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# Modularization strategy for the construction of Direct Reduction Plants

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Decarbonization of the steel industry has multiplied the number of projects involving construction of a direct reduction plant.
Shorter project schedules and avoiding cost/availability issues with onsite construction skilled workers are key advantages of a modularized construction strategy.
TECNICAS REUNIDAS has executed projects in other industrial areas using this strategy and has conducted detailed analysis for DR plants in early project phases.
Modularization of the DRI unit could be split into 4 main elements:
-DRI reactor structure:Main element of the plant in size and complexity. Its dimensions (25m x 25m) are an important factor that affect the feasibility of its potential modularization. A detailed road survey shall be executed to determine the maximum transport dimensions.
Installation method, normally using a super HL crane (usually ringer type), with low availability in the market and to be booked a long time in advance, is an important constraint and requires a project decision at an early stage.
-Process Gas Heater (PGH): could be supplied modularized directly by the OEM, implying an important reduction of construction manhours at the Site. On the other hand, a detailed comparison analysis is required between the modular and the stick-built options.
-Rest of the plant could be modularized more simply:
Piperacks –PARs
Process structure –PAUs
Hytemp Tower –PAUs
Hytemp Bridge –PARs
Modules'size and dimensions will be determined by the maximum transport envelope defined in the road survey and the installation method (crane, SPMT, jacking⋯).
E-Houses: Modularization could include supply of the electrical substation and control room, mostly using a specialized vendor but could also be fabricated by the module yard.
In summary, the degree of modularization can be very high in this type of plant, with major gains for the project, but shall consider important constraints related to site access and installation method.

**Primary author:** Mr GARCIA JIMENEZ, Juan

**Co-author:** FERNANDEZ SUAREZ, Ivan

**Presenters:** FERNANDEZ SUAREZ, Ivan; Mr GARCIA JIMENEZ, Juan

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