

<h2 style="margin: 0;">UN-PRICED PROPOSAL (Package System)</h2>
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**1. PRICES**

**1.1 Main Equipment**

No.	Item	Total No. of Bays	Total Estimated Net Weight (Kg)	Ex-work Price unpacked (Euro)
1	Aircooler	2 x 1	22,000	/
<b>Total</b>		<b>2</b>	<b>22,000</b>	/

**1.2 Additional / Optional Items (if required)**

No.	Item	Price (Euro)
1	Spare parts for commissioning according Doc No:02612N/SP/0A	/
2	Two Years spare part according Doc No:02612N/SP/0B	/
3	Daily Rate for Damafin supervisor (8 hrs/ working day excluding travel & local accommodation)	/
4	Special Tools	/
5	Transportation to site	/

\*One month will be added to delivery time & payment procedure is not dependent to this item.

\*\*VAT will be added to final price

Note: In case of more than 5% increase in amount of project items such as core tubes, aluminum tubes or strips, header plates, electrical motors and axial fans in comparison with announced values at the bid time, Damafin will claim the inflated cost for the unpaid part of the contract. The foresaid circumstances will be valid, up to 50% of contract amount payments implementation.

**2. DELIVERY TIME**

**Drawings**

Time required submitting our Outline Drawings (G.A.D) for approval is 8 weeks after firm purchase order and dawn payment

**Equipment**

The equipment will be ready in knock down conditions at Ex-Work within 8 months after receipt of your firm order and dawn payment according follow:

Total Project:	8
Engineering activities	2
Procurement	5
Fabrication	1

3. **VALIDITY OF OUR OFFER**

45 days starting from quotation date.

4. **PAYMENT CONDITIONS**Terms of Payment

- 25% upon acknowledgement of order,
- 15% upon approved technical key documents
- 20% after delivery signed PO of main row materials (tube, plate)
- 40% upon partial delivery of equipment, against prorated payment,
- Within 20 days
- All price to be paid in the account outside Iran introduced by Damafin.

5. **GUARANTEE**

We guarantee the material described in this offer against any defect in design, material or workmanship.  
 Our guarantee is given for a period of **12 months from the commissioning** of the equipment or **18 months after shipment**, which is sooner  
 During the period covered by the guarantee, we undertake to make good any defect, which may appear, and to supply replacement parts ex-works, except for normal wearing parts (bolts, bearings, etc.), which are not covered by our guarantee.  
 We shall not be held responsible for any defect due to corrosion, erosion or un-proper operation of the units nor for any inadequate performance due to fouling.

**Mohsen Mollaei**  
**Managing Director and Board Member**

**February 27, 2024**

**Damafin Thermal Technology Co.**

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## TECHNICAL PROPOSAL (Package System)

### 1- MANUFACTURING CONDITIONS

Abbreviations used:

Y = yes

N = no

O = option or separate price

N/A = not applicable

DESIGN CODES & STANDARDS	
Design code	ASME VIII div 1 + API 661
Approval (stamp requested)	N

MATERIAL CODES & STANDARDS	
Pressure retaining parts	ASTM
Flanges and pipe	ASME B16.5
Structure	DIN / UBC

CERTIFICATION	
ISO 9001:2015	SINCE Jan.05, 2003
ISO 3834 Part 2 (Welding)	SINCE Nov.10, 2008

### 2- GENERAL TECHNICAL INFORMATION

GENERAL DATA		
Installation	Rack (width)	N
	Platform	N
	Grade	Y
Hazardous Area classification	Zone 1 (class 1 div 1)	N
	Zone 2 (class 1 div 2)	Y
	Not classified	N
Draft type	Forced	Y
	Induced	N
	Natural	N
Extra on	Flow rate & Duty	N
	Surface	N
	Motor	N

### 3- SCOPE OF WORK - SCOPE OF SUPPLY

ENGINEERING	
Thermal design	Y
Structural Design	Y
Mechanical design	Y
Technical documentation	Y

MAIN CONTROLS	
As per applicable code	Y

TUBE BUNDLE		
Headers Type	Plug	Y
	Cover	N
	Pipe	N
	Bonnet	N
Tubes Type	Seamless	Y
	Welded	N
	Bare	N
	Finned	Y
Tube thickness (BWG) (Under groove for embedded)		"16" BWG (1.651 mm)
Tube To tube sheet Joint	Expanded	N
	Seal welded	Y
	Strength welded	N
Fins Type	No fin	N
	L	N
	KL	N
	Extruded	Y
	Embedded	N
Number of fins per inch		11
Connections	Inlet / outlet	Cylindrical / set – on (for 4" & below) Swaged / set-on
	Vent/Drain	Y/Y (Flanged)
	Ti/Pi/Chemical Cleaning	N/N/N

For 4" please consider set in. below 4" set on

MECHANICAL EQUIPMENT		
Motors	Type	Electrical
	Code / standard	IEC
	Protection	Exec, IP55
	Supply	400V/3ph/50Hz
Motor suitable for VSDS control		N
Coupling	V-belts	Y
	Banded V-belts	N
	Toothed belts	N
	Gear	N
	Direct	N
Transmission guards		Y
Fan	Material	ALUMINIUM
	Pitch adjustment	See below: "Controls"
	Bearing	Y
Greasing		One point per fan

INSTRUMENTATION	
Vibration switches	Y
Accelerometer	N
I/P Converter for AV (Louver / Fan)	N / N

CONTROLS	
100% Manually adjustable Louvers	N
100% AV adjustable Louvers	N
50% Manually adjustable + 50% AV adjustable Louvers	N
Actuator for AV Louvers	N
Steam coils	N
100% Variable speed drive system	N
50% Variable speed drive system	N
Two speed motors	N
100% fans manually adjustable	Y
100% AV fans with positioner	N
50% AV with positioner	N

STRUCTURAL EQUIPMENT		
Bundle	Side frames	Y
		Y
Fan		Y
		Y
Plenum chamber		Y (Slope panel)
Machinery mounts		Y
Walkways	Header	Y (both sides – 750 mm wide)
	Mechanical access	N
	Connecting	N
	Induced fan	N
Access	Ladders	5 Y (limited to structure height)
	Stairs	N
Columns	Height	Y- 3.9 m (till bundle frame)
	Earthing lugs	Y
Rack adaptation beam		N
Bug Screen		N
Bay setting	Anchor bolts and nuts	N
	Setting bolts and nuts	N
	Setting welded plates	N

Walkway to be considered in 3 side of the air cooler. Both header ends and one side direction

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POST WELD HEAT TREATMENT	
On C.S headers	Y

SPECIAL TOOLS	
Torque wrench	O
Clinometer	O
Belt tensioner	O

SPARE PARTS	
Commissioning & start-up	O
2-year operation	O

SITE WORK	
Supervision	O
Assembly	N
Lifting	N
Erection	N

NOT INCLUDED IN OUR SCOPE
Site wiring Motors starters Fireproofing Inlet / outlet manifold piping Field painting Any supply or service not defined above nor in our data sheets

#### 4- MATERIALS

MATERIALS	
Headers	SA-516 Gr70(N)
Tubes	SA-334 6
Fins	Aluminum
Structural equipment (structure, fan guards, fan rings, plenum chamber, machinery mounts, walkways, ladders)	ST-37
Fan: shaft – blades	Carbon steel – aluminum
Plug	SA-350 LF2 CL1
Gasket	Soft Iron

#### 5- PROTECTIVE COATING

PAINTING / COATING SYSTEM	
Headers (CS & LTCS)	Sandblasting to SA 2½ and painting up to finish coat
Structures	HDG
Platform-Ladder	HDG
Mechanical & Electrical equipment	As per manufacturer standard
Motor housing	As per manufacturer standard

as per provided painting procedure

as per provided painting procedure



**6- DELIVERY CONDITIONS**

DELIVERY CONFIGURATION	
Knockdown	Y
Module assembly	N

INLAND PACKING SYSTEM	
Bundles complete with louvers	Metal film on process flanges - blind flanges or plugs on other connections Wooden plate on the finned tube of tube bundle
Bundle corrosion	VCI N
Internal protection	Drier Y
	N <sub>2</sub> Filling Y
Mechanical equipment	In wooden cases
Columns, walkways, ladders	In bundles

**7- CLARIFICATIONS TO APPLICABLE DOCUMENTS**

**1- Delivery condition:**  
Our equipment is not delivered skid mounted, it is delivered in Knock down conditions, as explained in our technical proposal.

**2- Cross beam / adaptation rack beam:**  
Any cross or supporting beams below air cooler supporting columns is out of our scope.

**3- Packing:**  
Our packing is limited to Packing for “Inland transportation” as explained in our technical proposal. Not sea worthy packing.

**4- Mounting:**  
We assumed all items are grade mounted.

**8- ATTACHED DOCUMENTS**

- Damafin API datasheet (Rev.1) 2 Sheets
- Damafin Reply to Technical Clarification-Air Cooler-DAMAFIN-REV 00 13 Sheets
- Damafin AVL (02612N-0) 2 Sheets
- Motor Data Sheet (02612N-0) 1 Sheet
- Spare Parts (02612N-SP-0A) 1 Sheet
- Spare Parts (02612N-SP-0B) 1 Sheet
- Damafin preliminary outline drawing (Rev.0) 1 Sheet
- Fan Characteristic (Rev.0) 8 Sheets

**Behzad Sheikhbeigi**  
**Chief Marketing Officer**

February 27, 2024

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