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# TOWZIN ELECTRIC 9



باسکول‌های نصب شده در بزرگترین مجتمع بندری خاورمیانه، بندر شهید رجایی



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**Summer 2012 - No.9**

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*In The Name Of GOD*

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**International Organization of Legal Metrology**  
Paving the way towards a Global Metrology System



## OIML Prize

OIML is the abbreviation for International Organization for Legal Metrology (Weights and Measurements). OIML has two types of membership: 1) member states who actively participate in technical and research activities; and 2) corresponding members who are observing countries. OIML was established in 1955 for international development, promotion, and harmonization of using accurate weight and measurement procedures. OIML has turned into the most recognized international organization for legal metrology and measurement ever since.

OIML has developed a worldwide technical structure that provides metrological guidelines to its members for development of national and regional requirements for manufacturing and using accurate and scientific measuring instruments for legal metrology applications. According to 2007 international reports, the population of states who applied OIML guidelines made 86% of the world population.

OIML established a prizing system in 2001 to encourage more active participations by members and to recognize researchers and practitioners in field of metrology who have achieved great and recognizable advancements in metrology field. This prizing system offers three types of prizes to the selected individuals and organizations in the international measurement industry. These prizes are the most recognizable in international measurement industry and include international metrology award, certificate of continued contribution awarded to legal metrology researchers and practitioners, and international scientific award.

An Iranian company has been honored to receive the highest OIML award and recognition for the first time in metrology history. Engineer Morteza Pouyan, Director of Weight and Measurement Instrument Producers Association, was the first person in Iran weight and measurement industry to receive OIML Recognition Award in 46th Annual Conference held in Czech Republic in 2011.

### Letters of Appreciation

**Mariela Saavedra (2011)**  
**Morteza Pouyan (2011)**

**Alexey B. Diatlev (2009)**  
**Wilhelm Kolaczia (2009)**

#### Letters of Appreciation

- Mariela Saavedra (2011)
- Morteza Pouyan (2011)
- Alexey B. Diatlev (2009)
- Wilhelm Kolaczia (2009)
- Momyshayev Talgat Amangeldievich (2009)
- Nand Kishore Singhania (2009)
- Peter Brandes (2007)
- Charles Ehrlich (2007)
- Mikhailchenko Vassily Nikolaevich (2007)
- Corinne Lagauterie (2006)
- Richard Davis (2005)
- Michael Gläser (2005)
- S.V. Gupta (2004)
- Valentina Vytolskaya (2004)
- Wilfred Wünsche (2004)
- Wim Klein (2003)
- G. Volkman (2003)

#### Award for Excellent Achievements

# Introducing One of Towzin Electric's National Projects

## Weighing System Project at Khoozestan Steel Complex



Steel plants are among industries that have important and effective role in industrial growth and development of a country. Steel mills are basic industries whose growth and development serve as a yardstick to measure industrial development in countries that endeavor toward industrial advancement and growth. Industries such as transportation, construction, machinery manufacturing, mining, and all industries engaged in production and distribution of energy depend on steel industry.

Steel production plants have important role in overall economic development with special contributions to the industry sector. Steel mills are the main and basic industries that provide raw materials to other industrial concerns making direct and indirect contributions to economy. They depend on effective and accurate measurement tools in order to fulfill their important roles.

Khoozestan Steel Plant is the second largest steel producing complex and is one of progressive economic enterprises in Iran. This company is an active participant in national and regional steel markets.

Khoozestan Steel Plant is built over 3.8 square kilometers of land near Ahwaz. It started its operation in 1988 with a nominal capacity of 1.5 million tons with the help of its employees and specialists from the steel industry. Its expansion plans increased production capacity to 2.4 and 3.2 million tons in two phases.

High economic value of steel products, requirements of Khoozestan Steel Plant for accurate measurements of entering raw materials and exiting final product, together with Towzin Electric's continued and recognizable contribution to national projects by way of providing precision tools and weighing stations since 1996, provided enough justifications to Khoozestan Steel Plant to choose Towzin Electric Group for design and installation of two dynamic and static rail weighing systems, one 120-ton weigh station, and one scrap metal weighing station.

These systems were traditionally ordered to well-known international companies. However, ordering to foreign companies did not make economic sense because of very high costs of installation and lack of after sales service. Towzin Electric Group is proud to have been able to act as a good domestic substitute for foreign producers and supply the required weighing systems to Khoozestan Steel Complex. These weighing systems were unique from technical and scientific points of view and were built at lowest possible cost to the client.

### **Rail Weighing System at Khoozestan Steel Complex**

Design and construction of rail weighing systems are among the most complex ones in the weighing industries. Structural strength, especial concrete processing and storage system, accuracy of software used in these systems are totally different than other weighing systems. Khoozestan Steel Plant was especially sensitive on system accuracy and required strong structure with many transversal and longitudinal shock absorbers and anchors with advanced support system and foundation. After receiving several offers from domestic and international companies, Khoozestan Steel Plant selected Towzin Electric Group for construction and installation of its needed rail weighing system.

The level of accuracy in rail weighing systems is 0.5% according to current international standards. However, the tolerance for rail weighing systems was reduced to about 0.001% (10 kilograms for each 80-ton wagon) because of the high value of steel products in the national economy and industrial sectore. This level of accuracy, which was unique and beyond all technical specifications, was approved by experts at National Standard Organization as well

as top management and industrial automation specialists at Khoozestan Steel Plant. This system was the first prefabricated rail weighing system in Iran which was designed, produced and installed within 180 working days. It was tested for 2 months by National Standard Organization and Khoozestan Steel Plant. This weighing system was recognized as a superior product and put into operation to prevent extensive losses to national economy and industry. It proved the superiority of domestic engineering and capabilities to foreign specialists.



### **120-ton Weigh Station at Khoozestan Steel Plant**

This huge 16-meter weigh station was designed and built for weighing various dump trucks. It was equipped with eight 50-ton loadcells made by Sartorius, a steel frame with very strong pallets, a 10-kilogram graduation, accuracy level of 5 kilo

grams, and axial capacity of 50 tons. This weigh station measures input raw materials arriving from Khoozestan Steel Complex mines in order to compare its volume against the amount of output products.

This weigh station is the first construction built by using IPB 900 procedures according to current international standards. This construct was built by using special CO2 welding which is unique in accuracy and strength. The time spent on design, construction, and installation of this weigh station was one month from signing of the contract. It was tested by experts from Iran National Standards Organization and Khoozestan Steel Plant managers against Iran National Standards. This weigh station is one of the heavy duty stations constructed by Towzin Electric specialists based on the latest technology. Its accuracy and capacity are comparable to similar systems from well-known international producers.

This 120-ton weigh station is currently in full operation in Khoozestan Steel Complex and working with the high accuracy and in compliance with ideal requirements of Khoozestan Steel Plant. Towzin Electric Group provided proper training to the operators of this weigh station for optimum and suitable operation.

# Pictures of Khoozestan Steel Plant Rail Weighing Project



# Importance of Truck Scale Design and Engineering

Weigh station is defined as a non-automatic weighing system that weighs a vehicle in one operation for one loading. A weigh station is made of several parts including foundation, platform, and electronic parts. The word weigh station is equivalent to weighbridge.

Weigh station platform is assumed as a bridge placed over loadcells. Towzin Electric Company uses the codes applied for construction of bridges in designing weigh station structure including code no. 139 of Iran Ministry of Road and Transportation, British Standard codes, and United States bridge construction codes.

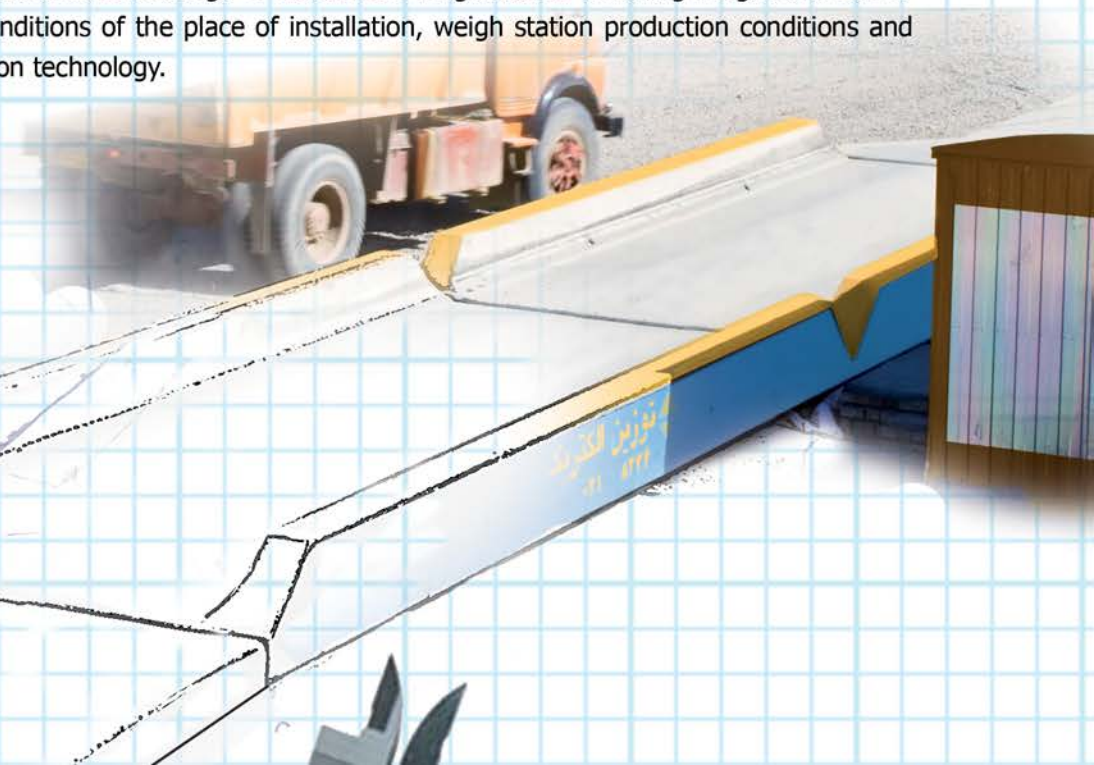
Bridge design has a fundamental difference compared to design of other structures in that it requires estimation of structural fatigue. Live weight in other concrete and civil constructions is not as critical as structural weight; therefore, there is no need to calculate its dynamic coefficient. In weigh station design, however, the main load is the weight of vehicle plus its cargo which produce structural fatigue. Structural fatigue gradually introduces negative effect on weigh station accuracy. That is the reason that the weight placed on platform is considered as a critical factor in weigh station design.

Well-known weigh station producers in international market use the concept of CLC in their designs. This concept, which is mostly neglected in Iran, is referred to as the load applied to two vehicle axles at a distance of 1.4 meters. CLC is important not only for the effect it has in the operation of weigh station but also because it provides a criterion to the customer to select the most suitable weigh station for its need at a reasonable cost.

Another important factor to consider in design of weigh station is its life expectancy. It is important to consider the dominant environmental conditions in the location of installation to minimize weigh station deterioration. For example, corrosive factors and/or weather conditions can significantly affect weighing accuracy. Therefore, weather and environmental conditions should be taken into account to design a suitable weigh station.

Apart from careful observation of mandatory codes established for design of bridges, the results of field studies on weigh station performance are to be considered in weigh station design.

Generally, many parameters affect the design of a desirable weigh station including weight and size of vehicle, environmental conditions of the place of installation, weigh station production conditions and use of advance construction technology.



# Verification of Compliance



No. EC.1282.2E131205.TE3351

Certificate's Holder: **Towzin Electric Company**  
3 Laleh St, Miremad St, Amir Kabir Industrial City,  
Kashan, Iran

Product: **Truck Scale**

Directives: **2006/95/EC Low Voltage**

Standards: **EN ISO 12100:2010, EN 60204-1:2006+AC:2010**

**Remark:** This Verification of Compliance has been issued on a voluntary basis. ECM confirms that a Technical Construction File (TCF) is existent for the above listed product(s). The TCF satisfactorily covers the essential requirements of the above listed Directive(s). Other relevant Directives have to be observed in case they are applicable. This Document is only valid for the equipment and configuration described and in conjunction with the TCF detailed above. Whereas the Manufacturer is responsible of the certification of the product(s) and not exempted to perform all the necessary activities before placing the product(s) on the market. The Manufacturer is also responsible of the internal production control to ensure the product(s) are in compliance with the essential requirements of the above mentioned Directive(s). This certificate can be checked for validity at [www.entecerma.org](http://www.entecerma.org)

Date of issue DECEMBER 2013

Expiry date DECEMBER 2018

Certification Chief Manager  
Tim Mahan



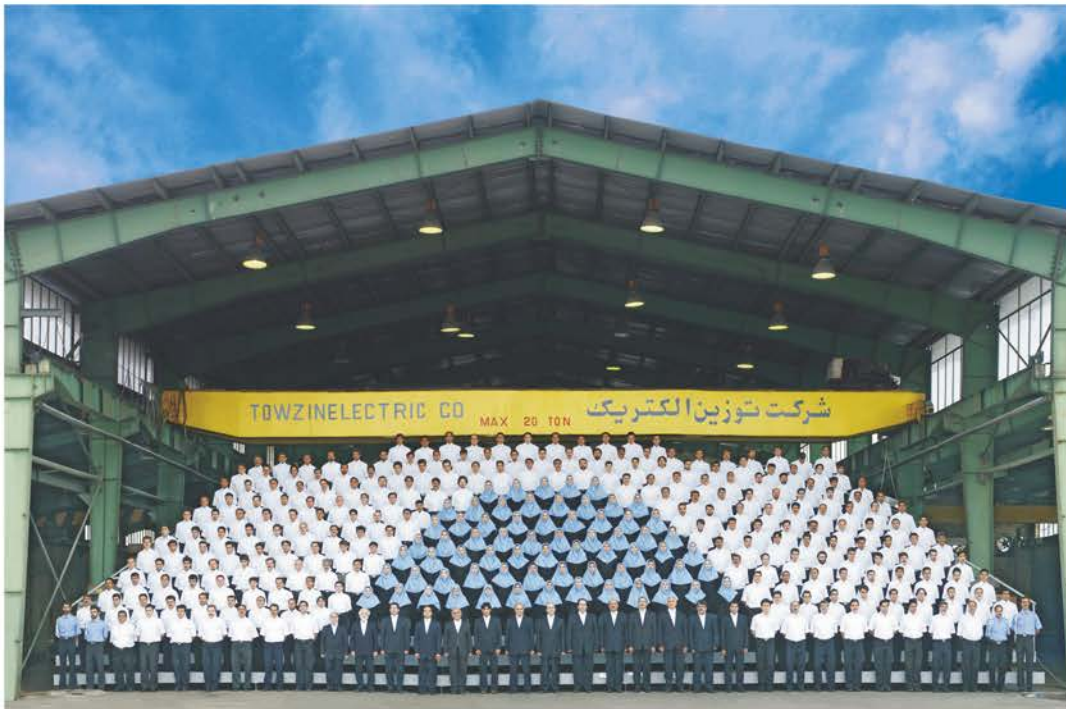
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# TOWZIN ELECTRIC



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