



TEST DATA

Measurement point	0.0	Date	01-00-1900
Workpiece's reference	0	Location	0.0
Customer name	0.0	Job number	0

MATERIAL DATA

Material type	0.0			
Young modulus	71000.0	±	5.0%	
Poisson's ratio	0.33	±	5.0%	
Yield stress	0.0	MPa	Thickness	6.00 mm

AMPLIFIER / STRAIN GAGE DETAILS

Rosette	K-RY61-1.5/120R	Rosette type	B
Rosette diameter	5.10 mm	Position	Grid A in axial direction
Gage factor - Grid A	1.95	±	1.5%
Gage factor - Grid B	1.93	±	1.5%
Gage factor - Grid C	1.95	±	1.5%

HOLE DATA

Total depth	1.200 mm	Number of steps	40
Hole diameter	1.76 mm	Hole eccentricity	0.050 mm
Hole radius X ₁	0.85 mm	Hole radius X ₂	0.95 mm
Hole radius Y ₁	0.84 mm	Hole radius Y ₂	0.88 mm

INSTRUMENT DATA

Hole drilling device	MTS3000-Restan	SINT n.	640	/	641
Strain gage amplifier	QuantumX MX440	SINT n.	1329		
Dial gauge	Mitutoyo 2046SB	SINT n.	992	/	993

The measurement uncertainties stated in this document were estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage factor k=2, that for a normal distribution, corresponding to a confidence level of about 95%.

Test Owner

0

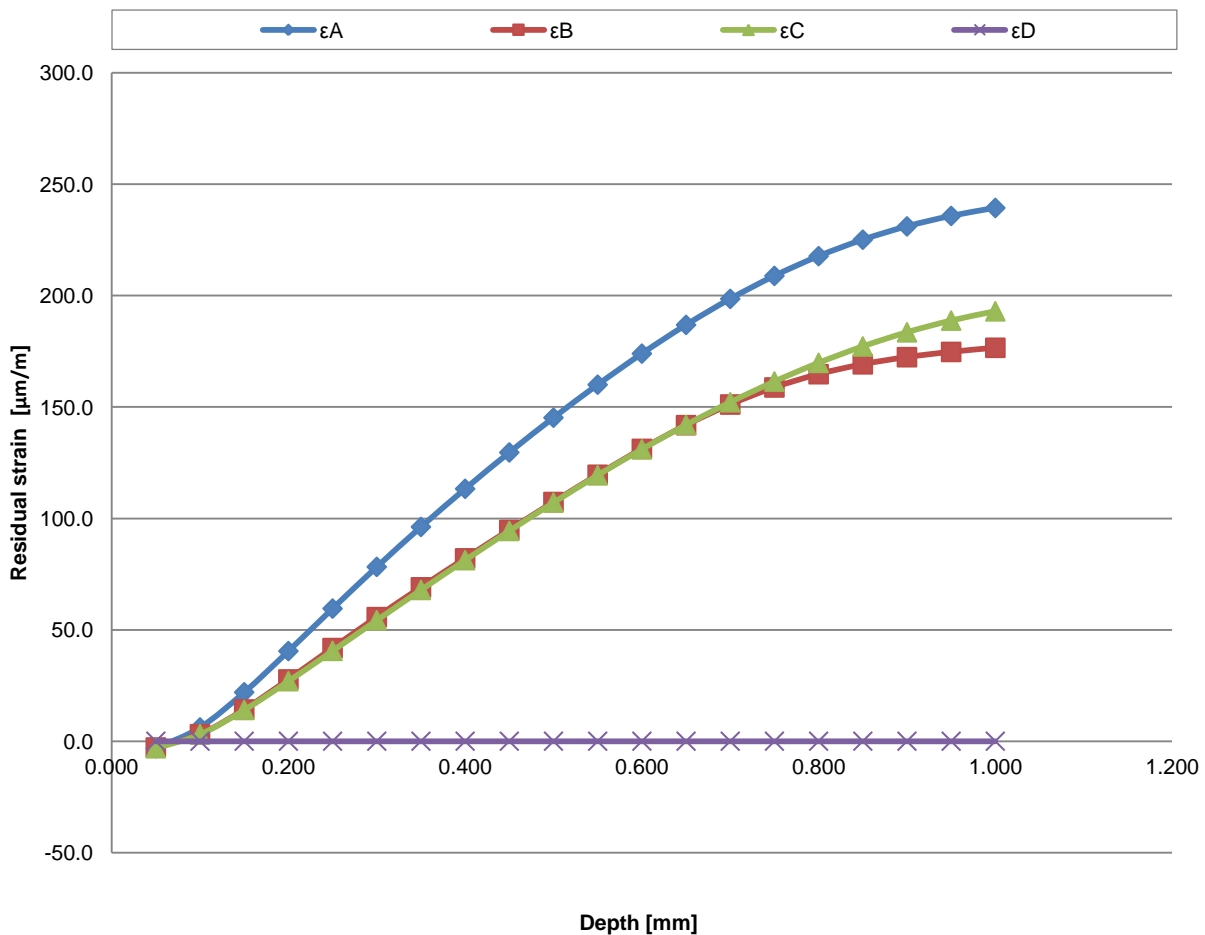
Head of Residual stress area

Ing. Alessio Benincasa



Depth [mm]	ϵ_A [$\mu\text{m}/\text{m}$]	$\pm U \epsilon_A$ [$\mu\text{m}/\text{m}$]	ϵ_B [$\mu\text{m}/\text{m}$]	$\pm U \epsilon_B$ [$\mu\text{m}/\text{m}$]	ϵ_C [$\mu\text{m}/\text{m}$]	$\pm U \epsilon_C$ [$\mu\text{m}/\text{m}$]	ϵ_D [$\mu\text{m}/\text{m}$]	$\pm U \epsilon_D$ [$\mu\text{m}/\text{m}$]
0.050	-3.2	2.6	-2.8	2.6	-3.2	2.6	/	/
0.100	6.2	2.6	3.1	2.6	3.1	2.6	/	/
0.150	22.0	2.6	14.2	2.6	14.0	2.6	/	/
0.200	40.4	2.7	27.7	2.7	26.9	2.6	/	/
0.250	59.5	2.8	41.8	2.7	40.6	2.7	/	/
0.300	78.2	2.9	55.7	2.8	54.3	2.7	/	/
0.350	96.2	3.0	69.1	2.8	67.9	2.8	/	/
0.400	113.3	3.1	82.1	2.9	81.3	2.9	/	/
0.450	129.6	3.3	94.8	3.0	94.4	3.0	/	/
0.500	145.2	3.4	107.4	3.1	107.1	3.1	/	/
0.550	160.0	3.5	119.6	3.2	119.4	3.2	/	/
0.600	174.0	3.7	131.2	3.3	131.0	3.3	/	/
0.650	186.9	3.8	141.9	3.4	142.0	3.4	/	/
0.700	198.6	4.0	151.1	3.5	152.2	3.5	/	/
0.750	208.9	4.1	158.8	3.6	161.4	3.6	/	/
0.800	217.7	4.2	164.8	3.6	169.8	3.7	/	/
0.850	225.1	4.3	169.2	3.7	177.2	3.7	/	/
0.900	231.1	4.3	172.4	3.7	183.5	3.8	/	/
0.950	235.8	4.4	174.7	3.7	188.8	3.9	/	/
1.000	239.4	4.4	176.6	3.7	193.0	3.9	/	/

D_{std}^2	0.06	[$\mu\text{m}/\text{m}$]
Q_{std}^2	0.04	[$\mu\text{m}/\text{m}$]
t_{std}^2	0.03	[$\mu\text{m}/\text{m}$]





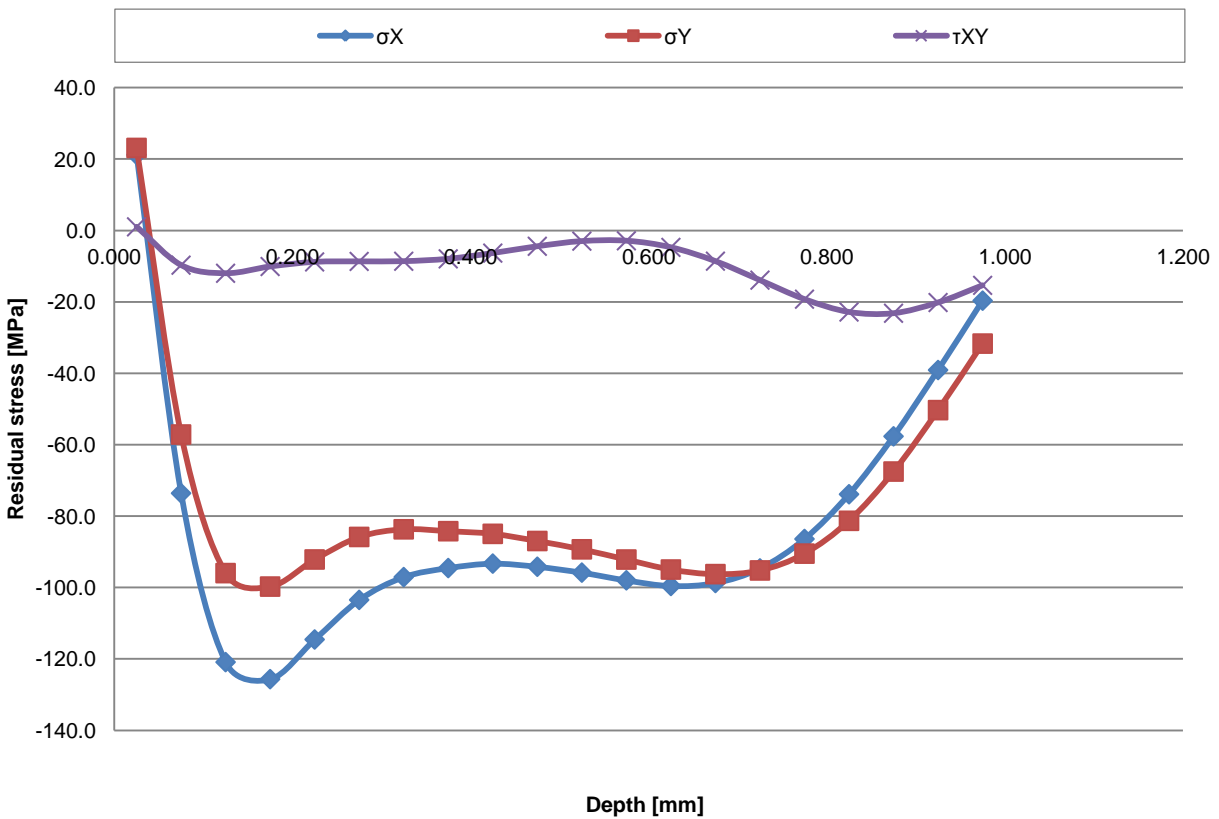
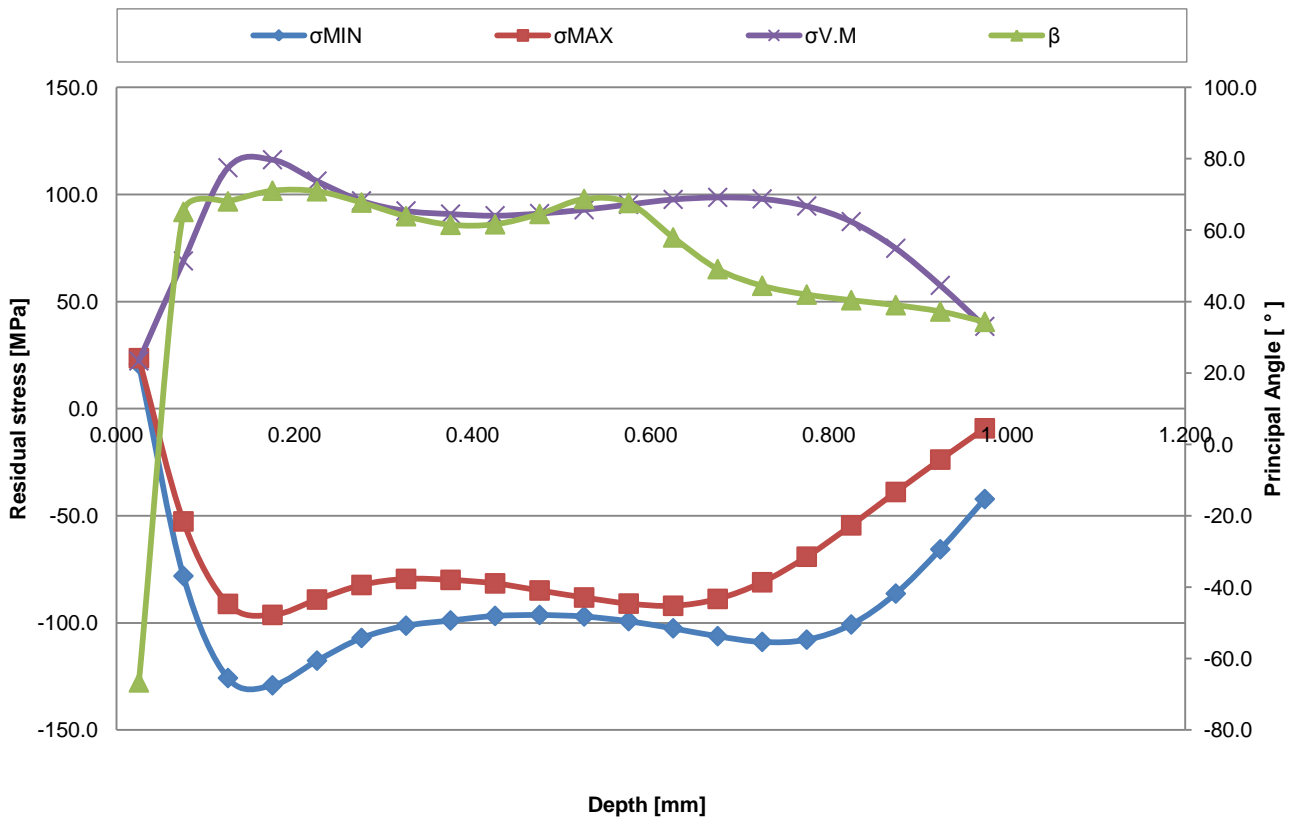
ASTM E837-13: UNIFORM STRESS

Type:	Blind			$\sigma_{V,M}$ [MPa]	84.3	±	9.0
σ_{MIN} [MPa]	-92.7	±	9.2	σ_X [MPa]	-89.0	±	9.2
σ_{MAX} [MPa]	-72.1	±	8.7	σ_Y [MPa]	-75.8	±	8.8
β [°]	64.9	±	1.0	τ_{XY} [MPa]	-7.9	±	7.8

ASTM E837-13: NOT UNIFORM STRESS

Depth [mm]	σ_{MIN} [MPa]	$\pm U \sigma_{MIN}$ [MPa]	σ_{MAX} [MPa]	$\pm U \sigma_{MAX}$ [MPa]	β [°]	$\pm U \beta$ [°]	$\sigma_{V,M}$ [MPa]	$\pm U \sigma_{V,M}$ [MPa]
0.025	20.8	7.9	23.6	7.9	-66.7	1.0	22.3	7.9
0.075	-78.1	8.8	-52.6	8.3	65.1	1.0	69.0	8.6
0.125	-125.7	10.3	-91.1	9.3	68.1	1.1	112.5	9.8
0.175	-129.1	10.4	-96.3	9.4	71.0	1.1	116.2	10.0
0.225	-117.6	10.0	-89.1	9.2	70.9	1.1	106.3	9.6
0.275	-107.0	9.6	-82.3	9.0	67.7	1.1	97.0	9.4
0.325	-101.3	9.5	-79.5	8.9	63.9	1.0	92.3	9.2
0.375	-98.9	9.4	-79.9	8.9	61.5	1.0	90.9	9.2
0.425	-96.7	9.3	-81.5	9.0	61.7	1.0	90.1	9.2
0.475	-96.3	9.3	-84.9	9.1	64.5	1.0	91.1	9.2
0.525	-97.0	9.3	-88.1	9.2	68.7	1.1	92.9	9.2
0.575	-99.2	9.4	-91.0	9.3	67.6	1.1	95.3	9.3
0.625	-102.5	9.5	-92.0	9.3	58.0	0.9	97.7	9.4
0.675	-106.2	9.6	-88.8	9.2	49.1	0.8	98.6	9.4
0.725	-108.9	9.7	-81.0	9.0	44.4	0.7	97.9	9.4
0.775	-107.8	9.7	-69.1	8.7	42.0	0.7	94.6	9.3
0.825	-100.7	9.4	-54.5	8.3	40.4	0.6	87.3	9.1
0.875	-86.3	9.0	-38.9	8.1	39.0	0.6	74.9	8.8
0.925	-65.7	8.5	-23.8	7.9	37.2	0.6	57.6	8.4
0.975	-42.2	8.1	-9.2	7.8	34.3	0.5	38.4	8.1

Depth [mm]	σ_X [MPa]	$\pm U \sigma_X$ [MPa]	σ_Y [MPa]	$\pm U \sigma_Y$ [MPa]	τ_{XY} [MPa]	$\pm U \tau_{XY}$ [MPa]
0.025	21.2	7.9	23.1	7.9	1.0	7.8
0.075	-73.6	8.8	-57.1	8.4	-9.7	7.8
0.125	-120.9	10.2	-96.0	9.3	-12.0	7.9
0.175	-125.7	10.3	-99.7	9.4	-10.1	7.8
0.225	-114.6	10.0	-92.1	9.2	-8.8	7.8
0.275	-103.5	9.6	-85.8	9.0	-8.7	7.8
0.325	-97.1	9.4	-83.7	9.0	-8.6	7.8
0.375	-94.5	9.3	-84.2	9.0	-7.9	7.8
0.425	-93.3	9.3	-85.0	9.0	-6.3	7.8
0.475	-94.2	9.3	-87.0	9.1	-4.4	7.8
0.525	-95.8	9.4	-89.3	9.1	-3.0	7.8
0.575	-98.0	9.4	-92.2	9.2	-2.9	7.8
0.625	-99.6	9.5	-95.0	9.3	-4.7	7.8
0.675	-98.7	9.5	-96.2	9.3	-8.6	7.8
0.725	-94.7	9.3	-95.2	9.3	-13.9	7.9
0.775	-86.4	9.1	-90.5	9.2	-19.2	7.9
0.825	-73.9	8.8	-81.3	8.9	-22.8	8.0
0.875	-57.7	8.4	-67.5	8.6	-23.2	8.0
0.925	-39.1	8.1	-50.3	8.2	-20.2	7.9
0.975	-19.7	7.9	-31.7	8.0	-15.4	7.9



NOTE Several computed stresses significantly exceed 80 % of the material yield stress, then the results are considered as indicative only. In general, the computed stresses whose values exceed 80 % of the material yield stress tend to be overestimated.