

INJECTION Tower: location and coding of electrically connected Devices

CODING CONVENTION: The code is divided in 3 fields. The field separator is a dot. The 3th field is used only when more than one device of the same type is hosted on the same suspension stage.

DeviceType . SuspensionStage . DevicePosition (or Function)

M	Motor
MV	Vertical Motor
MH	Horizontal Motor
MA	Angular Motor
CV	Vertical Coil
CH	Horizontal Coil
T	Temperature probe
AV	Vert. Accelerometer
AH	Hor. Accelerometer
LV	Vertical LVDT
LH	Horizontal LVDT
CLP	Closed Loop Picomotor
PD	PhotoDiode
PM	PicoMotor
PZ	Piezoelectric
TS	Translation Stage
RS	Rotation Stage
PZ	Piezo actuators

F0	Filter #0 or top-stage
F7	Filter #7
MA	Marionette
B	Bench
G	Ground
BR	Bottom Ring

1, 2, 3, ...	
L	Left
R	Right
U	Up
D	Down
F	Front
B	Back
UL	Up Left
UR	Up Right
DL	Down Left
DR	Down Right
LL	Lateral Left
LR	Lateral Right
TX	\hat{u}_x degree of freedom
TZ	\hat{u}_z degree of freedom
AH1	Hor. Accelerom. #1
AH2	Hor. Accelerom. #2
AH3	Hor. Accelerom. #3
AV1	Vert. Accelerom. #1
AV2	Vert. Accelerom. #2
M1v	Mirror M1, vertical axis
M1h	Mirror M1, horizontal axis

Change History

<i>Version</i>	<i>Date</i>	<i>Changes</i>	<i>Author</i>
v1	Nov 1999	initial suspension cabling	Dattilo, Ceccanti
v2r0-r1-r2-r3	Aug-Dec 2005	Cabling of the new SIB	Dattilo, Nenci
v3r0	4 Jan 2006	Cabling of M0 mirror - cables D2 and D3	Dattilo
v3r1	Oct 2008	Cabling of the motorized rotator for a $\lambda/2$ waveplate -B2 cable	Berni, Dattilo, Gherardini
v4r0	Jan-Mar 2014	Cabling adaptation for AdV: replacement of the pre-existing DB25 with the circular 32-pins peekplugs, added cables for filter F#4, for IP feet piezos&LVDTs, for new SIB1.	Berni, Dattilo, Gherardini
v4r1	6 May 2014	Added cable V for ground coils, added list and location of SIB1 devices	Berni, Dattilo, Gherardini

18 MOTORS

code	Location (see also drawings in the following)	vacuum cable ID	vacuum cable type	notes
MV.F0.U	top-screw on F#0	J1	STP, AWG26	MV.1 (old code)
MV.F0	fishing-rod on F#0	A1	STP, AWG26	MV.2
MV.F4	fishing-rod on F#4	E1	STP, AWG26	
MV.F7	fishing-rod on F#7	F1	STP, AWG26	MV.3
MH.F0.1	trolley on inner structure	I2	STP, AWG26	MH.1
MH.F0.2	trolley on inner structure	I1	STP, AWG26	MH.2
MH.F0.3	trolley on inner structure	I3	STP, AWG26	MH.3
MH.F7.1	balancing mass on F#7	R1	STP, AWG26	MH.4
MH.F7.2	balancing mass on F#7	R2	STP, AWG26	MH.5
MH.MA.TZ	balanc. mass on marion. (for ϑ_z motion)	T2	PP, AWG24 PYRE-ML 0.7mm	MH.6
MH.MA.TX	balanc. mass on marion. (for ϑ_x motion)	T3	PP, AWG24 PYRE-ML 0.7mm	MH.7
MA.F7.U	F#7 top (for rotation)	R3	STP, AWG26	MA.1
MA.F7.D	F#7 bottom (for rotation)	T1	STP, AWG26	MA.2
M.F0.AH1	Hor. Accelerometer on top-stage	O2	STP, AWG26	
M.F0.AH2	Hor. Accelerometer on top-stage	M2	STP, AWG26	
M.F0.AH3	Hor. Accelerometer on top-stage	N2	STP, AWG26	
M.F0.AV1	Vert. Accelerometer on F#0	K1	STP, AWG26	
M.F0.AV2	Vert. Accelerometer on F#0	L1	STP, AWG26	

3 ROTATION STAGE

code	Location (refer to the drawings of the bench)	vacuum cable ID	vacuum cable type	notes
RS.B.WP3		B.G - WP3	STP, AWG24	Rotator, $\lambda/2$ waveplate for the Faraday
RS.B.IPC2		B.I - IPC2	STP, AWG24	
RS.B.FI		B.I - FI		

21 COILS

code	Location (see also drawings in the following)	vacuum cable ID	vacuum cable type	notes
CH.F0.1 CH.F0.2 CH.F0.3	Safety frame ring	G4 G6 G5	STP, AWG20	CH.1 CH.2 CH.3
CV.F0.1 CV.F0.2	crossbar on F#0 crossbar on F#0 (fish.rod side)	J2 J3	STP, AWG26	CV.1 CV.2
CH.F7.1 CH.F7.2 CH.F7.3 CH.F7.4 CV.F7.1 CV.F7.2 CV.F7.3 CV.F7.4	F#7 legs	S1 S3 S5 S7 S2 S4 S6 S8	STP, AWG20	CH.4 CH.5 CH.6 CH.7 CV.4 CV.5 CV.6 CV.7
CH.G.1 CH.G.2 CH.G.3 CH.G.4 CV.G.1 CV.G.2 CV.G.3 CV.G.4	ground	V2 V4 V6 V8 V1 V3 V5 V7	STP, AWG26	WEST (2m) NORTH (3m) SOUTH (2.5m) EST (4m) WEST (2m) NORTH (3m) SOUTH (2.5m) EST(4m)

9 THERMAL PROBES

code	location	vacuum cable ID	vacuum cable type	notes
T.F0.1 T.F0.2	antispring back on F#0	A3	STP, AWG26	TP.1
T.F4.1 T.F4.2	antispring back on F#4	E2	STP, AWG26	
T.F7.1 T.F7.2	antispring back on F#7	F2	STP, AWG26	TP.2
T.B.b	TOP bench	B.C -	STP, AWG24	bench
T.B.box	BOTTOM bench	B.C -	STP, AWG24	photodiode box
T.B.bd	BOTTOM bench	B.C -	STP, AWG24	beam dumper

Total number of conductors for THERMAL PROBES on the bench: 12.

Total STP for THERMAL PROBES on the bench 6.

5 ACCELEROMETERS

code	Location (see also drawings in the following)	vacuum cable ID	vacuum cable type	notes
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AH.F0.1	top-ring	O2	STP, AWG26	AH.1
AH.F0.2	top-ring	M2	STP, AWG26	AH.2
AH.F0.3	top-ring	N2	STP, AWG26	AH.3
AV.F0.1	crossbar F#0	K1	STP, AWG26	AV.1
AV.F0.2	crossbar F#0 (fish.rod side)	L1	STP, AWG26	AV.2

total number of conductors for accelerometers: $5 \times 13 = 65$, plus $5 \times 5 = 25$ shields (motors included).

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9 LVDTs

code	Location (see also drawings in the following)	vacuum cable ID	vacuum cable type	notes
LH.F0.1	Primary on top-ring	O1	STP, AWG26	LH.1
	Secondary on inner structure	G1	STP, AWG26	
LH.F0.2	Primary on top-ring	M1	STP, AWG26	LH.2
	Secondary on inner structure	G3	STP, AWG26	
LH.F0.3	Primary on top-ring	N1	STP, AWG26	LH.3
	Secondary on inner structure	G2	STP, AWG26	
LV.F0	primary on F#0 crossbar	J4	STP, AWG26	LV.1
	secondary on F#0 body	A3	STP, AWG26	
LV.F4	F#4	J4	STP, AWG26	
		A3	STP, AWG26	
LV.F7	F#7	F2	STP, AWG26	LV.2
LV.BR.1	Primary on ground	P1	STP, AWG26	new (AdV)
	Secondary on IP foot	P2		
LV.BR.2	Primary on ground	P3	STP, AWG26	new (AdV)
	Secondary on IP foot	P4		
LV.BR.3	Primary on ground	P5	STP, AWG26	new (AdV)
	Secondary on IP foot	P6		

32 PICOMOTORS

code	Location (refer to the drawings of the bench)	vacuum cable ID	vacuum cable type	notes
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PM.B.M24tx	BENCH	B.A - M24tx	STP, AWG24	
PM.B.M24ty	BENCH	B.A - M24ty	STP, AWG24	
PM.B.M5tx	BENCH	B.A - M5tx	STP, AWG24	
PM.B.M5ty	BENCH	B.A - M5ty	STP, AWG24	
PM.B.M3tx	BENCH	B.A - M3ty	STP, AWG24	
PM.B.M3ty	BENCH	B.A - M3tx	STP, AWG24	
PM.B.CW	BENCH	B.A - CW	STP, AWG24	counter weight
PM.B.M14tx	BENCH	B.B - M14tx	STP, AWG24	
PM.B.M14ty	BENCH	B.B - M14ty	STP, AWG24	
PM.B.M17tx	BENCH	B.B - M17ty	STP, AWG24	
PM.B.M17ty	BENCH	B.B - M17tx	STP, AWG24	
PM.B.M21tx	BENCH	B.B - M21tx	STP, AWG24	
PM.B.M21ty	BENCH	B.B - M21ty	STP, AWG24	
PM.B.M23tx	BENCH	B.B - M23ty	STP, AWG24	
PM.B.M23ty	BENCH	B.B - M23tx	STP, AWG24	
PM.B.M4tx	BENCH	B.F - M4tx	STP, AWG24	
PM.B.M4ty	BENCH	B.F - M4ty	STP, AWG24	
PM.B.M8tx	BENCH	B.F - M8tx	STP, AWG24	
PM.B.M8ty	BENCH	B.F - M8ty	STP, AWG24	
PM.B.M7tx	BENCH	B.G - M7ty	STP, AWG24	
PM.B.M7ty	BENCH	B.G - M7tx	STP, AWG24	
PM.B.ML1z	BENCH	B.G - ML1z	STP, AWG24	
PM.B.ML1x	BENCH	B.G - ML1x	STP, AWG24	
PM.B.ML1y	BENCH	B.G - ML1y	STP, AWG24	
PM.B.M12tx	BENCH	B.H - ML12ty	STP, AWG24	
PM.B.M12ty	BENCH	B.H - ML12tx	STP, AWG24	
PM.B.M16tx	BENCH	B.H - ML16tx	STP, AWG24	
PM.B.M16ty	BENCH	B.H - ML16ty	STP, AWG24	
PM.B.M2x	BENCH	B.H - ML2x	STP, AWG24	
PM.B.M2y	BENCH	B.H - ML2y	STP, AWG24	
PM.B.M13tx	BENCH	B.I - ML13ty	STP, AWG24	
PM.B.M13ty	BENCH	B.I - ML13ty	STP, AWG24	

Total number of conductors for PICOMOTORS: 64.

Total STP for PICOMOTORS: 32

3 TRANSLATION STAGES

code	Location (refer to the drawings of the bench)	vacuum cable ID	vacuum cable type	notes
TS.B.L4	BENCH	B.D – L4	STP, AWG24	
TS.B.L5	BENCH	B.E – L5	STP, AWG24	
TS.B.L2	BENCH	B.L – L2	STP, AWG24	

Total number of conductors for TRANSLATION STAGES: 45.

Total STP for TRANSLATION STAGES: 18

7 CLOSED-LOOP PICOMOTORS

code	Location (refer to the drawings of the bench)	vacuum cable ID	vacuum cable type	notes
CLP.B.M18tx	BENCH	B.D – M18tx	STP, AWG24	
CLP.B.M18ty	BENCH	B.E – M18ty	STP, AWG24	
CLP.B.M2tx	BENCH	B.F – M2tx	STP, AWG24	
CLP.B.M2ty	BENCH	B.G – M2ty	STP, AWG24	
CLP.B.M1z	BENCH	B.H – M1z	STP, AWG24	
CLP.B.M1ty	BENCH	B.I – M1ty	STP, AWG24	
CLP.B.M1tx	BENCH	B.L – M1tx	STP, AWG24	

Total number of conductors for CLOSED-LOOP PICOMOTORS: 84.

Total STP for CLOSED-LOOP PICOMOTORS 28

3 PIEZOs

code	Location (refer to the drawings of the bench)	vacuum cable ID	vacuum cable type	notes
PZ.BR.1	IP foot	P9	STP, AWG24	S.N. 113010488
PZ.BR.2	IP foot	P8	STP, AWG24	S.N. 113010503
PZ.BR.3	IP foot	P7	STP, AWG24	S.N. 113010490

Total number of conductors for PIEZOs: 9.

Total STP for CLOSED-LOOP PIEZOs: 3.

2 CLOSED-LOOP PIEZOs

code	Location (refer to the drawings of the bench)	vacuum cable ID	vacuum cable type	notes
PZ.B.M19	Bench BOTTOM	B.C – M19	STP, AWG24	
PZ.B.M20	Bench BOTTOM	B.C – M20	STP, AWG24	

Total number of conductors for CLOSED-LOOP PIEZOs: 8.

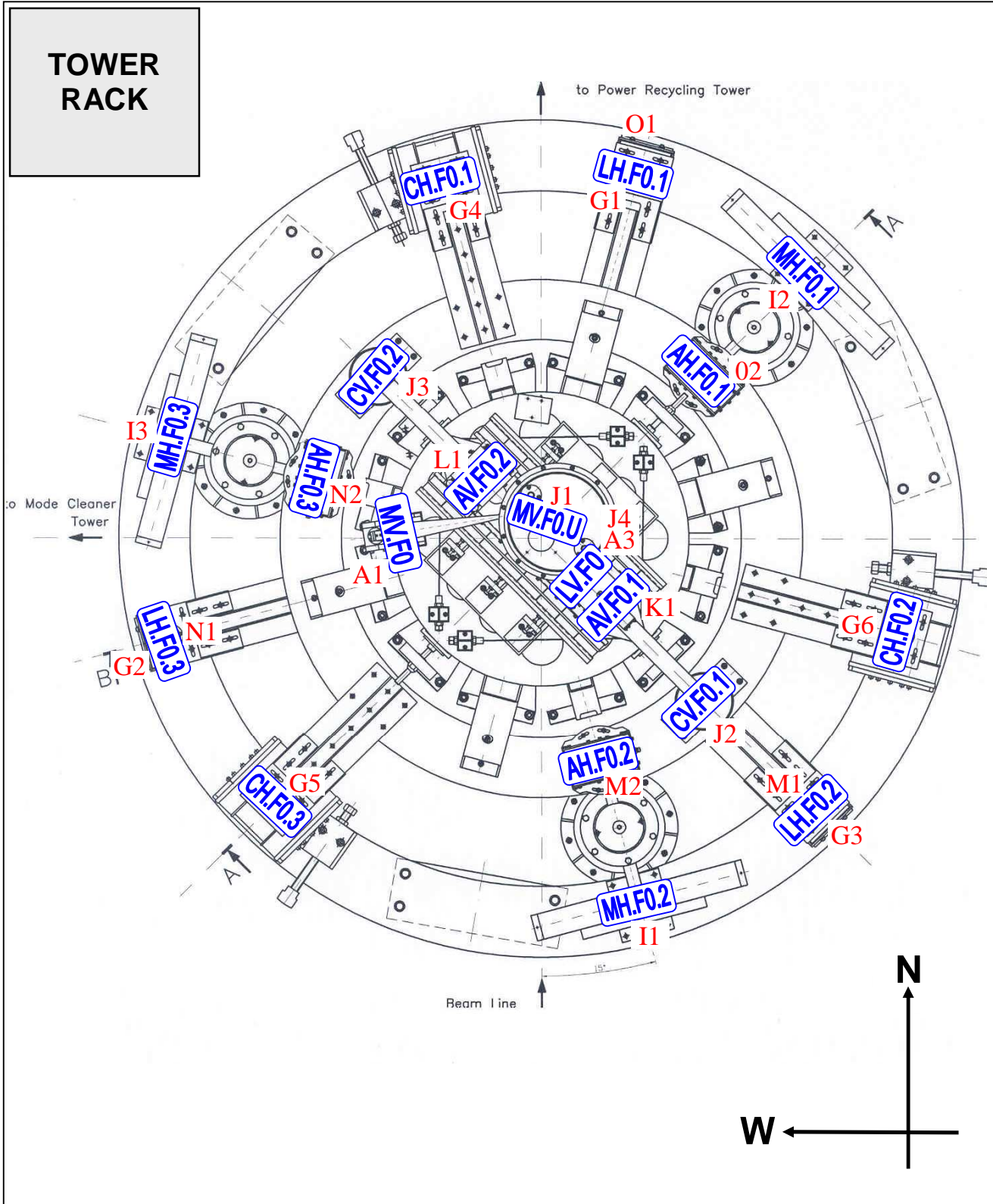
Total STP for CLOSED-LOOP PIEZOs:.

1 PHOTODIODE

code	Location <i>(refer to the drawings of the bench)</i>	vacuum cable ID	vacuum cable type	notes
PD.B.AC	Bench TOP	T4	Coaxial	
PD.B.DC	Bench TOP	T3	Coaxial	
PD.B.BIAS	Bench TOP	T5	STP, AWG24	

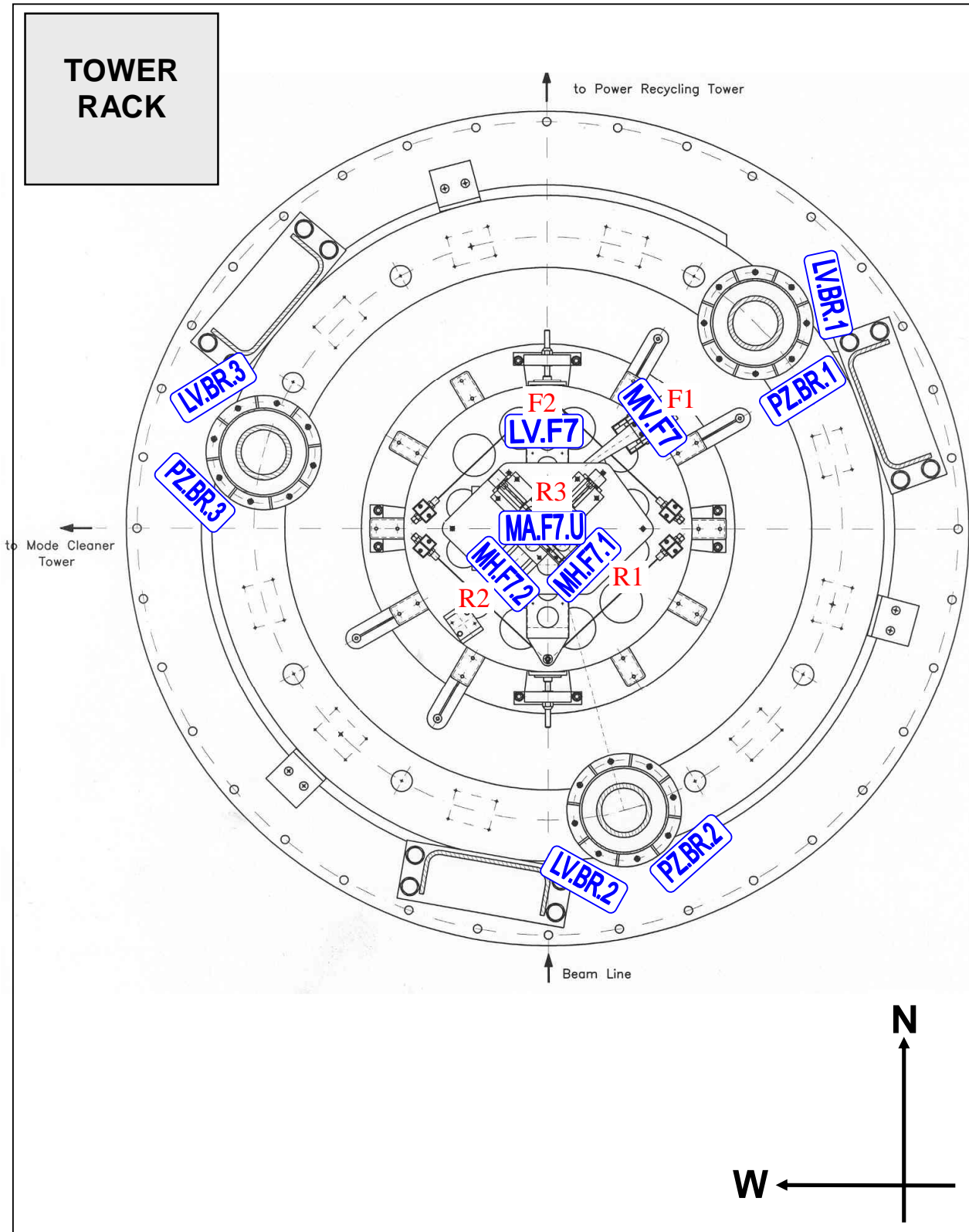
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TOP-STAGE devices



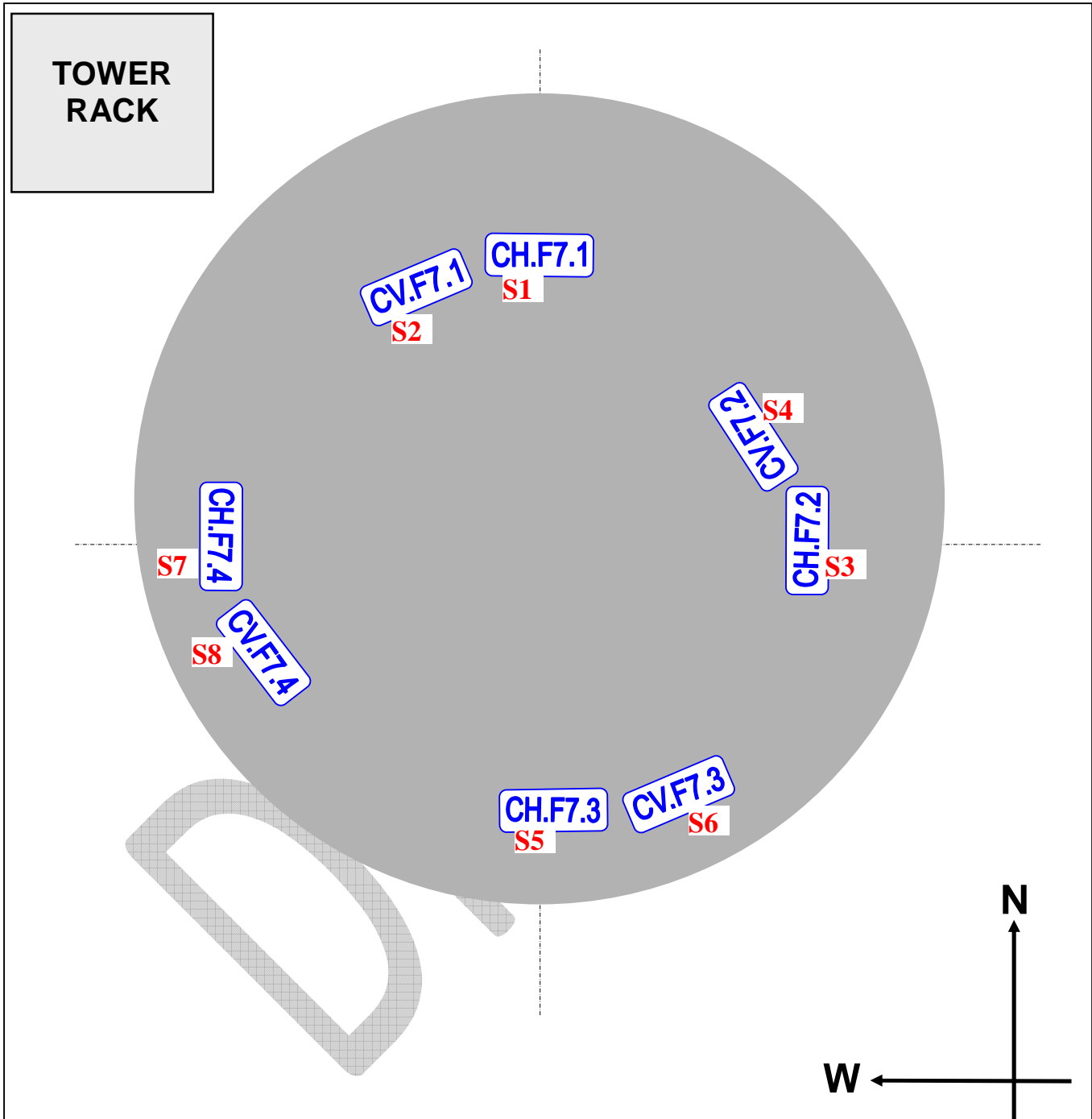
FILTER #7 devices

top view

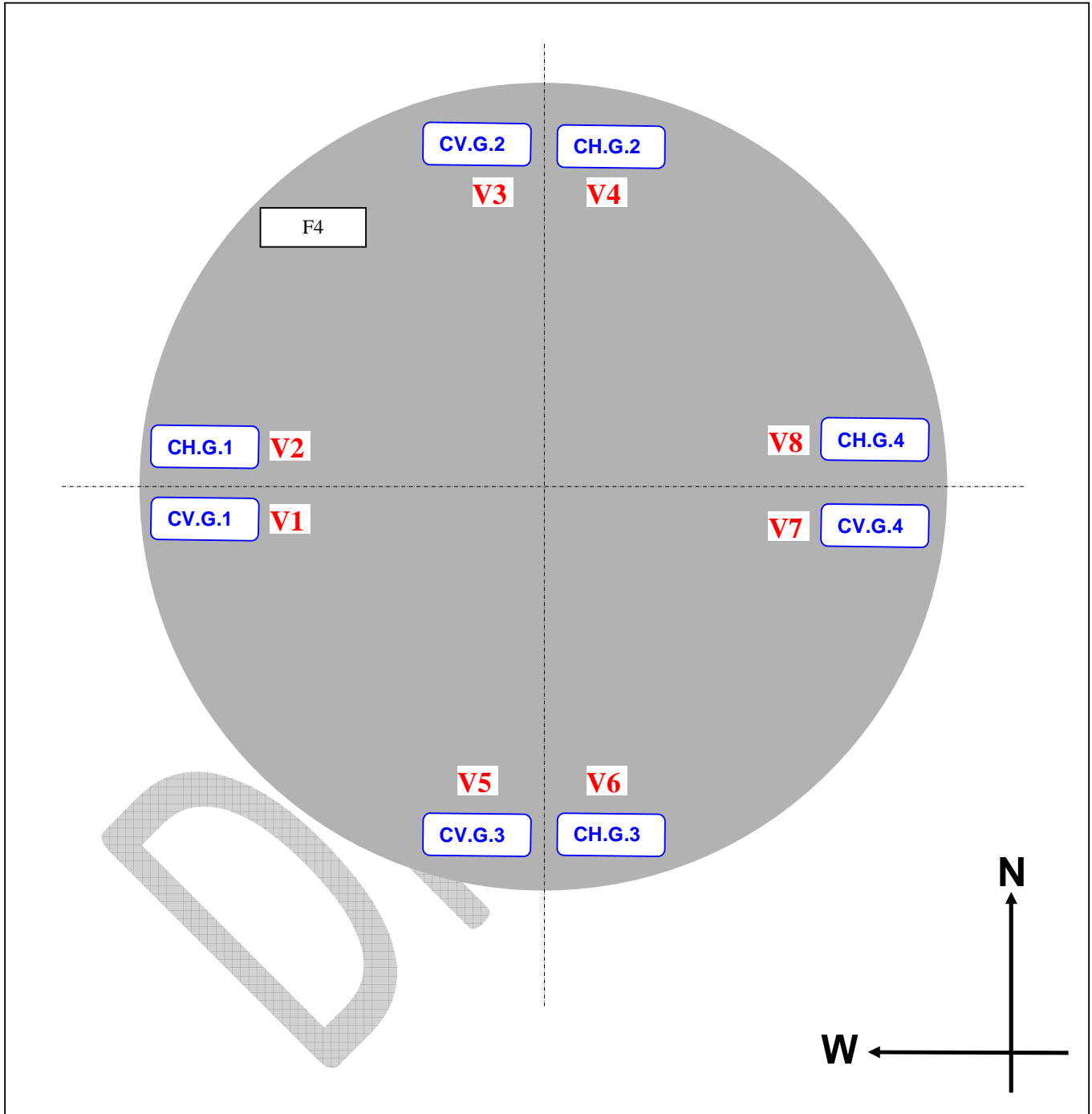


FILTER #7 coils

top view

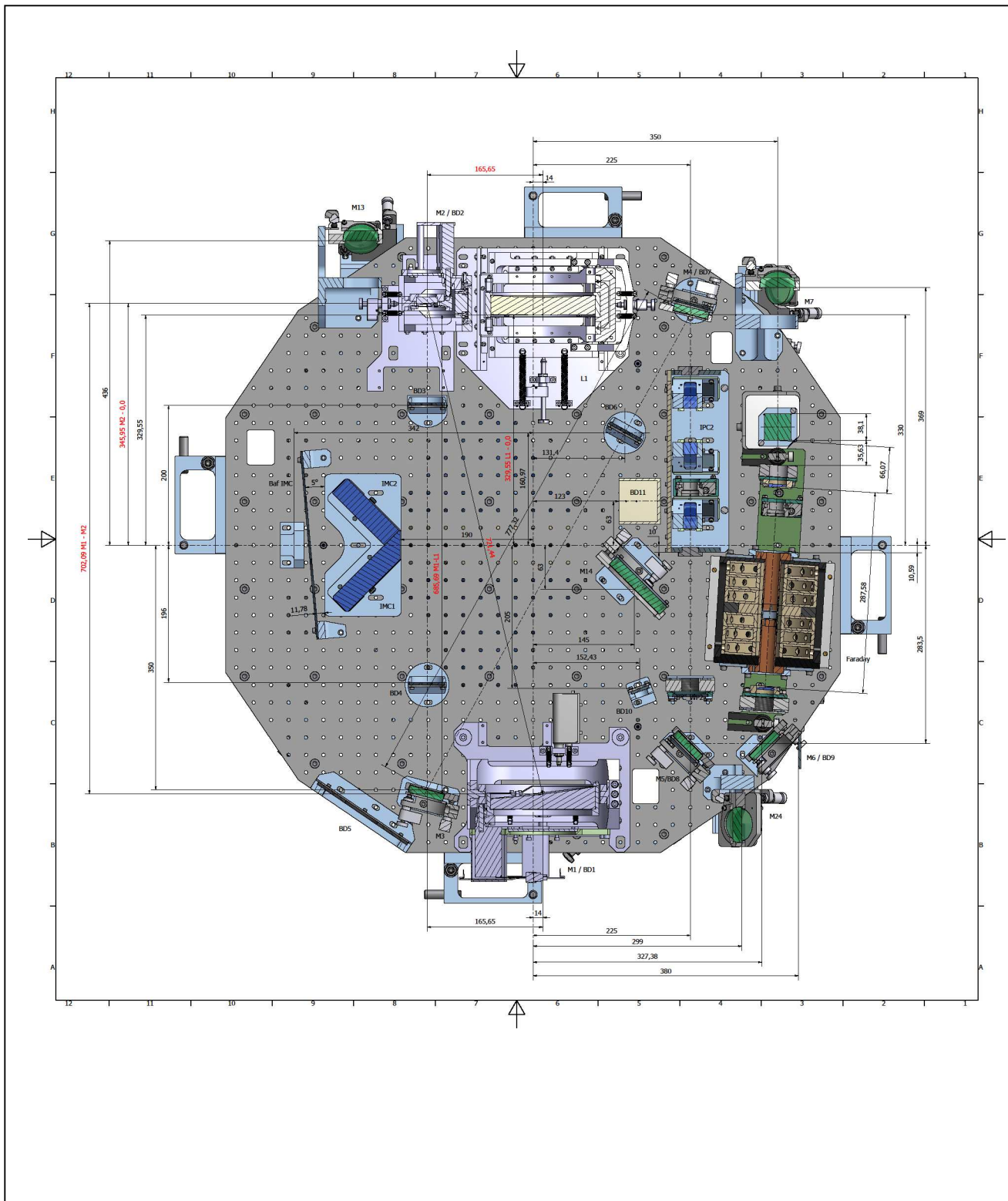


GROUND coils



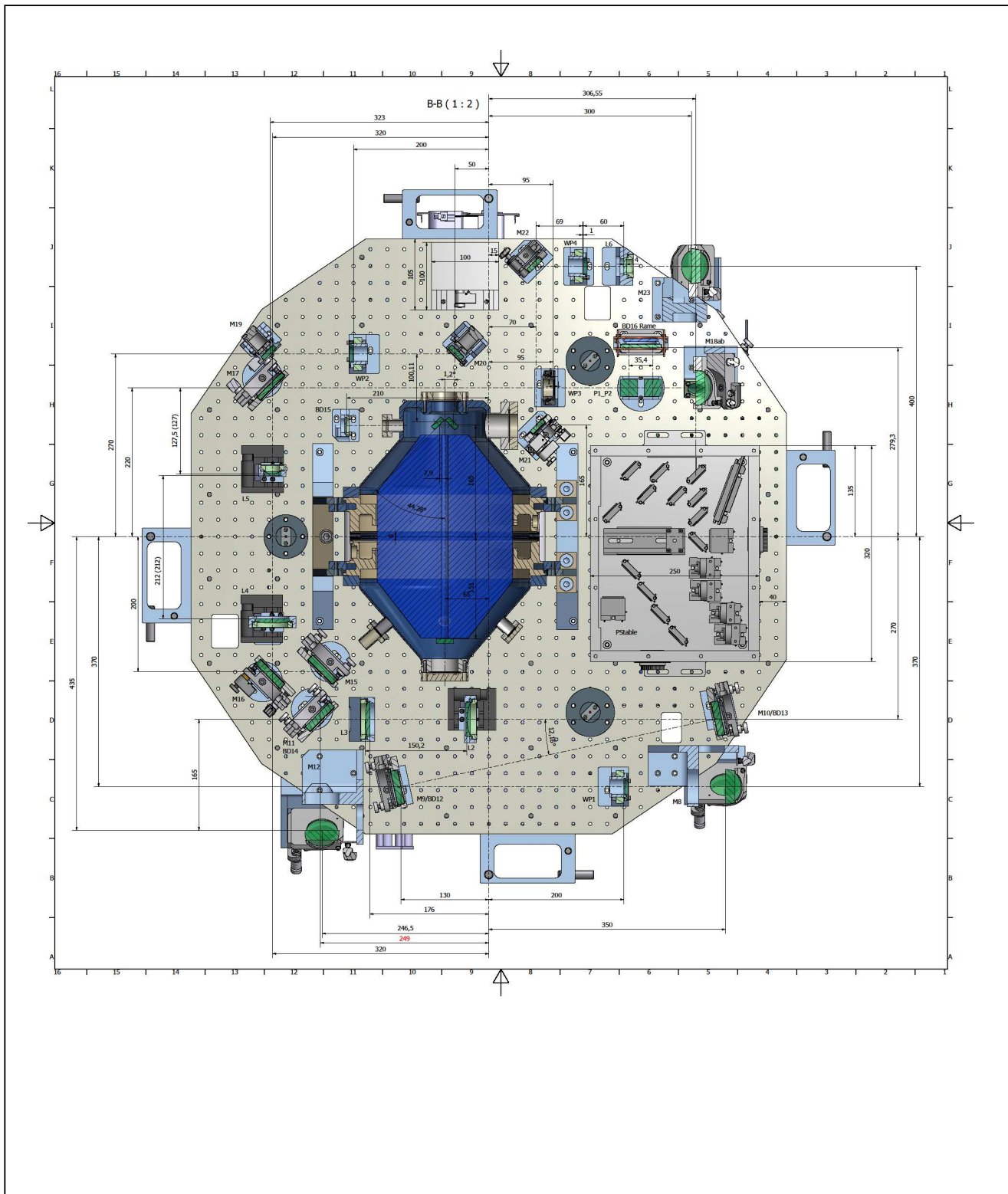
Devices on the UPPER side of the BENCH

top view

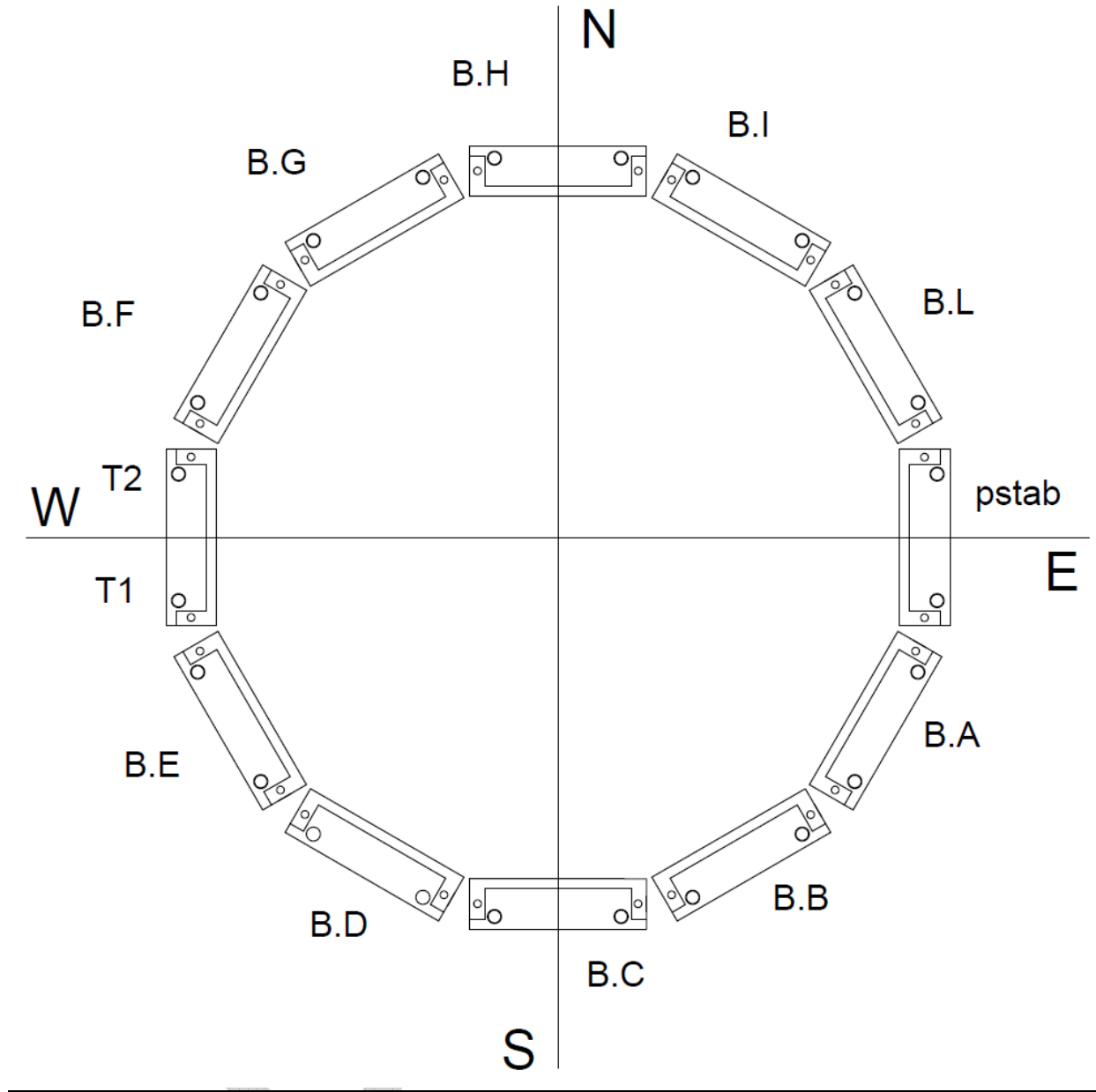


Devices on the LOWER side of the BENCH

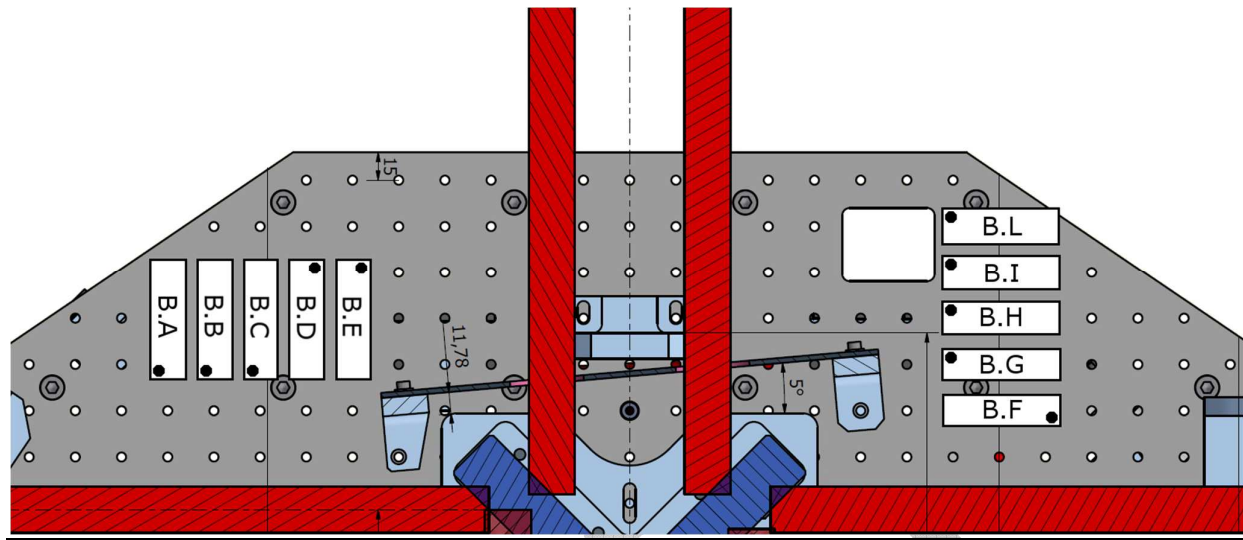
top view



Connector location on Marionette Top

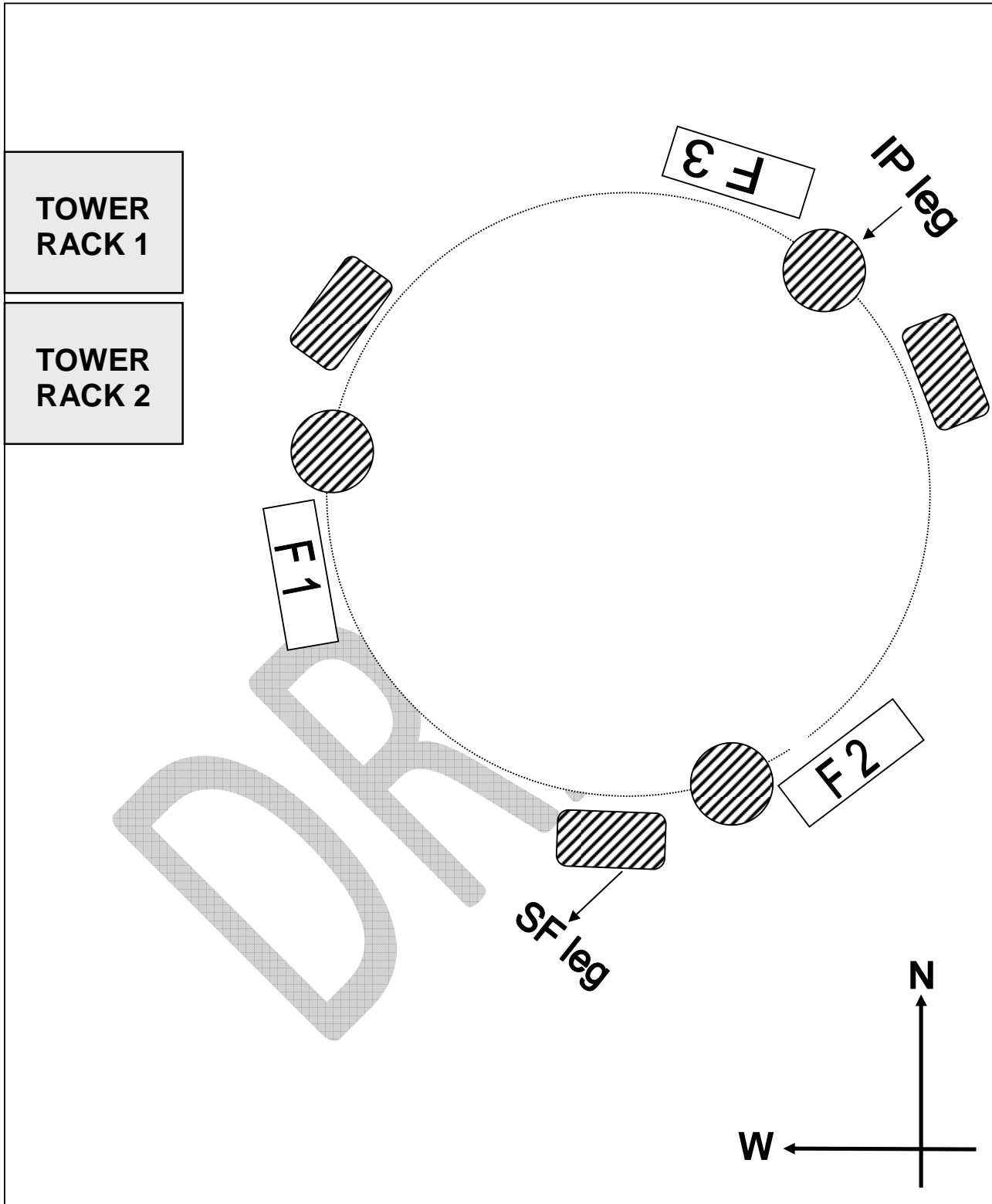


Connector location on SIB1 Top



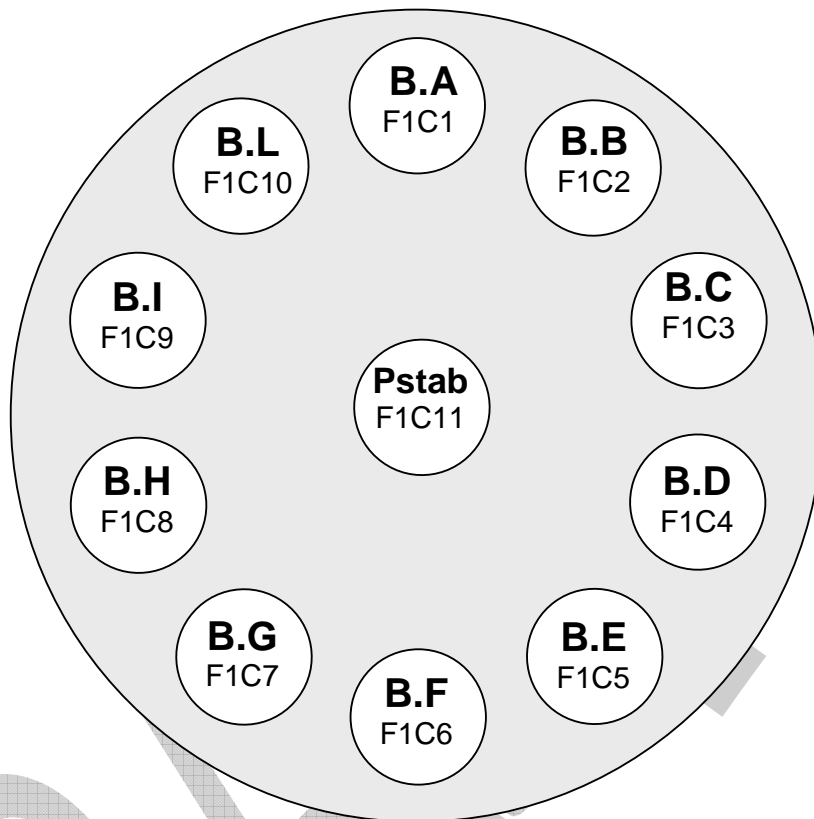
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Cable arrangement along IP legs

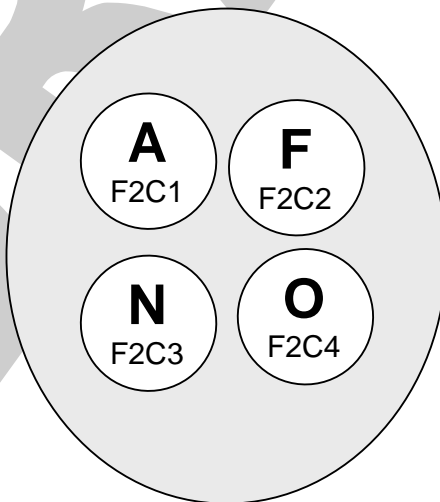


Connector location on flanges

Flange F1
(air side view)

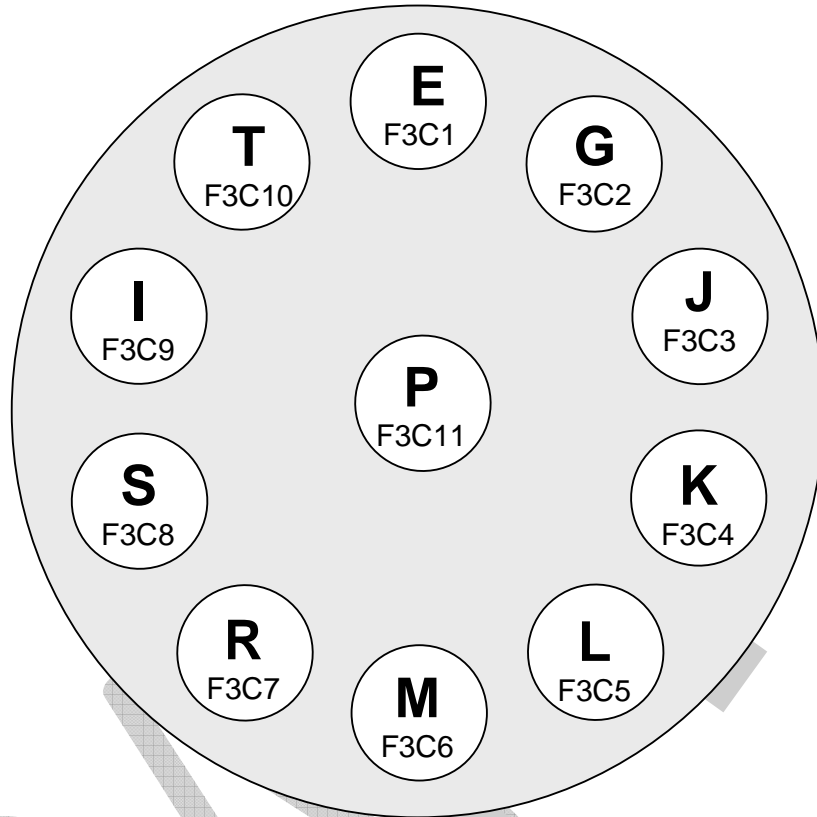


Flange F2
(air side view)



Connector location on flanges

Flange **F3**
(air side view)



Flange **F4**
(air side view)

