通过滤布进入母液分离罐。经过分离后的滤饼，经过三道洗水洗涤，将滤饼中的盐分去除，得到含水量较少的重碱，经皮带输送至轻灰工段。洗水最终进入母液系统。为了维持母液系统稳定，需要严格控制洗水用量。

The carbonation magma flows from the magma tank into the belt filter, relying on the vacuum machine to continuously draw air and providing a negative pressure condition. The sodium

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bicarbonate particles in the carbonation magma remain on the filter cloth, while the liquid passes through the filter cloth and enters the mother liquor separation tank. After separation, the filter cake undergoes three stages of water washing to remove the salt content, resulting in crude bicarbonate with a lower moisture. This is then transported by a belt conveyer to the light ash section. The washing water eventually enters the mother liquor system. To maintain the stability of the mother liquor system, the amount of washing water needs to be strictly controlled.

2 工作范围与供货范围 Scope of Supply and Work

2.1 工作范围 Scope of Work

NO.	Items	Purchaser Scope	Vendor Scope	Remarks
1	设计 Design		√	
2	制造与安装 Manufacturing and assembling		√	
3	厂内检验与测试 Inspection and Testing at shop		√	
4	不锈钢部件的化学清洗 Chemical cleaning for part of stainless steel material		√	
5	焊接工艺评定试验 Welding procedure qualification test		√	
6	焊接性能评定试验 Welding performance qualification test		√	
7	厂内涂装 Painting at shop		√	
8	海运、陆运与储存的防锈 Rust prevention for ocean and inland transportation and storage		√	
9	包装及运输到交货地点 Packing and transportation up to the delivery place		√	
10	审查 TCC 的相关文件 Review of TCC's related documents		√	
11	请购技术文件附件 Endorsement of documents attached to the Requisition		√	
12	本请购技术文件及其适用标准与规范、附件、规定、图纸中直接或间接指定的，需要厂家完成的其他工作 All other works specified or implied as VENDOR's scope of work in the Specifications and Drawings and any attachments to the Requisition, applicable codes and applicable standards		√	
13	现场安装 Installation at Site	√	√	
14	现场运行测试 Running Test at Site	√	√	
15	安装指导 Guide for Installation		√	
16	开车指导 Guide for commissioning		√	
17	申请并获得当地权威机构批准，以便设计、安装与负荷测试 Application to and Obtaining Approval from Local Authorities, for Design, Installation and load test other than above	√		
18	日常维护 Daily maintenance	√		

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供货商工作范围包括带式滤碱机的设计、制造和相关服务，提供物料平衡、工艺流程图（需体现供货范围）、PID、公用工程消耗、设备图等。

The Vendor's work scope includes the design, manufacture and related services of belt filter, providing material balance, process flow diagram (including supply scope), PID, utility consumption, equipment drawing, etc.

具体工作范围供货商需与买方澄清，下列特别说明的内容必须包含在供货商的工作范围内，包括车间检验和测试、运输和储存中的防腐、现场运转试验、现场安装指导、现场开车指导、设备质量和性能保证等，但不限于此。现场技术服务包括操作人员培训和维修培训。

The specific scope of work shall be clarified by the Vendor with Purchaser. The following special instructions shall be included in but not limited to the scope of work of the Vendor, including workshop inspection and testing, anti-corrosion in transportation and storage, field running test, field installation guidance, field commissioning and start-up guidance, equipment quality and performance assurance, etc. Site Technical Service include operator training and maintenance training.

2.2 供货范围 Scope of Supply

供货商需要提供 2 套功能完整的带滤机。供货范围严格按照要求进行供货，包括整套设备和其他关键的配套设施。供货商的供货范围参照下表及说明条款，但不限于如下内容。详细的供货范围需与买方进行澄清。具体的配置方案和设备数量由供货商确定并经买方批准。

The Vendor needs to provide 2 sets of fully functional belt filter. The Scope of supply is delivered in strict accordance with the requirements, including the complete equipment and other key supporting facilities. The Vendor's scope of supply shall refer to the following table and explanatory terms, but shall not be limited to the following. The detailed scope of supply needs to be clarified with the Purchaser. The specific configuration scheme and quantity of equipment shall be determined by the Vendor and approved by the Purchaser.

带式滤碱机供货范围 Scope of supply of belt filter

序号 Item No	货物名称 Equipment name	规格型号 Equipment name	主要材质 Main material	单位 Unit	数量 Quantity	Remark 备注
1	带滤机 Belt Filter	Provided by vendor	See following table for details	台 set	2	具体面积由厂家最终确定 Filter area is determined by Vendor

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序号 Item No	货物名称 Equipment name	规格型号 Equipment name	主要材质 Main material	单位 Unit	数量 Quantity	Remark 备注
单台带式滤碱机主要包括下列部件: A single belt filter mainly includes the following components:						
1	框架 Frame		316L (A240 Gr.316L)		1	
2	真空盒 Vacuum box		箱体: 2205 (A240 Type 2205) Box body: 2205 (A240 Type 2205) 支撑架: 316L (A240 Gr.316L) Support frame: 316L (A240 Gr.316L)		1	
3	布料器 Distributing device		2205 (A240 Type 2205)		1	
4	滤饼冲洗分配器 Filter cake rinse dispenser		2205 (A240 Type 2205)		1	
5	滤布冲洗集液槽 Scrubbing Water Recovery Tank		316L (A240 Gr.316L)		1	
6	滤饼卸料斗 Cake discharge hopper		316L (A240 Gr.316L)		1	
7	头尾辊 Head roller and tail roller		辊筒 Roller: Q235 (A283 Gr.D) 主轴 Main shaft: C20+316L 包胶材质 Coating material: SBR 轴头 316L 不锈钢覆盖 Shaft head covered with 316L stainless steel		1	
8	滤布回转辊 Filter cloth rotary roller		316L (A276 Type 316L)		1	
	滤布纠偏辊 Filter cloth deviation correction roller		316L (A276 Type 316L) (其中的包胶材质 Coating material: SBR)		1	
	滤布托辊 Filter cloth idler roller		316L (A276 Type 316L)		1	
	滤布压辊 Filter cloth press		2205 (A276 UNS S32205)		1	

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序号 Item No	货物名称 Equipment name	规格型号 Equipment name	主要材质 Main material	单位 Unit	数量 Quantity	Remark 备注
	roller					
	皮带托辊 Belt idler roller		316L (A276 Type 316L)		1	
9	橡胶皮带 Rubber belt		SBR		1	进口品牌，由厂家提出，买方最终确定 Imported brand, proposed by Vendor and finally determined by Purchaser
10	裙边 Hemline		天然橡胶 Natural rubber		1	
11	滤布 Filter cloth		聚丙烯 Polypropylene		1	进口品牌，由厂家提出，买方最终确定 Imported brand, proposed by Vendor and finally determined by Purchaser
12	行星式齿轮箱 Planetary gear box		Provided by vendor		1	
13	隔离网 Isolation net		玻璃钢 Glass fiber reinforced plastic 支架 Support: 316L (A276 Type 316L)		1	
14	电机（不含变频器） Motor (excluding inverter)		Provided by vendor			一级能效 Grade 1 energy efficiency
15	集液管 Collecting pipe		母管 Head tube: FRP 支管 Branch pipe: 2205 (A790 UNS S32205)		1	
16	排气罩 Exhaust hood		316L (A276 Type 316L)		1	
17	设备本体仪表、阀门 Equipment body		Provided by vendor			具体供货范围需与买方澄清 The specific

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序号 Item No	货物名称 Equipment name	规格型号 Equipment name	主要材质 Main material	单位 Unit	数量 Quantity	Remark 备注
	instrument, valve					scope of supply needs to be clarified with the Purchaser
18	操作箱及接线箱 Operating box and junction box		Provided by vendor		1	

设备本体仪表及阀门清单（厂家提供）。

Instrument and valve list of equipment body(provided by Vendor).

仪表位号 Meter position number	描述 Description	信号类型 Signal type	防护等级 Protection class	仪表类型 Instrument type	制造商/品牌 Vendor/ Brand	型号/系列 Model/Series	供货方 Vendor

附属设备清单（厂家提供）。

List of auxiliary equipment(provided by Vendor).

序号 No.	位号 Tag Number	设备名称 Equipment Service	规格 Specifications	操作温度 Operation Temperature(℃)	操作压力 Operation Pressure (kgf/cm ² g)	材质 Material	数量 Number
1	512-V-02A/B	母液分离罐 Mother Liquor Separator	2800×2600	30-40	-0.6	316L Corrosion Allowance: 0mm	2
2	512-V-03A/B	洗水分离罐 Washing Water Separator	3200×2600	30-40	-0.6	316L Corrosion Allowance: 0mm	2
3	512-V-08A/B	滤布冲洗水回收槽 Scrubbing Water Recovery Tank	1000×2000	25-30	ATM	316L Corrosion Allowance: 0mm	2
4	512-V-09A/B	洗水回收罐 Washing Water Recovery Tank	3000×3000	30	ATM	316L Corrosion Allowance: 0mm	2
5	512-V-12A/B	过滤真空分离罐 Filter Vacuum Separation Tank	3400×3950	30-40	-0.6	316L Corrosion Allowance: 0mm	2

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序号 No.	位号 Tag Number	设备名称 Equipment Service	规格 Specifications	操作温度 Operation Temperature(°C)	操作压力 Operation Pressure (kgf/cm ² g)	材质 Material	数量 Number
6	512-V-01	出碱槽 Magma Tank	4000×1400× 2000	30-40	-0.005	316L Corrosion Allowance: 0mm	1
7	512-V-11	旋流器 Hydrocyclone	φ240×1280 (Finally provided by Vendor)	40	3	316L Corrosion Allowance: 0mm	1
8	512-V-07	洗水高位槽 Scrubbing Water Tank	φ3600×5000	40	ATM	CS/Anticor rosion Corrosion Allowance: 1.7mm	1

3 标准规范清单 Codes and Standards

ASME Section VIII, Division 1 (2023) Pressure Vessel

ASME B16.5 (2020) Pipe Flanges and Flanged Fittings

ASME B31.3 (2020) Process Piping

供货商补充设备按照美标执行的相关标准和规范，包括设备的设计、制造、包装、运输、储存、验收等。

The Vendor shall supplement the relevant standards and specifications of the equipment in accordance with the American standard, including the design, manufacturing, packaging, transportation, storage and acceptance of the equipment.

4 技术要求 Technical Requirements

4.1 工艺要求 Process requirement

4.1.1 生产能力要求及技术规格指标 Production capacity requirements and technical specifications

- (1) 带式滤碱机能力 300000 吨/(年·台)
Belt Filter Capacity 300,000 tons /(year · set)
- (2) 年操作工时 7920 小时
Operation Time 7920 hours
- (3) 进料规格:
Feed Specification:
碳化取出液 Carbonation extraction solution
具体见附件 1 T24B25-512-PS11-42 带式滤碱机数据单。

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For details, see Attachment 1 T24B25-512-PS11-42 Belt Filter Process Data Sheet.

(4) 冲洗水规格 Wash water specifications

具体见附件 1 T24B25-512-PS11-42 带式滤碱机数据单。

For details, see Attachment 1 T24B25-512-PS11-42 Belt Filter Process Data Sheet.

(5) 滤饼规格 Filter cake specifications

具体见附件 1 T24B25-512-PS11-42 带式滤碱机数据单。

For details, see Attachment 1 T24B25-512-PS11-42 Belt Filter Process Data Sheet.

4.1.2 设备要求 Device Requirements

- (1) 厂家提供带滤机工作状态下的操作压力（真空度）抽气量和洗水当量。

The Vendor provides the normal pressure (vacuum degree), gas flow and water consumption per ton of soda ash under the working state of the filter.

- (2) 本设备安装在室内，非防爆。

The equipment is installed indoor and is not explosion-proof.

- (3) 带式滤碱机变频电机由卖方供货，配套变频器由买方供货，电机必须是一级能效。

The variable frequency motor of the belt filter is supplied by the Vendor, and the supporting frequency converter is supplied by the Purchaser, and the motor must be grade 1 energy efficiency.

- (4) 带滤机需满足长期连续运行的要求。启动、运行和停机平稳并安全可靠。

The belt filter must meet the requirements of long-term continuous operation. Smooth and safe start-up, operation and shutdown.

- (5) 厂家需优化带滤机结构以及洗水洗涤工艺：1.设置四道洗水洗涤滤饼；2.加长母液进口与第一道洗水之间的距离，由原来的 5m 改为 7m。带滤机结构最终由厂家确认。

The manufacturer needs to optimize the structure of the belt filter and the washing water washing process: 1. Set up four washing water washes for the filter cake; 2. Appropriately extend the distance between the mother liquor inlet and the first washing water and change from 5 meters to 7 meters. The belt filter structure will be finally confirmed by the manufacturer.

4.1.3 计量单位 Units of Measurement

Parameter	Unit of Measurement	Symbol
Thickness	millimetre	mm
Length	metre millimetre	m mm
Pipe diameter	inch	"/in

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Parameter	Unit of Measurement	Symbol
Mass	kilogram	kg
	milligram	mg
Weight	metric tons	MT
Time	second	s
	minute	min
	hour	h
	day	day
Pressure Vacuum	millimeter mercury absolute	mmHgA
Pressure atmospheric and above	kilograms/square centimeter gauge	kg/cm ² G
Differential Pressure	millimeter water	mmH ₂ O
	kilograms/square centimeter	kg/cm ²
Flow Gas	kilogram/hour	kg/h
	tons/hour	t/h
Flow Liquid	kilogram/hour	kg/h
	tons/hour	t/h
Flow Solid	kilogram/hour	kg/h
	tons/hour	t/h
Flow Steam	tons/hour	t/h
Energy	watt / kilocalorie	W / kcal
Real energy consumption	Volt ampere	VA
	Kilo Volt Ampere	kVA
Power	watt	W
	kilowatt	kW
Electrical potential	volt	V
Temperature	degree Celsius	°C
Molecular Mass	Kilogram/mole	kg/mol
Electric Current	ampere	A
Volume	cubic meter	m ³
Density	kilogram/cubic meter	kg/m ³
Concentration	part per million part per billion	ppm
		ppb
		%mol
		%wt
Standard		S
Normal		N
10 ⁹	giga	G

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Parameter	Unit of Measurement	Symbol
10^6	mega	M
10^3	kilo	k
10^{-3}	micro	μ
Humidity		%
Viscosity	centipoise	cP
Conductivity	micro siemens/cm	μ S/cm
Rotational speed	revolution per minute	rpm
Electricity	kilo watt hour	kWh
Frequency		Hertz
Vibration	micron	micron mm/s
Noise	decibels	dB
Heat	joule calorie	J cal
Acidity		pH
Rotation angle	degree	o
Velocity	metre per second	m/s
Normal Gas Flow (0°C and 1 atm)	normal cubic meter/hour	Nm3/h

4.2 设计基础 Design Basis

见附件 2 See attachment 2.

4.3 交接面要求 Interface requirement

设备应选择常用管径管口，管口连接法兰按 ASME B16.5 标准。非标管口和连接形式需与买方澄清。

Common nozzle shall be used. Nozzle flange according to ASME B16.5 standard. If non-standard nozzle and connection form issued, it need to be clarified with owner.

电气交接点为电机接线盒接线端子，接线盒格兰（黄铜镀镍双密封格兰）由厂家提供，格兰数量和规格根据买方后期提供的电缆外径确定。

The joint point is the terminal of the motor terminal box. The cable gland (copper-nickel plated double-sealed gland) is provided by the vendor. The gland number and size will be determined based on the outer diameter of the cable provided by the buyer later.

仪表接口见《T24B25-EA81-02b R01 设备包仪表设计准则（不含控制系统）》第 2 章：供货和工作范围的定义。

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Instrument Interface see 'T24B25-EA81-02b R01 Instrument Design Criteria of Equipment Packages (without control system)' chapter 2: Definition of supply and work scope.

所有的控制、监测、运行信号都要接至 DCS 系统。

All control, monitoring and operation signals must be connected to the DCS system.

4.4 专业设计要求 Design requirements

4.4.1 工艺规定 Process specification

设备、管线、仪表等编号需按照买方要求进行编写。

The numbering of equipment, pipelines and instruments shall follow Purchaser's requirement.

4.4.2 电气规定 Electrical specification

见电机技术规定。

See the LV motor specifications(T24B25-EH90-01).

4.4.3 仪表规定 Instrument specification

见《T24B25-EA81-02b R01 仪器设备包设计规范（不含控制系统）》。

See 'T24B25-EA81-02b R01 Instrument Design Criteria of Equipment Packages (without control system)'.

5 备品备件与特殊工具 Spare Parts and Special Tools

5.1 开车备品备件 Spare parts for start-up (Determined by the Vendor)

序号 Item No	名称 Name	数量 Quantity	产地 Origin	生产厂家 Vendor	备注 Remark
1	滤布 Filter cloth				
2	支撑台耐磨带 Support wear band				
3	真空盒耐磨带 Vacuum box wear belt				
4	主机用三角带 Triangle tape for main machine				
5	润滑脂加注器 Grease injector				
6	纠偏阀 Deviation correcting valve				
7	卸料刮刀 Discharge scraper				
8	滤布及皮带 偏移感应器 Filter cloth and belt offset sensor				
9	裙边 Hemline				

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10	喷嘴 Nozzle				
11	垫圈 Gasket				
12	轴承 Bearing				
13	...				

5.2 两年运行备品备件 Spare parts for two years operation (Determined by the Vendor)

设备交接验收后二年内正常生产所需的备品备件（包括电气备件）。

Spare parts (including electrical parts) required for normal production within two years after the equipment handover and acceptance.

序号 Item No	备件名称 Spare part name	单位 Unit	备件数量 Quantity	备注 Remark
1	V 型带 V-belt	套 set		
2	卸料刮刀 Discharge scraper	套 set		
3	纠偏阀 Deviation correcting valve	套 set		
4	润滑脂加注器 Grease injector	套 set		
5	滤布 Filter cloth	个 set		
6	支撑台耐磨带 Support table wear-resistant belt	个 set		
7	真空盒耐磨带 Vacuum box wear belt	个 set		
8	喷嘴 Nozzle	个 set		
9	...			

5.3 特殊工具 Special tool

卖方应提供特殊工具，用于设备测试、安装或拆卸等。这些工具应为工厂的标准维护工具库中不具备的有专门设计的工具。卖方应在投标文件中明确指出这些特殊工具，并在调试后交付给业主。

Vendor shall provide special tools for equipment testing, installation or disassembly if required. These tools should include specially designed tools that are not available in the plant's standard maintenance tool library. The Vendor shall clearly identify these special tools in the tender documents and deliver them to the owner after commissioning.

当卖方需要提供特殊工具时，特殊工具应单独包装，并注明“用于 XXXX（位号）的特殊工具”。每一个特殊工具都应编号，以便识别其用途。

If required, the special tools should be packaged separately and marked "Special tools for XXXX (equipment number)". Each special tool should be numbered to identify its purpose.

6 检验与测试程序 Inspection and testing procedures

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厂家需提供检验与测试程序。

The Vendor shall provide inspection and testing procedures

7 保存，包装与运输 **Storage, packaging and transportation**

详见商务部分。

See business part for details.

8 质量保证 **Quality assurance**

8.1 厂家承诺 **Vendor's commitment**

(1) 供应商使用的标准符合招标文件中的要求。

The standards used by Vendor meet the requirements in the bidding documents.

(2) 供应商承诺配合买方完成合同，并及时将文件提交给业主。

The Vendor undertakes to cooperate with the Purchaser in completing the contract and submit the documents to the Owner in a timely manner.

(3) 供应商承诺所有设备满足设计需求，能在操作条件下正常、稳定运转。

The Vendor promises that all equipment can meet the design requirements and operate normally and stably under operating conditions.

(4) 供应商负责检验、测试和质量控制，以确保满足本请购技术文件和所有相关附件的要求。

The Vendor is responsible for inspection, testing and quality control to ensure that the requirements of this technical requisition and all related attachments are met.

8.2 厂家性能保证 **Vendor performance guarantee**

(1) 供应商的产品需要满足质量与性能要求，保证操作弹性能达到正常能力的 50%到 110%。

The Vendor's products need to meet the quality and performance requirements to ensure that the operating flexibility can reach 50% to 110% of the normal capacity.

(2) 厂家必须提供实际运行数据：当出口重碱中盐分（以 NaCl 计）低于 0.15%时的洗水当量。

The Vendor must provide the following actual operating data: wash water consumption when the salinity (NaCl) in the discharge sodium bicarbonate is less than 0.15%.

(3) 在质保期内，如果因供应商方面的原因导致合同中规定的设备有质量问题，买方应立即告知供应商。更进一步，供应商应派员工到现场进行检测、分析，并维修或替换设备，直至满足所有的质量与性能要求。

During the warranty period, if there is any quality problem of the contract equipment due to the reasons of the Vendor, the Purchaser shall immediately inform the Vendor. Further, the Vendor shall send employees to the site to test, analyze, and repair or replace the equipment until all quality and performance requirements are met.

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(4) 如果在制造过程中出现相对技术文件和要求任何偏离，供应商都应书面通知买方。所有偏离需要得到买方的批准才能执行。

The Vendor shall notify the Purchaser in writing of any deviation from the technical documentation and requirements during the manufacturing process. All deviations are subject to Purchaser's approval.

(5) 供应商应保证带式滤碱机的机械强度能满足工艺操作要求与设计的要求。

The Vendor shall ensure that the mechanical strength of the belt filter can meet the process operation requirements and design requirements.

(6) 工厂接收后 12 个月，或设备交货后 36 个月，先到为准。

The warranty period is 12 months after plant acceptance, or 36 months after equipment delivery, whichever comes first.

(7) 合同请购对象在质保期内，如因卖方原因造成的质量问题，卖方应免费修复、更换；如因买方原因造成的问题，卖方也应及时修复和更换，但费用由买方承担。合同请购对象在质保期满后，如出现问题，卖方应及时修复、更换，并只收取成本费。

During the warranty period, if there is any quality problem caused by the Vendor, the Vendor shall repair and replace it free of charge; If the problem is caused by the Purchaser, the Vendor shall also repair and replace it in time, but the cost shall be borne by the Purchaser. After the expiration of the warranty, if there is any problem, the Vendor shall repair and replace it in time, and only charge the cost fee.

9 技术服务 Technical service

卖方应按客户的要求提供安装指导、试车和开车支持；

The Vendor shall provide installation guidance, commissioning and start-up support as required by the purchaser;

在投标文件中包含必要的人员培训。

Include the necessary personnel training in the tender documents.

10 文件递交 Document submission

10.1 总原则 General principle

(1) 所有文件与图纸均应注明项目名称，技术文件和投标文件的份数，文件号或图纸编号，设备位号与设备名。

All documents and drawings shall indicate the project name, number of copies of technical documents and bidding documents, document number or drawing number, equipment location number and equipment name.

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(2) 所有文件与图纸应使用中文/英文，所有单位均应符合 4.1.3 节单位制。

All documents and drawings shall be in Chinese/English, and all units shall conform to Unit System in section 4.1.3.

(3) 供应商应将所有技术文件提交买方审查，但买方的确认不能减免供货商的任何责任。

The Vendor shall submit all technical documents to the Purchaser for review, but the Purchaser's confirmation shall not reduce any liability of the Vendor.

(4) 包括设计文件与计算书在内的所有可编辑文件与 PDF 文件均应按交付计划及时提供给买方；

All editable documents and PDF files, including design documents and calculations, shall be submitted to the Purchaser in a timely manner according to the delivery schedule;

(5) 所有施工安装、试车、开车与两年操作备品备件，安装与维护特殊工具，均应分别列在商务附件中。

All construction and installation, commissioning, start-up and two-year operation spare parts, special tools for installation and maintenance, should be listed in the business bid.

(6) 供应商应提供必要的技术信息和设计文件，所有文件和图纸均应使用中文和英文书写。供应商应在双方商定的日期内向买方提交文件、图纸、数据和参考。在发布修订后的文件和图纸时，应使用修订云或彩色标记修订部分。此外，买方不允许在会议上共同商定的日期之后修改文件或图纸。

vendor shall provide the necessary technical information and design documents, all documents and drawings shall be written in Chinese and English. vendor shall be submitted documents, drawings, data and reference to buyer within the date mutually agreed. When issuing the revised documents and drawings, the revised parts shall be clearly marked by revision cloud or colored. Furthermore revision of the document or drawing after the date mutually agreed at the meeting is not to be permitted by buyer.

(7) 在买方批准之前，不允许制造所有设备和配套零件。如果供应商收到竣工修订的最终文件或图纸，供应商应将同等数量的最终修订副本发送给买方。

All equipment and assorted parts are not permitted to be manufactured before the approval of buyer. If the vendor receives final documents or drawings revised as built, the vendor shall send the copies of the equivalent number of the final revision to buyer.

10.2 文件交付计划 Document delivery schedule

下页表格中的所有文件均应按照以下要求提交给承包方，包括但不限于以下所列出的项目。

All documents in the table on the following page shall be submitted to the Purchaser in accordance with the following requirements, including but not limited to the items listed below.

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供货商文件交付要求 Vendor document delivery requirements

序号 Item No	文件名 (注 1) File name (Note 1)	文件审查类别 Document review category	报价期 Quote date		订单生效后 After the order takes effect			出厂运输前 Before transportation		注 Note
			份数 Copies	电子版 Electronic edition	份数 Copies	电子版 Electronic edition	工作周数 Weekly hours of work	份数 Copies	电子版 Electronic edition	
A.	SCHEDULING DOCUMENTS 进度文件									
A.1	Final Book Index 终版文件目录	FI			4	1	4	8	2	
A.2	Deviation & Clarification List 偏离表与澄清	FA		1						
A.3	Engineering, Procurement, Fabrication, Testing and Delivery Schedule 设计, 采购, 制造, 检验与交付计划	FR		1	4	1	4			
A.4	Experience List (For Similar jobs) 类似项目业绩表	FI		1						
A.5	Vendor Catalogue 样本	FI		1				8	2	
Note:										
B.	QUALITY DOCUMENTS 质量文件									
B.1	Shop inspection & examination procedure and related Reports 厂内检验程序及相关报告	FR			4	1		8	2	
B.2	NDE Operator Qualification Records NDE 无损检测操作员资质报告	FR			4	1		8	2	
B.3	Welding Procedure Specifications and Procedure Qualification Records (WPS&PQR), Welders Performance Qualification (WPQ) 焊接程序规定以及焊接资质报告, 焊接员资质报告	FR			4	1		8	2	
B.4	Heat treatment procedure for shop and field if applicable. 厂内热处理程序与现场热处理程序 (如果适用)	FI			4	1		8	2	
B.5	HT/PWHT Reports and chart 预热与焊后热处理报告与表格	FI			4	1		8	2	
B.6	Certificates of materials & Material test certificates 材料证书与材料测试证书	FR			4	1		8	2	
B.7	Sub-Vendor List 分供应商一览表	FA		1						
B.8	Copy of Vendor Certificates 供货商资质证书复印件	FI		1				8	2	
B.9	Test Procedures Certificates 测试程序证书	FI			4	1		8	2	
B.10	Calibration Certificates 标定证书	FI			4	1		8	2	
B.11	Statement of Vendor's testing capabilities 制造商测试能力声明	FI			4	1		8	2	

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			份数 Copies	电子版 Electronic edition	份数 Copies	电子版 Electronic edition	工作周数 Weekly hours of work	份数 Copies	电子版 Electronic edition	
E.	TECHNICAL DOCUMENTS(PROCESS) 技术文件（工艺）									
E.1	Mark-up data sheet (if any modification is necessary) 补充数据单（如需修改）	FA		1			2	8	2	
E.2	Design Description 设计说明	FR			4	1	2	8	2	
E.3	Utility Consumption Index 公用工程消耗表	FR			4	1	2	8	2	
E.4	Calculation sheet for finalizing and choosing type of Equipment 设备选型计算书	FA					4	1	2	
E.5	Outline drawing, including the weight of the max. repair component 外形图，含最大维修部件重量	FA		1	4	1				
E.6	Deviation and substitute, if any 偏离表与替代表（如有的话）	FA		1						
E.7	Foundation drawing with loading date 带荷载的基础图	FR		1	4	1				
E.8	Foundation load diagram and calculation 基础荷载图与计算书	FA								
E.9	Anchor bolt detail (Material/size/calculation) for all packages and equipment 成套包与设备地脚螺栓详图（材料、尺寸与计算书）	FA			4	1	4			
E.10	Piping connection list, allowable forces and moments for piping connections 管道接口一览表，允许应力与扭矩表	FA			4	1	4			
E.11	Auxiliary piping & Equipment drawing with loads and estimated moments for foundations and supply limits 带荷载及扭矩估算值的辅助管道与设备图纸	FA			4	1	4			
E.12	Insulation procedure, Preservation and Packing and Shipping Procedure, Surface preparation and painting specifications and procedure for all applicable parts in the package, Repair procedure (if applicable), Shop and site acceptance test procedure, Performance test procedures, Run test procedures, Heat treatment procedure, Hydro testing procedure 保温程序，储存、包装与运输程	FA			4	1	4			

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			份数 Copies	电子版 Electronic edition	份数 Copies	电子版 Electronic edition	工作周数 Weekly hours of work	份数 Copies	电子版 Electronic edition	
	序, 表面保护与喷涂规定, 各部件包装程序, 维修程序 (如果适用), 出厂与现场验收程序, 性能测试程序, 运行测试程序, 热处理程序, 水压测试程序									
E.13	Detailed drawings and documents of equipment required for proper erection, pre-commissioning, commissioning, operation and maintenance 安装、预试车、试车、正常操作与维护所需设备的详细图纸与文件	FI			4	1	4			
Note:										
F.	TECHNICAL DOCUMENTS(MECHANICAL) 技术文件 (机械)									
F.1	Mark-up P&ID (if any modification is necessary) 补充 P&ID (如需修改)	FA		1						
F.2	Engineering & Construction detail drawings 设计与施工详图	FR			4	1	4	8	2	
F.3	General arrangement drawings with main part list 总布置图及主要部件列表	FI		1	4	1	4	8	2	
F.4	Vendor Name plate drawing 铭牌图	FI			4	1	4	8	2	
Note:										
G.	TECHNICAL DOCUMENTS(CIVIL) 技术文件 (土建)									
G.1	Structure detail drawings include plan & elevation drawing 结构详图 (包含平面图与立面图)	FR			4	1	4	8	2	
G.2	Anchor bolt location plan with loading data at base 地脚螺栓布置图及基础荷载数据	FI			4	1	4	8	2	
Note:										
H.	TECHNICAL DOCUMENTS(PIPING) 技术文件 (管道)									
H.1	Equipment nozzle orientation 设备管口方位图	FR			4	1	4	8	2	
H.2	Detail drawing of special pipe support 特殊管道支架详图	FR			4	1	4	8	2	
H.3	Data sheet & drawing for Spring supports 弹簧支架数据单与图纸	FR			4	1	4	8	2	

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			份数 Copies	电子版 Electronic edition	份数 Copies	电子版 Electronic edition	工作周数 Weekly hours of work	份数 Copies	电子版 Electronic edition	
H.4	Equipment location layout 设备布置图	FR		1	4	1	4	8	2	
H.5	Tie-In point list and detail (including Flange/ Weld size,Thk, Rating and coordinate and Force and moment at Tie-In point) 界区交接点条件表 (含交接点法兰/焊接尺寸、壁厚、压力等级、坐标点、应力及扭矩)	FR		1	4	1	4	8	2	
H.6	Valve List 阀门一览表	FR			4	1	4	8	2	
H.7	Drawing for Special Items 特殊部件图	FR			4	1	4	8	2	
H.8	Installation guide for spring support 弹簧支架安装指南	FI			4	1	4	8	2	
H.9	Piping material take off list (on Excel format) 管道材料清单 (Excel 格式)	FI			4	1	4	8	2	
H.10	Piping material specification (PMS) 管道材料规定	FR			4	1	4	8	2	
H.11	Line list 管线一览表	FR			4	1	4	8	2	
H.12	Gasket drawings 垫片图	FI			4	1	4	8	2	
H.13	Piping plan & elev. at battery limit 界区管道平面图与立面图	FR			4	1	4	8	2	
Note: 备注										
I.	TECHNICAL DOCUMENTS(INSTRUMENTATION) 技术文件 (仪表)									
I.1	Description and drawing for unit's control system 单元控制说明与单元控制图	FA			4	1	4	8	2	
I.2	Wiring drawing 接线图	FA			4	1	4	8	2	
I.3	Logic diagram 逻辑图	FA			4	1	4	8	2	
I.4	I/O list 控制点表	FA			4	1	4	8	2	
I.5	Instrument data sheet 仪表数据单	FA			4	1	4	8	2	
I.6	Calculation data (where applicable) for noise& control valves 噪音计算书与控制阀计算书	FA			4	1	4	8	2	
I.7	Junction box with terminal	FI			4	1	4	8	2	

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序号 Item No	文件名 (注 1) File name (Note 1)	文件审查类别 Document review category	报价期 Quote date		订单生效后 After the order takes effect			出厂运输前 Before transportation		注 Note
			份数 Copies	电子版 Electronic edition	份数 Copies	电子版 Electronic edition	工作周数 Weekly hours of work	份数 Copies	电子版 Electronic edition	
	arrangement drawings 带终端的接线盒布置图									
I.8	Instrument layout & cable routing drawing 仪表与电缆布置图	FR			4	1	4	8	2	
I.9	Instrument list indicating type, make, characteristics and specification 仪表清单, 包括类型、材质与规格参数	FR			4	1	4	8	2	
I.10	Cable list 电缆一览表	FR			4	1	4	8	2	
I.11	Instrument air and power requirements 仪表空气与电消耗表	FR			4	1	4	8	2	
I.12	Alarm and shutdown set point list 联锁报警值一览表	FR			4	1	4	8	2	
Note: 备注:										
J.	TECHNICAL DOCUMENTS(ELECTRICAL) 技术文件 (电气)									
J.1	Schematic diagram and dimension drawing of local control panel 成套控制箱原理图/外形图	FR			4	1	4	8	2	
J.2	Layout of electrical equipment 用电设备的布置图	FR			4	1	4	8	2	
J.3	Motor outline drawing, rated current, starting current 电机外形图、额定电流、启动电流	FR			4	1	2	8	2	
Note: 备注:										
K.	TECHNICAL DOCUMENTS(GENERAL) 技术文件 (通用)									
K.1	Painting / Surface protection procedure 表面涂漆与防护程序	FR			4	1	2	8	2	
K.2	As-built drawings and documents 竣工图与文件	FR			4	1	4	8	2	
K.3	Unpriced copy of suborders 不含价格的分供货商合同	FI			4	1	4	8	2	
K.4	Construction Manual 施工手册	FR						8	2	
K.5	Installation Manual (including alignment data / drwg) 安装手册 (含定位数据与定位图)	FR						8	2	
K.6	Operation Manual 操作手册	FR						10	2	

  中国天辰工程有限公司  中国化学 CHINA TIANCHEN ENGINEERING CORPORATION LTD. ETI	PKT 300KTA Soda Ash Project RFQ For Belt Filter	Code	T24B25		
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序号 Item No	文件名 (注 1) File name (Note 1)	文件审查类别 Document review category	报价期 Quote date		订单生效后 After the order takes effect			出厂运输前 Before transportation		注 Note
			份数 Copies	电子版 Electronic edition	份数 Copies	电子版 Electronic edition	工作周数 Weekly hours of work	份数 Copies	电子版 Electronic edition	
K.7	Maintenance Manual 维护手册	FR						10	2	
K.8	VENDOR's document schedule 供货商文件计划	FR						8	2	
K.9	Performance guarantee 性能保证	FR						8	2	
Note:										

注：1. 此表中文件在订货阶段可根据实际需求修改；

Note: 1. The documents in this table can be modified according to actual demand before order.

2. 电子版文件应存储在 CD 光盘中。

2. Electronic files should be stored on CD.

11 附件 Attachment

本文件的所有附件均为本请购技术文件的一部分，供应商须满足其中的要求。

All attachments to this document are part of this Technical Requisition document and the Vendor must meet the requirements therein.

序号 ITEM NO	名 称 NAME	文件编号 DOCUMENT NO.	版次 REV.
一般要求 General requirement			
1	数据单 Process Data Sheet	T24B25-512-PS11-42	R03
2	设计基础 Site Condition and Utilities Design Criteria	T24B25-PS02-01	R03
3	成套设备仪表统一规定 Instrument Design Criteria of Equipment Packages (Without Control System)	T24B25-EA81-02b	
4	低压电机技术规定 Engineering Specification For LV Induction Motor	T24B25-EH90-01	
5	涂漆规定 Specification for painting	T24B25-MC07-01	

12 偏差表 Deviation table

序号 Item No	请购书要求 Requisitions	是否偏差 Deviation or not	偏差解释 Deviation interpretation	备注 Remark