

CLAIMS:

1. A vacuum pumping arrangement (70) comprising:
a first primary pump (72) having an inlet (74) and an outlet (76), and a
5 first common pumping line (78) fluidly connected to the inlet of the first primary
pump, the first common pumping line including a plurality of first common
pumping line inlets (80) each of which is fluidly connectable to at least one
vacuum process chamber (22) within the group of process chambers forming a
semiconductor fabrication tool (86), the first primary pump and the first
10 common pumping line, in use, handling deposition process flows; and
a second primary pump (88) having an inlet (90) and an outlet (92), and
a second common pumping line (94) fluidly connected to the inlet of the second
primary pump, the second common pumping line including a plurality of second
common pumping line inlets (96) each of which is fluidly connectable to at least
15 one process chamber within a group of process chambers forming the
semiconductor fabrication tool, the second primary pump and the second
common pumping line, in use, handling cleaning process flows; characterised in
that
respective pairs of first and second common pumping line inlets are each
20 fluidly interconnected by a valve module (106) which in turn is fluidly
connectable to a said at least one process chamber such that an exhaust of said at
least one process chamber is directed to either said first or second common
pumping line.
- 25 2. A vacuum pumping arrangement according to Claim 1 wherein each of the
first and second primary pumps has a respective abatement module
(1001, 1002) arranged in fluid communication therewith.
3. A vacuum pumping arrangement according to Claim 1 or 2, wherein at
30 least one valve module includes a fail-safe arrangement to prevent mixing
of deposition and cleaning process flows upstream of the valve module.

4. A vacuum pumping arrangement according to any preceding Claim wherein at least one valve module is located downstream of any booster pump connectable with the corresponding process chamber.
- 5 5. A vacuum pumping arrangement according to any preceding claim wherein the second common pumping line is selectively fluidly connectable with the first primary pump.
- 10 6. A vacuum pumping arrangement according to any preceding claim wherein at least one common pumping line includes an interconnecting member fluidly connectable to a common pumping line of at least one other vacuum pumping arrangement.
- 15 7. A vacuum pumping arrangement according to any preceding claim further including one or more rough down pumping lines, each having a first end arranged in fluid communication with a primary pump and a second end including a bleed valve, the bleed valve being fluidly connectable to a respective process chamber to initially evacuate the said process chamber.
- 20 8. A semiconductor fabrication facility (86) comprising a plurality of semiconductor fabrication tools each of which includes:
a plurality of process chambers (22); and
25 a vacuum pumping arrangement according to any preceding claim, wherein the common pumping line of the vacuum pumping arrangement of one semiconductor fabrication tool is fluidly connected to the common pumping line of the vacuum pumping arrangement of at least one other semiconductor fabrication tool.

9. A vacuum pumping arrangement according to any one of claims 1 to 7 for evacuating at least first and second vacuum process chambers, comprising a first vacuum pump (50a) and a second vacuum pump (50b) having an inlet (101b), wherein said first vacuum pump inlet (501a) is adapted to be in fluid communication with an outlet of the first process chamber, said second vacuum pump inlet (101b) is adapted to be in fluid communication with an outlet of the second process chamber; at least first and second valve modules (108a, 108b), said valve modules being at least three way valve modules comprising an inlet, a first outlet and a second outlet, said first valve module inlet in fluid communication with an outlet of the first vacuum pump, said second valve module inlet in fluid communication with an outlet of the second vacuum pump; said first common pumping line (78) being in fluid communication with the first outlets of both of the first and second valve modules, the second common pumping line (94) being in fluid communication with the second outlets of both the first and second valve modules, wherein the first and second vacuum pumps (50a, 50b) are secondary vacuum pumps and each of the first and second common pumping lines comprises at least respective first and second primary vacuum pumps (72, 88) to provide sufficient pumping capacity for each of the at least first and second vacuum pumps when in fluid communication via the first and/or second valve modules; and wherein at least one of the common pumping lines is in fluid communication with an abatement device (1001, 1002).