

STRATEGIC ROAD MAP

Mechanical Engineering Division Council (MEDC)

BIS is the National Standard Body of India established under the BIS Act 2016 for the harmonious development of the activities of standardization, marking and quality certification of goods and for matters connected therewith or incidental thereto. BIS has been providing traceability and tangibility benefits to the national economy in a number of ways – providing safe reliable quality goods; minimizing health hazards to consumers; promoting exports and imports substitute; control over proliferation of varieties etc. through standardization, certification and testing.

➤ **EXECUTIVE SUMMARY**

Mechanical Engineering Division Council (MEDC) is responsible for ‘Standardization in the field of Mechanical Engineering covering- Boilers and Pressure Vessels; Refrigeration and Air-conditioning; Renewable Energy Sources; Earth Moving Equipment and Material handling; Chemical Engineering Plants and Equipment; Construction Plant and Machinery; Pumps and Hand pumps; Compressors, Blowers and Exhausters; Gas Cylinders; Security Equipment & Ballistic Products; Mining Techniques and Equipment; Printing Machinery; Sewing Machines; Water Well Drilling; Utensils, Cutlery and domestic hardware; Oil and gas burning appliances; wire ropes and wire products; Gaskets and packing; Methods and Equipment for underground gasification and coal bed methane; mechanical equipment used in refuelling stations for petroleum and gaseous fuels, Energy Management and Energy Savings and Safety of Machinery’.

➤ **POLITICAL ENVIRONMENT**

Manufacturing sector being the backbone of Indian economy, has emerged as one of the high growth sectors in India. Prime Minister of India, Mr Narendra Modi, launched the ‘*Make in India*’ program to place India on the world map as a manufacturing hub and give global recognition to the Indian economy.

➤ **ECONOMIC ENVIRONMENT**

The economy is divided into three broad categories—agriculture (which includes broader activities such as mining, utilities, and construction), manufacturing, and services.

a) **Energy security-**



Energy security is the association between national *security* and the availability of natural resources for *energy* consumption. Access to (relatively) cheap *energy* has become essential to the functioning of modern economies. It leads to-

- Promotion of labeling and resultant change in consumer behaviour
- Energy management and energy savings leading to improvement in energy performance supporting PAT scheme of Bureau of Energy Efficiency

Sustainable development encourages us to conserve and enhance our resource base, by gradually changing the ways in which we develop and use technologies. Energy has become essential in our every-day life but since the production of fossil fuel is limited, we need to move in a strategic way in the field of consumption. Renewable Energy will still take many years to replace fossil fuel. Unlimited Energy consumption is proving hazardous & fatal for not only humanity at large but also affecting the environment leading to **climate** change.

b) Climate change

MED 03 is engaged in Refrigeration and Air conditioning, in this committee in order to comply with Montreal protocol and Kigali amendment which are related to prevention of depletion of Ozone layer and prevent the earth from the effect of greenhouse gases. As per request from Ministry of Environment and Forest (MoEF), BIS is engaged in standardized the use of natural refrigerant such as Ammonia and Propane (HC 290) in refrigeration and air conditioning, in order to ensure the safe use of refrigerants in households equipment and industry and to take care of the climate change that is effecting our earth.

1 INTRODUCTION.

1.1 MEDC Business planning.

The aim of the Strategic Business Planning is to align the MEDC work programme with:

- Expressed business environment needs and trends and to allow technical committees under it to prioritize among different projects,

- To identify the benefits expected from the availability of Indian Standards, and
- To ensure adequate resources for projects throughout their development.

1.2 Objectives of SBP: The following is major objective of SBP of MEDC:

- To increased and active participation of experts from industry in working group meeting at international level standardization so that BIS industry views are incorporated at the inception of the document itself. Emphasis on participation in making of new international standard rather than adopting of international standards where India has not participated.
- Increased and active participation of experts from industry in working group meeting at and national level.
- Taking up standards formulation activity on priority areas of **Government of India**.
- Submission of quarterly report highlighting important work carried out by each sectional committees to division council.
- Due diligence to be carried out by committee to ensure relevance and acceptance of standard in market
- Technical committees should address how the standards they are making will address climate change issues and international commitment made by India regarding the same .
- A mechanism for awareness/training / skill development regarding new standards formulated by sectional committees may be made by sectional committee at the time of finalization of standard.
- Working in the direction of globalization and Industry 4.0 - As it is the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the Internet of things and cloud computing. Industry 4.0 creates what has been called a “smart factory”.
- Sustainability and gender neutrality to be addressed in standards being formulated by Sectional committees.
- Recognition of committee members actively involved in standard formulation activity.
- As India is becoming a Manufacturing Hub, Ministry of consumer affair should write to PSU , govt department to give

incentive, points for promotion ,recognition for their officers participating in BIS standardization

1.3 Sustainability Development Goals (SDGs)

SDGs represent an ambitious plan to enhance peace and prosperity, eradicate poverty and protect the planet. They are recognized globally as essential to the future sustainability of our world.

By maximizing the benefits of standardization and ensure the uptake of Indian standards, we're helping to meet the United Nations Sustainable Development Goals (SDGs). Economic, environmental and societal dimensions are all directly addressed by Indian standards.

Technical committees of MEDC shall identify the SDG that their Sectional committee is making significant contribution by way of Standard formulation .

GOAL 1: NO POVERTY End poverty in all its forms everywhere
GOAL 2: ZERO HUNGER End hunger, achieve food security and improved nutrition and promote sustainable agriculture
GOAL 3: GOOD HEALTH AND WELL-BEING Ensure healthy lives and promote well-being for all at all ages
GOAL 4: QUALITY EDUCATION Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
GOAL 5: GENDER EQUALITY Achieve gender equality and empower all women and girls
GOAL 6: CLEAN WATER AND SANITATION Ensure availability and sustainable management of water and sanitation for all
GOAL 7: AFFORDABLE AND CLEAN ENERGY Ensure access to affordable, reliable, sustainable and modern energy for all
GOAL 8: DECENT WORK AND ECONOMIC GROWTH Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
GOAL 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
GOAL 10: REDUCED INEQUALITIES

Reduce inequality within and among countries
GOAL 11: SUSTAINABLE CITIES AND COMMUNITIES Make cities and human settlements inclusive, safe, resilient and sustainable
GOAL 12: RESPONSIBLE CONSUMPTION AND PRODUCTION Ensure sustainable consumption and production patterns
GOAL 13: CLIMATE ACTION Take urgent action to combat climate change and its impacts
GOAL 14: LIFE BELOW WATER Conserve and sustainably use the oceans, seas and marine resources for sustainable development
GOAL 15: LIFE ON LAND Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
GOAL 16: PEACE, JUSTICE AND STRONG INSTITUTIONS Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
GOAL 17: PARTNERSHIPS FOR THE GOALS Strengthen the means of implementation and revitalize the global partnership for sustainable development

1.4 Technological Upgradation

With the evolution of time, there has been significant technological advancements in the mechanical engineering field. It has been observed in terms of introduction of new types of machines, usage of superior quality material in construction, integration of the electronic accessories in the product etc.

Increased concern about the environment has resulted in regulatory requirements in several countries and the disposal of used machines and of contaminants from compressed air has received particular attention. Automation thus enabled step change improvements in the terms of safety, productivity, and cost. Sectional committees under MED will have to address these points while formulating Standards in their respective fields.

1.5 Trade

The sector's Gross Value Added (GVA) at current prices was estimated at US\$ 350.27 billion as per the first advanced estimate of FY21. The manufacturing GVA accounts for 19% of the country's real gross value added. The IHS Markit India Manufacturing Purchasing Managers Index (PMI) increased to 57.7 in January 2021 from 56.4 in December 2020.

As per the latest survey, capacity utilisation in India's manufacturing sector stood at 63.3% in the second quarter of FY21.

According to the Ministry of Statistics & Programme Implementation, India's industrial output, measured by the Index of Industrial Production (IIP), stood at 135.2 in January 2021. In January 2021, industrial output indices for the mining, manufacturing and electricity sectors stood at 119.7, 135.1 and 164.2, respectively.

In order to make the MSME Sector competitive on International front, Govt. of India has launched MSE-CDP Scheme in which a project for establishing common facility centre amounting upto Rs. 15 Crore is considered and a grant ranging from 70% to 90% is given by forming the SPV amongst the cluster members.

Standardization is one of the measures for the **reduction** of non-**tariff barriers**, rationalization and harmonization of regulations, which aim to facilitate **trade**. The sectional committees shall try to make standards that shall allow free flow to trade amongst countries.

1.6 Safety

Any machine part, function, or process that might cause injury should be safeguarded. Machinery safety is a concern for suppliers and manufacturing businesses throughout the world, and there are a wide variety of regulations which help to protect people, assets and property from harm.

For all products which fall under the scope of the Machinery Directive, a hazard analysis/risk assessment must be carried out. A risk assessment follows a series of logical steps to identify and examine any potential hazards associated with machinery. This provides information for a risk evaluation, in which a decision is made on the safety of machinery for risks to be reduced where necessary.

Government of India is in the process of regulating mandatory safety regulation by Omnibus Technical Regulation for machinery in India. The loss of lives, injures and the social cost of the large number of accidents caused directly by the use of machinery can be reduced by inherently safe design and construction of machinery and by proper installation and maintenance. All sectional committee must formulate

Type C Safety related standards in their respective areas so that the complete chain of Type A,B and C standards are available in case a regulation is contemplated by Government of India.