



USER MANUAL
for
EYS SCREW-PRESS SEPARATORS

SP SERIES

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INTRODUCTION

Congratulations on your purchase of the EYS Screw-Press Separator!

We are glad that you chose EYS separator for your solid-liquid separation solutions and are confident that you will be more than satisfied with your purchase.

This manual is intended to provide basic information about the operation of the EYS Separator, and to point out to main areas of consideration while operating and maintaining the machine. Please read this manual carefully before operating the machinery, and keep it in an easily accessible place for future reference. If any of your questions or concerns are not covered in this manual, please contact the respective dealer who had installed the machinery. Your dealer's contact information is:



If you are not able to reach your dealer and in need of immediate support, then please refer to EYS support contact information provided at the end of this manual.

Apart from providing technical and operational instructions, this manual also includes certain safety warnings that must be followed by the user. **The safety instructions and warnings listed in this manual are by no means a complete list of all safety concerns associated with operating the machine. Users must apply common sense and abide by the general safety guidelines that govern operating of machinery.**

1 GENERAL SAFETY INSTRUCTIONS FOR “EYS SEPARATORS”

Check the operational safety of the machine before every start-up

1. In addition to the instructions contained in this manual, all specifications generally valid for safety and accident prevention must be observed.
2. The warning and instruction signs affixed to the machine must be followed for a safe operation. Do not remove any of these signs for any reason.
3. Do not operate the machine unless all guards and safety devices have been completely mounted and are in their proper operational position.
4. Familiarize yourself with all components and controls of the machine before starting operation.
5. The operator(s) should not wear loose clothing that can be stuck between moving parts.
6. When handling slurry always keep in mind that the gasses produced can be highly toxic and explosive when combined with oxygen. Therefore, open fires, sparks and smoking must be avoided around the operation.
7. Ensure that there is sufficient ventilation when handling the slurry.
8. Keep the machine clean to avoid fire hazards.

Maintenance

1. Check all bolts and nuts regularly and tighten them as necessary.
2. If maintenance service needs to be performed on the machine when it is elevated, always secure the unit using sufficient and secure supports.
3. Dispose any oil, grease and filters according to local laws and regulations.
4. Always turn off power before working on the electric system.
5. Spare parts must meet manufacturer's minimum technical specifications. Major spare parts should be ordered from the manufacturer to ensure quality operation.

2 GENERAL

2.1. Handling of slurry

CAUTION !

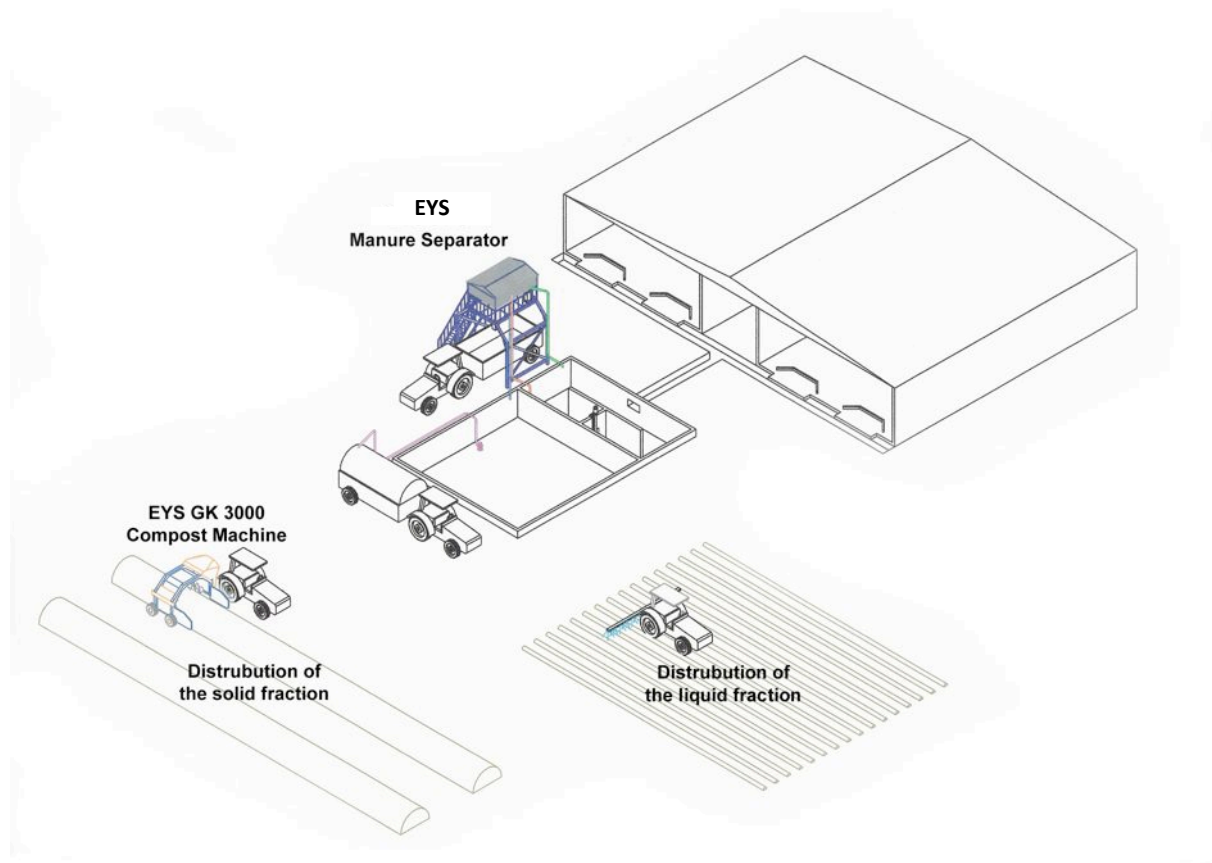
Remember that slurry generates potentially dangerous gases under certain conditions. These gases (CO_2 , NH_3 , H_2S , CH_4) can cause intoxications and explosions. Make sure there is sufficient ventilation in the operational area when handling the slurry.

2.2. Intended use

The EYS separator separates fluidic slurry (which must be free of foreign objects such as metal parts, stones, pieces of wood or cloth) into its solid and liquid fractions. The EYS separator is designed for continuous open air operation within a temperature range of -20°C to 50°C .

3. SEPARATOR INSTALLATION

3.1. Sample installation layout



3.2. Scope of delivery

The EYS Separator is delivered as a complete assembled system, including the electric motor. The net weight of the machine is approximately 600 kg.

3.3. Required tools

The separator needs to be lifted with appropriate lifting machinery (fork lift truck, tractor with front loader, crane) supported by appropriate belts or chains. Installation, mounting and disassembly require the standard tools used by mechanics and electricians.

3.4. Installation and mounting

ATTENTION !

If the pump feeding the separator is not an EYS pump, its capacity must not be less than 35m³/h, otherwise the separator would not achieve its full performance. In order to keep the frictional pressure losses to a minimum, the pipes should have a minimum diameter of 100mm (4").

4. PREPARATION FOR START-UP

- Check connection and tightness of feeding line between pump and separator; connection and tightness of overflow line; free run-off into collecting tank / pool; connection and tightness of line for run-off of separated slurry.
- Set motor protection at required rated voltage; check correct direction of rotation following the arrow on the housing and on the motor; shut off the motor again.
- **Take away the weights (for minimum back-pressure)**

ATTENTION !

Make sure that no coarse foreign objects like metal parts, stones, pieces of wood or cloth can get into the separator. Furthermore, be aware that abrasive substances (for instance high portion of sand) will shorten the lifetime of the machine.

5. START UP

ATTENTION !

In order to achieve satisfactory separation results, it is required to agitate the slurry by an agitator before starting the separation procedure.

5.1 Set-up instructions

The steadiness of the plug and the solid matter consistency at the outlet of the machine are set by changing the position of the weights on the two levers according to the requirements.

ATTENTION !

It takes several minutes before changes of settings are realized. **So always take your time after a change and proceed only in small steps.**

Before the first start-up or after a longer idle period, switch on the pump for a moment and flood the separator to avoid running dry matter only. Otherwise permanent damage may occur inside the machine.

5.1.1 Building up of the plug

If no plug is built up at the discharge end, make sure the discharge flaps fit closely to the mouthpiece. After switching on the power to the separator, start and operate the pump for about 1 or 2 seconds – just long enough to fill up the feeding line and the separator. Then wait until no liquid manure runs out any more and repeat this

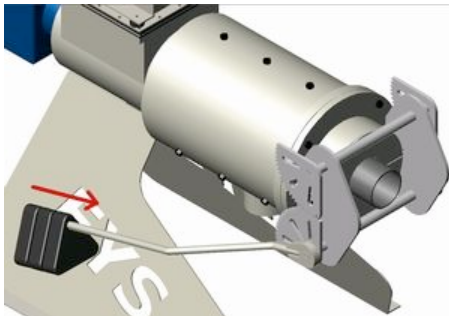
procedure. After about five repetitions – depending on the slurry properties – a plug of solid matter will build up, pushing the cover away from the mouthpiece.

As an alternative you may make a plug by hand: take some fibrous material like paper waste or dry separated solid manure and stuff it firmly behind the flaps. Then start the pump without further interruption.

Depending on the solid matter content of the untreated slurry, the plug may already have the right consistency with the first setting of the weight-loaded levers or it may be too wet or too dry.

Before switching the pump to continuous operation after building up the plug and performing an output of **about 20cm of solid matter**, you may have to re-adjust the basic settings. Otherwise the plug may shoot if it is too wet, or it may stall the separator if it is too dry.

5.1.2 Settings for stabilizing the plug

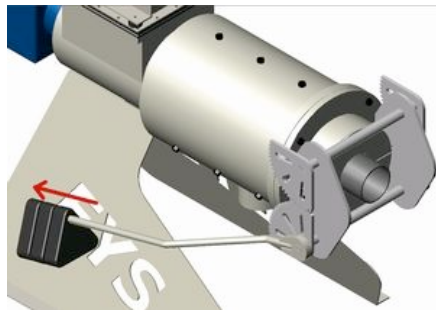


Plug is too dry

Push the weights of the levers front or even remove them completely.

If the plug is too dry, it may stall the separator because it cannot be pushed any more out of the mouthpiece.

For an easier discharge of the plug from the mouthpiece, push the weights front symmetrically.



Plug is too wet

If the plug is too wet, it may shoot, which means that the plug is going to melt and untreated slurry will escape.

To stabilize the plug, move the weights back symmetrically. If this does not help, mount one more weight.

Depending on the slurry consistency, the above mentioned settings may need to be repeated several times at the start-up of the separator until stable conditions have been reached. These steps are essential in achieving the optimum separator performance.

5.2 Further instructions for trouble-free operation

Pay attention that the overflow (by-pass) line does not act as a siphon. Otherwise, due to the unfavorable flow conditions insufficient amount of solid matter could enter the separator, which would reduce the throughput on the one hand, while disturbing the self-cleaning mechanism of the screen by the solids on the other.

Therefore make sure the overflow line is free of any obstacles!

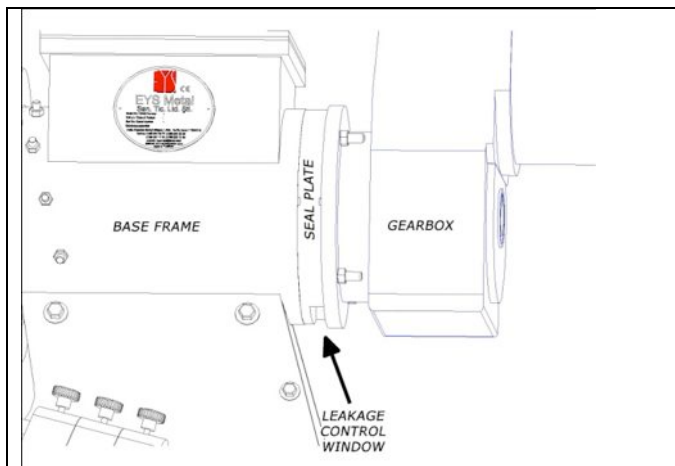
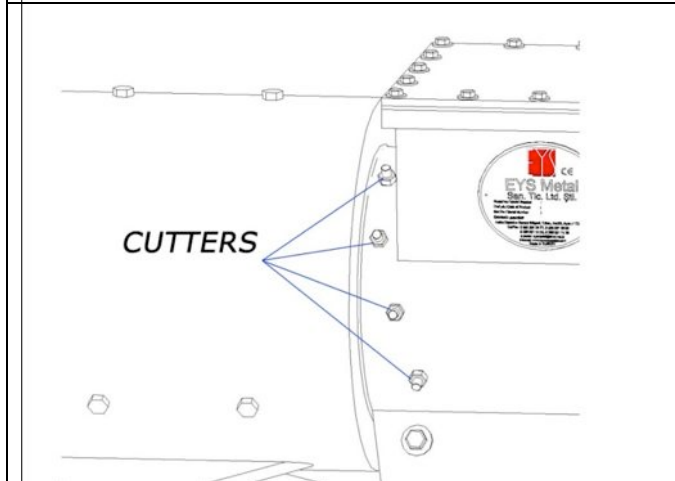
If the feeding pump capacity is too high this will also affect the intake by the separator adversely.

The incoming flow must be reduced until the run-off pipe of the overflow is returning less than half of its full discharge capacity. As a guide, the run-off pipe of the overflow should be full up to 1/3 of its cross section!

The outlet of the overflow pipe must not be below the surface of the slurry pit; this would also create a siphon action and prevent the normal intake by the separator.

The overflow pipe must not present any bottlenecks (no kinks) and it has to be stable in shape. Otherwise it risks to stop up or to collapse which both would increase the pressure inside the separator too much and eject the plug.

Make sure that the slurry **is mixed thoroughly before separation** in order to avoid shooting and stopping up of the plug. **Important note:** do not mix or pump the slurry too often (particularly when the pits are of smaller size). This would change the consistency of the slurry and make it greasy.

	<p>EYS Separators have a separation flange between the gearbox and the main body. This flange houses the seal kit that includes a multiple-seal pack in it, and also features a window underneath where any possible leakage would be drained. This way the manure can in no case leak into the gearbox. Check this window regularly for any leakages. If leakage is observed, this means that it's time to replace the seal inside the plate (part# KC01). Please contact your dealer then for a service visit.</p>
	<p>EYS Separators come with cutter screws around the main body at the inlet area. These cutter screws help catch and cut long fibers before they enter the screen zone. These screws are set to their optimum position at the factory during the final assembly of the machine. In order not to cause damage to the internal parts of the machine, please do not try to change these settings. Any adjustments that may be necessary will be made by your dealer during the service visits.</p>

6. REGULAR SHUT-DOWN

1. Switch off the feeding pump.
2. Switch off the separator.
If the separator is going to stay out of operation for several days, first keep it running for one or two more minutes before switching it off.
Depending on the kind of treated slurry, the separator can be left out of operation for a week or so without having to remove the plug.
3. For longer idle periods remove the plug and clean the separator.
4. If the separator is going to be used at temperatures below zero, be sure to drain completely all inlet and return pipes as well as the separator itself after finishing the separation in order to avoid slurry freezing inside the machine. If the plug has firmly frozen in the separator melt it with hot water before putting the separator back into operation again.

7. SHUT-DOWN FOR EXTENDED PERIODS

If your EYS Separator will not be used for a longer time, put it out of operation according to chapter 7 and clean it according to chapter 9 “Disassembly”. Store the machine as described in chapter 11 “Storage”.

If the machine needs to be scrapped it is absolutely necessary to dispose of gear oil and electrical/electronic components as hazardous waste. The metal parts can be recycled.

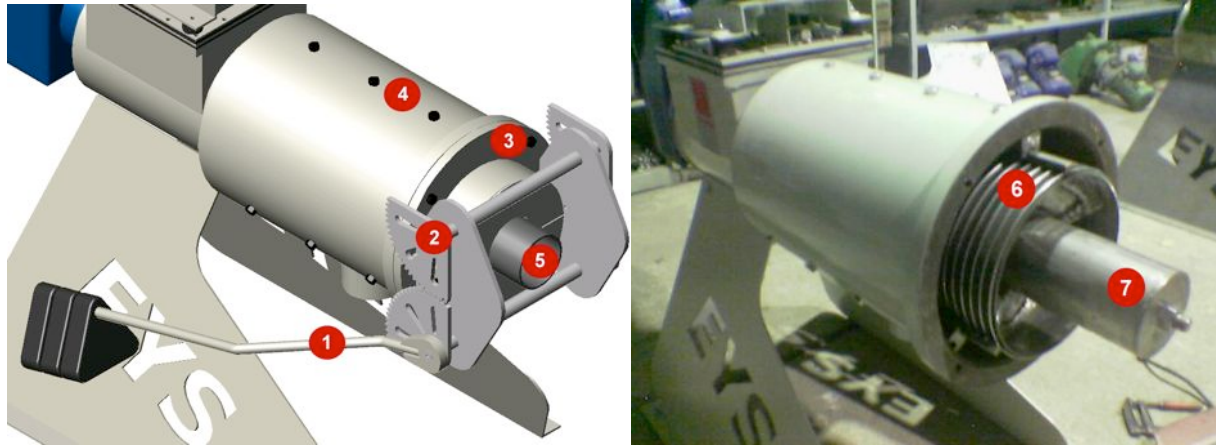
8. DISASSEMBLY – ASSEMBLY

8.1 Disassembly

It is necessary to disassemble the separator for

- Cleaning of screen and screw
- Replacing screen and screw
- Removing foreign objects in case of separator blockage
- Removing dried solid matter which is sticking to the screw after a longer standstill thus making the delivery of solid matter impossible.

For this purpose put the machine out of operation according to chapter 8 and then disassemble it as described below.



1. Remove all weights,
2. **Do not unscrew the bolts which fix the mouth weight system.**
3. Unscrew the 4 mouth flange bolts and remove the mouthpiece.
4. **Do not unscrew the bolts which fix the screen guiding. It has been preset at the factory to give the screen the right seat!**
5. Unscrew the bolt of auger shaft.
6. Pull out the screen.
7. Pull out the auger shaft.

8.2 Assembly

The separator can be re-assembled in reverse order as described in chapter 9.1. Only take care that all moving parts are working easily and check the true running of the auger before mounting the screen.

Before mounting the auger, clean thoroughly and grease the fitting surface/axle journal of the auger as well as the bearing. Then tighten the shaft nut.

9. MAINTENANCE

Gearbox and motor are delivered ready for operation. They are pre-filled with the specified quantity of synthetic oils and are maintenance-free for approximately 3 years. After about 10,000 operating hours or 3 years of operation (whichever comes first), the oil must be changed.

Screen Cleaning and Wear

Screen should periodically be checked for cleanliness and any damages and/or wear. If the screen is partially clogged by fibrous matter, clean it from both sides with a high pressure power washer or simply with a water hose. If visible wear exists, consult your dealer for potential replacement of the screen.

Auger Wear

Auger should periodically be checked for signs of wear over time. Worn out auger would trigger premature failure of the screen, so it is important to maintain the auger at its nominal dimensions. Worn augers can be recoated or replaced.

Periodic Check-Up Service

It is recommended that your separator is checked and serviced by your dealer's service team regularly. Quarterly (every 3 months) or bi-monthly (every 2 months) service visits are recommended, depending on the number of hours of operation per month at your installation site. Your service team would check the screen and the auger for potential wear; clean the machine and re-assemble the auger and the screen; check for motor amperage during regular operation, examine the gearbox for visual and acoustic hints of possible malfunction. These periodic visits will ensure that your separator continues to deliver high performance for a longer useful life.

10. STORAGE

The EYS Separator should be stored in a closed and dry shelter when not in service for extended periods of time.

Change the gearbox oil with an anti-corrosion oil (Shell Omela 220 or equivalent); dispose of the used oil properly. Under the condition of proper storage the corrosion inhibition remains active for at least 12 months.

11. TROUBLESHOOTING

Problem	Possible Cause	Solution
Separator stops	Overload	Check motor protection for proper setting, if necessary adjust it to maximum value.
	Plug too dry	
Solid output too low, plug is too dry	Foreign object blocks up the screw	Check separator inlet, remove foreign object; check screw and screen.
	Weights are too close to the back	
Increased wear on screw and screen	Abrasive components in the slurry (e.g. sand)	Let abrasive components settle as far as possible before separation
Moisture content of the discharged solid matter varies considerably	Different consistency of raw slurry	Mix and homogenize slurry thoroughly.
Low output of solid and liquid fraction	Intake too low	Check the pump (direction of rotation) Check the feeding line
	Lifting effect inside overflow line, slurry is sucked out of the Separator.	Mount vent valve/pipe onto tee of separator Reduce intake so that overflow pipe is only half filled at max. Make sure the overflow can run out freely.
	Screw or screen worn out	Check screw diameter, replace the screw if necessary, check screen wear and replace it if required.
	Screen is worn out only in places, wrong setting of screen guiding	Check obstruction or soiling of screen guiding.
	No solid output, minimum liquid discharge	Incorrect direction of the screw rotation
Plug is melting and liquid runs out of the mouthpiece	Solid matter stuck between screw pitches	Check and clean the screw
	Solid matter content in raw slurry is too low. Weights pushed front too far.	Mix and homogenize the slurry properly. See setting instructions – 5.1
Manure is leaking from the separation flange between the body and the gearbox	Solid matter is too fine and has no fibrous structure	Use a finer screen
	Seals need to be replaced	Contact your dealer for a service visit

12. TECHNICAL DATA

Part	Properties	Material
Auger, auger-shaft	Hardened surface	Stainless steel; special hard coating
Screen	0.3 / 0.5 / 0.65 / 1.0 mm	Stainless steel
Motor / Gearbox	SP400	2.2kW, 1440rpm 380V-50Hz (208-230/460V; 60Hz for USA) PD32 gearbox
	SP600	5.5kW, 1440rpm 380V-50Hz (208-230/460V; 60Hz for USA) PD42 gearbox
	SP800	5.5kW, 1440rpm 380V-50Hz (208-230/460V; 60Hz for USA) PD42 gearbox
	SP600HD	5.5kW, 1440rpm 380V-50Hz (208-230/460V; 60Hz for USA) PD73 gearbox
	SP800HD	11kW, 1440rpm 380V-50Hz (208-230/460V; 60Hz for USA) PD73 gearbox

13. MANUFACTURER’S CONTACT INFORMATION

EYS SEPARATOR
Eys Metal San. ve Tic. Ltd. Sti.

Astim Org.San.Bol.
Havaalani Cad. No:233 Tepecik
Aydin / TURKEY

Tel: +90 (256) 231-1138
Fax: +90 (256) 231-1101

Email: info@e-y-s.com

Web: www.e-y-s.com



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