EMMEBI IMPIANTI
AEROTEXTILE TECHNOLOGY

FRI STATIONARY FILTER

The **Internal Rotating Filter type FRI** is equipment designed for the filtration of large quantities of dusty air with the presence of textile fibre and/or other waste materials.
It consists of a modular sheet metal and tubular metal structure, inside of which the filter media is installed to form a cylinder. The dusty air is conveyed to the entry point and, passing from the inside to the outside through the filter media, is stripped of the dust and waste material it contains. The filter media, which can be made of felt, fur or other technical materials depending on the material being processed and the amount of air, is constantly cleaned by a system of suction nozzles that rotate around the central shaft and move horizontally across the width of the filter media. The combined action of rotation and translation ensures thorough cleaning of the entire surface and increases the longevity of the filter medium.
The filter can also be installed in the room without any containment cabinets, as the air exits the filter media completely clean and free of impurities. The machine is equipped with a safety system that detects the correct functioning of the internal rotation and, for special applications, with a blowing system that guarantees the constant cleanliness of the movement mechanisms.
This equipment is built in 3 different diameters and for each there are different sizes, all modular, to best suit the amount of air handled

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TECHNICAL DATA

Gear motor main voltage	**:**	**400 V - 50 Hz - 3F (440V - 60Hz - 3F)**
Installed power	**:**	**0,37 kW**

TYPE	*AIR CAPACITY TREATED **
FRI 15-15	*from 15.000 to 28.000 m3/h*
FRI 15-30	*from 30.000 to 56.000 m3/h*
FRI 15-45	*from 45.000 to 84.000 m3/h*
FRI 20-15	*from 20.000 to 37.000 m3/h*
FRI 20-30	*from 40.000 to 72.000 m3/h*
FRI 20-45	*from 60.000 to 110.000 m3/h*
FRI 25-45	*from 75.000 to 135.000 m3/h*
FRI 25-60	*from 100.000 to 180.000 m3/h*
FRI 25-75	*from 125.000 to 200.000 m3/h*

*The air capacity here above depends to the department, type of raw material, the application of the plant and the type of filter media installed.

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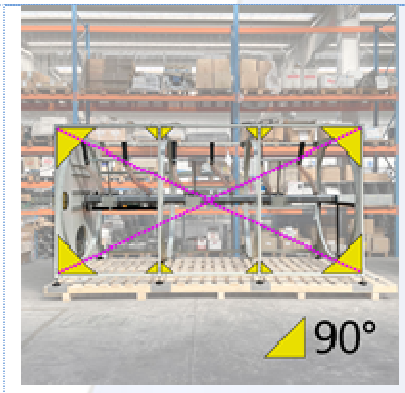
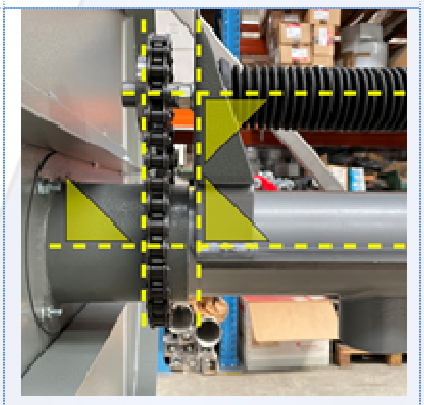
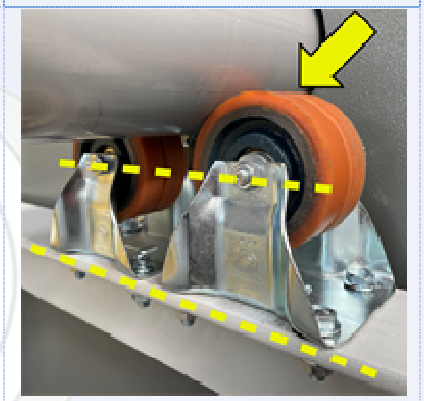
STARTING PROCEDURES

1	**ATTENTION:** - Check that the tubular structure is perfectly square and that all joints are tight. - Check that the size of the diagonals matches. - Verify that the shaft is perpendicular to the structure and the back wall of the filter. A misalignment could cause the drive system to fail.	
2	**ATTENTION:** - Check that the chain is perfectly perpendicular to the main shaft. - Check that the worm screw is perfectly parallel to the shaft. Non-alignment could cause transmission system failure.	
3	**ATTENTION:** - Ensure that the support wheels are aligned with the main shaft and that the shaft fits properly on the bearing surface	
4	Check the condition of the endless screw. If necessary, grease the surface without clogging the guides.	

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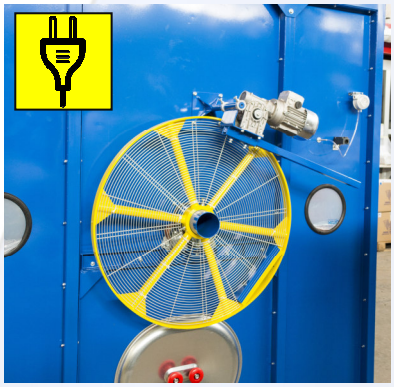
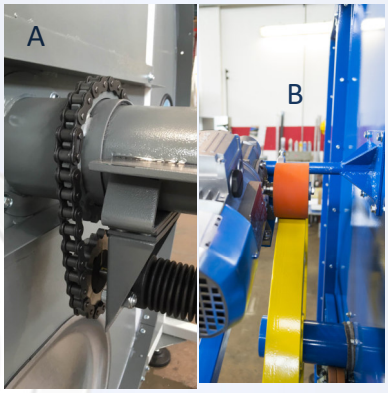
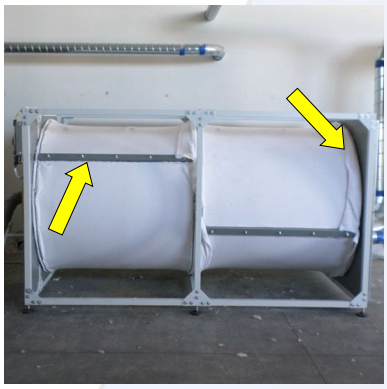
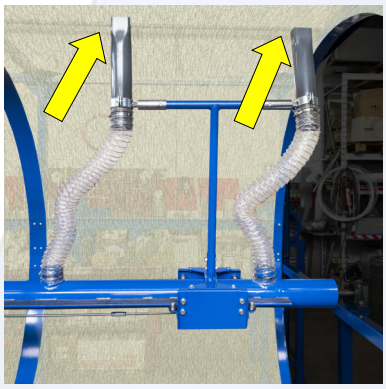
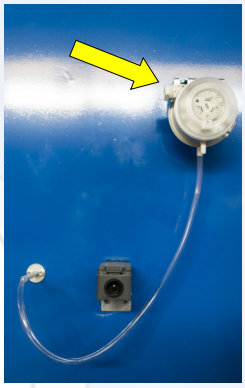
5	Connect the suction points to the collecting equipment as: - PVC suction mouth with the supporting structure - Flexible pipes with PVC suction mouth and the main shaft	
6	Supply the electrical main to the rotating gear motor	
7	Check that the drive chain is properly stretched (A) and the transmission iron wheel is well matched with the transmission vulcolan wheel (B).	
8	Check that the shaft is running in the right direction. A wrong rotation (opposite direction) may break the filtering media.	

9	Mount the filtering media See specific instructions on page 13	
10	Check that the suction points adhere to the filter septum without excessive pressure. If necessary, adjust the position of each nozzle.	
11	Check that the differential air pressure switch is properly set. This adjustment depends on the type of the filtering media and however shall not exceed 400 Pascal. ***Pay Attention:*** This task is carried out by our technicians or shall be defined by the supplier.	 

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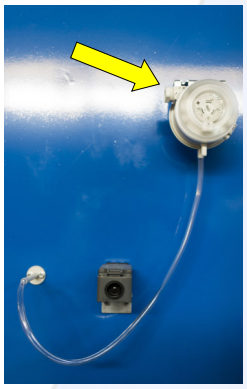
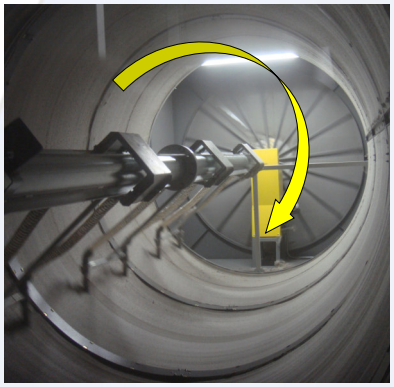
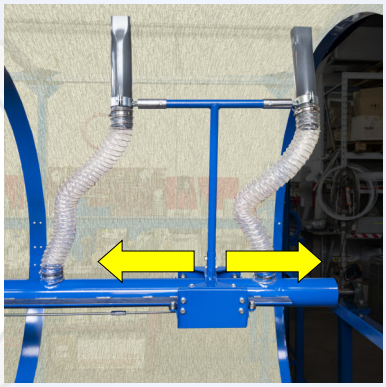
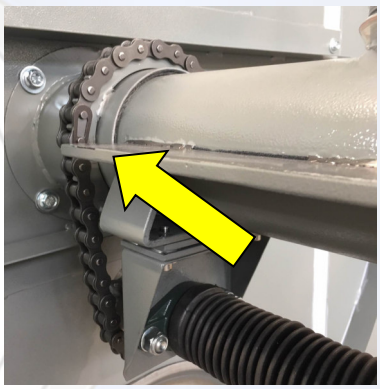
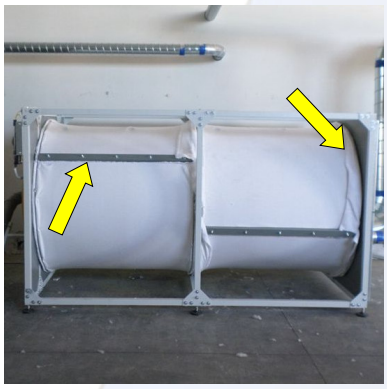
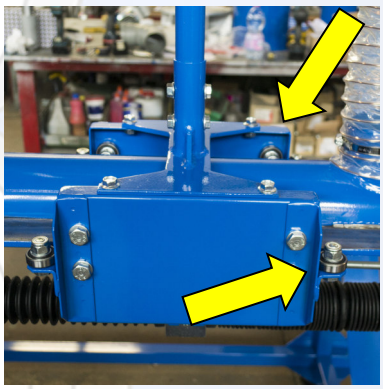
MAINTENANCE PROCEDURES

1	Periodically check the loss of pressure of the filter by reading the manometer and make sure that does not exceed 400 Pascal. Reaching 400 pascals indicates the need to replace the filter media	 
2	Periodically check the internal rotation of the main shaft	
3	Periodically check the translation of the suction points	
4	Check the status and the stretching of the drive chain Carefully check chain alignment (point 2 page 3)	

5	Check that the filter media is in the proper position Check that there are no tears or breaks.	
6	Check the filtering screens status	
7	Check that the suction points are free in the right position and that there is a correct air suction Check that suction is correct	
8	Periodically check the status of the ball bearings and running mechanisms	

9	Periodically oil all the bearings and grease the screw with graphite	

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MAINTENANCE LIST

For a proper maintenance of the system, all the components and the running mechanisms should be visually checked every day.

Spare part	Frequence of intervention					
	Weekly	*Monthly*	*Every 3 months*	*Every 6 months*	*Every Year*	*Every 2 years*
Filter Media						
PVC aspiration mouths						
Red Belt						
PVC superflex pipe						
Polyprophylen Sealing for dust						
Neverending Screw - Entrainment pin						
Gear Motor						
Friction galvanized rubber wheel						
Pressure safety						

Check the status of the component

Change the component (adviced)

Change the component (max time)

Grease

We advice to keep one piece or set in your storehouse

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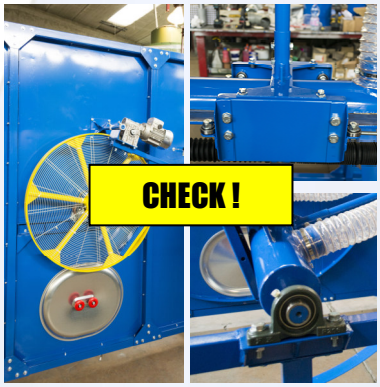
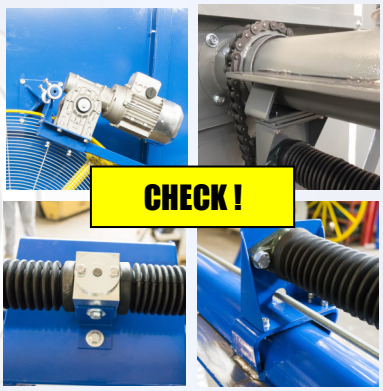
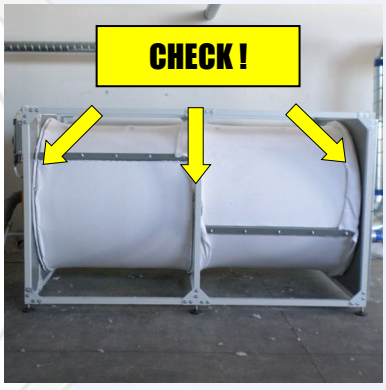
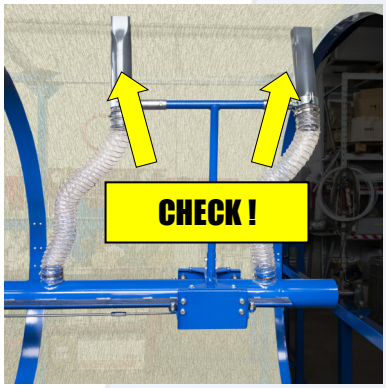
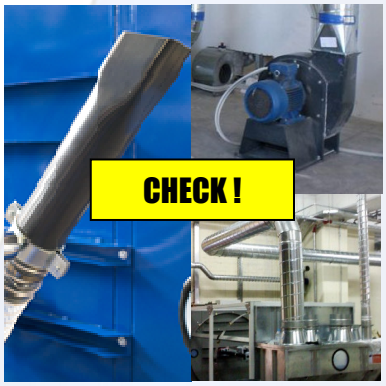
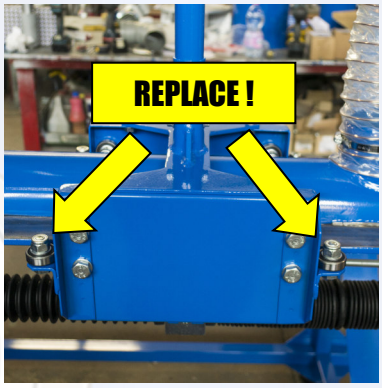
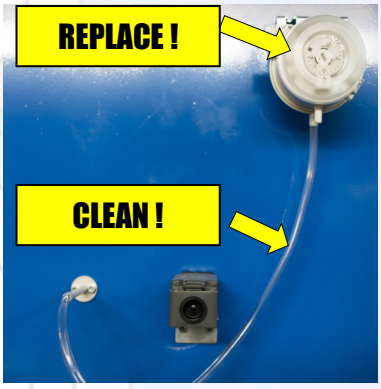
INTERVENTIONS

1	If the loss of pressure shown by the water manometer exceeds 400 Pascal and all the system works normally, then it is necessary to replace all the filtering screens. (see instructions page 13)	
2	If the rotation of the shaft is not regular, check the rotating mechanisms and the ball bearings.	
3	If the translation of the suction points is not normal, check the functioning of the gear motor. In case, dismount the filter media and check the drive chain and the running mechanism. Check the pian shaft, the entrainment pin inside it and check the condition of the screw.	
4	If the felt packing is worn then it is necessary to replace it. If its position is not correct then it is necessary to loose the clamp and set it in the right position.	

5	If one or more filtering screens are found damaged, it is necessary to replace them and find out the cause. A damage suction point can cause tears or breakage of the filter surface	
6	If the suction points are found blocked then clean them. If they are worn, replace them. If their position is not the right one, set them properly. In case the suction is not enough, check the fan, the piping and the air pocket filter.	
7	If the ball bearings are found worn replace them. However the average working time is up to 20,000 hours.	
8	If the differential air pressure switch does not work, check that the air pipes are not blocked otherwise clean them. If the pipes are free, then replace the differential air pressure switch.	

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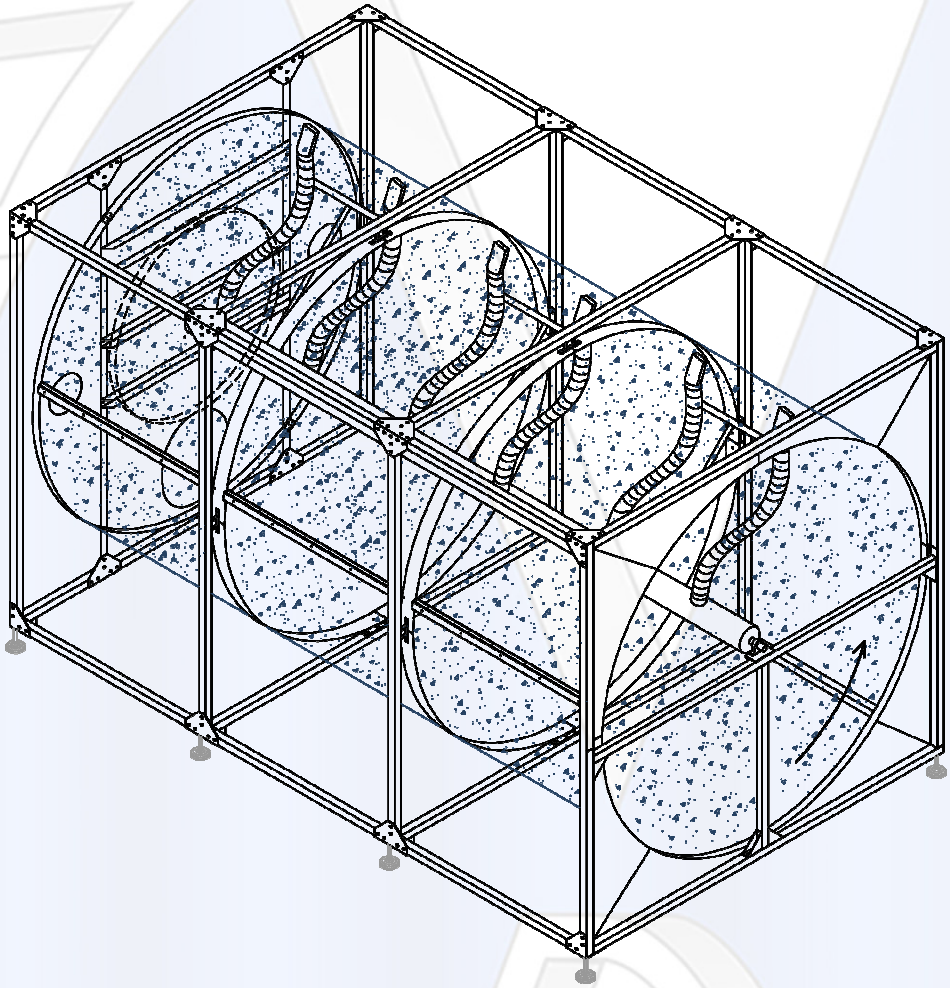
FILTER MEDIA MAINTENANCE



TIPO	Ø	NUMBER OF SECTOR	FILTER MEDIA Linear meter	SEALING FELT Linear meter
FRI 15/15	1500 mm	1	5	5,5
FRI 15/30		2	10	
FRI 15/45		3	15	
FRI 20/15	2000 mm	1	6,5	7,0
FRI 20/30		2	13	
FRI 20/45		3	19,5	
FRI 25/45	2500 mm	3	24	8,5
FRI 25/60		4	32	
FRI 25/75		5	40	

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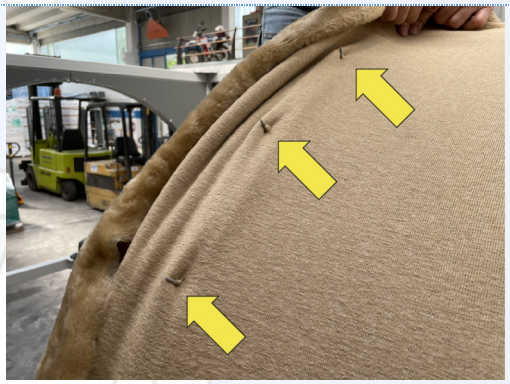
FILTER MEDIA INSTALLATION

1	Fasten the septum to the nails near the traverse from the bottom upwards, leaving approximately 25 cm of septum below the traverse	
2	Fasten the septum to the transom by turning over the flap left over previously	
3	Having positioned the septum along the entire traverse, continue along the rings until the entire circumference is completed	
4	Ensure that the septum is properly stretched and that no creases remain	

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5	Make sure to use all the nails around the circumference so that the sheet is properly and evenly fastened	
6	Once the module is complete, fasten the septum again to the screws of the cross beam, always keeping the sheet tightly stretched	
7	Fasten the metal cover to the appropriate screws	
8	Turn over the excess filter septum and cut it off with a suitable blade	

9	Repeat the operation for the other modules	
10	Clamp the filter septum along the rings with the metric band	
11	Tighten the clamp by locking it in the correct position. The clamp must tighten the septum against the metal support ring	

ATTENTION!

In terms of safety, the nails securing the filter septum represent a residual risk, so the utmost care is recommended in this operation, which must be carried out strictly by adequately trained operators equipped with the personal protective equipment required by the regulations.

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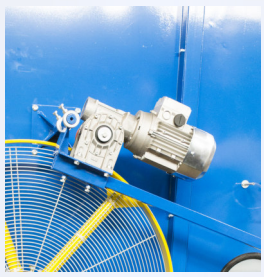
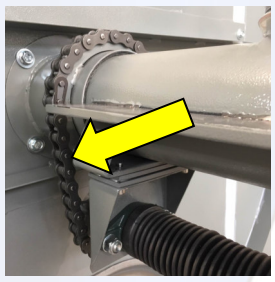
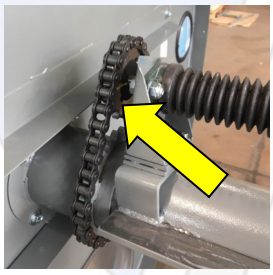
SPARE PARTS LIST

pos	ITEM	FRI 15/...			FRI 20/...			FRI 25/...		
		15	30	45	15	30	45	45	60	75
1	Inspection window 	N.A.			n.1 600x500 mm			n.1 600x500mm		
2	Gear motor for internal rotation 	n.1 0,37 kW			n.1 0,37 kW			n.1 0,37 kW		
3	Friction galvanized rubber wheel 	n.1 Ø100mm			n. 1 Ø100mm			n. 1 Ø125mm		
4	Drive chain with connecting piece 	n. 2			n. 2			n. 2		
5	Anti slick-gear 	n. 1 Ø125			n. 1 Ø125			n. 1 Ø160		

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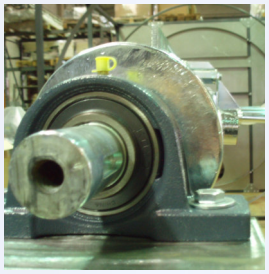
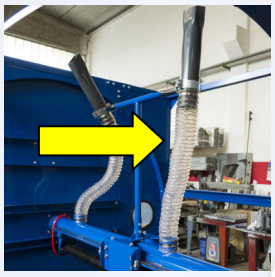
pos	ITEM	FRI 15/...			FRI 20/...			FRI 25/...		
		15	30	45	15	30	45	45	60	75
6	Translation bearings 	n.14	n.28	n.42	n.14	n.28	n.42	n.42	n.56	n.70
7	Rotation support 	n. 1 UCP 206			n. 1 UCP 206			n. 1 UCP 208		
8	Suction mouth (Ø 75 mm) 	n.2	n.4	n.6	n.2	n.4	n.6	n.6	n.8	n.10
9	High pressure resistant flexi pipe 	n.2	n.4	n.6	n.2	n.4	n.6	n.6	n.8	n.10
10	Never-ending screw 	n. 1			n. 1			n. 1		

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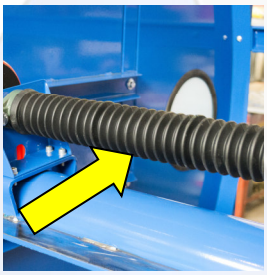
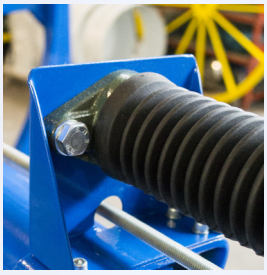
pos	ITEM	FRI 15/...			FRI 20/...			FRI 25/...		
		15	30	45	15	30	45	45	60	75
11	Bellows for screw 	n. 2			n. 2			n. 2		
12	Pin shaft 	n. 1			n. 1			n. 1		
13	Bearings for screw rotation 	n. 2			n. 2			n. 2		
14	Supporting wheel for central pipe 	n. 2			n. 2			n. 4		
15	Filter media  (see page 12)	5m	10m	15m	6,5m	13m	19,5m	24m	32m	40m

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