
TRAINING CATALOGUE

2005

(Valid as of Jan. 01, 2005)



DESMA
TRAINING



Optimum efficiency due to qualified staff

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Course types and their realization

BASIC COURSE GE-0

For each machine bought from us you will receive a one-day basic course free of charge.

Subsequent to assembly of the new machine, our service technicians explain the most important safety rules and operations. Your staff is then in a position to get familiar with the new machine without any risks. In case of queries, please do not hesitate to contact our service department.

ADVANCED COURSES BS-1 / ES-2 / AS-3 / IS-4 / KS-5

THEORY: Our **specifically skilled instructors** first explain the learning matter by means of various media in the stress-free environment of the training room. The **training manual** is adapted to the training programme which allows own supplements. This way the matter treated can quickly be recalled, even after a longer time.

HANDS-ON Training: The instructor is demonstrating the **exercises** which the participants can repeat on their own. Existing uncertainties can be eliminated this way.

*Every participant receives a **certificate** with detailed training programme.*

Customized TRAINING

Customized courses can be held either at Desma or at your facility. Contents and date can be optimally adjusted to your needs.

Advantage: *Particularly suitable to be adapted to your personal requirements.*

SEMINARS

If desired, we look for further suitable participants with similar training requirements and reconcile the topics and the date with the single companies.

Advantage: *Due to the participation of several companies, the training fee can be drastically reduced. Are especially advantageous if only a few employees of your company can attend the training at the same time.*

Contact, Consultation and Registration

"Hands-on" training responsive to your specific needs ensures optimal results. On the other hand, the timeframe for planning and implementation should be as small as possible.

We have therefore prepared a **questionnaire** for you (next page)

Just mark the type of machine on which you would like to be trained, the approximate number of participants, their state of knowledge and the requested subjects.

The pages 6 to 10 contain subject proposals for future machine operators, set-up men, process engineers and maintenance staff.

Interested?

Just give us a call or send a fax or email to:

Bianca Schilling Phone 0049 (0) 7463 834-176
Assistant Fax 0049 (0) 7463 834-195
Service dept. / Training service@desma-fridingen.de

Any questions as to courses / realization?

Then please directly refer to:

Olaf Küchler Phone 0049 (0) 7463 834 -116
Head of training FAX 0049 (0) 7463 834 -209
o.kuechler@desma-fridingen.de

He readily gives you advice on questions like:

- Training topics? - Training duration?
- Place of training? - Individual course/group training?
- Training fees ? - Date?

CUSTOMER ORIENTATION IS HIGHLY RATED AT DESMA!

Questionnaire "Training requirements"

Company

Desired Date:

Address:

Contact / Coordinator:

Phone:

FAX:

E-Mail:

Training for Machinetype/ -s:

D 968. ZO, T / D 969. /

Control: DMC / DRC /

Employed Processes:

Injection Moulding (IM) – with Coldrunner

Injection Compression M. (ICM)

Inj. Trans. Moulding (ITM) – with Cold Pot

Employed Materials:

Rubber

Silicone – HTV / LSR

with Inserts

Participants: 1 / 2 / 3 / 4 / 5 / 6

Name Responsibility/ Position

.....

Comments:

.....

At DESMA in Fridingen?

At customer's location?

Suitable Room for Training:

Overhead Projector/ Flipchart:

Data-Projector/ Beamer:

Machine with Mould for Training:

D 968. ZO, T / D 969. /

For Maintenance Training:

DESMA- Order No.: 20. / 80

(signed on identification plate at main switch of machine)

TOPICS (mark main topics additionally)

Basics of the elastomer processing

- 1a Types of material and their processing properties
- 1b CM-/TM-/IM-procedures
- 1c IM-mould structure with/without cold runner block

The injection moulding machine – Design and types

- 2a Introduction of the types and preferred examples of application
- 2b The subassemblies:
Clamping / Injection / Hydraulic and Electric unit
- 2c Additional equipment for automation
- 2d Additional equipment for silicone processing

Setting-up of the machine

- 3a Explanation of the parameters and their function
- 3b The function sequence during injection moulding
- 3c Mould installation and commissioning
- 3d Compound change

Error diagnosis for the elastomer injection moulding

- 4a Parameter and their influence on the process
- 4b Determination of the parameters and process optimization (setting strategy)
- 4c Types of product failures – possible causes and remedies

Operation of the control system DXX XXXX

- 5a Structure, function and operating elements / explanation of the screen pages

Process technology

- 6a Cold runner block technology
- 6b Low-flash injection moulding
- 6c Injection compression moulding (ICM)
- 6d Injection Transfer Moulding (ITM)
- 6e Calculation and optimization of the cure time
- 6f Production of large-volume silicone articles
- 6g Layout of injection moulds

Machine maintenance

- 7a Lubricating points and permissible lubricants, oil care, cleaning of the machine, wearing parts

Trouble-shooting by means of the control system

- 8a The message and how to deal with it
- 8b DESCHECK-auxiliary programme to eliminate malfunctions

Hydraulics and Electronics

- 9a Structure of the hydraulic unit, components, reading of circuit diagrams and defect removal; temperature control units
- 9b structure of the electric unit, components, reading of circuit diagrams and defect removal
- 9c Structure and function of the PLC, Software
- 9d Systematic defect search

Programme example:
BASICS (BS-1)

Course target:

The basic course imparts to the operator the necessary knowledge to start, monitor and finish production independently. The most frequent operating errors are shown on different production plants. Moreover, the participant receives important information on compound, process sequences, machine, required operating actions and typical malfunctions. Process knowledge increases quality and cost consciousness and enable the operator to realize problems on article and machine on his own which can be then reported and eliminated.

Participants:

Trainees or other employees with little basics

Training duration:

3 days

Topics:

Basics of elastomer processing

Material properties, the most important processing methods, mould structure and cold runner technology

Structure and functioning of the injection moulding machine

The most important designs, structure and function of the clamping unit, injection unit and additional equipment

Setting the machine for production

Function sequence and process stages, starting, monitoring and finishing production

Machine operation

Operating elements and their handling, the most important screen pages

Production malfunctions

Error detecting, causes and remedies

On-hand exercises with the machine

Training documents:

Every participant receives a topic-related training manual which is adapted to the training programme.

Place of training:

Klöckner DESMA, Fridingen
(as customized training, also at your facility)

Programme example: **SETTING (ES-2)**

<u>Course target:</u>	The advanced course imparts the required knowledge for retrofitting injection moulding machines. It is assumed that rough setting data are already available for the article to be set. The training participants are made familiar with the different production procedures, the structure of moulds, the functions of the machine and their settings. The setting process is discussed in detail and trained on the training machines within the hands-on part. Furthermore, parameter optimizations (e. g. of injection volumes or mould protection) are implemented and the most important quality problems are explained. The expanded knowledge enable an improved machine setting. Quality and production costs of the articles are positively influenced thereby and production malfunctions are prevented from the beginning.
<u>Participants:</u>	Operators, machine set-up men, foremen and other persons with good basics.
<u>Training duration:</u>	3 days
<u>Topic proposal:</u>	<p>Structure and function of the injection moulding machine Mould protection / mould safety pressure, mould height adjustment, stroke measuring system, temperature control, compound change</p> <p>Setting the machine for production Function sequences for different procedures, setting parameters, mould installation and commissioning, parameter optimization</p> <p>Operation of the machine control Where and how can the parameter be set or loaded?</p> <p>Production malfunctions The error messages of the control system, typical causes and remedies</p> <p>Process engineering e.g. cold runner technology, DESFLEX-system, ICM, ITM, silicone processing, cure time calculator DESCURE, etc.</p> <p>Hands-on exercises on the machine</p>
<u>Training documents:</u>	Every participant receives a topic-related training manual which is adapted to the training programme.
<u>Place of training:</u>	Klöckner DESMA, Fridingen (as customized training, also at your facility)

Programme example:
APPLICATION TECHNIQUE (AS-3)

- Course target:** This training imparts to the participants, who are already well familiar with the machine operation, the required know-how to determine and optimize process parameters on their own. To this end, we first go into the processing behaviour of different elastomer compounds, the most important procedures to produce mouldings and the proper layout of mould and machine. Then, the individual setting parameters and their influence on the process are explained. The causes of various fault schemes are illustrated by means of samples. The participant will learn the most reasonable approach in order to determine and optimize the process parameters. Subsequently this setting strategy is trained in detail on the machine.
- Participants:** Operators, machine set-up men, foremen and other persons with good basics. Set-up men, foremen, process engineers or other persons who are already well familiar with the machine operation and setting.
- Training duration:** 3 days
- Topic proposal:**
- Basics of the elastomer processing**
Product quality and influencing factors, compound structure and processing properties, selection of the processing method, layout of machine, mould and cold runner block
 - Structure and function of the injection moulding machine**
Process advantages of different designs
 - Setting the machine for production**
Compound change (advantages/disadvant. of different variations), parameter determination/ setting strategy, process optimization
 - Error diagnosis in the elastomer injection moulding**
Article faults - causes and remedies
 - Process engineering**
e.g. Silicone processing, waste and flash reduction, ICM, ITM basic and special methods, cure time calculation, etc.
 - On-hand exercises with the machine**
- Training documents:** Every participant receives a topic-related training manual which is adapted to the training programme.
- Place of training:** Klöckner DESMA, Fridingen
(as customized training, also at your facility)

Programme example:
MAINTENANCE (IS-4)

<u>Course target:</u>	Machine structure, function, maintenance, repair, hydraulics and electronics are being focussed on. Moreover, the most important screen pages and operations are explained to run the machine independently during trouble shooting. Thus, malfunctions can be faster analyzed and eliminated - or described to the DESMA service department.
<u>Participants:</u>	Maintenance staff (mechanics / hydraulic engineers / electricians), foremen or other persons with good previous knowledge.
<u>Training duration:</u>	3 days
<u>Topic proposal:</u>	Structure and function of the injection moulding machine Component parts, safety devices Setting the machine for production Function sequence, locking, setting parameters Operation of the machine control system Control structure, screen pages, typical operating errors Machine maintenance Cleaning, lubrication, inspection, replacement of wear parts Machine malfunctions and remedies Systematic trouble shooting Hydraulics, pneumatics, temperature control and electronics Structure, function of the components of hydraulic and electric unit; Reading of spare part lists and circuit documents On-hand exercises with the machine
<u>Training documents:</u>	Every participant receives a topic-related training manual which is adapted to the training programme.
<u>Place of training:</u>	Klöckner DESMA, Fridingen (as customized training, also at your facility)

Programme example:
COMBINED COURSE (KS-5)

This course is to be understood as combination of the courses BS-1, ES-2, AS-3 and IS-4 described above. The emphases are always agreed individually. Since the training duration is limited, the topics are treated (depending on their volume) as shortened version

Course target:

This training is supposed to provide an additional insight into other important subject areas to personnel with clearly defined sphere of responsibility. Specialized knowledge already available will be deepened. The participant receives the required overview to understand the contexts of the influencing factors : material, mould, injection moulding machine and process management. Possible gaps in one's knowledge are filled to achieve an all-embracing understanding. This extensive knowledge of the injection moulding process and the machine functions enables the participant to improve production flows independently and to eliminate malfunctions more quickly.

Participants:

Machine operator, set-up men, foremen, process engineers or other persons with good specialised know-how.

Training duration:

3 days

Topic selection:

- 1 Basics of the elastomer processing
- 2 Structure and function of the injection moulding machine
- 3 Setting the machine for production
- 4 Error diagnosis in the elastomer injection moulding
- 5 Operation of the machine control
- 6 Process engineering
- 7 Machine maintenance
- 8 Machine malfunctions and remedies
- 9 Hydraulics, pneumatics, temperature control and electronics
- 10 Hands-on exercises on the machine

Training documents:

Every participant receives a topic-related training manual which is adapted to the training programme.

Place of training:

Klöckner DESMA, Fridingen
(as customized training, also at your facility)

Training schedule, hotels, driving instructions

Training schedule

Start:	8:00 hrs
Breakfast:	around 9:15- 9:45 hrs
Lunch:	around. 12:00- 13:00 hrs
End of training:	around 16:00 hrs

Hotel accommodations:

If the training or the seminar takes places in Fridingen, we would be pleased to handle the hotel booking for you.

If you want to make the booking on your own, please note the following addresses:

Hotel Löwen
Mittlere Gasse 3
78567 Fridingen
Phone 07463/99420
Fax 07463/9942-15

Hotel Sonne
Bahnhofstrasse 22
78567 Fridingen
Phone 07463/99440
Fax 07463/994488

Hotel Krone
Tuttlinger Str. 1
78570 Mühlheim
Phone 07463/7043
(*main road*)

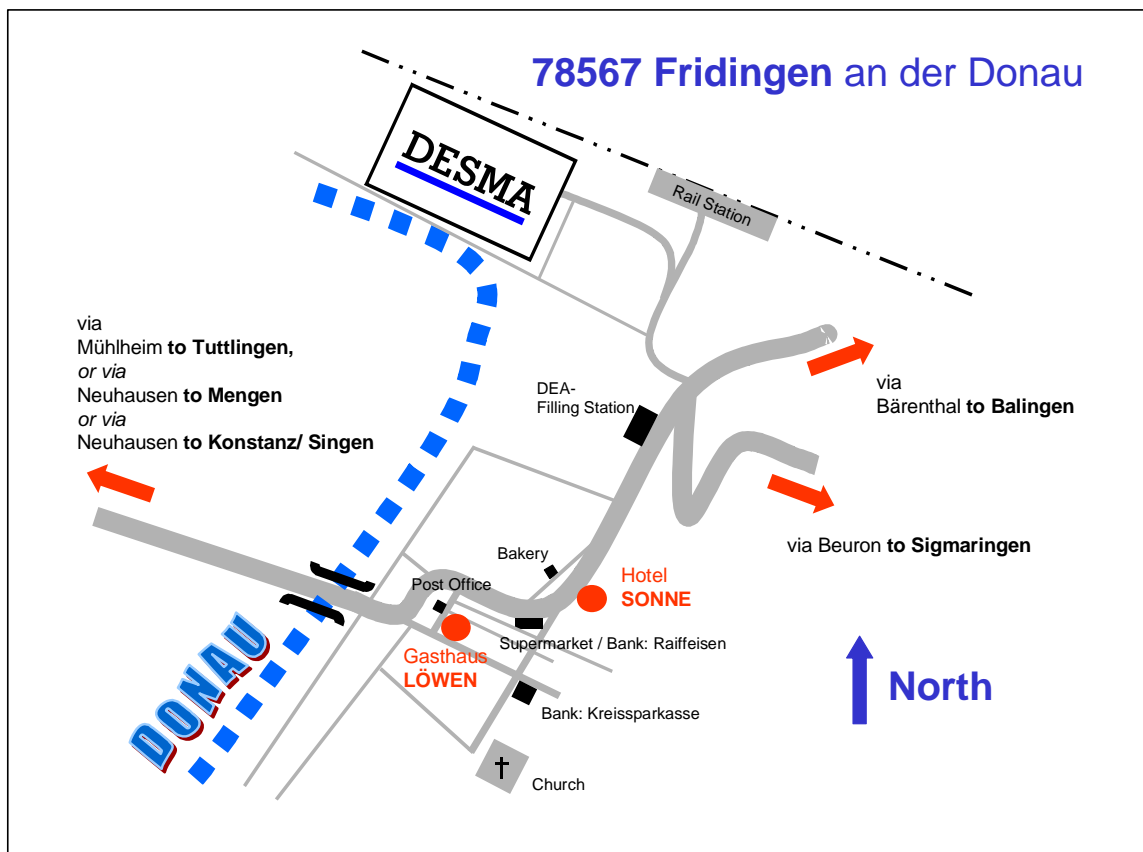
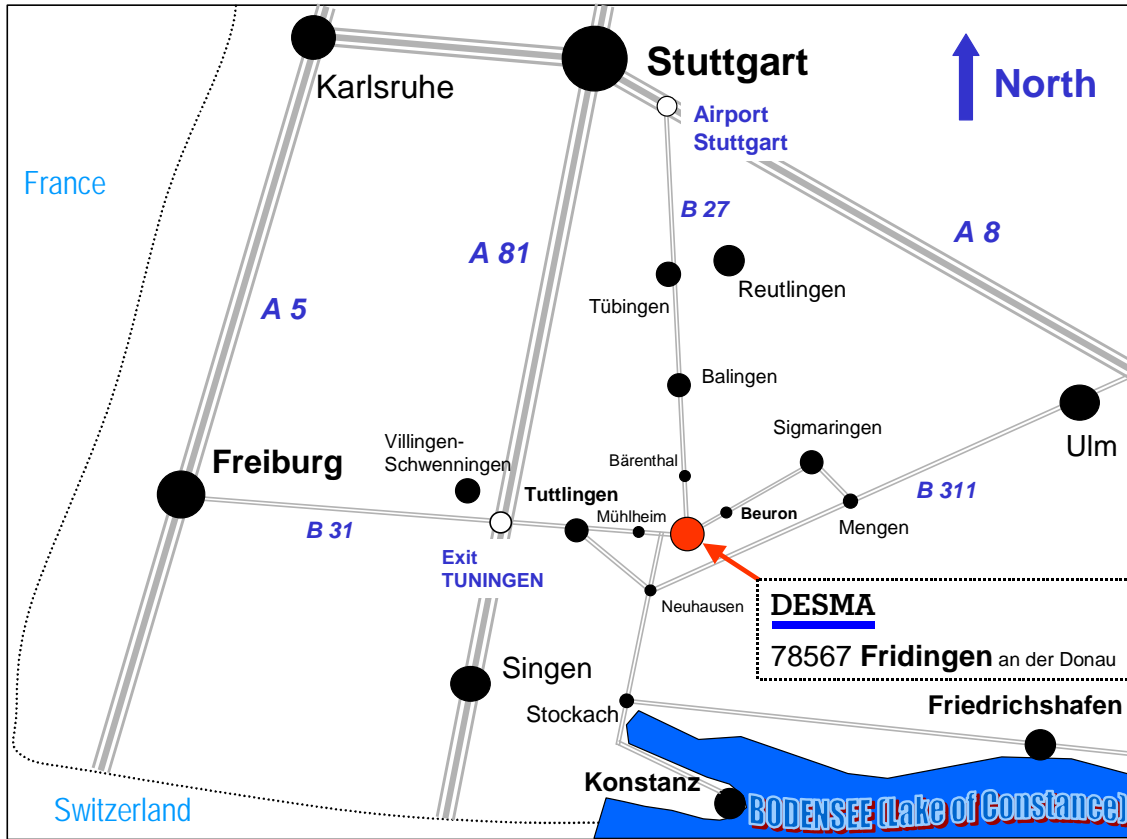
Driving instructions

If you travel via motorway A 81, please follow in Tuttlingen the signs "**Beuron/ Donautal**".

The exact situation of the hotels and of DESMA can be taken from the sketches on the next page.

In Fridingen the way to DESMA is well sign-posted.

Route sketch



General Service Terms of the Training Department

1. Registration

The registration for the training courses has to be made *not later than 3 weeks before the training starts* enabling us to take the date reserved by you into consideration. If not, we reserve the right to give this date to someone else. The registration requires the written form. After receiving your registration we will send you an order confirmation.

2. Cancellation of courses

We reserve the right to cancel the training due to unforeseeable reasons, even if it has already been confirmed to you in writing. In this case we will of course suggest an alternative date to you. We will not accept the costs a cancellation is causing to the customer.

3. Customer's right to rescind the contract

From the moment of the written order *until maximally 2 weeks before the scheduled training starts* the customer can rescind the order in writing without any costs arising. If he withdraws after this two-week term, we are allowed to invoice the expenditure occurred without having to state causes.

4. Performance volume of the training fee

The maximum number of participants per course amounts to 6 persons. The training fee includes for every participant a training manual adapted to the course; furthermore, if the training takes place at Fridingen, one lunch per day of training and sufficient coffee and soft drinks are inclusive. The daily allowances, travel and accommodation expenses have to be borne by the customer. Hotel costs which may arise in case of a failed cancellation will not be taken over by DESMA.

The training and documentation language is German or English. Other languages only at request.

5. Settlement of the invoices

The training fees are to be paid on receipt of the invoice within 30 days from the date of invoice without deductions plus the legal V.A.T. (in Germany).

6. Default of payment

In case of default we are entitled to assert default interests to the amount of the actual discount rate plus 4,5 % p.a. Further claims are not excluded due to that.

7. Placing of orders

The placing of orders by the customer is exclusively made according to the General Standard Terms and Conditions.

8. Order Confirmation

With the written order confirmation the order is considered to be accepted from our part. The General Standard Terms and Conditions are then part of the contract being concluded through the order confirmation.

9. Documentation

DESMA documentation handed over remains in our possession and *must not be copied, reproduced or passed on to third parties without the permission of DESMA*.

10. Preparation of the machines at the customer's location in case of an on-site training

The customer guarantees that a suitable and fully operative training machine is available for the whole duration of the training. Possible refinishing operations or repairs have to be implemented previous to the training. Cancellations of the training due to defective machines are not reimbursed by DESMA.

11. Liability

A liability of DESMA - for whatever legal argument including unlawful act or impossibility of performance - is only existing in case of gross negligent or intentional causation, unless culpable breach of duty concerns a feature guaranteed or confidence facts being comparable to this. DESMA is not liable for indirect damages and defect consequential damages, particularly loss of expected profits and claims of third parties. As far as all other damages are concerned - irrespective of what legal argument - a liability is excluded.

12. For an on-site training at the customer's location *all data stored must be protected before the training* so that they can be restored with reasonable efforts in case of deleting them.

13. As far as the training at the customer's location is concerned it is required due to the regulations for prevention of accidents that the customer himself or a person instructed by him is attending the whole training at the training spot. The customer has to make sure that the hardware not produced or delivered by DESMA meets the public safety regulations.

14. Place of jurisdiction for all disputes resulting from or in connection with this contract is Tuttlingen.