

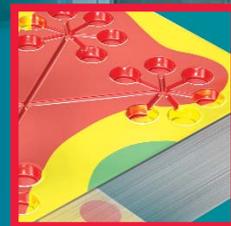
Controllers, extensions and services... Rep solutions



**PROCESS CONTROLLER
G8 W/S..... P2**



**REP
TELEDIAGNOSIS..... P5**



**ISOTHERMOULD
..... P6**



edito

Evolutionary, adaptable, modular... these fundamental ideas have always guided REP in its product development. The G8 range is no exception. The improvements presented in this edition of Rep News can be integrated in the form of modules or as options on new machines. They can also be fitted onto existing machines. This way, you can progressively enrich the functions of the G8 range in line with your industrial requirements and financial resources. Among the developments described in the following pages, we note improvements in mold temperature control, remote trouble shooting, programming by direct teaching on the machine...

REP presented the G8 as adaptable, versatile and evolutionary. Five years after being launched, the last part of our claim is a reality.

Put a booster in your G8!

Bruno TABAR

Process controller G8 W|S

The G8 process controller linked to presses has progressed considerably compared with the G7, especially with regard to interfaces, with a very user-friendly color screen and much better performance. Today, the G8 process controller is in its third version with a number of improvements.

G8W, G8S : The power to choose without sacrificing performance

The G8 process controller is now available in two versions : G8W and G8S. The G8S (S for "simplified") is an economical alternative designed for controlling presses with simple configuration.

"... the versions W and S have exactly the same performance..."

Nevertheless, for the same function, the versions W and S have exactly the same performance.

Differences lie in the size of the screen (see photograph opposite), the number of inputs and outputs and therefore the number of functions available. Nevertheless, it is always possible to retrofit the G8S with the

G8W if there is a need.

« S » ou « W » : which version to choose?

The choice of process controller depends on the applications for which the press is intended. Nevertheless, a financial calculation between the price of the

"... that the new G8 controller may be used with either the vertical or horizontal presses..."

process controller and that of the press would lead to choosing the G8 S controller for up to 400 t (table). It should be noted that the new G8 controller may be used with either the vertical or horizontal presses.



Two very distinct presentations, but identical performance for the same function.

just as user-friendly with even higher performance



G8

vertical presses					horizontal presses
V38	V48	V58	V68	V88	H48
G8S/G8W	G8S/G8W	G8S/G8W	G8S/G8W	G8W	G8S/G8W
100 T	160 T	260 T	400 T	800 T	190 T

The power of Pentium optimizes the performance of the press.

3

Press

V58

Very high level of performance

Whether it is the "W" or the "S", the characteristics of the G8 controller are at a high level. These are especially seen in :

Performance

The G8 controller greatly increases productivity :

"... The G8 controller greatly increases productivity..."

- Much improved control over injection, integrating a 10,000-point incremental encoder.

This gives very accurate regulation at low speed, and simultaneous control over double injection on bi-material presses.

- Optional additions : recognition of cells instead of the screen.

- Reduced response time : the software control cycle is now less than 10 ms.

User-friendly

It is very easy for an operator to dialogue with the process controller :

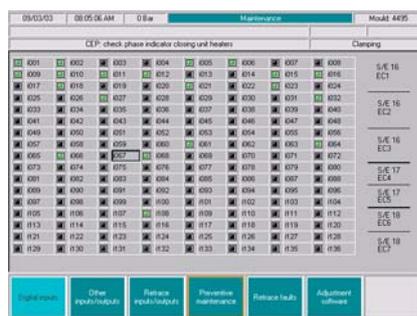
- Special integration of many languages previously considered as "exotic" : Chinese, Korean, Japanese, etc.
- Extended online help (6 help pages for diagnosis)
- Shorter startup time.

The keys for improvement

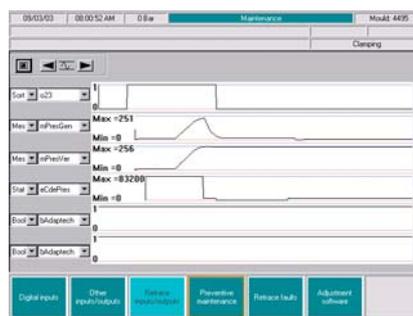
With this new version, the G8 controller makes a quantum leap forward.

This has been made possible by changing the injection encoder, improving repeatability, a new processor (multiplying the calculation speed), and finally the use of even more powerful innovative control loops.

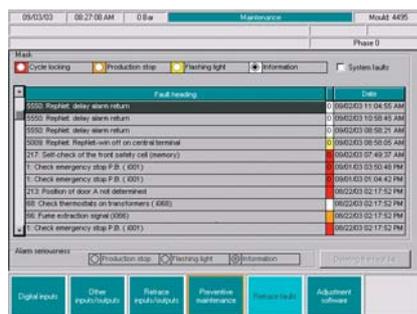
Six help pages for diagnosis to make maintenance easier



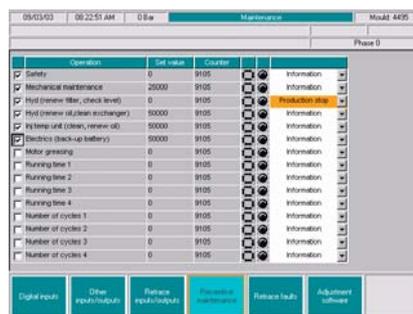
"Digital inputs" optimization page



"Retrace Inputs/outputs" optimization page



"Retrace faults" optimization page



"Preventive maintenance" optimization page

G8 version 4 : Presently in development

Version 4 of the process controller is now being prepared. It will include a new learning program (Mastertrac® Version 4) allowing the operator to change the order of movements.

The learning program is now extended to the opening and closing phases. This new process controller makes it possible to perform on-the-spot, "personal" kinematic changes without external technical work.

Telediagnosis

*REP telediagnosis :
remote help fully controlled
by the customer*

When a press has a problem while operating, there is not a minute to be lost in analyzing the origin of the trouble. REP technicians can be available in a very short period of time, but it may be necessary to make two visits :

- **First visit for a diagnosis, to decide if a spare part has to be ordered**
- **Second visit for the repair.**

REP now has a telediagnosis service to shorten press out-of-action time. This eliminates the first onsite visit by an immediate analysis of the problem.

"... This eliminates the first onsite visit by an immediate analysis of the problem..."

When the origin of the trouble has been identified, either the customer can work on the press himself, or a repair team can be called in. Finally, a lot of precious time is saved by avoiding one visit and arriving at a reliable diagnosis.

A service activated and controlled by the user

The principle of telediagnosis involves displaying the screen of a press on Internet.

This link is created by the user of the press, who keeps control over the whole operation. As soon as the request has been made, the REP technician (wherever he happens to be) sees a screen completely identical to that of the faulty press. He can therefore analyse

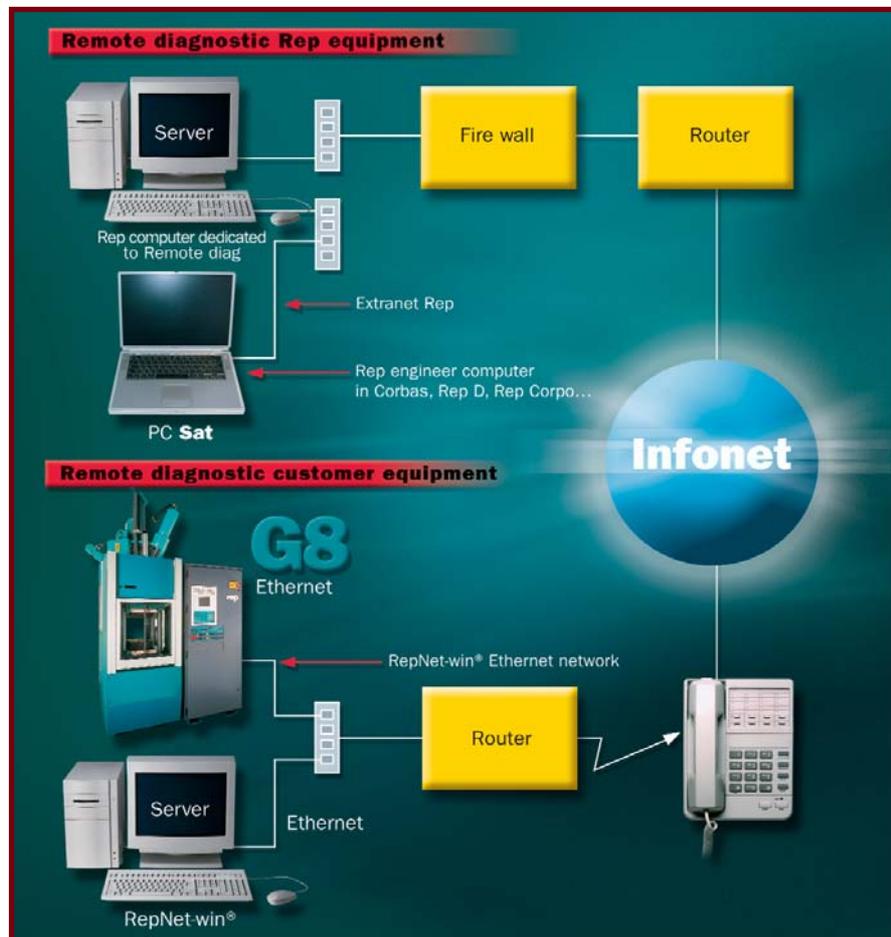
"... This link is created by the user of the press, who keeps control over the whole operation..."

the breakdown as if he were on the spot. If an adjustment can solve the problem, he suggests it to the customer

and performs it under his control. So the press and the privacy of information are fully controlled by the user.

A REP survey carried out over four months has shown that in one third of repair visits, telediagnosis could have avoided a trip to analyze the problem.

Before the end of 2003, the telediagnosis service will be available for existing G8 presses, or be offered in a "package" with the purchase of a new press.



Telediagnosis : the information circuit.

Isothermould

reduces temperature difference
increase productivity.

On a "traditional" heating platen, the temperature difference between the side of the mold and the center can reach 10°C.

This poor spread often leads to an overestimation of the vulcanization time, which is expensive in cycle time and unsatisfactory with regards to the quality of parts produced.

The Isothermould power-distribution tube system is an effective solution to the problem of temperature spread.

6 **A solution born from in-depth experiments**

In a mold, energy is lost through the sides. Because of this, and for mechanical reasons, a band of 50 mm on the periphery is difficult to exploit.

Within this limit, the REP engineers have sought to obtain a maximum difference of +/- 2.5°C. To do this, a prediction tool has been developed in the

"... an effective and simple system giving a reliable solution for 95% of applications..."

form of a measuring strip bearing 52 sensors linked to a model by end devices.

With a "temperature map" accurately established, the engineers developed an effective and simple system giving a reliable solution for 95% of applications.

The power-distribution tube system

The solution adopted by REP consists of compensating temperature irregularities by using special heating tubes. The distribution of heating coils inside the tubes gives a good power spread for each tube. This power input is in

the platen and it balances the temperature at the mold joint, which is essential for the system to be efficient.

Proven results with completely different molds

The theoretical results obtained without impression were confirmed during mold tests with varied specifications : thick or thin parts, short or very long vulcanization. The temperature variations recorded were in the desired range whatever the configuration.

Very significant financial savings

By including Isothermould through retrofitting (a very reasonably-priced operation) or by acquiring one of the latest REP presses, now equipped with this system, we can decrease the average time for vulcanization by 20%, and the spread of the characteristics on the parts produced by 40%, with a temperature difference of +/- 1.5°C on certain molds.

These significant gains, particularly interesting for many injection operations, naturally require the operator to

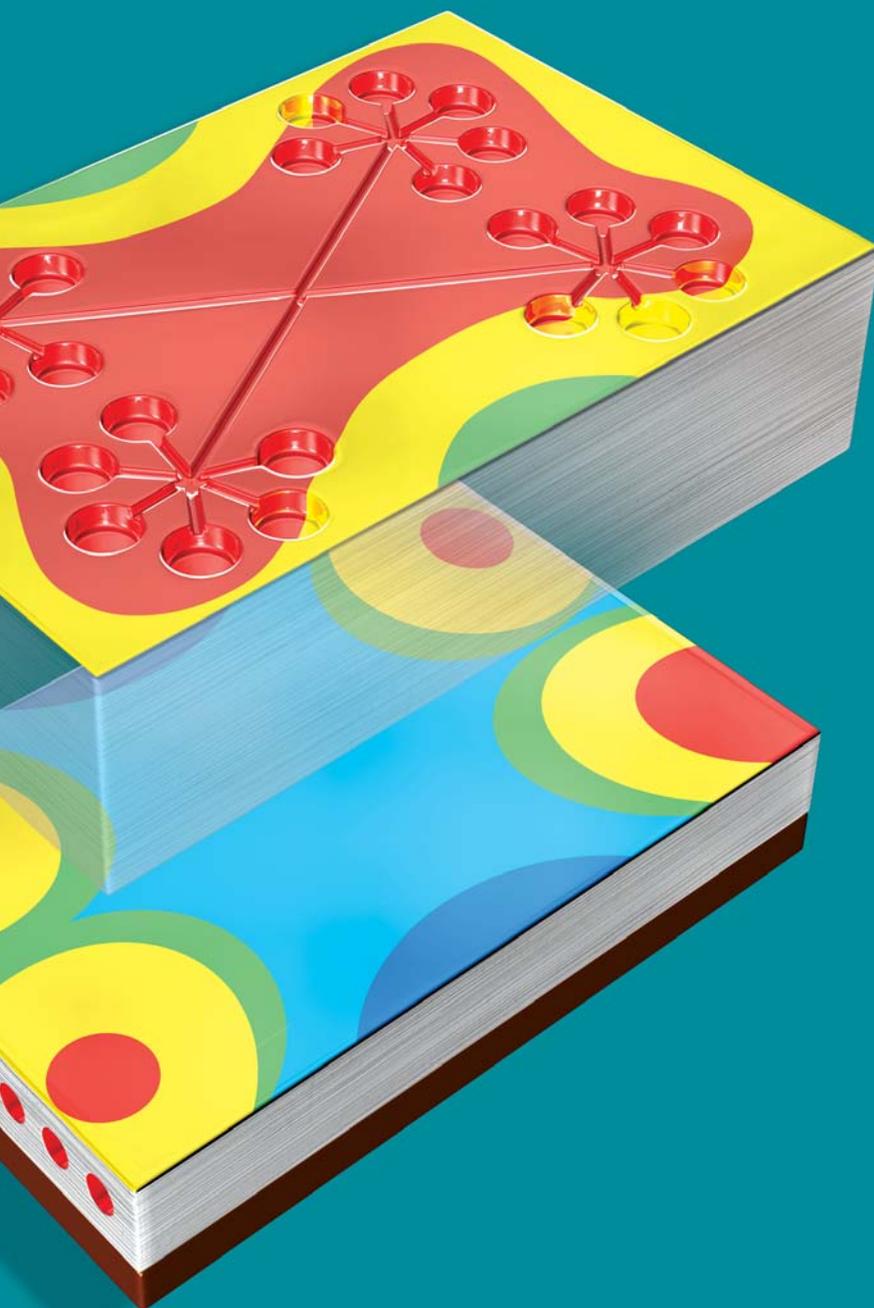
Theoretical spread on a V58 e



0<delta t<+5°C

Differences to

equipped with Isothermould



09/03/03 07:37:07 AM 0 Bar Thermobloc Mould 4405											
Phase 0											
Identification	Time	0	(sec.)	Identification		Coding		Heating			
Chaux	Area	Pass	Set value	Phase	P	T	P	I	D	T	
1	Compound	60									
2	Extruder	61	0	1	15	10	20	50	20		
3	Injection chamber	62	0	1	15	20	10	100	20		
4	Mould on feed platen	65	180	0			25	17	180	40	
5	Mould on movable platen	67	180	0			24	17	180	40	
6	Hydraulic oil temperature	69		1	15						
7	Ancillary area 1	66	180	0			0	0	0	0	
8	Ancillary area 2	68	180	0			0	0	0	0	
9	CFB nozzle	63	180	0	1	15					
10	CFB block	64	180	0	1	15	0	0	0	0	
11	Ancillary area 3	65	180	0			0	0	0	0	
12	Ambient temperature	60									

09/03/03 08:50:07 AM 0 Bar Isothermould - see block number Mould 4405											
Mould on feed platen Phase 0											
180		27	0 04 56 004		180		27				
Isothermould											

"Temperatures" optimization page

"... we can decrease the average time for vulcanization by 20%, and the spread of the characteristics on the parts produced by 40%..."

take into account the Isothermould

when he uses an old mold, and to readjust the operating parameters.

Dry cycling time : | significant improvement

"... Between 14 and 28% reduction in the dry cycling time ..."

Between 14 and 28% reduction in the dry cycling

time : these figures demonstrate a constant improvement since the G7 generation. They have been recorded on three different presses (V48, V58 and V68) in comparison with a test protocol described opposite. These gains are due to the new software, and especially to the Pentium processor. In fact, its "controller cycle time" is a lot less than 10 ms. This processing speed guarantees extremely accurate stopping. Compared with previous presses and process controllers, the user needs to optimize the adjustments to get the best out of this new performance.

Test specifications UC Pentium V2.0 (10 ms cycle)

Press parameters :

- Dampened clamping block cylinder
- 3-mm locking stroke
- Hydraulic oil temperature between 40°C and 45°C

	V38 Y04	H48 Y10	V48 Y10	V58 Y20	V68 Y20	V68LWH20*(1)
Test mold (in mm)	300x300x100	300x300x110	300x300x110	500x630x125	500x630x160 500x630x100	500x630x260 500x630x125
Dry cycling time without front gate (seconds) *(2)	4.84	4.90	5.77	7.05	8.91	8.96
Percentage saving on cycle time compared with the G8 equipped with a UC 486 25 ms	25 %/V37	-	28 %	17 %	14 %	-

*(1) LWH : Lowered Working Height

*(2) Without cure and injection holding times, without injection maintenance time, with software processing time between movements.



Come and meet REP

| Rep will participate in the following events in 2003 and 2004

FAIRS

SCANPLAST	SWEDEN	From 8 to 11 April 2003
PLAST 03	ITALY / MILAN	From 6 to 10 May 2003
IRC	GERMANY / NÜRNBERG	From 30 June to 2 July 2003
PLASTO ISPACK	ISRAEL / TEL AVIV	From 1 to 4 September 2003
CHINAPLAST	CHINA / BEIJING	From 9 to 13 September 2003
RUBBER EXPO	USA / CLEVELAND	From 14 to 16 October 2003
CCG RUBBER	FRANCE / PARIS	From 9 to 11 March 2004
PLASTPOL	POLAND / KIELCE	From 25 to 28 May 2004
K2004	GERMANY / DUESSELDORF	From 20 to 27 October 2004

CONFERENCES

LRCCP	FRANCE / BORDEAUX	From 7 to 8 October 2003
Recent progress in preparing and transforming elastomers		
IX JORNADA TÉCNICA	SPAIN / ZARAGOZA	23 October 2003
RAPRA	SWITZERLAND / GENEVE	From 13 to 14 November 2003
1st International Conference Focusing on Engineering and Specialty Elastomers		

REP GROUP www.rep.tm.fr

**France
REP INTERNATIONAL**
69960 CORBAS
Phone : 33 (0) 4 72 21 53 53
commercial@repgroup.net

**France
SACOMAT**
73230 BARBY
Phone : 33 (0) 4 79 72 88 88
sacomat@repgroup.net

**Germany
REP DEUTSCHLAND**
69483 WALD-MICHELBACH
Phone : 49 (0) 6207 9408.0
verkauf@repgroup.net

**United Kingdom
REP MACHINERY**
SLOUGH BERKS SL2-5EA
Phone : 44 (0) 1753 57 09 95
olly.sanders@repuk.co.uk

**Italy
REP ITALIANA**
10078 VENARIA (TO)
Phone : 39 (0) 11 42 42 154
sscangas@repgroup.net

**USA
REP CORPORATION**
BARTLETT 60103-8146
Phone : +1 847 697 7210
repmail@repcorp.com

**China
REP BEIJING OFFICE**
BEIJING 100052
Phone : +86 10 63 10 1447
gleclerc@repgroup.net

**Brazil
REP INJETORAS DE BORRACHA**
09726-250 SAO PAULO
Phone : +55 (011) 4125 7950
repinj@terra.com.br

