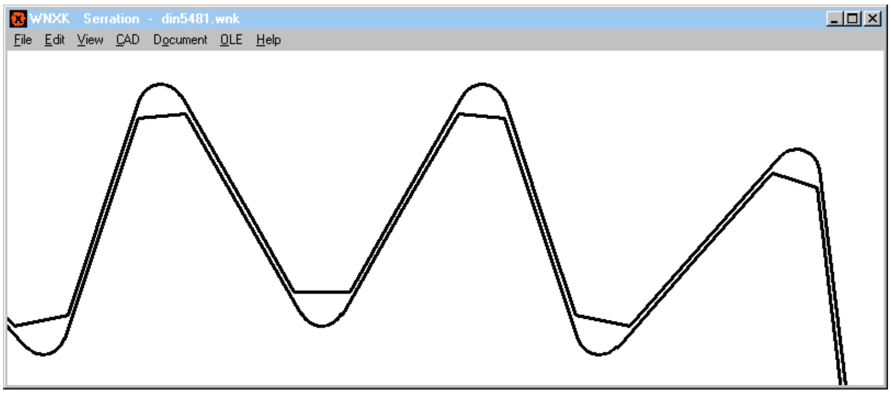
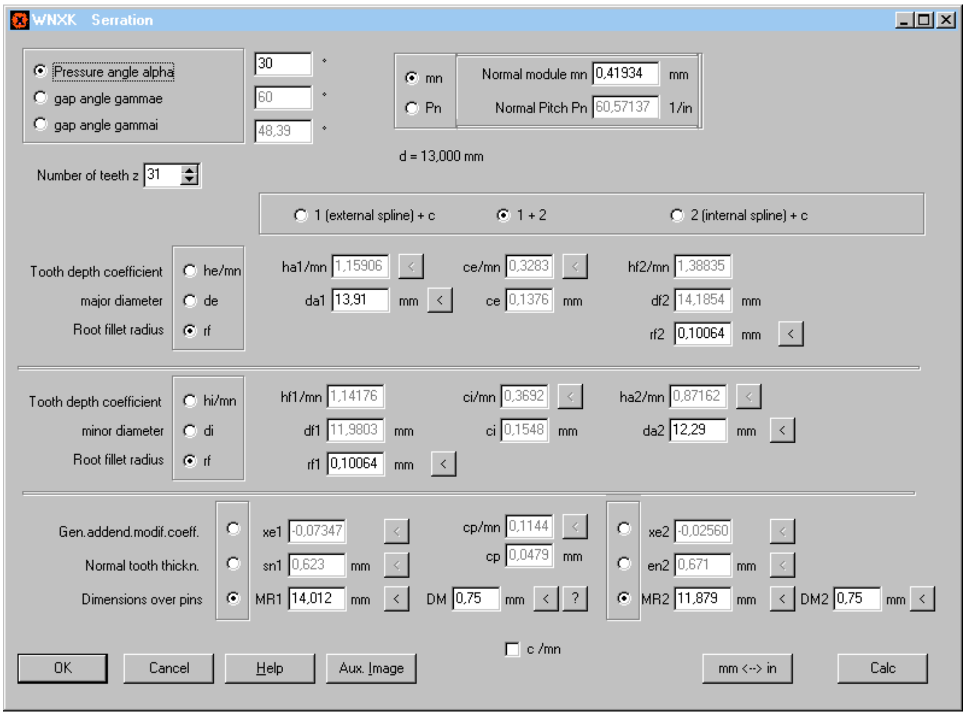
by Fritz Ruoss

WNXK – New Software for Serration Spline Design



WNXK is similar than our WNXE software, with the difference that WNXE calculates involute splines and WNXK calculates serration splines. WNXK uses equivalent designations as for involute splines: module, tooth height coefficients, profile shift. This eases the design of self-defined serrations.

You can either input dimensions of external serration and internal serration or dimensions of external serration together with clearance and backlash, or dimensions of internal serration together with clearance and backlash.



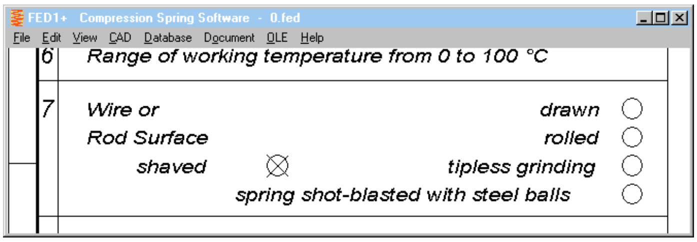
True-scale drawings of the serration profiles can be generated as DXF or IGES file. WNXK and WNXE are useful for generating any tooth profile via wire eroding or 3D printer, and for manufacturers of broaches and gauges.

FED1+,2+,3+,5,6,7: Surface drawn/rolled/ground/shaved

Surface of cold-formed spring wire is is drawn, and surface of hot-formed springs is rolled. Surface of hot-formed springs can also be tipless ground or shaved. Nowadays, also cold-formed wire with shaved surface is available. Input of surface is just for information and has no influence on calculation results. Fatigue strength of shaved or ground wire is higher than for raw wire, but it is at yours to select another material from database with shaved surface. Oteva 70 SC (VD-SiCr) is available shaved and raw.

If you select drawn surface for hot-rolled wire or rolled or ground surface for cold-formed springs, FED software corrects your input.

Shaved surface was not listed on printouts and drawings until now. This has been changed, shaved surface is listed and marked in the production drawings, if marked.



FED1+: Pitch m and swelling delta De of coil diameter under load

Because of queries about this theme in the last info letter, it has to be clarified: Nothing has changed in FED1+. EN 13906 was modified.

In FED1+ there are 2 calculations of coil diameter Dec: "Dec" according to EN standard, and "De" in the Quick3 and Quick4 tables, calculated by our proprietary formulas. According to this formulas, swelled diameter is calculated from wire length: D = L/(pi*nt), under consideration of lined-up end coils. These calculation allows calculation of swelled coil diameter not only for block length, but also for any spring length.

FED1+ Compression Spring Software - 0.fed
File Edit View CAD Database Document OLE Help

L [mm]	F [N]	tau [MPa]	s [mm]	tau/tauz	tau/Rm	De	aW
L0: 120,00						36,00	15,54
L1: 108,00	F1: 192,2	tauk1: 287	s1: 12,00	0,24	0,14	36,14	13,14
L2: 94,00	F2: 416,4	tauk2: 621	s2: 26,00	0,53	0,30	36,28	10,34
Ln: 48,20	Fn: 1150	tau n:1464	sn: 71,81	1,46	0,82	36,56	1,18
Lc: 42,32	Fc: 1244	tau c:1584	sc: 77,69	1,58	0,89	36,57	0,00

FED4,9,10,13,14,15: Round wire 1.4310 and 1.4568 added in material database

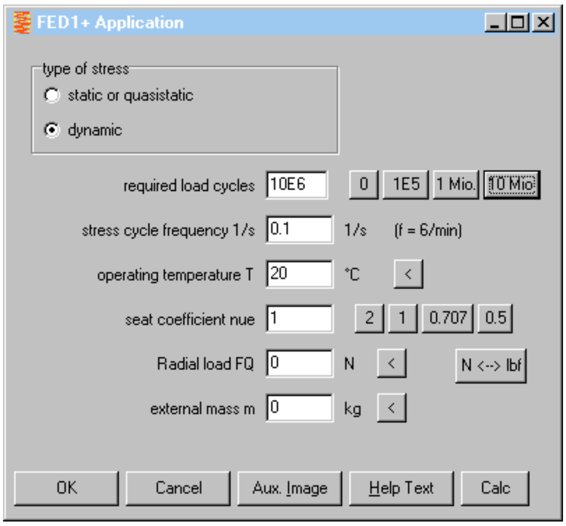
Strength properties of strip steel and round wire differ, strength values of round wire as function of wire diameter are higher than strength values of strip steel as function of strip thickness. Values of round wire have been added to the strip material database. To be used for wave springs of square or round wire section, material properties of 1.4310 (18-8) and 1.4568 (17-7 PH) spring wire according to EN 10270-2 have been added to fed9wst.dbf. If you calculate a spring made of 1.4310 or 1.4568 with square section, you can select the material with higher strength properties according to EN 10270-3 instead of EN 10151.

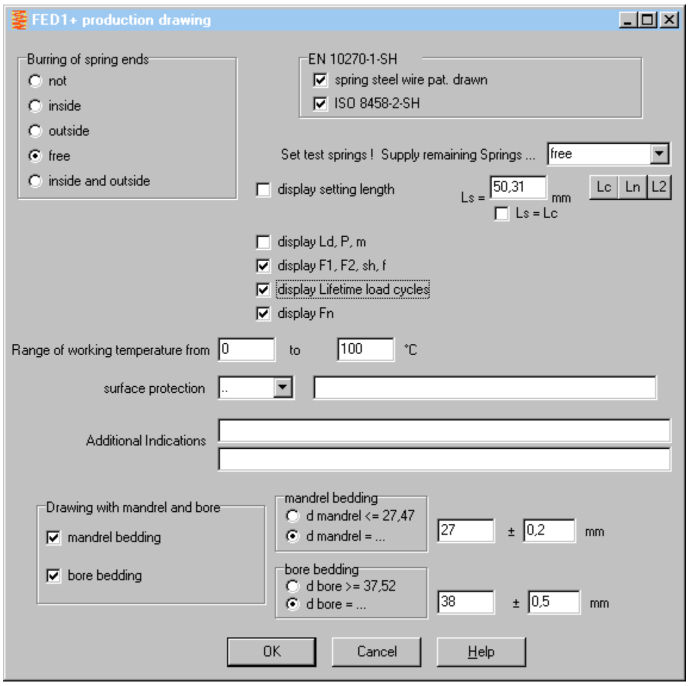
FED3+: E Module for FD, TD, VD (EN 10270-2)

Modulus of elasticity of FD, TD, VD (FDC, FDCrV, FDSiCr, TDC, TDVrV, TDSiCr, VDC, VDCrV, VDSiCr) according to EN 10270-2 was modified in the fedwst.dbf material database from 200,000 into 206,000 MPa. By this modification, spring moment of torsion springs in FED3 increase 3%. For compression springs, this modification has no influence, because shear module G instead of E module is used for all types of compression springs.

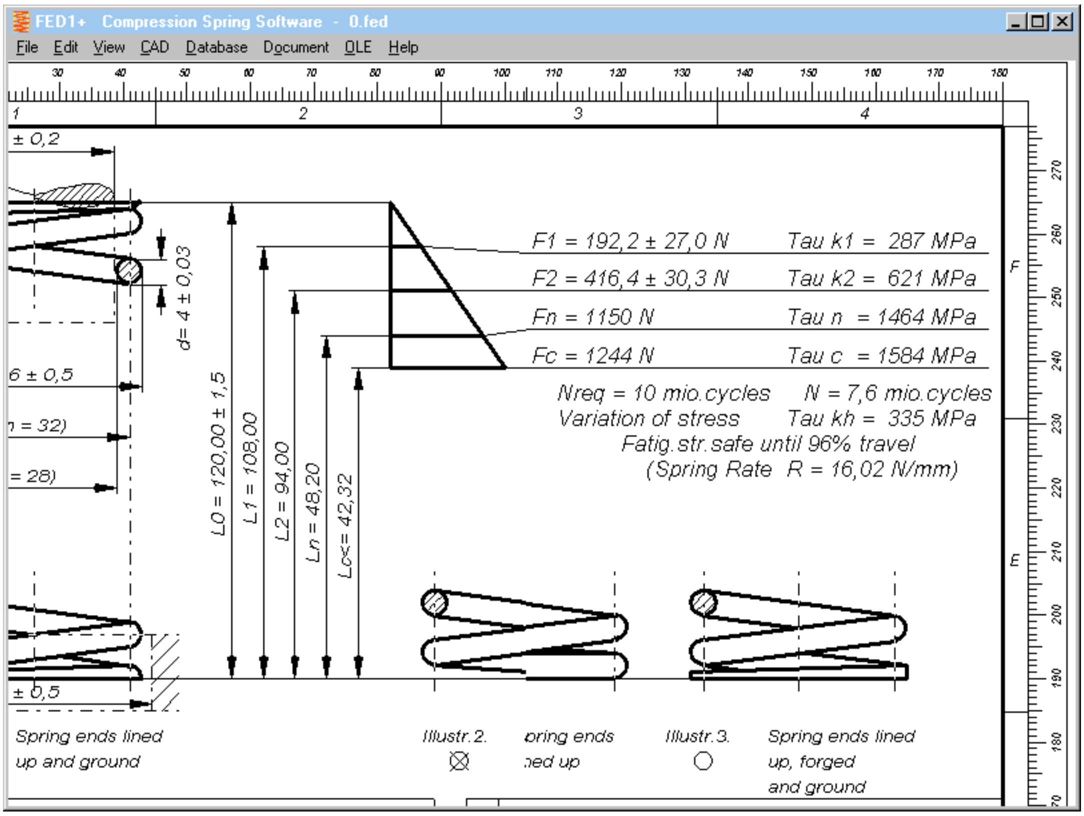
FED1+,2+,3+,5,6,7: Indicate load cycles required

At "Edit->Application" you can now indicate number of load cycles required. If calculated number of load cycles is lower than required number of load cycles, you get an error message.

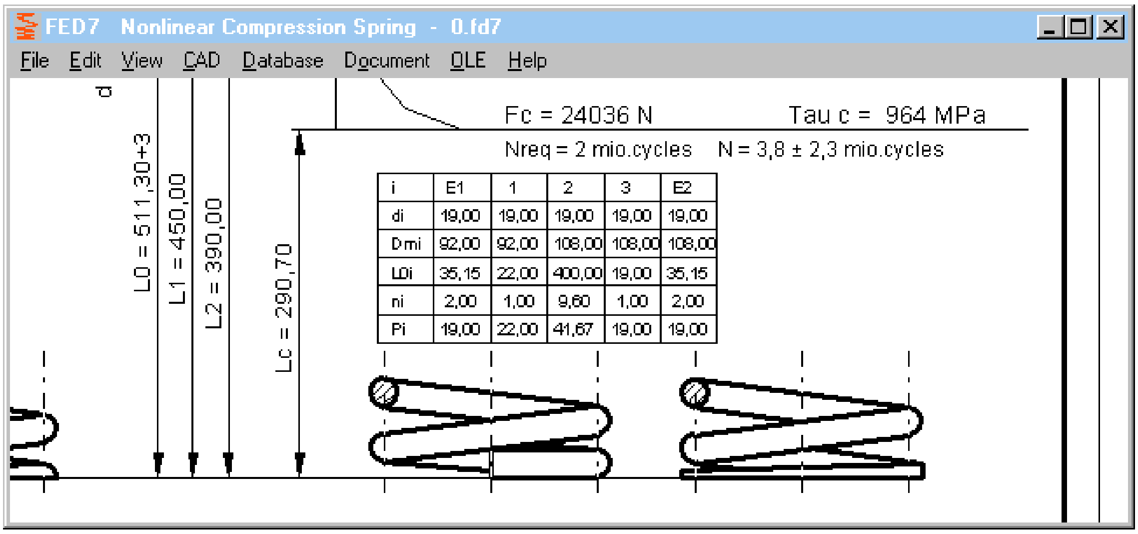




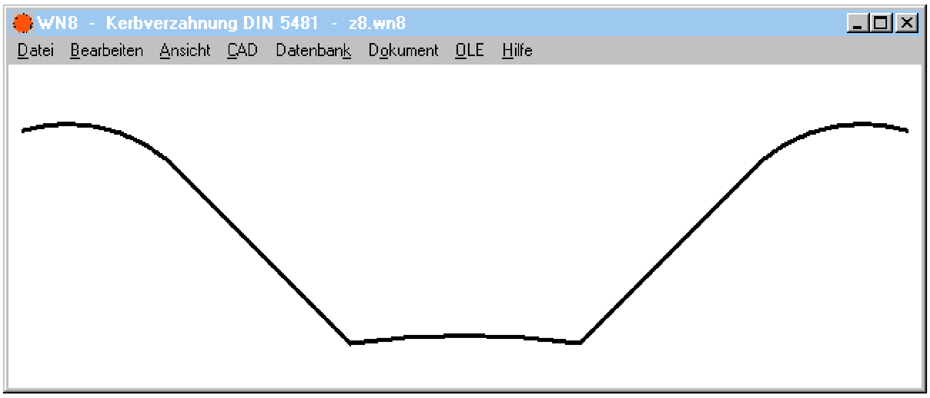
If you check "display Lifetime load cycles" at "Edit->Production drawing", required number of load cycles and calculated number of load cycles are listed in the production drawings.



FED7: Coil table in production drawing with E1, E2
End coils E1 and E2 have been added to the table with coil sections.



WN8: Tooth profile drawing improved
Drawing of root fillet of the internal serration spline was improved, and inside diameter of the internal serration profile is drawn as arc now (instead of straight line). At self-defined profiles with low number of teeth you can see the difference.

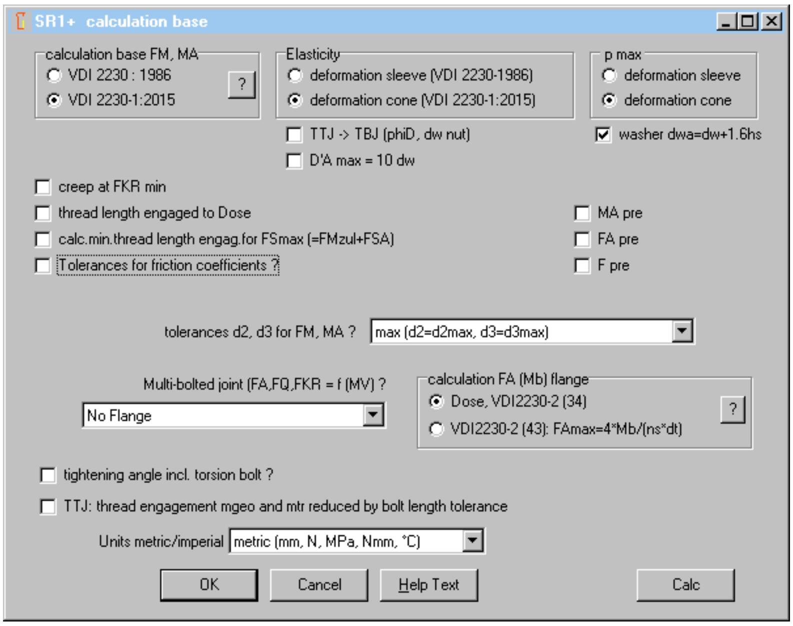


ZAR1+, ZAR5: Diagrams Safety and Lifetime
Diagrams for safety and life expectation caused errors and even program crash if you clicked this diagrams for zero-speed gears (torque only). The bug was fixed now. Life expectation cannot be calculated if n = 0. If you have ZAR1+ version 25.0 and ZAR5 V10.0, you can request a free update to ZAR1+ V 25.0.1 and ZAR5 V10.0.1.

ZAR1+, ZAR5: Hint/Warning if ring gear with positive profile shift
Profile shift of external gears is normally x >=0 and for internal gears x <= 0. In ZAR software, number of teeth, diameters and profile shift is negative for internal gears (ring gears) according to DIN 3960. Some other standards use always positive signs for both, external and internal gears. For number of teeth and diameters it is no problem to recognize the difference, but profile shift may be both, positive and negative. ZAR1+ and ZAR5 now give a warning, if profile shift of a ring gear is positive. To be sure that the sign is correct, compare tooth thickness or gap width or dimension between pins or balls, else set xH = - xH.

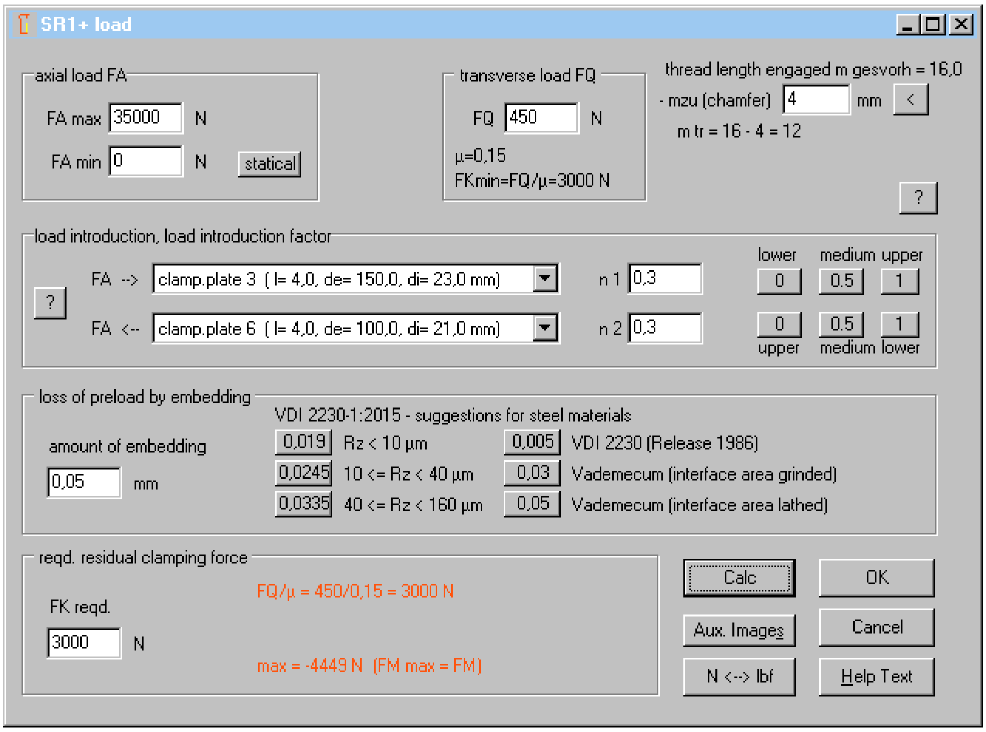
SR1+: „Washer dwa=dw+1.6hs“ as option

Whether surface pressure of washers should be calculated according to formula (193) of VDI 2230-1:2015 or not, can now be configured at "Edit->Calculation method". "dwa=dw+1.6hs" defines a cone angle of ArcTan(0.8)=38.7°. SR1+ recognizes a clamping plate as washer, if thickness L < 0.5 * bore diameter Di. This formula is applied on the first clamping plate. If TBJ with nut, washer formula is applied on the last clamping plate, too.
In earlier versions, option „washer dwa=dw+1.6hs“ was always applied.



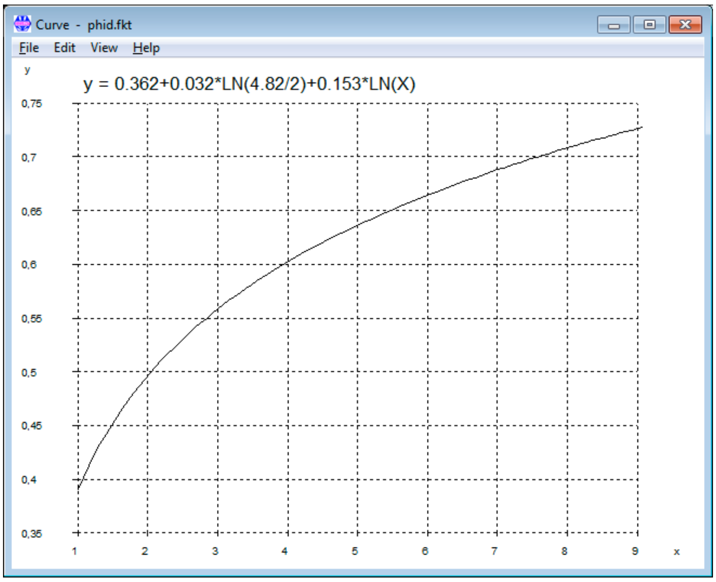
SR1+: Input of required residual clamping force

Required residual clamping force must be higher than calculated min values for radial load and eccentric load, and smaller than minimum clamp load at FAmax (FKRmin=max). If a negative value will be calculated for FKRmin (max), FA is too large and red-lighted now. If FQ/µ or FKreq,ecc. larger than max, text is printed red, and buttons disappear.

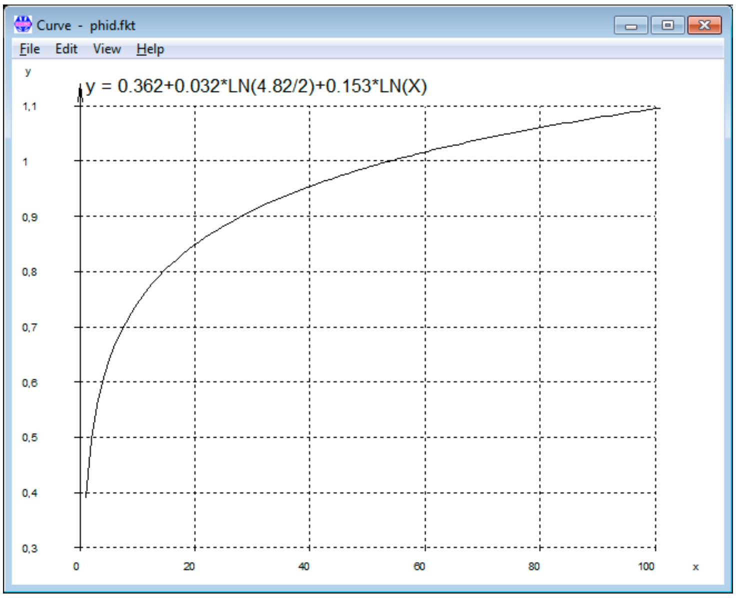


SR1+: Deformation cone dimensions if several clamping plates
D´A, the "substitutional outside diameter of the basic solid" is unclear in VDI 2230 for several clamping plates. Until now, SR1+ used D´A = Demax, the clamping plate with the largest outside diameter. This was changed now into D´A = sum(Dei*Li)/LK, so that the cone angle no longer will be extremely enlarged because of only one thin clamping sheet.

SR1+: Calculation Option „D'A max = 10 dw"
Figure 11 in VDI 2230 pretends that the curves for calculation of phiD proceeed asymptotic, and that a higher value than phiD=35° cannot be achieved. But this is not the case, cone angle increases even for y > 9. Diagram below shows the correct curve for ßL = 4,82:



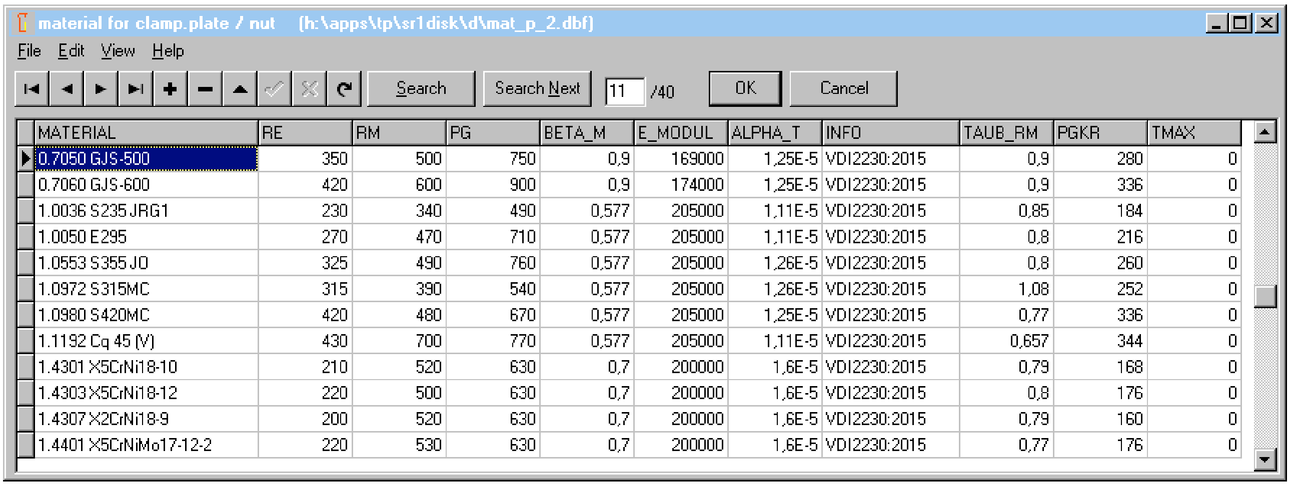
There is no limit of 9 for DA´/dw, y can be much higher for bolted joints in large plates. Diagram below shows the same function until y = 100:



x-axis is y according to VDI 2230, and y axis is tan(phiD). For tan(phi)=1, cone angle phiD is 45°. In SR1+, you can now limit "D´A" to a maximum of 10*dw. (Edit -> Calculation Method). This prevents the software to calculate unrealistic large cone angle phiD or phiE and limiting outside diameter "DA,Gr".

SR1+: Creep Safety SpKr

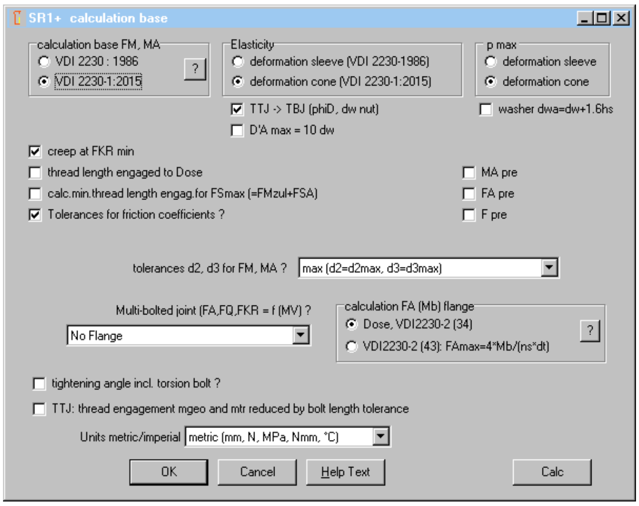
Permissible surface pressure pG according to VDI 2230-1:2015 Table A9 of most materials is higher than tensile strength and much higher than yield point. Clamping until pG may cause deformation on the clamping plate. If not immediately, then after hours or days. Because of the deformation, clamp load decreases. And surface pressure decreases, until creeping ends. In this state, one could measure the remaining clamp load (FK) and surface pressure (pGKr). SR1 clamping plate material databases got 2 additional fields: PGKR with permissible surface pressure without creeping, and TMAX with permissible operating temperature. By default, PGKR is set Rp0.2 * 0.8 (80% yield point). If operating temperature higher than TMAX (if TMAX>0), SR1 generates an error message. If TMAX set 0, it is not considered.

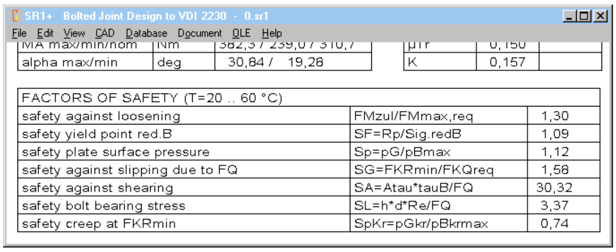


MATERIAL	RE	RM	PG	BETA_M	E_MODUL	ALPHA_T	INFO	TAUB_RM	PGKR	TMAX
0.7050 GJS-500	350	500	750	0,9	169000	1,25E-5	VDI2230:2015	0,9	280	0
0.7060 GJS-600	420	600	900	0,9	174000	1,25E-5	VDI2230:2015	0,9	336	0
1.0036 S235JRG1	230	340	490	0,577	205000	1,11E-5	VDI2230:2015	0,85	184	0
1.0050 E295	270	470	710	0,577	205000	1,11E-5	VDI2230:2015	0,8	216	0
1.0553 S355J0	325	490	760	0,577	205000	1,26E-5	VDI2230:2015	0,8	260	0
1.0972 S315MC	315	390	540	0,577	205000	1,26E-5	VDI2230:2015	1,08	252	0
1.0980 S420MC	420	480	670	0,577	205000	1,25E-5	VDI2230:2015	0,77	336	0
1.1192 Cq 45 (V)	430	700	770	0,577	205000	1,11E-5	VDI2230:2015	0,657	344	0
1.4301 X5CrNi18-10	210	520	630	0,7	200000	1,6E-5	VDI2230:2015	0,79	168	0
1.4303 X5CrNi18-12	220	500	630	0,7	200000	1,6E-5	VDI2230:2015	0,8	176	0
1.4307 X2CrNi18-9	200	520	630	0,7	200000	1,6E-5	VDI2230:2015	0,79	160	0
1.4401 X5CrNiMo17-12-2	220	530	630	0,7	200000	1,6E-5	VDI2230:2015	0,77	176	0

Technically, "SpKr = safety against creeping" is not correct. Creeping is allowed, but must stop at least at residual clamp load FKRmin:

```
SpKr = pGKr / pBKrmax with pBKrmax = FKRmin/Amin of clamping plate
```





FACTORS OF SAFETY (T=20 .. 60 °C)		
safety against loosening	FMzul/FMmax,req	1,30
safety yield point red.B	SF=Rp/Sig.redB	1,09
safety plate surface pressure	Sp=pG/pBmax	1,12
safety against slipping due to FQ	SG=FKRmin/FKQreq	1,58
safety against shearing	SA=Atau*tauB/FQ	30,32
safety bolt bearing stress	SL=h*d*Re/FQ	3,37
safety creep at FKRmin	SpKr=pGkr/pBkrmax	0,74

Mark "creep at FKRmin" at "Edit -> Calculation method", then "creep safety SpKr" will be calculated.

Many thanks to Mr. Sonnleitner of Siemens AG for proposals and documents. Siemens recalculates safety for creep-proof bolted joints since years. Maybe creep safety someday will be integrated into VDI 2230, and permissible surface pressure "pGKr" added in material property tables.

SR1+ Example Printout Creepage

If you mark "creep at FKRmin" at "Edit->Calculation Method", printout includes an additional table with creep stress and creep safety for each clamping plate.

CLAMPED PLATES (DIMENSIONS)

i	de [mm]	di [mm]	l [mm]	x[mm]	dwo [mm]	dwu [mm]
1	40,00	22,00	32,00	32,00	28,2	40,0
2	80,00	21,00	4,00	36,00	40,0	43,6
3	150,00	23,00	4,00	40,00	43,6	39,7
4	80,00	21,00	4,00	44,00	39,7	35,9
5	80,00	23,00	4,00	48,00	35,9	32,0
6	100,00	21,00	4,00	52,00	32,0	28,2

CLAMPED PLATES (MATERIAL AND LOAD)

i	material	E [MPa]	pG	pBmax	d.[mm/N]	aT[1/K]
1	1.4303 X5CrNi18	200000	630	498	0,241E-6	0,0165E-3
2	1.4303 X5CrNi18	200000	630	139	0,0194E-6	0,0165E-3
3	AlMgSi0,7 F26 (	70000	172	148	0,0606E-6	0,024E-3
4	1.4303 X5CrNi18	200000	630	204	0,0259E-6	0,0165E-3
5	1.4303 X5CrNi18	200000	630	311	0,0413E-6	0,0165E-3
6	1.0577 S355J2	210000	510	437	0,0530E-6	0,0115E-3

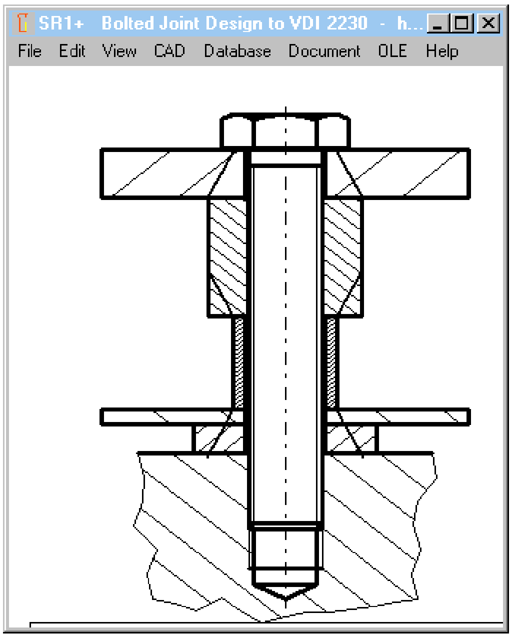
CLAMPED PLATES (CREEP)

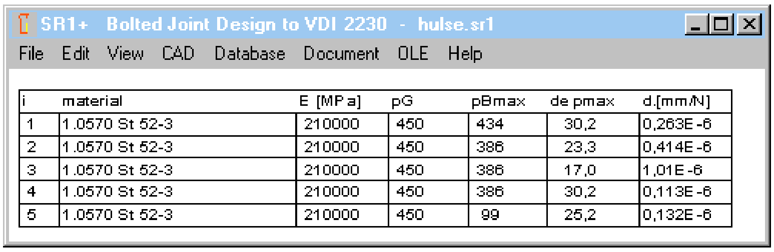
i	NAME	pGKr	pBKRmax	Spkr	Tmax
1	Dehnhuelse	148	194	0,76	0
2	Beilagplatte_1	148	54	2,73	0
3	Traverse	172	58	2,99	80
4	Beilageplatte_2	148	80	1,86	0
5	Var_Beilagen	148	121	1,22	0
6	WK-Konsole	284	171	1,67	0

pGKR: limiting creep pressure (from database)
pBKrmax: surface pressure for FKR min.
SpKr: creep safety at FKR min
dwo: outside diameter of deformation cone, upper surface of clamping plate
dwu: outside diameter of deformation cone, bottom surface of clamping plate
pG: limiting surface pressure (from database)
pBmax: surface pressure for FSmax

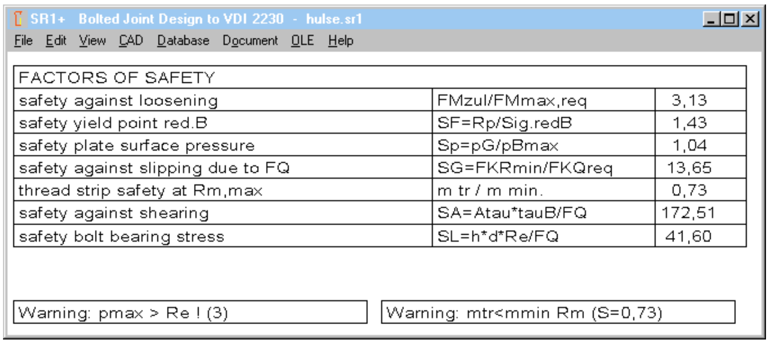
SR1+: Warning pmax > Re !

According to VDI 2230-1:2015 (table A9), permissible surface pressure pG is higher than tensile strength "Rm" and much higher than yield point "Rp0.2". This is ok for multi-axial stress condition. If the clamping plate is a thin sleeve, surface pressure higher than yield point is not allowed. SR1+ now displays a warning "pmax > Re“ if deformation body is identical with geometrical dimensions and surface pressure is higher than yield point.





i	material	E [MPa]	pG	pBmax	de pmax	d.[mm/N]
1	1.0570 St 52-3	210000	450	434	30,2	0,263E-6
2	1.0570 St 52-3	210000	450	386	23,3	0,414E-6
3	1.0570 St 52-3	210000	450	386	17,0	1,01E-6
4	1.0570 St 52-3	210000	450	386	30,2	0,113E-6
5	1.0570 St 52-3	210000	450	99	25,2	0,132E-6

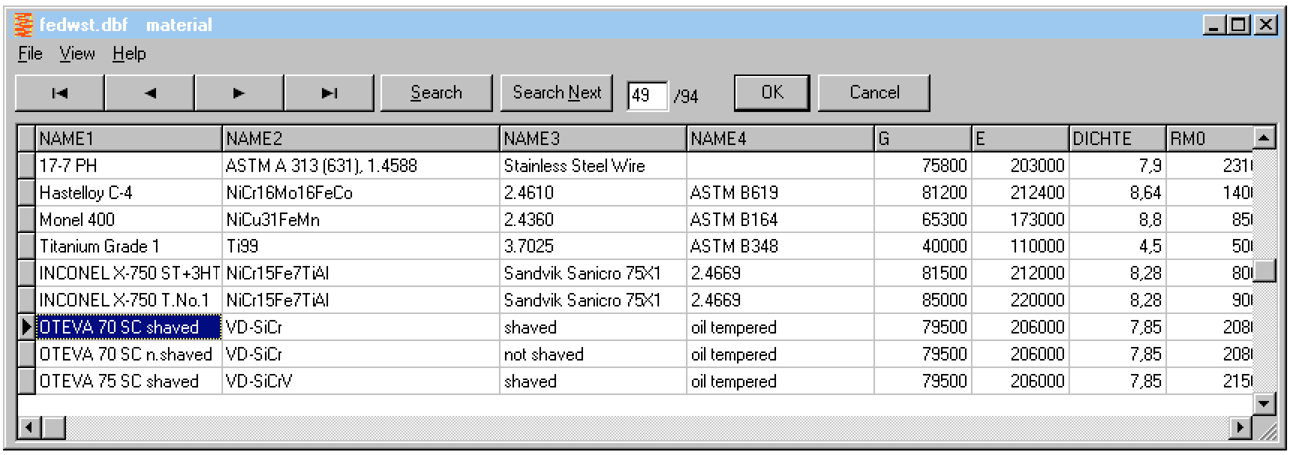


FACTORS OF SAFETY		
safety against loosening	FMzul/FMmax,req	3,13
safety yield point red.B	SF=Rp/Sig.redB	1,43
safety plate surface pressure	Sp=pG/pBmax	1,04
safety against slipping due to FQ	SG=FKRmin/FKQreq	13,65
thread strip safety at Rm,max	m tr / m min.	0,73
safety against shearing	SA=Atau*tauB/FQ	172,51
safety bolt bearing stress	SL=h*d*Re/FQ	41,60

Example: Highest flank pressure occurs at the first clamping plate (434 Mpa) . But more problematic is the surface stress at the third clamping plate (sleeve), because pBmax = 386 Mpa is higher than Re = 340 Mpa.

All Programs: Database with new possibility to input record number directly

As alternative to select record via mouse or cursor keys or search function, you can enter record number directly now. Record number is displayed in an edit field now. If you input record number there, cursor jumps to the record. This accelerates input, if you have the record numbers of often used materials in mind, for example.



NAME1	NAME2	NAME3	NAME4	G	E	DICHTE	RM0
17-7 PH	ASTM A 313 (631), 1.4588	Stainless Steel Wire		75800	203000	7,9	231
Hastelloy C-4	NiCr16Mo16FeCo	2.4610	ASTM B619	81200	212400	8,64	140
Monel 400	NiCu31FeMn	2.4360	ASTM B164	65300	173000	8,8	85
Titanium Grade 1	Ti99	3.7025	ASTM B348	40000	110000	4,5	50
INCONEL X-750 ST+3HT	NiCr15Fe7TiAl	Sandvik Sanicro 75X1	2.4669	81500	212000	8,28	80
INCONEL X-750 T.No.1	NiCr15Fe7TiAl	Sandvik Sanicro 75X1	2.4669	85000	220000	8,28	90
OTEVA 70 SC shaved	VD-SiCr	shaved	oil tempered	79500	206000	7,85	208
OTEVA 70 SC n.shaved	VD-SiCr	not shaved	oil tempered	79500	206000	7,85	208
OTEVA 75 SC shaved	VD-SiCrV	shaved	oil tempered	79500	206000	7,85	215

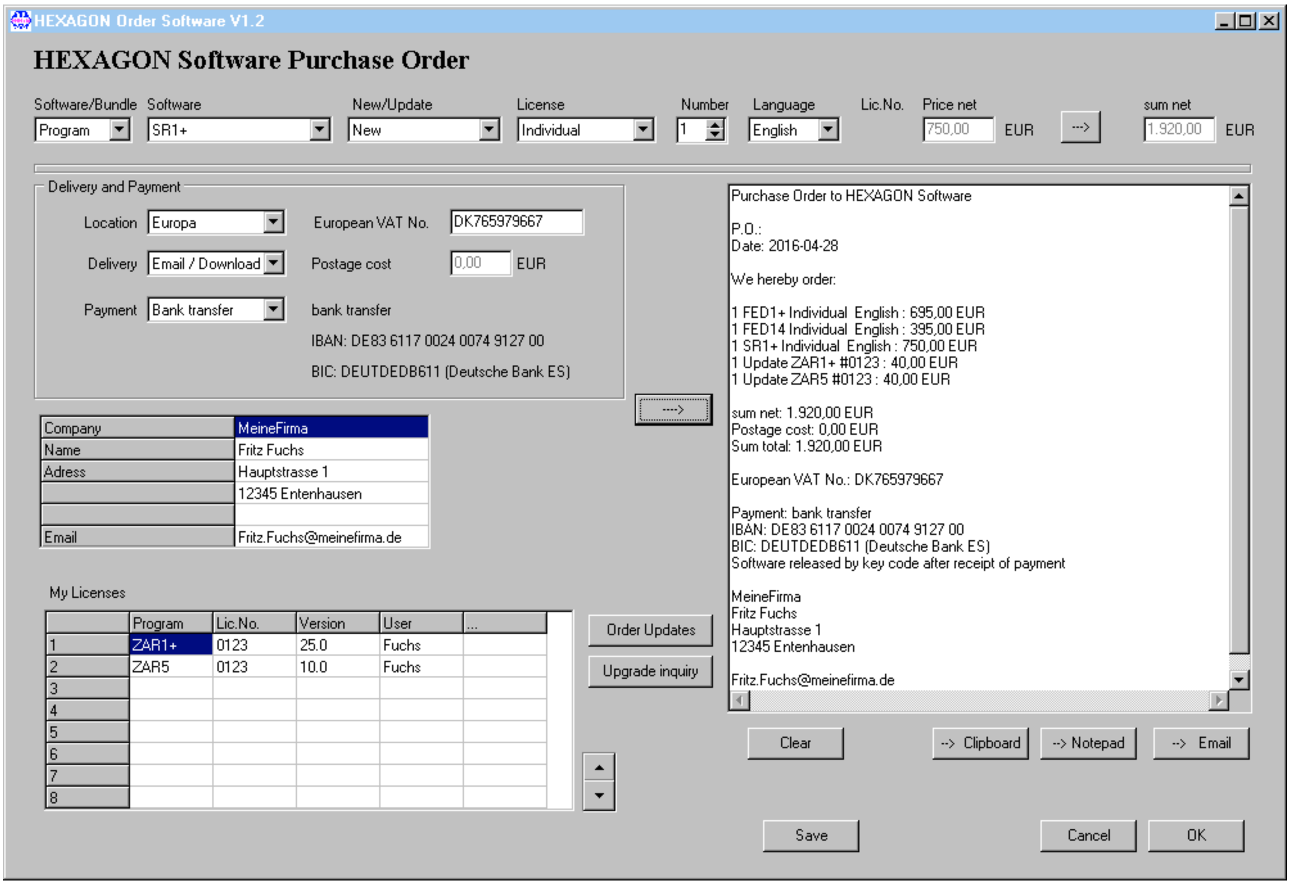
Software orders Update

Because order form at www.hexagon.de/order_e.htm no longer generates emails, we created substitute solutions Each software got a new menu item "Help->Update" to order an update for itself. And second we developed a new "order" software for download at www.hexagon.de.

New Order software replaces online order form

Against the trend, new order software no longer runs in the „cloud“, but has to be installed on the individual computer or network under Windows. The new order software not only replaces the old order form, you can also administrate your licenses there. And credit card data are coded safe by self-developed coding procedure before sent by email.

At "My Licenses" you can enter your programs with license number, current version and user information. "Order updates" button generates an update order for all of your licenses in the right text field. In the text field you can delete non-required updates, add and modify text. Then you can send text field by email, or copy via clipboard or notepad into your own order software.



Advantages of order_e.exe versus online order form order_e-htm:

- Includes administration of licenses, generates update order
- Safe coding for credit card data
- Updates of spring package, base package, tolerance package can be ordered for reduced price
- Available languages shown for each program
- Order form can be exported to email, clipboard, notepad

PRICELIST 2016-05-01

PRODUCT	EUR
DI1 Version 1.2 O-Ring Seal Software	190,-
DXF-Manager Version 8.7	383,-
DXFPLOT V 3.2	123,-
FED1 V28.2 Helical Compression Springs	491,-
FED1+ V28.2 Helical Compression Springs incl. spring database, animation, relax., 3D,..	695,-
FED2 V19.7 Helical Extension Springs	501,-
FED2+ V19.7 Helical Extension Springs incl. spring database, animation, relaxation, ...	675,-
FED3+ V18.5 Helical Torsion Springs incl. prod.drawing, animation, 3D, rectang.wire, ...	480,-
FED4 Version 7.2 Disk Springs	430,-
FED5 Version 15.1 Conical Compression Springs	741,-
FED6 Version 15.6 Nonlinear Cylindrical Compression Springs	634,-
FED7 Version 12.6 Nonlinear Compression Springs	660,-
FED8 Version 6.8 Torsion Bar	317,-
FED9 Version 5.8 Spiral Spring	394,-
FED10 Version 3.3 Leaf Spring (complex)	500,-
FED11 Version 3.3 Spring Lock and Bushing	210,-
FED12 Version 2.4 Elastomere Compression Spring	220,-
FED13 Version 3.9 Wave Spring Washers	185,-
FED14 Version 1.4 Helical Wave Spring	395,-
FED15 Version 1.3 Leaf Spring (simple)	180,-
GEO1+ V5.7 Cross Section Calculation incl. profile database	294.-
GEO2 V2.6 Rotation Bodies	194,-
GEO3 V3.3 Hertzian Pressure	205,-
GEO4 V3.9 Cam Software	265,-
HPGL-Manager Version 8.6	383,-
LG1 V6.4 Roll-Contact Bearings	296,-
LG2 V2.1 Hydrodynamic Plain Journal Bearings	460,-
SR1 V21.6 Bolted Joint Design	640,-
SR1+ V21.6 Bolted Joint Design incl. Flange calculation	750,-
TOL1 V11.8 Tolerance Analysis	506,-
TOL1CON V1.5 Conversion Program for TOL1	281,-
TOL2 Version 3.3 Tolerance Analysis	495,-
TOLPASS V4.1 Library for ISO tolerances	107,-
TR1 V3.8 Girder Calculation	757,-
WL1+ V19.8 Shaft Calculation incl. Roll-contact Bearings	945,-
WN1 Version 11.6 Cylindrical and Conical Press Fits	485,-
WN2 V 9.5 Involute Splines to DIN 5480	250,-
WN2+ V 9.5 Involute Splines to DIN 5480 and non-standard involute splines	380,-
WN3 V 5.3 Parallel Key Joints to DIN 6885, ANSI B17.1, DIN 6892	245,-
WN4 V 4.4 Involute Splines to ANSI B 92.1	276,-
WN5 V 4.4 Involute Splines to ISO 4156 and ANSI B 92.2 M	255,-
WN6 V 2.9 Polygon Profiles P3G to DIN 32711	180,-
WN7 V 2.2 Polygon Profiles P4C to DIN 32712	175,-
WN8 V 2.1 Serration to DIN 5481	195,-
WN9 V 2.1 Spline Shafts to DIN ISO 14	170,-
WN10 V 3.7 Involute Splines to DIN 5482	260,-
WN11 V 1.3 Woodruff Key Joints	240,-
WNXE V 1.1 Involute Splines - dimensions, graphic, measure	375,-
WNXK V 1.0 Serration Splines - dimensions, graphic, measure	230,-
WST1 V 10.0 Material Database	235,-
ZAR1+ V 25.0 Spur and Helical Gears	1115,-
ZAR2 V7.7 Spiral Bevel Gears to Klingelnberg	792,-
ZAR3 V8.9 Worm Gears	404,-
ZAR4 V3.7 Non-circular Spur Gears	1610,-
ZAR5 V10.0 Planetary Gearings	1355,-
ZAR6 V3.7 Straight/Helical/Spiral Bevel Gears	585,-
ZARXP V2.0 Involute Profiles - dimensions, graphic, measure	275,-
ZAR1W V1.6 Gear Wheel Dimensions, tolerances, measure	450,-
ZM1.V2.3 Chain Gear Design	326,-

PACKAGES	EUR
HEXAGON Mechanical Engineering Package (TOL1, ZAR1+, ZAR2, ZAR3+, ZAR5, ZAR6, WL1+, WN1, WN2+, WN3, WST1, SR1+, FED1+, FED2+, FED3+, FED4, ZARXP, TOLPASS, LG1, DXFPLOT, GEO1+, TOL2, TOL1CON, GEO2, GEO3, ZM1, WN6, WN7, LG2, FED12, FED13, WN8, WN9, WN11, DI1, FED15, WNXE)	8,500.-
HEXAGON Mechanical Engineering Base Package (ZAR1+, ZAR3+, ZAR5, ZAR6, WL1+, WN1, WST1, SR1+, FED1,+, FED2+, FED3+)	4.900,-
HEXAGON Spur Gear Bundle (ZAR1+ and ZAR5)	1,585.-
HEXAGON Involute Spline Package (WN2+, WN4, WN5, WN10, WNXE)	1,200.-
HEXAGON Graphic Package (DXF-Manager, HPGL-Manager, DXFPLOT)	741.-
HEXAGON Helical Spring Package (FED1+, FED2+, FED3+, FED5, FED6, FED7)	2,550.-
HEXAGON Tolerance Package (TOL1, TOL1CON, TOL2, TOLPASS)	945.-
HEXAGON Complete Package (All Programs of Engineering Package, Graphics Package, Tolerance Package, Helical Spring Package, TR1, FED8, FED9, FED10, ZAR4, GEO4, WN4, WN5, FED11,WN10, ZAR1W, FED14, WNXK)	11,500.-

Quantity Discount for Individual Licenses

Licenses	2	3	4	5	6	7	8	9	>9
Discount %	25%	27.5%	30%	32.5%	35%	37.5%	40%	42.5%	45%

Network Floating License

Licenses	1	2	3	4	5	6	7..8	9..11	>11
Discount/Add.cost	-50%	-20%	0%	10%	15%	20%	25%	30%	35%

(Negative Discount means additional cost)

Language Version:

- **German and English :** all Programs
- **French**: FED1+, FED2+, FED3+, FED4, FED5, FED6, FED7, FED9, FED10, FED14, TOL1, TOL2.
- **Italiano**: FED1+, FED2+, FED3+, FED4, FED5, FED6, FED7, FED9.
- **Swedish**: FED1+, FED2+, FED3+, FED5, FED6, FED7.
- **Portugues**: FED1+
- **Spanish**: FED1+, FED2+, FED3+

Updates:

Update prices	EUR
Software Update (software + pdf manual)	40,-
Software Update (software 64-bit Win + pdf manual)	50,-

Update Mechanical Engineering Package: 800 EUR, Update Complete Package: 1000 EUR

Maintenance contract for free updates: annual fee: 150 EUR + 40 EUR per program

Upgrades

For upgrades to network licenses or plus versions or software bundles, upgraded licenses are credited 75%.

Hexagon Software Network Licenses

Floating License in the time-sharing manner by integrated license manager
Individual licenses may not be installed in a network!

Conditions for delivery and payment

General packaging and postage costs are EUR 60, (EUR 25 inside Europe)
Delivery by Email (program packed, manual as pdf files): EUR 0.
Conditions of payment: bank transfer in advance with 2% discount, or by credit card (Master, Visa) net.

Key Code

After installation, software has to be released by key code. Key codes will be sent after receipt of payment.

HEXAGON Industriesoftware GmbH
Stiegelstrasse 8 D-73230 Kirchheim Tel.+49 702159578 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: http://www.hexagon.de