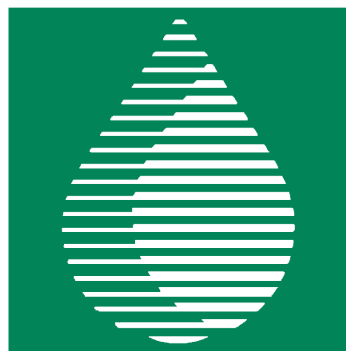


SPXFLOW

filter-technics

**AUTHORIZED
DISTRIBUTOR**



Markets

Markets

Oil and gas



Industrial



Shipbuilding and Marine



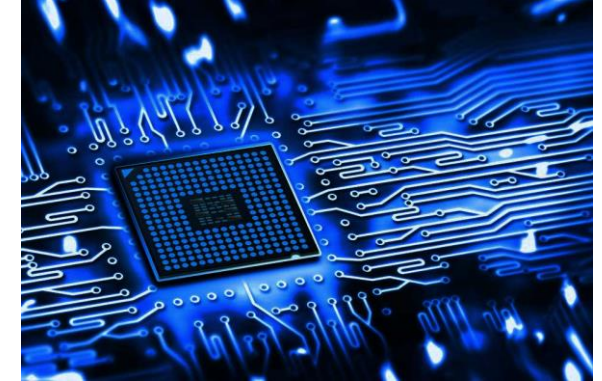
Food and Beverage



Thermal and Power



Semiconductor



What is compressed air?

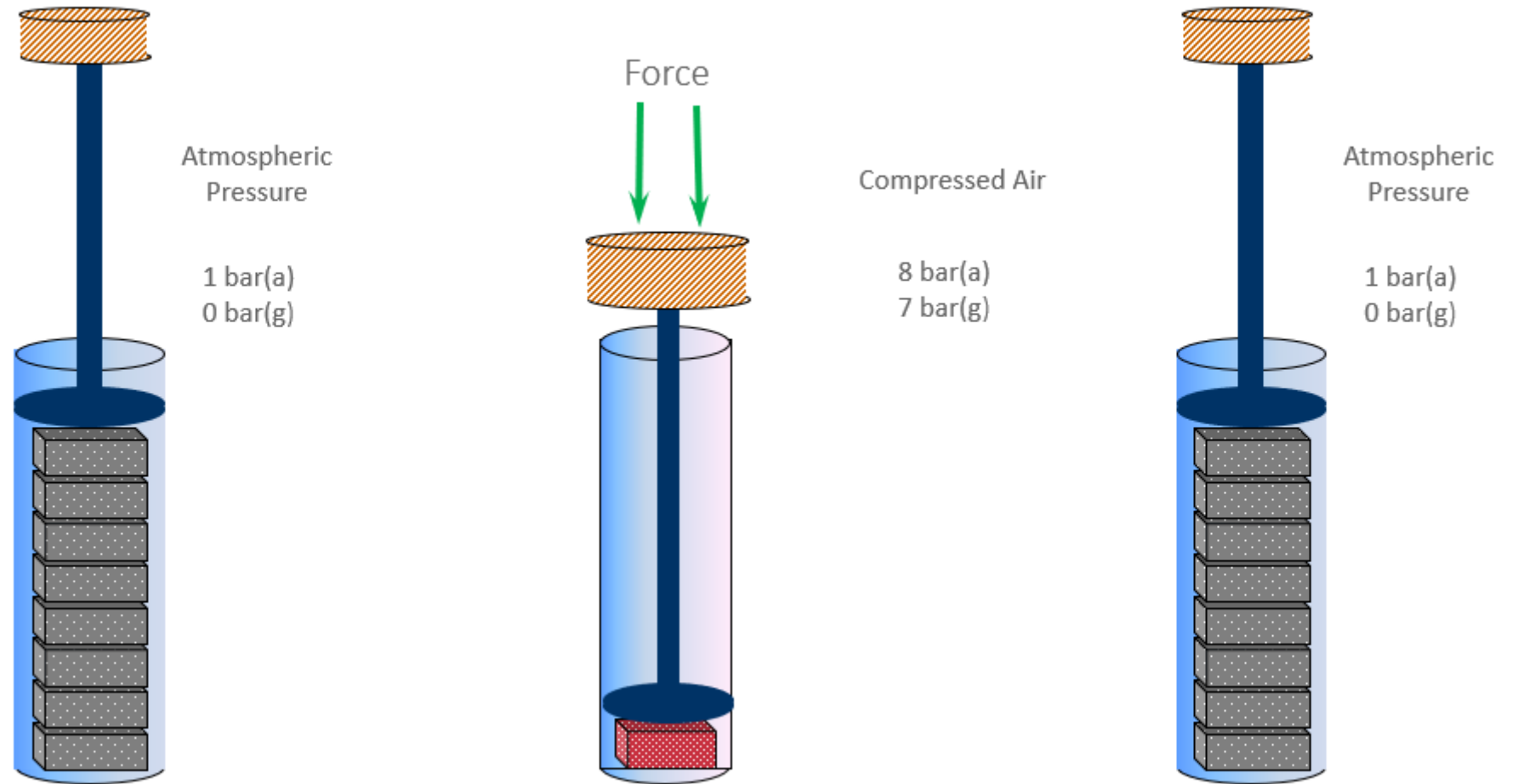
As long as there is air, there is already compressed air.
The difference between air and compressed air is pressure.
Higher pressure (compressed) wants to expand to lower pressure.
This expansion energy is used!

Compressed Air



What is compressed air?

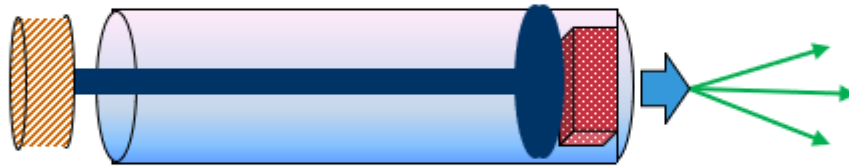
Compressed Air



What is compressed air?

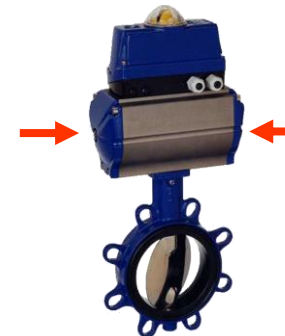
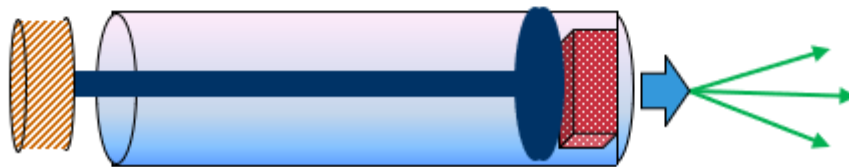


Drive energy for equipment



Transport medium for bulk goods:

- Grain
- Cement
- Coal
- And many more



Control management of:

- Valves
- Actuators
- Pneumatic tools
- And many more

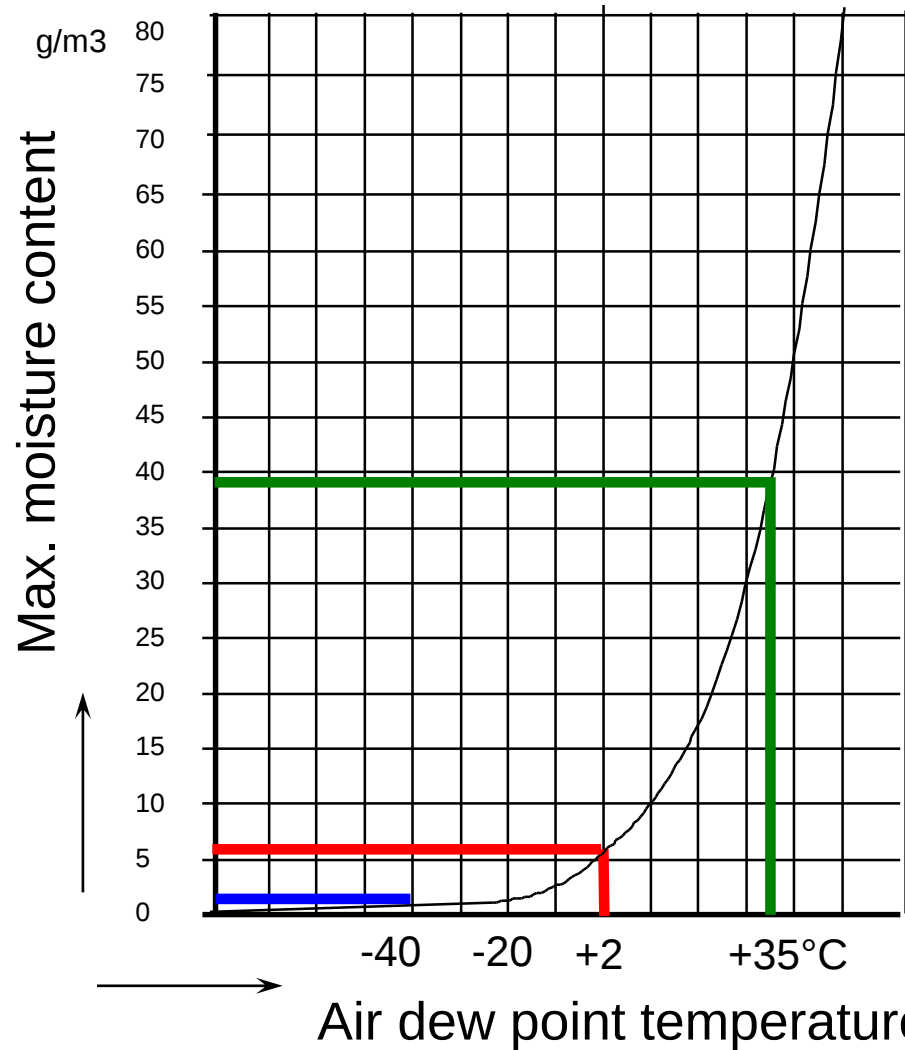
Compressed
Air



Maximum Moisture Content

Prevent liquid water

Compressed
Air



+50°C 82 g/m³

+35°C 39 g/m³

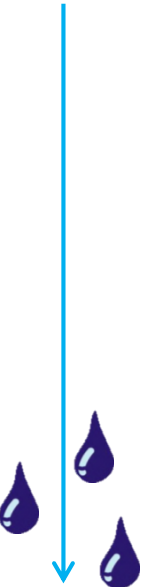
+20°C 17 g/m³

+3°C 6,0 g/m³

-20°C 0,88 g/m³

-40°C 0,117 g/m³

-70°C 0,0033 g/m³

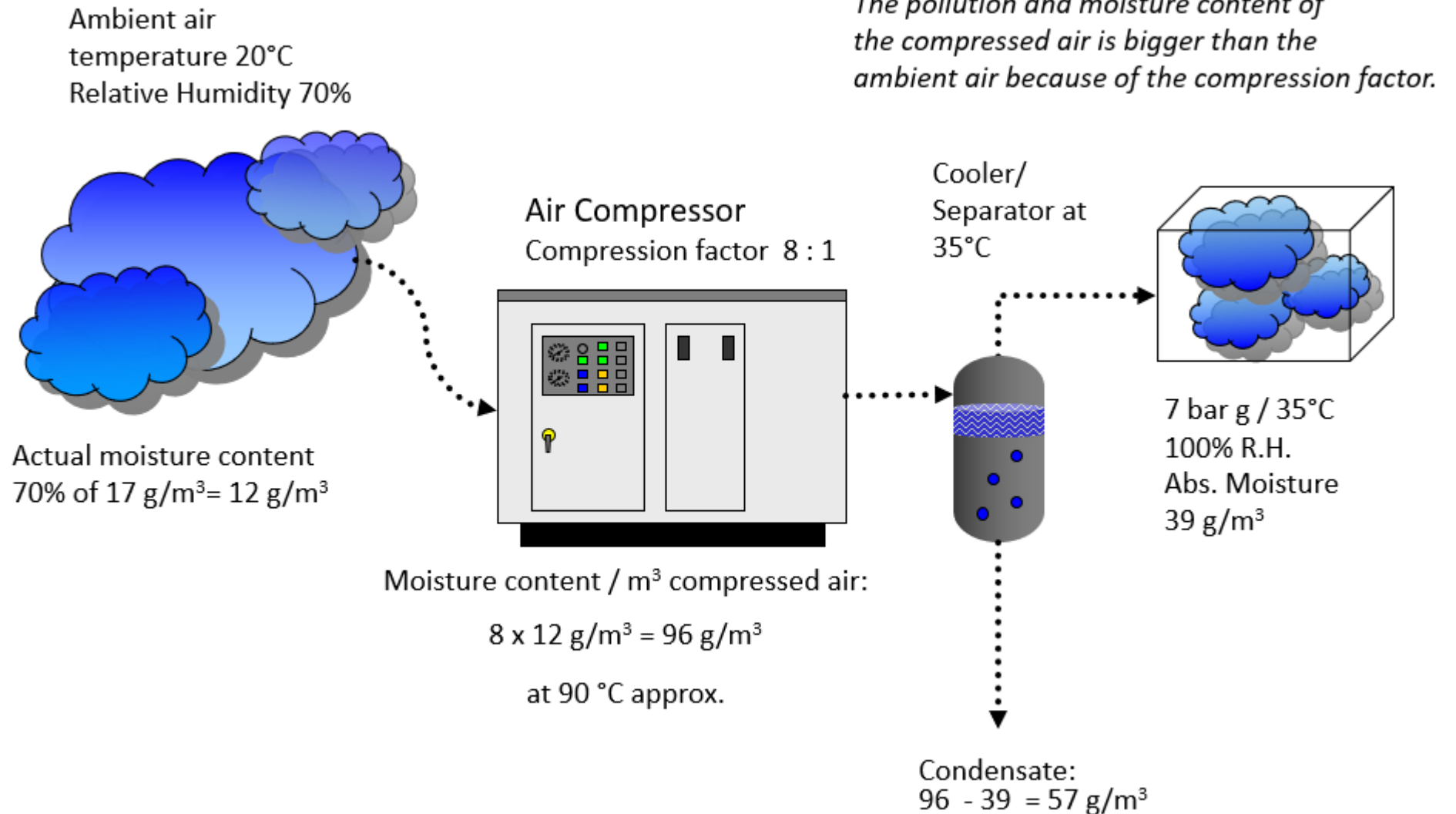


The dew point temperature is the temperature at which the water vapor condenses to liquid water.

When the compressed air temperature becomes lower than the pressure dew point, water vapor condenses to liquid water.

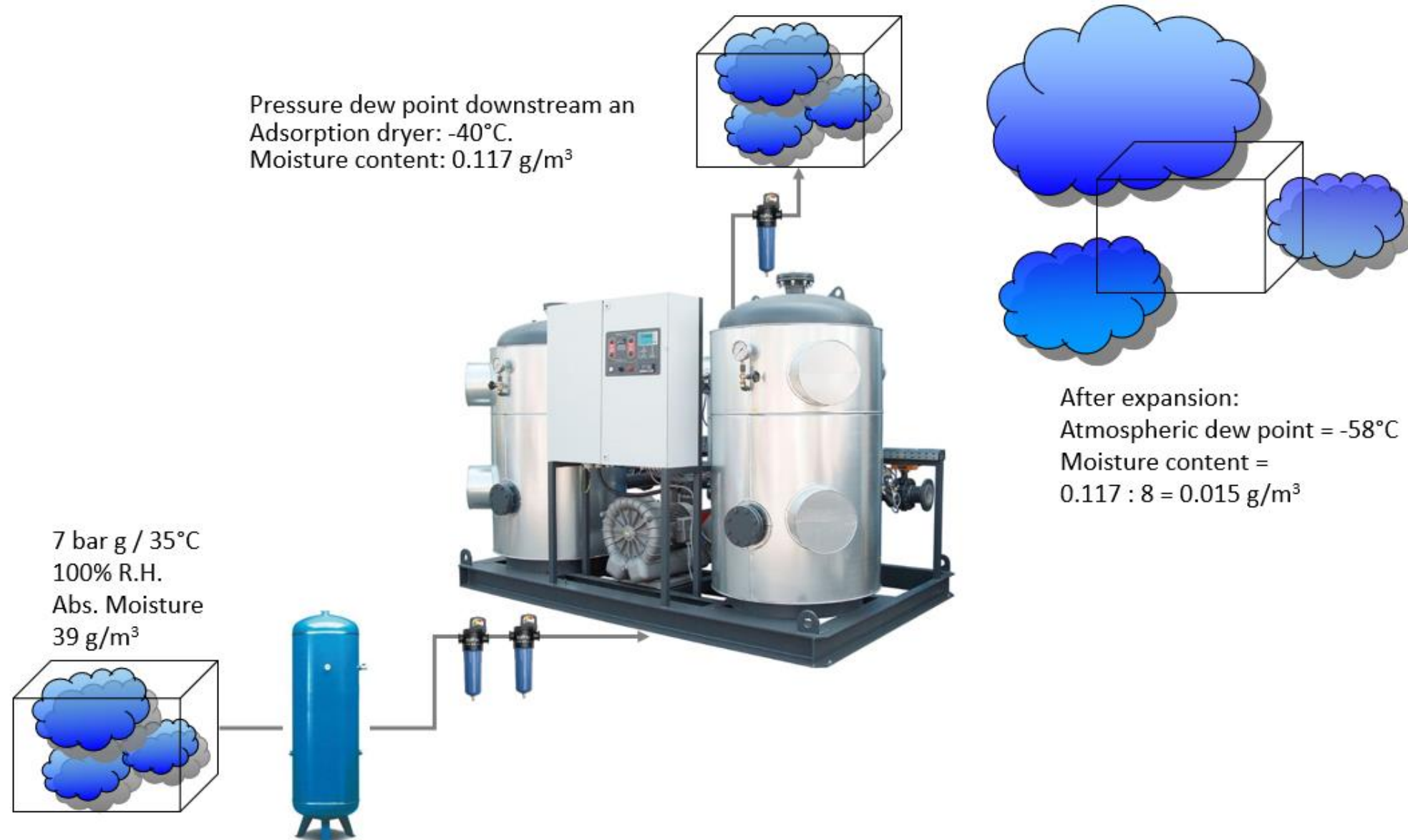
What is compressed air?

Compressed Air



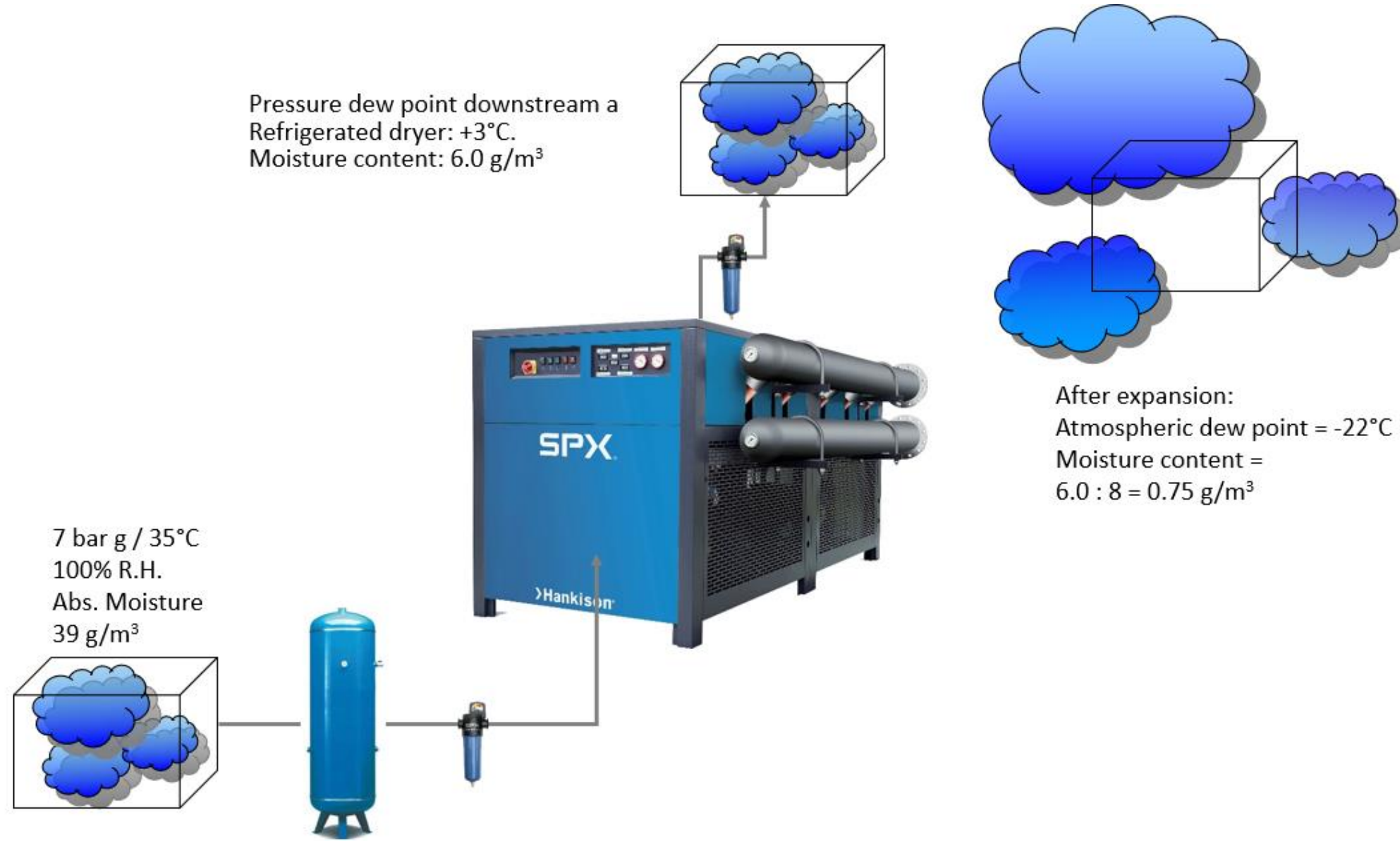
What is compressed air?

Compressed Air



What is compressed air?

Compressed Air



What does a dryer do?

Remove moisture out of air/ gas

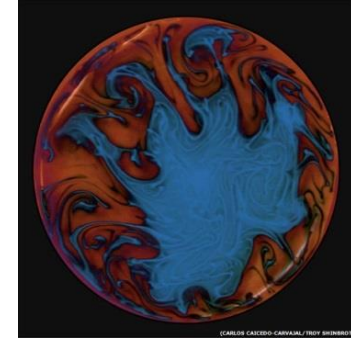
Compressed
Air



Corrosion /
Erosion
Damage to
equipment



Freezing / ice
crystals
Damage to
equipment



Process contamination
Unwanted reaction
with process

Where to use?

Application Areas

Instrument Air for
utility purposes



Metal making
process gasses



Polymers &
Catalyst
production



Cracking / Refining process
gasses and liquids



Compressed Air



ASSOCIATED GASSES

Compressed Air
Nitrogen (N2)

Hydrogen (H2)
Nitrogen (N2)
Special gas mixtures
Compressed Air

Hydrogen (H2)
Nitrogen (N2)
Special gas mixtures
Compressed Air

Regen. Loop Gas (N2/CO2)
Turbine Seal gas (N2)
Flash gas
Liquid LPG (C3H8/ C4H10)
Liquid Propane (C3H8)
CNG
Compressed Air



Compressed Air Dryers

> Hankison
 > Deltech

Compressed
Air Treatment





Refrigerated Dryers

➤ Hankison ➤ Deltech



HHD 21 – HHD 101
Smard SC 5 – SC 30
 5 Models from 20 to 100 m³/h



HHD 140 – HHD 1000
Smard 47 – Smard 310
 10 Models from 140 to 1000 m³/h



FLX 1.1 – FLX 5.5
 7 Models from 127 to 935 m³/h
 (Energy Saving with PCM
 Technology)

Refrigerated Dryers

➤Hankison ➤Deltech



HHD 1100 – HHD 1700

Smard 333 – Smard 500

3 Models from 1.100 to 1.700 m³/h

HHDp 381 – HHDp 1451

7 Models from 380 to 1.450 m³/h

HHDp 1800 – HHDp 5400

Smard 656 – Smard 1635

7 Models from 1.800 to 5.400 m³/h

HHDp 6300 – HHDp 10800

4 Models from 6.300 to 10.800 m³/h



HFQ 1200 – HFQ 5000

DFQ 1200 – DFQ 5000

10 Models from 1.200 to 5.000 m³/h
(Energy-Saving Refrigeration Dryers)

(Frequency Controlled)

HDS 950 – HDS 10800

15 Models from 950 to 10.800 m³/h
(Energy-Saving Refrigeration Dryers)

(Digital Scroll Technology)





Refrigerated Dryers

›Hankison ›Deltech



H 7200 – H 12000

Smard 2150 – Smard 3500

4 Models from 7.200 m³/h to 12.000 m³/h



Smard M 18 – Smard M 266

9 Models from 37 m³/h to 492 m³/h
(Marine Application)

Smard M 300 – Smard M 1000

7 Models from 1.000 m³/h to 3.200 m³/h
(Marine Application)

H-PET 0.17 – H-PET 0.75
Smard HP 17 – Smard HP 100
6 Models from 51 m³/h to 300 m³/h

H-PET 1.0 – H-PET 12.0
Smard HP 170 – Smard HP 1850
10 Models from 510 m³/h to 5.550 m³/h
(For the PET bottle production)
Working pressure up to 45 bar(g)



Adsorption Dryers

➤ Hankison ➤ Deltech



HSHD 7 – HSHD 40
DSHD 7 – DSHD 40
 Small Heatless Dryers
 6 Models from 12 to 68 m³/h



HMW 74 – HMW 1284
MWE 74 – MWE 1284
 Internally Heated Dryers
 11 Models from 245 to 4.280 m³/h

DBPS 1200 – DBPS 7500
 Externally Heated Dryers
 10 Models from 1200 to 7500 m³/h



HHL 91 – HHL 9001
 Heatless Adsorption Dryers
 17 models from 90 to 9.000 m³/h



ED 48 – ED 1785
 Heatless Adsorption Dryers
 14 models from 160 to 5.950 m³/h

Hybri Dryers

>Hankison >Deltech

Where does the advantage come from?

The energy consumption of a **refrigeration** dryer (pressure dewpoint +3° C) is about 2,5% compared to the power consumption of the compressor. The **refrigeration** dryer removes about 85% of the water load of the compressed air.

The energy consumption of a **heated adsorption** dryer is about 8,5% (pressure dewpoint -40° C). The **adsorption** dryer removes 14,9% of the remaining humidity in the compressed air.

The SPX Flow, HybriDryer is the logical combination of **refrigeration-** and **adsorption** technology and uses about 4% energy!!



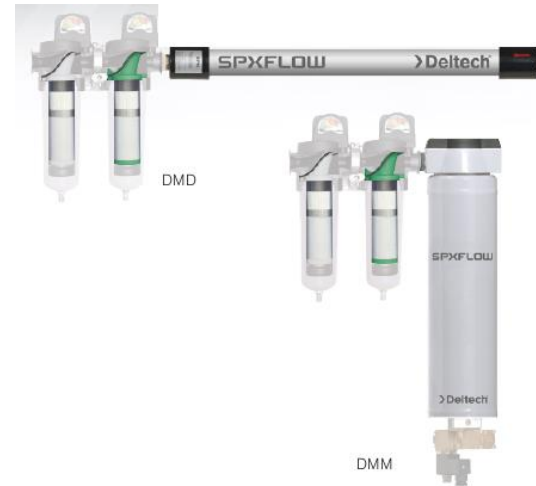
HBD 1200 – HBD 9000
DHD 400 – DHD 3000
(HybriDryer Models)

11 Models from 1.200 m³/h to 9.000 m³/h
(Refrigeration pre-drying with Energy management)

Membrane Dryers

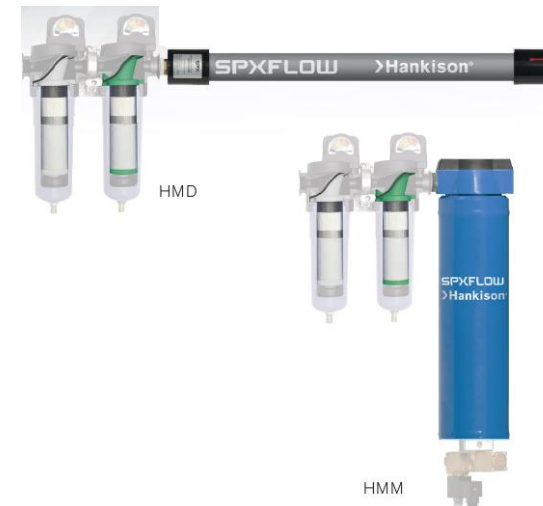
➤Hankison ➤Deltech

Compressed
Air Treatment



HMD 20-1 – HMD 20-6
DMD 20-1 – DMD 20-6
 6 Models from 2,6 to 112,8 m³/h

HMM 1-3 – HMM 9-16
DMM 1-3 – DMM 9-16
 9 Models from 2,4 to 240 m³/h



Filtration – NGF Series

Compressed
Air Treatment



SF

PF

HF

UF

CF

- Patented element design
- Color coded end-caps
- Optimized flow profile for lowest pressure loss
- Pleated filtration media
- Housing weight dropped by over 50%
- Validated to ISO 12500 Standards

Compressed
Air Treatment

BENEFITS AND FEATURES

- The unique patented Venturi-Wave™ design of the filter element caps enables turbulence-free transition for the compressed air
- Pleated filter element with 96% cavity space reduces Δp up to 50% compared to conventional filter elements
- Coloured end caps on the filter elements clearly define filtration grades
- Easy installation of Inlet and outlet by flanges or screw coupling
- All materials are silicon-free/paint-compatible



Filtration Degree & Efficiency	SF ■	PF ■	HF ■	UF ■	CF ■
Max. inlet load	25,000 ppm w/w	2,000 ppm w/w	1,000 ppm w/w	100 ppm w/w	0.01 ppm w/w
Solid particles	$\leq 3.0 \mu\text{m}$	$\leq 1.0 \mu\text{m}$	$\leq 0.01 \mu\text{m}$	$\leq 0.01 \mu\text{m}$	$\leq 0.01 \mu\text{m}$
Liquid	$\leq 3.0 \mu\text{m}$	$\leq 1.0 \mu\text{m}$	$\leq 0.01 \mu\text{m}$	$\leq 0.01 \mu\text{m}$	–
Oil	$\leq 5 \text{ mg/m}^3$	$\leq 0.5 \text{ mg/m}^3$	$\leq 0.01 \text{ mg/m}^3$	$\leq 0.0008 \text{ mg/m}^3$	–
Oil vapour	–	–	–	–	$\leq 0.003 \text{ mg/m}^3$
Quality class particles	3	2	1	1	1
Quality class oil	5	2	1	1	1
Particle retention efficiency	–	99.999 %	99.999 %	99.999 %	99.999 %
Oil retention efficiency	50 %	80 %	99.99 %	99.99 %	–



Dryer Selection Criteria

To calculate for you and your customer, we will need the following criteria as a minimum:

- Maximum Inlet Flow
- Minimum Inlet Pressure
- Maximum Inlet Temperature
- Required Outlet Dew Point

(With the above criteria, we will be able to calculate/size a dryer with the worst-case scenario)

Dryer Selection Criteria

The following criteria is nice to know, to get a better understanding:

- *Maximum allowable pressure drop*
- *Minimum and Maximum Ambient Temperatures*
- *Indoor or Outdoor Installation*
- *Cooling Water availability (If yes, at which temperature)*
- *Minimum allowable outlet temperature (For refrigerant dryers the outlet temperature will be lower than the inlet temperature)*
- *Maximum allowable outlet temperature (Because of “heat of adsorption” the outlet temperature will be higher than the inlet temperature)*
- *Inlet air quality (For membrane dryers the air inlet quality is determining the performance of the membrane dryer)*

>Hankison

www.spx-hankison.de

>Deltech

www.spx-deltech.de



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www.spxflow.com www.spxdehydration.de www.spx-hankison.de www.spx-deltech.de