

## About

After years of demonstrated success, plastic manufacturers have come to depend on Techne fluidized baths for safe, efficient and cost effective cleaning of tooling, components, systems and parts (dies, breaker plates, nozzles, tools, tips, spinnerets, extruder screws, manifolds, etc.) Fluidized baths will remove almost all polymers, including plastic, paint, epoxy, rubber and adhesives, as well as other hydrocarbon-based products such as oils, fluids, grease, lubricants and coatings. Parts immersed into a fluidized bath are cleaned by the high temperature (up to 600°C/1112°F) environment within a bath media of fluidized aluminum oxide that instantly starts to degrade plastic to carbon, which then leaves the bath as CO<sub>2</sub>. This instant heating and minimized quenching results in shorter cleaning times than those of ovens, and when paired with the even and consistent heat of the bath, results in greatly reduced metal fatigue and tool damage.

## How They Work

A fluidized bath consists of a loosely packed mass of solid particles through which an upward flow of air is passed. In the fluidized state, the aluminum oxide particles become mobile and the bath as a whole, displays many of the properties of a liquid. However, since the bath is composed of tiny, inert aluminum oxide particles, freezing, boiling and evaporation are totally eliminated. Heaters on the outside wall of the bath inner container radiate heat into the aluminum oxide; Fluidization acts as the stirring mechanism to evenly distribute heat throughout the bath, resulting in excellent thermal stability and uniformity. These advantages make fluidized baths a cost effective and environmentally friendly safe alternative to oil, salt, ultrasonic and molten metal baths, ovens and furnaces.

## Details & Facts

The following pages give complete specifications on the seven models we offer in the Industrial Fluidized (IFB) bath product range. The basic differences are dimensions, capacity, heater power, air supply and power required. For burnoff applications, a gas fired AB-100 Afterburner is offered for incineration, to further reduce exhaust particulate and VOC's. To assist in cleaning the exhaust when PVC's and other halogenated polymers are burned off, the SR-100 Scrubber can be employed.

The baths can be fluidized with either compressed house air or an inert gas such as nitrogen or argon. It should be noted that fluidized baths and the action created in the aluminum oxide is not abrasive to items immersed for normal cleaning or heat treatment times. Typical cleaning times range from 30 minutes to 2 hours depending on bath temperature and amount of material to be cleaned. The specific heat of aluminum oxide is 0.21. Typical heat transfer rates for fluidized baths range between 60 to 120 Btu/hr/sq ft/deg F.

## Other Applications

The excellent thermal performance of Techne Industrial Fluidized Baths make them a good choice for basic heat treatment, test and calibration as well as reactive analysis. Some of these applications include tempering, shape setting, annealing, Nitriding, distillation, curing, exothermic and endothermic reactions, and thermal analysis of devices, components and materials.

## IFB-51 & IFB-52

Models IFB51 and IFB52 Industrial Fluidized Baths are our most popular units due to their economical price and smaller size. They offer a front panel mounted Rotameter for adjustment of the fluidizing air flow and are ready for use out of the box with the included charge of aluminum oxide.

## IFB-101 & IFB-111

Models IFB101 and IFB111 step up in diameter and depth from the IFB51 and 52. These baths also have a 3 phase voltage supply requirement to handle the large power capacity of the heaters. All larger baths on the following pages also run on 3 phase power.

## IFB-201

Model IFB201 offers a rectangular opening for oblong or non-typical parts cleaning and heat treatment.



IFB-51



IFB-101



IFB-201



## Technical Specifications

	IFB-51	IFB-52	IFB-101	IFB-111	IFB-201
Temperature range	50 to 600°C (122 to 1112°F) - all models				
Overall size (H x W x D), in.	27 x 24 x 21	41 x 24 x 21	36 x 31.3 x 24.6	36 x 31.3 x 24.6	36.6 x 45.5 x 26
Working volume (diam. x depth*)	9.5 x 13	9.5 x 26	12 x 13	12 x 39	19.7 x 15.5 x 8.7
Working size with basket (diam. x depth*)	8.4 x 13	8.4 x 26	11 x 13	11 x 39	-
Maximum work load (lbs)	25	50	35	80	40
Heat up time (20°C to 600°C, 230V) min	195	240	210	270	350
Cool down time (600°C to 200°C) min.	210	270	-	-	-
Display accuracy **	±10°C	±10°C	±20°C	±20°C	±20°C
Typical stability **	±1.0°C	±1.0°C	±5.0°C	±5.0°C	±5.0°C
Air requirements, PSI fixed at	30	30	25 - 150	25 - 150	25 - 150
Aluminum oxide required (lb.)	85	160	110	264	132
Aluminum oxide supplied (lb.)	100	200	134	300	154
Voltage supply required (50/60hz)	220 to 240V single phase (IFB51 & 52)		240v 1 Ph 380v 3 Ph 415v 3Ph	380v 3 Ph, 415v 3 Ph	220V 3 Ph, 380V 3Ph 415v 3Ph, 480V 3Ph
Power requirements	4kW	6kW	6kW	9kW	9kW
Unit weight (aluminum oxide excluded)	126	200	165	573	600
Shipping weight (skid & aluminum oxide)	226	400	350	925	800
Catalog number	3032700	3032900	3031000	3032000	3030400

\*2.5" below top of bath to 1" above porous plate

\*\*2 hours after setpoint is reached, 8" immersion depth IFB51 & 15" immersion depth IFB52

## IFB-121 & IFB-131

Models IFB121 and IFB131 are our largest capacity fluidized baths. Typical applications include cleaning large dies and breaker plates as well as long extruder screws and manifolds. A customer sourced hoist or lift would be used to retrieve the basket with parts from the unit.

### Technical Specifications

	IFB-121	IFB-131
Temperature range	50 to 600°C (122 to 1112°F) - both models	
Overall size (H x W x D), in.	52.6 x 44.3 x 33.5	72.2 x 44.3 x 33.5
Working volume (diam. x depth*)	17.7 x 27.6	17.7 x 47.2
Working size with basket (diam. x depth*)	16.7 x 27	16.7 x 47
Maximum work load (lbs)	130	200
Heat up time (20°C to 450°C) min	195	165
(20°C to 600°C) min	330	195
Display accuracy **	±20°C	±20°C
Typical stability **	±5.0°C	±5.0°C
Air requirements, PSI	25 to 150	25 to 150
Aluminum oxide required (lb.)	440	660
Aluminum oxide supplied (lb.)	500	700
Voltage supply required (50/60hz)	380V 3Ph, 415V 3Ph - both models	
Power requirements	12kW	18kW
Unit weight (aluminum oxide excluded)	498	728
Shipping weight (skid & aluminum oxide)	1050	1500
Catalog number	3032200	3032300



IFB-131

### Accessories

Model(s)	Description	Catalog #
IFB51	Parts basket for use without collar	7031103
IFB51	Parts basket for use with collar	7031102
IFB52	Parts basket for use without collar	7031658
IFB52	Parts basket for use with collar	7031659
IFB51 & 52	Retort lid	6036156
IFB51 & 52	Extraction Collar	6036157
IFB101	Retort lid*	6035967
IFB101	Parts basket	6036224
IFB111	Retort lid	6037998
IFB101, 111 & 201	Filter/Regulator	6035915
IFB51, 52, 101, 111 & 201	Extraction fan	7030772
IFB51, 52, 101, 111 & 201	Cyclone	7031154
IFB201	Parts basket (included with unit)	7032378

\*included with bath for IFB-201

Model(s)	Description	Catalog #
IFB121	Parts basket	6036426
IFB131	Parts basket	6036427
IFB121 & 131	Retort lid	6036425
IFB121 & 131	Extraction fan	6035148
IFB121 & 131	Filter/regulator	6035915
IFB121 & 131	Cyclone	CN-500

## AB100 Afterburner

Model AB100 is designed to reduce smoke emission from the exhaust gas flue of most all Techne fluidized bath cleaning systems. The Afterburner consists of a burner plate mounted within a thermally insulated combustion chamber. The input to the combustion chamber is designed to mate directly to a standard Techne extraction fan, while the output is suitable for connection to an exhaust stack.

The AB100 will not remove hydrogen chloride from exhaust gases. The SR100 fume scrubber should be placed before the afterburner whenever considerable quantities of HCL will be generated.

### Technical Specifications

	AB100
Overall size (H x W x D) in.	98.4 x 47.2 x 39.4"
Burner rating	3kW to 60kW; 10,000 BTU/hr to 200,000 BTU/hr
Fuel consumption range	
Natural gas	10 to 200 ft <sup>3</sup> /hr
Butane	3 to 60 ft <sup>3</sup> /hr
Propane	4.5 to 90 ft <sup>3</sup> /hr
Gas supply pressure	
Natural gas	6 to 10 inch WG
Butane	10 to 14 inch WG
Propane	10 to 14 inch WG
Voltage supply required	220/240V 1Ph 50/60Hz
Exhaust gas temperature	Typically 450°C/842°F
Outlet spigot	8.0"
Shipping weight (lbs)	125
Catalog number	FSAB1



AB100

## SR100 Scrubber

The Techne Venturi Fume Scrubber removes water soluble constituents in the effluent gasses from the Techne Industrial Fluidized Baths which would not be removed in the optional Afterburner. The unit is designed to reduce concentrations of Hydrogen Halides (Chloride and Fluoride) produced by the decomposition of Halogenated polymers such as PVC and PTFE.

The SR100 removes 95% of HCL in the exhaust gas so that as long as the scrubber is not overloaded by burning off too large a quantity of PVC the emerging gasses will contain a quantity of HCL low enough to be safely vented to the atmosphere.

It is recommended that a Techne Cyclone be fitted before the scrubber to avoid unnecessary loss of medium and loading of the scrubber with particulates.

### Technical Specifications

	SR100
Overall size (H x W x D) in.	73 x 17.7 x 17.7"
Scrubbing capacity	HCL from 8kg/hr of PVC
Make up water requirements	10 gallons/hr
Discharge limits HCL	0.2 grains/ft <sup>3</sup>
Air flow	2.8 to 7.0 m <sup>3</sup> /min
Exhaust gas temperature	Typically 450°C/842°F
Inlet spigot	4.0"
Outlet spigot	4.0"
Water inlet	1/2" BSP
Voltage supply required	220/240V 1Ph 50/60Hz
Shipping weight (lbs)	60
Catalog number	FSSR1



SR100