

SBS GEMs Gas Need

Gas volume need for GEn BigBite + GEn-RP: most demanding in term of GEM layers

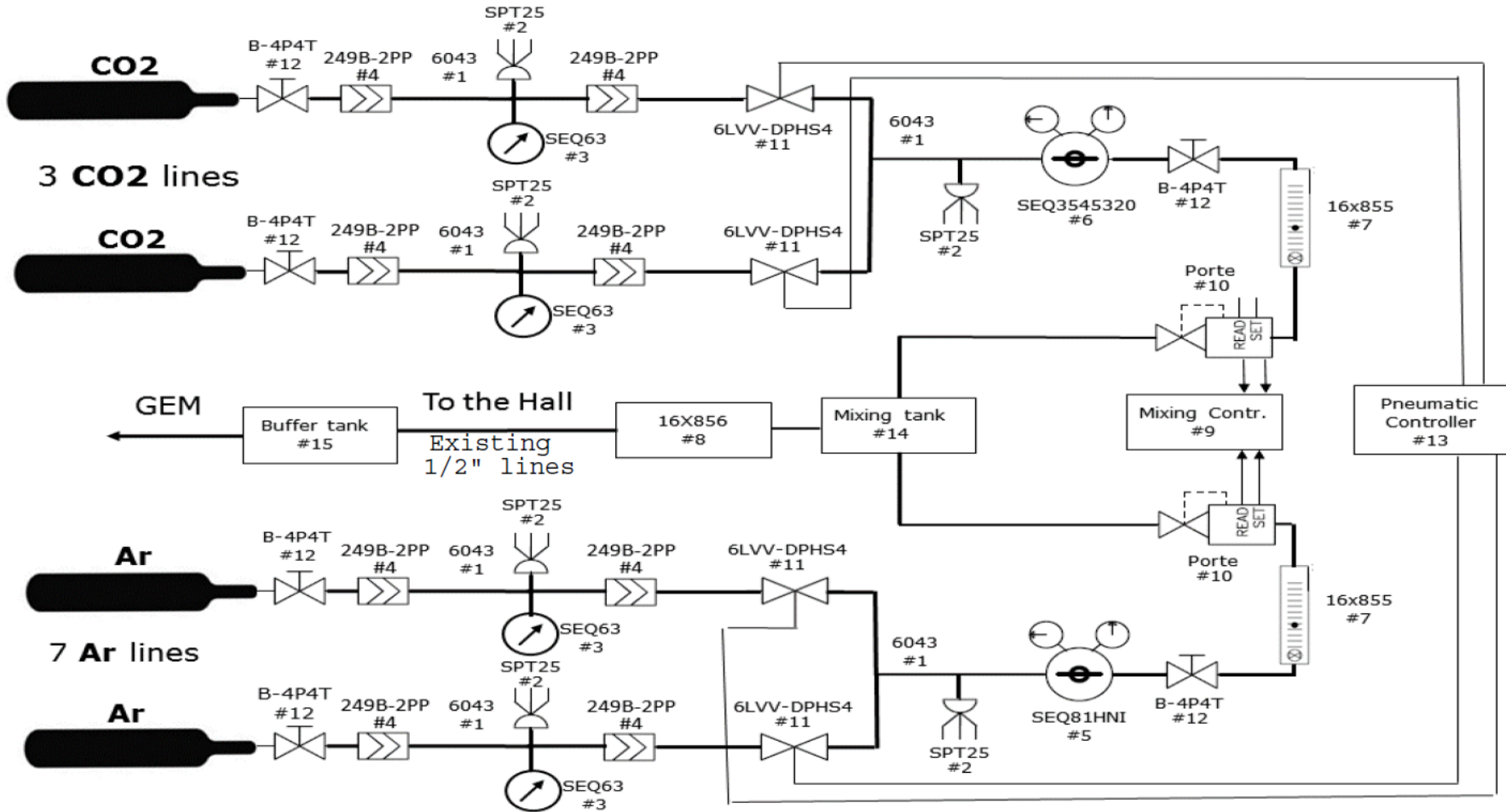
- ❖ 6 Front Tracker (FT) layers (**18 INFN modules**) @ 5 vol. change / h:
 - ✓ Per INFN module $\Rightarrow (5 \times 2.4\text{L}) / \text{h} = 12 \text{ L} / \text{h}$
 - ✓ Per FT layer $\Rightarrow 36 \text{ L} / \text{h}$
- ❖ 11 Back Tracker (BT) GEM layers (**44 UVa GEM modules**)
 - ✓ Per UVa module $\Rightarrow 5 \times 3.4 \text{ L} = 17 \text{ L} / \text{h}$
 - ✓ Per BT layer $\Rightarrow 68 \text{ L} / \text{h}$
- ❖ **Total gas flow volume 964 L / hours for 5 volume change / hours**

- ❖ **Gas Mixing System:** (see following slides)
 - ❖ Jack Segal has completed the design for the gas mixing system and has a detail estimated at 30k\$ detail
 - ❖ Jack responsible of the Gas mixing system and the main 1/2-inch gas line carrying the gas down to the pivot location in Hall A. These 1/2-inch lines already exist in place and will be re-purposed for this system

- ❖ **Gas Distribution System**
 - ❖ The collaboration (Nilanga and Evaristo) is responsible for gas distribution system from the pivot to the GEMs
 - ❖ This summer, UVa group will work with Jack to develop and test low cost thermistor based flow gauges

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GAS MIXING SYSTEM



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GAS MIXING SYSTEM PARTS

#	Part	Part number	Price/ Unit	Units	Price\$
1	Flex Hose Assembly - Armored (3 Foot Long)	6043	187	12	2,244
2	Pressure sensor from Automation Direct	spt25-10-3000a	115	12	1,380
3	Small Pressure Gauge (Brass) (0-3000psig)	SEQ631133	24	12	288
4	200 Series Check Valves 0 to 3000 psig	249B-2PP	57	20	1,140
5	81 Series Dual-Stage General Purpose Regulator - Brass (no inlet fitting) (for the argon)	SEQ81HNI	295	1	295
6	3540 Series Heated Dual-Stage Regulator - Brass (for the CO2)	SEQ3545320	594	1	594
7	2 to 25 LPM Variable Area Flowmeter	Item# 16X855 2510A2A16SVVT	82	2	162
8	2 to 25 LPM Variable Area Flowmeter	Item# 16X856 2510A2A16BNBN	54	1	54
9	Mixing Controller (made by Jack)		3,500	1	3,500
10	Mass Flow Controller Porte(601AV,MFC,NCV,0-5V,1/4CP) + MFC T-Cable adapter(BHT,RS232,T-PAR)*	601AVQAAD22V + 7.03.366	1,775+110=1,885	4 or 3	7,500
11	316L VIM-VAR UHP High Pressure Diaphragm Sealed Valve, 1/4 in. Swagelok Tube Fitting, NC	6LVV-DPHS4-C	323	10	3,230
12	Brass Quarter-Turn Instrument Plug Valve, 1/4 in. Swagelok Tube Fitting, 1.6 Cv	B-4P4T	42	12	502
13	Pneumatic controller (made by Jack)		3,000	1	3,000
14	Mixing air tank (2 gal)	91022	63	1	70
15	Buffer air tank (5 gal)	91050	90	1	100
16	Fastenal Part No. (SKU): 0508510 48" x 44" x 29 White Poly 1200Lb-WLL Bulk Box **	0508510	363	1	363
17	49" x 45" x 3" White Poly Lid **	0508512	89	1	89
18	Fittings, papes				5,000
	Total				30,000

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GAS DISTRIBUTION SYSTEM

