

**SDM SERIES
VERTICAL BALANCING MACHINE**

**INSTRUCTION & MAINTENANCE
MANUAL**



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SECTION 1 INTRODUCTION

1.1 General introduction and usage fields

SDM Series Vertical Balancing Machine is an industrial balancing machine which is designed for sensitive balancing operation for drum, brake disc, fans, impeller, pulley, clutch, flywheel, etc. The machine is not suitable for other purpose of usage. Balancing operation is performed when the spinning axis of the rotors are vertical to the ground. The motor spin movement (Accelerating, constant speed, braking) is performed by motor speed control device. The machine is computerized, Windows operated, and user friendly.

The machine measures the imbalance value by measuring the vibrations of spinning rotor with the help of the sensors located on the main body of the machine. The angular position of this measured imbalance is measured by encoder or sensor which is connected to the mechanic of the machine.



**Before starting using the machine, please read the instructions manual carefully in order to prevent the possible wrong usage of the machine.
In case of any further needs, please keep this instructions manual always near to the machine**

1.2 Packaging and carriage

According to customers' request, the machines are packaged for delivery in the factory in two ways,

1. On pallet
2. Without package

In two ways, the machine is stretched.



Carriage of the machine should be performed by fork-lift. The machine should never be lifted from the balance adaptor.



Please control the main body of the machine as you open the first cover if there is any broken part of not. If there is, please immediately contact with the seller or manufacturer.

1.2 Technical Features Table

Motor Power(kw)	5.5
Balance RPM	400-3000
Measurement Type	DYNAMIC



The operating of the machine should be performed by authorized and experienced operator. Do not change anything on the control panel of the machine. In case of any problem with the machine, contact with the after sales department or the manufacturer.

SECTION 2 INSTALLATION AND COMMISSIONING

2.1 Customers' duty for installation

For installation, prefer a comfortable, safe, smooth surface, and far from any vibrating machines position. Please connect the machine to the ground with the bolts that given with the machine. In case of not connecting the machine to the ground, the requested balancing measurement data will not be measured. The required working condition are as follows:

- Humidity : %30 - %95
- Temperature : -20 °C – 55 °C

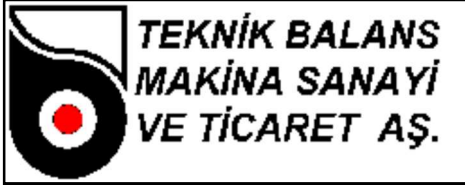
2.2 Electrical Connection



If there is any voltage loss in your system, you should use regulator before connecting your machine to the electricity. There should be earth connection in your system.



Any change or work on the electricity system, should be performed by authorized personel.



SECTION 3 INSTRUCTIONS

3.1 Starting the machine

After installing the machine and connected to the electricity, first turn on the shalter on the control panel. Then, if your computer doesn't start automatically, press the button on the computer.



During balancing operation, please keep away your hands and body as much as possible from the spinning parts of the machine. Neckless, accessories, large clothes are dangerous for the operator. During operation, please do not wear these accessories

3.2 Screen Information

After turning on the machine, you will see username and password entrance menu. (Figure-1) Username is (MESSMATIC) and password is (1), press enter.

Yetki seviyesi ve Password Kontrol

Kullanıcı İsmi : MESSMATIC

Password :

OK Cancel

Figure-1

After a while, you will see the main screen (Figure-2).

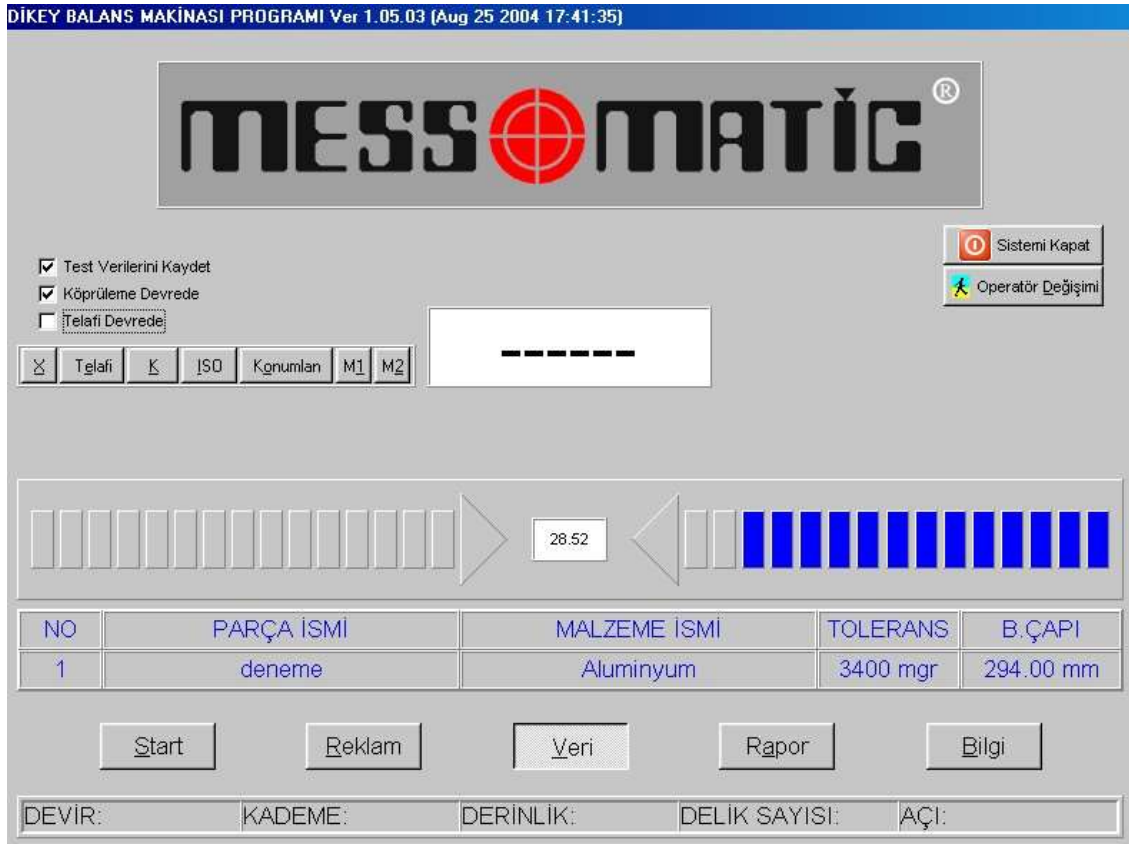
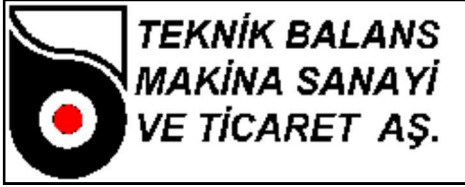


Figure-2

Main screen buttons and functions:

- **DISPLAY BOX** : Shows the imbalance value in grams.
- **LEFT RIGHT ARROW KEYS** : Shows you which direction that you should turn the rotor to find the imbalance point. You should turn the rotor in the direction of arrow until you see OK on the screen.
- **NO, PART NAME,...** : In this section, the information is displayed belonging to the part which is chosen in data menu.
- **START** : Starts the machine.
- **DEMO** : Show the demo page of the company
- **DATA** : For data entrance and special functions.
- **REPORT** : Print out the first imbalance values and imbalance values after balancing operation. (Printer is not a standart accessory, is offered as an option.)



- INFORMATION : Displays the information of the manufacturer.
- RPM : Displays the RPM level
- RATIO : Displays the ratio of the measurement.
- DEPTH : Displays the maximum depth of drilling or milling during balancing operation.
- HOLE NUMBER (FOR DRILLING): Display the maximum hole number during balancing operation.
- ANGLE (FOR MILLING) : Is the milling angle for milling operation of both sides of the imbalance point during balancing operation.
- SAVE : Saves the imbalance values to the harddrive, from the report menu you can reach these datas.
- ECCENTRICITY : Automatically eliminates the errors because of eccentricity. During balancing operation, this option must be checked.
- COMPENSATION : Electronically admits the imbalance of the adaptor as "Zero"
- X : Exit to Windows.
- COMPENSATION : Starts the machine, to electronically making the imbalance of the adaptor zero. Use this option after calibration to test if the machine is measuring correctly or not.
- K : Operates the eccentricity operation.

Eccentricity is performed for eliminating the errors of the eccentricity of the centering surface. When you change the position of a balanced rotor on the adaptor with 180°, you can measure an imbalance value. This imbalance, is created because of the error on the adaptor's center's surface. To avoid this error, you should perform eccentricity. You should enter the eccentricity angle data in GLOBAL DATA-GENERAL menu. Then balance a rotor. To start eccentricity, press K on the keyboard or click on K. You will see "Center the rotor, the machine will start" message on the screen. On the left side of this screen you will see Left Arrow Key (ECCENTRICITY BACK), Right Arrow Key (ECCENTRICITY FORWARD) and ECCENTRICITY STOP. Click on eccentricity forward the machine will start and stop after a while. "Turn the rotor with eccentricity angle, the machine will start." Message will be displayed on the screen. Disconnect the rotor from the adaptor, and turn the rotor on the adaptor with eccentricity angle, and center again. Press eccentricity forward and the machine will start. The last step will repeat itself until the eccentricity angle reaches 360°. (For 180° two times, for 72° five times). When the eccentricity finishes, "Eccentricity



completed” message will be displayed. Press Eccentricity forward, or K on the keyboard to finish the eccentricity. After Eccentricity, when you change the rotor 180° the imbalance should change inside the tolerance.

- ISO : Enables you to calculate the residual imbalance of the rotor according to the 1940 ISO standards.
- POSITION : After imbalance measurement, the rotor automatically positions. (In GLOBAL DATA_GENERAL menu, “position after balancing” option should be chosen.) This option is not working in every type of industrial balancing machine.
- M1 : For report print out, after the measurement of first imbalance value, press this button to save the data. If not, in the print out, the first imbalance value is not indicated.
- M2 : For report print out, after the measurement of last imbalance value, you should press this button.
- SHUT DOWN : Shuts down the computer.
- OPERATOR CHANGE : When you click this button, you will see the menu Figure-1. Every operator will enter their own username and password before starting operating. During shift changes and not working times on the machine, the operator clicks this button to prevent non authorized usage of the machine.

3.3 Entering the rotor data for balancing.

Before balancing, you should enter the DATA menu to enter the necessary information about the rotor. When you enter the DATA menu, you will see the screen on Figure-3.

Veri

NO	PARÇA İSMİ	MALZEME İSMİ	BALANS ÇAPİ	BALANS TOLERANSI
1	deneme	Aluminyum	294 mm	0 mgr

OPERATÖR: MESSMATIC

Kopyala
Parça No
Parça Seç
Malzeme Kayıt
Kalibrasyon
Oran Hesaplatma
Firma Anteti
Reklam Parametreleri
Yer Kaydırma
Filtre Parametreleri
Setup
Kullanıcı Tanımları
WMN' e ulaşım izni ver
Çıkış


Figure-3

By pressing [TAB] or [SHIFT+TAB] buttons, or by clicking with your mouse on NO, PART NAME, MATERIAL, BALANCE DIAMETER, BALANCE TOLERANCE, you can start entering the datas. Here;

- NO : The number of the part
- PART NAME : The name of the rotor given by the customer
- MATERIAL : The substance name of the balancing rotor. When chosen, the density of that substance is automatically chosen too.
- BALANCE DIAMETER : The balancing operation diameter should be entered in the software.
- BALANCE TOLERANCE : The maximum residual imbalance value. You can also change this value from "BALANCE TOLERANCE" section in GLOBAL DATA-GENERAL. This means if the imbalance value is under this value, the software will display "OK".


By using the [CTRL+Home], Up arrow [↑], down arrow [↓], [CTRL+End], [INSERT], [CTRL+Delete] on the keyboard, or clicking on



 buttons, you can add a new part, change or delete it.

By pressing [INSERT] or clicking on  a new part can be created.

By pressing [CTRL+Delete] or clicking on  the existing entry can be deleted.

By pressing [CTRL + Home] or clicking on  you can reach the first entry.

By pressing [CTRL + End] or clicking on  you can reach the last entry.

By pressing [↑] or clicking on  you can reach the previous entry.



By pressing [↓] or clicking on  you can reach the next entry.

By pressing [TAB] you can reach the next area.

By pressing [SHIFT+TAB], you can reach the previous area.

By pressing [End], you can reach the last area.

By pressing [Home] you can reach the first area.



If you press [CTRL + Delete] a dialog box opens asking whether the entry should be deleted or not, if you want to delete, click , if not you should click .

The buttons on the right side of the Data menu is as follows.


- **COPY**

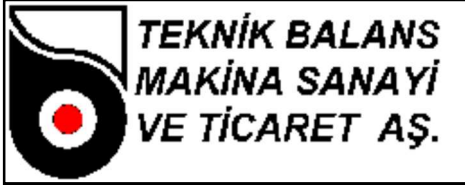
By pressing [Alt + A] or clicking on copy button, you can copy the parts.

- **PART NO**

After entering the balancing parts datas, you can reach the requested part from their number given. By pressing [Alt + N] or clicking on  you can choose this option. After selecting this option, you will be requested to enter the number of the part that you want to select. Enter the part number here and press  on the dialog box.

- **SELECT PART**

Is used to select the part which will be balanced. By pressing [Alt + S] or clicking on  you can use this feature. The selected part will shown in red. The part that which is going to be operated should be selected in this way. After selecting the part, all the values needed for



calibration, testing the imbalance value, etc will be used off the selected part.

- **MATERIAL**

During entering the balancing part values in DATA msnu, if the manufacturing substance of the part is not listed, this section is choose. By pressing [Alt + M] or clicking on , you can choose this option. You will see the substance list. You can enter data by pressing [TAB] or [SHIFT+TAB] or with your mouse. In this section, you can find the “MATERIAL NAME” and “DENSITY” , some general substances are already entered, if the your substance is not present on the list, you can enter by yourself.

- [INSERT] you can create a new data.
- [CTRL+Delete] you can delete a present data.
- [CTRL+Home] you can reach the first data
- [CTRL+End] you can reach the last data
- [TAB] you can reach the next area
- [SHIFT+TAB] you can reach the previous area
- [End] you can reach the last area
- [Home] you can reach the first area

If you press [CTRL + Delete] a dialog box opens asking whether the entry should be deleted or not, if you want to delete, click , if not you should click .

- **CALIBRATION**

You should definately perform calibration operation before starting the balancing procedure of a rotor. You can start this feature by pressing [Alt+K] or clicking the button. You will see a dialog box (Figure-4) which is asking you the calibration weight and calibration diameter.

Kalibrasyon

Kalibrasyon Ağırlığı: 4.870 gr

Kalibrasyon Çapı: 270.000 mm

Figure-4

In this section, the calibration weight that you are going to use is very important. In the heavy parts which are going to be balanced will have heavy imbalance values, so, the calibration weight should be heavy like (20-30 gr.), in light parts, which will have light imbalance values, the calibration weight should be light like (5-10 gr). After entering the chosen calibration weight (in grams) and calibration diameter (in mm), press OK button. You will see the dialog box “fix the rotor and press enter” message. (Figure-5)



Figure-5

(Important : Do not apply the calibration weight!) Press OK. The machine starts and after a while stops and you will see the message “Apply the calibration weight and press enter” in the dialog box. (Figure-6)

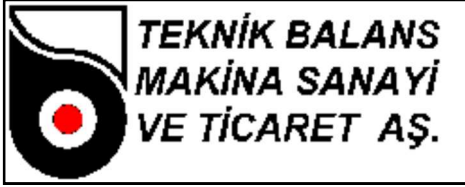



Figure-6

Now, apply the calibration weight to the entered calibration diameter and press OK. The machine will start again. After a while the machine stops and you will see the message “Calibration is finished successfully” in the dialog box. (Figure-7).



Figure -7



Press OK to save the whole operation done. To cancel the operation press . If the values that you have entered are not valid, the computer will warn you.




The calibration should be repeated in the conditions listed below.

- After the installation of the machine
- When the machine imbalance measurement are not correct.
- When the adaptor is changed
- When the computer is changed
- When the electronic TMS card is replaced
- When the RPM of the machine is changed
- When the sensor is changed
- When the machine is moved to any other place.


- **RATIO CALCULATION**

This feature is for the manufacturer, please do not touch this feature in order not to change the factory settings.

- **COMPANY**

Is used to design the company letterhead on the report. By pressing [Alt + F] or clicking on  you can use this feature. You will see a word editor, in this editor, you will see the old written version. Edit this page, click on  to save, or click  to exit without saving. During print out of the reports, at the bottom of the page you will see what you have written here.

- **DEMO PARAMETERS**

To run this feature press [Alt + R] or click on 

- **POSITION CHANGING**

POSITION CHANGING is used to change the imbalance angle position of the rotor. When there is no balance weight on the adaptor, compensation should be done. Then apply the calibration weight and perform TEST. After the machine stops, you should position the calibration weight to an angle that you want to see the imbalance point during operation. Enter DATA menu, press [Alt

+ D] od click on POSITION CHANGE button, you will see a dialog box indicating that you have given a new imbalance position. Below, there is OK and CANCEL button, if you would like to cancel the operation press CANCEL, you will see a dialog box telling you that you have cancelled the process, for saving and exit, press OK.

- **USER IDENTIFICATION**

In user identification, every operator will have a personal username and password. There are authorization levels in usernames and passwords. Admin, Chief, operator. The highest level is Admin. The middle level is Chief, the lowest level is Operator. (Figure – 8)

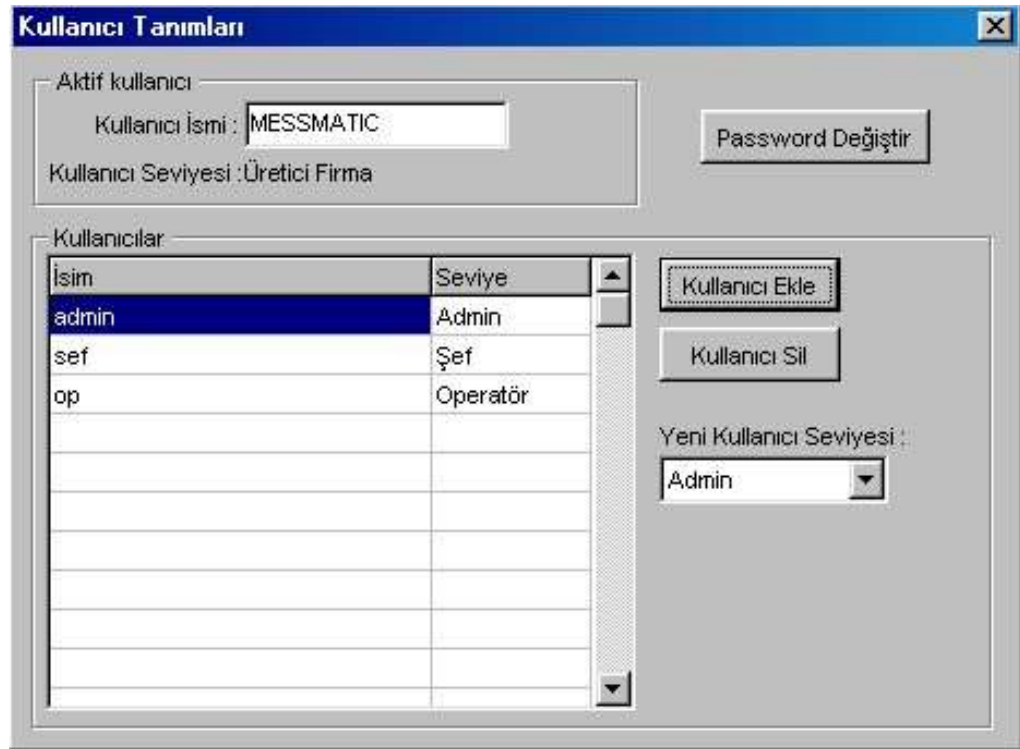



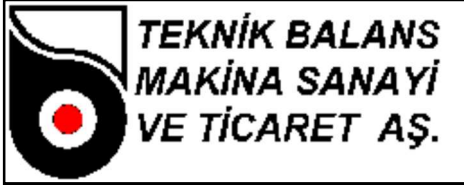
Figure -8

- **ACCESS TO WINDOWS**

Allows you to Access Windows features during the program is running.

EXIT

By pressing [Alt + Ç] or clicking on  you can use the feature. This feature enables you to exit from DATA menu. To reach the detail information about the rotors, double click on the part. In the reached GLOBAL DATA menu (Figure – 9) with the sub menus you can reach every data about the rotor.



SUB MENUS:

SETUP : In this option, there is printer settings, and printer colour settings for colour printers.

GENERAL: SERICOM [timeout]: Is the time that which is going to spent for reconnecting in case of any loss of connection during data transfer. (Milisecond)

The screenshot shows the 'Global Data' window with the following settings:

- Setup** (selected): Genel, Kristal, Parca, Matkap, Freze, RunTime, ServoAna, ServoFrezeUzaklik, ServoDonerTabla
- Sericom**: timeout: 3000
- AgirlikBol**: agirlikBol, referansNoktasi: 0.000000
- Gosterim**: okters, yerSabiti: 53.836264
- Rapor**: SeriNo: 0, Operator: MESSMATIC
- Tolerans**: tolerans [mgr]: 0.000000, balans_toleransi [mgr]: 0.000000, kalici_balanssizlik [gr]: 3.400000
- Telafi**: X0: (0.000000 @ 0.000000 *), XKopru: (0.000000 @ 0.000000 *), kopruleme_acisi: 72.000000, kopruleme_tam_otomatik
- Balans Yöntemi**: Serbest, Üstten Matkap ile, Üstten Freze ile, Yandan Matkap ile, Yandan Freze ile
- Birim**: mgr, gr, gr.mm, gr.cm
- Other parameters**: testSikigi: 0, tolerans_boyundaki_pareayi_ayarla, isaretleme_derinligi [mm]: 4, balans_sonrasi_pozisyonlama_yap, otomatik_telafi_sikigi: 0

Buttons: Parametreleri Oku, OK, Cancel

Figure-9

REPORT:

Serial number: The beginning serial number for saving the imbalance values should



be entered to this section

Operator: The operator name which will be saved with the imbalance values.

TOLERANCE:

Tolerance: This value should be zero. "0"

Balance tolerance: The requested residual imbalance. This value should be < residual imbalance.

Residual imbalance: According to ISO standarts or technical drawing, the permitted resiudal imbalance value.

COMPENSATION:

X0: Electronic compensation value. If you make this value "0" the compensation will be reseted.

Xeccentricity: Electronic eccentricity compensation value. If you make this value "0" the it will be reseted.

Eccentricity angle: This angle is going to be used during eccentricity operation. As you maket his angle smaller, the result is going to be much more reliable.

POSITION AFTER BALANCING: When this option is selected after imbalance measurement, the machine automatically positions the rotor. This feature is not present in every machine.

BALANCING METHOD: The method for balancing is choosen in this section. When free balance is choosen, the machine does not do positioning.

UNIT: The unit of the imbalance value.

CRYSTAL: This section is designed for authorized personel of the manufacturer company, the customer shouldn' t change anything in this area. Only, the customer can change the waiting time. Fort he heavy rotors, this waiting time should be increased, for the light rotors, it hould be decreased.

Figure-10

Global Data

Setup Genel **Kristal** Parca Matkap Freze RunTime ServoAna ServoFrezeUzaklik ServoDonerTabla

Kristal

digitalFiltreDevrede

GOZ_T : 128

beklemeZamani [ms] : 5000

tursayisi : 40

version YATNR.C (17-MAY-4)

Otomatik Kademe

bOtoKademeDevrede

nKademeDegeri : 0

nOtoKademeBaslangicDegeri : 7

nOtoKademeAltLimit : 50

nOtoKademeUstLimit : 2000

Kademe Oranlari

oranlar_k00 :	1.000000	oranlar_k10 :	1.000000
oranlar_k01 :	1.964944	oranlar_k11 :	1.981330
oranlar_k02 :	4.042076	oranlar_k12 :	4.035386
oranlar_k03 :	8.471252	oranlar_k13 :	8.538219
oranlar_k04 :	18.310984	oranlar_k14 :	18.407839
oranlar_k05 :	38.910650	oranlar_k15 :	39.520667
oranlar_k06 :	81.445465	oranlar_k16 :	84.278787
oranlar_k07 :	170.925374	oranlar_k17 :	177.796032

Parametreleri Oku

OK Cancel

SECTION 4 BALANCING

4.1. Turning on the machine and prearence

4.1.1 Turn on the main shalter on the right side of the machine.



4.1.2 If the computer doesn't start automatically, turn on the computer

4.1.3 Enter your username and password

4.1.4 When the system starts, check if the right rotor is selected or not. The rotor data can be seen at the bottom side of the screen. If the selected rotor type is not correct (same with the rotor connected to the machine) enter DATA menu, and click on the right rotor, then click on SELECT PART button. In order to enter the DATA menu you will have to enter your password.

4.1.5 If you want to introduce a new rotor type to the machine, you should enter the new rotor data to the software. You can find the instructions below.

4.1.6 Tests should be performed during start.

i. Measurement test.

Center the balancing rotor and press Compensation. Then apply a test weight (You should now exact weight) Press START. Check the imbalance measurement on the screen, it should be the same as your test weight that you have applied. Check if the imbalance position is correct or not. Apply a different weight and test again. Be sure that the balance diameter is the same as the weight application diameter. If the balance diameter is different, the imbalance values can be different.

Measured value = Test weight x Balance diameter / Calibration diameter

If the measured value is NOT equal to calculated value, do calibration. Then press position button to check the imbalance position is correct or not. For non automatic machines, you should turn the rotor by your hand manually, until you see the 0°. If the position is not correct, position the calibration weight across the drilling or milling unit, and perform Re position operation.

Before balancing operation, you should disconnect the rotor and the adaptor should be compensated.

ii. Eccentricity Test (180° test)

Untighten the balanced rotor from the adaptor, (open pence in pence system type of balancing machines) and connect with 180°, press START, you can see a different imbalance value. If this value is more than the balance tolerance, you should perform eccentricity.



4.2 Balancing Operation

In order to balance, after centering the rotor, press START. The machine will display the imbalance value on the screen. In non servo controlled machines, position the rotor to see the imbalance position. According the balancing type selected, on the screen you will see balancing data. For drilling, these data are drilling numbers and drilling depth. For milling unit, milling depth and balance angle. This angle is valid for the two sides of the imbalance point. Ex: If the balance angle is 15° , milling operation should be done 30° (The imbalance point will be the middle of this angle).

After balancing operation, you can press START again to check the operation.

4.3 Type Differentiation

4.3.1 Fix the new adaptor which is suitable for the new balancing rotor. Tighten the adaptor with a max %2 run out.

4.3.2 Fix and adjust the milling or the drilling unit if present.

4.3.3 Get the drilling or milling unit to the suitable position

4.3.4 Connect the rotor to the machine.

4.3.5 Select part from the Data menu.

4.3.6 Test. If needed, perform calibration.

4.3.7 Perform compensation

4.3.8 Test eccentricity, if needed, perform eccentricity.

4.3.9 Balance a rotor and check.

4.4 Introducing a new rotor.

4.4.1 Perform the first 4 steps mentioned in type differentiation.

4.4.2 Click on + button on the data menu.

4.4.3 A new line will appear, click it, the line will be blue, click on COPY button and OK. All the data will be copied to the new line.

4.4.4 Double click on the new entry.

4.4.5 General Menu



- i. Residual imbalance (The value which is indicated in the technical drawing or according to ISO 1940 standarts.
- ii. Balance tolerance (Requested imbalance)

Enter these datas

4.4.6 Rotor menu

- i. Balance diameter
- ii. Channel width (Indicated in the technical drawing)
- iii. Maximum channel depth
- iv. Part name
- v. Arm number (The balancing possible area number)

Enter these datas

4.4.7 Drilling unit menu

- i. Drilling diameter
- ii. Drilling conical angle
- iii. Maximum drilling number
- iv. Maximum drilling depth
- v. Angle between drills

Enter these datas

4.4.8 Milling unit menu

- i. Milling diameter
- ii. Milling width
- iii. Maximum balance angle
- iv. Milling depth

Enter these datas

4.4.9 Test. Perform calibration if needed

4.4.10 Perform compensation

4.4.11 Test eccentricity, if needed perform eccentricity

4.4.12 Perform milling offset (only in automatic machines)

4.4.13 Perform milling calibration (Only in automatic machines)

4.4.14 Balance a rotor and test.



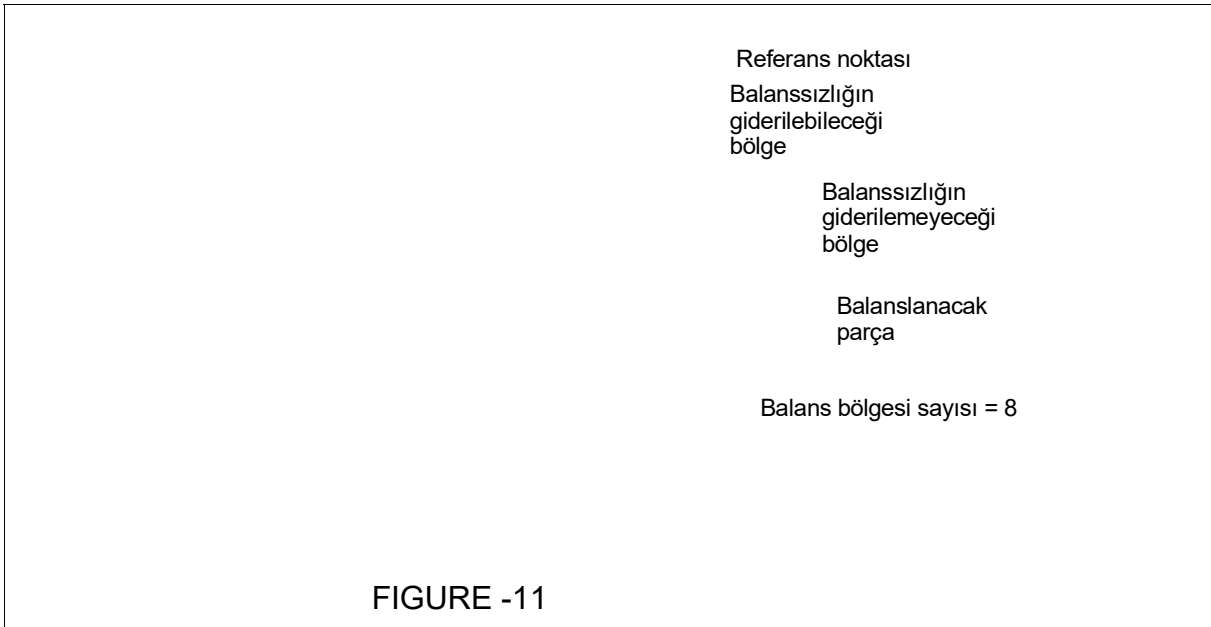
4.5 Dividing the weight in to two variables

Some balancing rotors are not suitable for balancing from every parts. (Figure -11). With this feature, you can divide the imbalance point into two different suitable balancing points, if the first measured imbalance position is a position that you can not do any balancing operation.

First in the data menu the hole number should be entered. This is the number of the points that suitable for balancing of that rotor. In main menu, position one these points, and press

“F” on the keyboard or click on **Referans** button.

Then you can start balancing operation. After measurement test. Press “L” on the keyboard or click on **Ağırlık Böl** to see the imbalance position divided into two points.



4.6 Turning of the Machine

4.6.1 Never shut down the machine directly from the shalter, first shut down the Windows.

4.6.2 To shut down the Windows click on “Shut Down” button

4.6.3 Then, shut down the main shalter.

BÖLÜM 5 MAINTANENCE INSTRUTIONS AND WARRANTY INQUIRY

5.1 Maintenance Instructions



Before maintenance, repairing or cleaning operation disconnect the machine from the electricity.

Daily maintenance

Clean the dust on the machine
Check the runout of the adaptors, it should be max ± 0.02
If present, clean the liner Lines of the milling or drilling unit, use VG68 oil.
Check if the air pressure is 6 bars.
Check the oil.
Check the calibration.

Weekly maintenance

Oil the adaptors with VG68 oil.
Check the screws of the machine fixing to the ground, tighten them.
Check the screws of the milling / drilling units, tighten them.
Clean the monitor.
Check the electricity connection, if proper or not, the cables should be tightened.

Monthly maintenance

Clean the electrical panel with pressure air
Clean the inside of the computer with pressure air.

5.2 Repairing Instructions

Crystal replacement

Disconnect the side pannels of the machine. You will see the crystal, disconnect it with M10 screws. Disconnect the crystal cable. Connect the new crystal. Tighten the crystal with 1 kg.m tork. Connect the new crystal' s cable. Close the side pannels.

Replacing the Encoder and Capline

Disconnect the side pannels of the machine
Disconnect the encoders 3 screws which connects to the flansh
If you will replace the caplin, disconnect the caplin from the encoder and from the mechanic of the machine.
Disconnect the encoder
Disconnect the encoder cable
Connect the new caplin
Connect the new encoder to the flansh with 3 scres, and connect the caplin to the encoder
Coonect the cables of the encoder
Close the side pannels of the machine



Sensor Replacement

- Disconnect the side pannels of the machine
- Disconnect the sensor cable
- Disconnect the metal holder of the sensor from the body with 2 screws
- Disconnect the sensor card and replace it with the new one
- Connect the metal holder of the sensor to the body with 2 screws.
- Connect the sensor cable.

5.3 Frequently faced problems and solutions

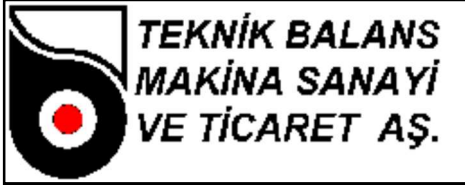
POROBLEM	POSSIBLE REASONS
1- There is no electricity	1- The main shalter may be off 2- There can be loss of connection of cable
2- When we turn on the machines, the fuses go off	1- There can be bad connection 2- Bad connection can be in the speed control device
3- The computer is not starting.	1- Cable connection loss 2- 3F1 fuse can be off 3- The power supply of the computer can be broken 4- The mainboard can be broken 5- RAM can be broken 6- HDD can be broken
4- The program doesn't starts	1- The serial ports can be broken. 2- The program can be broken 3- The Windows can be broken
5- The machine doesn' t start, there is serial communication error.	1- Check the emergency stop button 2- The protection cage is not close 3- Lock can be on 4- The speed control has error, restart it 5- The speed control device is broken 6- TMS card can be broken 7- The computer can be broken 8- The cables can be broken 9- Motor can be broken
6- Machine starts and stops immediatly, there is serial communication error	1- The encoder or the sensor can be broken 2- Speed control device has error



7- The machine doesn't stop	<ul style="list-style-type: none"> 1- Braking time is not enough 2- Encoder or the sensor can be broken down 3- The rotor can be too heavy 4- Braking resistance is not enough.
8- The machine can not measure the position	<ul style="list-style-type: none"> 1- Encoder or the sensor can be broken 2- The belt is not working properly 3- The signals are not proper because of a mechanical problem
9- Balancing can not be done properly	<ul style="list-style-type: none"> 1- Position is not correct 2- Encoder or the sensor is broken 3- The belt is not working properly 4- The signals are not proper because of a mechanical problem 4- Calibration is done wrong
10-Every test, the imbalance measurement is different	<p>Check the signals in the signal test menu If OK,</p> <ul style="list-style-type: none"> 1- Acceleration time is not enough 2- Calibration is done wrong <p>If not OK, or no signal,</p> <ul style="list-style-type: none"> 1- Mechanical problem Ballbearing problem Crystal can be untightened The machine is not fixed to the ground 2- Tms card is broken. 3- Crystal is broken 4- Cable problems 5- There is too much environmental vibration
11-When the rotor is disconnected and connected again, the imbalance values change.	<ul style="list-style-type: none"> 1- The runout on the connecting adaptors must be max $\pm 2\%$ 2- Check the balance of the adaptor.

5.4 Warranty inquiry

1. Warranty is valid for 1 year after installation
2. All the equipments of the machine is under warranty
3. If the machine brakes down in warranty period, the repairing time will be added to the warranty time. The max. Repairing time is 30 days. This time starts with the warranty claim issued by the customer to the distributor, seller, or the manufacturer of the machine. If the repairing can not be done in 15 days, the seller, should give the customer a similar machine temporarily



4. Spare parts replacements under warranty will be free of charge.
5. Unauthorized and different usage of the machine than the user instructions, caused problems are not under warranty.
6. The invoice can be used as warranty

5.5 Contacts

Manufacturer Company

Company : Teknik Balans A.Ş.
Address : Atatürk Organize Sanayi Bölgesi 10001 Sk. No:15 Çiğli / İZMİR - TÜRKİYE
Tel : 0-232-376 84 40 (Pbx)
Fax : 0-232- 376 84 39
Web : www.messmatic.com.tr

After Sales Service

Company : Teknik Balans A.Ş.
Address : Atatürk Organize Sanayi Bölgesi 10001 Sk. No:15 Çiğli / İZMİR - TÜRKİYE
Tel : 0-232-376 84 40 (Pbx)
Fax : 0-232- 376 84 39
Web : www.messmatic.com.tr

Warranty time : **1 year**
Usage life : **10 years**