

50 YEARS PROTECTING LIVES AND PROPERTY



CONSTANT FLOW TECHNOLOGY™
Overview

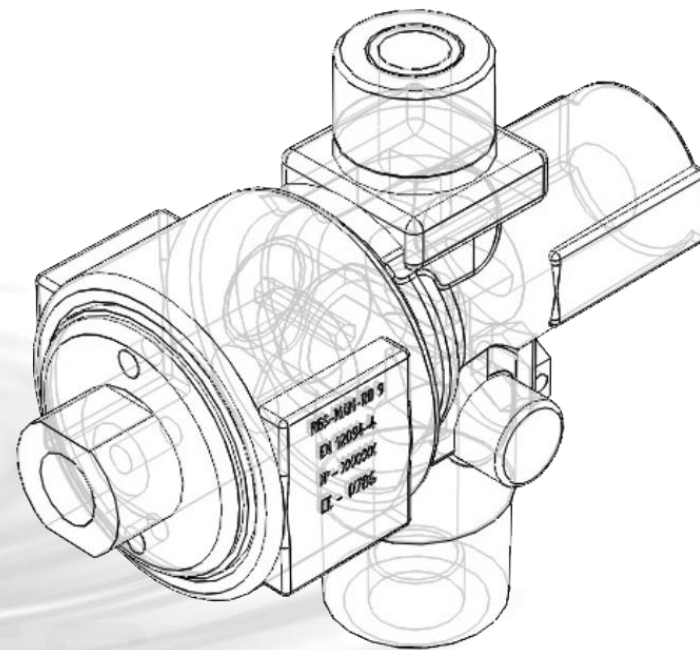
I. Use of inert gases

- Why to use
- Inert-based firefighting systems

II. Constant flow technologies

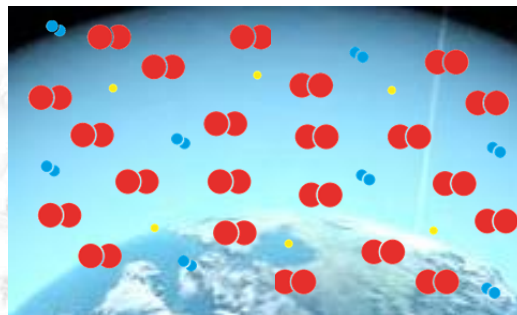
- Inert-Siex™ CFT
- Comparison
- Advantages

III. Conclusions



WHY TO USE INERT GASES?

- ✓ Excellent fire fighting effectiveness



Atmosphere:

● 78% N₂

● 21% O₂

● 1% Others

- ✓ The only truly ecologic gas:
zero negative effects

	Halon 1310	HFC-23	HFC-227ea	Novec	Inert gases
Ozone Depletion Potential (ODP)	10	0	0	?	0
Greenhouse Warming Potential (GWP)	6.900	14.800	3.800	?	0
Atmospheric lifetime	65	243	36,5	?	n/a

WHY TO USE INERT GASES?

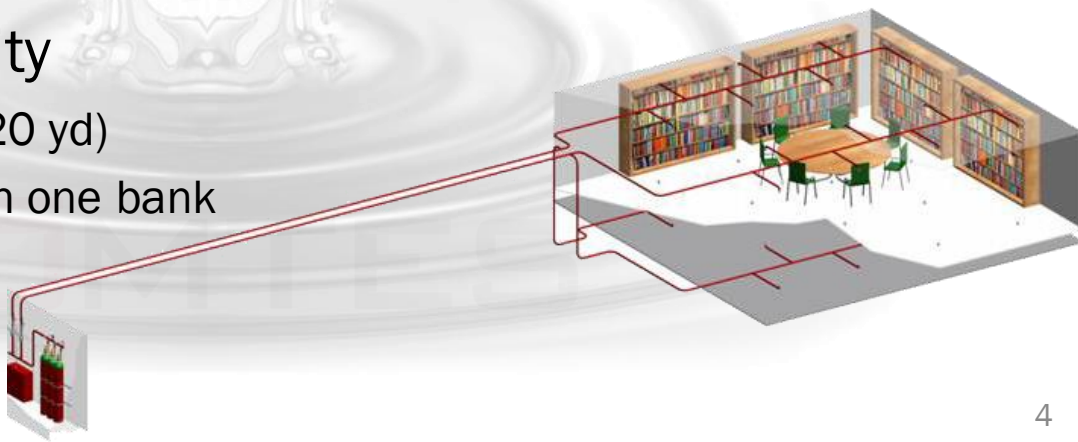
✓ Best value agent

- Up to 10 times less expensive (chemical gases)
- 99,99% pure, dry and cheap inert gas stored in cylinders
- Low maintenance and recharge costs



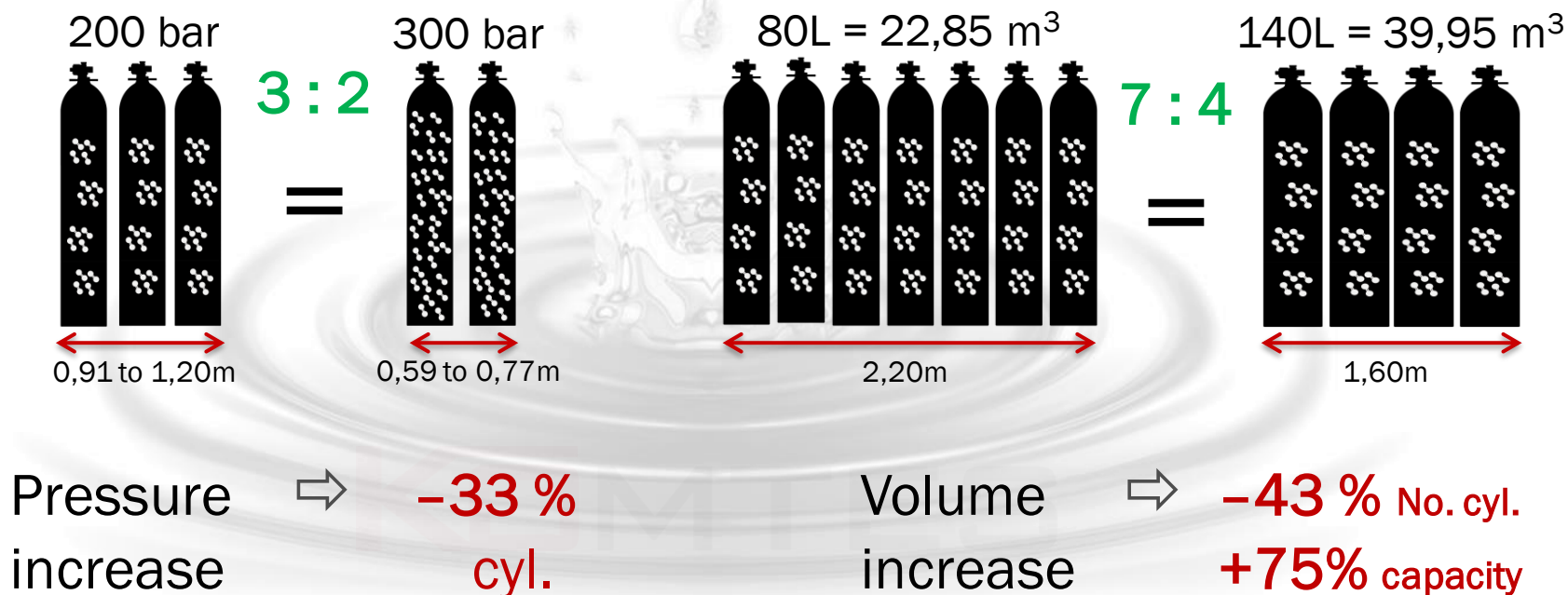
✓ Long distance capacity

- 120 – 200 m (130 – 220 yd)
- Multiple protections with one bank (selector valves)



WHY TO USE 300 BAR?

✓ More compact hardware



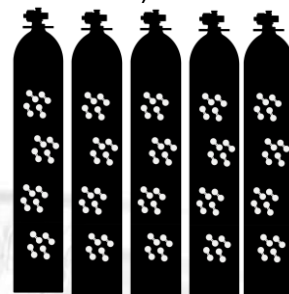
WHY TO USE 300 BAR?

Pressure
& volume
increase



-60 % No. cyl.
+75 % capacity

80L 200 bar
= 16,43 m³

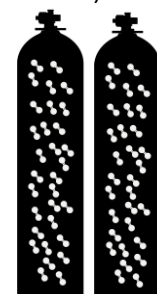


1,55m (5,09 ft)

5 : 2

=

140L 300 bar
= 39,95 m³



0,77m (2,53 ft)

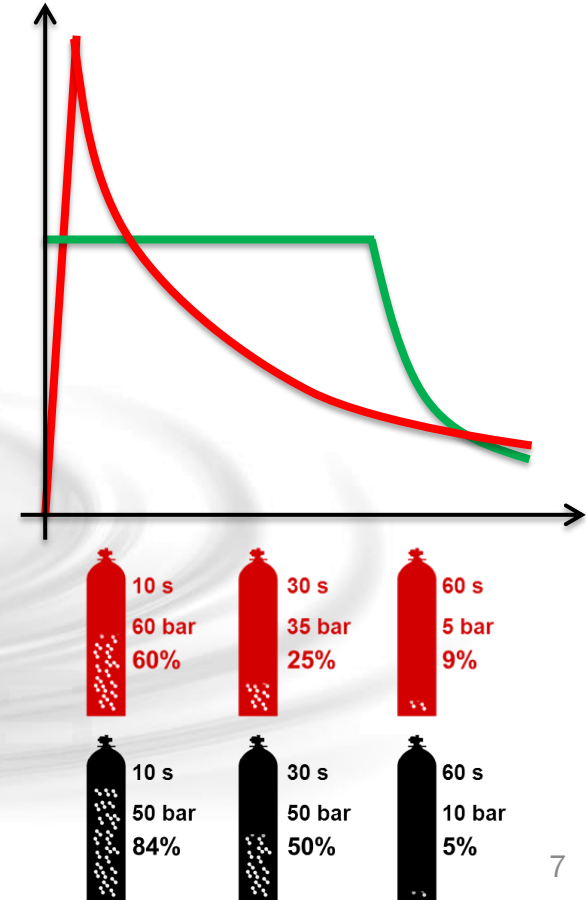
- ✓ More cost efficient
- ✓ Less space consumed

■ Restrictor regulation

- Fixed calibration (hydraulic calculation)
- As storage pressure drops so does outlet pressure
- Not efficient pattern
- Pipework sized to a **high but brief** pressure

■ Constant Flow Technology

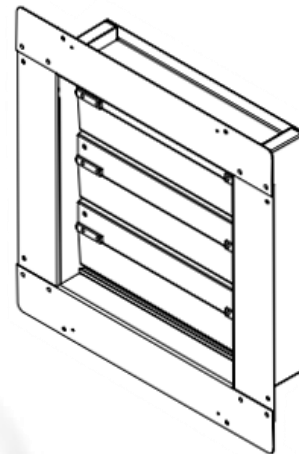
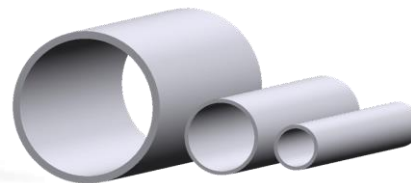
- Fixed outlet pressure, adjustable opening
- As storage pressure drops, outlet area increases
- Very efficient pattern
- Pipework sized to a **lower and constant** pressure



How does this election affect systems?

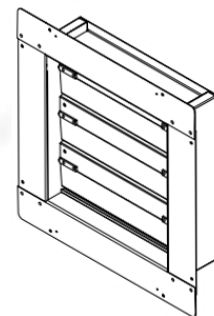
■ Restrictor

- Everything is sized to a big but brief pressure:
 - » Larger diameters
 - » More resistant pipes: SCH160/80, thicker, heavier, more expensive
 - » Larger venting areas



■ Constant Flow technologies

- Rational and optimized design
- sized to a **lower and constant** pressure:
 - » Smaller diameters: ½" less, so costs go down
 - » Less resistant pipes: SCH40, lighter, manageable, cheaper
 - » Venting areas reduced
 - » Less noisy discharges



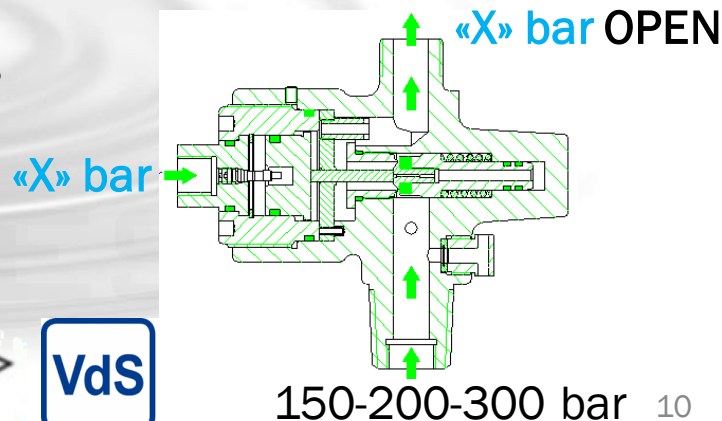
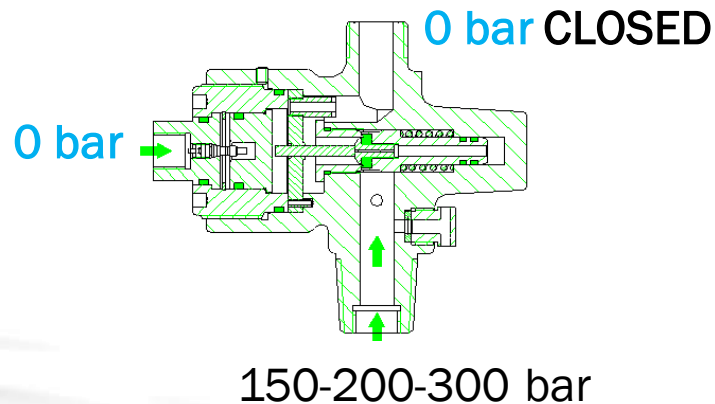
Do all constant flow valves work the same?

- NO, our pneumatic regulation system has a much better performance

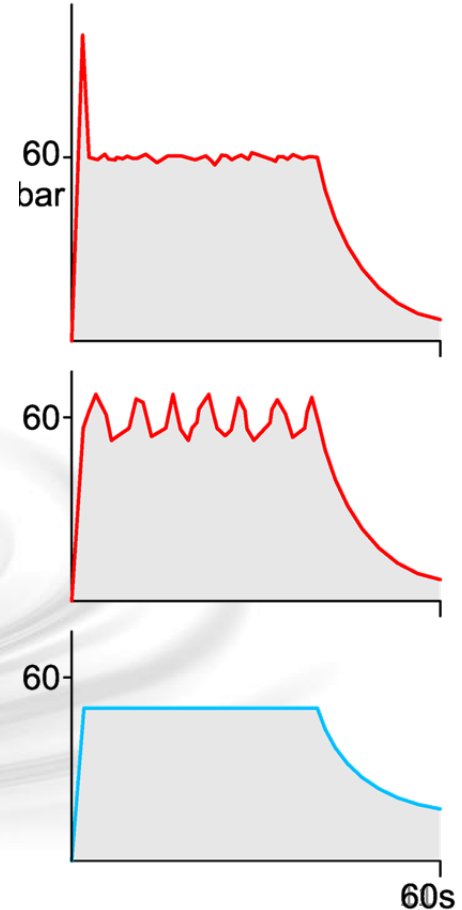
	SIEX CFT	Others
Regulation	<ul style="list-style-type: none"> - Pneumatic - Static equilibrium 	<ul style="list-style-type: none"> - Mechanical - Dynamic equilibrium
Pros	<ul style="list-style-type: none"> ✓ No variations in flow ✓ Consistent behaviour ✓ Customized discharge pressure 	
Cons		<ul style="list-style-type: none"> ✗ Pressure and flow vary ✗ Non-predictable behaviour

- Siex valve, model RD

- Static equilibrium
 - » Chambers not communicated
- Pneumatic regulation via cartridge
 - » Outlet pressure = Cartridge x factor
 - » **HIGHER FLOW RATIO**
 - » Pneumatic regulation, gas behaves always in the same way
 - » No extra costs (calibration)
 - » Eliminates drawbacks from restrictor systems

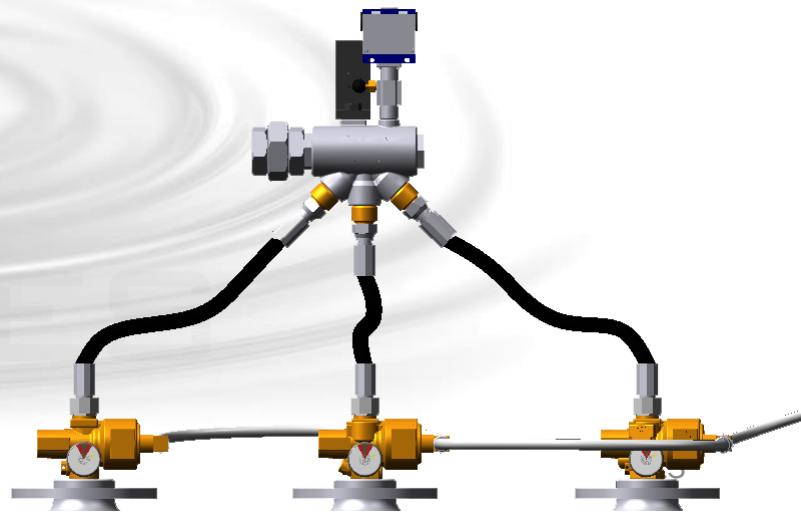


- **Competitor 1: Dynamic equilibrium**
 - Low flow rate
 - Peak at 100 bar, then quite constant
 - Based on springs: each valve works different
- **Competitor 2: Dynamic equilibrium**
 - Upper chamber fills and empties → irregular
 - Spring performance not tested in a long run
 - Safety risks when closed pipe sections
- **SIEX CFT™: Static equilibrium**
 - Consistent and reliable pattern
 - Adjustable output pressure
 - Safety: outlet pressure never exceeds cartridge's



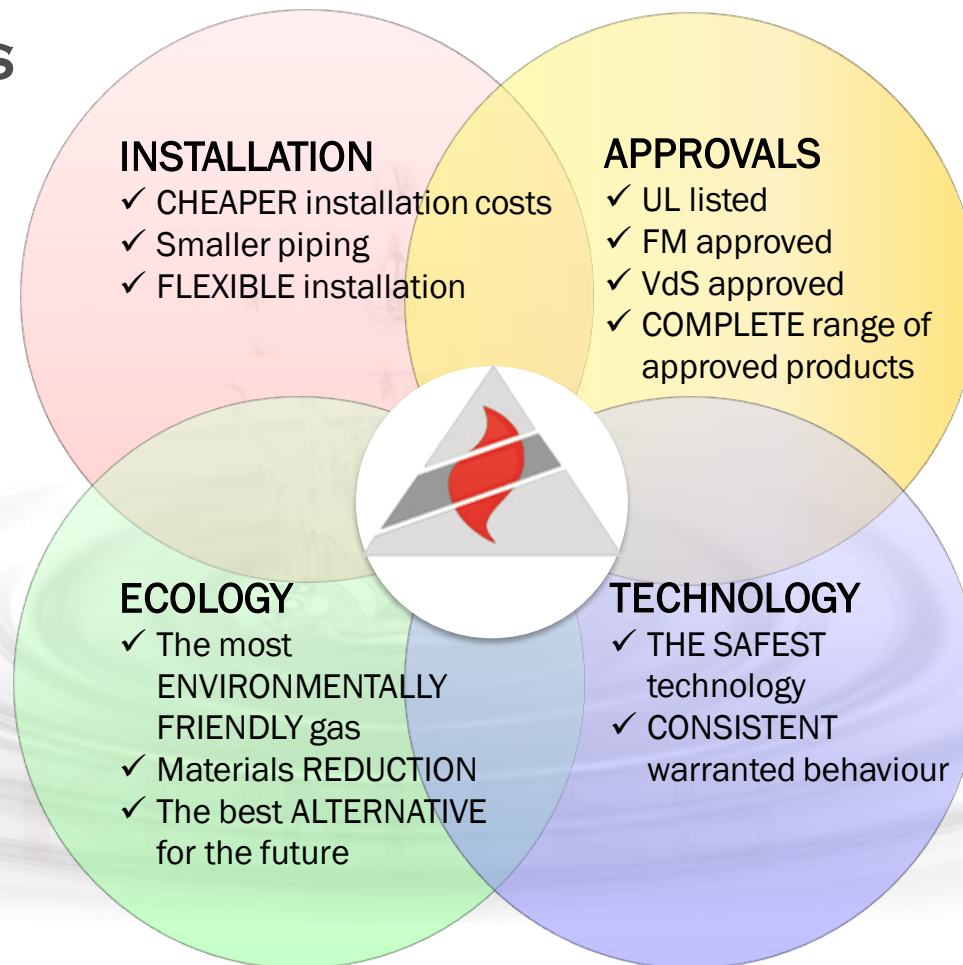
	SIEX CFT	Competitor 1	Competitor 2
Equilibrium	- Static: no variations	- Dynamic: peak (100bar)	- Dynamic: huge variations
Eq. mech.	- Nitrogen cartridge - Sealed regulation chamber	- Mechanic: spring - Connected chambers	- Mechanic: spring - Fluctuating chambers
Discharge pressure	- ANY . Easily readjustable - Independent from storage; cyl. does not affect discharge equilibrium.	- Fixed : 300bar → 60bar 200bar → 40bar - Cylinder affects equilibrium	- Fixed : 300bar → 60bar 200bar → 40bar Cylinder affects equilibrium
Reliability	- CONSISTENCY , the only valve that warrants identical behavior	- Springs not calibrated - Each works DIFFERENT	- Springs not calibrated - Each works DIFFERENT
Safety	- Stabilizes at 60bar in case of blocked output - Upper outlet - Whole system approvals UL, FM (hardw. & softw.)	- No accidental discharges (cup off) - Side outlet	- Uncontrolled discharge if outlet is blocked: 300bar - Side outlet

- UL / FM approvals
 - Better systems behaviour: **Lower design concentrations: -5% to -10%**
 - Additional components also approved: safety, control, etc.
- Combi Manifold (CMS™)
 - Lighter, manageable
 - Pressure losses reduction
 - Meccano configuration: extreme flexibility
- Others
 - Upper valve output: Installation flexibility



CONCLUSIONS

SUMMARY OF ADVANTAGES



A large, faint background image of a crown emerging from a water splash, with concentric ripples spreading outwards. The crown is positioned centrally behind the text.

QUESTIONS?

Thank you for your time