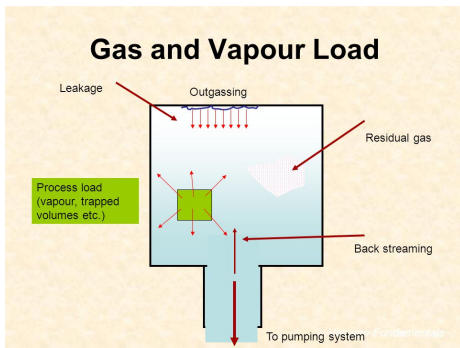


Vacuum IDEAL pump down basic theory



[courtesy of Nash:HVtech]

- Volume V .
- Pumping speed S .
- pressure $p(t)$.
- initial pressure p_0 .
- Basic pump-down equation:

$$V \frac{dp}{dt} = -S \cdot p.$$

- Basic pump down time evolution: $p(t) = p_0 \cdot e^{-S/V \cdot t}$
- .. with p_{lim} limite pressure: $p(t) = (p_0 - p_{lim}) \cdot e^{(-S/V \cdot t)} + p_{lim}$
- .. with Q_{leak} leakage:
$$p(t) = (p_0 - p_{lim} - Q_{leak}/S) \cdot e^{(-S/V \cdot t)} + p_{lim} + Q_{leak}/S$$