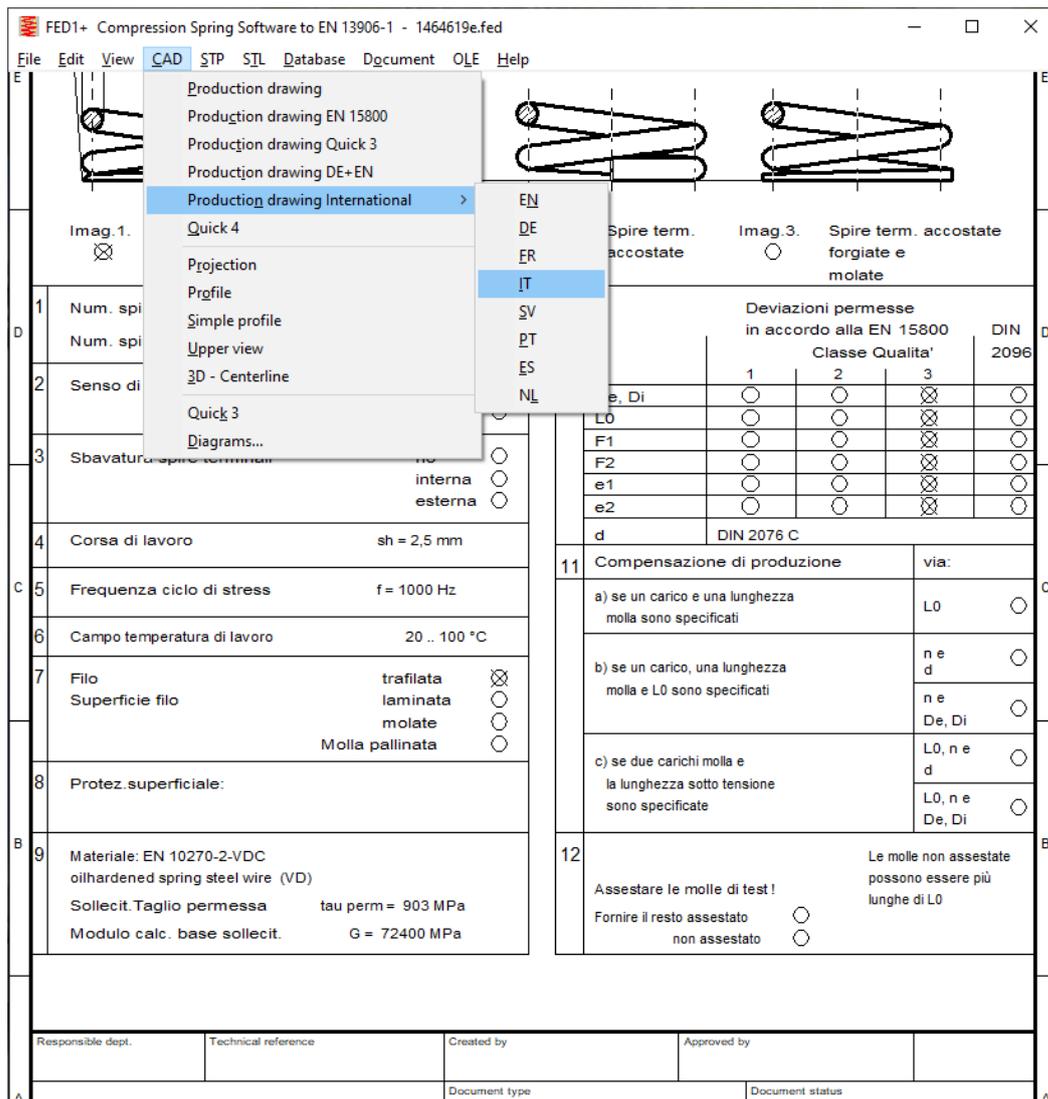


by Fritz Ruoss

**FED1 +, FED2 +, FED5, FED6, FED7: International production drawing as a CAD file**

Under “View \ International Production Drawing” you can view and print the production drawing in German, English, French, Italian, Spanish, Portuguese, Swedish and Dutch since 2018. These functions are now also available in the CAD menu so that international drawings can also be created as DXF or IGES files and transferred to CAD.



**ZAR1 +, ZAR5, ZAR7, ZAR8: Hoop stress control**

If the rim thickness of the ring gear is too small for the internal toothing, there is a new error message “hoop stress> Sig.FE!”. In this case you have to enlarge the outer ring diameter under “Edit \ Dimensions”. The outer ring diameter of a ring gear corresponds to the bore diameter on a gear wheel (externally toothed).

## WN12 – tooth height “hi” in the calculation graphic corrected

View \ Calculation: The correct value is now displayed for the inner tooth height “hi”. Wrong value was only in the graphic with the calculation formulas, however, “hi” was always correctly displayed in the printout, production drawing and quick views.

WN12 - Hirth face spline - decker.w12
— □ ×

File Edit View CAD STL Database Document OLE Help

No. of teeth	z		12
Gap angle	gamma	°	60,00
major diameter	De	mm	30,00
minor diameter	Di	mm	22,00
Height until teeth center	hzm	mm	5,80

torque	Tmax	Nm	80
axial preload	Fva	N	6150
material: S275JRC (St 44-2) 1.0044			
yield strength	Re	MPa	275
load bearing coeff.	klamb.		0,75

Symbol	Formula	Result	Unit
beta	$\beta = \gamma / 2$	30	°
He	$H_e = \pi / 2 \cdot \tan(\beta) \cdot D_e / z$	6,802	mm
Hi	$H_i = \pi / 2 \cdot \tan(\beta) \cdot D_i / z$	4,988	mm
Hm	$H_m = (H_e + H_i) / 2$	5,895	mm
alpha	$\alpha = \arctan(\pi \cdot \tan(\beta) / z) / 2$	12,20	°
lr	$l_r = r / \sin(\beta)$	1,2	mm
lrs	$l_{rs} = r \cdot (1 / \sin(\beta) - 1) + S$	1,2	mm
hpe	$h_{pe} = H_e - 2 \cdot l_{rs}$	4,402	mm
hpi	$h_{pi} = H_i - 2 \cdot l_{rs}$	2,588	mm
he	$h_e = H_e - l_{rs} - l_r + r$	5,002	mm
hi	$h_i = H_i - l_{rs} - l_r + r$	3,188	mm
la	$l_a = H_m - 2 \cdot l_{rs} / \cos(\beta)$	4,036	mm
bk	$b_k = \tan(\beta) \cdot 2 \cdot l_{rs}$	1,386	mm
hz	$h_z = 2 \cdot h_{zm}$	11,60	mm
hg	$h_g = h_{zm} - l_{rs} + h_a / 2$	11,60	mm
Fu	$F_u = 4 \cdot T_{max} / (D_e + D_i)$	6154	N
Fa	$F_a = F_u \cdot \tan(\beta)$	3553	N
Az	$A_z = l_a \cdot (D_e - D_i) / 2 \cdot z$	193,7	mm <sup>2</sup>
pmax	$p_{max} = (F_{va} + F_a) / A_z / k_{lambda}$	66,79	MPa
plim	$p_{lim} = R_e \cdot f_h \cdot f_s$	330	MPa
Sp	$S_p = p_{lim} / p_{max}$	4,941	

## SR1, ZAR1W: Generate DXF files in command line mode

HEXAGON software can be used in command line mode for integration into other programs.

Example: With

```
WSR1 TEST.SR1 / CAD1: 7
```

graphic no. 7 of bolted joint TEST.SR1 should be output as a DXF file. In some newer versions of SR1 and SR1+ this no longer worked, the bug has been fixed in the meantime.

The function has been available for a long time in all programs, and a selection of 5 to 30 drawings and diagrams was exportable. You had to look up in the manual or try out to find out which ones they were.

In the meantime, for programs with quick input, the drawings, diagrams, quick views shown under “Display” have been adopted in the same order in the command line mode. In order to no longer have to count the CAD number, the graphics are now numbered consecutively, and there is a description of the command line options in the help menu.

## FED1 +, 2 +, 3 +, 10.17, TR1, WL1 +, SR1 +, ZAR1 +, 2.6, WN1: Help \ Command Line Mode

In the help menu there is a description of the options of the command line mode with a list of available drawings, diagrams, graphics. Example FED1+:

```
-----  
FED1+ Command Line Mode  
-----
```

```
wfed1 filename [/I] [/CADi:j] [/E] [/NOGUI]  
-----
```

```
/I      -> TXT file (Printout)
```

```
/CADi:j -> CAD File  
        i: 1=DXF, 2=IGS, 5=TXT, 6=STL  
        j: index (1,2,3, .. ,37)
```

```
/NOGUI  -> No GUI, exit on fatal error
```

```
/E      -> EDI file, see user manual for details
```

```
/?      -> Help
```

```
-----  
Example: wfed1 test.fed      -> GUI  
Example: wfed1 test.fed /I   -> test.txt  
Example: wfed1 test.fed /CAD1:1 -> test.dxf  
Example: wfed1 test.edi /E /NOGUI-> test.edi  
-----
```

```
CAD Index:  
-----
```

```
01: Quick 1  
02: Quick 2  
03: Quick 3  
04: Quick 4  
05: Production drawing  
06: Production drawing EN 15800  
07: Production drawing Quick 3  
08: Diagram (12)  
09: Char.curve F-s  
10: Char.curve F-s tol  
11: Char.curve F-L  
12: Goodman  
13: Haigh-Goodman  
14: S-N  
15: Smith Diagram  
16: JIS-Goodman  
17: Buckling diagram  
18: Relaxation Rx % = f(tau, T, d)  
19: Relaxation Rx % = f(tau/tauz, T, d)  
20: Relaxation Rx % = f(tau, T)  
21: Relaxation Rx % = f(T, tau)  
22: Relaxation Rx % rel = f(T)  
23: Relaxation Rx F2 = f(T)  
24: spring energy  
25: Drawing View  
26: Drawing Profile  
27: Drawing 3D  
28: temperature diagram G-T  
29: temperature diagram F1-T  
30: temperature diagram F2-T  
31: stress tau-s  
32: stress coefficient k  
33: stress tau-d (lin.)  
34: stress tau-d (log.)  
35: stress Rm Quick  
36: Production drawing DE+EN  
37: Resonance curve  
-----
```

### **Home office - network version**

If you can access the company's server via telephone line or the Internet, you can also work with HEXAGON software at home. If the software is running slowly and unusually slowly, you only have to optimize under "File \ Settings \ Directories":

1. Temporary folder must be on your home computer (c: \ temp)
2. Check "Copy DBF-> Temp"
3. Save settings

Then it only takes a while until the program is loaded into memory. After that there is no network access and therefore no more waiting times, everything is in the memory and in the Temp folder on the home computer.

### **Home Office - single user license**

We recommend installing the software on an external hard drive instead of the local hard drive.

Then you can take the hard drive home and continue working in the home office. To operate on another computer, you only have to start the exe file on the external hard drive (e.g. wfd1.exe).

Then check the settings under "File \ Settings \ Directories". Ideally, all configured directories are on the external hard drive. If the external hard drive is slow, only configure the temporary directory on the faster primary hard drive or memory disk.

You can copy the cfg file with the settings for the home computer to "c:\hexagon\".

### **Coronavirus statistics**

According to statistics, every 7th person infected with Coronavirus (157135/21373) dies in France, while only every 28th in neighboring Germany (150648/5315, figures from April 23, 2020). Where do these gross deviations come from? Important numbers are missing in the statistics: How many corona tests were carried out in total or how many were negative? Every statistic can be influenced according to your wishes. If more tests are carried out, more newly infected people will be found.

And if you want to announce the containment of the pandemic, you just stop doing tests. Similar to the number of deaths, for example Italy: Because there were more than 800 deaths in a single day, the Italian government orders the closure of all companies. 800 deaths in a day, how is the number to be evaluated? 60 million people live in Italy, and normally 630,000 die a year, or 1726 a day. Important statistics are missing for statistics: How many people died in total each day? Or how many people died without being infected with coronavirus?

Recovered: In the number of people recovering from the viral disease, more recovered than sick people are reported from Germany, otherwise more sick people than recovered everywhere, and Great Britain reports 0 recovered people. It's all a question of defining who is considered healthy again.

Infection rate: In Hubei, the infection rate was 67,800 infected / 58 million inhabitants = 0.12%. In Germany it was 0.2% on April 23, 2020, in Italy 0.3%, and in New York City even 1.7%.

### **Coronavirus statistics - comparison federal states in Germany**

The fact that each federal state in Germany can determine its own corona measures also has an advantage: one can compare their effectiveness. Bavaria was a pioneer with the introduction of restrictions to curb the coronavirus pandemic: the measures came earlier and were stricter than in other federal states, so there was a curfew in Bavaria. Surprisingly, however, the Bavarian coronavirus comparative figures worsened compared to other federal states: On March 21, 2020, there were the most coronavirus infections and corona deaths in North Rhine-Westphalia, followed by Baden-Württemberg and Bavaria. A month later, Bavaria is the state with the most corona infected and most corona deaths in all of Germany. Were the restrictions counterproductive? Perhaps Bavaria's prime minister does not know the old saying "Dahoam sterben d'Leut". Anyone who does not leave the house in spring is sick or gets sick.

## **Coronavirus - air traffic between mouthguard and spit bag**

The distressed German aviation industry can think of nothing better than to demand state aid and to oblige passengers to wear protective masks. Instead, innovative solutions are needed, here are a few suggestions:

**Security check at the airport:** The body scanners at airports should be converted so that they also scan the body temperature.

### **On the plane:**

Ventilation: Change the ventilation in the aircraft to 100% outside air. No recirculation mode.

Window or aisle: the center seat should remain free

Increase the distance to the front seat, block the recliner function, mount the spit protection on the seat backrests.

**Bus transfer at the airport:** An absolute annoyance is when you can't get in via the terminal, but are taken to the plane by the airport bus. All passengers are crammed into 1 or 2 buses. Then you have to wait until the last straggler arrives late. Usually seats are removed so that more people can fit in. A real virus thrower.

Remedy: Use more buses, departure when all seats are occupied.

Even better: Fully automatic electric taxis: get in, press the start button, taxi drives to the plane.

That would be a great service, you could also offer it as an extra with a surcharge.

Boarding pass control and boarding like waiting numbers at the office: The seat numbers are shown on a large display, the passenger with the first number passes and remains in this queue at the boarding point. For optimal safety distance, the rear seats come first and the front seats last, and vice versa when exiting.

The risk of infection when flying would be much lower than in the underground and S-Bahn, where people get on and off all the time.

## **Corona app**

Pretty blue-eyed by German politicians to believe that a majority of the population voluntarily installs an app that monitors every step, since in Germany there is not even a majority for surveillance cameras in public places. An app that allows officials to evaluate when I was where.

And lock myself in quarantine if I walked or drove too close to a corona infected person.

They should rather develop an app to determine where their Corona emergency aid distributed according to the watering can principle went to.

## **Corona crisis - consequences**

Online trade will continue to grow as a result of the corona crisis. Because of the closure of shops, many consumers were forced to order goods online for the first time. Some will stick with it after the crisis. Ordering food online is no longer taboo; During the corona crisis, the few suppliers were unable to deliver due to the large number of orders.

Anyone who was on the move in the city center despite the Corona virus could take a deep breath: the air had become noticeably better due to the declining traffic.

## **Corona billions**

There is talk of 500 billion and more when money is needed for coronavirus episodes. Because this money will probably get the wrong people this time, it might be easier and fairer to first pay out 1000 euros to every resident. For a family of five, that would be 5000 euros. That only costs 80 billion euros in Germany. And only 60 billion euros in Italy and France.

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#### HEXAGON Industriesoftware GmbH

Stiegelstrasse 8 D-73230 Kirchheim Tel. +49 7021 59578, Fax +49 7021 59986  
 Kieler Strasse 1A D-10115 Berlin Mühlstr. 13 D-73272 Neidlingen  
 Mobile: +49 163 7342509 E-Mail: info@hexagon.de Web: www.hexagon.de