

TECHNICAL BROCHURE · EXTRACTORS

EX series loop extractor

Recovery of residual oil from seed flakes or cake with an organic solvent (hexane). How to choose a model, and parameters of the whole range.

15

MODELS IN RANGE

20–6000

T/DAY ON SUNFLOWER

Ex

PUMP DESIGN

0.1014

MPA, WORKING PRESSURE (ABS.)

Purpose and operating principle

The loop extractor recovers residual oil from seed flakes or cake using an organic solvent (hexane). Extraction produces miscella (a mixture of oil and solvent) and meal.

The machine works on the thin-layer principle: material is moved continuously by a chain conveyor through the upper and lower tiers of a sealed housing, ensuring efficient and uniform extraction. Working medium: miscella, hexane vapour, cake.

Why a loop design

- **Continuous counter-current flow.** Meal moves in a closed loop against the solvent, so oil is washed out gradually in several stages.
- **Gentle material handling.** Meal lies in an even layer in perforated boxes: less fines and better miscella filtration.
- **Fewer moving parts.** Compared with rotary designs there are fewer sealed rotating assemblies under solvent, so maintenance is simpler.
- **Efficient solvent use.** Multi-stage washing reaches the required recovery with lower hexane consumption per tonne of feed.

How to choose an extractor

1

Capacity and raw material

Choose the model by daily capacity on sunflower seed: the EX range covers 20 to 6000 t/day. The extractor is used for sunflower, rapeseed and soybean; capacity for rapeseed and soybean is confirmed in the project.

2

Processing scheme

Large plants use a two-stage scheme: a press first (pre-pressing), then extraction, which gives the maximum oil recovery. The extractor receives cake or flakes, so it is selected together with the pressing section.

3

Feed preparation

The extractor cannot compensate for mistakes upstream. Guidelines: flake thickness 0.25–0.35 mm, minimum fines, temperature 45–55 °C and controlled moisture.

4

Target residual oil

The key economic indicator is the residual oil in meal, ideally below 0.8–1 %. The solvent-to-feed ratio is kept between 0.8:1 and 1.2:1 depending on the crop.

5

Hexane safety

The extractor loop is fully closed. Mandatory: explosion-proof (Ex) pumps, ventilation with solvent vapour recovery, gas detectors with emergency shut-off and earthing. These requirements are built into the project from the start.

6

Installation site

Check the dimensions (height × width × length) and internal volume against the plant layout, ceiling height and structural loads. Dimensions in the table are maximums.

7

Related equipment

The extractor works as part of a chain: the meal goes to a DC series toaster, the miscella to distillation via CP series pumps, and solvent vapour to condensation and recovery in heat exchangers. They are selected as one package.

8

Room for growth

The loop design scales well without changing the process scheme. If you plan to increase capacity, choose a model with a margin or agree on expansion options in advance.

Important

Indicative selection only. The final model is defined by the technical specification together with D.ENERGY engineers.

EX model parameters

Model	Capacity (sunflower seed), t/day	Height, mm	Width, mm	Length, mm	Internal volume, m³
EX.20	20	3000	1200	5000	20
EX.50	50	4500	1700	8000	25
EX.100	100	5600	2000	9000	35
EX.200	200	6300	2700	11100	40
EX.300	300	7150	3000	13050	56
EX.500	500	7200	4000	16000	117
EX.800	700	7200	4000	16000	117
EX.801	700	7210	4030	16000	117
EX.801-01	700	7320	4040	18300	126
EX.011	1000	8260	4080	19371	162
EX.012	1200	8224	4080	21780	167
EX.015	1500	8210	4080	21780	165
EX.030	3000	11190	5630	32102	600
EX.050	5000	15000	6000	45000	850
EX.060	6000	16000	6000	52000	1000

Working medium for all models: miscella, hexane vapour, cake. Working pressure (absolute): 0.1014 MPa (1.014 kgf/cm²). Dimensions are maximums.

What we need for selection and ordering

To propose a model and configuration, please send brief information:

Raw material	sunflower / rapeseed / soybean; moisture, oil content, form (cake or flakes)
Capacity	required daily feed rate, operating mode (hours per day)
Site conditions	room size, height, foundation, availability of steam, water and electricity
Adjacent sections	pressing section, distillation, toaster, vapour recovery system
Safety requirements	hazardous area class, standards and company regulations

Contact us
Ukraine, Mykolaiv, 9B Oleha Bondarenka St.

PHONE
+38 067 995 10 96

E-MAIL
sales@denenergy.com.ua

HOURS
Mon–Fri: 09:00–18:00

This material is for information only. Final configuration and parameters are defined by the technical specification and agreed with D.ENERGY engineers. Data as of 08.10.2026.