

PRADIS

The description of graphic image programs

**THE SOFTWARE FOR SIMULATION OF NON-STATIONARY
PROCESSES IN MECHANICAL SYSTEMS AND SYSTEMS OF
OTHER PHYSICAL NATURE**

VERSION 4.2

Contents

Graphical image of the "marked" point, moving in a plane (1 and 3 quarters of a circle are painted over, second and the fourth - black colour). CMASS.....	3
Graphical image of a point, moving in a plane. DOTD.....	4
The right-angled is mobile a framework from which it is possible to link local axes. LSK.....	5
Graphical image of a rectilinear cut. LINED.....	6
Graphical image of a rectangle, moving in a plane which sides are parallel to axes OX (OY) global axes. RECTD.....	7
The graphical image which is representing a current rule of the space point in the form of a circle, presented round this point. POINT.....	8
Graphical image of a rectilinear cut in the space, making plane-parallel driving. LINEV.....	9
The graphical image which is representing a current rule of co-ordinate axes, linked with point A, which makes complicated (translational + rotational) the space driving. LSK3D.....	10
Graphical image of a parallelogramme in the space, executing a motion, defined by six degree of freedom of a rigid body. PRLGRM.....	11
Graphical image of an ellipsoid linked with a point, making complicated (translational + rotational) the space driving. ELP3D.....	12
Graphical image of an ellipsoid of p extents in the space, executing a motion, defined by six degree of freedom of a rigid body. EL3DP.....	14
Graphical image of contact electrode KN3FF. KN3FFV.....	15
Graphical image of contact electrode KN3EF. KN3EFV.....	16
The graphical image of not deformable cylinder, which foundation of the confidant is represented a regular polygon. CIL3DC.....	17
Graphical image of the space spring. PRUG.....	19
Graphical image of the shock reducer. AMORT.....	20
Graphical image of an arrow, moving in a plane. ARROW.....	21
The right-angled flat framework with a possibility to restrict the image to framework sizes. BORDER.....	22
The head loop of not deformable plane figure figured by sequence of cuts, connecting the set points. KONTUR.....	23
Graphical image of a leg. OPORA.....	25
Graphical image of an immovable support with the joint. OPORAD.....	26
Graphical image of a silhouette of the flat not strained figure linked with a moving cut. SILUET.....	27
Graphical image of an axial section of a compression spring. PRUZS.....	28

Graphical image of the "marked" point, moving in a plane (1 and 3 quarters of a circle are painted over, second and the fourth - black colour). CMASS

Degree of freedom:

- 1 - translational in a direction of axis OX of the center of a point;
- 2 - translational in a direction of axis OY of the center of a point;
- 3 - rotational (the image does not influence).

Parameters:

- 1 - an initial abscissa of the center of a point;
- 2 - initial ordinate of the center of a point;
- 3 - diameter of a point.

The certificate of the GRAPHICAL IMAGE CMASS

EXT = 3, PAR = 3, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of a point, moving in a plane. DOTD

Degree of freedom:

- 1 - translational in a direction of axis OX of the center of a point.
- 2 - translational in a direction of axis OY of the center of a point.
- 3 - rotational (the image does not influence).

Parameters:

- 1 - an initial abscissa of the center of a point.
- 2 - initial ordinate of the center of a point.
- 3 - diameter of a point.
- 4 - a filling indication (1 - it is filled).

The certificate of the GRAPHICAL IMAGE DOTD

EXT = 3, PAR = 4, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The right-angled is mobile a framework from which it is possible to link local axes. LSK

Degree of freedom:

- 1 - translational in a direction of axis OX of center LSK;
- 2 - translational in a direction of axis OY of center LSK;
- 3 - rotational center LSK;

Parameters:

- 1 - an initial abscissa of center LSK;
- 2 - initial ordinate of center LSK;
- 3 - an initial abscissa of an alternate angle of a framework;
- 4 - initial ordinate of an alternate angle of a framework.

Note

Center LSK - the left lower angle of a framework

The certificate of the GRAPHICAL IMAGE LSK

EXT = 3, PAR = 4, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of a rectilinear cut. **LINED**

Degree of freedom:

- 1 - translational in a direction of axis OX of the center of a cut.
- 2 - translational in a direction of axis OY of the center of a cut.
- 3 - rotational the cut center.

Parameters:

- 1 - an initial abscissa of the center of a cut.
- 2 - initial ordinate of the center of a cut.
- 3 - length of a cut.
- 4 - an initial angle.

The certificate of the GRAPHICAL IMAGE LINED

EXT = 3, PAR = 4, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of a rectangle, moving in a plane which sides are parallel to axes OX (OY) global axes. RECTD

Degree of freedom:

- 1 - translational in a direction of axis OX of the center of a rectangle.
- 2 - translational in a direction of axis OY of the center of a rectangle.
- 3 - rotational (the image does not influence).

Parameters:

- 1 - an initial abscissa of the center of a rectangle.
- 2 - initial ordinate of the center of a rectangle.
- 3 - a rectangle breadth.
- 4 - rectangle altitude.

The certificate of the GRAPHICAL IMAGE RECTD

EXT = 3, PAR = 4, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The graphical image which is representing a current rule of the space point in the form of a circle, presented round this point. POINT

The image is intended for link with the elements having 3 degree of freedom of a translational motion (type M3D).

Degree of freedom:

1,2,3, - translational in a direction of X-axes, Y, Z the ball center.

Parameters:

1,2,3 - co-ordinates of the origin on X-axes, Y, Z the ball center;

4 - diameter of a ball;

5 - a fill indication (≥ 1 - it is painted over).

The certificate of the GRAPHICAL IMAGE POINT

EXT = 3, PAR = 5, UNV = 0, WRK = 0

VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of a rectilinear cut in the space, making plane-parallel driving. LINEV

Degree of freedom:

- 1 - translational in a direction of axis OX.
- 2 - translational in a direction of axis OY.
- 3 - translational in a direction of axis OZ.

Parameters:

- 1 - an initial abscissa of point A of a cut.
- 2 - initial ordinate of point A of a cut.
- 3 - initial z-axis of point A of a cut.
- 4 - an initial abscissa of point B of a cut.
- 5 - initial ordinate of point B of a cut.
- 6 - initial z-axis of point B of a cut.

The certificate of the GRAPHICAL IMAGE LINEV

EXT = 3, PAR = 6, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The graphical image which is representing a current rule of co-ordinate axes, linked with point A, which makes complicated (translational + rotational) the space driving. LSK3D

The image is intended for link with the models of elements having 6 exterior degree of freedom of the space migration of a point (type MJ3O, MJ3D).

Degree of freedom:

1,2,3 - translational points A on wasps of m OX, OY, OZ;

4,5,6 - rotational points A round axes OX, OY, OZ.

Parameters:

1,2,3 - co-ordinates of the origin of point A (the center of mobile basis) on axes OX, OY, OZ;

4,5,6 - co-ordinates of the origin of point B defining together with point A an initial rule of a local Z-axis ' of mobile basis (the Z-axis ' is directed from A to B)

7,8,9 - co-ordinates of the origin of point C defining together with points A and B a plane of a disposition of a X-axis ';

10 - length of axes of figured basis.

The certificate of the GRAPHICAL IMAGE LSK3D

EXT = 7, PAR = 10, UNV = 1, WRK = 10

VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of a parallelogramme in the space, executing a motion, defined by six degree of freedom of a rigid body.
PRLGRM

Degree of freedom:

- 1, 2, 3 - translational the center of masses of the skew field linked with a parallelogramme (point A).
4, 5, 6 - the rotational skew fields, linked by a parallelogramme.

Parameters:

- 1, 2, 3 - co-ordinates of the origin of point A (the center of masses of a skew field)
4, 5, 6 - co-ordinates of the origin of point B (a parallelogramme apex)
7, 8, 9 - co-ordinates of the origin of point C (a parallelogramme apex)
10,11,12 - the beginnings. Co-ordinates of point D (a parallelogramme apex)

Remarks:

Points B and C, C and D should be connected the parallelogramme sides.

The certificate of the GRAPHICAL IMAGE PRLGRM

EXT = 7, PAR = 12, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image трехосного an ellipsoid linked with a point, making complicated (translational + rotational) the space driving. ELP3D

The image is intended for link with models of elements.

Link with elements:

The image can be not linked with any installation and then the ellipsoid is motionless.

The image can be linked with moving elements:

MJ3D;

балочным an element having prefix BAL3D.

The image contacts the first point of an element;

The arbitrary space element having 6 and more degree of freedom of type of the rod or elements of link SV3... The First six degree of freedom of an element should present a translational motion of its extremities. The image is linked with the ellipsoid center.

Parameters:

For an unambiguous definition of appearance of an ellipsoid the given program of implementation of an image uses following variables and parameters:

- 1,2,3 - co-ordinates of the origin of the center of an ellipsoid
- 4,5,6 - co-ordinates of the origin of point E laying on Z-axis ЛСК
- 7,8,9 - co-ordinates of the origin of point F laying in plane XOZ ЛСК
- 10,11,12 - ellipsoid sizes accordingly on wasps of m OX, OY, OZ ЛСК
- 13,14 - amount of parallels and ellipsoid meridians

Remarks:

1) ЛСК - the ellipsoid axes are local: center ЛСК coincides with the center of an ellipsoid, axis ЛСК - from wasps мн an ellipsoid

2) Principal is called the axis of an ellipsoid coinciding with an axis of an element, linked with graphical image.

3) Parallels are had on intersection of a surface of an ellipsoid with planes, perpendicular axes OZ ЛСК, meridians - on intersection of an ellipsoid with the planes which are passing through axis OZ ЛСК. The meridian is fathomed as the FULL ellipse, образуемый by cross-section.

4) the Amount of parallels should be odd, otherwise their number is augmented per unit.

5) to gain the image of an ellipsoid of revolution, it is necessary to set equal parameters 10 and 11, co-ordinates of point F in this case are admissible arbitrary (not coinciding with co-ordinates of the center of an ellipsoid and point E).

Order of enumeration of obligatory and unessential parameters for various cases of application of an image (in brackets - a parameter value by default):

I. The Image is linked with a motionless foundation.

Obligatory parameters:

- Co-ordinates of the origin of the center of an ellipsoid,
- Co-ordinates of the origin of point E laying on Z-axis JICK,
- Ellipsoid sizes on axes OX, OY, OZ JICK,
- Amount of parallels and ellipsoid meridians.

II. The Image is linked with MJ3D, MJ3E and arbitrary elements of type SV3.... Element co-ordinates Are used.

Obligatory parameters:

- Ellipsoid sizes on wasps of m OX, OY, OZ JICK,
- Amount of parallels and ellipsoid meridians.

III. The Image is linked with STERG. Element co-ordinates are used.

Obligatory parameters:

- Ellipsoid sizes accordingly on axes OX, OY, OZ JICK,
- Amount of parallels and ellipsoid meridians.

IV. The Image is linked with BAL3D. Co-ordinates and element parameters Are used.

Obligatory parameters:

- Ellipsoid sizes accordingly on axes OX, OY, OZ JICK,
- Amount of parallels and ellipsoid meridians.

The certificate of the GRAPHICAL IMAGE ELP3D

EXT = 0, PAR = 0, UNV = 1, WRK = 25

VPS = 1, VPR = 1, WRS = 0, WRP = 0

Graphical image тpexочного an ellipsoid of p extents in the space, executing a motion, defined by six degree of freedom of a rigid body. EL3DP

Degree of freedom:

- A). 1, 2, 3 - translational the center of masses of the skew field linked with an ellipsoid (point A).
7, 8, 9 - the rotational skew fields, linked by an ellipsoid.

Parameters:

- 1, 2, 3 - co-ordinates of the origin of point A
4, 5, 6 - co-ordinates of the origin of point B
7, 8, 9 - co-ordinates of the origin of point C
10,11,12 - co-ordinates of the origin of point D
13,14,15 - ellipsoid semiaxes, $R_1, R_2, R_3 (> 0)$.
16 - ellipsoid extent ($p > 1$)
17 - half of amount of stratus (amount of parallels to equally doubled value of this parameter, a minus 1)
18 - half of amount of meridians

Remarks:

The initial rule of an ellipsoid is set by co-ordinates of following four points in a rule: points A in the center of masses of a skew field, B - in the ellipsoid center, C - on the third axis (in a point which is distinct from the center), D - in a plane containing the third and first axes of an ellipsoid, but not on straight line B-C. The ellipsoid shape is defined by its extent, p, and semiaxes, R_1, R_2, R_3 .

In a case $p=2$, $R_1=R_2$ is admitted to set point D on straight line B-C (including, in the center);

In a case $p=2$, $R_1=R_2=R_3$ is admitted to set point B in the center.

The certificate of the GRAPHICAL IMAGE EL3DP

EXT = 7, PAR = 18, UNV = 0, WRK = 6

VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of contact electrode KN3FF. **KN3FFV**

Degree of freedom:

- 1, 2, 3 - translational skew fields T1.
- 7, 8, 9 - rotational skew fields T1.
- 10,11,12 - translational skew fields T2.
- 13,14,15 - rotational skew fields T2.

Parameters:

1 - Defines as how to draw. The low decimal digit refers to the image of the second contact surface, following - to the image of the first contact surface. Each of these digits can have following values:

- 0 - not to draw a contact surface;
- 1 - to draw only the basils converted by a normal to us;
- 2 - to draw only the basils converted by a normal from us;
- 3 - to draw all basils.

The certificate of the GRAPHICAL IMAGE KN3FFV

EXT = 26, PAR = 1, UNV = 0, WRK = 12

VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of contact electrode KN3EF. KN3EFV

Degree of freedom:

- 1, 2, 3 - translational skew fields T1.
- 7, 8, 9 - rotational skew fields T1.
- 10,11,12 - translational skew fields T2.
- 13,14,15 - rotational skew fields T2.

Parameters:

1 - Defines as how to draw. The low decimal digit refers to the image of the second contact surface, following - to the image of the first contact surface. Each of these digits can have following values:

- 0 - not to draw a contact surface;
- 1 - to draw only the basils converted by a normal to us;
- 2 - to draw only the basils converted by a normal from us;
- 3 - to draw all basils.

2 - half of amount of stratum of an ellipsoid (amount of parallels to equally doubled value of this parameter, a minus 1)

- 3 - half of amount of meridians of an ellipsoid

The certificate of the GRAPHICAL IMAGE KN3EFV

EXT = 26, PAR = 3, UNV = 0, WRK = 12
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The graphical image of not deformable cylinder, which foundation of the confidant is represented a regular polygon. CIL3DC

The space rule of an axis of the cylinder is defined by co-ordinates of the extremities of a figured element (the element Z-axis coincides with a cylinder axis).

Link with elements:

The image can be not linked with any installation and then the cylinder is motionless.

The image can be linked with moving elements:

MJ3D;

балочным an element having prefix BAL3D.

The image contacts the first point of an element;

The arbitrary space element having 6 and more degree of freedom of type of the rod or elements of link SV3... The First six degree of freedom of an element should present a translational motion of its extremities. The image is linked with the first point.

Parameters:

For an unambiguous definition of appearance of the cylinder the given program of implementation of an image uses following variables and parameters:

- 1) a current rule of the first point of an axis of the cylinder (X_a, Y_a, Z_a);
- 2) a current rule of the second point of an axis of the cylinder (X_b, Y_b, Z_b);
- 3) a current rule of the auxiliary point defining orientation of a cross-section of the cylinder (X_c, Y_c, Z_c);
- 4) amount of angles in a polygon to which the cylinder foundation ($n > 1$, by default $n=6$) approximately is represented;
- 5) a bore ($d \geq 0$);
- 6) length of the cylinder ($L > 0$);
- 7) co-ordinate of the "lower" foundation of the cylinder concerning a point from which the image is linked. It is defined on an axis of an image (Dl).

Order of enumeration of obligatory and unessential parameters for various cases of application of an image (in brackets - a parameter value by default):

I. The Image is linked with a motionless foundation.

Obligatory parameters:

$X_a, Y_a, Z_a, X_b, Y_b, Z_b, n, d, L$

Unessential parameters:

Dl (0)

II. The Image is linked with MJ3D and arbitrary elements of type SV3....

Element co-ordinates are used.

Obligatory parameters:

n, d, L

Unessential parameters:

DI (0)

III. The Image is linked with BAL3D. Co-ordinates and parameters Are used
Element.

Obligatory parameters:

-

Unessential parameters:

n (6), d ($\sqrt{4 \cdot S_{\text{балки}}/3.14 \dots}$), l (L_{балки}), DI (0)

IV. The Image is linked with STERG. Element co-ordinates are used.

Obligatory parameters:

-

Unessential parameters:

n (6), d ($\sqrt{4 \cdot S_{\text{стерж}}/3.14 \dots}$), l (L_{стерж}), DI (0)

V. The Image is linked with KNCLT. Element co-ordinates are used.

Obligatory parameters:

-

Unessential parameters:

n (6), d (D_{knclt}), l (L_{knclt}), DI (DL_{knclt})

VI. The Image is linked with an arbitrary space element of type SV3...

Obligatory parameters:

n, d, l

Unessential parameters:

DI

The certificate of the GRAPHICAL IMAGE CIL3DC

EXT = 0, PAR = 0, UNV = 1, WRK = 24

VPS = 1, VPR = 1, WRS = 0, WRP = 0

Graphical image of the space spring. PRUG

Degree of freedom:

- 1 - translational points A in a direction of axis OX;
- 2 - translational points A in a direction of axis OY;
- 3 - translational points A in a direction of axis OZ;
- 4 - translational points B in a direction of axis OX;
- 5 - translational points B in a direction of axis OY;
- 6 - translational points B in a direction of axis OZ.

Parameters:

- 1 - diameter of a spring;
- 2 - amount of operating coils.

The certificate of the GRAPHICAL IMAGE PRUG

EXT = 6, PAR = 2, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of the shock reducer. AMORT

Degree of freedom:

- 1 - translational points A in a direction of axis OX;
- 2 - translational points A in a direction of axis OY;
- 3 - translational points A in a direction of axis OZ;
- 4 - translational points B in a direction of axis OX;
- 5 - translational points B in a direction of axis OY;
- 6 - translational points B in a direction of axis OZ.

Parameters:

- 1 - diameter of the shock reducer;
- 2 - a compression stroke ratio to initial length of the shock reducer;
- 3 - a ratio of a course of extension to initial length of the shock reducer.

The certificate of the GRAPHICAL IMAGE AMORT

EXT = 6, PAR = 3, UNV = 0, WRK = 1
VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of an arrow, moving in a plane. **ARROW**

Degree of freedom:

- 1 - translational in a direction of axis OX of a foundation of an arrow;
- 2 - translational in a direction of axis OY of a foundation of an arrow;
- 3 - rotational (does not influence the image).

Parameters:

- 1 - an initial abscissa of a foundation of an arrow;
- 2 - initial ordinate of a foundation of an arrow;
- 3 - length of an arrow;
- 4 - an angle between a direction of an arrow and axis OX
($-0.25 \text{ PI} < \text{ALFA} < 1.75 \text{ PI}$, step-type behaviour 0.5 PI)

The certificate of the GRAPHICAL IMAGE ARROW

EXT = 3, PAR = 4, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The right-angled flat framework with a possibility to restrict the image to framework sizes. BORDER

Parameters:

- 1 - an abscissa of the left overhead angle of a framework;
- 2 - ordinate of the left overhead angle of a framework;
- 3 - an abscissa of the right lower angle of a framework;
- 4 - ordinate of the right lower angle of a framework;
- 5 - an indication of cutting off of the image
(= 0 - any acts on cutting off of the image,
> 0.5 - to restrict the image to sizes of a framework,
<-0.5 - to remove the limitation of the image injected earlier).

The certificate of the GRAPHICAL IMAGE BORDER

EXT = 0, PAR = 5, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The head loop of not deformable plane figure figured by sequence of cuts, connecting the set points. KONTUR

Degree of freedom:

The image can be not linked with any installation and then the head loop is motionless.

The image can be linked with the moving element having:

3 degree of freedom of flat driving of a point (type of elements MD, MJ2E):

- 1,2 - translational on wasps of m X, Y,
- 3 - rotational;

4 degree of freedom of flat driving of 2 points (type of elements STRGN, SV2K):

- 1,2 - translational on wasps of m X, Y a first point,
- 3,4 - translational on wasps of m X, Y the second point;

6 degree of freedom of flat driving of 2 points (type of element BALKKA):

- 1,2 - translational on wasps of m X, Y a first point,
- 3 - rotational a first point,
- 4,5 - translational on wasps of m X, Y a second point,
- 6 - rotational the second point;

Parameters:

1... 2*N - co-ordinates of the origin of points of a head loop:

2*j-1 - j-й points on a X-axis;

2*j - j-й points on a Y-axis

(j=1... N, where N - amount of points).

Remarks.

1. Two points of a head loop should be set at least.

2. If the image is linked with a moving element head loop migration is defined by migration of some pole taking into account following rules:

- If the element has 3 degree of freedom first two are considered as a translational degree of freedom of a pole, and third - rotational; for pole co-ordinates of the origin two first parameters from an element argument list are accepted. Exclusion makes element MD, at link with which for pole co-ordinates of the origin two first parameters from an argument list of an image are accepted.

- If the element has 4 degree of freedom it is supposed that is a translational degree of freedom of two flat points; the pole translational motion in this case is defined by a degree of freedom of the first point, pole twirl - turn of the line connecting the first and second points of an element; for pole co-ordinates of the origin two first parameters from an element argument list are accepted.

- If the element has 6 degree of freedom of flat driving first two are considered as a translational degree of freedom of a pole, and third - rotational; for pole co-ordinates of the origin two first parameters from an element argument list are accepted.

The certificate of the GRAPHICAL IMAGE KONTUR

EXT = 0, PAR = 4, UNV = 1, WRK = 0
VPS = 1, VPR = 21, WRS = 0, WRP = 0

Graphical image of a leg. OPORA

Degree of freedom:

- 1 - translational in a direction of axis OX of the center of a leg.
- 2 - translational in a direction of axis OY of the center of a leg.
- 3 - translational in a direction of axis OZ of the center of a leg.

Parameters:

- 1 - an initial abscissa of the center of a leg.
- 2 - initial ordinate of the center of a leg.
- 3 - initial z-axis of the center of a leg.
- 4 - a characteristic size.
- 5 - an angle between an axis of a leg and axis OX
($-0.25 \text{ PI} < \text{ALFA} < 1.75 \text{ PI}$, step-type behaviour 0.5 PI)

The certificate of the GRAPHICAL IMAGE OPORA

EXT = 3, PAR = 5, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of an immovable support with the joint. OPORAD

Parameters:

- 1 - an abscissa of the center of a leg.
- 2 - ordinate of the center of a leg.
- 3 - z-axis of the center of a leg.
- 4 - a characteristic size ($R > 0$).
- 5 - an angle between an axis of a leg and axis OX
($-0.25 \text{ PI} < \text{ALFA} < 1.75 \text{ PI}$, step-type behaviour 0.5 PI).
- 6 - diameter of the joint ($D > 0$).

The certificate of the GRAPHICAL IMAGE OPORAD

EXT = 0, PAR = 6, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of a silhouette of the flat not strained figure linked with a moving cut. **SILUET**

Degree of freedom:

- 1 - translational in a direction of axis OX of point A of a cut.
- 2 - translational in a direction of axis OY of point A of a cut.
- 3 - rotational in point A of a cut.
- 4 - translational in a direction of axis OX of point B of a cut.
- 5 - translational in a direction of axis OY of point B of a cut.
- 6 - rotational in point B of a cut.

Parameters:

The graphical image is presented by 10 steams of co-ordinates of points. Co-ordinates of points are set in relative unit in the axes linked with a cut. The origin of co-ordinates matches to the first point of a cut. Axis OX is directed lengthways to its axis.

Note

The image is linked with a working vector flat балочного an element.

The certificate of the GRAPHICAL IMAGE SILUET

EXT = 6, PAR = 20, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

Graphical image of an axial section of a compression spring. PRUZS

Degree of freedom:

- 1 - translational in a direction of axis OX of the first extremity;
- 2 - translational in a direction of axis OY of the first extremity;
- 3 - translational in a direction of axis OZ of the first extremity;
- 4 - translational in a direction of axis OX of the second extremity;
- 5 - translational in a direction of axis OY of the second extremity;
- 6 - translational in a direction of axis OZ of the second extremity.

Parameters:

- 1 - an initial abscissa of the first extremity;
- 2 - initial ordinate of the first extremity;
- 3 - an initial abscissa of the second extremity;
- 4 - initial ordinate of the second extremity;
- 5 - exterior diameter of a spring;
- 6 - diameter of a bar of a material of a spring;
- 7 - amount of convolutions.

The certificate of the GRAPHICAL IMAGE PRUZS

EXT = 6, PAR = 7, UNV = 0, WRK = 0

VPS = 0, VPR = 0, WRS = 0, WRP = 0

The help information on the GRAPHICAL IMAGE AERHT is absent.

The certificate of the GRAPHICAL IMAGE AERHT

EXT = 6, PAR = 0, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The help information on the GRAPHICAL IMAGE GNIRS is absent.

The certificate of the GRAPHICAL IMAGE GNIRS

EXT = 9, PAR = 0, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The help information on the GRAPHICAL IMAGE TRTER is absent.

The certificate of the GRAPHICAL IMAGE TRTER

EXT = 6, PAR = 0, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The help information on the GRAPHICAL IMAGE GSV is absent.

The certificate of the GRAPHICAL IMAGE GSV

EXT = 14, PAR = 1, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The help information on the GRAPHICAL IMAGE GROT2 is absent.

The certificate of the GRAPHICAL IMAGE GROT2

EXT = 14, PAR = 1, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The help information on the GRAPHICAL IMAGE GROT3 is absent.

The certificate of the GRAPHICAL IMAGE GROT3

EXT = 14, PAR = 1, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The help information on the GRAPHICAL IMAGE GCYL is absent.

The certificate of the GRAPHICAL IMAGE GCYL

EXT = 14, PAR = 1, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The help information on the GRAPHICAL IMAGE GRETS is absent.

The certificate of the GRAPHICAL IMAGE GRETS

EXT = 6, PAR = 0, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The help information on the GRAPHICAL IMAGE D3LAB is absent.

The certificate of the GRAPHICAL IMAGE D3LAB

EXT = 14, PAR = 0, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0

The help information on the GRAPHICAL IMAGE AKLAB is absent.

The certificate of the GRAPHICAL IMAGE AKLAB

EXT = 6, PAR = 0, UNV = 0, WRK = 0
VPS = 0, VPR = 0, WRS = 0, WRP = 0