

Please provide optional price for 2 years spare parts as per below list:

- Plugs Steel 5%; Non-ferrous 2% (min. one number)
- Plugs gaskets 5% (min one number)
- Cover plate gaskets 100%
- Tube support boxes 10% (min one number)

Please provide optional price for commissioning spare parts as per below list:

- Gaskets for Girth Flange, M/H & H/H & Blinded Nozzles 100%
- Stud Bolts and Nuts for the above 5% (min. 2 sets)
- Fan:

1.1 Gaskets Sets and O-Rings 100%

No.	Item	Total No. of Bays	Total Estimated Net Weight (Kg)	Ex-work Price unpacked (Euro)
1	Aircooler	2 x 1	21,000	84,000 €
Total		2	21,000	84,000 €

1.2 Additional / Optional Items (if required)

No.	Item	Price (Euro)
1	Daily Rate for Damafin supervisor (8 hrs/ working day excluding travel & local acommodation)	350 € / Day
2	Special Tools	3,500 €

\*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

Please provide shipping cost to asalouyeh

The equipment will be ready in knock down conditions at Ex-Work within 12 months after receipt of your firm order and dawn payment according follow:

Total Project:		12	
Engineering activities	2		
Procurement		7	
Fabrication		4	
Test and Packing			2.5

3. **VALIDITY OF OUR OFFER**

45 days starting from quotation date.

4. **PAYMENT CONDITIONS**Terms of Payment

will be finalized  
after approval of  
technical offer

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 24, 2024

[Damafin Thermal Technology Co.](http://www.damafin.com)

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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

<b>DESIGN CODES &amp; STANDARDS</b>	
Design code	ASME VIII div 1 + API 661
Approval (stamp requested)	N

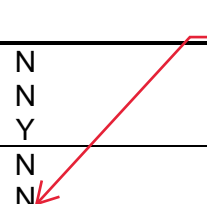
<b>MATERIAL CODES &amp; STANDARDS</b>	
Pressure retaining parts	ASTM
Flanges and pipe	ASME B16.5
Structure	DIN / UBC

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

### 2- GENERAL TECHNICAL INFORMATION

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

zone 2



### 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)		"14" BWG (2.108 mm)
Tube To tube sheet Joint	Expanded	Y
	Seal welded	N
	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 Y/Y (Coupling) N/N/N
	Vent/Drain	
	Ti/Pi/Chemical Cleaning	

MECHANICAL EQUIPMENT		
Motors	Type	Electrical
	Code / standard	IEC
	Protection	Exe, 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

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

<b>CONTROLS</b>	
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

<b>STRUCTURAL EQUIPMENT</b>		
Bundle	Side frames	Y
	Lifting lugs	Y
Fan	Wire mesh guard	Y
	Ring	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	Y (limited to structure height)
	Stairs	N
Columns	Height	Y- 3.9 m (till bundle frame)
	Earthing lugs	N
Rack adaptation beam		N
Bug Screen		N
Bay setting	Anchor bolts and nuts	N
	Setting bolts and nuts	N
	Setting welded plates	N

2 earth lugs per bay is required

<b>POST WELD HEAT TREATMENT</b>	
On C.S headers	Y

<b>SPECIAL TOOLS</b>	
Torque wrench	O
Clinometer	O
Belt tensioner	O



optional price is needed. please refer to comment on page 1

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

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 Gr. 60/70
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-105
Gasket	Soft Iron

70N

SA-350 LF2 CL1

**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
Internal protection	Drier
	N <sub>2</sub> Filling
Mechanical equipment	In wooden cases
Columns, walkways, ladders	In bundles

no acceptable

N2 filling is required

## 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.0)

2 sheets

**Behzad Sheikhbeigi**  
Chief Marketing Officer

February 24, 2024

[Damafin Thermal Technology Co.](http://www.damafin.com)

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