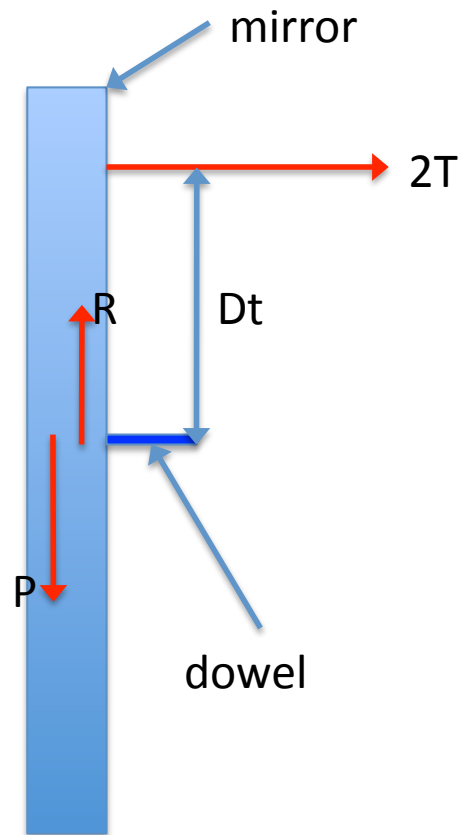


NA62 RICH

LUNGHEZZE NASTRI REGOLATORI E STABILIZZATORI

BALANCING THE MIRROR



Mirror CG offset from the dowel contact : $D_p = 5 \text{ mm}$

Mirror weight : $P = 200 \text{ N}$

Overturning moment : $M_p = D_p * P = 1000 \text{ Nmm}$

Balancing moment : $M_t = 2T * D_t = 2T * 178 = 356T \text{ Nmm}$

Balancing Force : $T = \frac{D_p * P}{356} = 2,8 \text{ N}$

MATERIALS (GLUED JOINT)

MATERIAL PROPERTIES									
MATERIAL	DENSITY (Kg/m³)	ELASTIC MODULUS (MPa)	POISSON'S RATIO	TENSILE STRENGTH R_m (MPa)	YELD STRENGTH R_{p0,2}(MPa)	SHEAR STRENGTH R_t (MPa)	PEELING STRENGTH R_{ps} (N/mm)	FLEXURAL STRENGTH R_F (MPa)	FLEXURAL MODULUS (MPa)
ALUMINUM 6082 ANNEALED (ANTICORO DAL)	2700	70000	0,345	110	60	63			
EPOXY (ARALDITE 2012)	1180					34	5,5	46	1654

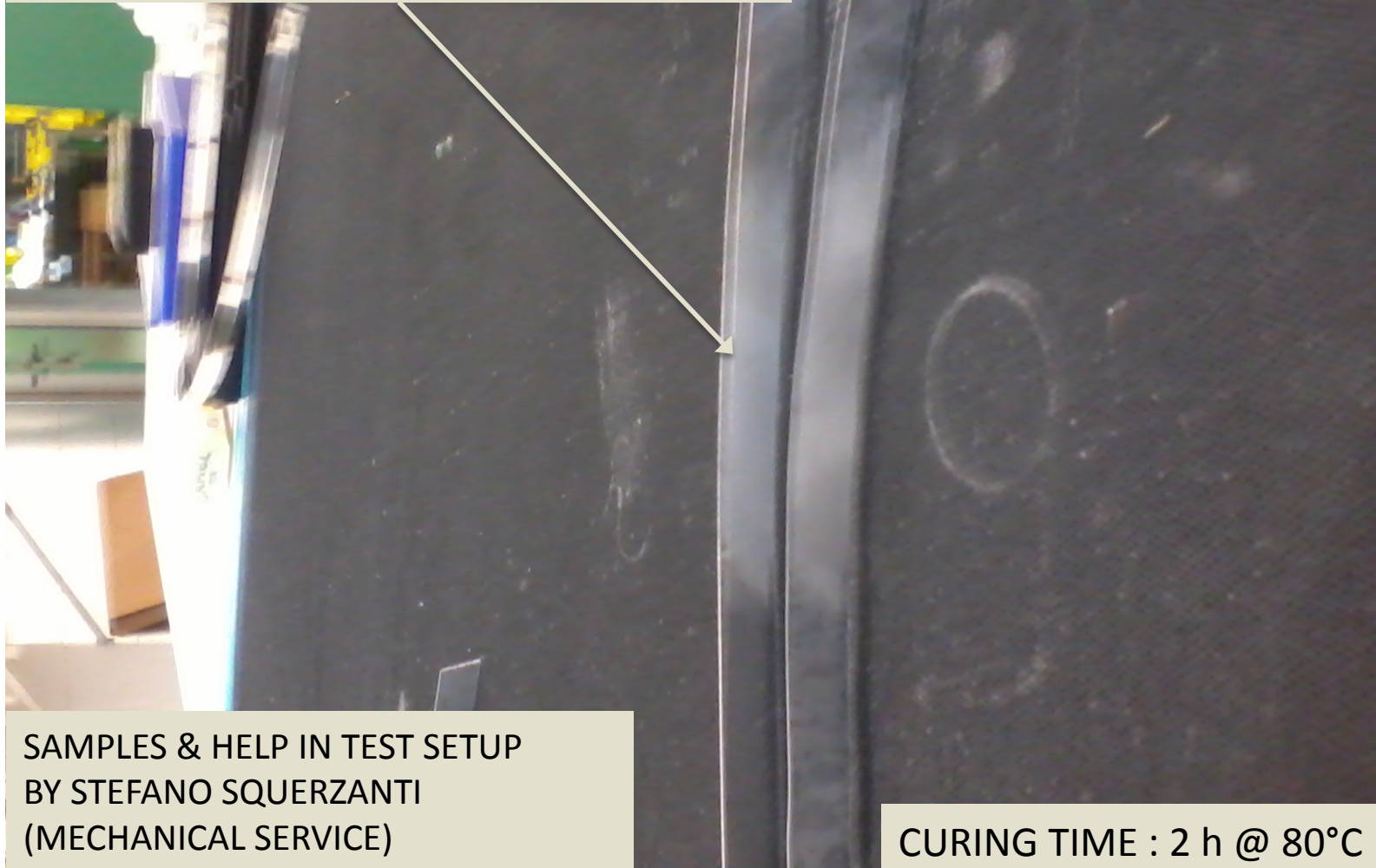
RIBBON DIMENSIONS :

- THICKNESS = 0,2 mm
- WIDTH = 10 mm

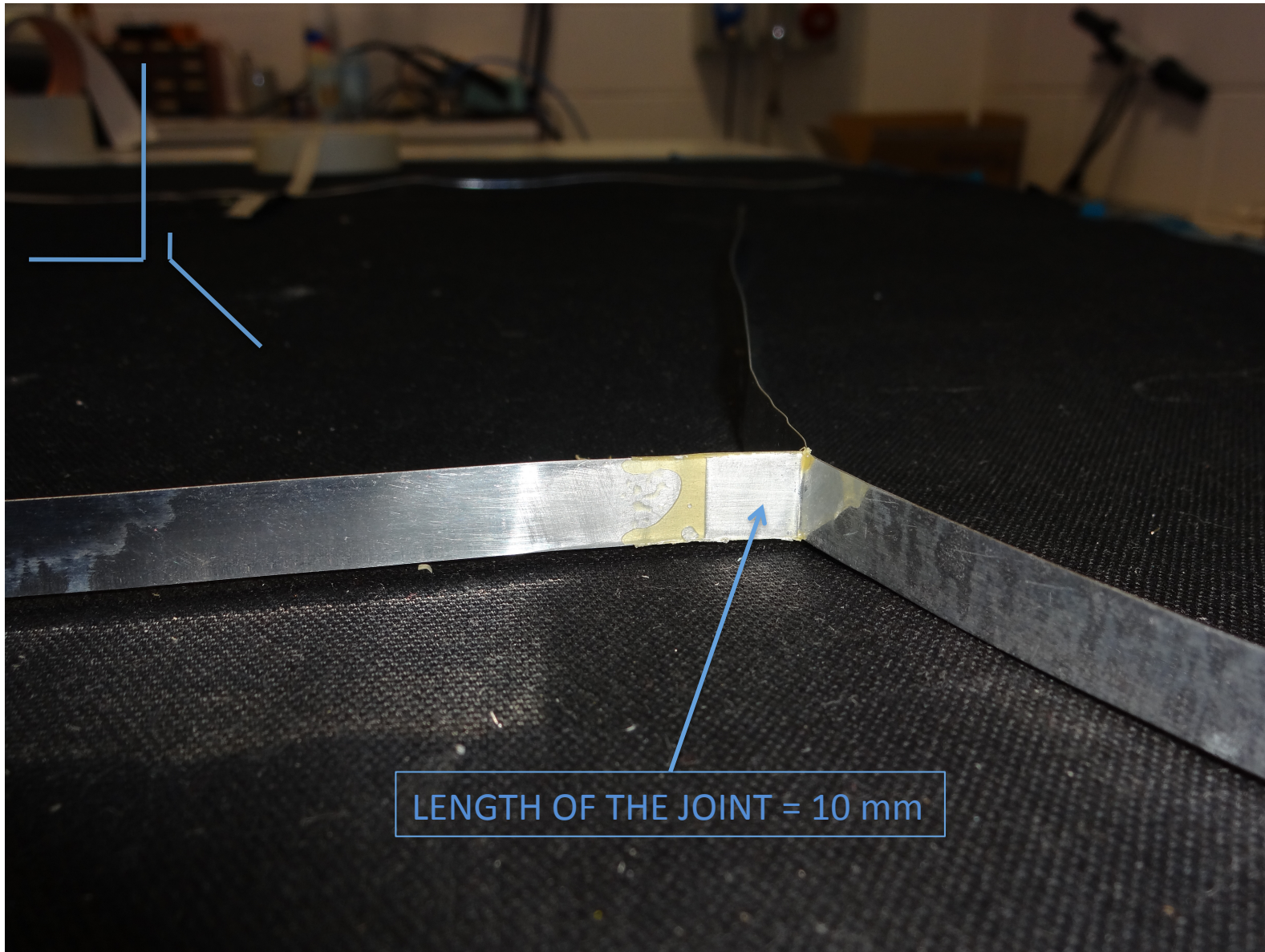
BONDING THE ALUMINUM RIBBONS

PREPARATION OF THE JOINTS :

ALUMINUM JOINTS ABRADED AND DEGREASED



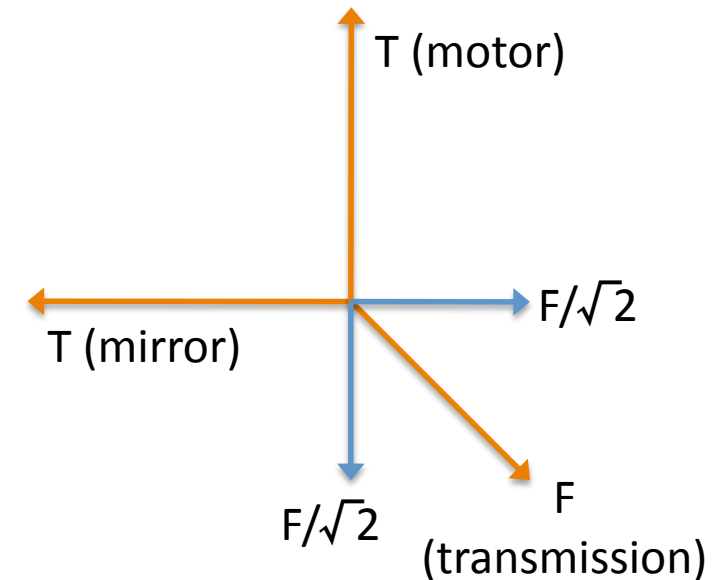
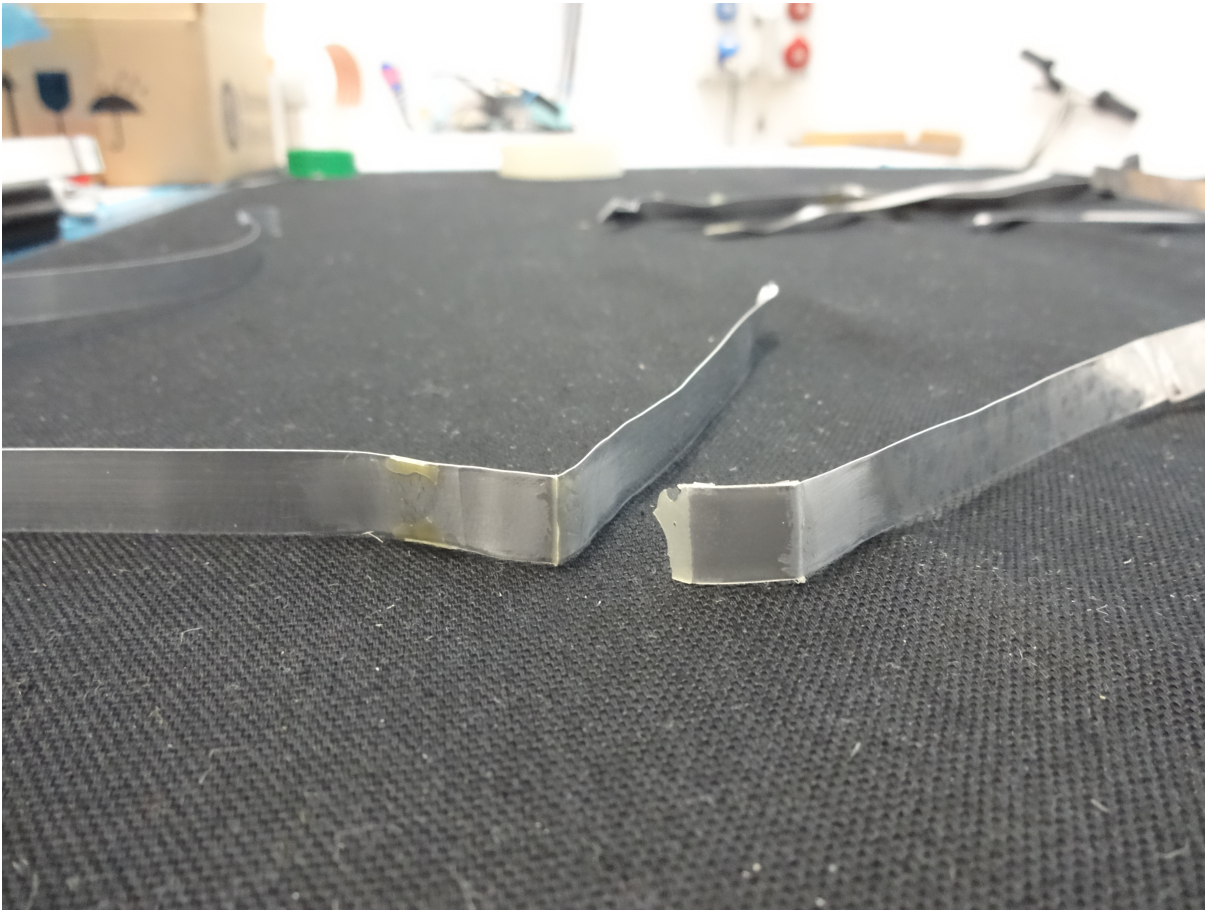
GLUED JOINT V1 – SIMPLY JOINED SURFACES



GLUED JOINT V1 – TEST SETUP



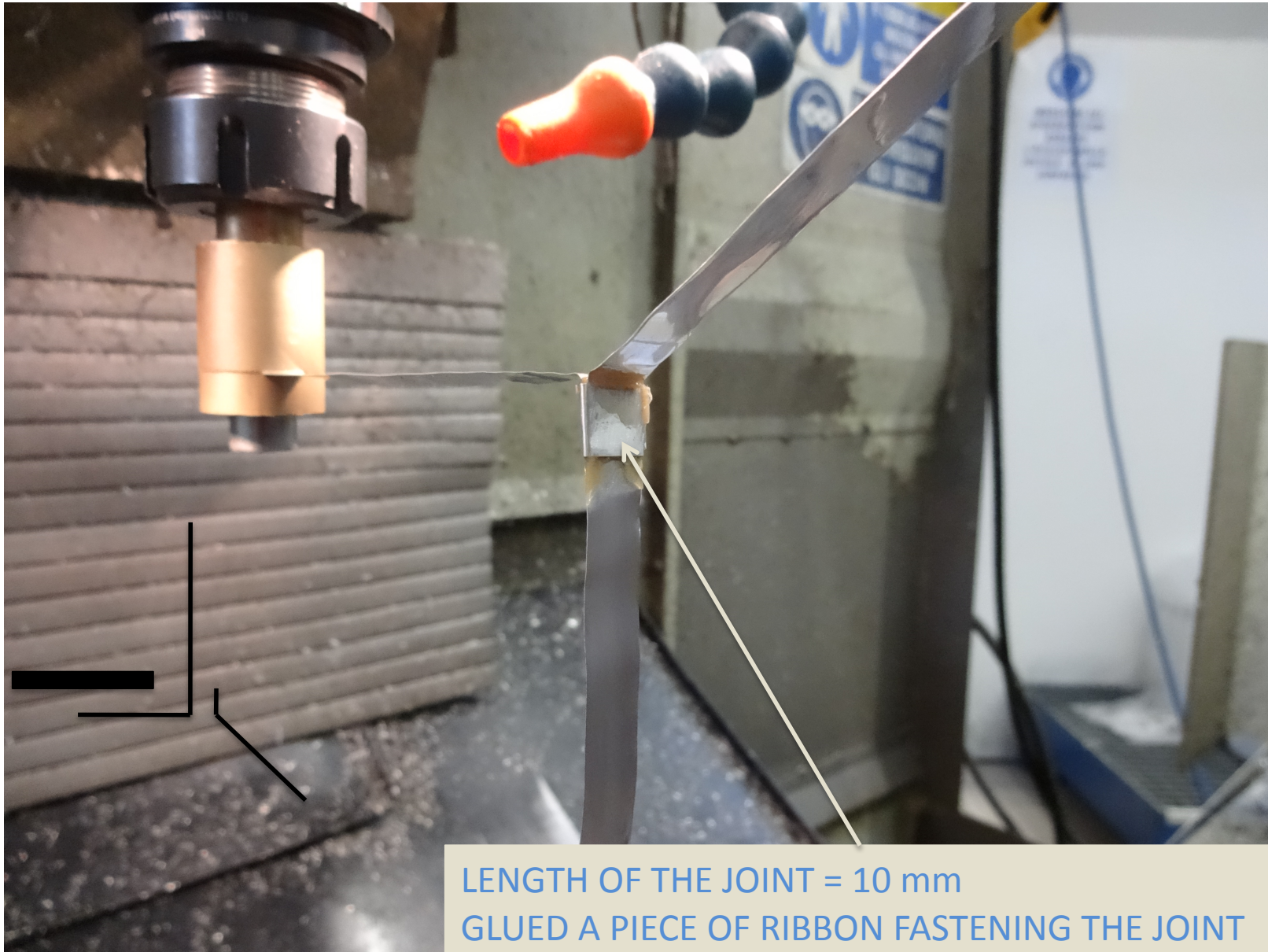
GLUED JOINT V1 – TEST RESULTS



THE JOINT BREAKS @ $F = 80 \text{ N}$
Safety factor = $F/T = 80/2,8 = 28$

PEELING FORCE = $80/1,41 = 57 \text{ N}$
(ACCORDING TO THE GIVEN PEELING STRENGTH)

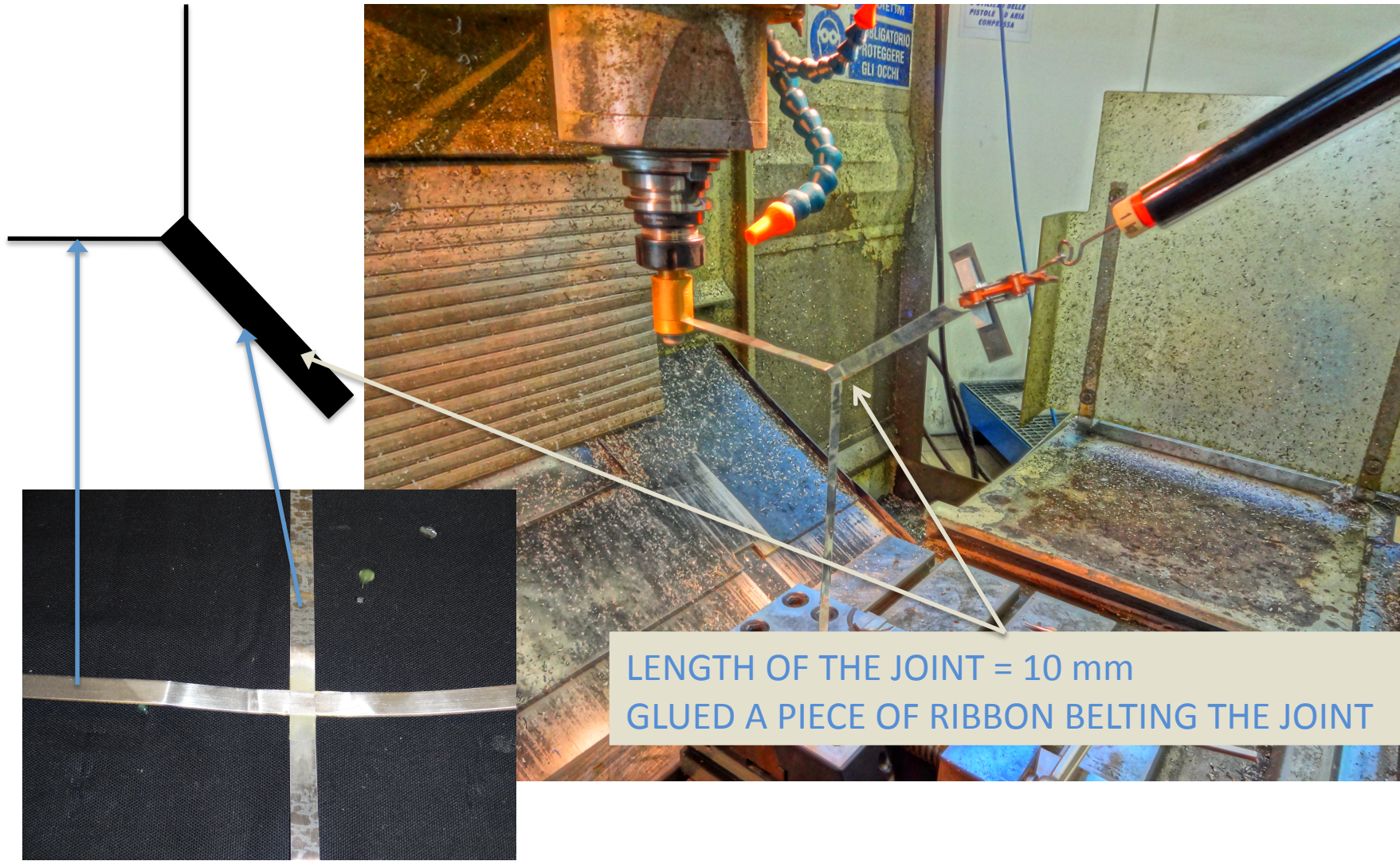
GLUED JOINT V2 – JOINED & TIED SURFACES



GLUED JOINT V2 – TEST RESULTS



GLUED JOINT V3 – BELTED JOINT



GLUED JOINT V3 – TEST RESULTS

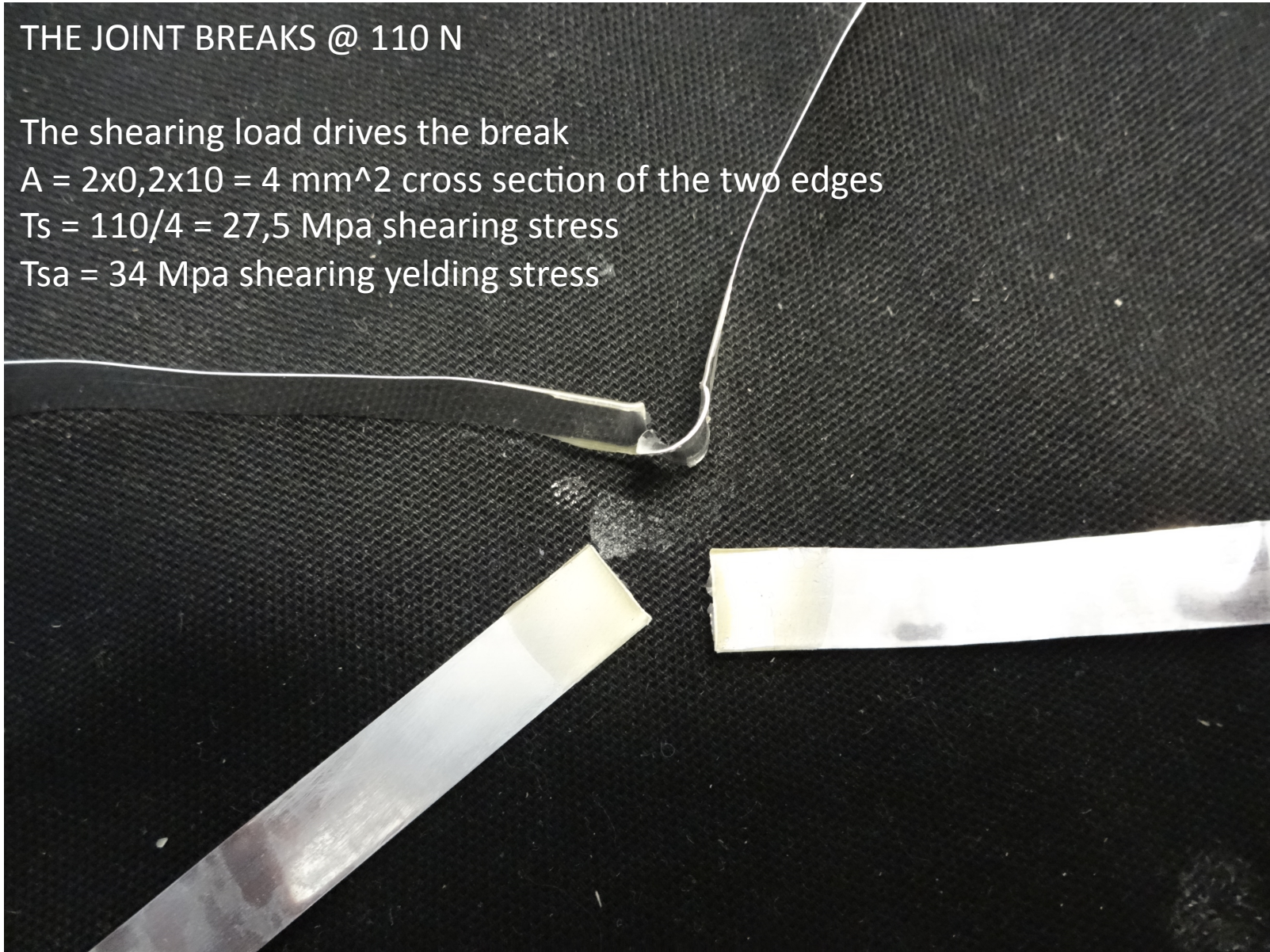
THE JOINT BREAKS @ 110 N

The shearing load drives the break

$A = 2 \times 0,2 \times 10 = 4 \text{ mm}^2$ cross section of the two edges

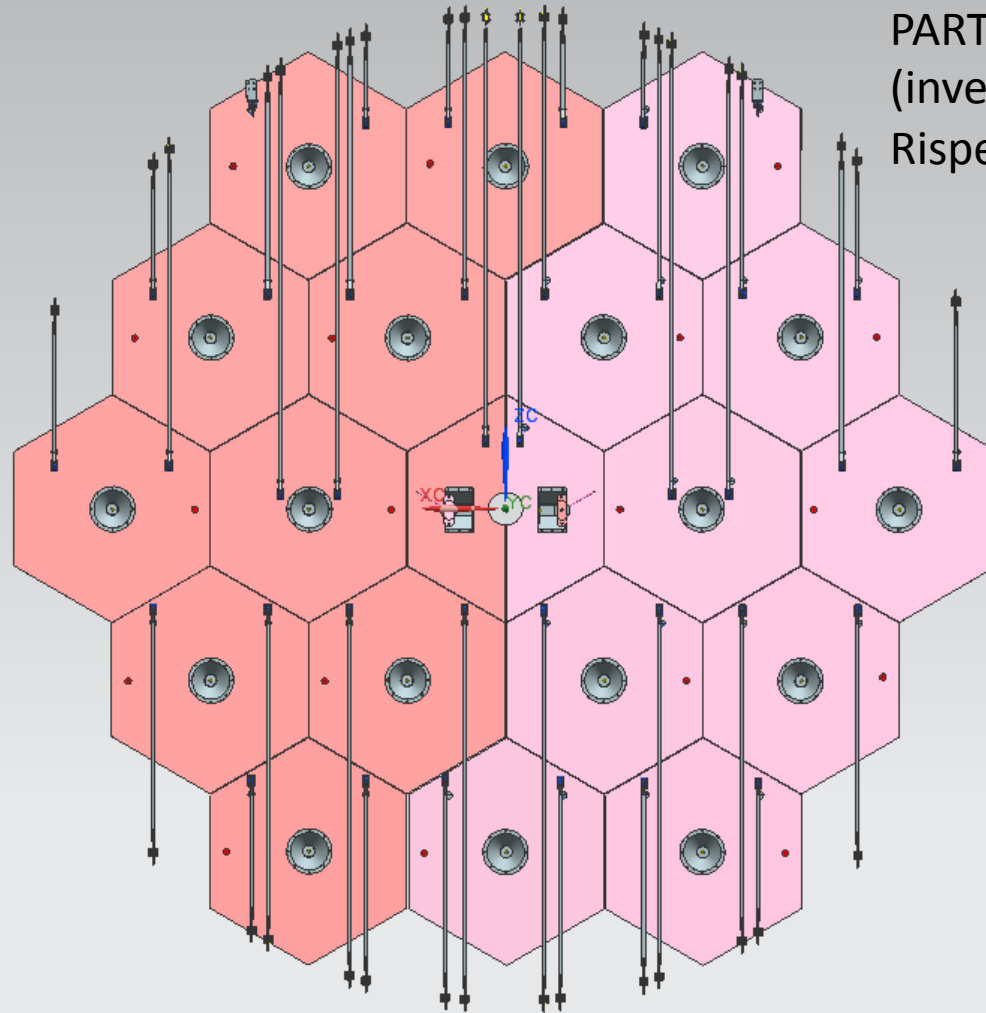
$T_s = 110/4 = 27,5 \text{ Mpa}$ shearing stress

$T_{sa} = 34 \text{ Mpa}$ shearing yielding stress

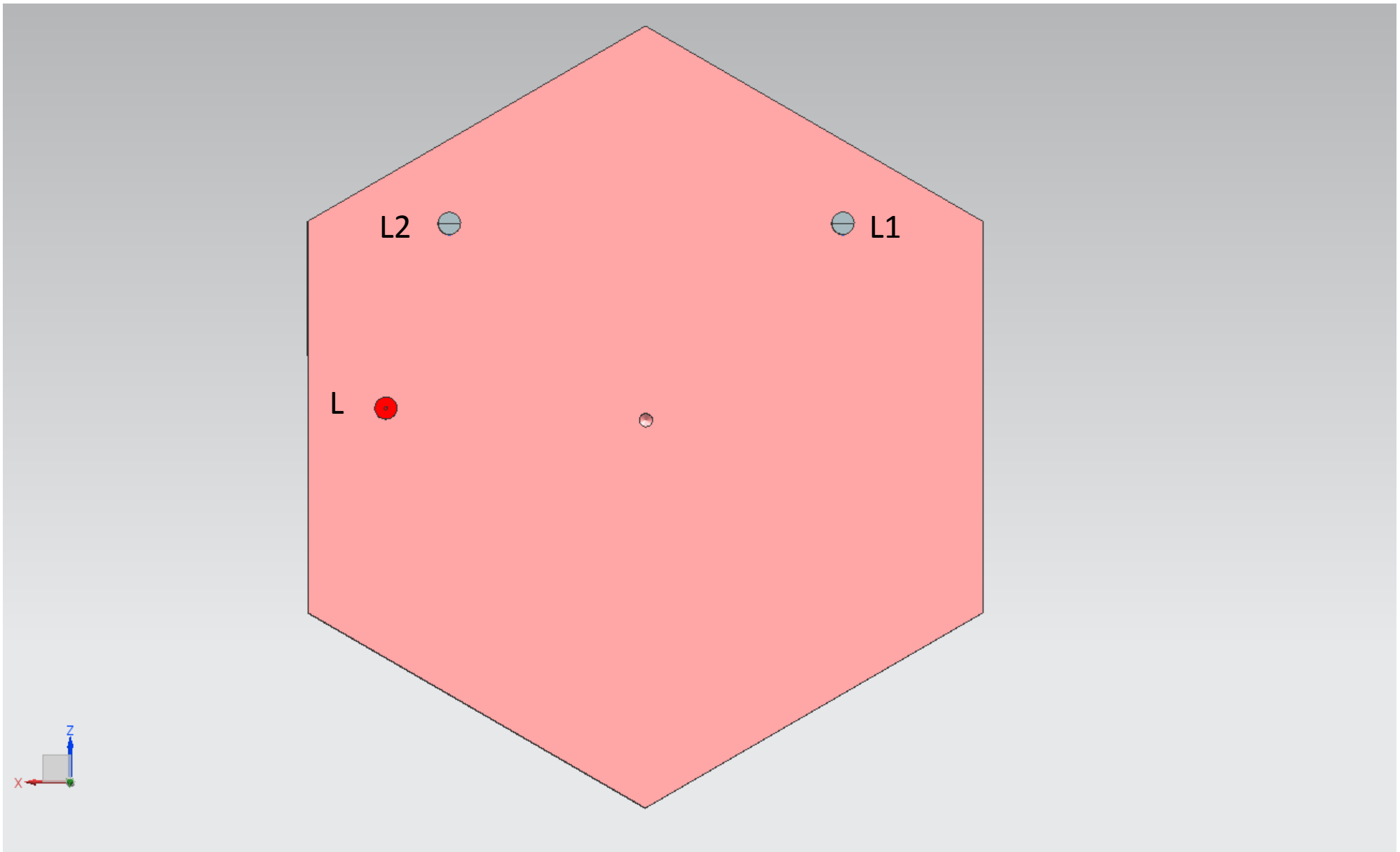


MIRRORS LAYOUT

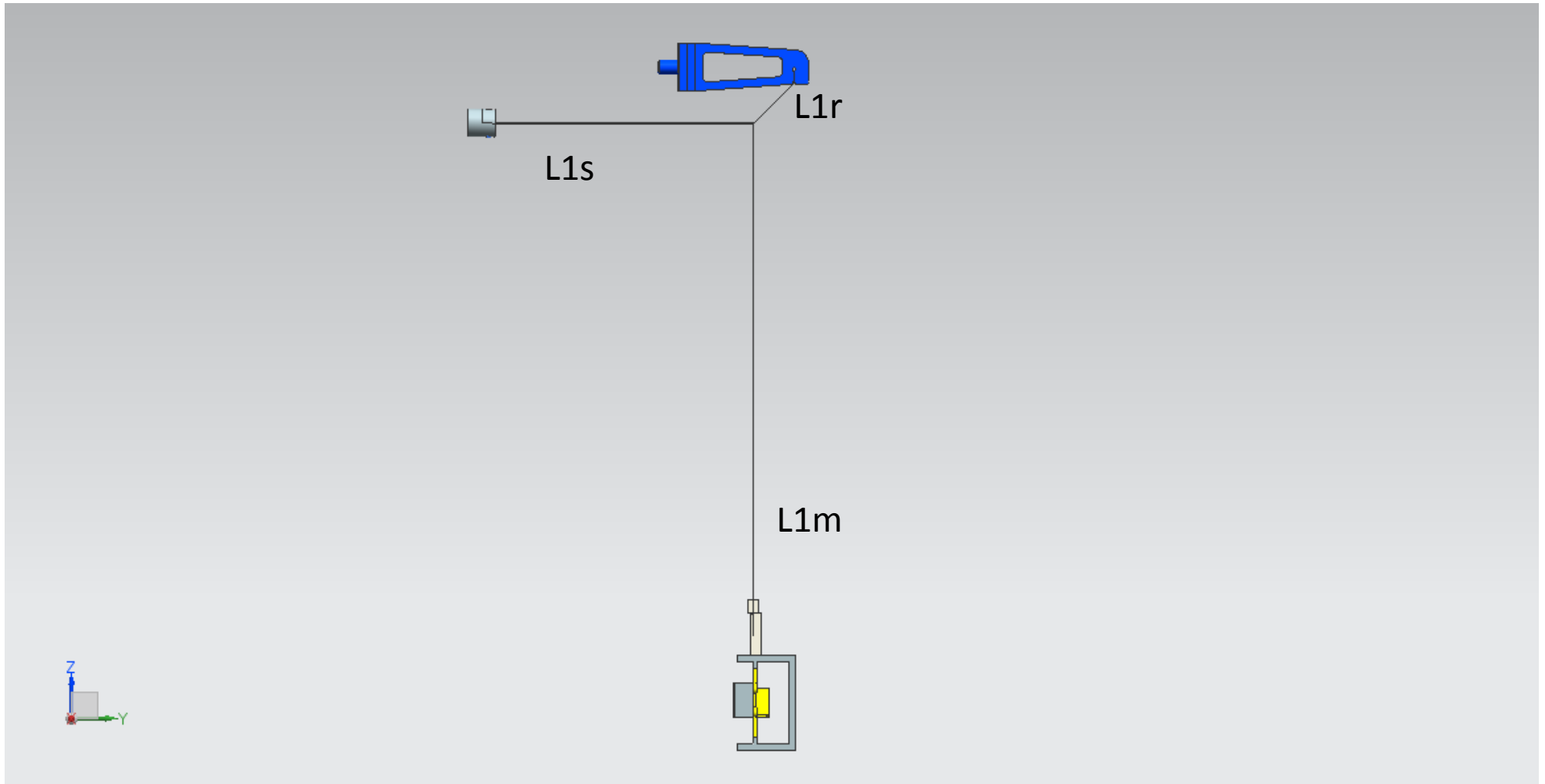
SPECCHI VISTI DALLA
PARTE DEI CONI
(invertita destra con sinistra
Rispetto a vista parte montaggio)



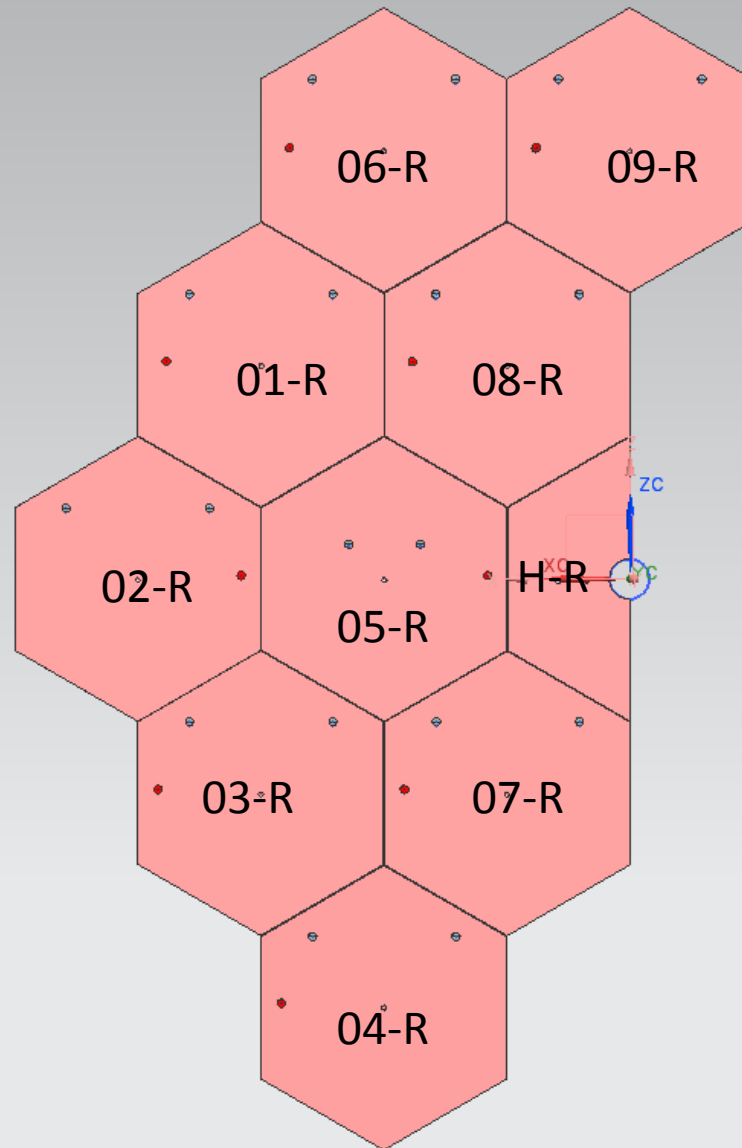
RIFERIMENTI LUNGHEZZA NASTRI



RIFERIMENTI LUNGHEZZA NASTRI



MIRRORS LAYOUT – RIGHT HALF SIDE



SPECCHI VISTI DALLA
PARTE DEI CONI

LUNGHEZZE NASTRI REGOLATORI - RIGHT HALF SIDE

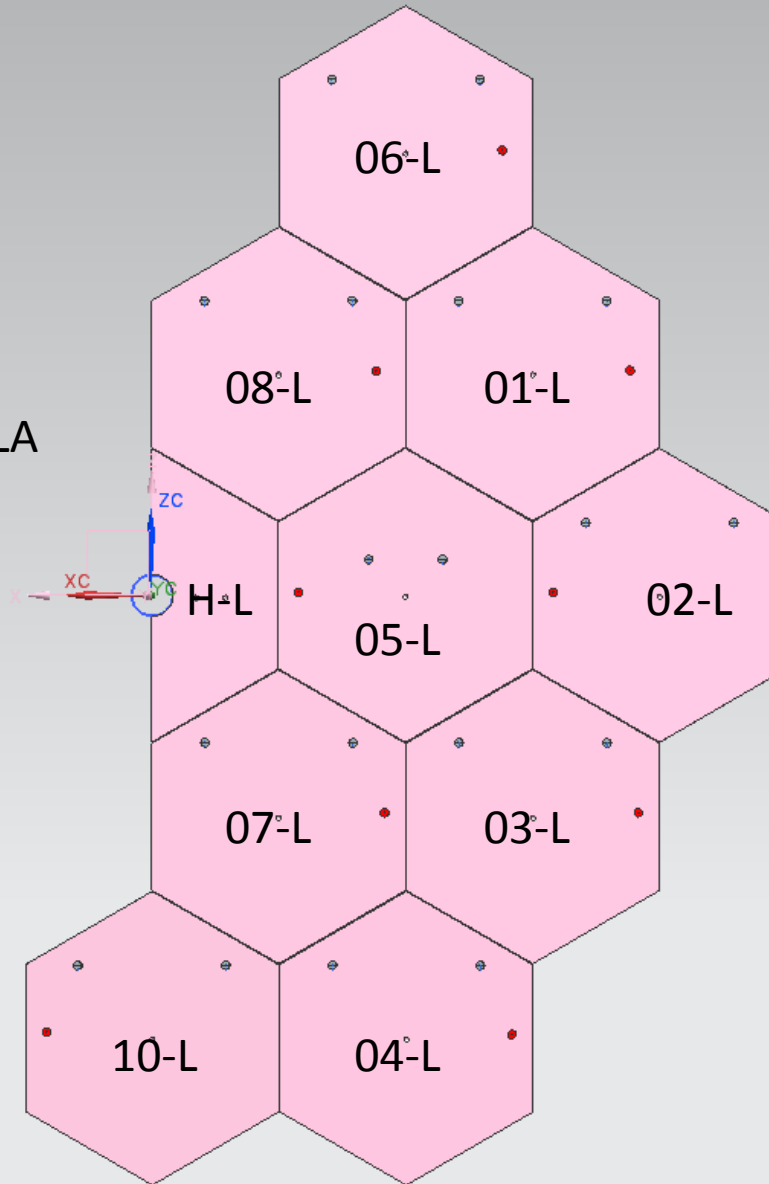
MIRROR	vs SPECCHIO (mm)		vs MOTORE (mm)		vs RINVIO (mm)	
	L1s	L2s	L1m	L2m	L1r	L2r
01-R	194	196	563	295	50	50
02-R	189	195	870	374	50	50
03-R	188	191	913	645	50	50
04-R	198	198	511	356	50	50
05-R	177	187	1278	1202	50	50
06-R	209	208	162	-	50	-
07-R	192	189	1096	1024	50	50
08-R	198	194	748	676	50	50
09-R	227	212	214	214	50	50
H-R	192		1200		50	

LUNGHEZZE NASTRI STABILIZZATORI - RIGHT HALF SIDE

MIRROR	L (mm)
01-R	1949
02-R	2340
03-R	1900
04-R	2463
05-R	2928
06-R	2488
07-R	2789
08-R	2804
09-R	2630

MIRRORS LAYOUT – LEFT HALF SIDE

SPECCHI VISTI DALLA
PARTE DEI CONI



LUNGHEZZE NASTRI REGOLATORI - LEFT HALF SIDE

MIRROR	vs SPECCHIO (mm)		vs MOTORE (mm)		vs RINVIO (mm)	
	L1s	L2s	L1m	L2m	L1r	L2r
01-L	200	199	306	566	50	50
02-L	195	192	401	882	50	50
03-L	194	194	653	916	50	50
04-L	203	206	359	511	50	50
05-L	193	194	1207	1282	50	50
06-L	207	216	-	166	-	50
07-L	196	203	1028	1096	50	50
08-L	201	207	679	748	50	50
10-L	211	220	562	560	50	50
H-L	202	-	1200	-	50	-

LUNGHEZZE NASTRI STABILIZZATORI - LEFT HALF SIDE

MIRROR	L (mm)
01-L	1950
02-L	2340
03-L	1900
04-L	2463
05-L	2928
06-L	2488
07-L	2789
08-L	2804
10-L	2968