



EUROPA STAMPI

# Organisation and operative modalities

*Edition June 2017*

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## The Company Policy of C.M. Europa Stampi

### *“To Believe for Growing: A necessary Choice”*

C.M. Europa Stampi S.r.l. operates in an organized system where professionalism, experience, determination and efficiency are the everyday ingredients that allow us to achieve the satisfaction of our customers.

The world challenge of globalization today must push us to constantly improve to achieve the following objectives:

- reduced production time
- compliance with contractual terms
- improved services
- continuous improvement to the quality/price ratio;
- increase in our shares of penetration in the major world markets

For this purpose we especially intend to take advantage of the following operating strategies:

- increase the motivation, involvement and growth in the skills and professionalism of personnel;
- more agreements with business partners
- improve the internal distribution of data and information, stimulating people to use it in managing their tasks and achieving their objectives;
- stimulate a systematic internal dynamic of improvement;
- identify, quantify and monitor quality objectives using appropriate indicators;
- adapt and constantly innovate infrastructures, and take precautions with the work environment to improve personnel safety and product quality.
- constantly search for the methods of production to reduce processing times.
- encourage by every possible means the standardization of our products, aimed at reducing product implementation times and costs.

For the above, managers of the corporate functions that report directly to the Management are required, within the boundaries of their area of responsibility, to identify their objectives, in line with corporate aims, and monitor them to ensure they are achieved.

The Management, supported by the Quality Assurance function, undertakes to intervene so that the quality management criteria, principles, methods and strategies adopted, are constantly implemented and upheld by personnel.

## General Information

### C.M. Europa Stampi s.r.l.

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40012 **Calderara di Reno** (Bologna - Italy)

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VAT-no. IT00506661206  
Registered at the C.C.I.A.A.<sup>1)</sup> with no. 177571  
Registered at the Court of Bologna with no. 27359

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No. of employees: 33 in date May 2015  
Covered area: 2800 m<sup>2</sup>

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<sup>1)</sup> Chamber of Commerce, Industry, Agriculture and Small Industry

## Our History

C.M. Europa Stampi was founded in March 1966 as a result of the experience gained in the mechanical sector by Mrs Cremonini. The first works of 500 m<sup>2</sup> was situated in Trebbo di Reno (BO).

The business of C.M. Europa Stampi focuses on the design and manufacture of dies and injection moulds.

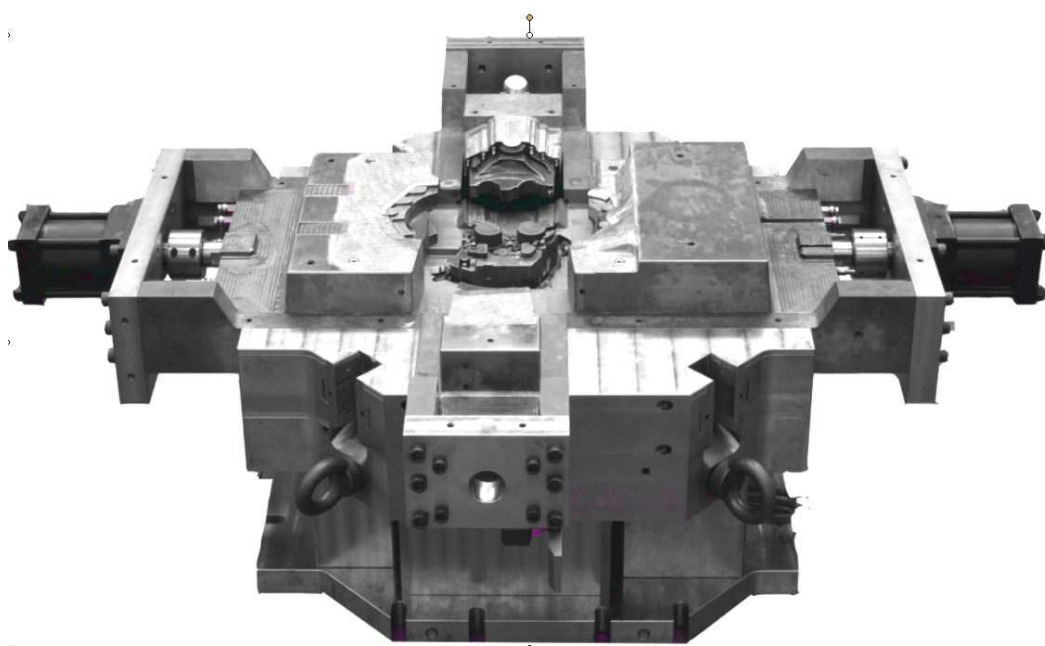
The Policy of C.M. Europa Stampi is that of offering our Customers a product boasting the very latest die-casting and injection technology, as well as providing an optimum ratio as regards technology employed/investment required and a high standard of Customer service.

The market has appreciated such policy, allowing C.M. Europa Stampi to make its mark and increase sales.

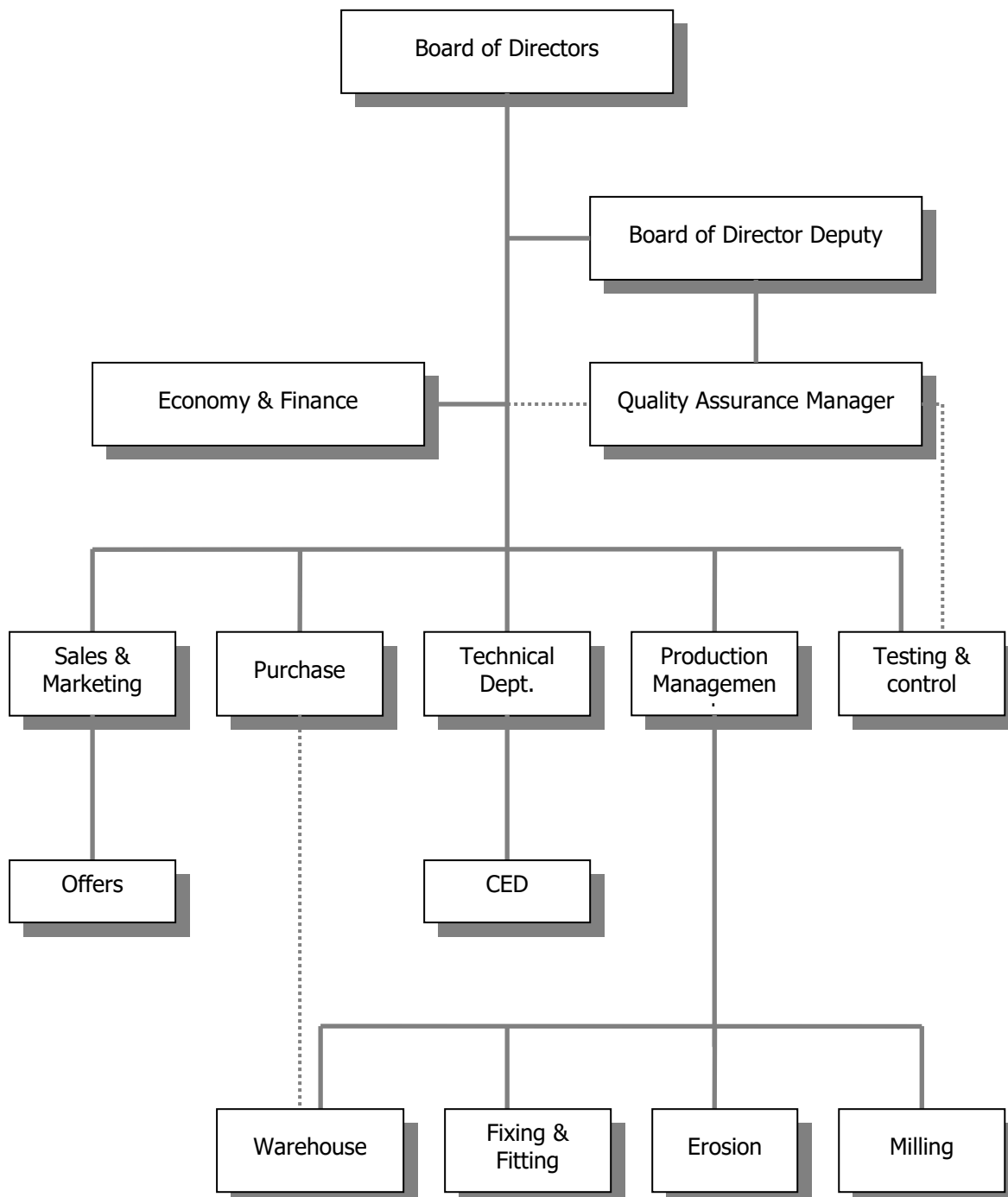
In July 1991, C.M. Europa Stampi moved to Calderara di Reno, in a works of 2800 m<sup>2</sup> where it was able to install extremely modern design and manufacturing technology such as: CAD software offering precision and detail and CNC machines, enabling dies and moulds of great complexity and quality to be produced, for presses of up to 3500 tons and overall weight of up to 35 tons.

The leading-edge technology employed by C.M. Europa Stampi has allowed the company to further increase its turnover and supply businesses in the automotive and electronics sector.

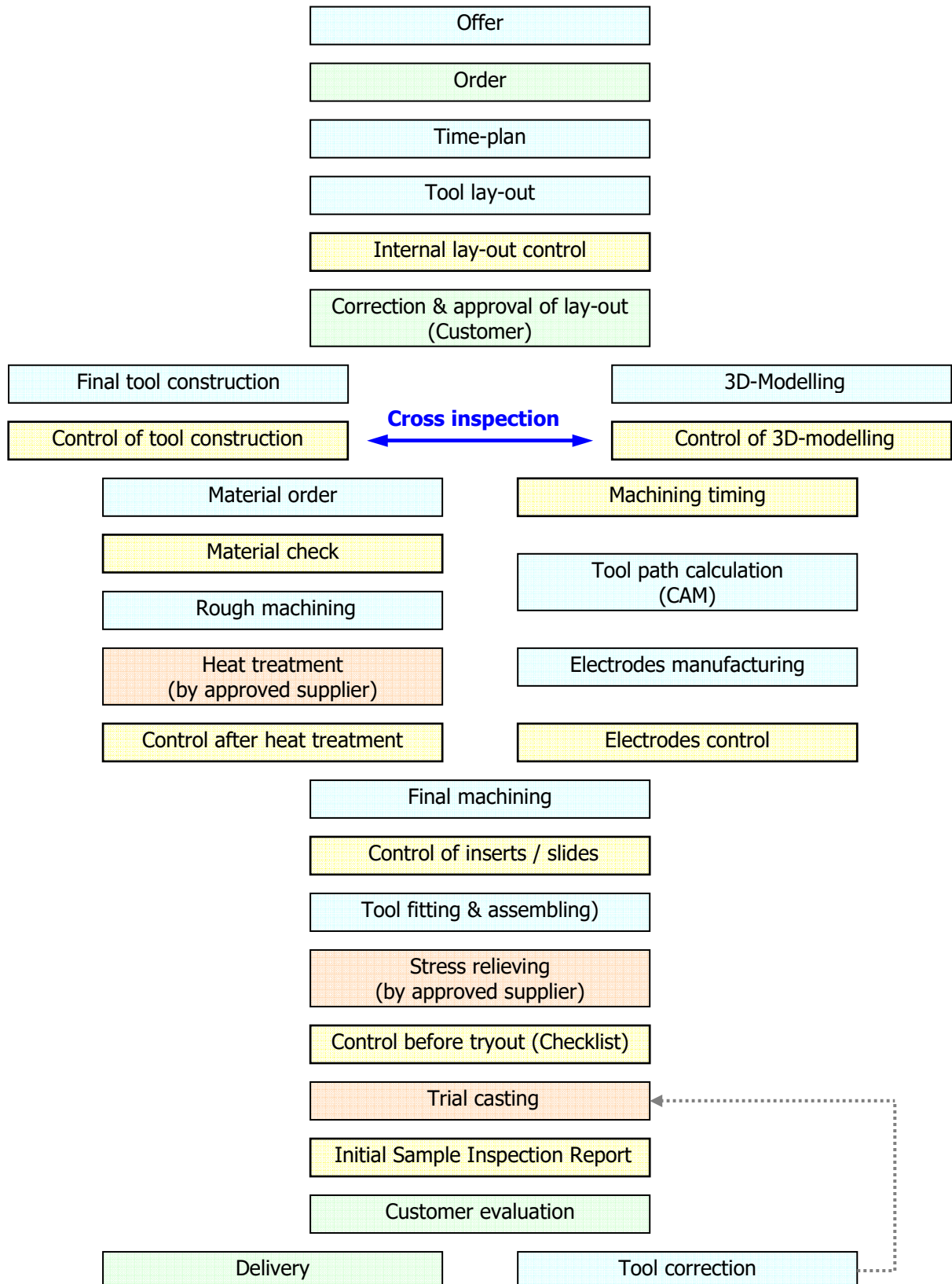
The picture shows a typical HPDC-tool manufactured by C.M. Europa Stampi:



# Organisation Chart



# Flow chart



## Yielding Capacity

C.M. Europa Stampi is equipped with advanced technologies and qualified personnel enabling the Company for the production of dies of remarkable complexity in order to serve presses up to 3.500 tons, with complete weights up to 35 tons.

The following table provides a summary of the C.M. Europa Stampi personnel set-up and production capacity divided between Departments or Offices with current number of figures; a list of machinery and equipment from the various Departments and/or Offices is given further on.

Department	Personnel	No. of machines	Developed hours per year	Notes
Technical Department	5	*	9.000	Headman: (1) Tool-Design: 2 +1 Modelling: 2
Milling	6	8	34.000	CAM department: 1
Erosion	2	5	19.000	Sink erosion (EDM): 2 Wire cutting: 2 Sink drilling:1
Fitting & Maintenance	10	8**	20.000	
Warehouse	1	none	2.000	
Test and Metrology	1	2	2.000	
Production Management	1	none	2.000	
Sales and Marketing	2	none	4.000	
Estimate Department	1	none	2.000	
Purchasing	1	none	2.000	
Quality Assurance	1	none	2.000	
Administration and Finance	2	none	4.000	
<b>Total ***</b>	<b>33</b>		<b>102.000</b>	

\* for the technical dept. equipment please see the proper list.

\*\* includes just machines for deep-drilling, grinding, radial drilling and lathes; the detailed list of all machinery and equipment from the Fitting Department appears in a separate list.

\*\*\* all outsourcing for specialized manufacturing (i.e. tool frames, core-pins, tool guidance, etc..) has to be considered in addition



## Technical Department

The detailed equipment regarding Workstations & Software for 3D-Design and detail drawing is shown in the following table:

Producer	Software	Module	No. of Workstations	OS	Data Interface
PTC	<b>Pro / ENGINEER</b>	3D Solid	5	Windows	NEUTRAL IGES STEP
PTC	<b>CREO</b>	3D Solid	5	Windows	NEUTRAL IGES STEP
CAD-CAM STRÄSSLE	<b>Euklid</b>	3D Surface	2	Windows	VDA IGES
SIEMENS 	<b>NX</b>	3D Solid	1	Windows	IGES STEP PARASOLID
AUTODESK	<b>AutoCad</b>	2D	5	Windows	DXF
DASSAULT Systemes	<b>Catia V5</b>	-	1	Windows	only for Data interface
TTF	<b>Project Reviewer</b>	3D Viewer	1	Windows	CATIA V4-V5 PRO-E Unigraphics IGES

## Work Shop - CAM



The detailed equipment regarding Workstations & Software is shown in the following table:

Producer	Software	Module	No. of Workstations	OS	Data Interface
SESCOI Taglio	<b>WORKNC</b>	CAM 5 axis	2	Windows	IGS, VDA
Microsystem	<b>FIKUS</b>	EDM Wire Erosion	1	Windows	IGES DXF

All workstations are finally connected by Ethernet Network

## Data Exchange - FTP

Data without size-limits can be exchanged through our FTP site using a common Internet explorer. Of course an own login is provided for each customer or supplier.

DATA TRANSFER THROUGH OUR FTP SITE USING INTERNET EXPLORER				
USER-ID	PASSWORD	CLIENT	NOTES	
		ONLY FOR QUOTATION		

**internet site : [WWW.CMEUROPASTAMPI.IT](http://WWW.CMEUROPASTAMPI.IT)**

## Milling Department

The Milling Machine Department is fitted with CNC machines connected to CAM software; as regards computer equipment in particular, the Milling Machine Department) is equipped with:

- 1 - Three-dimensional CAM for the execution of the tool paths
- 4 - Computer for the management between CAD-CAM and CNC machines

The detailed equipment is shown in the following table:

Producer	Model	Machine Type	Working area	Automatic Tool change	Electrodes Manufacturing	Rough Milling	Finishing	High speed milling
Parpas	<b>DIAMOND</b> (20000 g/l') CNC: Heidenhain TNC 530	Gantry 5-axis	2400 x 1700 x 1000	■			■	■
Soraluce	<b>FP-600</b> Iso 50 (5000 g/l')	Moving support 5-axis	6000 x 2000 x 1200	■		■	■	
CB Ferrari	<b>D23-E550</b> Iso 45 (24000 g/l') Elexa E540	Portal 5-axis	1700 x 1300 x 800	■			■	■
FPT	<b>STINGER</b> HSK A63 (15000g/l') CNC: Heidenhain TNC 640	Portal 5-axis	1750 x 1400 x 800	■			■	■
HURCO	<b>DCXi 32</b> Iso 50 (6000 g/l') CNC: WINMAX 9	Portal	3200 x 2100 x 920	■			■	■
Hermle	<b>C 800 V</b> HSK A63 (15000g/l') CNC: Heidenhain TNC 430	Fixed bed	800 x 600 x 500	■	■		■	■
Rambaudi	<b>Ramcenter 800</b> iso 40 (10000 g/l') CNC: Selca 3045	Portal	1000 x 800 x 400	■			■	■
CB Ferrari	<b>A 17</b> CNC Elexa E 500	Shelf	1000 x 470 x 400	■	■			

## ***Electron Discharge Machining Department (EDM)***

The following table provides details of the machines used in the Electron Discharge Machining Department:

Producer	Model	Machine type	Working area	Notes
ONA	<b>HS 700</b>	Sink erosion	2300 x 1300 x 700 Tank dimensions	C-axis 120 Amp.
Charmilles	<b>Roboform 810</b> CNC 120 A.	Sink erosion	2200 x 895 x 400 Tank dimensions	C-axis
Charmilles	<b>Robofil 690</b>	Wire cutting	800 x 600 x 400 Cutting field	automatic wire thread.
Charmilles	<b>Robofil 510</b>	Wire cutting	700 x 400 x 400 Cutting field	automatic wire thread.
SIELT	<b>Drilling Syntesis 2F</b> CNC	Sink drilling	Table: 1600 x 1000 1000 x 750 x 540 Drilling field	Ø drilling 0,3÷3mm

EDM Department includes no.1 CAM computing workstation for wire cutting path.

## ***Drilling and Grinding Department***

The detailed list of machinery and equipment in this Department is as follows:

Producer	Model	Machine type	Q.ty	Working area	Notes
IMSA	MF 1000 B2	<b>CNC Deep hole drilling</b>	1	800 x 1000	with rotating table
SAS	TL 1600	Radial Drilling	1		
SAS	TL 2000	Radial Drilling	1		
Favretto	TC 1000	Tangent Grinding	1	500 x 1000 x 500	
Favretto	MD 160	Tangent Grinding	1	850 x 1800 x 750	


## ***Turning and Fitting Department***

The detailed list of machinery and equipment in the Fitting Department is as follows:

Producer	Model	Machine type	Q.ty	Working area	Notes
Wagner	200 CNC SIEMENS	Parallel turning machine	1		CNC SIEMENS
Monofap	175	Parallel turning machine	1		with Heidenhain quote display
Monofap	350	Parallel turning machine	1		with Heidenhain quote display
FAMU		Drilling with movable table	3		with milling quotes display
Deckel	KF1	Pantograph	1		with quote display
Deckel	KF2	Pantograph	1		with quote display
	Special working benches	Polishing	4	with rotating and inclinable tables	Polishing devices (ultrasound, sparked paste)

## ***Test and control department***

Amongst the instruments available to the Inspection and Metrology Department, it is worth noting two 3D control machines:

Producer	Model	Machine type	Q.ty	Working area	Notes
Hexagon 	Romer Absolute Arm 752061	Laser Scanner cnc control system	1	2.0 Mt	(*)
D.E.A.	Range 1102	Three-dimensional CNC control machine	1	1010 x 660 x 660	(*)
Nikon		Enlarged profile display	1		
Mitutoyo		Microscope	1		with micrometric movable plate
		Checking plane	1		In granite

(\*) Our D.E.A. measuring machines are equipped with software “**Surfer NT**” to allow dimensional control using directly a 3D model supplied by the Customer.

In addition the Inspection and Metrology Department has the equipment for effecting control and calibration of workshop control instruments such as gauges, micrometers, comparators.

## ***Internal movement***

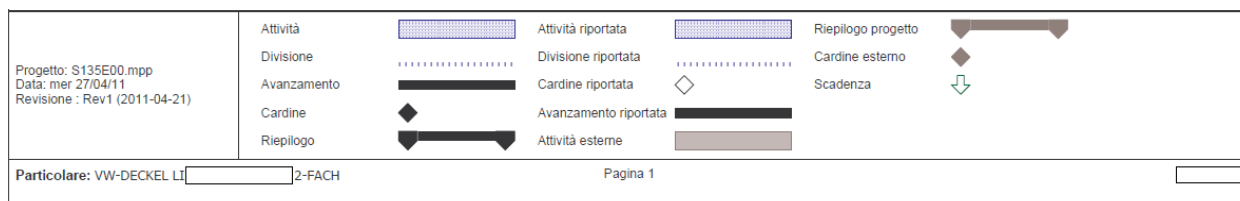
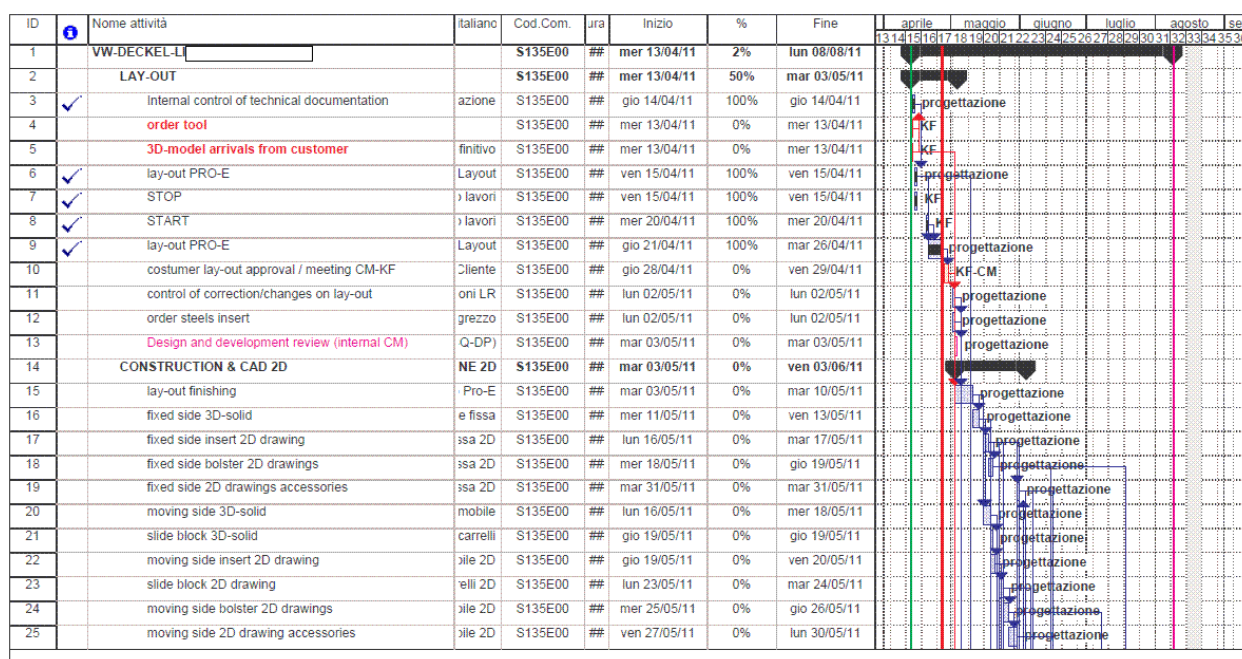
Producer	Model	Machine type	Q.ty	Working area	Notes
-	-	Roof Crane	1	25 tons	Fitting Dept
-	-	Roof Crane	1	12 tons	Fitting Dept.
-	-	Roof Crane	1	7 tons	Milling Dept
-	-	Roof Crane	1	5 tons	Milling Dept
-	-	Fork lift	1	2.5 tons	

# Management of Production Flow

## Planning

The necessary activities to execute each individual job are planned in a document called Job Schedule. This is a GANNT chart that displays the allocation of the necessary resources over time matching them to work load capacities to hit the delivery dates required by the Customer. Copy of this document is supplied to the Customer

Example taken from a time schedule:



## Job status

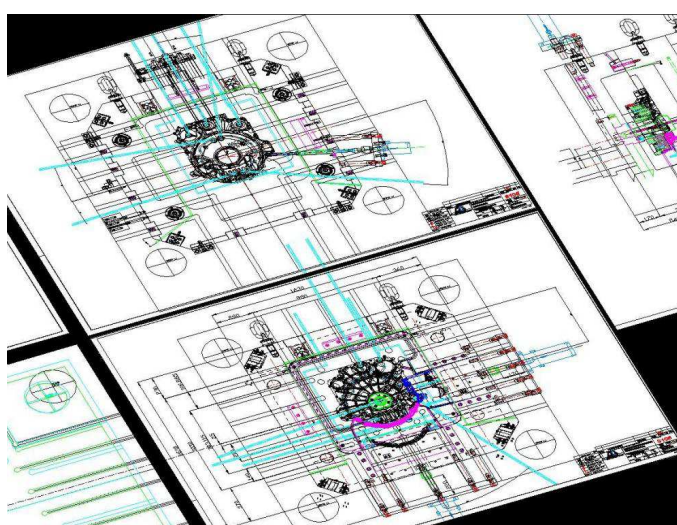
The Job Schedule is steadily updated to reflect current job status and is made available to Customer at request. Affected departments use the Job Schedule to create their planning documents for internal use.

## Engineering

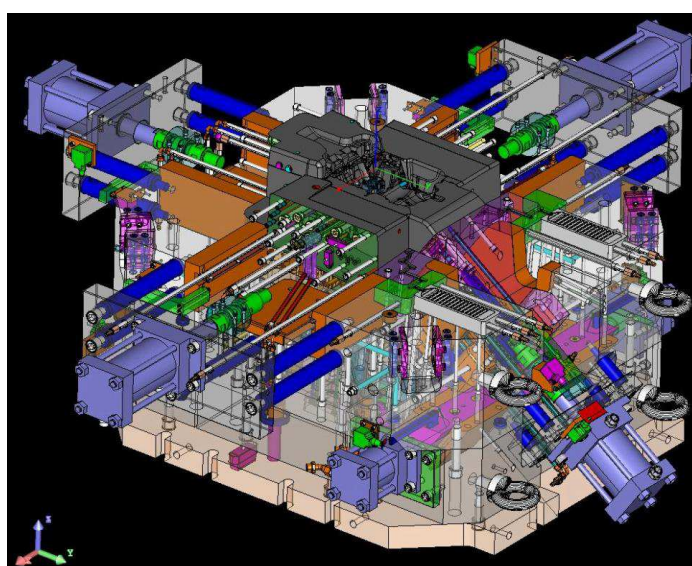
The basic information for engineering work is supplied by the Customer who provides casting drawing and die-casting machine specifications as well as any in-house standards relating to components and materials.

The engineering process consists of several stages:

The first stage is a preliminary study (die layout) aimed at defining the main elements of the die and its design concept. Engineering then submits the preliminary study to Customer for their approval.



The second stage begins after Customer approves die layout. This is the die development phase, when both mechanical detail design and die impression design (modelling) are generated.



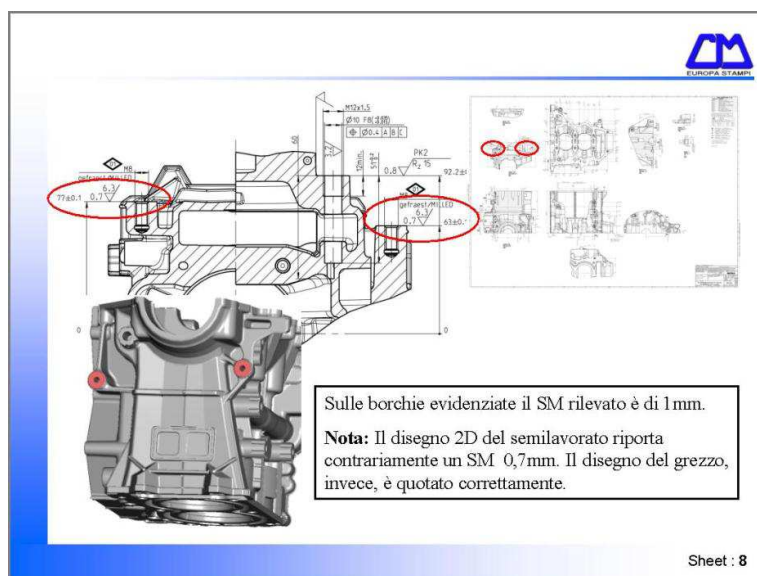


The third stage consists in partial design validation for die mechanical parts (CAD 2D) and impression area (CAD 3D).

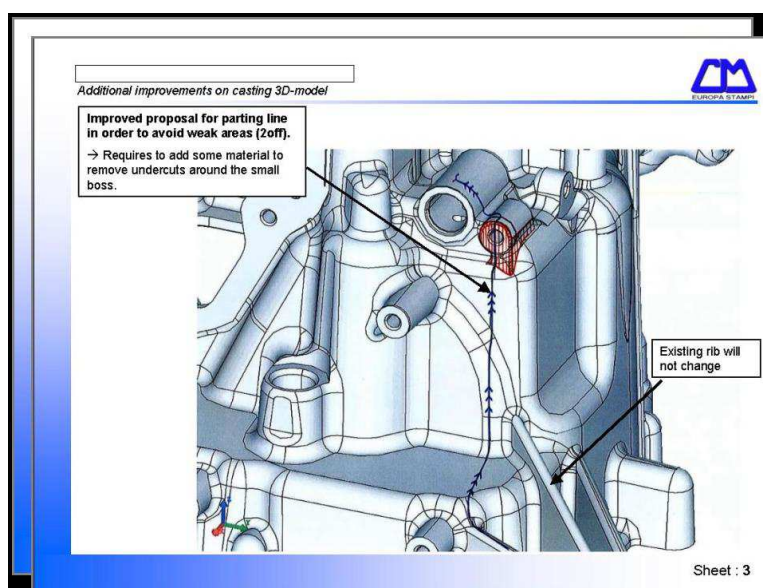
The fourth stage consists in initial sample approval and geometrical measurements, which are submitted to Customer for final project sign-off.



Die development is performed in close cooperation between C.M. Europa Stampi and Customer and is a flexible process that allows modifications to be evaluated and incorporated into die design at any time. Effective revision management is ensured by change indexes that are updated as required to keep track of engineering changes.



C.M. Europa Stampi will also use 3D design (mathematical model or modelling) provided by Customer as a starting point for the engineering process.



Upon job completion, C.M. Europa Stampi maintains all related documents during 10 years after project sign-off date (Customer's approval of initial sample).

## ***Design and production control***

C.M. Europa Stampi has implemented self-checking procedures and partial validation procedures for the die; more specifically, it checks electrodes and castings of the sample tests on DEA measuring benches.

All controls are carried out by C.M. Europa Stampi according to procedure as it follows :

Checkpoint	provided acc. to procedure	Notes
<b>Incoming data</b>	■	dimensional comparison between 2D and 3D data; feedback regarding cast-part engineering
<b>Tool design</b>	■	multiple checkpoints before starting with manufacturing
<b>Incoming materials and tool parts</b>	■	dimensional and material conformity, documentation and certificates
<b>Electrodes manufacturing</b>	■	checked features: sparking gap, reference points, 3D-comparison, consumption, ...
<b>Production</b>	■	self-check (various) during manufacturing
<b>Tool functionalities</b>	■	Check and optimisation; see also customer's check-list
<b>Final design and product</b>	■	possible updates after manufacturing; customer's check-list, supplied documentation

■ → included

## Materials and Heat Treating

### *Materials of main tool parts*

Die components are manufactured from adequate materials as indicated in the table below, such to ensure the best reliability/cost ratio:

Component	Material			Heat treatment
	Number	DIN	AISI	
Bolster	<b>1.2312</b> <b>1.2738</b>	40CrNnMoS86	P20	Pre-hardened ~300 HB
Inserts & slide-blocks (*)	<b>1.2343</b> <b>1.2344</b>	X38CrMoV5-1 X40CrMoV5-1	H11 H13	Hardening 44÷47 HRC, Stress Relieving before tryout;
Guides for slide-block	<b>1.2312</b>	40CrNnMoS86	P20	Nitriding NT4
	<b>1.2343</b>	X38CrMoV5-1	H11	Hardening 44÷47 HRC – Tennifer treatment
Ingate bushing and Sprue	<b>1.2343</b> <b>1.2344</b>	X38CrMoV5-1 X40CrMoV5-1	H11 H13	Hardening 44÷47 HRC + Nitriding NT4
Tool support	<b>1.1730</b>		C45	-
Ejector plates	<b>1.1730</b>		C45	-

(\*) The steel supplier and in detail the steel type is generally defined by the customer. If this information is missing, C.M. Europa Stampi comes back with a own proposal. The costumer will always find the chosen steel type clearly specified in our offers.

Inserts & slide-blocks (front parts) are manufactured solely from materials accompanied with certificate and related documents. C.M. Europa Stampi maintains all submitted certificates which are available for review at request.

## Heat Treat Processes

Heat treating is performed by Sub-suppliers specialising in each specific heat treating process who certify process compliance with material manufacturers' specifications. Hardened and stress-relieved materials designated for the manufacture of shaping elements undergo strict incoming inspection both upon receipt of annealed materials and after the hardening process at C.M. Europa Stampi.

Upon receipt, materials undergo micro-structural analyses and are inspected for conformity to SEP1614 standards.

Sub-suppliers to C.M. Europa Stampi are required to submit hardness certificates and to document their heat treating processes. Micro-structural analyses before and after hardening are performed by C.M. Europa Stampi at a certified supplier.

## Material Certificates

C.M. Europa Stampi maintains all submitted certificates regarding incoming material, heat treatments and material testing, which are available for review at request, according to following table:

Tool part	Available certificates & standard material testing					Optional material testing		
	Material certificate	Hardening cycle with diagram	Microstructure before Hardening	Microstructure after Hardening	Stress relieving	Ultrasonic test	Chemical Analyses	Charpy test
Inserts & slide-blocks	■	■	■	■	■	○	○	○
Bolster	■							

■ → included

○ → at Customer's request, C.M. Europa Stampi can provide additional material testing

# Some examples for submitted certificates

Steel certification:

C75/97 MIT HOCH. CALDERASSA P.02.2

**Test Certificate**  
**ORVAR® SUPREME**  
Premium Quality Hot Work Die Steel

Customer: LUNJHÄLL AB, 590 80 SÖDRA VI  
Uddeholm Order No.: 2271218 02  
Date: 15.01.2003  
Customer Order No.: 161-0520N  
Date: 16.01.2003  
Customer Specification No.:  
Condition: 457 X 331 MM / 1 / 1158 KG  
Size delivered: / /  
/No. of pieces / Total weight: / /

Conforms to following national standards

USA	W. Germany	France	Gr. Britain	Italy
AISI/SAE	W.-Nr. DIN	AFNOR	B.S.*	UNI
H 13	1.2344 X40 CrMoV 5.1	Z40 CDV 5	BH 13	X40 CrMoV 5.11 KU

Japan	Spain	Sweden
JIS	UNE	SS
SKD 61	F-5318 X40 CrMoV 5	2242

Delivery certified by: *[Signature]*  
Representative for: **UDDEHOLM**

ABNAHMEPRÜFZEUGNIS B  
INSPECTION CERTIFICATE B  
CERTIFICAT DE RECEPTION B  
nach/according to/ selon EN 10204-3.1B

FM 00777  
ISO 9001  
BöHLER  
Ref. Cert. Nr./No.: 030.084 20.12.2000  
Seite/Page/Pages: 1/1

Besteller/Purchaser's Order No./No. de commande: 3901155554/IT vom 29.04.2003  
Unsere Auftrags-Nr./Works Order No./No. de commande d'usine: 3901155554/IT vom 29.04.2003  
Lieferschein/Dispatch note/Note d'expédition: 3915032252 vom 07.05.2003

Anforderungen/Requirements/Exigences: LAUT AUFTRAG  
Prüfgegenstand/Object of test/Objet d'examen: BOEHLER WOOD VMB WARR. 1.2343 MUTTERLOCK/BZ.W. DAVON GESAEGT. GEGLUCHT MAX. 205 HB, ALLEPLAN RANDOM LENGTHS 2500 - 4000 MM

Umfang der Lieferung/Volume of delivery/Liste descriptives	Stück	Gewicht kg	Schmelze	Prüf.Nr.
10 F 510.00 x 410.00 mm	1	34.50	F87319	

Chemische Zusammensetzung/Chemical Composition/Composition chimique (%):  
C: 0,37, Si: 0,20, Mn: 0,22, P: 0,003, S: 0,015, Cr: 4,89, Ni: 1,26, V: 0,43

Mechanische Eigenschaften/Mechanical properties/Caractéristiques mécaniques:  
TEST: KARGESS/NO.: BIEBELLE  
01: 0147-0147 = BILD C F87319  
02: 0149-0149 = BILD E F83898

Erstschmelzungsart/Steelmaking Process/Procédé d'acieration: VLBO

Kennzeichnung/Marking/Marcage: Besichtigung und Nachmessung: Kein Anstand  
Inspection and Checking of Dimensions/satisfactory

Ergebnis der Prüfungen/Test results/Resultat des essais: Die gestellten Anforderungen sind erfüllt.  
The material has been furnished in accordance with the requirements.

Edel & Hüller GmbH & Co KG  
(WERKSTOFFFABRIK) (INDUSTRIE) (WORKS INSPECTOR/EXPERT DE USINE)

**KIND & CO**  
EDELSTAHLWERK  
DOMINIAL  
WERKZEUGSTAHL

KIND & CO, Postfach 21 80, D-51662 Wittenberg  
C. M. Europa Stampi Srl  
Via Torretta, 50  
I-40012 CALDERASSA DI RENO

Werkzeugzeugnis  
EN 10204-2  
Bestellungsdatum: 23.17 / 29.05.2003  
Kundenauftrag/Postfach/Datum: 1052167 / 20 / 05.06.2003  
Lieferumfang/Postfach: 80094960 / 20

Werkmarke: DOMINIAL USN ISOTROP  
Werkstoff: 1.2343  
Lieferzustand: gegläht

Blatstein, den 13.06.2003  
n.m. 23/17 PAH

Produktbeschreibung		Stückzahl	Gewicht (KG)
Abmessung: Flach: 390 mm x 215 mm x 430 mm RM Fx Connexissa 2317		1	290,600

Chemische Zusammensetzung in %						
C	Si	Mn	P	S	Cr	V
0,38	0,93	0,41	0,020	0,001	5,11	1,30

Mechanische Werte			
Probe-Nr./Prüfmerkmal	Einheit	Soll-Vorgabe	Meßwert
Härte	N/mm²	< 775	640

Er wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellungsgenehmigung entspricht.

Dieses Zeugnis wurde maschinell erstellt und ist gemäß DIN EN 10204 auch ohne Unterschrift gültig.

AUBERT & DUVAL  
CERTIFICAT DE RECEPTION TYPE 3.1.B  
conformément à NF EN 10204 et NF S 00-015  
INSPECTION CERTIFICATE TYPE 3.1.B  
according to EN 10204 and NF S 00-015

N°: A/061/1617-0/AD  
PAGE: 17 1

Livraison: LES ANCIENS le 28/02/2003 / SK  
ANCIENS le 28/02/2003 / SK  
N° de livraison: Recuit  
Postage

Quantité: 1 barre 715 x 250 - 5265 kg  
Liaison: NK 160203

Commande et Spécifications  
N° de commande: 097/02 du 18/09/02  
VIA DUE ABBE 14  
44100 FERRARA

ANALYSE/ANALYSIS Unité/Unit: % (m) sauf mention spécifique/except specific mention.										
Qualité	C	Si	Mn	S	P	Cr	Mo	V	Fe	
N° 1602	0,398	0,91	0,35	<0,020	0,013	5,10	1,23	0,44	Compl.	

Essais de réception de coulée		Traction		Flexion par choc		Dureté	
Etat	Reçu	Rp	Rm	A	D	Charpy	HV
Traitement Thermique	Reçu	1018	1306	A + 550°/1800/A			610 HRC = 53,0

Réception sur Produit Livré		Traction		Flexion par choc		Dureté	
Etat	Reçu	Rp	Rm	A	D	Charpy	HV
Reçu	Reçu						HB < 235

Resultats complémentaires: complémentaires Results  
Observations / Remarks

DIMENSIONS: conformes  
MICROSTRUCTURE: conforme

Signature et visus / Signatures and visus  
MAGGIORI DONALD  
M. P. FOSCHINI

06/01/03

Microstructure test (before and after hardening):

**proterm** S.p.A. TRATTAMENTI TERMICI

40012 CALDERARA DI RENO (BO)  
Via S. Andrea, 4  
Tel. 051/446811 - Fax 051/720641  
P.E.A. N. 2/12/2003 - Pagine 10/16 - 0029260303  
Registro Imprese - Code. Fiscale n. 02688460371  
Capitale Sociale € 806.000/00 I.R. 10/99

CERTIFICATO DI LABORATORIO N. 3520 DATA: 16-05-2003

SPETT. CM EUROPA STAMPI SRL  
40012 VIA TORRETTA 50 (BO)

DESGNO: LAB. MATERIALE: - COLATA:

DESCRIZIONE MATERIALE CAROTE

PARTITA N. 307386 BOLLIA CLIENTE N. 470 DATA: 12-05-2003

TRATTAMENTI TERMICI ESEGUITI: LABO

MOTIVO ANALISI: caratteristiche metallurgiche

ANALISI CHIMICA: N. ANALISTI:

ESAME METALLOGRAFICO E PROVE CHIMICHE: ARCH. PROVETTE N. ANALISTI:

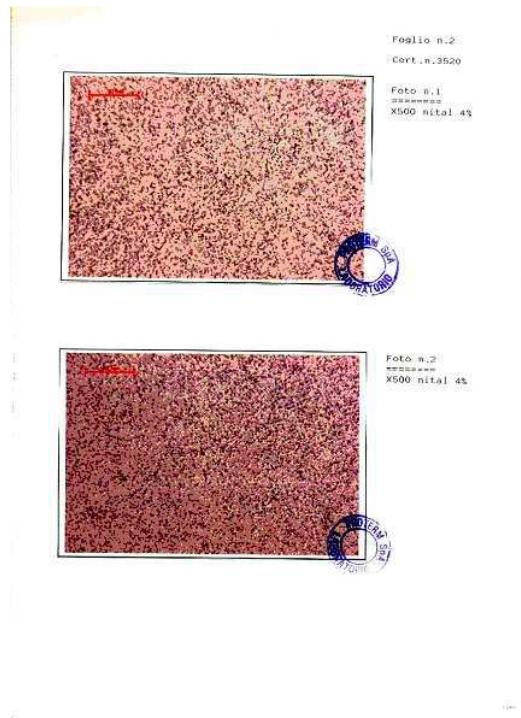
PREMESSA  
Ci sono pervenute n.2 carote, prelevate dalle matrici C 23/10  
NF Pos 10 - MF Pos 11 ed allestite con acciaio del tipo ORVAR con la  
richiesta di verificarne le caratteristiche metallurgiche riferite  
allo stato di fornitura (ricottura di globulizzazione), esprimendo  
un grado di accettabilità mediante confronto con immagini tipo da  
tabella VDM, come da richiesta del cliente.

ESAME METALLOGRAFICO  
Osservazione dopo attacco nital 4%. (X100 - X1.000)  
Pos 10 - Ferrite + perlite globulare con carburi fini  
uniformemente distribuiti. Grado: 081 (V. foto n.1).  
Pos 11 - Ferrite + perlite globulare con carburi fini  
uniformemente distribuiti. Grado: 081 (V. foto n.2).

001  
PASS

PROTERM S.p.A.  
Elettrodomestici

C23/10: pag. 1/03 pos. 1/0  
NF Pos 11: pag. 2/03 pos. 2/0



**proterm** S.p.A. TRATTAMENTI TERMICI

40012 CALDERARA DI RENO (BO)  
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Tel. 051/446811 - Fax 051/720641  
P.E.A. N. 2/12/2003 - Pagine 10/16 - 0029260303  
Registro Imprese - Code. Fiscale n. 02688460371  
Capitale Sociale € 806.000/00 I.R. 10/99

CERTIFICATO DI LABORATORIO N. 3602 DATA: 16-12-2003

SPETT. CM EUROPA STAMPI SRL  
40012 VIA TORRETTA 50 (BO)

DESGNO: LAB. MATERIALE: - COLATA:

DESCRIZIONE MATERIALE CAROTA

PARTITA N. 317796 BOLLIA CLIENTE N. 1074 DATA: 10-12-2003

TRATTAMENTI TERMICI ESEGUITI: LABO

MOTIVO ANALISI: esame metallografico

ANALISI CHIMICA: N. ANALISTI:

ESAME METALLOGRAFICO E PROVE CHIMICHE: ARCH. PROVETTE N. ANALISTI:

Controllo delle caratteristiche metallurgiche della seminastrice  
mobile basata C 23/27 Pos. 2 allestite con acciaio del tipo  
W. 1.2344 ORVAR S.  
L'esame viene eseguito su una provetta a forma di "carota",  
(diam. = 7, l = 20 mm) ricavata dal cliente, con opportuna fresa,  
sulla matrice dopo T.T.

ESAME METALLOGRAFICO  
Osservazione dopo attacco nital 4%. (X100 - X1.000)  
Martensite rinvenuta con carburi fini uniformemente distribuiti.  
Struttura fine ed uniforme. (V. foto).

C23/27

001/047 pag. 04599 pos. 2

PROTERM S.p.A.  
Elettrodomestici



## Hardening cycle certification (Nipre® + Salt tempering):

**GRUPPO T.T.N. Sede di Nerviano**  
 Via F.lli Maggi, 26 - 20154 NERVIANO (MI)  
 Telefono +39 0331 482711 - Fax +39 0331 584949  
 CAP 20154 - A. 4.000.000  
 Registro Imprese Milano N° 309345  
 R.E.A. Milano N° 1500253  
 Cod. Fisc. e Part. IVA IT 01441191511

**T.T.N. S.p.A.**  
 AZIENDA CERTIFICATA ISO 9001

Tempra bagni di sale, sottovuoto e trattamento termico  
 Via F.lli Maggi, 26 - 20154 NERVIANO (MI)  
 Telefono +39 0331 482711 - Fax +39 0331 584949  
 CAP 20154 - A. 4.000.000  
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 R.E.A. Milano N° 1500253  
 Cod. Fisc. e Part. IVA IT 01441191511

**Certificato di Qualità**  
 Certificato conforme alla norma UNI EN 10204 2.2  
 3 1 8 5 7 4

Questo codice consente di risalire al diagramma tempo-temperatura dei seguenti particolari.

Descrizione particolari Vs.D.d.t. n. 501 del 13/05/2005  
 Descrizione di materiale  
 N° 1 MATRICE MOBILE COMM C2505 - Ns. Comm. 318574  
 Tipo di materiale: ORVAR  
 Steel Grade

Trattamento richiesto: Ricottura+Tempra  
 Heat treatment

Giro BOLOGNA  
 N° Certificato: 4098  
 Cliente: 4795 - CM EUROPA STAMPI S.R.L.  
 Customer: VIA TORRETTA, 50  
 40012 CALDERARA DI RENO BO

Ricottura/Distensione				
N. Car.	Forno	Preiscaldato	Ricottura °C	Raffreddamento
151	S25	0	750	Lento in Forno

Tempra in Sale					
N. Car.	Forno	1° Preiscaldato	2° Preiscaldato	3° Preiscaldato	Temp. Austenitizz.
152	S25	650	670	0	1020
Spagimento Sale 520					

Rinvenimento		
N. Car.	Forno	Rinvenimento °C
254	S27	550
255		620
255	S28	600
207	V3	550

*c25/05*  
 MATRICE MOBILE POS 40

**LABORATORIO METALLOGRAFICO T.T.N.**  
 Microdurezza, Analisi non distruttive, Omologazione acciai UNI-SAE-ASTM-DIN. Analisi chimiche-quantometriche  
 Tempra Sottovuoto Ø 1500x1500 - Tempra bagni di sale Ø 1500x1500  
 Nitrazione gassosa-ionica Ø 3000x10000 in verticale - Cementazioni Ø 4000x4000 in verticale  
 Tempra ad induzione  
 Ricotture - Saldobrasature

**GRUPPO T.T.N. Sede di Nerviano**  
 Via F.lli Maggi, 26 - 20154 NERVIANO (MI)  
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 AZIENDA CERTIFICATA ISO 9001

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Descrizione particolari Vs.D.d.t. n. 501 del 13/05/2005  
 Descrizione di materiale  
 N° 1 MATRICE MOBILE COMM C2505 - Ns. Comm. 318574  
 Tipo di materiale: ORVAR  
 Steel Grade

Trattamento richiesto: Ricottura+Tempra  
 Heat treatment

Giro BOLOGNA  
 N° Certificato: 4098  
 Cliente: 4795 - CM EUROPA STAMPI S.R.L.  
 Customer: VIA TORRETTA, 50  
 40012 CALDERARA DI RENO BO

Durezza / Hardness	VALORI RICHIESTI / Requested		VALORI OTTENUTI / Obtained	
	4446 HRC	min 44 max 45 HRC		
Profondità / Depth				
Sabbatura / Sand blasting	<input type="checkbox"/>		<input type="checkbox"/>	
Raddrizzatura / Straightening	<input type="checkbox"/>		<input type="checkbox"/>	
Micrografia / Micrographies	<input type="checkbox"/>		<input type="checkbox"/>	

Nerviano, 10/05/2005  
 T.T.N. S.p.A.  
 Controllo Qualità

**LABORATORIO METALLOGRAFICO T.T.N.**  
 Microdurezza, Analisi non distruttive, Omologazione acciai UNI-SAE-ASTM-DIN. Analisi chimiche-quantometriche  
 Tempra Sottovuoto Ø 1500x1500 - Tempra bagni di sale Ø 1500x1500  
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 Tempra ad induzione  
 Ricotture - Saldobrasature

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**Certificato di Qualità**  
 Certificato conforme alla norma UNI EN 10204 2.2  
 3 1 8 5 7 4

Conservare con cura questo codice. Vi consentirà in ogni momento di conoscere il ciclo termico subito dai Vostri pezzi.

Descrizione particolari Vs.D.d.t. n. 501 del 13/05/2005  
 Descrizione di materiale  
 N° 1 MATRICE MOBILE COMM C2505 - Ns. Comm. 318574  
 Tipo di materiale: ORVAR  
 Steel Grade

Durezza richiesta: 4446 HRC  
 Hardness requested

**Ricottura/Distensione**  
 Andamento Ore °C  
 Salita 6.00 1500  
 Permanenza 6.00 750

**Tempra in Sale**  
 Andamento Ore °C  
 Salita 4.00 1020  
 Permanenza 4.00 650  
 Salita 1.00 670  
 Permanenza 4.30 670  
 Salita 1.00 1020  
 Permanenza 2.15 1020  
 Spagimento in bagno di sale  
 Andamento Ore °C  
 Permanenza 1.00 620

**LABORATORIO METALLOGRAFICO T.T.N.**  
 Microdurezza, Analisi non distruttive, Omologazione acciai UNI-SAE-ASTM-DIN. Analisi chimiche-quantometriche  
 Tempra Sottovuoto Ø 1500x1500 - Tempra bagni di sale Ø 1500x1500  
 Nitrazione gassosa-ionica Ø 3000x10000 in verticale - Cementazioni Ø 4000x4000 in verticale  
 Tempra ad induzione  
 Ricotture - Saldobrasature

T.T.N. S.p.A.  
 Controllo Qualità

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 Cod. Fisc. e Part. IVA IT 01441191511

**Certificato di Qualità**  
 Certificato conforme alla norma UNI EN 10204 2.2  
 3 1 8 5 7 4

Conservare con cura questo codice. Vi consentirà in ogni momento di conoscere il ciclo termico subito dai Vostri pezzi.

Descrizione particolari Vs.D.d.t. n. 501 del 13/05/2005  
 Descrizione di materiale  
 N° 1 MATRICE MOBILE COMM C2505 - Ns. Comm. 318574  
 Tipo di materiale: ORVAR  
 Steel Grade

Durezza richiesta: 4446 HRC  
 Hardness requested

**1° Rinvenimento**  
 Andamento Ore °C  
 Salita 2.00 550  
 Permanenza 7.00 550

**2° Rinvenimento**  
 Andamento Ore °C  
 Salita 2.00 620  
 Permanenza 8.00 620

**3° Rinvenimento**  
 Andamento Ore °C  
 Salita 3.00 600  
 Permanenza 8.00 600

**4° Rinvenimento**  
 Andamento Ore °C  
 Salita 0.30 550  
 Permanenza 4.00 550

**LABORATORIO METALLOGRAFICO T.T.N.**  
 Microdurezza, Analisi non distruttive, Omologazione acciai UNI-SAE-ASTM-DIN. Analisi chimiche-quantometriche  
 Tempra Sottovuoto Ø 1500x1500 - Tempra bagni di sale Ø 1500x1500  
 Nitrazione gassosa-ionica Ø 3000x10000 in verticale - Cementazioni Ø 4000x4000 in verticale  
 Tempra ad induzione  
 Ricotture - Saldobrasature

T.T.N. S.p.A.  
 Controllo Qualità

## **Sub-suppliers**

C.M. Europa Stampi cooperates with qualified Sub-suppliers included in the List of Approved Vendors and continuously monitors their quality performance in terms of product/service supplied.

At Customer's request, C.M. Europa Stampi will utilize Sub-suppliers other than those included in the Approved Vendor List.

C.M. Europa Stampi's Approved Vendor List is available to all Departments/Activities who deal with Sub-suppliers for technical or commercial matters.

## **Control of machines and instruments**

C.M. Europa Stampi has implemented procedures relating to the preventive maintenance of machine tools; these make reference to manufacturers' directions; such procedures provide for an annual check that when executed feed and operating movements fall within the tolerance limits set by the manufacturer.

C.M. Europa Stampi has implemented procedures relating to the calibration of measuring instruments that are all identified and recorded in a special register. With particular regard to the three-dimensional measuring benches, it has taken out maintenance and calibration contracts with the respective manufacturers.



## **Business Conditions**

### ***Offer validity***

Estimate validity for the supply of complete equipment is 1 month starting from the date of the offer.

### ***Changes***

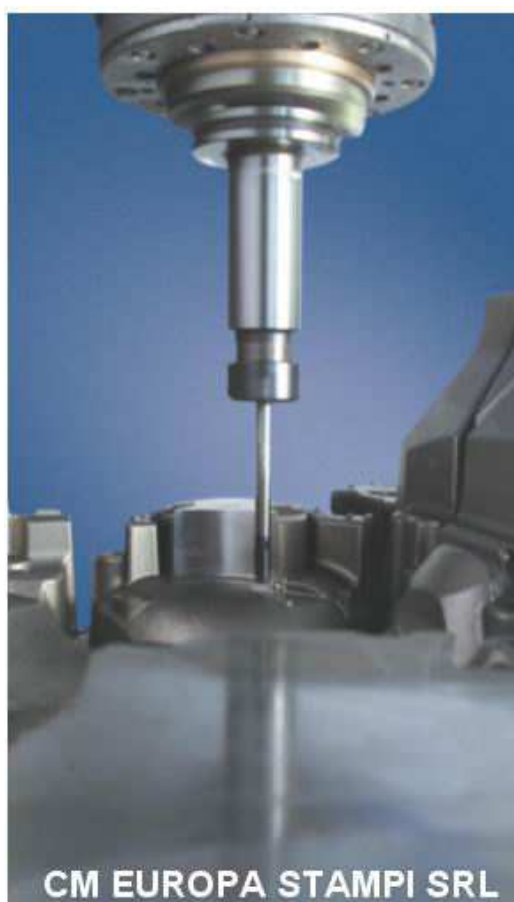
Each modification required by Customer is evaluated by "C.M. Europa Stampi" and a modification offer is provided. The development of die works will go on if the modification does not affect works in progress; on the contrary, works will be temporarily suspended until confirmation of modification estimate.

### ***Warranty***

"C.M. Europa Stampi" guarantees the equipment with Customer approved drawing and using approved materials and certified treatments. Moreover we guarantee perfect die functioning until die coming out from the factory and assure maintenance operations to Customer as long as die life.

### ***Delivery Terms***

Delivery terms are to be agreed at the order and start from that moment.  
In case of modification with works already in progress, a new delivery date is to be agreed. If the new delivery date is not established, we will decide about new terms.  
In the case that a new delivery date might not be set, new terms are to be considered dependent on company workload, but in any event will be subject as little delay as possible.



Dies for pressure  
die-casting and injection  
moulds for plastics

[info@cmeuropastampi.it](mailto:info@cmeuropastampi.it)