



## Shortage of specialists in joining technology - Stocktaking, analysis, measures and prospects -

### 1. Stocktaking

DVS - Deutscher Verband für Schweißen und verwandte Verfahren has the tasks not only of analysing and following the latest trends and developments in welding and joining technology for its members but also, if possible, of developing solutions together with its members and implementing these.

The increasing shortage of specialists in companies concerned with welding and joining technology constitutes one particular development (many companies are dealing with this subject intensively at present) not only in Germany but also in Europe and especially in the United States of America. In order to obtain reliable statements for Germany, a survey about the situation in relation to the specialists was conducted at the end of 2007 amongst all the member companies of DVS from industry and the skilled trades. With a good return ratio of almost 25 % in the questionnaire operation, the results of this survey prove that the shortage of specialists in companies concerned with welding and joining technology is, in part, already serious now.

The essential results of this survey are summarised below:

- > Although **63 %** of the companies believe that the subject of the demographic change is very significant for their further development, the overwhelming majority of the companies do not yet have any universal strategy in order to react to this situation.
- > **75 %** of the surveyed companies indicated that they had great difficulties in finding specialists for their companies. Welders were named as the specialists sought most often (**53 %**), followed by welding engineers (**27 %**) and miscellaneous specialists (**34 %**) such as fitters, metalworkers etc.
- > The following were named as difficulties (multiple nominations were possible) with regard to the search for specialists:
  - **49 %** indicated that no specialists were available
  - **45 %** indicated that the available specialists were not sufficiently qualified
  - **22 %** indicated miscellaneous reasons
- > Merely **36 %** of the surveyed companies have taken precautions for specialists leaving in the near future and have already found successors. However, **54 %** of the companies do not yet have any successors in prospect for positions which are to become vacant and to be filled once again. Therefore, the shortage of specialists will probably be exacerbated in future.



- > **42 %** of the surveyed companies indicated that, because of the missing specialists, orders already cannot be carried out or only in part today - and to an increasing extent in future. As a consequence of this, the companies are already having to register turnover losses now.

Below, a few statements from the surveyed companies:

- A company concerned with mechanical, apparatus and structural steel engineering wrote: "As a large job fabricator with approx. 450 employees and an annual turnover of over Euro 50 million, we are training approx. 20 young people per year. This means that approx. 75 young people are always in our company for training purposes. We also offer a very large number of places for taster trainees, practical trainees and undergraduates in our company. Today, we are already trying to counteract the demographic problem in this way."
- A mechanical engineering company wrote: "We are placing great faith in our own training but we have the problem that good experts tend to be poached. Thus, we have the problem that we are putting a lot of money into the training of the specialists and then cannot benefit from it. By means of financial support for the training companies, it would certainly be possible to create incentives for more companies to offer training once again. As a company with 35 employees, we have eight trainees at the moment."

Of course, intensive training is the correct approach in order to react to the demographic change but we also received the following statement from a company concerned with structural steel engineering and metal construction:

- "We have wound up our business. The essential reasons for this were the competition from low-wage countries as well as the exacerbated shortage of specialists."

## 2. Analysis

Thus, intensive training alone, supplemented by the supraplant instruction of trainees, will not be sufficient in order to actively counteract the shortage of specialists in the companies concerned with joining technology. Therefore, the following additional deliberations are being discussed in DVS at present:

- Employees must be able to remain qualified for a longer time in their working lives!
- The immigration of specialists from abroad must be possible!



- Young people must be quickly won over for joining technology!
- More than has been the case until now, the promotion of the up-and-coming generation must be the priority task in the companies and organisations concerned with joining technology - also at DVS itself!
- That potential for specialists in joining technology which has not been used until now must be addressed in a targeted way!
- The image of joining technology must be improved enduringly!

A few approaches in order to react to the shortage of specialists in joining technology are summarised below. These are initial measures. Further measures must follow! The present working paper sees itself as a stimulus for all the members of DVS and for the public to discuss the consequences from the demographic development, to develop concrete solutions and to implement these.

### **3. Measures**

#### **How long can specialists be active in the company?**

If possible, employees must be active in the companies in a qualified capacity for a longer time and it must be possible to deploy them effectively. For joining technology, a distinction must certainly be made between executing personnel (e.g. welders) and planning or supervisory personnel (e.g. welding engineers) in this respect.

With regard to the former group, particular consideration must, of course, be given to the conditions relating to occupational medicine. In many cases, longer employment will only be possible by means of retraining and further education. However, such retraining or further education must be planned at an early stage and it must be started at an early stage - also parallel to the ongoing activity. A decline in the physical performance capacity normally cannot be compensated for by more experience. If possible, jobs must therefore be organised in a more varied form. It is recommended, already in the case of younger welders, to retain the activity by frequently changing the requirements and by means of further education. Then, welders will also subsequently be able to perform more demanding tasks which are more varied. Promotion programmes such as the WeGebAU 2008 programme of Bundesagentur für Arbeit offer interesting starting points for companies.

For employees from the latter group, there are, in so far as further education is continuous and commences at an early stage, very good possibilities of remaining in their active working lives for a longer time. According to studies, no age-induced



deterioration in performance can be observed amongst the employees particularly in highly qualified occupations.

### **Why not train specialists abroad and deploy these in Germany?**

Even today, training courses and further education measures are already being offered abroad, e.g. by GSI mbH. At the moment, the specialists are being trained for the local foreign employment market. It would be conceivable, of course taking account of political and societal aspects, to carry out training abroad in future not only for the foreign employment market but also for the German employment market. By means of these new available ranges of training and further education, qualified foreign specialists could be obtained for the national requirements.

### **Without welding, there's no such thing as a career and good potential earnings!**

The promotion of the training of the young up-and-coming specialists must be continued. For this purpose, the level of recognition of the occupational profiles in welding and joining technology must be raised and made more attractive. For the up-and-coming specialists, it must be clear what earnings and career opportunities are offered by occupations in welding and joining technology. In this respect, young people should be addressed in a form specific to the target group and via modern information systems.

In order to promote young people in a special way, it should be possible, in addition to the loans already available, to award grants which make the training easier. These grants should be fed by donations and should be given, above all, to students, trainees and other young people worthy of promotion.

Furthermore, there should be deliberations about offering welding and joining technology in addition to the "normal" training for technical occupations in future. The trainee should have the possibility of completing various training modules in joining technology including a final certificate in order to already possess special expert knowledge as a first-time employee.

### **Young welders, students' congress and more - Special offers for young specialists!**

The professional promotion of the up-and-coming generation is already being implemented increasingly by DVS and its establishments. One measure for promoting the up-and-coming generation which is already very successful now is the "Young Welders" competition which has just been concluded with great success in October 2007 and will be continued in 2009 with its national competition at the



international SCHWEISSEN & SCHNEIDEN trade fair in September 2009. With this competition, trainees especially in skilled trade occupations are addressed for the activity of welding.

Furthermore, it is indispensable to actively promote, in particular, the group of the students, the young scientists and the young engineers as well. One first successful measure was a students' meeting which was held with 70 students on the occasion of THE JOINING SPECIALISTS conference and the Annual Welding Conference in Basel in 2007. These initial starting points are now to be followed further in a consistent way. On the occasion of the next THE JOINING SPECIALISTS conference and Annual Welding Conference in Dresden in 2008, a congress of students, young scientists and young engineers will take place for the first time. The congress will be actively prepared and staged by the students. Because only by actively incorporating students and young scientists and engineers can the up-and-coming generation be won over for welding and joining technology. With regard to all the offers to young specialists, there must be a good balance between information, entertainment and their own responsibility. Consistent promotion of the up-and-coming generation for joining technology should keep an eye not only on the specialists active in the skilled trades but also on the academically trained specialists.

### **Women can weld too!**

Women are still substantially underrepresented in the occupations concerned with welding technology and joining technology. However, this great potential for specialists must not remain unused. As a first step, a special training course for women is therefore being offered by GSI mbH this year. The participants will be accompanied by DVS during their training and their subsequent further careers. The women's experience and impressions resulting from this should be used in order to win over more women for occupations in welding and joining technology. Further measures will follow.

In addition to the training course specified above, a course relating to non-destructive testing is being offered especially for female employees at Schweißtechnische Lehr- und Versuchsanstalt Hannover, Niederlassung der GSI mbH.

### **Joining is cool, clean and clever!**

Occupations in welding and joining technology still unjustifiably have the reputation of being "dusty, dirty and dangerous". DVS will resolutely counteract this image with the campaign entitled "Joining: cool, clean and clever".

The Year of Joining Technology which bears this headline is starting in September 2008 with "THE JOINING SPECIALISTS" conference in Dresden. From March to June 2009, not only the regional "Young Welders" competitions but also innovations



in joining technology will be presented by events at individual regional establishments and will be discussed with students and young engineers and scientists. The results of the study relating to the "value added and jobs created by joining technology in Germany and Europe" will be presented in August 2009. The Year of Joining Technology will climax in September 2009 with the international SCHWEISSEN & SCHNEIDEN trade fair in Essen.

#### **4. Prospects**

The demographic development in Germany is well-known. The consequences of this for the companies include the fact that, already as from 2010 (i.e. in just a couple of years), the supply of specialists will drop substantially in part. Even high immigration, should this actually happen, cannot stop this trend. The causes of this trend can no longer be reversed. If the society becomes ever older, the gainfully employed people cannot become ever younger. The consequences of this are not only a regionally effective shortage of specialists but also ageing workforces. The handling of ageing workforces is thus a central challenge for the years to come. Ageing workforces are a particularly important subject precisely for small and medium-sized enterprises.

Companies cannot be successful with young employees alone. It is well-known that performance and innovation capacity have less to do with biological age and much more to do with whether people are subjected to promoting or inhibiting conditions in the course of their individual lives and occupations. The fresh knowledge of the young people and the experience-based knowledge of the older people must be brought together. Only a few companies are preparing for the ageing of their workforces. It is necessary to elaborate concrete solutions for companies in order to remain innovative and capable on the market with their older workforces.

The shortage of specialists in companies concerned with welding and joining technology is threatening. Companies are having difficulties in obtaining suitable specialists and in retaining these. Companies are thus losing their economic impetus and the shortage of specialists is already diminishing the employment build-up in Germany.

**Creative solutions are in demand: Send us your comments and suggestions!**

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