WOODexpress Command Line

WOODexpress can run as a post processor of various Finite Element Programs (ANSYS, SAP2000,) to perform the concrete element design. The communication of WOODexpress with other programs can be done with a command file in simple text format. Each line of this Command line file describes an object that is going to be created in WOODexpress. Commands and data can be read in WOODexpress and the design objects are automatically created. The format of the command text file is given below.

How to import the command file

Click at menu File/ Read Command Line File
Browse and [Open] the file with the command lines (.TXT)
Enter the name of the new project file as .WoodExpress data.
… and the Design objects are created from the commands and the data of the text file.

Example of command text file

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MATER TC=C24, SC=1, LC=0, gM=1.30, gS=1.10, gG=1.35, gQ=1.50

S-TENSION   NM=section-001, TP=0, B=58,  H=150,  Rs=12, Na=15.45
S-TENSION   NM=section-002, TP=1, D=150, Rs=12, Na=25.45

S-COMPR-PAR NM=section-011, TP=0, B=60,  H=150,  Rs=16, Na=17.35
S-COMPR-VER NM=section-012, TP=0, B=60,  H=150,  Rs=5, Na=12.55, La=60, LL=70, L1=180
S-COMPR-ANG NM=section-013, TP=0, B=70,  H=140,  Rs=5, Na=15.45, Aa=20

S-BEND     NM=section-021, TP=0, B=60,  H=150,  Rs=0, My=12.45, Mz=3.5
S-BEND+T   NM=section-022, TP=0, B=60,  H=150,  Rs=5, Na=11.34,  My=12.45, Mz=3.5
S-BEND+C   NM=section-023, TP=0, B=60,  H=150,  Rs=6, Na=9.46,   My=11.45, Mz=2.5

S-T+C+B  NM=section-031, TP=0, B=60,  H=150, Rs=10,  My=7.45, Mz=3.5
S-T+C+B  NM=section-032, TP=0, B=60,  H=150, Rs=10, Na=9.46,   My=11.45, Mz=2.5
S-T+C+B  NM=section-033, TP=0, B=60,  H=150, Rs=10, Na=-9.46,  My=11.45, Mz=2.5

S-NM NM=section-034, TP=0, B=60,  H=150, Rs=10, Na=-10.46,  My=11.45, Mz=2.5

S-SHEAR  NM=section-041, TP=0, B=90,  H=140, Rs=10, Vs=15.45
S-SHEAR  NM=section-042, TP=0, B=140, H=90,  Rs=12, Vs=6.45
S-SHEAR  NM=section-043, TP=1, D=200, Rs=10, Vs=16.45

S-TORSION  NM=section-051, TP=0, B=120,  H=140, Rs=5, Mt=15.45
S-TORSION  NM=section-052, TP=1, D=120,  Rs=0, Mt=15.45

S-STAB-N   NM=section-061, TP=0, B=120,  H=140, Rs=5, Na=15.45, L=3.20, SKy=1.00,SKz=2.0
S-STAB-NM  NM=section-062, TP=0, B=120,  H=140, Rs=5, Na=15.45, My=2.1, Mz=3.2, L=3.20, SKy=1.00,SKz=2.0
S-STAB-M   NM=section-063, TP=0, B=120,  H=140, Rs=5, My=2.1, Mz=3.2, L=3.20, SKy=1.00,SKz=2.0

S-STABILITY  NM=section-071, TP=0, B=120,  H=140, Rs=5, Na=15.45, My=2.1, Mz=3.2, L=3.20, SKy=1.00,SKz=2.0
S-STABILITY  NM=section-072, TP=0, B=120,  H=140, Rs=5, Na=15.45,  L=3.20, SKy=1.00,SKz=2.0
S-STABILITY  NM=section-073, TP=0, B=120,  H=140, Rs=5, My=2.1, Mz=3.2, L=3.20, SKy=1.00,SKz=2.0
```

Command Line explanations

Every part of a command must separated with comma (,)
Code words (first word and words with =) must be exactly the same
Capital and small letters are the same

MATER Materials and partial safety factors
TC=C24 Timber class
SC=1 Service class (1,2,3)
LC=0 Load duration class
0:permanent,
1:long term,
2:medium term,
3:short term
gM=1.30 Material factor for timber
gS=1.10 material factor for steel (if needed)
gG=1.35 γ_G Partial factor for permanent loads
gQ=1.50 γ_Q Partial factor for variable loads

If Material Command is omitted, then the default values that are set in the program the moment you read the command file are taken.
Many material cards may be included. Each one affects the set of following commands.

S-TENSION Cross section tension parallel to the grain
NM=Section-001 Name object (any name up to 16 characters)
*** NOTE object names are unique must not repeated *****
TP=0 Section type 0:rectangle, 1:round cross section
B=58 Cross section width in mm
H=150 Cross section height in mm.
Rs=10 Cross section reduction (%)
Na=15.45 Cross section axial load in kN

S-COMP-PAR Cross section compression parallel to the grain
NM= Section-011 Name object (any name up to 16 characters)
*** NOTE object names are unique must not repeated *****
TP=0 Section type 0:rectangle, 1:round cross section
B=60 Cross section width in mm
H=150 Cross section height in mm.
Rs=16 Cross section reduction (%)
Na=17.35 Cross section axial load in kN

If TP=1 then D=150 cross section diameter in mm.

S-COMP-VER Cross section compression perpedicular to the grain
NM= Section-012 Name object (any name up to 16 characters)
*** NOTE object names are unique must not repeated *****
TP=0 Section type 0:rectangle, 1:round cross section
B=60 Cross section width in mm
H=150 Cross section height in mm
Rs=5 Cross section reduction (%)
Na=12.55 Cross section axial load in kN
La=60 Loaded length in mm
LL=70 Loaded length in mm
L1=180 Loaded length in mm

S-COMP-ANG **Cross section compression perpedicular to the grain**

NM= Section-013 Name object (any name up to 16 characters)

*** NOTE object names are unique must not repeated *****

TP=0 Section type 0:rectangle, 1:round cross section

B=70 Cross section width in mm

H=140 Cross section height in mm

Rs=5 Cross section reduction (%)

Na=15.45 Cross section axial load in kN

Aa=20 Load angle in degrees.

S-BEND **Cross section Bending**

NM= Section-021 Name object (any name up to 16 characters)

*** NOTE object names are unique must not repeated *****

TP=0 Section type 0:rectangle, 1:round cross section

B=60 Cross section width in mm

H=150 Cross section height in mm.

Rs=0 Cross section reduction (%)

My=12.45 Cross section bending moment in kNm

Mz=3.50 Cross section bending moment in kNm

S-BEND+T **Cross section Bending and Tension**

NM= Section-022 Name object (any name up to 16 characters)

*** NOTE object names are unique must not repeated *****

TP=0 Section type 0:rectangle, 1:round cross section

B=60 Cross section width in mm

H=150 Cross section height in mm.

Rs=5 Cross section reduction (%)

Na=11.34 Cross section tension in kN

My=12.45 Cross section bending moment in kNm

Mz=3.50 Cross section bending moment in kNm

S-BEND+C **Cross section Bending and Compression**

NM= Section-023 Name object (any name up to 16 characters)

*** NOTE object names are unique must not repeated *****

TP=0 Section type 0:rectangle, 1:round cross section

B=60 Cross section width in mm

H=150 Cross section height in mm.

Rs=6 Cross section reduction (%)

Na=9.46 Cross section compression in kN

My=11.45 Cross section bending moment in kNm

Mz=2.50 Cross section bending moment in kNm

S-T+C+B **Cross section with Axial load (tension or compression) and bending moments**

NM= Section-031 Name object (any name up to 16 characters)

*** NOTE object names are unique must not repeated *****

TP=0 Section type 0:rectangle, 1:round cross section

B=60 Cross section width in mm

H=150 Cross section height in mm.

Rs=6 Cross section reduction (%)

Na=9.46 Cross section compression in kN
My=11.45 Cross section bending moment in kNm
Mz=2.50 Cross section bending moment in kNm

(any of the forces or moments may be missing)

S-NM same as S-T+C+B

S-SHEAR **Cross section with shearing force**
NM= Section-041 Name object (any name up to 16 characters)
*** NOTE object names are unique must not repeated *****
TP=0 Section type 0:rectangle, 1:round cross section
B=60 Cross section width in mm
H=150 Cross section height in mm.
Rs=6 Cross section reduction (%)
Vs=15.45 Cross section shearing force in kN

S-TORSION **Cross section with torsion**
NM= Section-051 Name object (any name up to 16 characters)
*** NOTE object names are unique must not repeated *****
TP=0 Section type 0:rectangle, 1:round cross section
B=60 Cross section width in mm
H=150 Cross section height in mm.
Rs=6 Cross section reduction (%)
Mt=15.45 Cross section torsional moment in kN

S_STAB-N **Cross section stalility in Axial load**
NM= Section-061 Name object (any name up to 16 characters)
*** NOTE object names are unique must not repeated *****
TP=0 section type 0:rectangle, 1:round cross section
B=60 Cross section width in mm
H=150 Cross section height in mm.
Rs=6 Cross section reduction (%)
Na=15.45 Cross section axial load in kN
L=3.20 Element length in m
Sky=1.00 Buckling length around y-y axis (Ly=sky.L)
Sky=2.00 Buckling length around z-z axis (Lz=skz.L)

S_STAB-NM **Cross section stalility Axial load and moments**

NM= Section-062 Name object (any name up to 16 characters)
*** NOTE object names are unique must not repeated *****

TP=0 section type 0:rectangle, 1:round cross section
B=60 Cross section width in mm
H=150 Cross section height in mm.
Rs=6 Cross section reduction (%)

Na=15.45 Cross section axial load in kN
My=2.1 Cross section bending moment My in kNm
Mz=3.2 Cross section bending moment Mz in kNm
L=3.20 Element length in m
Sky=1.00 Buckling length around y-y axis (Ly=sky.L)
Sky=2.00 Buckling length around z-z axis (Lz=skz.L)

S_STAB-M **Cross section Lateral stability**

NM= Section-063 Name object (any name up to 16 characters)
*** NOTE object names are unique must not repeated *****

TP=0 section type 0:rectangle, 1:round cross section
B=60 Cross section width in mm
H=150 Cross section height in mm.
Rs=6 Cross section reduction (%)
My=2.1 Cross section bending moment My in kNm
Mz=3.2 Cross section bending moment Mz in kNm
L=3.20 Element length in m
Sky=1.00 Buckling length around y-y axis (Ly=sky.L)
Sky=2.00 Buckling length around z-z axis (Lz=skz.L)

S_STABILITY **Cross section stability (Axial load and moments)**

NM= Section-071 Name object (any name up to 16 characters)
*** NOTE object names are unique must not repeated *****

TP=0 section type 0:rectangle, 1:round cross section
B=60 Cross section width in mm
H=150 Cross section height in mm.
Rs=6 Cross section reduction (%)
Na=15.45 Cross section axial load in kN
My=2.1 Cross section bending moment My in kNm
Mz=3.2 Cross section bending moment Mz in kNm
L=3.20 Element length in m
Sky=1.00 Buckling length around y-y axis (Ly=sky.L)
Sky=2.00 Buckling length around z-z axis (Lz=skz.L)

General case of stability.
If Axial load is missing = lateral stability,
if moments are missing=buckling with only axial load.