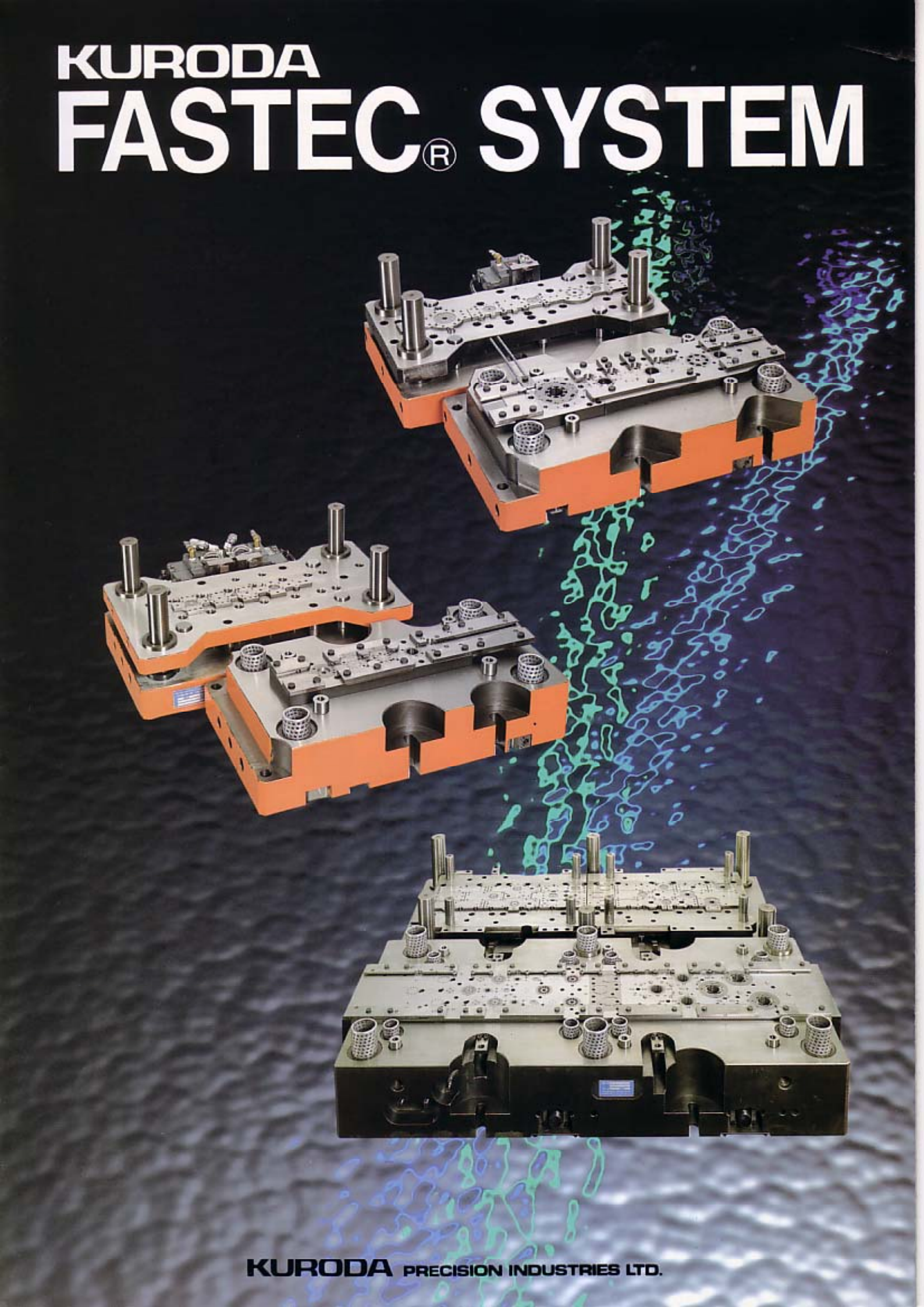
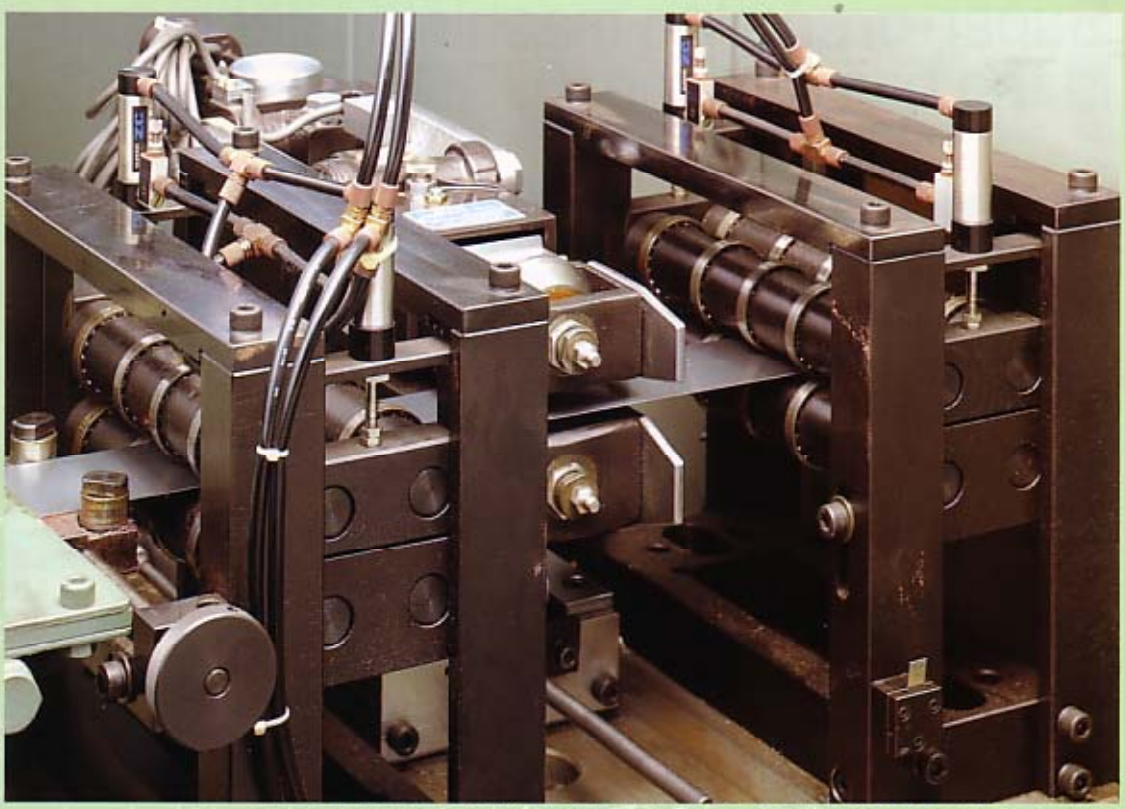
KURODA
FASTEC® SYSTEM



KURODA PRECISION INDUSTRIES LTD.


PASTEC SYSTEM



HOOP THICKNESS MONITARING DEVICE OF STACK HEIGHT CONTROL SYSTEM

FASTEC SYSTEM LINE

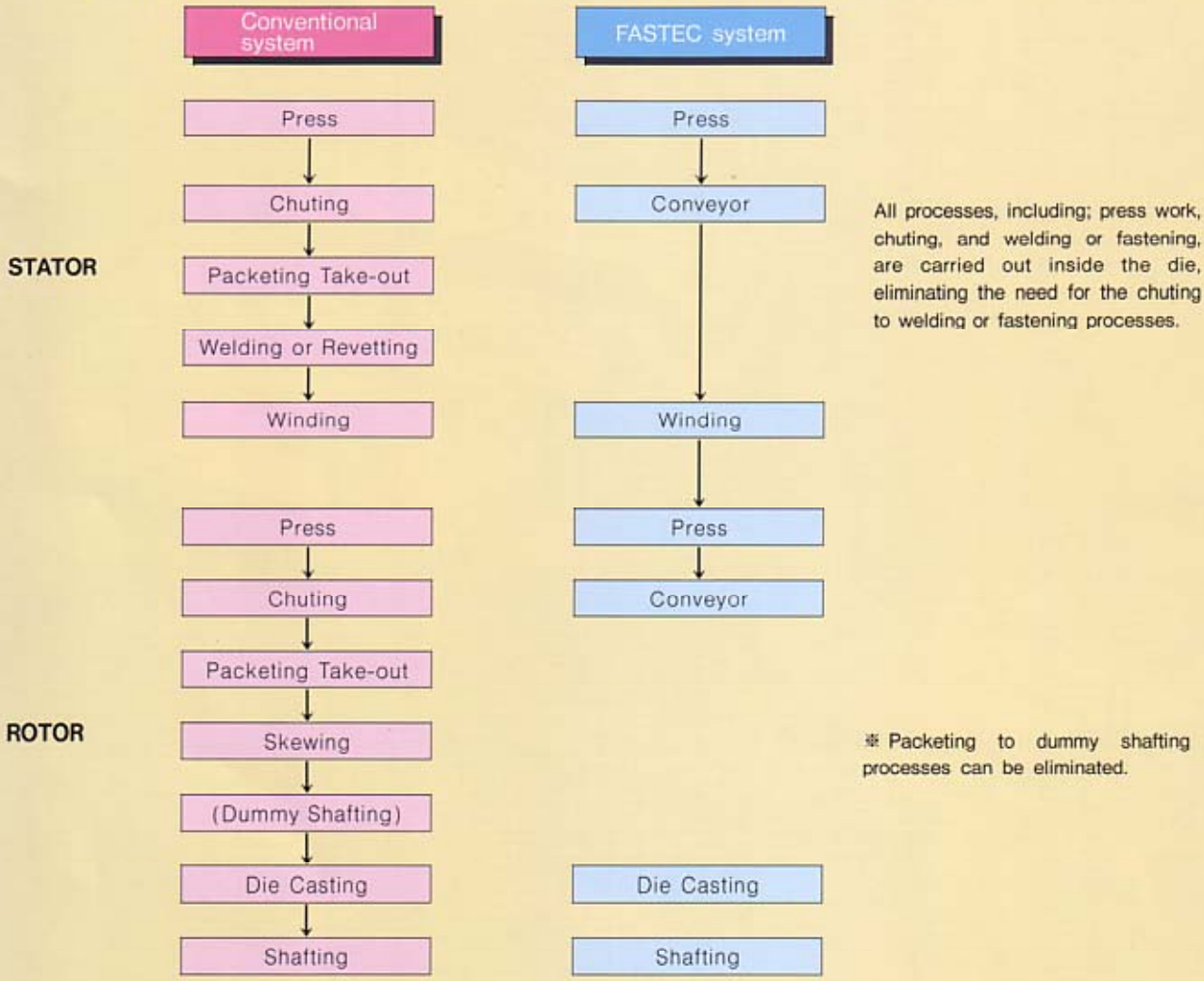
What is "FASTEC"?

FASTEC is KURODA's revolutionary Fastening and Skewing Technology that allows assembly work to be done inside of the die during stamping.

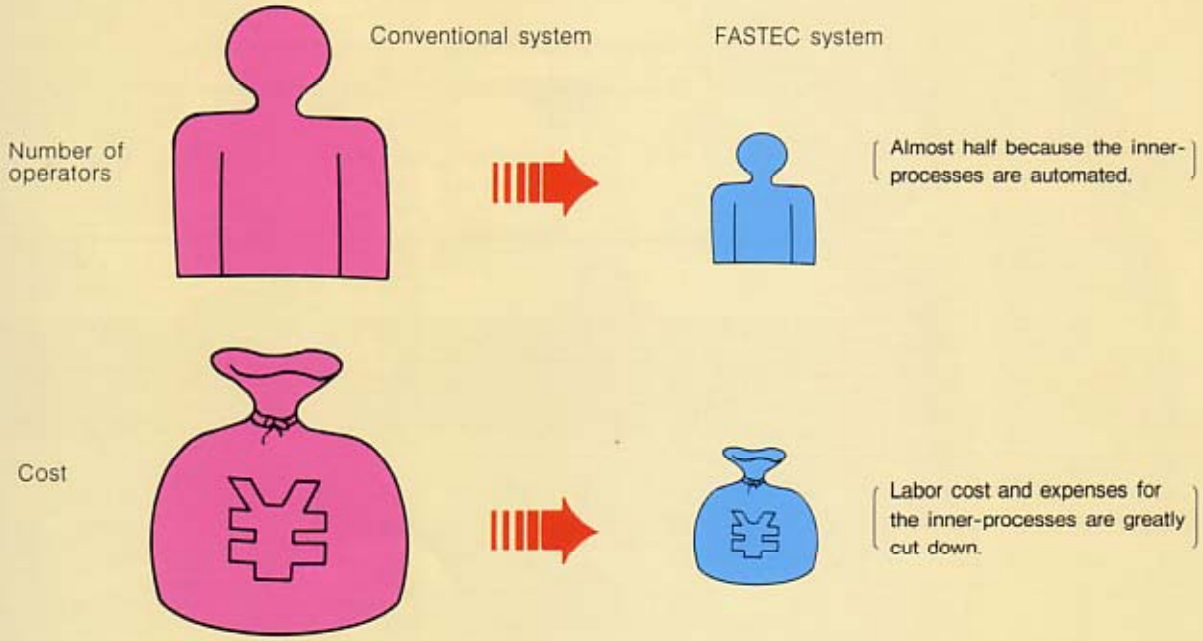
This technology was developed into actual working machinery by KURODA, Japan's leading manufacturer of precision machinery. "FASTEC" (Trademark reg.) stands for Fastening and Skewing Technology.

FASTEC can offer you! [Cost saving] [High quality]

Following is a typical example of working with motor core lamination dies, illustrating the cost saving benefits of using the FASTEC system over a conventional system.



Savings in labor and cost when manufacturing a set of cores



FASTEC® SYSTEM

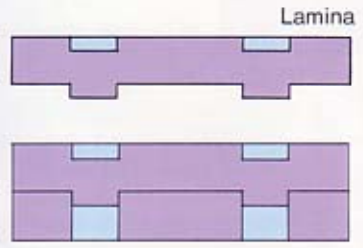
The FASTEC system consists of the dies for stamping and stacking core laminations and the control box for setting following functions.

FUNCTIONS

FASTEC dies incorporate automatic fastening,rotation,skewing, counter-boring and rotational skewing functions to manufacture core laminations efficiently during a continuous press run.

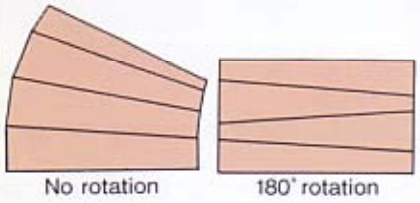
1. Fastening

The die forms convexity and concavity on the lamina.
When the convexity are pressed to the concavity in the stamping-out process, the upper and lower laminas are fastened. When the required number of laminas are fastened, they are separated with a pierced lamina.



2. Rotation

If laminas with slightly different thicknesses are stacked, the shape of the products will differ from the design.
To minimize differences caused by the thickness of each lamina, the stamping die stamps out the material while rotating at intervals and then, by stacking the lamina, quality products free from inclination can be produced.

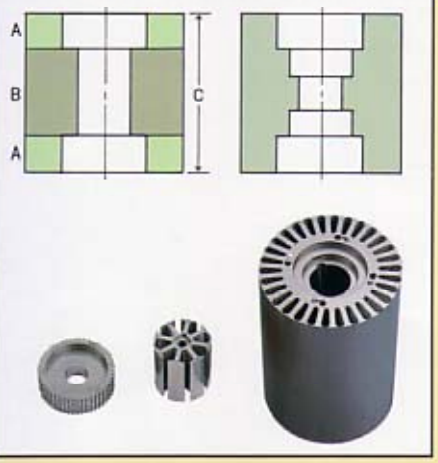


3. Skewing

Rotor cores are sometimes skewed to improve the performance of motors.
The FASTEC die serves to skew the lamina at any angle when fastening rotor cores.
You can choose between the mechanically driven skew and the step-motor-driven skew according to your requirements.

4. Counterbore

The rotor shaft of a motor requires a bore with one or two steps to accomodate the bearing.
The FASTEC system is capable of counterboring by simply presetting the numbers of lamina of A, B and C.

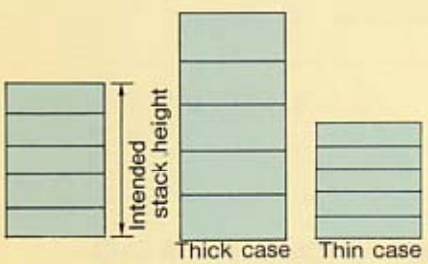


5. Rotational skewing

This process is a combination of 2. Rotating function and 3. Skewing function.
This patented Rotational skewing high technology has been innovated to produce reliable products.
All die functions are controlled through the control box.

STACK HEIGHT CONTROL SYSTEM

The thickness of hoops used for stacking lamina tend to vary. This results in an error in the thickness of finished products even if each product is composed of the same number of stacked lamina.
The stack height control system consisting of a lamina thickness measuring sensor and a control unit equipped with CPU serves to eliminate this thickness error in finished products to attain the designed thickness independently of the differences in material thickness.



CONTROL BOX

Wide range of parameters for controlling the FASTEC system are available:
The FC series are equipped with lamina counting/control functions. The HFC series are equipped with stack height control functions, etc.

Super-precision machining technology is the basis of the KURODA FASTEC SYSTEM.

CAD System

CNC Full Automatic Profile Grinding Machine

CNC Wire Cut Electric Discharge Machine

Super-Precision Jig Grinding Machine

KURODA's unrivalled metal mold technology will put a fresh new look into your products.

Mold Products (Lens)

Magnet head cores (PAT.PEND.)

STACKING HEIGHT CONTROLLER

○:Standard
★:Optional

	Controller model number		KF01	FC20	FC20W	FC30	FC30W	FC4	FC50	FC50W	FC70	FC70W	HFC70	HFC70W
	Number of row	Single	○	○	○	○	○	○	○	○	○	○	○	○
		Double	–	–	○	–	○	–	–	○	–	○	–	○
	Height control	Number of laminas	–	○	○	○	○	○	○	○	○	○	○	○
※2 ※3		Stack height measuring (Option controller)	–	★ HC5S	★ HC5W	★ HC5S	★ HC5W	★ HC5S	★ HC5S	★ HC5W	–	–	○ Select	○ Select
	Controlled stack height per row	2(Stator, Rotor)	–	○	○	○	○	○	○	○	○	○	○	○
		3(Stator, Rotor & Other)	–	○	○	○	○	–	○	○	○	○	○	○
※4	Rotor shaft hole recess	2 steps(shaft hole & 1 recesses)	–	○	○	○	○	○	○	○	○	○	○	○
		3 steps(shaft hole & 2 recesses)	–	–	–	–	–	–	–	–	○	○	○	○
	Interlock signal to press machine	From air cylinder sensors	–	○	○	○	○	○	○	○	○	○	○	○
		From die rotation sensors	○	–	–	–	–	○	○	○	○	○	○	○
	Step motor driven skew	One direction	○	–	–	○	○	–	○	○	○	○	○	○
		V-shaped skew	–	–	–	–	–	–	–	–	○	○	○	○
	Plasma display		–	–	–	–	–	–	–	–	○	○	○	○
※5	Dimension of controller box		A	B	C	B	C	B	B	C	D	E	D	E
	Dimension of option controller box		–	B	C	B	C	B	B	C	–	–	–	–

※1 : FC series : Controlled by number of lamina
HFC series : Controlled by number of lamina/stack height in one box
HC series : Optional controller to add stack height measuring device onto FC series(FC & HC come individual stand alone boxes.)

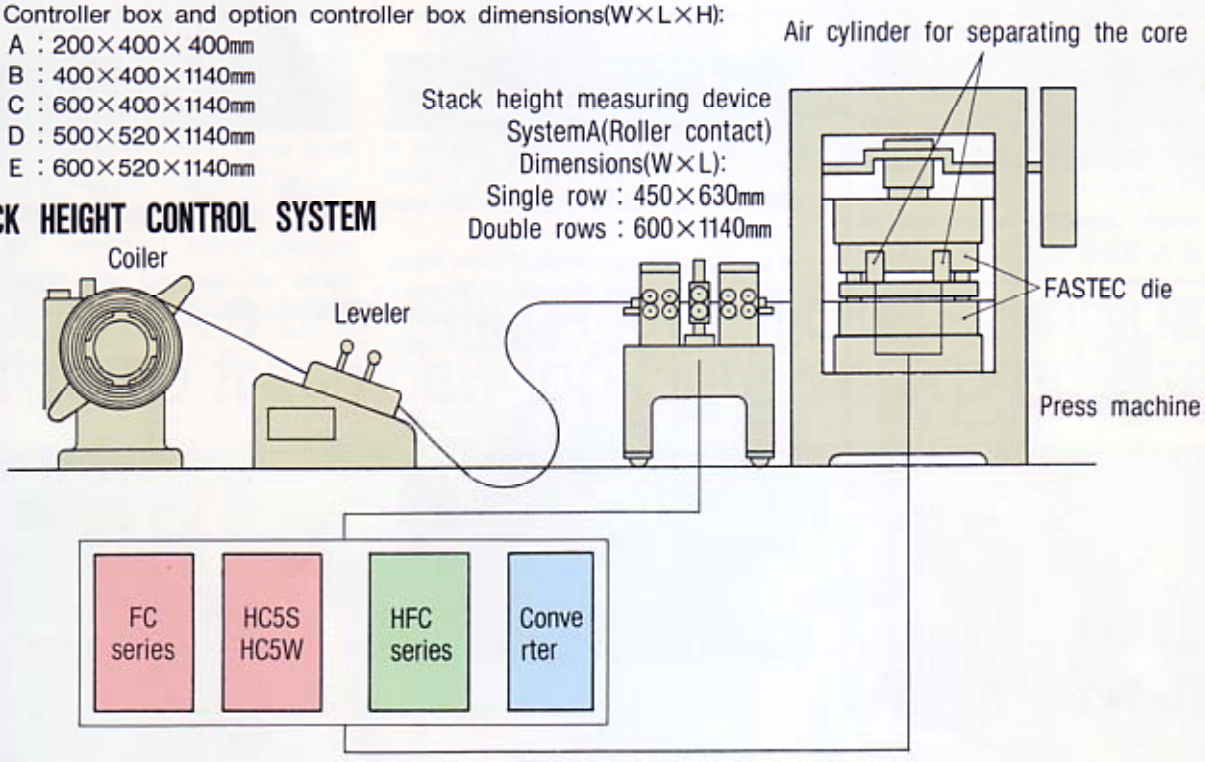
※2 : Combining FC series with HC5S/HC5W have limitation of controlled stacking heights by 2 even FC has 3 heights function.

※3 : System A(Roller contact) or system B(non-contact) measuring device are available with HFC70 & HFC70W.

※4 : Rotor shaft hole recess functions on rotor only except three parts control on FC70, FC70W, HFC70 & HFC70W.

※5 : Controller box and option controller box dimensions(W×L×H):
A : 200×400×400mm
B : 400×400×1140mm
C : 600×400×1140mm
D : 500×520×1140mm
E : 600×520×1140mm

STACK HEIGHT CONTROL SYSTEM



FC series+HC5S/HC5W or HFC series : System A of Roller contact
HFC series+Converter : System B of Non-contact measuring

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