Software

Spline Standards and Spline Calculation

[Software interface diagram with input fields for various spline parameters and calculated values]
Working is much easier by using good software. Frenco supplies 2 software packages:

### 1. Software

**Spline Standards**

The software „Spline standards“ creates all data of involute splines strictly to standards or similar to standards:

<table>
<thead>
<tr>
<th>Country</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>DIN 5480</td>
</tr>
<tr>
<td>USA</td>
<td>ANSI B92.1 ans</td>
</tr>
<tr>
<td></td>
<td>ANSI B 92.2</td>
</tr>
<tr>
<td>International</td>
<td>ISO 4156</td>
</tr>
</tbody>
</table>

More informations and a demonstration version for numbers of teeth being a prime number are found in our internet informations [www.frenco.de](http://frenco.de) or [www.frenco.com](http://frenco.com). Please follow this direction starting in the homepage:

→ Products  
→ Know How Transfer  
→ PC-Software

**Main menu:**

![Spline Standards - Spline1](image)

![Spline1.2](image)
Input of standard data:

- Kind of spline: External
- Number of teeth: 17
- Module: 1.500000
- Pressure angle: 30
- Helix angle: 45
- Spline length: 45.0000

Pure standard:
- Tolerance:
- Reference diameter: 28

Calculated spline data of part:

- Kind of spline: External spline
- Number of teeth: 17
- Module: 1.500000
- Diametrical Pitch: 16.933333
- Pressure angle: 30.0000
- Pitch circle diameter: 26.6000
- Base circle: 22.0856
- Helix angle: 0.0000
- Helix direction: straight
- Spline length: 45.0000
- Standard: DIN 5480
- Reference diameter: 28
- Tolerance class: 9
- Tolerance location: h
- Fit: side fit
- Roof form: flat roof

Tip diameter DEE: 27.7000, Tolerance DEE: -0.1300
Form diameter DFE: 24.9400
Root diameter DIE: 24.7000, Tolerance DIE: -0.6900

Max effective SV: 2.8458, Max actual MAX: 2.6239, Min actual MIN: 2.7839
Pin diameter DREF: 3.2500
theor MRE EFF: 31.4982
MRE MAX: 31.4868
MRE MIN: 31.4115
Tolerance MRE: 0.0550
Tolerance stand:

Total involute var.: 21.0
Lead variation: 13.0
Runout: 20.0
Total index variation: 40.0
Single index: 17.0
The Software „Spline Calculation“ calculates sizes needed for inspection of serration and involute gears and splines spur and helical. A calculation of different weights of cylinders is included for certain purposes. As the data of gears and splines are always given in different ways, this software is able to transfer them into each other and a lot of other calculations.

Detailed informations and a demonstration version for prime numbers of teeth is available in our internet information www.frenc.de or www.frenc.com. Please follow this direction from our homepage:

→ Products
→ Know How Transfer
→ PC-Software

Main menu:
Serration splines:

Spur gears and involute splines:
Calculation of radii at major and minor diameter:

<table>
<thead>
<tr>
<th>Tooth</th>
<th>45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module</td>
<td>2,00000</td>
</tr>
<tr>
<td>Pressure angle</td>
<td>20,0000</td>
</tr>
<tr>
<td>T. thickness</td>
<td>3,1470</td>
</tr>
<tr>
<td>Form diameter</td>
<td>85,2000</td>
</tr>
<tr>
<td>Root radius</td>
<td>0,8836</td>
</tr>
<tr>
<td>Root diameter</td>
<td>83,6643</td>
</tr>
</tbody>
</table>

Helical gears and involute splines:

<table>
<thead>
<tr>
<th>Teeth</th>
<th>88</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module</td>
<td>1,86000</td>
</tr>
<tr>
<td>Pressure angle</td>
<td>15,0000</td>
</tr>
<tr>
<td>Helix angle</td>
<td>24.4870</td>
</tr>
<tr>
<td>Space width</td>
<td>2.9460</td>
</tr>
<tr>
<td>Pin or ball diameter</td>
<td>3.0000</td>
</tr>
<tr>
<td>Pitch circle diameter</td>
<td>68.53429</td>
</tr>
<tr>
<td>Base circle diameter</td>
<td>85.74384</td>
</tr>
<tr>
<td>Dimension between circle (pin or ball)</td>
<td>64.82146</td>
</tr>
</tbody>
</table>
**FRENCO**

**Product Lines**

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**Gear and spline high precision**
- Spline gages
- Master gears, master wheels
- Artefacts, masters
- Profiled tools
- Clamping systems
- Gear and spline manufacturing

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**Instruments for size inspection series V**
- Ball inserts and pins VRK
- Instruments for rocking VA
- Instruments with face stop VP
- Indicating Gages VM
- Variable 3-disc gages VD
- Customized solutions VS

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**Rotation measuring systems**
- URM - K with balls and pins
- URM - R with master wheels
- EWP Single flank gear rolling
- WS Gear rollscan
- ZWP Double flank gear rolling

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**Gear and spline inspection**
- DKD gear calibration
- Gage wear inspection
- Part inspections
- Deviation analysis

**Know-how transfer**
- Software for gear and spline calculating
- Training, seminars and workshops
- Consulting and calculations
- Literature and documents
- National and international standards

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**gear + spline technology**

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