



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TECHNICAL SPECIFICATIONS FOR PURCHASE OF EQUIPMENT AND SUPPLIES

UNIDO PROJECT

TECHNOLOGICAL AND ENTERPRISE UPGRADING PROGRAMME ON AGRO-CHEMICALS AND
AGRICULTURAL MACHINERY PRODUCTION SECTOR (INDUSTRIAL UPGRADING AND MODERNIZATION IN
CUBA) (SAP ID 150262)

1. GENERAL BACKGROUND INFORMATION

ORGANIZATIONAL CONTEXT

The United Nations Industrial Development Organization (UNIDO) is the specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability. The mission of UNIDO, as described in the Lima Declaration adopted at the fifteenth session of the UNIDO General Conference in 2013, is to promote and accelerate inclusive and sustainable industrial development (ISID) in Member States. The relevance of ISID as an integrated approach to all three pillars of sustainable development is recognized by the 2030 Agenda for Sustainable Development and the related Sustainable Development Goals (SDGs), which will frame United Nations and country efforts towards sustainable development in the next fifteen years. UNIDO's mandate is fully recognized in SDG-9, which calls to "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation". The relevance of ISID, however, applies in greater or lesser extent to all SDGs. Accordingly, the Organization's programmatic focus is structured in four strategic priorities: Creating shared prosperity; Advancing economic competitiveness; Safeguarding the environment; and Strengthening knowledge and institutions.

Each of these programmatic fields of activity contains a number of individual programmes, which are implemented in a holistic manner to achieve effective outcomes and impacts through UNIDO's four enabling functions: (i) technical cooperation; (ii) analytical and research functions and policy advisory services; (iii) normative functions and standards and quality-related activities; and (iv) convening and partnerships for knowledge transfer, networking and industrial cooperation. Such core functions are carried out in Departments/Offices in its Headquarters, Regional Offices and Hubs and Country Offices.

The Directorate of Digitalization, Technology and Agri-Business (DTA) coordinates and mainstreams the Fourth Industrial Revolution (4IR) in its technical cooperation, strategic, normative activities aiming at fostering the inclusive and sustainable development in the era of 4IR. The Directorate creates new and innovative technical cooperation deliverables in the areas of trade, investment, technology innovation and agro-industry and agri-business. The Directorate comprises the Department of Digitalization, Technology and Innovation (DTI) and the Department of Agri-Business (AGR).

Responding to the growing demand for supporting inclusive and sustainable industrial development (ISID) in the era of the new industrial revolution, the Department of Digitalization, Technology and Innovation (DTA/DTI) leads the way in addressing opportunities, challenges and risks stemming from the fourth industrial revolution (4IR) and its contribution to sustainable socio-economic progress. The Department is responsible for the strategic coordination of 4IR-related matters with designated focal points in other technical Departments and organizational entities of UNIDO, as appropriate. In consultation with public and private partners, DTI designs and implements holistic interventions that are tailored to specific country needs.

PROJECT CONTEXT

UNIDO is supporting Cuba's efforts in investment and strategic alliance promotion endeavours for strengthening its industrial capabilities and competitiveness in priority industrial sectors through the formulation of a Country Programme Framework (CPF), in line with the economic and industrial transformations decided by the Government and with the UNDAF signed for 2014-2018. One of the priority CPF areas as per main outcomes agreed with the Government of Cuba is the development of an Industrial Upgrading and Modernization Programme (IUMP) focusing on priority agro-chemicals and agricultural machinery production sectors.

Cuba IUMP aims to contribute to inclusive and sustainable industrial development of Cuba and improve food security through upgrading and modernization of industrial sectors of Fertilizers and Agricultural Machinery. This will be achieved through enhancement of industrial performance and competitiveness of pilot enterprises operating in the Fertilizers and Agricultural Machinery industrial sectors within the existing industrial hubs. The programme will be implemented via three main modules: sectoral analysis and building a strategic action plan for the Cuban priority Fertilizers and Agricultural Machinery industrial product lines/sub-sectors; enterprise diagnosis and industrial upgrading of selected pilot manufacturing enterprises operating within the identified priority sub-sectors/existing hubs; and strengthening human and technical capacities of national counterpart institutions/expertise in the provision of enterprise diagnosis and industrial modernization, sectoral analysis and other best practices.

Proposed technical assistance includes the following outputs and activities:

- Output 1. Sectoral analysis and building a strategic action plan for development of the Cuban priority Fertilizers and Agricultural Machinery industrial product lines/sub-sectors based on the key food and agricultural crop development needs.
- Output 2. Enterprise diagnosis and industrial upgrading of selected pilot manufacturing enterprises operating within the identified priority Fertilizers and Agricultural Machinery product lines/sub-sectors/existing hubs through technological modernization, optimization of business processes and improvements of enterprise performance and competitiveness.
- Output 3. Human and technical capacities of national counterpart institutions/expertise established/strengthened in the provision of enterprise diagnosis and industrial modernization, sectoral analysis and competitiveness building and other best practices and related services to the respective priority industrial sectors.

UNIDO conducted comprehensive analysis of the Cuban fertilizers and agricultural machinery production sectors resulting in a Sectoral Strategy that helps prioritize and focus developmental efforts of the current Project and of the National Government, in general, on the development of production and application of liquid fertilizer, in order to significantly contribute to the country's efforts in enhancing the sustainable food production using inter alia Cuban know how and accompanied by the best international practices.

Key fertilizer product lines aimed at substituting current solid fertilizers imports (Calcium Nitrate, Magnesium Nitrate and Bayfolan Forte) with the below mentioned liquid fertilizers were identified:

- Liquid Calcium Nitrate/Magnesium Nitrate;
- CBFERT ecological liquid fertilizer.

2. PURPOSE OF THIS REQUEST FOR A PROPOSAL

The purpose of this request is to provide equipment and related inputs, accessories and services for a small liquid calcium nitrate fertilizer plant as provided in this Technical Specification, which is expected to be delivered and located at the project beneficiaries plant in Nuevitas, Cuba.

3. SCOPE OF SUPPLY

3.1 The following items (or equivalent) should be supplied:

- The table provided below details the specification of supply. The supplier(s)/contractor(s) shall complete it by filling in unit and total prices as well as indicate their compliance of deviation from the technical requirements of the Terms of Reference/Technical Specifications.
- The specifications established in this document are the minimum requirements to be accepted. Products furnished to these specifications must meet or exceed all requirements herein. Modifications or additions to basic standard products or less size or capability to meet these requirements will not be accepted.
- Bidders must include the manufacturer's name, country of origin of each item and the model number in the bid.
- Please note that in line with the UNIDO Purchase Order, the Supplier shall insure the goods during their shipment and transit to the named place of destination and thereafter until the packing crates are opened in the presence of the Supplier's representative(s), if applicable, against all risks of loss or damage from any cause. Such insurance shall be with a reputable insurance company acceptable to UNIDO and shall be in the names of the Contractor and UNIDO in their respective rights and interests. The insurance shall cover the full price of the goods including freight costs plus ten percent (10%) and shall be in the currency of the Contract Price.
- Offers are to be made in USD or in EUR.

Bidders shall quote transport and insurance and any other associated costs separately from the item prices.

Lot 1 - Local Instruments

Lot 1 - Local Instruments - UNIDO REQUIREMENTS					TO BE COMPLETED BY THE INVITEE			
Item	TAG - No.	DESCRIPTION AND PARAMETER	UNIT	QTY	Unit price €	Total price €	Compliance - yes/no	Remark
1	PI601	Indicator gauge, range 0-25.0 kgf / cm ² . Dial Ø 160 mm, Radial Inlet with Flanged connection Membrane Separator, Process Connection ½ "NPT, 316L SS membrane material with PTFE coating, medium to measure Nitric Acid (50%).	pieces	1				
2	PI603	Indicator gauge, range 0-25.0 kgf / cm ² . Dial Ø 160 mm, Radial Inlet with Flanged connection Membrane Separator, Process Connection ½ "NPT, 316L SS membrane material with PTFE coating, medium to measure Nitric Acid (50%).	pieces	1				
3	PI613A, PI613B	Indicator gauge, range 0-25.0 kgf / cm ² . Dial Ø 160 mm, Radial Inlet with Flanged connection Membrane Separator, Process Connection ½ "NPT, 316L SS membrane material with PTFE coating, medium to measure Nitric Acid (50%).	pieces	2				
4	PI614	Indicator gauge, range 0-30.0 kgf / cm ² . Dial Ø 160 mm, Radial Inlet with Flanged connection Membrane Separator, Process Connection ½ "NPT, 316L SS membrane material with PTFE coating, medium to measure Calcium Nitrate (ac).	pieces	1				
5	PI617	Indicator gauge, range 0-25.0 kgf / cm ² . Dial Ø 160 mm, Radial Inlet with Flanged connection Membrane Separator, Process Connection ½ "NPT, 316L SS membrane material with PTFE coating, medium to measure Calcium Nitrate (ac).	pieces	1				
6	TI605A, TI605B	Bimetal Thermometer with lower fitting (Base), Dial Ø 160 mm, range 0-150 °C, Standard fitting, Process Connection ½ "Male NPT, Ø probe 6 mm, element length 1450 mm + Thermowell with Fixing Fitting, Process Connection 1 "Male NPT and Union ½" Female NPT for Thermometer, internal Ø 6.6 mm, immersion length 1400 mm and head length 50 mm, material 316 SS. Pn.6 bar	pieces	2				
7	LI602	Glass Level Indicator by Transparency, Medium to measure: Nitric Acid (50%) Material: 1.4404 Stainless Steel (316 L), Borosilicate Sight Glass, Transparent according to DIN 7081 with mica supplement. Maximum Working Pressure 20 bar, Maximum Temperature 60 °C, Flange Process Connection DIN DN30, PN20. Distance between centers 1800 mm (Tank Height 1950 mm) Ventilation and Drain outlet by G3 / 8 valve Approximate Visible Length 1780 mm. Suitable isolation valves with ball self-closing. Metallic Graduated Scale (in cm). Ref. WIKA. Standard version. Model LGG-TE with 5 type 9 segments (segment length 340 mm) with Quick-closing Toggle Valves Model LGV-38 Valve arrangement: H (Front)	pieces	1				

8	LI606A, LI606B	Glass Level Indicator by Transparency, Medium to measure: Nitric Acid (50%) Material: 1.4404 Stainless Steel (316 L), Borosilicate Sight Glass, Transparent according to DIN 7081 with mica supplement. Maximum Working Pressure 20 bar, Maximum Temperature 150 °C, Flange Process Connection DIN DN30, PN20. Distance between centers 2100 mm (Tank Height 2850 mm) Ventilation and Drain outlet by G3 / 8 valve Approximate Visible Length 2080 mm. Suitable isolation valves with ball self-closing. Metallic Graduated Scale (in cm). Ref. WIKA. Standard version. Model LGG-TE with 5 type 11 segments (segment length 400 mm) with Quick-closing Lever Valves Model LGV-38 Valve arrangement: H (Front)	pieces	2				
9	LI611A, LI611B	Reflection glass level indicator, Medium to measure: Calcium Nitrate (Aqueous). Material Steel A350 LF2, nitrocarburized, Borosilicate sight glass, reflection according to DIN 7081, Maximum Working Pressure 20 bar, Maximum Temperature 150 °C, Process connection Flange DIN / DN30, PN20, Distance between centers 1800 mm (Tank height 2000 mm) , Ventilation and Drain outlet by 1/2 NPT valve, Approximate Visible Length 1780 mm. Suitable isolation valves with ball self-closing. Metallic Graduated Scale (in cm). Ref. WIKA. "Carbon-Line" version Model LGG-RP with 5 type 9 segments (segment length 340 mm) with quick-release lever valves Model LGV-38 Valve arrangement: H (Front)	pieces	2				
10	LI615	Reflection glass level indicator, Medium to measure: Calcium Nitrate (Aqueous). Material Steel 1.0460 / 1.0570, Fastening by folding side pieces, Borosilicate sight glass, reflection according to DIN 7081, Maximum Working Pressure 25 bar, Maximum Temperature 150 °C, Process connection Flange DIN / DN30, PN25, Distance between centers 1000 mm (Height Tank 1200 mm), Ventilation and Drain outlet per valve, Approximate Visible Length 990 mm. Built-in appropriate self-closing ball isolation valves, stainless steel mounting hardware. Metallic Graduated Scale (in cm). Ref. WIKA. Compact version with side parts LGG-E model with 3 type 8 segments (segment length 320 mm) Valve arrangement: H (Front)	pieces	1				
11	LI616	Reflection glass level indicator, Medium to measure: Calcium Nitrate (Aqueous). Material Steel A350 LF2, nitrocarburized, Borosilicate sight glass, reflection according to DIN 7081, Maximum Working Pressure 20 bar, Maximum Temperature 150 °C, Process connection Flange DIN / DN30, PN20, Distance between centers 1800 mm (Total Tank Height 7600 mm , 5 sections are proposed that overlap each other (150 to 200 mm), Ventilation and Drain outlet by 1/2 NPT valve, Approximate Visible Length 1780 mm. Suitable isolation valves with ball self-closing. Metallic Graduated Scale (in cm) Ref. WIKA. "Carbon-Line" version Model LGG-RP with 5 type 9 segments (segment length 340 mm) with quick-release lever valves Model LGV-38 Valve arrangement: H (Front)	pieces	1				
12	FI604A, FI604B	Volumetric Flowmeter for Oval Gears (Totalizer), fluid: Nitric Acid (50%), density: 1,305 g / cm ³ , 20 bar, 30 °C, range 0 - 15 m ³ / h, Cover and stainless steel gear 1.4404 (316 L), Carbon Bearings. Process connection: DIN flanges; DN50 (provide the counter flanges). Provide line strainer (50 - 100 micron mesh)	pieces	2				

13	FI618	Fluid Flowmeter for Oval Gears (Totalizer), fluid: Calcium Nitrate Solution (50%), density: 1.5 g / cm ³ , 6°PH, 20 bar, 30°C, range 0-20 m ³ / h, Cover and gears Stainless Steel 1.4404 (316 L), Carbon Bearings. Process connection: DIN flanges; DN50 (provide the counter flanges). Provide line strainer (50 - 100 micron mesh)	pieces	1				
14	FI619	Fluid Flow Meter for Oval Gears (Totalizer), fluid: Calcium Nitrate Solution (50%), density: 1.5 g / cm ³ , 6°PH, 10 bar, 30°C, range 0-3.0 m ³ / h, Cover and gears Stainless Steel 1.4404 (316 L), Carbon Bearings. Process connection: DIN flanges; DN50 (provide the counter flanges). Provide line strainer (50 - 100 micron mesh)	pieces	1				
I Sub-Total, EX-Works:			€					
II. Installation			€					
III. Cost of transportation CIF Port Mariel/Havana:			€					
IV. Cost of Insurance at 110%:			€					
Total price LOT 1 CIF Mariel, Cuba[1]:			€					

Further details and explanations for this Lot are included in the Annex to this Technical Specification in English, Spanish and German.

Lot 2 – Transmitters

Lot 2 - Transmitters - UNIDO REQUIREMENTS					TO BE COMPLETED BY THE INVITEE			
Item	TAG - No.	DESCRIPTION AND PARAMETER	UNIT	QTY	Unit price €	Total price €	Compliance - yes/no	Remark
15	LT602	Guided Wave Radar Level Meter. Medium to measure: Nitric Acid (50%), Approved for non-classified zone, 2-wire loop power supply, 4-20 mA HART output, 4-line SD02 display, with keypad for field configuration + data backup function, GT18 stainless steel housing, double compartment, Gland M20 electrical connection, degree of protection IP66 / 68, probe length 2000 mm, rod coated with PFA, Viton seal with temperature range of 30 ... 150 °C, connection Process ISO228 G3 / 4 thread made of 316L stainless steel, Spanish operating language, 5-point calibration, with PFA [OE] coated centering disc. Ref. Endress + Hauser. FMP52	pieces	1				
16	LT606A, LT606B	Guided Wave Radar Level Meter. Medium to be measured: Nitric Acid (50%), Approved for non-classified zone, 2-wire loop power supply, 4-20 mA HART output, 4-line SD02 display, with keypad for field configuration + data backup function, GT18 stainless steel housing, double compartment, Gland M20 electrical connection, degree of protection IP66 / 68, probe length 3000 mm, rod coated with PFA, Viton seal with temperature range of 30 ... 150 °C, connection Process ISO228 G3 / 4 thread made of 316L stainless steel, Spanish operating language, 5-point calibration, with PFA [OE] coated centering disc. Ref. Endress + Hauser. FMP52	pieces	2				
17	LT611A, LT611B	Guided Wave Radar Level Meter. Approved for non-classified zone, 2-wire loop power, 4-20 mA HART output, 4-line SD02 display, with keypad for field configuration + data backup function, GT19 plastic PBT housing, double compartment, Connection electrical Gland M20, degree of protection IP66 / 68, probe length 2000 mm, 8 mm stainless steel rod (316L), Viton seal with temperature range of 30 ... 150 °C, process connection thread ISO228 G3 / 4 316L stainless steel, Spanish operating language, 5-point calibration, with stainless steel centering disc (316L) [OA]. Ref. Endress + Hauser. FMP51	pieces	2				
18	LT615	Guided Wave Radar Level Meter. Approved for non-classified zone, 2-wire loop power, 4-20 mA HART output, 4-line SD02 display, with keypad for field configuration + data backup function, GT19 plastic PBT housing, double compartment, Connection electric Gland M20, degree of protection IP66 / 68, probe length 1200 mm, 8 mm stainless steel rod (316L), Viton seal with temperature range of 30 ... 150 °C, process connection thread ISO228 G3 / 4 316L stainless steel, Spanish operating language, 5-point calibration, with stainless steel centering disc (316L) [OA]. Ref. Endress + Hauser. FMP51	pieces	1				

19	LT616	Guided Wave Radar Level Meter. Approved for non-classified zone, 2-wire loop power, 4-20 mA HART output, 4-line SD02 display, with keypad for field configuration + data backup function, GT19 plastic PBT housing, double compartment, Connection electrical Gland M20, degree of protection IP66 / 68, probe length 7600 mm, 8 mm stainless steel split rod (316L), Viton seal with temperature range of 30 ... 150 °C, process connection with ISO228 thread G3 / 4 316L stainless steel, Spanish operating language, 5-point calibration, with stainless steel centering disc (316L) [OA]. Ref. Endress + Hauser. FMP51	pieces	1				
20	FE/FT604A, FE/FT604B	Promag P 500 Electromagnetic Flowmeter, DN50, platinum electrode and PTFE liner, range 0 to 15 m3 / h. With mounting elements of the transmitter in the field and 20 m current cables to the coil and signal (sensor-transmitter connection). Nitric Acid Fluid (50%)	pieces	2				
21	FE/FT618	Promag P 500, DN50 Electromagnetic Flowmeter, platinum electrode and PTFE liner, range 0 to 20 m3 / h. With mounting elements of the transmitter in the field and 20 m current cables to the coil and signal (sensor-transmitter connection). Nitric Acid Fluid (50%)	pieces	1				
22	FE/FT619	Promag P 500, DN50 Electromagnetic Flowmeter, platinum electrode and PTFE liner, range 0 to 3 m3 / h. With mounting elements of the transmitter in the field and 20 m current cables to the coil and signal (sensor-transmitter connection). Nitric Acid Fluid (50%)	pieces	1				
23	TE605A, TE605B	Thermistor Pt100 for thermowell mounting with damped removable unit and ½ "NPT Male thermowell fitting, element length 1480 mm, neck with sliding thread, 2 x Pt100, 3-wire connection, Lever flip-top head with inlet for ½ "NPT cables, IP65 + Thermowell with fixing fitting, process connection 1" NPT Female for Pt100 resistance thermometer, Ø 6.6 mm. Immersion length 1400 mm, head 80 mm. Material of thermowell 316L SS. (Range: 0 -150°C, Pn 6 bar).	pieces	2				
24	TT605A, TT605B	Temperature converter for mounting on DIN rail Configurable range Input for 2 Pt100, 3-wire, Output signal 4 to 20 mA, 2-wire Power supply 220 V, 60 Hz Without galvanic separation Ref. Siemens 7NG3032-1JN00	pieces	2				
25	TT605A, TT605B	Modem to configure temperature converters, with USB port Ref. SIEMENS 7NG3032-8KU with CD with SIPROM T configuration software Ref. SIEMENS A5E00364512	pieces	1				
26	PHE607A, PHE607B	Immersion electrode holder with flange connection and bayonet lock. Material 1.4404 stainless steel (AISI 316L), immersion length 1500 mm, process connection: Flange DN80 PN16, Seal material: Viton. Ref. Endress + Hauser: Dip Fit P CPA 140-303B210 cleaning accessory Chemoclean CPR31	pieces	2				
27	PHE607A, PHE607B	Combined electrode for pH measurement with uncovered opening for media with dirt load and integrated temperature sensor. Range 0-14 PH, 110 °C, 6bar, immersion length 120 mm. Ref. Endress + Hauser Orbipore CPS91D-7BT21.	pieces	2				

28	PHE/PHIT607A, PHE/PHIT607B	Data transmission cable between electrode and PH transmitter, length 10 m, with cable lugs and connection Plug, Memosens technology Ref. Endress + Hauser CYK10-A101	pieces	2				
29	PHIT607A, PHIT607B	Multiparameter transmitter based on digital Memosens technology. External display (5 m link cable), Language Spanish / English. Power supply 230 VAC, 60 Hz, Memosens Channel for PH measurement electrode (CPS91D), 2 Analog Outputs 4-20 mA (PH and T), 2 digital outputs to Relay, RS485 Communication (Modbus RTU) and Ethernet (Modbus TCP), M20 x 1.5 mm cable entries, IP66 / 67 degree of protection, for DIN rail mounting. Ref. Endress + Hauser Liquiline CM442 H + Module AOR (2AO + 2RO) [71111053] + Module 485 [71135634]	pieces	2				
30	AE/AIT608A, AE/AIT608B	Set (probe holder + sensor + transmitter) for Industrial measurement of Calcium ion concentration (Ca + 2) in a solution, range 0 - 25% (nominal value 18%) T 150 °C, P 4 bar, medium to measure Nitrate solution Calcium (initially Nitric Acid or propose removable unit), 4-20 mA output, IP65	pieces	2				
31	WEWIT610C	Compact Platform Scale with capacity 500 kg. Frame Material AISI 304 Stainless Steel, Cymbal Material 316 Stainless Steel, Hermetically sealed stainless steel load cell, OIML Class III certifiable resolution, 2 x 3000e, IP67 / 68 + Terminal with LCD display with backlight, resistant material keyboard scratch resistant, stainless steel 1.4301 housing. Protection degree IP69k, Power 100-240 VAC, battery 12V / 2.5A with RS232 communication interfaces, Ethernet, USB device. Ref. Mettler Toledo: PBA430 CC + terminal ICS429. Other Ref. TRUPER BAS-500PLA	pieces	1				
32	WE610A, WE610B	Class 3 weighing set for weighing Calcium Hydrate in a hopper, consisting of: Compression load cell Model EHP BR. 2 ton capacity, overload up to 150%, Supply voltage 10 V (AC; DC) Maximum voltage 30 V AC; DC, nominal sensitivity 2 +- 0.1 mV / V, material stainless steel, degree of protection IP68.	pieces	6				
33	WEX3/WIT610A, WEX3/WIT610B	Adder box (collector), with input for 4 load cells, with IP 68 protection. With adjustment of sensitivity range variation 1 mV / V	pieces	2				
34	WEX3/WIT610A, WEX3/WIT610B	Cable for weighing module to connection box, similar to the cable: Ref. SF3 - PY320 03 (100 m).	pieces	2				
35	WIT610A, WIT610B	DI50E series universal weighing module display options without led, power supply 85-265VAC / 95-370VDC pressure input / Load cell resolution 16 bit 60Hz, analog output module current output 4-20mA, 1 output module to relay 10A. TEXMATE. DI-50E-DR-PS1-ISS2-AIC-S6-OR11-OA2	pieces	2				
36	WIT610A, WIT610B	Cable for the DI50E universal weighing module. TEXMATE. OM-CABLE485	pieces	1				
I Sub-Total, EX-Works:			€					

II. Installation	€					
III. Cost of transportation CIF Port Mariel/Havana:	€					
IV. Cost of Insurance at 110%:	€					
Total price LOT 2 CIF Mariel, Cuba[1]:	€					

Further details and explanations for this Lot are included in the Annex to this Technical Specification in English, Spanish and German.

Lot 3 – Valves

Lot 3 - Valves - UNIDO REQUIREMENTS					TO BE COMPLETED BY THE INVITEE			
Item	TAG - No.	DESCRIPTION AND PARAMETER	UNIT	QTY	Unit price €	Total price €	Compliance - yes/no	Remark
37	TCV605A, TCV605B	Butterfly regulating valve, NA Dn 80 mm Pn 16. Characteristic equal percentage. GGG-50 cast body. Inox Butterfly 1.4408. Inox shaft. AISI 316L. Metal-Metal seal, double eccentric leak rate IV (4) Temperature at 40 °C. Ref. SAMSON TT Series Single acting rotary pneumatic actuator. Docks open. Ref. SAMSON AT series Type AT-501 S12. Coupling the valve to the actuator. With electropneumatic positioner mounted on the valve. 4-20 mA input. Output the one necessary to operate the regulating valve. Air supply 6 bar. Ref. SMC IP8100-030-H-PN1, mounted. Regulate cooling water.	NO OFFERS NEEDED, POSITION NUMBERS ARE PROVIDED FOR IDENTIFICATION PURPOSES ON THE ATTACHED P&ID DIAGRAM					
38	LY602/ ZSH602/ ZSL 602, FY604A/ ZSH604A/ ZSL 604A, FY604B/ ZSH604B/ ZSL 604B	Type 3321 DN 50 single seat valve; NA. Pn 16 Medium: Nitric Acid (50%) Two-position drive (ON-OFF) with monostable 5-way solenoid Dn 1/4 "Power supply 220 60 Hz NA. Gray cast iron body EN-JL1040 / A 126 B; PN 16; Flanges with projection, Type B according to DIN EN 1092-2; Stainless steel shutter 1.4408; shutter with metal closure. Open springs Stainless steel seat 14408 characteristic equal percentage. Type 3371 pneumatic actuator Valve closed when TCR Limit Switches are energized, with two limit switches 1NA, 1NC.	NO OFFERS NEEDED, POSITION NUMBERS ARE PROVIDED FOR IDENTIFICATION PURPOSES ON THE ATTACHED P&ID DIAGRAM					
39	LY611A/ ZSH611A/ ZSL 611A, LY612A/ ZSH612A/ ZSL 612A, LY611B/ ZSH611B/ ZSL 611B, LY612B/ ZSH612B/ ZSL 612B	Butterfly valve, NA Dn 80 mm Pn 16 .. Two-position drive (ON-OFF) GGG-50 cast body. Inox Butterfly 1.4408. Inox shaft. AISI 316L. Metal-Metal seal, double eccentric leak rate IV (4) Temperature at 75 °C. Flange connection ISO F07 / 11 Ref. SAMSON TT Series Single acting rotary pneumatic actuator. Ref. SAMSON AT series Type AT-501 S12. Coupling the valve to the actuator. With 5/2 way solenoid valve. Voltage 220 VAC / 60 Hz. Aluminum body Mounting NAMUR HERION 2623079.3051. Valve closed when TCR Limit Switches are energized, with two limit switches 1NA, 1NC. Ref. 83.161.301	NO OFFERS NEEDED, POSITION NUMBERS ARE PROVIDED FOR IDENTIFICATION PURPOSES ON THE ATTACHED P&ID DIAGRAM					
40	VY610A, VY610B	Pneumatic Knocking Piston (Hammer) for Aggregate Hoppers, 220 VAC Coil, 60 Hz	pieces	2				
I Sub-Total, EX-Works:			€					
II. Installation			€					
III. Cost of transportation CIF Port Mariel/Havana:			€					
IV. Cost of Insurance at 110%:			€					
Total price LOT 3 CIF Mariel, Cuba[1]:			€					

Further details and explanations for this Lot are included in the Annex to this Technical Specification in English, Spanish and German.

Lot 4 - Panel Elements

Lot 4 - Panel Elements - UNIDO REQUIREMENTS					TO BE COMPLETED BY THE INVITEE			
Item	TAG - No.	DESCRIPTION AND PARAMETER	UNIT	QTY	Unit price €	Total price €	Compliance - yes/no	Remark
41	PL2	Wall cabinet with dimensions 500 x 400 x 200 mm + Metal mounting plate 450 x 350 mm. Ref. Schneider NSYCRN54200 + NSYMM54	pieces	1				
42	PL1	Metal wall cabinet with blind door and metal mounting plate, dimensions 1000 x 800 x 400, Degree of Protection: IP66, cable glands with die cut FL, include set of 4 stainless steel legs for wall fixing. Ref.Schneider NSYCRNG108400 + NSYMM108 + NSYTLEFL + NSYAEFPFXSC	pieces	1				
43	PM1	Metal wall cabinet with double door and metal mounting plate, dimensions 1200 x 1000 x 400, Degree of Protection: IP55, cable glands with die cut FL, include set of 4 stainless steel legs for wall fixing. Ref.Schneider NSYCRNG1210400D + NSYMM1210 + NSYTLEFL + NSYAEFPFXSC	pieces	1				
44	X1, X2...X7	Connection terminal with cover for conductor up to 2.5 mm ² Maximum voltage 500 V 60 Hz Ref. AB1VV235U, SCHNEIDER	pieces	700				
45	XT	Earth Terminal with cover for conductor up to 2.5 mm ² Maximum voltage 500 V 60 Hz. Color Green-Yellow.	pieces	20				
46		Terminal strip stop for 2.5 mm ² cable	pieces	24				
47		Terminal strip identifier (A set contains 100 numbers 0, 100 numbers 1.... 100 numbers 9)	pieces	2				
48		Lead terminal for conductor of section up to 2.5 mm ² (pack of 100 U)	pieces	3				
49		Eye terminal for conductor of section up to 2.5 mm ² (pack of 100 U)	pieces	1				
50		Cable identifier for conductors up to 2.5 mm ² . sets from 1 to 9 (1 Set = 100 numbers 0, 100 numbers 1.... 100 numbers 9.)	pieces	2				
51		Black, plastic helical tape	m	8				
52		Self-drilling screw DN 4.8 mm, length 16 mm drill bit tip. Model 4.8 / 16.	pieces	16				
53		1 x 0.5mm ² Flexible Panel installation Copper Cable (In 250m Coils)	pieces	1,5				
54		1 x 2.5mm ² Panel installation Flexible Copper Cable (In 250m Coils)	pieces	0,5				
55		Earth bar for connections up to 2.5 mm ² ,	m	2				
56		2-pole circuit breaker 10A. 230/400 V 60 Hz, 10 kA. According to IEC 60947-2. Curve C. With auxiliary status indicator contact. DIN rail mount	pieces	1				
57		2-pole 6A circuit breaker. 230/400 V 60 Hz, 10 kA. According to IEC 60947-2. Curve C. With auxiliary status indicator contact. DIN rail mount	pieces	1				
58		2-pole circuit breaker 2A. 230/400 V 60 Hz, 10 kA. According to IEC 60947-2. Curve C. With auxiliary status indicator contact. DIN rail mount	pieces	1				
59		2-pole circuit breaker 1A. 230/400 V 60 Hz, 10 kA. According to IEC 60947-2. Curve C. With auxiliary status indicator contact. DIN rail mount	pieces	3				

60		Terminal block type fuse holder for DIN rail mounting for fuse length L = 20 mm. Diameter = 5 mm.	pieces	20				
61		Glass fuse 5 x 20 mm capacity 0.1 A	pieces	15				
62		Glass fuse 5 x 20 mm capacity 0.5 A	pieces	20				
63		Glass fuse 5 x 20 mm capacity 1 A	pieces	4				
64		Glass fuse 5 x 20 mm capacity 2 A	pieces	6				
65		Plastic perforated channel, with lid 40x60x2000 mm	pieces	3				
66		Plastic perforated channel, with lid 40x40x2000 mm	pieces	7				
67		Standard DIN rail L = 2000 mm Ref. Schneider AM1ED200, Other Ref. UNEX- F224	pieces	6				
68	TC	Double socket for flat and circular shank with ground leg, DIN rail mount, 16A	pieces	1				
69	HL	Red LED signaling lamp, panel mounting on DIN rail. D 22 mm, 220 V 60 Hz 2 W Ref. Schneider L20SA10 + LWA0238	pieces	1				
70	XBP	12 slot rack for M340 PLC. Ref Schneider XBP 1200	pieces	1				
71	CPS	M340 Power Supply Module, 220 VAC input power. Ref Schneider BMX CPS 2000	pieces	1				
72	M0	M340 central processor, with integrated Ethernet port, with RJ-45 connector for MODBUS communication (RS232 / RS485), USB type B female connector to connect Programming PCs, with an 8 MB Program memory expansion card and 16 MB of files (Ref.BMX RMS 008 MPF). Ref.Schneider BMX P342020	pieces	1				
73	M1	M340 10/100 Base T Factory Cast Ethernet module, with 10/100 Base T shielded twisted pair cable port (RJ-45 connector) with Automatic Detection. Ref. Schneider BMX NOE 0100	pieces	1				
74	M2, M3, M4	High-density Analog Input Module with 8 isolated channels (4-20 mA) from M340. With its 28-point field connection terminals. Ref. Schneider BMX AMI 0810	pieces	3				
75	M2, M3, M4	Terminal Block and Cable without connector for analog module. 28 points. Ref.Schneider BMX FTB 2820	pieces	3				
76	M5	High-density Analog Output Module with 4 isolated channels (4-20 mA), from M340. With its 20-point field connection terminals. Ref. Schneider BMX AMO 0410	pieces	1				
77	M5	Terminal Block and Cable without connector for analog module. 20 points. Ref. Schneider BMX FTB 2000	pieces	1				
78	M6, M7	32-channel 24 VDC digital input module with positive logic, M340. With its 40-point field connection terminals. Ref. Schneider BMX DDI3202K	pieces	2				
79	M8, M9	32-channel 24 VDC Digital Output Module with positive logic, M340. With its 40-point field connection terminals. Ref. Schneider BMX DDO 3202K	pieces	2				
80	M6....M9	Terminal Block and Cable without connector for digital module. 40 points. Ref. Schneider BMX FCW 303	pieces	4				
81		16 MB Memory Expansion Card for M340 Processor. Ref. Schneider BMX RMS 008MPF	pieces	1				
82		Programming Cable of the M340 industrial USB 4.5 meters. Ref. Schneider BMX XCA USBH045	pieces	2				

83	GB1	Single Phase Switched Power Supply, DIN rail mounting. > Nominal input voltage: 115/230 VAC., Selectable> Output: 24 Vdc. / 10A. > Frequency: 47-63 Hz. Constant power between -10 and +60 °C. Ref. Schneider ABL8RPS24100	pieces	1				
84	GB2	Single Phase Switched Power Supply, DIN rail mounting. > Nominal input voltage: 115/230 VAC., Selectable> Output: 24 Vdc. / 5A. > Frequency: 47-63 Hz. Constant power between -10 and +60 °C. Ref. Schneider ABL8RPS24050	pieces	1				
85	KAI1...64, KAO1...64	Auxiliary relay with base, coil at 24 VDC, contacts 4 NO 4 NC, 6 A Ref. C9 A41 24VDC + Base S 9B	pieces	130				
86	BPE1, BPE2, BPE3	Push button for emergency stop red mushroom with rotary interlock. Ref. Schneider XB4BS8442	pieces	3				
87	WI610A-1, WI610B-1	Indicator light with LED, 220 VAC, 60 Hz, red color. ∅ 22 mm Ref.Schneider XB4BVM4	pieces	2				
88	WI610A-2, WI610B-2	Indicator light with LED, 220 VAC, 60 Hz, yellow color. ∅ 22 mm Ref.Schneider XB4BVM5	pieces	2				
89	WI610A-3, WI610B-3	Indicator light with LED, 220 VAC, 60 Hz, green color. ∅ 22 mm Ref.Schneider XB4BVM3	pieces	2				
90		Adjustable sound signaling element 70 to 90 dB at 1m, with continuous or intermittent action, powered by 24 VDC. Ref Schneider XVBC9B	pieces	2				
91	OP	12.1" color touch terminal. Magelis brand XBTG series . With Modbus TCP / IP Ethernet communication. Ref. Schneider XBT-GT 6340 . Wired for programming with USB connector for PC. Compact 1 Gb flash card with its fixing clips	pieces	1				
92	PC	ACP-4000MBS120507-2 Industrial Computer System configured as follows: (1) ACP-4000 Motherboard Chassis with 400W ATX PFC PS (1) AIMB-781QG2-00A1E-LGA1155 ATX IMB with VGA, DVI, PCIe, 2 GbE, 2 SATAIII, RoHS (1) CPU: Intel Core 3.3G 3M 1155P 2CORE I3-2120 (1) 1960047669N001 Cooling Fan (2) Memory: 2G DDR3-1333 240PIN 128X8 (Total 4G) (1) Hard Drive: 500G 3.5" SATA 7KRPM 16M (1) 24X SATA DVD +/- RW (1) EVGA Nvidia GT520 1G PCIE Dual DVI (1) Disk drive-floppy disk (1.44 MB) - USB-external, Black (1) Logitech Optical Mouse USB / PS2, Black (1) PCA-6302-Compact Keyboard 104 keys (English) (1) VA926G-Viewsonic Display 19" LCD, 1280X1024, 5MS Rseponse Time, Energy Star 5.0, DVI and VGA Inputs, Windows 7 Certified (1) Microsoft Windows 10 (1) Option AGS-CTOS-SYS-B Assembly and Test	pieces	1				
93	UPS	UPS Backup Source with Integrated Stabilizer 120V APC Power-Saving Back-UPS Pro 700	pieces	1				
94	SW	Industrial switch not manageable. Specifications: Model: EKI-7626C	pieces	1				

	LAN: 10 / 100BASE-TX, 10/100 / 1000BASE-T, 100BASE-FX, 1000BASE-SX / LX / LHX / XD					
	Transmission Distance: Ethernet: up to 100m Multi-Mode Fiber: up to 2Km, 50 / 125µM ~ 62.5 / 125µM					
	Connectors: 16 X 10 / 100BASE-TX RJ-45 Ports Y 2 X 10/100 / 1000BASE-T / SFP (MINI-GBIC) COMBO					
	Power: + 12-48 VDC					
	Power Consumption: 9 , 76WATTS Dimensions: 79 X 152 X 105 mm					
	Ref: EKI-7626C-AE +2 UNITS SFP-FXM / LC-AE					
I Sub-Total, EX-Works:		€				
II. Installation		€				
III. Cost of transportation CIF Port Mariel/Havanna:		€				
IV. Cost of Insurance at 110%:		€				
Total price LOT 4 CIF Mariel, Cuba[1]:		€				

Further details and explanations for this Lot are included in the Annex to this Technical Specification in English, Spanish and German.

Lot 5 - Installation Materials

Lot 5 - Installation Materials - UNIDO REQUIREMENTS						TO BE COMPLETED BY THE INVITEE			
Item	TAG - No.	DESCRIPTION AND PARAMETER	DIMENSION	UNIT	QTY	Unit price €	Total price €	Compliance - yes/no	Remark
95		"U" Type Clamp with; 2 "Tropicalized Jaw, with its 4 Nuts and Washers Included. *	∅ 2"	pieces	40				
96		"U" Type Clamp with; 1 ½ "Tropicalized Jaw, with its 4 Nuts and Washers Included. *	∅ 1 ½"	pieces	30				
97		"U" Type Clamp with; 1 "Tropicalized Jaw, with its 4 Nuts and Washers Included. *	∅ 1"	pieces	50				
98		"U" Type Clamp with; ½ "Tropicalized Jaw, with its 4 Nuts and Washers Included. *	∅ ½"	pieces	20				
99		Air reducing pressure gauge filter block. Inlet pressure 10 bar. Ref. AW30-F03, F REG 5 MIC 3/8 "		pieces	2				
100		Flexible shielded cable for control and instrumentation circuits; 500V. Mts. 2x1 mm ² (in rolls of 250 m.)		Roll	10				
101		Flexible shielded cable for control and instrumentation circuits; 500V. Mts. 3x1 mm ² (in rolls of 250 m.)		Roll	2				
102		Flexible shielded cable for control and instrumentation circuits; 500V. Mts. 4x1 mm ² (in rolls of 250 m.)		Roll	1				
103		Flexible shielded cable for control and instrumentation circuits; 500V. Mts. 16x1 mm ² (in 200 m rolls)		Roll	1				
104		Category 5E UTP Cable (Roll app. 1000 FT / 305 MTS) INT362320		Roll	0,3				
105		Mts. CERVILENE POS-CY 3x2x0.22 mm ² GR cable, similar to Belden 8103 (in 305 m rolls)		Roll	1				
106		Aluminum elbow with threaded ends, p / . RR tube connection, with recordable lid. DN-2 "	∅ 2"	pieces	22				
107		Aluminum elbow with threaded ends, p / . RR tube connection, with recordable lid. DN-1½ "	∅ 1 ½"	pieces	10				
108		Aluminum elbow with threaded ends, p / . RR tube connection, with recordable lid. DN 1 "	∅ 1 "	pieces	15				
109		Aluminum elbow with threaded ends, p / . RR tube connection, with recordable lid. DN ½ "	∅ ½"	pieces	7				
110		Copper pipe connection ¼ "to 6 mm	∅ ¼" a ∅ 6 mm	pieces	22				
111		Copper pipe connection ¼ "to 8 mm	∅ ¼" a ∅ 8 mm	pieces	8				
112		"T" branch with threaded ends, p / . RR tube connection, with recordable lid. DN-2 "with recordable cover.	∅ 2"	pieces	7				

113	"T" branch with threaded ends, p/. RR tube connection, with recordable lid. DN-1½ "with recordable lid.	∅ 1 ½"	pieces	5				
114	"T" branch with threaded ends, p/. RR tube connection, with recordable lid. DN 1 "with recordable lid.	∅ 1 "	pieces	5				
115	"T" branch with threaded ends, p/. RR tube connection, with recordable lid. DN ½ "with recordable lid.	∅ ½"	pieces	10				
116	Cable identifier for conductors up to 2.5 mm2. sets from 1 to 9 (1 Set = 100 numbers 0, 100 numbers 1.... 100 numbers 9.)	∅ 2,5 mm	set	2				
117	Heavy Duty "L" Type Profile, Galvanized Steel, for fixing Electric Pipes, 40 x40 x 6 mm (m) *		m	35				
118	Heavy Duty "L" Type Profile, Galvanized Steel, to fix Electric Pipes, 25 x 25 x 4 mm (m) *		m	50				
119	Copper pipe D 6 x 1 mm *	∅ 6 x 1 mm	m	11				
120	Copper pipe D 8 x 1 mm *	∅ 8 x 1 mm	m	7				
121	Flexible metal pipe with PVC lining Dn ½ "	∅ ½"	m	50				
122	RMC Cable Tubing, Galvanized Steel, 2 "NPS Threaded with Corresponding Threaded Union (m)	∅ 2"	m	70				
123	RMC Cable Tubing, Galvanized Steel, 1½ "NPS Threaded with Corresponding Threaded Union (m)	∅ 1 ½"	m	70				
124	RMC Cable Tubing, Galvanized Steel, 1 "NPS Threaded with Corresponding Threaded Union (m)	∅ 1"	m	70				
125	RMC pipe for cables, Galvanized steel, Threaded NPS ½ "with its Corresponding Threaded Union (m)	∅ ½"	m	60				
126	Electric nut 2 "	∅ 2"	pieces	6				
127	1 ½ "electric nut	∅ 1 ½"	pieces	6				
128	1 "electric nut	∅ 1"	pieces	6				
129	Electric nut ½ "	∅ ½"	pieces	36				
130	Galvanized steel union connection Female 2 "to Female 2"	H∅ 2"-H∅ 2"	pieces	10				
131	Galvanized steel union connection Male 2 "to Female 1½"	M∅ 2"-H∅ 1½"	pieces	5				
132	Galvanized steel union connection Male 2 "to Female 1"	M∅ 2"-H∅ 1"	pieces	3				
133	Galvanized steel union connection Female 1½ "to Female 1½"	H∅ 1½"-H∅ 1½"	pieces	10				
134	Galvanized steel union connection Male 1½ "to Female 1"	M∅ 1½"-H∅ 1"	pieces	6				
135	Galvanized steel union connection Male 1½ "to Female ½"	M∅ 1½"-H∅ ½"	pieces	10				
136	Galvanized steel union connection Female 1 "to Female 1"	H∅ 1"-H∅ 1"	pieces	10				
137	Galvanized steel union connection Male 1 "to Female ½"	M∅ 1"-H∅ ½"	pieces	25				
138	Galvanized steel union connection Female ½ "to Female ½"	H∅ ½"-H∅ ½"	pieces	25				
139	Galvanized steel union connection Male ½ "to Male ½"	M∅ ½"-M∅ ½"	pieces	25				
140	Galvanized steel union connection Male ½ "to Female ½"	M∅ ½"-H∅ ½"	pieces	25				

141		2 "Universal Union	∅ 2"	pieces	6				
142		1½ "Universal Union	∅ 1 ½"	pieces	6				
143		1 "Universal Union	∅ 1 "	pieces	6				
I Sub-Total, EX-Works:				€					
II. Installation				€					
III. Cost of transportation CIF Port Mariel/Havana:				€					
IV. Cost of Insurance at 110%:				€					
Total price LOT 5 CIF Mariel, Cuba[1]:			-	€					

Further details and explanations for this Lot are included in the Annex to this Technical Specification in English, Spanish and German.

3.2 SUPPLIER'S GENERAL RESPONSIBILITIES

- The supplier shall provide technical details, prospects with his offer
- The supplier should demonstrate a minimum of 5 years professional experience.
- References: Bidder must include information regarding relevant previous contracted service provided by the company, which have been similar to the service requested in the procurement. The references must include contact person with e-mail and telephone numbers.
- The supplier shall make its best efforts to ensure that all works will be carried out according to "good quality and adequate workmanship ". The supplier assumes the overall responsibility for the correct selection and installation of the equipment for the practical implementation of the project.
- The supplier shall take into account all the details presented in these Technical Specifications (TSs) and shall request any further information, which is considered necessary for the correct implementation of the works.
- The supplier should be able to provide support within 5 working days within the guarantee duration for supplied equipment at separate cost.

3.3 LANGUAGE

The Official Project communication language shall be English. The drawings, catalogues, illustrations, printed specifications and other documentation related to the present project shall be preferably in Spanish, or otherwise in English.

For ease of offering, a German translation of the specification is included in the Annex. However, English and Spanish remains the lead language.

3.4 GENERAL CONDITIONS

- Completeness of offers is considered an asset.
- In case of clarification requirements, bidders are invited to post their questions on the platform
- UNIDO reserves the right to award only a portion of the requirement and reject the quotation submitted by any bidder that has previously failed to perform properly or on time contracts of a similar nature, or of a bidder that, in the opinion of UNIDO, is not in a position or is not sufficiently qualified to perform the contract.
- Wherever product, supplier names and pictures/drawings are quoted in this TSs, this serves only for illustration purposes. Vendors are entitled to provide equivalent brands/solutions in their bids.

4. GUARANTEE REQUIREMENTS

- At least 2 year(s) guarantee is required.
- The supplier shall replace/refurbish (in place or at their facilities outside) without any further costs for the client including shipping for any or all the equipment in case of malfunctioning and/or incapable of achieving the required accuracy/specification relevant to the tests.
- The availability for the spare parts should be two years and deviating duration should be indicated. In case that the spares are not available in Cuba, the nearest location where they are available must be indicated.

5. DELIVERY AND DELIVERY PERIOD

- The importing company in Cuba is QUIMIMPEX Import – Export, the responsible representative is Mr. Pablo Perez Beltran, Chartering, Inspection and Assurance Front; Telephone + 53 72 06 87 02; + 53 72 06 87 06 -07 ext. 140; pablo@quimimpex.cu; Who will take over the goods at the port of arrival (see freight or air plane) in Havana.
- Required Details for shipping will be provided in case of contract award.
- The equipment should be delivered as soon as possible. The supplier shall provide his delivery terms and dates.

6. DELIVERY TERMS

The Seller shall hand over the goods, and UNIDO shall take over the goods, at the place or places of delivery specified in this Contract form. Unless otherwise stipulated in the Contract form, the goods shall be delivered CIF Havana, port Mariel or Jose Marti Airport INCOTERMS 2010.

7. PAYMENT CONDITIONS

The following payment conditions shall be applied to the awarded vendor:

- 50% of the total contract in advance (deposit/advance payment).
- 30% of the contract upon UNIDO's acceptance of the shipping documents.
- 20% of the contract value after issuance of Certificate of Acceptance.

8. AWARD CONDITIONS

UNIDO reserves the right to split an award between any suppliers in any combination, as it may deem appropriate. If the quotation is submitted on an "all or none" basis, it should be clearly stated as such in your response to this RFQ.

**ANNEX TO TECHNICAL SPECIFICATIONS Lots 1 - 5:
(English / Spanish / German)**

- Kindly consider the additional column “SERVICE”, which describes for several lots the required application; TAG and service numbers/information provide the connection to the **attached (1) P&ID and (2) P&FD diagrams in pdf.**
- Tenga en cuenta la columna adicional "SERVICIO", que describe para varios lotes la aplicación requerida; los números/informaciones de TAG y servicios proporcionan la conexión al **diagramas de (1) P&ID y (2) P&FD adjuntos en pdf.**
- Beachten Sie bitte die zusätzliche Spalte “VERWENDUNG”, die für einige Lots die vorgesehene Anwendung beschreibt; tag und verwendungsnummern stellen die verbindung zum **beiliegenden (1) P&ID und (2) P&FD diagrammen dar in pdf.**

ANNEX A: Technical Specifications with further details and explanations in English

ANNEX B: Especificaciones técnicas con más detalles y explicaciones en Español

ANNEX C: Technische Spezifikationen mit zusätzlichen Details und Erklärungen in Deutsch

- Kindly provide for all lots technical data and further documentations, prospect sheets, etc.
- The requested equipment must comply with the services described in the TOR and especially in the respective column of the ANNEXes
- Wherever product, supplier names and pictures/drawings are quoted in this TSs, this serves only for illustration purposes. Vendors are entitled to provide equivalent brands/solutions in their bids.
- For price integration, kindly use the main English TOR list

ANNEX A – Further information of the automatic parts in English

For price integration, kindly use the main English TOR list.

Lot 1 - local Instruments

UNIDO REQUIREMENTS						
Item	TAG - No.	SERVICE	DESCRIPTION AND PARAMETER	DIMENSION	UNIT	QTY
1	PI601	Pressure at the Outlet of the Pump (G-52C) for filling the Tank for Nitric Acid (F-038)	Indicator gauge, range 0-25.0 kgf / cm ² . Dial Ø 160 mm, Radial Inlet with Flanged connection Membrane Separator, Process Connection ½ "NPT, 316L SS membrane material with PTFE coating, medium to measure Nitric Acid (50%).		pieces	1
2	PI603	Pressure Outlet of Nitric Acid Pump (G-52D) to Mixing Reactors (D24A-B)	Indicator gauge, range 0-25.0 kgf / cm ² . Dial Ø 160 mm, Radial Inlet with Flanged connection Membrane Separator, Process Connection ½ "NPT, 316L SS membrane material with PTFE coating, medium to measure Nitric Acid (50%).		pieces	1
3	PI613A, PI613B	Outlet Pressure of Recirculation and Settling Pumps Pumps 1 and 2 (G65-001A, G65-001B) (F41A-D)	Indicator gauge, range 0-25.0 kgf / cm ² . Dial Ø 160 mm, Radial Inlet with Flanged connection Membrane Separator, Process Connection ½ "NPT, 316L SS membrane material with PTFE coating, medium to measure Nitric Acid (50%).		pieces	2
4	PI614	Pressure at the Pump Outlet (G65-002) to Feed the Filter Press (F-001)	Indicator gauge, range 0-30.0 kgf / cm ² . Dial Ø 160 mm, Radial Inlet with Flanged connection Membrane Separator, Process Connection ½ "NPT, 316L SS membrane material with PTFE coating, medium to measure Calcium Nitrate (ac).		pieces	1
5	PI617	Pressure at the Outlet of the Pump (G65-003) for filling the Storage Tanks and Tanks (F-044, F-45A-C)	Indicator gauge, range 0-25.0 kgf / cm ² . Dial Ø 160 mm, Radial Inlet with Flanged connection Membrane Separator, Process Connection ½ "NPT, 316L SS membrane material with PTFE coating, medium to measure Calcium Nitrate (ac).		pieces	1
6	TI605A, TI605B	Mixing Temperature inside Mixing Reactors 1 and 2 (D-24A, D24B)	Bimetal Thermometer with lower fitting (Base), Dial Ø 160 mm, range 0-150 °C, Standard fitting, Process Connection ½ "Male NPT, Ø probe 6 mm, element length 1450 mm + Thermowell with Fixing Fitting, Process Connection 1 "Male NPT and Union ½" Female NPT for Thermometer, internal Ø 6.6 mm, immersion length 1400 mm and head length 50 mm, material 316 SS. Pn.6 bar		pieces	2

7	LI602	Tank Level for Nitric Acid (F-038)	Glass Level Indicator by Transparency, Medium to measure: Nitric Acid (50%) Material: 1.4404 Stainless Steel (316 L), Borosilicate Sight Glass, Transparent according to DIN 7081 with mica supplement. Maximum Working Pressure 20 bar, Maximum Temperature 60 °C, Flange Process Connection DIN DN30, PN20. Distance between centers 1800 mm (Tank Height 1950 mm) Ventilation and Drain outlet by G3 / 8 valve Approximate Visible Length 1780 mm. Suitable isolation valves with ball self-closing. Metallic Graduated Scale (in cm). Ref. WIKA. Standard version. Model LGG-TE with 5 type 9 segments (segment length 340 mm) with Quick-closing Toggle Valves Model LGV-38 Valve arrangement: H (Front)	pieces	1
8	LI606A, LI606B	Mixing Level inside Mixing Reactors 1 and 2 (D-24A, D24B)	Glass Level Indicator by Transparency, Medium to measure: Nitric Acid (50%) Material: 1.4404 Stainless Steel (316 L), Borosilicate Sight Glass, Transparent according to DIN 7081 with mica supplement. Maximum Working Pressure 20 bar, Maximum Temperature 150 °C, Flange Process Connection DIN DN30, PN20. Distance between centers 2100 mm (Tank Height 2850 mm) Ventilation and Drain outlet by G3 / 8 valve Approximate Visible Length 2080 mm. Suitable isolation valves with ball self-closing. Metallic Graduated Scale (in cm). Ref. WIKA. Standard version. Model LGG-TE with 5 type 11 segments (segment length 400 mm) with Quick-closing Lever Valves Model LGV-38 Valve arrangement: H (Front)	pieces	2
9	LI611A, LI611B	Level in Intermediate Reflux Tanks 1 and 2 (F-40A, F40B)	Reflection glass level indicator, Medium to measure: Calcium Nitrate (Aqueous). Material Steel A350 LF2, nitrocarburized, Borosilicate sight glass, reflection according to DIN 7081, Maximum Working Pressure 20 bar, Maximum Temperature 150 °C, Process connection Flange DIN / DN30, PN20, Distance between centers 1800 mm (Tank height 2000 mm) , Ventilation and Drain outlet by 1/2 NPT valve, Approximate Visible Length 1780 mm. Suitable isolation valves with ball self-closing. Metallic Graduated Scale (in cm). Ref. WIKA. "Carbon-Line" version Model LGG-RP with 5 type 9 segments (segment length 340 mm) with quick-release lever valves Model LGV-38 Valve arrangement: H (Front)	pieces	2
10	LI615	Warehouse Tank Level 1 (F-043)	Reflection glass level indicator, Medium to measure: Calcium Nitrate (Aqueous). Material Steel 1.0460 / 1.0570, Fastening by folding side pieces, Borosilicate sight glass, reflection according to DIN 7081, Maximum Working Pressure 25 bar, Maximum Temperature 150 °C, Process connection Flange DIN / DN30, PN25, Distance between centers 1000 mm (Height Tank 1200 mm), Ventilation and Drain outlet per valve, Approximate Visible Length 990 mm. Built-in appropriate self-closing ball isolation valves, stainless steel mounting hardware. Metallic Graduated Scale (in cm). Ref. WIKA. Compact version with side parts LGG-E model with 3 type 8 segments (segment length 320 mm) Valve arrangement: H (Front)	pieces	1
11	LI616	Warehouse Tank Level 2 (F-044)	Reflection glass level indicator, Medium to measure: Calcium Nitrate (Aqueous). Material Steel A350 LF2, nitrocarburized, Borosilicate sight glass, reflection according to DIN 7081, Maximum Working Pressure 20 bar, Maximum Temperature 150 °C, Process connection Flange DIN / DN30, PN20, Distance between centers 1800 mm (Total Tank Height 7600 mm , 5 sections are proposed that overlap each other (150 to 200 mm), Ventilation and Drain outlet by 1/2 NPT valve, Approximate Visible Length 1780 mm. Suitable isolation valves with ball self-closing. Metallic Graduated Scale (in cm) Ref. WIKA. "Carbon-Line" version Model LGG-RP with 5 type 9 segments (segment length 340 mm) with quick-release lever valves Model LGV-38 Valve arrangement: H (Front)	pieces	1
12	FI604A, FI604B	Nitric Acid Flow to Mixing Reactors 1 and 2 (D-24A, D24B)	Volumetric Flowmeter for Oval Gears (Totalizer), fluid: Nitric Acid (50%), density: 1,305 g / cm ³ , 20 bar, 30 °C, range 0 -15 m ³ / h, Cover and stainless steel gear 1.4404 (316 L), Carbon Bearings. Process connection: DIN flanges; DN50 (provide the counter flanges). Provide line strainer (50 - 100 micron mesh)	pieces	2

13	FI618	Flow to Pailas filling system	Fluid Flowmeter for Oval Gears (Totalizer), fluid: Calcium Nitrate Solution (50%), density: 1.5 g / cm ³ , 6°PH, 20 bar, 30°C, range 0-20 m ³ / h, Cover and gears Stainless Steel 1.4404 (316 L), Carbon Bearings. Process connection: DIN flanges; DN50 (provide the counter flanges). Provide line strainer (50 - 100 micron mesh)		pieces	1
14	FI619	Flow to Drum filling system	Fluid Flow Meter for Oval Gears (Totalizer), fluid: Calcium Nitrate Solution (50%), density: 1.5 g / cm ³ , 6°PH, 10 bar, 30°C, range 0-3.0 m ³ / h, Cover and gears Stainless Steel 1.4404 (316 L), Carbon Bearings. Process connection: DIN flanges; DN50 (provide the counter flanges). Provide line strainer (50 - 100 micron mesh)		pieces	1

Lot 2 - Transmitters

UNIDO REQUIREMENTS						
Item	TAG - No.	SERVICE	DESCRIPTION AND PARAMETER	DIMENSION	UNIT	QTY
15	LT602	Tank Level for Nitric Acid (F-038)	Guided Wave Radar Level Meter. Medium to measure: Nitric Acid (50%), Approved for non-classified zone, 2-wire loop power supply, 4-20 mA HART output, 4-line SD02 display, with keypad for field configuration + data backup function, GT18 stainless steel housing, double compartment, Gland M20 electrical connection, degree of protection IP66 / 68, probe length 2000 mm, rod coated with PFA, Viton seal with temperature range of 30 ... 150 °C, connection Process ISO228 G3 / 4 thread made of 316L stainless steel, Spanish operating language, 5-point calibration, with PFA [OE] coated centering disc. Ref. Endress + Hauser. FMP52		pieces	1
16	LT606A, LT606B	Mixing Level inside Mixing Reactors 1 and 2 (D-24A), (D24B)	Guided Wave Radar Level Meter. Medium to be measured: Nitric Acid (50%), Approved for non-classified zone, 2-wire loop power supply, 4-20 mA HART output, 4-line SD02 display, with keypad for field configuration + data backup function, GT18 stainless steel housing, double compartment, Gland M20 electrical connection, degree of protection IP66 / 68, probe length 3000 mm, rod coated with PFA, Viton seal with temperature range of 30 ... 150 °C, connection Process ISO228 G3 / 4 thread made of 316L stainless steel, Spanish operating language, 5-point calibration, with PFA [OE] coated centering disc. Ref. Endress + Hauser. FMP52		pieces	2
17	LT611A, LT611B	Levels in Intermediate Reflux Tanks 1 and 2 (F-40A, F40B)	Guided Wave Radar Level Meter. Approved for non-classified zone, 2-wire loop power, 4-20 mA HART output, 4-line SD02 display, with keypad for field configuration + data backup function, GT19 plastic PBT housing, double compartment, Connection electrical Gland M20, degree of protection IP66 / 68, probe length 2000 mm, 8 mm stainless steel rod (316L), Viton seal with temperature range of 30 ... 150 °C, process connection thread ISO228 G3 / 4 316L stainless steel, Spanish operating language, 5-point calibration, with stainless steel centering disc (316L) [OA]. Ref. Endress + Hauser. FMP51		pieces	2
18	LT615	Warehouse Tank Level 1 (F-043)	Guided Wave Radar Level Meter. Approved for non-classified zone, 2-wire loop power, 4-20 mA HART output, 4-line SD02 display, with keypad for field configuration + data backup function, GT19 plastic PBT housing, double compartment, Connection electric Gland M20, degree of protection IP66 / 68, probe length 1200 mm, 8 mm stainless steel rod (316L), Viton seal with temperature range of 30 ... 150 °C, process connection thread ISO228 G3 / 4 316L stainless steel, Spanish operating language, 5-point calibration, with stainless steel centering disc (316L) [OA]. Ref. Endress + Hauser. FMP51		pieces	1

19	LT616	Warehouse Tank Level 2 (F-044)	Guided Wave Radar Level Meter. Approved for non-classified zone, 2-wire loop power, 4-20 mA HART output, 4-line SD02 display, with keypad for field configuration + data backup function, GT19 plastic PBT housing, double compartment, Connection electrical Gland M20, degree of protection IP66 / 68, probe length 7600 mm, 8 mm stainless steel split rod (316L), Viton seal with temperature range of 30 ... 150 °C, process connection with ISO228 thread G3 / 4 316L stainless steel, Spanish operating language, 5-point calibration, with stainless steel centering disc (316L) [OA]. Ref. Endress + Hauser. FMP51		pieces	1
20	FE/FT60 4A, FE/FT60 4B	Nitric Acid Flows to Mixing Reactors 1 and 2 (D-24A), (D24B)	Promag P 500 Electromagnetic Flowmeter, DN50, platinum electrode and PTFE liner, range 0 to 15 m ³ / h. With mounting elements of the transmitter in the field and 20 m current cables to the coil and signal (sensor-transmitter connection). Nitric Acid Fluid (50%)		pieces	2
21	FE/FT61 8	Flow to Pailas filling system	Promag P 500, DN50 Electromagnetic Flowmeter, platinum electrode and PTFE liner, range 0 to 20 m ³ / h. With mounting elements of the transmitter in the field and 20 m current cables to the coil and signal (sensor-transmitter connection). Nitric Acid Fluid (50%)		pieces	1
22	FE/FT61 9	Flow to Drum filling system	Promag P 500, DN50 Electromagnetic Flowmeter, platinum electrode and PTFE liner, range 0 to 3 m ³ / h. With mounting elements of the transmitter in the field and 20 m current cables to the coil and signal (sensor-transmitter connection). Nitric Acid Fluid (50%)		pieces	1
23	TE605A, TE605B	Mixing Temperatures within Mixing Reactors 1 and 2 (D-24A), (D24B)	Thermistor Pt100 for thermowell mounting with damped removable unit and ½ "NPT Male thermowell fitting, element length 1480 mm, neck with sliding thread, 2 x Pt100, 3-wire connection, Lever flip-top head with inlet for ½ "NPT cables, IP65 + Thermowell with fixing fitting, process connection 1" NPT Female for Pt100 resistance thermometer, Ø 6.6 mm. Immersion length 1400 mm, head 80 mm. Material of thermowell 316L SS. (Range: 0 -150°C, Pn 6 bar).		pieces	2
24	TT605A, TT605B	Mixing Temperature inside Mixing Reactors 1 and 2 (D-24A), (D24B)	Temperature converter for mounting on DIN rail Configurable range Input for 2 Pt100, 3-wire, Output signal 4 to 20 mA, 2-wire Power supply 220 V, 60 Hz Without galvanic separation Ref. Siemens 7NG3032-1JN00		pieces	2
25	TT605A, TT605B	Mixing Temperature inside Mixing Reactors 1 and 2 (D-24A), (D24B)	Modem to configure temperature converters, with USB port Ref. SIEMENS 7NG3032-8KU with CD with SIPROM T configuration software Ref. SIEMENS A5E00364512		pieces	1
26	PHE607 A, PHE607 B	PH of the Mixture inside Mixture Reactors 1 and 2 (D-24A), (D24B)	Immersion electrode holder with flange connection and bayonet lock. Material 1.4404 stainless steel (AISI 316L), immersion length 1500 mm, process connection: Flange DN80 PN16, Seal material: Viton. Ref. Endress + Hauser: Dip Fit P CPA 140-303B210 cleaning accessory Chemoclean CPR31		pieces	2
27	PHE607 A, PHE607 B	PH of the Mixture inside Mixture Reactors 1 and 2 (D-24A), (D24B)	Combined electrode for pH measurement with uncovered opening for media with dirt load and integrated temperature sensor. Range 0-14 PH, 110 °C, 6bar, immersion length 120 mm. Ref. Endress + Hauser Orbipore CPS91D-7BT21.		pieces	2

28	PHE/PH IT607A, PHE/PH IT607B	PH of the Mixture inside Mixture Reactors 1 and 2 (D-24A), (D24B)	Data transmission cable between electrode and PH transmitter, length 10 m, with cable lugs and connection Plug, Memosens technology Ref. Endress + Hauser CYK10-A101		pieces	2
29	PHIT60 7A, PHIT60 7B	PH of the Mixture inside Mixture Reactors 1 and 2 (D-24A), (D24B)	Multiparameter transmitter based on digital Memosens technology. External display (5 m link cable), Language Spanish / English. Power supply 230 VAC, 60 Hz, Memosens Channel for PH measurement electrode (CPS91D), 2 Analog Outputs 4-20 mA (PH and T), 2 digital outputs to Relay, RS485 Communication (Modbus RTU) and Ethernet (Modbus TCP) , M20 x 1.5 mm cable entries, IP66 / 67 degree of protection, for DIN rail mounting. Ref. Endress + Hauser Liquiline CM442 H + Module AOR (2AO + 2RO) [71111053] + Module 485 [71135634]		pieces	2
30	AE/AIT6 08A, AE/AIT6 08B	Concentration of the Mixture within Mixture Reactors 1 and 2 (D-24A), (D24B)	Set (probe holder + sensor + transmitter) for Industrial measurement of Calcium ion concentration (Ca + 2) in a solution, range 0 - 25% (nominal value 18%) T 150 °C, P 4 bar, medium to measure Nitrate solution Calcium (initially Nitric Acid or propose removable unit), 4-20 mA output, IP65		pieces	2
31	WE/WIT 610C	Weight of Calcium Hydrate to consume	Compact Platform Scale with capacity 500 kg. Frame Material AISI 304 Stainless Steel, Cymbal Material 316 Stainless Steel, Hermetically sealed stainless steel load cell, OIML Class III certifiable resolution, 2 x 3000e, IP67 / 68 + Terminal with LCD display with backlight, resistant material keyboard scratch resistant, stainless steel 1.4301 housing. Protection degree IP69k, Power 100-240 VAC, battery 12V / 2.5A with RS232 communication interfaces, Ethernet, USB device. Ref. Mettler Toledo: PBA430 CC + terminal ICS429. Other Ref. TRUPER BAS-500PLA		pieces	1
32	WE610 A, WE610 B	Weight of Calcium Hydrate in Weighing Hopper 1 (W-22A) and Weight of Calcium Hydrate in Weighing Hopper 2 (W-22B)	Class 3 weighing set for weighing Calcium Hydrate in a hopper, consisting of: Compression load cell Model EHP BR. 2 ton capacity, overload up to 150%, Supply voltage 10 V (AC; DC) Maximum voltage 30 V AC; DC, nominal sensitivity 2 + - 0.1 mV / V, material stainless steel, degree of protection IP68.		pieces	6
33	WEEx3/W IT610A, WEEx3/W IT610B	Weight of Calcium Hydrate in Weighing Hopper 1 (W-22A) and Weight of Calcium Hydrate in Weighing Hopper 2 (W-22B)	Adder box (collector), with input for 4 load cells, with IP 68 protection. With adjustment of sensitivity range variation 1 mV / V		pieces	2
34	WEEx3/W IT610A, WEEx3/W IT610B	Weight of Calcium Hydrate in Weighing Hopper 1 (W-22A) and Weight of Calcium	Cable for weighing module to connection box, similar to the cable: Ref. SF3 - PY320 03 (100 m).		pieces	2

		Hydrate in Weighing Hopper 2 (W-22B)				
35	WIT610 A, WIT610 B	Weight of Calcium Hydrate in Weighing Hopper 1 (W-22A) and Weight of Calcium Hydrate in Weighing Hopper 2 (W-22B)	DI50E series universal weighing module display options without led, power supply 85-265VAC / 95-370VDC pressure input / Load cell resolution 16 bit 60Hz, analog output module current output 4-20mA, 1 output module to relay 10A. TEXMATE. DI-50E-DR-PS1-ISS2-AIC-S6-OR11-OA2		pieces	2
36	WIT610 A, WIT610 B	Weight of Calcium Hydrate in Weighing Hopper 1 (W-22A) and Weight of Calcium Hydrate in Weighing Hopper 2 (W-22B)	Cable for the DI50E universal weighing module. TEXMATE. OM-CABLE485		pieces	1

Lot 3 - Valves

UNIDO REQUIREMENTS						
Item	TAG - No.	SERVICE	DESCRIPTION AND PARAMETER	DIMENSION	UNIT	QTY
37	TCV605A, TCV605B	Cooling Water Control Valves for Mixing Reactors 1 and 2 (D-24A, D-24B)	Butterfly regulating valve, NA Dn 80 mm Pn 16. Characteristic equal percentage. GGG-50 cast body. Inox Butterfly 1.4408. Inox shaft. AISI 316L. Metal-Metal seal, double eccentric leak rate IV (4) Temperature at 40 °C. Ref. SAMSON TT Series Single acting rotary pneumatic actuator. Docks open. Ref. SAMSON AT series Type AT-501 S12. Coupling the valve to the actuator. With electropneumatic positioner mounted on the valve. 4-20 mA input. Output the one necessary to operate the regulating valve. Air supply 6 bar. Ref. SMC IP8100-030-H-PN1, mounted. Regulate cooling water.	NO OFFERS NEEDED; POSITION NUMBERS ARE PROVIDED FOR IDENTIFICATION PURPOSES ON THE ATTACHED P&ID DIAGRAM		
38	LY602/ ZSH602/ ZSL 602, FY604A/ ZSH604A/ ZSL 604A, FY604B/ ZSH604B/ ZSL 604B	Tank Fill Valve for Nitric Acid (F-038), Nitric Acid Flow Shutoff Valves to Mixing Reactors 1 and 2 (D-24A, D-24B)	Type 3321 DN 50 single seat valve; NA. Pn 16 Medium: Nitric Acid (50%) Two-position drive (ON-OFF) with monostable 5-way solenoid Dn 1/4 "Power supply 220 60 Hz NA. Gray cast iron body EN-JL1040 / A 126 B; PN 16; Flanges with projection, Type B according to DIN EN 1092-2; Stainless steel shutter 1.4408; shutter with metal closure. Open springs Stainless steel seat 14408 characteristic equal percentage. Type 3371 pneumatic actuator Valve closed when TCR Limit Switches are energized, with two limit switches 1NA, 1NC.	NO OFFERS NEEDED; POSITION NUMBERS ARE PROVIDED FOR IDENTIFICATION PURPOSES ON THE ATTACHED P&ID DIAGRAM		
39	LY611A/ ZSH611A/ ZSL 611A, LY612A/ ZSH612A/ ZSL 612A, LY611B/ ZSH611B/ ZSL 611B, LY612B/ ZSH612B/ ZSL 612B	Inlet and Outlet Valves for Reflux Intermediate Tanks 1 and 2 (F-40A, F-40B)	Butterfly valve, NA Dn 80 mm Pn 16 .. Two-position drive (ON-OFF) GGG-50 cast body. Inox Butterfly 1.4408. Inox shaft. AISI 316L. Metal-Metal seal, double eccentric leak rate IV (4) Temperature at 75 °C. Flange connection ISO F07 / 11 Ref. SAMSON TT Series Single acting rotary pneumatic actuator. Ref. SAMSON AT series Type AT-501 S12. Coupling the valve to the actuator. With 5/2 way solenoid valve. Voltage 220 VAC / 60 Hz. Aluminum body Mounting NAMUR HERION 2623079.3051. Valve closed when TCR Limit Switches are energized, with two limit switches 1NA, 1NC. Ref. 83.161.301	NO OFFERS NEEDED; POSITION NUMBERS ARE PROVIDED FOR IDENTIFICATION PURPOSES ON THE ATTACHED P&ID DIAGRAM		
40	VY610A, VY610B	Scale Cleaning Hammer	Pneumatic Knocking Piston (Hammer) for Aggregate Hoppers, 220 VAC Coil, 60 Hz		pieces	2

Lot 4 – Panel Elements

UNIDO REQUIREMENTS						
Item	TAG - No.	SERVICE	DESCRIPTION AND PARAMETER	DIMENSION	UNIT	QTY
41	PL2		Wall cabinet with dimensions 500 x 400 x 200 mm + Metal mounting plate 450 x 350 mm. Ref. Schneider NSYCRN54200 + NSYMM54		pieces	1
42	PL1		Metal wall cabinet with blind door and metal mounting plate, dimensions 1000 x 800 x 400, Degree of Protection: IP66, cable glands with die cut FL, include set of 4 stainless steel legs for wall fixing. Ref.Schneider NSYCRNG108400 + NSYMM108 + NSYTLEFL + NSYAEFPFXSC		pieces	1
43	PM1		Metal wall cabinet with double door and metal mounting plate, dimensions 1200 x 1000 x 400, Degree of Protection: IP55, cable glands with die cut FL, include set of 4 stainless steel legs for wall fixing. Ref.Schneider NSYCRNG1210400D + NSYMM1210 + NSYTLEFL + NSYAEFPFXSC		pieces	1
44	X1, X2...X7		Connection terminal with cover for conductor up to 2.5 mm ² Maximum voltage 500 V 60 Hz Ref. AB1VV235U, SCHNEIDER		pieces	700
45	XT		Earth Terminal with cover for conductor up to 2.5 mm ² Maximum voltage 500 V 60 Hz. Color Green-Yellow.		pieces	20
46			Terminal strip stop for 2.5 mm ² cable		pieces	24
47			Terminal strip identifier (A set contains 100 numbers 0, 100 numbers 1.... 100 numbers 9)		pieces	2
48			Lead terminal for conductor of section up to 2.5 mm ² (pack of 100 U)		pieces	3
49			Eye terminal for conductor of section up to 2.5 mm ² (pack of 100 U)		pieces	1
50			Cable identifier for conductors up to 2.5 mm ² . sets from 1 to 9 (1 Set = 100 numbers 0, 100 numbers 1.... 100 numbers 9.)		pieces	2
51			Black, plastic helical tape		m	8
52			Self-drilling screw DN 4.8 mm, length 16 mm drill bit tip. Model 4.8 / 16.		pieces	16
53			1 x 0.5mm ² Flexible Panel installation Copper Cable (In 250m Coils)		pieces	1,5
54			1 x 2.5mm ² Panel installation Flexible Copper Cable (In 250m Coils)		pieces	0,5
55			Earth bar for connections up to 2.5 mm ² ,		m	2
56			2-pole circuit breaker 10A. 230/400 V 60 Hz, 10 kA. According to IEC 60947-2. Curve C. With auxiliary status indicator contact. DIN rail mount		pieces	1

57			2-pole 6A circuit breaker. 230/400 V 60 Hz, 10 kA. According to IEC 60947-2. Curve C. With auxiliary status indicator contact. DIN rail mount		pieces	1
58			2-pole circuit breaker 2A. 230/400 V 60 Hz, 10 kA. According to IEC 60947-2. Curve C. With auxiliary status indicator contact. DIN rail mount		pieces	1
59			2-pole circuit breaker 1A. 230/400 V 60 Hz, 10 kA. According to IEC 60947-2. Curve C. With auxiliary status indicator contact. DIN rail mount		pieces	3
60			Terminal block type fuse holder for DIN rail mounting for fuse length L = 20 mm. Diameter = 5 mm.		pieces	20
61			Glass fuse 5 x 20 mm capacity 0.1 A		pieces	15
62			Glass fuse 5 x 20 mm capacity 0.5 A		pieces	20
63			Glass fuse 5 x 20 mm capacity 1 A		pieces	4
64			Glass fuse 5 x 20 mm capacity 2 A		pieces	6
65			Plastic perforated channel, with lid 40x60x2000 mm		pieces	3
66			Plastic perforated channel, with lid 40x40x2000 mm		pieces	7
67			Standard DIN rail L = 2000 mm Ref. Schneider AM1ED200, Other Ref. UNEX- F224		pieces	6
68	TC		Double socket for flat and circular shank with ground leg, DIN rail mount, 16A		pieces	1
69	HL		Red LED signaling lamp, panel mounting on DIN rail. D 22 mm, 220 V 60 Hz 2 W Ref. Schneider L20SA10 + LWA0238		pieces	1
70	XBP		12 slot rack for M340 PLC. Ref Schneider XBP 1200		pieces	1
71	CPS		M340 Power Supply Module, 220 VAC input power. Ref Schneider BMX CPS 2000		pieces	1
72	M0		M340 central processor, with integrated Ethernet port, with RJ-45 connector for MODBUS communication (RS232 / RS485), USB type B female connector to connect Programming PCs, with an 8 MB Program memory expansion card and 16 MB of files (Ref.BMX RMS 008 MPP). Ref.Schneider BMX P342020		pieces	1
73	M1		M340 10/100 Base T Factory Cast Ethernet module, with 10/100 Base T shielded twisted pair cable port (RJ-45 connector) with Automatic Detection. Ref. Schneider BMX NOE 0100		pieces	1
74	M2, M3, M4		High-density Analog Input Module with 8 isolated channels (4-20 mA) from M340. With its 28-point field connection terminals. Ref. Schneider BMX AMI 0810		pieces	3
75	M2, M3, M4		Terminal Block and Cable without connector for analog module. 28 points. Ref.Schneider BMX FTB 2820		pieces	3
76	M5		High-density Analog Output Module with 4 isolated channels (4-20 mA), from M340. With its 20-point field connection terminals. Ref. Schneider BMX AMO 0410		pieces	1
77	M5		Terminal Block and Cable without connector for analog module. 20 points. Ref. Schneider BMX FTB 2000		pieces	1
78	M6, M7		32-channel 24 VDC digital input module with positive logic, M340. With its 40-point field connection terminals. Ref. Schneider BMX DDI3202K		pieces	2
79	M8, M9		32-channel 24 VDC Digital Output Module with positive logic, M340. With its 40-point field connection terminals. Ref. Schneider BMX DDO 3202K		pieces	2
80	M6...M9		Terminal Block and Cable without connector for digital module. 40 points. Ref. Schneider BMX FCW 303		pieces	4

81		16 MB Memory Expansion Card for M340 Processor. Ref. Schneider BMX RMS 008MPF	pieces	1
82		Programming Cable of the M340 industrial USB 4.5 meters. Ref. Schneider BMX XCA USBH045	pieces	2
83	GB1	Single Phase Switched Power Supply, DIN rail mounting. > Nominal input voltage: 115/230 VAC., Selectable> Output: 24 Vdc. / 10A. > Frequency: 47-63 Hz. Constant power between -10 and +60 °C. Ref. Schneider ABL8RPS24100	pieces	1
84	GB2	Single Phase Switched Power Supply, DIN rail mounting. > Nominal input voltage: 115/230 VAC., Selectable> Output: 24 Vdc. / 5A. > Frequency: 47-63 Hz. Constant power between -10 and +60 °C. Ref. Schneider ABL8RPS24050	pieces	1
85	KAI1...64, KAO1...64	Auxiliary relay with base, coil at 24 VDC, contacts 4 NO 4 NC, 6 A Ref. C9 A41 24VDC + Base S 9B	pieces	130
86	BPE1, BPE2, BPE3	Push button for emergency stop red mushroom with rotary interlock. Ref. Schneider XB4BS8442	pieces	3
87	WI610A-1, WI610B-1	Indicator light with LED, 220 VAC, 60 Hz, red color. ∅ 22 mm Ref.Schneider XB4BVM4	pieces	2
88	WI610A-2, WI610B-2	Indicator light with LED, 220 VAC, 60 Hz, yellow color. ∅ 22 mm Ref.Schneider XB4BVM5	pieces	2
89	WI610A-3, WI610B-3	Indicator light with LED, 220 VAC, 60 Hz, green color. ∅ 22 mm Ref.Schneider XB4BVM3	pieces	2
90		Adjustable sound signaling element 70 to 90 dB at 1m, with continuous or intermittent action, powered by 24 VDC. Ref Schneider XVBC9B	pieces	2
91	OP	12.1 "color touch terminal. Magelis brand XBTG series . With Modbus TCP / IP Ethernet communication. Ref. Schneider XBT-GT 6340 . Wired for programming with USB connector for PC. Compact 1 Gb flash card with its fixing clips	pieces	1
92	PC	ACP-4000MBS120507-2 Industrial Computer System configured as follows:	pieces	1
		(1) ACP-4000 Motherboard Chassis with 400W ATX PFC PS		
		(1) AIMB-781QG2-00A1E-LGA1155 ATX IMB with VGA, DVI, PCIe, 2 GbE, 2 SATAIII , RoHS		
		(1) CPU: Intel Core 3.3G 3M 1155P 2CORE I3-2120		
		(1) 1960047669N001 Cooling Fan		
		(2) Memory: 2G DDR3-1333 240PIN 128X8 (Total 4G)		
		(1) Hard Drive: 500G 3.5 "SATA 7KRPM 16M		
		(1) 24X SATA DVD +/- RW		
		(1) EVGA Nvidia GT520 1G PCIE Dual DVI		
		(1) Disk drive-floppy disk (1.44 MB) - USB-external, Black		
		(1) Logitech Optical Mouse USB / PS2, Black		
		(1) PCA-6302-Compact Keyboard 104 keys (English)		
(1) VA926G-Viewsonic Display 19 "LCD, 1280X1024, 5MS Rseponse				

		Time, Energy Star 5.0, DVI and VGA Inputs, Windows 7 Certified		
		(1) Microsoft Windows 10		
		(1) Option AGS-CTOS-SYS-B Assembly and Test		
93	UPS	UPS Backup Source with Integrated Stabilizer 120V APC Power-Saving Back-UPS Pro 700	pieces	1
94	SW	Industrial switch not manageable. Specifications:	pieces	1
		Model: EKI-7626C		
		LAN: 10 / 100BASE-TX, 10/100 / 1000BASE-T, 100BASE-FX, 1000BASE-SX / LX / LHX / XD		
		Transmission Distance: Ethernet: up to 100m Multi-Mode Fiber: up to 2Km, 50 / 125µM ~ 62.5 / 125µM		
		Connectors: 16 X 10 / 100BASETX RJ-45 Ports Y 2 X 10/100 / 1000BASE-T / SFP (MINI-GBIC) COMBO		
		Power: + 12-48 VDC		
		Power Consumption: 9 , 76WATTS Dimensions: 79 X 152 X 105 mm		
Ref: EKI-7626C-AE +2 UNITS SFP-FXM / LC-AE				

Lot 5 - Installation Material

UNIDO REQUIREMENTS						
Item	TAG - No.	SERVICE	DESCRIPTION AND PARAMETER	DIMENSION	UNIT	QTY
95			"U" Type Clamp with; 2 "Tropicalized Jaw, with its 4 Nuts and Washers Included. *	∅ 2"	pieces	40
96			"U" Type Clamp with; 1 ½ "Tropicalized Jaw, with its 4 Nuts and Washers Included. *	∅ 1 ½"	pieces	30
97			"U" Type Clamp with; 1 "Tropicalized Jaw, with its 4 Nuts and Washers Included. *	∅ 1"	pieces	50
98			"U" Type Clamp with; ½ "Tropicalized Jaw, with its 4 Nuts and Washers Included. *	∅ ½"	pieces	20
99			Air reducing pressure gauge filter block. Inlet pressure 10 bar. Ref. AW30-F03, F REG 5 MIC 3/8 "		pieces	2
100			Flexible shielded cable for control and instrumentation circuits; 500V. Mts. 2x1 mm ² (in rolls of 250 m.)		Roll	10
101			Flexible shielded cable for control and instrumentation circuits; 500V. Mts. 3x1 mm ² (in rolls of 250 m.)		Roll	2
102			Flexible shielded cable for control and instrumentation circuits; 500V. Mts. 4x1 mm ² (in rolls of 250 m.)		Roll	1
103			Flexible shielded cable for control and instrumentation circuits; 500V. Mts. 16x1 mm ² (in 200 m rolls)		Roll	1
104			Category 5E UTP Cable (Roll app. 1000 FT / 305 MTS) INT362320		Roll	0,3
105			Mts. CERVILENE POS-CY 3x2x0.22 mm ² GR cable, similar to Belden 8103 (in 305 m rolls)		Roll	1
106			Aluminum elbow with threaded ends, p / . RR tube connection, with recordable lid. DN-2 "	∅ 2"	pieces	22
107			Aluminum elbow with threaded ends, p / . RR tube connection, with recordable lid. DN-1½ "	∅ 1 ½"	pieces	10
108			Aluminum elbow with threaded ends, p / . RR tube connection, with recordable lid. DN 1 "	∅ 1 "	pieces	15
109			Aluminum elbow with threaded ends, p / . RR tube connection, with recordable lid. DN ½ "	∅ ½"	pieces	7
110			Copper pipe connection ¼ "to 6 mm	∅ ¼" a ∅ 6 mm	pieces	22
111			Copper pipe connection ¼ "to 8 mm	∅ ¼" a ∅ 8 mm	pieces	8
112			"T" branch with threaded ends, p / . RR tube connection, with recordable lid. DN-2 "with recordable cover.	∅ 2"	pieces	7
113			"T" branch with threaded ends, p / . RR tube connection, with recordable lid. DN-1½ "with recordable lid.	∅ 1 ½"	pieces	5
114			"T" branch with threaded ends, p / . RR tube connection, with recordable lid. DN 1 "with recordable lid.	∅ 1 "	pieces	5
115			"T" branch with threaded ends, p / . RR tube connection, with recordable lid. DN ½ "with recordable lid.	∅ ½"	pieces	10
116			Cable identifier for conductors up to 2.5 mm ² . sets from 1 to 9 (1 Set = 100 numbers 0, 100 numbers 1.... 100 numbers 9.)	∅ 2,5 mm	set	2
117			Heavy Duty "L" Type Profile, Galvanized Steel, for fixing Electric Pipes, 40 x40 x 6 mm (m) *		m	35
118			Heavy Duty "L" Type Profile, Galvanized Steel, to fix Electric Pipes, 25 x 25 x 4 mm (m) *		m	50

119			Copper pipe D 6 x 1 mm *	∅ 6 x 1 mm	m	11
120			Copper pipe D 8 x 1 mm *	∅ 8 x 1 mm	m	7
121			Flexible metal pipe with PVC lining Dn ½ "	∅ ½ "	m	50
122			RMC Cable Tubing, Galvanized Steel, 2 "NPS Threaded with Corresponding Threaded Union (m)	∅ 2"	m	70
123			RMC Cable Tubing, Galvanized Steel, 1½ "NPS Threaded with Corresponding Threaded Union (m)	∅ 1½ "	m	70
124			RMC Cable Tubing, Galvanized Steel, 1 "NPS Threaded with Corresponding Threaded Union (m)	∅ 1"	m	70
125			RMC pipe for cables, Galvanized steel, Threaded NPS ½ "with its Corresponding Threaded Union (m)	∅ ½ "	m	60
126			Electric nut 2 "	∅ 2"	pieces	6
127			1½ "electric nut	∅ 1½ "	pieces	6
128			1 "electric nut	∅ 1"	pieces	6
129			Electric nut ½ "	∅ ½ "	pieces	36
130			Galvanized steel union connection Female 2 "to Female 2"	H∅ 2"-H∅ 2"	pieces	10
131			Galvanized steel union connection Male 2 "to Female 1½ "	M∅ 2"-H∅ 1½ "	pieces	5
132			Galvanized steel union connection Male 2 "to Female 1"	M∅ 2"-H∅ 1"	pieces	3
133			Galvanized steel union connection Female 1½ "to Female 1½ "	H∅ 1½ "-H∅ 1½ "	pieces	10
134			Galvanized steel union connection Male 1½ "to Female 1"	M∅ 1½ "-H∅ 1"	pieces	6
135			Galvanized steel union connection Male 1½ "to Female ½ "	M∅ 1½ "-H∅ ½ "	pieces	10
136			Galvanized steel union connection Female 1 "to Female 1"	H∅ 1"-H∅ 1"	pieces	10
137			Galvanized steel union connection Male 1 "to Female ½ "	M∅ 1"-H∅ ½ "	pieces	25
138			Galvanized steel union connection Female ½ "to Female ½ "	H∅ ½ "-H∅ ½ "	pieces	25
139			Galvanized steel union connection Male ½ "to Male ½ "	M∅ ½ "-M∅ ½ "	pieces	25
140			Galvanized steel union connection Male ½ "to Female ½ "	M∅ ½ "-H∅ ½ "	pieces	25
141			2 "Universal Union	∅ 2"	pieces	6
142			1½ "Universal Union	∅ 1½ "	pieces	6
143			1 "Universal Union	∅ 1 "	pieces	6

ANNEX B - Especificaciones técnicas con más detalles y explicaciones en español

Para la integración de precios, utilice la lista principal de TOR en inglés.

Lote 1 - Instrumentos Locales

REQUISITOS DE LA ONUDI						
Item	TAG-Nº	SERVICIO	NOMBRE Y PARÁMETROS	TAMANO	UNIDAD	CANTIDAD
1	PI601	Presión a la Salida de la Bomba (G-52C) de llenado del Tanque para Ácido Nítrico (F-038)	Manómetro Indicador, rango 0-25.0 kgf/cm ² . Ø de Carátula 160 mm, Toma Radial con Separador de Membrana de conexión bridada, Conexión a Proceso ½"NPT, material membrana 316L SS con recubrimiento de PTFE, medio a medir Ácido Nítrico (50 %).		U	1
2	PI603	Presión a la Salida de la Bomba (G-52D) de Ácido Nítrico a Reactores de Mezcla (D24A-B)	Manómetro Indicador, rango 0-25.0 kgf/cm ² . Ø de Carátula 160 mm, Toma Radial con Separador de Membrana de conexión bridada, Conexión a Proceso ½"NPT, material membrana 316L SS con recubrimiento de PTFE, medio a medir Ácido Nítrico (50 %).		U	1
3	PI613A, PI613B	Presión a la Salida de las Bombas 1 y 2 (G65-001A, G65-001B) de Recirculación y llenado de Sedimentadores (F41A-D)	Manómetro Indicador, rango 0-25.0 kgf/cm ² . Ø de Carátula 160 mm, Toma Radial con Separador de Membrana de conexión bridada, Conexión a Proceso ½"NPT, material membrana 316L SS con recubrimiento de PTFE, medio a medir Ácido Nítrico (50 %).		U	2
4	PI614	Presión a la Salida de la Bomba (G65-002) de Alimentación al Filtro Prensa (F-001)	Manómetro Indicador, rango 0-30.0 kgf/cm ² . Ø de Carátula 160 mm, Toma Radial con Separador de Membrana de conexión bridada, Conexión a Proceso ½"NPT, material membrana 316L SS con recubrimiento de PTFE, medio a medir Nitrato de Calcio (ac).		U	1

5	PI617	Presión a la Salida de la Bomba (G65-003) de llenado de Pailas y Tanques de Almacenamiento (F-044,F-45A-C)	Manómetro Indicador, rango 0-25.0 kgf/cm ² . Ø de Carátula 160 mm, Toma Radial con Separador de Membrana de conexión bridada, Conexión a Proceso ½"NPT, material membrana 316L SS con recubrimiento de PTFE, medio a medir Nitrato de Calcio (ac).		U	1
6	TI605A, TI605B	Temperatura de Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A, D24B)	Termómetro Bimetálico con racor inferior (Base), Ø de Carátula 160 mm, rango 0-150 °C, Racor estándar, Conexión a Proceso ½"NPT Macho, Ø de sonda 6 mm, longitud del elemento 1450 mm + Termopozo con Racor de Fijación, Conexión a Proceso 1" NPT Macho y Unión ½"NPT Hembra para Termómetro, Ø interno 6,6 mm, longitud de inmersión 1400 mm y longitud de cabezal 50 mm, material 316 SS. Pn.6 bar		U	2
7	LI602	Nivel en Tanque para Ácido Nítrico (F-038)	Indicador de Nivel de Vidrio por Transparencia, Medio a medir: Ácido Nítrico (50 %) Material: Acero Inoxidable 1.4404 (316 L), Mirilla de Borosilicato, Transparente según DIN 7081 con suplemento de mica. Presión Máxima de Trabajo 20 bar, Temperatura Máxima 60 °C, Conexión a Proceso Brida DIN DN30, PN20. Distancia entre centros 1800 mm (Altura del Tanque 1950 mm) Ventilación y Salida de drenaje por válvula G3/8 Longitud Visible Aproximada 1780 mm. Válvulas de aislamiento adecuadas con autocierra por bola. Escala Graduada Metálica (en cm). Ref. WIKA. Versión estándar. Modelo LGG-TE con 5 segmentos de tipo 9 (Longitud de segmento 340 mm) con Válvulas de Palanca de cierre rápido Modelo LGV-38 Disposición de las válvulas: H (Frontal)		U	1
8	LI606A. LI606B	Nivel de Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A, D24B)	Indicador de Nivel de Vidrio por Transparencia, Medio a medir: Ácido Nítrico (50 %) Material: Acero Inoxidable 1.4404 (316 L), Mirilla de Borosilicato, Transparente según DIN 7081 con suplemento de mica. Presión Máxima de Trabajo 20 bar, Temperatura Máxima 150 °C, Conexión a Proceso Brida DIN DN30, PN20. Distancia entre centros 2100 mm (Altura del Tanque 2850 mm) Ventilación y Salida de drenaje por válvula G3/8 Longitud Visible Aproximada 2080 mm. Válvulas de aislamiento adecuadas con autocierra por bola. Escala Graduada Metálica (en cm). Ref. WIKA. Versión estándar. Modelo LGG-TE con 5 segmentos de tipo 11 (Longitud de segmento 400 mm) con Válvulas de Palanca de cierre rápido Modelo LGV-38 Disposición de las válvulas: H (Frontal)		U	2
9	LI611A, LI611B	Nivel en Tanques Intermedios de Reflujo 1 y 2 (F-40A, F40B)	Indicador de nivel de vidrio por Reflexión, Medio a medir: Nitrato de Calcio (Acuoso). Material Acero A350 LF2, nitrocarburado, Mirilla de Borosilicato, reflexión según DIN 7081, Presión Máxima de Trabajo 20 bar, Temperatura Máxima 150 °C, Conexión a proceso Brida DIN/ DN30,PN20,Distancia entre centros 1800 mm (Altura del Tanque 2000 mm), Ventilación y Salida de drenaje por válvula 1/2 NPT, Longitud Visible Aproximada 1780 mm. Válvulas de aislamiento adecuadas con autocierra por bola. Escala Graduada Metálica (en cm). Ref. WIKA. Versión"Carbon-Line" Modelo LGG-RP con 5 segmentos de tipo 9		U	2

			(Longitud de segmento 340 mm) con válvulas de Palanca de cierre rápido Modelo LGV-38 Disposición de las válvulas: H (Frontal)			
10	LI615	Nivel en Tanque Almacén 1 (F-043)	Indicador de nivel de vidrio por Reflexión, Medio a medir: Nitrato de Calcio (Acuoso). Material Acero 1.0460/1.0570, Sujeción por piezas laterales plegables, Mirilla de Borosilicato, reflexión según DIN 7081, Presión Máxima de Trabajo 25 bar, Temperatura Máxima 150 °C, Conexión a proceso Brida DIN/ DN30, PN25, Distancia entre centros 1000 mm (Altura del Tanque 1200 mm), Ventilación y Salida de drenaje por válvula, Longitud Visible Aproximada 990 mm. Válvulas de aislamiento adecuadas integradas con autocierre por bola, piezas de montaje de acero inoxidable. Escala Graduada Metálica (en cm). Ref. WIKA. Versión compacta con piezas laterales Modelo LGG-E con 3 segmentos de tipo 8 (Longitud de segmento 320 mm) Disposición de las válvulas: H (Frontal)		U	1
11	LI616	Nivel en Tanque Almacén 2 (F-044)	Indicador de nivel de vidrio por Reflexión, Medio a medir: Nitrato de Calcio (Acuoso). Material Acero A350 LF2, nitrocarburado, Mirilla de Borosilicato, reflexión según DIN 7081, Presión Máxima de Trabajo 20 bar, Temperatura Máxima 150 °C, Conexión a proceso Brida DIN/ DN30, PN20, Distancia entre centros 1800 mm (Altura Total del Tanque 7600 mm, se proponen 5 secciones que se solapan entre sí de 150 a 200 mm), Ventilación y Salida de drenaje por válvula 1/2 NPT, Longitud Visible Aproximada 1780 mm. Válvulas de aislamiento adecuadas con autocierre por bola. Escala Graduada Metálica (en cm) Ref. WIKA. Versión "Carbon-Line" Modelo LGG-RP con 5 segmentos de tipo 9 (Longitud de segmento 340 mm) con válvulas de Palanca de cierre rápido Modelo LGV-38 Disposición de las válvulas: H (Frontal)		U	1
12	FI604A, FI604B	Flujo de Ácido Nítrico a Reactores de Mezcla 1 y 2 (D-24A, D24B)	Medidor de Caudal Volumétrico por Engranés Ovalados (Totalizador), fluido: Ácido Nítrico (50 %), densidad: 1,305 g/cm ³ , 20 bar, 30 °C, rango 0 -15 m ³ /h, Cubierta y engranes de Acero Inoxidable 1.4404 (316 L), Rodamientos al Carbono. Conexión a proceso: Bridas DIN; DN50 (proveer las contrabridas). Proveer colador de línea (malla 50 – 100 micrones)		U	2
13	FI618	Flujo a Sistema de llenado de Pailas	Medidor de Caudal Volumétrico por Engranés Ovalados (Totalizador), fluido: Disolución de Nitrato de Calcio (50 %), densidad: 1.5 g/cm ³ , 6 °PH, 20 bar, 30 °C, rango 0 -20 m ³ /h, Cubierta y engranes de Acero Inoxidable 1.4404 (316 L), Rodamientos al Carbono. Conexión a proceso: Bridas DIN; DN50 (proveer las contrabridas). Proveer colador de línea (malla 50 – 100 micrones)		U	1
14	FI619	Flujo a Sistema de llenado de Bidones	Medidor de Caudal Volumétrico por Engranés Ovalados (Totalizador), fluido: Disolución de Nitrato de Calcio (50 %), densidad: 1.5 g/cm ³ , 6 °PH, 10 bar, 30 °C, rango 0 -3.0 m ³ /h, Cubierta y engranes de Acero Inoxidable 1.4404 (316 L), Rodamientos al Carbono. Conexión a proceso: Bridas DIN; DN50 (proveer las contrabridas). Proveer colador de línea (malla 50 – 100 micrones)		U	1

Lote 2 - Transmisores

REQUISITOS DE LA ONUDI						
Item	TAG-N°	SERVICIO	NOMBRE Y PARÁMETROS	TAMANO	UNIDAD	CANTIDAD
15	LT602	Nivel en Tanque para Ácido Nítrico (F-038)	Medidor de Nivel tipo Radar de Onda Guiada. Medio a medir: Ácido Nítrico (50 %), Aprobado para zona no clasificada, Alimentación de lazo a 2 hilos, salida 4-20 mA HART, Pantalla SD02 de 4 líneas, con botonera para configuración en campo + función de respaldo de datos, Carcasa GT18 de acero inoxidable, de doble compartimento, Conexión eléctrica Gland M20, Grado de protección IP66/68, longitud de la sonda 2000 mm, varilla recubierta con PFA, sello de Vitón con rango de temperatura de 30...150 °C, Conexión a proceso rosca ISO228 G3/4 de acero inoxidable 316L, lenguaje de operación en español, calibración a 5 puntos, con disco de centrado recubierto de PFA[OE]. Ref. Endress+ Hauser. FMP52		U	1
16	LT606A, LT606B	Nivel de Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A), (D24B)	Medidor de Nivel tipo Radar de Onda Guiada. Medio a medir: Ácido Nítrico (50 %), Aprobado para zona no clasificada, Alimentación de lazo a 2 hilos, salida 4-20 mA HART, Pantalla SD02 de 4 líneas, con botonera para configuración en campo + función de respaldo de datos, Carcasa GT18 de acero inoxidable, de doble compartimento, Conexión eléctrica Gland M20, Grado de protección IP66/68, longitud de la sonda 3000 mm, varilla recubierta con PFA, sello de Vitón con rango de temperatura de 30...150 °C, Conexión a proceso rosca ISO228 G3/4 de acero inoxidable 316L, lenguaje de operación en español, calibración a 5 puntos, con disco de centrado recubierto de PFA[OE]. Ref. Endress+ Hauser. FMP52		U	2
17	LT611A, LT611B	Niveles en Tanques Intermedio de Reflujo 1 y 2 (F-40A, F40B)	Medidor de Nivel tipo Radar de Onda Guiada. Aprobado para zona no clasificada, Alimentación de lazo a 2 hilos, salida 4-20 mA HART, Pantalla SD02 de 4 líneas, con botonera para configuración en campo + función de respaldo de datos, Carcasa GT19 de plástico PBT, de doble compartimento, Conexión eléctrica Gland M20, Grado de protección IP66/68, longitud de la sonda 2000 mm, varilla de 8 mm de acero inoxidable (316L), sello de Vitón con rango de temperatura de 30...150 °C, Conexión a proceso rosca ISO228 G3/4 de acero inoxidable 316L, lenguaje de operación en español, calibración a 5 puntos, con disco de centrado de acero inoxidable(316L)[OA]. Ref. Endress+ Hauser. FMP51		U	2

18	LT615	Nivel en Tanque Almacén 1 (F-043)	Medidor de Nivel tipo Radar de Onda Guiada. Aprobado para zona no clasificada, Alimentación de lazo a 2 hilos, salida 4-20 mA HART, Pantalla SD02 de 4 líneas, con botonera para configuración en campo + función de respaldo de datos, Carcasa GT19 de plástico PBT, de doble compartimento, Conexión eléctrica Gland M20, Grado de protección IP66/68, longitud de la sonda 1200 mm, varilla de 8 mm de acero inoxidable (316L), sello de Vitón con rango de temperatura de 30...150 °C, Conexión a proceso rosca ISO228 G3/4 de acero inoxidable 316L, lenguaje de operación en español, calibración a 5 puntos, con disco de centrado de acero inoxidable(316L)[OA]. Ref. Endress+ Hauser. FMP51		U	1
19	LT616	Nivel en Tanque Almacén 2 (F-044)	Medidor de Nivel tipo Radar de Onda Guiada. Aprobado para zona no clasificada, Alimentación de lazo a 2 hilos, salida 4-20 mA HART, Pantalla SD02 de 4 líneas, con botonera para configuración en campo + función de respaldo de datos, Carcasa GT19 de plástico PBT, de doble compartimento, Conexión eléctrica Gland M20, Grado de protección IP66/68, longitud de la sonda 7600 mm, varilla dividida de 8 mm de acero inoxidable (316L), sello de Vitón con rango de temperatura de 30...150 °C, Conexión a proceso rosca ISO228 G3/4 de acero inoxidable 316L, lenguaje de operación en español, calibración a 5 puntos, con disco de centrado de acero inoxidable(316L)[OA]. Ref. Endress+ Hauser. FMP51		U	1
20	FE/FT6 04A, FE/FT6 04B	Flujos de Ácido Nítrico a Reactores de Mezcla 1 y 2 (D-24A), (D24B)	Flujómetro Electromagnético Promag P 500, DN50 , electrodo de platino y liner de PTFE, rango 0 a 15 m ³ /h. Con elementos de fijación del transmisor en campo y cables de corriente a la bobina y de señal (conexión sensor-transmisor) de 20 m. Fluido Ácido Nítrico (50%)		U	2
21	FE/FT6 18	Flujo a Sistema de llenado de Pailas	Flujómetro Electromagnético Promag P 500, DN50 , electrodo de platino y liner de PTFE, rango 0 a 20 m ³ /h. Con elementos de fijación del transmisor en campo y cables de corriente a la bobina y de señal (conexión sensor-transmisor) de 20 m. Fluido Ácido Nítrico (50%)		U	1
22	FE/FT6 19	Flujo a Sistema de llenado de Bidones	Flujómetro Electromagnético Promag P 500, DN50 , electrodo de platino y liner de PTFE, rango 0 a 3 m ³ /h. Con elementos de fijación del transmisor en campo y cables de corriente a la bobina y de señal (conexión sensor-transmisor) de 20 m. Fluido Ácido Nítrico (50%)		U	1
23	TE605A , TE605B	Temperaturas de Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A), (D24B)	Termoresistencia Pt100 para montar en Termopozo con unidad extraíble amortiguada y racor de fijación al termopozo ½"NPT Macho, longitud del elemento 1480 mm, cuello con rosca deslizante, 2 x Pt100, conexión a 3 hilos, Cabezal de tapa abatible por palanca con entrada para cables ½"NPT, IP65 + Termopozo con Racor de fijación, conexión al proceso 1"NPT Hembra para Termoresistencia Pt100, Ø 6,6 mm. Longitud de Inmersión 1400 mm, cabezal 80 mm. Material del termopozo 316L SS. (Rango:0-150°C, Pn 6 bar).		U	2

24	TT605A, TT605B	Temperatura de Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A), (D24B)	Convertidor de temperatura para montaje sobre rail DIN Rango configurable Entrada para 2 Pt100, a 3 hilos, Señal de salida 4 a 20 mA, a 2 hilos Alimentación 220 V, 60 Hz Sin separación galvánica Ref. Siemens 7NG3032-1JN00		U	2
25	TT605A, TT605B	Temperatura de Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A), (D24B)	Modem para configurar convertidores de temperatura, con puerto USB Ref. SIEMENS 7NG3032-8KU con CD con software de configuración SIPROM T Ref. SIEMENS A5E00364512		U	1
26	PHE607 A, PHE607 B	PH de la Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A), (D24B)	PortaElectrodos de inmersión con conexión por bridas y bloqueo de bayoneta. Material Acero inoxidable 1.4404 (AISI 316L), longitud de inmersión 1500 mm, conexión a proceso: Brida DN80 PN16, Material de sellado: Vitón. Ref. Endress+Hauser: Dip Fit P CPA 140-303B210 accesorio de limpieza Chemoclean CPR31		U	2
27	PHE607 A, PHE607 B	PH de la Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A), (D24B)	electrodo combinado para la medición de PH con apertura destapada para medios con carga de suciedad y sensor de temperatura integrado. Rango 0-14 PH, 110 °C, 6bar, longitud de inmersión 120 mm. Ref. Endress+Hauser Orbipore CPS91D-7BT21.		U	2
28	PHE/PH IT607A, PHE/PH IT607B	PH de la Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A), (D24B)	Cable de transmisión de datos entre electrodo y transmisor de PH, longitud 10 m, con terminales para cable y Plug de conexión, tecnología Memosens.Ref. Endress+Hauser CYK10-A101		U	2
29	PHIT60 7A, PHIT60 7B	PH de la Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A), (D24B)	Transmisor multiparámetros basado en tecnología digital Memosens. Display externo (5 m cable de enlace), Idioma Español/Inglés. Alimentación 230 VAC, 60 Hz, Canal Memosens para electrodo de medición de PH (CPS91D), 2 Salidas Analógicas 4-20 mA (PH y T), 2 salidas digitales a Relé, Comunicación RS485 (Modbus RTU) y Ethernet (Modbus TCP), entradas para cable M20 x 1,5 mm, Grado de protección IP66/67, para montaje en rail DIN. Ref. Endress+Hauser Liquiline CM442 H + Módulo AOR (2AO+2RO) [71111053] +Módulo 485 [71135634]		U	2
30	AE/AIT6 08A, AE/AIT6 08B	Concentración de la Mezcla dentro de Reactores de Mezcla 1 y 2 (D-24A), (D24B)	Conjunto (Portasonda + sensor + transmisor) para medición Industrial de Concentración del ión Calcio (Ca+2) en una solución, rango 0 - 25 % (valor nominal 18 %) T 150 °C, P 4 bar, medio a medir solución de Nitrato de Calcio (inicialmente Ácido Nítrico o proponer unidad extraíble), salida 4-20 mA, IP65		U	2

31	WE/WIT 610C	Peso de Hidrato de Calcio a consumir	Báscula de Plataforma compacta con capacidad 500 kg. Material del Bastidor Acero Inoxidable AISI 304, Material del Platillo Acero Inoxidable 316, Celda de carga de acero inoxidable, sellada herméticamente, Resolución certificable OIML Clase III, 2 x 3000e, IP67/68 + Terminal con Pantalla LCD con retroiluminación, teclado de material resistente a arañazos, carcasa de acero inoxidable 1.4301. Grado de protección IP69k, Alimentación 100-240 VAC, batería 12 V/2,5A con interfaces de comunicación RS232, Ethernet, dispositivo USB. Ref. Mettler Toledo: PBA430 CC + terminal ICS429. Otra Ref. TRUPER BAS-500PLA		U	1
32	WE610 A, WE610 B	Peso de Hidrato de Calcio en Tolva de Pesaje 1 (W-22A) y Peso de Hidrato de Calcio en Tolva de Pesaje 2 (W-22B)	Conjunto de pesaje clase 3 para pesaje de Hidrato de Calcio en tolva, compuesto por: Celda de carga a compresión Modelo EHP BR. Capacidad 2 ton, sobrecarga hasta 150%, Tensión de alimentación 10 V (AC; DC) Tensión máxima 30 V AC; DC, sensibilidad nominal 2+- 0,1 mV/V, material acero inoxidable, grado de protección IP68.		U	6
33	WEx3/ WIT610 A, WEx3/ WIT610 B	Peso de Hidrato de Calcio en Tolva de Pesaje 1 (W-22A) y Peso de Hidrato de Calcio en Tolva de Pesaje 2 (W-22B)	Caja sumadora (recolectora), con entrada para 4 celdas de carga, con protección IP 68. Con ajuste de variación de margen de sensibilidad 1 mV/V		U	2
34	WEx3/ WIT610 A, WEx3/ WIT610 B	Peso de Hidrato de Calcio en Tolva de Pesaje 1 (W-22A) y Peso de Hidrato de Calcio en Tolva de Pesaje 2 (W-22B)	Cable para módulo de pesaje a caja de conexiones, similar al cable: Ref. SF3 - PY320 03 (100 m).		U	2
35	WIT610 A, WIT610 B	Peso de Hidrato de Calcio en Tolva de Pesaje 1 (W-22A) y Peso de Hidrato de Calcio en Tolva de Pesaje 2 (W-22B)	Módulo universal de pesaje serie DI50E opciones de display sin led, alimentacion 85-265VAC/95-370VDC entrada Presion/Celda de carga resolucion 16 bit 60Hz, modulo de salida analogica salida en corriente 4-20mA, 1 modulo de salida a rele 10A . TEXMATE. DI-50E-DR-PS1-ISS2-AIC-S6-OR11-OA2		U	2

36	WIT610 A, WIT610 B	Peso de Hidrato de Calcio en Tolva de Pesaje 1 (W-22A) y Peso de Hidrato de Calcio en Tolva de Pesaje 2 (W-22B)	Cable para el módulo universal de pesaje DI50E. TEXMATE. OM-CABLE485		U	1
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Lote 3 - Valvulas

REQUISITOS DE LA ONUDI						
Item	TAG-Nº	SERVICIO	NOMBRE Y PARÁMETROS	TAMANO	UNIDAD	CANTIDAD
37	TCV605A, TCV605B	Válvulas de Control de Agua de Enfriamiento a Reactores de Mezcla 1 y 2 (D-24A, D-24B)	Válvula reguladora de mariposa, NA Dn 80 mm Pn 16. Característica igual porcentaje. Cuerpo de fundición GGG-50. Mariposa Inox 1.4408. Eje Inox. AISI 316L. Cierre Metal-Metal, doble excentrica índice de fuga IV (4) Tempertura a 40 °C. Ref. SAMSON Serie TT Actuador neumático rotativo simple efecto. Muelles abren. Ref. SAMSON serie AT Tipo AT-501 S12. Acoplamiento de la válvula al actuador. Con posicionador electroneumático montado en la válvula. Entrada 4-20 mA. Salida la necesaria para accionar la válvula reguladora. Alimentación de aire 6 bar. Ref. SMC IP8100-030-H-PN1, montado. Regular agua de enfriamiento.			NO NECESITA OFERTAS, LOS NÚMEROS DE POSICIÓN SON PARA IDENTIFICACIÓN EN EL ADJUNTO DIAGRAMA DE P&ID
38	LY602/ ZSH602/ ZSL 602, FY604A/ ZSH604A/ ZSL 604A, FY604B/ ZSH604B/ ZSL 604B	Válvula de llenado del Tanque para Ácido Nítrico (F-038), Válvulas de Corte de Flujo de Ácido Nítrico a Reactores de Mezcla 1 y 2 (D-24A, D-24B)	Válvula de simple asiento Tipo 3321 DN 50; NA. Pn 16 Medio: Ácido Nítrico (50 %) Accionamiento de dos posiciones (ON- OFF) con solenoide de 5 vías monoestables Dn 1/4" Alimentación 220 60 HzNA. Cuerpo de fundición gris EN-JL1040 / A 126 B; PN 16; Bridas con resalte, Tipo B según DIN EN 1092-2; Obturador de acero inoxidable 1.4408; obturador con cierre metálico. Muelles abre Asiento de acero inoxidable 14408 característica igual porcentaje. Accionamiento neumático tipo 3371 Válvula cerrada cuando se energiza Finales de Carrera TCR, con dos finales de carrera 1NA, 1NC.			NO NECESITA OFERTAS, LOS NÚMEROS DE POSICIÓN SON PARA IDENTIFICACIÓN EN EL ADJUNTO DIAGRAMA DE P&ID
39	LY611A/ ZSH611A/ ZSL 611A, LY612A/ ZSH612A/ ZSL 612A, LY611B/ ZSH611B/ ZSL 611B, LY612B/ ZSH612B/ ZSL 612B	Válvulas de Entrada y Salida de Tanques Intermedios de Reflujo 1 y 2 (F-40A, F-40B)	Válvula de mariposa, NA Dn 80 mm Pn 16.. Accionamiento de dos posiciones (ON- OFF) Cuerpo de fundición GGG-50. Mariposa Inox 1.4408. Eje Inox. AISI 316L. Cierre Metal-Metal, doble excentrica índice de fuga IV (4) Temperatura a 75 °C. Conexión brida ISO F07/11 Ref. SAMSON Serie TT Actuador neumático rotativo simple efecto. Ref. SAMSON serie AT Tipo AT-501 S12. Acoplamiento de la válvula al actuador. Con Electroválvula 5/2 vías. Tensión 220 VAC / 60 Hz. Cuerpo de aluminio Montaje NAMUR HERION 2623079.3051. Válvula cerrada cuando se energiza Finales de Carrera TCR, con dos finales de carrera 1NA, 1NC. Ref. 83.161.301			NO NECESITA OFERTAS, LOS NÚMEROS DE POSICIÓN SON PARA IDENTIFICACIÓN EN EL ADJUNTO DIAGRAMA DE P&ID

40	VY610A, VY610B	Martillo de Limpieza de Báscula	Pistón Golpeador (Martillo) Pneumático para Tolvas de áridos accionado eléctricamente, Bobina 220 VAC, 60 Hz		U	2
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Lote 4 – Elementos Panel

REQUISITOS DE LA ONUDI						
Item	TAG-Nº	SERVICIO	NOMBRE Y PARÁMETROS	TAMANO	UNIDAD	CANTIDAD
41	PL2		Armario mural de dimensiones 500 x 400 x 200 mm + Placa de montaje metálica de 450 x 350 mm. Ref. Schneider NSYCRN54200 + NSYMM54		u	1
42	PL1		Armario metálico mural con puerta ciega y placa de montaje metálica, dimensiones 1000 x 800 x 400, Grado de Protección: IP66, placas pasacables con troquelados FL, incluir conjunto de 4 patas de acero inoxidable para fijación Mural . Ref. Schneider NSYCRNG108400 + NSYMM108 + NSYTFLEFL + NSYAEFPFXSC		u	1
43	PM1		Armario metálico mural con puerta doble y placa de montaje metálica, dimensiones 1200 x 1000 x 400, Grado de Protección: IP55, placas pasacables con troquelados FL, incluir conjunto de 4 patas de acero inoxidable para fijación Mural . Ref. Schneider NSYCRNG1210400D + NSYMM1210 + NSYTFLEFL + NSYAEFPFXSC		u	1
44	X1, X2...X7		Borne de conexión con tapa para conductor hasta 2,5 mm ² Tensión máxima 500 V 60 Hz Ref. AB1VV235U, SCHNEIDER		u	700
45	XT		Borne de Tierra con tapa para conductor hasta 2,5 mm ² Tensión máxima 500 V 60 Hz. Color Verde-Amarillo.		u	20
46			Tope de regleta de conexiones para cable de 2,5 mm ²		u	24
47			Identificador para bornes de regletas (Un juego contiene 100 números 0, 100 números 1 100 números 9)		u	2
48			Terminal puntera para conductor de sección hasta 2,5 mm ² (paquete de 100 U)		u	3
49			Terminal de ojo para conductor de sección hasta 2,5 mm ² (paquete de 100 U)		u	1
50			Identificador de cables para conductores de hasta 2,5 mm ² . juegos del 1 al 9 (1 Juego= 100 números 0, 100 números 1.... 100 números 9.)		u	2
51			Cinta helicoidal negra, plástica		m	8
52			Tornillo autoperforante DN 4.8 mm, largo 16 mm punta broca. Modelo 4,8/16.		u	16
53			Cable de cobre flexible para montaje en panel 1 x 0,5 mm ² (En rollos de 250 m)		u	1,50
54			Cable de cobre flexible para montaje en panel 1 x 2,5 mm ² (En rollos de 250 m)		u	0,50

55			Barra de tierra para conexiones de hasta 2,5 mm ² ,		m	2
56			Interruptor automático 2 polos 10A. 230/400 V 60 Hz, 10 kA. Según IEC 60947-2. Curva C. Con contacto auxiliar indicador de estado. montaje en raíl DIN		u	1
57			Interruptor automático 2 polos 6A. 230/400 V 60 Hz, 10 kA. Según IEC 60947-2. Curva C. Con contacto auxiliar indicador de estado. montaje en raíl DIN		u	1
58			Interruptor automático 2 polos 2A. 230/400 V 60 Hz, 10 kA. Según IEC 60947-2. Curva C. Con contacto auxiliar indicador de estado. montaje en raíl DIN		u	1
59			Interruptor automático 2 polos 1A. 230/400 V 60 Hz, 10 kA. Según IEC 60947-2. Curva C. Con contacto auxiliar indicador de estado. montaje en raíl DIN		u	3
60			Portafusible tipo bomera para montaje en raíl DIN para fusible de L = 20 mm. Diámetro = 5 mm.		u	20
61			Fusible de cristal 5 x 20 mm capacidad 0,1 A		u	15
62			Fusible de cristal 5 x 20 mm capacidad 0,5 A		u	20
63			Fusible de cristal 5 x 20 mm capacidad 1 A		u	4
64			Fusible de cristal 5 x 20 mm capacidad 2 A		u	6
65			Canal perforada plástica, con tapa 40x60x2000 mm		u	3
66			Canal perforada plástica, con tapa 40x40x2000 mm		u	7
67			Carril DIN normalizado L=2000 mm Ref. Schneider AM1ED200, Otra Ref. UNEX- F224		u	6
68	TC		Tomacorriente doble para espiga plana y circular con pata a tierra, montaje en raíl DIN, 16A		u	1
69	HL		Lámpara de señalización tipo LED de color rojo, montaje en panel en carril DIN. D 22 mm, 220 V 60 Hz 2 W Ref. Schneider L20SA10 + LWA0238		u	1
70	XBP		Bastidor de 12 slots para PLC M340. Ref Schneider XBP 1200		u	1
71	CPS		Módulo Fuente de Alimentación de M340, Alimentación de entrada 220 VAC. Ref Schneider BMX CPS 2000		u	1
72	M0		Procesador central de M340, con puerto Ethernet integrado, con conector RJ-45 para comunicación MODBUS (RS232/RS485), conector USB hembra tipo B para conectar PC de Programación, con tarjeta de ampliación de Memoria de 8 MB de Programa y 16 MB de ficheros (Ref. BMX RMS 008 MPF). Ref. Schneider BMX P342020		u	1
73	M1		Módulo Ethernet 10/100 Base T Factory Cast de M340, con puerto para cable de pares trenzados blindado de 10/100 Base T (conector RJ-45) con Detección Automática. Ref. Schneider BMX NOE 0100		u	1
74	M2, M3, M4		Módulo Analógico de Entrada de Alta densidad con 8 canales aislados (4-20 mA) de M340. Con sus terminales de conexión de campo de 28 puntos. Ref. Schneider BMX AMI 0810		u	3
75	M2, M3, M4		Bloque Terminal y Cable sin conector para módulo analógico. 28 puntos. Ref. Schneider BMX FTB 2820		u	3
76	M5		Módulo Analógico de Salidas de Alta densidad con 4 canales aislados (4-20 mA), de M340. Con sus terminales de conexión de campo de 20 puntos. Ref. Schneider BMX AMO 0410		u	1

77	M5		Bloque Terminal y Cable sin conector para módulo analógico. 20 puntos. Ref. Schneider BMX FTB 2000		u	1
78	M6, M7		Módulo Digital de entrada de 32 canales de 24 VDC con lógica positiva, de M340. Con sus terminales de conexión de campo de 40 puntos. Ref. Schneider BMX DDI3202K		u	2
79	M8, M9		Módulo Digital de Salida de 32 canales de 24 VDC con lógica positiva, de M340. Con sus terminales de conexión de campo de 40 puntos. Ref. Schneider BMX DDO 3202K		u	2
80	M6...M9		Bloque Terminal y Cable sin conector para módulo digital. 40 puntos. Ref. Schneider BMX FCW 303		u	4
81			Tarjeta de expansión de Memoria 16 MB para Procesador de M340. Ref. Schneider BMX RMS 008MPF		u	1
82			Cable de Programación del M340 USB industrial de 4,5 mts. Ref. Schneider BMX XCA USBH045		u	2
83	GB1		Fuente de Alimentación Conmutada, monofásica, montaje carril DIN. > Tensión nominal de entrada: 115/230 VCA., seleccionable > Salida: 24 Vcc. / 10A. > Frecuencia: 47-63 Hz. Potencia constante entre -10 y +60 °C . Ref. Schneider ABL8RPS24100		u	1
84	GB2		Fuente de Alimentación Conmutada, monofásica, montaje carril DIN. > Tensión nominal de entrada: 115/230 VCA., seleccionable > Salida: 24 Vcc. / 5A. > Frecuencia: 47-63 Hz. Potencia constante entre -10 y +60 °C . Ref. Schneider ABL8RPS24050		u	1
85	KAI1...64, KA01...64		Relé auxiliar con base, bobina a 24 VDC, contactos 4 NA 4 NC, 6 A Ref. C9 A41 24VCC + Base S 9B		u	130
86	BPE1, BPE2, BPE3		Pulsador para parada de emergencia tipo hongo rojo con enclavamiento giratorio. Ref. Schneider XB4BS8442		u	3
87	WI610A-1, WI610B-1		Piloto de señalización con LED, 220 VAC, 60 Hz, color rojo. ∅ 22 mm. Ref. Schneider XB4BVM4		u	2
88	WI610A-2, WI610B-2		Piloto de señalización con LED, 220 VAC, 60 Hz, color amarillo. ∅ 22 mm. Ref. Schneider XB4BVM5		u	2
89	WI610A-3, WI610B-3		Piloto de señalización con LED, 220 VAC, 60 Hz, color verde. ∅ 22 mm. Ref. Schneider XB4BVM3		u	2
90			Elemento de señalización sonora ajustable 70 a 90 dB a 1m, con acción continua o intermitente, de alimentación 24 VDC. Ref. Schneider XVBC9B		u	2
91	OP		Terminal táctil 12.1" color. Marca Magelis serie XBTG. Con comunicación Ethernet Modbus TCP/IP. Ref. Schneider XBT-GT 6340 . Con cable para su programación con conector USB para la PC. Tarjeta compacta flash 1 Gb con sus grapas de fijación		u	1
92	PC		ACP-4000MBS120507-2 Sistema de Computador industrial configurado como sigue: (1) ACP-4000 Motherboard Chassis with 400W ATX PFC PS (1) AIMB-781QG2-00A1E-LGA1155 ATX IMB with VGA, DVI, PCIe, 2 GbE, 2 SATAIII, RoHS (1) CPU: Intel Core 3.3G 3M 1155P 2CORE I3-2120 (1) 1960047669N001 Cooling Fan		u	1

		(2) Memory: 2G DDR3-1333 240PIN 128X8 (Total 4G)			
		(1) Hard Drive: 500G 3.5" SATA 7KRPM 16M			
		(1) 24X SATA DVD+/-RW			
		(1) EVGA Nvidia GT520 1G PCIE Dual DVI			
		(1) Disk drive-floppy disk (1.44 MB) - USB-external, Black			
		(1) Logitech Optical Mouse USB/PS2, Black			
		(1) PCA-6302-Compact Keyboard 104 keys (English)			
		(1) VA926G-Viewsonic Display 19" LCD, 1280X1024, 5MS Response			
		Time, Energy Star 5.0, DVI and VGA Inputs, Windows 7 Certified			
		(1) Microsoft Windows 10			
		(1) Option AGS-CTOS-SYS-B Assembly and Test			
93	UPS	Fuente de respaldo UPS con estabilizador integrado 120V APC Power-Saving Back-UPS Pro 700		u	1
94	SW	Switch Industrial no gestionable. Especificaciones: Modelo: EKI-7626C LAN: 10/100BASE-TX, 10/100/1000BASE-T, 100BASE-FX, 1000BASE-SX/LX/LHX/XD Distancia de Transmisión: Ethernet: hasta 100m Fibra Multi-Modo: hasta 2Km, 50/125µM~62.5/125µM Conectores: 16 X 10/100BASETX RJ-45 Ports Y 2 X 10/100/1000BASE-T/SFP(MINI-GBIC) COMBO Alimentación: +12-48 VDC Consumo de Energía: 9,76WATTS Dimensiones: 79 X 152 X 105 mm Ref: EKI-7626C-AE +2 UNIDADES SFP-FXMLC-AE		u	1

Lote 5 – Elementos Montaje

REQUISITOS DE LA ONUDI						
Item	TAG -N°	SERVICIO	NOMBRE Y PARÁMETROS	TAMANO	UNIDAD	CANTIDAD
95			Abrazadera Tipo "U" con ;Mordaza 2" Tropicalizada, con sus 4 Tuercas y Arandelas Incluidas.*	∅ 2"	u	40
96			Abrazadera Tipo "U" con ;Mordaza 1 ½" Tropicalizada, con sus 4 Tuercas y Arandelas Incluidas.*	∅ 1 ½"	u	30
97			Abrazadera Tipo "U" con ;Mordaza 1" Tropicalizada, con sus 4 Tuercas y Arandelas Incluidas.*	∅ 1"	u	50
98			Abrazadera Tipo "U" con ;Mordaza ½" Tropicalizada, con sus 4 Tuercas y Arandelas Incluidas.*	∅ ½"	u	20
99			Bloque Filtro manómetro reductor de aire.Presión de entrada 10 bar. Ref.AW30-F03, F REG 5 MIC 3/8"		u	2
100			Cable flexible apantallado para circuitos de control e instrumentación; 500V. Mts. 2x1 mm ² (en rollos de 250 m.)		Rollo	10
101			Cable flexible apantallado para circuitos de control e instrumentación; 500V. Mts. 3x1 mm ² (en rollos de 250 m.)		Rollo	2
102			Cable flexible apantallado para circuitos de control e instrumentación; 500V. Mts. 4x1 mm ² (en rollos de 250 m.)		Rollo	1
103			Cable flexible apantallado para circuitos de control e instrumentación; 500V. Mts. 16x1 mm ² (en rollos de 200 m.)		Rollo	1
104			Cable UTP Categoría 5E (Rollo circa 1000 FT/305 MTS) INT362320		Rollo	0,3
105			Mts. cable CERVILENE POS-CY de 3x2x0,22 mm ² GR, similar al Belden 8103 (en rollos de 305 m.)		Rollo	1
106			Codo de aluminio con extremos roscados, p/. la conexión de tubos RR, con tapa registrable. DN-2"	∅ 2"	u	22
107			Codo de aluminio con extremos roscados, p/. la conexión de tubos RR, con tapa registrable. DN-1½"	∅ 1 ½"	u	10
108			Codo de aluminio con extremos roscados, p/. la conexión de tubos RR, con tapa registrable. DN 1"	∅ 1 "	u	15
109			Codo de aluminio con extremos roscados, p/. la conexión de tubos RR, con tapa registrable. DN ½"	∅ ½"	u	7
110			Conexión para tubería de cobre ¼" a 6 mm	∅ ¼" a ∅ 6 mm		22
111			Conexión para tubería de cobre ¼" a 8 mm	∅ ¼" a ∅ 8 mm		8
112			Derivación en "T" con los extremos roscados, p/. La conexión de tubos RR, con tapa registrable. DN-2" con tapa registrable.	∅ 2"	u	7
113			Derivación en "T" con los extremos roscados, p/. La conexión de tubos RR, con tapa registrable. DN-1½" con tapa registrable.	∅ 1 ½"	u	5
114			Derivación en "T" con los extremos roscados, p/. La conexión de tubos RR, con tapa registrable. DN 1" con tapa registrable.	∅ 1 "	u	5

115		Derivación en "T" con los extremos roscados, p/. La conexión de tubos RR, con tapa registrable. DN ½" con tapa registrable.	∅ ½"	u	10
116		Identificador de cables para conductores de hasta 2,5 mm ² . juegos del 1 al 9 (1 Juego= 100 números 0, 100 números 1.... 100 números 9.)	∅ 2,5 mm	jgo	2
117		Perfil Tipo "L" Servicio Pesado, Acero Galvanizado, para fijar Tuberías Eléctricas, de 40 x40 x 6 mm (m)*		m	35
118		Perfil Tipo "L" Servicio Pesado, Acero Galvanizado, para fijar Tuberías Eléctricas, de 25 x25 x 4 mm (m)*		m	50
119		Tubería de cobre D 6 x 1 mm *	∅ 6 x 1 mm	m	11
120		Tubería de cobre D 8 x 1 mm *	∅ 8 x 1 mm	m	7
121		Tubería metálica flexible con forro de PVC Dn ½"	∅ ½"	m	50
122		Tubería RMC para cables, Acero galvanizado, Roscado NPS 2" con su Correspondiente Unión Roscada (m)	∅ 2"	m	70
123		Tubería RMC para cables, Acero galvanizado, Roscado NPS 1½" con su Correspondiente Unión Roscada (m)	∅ 1 ½"	m	70
124		Tubería RMC para cables, Acero galvanizado, Roscado NPS 1" con su Correspondiente Unión Roscada (m)	∅ 1"	m	70
125		Tubería RMC para cables, Acero galvanizado, Roscado NPS ½" con su Correspondiente Unión Roscada (m)	∅ ½"	m	60
126		Tuerca eléctrica 2"	∅ 2"	u	6
127		Tuerca eléctrica 1 ½"	∅ 1 ½"	u	6
128		Tuerca eléctrica 1"	∅ 1"	u	6
129		Tuerca eléctrica ½"	∅ ½"	u	36
130		Unión de acero galvanizado conexión Hembra 2" a Hembra 2"	H∅ 2"-H∅ 2"	u	10
131		Unión de acero galvanizado conexión Macho 2" a Hembra 1½"	M∅ 2"-H∅ 1½"	u	5
132		Unión de acero galvanizado conexión Macho 2" a Hembra 1"	M∅ 2"-H∅ 1"	u	3
133		Unión de acero galvanizado conexión Hembra 1½" a Hembra 1½"	H∅ 1½"-H∅ 1½"	u	10
134		Unión de acero galvanizado conexión Macho 1½" a Hembra 1"	M∅ 1½"-H∅ 1"	u	6
135		Unión de acero galvanizado conexión Macho 1½" a Hembra ½"	M∅ 1½"-H∅ ½"	u	10
136		Unión de acero galvanizado conexión Hembra 1" a Hembra 1"	H∅ 1"-H∅ 1"	u	10
137		Unión de acero galvanizado conexión Macho 1" a Hembra ½"	M∅ 1"-H∅ ½"	u	25
138		Unión de acero galvanizado conexión Hembra ½" a Hembra ½"	H∅ ½"-H∅ ½"	u	25
139		Unión de acero galvanizado conexión Macho ½" a Macho ½"	M∅ ½"-M∅ ½"	u	25

140			Unión de acero galvanizado conexión Macho 1/2" a Hembra 1/2"	M \varnothing 1/2"-H \varnothing 1/2"	u	25
141			Unión Universal de 2"	\varnothing 2"	u	6
142			Unión Universal de 1 1/2"	\varnothing 1 1/2"	u	6
143			Unión Universal de 1"	\varnothing 1 "	u	6

ANNEX C – Technische Spezifikationen mit zusätzlichen Details und Erklärungen in Deutsch

Für Eintragung der Preise bitte die Englische TOR – Basisliste zu verwenden

Lot 1 - Lokale Instrumentierung

UNIDO SPEZIFIKATIONEN						
POS	TAG no	VERWENDUNG	BEZEICHNUNG UND PARAMETER	DIMENSION	EINHEIT	MENGE
1	PI601	Druck am Auslass der Pumpe (G-52C) zum Befüllen des Tanks für Salpetersäure (F-038)	Anzeige, Bereich 0-25,0 kgf / cm ² . Zifferblatt Ø 160 mm, Radialeinlass mit Flanschanschluss Membrantrenner, Prozessanschluss ½ "NPT, 316L SS-Membranmaterial mit PTFE-Beschichtung, Medium zur Messung von Salpetersäure (50%).		Stück	1
2	PI603	Druckauslass der Salpetersäurepumpe (G-52D) zu Mischreaktoren (D24A-B)	Anzeige, Bereich 0-25,0 kgf / cm ² . Zifferblatt Ø 160 mm, Radialeinlass mit Flanschanschluss Membrantrenner, Prozessanschluss ½ "NPT, 316L SS-Membranmaterial mit PTFE-Beschichtung, Medium zur Messung von Salpetersäure (50%).		Stück	1
3	PI613A, PI613B	Ausgangsdruck von Umwälzpumpen und Befüllen von Siedlern (F41A-D)	Anzeige, Bereich 0-25,0 kgf / cm ² . Zifferblatt Ø 160 mm, Radialeinlass mit Flanschanschluss Membrantrenner, Prozessanschluss ½ "NPT, 316L SS-Membranmaterial mit PTFE-Beschichtung, Medium zur Messung von Salpetersäure (50%).		Stück	2
4	PI614	Druck am Pumpenausgang (G65-002) zur Speisung der Filterpresse (F-001)	Anzeige, Bereich 0-30,0 kgf / cm ² . Zifferblatt Ø 160 mm, Radialeinlass mit Flanschanschluss Membrantrenner, Prozessanschluss ½ "NPT, 316L SS-Membranmaterial mit PTFE-Beschichtung, Medium zur Messung von Calciumnitrat (ac).		Stück	1
5	PI617	Druck am Auslass der Pumpe (G65-003) zum Befüllen der Lagertanks und Tanks (F-044, F-45A-C)	Anzeige, Bereich 0-25,0 kgf / cm ² . Zifferblatt Ø 160 mm, Radialeinlass mit Flanschanschluss Membrantrenner, Prozessanschluss ½ "NPT, 316L SS-Membranmaterial mit PTFE-Beschichtung, Medium zur Messung von Calciumnitrat (ac)		Stück	1

6	TI605A, TI605B	Mischtemperatur in den Mischreaktoren 1 und 2 (D-24A, D24B)	Bimetallthermometer mit unterer Verschraubung (Basis), Zifferblatt Ø 160 mm, Bereich 0-150 °C, Standardverschraubung, Prozessanschluss ½ "NPT-Stecker, Ø Sonde 6 mm, Elementlänge 1450 mm + Schutzrohr mit Befestigungsbeschlag, Prozessanschluss 1 "NPT-Stecker und Anschluss ½" NPT-Buchse für Thermometer, Innen-Ø 6,6 mm, Eintauchlänge 1400 mm und Kopflänge 50 mm, Material 316 SS. Pn.6 bar		Stück	2
7	LI602	Tankfüllstand für Salpetersäure (F-038)	Transparentglas-Füllstandsanzeige, Mittel zu messen: Salpetersäure (50%) Material: 1.4404 Edelstahl (316 l), Borosilikat-Schauglas, Transparent nach DIN 7081 mit Glimmerzusatz. Maximaler Arbeitsdruck 20 bar, Maximale Temperatur 60 °C, Flanschprozessanschluss DIN DN30, PN20. Achsabstand 1800 mm (Tankhöhe 1950 mm) Belüftung und Abfluss durch G3 / 8-Ventil Ungefähre sichtbare Länge 1780 mm. Geeignete Absperrventile mit selbstschließender Kugel. Metallic Graduated Scale (in cm). Ref. WIKA. Standard Version. LGG-TE-Modell mit 5 Typ 9-Segmenten (Segmentlänge 340 mm) mit schnell schließenden Kippventilen Modell LGV-38 Ventilanzordnung: H (vorne)		Stück	1
8	LI606A, LI606B	Mischpegel in den Mischreaktoren 1 und 2 (D-24A, D24B)	Transparentglas-Füllstandsanzeige, Mittel zu messen: Salpetersäure (50%) Material: 1.4404 Edelstahl (316 l), Borosilikat-Schauglas, Transparent nach DIN 7081 mit Glimmerzusatz. Maximaler Arbeitsdruck 20 bar, Maximale Temperatur 150 °C, Flanschprozessanschluss DIN DN30, PN20. Abstand zwischen den Mitten 2100 mm (Tankhöhe 2850 mm) Belüftung und Abfluss durch G3 / 8-Ventil Ungefähre sichtbare Länge 2080 mm. Geeignete Absperrventile mit selbstschließender Kugel. Metallic Graduated Scale (in cm). Ref. WIKA. Standard Version. Modell LGG-TE mit 5 Segmenten vom Typ 11 (Segmentlänge 400 mm) mit Schnellverschlusshebelventilen Modell LGV-38 Ventilanzordnung: H (vorne)		Stück	2
9	LI611A, LI611B	Füllstand in den Zwischenrückflusstanks 1 und 2 (F-40A, F40B)	Reflexionsglasfüllstandsanzeige, Medium zu messen: Calciumnitrat (wässrig). Material Stahl A350 LF2, nitrocarburisiert, Borosilikat-Schauglas, Reflexion nach DIN 7081, Maximaler Arbeitsdruck 20 bar, Maximale Temperatur 150 °C, Prozessanschluss Flansch DIN / DN30, PN20, Abstand zwischen Mitten 1800 mm (Tankhöhe 2000 mm) , Belüftung und Abfluss durch 1/2 NPT-Ventil, ungefähre sichtbare Länge 1780 mm. Geeignete Absperrventile mit selbstschließender Kugel. Metallic Graduated Scale (in cm). Ref. WIKA. "Carbon-Line" -Version Modell LGG-RP mit 5 Typ 9-Segmenten (Segmentlänge 340 mm) mit Schnellspannhebelventilen Modell LGV-38 Ventilanzordnung: H (vorne)		Stück	2

10	LI615	Lagertank Stufe 1 (F-043)	Reflexionsglasfüllstandsanzeige, Medium zu messen: Calciumnitrat (wässrig). Material Stahl 1.0460 / 1.0570, Befestigung durch Falten von Seitenteilen, Borosilikat-Schauglas, Reflexion nach DIN 7081, Maximaler Arbeitsdruck 25 bar, Maximale Temperatur 150 °C, Prozessanschluss Flansch DIN / DN30, PN25, Abstand zwischen den Mitten 1000 mm (Höhe Tank 1200 mm), Belüftungs- und Ablassauslass pro Ventil, ungefähre sichtbare Länge 990 mm. Eingebaute geeignete selbstschließende Kugelabsperrentile, Montageteile aus Edelstahl. Metallic Graduated Scale (in cm). Ref. WIKA. Kompakte Ausführung mit Seitenteilen Modell LGG-E mit 3 Segmenten vom Typ 8 (Segmentlänge 320 mm) Ventilanzordnung: H (vorne)	Stück	1
11	LI616	Lagertank Stufe 2 (F-044)	Reflexionsglasfüllstandsanzeige, Medium zu messen: Calciumnitrat (wässrig). Material Stahl A350 LF2, nitrocarburisiert, Borosilikat-Schauglas, Reflexion nach DIN 7081, Maximaler Arbeitsdruck 20 bar, Maximale Temperatur 150 °C, Prozessanschlussflansch DIN / DN30, PN20, Abstand zwischen Mitten 1800 mm (Gesamttankhöhe 7600 mm Es werden 5 Abschnitte vorgeschlagen, die sich überlappen (150 bis 200 mm), Belüftung und Abfluss durch 1/2 NPT-Ventil, ungefähre sichtbare Länge 1780 mm. Geeignete Absperrventile mit selbstschließender Kugel. Metallic Graduated Scale (in cm) Ref. WIKA. "Carbon-Line" -Version Modell LGG-RP mit 5 Typ 9-Segmenten (Segmentlänge 340 mm) mit Schnellspannhebelventilen Modell LGV-38 Ventilanzordnung: H (vorne)	Stück	1
12	FI604A, FI604B	Salpetersäurefluss zu den Mischreaktoren 1 und 2 (D-24A, D24B)	Durchflussmesser für ovale Zahnräder (Totalisator), Flüssigkeit: Salpetersäure (50%), Dichte: 1.305 g / cm ³ , 20 bar, 30 °C, Bereich 0-15 m ³ / h, Abdeckung und Zahnräder aus rostfreiem Stahl 1.4404 (316 L) Carbonlager. Prozessanschluss: DIN-Flansche; DN50 (Gegenflansche bereitstellen). Liniensieb vorsehen (50 - 100 Mikron Maschenweite)	Stück	2
13	FI618	Durchfluss zum Pailas-Füllsystem	Flüssigkeitsdurchflussmesser für ovale Zahnräder (Totalisator), Flüssigkeit: Calciumnitratlösung (50%), Dichte: 1,5 g / cm ³ , 6°PH, 20 bar, 30°C, Bereich 0-20 m ³ / h, Abdeckung und Zahnräder Edelstahl 1.4404 (316 L), Kohlenstofflager. Prozessanschluss: DIN-Flansche; DN50 (Gegenflansche bereitstellen). Liniensieb vorsehen (50 - 100 Mikron Maschenweite)	Stück	1
14	FI619	Durchfluss zum Trommelfüllsystem	Flüssigkeitsdurchflussmesser für ovale Zahnräder (Totalisator), Flüssigkeit: Calciumnitratlösung (50%), Dichte: 1,5 g / cm ³ , 6°PH, 10 bar, 30°C, Bereich 0-3,0 m ³ / h, Abdeckung und Zahnräder Edelstahl 1.4404 (316 L), Kohlenstofflager. Prozessanschluss: DIN-Flansche; DN50 (Gegenflansche bereitstellen). Liniensieb vorsehen (50 - 100 Mikron Maschenweite)	Stück	1

Lot 2 - Transmitter

UNIDO SPEZIFIKATIONEN						
POS	TAG no	VERWENDUNG	BEZEICHNUNG UND PARAMETER	DIMENSION	EINHEIT	MENGE
15	LT602	Tankfüllstand für Salpetersäure (F-038)	geführte Wellenradar-Füllstandsanzeige. Zu messendes Medium: Salpetersäure (50%), Zugelassen für nicht klassifizierte Zonen, 2-Draht-Schleifenstromversorgung, 4-20-mA-HART-Ausgang, 4-zeiliges SD02-Display, Tastatur für Feldkonfiguration + Datensicherungsfunktion; GT18 Edelstahlgehäuse, Doppelfach, Verschraubung M20 elektrischer Anschluss, Schutzart IP66 / 68, Sondenlänge 2000 mm, mit PFA beschichteter Stab, Viton-Dichtung mit Temperaturbereich von 30 ... 150 °C, Anschluss Prozess ISO228 G3 / 4 Gewinde aus 316L Edelstahl, spanische Betriebssystemsprache, 5-Punkt-Kalibrierung, mit PFA [OE] beschichteter Zentrierscheibe. Ref. Endress + Hauser. FMP52		Stück	1
16	LT606A, LT606B	Mischpegel in den Mischreaktoren 1 und 2 (D-24A), (D24B)	Geführte Wellenradar-Füllstandsanzeige. Zu messendes Medium: Salpetersäure (50%), Zugelassen für nicht klassifizierte Zonen, 2-Draht-Schleifenstromversorgung, 4-20-mA-HART-Ausgang, 4-zeiliges SD02-Display, Tastatur für Feldkonfiguration + Datensicherungsfunktion; GT18 Edelstahlgehäuse, Doppelfach, Verschraubung M20 elektrischer Anschluss, Schutzart IP66 / 68, Sondenlänge 3000 mm, mit PFA beschichteter Stab, Viton-Dichtung mit Temperaturbereich von 30 ... 150 °C, Anschluss Prozess ISO228 G3 / 4 Gewinde aus 316L Edelstahl, spanische Betriebssystemsprache, 5-Punkt-Kalibrierung, mit Zentrierscheibe mit PFA [OE] beschichtet. Ref. Endress + Hauser. FMP52		Stück	2
17	LT611A, LT611B	Füllstände in den Zwischenrückflusstanks 1 und 2 (F-40A, F40B)	Geführte Wellenradar-Füllstandsanzeige. Zugelassen für nicht klassifizierte Zonen, 2-Draht-Schleifenstromversorgung, 4-20 mA HART-Ausgang, 4-zeiliges SD02-Display, Tastatur für Feldkonfiguration + Datensicherungsfunktion, GT19-Kunststoff-PBT-Gehäuse, Doppelfach, Anschluss elektrische Verschraubung M20, Schutzart IP66 / 68, Sondenlänge 2000 mm, 8 mm Edelstahlstange (316L), Viton-Dichtung mit Temperaturbereich von 30 ... 150 °C, Prozessanschlussgewinde ISO228 G3 / 4 Edelstahl 316L, spanische Betriebssystemsprache, 5-Punkt-Kalibrierung, mit Zentrierscheibe aus Edelstahl (316L) [OA]. Ref. Endress + Hauser. FMP51		Stück	2
18	LT615	Lagertank Stufe 1 (F-043)	Geführte Wellenradar-Füllstandsanzeige. Zugelassen für nicht klassifizierte Zonen, 2-Draht-Schleifenstromversorgung, 4-20 mA HART-Ausgang, 4-zeiliges SD02-Display, Tastatur für Feldkonfiguration + Datensicherungsfunktion, GT19-Kunststoff-PBT-Gehäuse, Doppelfach,		Stück	1

			Anschluss elektrische Stopfbuchse M20, Schutzart IP66 / 68, Sondenlänge 1200 mm, 8 mm Edelstahlstange (316L), Viton-Dichtung mit Temperaturbereich von 30 ... 150 °C, Prozessanschlussgewinde ISO228 G3 / 4 Edelstahl 316L, spanische Betriebsprache, 5-Punkt-Kalibrierung, mit Zentrierscheibe aus Edelstahl (316L) [OA]. Ref. Endress + Hauser. FMP51			
19	LT616	Lagertank Stufe 2 (F-044)	Geführte Wellenradar-Füllstandsanzeige. Zugelassen für nicht klassifizierte Zonen, 2-Draht-Schleifenstromversorgung, 4-20 mA HART-Ausgang, 4-zeiliges SD02-Display, Tastatur für Feldkonfiguration + Datensicherungsfunktion, GT19-Kunststoff-PBT-Gehäuse, Doppelfach, Anschluss elektrische Stopfbuchse M20, Schutzart IP66 / 68, Sondenlänge 7600 mm, 8 mm Edelstahl-Spaltstange (316L), Viton-Dichtung mit Temperaturbereich von 30 ... 150 °C, Prozessanschlussgewinde ISO228 G3 / 4 Edelstahl 316L, spanische Betriebsprache, 5-Punkt-Kalibrierung, mit Zentrierscheibe aus Edelstahl (316L) [OA]. Ref. Endress + Hauser. FMP51		Stück	1
20	FE/FT604A, FE/FT604B	Salpetersäure fließt zu den Mischreaktoren 1 und 2 (D-24A), (D24B)	Promag P 500, DN50 Elektromagnetischer Durchflussmesser, Platinelektrode und PTFE-Auskleidung, Bereich 0 bis 15 m ³ / h. Mit Befestigungselementen des Senders vor Ort und 20 m Stromkabeln zur Spule und zum Signal (Sensor-Sender-Anschluss). Salpetersäureflüssigkeit (50%)		Stück	2
21	FE/FT618	Durchfluss zum Pailas-Füllsystem	Promag P 500, DN50 Elektromagnetischer Durchflussmesser, Platinelektrode und PTFE-Auskleidung, Bereich 0 bis 20 m ³ / h. Mit Befestigungselementen des Senders vor Ort und 20 m Stromkabeln zur Spule und zum Signal (Sensor-Sender-Anschluss). Salpetersäureflüssigkeit (50%)		Stück	1
22	FE/FT619	Durchfluss zum Trommelfüllsystem	Promag P 500, DN50 Elektromagnetischer Durchflussmesser, Platinelektrode und PTFE-Auskleidung, Bereich 0 bis 3 m ³ / h. Mit Montageelementen des Senders vor Ort und 20 m Stromkabeln zur Spule und zum Signal (Sensor-Sender-Anschluss). Salpetersäureflüssigkeit (50%)		Stück	1
23	TE605A, TE605B	Mischtemperaturen in den Mischreaktoren 1 und 2 (D-24A), (D24B)	Pt100-Thermowiderstand für Schutzrohrmontage mit gedämpfter abnehmbarer Einheit und ½ "NPT-Schutzrohrverschraubung, Elementlänge 1480 mm, Hals mit Gleitgewinde, 2 x Pt100, 3-Draht-Anschluss, Hebel-Klappkopf mit Einlass für ½ "NPT-Kabel, IP65 + Schutzrohr mit Befestigungsbeschlag, Prozessanschluss 1" NPT-Buchse für Pt100-Widerstandsthermometer, Ø 6,6 mm. Eintauchlänge 1400 mm, Kopf 80 mm. Material des Schutzrohrs 316L SS. (Bereich: 0 -150°C, Pn 6 bar).		Stück	2

24	TT605A, TT605B	Mischtemperatur in den Mischreaktoren 1 und 2 (D-24A), (D24B)	Temperaturwandler zur Montage auf DIN-Schiene Konfigurierbarer Bereich Eingang für 2 Pt100, 3-Leiter, Ausgangssignal 4 bis 20 mA, 2-Leiter Stromversorgung 220 V, 60 Hz Ohne galvanische Trennung Ref. Siemens 7NG3032-1JN00		Stück	2
25	TT605A, TT605B	Mischtemperatur in den Mischreaktoren 1 und 2 (D-24A), (D24B)	Modem zur Konfiguration von Temperaturwandlern mit USB-Anschluss Ref. SIEMENS 7NG3032-8KU mit CD mit SIPROM T-Konfigurationssoftware Ref. SIEMENS A5E00364512		Stück	1
26	PHE607A, PHE607B	PH der Mischung in den Mischungsreaktoren 1 und 2 (D-24A), (D24B)	Tauchelektrodenhalter mit Flanschanschluss und Bajonettverschluss. Material 1.4404 Edelstahl (AISI 316L), Eintauchlänge 1500 mm, Prozessanschluss: Flansch DN80 PN16, Dichtungsmaterial: Viton. Ref. Endress + Hauser: Dip Fit P CPA 140-303B210 Reinigungszubehör Chemoclean CPR31		Stück	2
27	PHE607A, PHE607B	PH der Mischung in den Mischungsreaktoren 1 und 2 (D-24A), (D24B)	Kombinierte Elektrode zur pH-Messung mit unbedeckter Öffnung für schmutzbeladene Medien und integriertem Temperatursensor. Bereich 0-14 PH, 110 °C, 6 bar, Eintauchlänge 120 mm. Ref. Endress + Hauser Orbipore CPS91D-7BT21.		Stück	2
28	PHE/PHIT607A, PHE/PHIT607B	PH der Mischung in den Mischungsreaktoren 1 und 2 (D-24A), (D24B)	Datenübertragungskabel zwischen Elektrode und PH-Sender, Länge 10 m, mit Kabelschuhen und Anschlussstecker, Memosens-Technologie Art.-Nr. Endress + Hauser CYK10-A101		Stück	2
29	PHIT607A, PHIT607B	PH der Mischung in den Mischungsreaktoren 1 und 2 (D-24A), (D24B)	Multiparameter-Sender basierend auf digitaler Memosens-Technologie. Externes Display (5 m Verbindungskabel), spanisch / englische Sprache. Stromversorgung 230 VAC, 60 Hz, Memosens-Kanal für PH-Messelektrode (CPS91D), 2 analoge Ausgänge 4-20 mA (PH und T), 2 digitale Ausgänge zum Relais, RS485-Kommunikation (Modbus RTU) und Ethernet (Modbus TCP), Kabeleinführungen M20 x 1,5 mm, Schutzart IP66 / 67, für DIN-Schienenmontage. Ref. Endress + Hauser Liquiline CM442 H + Modul AOR (2AO + 2RO) [71111053] + Modul 485 [71135634]		Stück	2
30	AE/AIT608A, AE/AIT608B	Konzentration der Mischung in den Mischungsreaktoren 1 und 2 (D-24A), (D24B)	Set (Sondenhalter + Sensor + Messumformer) zur industriellen Messung der Calciumionenkonzentration (Ca + 2) in einer Lösung, Bereich 0 - 25% (Nennwert 18%) T 150 °C, P 4 bar, Medium zur Messung der Nitratlösung Calcium (anfänglich Salpetersäure oder vorgeschlagene entfernbare Einheit), 4-20 mA Ausgang, IP65		Stück	2

31	WE/WIT610C	Gewicht des zu verbrauchenden Calciumhydrats	Kompakte Plattformwaage mit einer Kapazität von 500 kg. Rahmenmaterial AISI 304 Edelstahl, Beckenmaterial 316 Edelstahl, hermetisch versiegelte Edelstahl-Wägezelle, OIML Klasse III zertifizierbare Auflösung, 2 x 3000e, IP67 / 68 + Terminal mit LCD-Display mit Hintergrundbeleuchtung, Tastatur aus widerstandsfähigem Material kratzfestes Edelstahl 1.4301 Gehäuse. Schutzart IP69k, Stromversorgung 100-240 VAC, Batterie 12V / 2,5A mit RS232-Kommunikationsschnittstellen, Ethernet, USB-Gerät. Ref. Mettler Toledo: PBA430 CC + Terminal ICS429. Andere Ref. TRUPER BAS-500PLA		Stück	1
32	WE610A, WE610B	Gewicht des Calciumhydrats in Wägebehälter 1 (W-22A) und Gewicht des Calciumhydrats in Wägebehälter 2 (W-22B)	Wiegeset der Klasse 3 zum Wiegen von Calciumhydrat in einem Trichter, bestehend aus: Kompressionswägezelle Modell EHP BR. 2 Tonnen Kapazität, Überlast bis zu 150%, Versorgungsspannung 10 V (AC; DC) Maximale Spannung 30 V AC; Gleichstrom, Nennempfindlichkeit 2 + - 0,1 mV / V, Material Edelstahl, Schutzart IP68.		Stück	6
33	WEx3/WIT610A, WEx3/WIT610B	Gewicht des Calciumhydrats in Wägebehälter 1 (W-22A) und Gewicht des Calciumhydrats in Wägebehälter 2 (W-22B)	Addierbox (Kollektor) mit Eingang für 4 Wägezellen, Schutzart IP 68 Mit Einstellung der Empfindlichkeitsbereichsvariation 1 mV / V.		Stück	2
34	WEx3/WIT610A, WEx3/WIT610B	Gewicht des Calciumhydrats in Wägebehälter 1 (W-22A) und Gewicht des Calciumhydrats in Wägebehälter 2 (W-22B)	Kabel zum Wiegen des Moduls zum Anschlusskasten, ähnlich dem Kabel: Ref. SF3 - PY320 03 (100 m) .		Stück	2
35	WIT610A, WIT610B	Gewicht des Calciumhydrats in Wägebehälter 1 (W-22A) und Gewicht des Calciumhydrats in Wägebehälter 2 (W-22B)	Anzeigeoptionen des universellen Wägemoduls der Serie DI50E ohne LED, Stromversorgung 85-265 VAC / 95-370 VDC Druckeingang / Wägezellenauflösung 16 Bit 60 Hz, Analogausgangsmodul 4-20 mA Stromausgang, 1 Ausgangsmodul an 10 A Relais. TEXMATE. DI-50E-DR-PS1-ISS2-AIC-S6-OR11-OA2		Stück	2

36	WIT610A, WIT610B	Gewicht des Calciumhydrats in Wagebehalter 1 (W-22A) und Gewicht des Calciumhydrats in Wagebehalter 2 (W-22B)	Kabel fur das Universalwage modul DI50E. TEXMATE. OM-CABLE485		Stuck	1
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Lot 3 - Armaturen

UNIDO SPEZIFIKATIONEN						
POS	TAG no	VERWENDUNG	BEZEICHNUNG UND PARAMETER	DIMENSION	EINHEIT	MENGE
37	TCV605A, TCV605B	Kühlwasserregelventile für Mischreaktoren 1 und 2 (D-24A, D-24B)	Absperrklappe, NA Dn 80 mm Pn 16. Charakteristisch gleicher Prozentsatz. GGG-50 Gusskörper. Inox Butterfly 1.4408. Inox Welle. AISI 316L. Metall-Metall-Dichtung, doppelte exzentrische Leckrate IV (4) Temperatur bei 40 °C. Ref. SAMSON TT-Serie Einfachwirkender pneumatischer Drehantrieb. Docks öffnen sich. Ref. SAMSON AT-Serie Typ AT-501 S12. Das Ventil an den Antrieb koppeln. Mit am Ventil montiertem elektropneumatischen Stellungsregler. 4-20 mA Eingang. Geben Sie die zum Betätigen des Regelventils erforderliche aus. Luftversorgung 6 bar. Ref. SMC IP8100-030-H-PN1, montiert. Kühlwasser regulieren.		Stück	2
38	LY602/ ZSH602/ ZSL 602, FY604A/ ZSH604A/ ZSL 604A, FY604B/ ZSH604B/ ZSL 604B	Tankfüllventil für Salpetersäure (F-038), Salpetersäure-Durchflussabsperrentile zu den Mischreaktoren 1 und 2 (D-24A, D-24B)	Einsatzventil Typ 3321 DN 50; N / A. Pn 16 Medium: Salpetersäure (50%) Zwei-Positionen-Antrieb (EIN-AUS) mit monostabilem 5-Wege-Magnet Dn 1/4 "Stromversorgung 220 60 Hz NA. Graugussgehäuse EN-JL1040 / A 126 B; PN 16; Flansche mit Vorsprung, Typ B nach DIN EN 1092-2; Edelstahlverschluss 1.4408; Verschluss mit Metallverschluss. Offene Federn Edstahlsitz 14408 charakteristisch gleich prozentual. Pneumatischer Stellantrieb Typ 3371 Ventil geschlossen, wenn TCR-Endschalter erregt sind, mit zwei Endschalter 1NA, 1NC.		Stück	3

39	LY611A/ ZSH611A/ ZSL 611A, LY612A/ ZSH612A/ ZSL 612A, LY611B/ ZSH611B/ ZSL 611B, LY612B/ ZSH612B/ ZSL 612B	Einlass- und Auslassventile für Zwischenrückflusstanks 1 und 2 (F-40A, F-40B)	Absperklappe, NA Dn 80 mm Pn 16 .. Zweistellungsantrieb (EIN- AUS) Gusseisenkörper GGG-50. Inox Butterfly 1.4408. Inox Welle. AISI 316L. Metall-Metall-Dichtung, doppelte exzentrische Leckrate IV (4) Temperatur bei 75 °C. Flanschanschluss ISO F07 / 11 Ref. SAMSON TT-Serie Einfachwirkender pneumatischer Drehantrieb. Ref. SAMSON AT-Serie Typ AT-501 S12. Das Ventil an den Antrieb koppeln. Mit 5/2-Wege-Magnetventil. Spannung 220 VAC / 60 Hz. Aluminiumgehäuse Montage NAMUR HERION 2623079.3051. Ventil geschlossen, wenn die TCR-Endschalter aktiviert sind, mit zwei Endschaltern 1NA, 1NC. Ref. 83.161.301		Stück	4
40	VY610A, VY610B	Waagenreinigungshammer	Pneumatischer Klopfkolben (Hammer) für Zuschlagtrichter, 220 VAC Spule, 60 Hz		Stück	2

Lot 4 - Elemente der Instrumentenwarte

UNIDO SPEZIFIKATIONEN						
POS	TAG no	VERWENDUNG	BEZEICHNUNG UND PARAMETER	DIMENSION	EINHEIT	MENGE
41	PL2		Wandschrank mit den Abmessungen 500 x 400 x 200 mm + Metallmontageplatte 450 x 350 mm. Ref. Schneider NSYCRN54200 + NSYMM54		Stück	1
42	PL1		Metallwandschrank mit Jalousietür und Metallmontageplatte, Abmessungen 1000 x 800 x 400, Schutzart: IP66, Kabelverschraubungen mit gestanztem FL, inklusive 4 Edelstahlbeinen zur Wandbefestigung. Ref.Schneider NSYCRNG108400 + NSYMM108 + NSYTFLEFL + NSYAEFPFXSC		Stück	1
43	PM1		Metallwandschrank mit Doppeltür und Metallmontageplatte, Abmessungen 1200 x 1000 x 400, Schutzart: IP55, Kabelverschraubungen mit Stanzungen FL, inklusive 4 Edelstahlbeinen zur Wandbefestigung. Ref.Schneider NSYCRNG1210400D + NSYMM1210 + NSYTFLEFL + NSYAEFPFXSC		Stück	1
44	X1, X2...X7		Anschlussklemme mit Abdeckung für Leiter bis 2,5 mm ² Maximale Spannung 500 V 60 Hz Ref. AB1VV235U, SCHNEIDER		Stück	700
45	XT		Erdungsklemme mit Abdeckung für Leiter bis 2,5 mm ² Maximale Spannung 500 V 60 Hz. Farbe Grün-Gelb.		Stück	20
46			Klemmleistenanschlag für 2,5 mm ² Kabel		Stück	24
47			Klemmenleisten-ID (Ein Satz enthält 100 Nummern 0, 100 Nummern 1... 100 Nummern 9)		Stück	2
48			Anschlussklemme für Leiter mit einem Querschnitt bis 2,5 mm ² (Packung mit 100 U)		Stück	3
49			Augenklemme für Leiter mit einem Querschnitt von bis zu 2,5 mm ² (Packung mit 100 U)		Stück	1
50			Kabelkennung für Leiter bis 2,5 mm ² . Sätze von 1 bis 9 (1 Satz = 100 Zahlen 0, 100 Zahlen 1.... 100 Zahlen 9.)		Stück	2
51			Schwarzes Kunststoffband		m	8
52			Selbstbohrende Schraube DN 4,8 mm, Länge 16 mm Bohrspitze. Modell 4.8 / 16.		Stück	16

53			1 x 0,5 mm ² flexibles Kupferkabel für Installationen im Instrumentierungspanel (in 250 m Spulen)		Rolle	1,50
54			1 x 2,5 mm ² flexibles Kupferkabel für Installationen im Instrumentierungspanel (in 250 m Spulen)		Rolle	0,50
55			Erdungsstange für Anschlüsse bis 2,5 mm ² ,		m	2
56			2-poliger Leistungsschalter 10A. 230/400 V 60 Hz, 10 kA. Gemäß IEC 60947-2. Kurve C. Mit Kontakt zur Hilfsstatusanzeige. DIN-Schienenhalterung		Stück	1
57			2-poliger 6A-Leistungsschalter. 230/400 V 60 Hz, 10 kA. Gemäß IEC 60947-2. Kurve C. Mit Kontakt zur Hilfsstatusanzeige. DIN-Schienenhalterung		Stück	1
58			2-poliger Leistungsschalter 2A. 230/400 V 60 Hz, 10 kA. Gemäß IEC 60947-2. Kurve C. Mit Kontakt zur Hilfsstatusanzeige. DIN-Schienenhalterung		Stück	1
59			2-poliger Leistungsschalter 1A. 230/400 V 60 Hz, 10 kA. Gemäß IEC 60947-2. Kurve C. Mit Kontakt zur Hilfsstatusanzeige. DIN-Schienenhalterung		Stück	3
60			Sicherungshalter vom Typ Klemmenblock für DIN-Schienenmontage für Sicherungslänge L = 20 mm. Durchmesser = 5 mm.		Stück	20
61			Glassicherung 5 x 20 mm Kapazität 0,1 A.		Stück	15
62			Glassicherung 5 x 20 mm Kapazität 0,5 A.		Stück	20
63			Glassicherung 5 x 20 mm Kapazität 1 A.		Stück	4
64			Glassicherung 5 x 20 mm Kapazität 2 A.		Stück	6
65			Kunststoff-Lochkanal mit Deckel 40x60x2000 mm		Stück	3
66			Kunststoff-Lochkanal mit Deckel 40x40x2000 mm		Stück	7
67			Standard DIN Schiene L = 2000 mm Ref. Schneider AM1ED200, Sonstige Ref. UNEX-F224		Stück	6
68	TC		Doppelbuchse für flachen und kreisförmigen Schaft mit geschliffenem Bein, DIN-Schienenhalterung, 16A		Stück	1
69	HL		Rote LED-Signalleuchte, Schalttafeleinbau auf DIN-Schiene. T 22 mm, 220 V 60 Hz 2 W Ref. Schneider L20SA10 + LWA0238		Stück	1
70	XBP		Rack mit 12 Steckplätzen für M340-SPS. Ref Schneider XBP 1200		Stück	1
71	CPS		M340 Netzteilmodul, 220 VAC Eingangsspannung. Ref Schneider BMX CPS 2000		Stück	1
72	M0		M340-Zentralprozessor mit integriertem Ethernet-Anschluss, RJ-45-Anschluss für MODBUS-Kommunikation (RS232 / RS485), USB-Buchse Typ B zum Anschluss von Programmier-PCs, 8 MB Programmspeicher-Erweiterungskarte und 16 MB Dateien (Ref.BMX RMS 008 MPF). Ref.Schneider BMX P342020		Stück	1
73	M1		M340 10/100 Base T Werkseitig gegossenes Ethernet-Modul mit abgeschirmtem 10/100 Base T Twisted Pair-Kabelanschluss (RJ-45-Anschluss) mit automatischer Erkennung. Ref. Schneider BMX NOE 0100		Stück	1

74	M2, M3, M4		Analoges Eingangsmodul mit hoher Dichte und 8 isolierten Kanälen (4-20 mA) vom M340. Mit seinen 28-Punkt-Feldanschlussklemmen. Ref. Schneider BMX AMI 0810		Stück	3
75	M2, M3, M4		Klemmenblock und Kabel ohne Stecker für Analogmodul. 28 Punkte. Ref. Schneider BMX FTB 2820		Stück	3
76	M5		Analoges Ausgangsmodul mit hoher Dichte und 4 isolierten Kanälen (4-20 mA) von M340. Mit seinen 20-Punkt-Feldanschlussklemmen. Ref. Schneider BMX AMO 0410		Stück	1
77	M5		Klemmenblock und Kabel ohne Stecker für Analogmodul. 20 Punkte. Ref. Schneider BMX FTB 2000		Stück	1
78	M6, M7		32-Kanal-24-VDC-Digitaleingangsmodul mit positiver Logik, M340. Mit seinen 40-Punkt-Feldanschlussklemmen. Ref. Schneider BMX DDI3202K		Stück	2
79	M8, M9		32-Kanal-24-VDC-Digitalausgangsmodul mit positiver Logik, M340. Mit seinen 40-Punkt-Feldanschlussklemmen. Ref. Schneider BMX DDO 3202K		Stück	2
80	M6...M 9		Klemmenblock und Kabel ohne Stecker für Digitalmodul. 40 Punkte. Ref. Schneider BMX FCW 303		Stück	4
81			16 MB Speichererweiterungskarte für M340-Prozessor. Ref. Schneider BMX RMS 008MPF		Stück	1
82			Programmierkabel des M340 Industrial USB 4.5 Meter. Ref. Schneider BMX XCA USBH045		Stück	2
83	GB1		Einphasen-Schaltnetzteil, DIN-Schienenmontage. > Nenn-Eingangsspannung: 115/230 VAC., Wählbar> Ausgang: 24 VDC. / 10 A. > Frequenz: 47-63 Hz. Konstante Leistung zwischen -10 und +60 °C. Ref. Schneider ABL8RPS24100		Stück	1
84	GB2		Einphasen-Schaltnetzteil, DIN-Schienenmontage. > Nenn-Eingangsspannung: 115/230 VAC., Wählbar> Ausgang: 24 VDC. / 5A. > Frequenz: 47-63 Hz. Konstante Leistung zwischen -10 und +60 °C. Ref. Schneider ABL8RPS24050		Stück	1
85	KAI1...6 4, KAO1... 64		Hilfsrelais mit Basis, Spule bei 24 VDC, Kontakte 4 NO 4 NC, 6 A Ref. C9 A41 24 VDC + Basis S 9B		Stück	130
86	BPE1, BPE2, BPE3		Druckknopf für roten Pilz-Notstopp mit Drehverriegelung. Ref. Schneider XB4BS8442		Stück	3
87	WI610A -1, WI610B -1		Kontrollleuchte mit LED, 220 VAC, 60 Hz, rote Farbe. Mm 22 mm Ref. Schneider XB4BVM4		Stück	2

88	WI610A -2, WI610B -2		Kontrollleuchte mit LED, 220 VAC, 60 Hz, gelbe Farbe. ø 22 mm Ref. Schneider XB4BVM5		Stück	2
89	WI610A -3, WI610B -3		Kontrollleuchte mit LED, 220 VAC, 60 Hz, grüne Farbe. ø 22 mm Ref. Schneider XB4BVM3		Stück	2
90			Einstellbares Tonsignalelement 70 bis 90 dB bei 1 m, mit kontinuierlicher oder intermittierender Wirkung, gespeist mit 24 VDC. Ref Schneider XVBC9B		Stück	2
91	OP		12,1-Zoll-Farb-Touch-Terminal. Magelis Marke XBTG Serie . Mit Modbus TCP / IP Ethernet Kommunikation. Ref. Schneider XBT-GT 6340 . Verdrahtet für die Programmierung mit USB-Anschluss für PC. Kompakte 1-GB-Flash-Karte mit Befestigungsclips		Stück	1
92	PC		ACP-4000MBS120507-2 Industrielles Computersystem, das wie folgt konfiguriert ist:		Stück	1
92	PC		(1) ACP-4000-Motherboard-Gehäuse mit 400 W ATX PFC PS		Stück	1
			(1) AIMB-781QG2-00A1E-LGA1155 ATX IMB mit VGA, DVI, PCIe, 2 GbE, 2 SATAIII, RoHS			
			(1) CPU: Intel Core 3.3G 3M 1155P 2CORE I3-2120			
			(1) 1960047669N001 Lüfter			
			(2) Speicher: 2G DDR3-1333 240PIN 128X8 (insgesamt 4G)			
			(1) Festplatte: 500G 3,5 SATA 7KRPM 16M			
			(1) 24X SATA DVD +/- RW			
			(1) EVGA Nvidia GT520 1G PCIE Dual DVI			
			(1) Diskette-Diskette (1,44 MB) - USB-extern, schwarz			
			(1) Logitech Optical Mouse USB / PS2, schwarz			
(1) PCA-6302-Compact Keyboard 104 Tasten (Englisch)						
(1) VA926G-Viewsonic Display 19 "LCD, 1280 x 1024, 5MS Antwort						
Zeit, Energy Star 5.0, DVI- und VGA-Eingänge, Windows 7-zertifiziert						
(1) Microsoft Windows 10						
(1) Option AGS-CTOS-SYS-B Montage und Test						
93	UPS		USV-Sicherungsquelle mit integriertem Stabilisator 120 V APC Energiesparende Back-UPS Pro 700		Stück	1
94	SW		Industrieschalter nicht handhabbar. Technische Daten:		Stück	1
			Modell: EKI-7626C			

		LAN: 10 / 100BASE-TX, 10/100 / 1000BASE-T, 100BASE-FX, 1000BASE-SX / LX / LHX / XD		
		Übertragungsentfernung: Ethernet: bis zu 100 m Multimode-Glasfaser: bis zu 2 km, 50 / 125µM ~ 62,5 / 125µM		
		Anschlüsse: 16 x 10 / 100BASE-TX RJ-45-Anschlüsse und 2 x 10/100 / 1000BASE-T / SFP (MINI-GBIC) COMBO		
		Leistung: + 12-48 VDC		
		Leistungsaufnahme: 9,76 WATTS Abmessungen: 79 x 152 x 105 mm		
		Ref: EKI-7626C-AE +2 EINHEITEN SFP-FXM / LC-AE		

Lot 5 - Installationsmaterial

UNIDO SPEZIFIKATIONEN						
POS	TAG no	VERWENDUNG	BEZEICHNUNG UND PARAMETER	DIMENSION	EINHEIT	MENGE
95			Klemmentyp "U" mit Backe 2 ", tropenbeständig, mit 4 Muttern und Unterlegscheiben. *	∅ 2"	Stück	40
96			Klemmentyp "U" mit Backe 1 ½ ", tropenbeständig, mit 4 Muttern und Unterlegscheiben. *	∅ 1 ½"	Stück	30
97			Klemmentyp "U" mit Backe 1", tropenbeständig, mit 4 Muttern und Unterlegscheiben. *	∅ 1"	Stück	50
98			Klemmentyp "U" mit Backe ½ ", tropenbeständig, mit 4 Muttern und Unterlegscheiben. *	∅ ½"	Stück	20
99			Filterblock Luftdruckminderer. Eingangsdruck 10 bar. Ref. AW30-F03, F REG 5 MIC 3/8 "		Stück	2
100			Flexibles abgeschirmtes Kabel für Steuer- und Instrumentierungsschaltungen; 500V. Mts. 2x1 mm ² (in Rollen von 250 m)		Rolle	10
101			Flexibles abgeschirmtes Kabel für Steuer- und Instrumentierungsschaltungen; 500V. Mts. 3x1 mm ² (in Rollen von 250 m)		Rolle	2
102			Flexibles abgeschirmtes Kabel für Steuer- und Instrumentierungsschaltungen; 500V. Mts. 4x1 mm ² (in Rollen von 250 m)		Rolle	1
103			Flexibles abgeschirmtes Kabel für Steuer- und Instrumentierungsschaltungen; 500V. Mts. 16x1 mm ² (in 200 m Rollen)		Rolle	1
104			UTP-Kabel der Kategorie 5E (Rolle circa 1000 FT / 305 MTS) INT362320		Rolle	0,3
105			Mts. CERVILENE POS-CY 3x2x0,22 mm ² GR-Kabel, ähnlich Belden 8103 (in circa 305 m Rollen)		Rolle	1
106			Aluminiumbogen mit Gewindeenden, p / . RR-Schlauchanschluss mit beschreibbarem Deckel. DN-2	∅ 2"	Stück	22
107			Aluminiumbogen mit Gewindeenden, p / . RR-Schlauchanschluss mit beschreibbarem Deckel. DN-1 ½ "	∅ 1 ½"	Stück	10
108			Aluminiumbogen mit Gewindeenden, p / . RR-Schlauchanschluss mit beschreibbarem Deckel. DN 1	∅ 1 "	Stück	15
109			Aluminiumbogen mit Gewindeenden, p / . RR-Schlauchanschluss mit beschreibbarem Deckel. DN ½ "	∅ ½"	Stück	7
110			Kupferrohranschluss ¼ " bis 6 mm	∅ ¼" a ∅ 6 mm		22

111			Kupferrohranschluss ¼ " bis 8 mm	∅ ¼" a ∅ 8 mm		8
112			T -Zweig mit Gewindeenden, p / . RR-Schlauchanschluss mit beschreibbarem Deckel. DN-2 " mit beschreibbarer Abdeckung.	∅ 2"	Stück	7
113			T -Zweig mit Gewindeenden, p / . RR-Schlauchanschluss mit beschreibbarem Deckel. DN-1½ " mit beschreibbarem Deckel.	∅ 1 ½"	Stück	5
114			T -Zweig mit Gewindeenden, p / . RR-Schlauchanschluss mit beschreibbarem Deckel. DN 1 " mit beschreibbarem Deckel.	∅ 1 "	Stück	5
115			T -Zweig mit Gewindeenden, p / . RR-Schlauchanschluss mit beschreibbarem Deckel. DN ½ " mit beschreibbarem Deckel.	∅ ½"	Stück	10
116			Kabelkennung für Leiter bis 2,5 mm ² . Sätze von 1 bis 9 (1 Satz = 100 Zahlen 0, 100 Zahlen 1.... 100 Zahlen 9.)	∅ 2,5 mm	jgo	2
117			Hochleistungsprofil vom Typ "L" aus verzinktem Stahl zur Befestigung von elektrischen Rohren, 40 x 40 x 6 mm (m) *		m	35
118			Hochleistungsprofil vom Typ "L", verzinkter Stahl, zur Befestigung von elektrischen Rohren, 25 x 25 x 4 mm (m) *		m	50
119			Kupferrohr D 6 x 1 mm *	∅ 6 x 1 mm	m	11
120			Kupferrohr D 8 x 1 mm *	∅ 8 x 1 mm	m	7
121			Flexibles Metallrohr mit PVC-Auskleidung Dn ½ "	∅ ½"	m	50
122			RMC-Kabelschlauch, verzinkter Stahl, 2 "NPS-Gewinde mit entsprechender Gewindeverbindung (m)	∅ 2"	m	70
123			RMC-Kabelschlauch, verzinkter Stahl, 1½ "NPS-Gewinde mit entsprechender Gewindeverbindung (m)	∅ 1 ½"	m	70
124			RMC-Kabelschlauch, verzinkter Stahl, 1 "NPS-Gewinde mit entsprechender Gewindeverbindung (m)	∅ 1"	m	70
125			RMC-Rohr für Kabel, verzinkter Stahl, NPS mit Gewinde ½ " mit entsprechender Gewindeverbindung (m)	∅ ½"	m	60
126			Elektrische Mutter 2 "	∅ 2"	Stück	6
127			1 ½ "elektrische Mutter	∅ 1 ½"	Stück	6
128			1 " elektrische Mutter	∅ 1"	Stück	6
129			Elektrische Mutter ½ "	∅ ½"	Stück	36
130			Anschlussverbindung aus verzinktem Stahl Buchse 2 " zu Buchse 2"	H∅ 2"-H∅ 2"	Stück	10
131			Verbindungsanschluss aus verzinktem Stahl Stecker 2 " zu Buchse 1½"	M∅ 2"-H∅ 1½"	Stück	5
132			Anschlussverbindung aus verzinktem Stahl Stecker 2 " zu Buchse 1"	M∅ 2"-H∅ 1"	Stück	3
133			Anschlussverbindung aus verzinktem Stahl Buchse 1½ "bis Buchse 1½"	H∅ 1½"-H∅ 1½"	Stück	10

134			Anschlussverbindung aus verzinktem Stahl Stecker 1½ "zu Buchse 1"	M∅ 1½"-H∅ 1"	Stück	6
135			Anschlussverbindung aus verzinktem Stahl Stecker 1½ "zu Buchse ½"	M∅ 1½"-H∅ ½"	Stück	10
136			Anschlussverbindung aus verzinktem Stahl Buchse 1 "zu Buchse 1"	H∅ 1"-H∅ 1"	Stück	10
137			Verbindungsanschluss aus verzinktem Stahl Stecker 1 "zu Buchse ½"	M∅ 1"-H∅ ½"	Stück	25
138			Anschlussverbindung aus verzinktem Stahl Buchse ½ "zu Buchse ½"	H∅ ½"-H∅ ½"	Stück	25
139			Anschlussverbindung aus verzinktem Stahl Stecker ½ "bis Stecker ½"	M∅ ½"-M∅ ½"	Stück	25
140			Anschlussverbindung aus verzinktem Stahl Stecker ½ "zu Buchse ½"	M∅ ½"-H∅ ½"	Stück	25
141			2 "Universal Union	∅ 2"	Stück	6
142			1½ "Universal Union	∅ 1 ½"	Stück	6
143			1 "Universal Union	∅ 1 "	Stück	6



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
TECHNICAL SPECIFICATIONS
FOR PURCHASE OF EQUIPMENT AND SUPPLIES

UNIDO PROJECT
TECHNOLOGICAL AND ENTERPRISE UPGRADING PROGRAMME ON AGRO-CHEMICALS AND
AGRICULTURAL MACHINERY PRODUCTION SECTOR (INDUSTRIAL UPGRADING AND MODERNIZATION IN
CUBA) (SAP ID 150262)

1. GENERAL BACKGROUND INFORMATION

ORGANIZATIONAL CONTEXT

The United Nations Industrial Development Organization (UNIDO) is the specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability. The mission of UNIDO, as described in the Lima Declaration adopted at the fifteenth session of the UNIDO General Conference in 2013, is to promote and accelerate inclusive and sustainable industrial development (ISID) in Member States. The relevance of ISID as an integrated approach to all three pillars of sustainable development is recognized by the 2030 Agenda for Sustainable Development and the related Sustainable Development Goals (SDGs), which will frame United Nations and country efforts towards sustainable development in the next fifteen years. UNIDO's mandate is fully recognized in SDG-9, which calls to "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation". The relevance of ISID, however, applies in greater or lesser extent to all SDGs. Accordingly, the Organization's programmatic focus is structured in four strategic priorities: Creating shared prosperity; Advancing economic competitiveness; Safeguarding the environment; and Strengthening knowledge and institutions.

Each of these programmatic fields of activity contains a number of individual programmes, which are implemented in a holistic manner to achieve effective outcomes and impacts through UNIDO's four enabling functions: (i) technical cooperation; (ii) analytical and research functions and policy advisory services; (iii) normative functions and standards and quality-related activities; and (iv) convening and partnerships for knowledge transfer, networking and industrial cooperation. Such core functions are carried out in Departments/Offices in its Headquarters, Regional Offices and Hubs and Country Offices.

The Directorate of Digitalization, Technology and Agri-Business (DTA) coordinates and mainstreams the Fourth Industrial Revolution (4IR) in its technical cooperation, strategic, normative activities aiming at fostering the inclusive and sustainable development in the era of 4IR. The Directorate creates new and innovative technical cooperation deliverables in the areas of trade, investment, technology innovation and agro-industry and agri-business. The Directorate comprises the Department of Digitalization, Technology and Innovation (DTI) and the Department of Agri-Business (AGR).

Responding to the growing demand for supporting inclusive and sustainable industrial development (ISID) in the era of the new industrial revolution, the Department of Digitalization, Technology and Innovation (DTA/DTI) leads the way in addressing opportunities, challenges and risks stemming from the fourth industrial revolution (4IR) and its contribution to sustainable socio-economic progress. The Department is responsible for the strategic coordination of 4IR-related matters with designated focal points in other technical Departments and organizational entities of UNIDO, as appropriate. In consultation with public and private partners, DTI designs and implements holistic interventions that are tailored to specific country needs.

PROJECT CONTEXT

UNIDO is supporting Cuba's efforts in investment and strategic alliance promotion endeavours for strengthening its industrial capabilities and competitiveness in priority industrial sectors through the formulation of a Country Programme Framework (CPF), in line with the economic and industrial transformations decided by the Government and with the UNDAF signed for 2014-2018. One of the priority CPF areas as per main outcomes agreed with the Government of Cuba is the development of an Industrial Upgrading and Modernization Programme (IUMP) focusing on priority agro-chemicals and agricultural machinery production sectors.

Cuba IUMP aims to contribute to inclusive and sustainable industrial development of Cuba and improve food security through upgrading and modernization of industrial sectors of Fertilizers and Agricultural Machinery. This will be achieved through enhancement of industrial performance and competitiveness of pilot enterprises operating in the Fertilizers and Agricultural Machinery industrial sectors within the existing industrial hubs. The programme will be implemented via three main modules: sectoral analysis and building a strategic action plan for the Cuban priority Fertilizers and Agricultural Machinery industrial product lines/sub-sectors; enterprise diagnosis and industrial upgrading of selected pilot manufacturing enterprises operating within the identified priority sub-sectors/existing hubs; and strengthening human and technical capacities of national counterpart institutions/expertise in the provision of enterprise diagnosis and industrial modernization, sectoral analysis and other best practices.

Proposed technical assistance includes the following outputs and activities:

- Output 1. Sectoral analysis and building a strategic action plan for development of the Cuban priority Fertilizers and Agricultural Machinery industrial product lines/sub-sectors based on the key food and agricultural crop development needs.
- Output 2. Enterprise diagnosis and industrial upgrading of selected pilot manufacturing enterprises operating within the identified priority Fertilizers and Agricultural Machinery product lines/sub-sectors/existing hubs through technological modernization, optimization of business processes and improvements of enterprise performance and competitiveness.
- Output 3. Human and technical capacities of national counterpart institutions/expertise established/strengthened in the provision of enterprise diagnosis and industrial modernization, sectoral analysis and competitiveness building and other best practices and related services to the respective priority industrial sectors.

UNIDO conducted comprehensive analysis of the Cuban fertilizers and agricultural machinery production sectors resulting in a Sectoral Strategy that helps prioritize and focus developmental efforts of the current Project and of the National Government, in general, on the development of production and application of liquid fertilizer, in order to significantly contribute to the country's efforts in enhancing the sustainable food production using inter alia Cuban know how and accompanied by the best international practices.

Key fertilizer product lines aimed at substituting current solid fertilizers imports (Calcium Nitrate, Magnesium Nitrate and Bayfolan Forte) with the below mentioned liquid fertilizers were identified:

- Liquid Calcium Nitrate/Magnesium Nitrate;
- CBFERT ecological liquid fertilizer.

2. PURPOSE OF THIS REQUEST FOR A PROPOSAL

The purpose of this request is to provide equipment and related inputs and accessories for a small liquid calcium nitrate fertilizer plant as provided in this Technical Specification, which is expected to be delivered and located at the project beneficiaries plant in Nuevitas, Cuba.

3. SCOPE OF SUPPLY

3.1 The following items (or equivalent) should be supplied:

- The table provided below details the specification of supply. The supplier(s)/contractor(s) shall complete it by filling in unit and total prices as well as indicate their compliance of deviation from the technical requirements of the Terms of Reference/Technical Specifications.
- The specifications established in this document are the minimum requirements to be accepted. Products furnished to these specifications must meet or exceed all requirements herein. Modifications or additions to basic standard products or less size or capability to meet these requirements will not be accepted.
- Bidders must include the manufacturer's name, country of origin of each item and the model number in the bid.
- Please note that in line with the UNIDO Purchase Order, the Supplier shall insure the goods during their shipment and transit to the named place of destination and thereafter until the packing crates are opened in the presence of the Supplier's representative(s), if applicable, against all risks of loss or damage from any cause. Such insurance shall be with a reputable insurance company acceptable to UNIDO and shall be in the names of the Contractor and UNIDO in their respective rights and interests. The insurance shall cover the full price of the goods including freight costs plus ten percent (10%) and shall be in the currency of the Contract Price.
- Offers are to be made in USD or in EUR.

Bidders shall quote transport and insurance and any other associated costs separately from the item prices.

Lot 1 – Electrical Materials

Lot 1.1 - ELECTRICAL MATERIALS PRODUCTION UNIT (POWER) - UNIDO REQUIREMENTS				TO BE COMPLETED BY THE INVITEE			
Item	Name and required parameter	UNIT	QTY	Unit price EUR	Total price EUR	Compliance yes/no	Remarks
1	<p>General Distribution Panel (PGD) Cabinet type composed of modules or cubicles of sheet steel and painted by electrostatic means dried in the oven, degree of protection IP-21 according to IEC-144 standard for interior mounting with holes in its upper and lower part for Cable passes with hinged door with gasket and extra flexible cable for grounding. Door with measuring instruments wired with extra flexible cables. Inside it will consist of 5 copper bars, 3 of them for the phases, one for the connection of the neutral and the other for the protection (PE) of people's safety.</p> <p>The PGD has to house the parts according to the Positions 2 – 6 below.</p> <p><i>Further details for this Lot are included in the Annex to this Technical Specification.</i></p>	pieces	1				
2	Molded case-type circuit breaker 3Ø, 600 V, In = 125 A, IDdis = 115 A, thermal ID = 10In	pieces	1				
3	Molded case circuit breaker 3Ø, 600 V, In = 100 A, IDdis = 35 A, thermal ID = 10In	pieces	1				
4	Molded case circuit breaker 3Ø, 600 V, In = 100 A, IDdis = 90 A, thermal ID = 10In	pieces	1				
5	Molded case circuit breaker 3Ø, 600 V, In = 100 A.	pieces	1				
6	Digital measuring panel to measure phase and line voltage, current, active power, apparent power, reactive power, power factor, frequency, energy consumption and power demand.	pieces	1				
7	<p>Force/power panel (PF): Metal panel for surface mounting with hinged door and lock, degree of protection IP-41. Inside it will consist of 5 copper bars, 3 of them for the phases, one for the connection of the neutral and the other for the safety protection (PE) of the people, to operate at 400/230 V, 60 Hz.</p> <p>The PF has to house the parts according to the Positions 8 – 15 below.</p> <p><i>Further details for this Lot are included in the Annex to this Technical Specification.</i></p>	pieces	1				
8	3Ø circuit breaker, In = 40 A, 400 V.	pieces	2				
9	3Ø circuit breaker, In = 10 A, 400 V.	pieces	7				
10	3Ø circuit breaker, In = 16 A, 400 V.	pieces	4				
11	3Ø circuit breaker, In = 63 A, 400 V.	pieces	1				
12	3Ø circuit breaker, In = 32 A, 400 V.	pieces	1				
13	Magnetic contactor 3Ø, 220 V, In = 9 A, with built-in thermal relay with I = 1-2 A.	pieces	4				

14	Magnetic contactor 3Ø, 220 V, In = 9 A, with built-in thermal relay with I = 1.5-2.5 A.	pieces	2				
15	Magnetic contactor 3Ø, 220 V, In = 16 A, with built-in thermal relay with I = 7-12 A.	pieces	2				
16	High-purity flexible annealed copper multi-conductor cable with individual insulation made of polyvinyl chloride (PVC) and heat-resistant PVC outer sheath up to 70 degrees C, UV-resistant, insulation voltage 0.6 / 1 kV						
	3 x 2.5 mm ² conductor	m	350				
	4 x 4 mm ² conductor	m	80				
	4 x 4 mm ² conductor	m	700				
	5 x 4 mm ² conductor	m	260				
5 x 6 mm ² conductor	m	25					
17	Flexible metal tubing of galvanized steel in the form of a spiral strip with 3/4 "polyvinyl chloride (PVC) plastic coating; for illustration www.dietzel.at -DE331S22.	m	100				
18	Galvanized steel straight coupling connector (fitting), with metal pipe by means of screw pressure and external threading on the other end of 3/4 "(20 mm)	pieces	20				
19	Curved coupling connector 90 ° galvanized steel (fitting), with metal pipe by means of screw pressure and external threading on the other end of 3/4 "(20 mm); ALTERNATIVE in synthetics; temperature resistant 70 degrees C	pieces	20				
20	2P + PE power outlet, 16 A, 500 V <i>Further details for this Lot are included in the Annex to this Technical Specification.</i>	pieces	12				
21	Push button station for surface mounting in metal or plastic enclosure with IP-55 protection degree, with NO and NC contacts with capacity of 6 A, 250 V. (1NA and 1NC, on and off)	pieces	8				
22	Metal (or plastic) electrical record box, 1 mm galvanized steel sheet, for surface, with semi-perforated stamped holes for 3/4 "pipe entry through the sides and bottom.	pieces					
	4 "x 4" x 1 1/2 "	pieces	30				
	6 "x 6" x 4 "	pieces	2				
23	1 mm ² thick galvanized steel lid for 4 "x 4" x 1 1/2 "record box - FOR POSITION 22 AND 23	pieces	30				
24	Terminal block for conductor connection with sections from 1.5 to 6 mm ² with a capacity of 20 A, 500 V	pieces	100				
25	Galvanized steel staple of a leg for 3/4 "pipes.	pieces	100				
26	Self drilling screw 5.5 x 25 mm hex head DIN 7504-K	pieces	60				
27	1.8 x 7.6 x 709 mm fluted plastic flange, for fixing multiconductors to steel messenger cable	pieces	100				
28	Plastic block set with nail-screw (similar RAPITAC) Ø 4 mm x 25 mm long	pieces	60				
29	Mesh cable tray made of welded steel wire in straight sections of 2 m and of the following dimensions; for illustration: https://www.obo.at/produkte/industriestallation/gitterinnen/gitterinnen-steckverbindung/gitterrinne-gr-magic-35-g.html						
	80 x 15 mm - alternative 100 x 41	m	30				
	100 x 35 mm - alternative 100 x 41	m	36				

	150 x 35 mm - alternative 150 x 41	m	36				
	300 x 35 mm - alternative 300 x 41	m	10				
30	Bracket of galvanized steel bracket type (horizontal support) for horizontal tray on vertical surface, for tray of:						
	100 x 35 mm (S 100) - fitting to above measures	pieces	3				
	150 x 35 mm (S 150) - fitting to above measures	pieces	5				
	300 x 35 mm (S 300) - fitting to above measures	pieces	10				
31	System for hanging mesh cable trays from the ceiling with M10 threaded rods, made of galvanized steel; Length preferably 3 m; alternatively 2 m - principle installation pictures below for the mesh cable trays as described and to be supplied under item 29; equivalent and complete solutions acceptable						
	for mesh cable tray 80 mm wide, alternatively 100 mm wide; Suspension / threaded rod, preferably length 3 m, alternatively 2 m	pieces	15				
	for mesh cable tray 100 mm wide; Suspension / threaded rod, preferably length 3 m, alternatively 2 m	pieces	18				
	for mesh cable tray 150 mm wide; Suspension / threaded rod, preferably length 3 m, alternatively 2 m	pieces	18				
32	Fastening element for the mesh cable tray on the bottom of the threaded rod (1 x per threaded rod), galvanized	pieces	51				
33	Lateral connection flange for mesh cable trays according to item 29, galvanized	pieces	51				
34-1	Threaded rods M10; preferably 3,000 mm, alternatively 2,000 mm; galvanized	pieces	51				
34-2	Connecting sleeve for threaded rods M10, length approx. 24 mm; galvanized	pieces	51				
35	Alternatively when using SF 100 for item 31; Suspension "C" galvanized 3 mm sheet	pieces	51				
36	Fastening element of the threaded rod at the top, on the ceiling; approx. 80 x 40 mm; galvanized	pieces	51				
37	M10 nuts for threaded rods; galvanized	pieces	51				
	Sub-Total, EX-Works:		EUR				
	II. Installation		EUR				
	III. Cost of transportation:		EUR				
	IV. Cost of Insurance at 110%:		EUR				
	Total price Lot 1.1 - LIST OF ELECTRICAL MATERIALS PRODUCTION UNIT (POWER) CIF Mariel, Cuba:		EUR				

Lot 1.2 - ELECTRICAL MATERIALS PRODUCTION UNIT (LIGHTING) - UNIDO REQUIREMENTS				TO BE COMPLETED BY THE INVITEE			
Item	Name and required parameter	UNIT	QTY	Unit price EUR	Total price EUR	Compliance yes/no	Remarks
1	Panel (PA-1): Metal panel for surface mounting with hinged door and lock, degree of protection IP-41. Inside it will consist of 5 copper bars, 3 of them for the phases, one for the connection of the neutral and the other for the safety protection (PE) of the people, to operate at 400/230 V, 60 Hz. The PA-1 has to house the parts according to the Positions 2 - 8 below. <i>Further details for this Lot are included in the Annex to this Technical Specification.</i>	pieces	1				
2	3Ø circuit breaker, In = 40 A, 400 V.	pieces	1				
3	Circuit breaker 1Ø, In = 10 A, 400 V.	pieces	3				
4	Circuit breaker 1Ø, In = 25 A, 400 V.	pieces	1				
5	3Ø circuit breaker, In = 16 A, 400 V.	pieces	4				
6	Magnetic contactor 1Ø, 220 V, In = 25 A, with built-in thermal relay. With a normally open contact (NO) and a normally serrated contact (NC).	pieces	2				
7	Magnetic contactor 1Ø, 220 V, In = 16 A, with built-in thermal relay. With a normally open contact (NO) and a normally serrated contact (NC).	pieces	1				
8	Magnetic contactor 3Ø, 220 V, In = 16 A, with built-in thermal relay. With a normally open contact (NO) and a normally serrated contact (NC).	pieces	3				
9	flexible multiconductor cable with annealed copper core of high purity, with individual insulation of polyvinyl chloride (PVC) and heat resistant PVC outer sheath up to 70 degrees C, UV-resistant, insulation voltage 0.6 / 1 kV and shall comply with IEC 227 and IEC 228 A standards						
	3 x 2.5 mm ² conductor	m	270				
	4 x 2.5 mm ² conductor	m	170				
	5 x 2.5 mm ² conductor	m	220				
	4 x 4 mm ² conductor	m	450				
10	RAL 7035 gray junction box with multi-diameter cones cable passes and cover with screws of IP-65 <i>Further details for this Lot are included in the Annex to this Technical Specification.</i>						

	105 x 105 x 55 mm	pieces	130				
	155 x 155 x 70 mm	pieces	1				
11	Lid for surface box of:	pieces					
	105 x 105 x 55 mm	pieces	130				
	155 x 155 x 70 mm	pieces	1				
12	Pushbutton station for surface mounting in metal or plastic box with IP-55 protection degree, input with multidiameter cones cables with normally open (NO) and normally closed (NC) contact, for 6 A, 250 V with two buttons (on and off).	pieces	6				
13	High strength non-flame retardant plastic material gutter with pressure cap, in 2 m sections of 25 x 16 mm	pieces	3				
14	Single pole double shot switch, 10 A, 250 V	pieces	1				
15	Screw plug set RAPITAC model diameter 4 mm, depth 25 mm; OR SIMILAR	pieces	300				
16	1/2" steel leg clamp for 1/2" pipes	pieces	100				
17	1 x 2.5 x 190 mm fluted plastic flange	pieces	200				
18	5.5 x 25 mm self-drilling screw DIN 7504-K	pieces	130				
19	Smooth round steel with a diameter of 6 mm, for the construction of supports	m	80				
20	Angular type L 32 x 32 x 4 mm	m	7				
21	M6 flat washer	pieces	70				
22	M6 hexagon nut	pieces	70				
23	Individual terminal block with sections from 1.5 to 6 mm ² for 20 A, 500 V	pieces	150				
24	Industrial type symmetric luminaire for LED lamp with anodized aluminum reflector and extensive type sealing (wide beam) with thermostable glass with closing ring with lever spring, suspension for voltage 220 V, 60 Hz, fp = 0.9, with 2P + terminal block T for 4 mm ² conductors, for 90-100 W lamps. <i>Further details for this Lot are included in the Annex to this Technical Specification.</i>	pieces	35				
25	Moisture resistant fluorescent luminaire degree of protection IP-65 for 220 V, 60 Hz, fp. = 0.9 of two 18 W LED lamps <i>Further details for this Lot are included in the Annex to this Technical Specification.</i>	pieces	70				
26	Recessed luminaire in metal body suspended ceiling and reflective screen with terminal block 2P + T, with diffuser in the form of transparent methacrylate cover with hexagonal prism refractors, with high performance, for 220 V, 60 Hz, fp. = 0.9 with two 18W LED tubes	pieces	8				

	<i>Further details for this Lot are included in the Annex to this Technical Specification.</i>						
27	Autonomous emergency luminaire for anti-panic lighting with 18 W fluorescent lamp and Nickel-Cadmium batteries for 3-hour autonomy with glass diffuser with high-frequency transistorized ballast type quick start with disconnect switch and test push button with electronic detection of voltage drop and will operate when it is less than 70% of the nominal value, at 220 V ± 10%, 60 Hz, with protection against excessive discharges and possibility of remote control for the rest position. <i>Further details for this Lot are included in the Annex to this Technical Specification.</i>	pieces	3				
	Sub-Total, EX-Works:		EUR				
	II. Installation		EUR				
	III. Cost of transportation:		EUR				
	IV. Cost of Insurance at 110%:		EUR				
	Total price Lot 1.2 - ELECTRICAL MATERIALS PRODUCTION UNIT (LIGHTING) - CIF Mariel, Cuba:		EUR				

Grand Total of Lot 1.1 and 1.2 - Electricals: Force and Lighting

Total price Lot 1.1 - ELECTRICAL MATERIALS PRODUCTION UNIT (POWER) - CIF Mariel, Cuba:	EUR	
Total price Lot 1.2 - ELECTRICAL MATERIALS PRODUCTION UNIT (LIGHTING) - CIF Mariel, Cuba:	EUR	
Total price Lot 1 CIF Mariel, Cuba:	EUR	

Further details and explanations for these Lot are included in the Annex to this Technical Specification in English, Spanish and German.

3.2 SUPPLIER'S GENERAL RESPONSIBILITIES

- The supplier shall provide technical details, prospects with his offer
- The supplier should demonstrate a minimum of 5 years professional experience.
- References: Bidder must include information regarding relevant previous contracted service provided by the company, which have been similar to the service requested in the procurement. The references must include contact person with e-mail and telephone numbers.
- The supplier shall make its best efforts to ensure that all works will be carried out according to "good quality and adequate workmanship". The supplier assumes the overall responsibility for the correct selection of the equipment for the practical implementation of the project.
- The supplier shall take into account all the details presented in these Technical Specifications (TSs) and shall request any further information, which is considered necessary for the correct implementation of the works.
- The supplier should be able to provide support within 5 working days within the guarantee duration for supplied equipment at separate cost.

3.3 LANGUAGE

The Official Project communication language shall be English. The drawings, catalogues, illustrations, printed specifications and other documentation related to the present project shall be preferably in Spanish, or otherwise in English.

For ease of bidding process, a German translation of the specification is included in the Annex. However, English and Spanish remain the lead languages.

3.4 GENERAL CONDITIONS

- Completeness of offers is considered an asset.
- In case of clarification requirements, bidders are invited to post their questions on the platform
- UNIDO reserves the right to award only a portion of the requirement and reject the quotation submitted by any bidder that has previously failed to perform properly or on time contracts of a similar nature, or of a bidder that, in the opinion of UNIDO, is not in a position or is not sufficiently qualified to perform the contract.
- Wherever product, supplier names and pictures/drawings are quoted in this TSs, this serves only for illustration purposes. Vendors are entitled to provide equivalent brands/solutions in their bids.

4. GUARANTEE REQUIREMENTS

- At least 2 year(s) guarantee is required.
- The supplier shall replace/refurbish (in place or at their facilities outside) without any further costs for the client including shipping for any or all the equipment in case of malfunctioning and/or incapable of achieving the required accuracy/specification relevant to the tests.
- The availability for the spare parts should be two years and deviating duration should be indicated. In case that the spares are not available in Cuba, the nearest location where they are available must be indicated.

5. DELIVERY AND DELIVERY PERIOD

- The importing company in Cuba is QUIMIMPEX Import – Export, the responsible representative is Mr. Pablo Perez Beltran, Chartering, Inspection and Assurance Front; Telephone + 53 72 06 87 02; + 53 72 06 87 06 -07 ext. 140; pablo@quimimpex.cu; Who will take over the goods at the port of arrival (see freight or air plane) in Havana.
- Required Details for shipping will be provided in case of contract award.
- The equipment should be delivered as soon as possible. The supplier shall provide his delivery terms and dates.

6. DELIVERY TERMS

The vendor shall hand over the goods, and UNIDO shall take over the goods, at the place or places of delivery specified in this Contract form. Unless otherwise stipulated in the Contract form, the goods shall be delivered CIF Havana, port Mariel or Jose Marti Airport INCOTERMS 2010.

7. PAYMENT CONDITIONS

The following payment conditions shall be applied to the awarded vendor:

- 50% of the total contract in advance (deposit/advance payment).
- 30% of the contract upon UNIDO's acceptance of the shipping documents.
- 20% of the contract value after issuance of Certificate of Acceptance.

8. AWARD CONDITIONS

UNIDO reserves the right to split an award between any vendors in any combination, as it may deem appropriate. If the quotation is submitted on an "all or none" basis, it should be clearly stated as such in your response to this RFQ.

ANNEX 1 - 3

TO TECHNICAL SPECIFICATIONS: FOR MORE COMPLEX EQUIPMENT, THE FOLLOWING ADDITIONAL SPECIFICATIONS NEED TO BE CONSIDERED

IN ENGLISH / SPANISH AND GERMAN

1. ANNEX 1 / Lot 1.1 - ELECTRICAL MATERIALS PRODUCTION UNIT (POWER) - UNIDO REQUIREMENTS

- A) Lot 1.1 - Technical Specification with illustrative examples in English
- B) Lot 1.1 - Technical Specification with illustrative examples in Spanish
- C) Lot 1.1 - Technical Specification with illustrative examples in German

2. ANNEX 2 / Lot 1.2 - ELECTRICAL MATERIALS PRODUCTION UNIT (LIGHTING) - UNIDO REQUIREMENTS

- A) Lot 1.2 - Technical Specification with illustrative examples in English
- B) Lot 1.2 - Technical Specification with illustrative examples in Spanish
- C) Lot 1.2 - Technical Specification with illustrative examples in German

3. ANNEX 3 / for Lot 1.2 - ELECTRICAL MATERIALS PRODUCTION UNIT (LIGHTING) - UNIDO REQUIREMENTS

Detail information on positions 10.1, 10.2 and 11.1, 11.2, 24, 25, 26 and 27.

- Kindly provide for all lots technical data and further documentations, prospect sheets, item numbers, etc.
- The requested equipment must comply with the services described under (1) of the Annex
- Wherever product, supplier names and pictures/drawings are quoted in this TSs, this serves only for illustration purposes. Vendors are entitled to provide equivalent brands/solutions in their bids.

ANNEX 1 - FURTHER INFORMATION OF THE ELECTRICAL MATERIALS (POWER)

Lot 1.1 - ELECTRICAL MATERIALS PRODUCTION UNIT (POWER) - UNIDO REQUIREMENTS

A) Lot 1.1 - Technical Specification with illustrative examples in English

ELECTRICAL MATERIALS PRODUCTION UNIT (POWER)

Item	Description	unit	quantity
1	<p>General Distribution Panel (PGD) Cabinet type composed of modules or cubicles of sheet steel and painted by electrostatic means dried in the oven, degree of protection IP-21 according to IEC-144 standard for interior mounting with holes in its upper and lower part for Cable passes with hinged door with gasket and extra flexible cable for grounding. Door with measuring instruments wired with extra flexible cables. Inside it will consist of 5 copper bars, 3 of them for the phases, one for the connection of the neutral and the other for the protection (PE) of people's safety</p> <p>The PGD has to house the parts according to the Positions 2 – 6 below.</p> <p style="text-align: center;">PIZARRAS GENERALES DE DISTRIBUCIÓN ELÉCTRICA (PGD)</p> 	pieces	1
2	Molded case-type circuit breaker 3Ø, 600 V, In = 125 A, IDdis = 115 A, thermal ID = 10In	pieces	1
3	Molded case circuit breaker 3Ø, 600 V, In = 100 A, IDdis = 35 A, thermal ID = 10In	pieces	1
4	Molded case circuit breaker 3Ø, 600 V, In = 100 A, IDdis = 90 A, thermal ID = 10In	pieces	1

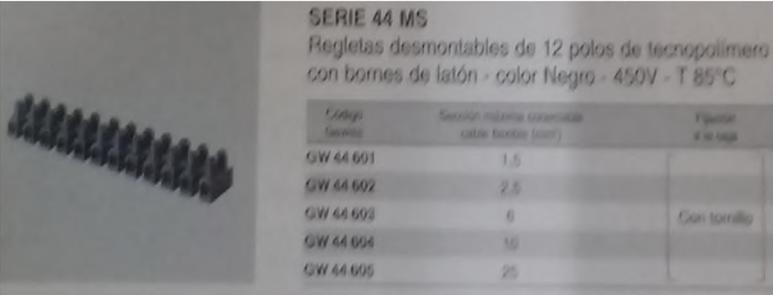
5	Molded case circuit breaker 3Ø, 600 V, In = 100 A.	pieces	1
6	Digital measuring panel to measure phase and line voltage, current, active power, apparent power, reactive power, power factor, frequency, energy consumption and power demand.	pieces	1
7	<p>Force/power panel (PF): Metal panel for surface mounting with hinged door and lock, degree of protection IP-41. Inside it will consist of 5 copper bars, 3 of them for the phases, one for the connection of the neutral and the other for the safety protection (PE) of the people, to operate at 400/230 V, 60 Hz.</p> <p>The PF has to house the parts according to the Positions 8 – 15 below.</p> 	pieces	1
8	3Ø circuit breaker, In = 40 A, 400 V.	pieces	2
9	3Ø circuit breaker, In = 10 A, 400 V.	pieces	7
10	3Ø circuit breaker, In = 16 A, 400 V.	pieces	4
11	3Ø circuit breaker, In = 63 A, 400 V.	pieces	1
12	3Ø circuit breaker, In = 32 A, 400 V.	pieces	1
13	Magnetic contactor 3Ø, 220 V, In = 9 A, with built-in thermal relay with I = 1-2 A.	pieces	4
14	Magnetic contactor 3Ø, 220 V, In = 9 A, with built-in thermal relay with I = 1.5-2.5 A.	pieces	2
15	Magnetic contactor 3Ø, 220 V, In = 16 A, with built-in thermal relay with I = 7-12 A.	pieces	2
16	High-purity flexible annealed copper multi-conductor cable with individual insulation made of polyvinyl chloride (PVC) and heat-resistant PVC outer sheath up to 70 degrees C, UV-resistant, insulation voltage 0.6 / 1 kV		
	3 x 2.5 mm ² conductor	m	350
	4 x 4 mm ² conductor	m	80
	4 x 4 mm ² conductor	m	700

	5 x 4 mm ² conductor	m	260
	5 x 6 mm ² conductor	m	25
17	Flexible metal tubing of galvanized steel in the form of a spiral strip with 3/4 "polyvinyl chloride (PVC) plastic coating; for illustration www.dietzel.at -DE331S22.	m	100
18	Galvanized steel straight coupling connector (fitting), with metal pipe by means of screw pressure and external threading on the other end of 3/4 "(20 mm)	pieces	20

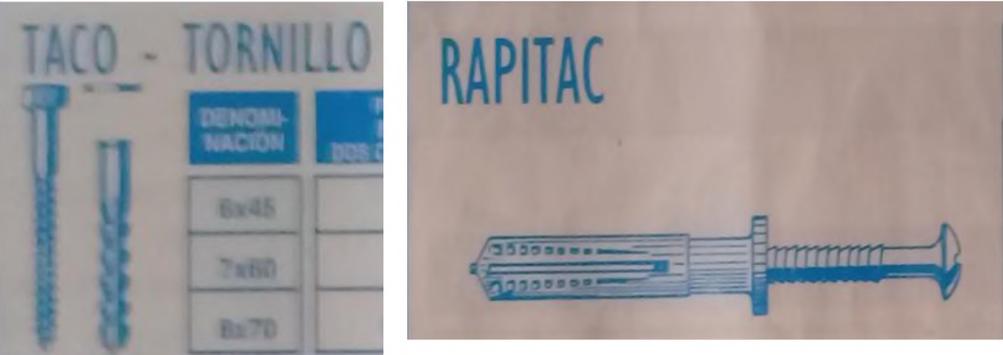
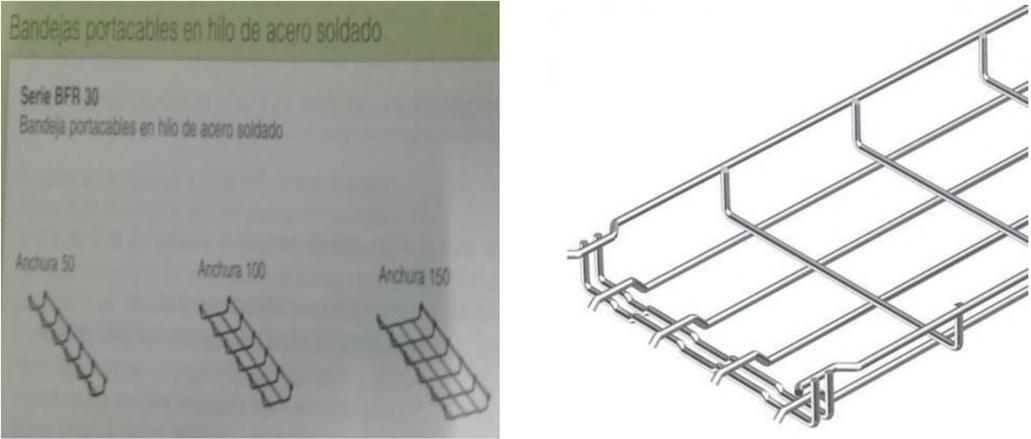


Conector IMC: enlace tubería-caja.

19	<p>Curved coupling connector 90 ° galvanized steel (fitting), with metal pipe by means of screw pressure and external threading on the other end of 3/4 "(20 mm); ALTERNATIVE in synthetics; temperature resistant 70 degrees C</p> 	pieces	20
20	<p>2P + PE power outlet, 16 A, 500 V</p> 	pieces	12
21	<p>Push button station for surface mounting in metal or plastic enclosure with IP-55 protection degree, with NO and NC contacts with capacity of 6 A, 250 V. (1NA and 1NC, on and off)</p> 	pieces	8

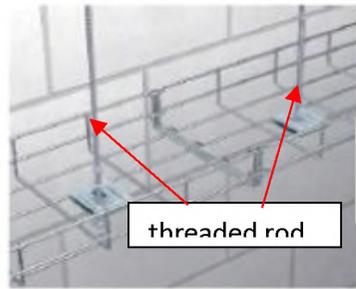
22	Metal (or plastic) electrical record box, 1 mm galvanized steel sheet, for surface, with semi-perforated stamped holes for 3/4 "pipe entry through the sides and bottom.	pieces																			
	4 "x 4" x 1 1/2 "	pieces	30																		
	6 "x 6" x 4 "	pieces	2																		
23	<p>1 mm² thick galvanized steel lid for 4 "x 4" x 1 1/2 "record box - FOR POSITION 22 AND 23</p> 	pieces	30																		
24	<p>Terminal block for conductor connection with sections from 1.5 to 6 mm² with a capacity of 20 A, 500 V</p>  <p>SERIE 44 MS Regletas desmontables de 12 polos de tecnopolimero con bornes de latón - color Negro - 450V - T 85°C</p> <table border="1"> <thead> <tr> <th>Código Sistema</th> <th>Sección máxima admisible (cable flexible (mm²))</th> <th>Figuras a lo largo</th> </tr> </thead> <tbody> <tr> <td>GW 44 601</td> <td>1,5</td> <td></td> </tr> <tr> <td>GW 44 602</td> <td>2,5</td> <td></td> </tr> <tr> <td>GW 44 603</td> <td>6</td> <td>Con tornillo</td> </tr> <tr> <td>GW 44 604</td> <td>10</td> <td></td> </tr> <tr> <td>GW 44 605</td> <td>25</td> <td></td> </tr> </tbody> </table>	Código Sistema	Sección máxima admisible (cable flexible (mm ²))	Figuras a lo largo	GW 44 601	1,5		GW 44 602	2,5		GW 44 603	6	Con tornillo	GW 44 604	10		GW 44 605	25		pieces	100
Código Sistema	Sección máxima admisible (cable flexible (mm ²))	Figuras a lo largo																			
GW 44 601	1,5																				
GW 44 602	2,5																				
GW 44 603	6	Con tornillo																			
GW 44 604	10																				
GW 44 605	25																				

25	<p>Galvanized steel staple of a leg for 3/4 "pipes.</p> 	pieces	100
26	<p>Self drilling screw 5.5 x 25 mm hex head DIN 7504-K</p>	pieces	60
27	<p>1.8 x 7.6 x 709 mm fluted plastic flange, for fixing multiconductors to steel messenger cable</p>  <p>Brida HellermannTyton, Nylon 66, long. 100 mm, 150 mm, 200 mm, 270 mm, 385 mm, anch. 2.5 mm, 3.5 mm, 4.8 mm</p> <p>Código RS 177-9482 Nº ref. fabric. 912-19801 CABLE TIE KIT BK</p>	pieces	100

28	<p>Plastic block set with nail-screw (similar RAPITAC) Ø 4 mm x 25 mm long</p> 	pieces	60
29	<p>Mesh cable tray made of welded steel wire in straight sections of 2 m and of the following dimensions; for illustration https://www.obo.at/produkte/industrieanstallation/gitterrinnen/gitterrinnen-steckverbindung/gitterrinne-gr-magic-35-g.html</p> 		
80 x 15 mm - alternativ 100 x 41		m	30
100 x 35 mm - alternativ 100 x 41		m	36
150 x 35 mm - alternativ 150 x 41		m	36
300 x 35 mm - alternativ 300 x 41		m	10

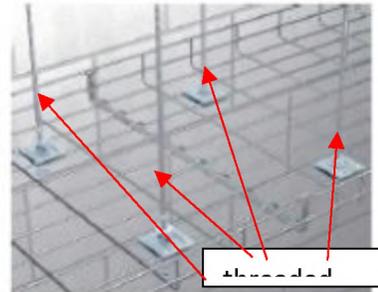
30	Bracket of galvanized steel bracket type (horizontal support) for horizontal tray on vertical surface, for tray of:		
			
	100 x 35 mm (S 100) - fitting to above measures	pieces	3
	150 x 35 mm (S 150) - fitting to above measures	pieces	5
300 x 35 mm (S 300) - fitting to above measures	pieces	10	

System for hanging mesh cable trays from the ceiling with M10 threaded rods, made of galvanized steel; Length preferably 3 m; alternatively 2 m - principle installation pictures below for the mesh cable trays as described and to be supplied under item 29; **equivalent and complete solutions acceptable**



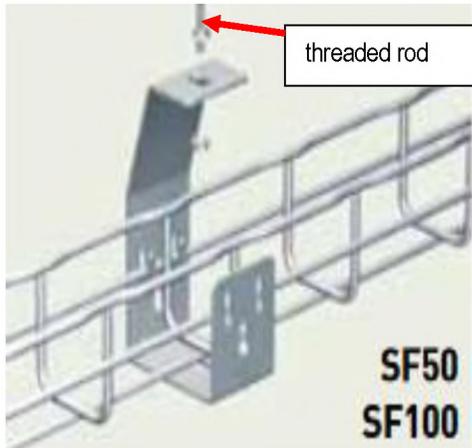
up to 200 mm width

Mittenabhängung
Abhängung einer Gitterrinne mittels Gewindestange Typ 2078 und Wand- und Bodenbefestiger Typ K12 1818. Anwendung bis zu einer Breite von 200 mm.



above 300 mm width

Pendelabhängung
Abhängung einer Gitterrinne mittels Gewindestange Typ 2078 und Wand- und Bodenbefestiger Typ K12 1818. Anwendung ab einer Breite von 300 mm.



31

for mesh cable tray 80 mm wide, alternatively 100 mm wide; Suspension / threaded rod, preferably length 3 m, alternatively 2 m

pieces 15

for mesh cable tray 100 mm wide; Suspension / threaded rod, preferably length 3 m, alternatively 2 m

pieces 18

for mesh cable tray 150 mm wide; Suspension / threaded rod, preferably length 3 m, alternatively 2 m

pieces 18

32	<p>Fastening element for the mesh cable tray on the bottom of the threaded rod (1 x per threaded rod), galvanized</p> 	pieces	51
33	<p>Lateral connection flange for mesh cable trays according to item 29, galvanized</p> 	pieces	51
34-1	<p>Threaded rods M10; preferably 3,000 mm, alternatively 2,000 mm; galvanized</p> 	pieces	51
34-2	<p>Connecting sleeve for threaded rods M10, length approx. 24 mm; galvanized</p> 	pieces	51

35	Alternatively when using SF 100 for item 31; Suspension "C" galvanized 3 mm sheet	pieces	51
36	Fastening element of the threaded rod at the top, on the ceiling; approx. 80 x 40 mm; galvanized 	pieces	51
37	M10 nuts for threaded rods; galvanized	pieces	51

B) Lot 1.1 - Technical Specification with illustrative examples in Spanish

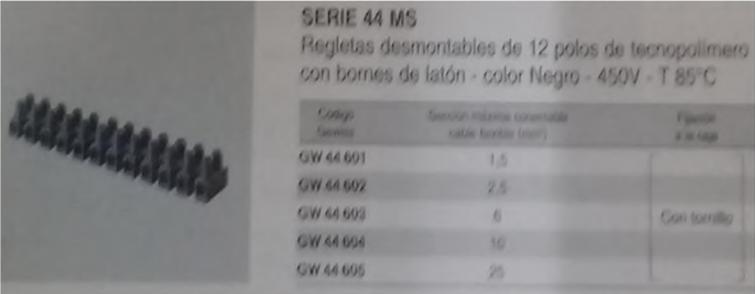
TABLE 1 - LISTADO DE MATERIALES ELECTRICOS NAVE DE PRODUCCION (FUERZA)

No.	DENOMINACIÓN	U/M	CANT.
1	<p>Panel General de Distribución (PGD) Tipo gabinete compuesta por módulos o cubículos de chapa de acero y pintada por medios electrostáticos secada al horno, grado de protección IP-21 según norma IEC-144 para montaje interior con orificios en su parte superior e inferior para pases de cables con puerta bisagrada con junta y cable extra flexible para la conexión a tierra. Puerta con instrumentos de medición alambrados con cables extra flexibles. En su interior constará de 5 barras de cobre, de ellas 3 para las fases, una para la conexión del neutro y otra para la protección (PE) de seguridad de las personas. El PGD tiene que alojar las partes de acuerdo con las Posiciones 2 - 6 a continuación.</p> <p style="text-align: center;">PIZARRAS GENERALES DE DISTRIBUCIÓN ELÉCTRICA (PGD)</p> 	u	1
2	Interrupor automático tipo caja moldeada 3Ø, 600 V, I _n = 125 A, I _{disp} = 115 A, I _{disp.térm.} =10I _n	u	1
3	Interrupor automático tipo caja moldeada 3Ø, 600 V, I _n = 100 A, I _{disp} = 35 A, I _{disp.térm.} =10I _n	u	1
4	Interrupor automático tipo caja moldeada 3Ø, 600 V, I _n = 100 A, I _{disp} = 90 A, I _{disp.térm.} =10I _n	u	1

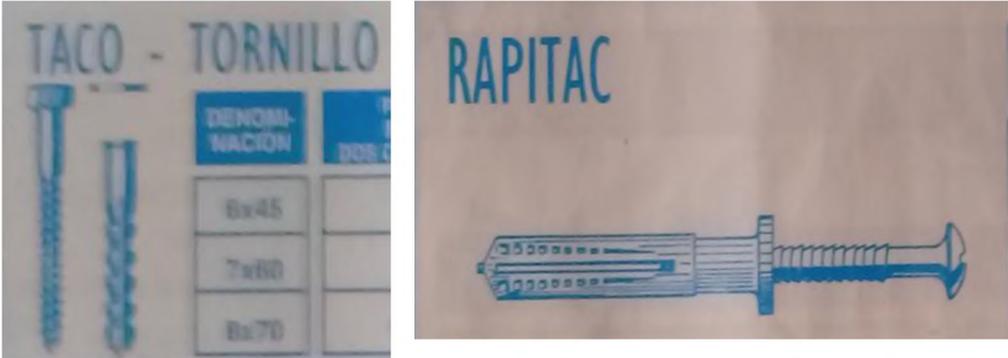
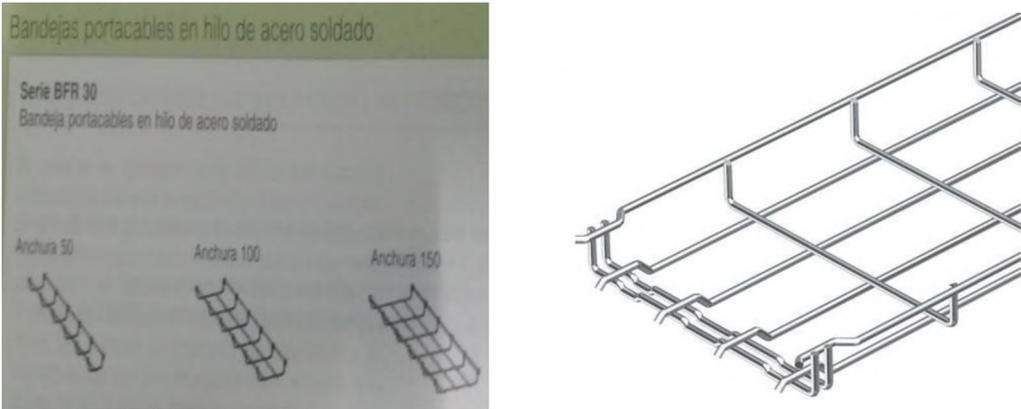
5	Interruptor automático tipo caja moldeada 3Ø, 600 V, I _n = 100 A.	u	1
6	Panel de medición digital para medir voltaje de fase y de línea, corriente, Potencia activa, Potencia aparente, Potencia reactiva, Factor de potencia, Frecuencia, Consumo de energía y potencia demandada.	u	1
7	<p>Panel de fuerza (PF): Panel metálico para montaje superficial con puerta de bisagras y cerradura, grado de protección IP-41. En su interior constará de 5 barras de cobre, de ellas 3 para las fases, una para la conexión del neutro y otra para la protección(PE) de seguridad de las personas, para operar a 400/230 V, 60 Hz.</p> <p>El PF tiene que alojar las partes de acuerdo con las Posiciones 8 - 15 a continuación.</p> 	u	1
8	Interruptor automático 3Ø, I _n = 40 A, 400 V.	u	2
9	Interruptor automático 3Ø, I _n = 10 A, 400 V.	u	7
10	Interruptor automático 3Ø, I _n = 16 A, 400 V.	u	4
11	Interruptor automático 3Ø, I _n = 63 A, 400 V.	u	1
12	Interruptor automático 3Ø, I _n = 32 A, 400 V.	u	1
13	Contacto magnético 3Ø, 220 V, I _n = 9 A, con relé térmico incorporado con I=1-2 A.- 3 posiciones requeridas	u	4
14	Contacto magnético 3Ø, 220 V, I _n = 9 A, con relé térmico incorporado con I=1.5-2.5 A.- 2 posiciones requeridas	u	2
15	Contacto magnético 3Ø, 220 V, I _n = 16 A, con relé térmico incorporado con I=7-12 A.- 2 posiciones requeridas	u	2
16	flexible cable multiconductor de cobre recocido de alta pureza, con aislamiento individual de cloruro de polivinilo (PVC) y cubierta exterior de PVC del tipo resistente al calor hasta 70 grados C; Resistente a los rayos UV, tensión de aislamiento 0.6/1 kV		
	Conductor 3 x 2.5 mm ²	m	350

	Conductor 4 x 4 mm ²	m	80
	Conductor 4 x 4 mm ²	m	700
	Conductor 5 x 4 mm ²	m	260
	Conductor 5 x 6 mm ²	m	25
17	<p>Canalizaciones de tubería metálica flexible de acero galvanizado en forma de fleje en espiral con revestimiento plástico de policloruro de vinilo (PVC) de 3/4" (20 mm). for illustration www.dietzel.at -DE331S22.</p> 	m	100
18	<p>Conector de acoplamiento recto de acero galvanizado (racor), con tubería metálica mediante presión por tornillos y roscado exterior en el otro extremo de 3/4" (20 mm)</p>  <p>Conector IMC: enlace <u>tubería-caja</u>.</p>	u	20

19	<p>Conector de acoplamiento curvo de 90° de acero galvanizado (racor), con tubería metálica mediante presión por tornillos y roscado exterior en el otro extremo de 3/4" (20 mm)</p> 	u	20
20	<p>Toma corriente 2P + PE, 16 A, 500 V</p> 	u	12
21	<p>Estación de botones pulsadores para montar sobre superficie en caja metálica o plástica con grado de protección IP-55, con contactos NA y NC con capacidad de 6 A, 250 V. (1NA y 1NC, encendido y apagado)</p> 	u	8

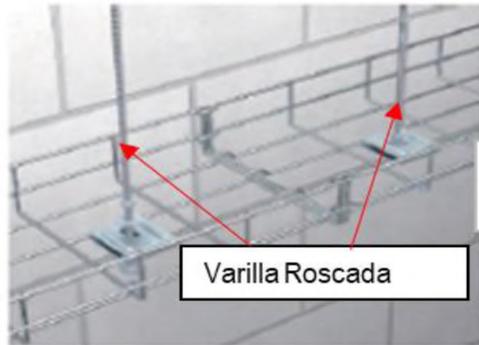
22	Caja registro eléctrico metálico (o plástico), chapa de acero galvanizado de 1 mm, para superficie, con orificios estampados semiperforados para entrada de tuberías de 3/4" por los laterales y por el fondo.																						
	De 4" x 4" x 1 1/2"	u	30																				
	De 6" x 6" x 4"	u	2																				
23	<p>Tapa de acero galvanizado de espesor 1 mm² para caja registro de 4" x 4" x 1 1/2" - para los puestos 22 y 23</p> 	u	30																				
24	<p>Bornera para unión de conductores con secciones de 1.5 hasta 6 mm² con capacidad de 20 A, 500 V</p>  <table border="1"> <thead> <tr> <th colspan="3">SERIE 44 MS</th> </tr> <tr> <th colspan="3">Regletas desmontables de 12 polos de tecnopolimero con bornes de latón - color Negro - 450V - T 85°C</th> </tr> <tr> <th>Código Sistema</th> <th>Sección máxima conectable cable (mm²)</th> <th>Figura a la izquierda</th> </tr> </thead> <tbody> <tr> <td>GW 44 601</td> <td>1,5</td> <td rowspan="5">Con tornillo</td> </tr> <tr> <td>GW 44 602</td> <td>2,5</td> </tr> <tr> <td>GW 44 603</td> <td>6</td> </tr> <tr> <td>GW 44 604</td> <td>10</td> </tr> <tr> <td>GW 44 605</td> <td>25</td> </tr> </tbody> </table>	SERIE 44 MS			Regletas desmontables de 12 polos de tecnopolimero con bornes de latón - color Negro - 450V - T 85°C			Código Sistema	Sección máxima conectable cable (mm ²)	Figura a la izquierda	GW 44 601	1,5	Con tornillo	GW 44 602	2,5	GW 44 603	6	GW 44 604	10	GW 44 605	25	u	100
SERIE 44 MS																							
Regletas desmontables de 12 polos de tecnopolimero con bornes de latón - color Negro - 450V - T 85°C																							
Código Sistema	Sección máxima conectable cable (mm ²)	Figura a la izquierda																					
GW 44 601	1,5	Con tornillo																					
GW 44 602	2,5																						
GW 44 603	6																						
GW 44 604	10																						
GW 44 605	25																						

25	<p>Grapa de acero galvanizado de una pata para tuberías de 3/4".</p> 	u	100
26	<p>Tornillo auto taladrante de 5.5 x 25 mm cabeza hexagonal DIN 7504-K</p>	u	60
27	<p>Brida plástica estriada de 1.8 x 7.6 x 709 mm, para fijar multiconductores a cable mensajero de acero</p>  <p>Brida HellermannTyton, Nylon 66, long. 100 mm, 150 mm, 200 mm, 270 mm, 385 mm, anch. 2.5 mm, 3.5 mm, 4.8 mm</p> <p>Código RS 177-9482 Nº ref. fabric. 912-19801 CABLE TIE KIT BK</p>	u	100

28	<p>Conjunto taco plástico con clavo- tornillo (RAPITAC) de Ø 4 mm x 25 mm de largo</p> 	u	60
29	<p>Bandeja porta cable de hilo de acero soldado en tramos rectos de 2 m y de las siguientes dimensiones: for illustration https://www.obo.at/produkte/industriestallation/gitterrinnen/gitterrinnen-steckverbindung/gitterrinne-gr-magic-35-g.html</p> 		
80 x 15 mm - alternativ 100 x 41		m	30
100 x 35 mm - alternativ 100 x 41		m	36
150 x 35 mm - alternativ 150 x 41		m	36

	300 x 35 mm - alternativ 300 x 41	m	10
30	Brazo soporte de acero galvanizado tipo ménsula (soporte horizontal) para bandeja horizontal sobre superficie vertical, para bandeja de:		
			
	100 x 35 mm (S 100) - adecuado para las dimensiones anteriores	u	3
	150 x 35 mm (S 150) - adecuado para las dimensiones anteriores	u	5
	300 x 35 mm (S 300) - adecuado para las dimensiones anteriores	u	10

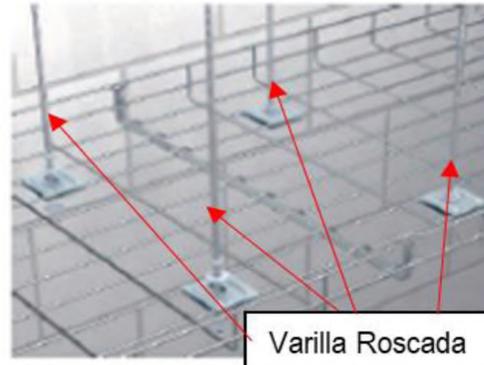
Sistema para colgar bandejas de cables de malla del techo con varillas roscadas M10, de acero galvanizado; Longitud preferiblemente 3 m; alternativamente 2 m - imágenes principales; para las bandejas de cables de malla descritas y que se suministrarán bajo el artículo 29; **soluciones completas equivalentes aprobadas**



hasta 200 mm de ancho

Varilla Roscada

Mittenabhängung
Abhängung einer Gitterrinne mittels Gewindestange Typ 2078 und Wand- und Bodenbefestiger Typ K12 1818. Anwendung bis zu einer Breite von 200 mm.



Varilla Roscada

Pendelabhängung
Abhängung einer Gitterrinne mittels Gewindestange Typ 2078 und Wand- und Bodenbefestiger Typ K12 1818. Anwendung ab einer Breite von 300 mm.

desde 300 mm de ancho



ALTERNATIVA:

Varilla Roscada

SF50
SF100

hasta 100 mm de ancho

31

para bandeja de cable de malla de 80 mm de ancho, alternativamente de 100 mm de ancho; Suspensión / varilla roscada, preferiblemente longitud 3 m, alternativamente 2 m

u

15

	para bandeja de cable de malla de 100 mm de ancho; Suspensión / varilla roscada, preferiblemente longitud 3 m, alternativamente 2 m	u	18
	para bandeja de cable de malla de 150 mm de ancho; Suspensión / varilla roscada, preferiblemente longitud 3 m, alternativamente 2 m	u	18
32	Elemento de fijación de la bandeja del cable de malla en la varilla roscada inferior (1 x por varilla roscada), galvanizado 	u	51
33	Brida de conexión lateral para bandejas de cables de malla según el artículo 29, galvanizado 	u	51
34-1	Varillas roscadas M10; preferiblemente 3.000 mm, alternativamente 2.000 mm; galvanizado 	u	51

34-2	<p>Casquillo de conexión para varillas roscadas M10, longitud aprox.24 mm; galvanizado</p> 		51
35	<p>Alternativamente, cuando se utiliza SF 100 para el artículo 31; Suspensión "C" galvanizada hoja de 3 mm</p>	u	51
36	<p>Elemento de fijación de la varilla roscada en la parte superior, en el techo; aprox.80 x 40 mm; galvanizado</p> 	u	51
37	<p>Tuercas M10 para varillas roscadas; galvanizado</p>	u	51

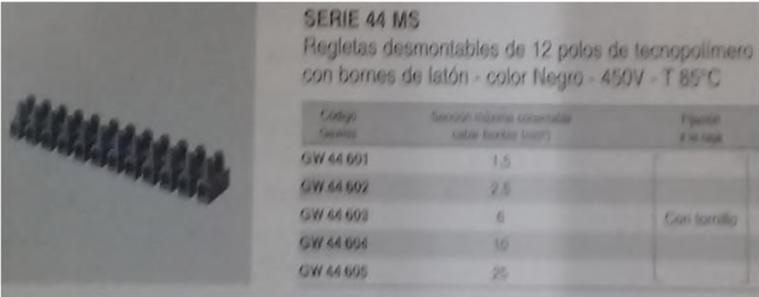
C) Lot 1.1 - Technical Specification with illustrative examples in German

No	Beschreibung	Einheit	Stück
1	<p>General Distribution Panel (PGD) Schranktyp, bestehend aus Modulen oder Kabinen aus Stahlblech und elektrostatisk lackiert, im Ofen getrocknet, Schutzart IP-21 gemäß IEC-144-Norm für Innenmontage mit Löchern im Ober- und Unterteil für Kabelkanäle mit Flügeltür mit Dichtung und extra flexibles Kabel zur Erdung. Tür mit Messgeräten mit extra flexiblen Kabeln. Im Inneren befinden sich 5 Kupferstangen, 3 davon für die Phasen, eine für den Anschluss des Neutralleiters und die andere für den Schutz (PE) der Sicherheit von Personen. Das PGD muss die Teile gemäß den Positionen 2 - 6 unten aufnehmen.</p> <p style="text-align: center;">PIZARRAS GENERALES DE DISTRIBUCIÓN ELÉCTRICA (PGD)</p> 	Stück	1
2	Kompaktleistungsschalter 3Ø, 600 V, I _n = 125 A, I _{Ddis} = 115 A, thermische ID = 10I _n	Stück	1
3	Kompaktleistungsschalter 3Ø, 600 V, I _n = 100 A, I _{Ddis} = 35 A, thermische ID = 10I _n	Stück	1

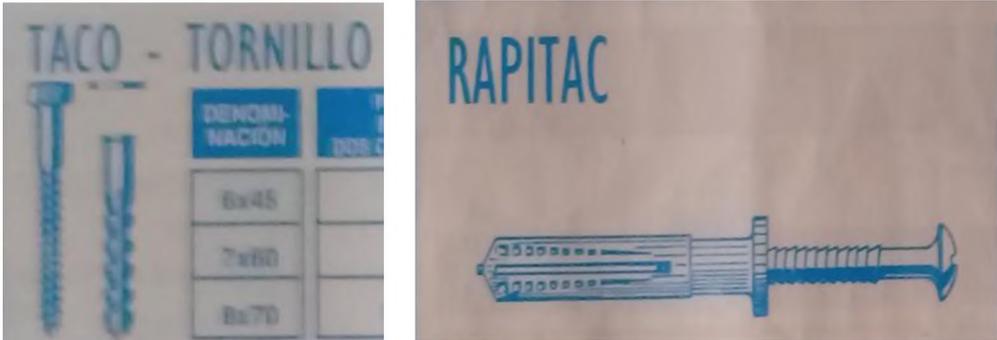
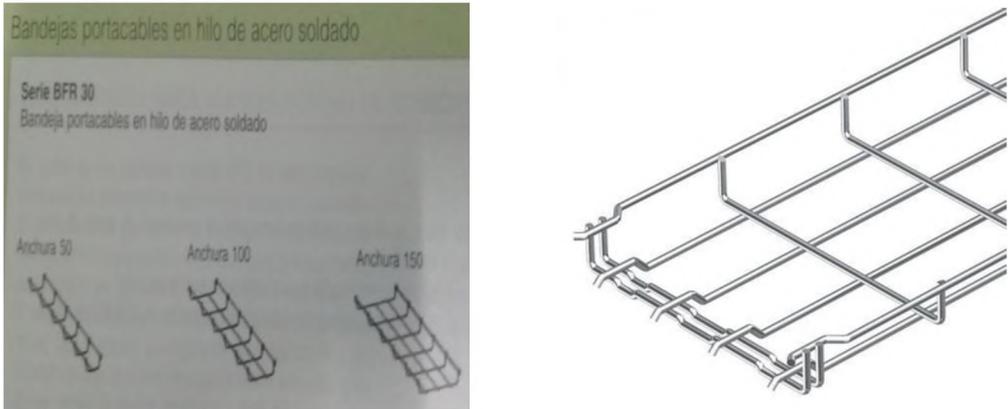
4	Kompaktleistungsschalter 3Ø, 600 V, In = 100 A, IDdis = 90 A, thermische ID = 10In	Stück	1
5	Kompaktleistungsschalter 3Ø, 600 V, In = 100 A.	Stück	1
6	Digitales Messfeld zur Messung von Phasen- und Netzspannung, Strom, Wirkleistung, Scheinleistung, Blindleistung, Leistungsfaktor, Frequenz, Energieverbrauch und Leistungsbedarf.	Stück	1
7	<p>Force Panel (PF): Metallpaneel zur Aufputzmontage mit Flügeltür und Schloss, Schutzart IP-41. Im Inneren befinden sich 5 Kupferstäbe, 3 davon für die Phasen, einer für den Anschluss des Neutralleiters und der andere für den Sicherheitsschutz (PE) der Menschen, um bei 400/230 V, 60 Hz zu arbeiten Das PF muss die Teile gemäß den Positionen 8 - 15 unten aufnehmen.</p> 	Stück	1
8	3Ø Leistungsschalter, In = 40 A, 400 V.	Stück	2
9	3Ø Leistungsschalter, In = 10 A, 400 V.	Stück	7
10	3Ø Leistungsschalter, In = 16 A, 400 V.	Stück	4
11	3Ø Leistungsschalter, In = 63 A, 400 V.	Stück	1
12	3Ø Leistungsschalter, In = 32 A, 400 V.	Stück	1
13	Magnetschütz 3Ø, 220 V, In = 9 A, mit eingebautem Thermorelais mit I = 1-2 A.- 3 Pos erforderlich	Stück	4
14	Magnetschütz 3Ø, 220 V, In = 9 A, mit eingebautem Thermorelais mit I = 1,5-2,5 A. - 2 Pos erforderlich	Stück	2
15	Magnetschütz 3Ø, 220 V, In = 16 A, mit eingebautem Thermorelais mit I = 7-12 A. - 3 Pos erforderlich	Stück	2

16	Hochreines geglühtes flexibles Kupfer-Mehrleiterkabel mit individueller Isolierung aus Polyvinylchlorid (PVC) und wärmebeständigem PVC-Außenmantel bis 70 Grad C, UV- beständig, Isolationsspannung 0,6 / 1 kV		
	3 x 2,5 mm ² Leiter	m	350
	4 x 4 mm ² Leiter	m	80
	4 x 4 mm ² Leiter	m	700
	5 x 4 mm ² Leiter	m	260
	5 x 6 mm ² Leiter	m	25
17	Flexibles Metallrohr aus verzinktem Stahl in Form eines Spiralstreifens mit 3/4 "Polyvinylchlorid (PVC) Kunststoffbeschichtung / beispielhaft www.Dietzel.at ; DE331S22	m	100
18	Gerader Kupplungsverbinder (Anschlussstück) aus verzinktem Stahl mit Metallrohr mittels Schneckendruck und Außengewinde am anderen Ende von 20 mm (3/4 ")	Stück	20
	 <p>Conector IMC: enlace <u>tubería-caja</u>.</p>		

19	<p>Gebogener Kupplungsverbinder 90 ° verzinkter Stahl (Fitting), mit Metallrohr mittels Schneckendruck und Außengewinde am anderen Ende von 3/4 "(20 mm), ALTERNATIV In Kunststoff; wärmebeständig 70 Grad</p> 	Stück	20
20	<p>2P + PE-Steckdose, 16 A, 500 V.</p> 	Stück	12
21	<p>Druckknopfstation zur Aufputzmontage in Metall- oder Kunststoffgehäuse mit Schutzart IP-55, mit NO- und NC-Kontakten mit einer Kapazität von 6 A, 250 V. (1NA und 1NC, ein und aus)</p> 	Stück	8

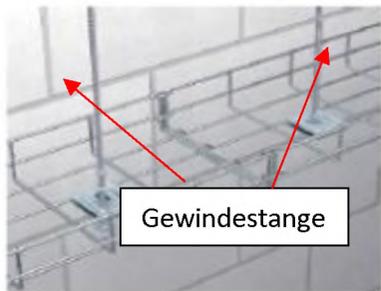
22	<p>Elektrischer Aufzeichnungskasten aus Metall (oder Kunststoff), 1 mm verzinktes Stahlblech, für die Oberfläche, mit halbperforierten Stanzlöchern für den 3/4 "-Rohreintritt durch die Seiten und den Boden.</p>	Stück																			
	4 "x 4" x 1 1/2 "	Stück	30																		
	6 "x 6" x 4 "	Stück	2																		
23	<p>1 mm² dicker verzinkter Stahldeckel für 4 "x 4" x 1 1/2 "Schallplattenbox - FÜR POSITION 22 UND 23</p> 	Stück	30																		
24	<p>Klemmenblock für Leiteranschluss mit Abschnitten von 1,5 bis 6 mm² mit einer Leistung von 20 A, 500 V.</p>  <table border="1" data-bbox="891 1002 1350 1185"> <thead> <tr> <th>Código Serie</th> <th>Sección máxima admisible (cable borbido (mm²))</th> <th>Fijación a la caja</th> </tr> </thead> <tbody> <tr> <td>GW 44 601</td> <td>1,5</td> <td></td> </tr> <tr> <td>GW 44 602</td> <td>2,5</td> <td></td> </tr> <tr> <td>GW 44 603</td> <td>6</td> <td>Con tornillo</td> </tr> <tr> <td>GW 44 604</td> <td>10</td> <td></td> </tr> <tr> <td>GW 44 605</td> <td>25</td> <td></td> </tr> </tbody> </table>	Código Serie	Sección máxima admisible (cable borbido (mm ²))	Fijación a la caja	GW 44 601	1,5		GW 44 602	2,5		GW 44 603	6	Con tornillo	GW 44 604	10		GW 44 605	25		Stück	100
Código Serie	Sección máxima admisible (cable borbido (mm ²))	Fijación a la caja																			
GW 44 601	1,5																				
GW 44 602	2,5																				
GW 44 603	6	Con tornillo																			
GW 44 604	10																				
GW 44 605	25																				

25	<p>Verzinkte Stahlklammer eines Beins für 3/4 "Rohre.</p> 	Stück	100
26	<p>Selbstbohrende Schraube 5,5 x 25 mm Sechskantkopf DIN 7504-K</p>	Stück	60
27	<p>1,8 x 7,6 x 709 mm geriffelter Kunststoffflansch zur Befestigung von Mehrleitern an Stahl-Messenger-Kabeln</p>  <p>Brida HellermannTyton, Nylon 66, long. 100 mm, 150 mm, 200 mm, 270 mm, 385 mm, anch. 2.5 mm, 3.5 mm, 4.8 mm</p> <p>Código RS 177-9482 Nº ref. fabric. 912-19801 CABLE TIE KIT BK</p>	Stück	100

28	<p>Kunststoffblock mit Nagelschraube ähnlich RAPITAC Ø 4 mm x 25 mm lang</p> 	Stück	60
29	<p>Kabel - Gitterrinne aus geschweißtem Stahldraht in geraden Abschnitten von 2 m und folgenden Abmessungen / beispielhaft OBO - https://www.obo.at/produkte/industrieeinstallation/gitterrinnen/gitterrinnen-steckverbindung/gitterrinne-gr-magic-35-g.html:</p> 		
80 x 15 mm / OBO - alternativ 100 x 41		m	30
100 x 35 mm / OBO - alternativ 100 x 41		m	36
150 x 35 mm / OBO - alternativ 150 x 41		m	36

	300 x 35 mm / OBO - alternativ 300 x 41	m	10
30	<p>Halterung aus verzinktem Stahl (horizontale Halterung) für horizontale Schale auf vertikaler Oberfläche, für Schale aus / beispielhaft OBO:</p> 		
	100 x 35 mm (S 100) - passend zu obigen Maßen	Stück	3
	150 x 35 mm (S 150) - passend zu obigen Maßen	Stück	5
	300 x 35 mm (S 300) - passend zu obigen Maßen	Stück	10

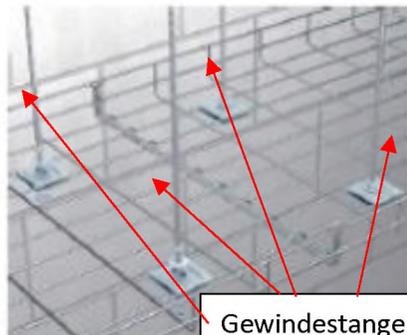
System zur Abhängung von Gitterrinnen Kabeltassen von der Decke mit Gewindestangen M10, aus galvanisiertem Stahl; Länge vorzugsweise 3 m; alternativ 2 m - Prinzipbilder; für die unter Pos 29 beschriebenen und zu liefernden Gitterrinnen; **gleichwertige, komplette Lösungen zugelassen**



Gewindestange

bis 200 mm Breite

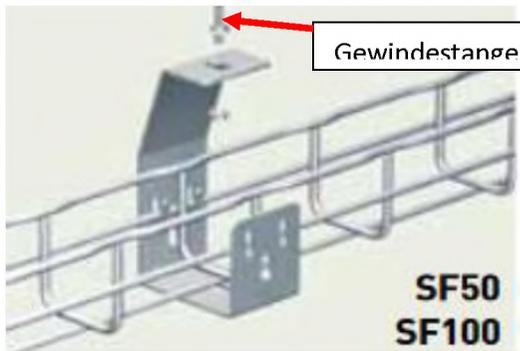
Mittenabhängung
Abhängung einer Gitterrinne mittels Gewindestange Typ 2078 und Wand- und Bodenbefestiger Typ K12 1818. Anwendung bis zu einer Breite von 200 mm.



Gewindestange

ab 300 mm Breite

Pendelabhängung
Abhängung einer Gitterrinne mittels Gewindestange Typ 2078 und Wand- und Bodenbefestiger Typ K12 1818. Anwendung ab einer Breite von 300 mm.



Gewindestange

bis 100 mm Breite

für Gitterrinne 80 mm breit, alternativ 100 mm breit; Abhängung/Gewindestange vorzugsweise Länge 3 m, alternativ 2 m

Stück

15

31

	für Gitterrinne 100 mm breit; Abhängung/Gewindestange vorzugsweise Länge 3 m, alternativ 2 m	Stück	18
	für Gitterrinne 150 mm breit; Abhängung/Gewindestange vorzugsweise Länge 3 m, alternativ 2 m	Stück	18
32	Befestigungselement der Gitterrinne an Gewindestange unten (1 x pro Gewindestange), galvanisiert/verzinkt 	Stück	51
33	Seitlicher Verbindungsflansch für Gitterrinnen gemäß Pos. 29, galvanisiert/verzinkt 	Stück	51
34-1	Gewinde-Stangen M10; vorzugsweise 3.000 mm, alternativ 2.000 mm; galvanisiert/verzinkt 	Stück	51

34-2	Verbindungsmuffe für Gewindestangen M10, Länge ca. 24 mm; galvanisiert/verzinkt 	Stück	51
35	Alternativ bei Verwendung SF 100 für Pos 31; Aufhängung "C" verzinktes 3 mm Blech	Stück	51
36	Befestigungselement der Gewindestange oben, an Decke; ca. 80 x 40 mm; galvanisiert/verzinkt 	Stück	51
37	Muttern M10 für Gewindestangen; galvanisiert/verzinkt	Stück	51

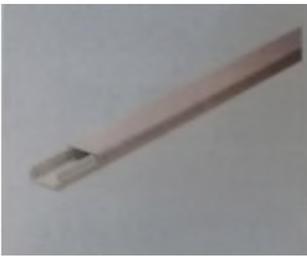
ANNEX 2 Further information of the electrical materials (Lighting)

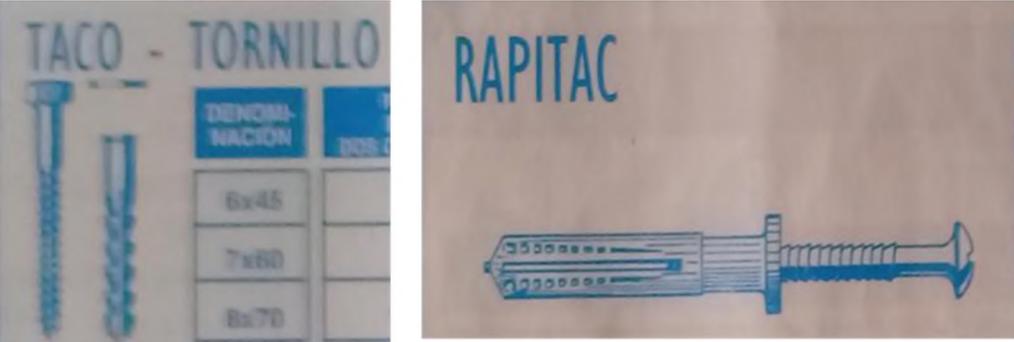
Lot 1.2 - ELECTRICAL MATERIALS PRODUCTION UNIT (LIGHTING) - UNIDO REQUIREMENTS

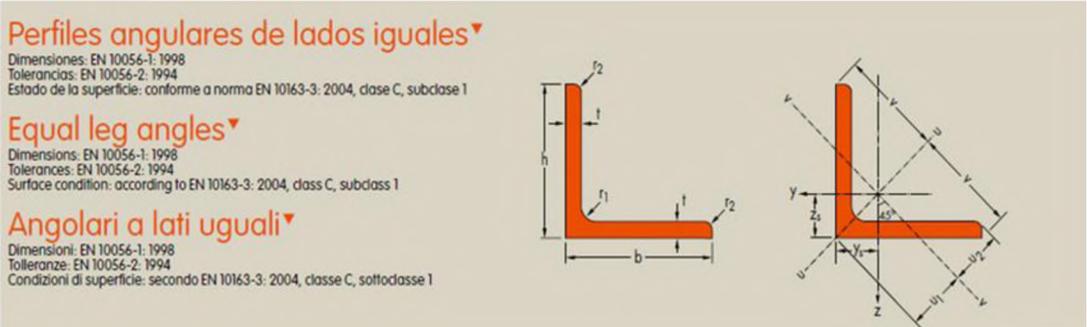
A) Lot 1.2 - Technical Specification with illustrative examples in English

TABLE 2 - ELECTRICAL MATERIALS PRODUCTION UNIT (LIGHTING)

Pos	Description	unit	quantity
1	Panel (PA-1): Metal panel for surface mounting with hinged door and lock, degree of protection IP-41. Inside it will consist of 5 copper bars, 3 of them for the phases, one for the connection of the neutral and the other for the safety protection (PE) of the people, to operate at 400/230 V, 60 Hz. The PA-1 has to house the parts according to the Positions 2 - 8 below.	pieces	1
2	3Ø circuit breaker, In = 40 A, 400 V.	pieces	1
3	Circuit breaker 1Ø, In = 10 A, 400 V.	pieces	3
4	Circuit breaker 1Ø, In = 25 A, 400 V.	pieces	1
5	3Ø circuit breaker, In = 16 A, 400 V.	pieces	4
6	Magnetic contactor 1Ø, 220 V, In = 25 A, with built-in thermal relay. With a normally open contact (NO) and a normally serrated contact (NC).	pieces	2
7	Magnetic contactor 1Ø, 220 V, In = 16 A, with built-in thermal relay. With a normally open contact (NO) and a normally serrated contact (NC).	pieces	1
8	Magnetic contactor 3Ø, 220 V, In = 16 A, with built-in thermal relay. With a normally open contact (NO) and a normally serrated contact (NC).	pieces	3
9	flexible multiconductor cable with annealed copper core of high purity, with individual insulation of polyvinyl chloride (PVC) and heat resistant PVC outer sheath up to 70 degrees C, UV-resistant, insulation voltage 0.6 / 1 kV and shall comply with IEC 227 and IEC 228 A standards		
	3 x 2.5 mm ² conductor	m	270
	4 x 2.5 mm ² conductor	m	170
	5 x 2.5 mm ² conductor	m	220

	4 x 4 mm ² conductor	m	450
10	RAL 7035 gray junction box with multi-diameter cones cable passes and cover with screws IP-65 of: >> See Annex 3		
	105 x 105 x 55 mm	pieces	130
	155 x 155 x 70 mm	pieces	1
11	Lid for surface box of:	pieces	
	105 x 105 x 55 mm	pieces	130
	155 x 155 x 70 mm	pieces	1
12	Pushbutton station for surface mounting in metal or plastic box with IP-55 protection degree, input with multidiameter cones cables with normally open (NO) and normally closed (NC) contact, for 6 A, 250 V with two buttons (on and off).	pieces	6
13	High strength non-flame retardant plastic material gutter with pressure cap, in 2 m sections of 25 x 16 mm 	pieces	3
14	Single pole double shot switch, 10 A, 250 V	pieces	1

15	<p>Screw plug set RAPITAC model diameter 4 mm, depth 25 mm; OR SIMILAR</p> 	pieces	300
16	<p>1/2 "steel leg clamp</p> 	pieces	100

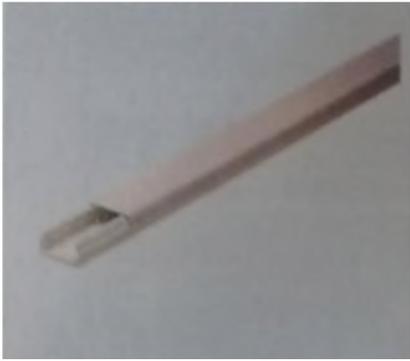
17	<p>1 x 2.5 x 190 mm fluted plastic flange</p>  <p>Brida HellermannTyton, Nylon 66, long. 100 mm, 150 mm, 200 mm, 270 mm, 385 mm, anch. 2.5 mm, 3.5 mm, 4.8 mm</p> <p>Código RS 177-9482 Nº ref. fabric. 912-19801 CABLE TIE KIT BK</p>	pieces	200
18	5.5 x 25 mm self-drilling screw DIN 7504-K	pieces	130
19	Smooth round steel with a diameter of 6 mm, for the construction of supports	m	80
20	<p>Angular type L 32 x 32 x 4 mm</p>  <p>Perfiles angulares de lados iguales▼ Dimensiones: EN 10056-1:1998 Tolerancias: EN 10056-2:1994 Estado de la superficie: conforme a norma EN 10163-3:2004, clase C, subclase 1</p> <p>Equal leg angles▼ Dimensions: EN 10056-1:1998 Tolerances: EN 10056-2:1994 Surface condition: according to EN 10163-3:2004, class C, subclass 1</p> <p>Angolari a lati uguali▼ Dimensioni: EN 10056-1:1998 Tolleranze: EN 10056-2:1994 Condizioni di superficie: secondo EN 10163-3:2004, classe C, sottoclasse 1</p>	m	7
21	M6 flat washer	pieces	70
22	M6 hexagon nut	pieces	70

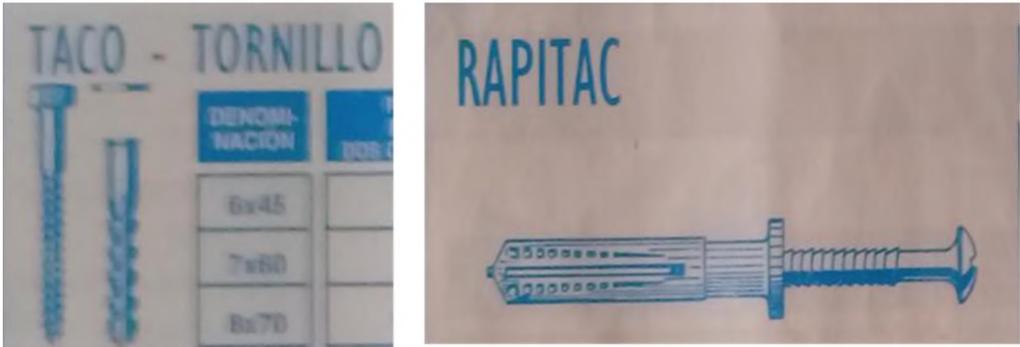
23	<p>Individual terminal block with sections from 1.5 to 6 mm² for 20 A, 500 V</p> 	pieces	150
24	<p>Industrial type symmetric luminaire for LED lamp with anodized aluminum reflector and extensive type sealing (wide beam) with thermostable glass with closing ring with lever spring, suspension for voltage 220 V, 60 Hz, fp = 0.9, with 2P + terminal block T for 4 mm² conductors, for 90-100 W lamps. See Annex 3</p>	pieces	35
25	<p>Moisture resistant fluorescent luminaire degree of protection IP-65 for 220 V, 60 Hz, fp. = 0.9 of two 18 W LED lamps See Annex 3</p>	pieces	70
26	<p>Recessed luminaire in metal body suspended ceiling and reflective screen with terminal block 2P + T, with diffuser in the form of transparent methacrylate cover with hexagonal prism refractors, with high performance, for 220 V, 60 Hz, fp. = 0.9 with two 18W LED tubes See Annex 3</p>	pieces	8
27	<p>Autonomous emergency luminaire for anti-panic lighting with 18 W fluorescent lamp and Nickel-Cadmium batteries for 3-hour autonomy with glass diffuser with high-frequency transistorized ballast type quick start with disconnect switch and test push button with electronic detection of voltage drop and will operate when it is less than 70% of the nominal value, at 220 V ± 10%, 60 Hz, with protection against excessive discharges and possibility of remote control for the rest position. See Annex 3</p>	pieces	3

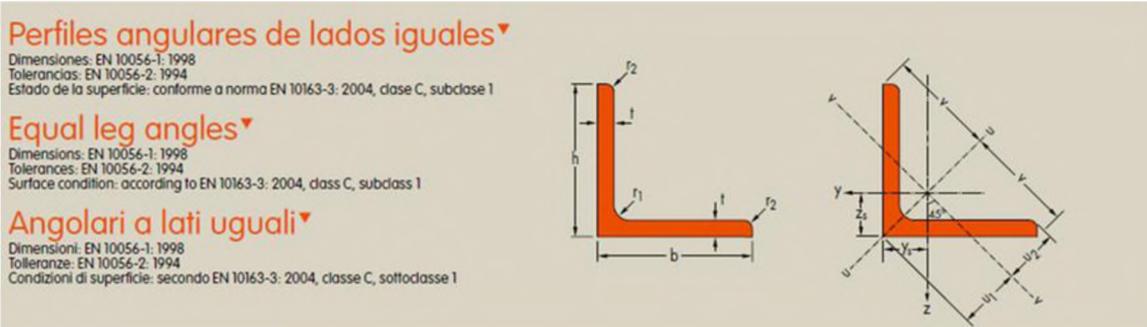
B) Technical Specification with illustrative examples in Spanish

TABLA 2 - LISTADO DE MATERIALES ELÉCTRICOS NAVE DE PRODUCCIÓN (ALUMBRADO)

No.	DENOMINACIÓN	U/M	CANT.
1	Panel (PA-1): Panel metálico para montaje superficial con puerta de bisagras y cerradura, grado de protección IP-41. En su interior constará de 5 barras de cobre, de ellas 3 para las fases, una para la conexión del neutro y otra para la protección(PE) de seguridad de las personas, para operar a 400/230 V, 60 Hz. El PA-1 tiene que alojar las partes de acuerdo con las Posiciones 2 - 8 a continuación.	u	1
2	Interruptor automático 3Ø, I _n = 40 A, 400 V.	u	1
3	Interruptor automático 1Ø, I _n = 10 A, 400 V.	u	3
4	Interruptor automático 1Ø, I _n = 25 A, 400 V.	u	1
5	Interruptor automático 3Ø, I _n = 16 A, 400 V.	u	4
6	Contacto magnético 1Ø, 220 V, I _n = 25 A, con relé térmico incorporado. Con un contacto normalmente abierto (NA) y un contacto normalmente cerrado (NC).	u	2
7	Contacto magnético 1Ø, 220 V, I _n =16 A, con relé térmico incorporado. Con un contacto normalmente abierto (NA) y un contacto normalmente cerrado (NC).	u	1
8	Contacto magnético 3Ø, 220 V, I _n = 16 A, con relé térmico incorporado. Con un contacto normalmente abierto (NA) y un contacto normalmente cerrado (NC).	u	3
9	flexible cable multiconductor de cobre recocido de alta pureza, con aislamiento individual de cloruro de polivinilo (PVC) y cubierta exterior de PVC del tipo resistente al calor hasta 70 grados C; Resistente a los rayos UV, tensión de aislamiento 0.6/1 kV y cumplirán con la norma IEC 227 y la IEC 228 A de:		
	Conductor 3 x 2.5 mm ²	m	270
	Conductor 4 x 2.5 mm ²	m	170
	Conductor 5 x 2.5 mm ²	m	220
	Conductor 4 x 4 mm ²	m	450

10	Caja de superficie gris RAL 7035 con pasa cables de conos multidímetros y tapa con tornillos IP-65 de: Ver anexo 3		
	105 x 105 x 55 mm	u	130
	155 x 155 x 70 mm	u	1
11	Tapa para caja de superficie de:		
	105 x 105 x 55 mm	u	130
	155 x 155 x 70 mm	u	1
12	Estación de botones pulsadores para montar sobre superficie en caja metálica o plástica con grado de protección IP-55, entrada con pasa cables de conos multidímetros con contacto normalmente abierto (NA) y normalmente cerrado (NC), para 6 A, 250 V con dos botones (encendido y apagado).	u	6
13	<p>Canaleta de material plástico de alta resistencia no propagador de llama con tapa a presión, en tramos de 2 m de 25 x 16 mm</p> 	u	3
14	Interruptor doble polo simple tiro , 10 A, 250 V	u	1

15	<p>Conjunto taco con tornillo modelo RAPITAC de diámetro 4 mm, profundidad 25 mm, O SIMILAR</p> 	u	300
16	<p>Grapa de acero de una pata para tuberías de 1/2"</p> 	u	100

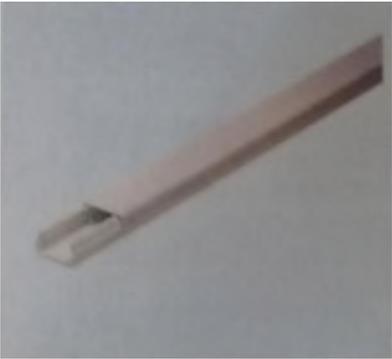
17	<p>Brida plástica estriada de 1 x 2.5 x 190 mm</p>  <p>Brida HellermannTyton, Nylon 66, long. 100 mm, 150 mm, 200 mm, 270 mm, 385 mm, anch. 2.5 mm, 3.5 mm, 4.8 mm</p> <p>Código RS 177-9482 Nº ref. fabric. 912-19801 CABLE TIE KIT BK</p>	u	200
18	Tornillo auto taladrante de 5.5 x 25 mm DIN 7504-K	u	130
19	Cabilla lisa de 6 mm de diámetro para construir soportes	m	80
20	<p>Angular tipo L de 32 x 32 x 4 mm</p>  <p>Perfiles angulares de lados iguales▼ Dimensiones: EN 10056-1: 1998 Tolerancias: EN 10056-2: 1994 Estado de la superficie: conforme a norma EN 10163-3: 2004, clase C, subclase 1</p> <p>Equal leg angles▼ Dimensions: EN 10056-1: 1998 Tolerances: EN 10056-2: 1994 Surface condition: according to EN 10163-3: 2004, class C, subclass 1</p> <p>Angolari a lati uguali▼ Dimensioni: EN 10056-1: 1998 Tolleranze: EN 10056-2: 1994 Condizioni di superficie: secondo EN 10163-3: 2004, classe C, sottoclasse 1</p>	m	7
21	Arandela plana M6	u	70
22	Tuerca hexagonal M6	u	70

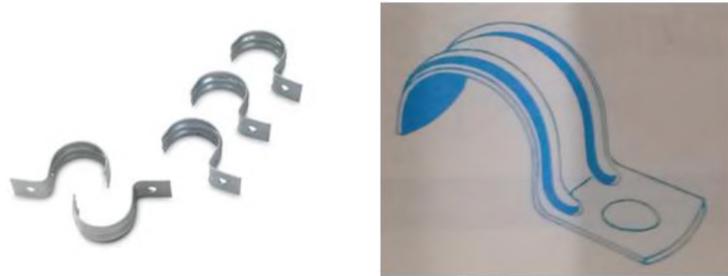
23	Bornera individual con secciones desde 1.5 hasta 6 mm ² para 20 A, 500 V		u	150
24	Luminaria simétrica tipo industrial para lámpara LED con reflector de aluminio anodizado y sellado tipo extensiva (haz ancho) con vidrio termoestable con aro de cierre con resorte de palanca, de suspensión para voltaje 220 V, 60 Hz, fp= 0.9, con bornera 2P + T para conductores de 4 mm ² , para lámparas de 90-100 W. Ver anexo 3		u	35
25	Luminaria fluorescente resistente a la humedad grado de protección IP-65 para 220 V, 60 Hz, fp.=0.9 de dos lámparas LED de 18 W Ver anexo 3		u	70
26	Luminaria de empotrar en falso techo de cuerpo metálico y pantalla reflectante con bornera de conexiones 2P + T, con difusor en forma de cubierta de metacrilato transparente con prisma hexagonal refractores, con alto rendimiento, para 220 V, 60 Hz, fp.=0.9 con dos tubos LED de 18 W Ver anexo 3		u	8
27	Luminaria de emergencia autónoma para alumbrado anti pánico con lámpara fluorescente de 18 W y baterías de Níquel-Cadmio para autonomía de 3 horas con difusor de cristal con balastro transistorizado de alta frecuencia tipo arranque rápido con interruptor de desconexión y pulsador de prueba con detección electrónica de caída de tensión y operará cuando la misma sea inferior al 70 % del valor nominal, a 220 V ±10 %, 60 Hz, con protección contra descargas excesivas y posibilidad de mando a distancia para la posición de reposo. Ver anexo 3		u	3

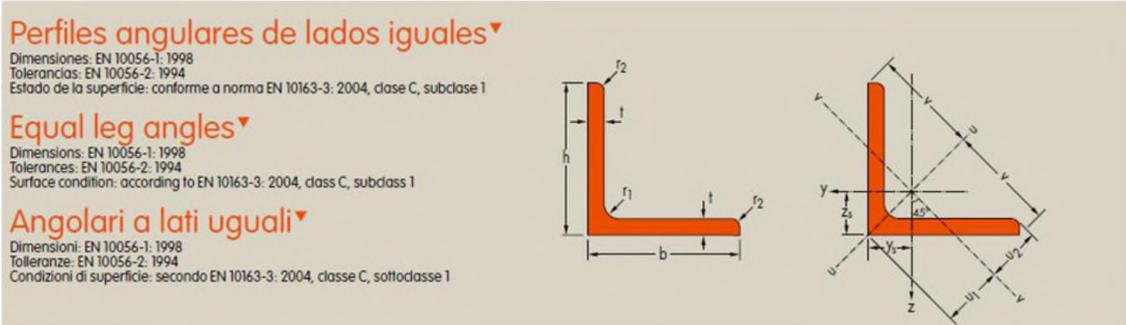
C) Technical Specification with illustrative examples in German

TABELLE 2 - LISTE DER ELEKTRISCHEN MATERIALIEN PRODUKTIONSGEBÄUDE (BELEUCHTUNG)

No	Beschreibung	Einheit	Stück
1	<p>Paneel (PA-1): Metallpaneel zur Aufputzmontage mit Flügeltür und Schloss, Schutzart IP-41. Im Inneren befinden sich 5 Kupferstäbe, 3 davon für die Phasen, einer für den Anschluss des Neutralleiters und der andere für den Sicherheitsschutz (PE) der Menschen, um bei 400/230 V, 60 Hz zu arbeiten.</p> <p>Das Panel PA-1 muss die Teile gemäß den Positionen 2 - 8 unten aufnehmen.</p>	Stück	1
2	3Ø Leistungsschalter, In = 40 A, 400 V.	Stück	1
3	Leistungsschalter 1Ø, In = 10 A, 400 V.	Stück	3
4	Leistungsschalter 1Ø, In = 25 A, 400 V.	Stück	1
5	3Ø Leistungsschalter, In = 16 A, 400 V.	Stück	4
6	Magnetschütz 1Ø, 220 V, In = 25 A, mit eingebautem Thermorelais. Mit einem normalerweise offenen Kontakt (NO) und einem normalerweise gezackten Kontakt (NC).	Stück	2
7	Magnetschütz 1Ø, 220 V, In = 16 A, mit eingebautem Thermorelais. Mit einem normalerweise offenen Kontakt (NO) und einem normalerweise gezackten Kontakt (NC).	Stück	1
8	Magnetschütz 3Ø, 220 V, In = 16 A, mit eingebautem Thermorelais. Mit einem normalerweise offenen Kontakt (NO) und einem normalerweise gezackten Kontakt (NC).	Stück	3
9	Hochreines flexibles geglühtes Kupfer-Mehrleiterkabel mit individueller Isolierung aus Polyvinylchlorid (PVC) und wärmebeständigem PVC-Außenmantel bis 70 Grad C, UV- beständig, Isolationsspannung 0,6 / 1 kV, muss den Normen IEC 227 und IEC 228 A entsprechen		
	3 x 2,5 mm ² Leiter	m	270
	4 x 2,5 mm ² Leiter	m	170
	5 x 2,5 mm ² Leiter	m	220
	4 x 4 mm ² Leiter	m	450
10	RAL 7035 Abzweigdose/Box mit grauer Oberfläche, Kabeldurchführungen mit mehreren Kegeln und Abdeckung mit Schrauben IP-65 Siehe Anhang/Annex 3		
	105 x 105 x 55 mm	Stück	130

	155 x 155 x 70 mm	Stück	1
11	Deckel für Oberflächenbox von: - Siehe Anhang / Annex 3	Stück	
	105 x 105 x 55 mm	Stück	130
	155 x 155 x 70 mm	Stück	1
12	Drucktastenstation zur Aufputzmontage in Metall- oder Kunststoffbox mit Schutzart IP-55, Eingang mit Multidurchmesser-Konuskabeln mit normalerweise offenem (NO) und normalerweise geschlossenem (NC) Kontakt für 6 A, 250 V mit zwei Tasten (ein und aus).	Stück	6
13	Hochfeste, nicht flammhemmende Kunststoffrinne mit Druckkappe in 2 m langen Abschnitten von 25 x 16 mm 	Stück	3
14	Zweipoliger Einwegschalter 10 A, 250 V.	Stück	1
15	Schraubensatz RAPITAC Modelldurchmesser 4 mm, Tiefe 25 mm; ODER ÄHNLICH 	Stück	300

16	<p>1/2 " Stahlbeinklemme für 1/2" Rohre</p> 	Stück	100
17	<p>1 x 2,5 x 190 mm geriffelter Kunststoffflansch</p>  <p>Brida HellermannTyton, Nylon 66, long. 100 mm, 150 mm, 200 mm, 270 mm, 385 mm, anch. 2.5 mm, 3.5 mm, 4.8 mm</p> <p>Código RS 177-9482 Nº ref. fabric. 912-19801 CABLE TIE KIT BK</p>	Stück	200
18	5,5 x 25 mm selbstbohrende Schraube DIN 7504-K	Stück	130
19	Glatter Rundstahl mit 6 mm Durchmesser, zum Aufbau von Stützen	m	80

20	<p>Winkelstahl L 32 x 32 x 4 mm</p> 	m	7
21	M6 Unterlegscheibe	Stück	70
22	Sechskantmutter M6	Stück	70
23	<p>Einzelklemmenblock mit Abschnitten von 1,5 bis 6 mm² für 20 A, 500 V.</p> 	Stück	150
24	<p>Industrielle symmetrische Leuchte für LED-Lampe mit eloxiertem Aluminiumreflektor und umfangreicher Dichtung (breiter Strahl) mit thermostabilem Glas mit Schließring mit Hebefeder, Aufhängung für Spannung 220 V, 60 Hz, fp = 0,9, mit 2P + Klemmenblock T für 4 mm² Leiter, für 90-100 W Lampen Siehe Anhang / Annex 3</p>	Stück	35
25	<p>Feuchtigkeitsbeständige Leuchtstofflampe Schutzart IP-65 für 220 V, 60 Hz, fp. = 0,9 von zwei 18-W-LED-Lampen Siehe Anhang /Annex 3</p>	Stück	70
26	<p>Einbauleuchte in Metallgehäuse abgehängte Decke und reflektierender Schirm mit Anschlussblock 2P + T, mit Diffusor in Form einer transparenten Methacrylatabdeckung mit sechseckigen Prismenrefraktoren, mit hoher Leistung, für 220 V, 60 Hz, fp. = 0,9 mit zwei 18W LED Röhren Siehe Anhang Annex 3</p>	Stück	8

27	<p>Autonome Notleuchte für Panikschutzbeleuchtung mit 18-W-Leuchtstofflampe und Nickel-Cadmium-Batterien für 3-Stunden-Autonomie mit Glasdiffusor mit hochfrequentem Transistor-Vorschaltgerät, Schnellstart mit Trennschalter und Testtaster mit elektronischer Erkennung von Spannungsabfall und arbeitet, wenn er weniger als 70% des Nennwerts beträgt, bei 220 V ± 10%, 60 Hz, mit Schutz gegen übermäßige Entladungen und der Möglichkeit der Fernbedienung für die Ruheposition. - 2 Teile für diese Position erforderlich</p> <p>Siehe Anhang/Annex 3</p>	Stück	3
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ANNEX 3 Electrical materials production unit (lighting) / Anexo 3 Materiales eléctricos nave de producción (alumbrado) / Anhang 3 Elektrischen Materialienproduktionsgebäude (Beleuchtung)

(1) Ad Position 10 / 11 - for illustration purposes / con fines ilustrativos / Beispielhaft

Pos 10.1 und 11.1 - /Table 2; equivalent / equivalente a / äquivalent Fa Schneider Elektrik - RAL 7035 Box mit grauer Oberfläche, Kabeldurchführungen mit mehreren Kegeln und Abdeckung mit Schrauben IP-65

Product data sheet Characteristics

NSYTBS11116

EAN Code: 3606480165252



Main

Range	Thalassa
Product name	Thalassa TBS
Device application	Multi-purpose
Product or component type	Industrial box
Height	116 Mm
Width	116 Mm
Depth	62 Mm
Internal height	105 Mm
Internal width	105 Mm
Internal depth	55 Mm
Enclosure mounting	Wall mounted
Device composition	1 body 1 cover 4 cover screw
Quantity per set	Set of 5
Body type	One piece moulded
Type of front cover	Low plain cover
Cover fixing	Plastic screws
Lock type	Captive screw flat outside sealed area
Removable parts	Cover by captive screws

Characteristics of the performance of the products contained herein. Reliability or reliability of these products for specific user applications. Evaluation and testing of the products with respect to the relevant specific application or use thereof. Not liable for misuse of the information contained herein.

Pos 10.2 und 11.2 - /Table 2; Alumbrado; equivalent / equivalente a / äquivalent Fa Schneider Elektrik - RAL 7035 Box mit grauer Oberfläche, Kabeldurchführungen mit mehreren Kegeln und Abdeckung mit Schrauben IP-65

Product data sheet
Characteristics

NSYTBS19168



EAN Code: 3606480165306



Main

Range	Thalassa
Product name	Thalassa TBS
Device application	Multi-purpose
Product or component type	Industrial box
Height	192 Mm
Width	164 Mm
Depth	87 Mm
Internal height	175 Mm
Internal width	150 Mm
Internal depth	80 Mm
Enclosure mounting	Wall mounted
Device composition	1 body 1 cover 4 cover screw
Body type	One piece moulded
Type of front cover	Low plain cover
Cover fixing	Plastic screws
Lock type	Captive screw flat outside sealed area
Removable parts	Cover by captive screws

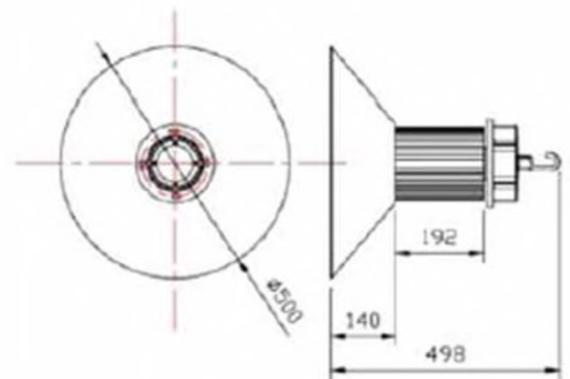
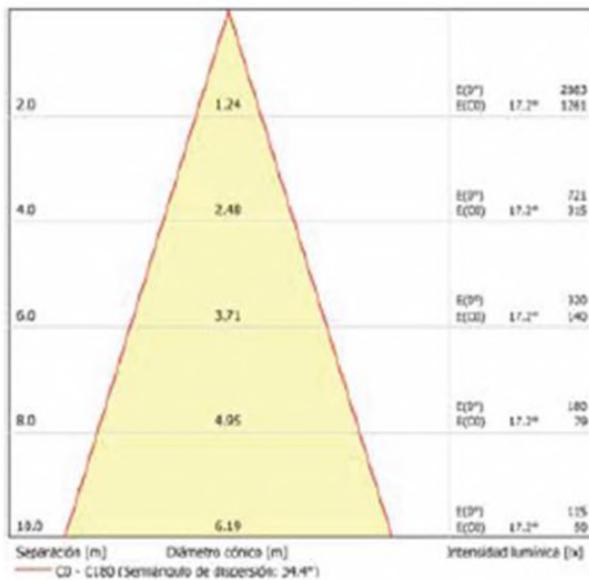
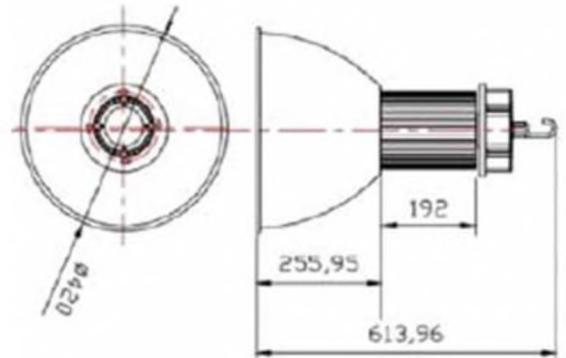
Characteristics of the performance of the products contained herein.
shall be available of these modules for enquiries, user applications.

(2) **Ad Position 24 - for illustration purposes / con fines ilustrativos / Beispielhaft**

Datos de producto Artesolar

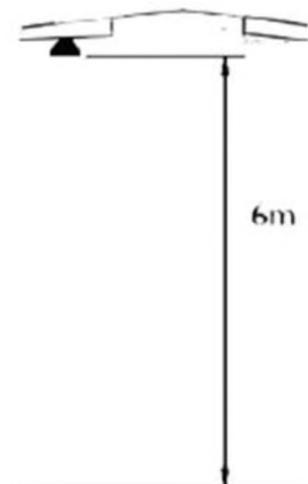
Campana industrial HBL 100W Led
 Bridgelux 60010E/F
 Clase "HBL= High Bay Light"

Artesolar 60010E/F LED 100W
 N° de artículo: 60010E/F
 Flujo luminoso (Luminaria): 6677 Lm
 Flujo luminoso (Lámparas): 6755 Lm
 Potencia de las luminarias: 109LmW
 Clasificación luminarias según CIE: 99



Montaje de las luminarias

Altura de montaje: 6,00 m
 Altura del punto de luz: 4,75 m



(3) Ad Position 25 - for illustration purposes / con fines ilustrativos / Beispielhaft

HYDRO WATER-PROOF FITTINGS:

- CLASS EEI=B2 ΔT50 MAGNETIC BALLASTS
- CLASS EEI=A2 ELECTRONIC BALLAST
- COMPLETE WITH STAINLESS STEEL CEILING BRACKET

Housing: injection moulded, vandal resistant, self-extinguishing, UV stabilised RAL 7035 grey polycarbonate, high mechanical resistance thanks to the stiffening ribs inside the structure.

Diffuser: injection moulded V2 self-extinguishing, UV stabilised clear polycarbonate, prismatic inside for better light control. The smooth outside finishing facilitates cleaning, essential to ensure maximum lighting efficiency at all times.

Reflector: Galvanised steel previously stove-enamelled with UV-stabilised polyester resin.

Electric gear: 230V/50Hz power supply. Hard wire, cross section 0.50 sqmm, and high-temperature resistant (up to 90°C) PVC-HT sheath, in accordance with CEI 20-20 standards. 2P+T terminal block with fuse holder. Maximum allowed lead cross section 2.5 sqmm. Electronic and emergency versions available.

Equipment: 3.15 A protection fuse. Rubber cable gland and grommet in separate bag (min. cable Ø 9 max Ø 12). Environment-friendly anti-gassing polyurethane foam gasket fibreglass nylon locking latches.



TOOL FREE CLOSING LATCHES

Enables the diffuser to be opened for relamping and maintenance purposes whilst remaining attached to the housing via the nylon latches.

STAINLESS STEEL LATCHES

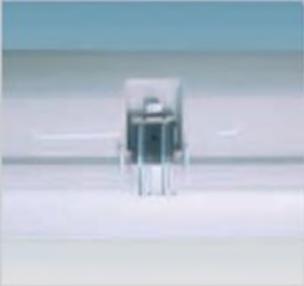
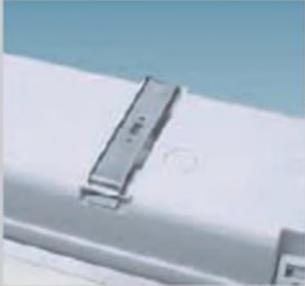
Available with stainless steel latches on request order using sub-code: 0077.

STANDARD STEEL MOUNTING BRACKET

Enables quick and easy installation of the fixture to ceiling surfaces.

STANDARD SPRING LOOP

Allows quick connection to any chain suspension system.

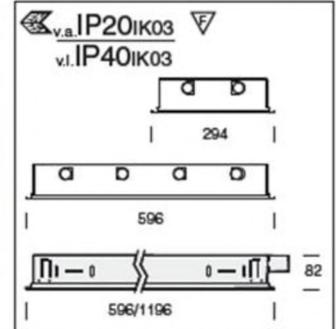
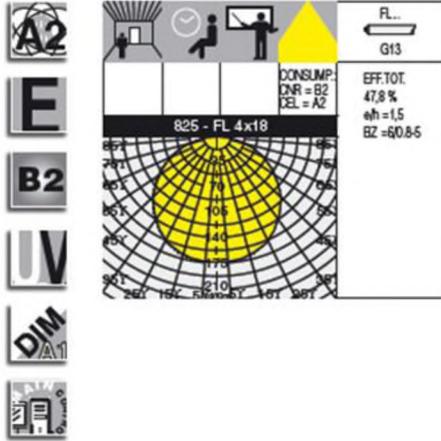





LATCHES ARE NOT ALL THE SAME

(4) Ad Position 26- for illustration purposes / con fines ilustrativos / Beispielhaft

24

Comfort for shocks and panels



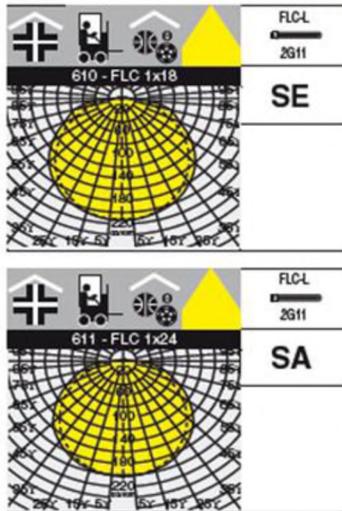
Housing and frame: made of sheet steel.

Diffuser: in opal plexiglass.

Supplied without brackets: for contact mounting directly on the cross T structure. When not contact mounted, see page 30).

825 Comfort - opal diffuser										SHOCKS	PANELS
wattage	colour	CNR		CNR-E		CEL		CEL-E			
		weight	code	weight	code	weight	code	weight	code		
FL 2x18	white	3.60	156520-00			3.40	156520-08			•	
FL 2x36	white	6.30	156521-00	6.90	156521-07	5.60	156521-08	6.20	156521-09	•	
FL 4x18	white	6.20	156522-00	6.80	156522-07	5.40	156522-08	5.90	156522-09	•	•
FL 4x36	white	11.00	156523-00	11.60	156523-07	9.50	156523-08	10.10	156523-09	•	•

(5) Ad Position 27 - for illustration purposes / con fines ilustrativos / Beispielhaft



Housing: Vandal-resistant, self-extinguishing, UV-stabilized, anti-yellowing grey polycarbonate.

Diffuser: Vandal resistant, V2 self-extinguishing, UV-stabilised clear polycarbonate, anti-glare frosted inside; smooth, dust-proof outside.

Reflector: Reflecting white polycarbonate.

Electric gear: 230V-240/60Hz power supply with electronic ballast. 4P terminal block for SE version and 6P terminal block for SA version (maximum allowed lead cross-section 2.5 sqmm).

Equipment: rubber cable gland; fixture preset for REST MODE function. Standard inspection LED.

S.A. Emergency (Maintained): In the event of a black-out the one lamp connected to the back-up circuit stays on, thus avoiding the inconvenience caused by a sudden absence of all light.

Emergency run time: 60/180 minutes. When power is restored, the battery recharges automatically in 12 hours.

S.E. Emergency (Only emergency): In the event of a black-out the one lamp connected to the back-up circuit ignites, thus avoiding the inconvenience caused by a sudden absence of all light.

Emergency run time: 60/180 minutes. When power is restored, the battery recharges automatically in 12 hours.

610 Safety - only emergency 1h S.E.

wattage	colour	CEM-L		Auto self-test		Lamps
		weight	code	weight	code	
FLC 18L	grey	1.00	112460-00	1.00	112460-0066	4000K - 1200lm
FLC 24L	grey	1.00	112461-00	1.00	112461-0066	4000K - 1800lm

611 Safety - emergency 1h S.A.

wattage	colour	CELL-E		Auto self-test		Lamps
		weight	code	weight	code	
FLC 18L	grey	1.00	112470-00	1.00	112470-0066	4000K - 1200lm
FLC 24L	grey	1.00	112471-00	1.00	112471-0066	4000K - 1800lm

612 Safety - only emergency 3h S.E.

wattage	colour	CEM-L		Auto self-test		Lamps
		weight	code	weight	code	
FLC 18L	grey	1.00	112480-00	1.00	112480-0066	4000K - 1200lm
FLC 24L	grey	1.00	112481-00	1.00	112481-0066	4000K - 1800lm

613 Safety - emergency 3h S.A.

wattage	colour	CELL-E		Auto self-test		Lamps
		weight	code	weight	code	
FLC 18L	grey	1.00	112490-00	1.00	112490-0066	4000K - 1200lm
FLC 24L	grey	1.00	112491-00	1.00	112491-0066	4000K - 1800lm