

MINI TABLE TOP TESTING EQUIPMENT

USER'S MANUAL

Be sure to read it carefully before use.

Before using the Digital Force Gauge FGPX/FGP Series and reading together with the User's Manual of Mini Table Top Testing Equipment Exclusive Software "FGT-TV_Ver2", use it appropriately.

CAUTION ITEMS :

All the authority rights related to concerned documents for Mini Table Top Testing Equipment "FGS-TV" are held by this company.

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1 AT THE OUTSET

We express our sincere thanks for receiving your order for Mini Table Top Testing Equipment FGS- \Box TV. This user's manual informs about the operational sequence of Mini Table Top Testing Equipment FGS- \Box TV. Mini Table Top Testing Equipment FGS- \Box TV holds the following functions

- Five Types of Test Actions viz. "Peeling test", "Breaking test", "Force sensing test", "Push-Pull test", "Reciprocating test" are available.
- Using Exclusive Software, Measuring Values could be fed in Excel *.
- Through Excel the Load Data Graph is displayed and Load Variation could be seen.
- According to the Test Variety, necessary statistical results, viz. OK/NG decision could be displayed.

Further, for the operations of this equipment, following things are necessary.

- Exclusive Add-on Software "FGT-TV_Ver2" (Attached to this product)
- P.C. fulfilling the working environment of the above mentioned Add-on Software.

For Set up sequence of Exclusive Add-on Software "FGT-TV_Ver2" and in respect of Operational Method, Working Environment , please refer the enclosed "FGT-TV_Ver2 User's Manual".

* Excel is the Registered Trade Mark of American Microsoft Company, America and at other Countries.

2 DETAILS OF MINI TABLE TOP TESTING EQUIPMENT "FGS-DTV"

2.1 Product Contents

The contents of this product are as under :

| 1. | Main Body of Mini Table Top Testing Equipment. | FGS-DTV | 1No. |
|----|---|------------------------|---------------|
| 2. | Force Gauge Installation Screws. | M4 Screws (M4×10) | 4Nos. |
| 3. | Allen Wrentch | For M8 | 1No. |
| 4. | | For M4 | 1No. |
| 5. | Digital Force Gauge | FGPX Series/FGP Series | 1No. |
| 6. | USB Cable (Between FGS-PC) | | 1No. |
| 7. | Socket Bolts Fitting Jig | M8×20 | 2 Nos. |
| 8. | Set Screw Fitting Jig | M6×20 | 1No. |
| 9. | CD-ROM (For Table Top Testing Maching Software FGT- | | 1No. |
| | TV_Ver2) | | |

2.2 Names of all the Items

Names of the parts of Mini Table Top Testing Equipment are as under :



* Back Side Outer Parts Output Connector : As regards Function, it is only dealt with if there is a demand from the customer.

While using the Mini Table Top Testing Equipment, pay attention sufficiently and use it. Specially in ascending, Decending Operation, avoid finger cutting accidents, and while operating it, take sufficient care to have no damage to this equipment.

2.3 Installation of Forge Gauge

- (1) The Force Gauge Installation board is to be removed from the Table Top Testing Equipment by Allen Wrentch (M8) supplied.
- (2) The Force Gauge is to be installed at Installation Board by M4 Screw supplied. Taking care to the Installation Direction, install it as per following sketch.
- (3) Installation Board is installed to Mini Table Top Testing Equipment.



While Installing Force Gauge, take sufficient care not to have any unreasonable load on the Measuring Axis.

(4) After fitting the Installation Board, install RS232C Cable and FG Power Supply Cable to the Force Gauge Connector.



If either RS232C Cable or the Power Supply Cable is not connected, then there is a possibility that normal operation may not be performed. Therefore, make sure to connect both the Cables.

2.4 Setting of Force Gauge

Referring the Digital Force Gauge User's Manual, execute the setting of following items.

(1) Setting of Functions

By the Force Gauge Power Supply in OFF condition, while pressing "ZERO" key, press & release the "POWER" Key till the "f01" is displayed, and in "ZERO" Key pressed & continued condition, you can switchover to the Function Setting Mode.

| Item | Contents | Setting | | |
|------------------|-------------------------------|-------------|--|--|
| Function 4 (f04) | BPS | 19200 (bps) | | |
| Function 6 (f06) | Outer Parts Output switchover | ovEr | | |

X As regards Function 6, be sure to set Over Load Output (ovEr)

When Comparator Output (Hi-Lo) is set, there are occasions where Over Load Safeguard Function of Table Top Testing Equipment does not work properly.

X As regards the detailed contents of all the setting items, please refer to the Force Gauge User's Manual attached.

(2) Setting of Tracking

When the Force Gauge Tracking function is in ON position, when you measure small load, through the Tracking Process, possibly errors may arise in measuring values and hence when using the Table Top Testing Equipment, set the Force Gauge Tracking in OFF condition.

In the Power Supply OFF condition, while pressing the "PEAK" and "UNIT" Key, press & release the "POWER" Key. After the display of "TRK OFF", the setting is complete. Release the "PEAK" and "UNIT" Key.

(3) Setting of Display Direction

In the Power Supply OFF condition, while pressing "UNIT" Key, press & release the "POWER" Key. After the reverse display, the setting is complete.

(4) Modification of Display Mode

With pressing of "PEAK" Key, Normal Display, Plus Peak, Minus Peak switchingover is performed. For using the Table Top Testing Equipment, set it to Normal Display.

Before making the Power Supply of Mini Table Top Testing Equipment main body, be sure to confirm the settings mentioned above.

If the setting is not done as mentioned above, communication with the P.C. cannot be made.

2.5 Adjustment of Limit Dog

Adjusting the position of Limit Dog, possible movement range of Table Top Testing Equipment is determined. Further, it becomes the reference point position of start-return action for the limit dog.

(1) Setting of Limit Dog PULL Side (Upper Side)

The PULL Side Limit Dog position becomes the Upper Limit position of possible movement range of Table Top Testing Equipment.

Movement cannot be made to upper side more than the Dog Position,

(2) Setting of Limit Dog PUSH Side (Lower Position)

The PUSH Side Limit Dog position becomes the Lower Limit position of possible movement range of Table Top Testing Equipment.

Movement cannot be made to lower side more than the Dog Position,

Set the Force Gauge installation jig to the bottom plate of Table Top Testing Equipment, or otherwise to such a position which will not interfere the plate side jig.



Fix firmly the Limit Dog in such a way that it would not fall down with its own weight. Further, take care that the Inner Side Dog does not get tilted.

2.6 Makng of Power Supply.

When the Power Supply Switch is to be made ON, beforehand, be sure that the Power Supply Cable is connected to AC100V and then put the Switch in ON position.



After confirming that the connection is made to the Force Gauge, insert the Power Supply of Main Equipment. When Power Supply is made, the LED display of main equipment operation panel would display as under. Confirm that connection is made correctly.



3 Operational Method of Mini Table Top Testing Equipment "FGS-□TV"

3.1 Operation Panel



| (1) | Distance/Movement Speed Display LED | : | It displays Table Top Testing Equipment Distance (mm) / Movement Speed (mm/min) | | | | | |
|------|-------------------------------------|---|--|--|--|--|--|--|
| (2) | SEL No. Display, SEL Key | : | For Test Setting, select the SEL Key from 0~9 SEL No. The Test Setting Contents of SEL No. is set by the | | | | | |
| | | | attached software "FGT-TV_Ver2" | | | | | |
| (3) | LENGTH/SPEED Key | : | Display contents of (1) switchover to Distance(mm)/Movement Speed (mm/min) | | | | | |
| (4) | ZERO Key | : | When the Display Contents are at Distance, if ZERO Key is pressed then the (1) Display clears to "0". | | | | | |
| (5) | MODE Key | : | Movement Mode s | Movement Mode siwtches over from AUTO/JOG/MANU | | | | |
| (6) | Decision Display LED | : | After finishing of AUTO Mode Test action, the Decision Results are displayed. (\Box), | | | | | |
| | | | H-NG | When the Measuring value is bigger than the Upper Limit Decision Value, then it lights-up. | | | | |
| | | | ОК | When the measuring value is within the High-Low limits Decision Value, then it lights-up. | | | | |
| | | | L-NG | When the measuring value is lower than the Lower Limit Decision Value, then it lights-up. | | | | |
| (7) | PULL, PUSH Key | : | At JOG, MANU Mo | At JOG, MANU Mode, it starts movement to PULL or PUSH Direction. | | | | |
| (8) | START, STOP Key | : | At AUTO Mode, with START Key, the Test Action starts. | | | | | |
| | | | With STOP Key, th | e Test Action stops. | | | | |
| (9) | HOME Key | : | Starting Point Returning Action starts. | | | | | |
| (10) | SPEED Key | : | Sets movement speed at the time of JOG, MANU Mode. (Initial value : 50mm/min) | | | | | |
| (11) | ALARM LED | : | LIMIT | When the moving parts reach at the Limit Dog, it lights-up. | | | | |
| | | | OVERLOAD | When the measure load, exceeds 120% of the specified load of FGP during connection, it lights-up. | | | | |
| | | | ALARM | When Motor is abnormal it lights-up. | | | | |
| | | | EM_SW | When the Emergency Stop Button becomes ON, it lights-up. | | | | |
| (12) | EMERGENCY STOP SWITCH | : | When the Emergency | Stop Switch is pressed, the Table Top Testing Equipment movement is stopped. During the Pressed condition, | | | | |
| | | | the Table Top Testing | Equipment movement is not possible. When Emergency Stop Switch is ON, the EM_SW LED lights-up. | | | | |

- Depending upon the Test variety, the Decision making Measurement Value or Decision conditions, differ.
- As regards AUTO Mode movement, or Starting Point Return Action, please refer enclosed "FGT-TV_Ver2 User's Manual.

3.2 Working of all Modes.

3.2.1 AUTO Mode

(1) Working

It executes Test Movement setting to the SEL No. during selection

(2) Operation

- (1) Select AUTO "MODE" Pressing "MODE" key.
- (2) When "START" key is pressed, the Test Action starts.
- (3) When "STOP" key is pressed, it stops at that place.

Regarding the Test Movement Setting contents, execute setting through the attached exclusive software "FGT-TV_Ver2".



3.2.2 JOG Mode

(1) Working

So long as "PUSH" ("PULL") key is pressed, it moves to PUSH (PULL) Direction.

(2) Operation

- (1) Select JOG Mode pressing "MODE" Key.
- (2) So long as "PUSH" key or "PULL" key is pressed, the Table Top Testing Equipment moves to that Direction.
- (3) It stops when the "PULL" key or "PUSH" key is released.
- (4) When it reaches the PULL Side Limit Dog or PUSH side Limit Dog, it stops at that place.



(1) Working

When the "PUSH" key is pressed, it travels upto the PUSH side Limit dog and stops. Further, when the "PULL" key is pressed, it travels upto the PULL side Limit dog and stops.

(2) Operation

- (1) Select MANU Mode by pressing "MODE" Key.
- (2) When "PULL" key is pressed, the Table Top Testing Equipment starts moving towards PULL direction.
- (3) When it reaches the PULL Side Limit Dog, it stops.

Further, when "STOP" key is pressed, it stops at that place.

- (4) When "PUSH" key is pressed, the Table Top Testing Equipment starts moving towards PUSH direction.
- (5) When it reaches the PUSH Side Limit Dog, it stops.

Further, when "STOP" key is pressed, it stops at that place.



4. SPECIFICATIONS

| Mini Table Top Testing Equipment FGS-UTV Specifications | | | | | | | | | | |
|--|--|-----------------|------------|---|------------|-------------|-------------|-------------|--------------|--|
| Model | FGS-2TV | FGS-5TV | FGS-10TV | FGS-20TV | FGS-50TV | FGS-100TV | FGS-200TV | FGS-500TV | FGS-1000TV | |
| Attached FG | FGPX/FGP-0. 2 | FGPX/FGP-0. 5 | FGPX/FGP-1 | FGPX/FGP-2 | FGPX/FGP-5 | FGPX/FGP-10 | FGPX/FGP-20 | FGPX/FGP-50 | FGPX/FGP-100 | |
| Measuring Load | 2N | 5N | 10N | 20N | 50N | 100N | 200N | 500N | 1000N | |
| Forwarding Speed | 1 ~700mm/min (initial value 50mm/min) | | | | | | | | | |
| Stroke | 400mm | | | | | | | | | |
| Or continu | Main Body | Operation Parts | | Through Front Panel, easy operation is possible. | | | | | | |
| Operation | P.C. | Software | | Through exclusive software "FGT-TV_Ver2" Operation is possible. | | | | | | |
| | Working S | Speed Display | | 1∼700 mm/min | | | | | | |
| Display | Working Di | stance Display | | 0.0~400.0 mm | | | | | | |
| Data Feeding Cycle | Within 1 Second, max. 100 items Load and Distance Data could be fed. | | | | | | | | | |
| Over Load | Stops by FGPX/FGP Over Load Signal | | | | | | | | | |
| Communication | USB1. 0 | | | | | | | | | |
| | AUTO | O MODE | | All types of tests are performed by the already set P.C. Software | | | | | | |
| Movement | JOG | MODE | | Jogging/Teaching Action | | | | | | |
| | MAN | U MODE | | Moves upto Limit Dog position. | | | | | | |
| Measuring Table | 200×190mm | | | | | | | | | |
| Working Temp. Range | 0~45 (However, condensation not allowed) | | | | | | | | | |
| Power Supply | AC 230V (±10%) Less than 2.5A | | | | | | | | | |
| Outer Dimensions . Weight | Width 320 x Length 470 x Height 729 Around 35 kg. | | | | | | | | | |

Outer Dimensions Sketch





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NIDEC DRIVE TECHNOLOGY CORPORATION

NIDEC SHIMPO CORPORATION change its company name to NIDEC DRIVE TECHNOLOGY CORPORATION on April 1, 2023.