

**OLIVE OIL
EXTRACTION
PLANT**



The image features a white background with several dynamic splashes and droplets of yellow oil. In the top-left corner, a large, thick splash of oil is partially visible, with several smaller droplets trailing off to the right. In the bottom-right corner, another large splash of oil is shown, with a prominent droplet at the top and several smaller ones trailing off to the right. In the center-right area, two small, perfectly spherical droplets are positioned vertically. The overall composition is clean and minimalist, emphasizing the fluidity and color of the oil.

**“Where olives
grow, Peralisi
is there.”**

THE EVOLUTION OF THE MODERN OLIVE MILL

TECHNOLOGY, EXPERIENCE AND INNOVATION FOR HIGH QUALITY OLIVE OIL

For over a century, **Pieralisi Maip S.p.A.** has been a synonym of excellence in the olive oil industry. Founded in Jesi in Italy, it has been a global leader in the design and manufacture of olive oil milling plants and solid-liquid centrifugal separation across other industrial sectors.

From small family-run mills to large industrial installations, Pieralisi provides **modular and scalable solutions tailored** to every production need, always ensuring **high yields, energy efficiency and excellent olive oil quality.**

Today, with more than **40,000 installations** worldwide, Pieralisi technology is present in all traditional olive-growing areas and in emerging markets, supporting producers with advanced, sustainable and high-performance solutions.



A journey from the artisanal tradition of 1888 to global leadership with state-of-the-art machinery for olive oil production.

A HISTORY OF INNOVATION

Founded in 1888 as a mechanical workshop in Jesi, Peralisi has marked every key stage in the evolution of the olive oil supply chain. After World War II, it pioneered the mechanization of mills, becoming a benchmark worldwide.

The turning point came in the 1960s with the introduction of the **horizontal centrifugal decanter**, which replaced the traditional pressing system. This innovation ensured higher levels of hygiene, automation, continuous processing and superior olive oil quality.

For decades, Peralisi has **anticipated market trends**, filing hundreds of patents and collaborating with universities and international research centers to develop **cutting-edge technologies** that define the standards of modern olive oil extraction.



Pieralisi is the ideal partner for those who want to grow, innovate, and pursue a **sustainable, reliable, and forward-looking vision.**



DRIVING FORCES: SUSTAINABILITY-ORIENTED TECHNOLOGY, INNOVATION AND VALUE CHAIN CULTURE

At the heart of Pieralisi's vision are technological innovation and customer focus: technical assistance and training are the core of our services.

We design cutting-edge solutions to enhance every olive variety, reduce environmental impact, and improve the organoleptic characteristics of olive oil.

Recent product innovations include:

- Crushers:** patented cooling system and flexible impeller-grid configuration. The multi-blade impeller increases phenolic content by 20-60% and enhances olive oil aromas by 10-70% (cultivar-dependent variance). Cooling combined with the multiblade impeller synergistically improves the sensory profile and health properties of the olive oil.

- Protoreattore*:** continuous malaxing without water addition, reducing processing time by around 50% while improving energy efficiency. It delivers the same extraction yield and olive oil quality as traditional malaxation. The system offers operational flexibility for both heating and cooling, depending on climatic conditions and the desired final characteristics of the olive oil.
- LEOPARD® - Multiphase Technology:** an exclusive Pieralisi solution that merges the advantages of two-phase and three-phase systems. It requires no added water and produces high-value by-products such as paté and dried pomace.

Service and training: at the customer's side

Operating in more than 20 countries, Pieralisi ensures technical assistance, original spare parts and advanced training. Beyond technology, we deliver expertise, professional workshop and long-standing industry experience.



ITALY'S OLIVE OIL: A MOSAIC OF BIODIVERSITY

Italy stands out in the global olive-growing landscape thanks to its extraordinary biodiversity, which allows for the production of extra virgin olive oils with unique sensory characteristics—an authentic expression of the diverse regions of the peninsula and its islands.

1. Trentino Alto Adige

Casaliva, Bagoler, Raza, Compostala, Drezzer, Less

2. Lombardia

Grignan, Sbresa, Casaliva, Leccino, Gargnano, Negrel

3. Liguria

Taggiasca, Mortina, Razzola, Pignola, Colombaia, Mortina, Lavagnina

4. Toscana

Frantoio, Leccino, Olivastra Seggianese, Pendolino, Belmonte, Ciliogino, Coreggiolo, Leccio del Corno, Maremmano, Melaiolo, Pesciatino, Piangente, Pitursello, Punteriolo, Scarlinese

5. Umbria

Moraiolo, Frantoio, Leccino, Dolce agogia, Pendolino, San felice, Rajo

6. Lazio

Canino, Itrana, Carboncella, Rosciola, Raja, Salviana, Leccino

7. Campania

Pisciottana, Ortice, Carpellese, Ravece, Ogliarola

8. Calabria

Carolea, Cassanese, Ottobratica, Tonda di Strongoli, Zinzifarica Grossa di Gerace, Ciciarello, Roggianella, Sinopolese, Pennulara, Dolce di Rossano, Borgese, Rossanese, Roggianella, Sinopolese

9. Basilicata

Maiatica, Ogliarola del Bradano, Fasolina, Rapollese

10. Puglia

Coratina, Cellina di Nardò, Cellina Barese, Giarrappa Ogliarola Barese, Ogliarola Garganica, Ogliarola Salentina, Bella di Cerignola, Pizzuta, Leccese, Marinese, Peranzana, Pisciottana, Cipressino, Massafranese, Monopolese

11. Molise

Cerasuolo, Cerasa, Olivastra di Montenero, Gentile, Saligna di Larino

12. Abruzzo

Cucco, Dritta, Gentile del Chieti, Intosso, Morella, Nebbia, Raja, Tocolana, Castiglione

13. Marche

Ascolana Tenera, Sargano, Raggia, Olivastra di Montenero, Rosciola di Rotello, Mignola

14. Emilia-Romagna

Nostrana di Brisighella, Correggiolo, Rossina, Capolga

15. Veneto

Casaliva, Grignan, Favaro, Fort, Grignano, Rossanel, Leccio del Corno, Razza Rondella

16. Friuli Venezia Giulia

Bianchera (Belica), Carbona, Leccio del Corno, Buga

17. Sardegna

Bosana, Pizz'e Carroga, Tonda di Cagliari, Nera di Gonnos, Semidana, Cariasina, Cipressino, Corsicana, Nera di Oliena, Semidana

18. Sicilia

Biancolilla, Nocellara del Belice, Nocellara etnea, Santagatese, Minuta, Nocellara Messinese, Ogliarola Messinese, Tonda Iblea, Verdello, Brandofino, Buscionetto, Calamignara, Cerasuola, Giarrappa, Mandanici, Moresca

CRUSHING AND MALAXATION

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CRUSHING AND MALAXATION: PIERALISI TECHNOLOGICAL EXCELLENCE FOR OLIVE OIL WITH OUTSTANDING SENSORY AND HEALTH PROPERTIES

Pieralisi enhances every stage of processing, from crushing to malaxing, with advanced technological solutions designed to maximize the aroma and quality of the oil.

During the **crushing**, temperature control and the selective activation of enzymes - achieved through effective grinding of the peel and pulp with minimal impact on the olive kernel - optimize the organoleptic characteristics of the oil, particularly the aromatic profile and the phenolic content.

The next stage, **malaxation**, takes place in a closed environment, protected from air exposure, in order to shield the olive paste from oxidative processes. The balance of operating parameters - temperature, time and mixing - promotes the coalescence of oil droplets, preparing the paste for the subsequent separation phase.

Olive oil processing is a set
of biochemical reactions activated
by mechanical action.

Crushing

CRUSHING: EXCLUSIVE TECHNOLOGY FOR HIGH-QUALITY OLIVE OIL

The new Pieralisi crushing technology has been designed to guarantee flexibility, adapting to the desired quality characteristics of the oil.

The granulometry of the olive paste and the degree of olive grinding can be adjusted by selecting among the main internal components: **holes grid** of various sizes or **bars grid**, **hammer impeller** or **multiblade impeller**. The **counter-rotating grid** stands out on the market for its ability to discharge the olive paste with reduced friction, preventing overheating and at the same time contributing to greater energy efficiency.

These technological options allow producers to obtain different qualitative outcomes, particularly in terms of **phenolic compound concentration** and **aromatic profile** of the oil.

The **impeller speed** can be regulated with the optional inverter, and studies have shown that this parameter influences both color and phenolic concentration, while having no impact on the aromatic components.

A decisive effect on both the **content and the type of aromas** is achieved by the **patented Pieralisi cooling system**, which also enhances phenolic levels.

Temperature control is ensured by a **jacket surrounding the crushing chamber**, where chilled water circulates. Additional refrigeration effect can be delivered through the **discharge screw (optional)**, where low-temperature water flows along the walls, inside the spirals and the shaft.

The crusher is also equipped with **wash nozzles** for easy internal cleaning without machine downtime. **Noise reduction** is provided with the use of **insulating materials** and a **soundproof casing**.

OLIVE CRUSHER FEEDING UNIT: SCREW CONVEYOR WITH CONICAL HOPPER

Continuous feeding, intelligent control

The screw conveyor regulates the olive feed according to the power absorption of the crusher's main motor.

Gear motor power [kW]	Available length [m]	Olive discharge height [m]
1.1	2.25 - 3.4	1.45 - 2.4

DOUBLE SCREW ELEVATOR WITH PENTAGONAL HOPPER

Ideal solution for plants with two crushers in line

Gear motor power [kW]	Available length [m]	Olive discharge height [m]
1.1 x 2	2.25 - 3.4	1.45 - 2.4

A simple, yet essential step

This accessory collects the olives discharged from the washer and transfers them smoothly to the crusher, ensuring continuity in the extraction process.



MAXIMUM FLEXIBILITY FOR EVERY PRODUCTION NEED

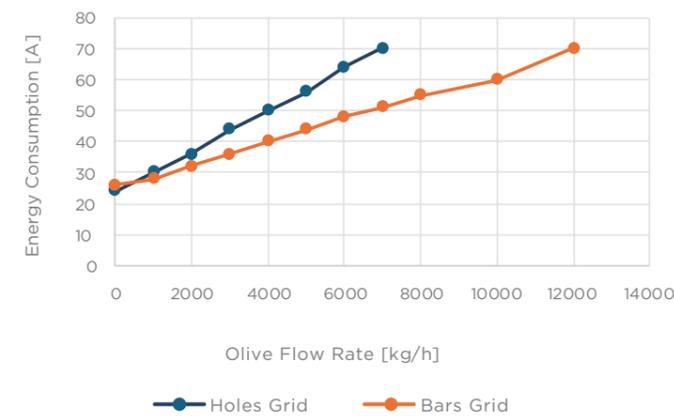
Pieralisi offers a complete range of crushing systems designed to adapt to different processing strategies and desired sensory profiles.

From hammer configurations with single or double grid to MULTIBLADE technology, each system is designed to balance **processing capacity, olive oil quality and optimization of process parameters**.

	Type of grid	
	Bars	Holes
Single grid		
Double grid	Bars - internal Holes - external	

	Type of impeller		
	Multiblades	Hammers	
		4 arms	Hammers for double grid
		6 arms	

TREND OF CRUSHER ABSORPTION WITH HOLES GRID AND BARS GRID ACCORDING TO THE OLIVE HOURLY THROUGHPUT

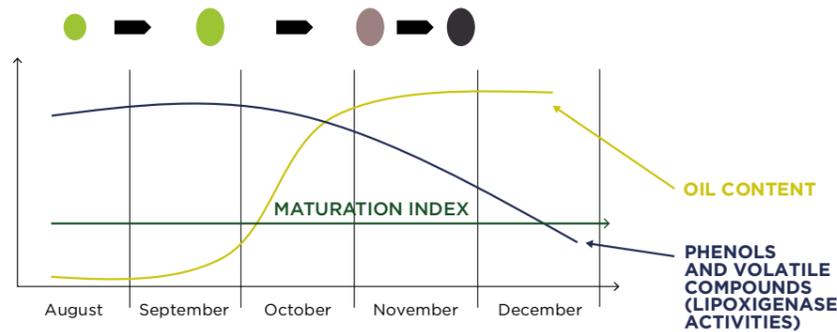


Crushing

DIFFERENT CRUSHING METHODS

Single grid with Hammer 2800 rpm		Double grid with Hammer 1400 rpm		Single grid with Multiblade 2800 rpm	
Higher processing capacity Greater overheating of the paste Finer paste and greater kernel crushing		Lower processing capacity Milder EVO oil (lower polyphenols and aromas) Coarser paste		Higher processing capacity Significant improvement in olive oil quality (higher polyphenols and aromas) Differentiated cutting action on the fruit: low impact on the kernel	

THE EVOLUTION OF OLIVE OIL CONTENT AND QUALITY DURING FRUIT RIPENING



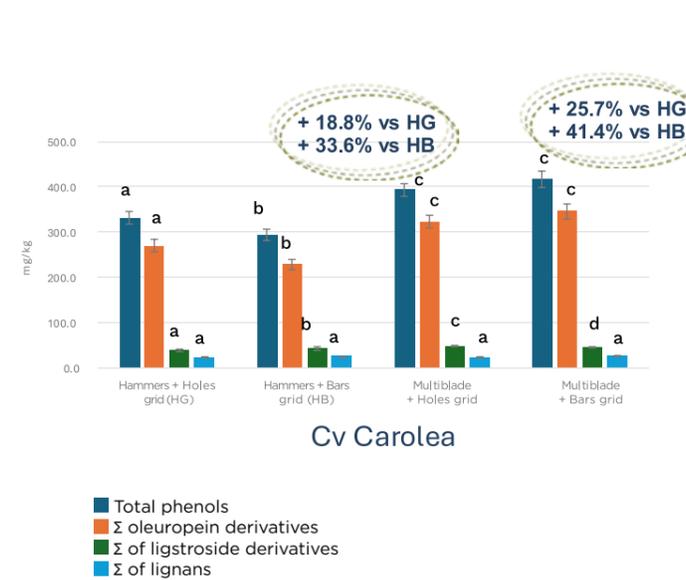
COMPARATIVE TESTS ON PIERALISI CRUSHING TECHNOLOGIES

- Olive seasons: from 2021/22 to 2024/25
- Cultivar: Carolea, Cima di Melfi, Coratina, Frantoio, Leccino, Nocellara Etnea e Raggia

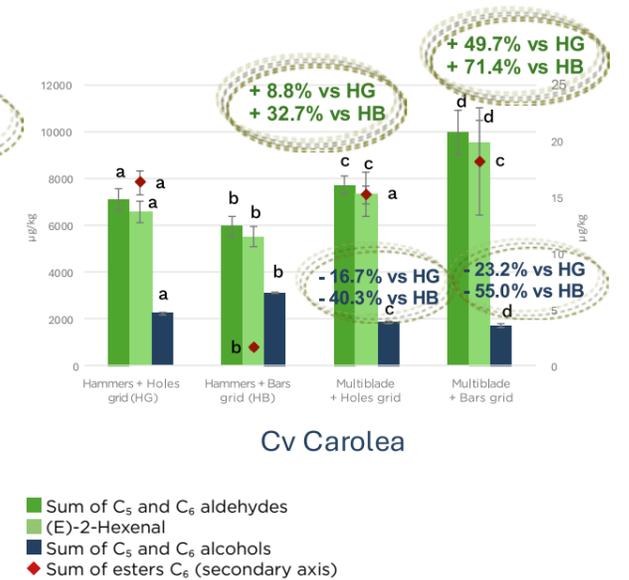
N.B. Different letters (a, b, c) indicate a statistically significant difference

Multi-year industrial-scale tests on different varieties show a steady, repeatable trend in improved olive oil quality. All cultivars benefit, though the intensity varies according to their genetic characteristics.

PHENOLS



AROMAS



The multiblade impeller delivers a significant increase in phenol content compared to the hammer impeller. This result comes from its innovative design, which ensures selective cutting with minimal impact on the kernel. Regardless of the grid used with the multiblade impeller, the quality improvement remains consistent.

Positive (+) values indicate an increase in the concentration of C₅ and C₆ aldehydes responsible for fresh green/grassy notes, mainly (E)-2-hexenal. Negative (-) values, on the other hand, show that the technology reduces the concentration of C₅ and C₆ alcohols, which are responsible for ripe/mature grassy notes, less appreciated because they are associated with aged oil.

Crusher

Modelli

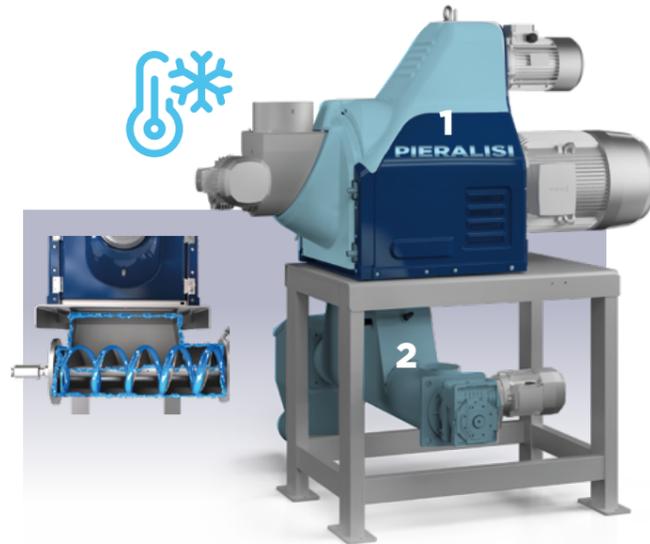
- HP 15
- HP 30
- HP 40
- HP 50
- HP 60

THERMAL CONDITIONING IN CRUSHING: QUALITY UNDER CONTROL

Pieralisi crushers feature an advanced paste cooling system, crucial when olives reach high temperatures, particularly at the start of the olive season.

This thermal control safeguards and enhances oil quality, boosting phenolic content and preserving fresh herbaceous and floral aromas - all without affecting extraction yield.

- 1 Cooling chamber with water jacket (standard)
- 2 Cooling hopper, shaft and spirals of the discharge screw (optional)



INDUSTRIAL TRIALS ON COOLING SYSTEM OF THE PIERALISI CRUSHER

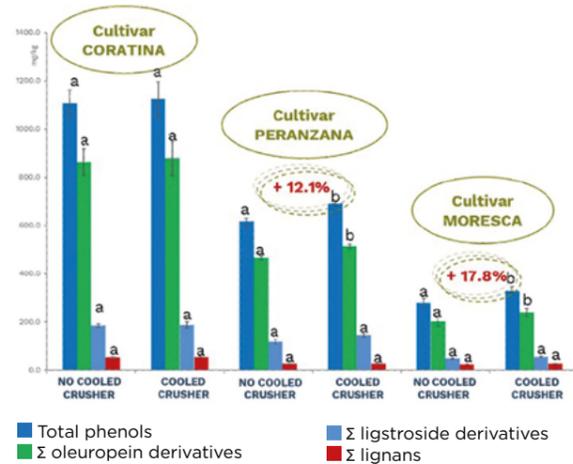
- Olive seasons: from 2018/19 to 2020/21
- Cultivar: Coratina, Moresca e Peranzana
- Water cooling with chiller unit

N.B. Different letters (a, b, c) indicate a statistically significant difference.

Multi-year industrial-scale tests on different varieties show a steady, repeatable trend in improved oil quality. All cultivars benefit, though the intensity varies according to their genetic characteristics.

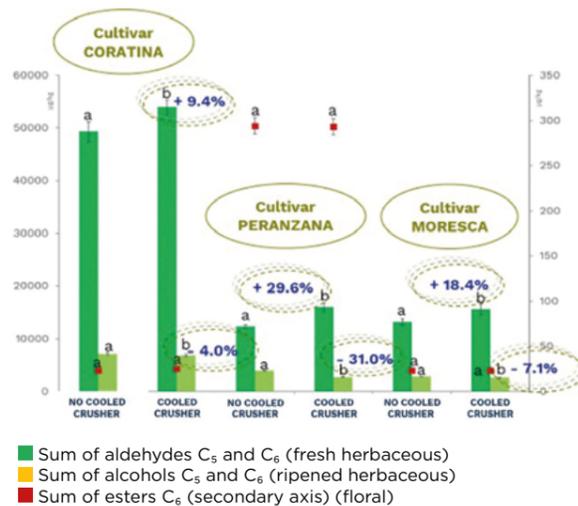
Scientific paper published in an international journal, accessible at: <https://doi.org/10.1007/s11947-022-02862-9>

PHENOLS



In the Coratina cultivar, no increase in phenolic concentration is observed, since genetically this variety already contains a high level close to saturation. Instead, significant improvements in antioxidant compounds are observed in the Peranzana and Moresca cultivars.

AROMAS



Positive (+) values indicate an increase in the concentration of C₅ and C₆ aldehydes responsible for fresh green/grassy notes, mainly (E)-2-hexenal. Negative (-) values, on the other hand, show that the technology reduces the concentration of C₅ and C₆ alcohols, which are responsible for ripe/mature grassy notes, less appreciated because they are associated with aged oil.



		15 HP	30 HP	40 HP	50 HP	60 HP
Holes grid 6 mm standard	140 mm	X	X	X	-	-
	180 mm	-	-	-	X	X
Hammers	4 Arms	X	X	X	X	X
	6 Arms	Optional	Optional	Optional	-	-
Multiblade	4 Arms	Optional	Optional	Optional	Available from 2026	Available from 2026
Rpm	2800	X	X	X	X	X
	1400	-	Double grid	Double grid	-	-
Bars grid	4 mm	-	-	-	Optional	Optional
	5 mm	Optional	Optional	Optional	Optional	Optional
	5.7 mm	Optional	Optional	Optional	-	-
Double grid	-	X	X	-	-	
Main motor power [kW]		11	22	30	37	45
Overall dimensions [mm]		1455x620x830	1620x620x830	1690x620x830	1730x620x830	1800x620x830
Vfd [max 2800 rpm]		Optional	Optional	Optional	Optional	Optional

CRUSHING

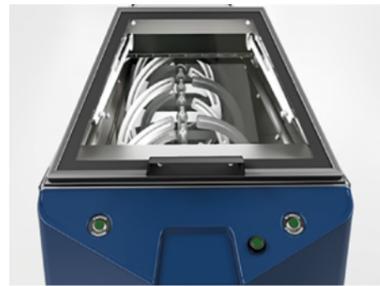
Malaxation

MALAXING: CRUCIAL FOR PREPARING THE OLIVE PASTE FOR OIL EXTRACTION

Malaxing has the purpose of releasing the oil by **breaking the oil-water emulsion**. The controlled mixing of the olive paste at a regulated temperature promotes **coalescence**, that is, the union of tiny oil droplets into larger drops, initiating the separation of oil from the water and solid phases.

Process variables:

- **Temperature**
- **Oxygen**
- **Time**



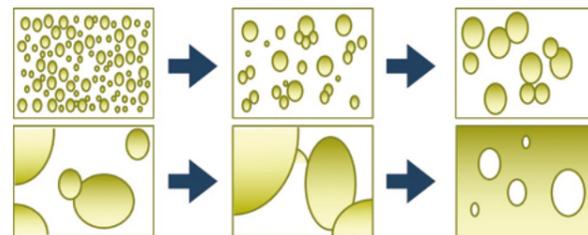
Proper thermal conditioning of the olive paste, combined with the right malaxing time, allows the process to be adapted to the fruit's characteristics, **maximizing both extraction yield and olive oil quality**.

In particular, **temperature and oxygen** are crucial in defining the oil's **phenolic content**, which is responsible for significant health benefits and is perceived through the organoleptic attributes of bitterness and pungency.

As for the aromatic component, although it develops mainly during crushing, a minor share also takes shape during malaxing, where temperature influences the **type of aromas** formed.

Pieralisi malaxers ensure a sealed environment, not exposed to air, in order to protect the phenolic component from oxidative processes.

THE COALESCENCE PROCESS



Malaxer

Models

myblend s
myblend x
myblend sx

COMPARING THE MODELS

A closer look at the three models, highlighting their design, functionality, and efficiency.

New stainless-steel design ensuring durability and reliability

Full inspection front glass panel and rear opening with ergonomic handle

360° washing nozzles along the entire internal perimeter with jets in both directions, covering side walls and paddles

Heating system for **optimal heat exchange** and **improved energy efficiency**

Shaft and paddle system designed for **maximum extraction efficiency**

Heated anti-fog glass for clear visibility of the olive paste during processing

Malaxer loading through three way valves, allowing **independent management of each tank**

TECHNICAL SPECIFICATIONS				
Capacity [lt]	600	800	1000	2000*
Overall dimensions [mm]	A - 2150 B - 820 C - 1655	A - 2650 B - 820 C - 1655	A - 3150 B - 820 C - 1655	A - 3150 B - 820 C - 1755
Empty weight [kg]	580	640	700	770
Gearmotor power each malaxer [kW]	0.75		2.2	
Max pressure heating circuit [bar]	0.5			

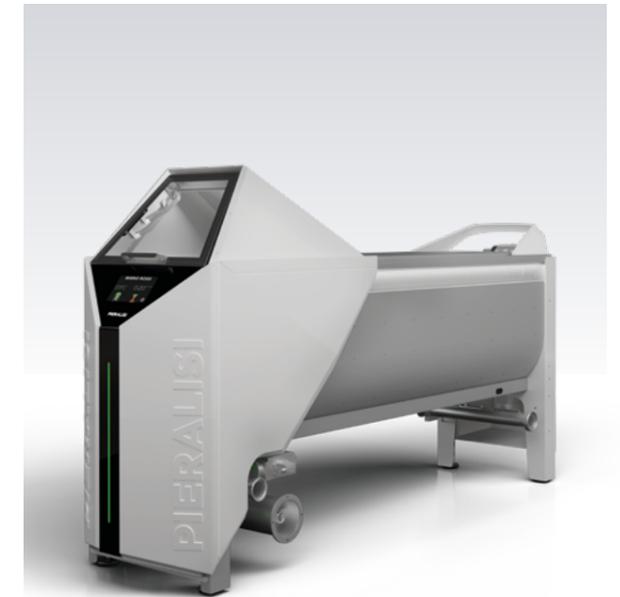
* The 2000-liter malaxer has a design inspired by the **My Blend X** and **SX** models, maintaining the same electronic management logic and electrical control panel.

	My Blend S	My Blend X	My Blend SX
On-board control	Manual	Automatic by buttons	Automatic by display touch screen
Water jacket temperature	Same for the malaxation unit		Independent for each malaxer
Olive paste temperature management	No	Monitoring	Control
Level probes	Max	Min and Max	Min and Max
Loading system with valve	Two way	Three way	
4.0 Availability (optional)	X	X	X
Variable paddle speed	No	No	Optional
Full plant control	Electromechanical	HMI touch screen integrated on a mobile arm fixed to the shelters	



myblend s: Basic version

Easy manual control



myblend sx: Premium version

Innovative process control with smart automation

EXCLUSIVE FEATURES:

Independent temperature control for each tank

On-board display for monitoring and managing operating parameters and batch identification (naming)

LED indicator on the front panel showing the processing stage (loading, unloading, malaxing, standby) through color codes and flashing signals

Mirror on the upper wall for easier long-distance visibility of the paste during processing

Side plexiglass panel with LED lighting and Pieralisi logo in silk-screen print

White front carter design with rear casing included



myblend x: Intermediate version

Combination of manual and electronic control

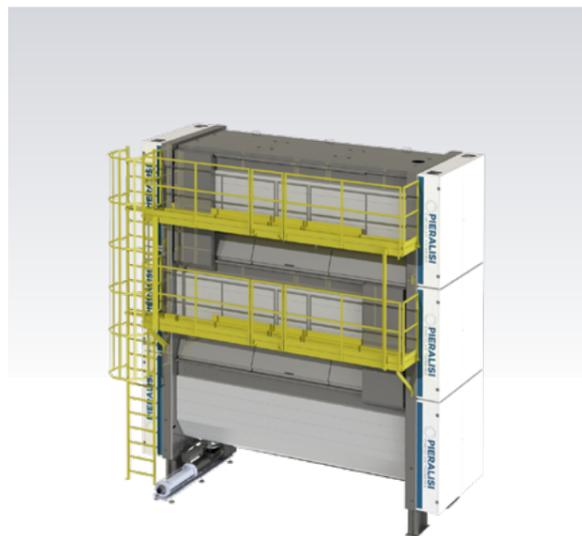
Malaxer

Model

Spagna



TECHNICAL SPECIFICATIONS			
Capacity [lt]	4000	8000	12000
Overall dimensions [mm]	A - 3980 B - 1500 C - 2060	A - 3980 B - 1490 C - 3680	A - 3980 B - 1490 C - 5300
Empty weight [kg]	1940	3720	5800
Gearmotor power each malaxer [kW]	4		
Max pressure heating circuit [bar]	0.8		



TECHNICAL SPECIFICATIONS			
Capacity [lt]	10000	20000	30000
Overall dimensions [mm]	A - 5700 B - 2000 C - 2520	A - 5700 B - 2000 C - 4520	A - 5700 B - 2000 C - 6520
Empty weight [kg]	4700	9400	14000
Gearmotor power each malaxer [kW]	11		
Max pressure heating circuit [bar]	0.8		



Protoreattore®

Pieralisi
Exclusive
in the market

THE ADVANTAGES OF MALAXATION WITH THE PROTOREATTORE

The **Protoreattore®** is the outcome of dedicated engineering, designed to optimize the key parameters of traditional malaxation that influence both extraction yield and the final quality of the olive oil.

The **Protoreattore®** enables rapid and uniform preparation of the olive paste, accelerating the coalescence process through quick achievement of the desired temperature and the combined action of mixing.

A multi-effect technology that merges mechanical and thermal action with the power of pulsating pressure:

Significant energy efficiency

No water addition: preservation of phenolic content with antioxidant action

Uniform olive paste temperature

Operational versatility based on climatic conditions and required performance: **heating or cooling system**

Both batch and continuous processing

Protoreattore process in about 60-120 seconds, with the paste reaching the desired temperature

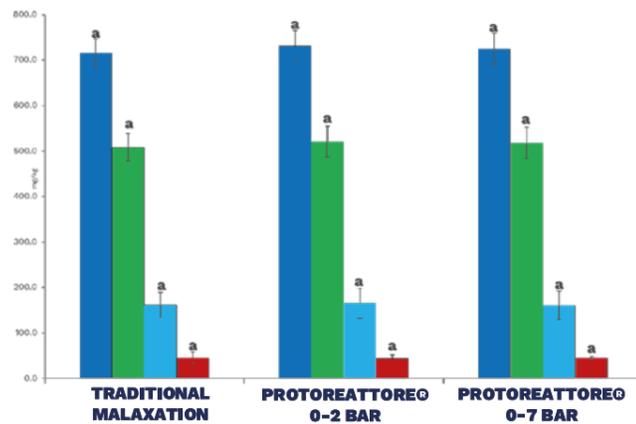
Reduction of malaxing time by approx. 50%, while obtaining the same extraction yield and olive oil quality

RESULTS OF RESEARCH ACTIVITIES ON THE PROTOREATTORE AND ITS IMPACT ON OLIVE OIL QUALITY

- Olive seasons: 2023/24 - 2024/25
- Cultivar: Coratina
- Water cooling with chiller unit

Comparative tests between the Protoreattore process (only 5 minutes of malaxing time and different pressure conditions) and traditional malaxation (around 30 minutes of malaxing time)

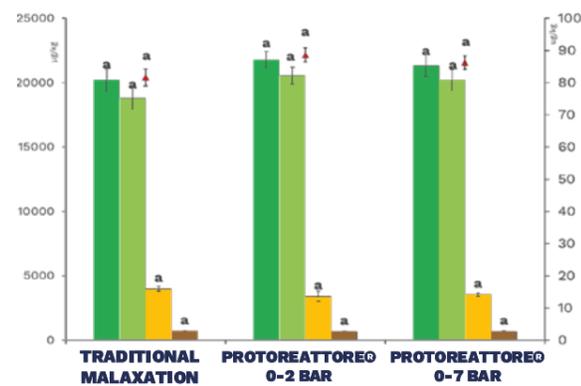
PHENOLS



- Total phenols
- Σ Oleuropein derivatives
- Σ Ligstroside derivatives
- Σ Lignans

No significant differences were detected in the phenolic content.

AROMAS



- Sum of aldehydes C₅ and C₆ (fresh herbaceous)
- (E)-2-Hexenal (the most representative of aldehydes)
- Sum of alcohols C₅ and C₆ (ripened herbaceous)
- Sum of esters C₆ (secondary axis) (floral)
- Sum of ketones C₅ and C₆

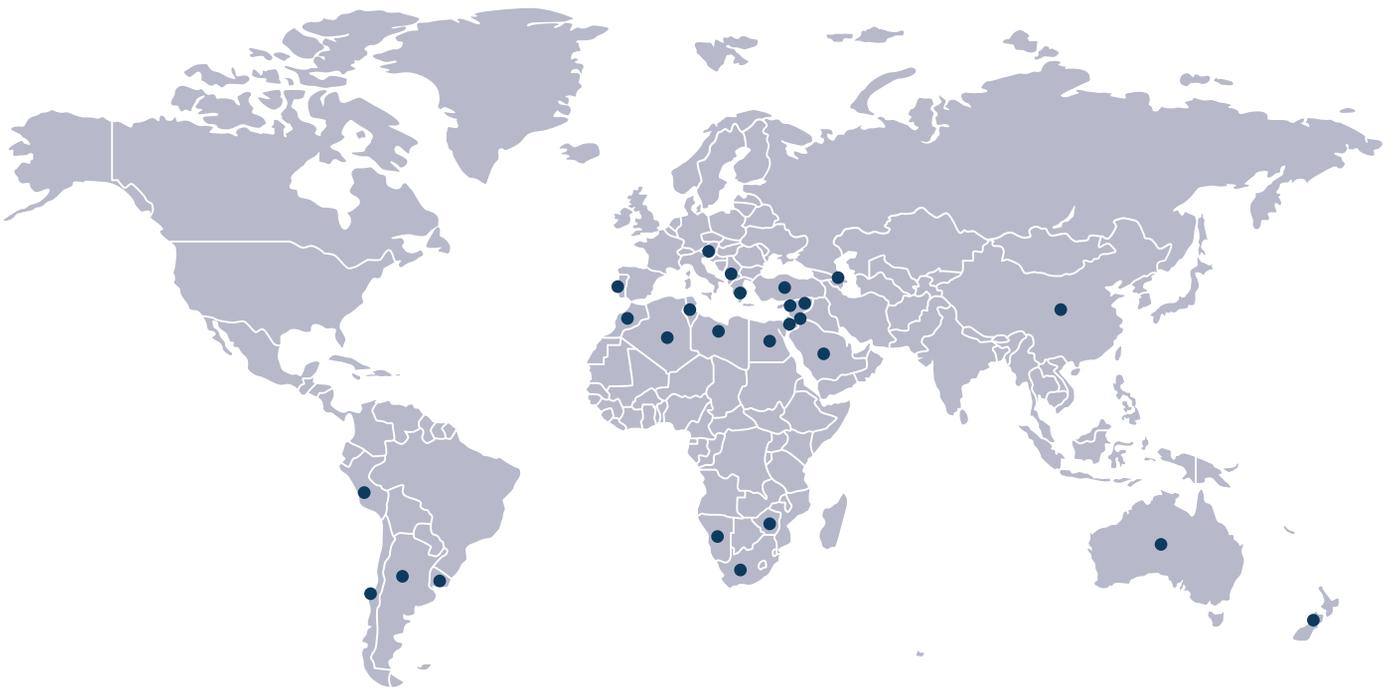
No significant differences were detected in the concentration and in the types of volatile compounds.



TECHNOLOGICAL INNOVATION IN MALAXATION

OUR SERVICE DISTRIBUTERS AND DISTRIBUTORS

- Argentina
- China
- Saudi Arabia
- Austria
- Tunisia
- Chile
- Jordan
- Syria
- Greece
- Portugal
- South Africa
- Lebanon
- Albania
- Australia
- Israel
- Lybia
- Morocco
- Algeria
- Egypt
- Turkey
- Azherbajan
- New Zealand
- Namibia
- Zimbabwe
- Peru
- Uruguay



PARTS & SERVICES

- Global technical service network
- Preventive maintenance
- TCP remote monitoring for predictive maintenance
- Original spare parts and dedicated e-commerce platform

CERTIFICATIONS AND REFERENCE STANDARDS

Management System Certifications - HQ

- ISO 9001:2015 - Quality
- ISO 14001:2015 - Environment
- ISO 45001:2018 - Occupational Health and Safety

General Design and Safety Standards

- EN ISO 14159:2008 - Hygiene

Food Industry Specific Standards

- EN 12505:2010 - Centrifuges for edible oils and fats

PIERALISI HEADQUARTERS AND ITALIAN BRANCHES



1. PIERALISI MAIP S.p.A. Headquarters Jesi (Ancona)

Manufacturing facility.



3. PIERALISI MAIP S.p.A. Modugno (Bari)

Olive oil machines revision,
revamping and post-sale services.
It represents a primary spare parts storage
for olive oil machinery business.



2. PIERALISI MAIP S.p.A. Sambuca Val di Pesa (Florence)

Revision and refurbishing workshop.

PIERALISI WORLDWIDE



1. PIERALISI North America
Sanford (FL), USA

2. PIERALISI Do Brasil LTDA
Louveira (SP), Brasil

3. PIERALISI España S.L.
Jaén, Spain

4. PIERALISI Northern Europe
Bleiswijk, The Netherlands

5. PIERALISI Maghreb SA
Tunis, Tunisia

6. PIERALISI Northern Europe
Wurzburg, Germany

7. PIERALISI MAIP -
Headquarters
Jesi, Italy

8. PIERALISI Hellas A.E.
Kifisia, Greece



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