

Company Name and Communication Details,

Company Full Name.....: Hacim Makina Kalıp Mühendislik Müşavirlik
San.Ve Tic.Ltd.Şti.
Tool House Adres (head office).....: Hoşdere Mevkii Isıso San.Sit. 4.Yol H Blok No:18
Hadımköy/İST/TURKEY
Plastic Production Plant Adres (branch office)..: Hoşdere Mevkii Isıso San.Sit. 7.Yol L Blok
No:14-15 Hadımköy/İST/TURKEY
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Fax.....: +90 212 6231999
Web.....: www.hacim.com
E-mail.....: info@hacim.com , cafer@hacim.com ,
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Authorized Persons.....: Cafer GÜRSOY , Kaya KAZANKAYA

Brief Company Profile,

Hacim Makina Kalıp Mühendislik Müşavirlik San ve Tic. Ltd.Şti was established for plastic injection mould production in 1998. The main principles are qualified and technical service, just in time production and delivery also besides them lowest cost as the Market demanded. So that in a very short time Hacim Kalıp became one of the biggest mould making and molded parts production company for Turkey's white goods, electrical and automotive industries. Our firm which always renews machine park and production technology with new models also produces over 80 moulds in one year. By moving up to new and modern 600 m2 closing for mold production (since 2004 summer) and 200 m2 new area for plastic injection parts production (since 2006 summer) in Hadımköy, Hacim Kalıp started to service both for essaying the first sample of moulds and plastic injection part production for customer if needed.

Working Procedure,

Mold Design; After the 3D CAD data and mold related plastic injection machine's data reached us from our customer, our well experienced design engineers start designing. They allways communicate with customers during the whole design stage. After the finishing of design, our engineers print out all of technical drawings and burn CDs' which includes 2D and 3D details. We deliver all print out paper files and CDs' to our customers. Our bussines doesn't finish even if we deliver design details, we can supply customers, during the mold manufacturing if any modification needed.

Mold Manufacturing; After the CAD data came to us which was prepared by the customer, we make an offer, according to the properties of customer's demand. If the quotation approved, mould design (as 3 dimensions cad data) and mould development plans are prepared and presented to customer by our expert engineers sensitively. After the last suggestions or modifications (if it is needed) the mould production process starts. After mould first injection and measurement checking completed, the samples are sent to customer.

Plastic Injection Molding; Our manufacturing and sales divisions work together and prepare an analyze data sheet. This data sheet depends on clamping force, raw material, number of cavity, cycle time, packaging type, quality acceptance criteria, delivery type, period and place. By these criterias, we prepare and send Injection Molding Quotations. After the agreement, mass production starts and watched by our quality department.

Job Description and Capabilities,

- Up to 750x550 mm mold base dimension and one piece of steel weight up to 800 kg total mold weight up to 2500 kg...*
- Cold runner, hot runner and valve gate runner systems...*
- Hydraulic slides, angle pin slides, internal undercuts...*
- Pre-hardened plastic steel, full hardened steel(up to 55HRc) ...*
- SPI A1 surface quality, EDM photo texture or acid texture...*

Human Resources,

The total of 18 personal consist of:

Administrator 2

Engineer 3

Technician 3

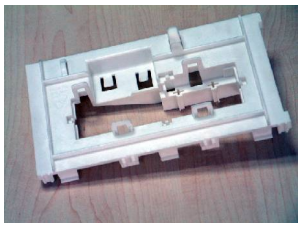
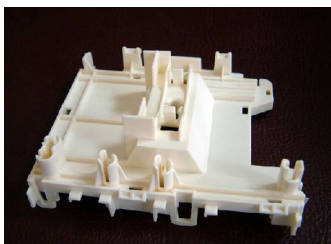
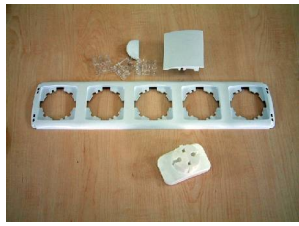
Worker 9

Other Personel 2

Quality System,

ISO 9001:2000 certification program is continue for the application of Plastic Injection Mold manufacturing and Injection Molding

Some Example of our part,

			
Automotive; 6 internal undercuts		Automotive; 5 internal undercuts, 1 hydraulic slide	
			
White Goods; Electronic card holders		White Goods; Some knobs, handle	
			
White Goods; Some light carrier, display cover		Electricity;	Other

Machine Park:

Toolhouse Department :

- 1- CHEN-HO CNC Vertical Milling Machine.....X600-Y460-Z520.....1 piece
- 2- TOPPER CNC Vertical Milling MachineX500-Y350-Z250.....1 piece
- 3- AWEA BM-850 CNC Vertical Milling MachineX850-Y600-Z600.....1 piece
- 4-SODICK AQ327L Wire EDM Machine.....X370-Y270-Z250.....1 piece
- 5-SODICK AM3L CNC Die Sinking EDM Machine (C axis and 4 ATC). X300-Y200-Z250.....1 piece
- 6- EXTRON Universal Milling Machine.....X870-Y325-Z430.....1 piece
- 7- EXTRON Universal Milling MachineX883-Y430-Z500.....1 piece
- 8- VOUGA Milling MachineX460-Y230-Z380.....1 piece
- 9- ARISTECH LS 350 ZNC EDM Machines (with system 3R)... ..X400-Y300-Z460.....1 piece
- 10- ECOWIN MIC-544M PNC EDM Machines (with system 3R).. . . .X500-Y400-Z350.....1 piece

11- C400TM Mastroy 1m Universal Lathe Machine.....	1 piece
12- Ø40 Russian Made Radial Driller.....	1 piece
13- Universal Grinding Machine.....X600-Y300....	1 piece
14- LUŞSAN Deskover Driller.....	1 piece
15- PENMAX Tool Sharpen Machine.....	1 piece
16- VESPA 40 Plastic Granulator	1 piece
17- DENİİ max 600gr, 0.02gr sensitive weighing device ..	1 piece
18- Lifiket 3.2 ton Lifting System ...	2 pieces

Quality Control :

1- DEA Classic 07.07.05 PC-DMIS Cad++ Coordinate Measuring Machine.....	1 piece
2-TESA VISIO Profile Projection Machine PC-DMIS Cad (with camera)	1 piece

Production Department :

1- Haitian HTF86X Plastic Injection Machine (90 Ton, 134 gr).....	1 piece
2- Haitian HTF120X Plastic Injection Machine (120 Ton, 150 gr).....	1 piece
3- Haitian HTF150 Plastic Injection Machine (150 Ton, 290 gr).....	1 piece
4- Haitian HTF160X Plastic Injection Machine (160 Ton, 290 gr).....	1 piece
5- Haitian HTF250X Plastic Injection Machine (250 Ton, 487 gr).....	2 pieces
6-Hitema ECA.045 Water Chillers... ..	1 piece
7-Raw Material drying furnace (separate).....	1 piece
8-Mold conditioner with oil	2 pieces
9-Plastic granulator.....	1 piece

Used Software:

1- Varimetrix CAD Program.....	2 pieces
2-Solidworks CAD Program	1 piece
3-PowerMill CAM Program.....	1 piece
4-Esprit CAM Program.....	1 piece

CAD Data Transfer Formats,

- IGES
- STEP
- PARASOLID

Export Country;

France

References;

(Mould Production)

- 1-Arcelik A.Ş. (white goods) . www.arcelik.com.tr
- 2-Kale Kalıp A.Ş.(Residential type counter, regulators, gas measurement systems exc) www.kalekalip.com.tr
- 3-Kale Kapı Pencere Sistemleri A.Ş.(locks, mortise locks, window locks exc) www.kalekilit.com.tr
- 4-ViKo Elektrik A.Ş. (electrical) www.viko.com.tr
- 5-Galsan Kalıp A.Ş (automotive, white goods) www.galsan.com
- 6-Makel Uluslararası Isıtma-Soğutma ve Yalıtım Mlz. San.Ve.Tic.Ltd.Şti..(kosmetic)
- 7-Plastique Forme Industries (Fransa-Automotive) www.plastiqueforme.com
- 8-Fabrication Conception Mecanique Plastique (Fransa-Automotive) www.fcmp.fr

(Plastic Injection Production)

- 1-Kale Kalıp A.Ş. www.kalekalip.com.tr
- 2- Kale Kapı Pencere Sistemleri A.Ş www.kalekilit.com.tr
- 3-Arcelik A.Ş. www.arcelik.com

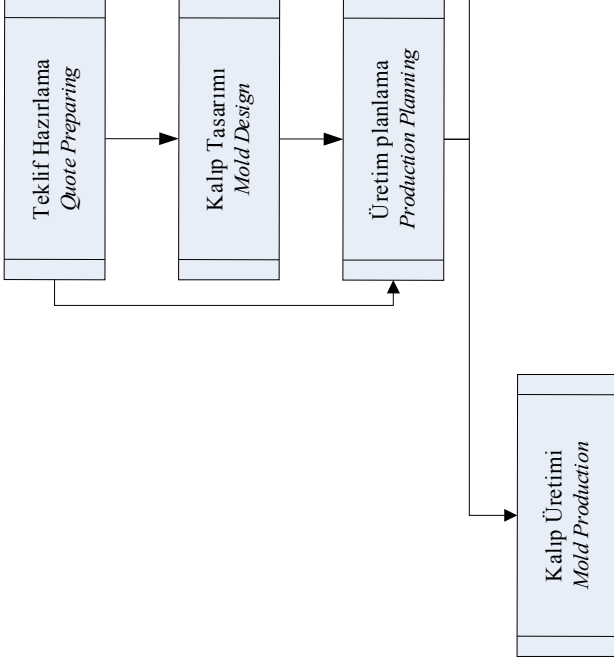
Some Photos from our workshop,



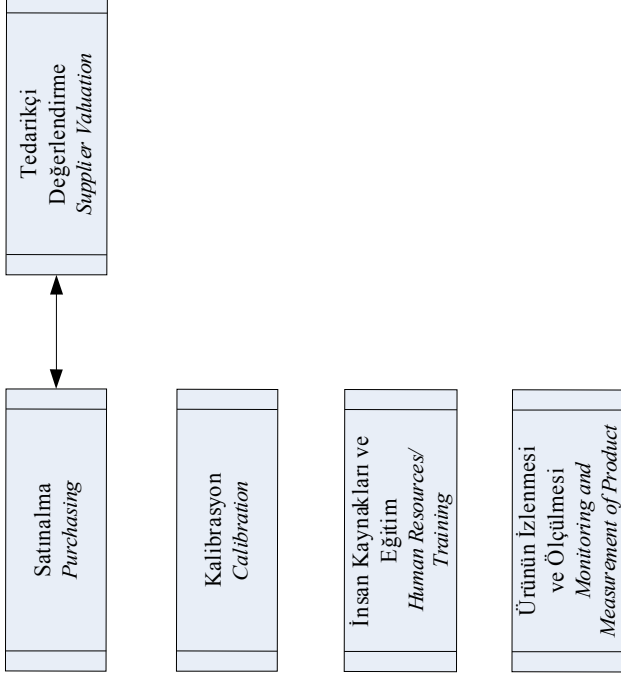
HACİM MAKİNA KALIP PROSES ŞEMASI

HACİM MAKİNA KALIP PROCESS CHART

ANA PROSESLER MAIN PROCESS



DESTEK PROSESLER SUPPORT PROCESS



DOKÜMANTE EDİLMİŞ PROSEDÜRLER Procedures

Dokümanların Kontrolü Prosedürü
Document Control Procedure

Kayıtların Kontrolü Prosedürü
Records Procedure

İç Tetkik Prosedürü
Internal Audit Procedure

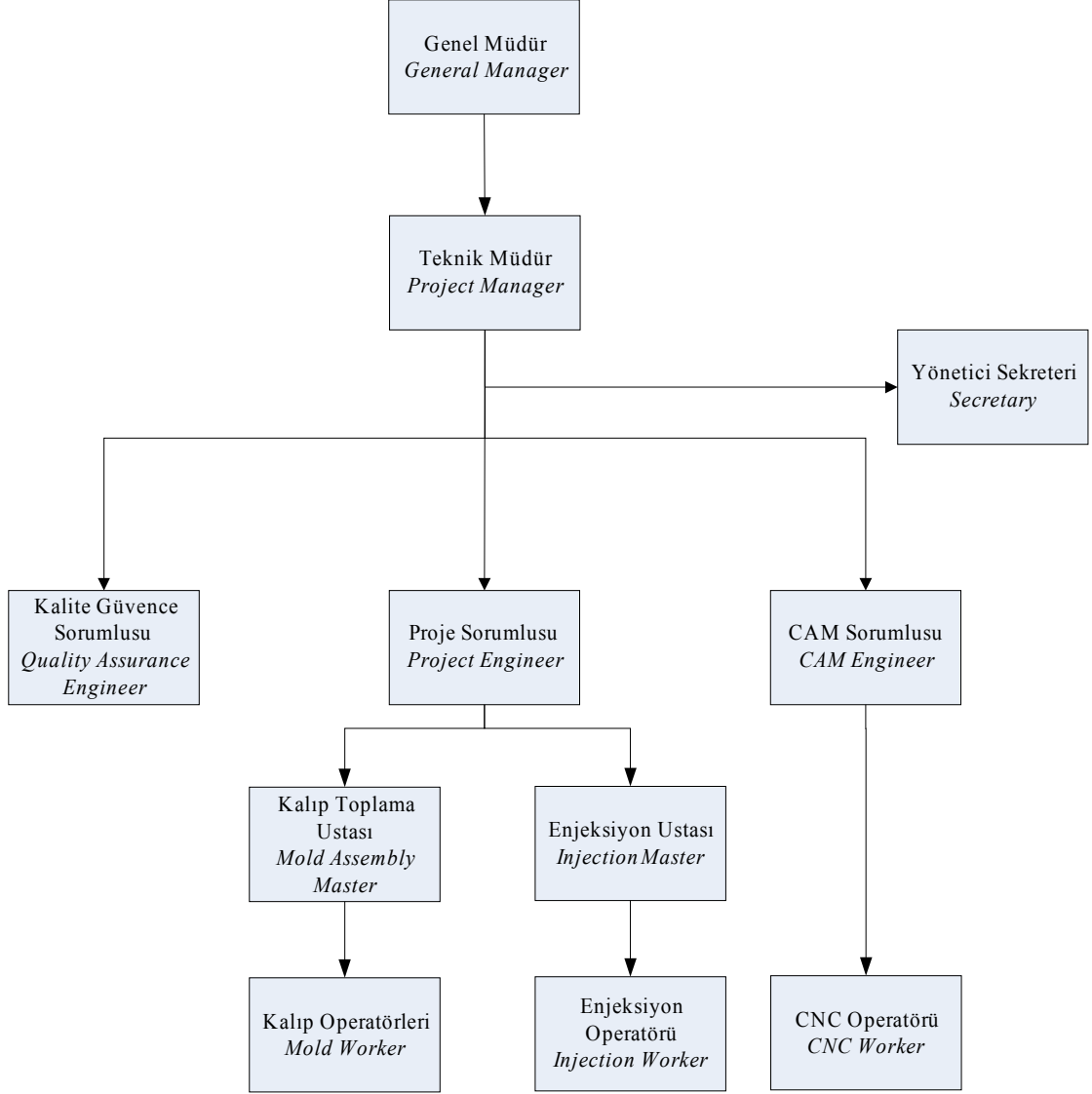
Uygun Olmayan Ürünün Kontrolü Prosedürü
Control of Non-conformance Procedure

Düzeltilici Faaliyetler Prosedürü
Corrective Action Procedure

Önleyici Faaliyetler Prosedürü
Preventive Action Procedure

Makine Bakım ve Onarım Prosedürü
Machine Maintenance and Repair Procedure

HACİM MAKİNA KALIP ORGANİZASYON ŞEMASI
HACİM MAKİNA KALIP ORGANIZATION CHART



Yapılmış Kalıplardan Bazı Örnekler

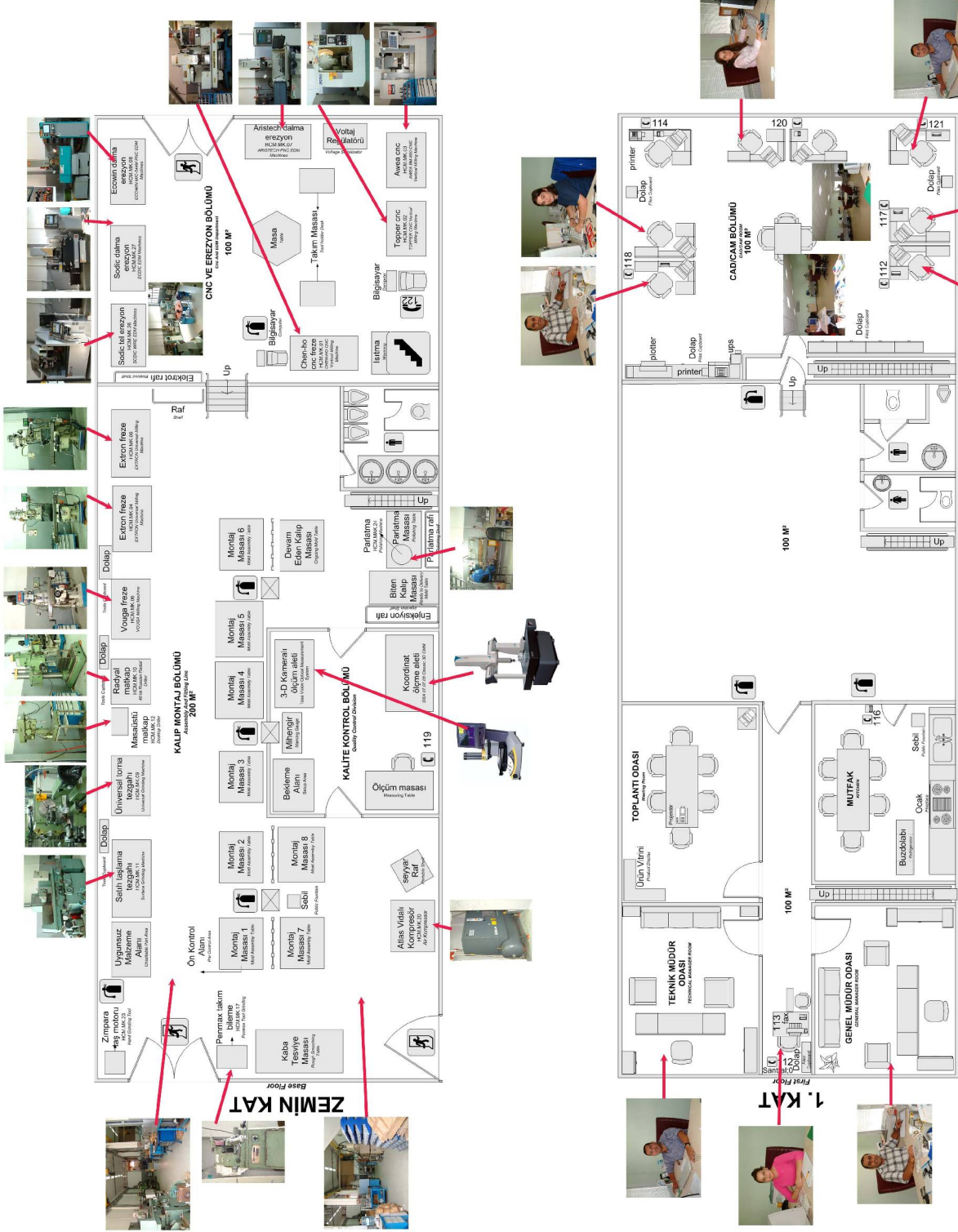
Some Sample From Our Molds



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Base Floor and First Floor Layout;



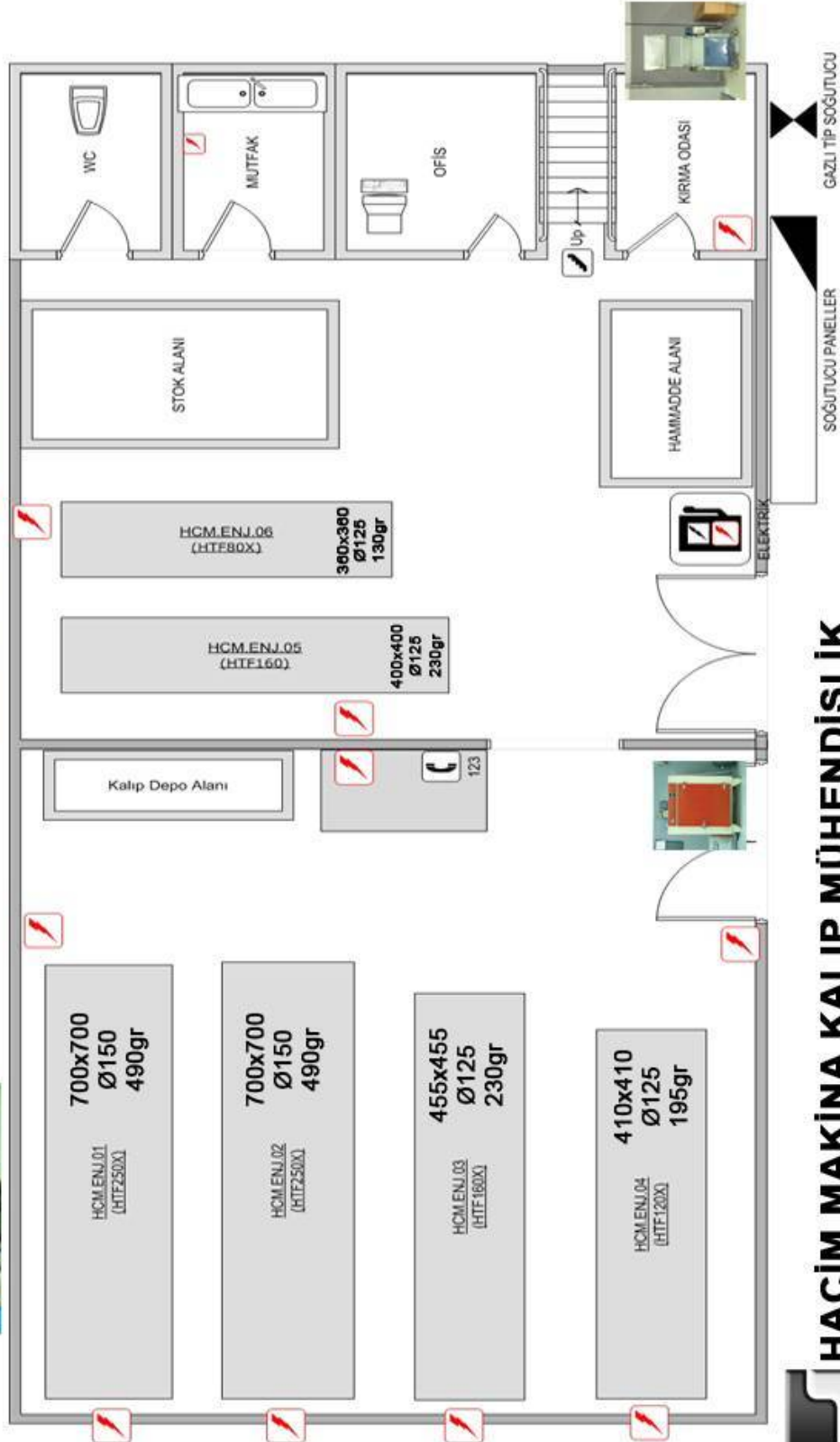
YERLEŞİM PLANI (23.05.2006/01)

Layout Plan

**HACİM MAKİNA KALIP MÜHENDİSLİK
MÜŞAVİRLİK SAN. TİC. LTD. ŞTİ.**



Injection Molding Workshop Layout;



HACİM MAKİNA KALIP MÜHENDİSLİK
MÜŞ.SAN. ve TİC.LTD.ŞTİ.

ENJEKSİYON YERLEŞİM PLANI (01.11.2006/02)