



More than satisfied customers, customer delight is our goal

Our customers are our no.1 priority. Always, anywhere, anytime. This is our motto. It guides all our actions.

With a growing complexity of business, margins are under pressure, everywhere. In our age of mass production of almost everything, it is perhaps time to decide for capital equipment purchase with a new approach. More than simply a one-time cost, consider capital purchase decisions with Total Cost of Ownership and Per Piece Cost of the output. We invite you to join us in a new way of cost evaluation. Please come and look at our booth at the K 2007 show. It will be our privilege to show you our strategies for success in order to make you more competitive. Customer delight is our goal!

*Yours sincerely
Dr. Bernd Scholz,
Martin Schürmann
Managing Board*



"DESMA is the world leader in supplying systems, machines, moulds and services for the rubber and silicone industry. We strive to be the leader in customer satisfaction as well. This is the minimum requirement that we meet daily, but our aim is to create customer delight and enthusiasm for future growth." This is the objective of this worldwide operating medium-sized German company.

Today, outstanding technology is hardly exclusive to any country or company and the cost spiral can be controlled only marginally. Therefore to be successful in world markets, DESMA is highly innovative. "Creating added value is our goal", with Martin Schürmann joining Dr. Bernd Scholz to strengthen the Senior Management team of DESMA. The international team of engineers and technologists, acknowledged experts in their field, implement this new goal with enthusiasm.

They enjoy the most when working with customers, as customers' success defines their success.

To meet the goal of customer delight, DESMA is investing a significant amount in China and in India to build new factories and in upgrading facilities in the USA. DESMA is adding a new factory of 3.000 m² in China and 5.000 m² in India employing a total of 110 people to fulfill the expectations of the rising demands of customers in these countries and surrounding markets. Both of these companies in Wuxi / China and Ahmedabad / India are 100 % subsidiaries of DESMA Germany. In the USA DESMA will invest in a faster and exchange rate neutral delivery of mould packages. New sales and service offices have been set up in Osaka / Japan, São Paulo / Brazil and Mexico City / Mexico to supply better and faster support locally. DESMA

will invest in new machining centres at the Slovakia factory to improve delivery and reduce part costs.

And last but not least DESMA is investing in SAP-PS system in Germany together with a modern warehousing system for improved logistics and increased productivity. To deliver faster support directly to the customer is the latest innovative initiative of DESMA – the DESMA *ServiceMobile* in Germany - a workshop on wheels which will work for upgrading DESMA production systems at customer sites. DESMA is gladly investing in the future with confidence to maintain its global presence and leading role in technology, quality, production capacity, providing solutions, faster delivery and local support – for customer delight!



Interior view DESMA India (Ahmedabad)



DESMA China (Wuxi)



DESMA Brazil (São Paulo)

Strategies for success – presented at the K 2007

Intelligent optimization of cure times with the new nozzle technology FlowControl+.

This new, dynamically controlled nozzle technology is presented on a D 968.400 ZO Benchmark 750. In connection with a high-pressure injection unit and the corresponding controls, all possibilities of this development (patent has been applied for) are demonstrated. This of course on an ergonomic machine with the Benchmark clamping system developed and patented by DESMA.

Shortest possible cycle times, minimal material use, high output and completely automated.

The bestseller among the DESMA horizontal machines, the D 969.300 Z, equipped with the

package of the future:

9-nozzle *FlowControl* cold runner block (CRB) with single-nozzle control integrated in the machine control system, high-pressure injection unit with 3,500 bar injection pressure combined with the *FlowControl+* machine nozzle and the latest brush technology, i.e. with quick-change-over system for brushes driven by high-speed motors. A high-performance multi-pump hydraulic system ensures the most rapid machine movements. A mould from the DESMA mould shop is used to manufacture gaskets.

Compact size for the world market

With the D 968.250 ZO Compact, DESMA has a series on display which is produced for the global market in Germany, India and China.

Depending on the requirements, these machines are available with the controls DRC 1210 and DRC 2010 or the new entry-level model 910 and are equipped according to the CE standard or country-specific regulations. DESMA's economic answer to an outstanding price/performance ratio. This machine also displays a *FlowControl* cold runner block system.

FlowControl for everybody!

This cold runner block system - patented by DESMA and awarded the DKG Product Award 2006 - can be safely controlled and used on all injection moulding machines by means of the CRBControl. – Even on machines delivered by other suppliers.



24.-31.10.2007

Stand F56
Halle 16

Added value for our customers
Convince yourself by visiting our booth at the exhibition. DESMA offers everything from a highly competent initial design engineering to the delivery of an integrated manufacturing system – the complete performance scope from just one source. Well thought-through and efficient training is conducted by professional coaches. And our worldwide service keeps things running! We will demonstrate successful strategies taken from reference projects globally proven. DESMA is the one-stop single-source supplier.

Intelligent optimization of cure times through the new nozzle technology *FlowControl+*



The *FlowControl* cold runner block system developed and patented by DESMA has meanwhile become the leading cold runner block system with hydraulic shut-off nozzles. During the DKT exhibition, the regional rubber industry event in Nuremberg, this nozzle design won the DKG Product Award 2006.

Its further development as an actively closed-loop controlled machine nozzle provides a technology for the first time that allows a fully controlled and variably adjustable injection gap width during the injection procedure. This enables a monitored and controlled energy input while injecting. The positioning accuracy of the *FlowControl+* nozzle is 0.1 mm and can be set to different levels during injection. The energy input is visualized at the machine control. This dynamic adjustment allows a control of the heat input depending on the article wall thickness to avoid partial over-curing. Furthermore, this nozzle technology is a perfect and highly robust shut-off nozzle which also offers the best conditions for low-viscosity compounds. Even with production stops, there is no risk of material being cross-linked prematurely compared to prechamber system, as the energy input takes place directly at the nozzle

tip. Also, an absolute process repeatability is given through this active closed-loop control.

All DESMA machines equipped with FIFO injection units and control generation DRC 1210, DRC 2010 can be upgraded with this technology.

When using cold runner block systems, the injection gap can be opened to its maximum through the control.

The *FlowControl+*-nozzle is a derivative from the *FlowControl* CRB-nozzle design. This design has proven its outstanding advantages in already 3 years of application under heaviest industrial conditions.



All advantages at a glance

- Actively controlled injection nozzle
- Dynamic injection gap control through the injection stroke during the entire injection process
- Article design-independent energy input during injection
- Energy input takes place at the nozzle tip
- Resistant to production stops (no prechamber system)
- Robust shut-off nozzle function for low-viscosity compounds
- Fully integrated into the machine control
- Up-gradeable on all DESMA-machines with DRC 1210/2010 controls

All-time high in the mould development centre

Turnkey packages: DESMA is the only one-stop single-source integrated system supplier to offer the complete manufacturing know-how from one source.

For many years the sales volume of the DESMA mould development centre has been steadily growing at double-digit pace.

Investment into the future

Therefore, DESMA increased the manufacturing floor space by approx. 30 % and invested further in equipment for its production. Particularly the very high demand for *FlowControl* cold runner block systems required a ramp up of staff and machinery.

Above 75 *FlowControl* cold runner block systems delivered worldwide prove the success of this development. The *FlowControl* CRB has provided for ample of opportunities to add value in complete DESMA integrated manufacturing system solutions. Approx. 50 % of DESMA's global turnover is already generated by integrated manufacturing systems with growing tendency. Hence, the process engineering centre has also grown in number of staff and competence.

Live success strategies

In the area of our integrated manufacturing system service we gained outstanding solution competence, i.e. complete production clusters for high-quality electrical cable bushings in multiple component design. Here, DESMA successfully designed and commissioned

injection machines, mould concepts, cold runner block systems, inspection systems, integrated preheating systems, feeding systems and the entire manufacturing cluster layout. Also, all operating, processing and manufacturing staff of our clients are perfectly trained by DESMA.

In addition to the handling of injection moulds and cold runner block systems and their maintenance, these training sessions include the handling of the entire manufacturing system.



Application report PFISTERER Kontaktsysteme

Successful with a new production concept



The insulation and controlled termination parts of the MV-CONNEX are manufactured out of addition-cross-linked silicone rubber.

PFISTERER Kontaktsysteme in Winterbach, manufacturers of CONNEX plug systems for medium and high voltage in the electrical industry, in cooperation with Klöckner DESMA have implemented a new procedure for the market-driven production of insulating parts made from LSR silicone.

Since the 60s, the common production technology for silicone insulating parts has been the RTV procedure (RTV = room temperature vulcanized silicone rubber). With this procedure, two components are mixed by means of a metering and mixing system. The RTV was then casted directly from the metering system into the moulds. The casted moulds are basically made of simple, wrought aluminium parts. Although a few production improvements could be made throughout the years, there were still considerable disadvantages of the RTV system:

- Elaborate manual and therefore personnel-intensive and expensive tasks
- A variety of production steps that must be worked through subsequently
- Long throughput times for the vividly growing manufacturing lot volumes
- Lack of availability of numerous variants and this causing
- A planning production with high stock numbers and respective capital tie-up

In 2001, PFISTERER decided to introduce a new production technology for the MV-CONNEX insulating parts. They selected a semi-automated LSR-injection moulding process. Klöckner DESMA was chosen as their partner in this venture. The new production should fulfil the following requirements:

- Covering the increased variety of variants
- High flexibility in order to manufacture large but also small lot sizes economically
- Independent manufacture of deflectors, SPAG and the actual insulating parts on one machine only
- Largely rework-free parts
- Number of moulds reduced to a minimum

The demands of this project were by no means ideal

The enormous variety of possible variants of deflectors and the hardly predictable required volumes called for a special solution. The different inner and outer diameters required different inserts. Ideally, it should be possible



Former RTV production: Manual demoulding as well as casting and curing deflectors.



Current RTV production: With the Benchmark D 968.400 of DESMA

to produce using a constantly changing composition. Four identical parts were always supposed to be injected. The challenge was the flawless venting of the large-volume parts. Due to the better feeding of the inserts and the position of possible injection gates, the filling had to take place from the top. The non-rigid inserts should not be moved or come into contact with the second injection stage.

MV-CONNEX family



After determining the mould concept, the production system was projected:

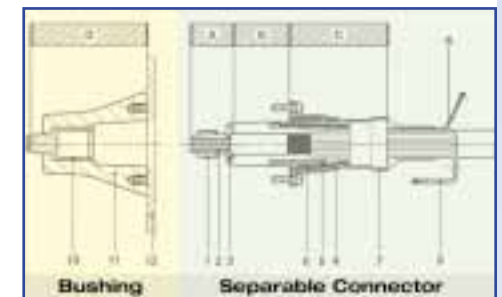
- Injection moulding machine D 968.250 ZO/TV, with 2,500 kN clamping force and two injection units
- Tempered transfer pot for deflectors and SPAG
- Injection moulds for deflectors and SPAG matching the ITM pot
- Injection moulds for insulating part

subsequent installation tests, so that the remaining inserts of the different variants could be produced.

After that, the machine was brought to the production site and installed followed by a training of the operating and maintenance personnel. The start of the series production was attended by DESMA service personnel.

Test series, system optimisation and initial sample production

In order to achieve more safety for the processing of LSR silicone using the ITM procedure, a trial mould was built. The system optimisation and sample part production was performed at the technical facility at Klöckner DESMA Elastomertechnik. This site presented ideal circumstances due to its vicinity to the DESMA-owned mould development centre and their experience in producing products of this type.



"The one who has the best delivery conditions will get the business"

The results from these tests were completely confirmed with the series moulds. Even in case of completely different feeding, the production of items of impeccable quality was possible. When measuring the finished parts, there were some deviations. Here, inserts were reworked or newly manufactured. Following these corrections, parts could be manufactured within the required tolerance ranges. No problems were found during the

In order to meet risen customer requirements, the complete confectioning of the MV-CONNEX plugs was gradually modified. In the meantime, five DESMA injection moulding machines have been put into service. The production takes place in three-shift operation and only stands still on weekends and holidays. All quantities have increased throughout the years. Besides a noticeable increase in process safety and a significant reduction of manufacturing costs, today, the quick availability of the insulating variants is of crucial importance.

Looking back, we can note that the described modification of the entire production, especially based on the joint cooperation of the two companies involved, has led to great success.

Dr. Eckhard Wendt, Production Manager Winterbach, Pfisterer Kontaktsysteme GmbH & Co. KG
Volker Krell, Manager – Development and Design, Klöckner DESMA Elastomertechnik

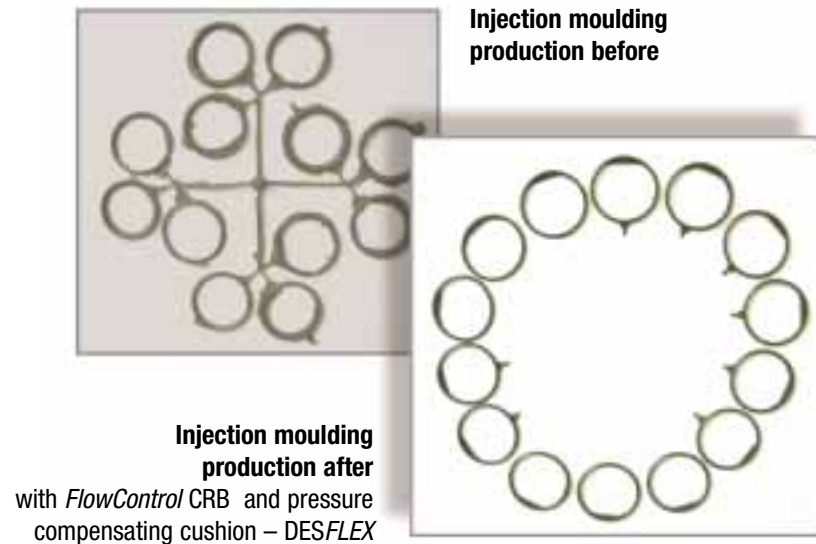
For additional information see www.desma.biz/english/pfisterer.htm



Award-winning *FlowControl* cold runner block technology for everybody!

Add value to your existing injection moulding machines by the *FlowControl* CRB upgrade.

By simply upgrading any machine independently of its origin and age, the *FlowControl* CRB can be added as a free-standing unit with its own controls and hydraulics. The controls adjust individually and in real time each of the CRB nozzles. The entire CRB unit is mounted on a trolley and can be placed next to the injection moulding machine wherever needed. Only the injection unit of the existing machine will be furnished with a micropulse transducer in order to monitor the position of the piston. There is no change in the existing machine control required. Only by a simple software upgrade existing DESMA machines with control types DRC 1210 or DRC 2010 can be easily retrofitted with the *FlowControl* CRB. Of course, the maximum number of nozzles is freely configurable.



Maximize your material usage and profit from a faster cycle time with the *FlowControl* CRB system.

OPEN (STROKE), CLOSE (TIME)		Number	
Open close (mm) [s]	Open close (mm) [s]		
1	1.0 1.0	9	0.0 0.0
2	0.0 0.0	10	0.0 0.0
3	0.0 0.0	11	0.0 0.0
4	0.0 0.0	12	0.0 0.0
5	0.0 0.0	13	0.0 0.0
6	0.0 0.0	14	0.0 0.0
7	0.0 0.0	15	0.0 0.0
8	0.0 0.0	16	0.0 0.0
0.0	0.0		

17 OIL FILTER CLOGGED



- Material savings: 33 %
- Manufacturing costs savings: 16 %
- Cavity increase: 16 %

For additional information see www.desma.biz/english/flowcontrol.htm

Your future with high pressure

High-pressure injection units for high-viscosity compounds

With the new HP (= HighPressure) series of injection units we offer injection pressures up to 3,500 bar. Particularly in the area of gasket production combined with high-viscosity compounds, very short injection times can be achieved. Because of the increased shear forces and higher compound temperature levels during the injection process, cure times and thus the entire production cycle can be extremely accelerated. Best references are given with key accounts in Italy and Germany. With the DESMA HP technology it is guaranteed that even during production stops no pre-curing occurs as experienced with pre-chamber systems.

An even more impressive advantage is achieved through the combination of DESMA's HP technology and the *FlowControl*+



Further links to developments and innovations of DESMA

- The Compact series**
www.desma.biz/english/compact.htm
- Our HydroBalance**
www.desma.biz/english/hydrobalance.htm
- DESMA Turnkey Engineering**
www.desma.biz/english/system.htm
- DESMA training center**
www.desma.biz/english/dienstleistung_training.htm
- Customer Care Center**
www.desma.biz/english/dienstleistung_service.htm
- All agencies at a glance**
www.desma.biz/english/kontakt_vertretungen.htm