



# INDUSTRIAL DEHUMIDIFIERS

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## FD SERIES

The Fral industrial dehumidifiers of the series FD are suitable for humidity control in commercial and industrial spaces. Particularly sturdy and durable, they can be easily installed and are easy to maintain.

They can also be placed in environments for the preservation of food products or in industrial processes where humidity control is necessary.

They feature a washable air filter and must be connected to a fixed drain.

They are equipped with an onboard mechanical dehumidostat.

Is it possible to connect a remote digital dehumidostat.

The Fral fixed dehumidifiers of the series FD can be equipped with an optional HOT GAS defrosting system, with electronic and thermostatic control, and can work with temperatures close to 0 °C.

## FEATURES

### FRAME

#### MODELS FD160 - FD240

Structure with panels made of sturdy galvanized steel, painted with epoxy powder ensuring high resistance to atmospheric agents and aggressive environments.

The panels are removable to allow a quick inspection and maintenance of the internal parts.

#### MODELS FD360 - FD980

Structure with aluminium profiles and panels in sturdy galvanised sheet, painted with epoxy powder ensuring high resistance to atmospheric agents and aggressive environments.

### COMPRESSOR

Rotative compressor (FD160) or scroll (FD240 – FD360 – FD520 – FD750 – FD980), mounted on vibration dampers. Provided with resistance on the housing and thermal safety.

### REFRIGERANT CIRCUIT

**Evaporator and condenser:** the coil is made of copper pipes and aluminium fins. Drying filter, Schrader valves, minimum and maximum pressure switch. Defrosting thermostat and solenoid valve in version S.

### CONDENSATE COLLECTION TANK

#### MODELS FD160 - FD240

The tank is in plastic non-corrosive, the dehumidifier should be connected to a fixed drain, preventing the formation of double siphons. Attach a tube with ¾" F coupling to the welded fitting of the tank.

#### MODELS FD360 - FD980

The tank is in non-corrosive stainless steel, the dehumidifier should be connected to a fixed drain, preventing the formation of double siphons. Attach a tube with ¾" F coupling to the welded fitting of the tank.

### CONDENSATE LIFTING PUMP (optional)

Pump on request.

### FAN

Centrifugal double suction fan, built with sturdy blades in galvanized sheet, statically and dynamically balanced.

Protection degree: Three-speed fan.

### IP

Standard IP21. On request IP44 (optional).

### HOT GAS DEFROST

Enables to use the dehumidifier in environments with temperature up to 3 °C. It is a special hot gas injection system to accelerate the defrosting of the ice formed in the evaporator.

### AIR SUPPLY

The air supply is supplied as standard on the side opposite to the air inlet, but you may require the dehumidifier in TOP version (with delivery on the top side of the machine).

### AIR FILTER

The air filter, supplied as standard with the unit, is washable and easily replaceable. It is in Polyurethane and High-efficiency filter.

### MICROPROCESSOR

Controls the defrosting cycles, the compressor timer and the alarm card. The dehumidifier is equipped with step sequence control.

### CONTROL PANEL AND ELECTRICAL CONTROL PANEL

Located in the side area of the machine. IP protection degree.

Made in compliance with the European standards 73/23 and 89/336.

### TESTING

Tests are performed to check the tightness of the refrigeration circuit. Electrical discharge tests and functional tests are performed as well.

### TECHNICAL STANDARDS

This dehumidifier meets the essential requirements included in the Directives of the European Community 2006/95/EC of 12 December 2006 on the safety of electrical products for use in Low Voltage; 2004/108/EC of 15 December 2004 in the field of electromagnetic compatibility; 2006/42/EC of 17 May 2006 in the fields of machinery safety.

The conformity is declared with reference to the following harmonized technical standards:

CEI-EN 60335-2-40, CEI-EN 55014-1, CEI-EN 55014-2.

We also declare that the product is manufactured in compliance with the RoHS Directive in force, that is 2002/95/EC, transposed with the Legislative Decree of 25 July 2005 no. 151 (article 5).

## TECHNICAL SPECIFICATIONS

	FD 160	FD 240	FD 360	FD 520	FD 750	FD 980
Rated Average Power Consumption (20 °C - 60% R.H.)	1,650 W	3,150 W	4,550 W	5,700 W	8,150 W	10,650 W
Maximum power consumption (35 °C - 95% R.H.)	2,250 W	4,250 W	6,200 W	7,750 W	11,050 W	14,400 W
Max. Current Consumption (35 °C - 95% R.H.) F.L.A.	12.5 A	9.6 A	15.0 A	17.9 A	18.5 A	24.3 A
Start up current L.R.A.	29.0 A	48.0 A	63.0 A	63.0 A	63.0 A	96.0 A
Sound Pressure Level (at 3 mts in free field)	52 db (A)	56 db (A)	61 db (A)	65 db (A)	67 db (A)	70 db (A)
Refrigerant	R407c	R410a	R407c	R407c	R407c	R407c
Fitting on the machine for condensate drain	¾"	¾"	¾"	¾"	¾"	¾"
Operating range (temperatures)	7÷35 °C	7÷35 °C	7÷35 °C	7÷35 °C	7÷35 °C	7÷35 °C
Temperature operating range with optional hot gas defrosting system	3÷35 °C	3÷35 °C	0.5÷35 °C	0.5÷35 °C	0.5÷35 °C	0.5÷35 °C
Temperature operating range with optional under 0°C defrost system	-0.5÷35 °C	-0.5÷35 °C	-0.5÷35 °C	-0.5÷35 °C	-0.5÷35 °C	-0.5÷35 °C
Operating range (relative humidity)	45÷99%	45÷99%	45÷99%	45÷99%	45÷99%	45÷99%
Rated Average Power Consumption (20°C, 60% R.H.) with 4 kW resistances	5,650 W	7,150 W	8,550 W	9,700 W	12,150 W	14,650 W
Hot water coil heating capacity (environment 27°C, water 60/70 °C)	5,000 W	5,000 W	9,000 W	12,000 W	20,000 W	24,000 W
Available voltage	230/1~/50	400/3N~/50	400/3N~/50	400/3N~/50	400/3N~/50	400/3N~/50

## ACCESSORIES

■ STANDARD
 □ OPTIONAL
 ☒ NOT AVAILABLE

Hot gas defrost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Under 0°C defrost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mechanical humidistat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hot water coil with three-way valve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electric resistances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condensate lifting pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Digital dehumidostat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Digital thermostat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evaporator cataphoresis treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stainless steel AISI 316 version	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

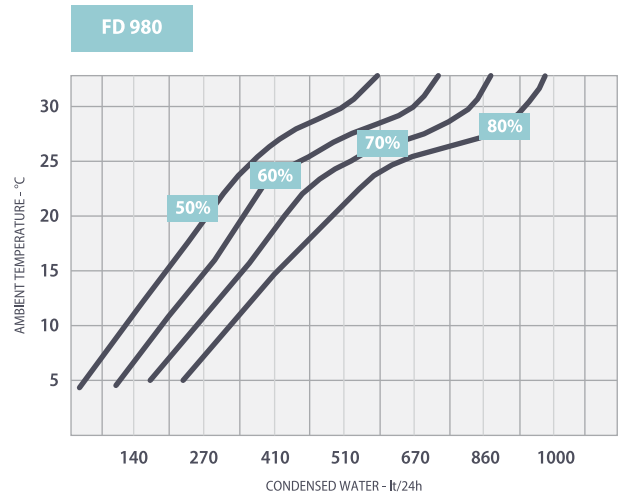
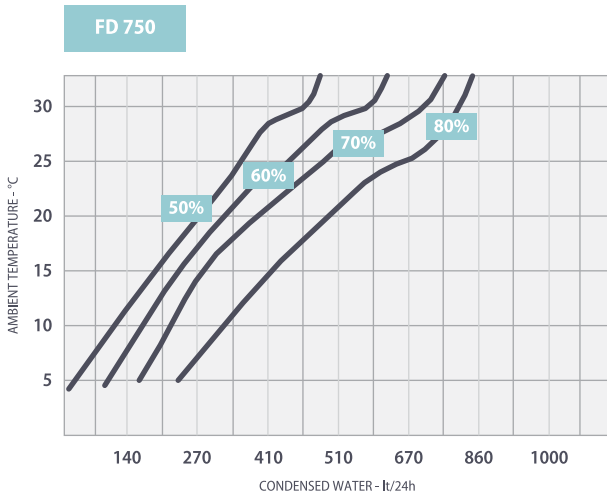
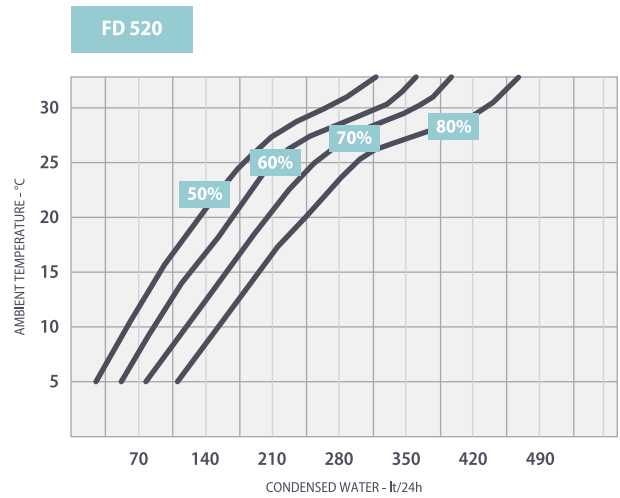
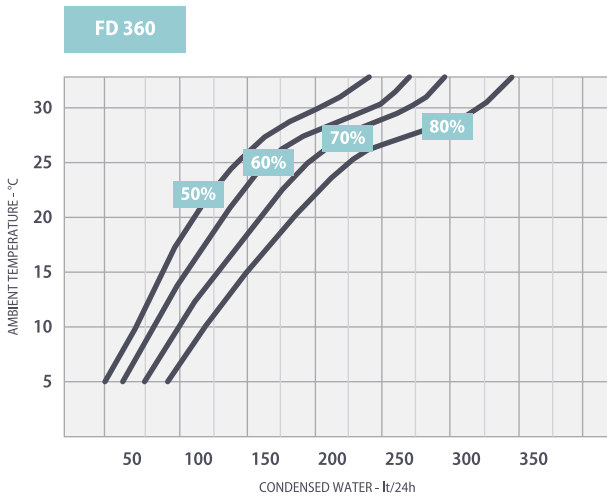
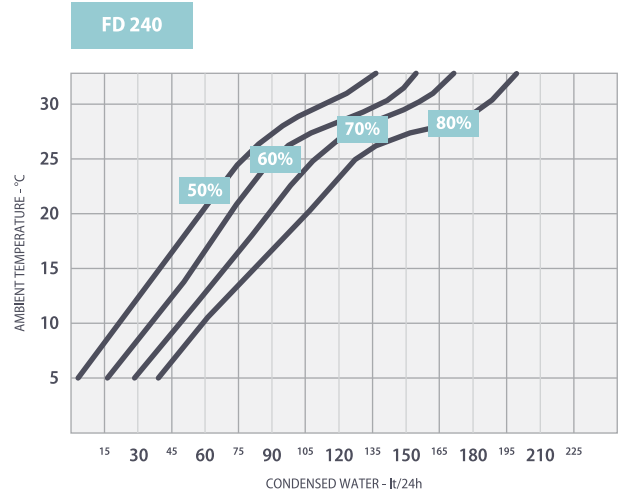
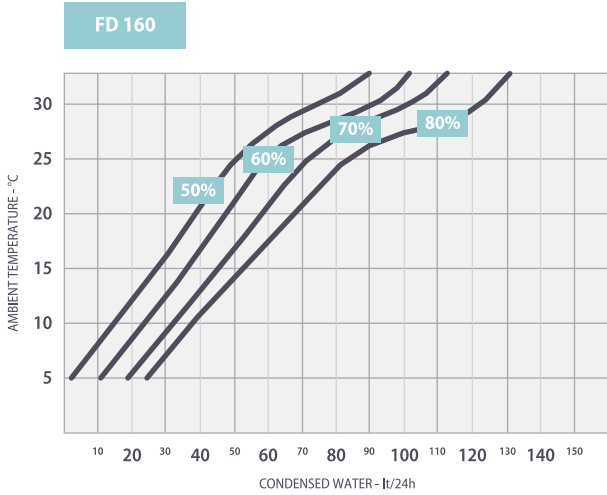
## WEIGHTS

Weight	81.5 kg	111.0 kg	147.0 kg	165.0 kg	230.0 kg	320.0 kg
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## DIMENSIONS AND WEIGHTS WITH PACKING

Width	1,000 mm	1,000 mm	1,220 mm	1,220 mm	1,770 mm	1,770 mm
Height	700 mm	700 mm	950 mm	950 mm	1,360 mm	1,360 mm
Depth	615 mm	615 mm	800 mm	800 mm	1,505 mm	1,505 mm
Weight	85.5 kg	115.5 kg	152.0 kg	170.0 kg	270.0 kg	360.0 kg

# CONDENSED WATER AT DIFFERENT AMBIENT TEMPERATURE AND HUMIDITY CONDITIONS (lt/24h)



	10 °C 60%	10 °C 80%	15 °C 60%	15 °C 80%	20 °C 60%	20 °C 80%	25 °C 60%	25 °C 80%	27 °C 60%	27 °C 80%	30 °C 80%	32 °C 90%
<b>FD 160</b>	22	38	37	56	48	68	60	83	70	82	126	160
<b>FD 240</b>	35	60	55	79	70	105	90	125	103	135	188	240
<b>FD 360</b>	55	95	80	125	140	160	145	200	170	230	300	360
<b>FD 520</b>	80	145	115	200	170	250	210	290	250	340	440	520
<b>FD 750</b>	110	200	160	270	240	350	290	400	340	480	620	750
<b>FD 980</b>	150	270	215	370	320	470	395	545	470	640	830	980

## AIR FLOW AT DIFFERENT BACK PRESSURES (mc/h)

	0 Pa	25 Pa	50 Pa	75 Pa	100 Pa	125 Pa	150 Pa
FD 160	1,800	1,700	1,600	1,600	1,500	1,400	-
FD 240	2,300	2,200	2,200	2,000	1,900	1,800	1,600
FD 360	3,500	3,400	3,300	3,100	3,000	3,000	-
FD 520	4,600	4,500	4,400	4,300	4,300	4,000	3,800
	180 Pa	200 Pa	220 Pa	240 Pa	260 Pa	280 Pa	300 Pa
FD 750	6,200	6,100	6,000	6,000	6,000	5,900	5,800
FD 980	8,500	8,300	8,200	8,100	8,100	8,000	8,000

## OPTIONAL ACCESSORIES

### HOT WATER COIL (optional)

Post-heating coil, which can be connected through a three-way valve to a hot water circuit. The valve is operated by a relay connected to the thermostat. The heating function can also be operated in the absence of a request on the part of the humidistat.

### ELECTRIC RESISTANCE (optional)

The post heating electric resistances are operated by a relay connected to the thermostat. The post heating function can also be operated in the absence of a request on the part of the dehumidostat.

### REMOTE DIGITAL HUMIDISTAT (optional)

Device that can be installed in an environment equipped for humidity control, which can be easily connected to the electrical system of the dehumidifier.

### REMOTE DIGITAL THERMOSTAT (optional)

Device that can be installed in an environment for temperature control. It controls the power resistances (OPZ) or the 3-way valve that allows the passage of the hot water inside the post heating coil.

### UNDER 0°C DEFROST

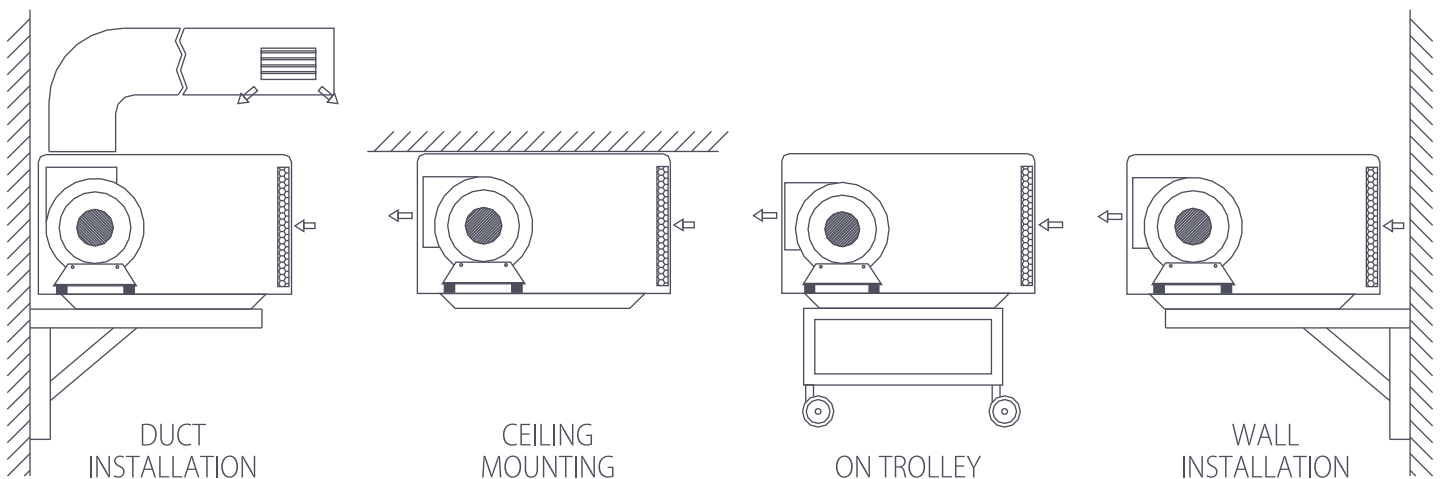
Kit that allows the dehumidifier to be installed in particularly cold environments, such as refrigerating rooms, with temperatures of up to 0 °C.

### CATAPHORESIS TREATMENT (optional)

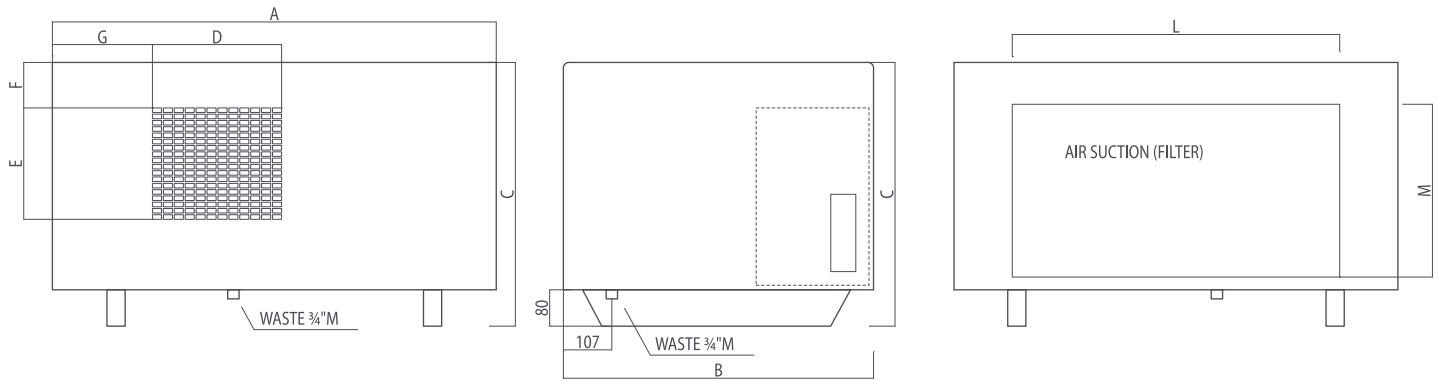
Surface treatment capable of giving the evaporator a considerable resistance to corrosion.

### AVAILABLE STATIC PRESSURE INCREASE STAINLESS STEEL AISI VERSION

## INSTALLATION EXAMPLES



# DIMENSIONAL DATA (mm) - MODELS 160/240



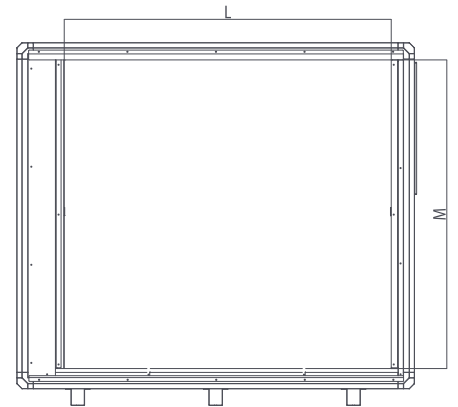
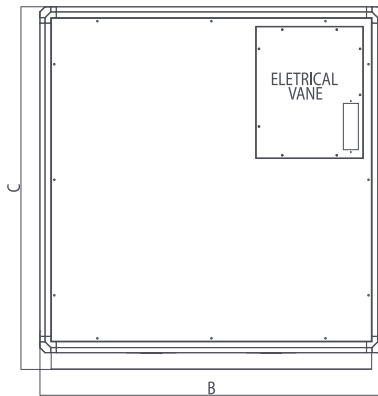
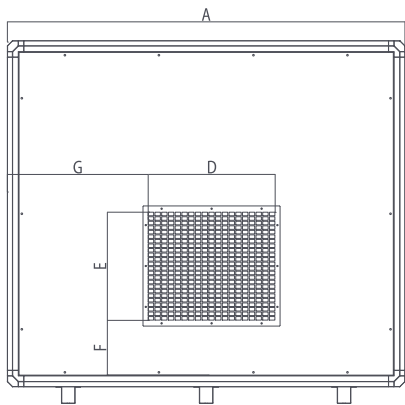
IN LINE VERSION



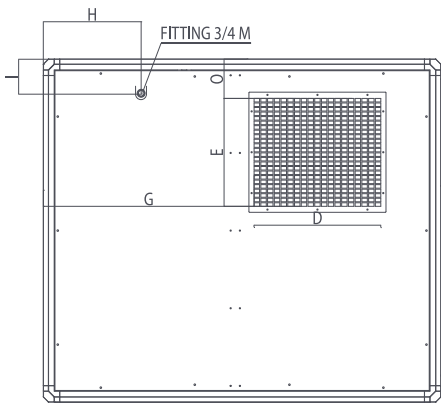
TOP SUPPLY VERSION

	A	B	C	D	E	F	G	H	I	L	M	O
FD 160	976	682	580	284	245	100	220	398	115	720	380	-
FD 240	976	682	580	284	245	100	220	398	115	720	380	-
FD 160/240 TOP VERSION	976	682	580	284	205	-	220	398	115	720	380	53

# DIMENSIONAL DATA (mm) - MODELS 360/520/750/980



IN LINE VERSION



TOP SUPPLY VERSION

	A	B	C	D	E	F	G	H	I	L	M	O
<b>FD 360</b>	1,180	900	920	392	330	68	228	324	171	101	822	-
<b>FD 520</b>	1,180	900	920	392	330	105	290	324	171	101	822	-
<b>FD 360/520 TOP VERSION</b>	1,180	900	920	392	330	160	-	324	171	101	822	68
<b>FD 750</b>	1,460	1,260	1,330	465	396	250	243	515	359	126	1,200	-
<b>FD 980</b>	1,460	1,260	1,330	465	396	350	243	515	359	126	1,200	-
<b>FD 750/980 TOP VERSION</b>	1,460	1,260	1,330	465	396	470	-	773	359	126	1,200	144



APPLICATIONS

SWIMMING POOLS

ARCHIVES

GYMS

STORAGE

IRONING ROOMS

LAUNDRY

RENTAL

HOTELS

INDUSTRY