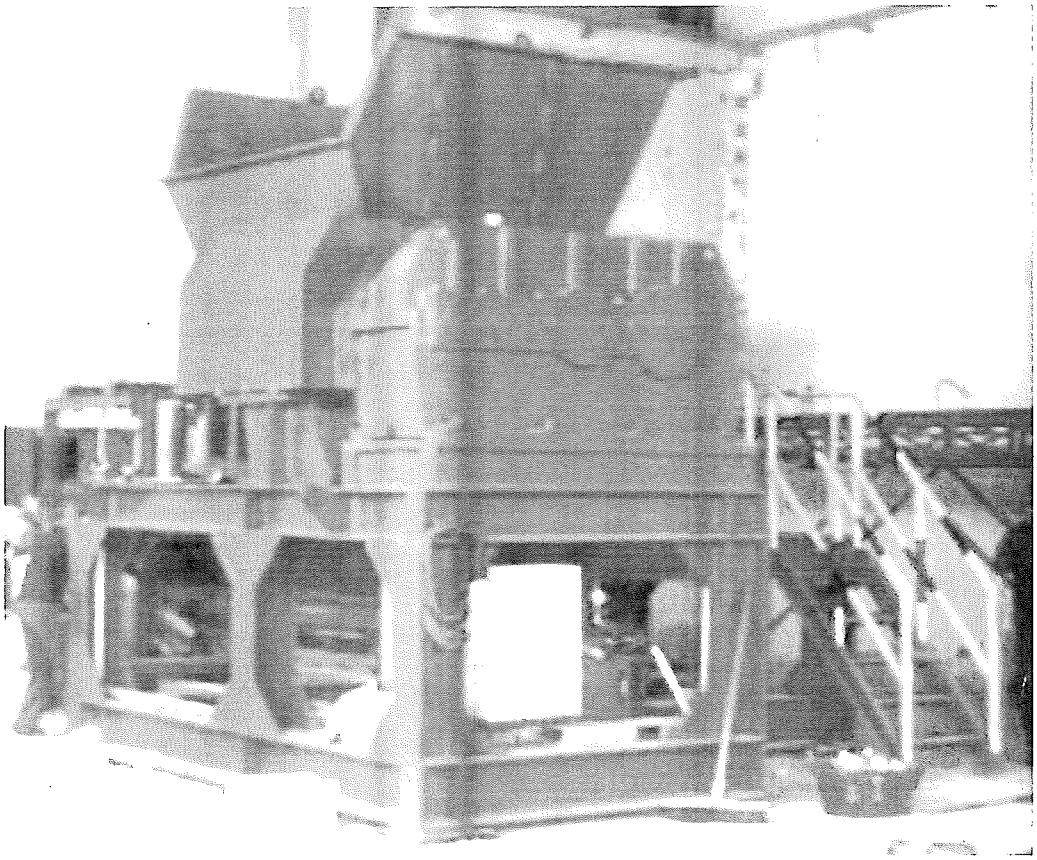
SHREDDER

RMD 200 MTR 1500 / 7-8



USER MANUAL

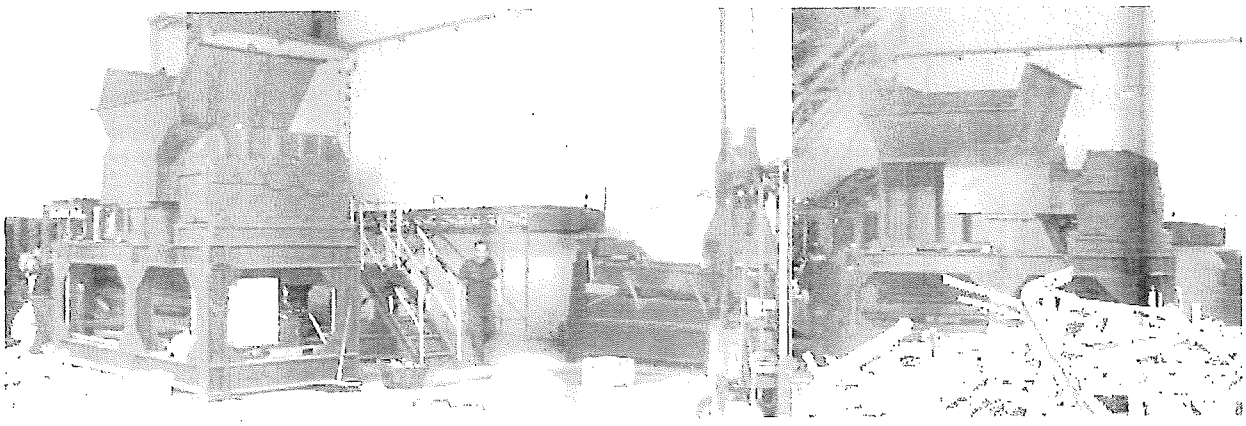
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INDEX OF CONTENTS

1-	DESCRIPTION OF THE MACHINE	page 3
2-	TRANSPORT	page 6
3-	INSTALLATION AND ASSEMBLY	page 6
4-	OPERATING MODE	page 8
5-	PUTTING ON SERVICE	page 8
6-	CAUTION	page 10
7-	MANTEINANCE	page 11
8-	SPARE PARTS	page 13
9-	INCIDENTS	page 14
10-	DOCUMENTS	page 16

1- DESCRIPTION OF THE MACHINE

The shredders type RMD 200 MTR 1500 / 7-8 are equipments specifically designed for the grinding and granulation of a great diversity of mid size grain materials. Capable to offering final sizes of product among 3" (80mm) and 6" (150mm), they allow to reduce the specific volume of the load to be used in later stages of crushing or for its direct employment as final product.

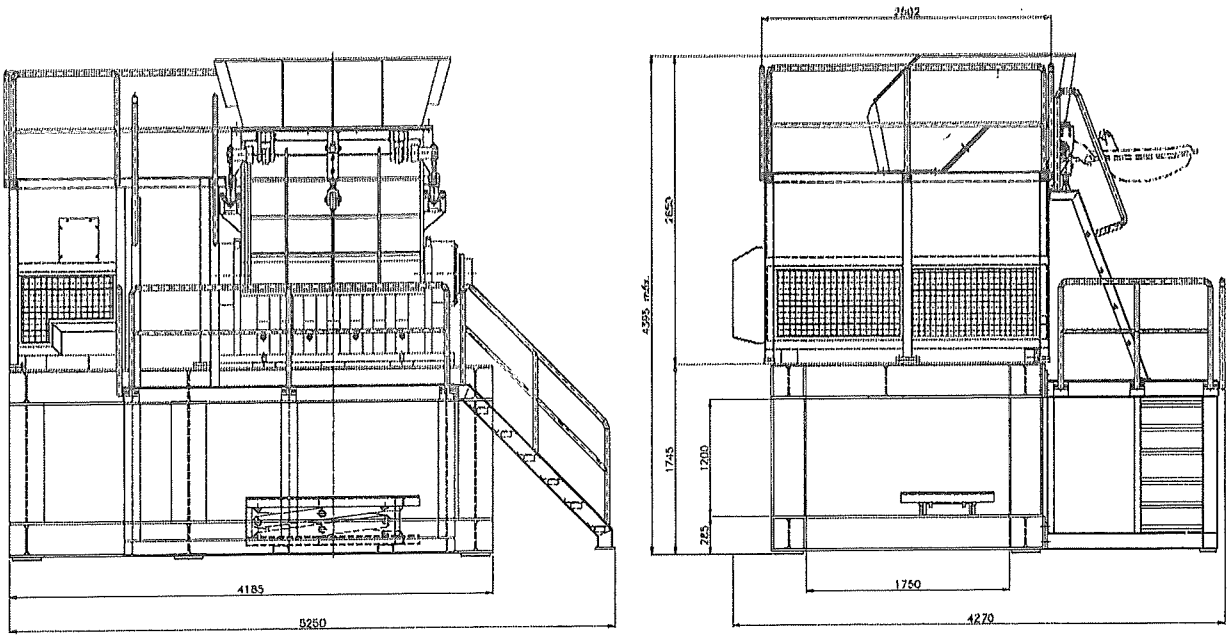


Shredder RMD 200 MTR 1500 / 7-8 working in a typical processing line.

Due to the specific design of its internal geometry , which allows minimum cutting efforts, and the combined action of its inertial main pulley during the instant of cutting, these grinders are capable of providing big throughputs of crushing with very limited energy consumptions, which redounds directly to a highly competitive exploitation costs.

Its great versatility and reliability make them suitable for crushing a great variety of residues, such as electrical and telephonic wires (with or without steel), electrical material, electronic scrap, profile bars and / or small pieces of smelting copper and aluminium, tires from cars and trucks, industrial tires, etc. Depending on the final chosen grain and the proper tenacity of the residue, the yields of crushing can range among 5 and 13Tm / hour, which makes it ideal as first shredder on feeding processes of electromechanical recycling installations.

The machine consists on the following principal elements:



1- Supporting structure: Metallic structure entrusted to support the main frame, as well as the engine, the transmission system and the rest of peripheral elements, as the vibrant exhaust conveyor (or band conveyor in its case), the grid change system and the hydraulic pumping system that serves the hydraulic devices.
2- Main frame: extremely rigid framework that contains the rotor with the mobile blades and their blade supports destined to realize the cut. It lodges the grid that regulates the grain size of the shredded material in its low part, and it supports the hopper for the load introduction on its top part.
3- Gear reducer: It is placed next to the rotor shaft, and it is the element entrusted to transmit the power from the engine, reducing the speed and adapting it to the rotor movement.
4- Electrical cupboard: It contains the power and control circuits of the machine, as well as its corresponding electrical safeties. By request, it is given without electrical cupboard separated to govern from centralized desk of complete installation.

All the elements are easily identifiable and completely removable to allow labours of maintenance and/or repair without difficulty.

FEATURES

SHREDDER type RMD 200-MTR-1500 / 7-8

DIMENSIONS:	- Length:	168,11" (4.270mm)
	- width:	206,70" (5.250mm)
	- height:	173,03" (4.395mm)
WEIGHT:	- 77.140lb (35.000kg)	83,000 lbs. — Top skirt, lower, stair deck, upper stairs
ELECTRIC SUPPLY:	- 380Vac/50Hz (CE) or 480Vac/60Hz (USA), tri-phase	
POWER OUTPUT:	- 200/240kW (350Hp) (main engine) + 4kW/7Hp (hydraulic system)	
	+ 1,1kW/1,5Hp (exhaust conveyor)	
YIELD:	- 5-13Tm/hour, depending on the product and grain size.	

SUPPORTING STRUCTURE:

- Structure made in structural A-42B carbon steel profile bar, electrical welding.

- It serves as support for the main frame together with its loading hopper. It lodges the main engine transmission system together with its framework. Made with access stairs and non-slipping floor to realize the labours of maintenance and adjustments. Likewise it contains the hydraulic system for the grinder devices, the vibrant or band exhaust conveyor (according to request) and the elevation system to change the grid.

- Engine and transmission: 200/240kW(350Hp) at 1.000/1.200rpm (380/480Vac tri-phase.), mounting position IM 1001 (B3) with frame 355M (CE) or standard NEMA (USA) with frame 5806C, primary transmission effected by gear reducer type Z3 560 E Speed ratio I:44,73.

MAIN FRAME:

- Structure made in S355J (UNE F127) carbon steel sheet, electrical welding. It has reinforcements in anti-wear steel (URSSA400) to support the graze produced during the crushing.

- It lodges the rotor and it is used as support for the loading hopper. In turn it lodges 8 fixed principal cutting blades and the low grid that regulates the grain size of the product.

- Rotor: Length 59,05" (1.500mm), endowed with 7 principal cutting blades. Rotation Speed: 22,5rpm (CE) / 26,5 rpm (USA). It has, in prolongation, the transmission system via gear reducer, with mechanical gear couplings to the rotor axes, that protects the rotor and the reducers against overloads by acting as mechanical fuse. Likewise, this system eliminates the maintenance of a conventional belt transmission system.

2- TRANSPORT

All the built grinders are proved in emptiness and with test load on factory before being delivered. By request, preliminary crushing tests are realized with real load of the product that the client considers to be necessary.

The transport of the grinder is realized normally by highway by means of special transport if the delivery is effected inside the Iberian Country or adjacent countries, being given completely mounted. If maritime transport is required, the grinder is usually transported disassembled in two containers, due to the limitations of space and load.

In any case, attending to the important weight of the machine, it will have to be foreseen the means necessary for its exhaust and / or manipulation in the place of destiny, as well as the pertinent safeties for its manipulation.

After the delivery of the equipment, our technical personnel will move to supervise and to coordinate the operations of assembly and putting on service, as well as to instruct to the personnel of plant in the basic managing of the machine.

3- INSTALLATION AND ASSEMBLY

By its operating mode, the grinder will transmit vibrations to the floor at frequencies close to 8Hz, which extent and continuity will change depending on the load introduced. This factor will need to be taken into account at the moment of locating the machine because this vibration is perceptible on the floor at certain distance from the machine.

In spite of its important weight, due to the distribution and surface of its supports, the machine does not need from civil specific work for its location. A normal floor surface made in 100-150mm concrete with minimal metallic grid structure is enough to resist the efforts produced by its weight and the functioning.

In order to minimize the vibrations transmission effects to the floor or to adjacent structures, it is suitable to lean the machine over rubber sheets, with minimal thickness recommended of 0.4" (it may be higher). In case of legal noise limitations or vibration (nearness to hospitals, sensibility of precision machines to certain frequencies, etc) this particular case will have to be studied.

The machine will have to work perfectly levelled longitudinally and transversely, in order to avoid excessive inclinations that will induce undesirable axial reactions on the rotor bearings, making them work overloaded unnecessarily. Likewise, on machines provided with exhaust vibrant conveyor, an inadequate levelling reduces the exhaust capacity of the crushed product, which may provoke cloggings in case of very high productions.

The diameter of grid holes will be chosen attending to the most suitable grain size of the production that we want to obtain. The change of grid will be effected disassembling and removing the evacuation system of material (normally vibrant conveyor) located under the main frame of the grinder, as well as the hopper which guides the material from the grid to the conveyor.

The grid, now visible, is lodged inside the grinder main frame, under the rotor, and its extraction is effected through the low part of this main frame. It will proceed to raise the hydraulic elevator arranged to such effect in the support structure of the grinder as close to the grid as possible.

This grid is liberated from its housing removing the lateral locking screws that fix it to the main frame, located on the exterior part of the own main frame. The grid will fall down due to its proper weight. If not, it will be liberated by means of a lever or "crowbar". Later the elevator will be got down until the grid stays in a manageable position. Due to its important dimensions and weight, it is recommended its mechanical manipulation by means of lift truck, or similar. The substitution of the grid is effected simply by re-putting on the same place the new grid. The re-assembly of this new grid is effected following the inverse steps, taking special care to the tightening of the locking screws.

It is suitable to arrange the final location of the machine in a wide and clear zone, as covered as possible and with a considerable vertical clearance (even up to 30ft/10m). It allows to facilitate the load and exhaust operations of the product and the movements of the machines entrusted of the shredder feeding, in its case. The vertical clearance from the exhaust conveyor up to the floor is enough to allow the installation of other conveying devices, as band conveyors, screws conveyors or bucket elevators, if it is required on later stages of process.

The electrical cupboard will be preferably located in a place that allows to observe the machine working, close enough to allow a comfortable control, and preserved from impacts, dampness and dirt as possible. Later, it will proceed to wire up the machine from the electric cupboard, protecting the cables from the industrial environment using an air tray or a piping conduction, as an exterior metallic piping, a PVC's buried one or similar.

4- OPERATING MODE

Due to the considerable power of the principal engine, the starting is effected with a programmable speed variator, which limits the peak of intensity demanded.

During its normal work, the grinder receives the load of material to crushing through the hopper, placed in its top part, from a band conveyor or similar (in models equipped with closed hopper), or directly from "octopuses" or other machines arranged to such effect.

It will have to give special attention to avoid an excessive feeding, in order to prevent the grinder from overloads that even could manage to stop the machine. In case of realizing an automatic feeding, it will be taken as control signal of the feeding regulation the intensity consumed by the engine (normally 0,8 I_{nom}. maximum to interrupt the feeding).

Due to its operating mode, it is possible that some materials could be projected outside the grinder through the hopper. In this case, there will be foreseen the necessary protections and safeties to prevent it, if it is possible, or it will be defined a safety perimeter to prevent injuries.

DO NOT INTRODUCE FERRIC MATERIALS OF GREAT VOLUME IN THE GRINDER FEEDING, due to its hardness it might destroy the blades or even its supports, damaging the machine.

The crushed material is exhausted through the chosen grid by the low part of the main frame and falls down on the exhaust conveyor. It will carry the load out through the lateral side of the machine. In this case, the location of the gear reducer does not allow to choose the exhaust direction of the conveyor, so it is effected by the opposite side to the gear reducer.

5- PUTTING ON SERVICE

Once mounted and wired up the grinder to the electric cupboard, it will proceed to connect the electrical feeding of the equipment and to start it.

Before proceeding to the introduction of real load in the machine it suits to have given special attention to the correct tightening statement of the fixed blades placed in the main frame and the mobile blades located on the rotor.. It will avoid accidental detachments of any blade that, due to its extreme hardness, would provoke big damages on other blades and its supports.

It will take special attention to the correct rotation movement of the rotor, so if the rotation direction is wrong, the shredder is unable to cut, getting blocked immediately after the introduction of the load. In the same way it will be observed that the rest of mobile components work correctly (exhaust conveyor and hydraulic system).
If the rotation direction of any engine is not the suitable, it will proceed to remove the cover of the connecting box on the engine and to change position among two of three conductive feeding cables (phases) while the feeding tension is disconnected.
Due to the design of the safety mechanisms on the grinder, it will not be possible to start it if any of the access covers is opened or badly closed.

During its functioning without load, the shredder will present a regular and quiet draft without efforts, with a very limited consumption (v. demanded intensity). All the bearings, especially the belonging ones to the rotor and transmission system, come with the sufficient greasing to realize the corresponding tests on factory. For its continued functioning order they will have to be refilled with their corresponding lubricant (see "maintenance").
In case of presenting any strange sound beyond the common, the grinder must be stopped immediately and it will checked the tightening condition of all the rotary elements, specially the bearing supports, in order to avoid the overload and damage of the bearings. If the origin of the fault is not easily localizable, it will be necessary to contact the manufacturer.

Once verified the correct functioning of the equipment it will proceed to the introduction of feeding material to verify the shredding and the correct eviction of the product. It will be observed a suitable advance of the material over the exhaust vibrant conveyor, in its case, without undesirable accumulations or cloggings. In case of machines equipped with exhaust band conveyor, it will be observed the normal working direction of the band and the correct eviction of the product. If the regulation of the blades and the election of the grind, with the functioning of the extraction, are the suitable ones, the yield of the crushing and the eviction must be satisfactory.
It must be foreseen the later eviction of the processed material by means of the appropriate transport systems or by means of the channelings and pertinent hoppers.

6- CAUTION

Due to the important weight of the main components of the shredder, it will have extreme the precaution during the process of assembly, especially during the managing of suspended loads, so it will be indispensable to observe all the safety rules as necessary.

If the shredder has been transported dismantled, the assembly does not present more difficulties that the derivatives from the important weight of the components. Nevertheless, our technical personnel will move to realize the supervision of the whole process up to the putting on service of the machine.

The hydraulic system will be mounted attending to the indications of our technical personnel, avoiding the entry of dirt and purging the air contained on the circuit if necessary. Likewise it will be observed the level of hydraulic fluid, re-filling the losses in its case.

Before starting the machine it will be verified that the whole assembly has been executed correctly and that both the reducer cover and the access covers stay perfectly closed. If not, the grinder will not start due to the actuation of its electrical protections.

During the putting on service, previous establishment of a safety perimeter, it will be observed that the shredder reaches its nominal speed after a few instants of normal acceleration. If thermal protections of the engine shut down, it will be checked the programming of the acceleration ramp on the speed variator to reduce as possible the consumed intensity during the starting. It is very important not to start the mill with feeding load, due to the resisting torque will shut down the thermal protections for excess of consumption, preventing its starting.

During its normal functioning, it will be avoided as possible to approach the load intake on the feeding hopper of the shredder due to the evident risk that the rotor proximity supposes. Likewise during its working, the material will be able to be projected outside the shredder, so it will be necessary to define a safety perimeter that minimizes the risk of injuries. In this way, the machine will be installed according to the existing work safety regulations and laws applied to avoid any possible injury for contact with the cutting elements or for any other foreseen reason. During its normal functioning, the machine does not present excessive risk zones due to its limited movements, not being possible to accede directly to the motoring and transmission mechanisms. Nevertheless it suits to take attention to the edges of the machine in order to avoid injuries for direct impact of the personnel. To avoid it as possible, the machine has been made with rounded edges and bevelled corners.

The noise emission values of the machine working under no load conditions are 75dB measured at 1mt from the machine. Nevertheless under heavy load conditions its not possible to define medium values for noise emissions due to its direct dependence of the kind of the introduced load and its amount and distribution over the rotor during the cutting process.
Regarding the paragraph of electromagnetic compatibility and emissions control, the machine shows the normal working parameters for three-phase engines of 200/240kW, considered as acceptable. The compensation of the reactive energy generated by the engine is realized automatically by the speed variator. Nevertheless, the employment of these devices introduces disturbances as harmonic signals that, depending on the application, they will have to be considered or eliminated with the employment of the suitable harmonic filters. It is recommended to separate as possible the power and control circuits, as well as the employment of separated power lines for this machine and other electronic sensitive equipments (especially computers).

7- MAINTENANCE

- It will be proceeded to the greasing of the bearing supports on the rotor and the transmission shaft every 45 hours (variable depending on the working requirements of the machine) and the eccentric axle and the pushing rod of the vibrant exhaust conveyor (or roller bearing supports on band conveyor) every 5 days, and always keeping in good condition the oilers.

  As general norm, the quantity of oil applied to every bearing will obey the expression **G=0,005xDxB**, being G the quantity of oil in grams; D the outside diameter of the bearing in mm; and B the width or total height of the bearing in mm. The excess of lubricant in the bearings of the rotor is removed by an orifice arranged in the low part of its support. On the other bearings, it is suitable to remove all the used oil from inside them in order to eliminate all the impurities that have remained caught and that might damage the rolling tracks of the bearings. The recommended lubricants are MOLYDUVAL MONA-LISA 1000, SKF LGEP 2, TRIBOL 3020/1000-2 or similar (high speed, high load and strong vibration on bearings) on rotor bearings and transmission shaft bearings, and MOLYKOTE BR2 PLUS, SKF LGMT 3, TRIBOL 3030/100-2 or similar for general industrial uses on high speed and heavy lift bearings on exhaust conveyor bearings.

- The reducer is lubricated with special oil for reducers with specification ISO VG-320. The amount of lubricant contained in this reducer is 105,65gal/ 400 litres. The lubricant levels must be verified before putting the grinder on service, refilling them if necessary. A total substitution of the lubricant will be realized at 500 hours of functioning, in order to eliminate all the metallic remains detached during the adjustment and wearing of the reducer on previous stages of operation. Later periodic changes of the lubricant will be realized every 3.000-5.000 hours, depending on the requirements of functioning, observing the level periodically and refilling the lost lubricant if necessary. In any case, the lubricant will replace within 18 months from the last change in order to guarantee its properties.
- Periodically it will be verified the level of the hydraulic oil for the devices on the hydraulic system, re-filling it in case of a accused decrease of level.
- **It will be checked scrupulously the tightening condition of the screws on all the blades every 24 hours** (variable according to the requirements of functioning). It will avoid untimely detachments that might cause serious damages in the machine. The main blades does not admit any kind of regulation because its position is fixed due to a lock piece situated under the blade. If any blade shows an abnormal tendency to loose tightening on the screws, it will be checked the state of the lock piece, re-tightening it again or replacing it in case of deformation or wear. Likewise, it will proceed to the substitution of the blades in case of breakage or when the cut efficiency is considered to be unacceptably low.
- It will be observed regularly the tightness state of the screws and nuts of the machine, especially on bearings supports, retightening them if necessary.. These elements are continuously loaded and submitted to vibrations, so its probably they could present imbalance and roominess.
- It will proceed to the regular cleaning of dust and material accumulated over the machine. Water employment will be avoided as possible during the cleaning process, due to the risk of electrical breakdown that it supposes.
- It will be verified regularly the condition of the electrical connections and pins, cleaning them and tightening again its fixings in its case.
- It will proceed to the substitution of all the damaged elements or at the end of their useful life (as bearings, anti-wear elements, belts, elastic elements, grids, etc).

8- SPARE PARTS

ENGINE: - Traction: .CE: 200kW/1.000rpm, 380Vac trif., IM 1001 (B3), frame 355M
.USA: 240kW(350Hp)/1.200rpm, 480Vac/60Hz, NEMA frame 5806C

- Exhaust conveyor: .CE: 1,1kW/1500rpm, 380Vac trif., B3 /
.USA: 1,5Hp/1.800rpm, 480Vac/60Hz

REDUCER: - Type Z3 560 E, i:44,7385 (v. plano adjunto).

BEARINGS: - Rotor: Type SKF 24056 BK30 MBC3
Disassembly tip type AH 24056 H

- Eccentric axle on conveyor: Flange support type NSK UKP 307
- Pushing rod on conveyor: Tensor support type NSK UKT 209

ELASTIC ELEMENTS: - Pushing rod: Rod head type Rosta ST45 (commercial)
- Arms: Oscillating head type Rosta AU38 (commercial)

CONSUMIBLES: - Blades: Fixed blades: 8 units (see schemes)
Mobile blades: 7 units (see schemes)
Auxiliary fixed blades: 7 units (see schemes)
Auxiliary mobile blades: 14 units (see schemes)

- Grid: Depending on granulometry (see schemes).

BLADES SCREWS: Metric, **quality 8.8** (better stress properties)

- Fixed Blades: 3 Allen screws M16x120mm, quality 8.8 (each blade)
- Mobile blades: 2 Hexagonal screws M16x120mm + 1 Hexagonal screw M16x130 with nut, quality 8.8 (each blade)
- Auxiliary fixed blades: 1 Allen Conical screw 45º M20x50mm, quality 8.8 (each blade)
- Auxiliary mobile blades: 2 Hexagonal screws M16x100mm with nut, quality 8.8 (each blade)
- Fixed blades Locks: 3 Allen screws M12x35mm, quality 8.8 (each lock)

The useful life of the grinder has been estimated in 50.000 hours of service, period during which, due to its reliability conception, it will not have to present structural problems different from the proper belonging to a natural wear.

9- INCIDENTS

Mechanical failures:

Shredder blockage by excessive feeding load:

- Open the top cover of the shredder so that the set of rotor and blades stay totally accessible. Detach the product until the rotor turns easily. Verify later regulation and tightening condition of the blades.

Low cutting yield, very low production and very high cutting efforts (elevated consumption)**:**

- Not suitable rotor speed, Regulate speed on speed variator.
- Dead or damaged edges on blade: Change blades

Overheating on main bearings:

- Excessive load: Reduce production, increase diameter of grid holes or check tightening condition and wear of the blades.
- Deficient oiling: Proceed to its suitable oiling. If the problem persists, check bearing condition and substitute it in its case.

Estrange noises or vibrations during normal operation:

- Screws or nuts loose tightness on bearing supports: tight again.
- Bearing failure on shaft or deficient oiling: Check or substitute them.
- Engine with bearing failure: repair or substitute.

Final product with deficient grain size (appearance of unexpectedly big fragments):

- Excessive diameter on grid holes, suit grid better adapted to the process.
- Broken grid, extract it from its housing and repair it. In case of not being possible or interesting, it will proceed to its substitution.

Electrical failures:

Start button does not work:

- Electric safeties locked: unlock safeties.
- No power supply on control circuit: check power supply.
- Control circuit with power supply, but soft starter does not work: check condition of wired up and diagnosis of the soft starter, check programming. In its case, verify condition of control switch and safety signs

Start button works, but the machine does not start:

- Check magnetic and thermal protection.
- Check power supply on power circuit.
- Power supply on power circuit is ok: verify electric tension level on the engine. In negative case (there is no tension), check condition of soft starter. In affirmative case (there is tension), check condition of wire connections in engine (if it is ok see "mechanical failures").

Soft starter works during the start, but protections shut down (instantaneously):

- Verify maximum intensity level on thermal protections: replace them if proceeds.
- Derivation or short circuit: check the whole wired up of the power circuit and eliminate defective connection.
- Excessively high resisting torque.

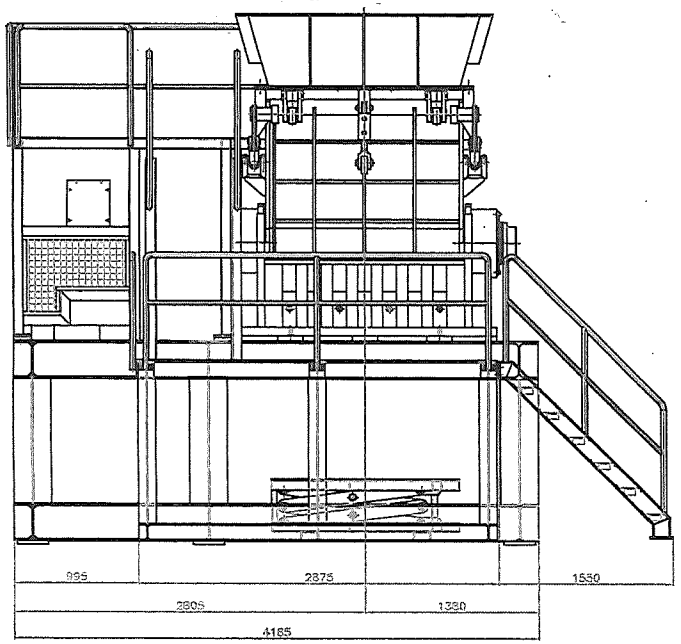
The machine starts, but it stops suddenly few instants later (protections shut down):

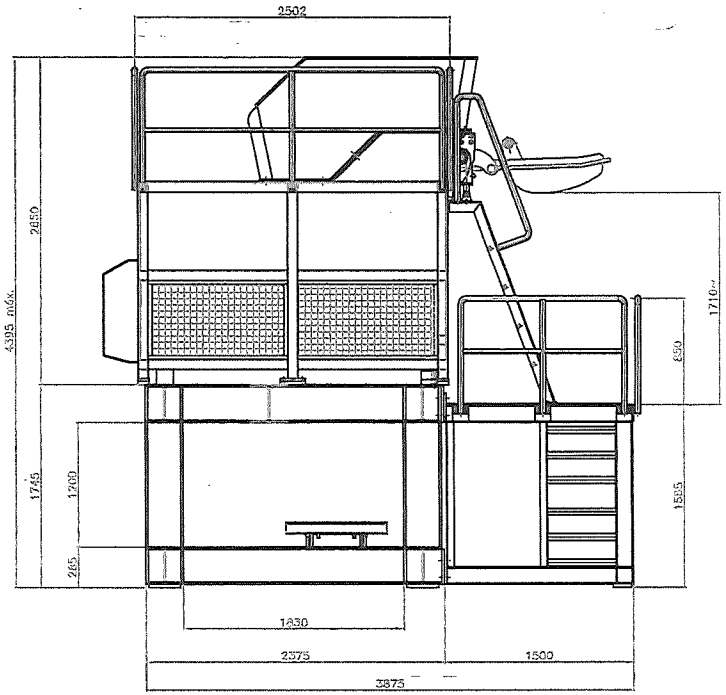
- Verify maximum intensity level on thermal protection: replace it if proceeds.
- Verify acceleration ramp on the soft starter: reprogram it if necessary.
- Excessively high resisting torque, eliminate load on the shredder during the start.

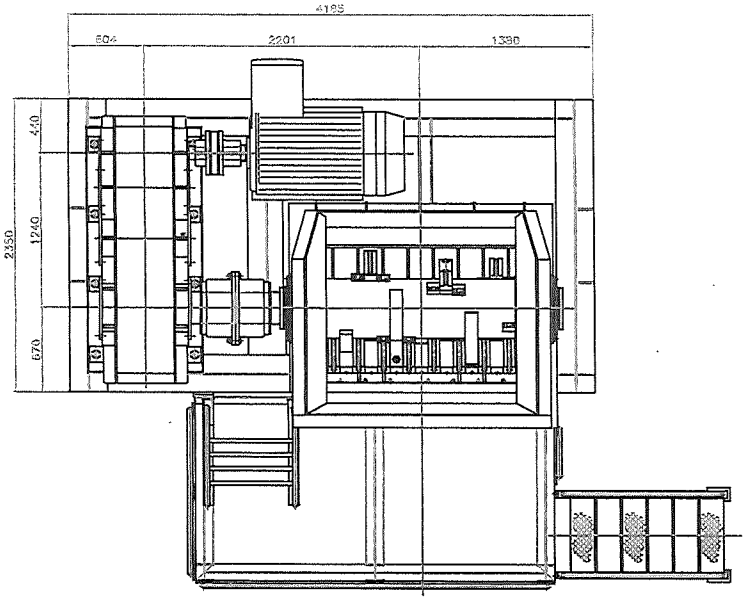
The machine starts, but it stops with no protections shut down:

- General power supply failure.
- Local power supply failure on electric cupboard.
- Main switch failure or protections failure: check them or replace if proceeds.

10- DOCUMENTS







TECHNICAL FEATURES

Engine power output _____ 200 Kw.

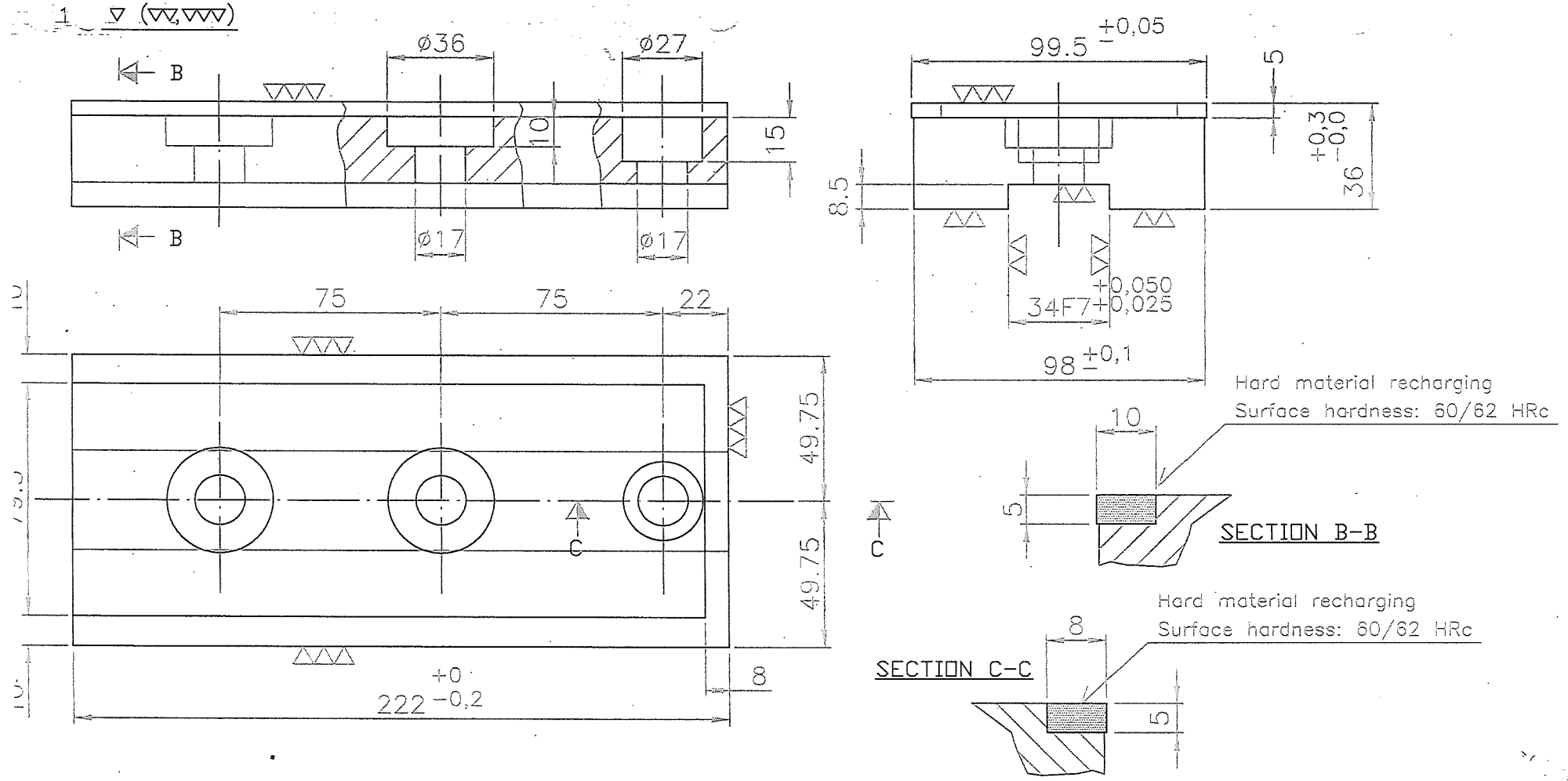
Imput speed _____ 1.500 r.p.m.

Gear reducer type: Z3 560 E, i: 44,7385

Speed output on rotor shaft _____ 33.5 r.p.m.

RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.	Nº. PROYECTO		
	REVISADO	Nº COL.	
PETICIONARIO	COMPROBADO	Nº COL.	
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO: F. J. Alonso	Nº COL.	
TITULO DEL PLANO: MAIN VIEWS	FECHA	ESCALA	Nº PLANO: 1a/17

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Nº Items	Denomination	Sign	Material	Nº Plan	Reparation	Weight (kg)
8	Fixed main blade	114	URSSA400			

Cliente:

Obra:

Responsable Revisión	Nº DE PLANO	
	CODIFICACION	
Fecha	INSTALACION	
	EQUIPO	
Nº Pedido	CONJUNTO	
	SUBCONJUNTO	
	PIEZA	

Signos de mecanizado Rugosidades admisibles en:	DIN 3141 Tomo 2	~	▽	▽▽	▽▽▽	▽▽▽▽
	DIN 1929 1982		Ra 12,5	Ra 3,2	Ra 0,8	Ra 0,2
	mm.	± 0,25	± 0,063	± 0,025	± 0,008	± 0,002

Diferencias para medidas sin indicación de tolerancias (DIN 7168)

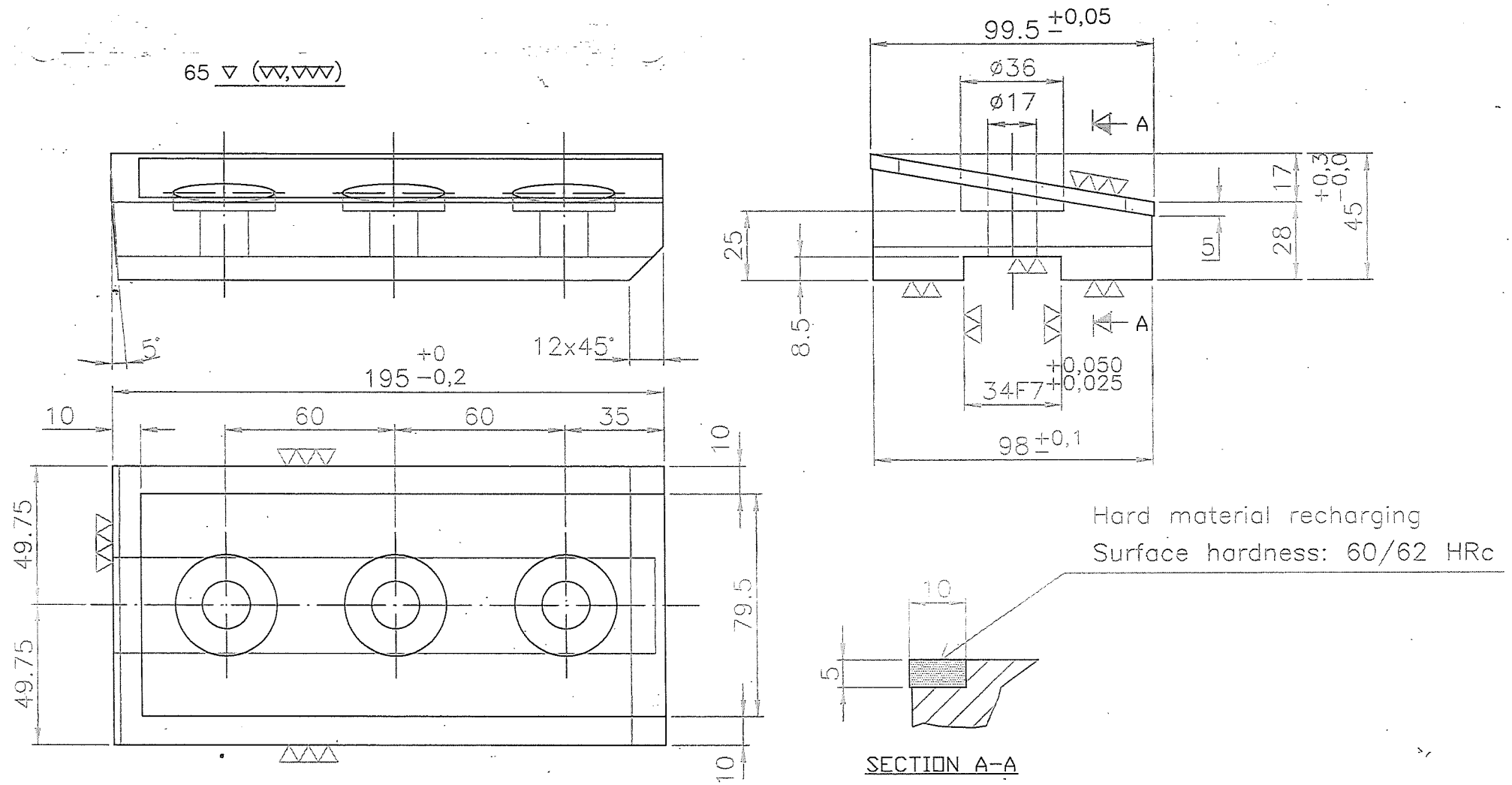
Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±9,0	±6,0

RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

PETICIONARIO		
PROYECTO	SHREDDER RMD 200 MTR-1500/7-8	
TITULO DEL PLANO	FIXED MAIN BLADE	

Nº. PROYECTO		
REVISADO	Nº COL.	
COMPROBADO	Nº COL.	
DIBUJADO F. J. Alonso	Nº COL.	
FECHA	ESCALA	Nº PLANO 2/17

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Nº Items	Denominación	Sign	Material	Nº Plan	Regulation	Weight (kg)
7	Mobile main blade	65	URSSA400			

Cliente:

Obra:

Responsable Revisión	Nº DE PLANO	
	CODIFICACION	
Fecha	INSTALACION	
	EQUIPO	
Nº Pedido	CONJUNTO	
	SUBCONJUNTO	
	PIEZA	

Signos de mecanizado. Rugosidades admisibles	DIN 3141 Clase 2	≈	▽	▽▽	▽▽▽	▽▽▽▽
	DIN ISO 1302	√	√ Ra 16,3	√ Ra 25	√ Ra 6,3	√ Ra 1
	mm.	~ 0,200	+0,100	+0,025	+0,006	+0,001

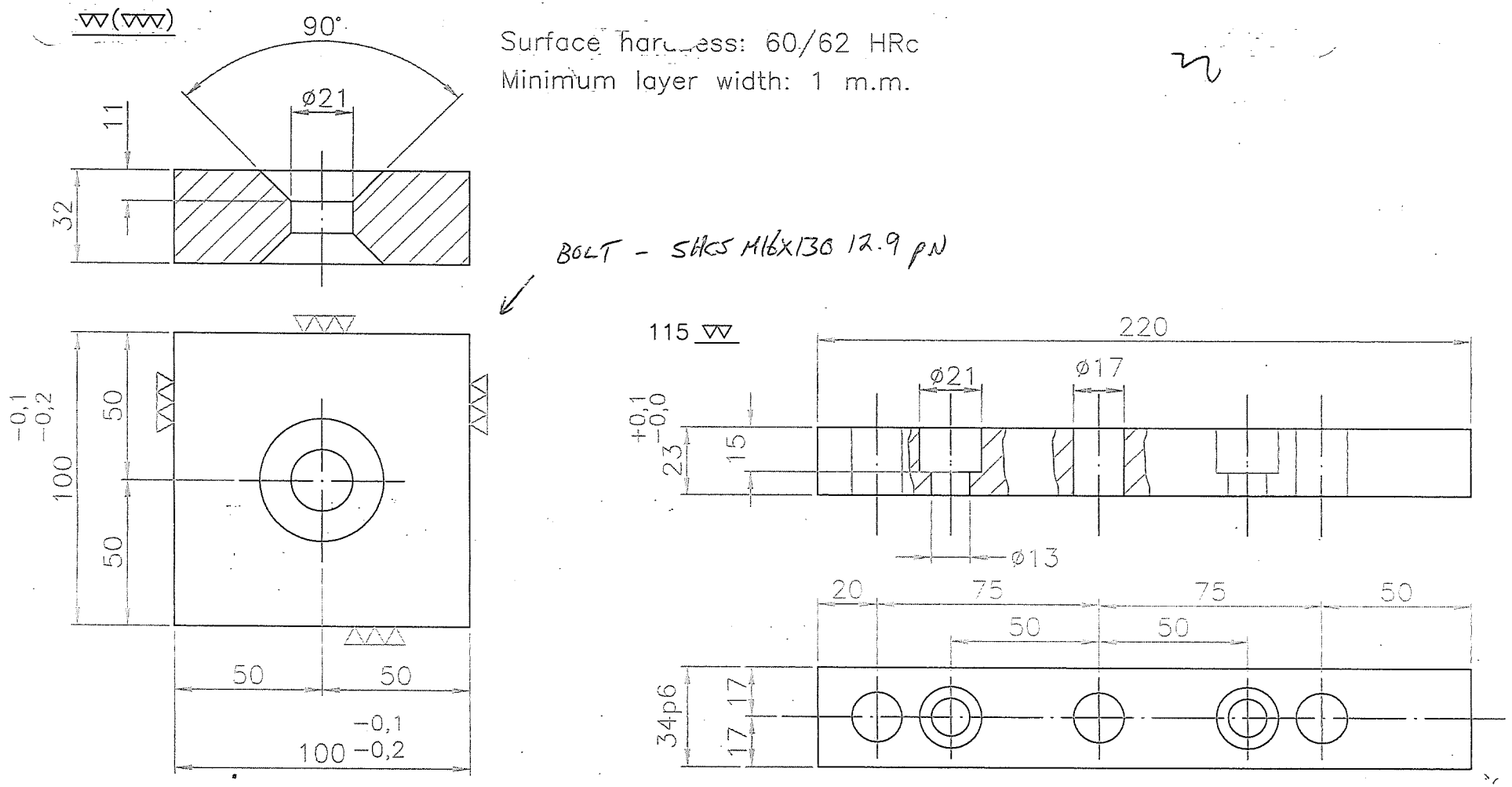
Diferencias para medidas sin indicación de tolerancia (DIN 7168)

Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

Nº. PROYECTO		
REVISADO		Nº COL.
PETICIONARIO	COMPROBADO	Nº COL.
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO: F. J. Alonso	Nº COL.
TITULO DEL PLANO: CUCHILLA MÓVIL GRANDE	FECHA	ESCALA
		Nº PLANO: 3/17

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7	Auxilliary fixed blade	119	F521 Tdo.			
8	Lock piece	115	F-125			
Nº Items	Denomination	Sgn	Material	Nº Plan	Reparation	Weight (kg)

Cliente:

Obra:

Responsable Revisión	Nº DE PLANO	
	CODIFICACION	
Fecha	INSTALACION	
	EQUIPO	
Nº Pedido	CONJUNTO	
	SUBCONJUNTO	
	PIEZA	

Signos de mecanizado. Rugosidades admisibles en:	DIN 3141 Serie 2	≈	▽	▽▽	▽▽▽	▽▽▽▽
	DIN ISO 1302	√	√ Ra 10	√ Ra 2,5	√ Ra 0,63	√ Ra 0,1
	mm.	-0,25	-0,100	-0,025	-0,009	-0,001

Diferencias para medidas sin indicación de tolerancia (DIN 7168)

Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

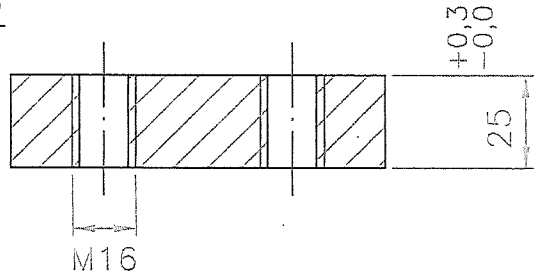
RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

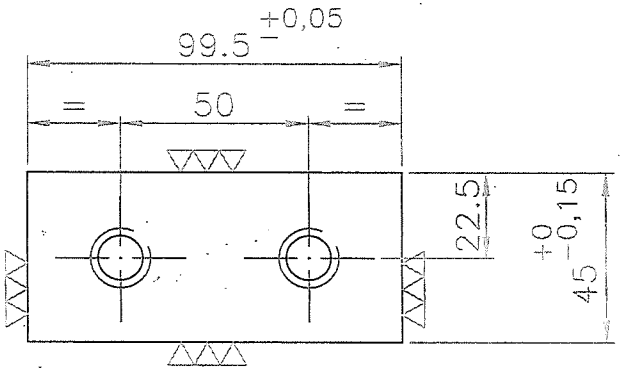
	Nº. PROYECTO	
	REVISADO	Nº COL.
PETICIONARIO	COMPROBADO	Nº COL.
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO: F. J. Alonso	Nº COL.
TITULO DEL PLANO: AUXILLIARY FIXED BLADE / LOCK PIECE FOR MAIN FIXED BLADE	FECHA	ESCALA / Nº PLANO: 4/17

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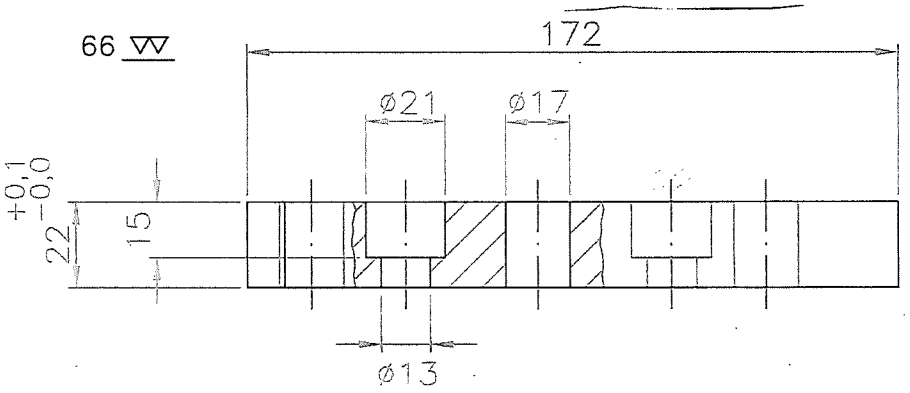
Surface hardness: 60/62 HRc
Minimum layer width: 1 m.m.

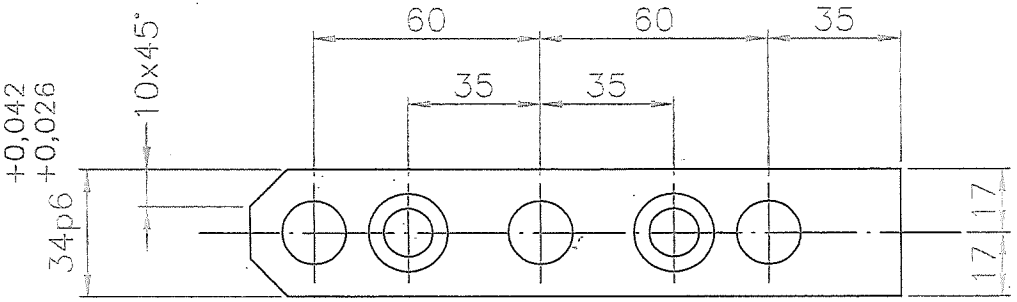
61 ▽▽(▽▽▽)





66 ▽▽





7	Lock piece	66	F-125			
14	Auxilliary mobile blade	61	F521 Tdc.			

Nº Items	Denomination	Sign	Material	Nº Plan	Regulation	Weight (kg)

Cliente:

Obra:

Responsable Revisión	Nº DE PLANO
	CODIFICACION
Fecha	INSTALACION
	EQUIPO
Nº Pedido	CONJUNTO
	SUBCONJUNTO
	PIEZA

Signos de mecanizado. Rugosidades admisibles en	DIN 3141 Sm≥2	≈	▽	▽▽	▽▽▽	▽▽▽▽
	DIN 150 1302		Ra 10	Ra 2,5	Ra 0,8	Ra 0,1
	mm	±0,25	±0,10	±0,025	±0,008	±0,001

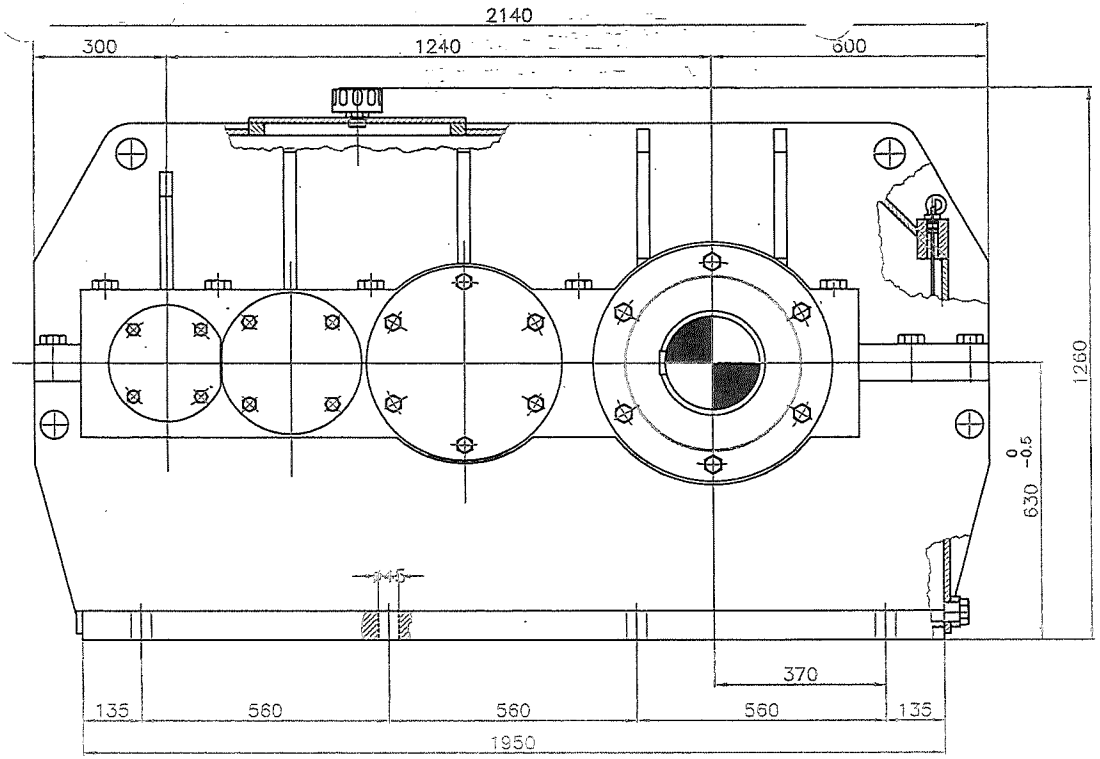
* : Diferencias para medidas sin indicación de tolerancias (DIN 7168)

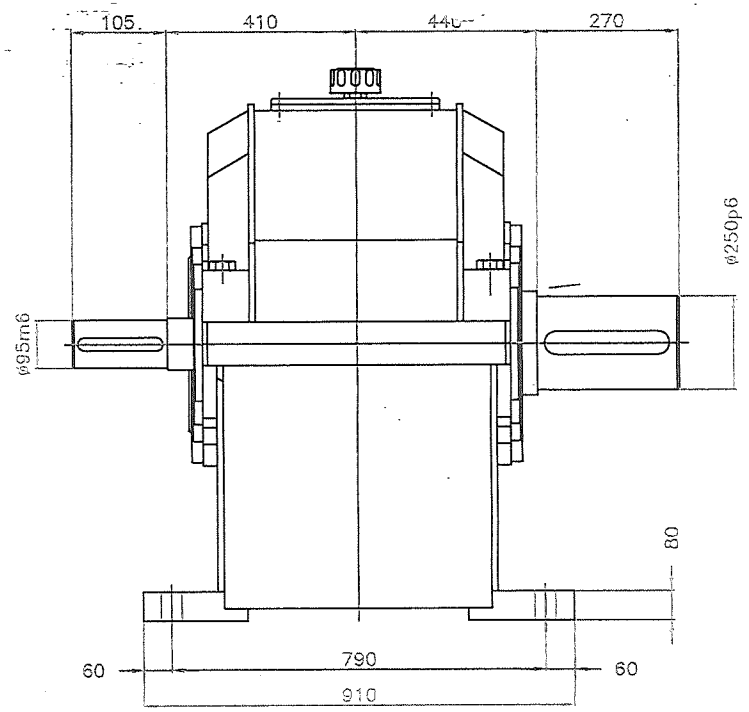
Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±5,0	±8,0

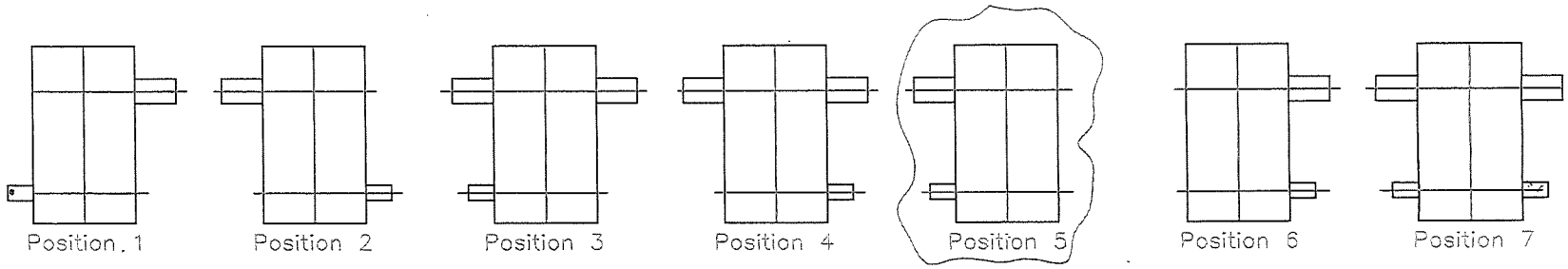
RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

	Nº. PROYECTO	
	REVISADO	Nº COL.
PETICIONARIO	COMPROBADO	Nº COL.
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO: F. J. Alonso	Nº COL.
TITULO DEL PLANO: AUXILLIARY MOBILE BLADE / LOCK PIECE FOR MAIN MOBILE BLADE	FECHA	ESCALA / Nº PLANO: 5/17

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Locks on shafts following DIN 6885 h1 Shape A
End of shafts, centering points screwed following DIN 332

FEATURES

Installed power output	200	KW.
Nominal power output	590	KW.
Speed ratio	i= 44.7385	
Input speed	1500	r/min.
Output speed	33.5	r/min.

Nº Plano	Designación	Horas	Material	Nº de Plano	Nombre
Cliente:					
Obra:					
Responsable Montaje	Nº DE PLANO				
	CODIFICACION				
Medio		INSTALACION			
		EQUIPO			
Nº Medio		CONJUNTO			
		SUBCONJUNTO			
		PIEZA			

Procesos mecánicos. Mecanizados en general.	Calidad básica	▽	▽▽	▽▽▽	▽▽▽▽
	Ra en µm	Ra 6,3	Ra 1,6	Ra 0,4	Ra 0,1
	IT	IT 12	IT 8	IT 7	IT 6

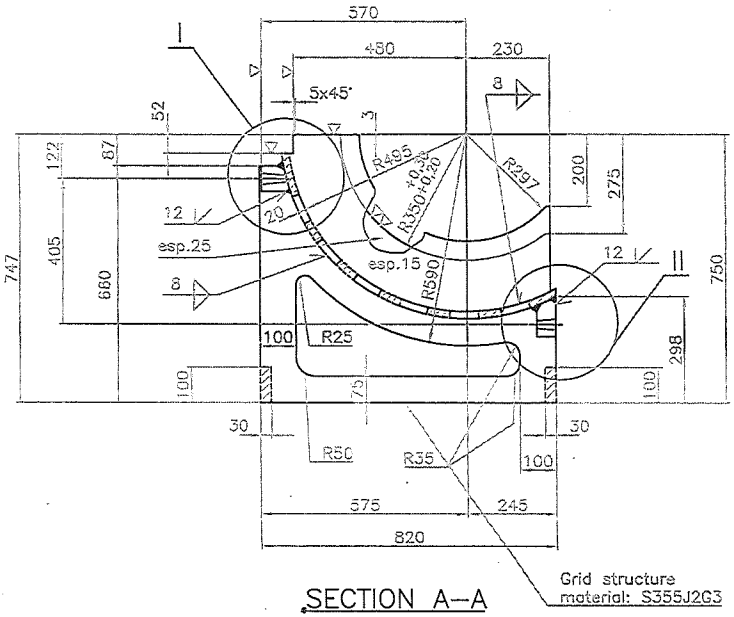
Acabados superficiales normalizados (mm)	Medida	más de 0 a 30	más de 30 a 120	más de 120 a 400	más de 400 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	JS 11	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0
Calderería	±2,5	±1,0	±1,5	±2,0	±3,0	±4,0	±5,0	±6,0

RMD® RECUPERACIÓN MATERIALES DIVERSOS, S.A.

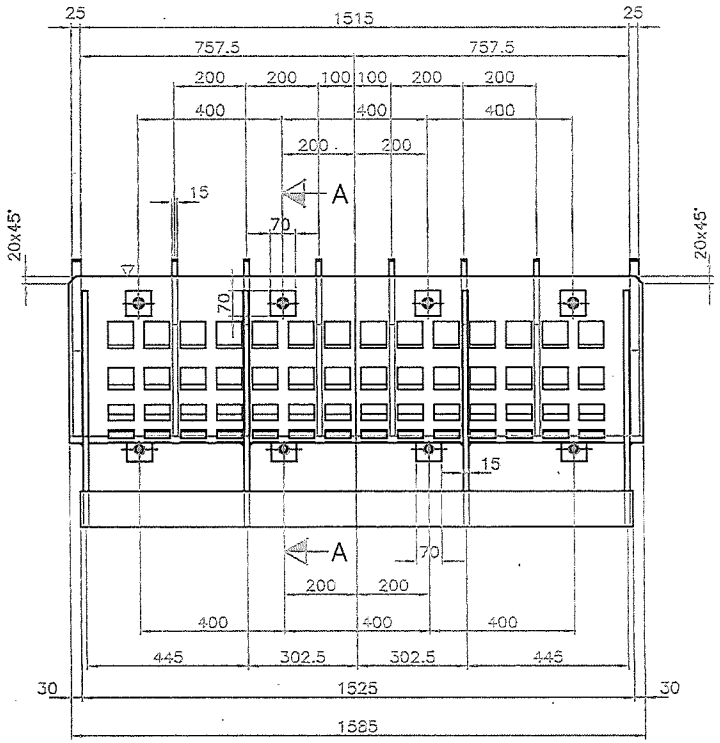
		Nº PROYECTO	
		REVISADO	Nº COL.
PETICIONARIO		COMPROBADO	Nº COL.
PROYECTO	SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO F. J. Alonso	Nº COL.
TITULO DEL PLANO	TRANSMISSION GEAR REDUCER type Z3-560 E	FECHA	ESCALA
			Nº PLANO 1b/1

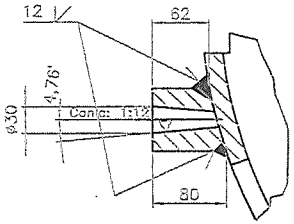
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106 ~ (▽,▽▽)

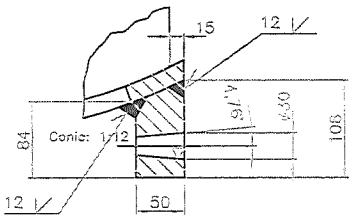


SECTION A–A





DETAIL I



DETAIL II

ATT.: Welding width must be
0,7xe (on 1 face weldings)
0,4xe (on 2 faces weldings)
e= minimal width on pieces to join

3	Criba		106	UR33A400 S355J2G3		
Nº Plano	Descripción		Marca	Material	Nº de Piezas	Fecha	Peso/Pz
Cliente:							
Obra:							
Representante Rendelia		Nº DE PLANO					
		CODIFICACION					
Fecha		INSTALACION					
		EQUIPO					
Nº Pedido		CONJUNTO					
		SUBCONJUNTO					
		PIEZA					

Grados de precisión recomendados (ISO)	Rango E	mm (0 a 120)	mm (a 120 a 315)	mm (a 315 a 1000)	mm (a 1000 a 2000)	mm (a 2000 a 4000)	mm (a 4000 a 8000)	mm (a 8000 a 16000)	mm (a 16000 a 32000)
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±5,0
Calderería	±1,5	±2,0	±2,5	±3,0	±4,0	±5,0	±6,0	±8,0	±10,0

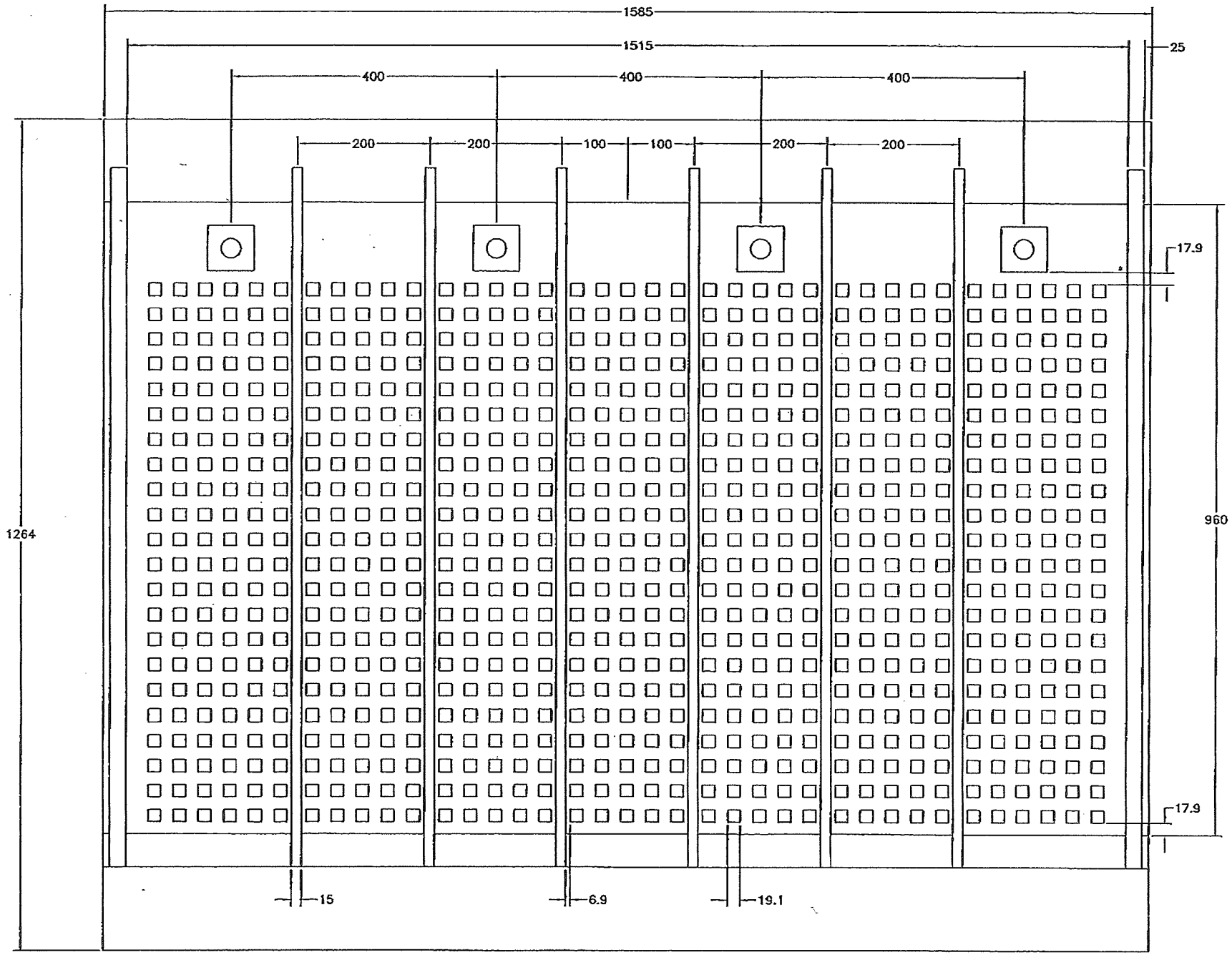
Rugosidad media aritmética Ra (µm)	0,025	0,05	0,1	0,2	0,4	0,8	1,6
Clase de rugosidad	N1	N2	N3	N4	N5	N6	N7

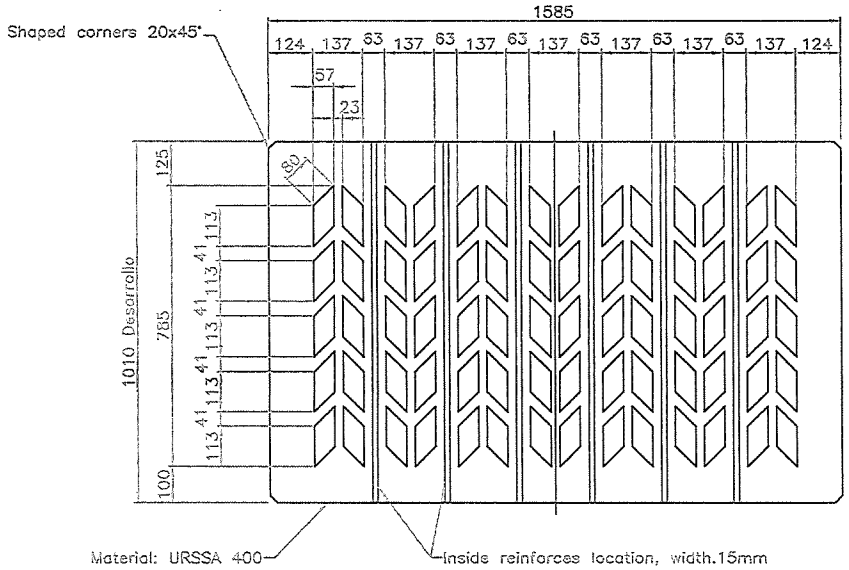
Grados de precisión recomendados (ISO)	Rango E	mm (0 a 120)	mm (a 120 a 315)	mm (a 315 a 1000)	mm (a 1000 a 2000)	mm (a 2000 a 4000)	mm (a 4000 a 8000)	mm (a 8000 a 16000)	mm (a 16000 a 32000)
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±5,0
Calderería	±1,5	±2,0	±2,5	±3,0	±4,0	±5,0	±6,0	±8,0	±10,0

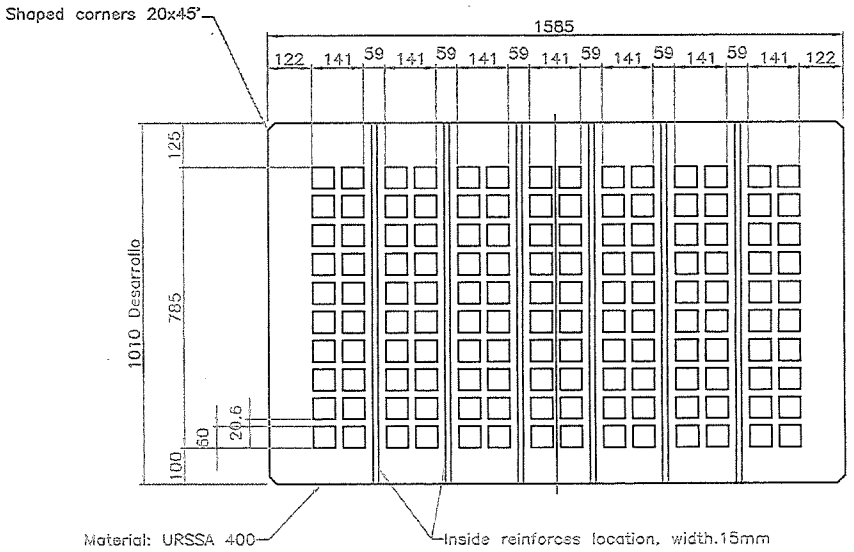
RMD RECUPERACIÓN MATERIALES DIVERSOS S.A.	Nº. PROYECTO		
	REVISADO	Nº COL.	
PETICIONARIO	COMPROBADO	Nº COL.	
PROYECTO SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO F. J. Alonso	Nº COL.	
TITULO DEL PLANO GRID	FECHA	ESCALA	Nº PLANO 6/17

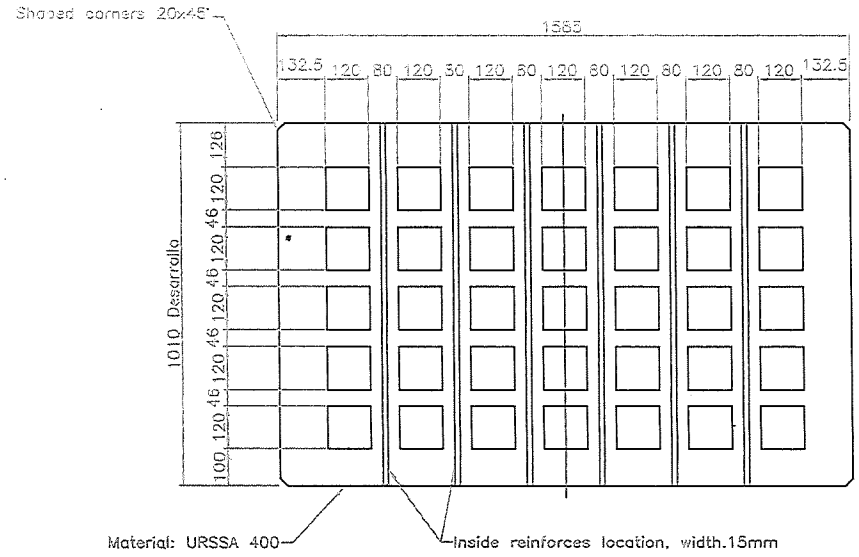
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ATT.: Grinder delivered with 3 different grids.
1 grid with each type of hole.
Grid structure made on steel S355J2G3
Grid on anti-wear steel URSSA 400

RMD Recuperación Materiales Diversos S.A.	Nº PROYECTO		
	REVISADO	Nº COL.	
PETICIONARIO	COMPROBADO	Nº COL.	
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO: F. J. Alonso	Nº COL.	
TITULO DEL PLANO: HOLES LOCATION ON DIFFERENT GRIDS	FECHA	ESCALA	Nº PLANO: 7/17

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PAGE NUMBER	PAGE	DRAWING NUMBER	DRAWING NUMBER CUSTOMER	TITLE	MODIFIED	
					Number	Date
1	1/1	8/17		DRAWINGS INDEX		
2	1/1	9/17		EXT. VIEW AND LOCATION OF ANCILLAIRES INSIDE THE ELECTRIC CUPBOARD		
3	1/3	10/17		EXPLAINED SCHEMES		
4	2/3	11/17		EXPLAINED SCHEMES		
5	3/3	12/17		EXPLAINED SCHEMES		
6	1/3	13/17		SOCKET X-1		
7	2/3	14/17		SOCKET X-2		
8	3/3	15/17		SOCKET X-3		
9	1/1	16/17		MATERIALS LIST		

Nº Items	Denominación	Sign	Material	Nº Plan	Regulation	Weight (kg)
Cliente:						
Obra:						

Responsable Revisión	Nº DE PLANO	
	CODIFICACION	
Fecha	INSTALACION	
	EQUIPO	
Nº Pedido	CONJUNTO	
	SUBCONJUNTO	
	PIEZA	

Signos de mecanizado. Rugosidades admisibles	DIN 140 Serie 2	~	▽	▽▽	▽▽▽	▽▽▽▽
	DIN 150 1302	√	√ Rz 100	√ Rz 25	√ Rz 6,3	√ Rz 1
	cm	± 0,25	± 0,05	± 0,025	± 0,008	± 0,001

Diferencias para medidas sin indicación de tolerancias (DIN 7168)

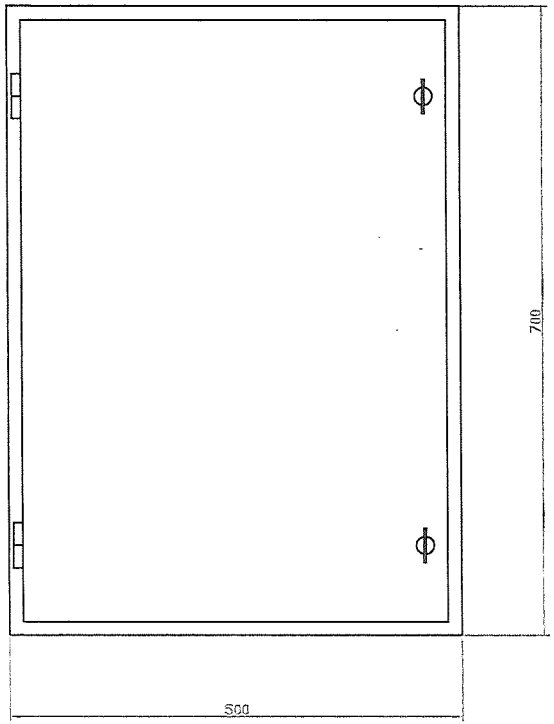
Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

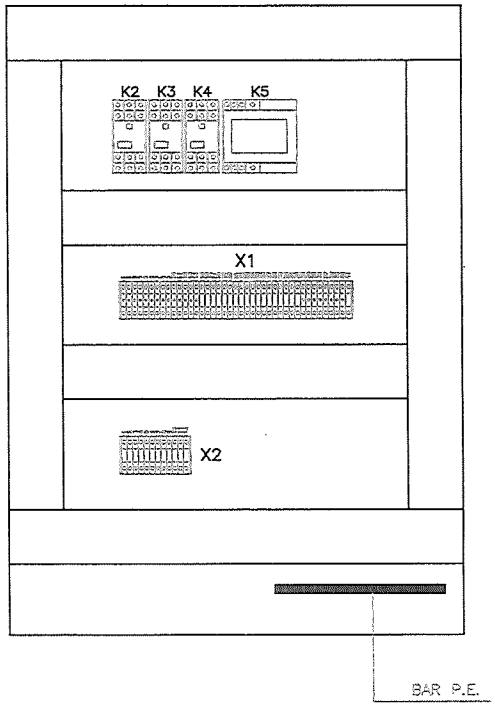
RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

Nº. PROYECTO		
REVISADO		Nº COL.
PETICIONARIO	COMPROBADO	Nº COL.
PROYECTO SHREDDER RMD 200 MTR-1500/7-8 ELECTRIC SCHEMES	DIBUJADO F. J. Alonso	Nº COL.
TITULO DEL PLANO DRAWINGS INDEX	FECHA	ESCALA / Nº PLANO 8/17

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CUPBOARD WIDTH: 250mm





Nº Items	Denominación	Sign	Material	Nº Plan	Regulation	Weight (kg)
Cliente:						
Obra:						
Responsable Revisión	Nº DE PLANO					
	CODIFICACION					
Fecha	INSTALACION					
	EQUIPO					
Nº Pedido	CONJUNTO					
	SUBCONJUNTO					
	PIEZA					

Signos de mecanizado. Rugosidades admisibles en:	DIN 3141 Parte 2					
	DIN ISO 1302		Ra 12,5	Ra 3,2	Ra 0,8	Ra 0,1
	mm.	± 0,250	± 0,100	± 0,025	± 0,005	± 0,001

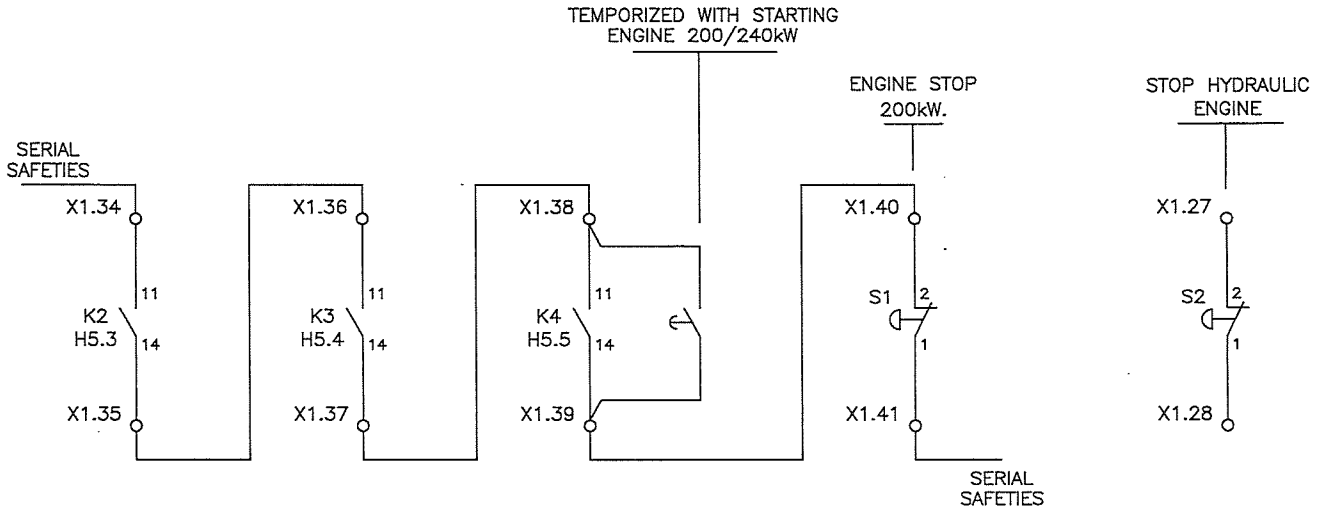
Diversas para medidas sin indicación de tolerancia (DIN 7168)

Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±8,0	±9,0

RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

PETICIONARIO		Nº. PROYECTO	
		REVISADO	Nº COL.
		COMPROBADO	Nº COL.
PROYECTO	SHREDDER RMD 200 MTR-1500/7-8 ELECTRIC SCHEMES	DIBUJADO F. J. Alonso	Nº COL.
TITULO DEL PLANO	EXT. VIEW AND LOCATION OF ANCILLAIRES INSIDE THE ELECTRIC CUPBOARD	FECHA	ESCALA
			Nº PLANO 9/17

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Nº Items	Denomination	Sign	Material	Nº Plan	Regulation	Weight (kg)
Cliente:						
Obra:						

Responsable Revisión	Nº DE PLANO	
	CODIFICACION	
Fecha	INSTALACION	
	EQUIPO	
Nº Pedido	CONJUNTO	
	SUBCONJUNTO	
	PIEZA	

Signos de mecanizado Rugosidades admitidas en:	DIN 2141 Serie 2					
	DIN 139 1302					
	mm	~0,250	~0,100	~0,025	~0,003	~0,001

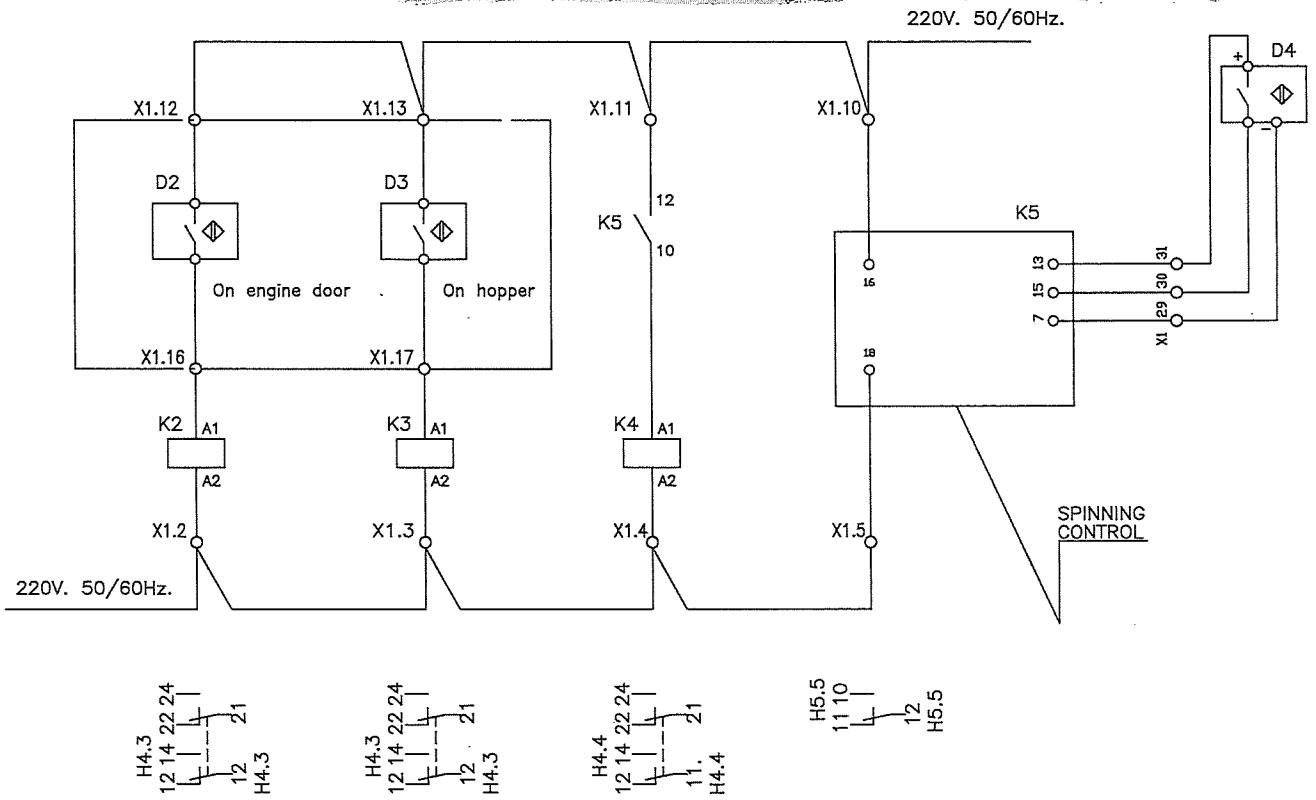
Diferencias para medidas sin indicación de tolerancias (DIN 7168)

Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	mas de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

Nº. PROYECTO			
PETICIONARIO	REVISADO	Nº COL.	
	COMPROBADO	Nº COL.	
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8 ELECTRIC SCHEMES	DIBUJADO: F. J. Alonso	Nº COL.	
TITULO DEL PLANO: EXPLAINED SCHEMES	FECHA	ESCALA	Nº PLANO: 10/17

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Nº Items	Denominación	Sign	Material	Nº Plan	Regulation	Weight (kg)
Cliente:						
Obra:						

Responsable Revisión	Nº DE PLANO	
	CODIFICACION	
Fecha	INSTALACION	
	EQUIPO	
Nº Pedido	CONJUNTO	
	SUBCONJUNTO	
	PIEZA	

Signos de mecanizado. Rugosidades admisibles	DIN 3141 Serie 2					
	DIN ISO 1302		Ra 12,5	Ra 3,2	Ra 0,8	Ra 0,1
	mm	±0,25	±0,125	±0,063	±0,032	

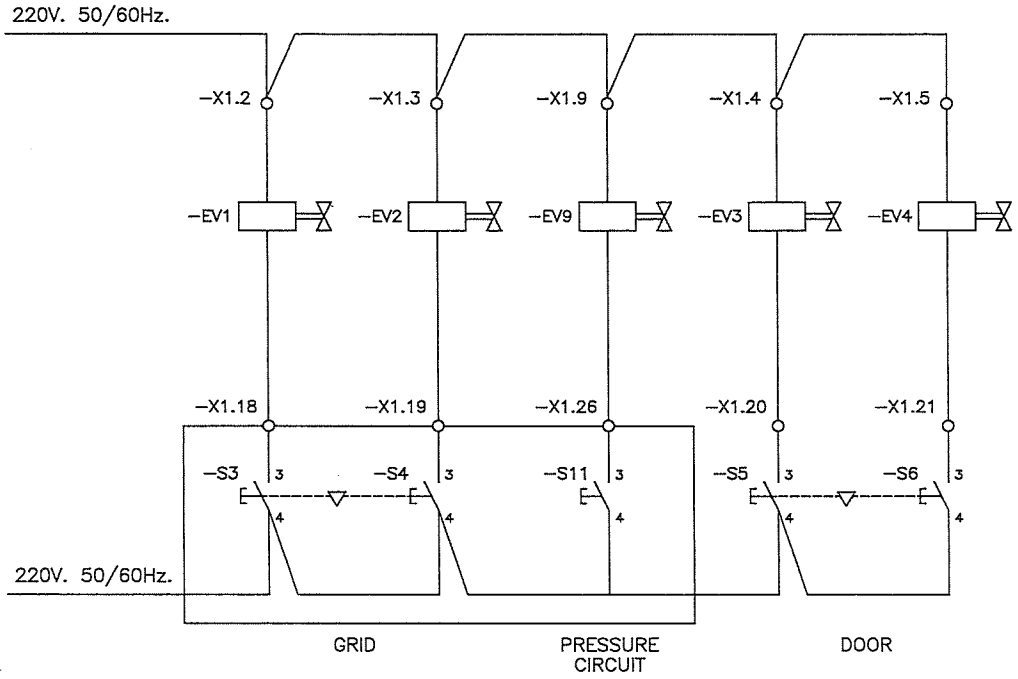
Diferencias para medidas sin indicación de tolerancia (DIN 7168)

Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±9,0

RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

Nº. PROYECTO		
REVISADO		Nº COL.
PETICIONARIO	COMPROBADO	Nº COL.
PROYECTO SHREDDER RMD 200 MTR-1500/7-8 ELECTRIC SCHEMES	DIBUJADO F. J. Alonso	Nº COL.
TITULO DEL PLANO EXPLAINED SCHEMES	FECHA	ESCALA:
		Nº PLANO 11/17

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Nº Items	Denominación	Sign	Material	Nº Plan	Regulación	Weight (kg)
Cliente:						
Obra:						
Responsable Revisión	Nº DE PLANO					
	CODIFICACION					
Fecha	INSTALACION					
	EQUIPO					
Nº Pedido	CONJUNTO					
	SUBCONJUNTO					
	PIEZA					

Signos de mecanizado Rugosidades admisibles en:	DIN 3141 Serie 2	~	▽	▽▽	▽▽▽	▽▽▽▽
	DIN 140 1302		$\sqrt{}$ Ra 100	$\sqrt{}$ Ra 25	$\sqrt{}$ Ra 6,3	$\sqrt{}$ Ra 1
	mm	± 0,250	± 0,100	± 0,025	± 0,010	± 0,001

Diferencias para medidas de estado con de fabricación (DIN 7168)

Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

PETICIONARIO		Nº. PROYECTO	
		REVISADO	Nº COL.
		COMPROBADO	Nº COL.
PROYECTO	SHREDDER RMD 200 MTR-1500/7-8 ELECTRIC SCHEMES	DIBUJADO F. J. Alonso	Nº COL.
TITULO DEL PLANO	EXPLAINED SCHEMES	FECHA	ESCALA
			Nº PLANO 12/17

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| SOCKET X1 | | |

| SOCKET X1 | | |

| SOCKET X2 | | |

POSITION	ITEMS	REF. DRAWING	DENOMINATION	MANUFACTURER	MODEL type	DETAILS
1	1		Metallic cupboard	HIMEL	CRN-75/250	700x500x250mm.
2	1		Metallic assembly board	HIMEL	MM-75	700x500mm.
3	1	D3	Inductive sensor	PEPPERL+FUCHS	NBB5-18GM60.WS	
4	1	D2	Inductive sensor	PEPPERL+FUCHS	NBN15-30GM60-WS	
5	1	D4	Inductive sensor	PEPPERL+FUCHS	NBB8-18GM50-E2	with wire
6	1	K5	R.P.M. controller	PEPPERL+FUCHS	KHU8-DW-1.D	
7	3	K2-K3-K4	Socket support for miniature relay	RELECO	S7-M	
8	3	K2-K3-K4	Standard miniature relay	RELECO	C7-A20X/230V. C.A.	
9	40	X1	Pins	PHOENIX	UK 2,5N	
10	2	X1	Final cover	PHOENIX	D.UK 2.5	
11	12	X2	Pins	PHOENIX	UK 6N	
12	2	X2	Final cover	PHOENIX	D.UK 4/10	
13	1	S1	Emergency button with mechanical locking	T.E.E.	XB2-BS 642	
14	1		Keyboard with 4 buttons + Stop button	T.E.E.	XAC-A4812	Keyboard for hydraulic system
15	1	PE	Bar P.E. 3x10mm.	PHOENIX	NSL-CU 3/10	1m.
16	10	PE	Connecting pins to bar with isolating cover	PEPPERL+FUCHS	AKG 16 GNYE	
17	2	PE	Bar supports	PEPPERL+FUCHS	AB/SS	
18	1		Metallic box	T.E.E.	DMG1	

Nº Items	Denomination	Sign	Material	Nº Plan	Regestion	Weight (kg)
Cliente:						
Obra:						

Responsable Revisión	Nº DE PLANO	
	CODIFICACION	
Fecha	INSTALACION	
	EQUIPO	
Nº Pedido	CONJUNTO	
	SUBCONJUNTO	
	PIEZA	

Signos de mecanizado Rugosidades admisibles	DIN 3141 Sept 92		▽	▽▽	▽▽▽	▽▽▽▽
	DIN 1629 1982		Rz 100	Rz 25	Rz 6.3	Rz 1
	mm.	± 0,250	± 0,100	± 0,025	± 0,010	± 0,001

Diferencias para medidas de mecanizado de fabricación (DIN 7168)

Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	mas de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

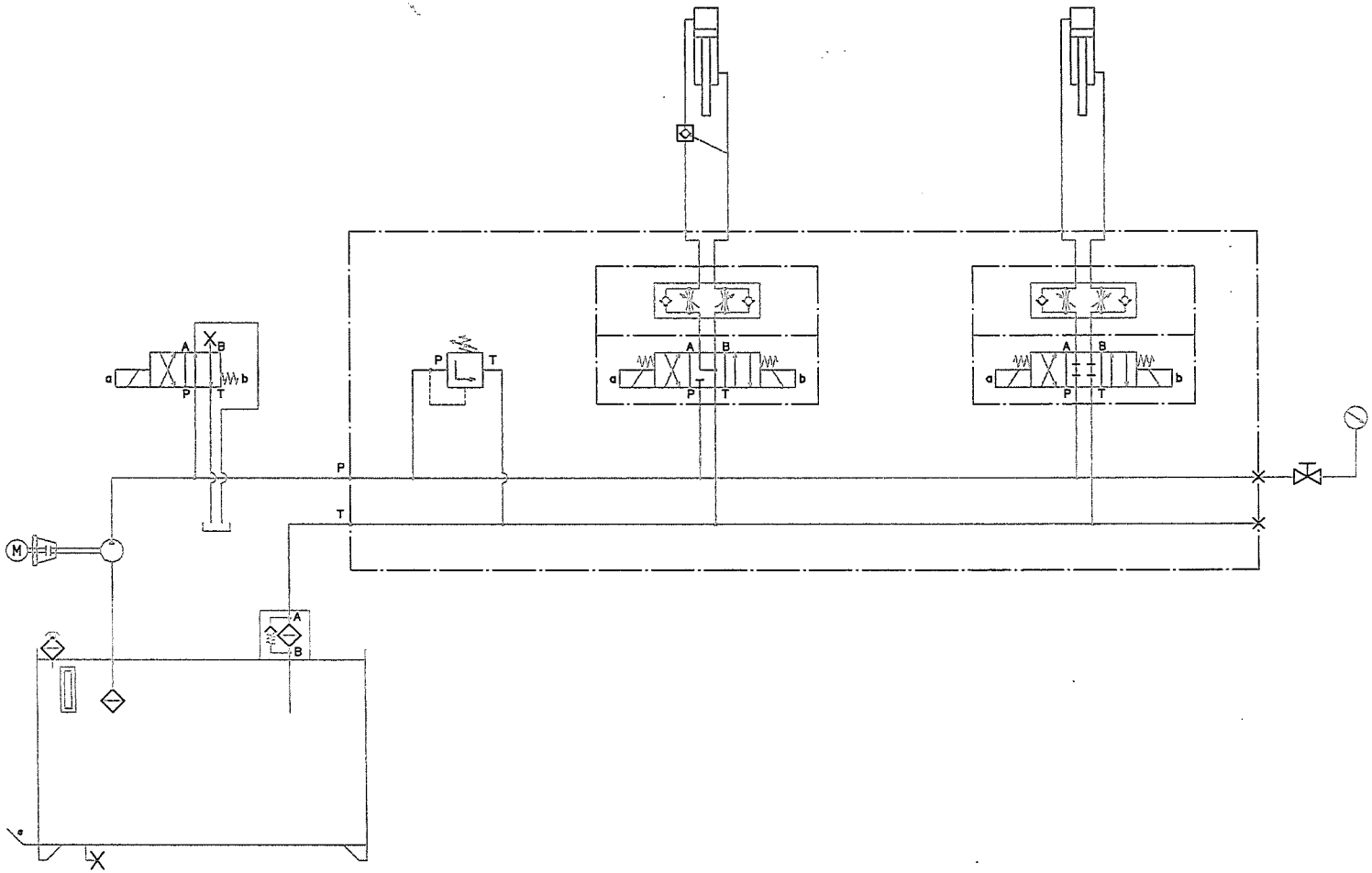
PETICIONARIO		
PROYECTO	SHREDDER RMD 200 MTR-1500/7-8 ELECTRIC SCHEMES	
TITULO DEL PLANO	MATERIALS LIST	

Nº. PROYECTO		
REVISADO	Nº COL.	
COMPROBADO	Nº COL.	
DIBUJADO F. J. Alonso	Nº COL.	
FECHA	ESCALA	Nº PLANO 16/17

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HYDRAULIC CYLINDER FOR GRID ELEVATION TABLE

HYDRAULIC CYLINDER FOR DOOR OPENING



Nº Items	Denomination	Sign	Material	Nº Plan	Regulation	Weight (kg)
Cliente:						
Obra:						
Responsable Revisión	Nº DE PLANO					
	CODIFICACION					
Fecha	INSTALACION					
	EQUIPO					
Nº Pedido	CONJUNTO					
	SUBCONJUNTO					
	PIEZA					

Signos de mecanizado Rugosidades admisibles en:	DIN 3141 Serie 2	∼	▽	▽▽	▽▽▽	▽▽▽▽
	DIN 1929 1982	√	√ Rz 100	√ Rz 25	√ Rz 6.3	√ Rz 1
	mm	+0.250	+0.100	+0.025	+0.006	+0.001

Diferencias para medidas sin indicación de tolerancias (DIN 7168)

Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	mas de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

	Nº. PROYECTO	
PETICIONARIO	REVISADO	Nº COL.
	COMPROBADO	Nº COL.
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO: F. J. Alonso	Nº COL.
TITULO DEL PLANO: HYDRAULIC CIRCUIT	FECHA	ESCALA
		Nº PLANO: 17/17

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TALLERES
LLANEZA, S.L.

DECLARACIÓN CE DE CONFORMIDAD

Nosotros:

Talleres LLANEZA, S.L.
Polígono Industrial Puente Nora
33420 Lugones
ASTURIAS – ESPAÑA
Tel.: 98 526 06 56 - Fax: 98 526 30 33

declaramos que la máquina

Referencia **4.03.01**
Tipo... ..... **MOLINO 200 MTR 1500/7-8**
Nº de fabricación **O-1144/04-02**
Año de ejecución..... **2004**
Potencia instalada **200Kw**

Caract. de rotor..... **Diámetro...** **940mm.**
Velocidad... **23rpm.**

Según se describe en la documentación adjunta, es conforme con las Directivas Europeas:

- 89/392/CEE Directiva de máquinas y sus modificaciones adicionales según las Directivas 91/368/CEE y 93/68/CEE, transpuestas a la legalización española según R.D. 1435/1992 y R.D. 56/1995.
- Prescripciones del capítulo VII del Reglamento de Seguridad de las Máquinas, según R.D. 1495/1986 del 26 de mayo.

Lista de normas armonizadas o nacionales utilizadas:

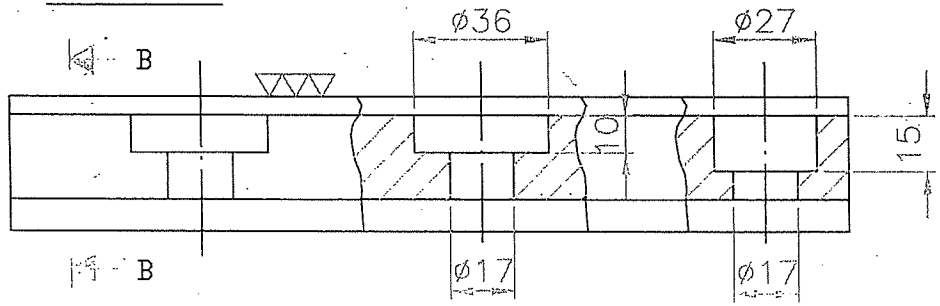
- DIN 3960 sobre Conceptos y magnitudes determinantes para ruedas dentadas y pares de ruedas dentadas con dentado envolvente.
- ISO 6336 sobre Calculo de la capacidad de carga de engranajes cilíndricos con dentado a derechas y helicoidal.
- DIN 9000 sobre diseño, fabricación y aseguramiento de la calidad.
- Federación Europea de Manipulación.(Clase 6-FEM/B-6)
- DIN-15018-GRUPOS DE CARGA

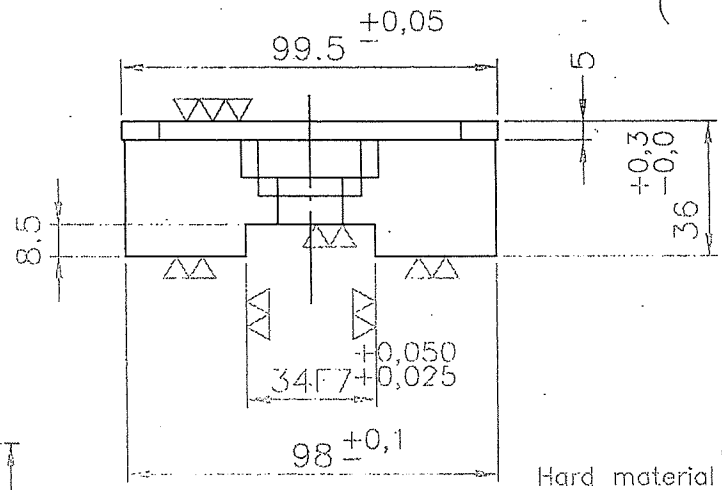
Lugones a 07 de Octubre de 2004

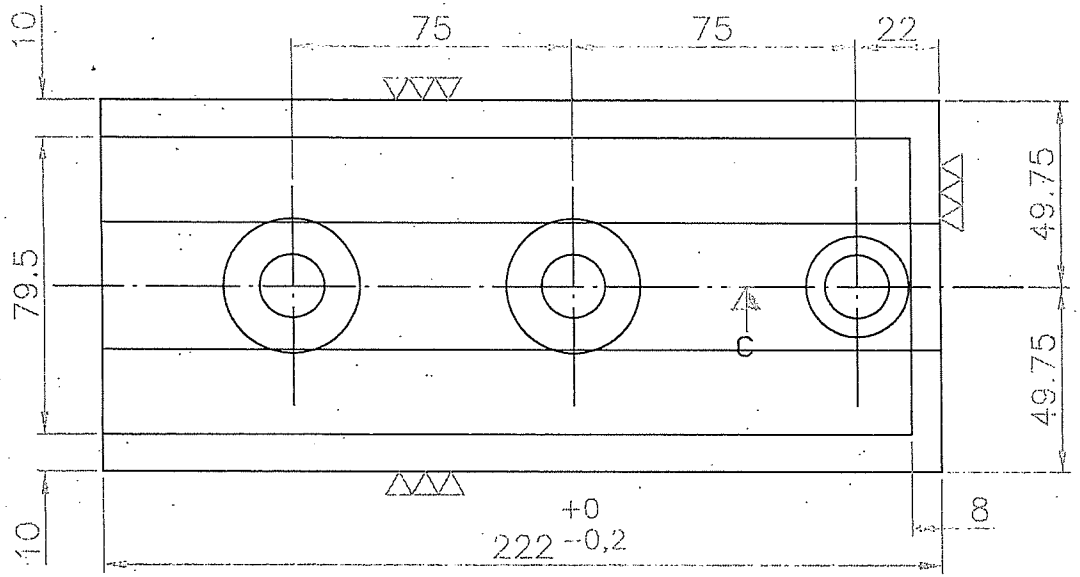
Fdo.: Pedro Gamboa
Dirección Técnica

Pag. 0001

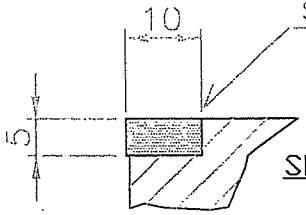
1 ▽ (▽▽,▽▽▽)







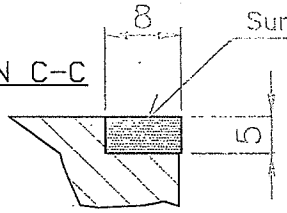
Hard material recharging
Surface hardness: 60/62 HR



SECTION B-B

Hard material recharging
Surface hardness: 60/62 HRc

SECTION C-C



8	Fixed main blade	114	DURSSA100		
Nº Items		Nºpz	Material	Nº Plano	Observ.	Peso Ud. (kg)

Cliente:
Obra:

Responsable Revisión	Nº DE PLANO
	CODIFICACION
Fecha	INSTALACION
	EQUIPO
Nº Pedido	CONJUNTO
	SUBCONJUNTO
	PIEZA

Signos de mecanizado. Rugosidades admisibles en	DIN ISO 1302 Serie 2	~	▽	▽▽	▽▽▽	▽▽▽▽
	DIN ISO 1302	√	√Ra 12,5	√Ra 3,2	√Ra 0,8	√Ra 0,1
	mm	±0,250	±0,050	±0,025	±0,010	±0,005

Tolerancias generales para medidas sin indicación de tolerancia (DIN 7168)

Ajustes o medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

RMD® RECUPERACIÓN MATERIALES DIVERSOS S.A.

	Nº. PROYECTO	
	REVISADO	Nº COL.
PETICIONARIO	COMPROBADO	Nº COL.
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO: F. J. Alonso	Nº COL.
TITULO DEL PLANO: FIXED MAIN BLADE	FECHA	ESCALA

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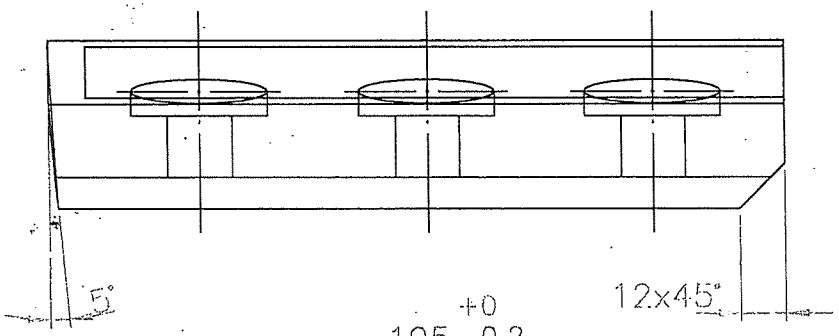
Opportunities by Record Manager

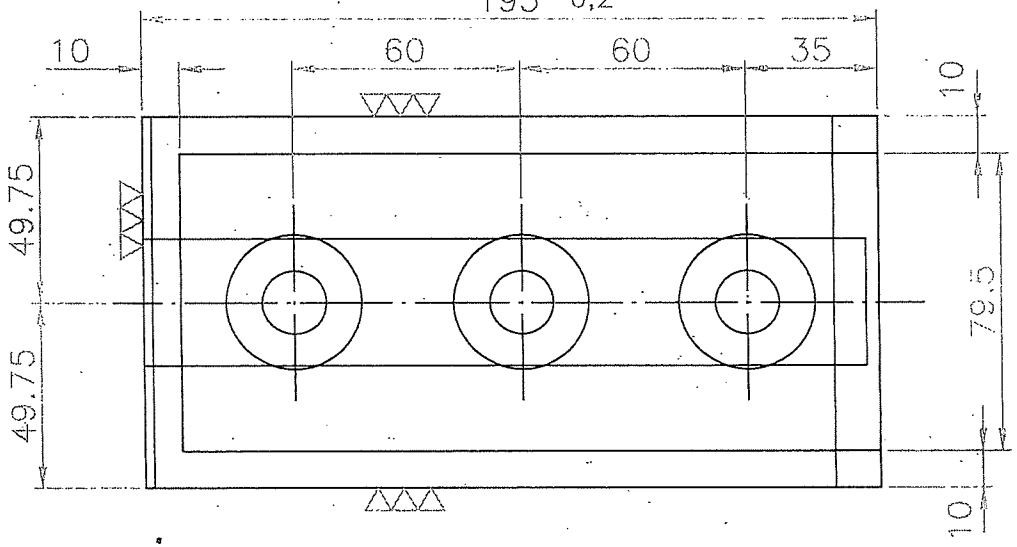
Date Range: All Dates **Total for Date Range:** $730,300.00

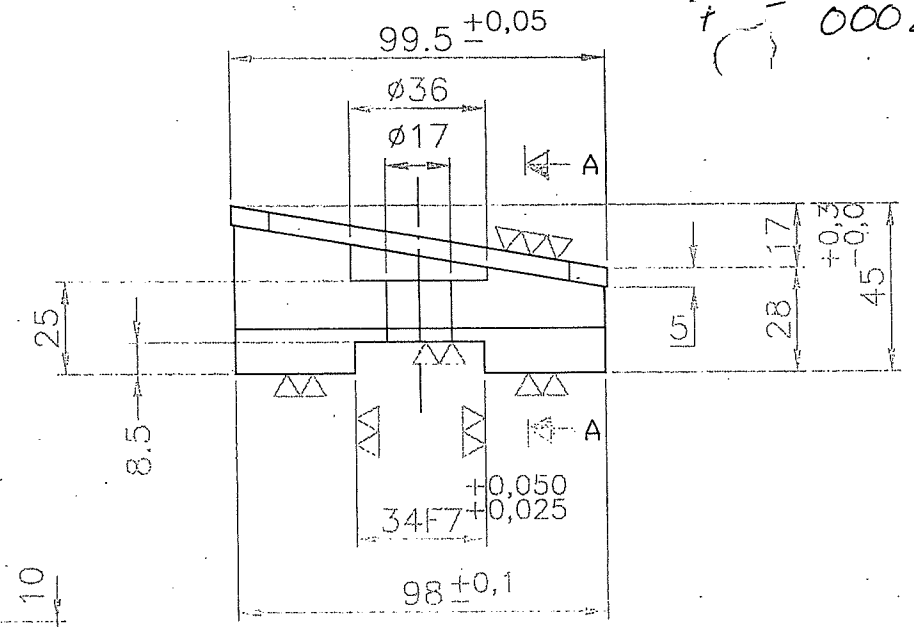
Open	BILL FANNING	COPPER MOUNTAIN	Baseball 45	sales cycle Commitment to Buy	80%	9/2/2008	$12,960.00	$16,200.00
Open	Tom Barnes	CITY OF GLENWOOD	dola	sales cycle grant being written	85%	8/16/2008	$4,037.50	$4,750.00
Open	TONY BALDI	CITY OF THORNTON	New Opportunity	sales cycle Initial Communication	10%	7/18/2008	$0.00	$0.00
Open	JAY WHITMAN	MONTANA HOTEL	New Opportunity	sales cycle Needs Assessment	25%	7/21/2008	$2,750.00	$11,000.00
Open	BILL FANNING	COPPER MOUNTAIN	SMALL TEST ORDER	sales cycle Sales Fulfillment	90%	7/23/2008	$648.00	$720.00
Open	ANDY BROOKS	PRIDE SOCCER ASSOCIATION	New Opportunity	sales cycle getting approval	65%	6/2/2009	$26,000.00	$40,000.00
Open	LES ERMOLD	ERMOLD PARK & REC.	grand jctn	sales cycle Initial Communication	10%	7/23/2008	$4,500.00	$45,000.00
Open	Liz Laabs		small arena	sales cycle Quote sent	40%	7/22/2008	$840.00	$2,100.00
Open	Lance Coproral Brown	Fourth Reconnaisance	New Opportunity	sales cycle Quote sent	40%	7/18/2008	$84.00	$210.00
Open	Toni Fox	HEART TO HEART DAYCARE	New Opportunity	sales cycle getting approval	65%	7/21/2008	$2,340.00	$3,600.00

0002

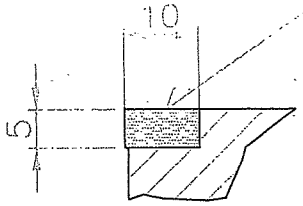
65 ▽ (▽▽,▽▽▽)







Hard material recharging
Surface hardness: 60/62



SECTION A–A

7	Mobile main blade		65	URSS4100		
Nº Plano	Denominación		Cant.	Material	Tratamiento	Peso (kg)

Cliente:

Obra:

Responsable Revisión	Nº DE PLANO
	CODIFICACION
Fecha	INSTALACION
	EQUIPO
Nº Pedido	CONJUNTO
	SUBCONJUNTO
	PIEZA

Signos de mecanizado Rugosidades correspondientes en micras	▽	▽▽	▽▽▽	▽▽▽▽
	6,3	1,6	0,63	0,16
	+0,025	+0,010	+0,005	+0,001

Diferencias admisibles para medidas lineales (ISO 1302)

Ajustes de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

RECUPERACIÓN MATERIALES DIVERSOS S.A.

	Nº. PROYECTO	
	REVISADO	Nº COL.
PETICIONARIO	COMPROBADO	Nº COL.
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO: F. J. Alonso	Nº COL.
TITULO DEL PLANO: CUCHILLA MÓVIL GRANDE	FECHA	ESCALA

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COLORADO WASTE TIRE PROGRAM INFORMATION

Recycling Incentives for Purchasing and Using Recycled Waste Tire Products in Public Projects

Revised
August 2008

STATE OF COLORADO
DEPARTMENT OF LOCAL AFFAIRS
DIVISION OF LOCAL GOVERNMENT
1313 Sherman Street, Room 521 – Denver, Colorado 80203

This document is also available
on the Department of Local Affairs' Home Page at
www.dola.colorado.gov/waste_tire

For more information, contact
Tamra Hooper at 303-866-6398
or
Don Sandoval at 970-679-4501

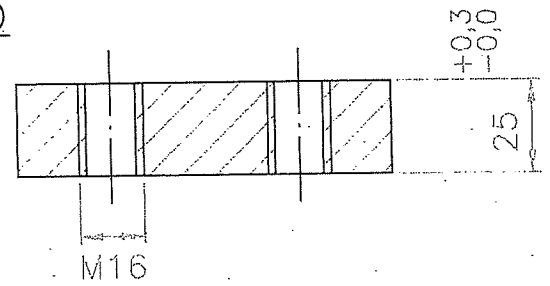
Part #0003

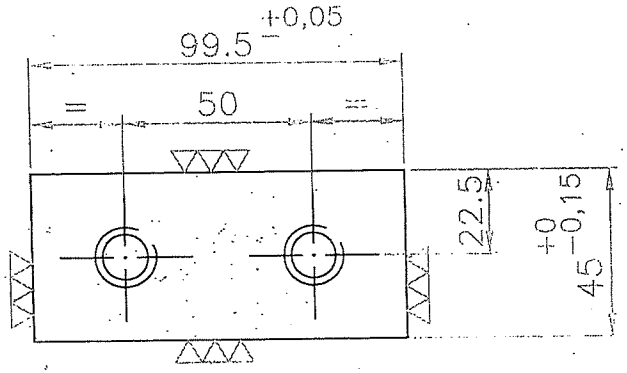
Surface hardness: 60/62 HRc

Minimum layer width: 1 m.m.

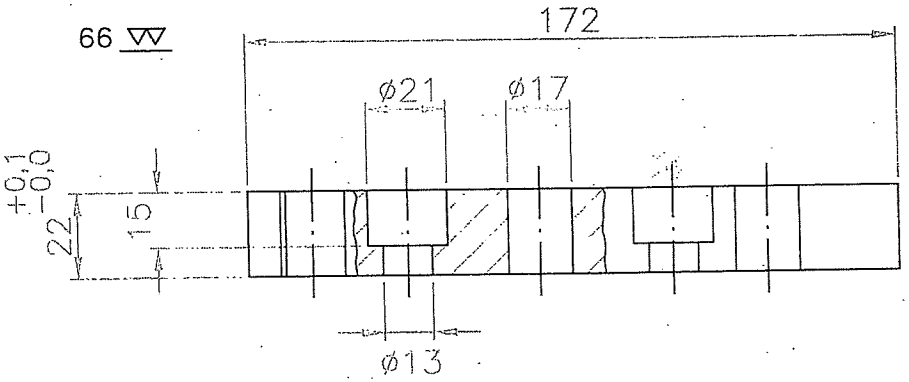
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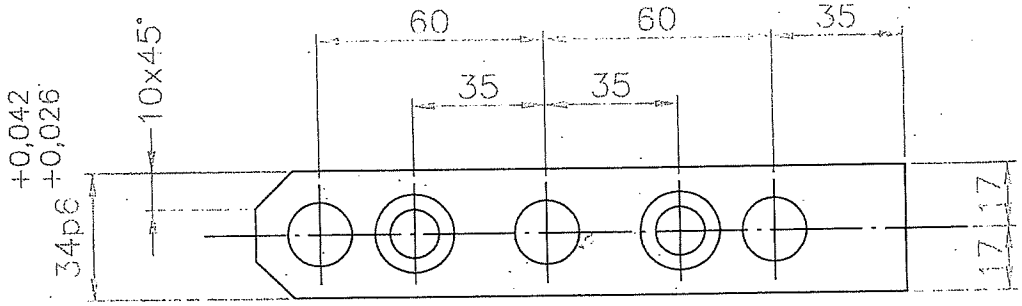
61 ▽▽(▽▽▽)





66 ▽▽





7	Lock piece	66	F-125				
14	Auxilliory mobile blade	61	F621 Tdo.				
Nº Pos.	Denominación	Nº	Material	Nº Por	Dimensiones	Peso Ud.	

Cliente:

Obra:

Responsable Revisión	Nº DE PLANO
Fecha	CODIFICACION
Nº Pedido	INSTALACION
	EQUIPO
	CONJUNTO
	SUBCONJUNTO
	PIEZA

Signos de rugosidad superficial admitida	Rugosidad media Ra (µm)	▽	▽▽	▽▽▽	▽▽▽▽	▽▽▽▽
	50 (N12)	√	√ N 6.3	√ N 3.2	√ N 1.6	√ N 0.8
	6.3	+0.025	+0.010	+0.005	+0.003	+0.001

Diferencias admisibles para dimensiones nominales (UNE 7051)

Medidas de piezas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

RECUPERACIÓN MATERIALES DIVERSOS S.A.

PETICIONARIO		Nº. PROYECTO
	REVISADO	Nº COL.
	COMPROBADO	Nº COL.
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO: F. J. Alonso	Nº COL.
TITULO DEL PLANO: AUXILLIARY MOBILE BLADE / LOCK PIECE FOR MAIN MOBILE BLADE	FECHA	ESCALA

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Opportunities by Record Manager

Date Range: All Dates **Total for Date Range:** $730,300.00

Open	BRENT BOYD	SUREFOOT	boulder	sales cycle getting approval	65%	7/31/2008	$2,730.00	$4,200.00
Open	CODY BRANDNER	WEST YUMA COUNTY	New Opportunity	sales cycle grant request submitted	95%	8/28/2008	$7,600.00	$8,000.00
Open	Mark Brown	PHILLIPS COUNTY	dola	sales cycle Initial Communication	10%	7/22/2008	$1,160.00	$11,600.00
Open	COREY Doss	MOUNTAIN VALLEY SCHOOLS	DOLA	sales cycle grant being written	85%	8/13/2008	$13,770.00	$16,200.00
Open	PATTY DENVO	ABC DEVELOPMENT CENTER	dola non profit	sales cycle Initial Communication	10%	7/23/2008	$360.00	$3,600.00
Open	LL		New Opportunity	sales cycle getting approval	65%	9/18/2008	$3,607.50	$5,550.00
Open	GLENN SMITH	KIOWA COUNTY SCHOOLS	New Opportunity	sales cycle Quote sent	40%	8/11/2009	$13,500.00	$33,750.00
Open	dr. bohrer	PHILLIPS COUNTY	dola	sales cycle Initial Communication	10%	9/4/2008	$2,250.00	$22,500.00
Open	SUSIE GRAVES	ELBERT COUNTY	New Opportunity	sales cycle Initial Communication	10%	11/18/2008	$50.00	$500.00
Open		CAMP AT THE ROCKIES	New Opportunity	sales cycle Quote sent	40%	8/29/2008	$4,032.00	$10,080.00
Open	Cregan Ortner	CORDILLERA METRO	New Opportunity	sales cycle grant request submitted	95%	7/21/2008	$3,990.00	$4,200.00
Open	sherry Barnan	ross mcarthur	truckload	sales cycle getting approval	65%	7/31/2008	$4,160.00	$6,400.00
Open	Jose Palma	DENVER PARKS & REC.	cIII	sales cycle Initial Communication	10%	7/23/2008	$1,250.00	$12,500.00
Open	Shawn Cooper	CITY OF GRAND JUNCTION	dola 3 palygrounds	sales cycle Initial Communication	10%	7/23/2008	$3,150.00	$31,500.00
Open	ken haynes	GRAND COUNTY ROAD &	DOLA	sales cycle grant request submitted	95%	7/22/2008	$12,692.00	$13,360.00

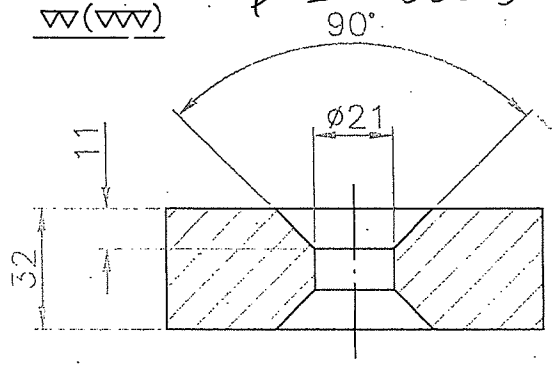
P # 0005

P # 0006

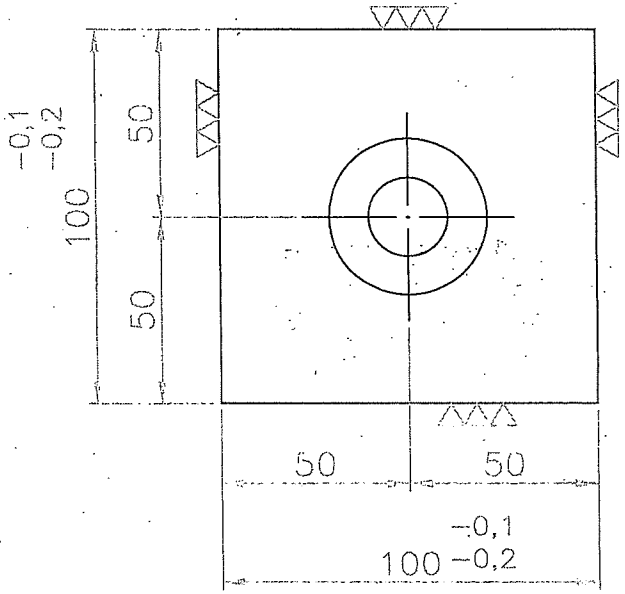
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Surface hardness: 60/62 HRc

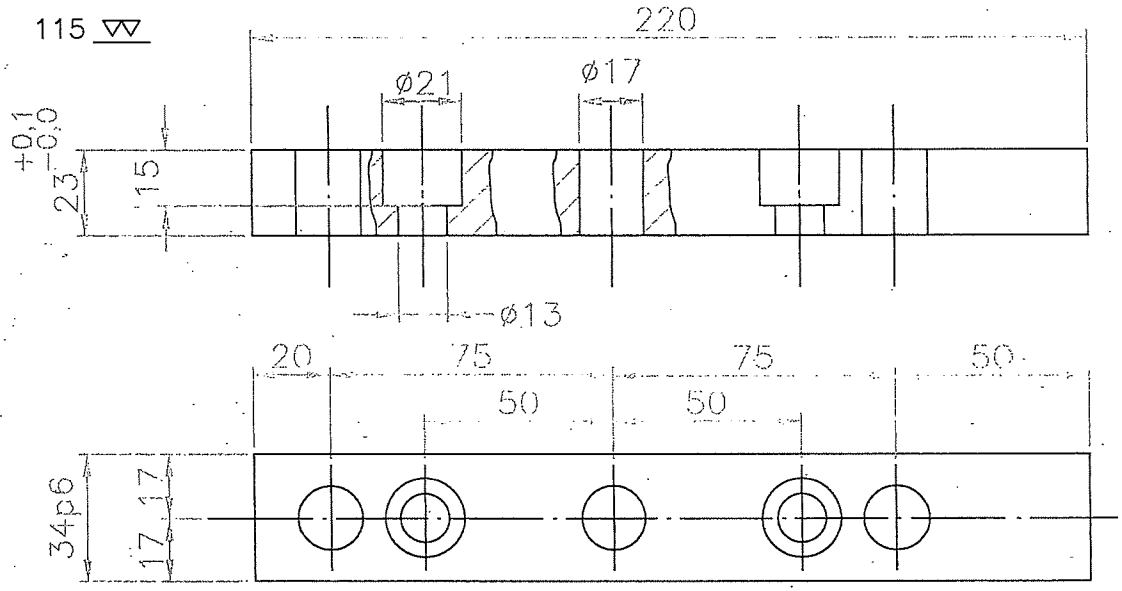
Minimum layer width: 1 m.m.



BOLT - SHCS M16x130 12.9 pN



115 ▽▽



7	Auxilliary fixed blade	119	F521 Tdo.			
8	Lock piece	115	F-125			

Nº Plano	Denominación	Cap.	Material	Nº Pieza	Observaciones	Peso (Kg)

Cliente:	
Obra:	
Responsable Revisión	Nº DE PLANO
	CODIFICACION
Fecha	INSTALACION
	EQUIPO
Nº Pedido	CONJUNTO
	SUBCONJUNTO
	PIEZA

Signos de mecanizado. Rugosidades admisibles en micras.

DIN ISO 1302 Ra en µ	≈	▽	▽▽	▽▽▽	▽▽▽▽
Ra en µ	≈50	≈12,5	≈3,2	≈0,8	≈0,2

Diferencias para medidas nominales en milímetros (UNE 7/62)

Alcances de medidas nominales (mm)	Hasta 6	más de 6 a 30	más de 30 a 100	más de 100 a 300	más de 300 a 1000	más de 1000 a 2000	más de 2000 a 4000	más de 4000
Mecanizado	±0,1	±0,2	±0,3	±0,5	±0,8	±1,5	±2,0	±3,0
Calderería	±0,5	±1,0	±1,5	±2,0	±3,0	±4,0	±6,0	±8,0

RECUPERACIÓN MATERIALES DIVERSOS S.A.

	Nº. PROYECTO	
	REVISADO	Nº COL.
PETICIONARIO	COMPROBADO	Nº COL.
PROYECTO: SHREDDER RMD 200 MTR-1500/7-8	DIBUJADO: F. J. Alonso	Nº COL.
TITULO DEL PLANO: AUXILLIARY FIXED BLADE / LOCK PIECE FOR MAIN FIXED BLADE	FECHA	ESCALA

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COLORADO WASTE TIRE PROGRAM INFORMATION

Recycling Incentives for Purchasing and Using Recycled Waste Tire Products in Public Projects

Revised
August 2008

STATE OF COLORADO
DEPARTMENT OF LOCAL AFFAIRS
DIVISION OF LOCAL GOVERNMENT
1313 Sherman Street, Room 521 – Denver, Colorado 80203

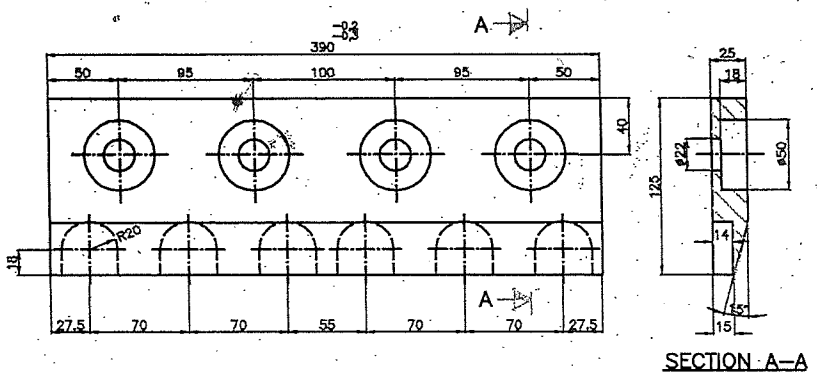
This document is also available
on the Department of Local Affairs' Home Page at
www.dola.colorado.gov/waste_tire

For more information, contact
Tamra Hooper at 303-866-6398
or
Don Sandoval at 970-679-4501

P#0007

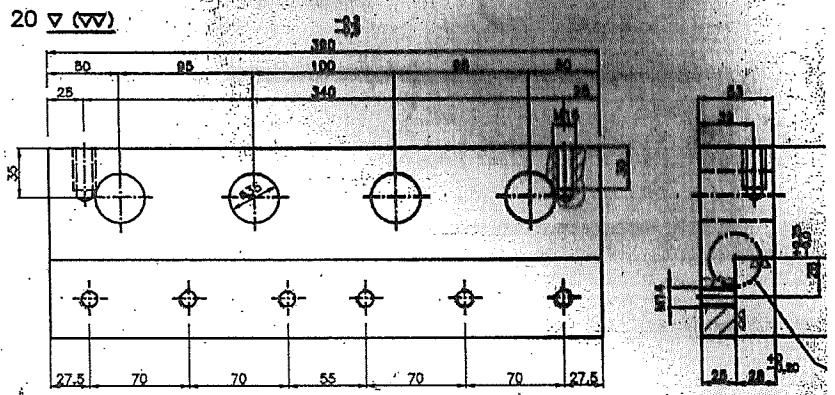
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22 ▽

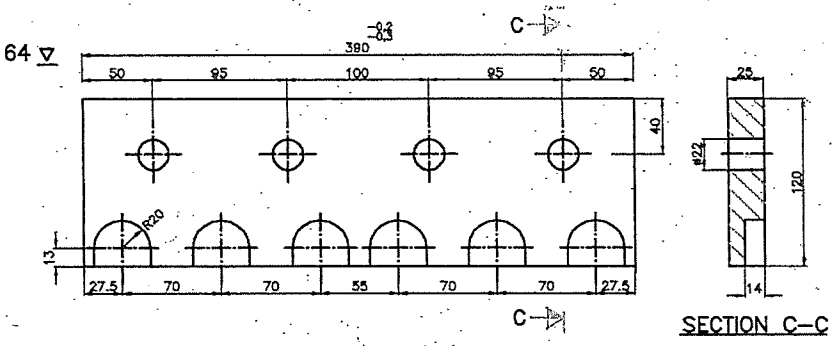


SECTION A–A

20 ▽ (▽▽)

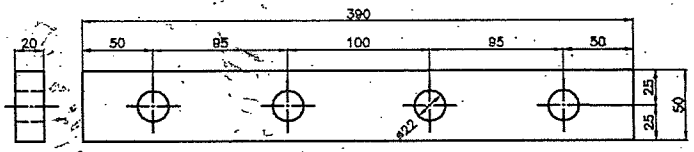


64 ▽

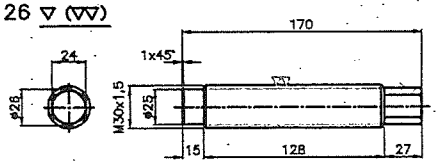


SECTION C–C

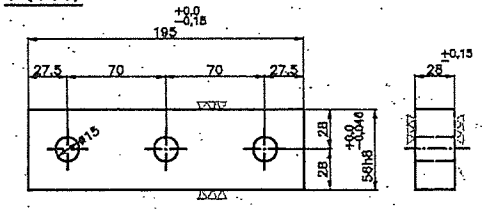
63 ▽



26 ▽ (▽▽)



21 ▽ (▽▽▽)



Shape the 4 working faces keeping cutting edges. Both front surfaces as treatment finishing.
Hardness: 61/62 HRc.

4	Resistant piece	64	F-125Tdo			9
4	Anchorage bar	63	S355J2G3			4
16	Regulating bar	26	F-125			0,9
4	Resistant piece	22	F-125Tdo			9
56	Blades	21	F-521Tdo			2,5
8	Fixed blade support	20	F-125Tdo			17

Nº Plano	Denominación	Nota	Material	Tratamiento	Línea	Peso/u
Clientes:						
Otros:						

Denominación Genérica	Nº DE PLANO	
	CODIFICACION	
Fecha	INSTALACION	
	EQUIPO	
Nº Pedido	CONJUNTO	
	SUBCONJUNTO	
	PIEZA	

Rugosidad Ra	∇	∇∇	∇∇∇	∇∇∇∇	Material o equipo empleado (UNE)	Material	Ø 0 a 6	Ø 6 a 18	Ø 18 a 30	Ø 30 a 50	Ø 50 a 80	Ø 80 a 120	Ø 120 a 180
Clase	√	√	√	√		Herram.	±0,06	±0,07	±0,08	±0,09	±0,10	±0,12	±0,14
Cm	>0,8	≤1,6	≤3,2	≤6,3		Calibres	±0,02	±0,03	±0,04	±0,05	±0,06	±0,07	±0,08

RMD	RECUPERACIÓN MATERIALES DIVERSOS S.A.
PETICIONARIO	
PROYECTO	GRINDER type RMD 132 MGN 1600/5-2
TITULO DEL PLANO	BLADES AND BLADES SUPPORTS

NR. PROYECTO	
REVISADO	NR COL.
COMPROBADO	NR COL.
DIBUJADO F. J. Alonso	NR COL.
FECHA	ESCALA

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