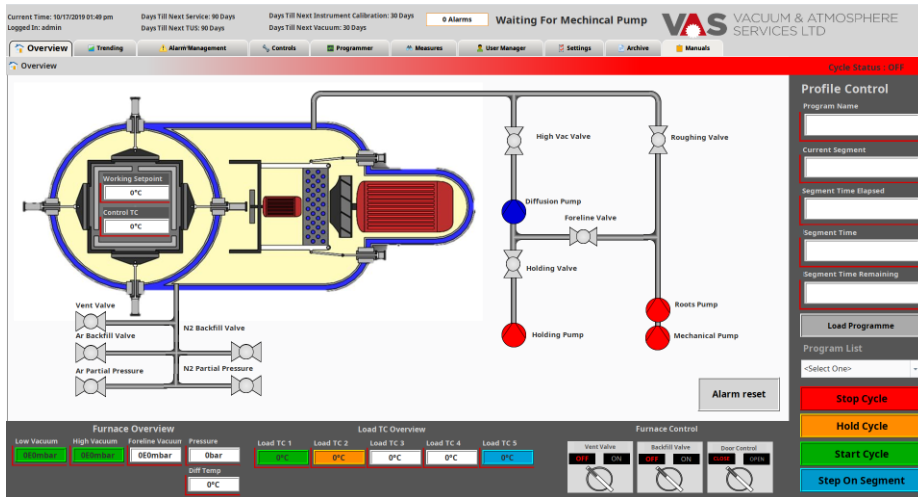


HORIZONTAL LOADING VACUUM FURNACE

MODEL No. DYNATECH DFHH1500



Agents for:



Unit 30 Park Rose Ind Est, Middlemore Road, West Bromwich, B66 2DZ
 Tel: 0121 544 4385 Fax: 0121 544 3874
 www.vacat.co.uk

VAS Group of companies:



TECHNICAL DATA

DIMENSIONS

Floor space required

Width 10.0 m
Height 4.0 m
Depth 10.0 m

Plant gross weight 22 tonne

Work zone

Width 1500 mm
Height 1500 mm
Depth 1500 mm

Max gross charge 3200 kg

TEMPERATURE

Max. Temperature 1280 °C

Vacuum 600°C to 1200°C ±6 °C

ENERGY

Rating of heating TBC

Connected load TBC

Rated voltage (3 phase – 50Hz) 400 V

VACUUM

Ultimate vacuum (conditioned furnace) 1.0×10^{-5} mbar

Operating vacuum 5.0×10^{-5} mbar

Partial Pressure Nitrogen/Argon 0.1 to 10 mbar

Leak rate mbar/sec 5×10^{-2} mbar l / sec

PUMPING GROUP

MECHANICAL PUMP – (x2)
Model No. – Leybold SP630
Capacity

442 m³/h

BOOSTER PUMP –
Model No. – Edwards EH4200 – (x4)
Capacity

2200 m³/h

COOLING FAN

Rated power

TBC

INERT GAS

Argon quenching gas max pressure

1 bar

Gas consumption at max pressure

TBC

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	Allen Bradley
Temperature/Vacuum Recorder	VCS+
Over temperature safety controller	Eurotherm
Pirani Vacuum Controller	Edwards
Thermocouples (Control O/Temp)	Type 'S'
Thermocouples (Survey) – Customer supply	Type 'N'

WATER (To be confirmed)

Min/Max pressure cooling water	3.5 bar
Water consumption during cooling	40 m3/h
Average consumption cooling water	15 m3/h
Water inlet max. Temp.	25 °C

GRAPHITE HOT ZONE (refurbished)

Insulation	Graphite
Heating Elements	Graphite

The work cycle of the Model No. DFHH is completely automatic.

Gas fan cooling is included @ 1 bar abs

Gas Quenching is included:-

- Cooling from above and below

The gas pressure flowing through the gas quench system is operated at up to **1.0 bar abs**

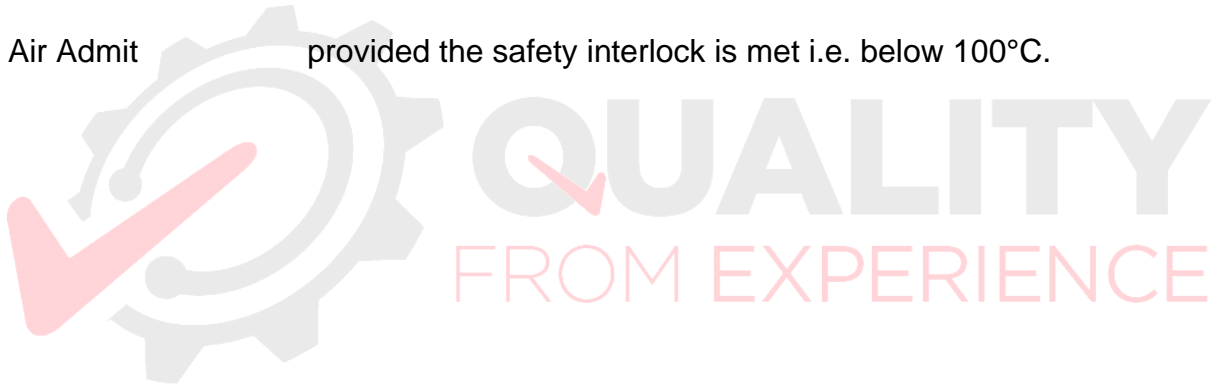
The following items are switched from the control panel.

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.



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PROPOSAL

PRICE SCHEDULE

Item 1

One (1) Vacuum Heat Treatment & Brazing Furnace Model No. Dynatech DFHH 1500 as generally as described within the attached technical summary.

The following upgrade works are included

- New control panel and VCS+ system
- Refurbished hot zone
- Vacuum pump overhaul
- Furnace clean, prepared and painted.
- Heat exchanger removed and pressure tested
- Internal metalwork cleaned, prepared and painted (high temp paint)
- All new water and air hoses
- All new butterfly valves
- Delivery and installation
- Commissioning

Price: POA

(This offer is made Subject to Prior Sale)

DELIVERY:

18-20 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 agreed

TAXES:

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

OPTIONS

- | | | |
|-----|-------------------|-------------------|
| i) | Loader | £22,800.00 |
| ii) | Inert buffer tank | £15,750.00 |



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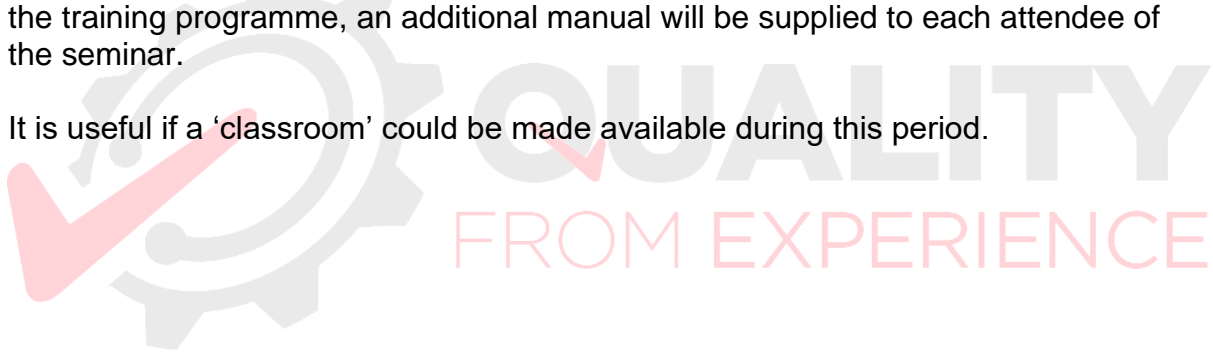
TRAINING

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. Vacuum furnace maintenance.
5. "Hands on" Maintenance training.

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.

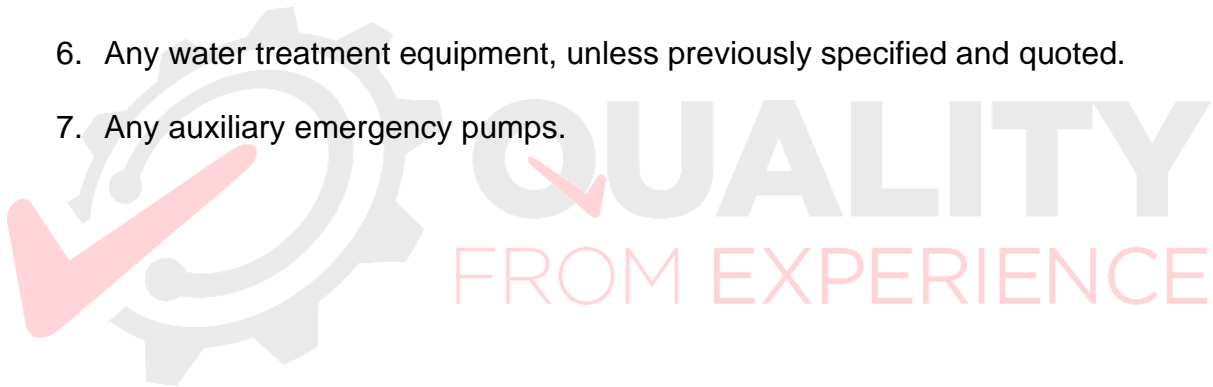


EXCLUSIONS

EQUIPMENT AND CIVIL

The following items are specifically not included in the VAS proposal for the furnace, unless otherwise quoted as options in the price schedule.

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.



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

1. Off load and position all equipment at time of delivery of plant.
2. Provide completely prepared foundation in accordance with VAS drawings.
3. Provide a fork lift truck and operator available for use on site during the equipment installation.
4. Provide services for portable tools.
5. Provide every assistance in order to prevent delays during the erection program and to provide compensation for delays that are not directly attributable to VAS.
6. Provide adequate 3 Phase, 50 Hz, power supply and in accordance with furnace requirements.
7. Provide all service connections to the furnace service termination points.
8. Provide security for all of the furnace and erection equipment against theft and malicious damage.
9. Provide and install all inlet exhaust ducting from the furnace termination point i.e.. mechanical pump exhaust.

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