

## Specifications

Universal Testing Machine

TG-20kN

SPEC. No. ENTG4104-H

1/6

### 1 . General

Minebea's mechanical and electronic techniques are concentrated on the Universal Testing machine, and developed for the purpose of "fulfillment of functions with easy and instant operation" and also for variable applications in wide fields.

### 2 . Specifications

#### 2 - 1 .Max.testing capacity

20 kN {2.039 tf}

#### 2 - 2 .Testing space

Tension & Compression test can be available at the lower section of movable crosshead.  
Sold separately: Tension test can be made at the upper section and Compression test can be made at the lower section.

#### 2 - 3 .Allowable load for test speed

Within all of the test speed : 20 kN {2.039 tf}

#### 2 - 4 .Effective test width

420 mm

Protection cover for lead screw is prepared as a standard.

#### 2 - 5 .Movable crosshead stroke

1 000 mm : Without installing test jig and load cell.

#### 2 - 6 .Movable crosshead speed range

Test speed 17 steps of 0.05、 0.1、 0.2、 0.3、 0.5、 1、 2、 3、 5、 10  
20、 30、 50、 100、 200、 300、 500 mm/min.

Optional test speed Setting can be available with the range of 0.1 mm/min to 499.9 mm/min  
At the pitch of 0.1 mm/min.

Return speed Setting can be made whichever one (1) speed of Preset method or  
Test speed.  
Protecting function from overshooting the position is attached.

#### 2 - 7 .Setting method on speed

Test speed Digital display can be set with Cursor keys.

Optional test speed Digital display can be set with Function keys and Cursor keys.

Return speed Digital display can be set with Function keys and Cursor keys.

#### 2 - 8 .Accuracy on speed

Test speed  $\pm 0.1$  % of setting speed

Optional test speed  $\pm 2$  % of setting speed

Return speed  $\pm 2$  % of setting speed

#### 2 - 9 .Measurement on load

Load display 5 digits digital display (with minus sign)

Measuring range 7 steps of 1,2,5,10,20,50 and 100 times (In case of application of  
load cell whose rated output specifies 3mV/V.)

Measuring accuracy Within the range of 20 ~ 100 % of each measuring range.  
 $\pm 1$  % of indicated value  
 $\pm 0.5$  % of indicated value

## Specifications

Universal Testing Machine

TG-20kN

SPEC. No. ENTG4104-H

2/6

Measurement unit SI unit and gravitational units (kgf)  
Selection of Unit can be made with the Function key.  
Selection of mN, N, kN or gf, kgf and tf can be made automatically, however, it can also made optionally.

Judgement function on

Capacity of load cell Attached as a standard.

Function of Sample

Sample Break Detector Attached as a standard.

Detects when the load decreases suddenly more than ##% of present value after the load exceeds 7% of full scale or detects when the load exceeds over 5% of full scale of load.

At the time of detection, setting of Stop/Return of movable crosshead or disregard of detection can be made. ##% of can be set optionally with the Function keys. Setting range: 0.1% to 9.9%

Setting Max. and Min. value Digital display can be set with the Function keys.

Analog output DC0 V to 5 V (output connector : BNC)

### 2 - 1 0 .Position of movable crosshead

Display 6 digits digital display (with minus sign)

Min. unit : 0.01 mm

Max. display : 1 999.99 mm

Zero reset can be made at the optional position.

Setting Max. and Min. value Digital display can be set with a Function key.

### 2 - 1 1 .Function of cycle test

Attached as a standard.

Cycle tests can be available by position value, and by load value and by their combination individually.

Max. cycle times : 9 999 times

Max. cycle speed : 5 times/min.

### 2 - 1 2 .Safety device

Limit switch for over stroke protection:

Setting can be available at the optional positions of upper/lower of operating range of movable crosshead. At the time of the operation, power supply at driving side will be cut off.

Over load protection:

When the load value reaches to 102% of each full scale, the stop signal for operation will be output and movable crosshead can be stopped. At the time of the operation, power supply at driving side will be cut off.

Emergency stop switch:

At the time of the operation, power supply at driving side will be cut off.

Malfunction stop for servo amplifier:

At the time of operation, outputs the signal of operation stops and makes the movable crosshead stopped

Above safety devices will show alarm display at the time of the operation.

Lead screw protection cover:

## Specifications

Universal Testing Machine

TG-20kN

SPEC. No. ENTG4104-H

3/6

### 2-1 3. Memory of test condition

Attached as a standard : Up to 10 conditions for test can be memorized.  
Registered test condition can be set automatically through reading out.

### 2-1 4. Holding test conditions

When the power is cut off and fed again, it will become the cutting off condition.  
However, operating condition will not be frozen.  
(The movable crosshead will become the stop condition.)

### 2-1 5. Level adjustment function

At the lower part of the base of main body of testing machine, the leveler that can apply level adjustment is attached.

### 2-1 6. Outside dimensions

(W) 795 mm × (H) 1 505 mm (Without level adjustment) × (D) 495 mm  
Connector wiring space at the rear side of testing machine: 150 mm

### 2-1 7. Weight

Approx. 200 kg

### 2-1 8. Power supply

Single phase AC 200V ±10 V (50/60 Hz), 1.5 kVA

### 2-1 9. Operating conditions

Temperature : 5 to 40  
Humidity : 20 % to 80 % (Without condensing)

### 2-2 0. Standard accessories

Tools : 1 set  
Toolbox, A set of hexagon socket screw keys, Screwdriver for cross recessed head screws, Hook for locking chuck

Cable for earth : 5 m 1 pce  
Cable for power supply : 5 m 1 pce  
For AC200V, cable end is separated, one side is ring tongue type vinyl insulated solderless terminal.

Instruction Manual : 1 pce  
Inspection data 1 pce

### 3. Optional functions ( : Applied : Not applied )

RS-232C

communication function 1 :

Used for the communication with the printer in data processing.

communication function 2 :

Used for the communication with the personal computer in data processing.

Recorder control function (TCA-003)

Proportional chart feeding function:

Outputs the signal of the feeding chart with the set factor to the recorder.

Setting factor :

20,10,5,2,1,0.5,0.2 and 0.1 times

## Specifications

Universal Testing Machine

TG-20kN

SPEC. No. ENTG4104-H

4/6

Setting method :

Setting by the Function mode

The recorder corresponds to RC-926.

Control function of the recorder

Outputs the interlocked signal with movable crosshead and recording paper.

Contents of operation :

Interlocked with movable crosshead and recording paper.

The recording paper feeds forward during the test is applied.

Input/output of external contact (TG-IO)

Used when interlock with air chuck and so on are applied. Output of 「TEST START」, 「RETURN」 and 「STOP」 and external control can be available.

Automatic range function (TG-ARG)

When the load value reaches 95% of full scale of range, change can be made to the larger range by one step automatically.

Measurement on elongation

Input : Select one (1) among the below items.

TG-AMP-01 : 3 mV/V, Excitation voltage : DC3 V

TG-AMP-02 : 1.5 mV/V, Excitation voltage : DC3 V

TG-AMP-03 : DC0 V to 1 V

TG-AMP-04 : DC0 V to 5 V

TG-AMP-05 : DC0 V to 10 V

Display : 5 digits digital display (With minus sign.)

Measuring range : 4 steps of 1, 2, 5 and 10.

Measuring accuracy :

$\pm 0.5\%$  of full scale for each range. However, accuracy may change depending on the sensor applied.

Automatic zero function : Attached as a standard.

Automatic calibration function : Attached as a standard.

Judgement function on capacity : Attached as a standard.

Measuring unit : mm, cm

Analog output : DC0 V to 5 V (Output connector : BNC)

Instant creep test function (TG-CRP)

Load and load width can be set with the Function keys.

The test can be continued until the 「STOP」 key is pressed on.

Constant increasing load testing function (TG-ALC)

This is the function to keep the constant increasing speed for load.

Setting method : With the Function key operation.

Setting contents:

Arrival time : Time to reach the full scale of load.  
\*\*\*sec

The max. speed : The max. speed under control.  
\*\*mm/min

### NOTICE:

Specifications and outline dimensions and so on which have printed may subject to change for the propose of improvement without notice.

## Specifications

Universal Testing Machine

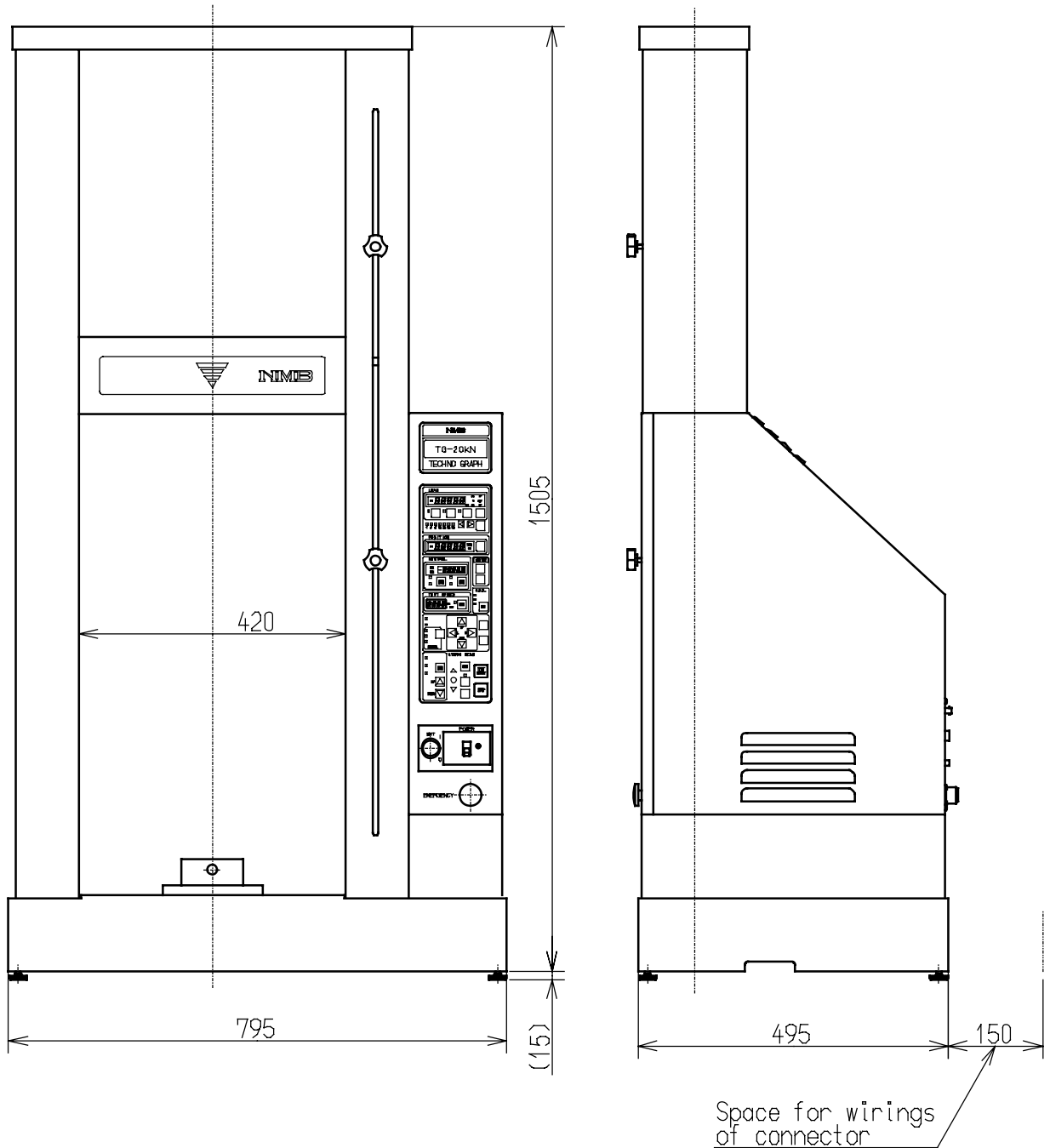
TG-20kN

SPEC. No. ENTG4104-H

5/6

Unit : mm

### Outline Dimensions



## Specifications Universal Testing Machine

TG-20KN

SPEC. No. ENTG4104-H

6/6

### Outline View for Panel

