

# Technical Requirements for Energy-Using Products

**Part Two**

## Other energy-using products

### APPLIES TO

factory-assembled automatic ice-makers that have a standard capacity rating of between 23 and 1000 kilograms per day (kg/d), including self-contained and split-system machines that produce cubed, flaked, crushed or fragmented ice, in either a batch or continuous process. Ice-makers installed in household refrigerators, refrigerator-freezers or freezers, automatic ice-dispensing machines and cold-plate drink dispensers are excluded.

### TEST STANDARD

CAN/CSA-C742-98

### COMPLIANCE DATE

December 31, 1998

### ENERGUIDE LABEL

- required  
 not required

### ENERGUIDE DIRECTORY

- available  
 not available

## Automatic ice-makers

PRODUCT CLASS Category/capacity, kg/day	MAXIMUM ENERGY INPUT kj/kg December 31, 1998
<b>Batch automatic ice-makers (cubers)</b>	
<b>Air-cooled</b>	
23 ≤ capacity < 150 kg/d	1630 – 6.008 × capacity
150 ≤ capacity ≤ 1000 kg/d	807.2 – 0.5229 × capacity
<b>Water-cooled</b>	
23 ≤ capacity < 150 kg/d	1234 – 4.381 × capacity
150 ≤ capacity ≤ 1000 kg/d	621.8 – 0.2985 × capacity
<b>Continuous automatic ice-makers (flakers)</b>	
<b>Air-cooled</b>	
23 ≤ capacity < 300 kg/d	875.2 – 1.122 × capacity
300 ≤ capacity ≤ 1000 kg/d	538.6
<b>Water-cooled</b>	
23 ≤ capacity < 300 kg/d	740.5 – 0.8976 × capacity
300 ≤ capacity ≤ 1000 kg/d	471.2

### Requirements for the energy efficiency report, as listed in Schedule IV of the Regulations

- type of product (automatic ice-maker);
- brand name;
- model number;
- manufacturer;
- name of the organization or province that carried out the ice-maker verification and authorized the verification mark that will be affixed to the ice-maker;
- capacity in kilograms of ice per day;
- product category (one cabinet or split-system);
- product process type (batch or continuous);
- the product cooling mechanism (air-cooled or water-cooled); and
- the input energy rating in kj/kg (kWh/100 lb).

**APPLIES TO**

electrically operated, mechanically refrigerated dehumidifiers that have a daily water-removal capacity of up to 30 litres (6.6 imperial gallons). Desiccant dehumidifiers, compressed air dehydrators, and dehumidifiers used in skating rinks, indoor swimming pools and other commercial and industrial applications are excluded.

**TEST STANDARD**

CAN/CSA-C749-94

**COMPLIANCE DATE**

December 31, 1998

**ENERGUIDE LABEL**

- required  
 not required

**ENERGUIDE DIRECTORY**

- available  
 not available

**Dehumidifiers****PRODUCT CLASS**

≤ 30 L

**MINIMUM EF**

December 31, 1998

≥ 1.0 L/kWh

Where EF = A measure of the energy efficiency of a dehumidifier calculated by dividing the water removed from the air by the energy consumed, measured in L/kWh

**Requirements for the energy efficiency report, as listed in Schedule IV of the Regulations**

- type of product (residential dehumidifier);
- brand name;
- model number;
- manufacturer;
- name of the organization or province that carried out the dehumidifier verification and authorized the verification mark that will be affixed to the dehumidifier;
- rated daily water-removal capacity in litres; and
- energy factor in L/kWh.

**APPLIES TO**

fluorescent lamp ballasts that are:

- a) designed for input voltages of 120, 277 or 347 volts, and
- b) intended to operate with F32T8, F34T12, F40T10 or F40T12 rapid-start fluorescent lamps or F96T12IS, F96T12ES, F96T12HO or F96T12HO ES fluorescent lamps.

**TEST STANDARD**

CAN/CSA-C654-M91

**COMPLIANCE DATE**

February 3, 1995

**ENERGUIDE LABEL**

- required
- not required

**ENERGUIDE DIRECTORY**

- available
- not available

**Fluorescent lamp ballasts**

APPLICATION FOR OPERATION OF	BALLAST INPUT VOLTAGE	TOTAL NOMINAL LAMP WATTS	MINIMUM BALLAST EFFICACY FACTOR
February 3, 1995			
One F40T12 lamp <sup>1</sup>	120 V	40 W	1.805
	277 V	40 W	1.805
	347 V	40 W	1.750
Two F40T12 lamps <sup>1</sup>	120 V	80 W	1.060
	277 V	80 W	1.050
	347 V	80 W	1.020
Two F96T12 lamps <sup>2</sup>	120 V	150 W	0.570
	277 V	150 W	0.570
	347 V	150 W	0.560
Two 110W F96T12HO lamps <sup>3</sup>	120 V	226 W	0.390
	277 V	226 W	0.390
	347 V	226 W	0.380
Two F32T8 lamps	120 V	64 W	1.250
	277 V	64 W	1.230
	347 V	64 W	1.230

**Note:** All fluorescent lamp ballasts must have a power factor of at least 0.90 over the indicated input voltage range.

1. Also for use on 34W/48T12/RS and 40W/48T10/RS lamps
2. Also for use on 60W/96T12/IS lamps
3. Also for use on 95W/96T12/HO lamps

### Fluorescent lamp ballasts (continued)

#### Requirements for the energy efficiency report, as listed in Schedule IV of the Regulations

- type of product (fluorescent lamp ballast);
- brand name;
- model number;
- manufacturer;
- name of the organization or province that carried out the fluorescent lamp ballast verification and authorized the verification mark that will be affixed to the fluorescent lamp ballast;
- ballast efficacy factor;
- with which of the following fluorescent lamps the product is designed to operate:
  - i) F32T8 rapid start;
  - ii) F34T12 rapid start;
  - iii) F40T10 rapid start;
  - iv) F40T12 rapid start;
  - v) F96T12IS;
  - vi) F96T12ES;
  - vii) F96T12HO; or
  - viii) F96T12HO ES;
- number of fluorescent lamps the ballast is designed to operate; and
- for which of the following ballast input voltages the product is designed:
  - i) 120 volts;
  - ii) 277 volts; or
  - iii) 347 volts.

**APPLIES TO**

- a) a rapid-start straight-shaped fluorescent lamp with a nominal overall length of 1200 mm (48 inches), a medium bi-pin base and a nominal power of not less than 28 W;
- b) a rapid-start straight-shaped fluorescent lamp with a nominal overall length of 2400 mm (96 inches), a recessed double-contact base, a nominal power of not less than 95 W and a nominal current of 0.8 A;
- c) a rapid-start U-shaped fluorescent lamp with a nominal overall length of not less than 560 mm (22 inches) and not more than 635 mm (25 inches), a medium bi-pin base and a nominal power of not less than 28 W;
- d) an instant-start straight-shaped fluorescent lamp with a nominal overall length of 2400 mm (96 inches), a single-pin base and a nominal power of not less than 52 W; and
- e) any fluorescent lamp that is a physical and electrical equivalent of a lamp described in paragraphs (a), (b), (c) or (d);
- but does *not* include:
- f) a fluorescent lamp that is specifically marked and marketed for plant-growth use;
- g) a cold-temperature fluorescent lamp;
- h) a coloured fluorescent lamp;
- i) a fluorescent lamp designed to be impact-resistant;
- j) a reflectorized or aperture fluorescent lamp;
- k) a fluorescent lamp designed for use in reprographic equipment;
- l) a fluorescent lamp primarily designed to produce ultraviolet radiation; or
- m) a fluorescent lamp with a colour-rendering index of 82 or greater.

**General service fluorescent lamps**

LAMP TYPE	NOMINAL LAMP WATTAGE	MINIMUM AVERAGE CRI	MINIMUM AVERAGE LAMP EFFICACY (lm/W)
1200 mm (48 in.) medium bi-pin base	> 35 W	69	75.0
	≤ 35 W	45	75.0
560 to 635 mm (22 to 25 in.) U-shaped	> 35 W	69	68.0
	≤ 35 W	45	64.0
2400 mm (96 in.) high output, recessed double-contact base	> 100 W	69	80.0
	≤ 100 W	45	80.0
2400 mm (96 in.) slimline, single-pin base	> 65 W	69	80.0
	≤ 65 W	45	80.0

Where CRI = colour-rendering index  
lm/W = lumens per watt

**Requirements for the energy efficiency report, as listed in Schedule IV of the Regulations****For both rapid-start and instant-start fluorescent lamps:**

- type of product (general service fluorescent lamps);
- brand name;
- model number;
- manufacturer; and
- name of the organization or province that carried out the fluorescent lamp verification and authorized the verification mark that will be affixed to the product or the product packaging.

**In addition, the following requirements apply for rapid-start fluorescent lamps:**

- nominal power;
- shape of product (one of the following):
  - (a) straight-shape; or
  - (b) U-shape;
- nominal length;
- diameter;

**TEST STANDARD**

ANSI/CGA/CIE/CSA/IES

Standard

ANSI C78.1, ANSI 78.3

ANSI C78.375

ANSI C82.3

CIE 13.3

IES LM9

IES LM16

IES LM58

**COMPLIANCE DATE**

February 1, 1996

**ENERGUIDE LABEL**

- required
- not required

**ENERGUIDE DIRECTORY**

- available
- not available

**General service fluorescent lamps (continued)**

- type of base (one of the following):
  - (a) a medium bi-pin base; or
  - (b) a recessed double-contact base;
- abbreviation under the designation system in ANSI C78.1 Annex A;
- correlated colour temperature;
- average colour-rendering index; and
- average lamp efficacy.

For **instant-start fluorescent lamps**, the following requirements apply:

- nominal power;
- diameter;
- abbreviation under the designation system in ANSI C78.3 Annex A;
- correlated colour temperature;
- average colour-rendering index; and
- average lamp efficacy.

**APPLIES TO**

an incandescent reflector lamp

- a) with an R bulb shape, a PAR bulb shape or a bulb shape similar to R or PAR that is neither ER nor BR, as described in ANSI C79.1;
- b) with an E26 medium-screw base;
- c) with a nominal voltage or voltage range that lies at least partially between 100 volts and 150 volts;
- d) with a diameter greater than 70 mm (2.75 inches); and
- e) that has a nominal power of not less than 40 W and not more than 205 W;

but does *not* include:

- f) a coloured incandescent reflector lamp; or
- g) an incandescent reflector lamp that
  - i) is of the rough or vibration service type with:
    - (A) a C-11 filament, as described in the IES Handbook, with five supports exclusive of lead wires;
    - (B) a C-17 filament, as described in the IES Handbook, with eight supports exclusive of lead wires;
    - or
    - (C) a C-22 filament, as described in the IES Handbook, with 16 supports exclusive of lead wires;
  - (ii) is of the neodymium oxide type;
  - (iii) has a coating or other containment system to retain glass fragments if the lamp is shattered and is specifically marked and marketed as an impact-resistant lamp;
  - (iv) is specifically marked and marketed for plant growth use and has a spectral power distribution that:
    - (A) is different from that of the lamps described in paragraphs (a) to (e); and
    - (B) promotes the growth of plants;
    - or

## General service incandescent reflector lamps

RATED WATTAGE	MINIMUM AVERAGE LAMP EFFICACY (lm/W)
40 – 50	10.5
51 – 66	11.0
67 – 85	12.5
86 – 115	14.0
116 – 155	14.5
156 – 205	15.0

Where lm/W = lumens per watt



(v) is specifically marked and marketed

- (A) as an infrared heat lamp;
- (B) for heat-sensitive use;
- (C) for mine use; or
- (D) for aquarium, terrarium or vivarium use.

**TEST STANDARD**

CAN/CSA-C862-95

**COMPLIANCE DATE**

April 1, 1996

**ENERGUIDE LABEL**

- required
- not required

**ENERGUIDE DIRECTORY**

- available
- not available

**General service incandescent reflector lamps (continued)****Requirements for the energy efficiency report, as listed in Schedule IV of the Regulations**

- type of product (general service incandescent reflector lamp);
- brand name;
- model number;
- manufacturer;
- name of the organization or province that carried out the incandescent reflector lamp verification and authorized the verification mark that will be affixed to the product or the product packaging;
- lamp description;
- nominal power and voltage;
- lamp class as specified in ANSI C78.21, Table 1 of Part II; and
- average lamp efficacy.

**APPLIES TO**

- a) a continuous-duty operation, open or enclosed, electric induction motor of the polyphase, squirrel cage, National Electrical Manufacturers Association (NEMA) design A or B type, that is designed to operate at a single speed and that has:
- (i) two, four or six poles;
  - (ii) a rated voltage of not more than 600 volts;
  - (iii) a rated frequency of 50/60 hertz or 60 hertz;
  - (iv) a rated power of not less than 1 HP and not more than 200 HP;
  - (v) a T-frame;
  - (vi) a standard shaft, an R-shaft or an S-shaft;
  - (vii) a foot mounting, a type C face-mounting or a type D flange-mounting; and
  - (viii) an IP code from 00 to 66; or
- b) a maximum continuous rating, open or enclosed, electric motor of the three-phase, cage, International Electrotechnical Commission (IEC) design N type and SI-duty type, that is designed to operate at a single speed, that is either flange-mounted or foot-mounted, and that has:
- (i) two, four or six poles;
  - (ii) a rated voltage of not more than 600 volts;
  - (iii) a rated frequency of 50/60 hertz or 60 hertz;
  - (iv) a rated power of not less than 0.746 kilowatts and not more than 150 kilowatts;
  - (v) a frame number of 90 or above; and
  - (vi) an IP code from 00 to 66.

**Electric motors (1 to 200 HP/0.746 to 150 kW)****Requirements for the energy efficiency report, as listed in Schedule IV of the Regulations**

- type of product (electric motor from 1 to 200 HP or 0.746 to 150 kilowatts);
- brand name;
- unique motor identifier (see definition below);
- manufacturer; and
- name of the organization that carried out the motor energy efficiency verification and authorized the verification mark that will be affixed to the motor.

For motors manufactured on or after February 3, 1995, and before November 27, 1997, in addition to the preceding information the energy efficiency report must include:

- rated load; and
- quoted efficiency value.

For motors manufactured on or after November 27, 1997, in addition to the preceding information the energy efficiency report must include:

- nominal efficiency value.

**Unique motor identifier (UMI)**

For electric motors, a unique motor identifier (UMI) is required instead of the product's model number when reporting information in an energy efficiency report or on a customs release document. The UMI applies to motors manufactured on or after November 27, 1997, and is comprised of the following information, in this sequence:

- the name of the manufacturer, in abbreviated form;
- the power of the motor (indicated in HP for NEMA motors and in kilowatts for IEC motors);
- the number of poles; and
- whether the motor is open or enclosed.

**TEST STANDARD**

CAN/CSA-C390-93

**COMPLIANCE DATE**

November 27, 1997

For explosion-proof motors and motors contained within an integral gear assembly, the compliance date is November 27, 1999.

**ENERGUIDE LABEL**

- required  
 not required

**ENERGUIDE DIRECTORY**

- available  
 not available

**Electric motors (1 to 200 HP/0.746 to 150 kW) (continued)**

The following are examples of UMIs for NEMA and IEC motors, respectively:

- MANUF-1HP-2-enclosed;
- MANUF-3kW-6-open.

Only one report must be filed for all motors that have the same UMI.

**Energy Efficiency Standards for NEMA Motors**  
**Minimum nominal efficiency**

POWER (HP)	OPEN			ENCLOSED		
	2-POLE	4-POLE	6-POLE	2-POLE	4-POLE	6-POLE
1	75.5	82.5	80.0	75.5	82.5	80.0
1.5	82.5	84.0	84.0	82.5	84.0	85.5
2	84.0	84.0	85.5	84.0	84.0	86.5
3	84.0	86.5	86.5	85.5	87.5	87.5
5	85.5	87.5	87.5	87.5	87.5	87.5
7.5	87.5	88.5	88.5	88.5	89.5	89.5
10	88.5	89.5	90.2	89.5	89.5	89.5
15	89.5	91.0	90.2	90.2	91.0	90.2
20	90.2	91.0	91.0	90.2	91.0	90.2
25	91.0	91.7	91.7	91.0	92.4	91.7
30	91.0	92.4	92.4	91.0	92.4	91.7
40	91.7	93.0	93.0	91.7	93.0	93.0
50	92.4	93.0	93.0	92.4	93.0	93.0
60	93.0	93.6	93.6	93.0	93.6	93.6
75	93.0	94.1	93.6	93.0	94.1	93.6
100	93.0	94.1	94.1	93.6	94.5	94.1
125	93.6	94.5	94.1	94.5	94.5	94.1
150	93.6	95.0	94.5	94.5	95.0	95.0
175	94.5	95.0	94.5	95.0	95.0	95.0
200	94.5	95.0	94.5	95.0	95.0	95.0

**Electric motors (1 to 200 HP/0.746 to 150 kW) (continued)****Energy Efficiency Standards for IEC Motors (Including Frame 100)  
Minimum Nominal Efficiency**

POWER (KW)	OPEN			ENCLOSED		
	2-POLE	4-POLE	6-POLE	2-POLE	4-POLE	6-POLE
0.75	75.5	82.5	80.0	75.5	82.5	80.0
1.1	82.5	84.0	84.0	82.5	84.0	85.5
1.5	84.0	84.0	85.5	84.0	84.0	85.5
2.2	84.0	84.0	86.5	85.5	84.0	87.5
3.0	84.0	84.0	86.5	85.5	84.0	87.5
3.7	85.5	87.5	87.5	87.5	87.5	87.5
4.0	85.5	87.5	87.5	87.5	87.5	87.5
5.5	87.5	88.5	88.5	88.5	89.5	89.5
7.5	88.5	89.5	90.2	89.5	89.5	89.5
11	89.5	91.0	90.2	90.2	91.0	90.2
15	90.2	91.0	91.0	90.2	91.0	90.2
18.5	91.0	91.7	91.7	91.0	92.4	91.7
22	91.0	92.4	92.4	91.0	92.4	91.7
30	91.7	93.0	93.0	91.7	93.0	93.0
37	92.4	93.0	93.0	92.4	93.0	93.0
45	93.0	93.6	93.6	93.0	93.6	93.6
55	93.0	94.1	93.6	93.0	94.1	93.6
75	93.0	94.1	94.1	93.6	94.5	94.1
90	93.6	94.5	94.1	94.5	94.5	94.1
110	93.6	95.0	94.5	94.5	95.0	95.0
132	94.5	95.0	94.5	95.0	95.0	95.0
150	94.5	95.0	94.5	95.0	95.0	95.0

## For more information

### Helpful web sites

- *Energy Efficiency Regulations*: <http://regulations.nrcan.gc.ca>
- Office of Energy Efficiency: <http://oee.nrcan.gc.ca>