

# WILLMES

*Specialists in  
Pressing Technology*



## SIGMA

Double membrane and Flexidrain®

The high-end system for both  
quality and economic feasibility



# TIME TO SET NEW QUALITY STANDARDS

## THE SIGMA – UNCOMPROMISING QUALITY AND PERFORMANCE

### Unique pressing technology

> Thanks to the patented double-membrane technology with vertical Flexidrain® juice channels in combination with the Perfect-Flow mesh, the SIGMA offers you a unique press system that yields impressive press results of the highest quality and economic efficiency.

You benefit from a unique pressing technique. The advantages of this technique include considerably shorter pressing times, larger filling quantities, lower mechanical loads on the material to be pressed and significantly higher premium-quality must yield.

### Maximum flexibility for all requirements

> Thanks to the hermetically sealable door openings and many other innovative features, you have a wide range of applications available to you. All design requirements during grape processing are catered for, in an ambitious winery.

Whether whole-cluster or mash processing, vertical or axial filling, maceration in the tank, pressing with inert gas, additional cooling, reductive or oxidative grape processing – all options are available with the SIGMA.

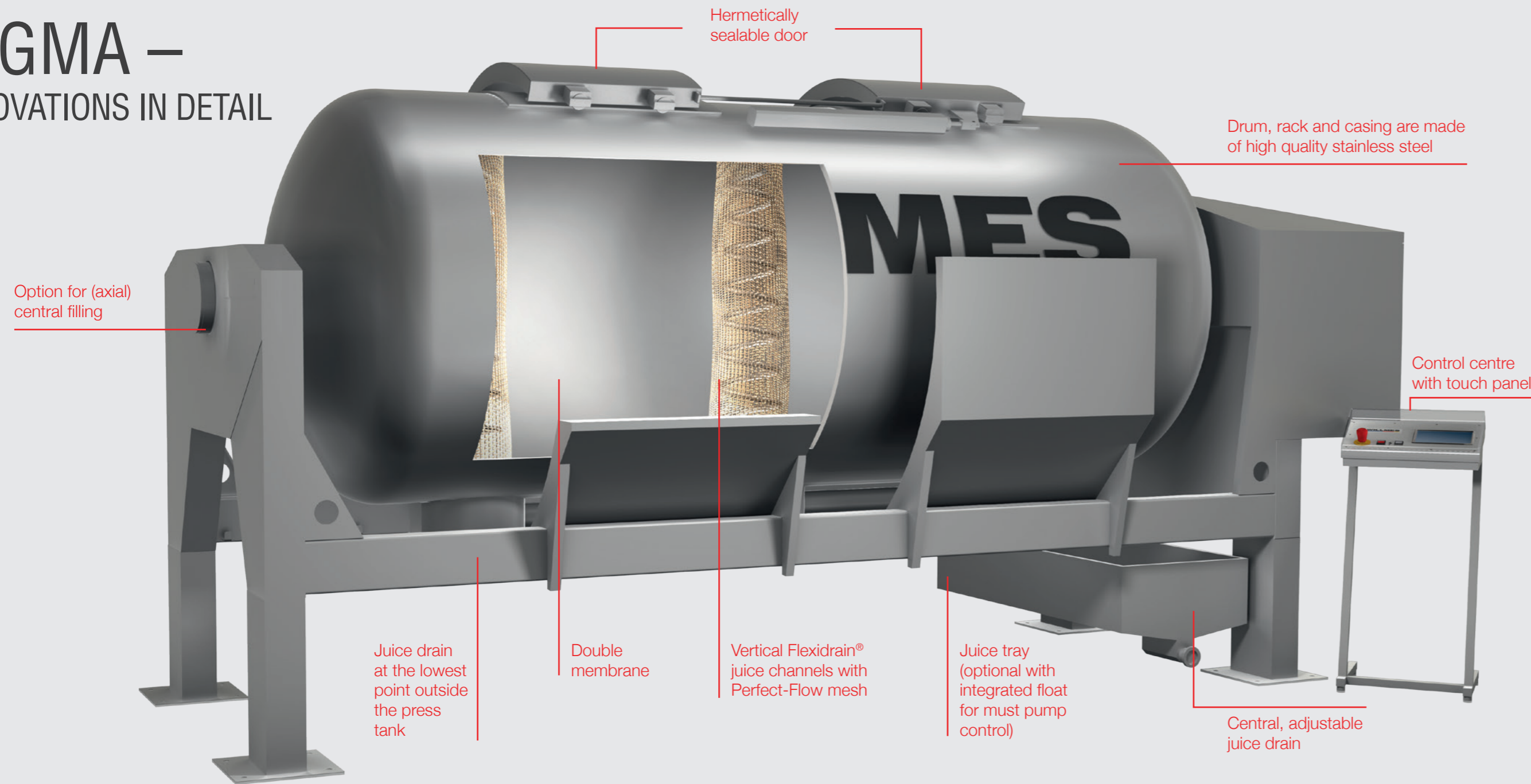
### Intelligent control programs and maximum comfort

> The easy and intuitive operation via a touch panel allows access to all pressing and cleaning programs that have been developed and perfected over the years, together with leading oenologists and experienced users worldwide.

The vertical juice channels can be dismantled and installed in no time for easy cleaning. In combination with the corner and edge-free pressing body, this results in a drastic reduction in cleaning times and leads to a highly hygienic cleaning result.

The special design of the SIGMA allows an automatically controllable juice drain at a central point. This saves space, prevents unwanted oxidation and environmental influences, simplifies the logistics of the juice control and keeps the press clean.

# SIGMA – INNOVATIONS IN DETAIL



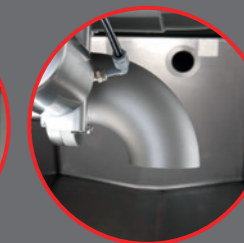
## THE SIGMA PERFORMANCE COMPONENTS



➤ Double membrane and vertical Flexidrain® juice channels and Perfect-Flow mesh with a perforated area that is four times as dense (as compared to conventional systems).



➤ Hermetically sealable door opening



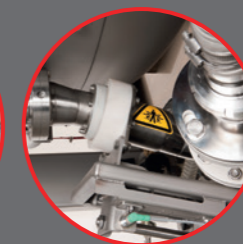
➤ Central, adjustable juice drain



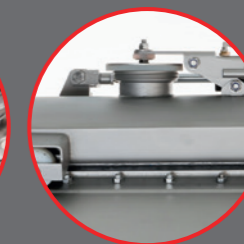
➤ Touch panel for the control programs



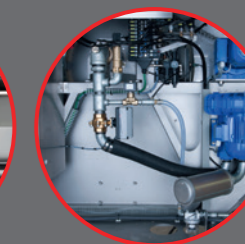
➤ Dismantling/installing the Flexidrain® juice channels



➤ Inert gas coupling valve (optional)

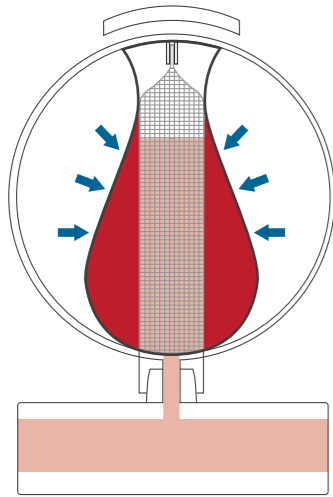


➤ Door ventilation valve (optional). Especially for the reductive expansion, the automatically controllable valve allows direct ventilation or venting in the membrane control, without the need to press air through the mash.



➤ Control centre with touch panel and reversible blower for particularly efficient and energy-saving pre-pressure and evacuation control (optional: integrated compressor).

## THE WILLMES PRESSING PRINCIPLE



### Double membrane technology

In contrast to a half-sided membrane, the double-sided membrane has a substantially larger (double) area of pressure application.

In terms of physics, this means less pressure expenditure and less compression of the material to be pressed at the same force, which acts uniformly on the material to be pressed from all sides.

### Vertical, flexible juice channels

The double-sided membrane presses the material to be pressed against the vertical juice discharge areas, which act like natural drains. Irrespective of the filling height, this always results in the same short juice paths, which allows the juice to drain more directly and quickly. If the membrane is relieved of pressure (vacuum released), the material to be pressed falls together.

The lateral pressure direction and the flexibility of the juice channels lead to continual self-cleaning of the mesh tissue.

These things make the rotational effort for crumbling negligible and fewer pressing cycles are required.

The mechanical load on the material to be pressed is kept to a minimum, thus resulting in a lower quantity of lees and a higher yield of premium-quality juice.

## CUTTING-EDGE PRESSING



### 50 % lower pressure

This is made possible by the double-membrane technology. Applied physics in simple terms:

$$P = F/A \quad (P = \text{pressure, } F = \text{force, } A = \text{area of application})$$

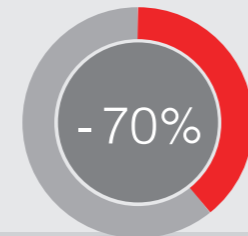
This physical law deals with the relations between pressure, force and bearing surface. If the area of application doubles, pressure is halved at the same force.



### Higher juice yield – shorter pressing time

As compared to conventional systems, the short juice paths, the perforated area of the Perfect-Flow mesh tissue that is four times denser and the double area of pressure application allow up to 95 % yield at pressures of less than 0.8 bar.

This results in extremely high-quality must. Due to the pressing principle, the pressing times are also reduced by up to 30 %, as compared to conventional systems.



### 70 % less lees

Lower amount of fine lees due to lower pressure and the particularly fine mesh tissue, fewer rotations and fewer pressing cycles.

The lees generated by pressing are up to 70 % lower than in conventional static presses and even several times lower than in non-static presses.

The gentle processing of grapes results frequently only in 2 % lees. As a result, the net juice yield and the must quality are significantly increased by the low content of lees.



### Intelligent pressing programs

These are programs that are perfectly adapted to all grades and types of grape harvest and lead to optimum pressing results.

Of course, you can also enter other programs, at your discretion, if you wish to pursue specific goals or try something new.



### 30 % more filling quantity

The vertical filling with mash over the door opening(s) is more efficient and qualitatively much gentler than the axial filling, since rotations to facilitate distribution are no longer required.

Due to the special design of the press body and the vertical juice channels, the juice can flow directly into the filling position, without rotations of the pressing body being required.

The result: The design-optimised pre-juicing results in a considerably higher amount of filling material (up to 50 % more than in conventional systems).



### Better energy efficiency – high stable value

Lower pressing power and a reduction of up to 50 % in the volume of compressed air; shorter pressing times, faster and simplified cleaning – all of this means better energy efficiency, environmental friendliness and economic feasibility.

## OUR SERVICE: PERFECTLY MATCHES YOUR SIGMA



> Your SIGMA is extremely low-maintenance and stable in value – thanks to the double membrane and the gentle pressing technology. Nevertheless, if things should go wrong: Nobody knows your SIGMA better than our experienced specialists. That is why we are here for you – whenever you need us.

Our tailor-made service agreements let you benefit from reliable long-term planning and transparent cost control.

	Whole cluster* Approximate pressing time 2.5 h	Fresh grapes* Approximate pressing time 2.0 h	Fermented grapes* Approximate pressing time 1.5 h	Dimensions L x W x H (mm)
SIGMA 3	2.1 t	7.5 t	12.0 t	3740 x 1870 x 2120
SIGMA 5	3.5 t	12.5 t	20.0 t	4740 x 1940 x 2260
SIGMA 6	4.2 t	15.0 t	24.0 t	5180 x 2100 x 2530
SIGMA 8	5.6 t	20.0 t	32.0 t	5890 x 2100 x 2530
SIGMA 9	6.3 t	22.0 t	35.0 t	5470 x 2300 x 2810
SIGMA 12	8.4 t	30.0 t	48.0 t	5970 x 2500 x 2800
SIGMA 16	11.2 t	40.0 t	64.0 t	7100 x 2500 x 2880
SIGMA 24	16.8 t	60.0 t	96.0 t	7720 x 3060 x 3460
SIGMA 34	23.8 t	85.0 t	136.0 t	9720 x 3060 x 3460

## SPECIAL MODELS

SIGMA UNI	0.5 t	1.7 t	2.8 t	1990 x 1610 x 1760
SIGMA 41 with large door	3.0 t	10.0 t	16.0 t	3590 x 2020 x 2130
SIGMA 55 with large door	4.0 t	13.0 t	21.0 t	4290 x 2020 x 2130

\* Maximum weight