

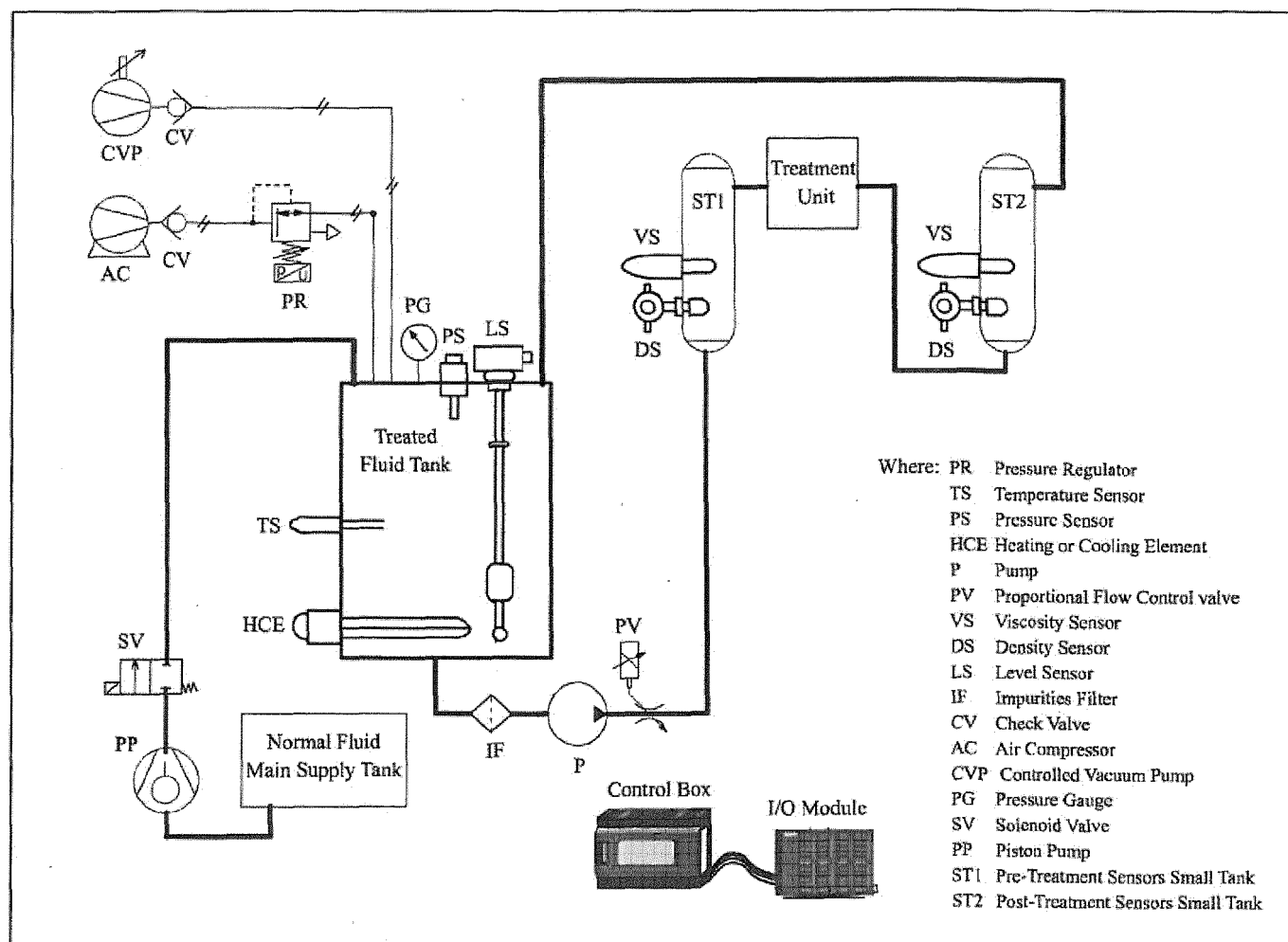


Figure 1: an exemplary production process of the directly magnetized or treated fluid/gas using Inline pre-treatment and post-treatment sensors configuration.

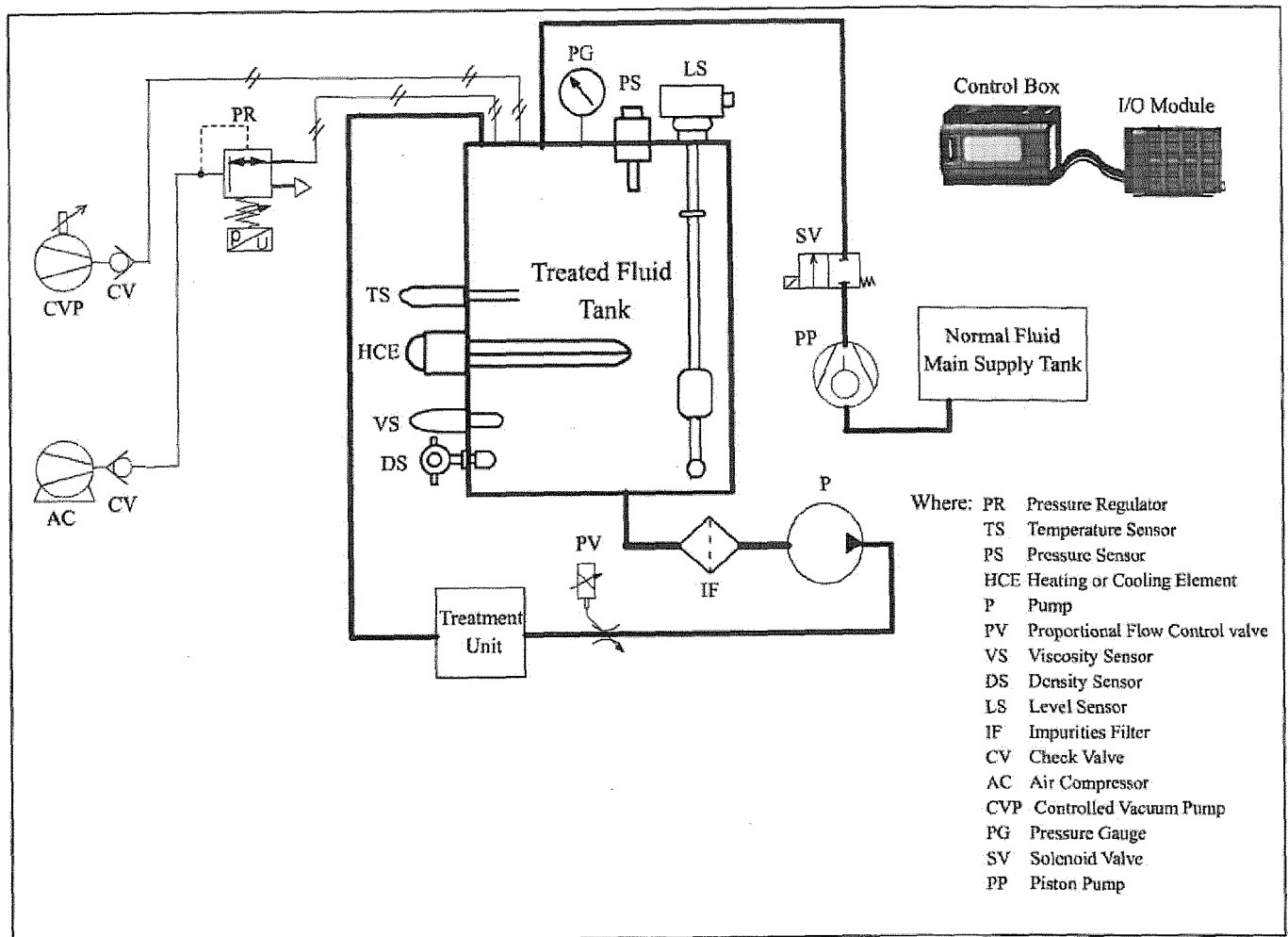


Figure 2: an exemplary production process of the directly magnetized or treated fluid/gas using In-tank sensors configuration

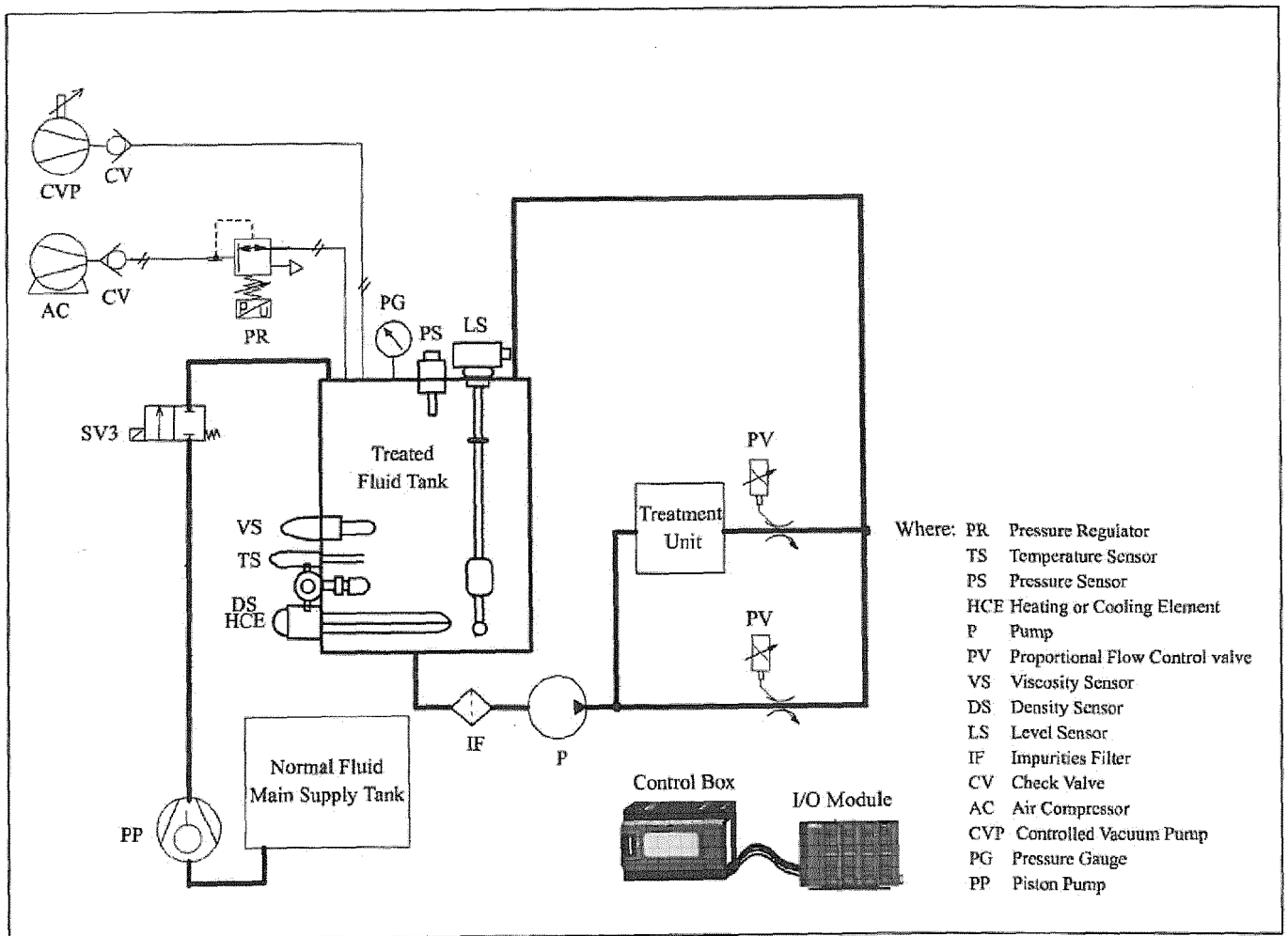


Figure 3: an exemplary production process of the directly magnetized or treated fluid/gas using Parallel flow configuration

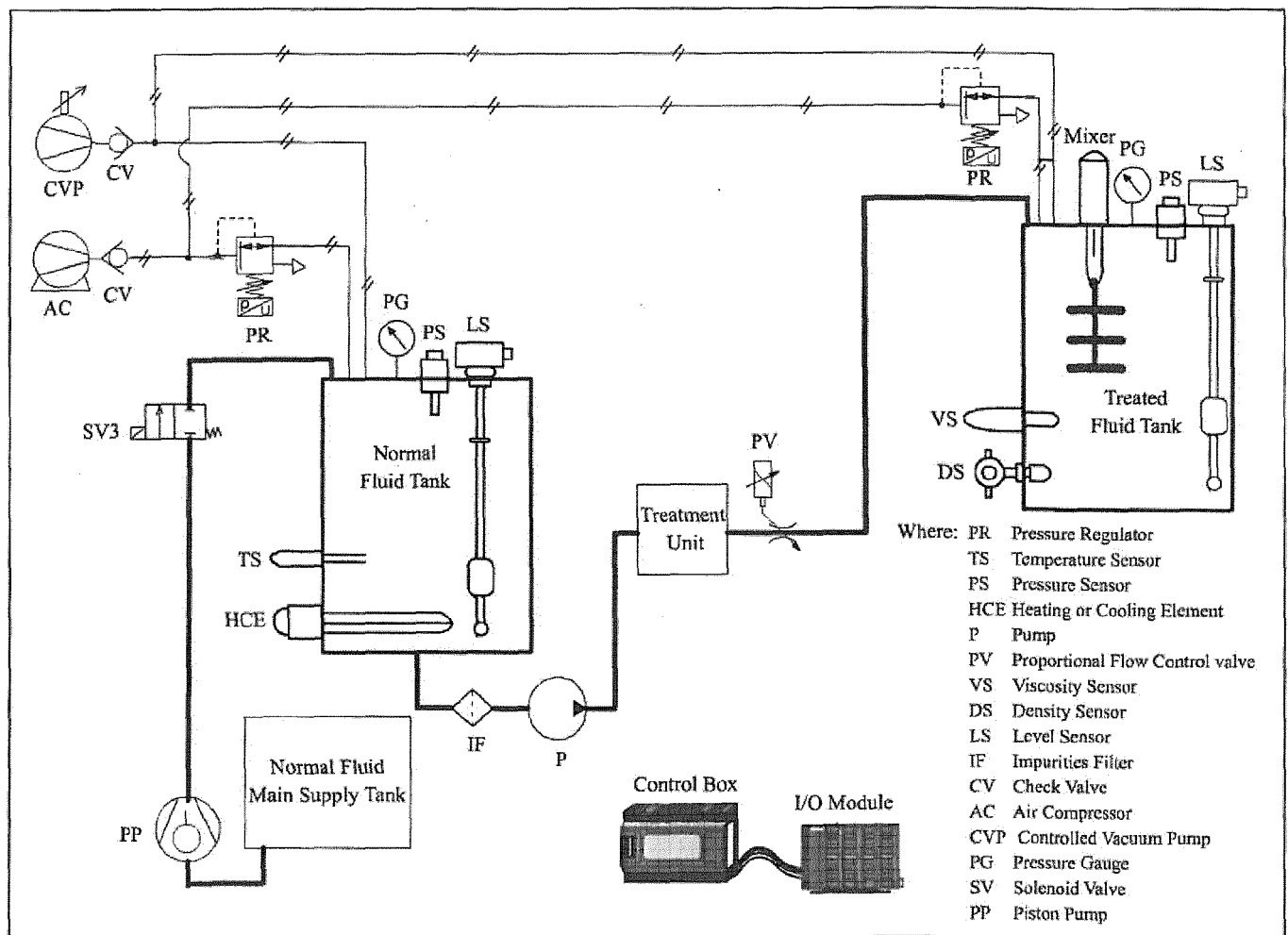


Figure 4: an exemplary production process of the directly magnetized or treated fluid/gas using Single-cycle configuration.

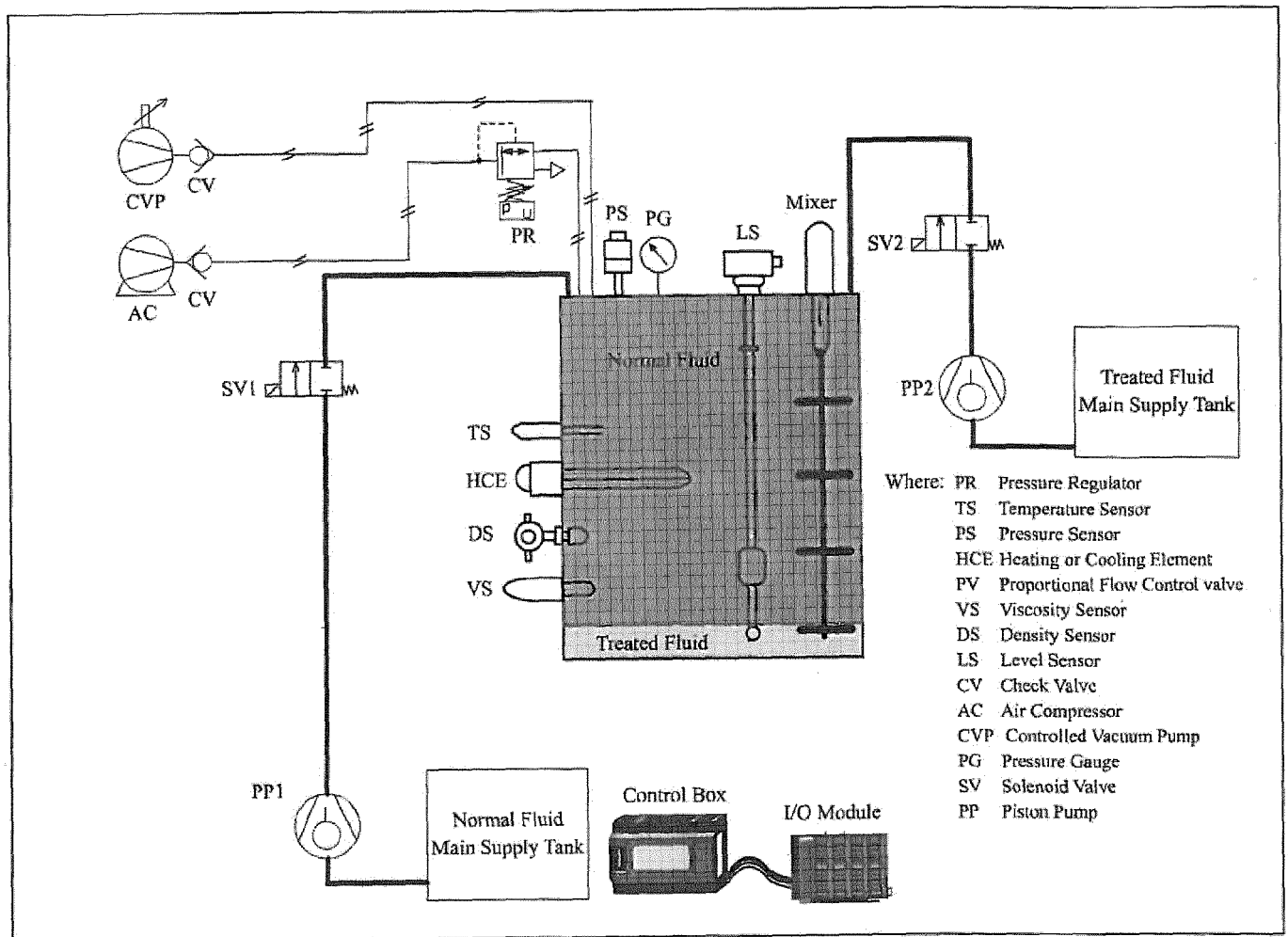


Figure 5: an exemplary mixing process using Bottom configuration

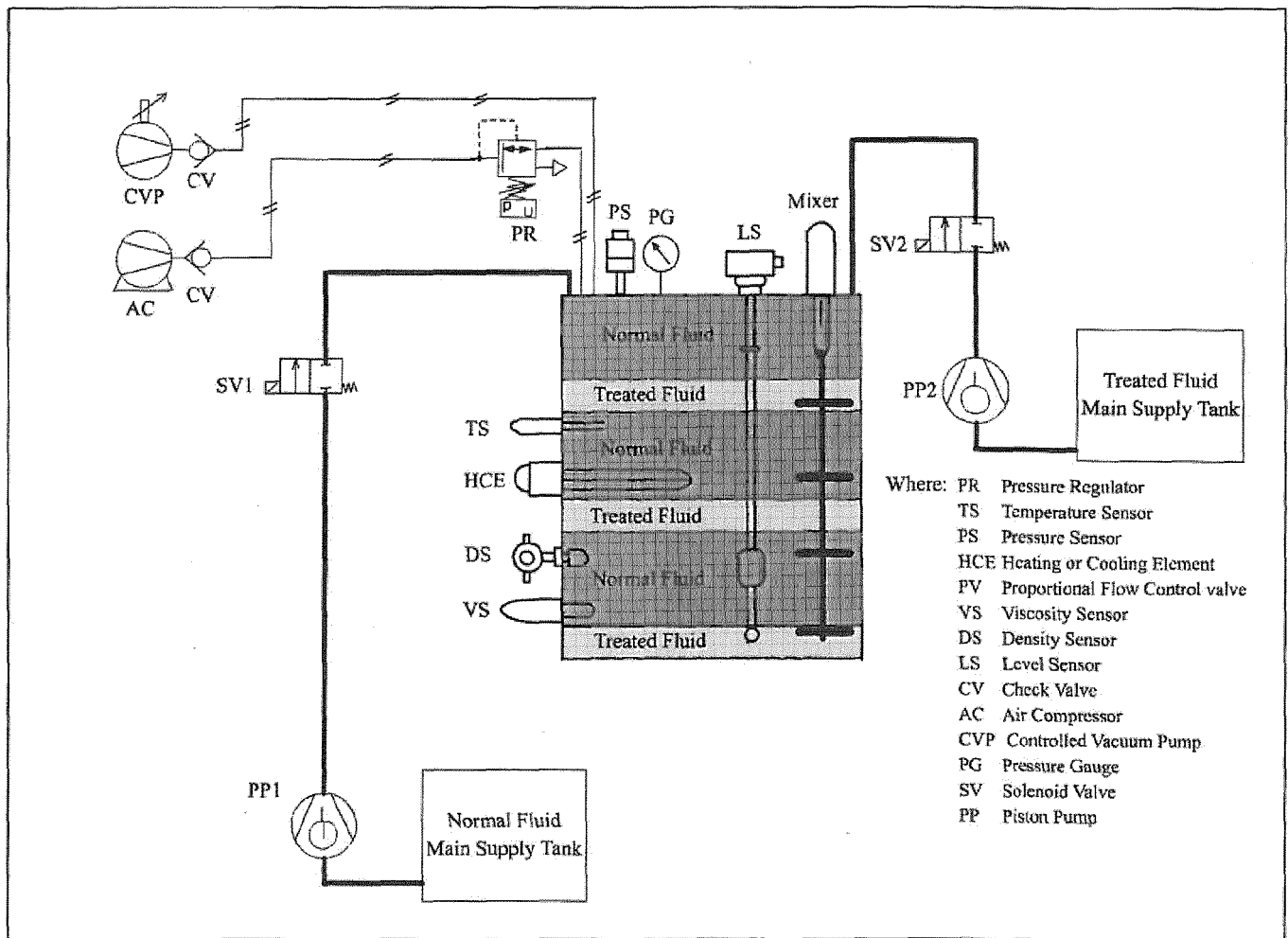


Figure 6: an exemplary mixing process using Alternative bottom configuration

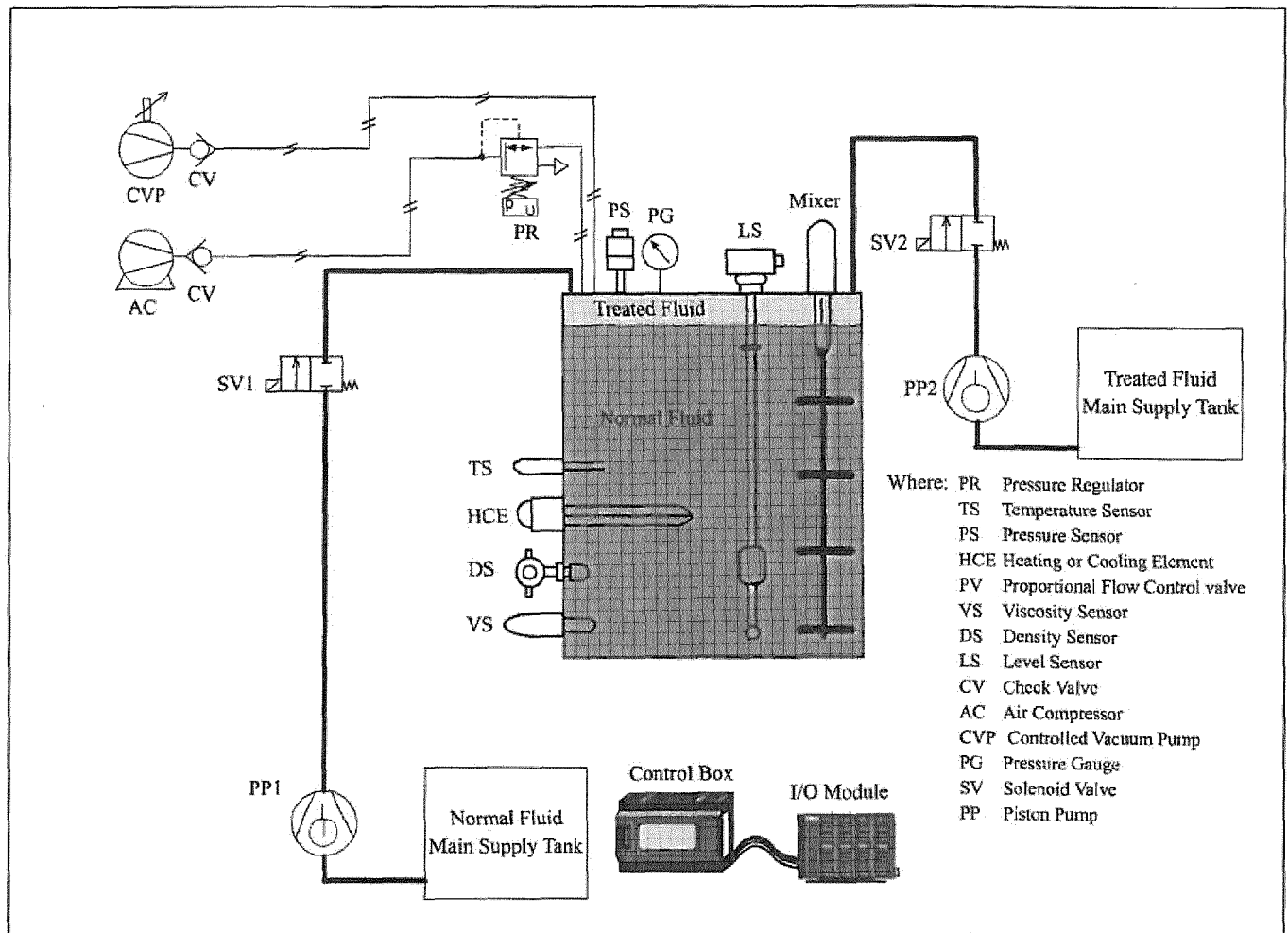


Figure 7: an exemplary mixing process using Top configuration

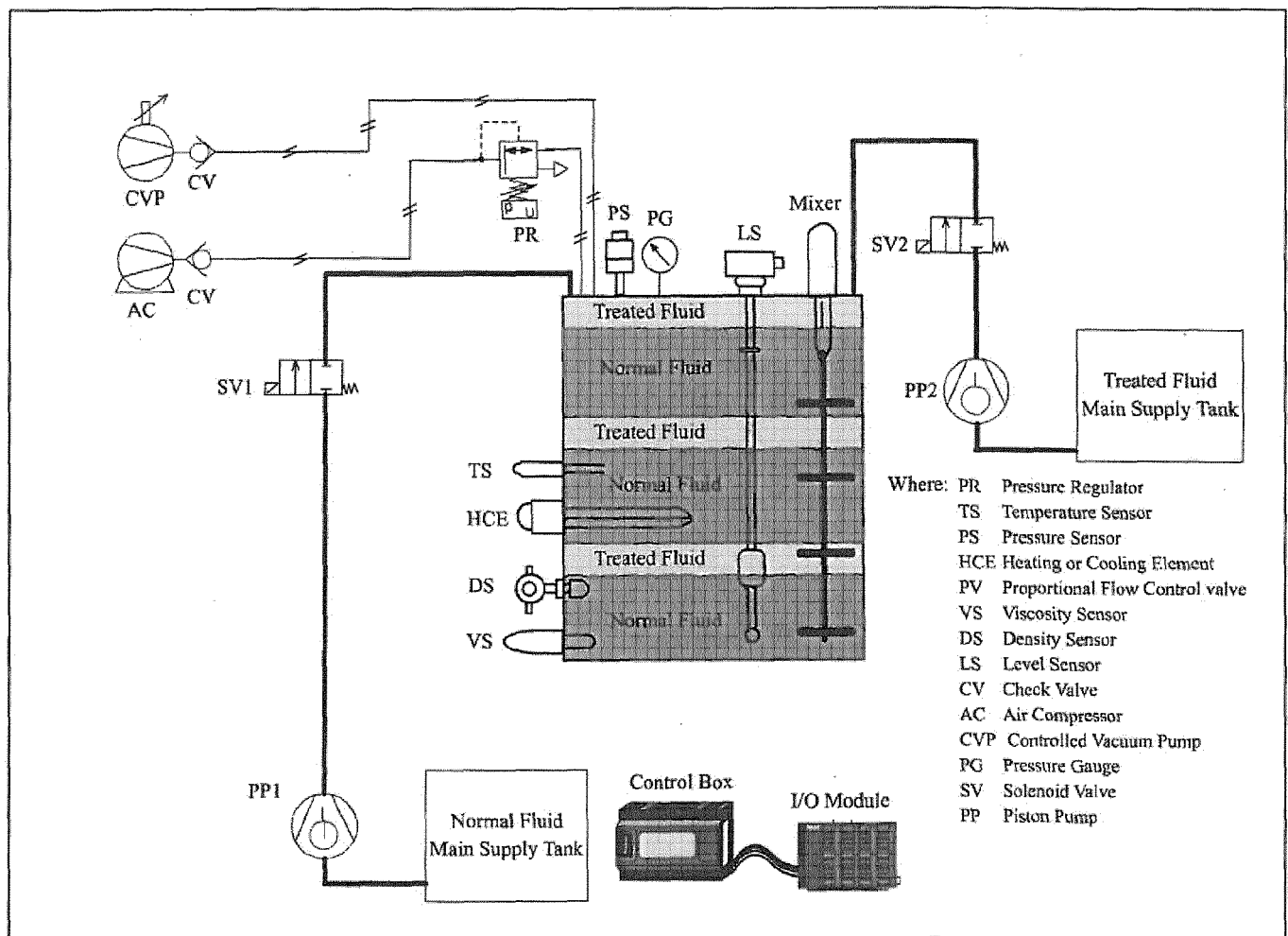


Figure 8: an exemplary mixing process using Alternative top configuration

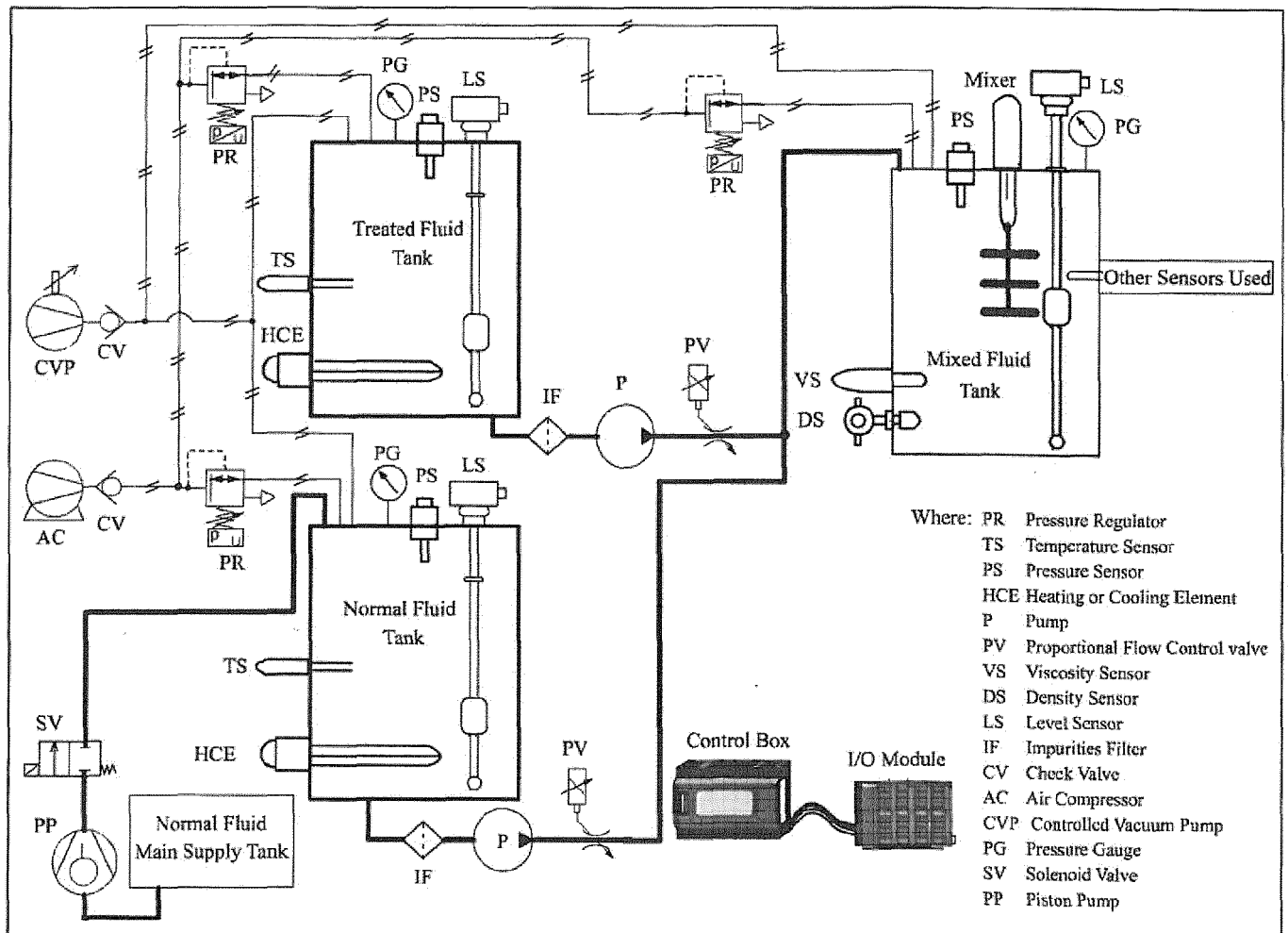


Figure 9: an exemplary mixing process using Parallel flow two-tank configuration

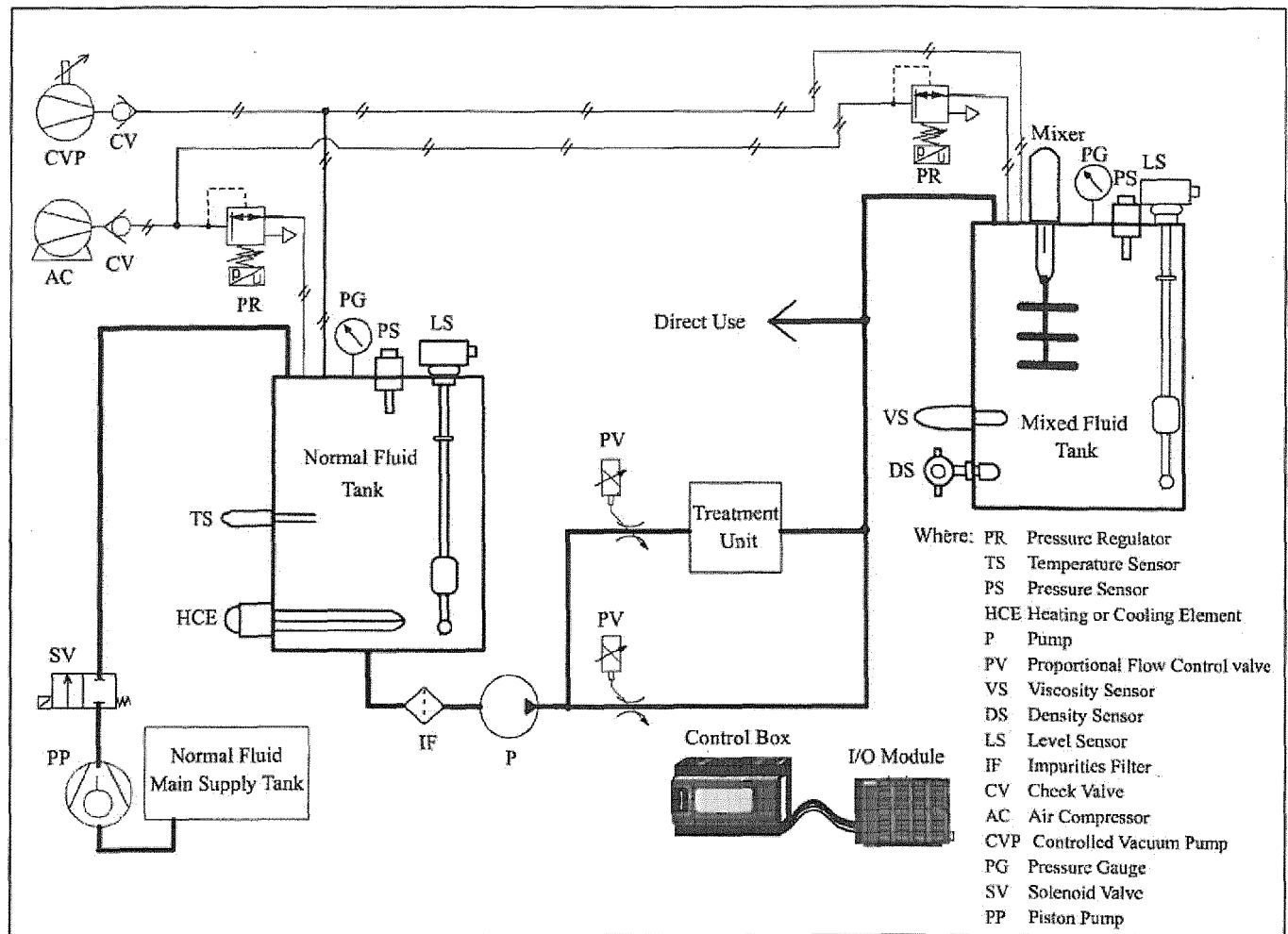


Figure 10: an exemplary mixing process using Parallel flow one-tank configuration

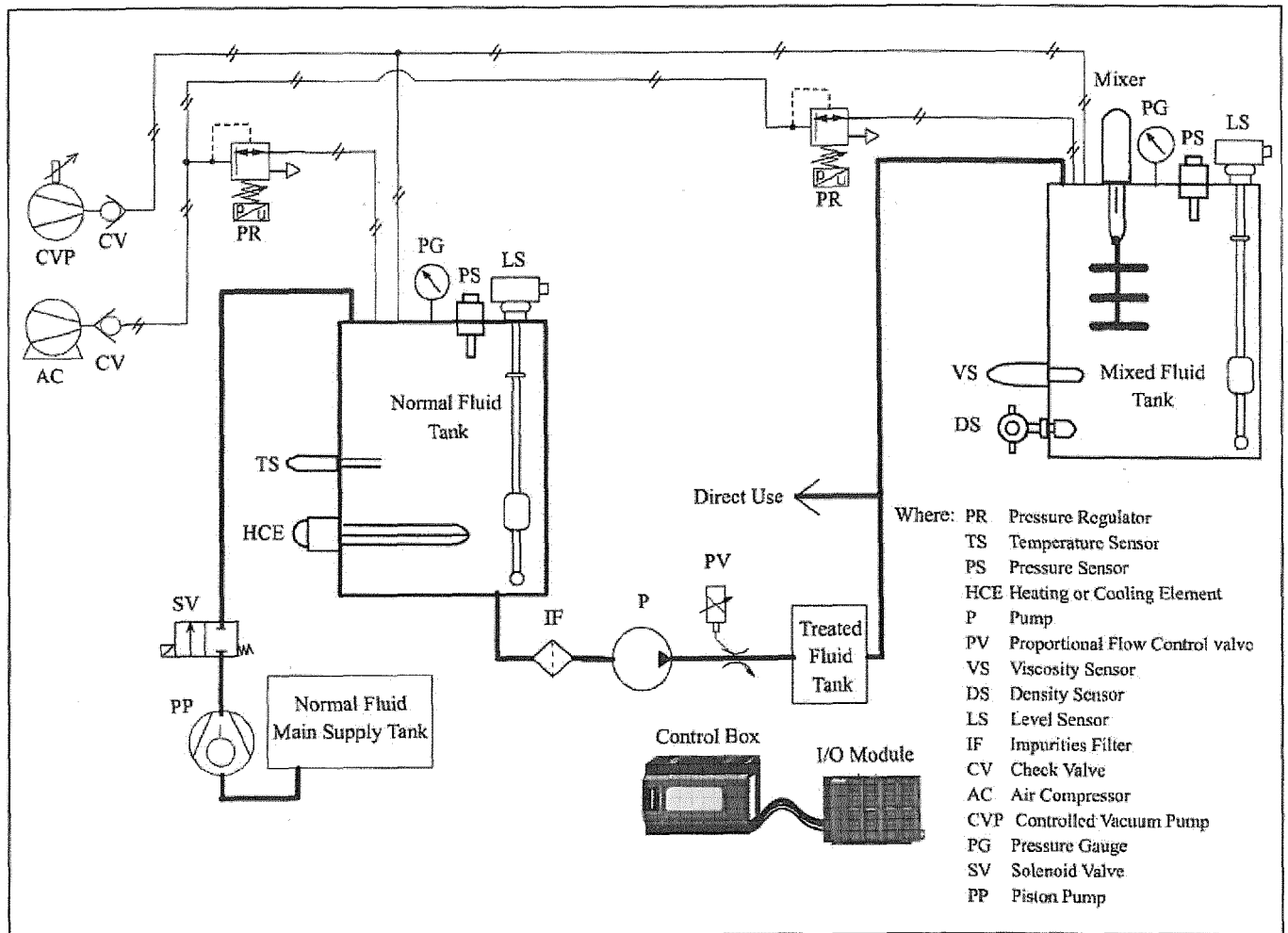


Figure 11: an exemplary mixing process using Series flow one-tank configuration

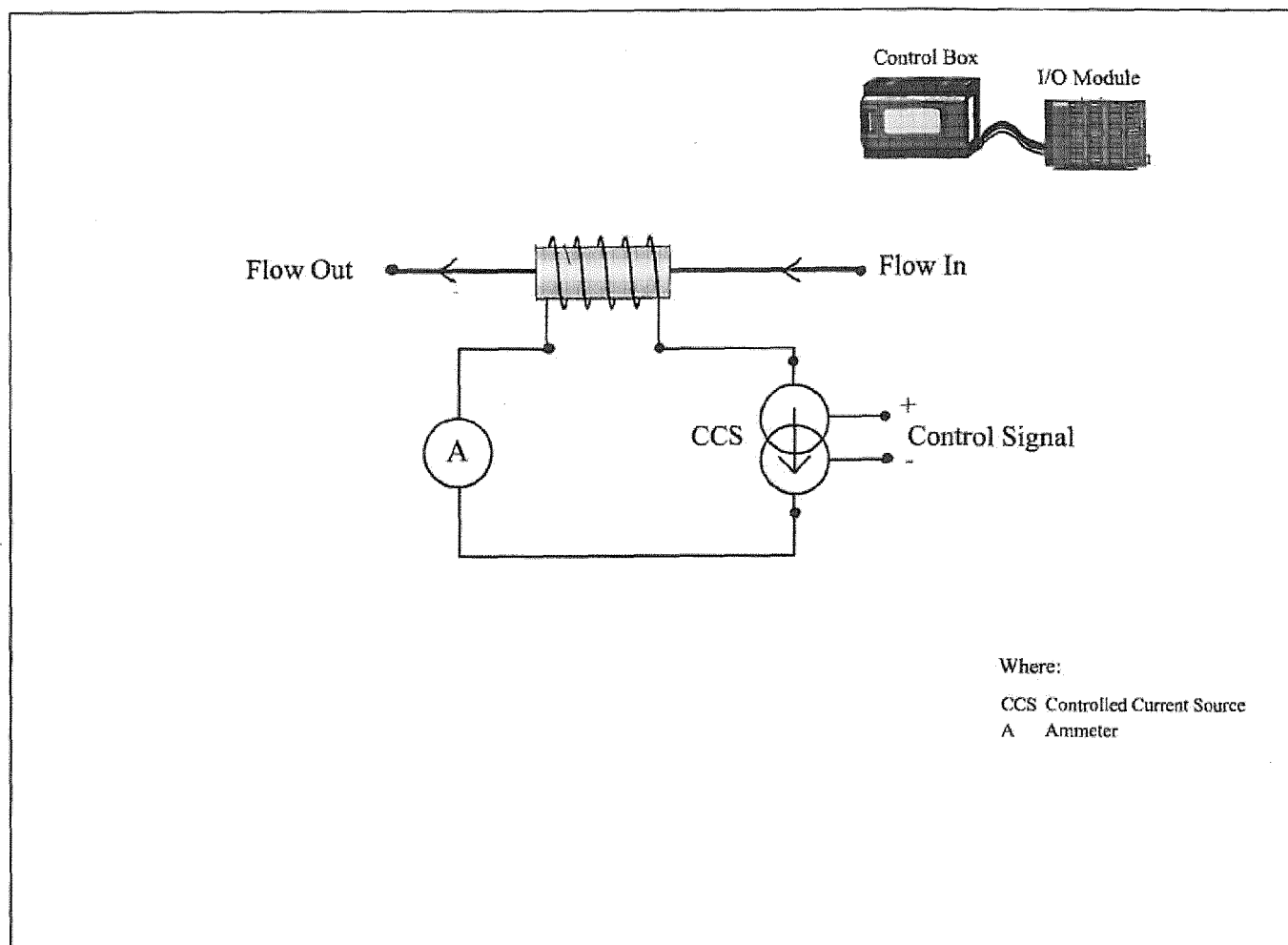


Figure 12: an exemplary Coil setup for generating variable electromagnetic field.

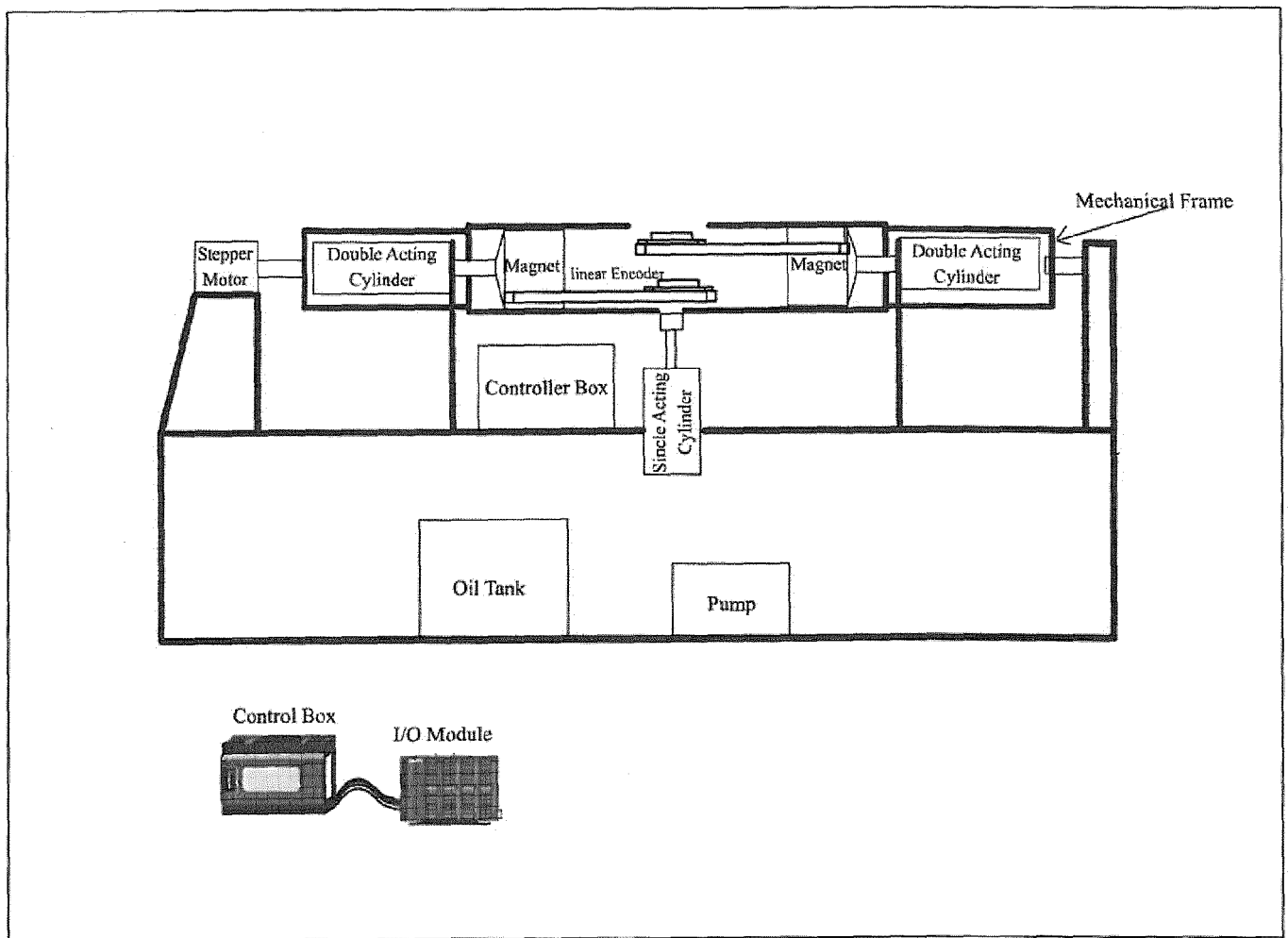


Figure 13: an exemplary Permanent magnet setup for generating variable magnetic field.

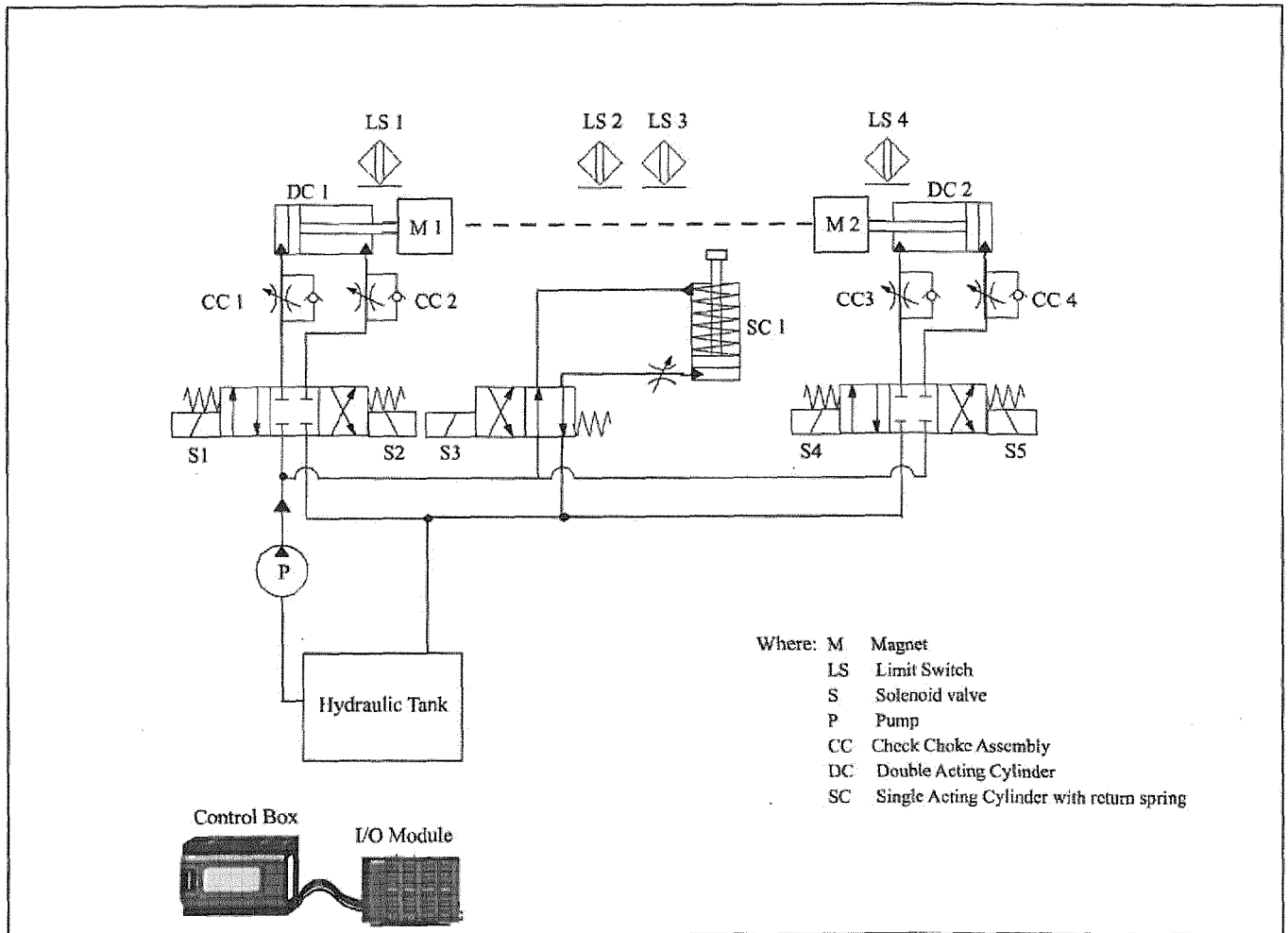
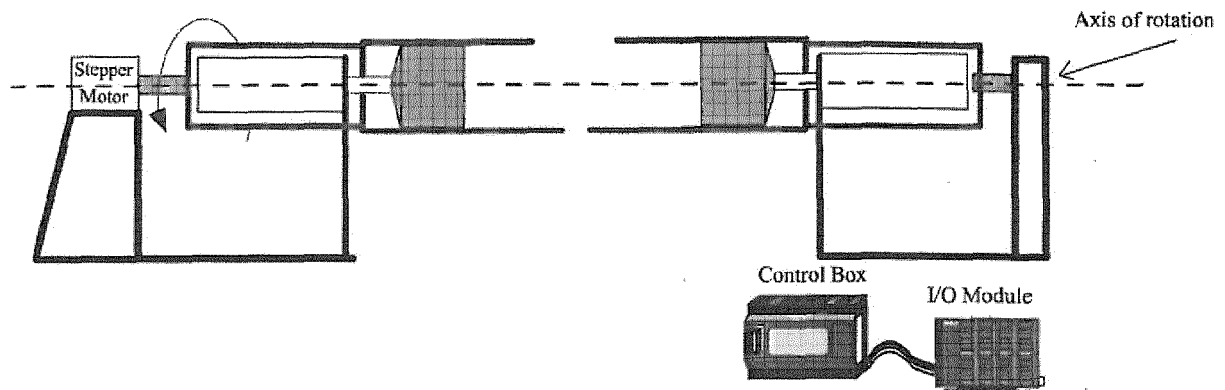


Figure 14: an exemplary Hydraulic Circuit for permanent magnet setup.

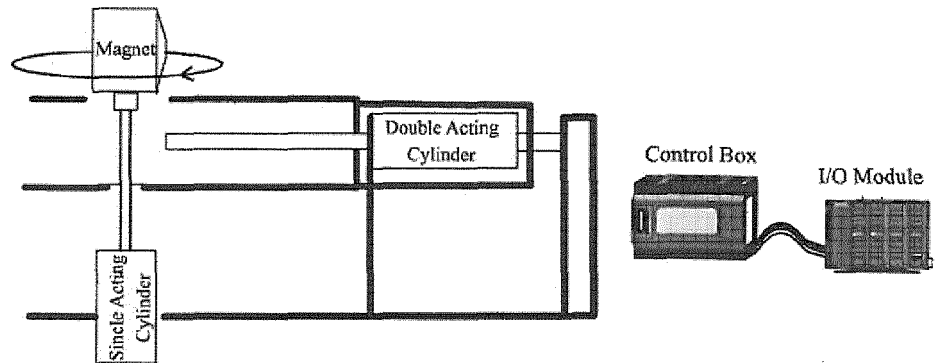
Magnets Rotation:



This can be done by rotating the frame (Shaded by gray color) using Stepper motor

Figure 15: an exemplary Magnets Rotation of Permanent magnet setup using stepper motor.

Magnets field flipping:



To flip magnets field, one of magnets must move to its maximum outstroke where the piston of single acting cylinder will lift it from the bottom to the top of frame where the magnet flipped manually.

Figure 16: an exemplary Magnetic filled polarity manual flipping of permanent magnet setup.

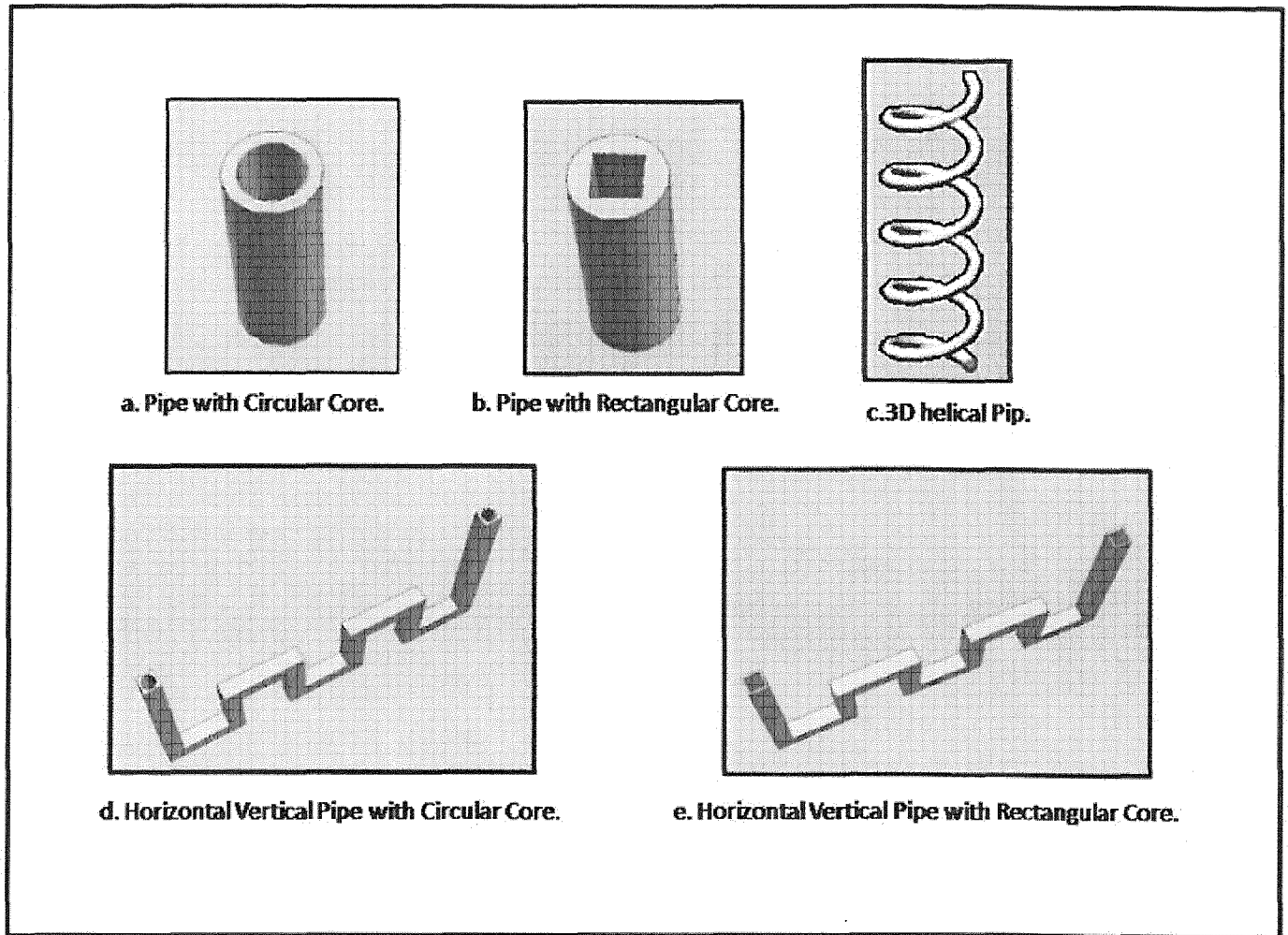


Figure 17: exemplary Possible Pipe configurations under the effect of magnetic field.

Distance (Cm)	B _x (G)	B _y (G)	B _z (G)
2.4	6841	10.39	26.20
3.4	5892	28.04	26.80
4.4	4711	49.94	25.09
5.4	3982	85.05	22.56
6.4	3374	112.90	19.93
7.4	2859	136.10	17.40
8.4	2417	154.30	15.16
9.4	2131	169.99	13.58
10.4	1836	176.00	11.94
11.4	1631	183.80	10.58
12.4	1416	193.20	9.23
13.4	1272	199.60	8.19
14.4	1129	206.20	7.19
15.4	1011	211.76	6.40
16.4	902	217.07	5.60
17.4	812	221.30	5.03
18.4	733	225.30	4.40
19.4	662	228.79	3.90
20.4	596	232.00	3.55
21.4	544	234.70	3.21
22.4	492	237.30	2.82
23.4	454	239.30	2.62
24.4	411	214.60	2.33

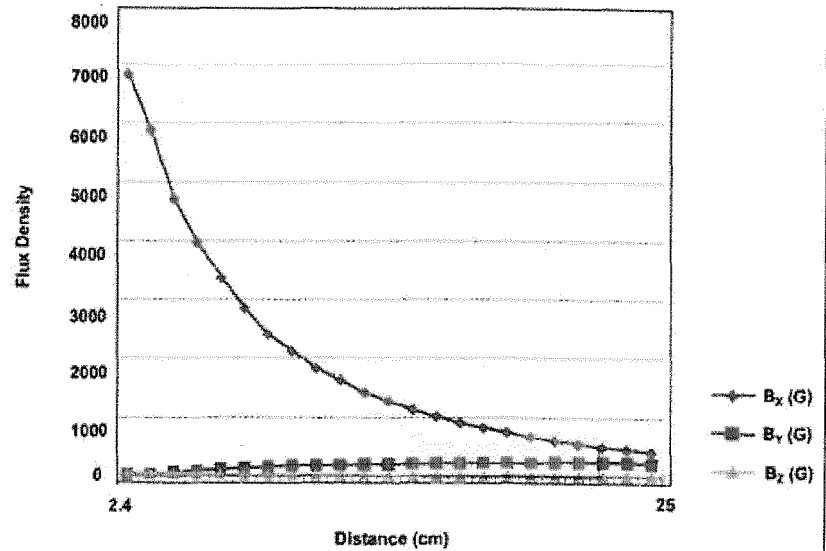


Figure 18: an exemplary 3D Flux density of permanent magnet setup using attraction mode used in the application case.

Distance (Cm)	B _x (G)	B _y (G)	B _z (G)
2.4	7.9	480.00	580.00
3.4	0.16	352.00	330.00
4.4	6.6	226.00	395.00
5.4	2.51	122.30	333.00
6.4	4.6	20.00	272.00
7.4	14.9	60.80	263.00
8.4	11.72	112.60	220.00
9.4	10.5	143.10	207.00
10.4	9.1	162.50	189.40
11.4	15.86	184.90	169.80
12.4	5.3	192.60	154.03
13.4	4.31	202.20	146.80
14.4	3.3	210.40	128.00
15.4	5.9	221.90	111.50
16.4	2.7	226.87	98.80
17.4	7.9	235.30	89.30
18.4	4.11	237.00	86.30
19.4	1.98	239.00	73.65
20.4	4.36	244.46	65.33
21.4	1.09	245.20	59.10
22.4	0.367	247.00	53.10
23.4	0.3	298.70	48.70

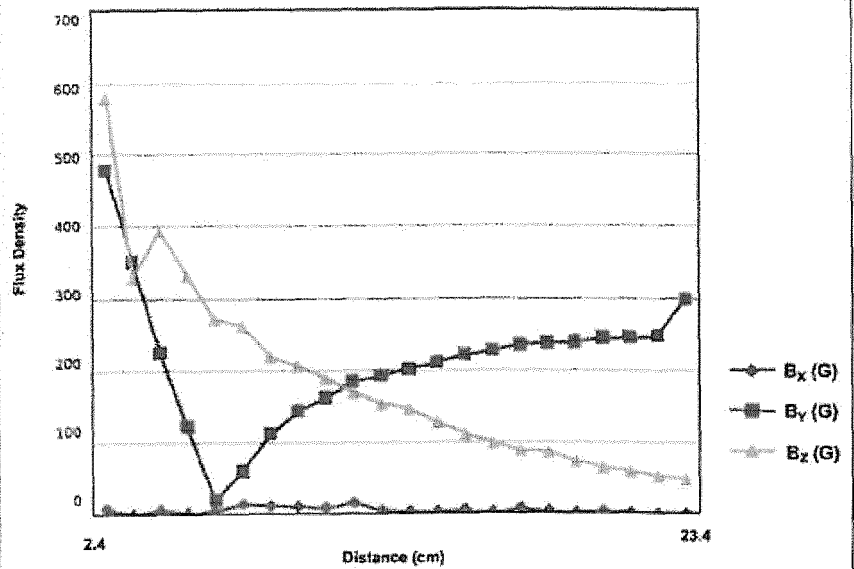


Figure 19: an exemplary 3D Flux density of permanent magnet setup using repulsion mode used in the application case.