

TECHAN

WE CAN DO IT!



INTRODUCTION OF TECHAN

Since its establishment in 2000, TECHAN has been providing solutions that meet customer needs, such as localization development, for cost reduction and quality improvement based on various experiences in handling precision measuring equipment.

We are reinforcing the bridge role between vendors and customers, and we are making great efforts to develop new products.

In addition, through continuous R&D and customer satisfaction management, we are doing our best to grow with our customers as a company that takes the lead in reform in line with the changes of the times with the best quality, the best price and the best service.

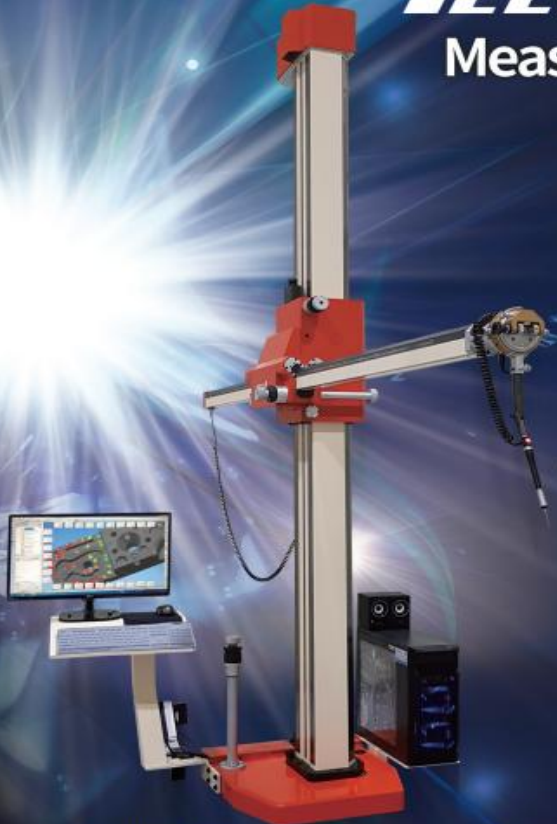


www.techan.co.kr

TECHAN

Measuring System

Technical Measurement Company



Accuracy, Reliability Smart,
your best choice LAYOUT M/C
from TECHAN system



TABLE OF CONTENTS

1. LAYOUT MACHINE SYSTEM CONFIGURATION

A) Hard Ware

B) 3D PROGRAM

C) COMPUTER SYSTEM

D) TOUCH PROBE

E) 2-POSITION SCRIBER HEAD

F) IRON SURFACE PLATE

G) DIGITAL SYSTEM COUNTER

H) Linear Encoder

2. USE CASE

3. USED LAYOUT MACHINE

4. VIDEO

5. CERTIFICATE

LAYOUT MACHINE MEASURING



Layout Machine Measuring provides the highest efficiency as a 3D measuring machine. It is widely used in various industrial fields (especially in automobile, aviation, shipbuilding, heavy industry and related partners).

Applicable product

- * Injection molding parts
- * mold parts
- * panel parts
- * jig parts
- * master model products
- * welding pipe products
- * casting products, etc.

[Advantages of Layout Machine Measuring]

- 1) It is possible to inspect from small to large products, and not only measure products but also draw lines at the same time.
- 2) When a 3D program is installed, real-time judgment (NG, OK) is made while viewing the modeling data.
Since NG can be corrected immediately when NG occurs, work efficiency can be improved by reducing work time and improving work efficiency.
- 3) It is possible to prepare an inspection report according to the customer's request.
- 4) Because it is a method of manually moving and contacting the product for inspection, repetitive inspection and even complex shaped products can be inspected quickly.

In comparison, the CMM is an automatic type, and it takes a lot of time because it has to be inspected after specifying all the moving paths, and it is very complicated to inspect products with complex shapes.

In particular, there are many cases where the touch probe collides with the products and is damaged.

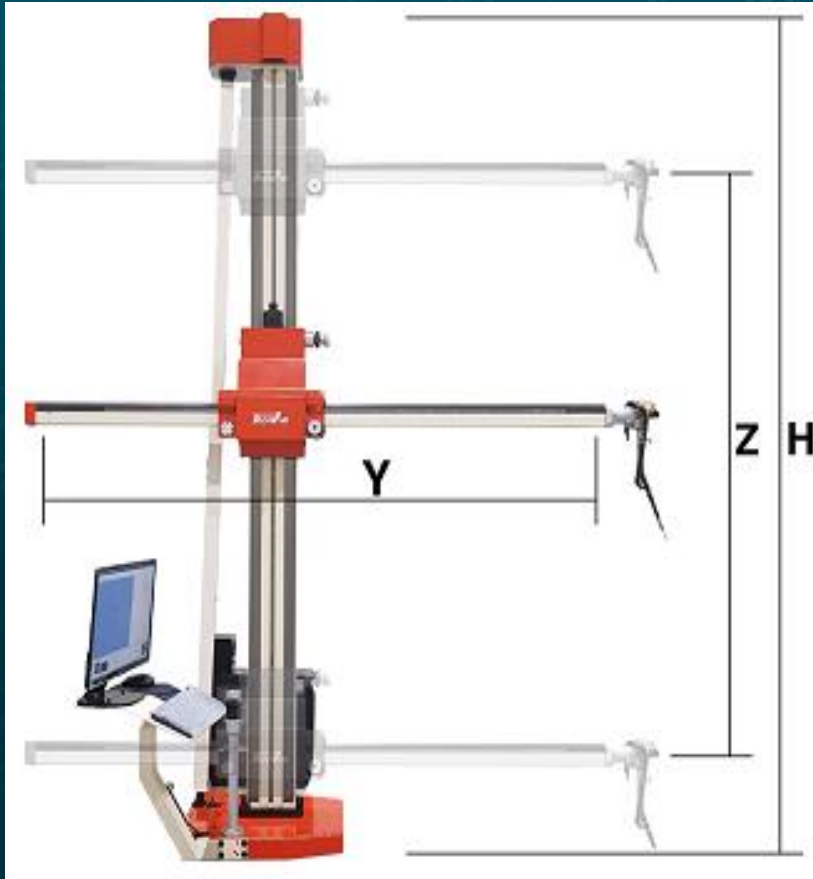
(The touch probe for CMM is a very expensive)

- 5) It is 1/3 cheaper than the price of a CMM(Coordinate measuring machine).
On the other hand, compared to the CMM, the precision is not lowered and the maintenance cost is very low.

LAYOUT MACHINE MEASURING SYSTEM



* Specification



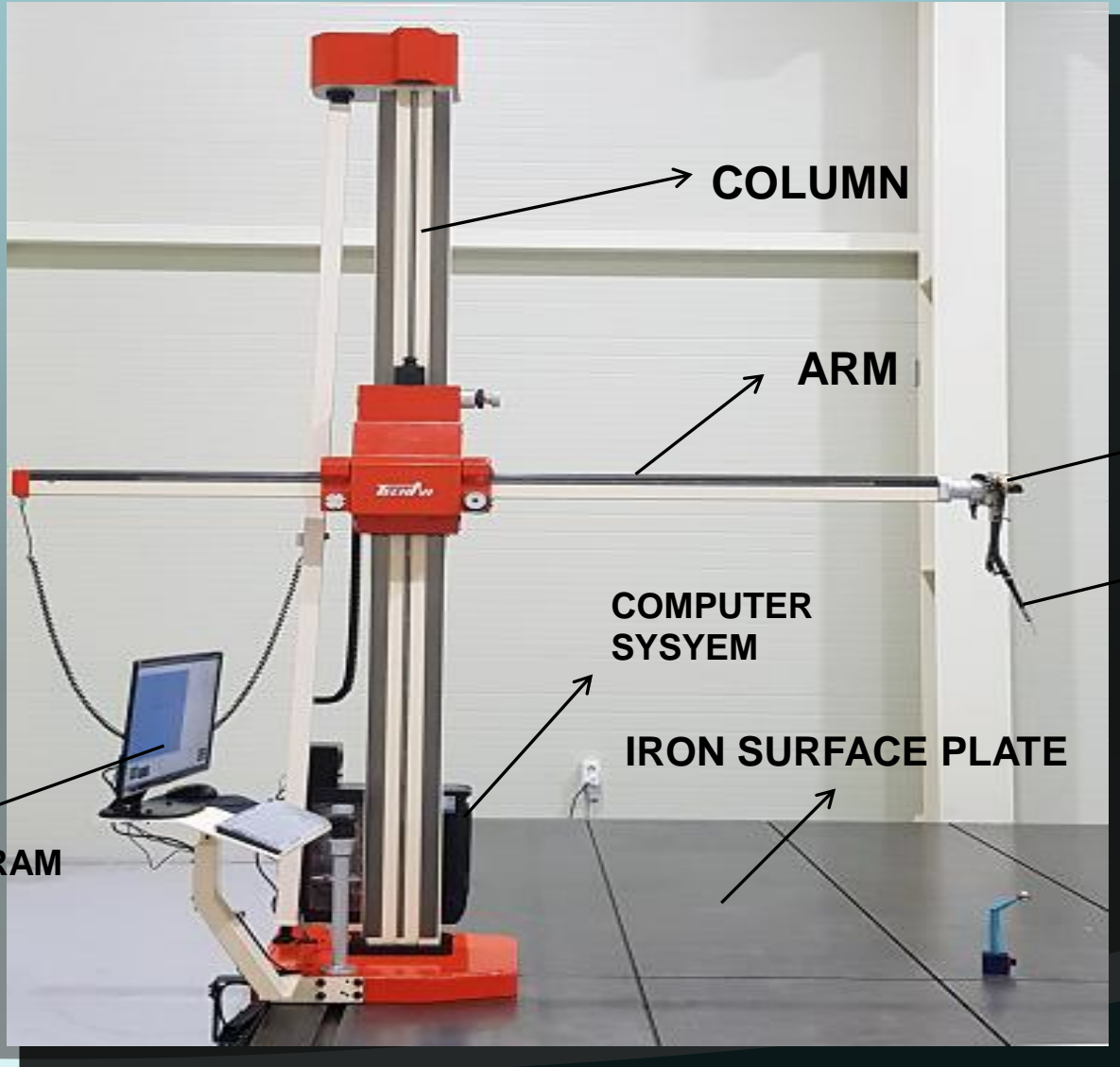
. Tecnnical Accuracy

MODEL	U1	U3
TA1515	$20+L/60 \leq 40\mu\text{m}$	$20+L/25 \leq 70\mu\text{m}$
TA1815	$25+L/55 \leq 45\mu\text{m}$	$25+L/22 \leq 75\mu\text{m}$
TA2015	$25+L/50 \leq 50\mu\text{m}$	$25+L/20 \leq 80\mu\text{m}$

. Measuring Range(mm)

MODEL	X	Y	Z
TA1515	Plate Size	1500	1500
TA1815	Plate Size	1500	1800
TA2015	Plate Size	1500	2000
MODEL	H	L	WEIGHT
TA1515	2400	1700	370kg
TA1815	2700	1700	400kg
TA2015	2900	1700	450kg

1.L/M Measuring Configuration



COLUMN

ARM

MARKING HEAD

TOUCH PROBE

COMPUTER
SYSYEM

IRON SURFACE PLATE

3D PROGRAM

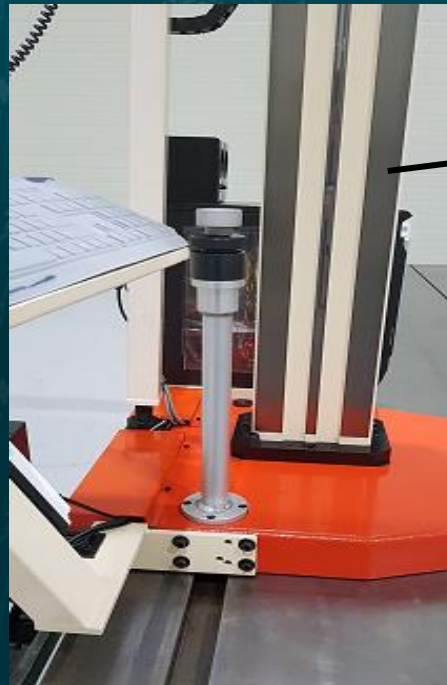
A. Hard Ware Configuration

1). Column Material : FCD 45

Column material is FCD 45 casting.

There is no wear when driving bearings because of surface ionization.

There is no deformation as it is casting type and it provides best condition.



COLUMN

2). Arm Material : AL 60 Type

Arm material is AL 60 alloy steel, and anodizing coating makes it very durable.

Column and Arm is square type, but adapted three-point method. This minimizes the loosing that occurs at bearing and there is no repetitive error when driving.

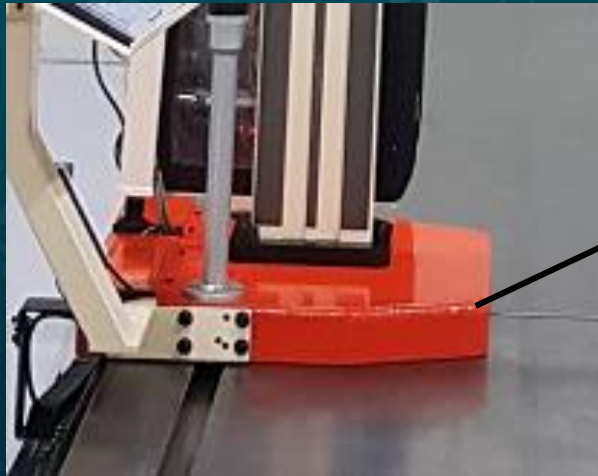
(We acquired patent for three-point method for driving gear.
Patent No 10-1656256)

Arm



3). Base

The base is the part that holds the column part and becomes the standard of the X axis.



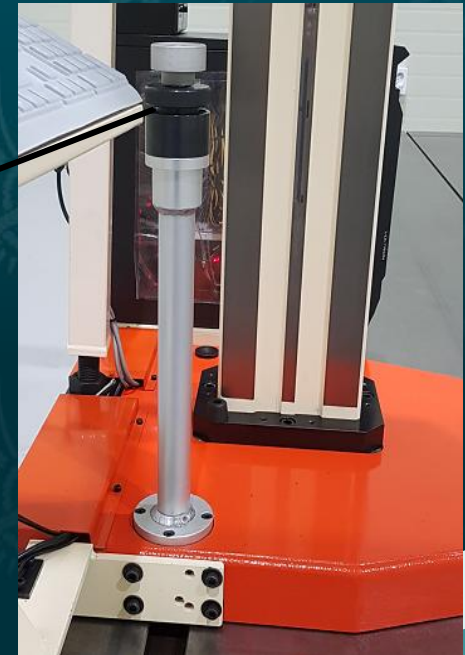
BASE

4). Axis Drive & Stopper

When moving the 3(X,Y,Z) axis, manually operate and move
The stopper device is also attached.



Z Axis Drive & Stopper



X Axis Drive & Stopper

Y Axis Drive & Stopper

B.3D PROGRAM

1.3D Measuring Software Advantages



AUTODESK's PowerINSPECT is a CAD-based measurement and inspection solution. PowerINSPECT enables 3D CAD comparison inspection beyond the existing 2D inspection method by linking with various types of measuring devices.

PowerINSPECT can be used with multi-joint measuring machines, optical measuring devices and manual and CNC CAM as well as CNC machines.

PowerINSPECT is very simple to use as it provides a user-friendly user interface. This allows you to increase your proficiency in measuring tasks in a very short time.

PowerINSPECT is capable of very detailed graphic display. So as soon as you measure, the measured data is displayed and errors can be corrected immediately.

In addition, PowerINSPECT provides statistical data, image and graphic reports that meet international standards and meet design requirements. So, it also automatically generates a report in the form you want.

2. 3D Program Function

- * Accurate 3D measurement algorithm with Europe certification
- * Easy and simple measurement software algorithm with Drag & Drop method
- * Fully compatible with DMIS family of third-party equipment with pure DMIS language
- * Renishaw can interlock directly with all probe systems
REVO,PH20,PH10,MH20i.....
- * Various sensors can be installed
CCD Camera / Laser Sensor
- * Powerful CAD-based software
- * 3D drawing import and export function
IGES,STEP (Optionl : CATIA, UG, PRO-E, Solidworks..)
- * Various Report Functions
txt, PDF, HTML, XLS, Open Excel...
- * Affordable maintenance costs
Much less SMA(Software Maintenance) cost than other companies
- * Various maintenance modules
Gear, cam, pipe, blisk, SPC, NC, CCD, Etc...
- * Computer Support System : Window 10,Window 7 32bit or 64bit

3.Features of PowerINSPECT

Comparison and inspection with all major CAD data.

Quick alignment for complex spline shapes.

Inspection of the measurement part specified by the user.

Inspection of product edges.

Check for all shape types

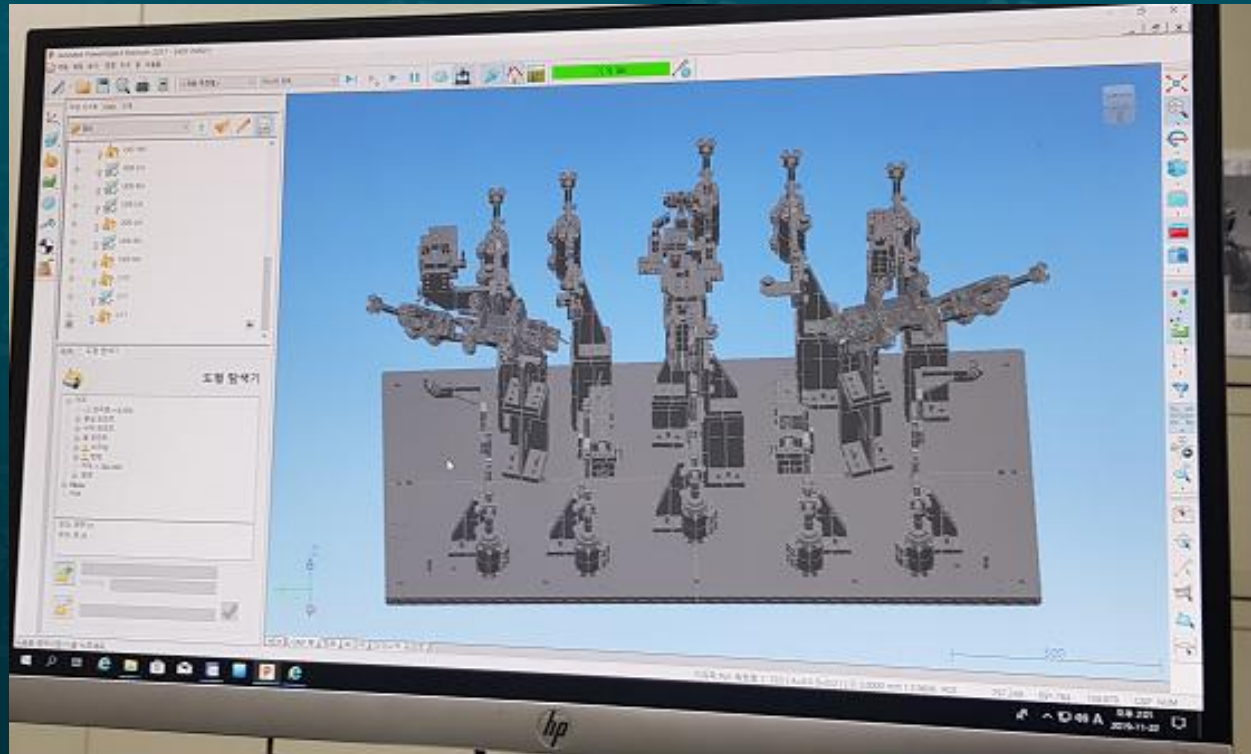
Creation of geometric elements from CAD and measurement of nominal information

Export of measured elements such as point, wireframe, and surface

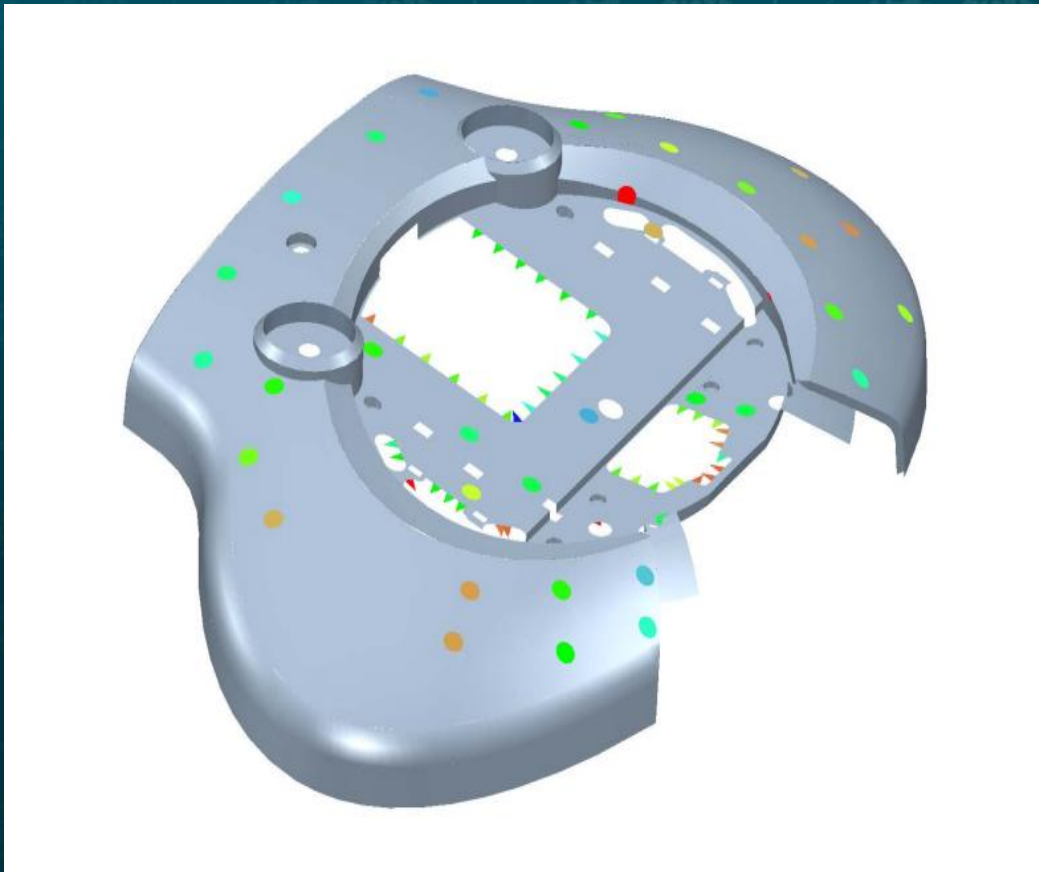
CAD Manipulation including Surface Offset

Graphical automatic reporting function and report output and editing in user-specified format

* Importing Modeling Data 1



* Importing Modeling Data 2



* Data Sticker Attachment Function

Delcam

3차원 측정을 이용한 사례 Side Inner - 기준이 다른 경우 분석 비교

지그 홀 기준으로부터의 분석

10	Nom:	Act:	Dev:
Dia:	12.200	12.300	0.100
X:	463.721	463.809	0.088
Y:	666.184	666.329	0.145
Z:	660.800	660.758	-0.042

8	Nom:	Act:	Dev:
Dia:	7.000	7.143	0.143
X:	564.270	564.211	-0.059
Y:	739.000	739.195	0.195
Z:	672.000	671.890	-0.110

12	Nom:	Act:	Dev:
Dia:	10.000	9.917	-0.083
X:	420.136	420.216	0.080
Y:	654.100	654.375	0.275
Z:	660.553	660.538	-0.015

7	Nom:	Act:	Dev:
Dia:	9.000	9.233	0.233
X:	531.495	531.179	-0.316
Y:	727.000	727.512	0.512
Z:	562.000	562.195	0.195

11	Nom:	Act:	Dev:
Dia:	25.000	25.033	0.033
X:	419.836	419.842	0.006
Y:	655.600	655.820	0.220
Z:	567.000	566.944	-0.056

9	Nom:	Act:	Dev:
Dia:	12.300	12.298	-0.002
X:	463.681	463.793	0.112
Y:	666.585	666.765	0.180
Z:	567.050	567.134	0.084

Panel 홀 기준으로부터의 분석

10	Nom:	Act:	Dev:
Dia:	12.200	12.300	0.100
X:	463.721	463.787	0.066
Y:	666.184	666.102	-0.082
Z:	660.800	660.725	-0.075

8	Nom:	Act:	Dev:
Dia:	7.000	7.143	0.143
X:	564.270	564.207	-0.063
Y:	739.000	738.934	-0.066
Z:	672.000	671.918	-0.082

12	Nom:	Act:	Dev:
Dia:	10.000	9.917	-0.083
X:	420.136	420.190	0.054
Y:	654.100	654.160	0.060
Z:	660.553	660.495	-0.058


7	Nom:	Act:	Dev:
Dia:	9.000	9.233	0.233
X:	531.495	531.173	-0.322
Y:	727.000	727.349	0.349
Z:	562.000	562.213	0.213

11	Nom:	Act:	Dev:
Dia:	25.000	25.033	0.033
X:	419.836	419.817	-0.019
Y:	655.600	655.681	0.081
Z:	567.000	566.903	-0.097

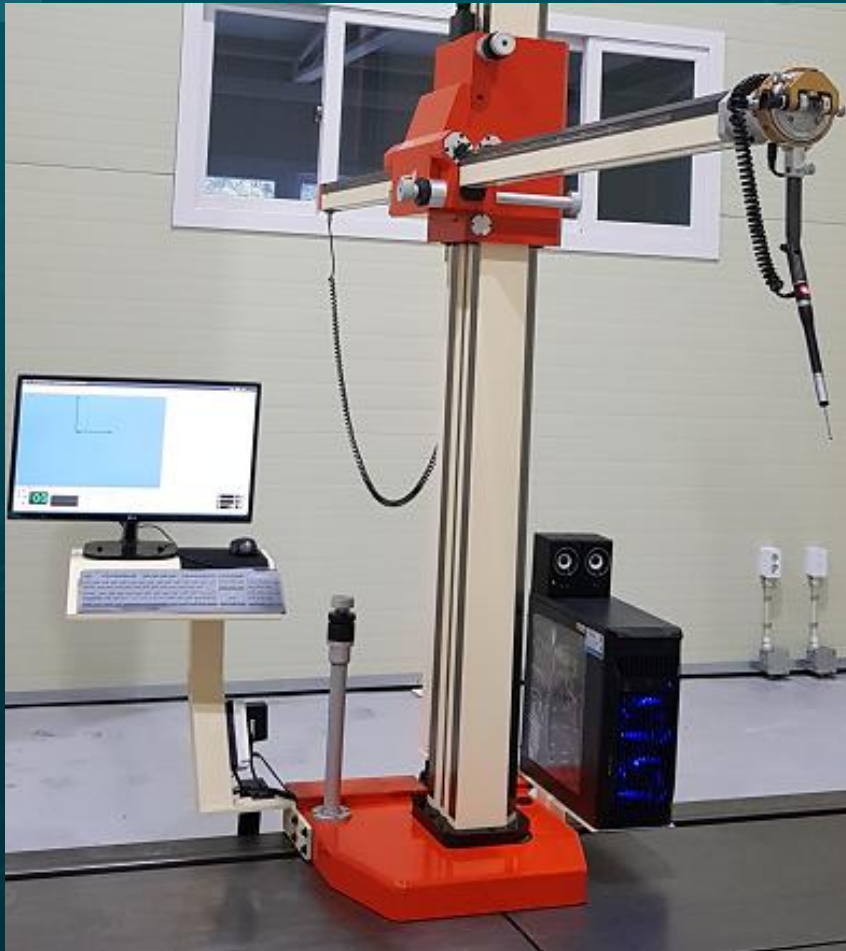
9	Nom:	Act:	Dev:
Dia:	12.300	12.298	-0.002
X:	463.681	463.772	0.091
Y:	666.585	666.615	0.030
Z:	567.050	567.102	0.052

AUTODESK.

* Measurement Test Record Form

 www.delcam.com				Project SPEAKER						
DELCAM PLC Talbot Way Small Heath Business Park Birmingham B10 0HJ, UK				Telephone 0121 766 5544 Fax: 0121 766 5511 E-mail: marketing@delcam.com Web Site: http://www.delcam.com						
Customer		DELCAM PLC		Report No. XYZ 345						
Description Speaker Moulding		Customer contact		Inspection Dept.						
Part No. RESIN MODEL		Customer phone No.		0121 766 5544						
CAD File Speaker.odx		Customer fax No.		0121 766 5511						
Datum AS CAD		Customer Email		mark@delcam.com						
Inspection Group 1										
Surface Points										
Name	Offset	-Tol.	+Tol.	X	Y	Z	dX	dY	dZ	DL
Surface Point 1	0.000	-0.200	0.200	61.381	-111.756	40.485	0.009	0.004	0.018	0.020
Surface Point 2	0.000	-0.200	0.200	73.903	-129.225	29.451	0.003	-0.002	0.006	0.007
Surface Point 3	0.000	-0.200	0.200	81.023	-78.530	37.157	-0.150	0.044	-0.262	-0.305
Surface Point 4	0.000	-0.200	0.200	91.046	-92.870	27.996	-0.096	0.031	-0.136	-0.169
Surface Point 5	0.000	-0.200	0.200	83.242	91.339	33.460	-0.078	-0.025	-0.125	-0.150
Surface Point 6	0.000	-0.200	0.200	59.729	110.553	41.462	0.026	0.014	0.063	0.069
Surface Point 7	0.000	-0.200	0.200	68.442	154.483	23.867	0.079	0.052	0.130	0.161
Surface Point 8	0.000	-0.200	0.200	31.053	139.669	44.698	0.074	0.064	0.240	0.259
Surface Point 9	0.000	-0.200	0.200	31.485	174.083	33.703	0.091	0.100	0.261	0.294
Surface Point 10	0.000	-0.200	0.200	-0.929	144.757	51.605	0.019	0.025	0.090	0.095
Surface Point 11	0.000	-0.200	0.200	-1.994	191.447	35.640	0.037	0.092	0.201	0.224
Surface Point 12	0.000	-0.200	0.200	-63.099	147.146	56.612	-0.007	0.028	0.085	0.090
Surface Point 13	0.000	-0.200	0.200	-64.042	118.911	65.774	0.000	0.000	0.001	0.001
Surface Point 14	0.000	-0.200	0.200	-33.392	138.352	58.764	0.019	0.043	0.166	0.172
Surface Point 15	0.000	-0.200	0.200	-44.990	-158.916	52.956	0.002	-0.080	0.217	0.231
Surface Point 16	0.000	-0.200	0.200	5.115	-86.382	46.413	0.039	0.000	0.168	0.173
Surface Point 17	0.000	-0.200	0.200	19.423	-62.613	43.110	-0.015	0.000	-0.065	-0.067
Surface Point 18	0.000	-0.200	0.200	-11.372	-59.705	50.219	-0.026	0.000	-0.111	-0.114
Surface Point 19	0.000	-0.200	0.200	-60.843	-52.110	61.641	0.005	0.000	0.023	0.024
Surface Point 20	0.000	-0.200	0.200	-17.192	98.371	51.563	0.048	0.000	0.208	0.214
Surface Point 21	0.000	-0.200	0.200	59.577	40.030	37.150	0.000	0.000	-0.071	-0.071
Surface Point 22	0.000	-0.200	0.200	39.590	34.988	37.150	0.000	0.000	-0.039	-0.039
Surface Point 23	0.000	-0.200	0.200	69.566	-41.716	37.150	0.000	0.000	-0.088	-0.088
Surface Point 24	0.000	-0.200	0.200	-72.479	68.689	69.300	0.000	0.000	-0.224	-0.224
Surface Point 26	0.000	-0.200	0.200	16.051	-10.754	43.888	-0.077	0.000	-0.332	-0.341
Surface Point 25	0.000	-0.200	0.200	-68.197	-139.001	59.134	-0.009	-0.036	0.100	0.107
Surface Point 27	0.000	-0.200	0.200	39.428	-159.758	35.998	0.089	-0.081	0.239	0.268
Surface Point 28	0.000	-0.200	0.200	34.697	-138.936	43.749	0.073	-0.061	0.227	0.246
Surface Point 29	0.000	-0.200	0.200	-118.635	92.858	71.453	0.007	-0.087	-0.348	-0.358
Surface Point 30	0.000	-0.200	0.200	-115.775	44.332	78.410	0.000	-0.010	-0.107	-0.108
Surface Point 31	0.000	-0.200	0.200	-121.593	-13.159	80.152	0.000	0.004	-0.168	-0.168
Surface Point 32	0.000	-0.200	0.200	-121.201	-65.824	76.102	0.000	0.013	-0.104	-0.104
Surface Point 33	0.000	-0.200	0.200	-107.675	-107.407	67.534	0.006	0.048	-0.146	-0.154
Surface Point 34	0.000	-0.200	0.200	-74.955	-107.649	68.720	0.005	-0.011	0.026	0.029
Surface Point 35	0.000	-0.200	0.200	-32.269	102.191	57.544	0.353	-0.573	0.000	0.673
Surface Point 36	0.000	-0.200	0.200	35.702	99.940	41.280	-0.349	-0.497	0.000	0.607

C. Computer System



D. Touch Probe(RENISHAW)

When performing a product inspection, touch the point where the product value is obtained.

Then, the measured value can be obtained.



Touch Probe

1). Probe Head Type

RENISHAW
apply innovation™

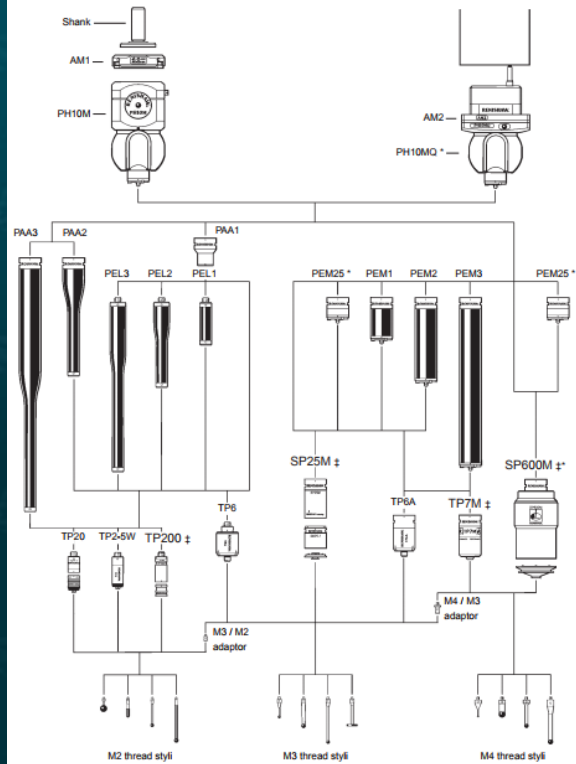


2). Touch Probing System

Probing systems for co-ordinate measuring machines

NOTE: Please see the accessories page 13-4 for details of adaptor plates PHA3 and PHA80 which permit rapid interchange between PH10MQ and SP80 scanning probe.

- ‡ Specialised interface required
- When using a SP600M with a PH10MQ a PEM25 extension bar is required to achieve A = 97.5° or A = 105° in all B axis positions



3). Ball Stylus

RENISHAW
apply innovation™

Styli

Comprehensive information on Renishaw's stylus products can be found in the stylus and technical specifications document (R1-1000-3200).

Accuracy at the point of contact

As industry has developed its requirement for increasingly diverse and complex manufactured parts, inspection systems have had to work hard to keep up. The use of CMMs with probing systems, and in-process inspection on machine tools, are two of the solutions offered by Renishaw to help you maximise your productivity and maintain the highest possible standards of quality.

Successful gauging depends very much on the ability of the probe's stylus to access a feature and then maintain accuracy at the point of contact. Renishaw has used its expertise in probe and stylus design to develop a comprehensive range of CMM and machine tool styli to offer the greatest possible precision.

These notes explain the critical features of each stylus type, helping you to choose the right design for each inspection need.

What is a stylus?

A stylus is that part of the measuring system which makes contact with the component, causing the probe mechanism to displace, the generated signal enabling measurement to be taken. The feature to be inspected dictates the type and the size of stylus used. However, in all cases maximum rigidity of the stylus and perfect sphericity of the tip are vital.

The performance of gauging can easily be degraded if a stylus is used with poor ball roundness, poor ball location, bad thread fit or a compromised design that allows excessive bending during measurement.

To ensure the integrity of the data gathered, make certain that a stylus from the comprehensive range of genuine Renishaw styli is specified and used.

Choosing a stylus

To maintain accuracy at the point of contact it is recommended that:

- Styli be kept short
- Joints be minimised
- A large as possible stylus ball is used



E. 2-Position Scriber Head

Used when drawing a line on the product, 360 degree rotation, horizontal, vertical

You can draw a line

It is used when connecting a touch probe.



F. Cast Iron Surface Plate

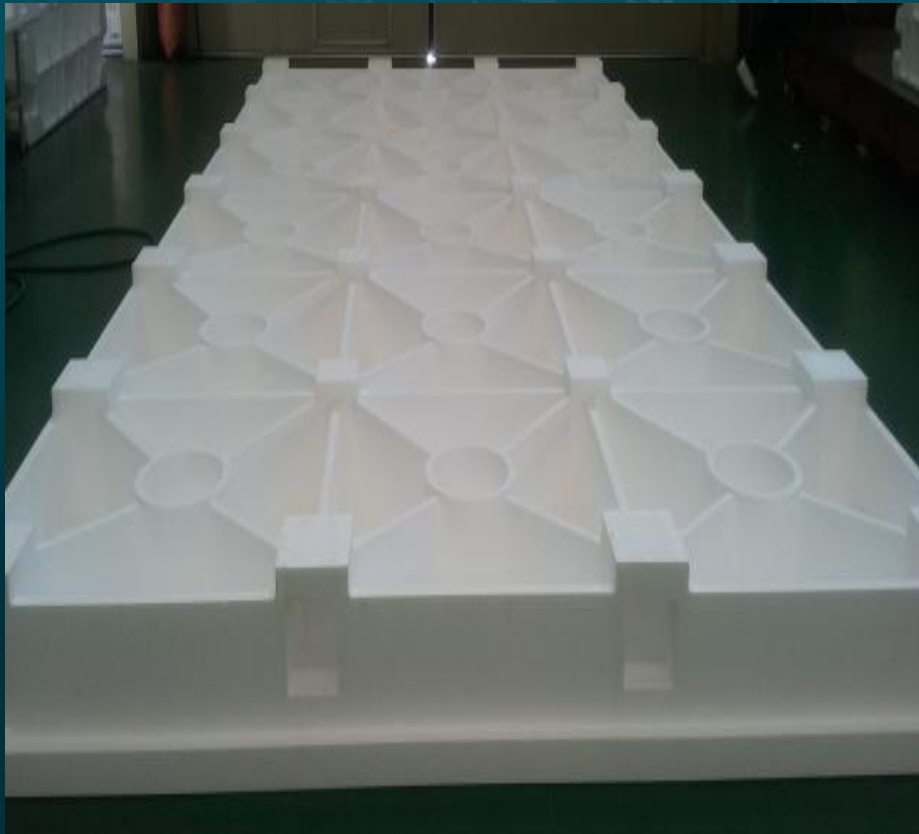
Surface-Plate for Layout Machine should be manufactured exactly just make use measurement and examination.

of the quality of the material than FC300 cause this is the foundation of Especially for about the rib (the lower part of supplementary frame) it has been specially designed dual-rib - frame for we experienced enough to develop the products which has been carrying out research on and on,Therefore users can easily deal with it for long that it surely stands temperature falls, proof load and something like that changes.

Plate Model Size	Weight
2000 x 2000 x 300 (mm)	2400 (kg)
3000 x 2000 x 300 (mm)	2800 (kg)
3000 x 3000 x 300 (mm)	5300 (kg)
3000 x 4000 x 300 (mm)	7000 (kg)
3000 x 5000 x 300 (mm)	9700 (kg)
3000 x 6000 x 300 (mm)	13000 (kg)

1). Pattern Process

(Model : 6000 x 3000 x 300mm)



2). Iron Plate Process



3). Large-Size Iron Plate Installation



G. Linear Encoder

Maker : Germany



1). 3 Axis Encoder



Specifications	LIDA 287	LIDA 277		
Measuring standard Coefficient of linear expansion	Steel scale tape $\alpha_{\text{them}} \approx 10 \cdot 10^{-6} \text{ K}^{-1}$			
Accuracy grade	$\pm 30 \mu\text{m}$			
Scale tape cut from roll*	3 m, 5 m, 10 m			
Reference marks	Selectable every 100 mm			
Incremental signals	$\sim 1 V_{\text{PP}}$	□□TTL		
Grating period	200 μm			
Integrated interpolation* Signal period	– 200 μm	10-fold 20 μm	50-fold 4 μm	100-fold 2 μm
Cutoff frequency	$\geq 50 \text{ kHz}$	–	–	–
Scanning frequency	–	$\leq 50 \text{ kHz}$	$\leq 25 \text{ kHz}$	$\leq 12.5 \text{ kHz}$
Edge separation a	–	$\geq 0.465 \mu\text{s}$	$\geq 0.175 \mu\text{s}$	$\geq 0.175 \mu\text{s}$
Traversing speed	$\leq 600 \text{ m/min}$		$\leq 300 \text{ m/min}$	$\leq 150 \text{ m/min}$
Power supply Current consumption	5 V DC $\pm 5\%$ < 110 mA	5 V DC $\pm 5\%$ < 140 mA (without load)		
Electrical connection* Cable length	Cable 1 m or 3 m with D-sub connector (15-pin) See Interface Description, but $\leq 30 \text{ m}$ (with HEIDENHAIN cable)			
Vibration 55 Hz to 2 000 Hz	$\leq 200 \text{ m/s}^2$ (EN 60 068-2-6)			
Shock 11 ms	$\leq 500 \text{ m/s}^2$ (EN 60 068-2-27)			
Operating temperature	0 °C to 50 °C			
Weight	Scanning head	20 g (without connecting cable)		
	Scale tape	20 g/m		
	Scale-tape carrier	70 g/m		
	Connecting cable	30 g/m		
	Connector	32 g		

* Please select when ordering

H. DIGITAL SYSTEM COUNTER

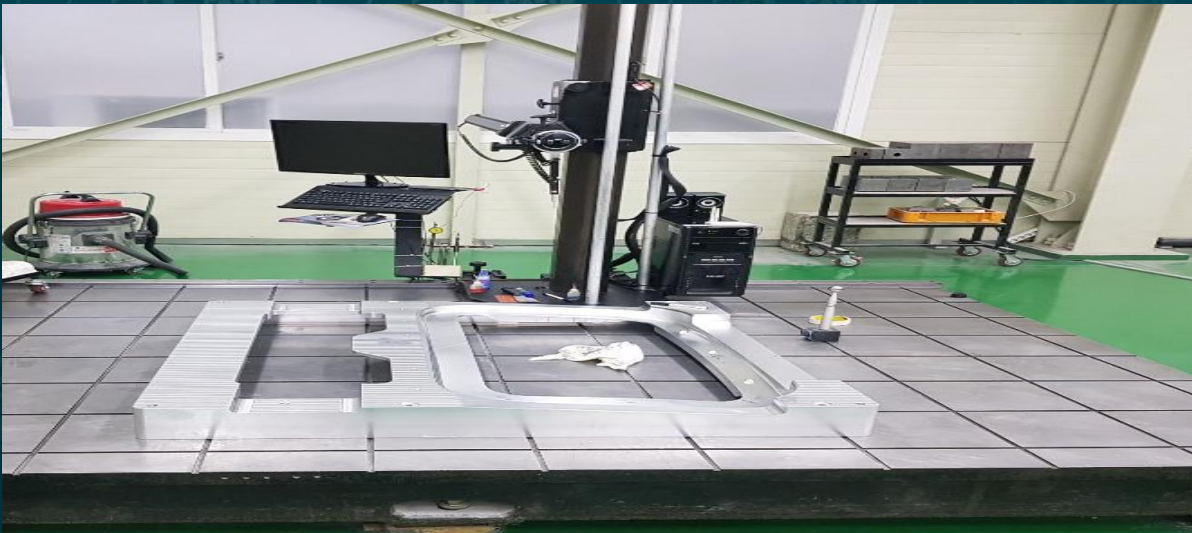
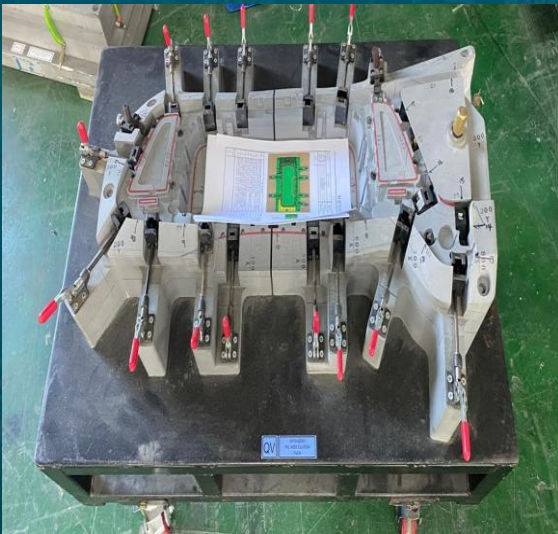
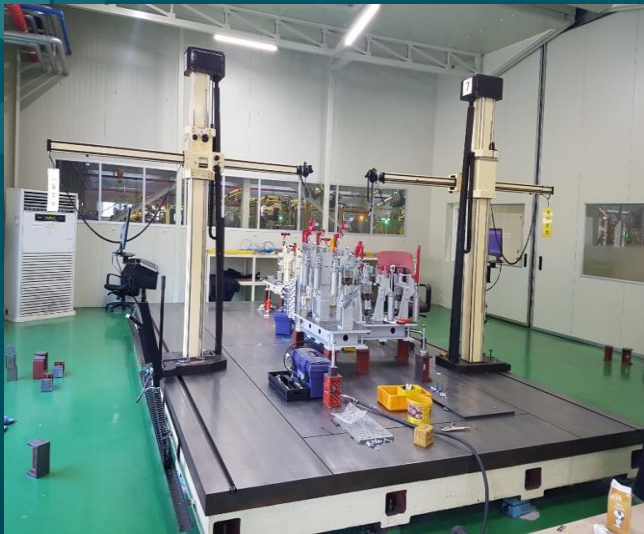
This COUNTER is a simple counter and it is operated by 3 axes (X,Y,Z).

It is a digital system that measures distance.

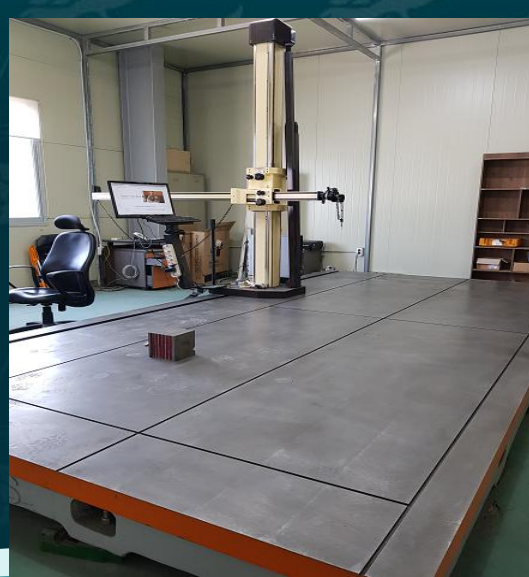


2. Layout Machine Measuring Use Case





3. USED MACHINE



4 VIDEO



SCANNING VIDEO.mp4

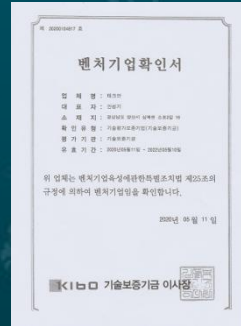
5. CERTIFICATE



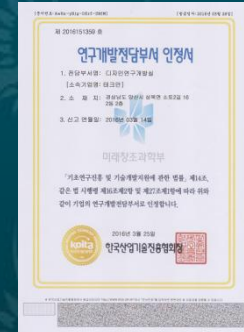
Business Registration



Certificate of Patent



Entire Business Confirmation Certificate



R&D Department Certificate

Thank you

TEL : +82-55-912-1266

FAX : +82-55-912-1270

www.techan.co.kr