GQ AGRI

Correctly Understand the Grades of screw oil Presses and Selection Guide

80% of oil press buyers misunderstand the screw press grade rules. 2-, 3-, and 4-stage screw presses differ in barrel structure, compression point, and screw size. These factors directly affect oil yield and production efficiency.

Empowering Small Farms, Transforming Rural Economies.

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Introduction

The selection of the right screw oil press machine is an essential consideration in providing oil yield, efficiency, and profitability in the long run. Although other manufacturers might promote multi-stage pressing machines as five stage, or seven stage, these are usually marketing gimmicks. In practice, screw oil press grades represent a traditional industry parameter that includes structural strength, compression capacity, and the capacity of the machine to accept various oilseeds without clogging or excessive wear.

A higher-grade screw oil press will generally have a longer pressing chamber, more compression areas, hardened screws and a stronger motor. These factors enable it to mill a broader range of seeds, medium-hard and hard oilseeds like peanuts, soybeans, and palm kernels and still achieve consistent oil yield and operation stability. Knowledge of these grades is critical in the decision making of small and medium-sized oil mills in Southeast Asia, Africa and South America to prevent expensive errors.

Understanding Screw Oil Press Grades.

Press grades in the oil pressing industry are often used to represent the strength and capacity of a Screw oil press machine as opposed to a standard. They mirror the design of barrel, screw size, compression stages, and mechanical strength needed to work effectively over a long time span. A more expensive machine will be able to operate longer with continuous run time, provide a consistent feed pressure and can extract oil effectively out of more challenging oilseeds.

The grade of the press also affects the maintenance requirements, the stability of the operation, and the uniformity of the oil quality. Although a low-grade machine can work with soft seeds and small-scale output, high-grade machines offer the flexibility required to handle an assortment of oilseeds with fewer stops and a reduced risk of clogging plus an improved consistency in oil recovery. The choice of a screw oil press according to the grade allows operators to produce as much as possible in the shortest duration possible with limited amounts of downtime, maintenance, and energy.

Pressing Grades of Screw Oil Press Machines

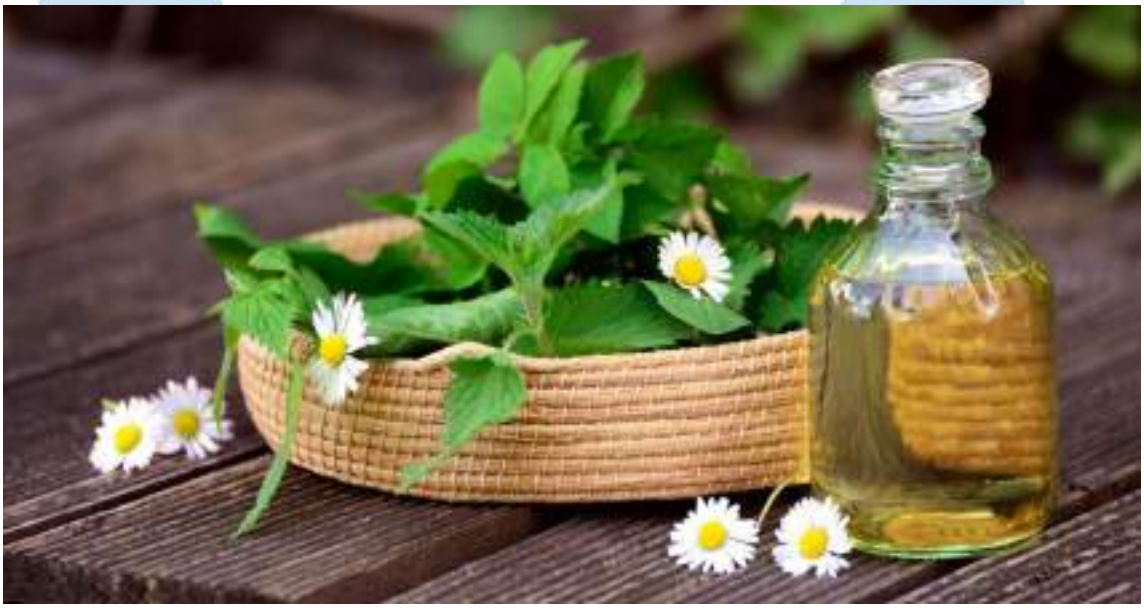
Mainstream screw oil presses come in three workable grades depending on barrel design, compression points and screw sizes:

- **Grade 2:** These machines have a short pressing chamber with one compression zone and constant diameter screw. The spiral pitch is wide and gentle enough to compress soft seeds such as peanuts, soy beans, and sesame. They are generally used in small farm oil mills and village cooperatives with a daily capacity of 3 to 10 tons. Small-scale operations will have a stable output and little maintenance due to the low compression ratio.
- **Grade 3:** Grade 3 machines are equipped with a second compression segment, where the screw progressively gets larger in diameter with a reduced spiral pitch at the outlet. This arrangement offers increased pressure and is recommended

when using medium-hard seeds like peanuts, sunflower seeds and rapeseed. Normal day capacity: 10-20 tons a day. The longer pressing room provides greater consistency of oil recovery and increased productivity without requiring special technical attention.

- **Grade 4:** The highest of all grades, these devices are characterised by the presence of several zones of compression, four pressure points and a long pressing chamber. The screw adds a tight spiral pitch toward the outlet to maximize compression of hard seeds, such as soybeans, palm kernels, almonds, and castor seeds. Daily capacities are 20-40 tons, which is the capacity of medium-sized mills that should be supplied on a regular basis. High-quality construction means that there is very little clogging, a constant quality of oil, and high operational stability.

The grade chosen varies according to the kind of seed and volume of production. Greater grades provide more mechanical strength and flexibility in processing, and lower grades support smaller operations and softer seeds.



Identifying the Press Grade

It is possible to judge a screw oil press grade based on a number of important characteristics:

- **Pressure points:** The number of high-pressure zones in the barrel is associated with the grade. Grade 2 machines usually feature one high pressure circular area that has two pressure points. Grade 3 machines have 2 high pressure zones and three points, which is good when the seeds are medium hard. Grade 4 machines are three zone and four-point, and are set to provide maximum efficiency on harder seeds.
- **Pressing Chamber Length:** Longer compression chambers allow many compressions, enhancing the extraction rate and resulting drier cake. Grade 2 chambers are short, Grade 3 chambers permit 2 or 3 compressions and Grade 4 chambers permit 3 to 4 consecutive compressions of hard seeds.
- **Compression Ratio:** It represents the pressure of extraction. Grade 2 presses are used at 5:1–6:1, Grade 3 have presses that are used at 7:1–8:1, Grade 4 at 9:1–10:1–or more. An increased ratio is necessary to extract the best oil out of hard seeds.
- **Screw Dimensions:** The length and diameter of the screw define the number of compression stages and the ability to process more difficult seeds. Grade 2 screws measure 800–1000 mm, Grade 3 screws measure 1200–1500 mm, and Grade 4 screws have a diameter over 1600 mm and can bear 30 tons per day.
- **Power and Motor:** Motor size should be able to support torque with continuous load. Grade 2 presses have motors of 7.511 kW, Grade 3 1518.5 kW and Grade 4 2230 kW and above. Adequate motor power will mean that there will be no excessive heat and mechanical strain when running.
- **Transmission System:** Grade 2 machines tend to have belt drives, Grade 3 machines have reinforced gears with reduction ratios of 15:1–20:1, and Grade 4 presses have heavy-duty chain or gear systems with reduction ratios greater than 20:1. The correct transmission provides stable torque and under-load working.
- **Weight and Material:** The best machines are quality machines and are heavier because of the tougher frame and materials. Grade 2 machines weigh 350–500 kg, Grade 3 machines weigh 600–900 kg and Grade 4 machines weigh above 1000 kg. The end product is available in mild steel and cast iron in the lower grades,

and in the higher grades medium and high-strength alloys, which offer durability and long-term reliability.

(This information is for reference only and may be adjusted during specific machine development and design.) All of these aspects help operators to evaluate the quality of a screw oil press and align it with production needs, type of crop, and production objectives.

Practical Tips for On-Site Evaluation

It is not enough to review specifications to evaluate a screw oil press before making a purchase. Such real-world tests are:

1. **Observe the Weight:** Visual and, where possible, scale comparison of machines. The heavier machines suggest more robust frames and components that can continue to work with more difficult seeds.

2. **Assess the Motor:** Check the motor rating and the behavior of the motor when operating. Sufficient torque means a stable pressing force and less downtime.

3. **Inspect Transmission System:** Check gears, chains or belts quality, and reduction ratios. The powerful transmission provides stable power transfer and ensures good performance under heavy load.

4. **Check Screw and Chamber Dimensions:** Measure the length of the screw and the length of the barrel where possible. The longer screws and chambers offer many compression stages, greater extraction efficiency and the ability to consistently work under medium-hard and hard seeds.

5. **Test Operation:** Watch the press at work with the target oil seed. High grade machines have a constant feed pressure, less clogging, and constant output. Simple machines can be variable and demand changes regularly.

6. **Review Material and Build Quality:** Look at barrel and screw material. Alloys and reinforced steels is a sign of long life and wear resistance especially when working with hard-hardness seeds.

These are practical steps that can actually help you determine the screw oil press grade and see whether it matches your requirements.

Conclusion.

As years of experience in the manufacturing of screw oil presses and field application demonstrate, the yield of oil, its quality, and profitability of the work are directly proportional to the grade of the press. Long screwed machines, many compression areas, heavy frames, and multi-rated motors mean that the machine will not stop, that it will extract a certain amount of oil steadily and that the machine will need less maintenance. The right grade will avoid downtime, uneven extraction, and will maximize the return on investments.

GQ Agri is specialized in small and medium oil mills and field tested solutions. We advise operators on the choice of screw oil presses that provide reliability,

efficiency and long term value by taking into account the type of crop, volume of production and the local energy conditions. Aligning machine grade to operation requirements maintains a constant production, limited wastage, and high level of profitability.

About us.

GQ Agri specializes in reliable, scalable edible oil equipment for emerging markets. Our mission is to empower smallholder producers and agricultural entrepreneurs across Southeast Asia, Africa, and Latin America with tools that enhance quality and value.

Our portfolio is engineered for practical needs, diverse crops, and real-world production environments. If you are uncertain which machine best fits your processing line, we provide free consultations and technical analysis. Let us help you choose wisely and build confidently.