

Taguchi Methods in Quality Control

Lecture XVII
[Chapter 11 in textbook]

Taguchi Methods in Quality Control

Taguchi Philosophy
Taguchi Methods

Taguchi Methods in Quality Control

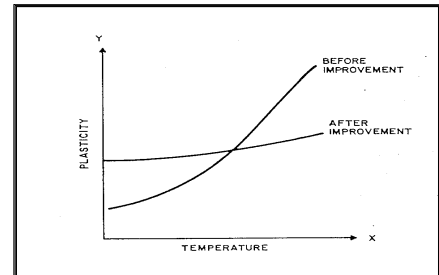
Deming's Contribution

~~Inspection~~ Process Control

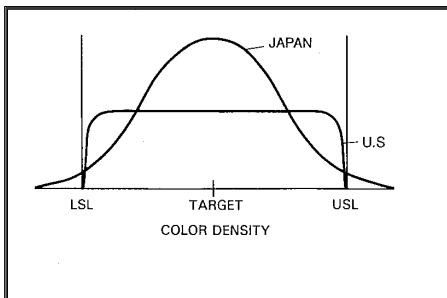
Taguchi's Contribution

~~Process Control~~ Robust Product & Process

Robust Quality



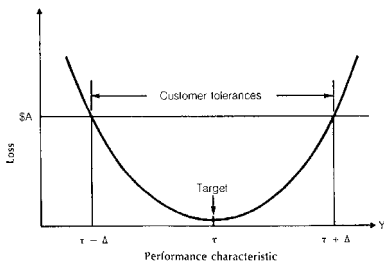
Being "on target" rather than just "in-spec"



Taguchi Use of Design of Experiments

Product Design
Process Design
Manufacturing

The Loss Function



Calculation of the Loss Function

$$y = (k - y)^2$$

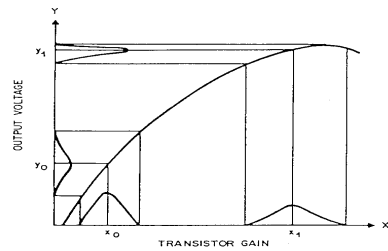
Separation from the target

Use of the Loss Functions

Find a product design with a response that is:

On Target
with a
Minimum of Variance
and
Least Cost

Optimization Based on Robustness



Signal-to-Noise Ratios

$$Z = 10 \log (\bar{y}^2 / s^2)$$

Four Groups of Factors

Influence on the the target only
Influence on the signal-to-noise ratio
Influence on the variation only
No Influence

Taguchi Philosophy

Experimental Design
is a
Poor Substitute
for
System Knowledge

Johnson Philosophy

A person with a lot of common sense, but little technology, may not come up with the optimum solution;

However; a person with a lot of technology and no common sense is *really dangerous*