

Environmental considerations at the design and development stages

At Kubota, we are promoting the introductions of products assessment, in which we evaluate the environmental load of the products in their all life cycle such as design, development, procurement of raw materials and parts, manufacturing, distribution, using, and disposal, and the LCA that was internationally standardized in ISO14000 series. We are making an effort to reduce the load to environment.



The guideline of products assessment

An example of LCA implementation (a comparison of a bubbling fluidized bed furnace with a circulating fluidized bed furnace)

We show the results of evaluation and comparison of LCA between a circulating fluidized bed furnace and a conventional bubbling fluidized bed furnace on the assumption of sewage treatment sludge incineration furnace of fifty tons a day.

These results are trial calculations on the assumption of our standard type furnaces, using JEMAI-LCA for LCA evaluation.

The evaluation was made on raw materials production, assembly and installation, operation for fifteen years, and demolition and disposal, of each furnace.

A circulating fluidized bed furnace size is smaller than that of a bubbling fluidized bed furnace.

Saving energy characteristics of electric power and auxiliary fuel reduction while operation are better in a circulating fluidized bed furnace compared with a bubbling fluidized bed furnace.

Amount of carbon dioxide emission in a circulating fluidized bed furnace is reduced by 11.9 % compared with a conventional bubbling fluidized bed furnace in inventory analysis result.

Environmental loads are lower in all the evaluation items in a circulating fluidized bed furnace compared with a conventional furnace.

Especially resource and energy consumptions are reduced by 14.4 % and 12.4 % respectively compared with conventional furnace.

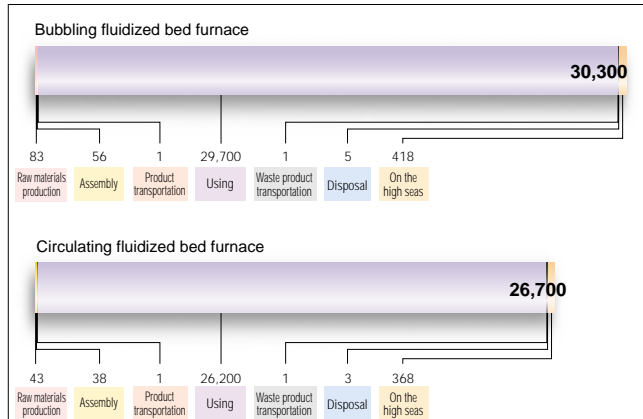


Circulating fluidized bed furnace test plant

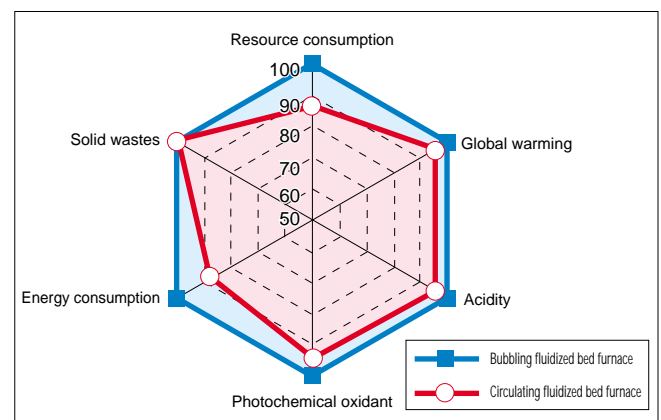
Inventory analysis result

(amount of carbon dioxide emission)

Carbon dioxide conversion (ton)



Environmental assessment result



*Environmental assessment result shows environmental load percentage in a circulating fluidized bed furnace based on that of a bubbling fluidized bed furnace as 100, in a radar chart.

An example of small-size-oriented and saving energy design (small-sized Joukaso HC type)

The product volume reduced by approximately 30% compared with conventional products, in order to reduce the amount of excavation soil when installed in the ground. Electric power consumption also reduced by approximately 9% compared with conventional products, by improvements such as treatment efficiency, blower and so on.

Comparison of Joukaso for five people with conventional product

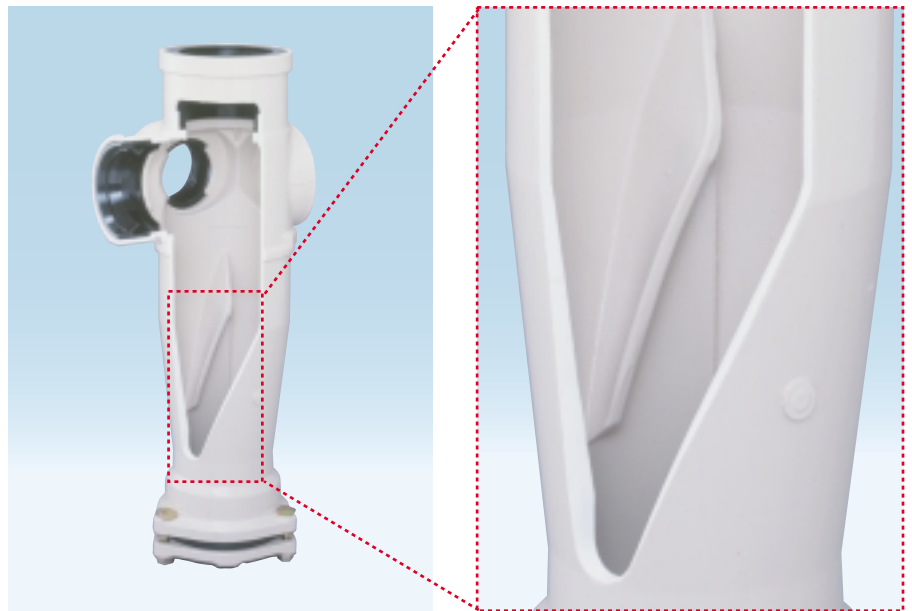
	HC type	Conventional product
Treated water quality	20 mg / ℓ or less	20 mg / ℓ or less
Volume	2.20m ³	2.86m ³
Rated electric power consumption (ordinarily)	64W	70W



Small-sized Joukaso HC type

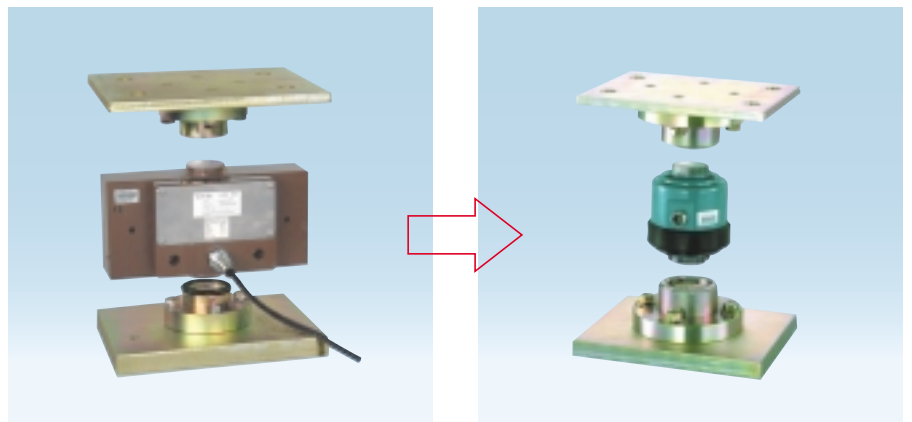
An example of noise reduction (Jointed water drainage pipe)

Drainage noise of this product reduced by approximately 3dB compared with conventional products, by reducing-diameter-body with high-rigidity, reducing sound intensity by a half.



An example of reduction of product weight and its package material (load cell)

Weight of load cell for truck scale, mass production product, reduces by approximately 50 %, and weight of its package material also reduces by approximately 40 %.



Conventional product LU-E-25 type
Product weight (including attachment)
Package box dimension (mm)

New product LU-AD-25 type
Product weight (including attachment)
Package box dimension (mm)