



Vertical Seed
Conditioner.
DIRO.

Innovations for a better world.

 **BÜHLER**

Perfect product quality. **Low operating costs.**

The conditioner DIRO is used for oilseed conditioning in the production of edible oil for the food processing industry and animal feed industries. It is applied in the first stage of the soybean warm and hot dehulling process.

Application.

The vertical seed conditioner DIRO is designed to provide indirect steam heating conditioning of soybeans, rape seed or other free flowing grains. Proper conditioning of the product is essential to facilitate best results in downstream systems. The DIRO Conditioner uses low-pressure saturated steam of 0.9 bar / 13.0 psig as the heating media. Heat from the steam is transferred to the seed through high durability elliptical tubes, in stainless steel 304L. The seed is gravity fed into the DIRO Conditioner. The heating sections are stacked individually to achieve the required amount of heating area needed for the process.



Advantages:

- Two sizes of DIRO to adapt to your process and building requirements
- Special elliptical tubes, made from 3mm thk. corrosion resistant stainless steel, give excellent heat transfer, product flow, and wear protection
- Thermal energy is created by low pressure steam, 0.9 bar [13.0 psig]
- Product capacity can be varied by changing the discharge rake speed. Setting the discharge rate is accomplished by a variable frequency drive (optional)
- Elimination of condensation and bean sweating is accomplished by a system of forced warm air passing through the product via special air inlet sections
- For ease of cleanout, multiple access doors are placed at each section. Optional Lexan viewing panels are available in place of steel panel doors
- Reliability grown from long experience: Bühler has supplied conditioners to large producers all over the world

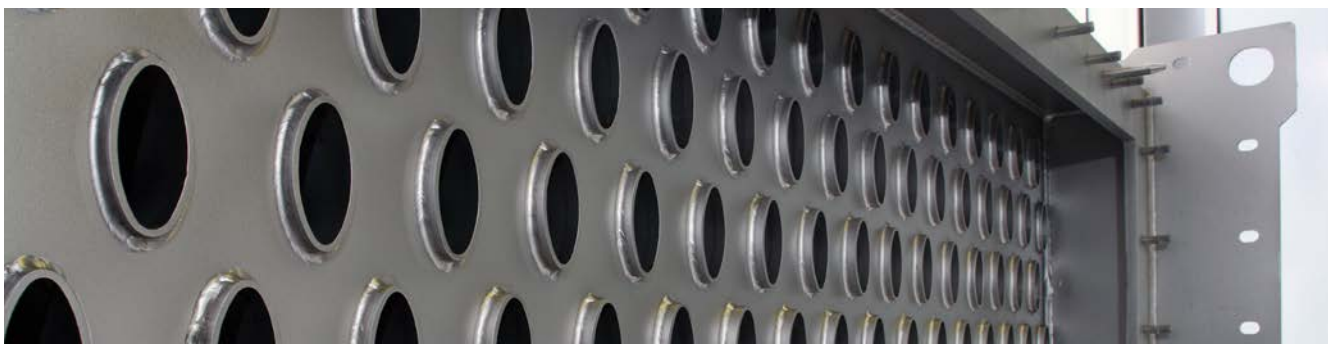
The DIRO heating sections are installed in a criss-cross method, with each section's tubes rotated 90 degrees from the section below it. This method ensures uniform heating of the beans with no cold spots.

Throughput rate is easily controlled by changing the speed of the oscillating rake in the discharge section. Accomplished by customer supplied VFD (variable frequency drive). The bean temperature can be monitored at each heating section via optional temperature sensors.

Comprehensive solutions. **Based on vast process know-how.**

Technical Data:

		DIRO 2.4 / 100	DIRO 3.3 / 180	DIRO 3.3 / 200
Length	m [ft.]	3.4 [11'-0"]	4.3 [13'-10"]	4.3 [13'-10"]
Width	m [ft.]	3.0 [9'-9"]	3.9 [12'-8"]	3.9 [12'-8"]
Height	m [ft.]	0.9 [3'-0"]	0.9 [3'-0"]	1 [3'-3"]
Opening-Square	m [ft.]	2.4 [7'-11"]	3.3 [10'-10"]	3.3 [10'-10"]
Heating Area	m ² [ft. ²]	100 [1076]	180 [1938]	200 [2153]



Standard features:

- Stackable heating modules to meet any process capacity. Modules can be rotated in 90 degree increments for elimination of cold spots in the conditioner
- Use of air inlet and exhaust sections fully customizable according to process needs
- Low pressure steam heat
- Heat transfer tubes: Highly efficient, custom designed, elliptical shape, corrosion resistant stainless steel 304L
- Housings in welded carbon steel with an exterior coat of high temperature paint (outside insulation provided by customer)
- Easily removable discharge drawer each level
- Multiple access doors in each heating section
- NEMA or IEC inverter-ready gearmotor for rake operation
- Maintenance platform inside the inlet section for easy cleaning
- Inlet cleaning grate to protect conditioner from lumps and foreign material.

Options:

- Inlet extensions are available for additional product surge/ storage
- Variable frequency drive for adjustable product capacity (rake drive speed)
- Complete steam package including fittings and piping components
- Instrument package including temperature sensors and level probes



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