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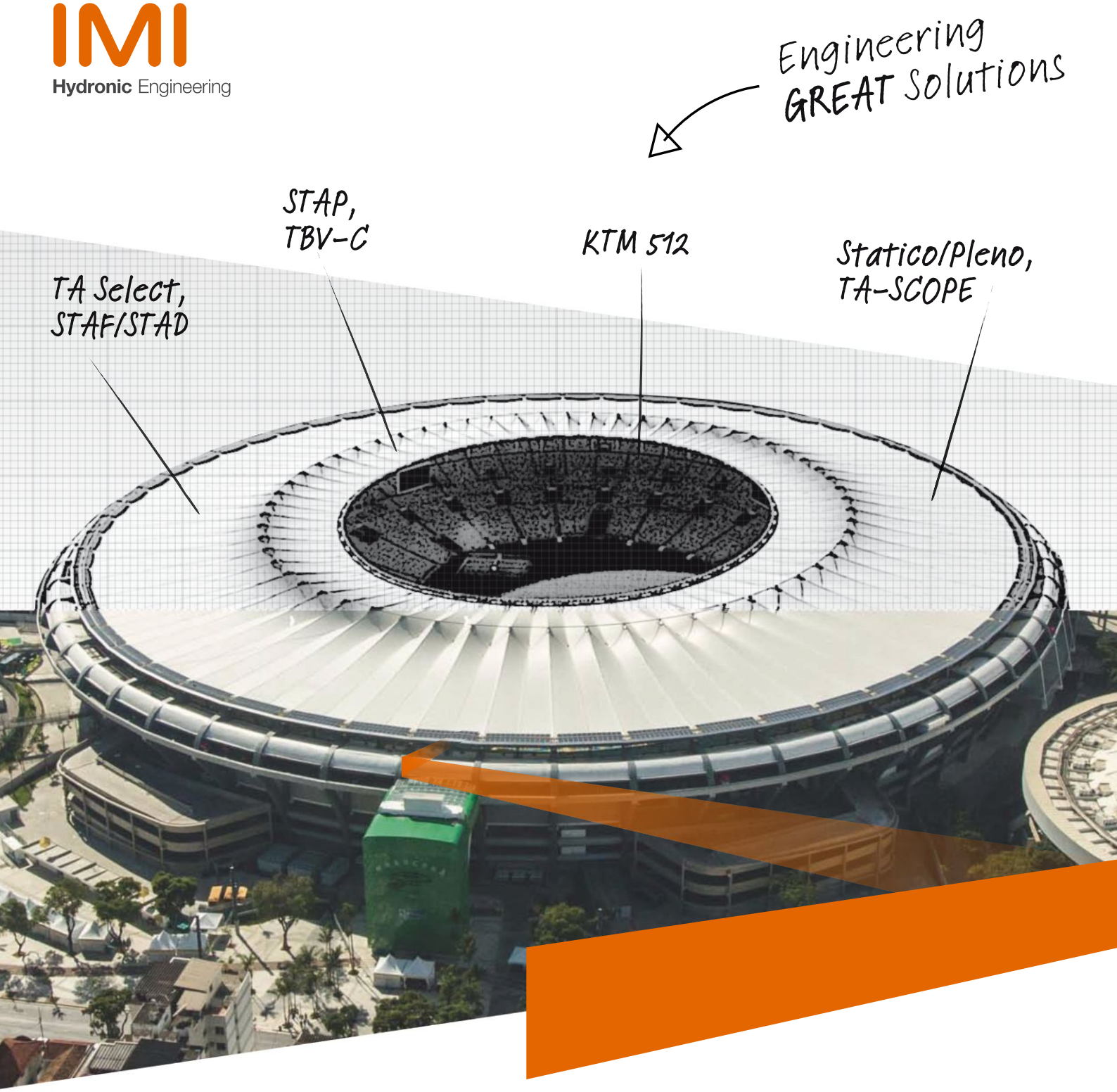

IMI Hydronic Engineering ensures comfortable indoor climate
at Brazil's iconic Maracanã Stadium

Case Study

FACTS

Project Type:	Sporting stadium renovation
Location:	Rio de Janeiro, Brazil
Owner:	Consórcio Maracanã
Consultant:	DW Engenharia
Gross area:	240,000 m²
Products used:	TA Select, STAF/STAD, STAP, TBV-C, KTM 512, Statico/Pleno, TA-SCOPE

As part of the complete renovation of brazil's famous maracanã stadium in Rio de Janeiro in preparation for the hosting the 2014 World Cup finals, project leaders, Consórcio maracanã, wanted to increase HVAC efficiency across the iconic stadium. As such, they set out to find a partner with the sufficient know-how and capability required to meet their sustainable indoor climate requirements. **IMI Hydronic Engineering proved to be the partner with the perfect solution.**

The near three-year refurbishment of brazil's largest stadium comprised an expansion from 189,000 m² to 240,000 m², and now also boasts 328 parking spaces, 292 restrooms, 60 bar areas across five floors and is lit by 23,500 low-maintenance LED lighting fixtures and is installed with rain water collection and clean energy solutions.

The challenge

Project leaders Consórcio maracanã envisioned transforming the stadium into an environmental heritage for brazil by saving natural resources such as water and electricity and thereby receiving Leadership in Energy and Environmental Design (LEED) environmental accreditation, from the brazilian Green building Council.

As such, in line with the stadium's sustainable vision, a cooling system with a capacity of 10,620 kW was required to maintain a healthy and comfortable indoor climate with precise temperature control and a high level of efficiency.

The solution

During the latest of many successful collaborations between the two companies, IMI Hydronic Engineering worked closely with consultant, DW Engenharia, from the outset of the project, providing full design support in a bid to deliver the stadium's indoor climate and temperature requirements.

The first step in reaching the optimal solution was to review the existing system. IMI Hydronic Engineering began with a thorough analysis using Hy select to help determine the optimum component selection, and discussions with the client at a strategic-level as to how the system should respond.
The close co-operation enabled both parties to agree on solutions that would guarantee the best hydronic design possible.

As such, it was agreed that the solution would comprise a range of high performance STAF and STAD balancing valves, STAP differential pressure controllers, TBV-C terminal valves, KTM 512 pressure-independent temperature control valves, Statico and Pleno pressure-maintenance devices and the TA-SCOPE flow and pressure measurement and diagnostics instrument, as well as further support during commissioning of the project.

IMI Hydronic Engineering also provided installation support to ensure that new components were installed correctly and assisted in the commissioning phase providing balancing expertise and ensuring that the solution would meet the stadium's desired sustainable indoor climate requirements from the outset.

The Outcome

During the stadium's official reopening in June, it became clear that the new system was able to successfully deliver a comfortable indoor climate, providing energy savings of 4% achieved through cooling system optimisation.

The state-of-the-art stadium has since successfully received LEED environmental accreditation, meeting three American society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) standards – the most common LEED standard – for efficiency (90.1), HVAC system quality (62.1) and user comfort (55).

"With the company holding such a fantastic working relationship with IMI Hydronic Engineering spanning several successful projects, we had no hesitation that they would deliver once again. We had every confidence that the solution, over the course of the 2014 World Cup finals, would not only continue to deliver the ideal indoor climate, but would provide remarkable energy savings in the process."

Danilo Werneck, owner of DW Engenharia.

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