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Project Data

Project: P1512021 Kosice LG
Postal Code/City:
Street:

Award Data

Inquiry Type:

Execution Dates

Client Data

Client: Linde AG
Street: Engineering Division
Postal Code/City: Dr.-Carl-von-Linde-Str. 6-14
82049 Pullach

Bill of Quantities: 003 **Mechanical Installation_issue 3_22.06.2022**

Tender Total: EUR
.....

plus % Value-added Tax: EUR
.....

Tender Total Gross: EUR
.....

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
10.	Indirects, construction management and temporary site facilities				
10.10.	Indirects - construction management, construction and home office services				
10.10.10.	Field non-manual, insurances and services				
10.10.10.10	<p>WIC Name: LE/SI-en, WIC No.: 10. 10. 10. 10</p> <p>Wages, accommodation & travel, transport - all-inclusive</p> <p>Wages for indirect personnel (above foreman level): Cost for construction management e.g. but not limited to construction manager, contract administrator, HSE manager, QA/QC manager and all staff above foreman level.</p> <p>Counting of periods for time-based units such as but not limited to daily, weekly, or monthly rates commences not earlier than on completion of temporary facilities and and actual usage. Period ends latest on start of temporary facilities demobilisation.</p> <ul style="list-style-type: none"> - Technical planning and control, settlement and measurement - general indirect labours such as surveyor and laboratory helper, carrier and driver, internal security services, other indirect labour cost - QA/QC (as per ITP and other project requirements) - quantity survey (invoice and progress reporting) - any manpower to fulfill all HSE requirements, e.g. HSE manager, supervisors, clinic, ambulance, doctor, etc. - contribution and provision of manpower for HSE patrol which is organized and under control of COMPANY - any engineering required for the execution of CONTRACTOR activities as well as for the set up of site installations - any cost/activities for administration of documents, e.g. filing, copy, etc. - any cost/activities for preparation/submission of documents, e.g. plan overview job sit installation, chart for expected power and water consumption, manpower histogram, day work report (to be submitted daily based on COMPANY provided form), progress report incl. quantity tracking curves, inspection protocols(ITC's), quality report, progress report, M&DS (material&data sheets), procurement plan, construction schedule level 5, method statements, project execution procedure, provision of any kind of guarantees, any kind of permissions, quantity survey, invoices, any kind safe work reports, site engineering, red-lined drawings, etc. - all cost/activities in conjunction with overall site coordination - all overhead cost for handling of any of lower tiers of CONTRACTOR, Manufactures, Suppliers, etc. 				

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	or CONTRACTOR procurement activities				
	- costs for manpower headcount as per COMPANY/OWNER request				
	- including indirect salaries, indemnity and pay leave, medical treatment, health insurance				
	Accommodation:				
	including mobilisation and demobilisation, day and night expenses, meal expenses				
	Transport:				
	Cost for transport of Contractor's personnel to and from site				
		60.00	Week	.....	.....
10.10.10.50	WIC Name: LE/SI-en, WIC No.: 10. 10. 10. 50 Insurances, fees and bank services Cost for insurances as per Exhibit I (except Erection-All-Risk insurance)				
		1	LSUM	.....	.....
10.10.10.70	WIC Name: LE/SI-en, WIC No.: 10. 10. 10. 70 Construction/Erection all risks insurance Cost for Construction All Risks / Erection All Risks Insurance as per Exhibit I - Insurance.				
		1	LSUM	.....	.....
<hr/>					
Total 10.10.10.	Field non-manual, insurances ..				.....
<hr/>					
Total 10.10.	Indirects - construction manage..				.....
10.20.	Indirects - temporary construction facilities and containers				
10.20.10.	Contractor's temporary offices				
	WIC Name: LE/SI-en, WIC No.: 10. 20. 10. including preparation and gravelling of area and temporary fencing.				
	CONTRACTOR shall provide temporary office facilities and services necessary to complete SCOPE OF WORK, but is not limited to:				
	- safety guard facility for access control				

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	<ul style="list-style-type: none"> - site offices incl. sanitary facilities, furniture, archive, storage - medical and sanitary offices - camp and/or accommodation for own manpower - parking areas for equipment, busses, personnel/site cars - sign boards, access stairs and ladders - sufficient number of smoking and heating shelters incl. radiators as per HSE- and project requirement - any equipment and material to fulfill all HSE requirements - provision of PPE (Personal Protection Equipment) for all workers according to COMPANY HSE policy and project requirements - temporary fire fighting equipment as per HSE- and project requirements - any shifting of temporary site installation, in particular site installation at the construction area, e.g. shelters, workshop, laydown areas incl. material, bar bending and cutting shop, smoking shelter as per site requirements or instruction by COMPANY/OWNER - all cost/activities (equipment and material) required for heavy rain/snow protection and measures required for execution of WORK during rain season/winter time - provision of facilities for tool box meeting, safety awards and other appreciations 				
10.20.10.10	<p>WIC Name: LE/SI-en, WIC No.: 10. 20. 10. 10</p> <p>Mobilisation</p> <p>CONTRACTOR shall deliver, mobilise and assemble temporary office facilities and services necessary to complete SCOPE OF WORK as per note to chapter 10.20.10.</p>	1	LSUM		.....
10.20.10.20	<p>WIC Name: LE/SI-en, WIC No.: 10. 20. 10. 20</p> <p>Rental</p> <p>CONTRACTOR shall provide temporary office facilities and services necessary to complete SCOPE OF WORK as per note to chapter 10.20.10 during the construction time as per time schedule of Exhibit/Article C.</p>				

Counting of periods for time-based units such as but not limited to daily, weekly, or monthly rates

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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commences not earlier than on completion of mobilisation and ends latest on start of demobilisation.

60.00 Week

10.20.10.30 WIC Name: LE/SI-en, WIC No.: 10. 20. 10. 30

Demobilisation

CONTRACTOR shall disassemble and remove temporary office facilities and services including any efforts for final cleaning of site incl. landscaping after finishing of the construction activities, demolishing of any building items, e.g. foundation, slabs, pipes, tanks, etc.

1 LSUM

Total 10.20.10. Contractor's temporary offices

10.20.20. Contractor's shop facilities

WIC Name: LE/SI-en, WIC No.: 10. 20. 20.

Indirect cost for shop facilities including preparation and gravelling of area and temporary fencing.

10.20.20.10 WIC Name: LE/SI-en, WIC No.: 10. 20. 20. 10

Mobilisation

CONTRACTOR shall deliver, mobilise and assemble shop facilities to perform pre-fabrication on site as per note to chapter 10.20.20.

1 LSUM

10.20.20.20 WIC Name: LE/SI-en, WIC No.: 10. 20. 20. 20

Rental

CONTRACTOR shall provide shop facilities to perform pre-fabrication on site as per note to chapter 10.20.20 during the construction time

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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as per time schedule of Exhibit/Article C.

Counting of periods for time-based units such as but not limited to daily, weekly, or monthly rates commences not earlier than on completion of mobilisation and ends latest on start of demobilisation.

60.00 Week

10.20.20.30 WIC Name: LE/SI-en, WIC No.: 10. 20. 20. 30

Demobilisation

CONTRACTOR shall disassemble and remove shop facilities including any efforts for final cleaning of site incl. landscaping after finishing of the construction activities, demolishing of any building items, e.g. foundation, slabs, pipes, tanks, etc.

1 LSUM

Total 10.20.20. Contractor's shop facilities

10.20.30. Contractor's laydown area

WIC Name: LE/SI-en, WIC No.: 10. 20. 30.
including preparation and gravelling of area and temporary fencing.
Laydown areas, workshops, shelters, concrete batching plant,
fabrication shop for pre-cast concrete elements incl. equipment.

10.20.30.10 WIC Name: LE/SI-en, WIC No.: 10. 20. 30. 10

Mobilisation

CONTRACTOR shall deliver, mobilise and assemble laydown area as per note to chapter 10.20.30.

1 LSUM

10.20.30.20 WIC Name: LE/SI-en, WIC No.: 10. 20. 30. 20

Rental

CONTRACTOR shall provide laydown area as per note to chapter 10.20.30 during the construction time as per time schedule of Exhibit/Article C.

Counting of periods for time-based units such as but not limited to daily, weekly, or monthly rates commences not earlier than on completion of mobilisation and ends latest on start of demobilisation.

60.00 Week

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10.20.30.30	<p>WIC Name: LE/SI-en, WIC No.: 10. 20. 30. 30</p> <p>Demobilisation</p> <p>CONTRACTOR shall disassemble and remove laydown area including any efforts for final cleaning of site incl. landscaping after finishing of the construction activities, demolishing of any building items, e.g. foundation, slabs, pipes, tanks, etc.</p>	1	LSUM	
	Total 10.20.30. Contractor's laydown area				.....
10.20.40.	<p>Offices and facilities for Company use</p> <p>including preparation and gravelling of area and temporary fencing. Containers for use of Company staff.</p> <p>Contractor to provide min. 10 standard office containers incl. sanitary facilities for Company</p>				
10.20.40.10	<p>Mobilisation</p> <p>CONTRACTOR shall deliver, mobilise and assemble offices for Company use</p>	1	LSUM		.....
10.20.40.20	<p>Rental</p> <p>CONTRACTOR shall provide offices for Company use</p> <p>Counting of periods for time-based units such as but not limited to daily, weekly, or monthly rates commences not earlier than on completion of mobilisation and ends latest on start of demobilisation.</p>	60.00	Week		.....
10.20.40.30	<p>Demobilisation</p> <p>CONTRACTOR shall disassemble and remove offices for Company use including any efforts for final cleaning of site incl. landscaping after finishing of the construction activities, demolishing of any building items, e.g. foundation, slabs, pipes, tanks, etc.</p>	1	LSUM	

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
<hr/>					
	Total 10.20.40.		Offices and facilities for Comp..	
<hr/>					
	Total 10.20.		Indirects - temporary construct..		.....
10.30.	Indirects - utilities and operation				
10.30.10.	Utilities & operation				
10.30.10.10	Utilities - all-inclusive Client will provide the following utilities free of charge: - power - water - sewage Tie-in points will be within max. 100 meters from construction area. Contractor to provide the connection between tie-in points and the construction area. Cost for all required utilities like - temporary power facilities for offices and construction site and related areas, e.g. laydown area etc. Cabling between the site facilities and the distribution panels as well as the main distribution boards shall be included - potable water for offices and construction site and related areas, e.g. laydown area, etc. - sewage - telecon and dataline, - communication facilities, telephone, internet incl. related hardware - fire and gas facilities; detectors, warning and alarm devices incl. related central equipment - safety guards for access control - operation, maintenance and cleanup of temporary facilities and construction areas				
		1	LSUM		.....
<hr/>					
	Total 10.30.10.		Utilities & operation	
<hr/>					
	Total 10.30.		Indirects - utilities and opera..	

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
10.40.	Indirects - construction equipment, tools and supplies				
10.40.10.	Indirects - construction equipment				
10.40.10.10	<p>WIC Name: LE/SI-en, WIC No.: 10. 40. 10. 10</p> <p>Equipment for indirect services including operator personnel, fuel and oil expenses. For general/service machinery and equipment (e.g. tower crane, equipment which can not be allocated to one single item in the Bill of Quantities) for the complete construction period.</p> <ul style="list-style-type: none"> • Delivery and removal of machinery and equipment incl. loading and truck-mounted crane • Assembly, modification and disassembly of general machinery and equipment • Provision of general/service machinery and equipment • Operation- and maintenance salaries and consumables of general/service machinery and equipment <p>Contractor to submit equipment list and to indicate which of it is included in this item 10.40.10.10.</p> <p>Counting of periods for time-based units such as but not limited to daily, weekly, or monthly rates commences not earlier than on completion of mobilisation and ends latest on start of demobilisation.</p>				
		60.00	Week .....		.....
Total 10.40.10.	Indirects - construction equipm..				.....
Total 10.40.	Indirects - construction equipm..			
Total 10.	Indirects, construction managem..			

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<hr/>					
50.	Security Services				
50.10.	Security Services				
50.10.10.	Security Services				
50.10.10.10	Security Services				
		60.00	Week
<hr/>					
	Total 50.10.10.	Security Services		
<hr/>					
	Total 50.10.	Security Services		
<hr/>					
	Total 50.	Security Services		

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
80.	Material Management and Warehousing				
80.10.	Material Administration				
	WIC Name: LE/SI-en, WIC No.: 80. 10. For further references see specification &AE-2-W-SY 2801				
80.10.10.	Warehousing Facilities				
80.10.10.10	WIC Name: LE/SI-en, WIC No.: 80. 10. 10. 10 Mobilisation The following includes: <ul style="list-style-type: none"> • Design, supply and delivery of warehousing facilities incl. • Offload and assembly of warehouse facilities incl. machinery • Set-up of solid soil conditions, fencing, security/HSE installations • Furnishing of warehouse facilities incl. shelves • Storage facilities for switchgears and cabinets and heating or air conditioning where necessary • In Line Devices, handling and storing 	1	LSUM		.....
80.10.10.20	WIC Name: LE/SI-en, WIC No.: 80. 10. 10. 20 Provision up to Construction Completion Provision of the above mentioned item 80.10.10.10 incl. Maintenance, operation, all consumables, cleaning up to Construction Completion. Counting of periods for time-based units such as but not limited to daily, weekly, or monthly rates commences not earlier than on completion of mobilisation and ends latest on start of demobilisation.	60.00	Week		.....
80.10.10.40	WIC Name: LE/SI-en, WIC No.: 80. 10. 10. 40 Demobilisation The requirements of client for driving within the construction area shall be considered. <ul style="list-style-type: none"> • Disassembly of warehouse facilities incl. machinery • Transport from site of warehouse facilities incl. loading • Removal of solid soil conditions, fencing, Security 	1	LSUM	

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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	Total 80.10.10. Warehousing Facilities			
80.10.20.	Warehouse Operation				
80.10.20.10	WIC Name: LE/SI-en, WIC No.: 80. 10. 20. 10 Warehouse Operation for warehouse management e.g. warehouse manager, helper, driver, etc.				
	Counting of periods for time-based units such as but not limited to daily, weekly, or monthly rates commences not earlier than on completion of mobilisation and ends latest on start of demobilisation.				
		60.00	Week	.....	.....
<hr/>					
	Total 80.10.20. Warehouse Operation				.....
<hr/>					
	Total 80.10. Material Administration				.....
<hr/>					
	Total 80. Material Management and Warehou..				.....

Price breakdown structure

Project: P1512021 Kosice LG
BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
90.	Scaffolding				
90.10.	Scaffolding for inquired scope of work				
90.10.10.	Scaffolding for inquired scope of work				
90.10.10.10	WIC Name: LE/SI-en, WIC No.: 90. 10. 10. 10 Scaffolding for inquired scope of work Contractor shall consider scaffolding for the entire scope of work which is part of the respective contract. Only applicable to contract for Electrical and Instrumentation Installation: Scaffolding, stairs, ladders, etc. up to workers standing level of 5m shall be provided by E&I Contractor. Other scaffolds shall be provided by another third party on construction site.				
		1	LSUM		.....
Total 90.10.10.	Scaffolding for inquired scope ..				.....
Total 90.10.	Scaffolding for inquired scope
Total 90.	Scaffolding			

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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190. Structural Steel Installation

WIC Name: LE/SI-en, WIC No.: 190.

All WORK required for the complete execution of Structural Steel Installation shall be included in the unit rate as specified in the Conditions of Contract and Exhibits A, B, C, D, E, F, G, H, I, J, K, L, M, N.

The unit rate shall be sub-divided into labour, material and equipment rates.

Further the following principal items shall be included in the unit rates:

- Any activities required for the preparation of work
- All QA / QC inspectinos as per project requirements
- Any HSE related measures and items, including sign boards, barricades etc.
- Cleaning of work area

190.10. Primary Structural Steel Erection / Installation

WIC Name: LE/SI-en, WIC No.: 190. 10.

Assignment to weight classes shall be done as follows:

Each single part which will be delivered to site shall be assigned to a weight class.

Only the specific weight of main profile (as specified in BoQ) shall determine the weight class independent from additional connected plates.

The weight of additional connected plates shall be included in the weight of assembly part in the determined weight class.

190.10.20. Plant Pipe Racks: Structural Steel Erection of Primary Steel

WIC Name: LE/SI-en, WIC No.: 190. 10. 20.

The unit rate covers the installation and all related measures described below of all kind of structural steel elements independent from their size and location.

Labour rates shall include:

- Any work required for the preparation of the installation, e.g. preparation / maintenance of the crane area and temporary laydown areas as well as access ways
- Preparation of erection precondition paperwork, method statement, Third Party inspection of lifting study
- Take-over, check items regarding visible damages caused by

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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transport and registration into material management database

- Any manpower required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, handling e.g. from warehouses or laydown areas to erection site, Lifting
- All surveying activities, incl. required paperwork
- Checking and acceptance of foundations and anchor bolts according to relevant specifications
- Any manpower required for intermediate storage / protection of structural steel
- Installation of structural steel as per specification and AFC erection drawings into final position incl. plumbing, leveling, packing, grinding, shimming and any final adjustments required to rectify fabrication errors
- Any manpower required for the transport, lifting, supporting, alignment, handling, cutting, bending at site
- Any bolting and/or welding activities
- All required tests, e.g. bolt tightening test, welding seam test with NDE for field welding etc.
- Touch up painting
- Final cleaning of erected structural steel

Material rates shall include:

Equipment rates shall include:

- All kind of scaffold, platforms and ladders required for the work
- Intermediate storage / protection of structural steel incl. supports
- Any equipment required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, transport, handling e.g. from warehouses or laydown areas to erection site, Lifting
- Any equipment required for the installation, transport, lifting, supporting, alignment, handling, cutting, bending, testing at site, e.g. cranes, temporary supports, generators, trucks and trailers, welding machines

Exclusions

Following items will be compensated separately with regard to the corresponding BoQ item unit rate:

- Grouting

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
190.10.20.10	WIC Name: LE/SI-en, WIC No.: 190. 10. 20. 10 Light sections (less than 21 kg/m)				
		26.59	t	.....	.....
190.10.20.20	WIC Name: LE/SI-en, WIC No.: 190. 10. 20. 20 Medium sections (21 - 65 kg/m)				
		53.17	t	.....	.....
190.10.20.30	WIC Name: LE/SI-en, WIC No.: 190. 10. 20. 30 Heavy sections (65 - 135 kg/m)				
		40.51	t	.....	.....
190.10.20.40	WIC Name: LE/SI-en, WIC No.: 190. 10. 20. 40 Extra heavy sections (greater than 135 kg/m)				
		6.33	t	.....	.....

WIC Name: LE/SI-en, WIC No.: 190. 10. 20.

The unit rate covers the installation and all related measures described below of all kind of structural steel elements independent from their size and location.

Labour rates shall include:

- Any work required for the preparation of the installation, e.g. preparation / maintenance of the crane area and temporary laydown areas as well as access ways
- Preparation of erection precondition paperwork, method statement, Third Party inspection of lifting study
- Take-over, check items regarding visible damages caused by transport and registration into material management database
- Any manpower required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, handling e.g. from warehouses or laydown areas to erection site, Lifting
- All surveying activities, incl. required paperwork
- Checking and acceptance of foundations and anchor bolts according to relevant specifications
- Any manpower required for intermediate storage / protection of structural steel
- Installation of structural steel as per specification and AFC erection drawings into final position incl. plumbing, leveling, packing, grinding, shimming and any final adjustments required to rectify fabrication errors

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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- Any manpower required for the transport, lifting, supporting, alignment, handling, cutting, bending at site
- Any bolting and/or welding activities
- All required tests, e.g. bolt tightening test, welding seam test with NDE for field welding etc.
- Touch up painting
- Final cleaning of erected structural steel

Material rates shall include:

Equipment rates shall include:

- All kind of scaffold, platforms and ladders required for the work
- Intermediate storage / protection of structural steel incl. supports
- Any equipment required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, transport, handling e.g. from warehouses or laydown areas to erection site, Lifting
- Any equipment required for the installation, transport, lifting, supporting, alignment, handling, cutting, bending, testing at site, e.g. cranes, temporary supports, generators, trucks and trailers, welding machines

Exclusions

Following items will be compensated separately with regard to the corresponding BoQ item unit rate:

- Grouting

Total 190.10.20. Plant Pipe Racks: Structural

190.10.40. Steel Buildings and Shelters: Structural Steel Erection of Primary Steel

WIC Name: LE/SI-en, WIC No.: 190. 10. 40.

The unit rate covers the installation and all related measures described below of all kind of structural steel elements independent from their size and location.

Labour rates shall include:

- Any work required for the preparation of the installation, e.g. preparation / maintenance of the crane area and temporary laydown areas as well as access ways
- Preparation of erection precondition paperwork, method statement, Third Party inspection of lifting study

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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- Take-over, check items regarding visible damages caused by transport and registration into material management database
- Any manpower required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, handling e.g. from warehouses or laydown areas to erection site, Lifting
- All surveying activities, incl. required paperwork
- Checking and acceptance of foundations and anchor bolts according to relevant specifications
- Any manpower required for intermediate storage / protection of structural steel
- Installation of structural steel as per specification and AFC erection drawings into final position incl. plumbing, leveling, packing, grinding, shimming and any final adjustments required to rectify fabrication errors
- Any manpower required for the transport, lifting, supporting, alignment, handling, cutting, bending at site
- Any bolting and/or welding activities
- All required tests, e.g. bolt tightening test, welding seam test with NDE for field welding etc.
- Touch up painting
- Final cleaning of erected structural steel

Material rates shall include:

- All consumables, incl. temporary assembly supports, welding bars, etc.

Equipment rates shall include:

- All kind of scaffold, platforms and ladders required for the work
- Intermediate storage / protection of structural steel incl. supports
- Any equipment required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, transport, handling e.g. from warehouses or laydown areas to erection site, Lifting
- Any equipment required for the installation, transport, lifting, supporting, alignment, handling, cutting, bending, testing at site, e.g. cranes, temporary supports, generators, trucks and trailers, welding machines

Exclusions

Following items will be compensated separately with regard to the

Price breakdown structure

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BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	corresponding BoQ item unit rate:				
	• Grouting				
190.10.40.10	WIC Name: LE/SI-en, WIC No.: 190. 10. 40. 10 Light sections (less than 21 kg/m)	74.97	t	.....	.....
190.10.40.20	WIC Name: LE/SI-en, WIC No.: 190. 10. 40. 20 Medium sections (21 - 65 kg/m)	99.96	t	.....	.....
190.10.40.30	WIC Name: LE/SI-en, WIC No.: 190. 10. 40. 30 Heavy sections (65 - 135 kg/m)	49.98	t	.....	.....
190.10.40.40	WIC Name: LE/SI-en, WIC No.: 190. 10. 40. 40 Extra heavy sections (greater than 135 kg/m)	24.99	t	.....	.....
Total 190.10.40. Steel Buildings and Shelters: ..					.....

190.10.50. Structural Steel for site erected Coldbox and Ducts, delivery EXW

WIC Name: LE/SI-en, WIC No.: 190. 10. 50.

The unit rate covers the installation and all related measures described below of all kind of structural steel elements independent from their size and location.

Labour rates shall include:

- Any work required for the preparation of the installation, e.g. preparation / maintenance of the crane area and temporary laydown areas as well as access ways
- Preparation of erection precondition paperwork, method statement, Third Party inspection of lifting study
- Take-over, check items regarding visible damages caused by transport and registration into material management database
- Any manpower required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, handling e.g. from warehouses or laydown areas to erection site, Lifting

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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- All surveying activities, incl. required paperwork
- Checking and acceptance of foundations and anchor bolts according to relevant specifications
- Any manpower required for intermediate storage / protection of structural steel
- Installation of structural steel as per specification and AFC erection drawings into final position incl. plumbing, leveling, packing, grinding, shimming and any final adjustments required to rectify fabrication errors
- Any manpower required for the transport, lifting, supporting, alignment, handling, cutting, bending at site
- Any bolting and/or welding activities
- All required tests, e.g. bolt tightening test, welding seam test with NDE for field welding etc.
- Touch up painting
- Final cleaning of erected structural steel

Material rates shall include:

- All consumables, incl. temporary assembly supports, welding bars, etc.

Equipment rates shall include:

- All kind of scaffold, platforms and ladders required for the work
- Intermediate storage / protection of structural steel incl. supports
- Any equipment required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, transport, handling e.g. from warehouses or laydown areas to erection site, Lifting
- Any equipment required for the installation, transport, lifting, supporting, alignment, handling, cutting, bending, testing at site, e.g. cranes, temporary supports, generators, trucks and trailers, welding machines

Exclusions

Following items will be compensated separately with regard to the corresponding BoQ item unit rate:

- Grouting

190.10.50.10 Panel/wall elements for coldbox shell incl. penetrations

302.60 t

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
190.10.50.50	<p>WIC Name: LE/SI-en, WIC No.: 190. 10. 50. 50</p> <p>Turbine duct / Pump duct</p> <p>In addition to the "note to chapter" the following shall be included within the unit rates (to be allocated to the unit rate breakdown for labour, material and equipment):</p> <ul style="list-style-type: none">Seal-welding of all duct-panels at bolted connections	9.50	t
Total 190.10.50.		Structural Steel for site erect..		.....
Total 190.10.		Primary Structural Steel Erecti..		.....
190.20.	Secondary Structural Steel Erection / Installation				
190.20.10.	<p>Circular Platforms: Structural Steel Erection of Secondary Steel</p> <p>WIC Name: LE/SI-en, WIC No.: 190. 20. 10.</p> <p>For this chapter in secondary structural steel no assignment to weight classes will be required.</p> <p>The unit rate covers the installation and all related measures described below of all kind of structural steel elements independent from their size and location.</p> <p>Labour rates shall include:</p> <ul style="list-style-type: none">Any work required for the preparation of the installation, e.g. preparation / maintenance of the crane area and temporary laydown areas as well as access waysPreparation of erection precondition paperwork, method statement, lifting study, incl. Third Party inspection of lifting studyTake-over, check items regarding visible damages caused by transport and registration into material management databaseAny manpower required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, transport, handling e.g. from warehouses or laydown areas to erection site, liftingAll surveying activities, incl. required paperworkAny manpower required for intermediate storage / protection of structural steelInstallation of structural steel as per specification and AFC erection drawings into final position including plumbing, levelling, packing, grinding, shimming and any final adjustments				

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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- required to rectify fabrication errors
- Any manpower required for the transport, lifting, supporting, alignment, handling, cutting, bending at site
- Any bolting and/or welding activities
- All required tests, e.g. bolt tightening test, welding seam test with NDE for field welding etc.
- Touch up paint
- Final cleaning of erected structural steel

Material rates shall include:

- All consumables, incl. temporary assembly supports, welding bars etc.

Equipment rates shall include:

- All kind of scaffold, platforms and ladders required for the work
- Intermediate storage / protection of structural steel incl. supports
- Any equipment required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, transport, handling, e.g. from warehouses or laydown areas to erection site, lifting
- Any equipment required for the installation, transport, lifting, supporting, alignment, handling, cutting, bending, testing at site e.g. cranes, temporary supports, generators, trucks and trailers, welding machines

190.20.10.10 WIC Name: LE/SI-en, WIC No.: 190. 20. 10. 10
Structural steel for circular platforms attached to vessel

33.35 t

Total 190.20.10. Circular Platforms: Structural

190.20.20. Rectangular Top Platforms: Structural Steel Erection of Secondary Steel

WIC Name: LE/SI-en, WIC No.: 190. 20. 20.

For this chapter in secondary structural steel no assignment to weight classes will be required.

The unit rate covers the installation and all related measures described below of all kind of structural steel elements independent from their size and location.

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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Labour rates shall include:

- Any work required for the preparation of the installation, e.g. preparation / maintenance of the crane area and temporary laydown areas as well as access ways
- Preparation of erection precondition paperwork, method statement, lifting study, incl. Third Party inspection of lifting study
- Take-over, check items regarding visible damages caused by transport and registration into material management database
- Any manpower required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, transport, handling e.g. from warehouses or laydown areas to erection site, lifting
- All surveying activities, incl. required paperwork
- Any manpower required for intermediate storage / protection of structural steel
- Installation of structural steel as per specification and AFC erection drawings into final position including plumbing, levelling, packing, grinding, shimming and any final adjustments required to rectify fabrication errors
- Any manpower required for the transport, lifting, supporting, alignment, handling, cutting, bending at site
- Any bolting and/or welding activities
- All required tests, e.g. bolt tightening test, welding seam test with NDE for field welding etc.
- Touch up paint
- Final cleaning of erected structural steel

Material rates shall include:

- All consumables, incl. temporary assembly supports, welding bars etc.

Equipment rates shall include:

- All kind of scaffold, platforms and ladders required for the work
- Intermediate storage / protection of structural steel incl. supports
- Any equipment required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, transport, handling, e.g. from warehouses or laydown areas to erection site, lifting
- Any equipment required for the installation, transport, lifting, supporting, alignment, handling, cutting, bending, testing at site e.g. cranes, temporary supports, generators, trucks and trailers, welding machines

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
190.20.20.10	WIC Name: LE/SI-en, WIC No.: 190. 20. 20. 10 Structural steel for top platforms attached to vessels				
		33.35	t	.....	.....
<hr/>					
	Total 190.20.20. Rectangular Top Platforms: Stru..				.....
<hr/>					
	Total 190.20. Secondary Structural Steel Erec..				.....
<hr/>					
190.30.	Accessories Erection/Installation				
190.30.10.	Accessories / Outfitting: in Carbon Steel: Installation				
	WIC Name: LE/SI-en, WIC No.: 190. 30. 10. The unit rate covers the installation and all related measures described below of all kind of accessories / outfitting steel elements, Independent from their size and location.				
	Labour rates shall include:				
	<ul style="list-style-type: none"> Any work required for the preparation of the installation, e.g. preparation / maintenance of the crane area and temporary laydown areas as well as access ways Preparation of erection precondition paperwork, method statement, lifting study, incl. Third Party inspection of lifting study Take-over, check items regarding visible damages caused by transport and registration into material management database Any manpower required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, transport, handling e.g. from warehouses or laydown areas to erection site, lifting All surveying activities, incl. required paperwork Any manpower required for intermediate storage / protection of accessories / outfitting steel Installation of steel elements as per specification and AFC erection drawings into final position including plumbing, levelling, packing, grinding, shimming and any final adjustments required to rectify fabrication errors Any manpower required for the transport, lifting, supporting, alignment, handling, cutting, bending at site Any bolting and/or welding activities All required tests, e.g. bolt tightening test, welding seam test 				

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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with NDE for field welding etc.

- Touch up paint
- Final cleaning of erected structural steel

Material rates shall include:

- All consumables, incl. temporary assembly supports, welding bars etc.

Equipment rates shall include:

- All kind of scaffold, platforms and ladders required for the work
- Intermediate storage / protection of structural steel incl. supports
- Any equipment required for unloading of supplied pre-fabricated steel work and all related materials, stockpiling, loading, transport, handling, e.g. from warehouses or laydown areas to erection site, lifting
- Any equipment required for the installation, transport, lifting, supporting, alignment, handling, cutting, bending, testing at site e.g. cranes, temporary supports, generators, trucks and trailers, welding machines

190.30.10.10 WIC Name: LE/SI-en, WIC No.: 190. 30. 10. 10

Railing straight attached to steel structures

In addition to the "note to chapter" the following shall be included within the unit rates (to be allocated to the unit rate breakdown for labour, material and equipment):

- Sorting of items according installation sequence
- Grinding of zinc burrs, if galvanised
- Grinding of field-welds at hand-rail

529.40 m

190.30.10.60 WIC Name: LE/SI-en, WIC No.: 190. 30. 10. 60

Ladders, including cages

In addition to the "note to chapter" the following shall be included within the unit rates (to be allocated to the unit rate breakdown for labour, material and equipment):

- Installation of ladders incl. cage and cage extension and connection to railing
- Installation of Safety Gates at ladder exits
- Safety Gates shall be self-closing, this shall be checked during installation

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	<ul style="list-style-type: none"> • Checking and acceptance of supporting elements and, if applicable, foundation 	259.60	m
190.30.10.80	<p>WIC Name: LE/SI-en, WIC No.: 190. 30. 10. 80</p> <p>Galvanized grating, incl. fasteners for structures</p> <p>In addition to the "note to chapter" the following shall be included within the unit rates (to be allocated to the unit rate breakdown for labour, material and equipment):</p> <ul style="list-style-type: none"> • Sorting of items according installation sequence • Grating shall be fixed removable • Fasteners shall be saddle clip anchors secured to the supporting steel according to manufacutrers standard • Two fasteners per panel shall be used at each support with a minimum of four per panel • Fixing by welding is not allowed • Checking and acceptance of supporting elements • Welding of keeper bars, if required • Modified / damaged grating shall be repaired with equivalent corrosion resistant coating as per specification 	343.10	m2	.....	.....
Total 190.30.10. Accessories / Outfitting: in ..					.....
Total 190.30. Accessories Erection/Installation					.....
190.40.	Cladding				
190.40.10.	Cladding with accessories: Installation				
190.40.10.30	<p>WIC Name: LE/SI-en, WIC No.: 190. 40. 10. 30</p> <p>Metal panel wall cladding insulated including accessories</p>	2,134.40	m2	.....	.....
190.40.10.40	<p>WIC Name: LE/SI-en, WIC No.: 190. 40. 10. 40</p> <p>Metal panel roof cladding insulated including accessories</p>	1,632.00	m2

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
<hr/>					
	Total 190.40.10.	Cladding with accessories: Inst..		
<hr/>					
	Total 190.40.	Cladding			.....
190.60.	Painting of structural steel at site				
190.60.10.	Painting of Structural Steel: application of intermediate and final coating at site				
190.60.10.60	WIC Name: LE/SI-en, WIC No.: 190. 60. 10. 60 Structural steel for coldbox shell outside In addition to the "note to chapter" the following shall be included within the unit rates (to be allocated to the unit rate breakdown for labour, material and equipment): <ul style="list-style-type: none"> • Special requirements for Package Unit Coldboxes shall be considered according to LS 148-06 Part 3 				
		10,772.05	m2	.....	.....
190.60.10.70	WIC Name: LE/SI-en, WIC No.: 190. 60. 10. 70 Structural steel for ducts				
		566.95	m2	.....	.....
<hr/>					
	Total 190.60.10.	Painting of Structural Steel: ..			.....
<hr/>					
	Total 190.60.	Painting of structural steel at..		
<hr/>					
	Total 190.	Structural Steel Installation		

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
200.	Building Equipment Service				
200.20.	Building Equipment Service - Installation				
200.20.20.	Overhead Gantry Cranes 1- Bridge				
200.20.20.10	<p>WIC Name: LE/SI-en, WIC No.: 200. 20. 20. 10 Gantry Crane 1-bridge - Span xx m with Load capacity xxxx kg All WORK required for the complete installation works of all kind of lifting devices , shall be included in the unit rate, but is not limited to if not otherwise specified at Exhibit E "Specification":</p> <ul style="list-style-type: none"> Any WORK required for the preparation of the installation, e.g. preparation/maintenance of the crane area and temporary laydown areas as well as access ways The unit rate covers the installation and all related measures described below of all kind of lifting devices elements independent from their size and location Take-over, check items regarding visible damages caused by transport and registration Unloading of supplied pre-fabricated steel work, lifting devices and all related materials, stockpiling, loading, transport, handling e.g. from warehouses or lay-down areas to erection site, lifting Checking and acceptance of foundations and anchor bolts acc. to relevant specifications Preparation of erection precondition paperwork, method statement, third party inspection of lifting study Installation of lifting devices, climbing beams for elevator, cabin, accesoris as per specification and AFC erection drawings into final position including plumbing, levelling, packing, grinding, shimming and any final adjustments required to rectify fabrication errors Grouting will be compensated separately All kind of scaffold, platforms and ladders required for the work All surveying activities, incl. required paperwork Intermediate storage/protection of structural steel incl. supports and consumables Any equipment/manpower required for the installation, transport, lifting, supporting, alignment, handling, cutting, bending at site, e.g. cranes, temporary supports, generators, trucks and trailers, welding machines All consumables temporary assembly supports, welding bars etc. Any bolting and/or welding activities All required tests, e.g. bolt tightening test, welding seam test etc. Recording and provision of all QA/QC inspections as per applicable codes, regulations and contract specifications incl. all required equipment Touch up paint Any HSE related measures and items, e.g. sign boards, barricades 				

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	<ul style="list-style-type: none">Cleaning of work areaFinal cleaning of erected structural steel				
		1	PC	.....	.....
<hr/>					
	Total 200.20.20.	Overhead Gantry Cranes 1- Bridge			.....
<hr/>					
	Total 200.20.	Building Equipment Service -
<hr/>					
	Total 200.	Building Equipment Service		

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
220.	Installation of Plant Equipment				
220.10.	Installation of Static Equipment WIC Name: LE/SI-en, WIC No.: 220. 10. Installation of static equipment shall also include the installation of major electrical and instrumentation equipment like transformers, remote instrument containers, switch gears, diesel generator sets, power distribution containers above 5 metric tons [t] (excluding any electrical work) This chapter shall also cover those equipments which require for their installation more than only one crane to get them lifted into the final position this for example refers to equipment that is delivered in the horizontal position, but needs to be brought into the vertical position for installation purposes. So all tandem lifts, twin lifts and lifts with a tailing crane or any other tailing device for equipment below 50 metric tons [t] are covered in this chapter. Labor Rate shall include: <ul style="list-style-type: none"> • Preparation of general lifting method statement for each non-critical / non-special lift (If required) • Reloading (incl. provision of suitable means of transport and all temporary fastening, supports and fixtures) and transport to installation location • Unloading of equipment at temporary laydown area and secure storage (incl. bedding material or temporary supports) (If required) • conduction of preservation measures and continuing preventive maintenance to protect equipment from environmental influences like rain, cold, heat, dust, sand, dirt, corrosion as specified by equipment manufacturer including the opening and closing of manways and flanges as required • Removal of all dirt, dust, mill scale, grease or other foreign matter from contact surfaces of equipment with foundations or grouting • Removal of all packing material not required during or after erection of the equipment • Removal of temporary transport fastenings connecting the equipment with the means of transport • Set up of lifting arrangement (slings, ropes, shackles etc. between hook and lifting lug) and attaching of lifting gear to the equipment and crane • Horizontal, vertical and longitudinal alignment and leveling of the equipment acc. to specifications • Fixing of anchor bolts and tightening of nuts and counter-nuts according to the specified torque • (If applicable) disassembly and demobilization of lifting equipment/crane/forklift If not needed for other activities • final box-up of the equipment (e.g. closing of manholes) after release by COMPANY • Installation of earthing connections and tie-in to existing earthing 				

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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- grid or earthing lug provided by civil contractor
- lifting or setting of the equipment to its final foundation / location
 - Removal of lifting gear incl. provision of access to lifting lugs
- Material Rate shall include:
- non-shrinking mortar or grout required for the levelling of shims on the foundation
 - supply of any material required to level and align the equipment properly (shims, jacks, levelling screws, alignment measurement devices, etc.)
- Equipment Rate shall include:
- Crane/forklift/lifting equipment mobilization to site (including tailing crane, tailing frame or any other suitable tailing device if upending of equipment from horizontal position is required) and preparation for operation incl. transport, completion of permitting procedures to import and operate the lifting equipment at the designated location, crane assembly (including all supporting equipments and tools required), testing, all consumables
 - provision of access equipment (scaffold, manlift, manbasketetc.) to the lifting lugs for removal and attachment of lifting gear
 - provision of any tools and equipment required for erection and inspection of the erected equipment acc. to specifications
 - supply and Installation of timber or steel mats for load spreading on the ground
 - Supply of all lifting gear, shackles, ropes, spreader bars, slings, etc. required for the lifting operations
- Exclusions:
- Any electrical work on electrical equipment installed --> to be included in Electrical
 - Hydrotesting of vendor supplied equipment --> vendor scope
 - supply and installation of grouting after fixing the equipment in place --> to be included in Civil
 - supply or installation of anchor bolts embedded in foundations, chipping of foundations --> to be included in Civil

220.10.10. Equipment up to 1,0t

220.10.10.10 WIC Name: LE/SI-en, WIC No.: 220. 10. 10. 10
Unloading at temporary storage area, uploading/transportation and installation

32	PC
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Total 220.10.10.	Equipment up to 1,0t
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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
220.10.20.	Equipment >1,0 - 2,0 t				
220.10.20.10	WIC Name: LE/SI-en, WIC No.: 220. 10. 20. 10 Unloading at temporary storage area, uploading/transportation and installation				
		18	PC	.....	.....
<hr/>					
	Total 220.10.20. Equipment >1,0 - 2,0 t				.....
220.10.30.	Equipment >2,0 - 5,0 t				
220.10.30.10	WIC Name: LE/SI-en, WIC No.: 220. 10. 30. 10 Unloading at temporary storage area, uploading/transportation and installation				
		17	PC	.....	.....
<hr/>					
	Total 220.10.30. Equipment >2,0 - 5,0 t				.....
220.10.40.	Equipment >5,0 - 10,0 t				
220.10.40.10	WIC Name: LE/SI-en, WIC No.: 220. 10. 40. 10 Unloading at temporary storage area, uploading/transportation and installation				
		2	PC	.....	.....
<hr/>					
	Total 220.10.40. Equipment >5,0 - 10,0 t				.....
220.10.50.	Equipment >10,0 - 20,0 t				
220.10.50.10	WIC Name: LE/SI-en, WIC No.: 220. 10. 50. 10 Unloading at temporary storage area, uploading/transportation				
		3	PC	.....	.....
220.10.50.20	WIC Name: LE/SI-en, WIC No.: 220. 10. 50. 20 Installation				
		3	PC
<hr/>					
	Total 220.10.50. Equipment >10,0 - 20,0 t			

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
220.10.60.	Equipment >20,0 - 30,0 t				
220.10.60.10	WIC Name: LE/SI-en, WIC No.: 220. 10. 60. 10 Unloading at temporary storage area, uploading/transportation	5	PC	.....	.....
220.10.60.20	WIC Name: LE/SI-en, WIC No.: 220. 10. 60. 20 Installation	5	PC	.....	.....
Total 220.10.60. Equipment >20,0 - 30,0 t					.....
Total 220.10. Installation of Static Equipment					.....
220.20.	Installation of Rotating Equipment				
	<p>WIC Name: LE/SI-en, WIC No.: 220. 20.</p> <p>Activities mentioned here might be performed under vendor supervision. Nevertheless only the rates stated in this chapter shall be compensated and no additional hourly rates (as described in chapter "810. Assembly under Vendor supervision") shall be charged for the scope described below.</p> <p>Labor Rate shall include:</p> <ul style="list-style-type: none"> • Preparation of general lifting method statement for each non-critical / non-special lift (If required) • Reloading (incl. provision of suitable means of transport and all temporary fastening, supports and fixtures) and transport to installation location • Unloading of equipment at temporary laydown area and secure storage (incl. bedding material or temporary supports) (If required) • conduction of preservation measures and continuing preventive maintenance to protect equipment from environmental influences like rain, cold, heat, dust, sand, dirt, corrosion as specified by equipment manufacturer including the opening and closing of manways and flanges as required • Removal of all dirt, dust, mill scale, grease or other foreign matter from contact surfaces of equipment with foundations or grouting • Removal of all packing material not required during or after erection of the equipment • Removal of temporary transport fastenings connecting the equipment with the means of transport • Set up of lifting arrangement (slings, ropes, shackles etc. 				

Price breakdown structure

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	<p>between hook and lifting lug) and attaching of lifting gear to the equipment and crane</p> <ul style="list-style-type: none"> • Horizontal, vertical and longitudinal alignment and leveling of the equipment acc. to specifications • Fixing of anchor bolts and tightening of nuts and counter-nuts according to the specified torque • (If applicable) disassembly and demobilization of lifting equipment/crane/forklift If not needed for other activities • final box-up of the equipment (e.g. closing of manholes) after release by COMPANY • Installation of earthing connections and tie-in to existing earthing grid or earthing lug provided by civil contractor • lifting or setting of the equipment to its final foundation / location • Removal of lifting gear incl. provision of access to lifting lugs • Shaft, coupling and driver alignment with rotating parts • uncoupling and coupling for motor test runs • Preparation of method statement for shaft and coupling alignment <p>Material Rate shall include:</p> <ul style="list-style-type: none"> • lubricants or grease in compliance with manufacturer specifications • non-shrinking mortar or grout required for the levelling of shims on the foundation • supply of any material required to level and align the equipment properly (shims, jacks, levelling screws, etc.) <p>Equipment Rate shall include:</p> <ul style="list-style-type: none"> • Crane/forklift/lifting equipment mobilization to site (including tailing crane, tailing frame or any other suitable tailing device if upending of equipment from horizontal position is required) and preparation for operation incl. transport, completion of permitting procedures to import and operate the lifting equipment at the designated location, crane assembly (including all supporting equipments and tools required), testing, all consumables • provision of access equipment (scaffold, manlift, manbasketetc.) to the lifting lugs for removal and attachment of lifting gear • provision of any equipment required for shaft and coupling alignment (e.g. dial indicators, laser optic alignment system, etc.) • provision of any tools and equipment required for erection and inspection of the erected equipment acc. to specifications • supply and Installation of timber or steel mats for load spreading on the ground • Supply of all lifting gear, shackles, ropes, spreader bars, slings, etc. required for the lifting operations <p>Exclusions:</p> <ul style="list-style-type: none"> • Hydrotesting of vendor supplied equipment --> vendor scope • Installation of associated equipment like lube oil unit, seal gas unit, condensers, tanks, suction drum --> covered in respective static equipment chapter • supply and installation of grouting after fixing the equipment in place --> to be included in Civil 				

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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- supply or installation of anchor bolts, chipping of foundations --> to be included in Civil

WIC Name: LE/SI-en, WIC No.: 220. 20.

Activities mentioned here might be performed under vendor supervision. Nevertheless only the rates stated in this chapter shall be compensated and no additional hourly rates (as described in chapter "810. Assembly under Vendor supervision") shall be charged for the scope described below.

Labor Rate shall include:

- Preparation of general lifting method statement for each non-critical / non-special lift (If required)
- Reloading (incl. provision of suitable means of transport and all temporary fastening, supports and fixtures) and transport to installation location
- Unloading of equipment at temporary laydown area and secure storage (incl. bedding material or temporary supports) (If required)
- conduction of preservation measures and continuing preventive maintenance to protect equipment from environmental influences like rain, cold, heat, dust, sand, dirt, corrosion as specified by equipment manufacturer including the opening and closing of manways and flanges as required
- Removal of all dirt, dust, mill scale, grease or other foreign matter from contact surfaces of equipment with foundations or grouting
- Removal of all packing material not required during or after erection of the equipment
- Removal of temporary transport fastenings connecting the equipment with the means of transport
- Set up of lifting arrangement (slings, ropes, shackles etc. between hook and lifting lug) and attaching of lifting gear to the equipment and crane
- Horizontal, vertical and longitudinal alignment and leveling of the equipment acc. to specifications
- Fixing of anchor bolts and tightening of nuts and counter-nuts according to the specified torque
- (If applicable) disassembly and demobilization of lifting equipment/crane/forklift If not needed for other activities
- final box-up of the equipment (e.g. closing of manholes) after release by COMPANY
- Installation of earthing connections and tie-in to existing earthing grid or earthing lug provided by civil contractor
- lifting or setting of the equipment to its final foundation / location
- Removal of lifting gear incl. provision of access to lifting lugs
- Shaft, coupling and driver alignment with rotating parts
- uncoupling and coupling for motor test runs
- Preparation of method statement for shaft and coupling alignment

Material Rate shall include:

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	<ul style="list-style-type: none"> lubricants or grease in compliance with manufacturer specifications non-shrinking mortar or grout required for the levelling of shims on the foundation supply of any material required to level and align the equipment properly (shims, jacks, levelling screws, etc.) <p>Equipment Rate shall include:</p> <ul style="list-style-type: none"> Crane/forklift/lifting equipment mobilization to site (including tailing crane, tailing frame or any other suitable tailing device if upending of equipment from horizontal position is required) and preparation for operation incl. transport, completion of permitting procedures to import and operate the lifting equipment at the designated location, crane assembly (including all supporting equipments and tools required), testing, all consumables provision of access equipment (scaffold, manlift, manbasket etc.) to the lifting lugs for removal and attachment of lifting gear provision of any equipment required for shaft and coupling alignment (e.g. dial indicators, laser optic alignment system, etc.) provision of any tools and equipment required for erection and inspection of the erected equipment acc. to specifications supply and Installation of timber or steel mats for load spreading on the ground Supply of all lifting gear, shackles, ropes, spreader bars, slings, etc. required for the lifting operations <p>Exclusions:</p> <ul style="list-style-type: none"> Hydrotesting of vendor supplied equipment --> vendor scope Installation of associated equipment like lube oil unit, seal gas unit, condensers, tanks, suction drum --> covered in respective static equipment chapter supply and installation of grouting after fixing the equipment in place --> to be included in Civil supply or installation of anchor bolts, chipping of foundations --> to be included in Civil 				
220.20.10.	Installation and final alignment of pumps, blowers and boxed fans with driver (motor or turbine)				
220.20.10.20	WIC Name: LE/SI-en, WIC No.: 220. 20. 10. 20 Pumps, blowers, boxed fans >0,1 - 0,5 t				
		4	PC
Total 220.20.10.		Installation and final alignmen..		

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
220.20.20.	Installation and final alignment of pumps, blowers and boxed fans with driver (motor or turbine) - SKID MOUNTED WIC Name: LE/SI-en, WIC No.: 220. 20. 20. Skid Mounted Pumps are delivered with pumps, driver and baseframe (if applicable) as a pre-assembled skid. In addition to the note to chapter 220.20. pricing for this chapter shall include for SKID-MOUNTED pumps the following: Labor Rate shall include: <ul style="list-style-type: none"> • final alignment (motor, shaft, pump etc., i.e. alignment complete drive train) • installation of pump skid • uncoupling and coupling for motor test runs • re-checking of correct alignment after final installation. Material Rate shall include: Equipment Rate shall include: Exclusions: <ul style="list-style-type: none"> • Installation of pumps >50t / 55 shtn --> to be included in chapter "Critical and heavy lifts" 				
220.20.20.40	WIC Name: LE/SI-en, WIC No.: 220. 20. 20. 40 Pumps, blowers, boxed fans >1 - 2 t (skid mounted)	3	PC	.....	.....
220.20.20.50	WIC Name: LE/SI-en, WIC No.: 220. 20. 20. 50 Pumps, blowers, boxed fans >2 - 5 t (skid mounted)	7	PC	.....	.....
220.20.20.60	WIC Name: LE/SI-en, WIC No.: 220. 20. 20. 60 Pumps, blowers, boxed fans >5 - 10 t (skid mounted)	2	PC	.....	.....
<hr/>					
Total 220.20.20.	Installation and final alignmen..				.....
<hr/>					
Total 220.20.	Installation of Rotating Equipm..			
<hr/>					
Total 220.	Installation of Plant Equipment			

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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230. Heavy Lifts and Installation

WIC Name: LE/SI-en, WIC No.: 230.

Heavy lifts are defined as follows:

- any lift of equipment which weighs more than 50 metric tons [t]

230.30. Mobilization and Demobilization of Heavy Lifting Equipment to SITE

WIC Name: LE/SI-en, WIC No.: 230. 30.

- All labour required for engineering work to prepare and submit permits and procedures for the transport (incl. import, export) of heavy lifting equipment to/ from construction site
- All labour, equipment and material for HSE measures (e.g. barricades, warning lights, etc.) and documentation for transport of heavy lifting cranes and equipment to/ from construction site
- All labour, equipment and material for temporary disassembly/ re-assembly of road signs and other structural restrictions along transport route and adaptation of transport route for mobilization/ demobilization of heavy lifting cranes and equipment to/ from construction site
- Provision and rental/cost for crane and all associated lifting equipment to/ from construction site (including tailing crane, tailing frame or any other suitable tailing device if upending of equipment from horizontal position is required)
- Equipment rate for all necessary auxiliary cranes, all equipment and tools for mobilization/ demobilization and transport of heavy lifting cranes and equipment to/ from construction site
- All labour, equipment and material required for mobilization/demobilization and assembly/disassembly of heavy lifting equipment
- Material rate for all consumables (lubrications, fuel, etc.) for transport of heavy lifting cranes and equipment to/ from construction site

Following shall be considered separately:

- Indirect cost
- Lifting of heavy equipment
- Installation/ mounting/ welding work of heavy equipment

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
230.30.10.	Mobilization of Heavy Lifting Equipment to SITE				
230.30.10.21	M S - adsorber (vertical radial) - 47.3 t; L=3.5m; W=3.5m; H=12.35m for Lifting of 2 pcs MS Adsorber, vertical vessel diameter of equipment 4,2 m, length of equipment 13,55 m, weight of equipment 62,9 to	1	LSUM		.....
230.30.10.31	Rectification/Argon box Cube 1 - 60.25t; L=10.6m; W=6.2m; H=16.4m for Lifting of 1 pcs Vacuum Insulated Tank, vertical cylindrical vessel diameter of equipment 4,0 m, length of equipment 29,0 m, weight of equipment 87,0 to	1	LSUM		.....
230.30.10.32	Rectification/Argon box Cube 2 - 60.25t; L=10.6m; W=6.2m; H=16.4m for Lifting of 1 pcs Rectification Cold Box length of equipment 10,3 m, width of equipment 6,0 m, height of equipment 59,2 m, weight of equipment 428,4 to	1	LSUM		.....
230.30.10.33	Rectification/Argon box Cube 3 - 60.25t; L=10.6m; W=6.2m; H=16.4m for Lifting of 3 pcs HV Transformer length of equipment 6,5 m, width of equipment 4,8 m, height of equipment 4,0 m, weight of each equipment 75,0 to	1	LSUM		.....
230.30.10.34	Rectification/Argon box Cube 4 - 60.25t; L=10.6m; W=6.2m; H=16.4m	1	LSUM		.....
230.30.10.61	Low pressure column - 86t; Diameter=3.8m; H=62.6m	1	LSUM		.....
230.30.10.110	Crude Argon column - 57.8 t; Diameter=2.8m; H=52.2m	1	LSUM		.....
230.30.10.120	LAR vacuum insulated storage vessel (P.U.) - 51t; L=2.2m;M W=0.39m; H=0.42m	1	LSUM	

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
<hr/>					
	Total 230.30.10. Mobilization of Heavy Lifting
230.30.20.	Demobilization of Heavy Lifting Equipment from SITE				
230.30.20.21	M S - adsorber (vertical radial) - 47.3 t; L=3.5m; W=3.5m; H=12.35m for Lifting of 2 pcs MS Adsorber, vertical vessel diameter of equipment 4,2 m, length of equipment 13,55 m, weight of equipment 62,9 to				
		1	LSUM		.....
230.30.20.31	Rectification/Argon box Cube 1 - 60.25t; L=10.6m; W=6.2m; H=16.4m for Lifting of 1 pcs Vacuum Insulated Tank, vertical cylindrical vessel diameter of equipment 4,3 m, length of equipment 26,0 m, weight of equipment 80,0 to				
		1	LSUM		.....
230.30.20.32	Rectification/Argon box Cube 2 - 60.25t; L=10.6m; W=6.2m; H=16.4m for Lifting of 1 pcs Rectification Cold Box length of equipment 10,3 m, width of equipment 6,0 m, height of equipment 59,2 m, weight of equipment 428,4 to				
		1	LSUM		.....
230.30.20.33	Rectification/Argon box Cube 3 - 60.25t; L=10.6m; W=6.2m; H=16.4m for Lifting of 3 pcs HV Transformer length of equipment 6,5 m, width of equipment 4,8 m, height of equipment 4,0 m, weight of each equipment 75,0 to				
		1	LSUM		.....
230.30.20.34	Rectification/Argon box Cube 4 - 60.25t; L=10.6m; W=6.2m; H=16.4m				
		1	LSUM		.....
230.30.20.61	Low pressure column - 86t; Diameter=3.8m; H=62.6m				
		1	LSUM	
230.30.20.110	Crude Argon column - 57.8 t; Diameter=2.8m; H=52.2m				
		1	LSUM	

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
230.30.20.120	LAR vacuum insulated storage vessel (P.U.) - 51t; L=2.2m;M W=0.39m; H=0.42m	1	LSUM	
Total 230.30.20.		Demobilization of Heavy Lifting..			.....
Total 230.30.		Mobilization and Demobilization..			.....

230.40. HEAVY LIFTING - Heavy Equipment (Static and Rotating) w/o Installation

WIC Name: LE/SI-en, WIC No.: 230. 40.

- All labour required for engineering and preparation of crane lifting study, method statements and job safety analysis for every single heavy lift (which shall be approved by COMPANY before starting any lifting activity) according to project specification
- All labour, equipment and material required for HSE measures (e.g. barricades, warning lights etc.) and documents (permits etc.)
- All labour required to carry out tests/inspection permitting procedures and authorisation of heavy lifting cranes and equipment
- All labour, equipment and material provision and rental cost for unloading of equipment at temporary laydown area and secure storage (incl. bedding material or temporary supports etc.)
- All labour, provision and rental cost for reloading (incl. provision of suitable means of transport and all temporary fastening, supports and fixtures), transport to installation location and transport of the equipment within a defined project area
- All labour, equipment and material for dismantling and removal of temporary transport fastenings (e.g. transport saddle, associated components) not required during or after erection of the equipment
- All labour, equipment and material for removal of all dirt, dust, mill scale, grease or other foreign matter from contact surfaces of equipment with foundations or grouting
- All labour, equipment and material required for assembly and disassembly of lifting gear and associated equipment (scaffold, manbasket)
- All labour, equipment and material required for set-up and removal of lifting arrangement/gear (e.g. spreader beam, slings, ropes, shackles etc. between hook and lifting lug) and attaching of lifting gear to the equipment and crane

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	<ul style="list-style-type: none"> • All labour, equipment and material required for operation of heavy lifting equipment and auxiliary equipment • All labour, equipment and material required for crane assembly, disassembly (including all necessary auxiliary equipment and tools, testing and all consumables) • All labour, material, heavy lifting equipment and auxiliary equipment (incl. load spreading mats) required for lifting and set-down of the equipment to its final foundation / location • Material rate for all consumables (lubrications, fuel, etc.) required for heavy lifting activities <p>Following shall be considered separately:</p> <ul style="list-style-type: none"> • Indirect cost • Mobilization and demobilization of heavy lifting equipment • Installation/ mounting/ welding work of static and rotating equipment 				
230.40.10.	Unloading and Reloading at Temporary Storage, Transportation to Location of Installation				
230.40.10.21	M S - adsorber (vertical radial) - 47.3 t; L=3.5m; W=3.5m; H=12.35m Total Weight [t]: 62,9 to per piece Dimensions LxWxH in [m]: 13,55 m x 4,2 m x 4,2 m Distance from temp. storage to final location [km]: less than 1 km (temporary laydown area nearby construction site)	2	PC	.....	.....
230.40.10.31	Rectification/Argon box Cube 1 - 60.25t; L=10.6m; W=6.2m; H=16.4m Total Weight [t]: 80,0 to per piece Dimensions LxWxH in [m]: 26,0 m x 4,3 m x 4,3 m Distance from temp. storage to final location [km]: less than 1 km (temporary laydown area nearby construction site)	1	PC	.....	.....
230.40.10.32	Rectification/Argon box Cube 2 - 60.25t; L=10.6m; W=6.2m; H=16.4m Total Weight [t]: 428,4 to per piece Dimensions LxWxH in [m]: 10,3 m x 6,0 m x 59,2 m Distance from temp. storage to final location [km]: less than 1 km (temporary laydown area nearby construction site)	1	PC

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
230.40.10.33	Rectification/Argon box Cube 3 - 60.25t; L=10.6m; W=6.2m; H=16.4m Total Weight [t]: 75 to per piece Dimensions LxWxH in [m]: 6,5 m x 4,8 m x 4,0 m Distance from temp. storage to final location [km]: less than 1 km (temporary laydown area nearby construction site)	1	PC
230.40.10.34	Rectification/Argon box Cube 4 - 60.25t; L=10.6m; W=6.2m; H=16.4m	1	PC	.....	.....
230.40.10.61	Low pressure column - 86t; Diameter=3.8m; H=62.6m	1	PC	.....	.....
230.40.10.110	Crude Argon column - 57.8 t; Diameter=2.8m; H=52.2m	1	PC	.....	.....
230.40.10.120	LAR vacuum insulated storage vessel (P.U.) - 51t; L=2.2m;M W=0.39m; H=0.42m	2	PC	.....	.....
<hr/>					
	Total 230.40.10. Unloading and Reloading at Temp..				.....
230.40.20.	Lifting of Heavy Equipment (per Equipment)				
230.40.20.21	M S - adsorber (vertical radial) - 47.3 t; L=3.5m; W=3.5m; H=12.35m Total Weight [t]: 62,9 to per piece Dimensions LxWxH in [m]: 13,55 m x 4,2 m x 4,2 m	2	PC	.....	.....
230.40.20.31	Rectification/Argon box Cube 1 - 60.25t; L=10.6m; W=6.2m; H=16.4m Total Weight [t]: 80,0 to per piece Dimensions LxWxH in [m]: 26 m x 4,3 m x 4,3	1	PC

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
230.40.20.32	Rectification/Argon box Cube 2 - 60.25t; L=10.6m; W=6.2m; H=16.4m Total Weight [t]: 428,4 to per piece Dimensions LxWxH in [m]: 10,3 m x 6,0 m x 59,2 m	1	PC
230.40.20.33	Rectification/Argon box Cube 3 - 60.25t; L=10.6m; W=6.2m; H=16.4m Total Weight [t]: 75,0 to per piece Dimensions LxWxH in [m]: 6,5 m x 4,8 m x 4,0 m	1	PC	.....	.....
230.40.20.34	Rectification/Argon box Cube 4 - 60.25t; L=10.6m; W=6.2m; H=16.4m	1	PC	.....	.....
230.40.20.61	Low pressure column - 86t; Diameter=3.8m; H=62.6m	1	PC	.....	.....
230.40.20.110	Crude Argon column - 57.8 t; Diameter=2.8m; H=52.2m	1	PC	.....	.....
230.40.20.120	LAR vacuum insulated storage vessel (P.U.) - 51t; L=2.2m;M W=0.39m; H=0.42m	2	PC	.....	.....
<hr/>					
Total 230.40.20. Lifting of Heavy Equipment (per..					.....
<hr/>					
Total 230.40. HEAVY LIFTING - Heavy Equipment..					.....

230.50. **INSTALLATION - Heavy STATIC Equipment w/o Lifting**

WIC Name: LE/SI-en, WIC No.: 230. 50.

- All labour required for engineering work to prepare and submit procedures and method statements for installation of heavy equipment
- All labour, equipment and material required for HSE measures (e.g. barricades, warning lights etc.) and documents (permits etc.)
- All labour, material and equipment/tools for removal of all dirt,

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	<p>dust, mill scale, grease or other foreign matter from equipment</p> <ul style="list-style-type: none"> • All labour and equipment/tools for removal of all packing material not required during or after installation of the equipment • All labour, equipment/tools and supply of any material (shims etc.) for horizontal, vertical and longitudinal alignment and leveling of the equipment acc. to specifications • All labour, material and equipment/tools to carry out QA/QC inspections /alignment measurements as per project requirements and Inspection and Test Plan • All labour, material and equipment/tools for conduction opening and closing of manways, flanges and Box-up • All labour, material and equipment/tools for fixing of equipment by bolting (tightening according to the specified torque) and/or welding • All labour, material, auxiliary equipment and access equipment (scaffold, manlift, manbasket, etc.) for installation and inspection of the equipment • All labour, material and equipment/tools for conduction of preservation measures and continuing preventive maintenance to protect equipment (parts requiring protection as per project specification) from environmental influences (e.g. rain, cold, heat, dust, sand, dirt, corrosion) as specified by equipment vendor • Material rate for all consumables (lubrications, fuels, etc.) required for installation activities <p>Following shall be considered separately:</p> <ul style="list-style-type: none"> • Indirect cost • Supply and installation of anchor bolts embedded in foundations, chipping of foundations • Supply and application of grouting materials after fixing the equipment on site • Installation of platforms, handrails, ladders, gates etc. • Flange connection for piping systems or other equipment • Pressure testing of vendor supplied equipment • Insulation work on equipment (e.g. stuffing of casings or bulkheads with mineral wool) • Electrical work on electrical equipment • Installation of earthing connections and tie-in to existing earthing grid (earthing lug connection) • Instrumentation work on static and rotating equipment 				

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	<ul style="list-style-type: none"> • Mobilization and demobilization of heavy lifting equipment • All lifting of static and rotating equipment • Installation of rotating equipment 				
230.50.10.	Installation of Heavy Static Equipment (per Equipment)				
230.50.10.21	M S - adsorber (vertical radial) - 47.3 t; L=3.5m; W=3.5m; H=12.35m Total Weight [t]: 62,9 to per piece Dimensions LxWxH in [m]: 13,55 m x 4,2 m x 4,2 m				
		2	PC	.....	.....
230.50.10.31	Rectification/Argon box Cube 1 - 60.25t; L=10.6m; W=6.2m; H=16.4m Total Weight [t]: 80,0 to per piece Dimensions LxWxH in [m]: 26 m x 4,3 m x 4,3				
		1	PC	.....	.....
230.50.10.32	Rectification/Argon box Cube 2 - 60.25t; L=10.6m; W=6.2m; H=16.4m Total Weight [t]: 428,4 to per piece Dimensions LxWxH in [m]: 10,3 m x 6,0 m x 59,2 m				
		1	PC	.....	.....
230.50.10.33	Rectification/Argon box Cube 3 - 60.25t; L=10.6m; W=6.2m; H=16.4m Total Weight [t]: 75,0 to per piece Dimensions LxWxH in [m]: 6,5 m x 4,8 m x 4,0 m				
		1	PC	.....	.....
230.50.10.34	Rectification/Argon box Cube 4 - 60.25t; L=10.6m; W=6.2m; H=16.4m				
		1	PC	.....	.....
230.50.10.61	Low pressure column - 86t; Diameter=3.8m; H=62.6m				
		1	PC
230.50.10.110	Crude Argon column - 57.8 t; Diameter=2.8m; H=52.2m				
		1	PC

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
230.50.10.120	LAR vacuum insulated storage vessel (P.U.) - 51t; L=2.2m;M W=0.39m; H=0.42m				
		2	PC	.....	.....
<hr/>					
	Total 230.50.10.	Installation of Heavy Static ..			.....
<hr/>					
	Total 230.50.	INSTALLATION - Heavy STATIC Equ..		
<hr/>					
	Total 230.	Heavy Lifts and Installation		

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
240.	Piping				
240.30.	<p>LINDE FACTORS - Prefabrication + Installation</p> <p>WIC Name: LE/SI-en, WIC No.: 240. 30. Piping prefabrication and installation shall be compensated according to Linde Factor System. The Linde Factors for piping shall be used for</p> <ul style="list-style-type: none"> • Installation of piping, fittings and special inline items in the field (process areas and pipe racks) • Welding of piping (prefabrication and field) • Installation of flange unions, pipe bending, fabrication and installation of threaded connections • Installation of valves and other armatures (incl. motor driven valves) • Pressure Testing of piping (hydrotest and pneumatic test) • Installation of supports • Disassembly of piping <p>For further information please refer to Exhibit E &AZ W-SK 2401 Explanation to Factor List Piping and &AZ W-SY 2401 Scope of Work AG Piping Construction and associated specifications. Aboveground as well as underground metallic piping shall be compensated according this chapter. Labor Rate shall include:</p> <ul style="list-style-type: none"> • all necessary activities to reach the status of mechanical completion such as • all activities to ensure traceability and the respective documentation activities required • any loading, intermediate transport, unloading and storage during construction • Disposal of any packing and temporary support material • all rigging in place, fitting, aligning, temporary supporting, fixing of pipe or fitting in position, • all measuring, marking, cutting, restamping, cleaning (inside and outside pipe) and temporary preservation during installation (like caps) • Preparation and analysis of water to be used for hydrotesting (e.g. chloride content as specified) incl. required documentation of test results • unlocking and locking of spring hangers and spring supports • Installation and maintaining of all safety areas and installations for Pressure Testing according to specifications (especially for pneumatic tests) • all bolting and unbolting for Pressure Testing • supply, installation and replacement of temporary gaskets with permanent gaskets • execution of all specified hydro-/pneumatic pressure and service testing, including flushing and drying • bubble Testing of flange unions and Welding seams as specified 				

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	<ul style="list-style-type: none"> removal and later reinstatement of items to be dismantled for pressure test (e.g. control valves, bellows, check valves, strainers...) fabrication, installation, dismantling of dummy spools, test spades, temporary supports required for pressure testing installation of labels and signs on outer surface of pipe or insulation by glueing, riveting or hanging tags. all types of welds (fillet welds, socket welds, butt welds) and all types of fittings (branches, weldolets, nipolets, threadolets, reinforcement pads, support stops, guides for torque-free supports...) threaded pipe connections incl. Preparation of thread and seal weld all necessary activities such as measuring, if required removal of paint or other substances, cleaning, supporting Beveling and any required weld joint preparation with appropriate means as per material group (this may include, but is not limited to flame arc cutting, plasma arc cutting, cold cutting, grinding) all kinds of heat treatment (except post weld heat treatment) as required for the respective material including pre-heating due to adverse weather conditions if required: suitable measures to compensate for adverse weather conditions like wind, rain, humidity, dirt, dust, heat, cold tack welding, re-checking and if required cutting, rework, realignment and tack welding Welding of the joint and all required reworks like grinding to avoid e.g. excessive root convexity for stainless steel and if specified pickling and passivation shall be included if required counter-fastening of flanges during welding including welding gasket installation, bolt-up and removal of bolts and counter-flange all surface treatment and touch-up painting or other surface protection for Welding seams all documentation and reporting required installation of support elements like PTFE sliding plates, insulation form parts removal of blocking pins and adjustment of spring hangers or spring supports bending of piping according to specifications cleaning of bent piping from any residues of oil or dirt internally and externally before packing for transport bolt ups of all types of flanges (raised face (RF), flat face (FF), tongue/groove (T/G), ring type joint (RTJ), male-female face (M/F) or fittings with special faces...), all types of flanges with a wafer item in between and all materials handling of bolts, studs, nuts and gaskets including temporary material measurement of roundness and angularity check of flange face 				

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- if required correction works
- check for damages on flange face or gaskets before Installation
- cleaning of flange face
- stress-free alignment of flanges incl all activities to ensure a stress-free bolt up (e.g. opening and closing of support clamps)
- lubrication of bolts
- bolting of the flange connection with controlled torque (manually or hydraulic torquing)
- hydraulic bolt tensioning (if specified)

Material Rate shall include:

- supply and Disposal of any material required for temporary supporting of piping
- supply of all temporary materials to execute all pressure tests like temporary supports, temporary dummy spools, test spades, temporary gasket, bolts and nuts for pressure testing, all items required for temporary fit-up, foaming agent for all pneumatic pressure tests, caps for piping closure, all consumables
- supply and disposal of suitable test medium (test water, Nitrogen, dry and oil-free air) incl. all additives (e.g. glycol for subzero environments) if not provided by Linde
- Welding rods and other consumables required for Welding and associated works
- all auxiliary material not provided by Linde
- if required gasket during Welding of flanges if flange has to be counter-fastened
- if required backing rings
- all welding, shielding and forming gases
- all chemicals required for pickling and passivation
- paint or other surface protection for touch-up of Welding seams
- insulation material for filling of trunnion supports
- if required lubrication for bolts and nuts

Equipment Rate shall include:

- Equipment Rate shall include:
- supply of all construction equipment required to perform the scope described above like small cranes, forklifts, trucks, hoisting equipment, slings, chainblocks, slings, pumps and compressors for pressure testing and drying, calibrated pressure test instruments (e.g. gauges), safety valves, hoses, temporary piping, small hand and electric tools including consumables
- all other machines and tools required
- all machines and devices required for weld joint preparation, welding, cleaning and heat treatment
- all supporting and auxiliary machines and devices required for the scope described above
- suitable equipment for Welding rod storage and heating

Exclusions:

- Exclusions:
- receiving, unpacking, inspection, storage, marking, preservation, protecting, identification of materials provided by Linde --> to be

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	included in "warehousing"				
	• scaffolding --> to be included in chapter 90.				
240.30.10.	All Materials				
240.30.10.10	LINDE FACTORS				
		33,920	F
<hr/>					
	Total 240.30.10. All Materials			
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	Total 240.30. LINDE FACTORS - Prefabrication

240.140. Handling + Prefabrication + Installation in Process Area

WIC Name: LE/SI-en, WIC No.: 240.140.

Labor Rate shall include:

- all necessary activities to reach the status of mechanical completion such as
- any intermediate loading, transport, unloading and storage required for the completion of the assigned scope
- disposal of any packing and temporary support material
- suitable packing of prefabricated spools (e.g. pipe caps, wooden paletts, shrink foil, seaworthy packing), loading and transport to designated laydown area at construction site/module yard or any other destination defined with due notice by COMPANY
- completion of all required design activities to obtain authority approval for transport (if required including route studies, marine warranty surveyor, static calculations, etc.)
- all paperwork required for the transport (COMPANY will assist in case transport crosses country borders)
- return of rental containers
- all measuring, marking, cutting, restamping, cleaning (inside and outside pipe) and temporary preservation during performance of the work (like caps)
- Installation and maintaining of all safety areas and installations for pressure testing according to specifications (especially for pneumatic tests)
- unlocking and locking of spring hangers and spring supports
- Preparation and analysis of water to be used for Hydrotesting (e.g. chloride content as specified) incl. required documentation of test results
- all rigging in place, fitting, aligning, temporary supporting, fixing of pipe or fitting in position
- fabrication, installation, dismantling of dummy spools, test

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	<p>spades, temporary supports required for pressure testing</p> <ul style="list-style-type: none"> • all bolting and unbolting for pressure testing • supply, installation and replacement of temporary gaskets with permanent gaskets • execution of all specified hydro-/pneumatic pressure and service testing, including flushing and drying • bubble testing of flange unions and welding seams as specified • removal and later reinstatement of items to be dismantled for pressure test (e.g. control valves, bellows, check valves, strainers...) • installation of labels and signs on outer surface of pipe or insulation by glueing, riveting or hanging tags. • carrying out of inspections as per inspection test plan • all activities to ensure traceability and the respective documentation activities required <p>Material Rate shall include:</p> <ul style="list-style-type: none"> • supply of all temporary material required during prefabrication e.g. caps for piping closure, all consumables and utilities required for prefabrication • supply and disposal of all temporary materials to execute all pressure tests like, but not limited to temporary supports, temporary dummy spools, test spades, temporary gasket for pressure testing, foaming agent for all pneumatic pressure tests, caps for piping closure, all consumables and utilities • supply and disposal of suitable test medium (test water, Nitrogen, dry and oil-free air) incl. all additives (e.g. glycol for subzero environments) if not provided by COMPANY • supply of any packing or preservation material required • supply of shipping containers or any other suitable means of protection against damage or corrosion <p>Equipment Rate shall include:</p> <ul style="list-style-type: none"> • supply of all construction equipment required to perform the scope described above like small cranes, forklifts, trucks, hoisting equipment, chainblocks, slings, pumps and compressors for pressure testing and drying, calibrated pressure test instruments (e.g. gauges), safety valves, hoses, temporary piping, small hand and electric tools including consumables • all equipment and tools required for inspections as per inspection test plan • all handling and loading equipment required for Unloading and transport of the prefabricated spools • all other machines and tools required <p>Exclusions:</p> <ul style="list-style-type: none"> • all welding activities shall not be prized in this chapter --> to be included in the respective chapter welding • unloading of spools at warehouse --> to be included in chapter "Warehousing" • disposal of packing material --> to be included in chapter "Warehousing" • receiving, unpacking, inspection, storage, marking, preservation 				

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	<p>during storage, protecting, identification of materials provided by COMPANY --> to be included in chapter "Warehousing"</p> <ul style="list-style-type: none"> • scaffolding --> to be included in chapter "Scaffolding" <p>Methods of Measurement:</p> <ul style="list-style-type: none"> • Handling & Installation shall be measured in linear meter [m] along the centerline through all piping, fittings and inline items as shown in the isometric • Methods of measurement for all items are defined in Document &AA W-SK-2411 				
240.140.10.	All Material				
240.140.10.10	<p>*** Optional Item without IT</p> <p>WIC Name: LE/SI-en, WIC No.: 240.140. 10. 10</p> <p>Diameter DN 0 - 25 mm, any wall thickness</p>	1,398.00	m	.....	UR only
240.140.10.20	<p>*** Optional Item without IT</p> <p>WIC Name: LE/SI-en, WIC No.: 240.140. 10. 20</p> <p>Diameter DN 32 - 50 mm, any wall thickness</p>	852.00	m	.....	UR only
240.140.10.30	<p>*** Optional Item without IT</p> <p>WIC Name: LE/SI-en, WIC No.: 240.140. 10. 30</p> <p>Diameter DN 65 - 100 mm, any wall thickness</p>	813.00	m	.....	UR only
240.140.10.40	<p>*** Optional Item without IT</p> <p>WIC Name: LE/SI-en, WIC No.: 240.140. 10. 40</p> <p>Diameter DN 125 - 200 mm, any wall thickness</p>	332.00	m	.....	UR only
240.140.10.50	<p>*** Optional Item without IT</p> <p>WIC Name: LE/SI-en, WIC No.: 240.140. 10. 50</p> <p>Diameter DN 250 - 300 mm, any wall thickness</p>	362.00	m	.....	UR only
240.140.10.60	<p>*** Optional Item without IT</p> <p>WIC Name: LE/SI-en, WIC No.: 240.140. 10. 60</p> <p>Diameter DN 350 - 400 mm, any wall thickness</p>	320.00	m	UR only

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240.140.10.70	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.140. 10. 70 Diameter DN 450 - 500 mm, any wall thickness	367.00	m	UR only
240.140.10.80	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.140. 10. 80 Diameter DN 550 - 700 mm, any wall thickness	1,329.00	m	.....	UR only
240.140.10.90	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.140. 10. 90 Diameter DN 750 - 950 mm, any wall thickness	440.00	m	.....	UR only
240.140.10.100	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.140. 10. 100 Diameter DN 1000 - 1200 mm, any wall thickness	94.00	m	.....	UR only

Total 240.140.10. All Material

Total 240.140. Handling + Prefabrication + Ins..

240.220. Welding/Joining of Metallic Piping - PREFABRICATION + SITE

WIC Name: LE/SI-en, WIC No.: 240.220.

Labor Rate shall include:

- all types of welds (fillet welds, socket welds, butt welds) and all types of fittings (branches, weldolets, nipolets, threadolets, reinforcement pads, support stops, guides for torque-free supports...)
- threaded pipe connections incl. Preparation of thread and seal weld
- all necessary activities such as measuring, if required removal of paint or other substances, cleaning, supporting
- installation of backing rings where required (e.g. for aluminium welding)
- if required: suitable measures to compensate for adverse weather conditions like wind, rain, humidity, dirt, dust, heat, cold
- if required (e.g. stainless steel, high-alloy steel...) inertisation

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and if specified pickling and passivation of the weld seam shall be included

- if required counter-fastening of flanges during welding including welding gasket installation, bolt-up and removal of bolts and counter-flange
- Beveling and any required weld joint preparation with appropriate means as per material group (this may include, but is not limited to flame arc cutting, plasma arc cutting, cold cutting, grinding)
- all kinds of heat treatment (except post weld heat treatment) as required for the respective material including pre-heating due to adverse weather conditions
- tack welding, re-checking and if required cutting, rework, realignment and tack welding
- welding of the joint and all required reworks like grinding to avoid e.g. excessive root convexity
- all surface treatment other surface protection for welding seams
- carrying out of inspections as per inspection test plan
- all activities required for welder qualification tests and welding procedure qualification
- all documentation and reporting required

Material Rate shall include:

- welding rods and other consumables required for welding and associated works
- any auxiliary material not provided by Linde
- if required gasket during welding of flanges if flange has to be counter-fastened
- if required backing rings
- all welding, shielding and forming gases
- all chemicals required for pickling and passivation of the weld seam
- paint or other surface protection for touch-up of welding seams
- all material required for welder qualification tests and welding procedure qualification

Equipment Rate shall include:

- all machines and devices required for weld joint preparation, welding, cleaning and heat treatment
- all supporting and auxiliary machines and devices required for the scope described above
- suitable equipment for welding rod storage and heating
- all equipment required for welder qualification tests and welding procedure qualification

Exclusions:

- aligning pipes and fittings, marking of cutting lines, cutting, adjusting and leveling --> to be included in pipe installation & handling
- Non destructive examination --> to be included in respective chapter "Non destructive Examination"
- Post Weld Heat treatment --> to be included in respective chapter "Post Weld Heat Treatment"

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	<ul style="list-style-type: none"> Scaffolding --> to be included in respective chapter "Scaffolding" activities to obtain special work permits --> to be included in respective chapter for indirect cost <p>Methods of Measurement:</p> <ul style="list-style-type: none"> welding will be compensated in Dialinch; for special welding seams with additional or decreased effort multipliers on the physical diameter measurement apply to compensate for the higher or lower effort Methods of measurement for all items and respective multipliers are defined in Document &AA W-SK-2411 				
240.220.10.	Material CS - Carbon Steel (e.g. P355GH or A106 Gr. B)				
240.220.10.10	<p>*** Optional Item without IT</p> <p>WIC Name: LE/SI-en, WIC No.: 240.220. 10. 10</p> <p>Diameter: DN 0 - 25 mm, Wall Thickness: >0 - 4 mm</p> <p>0,125 ": STD, SCH40, XS, SCH80</p> <p>0,25 ": STD, SCH40, XS, SCH80</p> <p>0,375 ": STD, SCH40, XS, SCH80</p> <p>0,5 ": SCH5S, SCH10S, SCH40S, STD, SCH40, SCH80S, XS, SCH80</p> <p>0,75 ": SCH5S, SCH10S, SCH40S, STD, SCH40, SCH80S, XS, SCH80</p> <p>1 ": SCH5S, SCH10S, SCH10, SCH4</p>				
		697.46	DI	.....	UR only
240.220.10.40	<p>*** Optional Item without IT</p> <p>WIC Name: LE/SI-en, WIC No.: 240.220. 10. 40</p> <p>Diameter: DN 32 - 50 mm, Wall Thickness: >0 - 4 mm</p> <p>1,25 ": SCH5S, SCH10S, SCH10, SCH40S, STD, SCH40</p> <p>1,5 ": SCH5S, SCH10S, SCH10, SCH40S, STD, SCH40</p> <p>2 ": SCH5S, SCH10S, SCH10, SCH40S, STD, SCH40</p>				
		864.03	DI	.....	UR only
240.220.10.50	<p>*** Optional Item without IT</p> <p>WIC Name: LE/SI-en, WIC No.: 240.220. 10. 50</p> <p>Diameter: DN 32 - 50 mm, Wall Thickness: >4 - 8 mm</p> <p>1,25 ": SCH80S, XS, SCH80, SCH160</p> <p>1,5 ": SCH80S, XS, SCH80, SCH160</p> <p>2 ": SCH80S, XS, SCH80</p>				
		256.80	DI	.....	UR only
240.220.10.70	<p>*** Optional Item without IT</p> <p>WIC Name: LE/SI-en, WIC No.: 240.220. 10. 70</p> <p>Diameter: DN 65 - 100 mm, Wall Thickness: >0 - 4 mm</p> <p>2,5 ": SCH5S, SCH10S, SCH10</p> <p>3 ": SCH5S, SCH10S, SCH10</p>				

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	3,5 ": SCH5S, SCH10S, SCH10 4 ": SCH5S, SCH10S, SCH10	29.60	DI	UR only
240.220.10.80	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 80 Diameter: DN 65 - 100 mm, Wall Thickness: >4 - 8 mm 2,5 ": SCH40S, STD, SCH40, SCH80S, XS, SCH80 3 ": SCH40S, STD, SCH40, SCH80S, XS, SCH80 3,5 ": SCH40S, STD, SCH40 4 ": SCH40S, STD, SCH40	2,086.14	DI	UR only
240.220.10.130	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 130 Diameter: DN 125 - 200 mm, Wall Thickness: >4 - 8 mm 5 ": SCH40S, STD, SCH40 6 ": SCH40S, STD, SCH40 8 ": SCH20, SCH30	2,441.74	DI	.....	UR only
240.220.10.180	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 180 Diameter: DN 250 - 300 mm, Wall Thickness: >0 - 4 mm 10 ": SCH5S 12 ": SCH5S	693.00	DI	.....	UR only
240.220.10.190	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 190 Diameter: DN 250 - 300 mm, Wall Thickness: >4 - 8 mm 10 ": SCH10S, SCH20, SCH30 12 ": SCH10S, SCH20	2,183.72	DI	.....	UR only
240.220.10.280	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 280 Diameter: DN 350 - 400 mm, Wall Thickness: >4 - 8 mm 14 ": SCH10S, SCH10, SCH20 16 ": SCH5S, SCH10S, SCH10, SCH20	3,493.70	DI	UR only

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
240.220.10.380	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 380 Diameter: DN 450 - 500 mm, Wall Thickness: >4 - 8 mm 18 ": SCH5S, SCH10S, SCH10, SCH20 20 ": SCH5S, SCH10S, SCH10	2,118.60	DI	UR only
240.220.10.390	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 390 Diameter: DN 450 - 500 mm, Wall Thickness: >8 - 12 mm 18 ": SCH30, STD 20 ": SCH20, STD	256.80	DI	.....	UR only
240.220.10.400	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 400 Diameter: DN 450 - 500 mm, Wall Thickness: >12 - 16 mm 18 ": SCH40, XS 20 ": SCH30, SCH40, XS	898.80	DI	.....	UR only
240.220.10.500	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 500 Diameter: DN 550 - 700 mm, Wall Thickness: >4 - 8 mm 22 ": SCH5S, SCH10S, SCH10 24 ": SCH5S, SCH10S, SCH10 26 ": SCH10 28 ": SCH10	10,449.31	DI	.....	UR only
240.220.10.510	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 510 Diameter: DN 550 - 700 mm, Wall Thickness: >8 - 12 mm 22 ": SCH20, STD 24 ": SCH20, STD 26 ": STD 28 ": STD	256.80	DI	.....	UR only
240.220.10.520	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 520 Diameter: DN 550 - 700 mm, Wall Thickness: >12 - 16 mm 22 ": SCH30, XS 24 ": SCH30, XS				

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	26 ": SCH20, XS 28 ": SCH20, SCH30, XS	778.96	DI	UR only
240.220.10.640	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 640 Diameter: DN 750 - 950 mm, Wall Thickness: >0 - 8 mm 30 ": SCH5S, SCH10S, SCH10 32 ": SCH10 34 ": SCH10 36 ": SCH10	5,512.64	DI	UR only
240.220.10.660	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 660 Diameter: DN 750 - 950 mm, Wall Thickness: >12 - 16 mm 30 ": SCH20, SCH30, XS 32 ": SCH20, SCH30, XS 34 ": SCH20, SCH30, XS 36 ": SCH20, SCH30, XS 38 ": XS	2,978.88	DI	.....	UR only
240.220.10.670	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 670 Diameter: DN 750 - 950 mm, Wall Thickness: >16 - 20 mm 32 ": SCH40 34 ": SCH40 36 ": SCH40	684.80	DI	.....	UR only
240.220.10.780	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 10. 780 Diameter: DN 1000 - 1200 mm, Wall Thickness: >0 - 8 mm	1,926.00	DI	.....	UR only
<hr/>					
Total 240.220.10. Material CS - Carbon Steel (e.g..					
240.220.30.	Material CN - Stainless Steel & high alloy Ni-steel (e.g. X5CrNo18-10 or A312 Gr. TP304)				

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
240.220.30.10	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 10 Diameter: DN 0 - 25 mm, Wall Thickness: >0 - 4 mm 0,125 ": STD, SCH40, XS, SCH80 0,25 ": STD, SCH40, XS, SCH80 0,375 ": STD, SCH40, XS, SCH80 0,5 ": SCH5S, SCH10S, SCH40S, STD, SCH40, SCH80S, XS, SCH80 0,75 ": SCH5S, SCH10S, SCH40S, STD, SCH40, SCH80S, XS, SCH80 1 ": SCH5S, SCH10S, SCH10, SCH4	295.86	DI	UR only
240.220.30.40	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 40 Diameter: DN 32 - 50 mm, Wall Thickness: >0 - 4 mm 1,25 ": SCH5S, SCH10S, SCH10, SCH40S, STD, SCH40 1,5 ": SCH5S, SCH10S, SCH10, SCH40S, STD, SCH40 2 ": SCH5S, SCH10S, SCH10, SCH40S, STD, SCH40	775.75	DI	.....	UR only
240.220.30.50	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 50 Diameter: DN 32 - 50 mm, Wall Thickness: >4 - 8 mm 1,25 ": SCH80S, XS, SCH80, SCH160 1,5 ": SCH80S, XS, SCH80, SCH160 2 ": SCH80S, XS, SCH80	57.78	DI	.....	UR only
240.220.30.70	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 70 Diameter: DN 65 - 100 mm, Wall Thickness: >0 - 4 mm 2,5 ": SCH5S, SCH10S, SCH10 3 ": SCH5S, SCH10S, SCH10 3,5 ": SCH5S, SCH10S, SCH10 4 ": SCH5S, SCH10S, SCH10	439.01	DI	.....	UR only
240.220.30.120	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 120 Diameter: DN 125 - 200 mm, Wall Thickness: >0 - 4 mm 5 ": SCH5S, SCH10S, SCH10 6 ": SCH5S, SCH10S, SCH10 8 ": SCH5S, SCH10S	678.99	DI	UR only

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
240.220.30.180	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 180 Diameter: DN 250 - 300 mm, Wall Thickness: >0 - 4 mm 10 ": SCH5S 12 ": SCH5S	695.00	DI	UR only
240.220.30.190	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 190 Diameter: DN 250 - 300 mm, Wall Thickness: >4 - 8 mm 10 ": SCH10S, SCH20, SCH30 12 ": SCH10S, SCH20	1,187.70	DI	.....	UR only
240.220.30.270	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 270 Diameter: DN 350 - 400 mm, Wall Thickness: >0 - 4 mm 14 ": SCH5S	1,686.32	DI	.....	UR only
240.220.30.370	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 370 Diameter: DN 350 - 400 mm, Wall Thickness: >40 - 44 mm 16 ": SCH160	235.40	DI	.....	UR only
240.220.30.380	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 380 Diameter: DN 450 - 500 mm, Wall Thickness: >4 - 8 mm 18 ": SCH5S, SCH10S, SCH10, SCH20 20 ": SCH5S, SCH10S, SCH10	342.40	DI	.....	UR only
240.220.30.500	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.220. 30. 500 Diameter: DN 550 - 700 mm, Wall Thickness: >4 - 8 mm 22 ": SCH5S, SCH10S, SCH10 24 ": SCH5S, SCH10S, SCH10 26 ": SCH10 28 ": SCH10	629.16	DI	UR only

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Total 240.220.30. Material CN - Stainless Steel &..

Total 240.220. Welding/Joining of Metallic Pip..

240.300. Bolt Ups/Flange Connections of Metallic Piping

WIC Name: LE/SI-en, WIC No.: 240.300.

Compensation shall include bolt-ups between and to piping, equipment nozzle, inline item and shall apply to all types of flange connections including those with wafer-type inline items fixed between two flanges and any type, material and length of bolts and nuts.

Labor Rate shall include:

- bolt ups of all types of flanges (raised face (RF), flat face (FF), tongue/groove (T/G), ring type joint (RTJ), male-female face (M/F) or fittings with special faces...), all types of flanges with a wafer item in between and all materials
- handling of bolts, studs, nuts and gaskets including temporary material
- measurement of roundness and angularity check of flange face
- if required correction works
- check for damages on flange face or gaskets before installation
- cleaning of flange face
- stress-free alignment of flanges incl. all activities to ensure a stress-free bolt up (e.g. opening and closing of support clamps)
- lubrication of bolts
- bolting of the flange connection with controlled torque (manually or hydraulic torquing)
- hydraulic bolt tensioning (if specified)
- carrying out of inspections as per inspection test plan

Material Rate shall include:

- lubrication material (as and if specified)
- temporary gaskets, bolts, nuts and other items for temporary fit up

Equipment Rate shall include:

- bolting machines/devices such as pneumatic screwdrivers, hydraulic torque wrenches, manual torque wrenches, hydraulic bolt tensioning equipment
- all other tools and machines required for bolt ups

Exclusions:

- bolting of pipe supports to pipe, steel structure or equipment --> to be included in respective chapter "Installation and handling of supports"
- handling of items between flanges like blinds, figure 8 blinds, wafer type valve --> to be included in in the respective chapter

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	"Installation and handling of piping" Methods of Measurement: <ul style="list-style-type: none"> • bolt-ups will be compensated per piece [PC]; one bolt up is the connection of two flanges by tightening bolts and nuts • Methods of measurement for all items are defined in Document &AA W-SK-2411 				
240.300.10.	Nominal Pressure PN20 to PN50				
240.300.10.10	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.300. 10. 10 Diameter DN 0 - 25 mm, PN20 to PN50	110	PC	.....	UR only
240.300.10.20	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.300. 10. 20 Diameter DN 32 - 50 mm, PN20 to PN50	142	PC	.....	UR only
240.300.10.30	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.300. 10. 30 Diameter DN 65 - 100 mm, PN20 to PN50	79	PC	.....	UR only
240.300.10.40	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.300. 10. 40 Diameter DN 125 - 200 mm, PN20 to PN50	58	PC	.....	UR only
240.300.10.50	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.300. 10. 50 Diameter DN 250 - 300 mm, PN20 to PN50	33	PC	.....	UR only
240.300.10.60	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.300. 10. 60 Diameter DN 350 - 400 mm, PN20 to PN50	41	PC	UR only

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
240.300.10.70	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.300. 10. 70 Diameter DN 450 - 500 mm, PN20 to PN50	20	PC	UR only
240.300.10.80	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.300. 10. 80 Diameter DN 550 - 700 mm, PN20 to PN50	39	PC	.....	UR only
240.300.10.90	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.300. 10. 90 Diameter DN 750 - 950 mm, PN20 to PN50	22	PC	.....	UR only
240.300.10.100	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.300. 10. 100 Diameter DN 1000 - 1200 mm, PN20 to PN50	4	PC	.....	UR only

Total 240.300.10. Nominal Pressure PN20 to PN50

Total 240.300. Bolt Ups/Flange Connections of ..

240.310. Handling + Installation of Valves & Inline Items (excluding bolt up or welding)

WIC Name: LE/SI-en, WIC No.: 240.310.

The term inline items refers to strainers, filters, venturi pipes, flame arrestors, baskets, bellows, flow meters etc. which do have a special function, but will be installed as part of the piping system.

All types of valves with no respect to connection method (flanged, welded or screwed) or valve function shall be considered hereunder.

Labor Rate shall include:

- carrying out of inspections as per inspection test plan
- receiving, unpacking, inspection, storage, marking, preservation, protecting, identification of materials provided by COMPANY
- all activities to ensure traceability and the respective documentation activities required
- any loading, intermediate transport, unloading and storage during construction
- handling and hauling from storage location to erection site,

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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rigging in place, fitting, aligning, temporary supporting, fixing of pipe or fitting in position,

- all measuring, marking, restamping, cleaning (inside and outside item) and temporary preservation for transport (like caps)
- disposal of any packing and temporary support material
- preparation, updating and administration of pressure test packages and test P&IDs
- handling and administration of all issued construction documents
- installation of valve actuators
- lubrication of valve spindles if specified
- for Safety valves: including calibration and pop test at site or close-by (only after COMPANY's approval)

Material Rate shall include:

- lubricants
- all supporting material required to install the valve in the defined position

Equipment Rate shall include:

- all tools and machines required for the installation of the valves

Exclusions:

- welding of valves to piping or equipment --> to be included in "Welding"
- bolting of valves to flanges --> to be included in "Bolt ups"

Methods of Measurement:

- Methods of measurement for all items are defined in Document &AA W-SK-2411
- installation of valves will be compensated per piece [PC]

240.310.10. Globe Valves, gate valves, butterfly valves, check valves and comparable

240.310.10.10 *** Optional Item without IT

WIC Name: LE/SI-en, WIC No.: 240.310. 10. 10

Diameter DN 0 - 25 mm globe valves, gate valves, butterfly valve, check valves, ...

56 PC UR only

240.310.10.20 *** Optional Item without IT

WIC Name: LE/SI-en, WIC No.: 240.310. 10. 20

Diameter DN 32 - 50 mm globe valves, gate valves, butterfly valve, check valves, ...

93 PC UR only

240.310.10.30 *** Optional Item without IT

WIC Name: LE/SI-en, WIC No.: 240.310. 10. 30

Diameter DN 65 - 100 mm globe valves, gate valves, butterfly valve, check valves, ...

26 PC UR only

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
240.310.10.40	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 10. 40 Diameter DN 125 - 200 mm globe valves, gate valves, butterfly valve, check valves, ...	45	PC	UR only
240.310.10.50	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 10. 50 Diameter DN 250 - 300 mm globe valves, gate valves, butterfly valve, check valves, ...	30	PC	.....	UR only
240.310.10.60	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 10. 60 Diameter DN 350 - 400 mm globe valves, gate valves, butterfly valve, check valves, ...	32	PC	.....	UR only
240.310.10.70	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 10. 70 Diameter DN 450 - 500 mm globe valves, gate valves, butterfly valve, check valves, ...	15	PC	.....	UR only
240.310.10.80	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 10. 80 Diameter DN 550 - 700 mm globe valves, gate valves, butterfly valve, check valves, ...	30	PC	.....	UR only
240.310.10.90	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 10. 90 Diameter DN 750 - 950 mm globe valves, gate valves, butterfly valve, check valves, ...	21	PC	.....	UR only
<hr/>					
Total 240.310.10. Globe Valves, gate valves, butt..					
240.310.20.	Inline items				
240.310.20.10	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 20. 10 Diameter DN 0 - 25 mm inline items like strainers, meter runs, flow measurements, venturi pipes, manifolds...	5	PC	UR only

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
240.310.20.20	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 20. 20 Diameter DN 32 - 50 mm inline items like strainers, meter runs, flow measurements, venturi pipes, manifolds...	1	PC	UR only
240.310.20.30	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 20. 30 Diameter DN 65 - 100 mm inline items like strainers, meter runs, flow measurements, venturi pipes, manifolds...	1	PC	.....	UR only
<hr/>					
Total 240.310.20. Inline items					
240.310.30.	Control Valves				
240.310.30.10	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 10 Diameter DN 0 - 25 mm Control Valves	14	PC	.....	UR only
240.310.30.20	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 20 Diameter DN 32 - 50 mm Control Valves	9	PC	.....	UR only
240.310.30.30	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 30 Diameter DN 65 - 100 mm Control Valves	9	PC	.....	UR only
240.310.30.40	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 40 Diameter DN 125 - 200 mm Control Valves	9	PC	.....	UR only
240.310.30.50	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 50 Diameter DN 250 - 300 mm Control Valves	5	PC	UR only

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
240.310.30.60	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 60 Diameter DN 350 - 400 mm Control Valves	1	PC	UR only
240.310.30.70	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 70 Diameter DN 450 - 500 mm Control Valves	1	PC	.....	UR only
240.310.30.80	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 80 Diameter DN 550 - 700 mm Control Valves	1	PC	.....	UR only
240.310.30.90	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 90 Diameter DN 750 - 950 mm Control Valves	1	PC	.....	UR only
240.310.30.100	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 100 Diameter DN 1000 - 1200 mm Control Valves	1	PC	.....	UR only
240.310.30.110	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 30. 110 Diameter DN 1300 - 1500 mm Control Valves	1	PC	.....	UR only
<hr/>					
Total 240.310.30. Control Valves					
240.310.40.	Pressure Safety Valve				
240.310.40.10	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 40. 10 Diameter DN 0 - 25 mm Pressure Safety Valves	18	PC	UR only

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
240.310.40.20	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 40. 20 Diameter DN 32 - 50 mm Pressure Safety Valves	9	PC	UR only
240.310.40.30	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 40. 30 Diameter DN 65 - 100 mm Pressure Safety Valves	9	PC	.....	UR only
240.310.40.40	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 40. 40 Diameter DN 125 - 200 mm Pressure Safety Valves	5	PC	.....	UR only
240.310.40.50	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 40. 50 Diameter DN 250 - 300 mm Pressure Safety Valves	2	PC	.....	UR only
240.310.40.60	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.310. 40. 60 Diameter DN 350 - 400 mm Pressure Safety Valves	2	PC	.....	UR only

Total 240.310.40. Pressure Safety Valve

Total 240.310. Handling + Installation of Valv..

240.320. Handling & Installation of Pipe Supports

WIC Name: LE/SI-en, WIC No.: 240.320.

The term supports shall refer to bracket supports, guiding supports, sliding supports, (moment free) anchor supports, cantilever supports, U-Bolts, support pads, pipe (spring) hangers, spring supports and special pipe supports, all for insulated and uninsulated piping including all hold-down and guiding elements

Labor Rate shall include:

- carrying out of inspections as per inspection test plan
- all activities to ensure traceability and the respective

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- documentation activities required
- any loading, intermediate transport, unloading and storage during construction
 - disposal of any packing and temporary support material
 - handling and administration of all issued construction documents
 - handling and hauling from storage location to erection site, rigging in place, fitting, aligning, temporary supporting, fixing of support in position,
 - all measuring, marking, bolting of pipe supports onto pipe and onto structural steel pipe racks or other supporting steel structures including drilling of required holes
 - installation of support elements like PTFE sliding plates, insulation form parts
 - fabrication and installation of any stops or guides welded to piping
 - welding of pipe support elements (like axial stops, guides, sheer plates) and pipe supports to piping, steel structure or equipment
 - inertizing and purging of the pipe (for stainless steel supports)
 - removal of blocking pins and adjustment of spring hangers or spring supports

Material Rate shall include:

- supply of insulation material for filling of trunnion supports
- supply of material for stops and guides welded to piping
- if required lubrication for bolts and nuts

Equipment Rate shall include:

- all equipment required for the installation of pipe supports
- all hand tools required for the installation of pipe supports

Exclusions:

- receiving, unpacking, inspection, storage, marking, preservation, protecting, identification of materials provided by COMPANY --> to be included in "warehousing"
- welding of trunnion type supports to piping --> to be included in welding of piping
- fabrication of pipe supports --> to be included in chapter "Fabrication of pipe supports"
- material supply (except for material explicitly mentioned above) --> to be included in chapter "Fabrication of pipe supports"
- material supply, fabrication and installation of secondary steel structure supports like field supports, T-posts or goal posts --> to be included in "Structural Steel"

Methods of Measurement:

- Methods of measurement for all items are defined in Document &AA W-SK-2411
- installation of pipe supports will be compensated according to total weight of pipe supports in kilogram [kg]

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
240.320.10.	Handling & Installation of Pipe Supports - All Material				
240.320.10.20	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.320. 10. 20 Weight of one single support >1 - 5kg - Handling & Installation of Pipe Supports - All Material	1,134.37	kg	.....	UR only
240.320.10.30	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.320. 10. 30 Weight of one single support >5 - 10kg - Handling & Installation of Pipe Supports - All Material	1,055.08	kg	.....	UR only
240.320.10.40	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.320. 10. 40 Weight of one single support >10 - 20kg - Handling & Installation of Pipe Supports - All Material	2,006.25	kg	.....	UR only
240.320.10.50	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.320. 10. 50 Weight of one single support >20 - 50kg - Handling & Installation of Pipe Supports - All Material	5,001.75	kg	.....	UR only
240.320.10.60	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.320. 10. 60 Weight of one single support >50 - 100kg - Handling & Installation of Pipe Supports - All Material	26,509.48	kg	.....	UR only
240.320.10.70	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 240.320. 10. 70 Weight of one single support >100 - 200kg - Handling & Installation of Pipe Supports - All Material	3,109.57	kg	UR only
Total 240.320.10. Handling & Installation of Pipe..					

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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	Total 240.320.	Handling & Installation of Pipe..			
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	Total 240.	Piping			

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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250. Non Destructive Testing

WIC Name: LE/SI-en, WIC No.: 250.

Labor Rate shall include:

- Provision of standard PSA for site staff
- Provision of (testing) devices includes customer clearance and / or similar third part approvals, if any
- Handling and transport of the items to be tested
- Mobilization and demobilization of manpower
- Initial cleaning, required preparation of the surface before testing, cleaning after testing
- Performing the tests according to specifications
- Evaluation and documentation of test results
- Provision of raw data if required
- Securing test area (if required)

Material Rate shall include:

- All consumable materials required for testing

Equipment rate shall include:

- Testing device including power source

Exclusions:

- re-testing, repairs and follow up of welds due to contractors fault shall not be compensated
- Scaffolding --> shall be included in chapter "Scaffolding"
- NDT required for welder qualification tests --> covered in Welding of Piping

Methods of measurement:

- Methods of measurement for all items are defined in document &AZ W-SK 2511 (EN)

250.10. RT - Radiographic Testing with radiation source Ir192 or Se75

WIC Name: LE/SI-en, WIC No.: 250. 10.

Labor Rate shall include:

- working in RT windows which are usually between 06:00 pm and 06:00 am and on holidays (in case no special facilities for NDT like a bunker are available)
- securing the test areas where required
- handling and transport of the items to be tested

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- Mobilization and Demobilization of manpower
- initial cleaning and required Preparation of the surface before testing
- any repositioning of the source to cover the whole weld shot (in case a center shot is not possible)
- performing the tests according to specifications
- evaluation and documentation of test results

Material Rate shall include:

- films including all items required to identify films and its pictorial quality
- all chemicals required for the development of films
- all other consumable materials required for testing

Equipment Rate shall include:

- Container with IR192/SE75all equipment required for the development of filmsall required barricading and Safety equipment

Exclusions:

- re-testing, repairs and follow up of welds due to contractors fault shall not be compensated
- NDT required for welder qualification tests --> covered in Welding of Piping (not compensated separately)
- Scaffolding --> shall be included in chapter "Scaffolding"

250.10.10. RT Ir192/Se75 - Piping

250.10.10.10 WIC Name: LE/SI-en, WIC No.: 250. 10. 10. 10
Diameter (DN 0 - 25 mm | NPS 0 - 1 inch), any wall thickness, any material

98 PC

250.10.10.20 WIC Name: LE/SI-en, WIC No.: 250. 10. 10. 20
Diameter (DN 32 - 50 mm | NPS 1,25 - 2 inch), any wall thickness, any material

143 PC

250.10.10.30 WIC Name: LE/SI-en, WIC No.: 250. 10. 10. 30
Diameter (DN 65 - 100 mm | NPS 2,5 - 4 inch), any wall thickness, any material

32 PC

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
250.10.10.40	WIC Name: LE/SI-en, WIC No.: 250. 10. 10. 40 Diameter (DN 125 - 200 mm NPS 5 - 8 inch), any wall thickness, any material	23	PC
250.10.10.50	WIC Name: LE/SI-en, WIC No.: 250. 10. 10. 50 Diameter (DN 250 - 300 mm | NPS 10 - 12 inch), any wall thickness, any material	3	PC	.....	.....
250.10.10.60	WIC Name: LE/SI-en, WIC No.: 250. 10. 10. 60 Diameter (DN 350 - 400 mm | NPS 14 - 16 inch), any wall thickness, any material	3	PC	.....	.....
250.10.10.70	WIC Name: LE/SI-en, WIC No.: 250. 10. 10. 70 Diameter (DN 450 - 500 mm | NPS 18 - 20 inch), any wall thickness, any material	1	PC	.....	.....
250.10.10.100	WIC Name: LE/SI-en, WIC No.: 250. 10. 10. 100 Diameter (DN 1000 - 1200 mm | NPS 40 - 48 inch), any wall thickness, any material	5	PC	.....	.....
Total 250.10.10. RT Ir192/Se75 - Piping					.....
Total 250.10. RT - Radiographic Testing with ..					.....
250.20.	RT - Radiographic Testing with X-Ray tube				
	WIC Name: LE/SI-en, WIC No.: 250. 20.				
	Labor Rate shall include:				
	<ul style="list-style-type: none"> • working in RT windows which are usually between 06:00 pm and 06:00 am and on holidays (in case no special facilities for NDT like a bunker are available) • securing the test areas where required • handling and transport of the items to be tested • Mobilization and Demobilization of manpower • initial cleaning and required Preparation of the surface before testing • any repositioning of the X-Ray tube to cover the whole weld 				

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	<p>shot</p> <ul style="list-style-type: none"> performing the tests according to specifications evaluation and documentation of test results <p>Material Rate shall include:</p> <ul style="list-style-type: none"> films including all items required to identify films and its pictorial quality all chemicals required for the development of films all other consumable materials required for testing <p>Equipment Rate shall include:</p> <ul style="list-style-type: none"> all equipment required for the development of films all required barricading and Safety equipment X-Ray tube with power source and (if required cooling system) <p>Exclusions:</p> <ul style="list-style-type: none"> re-testing, repairs and follow up of welds due to contractors fault shall not be compensated Scaffolding --> shall be included in chapter "Scaffolding" NDT required for welder qualification tests --> covered in Welding of Piping 				
250.20.10.	RT X-Ray - Piping				
250.20.10.10	WIC Name: LE/SI-en, WIC No.: 250. 20. 10. 10 Diameter (DN 0 - 25 mm | NPS 0 - 1 inch), any wall thickness, any material				
		3	PC	.....	.....
250.20.10.20	WIC Name: LE/SI-en, WIC No.: 250. 20. 10. 20 Diameter (DN 32 - 50 mm | NPS 1,25 - 2 inch), any wall thickness, any material				
		5	PC	.....	.....
250.20.10.30	WIC Name: LE/SI-en, WIC No.: 250. 20. 10. 30 Diameter (DN 65 - 100 mm | NPS 2,5 - 4 inch), any wall thickness, any material				
		25	PC	.....	.....
250.20.10.40	WIC Name: LE/SI-en, WIC No.: 250. 20. 10. 40 Diameter (DN 125 - 200 mm NPS 5 - 8 inch), any wall thickness, any material				
		38	PC

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
250.20.10.50	WIC Name: LE/SI-en, WIC No.: 250. 20. 10. 50 Diameter (DN 250 - 300 mm NPS 10 - 12 inch), any wall thickness, any material	58	PC
250.20.10.60	WIC Name: LE/SI-en, WIC No.: 250. 20. 10. 60 Diameter (DN 350 - 400 mm | NPS 14 - 16 inch), any wall thickness, any material	39	PC	.....	.....
250.20.10.70	WIC Name: LE/SI-en, WIC No.: 250. 20. 10. 70 Diameter (DN 450 - 500 mm | NPS 18 - 20 inch), any wall thickness, any material	38	PC	.....	.....
250.20.10.80	WIC Name: LE/SI-en, WIC No.: 250. 20. 10. 80 Diameter (DN 550 - 700 mm | NPS 22 - 28 inch), any wall thickness, any material	44	PC	.....	.....
250.20.10.90	WIC Name: LE/SI-en, WIC No.: 250. 20. 10. 90 Diameter (DN 750 - 950 mm | NPS 30 - 38 inch), any wall thickness, any material	14	PC	.....	.....
250.20.10.100	WIC Name: LE/SI-en, WIC No.: 250. 20. 10. 100 Diameter (DN 1000 - 1200 mm | NPS 40 - 48 inch), any wall thickness, any material	5	PC	.....	.....
Total 250.20.10. RT X-Ray - Piping					.....
Total 250.20. RT - Radiographic Testing with ..					.....
250.40.	PT - Dye Penetrant Testing				
	WIC Name: LE/SI-en, WIC No.: 250. 40.				
	Labor Rate shall include:				
	<ul style="list-style-type: none"> • handling and transport of the items to be tested • Mobilization and Demobilization of manpower • initial cleaning and required Preparation of the surface before testing • if required: application of a solvent 				

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	<ul style="list-style-type: none"> performing the tests according to specifications evaluation and documentation of test results <p>Material Rate shall include:</p> <ul style="list-style-type: none"> all other consumable materials required for testing (dye penetrant, developer) if required: solvent <p>Equipment Rate shall include:</p> <ul style="list-style-type: none"> all utilities to properly apply PT proper illumination of the testing surface if fluorescent Testing substances are used: UV lamp, shelter to darken the testing area <p>Exclusions:</p> <ul style="list-style-type: none"> re-testing, repairs and follow up of welds due to contractors fault shall not be compensated Scaffolding --> shall be included in chapter "Scaffolding" NDT required for welder qualification tests --> covered in Welding of Piping 				
250.40.10.	PT - Piping				
250.40.10.10	WIC Name: LE/SI-en, WIC No.: 250. 40. 10. 10 Diameter (DN 0 - 25 mm | NPS 0 - 1 inch), any wall thickness, any material				
		62	PC	.....	.....
250.40.10.20	WIC Name: LE/SI-en, WIC No.: 250. 40. 10. 20 Diameter (DN 32 - 50 mm | NPS 1,25 - 2 inch), any wall thickness, any material				
		68	PC	.....	.....
250.40.10.30	WIC Name: LE/SI-en, WIC No.: 250. 40. 10. 30 Diameter (DN 65 - 100 mm | NPS 2,5 - 4 inch), any wall thickness, any material				
		10	PC	.....	.....
250.40.10.40	WIC Name: LE/SI-en, WIC No.: 250. 40. 10. 40 Diameter (DN 125 - 200 mm NPS 5 - 8 inch), any wall thickness, any material				
		7	PC

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
250.40.10.50	WIC Name: LE/SI-en, WIC No.: 250. 40. 10. 50 Diameter (DN 250 - 300 mm NPS 10 - 12 inch), any wall thickness, any material	3	PC
250.40.10.60	WIC Name: LE/SI-en, WIC No.: 250. 40. 10. 60 Diameter (DN 350 - 400 mm | NPS 14 - 16 inch), any wall thickness, any material	1	PC	.....	.....
250.40.10.70	WIC Name: LE/SI-en, WIC No.: 250. 40. 10. 70 Diameter (DN 450 - 500 mm | NPS 18 - 20 inch), any wall thickness, any material	1	PC	.....	.....
<hr/>					
Total 250.40.10.	PT - Piping				.....
<hr/>					
Total 250.40.	PT - Dye Penetrant Testing				.....
<hr/>					
250.50.	MT - Magnetic Particle Testing				
	WIC Name: LE/SI-en, WIC No.: 250. 50.				
	Labor Rate shall include:				
	<ul style="list-style-type: none"> • handling and transport of the items to be tested • Mobilization and Demobilization of manpower • initial cleaning and required Preparation of the surface before testing • if required: application of a contrasting dye • performing the tests according to specifications • evaluation and documentation of test results 				
	Material Rate shall include:				
	<ul style="list-style-type: none"> • all other consumable materials required for testing • iron particles (dry or in suspension) • if required: contrast dye 				
	Equipment Rate shall include:				
	<ul style="list-style-type: none"> • device to induce magnetic field including power source • proper illumination of the testing surface • if fluorescent Testing substances are used: UV lamp, shelter to darken the testing area 				

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
Exclusions:					
<ul style="list-style-type: none"> • re-testing, repairs and follow up of welds due to contractors fault shall not be compensated • Scaffolding --> shall be included in chapter "Scaffolding" • NDT required for welder qualification tests --> covered in Welding of Piping 					
250.50.10.	MT - Piping				
250.50.10.10	WIC Name: LE/SI-en, WIC No.: 250. 50. 10. 10 Diameter (DN 0 - 25 mm | NPS 0 - 1 inch), any wall thickness, any material	25	PC	.....	.....
250.50.10.20	WIC Name: LE/SI-en, WIC No.: 250. 50. 10. 20 Diameter (DN 32 - 50 mm | NPS 1,25 - 2 inch), any wall thickness, any material	23	PC	.....	.....
250.50.10.30	WIC Name: LE/SI-en, WIC No.: 250. 50. 10. 30 Diameter (DN 65 - 100 mm | NPS 2,5 - 4 inch), any wall thickness, any material	14	PC	.....	.....
250.50.10.40	WIC Name: LE/SI-en, WIC No.: 250. 50. 10. 40 Diameter (DN 125 - 200 mm | NPS 5 - 8 inch), any wall thickness, any material	26	PC	.....	.....
250.50.10.50	WIC Name: LE/SI-en, WIC No.: 250. 50. 10. 50 Diameter (DN 250 - 300 mm | NPS 10 - 12 inch), any wall thickness, any material	30	PC	.....	.....
250.50.10.60	WIC Name: LE/SI-en, WIC No.: 250. 50. 10. 60 Diameter (DN 350 - 400 mm | NPS 14 - 16 inch), any wall thickness, any material	22	PC	.....	.....
250.50.10.70	WIC Name: LE/SI-en, WIC No.: 250. 50. 10. 70 Diameter (DN 450 - 500 mm NPS 18 - 20 inch), any wall thickness, any material	21	PC

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
250.50.10.80	WIC Name: LE/SI-en, WIC No.: 250. 50. 10. 80 Diameter (DN 550 - 700 mm NPS 22 - 28 inch), any wall thickness, any material	12	PC
250.50.10.90	WIC Name: LE/SI-en, WIC No.: 250. 50. 10. 90 Diameter (DN 750 - 950 mm | NPS 30 - 38 inch), any wall thickness, any material	2	PC	.....	.....
250.50.10.100	WIC Name: LE/SI-en, WIC No.: 250. 50. 10. 100 Diameter (DN 1000 - 1200 mm NPS 40 - 48 inch), any wall thickness, any material	1	PC
<hr/>					
Total 250.50.10.	MT - Piping			
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Total 250.50.	MT - Magnetic Particle Testing			
<hr/>					
Total 250.	Non Destructive Testing			

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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260. Corrosion Protection

WIC Name: LE/SI-en, WIC No.: 260.

All requirements as per project specifications / Linde Standards, included in EXHIBIT E260, shall be adhered to.

Labor Rate shall include:

- Proper packing of materials for transportation (especially adherence to local laws and regulations when transporting paint)
- Any loading, intermediate transport, unloading and storage during construction between warehouse and construction site
- Checking of delivery conditions of material incl. checking of already applied prime, intermediate layers and top coat of pre-painted items and as required touch up of these on a reimbursable basis (in case damages were not caused by CONTRACTOR only)
- Disposal of any packing and temporary support materialEvaluation, procurement, delivery and storage of all corrosion protection material. Description about storage facilities shall be submitted and needs COMPANY's approval.
- Paint application on reference area for each painting system in accordance with EN ISO 12944.
- All measuring and marking
- Masking of sensitive surfaces and neighboring installations and facilities to avoid damages and contamination (e.g. flange faces, pipe ends, valve spindles, packings, field welds etc.)
- Required surface preparation including cleaning, de-rusting, removal of preservation coatings and drying
- All rigging in place, fitting, aligning, temporary supporting, fixing in position
- coordination of material flow with other contractors (e.g. piping installation CONTRACTOR)
- Application of paint system according to project specifications and local rules and regulations including but not limited to blasting, primer, intermediate layer and top coat.
- Painting of lables and application of stickers
- cleaning after completion of painting (i.e. removal of tapes, blowing out of pipes with dry air, etc.)
- Perform touch up for damages caused by CONTRACTOR (will not be reimbursed)
- Touch-up of surfaces initially left un-coated to allow for future works in that location (will not be compensated as touch up) (e.g. weld seams)

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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- removal of any spillage of paint
- Carrying out of inspections as per inspection test plan
- Compilation of documentation (safety and technical data sheets of the painting manufacturer) with reference to the blasting and painting systems, for all blasting and painting material used on site and submittal to COMPANY for approval before starting any work
- Establishing a painting procedure covering all CONTRACTOR activities including testing and inspection and submittal to COMPANY for approval
- as-built documentation

Material Rate shall include:

- Provision of all blast material, paint, thinners, solvents
- Provision of suitable spacers, supports and packing material for transport
- Provision of material for protection of surrounding installations and facilities all other materials and consumables required

Equipment Rate shall include:

- Supply of all construction equipment required to perform the scope described above like small cranes, forklifts, trucks, hoisting equipment, slings, chainblocks, Small hand and electric tools including consumables, gauges, sandblasting equipments incl. blasting grit, rollers, brushes, compressor, airless spray gun, dry film thickness measurement device, surface roughness measurement device, etc.
- All provisions required to keep installation material dry and clean at any time
- All other machines and tools required
- all equipment and tools required for inspections as per inspection test plan

Exclusions:

- Scaffolding --> to be covered separately in chapter "Scaffolding"

ABBREVIATIONS:

EP - Epoxy Resin (2C)
 EP-MIO- Epoxy Resin with Micaceous Iron Oxide
 IMM - Inorganic Copolymer with Inert Multipolimeric Matrix
 IOZ - Inorganic Ethyl Zinc Silicate
 PUR - Aliphatic Polyurethane
 Zn(R) - Inorganic Zinc Rich Primer



CS - Unalloyed or Low-Alloyed Carbon Steel

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	SS - Austenitic Stainless Steel(Any Type) NDFT - Nominal Dry Film Thickness				
260.20.	Corrosion Protection of Piping				
	WIC Name: LE/SI-en, WIC No.: 260. 20. In addition to applicable statements in the remark to chapter 260. pricing for this chapter shall include the following: Labor Rate shall include: <ul style="list-style-type: none"> • Transfer of pipe identification numbers from bare pipe to finish painted surface Methods of Measurement: <ul style="list-style-type: none"> • Corrosion protection of piping shall be measured in square meter [m2] of the outer surface of piping • Methods of Measurement for all items are defined in Document &AA-W-SK 2611 (EN) 				
260.20.40.	Paint System C4.04				
260.20.40.10	WIC Name: LE/SI-en, WIC No.: 260. 20. 40. 10 Complete Paint System C4.04 Complete System Primer: IOZ, Zn(R), NDFT: 50µm and Top Coat: IMM, NDFT: 125µm System Total NDFT: 175µm				
		1,586.93	m2	.....	.....
260.20.40.50	WIC Name: LE/SI-en, WIC No.: 260. 20. 40. 50 Touch Up Paint System C4.04 Touch up of paint system C4.04 - Only if NOT caused by CONTRACTOR				
		319.88	m2	.....	.....
<hr/>					
	Total 260.20.40. Paint System C4.04				.....
260.20.60.	Paint System C4.06				
260.20.60.10	WIC Name: LE/SI-en, WIC No.: 260. 20. 60. 10 Complete Paint System C4.06 Complete System				

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	Primer: IMM, NDFT: 75µm and Top Coat: IMM, NDFT: 100µm System Total NDFT: 175µm				
		3,175.00	m2	.....	.....
260.20.60.50	WIC Name: LE/SI-en, WIC No.: 260. 20. 60. 50 Touch Up Paint System C4.06 Touch up of paint system C4.06 - Only if NOT caused by CONTRACTOR				
		640.00	m2	.....	.....
<hr/>					
	Total 260.20.60. Paint System C4.06				.....
260.20.100. Paint System C4.24					
260.20.100.10	WIC Name: LE/SI-en, WIC No.: 260. 20.100. 10 Complete Paint System C4.24 Complete System Primer: EPP, NDFT: 100µm Top Coat: EPP, NDFT: 125µm System Total NDFT: 225µm				
		1,269.54	m2	.....	.....
260.20.100.50	WIC Name: LE/SI-en, WIC No.: 260. 20.100. 50 Touch Up Paint System C4.24 Touch up of paint system C4.24 - Only if NOT caused by CONTRACTOR				
		255.91	m2
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	Total 260.20.100. Paint System C4.24			
260.20.120. Paint System C4.26					
260.20.120.10	WIC Name: LE/SI-en, WIC No.: 260. 20.120. 10 Complete Paint System C4.26 Complete System Primer: IOZ, Zn(R), NDFT: 50µm Intermediate:IMM, NDFT: 100µm and Top Coat: IMM, NDFT: 100µm System Total NDFT: 250µm				
		318.53	m2

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
260.20.120.50	WIC Name: LE/SI-en, WIC No.: 260. 20.120. 50 Touch Up Paint System C4.26 Touch up of paint system C4.26 - Only if NOT caused by CONTRACTOR				
		64.21	m2	.....	.....
<hr/>					
	Total 260.20.120. Paint System C4.26			
<hr/>					
	Total 260.20. Corrosion Protection of Piping			
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260.30.	Corrosion Protection of Equipment WIC Name: LE/SI-en, WIC No.: 260. 30. In addition to applicable statements in the remark to chapter 260. pricing for this chapter shall include the following: Methods of Measurement: <ul style="list-style-type: none"> Corrosion protection of equipment shall be measured in square meter [m2] of the outer surface of the equipment without consideration of nozzles, manholes or other attached items Methods of Measurement for all items are defined in Document &AA-W-SK 2611 (EN) 				
260.30.40.	Paint System C4.04				
260.30.40.40	WIC Name: LE/SI-en, WIC No.: 260. 30. 40. 40 Top Coat Paint System C4.04 Application of top coat (incl. material supply) Top coat: IMM NDFT: 125µm				
		577.60	m2	.....	.....
260.30.40.50	WIC Name: LE/SI-en, WIC No.: 260. 30. 40. 50 Touch Up Paint System C4.04 Touch up of paint system C4.04 - Only if NOT caused by CONTRACTOR				
		144.40	m2

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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	Total 260.30.40. Paint System C4.04			
<hr/>					
	Total 260.30. Corrosion Protection of Equipment			
260.40.	Corrosion Protection of Structural Steel				
	WIC Name: LE/SI-en, WIC No.: 260. 40.				
	In addition to applicable statements in the remark to chapter 260.				
	pricing for this chapter shall include the following:				
	Methods of Measurement:				
	<ul style="list-style-type: none"> Corrosion protection of equipment shall be measured in square meter [m2] of the outer surface of the equipment without consideration of nozzles, manholes or other attached items Methods of Measurement for all items are defined in Document &AA-W-SK 2611 (EN) 				
260.40.50.	Paint System C4.05				
260.40.50.30	WIC Name: LE/SI-en, WIC No.: 260. 40. 50. 30				
	Intermediate Coat Paint System C4.05				
	Application of intermediate coat (incl. material supply)				
	Intermediate coat: IMM				
	NDFT: 100µm				
		2,725.00	m2	.....	.....
260.40.50.40	WIC Name: LE/SI-en, WIC No.: 260. 40. 50. 40				
	Top Coat Paint System C4.05				
	Application of top coat (incl. material supply)				
	Top coat: IMM				
	NDFT: 100µm				
		2,725.00	m2	.....	.....
260.40.50.50	WIC Name: LE/SI-en, WIC No.: 260. 40. 50. 50				
	Touch Up Paint System C4.05				
	Touch up of paint system C4.05 - Only if NOT caused by CONTRACTOR				
		851.00	m2

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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Total 260.40.50.	Paint System C4.05			
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Total 260.40.	Corrosion Protection of Structu..			
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260.50. Inside blasting of piping

WIC Name: LE/SI-en, WIC No.: 260. 50.

In addition to applicable statements in the remark to chapter 260.
pricing for this chapter shall include the following:

Labor Rate shall include:

- Establishing and maintaining of all HSE measured specifically required for these activities
- Inside blasting of pipes and fittings specified by COMPANY
- Removal of all residues after blasting
- Recycling of blasting material
- Inspection and proof of full removal of inside coatings

Material Rate shall include:

- Blast material
- All other materials and consumables required

Equipment Rate shall include:

- All blasting and cleaning equipment
- Special equipment for inside blasting of piping

Exclusions:

- Any regular cleaning of piping from e.g. rust preventing oil, mill scale, rust -> to be included in regular pipe installation and welding rates
- Blasting of piping which will be blasted and painted anyway --> to be included in Corrosion protection rates

Methods of Measurement:

- Methods of Measurement for all items are defined in Document &AA-W-SK 2611 (EN)
- inside blasting of piping shall be measured in linear meter [m] over all fittings and straight pipes

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
260.50.10.	Inside blasting of piping WIC Name: LE/SI-en, WIC No.: 260. 50. 10. This activity shall only be performed on lines specifically specified by COMPANY and shall be applied for e.g. (but not limited to) removal e.g. inside rust prevention "Japanese Black" or mill scale residues				
260.50.10.10	WIC Name: LE/SI-en, WIC No.: 260. 50. 10. 10 Inside blasting of piping - Dia: DN 0 - 25 mm Straight pipe and fittings, any wall thickness	973.70	m	.....	.....
260.50.10.20	WIC Name: LE/SI-en, WIC No.: 260. 50. 10. 20 Inside blasting of piping - Dia: DN 32 - 50 mm Straight pipe and fittings, any wall thickness	648.42	m	.....	.....
260.50.10.30	WIC Name: LE/SI-en, WIC No.: 260. 50. 10. 30 Inside blasting of piping - Dia: DN 65 - 100 mm Straight pipe and fittings, any wall thickness	735.09	m	.....	.....
260.50.10.40	WIC Name: LE/SI-en, WIC No.: 260. 50. 10. 40 Inside blasting of piping - Dia: DN 125 - 200 mm Straight pipe and fittings, any wall thickness	263.22	m	.....	.....
260.50.10.50	WIC Name: LE/SI-en, WIC No.: 260. 50. 10. 50 Inside blasting of piping - Dia: DN 250 - 300 mm Straight pipe and fittings, any wall thickness	211.86	m	.....	.....
260.50.10.60	WIC Name: LE/SI-en, WIC No.: 260. 50. 10. 60 Inside blasting of piping - Dia: DN 350 - 400 mm Straight pipe and fittings, any wall thickness	155.15	m

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
260.50.10.70	WIC Name: LE/SI-en, WIC No.: 260. 50. 10. 70 Inside blasting of piping - Dia: DN 450 - 500 mm Straight pipe and fittings, any wall thickness	354.17	m
260.50.10.80	WIC Name: LE/SI-en, WIC No.: 260. 50. 10. 80 Inside blasting of piping - Dia: DN 550 - 700 mm Straight pipe and fittings, any wall thickness	1,316.10	m	.....	.....
260.50.10.90	WIC Name: LE/SI-en, WIC No.: 260. 50. 10. 90 Inside blasting of piping - Dia: DN 750 - 950 mm Straight pipe and fittings, any wall thickness	439.77	m	.....	.....
260.50.10.100	WIC Name: LE/SI-en, WIC No.: 260. 50. 10. 100 Inside blasting of piping - Dia: DN 1000 - 1200 mm Straight pipe and fittings, any wall thickness	94.16	m	.....	.....
Total 260.50.10. Inside blasting of piping					.....
Total 260.50. Inside blasting of piping				
Total 260. Corrosion Protection				

Price breakdown structure

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BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.	Insulation				
270.20.	Insulation Material				
270.20.100.	Insulation Material - Heat Insulation System W				
270.20.100.20	WIC Name: LE/SI-en, WIC No.: 270. 20.100. 20 Insulation Thickness : > 50-120 mm				
		736.00	m2
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	Total 270.20.100. Insulation Material - Heat Insu..			
270.20.102.	Insulation Material - Heat Insulation with acoustic requirements WS, S				
270.20.102.20	WIC Name: LE/SI-en, WIC No.: 270. 20.102. 20 Insulation Thickness : > 50-120 mm				
		1,329.00	m2
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	Total 270.20.102. Insulation Material - Heat Insu..			
270.20.208.	Insulation Material - Condensation Prevention Insulation OC, OK				
270.20.208.20	WIC Name: LE/SI-en, WIC No.: 270. 20.208. 20 Insulation Thickness : > 50-120 mm				
		510.00	m2
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	Total 270.20.208. Insulation Material - Condensat..			
270.20.301.	Insulation Material - Heat-/Alternating temperature insulation for molecular sieve system WM				
270.20.301.20	WIC Name: LE/SI-en, WIC No.: 270. 20.301. 20 Insulation Thickness : > 50-120 mm				
		330.00	m2
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	Total 270.20.301. Insulation Material - Heat-/Alt..			

Price breakdown structure

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BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.20.302.	Insulation Material - Condensate prevention/Alternating temperature insulation E				
270.20.302.70	WIC Name: LE/SI-en, WIC No.: 270. 20.302. 70 Insulation Thickness : > 38-50 mm				
		320.00	m2
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	Total 270.20.302. Insulation Material - Condensat..			
270.20.303.	Insulation Material - Condensate prevention/Alternating temperature insulation and electrical tracing EE				
270.20.304.	Insulation Material - Condensate prevention/Alternating temperature insulation with acoustic insulation ES				
270.20.304.90	WIC Name: LE/SI-en, WIC No.: 270. 20.304. 90 Insulation Thickness : > 64 mm				
		1,120.00	m2
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	Total 270.20.304. Insulation Material - Condensat..			
270.20.401.	Insulation Material - Personnel protection $\geq 250^{\circ}\text{C}$ PP				
270.20.401.10	WIC Name: LE/SI-en, WIC No.: 270. 20.401. 10 Insulation Thickness : ≤ 50 mm				
		257.00	m2
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	Total 270.20.401. Insulation Material - Personnel..			
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	Total 270.20. Insulation Material			
270.100.	Heat Insulation W - Labor and Equipment				
270.100.10.	Insulation System W - Straight Pipes, Fittings, Flanges and Supports				
270.100.10.60	WIC Name: LE/SI-en, WIC No.: 270.100. 10. 60 Nominal Pipe Diameter: DN 65 - 100 mm - 1 Layer				
		132.77	m2

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.100.10.90	WIC Name: LE/SI-en, WIC No.: 270.100. 10. 90 Nominal Pipe Diameter: DN 65 - 100 mm - Surcharge for fittings (on top of rates above)	13.28	m2
270.100.10.100	WIC Name: LE/SI-en, WIC No.: 270.100. 10. 100 Nominal Pipe Diameter: DN 65 - 100 mm - Surcharge for flanges and supports (on top of rates above)	6.64	m2	.....	.....
270.100.10.110	WIC Name: LE/SI-en, WIC No.: 270.100. 10. 110 Nominal Pipe Diameter: DN 125 - 200 mm - 1 Layer	255.25	m2	.....	.....
270.100.10.140	WIC Name: LE/SI-en, WIC No.: 270.100. 10. 140 Nominal Pipe Diameter: DN 125 - 200 mm - Surcharge for fittings (on top of rates above)	25.53	m2	.....	.....
270.100.10.150	WIC Name: LE/SI-en, WIC No.: 270.100. 10. 150 Nominal Pipe Diameter: DN 125 - 200 mm - Surcharge for flanges and supports (on top of rates above)	12.76	m2	.....	.....
270.100.10.260	WIC Name: LE/SI-en, WIC No.: 270.100. 10. 260 Nominal Pipe Diameter: DN 750 - 950 mm - 1 Layer	264.92	m2	.....	.....
270.100.10.290	WIC Name: LE/SI-en, WIC No.: 270.100. 10. 290 Nominal Pipe Diameter: DN 750 - 950 mm - Surcharge for fittings (on top of rates above)	26.49	m2	.....	.....
270.100.10.300	WIC Name: LE/SI-en, WIC No.: 270.100. 10. 300 Nominal Pipe Diameter: DN 750 - 950 mm - Surcharge for flanges and supports (on top of rates above)	13.25	m2

Price breakdown structure

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BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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	Total 270.100.10. Insulation System W - Straight
270.100.20.	Insulation System W - Valves				
270.100.20.90	WIC Name: LE/SI-en, WIC No.: 270.100. 20. 90 Nominal Pipe Diameter: DN 65 - 100 mm - Insulation Thickness : > 50-120 mm				
		17	PC	.....	.....
270.100.20.160	WIC Name: LE/SI-en, WIC No.: 270.100. 20. 160 Nominal Pipe Diameter: DN 125 - 200 mm - Insulation Thickness : > 50-120 mm				
		19	PC	.....	.....
270.100.20.370	WIC Name: LE/SI-en, WIC No.: 270.100. 20. 370 Nominal Pipe Diameter: DN 750 - 950 mm - Insulation Thickness : > 50-120 mm				
		9	PC
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	Total 270.100.20. Insulation System W - Valves			
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	Total 270.100. Heat Insulation W - Labor and
270.102.	Heat Insulation with acoustic requirements WS, S - Labor and Equipment				
270.102.10.	Insulation Systems WS, S - Straight Pipes, Fittings, Flanges and Supports				
270.102.10.110	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 110 Nominal Pipe Diameter: DN 125 - 200 mm - 1 Layer				
		79.22	m2	.....	.....
270.102.10.140	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 140 Nominal Pipe Diameter: DN 125 - 200 mm - Surcharge for fittings (on top of rates above)				
		7.92	m2	.....	.....
270.102.10.150	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 150 Nominal Pipe Diameter: DN 125 - 200 mm - Surcharge for flanges and supports (on top of rates above)				
		3.96	m2

Price breakdown structure

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BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.102.10.160	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 160 Nominal Pipe Diameter: DN 250 - 300 mm - 1 Layer	239.33	m2	.....	.....
270.102.10.190	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 190 Nominal Pipe Diameter: DN 250 - 300 mm - Surcharge for fittings (on top of rates above)	23.93	m2	.....	.....
270.102.10.200	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 200 Nominal Pipe Diameter: DN 250 - 300 mm - Surcharge for flanges and supports (on top of rates above)	11.97	m2	.....	.....
270.102.10.210	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 210 Nominal Pipe Diameter: DN 350 - 700 mm - 1 Layer	449.65	m2	.....	.....
270.102.10.240	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 240 Nominal Pipe Diameter: DN 350 - 700 mm - Surcharge for fittings (on top of rates above)	44.97	m2	.....	.....
270.102.10.250	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 250 Nominal Pipe Diameter: DN 350 - 700 mm - Surcharge for flanges and supports (on top of rates above)	22.48	m2	.....	.....
270.102.10.260	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 260 Nominal Pipe Diameter: DN 750 - 950 mm - 1 Layer	338.22	m2	.....	.....
270.102.10.290	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 290 Nominal Pipe Diameter: DN 750 - 950 mm - Surcharge for fittings (on top of rates above)	33.82	m2

Price breakdown structure

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BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.102.10.300	WIC Name: LE/SI-en, WIC No.: 270.102. 10. 300 Nominal Pipe Diameter: DN 750 - 950 mm - Surcharge for flanges and supports (on top of rates above)	16.91	m2
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	Total 270.102.10. Insulation Systems WS, S - Stra..			
270.102.20.	Insulation Systems WS, S - Valves				
270.102.20.160	WIC Name: LE/SI-en, WIC No.: 270.102. 20. 160 Nominal Pipe Diameter: DN 125 - 200 mm - Insulation Thickness : > 50-120 mm	4	PC	.....	.....
270.102.20.230	*** Optional Item without IT WIC Name: LE/SI-en, WIC No.: 270.102. 20. 230 Nominal Pipe Diameter: DN 250 - 300 mm - Insulation Thickness : > 50-120 mm	10	PC	.....	UR only
270.102.20.300	WIC Name: LE/SI-en, WIC No.: 270.102. 20. 300 Nominal Pipe Diameter: DN 350 - 700 mm - Insulation Thickness : > 50-120 mm	6	PC	.....	.....
270.102.20.370	WIC Name: LE/SI-en, WIC No.: 270.102. 20. 370 Nominal Pipe Diameter: DN 750 - 950 mm - Insulation Thickness : > 50-120 mm	1	PC
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	Total 270.102.20. Insulation Systems WS, S - Valves			
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	Total 270.102. Heat Insulation with acoustic
270.208.	Condensation Prevention Insulation OC, OK - Labor and Equipment				
270.208.10.	Insulation Systems OC, OK - Straight Pipes, Fittings, Flanges and Supports				
270.208.10.10	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 10 Nominal Pipe Diameter: DN 0 - 50 mm - 1 Layer	12.58	m2

Price breakdown structure

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BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.208.10.40	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 40 Nominal Pipe Diameter: DN 0 - 50 mm - Surcharge for fittings (on top of rates above)	1.26	m2	.....	.....
270.208.10.50	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 50 Nominal Pipe Diameter: DN 0 - 50 mm - Surcharge for flanges and supports (on top of rates above)	0.63	m2	.....	.....
270.208.10.60	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 60 Nominal Pipe Diameter: DN 65 - 100 mm - 1 Layer	71.87	m2	.....	.....
270.208.10.90	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 90 Nominal Pipe Diameter: DN 65 - 100 mm - Surcharge for fittings (on top of rates above)	7.19	m2	.....	.....
270.208.10.100	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 100 Nominal Pipe Diameter: DN 65 - 100 mm - Surcharge for flanges and supports (on top of rates above)	3.59	m2	.....	.....
270.208.10.110	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 110 Nominal Pipe Diameter: DN 125 - 200 mm - 1 Layer	81.97	m2	.....	.....
270.208.10.140	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 140 Nominal Pipe Diameter: DN 125 - 200 mm - Surcharge for fittings (on top of rates above)	8.20	m2	.....	.....
270.208.10.150	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 150 Nominal Pipe Diameter: DN 125 - 200 mm - Surcharge for flanges and supports (on top of rates above)	4.10	m2	.....	.....
270.208.10.160	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 160 Nominal Pipe Diameter: DN 250 - 300 mm - 1 Layer	149.61	m2

Price breakdown structure

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BoQ: 003 **Mechanical Installation_issue 3_22.06.2022**

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.208.10.190	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 190 Nominal Pipe Diameter: DN 250 - 300 mm - Surcharge for fittings (on top of rates above)	14.96	m2	.....	.....
270.208.10.200	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 200 Nominal Pipe Diameter: DN 250 - 300 mm - Surcharge for flanges and supports (on top of rates above)	7.48	m2	.....	.....
270.208.10.210	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 210 Nominal Pipe Diameter: DN 350 - 700 mm - 1 Layer	195.22	m2	.....	.....
270.208.10.240	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 240 Nominal Pipe Diameter: DN 350 - 700 mm - Surcharge for fittings (on top of rates above)	19.52	m2	.....	.....
270.208.10.250	WIC Name: LE/SI-en, WIC No.: 270.208. 10. 250 Nominal Pipe Diameter: DN 350 - 700 mm - Surcharge for flanges and supports (on top of rates above)	9.76	m2
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Total 270.208.10.	Insulation Systems OC, OK - Str..			
270.208.20.	Insulation Systems OC, OK - Valves				
270.208.20.20	WIC Name: LE/SI-en, WIC No.: 270.208. 20. 20 Nominal Pipe Diameter: DN 0 - 50 mm - Insulation Thickness : > 50-120 mm	6	PC	.....	.....
270.208.20.90	WIC Name: LE/SI-en, WIC No.: 270.208. 20. 90 Nominal Pipe Diameter: DN 65 - 100 mm - Insulation Thickness : > 50-120 mm	1	PC	.....	.....
270.208.20.160	WIC Name: LE/SI-en, WIC No.: 270.208. 20. 160 Nominal Pipe Diameter: DN 125 - 200 mm - Insulation Thickness : > 50-120 mm	4	PC

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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270.208.20.230	WIC Name: LE/SI-en, WIC No.: 270.208. 20. 230 Nominal Pipe Diameter: DN 250 - 300 mm - Insulation Thickness : > 50-120 mm				
		2	PC	.....	.....
270.208.20.300	WIC Name: LE/SI-en, WIC No.: 270.208. 20. 300 Nominal Pipe Diameter: DN 350 - 700 mm - Insulation Thickness : > 50-120 mm				
		3	PC
<hr/>					
Total 270.208.20.	Insulation Systems OC, OK - Val..			
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Total 270.208.	Condensation Prevention Insulat..			
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270.301.	Heat-/Alternating temperature insulation for molecular sieve system WM - Labor and Equipment				
270.301.10.	Insulation System WM - Straight Pipes, Fittings, Flanges and Supports				
270.301.10.260	WIC Name: LE/SI-en, WIC No.: 270.301. 10. 260 Nominal Pipe Diameter: DN 750 - 950 mm - 1 Layer				
		331.21	m2	.....	.....
270.301.10.290	WIC Name: LE/SI-en, WIC No.: 270.301. 10. 290 Nominal Pipe Diameter: DN 750 - 950 mm - Surcharge for fittings (on top of rates above)				
		33.12	m2	.....	.....
270.301.10.300	WIC Name: LE/SI-en, WIC No.: 270.301. 10. 300 Nominal Pipe Diameter: DN 750 - 950 mm - Surcharge for flanges and supports (on top of rates above)				
		16.56	m2
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Total 270.301.10.	Insulation System WM - Straight..			
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270.301.20.	Insulation System WM - Valves				

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.301.20.370	WIC Name: LE/SI-en, WIC No.: 270.301. 20. 370 Nominal Pipe Diameter: DN 750 - 950 mm - Insulation Thickness : > 50-120 mm	3	PC
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Total 270.301.20.	Insulation System WM - Valves			
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Total 270.301.	Heat-/Alternating temperature
270.302.	Condensate prevention/Alternating temperature insulation E - Labor and Equipment				
270.302.10.	Insulation System E - Straight Pipes, Fittings, Flanges and Supports				
270.302.10.10	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 10 Nominal Pipe Diameter: DN 0 - 50 mm - 1 Layer	16.01	m2	.....	.....
270.302.10.40	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 40 Nominal Pipe Diameter: DN 0 - 50 mm - Surcharge for fittings (on top of rates above)	1.60	m2	.....	.....
270.302.10.50	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 50 Nominal Pipe Diameter: DN 0 - 50 mm - Surcharge for flanges and supports (on top of rates above)	0.80	m2	.....	.....
270.302.10.60	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 60 Nominal Pipe Diameter: DN 65 - 100 mm - 1 Layer	19.13	m2	.....	.....
270.302.10.110	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 110 Nominal Pipe Diameter: DN 125 - 200 mm - 1 Layer	18.91	m2	.....	.....
270.302.10.140	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 140 Nominal Pipe Diameter: DN 125 - 200 mm - Surcharge for fittings (on top of rates above)	1.89	m2

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.302.10.150	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 150 Nominal Pipe Diameter: DN 125 - 200 mm - Surcharge for flanges and supports (on top of rates above)	0.95	m2
270.302.10.210	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 210 Nominal Pipe Diameter: DN 350 - 700 mm - 1 Layer	124.73	m2	.....	.....
270.302.10.240	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 240 Nominal Pipe Diameter: DN 350 - 700 mm - Surcharge for fittings (on top of rates above)	12.47	m2	.....	.....
270.302.10.250	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 250 Nominal Pipe Diameter: DN 350 - 700 mm - Surcharge for flanges and supports (on top of rates above)	6.24	m2	.....	.....
270.302.10.260	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 260 Nominal Pipe Diameter: DN 750 - 950 mm - 1 Layer	52.27	m2	.....	.....
270.302.10.290	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 290 Nominal Pipe Diameter: DN 750 - 950 mm - Surcharge for fittings (on top of rates above)	5.23	m2	.....	.....
270.302.10.300	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 300 Nominal Pipe Diameter: DN 750 - 950 mm - Surcharge for flanges and supports (on top of rates above)	2.61	m2	.....	.....
270.302.10.310	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 310 Nominal Pipe Diameter: > DN 1000 mm - 1 Layer	90.17	m2	.....	.....
270.302.10.340	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 340 Nominal Pipe Diameter: > DN 1000 mm - Surcharge for fittings (on top of rates above)	9.02	m2

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.302.10.350	WIC Name: LE/SI-en, WIC No.: 270.302. 10. 350 Nominal Pipe Diameter: > DN 1000 mm - Surcharge for flanges and supports (on top of rates above)	4.51	m2
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	Total 270.302.10. Insulation System E - Straight
270.302.20.	Insulation System E - Valves				
270.302.20.10	WIC Name: LE/SI-en, WIC No.: 270.302. 20. 10 Nominal Pipe Diameter: DN 0 - 50 mm - Insulation Thickness : <= 50 mm	2	PC	.....	.....
270.302.20.290	WIC Name: LE/SI-en, WIC No.: 270.302. 20. 290 Nominal Pipe Diameter: DN 350 - 700 mm - Insulation Thickness : <= 50 mm	4	PC	.....	.....
270.302.20.360	WIC Name: LE/SI-en, WIC No.: 270.302. 20. 360 Nominal Pipe Diameter: DN 750 - 950 mm - Insulation Thickness : <= 50 mm	1	PC
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	Total 270.302.20. Insulation System E - Valves			
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	Total 270.302. Condensate prevention/Alternati..			
270.304.	Condensate prevention/Alternating temperature insulation with acoustic insulation ES - Labor and Equipment				
270.304.10.	Insulation System ES - Straight Pipes, Fittings, Flanges and Supports				
270.304.10.10	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 10 Nominal Pipe Diameter: DN 0 - 50 mm - 1 Layer	79.39	m2	.....	.....
270.304.10.40	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 40 Nominal Pipe Diameter: DN 0 - 50 mm - Surcharge for fittings (on top of rates above)	7.94	m2

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.304.10.50	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 50 Nominal Pipe Diameter: DN 0 - 50 mm - Surcharge for flanges and supports (on top of rates above)	3.97	m2
270.304.10.60	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 60 Nominal Pipe Diameter: DN 65 - 100 mm - 1 Layer	14.52	m2	.....	.....
270.304.10.90	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 90 Nominal Pipe Diameter: DN 65 - 100 mm - Surcharge for fittings (on top of rates above)	1.45	m2	.....	.....
270.304.10.100	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 100 Nominal Pipe Diameter: DN 65 - 100 mm - Surcharge for flanges and supports (on top of rates above)	0.73	m2	.....	.....
270.304.10.110	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 110 Nominal Pipe Diameter: DN 125 - 200 mm - 1 Layer	62.33	m2	.....	.....
270.304.10.140	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 140 Nominal Pipe Diameter: DN 125 - 200 mm - Surcharge for fittings (on top of rates above)	6.23	m2	.....	.....
270.304.10.150	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 150 Nominal Pipe Diameter: DN 125 - 200 mm - Surcharge for flanges and supports (on top of rates above)	3.12	m2	.....	.....
270.304.10.210	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 210 Nominal Pipe Diameter: DN 350 - 700 mm - 1 Layer	170.45	m2

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.304.10.240	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 240 Nominal Pipe Diameter: DN 350 - 700 mm - Surcharge for fittings (on top of rates above)	17.05	m2
270.304.10.250	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 250 Nominal Pipe Diameter: DN 350 - 700 mm - Surcharge for flanges and supports (on top of rates above)	8.52	m2	.....	.....
270.304.10.260	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 260 Nominal Pipe Diameter: DN 750 - 950 mm - 1 Layer	489.29	m2	.....	.....
270.304.10.290	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 290 Nominal Pipe Diameter: DN 750 - 950 mm - Surcharge for fittings (on top of rates above)	48.93	m2	.....	.....
270.304.10.300	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 300 Nominal Pipe Diameter: DN 750 - 950 mm - Surcharge for flanges and supports (on top of rates above)	24.46	m2	.....	.....
270.304.10.310	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 310 Nominal Pipe Diameter: > DN 1000 mm - 1 Layer	286.83	m2	.....	.....
270.304.10.340	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 340 Nominal Pipe Diameter: > DN 1000 mm - Surcharge for fittings (on top of rates above)	28.68	m2	.....	.....
270.304.10.350	WIC Name: LE/SI-en, WIC No.: 270.304. 10. 350 Nominal Pipe Diameter: > DN 1000 mm - Surcharge for flanges and supports (on top of rates above)	14.34	m2	.....	.....
Total 270.304.10. Insulation System ES - Straight..				.....	.....

Price breakdown structure

Project: P1512021 Kosice LG
BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.304.20.	Insulation System ES - Valves				
270.304.20.20	WIC Name: LE/SI-en, WIC No.: 270.304. 20. 20 Nominal Pipe Diameter: DN 0 - 50 mm - Insulation Thickness : > 50-120 mm				
		6	PC	.....	.....
270.304.20.90	WIC Name: LE/SI-en, WIC No.: 270.304. 20. 90 Nominal Pipe Diameter: DN 65 - 100 mm - Insulation Thickness : > 50-120 mm				
		1	PC	.....	.....
270.304.20.160	WIC Name: LE/SI-en, WIC No.: 270.304. 20. 160 Nominal Pipe Diameter: DN 125 - 200 mm - Insulation Thickness : > 50-120 mm				
		2	PC	.....	.....
270.304.20.300	WIC Name: LE/SI-en, WIC No.: 270.304. 20. 300 Nominal Pipe Diameter: DN 350 - 700 mm - Insulation Thickness : > 50-120 mm				
		7	PC	.....	.....
270.304.20.370	WIC Name: LE/SI-en, WIC No.: 270.304. 20. 370 Nominal Pipe Diameter: DN 750 - 950 mm - Insulation Thickness : > 50-120 mm				
		2	PC	.....	.....
<hr/>					
Total 270.304.20.	Insulation System ES - Valves				.....
<hr/>					
Total 270.304.	Condensate prevention/Alternati..				.....
270.401.	Personnel protection ≥ 250°C PP - Labor and Equipment				
270.401.10.	Insulation System PP - Straight Pipes, Fittings, Flanges and Supports				
270.401.10.10	WIC Name: LE/SI-en, WIC No.: 270.401. 10. 10 Nominal Pipe Diameter: DN 0 - 50 mm - 1 Layer				
		126.68	m2	.....	.....
270.401.10.40	WIC Name: LE/SI-en, WIC No.: 270.401. 10. 40 Nominal Pipe Diameter: DN 0 - 50 mm - Surcharge for fittings (on top of rates above)				
		12.67	m2

Price breakdown structure

Project: P1512021 Kosice LG
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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.401.10.50	WIC Name: LE/SI-en, WIC No.: 270.401. 10. 50 Nominal Pipe Diameter: DN 0 - 50 mm - Surcharge for flanges and supports (on top of rates above)	6.33	m2
270.401.10.60	WIC Name: LE/SI-en, WIC No.: 270.401. 10. 60 Nominal Pipe Diameter: DN 65 - 100 mm - 1 Layer	59.81	m2	.....	.....
270.401.10.90	WIC Name: LE/SI-en, WIC No.: 270.401. 10. 90 Nominal Pipe Diameter: DN 65 - 100 mm - Surcharge for fittings (on top of rates above)	5.98	m2	.....	.....
270.401.10.100	WIC Name: LE/SI-en, WIC No.: 270.401. 10. 100 Nominal Pipe Diameter: DN 65 - 100 mm - Surcharge for flanges and supports (on top of rates above)	2.99	m2	.....	.....
<hr/>					
Total 270.401.10. Insulation System PP - Straight..					.....
270.401.20.	Insulation System PP - Valves				
270.401.20.10	WIC Name: LE/SI-en, WIC No.: 270.401. 20. 10 Nominal Pipe Diameter: DN 0 - 50 mm - Insulation Thickness : <= 50 mm	9	PC	.....	.....
270.401.20.80	WIC Name: LE/SI-en, WIC No.: 270.401. 20. 80 Nominal Pipe Diameter: DN 65 - 100 mm - Insulation Thickness : <= 50 mm	1	PC
<hr/>					
Total 270.401.20. Insulation System PP - Valves				
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Total 270.401. Personnel protection ≥ 250°C PP..				

Price breakdown structure

Project: P1512021 Kosice LG
BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
270.700.	Insulation of Equipment (by surface area)				
270.700.100.	Equipment Insulation - Heat Insulation System W				
270.700.100.20	WIC Name: LE/SI-en, WIC No.: 270.700.100. 20 Insulation Thickness : > 50-120 mm				
		86.00	m2	.....	.....
<hr/>					
	Total 270.700.100. Equipment Insulation - Heat Ins..				.....
270.700.102.	Equipment Insulation - Heat Insulation with acoustic requirements WS, S				
270.700.102.20	WIC Name: LE/SI-en, WIC No.: 270.700.102. 20 Insulation Thickness : > 50-120 mm				
		229.00	m2	.....	.....
<hr/>					
	Total 270.700.102. Equipment Insulation - Heat Ins..				.....
270.700.103.	Equipment Insulation - Heat Insulation with heat tracing and acoustic requirements WES, WSE, WDS, WSD				
270.700.103.20	WIC Name: LE/SI-en, WIC No.: 270.700.103. 20 Insulation Thickness : > 50-120 mm				
		117.00	m2	.....	.....
<hr/>					
	Total 270.700.103. Equipment Insulation - Heat Ins..				.....
270.700.401.	Equipment Insulation - Personnel protection $\geq 250^{\circ}\text{C}$ PP				
270.700.401.10	WIC Name: LE/SI-en, WIC No.: 270.700.401. 10 Insulation Thickness : ≤ 50 mm				
		67.00	m2	.....	.....
<hr/>					
	Total 270.700.401. Equipment Insulation - Personne..				.....

Price breakdown structure

Project: P1512021 **Kosice LG**
BoQ: 003 **Mechanical Installation_issue 3_22.06.2022**

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
<hr/>					
	Total 270.700.		Insulation of Equipment (by sur..		.....
<hr/>					
	Total 270.		Insulation	

Price breakdown structure

Project: P1512021 **Kosice LG**
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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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280. Installation of internals and fillings

280.20. Installation of fillings

WIC Name: LE/SI-en, WIC No.: 280. 20.

Please note: Installation of fillings usually takes place in equipment already erected. Access is typically only possible via manholes.

Labor Rate shall include:

- installation of all means required to establish safe working conditions at and inside the equipment (confined space working environment!, lighting, manhole watch, oxygen measurement, SCBA units (if required), ventilation of the equipment etc.)
- provide throughout the installation activities a manhole watch (if entering the equipment is required)
- Unloading of internals at temporary laydown area and secure storage (incl. bedding material or temporary supports)
- Reloading (incl. provision of suitable means of transport and all temporary fastening, supports and fixtures) and transport to installation location
- Removal of all packing material or preservation protection not required during or after installation
- provision and installation of appropriate measures and continuing preventive maintenance to protect internals against environmental influences like rain, cold, heat, dust, sand, dirt, corrosion as specified by fillings manufacturer and to avoid ingress of humidity into equipments
- Removal of all dirt, dust, mill scale, grease or other foreign matter inside equipment to be filled before, during and after installation to achieve required cleanliness for installation and operation
- temporary closing of all openings of equipment using suitable material (e.g. exhaust filters, plastic caps, foils, etc.) and later complete removal of temporary materials
- opening and closing of manholes/blinds as required to perform the work
- filling of equipment including multibed fillings
- all inspections as per inspection test plan

Material Rate shall include:

- supply of temporary closing materials

Equipment Rate shall include:

- any equipment required for a safe working environment like SCBA units, compressors, technical ventilation, rescue gear, etc.
- any equipment required to transport fillings from the laydown area to the installation location (including e.g. lifts, cranes, hoists, winches, elevators, etc. to the access manhole)

Exclusions:

- supply of internals --> will be supplied by COMPANY
- final box-up of equipment --> covered in chapter installation of equipment
- Exclusions (except stated differently when LS for complete

Price breakdown structure

Project: P1512021 Kosice LG
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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	package is inquired): Methods of Measurement:				
280.20.10.	Installation of fillings				
280.20.10.10	Filling of adsorbents (for e.g. molecular sieves) Filling of MS Adsorber - Layer 1				
		133.10	m3	.....	.....
280.20.10.70	Filling with Oil Filling of machinery, oil units, etc. with oil. Oil will be provided in standard barrels				
		9.30	m3	.....	.....
280.20.10.80	Filling with Rockwool Filling of e.g. ducts with Rockwool. Contractor to include also cost for rockwool material supply in the unit rate				
		58.10	m3	.....	.....
<hr/>					
Total 280.20.10.	Installation of fillings				.....
<hr/>					
Total 280.20.	Installation of fillings				.....
280.30.	Material supply and filling of perlite				
	WIC Name: LE/SI-en, WIC No.: 280. 30. Labor Rate shall include:				
	<ul style="list-style-type: none"> loading, unloading, intermediate transport, handling and storage of perlite in a way that perlite will be protected against humidity and contamination of any kind temporary closing of all openings of equipment using suitable material (e.g. exhaust filters, plastic caps, foils, etc.) and later complete removal of temporary materials expanding the raw perlite packing of raw perlite or provision to compressor for pneumatic conveying taking and analysis of samples assurance of perlite quality in accordance with LS 152-08 quality documentation for raw perlite, produced, delivered, stored, filled perlite 				
	Material Rate shall include:				
	<ul style="list-style-type: none"> raw perlite (only if inquired) 				

Price breakdown structure

Project: P1512021 Kosice LG
BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	<ul style="list-style-type: none"> any packing material required <p>Equipment Rate shall include:</p> <ul style="list-style-type: none"> any pipe or hose lines connecting to the filling compressor or hopper expansion furnace including any consumables required (e.g. heating gas, etc.) <p>Exclusions:</p> <ul style="list-style-type: none"> filling of perlite --> inquired separately in chapter 280.30.20. any machinery or equipment associated with the filling of perlite --> inquired separately in chapter 280.30.20. <p>Methods of Measurement:</p> <ul style="list-style-type: none"> Nominal Volume to be filled in cubic meter [m3] of EXPANDED PERLITE (!!) 				
280.30.10.	Material Supply of perlite				
280.30.10.10	<p>WIC Name: LE/SI-en, WIC No.: 280. 30. 10. 10</p> <p>Material Supply of raw perlite in accordance with LS 152-08</p> <p>ATTENTION: inquired QTY represents the nominal volume to be filled by EXPANDED PERLITE!</p> <p>Required volume of raw perlite shall be calculated by CONTRACTOR.</p> <p>Additional top up after settling and material loss during filling shall be considered by CONTRACTOR.</p>	5,341.50	m3	.....	.....
280.30.10.20	<p>WIC Name: LE/SI-en, WIC No.: 280. 30. 10. 20</p> <p>Expanding of raw perlite by means of a specialized expansion furnace accordance with LS 152-08</p> <p>ATTENTION: inquired QTY represents the nominal volume to be filled by EXPANDED PERLITE!</p> <p>Additional top up after settling and material loss during filling shall be considered by CONTRACTOR.</p>	5,341.50	m3	.....	.....
Total 280.30.10. Material Supply of perlite					.....
280.30.20.	Filling of perlite				
	<p>WIC Name: LE/SI-en, WIC No.: 280. 30. 20.</p> <p>Please note: Filling of perlite usually takes place in equipment already erected. Access is typically only possible via manholes.</p> <p>Labor Rate shall include:</p> <ul style="list-style-type: none"> installation of all means required to establish safe working conditions (lighting, covering sheets, dust control measures, fall protection, safety devices for hose connections etc.) 				

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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- Recorded Training of workers in handling and filling the perlite
 - Removal of all packing material or preservation protection not required during or after installation
 - provision and installation of appropriate measures to protect perlite against adverse weather conditions with a special focus on avoiding the ingress of humidity in the equipment or in the perlite itself
 - opening and closing of manholes/blinds as required to perform the work
 - Filling of equipment in stages to avoid creation of pockets or insulation voids (start filling through manholes at lower levels and proceed up as the filling level rises, max. distance between two levels 15m)
 - all inspections as per inspection test plan
- Material Rate shall include:
- supply of temporary closing materials
 - supply of temporary filters to close roof openings during filling
- Equipment Rate shall include:
- perlite filling equipment like hopper, dry-air blower for pneumatic transport of perlite including all piping, couplings, connections, hoses, funnels, etc.
 - any equipment required to transport perlite to the installation location (including e.g. lifts, cranes, hoists, winches, elevators, etc.)
 - any equipment required for a safe working environment
- Exclusions:
- supply of perlite --> will be supplied by COMPANY or is inquired separately in chapter 280.30.10.
 - scaffolding --> covered in chapter scaffolding
- Methods of Measurement:

280.30.20.10 Filling of perlite

5,341.50	m3
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Total 280.30.20.	Filling of perlite
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Total 280.30.	Material supply and filling of
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Total 280.	Installation of internals and
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Price breakdown structure

Project: P1512021 Kosice LG
BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
410.	Package Unit Assembly				
410.10.	1101 - Main Air Compressor				
	<i>Assembling will be done under vendor supervision. Refer to Specification in Exhibit E and Drawings in Exhibit F.</i>				
	<i>Refer also to Erection Manual &MAN W-MM 1101 (EN) / Exhibit F</i>				
	- Anlieferung erfolgt in Einzelteilen; zuerst den unteren Teil im Fundament montieren; - im Anschluß werden die Kühler und der Rotor eingehoben. Erst danach kann der obere Teil montiert werden.				
410.10.10.	Equipment Installation				
	Please Refer to Exhibit F; & MAN W-MM 1101 (EN) Chapter 5 "Handling of Delivery" and 6 "Erection of the machine unit"				
410.10.10.10	MAC lower part - 52 tons				
		3	PC	.....	.....
410.10.10.20	Motor - 32 tons				
		3	PC	.....	.....
410.10.10.30	Gear - 18,9 tons				
		3	PC	.....	.....
410.10.10.40	Oil Unit - 11,9 tons Tankvolumen 5600l Oel				
		3	PC	.....	.....
410.10.10.50	MAC upper part - 45 tons				
		3	PC
410.10.10.60	MAC Rotor - 5,7 tons				
		3	PC

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
410.10.10.70	LS Coupling - 1,2 tons				
		3	PC	.....	.....
410.10.10.80	HS Coupling - 0,35 tons				
		3	PC	.....	.....
410.10.10.90	Cooler Bundle 1. Stage - 2,8 tons				
		3	PC	.....	.....
410.10.10.100	Cooler Bundle 2. Stage - 1,9 tons				
		3	PC
410.10.10.110	Cooler bundle 3. Stage - 1,6 tons				
		3	PC
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	Total 410.10.10. Equipment Installation			
410.10.20.	Piping Installation				
	<ul style="list-style-type: none"> • Refer to &MAN W-MM 1101 (EN) / Exhibit F220 • Chapter 8 "Installation of Piping" • &AA W-SK 1101.001 (EN) / Exhibit F220 				
410.10.20.10	Cooling Water System				
	Pipe acc. drawing 1001577345 & 837046137				
		2,985	F	.....	.....
410.10.20.20	Drain System				
	pipe acc. drawing 100017296665				
		300	F	.....	.....
410.10.20.30	Oil System				
	pipe acc. drawing 837049515 & 10001577368				
		900	F

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
410.10.20.40	Sealgas & Instrument pipe acc. drawing 10001729664				
		180	F	.....	.....
Total 410.10.20. Piping Installation					.....
410.10.30.	Painting				
410.10.30.10	Painting of welding joints and repair work Refer to Exhibit F; & MAN M-SP 1101-1010 "MAC Painting Specification" and & MAN M-SP 1101-1011 "MAC Coating Specification"				
		150.00	m2	.....	.....
Total 410.10.30. Painting					.....
410.10.40.	NDE				
410.10.40.10	Isotope Se 75 - Filmsize 10 x 12 cm				
		120	PC	.....	.....
410.10.40.20	Isotope Se 75 - Filmsize 10 x 24 cm				
		372	PC	.....	.....
410.10.40.30	Isotope Se 75 - Filmsize 10 x 48 cm				
		36	PC	.....	.....
Total 410.10.40. NDE					.....
410.10.50.	Additional Work				
	Please refer to Exhibit F; & MAN W-MM 1101 (EN)				

Price breakdown structure

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BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
410.10.50.10	Cleaning of Piping Refer to Exhibit F; & MAN W-MM 1101 (EN) Chapter 7 "Cleaning of Piping"	1	LSUM		.....
410.10.50.20	Handling of additional Components Refer to Exhibit F; & MAN W-MM 1101 (EN) Chapter 9 "Handling of additional Components"	1	LSUM		.....
410.10.50.30	Oil filling Oil Unit incl. Oil flushing Tankinhalt 5600l. Das Oelspuelen muss gem. &MANS11 M-PP 1201-1001 (Exhibit E) durchgefuehrt werden. (Gilt für MAC & BAC)	1	LSUM		.....
410.10.50.40	Preservation Refer to &MANS111-M-SP 1101-1010 & &MANS111-M-SP 1101-1011 in Exhibit F	1	LSUM		.....
410.10.50.50	Scaffolding for inquired scope of work 'Contractor shall consider scaffolding for the entire scope of work which is part of the respective contract. CONTRACTOR is fully responsible for the design of his scaffolds to suit his own scope of work (e.g.Piping Installation, Painting nd Insulation). Any rework of Scaffolding for CONTRACTORS scope of work will not be compensated. COMPANY has the right to keep existing scaffolding for other CONTRACTORS for a maximum duration of 6 weeks free of charge. The Unit Rates shall be valid for Scaffolding ordered by COMPANY on behalf of another CONTRACTOR (e.g. E&I Scope).	1	LSUM		.....
410.10.50.60	*** Optional Item without IT Scaffolding for inquired scope of work Rental time additional week	3.00	Week		UR only

Price breakdown structure

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BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
410.10.50.70	Assembly under Vendor supervision, Basis 56 h/Week, Monday to Saturday Additional structural alteration works for oilflushing, precommissioning, commissioning				
		600.00	Hour
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	Total 410.10.50. Additional Work			
<hr/>					
	Total 410.10. 1101 - Main Air Compressor			
410.50.	Installation and final alignment of N2-Product compressor 1 incl. electrical driver				
410.50.10.	Installation and final alignment of N2-Product compressor 1 incl. electrical driver				
410.50.10.10	Installation and final alignment of N2 compressor - 20t				
		2	PC	.....	.....
410.50.10.20	Installation of N2 compressor				
		510.00	Hour	.....	.....
410.50.10.30	Lifting of electrical driver - 10t				
		2	PC	.....	.....
<hr/>					
	Total 410.50.10. Installation and final alignmen..				.....
<hr/>					
	Total 410.50. Installation and final alignmen..				.....
410.60.	Installation and final alignment of expansion turbine				
410.60.10.	Installation and final alignment of expansion turbine				
410.60.10.10	Installation and final alignment of exp. Turbine - 9t				
		1	PC	.....	.....
410.60.10.20	Installation of exp. Turbine				
		150.00	Hour	.....	.....

Price breakdown structure

Project: P1512021 Kosice LG
BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
	Total 410.60.10.	Installation and final alignmen..			.....
	Total 410.60.	Installation and final alignmen..			.....
410.70.	Installation and final alignment of He / Ne compressor				
410.70.10.	Installation and final alignment of He / Ne compressor				
410.70.10.10	Installation and final alignment of He/Ne compressor - 3.5t				
		1	PC	.....	.....
410.70.10.20	Installation of He/Ne compressor				
		60.00	Hour	.....	.....
	Total 410.70.10.	Installation and final alignmen..			.....
	Total 410.70.	Installation and final alignmen..			.....
	Total 410.	Package Unit Assembly			.....

Price breakdown structure

Project: P1512021 Kosice LG
BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
810.	Assembly under Vendor supervision				
810.10.	Manhour rates/surcharges				
	WIC Name: LE/SI-en, WIC No.: 810. 10. Hourly Rates for personnel, and where personnel is included in other rates, shall be deemed to include, but not be limited to, basic salaries, wages, bonus, overtime pay, payroll burdens, leave salaries, sick leave, uplifts, weekly rest days, public holidays, cost for approval of work on Sunday, public holiday and at night, protective clothing, small tools, consumables, travel expenses, insurance, medical costs, visas, residence permits, oil field security passes, end of service benefits, and all other overheads, profit and cost whatsoever, except VAT.				
810.10.10.	Assembly under Vendor supervision - basis 56 h/Week, Monday to Saturday				
810.10.10.10	WIC Name: LE/SI-en, WIC No.: 810. 10. 10. 10 Foreman				
		125.00	Hour	.....	.....
810.10.10.30	WIC Name: LE/SI-en, WIC No.: 810. 10. 10. 30 Fitter				
		125.00	Hour	.....	.....
810.10.10.40	WIC Name: LE/SI-en, WIC No.: 810. 10. 10. 40 Rigger				
		125.00	Hour	.....	.....
810.10.10.130	WIC Name: LE/SI-en, WIC No.: 810. 10. 10. 130 Helper Helper				
		125.00	Hour	.....	.....
Total 810.10.10.		Assembly under Vendor supervisi..		.....
Total 810.10.		Manhour rates/surcharges		.....

Price breakdown structure**Project:** P1512021
BoQ: 003**Kosice LG**
Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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	Total 810.		Assembly under Vendor supervision	

Price breakdown structure

Project: P1512021 Kosice LG
BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
820.	Daywork Construction and Pre-commissioning/Additional Unit Rates				
820.10.	Daywork / Surcharges				
	WIC Name: LE/SI-en, WIC No.: 820. 10. Hourly Rates for personnel, and where personnel is included in other rates, shall be deemed to include, but not be limited to, basic salaries, wages, bonus, overtime pay, payroll burdens, leave salaries, sick leave, uplifts, weekly rest days, public holidays, cost for approval of work on Sunday, public holiday and at night, protective clothing, small tools, consumables, travel expenses, insurance, medical costs, visas, residence permits, oil field security passes, end of service benefits, and all other overheads, profit and cost whatsoever, except VAT.				
820.10.10.	Daywork, Basis 56 h/Week, Monday to Saturday				
820.10.10.10	WIC Name: LE/SI-en, WIC No.: 820. 10. 10. 10 Foreman				
		848.68	Hour	.....	.....
820.10.10.30	WIC Name: LE/SI-en, WIC No.: 820. 10. 10. 30 Fitter				
		1,697.36	Hour	.....	.....
820.10.10.40	WIC Name: LE/SI-en, WIC No.: 820. 10. 10. 40 Rigger				
		1,697.36	Hour	.....	.....
820.10.10.50	WIC Name: LE/SI-en, WIC No.: 820. 10. 10. 50 Welder, GTAW and electrical				
		848.68	Hour	.....	.....
820.10.10.160	WIC Name: LE/SI-en, WIC No.: 820. 10. 10. 160 Helper Helper				
		1,697.36	Hour	.....	.....
Total 820.10.10.		Daywork, Basis 56 h/Week, Monda..			.....

Price breakdown structure

Project: P1512021 **Kosice LG**
BoQ: 003 **Mechanical Installation_issue 3_22.06.2022**

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
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Total 820.10.	Daywork / Surcharges			
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Total 820.	Daywork Construction and Pre-co..			
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Price breakdown structure

Project: P1512021 Kosice LG
BoQ: 003 Mechanical Installation_issue 3_22.06.2022

Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
830.	Commissioning support services				
830.10.	Commissioning support services				
	WIC Name: LE/SI-en, WIC No.: 830. 10. Hourly Rates for personnel, and where personnel is included in other rates, shall be deemed to include, but not be limited to, basic salaries, wages, bonus, overtime pay, payroll burdens, leave salaries, sick leave, uplifts, weekly rest days, public holidays, cost for approval of work on Sunday, public holiday and at night, protective clothing, small tools, consumables, travel expenses, insurance, medical costs, visas, residence permits, oil field security passes, end of service benefits, and all other overheads, profit and cost whatsoever, except VAT. Supervisor of COMPANY will be on site Assistance including consumables and working tools for personnel.				
830.10.10.	Commissioning support services, Basis 56 h/Week, Monday to Saturday				
830.10.10.10	WIC Name: LE/SI-en, WIC No.: 830. 10. 10. 10 Commissioning - Foreman	606.20	Hour	.....	.....
830.10.10.30	WIC Name: LE/SI-en, WIC No.: 830. 10. 10. 30 Commissioning - Fitter	1,212.40	Hour	.....	.....
830.10.10.40	WIC Name: LE/SI-en, WIC No.: 830. 10. 10. 40 Commissioning - Rigger	1,212.40	Hour	.....	.....
830.10.10.50	WIC Name: LE/SI-en, WIC No.: 830. 10. 10. 50 Commissioning - Welder, GTAW and electrical	606.20	Hour	.....	.....
830.10.10.170	WIC Name: LE/SI-en, WIC No.: 830. 10. 10. 170 Commissioning - Helper Pre-Commissioning and Commissioning - Helper	1,212.40	Hour

Price breakdown structure

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Ref. No.	Work Specification	Quantity	UoM	Unit Rate in EUR	Item Total in EUR
<hr/>					
	Total 830.10.10.		Commissioning support services,..	
<hr/>					
	Total 830.10.		Commissioning support services		.....
<hr/>					
	Total 830.		Commissioning support services		.....

Price breakdown structure Summary

Project: P1512021 **Kosice LG**
BoQ: 003 **Mechanical Installation_issue 3_22.06.2022**

Ref. No.	Work Specification	Amount in EUR
BoQ	003	
10.	Indirects, construction management and temporary site..	.....
50.	Security Services	.....
80.	Material Management and Warehousing	.....
90.	Scaffolding	.....
190.	Structural Steel Installation	.....
200.	Building Equipment Service	.....
220.	Installation of Plant Equipment	.....
230.	Heavy Lifts and Installation	.....
240.	Piping	.....
250.	Non Destructive Testing	.....
260.	Corrosion Protection	.....
270.	Insulation	.....
280.	Installation of internals and fillings	.....
410.	Package Unit Assembly	.....
810.	Assembly under Vendor supervision	.....
820.	Daywork Construction and Pre-commissioning/Additional..	.....
830.	Commissioning support services	.....
Total BoQ 003 Mechanical Installation_iss..		.....