

Jordan Petroleum Refinery Company

Quote Order

Date 14/08/2021
Page - 1

Order Number 21010568 000 OQ

Delivery Instructions

Branch/Plant 2002
Order Date 14/08/2021
Request Date 26/08/2022
Freight Handling

General Description 1 221087 BROWN FINNED TUBULAR ELEMENTS (COMPLETE ASSEMBLY INCLUDING:- FINNED TUBES , BENDS AND SEALING BODIES) FOR HAIRPIN TYPE COOLERS:-

1. TUBES

1.1-MATERIAL

- COPPER ALLOY SEAMLESS CONDENSER TUBE ACC. TO"ASTM"B111M-LATEST EDITION, UNS COPPER ALLOY NO.C-44300 (ADMIRALTY BRASS).

TUBES SHALL BE STRESS RELIEF ANNEALED SUITABLE FOR BRAZING AND WELDING.

1.2-DIMENSIONS

ACCORDING TO THE RELEVANT DRAWINGS.

1.3-PERMISSIBLE VARIATIONS

-TUBE LENGTH (MM) : +4.0, -0.0

-TUBE OUTSIDE DIA. (MM) : +0.15, -0.15

-WALL THICKNESS (MM) : +0.34, -0.0

2. FINS

2.1-MATERIAL

-BRASS IN ACCORDANCE WITH"ASTM"

B36-LATEST EDITION, ALLOY NO. C-26800 OR EQUIVALENT.

2.2-FIN TYPE AND CONSTRUCTION

-FINS SHALL BE CONSTRUCTED FROM CHANNELS EQUALLY SPACED AT TUBE EXTERNAL SURFACE.
EACH OF CHANNEL FLANGES IS CONSIDERED AS A FIN. :-

-CHANNEL WEBS SHALL BE ATTACHED TO TUBE EXTERNAL SURFACE BY HIGH TEMP. BRAZING.

-FINS (i.e. CHANNEL FLANGES) SHALL BE PERPENDICULAR TO TUBE EXTERNAL SURFACE.

2.3-DIMENSIONS

20

Jordan Petroleum Refinery Company

Date 14/08/2021
Page - 1

Quote Order

Order Number 21010568 000 OQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit	Unit Price	Supplier Offer	Supplier Offer Original	Original	Order No	Type	Line No
----------	--------------	-------------	-------------	----------------	------------------	------	------------	----------------	-------------------------	----------	----------	------	---------

ACCORDING TO THE RELEVANT DRAWINGS.

3. RETURN BENDS

3.1-MATERIAL

COPPER ALLOY SEAMLESS CONDENSER TUBE
ACCORDING TO "ASTM" DESIGNATION NUMBER
B111M- LATEST EDITION, UNS COPPER ALLOY NUMBER
C-44300 (ADMIRALTY BRASS). BENDS SHALL
BE SUPPLIED IN STRESS RELIEF ANNEALED
CONDITION SUITABLE FOR WELDING, BRAZING
AND BENDING.

3.2-DIMENSIONS

ACCORDING TO THE RELEVANT DRAWINGS.

3.3-FINISH

- FITTINGS SHALL BE FREE FROM SURFACE IMPERFECTIONS,
FITTINGS SHOWING SCABS, SEAMS, LAPS, TEARS OR SILVERS ARE NOT ACCEPTABLE.
- FITTINGS REPAIRED BY WELDING ARE NOT ACCEPTABLE.

4. SEALING BODY

4.1-MATERIAL

COPPER ALLOY ACCORDING TO "ASTM" DESIGNATION NUMBER
B111M- LATEST EDITION, UNS COPPER ALLOY NUMBER
C-44300 (ADMIRALTY BRASS). MATERIAL SHALL
BE SUPPLIED IN STRESS RELIEF ANNEALED
CONDITION SUITABLE FOR WELDING AND BRAZING.

4.2-DIMENSIONS

ACCORDING TO THE RELEVANT DRAWINGS.

4.3-FINISH

- MATERIAL SHALL BE FREE FROM SURFACE
IMPERFECTIONS, FITTINGS SHOWING
SCABS, SEAMS, LAPS, TEARS OR

Jordan Petroleum Refinery Company

Quote Order

Date 14/08/2021
Page 1

Order Number 21010568 000 OQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit Price	Supplier Offer	Original	Original
						Unit	Currency Code	Order No	Type Line No

SILVERS ARE NOT ACCEPTABLE.

- MATERIAL REPAIRED BY WELDING ARE NOT ACCEPTABLE.

5. PACKAGING, MARKING :

5.1 - FINNED TUBES ELEMENTS SHALL BE PROPERLY AND SUITABLE PACKED TO PROTECT THE FINS AND TUBES ENDS FROM DAMAGE DURING LIFTING, HANDLING AND SHIPMENT.

5.2 - MARKING TAGS SHALL BE SECURELY

ATTACHED TO EACH PACKAGE.

MARKING TAGS SHALL CONTAIN AT LEAST THE

FOLLOWING INFORMATION:-

- NAME OR BRAND OF MANUF.
- TUBES ELEMENTS SPECS.
- FOREIGN PURCHASE ORDER NO.
- GROSS WEIGHT.

6- DATA AND CERTIFICATES REQUIRED FROM SUPPLIERS:-

- MANUF. NAME.

- DETAILED SPECS.

- DETAILED PROCEDURE OF TUBE FINING

AND BRAZING WHICH SHALL INCLUDE THE FOLLOWING:-

- DEGREASING DETAILS

- PICKLING AND RINSING DETAILS

- FLUX AND FILLER METAL.

- BRAZING TEMP.

- BRAZING METHOD AND ATMOSPHERE

- MEASURES AGAINST CRACKING.

- VARIATION IN DIMENSION AND WEIGHTS

- PACKAGING AND PROTECTION OF TUBES.

- MILL TEST CERTIFICATES.

- DETAILED MANUFACTURER DRAWINGS SHOWING ALL DIMENSIONS WITH PERMISSIBLE VARIATIONS AND LOCATIONS OF WELDS.

- QUALITY CONTROL PLAN, WPS & PQR SHALL BE SENT FOR REFINERY APPROVAL BEFORE STARTING FABRICATION AND WELDING WORKS.

- HEAT TREATMENT DETAILS.

- HARDNESS TEST REPORT.

- 100% DYE PENETRANT TEST SHALL BE CARRIED OUT ON GIRTH WELDS AND TEST REPORTS SHALL BE PROVIDED.

- 100% RADIOGRAPHY SHOP EXAMINATION SHALL BE CARRIED OUT ON GIRTH WELDS AND TEST REPORTS SHALL BE PROVIDED.

- HYDROSTATIC PRESSURE TEST AFTER THE COMPLETION OF WELDING FOR EACH ELEMENT SHALL BE CARRIED OUT AND TEST REPORTS SHALL BE PROVIDED.

Jordan Petroleum Refinery Company

Quote Order

Date 14/08/2021
Page - 1

Order Number 21010568 000 OQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit	Unit Price	Supplier Offer	Original	Orig
----------	--------------	-------------	-------------	----------------	------------------	------	------------	----------------	----------	------

- RESULTS OF DIMENSIONAL CHECK.

7-MILL TEST CERTIFICATES OF MATERIALS / WELDING CONSUMABLES INTENDED TO BE USED ARE REQUIRED AND SHALL INCLUDE RESULTS OF THE FOLLOWING TESTS:-

- CHEMICAL COMPOSITION.
- GRAIN SIZE OF TUBE MATERIAL.
- EXPANSION TEST.
- MERCURIUM NITRATE TEST.
- TENSION TESTS.
- EDDY CURRENT TEST.
- HYDROSTATIC TEST

NOTES:-

* U-ASSEMBLY IS ACCEPTED FOR BOTH OF THE FOLLOWING ALTERNATIVES (1 or 2) :-

1 - TWO PIECES WELDED WITH RETURN BEND AS SHOWN INTO RELATED MENTIONED DRAWINGS.

2 - ONE PIECE BY BENDING (ACCORDING TO RELATIVE STANDARDS)

General Description 2 221138

BROWN FINNED TUBULAR ELEMENT (COMPLETE ASSEMBLY INCLUDING:- FINNED TUBES, BEND AND SEALING BODY) FOR HAIRPIN TYPE COOLER NO. (309-E-1):-
(REF.DRGS. R4-31562 & R2-31566)

1 2265309010

&& BROWN FINNED TUBES ELEMENT FOR (309 - E-1)

9,000 EA

21011157 OR

1

General Description 1

General Description 2 221139

BROWN FINNED TUBULAR ELEMENT (COMPLETE ASSEMBLY INCLUDING:- FINNED TUBES, BEND AND SEALING BODY) FOR HAIRPIN TYPE COOLERS NOS. (309-E-2), (309-E-3) :-
(REF.DRGS. R2-31531 , R4-31528)

2 2265309020

&& BROWN FINNED TUBES ELEMENT FOR (309-E-2, 309-E-3)

9,000 EA

21011157 OR

2

Jordan Petroleum Refinery Company

Date 14/08/2021

Page - 2

Quote Order

Order Number 21010568 000 OQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit	Supplier Offer Unit Price	Supplier Offer Currency Code	Original Order No	Original Line No
General Description 1	221093	BROWN FIN TUBES' ELEMENTS (COMPLETE ASSEMBLY WITH SEALING ENDS AND RETURN BEND) FOR HAIRPIN TYPE COOLER NO. (04-E-12):- (REF.DRGS. R5-22443, R1-52764)								

1. TUBES

1.1-MATERIAL

- ALLOY STEEL SEAMLESS TUBES 5%CR, ½% MO ACC. TO"ASTM"A335-LATEST EDITION, GRADE-(P.5).

1.2-DIMENSIONS

-OD = TUBE OUTSIDE DIAMETER (MM.) : 48.3
-W = MIN. WALL THICKNESS (MM.) : 5.08.
-L = LENGTH OF TUBE(MM): 7760
-UF=BARE (UNFINNED) LENGTH : 80 MM. AT EACH END.
-LF =LENGTH OF FINNED SECTION : 7600 MM.

1.3-PERMISSIBLE VARIATIONS

-TUBE LENGTH (MM) : +5.0, -0.0
-TUBE OUTSIDE DIA. (MM) : +0.4, -0.4
-WALL THICKNESS (MM) : +1.4, -0.0

2. FINS

2.1-MATERIAL

- ALLOY STEEL SHEET 5%CR, ½% MO

2.2-FIN TYPE AND CONSTRUCTION

-FINS SHALL BE CONSTRUCTED FROM CHANNELS EQUALLY SPACED AT TUBE EXTERNAL SURFACE.
- EACH OF CHANNEL FLANGES IS CONSIDERED AS A FIN.
-CHANNEL WEBS SHALL BE ATTACHED TO TUBE EXTERNAL SURFACE BY HIGH TEMP. BRAZING.
-FINS (i.e. CHANNEL FLANGES) SHALL BE PERPENDICULAR TO TUBE EXTERNAL SURFACE.

2.3-DIMENSIONS

-NUMBER OF CHANNELS : 18
-FIN CHANNEL WEB THICK. (MM) : 1.0
-FIN CHANNEL WEB WEDTH (MM) : 5.0
-FIN (i.e. CHANNEL FLANGE) THICKNESS (MM) : 1.0
-FIN TIP CIRCLE DIAMETER (MM): 74.0

Jordan Petroleum Refinery Company

Quote Order

Date 14/08/2021
Page- 3

Order Number 21010568 000 QQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit	Supplier Offer Unit Price	Supplier Offer Currency Code	Original Order No	Original Type	Original Line No
----------	--------------	-------------	-------------	----------------	------------------	------	---------------------------	------------------------------	-------------------	---------------	------------------

3. RETURN BENDS

3.1-MATERIAL

- ALLOY STEEL SEAMLESS TUBES 5%CR, 1/2% MO ACC. TO ASTM A335-LATEST EDITION, GRADE-(P.5) OR EQUIVALENT

3.2-DIMENSIONS

-OD = TUBE OUTSIDE DIAMETER (MM.) : 48.3
-W = MIN. WALL THICKNESS AFTER FORMING (MM.) : 5.08.
- MEAN BEND RADIUS: 66.5 MM.

3.3-FINISH

- FITTINGS SHALL BE FREE FROM SURFACE IMPERFECTIONS, FITTINGS SHOWING SCABS, SEAMS, LAPS, TEARS OR SILVERS ARE NOT ACCEPTABLE.
-FITTINGS REPAIRED BY WELDING ARE NOT ACCEPTABLE.

4. SEALING ENDS:-

4.1-MATERIAL

- ALLOY STEEL 5%CR, 1/2% MO ACC. TO ASTM A335-LATEST EDITION, GRADE-(P.3) OR ASTM A-182 GRADE F5.

4.2-DIMENSIONS

ACCORDING TO THE RELEVANT DRAWING NO R1-52764.

4.3-FINISH

- MATERIAL SHALL BE FREE FROM SURFACE IMPERFECTIONS, FITTINGS SHOWING SCABS, SEAMS, LAPS, TEARS OR SILVERS ARE NOT ACCEPTABLE.
- MATERIAL REPAIRED BY WELDING ARE NOT ACCEPTABLE.

5. PACKAGING, MARKING :

5.1- FINNED TUBES ELEMENTS SHALL BE PROPERLY AND SUITABLY PACKED TO PROTECT THE FINS AND

Jordan Petroleum Refinery Company

Date 14/08/2021
Page - 4

Quote Order

Order Number 21010568 000 QQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Supplier Offer Unit Price	Supplier Offer Currency Code	Original Order No	Orig Type Line No
----------	--------------	-------------	-------------	----------------	------------------	---------------------------	------------------------------	-------------------	-------------------

TUBES ENDS FROM DAMAGE DURING LIFTING.
HANDLING AND SHIPMENT.

5.2- MARKING TAGS SHALL BE SECURELY
ATTACHED TO EACH PACKAGE.
MARKING TAGS SHALL CONTAIN AT LEAST THE
FOLLOWING INFORMATION:-

- NAME OR BRAND OF MANUF.
- TUBES ELEMENTS SPECS.
- FOREIGN PURCHASE ORDER NO.
- GROSS WEIGHT.

5.3- TUBES SHALL BE MARKED ACCORDING TO RELEVANT SPECIFICATIONS AND LOCATION OF MARKING SHALL BE AT
THE UN-FINISHED PORTION OF TUBE AND SHALL INCLUDE AT LEAST THE FOLLOWING: -

- ASTM SPECIFICATION.
- TUBE SIZE (OD, THICK. & LENGTH)
- HEAT NO.

6- DATA AND CERTIFICATES REQUIRED FROM SUPPLIERS:-

- MANUF. NAME, CAPABILITIES AND QUALIFICATIONS.
- DETAILED SPECS.
- DETAILED PROCEDURE OF TUBE FINING, WELDING
AND BRAZING.
- VARIATION IN DIMENSION AND WEIGHTS
- PACKAGING AND PROTECTION OF TUBES.
- MILL TEST CERTIFICATES.
- DETAILED MANUFACTURER DRAWINGS SHOWING ALL DIMENSIONS WITH PERMISSIBLE VARIATIONS AND LOCATIONS OF
WELDS.
- QUALITY CONTROL PLAN, WPS & PQR SHALL BE SENT FOR REFINERY APPROVAL BEFORE STARTING FABRICATION
AND WELDING WORKS.
- HEAT TREATMENT DETAILS WHICH SHALL BE CARRIED OUT AT 720°C FOR 30 MINUTES.
- 7- REQUIRED TESTS:-

- HARDNESS TEST REPORT BEFORE AND AFTER HEAT TREATMENT.
- 100% DYE PENETRANT TEST SHALL BE CARRIED OUT ON GIRTH WELDS AND TEST REPORTS SHALL BE PROVIDED.
- 100% RADIOGRAPHY SHOP EXAMINATION SHALL BE CARRIED OUT ON GIRTH WELDS AND TEST REPORTS SHALL BE
PROVIDED.
- HYDROSTATIC PRESSURE TEST AFTER THE COMPLETION OF WELDING FOR EACH ELEMENT SHALL BE CARRIED OUT
AND TEST REPORTS SHALL BE PROVIDED.
- RESULTS OF DIMENSIONAL CHECK.

Jordan Petroleum Refinery Company

Date 14/08/2021

Page - 5

Quote Order

Order Number 21010568 000 OQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit	Supplier Offer Unit Price	Supplier Offer Currency Code	Original Order No	Original Order Type	Line No
7- MILL TEST CERTIFICATES OF MATERIALS / WELDING CONSUMABLES INTENDED TO BE USED ARE REQUIRED AND SHALL INCLUDE RESULTS OF THE FOLLOWING TESTS:-											

- CHEMICAL COMPOSITION.
- TENSILE AND HARDNESS.
- BEND TEST.
- EDDY CURRENT TEST.
- HYDROSTATIC TEST.

General Description 2 221152 BROWN FIN TUBES ELEMENTS (COMPLETE ASSEMBLY WITH SEALING ENDS) FOR HAIRPIN TYPE COOLER NO. (04-E-12):-
(REF.DRGS. R5-22443, R1-52764)

3 2265004001 BROWN FIN TUBES ELEMENT FOR 04-E-12 2.000 EA 21011157 OQ 3

General Description 1 010081 BROWN FIN TUBES FOR HAIRPIN TYPE COOLERS:-
(REF.DRGS.R4-31566&R2-31531)

1- TUBES :-

1.1-MATERIAL

- COPPER ALLOY SEAMLESS CONDENSER TUBE ACC. TO"ASTM"B111-11
- UNS COPPER ALLOY NO.C-44300 (ADMIRALTY BRASS).
- TUBES SHALL BE STRESS RELIEF ANNEALED SUITABLE FOR BRAZING AND WELDING.

1.2-DIMENSIONS

- OD = TUBE OUTSIDE DIAMETER (MM.) : 60.3
- W = MIN. WALL THICKNESS (MM.) : 3.0
- L = LENGTH OF TUBE(MM): 6309
- UF=BARE (UNFINNED) LENGTH : 209MM. AT ONE END AND (100MM) AT OTHER END.
- LF =LENGTH OF FINNED SECTION : 6000 MM.

1.3-TUBE ENDS

- TUBE ENDS SHALL BE CUT SQUARE.

Jordan Petroleum Refinery Company

Date 14/08/2021
Page - 6

Quote Order

Order Number 21010568 000 OQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit Price	Supplier Offer	Supplier Offer	Original	Original
							Unit	Unit Price	Currency Code	Order No Type Line No

1.4-PERMISSIBLE VARIATIONS

-TUBE LENGTH (MM) : +4.0, -0.0
 -TUBE OUTSIDE DIA. (MM) : +0.15, -0.15
 -WALL THICKNESS (MM) : +0.34, -0.0

2- FINS :-

2.1-MATERIAL

-BRASS IN ACCORDANCE WITH"ASTM"
 B36-02. ALLOY NO. C-26800 OR EQUIVALENT.

2.2-FIN TYPE AND CONSTRUCTION

-FINS SHALL BE CONSTRUCTED FROM CHANNELS
 EQUALLY SPACED AT TUBE EXTERNAL SURFACE.
 EACH OF CHANNEL FLANGES IS CONSIDERED
 AS A FIN. :-

-CHANNEL WEBS SHALL BE ATTACHED TO TUBE
 EXTERNAL SURFACE BY HIGH TEMP. BRAZING.
 -FINS (i.e. CHANNEL FLANGES) SHALL BE
 PERPENDICULAR TO TUBE EXTERNAL SURFACE.
 -ANGLE BETWEEN CHANNEL FLANGES IS(9)DEG.
 (AS MEASURED FROM WEB SIDE).

2.3-DIMENSIONS

-NUMBER OF CHANNELS : 20
 -FIN CHANNEL WEB THICK. (MM) : 0.8
 -FIN (i.e. CHANNEL FLANGE) THICKNESS (MM) : 0.8
 -FIN TIP CIRCLE DIAMETER (MM): 98.4

3- PACKAGING, MARKING AND PROTECTION OF
FIN TUBE ENDS :-

3.1=FINNED TUBES, SHALL BE PROPERLY AND
 SUITABLE PACKED TO PROTECT THE FINS AND
 TUBE ENDS FROM DAMAGE DURING LIFTING,
 HANDLING AND SHIPMENT.

3.2=MARKING TAGS SHALL BE SECURELY

Jordan Petroleum Refinery Company

Date 14/08/2021

Page - 7

Quote Order

Order Number 21010568 000 OQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit	Supplier Offer	Unit Price	Currency Code	Original Order No	Type Line No	Orig
----------	--------------	-------------	-------------	----------------	------------------	------	----------------	------------	---------------	-------------------	--------------	------

ATTACHED TO EACH PACKAGE.

MARKING TAGS SHALL CONTAIN AT LEAST THE FOLLOWING INFORMATION :-

- NAME OR BRAND OF MANUF.
- TUBES SPECS.
- FOREIGN PURCHASE ORDER NO.
- GROSS WEIGHT.

3.3=TUBE ENDS SHALL BE PROTECTED AGAINST CORROSION. PROTECTIVE COATING SHOULD SUIT OUTDOOR STORAGE AND CAN BE EASILY REMOVED OF PROTECTION SHALL BE SPECIFIED IN THE OFFER.

4- DATA AND CERTIFICATES REQUIRED FROM SUPPLIERS :-

- PRICES
- MANUF.NAME.
- DETAILED SPECS.
- DETAILED PROCEDURE OF TUBE FINING AND BRAZING WICH SHALL INCLUDE THE FOLLOWING:-

- DEGREASING DETAILS
- PICKLING AND RINSING DETAILS
- FLUX AND FILLER METAL
- BRAZING TEMP.
- BRAZING METHOD AND ATMOSPHERE
- MEASURES AGAINST CRACKING.

- VARIATION IN DIMENSION AND WEIGHTS
- PACKAGING AND PROTECTION OF TUBES.
- MILL TESTS

5- MILL TEST CERTIFICATE IS REQUIRED AND AND SHALL INCLUDE RESULTS OF THE FOLLOWING TESTS :-

- CHEMICAL COMP. OF TUBES AND FIN.
- GRAIN SIZE OF TUBE MATERIAL.
- EXPANSION TEST.

Jordan Petroleum Refinery Company

Quote Order

Date 14/08/2021
Page - 8

Order Number 21010568 000 OQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit	Supplier Offer Unit Price	Supplier Offer Currency Code	Original Order No	Orig Type Line No
----------	--------------	-------------	-------------	----------------	------------------	------	---------------------------	------------------------------	-------------------	-------------------

- MERCURIUS NITRATE TEST.
- TENSION TESTS.
- EDDY CURRENT TEST.
- HYDROSTATIC TEST.

COOLER DESIGN/OPERATING TEMP.(° C)

309-E-1 (121/43.3)

309-E-2 (121/52)

309-E-3 (121/63.3)

DIMENSIONS: OD X W X L X LF

General Description 2

4 010B738001 && 60.3 MM ODX3 MM THK X 6309 MM LX 6000MM.BROWN FIN TUBE

18,000 EA

21011157 OQ

4

General Description 1 010703 BROWN FINNED TUBES FOR HAIRPIN TYPE COOLER NO. (04-E-12):- (REF.DRGS. RS-22443)

1. TUBES

1.1-MATERIAL

- ALLOY STEEL SEAMLESS TUBES 5%CR, ½% MO ACC. TO"ASTM"A335-LATEST EDITION. GRADE-(P.5).

1.2-DIMENSIONS

-OD = TUBE OUTSIDE DIAMETER (MM.) : 48.3

-W = MIN. WALL THICKNESS (MM.) : 5.08.

- L = LENGTH OF TUBE(MM): 7760

- UF=BARE (UNFINNED) LENGTH : 80 MM. AT EACH END.

- LF =LENGTH OF FINNED SECTION : 7600 MM.

1.3-PERMISSIBLE VARIATIONS

-TUBE LENGTH (MM) : +5.0. -0.0

-TUBE OUTSIDE DIA. (MM) : +0.4. -0.4

-WALL THICKNESS (MM) : +1.4. -0.0

2. FINIS

Quote Order

Order Number 21010568 000 OQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit	Unit Price	Supplier Offer	Original	Orig
								Currency Code	Order No	Type Line No

2.1-MATERIAL

- ALLOY STEEL SHEET 5%CR, 1/2% MO

2.2-FIN TYPE AND CONSTRUCTION

-FINS SHOULD BE CONSTRUCTED FROM CHANNELS EQUALLY SPACED AT TUBE EXTERNAL SURFACE.

- EACH OF CHANNEL FLANGES IS CONSIDERED AS A FIN.

-CHANNEL WEBS SHALL BE ATTACHED TO TUBE EXTERNAL SURFACE BY HIGH TEMP. BRAZING.

-FINS (i.e. CHANNEL FLANGES) SHALL BE PERPENDICULAR TO TUBE EXTERNAL SURFACE.

2.3-DIMENSIONS

-NUMBER OF CHANNELS : 18

-FIN CHANNEL WEB THICK. (MM) : 1.0

-FIN CHANNEL WEB WEDTH (MM) : 5.0

-FIN (i.e. CHANNEL FLANGE) THICKNESS (MM) : 1.0

-FIN TIP CIRCLE DIAMETER (MM): 74.0

3. PACKAGING, MARKING :-

3.1- FINNED TUBES SHALL BE PROPERLY AND SUITABLY PACKED TO PROTECT THE FINS AND TUBES ENDS FROM DAMAGE DURING LIFTING, HANDLING AND SHIPMENT.

3.2- MARKING TAGS SHALL BE SECURELY ATTACHED TO EACH PACKAGE.
MARKING TAGS SHALL CONTAIN AT LEAST THE FOLLOWING INFORMATION:-

- NAME OR BRAND OF MANUF.

- TUBES ELEMENTS SPECS.

- FOREIGN PURCHASE ORDER NO.

- GROSS WEIGHT.

3.3- TUBES SHALL BE MARKED ACCORDING TO RELEVANT SPECIFICATIONS AND LOCATION OF MARKING SHALL BE AT THE UN-FINNED PORTION OF TUBE AND SHALL INCLUDE AT LEAST THE FOLLOWING:-

- ASTM SPECIFICATION.

- TUBE SIZE (OD, THICK. & LENGTH)

- HEAT NO.

4- DATA AND CERTIFICATES REQUIRED FROM SUPPLIERS:-

Jordan Petroleum Refinery Company

Date 14/08/2021
Page - 10

Quote Order

Order Number 21010568 000 OQ

Line No.	VOCAB Number	Description	Part Number	Drawing Number	Ordered Quantity	Unit	Supplier Offer Unit Price	Supplier Offer Currency Code	Original Order No	Original Order Type	Line No
----------	--------------	-------------	-------------	----------------	------------------	------	---------------------------	------------------------------	-------------------	---------------------	---------

- MANUF. NAME, CAPABILITIES AND QUALIFICATIONS.
- DETAILED SPECS.
- DETAILED PROCEDURE OF TUBE FINING AND BRAZING.
- VARIATION IN DIMENSION AND WEIGHTS
- PACKAGING AND PROTECTION OF TUBES.
- MILL TEST CERTIFICATES.
- DETAILED MANUFACTURER DRAWINGS SHOWING ALL DIMENSIONS WITH PERMISSIBLE VARIATIONS AND LOCATIONS OF WELDS.

5- MILL TEST CERTIFICATES OF MATERIALS INTENDED TO BE USED ARE REQUIRED AND SHALL INCLUDE RESULTS OF THE FOLLOWING TESTS:-

- CHEMICAL COMPOSITION.
- TENSILE AND HARDNESS.
- BEND TEST.
- EDDY CURRENT TEST.
- HYDROSTATIC TEST.

General Description 2 010185 BROWN FINNED TUBES FOR HAIRPIN TYPE COOLER NO. (04-E-12):- (REF.DRGS. R5-22443)

5 010A738020 8&BROWN FINNED TUBES FOR 04-E-12

4.000 EA

2:011157 OR

5

Purchasing Manager :

Remarks of Purchasing Department :

✓