

# TR 1

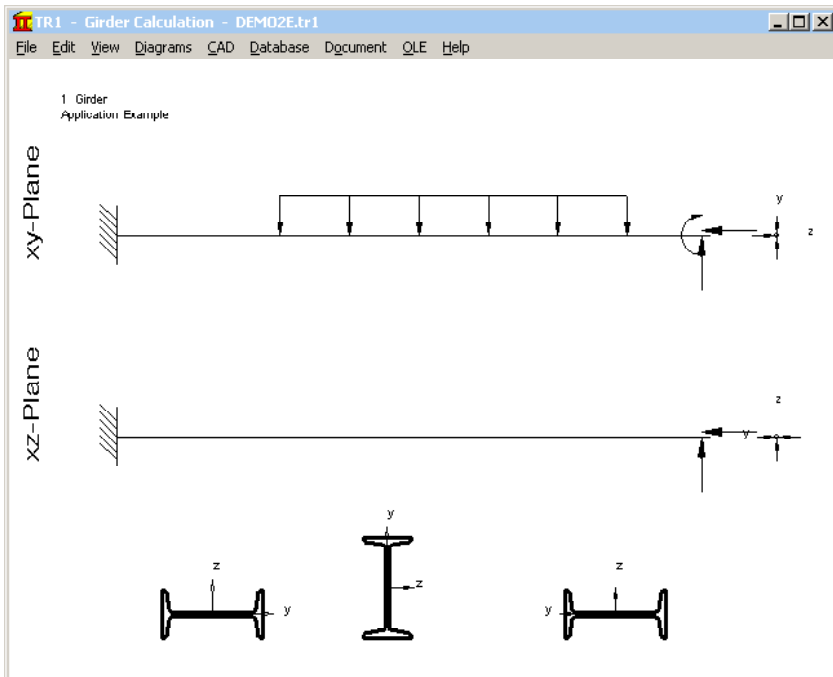


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## Software for Girder Calculation

for Windows

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### Girder Calculation with TR1

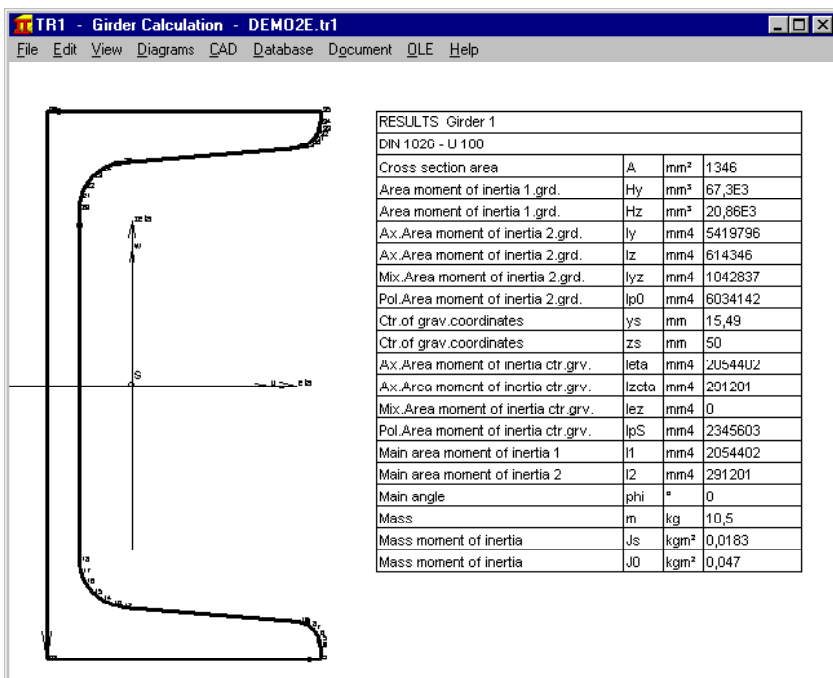
For any cross-section, TR1 calculates bending stress and tension stress, deflection, bending angle and natural frequency of girders with fixed clamping, or bedded on two, three, four or five bearings.

### Cross-section

The girder cross-section can be taken from the data base, loaded from a DXF file, or defined by entering coordinates. TR1 calculates surface moment of inertia, axis of gravity and main axis of the profile cross-section.

### Profile data base

Data base files are included for girders in accordance with DIN 1024, double-T in accordance with DIN 1025, L-girders in accordance with DIN 1029, double-L girders in accordance with DIN 1027, L-irons in accordance with DIN 1028, U-irons in accordance with DIN 1026 and flat steel in accordance with DIN 1017. Click on the required profile and TR1 generates the geometry and calculates the surface moment of inertia, center of gravity, position of the zero axis and weight of the girder.



### Bedding

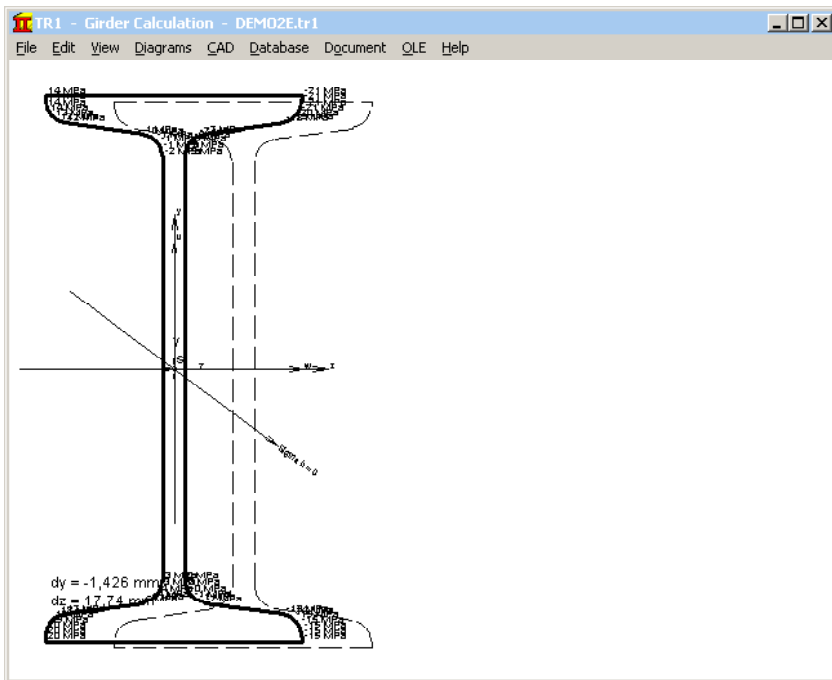
TR1 calculates girders with statically determined bearing system with fixed/loose bearings or fixed clamping. In addition, statically indetermined systems with three, four or five bearing positions can also be calculated.

### Load

Up to 50 radial forces, path loads, bending moments, and axial forces can be defined as load along the x axis, for any angle in the yz coordinate system.

### Material data base

The most important steels are included in the data base delivered with the program. You can access other steels and non-iron metals by accessing the WST1 material data base.



### Oblique Bending

The deflection with oblique bending occurs perpendicular to the zero line. TR1 calculates deflection and the maximum stresses along the x axis of the girder.

### Stress distribution in the cross-section

TR1 draws the girder profile with the amount of stress for every point. The profile displacement is also drawn (in dashed lines).

### Diagrams

TR1 calculates the curves of radial load, bending moment, bending angle, bending line, bending stress and reference stress along the x-axis of girder.

### Buckling safety

If axial pressure caused by axial load, TR1 calculates buckling safety of the girder.

### Drawing

A true-scale drawing of the girder cross-section (2D) or a 3D drawing of the girder can be printed or exported to CAD.

### Text Printout

The printout contains all the input data, the extreme values for bending moment, bending line, bending stress, shearing stress and reference stress, weight, surface moment of inertia, mass moment of inertia, center of gravity, inherent forces, bending angle of the bearing area positions and material values.

### Graphic Printout

Drawings and diagrams can be printed on any Windows printer.

### CAD Interface

Drawings and diagrams can be generated as DXF or IGES files and loaded into CAD.

### HEXAGON Help System

Auxiliary text and images are available for all dialogue windows. If error messages occur, you can get description and remedy suggestion.

### System Requirements

TR1 is available as 32-bit app or as 64-bit app for Windows XP, Vista, Windows 7, 8, 10.

### Scope of Delivery

TR1 program with database files, example applications and help images, user manual (pdf), non-expiring license for unlimited time use with update rights.

### Software Maintenance

HEXAGON Software is continuously improved and updated. Registered users are regularly kept informed of updates and new editions.

### Guarantee

HEXAGON gives a 24 month guarantee on full functionality of the software.

