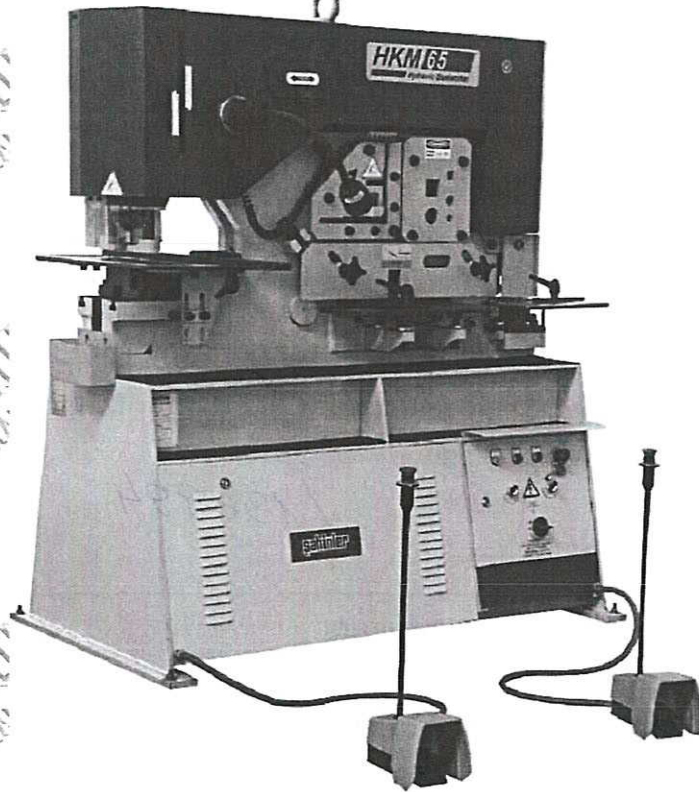




sahinler
METAL MAKINE ENDÜSTRİ A.Ş.

Operator Manual

Model HKM – 65 Ironworker



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EC DECLARATION OF CONFORMITY

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The undersigned declares that the described products meet the essential requirements of the below mentioned standards as based on Machinery Directive **2006/42/EU**, Low Voltage Directive **2014/35/EU**, Electromagnetic Compatibility Directive **2014/30/EU**

The item of equipments which identified below has been subject to internal manufacturing checks with monitoring of the final assessment by **ŞAHİNLER METAL MAKİNA ENDÜSTRİ A.Ş**

MACHINE DESCRIPTION : Hydraulic Steelworker

MODEL : HKM 65

156994

APPLICABLE DIRECTIVES :

2006/42/EU MACHINE SAFETY DIRECTIVE

2014/35/EU LOW VOLTAGE DIRECTIVE

2014/30/EU ELECTROMAGNETIC COMPATIBILITY DIRECTIVE

APPLICABLE REGULATIONS :

EN ISO 12100:2010; EN ISO 13849-1:2008+AC/2009; EN ISO 13855:2010; EN ISO 13857:2008;
EN 60204-1:2006/A1:2009; EN 61000-6-2:2005; EN 61000-6-4:2007/A1:2011; EN ISO 11202:2010;
EN 614-1:2006+A1:2009; EN 953:1997+A1:2009; EN ISO 4413:2010

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PLACE/ DATE : BURSA

0 -01- 2019

SIGNATURE :

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GENERAL NOTES

Introduction

Thank you for choosing a Şahinler Sheet / Metal Working Machine. We are proud to have you in our long list of satisfied customers all over the world.

This User's Manual is for your safety and is essential for the machine to give the maximum production life. Being guided by this manual will enable you able to run your machine smoothly and safely. This machine design is for efficiency, with a priority for safety.

In this Manual you can find instructions and information about:

- Correct installations of the machine
- Description of the functional parts of the machine
- Set-up and start-up adjustments
- Correct standard and scheduled maintenance
- Simple safety regulations and accident prevention

The following icons are used in this manual to highlight the possible risks to the user connected with the machine operation:



Attention: Showing the risk of an accident if instructions are not followed.



Warning: Showing the probable damages to the machine or equipment if the instructions are not strictly followed.



Note: Gives useful information.

It is important that the operator reads, understands and pays attention to the different **Attention**, **Warning**, and **Note** comments shown in this Manual before using the machine and before any lubrication or maintenance.

During all steps of installation, operation and maintenance safety must be the first concern for the protection of the user and third parties in the vicinity.



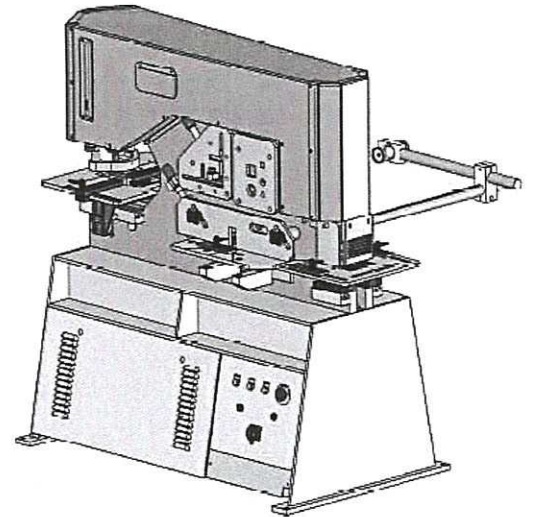
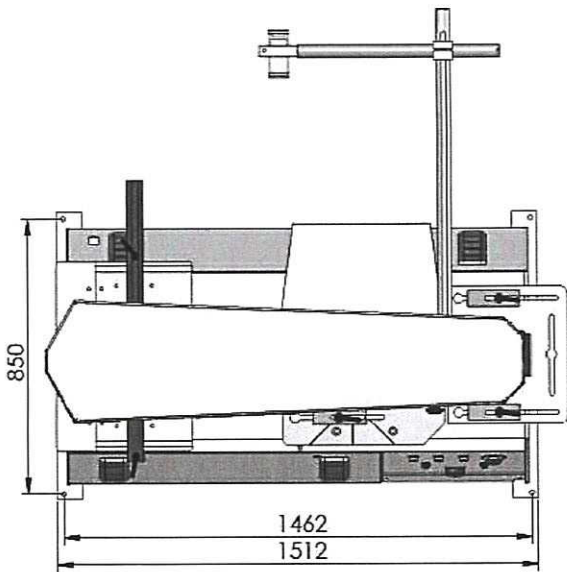
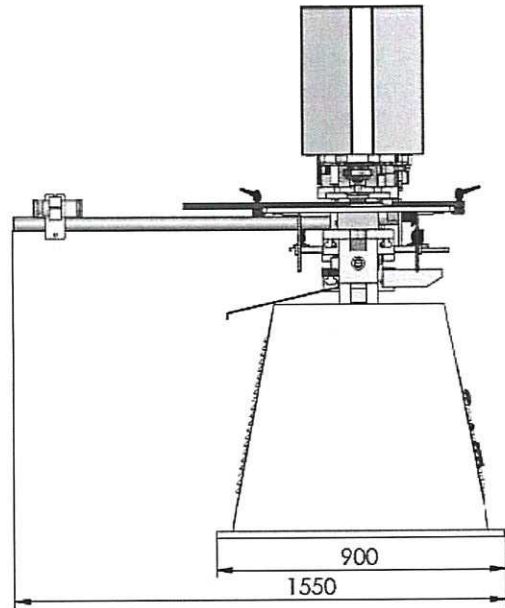
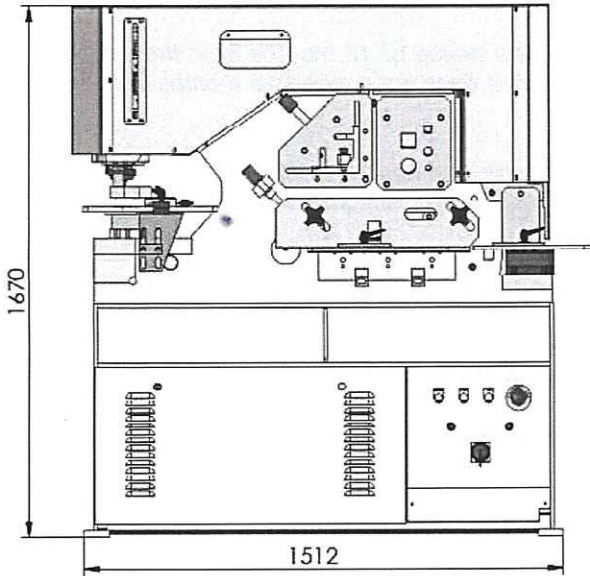
GENERAL WARRANTY TERMS

- *Your machine is covered by manufacturer's warranty for a period of 12 months from the date of purchase against manufacture defects. The warranty period does not exceed 18 months from the date of delivery from the manufacturer's factory.*
- *Warranty covers only defective manufactured parts and/or components that are reported as "defective" by a Sahinler approved Technician or Agent Technician and must be reported to Sahinler in writing by fax or email.*
- *The manufacturer is responsible for the supply of free-of-charge spares only and will not be held responsible for loss of work or consequential damage.*
- *Shipping and customs fees for the spare parts must be paid by the end-user.*
- *If a Sahinler technician's travel is necessary the customer must pay travelling and accommodation charges. Sahinler will not charge for labour costs.*
- *A Warranty claim does not relieve the Customer from payment obligations.*
- *Customer reimbursement of damage will not be considered, nor alterations to the agreed payment for the machine.*



Note: *All warranty claims must be made stating the Model, Serial Number and the Manufacture Year of the machine.*

MAIN DIMENSIONS OF THE MACHINE





TRANSPORTING

There is a ring mounted on top of the machine for transport purposes. This machine must only be transported by lifting.

Ca: 1600 kg.



DAMAGES

As soon as you receive the machine, check for any visible transport damages. Refer to page G04 'General warranty Terms' for the best way of dealing with damage. In particular, after transporting check:

- a) Visible mounted tools
- b) Tools and equipment in the tool compartment or control box
- c) Safety guards
- d) Oil gauge
- e) Main power knob
- f) Foot pedal cable



Attention:

If you see any visible damage on electric components, do **NOT** connect the machine to power. Inform the manufacturer as soon as possible. Only a qualified electrical engineer should connect the machine to the power supply. **SAHINLER WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY IMPROPER CONNECTION OF ELECTRICS.**

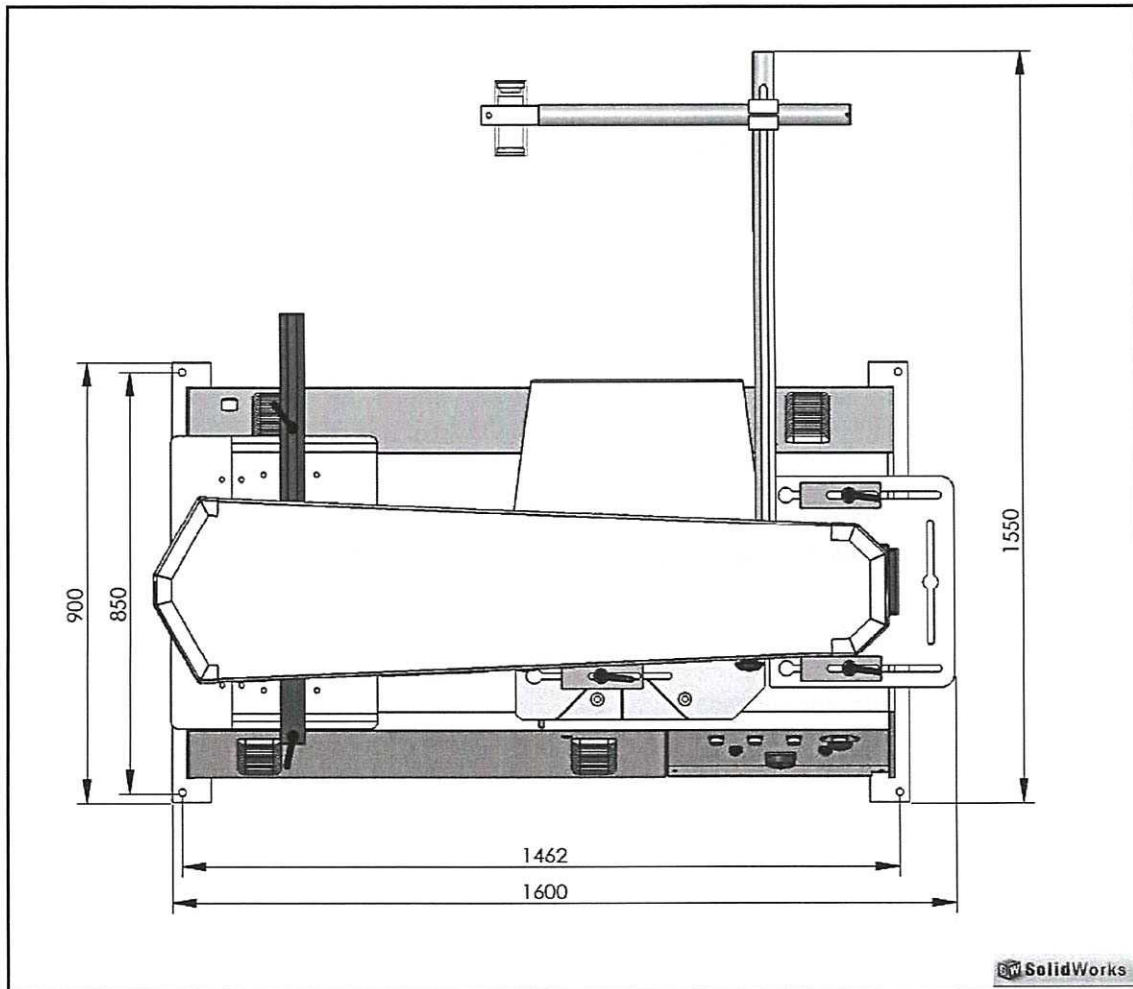


POSITIONING THE MACHINE

An experienced and competent person should set up the machine.

The position and the base for the machine are important. Consideration should be given to material ingress and egress, the operator's position, suitable lighting, and safety of other persons that may be in the vicinity. When positioning the machine:

- *It must be placed on a flat, preferably concrete base. Secure the machine using bolts when it is level, using an engineering level. Insert shims if required.*
- *Ensure adequate space all around the machine for safe working. The machine height is manufactured to be acceptable for most working men. Consider each particular case.*
- *Ensure suitable lighting.*



SAFETY AND ACCIDENT PREVENTION INSTRUCTIONS

MACHINE SAFETY FEATURES

All the ŞAHİNLER A.Ş. machines are delivered as standard with safety equipment for a high level of general safe working. For this reason the machine should only be used for the purpose for which it has been constructed. The **HKM-65** is equipped with a hydraulic check valve system in order to relieve the excess pressure when the machine is overloaded, thus preventing serious damage to the machine and the worker.

GENERAL SAFETY INSTRUCTIONS

The following instructions are for the operator. It is the End-User's responsibility to make sure the operator reads and understands the following and the User's Manual for safe operation. In particular any language or literacy barriers should be considered and overcome. Extra copies of this manual should be made available as needed.

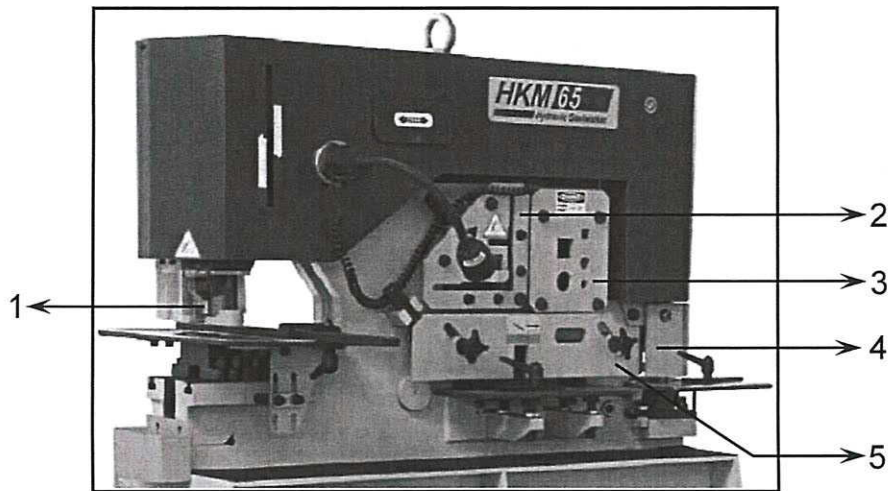
- Read the User's Manual before operating the machine.
- Never touch rotating or moving parts.
- Always report electrical faults to a qualified electrical technician.
- Keep workwear, hair or jewelry, etc. away from rotating parts.
- Make sure you know the position of Emergency Stop Buttons on the machine.
- Switch off the machine when **NOT** working.
- Wear any necessary safety clothing (ppe) such as safety shoes, glasses, earplugs, etc.
- Check all the Safety Controls are operating correctly before using the machine.
- See and understand Safety Labels on the machine.
- Perform periodic maintenance.
- **DO NOT** overload the machine.
- If you defect abnormal operation, stop the machine and inform your supervisor immediately.
- Be careful of other people around the machine during operation.
- Never modify any electrical unit or circuit without reference to the manufacturer.
- Never alter or remove any mechanical or electronic safety features from the machine.
- Be extremely careful during transport or repositioning the machine and follow transport instructions in the Manual for safe handling.



MACHINE SPECIFIC SAFETY INSTRUCTIONS

Danger zones - Working

We recommend you become particularly familiar with the workstation danger zones in the picture below that can cause hand injury, make specific note of labelling and the location of emergency stops, and consider the movement of material as the machine operates.



- **Points marked with arrows indicate specific areas of crushing or cutting**
- **Emergency stop buttons are mounted on the panel and main body**
- **Protective barriers at the cropping and punching stations must remain in place**

The most dangerous and common causes of damage and injury come from:

1. Machining of other materials than steel 45 kg/mm² mild steel, or exceeding the machine capability. See Technical data.
2. Erroneous use of the material holders and guards.
3. Punching or cutting very small work pieces. These result from the operators working within the danger zones. Small sections of metal may also become trapped between the blades and the main body. If small pieces of material are to be punched or cropped, use extension tools for keeping hands away from danger zones.
4. Adding non-standard or additional tooling. Should additional tools be necessary to be used on the machine, the manufacturer should be allowed to verify the safety to operators and the machine's capability.
5. Working with very large pieces of material. If necessary, use additional supports or rollers.
6. The stripper should always be adjusted according to the material thickness to be machined. Unequal stripping forces can result in tool breakages.
7. Never punch any material which is thicker than the diameter of the intended hole. An overloaded punch will break.
8. Always punch through holes, never blind holes, unless a tool is specifically installed for this purpose. The lateral elongation force, which occurs during punching of blind holes, may excessively press the punch against the die and break.

BEFORE PUTTING INTO OPERATION

- *Connect to the correct power source and turn on at the local isolator.*
- *Check the E stops are 'out'.*
- *Press the green "START" button to start the machine. In order to ensure this, make sure that the red off button ("STOP") is rotated clockwise.*
- *Make sure that the punch and die are correctly fitted.*
- *At the control panel, change the status from "NORMAL" to "ADJUSTMENT". In this mode the operation of the machine will stop simultaneously with release of the foot pedal.*
- *Make sure that the stroke limiters allow a maximum stroke. Make sure the die is loose in the die holder, and press down the foot pedal in short movements to allow the punch to meet the die. Set the die securely when aligned and ensure the punch is correctly tightened in.*
- *Change the position from "ADJUSTMENT" to "NORMAL" on the control panel. The machine will automatically return to the standby position.*
- *Check the operation of the cylinder over a complete cycle to eliminate any air from the hydraulic system that may have accumulated during the transportation. Repeat the process several times.*
- *Check all hoses and hose connections and the oil reserve tank for hydraulic leakage.*
- *Ensure all the safety protection parts are in place, and remove all loose objects from the working zone of the machine*
- *The machine is now ready.*

HYDRAULIC SYSTEM

A 5.5 Kw motor drives a hydraulic pump which supplies the hydraulic oil to power the cylinders on each end of the machine through regulation valves. The punch cylinder is directly connected to the punching unit, where the shear cylinder is connected through a turning lever. The HKM-65 is equipped with a hydraulic check valve system in order to relieve the excess pressure when the machine is overloaded, thus preventing serious damage.

Hydraulic oil

The machine plate advises the oil types. See also page 12. The oil filling and vent ports are located in the tank. Access is gained after removal of the side panels. Cooling cavities are located on machine base. See daily maintenance below.

Cleaning

Under normal operation conditions, all the visible working parts should be regularly cleared of foreign objects that can prevent the safe use of the machine, and casing and switches cleaned.

Under chassis

Annually the lower casings should be removed and debris cleared from under the main chassis. This can take place at the time of a filter change.

Particulate filter

Access to the filter is by removing the lower panels. The oil filter should be checked every twelve months. If necessary the filter can be washed in paraffin. See below for oil changing.

REGULAR MAINTENANCE

Daily Maintenance;

Before starting machine:

- Check full level in hydraulic tank through site glass – top up as necessary
- Check oil level in hand lubrication pump – top up as necessary
- Check condition of all blades, punch and die
- Check surrounding work area is tidy; remove any off-cuts and slugs from floor area
- Clean off any mill scale which may have collected around the cutting apertures

Weekly maintenance;

Depending on work load

- Examine power cable and foot pedal cable for damage or chafing
- Check movements of machine for smooth running under no-load condition

Monthly maintenance;

- Check arm adjustments for any slackness

Yearly;

- Change hydraulic fluid, check the oil absorption filter for any dirt and impurities. Clean or replace.

See also page 33 Maintenance



LUBRICATION Hand Pump

The machine is equipped with a central lubrication pump under pressure which is located on the side in an easily accessible position. Regular pumping of the oil container as shown will maintain a pressure of 1-3 bars. During the machine operation a suitable pressure should be maintained by regular pumping. Fill to the top level of the pump reservoir inspection glass. Use only mineral oil as recommended or equivalent shown in the table below. Check and pump 2 or 3 times daily.

- Castrol Magna DR220
- Shell Tomma T220
- B.P. Energol GHI 220
- Mobil Vactra oil No. 4
- Esso Febis K220



LUBRICATING POT

LUBRICATION Hydraulic Oil

Before operating the machine after establishing a correct oil level on the inspection glass, run the pump to ensure a correct working pressure and repeat the oil level check on the site glass.

According to the environmental conditions where the machine is located, grade 32 Hydraulic Oil or grade 46 Hydraulic Oil is acceptable. Recommended oil is Shell Tellus No.46 and BP Energol No.46 for the hydraulic system. Other types are listed below.

Brand	DIN 51524 Specification 32 Grade Mineral Oil	DIN 51524 Specification 46 Grade Mineral Oil
Agip	OSO 32	OSO 46
BP	Energol HLP 32	Energol HLP 46
Castro	Hyspin AWS 32	Hyspin AWS 46
Elf	Elfolna 32	Elfolna 46
Esso	Nuto H 32	Nuto h 46
Fina	Hydran 32	Hydran 46
IP	Hydrus 32	Hydrus 46
Mobil	DTE 24	DTE 25
Q8	Haydn 32	Haydn 46
Shell	Tellus 32	Tellus 46
Texaco	Rando HD 32	Rando HD 46
Total	Azolla ZS 32	AzollaZS 46

Table 1





INITIAL MACHINE ADJUSTMENTS

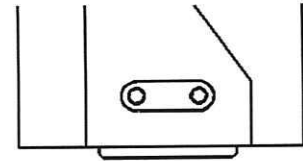
After a preliminary working period of 5 to 6 days it may be necessary to carry out alignment adjustments on the machine.

Punch rod

- The alignment of the rod will be assisted with the help of a "rod leading plate"
- This plate should be readjusted
- The related adjustment screws are located at the material exit side of the machine

To adjust the rod:

- Remove the punch
- Loosen the safety nuts
- Readjust the rod adjustment screw (avoid tightening)
- Lock the screws with the safety nuts



The adjustment control can be checked by operating the rod in-and-out movement about 6 times. Then check the machine in adjustment mode. If the rod does not move, the plate should be readjusted and the process repeated.

Shear lever

The machine should be disconnected before carrying out any readjustment works on the shear lever.

The readjustment of the pressure lines should be carried out from the delivery side of the machine.

To Adjust:

- Loosen the safety nuts (M24) of the three pressure line positions only
- Apply light pressure, rotate the adjustment screws clockwise
- Tighten the safety nuts again and check the movement



Attention: The punch and die may be out of alignment. Realign and tighten before use.



OPERATION OF THE MACHINE

POWER

All the electrical power of the machine passes through the main isolator switch. In order to connect this, rotate the switch clockwise. To confirm this, check that the control lamp illuminates.

Ensure the "STOP" button is 'out' (disconnected). Press the green "START" button to start the motor.

Press the red "STOP" button to stop the motor. The "STOP" button operates and locks even at a light pressure. In order to release the button to allow the machine to function again, the "STOP" button must be turned clockwise.

The pedal switch has three positions:

- > Upper
- > Central
- > Lower

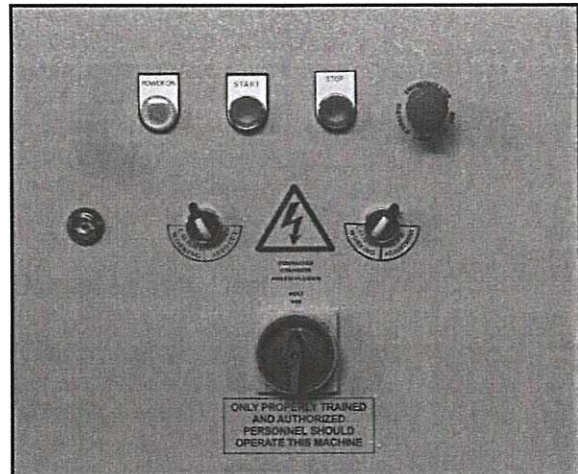
If the pedal is fully depressed until the lower position is reached and held there, the machine performs a complete punch descent but does not return up to the standby position until the pedal is released.

The central position in the footpedal allows the operator to effect positioning during the punch descent. This allows the operator to carry out inching so that the work piece can be optimally positioned.

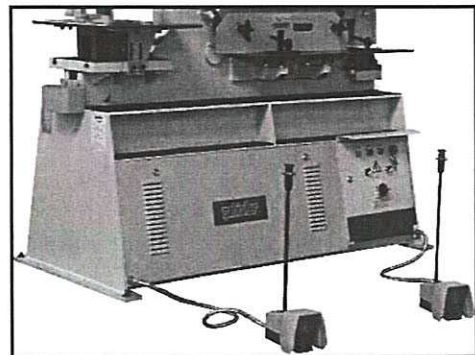
The switch "NORMAL/ADJUSTMENT" ensures that the machine is operated at touch operation or performs production at normal functioning.

When the switch is arranged on "NORMAL" the machine performs a normal and full work cycle at each action of the foot pedal. This means the punch moves to the lowest position and then returns to the standby position.

When the switch is changed to "ADJUSTMENT" the machine stops when the pedal is released. The automatic return does not function.



Note: This machine has two pedals and double pistons designed for two workstations to operate simultaneously with two operators





FIVE WORK STATIONS

1. PUNCHING STATION

All punching operations are performed using hydraulic power, giving the machine the ability to punch very efficiently and silently. It can either be used to punch thin materials in layers together or one thicker, according to the total thickness shown in the specification. Punching is silent, powerful and efficient. The punching action consists of two parts. Firstly the punch penetrates and punches through the material, then the holder, sometimes referred to as a stripper, prevents the material coming back with the punch, so strips it off. There are different holders for different materials. However the standard holder fitted to the machine is suitable for punching between 6-38 mm. Holders must be adjusted to prevent damage to the punch.

SAFETY PRECAUTIONS

- Only a competent person should make adjustments
- Please check all the moving parts before working
- Check the punch and die that they are in the same direction
- Adjust the holder equally and according to the material
- Always use the protective safety plastic shields
- Consider extra personal protection (ppe) when working close with small work
- Always turn off the machine whilst replacing the punch or die or holder
- Never leave the machine unattended if switched on
- Do **NOT** overload the machine

2. SHEARING STATION

The shearing unit has been equipped with a simple and robust holder which can be adjusted for any material thickness within the cutting capacity of the machine. Shearing is possible up to 45° for flat bars or the cutting off the flanges of angle profiles which have previously been cut at the inclined-angle cutting station.

The shearing blades have multiple cutting edges, the upper blade has 2 cutting edges and the lower blade has 4 cutting edges. Turning the blades to present new sharp edges ensures clean cutting with the minimum deformation from the full capacity material thickness to a material thickness of only 2 mm.

SAFETY PRECAUTIONS

- Never place your hand or fingers inside the blade
- Do **NOT** overload the machine
- Always use the holder correctly

3. CUTTING STATION

This station enables the cutting of large angles with a capacity of up to 90° and smaller angles up to 45°. The angle between 45° and 90° can be obtained by first cutting 90° and then at the shearing station cut the flange at the required angle. The holder supports the material in a manner that provides correct cutting.

SAFETY PRECAUTIONS

- Never place your hand or fingers inside the blade
- Do **NOT** overload the machine
- Always use the holder correctly

4. PROFILE CUTTING STATION

The machine is equipped as standard with blades suitable for cutting round and quadrangle bars. Through additional equipment it is also possible to cut U-section, I-section and T-section profiles in this Profile Cutting Station. The blades are held by simple jaws which ensure an easy equipment changeover at the machine without any detailed adjustment.

SAFETY PRECAUTIONS

- Never place your hand or fingers inside the blade
- Do **NOT** overload the machine
- Always use the holder correctly

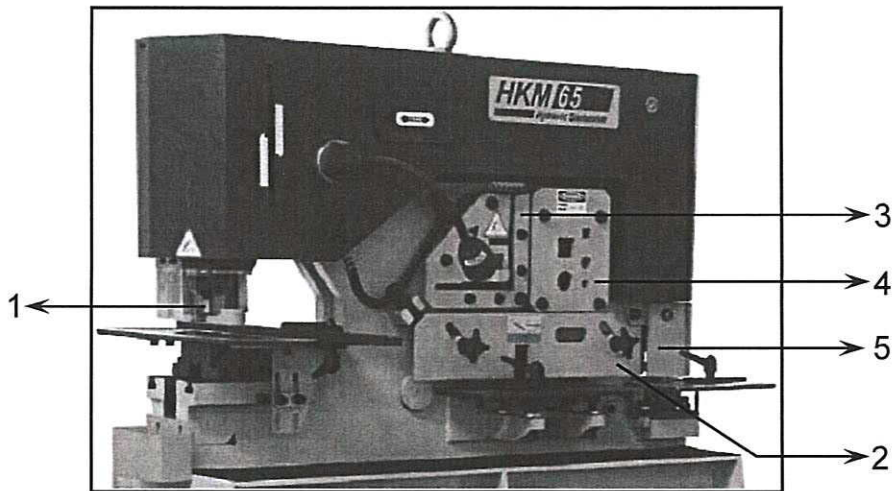
5. NOTCHING STATION

The notching station has been equipped as standard with a rectangle unit and threading table having adjustable counter holders, which enable repeatable positioning. Additional parts are available for narrow widths or V notching of angles up to 45° (V). Furthermore, it is possible to have units for forming at bar ends and for easy notching works.

SAFETY PRECAUTIONS

- Never place your hand or fingers inside the blade
- Do **NOT** overload the machine
- Always use the holder correctly

THE FIVE WORK STATIONS



Standard equipment on all Machines:

- Punch and die Ø22
- Punch holder
- Flange cutting blade
- Notching blade
- Centralized lubrication
- Crescent key
- User's manual

GENERAL ARRANGEMENT OF PUNCH TOOLS

The punch bolster bearing surface and the removable front block have been constructed in such a manner to allow very wide range punching scenarios.

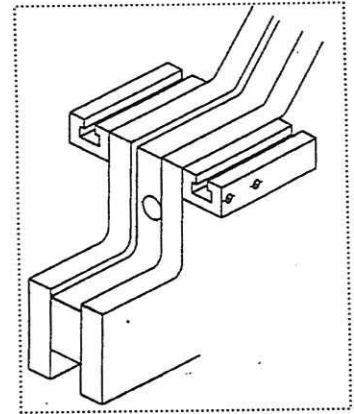
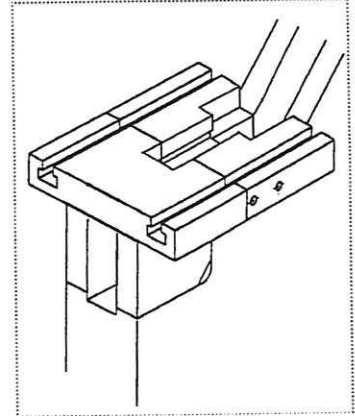
Using available optional extra tools, large holes in any form up to the diameter/quadrate within the capacity table can be produced.

In addition, with the removable bolster block, U-profiles and double T-supports with large diameters or even diagonals up to 38mm capacity can be punched.

No material should be punched which is thicker than the Punch diameter. The quality of the hole is directly proportional to the accuracy of the alignment of the punch and die.

Always ensure the stripper arms are evenly placed, especially if working on an end of a bar or product. Add a matching shim under one arm to ensure an even pressure on the stripper.

Additional tools are available for this multi-purpose workstation for bar and sheet metal bending works, edge threading, tube threading, tube threading and general column positioning works.



- For instructions on changing Punch and Dies, see page 19.



A step by step guide to how the punch and die are changed:

In order to install or change the punch tools you will need the following tools:

- Hook key
- Soc. head cap bolt key (6 mm)
- Screw key (24 mm)

1. Raise the ram to the highest position.
2. Disconnect the machine at machine switch.
3. Open the stripper; loose the coupling nut, fixing screws of the die on the die holder and the M12 screws which hold the die. Remove the coupling nut together with the punch and adaptor. Remove the die.
4. Replace the required punch and die. Make sure that both are aligned and secured in place.
5. Reconnect the power to the machine and position at "**Adjustment**".
6. Move the punch slowly towards the die. Position the bolster block correctly so that the punch and die are completely aligned.
7. Ensure the alignment is central and tightly secure the bolster.
8. Check whether or not the die alignment has deviated during tightening. If the cutting is not equal, repeat point 4. Once the bolster is secured centrally turn the machine to "**Normal**".
9. Replace the stripper and adjust the distance between the stripper and bolster according to the thickness of the material to be machined.
10. Adjust the course adjustment in such a manner that the shortest possible distance is left.
11. In order to protect the operators, always fix the macralon protection before working.

When ordering spare punches and dies always state machine model, type and serial number.





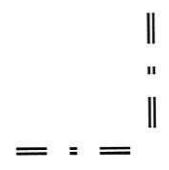
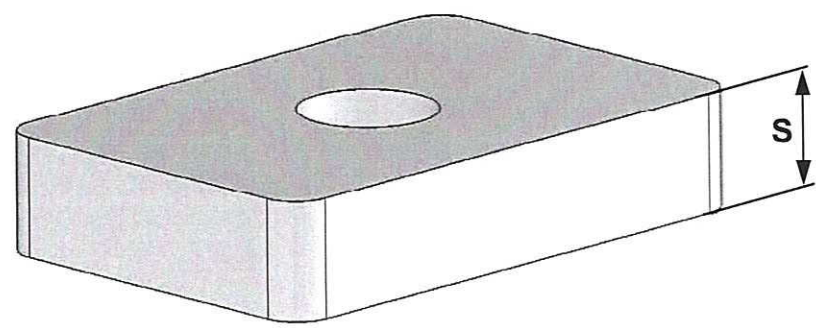
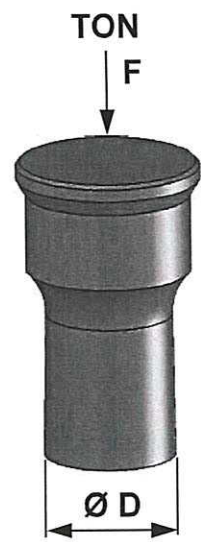
PUNCH CAPACITY

MATERIAL THICKNESS	T															T			
	30									127	148	169	190	211	232	30			
	28									118	138	158	178	197	217	28			
	25									88	105	124	140	158	176	194	25		
	20				F = TON						56	70	85	99	112	127	141	155	20
	15										32	42	53	63	74	85	95	106	116
	12					20	25	34	42	51	59	68	76	85	93				12
	10					14	17	21	28	35	42	49	56	63	70	78			10
	8					9	11	13	17	22	28	34	39	45	51	56	62		8
	5					3	6	7	9	10	14	18	21	25	28	32	35	39	5
	Ø D	5	8	10	12	15	20	25	30	35	40	45	50	55					

MATERIAL THICKNESS

This table shows the punch capacity values of the HKM-series depending on the material thickness and stamp diameter. (Based on a construction steel having a traction resistance of 45 kg/mm² (28 TONNS/IN²)).

Attention: Never use a punch with a smaller diameter than the material thickness to be machined.



PUNCH TOOL PARTS LIST

As standard, each machine comes with a 22 mm Ø punch and die. The maximum diameter is 35 mm.

Always adjust the punch centrally so that an equally rotating cutting distance of 5% of the material thickness remains. Never punch a material that is thicker than the diameter of the punch.

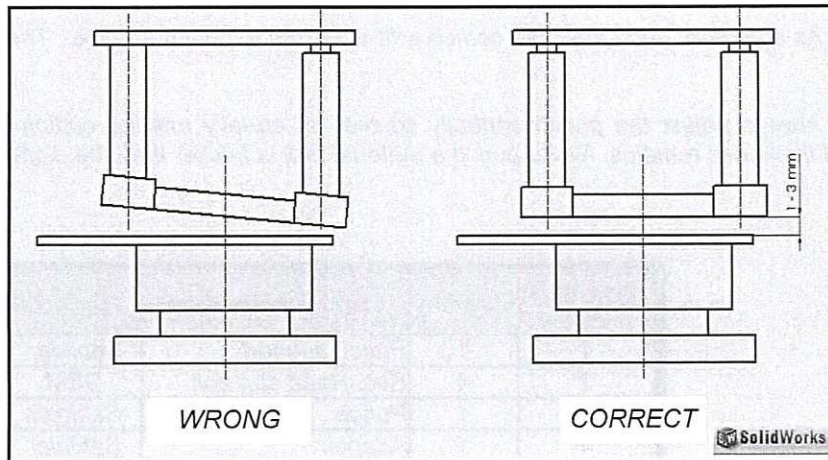
Assembly No	Quantity	Part Identification	Brand
1	1	Punch support	Sahinler
2	4	Soc. Head cap bolt	OEM
3	1	Punch	Sahinler
4	1	Adapter	Sahinler
5	1	Specific nut	Sahinler
6	1	Top stripper plate	Sahinler
7	1	Distance piece	OEM
8	1	Spring	OEM
9	1	Washer	OEM
10	2	Soc. head cap bolt	OEM
11	2	Stripper support	Sahinler
12	1	Stripper head	Sahinler
13	2	Washer	OEM
14	2	Spring ring	OEM
15	2	Counter washer	OEM
16	6	Soc. head cap bolt	OEM
17	6	Counter washer	OEM
18	1	Washer	OEM
19	1	Die holder	Sahinler
20	6	T nut	Sahinler
21	1	Set screw	OEM
22	1	Die	Sahinler
23	1	Fixing wheel	Sahinler
24	1	Set screw	OEM
25	1	Hook key (C Spanner)	OEM

LUBRICATION OF THE PUNCH TOOLS

For maximum service life of the punch and dies, we recommend you use one of the lubricants listed below:

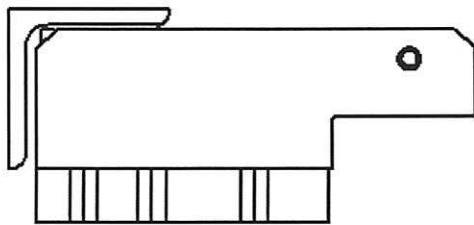
- Shell Garia 927
- BP Servora 68
- Castroll Ilobroach 219
- Duckharns Adfomol EP7
- Joseph Batson LB 733

CORRECT USE OF PUNCH AND DIE

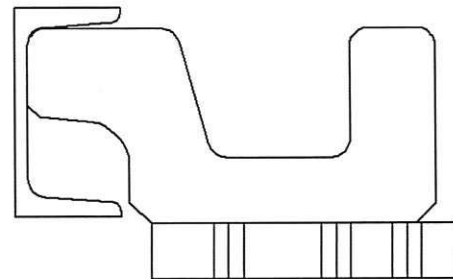


- > Wrong sized punch holder
- > Wrong sized part
- > Wrong distance

FLANGE PUNCHING



Normal punching



Very small punching which requires special eccentric die and tool

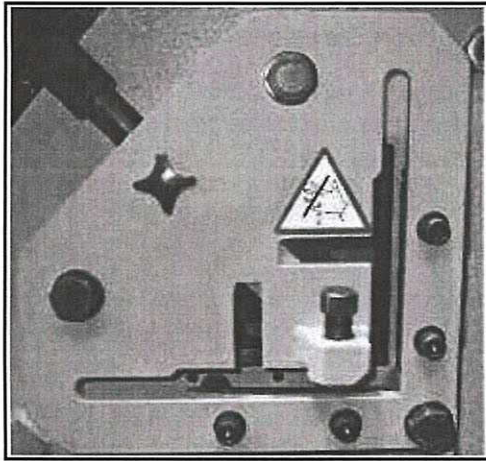
You can use the standard tool for all kind of punching, however for flange punching like pictured above right, order a set of eccentric punch and die tools.

MITRING ANGLE 45 DEGREES

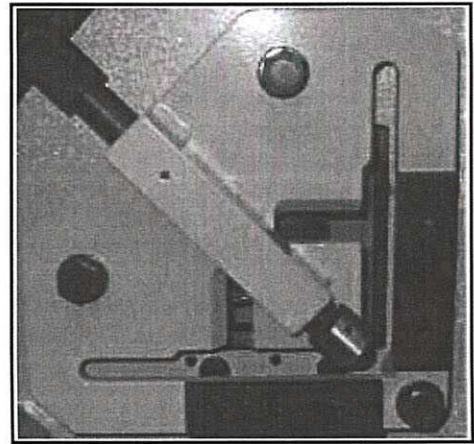
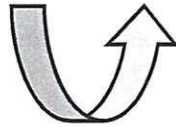
In our insistence on the most stringent demands of health and safety we have designed the shearing hold-down to maximize the accessibility and distance between hold-downs and blades when cutting angles.

For mitring angles, make the following adjustment of turning the hold-down clamp before use.

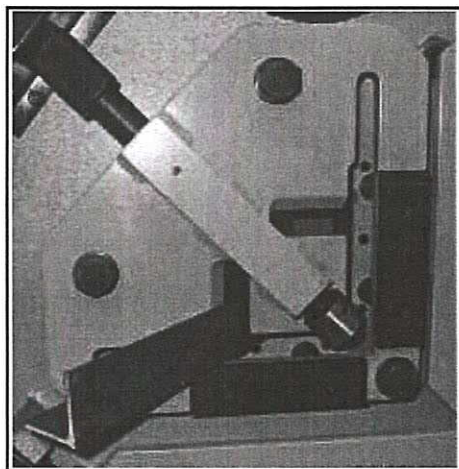
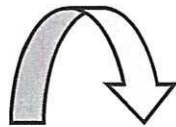
Once the hold-down is secured for cutting as position 3, it is still possible to use the hold-down for cutting angle at 90 degrees.



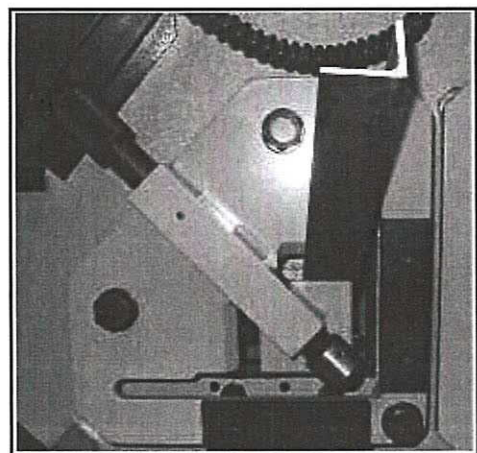
STANDARD HOLD-DOWN
POSITION - CUTTING



ANGLE 45 DEGREES CUTTING



LEFT ANGLE 45 DEGREES
CUTTING



RIGHT ANGLE 45 DEGREES
CUTTING

ANGLE CUTTING

This work station allows the cutting of complete angles of 90° as well as angles smaller than 45°.

In order to cut angle profiles, the material is placed into the cutting zone through the fixing plate and the support screw is adjusted to the corresponding material thickness. Note here that longitudinal movement of the profile still remains possible.

For the inclined cutting at 45° the angles should be first cut on the length where the delivery for the cutting of edges is also visible.

Place the first end into the blade, where the highest support position will be used.

Cut about 6 mm from the end of the material while maintaining 45° at vertical position.

Now place the other end into the blade. Here the left support position is used.

Cut the material longitudinally. For this purpose, 45° should be maintained from the surface position of the machine.

In order to obtain other cutting angles between 45° to 90° first cut the angle profile at length and then cut the flange as per the required angle at the shearing station.

The cavity in the shear fixing station allows the angle profiles to be positioned for left or right side cutting. At this point attention should be paid that the fixing station is adjusted to the related material thickness.

Each blade has four cutting edges and is held by the simple fixing screws. These blades should not be sharpened. After four rotations these should be replaced by new blades.

When ordering spare blades always state machine model, type and serial number.

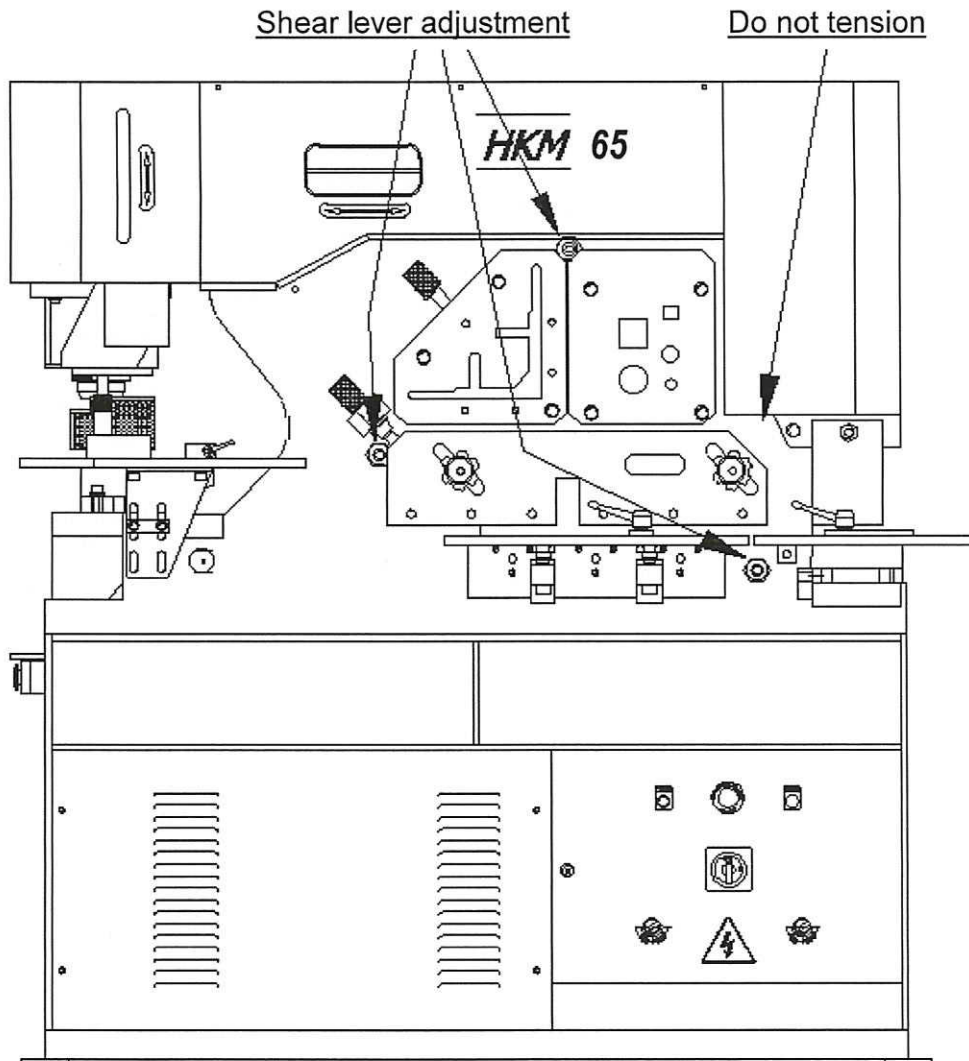
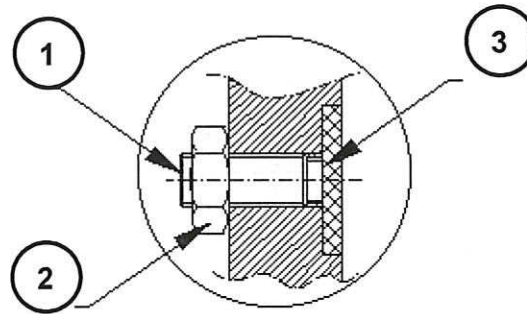
Adjustment of the Shear Lever

The adjustment of the shear levers should be carried out before any adjustment of the shear blade shown on page 26.

Adjustment of the shear lever is shown below.

Description

1. Adjustment screw
2. Safety nut
3. Bronze pressure plate

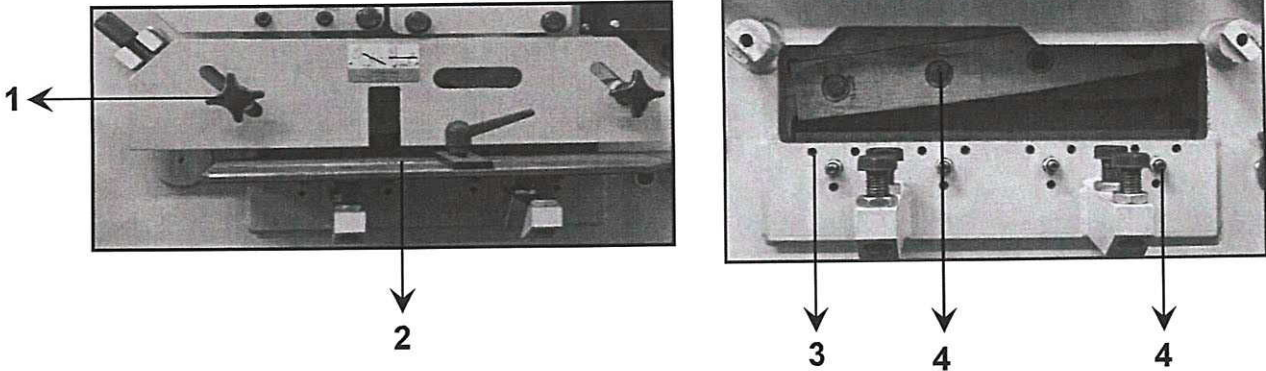


SHEARING INSTALLATION

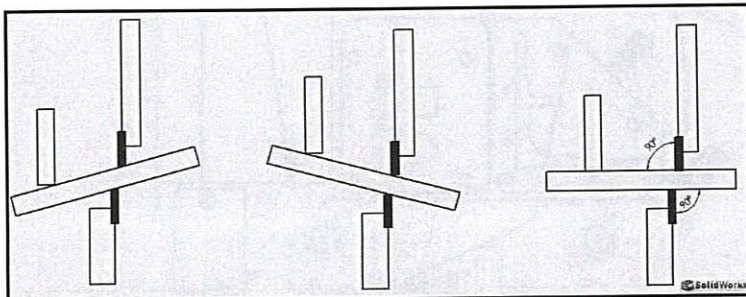
Blade adjustment / Blade Change:

When installing new blades, ensure that the movable blade is hard against the shear lever. While the machine is disconnected, pull blades together with the internal hexagonal (4) screws hard onto the shear lever without the threaded pins pressing against the blade.

To adjust the blades inch down the shear lever sufficiently to align the blades. With the machine disconnected adjust the movable blade to leave a cutting distance of 0.1mm. The threaded pins are used for the adjustment. Lock the blade using the locking screws at the right cutting distance (3).



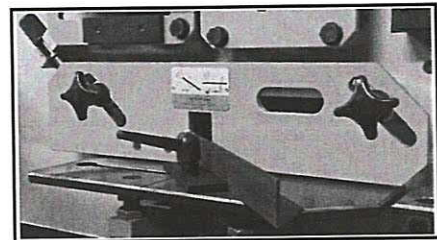
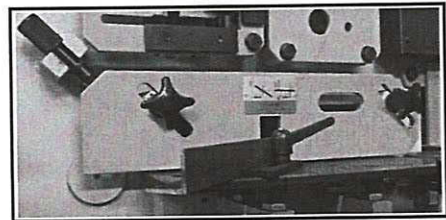
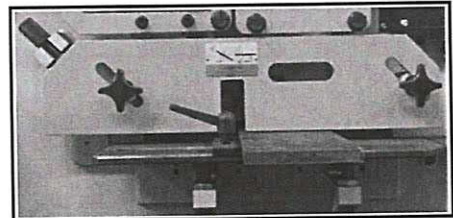
Note: Both blades can be used on both sides. You have four cutting edges.



WRONG

WRONG

RIGHT





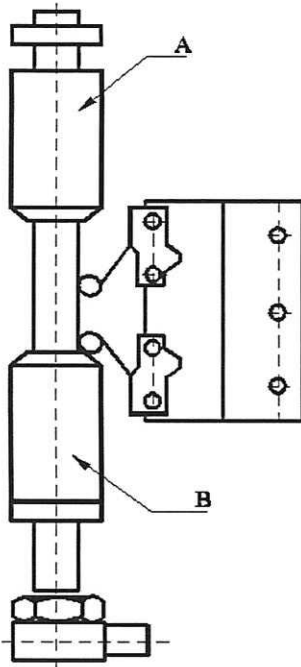
STROKE ADJUSTMENT

Note:



Adjustments to stroke limiters can be arranged by switching to the **INCH** mode of operation where the shear/cutting position can be stopped using the foot pedal to 'inch' to the material.

After adjusting the appropriate limit positions, tighten the stop screws, **re-check** the settings, then revert to the normal **RUN** condition.



To set the lower limit stroke (useful for repeated bending etc.) adjust the **stop A**.

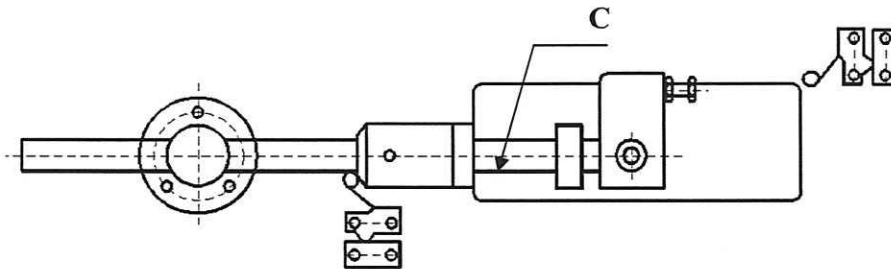
To set the upper limit **stop B**, use the 'Inch' facility on the foot pedal to verify the position before locking.



Attention:

After adjusting the appropriate limit positions, tighten the stop screws and **re-check** the settings before reverting to the normal **RUN** condition.

In order to lock the back limit of the shearing unit, use the shears with the foot pedal in the 'Inch' mode and hold them in the closed position. Adjust the **stop C**. After adjustment tighten the stop screws and **re-check** the settings before reverting to the normal **RUN** condition.



STEEL BAR and PROFILE CUTTING

Various profiles can be cut including round and quadrant profiles, angle profiles with unequal levers, U-profiles, double T-supports, etc.

The blades for cutting the round and quadrant sections are part of the standard equipment and have various size clearances. The smallest clearance that allows access for the material should be used for complete and well supported cutting.

To replace the blades, the material supports must be removed. Loosen the four screws that hold the blade hooks, remove the blade hooks and the screws. Note that the moving blade is smaller than the fixed one. This is to ensure correct fitting. Attention should be paid when aligning the movable blade to ensure a safe clearance.

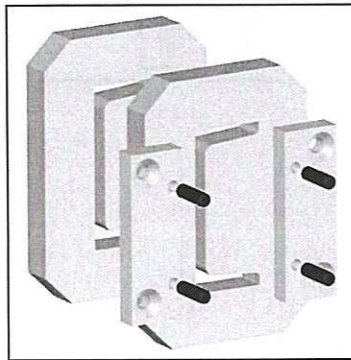
Adjustment of the blade gap:

- Make sure that the movable blade is visible in the shear lever.
- Assemble the fixed blade in the frame in such a manner that it fits tight against the movable blade.
- Assemble the blade hooks solidly in the frame.
- Unwind the four thread pins and then loosen at 1/5 rotation when the counter nuts are removed. Secure the thread pin with the help of an internal hex key.

Steel bar shearing



Special profile cutting



SHEARING and PROFILE SECTION CUTTING

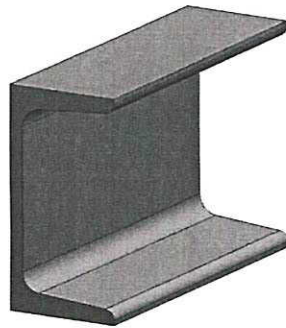
The shearing unit has been equipped with a simple and strong holding clamp that can be arranged for different material thicknesses within the cutting capacity of the machine.

The shearing table has adjustable guides constructed to allow a correct alignment of the material. The guiding can be arranged to allow the angle cuts up 45° for flat bar material or for cutting flange of angle profiles that have been previously cut at the inclined cutting station.

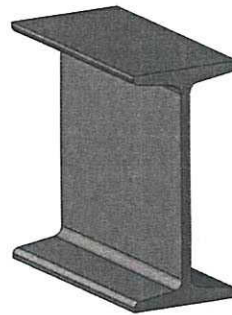
Always place the material from the entry side of the machine and make sure that the material is secured by correctly adjusting the holding clamp. If a complete cut is required, the largest dimension for the material to be cut at angles is 70x70x10mm.

If the shear blade is to be re-sharpened, grind only the cutting surfaces. Re-grinding is possible up to a maximum depth of 0.8mm. When refitting the blades, adjust to a tolerance of 0.1mm.

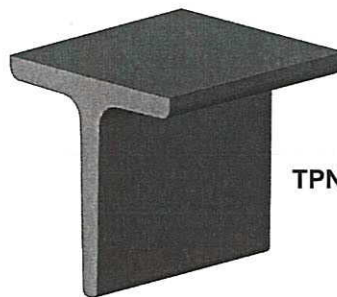
Special section blades are available to cut the following profiles:



UPN



IPN

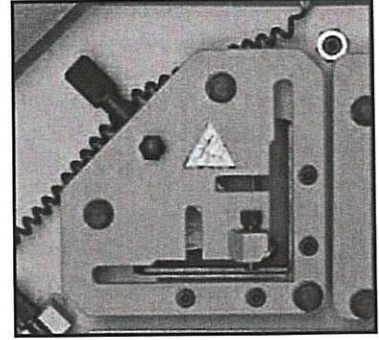


TPN

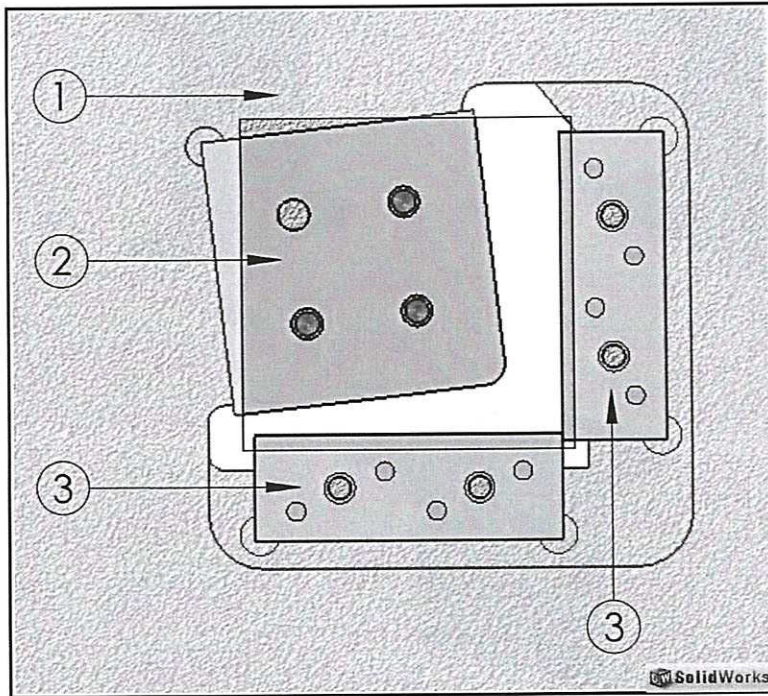
PROFILE BLADE ADJUSTMENT/BLADE CHANGE:

During the installation of new blades, ensure that the moveable blades fully fit onto the shear lever. While the machine is disconnected, pull blades together with the internal hexagonal screws (3) totally onto the machine body, without the thread pins (4) pressing against the blade.

To adjust the blades, move the shear lever by inching so that both blades, moveable and fixed blades, can be aligned. Disconnect the machine. Adjust the moveable blade to leave a cutting distance of 0.1mm using the threaded pins (part no.4). Secure the blade using screws (part no. 5), having checked the right cutting distance.



Note: Both blades can be used on both sides. You have four cutting edges.



No	Description	Quantity
1	Mobile Frame	1
2	Mobile angle blade	1
3	Fixed angle blade	2

NOTCHING

The notching station has a quadrangle punch tool as standard equipment and comes with a notching table and adjustable lateral and rear guides, which simplifies positioning of the material for repeat notching operations.

A number of variations exist for notching different shapes and smaller profiles.

A special feature of this work station is the ability to accept punches for smaller punching operation up to a punch pressure of 45 t (subject to verification of workload characteristics).

If the moveable notch top tool is reground, ensure only the side and front surfaces are ground. The three section bottom tools have four cutting edges and can be turned to maximize the blade life, providing sharp faces for notching.

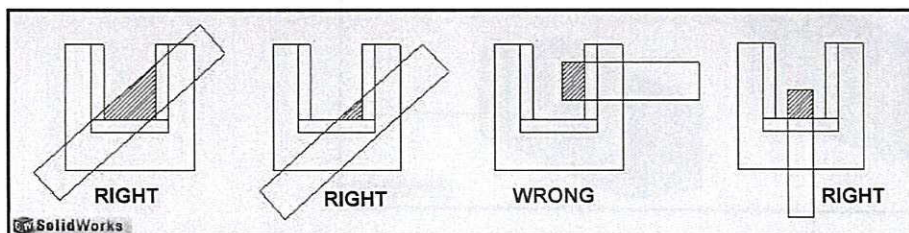
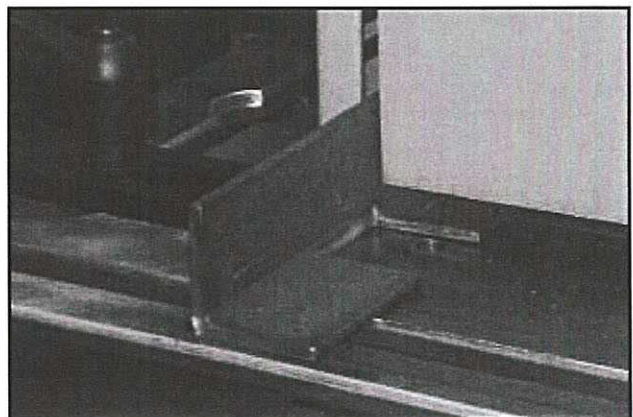
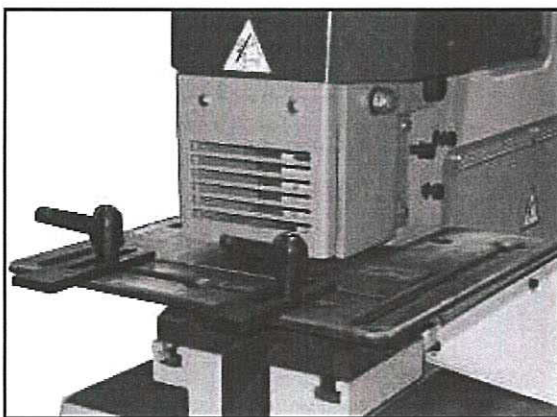
NOTCHING TOOLS – ADJUSTMENT See diagrams on page 30

The steps below should be followed for the changing of the notching blade set.

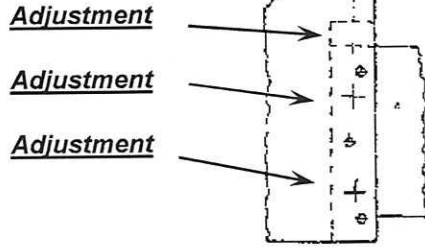
1. Move the notch top blade fully up (fully open)
2. Disconnect the machine at the main switch
3. Remove the scraper finger and the tool
4. Remove the hole bottom tooling and loosen the support
5. Fix the new tools
6. Reconnect the machine and turn the control to the "ADJUSTMENT" position. Fully lower the notch arm and disconnect the machine
7. Adjust and secure the front tool to the distance illustrated in the sketch on page 32. Lock into position
8. Adjust and secure the side tooling as shown in the sketch. Lock into position
9. Check the distances for safety
10. Reconnect the machine and raise the tool. Remount the safety guard
11. Adjust the stroke to minimize the length on motion



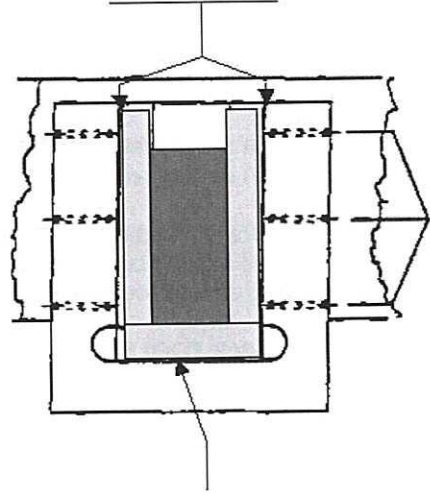
Note: The lateral distances of the punch should be adjusted as illustrated in the sketch. In this way the lower edges of the top tool will miss the bottom tool leading edge.



NOTCH ADJUSTMENT

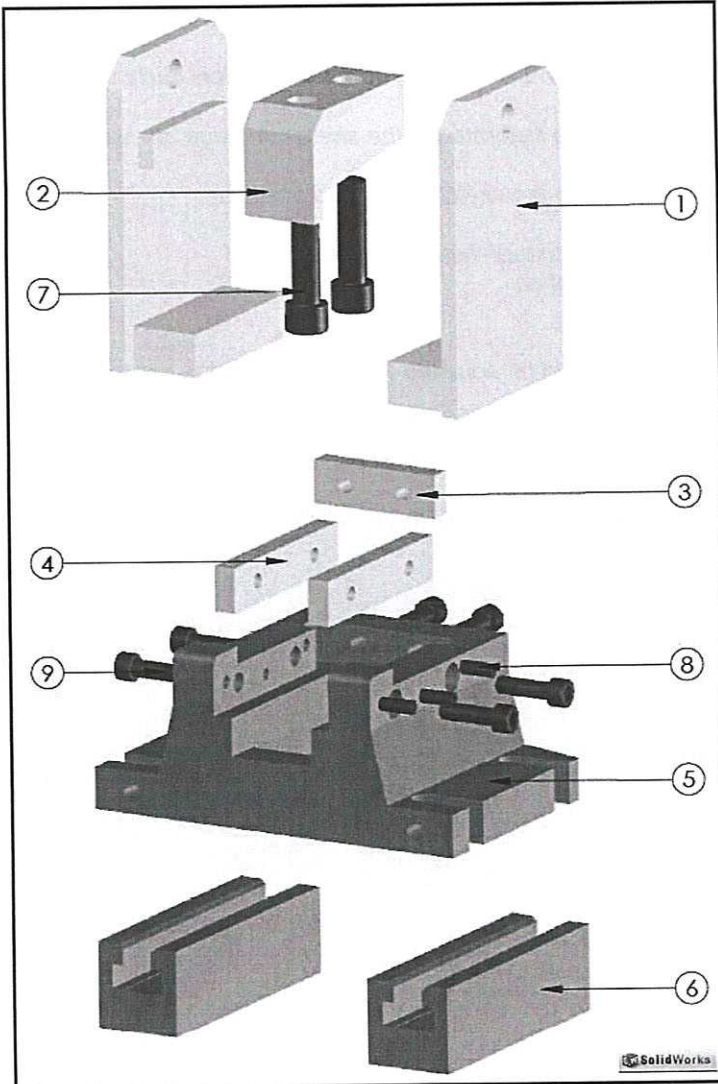


Tolerance
0.1-0.2 mm



Front distance
0.1-0.2 mm

GROOVING PARTS



NO	PARÇA ADI	ADET
1	Yan Sıyırıcılar	2
2	Çentik Üst Bıçak	1
3	Çentik Ön Bıçak	1
4	Çentik Yan Bıçak	2
5	Çentik Yatağı	1
6	Çentik Yatağı Bağlantı Takozu	2
7	Üst Bıçak Cıvatası M 16 x 40	2
8	Yan Bıçak Setskuru M 8 x 25	6
9	Yan Bıçak Cıvatası M 10 x 30	6



MAINTENANCE

Maintenance works should only be carried out by sufficiently qualified or competent personnel. Particular attention should be paid to the correct assembly and alignment of the punch and dies, cropping blades and other tools.

UNDERSTAND THE MANUAL AND MACHINE BEFORE CARRYING OUT MAINTENANCE

Wear suitable ppe (personal protective equipment). Use correct tools that are in good condition.

If safety items have been removed for maintenance, ensure these are correctly reinstated before allowing an operator to start the machine.

Remove any residual oil, cuttings and debris from the working zone left from previous operations.

Oil leakage and condition of punches, dies, blade edges and tolerances, etc. should be checked after each tool change and be readjusted if necessary.

The stripper should always be adjusted according to the material thickness to be machined. Unequal stripping forces can result in tool breakages.

Never punch any material which is thicker than the diameter of the intended hole. An overloaded punch will break.

Always punch through holes, never blind holes, unless a tool is specifically installed for this purpose. The lateral elongation force, which occurs during punching of blind holes, may excessively press the punch against the die and break.

Regularly check the screw connections and other fixings of all the blades and other parts as well as the safe seating of the punches and dies. For example, should the punch become loose during an operation, distortion or misalignment will result in a breakage.

Before each tool change or any maintenance work ensure the machine is disconnected from the main electrical supply.

Never allow operators to use the machine after maintenance without checking.

Should the hydraulic circuit flow be overloaded, the hydraulic oil will be fed back to the reserve tank through the overload valve until the pressure reduces to the normal level. Never alter the safety relief valve.

Attention: IT IS DANGEROUS TO ALLOW THE OVERLOAD SAFETY VALVE TO BE USED TO EXCEED THE MACHINE CAPACITY.

Before Use
(Can be by operators)

- Ensure all working surfaces are clean and tidy
- Top up and operate the hand lubrication system
- Check tool securing fixtures are tight

Monthly

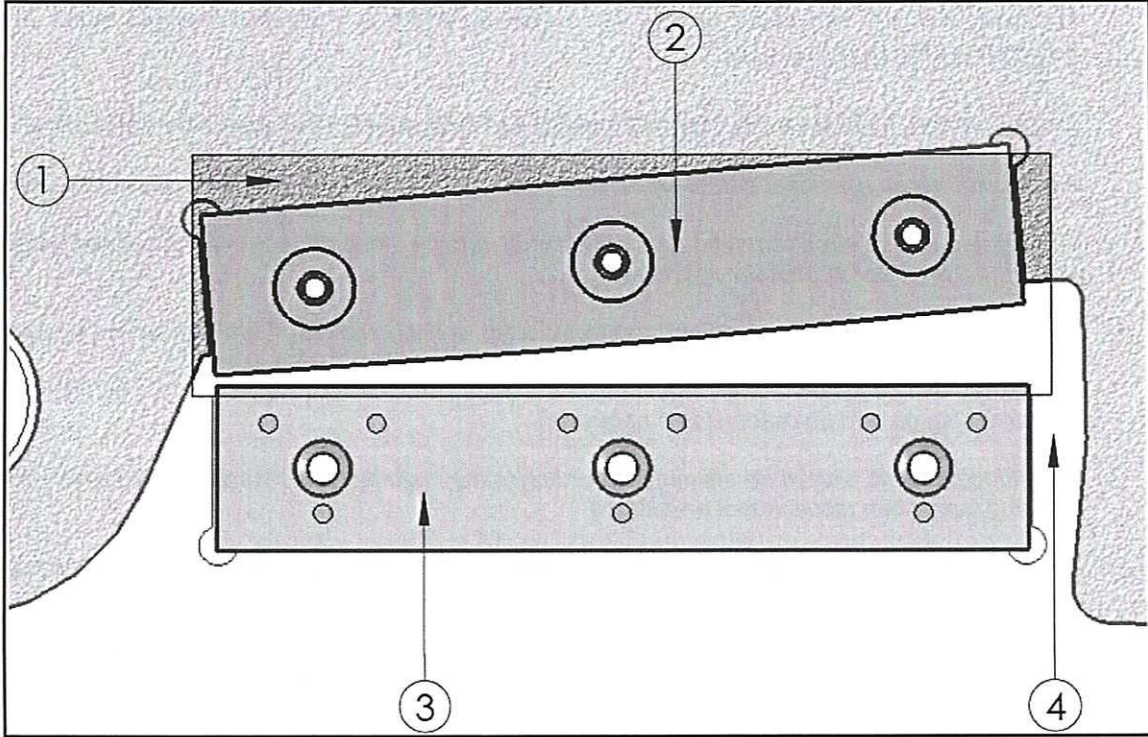
All the above plus

- Check and if necessary top up hydraulic oil level in tank
- Remove debris from under and around machine
- Check hydraulic pipes in good condition
- Clean entire outer casing
- Check limit switches are secure
- Check E stop operation

Annually

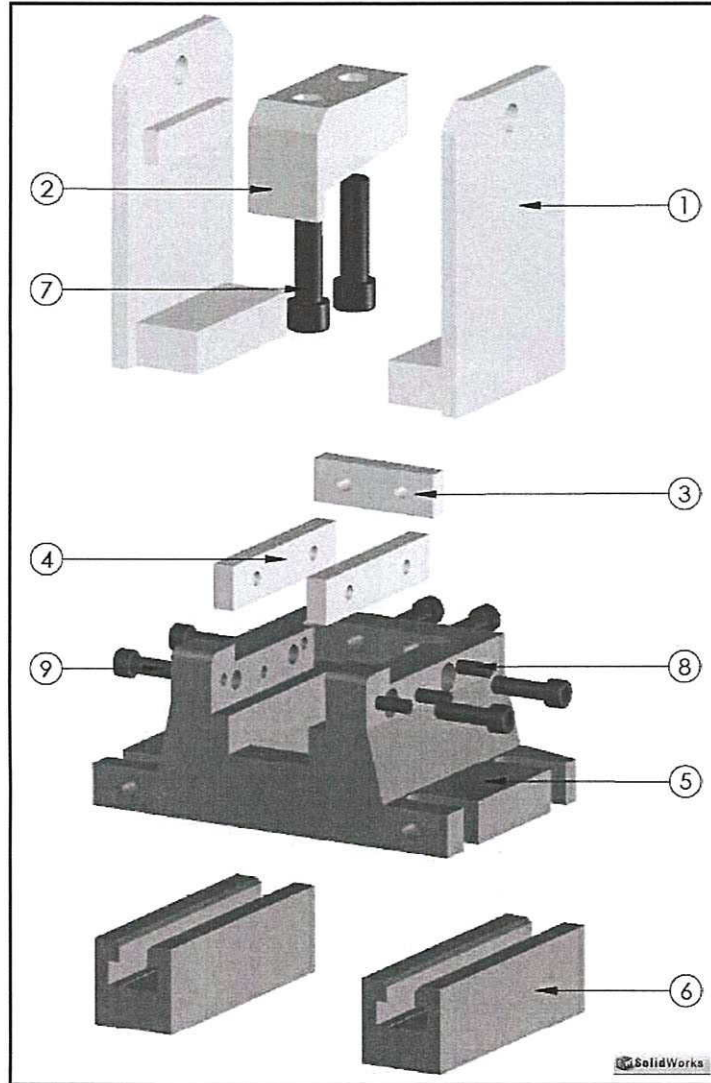
All the above plus

- Check all electrical connections
- Change oil and filter if the machine has done more than 20 hours per week

BLADE PART LIST


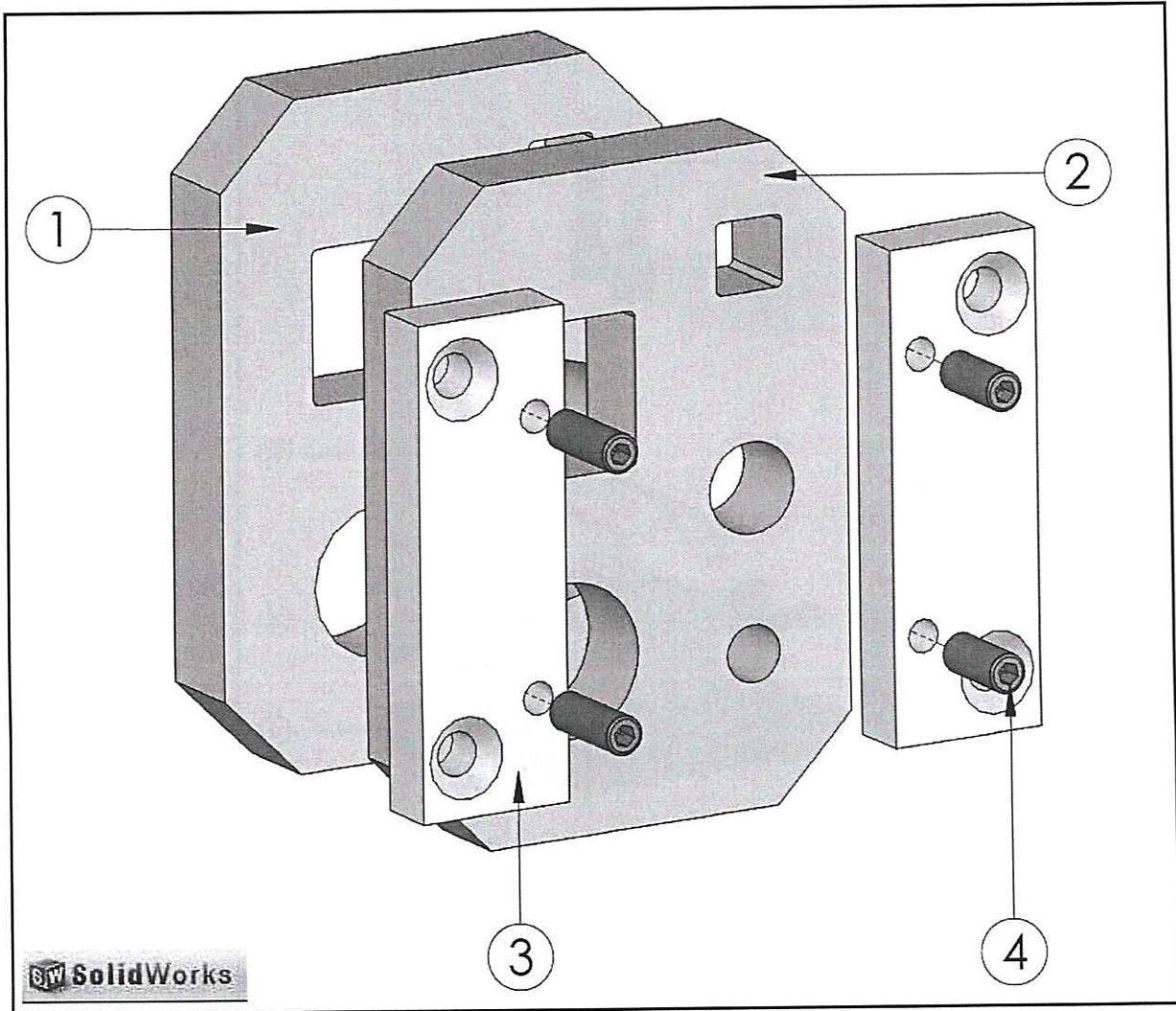
NO	PART DESCRIPTION	QTY
1	<i>Moving Body</i>	1
2	<i>Moving Body Shear</i>	1
3	<i>Front Body Shear</i>	1
4	<i>Front Body</i>	1

NOTCHING PARTS



NR	PART DESCRIPTIONS	QTY
1	Scraper finger	2
2	Upper blade	1
3	Lower blade	1
4	Lower blade	2
5	Holder	1
6	Holder wedge	2
7	Internal hex. Screw M16x40	2
8	Grub screw M 8 x 25	6
9	Internal hex. Screw M 10 x 30	6

Parts list of the cutting frame:



NR	PART DESCRIPTION	QTY
1	Mobile profile blade	1
2	Fixed profile blade	1
3	Hook	2
4	M 12 x 40 Set screw	4



sahinler
METAL MAKINE ENDÜSTRİ A.Ş.

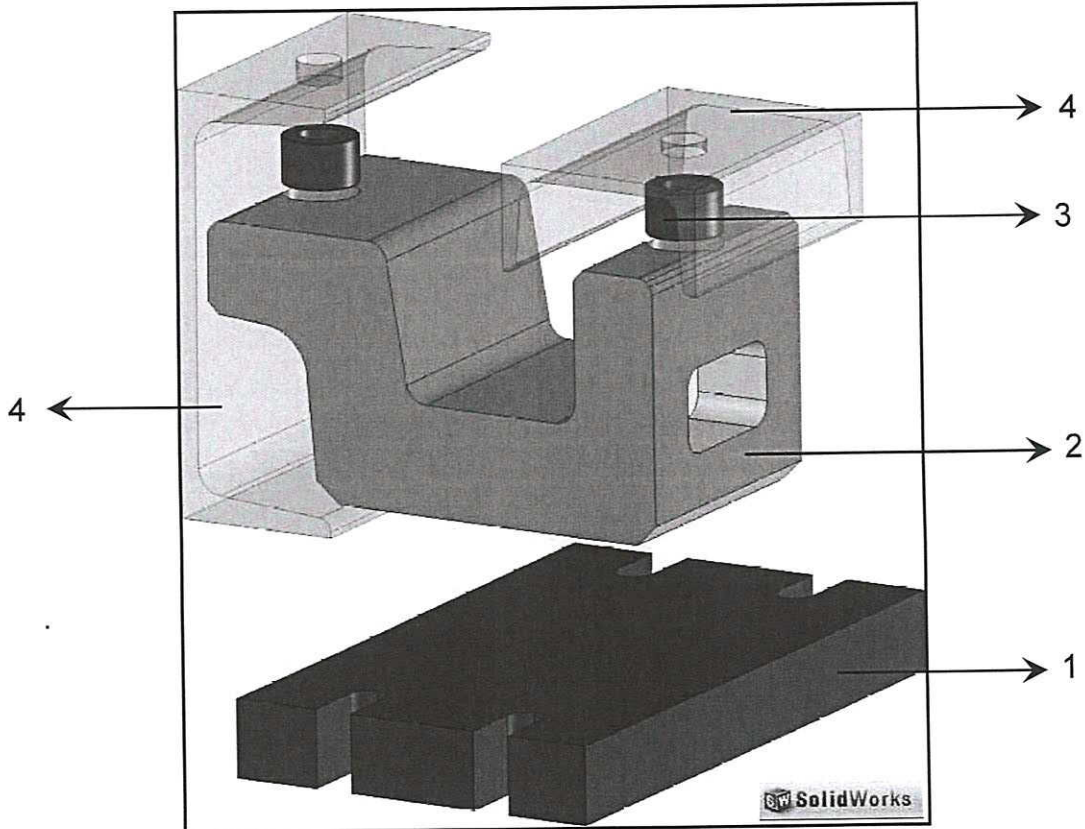


OPTIONAL ACCESSORIES

PUNCHING 'I' and 'U' PROFILES

During punching of the 'I' profiles, change the standard scraper head with the lengthened type.

- Capacity of punching from the side: Profile size 65 - 120 for 'I' or 'U' profile
- Capacity of punching from the back side: Profile size 65 - 160 for 'I' or 'U' profile

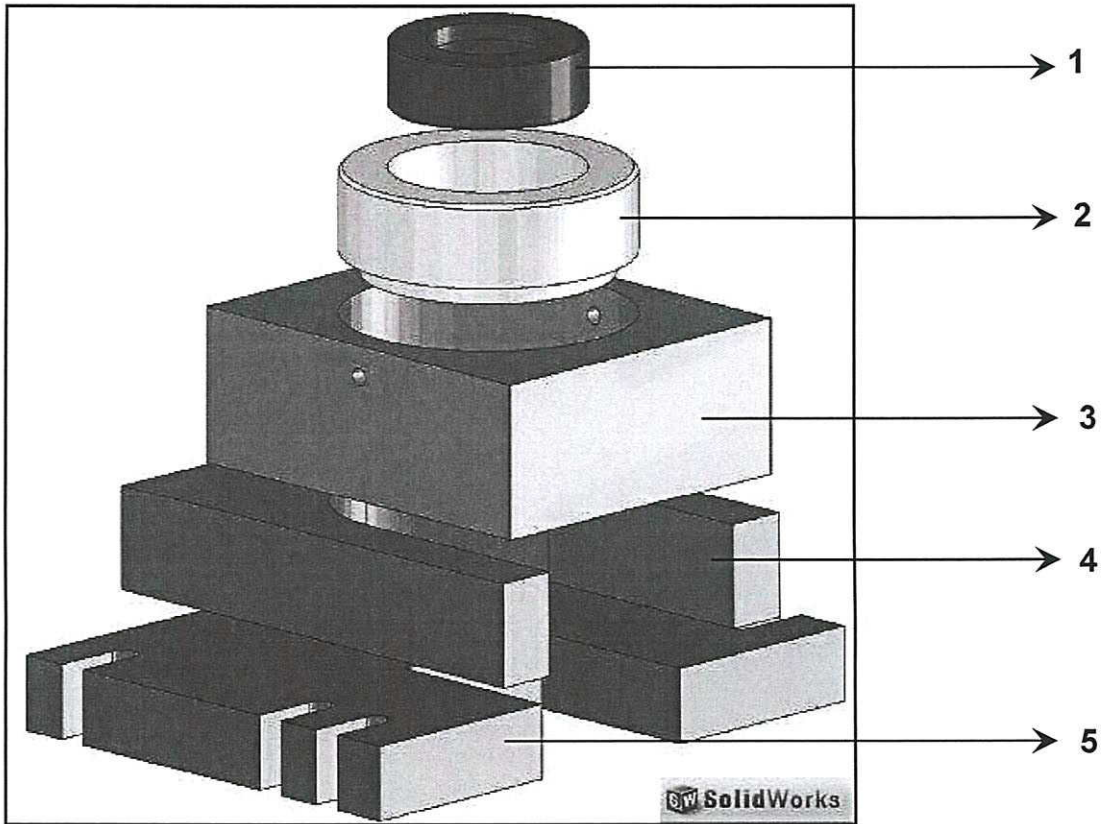


NR	PART DESCRIPTION	QYY
1	Matrix support	1
2	IPN-UPN Punching bolster	1
3	Hole Die	2
4	Material	2

LARGE HOLE PUNCHING

During punching of the large holes, change the standard scraper head with the larger type.

- Capacity of punching from $\varnothing 6\text{mm}$ up to $\varnothing 110\text{mm}$ hole.



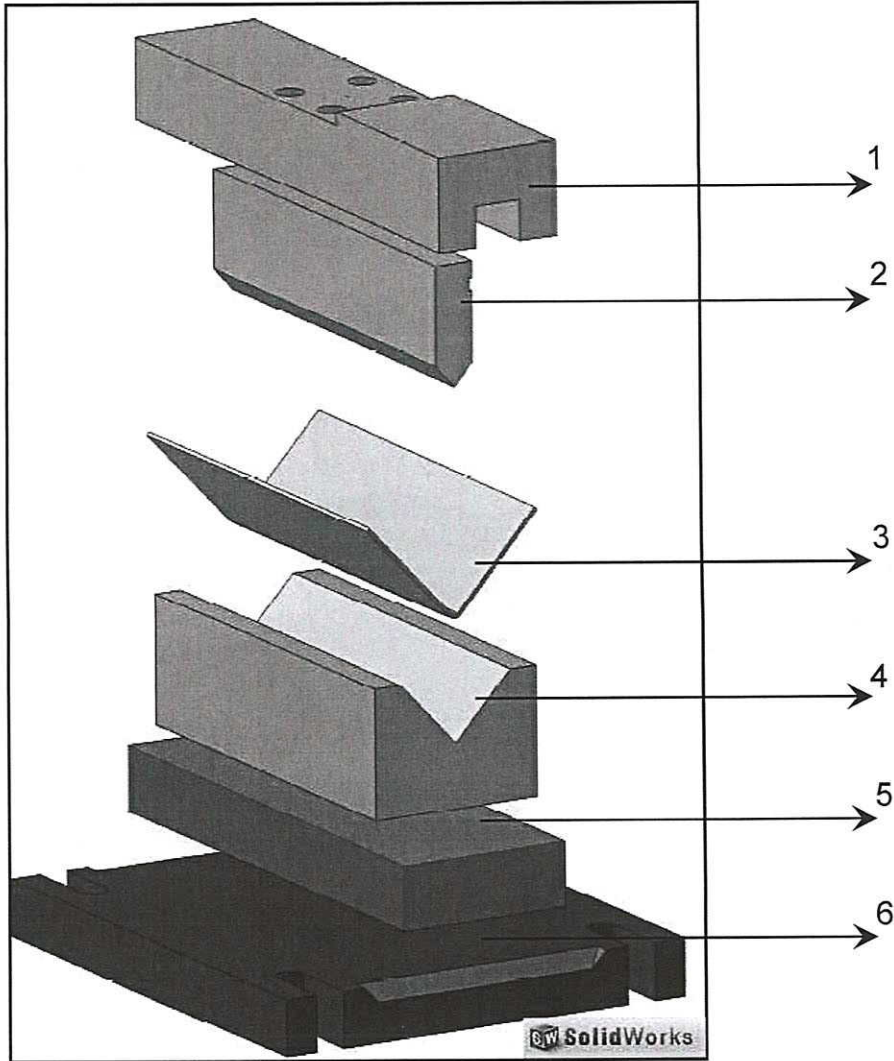
NR	APRT DESCRIPTION	QTY
1	Hole die	1
2	Die adapter	1
3	Bolster	1
4	Bolster middle part	1
5	Bolster bottom part	1



PRESSBRAKE TOOL

During the bending plates, change the standard scraper head with the pressbrake..

Capacity of bending 500 x 3 mm or 250 x 15 mm.



NR	PART DESCRIPTION	QTY
1	Blade holder	1
2	Blade	1
3	Material	1
4	Die	1
5	Die middle part	1
6	Die bottom part	1

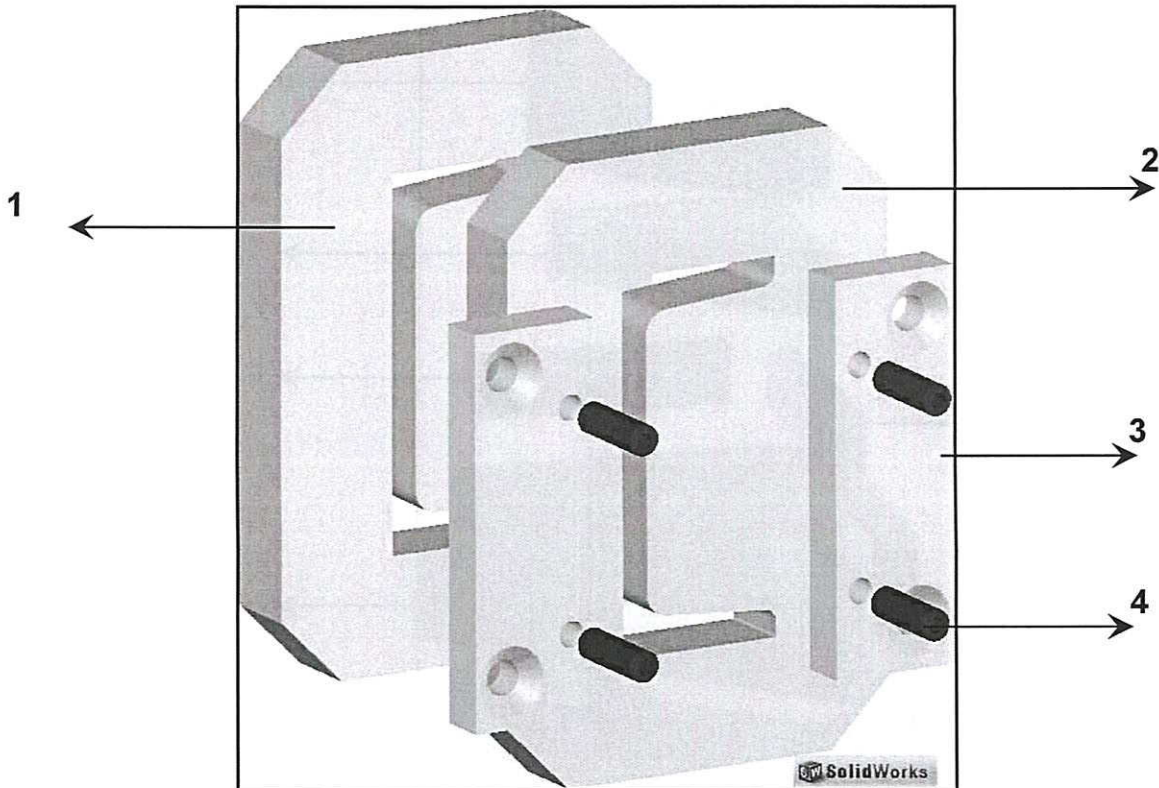


SECTION BLADES

During the cutting UPN-IPN profiles, change the standard steel bar shear blades with the section blades..

Max. capacity of cuttings UPN-IPN: 160x74mm

Max. capacity of cuttings T Profiles: 100x11mm

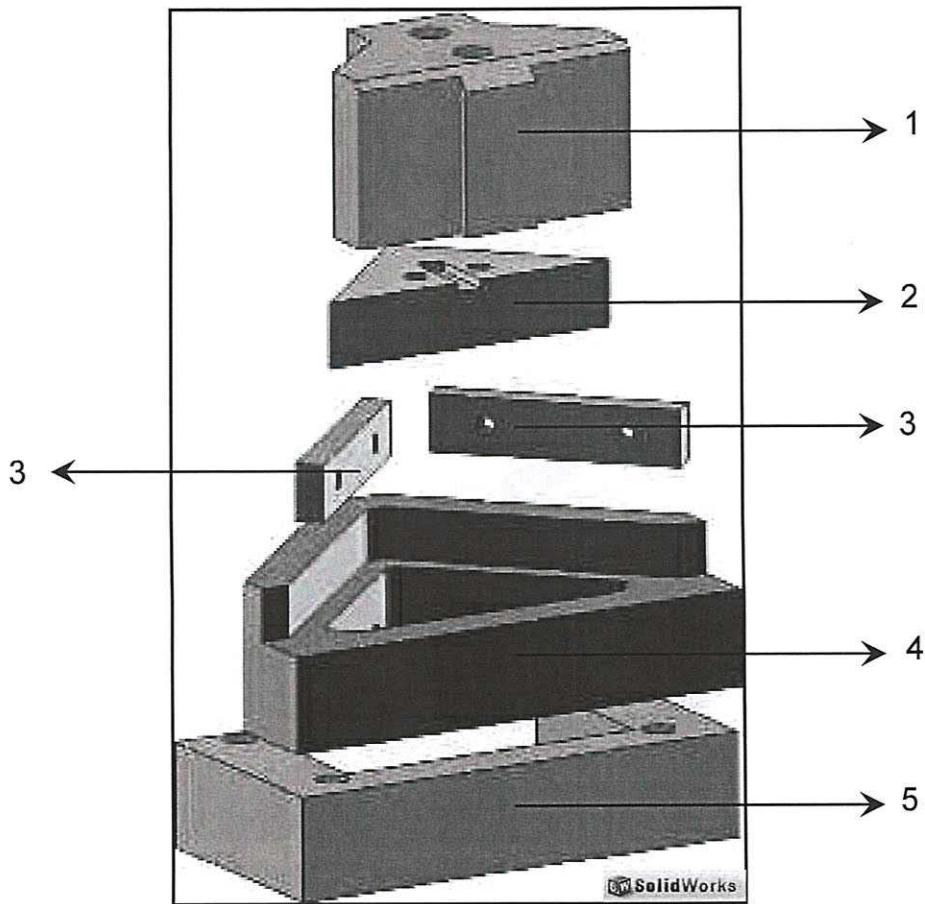


NR	PART DESCRIPTION	QTY
1	Mobile UPN blade	1
2	Fixed UPN blade	1
3	Hook	2
4	M 12 x 40 Set screw	4

SPECIAL V NOTCHING TOOL

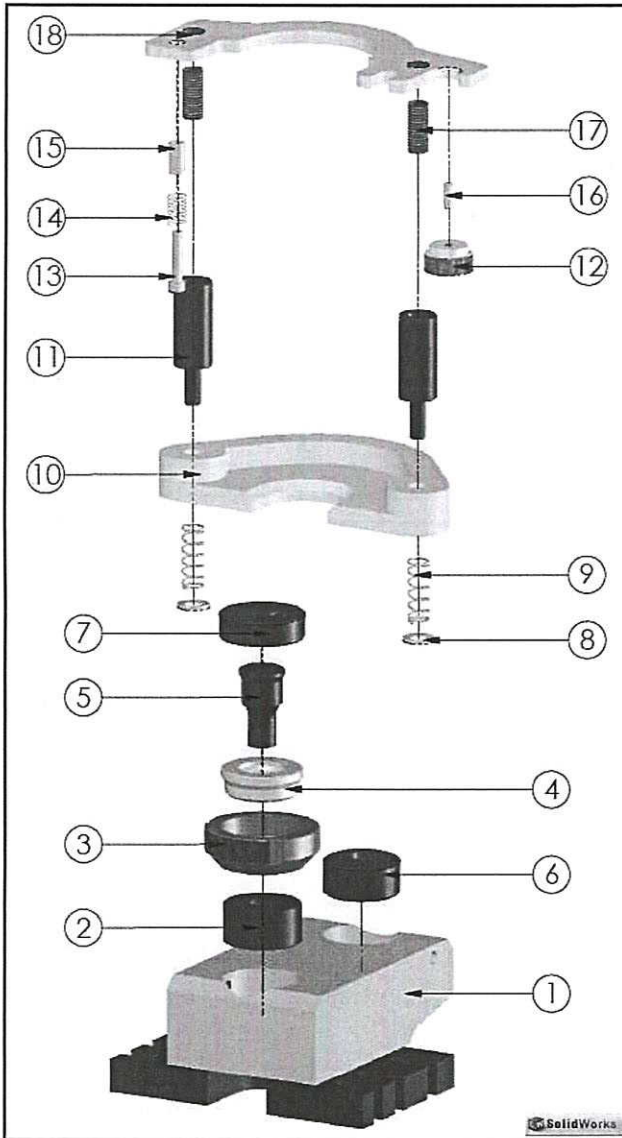
During the V notching, change the standard U notching tools with the V Notching tool.

Max. capacity of V notching: 100x100x10 mm



NR	PART DESCRIPTION	QTY
1	Upper blade holder	1
2	Upper blade	1
3	Bottom blade	2
4	Bottom blades housing	1
5	Wedge	1

The part numbers in the above belong to the standard equipment.



NR	PART	PCS
1	Bolster	1
2	Die	1
3	Guide nut	1
4	Punch holder	1
5	Punch	1
6	Set screw	1
7	Pressure plate	1
8	Washer Ring	2
9	Spring	2
10	Bottom stripper	1
11	Stripper adjustment roller	2
12	Nut	1
13	Bolt	1
14	Spring	1
15	Spring pipe	1
16	Set screw	1
17	Gijon	2
18	Stripper top part	1

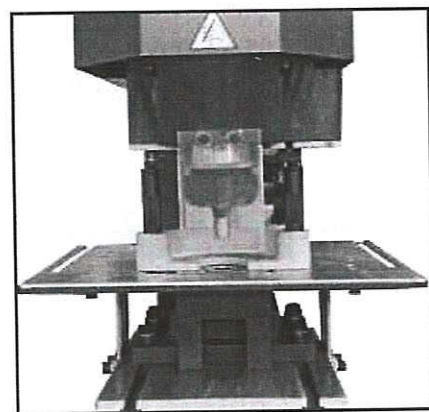
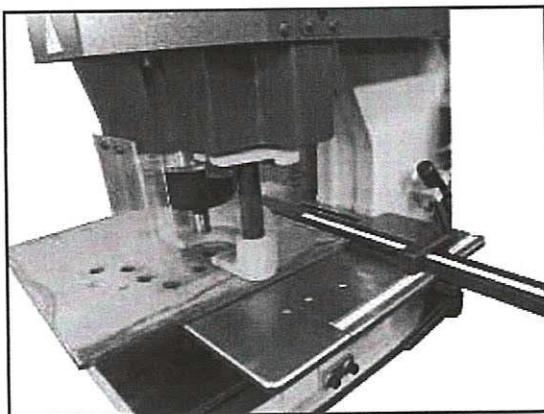
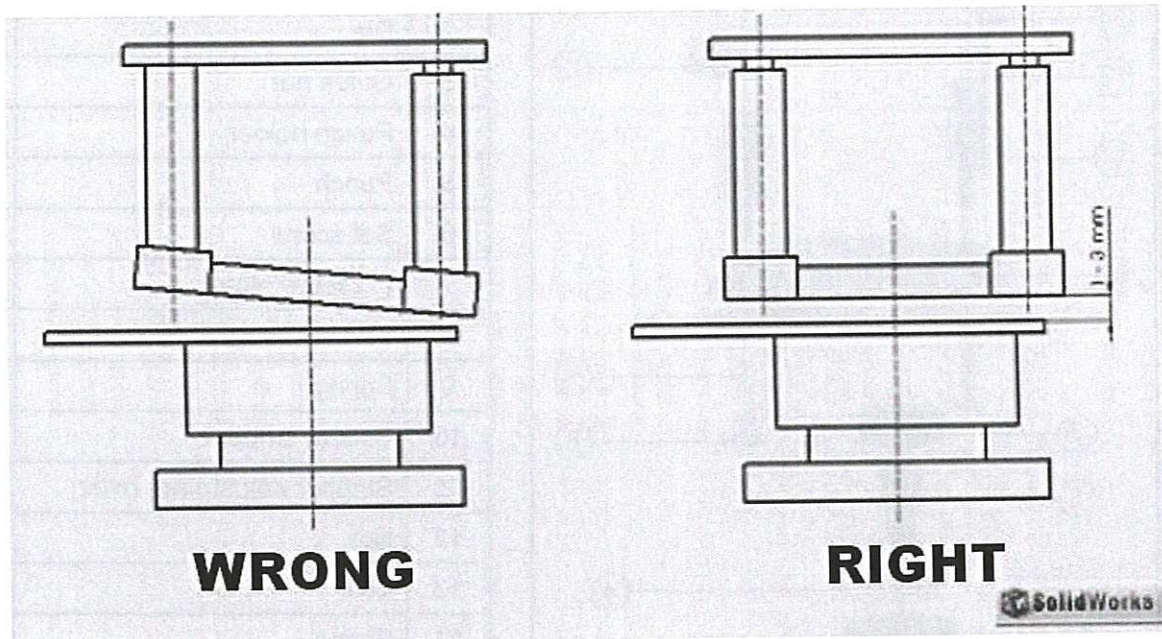


PUNCH STRIPPER

To prevent breaking the Punch tooling during punch operations, always use the stripper. Other types of stripper are available on request.

Ensure it is correctly fitted and tensioned evenly. The gap between the stripper and the material being punched should be 1- 3 mm.

Do not use with only part of the stripper pressing on material. If using on the end of a bar, add a packing bar to ensure an even pressure is exerted.



PUNCHING STATION

As standard, each machine comes with a 22mm Ø punch and die. The maximum diameter is 35mm.

Always adjust the punch centrally so that an equally rotating cutting distance of 5% of the material thickness remains. Never punch a material that is thicker than the diameter of the punch.

LUBRICATION OF THE PUNCH TOOLS

For maximum service life of the punch and dies we recommend you use one of the lubricants listed below:

- Shell Garia 927
- BP Servora 68
- Castroll Ilobroach 219
- Duckharns Adfomol EP7
- Joseph Batson LB 733

ADDITIONAL TOOLS

BENDING

Maximum bar size 500x3 [mm]

PUNCHING AT THREADING STATION

Maximum capacity (Diameter x Max. thickness) 26x22 [mm]

Maximum capacity (Max. diameter x thickness) 110x5 [mm]

Throat depth 355 [mm]

NOTCHING


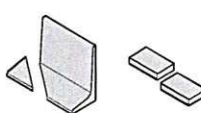
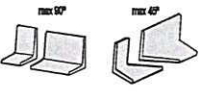
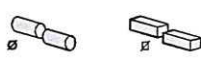
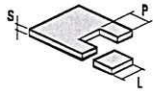
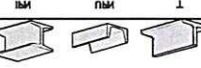
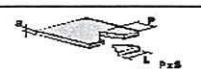
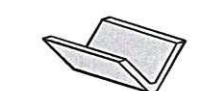


Maximum thread surface 100x100x6 [mm]

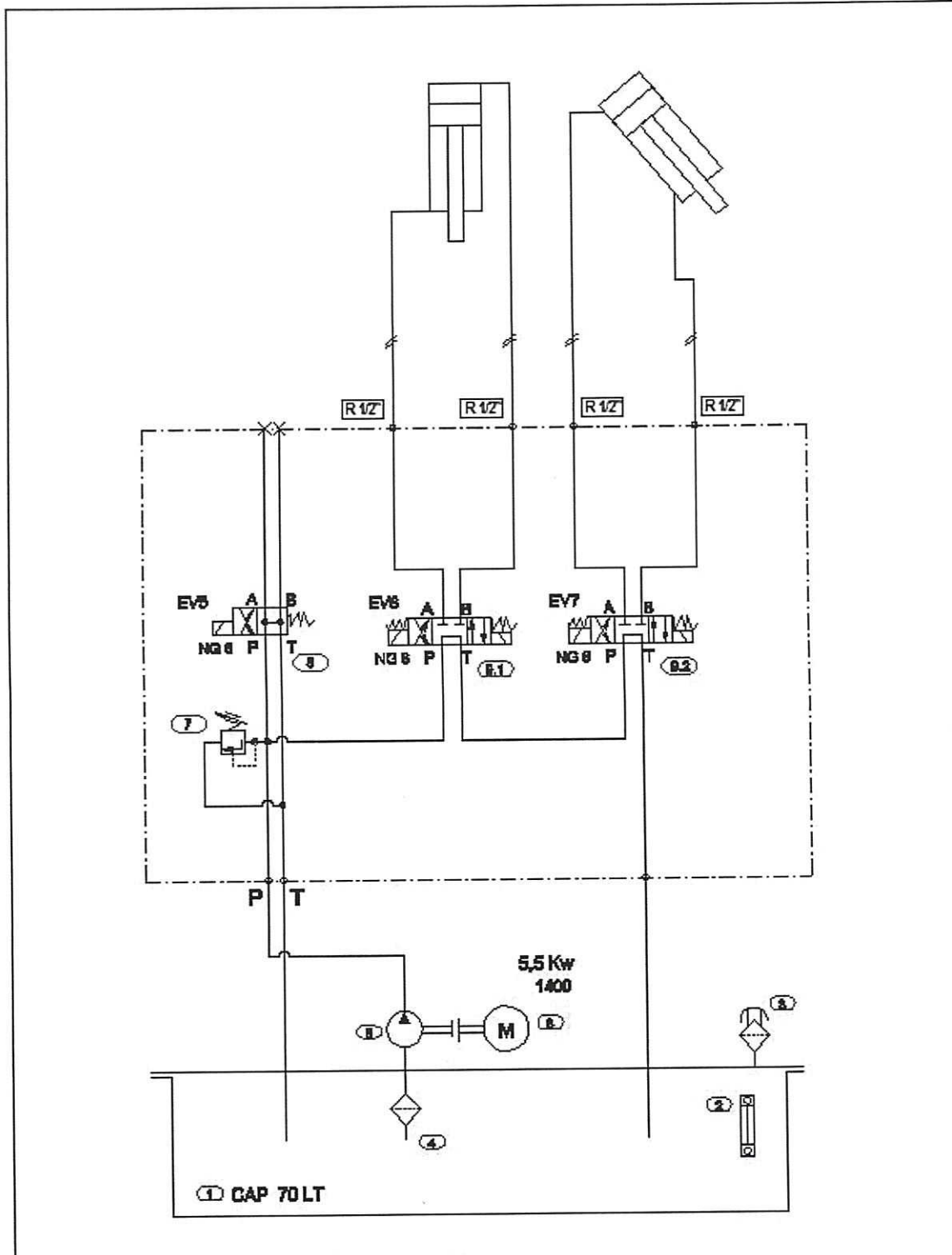
Based on material strength 45 [kg/mm²]

The maximum punching pressure of this machine is 850 kN (85 ton)

The following tools are included in the basic equipment of the machine:

- 1 C – Spanner 80/90
- 3,4,5,6,8,10,14,19 mm. Allen keys
- Punch adapter
- Punch holder
- Stamp and matrix (22mm)
- Scraper
- Round square blade (1 set)
- Angle cutting blade (1 set)
- Profile cutting blade (1 set)
- Notching tools

 Ø x S	PUNCHING		HKM 45	HKM 60	HKM 65	HKM 85	HKM 115
	Diameter x max. thickness		Ø22x15mm	Ø28x15mm	Ø26x20mm	Ø33x20mm	Ø34x26mm
	Diameter x thickness		Ø38x8mm	Ø38x11mm	Ø57x10mm	Ø55x12mm	Ø55x16mm
	Diameter x min. Thickness Optional) (*)		Ø100x3mm	Ø110x3mm	Ø110x3mm	Ø110x5mm	Ø110x5mm
	Stroke		50mm	55mm	55mm	80mm	80mm
	Stroke count in (20mm)		x 20	x26	x 25	x25	x25
	Throat depth		175mm	220mm	305mm	355mm	355mm
	Working height		940mm	940mm	1030mm	1050mm	1050mm
	SHEET METAL SHEAR						
	Sheet metal		200x15mm	200x20mm	300x20mm	380x20mm	380x25mm
	Sheet metal		300x12mm	300x15mm	375x15mm	480x15mm	600x15mm
	Blade length		316mm	317mm	380mm	482mm	610mm
	Shearing with angle		80x10mm	80x10mm	100x15mm	120x15mm	120x15mm
	Working height		940mm	940mm	890mm	900mm	900mm
	ANGLE SHEAR						
	Angle section (90°)		100x100x10mm	120x120x12mm	130x130x13mm	150x150x15mm	150x150x18mm
	Angle section (45°)		70x6mm	80x8mm	70x10mm	80x8mm	80x10mm
	Working height		1140mm	1140mm	1130mm	1155mm	1160mm
	STEEL BAR SHEARING						
	Round / Square		Ø30mm-25mm	Ø40mm-35mm	Ø45mm-45mm	Ø50mm-50mm	Ø55mm-50mm
 P x S	NOTCHING						
	Thickness		8mm	10mm	10mm	13mm	13mm
	Width		35mm	42mm	45mm	52mm	60mm
	Depth		75mm	100mm	90mm	100mm	100mm
	V Depth		60mm	60mm	60mm	70mm	80mm
	Angle flange		80x8mm	100x10mm	100x10mm	100x13mm	100x13mm
	Working height		940mm	940mm	890mm	890mm	900mm
OPTIONAL TOOLS							
	U-I Section blades		80x45mm	80x45mm	130x65mm	160x90mm	200x100mm
	T Section blades		40x6mm	80x10	90x12mm	100x12mm	120x12mm
	Special V-notching tooling		100x100x8mm	100x100x10mm	100x100x10mm	100x100x13mm	100x100x13mm
	V bending Press brake		Bar bend. max. Capacity	100x12mm	150x12mm	250x15mm	250x20mm
			Sheet bend. max.capacity		500x3mm	500x3mm	700x3mm
		Punching on notcher	Bar bend. max. Capacity	85mm	110mm	125mm	125mm
		max capacity	18x12mm	20x12mm	38x8mm	38x10mm	38x12mm
	TECHNICAL DATA						
	Motor power		4kW	4kW	5.5kW	7.5kW	7.5kW
	Weight		1300kg	1250kg	1600kg	2430kg	3100kg
	Machine dimensions		1200x600x1400mm	1510x590x1570mm	1625x750x1800mm	1900x790x1910mm	1880x790x1990mm
	Power (Pressure)		45 ton	60ton	65ton	85ton	115ton



① CAP 70LT

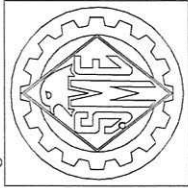
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HKM 65			PLAN NO		
	T.SAYFA	1			
	SAYFA	1-1			



HKM 65 HİDROLİK YEDEK PARÇA LİSTESİ
HYDRAULIC SPARE PARTS LIST

NO	DESCRIPTION	KOD/CODE	DET/IDENTIT	FİRMA/BRAND
1	YAĞ TANKI / OIL TANK	70 Lt	1	SAHINLER
2	YAĞ SEVİYE GÖSTERGESİ/LEVEL POWER SWITCH	GSG 127T	1	GEMFA
3	YAĞ DOLDURMA KAPAĞI/OIL TANK CAP	VDK-045	1	GEMFA
4	EMİŞ FİLTRESİ/RETURN FILTER	EMS-125	1	GEMFA
5	DİŞLİ POMPA / GEAR PUMP	PB 16 cm3	1	SALAMI
6	ELEKTRİK MOTORU / ELECTRIC MOTOR	5,5 KW / 1400	1	WATT
7	BASINÇ KONTROL VALFİ PRESSURE CONTROL VALVE	MCD6-SP/51N	1	DUPLOMATIC
8	YÖN KONTROL VALFİ DIRECTION CONTROL VALVE	DS3S7/14N DS3S7/14N	1	DUPLOMATIC
9	YÖN KONTROL VALFİ DIRECTION CONTROL VALVE	DS3 SA2-10N	1	DUPLOMATIC
10	SİLİNDİR / CYLINDER	-	1	SAHINLER
11	SİLİNDİR / CYLINDER	-	1	SAHINLER

Sahinler



SAHINLER METAL MAKINA ENDÜSTRİ A. S.

Izmir Yolu 22. km, Mümin Gencoğlu Caddesi
16285 BURSA/TÜRKİYE
Tel.: (+90 224)470 01 58 (PBX - 6 Hat/Line)
Fax.: (+90 224)470 07 70 - 470 09 05
www.sahinlermetal.com email: info@sahinlermetal.com

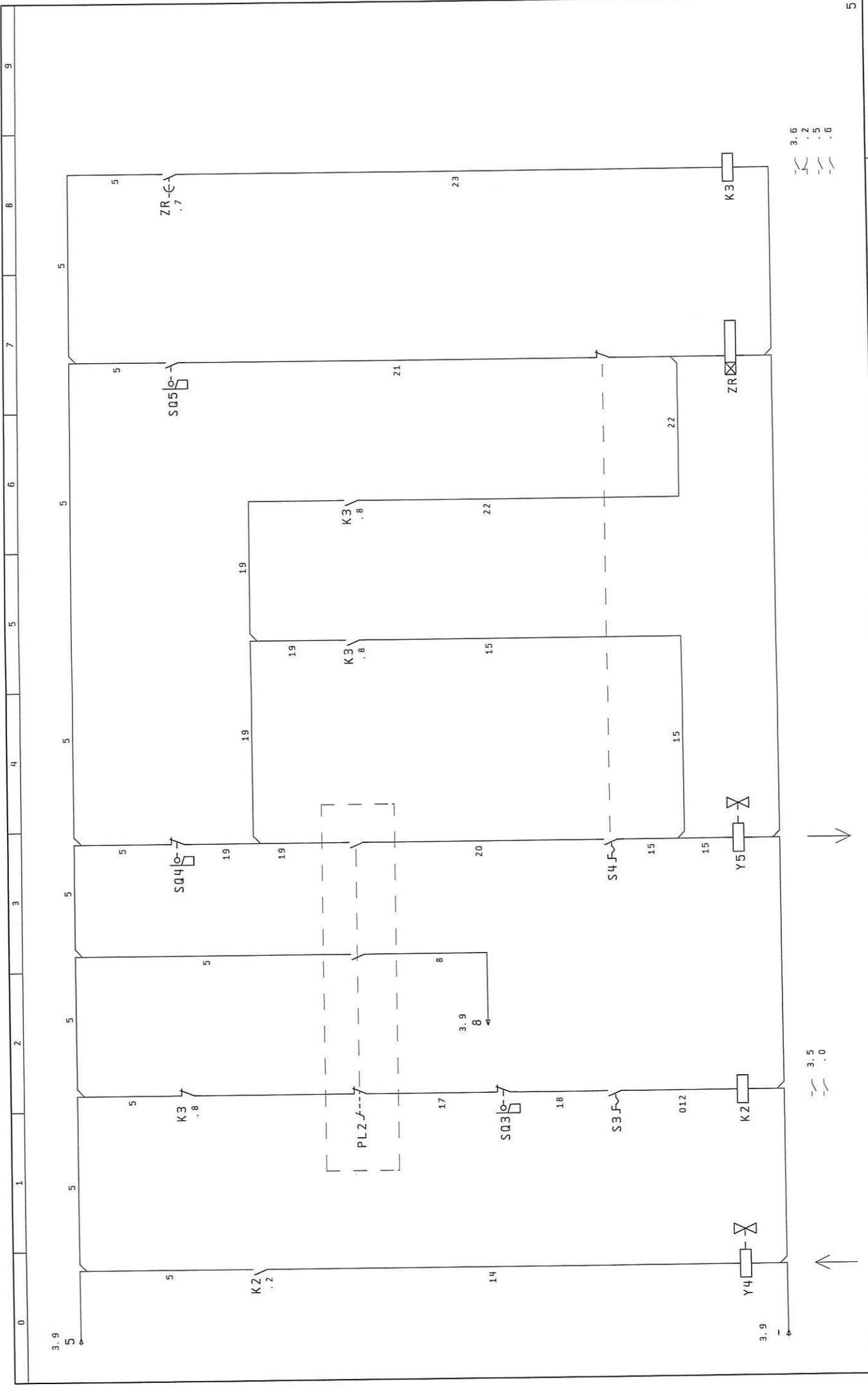
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Project name : HKM - 65 HYDRAULIC STEELWORKER
Drawing number : 12072006
Customer's address:

Manufacturer : SAHINLER METAL MAKINA ENDUSTRI A. S.

File name (\EPLAN4\P): HKM6501
Drawn by : FIRAT CILINGIR
Checked by : FIRAT CILINGIR
Responsible for project : FIRAT CILINGIR

Start Date : The Last Page : 6
Complete Date : 14. Jul. 2006 Total page : 6

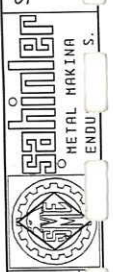
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Checked by	FIRAT CILINGIR	Original		Project name: HKM6501	P. 1	
Norm						



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Date	05. Jan. 2010	STEELWORKER GROUP								
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		Project name: HKH6501								
		P. 4								
		6 P.								

HKH - 65 (380V)
HYDRAULIC STEELWORKER

05. Jan. 2010
FIRAT CILINGIR
FIRAT CILINGIR



STEELWORKER GROUP

Drawing number: 12072006
File number: HKH6501
Project name: HKH6501

P. 4
6 P.

3.6
3.5
3.9

3.5
3.6
3.9



ELECTRICAL CABINET SCHEME

