

Weights & Measures a Short History

Part - 2



An ancient type of Steel Yard Scale with beam from Indian Murals



Roman beam scale

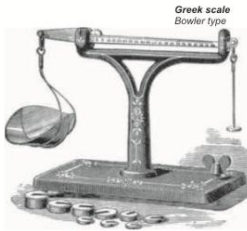
Leveling point Beam

Weight

Hook to hang the products



'Oh' Baby



Greek scale
Bowler type

Harvest in the bag
and smile on the faces.
Villagers weighing
fresh crops for market
on Platform Scale



A Relief from Gandhar, 2nd & 3rd century AD.
British Museum

NITIRAJ ENGINEERS LTD.
News Letter

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Weights & Measures
Part - 2

NITIRAJ ENGINEERS LTD.

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PHOENIX



ISO 9001 : 2008

From the desk of
CEO.....

Dear Friends,

Things are changing fast.
Be ready to take steps with
the new age -
fast, smart and convincing.
We have to come up with advanced
and smart products to cope-up
their expectations.




Rajesh Bhatwal

Quality Policy

We at Nitraj Engineers Ltd. are committed to Design, Develop, Manufacture and Service Electronic Weighing Scales, Currency Counting Machines, Auto Fare Meters, and Electronic Systems to meet Customers Requirement and Satisfaction.

This we shall achieve through the process of continual improvements in Product performance, Customer Satisfaction, Development of employees and implementing Quality Management System in all the areas of organisation to achieve Market leadership.

This policy shall be reviewed for continuing suitability and shall be revised if needed

Date : 1 July 2015

PHOENIX


Rajesh Bhatwal
CEO



Weights & Measures a Short History

Part - 2

Salm P K

The short History of the weighing scales

Although no actual scales from the era traced, many sets of weighing stones as well as some murals showing use of balance scales suggest widespread usage.

Spring scales measure weight by balancing the force due to the gravity against the force on the spring, where as balance or pair scales (pan) with balance beam compare masses by balancing the weight of the object against the weight of the standard object.

Although spring scales were in use since 1600 and earlier design was introduced in Great Britain by Richard Sulter in 1770. Spring scales came in to wide uses in Great Britain after 1840. R.W Winfield developed the **Candle Stick Scale**, for weighing packages & letters that postal workers could work more quickly with Spring scales than Balance scales because they could read instantly and fast.



A Relief from Gaandhar,
2nd & 3rd century AD, British Museum
A sculpture showing King Shibi weighing his own flesh equivalents to the weight of the dove for hawk to save the dove as he promised.



Spring Balance
This type of instruments uses the springines of metal to balance the load. The weight is indicated according to the pressure on the spring. A postal scale by Triner Scale & Mfg Co., USA 1910





Sale in February 2016

FIVE TOP BRANCHES

Akola
Nashik
Jalgaon
Dhule-Mktg.
Berhampur

TOP ZONAL MANAGER

Vinay Kumar Gupta
- Raipur, Ambikapur, Bilaspur & Raigarh

TOP RM / AREA SALES MANAGER

Dilshwar Majhi (RM),
- Berhampur

TOP FIVE SALES EXECUTIVE

Sales Executive	Branch
Ranmale Rajesh N.	Dhule-Mktg.
Vaidya Prashant R.	Nashik
Raut Pravin Ramrao	Akola
Chaudhari Ravindra P.	Buldhana
Manoj Kumar Panigrahi	Berhampur

TOP SERVICE ENGINEERS

Ser. Engineers	Branch
Koli Santosh Totaram	Jalgaon
Bhanu Pratap Choudhari	Raigarh
Singh Santosh	Bilaspur



Circulars - Month of March 2016

No.	Date	Subject
Circular No.12	1/3/2016	Service Revenue Incentive Scheme for the Period 01/03/2016 To 31/03/2016.



Appointments & Promotions

- Appointments:**
- **Mr. Chaudhari Pranay Sanjay**
Joined as Jr. Officer in Accounts Dept.
- Promotions**
- **Mr. Hari Naik**
Promoted as Manager, Govt. Business & Tender Dept.



Dealer Desk

New Dealers Appointments :

- **S K Enterprise (CCM)** - Raiganj (W. Bengal)
- **K G N Enterprises** - Govandi (M.S.)
- **Satyam Scales** - Guwahati (Assam)
- **Point of Purchase Medical Agency** - Jammu (J & K)
- **Krishna Technology (CCM)** - Sikar (Rajasthan)
- **N P Auto Centre (CCM)** - Bethuadahari (W Bengal)
- **Nataraj Enterprises (CCM)** - Mudwari (M. P.)
- **OM Marketing (CCM)** - Rajim (C.G.)
- **Arpan Office Solutions (CCM)** - Solapur (M.S.)
- **Vande Mataram Provision (CCM)** - Durg (C.G.)
- **Rasika Computer Institute (CCM)** - Usmanabad (M.S.)

**Our Costliest
expenditure is
Time**

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R & D Updates - March - 2016

NEPL-350 We have developed NEPL-350 Motherboard in our standard models. This board is now used for Table Top and Platform models.

Features All Capacities and Accuracies are included in single software. We can select Single or Dual or Triple accuracy as per requirement of model using this software. Computer / Printer interface feature is added and Party Name can be defined. Unit of measuring is select-able. User can select gram or kg or ton unit as per requirement in Computer / Printer interface.

Machine can be connected to Computer or Printer if accessory is attached. Real Time Clock feature is added. Date Time can be set if Real Time clock accessory is attached. RF feature is also available. Machine can be paired with RF Display if accessory attached. Standard intensity and High intensity display is selectable. If the machine is with standard intensity Red (NEPL-102) display and the user wants to change it for High intensity (NEPL-251), it can be done with parameter selection provided on keyboard. Thus all important features are covered in single software. This is beneficial for market as well as service point of view.



TRAILBLAZERS SHOW TELECAST ON BLOOMBERG CHANNEL

Documentary on "Journey of Nitiraj Engineers" is being telecast by Trailblazers show in four episodes starting on 20th March and on subsequent Sundays. Timing is from 10.30 a.m. to 11.00 a.m. (Repeat telecast on same day from 6.00 p.m. to 6.30 p.m.)

Watch and enjoy the show with your friends and relatives.

Training CCM



Training Programme for Currency Counting Machines was arranged on 30th Jan 2016 at Head Office

Dealers Participation :-
Athaava Solutions - Parbhani
Arpan Office Solutions - Solapur
Siddharth Titan Enterprises - Tembhurni
Swastik Trade Link - Dombivli
Om Scales - Malegaon

Branches
Nashik Branch
Jalgaon Branch
Dhule Marketing Branch.

Mr. Anant Khairnar conducted the session and 13 members from Dealers and Branch Offices attended the same.

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Spring scales are still fairly used today because they are low in cost to make but they are not as accurate as the Electronic systems designed and perfected during 20th Century.

Spring scales

Spring scales have some sources of error that balances do not have.

First, the measured weight varies with the strength of local gravity force, that's as much as 0.5% at different locations on earth. Second, the elasticity of the measuring spring may vary slightly with temperature.

Third, Buoyancy - objects in air develops buoyancy force and also air temperature cause lifting pressure. The connection between the mass, weight and the amount of gravity force applies to the object makes difference some times. More mass = more force applied by gravity = more weight.

The traditional balance scales will weigh correctly even if moved to different gravity force area, while the spring scale will show difference because of the change in gravity force.

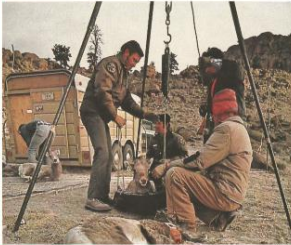


The most ancient relics of a weighing scale have been discovered in the Indus River Valley and are dated back to around 2000 B.C. Those first weighing scales were balance scales using two plates attached to an overhead beam, fixed itself on a central pole.

Weighing scales are born out of necessity. With development of trading, merchants needed a way to assess the value of goods not simply by pieces but also irregular shaped goods - such as Metal, Gold, and foods products also

By late 1940 mechanical weighing begun to combine with electronics to make reading more accurate but it was not until the device Load cell was invented. Load cells or Transducers, now lies at the heart of every Electronic Machine.

Precision Load cell converts weight into electronic signals to get accuracy. By the end of Twentieth century it became accurate enough for widespread use.



A Fisher woman Weighing her daily catch

Spring Scales are very useful for Forest Dept. and Animal zone. They are convenient and easy to carry



Tola is a Vedic measure The name derived from Sanskrit meaning weighing. One Tola was traditionally the weight of 100 Ratti Seeds and the exact weight varies accordingly to location.
Ratti in some region weigh 0.11 gram and in some regions 0.125 grams.

1 Ratti = 0.11 grams
 8 Ratti = 1 masha = 0.88 grams
 12 Masha = 1 Tola = 10.56 grams
 5 Tola = 1 Chatak
 4 Chatak = 1 Pao Ser
 4 Pao Ser = 1 Ser
 40 Ser = 1 Mann

Trading could not have progressed beyond the barter system without the invention of a proper and all inclusive system of weight and measurements. Today weighing scales have become very high-tech device. From Bathroom scale to ultra precise devices used in Research Laboratories & Heavy duty scales for Industries.

Modern scales are able to provide very accurate weight, almost instantly, even a pocket scale one can carry with.

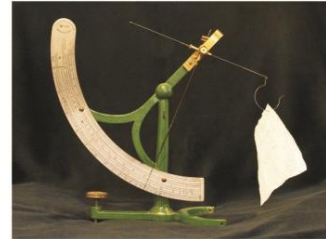
The most high end body scales also act as impedance meters and are able to calculate the ratio of fat mass and lean mass in the body.

The scale is the result of Millennia of Research & Improvement. Now science will cover up with next improvement in weight & measurements



Metric The first standardized system of measurements based on decimal was proposed in France about 1670. Creating during the French Revolution, the metric system was designed to meet the need for a single worldwide coordinated measurement system. Most of the countries adopted the metric system as their only legally recognized system, taking steps to eliminates the use of traditional measurements. Some countries uses metric in conjunction with their traditional system. It was called metric system based on the French word for measure. To cope-up with constant development prefix were also agreed in 1791. The set from kilo to mili was developed. In 1958, the international committee on weight and measures added Mega, Giga and Tera to the multipliers and Micro, Nano and Pico to the fraction. In 1960, at the 11th General Conference on weight and measurements everything was officially adopted. Since then additional prefix have been added as the need arouse.

Scale for weighing paper and fabrics
 South Australian Museum
 ▼ Ounce per sq. yard or grams per sq. meter



Universally accepted weighing systems

Imperial system is considered as the English weighing system. It has it's origin in many cultures including Babylonian, Anglo - Saxon and Norman

American measurement system, commonly used in the United States was based on the systems brought by the colonists from England and other part of the world.