

List of collimator pumping modules

- ❑ **VMTIA:** QCF100/QCF100 - ID 80/80 - 520 mm
- ❑ **VMTIB:** QCF100/QCF100 - ID 80/80 = bellows mechanism modified
- ❑ **VMTNA:** QCF100/DN100 - ID 80/63- 520 mm
- ❑ **VMTQA:** QCF100/QCF100 - ID 80/80 - 460 mm
- ❑ **VMTQH:** QCF100/QCF100 - ID 80/52H30V elliptic horizontal
- ❑ **VMTNV:** QCF100/DN100 - ID 80/52V30H elliptic vertical
- ❑ **VMTQV:** QCF100/QCF100 - ID 80/52V30H elliptic vertical
- ❑ **VMTSA:** QCF150/QCF150 - ID 130/130

Only four variants left, transition to elliptical done with other piece (allowed by F. Ruggiero to have $> 15^\circ$ tapering)

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Eq.- Code	Flange A	Diameter	Flange B	Diameter	length	Phase	total	IR1	IR2	IR3	IR4	IR5	IR6	IR7	IR8	
VMTIA	QCF	80	QCF	80	520	TCLA	32			12				20		
						ph1	92	4	4	22		4		54	4	
						ph2	19			8					11	
						ph3	4	2				2				
						ph4	18									18
tot	165	6	4	42		6			103	4						
VMTNA	QCF	80	NCF	63	520	ph1	4		2						2	
						ph3	4	2			2					
						tot	8	2	2		2			2		
VMTQA	QCF	80	QCF	80	460	TCLA	1			1						
						ph1	5			1				4		
						ph2	6								6	
						ph4	6								6	
tot	18			2					16							
VMTSA	QCF	130?	QCF	130?		ph1	10		5						5	
						tot	10		5					5		

Functional Specifications

GEOMETRICAL and MECHANICAL requirements

- The Collimator Pumping Modules shall guarantee an aperture of diameter 60 mm, equal to the maximum distance between the collimator jaws, in all positions during operation. This aperture has been verified to be sufficient [with B. Jeanneret].
- The Collimator Pumping Modules shall compensate up to 10 mm transverse displacements of the collimators during operation. Taking into account the 60 mm aperture requirement and 10mm transverse displacement, a total aperture of 80 mm shall be guaranteed with zero transverse displacement. The transverse displacement shall be obtained with a force ≤ 500 N.
- The Collimator Pumping Modules shall compensate thermal expansion during bake-out, geometrical and mechanical tolerances.

Functional Specifications

GEOMETRICAL and MECHANICAL requirements

- To avoid large mechanical stresses, the **installation** of the modules shall proceed only **with collimators in the position of zero transverse displacement**, i.e. longitudinal and transverse displacements will never occur simultaneously.
- For the same reason of limiting mechanical stresses, during **bake-out, a maximum transverse displacement of 3 mm shall be allowed**. The collimators shall therefore be moved back in the position of zero transverse displacement, unless this is ≤ 3 mm.

Status

- Pumping Modules:
 - Market Survey out.
- Bellows:
 - probably symple price enquiry.
 - prototypes bought for tests.
- RF contacts prototype ready this week.