

General

The dry feeders described here are volumetric-type worm conveyors equipped with hollow screw.

As a homogeneous bulk density is required for precise metering, all our dry feeders are equipped with agitator blades which also prevent bridging.

Scope of delivery

The dry feeder is available with all kinds of additional equipment and fittings depending on the customer's requirements. Therefore carefully check the contents of the packing units upon receipt and compare it to the delivery note. The packaging should also be inspected upon delivery, and in case of any apparent damage a respective claim should be made to the transporter in due time.

Power supply and control

The dry feeder is available either with a standard 3 phase motor or with a DC motor.

The DC motor can be controlled continuously by a thyristor controller in the range from 1:50.

Remote control using a standard 0...20 mA signal is also possible.

The 3-phase motor either operates continuously, is operated with a time relay switch to set intervals or is adjusted continuously via a frequency controller in the range of 1:20.

The worm speed for all types of motors is max. 150 rpm. At maximum worm speed the agitator blades will turn at 23 rpm.

Additional equipment

For best operational results some additional equipment for the dry feeder might be useful (refer to data sheet MB 3 02 02)

Nozzle heating

Hygroscopic bulk materials may cause malfunctions or breakdowns of the feeder if they become lumpy or sticky due to entry of moisture. Also accurate metering becomes impossible because a homogeneous flow of the bulk material is no longer guaranteed.

Heated nozzle prevent the entry of more or less humid ambient air into the dry feeder.

Suspensomat

The water-repellent properties of some bulk materials will impede proper introduction of the particles into the solution. The suspensomat - see data sheet MB 3 10 01 - allows proper wetting of the bulk material when leaving the feeder just before being released into the dissolution tank.

Base for height adjustment

To adjust the outlet height of the dry feeder to the suspensomat the size of which depends on the feeder output, bases can be used.

Installation instructions

The dry feeder should be mounted on a sturdy, vibration-free supporting base, or on a solid tank cover.

When using the suspensomat appropriate bases for height adjustment should be fitted to center the metering outlet properly into the respective opening of the suspensomat.

Dustproof sealing of the connections using elastomeric or similar foamed material is recommended.

Self-supporting small hoppers with a capacity of up to 200 litres (available from Jesco) can be mounted on top of the feeder (provided that the base is strong enough to support the total weight).

If larger hoppers are required these must be installed separately from the daily supply tank by means of spiral wheel sluices and expansion joints.

The main hopper must neither exert a mechanical load on the daily supply tank nor on the dry feeder.

Caution!

Keep hands and tools off hopper and rubber socket off worm outlet!

Make sure that the power supply is disconnected and secured against reconnection prior to any installation or maintenance works.

Electrical connection

Electrical connection of the dry feeder must be made in accordance with the local safety rules and the respective wiring diagram.

Before working on the installation, disconnect it from the mains supply.

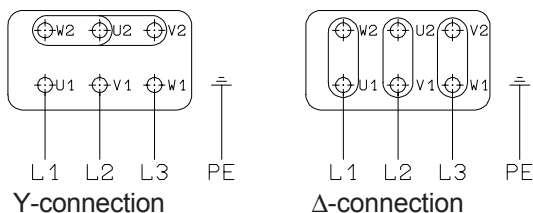
Operation of the dry feeder may be only started after proper installation. If the torque is insufficient (worm stops turning when hopper is filled to higher level), the

maximum turning speed cannot be reached, or the index-value continues to be 0-metering, readjust the thyristor controller according to the corresponding calibration instructions.

If thyristor controllers are bought from other suppliers or extra customer-specific equipment is used please refer to the relevant documentation.

Wiring diagram of the drive motor

AC motors



Power supply

DC motors

Power supply cable:

- 1 black armature voltage
- 2 blue armature voltage
- 3 green/yellow protection cable
- 4 yellow thermal switch
- 5 yellow (brake contact)

Electrical data for standard motors

Motor type	Voltage	Output	Current	rpm	Iso class	Protection class
DC motor	180 V-	200 W	1.4 A	3000 min-1	F	IP 54
DC motor	180 V-	370 W	2.5 A	3000 min-1	F	IP 54
AC motor	400 V 3~	250 W	0.8 A	2850 min-1	F	IP 55
AC motor	400 V 3~	370 W	0.95 A	2850 min-1	F	IP 55

Maintenance

The dry feeder requires no maintenance except for the gear lubrication which should be controlled after every 5000 working hours and, if necessary, the commutator carbon of in the case of DC motors.

Make sure that rugged walls caused by incrustations do not occur because these will impede permanent flow of the bulk material to the worm inlet.

Troubleshooting

Type of fault	Possible cause	Recommended action
Dry feeder fails to deliver sufficient bulk quantity.	Bulk substance requires different type or bigger worm.	Exchange worm and accessories acc. to spare parts kit.
	Insufficient worm speed.	Readjust thyristor controller for DC motor.
Feeder keeps delivering although set to 0.	Thyristor controller is out of calibration.	Readjust thyristor controller.
Nozzle outlet choked due to hardening of material.	Hygroscopic hardening of material.	Fit heated nozzle.
Dry feeder screw will not turn although power supply to the motor is not interrupted.	<ul style="list-style-type: none"> - Mounted hopper is too high - High density of bulk - Coarse grain size - Fibres too long 	Separate daily service tank from main hopper by spiral wheel sluice. Use different worm size or consult supplier giving details of bulk properties or sending a sample of the bulk material.
Metered bulk material floats on the surface of the solution.	Bulk particles are of lower density than water and have water-repellent properties.	Intensive prewetting by using a suspensomat.

Important note:

Please be advised that no general warranty for proper function of the delivered dry feeder and accessories can be given by the supplier.

Guarantee is limited to the condition that the dry feeder will perform in conformity with the given data when operating under our own test conditions (specifications available upon request) with silica sand.