SANAATCHI
INDUSTRIAL VISION GROUP

# Apricot-Kernel Cracking & Separation Line

Complete Turnkey Business Proposal

*Supplier reference: real dry dehulling and separation machinery illustrating a multi-machine cracking and aspiration arrangement.*

| | | | |
|---|---|---|---|
| **300-500 kg/h**<br>starter dry-stone input | **3**<br>minimum size fractions | **8-12 kW**<br>indicative connected load | **5-8**<br>entry operators |

Prepared for investment planning in Afghanistan and regional export markets. Final specifications, pricing, civil works, and utility loads require supplier quotation and site survey.

# Executive Summary

This line recovers intact kernels from dry apricot stones. Stones must first be graded by size because one cracking gap will either miss small stones or crush kernels in large stones. After staged cracking, aspiration and gravity separation remove light shell; inspection recovers uncracked stones and rejects damaged or unsafe kernels. Bitter apricot kernels may contain cyanogenic compounds, so food or cosmetic use must follow species identification, laboratory testing and destination law.

## Why this project fits Afghanistan

- Apricot pits from drying and puree plants become a separate value stream rather than waste.
- Compact cracking and separation equipment suits seasonal cooperative or processor operation.
- Intact-kernel recovery is worth more than mixed crushed shell and kernel.
- Shell can be evaluated for approved fuel or other industrial use, while kernels require strict buyer and safety control.

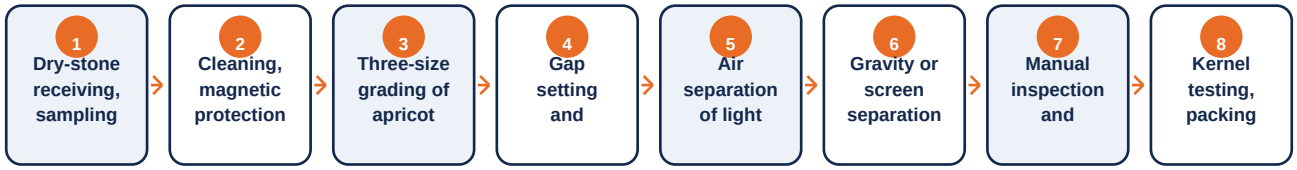
## Sanaatchi delivery scope

- Factory setup planning, supplier pre-qualification, and technical comparison
- Complete production-line and individual equipment supply
- Factory layout, utilities, civil-work coordination, installation, and commissioning
- Raw-material sourcing, trial-batch qualification, and repeat supply planning
- International logistics, customs documentation, operator training, spare parts, and after-sales support

| Recommended configuration | For the lowest credible entry, select a 300-500 kg/h stone line with cleaner, three-size grader, adjustable-gap cracker, shell-kernel separator, inspection table and semi-manual packing. Sell kernels only to a qualified buyer under documented safety specifications. |
|---|---|

# Manufacturing Process & Product Portfolio

## Integrated process flow




## Target products

| Product | Typical specification | Primary market |
|---|---|---|
| Whole apricot kernels | Buyer-approved variety, integrity, moisture and safety test | Qualified oil, cosmetic or permitted food processors |
| Broken kernels | Clean separated fraction with controlled shell content | Qualified oil-extraction buyers |
| Apricot shell | Dry shell fraction free from unacceptable kernel carryover | Approved fuel or industrial users |

Supplier references show adjustable single-stage crackers at about 300-500 kg/h and shell-kernel separators at about 500-600 kg/h. A three-size grader improves cracking yield. Published whole-kernel and shelling-rate claims must be verified with Afghan stone varieties; acceptance should use an actual material trial and measured mass balance.

# Core Equipment Schedule

| Step | Equipment | Function | Indicative parameter |
|---|---|---|---|
| 1 | Stone cleaner and magnet | Removes dust, stalks, metal and loose debris | Enclosed aspiration at transfer points |
| 2 | Three-size stone grader | Creates fractions suitable for separate cracking gaps | Interchangeable screens matched to local stones |
| 3 | Adjustable-gap stone cracker | Breaks shell while limiting kernel damage | 300-500 kg/h supplier reference |
| 4 | Shell-kernel air separator | Removes light shell by suspension velocity | Variable airflow and feed rate |
| 5 | Gravity or screen separator | Separates heavy shell, kernels and uncracked stones | Return path for re-cracking |
| 6 | Inspection conveyor | Removes shell fragments and defective kernels | Good lighting and food-grade belt |
| 7 | Dust collector | Controls shell dust at cracking and aspiration | Earthing and safe housekeeping |
| 8 | Weigher and bag closer | Packs tested kernel lots | Buyer-approved bulk pack |

Equipment models are indicative and will be matched to the selected capacity, local raw-material tests, available utilities, and preferred automation level.

# Reference Equipment Gallery

*Supplier reference: real dry dehulling and separation machinery illustrating a multi-machine cracking and aspiration arrangement.*

*Supplier reference: real adjustable dry grading and polishing machines representative of the compact kernel-handling equipment class.*

Images are supplier references for configuration discussion; final equipment appearance and model may differ.

# Plant, Raw Materials & Utility Requirements

## Raw materials

- Dry traceable Afghan apricot stones
- Food-grade bulk bags or lined cartons
- Labels and lot records
- Laboratory sampling materials

## Utilities & infrastructure

- Stable three-phase electricity
- Dust extraction and ventilation
- Dry weather-protected receiving area
- Clean dry kernel inspection and packing room
- Pest-controlled segregated storage

## Quality, safety and environmental controls

- Identify apricot variety and intended legal end use before purchase
- Test moisture, mold, foreign matter and kernel safety parameters
- Grade stones before cracking and document each gap setting
- Measure whole-kernel, broken-kernel, shell and uncracked yields
- Control shell fragments and metal contamination
- Do not market kernels for direct food use without required cyanogenic-compound assessment and legal compliance

A final factory layout must reserve safe forklift routes, maintenance clearances, raw-material segregation, finished-goods storage, fire protection, ventilation, and future expansion space.

# Indicative Investment & Implementation Plan

**LOW-ENTRY CONFIGURATION**

Lowest entry uses three mechanical size fractions, one adjustable cracker and compact air/gravity separation with manual inspection. Optical sorting, roasting, oil pressing, building, raw-stone inventory and laboratory certification are excluded.

| Component | Indicative range | Notes |
|---|---|---|
| Cleaning, aspiration and three-size grading | US$4k-10k | Compact dry preparation |
| Adjustable cracker and elevators | US$3k-8k | One staged cracking route |
| Shell-kernel and gravity separation | US$5k-12k | Variable airflow included |
| Inspection, dust control and packing | US$3k-7k | Semi-manual launch scope |
| Freight, installation and spares | US$3k-8k | Confirm nested conveyors |
| Indicative low-entry total | US$18k-45k | Building, stones, laboratory and working capital excluded |

## Implementation sequence

| | | |
|---|---|---|
| Phase 1 | 2-3 weeks | Collect representative stone samples and confirm buyer use |
| Phase 2 | 2-4 weeks | Run grading, cracking and separation acceptance trials |
| Phase 3 | 4-8 weeks | Manufacture, inspect and ship compact equipment |
| Phase 4 | 2-4 weeks | Install, train and validate yields and dust controls |

Ranges are planning targets for a low-cost entry configuration, exclude land, and remain subject to confirmed capacity, supplier quotation, freight, duties, exchange rates and site conditions.

# Next Steps & Contact Information

## Recommended next steps

- Confirm target products, hourly output, and packaging formats
- Test representative raw materials and document quality requirements
- Complete site survey covering electricity, water, fuel, drainage, roads, and warehouse space
- Request comparable technical and commercial quotations from shortlisted suppliers
- Finalize financing, logistics, installation, training, and spare-parts plan

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## Research and image references

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