

LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

- LIGO -

CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

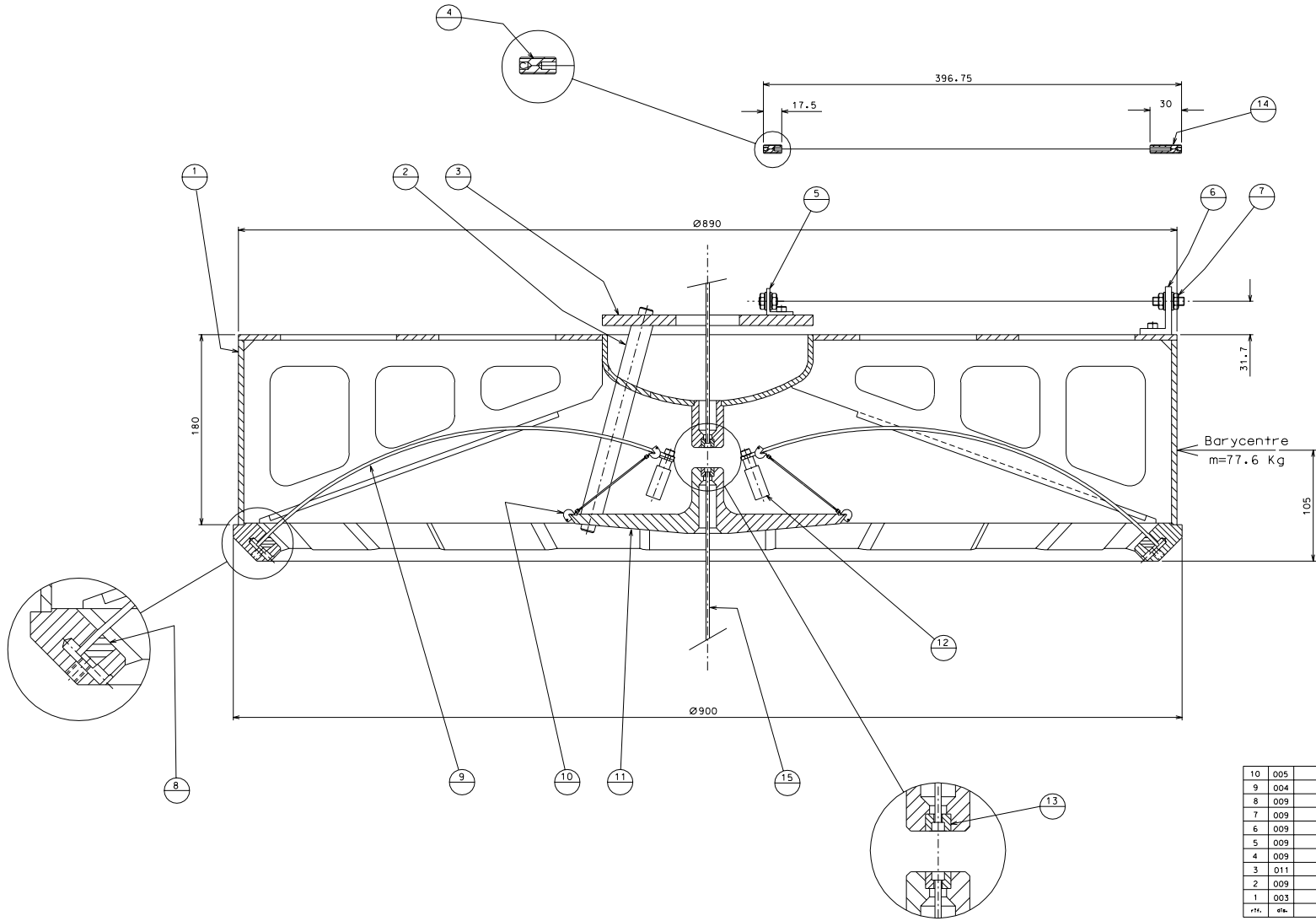
Document Type Technical Note	DCC Number LIGO-D-010242-00-R	Date 30 th October 2001
LIGO-II Seismic Attenuation System (SAS) test tower Standard Filter Mechanical drawings		
Gianni Gennaro, Tatiana Zelenova (PROMEC), Riccardo DeSalvo (LIGO)		

Distribution of this draft: TBD
This is an internal working note
of the LIGO Project.


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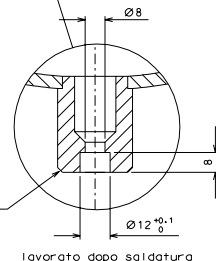
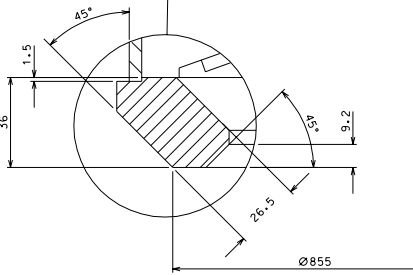
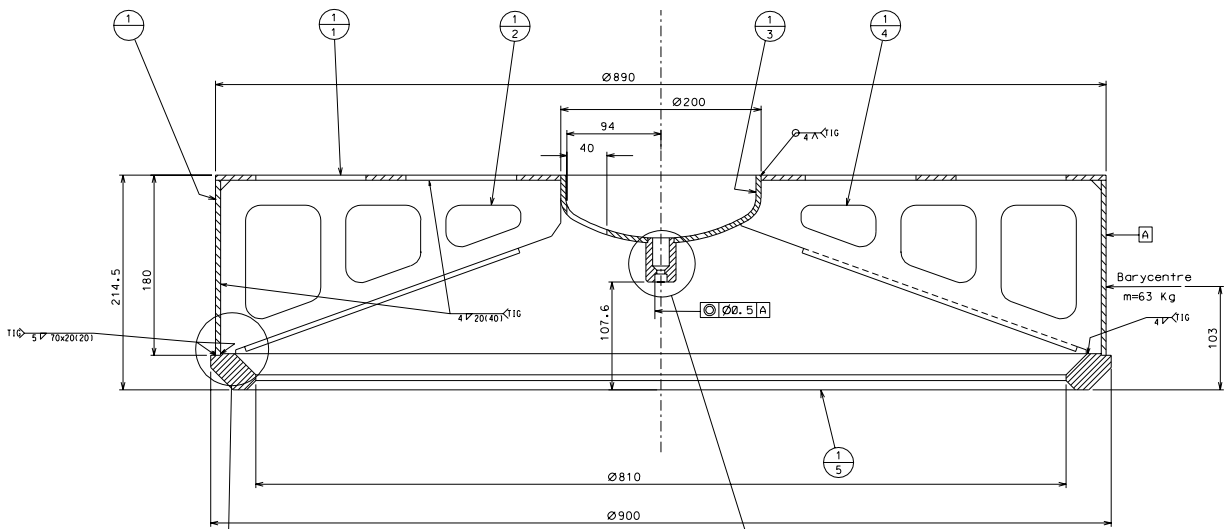
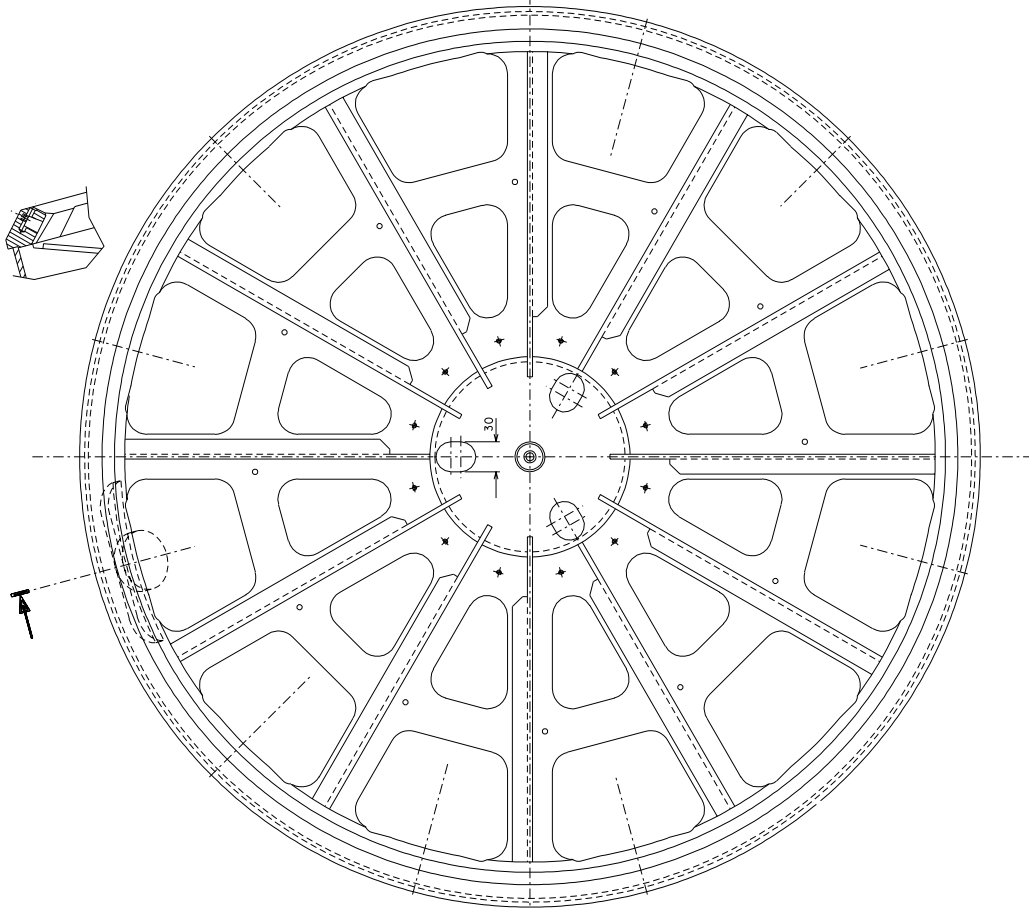
www: <http://www.ligo.caltech.edu/>



10	005				
9	004				
8	009				
7	009				
6	009				
5	009		15	013	
4	009		14	009	
3	011		13	009	
2	009		12	013	
1	003		11	010	
rfr.	dra.	senzagust	rfr.	dra.	senzagust



PROMEC S.A.S
 Bertino (Pisa)-Italia
 sistema Coltech-LIGO
 n. des. Filter-000
 str. Zelenova 30-9-98
 scala 1:2
 estr. 11 N.

PROTOTYPE FILTER
LATERAL VIEW



Nota: Dimensioni della tornitura

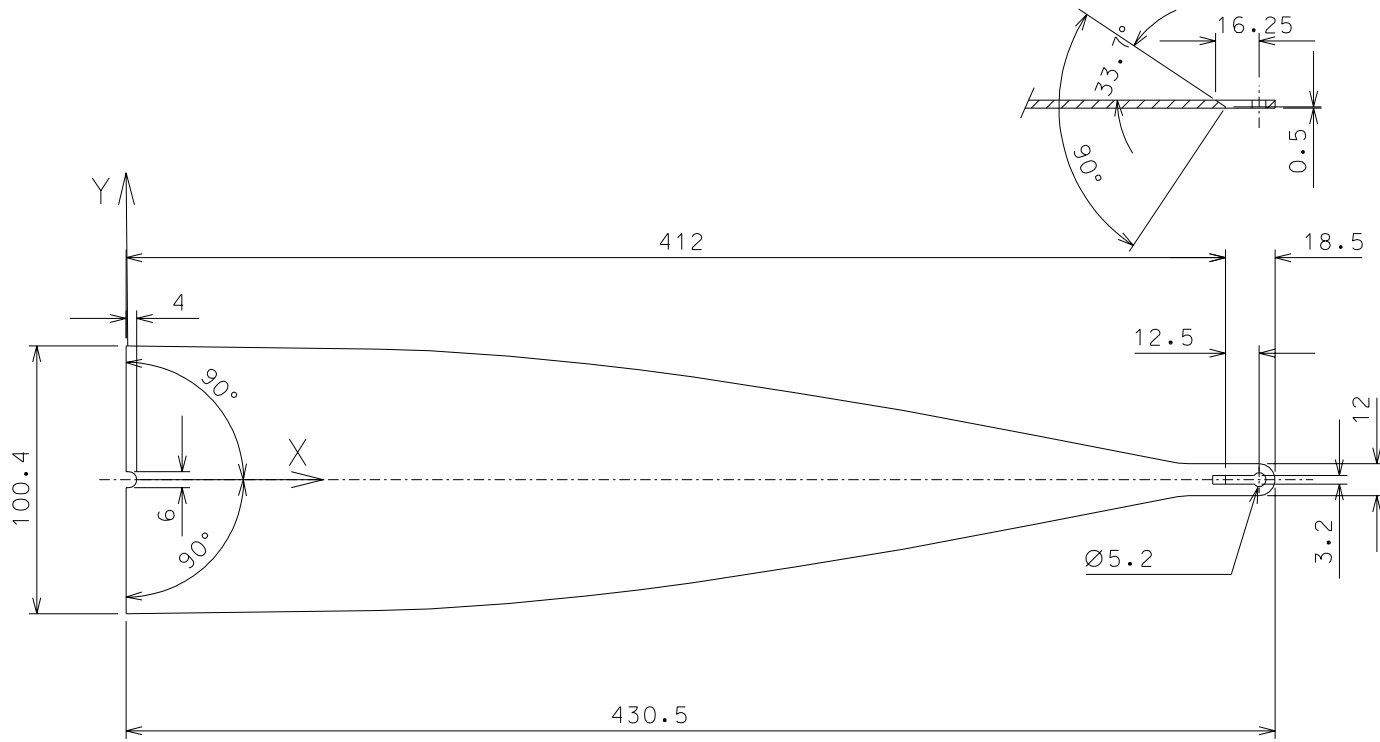
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1.4	008				
1.3	008				
1.2	008				
1.1	006				
1	012				
rit.	dat.	sempresul	rit.	dat.	sempresul


PROMEC S.A.S.

Blentna (Pisa)-Italia

PROTOTYPE FILTER
 BODY WELDED

cliente Caltech-L100
 n. ord. Filter-003
 ditta Zelenova 30-9-98
 scala 1:2,5
 mat. 11 N.

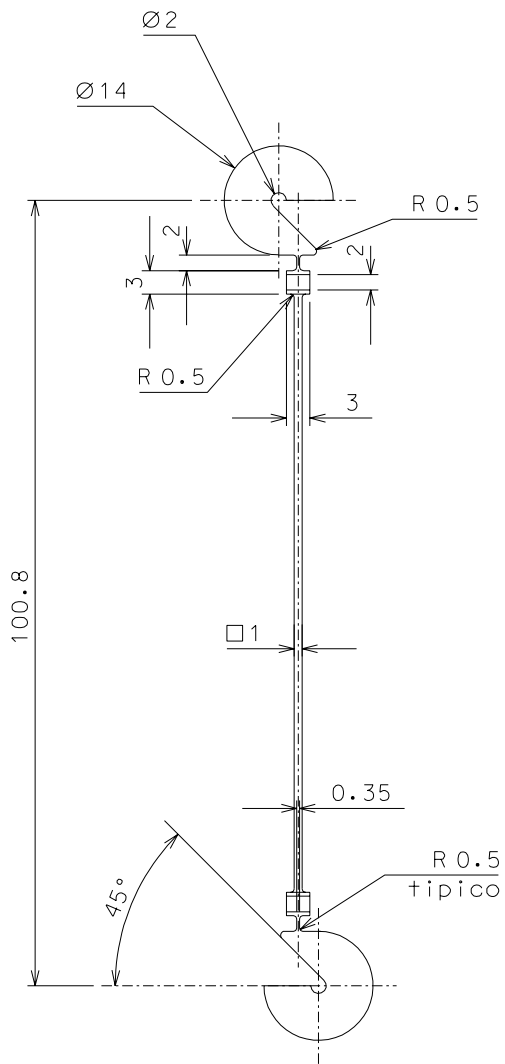
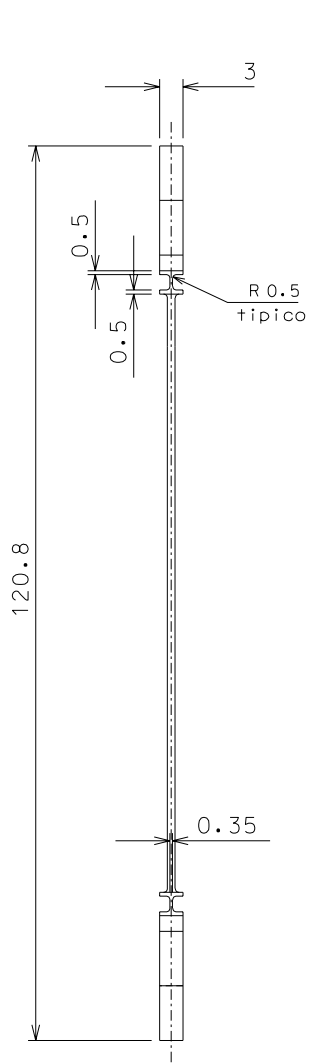


X	Y
0.0	50.2
94.0	49.0
173.0	43.5
212.5	38.5
291.5	26.0
390.2	7.0
398.1	6.0
412	6.0

9	12	marval 18	1:2				
rif.	pezzi	mat. e trattamento	scale	rif.	pezzi	mat. e trattamento	scale

Tolleranze generali di lavorazione UNI 5307-63								
Dimensioni	< 6	>6-30	>30-120	>120-315	>315-1000	>1000-2000	>2000-4000	>4000
Toll. lineari	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2	± 3
Toll. angolari	± 1	± 30'	± 20'	± 10'				riferito al lato più corto

	PROMEC S.A.S. <i>Bientina (Pisa)-Italia</i>	cliente Caltech-LIGO
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		dis. Zelenova 6-11-98
		part. dal 000
titolo PROTOTYPE FILTER BLADE		sost. il N.

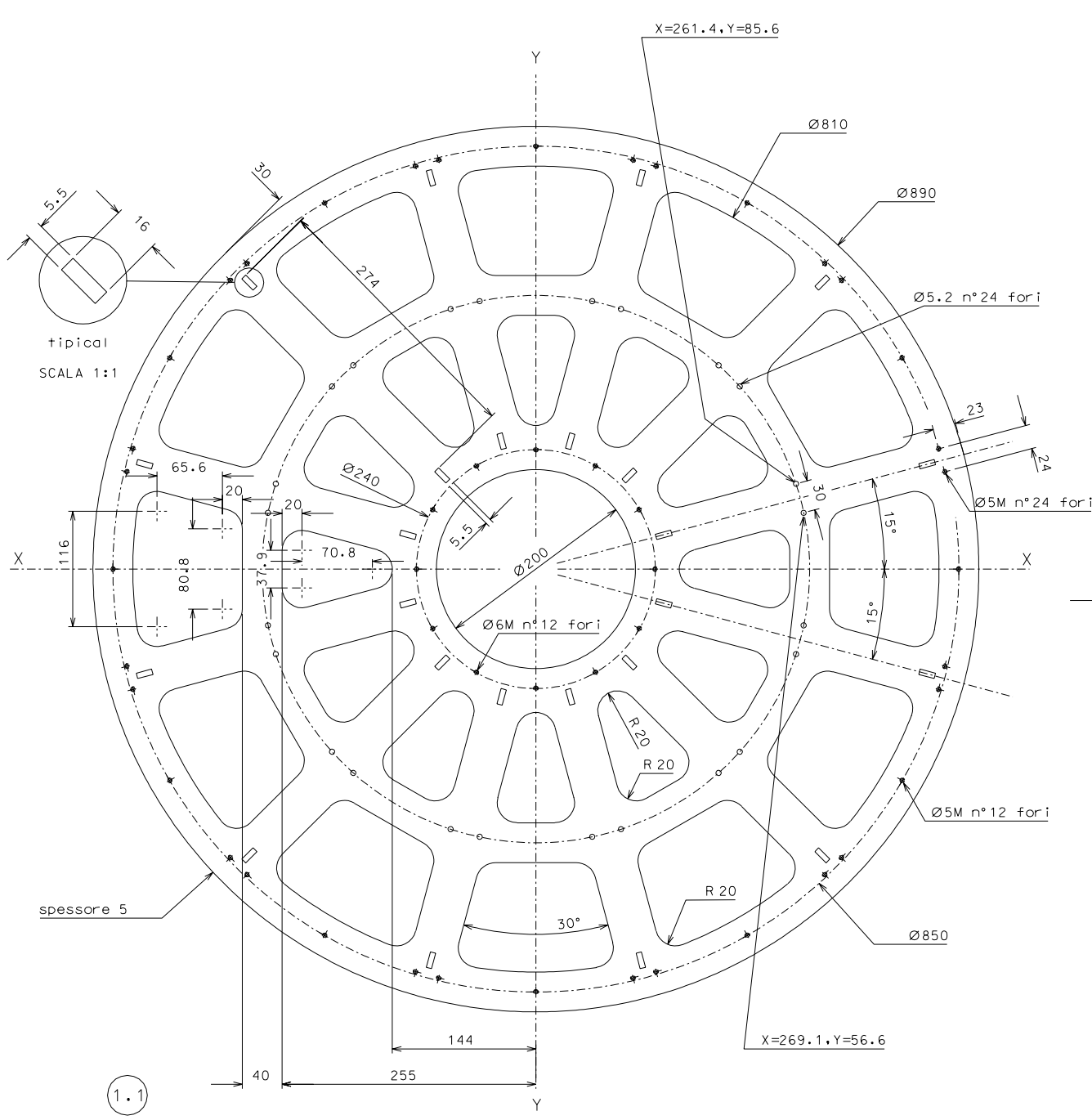


10	12	marval 18	1:1
rif.	pezzi	mat. e trattamento	scale

rif.	pezzi	mat. e trattamento	scale

Tolleranze generali di lavorazione UNI 5307-63								
Dimensioni	< 6	> 6-30	> 30-120	> 120-315	> 315-1000	> 1000-2000	> 2000-4000	> 4000
Toll. lineari	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2	± 3
Toll. angolari	± 1	± 30'	± 20'	± 10' riferito al lato piu corto				

	PROMEC S.A.S. <i>Bientina (Pisa)-Italia</i>	cliente Caltech-LIGO
		N. Filter.005
titolo PROTOTYPE FILTER WIRE		dis. Zelenova 30-9-98
		part. dal 000
		sost. il N.



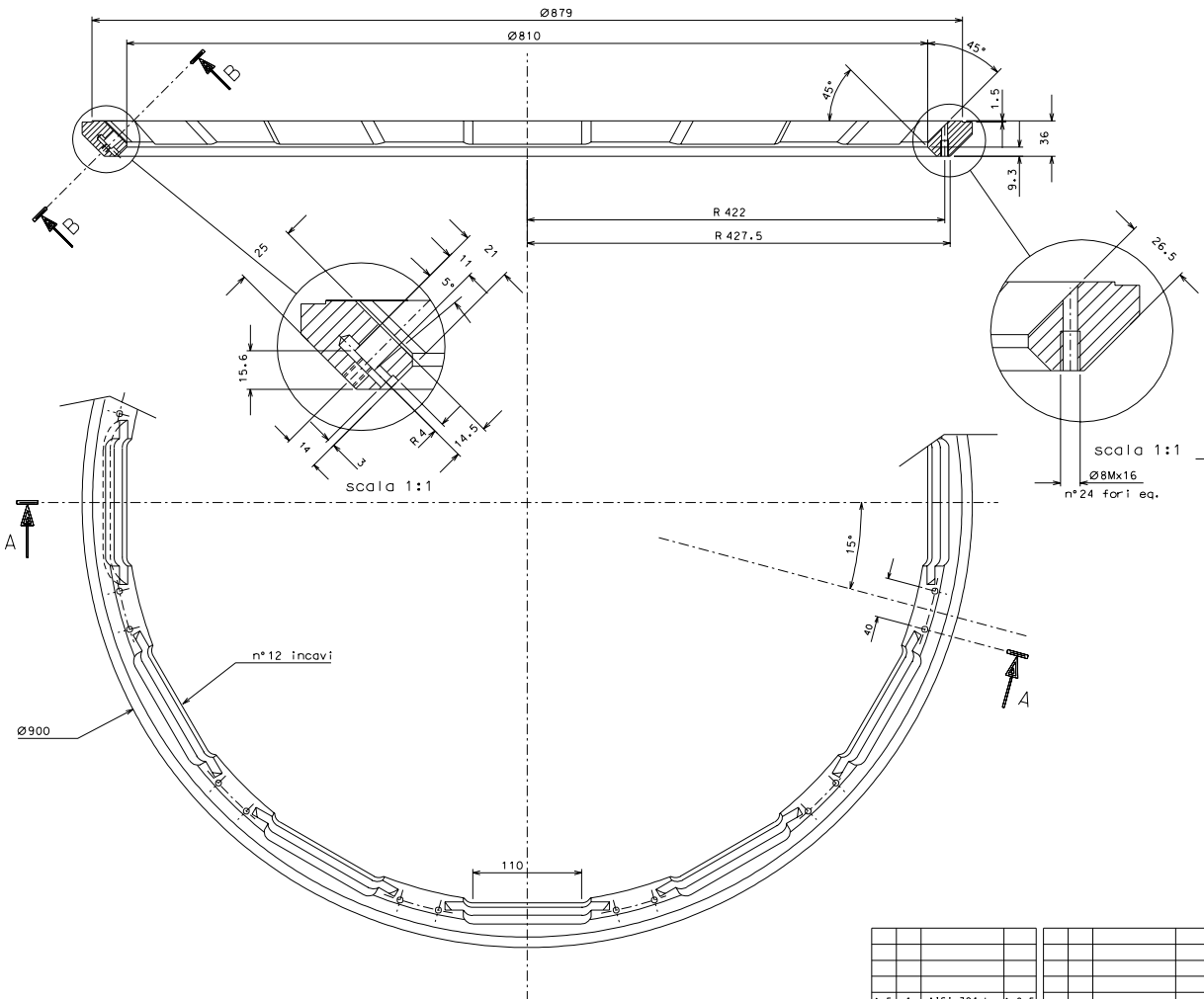
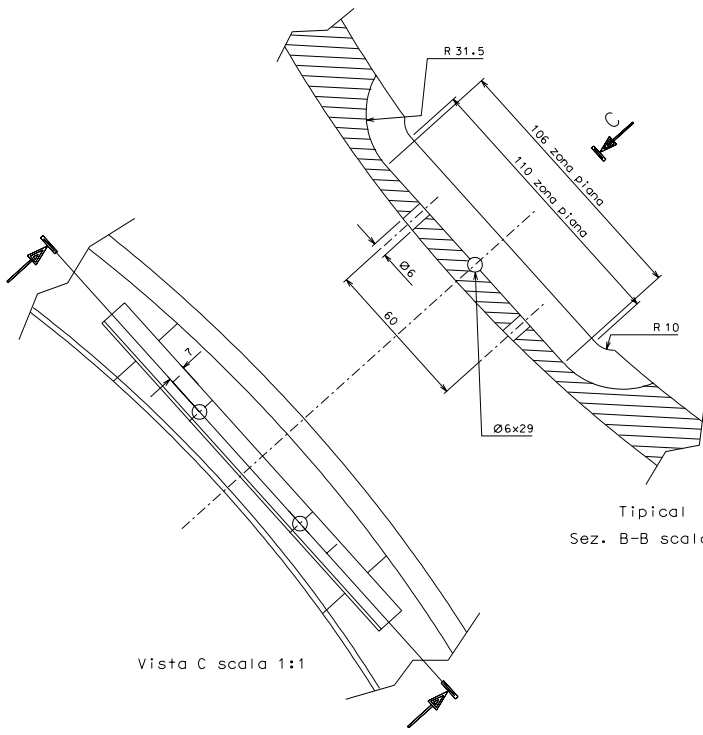
tipical
SCALA 1:1

1.1

1.1	1	AISI 304 L	1:3				
rif.	pezzi	mat. e trattamento	scale	rif.	pezzi	mat. e trattamento	scale

Tolleranze generali di lavorazione UNI 5307-63							
Dimensioni	< 6	>6-30	>30-120	>120-315	>315-1000	>1000-2000	>2000-4000
Toll. lineari	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2	± 3
Toll. angolari	± 1'	± 30'	± 20'	± 10' riferito al lato più corto			

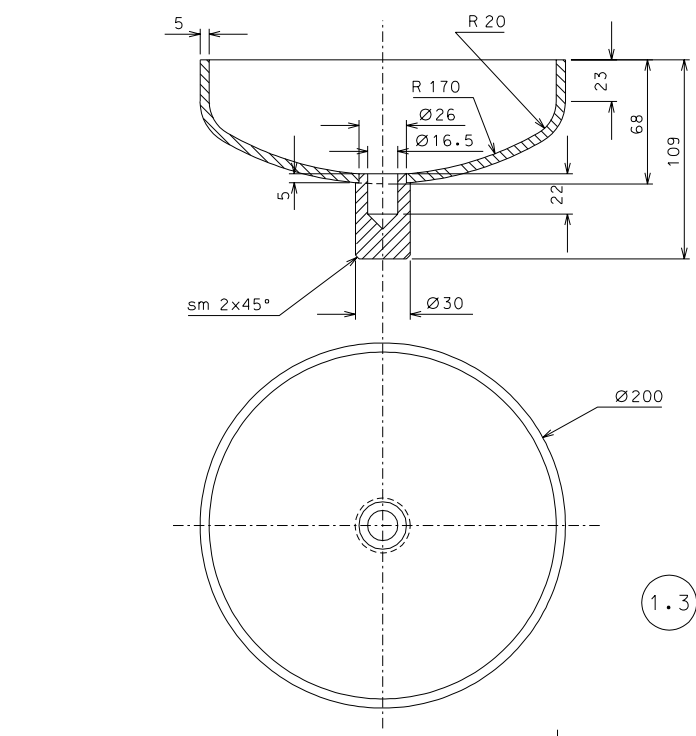
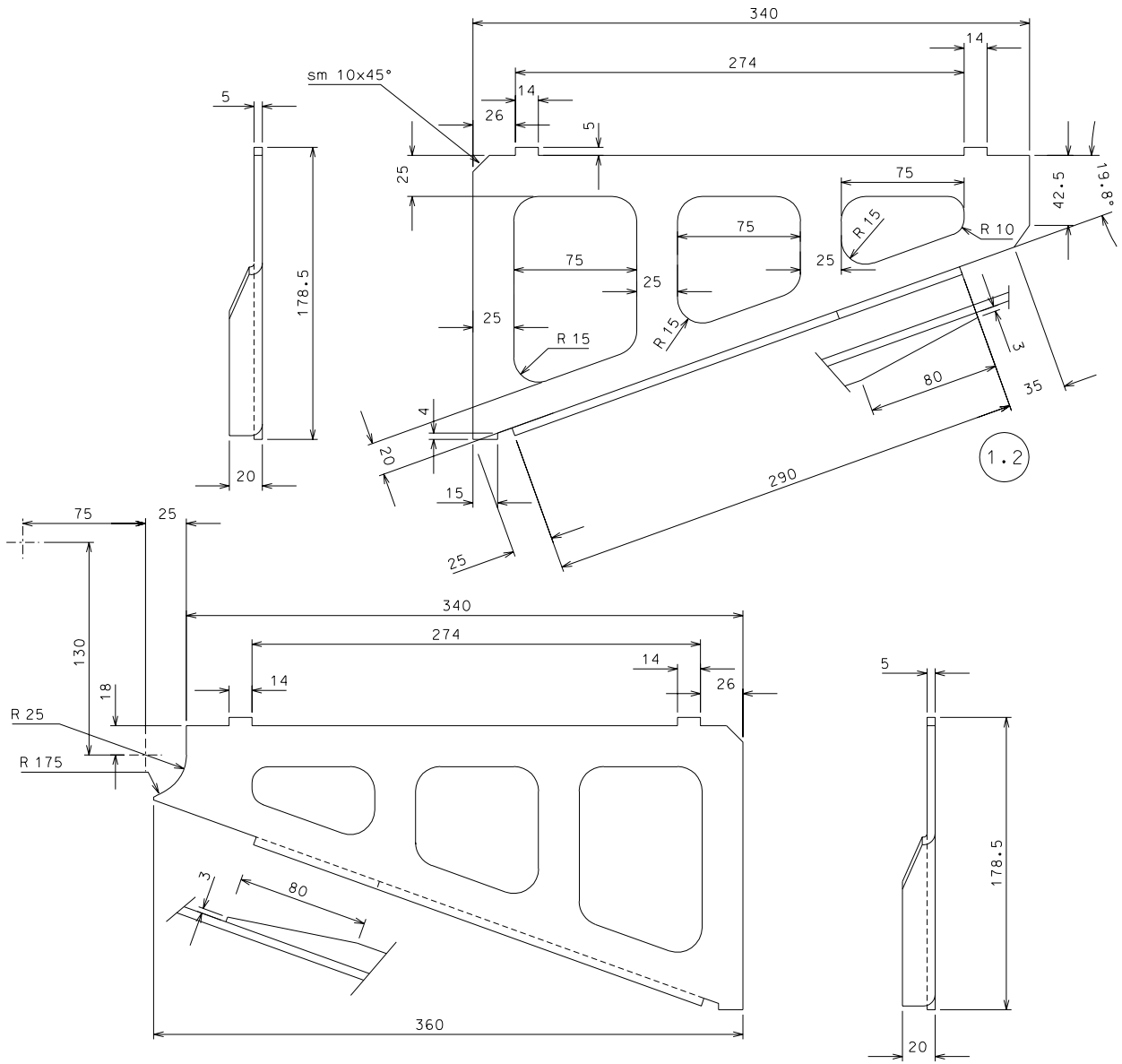
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	N. Filter.	006
	dis. Zelenova	2-10-98
	part. del	003
titolo	<p>PROTOTYPE FILTER DETAILS</p>	
	<p>sost. II N.</p>	



1.5	1	AISI 304 L	1:2.5						
1:17	pezzi	mat. e trattamento	scara	1:17	pezzi	mat. e trattamento	scara		

Tolleranze generali di lavorazione UNI 5307-83										
Dimensioni	< 6	6-30	30-120	120-315	315-1000	1000-2000	2000-4000	> 4000		
Tolli. linear.	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3		
Tolli. angolari	±1'	±30'	±30'	±30'	±10'	±15'	±15'	±15'		

	PROMEC S.p.A. Bientina (Pisa)-Italia	sistema Caltech-LIGO
		n. Filter-007
11010		data Zelenova 17-1-99
PROTOTYPE FILTER DETAILS		part. del 003
		mat. n. 8



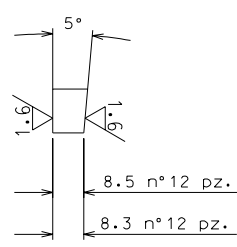
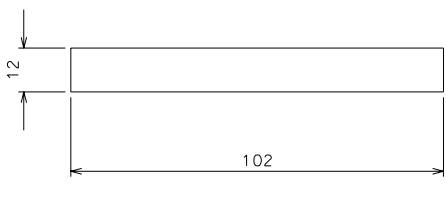
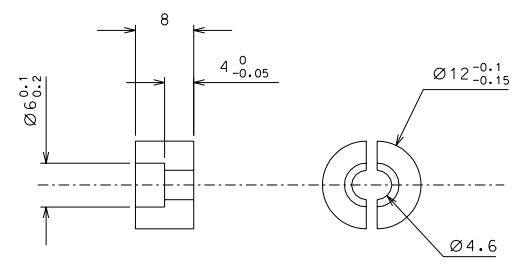
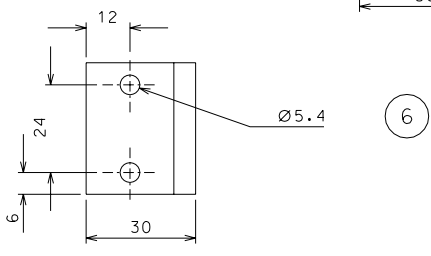
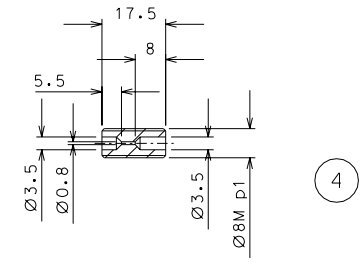
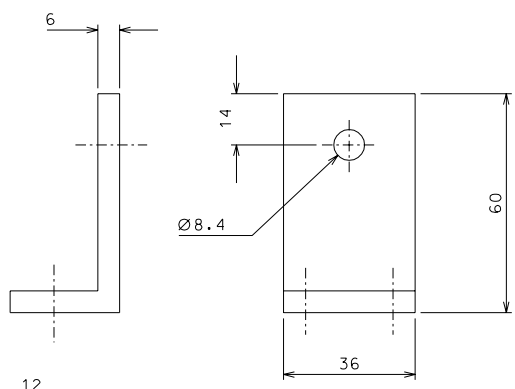
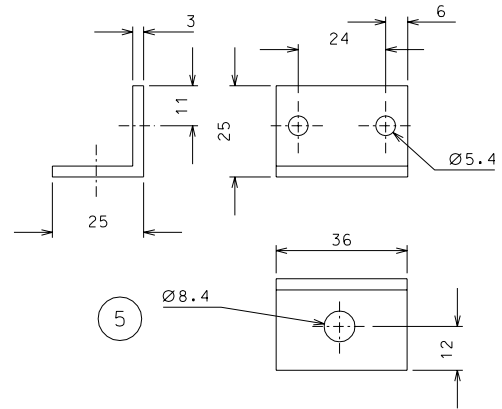
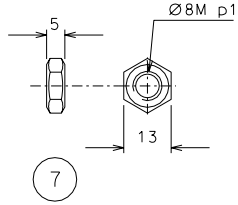
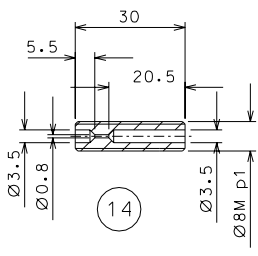
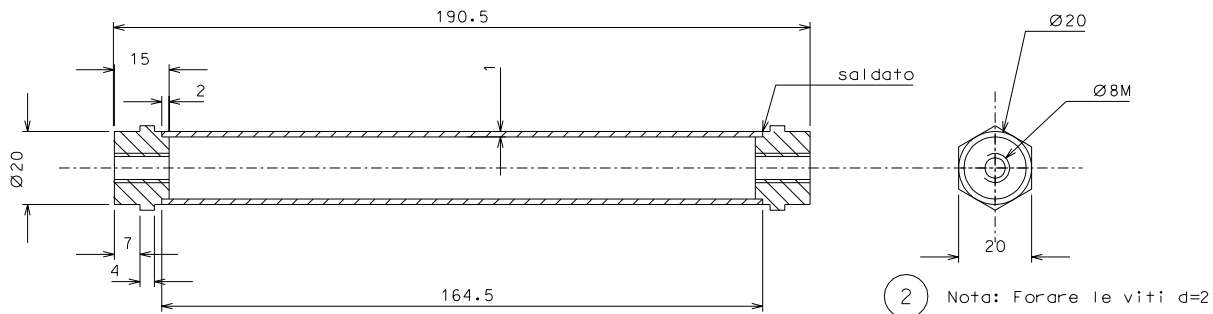
1.4

Le dimensioni mancanti come dal particolare 1.2

1.4	9	AISI 304 L	1:2				
1.3	1	"	"				
1.2	3	"	"				
rif.	pezzi	mat. e trattamento	scale	rif.	pezzi	mat. e trattamento	scale

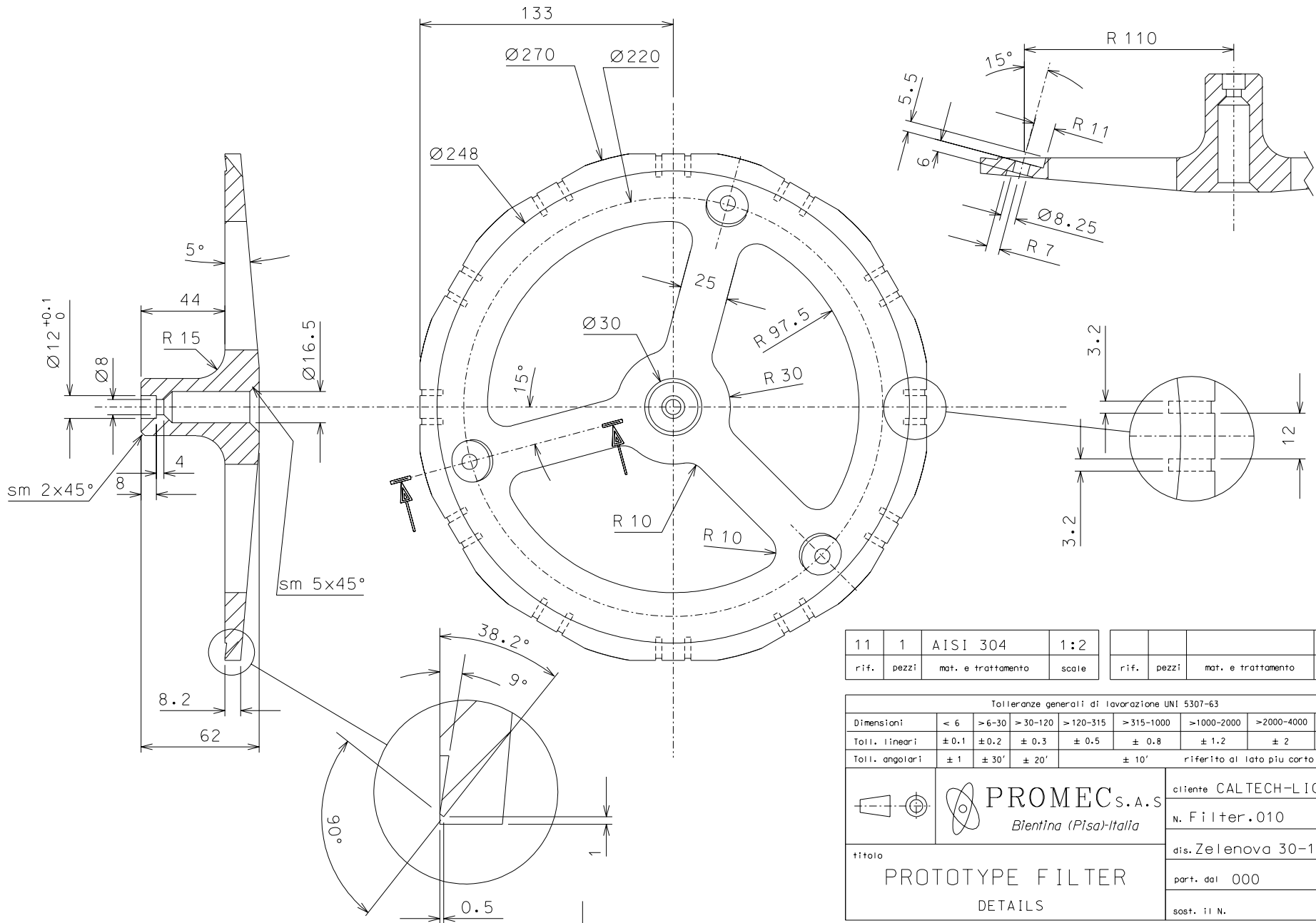
Tolleranze generali di lavorazione UNI 5307-63							
Dimensioni	< 6	>6-30	>30-120	>120-315	>315-1000	>1000-2000	>2000-4000
Toll. lineari	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 3
Toll. angolari	± 1'	± 30"	± 20"	± 10"	riferito al lato più corto		
PROMEC S.A.S. Bientina (Pisa)-Italia				cliente Caltech-LIGO N. Filter.008 dis. Zelenova 4-10-98 par. del 003 sost. II N.			
titolo PROTOTYPE FILTER DETAILS							

1.3



7	12	inox	1:1				
6	3	AISI 304	1:1				
5	3	"	1:1	14	3	B14	1:1
4	3	B14	1:1	13	2	C40 temp.	2:1
2	3	AISI 304 L	1:1	8	24	C40 cement.	1:1
rif.	pezzi	mat. e trattamento	scale	rif.	pezzi	mat. e trattamento	scale

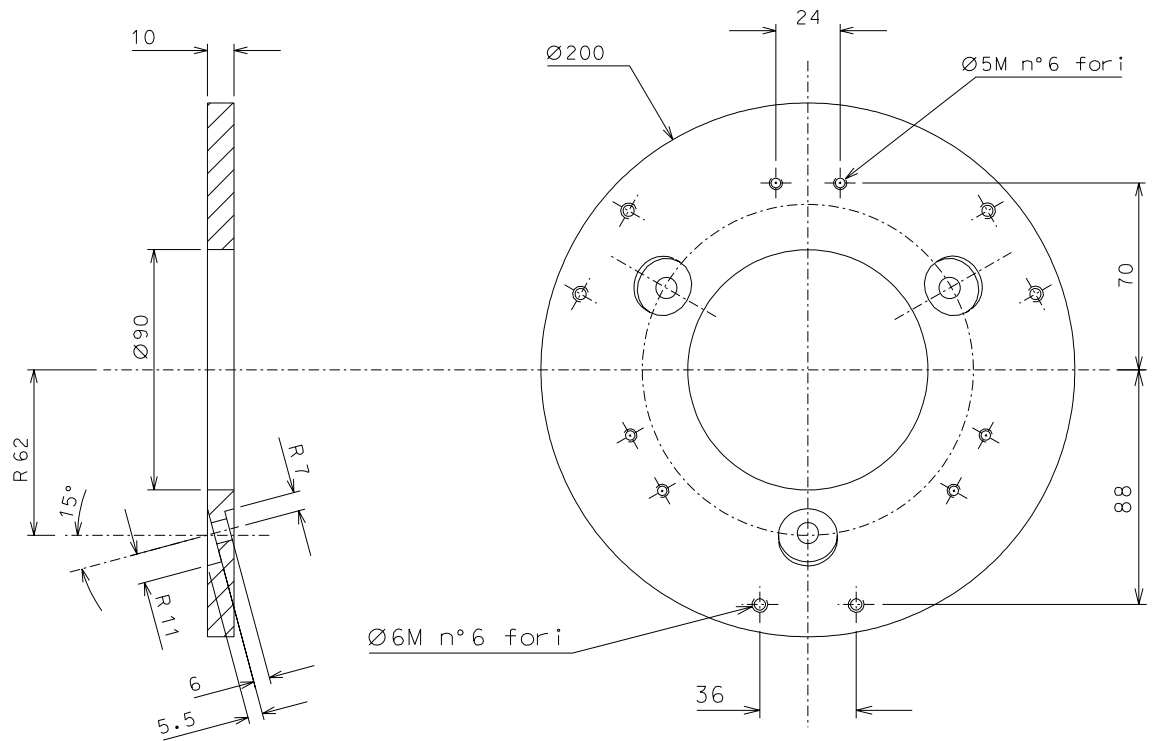
Tolleranze generali di lavorazione UNI 5307-63								
Dimensioni	< 6	> 6-30	> 30-120	> 120-315	> 315-1000	> 1000-2000	> 2000-4000	> 4000
Toll. lineari	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2	± 3
Toll. angolari	± 1'	± 30'	± 20'	± 10'				
riferito al lato più corto								
PROMEC S.A.S. Bientina (Pisa)-Italia				cliente Caltech-LIGO N. Filter.009 dis. Zelenova 4-10-98 part. del 000 sost. II N.				
titolo PROTOTYPE FILTER DETAILS								



11	1	AISI 304	1:2				
rif.	pezzi	mat. e trattamento	scale	rif.	pezzi	mat. e trattamento	scale

Tolleranze generali di lavorazione UNI 5307-63							
Dimensioni	< 6	>6-30	>30-120	>120-315	>315-1000	>1000-2000	>2000-4000
Toll. lineari	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2
Toll. angolari	± 1	± 30'	± 20'	± 10' riferito al lato più corto			

	PROMEC S.A.S. <i>Bientina (Pisa)-Italia</i>	cliente CALTECH-LIGO
		N. Filter.010
		dis. Zelenova 30-11-98
		part. dal 000
titolo PROTOTYPE FILTER DETAILS		sost. il N.

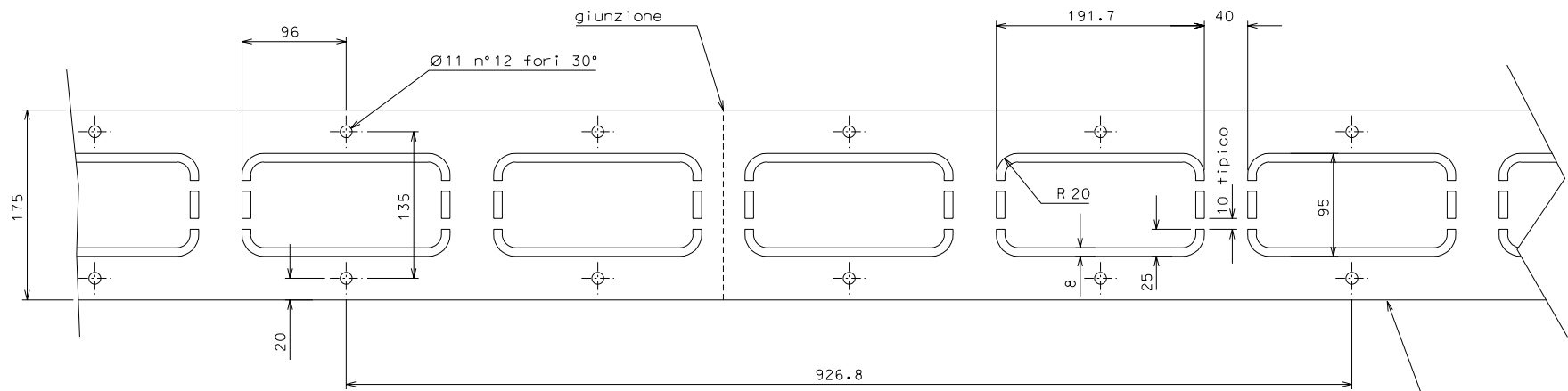


3	1	AISI 304	1:2
rif.	pezzi	mat. e trattamento	scale

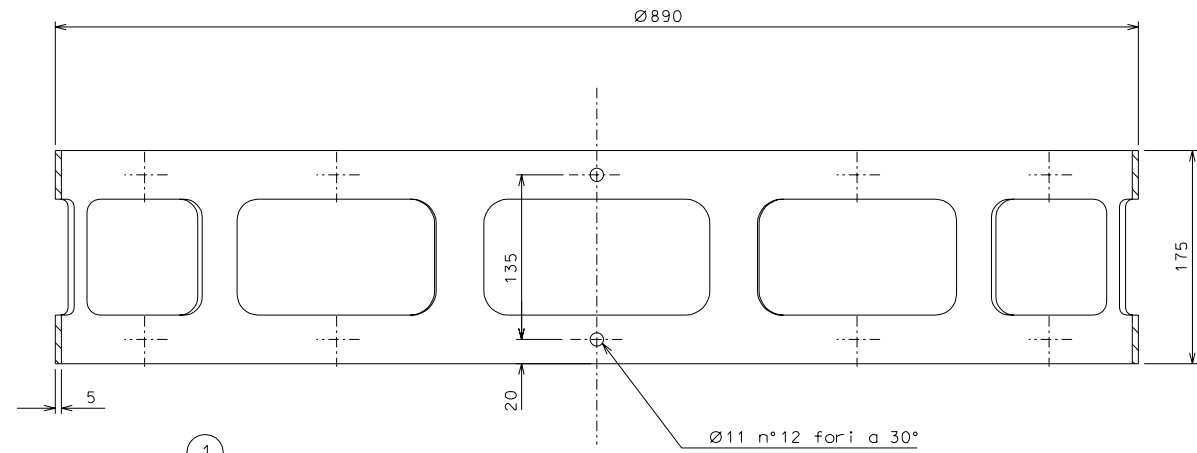
rif.	pezzi	mat. e trattamento	scale

Tolleranze generali di lavorazione UNI 5307-63							
Dimensioni	< 6	>6-30	>30-120	>120-315	>315-1000	>1000-2000	>2000-4000
Toll. lineari	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2
Toll. angolari	± 1	± 30'	± 20'	± 10' riferito al lato più corto			

	PROMEC S.A.S. <i>Bientina (Pisa)-Italia</i>	cliente Caltech-LIGO
		N. Filter.011
titolo PROTOTYPE FILTER DETAILS		dis. Zelenova 4-10-98
		part. dal 000
		sost. il N.



sviluppo L=2780.3, spessore 5



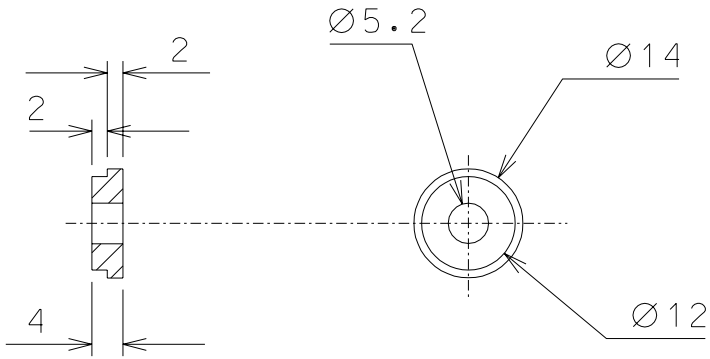
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1	1	AISI 304 L	1:3				
rif.	pezz?	mat. e trattamento	scale	rif.	pezz?	mat. e trattamento	scale

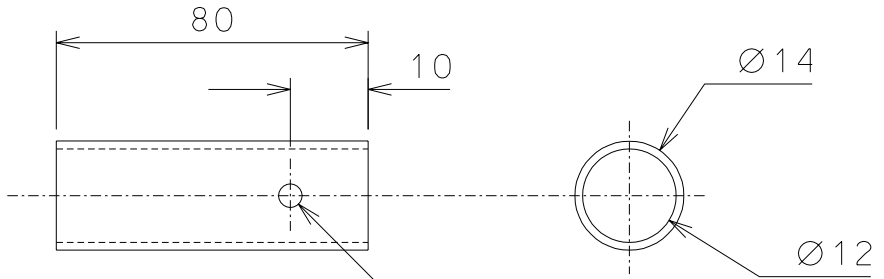
Tolleranze generali di lavorazione UNI 5307-63							
Dimensioni	< 6	>6-30	>30-120	>120-315	>315-1000	>1000-2000	>2000-4000
Toll. linear	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2	± 3
Toll. angolari	± 1'	± 30'	± 20'	± 10' riferito al lato più corto			

	PROMEC S.p.A. Bientina (Pisa)-Italia	cliente Caltech-LIGD N. Filter.012
	titolo PROTOTYPE FILTER DETAILS	dis. Zelenova 6-10-98 part. del 003 sost. 11 N.

12

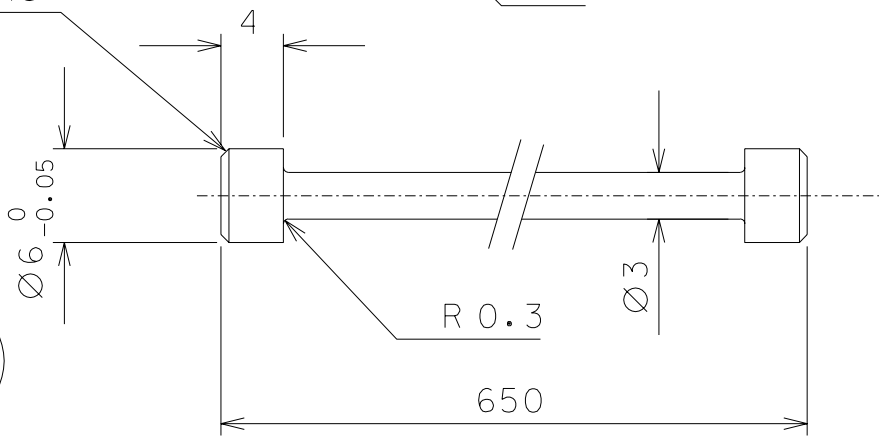


12.1



SM 0.5X45°

15

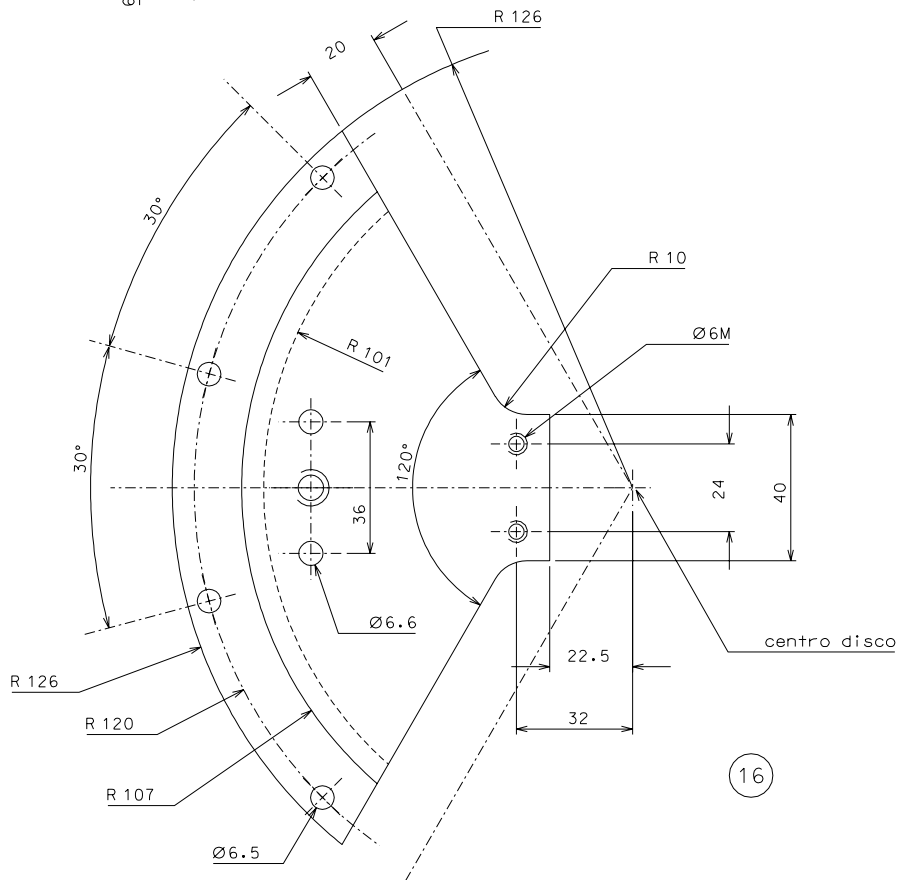
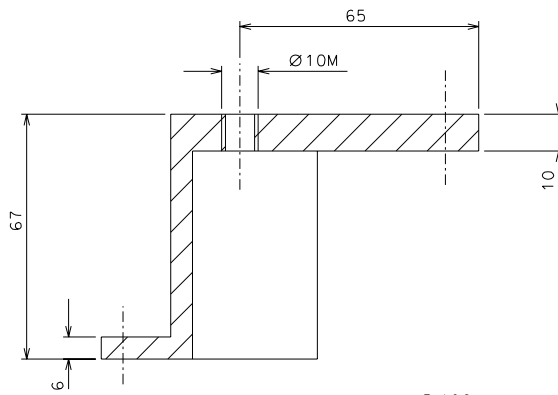


12.1	12	AISI 304	1:1
12	12	AISI 304	1:1
rif.	pezzi	mat. e trattamento	scale

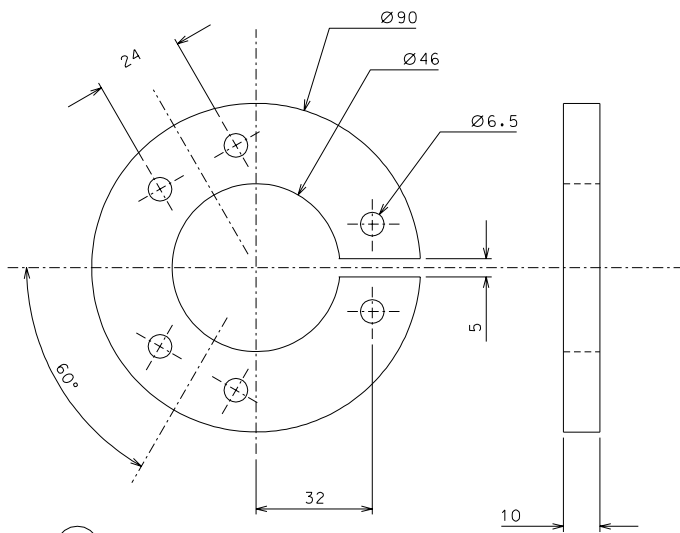
15	2	maraging	2:1
rif.	pezzi	mat. e trattamento	scale

Tolleranze generali di lavorazione UNI 5307-63								
Dimensioni	< 6	> 6-30	> 30-120	> 120-315	> 315-1000	> 1000-2000	> 2000-4000	> 4000
Toll. lineari	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2	± 3
Toll. angolari	± 1	± 30'	± 20'	± 10' riferito al lato piu corto				

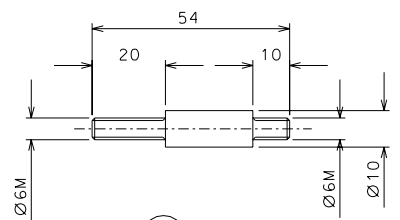
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titolo PROTOTYPE FILTER DETAILS		dis. Zelenova 6-10-98
		part. dal 000
		sost. il N.



16



17

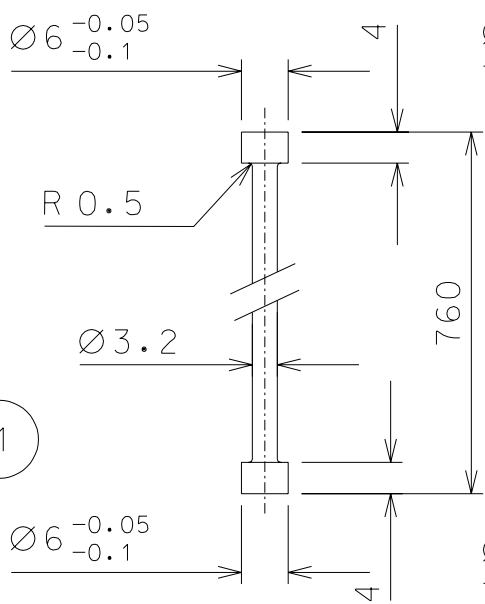


18

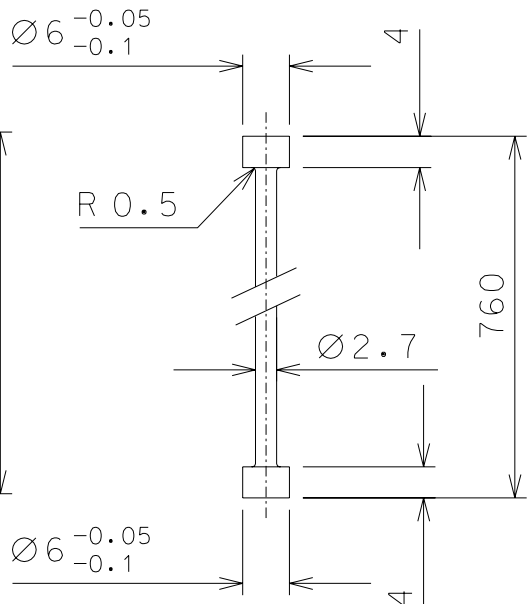
18	6	AISI 304	1:1				
17	1	"	1:1				
16	3	"	1:1				
rif.	pezzi	mat. e trattamento	scale	rif.	pezzi	mat. e trattamento	scale

Tolleranze generali di lavorazione UNI 5307-63							
Dimensioni	< 6	>6-30	>30-120	>120-315	>315-1000	>1000-2000	>2000-4000
Toll. lineari	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2
Toll. angolari	$\pm 1'$	$\pm 30'$	$\pm 20'$	$\pm 10'$	riferito al lato più corto		

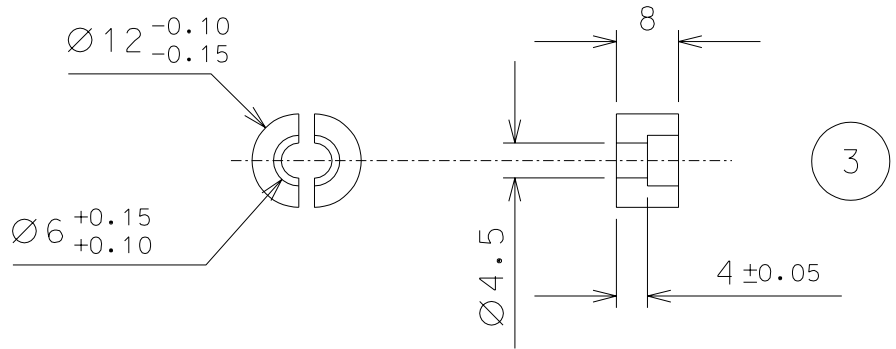
<p>PROMEC S.A.S Bientina (Pisa)-Italia</p>	cliente Caltech-LIGO	
	N. Filter.015	
	dis. Zelenova 11-10-98	
	part. del 014	
sost. II N.		
titolo PROTOTYPE FILTER DETAILS		



1



2



3

3	4	C40 temp.	1:1
2	1	maraging	1:1
1	1	maraging	1:1
rif.	pezzi	mat. e trattamento	scale

rif.	pezzi	mat. e trattamento	scale

Tolleranze generali di lavorazione UNI 5307-63								
Dimensioni	< 6	> 6-30	> 30-120	> 120-315	> 315-1000	> 1000-2000	> 2000-4000	> 4000
Toll. lineari	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2	± 3
Toll. angolari	± 1	± 30'	± 20'	± 10' riferito al lato piu corto				

	PROMEC S.A.S <i>Bientina (Pisa)-Italia</i>	cliente Caltech-LIGO
		N. Filter.016
titolo PROTOTYPE FILTER TOOL		dis. Zelenova 11-10-98
		part. dal
		sost. il N.