



**Techne Incorporated**  
3 Terri Lane, Suite 10  
Burlington, NJ 08016 USA  
Tel 609-589-2560 800-225-9243  
Fax 609-589-2571  
[www.techneusa.com](http://www.techneusa.com)

## Techne Fluidized Burn-off baths

Safe, efficient and environmentally friendly cleaning systems for tooling and parts used in the extrusion and injection molding of plastics.



# industrial fluidized baths

## 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. In addition Techne offers air filtration systems for removing fumes, smoke and particulate from the exhaust stream.

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)	266	440	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

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

\*included with bath for IFB-201



# industrial fluidized baths

## 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



**Techne Incorporated**  
3 Terri Lane, Suite 10  
Burlington, NJ 08016 USA  
Tel 609-589-2560 800-225-9243  
Fax 609-589-2571  
[www.techneusa.com](http://www.techneusa.com)

## Supplemental insert – IFB51 & IFB52 Operation and maintenance FAQ's

- 1) *How high should we fill the aluminum oxide?* When fluidized the aluminum oxide should be 2 to 3 inches below the top of the bath.
- 2) *Should we put a lid on the bath to keep heat and aluminum oxide in?* We highly recommend a lid to keep aluminum oxide inside the bath and for faster heating and efficient energy use.
- 3) *How often should the aluminum oxide be changed or replaced?* It really depends on usage, but over time particulate from burning off plastic will build up and new aluminum oxide should be added or the old replaced. The aluminum oxide can also be sieved to remove clumps and larger particulate.
- 4) *How long does it take for the bath to heat up?* This can be influenced greatly by your voltage supply under load; it should be between 220 and 240 volts. The IFB51 will typically reach 1000 to 1100°F in about 2 ½ hours while the IFB52 takes 4 hours. Remember that you need to keep adjusting the Fluidizing air down every ½ hour or so for the quickest heat up. We suggest giving the baths another hour to two to fully stabilize after the controller display reaches your target temperature
- 5) *At what temperature can the air supply to the bath be shut off?* The factory recommends 150°C (300°F) as a safe temperature to shutdown air and power.
- 6) *How many parts can be put into the bath at one time for cleaning?* In general, the total mass and volume of the load should not exceed 1/3 of the weight of the aluminum oxide media which is 26 pounds in the IFB51 and 50 in the IFB52. In other words, the bath load must not be so large that it will prohibit the fluidizing media from moving freely throughout the working area. An excessive load will prevent proper fluidization and heat distribution, resulting in a lengthy and/or ineffective cleaning process.
- 7) *How can I check to see if the bath is Fluidizing properly?* A quick visual check is to remove almost all aluminum oxide from the bath leaving about 2 inches in the bottom. A large area (1/3 or 1/4 of the surface) that is not Fluidizing could mean that the porous plate is blocked and needs to be replaced.
- 8) *How long do the baths take to cool down?* In general they will cool down to the shutdown temperature of 150°C or 300°F in 4 to 6 hours from 550°C/1030°F. For the quickest cool down rate remember to adjust the Fluidizing air up about every hour.
- 9) Contact us with any of your questions at 800-225-9243 ext 373



**Techne Incorporated**  
3 Terri Lane, Suite 10  
Burlington, NJ 08016 USA  
Tel 609-589-2560 800-225-9243  
Fax 609-589-2571  
[www.techneusa.com](http://www.techneusa.com)

## **Techne Industrial Fluidized Bath power usage**

The figures below include time to heat up and 1 hour for the bath to stabilize and actually clean a part. Power usage will be 1/2 during stabilization and cleaning time.

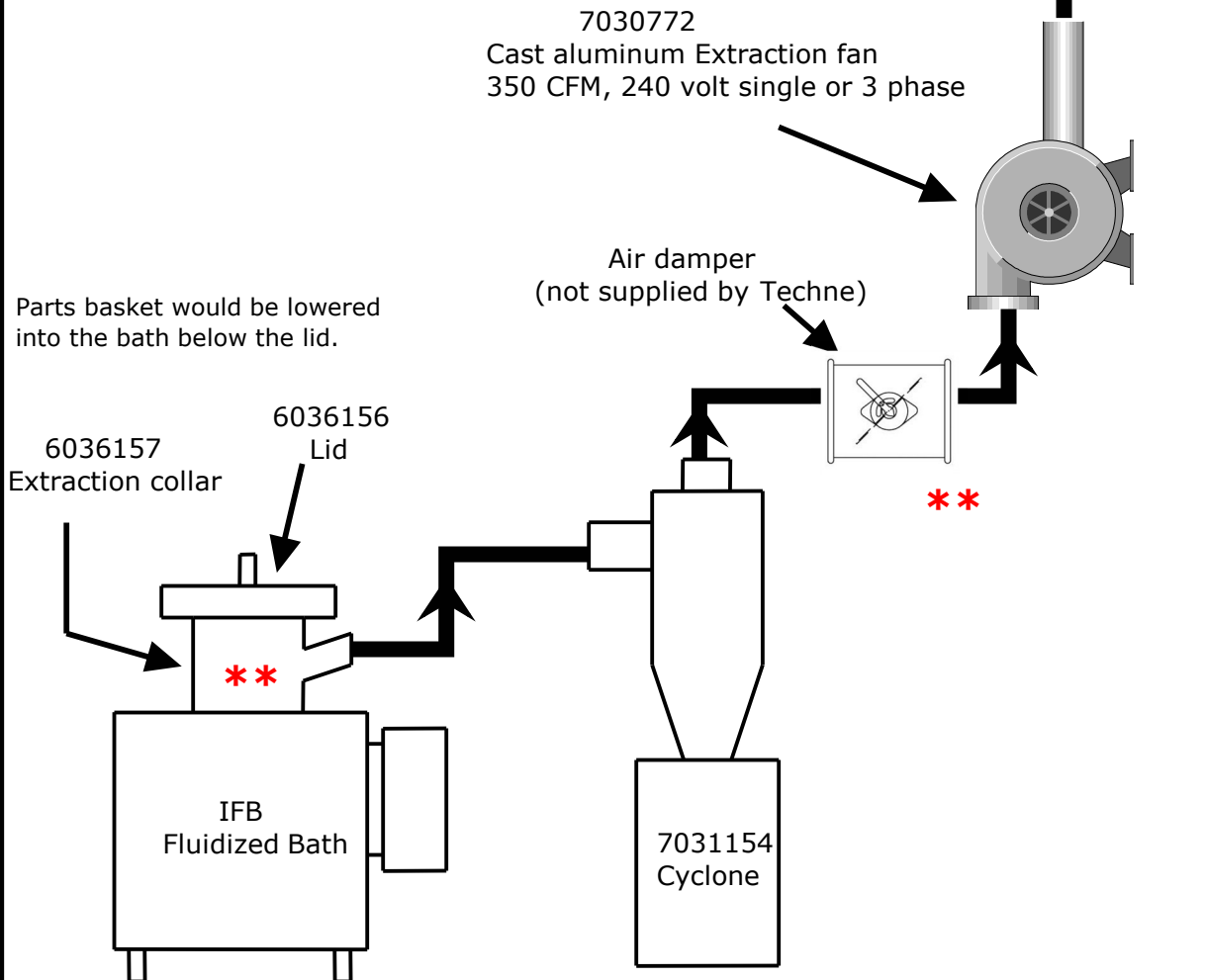
Voltage under load measures between 220 and 240VAC or as per the electrical specifications for each model.

Multiply the kilowatt hours by your local utility rate to obtain an estimate of electric usage cost for a single run.

Model	Heater Power	Heat up time to 1000°F hours	Typical single run power usage KWH
IFB51	4KW	2.5	13
IFB52	6KW	3.5	24
IFB101	6KW	3	22
IFB111	9KW	3.5	37
IFB201	9KW	4.5	46
IFB121	12KW	3.75	52
IFB131	18KW	3	64

## Techne Industrial Fluidized bath basic system layout

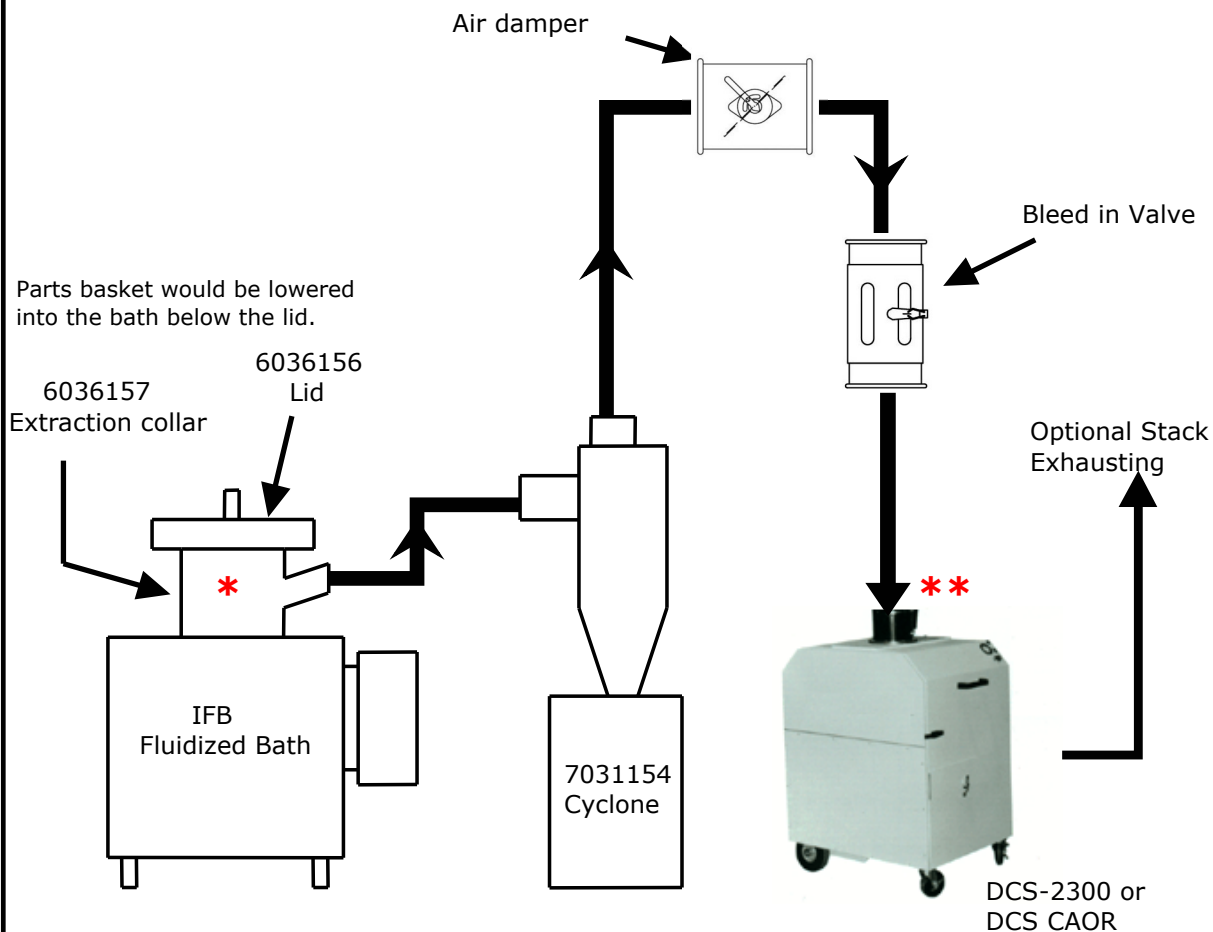
Interconnecting 4" OD pipe work and air damper can be purchased from Duct Incorporated ([www.ductincorporated.com](http://www.ductincorporated.com) )



**\*\*** With parts in the bath and lid on, the damper would be adjusted so fumes and smoke are pulled away from the bath and into the exhaust system. If the damper is open too much it would create a negative pressure in the bath working area resulting in significant heat and sand loss. The purpose of the Cyclone is to recover any sand pulled out and heavier deposits which can be sieved and reused.

## Techne Industrial Fluidized bath layout with DCS2300 or DCS CAOR air filtration unit

Interconnecting 4" OD pipe work, air damper and bleed in valve can be purchased from Duct Incorporated ([www.ductincorporated.com](http://www.ductincorporated.com) )



**\*** With parts in the bath and lid on, the damper would be adjusted so fumes and smoke are pulled away from the bath and into the air filtration system. If the damper is open too much it creates a negative pressure in the bath working area resulting in significant heat and sand loss. The purpose of the Cyclone is to recover any sand pulled out and heavier deposits which can be sieved and reused.

**\*\*** It is critical that the system plumbing and layout be designed so that the air inlet temperature to the DCS 2300 or DCS CAOR is below 200 degrees F. The bleed in valve can be adjusted to introduce ambient air thereby reducing exhaust gas temperature to below 200F.

**MODEL DCS CAOR**  
**Media Air Cleaner**



*The Clean Air and Odor Reducer is a self-contained media air cleaning system designed for general background or ducted for source capture applications. The CAOR can be ordered with three-stage filtration which will effectively remove a broad range of airborne contaminants including fine dusts, smoke, soot, vapors, mist and VOC's from Fluidized bath parts cleaning applications.*

*The CAOR is recommended for light to medium duty applications of bi-weekly tools and parts cleaning. The air inlet temperature to the dust collector must be reduced to below 175°F by the use of bleed in air ducting (supplied by Duct Inc). Units are sized at 1000cfm for a 50% bleed in cooling air.*

## CAOR FEATURES & SPECIFICATIONS

DIMENSIONS: 27<sup>1</sup>/<sub>2</sub>"H x 14<sup>1</sup>/<sub>2</sub>"W x 56"L

WEIGHT: 200 lbs. installed

240 lbs. shipping weight

CABINET: 16 gauge welded steel cabinet with a baked enamel, textured coated finish.

POWER INPUT: 110 - 120 Vac, 60 hz, 1 phase, 12 amps

208-240 Vac, 60 hz, 1 phase, 6 amps

PRIMARY FILTER: Dimensions on the bag filters are 12" x 24" x 26"

AIRFLOW/EFFICIENCY:

Stock #	Filter*	CFM = Cubic Feet Per Minute	
		1 HP	WG
41128	95-98% Bag	1125 CFM	1.3
41129	85-90% Bag	1250 CFM	1.1
41130	65-70% Bag	1270 CFM	1.0
41131	45-50% Bag	1315 CFM	1.0

\*Efficiency based on ASHRAE Dust Spot 52-76.

INLET AIR TEMPERATURE: 175°F maximum.

MOUNTING: Standing or hanging cabinet with horizontal airflow. Ceiling mount brackets – standard.

PREFILTER: 30-35% efficiency, pleated 12" x 24" x 4". Filter media is a cotton and synthetic blend. Total prefiltermedia area is 15 sq. ft.

MOTOR: 1 HP sealed ball bearings and thermally protected. Adjustable motor sheave allows for field adjustments to the rated air flow.

BLOWER: Forward curved, ball bearing, belt driven centrifugal blower. This blower is capable of moving 2250 cfm free air.

INSTRUMENTATION: **Dirty Filter Gage** – Factory installed pressure gage designed to determine filter replacement cycle.

**Indicator Light** – Light indicates that blower motor is energized properly.

FILTER ACCESS: Side load track system with hinged access door.

SOUND LEVELS: 72 dBa at 9', 70 dBa at 12'.

### STANDARD FEATURES:

- 36 month parts warranty.
- One HP maintenance-free motor.
- Dirty filter gage.
- 35% efficient 4" pleated prefilter.
- 10' power cord with molded plug.

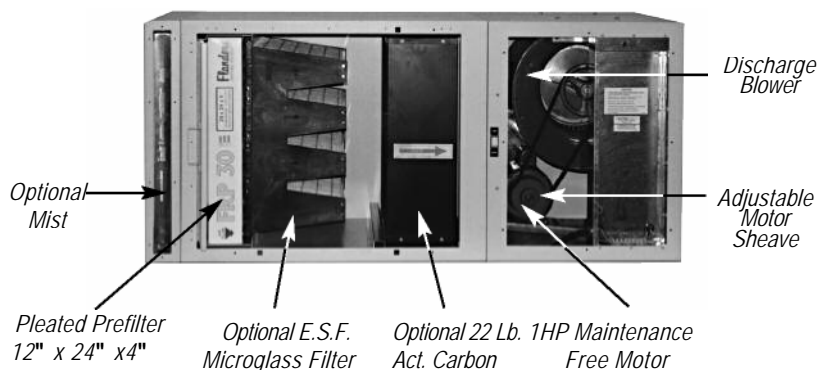
### OPTIONAL EQUIPMENT:

- Impinger assembly for mist applications.
- Plenum, ducting and hood accessories.
- 2 HP motor upgrade.
- Extended service filter upgrade.
- 65% ASHRAE prefilter.
- Minihelic® upgrade
- Bulk refillable carbon module

COAR SHOWN WITH OPTIONAL PLENUM



COAR SHOWN WITH OPTIONAL 22 LB. CARBON MODULE & E.S.F. FILTER



Dust Control Solutions  
P.O.Box 71, Bloomsbury NJ 08804  
Tel: (908) 479-1088

## **MODEL DCS 2300 HD**

### Portable Cartridge System



*The DCS 2300 Portable Cartridge System from Dust Control Solutions Inc. is a complete self-contained media air cleaner for use in source capture applications in industry. The Model DCS 2300 captures airborne contaminants such as welding smoke, grinding dust, plastic dust and VOC's from Fluidized bath parts cleaning applications. The DCS 2300 is recommended for those operations performing daily tool and parts cleaning.. The air inlet temperature to the dust collector must be reduced to below 175°F by the use of bleed in air ducting (supplied by Duct Inc). Units are sized at 1000cfm for a 50% bleed in cooling air.*

**Dust Control Solutions**  
**P.O.Box 71, Bloomsbury NJ 08804**  
**Tel/Fax: (908) 479-1088**

---

## DCS 2300 FEATURES & SPECIFICATIONS

### *Principles of Operation:*

Airborne contaminants enter the DCS2300 through the inlet plenum assembly at a rate of 1100 cubic feet of air per minute (cfm). Heavy particles are propelled downward through the venturi and into the clean out trays. Small submicron particles are then trapped within the pleats of the two 99.8% efficient cartridge filters. The cleaned air is then gently diffused out the bottom of the unit. When the filter gage indicates that the cartridge filters are dirty, they are easily cleaned by connecting a shop air hose (80-120 psi) to the unit and activating the reverse pulse system.

### SPECIFICATIONS :

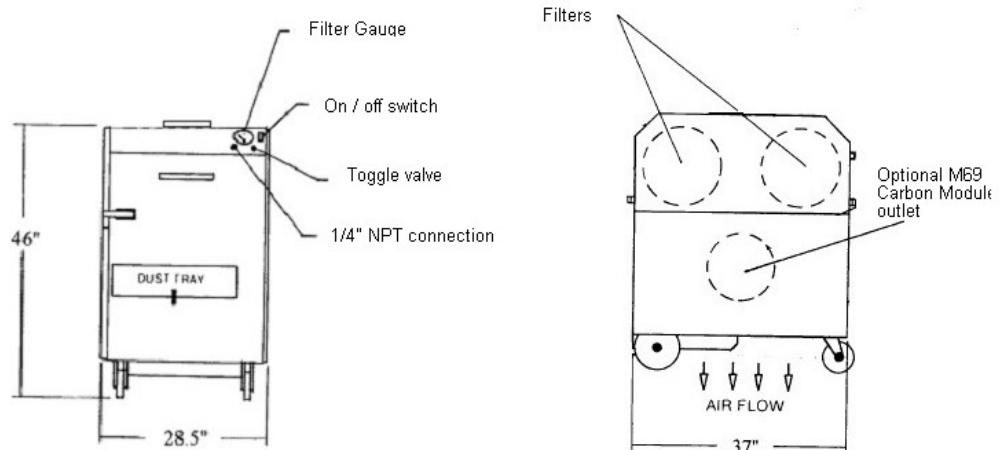
DIMENSIONS: 46"H x 28.5"W x 37"D  
WEIGHT: 400 lbs actual, 450 lbs shipping  
AIRFLOW VOLUME: 1100 cfm  
MOTOR: 1.5 HP thermally protected  
BLOWER: Direct drive, backward incline  
CABINET CONSTRUCTION: 16 Ga. welded CRS steel  
CONTROLS: All models include control circuitry and thermal protection.  
POWER: 120V/60 hz/14 amp running or 208-240V/60 hz/8 amp running.  
Ten-foot power cord with molded plug standard on single phase models, 3 phases models available at no extra charge.  
CASTERS: Two large 8" diameter semi-pneumatic (front) wheels and two heavy duty swivel casters (back)  
FINISH: Durable powder coat paint  
FILTRATION: Two high efficiency spun bonded cartridge filters: 12 3/4" diameter x 22" long, 99.8% efficient at .5 micron  
FILTER ACCESS: Hinged side door  
FILTER CLEANING: Self-Cleaning Reverse Pulse Jet System which utilizes a one inch diaphragm valve. Requires 80 -120 psi of shop supplied compressed air. 1/4" NPT female fitting is provided to accept field installed quick connect.  
FILTER GAGE: Dirty filter gage indicates pressure up to 10" H 2O  
NOISE LEVEL: 73 dBA at 6 "  
WARRANTY: Limited three year warranty

### STANDARD FEATURES:

- Air volume - 1100 cfm
- Reverse pulse cleaning system
- For heavy duty applications
- 1.5 horse power motor
- 99.8% efficient at .5 micron
- Quiet operation
- Three-year limited warranty

### OPTIONAL FEATURES: ■

- Carbon filter Odor reducer
- 2nd stage HEPA filter



Dust Control Solutions  
P.O.Box 71, Bloomsbury NJ 08804  
Tel/Fax: (908) 479-1088