

**CRITERIA FOR AWARDING THE ENERGY SAVING
PROCEL SEAL TO ELECTRIC MOTORS**

(DOCUMENT COMPLEMENTARY TO THE REGULATION FOR AWARDING
THE ENERGY SAVING PROCEL SEAL)

August 26th, 2019



ELETROBRAS/ PROCEL

**PRFP – NATIONAL ELECTRICITY CONSERVATION AND
ENERGY EFFICIENCY PROGRAM**



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1 Introduction

This document is complementary to the “Regulation for Awarding the Energy Saving Procel Seal”, which may be accessed on the Procel website (www.procelinfo.com.br). Its goal is to define the criteria that shall be met by **electric motors** in order to receive, voluntarily, the authorization to use the Energy Saving Procel Seal.

2 Evaluation of product characteristics

The mechanism for evaluating the conformity of electric motors, covered by this regulation is the labeling, through the Brazilian Labeling Program – PBE, coordinated by the National Institute of Metrology, Quality, and Technology – Inmetro, in partnership with Procel.

Therefore, the product applying for the Procel Seal must be subjected to the stages for granting the use of the National Energy Conservation Label - ENCE ¹ described in the current document "Conformity Evaluation Requirements (RAC) for Electric Motors" of the Brazilian Labeling Program - PBE, published on the Inmetro website (www.inmetro.gov.br).

The reference labs to perform the tests, the respective sampling, the testing and the allowed tolerances for the results are the ones detailed in the document cited in the previous paragraph.

3 Criteria for awarding the Procel Seal

3.1 Minimum requirements

In order to earn the Procel Seal, the motor shall meet the minimum performance levels presented in Tables 1 and 2, also meeting the deadlines presented in the topic 3.2.

¹ ENCE – Its goal is to inform the energy consumption and /or energy efficiency of equipment. Its use is subject to the authorization by Inmetro.

Motors whose projects are derived from the basic electric projects declared by the manufacturer/ importer may also earn the Procel Seal.

Table 1 - Minimum performance required to earn the Procel Seal – version prior to the Interministerial Ordinance No. 01/2017

Power (cv*)	Performance (%)			
	2 poles	4 poles	6 poles	8 poles
1,0	80,5	82,8	80,5	74,9
1,5	83,1	81,8	79,3	78,7
2,0	84,1	84,4	83,8	84,2
3,0	85,5	85,4	83,7	85,3
4,0	86,4	86,6	86,6	85,8
5,0	88,0	88,0	88,0	86,4
6,0	88,5	89,0	88,4	87,6
7,5	89,1	90,0	88,9	87,8
10,0	90,0	91,3	89,7	90,3
12,5	90,0	91,3	89,9	90,3
15,0	90,8	92,0	91,0	90,3
20,0	91,6	92,7	91,3	91,3
25,0	92,0	92,8	92,3	90,8
30,0	91,8	93,3	92,9	92,4
40,0	92,5	93,4	93,6	92,8
50,0	93,4	93,4	93,6	93,4
60,0	93,6	94,0	94,1	93,4
75,0	93,6	94,5	94,1	94,3
100,0	94,2	94,9	94,6	94,5
125,0	95,1	95,0	94,7	94,9
150,0	95,1	95,4	95,5	95,0
175,0	95,3	95,4	95,5	-
200,0	95,6	95,4	95,5	-
250,0	96,0	95,8	-	-

***1 cv = 735,5 W**

**Table 2 – Minimum performance required to earn the Procel Seal –
 version after the Interministerial Ordinance No. 01/2017**

Power (cv*)	Performance (%)			
	2 poles	4 poles	6 poles	8 poles
0,16	63,5	68,0	65,5	61,5
0,25	67,1	72,0	69,1	66,0
0,33	71,1	76,0	71,0	69,5
0,50	74,4	79,2	76,5	73,6
0,75	79,0	83,4	80,6	75,4
1	81,4	85,6 ^a	83,6	76,8
1,5	84,6	86,9 ^b	87,9 ^c	81,1
2	85,7	87,0	88,9 ^d	84,5
3	86,8	89,8 ^e	89,8 ^f	86,5
4	88,8	89,8	89,8	86,8
5	88,8	90,2	90,2	87,5
6	89,2	90,2	90,2	87,8
7,5	89,7	91,9 ^g	91,3	87,9
10	90,5	91,9	91,3	90,9
12,5	91,2	92,6	92,0	91,0
15	91,4	92,6	92,0	91,3
20	92,2	93,3	92,4	91,3
25	92,5	93,8	93,2	91,6
30	92,8	94,0	93,5	92,4
40	93,3	94,4	94,4	93,0
50	94,0	95,0	94,5	93,6
60	94,2	95,2	94,7	93,6
75	94,2	95,8	94,7	94,3
100	95,0	95,8	95,3	94,5
125	95,4	95,8	95,3	94,8
150	95,5	96,2	96,0	95,0
175	95,6	96,4	96,0	95,0
200	95,8	96,4	96,0	95,2
250	96,0	96,4	96,0	95,2
300	96,0	96,4	96,0	95,2
350	96,0	96,4	96,0	95,2
400	96,0	96,4	96,0	95,2
450	96,0	96,4	96,0	95,2
500	96,0	96,4	96,0	95,2
^a For motors with frame size 80, the minimum performance value is 84,5%				
^b For motors with frame size 80, the minimum performance value is 85%				
^c For motors with frame size 90, the minimum performance value is 85,9%				
^d For motors with frame size 100, the minimum performance value is 86,9%				
^e For motors with frame size 90, the minimum performance value is 87,8%				
^f For motors with frame size 100, the minimum performance value is 87,3%				
^g For motors with frame size 112, the minimum performance value is 91,2%				

***1 cv = 735,5 W**

3.2 Period of validity for the minimum performance tables

The minimum nominal performance levels, as shown in Tables 1 and 2, for earning the Procel Seal, prevail during the following deadlines:

- Table 1 – effective from January 1st, 2010 to February 28th, 2020; from this date on, motors with performance less than the level IR3 cannot be sold in Brazil anymore, according to the Interministerial Ordinance No. 01/2017.

- Table 2 – effective from February 29th, 2020 until the next review, to be defined at an appropriate occasion, at the discretion of PROCEL. Those interested in the Procel Seal for electric motors are recommended to constantly check this document, in order to get updated about the revisions of levels and about this document.

3.3 Results confirmation

After finishing the tests, the supplier/ importer shall send to Procel the Technical Specifications Worksheet (PET) and the Test Report of the model, or shall authorize the reference lab to do so. The submission may be made by email (procel@eletrobras.com).