



OFFICINE MARIO DORIN SINCE 1918

DORIN[®]
FOR THE ENVIRONMENT

END-OF-LIFE MANAGEMENT OF A COMPRESSOR



SAFETY AND
ENVIRONMENTAL DIRECTIVES

OPERATING MODES

DESIGN

DESIGN INPUT

REQUIREMENTS OF AN ENVIRONMENTAL NATURE

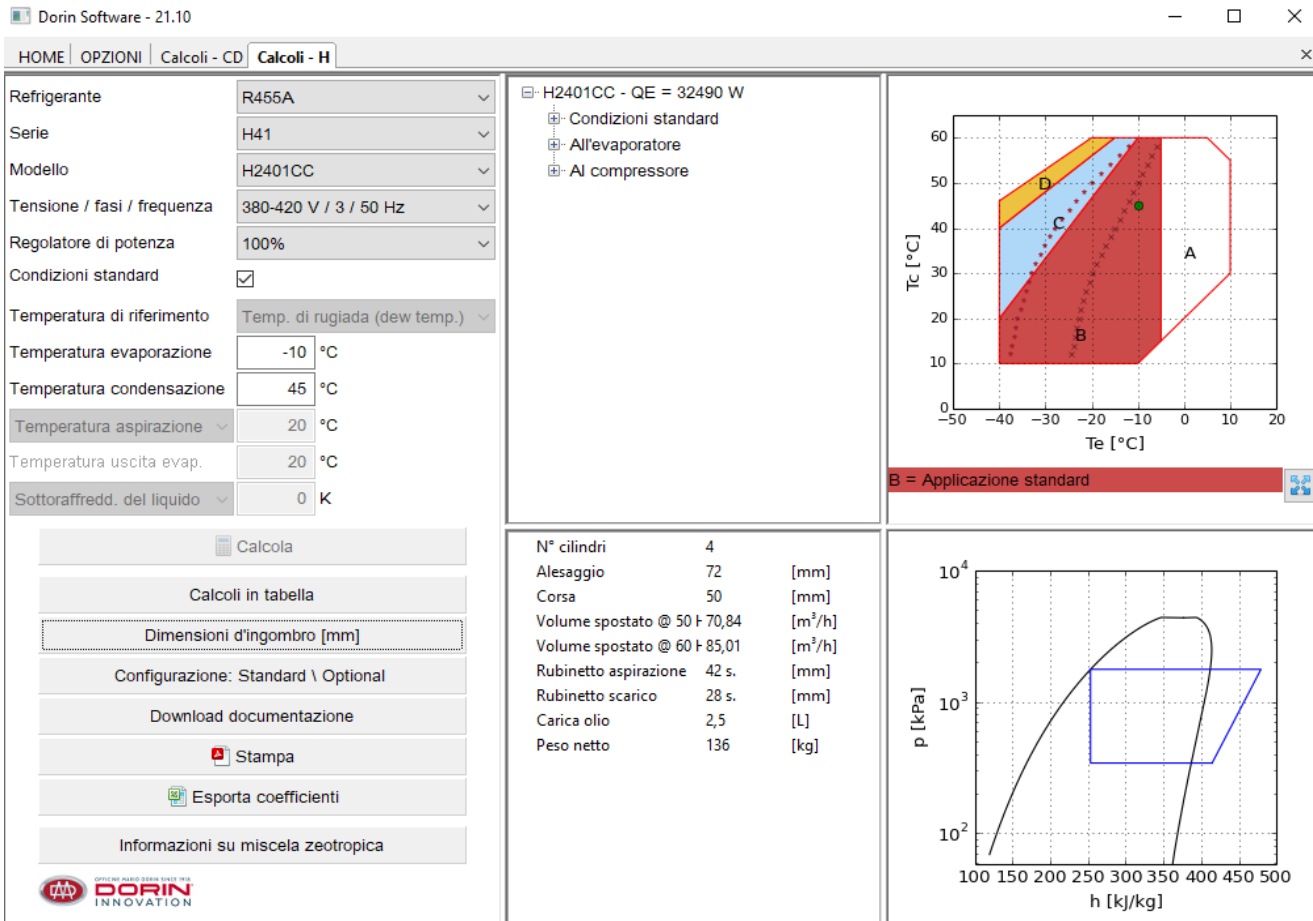
To be considered in evaluations and design choices

- Energy performance of the compressor during its life - continuous performance optimization through the study of new valve plates or solutions that allow to increase the COP in the most varied applications, from heat pumps to chillers.

REQUIREMENTS OF AN ENVIRONMENTAL NATURE

To be considered in evaluations and design choices

- Use of low ODP, GWP refrigeration gases
- The compressors have been tested and made available in the last year for operation with low GWP gas (<150), type A2L type R454C and R455A and for some time (since 2015) for use with hydrocarbons (propane R290 and propylene R1270) , complete with ATEX self-certification.
- Evidence of what is described in our calculation SW with a list of compressor series and data to allow the user the possibility to develop plants with less environmental impact



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REQUIREMENTS OF AN ENVIRONMENTAL NATURE

To be considered in evaluations and design choices

- Noise produced during compressor operation (tests are usually carried out in the test room to measure noise and try to minimize it, e.g. tests conducted with sound-absorbing “covers” on CDS7 compressor, not yet approved for verification of improvements for its use)
- Reduction of hazardous substances used in the production process (water paints, oil, etc.)

DESIGN OUTPUT

Provide the user with end-of-life management instructions, including appropriate information in the "Instructions for Use" document concerning :

- Materials to be separated and handled as differentiated waste (e.g. plastic parts, cables and electrical components, etc.)
- Hazardous substances to be removed and disposed of as hazardous special waste (e.g. oil)
- Gas to be removed and started for recovery/disposal. (e.g. refrigerant)

END-OF-LIFE MANAGEMENT OF A COMPRESSOR

Most of the component material a compressor (semi-hermetic or open) is of metal type, cast iron, aluminum, and steel, the difference between a semi-hermetic and open model is in the presence of the electric motor in the first case and its absence in the second. The presence of plastic materials is limited to electrical boxes (when not also made of metal material) and to the closing caps of the valves connecting to the refrigeration system.

The electric motor consists of a package of magnetic sheets and copper wire adequately impregnated, for insulation purposes, with special paints.

The lubricating oil put into the compressor, is mineral or polyethylene ester (POE) or polyalkylglycol (PAG). In the instructions manual there is a clear reference to the need for recovery (see the extract below)

Generally, compressors can operate with many different synthetic or natural refrigerants such as hydrocarbons (special HEX series) or carbon dioxide (special CD/CDS series). Also for refrigerants there is evidence in the user manual on the need for suction (and relative recovery) of the refrigerant to be delivered to the appropriate authorized centers.



Semi-Hermetic Compressor

Open Type Compressor



DISPOSAL

The basic information on compressor disposal is provided in the instruction manual.

The main notes are given below as an extract of what is on p. 21-22

DISPOSAL

! ATTENTION:

**The compressor can be under pressure! Danger of serious burns.
Wear protective gloves and glasses.**

When the system is no longer used, it shall be made inoperative by properly eliminating materials. In compliance with the standards in force in the different countries, regarding the waste disposal and the respect of the environment, the parts of the system shall be divided according to the waste types so as to dispose of and recycle materials in a proper way.

COMPRESSOR DISASSEMBLY(FROM THE PLANT)

- Implement the insulation procedure described in the Maintenance section;
- Close the service valves on the compressor;
- Remove the refrigerant;
- Remove the screws fastening the valves to the compressor;
- Remove the mounting points of the compressor on the ground;
- Remove the compressor as described in transportation and positioning.

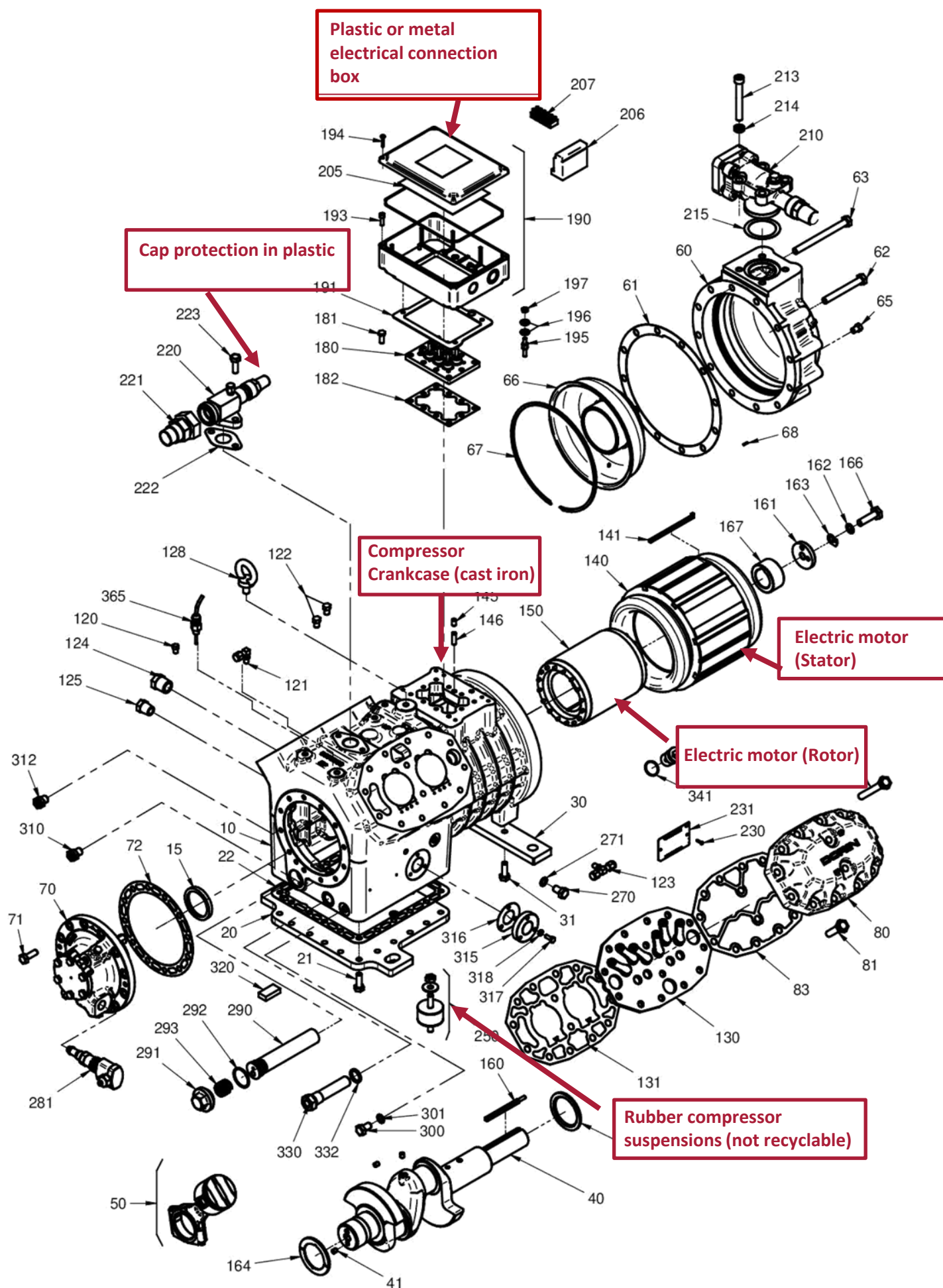
! ATTENTION:

Do not waste the lubricant in the environment; it is special waste and as such it shall be disposed of according to the standards in force.

The next page shows an exploded view of a semi-hermetic compressor .

It shows all the internal components necessary for its operation and all the relative connections.

References are given for some components.





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