SAIW to support EN 15085 for welded railway vehicles

To take advantage of localisation opportunities offered by railway reinvestment contracts from PRASA and Transnet, South African manufacturers and sub-contractors will have to comply with international standards, including EN 15085 for welded rail vehicles and their components. SAIW's Sean Blake (*right*) talks about the requirements and SAIW's intended support offering.

Following over 30 years of under-investment, South Africa's railway industry is being bolstered following the finalisation of several large contracts earlier this year.

PRASA, the Passenger Rail Agency of South Africa, has signed a contract with Gibela Rail Transportation Consortium for the supply of 600 of Alstom's X'Ttrapolis Mega commuter electric multiple-units, which each contain six commuter coaches. The contract, valued at R51-billion, includes the construction of a local train manufacturing plant and, as well as the supply of the commuter trains within a 10-year time frame, includes the provision of technical support and spares over an 18-year period.

In addition, in the largest-ever locomotive supply contract in South Africa's history, Transnet has awarded R50-billion worth of contracts for electric and diesel locomotives for its freight rail network. Chinese manufacturers CSR Zhuzhou Electric Locomotive and CNR Rolling Stock SA along with their empowerment partners will make about 60% of the locomotives, while two US-based OEMs, Bombardier Transportation SA and General Electric SA Technologies, will build the rest.

Except for 70, all of the 1 064 locomotives will be built in Transnet Engineering's plants in Koedoespoort, Pretoria and Durban. With preferential procurement and local content stipulations – the suppliers have complied with and exceeded the minimum local content criteria of 60% for electric locomotives and 55% for diesel locomotives – the contracts aim to significantly benefit South African manufacturing, providing technology transfer, high level technical skills, and on-the-job training.

CSR Zhuzhou and Bombardier will supply 599 electric locomotives between them, while General Electric and CNR Rolling Stock will provide another 465 diesel locomotives.

"This marks a significant milestone in Transnet's history and brings substantial socioeconomic benefits to South Africa," says Brian Molefe, Transnet group CE, claiming that the Transnet transaction would create and sustain 30 000 local jobs, while substantially reducing freight congestion on South African roads. By 2019, he revealed, about 350-million tonnes of freight per year would be carried by Transnet, up from the 200-million currently being handled.

According to Molefe, the localisation elements for the locomotive contracts are expected to contribute over R90-billion to the economy. But also embedded in these contracts is the aim to develop a South African rail fabrication industry with long-term export capabilities for coaches, locomotives and related products.

An interior view of Alstom's X'Ttrapolis Metro coaches for PRASA.

EN 15085: an imperative

The EN 15085 series of standards establish the certification and the quality requirements for welding operations in production and maintenance work. "And while ISO 3834 is a general welding standard that can be applied to any welded product, EN 15085 is specific to the international railway industry," says Blake.

"Many fabricators feel that because they are ISO 3834-certified, and that there are many similarities between ISO 3834 and EN 15085, there is no need for specific EN 15085 certification. This is not the case and our fabricators, if they want to make the most out of this once-in-a-lifetime opportunity, must not make this mistake," Blake advises.

While EN 15085 is closely aligned to ISO 3834, which defines comprehensive quality requirements for fusion welding of metallic materials both in workshops and in the field, "it must be understood that EN 15085 is a product-specific standard for the construction, manufactur-

ing and testing of welded rail vehicles and their components, and as global OEMs, Alstom's, CSR's and CNR's quality requirement is that any South African companies working as sub-contractors must be certified accordingly".

Blake adds: "Unlike ISO 3834, which allows a component sub-contractor to operate under the main contractor's certification, EN 15085 insists that all manufacturers of any welded railway component be independently certified." He also reiterates that all the OEMs involved are likely to "insist that local fabricators are EN 15085 certified".

"For the Chinese this has a special significance as Transnet initially came under fire for ignoring rumours of dubious quality with respect to the Chinese tender winners. As a result, the Chinese will go to great lengths to ensure that their quality is nothing short of world class."

Chinese locomotives, including those manufactured for use in China, already comply with EN 15085 and the other quality standards required in Europe. They are unlikely to soften their requirements for South African manufacturers.

To date, a total of 931 railway manufacturers have been certified in Germany and 360 in China. "These are indeed significant numbers in this limited fabrication sector and South African fabricators should take heed, particularly if they wish to emerge as suppliers to the global railway industry following the completion of these contracts," says Blake,

EN 15085 has its roots in the German Welding Society (DVS) and the committees of the German Institute for Standardisation (DIN), but has been adopted as a Europe-wide railway safety standard. For the past 10 years, an Internet-based online register has been maintained by the DVS as an important quality assurance tool for railway vehicles and for certifying rail vehicle and components manufacturing companies. Following the liberalisation of markets in Europe, this was a response to the need for a reliable and readily accessible overview of certified manufacturers.

SAIW has held initial discussions with the DVS in Germany and global EN 15085 experts in an attempt to make the certification process as easy as possible for local fabricators. "We hope to establish a cooperative relationship with DVS in Germany, so that we can offer manufacturers preparatory advice to ease the EN 15085 certification process," says Blake. "While SAIW is not an EN Certification body, we see ourselves offering training, followed by a full preparatory consultancy service to South African companies looking to participate in rail infrastructure rejuvenation programmes.

"The idea is that SAIW can help fabricators to align their welding processes with EN 15085. Only then will we call in a DVS-accredited certification body. This will result in a more cost effective certification route for manufacturers, because the European-based certification experts should only need to complete the final certification audit," Blake suggests.

"Discussions with the DVS are ongoing and we remain optimistic that a relationship will emerge for the benefit the South African railway industry," Blake concludes.

Transnet Rail Engineering's Bloemfontein facility is currently the lead fabricator for South Africa's freight wagon fleet. According to Brian Molefe, Transnet group CE, Transnet's latest transaction would create and sustain 30 000 local jobs and contribute over R90-billion to the economy.

PRASA will be supplied with the X'Trapolis Mega. A new X'Trapolis train was developed by Alstom to fit South Africa's 1,067m gauge.

Extracts from Draft Guideline DVS 1619

The certification of welding manufacturers is based on generally accepted rules of technology. For the welding of railway vehicles and components, these generally accepted rules of technology are embodied in:

- The EN 15085-1 to EN 15085-5 series of standards, and
- Any additionally applicable reference standards.

Welding manufacturers wanting to undertake welding work in new build (including finishing welding) must provide evidence to a recognised manufacturer certification body that they respect the requirements of EN 15085-2.

Welded subassemblies of railway vehicles and components that have been manufactured or repaired by welding manufacturers not in possession of the required certificate are not considered to comply with the standards.

Manufacturers who do not perform any welding work themselves but design, purchase and assemble or purchase and resell welded components and subassemblies require an EN 15085 certificate for the certification level CL 4.