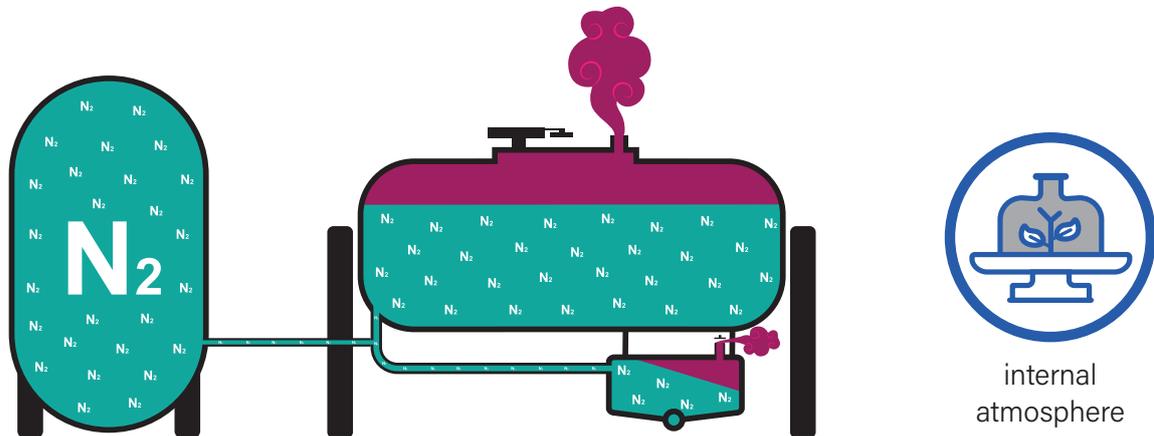


Option suitable for:

SIGMA

Inert gas



Short description

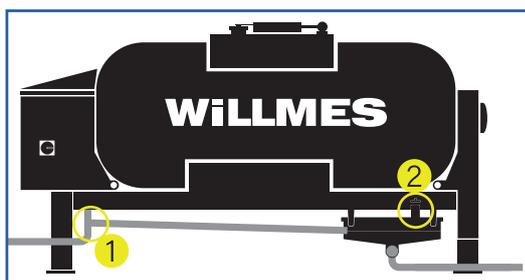
The additional inert gas option allows the SIGMA press to operate under an internal atmosphere in order to avoid or minimise undesired oxidation processes.

Features and benefits

In addition to the standard hermetically sealable tank, SIGMA presses equipped with the additional inert gas option also have a hermetically connected juice tray. The inert gas used is introduced into the press tank from the lowest point via the coupling between the tank and the juice tray, thus filling the entire tank and the tray. All processes are electronically controlled and monitored.

You can switch between inert gas and standard processing at any time, even during pressing, and limit the inert gas use to the necessary pressing cycles.

This complete solution requires only the provision of inert gas.



Inert gas docking device



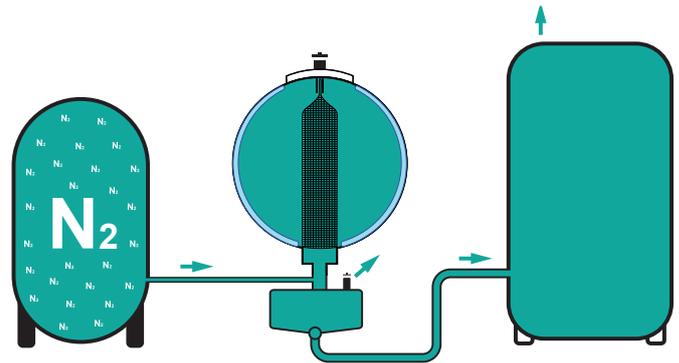
Juice tray outlet

Technical details

1. Functional principle

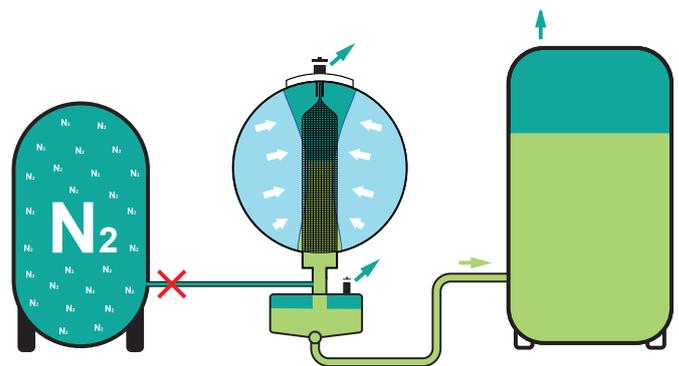
Inertisation:

Prior to filling the press with grapes, the complete system is filled with nitrogen (N_2).



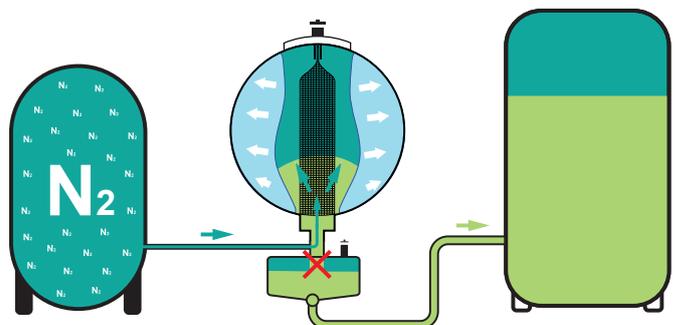
Pressure build-up:

With each pressure build-up, the inert gas is initially discharged via the lid valve and the valve on the juice tray by actuating the membrane. The grapes are then pressed and the juice is drained off.



Pressure reduction and membrane actuation:

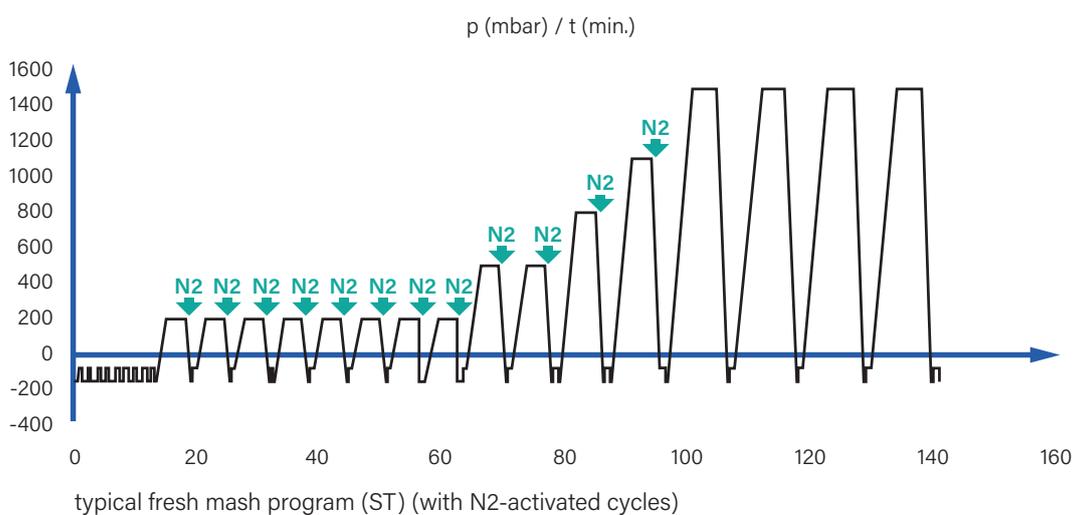
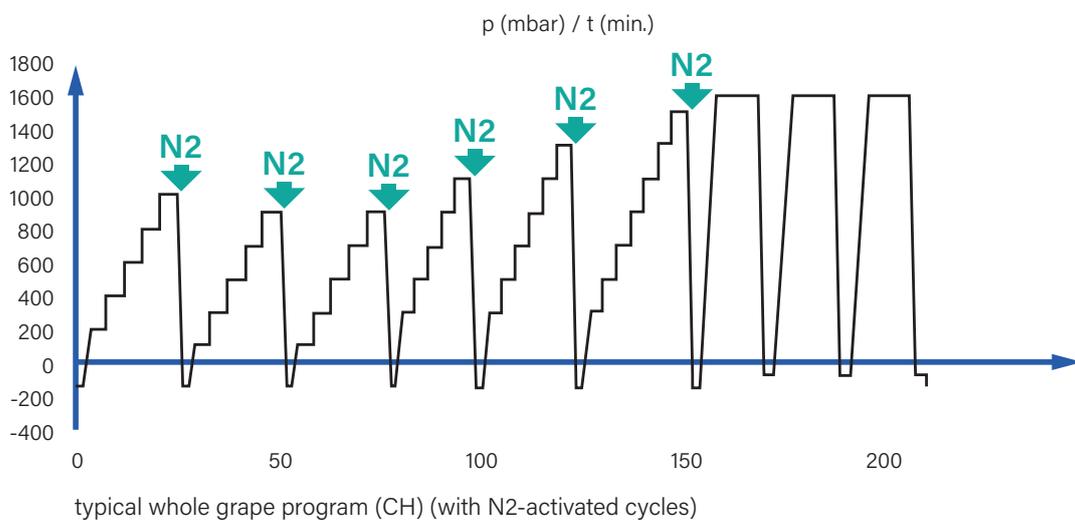
By actuating the membrane, the required volume of N_2 is fed into the tank under pressure control so that the grapes and the juice are permanently inertised.



2. Gas requirement

The N₂ requirement depends on the size of the press, the fill quantity and the structure of the press program.

Since N₂ is only required at the end of each press cycle, a whole grape program requires only half as much N₂ as a standard program.



2. Gas requirement

Press-type	N2 quantity (gaseous) per pressing (with whole grape program)	N2 costs per pressing: approx.	Number of pressings per day	N2 quantity (gaseous) per day	N2 quantity (liquid gas!) per day
	[m ³ gaseous N2], approx.			[m ³ gas/d], approx.	[m ³ liquid gas/d], approx.**
SIGMA 2	12	~ 4 €/P	3	36	0,05 m ³
SIGMA 3	19	~ 6 €/P	3	57	0,08 m ³
SIGMA 4	26	~ 8 €/P	3	78	0,11 m ³
SIGMA 5	33	~ 10 €/P	3	99	0,14 m ³
SIGMA 6	43	~ 13 €/P	3	129	0,18 m ³
SIGMA 8	51	~ 15 €/P	3	153	0,22 m ³
SIGMA 9	62	~ 19 €/P	3	186	0,27 m ³
SIGMA 10	63	~ 19 €/P	3	189	0,27 m ³
SIGMA 12	78	~ 23 €/P	3	234	0,33 m ³
SIGMA 16	101	~ 30 €/P	3	303	0,43 m ³
SIGMA 24	152	~ 46 €/P	3	456	0,65 m ³
SIGMA 34	210	~ 63 €/P	3	630	0,90 m ³

N2-costs (depending on provider): ~ 0,30 €/m³ N2

Press-type	Number of harvest days per year	N2 quantity (gaseous) per year	N2 quantity (liquid gas!) per harvest
		[m ³ gas/year], ca.	[m ³ liquid gas/y], ca.**
SIGMA 2	21	756	1,1 m ³
SIGMA 3	21	1.197	1,7 m ³
SIGMA 4	21	1.638	2,3 m ³
SIGMA 5	21	2.079	3,0 m ³
SIGMA 6	21	2.709	3,9 m ³
SIGMA 8	21	3.213	4,6 m ³
SIGMA 9	21	3.906	5,6 m ³
SIGMA 10	21	3.969	5,7 m ³
SIGMA 12	21	4.914	7,0 m ³
SIGMA 16	21	6.363	9,1 m ³
SIGMA 24	21	9.576	13,7 m ³
SIGMA 34	21	13.230	18,9 m ³

Note: approx. double the amount of inert gas is required for pressing with a standard program (mash).

3. Provision of the inert gas (nitrogen (N₂))

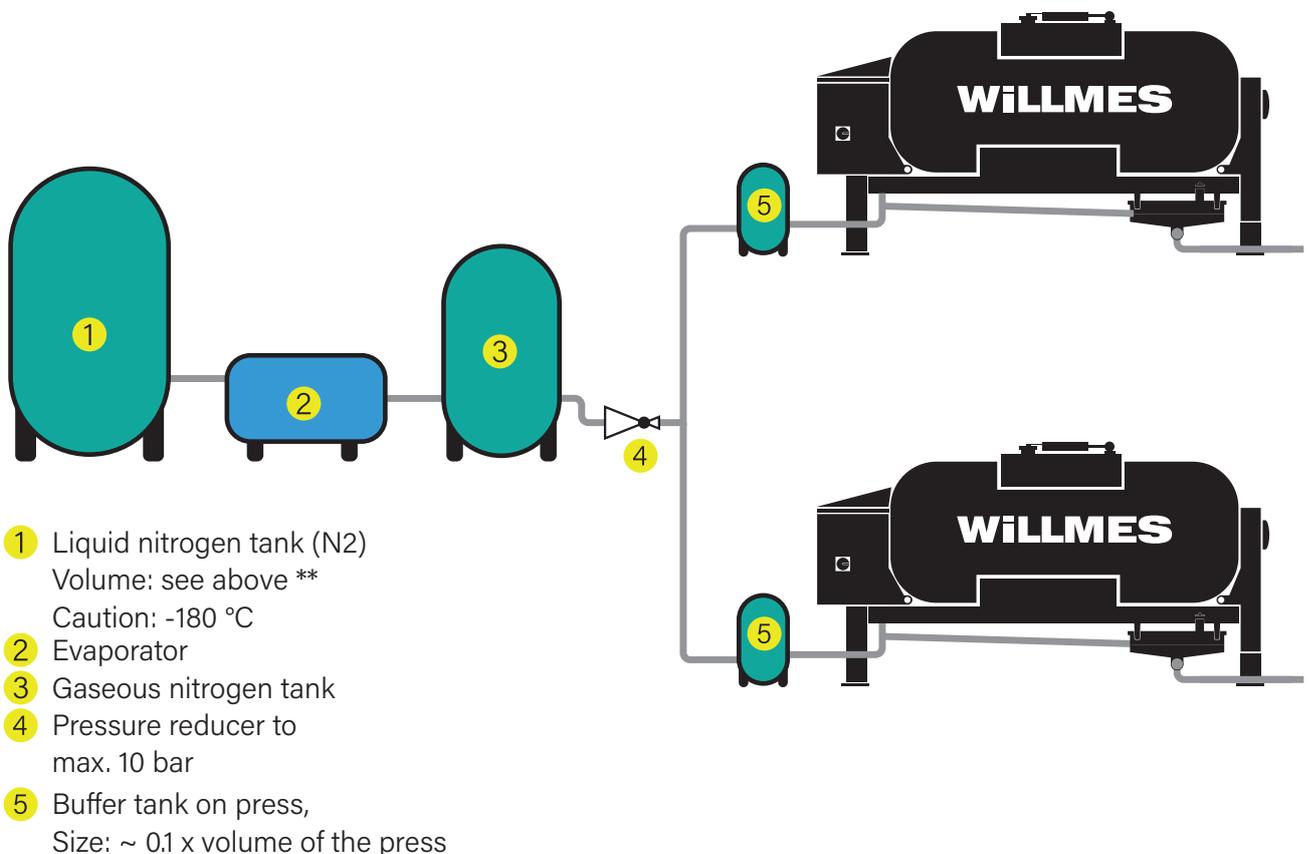
For the provision of the inert gas we recommend the use of liquid nitrogen.
System consisting of:

- 1 Liquid nitrogen tank,
- 2 Evaporator,
- 3 Gaseous nitrogen tank

On account of the expansion factor of 700 (1 m³ liquid nitrogen = 700 m³ gaseous nitrogen), a liquid gas system is recommended. A mobile system can be hired from the local gas supplier for the duration of the harvest. We do not recommend the purchase of a nitrogen generator, as the quantity generated per unit time is usually too low.



Basic setup for supply with liquid nitrogen



Caution: all parts of the nitrogen supply must meet the local safety requirements!

3. Provision of the inert gas (nitrogen (N₂))

Note: the pipe from the last buffer tank (5) for connection to the press must be dimensioned in accordance with the gas quantities listed below:

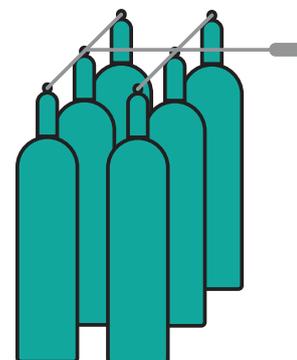
Press-type	maximum quantity of N ₂ drawn in per minute:	N ₂ connection on the press:
SIGMA UNI	2,8 m ³ /min.	3/4" (DN20, LW19)
SIGMA 2	2,8 m ³ /min.	3/4" (DN20, LW19)
SIGMA 3	2,8 m ³ /min.	3/4" (DN20, LW19)
SIGMA 4	2,8 m ³ /min.	3/4" (DN20, LW19)
SIGMA 41 / CH	4,6 m ³ /min.	3/4" (DN20, LW19)
SIGMA 5	2,8 m ³ /min.	3/4" (DN20, LW19)
SIGMA 55	4,6 m ³ /min.	3/4" (DN20, LW19)
SIGMA 6	4,6 m ³ /min.	3/4" (DN20, LW19)
SIGMA 8	4,6 m ³ /min.	3/4" (DN20, LW19)
SIGMA 9 / CH ₄	4,6 m ³ /min.	3/4" (DN20, LW19)
SIGMA 10	4,6 m ³ /min.	3/4" (DN20, LW19)
SIGMA 12 / CH ₆	6,5 m ³ /min.	1 1/4" (LW 32 mm)
SIGMA 16 / CH ₈	6,5 m ³ /min.	1 1/4" (LW 32 mm)
SIGMA 24 / CH ₁₂	21,7 m ³ /min.	1 1/4" (LW 32 mm)
SIGMA 34	21,7 m ³ /min.	1 1/4" (LW 32 mm)

At the input of the inert gas system on the press there is a pressure reducer from 10 bar to 2 bar (supplied by WILLMES).

Supply with nitrogen from cylinders (for small presses)

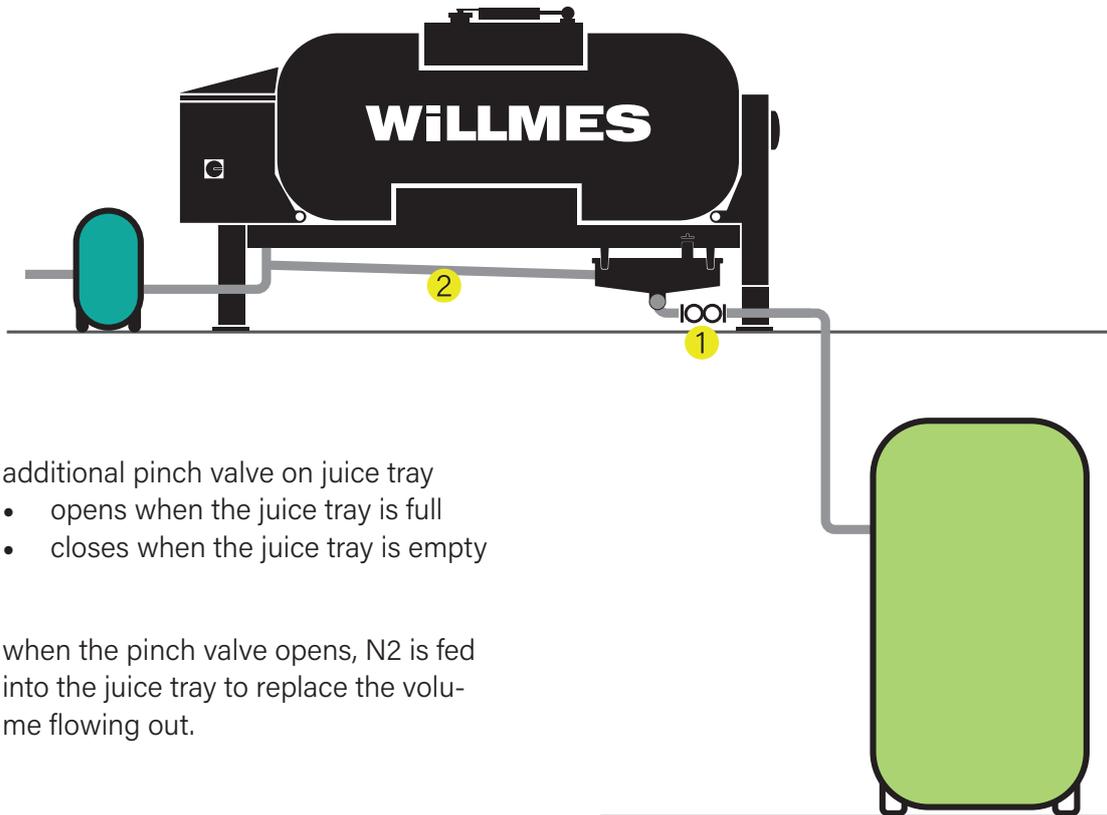
Note the following when using nitrogen from cylinders:

- Cooling of the gas on expansion
- Pressure reducer on the bundle must be dimensioned so that the maximum gas volumes per minute specified above can flow.



$$6 \times 50\text{L} \times 200\text{bar} = 60.000\text{Litre} = 60\text{m}^3$$

4. Installation in case of juice discharge by gravity



- 1 additional pinch valve on juice tray
 - opens when the juice tray is full
 - closes when the juice tray is empty

- 2 when the pinch valve opens, N₂ is fed into the juice tray to replace the volume flowing out.