The Evolution of Environment-friendly Products and Services

The Evolution of Scales

Since its foundation, the Kubota Group has manufactured cast metal parts for scales. After starting manufacturing mechanical platform scales in 1924, the Group has produced various industrial scales, contributing to the improved efficiency of manufacturing by companies. At manufacturing sites today, technological innovations using huge data, such as IoT and AI, have been rapidly advancing. We will continue to support the manufacturing sites by further sophisticating its measuring and weighing technologies to obtain accurate data.

The Evolution of Scales and Expansion of Uses

The Kubota Group has evolved its scales from mechanical platform scales to load cells, which make use of metal strain, and to the development of digital load cells, which can directly output digital signals, satisfying the needs of customers. Today the Group's scales are used for various purposes.

			1890	1920	1950	1980	2010
Social background			・Prefectural system, district system ・The Weights and Measures Act established	・Rationalization of industry ・Standardization of industrial products ・The Weights and Measures Act revised	・Postwar recovery ・Labor shortage ・The Measurement Act established	・Oil crisis	・Strategic Innovation Promotion Program ・Agricultural Competitiveness Enhancement Support Act
Customer needs			・Stabilization of the quality of scales (Supply of defect-free parts with high dimensional accuracy)	・Standardization of equipment (Steel, electricity, gas, cement)	・Automation, labor saving of equipment	・Downsizing, sophistication of equipment ・Cost reduction	・Visualization of data / preventive maintenance ・Improvement in productivity (agriculture)
Evolution of scales			・Supply of weighing parts	・Full-scale launch of weighing machines	・Automation, labor saving	・Advanced functions, sophistication ・Systemization	・Incorporation with optical/image technologies (Measuring colors and tastes, besides quantities)
Uses	Industry	Weighing parts	・Weights, weighing parts		・Surveying equipment with weight indicator	・Load cells (LC)	・Digital load cells (D-LC)
		Platform scales		・Mechanical platform scales		・LC platform scales	・D-LC platform scales
		Truck weighing machines		・Truck weighing machines		・LC truck scales	・D-LC truck scales
		Automatic continuous weighing machines		・Conveyor scales (Coal)	・Void meters (Continuously blending steel raw materials in a certain proportion) ・Measuring, transportation, blending control system ・Automatic bagging equipment (salt, sugar)	・LC feeders	・D-LC feeders
		Explosion-proof products					・Resin filler explosion-proof D-LC ・Pressure-resistant explosion-proof LC ・Pressure-resistant explosion-proof indicators ・LPG fillers ・Equipment safety explosion-proof indicators ・LPG full-automatic fillers ・Pressure-resistant explosion-proof liquid fillers
		System management					・Remote monitoring system
	Agriculture					・Hopper scales (For cooperative facilities for rice drying and rice seedling)	・Color/foreign matter sorter for rice ・Taste and yield sensor

The Evolution of Platform Scales

Platform scales have evolved into easy-to-use, environment-friendly platform scales with high accuracy, reduced weight, and improved energy-saving performance.

	From 1920	From 1980	From 1990	From 2010
	Mechanical type	Load cell type	Load cell type	Digital load cell type
				
	Manual beam scale	K2	KL-10	KL-SD/IP
Measuring accuracy	1/2500	1/3000	1/3000	1/6000
Environmental performance – Weight	50kg	20kg	15kg	12kg
Environmental performance – Power	–	AC100V	Size C battery × 6 (300 hours)	Size D battery × 4 (3000 hours)
Environmental performance – Power consumption	–	Approx. 9 W	Approx. 0.15 W	Approx. 0.03 W

Scales Satisfying Diverse Needs

Weight feeder (NX-S/T)

Highly accurate, stable constant fluid volume feeding of powder raw materials

- Highly accurate and stable constant fluid volume feeding
- Simple design for easy maintenance

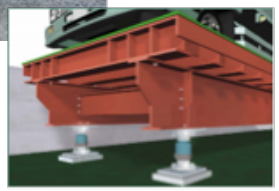
Digital platform scale (U-KM-D)

Lightweight, easy-to-carry platform scale

- Light digital platform scale available for measuring anywhere

Truck scale (ML C-7F-1)

Truck scale with high accuracy and high durability achieved



- Capable of highly accurate and stable measuring regardless of temperature changes
- Waterproof and dust-proof design improving durability

Resin-filled explosion-proof digital load cell

The first digital load cell employing the resin-filled explosion-proof structure in the world

- Compared to conventional models, higher accuracy and 73% reduction in weight and 57% reduction in volume achieved.

Above: Pressure-resistant explosion-proof load cell (conventional model)
Below: Resin-filled explosion-proof digital load cell