



A MEMBER OF MARDUK HOLDING COMPANY LLC

AFD Industrial Dehumidifier Series

DRYOMATIC is a Leader in the Dehumidification Industry with Over 50 Years Experience and Thousands of Innovative Applications in the Field.

DRYOMATIC has the Proper Equipment to Solve Your Humidity Problems, Including the AFD Series Industrial Dehumidifier.

- Available in sizes from 750 CFM to 50,000 CFM.
- Desiccant rotor technology removes water directly from the air.
- Designed for industrial processes, including low dew point applications.
- Available with integrated pre and post cooling systems.
- Fast, simple access to all electrical and mechanical components through hinged doors or removable access panels.
- Desiccant cassette can be removed for cleaning to extend rotor life and efficiency.
- Programmable microprocessor controller for maintaining consistent dewpoint as well as controlling and monitoring all vital dehumidifier functions.
- Choice of Gas, Steam and Electric Reactivation.
- Standard Features include easy access disposable inlet filters, self adjusting/tensioning rotor drive components and easy seal adjustment.
- Optional Features can include Gas Phase Filters to remove noxious gases and fumes.



TYPICAL APPLICATIONS:

- ◆ Industrial Process Dehumidification
 - ◆ Pharmaceutical Manufacturing
 - ◆ Active Storage
 - ◆ Munitions Storage
- ◆ Automated Ingredient Handling Systems

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AFD DEHUMIDIFIER SERIES

The DRYOMATIC AFD Series is a complete factory engineered and fabricated desiccant dehumidification system with performance capabilities as shown on AFD data sheets.* The desiccant dehumidifier is a complete stand-alone system with all necessary controls, blowers, rotors, drive components, reactivation components and filtration providing continuous automatic operation.

* AFD Data Sheets are available upon request

STANDARD FEATURES

■ **Desiccant Rotor Cassette** is comprised of synthesized silica gel desiccant in a high temperature fiber substrate, designed for continuous operation. Rotation is continuous by a gear motor and drive, factory set to the correct rotational speed to ensure optimum performance. The rotor is supplied with seals to prevent leakage from reactivation to process air stream.



■ **Process and Reactivation Blowers** with Drive Motors: The process blower is belt driven with adjustable pulley designed for external static pressure as listed in the attached schedule. Reactivation blower is direct drive supplied with a TEFC motor. See AFD data sheets for performance.

■ **Microprocessor Controller** is used to monitor and command all functions of the dehumidifier with a display panel provided for indication as well as operator instructions. Standard configuration includes: remote system enabled; remote humidistat enabled. Alarms for following are standard: process and reactivation air loss; process and reactivation clogged filter; rotor rotation fault, and high temperature alarm with manual reset.

■ **Filtration** shall be 30%, 2 inch thick pleated type per ASHRAE 52.76 for process air and permanent cleanable type for reactivation air. Higher efficiency filters available on request.

■ **Electrical Components** and wiring will be in compliance with NFPA70, NEC code and UL 1995 2nd edition. A NEMA 4 electrical enclosure mounted on the unit provides single point power connection* for the dehumidifier with step down transformers for 120 volt and 24 volt controls. External control wiring shall be 24 volts unless otherwise noted. The control panel will contain all terminal blocks, circuit breakers, contactors and relays necessary for operation.

* Not applicable with optional remote condensing unit



OPTIONAL FEATURES

■ **PreCool or PostCool system** shall be equipped with a cooling coil with copper tubes and aluminum fins, unless otherwise specified.

■ **DX systems**, the condensing unit can be factory mounted or remotely installed with 2nd point power connection and sized for required capacity with full floating hot gas bypass for final capacity control.

■ **Chilled water systems**, capacity control is by a field supplied valve using a 0-10VDC modulating signal from the microprocessor controller.

REACTIVATION OPTIONS

■ **Electric Reactivation** uses heavy duty open type electric heaters for fast rate of heat transfer designed with the lowest possible watt density to assure long life. High grade resistance wires of 80/20 NiCr are supported by ceramic insulators held in place with stainless steel straps. Modulating heater control for accurate heat output. KW capacity designed to suit the application.

■ **Gas Reactivation** is provided by a direct-fired burner with all necessary gas controls and safety devices to ensure continuous automatic operation and interfaced with the microprocessor controller to maximize energy efficiency by being activated and deactivated upon command to modulate and provide the required heat to maintain space conditions. The gas train will be in accordance with IRI/FM requirements and is provided with a single point gas inlet connection.

■ **Steam Reactivation** uses steam coils. Control for the field supplied steam valve will be a dry set of contacts for on/off control or a 0-10VDC signal for modulating control. Signal contacts will be supplied in the unit control box.

AFD INDUSTRIAL DEHUMIDIFIER SERIES

Available in sizes 750 CFM to 50,000 CFM.

AFD SERIES - QUALITY FABRICATION SPECIFICATION

All of the major components shall be installed to provide an architecturally compatible, aesthetically pleasing package. The cabinet assembly is provided with removable panels and hinged doors for ease of access and maintenance. The system is mounted on a structurally engineered base skid, designed to support the full weight of the unit and to facilitate site rigging. Wrap around flat sheets incorporated to minimize the number of joints and leaks. The unit shall be single (double) wall construction with a minimum of 1" armaflex (2" fiberglass insulation).

The desiccant rotor, with proper filtration and maintenance, is designed for 87,600 hours of continuous use. Washing off of dust accumulated under normal circumstances shall not degrade the integrity of the desiccant rotor. The longevity is based on maintaining 90% minimum of full rated performance. Warranty certification is issued with each rotor

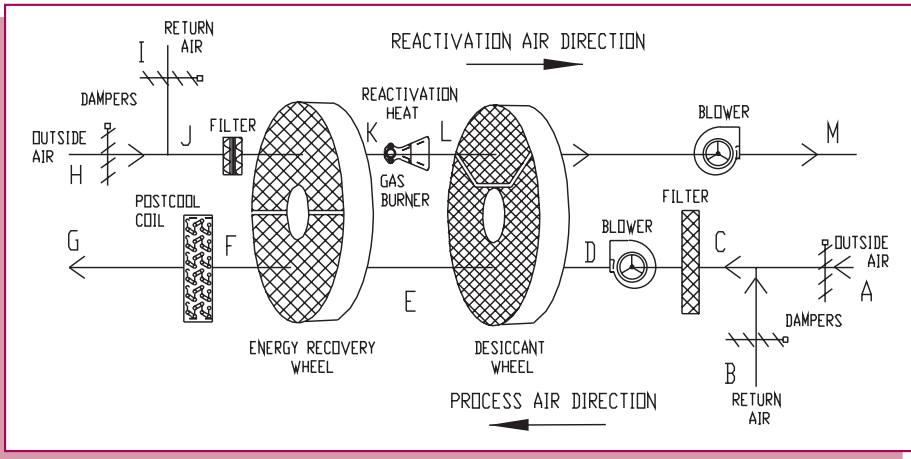
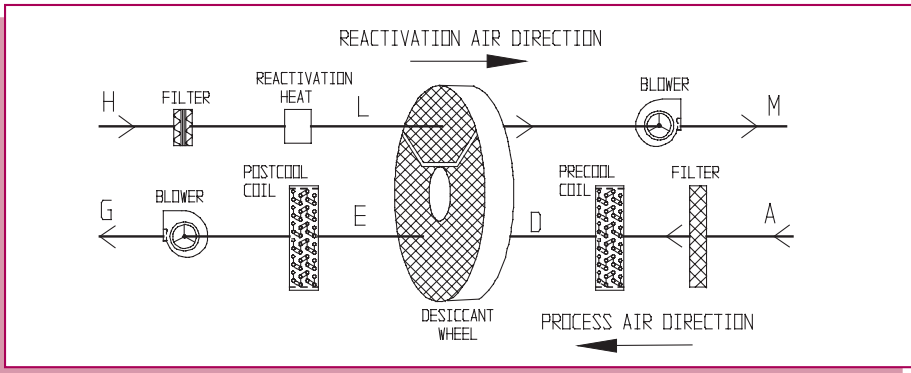
from the manufacturer applicable to the particular application. The entire desiccant rotor cassette can be removed for servicing when needed.

For gas reactivation systems, the reactivation plenum shall be of double wall construction with 2" glass fiber insulation to minimize the heat transfer to the process air stream and prevent injury to operators. The inner liner shall be constructed of 304 stainless steel. All glass fiber insulation shall be completely enclosed to prevent contamination of the process air stream. For electric heat reactivation, the heater frames shall be made of .187-.250 diameter 300 series stainless steel.

FACTORY TESTING

Each unit shall be factory tested for proper operation to meet the quality standards. The unit will be tested and approved for electrical operations, as well as mechanical operation before shipment.

AFD SERIES FLOW DIAGRAM



FLOW DIAGRAM LEGEND

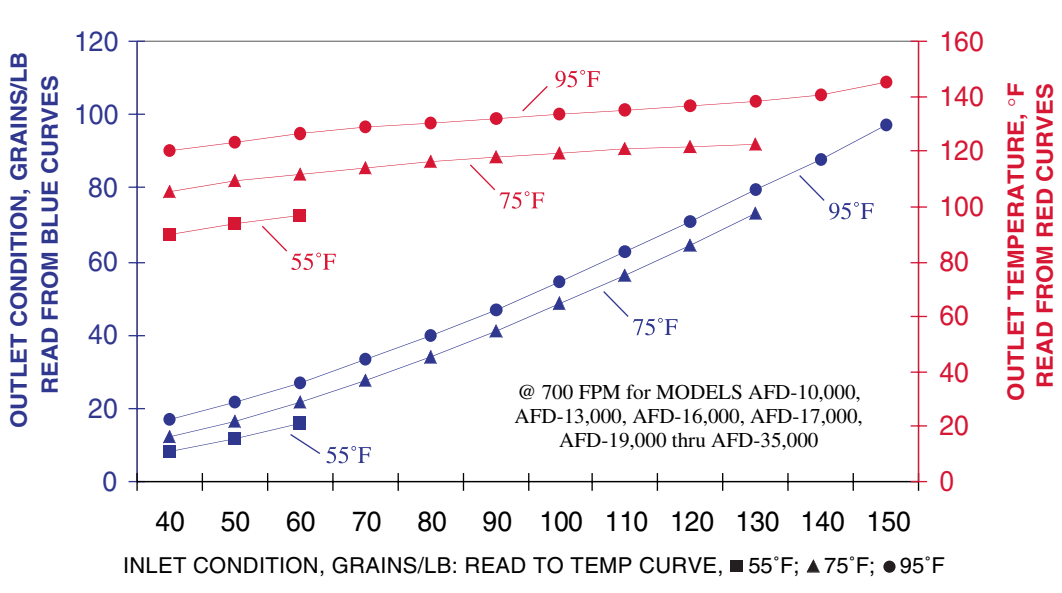
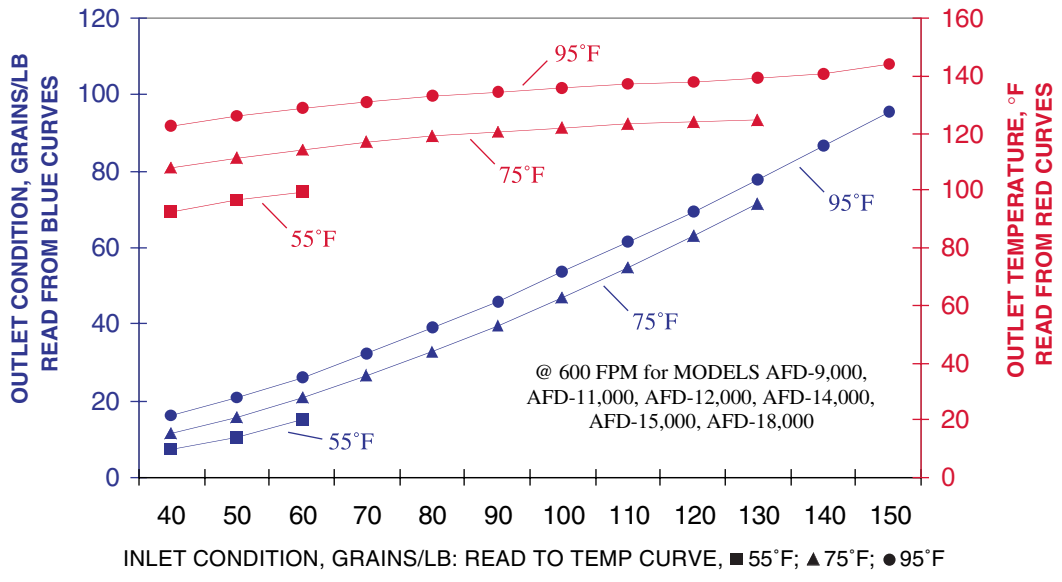
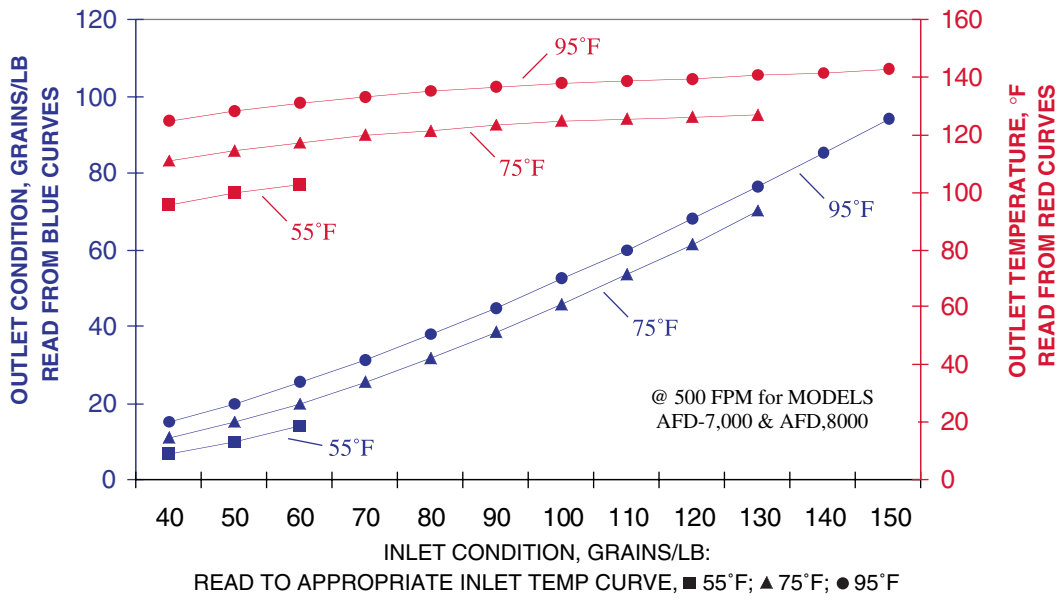
- A. PROCESS AIR INLET
- B. RETURN AIR
- C. PROCESS AIR MIXTURE
- D. DESICCANT WHEEL INLET
- E. DESICCANT WHEEL OUTLET
- F. ENERGY RECOVERY WHEEL OUTLET
- G. PROCESS AIR OUTLET
- H. REACTIVATION AIR INLET
- I. RETURN AIR
- J. REACTIVATION AIR MIXTURE
- K. ENERGY RECOVERY WHEEL OUTLET
- L. REACTIVATION HEAT TEMPERATURE
- M. REACTIVATION AIR OUTLET

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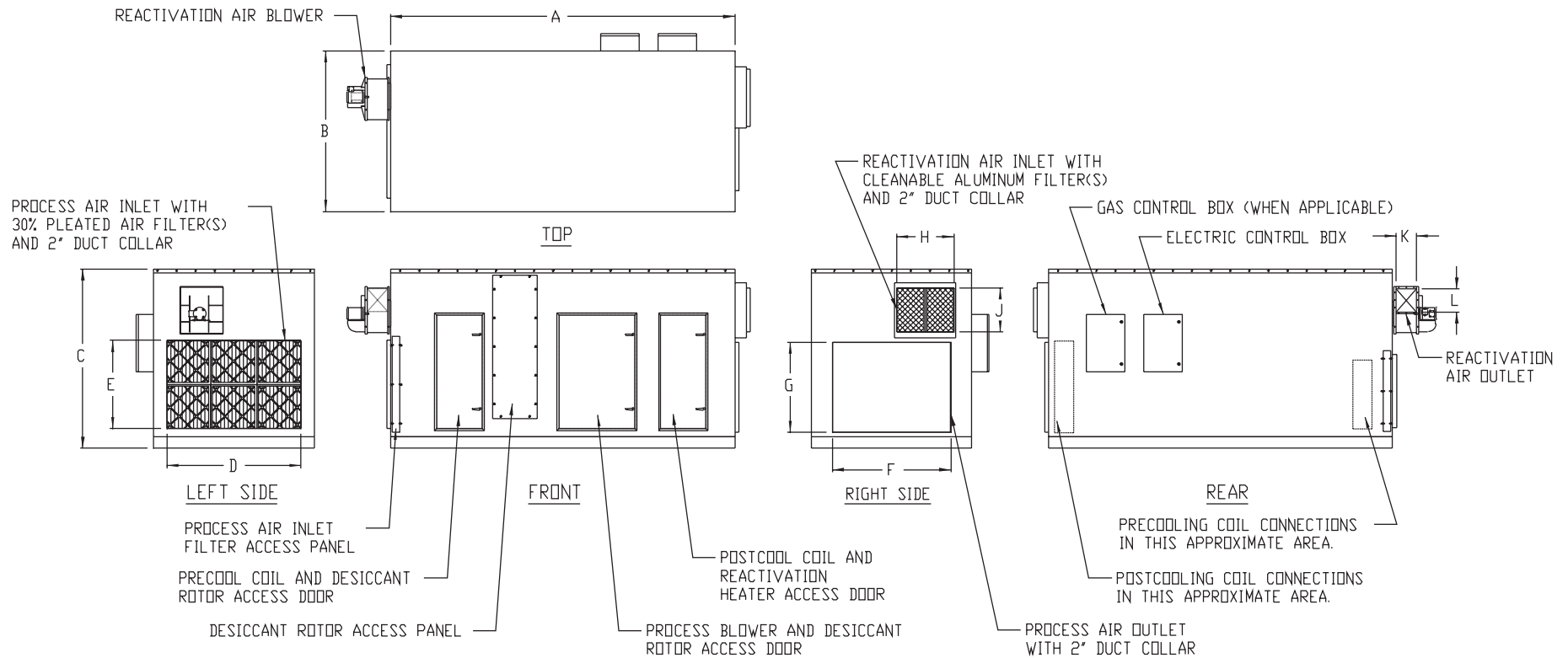
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AFD PERFORMANCE CURVES



DRYOMATIC DEHUMIDIFIER AFD SERIES TYPICAL OUTLINE DRAWING



- NOTES:
- CABINET CONSTRUCTION: SINGLE WALL PAINTED GALVANEALD STEEL IS STANDARD, DOUBLE WALL CONSTRUCTION AND ALTERNATE MATERIALS ARE OPTIONAL.
 - CABINET INSULATION: (PROCESS AIR STREAM): 1" THICK ARMAFLEX IS STANDARD WITH SINGLE WALL CONSTRUCTION
2" THICK FIBERGLASS IS STANDARD WITH OPTIONAL DOUBLE WALL CONSTRUCTION.
(REACTIVATION AIR STREAM): 2" THICK FULLY ENCASED FIBERGLASS IS USED ON INTERNAL DUCTING.
 - LIFTING LUGS: INTEGRAL LIFTING LUGS ARE PROVIDED ON UNIT BASE TO FACILITATE RIGGING.
 - COIL CONNECTIONS: (IF APPLICABLE) CONNECTION SIZES AND LOCATIONS WILL VARY, DEPENDING UPON APPLICATION.
 - DIMENSIONS ARE NOMINAL AND SUBJECT TO CHANGE. UNLESS NOTED, DIMENSIONS ARE IN INCHES.
 - OPTIONS: PRECOOLING AND POSTCOOLING COIL(S)
STEAM OR GAS-FIRED REACTIVATION (ELECTRIC IS STANDARD)
RAINFOODS ARE AVAILABLE FOR OUTDOOR UNITS.

DRYOMATIC DEHUMIDIFIER AFD SERIES DIMENSIONAL DATA

MODEL	DESICCANT ROTOR SIZE	PROCESS AIR FILTER(S)	REACTIVATION AIR FILTER(S)	A	B	C	D	E	F	G	H	J	K	L
AFD-3,000	965mm x 200mm	(2) 18 x 20 x 2 (2) 12 x 20 x 2	(1) 24 x 24 x 2	144	60	70	38	28	34	23	22	22	5.94	5.94
AFD-4,000	965mm x 200mm	(2) 20 x 24 x 2 (2) 12 x 24 x 2	(1) 24 X 24 X 2	144	60	70	46	30	40	26	22	22	10.69	12.00
AFD-5,000	1220mm x 200mm	(3) 20 x 20 x 2 (3) 12 x 20 x 2	(1) 24 x 24 x 2	160	72	80	58	30	50	26	22	22	10.69	12.00
AFD-6,000	1200mm x 200mm	(3) 20 x 20 x 2 (3) 16 x 20 x 2	(1) 24 X 24 X 2	160	72	80	58	34	54	29	22	22	10.69	12.00
AFD-7,000	1525mm x 200mm	(6) 20 x 24 x 2	(2) 16 x 25 x 2	180	84	94	70	38	62	32	30	23	10.69	12.00
AFD-8,000	1525mm x 200mm	(6) 20 x 24 x 2	(2) 16 x 25 x 2	180	84	94	70	38	62	35	30	23	11.75	13.25
AFD-9,000	1525mm x 200mm	(6) 24 x 24 x 2	(2) 16 x 25 x 2	180	84	94	70	46	62	41	30	23	11.75	13.25
AFD-10,000	1525mm x 200mm	(6) 24 x 24 x 2	(2) 16 x 25 x 2	180	84	94	70	46	62	47	30	23	11.75	13.25
AFD-11,000	1740mm x 200mm	(8) 20 x 25 x 2	(4) 16 x 20 x 2	188	96	104	78	48	74	41	38	30	13.06	14.62
AFD-12,000	1740mm x 200mm	(8) 20 x 25 x 2	(4) 16 x 20 x 2	188	96	104	78	48	74	47	38	30	13.06	14.62
AFD-13,000	1740mm x 200mm	(8) 20 x 20 x 2 (4) 16 x 20 x 2	(4) 16 x 20 x 2	188	96	104	78	54	74	50	38	30	13.06	14.62
AFD-14,000	1940mm x 200mm	(8) 20 x 20 x 2 (4) 16 x 20 x 2	(4) 20 x 20 x 2	190	100	118	78	54	80	50	38	38	17.38	19.44
AFD-15,000	1940mm x 200mm	(8) 20 x 20 x 2 (4) 16 x 20 x 2	(4) 20 x 20 x 2	190	100	118	78	54	80	53	38	38	17.38	19.44
AFD-16,000	1940mm x 200mm	(8) 20 x 25 x 2 (4) 16 x 20 x 2	(4) 20 x 20 x 2	190	100	118	78	64	80	53	38	38	19.38	21.62
AFD-17,000	1940mm x 200mm	(8) 20 x 25 x 2 (4) 16 x 20 x 2	(4) 20 x 20 x 2	190	100	118	78	64	80	56	38	38	19.38	21.62
AFD-18,000	2190mm x 200mm	(12) 20 x 24 x 2	(4) 20 x 25 x 2	210	116	124	94	58	95	50	48	38	19.38	21.62
AFD-19,000	2190mm x 200mm	(8) 20 x 24 x 2 (4) 24 x 24 x 2	(4) 20 x 25 x 2	210	116	124	94	62	95	53	48	38	19.38	21.62
AFD-20,000	2190mm x 200mm	(8) 20 x 24 x 2 (4) 24 x 24 x 2	(4) 20 x 25 x 2	210	116	124	94	62	95	56	48	38	21.31	23.81