



Power and production
for a better world

DATE=24.11.2011 TIME=10:40:53
PART NAME : Lopputyö_uusi
REV NUMBER : 3GZF113016-126.uusi
SER NUMBER :
STATS COUNT : 1

```
STARTUP =ALIGNMENT/START,RECALL:,LIST=YES
ALIGNMENT/END
MODE/DCC
PREHIT/3
RETRACT/3
MOVESPEED/ 200
TOUCHSPEED/ 5
FORMAT/TEXT,OPTIONS, ,HEADINGS,SYMBOLS, ;MEAS,NOM,DEV,TOL,OUTTOL, ,
LOADPROBE/X1S_5BY100
TIP/T1A0B0, SHANKIJK=0, 0, 1, ANGLE=90
MOVE/POINT,NORMAL,PART,<-1173.139,213.896,-337.016>
TIP/T1A0B180, SHANKIJK=1, 0, 0, ANGLE=-90
MOVE/POINT,NORMAL,PART,<-232.270,213.487,-57.841>
PNT1 =FEAT/POINT,CARTESIAN
THEO/<-593.201,560.409,-512.191>,<1,0,0>
ACTL/<-592.844,560.41,-512.191>,<1,0,0>
MEAS/POINT,1
HIT/BASIC,NORMAL,<-593.201,560.409,-512.191>,<1,0,0>,<-592.844,560.41,-512.191>,USE THEO=YES
ENDMEAS/
MOVE/POINT,NORMAL,PART,<-550.268,560.418,-644.427>
WORKPLANE/XPLUS
CIR1 =FEAT/CIRCLE,CARTESIAN,IN,LEAST_SQR
THEO/<-604.7,563.431,-650.522>,<1,0,0>,268.134
ACTL/<-604.7,563.254,-650.557>,<1,0,0>,268.079
MEAS/CIRCLE,3,WORKPLANE
HIT/BASIC,NORMAL,<-604.704,560.345,-516.49>,<0,0.0230193,-0.999735>,<-604.705,560.35,-516.55>
,USE THEO=YES

HIT/BASIC,NORMAL,<-604.699,697.214,-659.241>,<0,-0.9978829,0.0650358>,<-604.699,697.013,-659.
227>,USE THEO=YES

HIT/BASIC,NORMAL,<-604.697,568.157,-784.506>,<0,-0.0352496,0.9993785>,<-604.697,568.161,-784.
507>,USE THEO=YES

ENDMEAS/
A1 =ALIGNMENT/START,RECALL:STARTUP,LIST=YES
ALIGNMENT/TRANS,XAXIS,PNT1
ALIGNMENT/TRANS,YAXIS,CIR1
ALIGNMENT/TRANS,ZAXIS,CIR1
ALIGNMENT/END
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```

D_OHJAUS =FEAT/CYLINDER,CARTESIAN,IN,LEAST_SQR
THEO/<-10.7,0,0>,<1,0,0>,268,16.959
ACTL/<-10.7,-0.008,-0.009>,<0.9999597,0.0089726,-0.0002113>,268.09,19.32
MEAS/CYLINDER,16
HIT/BASIC,NORMAL,<-19.179,0,-134>,<0,0,1>,<-19.18,0.004,-134.04>,USE THEO=YES
HIT/BASIC,NORMAL,<-19.179,94.752,-94.752>,<0,-0.7071068,0.7071068>,<-19.196,94.705,-94.706>,USE
THEO= YES

HIT/BASIC,NORMAL,<-19.179,134,0>,<0,-1,0>,<-19.203,133.98,0>,USE THEO=YES
HIT/BASIC,NORMAL,<-19.179,94.752,94.752>,<0,-0.7071068,-0.7071068>,<-19.196,94.773,94.777>,USE
THEO= YES

HIT/BASIC,NORMAL,<-19.179,0,134>,<0,0,-1>,<-19.179,0,134.042>,USE THEO=YES
HIT/BASIC,NORMAL,<-19.179,-94.752,94.752>,<0,0.7071068,-0.7071068>,<-19.164,-94.778,94.786>,USE
THEO= YES

HIT/BASIC,NORMAL,<-19.179,-134,0>,<0,1,0>,<-19.157,-134.146,-0.001>,USE THEO=YES
HIT/BASIC,NORMAL,<-19.179,-94.752,-94.752>,<0,0.7071068,0.7071068>,<-19.166,-94.862,-94.87>,USE
THEO= YES

HIT/BASIC,NORMAL,<-2.221,-94.752,-94.752>,<0,0.7071068,0.7071068>,<-2.206,-94.797,-94.802>,USE
THEO= YES

HIT/BASIC,NORMAL,<-2.221,-134,0>,<0,1,0>,<-2.199,-133.998,-0.001>,USE THEO=YES
HIT/BASIC,NORMAL,<-2.221,-94.752,94.752>,<0,0.7071068,-0.7071068>,<-2.206,-94.693,94.699>,USE
THEO= YES

HIT/BASIC,NORMAL,<-2.221,0,134>,<0,0,-1>,<-2.221,-0.002,134.035>,USE THEO=YES
HIT/BASIC,NORMAL,<-2.221,94.752,94.752>,<0,-0.7071068,-0.7071068>,<-2.236,94.844,94.847>,USE
THEO= YES

HIT/BASIC,NORMAL,<-2.221,134,0>,<0,-1,0>,<-2.244,134.134,0>,USE THEO=YES
HIT/BASIC,NORMAL,<-2.221,94.752,-94.752>,<0,-0.7071068,0.7071068>,<-2.236,94.782,-94.788>,USE
THEO= YES

HIT/BASIC,NORMAL,<-2.221,0,-134>,<0,0,1>,<-2.221,0,-134.05>,USE THEO=YES
ENDMEAS/
A2 =ALIGNMENT/START,RECALL:A1,LIST=YES
ALIGNMENT/TRANS,XAXIS,PNT1
ALIGNMENT/LEVEL,XPLUS,D_OHJAUS
ALIGNMENT/TRANS,YAXIS,D_OHJAUS
ALIGNMENT/TRANS,ZAXIS,D_OHJAUS
ALIGNMENT/END
MOVE/POINT,NORMAL,PART,<45.918,-0.598,9.139>

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D_STAATTORI=FEAT/CIRCLE,CARTESIAN,IN,LEAST_SQR

THEO/<-106.8,-0.8,0>,<1,0,0>,256

ACTL/<-106.801,-0.002,0.052>,<1,0,0>,255.942

MEAS/CIRCLE,9,WORKPLANE

HIT/BASIC,NORMAL,<-106.8,-0.8,-128>,<0,0.0000019,1>,<-106.8,-0.814,-127.911>,USE THEO=YES

HIT/BASIC,NORMAL,<-106.8,81.477,-98.054>,<0,-0.6427862,0.7660457>,<-106.802,81.729,-98.372>,USE THEO= YES

HIT/BASIC,NORMAL,<-106.8,125.255,-22.227>,<0,-0.9848074,0.17365>,<-106.802,125.979,-22.359>,USE THEO= YES

HIT/BASIC,NORMAL,<-106.8,110.051,64>,<0,-0.8660264,-0.4999984>,<-106.799,110.677,64.372>,USE THEO= YES

HIT/BASIC,NORMAL,<-106.8,42.979,120.281>,<0,-0.3420219,-0.939692>,<-106.8,43.066,120.578>,USE THEO= YES

HIT/BASIC,NORMAL,<-106.8,-44.578,120.281>,<0,0.3420184,-0.9396933>,<-106.801,-44.494,120.009>,USE THEO=YES

HIT/BASIC,NORMAL,<-106.8,-111.651,64>,<0,0.8660245,-0.5000016>,<-106.8,-111.023,63.635>,USE THEO= YES

HIT/BASIC,NORMAL,<-106.8,-126.855,-22.227>,<0,0.9848081,0.1736463>,<-106.799,-126.063,-22.083>,USE THEO=YES

HIT/BASIC,NORMAL,<-106.8,-83.077,-98.054>,<0,0.6427891,0.7660432>,<-106.802,-82.731,-97.629>,USE THEO= YES

ENDMEAS/

MOVE/POINT,NORMAL,PART,<72.479,0.899,0.015>

D_TASO =FEAT/PLANE,CARTESIAN,OUTLINE

THEO/<-0.027,0.227,-0.03>,<0.9999599,0.0089535,0.0000112>

ACTL/<-0.138,0.25,-0.03>,<0.9999998,0.0000635,-0.0005946>

MEAS/PLANE,8

HIT/BASIC,NORMAL,<-0.018,-0.74,137.306>,<0.9999599,0.0089535,0.0000112>,<-0.056,-0.717,137.307>,USE THEO=YES

HIT/BASIC,NORMAL,<-0.906,98.021,97.913>,<0.9999599,0.0089535,0.0000112>,<-0.092,98.054,97.912>,USE THEO=YES

HIT/BASIC,NORMAL,<-1.261,138.159,-1.391>,<0.9999599,0.0089535,0.0000112>,<-0.15,138.196,-1.391>,USE THEO=YES

HIT/BASIC,NORMAL,<-0.872,95.125,-100.615>,<0.9999599,0.0089535,0.0000112>,<-0.196,95.154,-100.616>,USE THEO=YES

HIT/BASIC,NORMAL,<-0.046,2.171,-137.834>,<0.9999599,0.0089535,0.0000112>,<-0.218,2.192,-137.834>,USE THEO=YES

HIT/BASIC,NORMAL,<0.857,-98.173,-96.02>,<0.9999599,0.0089535,0.0000112>,<-0.195,-98.16,-96.02>,USE THEO=YES

HIT/BASIC,NORMAL,<1.197,-136.493,2.172>,<0.9999599,0.0089535,0.0000112>,<-0.132,-136.483,2.171>,USE THEO=YES

HIT/BASIC,NORMAL,<0.837,-96.254,98.227>,<0.9999599,0.0089535,0.0000112>,<-0.063,-96.238,98.228>,USE THEO=YES

ENDMEAS/

MOVE/POINT,NORMAL,PART,<32.016,-96.696,499.901>

TIP/T1A90B0, SHANKIJK=-1, 0, 0, ANGLE=90

MOVE/POINT,NORMAL,PART,<-562.206,-90.596,499.949>

MOVE/POINT,NORMAL,PART,<-521.254,-0.179,17.490>

N_OHJAUS =FEAT/CYLINDER,CARTESIAN,IN,LEAST_SQR
 THEO/<-458.7,0.6,0.022>,<1,0,0>,268,17.3
 ACTL/<-458.7,0.062,0.269>,<0.9999998,0.000016,-0.0006456>,268.08,17.469
 MEAS/CYLINDER,16
 HIT/BASIC,NORMAL,<-467.35,0.6,-133.978>,<0,0.0000012,1>,<-467.352,0.61,-133.77>,USE THEO=YES
 HIT/BASIC,NORMAL,<-467.35,95.352,-94.73>,<0,-0.7071059,0.7071076>,<-467.351,95.018,-94.396>,U
 SE THEO= YES

 HIT/BASIC,NORMAL,<-467.35,134.6,0.022>,<0,-1,0.0000012>,<-467.352,134.089,0.017>,USE THEO=YES
 HIT/BASIC,NORMAL,<-467.35,95.352,94.774>,<0,-0.7071076,-0.7071059>,<-467.348,95.217,94.624>,U
 SE THEO= YES

 HIT/BASIC,NORMAL,<-467.35,0.6,134.022>,<0,-0.0000012,-1>,<-467.348,0.611,134.316>,USE THEO=YE
 HIT/BASIC,NORMAL,<-467.35,-94.152,94.774>,<0,0.7071059,-0.7071076>,<-467.349,-94.603,95.231>,U
 USE THEO= YES

 HIT/BASIC,NORMAL,<-467.35,-133.4,0.022>,<0,1,-0.0000012>,<-467.35,-133.973,0.017>,USE THEO=YE
 HIT/BASIC,NORMAL,<-467.35,-94.152,-94.73>,<0,0.7071076,0.7071059>,<-467.352,-94.28,-94.878>,U
 SE THEO= YES

 HIT/BASIC,NORMAL,<-450.05,-94.152,-94.73>,<0,0.7071076,0.7071059>,<-450.051,-94.289,-94.886>,
 USE THEO= YES

 HIT/BASIC,NORMAL,<-450.05,-133.4,0.022>,<0,1,-0.0000012>,<-450.05,-133.977,0.017>,USE THEO=YE
 HIT/BASIC,NORMAL,<-450.05,-94.152,94.774>,<0,0.7071059,-0.7071076>,<-450.049,-94.594,95.226>,
 USE THEO= YES

 HIT/BASIC,NORMAL,<-450.05,0.6,134.022>,<0,-0.0000012,-1>,<-450.048,0.611,134.306>,USE THEO=YE
 HIT/BASIC,NORMAL,<-450.05,95.352,94.774>,<0,-0.7071076,-0.7071059>,<-450.049,95.213,94.623>,U
 SE THEO= YES

 HIT/BASIC,NORMAL,<-450.05,134.6,0.022>,<0,-1,0.0000012>,<-450.052,134.092,0.017>,USE THEO=YES
 HIT/BASIC,NORMAL,<-450.05,95.352,-94.73>,<0,-0.7071059,0.7071076>,<-450.05,95.02,-94.402>,USE
 THEO= YES

 HIT/BASIC,NORMAL,<-450.05,0.6,-133.978>,<0,0.0000012,1>,<-450.052,0.608,-133.782>,USE THEO=YE
 ENDMEAS/
 MOVE/POINT,NORMAL,PART,<-472.086,-6.226,-21.064>
 N_STAATTORI=FEAT/CIRCLE,CARTESIAN,IN,LEAST_SQR
 THEO/<-391.7,0.4,0>,<1,0,0>,256
 ACTL/<-391.699,0.065,0.23>,<1,0,0>,255.943
 MEAS/CIRCLE,9,WORKPLANE
 HIT/BASIC,NORMAL,<-391.7,0.4,-128>,<0,0.0000012,1>,<-391.7,0.406,-127.745>,USE THEO=YES
 HIT/BASIC,NORMAL,<-391.7,82.677,-98.054>,<0,-0.6427867,0.7660452>,<-391.699,82.425,-97.756>,U
 SE THEO= YES

 HIT/BASIC,NORMAL,<-391.7,126.455,-22.227>,<0,-0.9848075,0.1736494>,<-391.7,126.069,-22.16>,US
 E THEO= YES

 HIT/BASIC,NORMAL,<-391.7,111.251,64>,<0,-0.866026,-0.4999989>,<-391.698,111.051,63.884>,USE T
 HEO= YES

 HIT/BASIC,NORMAL,<-391.7,44.179,120.281>,<0,-0.3420213,-0.9396922>,<-391.699,44.206,120.333>,
 USE THEO= YES

 HIT/BASIC,NORMAL,<-391.7,-43.378,120.281>,<0,0.342019,-0.939693>,<-391.7,-43.482,120.582>,USE
 THEO= YES

 HIT/BASIC,NORMAL,<-391.7,-110.451,64>,<0,0.8660248,-0.5000011>,<-391.697,-110.802,64.206>,USE
 THEO= YES

 HIT/BASIC,NORMAL,<-391.7,-125.655,-22.227>,<0,0.984808,0.173647>,<-391.7,-125.894,-22.277>,US
 E THEO= YES

 HIT/BASIC,NORMAL,<-391.7,-81.877,-98.054>,<0,0.6427886,0.7660436>,<-391.7,-81.856,-98.046>,US
 E THEO= YES

 ENDMEAS/
 MOVE/POINT,NORMAL,PART,<-525.508,5.452,2.100>

N_TASO =FEAT/PLANE, CARTESIAN, OUTLINE
 THEO/<-470.437,1.877,0.308>, <-0.9999995,0.0010084,0.0000349>
 ACTL/<-470.663,1.879,0.306>, <-0.9999998,-0.0000943,0.0005523>
 MEAS/PLANE, 8
 HIT/BASIC,NORMAL, <-470.436,-0.212,138.106>, <-0.9999995,0.0010084,0.0000349>, <-470.585,-0.21,138.104>, USE THEO=YES

 HIT/BASIC,NORMAL, <-470.53,-96.917,96.649>, <-0.9999995,0.0010084,0.0000349>, <-470.592,-96.915,96.647>, USE THEO=YES

 HIT/BASIC,NORMAL, <-470.58,-137.398,0.909>, <-0.9999995,0.0010084,0.0000349>, <-470.653,-137.397,0.907>, USE THEO=YES

 HIT/BASIC,NORMAL, <-470.538,-96.538,-98.592>, <-0.9999995,0.0010084,0.0000349>, <-470.715,-96.533,-98.594>, USE THEO=YES

 HIT/BASIC,NORMAL, <-470.434,6.401,-136.485>, <-0.9999995,0.0010084,0.0000349>, <-470.738,6.404,-136.487>, USE THEO=YES

 HIT/BASIC,NORMAL, <-470.345,100.347,-96.766>, <-0.9999995,0.0010084,0.0000349>, <-470.721,100.35,-96.767>, USE THEO=YES

 HIT/BASIC,NORMAL, <-470.298,137.966,3.762>, <-0.9999995,0.0010084,0.0000349>, <-470.67,137.968,3.761>, USE THEO=YES

 HIT/BASIC,NORMAL, <-470.332,101.364,94.88>, <-0.9999995,0.0010084,0.0000349>, <-470.632,101.364,94.878>, USE THEO=YES

ENDMEAS/

MOVE/POINT,NORMAL,PART, <-567.313,-261.090,528.160>
 TIP/T1A0B0, SHANKIJK=0, 0, 1, ANGLE=90
 STAATTORI =FEAT/CYLINDER, CARTESIAN, IN, LEAST_SQR, NO
 THEO/<-249.25,-0.2,0>, <-0.9999911,0.004212,0>, 255.999, 285.964
 ACTL/<-249.252,0.032,0.141>, <-0.9999998,0.0002361,0.0006247>, 255.942, 285.064
 CONSTR/CYLINDER,BF,D_STAATTORI,N_STAATTORI,,
 LIN1 =FEAT/LINE, CARTESIAN, UNBOUNDED, NO
 THEO/<-10.7,0,0>, <-0.9999991,0.0013393,0.0000491>
 ACTL/<-10.7,0,0>, <-0.9999998,0.000138,0.0006004>
 CONSTR/LINE,BF,3D,D_OHJAUS,N_OHJAUS,,
 OUTLIER_REMOVAL/OFF, 3
 FILTER/OFF, WAVELENGTH=0
 PNT2 =FEAT/POINT, CARTESIAN, NO
 THEO/<-0.024,-0.014,-0.001>, <-0.9999991,0.0013393,0.0000491>
 ACTL/<-0.138,-0.001,-0.006>, <-0.9999998,0.000138,0.0006004>
 CONSTR/POINT, PIERCE, D_TASO, LIN1
 A3 =ALIGNMENT/START, RECALL:A2, LIST=YES
 ALIGNMENT/LEVEL, XPLUS, LIN1
 ALIGNMENT/TRANS, XAXIS, PNT2
 ALIGNMENT/TRANS, YAXIS, PNT2
 ALIGNMENT/TRANS, ZAXIS, PNT2
 ALIGNMENT/END

DIM LOC1= LOCATION OF CYLINDER D_OHJAUS UNITS=MM, \$
 GRAPH=OFF TEXT=OFF MULT=10.00 OUTPUT=BOTH HALF ANGLE=NO

AX	MEAS	NOMINAL	DEV	+TOL	-TOL	OUTTOL
D	268.090	268.000	0.090	0.120	0.060	0.000 ----#----

 END OF DIMENSION LOC1

DIM LOC2= LOCATION OF CYLINDER N_OHJAUS UNITS=MM, \$
 GRAPH=OFF TEXT=OFF MULT=10.00 OUTPUT=BOTH HALF ANGLE=NO

AX	MEAS	NOMINAL	DEV	+TOL	-TOL	OUTTOL
D	268.080	268.000	0.080	0.120	0.060	0.000 ---#-----

 END OF DIMENSION LOC2

DIM LOC4= LOCATION OF CYLINDER STAATTORI UNITS=MM, \$
 GRAPH=OFF TEXT=OFF MULT=10.00 OUTPUT=BOTH HALF ANGLE=NO

AX	MEAS	NOMINAL	DEV	+TOL	-TOL	OUTTOL
D	255.942	255.999	-0.057	0.000	-0.070	0.000 -#-----

 END OF DIMENSION LOC4

DIM DIST1= 3D DISTANCE FROM PLANE D_TASO TO PLANE N_TASO, SHORTEST=OFF, NO_RADIUS UNITS=MM, \$
 GRAPH=OFF TEXT=OFF MULT=10.00 OUTPUT=BOTH

AX	MEAS	NOMINAL	DEV	+TOL	-TOL	OUTTOL
M	470.525	470.500	0.025	0.100	-0.100	0.000 -----#----

DIM CONCEN1= CONCENTRICITY FROM CYLINDER STAATTORI TO LINE LIN1 UNITS=MM, \$
 GRAPH=OFF TEXT=OFF MULT=10.00 OUTPUT=BOTH

AX	MEAS	NOMINAL	DEV	+TOL	-TOL	OUTTOL
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PART NUMBER=Lopputyö_uusi      DATE=24.11.2011      TIME=10:40:53      PAGE#=6
M      0.005      0.000      0.005      0.040      0.000      0.000  -#-----
DIM PERP1= PERPENDICULARITY OF PLANE D_TASO,RFS TO LINE LIN1,RFS UNITS=MM , $
GRAPH=OFF TEXT=OFF MULT=10.00 OUTPUT=BOTH
AX      MEAS      NOMINAL      DEV      +TOL      -TOL      OUTTOL
M      0.059      0.000      0.059      0.040      0.000      0.019  ----->
DIM PERP2= PERPENDICULARITY OF PLANE N_TASO,RFS TO LINE LIN1,RFS UNITS=MM , $
GRAPH=OFF TEXT=OFF MULT=10.00 OUTPUT=BOTH
AX      MEAS      NOMINAL      DEV      +TOL      -TOL      OUTTOL
M      0.069      0.000      0.069      0.040      0.000      0.029  ----->
DIM PARL1= PARALLELISM OF CYLINDER STAATTORI,RFS TO LINE LIN1,RFS EXTENDLENGTH=0.000 UNITS=MM , $
GRAPH=OFF TEXT=OFF MULT=10.00 OUTPUT=BOTH
AX      MEAS      NOMINAL      DEV      +TOL      -TOL      OUTTOL
M      0.029      0.000      0.029      0.040      0.000      0.000  -----#--
DIM CYLY1= CYLINDRICITY OF CYLINDER STAATTORI UNITS=MM , $
GRAPH=OFF TEXT=OFF MULT=10.00 ARROWDENSITY=100 OUTPUT=BOTH
AX      MEAS      NOMINAL      DEV      +TOL      -TOL      OUTTOL
M      0.076      0.000      0.076      0.000      0.000      0.076  ----->
DIM LOC3= LOCATION OF CIRCLE D_STAATTORI UNITS=MM , $
GRAPH=OFF TEXT=OFF MULT=10.00 OUTPUT=BOTH HALF ANGLE=NO
AX      MEAS      NOMINAL      DEV      +TOL      -TOL      OUTTOL
D      255.942      256.000      -0.058      0.000      -0.070      0.000  -#-----
END OF DIMENSION LOC3
DIM LOC5= LOCATION OF CIRCLE N_STAATTORI UNITS=MM , $
GRAPH=OFF TEXT=OFF MULT=10.00 OUTPUT=BOTH HALF ANGLE=NO
AX      MEAS      NOMINAL      DEV      +TOL      -TOL      OUTTOL
D      255.943      256.000      -0.057      0.000      -0.070      0.000  -#-----
END OF DIMENSION LOC5

                                END OF MEASUREMENT FOR
PN=Lopputyö_uusi                DWG=3GZF113016-126.uusi                SN=
TOTAL # OF MEAS =0              # OUT OF TOL =0              # OF HOURS =00:00:00

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