

EC10 SERIES UP-FLOW ELECTRIC FURNACE CVP10 SERIES EVAPORATOR COILS 10.0 to 30.0 kW Electric Heat

EC10 CVP10

*12,400 to 58,000 Btuh (3.6 to 17.0 kW) Additive Cooling Capacity
*18,800 to 55,000 Btuh (5.5 to 16.1 kW) Additive Heat Pump Heating Capacity

*ARI Standard 210/240 Ratings With Matching Outdoor Unit

Bulletin #485021
July 1998
Supersedes #485021 (October 1993)
& #485001 (February 1990)

EC10 FEATURES

Applications

- 10 to 30 kW nominal sizes.
- Up-flow applications with bottom or side return air.
- Optional field installed evaporator coils available in several sizes.
- Filter furnished.

Coil/Furnace Match-Up

- See EC10 Specifications table in this bulletin for complete coil to furnace match-up information.

Completely Tested and Approved

- Blower performance data according to unit tests conducted in Lennox air test chamber.
- Units have been thoroughly tested in the Lennox Research Laboratory.
- CSA certified.

Warranty

- Heating elements - ten years.
- All other covered components - one year.
- Refer to Lennox Limited Warranty Certificate included with each unit for additional details.

Cabinet

- Heavy gauge cold-rolled steel cabinets have a baked on enamel finish.
- Metal liner encases heating elements.
- Interior of cabinet is lined with 3/4 in. (19 mm) thick 1-1/2 lb./ft³ (24 kg/m³) density fiberglass insulation.
- Blower, coil and filter assemblies are mounted on rails and slide out completely for service.
- Electrical knockouts are provided on the top left and upper left side panel.
- Refrigerant line and condensate drain knock-outs are provided on either side of unit.
- Leveling nuts and bolts furnished.
- Choice of bottom or side return air applications. See dimension drawings.
- Complete service access accomplished by removing upper blower access and lower coil/filter access doors.
- 24v transformer is furnished and installed in the control vestibule compartment.
- Low voltage terminal strip is provided.

Electric Heat

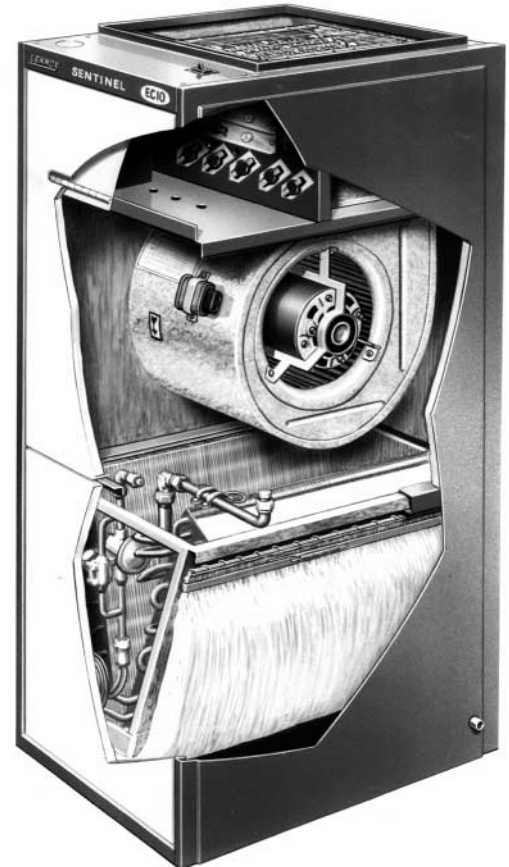
- Available in several kw sizes.
- See Electric Heat tables.
- Helix wound nichrome heating elements exposed directly in air stream resulting in instant heat transfer, low element temperatures and long service life.
- Element support frame is constructed of heavy gauge steel.
- Porcelain insulators located for element support and best heater operation.
- Individual elements may be removed for service.
- Each element equipped with accurately located limit control with fixed temperature \square off \square setting and automatic reset.
- Thermal sequencer relay brings elements on and off line, in sequence and equal increments, with time delay between each. Initiates and terminates blower operation.
- Factory assembled with controls installed and wired.

Direct Drive Blower

- Lennox designed direct drive blower.
- Statically and dynamically balanced before installation in unit.
- Resiliently mounted multi-speed motor.
- Choice of blower speeds. See blower performance tables.
- Speed changes easily accomplished by a simple wiring change.

Air Filter

- \square Hammock \square type filter provides large dirt holding capacity, allows a tight seal against cabinet panels.
- Media is 1 in. (25 mm) thick oil impregnated fiberglass.
- Easily accessible for servicing and media replacement.
- See Specifications tables for sizes.



Blower Transfer Relay

- Factory installed in the control compartment.
- Activates one or two speed blower operation for any heating application, or two or three speed operation for any cooling or heat pump application.
- Some models require an additional blower relay for three speed applications.

Continuous Air Circulation (CAC) Switch

- Manual (On-Off) blower switch to give continuous low speed operation.
- Located on the cabinet top near the front right corner of unit.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Thermostat (Optional)

- Thermostat not furnished with unit. See Thermostats bulletin in Thermostat and Controls Section and Lennox Price Book.

Additive Coil (Optional)

- Field installed \square slide-in \square coils are available for cooling or heat pump application.
- CVP10 coil installs into EC10 by removing coil access panel and sliding coil into cabinet.
- See CVP10 section in this bulletin for specifications.

Outdoor Thermostat (Optional)

- Outdoor thermostat can be used to lock out some electric heating elements on indoor units where two stage control is applicable.
- Outdoor thermostat maintains heating load on low power input as long as possible before allowing full power load to come on line.
- Thermostat kit LB-29740BA (56A87) and mounting box M-1595 (31461) must be ordered extra.

EC10 SPECIFICATIONS

Model Number		EC10Q3-10	EC10Q3-15	EC10Q3-20	EC10Q4-25	EC10Q4-30	EC10Q5-25	EC10Q5-30	
Nominal heating capacity (kW)		10	15	20	25	30	25	30	
Blower wheel nominal diameter x width - in. (mm)		10 x 8 (254 x 203)					12 x 12 (305 x 305)		
Blower motor output □ hp (W)		1/3 (249)			1/2 (373)		3/4 (560)		
‡Size of filters	Cut size - in. (mm)	28 x 43 x 1 (710 x 1090 x 25)			28 x 54 x 1 (710 x 1310 x 25)				
	Area - sq. ft. (m ²)	7.76 (0.72)			9.75 (0.91)				
Electrical characteristics (60hz)		208/240v - 1 phase							
Shipping weight - lbs. (kg) 1 package		130 (59)			182 (83)		190 (86)		
↘ Optional Accessories (Must Be Ordered Extra) ↙									
Additive Coil		CVP10-26, CVP10-31, CVP10-41			CVP10-46, CVP10-51		CVP10-51, CVP10-65		

‡Oil impregnated fiberglass □hammock□ type filter.

CVP10 FEATURES



Applications

- Lennox designed evaporator coil installs in EC10 Series Up-Flow furnaces.
- Applicable to expansion valve systems.
- See condensing units bulletins for evaporator unit applications and cooling capacities.
- See heat pump outdoor units bulletins for indoor coil applications and cooling and heating capacities.

Fully Tested

- Tested with matching condensing and heat pump units.
- Rated in accordance with ARI Standard 210/240 conditions.

Warranty

- All covered components - one year.
- Refer to Lennox Limited Warranty Certificate included with each unit for additional details.

Coil/Furnace Match-Up

- See EC10 Specifications table in this bulletin for complete coil to furnace match-up information.

Coil Construction

- Durable copper tubing.
- Ripple-edged aluminum fins.
- Twin coil construction assembled in a □V□ configuration for large surface area.
- Flare connections on both liquid and suction lines. CVP10-65 suction line requires sweat connection.
- High pressure testing insures leakproof construction.

Drain Pan

- Drain pans designed for up-flow applications.
- Deep, corrosion resistant heavy gauge galvanized steel drain pans have 3/4 in (19 mm) mpt drain connection.

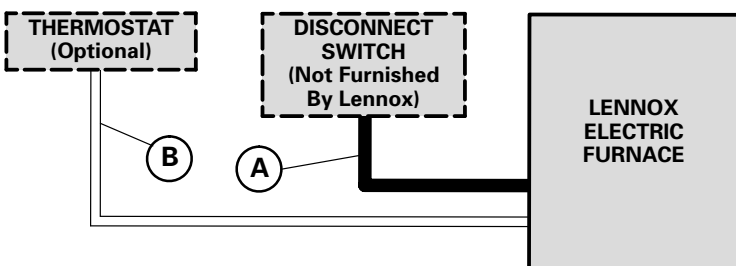
Check and Expansion Valve

- Factory installed on all models.

CVP10 SPECIFICATIONS

Model No.		CVP10-26	CVP10-31	CVP10-41	CVP10-46	CVP10-51	CVP10-65	
Nominal cooling size - tons (kW)		2 (7.0)	2.5 (8.8)	3 (10.6)	3.5 (12.3)	4 (14.1)	5 (17.6)	
Evaporator Coil	Net face area □ sq. ft. (m ²)	2.92 (0.27)	3.50 (0.33)	4.38 (0.41)		5.83 (0.54)		
	Tube diameter □ in. (mm)	3/8 (9.5)					1/2 (13)	
	No. of rows	4						
	Fins per inch (m)	13 (512)						
Suction (vapor) line connection □ in. (mm)		5/8 (16) flare	3/4 (19) flare			1-1/8 (29) sweat		
Liquid line connection □ in. (mm)		3/8 (9.5) flare				1/2 (13) flare		
Condensate drain (npt) □ in. (mm)		3/4 (19)						
Refrigerant		HCFC-22						
Coil shipping weight lbs. (kg) 1 package		43 (20)	52 (24)	57 (26)	61 (28)	72 (33)	98 (44)	

FIELD WIRING



- A - Two wire power supply (not furnished)
See Electric Heat Table for size.
- B- Two wire low voltage - one stage heating (not furnished)
18 ga. minimum. (For two stage heating, heating-cooling, or heat pump application refer to wiring diagram in Unit).

NOTE - All wiring must conform to CEC and local electrical codes

INSTALLATION CLEARANCES - inches (mm)

Sides, rear, top & front of cabinet	0 inch (0 mm)
Plenum and Warm air duct within 4 feet (1.2 m) of cabinet	1 inch (25 mm)
Floor	Combustible

EC10 BLOWER DATA

EC10Q3 BLOWER PERFORMANCE (WITHOUT COIL)

External Static Pressure		Air Volume at Specific Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
.00	0	1380	650	1190	560	950	450	800	380
.05	10	1370	645	1180	555	950	450	795	375
.10	25	1350	635	1170	550	945	445	790	375
.15	35	1335	630	1160	550	940	445	785	370
.20	50	1315	620	1150	545	935	440	780	370
.25	60	1295	610	1135	535	930	440	775	365
.30	75	1270	600	1125	530	920	435	765	360
.40	100	1220	575	1095	515	905	425	745	350
.50	125	1170	550	1050	495	870	410	705	330
.60	150	1110	525	1000	470	830	390	660	310
.70	175	1035	490	935	440	770	365	605	285

NOTE □ All air data is measured external to unit with air filter in place.

EC10Q3 BLOWER PERFORMANCE (WITH CVP10-26 COIL)

External Static Pressure		Air Volume at Specific Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
.00	0	1250	590	1100	520	930	440	775	365
.05	10	1230	580	1090	515	925	435	770	365
.10	25	1210	570	1080	510	920	435	765	360
.15	35	1190	560	1065	505	910	430	760	360
.20	50	1170	550	1050	495	900	425	755	355
.25	60	1150	540	1030	485	890	420	745	350
.30	75	1125	530	1010	475	875	415	740	350
.40	100	1075	505	965	455	850	400	715	340
.50	125	1015	480	910	430	810	380	685	325
.60	150	945	445	850	400	765	360	630	295
.70	175	860	405	780	370	690	325	530	250

NOTE □ All air data is measured external to unit with air filter and coil in place.

EC10Q3 BLOWER PERFORMANCE (WITH CVP10-31 OR CVP10-41 COIL)

External Static Pressure		Air Volume at Specific Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
.00	0	1305	615	1140	540	960	455	815	385
.05	10	1285	605	1130	535	955	450	815	385
.10	25	1265	595	1120	530	950	450	810	380
.15	35	1245	585	1105	520	940	445	805	380
.20	50	1220	575	1090	515	930	440	795	375
.25	60	1195	565	1070	505	920	435	790	375
.30	75	1170	550	1055	500	910	430	780	370
.40	100	1115	525	1015	480	875	415	755	355
.50	125	1055	500	970	460	830	390	720	340
.60	150	990	465	910	430	770	365	665	315
.70	175	915	430	835	395	695	330	560	265

NOTE □ All air data is measured external to unit with air filter and coil in place.

EC10 BLOWER DATA

EC10Q4 BLOWER PERFORMANCE (WITHOUT COIL)

External Static Pressure		Air Volume at Specific Blower Speeds					
		High		Medium		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s
.00	0	2140	1010	1570	740	1165	550
.05	10	2085	985	1555	735	1160	545
.10	25	2040	960	1540	725	1160	545
.15	35	1995	940	1525	720	1160	545
.20	50	1950	920	1510	710	1160	545
.25	60	1910	900	1495	705	1155	545
.30	75	1860	880	1480	700	1150	540
.40	100	1780	840	1445	680	1130	535
.50	125	1680	790	1400	660	1100	520
.60	150	1580	745	1345	635	1065	500
.70	175	1480	700	1280	605	1020	480

NOTE □ All air data is measured external to unit with air filter in place.

EC10Q4 BLOWER PERFORMANCE (WITH CVP10-46-51 COIL)

External Static Pressure		Air Volume at Specific Blower Speeds					
		High		Medium		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s
.00	0	1940	915	1525	720	1160	545
.05	10	1900	895	1505	710	1155	545
.10	25	1860	875	1485	700	1150	540
.15	35	1820	860	1465	690	1150	540
.20	50	1780	840	1450	685	1150	540
.25	60	1735	820	1430	675	1150	540
.30	75	1695	800	1410	665	1145	540
.40	100	1605	755	1365	645	1125	530
.50	125	1515	715	1300	615	1090	515
.60	150	1425	670	1230	580	1035	490
.70	175	1330	625	1160	545	980	460

NOTE □ All air data is measured external to unit with air filter and coil in place.

EC10Q5 BLOWER PERFORMANCE (WITHOUT COIL)

External Static Pressure		Air Volume at Specific Blower Speeds									
		High		Medium-High		Medium		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
.00	0	2785	1315	2510	1185	2270	1070	1940	915	1660	785
.05	10	2760	1305	2495	1180	2250	1060	1925	910	1645	775
.10	25	2730	1290	2475	1170	2230	1055	1910	900	1630	770
.15	35	2700	1275	2455	1160	2210	1045	1890	890	1610	760
.20	50	2670	1260	2430	1145	2190	1035	1870	880	1595	755
.25	60	2640	1245	2410	1135	2165	1020	1845	870	1575	745
.30	75	2605	1230	2380	1125	2140	1010	1820	860	1550	735
.40	100	2540	1200	2325	1095	2085	985	1775	840	1510	715
.50	125	2465	1165	2265	1070	2025	955	1725	815	1460	690
.60	150	2385	1125	2190	1035	1960	925	1675	790	1400	660
.70	175	2295	1085	2110	995	1880	885	1620	765	1335	630

NOTE □ All air data is measured external to unit with air filter in place.

EC10Q5 BLOWER PERFORMANCE (WITH CVP10-51 COIL)

External Static Pressure		Air Volume at Specific Blower Speeds									
		High		Medium-High		Medium		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
.00	0	2550	1205	2350	1110	2160	1020	1870	885	1610	760
.05	10	2505	1180	2320	1095	2130	1005	1845	870	1600	755
.10	25	2470	1165	2290	1080	2095	990	1820	860	1570	740
.15	35	2435	1150	2260	1065	2065	975	1795	845	1540	725
.20	50	2400	1135	2230	1055	2030	960	1765	835	1510	710
.25	60	2375	1120	2200	1040	2005	945	1745	825	1480	700
.30	75	2340	1105	2160	1020	1975	930	1720	810	1465	690
.40	100	2260	1065	2095	990	1930	910	1640	775	1420	670
.50	125	2190	1035	2010	950	1845	870	1585	750	1355	640
.60	150	2095	990	1940	915	1770	835	1540	725	1235	585
.70	175	2030	960	1855	875	1680	795	1390	655	1160	545

NOTE □ All air data is measured external to unit with air filter and coil in place.

EC10Q5 BLOWER PERFORMANCE (WITH CVP10-65 COIL)

External Static Pressure		Air Volume at Specific Blower Speeds									
		High		Medium-High		Medium		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
.00	0	2475	1170	2315	1095	2150	1015	1850	875	1610	760
.05	10	2450	1155	2295	1085	2130	1005	1835	865	1590	750
.10	25	2420	1140	2270	1070	2110	995	1815	855	1570	740
.15	35	2390	1130	2240	1055	2085	985	1790	845	1550	730
.20	50	2360	1115	2210	1045	2060	975	1765	835	1525	720
.25	60	2325	1100	2180	1030	2030	960	1740	820	1495	705
.30	75	2290	1080	2145	1010	2000	945	1715	810	1465	690
.40	100	2215	1045	2070	980	1930	910	1660	785	1400	660
.50	125	2140	1010	2000	945	1860	880	1590	750	1330	630
.60	150	2065	975	1920	905	1775	840	1515	715	1250	590
.70	175	1985	935	1830	865	1675	790	1425	675	1160	550

NOTE □ All air data is measured external to unit with air filter and coil in place.

EC10 ELECTRIC HEAT DATA

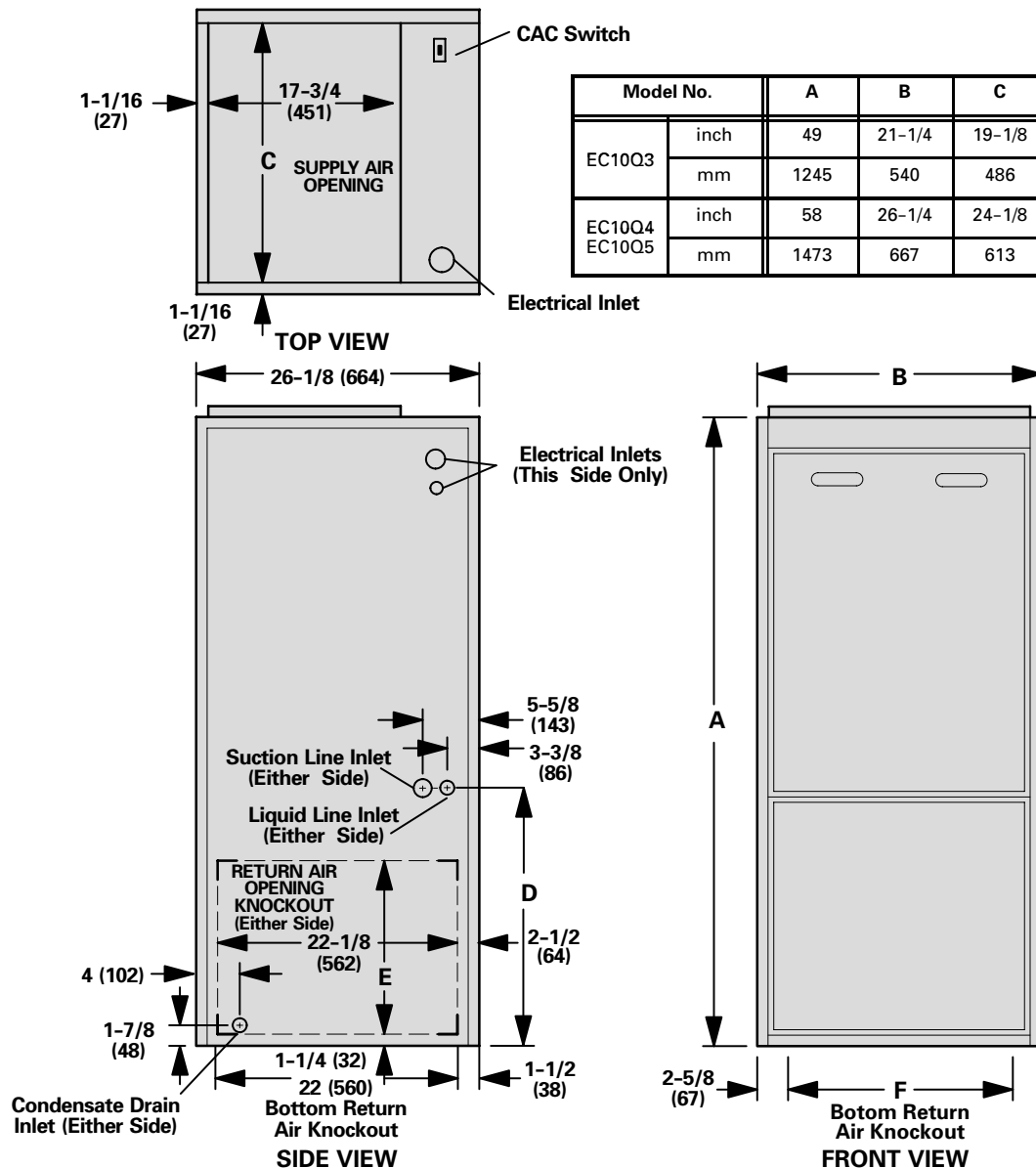
Model Number	Number of Steps	Volts Input	kW Input	Btuh Input	†Minimum Circuit Ampacity	Maximum Fuse Size
↘ 208/230v-1 ph ↘						
EC10Q3-10	2	208	7.5	25,600	40	50
		220	8.4	28,600	48	60
		230	9.2	31,400	48	60
		240	10.0	34,100	48	60
EC10Q3-15	3	208	11.3	38,500	64	80
		220	12.6	43,000	64	80
		230	13.8	47,100	64	80
EC10Q3-20	4	208	15.0	51,200	80	100
		220	16.8	57,300	80	100
		230	18.4	62,800	88	110
		240	20.0	68,200	88	110

†Refer to Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

Model Number	Number of Steps	Volts Input	kW Input	Btuh Input	†Minimum Circuit Ampacity	Maximum Fuse Size
↘ 208/230v-1 ph ↘						
EC10Q4-25	5	208	18.8	64,100	100	125
		220	21.0	71,700	100	125
		230	23.0	78,500	120	150
		240	25.0	85,300	120	150
EC10Q4-30	6	208	22.5	76,800	120	150
		220	25.2	86,000	120	150
		230	27.5	93,900	140	175
EC10Q5-25	5	208	18.8	64,100	100	125
		220	21.0	71,700	120	150
		230	23.0	78,500	120	150
EC10Q5-30	6	240	25.0	85,300	120	150
		208	22.5	76,800	120	150
		220	25.2	86,000	120	150
		230	27.5	93,900	140	175
EC10Q5-30	6	240	30.0	102,400	140	175

†Refer to Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

EC10 DIMENSIONS □ inches (mm)



Model No.		A	B	C	D	E	F
EC10Q3	inch	49	21-1/4	19-1/8	21-1/8	14	16
	mm	1245	540	486	537	356	406
EC10Q4 EC10Q5	inch	58	26-1/4	24-1/8	25-7/16	18	21
	mm	1473	667	613	646	457	533

NOTE - Air resistance baffle must be removed, for EC10Q3-10 model only, when installing optional additive coil.