Iskra

Iskra MIS

# User's Manual

# SKALA

## Scales designing software

version 3.06

# Contents

# 1. Installation

## *1.1 System requirements for SKALA program installation*

System requirements are:

- an IBM compatible computer with an Intel Pentium 100 or better
- at least 30MB of free space on your hard disk
- a 1024 x 768 resolution and 256-color video card
- a 17'' monitor
- Windows 95 or greather versions

## *1.2 Installing program SKALA*

To install SKALA,

- start Windows
- insert the Skala CD-ROM into the CD-ROM drive
- find and run file "X**:install\setup.exe**" ( where "X" is the letter of the CD-ROM drive)
- follow the instructions
- after installation restart computer
- **open and close** windows fonts folder ( ...windows\fonts), in this way windows operating system recognize new installed fonts
- recommended screen resolution is 1024x768 , 256-colors and Large Fonts
- install printer driver for HP23200L, when installation program ask for a driver select **PS** ( postscript) not PCL6 because only PS driver is able to print **mirror** image
- after installation printer driver, set mirror function :
  (Start – Settings – Printers and faxes – HP laser 2300L PS – Properties- Printing Preferences – Advanced – Document Options – PostScript Options – Mirrored Output - Yes).
- create the shortcut of SKALA on the desktop

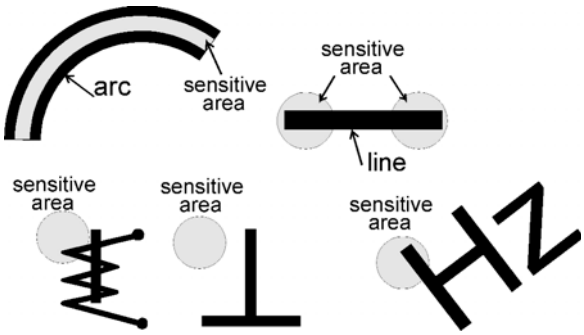
## *1.3 Installing data base*

To install data base,

- insert the Skala CD-ROM into the CD-ROM drive
- copy directories "X**:**Skala\data" ( where "X" is the letter of the CD-ROM drive) to c:\Skala\data
- **Attention**: The copied files from CD have Read only attribute. It means that you can not modify. To disable Read only attribute select desired files and with right click on mouse select properties and remark Read only option.

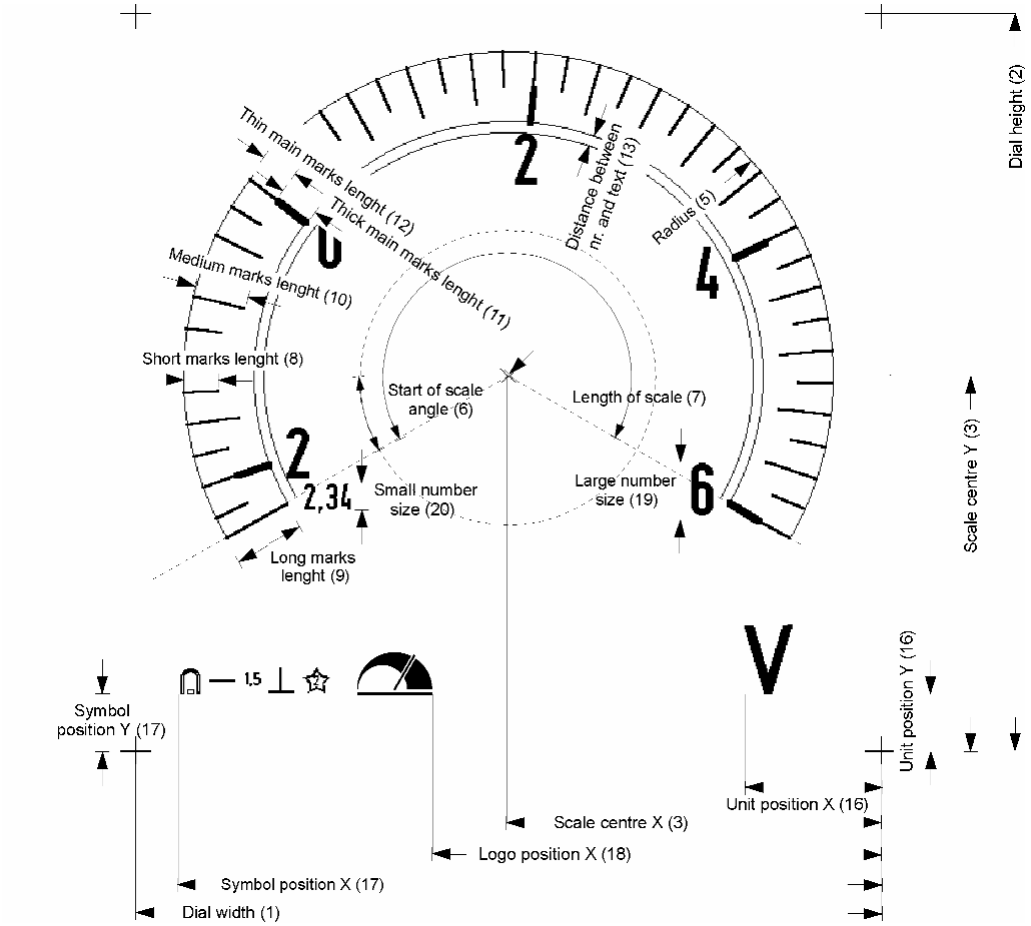
# 2. SKALA concept

- Dials in a **Main** window are designed and viewed. On the top and on the left margin of the **Main** window icons for quick access are placed.
- **Cursor position** in the bottom margin of the **Main** window is displayed. The text boxes **Abs. X** and **Y** (30) contains cursor position from the bottom-right corner of the dial. The text boxes **Rel. X** and **Y** (32) display cursor position from the relative origin defined in the text box **Rel. Origin** (31). To change the **relative origin**, set the new origin in the text box **Rel. Origin** (31) or move cursor on the dial and click left mouse button and key **O** on keybord.
- To enlarged the drawing, click **ZOOM** icon (26) and select desired detail on the drawing. Scroll bars (33) move drawing view in all directions.
- SKALA uses five groups of objects: lines, arcs, symbols, picture and dial outline dimensions.
- **Lines** group contains lines, small crosses and marks on scales. Lines properties are: length, width, colour, drawing angle. To select line on the drawing click into the area shown in Picture 1.
- **Symbols** group contains text, units, logotypes …. Symbols use Windows TrueType fonts. Symbols properties are: Font name, Font size, text, colour and angle. To select symbol click it into the area shown in Picture 1. Contents of fonts are in Appendix B. Program uses fonts defined in file “c:\skala\system\fonts.txt”.
- **Arcs** group contains circles, dot and arcs. Arcs properties are: radius, start point, angle, length and colour. To select arc click it into the area shown in Picture 1.




Picture 1

- **Picture** is in Windows bitmap (.bmp) black-white format. Picture group for logotypes is used. Maximal image dimension is 1200x1200 pixels.
- **Dial outline** dimensions contains: dial dimensions, position of units, position of symbols, position of logotypes and scales outline. Dial can contains up to six scales. Every scale outline on dial have its own colour and number.

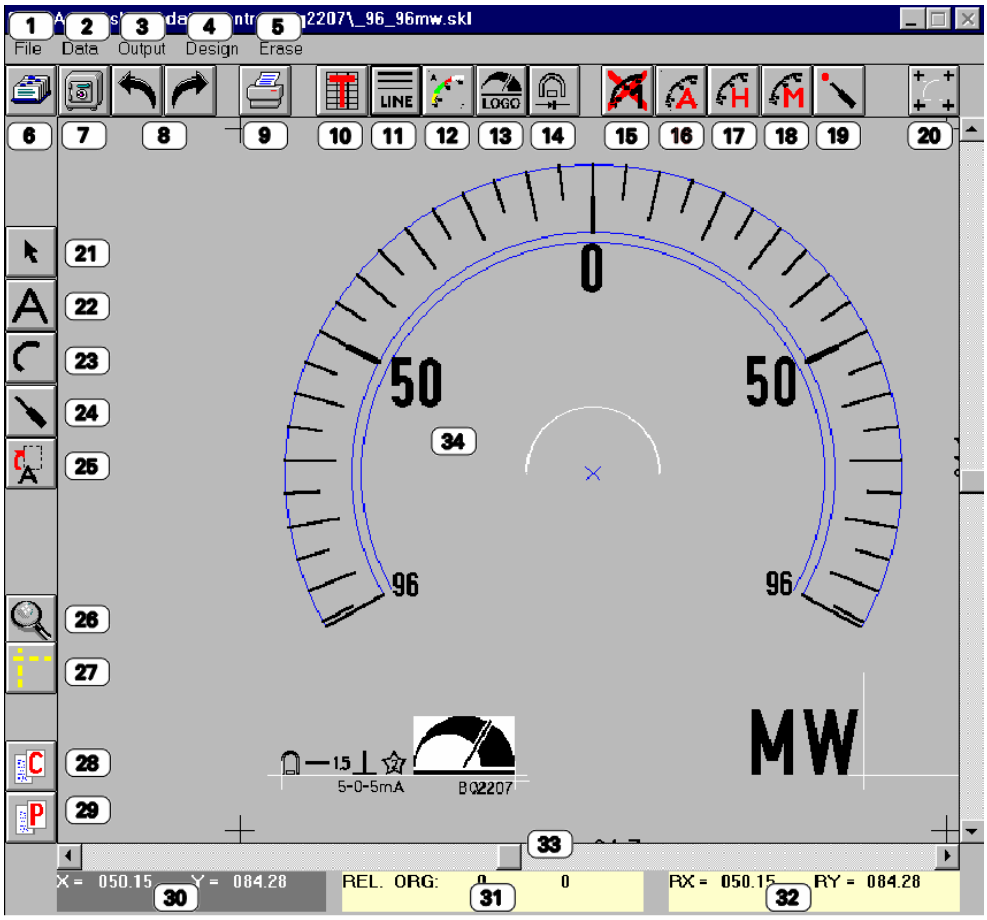



Picture 2

- SKALA uses the following **data files** (8.3 file name format):
  - **.skl** files for dial data
  - **.kar** files for scales characteristic data. Data in file are in two columns separated by commas. First column contains values in percent started with 0. Second column contains angle value. In Appendix A is an example of scale characteristic file.
  - **.ost** files contains numbering rules. Each row in file describes one range. Row contains: range, number of marks, medium marks skipping, main marks skipping and number skipping. In Appendix A is an numbering file example.

# 3. Short description of the SKALA program

## *3.1 MAIN window*




### *3.1.1 Menus*

1. **File** menu:
   - **Load** - opens the Load window for loading dials.
   - **Save** - saves current drawing.
   - **Save As** - opens New dial window for new dial saving.
   - **Delete** - opens New dial window for deleting dials.
   - **Exit** - closes program.
2. **Data**
3. **Output** menu:
   - **Print** - opens Print window for dial printing.
   - **Characteristic** - shows main scale data.
   - **Nr. Dial** - counts created dials.
4. **Design** - menu
   - **Dimensions** - opens the Dimensions window for creating dial dimensions.
   - **Division**
     - **Automatic** - creates standard scales.
     - **Half-automatic** - creates non-standard scales.
     - **Manual** - draws marks.
   - **Symbol** - draws symbols and texts.
   - **Logo** - draws images.
   - **Arc** - draws arcs and circles.
   - **Point** - draws small cross.
   - **Comment**
5. **Erase menu**
   - **Scale** - erases selected scale.
   - **All** - erases all objects.
   - **Symbols** - erases all characters.
   - **Dots** erases all dots.
   - **Picture** erase selected picture.

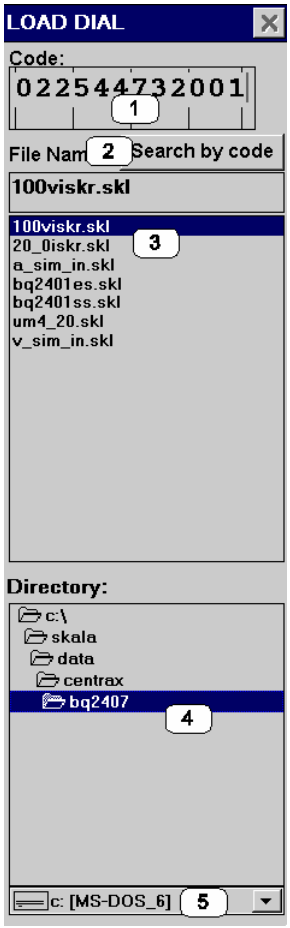
### *3.1.2 Icons*

6. **Open** icon shows load dial window.
7. **Save** icon saves drawing.
8. **Undo** icon cancels some last actions (deleting, changing, moving).
9. **Print** icon prints current dial.
10. **Table** icon shows table window.
11. **Line** icon enables drawing lines.
12. **Arc** icon enables drawing arcs.
13. **Logo** icon place image.
14. **Symbol** icon writes symbols and text.
15. **Erase scale** icon erases scale with number 1.
16. **Automatic** icon automates drawing of divisions.
17. **Half automatic** icon draws non-standard scales.
18. **Manual** icon draws divisions one by one.
19. **Dot** icon places dot under mark.
20. **Dimension** icon enables changing dial dimension.
21. **Select** icon enables selecting objects.
22. **Text** icon enables text and symbols selection.
23. **Arc** icon enables arc selection.
24. **Line** select icon enables line selection.
25. **Move** text icon quick moves selected text.
26. **Zoom** icon enlarges selected drawing area.
27. **Guide** line icon draws horizontal and vertical guide lines.
28. **Copy** icon copies selected objects.
29. **Paste** icon pastes objects.

### *3.1.3 Positions*

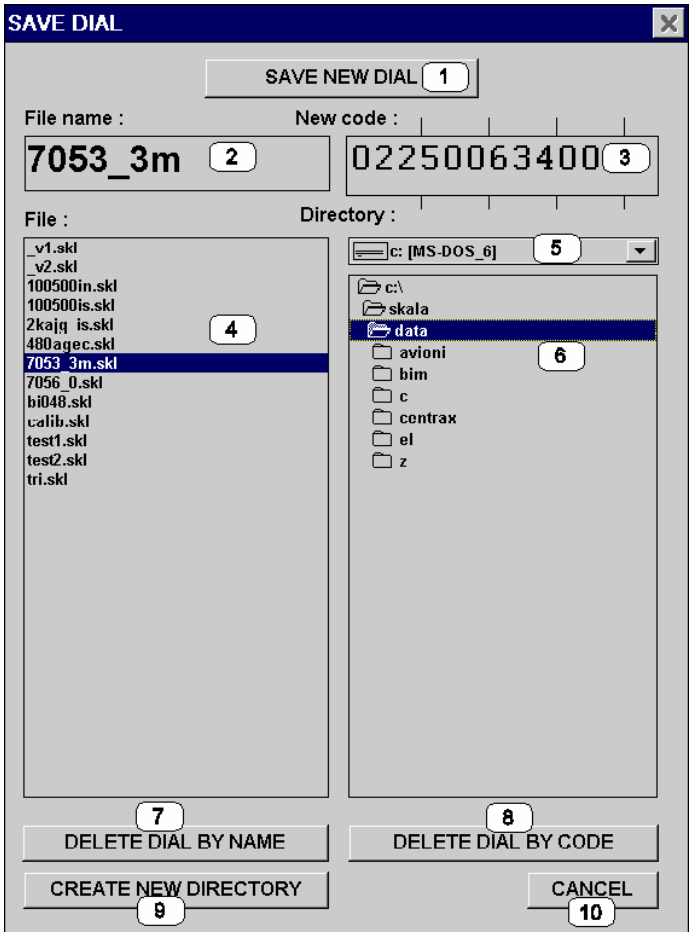
30. Cursor's x & y **Absolute** co-ordinate in mm.
31. **Relative** origin in mm.
32. Cursor's x & y **Relative** co-ordinate in mm.
33. **Horizontal** scroll bar moves drawing up and down. **Vertical** scroll bar moves drawing left and right.
34. **Drawing area.**

## *3.2 LOAD DIAL window*



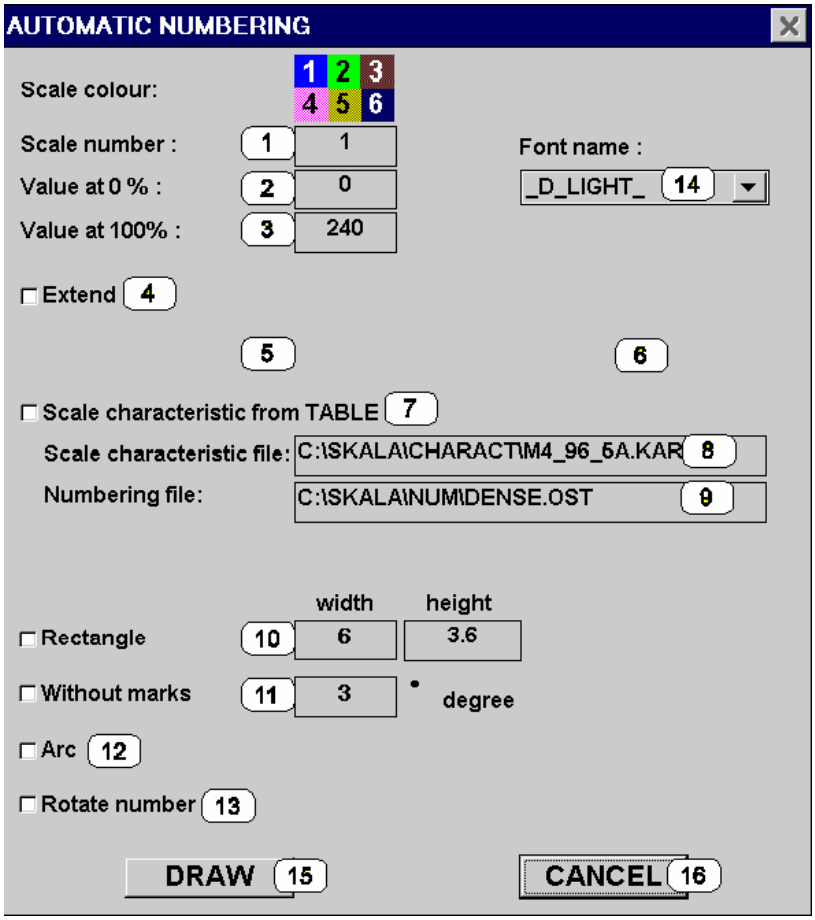

1. **Code** text box is used to write 12-characters code number.
2. **Search** button searches dials by code.
3. By clicking on the file name in **File** list box new dial is loaded.
4. **Directory** list box.
5. **Drive** list box.

## *3.3 **SAVE DIAL window***



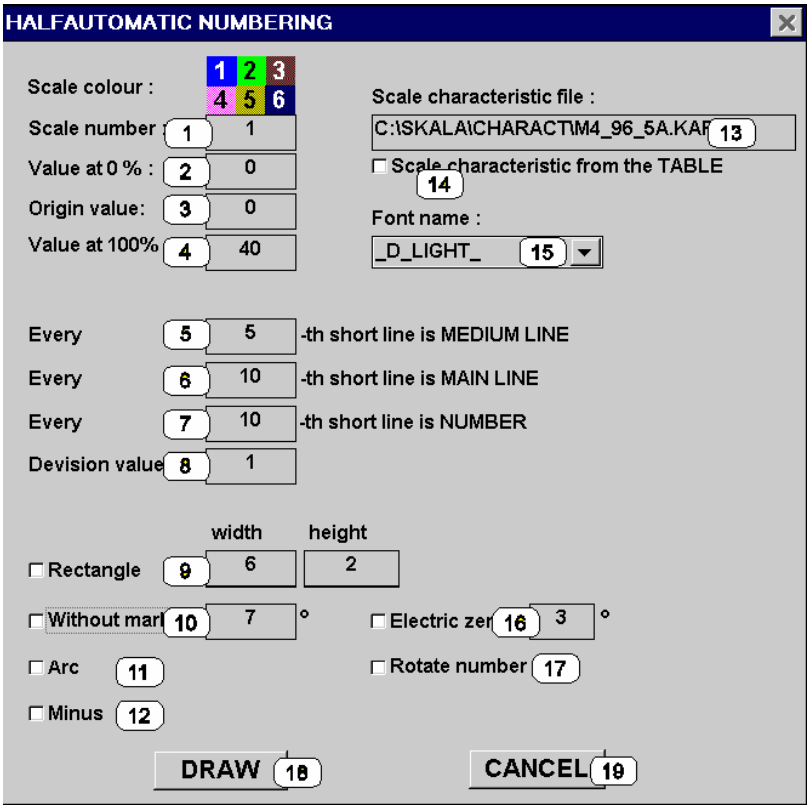

1. **Save new dial** command saves current dial with new name and new code.
2. **File name** box contains name of dial.
3. **New code** box contains 12-characters code of dial.
4. **File** list box contains list of file names.
5. **Drive** list box.
6. **Directory** list box.
7. **Delete dial by name** command deletes dial with name defined in the **File name** box (2).
8. **Delete dial by code** command deletes dial with code defined in the **New code** box (3).
9. **Create new directory** command creates new directory with name defined in the **File name** box (2) and set it on the place defined in the **Directory** list box (6).
10. **Cancel** command leaves SAVE DIAL window .

## *3.4 AUTOMATIC NUMBERING window*



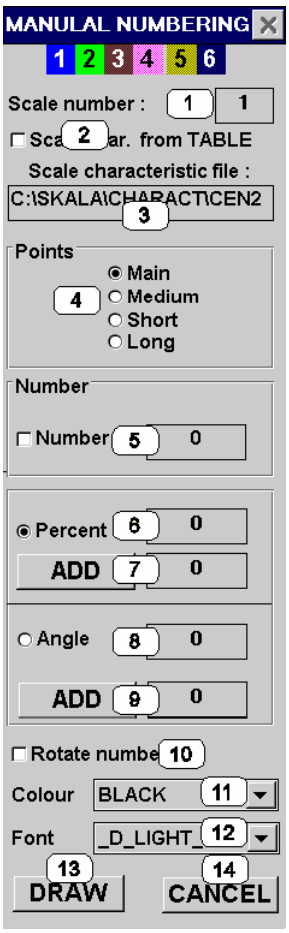

1. **Scale number** box defines scale.
2. **Value at 0%** must be always 0.
3. **Value at 100%** is the number at 100% of scale.
4. **Extend** check box enables numbering extended scale (15/30, 10/12, 100/600).
5. **Extend intermediate value** is the number between 100% and extend end value.
6. **Extend final value** is the number at the end of extended scale.
7. Checked **Scale characteristic from Table** reads characteristic data from table created in Table window.
8. By clicking on the **Scale characteristic file** box you change characteristic file path.
9. By clicking on the **Numbering file** box you change numbering file name.
10. Checked **Rectangle** draws rectangle at the beginning of the scale. Rectangle dimension is defined in width and height box.
11. Checked **Without marks** omits the marks. Text box defines area without marks at the beginning of the scale.
12. Checked **Arc** draws arc from start to the end of the scale.
13. Checked **Rotate number** draws numbers right-angled to the marks.
14. **Font name** list box defines font style of the number on the scale.
15. **Draw** command draws scale.
16. **Cancel** command leaves Automatic numbering window without draw new scale.

## *3.5 HALF-AUTOMATIC NUMBERING window*



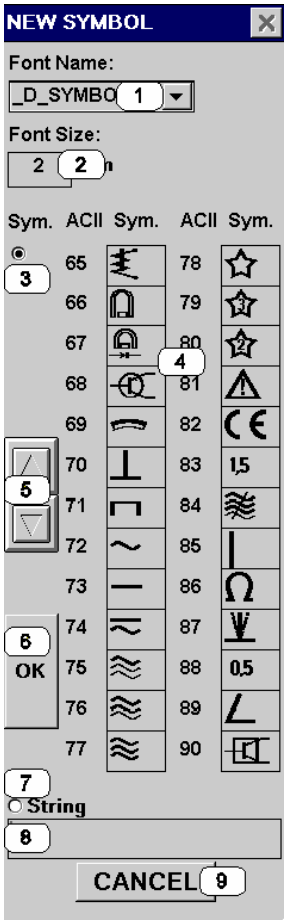

1. **Scale number** box defines scale.
2. **Value at 0%** must be smaller then end value.
3. **Origin value** must be one of the main mark on the scale. The value must be between **Value at 0%** and **Value at 100%**.
4. **Value at 100%** must be greater then **Value at 0%.**
5. Number in text box defines number of marks before Medium line.
6. Number in text box defines number of marks before Main line.
7. Number in text box defines number of marks before the number is drawn.
8. **Division value** defines value of marks.
9. Checked **Rectangle** draws rectangle at the beginning of the scale. Rectangle dimension is defined in width and height box.
10. Checked **Without marks** omits the marks. Text box defines area without marks at the beginning of the scale.
11. Checked **Arc** draws arc from start to the end of the scale.
12. Checked **Minus** box writes minus at negative numbers.
13. In **Scale characteristic file** the characteristic file path can be changed.
14. Checked **Scale characteristic from Table** reads scale characteristic data from table created in Table window.
15. **Font name** list box defines font style of the number on the scale.
16. Checked **Electric zero** compresses scale for a degree written in text box.
17. Checked **Rotate number** draws numbers right-angled to the marks.
18. **Draw** command draws scale.
19. **Cancel** command leaves Half-automatic numbering window without drawing the new scale

## *3.6 MANUAL NUMBERING window*



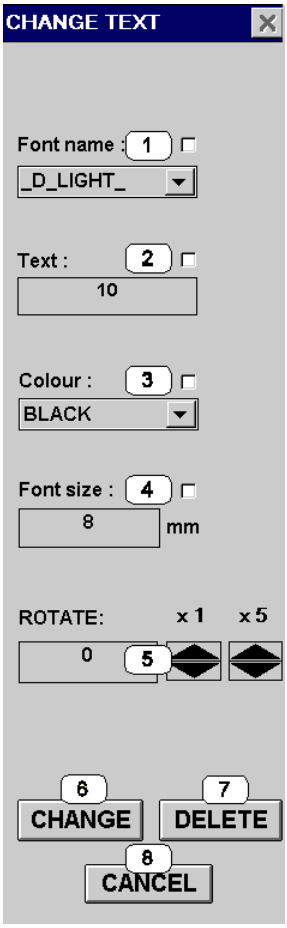

1. **Scale number** box defines scale.
2. Checked **Scale characteristic from Table** reads characteristic data from table created in Table window.
3. In the **Scale characteristic file** the characteristic file path can be changed.
4. Selected option defines type of **Mark**.
5. Checked **Number** draws number written in text box.
6. Selected **Percent** option calculates division as percent.
7. **Add** adds value from text box to **Percent** text box.
8. Selected **Angle** option calculates division as angle.
9. **Add** adds value from text box to **Angle** text box.
10. Checked **Rotate number** draws numbers right-angled to the marks.
11. **Colour** list box defines colour of mark and number.
12. **Font name** list box defines font style of the number on the scale.
13. **Draw** command draws mark and number.
14. **Cancel** command leaves **Manual numbering** window.

## *3.7 NEW SYMBOL window*



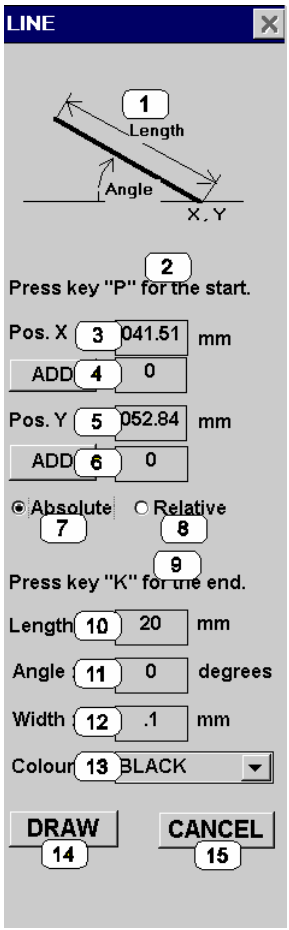

1. **Font name** list box defines symbols font name.
2. **Font size** text box defines symbol size in millimetres.
3. Selected **Sym.** option takes symbol from the table (4).
4. **Table** shows 26 symbols with ASCII code. Selected symbol in the table is red.
5. With **Up** and **Down** arrows shows other symbols.
6. **OK** command draws selected symbol or string of the symbols on the dial.
7. Selected **String** option uses string symbols from text box (8).
8. **String** text box contains string of the symbols.
9. **Cancel** command leaves New symbol window.

## *3.8 CHANGE TEXT window*



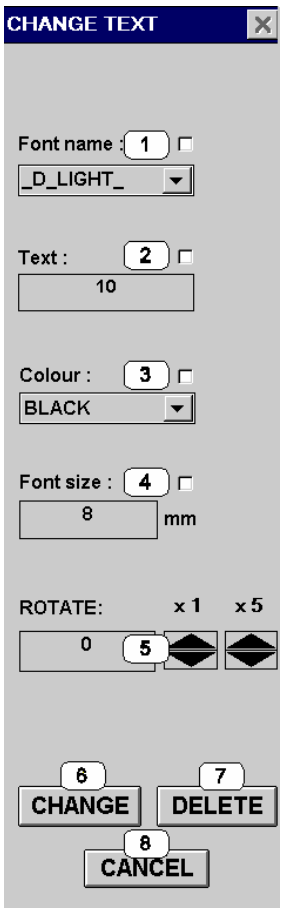

1. Checked **Font name** changes font style of selected symbols with selected font below.
2. Checked **Text** changes symbols with symbol or text below.
3. Checked **Colour** changes colour of selected symbols with below defined colour.
4. Checked **Font size** changes size of selected symbols with below defined size.
5. **Rotate** text box shows angle of rotated symbol
6. **Change** command changes selected symbols.
7. **Delete** command deletes selected symbols.
8. **Cancel** command does not change selected symbols.

## *3.9 LINE window*



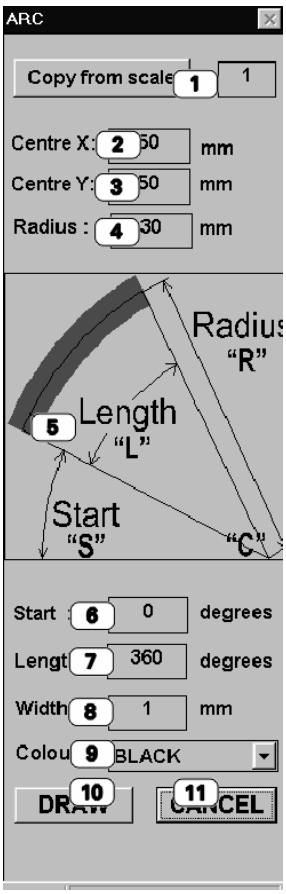

1. Picture explains line's required data.
2. When **key »P«** is pressed in drawing area, x and y position of cursor in (3) and (5) text boxes are copied.
3. **Pos. X** defines position X of the line's start in mm.
4. **Add** adds up value from the text box to the **Pos. X** text box (3).
5. **Pos. Y** text box defines position Y of line's start in mm.
6. **Add** text box adds up value from text box (6) to the **Pos. Y** text box (5).
7. Selected **Absolute** option draws line from the absolute origin.
8. Selected **Relative** option draws line from the relative origin.
9. When **key »K«** is pressed in drawing area line length and angle are calculated.
10. **Length** defines line length in mm.
11. **Angle** defines line angle from the X axis in degrees.
12. **Width** defines line width in mm.
13. **Colour** defines line colour.
14. **Draw** button draws line.
15. **Cancel** button leaves Line window.

## *3.10 CHANGE LINE window*



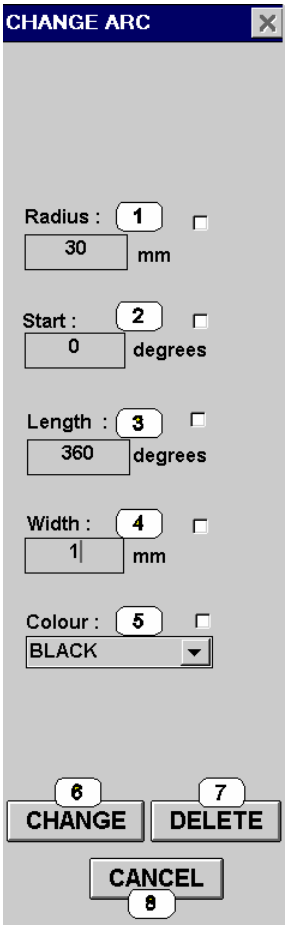

1. **Value** shows mark value.
2. **Angle** shows mark angle in degrees.
3. Checked **Colour** changes colour of selected lines with colour defined.
4. Checked **Length** changes selected lines length.
5. Checked **Width** changes selected lines width.
6. **Rotate** shows angle of selected line.
7. Spin command rotates selected line up and down by 1 or 5 degrees.
8. Checked **Marks** uses selected line as marks from scale.
9. **Change** command makes changes of selected lines.
10. **Delete** command deletes selected lines.
11. **Cancel** command does not change selected lines.

## *3.11 ARC window*



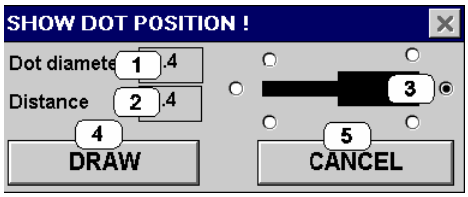

1. **Copy from scale** command copies scale dimension in to the Centre X (2),Y (3), and to the Radius (4). Scale is defined in text box (1).
2. **Centre X** arc centre X in mm.
3. **Centre Y** arc centre Y in mm.
4. **Radius** arc radius in mm.
5. Picture explains arc's required data.
   The latter in quotation defines keys.
   By pressing key **C** in Main window program transfers the cursor co-ordinates into Centre X,Y(3,4).
   By pressing key **R** in Main window program calculates the Radius from Centre X,Y(3,4) to cursor and writes in Radius (4).
   By pressing key **S** in Main window program calculates the Start angle and writes in Start (6).
   By pressing key **L** in Main window program calculates the Length of arc in degrees and writes in Length (7).
6. **Start** defines start of the angle in degrees.
7. **Length** defines arc angle length in degrees.
8. **Width** defines arc line width in mm.
9. **Colour** defines arc colour.
10. **Draw** button draws arc.
11. **Cancel** button leaves ARC window.

## *12. CHANGE ARC window*



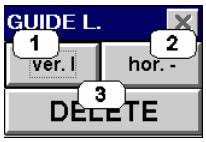

1. Checked **Radius** changes arc radius.
2. Checked **Start** changes start the arc angle.
3. Checked **Length** changes arc length angle.
4. Checked **Width** changes arc width.
5. Checked **Colour** changes arc colour.
6. **Change** command changes selected arc.
7. **Delete** command delete selected arc.
8. **Cancel** command does not change selected arc.

## *3.12 SHOW DOT POSITION window*



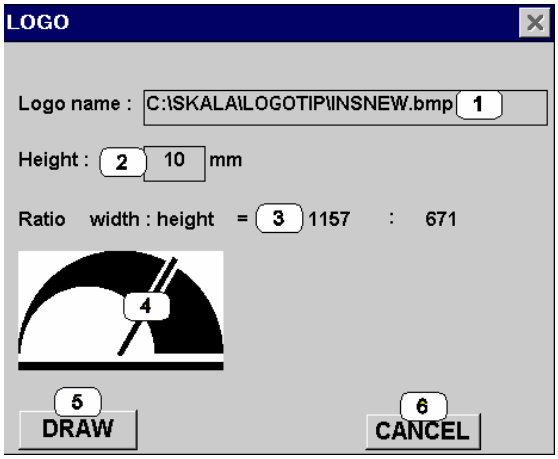

1. **Dot diameter** in mm.
2. **Distance** between number and mark in mm.
3. Selected option shows position of **Dot**.
4. **Draw** command draws dot.
5. **Cancel** does not draw dot.

## *3.13 GUIDE LINE window*



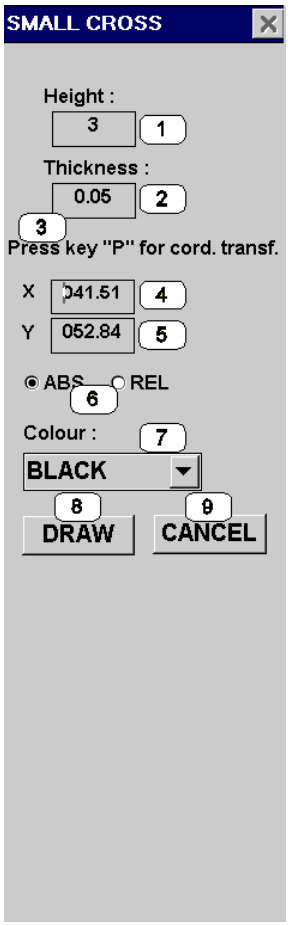

1. **ver.I** command draws vertical guide lines.
2. **hor.-** command draws vertical guide lines.
3. **Delete** command deletes all guide lines.

## *3.14 LOGO window*



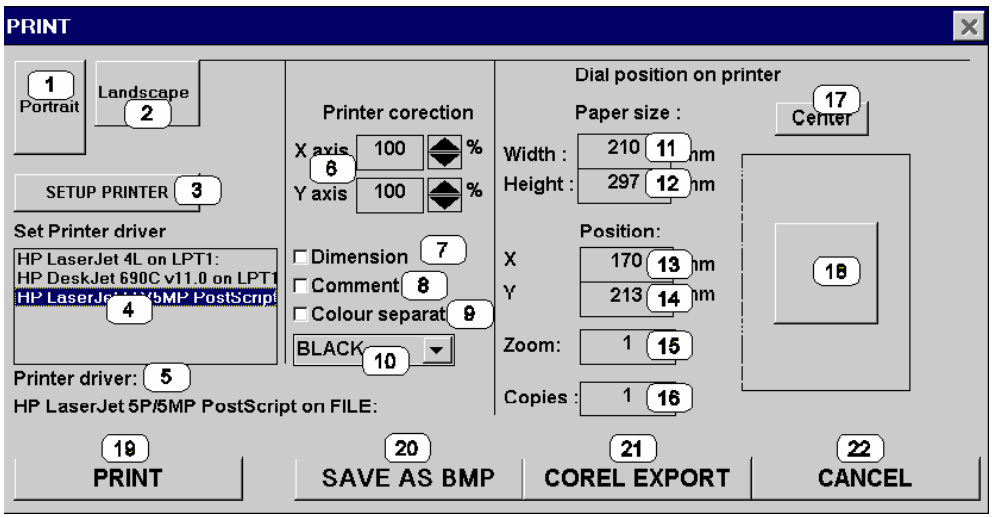

1. By clicking on the **Logo name** file box new logo image can be selected.
2. **Height** defines image height in mm.
3. **Ratio** shows ratio between width and height of picture.
4. Shows selected image.
5. **Draw** command draws selected image.
6. **Cancel** command does not draw logo image.

## *3.15 SMALL CROSS window*



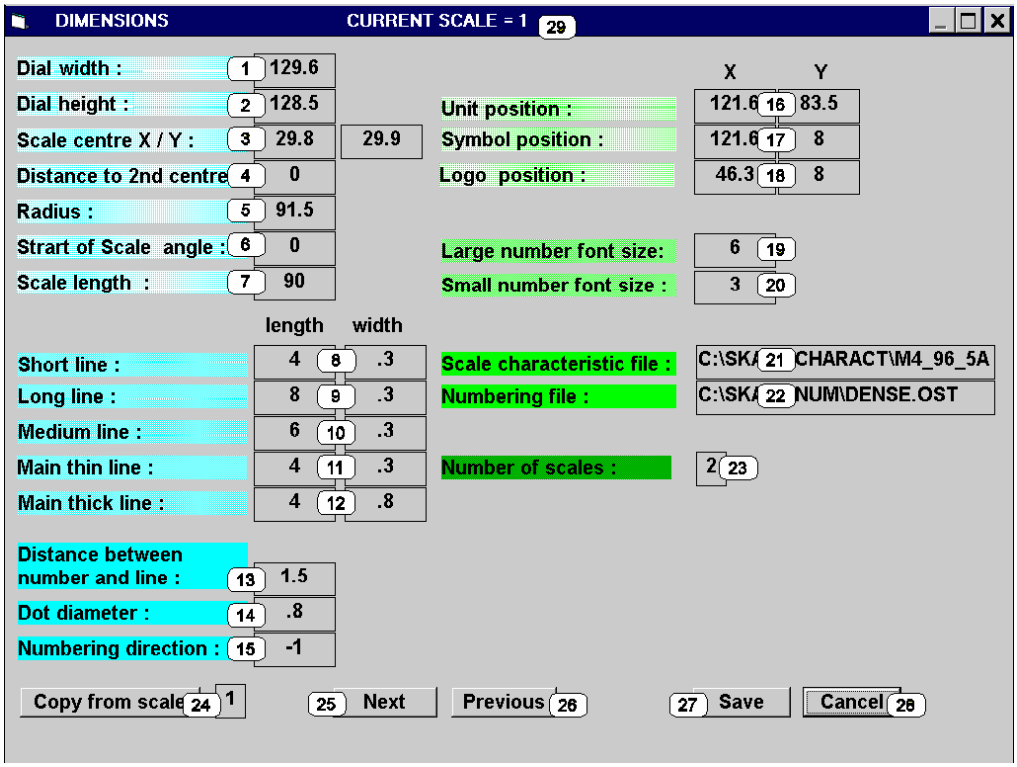

1. **Height** defines cross height.
2. **Thickness** defines cross thickness.
3. When **key »P«** is pressed in drawing area, cursor x and y co-ordinates in to (4) and (5) are copied.
4. **X** defines X position of cross.
5. **Y** defines Y position of cross.
6. Selected **Absolute** option draws cross from the absolute origin. **Relative** option draws cross from the relative origin.
7. **Colour** defines cross colour.
8. **Draw** button draws cross.
9. **Cancel** button leaves Cross window.

## *3.16 PRINT window*



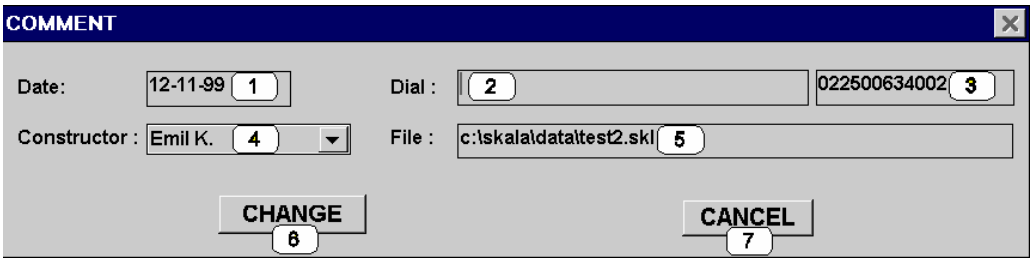

1. **Portrait** command rotates paper in to portrait position.
2. **Landscape** command rotates paper in to landscape position.
3. **Set up printer** command opens printer driver window.
4. **Set printer driver** changes printer driver.
5. **Printer driver** shows selected printer driver.
6. **Printer correction** defines dial size by X and Y axis correction.
7. Checked **Dimension** prints dial dimension.
8. Checked **Comment** prints comment below the dial.
9. Checked **Colour separation** check box prints only coloured objects with selected colour (10).
10. Selected colour.
11. **Width** shows paper width in mm.
12. **Height** shows paper width in mm.
13. **X** shows position of left dial edge on the paper.
14. **Y** shows position of left dial edge on the paper.
15. **Zoom** defines magnification factor of the printed dial.
16. **Copies** defines number of copies.
17. **Centre** button moves dial to the centre of the paper.
18. **Dial frame** enables moving dial on the paper.
19. **Print** prints dial.
20. **Save as BMP** saves dial as picture on disk.
21. **Corel export** command exports dial in Postscript format on disk ( this command is disabled ).
22. **Cancel button** leaves Print window without printing.

## *3.17 DIMENSIONS window*



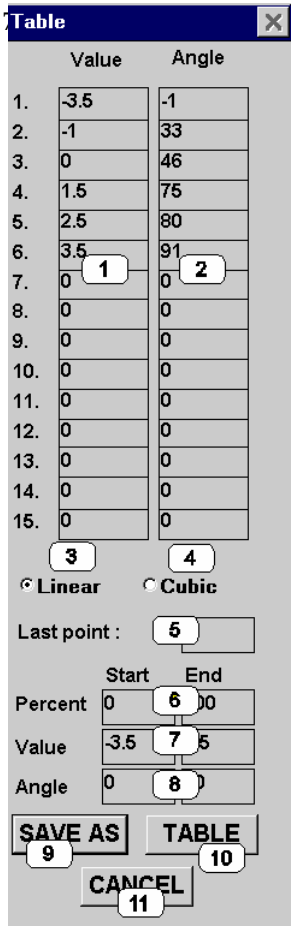

1. **Dial width** dimension in mm.
2. **Dial height** dimension in mm.
3. **Scale centre** in mm.
4. **Distance** to the stretched scale centre in mm (multimeter scales).
5. **Scale radius** in mm.
6. **Start of Scale angle** in degrees.
7. **Scale length** in degrees.
8. **Short marks** length and width dimension in mm.
9. **Long marks** length and width dimension in mm.
10. **Medium marks** length and width dimension in mm.
11. **Thick main marks** length and width dimension in mm.
12. **Thin main marks** length and width dimension in mm.
13. **Distance between number and line** in mm.
14. **Dot diameter** in mm.
15. The negative value -1 draws number between marks and scale centre. The positive value 1 draw number out from the scale centre.
16. **Unit position** defines left-bottom corner of Unit.
17. **Symbols position** defines left-bottom corner of Symbols.
18. **Logo position** defines right -bottom corner of logo.
19. **Large number font size** in mm.
20. **Small number font size** in mm.
21. Name of the **Scale characteristic file**.
22. Name of the **Scale numbering file**.
23. **Number of scales** on dial.
24. **Copy from scale** copies data from scale, defined in the text box, in to the current scale.
25. **Next** replaces current scale values with next scale values.
26. **Previous** replaces current scale values with previous scale values.
27. **Save** saves data in current dial file.
28. **Cancel** leaves dimension window without save data.
29. Tittle of **DIMENSIONS** window shows **CURRENT SCALE** number.

## *3.18 COMMENT window*




1. **Date** text box contains current date.
2. **Dial** text box with dial comment.
3. **Code** text box contains dial code.
4. **Constructor** list box identifies dial constructor (c:\skala\system\creators.txt).
5. **File** box shows dial file name.
6. **Change** command changes dial comment.
7. **Cancel** command leaves Comment window.

## *3.19 TABLE window*




1. Fifteen **Value** text boxes are used to write scale values. Scale values have to increase.
2. Fifteen **Angle** text boxes are used to write scale angles. Scale angle have to increase.
3. Selected **Linear** option uses linear interpolation method for scale characteristic calculation.
4. Selected **Cubic** option uses cubic interpolation method for scale data calculation.
5. **Last point** defines number of scale points.
6. **Percent** defines reference start and end percent of scale.
7. **Value** defines reference start and end value.
8. **Angle** defines reference start and end angle.
9. **Save as** command saves table data under new file name.
10. **Table** command saves table data.
11. **Cancel** command leaves TABLE window.

# 4. Examples of scale creating by SKALA

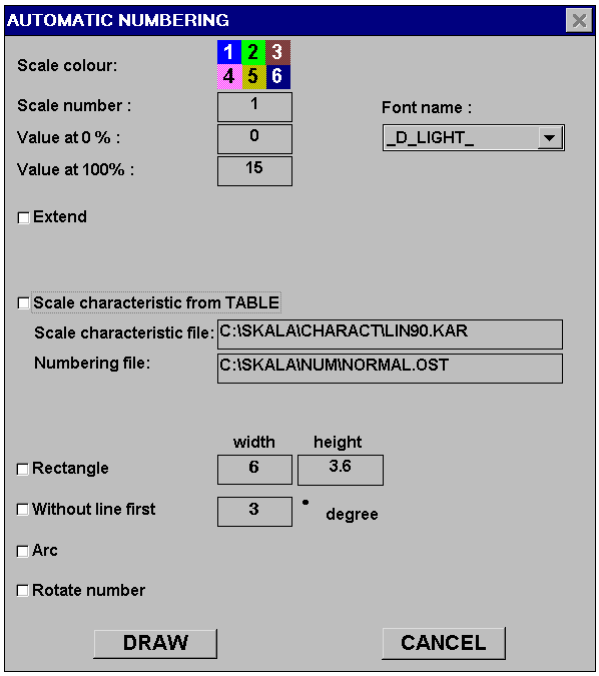
## *4.1 Loading dial*

1. Click the icon (6, page 7) in the **Main** window to open **LOAD DIAL** window.
2. Type the dial **Code** and press **Search by code** to find dial or find the dial file name in the **File name** box.

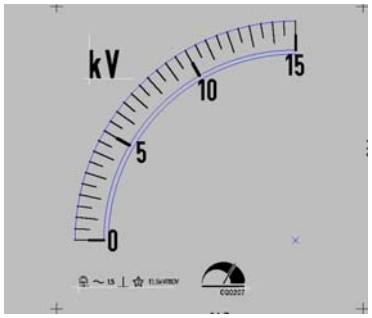
## *4.2 Creating scale with AUTOMATIC NUMBERING method*

**Example A** shows how the normal scale with range 0...15 and linear characteristic is designed.

1. Load dial C:\SKALA\EXAMP\1.SKL.
2. Erase the current scale by clicking icon (15, page 7) in the **Main** window.
3. To open the **AUTOMATIC NUMBERING** window, click on the icon (16, page 7) in the **Main** window.
4. Write the data to the **AUTOMATIC NUMBERING** window:



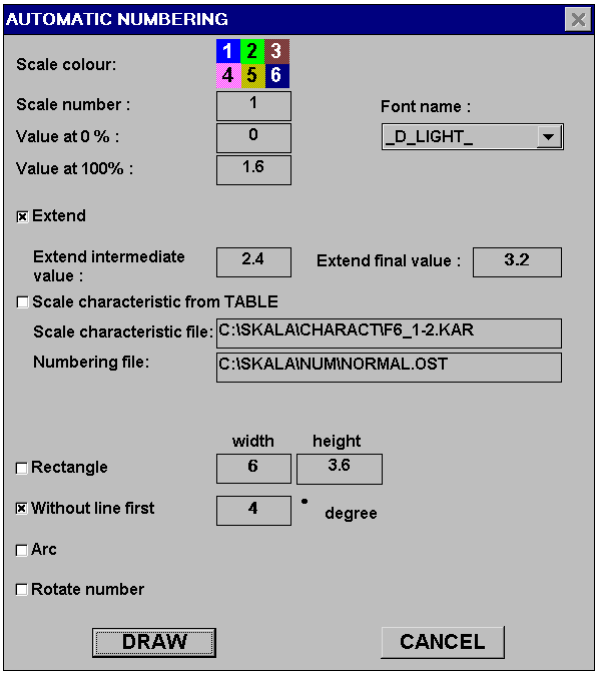

5. Click **DRAW** button (15, page 11).
6. The new scale will be displayed in the main window as Picture 3.



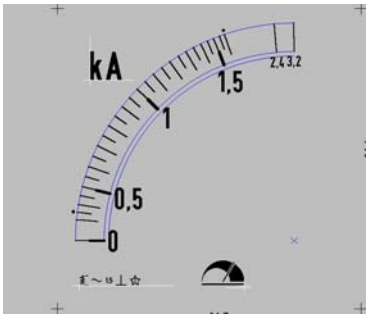

Picture 3

**Example B** shows how scale with extended range 0...1.6/3.2 and F6 characteristic is designed.

1. Load dial C:\SKALA\EXAMP\2.SKL.
2. Erase the current scale by clicking icon (15, page 7) in the main window.
3. To open the AUTOMATIC NUMBERING window, click icon (16, page 7) in the **Main** window.
4. Write the data to the **AUTOMATIC NUMBERING** window:



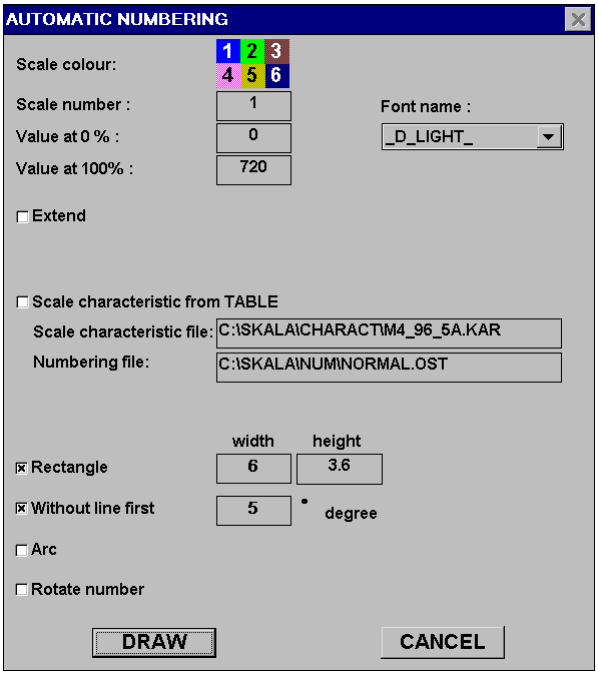

5. Click **DRAW** (15, page 11).
6. The new scale will be displayed in the main window as Picture 4.



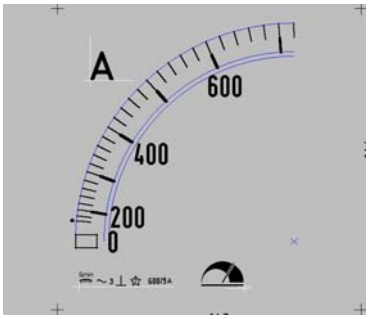

Picture 4

**Example C** shows how scale for bimetal instrument with range 0...720 and bimetal 5A characteristic is designed.

1. Load dial C:\SKALA\EXAMP\3.SKL.
2. Erase the current scale by clicking icon (15, page 7) in the **Main** window.
3. To open the **AUTOMATIC NUMBERING** window, click icon (16, page 7) in the **Main** window.
4. Write the data to the **AUTOMATIC NUMBERING** window:




5. Click command DRAW (15, page 11).
6. The new scale will be displayed in the **Main** window as Picture 5.

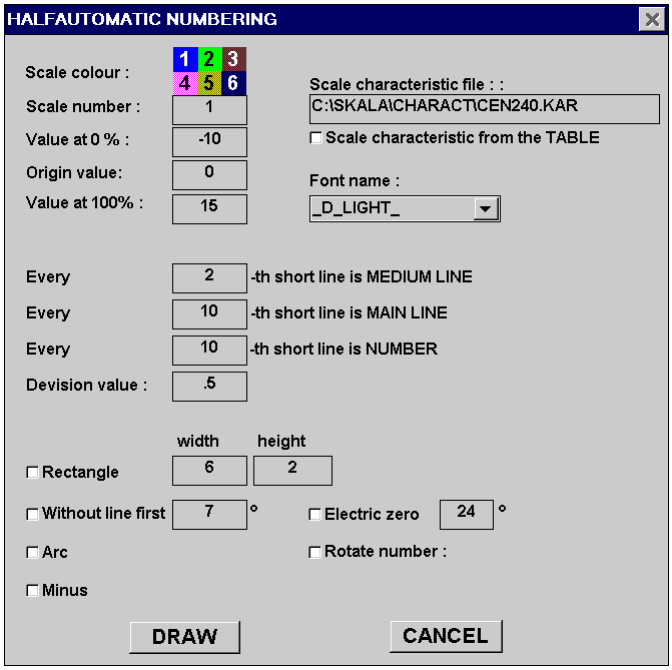



Picture 5

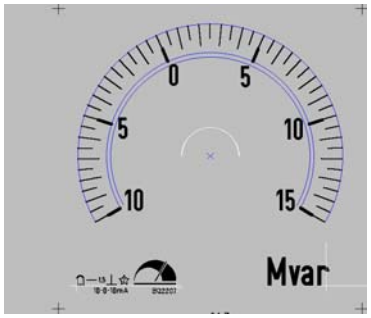
## *4.3 Creating scale with HALFAUTOMATIC NUMBERING method*

**Example A** shows how scale with range -10...15 and linear characteristic is designed.

1. Load dial C:\SKALA\EXAMP\4.SKL.
2. Erase the current scale by clicking icon (15, page 7) in the **Main** window.
3. Open the **HALFAUTOMATIC NUMBERING** window, by clicking icon (17, page 7) in the **Main** window.
4. Write the data to the **HALFAUTOMATIC NUMBERING** window:



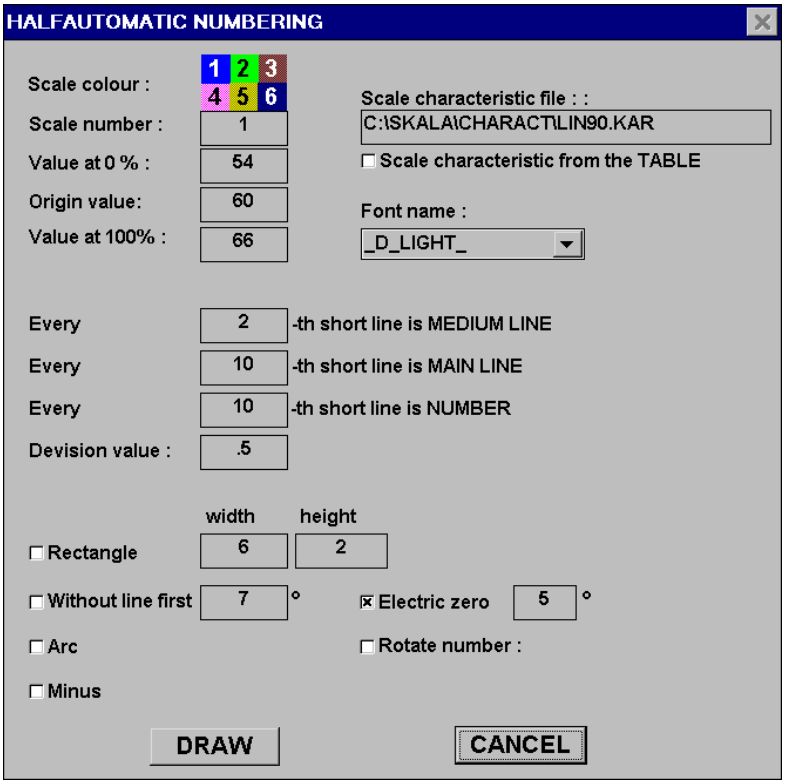

5. Click the command **DRAW** (18, page 12).
6. The new scale will be displayed in the **Main** window as Picture 6.



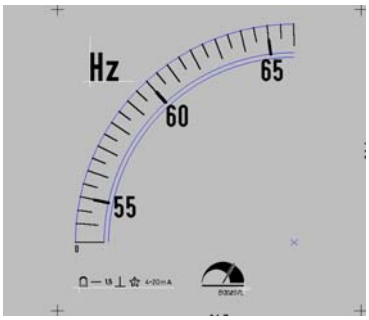

Picture 6

**Example B** shows how scale with range 54...66 electric zero at 5 degrees and linear characteristic is designed.

1. Load dial C:\SKALA\EXAMP\5.SKL.
2. Erase the current scale by clicking icon (15, page 7) in the **Main** window.
3. Open the **HALFAUTOMATIC NUMBERING** window, by clicking icon (17, page 7) in the **Main** window.
4. Write the data to the **HALFAUTOMATIC NUMBERING** window:



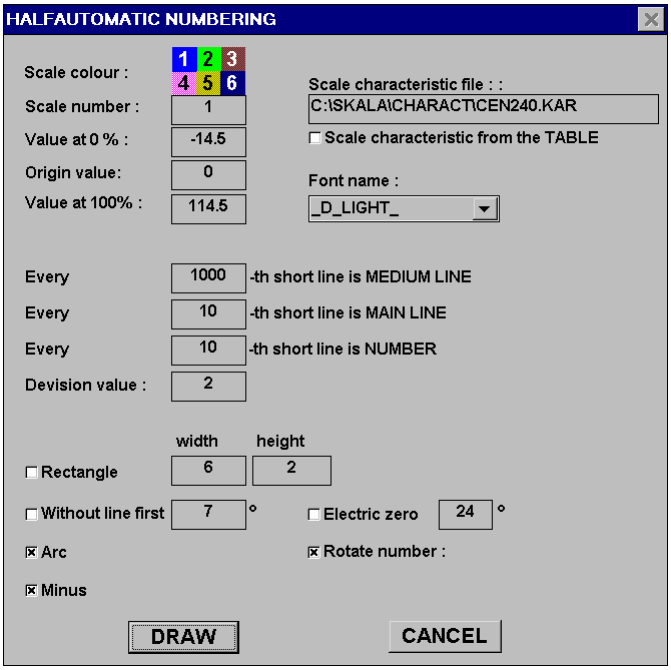

5. Click command **DRAW** (18, page 12).
6. The new scale will be displayed in the **Main** window as Picture 7.



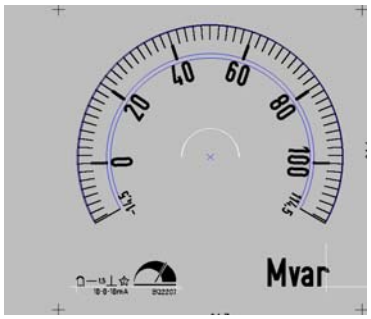

Picture 7

**Example C** shows how scale with characteristics shown on the Picture (8) is designed.

1. Load dial C:\SKALA\EXAMP\4.SKL.
2. Erase the current scale by clicking icon (15, page 7) in the **Main** window.
3. Open the **HALFAUTOMATIC NUMBERING** window, by clicking icon (17, page 7) in the **Main** window.
4. Write the data to the **HALFAUTOMATIC NUMBERING** window:



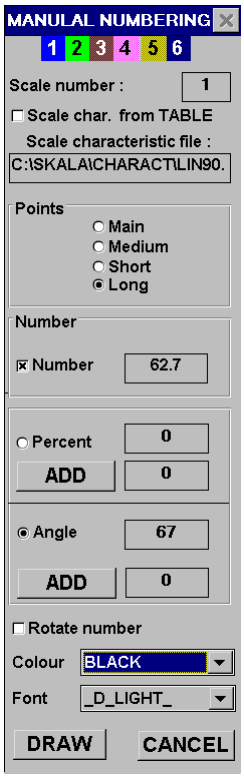

5. Click command **DRAW** (18, page 12).
6. The new scale will be displayed in the **Main** window.



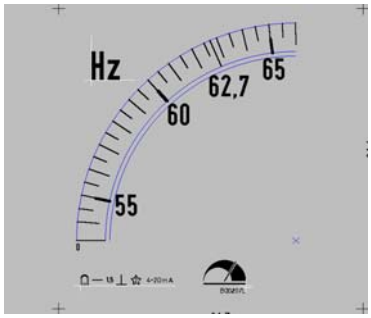

Picture 8

## *4.4 Adding marks on the scale with MANUAL NUMBERING method*

**Example A** shows numbered black mark on the scale with 67 degrees angle is placed.

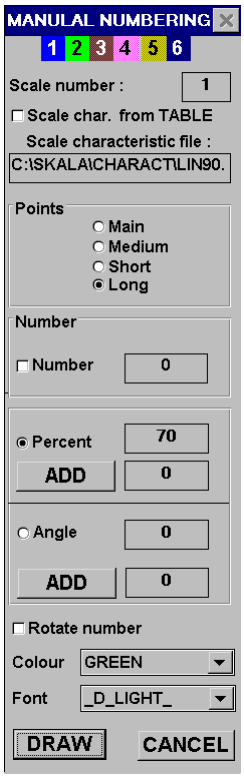



1. Load dial C:\SKALA\EXAMP\5.SKL.
2. Open the **MANUAL NUMBERING** window, by clicking icon (18, page 7) in the **Main** window.
3. Write the data to the **MANUAL NUMBERING** window.
4. Click the command **DRAW** (13, page 13).
5. The new mark will be added on the scale as shown on the Picture 9.

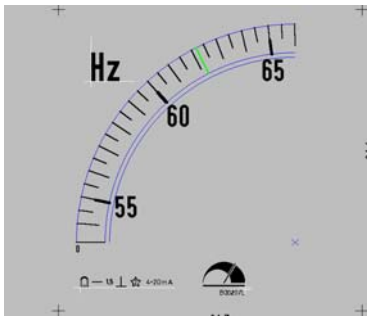



Picture 9

**Example B** shows placing green mark at 70 percent value of the scale.




1. Load dial C:\SKALA\EXAMP\5.SKL.
2. Open the **MANUAL NUMBERING** window, by clicking icon (18, page 7) in the **Main** window.
3. Write the data to the **MANUAL NUMBERING** window:
4. Click command **DRAW** (13, page 13).
5. The new mark will be added on the scale as shown on the Picture 10.




Picture 10

## *4.5 Saving dial with new name*

1. Load dial C:\SKALA\EXAMP\3.SKL.
2. Select **Save As** from the **File** menu (1, page 7).
3. In the **SAVE DIAL** window, select directory C:\SKALA\TEST\ from the Directory list box (6, page 10)
4. In the File name text box, type »TEST1«.
5. In the New code text box, type »TEST00000001«.
6. Click command **SAVE NEW DIAL** to save dial.

## *4.6 Deleting dial from hard disk*

**Example A** shows deleting dial by using dial name.
1. Choose **Save As** from the **File** (1, page 7) menu.
2. In the **SAVE DIAL** window, select dial in the **File** list (4, page 10).
3. To delete dial, click **DELETE DIAL BY NAME** (7, page 10).

**Example B** shows deleting dial using dial code.
1. Choose **Save As** from the **File** (1) menu.
2. In the **SAVE DIAL** window type dial code in the **New code** text box (3, page 10).
3. To delete selected dial, click **DELETE DIAL BY CODE** (8, page 10).

## *4.7 Printing dial*

**Example A** shows procedure for mirror dial printing in three copies.
1. Load dial C:\SKALA\EXAMP\3.SKL.
2. Open the **PRINT** window, by clicking icon (9, page 7) in the **Main** window.
3. In the **PRINT** window, printer which is able to print mirror image have to be selected.
4. Type number 3 in the **Copies** text box (16, page 22).
5. To print dial, click **PRINT** button (19, page 22).

**Example B** shows zoomed dial printing.
1. Load dial C:\SKALA\EXAMP\3.SKL.
2. Open the **PRINT** window, by clicking icon (9, page 7) in the **Main** window.
3. In the **PRINT** window select non-mirror type printer.
4. Type number 2 in the **Zoom** text box (15, page 22).
5. To print the dial, click **PRINT** (19, page 22).

## *4.8 Symbols*

### 4.8.1 Inserting new symbol

1. Load dial C:\SKALA\EXAMP\5.SKL.
2. Open the **NEW SYMBOL** window, by clicking icon (14, page 7) in the **Main** window.
3. In the **NEW SYMBOL** window set "_D_SYMBOL" in the **Font Name** list box.
4. Set **Font size** (2, page 14) to 3.
5. Select option **Sym.** (3, page 14) and choose the symbol from the table (4, page 14).
6. Click **OK** button (6, page 14).
7. Move the cursor to the drawing area.
8. Click the mouse to put the symbol on the dial.

### 4.8.2 Inserting text

1. Load dial C:\SKALA\EXAMP\5.SKL.
2. Open the **NEW SYMBOL** window with icon (14, page 7) in the **Main** window.
3. In the **NEW SYMBOL** window set "_H_CON_B_" in the **Font Name** list box (1, page 14).
9. Set **Font size** (2, page 14) to 5.
4. Select option **String** (7, page 14) and type text "AMPER" in the text box (8, page 14).
5. Click **OK** Button (6, page 14).
6. Move the cursor in the drawing area.
7. Click the mouse to put text on the dial.

### 4.8.3 Moving symbols

1. Load dial C:\SKALA\EXAMP\3.SKL.
2. To select symbols click icons (21, page 7) and (22, page 7) in the **Main** window.
3. Find the symbol "A" on the dial.
4. Move cursor to the left-top corner of the symbol (see Picture 1) and click. Selected symbol becomes dark green.
5. To move symbol, press the cursor key on the keyboard.
6. Combination of keys (cursor key + Shift or cursor key + Ctrl) moves selected symbol faster.
7. To deselect symbol on the dial, click the right mouse key or click icon (21, page 7) on the **Main** window or click **CANCEL** in the **CHANGE TEXT** window.

### 4.8.4 Deleting symbols

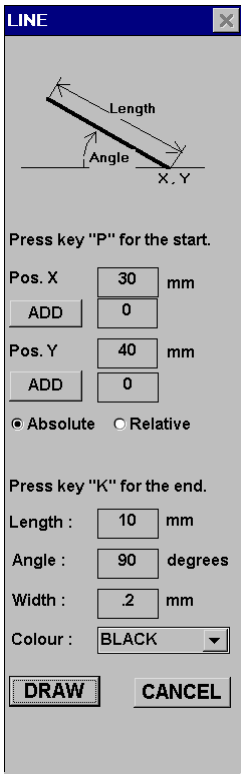
1. Load dial C:\SKALA\EXAMP\3.SKL.
2. To select symbols click icons (21, page 7) and (22, page 7) in the **Main** window.
3. Set the symbols "A", "⊥" and "600" on the dial.
4. Move cursor to the left-top corner of the first symbol and click.
5. Likewise select the other two symbols.
6. To delete symbols, click command **DELETE** (7, page 15) in the **CHANGE TEXT** window.
7. Action can be undone by **UNDO** icon (8, page 7) in the **Main** window.

### 4.8.5 Changing symbols properties

1. Load dial C:\SKALA\EXAMP\3.SKL.
2. To select symbol, click icons (21, page 7) and (22, page 7) in the **Main** window.
3. Set symbol "A".
4. Move cursor to the left-top corner of the symbol and click.
5. The **CHANGE TEXT** window will be opened on the right side.
6. To change a colour of the symbol, set RED colour in the **COLOUR** list box (3, page 15) and set check box.
7. Click **CHANGE** (6, page 15) button and symbol will be coloured to red.
8. Action can be undone by **UNDO** icon (8, page 7) in the **Main** window.

## *4.9 Lines*

### 4.9.1 Drawing lines




**Example A** shows drawing line with manual method.

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. Open the **LINE** window by icon (11, page 7) in the **Main** window.
3. In the **LINE** window type the data.
4. Click **DRAW** button and the new line will be placed on the dial.

**Example B** shows drawing line by transferring cursor's co-ordinates

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. Open the **LINE** window by icon (11, page 7) in the **Main** window.
3. Place the cursor to the left-top of the green rectangle of the drawing.
4. Click mouse to make main window active and then press key "P" on the keyboard. The cursor's co-ordinates will be transferred in to the **Pos. X** (3, page 16) and **Pos. Y** (5, page 16).
5. Place the cursor to the right-bottom of the green rectangle of the drawing.
6. Click mouse to make **Main** window active and click "K" on the keyboard. The length and angle of the line will be written in to the **Length** text box (10, page 16) and **Angle** text box (11, page 16).
7. Click **DRAW** button (14, page 16) and the new line will be placed on the dial.

### 4.9.2 Moving lines

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. To select line click icons (21, page 7) and (24, page 7) in the **Main** window.
3. Find the thick blue line on the dial.
4. Move cursor near to the end of the line (see Picture 1) and click. Selected line becomes dark green.
5. To move line press the cursor key on the keyboard.
6. Combination of keys (cursor key + Shift or cursor key + Ctrl) moves selected line faster.
7. To deselect line on the dial click the right mouse key or icon (21, page 7) in the **Main** window or **CANCEL** button in the **CHANGE LINE** window.
8. Action can be undone by **UNDO** icon (8, page 7) in the **Main** window.

### 4.9.3 Deleting lines

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. To select line click icons (21, page 7) and (24, page 7) in the **Main** window.
3. Find the thick blue line on the dial.
4. Move cursor near to the end of line (see Picture 1) and click. Selected line becomes dark green.
5. To delete line click **DELETE** in the **CHANGE LINE** window.
6. Action can be undone by **UNDO** icon (8, page 7) in the **Main** window.

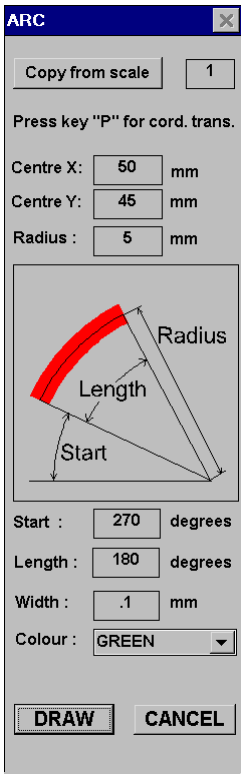
### 4.9.4 Changing lines properties

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. To select line click icons (21, page 7) and (24, page 7) in the **Main** window.
3. Find the thick blue line on the dial.
4. Move cursor near to the end of the line (see Picture 1) and click. The **CHANGE LINE** window will be opened on the right side.
5. To change colour of the line select RED colour in the **COLOUR** list box (3, page 17) and set check box.
6. Click **CHANGE** button (9, page 17) and selected line will be coloured to red.
7. Action can be undone by **UNDO** icon (8, page 7) in the **Main** window.

## *4.10 Arcs*

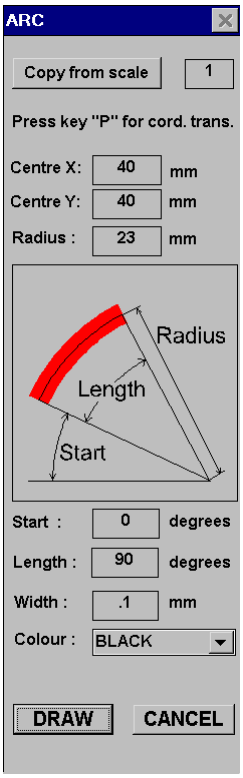
### 4.10.1 Drawing arcs

**Example A** shows drawing arc manually.



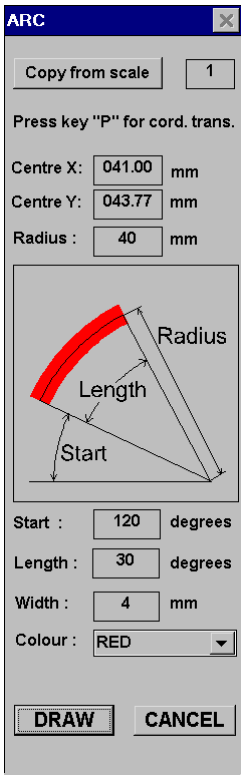

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. Open the **ARC** window by icon (12, page 7) in the **Main** window.
3. In the **ARC** window type data.
4. Click **DRAW** (11, page 18) and the new arc will be placed on the dial.

**Example B** shows drawing arc by COPY FROM SCALE procedure.




1. Load dial C:\SKALA\EXAMP\6.SKL.
2. Open the **ARC** window by icon (12, page 7) in the **Main** window.
3. Set number 1 in text box (1, page 18) and click **COPY FROM SCALE** button.
4. The **Centre X**, **Y** and **Radius** data from the scale are transferred.
5. Type the data in the **ARC** window.
6. Click **DRAW** (11, page 18) and the new arc will be added on the dial.

**Example C** shows drawing arc by transferring cursor's co-ordinates




1. Load dial C:\SKALA\EXAMP\6.SKL.
2. Open the **ARC** window by icon (12, page 7) in the **Main** window.
3. Place the cursor to the centre of the arc click.
4. The cursor's co-ordinates will be transferred in to the **Centre X** and **Centre Y** by pressing "P" key.
5. Type the data on the **ARC** window.
6. Click **DRAW** (11, page 18) and the new arc will be added to the dial.

### 4.10.2 Moving arcs

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. To select arc click icons (23, page 7) and (21, page 7) in the **Main** window.
3. Find the thick green arc on the dial.
4. Move cursor into the arc's line (see Picture 1) and click. Selected arc becomes dark green.
5. To move arc, press the cursor key on the keyboard.
6. Combination of keys (cursor key + Shift or cursor key + Ctrl) moves selected arc faster.
7. To deselect arc on the dial, click the right mouse key or click icon (21, page 7) in the **Main** window or **CANCEL** in the **CHANGE ARC** window.
8. Action can be undone by **UNDO** icon (8, page 7) in the **Main** window.

### 4.10.3 Deleting arcs

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. To select arc click icon (23, page 7) and (21, page 7) in the **Main** window.
3. Find the thick blue arc in the dial.
4. Move cursor into the arc's line (see Picture 1) and click. Selected arc becomes dark green.
5. To delete arc click **DELETE** in the **CHANGE ARC** window.
6. Action can be undone by **UNDO** icon (8, page 7) in the **Main** window.

### 4.10.4 Changing arcs properties

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. To select arc click icon (23, page 7) and (21, page 7) in the **Main** window.
3. Find the thick blue arc in the dial.
4. Move cursor into the arc's line (see Picture 1) and click.
5. The **CHANGE ARC** window will be opened on the right side.
6. To change the radius of the arc type new value in the **Radius** text box (1, page 19) and set check box.
7. Click **CHANGE** (6, page 19) and arc will change radius.
8. Action can be undone by **UNDO** icon (8, page 7) in the **Main** window.

## *4.11 Logotypes*

### 4.11.1 Inserting logotype

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. Click **LOGO** icon (13, page 7) in the **Main** window,.
3. In the File dialogue box select logo file "instnew.log" and click OK. The **LOGO** window will be opened.
4. Type number 5 in the **Height** text box (2, page 20) and click **OK**.
5. The logotype image will be added on the dial.
6. To move logo image, click inside the image and drag it.

### 4.11.2 Moving logotype

1. Load dial C:\SKALA\EXAMP\7.SKL.
2. To move a logotype image, click inside the image and drag it.

### 4.11.3 Deleting logotype

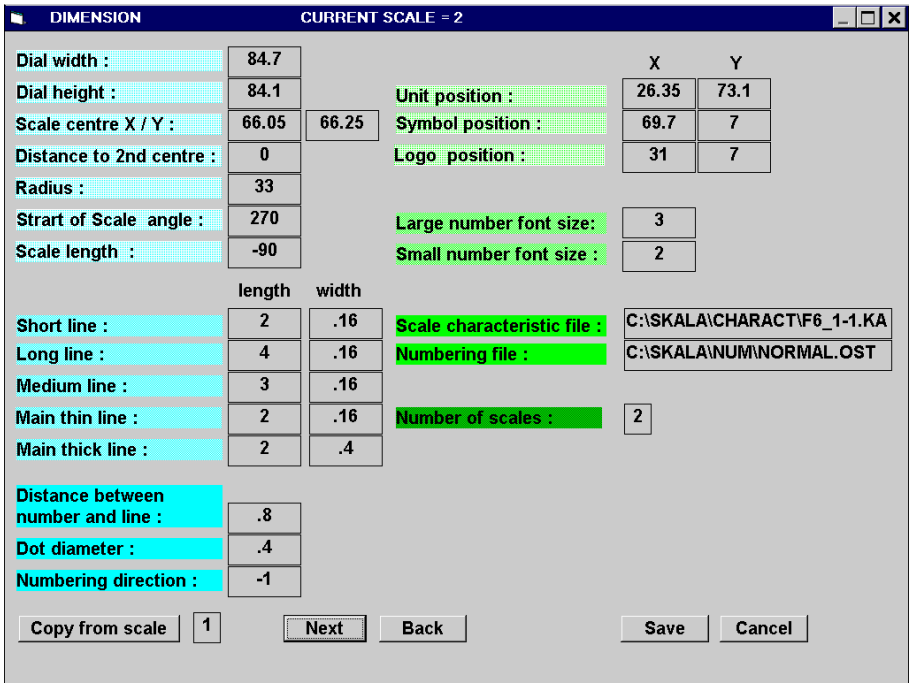
1. Load dial C:\SKALA\EXAMP\7.SKL.
2. To delete a logotype image choose **PICTURE** in the **ERASE** (5, page 7) menu. With mouse select desire logotype.

## *4.12 Adding new scale on the dial*

The Picture 2 shows dimensions that could be changed in **DIMENSIONS** window.

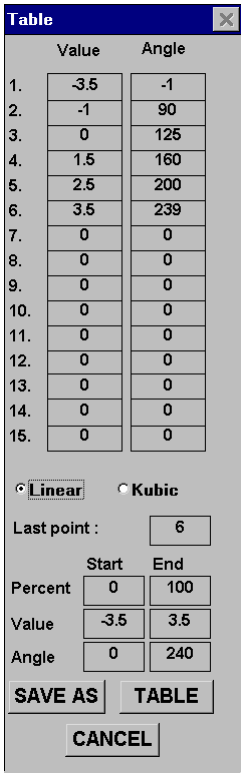
**Example A** shows adding new scale on the dial.

1. Load dial C:\SKALA\EXAMP\8.SKL.
2. Open the **DIMENSION** window by icon (20, page 7) in the **Main** window.
3. Type number 2 in the **Number of scales** text box (23, page 23).
4. Click **Next** (25, page 23) button. The **DIMENSIONS** window has no values for scale number 2.
5. Click **Copy from scale** = 1 (24, page 23) to fill empty text boxes with data from scale 1.
6. Set the data.



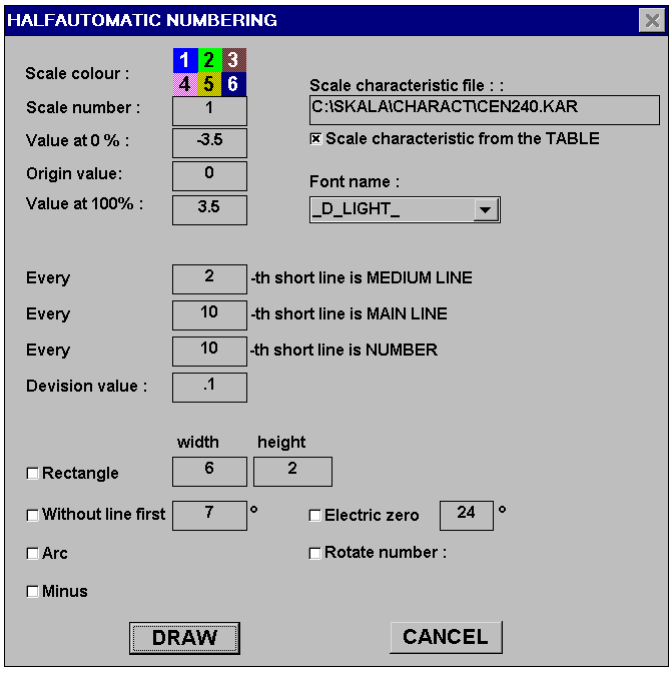

7. Save new scale by **SAVE** (27, page 23) button.

## *4.13 How to use scale data from the Table window*




1. Load dial C:\SKALA\EXAMP\4.SKL.
2. In the **Main** window click **TABLE** icon (10, page 7).
3. Type the data in it.
4. Click **TABLE** (10, page 24) button and the data will be saved.

5. To draw scale with new data, delete current scale by icon (15, page 7) in the **Main** window first.
7. Click icon (16, page 7) to open **AUTOMATIC NUMBERING** window and write the data in it.




8. To draw scale with data from the **Table** click **DRAW** button.

## *4.14 Placing dot mark*

1. Load dial C:\SKALA\EXAMP\3.SKL.
2. In the **Main** window click **DOT** icon (19, page 7) and select blue mark on the scale.
3. In the **SHOW DOT POSITION** window set dot position (3, page 20).
4. To draw dot click **DRAW** (4, page 20) button.

## *4.15 Copying and pasting objects*

All selected objects could be copied on the dial except logotype image.

1. Load dial C:\SKALA\EXAMP\6.SKL.
2. First select green lines (see **Moving lines**), then green symbols (see **Moving symbol**) and green arcs (see **Moving arc**).
3. Click **COPY** icon (28, page 7) in the **Main** window and select the origin of the objects.
4. Click **PASTE** icon (29, page 7) and click to paste objects to the new position.
5. Pasted objects are dark green and can be moved by cursor keys.
6. To deselect pasted objects click right mouse button or click icon (21, page 7).

# 5. Appendix A

Scale points file “LIN-90.kar” example:

```
0,0
50,45
100,90
```

Scale points file “Tabela.kar” example:

```
0 ,-1
35.71429 , 90
50 , 125
71.42857 , 160
85.71429 , 200
100 , 239
```

# 6. Appendix B

FontName = _D_LIGHT_

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 26 □ | 39 □ ' | 52 4 4 | 65 A A | 78 N N | 91 □ [ | 104 h h | 117 u u | 130 □ , |
| 27 □ | 40 □ ( | 53 5 5 | 66 □ B | 79 O O | 92 □ \ | 105 i i | 118 v v | 131 □ ƒ |
| 28 □ | 41 □ ) | 54 6 6 | 67 □ C | 80 P P | 93 □ ] | 106 □ j | 119 □ w | 132 □ „ |
| 29 □ | 42 □ * | 55 7 7 | 68 □ D | 81 Q Q | 94 □ ^ | 107 k k | 120 x x | 133 □ … |
| 30 □ | 43 □ + | 56 8 8 | 69 E E | 82 R R | 95 □ _ | 108 l l | 121 y y | 134 □ † |
| 31 □ | 44 . , | 57 9 9 | 70 F F | 83 □ S | 96 □ ` | 109 m m | 122 z z | 135 □ ‡ |
| 32 | 45 - - | 58 □ : | 71 □ G | 84 T T | 97 a a | 110 n n | 123 μ { | 136 □ ˆ |
| 33 □ ! | 46 , . | 59 □ ; | 72 H H | 85 U U | 98 b b | 111 o o | 124 □ \| | 137 □ ‰ |
| 34 □ " | 47 / / | 60 □ < | 73 I I | 86 V V | 99 c c | 112 p p | 125 □ } | 138 □ Š |
| 35 □ # | 48 0 0 | 61 □ = | 74 □ J | 87 W W | 100 d d | 113 q q | 126 □ ~ | 139 □ ‹ |
| 36 □ $ | 49 1 1 | 62 □ > | 75 □ K | 88 □ X | 101 e e | 114 r r | 127 □ | 140 □ Œ |
| 37 % % | 50 2 2 | 63 □ ? | 76 L L | 89 □ Y | 102 φ f | 115 s s | 128 □ € | 141 □ |
| 38 □ & | 51 3 3 | 64 □ @ | 77 M M | 90 □ Z | 103 g g | 116 t t | 129 □ | 142 □ Ž |

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| 26 □ | 39 ° ' | 52 4 4 | 65 A A | 78 N □ | 91 [ □ | 104 h □ | 117 u □ | 130 , □ |
| 27 □ | 40 °C ( | 53 5 5 | 66 √3 B | 79 O □ | 92 \ □ | 105 i i | 118 v □ | 131 ƒ □ |
| 28 □ | 41 ) □ | 54 6 6 | 67 C C | 80 P □ | 93 ] □ | 106 j □ | 119 w □ | 132 „ □ |
| 29 □ | 42 . * | 55 7 7 | 68 D □ | 81 Q □ | 94 ^ □ | 107 k k | 120 x □ | 133 … □ |
| 30 □ | 43 + □ | 56 8 8 | 69 E □ | 82 R □ | 95 _ □ | 108 l □ | 121 y □ | 134 † □ |
| 31 □ | 44 , , | 57 9 9 | 70 F □ | 83 S □ | 96 ` □ | 109 m m | 122 z □ | 135 ‡ □ |
| 32 | 45 - - | 58 : □ | 71 G □ | 84 T □ | 97 a □ | 110 n n | 123 { □ | 136 ˆ □ |
| 33 ! □ | 46 . , | 59 ; □ | 72 H □ | 85 U □ | 98 b □ | 111 o □ | 124 \| □ | 137 ‰ □ |
| 34 " □ | 47 / / | 60 < □ | 73 I □ | 86 V V | 99 c □ | 112 p □ | 125 } □ | 138 Š □ |
| 35 # □ | 48 0 0 | 61 = □ | 74 J □ | 87 W W | 100 d □ | 113 q □ | 126 ~ □ | 139 ‹ □ |
| 36 $ □ | 49 1 1 | 62 > □ | 75 K □ | 88 X □ | 101 e □ | 114 r □ | 127 □ □ | 140 Œ □ |
| 37 % % | 50 2 2 | 63 ? □ | 76 L □ | 89 Y □ | 102 f □ | 115 s □ | 128 € □ | 141 □ □ |
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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 26 □ | 39 □ ' | 52  4 | 65  A | 78  N | 91  [ | 104 □ h | 117 □ u | 130 □ ‚ |
| 27 □ | 40 □ ( | 53  5 | 66  B | 79  O | 92  \ | 105 □ i | 118 □ v | 131 □ *f* |
| 28 □ | 41 □ ) | 54  6 | 67  C | 80  P | 93  ] | 106 □ j | 119 □ w | 132 □ „ |
| 29 □ | 42 □ * | 55  7 | 68  D | 81  Q | 94  ^ | 107 □ k | 120 □ x | 133 □ … |
| 30 □ | 43 □ + | 56  8 | 69  E | 82  R | 95  _ | 108 □ l | 121 □ y | 134 □ † |
| 31 □ | 44  , | 57  9 | 70  F | 83 1,5 S | 96  ` | 109 □ m | 122 □ z | 135 □ ‡ |
| 32 | 45  - | 58  : | 71  G | 84  T | 97 □ a | 110 □ n | 123 □ { | 136 □ ˆ |
| 33 □ ! | 46 . | 59  ; | 72  H | 85  U | 98 □ b | 111 □ o | 124 □ \| | 137 □ ‰ |
| 34 □ " | 47 / | 60  < | 73  I | 86  V | 99 □ c | 112 □ p | 125 □ } | 138 □ Š |
| 35 □ # | 48 0 | 61  = | 74  J | 87  W | 100 □ d | 113 □ q | 126 □ ~ | 139 □ ‹ |
| 36 □ $ | 49 1 | 62  > | 75  K | 88 0,5 X | 101 □ e | 114 □ r | 127 □ | 140 □ Œ |
| 37 □ % | 50 2 | 63  ? | 76  L | 89  Y | 102 □ f | 115 □ s | 128 □ € | 141 □ |
| 38 □ & | 51  3 | 64  @ | 77  M | 90  Z | 103 □ g | 116 □ t | 129 □ | 142 □ Ž |

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|---|---|---|---|---|---|---|---|---|
| 26 □ | 39 ' | 52 4 | 65 A | 78 N | 91 Š | 104 h | 117 u | 130 , |
| 27 □ | 40 ( | 53 5 | 66 B | 79 O | 92 \ | 105 i | 118 v | 131 ƒ |
| 28 □ | 41 ) | 54 6 | 67 C | 80 P | 93 Ć | 106 j | 119 w | 132 „ |
| 29 □ | 42 * | 55 7 | 68 D | 81 Q | 94 Č | 107 k | 120 x | 133 … |
| 30 □ | 43 + | 56 8 | 69 E | 82 R | 95 _ | 108 l | 121 y | 134 † |
| 31 □ | 44 , | 57 9 | 70 F | 83 S | 96 ž | 109 m | 122 z | 135 ‡ |
| 32 | 45 - | 58 : | 71 G | 84 T | 97 a | 110 n | 123 š | 136 ˆ |
| 33 ! | 46 . | 59 ; | 72 H | 85 U | 98 b | 111 o | 124 \| | 137 ‰ |
| 34 " | 47 / | 60 < | 73 I | 86 V | 99 c | 112 p | 125 ć | 138 □ |
| 35 # | 48 0 | 61 = | 74 J | 87 W | 100 d | 113 q | 126 č | 139 ‹ |
| 36 $ | 49 1 | 62 > | 75 K | 88 X | 101 e | 114 r | 127 ^ | 140 Œ |
| 37 % | 50 2 | 63 ? | 76 L | 89 Y | 102 f | 115 s | 128 € | 141 [ |
| 38 & | 51 3 | 64 Ž | 77 M | 90 Z | 103 g | 116 t | 129 ` | 142 Ž |