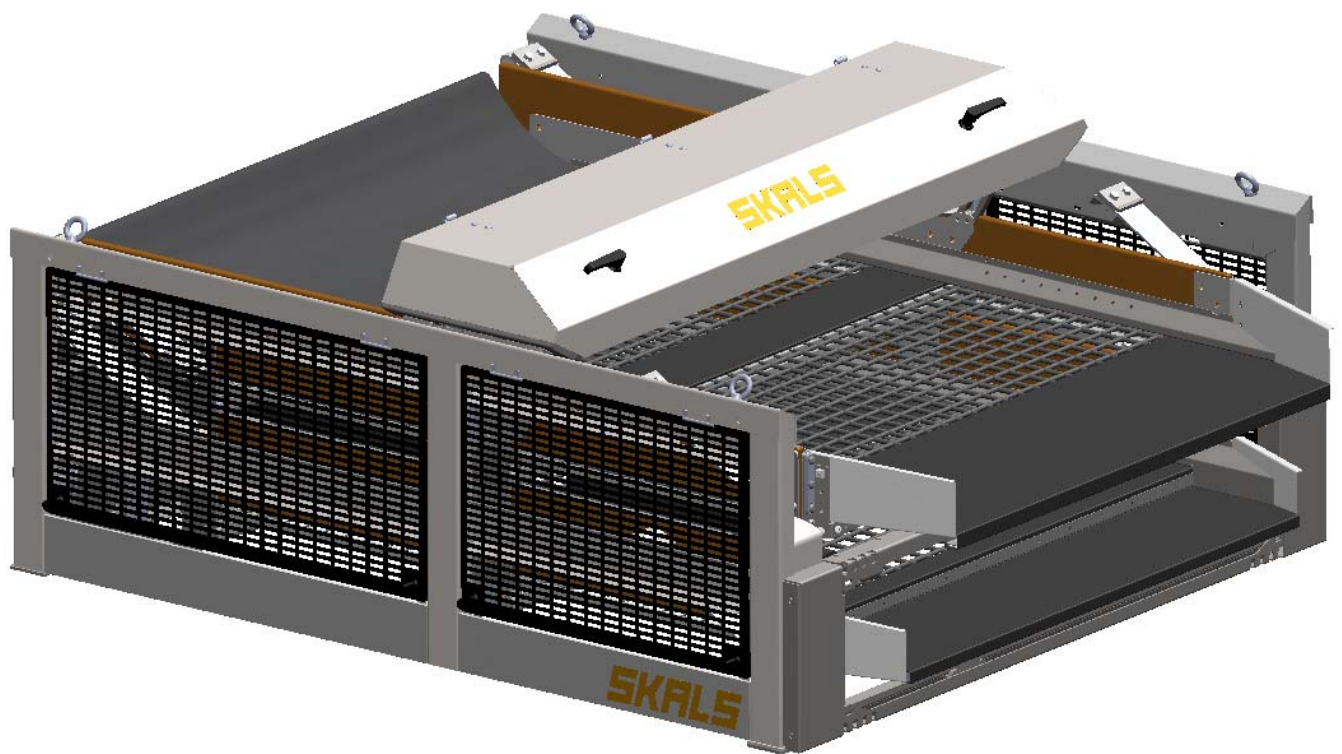


SKALS

- we'll sort it out!

Manual

SKALS Dynamic Sorting machines



SD1000 / SD1400 / SD1800

Document rev. 01

A/S Skals Maskinfabrik
Hovedgaden 56 • DK-8832 Skals
tlf. +45 87 25 62 00 • fax. +45 86 69 49 99
skals@skals.dk • www.skals.dk • CVR / VAT 17 21 80 18

DKK: Sparekassen i Skals
Reg.: 9261 Konto: 2810 100 195
IBAN: DK97 9261 2810 100 195
SWIFT/BIC: SPISDK21

EUR: Fionia Bank A/S, Denmark
IBAN: DK96 0725 7648 8325 96
SWIFT/BIC: FIONDK22

1 Table of contents

1 Table of contents	2
2 General description.....	4
2.1 Variants	4
3 Machine description and technical data	6
3.1 Names of machine parts.....	6
3.2 Sorting mechanism.....	7
3.3 Riddle clamping system.....	8
3.4 Riddle cleaner	9
3.5 Technical data.....	10
4 The machine's area of application.....	11
5 Fitting, installation, connection.....	12
5.1 Lifting points.....	12
5.2 Attaching the chassis	12
5.3 Interface with other machines.....	12
5.4 Electricity connection and consumption.....	12
5.5 Connection to pressurised air and pressurised air consumption	12
5.6 Technical requirements regarding pressurerized air	14
6 Start-up and operation.....	15
6.1 Before start-up	15
6.2 Fitting and replacement of riddles	15
6.3 Operation and configuration.....	16
7 Electrical panel and the electrical system	19
8 The pneumatic system	20

9 Operating faults and their correction 22

10 Information about risks despite safety measures 24

11 Transport and handling 24

12 Cleaning 24

13 Service and maintenance 25

13.1 Tightening 25

13.2 Service on the riddle cleaner system 25

14 Wear parts and spare parts 27

14.1 Wear parts 27

14.2 Spare parts 29

15 Appendix overview 34

2 General description

Skals Dynamic sorting machines, hereafter referred to as SD sorters, are a new generation of sorting machines based on established sorting principles, but developed using modern, tried-and-tested technology.

The SD sorter is designed for a very precise and accurate size sorting, with a high capacity.

The SD sorting machine is a hop-sorter that sorts on riddles. Hop-sorting undoubtedly provides the most accurate sorting compared to other mechanical sorting machines. The riddles ensure a high degree of flexibility with regard to sorted sizes and SD is designed for rapid changes between riddle sizes.

SKALS Dynamic is easy to integrate into the rest of the product program and provides a simple possibility for sorting into sacks or boxes, or for further processing via a conveyor belts. The design focuses on achieving a machine that runs at low noise levels and which is simple to operate and easy to maintain.

The SD machine is constructed in modules. A module consists of a riddle case and two riddle levels. A module can be used to pre-sort or size-sort to 3 sizes. Two modules are used for 4 or 5 sizes.

2.1 Variants

This manual covers standard machines of type SD1400 and SD1800 for 3 sizes and combined machines that are combined for 4 or 5 sizes respectively.

Fig. 1 shows a standard machine for 3 sizes, indicated by L (large), M (medium) and S (Small) respectively.

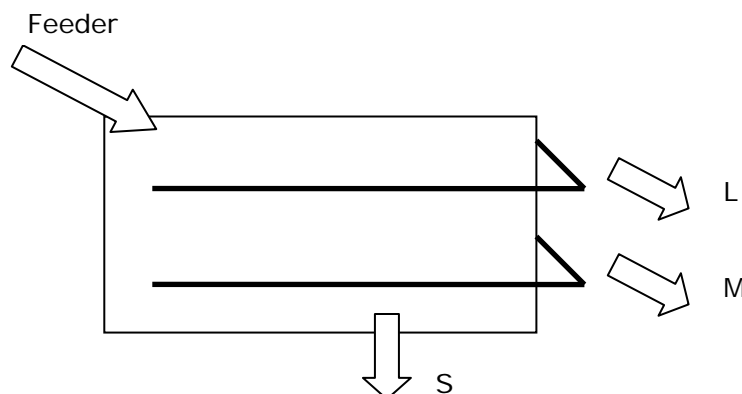


Fig. 2 shows a combined machine of 2 modules for sorting of 4 sizes

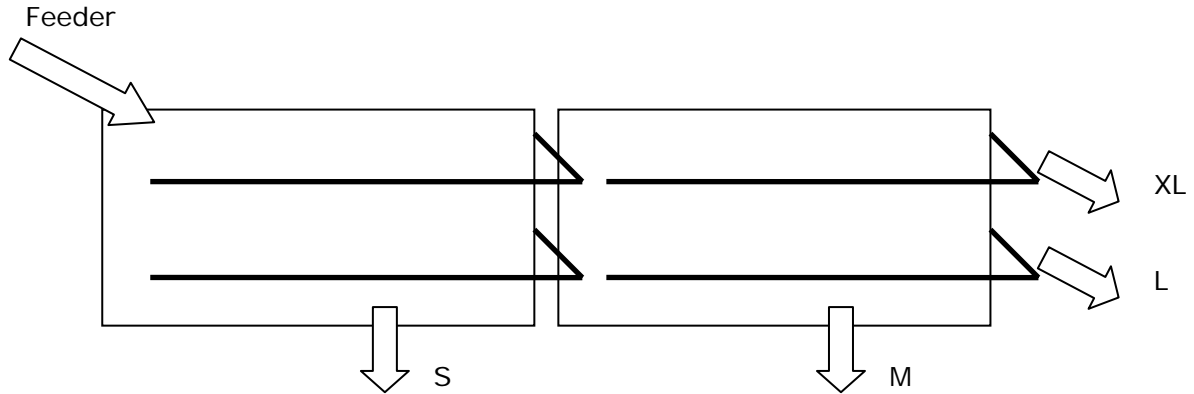
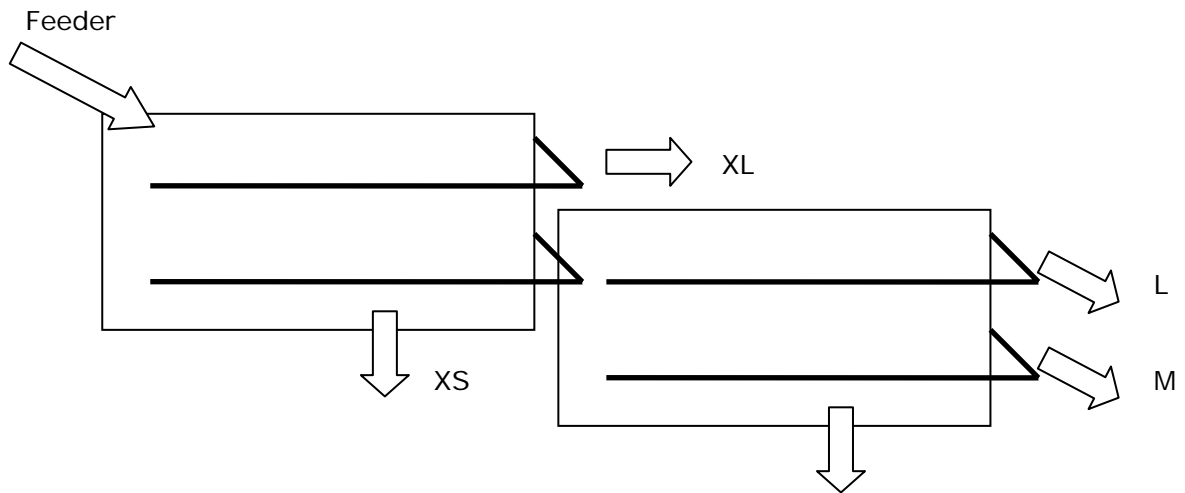


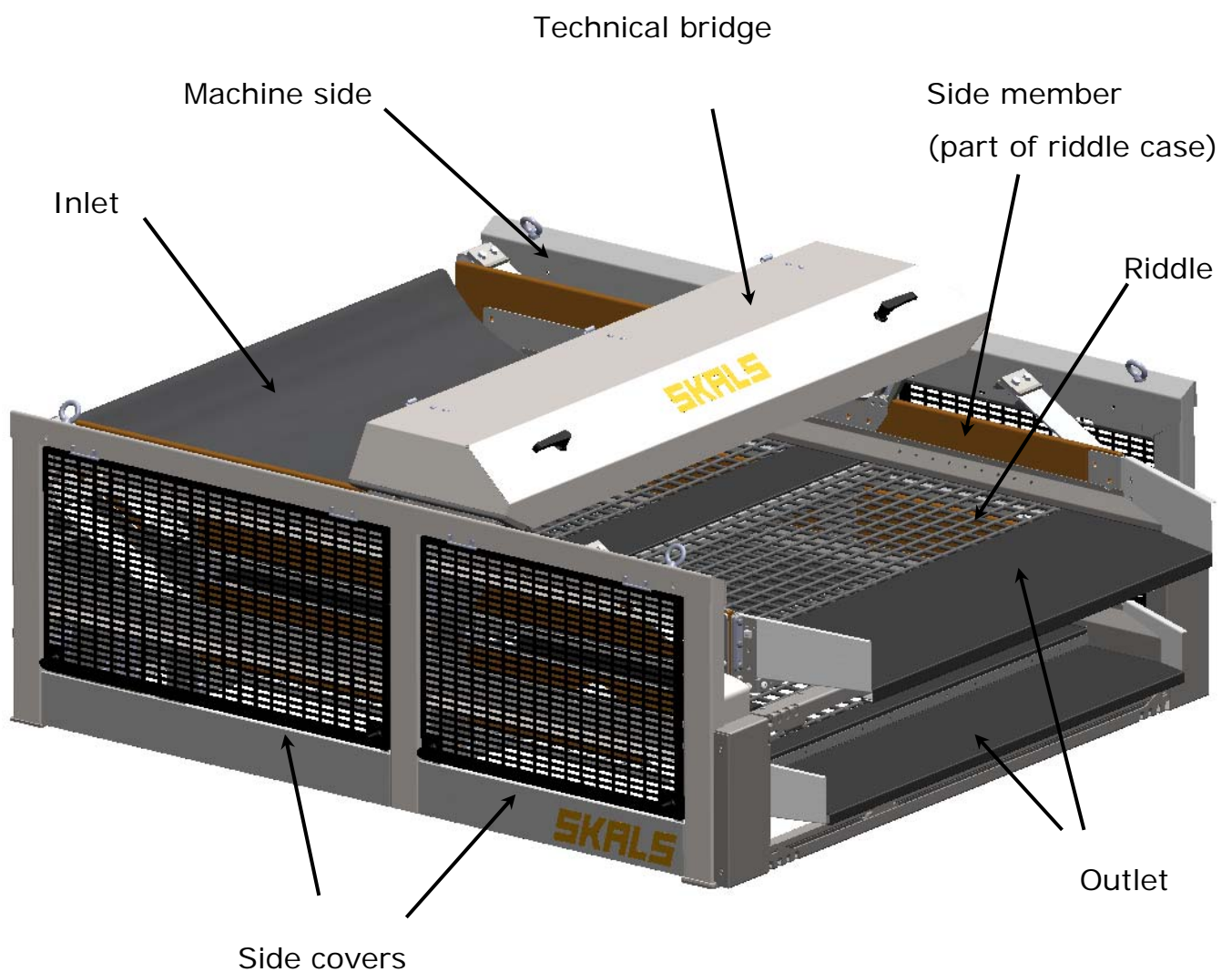
Fig. 3 shows a combined machine of 2 modules for sorting of 5 sizes:



3 Machine description and technical data

3.1 Names of machine parts

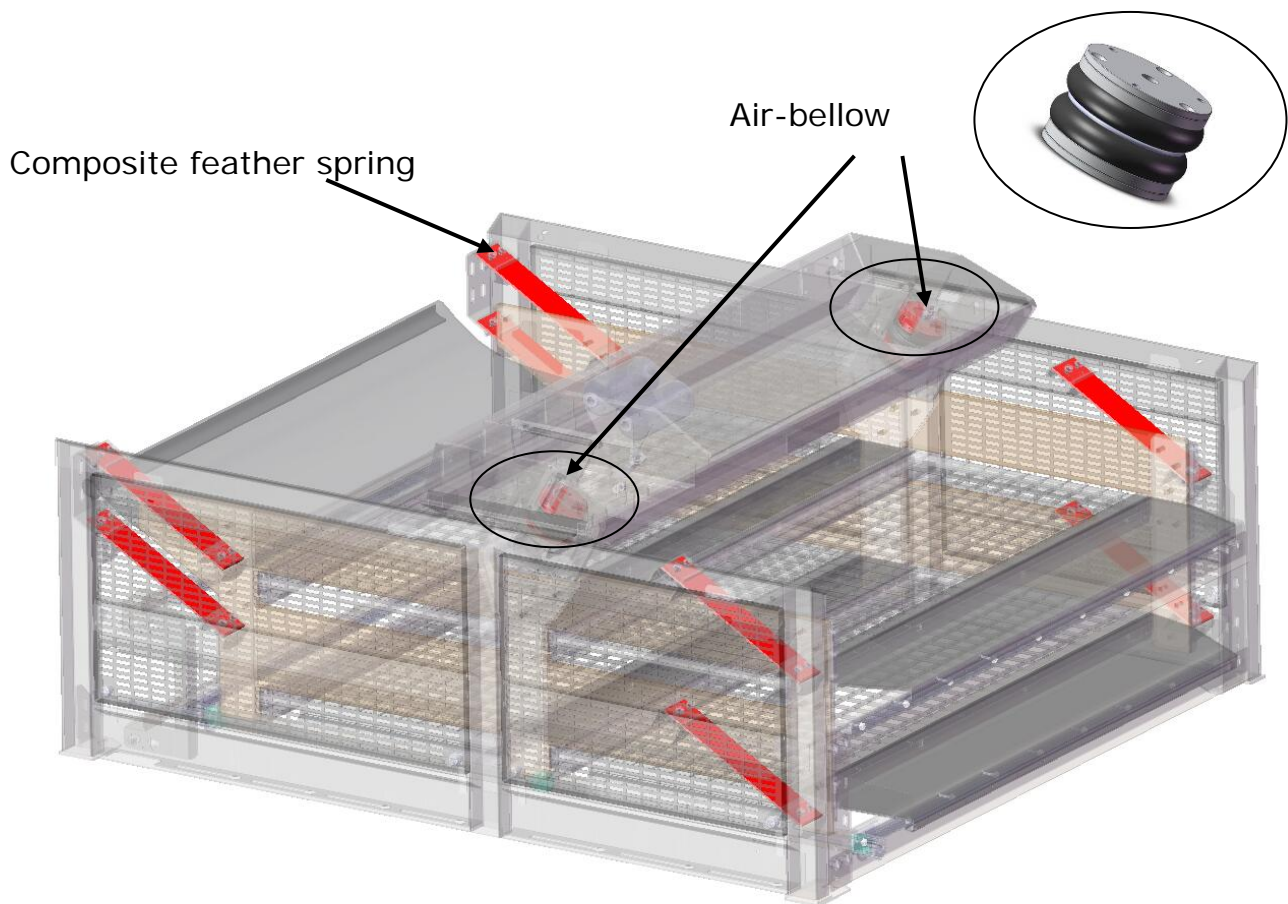
Fig. 4 shows an overview with the names of the machines' main parts.



3.2 *Sorting mechanism*

The SD sorter is based on pressurised air. The riddle case is a light and rigid construction that hangs between 8 composite feather springs. The sorting movement is achieved by pressurising and depressurising the pneumatic bellows that are placed in the technical bridge.

Figure 5: the red components illustrate the placing of the composite feather springs and the pneumatic bellows.

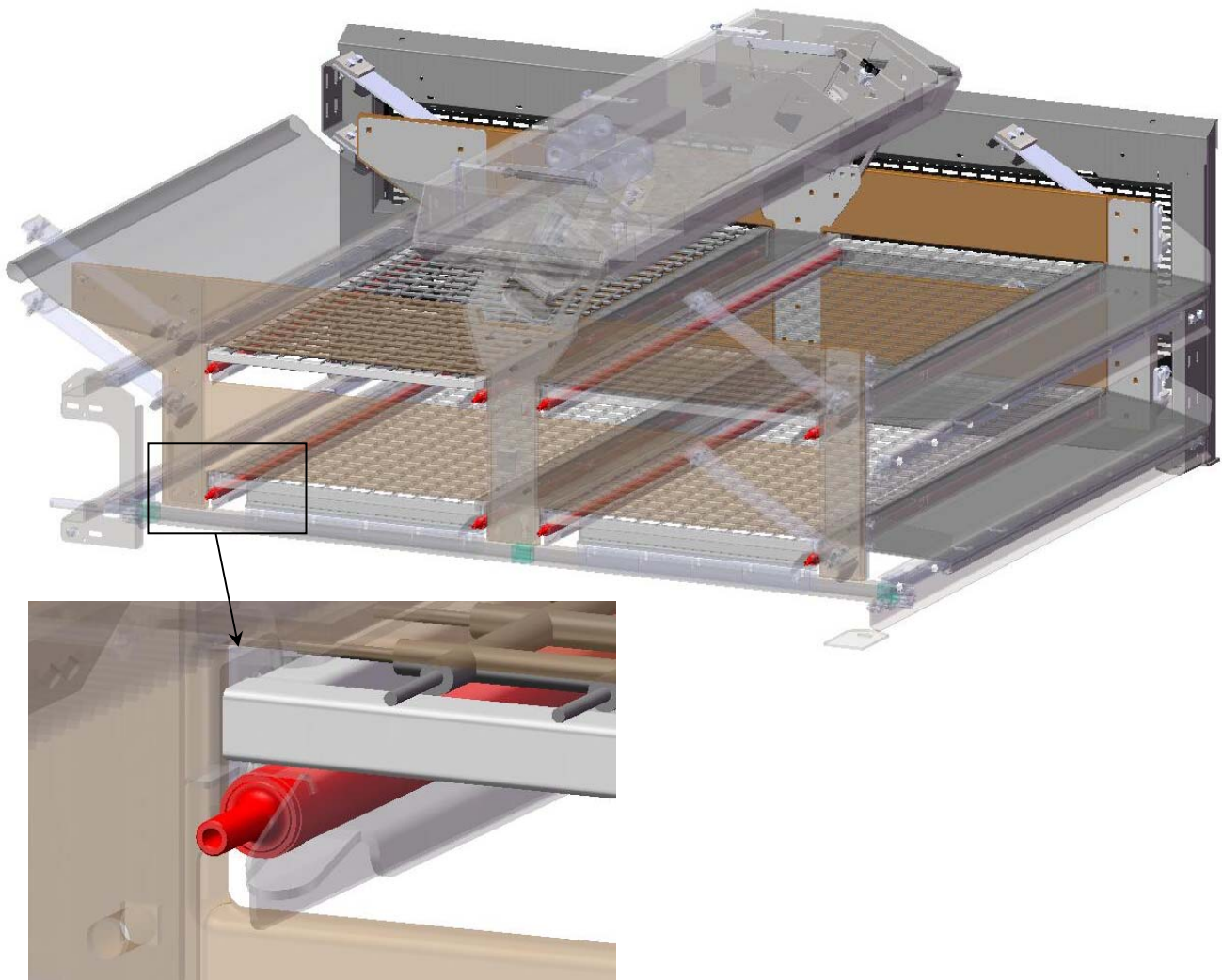


3.3 Riddle clamping system

The purpose of the riddle clamping system is to hold the riddles when the machine is operating and to ensure that the riddles can be replaced quickly and easily.

The riddle clamps are pneumatic and are operated from the control panel. The actuators are a simple system of 'fire hoses' that are inflated to hold the riddles steady.

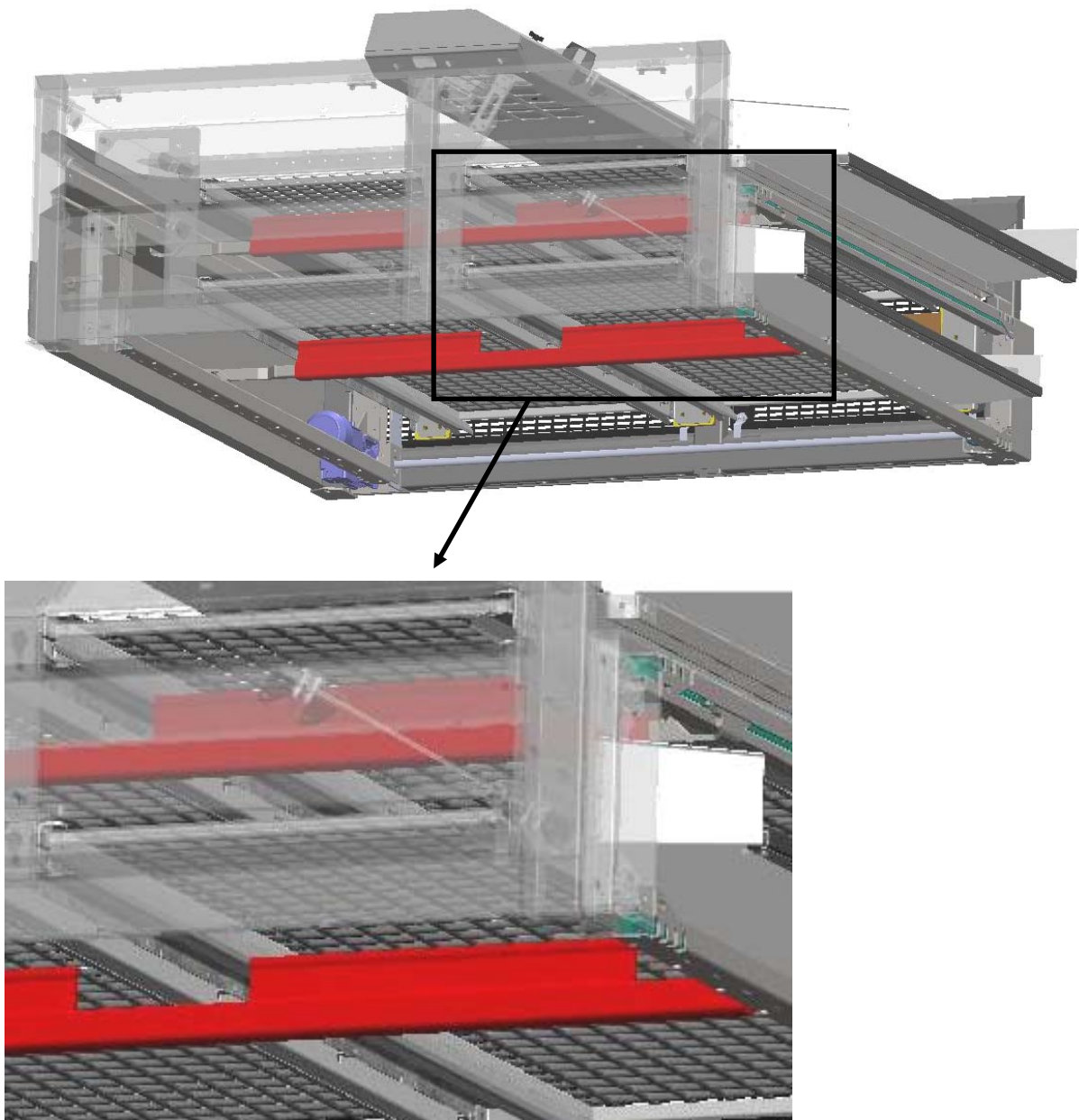
Figure 6 shows the placing of the 'fire hoses' that hold the riddles in the riddle case.



3.4 Riddle cleaner

The machine is equipped with a riddle cleaner. The riddle cleaner is powered by an electric motor and the operating interval can be configured from the control panel. The riddle cleaner consists of a riddle cleaner profile made of rubber that ensures that any root vegetables that get stuck are pushed back onto the riddle.

Figure 7 shows the riddle cleaners. The red elements are the rubber profile that pushes the root vegetables that are stuck, out of the riddle.



3.5 Technical data

	SD1000	SD1400	SD1800
Riddle area		1400 x 1200	1800 x 1200
Capacity* See comment	15 t/h	22.5 t/h	30 t/h
Air consumption (at maximum speed)	450 l/min	550 l/min	650 l/min
Power consumption (at maximum speed)	4kW	5 kW	6 kW
Compressor dimensioning Screw compressor (10 bar)	5.5kW	7.5 kW	7.5 kW
Pneumatic connection	½" air hose max. 10m		
Electrical connection (does not apply to compressor)	3x400V+N+J Consumption max. 1 Amp		
Net-weight			
Outer dimensions LxWxH	2075 x 1325 x 855	2075 x 1725 x 855	2075 x 2125 x 855

Capacity*

The capacity is defined as a maximum capacity depending on the following parameters:

Potato type/shape (round, round/oval, oval, long, overlong)

There is a great difference between sorting uniformly round potatoes and a type that is very long and with non-uniform shape. The hop-sorting machine is generally the best for the long varieties of potatoes, whereas the round varieties can be sorted on most types of machines.

The size distribution in the consignment of potatoes

It can be critical for the capacity if, e.g. a consignment of <35, 35-50 and 50+ is being sorted and 90% of the potatoes are in the interval 35-50. This will mean a major riddle load on the 35 mm riddle and will determine the capacity.

Requirement for accuracy

The requirement for accuracy is critical for the capacity of the machine. The SD sorter can sort the majority of potato types with a high level of accuracy. However, it is vital that the riddle load is not too great during the sorting process.

In the technical data, the machine's capacity is indicated for round/oval potato varieties with uniform size distribution, such that the two riddle levels are equally loaded. The width distribution for the machine must be uniform so that the entire width of the riddle is utilised and the riddle cleaner is used to keep the riddle free of products that become stuck.

4 The machine's area of application

SD sorting machines are designed for size sorting of potatoes and onions. The machine can be used at temperatures from 0°C to +50°C.

Note that the riddles can be covered with PVC for the sorting of food products that are used directly without further processing, washing or peeling.

5 Fitting, installation, connection

5.1 Lifting points

The machine can be operated in the following ways for loading and unloading and for feeding.

- Chains/straps attached with hooks or shackles to 4 eye bolts fitted to the sides of the machine. (Applies to a standard module).
- The machine can be lifted with a fork-lift with long forks transversely to the machine.

5.2 Attaching the chassis

The machine must be bolted securely to a suitable chassis with 4 M12 steel bolts. Damping machine shoes may be used between sorters and chassis, or between the chassis and the floor.

The chassis is attached to the floor with 4 expansion bolts or concrete anchors.

5.3 Interface with other machines

The vibrations of the sorter machine when running means that special care is required when it is installed with other machinery.

When conveyors, trolleys, roller washers etc. are used to feed the machine's intake, these machines should not have mechanical connection to the sorting machine. Conveyors for the unsorted sizes can be attached directly to the chassis of the sorting machine or with rubber dampers/machine shoes between the chassis and the conveyor. Any machines placed immediately before or after the sorting machine should be placed with a distance of at least 20 mm between their chassis.

5.4 Electricity connection and consumption

The sorting machine should be connected to 3x400V +0+Earth. The fuse for the machine should be 10A. The machines electricity consumption will be approximately **2 amp**.

5.5 Connection to pressurised air and pressurised air consumption

In order to avoid loss of pressure, the pressurised air connection should not exceed 10 m when using a ½" air hose. The machine can be operated by pressure between 8 and 10 bar. Energy can be conserved by using a screw compressor with frequency converter, as this can be configured to supply constant air pressure at 8 bar. The energy consumption is reduced by approximately 7% for each bar the air pressure is reduced. The air pressure can be minimised by using the machine optimally, i.e. the machine's speed should not be higher than necessary.



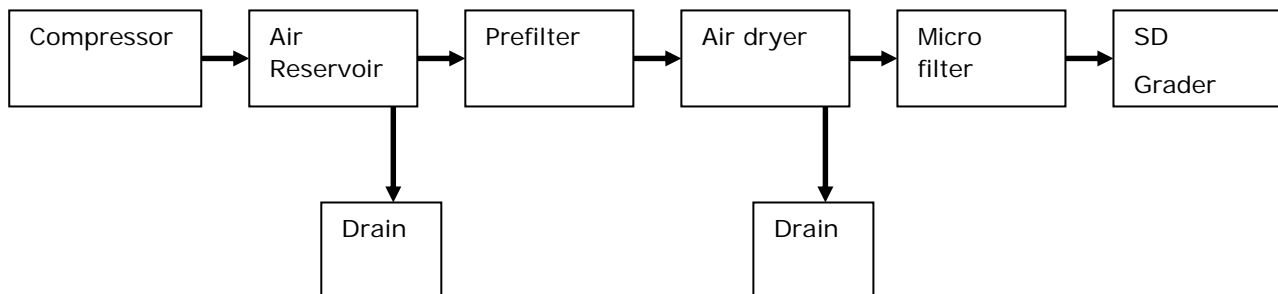
SKALS

- we'll sort it out!

5.6 Technical requirements regarding pressurized air

Dew point: < 5degC
 Cleanliness: Oil < 0.01mg/m³
 Particles 99.9% > 0.01micron filtered

Recommended setup for air plant



Recommendations regarding dimensioning:

Compressor: Is dimensioned with respect to the total consumption.

Air reservoir : Even flow requires less reservoir capacity than a uneven momentary consumption.

Prefilter / Air dryer / Microfilter:

Is either dimensioned to the total consumption or can be placed at a single consumer and dimensioned accordingly.

Drainage: Local authority can require oil separator on the water drain.

6 Start-up and operation

6.1 Before start-up

Check the following before using the SD-sorter:

1. Check the phase sequence relay (see chapter 7 about the electrical panel for placing). If the control lamps are off, the phases for the controls must be turned.
2. Check the air pressure. The compressor must supply at least 8 bar.
3. Turn the main circuit breaker to On (on the left side of the panel)
4. Before start-up, place riddles in all 4 positions.
5. Close all side covers.
6. Reset the safety circuit (the safety circuit breaks when side covers are opened for riddle replacement).
7. Press on "Riddle clamp". The riddle clamp closes and the indicator lamp lights green.
8. START – Press briefly on start/stop/jump. The riddle case moves in one single cycle.
9. Hold down the start-button > 2 sec. – The machine starts running normally.
10. Adjust the speed on the knob 'Speed'. 4-5 corresponds to normal speed.
11. Adjust the hopper height to the required hopper intensity.
12. Optimise the movement of the riddle case on "Trim".
13. Adjust the running interval for the riddle cleaner on "Riddle cleaner". 0 = Off. 10 = 15 minutes' interval between cleaning.

6.2 Fitting and replacement of riddles

When replacing riddles, the machine must be stopped and the riddles released on the operating panel BEFORE the side covers are opened.

If the side covers are opened when the machine is running, the machine will stop immediately! The riddles are released, but cannot be extracted from the machine because of the riddle cleaners.

In the correct order, release the riddle and lift the riddle case so that the riddles can be pulled free of the machine.

Push the new riddle fully down before closing the side covers. Then activate the riddle clamp on the control panel. Now pressurise the air hoses in the riddle tensioned system. The riddle case lowers and the machine is again ready for operation.

If the machine is to be used without a riddle in order to sort the consignment of only one size, stretcher frames must be used as replacements for the removed riddle. THE RIDDLE CLAMPS MAY BE DAMAGED IF THE MACHINE IS USED WITHOUT RIDDLES/STRETCHER FRAMES.

6.3 Operation and configuration

The control panel consists of the shown button keys, potentiometers and indicator lamps.



STOP

The STOP button is always used for normal operations stop. The emergency stop should not be used to stop normal operations because the safety circuit will be interrupted and must be reset manually.

Start

Hold 2 seconds for operation

This switch can only be activated when the machine is ready to be operated, i.e. there must be a riddle in the machine, the side covers must be closed, there must be air pressure available and the riddle clamp must be activated.

Pressing briefly will activate the riddle case movement for one cycle. It is recommended that this function should be used after replacing a riddle to check for dissonance before start-up.

For start-up for normal operations, hold down the button for 2 seconds to start the machine for continuous running.

Speed

60% → 130%

The potentiometer regulates the interval between the riddle case's movement. When the speed is increased on the potentiometer, the interval is reduced between the riddle case's movements. The setting 5 corresponds to nominal operation (100%) and a hop interval of approximately 90 hops/minute.

The speed should be adjusted so that the root vegetables do not lie in several layers on the riddle. Note that the speed should not be higher than necessary in order to conserve air/energy consumption.

Trim (movement)

Low Medium High

Trim is used to adjust the movement of the riddle case. The setting affects the time for which the bellows are inflated and directly affects the dynamics of the riddle case.

Medium is the standard setting.

A high trim setting produces a more moderate movement and a low setting produces a more dynamic movement.

Hop height

Low High

The setting for hop height affects the air pressure that determines how quickly the riddle case is lifted. When the hop height is increased, the vegetable roots will be thrown higher above the riddle. It can be an advantage to increase the hop height, e.g. for long potatoes. The normal setting is approximately 4-5.

Riddle clamp

on/off

The riddle clamp is used to clamp and release the riddles for riddle replacement.

Note that the riddle case is lifted when the riddles are released!

Riddle cleaner interval

0 = off 10 = 15 min.

The riddle cleaner interval determines the interval when the riddle cleaner is parked. When the setting is 0, the riddle cleaner is not active. When the potentiometer is turned to approximately 1, the riddle cleaner starts with the shortest interval. The interval increases at higher settings.

Riddle cleaner in operation
(Blink = pause)

The indicator lamp for the riddle cleaner shows whether the riddle cleaner is turned off, operating or paused.

Off = turned off On = operating Blink = paused

Error !
Low air pressure

The indicator lamp for low pressure lights if the air pressure is too low for operations.

The reason may be if the compressor is out of order or the pressure from the compressor is low due to over-consumption.

An alternative reason may be that the adjusting valve, which is normally placed by the control panel, is not supplying the machine with the necessary operating pressure.

Safety system interrupted

When the emergency stop is activated or if the side/top covers are open, the safety circuit is triggered and the machine stops immediately.

To restart the machine, all covers must be closed and the emergency stop must be deactivated.

Note that there is still pressure in the pneumatic system after an emergency stop and that there can be pressure in the air bellows, e.g. in connection with riddle replacement.

Reset safety system

Use the re-set button to restart the machine after an emergency stop.

Note that this also applies when the side covers have been opened in connection with riddle replacement!

Air heater

Off On

The heater is used under conditions where condense and ice develops in the main valve and the movement of the riddle box therefore gets inconsistent.



Emergency stop should only be used in connection with an emergency situation and should not be used to stop ordinary running.

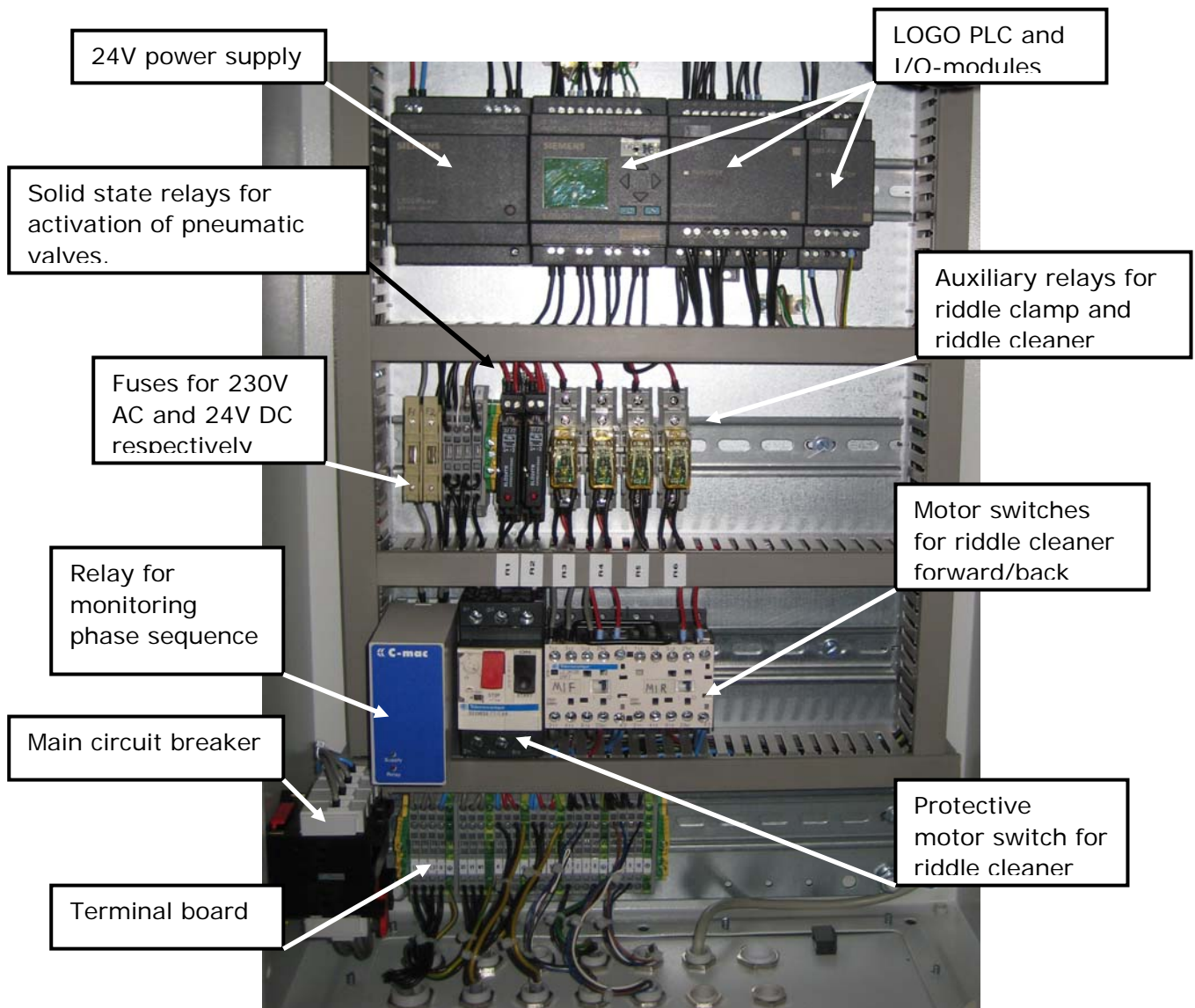
When repairing the machine, turn off and lock the circuit-breaker on the left side of the control panel!

7 Electrical panel and the electrical system

The SD-sorter's control panel is designed to be used both as a stand-alone system and to be integrated in an installation with Skals' sequencing control or a central control panel. The machine can be started and stopped using an operating signal from a central PLC and the controls can send status signals back to the PLC.

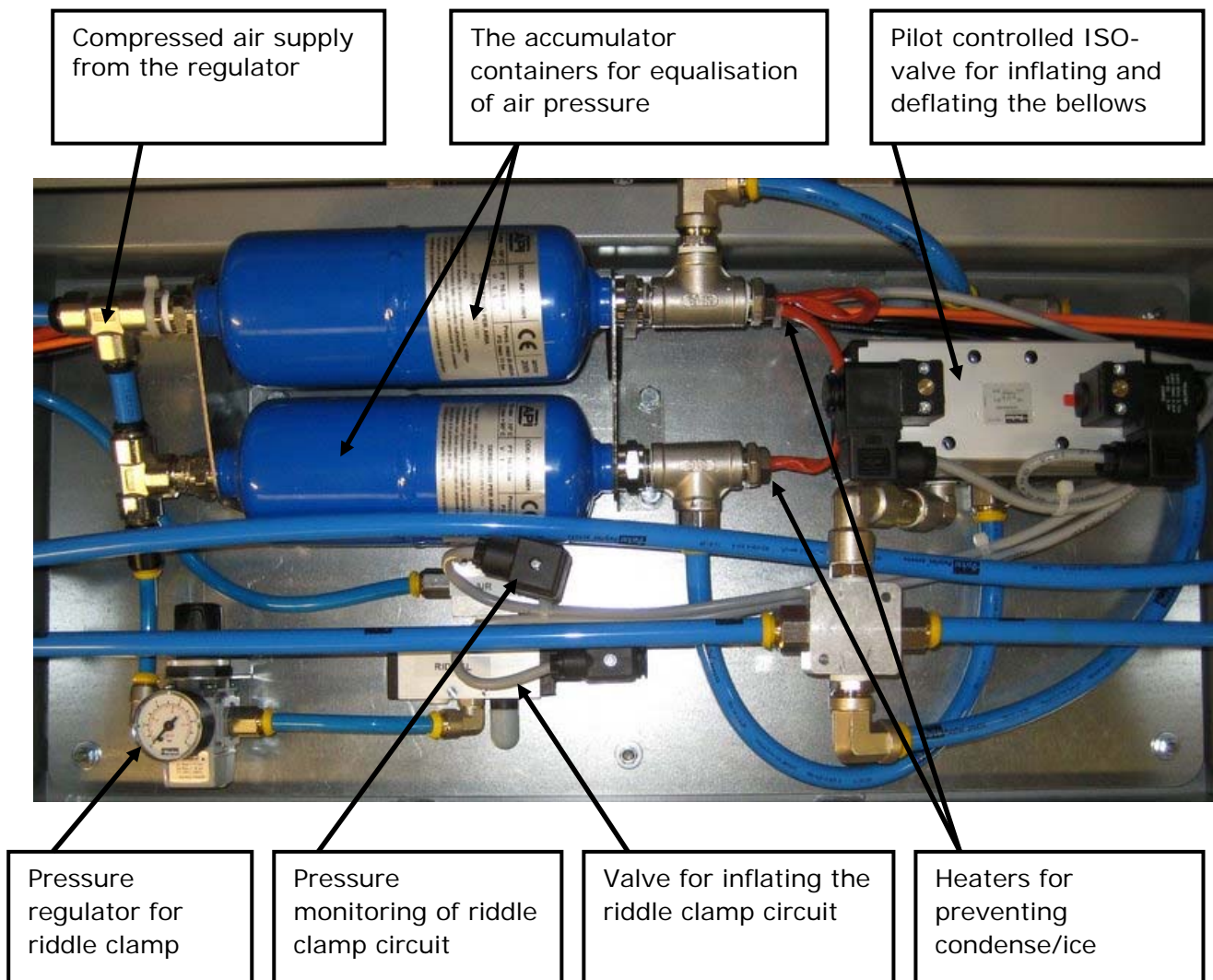
The electrical panel should only be serviced by trained personnel.

The placing of the main components on the panel is illustrated below. An electrical diagram is included as an appendix.

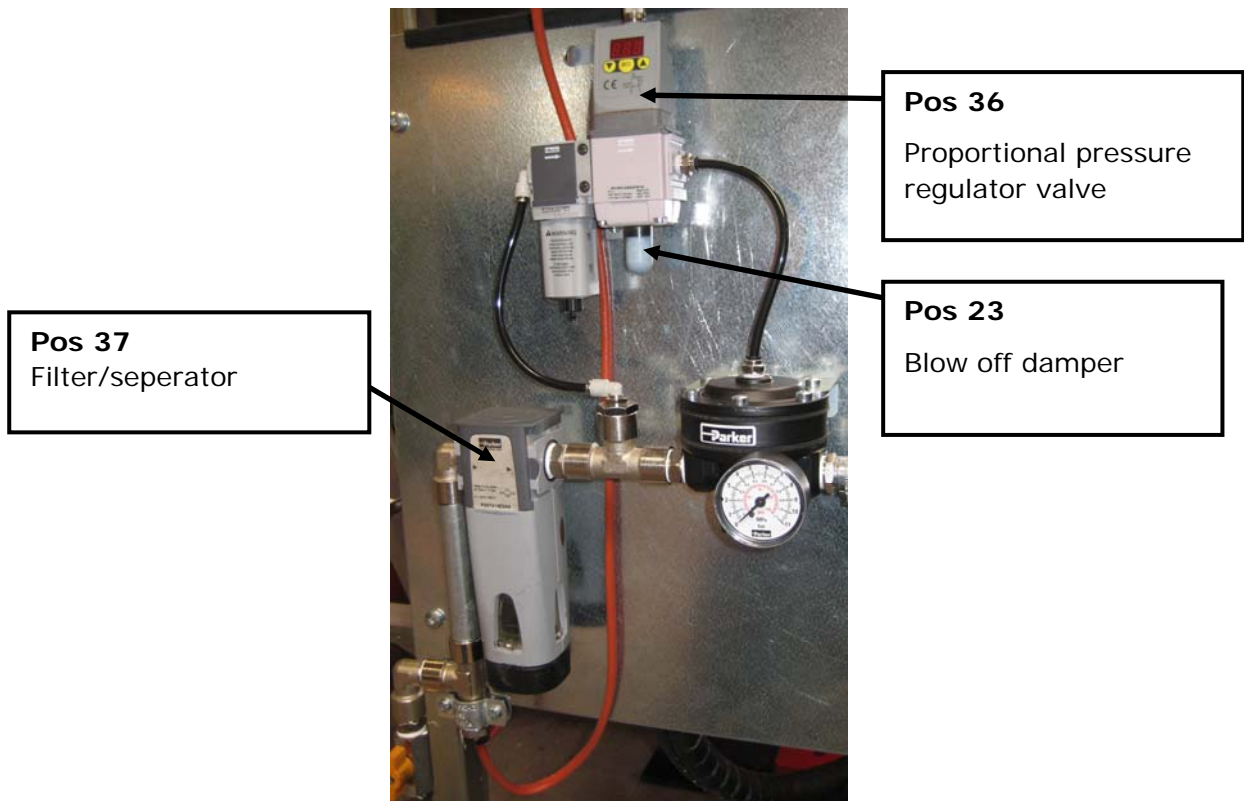


8 The pneumatic system

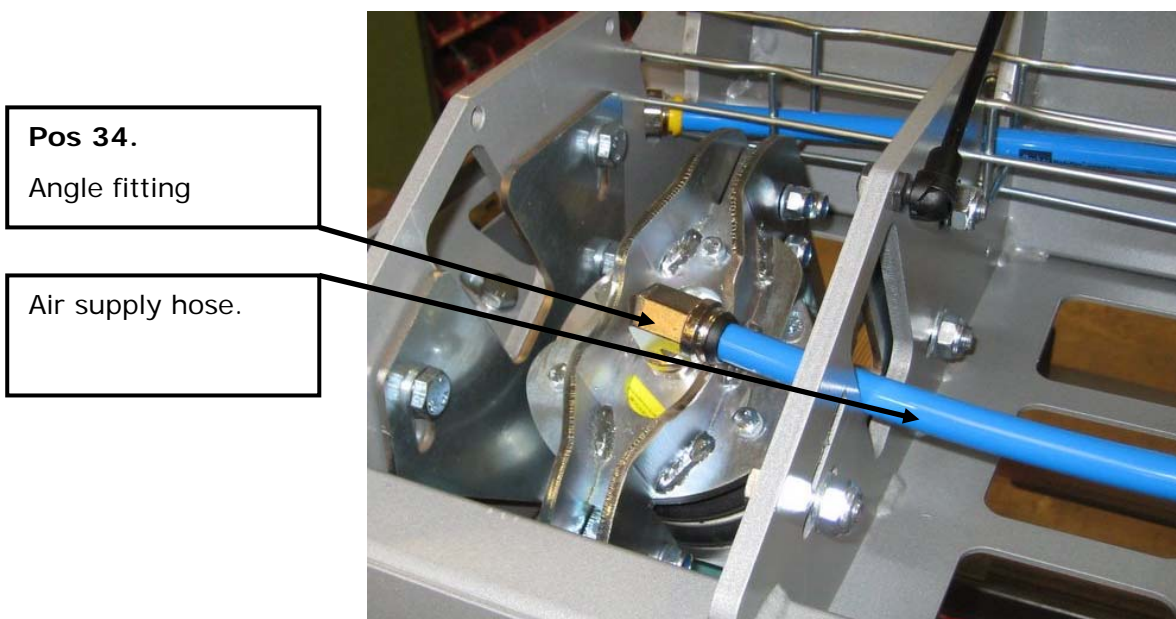
The pneumatic system is gathered in the machines technical bridge above the riddles. The pressure adjustment for the machine's hop movement is placed by the control panel.




Pressure regulator valve, air filter and water separator are located on the side of the control panel. The pressure regulator valve is applying the correct air pressure considering the jump height and the actual loading of the riddles.



The air bellows are supplied with air through the shown air hose.



9 Operating faults and their correction

Faults	Registered by:	Cause	Solution
Incorrect phase sequence or missing phase	<p>Absence of light in the phase sequence relay's red or green lamp in the control panel.</p> 	<p>For new installations, it is normal that the phase sequence does not correspond to the the requirement from the sorter.</p> <p>If extension cables are used for the machine and these are also used for other purposes, it is normal that the sequence is changed for the use of other extension cables.</p> <p>The absence of phases is normally due to burnt out fuses or faults in the cable.</p>	<p>Two phases are changed around in the inlet to the controls.</p> <p>The two conductors in the socket on the extension cable have been changed around.</p> <p>Alternatively, fit a plug with integrated phase inverter.</p> <p>Replace fuses.</p> <p>Inspect cables and plugs.</p>
Low air pressure	<p>The indicator lamp for low air pressure lights in the panel.</p>	<p>Fault in the compressor.</p> <p>Fault in pressure regulating valve for sorters.</p>	<p>Check the compressor and manual for this.</p> <p>Check the present pressure in the regulator's display.</p> <p>Adjust to 3.5bar</p> <p>Interupt the power supply and restart the machine.</p>

Faults	Registered by:	Cause	Solution
Temperature error on motor for riddle cleaner	The riddle cleaner is out of order and cannot be activated on the potentiometer.	Mechanical blockage of the riddle cleaner system.	Check the riddle cleaner system for sticking root vegetables or stones. Reconnect the motor protection in the control panel. Refer to the overview for this.
Dirt in the blow off silencer from the pneumatic system.	The hop intensity is poor, the riddle case only returns slowly to the initial position, but is lifted at normal speed.	The blow off silencer is blocked. The silencer has not been replaced at the recommended interval.	Detach the blow off silencer and visually inspect whether it is blocked by dirt. Exchange if necessary. Position: Refer to the pneumatic system.
Riddle cleaner does not return to garage	After power down the riddle cleaner stays outside the garage.	Software interruption because of power down.	Turn the potentiometer for riddle cleaner to 0 and back to the wanted setting. The riddle cleaner moves again.
Riddle cleaner does not move	Riddle cleaner stays inside or outside the garage.	Motor protection is off	Open the control box and reset press the protective motor switch. See chapter 7
Bad and inconsistent movement	Visual registered bad movement of the riddle box	Condense and ice in the main valve due to high air velocity	Turn on the Air Heater.

10 Information about risks despite safety measures

The main circuit-breaker on the left side of the controls must be turned off and locked during service and maintenance!

If the machine is equipped with a remote control, there will always be a risk that this can be activated! Therefore, do not stand on the riddles at the technical bridge during operations/standstill unless the circuit-breaker is switched off and locked.

There will always be a risk during emergency stoppages that the pneumatic system is under pressure!

There is a risk that the riddle case is lifted during emergency stoppages, especially when riddles are replaced, where the emergency stop circuit will be disconnected.

There is a risk of personal injury at the machine's outlet and outlets must never be cleaned or sticking root vegetables removed unless the main circuit-breaker is disconnected and locked.

11 Transport and handling

During the transport, the machine must be secured and placed on a suitable surface.

Components must not be placed on the machine's riddle during transport!

12 Cleaning

Pressurised air or a high pressure cleaner can generally be used for cleaning. Do not directly expose the pneumatic components in the technical bridge to high pressure rinsing. The technical bridge should be cleaned with high pressure air. The machine's controls can tolerate washing, but must not be exposed to high pressure rinsing.

13 Service and maintenance

13.1 Tightening.

Due to the movements of the machine, a hop sorter will subject the construction to vibrations. The machine's bolted connections must therefore be tightened after about 100 hours' operation, corresponding to 8 hours each day for 2-3 weeks.

Stop the machine and remove the riddles. Then inspect all of the bolted connections. Tighten any loose bolts/nuts. There are no requirements for tightening torque, but if a torque wrench is used, the tightening torques are as follows:

M8 bolts/nuts are tightened with 22Nm

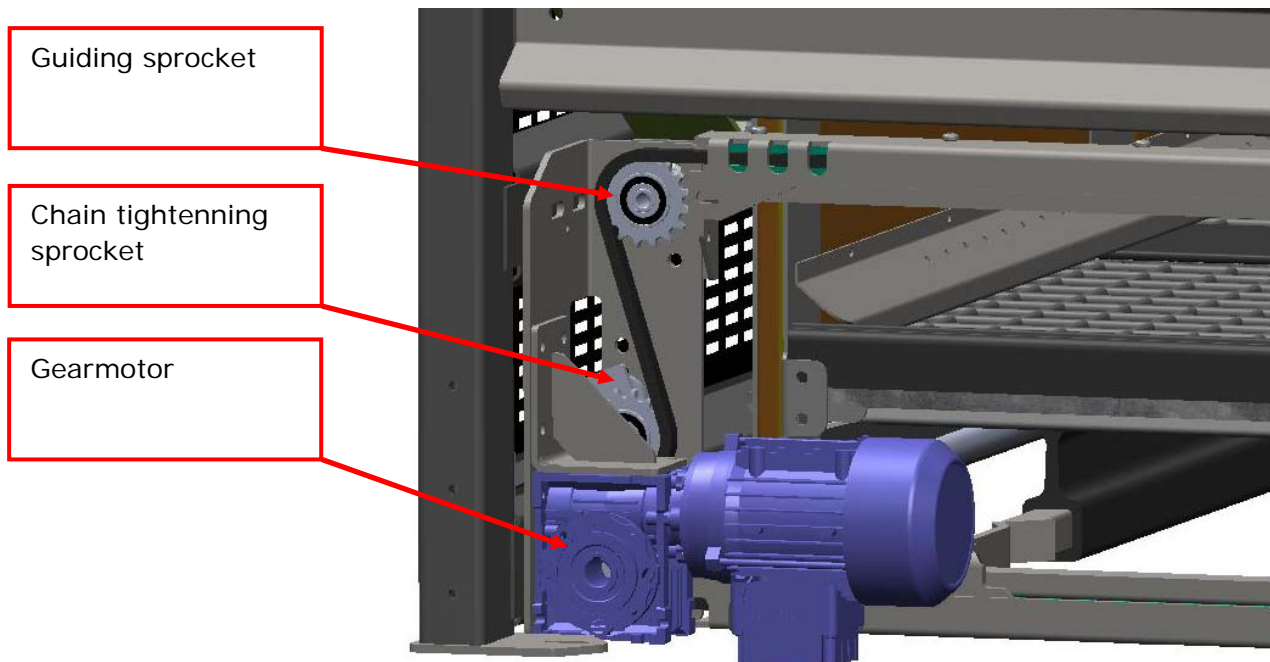
M10 bolts/nuts are tightened with 45Nm

M12 bolts/nuts are tightened with 8Nm

13.2 Service on the riddle cleaner system

The riddle cleaner system consists of an electrical motor driving the riddle cleaners via an axle and two synchronic chain drives.

CHAIN, SPROCKET AND LINEAR RAILS MUST NOT BE LUBRICATED WITH ANY KIND OF LUBRICATION.

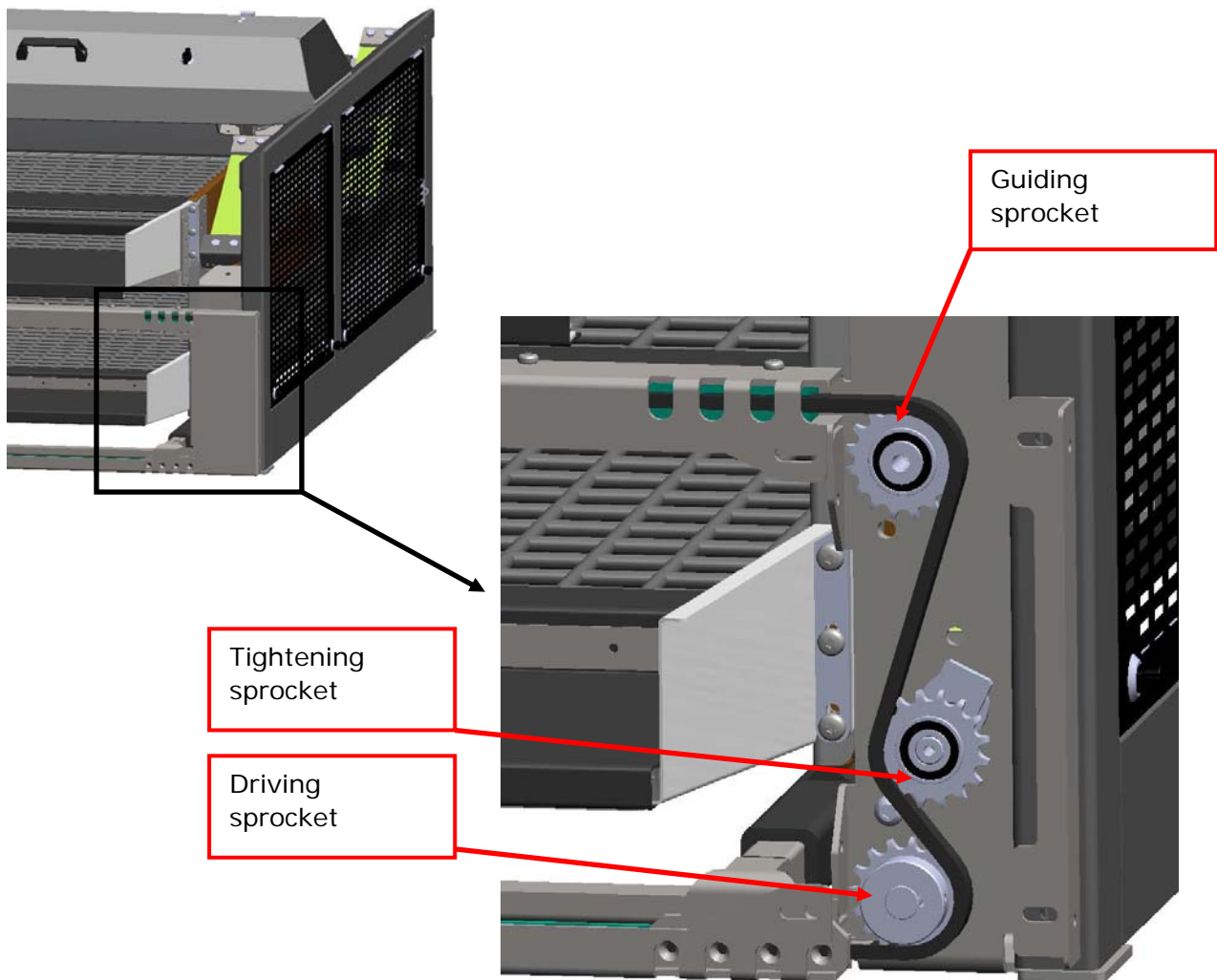


Adjustment of the chain tightening sprocket is performed by untightening the bolt in the right and left tightening bracket enough to be able to turn the bracket and tighten the chain by help of a tool.

IMPORTANT! Right and left tightener must be turned equally so their position is symmetric.

The chain must be without slack.

The bolts in both tighteners must be retightened according to table above.



14 Wear parts and spare parts

14.1 Wear parts

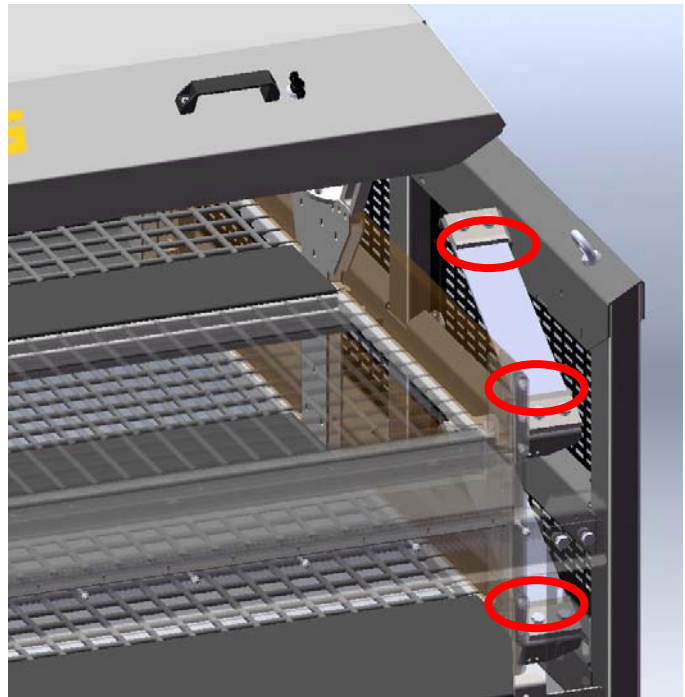
The machine's defined wear parts consist of composite springs, air bellows and vibration dampers. All parts are dimensioned for their use in the machine, but have a given lifetime for the load in question.

The leaf springs are exposed to a fatigue loading that will eventually cause the springs to break. It is important therefore to inspect the leaf feathers regularly for the beginnings of delamination in the composite material.

It is at the marked areas that the composite springs should be inspected for incipient fatigue damage.

The incipient damage can be observed by a stratification where the individual layers in the material separate.

If incipient fatigue damage is observed, the composite springs should be replaced before they break and possibly lead to consequential damage.



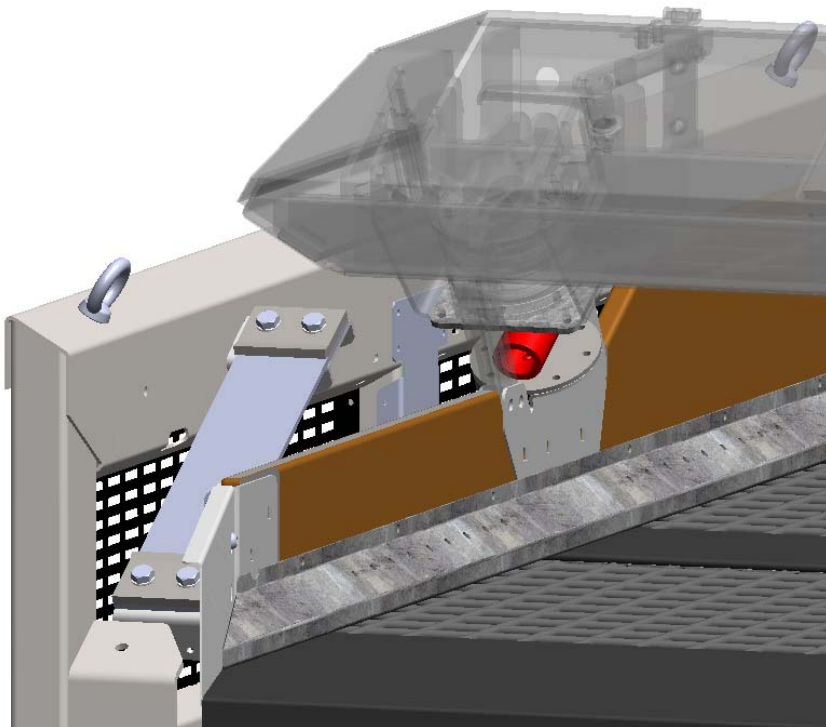
Like the springs, the **air bellows** also have a given lifetime at the loading in question. However, here there is only a small risk of consequential damage if an air bellows leaks in the rubber bellows.

It is always a good idea to replace a wear part before it fails. The air bellows should be inspected for cracks and wear in the area indicated and replaced if there are significant cracks or wear in the rubber.



The **vibration dampers** guarantees the riddle case a controlled movement when running. The damper material is a shock-absorbing elastomer that has a given lifetime with the loading in question.

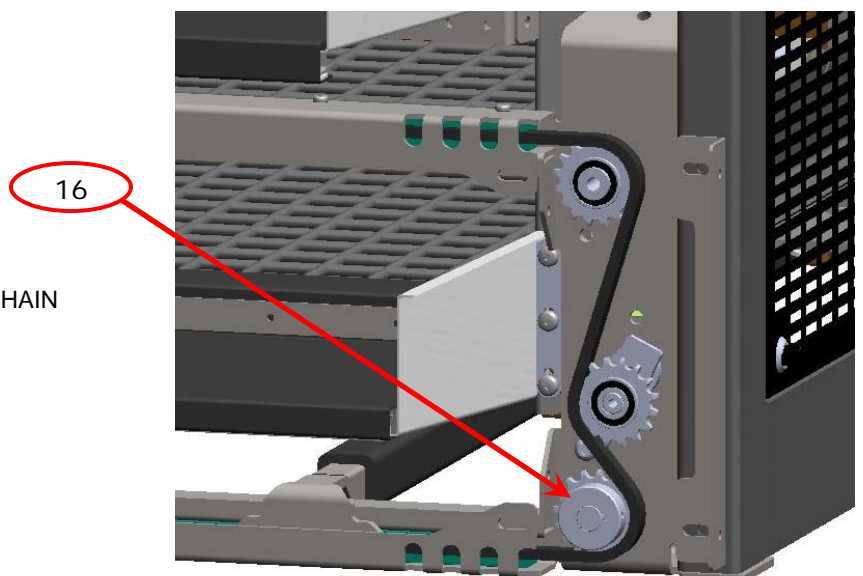
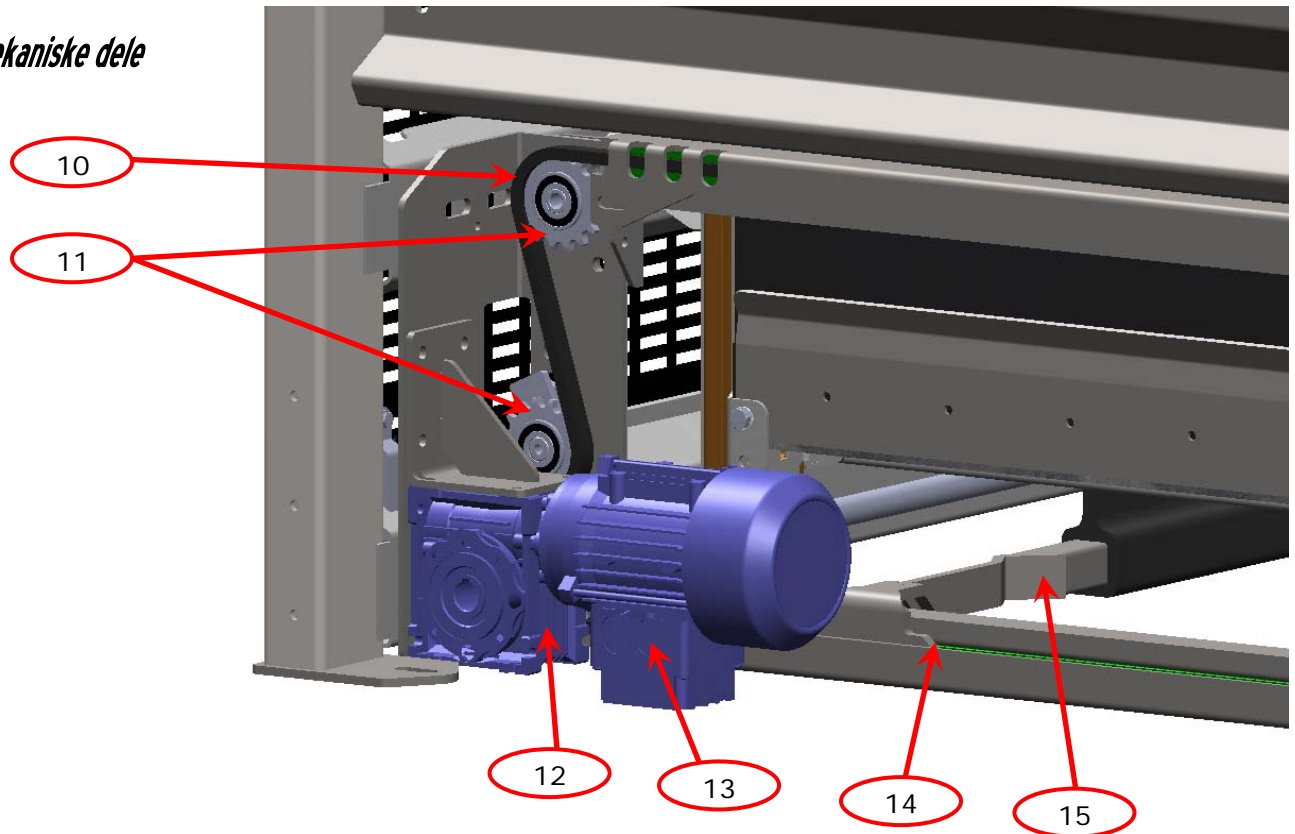
The material is only worn out gradually and there is no risk of consequential damage in the event of incipient damage.



14.2 Spare parts

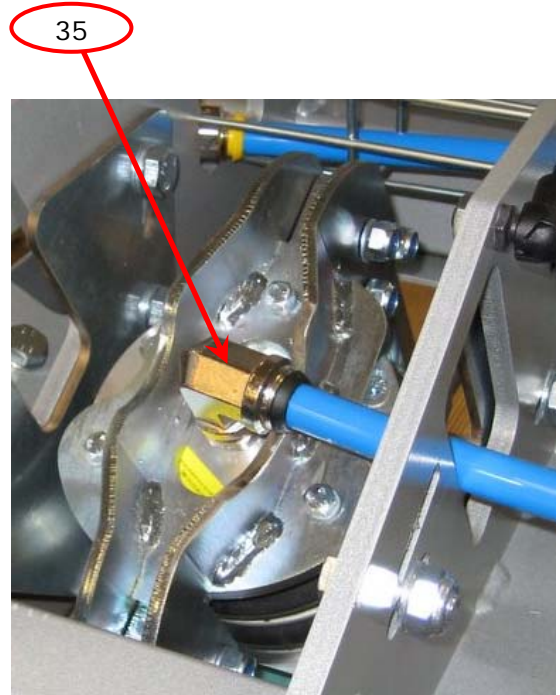
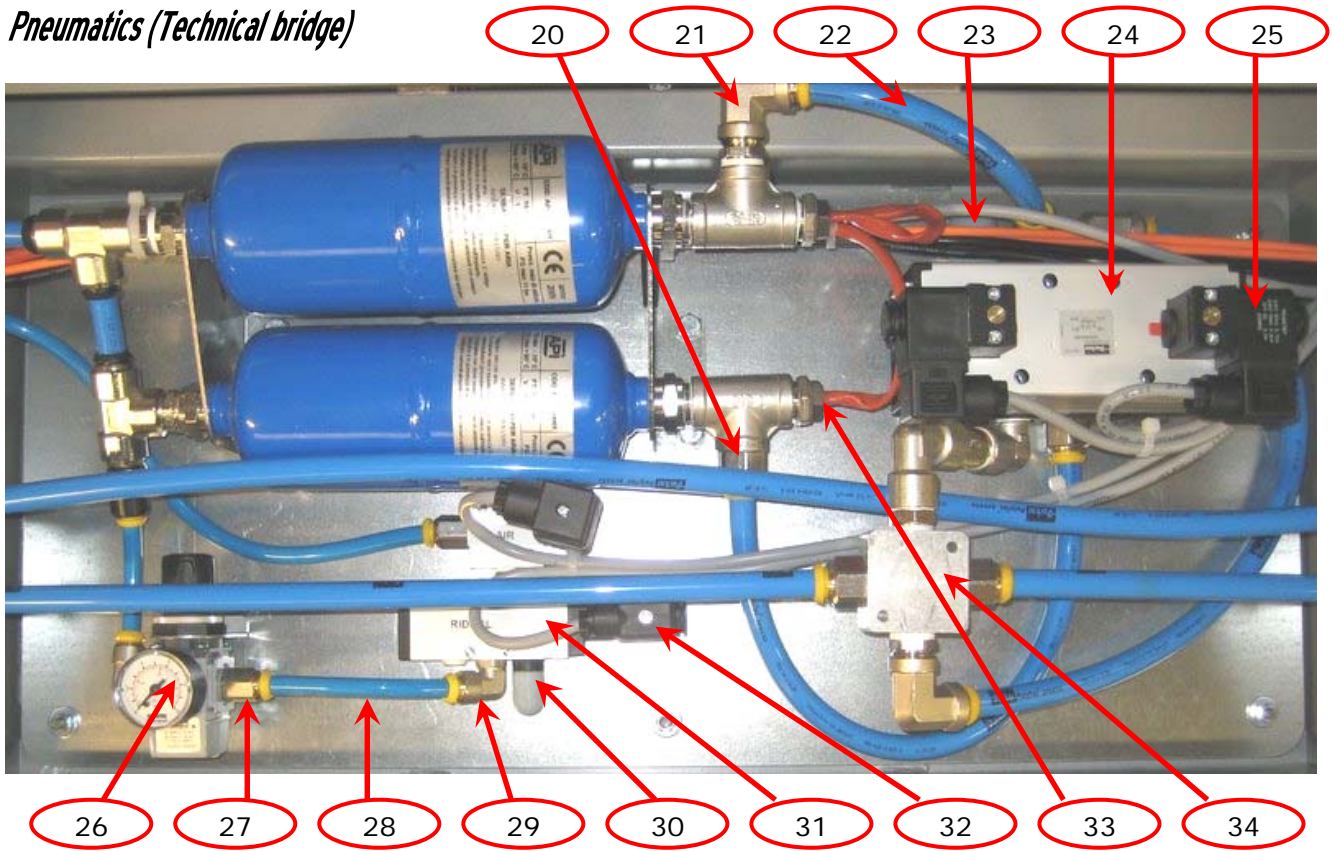
The machine's other parts are described as spare parts and the most important ones are indicated in the spare parts list below.

Mekaniske dele



- 10 5/8" SIMPLEX MARATHON CHAIN
- 11 GUIDING SPROCKET
- 12 GEAR NMRV040 1:100
- 13 MOTOR 1.2KW 1400rpm.
- 14 STAINLESS SLIDE
- 15 RIDDLE CLEANER
- 16 DRIVE SPROCKET

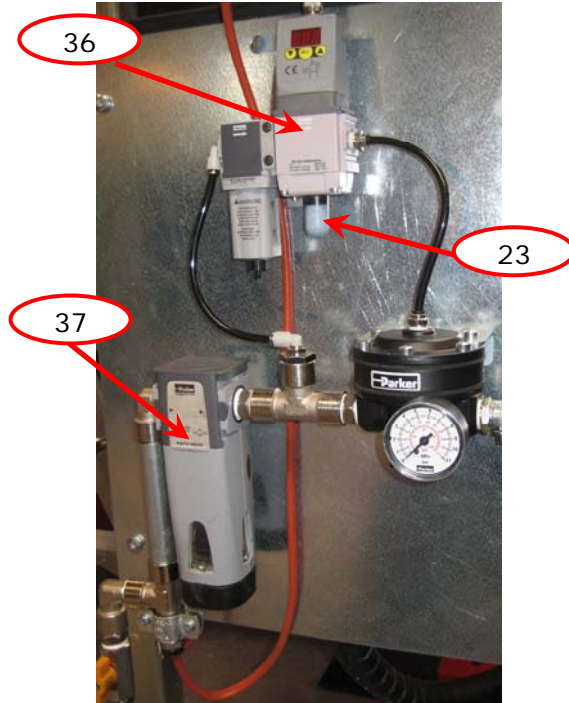
Pneumatics (Technical bridge)



- 20 UNION PRESTOLOK 14mm-1/2"
- 21 ANGLE PRESTOLOK 14-1/2"
- 22 TPU14x2.25/3-25m
- 23 NOISE REDUCER
- 24 ISO 5/2 VALVE
- 25 COIL 230VAC
- 26 REGULATOR 1/4"
- 27 UNION PRESTOLOK 10MM-1/4"
- 28 PU-HOSE 10X6,5-1M BLUE
- 29 ANGLE PRESTOLOK 10MM-1/4"
- 30 NOISE REDUCER 1/4"
- 31 VALVE INLINE 5/2 1/4"
- 32 COIL 230VAC 50/60Hz
- 33 HEATING ELEMENT
- 34 DISTRIBUTION BLOCK 1/2"
- 35 ANGLE PRESTOLOK 14-3/8"

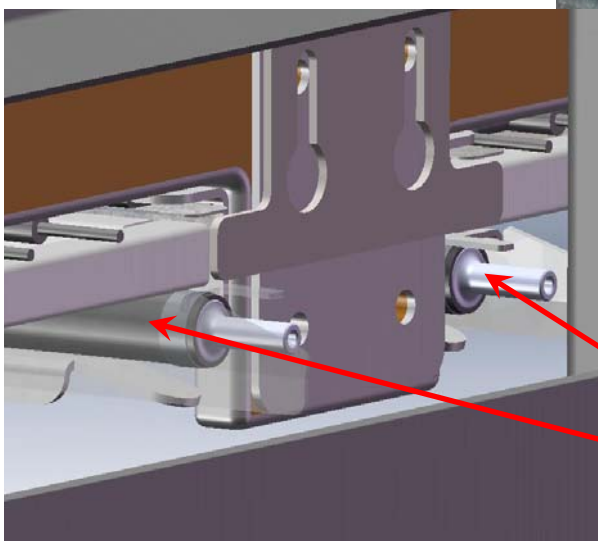
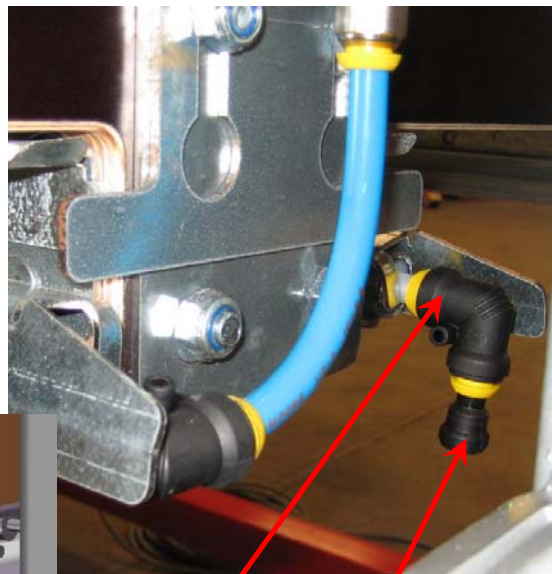
Pneumatics (Supply/adjustment)

- 36 PROPORTIONAL REGULATOR
- 37 FILTER/WATER SEPARATOR



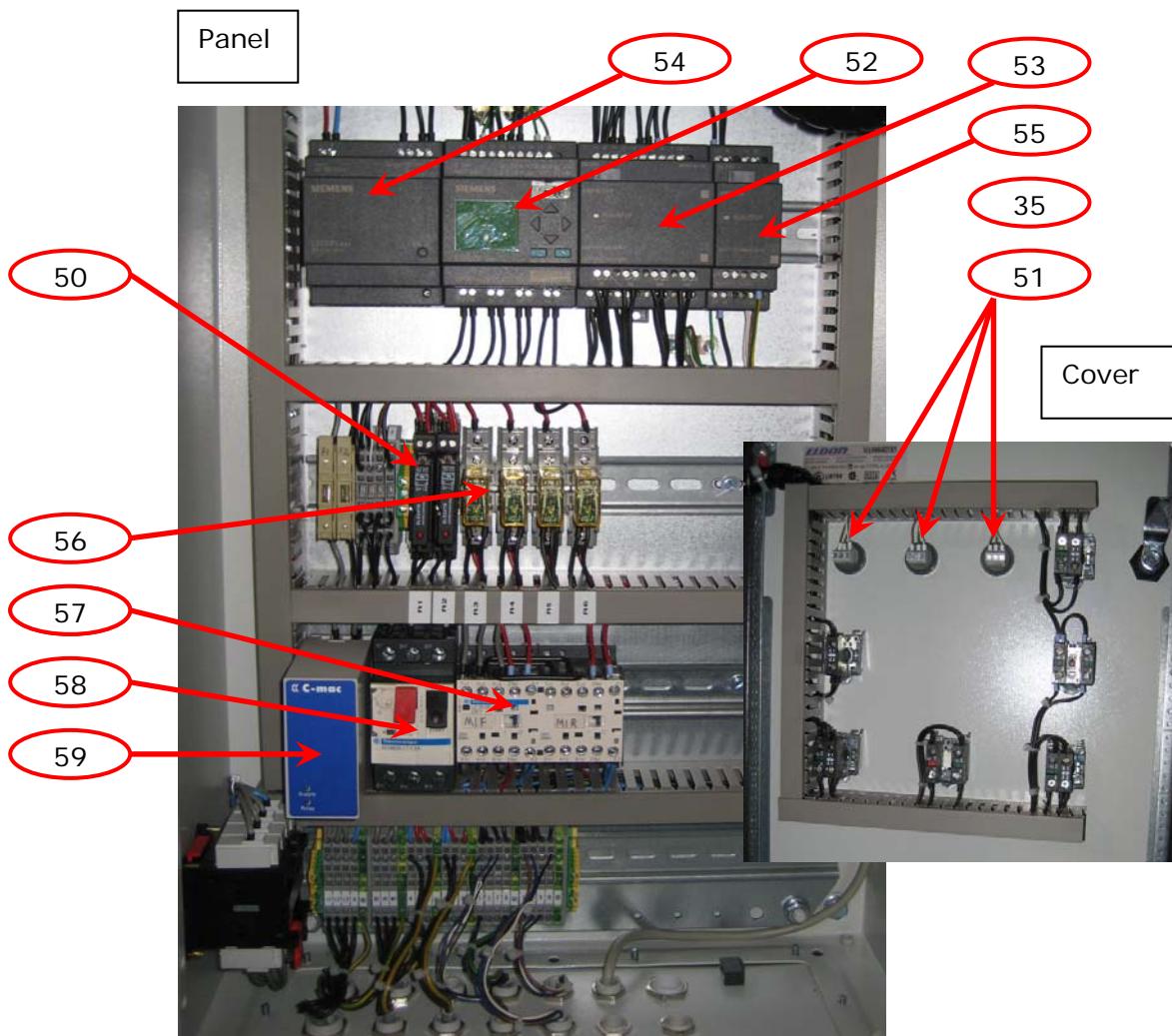
Pneumatics (Riddle tightener)

- 38 ANGLE PRESTOLOK 10MM
- 39 STOPPER PRESTOLOK 10MM
- 40 RIDDLE TIGHTENER HOSE



Electrical spare parts (Panel)

- 50 SOLID STATE RELAY
- 51 POTENTIOMETER CROUZET Ø22MM
- 52 LOGO! PLC BASIC MODULE 8I/4O
- 53 LOGO! EXPANSION MODULE 8DI/8DO
- 54 LOGO! POWER SUPPLY 24V 2.5A
- 55 LOGO! EXPANSION MODULE ANALOGUE
- 56 AUXILIARY RELAY RH1BU 24V DC
- 57 SAFETY RELAY TYPE G9SB-2002
- 58 MOTOR PROTECTION 0.63-1 GV2ME05
- 59 C-MAC MONITORING RELAY



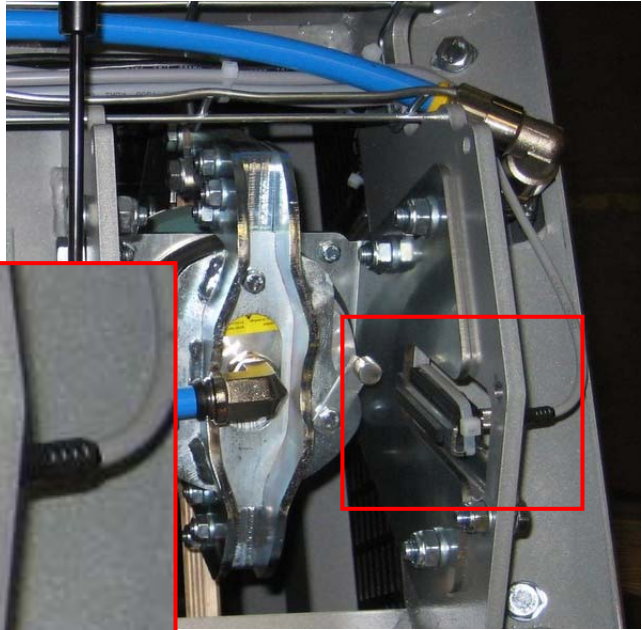
Electrical spare parts (External)

- 70 MAGNETIC COVER SWITCH
- 71 POSITION TRANSMITTER
- 72 INDUCTIVE SENSOR FOR LIMIT STOP

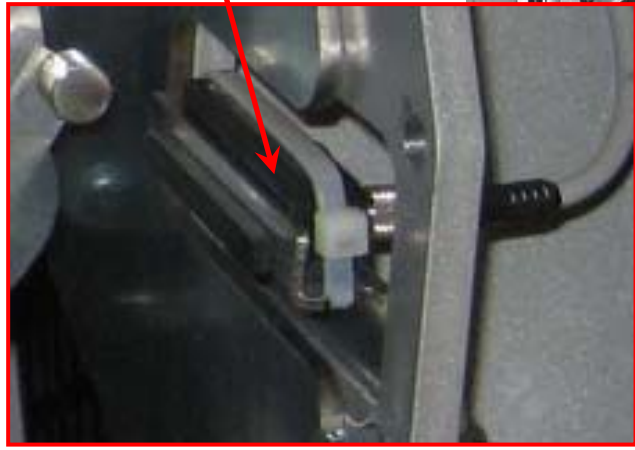


70

Technical bridge



71



15 Appendix overview

Appendix 1: Verification of conformity

Appendix 2: Pneumatic diagram

Appendix 3: Electrics diagram



Declaration of conformity with EU.

Manufacturer	
Firm:	A/S Skals Maskinfabrik
Address:	Hovedgaden 56 8832 Skals, Denmark
Telephone:	87 25 62 00

declares herewith, that

Machine:	
Brand:	
Type, serial no., year:	

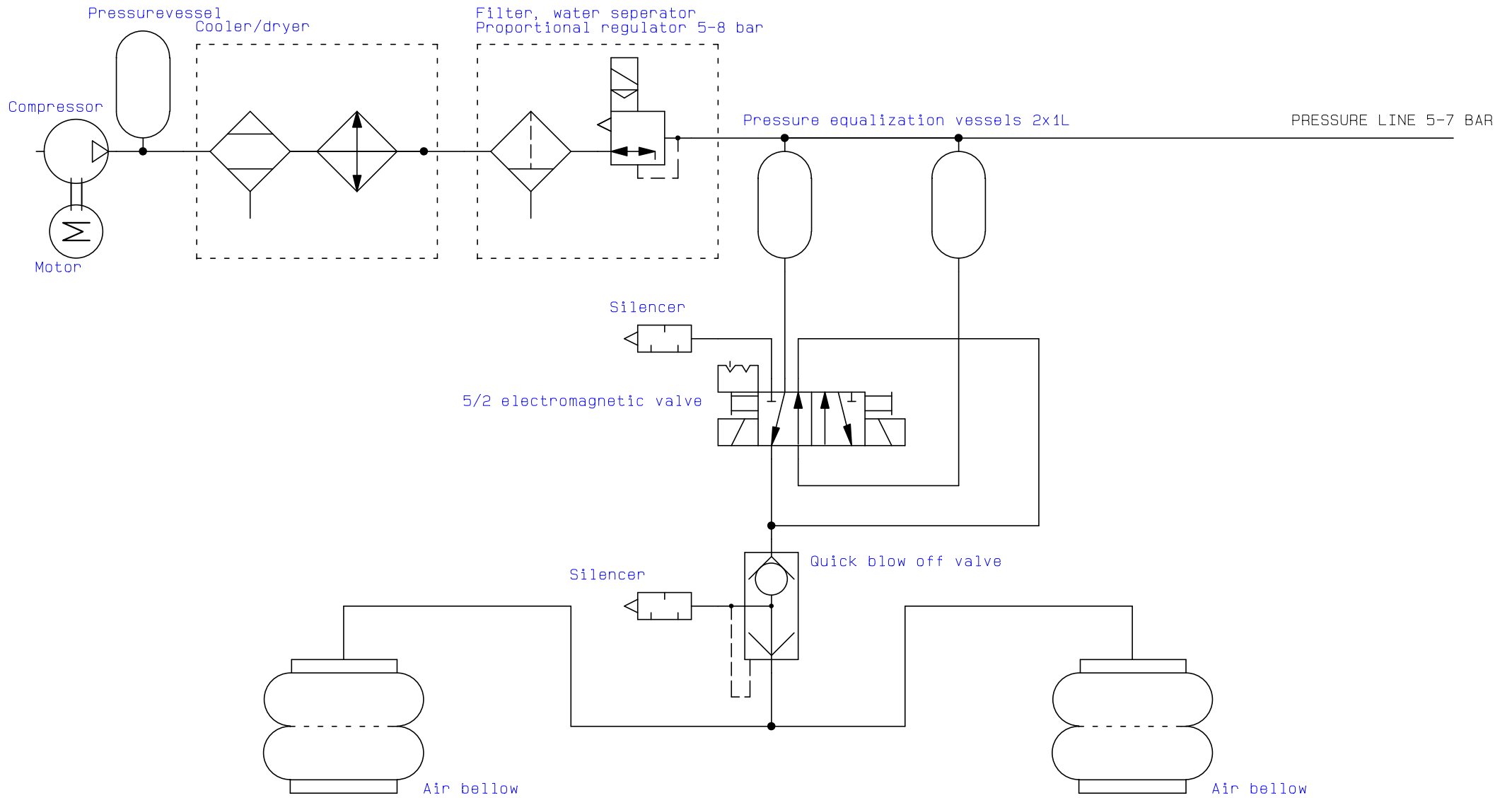
Is manufactured in accordance with the decisions of the Councils Directives:

- 1 Machinery Safety – Directive 98/37/EC
- 2 Low Voltage Equipment Directive (LVD) 2006/95/EEC
- 3 Electromagnetic Compatibility (EMC) Directive 89/336/EEC and 93/68/EEC as amended.

Title:	Productions Manager
Name:	Søren Lund Madsen
Firm:	A/S Skals Maskinfabrik

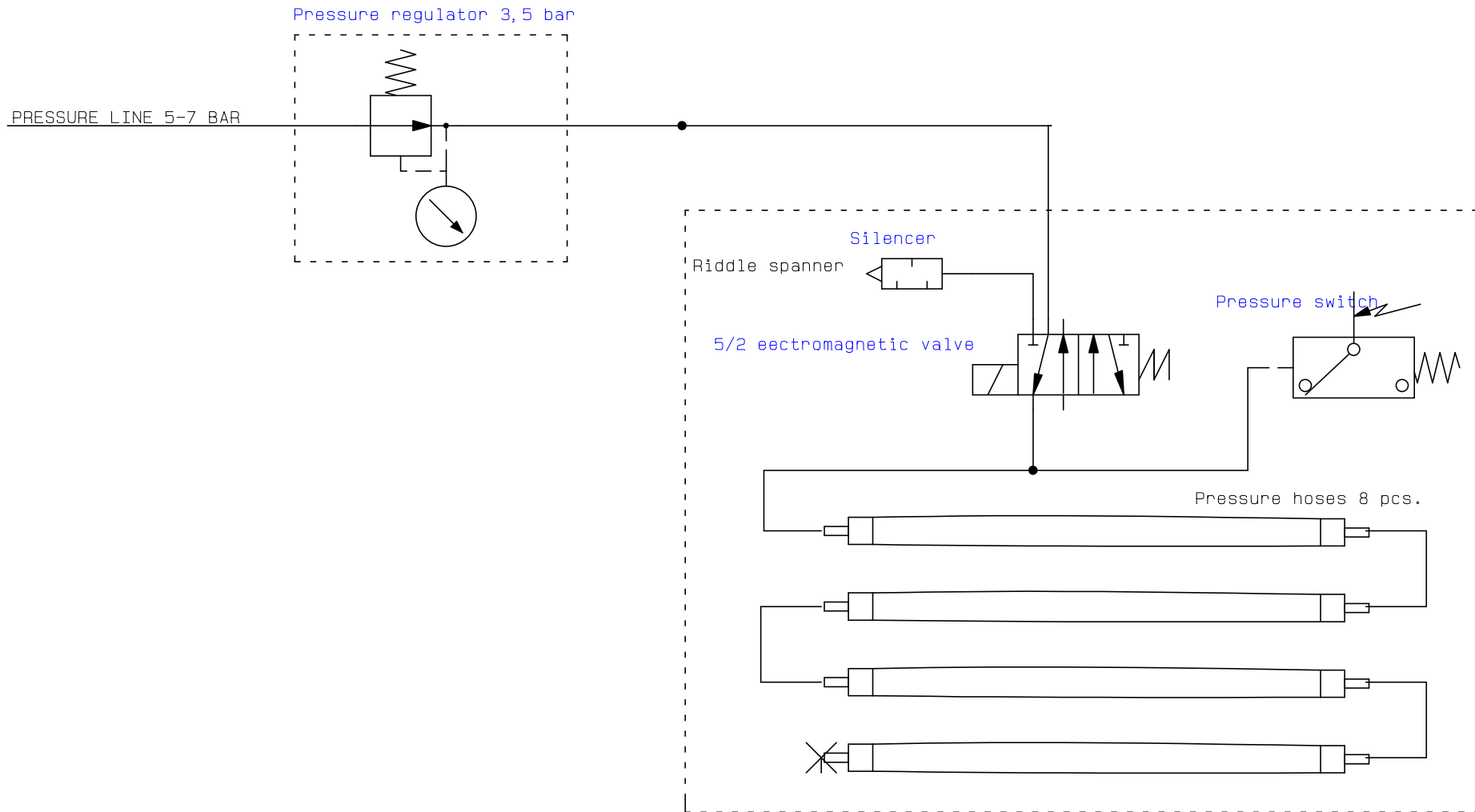
Date: _____

Signed: _____



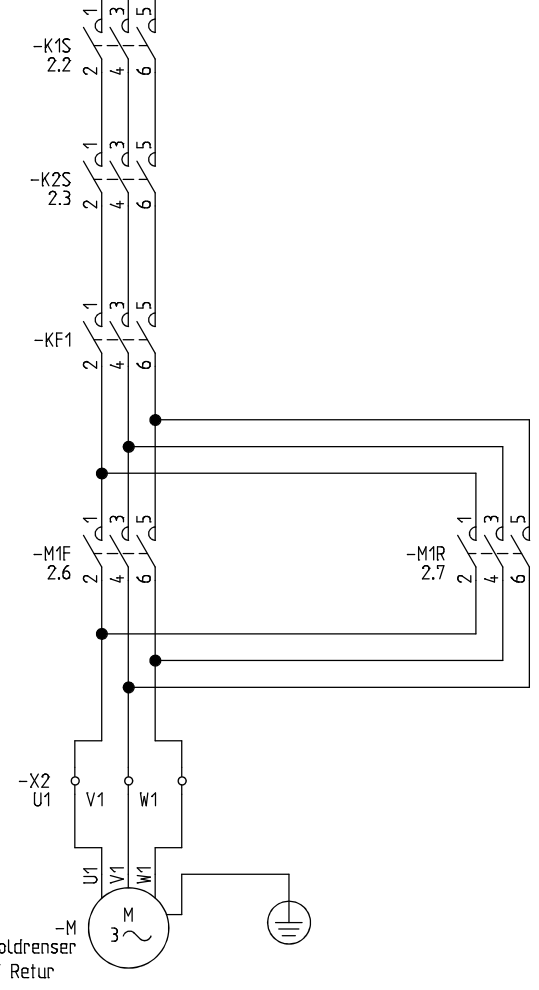
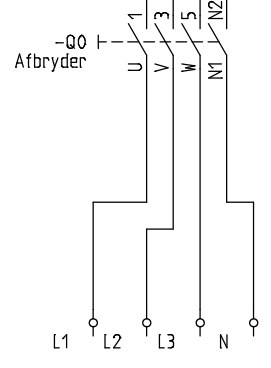
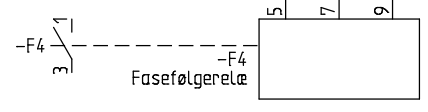
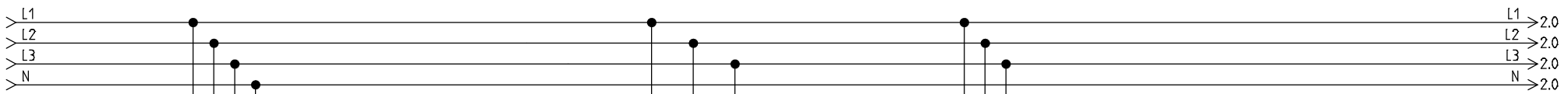
Kunde: SKALS Intern	Konstruktør: LBS
Projekt titel: SD sorterer	Godk.:
Side titel: Pneumatik diagram	Sidst udskrevet: 20-11-2009 09:03:08
Side reference:	Sidst ændret: 20-11-2009 09:00:40
Side reference beskrivelse:	

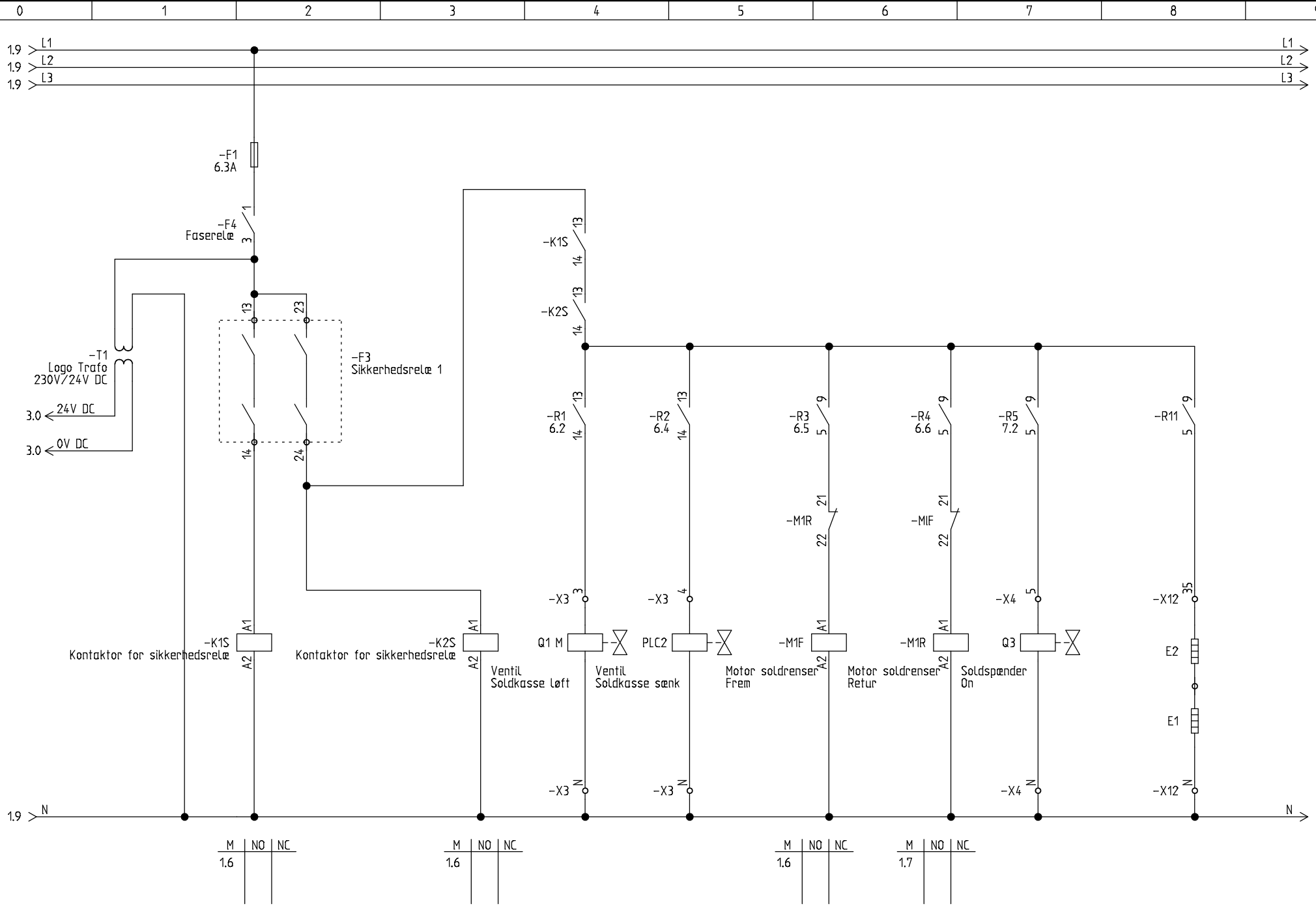
Sagsnr:
Projekt rev. :
Side rev..
Side 1 af 2
Antal brugte sider: 2

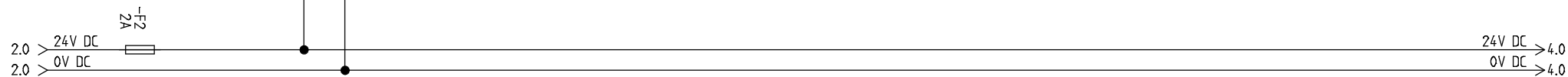
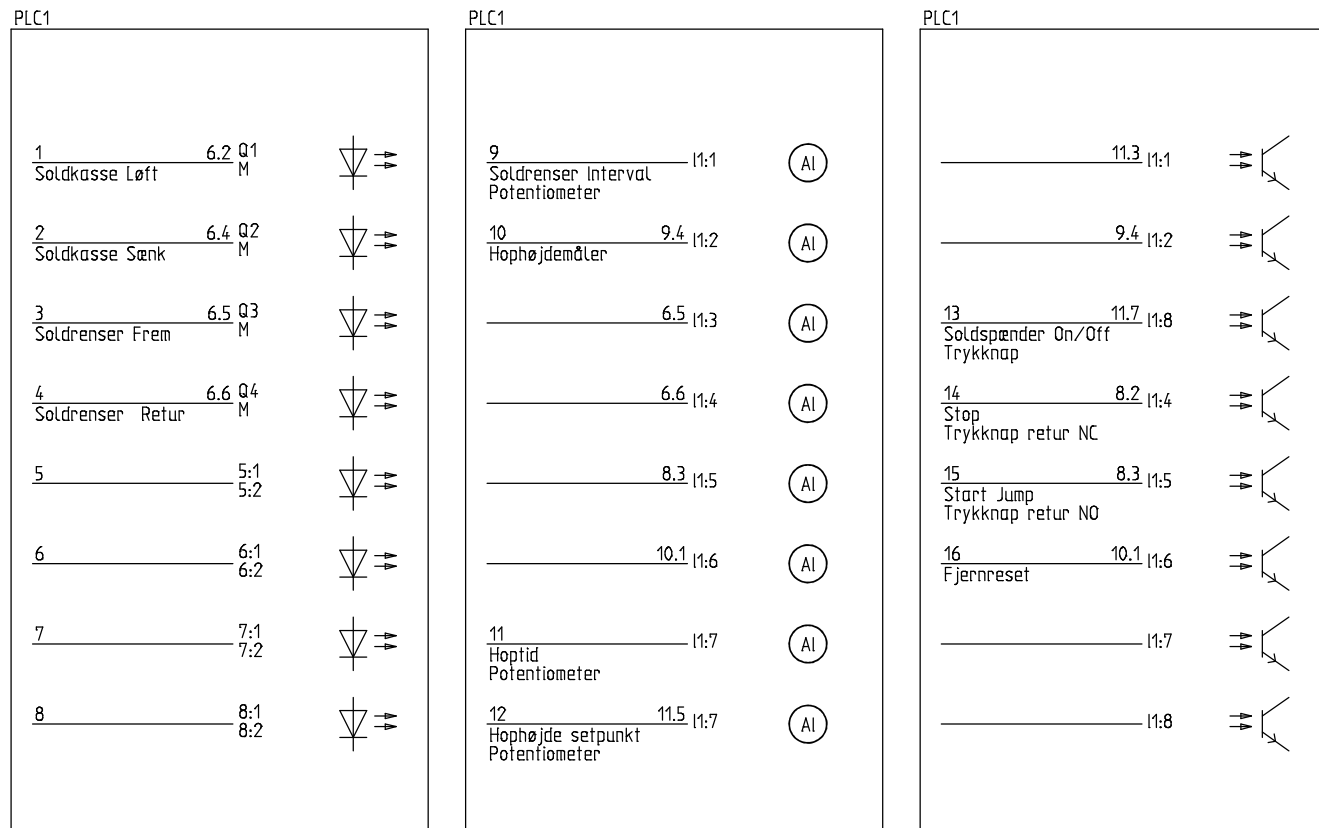


Kunde: SKALS Intern	Konstruktør: LBS
Projekt titel: SD sorterer	Godk.:
Side titel: Pneumatik diagram	Sidst udskrevet: 20-11-2009 09:03:08
Side reference:	Sidst ændret: 20-11-2009 09:02:46
Side reference beskrivelse:	

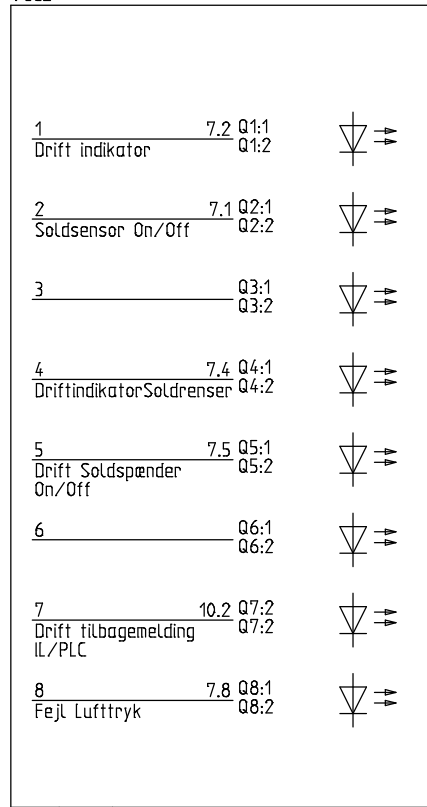
Sagsnr:
Projekt rev. :
Side rev..
Side 2 af 2
Antal brugte sider: 2



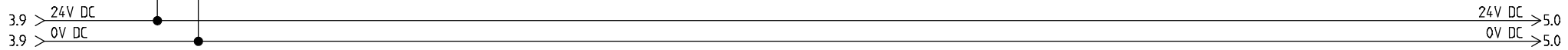
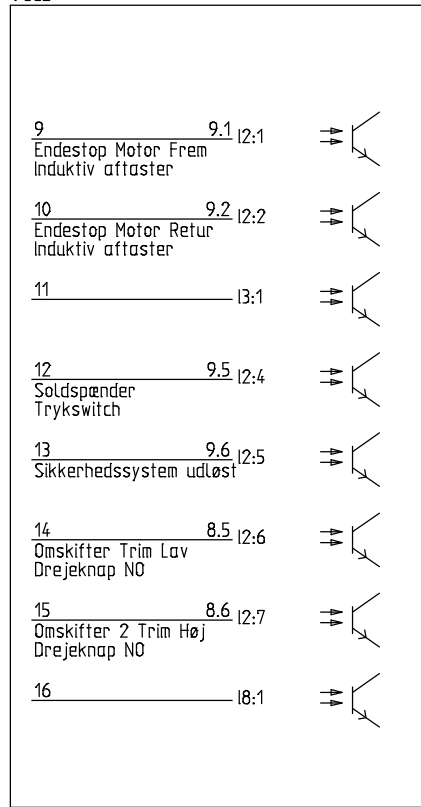




PLC2



PLC2



0 1 2 3 4 5 6 7 8 9

A

B

C

D

E

F

A

B

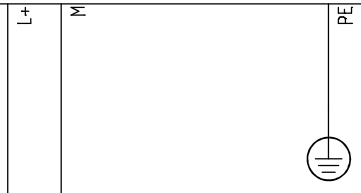
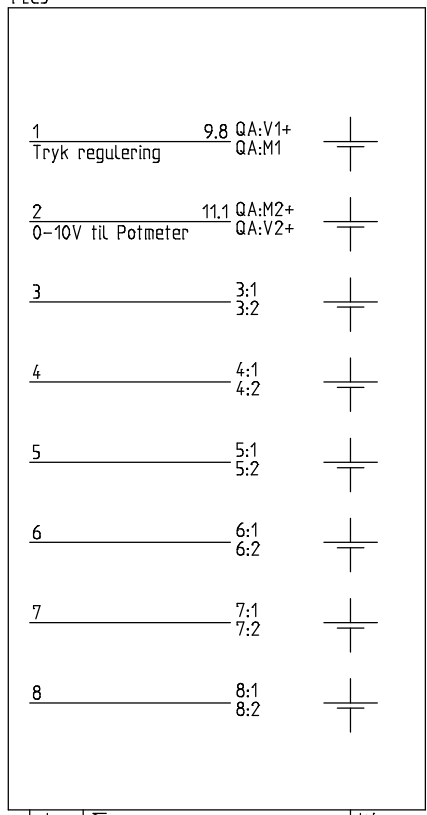
C

D

E

F

PLC3



4.9 > 24V DC
4.9 > 0V DC

24V DC > 7.0
0V DC > 7.0

