REFURBISHED HORIZONTAL LOADING VACUUM FURNACE

MODEL No. ABAR HR6660
### TECHNICAL DATA

#### DIMENSIONS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Floor space required</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>6 m</td>
</tr>
<tr>
<td>Height</td>
<td>4.0 m</td>
</tr>
<tr>
<td>Depth</td>
<td>6.0 m</td>
</tr>
<tr>
<td>Plant gross weight</td>
<td>10,000 kgs</td>
</tr>
<tr>
<td>Work zone</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>600 mm</td>
</tr>
<tr>
<td>Height</td>
<td>760 mm</td>
</tr>
<tr>
<td>Depth</td>
<td>1200 mm</td>
</tr>
<tr>
<td>Max gross charge</td>
<td>1000 kg</td>
</tr>
</tbody>
</table>

#### TEMPERATURE

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Max. Temperature</td>
<td>1270 °C</td>
</tr>
<tr>
<td>Vacuum 600°C to 1200°C</td>
<td>±5 °C</td>
</tr>
</tbody>
</table>

#### ENERGY

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Rating of heating</td>
<td>180Kw</td>
</tr>
<tr>
<td>Connected load</td>
<td>165Kva</td>
</tr>
<tr>
<td>Rated voltage (3 phase – 50Hz)</td>
<td>400 V</td>
</tr>
</tbody>
</table>

#### VACUUM

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Ultimate vacuum (conditioned furnace)</td>
<td>$1.0 \times 10^{-5}$ mbar</td>
</tr>
<tr>
<td>Operating vacuum</td>
<td>$5.0 \times 10^{-5}$ mbar</td>
</tr>
<tr>
<td>Partial Pressure Nitrogen/Argon</td>
<td>0.1 to 10 mbar</td>
</tr>
<tr>
<td>Leak rate mbar/sec</td>
<td>$5 \times 10^{-2}$ mbar l / sec or &lt; 4 microns</td>
</tr>
</tbody>
</table>
PUMPING GROUP

MECHANICAL PUMP –
Model No. – Edwards GV600 or Leybold SP630
Capacity 560m³/h-1 / 630 m³/h-1

BOOSTER PUMP –
Model No. – Edwards EH4200 or Leybold WAU 2001
Capacity 3100 m³/h-1 / 2050m³/h-1

DIFFUSION PUMP –
Model – Varian HS32
Capacity 30,000 l/sec

COOLING FAN

Rated power 110Kw

INERT GAS

Nitrogen quenching gas max pressure 800mbar
Gas consumption at max pressure 10m³ approx
Quenching gas purity 99,999 %

CYCLE FEATURES – CONDITIONED, EMPTY FURNACE

Pumping time to 10⁻² mbar range < 30 min
Cooling time of furnace from 1250°C to 150°C < 30 min
Heating time of the hot zone from 150°C. to 1250°C. < 50 min
CONTROL SYSTEM

Controller: VCS+
PLC: Siemens
Temperature/Vacuum Recorder: VCS+
Over temperature safety controller: Eurotherm
Pirani Vacuum Gauge: Edwards
Penning Vacuum Gauge: Edwards
Thermocouples (Control O/Temp): Type ‘S’
Load thermocouples (12 off): Type ‘N’

WATER (To be confirmed)

Min/Max pressure cooling water: 3.5 bar
Water consumption during cooling: 30 m3/h
Average consumption cooling water: 10 m3/h
Water inlet max. Temp.: 25 °C

GRAPHITE HOT ZONE

Insulation: Graphite
Heating Elements: Graphite
The work cycle of the Model No. Abar HR6660 is completely automatic.

Gas fan cooling is included @ 800 mbar

Gas Quenching is included:-

- Cooling cylindically, through gas nozzles

The gas pressure flowing through the gas quench system is operated at up to 800 mbar

The following items are switched from the control panel.

Pumping  booster pump introduced at pre-set vacuum levels.

Heating  can be activated automatically provided the pre-set vacuum levels are achieved and water is available.

Cooling  under vacuum, static or gas fan quench.

Air Admit  provided the safety interlock is met i.e. below 100°C.
PROPOSAL

PRICE SCHEDULE

Item 1

One (1) Vacuum Heat Treatment & Brazing Furnace Model No. Abar HR6660 as generally as described within the attached technical summary.

The following upgrade works are included:

- New vessel
- New control panel and VCS+ system
- New hot zone
- Vacuum pump overhaul
- Heat exchanger removed and pressure tested
- All new water and air hoses
- All new butterfly valves
- AMS2750 compliant
- Manual loader

**Price: £TBA**

(This offer is made Subject to Prior Sale)

Delivery – to be quoted upon advising final of the destination

**Installation / commissioning / training** – to be quoted upon advising of the final destination

**DELIVERY:**

10-12 weeks

**TERMS OF CONTRACT:**

12 month warranty will apply to all new components.
All other items offered with 6 month warranty

**TERMS OF PAYMENT:**

To be discussed

**TAXES:**

The aforementioned quotation is exclusive of VAT or any other taxes / import duties that may apply.
TRAINING

On site training at Customer site will include 3 man days where both practical and theoretical aspects of vacuum engineering will be discussed and include a seminar covering:-

1. Vacuum Terminology. Detailing a basic understanding of the terms and units used in day-to-day use of vacuum furnaces.

2. Vacuum Pumping. Detailing the basic operation of the individual vacuum pumps.

3. Furnace control and sequencing.

4. Furnace Control System

5. Vacuum furnace maintenance.


As well as the Operation and Maintenance manuals supplied with the plant, within the training programme, an additional manual will be supplied to each attendee of the seminar.

It is useful if a ‘classroom’ could be made available during this period.
EXCLUSIONS

VAS’s installation proposal offer is based upon purchaser’s acceptance of the following responsibilities, unless otherwise agreed in price summary.

1. Pits, foundations, packers and associated foundation bolts, unless previously specified and quoted.
2. Steelwork covering pits.
3. Any additional supporting steelwork and stairs which might be requested.
4. Cranes and handling devices.
5. Sump pumps for pit where applicable.
6. Any water treatment equipment, unless previously specified and quoted.
7. Any auxiliary emergency pumps.
8. Provide adequate 3 Phase, 50 Hz, power supply and in accordance with furnace requirements.
9. Provide adequate water system including pipework
10. Provide inert gas to furnace termination point
11. Provide and install all inlet exhaust ducting from the furnace termination point i.e., mechanical pump exhaust.
12. Provide security for all of the furnace and erection equipment against theft and malicious damage.