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The Manuscript English Title for ACRA2026

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ABSTRACT

The design and analysis of a 200USRT centrifugal refrigerant compressor is performed by a complete procedure. The design target is either a high full loading or a high IPLV (integrated part load value) centrifugal chiller. The developing procedure includes conceptual design, preliminary design, detail design and flow field analysis. The thermal cycle and rotational speed are determined within conceptual design; the performance prediction is performed within preliminary design; the complete shapes of impeller and diffuser are determined in detail design. The off-design performance is found by CFD. The rotational speed is 24,000rpm. An impeller with multi-blades is used and the scale of vanless diffuser is studied. For some cases, the diffuser is too short or too wide to recovery pressure; therefore, the pressure ratio between the exhaust and suction cannot fit the design. In these cases, the recirculation may occurred and result in low-performance of compressor. More cases with different diffuser scale are designed and analyzed. It shows that better design of vanless diffuser results in better performance of compressor. (200 words)

Keywords: 3-4 words.

1. PAPER LENGTH

Author-prepared full paper length must be between 4 and 6 pages including figures and tables.

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The title of your paper and the author(s) should be included in the space. Paper title and author name(s) are typed centered.

The title should be 14 pt. boldface in all capital letters; it should be in a Times typeface with 14 pt. line spacing. The title should be centered on the page, and all lines (including run-over lines of a long title) should be centered. One (1) line space separates the title from the first author.

Author name should consist of first name, middle name, and last name. It should be 10 pt. boldface Times, upper and lower case letters (with 10 pt. of line spacing), centered under the title. **Put a asterisk (*) at the rear of the speaker's name.** Author affiliation should consist of the following as applicable and in the order noted:

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Professional titles should not be included. All author affiliation information should be 10 pt. Italic, upper and lower case letters (with 10 pt. line spacing, centered under the name. One (1) line space separates the first and subsequent authors.

3. ORGANIZATION OF PAPER

Papers are organized in the following order: abstract, nomenclature, main body, acknowledgments, references, and appendices.

4. NOMENCLATURE

The nomenclature list is in alphabetical order, followed by any Greek symbols. Subscripts and superscripts are listed last and are identified with headings. Symbols that can not be typed are written in black ink.

5. USE OF SI UNITS

SI (Metric) units of measurement are to be used. When U.S. customary units are given preference, SI units should be also given in parentheses.

6. TEXT

Type single space (10 pt.), two columns a page like this guide. The text should be 80 mm wide and justified on the right and left margins.

The first line of each paragraph should be **indented five spaces** from the left margin. The text should be arranged in a two-column format.

7. MAJOR HEADING

The major heading should be 10 pt. Times boldface in all capitals, flush left with the left margin. If the major heading should run to more than one line, the run-over text should also be flush left. One line of space is left above and below the major heading.

7.1 Sub Headings

The next level of heading should be 10 pt. Times boldface, typed with the initial letter of each word capitalized. The heading is flush left with the left margin. One line of space is left above and below the subheading, and the text begins on the line below it.

Sub-subheadings The third level of heading should be indented five spaces, underlined, and followed by two spaces and text. A space is left above the sub-subheading.

8. FOOTNOTE

Footnotes should be numbered consecutively using superscript numbers. They should be positioned flush left at the bottom of the column in which the reference first appears. The text of the footnote should be 8 pt. Times (with 10 pt. line spacing), not to exceed 80 mm. The footnote should be preceded by a horizontal line. There should be one (1) line space between the horizontal line and the main text.

9. EQUATIONS

Equations should be typed if possible. If handwritten, they must be carefully lettered using symbols approximately the same size as the typewritten characters. Equations written in pencil will not be accepted. Center each equation horizontally and allow one line of space above and below.

Equation numbers should be Arabic numerals enclosed in parentheses which should be flush right in each column. They should be cited in the text as, for example, Eq. (11), or Eqs. (21)-(23).

$$E = mc^2 \quad (1)$$

10. FIGURES/PHOTOGRAPHS

All figures, graphs and line drawings should be clear and sharp and of high quality (photocopies are not acceptable). Figures may be placed either at the end of the paper or within the text of the paper, immediately following the text reference of the figure.

If figures are placed within the text of the paper, it is preferable to position them at the top or bottom of the paper. They should be referred to in the text as, for example, Fig. 10, or Figs.

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Photographs, like figures, should be placed directly on the page, either at the end of your paper or within the text of the paper. Photographs should be sized to accurately fit the page specifications. Do not provide slides or negatives separately.

Figures/photographs can be sized to fit the page dimension as follows:

- (1) 80 mm - to fit at the top of one column
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- (3) 240 × 157 mm - across the entire page top to bottom (turned sideways).

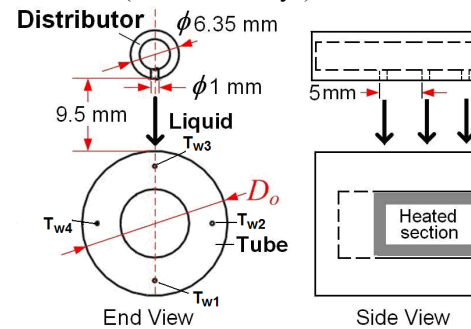


Figure 1. Schematic of the Test Apparatus

All figures/photographs should be numbered consecutively and captioned. Place figure caption below the figure. The caption is a title or description of the figures/photographs and includes the figures/photographs number. The caption should follow the style, for example, Figure 1 Schematic diagram. All numbers and text within the figure should be no smaller than 8 pt. There should be a minimum of one line space between figures/photographs and text.

11. TABLES

All tables should be numbered consecutively with Arabic numerals and captioned. The caption should follow the style, for example, Table 1 test conditions and experimental results. The body of the table should be no smaller than 8 pt. The use of boldface and italics is encouraged to make necessary distinctions within the table.

Tables should be positioned at the top or bottom of the page. As with all figures, all tables should be in place on the page when the final paper is submitted. There should be a minimum of one line spaces between tables and text.

Table 1. Test Conditions and Experimental Results

Items	A case	B case	C case
Time	10 sec	20 sec	30 sec
Temperature	5°C	10°C	15°C
Relative Humidity	70%	60%	50%

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