

# Natgraph



## Air Force High Temperature & IR Combination Dryers

Natgraph manufacture a range of Air Force High Temperature and IR Combination Dryers that has been developed from many years of experience gained in the design and production of over 150 IR High Temperature Conveyorised Systems, in daily use world-wide. These versatile dryers have the ability to dry specialist inks using either a combination of Infra Red radiation and hot air, hot air alone or even combined with UV.

These dryers have been designed, developed and manufactured for drying surface coatings applied to textiles, glass, telecommunications products, automotive and electronics etc, if there is a special ink available for the application, Natgraph will have a solution.

With 8 standard belt widths, Touch Screen PLC Control System, 4 layouts, IR lamp systems, hot air up to 200°C and modular design, this range of dryers is extremely adaptable, versatile and efficient.







## Air Force High Temperature & Infra Red Combination Dryers

The Natgraph modular range of Air Force Dryers is available in 8 belt widths from 90cm through to 215cm and is also optionally available with high temperature air (up to 200°C). A combination of either Infra Red lamps within the hot air and Ultra Violet lamps within the cold air module, as well as refrigerated air systems, make these dryers extremely adaptable. These versions of Natgraph's world famous Air Force Dryers have all the same features and build quality as a standard unit, but with the added versatility of High Temperature Forced Air, Infra Red and / or UV curing in the same dryer.

The construction of these High Temperature Dryers is completely different from a standard unit, with extra insulation layers and air gaps required to keep the external surfaces cool, even though it can be over 200°C inside the dryer. The air recirculation system uses a different principle, as the hot air needs to be retained in a specially insulated, inner ducting system that has an additional insulation layer.

### Air Force High Temp & IR Combi Features

- Touch Screen, PLC Control System
- High temperature operation up to 200°C
- High efficiency vented stainless steel reflectors
- Modular construction
- Gas filled lifting arms on the hood
- P.T.F.E fibre glass belt
- Vacuum hold-down system
- Castors & jacking feet
- Colour coded to industry standards
- Optional recirculation filters
- Variable output of IR lamps
- Optional inlet filter
- Available in 8 sizes

### Options

**Refrigerated Cooler Modules:** An optional refrigerated cooler module can be specified where extra cooling is required, or the substrate exit temperature needs to be very low. This is also very useful if the printroom is likely to develop very high ambient temperatures. These modules recirculate the air through an internal cooling coil (with air filter) that is connected to an external water chiller plant by flexible pipework. Water is cooled by the chiller plant as required to maintain a controlled temperature within the module. The chiller plant requires a separate electrical power supply, but is controlled from the dryers PLC system.

**Recirculation Filters:** An optional air recirculation filter system can be fitted to each high temperature module as an option. This unit has a replaceable, slide in filter, rated at 200°C with a filter rating of EU4 (4 microns). It is located within the top of the 'hot box' inside a stainless steel enclosure which has been designed to maintain air efficiency within the dryer whilst preventing contamination.

**Inlet Filters:** An optional inlet air filter stack can be fitted to each dedicated air inlet to ensure that the air being drawn into the dryer is free of dirt and dust. This freestanding filter stack has a replaceable, slide in unit, with a filter rating of EU4 (4 microns) and has been designed to maintain air efficiency for the dryer, whilst preventing contamination.

**Variable Output of Infra Red Lamps:** An optional system can be fitted to control the output (power level), of the Infra Red lamps on a percentage basis, this system can be very useful when the effects of the IR can be critical, or are unknown. This system is controlled by the Touch Screen PLC Control System with a digital output.



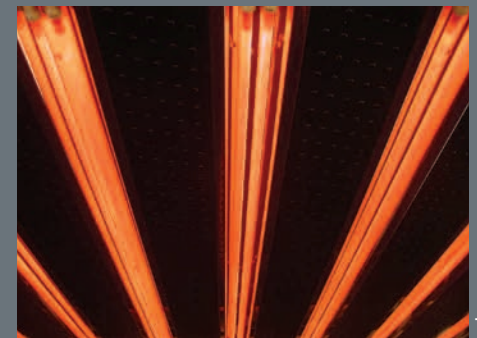
Touch Screen PLC Control



Refrigerated cooler module



Natgraph's longest dryer - 23m



Infra red lamps

# Specifications: Air Force High Temperature & IR Combination Dryers

## The following specifications are common to all Air Force Dryers

<b>Belt Height</b>	79cm - 90cm (31" - 37") Adjustable by the feet, higher options available						
<b>Belt Speed</b>	3-50m per minute (10' - 166') Slower speeds are available to order						
<b>Height</b>	114cm - 129cm (45" - 51") Adjustable by the dryer's feet						
<b>Module Length</b>	2m (78")						
<b>Voltage</b>	Three Phase 400V 50Hz.AC						

### These figures apply to individual model sizes.

Model No.	90	110	130	155	170	185	215
<b>Belt / Drying / Curing Width</b>	90cm (36")	110cm (43")	130cm (51")	155cm (61")	170cm (67")	185cm (73")	215cm (84")
<b>Module Width</b>	165cm (65")	185cm (73")	205cm (81")	230cm (91")	245cm (96")	260cm (102")	290cm (114")

(Weights can be confirmed by Natgraph depending upon the size / type and number of modules used.)

## Electrical

Module Type	2m, high pressure, hot (130°C maximum), air modules						
Model No.	90	110	130	155	170	185	215
<b>Heating Elements</b>	18kW	18kW	18kW	24kW	24kW	24kW	24kW
<b>Current (Max. Amps)</b>	26	26	26	34	34	34	34
<b>Infra Red Lamps (12)</b>	tbc	tbc	tbc	tbc	tbc	tbc	tbc
<b>Current (Max. Amps)</b>	tbc	tbc	tbc	tbc	tbc	tbc	tbc
<b>Motor(s)</b>	2.2kW	3kW	3kW	4kW	4kW	6kW	8kW
<b>Current (Max. Amps)</b>	5	7	7	10	10	14	17

## Air

Figures are in 1,000m<sup>3</sup>/hour, per 2m module

Model No.	90	110	130	155	170	185	215
<b>Module Type</b>	2m, high pressure, hot (130°C maximum), air modules						
<b>Recirculated Air</b>	6.8	8.2	9.5	11.5	12.6	13.1	15.8
<b>Exhaust Air (adjustable)</b>	1.9	2.1	2.3	2.6	2.5	2.6	2.9

Module Type	2m, high pressure, cold (ambient), air modules						
<b>Intake Air</b>	4.3	5.6	6.7	7.7	8.4	8.9	10.3

Module Type	2m, high pressure, cold (refrigerated), air modules						
<b>Recirculated Air</b>	tbc	tbc	tbc	tbc	tbc	tbc	tbc
<b>Motor(s)</b>	tbc	tbc	tbc	tbc	tbc	tbc	tbc
<b>Current (Max. Amps)</b>	tbc	tbc	tbc	tbc	tbc	tbc	tbc
<b>External Chiller Unit</b>	tbc	tbc	tbc	tbc	tbc	tbc	tbc
<b>Current</b>	tbc	tbc	tbc	tbc	tbc	tbc	tbc

Module Type	2m, 2 lamp UV/cold (ambient), air modules						
<b>Intake Air</b>	2.8	3.2	3.8	4	4.3	4.8	5.6
<b>Exhaust Air</b>	2.9	3.4	4	4.2	4.6	5	5.8

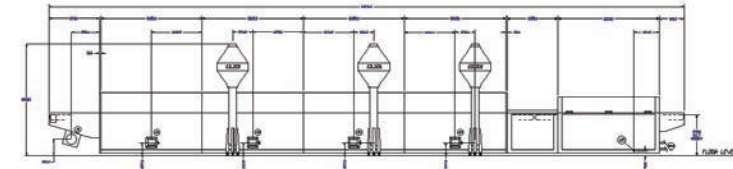
NOTE: When calculating power supply sizes for Air Force Dryers, add all the motor and heating element currents of the modules involved together to give the final figure. For Air Force/UV Combinations, add all the motor currents of the modules involved to the lamp current, but do not include the heating elements. This is because a safety interlock ensures that the air heating elements and UV lamps cannot be used at the same time. The UV lamp currents are calculated with 2 lamps at full power.

Example: Model 110 Air Force Dryer, 2m warm, 2m cold = 26 + 7 + 7 = 40 Amps.,

Model 110 Air Force UV/Combination Dryer, 2m warm, 2m 2 lamp UV cold = 7 + 60 + 7 = 74 Amps.

Typical power consumption of a Model 110 Air Force Dryer, 2m warm, 2m cold, running at 50°C with an ambient temperature of 20°C is 10kW per hour (including all motors), at average U.K. power costings, this represents a running cost of below 70p per hour.

The manufacturer's policy is one of continuous improvement and the manufacturer therefore reserves the right to change or modify the design without prior notice. The technical specifications given are therefore for information only.



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