



Apprenticeships for the Injection Moulding Industry

Those who attended the last dinner seminar heard from Stephen Dawkins from TAFE and Tony Atkins from DETNAC telling us how to go about taking on apprentices. Tony left some information packs with PIMA and anyone who would like one please contact PIMA and we will send it out to you. Tony has also sent through information on the financial incentives available to industry and we have reproduced this below.



Your Key to New Apprenticeships

Summary of the Australian Government New Apprenticeships Incentives Programme - From 1 July 2005

New Apprenticeships	The objective of the New Apprenticeships Incentives Programme is to develop a more skilled Australian workforce that delivers long-term benefits for our nation and our international competitiveness. This is achieved by encouraging employers to open up genuine opportunities for skills-based training of their employees, through provision by the Australian Government of financial incentives to employers who take on and train a New Apprentice (apprentice or trainee).
DET NAC (Department of Education and Training New Apprenticeships Centres)	DET NAC provides a FREE service to employers and New Apprentices has 16 centres in major cities and regional centres of NSW. For more information or assistance, contact DETNAC on 13 20 26 or visit www.detsnac.com.au
Waiting periods	There is a three month waiting period before an employer can apply for an Australian Government Commencement Incentive for a New Apprentice. The Apprenticeship/Traineeship Training Contract must be formally approved. The New Apprentice must still be employed by the same employer and must have commenced training in accordance with the approved Training Program. The employer should submit a claim to the New Apprenticeships Centre at the end of the three month waiting period, and within the required time limit. Further information on waiting periods and time limits can be obtained from your local DETNAC office.
Australian Government Incentives	The following summarises the Australian Government New Apprenticeships Incentives regime for all New Apprentices (apprentices and trainees). Payment of incentives will be subject to employers and their New Apprentices satisfying eligibility criteria as set out in the Australian Government <i>New Apprenticeships Incentives Programme Guidelines</i> . Incentives amounts are inclusive of GST. Contact DETNAC for further information on Australian Government Incentives.
Standard Commencement	\$1,375 incentive for an employer who commences a New Apprentice in Certificate II training or \$1,650 incentive for an employer who commences a New Apprentice in Certificate III or IV training.
Women in Non-Traditional Trades - Special Commencement	\$1,100 special incentive for an employer who commences a woman in an eligible Certificate II to IV level New Apprenticeship in a declared non-traditional occupation.
Innovation – Special Commencement	\$1,210 special incentive for an employer who employs a New Apprentice in an eligible innovation training package qualification at the Certificate III or IV level.
School-Based New Apprenticeships – Additional Commencement	\$825 additional incentive for an employer who employs a New Apprentice in an endorsed School-Based New Apprenticeship at Certificate II to IV level.

Rural and Regional Skills Shortages – Special Commencement	\$1,100 special incentive for Rural and Regional New Apprenticeships where the New Apprentice commences Certificate III or IV training in an occupation identified as experiencing skill needs in a non-metropolitan area.
Declared Drought Area – Additional Commencement	\$1,650 additional incentive for employers of eligible Certificate II New Apprentices who are employed by an employer who has a current Exceptional Circumstances Drought Area certificate.
Mature Aged Worker – Special Commencement	\$825 special incentive for an employer who commences an eligible Certificate II to IV level New Apprentice who is a disadvantaged person aged 45 years or more. Contact your local DETNAC office for further information.
Standard Recommencement	\$825 incentive for employers recommencing out-of-trade Certificate III or IV New Apprentices.
School-Based New Apprenticeship Retention	\$825 for an employer who continues to employ a Certificate II to IV level School-Based New Apprentice after the student has completed Year 12.
Standard Completion	\$2,750 incentive for employers of New Apprentices who successfully complete Certificate III or IV. The New Apprentice must have been employed as a New Apprentice by that employer for at least 3 calendar months before completion.
Declared Drought Areas – Special Completion	\$1,650 special incentive for employers on the successful completion of eligible Certificate II New Apprentices who attracted a Declared Drought Areas additional commencement incentive.
Mature Aged Worker – Special Completion	\$825 special incentive for an employer on the successful completion of a Certificate II to IV level New Apprentice who attracted a Mature Aged Worker special commencement incentive.
Assistance for New Apprentices with a Disability	The Disabled New Apprentice Wage Support Programme provides additional assistance to eligible employers who recruit a Certificate II to IV level New Apprentice with a disability. Assistance may include a wage support payment, tutorial, interpreter and mentor services. Assistance may also be available for leasing or purchasing essential equipment or modifying the workplace to accommodate a New Apprentice with a disability. More information is available from your local DETNAC office.
Living Away From Home Allowance (LAFHA)	New Apprentices may be eligible for up to twelve months of LAFHA at the first year rate of \$77.17 per week, a further twelve months assistance at the second year rate of \$38.59, and a further twelve months assistance at the third year rate of \$25 if the Certificate II to IV level New Apprentice had to move away from the parental/guardian home to commence or remain in a New Apprenticeship or is homeless. Your local DETNAC office can provide more information on LAFHA and the appropriate application form.
Commonwealth Trade Learning Scholarship	The Commonwealth Trade Learning Scholarship provides two tax exempt \$500 payments to eligible New Apprentices undertaking qualifications in the skill needs trades. The Scholarship is paid to New Apprentices after they complete the first 12 and 24 months full-time (or full-time equivalent) employment in their New Apprenticeship.
Further Australian Government Assistance Available for New Apprentices	New Apprentices may be eligible for Youth Allowance (including Austudy for over 25s and ABSTUDY). More information is available from Centrelink on 13 36 33. The Tools For Your Trade Initiative provides up to \$800 for the purchase of trade tools for eligible New Apprentices. More information is available from your local DETNAC office.



**For more information call
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Health & Safety Bulletin

Combating noise in the workplace

An updated and approved Code of Practice on Noise is in force.

The *National Code of Practice for Noise Management and Protection of Hearing at Work* has been operative since mid-June 2005.

It says the most effective way of controlling exposure to noise in the workplace is to cut the noise level at its source. OHS representatives or committees should review all processes involving exposure to excessive noise and develop programs of equipment and job redesign.

The objectives of the code are to:

- minimise occupational noise induced hearing loss and tinnitus through noise control measures;
- recognise and understand the effects of exposure to noise;
- adopt a systematic approach to reducing and managing exposure to excessive noise; and
- implement control measures through consultation between employers, employees and/or employee representatives.

The new code can be found at www.nohsc.gov.au/PDF/Standards/Codes/NOISE_COP.pdf

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The editor wishes to thank Peter Mandavy of ASP Plastics for submitting this article

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Workplace Alert!!! Audits uncover safety issues

A series of workplace audits and inspection programs over the past six months by ACT WorkCover has highlighted the need for high quality safety information, according to Erich Janssen, WorkCover commissioner/CEO.

Mr Janssen says the programs revealed a number of major safety issues.

“While WorkCover continues with its rigorous industry safety audit and compliance campaigns, the data collected through these audits is being analysed to identify education and information needs.”

Mr Janssen says one of the new educational initiatives is the release of a compact disc containing a collection of ACT WorkCover publications and resources.

“The CD offers businesses a comprehensive toolkit of check lists, guidance notes, codes of practice, licensing information, application and reporting forms as well as legislation – a one stop shop on safety for businesses.” Mr Janssen also says one in three retailers inspected by WorkCover failed to fully comply with the Workers’ Compensation Act.

Inspectors visited more than 630 retail businesses in February 2005 in the biggest compensation compliance audit run by WorkCover. “Many retailers did not provide adequate information on workers’ compensation to their employees, a number did not have injury registers for their staff and a small number did not have any workers’ compensation insurance policy at all,” Mr Janssen says. More than 250 compliance notices were issued, including 41 infringement notices, 125 notices to produce additional information and 88 employer obligation forms.

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The editor wishes to thank Peter Mandavy from ASP Plastics Pty Ltd for submitting this article



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1 **Rochdale Institute** can help you access Government Funds that will pay for this training. Our specialization in **Plastics, Injection Moulding** and **Safety** makes us the experts in catering for your industry.

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GATE DESIGN – for cold runner feed systems.

Ray Brown from Polymers International has agreed to do a series of articles for the PIMA PRESS

The gate is a very important part of the feed system to the cavity. The choice of gate and its design depend on a number of factors but in this article the effect of the gate design on the polymer will be explored. The gate styles will be categorized and the design criteria for the different categories will be explained.

In the transition from the runner system to the cavity the velocity profile of the material increases as the cross-sectional area decreases through the gate area causing the Apparent Shear Rate to increase significantly. The apparent shear rate is independent of the material type and simply relates to the size of the hole through which a volume of material flows in a given time.

There are basically two apertures to consider – a circular gate and a rectangular gate.

Circular Gates

$$S = \frac{4 \cdot q}{\pi \cdot r^3}$$

Rectangular Gates

$$S = \frac{6 \cdot q}{W \cdot H^2}$$

Volumetric Flow Rate

$$q = \frac{m}{\rho t}$$

Units: or:

q = volumetric flow rate	m ³ /s	cm ³ /s
m = part weight	kg	g
ρ = material density	kg/m ³	g/cm ³
t = filling time	s	s
S = shear rate	s ⁻¹	s ⁻¹
r = gate radius	m	mm
W = gate width	m	mm
H = Gate height	m	mm



The formulas clearly show that the shear rate is influenced greatly by the physical dimensions of the gate. In the case of circular aperture the shear rate is inversely proportional to the cube power of the radius and in the case of a rectangular it is inversely proportional to the width and square of the height. It is easy to see in the latter case that increasing the height of the gate will have a greater effect on the shear rate than increasing the width of the gate.

The gate design is more critical for amorphous materials and alloys such as PMMA (acrylic), ABS, ASA, polycarbonate, PC/ABS, PC/PBT etc. These materials have gradual melting properties and the molecular weight of the polymer chains is greater than semi-crystalline materials. The semi-crystalline materials have very low viscosity once they pass their melting points and flow more easily than amorphous materials therefore the amorphous materials are more shear sensitive.

The gate designs that are currently used can be separated into two groups based on the shear rates that they generate; High Shear Gates - Submarine, pin, cashew/cow-horn, etc.

Low Shear Gates - Tab, edge, fan, log, diaphragm, etc.

The high shear gates reach a size limit based on the frictional heat that is generated when the polymer chains are forced through the gate. If the shear rate is too high then thermal degradation of the polymer occurs. The chain scission that follows can result in discolouration of the material and may cause a loss of physical properties. As a guide the maximum shear rate of 60,000 sec⁻¹ is used in determining the minimum gate size.

The low shear gates on the other hand are more concerned with maintaining laminar flow as the material exits the gate because the turbulence will cause visual gate defects. In this case we want to maintain a laminar flow so a maximum shear rate of 10,000 sec⁻¹ is recommended.

At this point it must be stressed that these guidelines are for the minimum gate size that should be used and is a recommended starting point. The gate size may need to be increased to allow sufficient pack out of the cavity.

In rearranging the formulas to calculate the gate size;

High shear gates;

$$r = \sqrt[3]{0.0212 * Q}$$

Low shear gates;

$$H = \sqrt{0.6 * Q/W}$$

Make sure that the correct units are used; the formulas above will result in the radius and height in millimeters for W in millimeters.

If you have any questions please call; Ray Brown, Polymers International Australia 03 95877155

Next month – Feed Pegs and Hot Manifolds

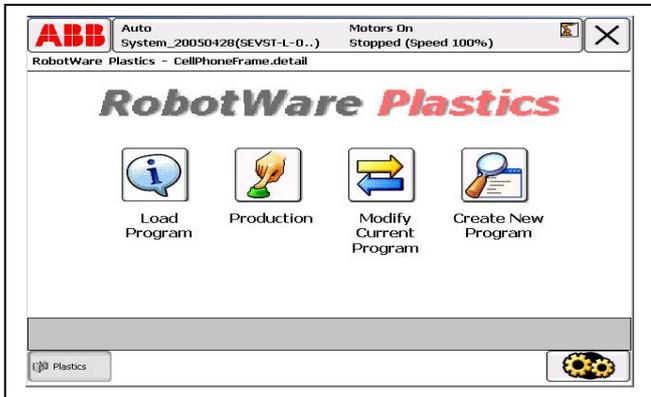
Press Release

26-07-2005

RobotWare Plastics – Mould

RobotWare Plastics – Mould is the new software product provided in robotic systems for plastics injection moulding applications from ABB, the leading power and automation technology group.

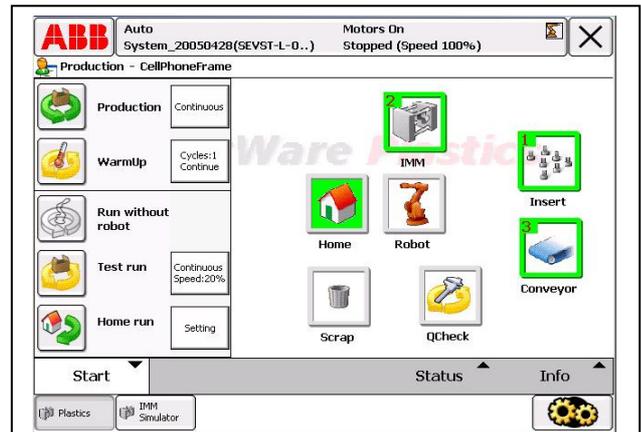
The software results in greater efficiency during installation, production set-up and optimizing of the robot cycle, no matter if you produce mobile telephones or car bumpers.



Andrew Davenport, Sales Manager for Robotic Packaging Systems says, “One of the benefits of this software is the Euromap interface. To make the installation of robot and injection moulding machines faster, ABB supports Euromap standards (12 or 67) and SPL.”

RobotWare Plastics – Mould is easy to program. “The graphic interface uses symbols to simplify programming thus operators do not need to know any programming language. The program wizard guides the operator through the program configuration.” Davenport said.

RobotWare Plastics – Mould is easy to operate. The operator starts the customized cycles typical for injection moulding (production, run machine without robot, machine warm-up, quality control etc.) by one button tap in the production window. The robot movement is displayed in real time by the active station and station status indicated by the green and red station icons on the color screen. Production statistics, signal status and error log are presented in a logical fashion. “The new RobotWare Plastics – Mould software through its’ ease of use gives companies a low start-up costs and fast changeovers. Furthermore, it is available on any ABB robot system using the IRC5 controller.” Davenport said.



For further information on ABB robotic systems in the plastics industry please contact Andrew Davenport on 03 8544 0030

ABB (www.abb.com) is a leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 103,000 people. ABB is a leading robot supplier with 125,000 industrial robots installed in all parts of the world.

Please note that ABB Australia does not pay for editorial. We do not influence editorial decisions and assume that the publication of media releases is at the discretion of the editor and will be based on relevance to the publication’s target audience.

Advertising & Contributions

Advertising is now available in the PIMA PRESS. Advertisements should be submitted as a WORD file Please contact Ralph Cable (Ph: 02 9387 6610 or pima@pima.asn.au) for more information.

Advertising rates are \$50 + GST for a quarter page.

We still need articles to be contributed. As PIMA PRESS is read by a large cross-section of the plastics industry articles do not need to be specific to Injection Moulding. Information on insurance, OH&S, raw materials, latest news on people and companies etc.

Trade Directory

Have you placed a FREE listing in the PIMA Trade Directory? You will find it attached to the PIMA website. Go to www.pima.asn.au and click on Trade Directory. If you have any problems contact Ralph Cable on (02) 9387 6610.

This directory has the potential to assist the industry with fast access to providers of goods and services to the industry but to improve this we need even more listings.



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Email to the Editor - Is Hemp the additive of the future?

Dear Editor,

I thought you may find this interesting.

<http://www.hempplastic.com/newSite/index.htm>

<http://www.hemphasis.net/0101.htm>

<http://www.hemphasis.net/0101shorts.htm#plastic>

I think hemp will have a lot of use in plastics in the future.

Hemp and sisal and flax are better strengtheners than fibreglass and even last year in the local plastics new magazine was an article that Krauss Maffei had made a machine to process plastics with flax and sisal fibres.

It was lighter, stronger and cheaper than using glass as the re-inforcement.

I thought these links maybe worthwhile distributing.

Regards

Tom Mitchell

Mitchell Industries Pty Ltd

p.s Hemp is not marijuana which is a subset of the species.

Hemp when grown next to marijuana is genetically dominant and will make any wild marijuana less potent with cross pollination.

- Hemp can be eaten (fantastic for essential fatty acids and protein), and no drug side effects.
- Hemp can be made into bio-diesel,
- Mixed with limestone it makes the equivalent of lightweight concrete panels.
- Hemp fibres are stronger than carbon fibre yarns.
- Stronger than paper for wood and you can get 2 crops per year.
- Better fibre for clothes than cotton.

Its amazing and given all our land it could properly managed totally revive our agricultural industries and rejuvenate inland town economies.

Important Diary Dates for 2005

Dinner Seminar	Tuesday	9/08/05
Plastics Pioneers Lunch	Thursday	25/08/05
Dinner Seminar & AGM	Tuesday	11/10/05
Plastics Pioneers Lunch	Thursday	24/11/05

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