
From the Editor's Desk

During the last decade the steel industry in the country in general has carried on an intensive campaign for increasing the use of steel in large urban conventional fabrication sectors and also in the under utilized rural sector. Considerable disparity in steel consumption exists between the developed and developing countries as described in the paper "Role of Welding in Structural Steel Intensive Construction in India" by Dr. S. R. Mediratta, et al of the Institute of Steel Development & Growth (ISDG), Kolkata. The paper has discussed the various uses of steel, dependence of the welding sector on increasing consumption of steel, the importance of welding technology and the growth possibilities of the welding sector – otherwise can one imagine a return to the days of riveted construction? Welded fabrication in steel today is changing the face of urban life. The paper also points to some of the problems facing the fabrication industry like the situation regarding specific steel supply, and also to inadequate demand development in the rural sector.

After the reunification of Germany, industry there has undergone a change as regards use of manpower vis-a-vis automation. It has not been an easy task to employ automation in production, for instance in the fabrication of railway bogies. It was mostly MMAW in the early 90's which has passed in stages through MIG/MAG to the fully automated Robotic Tandem MIG Welding using two welding wires. The wires melt simultaneously thus giving faster and greater rate of deposition and ensuring Q1 and DIN/ISO 9001 quality. Author Kubu et al in their paper "Efficient Tandem MIG Welding of Bogie Longitudinal Girders for Rail Vehicles – Case study" have described these developments with only essential details to focus on the new ways to competitiveness.

Power sector demand for high performance material is increasing with size of high performance generators being installed (500MW+) in the country. Commissioning high performance material could mean reduction of cutting costs by reducing the thickness of material and concurrent cost of welding due to saving in welding consumable and energy needed. P. K. Saha, in his paper "New Materials for High Temperature Steam Piping", has highlighted performance characteristics of a few materials now being used, for example, for the delivery of steam at 540-565°C at NTPC Boilers for their 500-660 MW units (Trombay and Sipat).

Welders globally have been struggling to keep hydrogen out of the weld metal ever since the dawn of the technology. Hydrogen pick-up in the molten metal results into embrittlement of the substrate in different ways. Once in the molten weld metal pool at solidification, the nuclear size effect enables it to locate itself inter atomistically in the metal lattice. Its molecular bond energy causes deformation by brittle failure mode. In their paper "Influence of Baking conditions of MMAW Electrodes on Weld Metal Mechanical Properties", S. R. Gupta et al have emphasised that hydrogen related failure arises from incorrect baking of electrodes. Experimental evidence has been provided for optimum baking conditions to avoid hydrogen related embrittlement for rutile and basic coated electrodes, which could be of help to many in the field.

Occupational health hazards faced by welders on the job need no introduction. These hazards include visual and respiratory afflictions besides burn related incidents. With improved technology preventive measures are continuously being upgraded. Dr. R. C. Panjwani's paper "Occupational Health Hazards and Preventive Aspects in Welding", after detailing the hazards professionally explains the preventive measures in varying circumstances which will help the layman and professionals alike. This paper has therefore merited reprinting in our journal, and I look forward to hearing comments from our readers.

With joyous Bejoya and Deepabali Greetings

Dr. P. Majumder

– Editor