Fusion

SAIW 1948 – 2018

Newsletter of the Southern African Institute of Welding

May 2018

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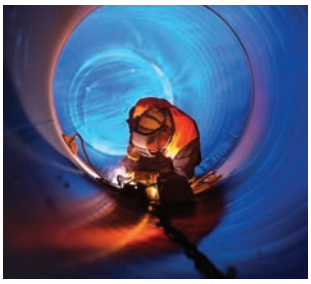

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SAIW 70 Years on …
…a word from the President, Morris Maroga

Looking back and thinking about our organization, the Southern African Institute of Welding (SAIW), I was struck by the fact that, amongst all the things that happened in the year 1948, it was the year that the SAIW was founded and the year the Nationalist Apartheid government came to power.

What a momentous year 1948 was in the history of our country! South Africans were led down a path of hatred and divisiveness by a government that was to become reviled the world over. Its policy of discrimination and deprivation caused untold harm which will take generations to fully recover from.

Yet, even from those dark times, organisations arose that became key to the empowerment of millions of South Africans – regardless of race, colour or creed – through education and skills training. One such organisation was the SAIW, which has become the leading welding training company in Africa having over the years trained thousands of people from all over the continent with most having been able to get a job either in their home country or abroad. This is a magnificent achievement of which I am extremely proud.

SAIW President Morris Maroga

It is obviously true that, like all South African educational – and other – institutions, the SAIW needed to become a relevant post-apartheid organisation through the requisite transformation. In this regard, while I acknowledge there is still work to be done, I am pleased to be able to report that our management, teaching staff and students today represent the full gamut of South African society and are all dedicated to making a difference in South Africa by providing both our youth and the more experienced personnel in our industry an opportunity to get ahead in life.

One of the most pleasing factors of the SAIW 70 years on is how our influence and involvement on our continent has grown beyond recognition. A good example of this is an initiative where, together with the Nigerian Institute of Welding, the SAIW is building The Welding Federation of Africa (TWFA) to ensure the standards of welding are at globally accepted levels throughout the African continent.

Regarding Africa and beyond, the SAIW recently became part of a powerful international welding alliance – The International Alliance for Skills Development Belt and Road including BRICS – which aims at incorporating all the countries in this region in a cooperative initiative to provide welding training to the youth. Some of the countries that will be working closely together in the alliance are: South Africa, China, Russia, India, Ukraine, Singapore, Philippines, Cameroon, Ghana, Nigeria and others.

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SAIW 70 Years on …
…a word from the President, Morris Maroga

Continued from page 1

From a global perspective the SAIW was, from its inception, part of the international scene having been a founder member of the International Institute of Welding (IIW) in 1948. Our relationship with the world's most important welding body has never faltered and in 2003 we became an Authorised National Body (ANB) of the IIW offering the full range of IIW qualifications – Engineer, Technologist, Specialist, Practitioner, Welder and Inspector.

Of course, accreditation is paramount to our ability to provide our graduates with the best possible education and, apart from IIW recognition, we are also accredited by the Quality Council for Trades and Occupations (QCTO) as per the South African National Artisan Welder programme that has recently been introduced. We believe that we are the first organisation to be accredited to this programme and the SAIW will continue to gain accreditations to QCTO qualifications and programmes as they become available. The South African National Artisan Welder programme has been developed such that it is aligned to our IIW International Welder programme to ensure compatibility and recognition with this internationally recognised training programme for the development of South African citizens.

Also, SAIW training programmes and personnel certification programmes are recognised by the Department of Labour (DOL) for registration of certified Pressure Equipment Inspectors for manufacture, repair and in-service inspection.

In the interest of fairness and good governance, all SAIW's qualification and certification programmes are administered by a separate not-for-profit company, SAIW Certification, and all the examination and certification activities for the various SAIW programmes are conducted by this company, which is accredited by the South African National Accreditation System (SANAS) for personnel certification to the international standard for personnel certification ISO 17024.

We live in challenging times economically and I receive many letters asking about the prices of the courses as many people have difficulty in raising the funds needed. This can be a problem, no doubt! But it must be remembered that it is incumbent on the SAIW to adhere to the international standards to which we are accredited. This requires the best possible teachers and equipment and all that costs money, which we have to raise, firstly, through privately-paying students and, secondly, through selling corporate and private memberships. The bottom line is that, being a not-for-profit company, remaining financially viable is always a challenge for the SAIW.

I am pleased to say that we are doing our best to help as many as possible of those who genuinely cannot afford an SAIW education. One of our important initiatives is the SAIW Foundation, which was created in 2016. This is a public benefit organisation which provides training to disadvantaged individuals in a wide range of areas including welding and inspection, the training of trainers for welding and related technologies and more. In the first two years the SAIW Foundation had more than 10 graduates successfully complete internationally recognised programmes.

So, in the 70 years of its existence, the SAIW has become an organisation which is known globally for its quality. Wherever one goes in the world the SAIW is known by those in the welding and related industries. Locally we are real hedge against unemployment for those who successfully complete our programmes. This is indeed a feather our cap!

I want to thank all those who have contributed in some way to the success of this great institution of learning and I look forward to the challenging and exciting years ahead.

Morris Maroga

The Welding Federation of Africa …
… an exciting initiative

THE WELDING FEDERATION OF AFRICA

The Southern African Institute of Welding (SAIW) and the Nigerian Institute of Welding (NIW), in their quest to ensure world class quality and adherence to global standards across the African continent have launched the Welding Federation of Africa (TWFA)

According to SAIW executive director, Sean Blake, the main objective of the TWFA is to promote International Institute of Welding (IIW) policies, systems and programs in Welding Technology in Africa and to work towards regional and international harmonization of personnel training, examination and certification systems in Africa.

He adds that promoting collaboration between African countries in all matters of common interest relating to the development and use of welding technology is also an important objective.

Continued on page 5

Signing the TWFA Constitution

In the SPOTLIGHT

THULANI MNGOMEZULU

IN OUR SERIES OF PROFILES ON PEOPLE WHO HAVE MADE A DIFFERENCE TO THE WELDING/ NDT INDUSTRY AND TO THE SAIW, WE TALK TO **THULANI MNGOMEZULU**, TECHNICAL MANAGER AT LINCOLN ELECTRIC SOUTH AFRICA. BORN IN EMPANGENI, KZN, ON MAY 1 1982, THULANI, AFTER MATRICULATING AT TISAND TECHNICAL HIGH SCHOOL IN 1999 WENT TO THE DURBAN UNIVERSITY OF TECHNOLOGY WHERE HE COMPLETED HIS MECHANICAL ENGINEERING NATIONAL DIPLOMA IN 2004. THEREAFTER, IN 2012, HE COMPLETED HIS INTERNATIONAL WELDING TECHNOLOGIST QUALIFICATION AT THE SAIW.

THULANI IS MARRIED TO NDO AND THEY HAVE A 4-YEAR OLD DAUGHTER TESSA. APART FROM DAY WORK THULANI LOVES MUSIC AND, TOGETHER WITH NDO, HE DOES MUSIC PRODUCTION THROUGH A RECORD LABEL THEY MANAGE.

***F:** Tell us a little about your career path.*

T: My first official job was as a Mechanical Technician at Sasol Synfuels in Secunda back in 2005. After about two years I thought I needed a change, and joined Engen Refinery in Wentworth, Durban. I worked there as an Area Inspector while also enrolling for a few welding related courses.

***F:** You worked at the SAIW at some time, didn't you?*

T: Yes, in 2011 I got an opportunity to join the SAIW as a Welding Consultant. This appointment was key in developing myself further in the welding engineering space. Joining Lincoln Electric – an internationally acclaimed company - was obviously yet another major opportunity for me in terms of growth and development.

***F:** Specifically, when did you start at Lincoln Electric and describe what you do there*

T: I joined Lincoln Electric in June 2016 as a Technical Manager for the South African region.

My primary responsibilities are: managing our Welding Technology Centre situated at our Midrand head office; organizing technical seminars for the local industry; organizing and giving training to our customers on a range of solutions and various welding topics; provision of technical support to customers and promoting welding education solutions to training institutions.

***F:** Do you enjoy your job at Lincoln?*

T: Absolutely! I find my work exciting and, perhaps most importantly, it has been a fulfilling experience to be able to contribute towards the advancement of welding in the construction industry and others both locally and in the region.

***F:** What do you think of the standard of welding in general in South Africa?*

T: South Africa has very high standards, especially compared to our neighbours in the Southern African region. But we still have a long way to go if we want to be able to rely predominantly on local welding skills for major construction and other projects in future. Talent nurturing should begin earlier, training centres need to be better organised around the country and assessment methods need to be standardized and monitored.

***F:** Could you comment on the role that the SAIW is playing in maintaining welding standards in SA*

The role that the SAIW has played over the years has been an important one. It is important for the SAIW to continue setting the tone and championing the development of welding in the region, in all respects including in continuing to lead the implementation of the points I mention in the previous question.

***F:** What do you feel about the prospects for the welding and related industries in general in South Africa in the long term.*

T: It is essential that South Africa urgently develops new infrastructure and accelerates upgrades and maintenance programmes with existing infrastructure especially in the in transport, power generation sectors and others. There is no doubt that welding expertise features high on the list of critical skills required for the success of these projects. Consistent investment in skills development is of outmost importance to give birth to a new breed of welders, quality inspectors and welding engineers and others to take over the baton from the retiring generation.

***F:** Any comments on the macro economic situation in South Africa and globally and how this affects business in general and the local welding/NDT/steel industry in particular.*

T: While there is little we can do about the political and economic environment in general, we must ensure that our own industry-house is in good order with world class standards to meet the future head-on. We must not remain stagnant and we especially need to be conversant with new technologies that are continuously evolving. It is also our responsibility to ensure that more people, especially younger people, are allowed in and empowered to positively contribute towards the economy through our great industry, which offers so much in terms of employment.

***F:** When you say that young people should be "allowed in" could you elaborate?*

T: Our industry is not exempt from the social ills that continue to trouble the lives of ordinary South Africans on a daily basis. Issues of inequality, racial and gender discrimination remain prevalent in our workshops, offices and boardrooms throughout our industry. While these are difficult issues to confront, they will not just vanish. We all need to assume a leadership role in an effort to alleviate these ills to give everyone a chance especially the youth of this country. ■

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Radiography Part 3

The previous two articles dealt with what may be termed conventional radiographic techniques employing either gamma- or X-ray sources and photographic film. The development of electronics, in particular the increase in computing power over the last 20 or 30 years, has enabled what were laboratory based radiographic methods – real time radiography and computerised tomography (the "CT" scan that is perhaps more familiar in a medical context) -to be implemented both on the shop floor and on site.

The fundamental difference between film radiography and real time radiography is the way in which the radiographic image is handled – the image in real time radiography being produced electronically rather than on film. This means that the image can be viewed, as the name suggests, in real time – an instant result rather than the significant time delay that occurs when radiographic film is carried to a darkroom, developed and dried before viewing can take place. The real time image is viewed on a monitor screen and the results can be stored and transmitted electronically. An additional difference from film radiography is that the image is a positive rather than the negative image of film radiography, denser materials transmitting less radiation and therefore appearing darker and hence voids, slag entrapment, porosity etc show as light areas in a welded joint.

The early real time radiographic equipments used a fluorescent screen which interacted with the x-ray radiation to produce an image that was then passed through an image intensifier. This enabled a video film to be produced and the image to be displayed on a monitor screen in real time. Developments in computing power now enable the image to be digitised and enhanced and then analysed. Comparison with a set of pre-programmed parameters e.g. an acceptance standard, enable the process of inspection and acceptance/rejection to be automated.

FLUORESCENT SCREENS TO A GREAT EXTENT HAVE BEEN REPLACED BY FLAT OR CURVED SCREEN PHOTODIODE ARRAYS BASED ON SI SENSORS WITH OTHER ALLOYS E.G. PBI AND HGI, BEING RESEARCHED IN ORDER TO IMPROVE FURTHER THE SENSITIVITY OF THE EXAMINATION METHOD. PHOTO-CONDUCTORS SUCH AS SELENIUM OR CADMIUM TELLURIDE ARE ALSO USED IN WHAT IS TERMED "DIRECT CONVERSION" TO GIVE A SHARPER IMAGE THAN THAT FROM THE PHOTO-DIODE PANELS.

The X-ray source has been progressively reduced in size such that the focal spot is now as small as 2 or 3 microns and with micro-focus units to as small as 0.1mm, again resulting in improved image quality. These features also enable the image to be enlarged with magnifications of over 1000 times being available with little or no loss in image quality.

Real time radiography is employed in applications where a rapid in-production inspection is required. It has found extensive use in the electronics industry for the in-line examination of circuit boards, in the aerospace and automotive industries for the examination of castings and, often using gamma ray sources, in the process industry for the detection of corrosion. By moving the component between the X-ray source and the detector screen seam welded tube and tube butt welds can be inspected.

Robust, portable manipulating equipment is commercially available for the on-site examination of process pipework and cross-country pipelines. Orbiting heads carrying both an X-ray source and, diametrically opposed, the detection screen, are capable of radiographing pipe butt welds with a substantial reduction in time compared with a conventional film radiograph, particularly where multiple exposures are required to give full coverage of the weld. The head rotates around the pipe to give a DWSI (double wall single image) with very high resolution and good contrast. Internal crawlers equipped with a rotating X-ray head and an external detector can be used to provide a SWSI (single wall single image) radiograph. The examination results are instantly available for display on a laptop screen, the images being stored on disc or memory stick. No film processing or darkroom are required resulting in a further reduction in cost. A typical commercially available unit is illustrated in Fig 1.

Fig 1. Portable Real Time Radiographic unit for pipeline inspection. Courtesy Shaw Pipeline Services.

Computed tomography (CT) is a process that uses the techniques of real time radiography to produce three dimensional, rather than two dimensional, images of components. Both the external surfaces and the internal structures of an item can be imaged. All materials – metals, plastics, composites, rocks, fossils, the human body – can be scanned, making CT scanning a very powerful investigatory and diagnostic tool. Industrial CT scanning is used in many applications for the internal inspection of components, metrology, and for reverse engineering.

The earliest CT units utilised an X-ray beam collimated to create a fan shaped beam of radiation which is scanned across the item, the beam being collected at the detector screen. The signal is then manipulated by a powerful software programme, enabling a 3D image to be created. The technique was further improved when the fan shaped beam was replaced by a cone shaped beam. Rotating the part beneath the beam enables a sequence of 2D images to be obtained, generally between 360 (one image per degree) to 3,600 images, depending on the desired resolution, with scanning of the object being completed in as little as a few seconds. The images are subsequently combined using complex software to provide a 3D image of the item, the image containing all of the information relating to both the external and internal surfaces of the component. A typical commercially available 225Kv microfocus unit is shown in Fig. 2.

Fig. 2 CT scanning equipment showing control console, viewing screen and radiation proofed cabinet containing the X-ray source, turntable and detector screen. Courtesy Nikon Metrology UK Ltd.

The 3D image can be manipulated to provide slices through the object and these slices can be rotated so that the precise size and position of internal features can be accurately determined. Assembly or machining errors can be identified. Similarly, flaws within a welded joint or casting can be categorised and the size and position of inclusions, lack of fusion, cracks etc accurately measured, thus allowing an accurate Engineering Critical Assessment (ECA) to be carried out. The method can also be used to examine non-metallics – a couple of examples being the inspection of composite wind turbine blades for delaminations and the positioning of the cores in lost wax casting. The technique can also be used for accurate measurement of the internal and external surfaces of a component, the image being capable of being overlaid on a CAD drawing of the object. This is particularly useful where parts are provided by a number of suppliers to a manufacturer for subsequent assembly. The items can be checked against a CAD drawing before despatch and, if required, the manufacturer instantly provided with the results, thus reducing the risk of being supplied with non-fitting parts.

Unfortunately, unlike real time radiography that has moved from being a non-portable method to construction site use, CT scanning requires the use of a protective enclosure containing the X-ray source, the detector screen and a precision turntable. The method is currently therefore confined to within a factory or laboratory environment.

The final radiographic method is neutron radiography. Neutrons, like X- and gamma-radiation, will pass through solid materials and can be used to produce an image on photographic film or to react with a detector screen. Neutrons, however, unlike X- and gamma radiation, are strongly affected and absorbed by certain elements such as hydrogen, carbon and boron but to a far lesser extent by iron, nickel and aluminium. Neutron radiography is therefore useful in detecting the presence of material containing hydrogen or hydrocarbons – this includes corrosion products, water, explosives, oil and plastics. Composite items e.g. a combination of metal and plastic, can be non-destructively examined for assembly faults or manufacturing defects; explosive ordnance can be examined for complete filling and fluid flow analysis can be carried out in real time – oil flow in vehicle engines, fluid flow in piping systems.

Neutron radiography can be used with conventional film with real time techniques and for CT scanning. The neutrons are produced by particle accelerators or, with poorer image definition, from certain isotopes, primarily californium252. The method is currently not portable but development work is in progress to address this limitation.

This article was written by Gene Mathers.

The Welding Federation of Africa …

… an exciting initiative

Continued from page 2

THE WELDING FEDERATION OF AFRICA

"Working together will ensure that Africa reaches its full potential in becoming a respected and sought after region in the welding technology space globally," he says.

Some other goals of the TWFA include:

- Organising African regional conferences on research and the application of welding technology at intervals of a maximum of four years.
- To encourage and participate in regional research and development activities.
- To encourage the formation of welding societies, including national welding societies in countries where such organisations do not exist.
- To provide a platform for the organized exchange of scientific and technical information and to encourage and sustain the transfer of knowledge and technology through adaptive and innovative research in Africa.
- Establish a system of honorary awards to recognize exceptional contributions made to Welding in Africa by organisations and individuals.
- To be the regional representative for Africa in the international welding community.

"Our hope is that the TWFA will help Africa take its rightful place as a leading player in the welding technology world. We have the skills and the drive and I see no reason why this should not happen very quickly," Blake says.

Focus on Standards

ISO 15614-1 Second edition 2017-06 – Part 2 in our series

Specification and qualification of welding procedures for metallic materials – Welding procedure test – Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys

The new version of the standard was published during June 2017 as ISO 15614-1:2017 and is in process of being adopted by the SABS as SANS 15614-1:2017.

The 2017 version differs significantly from the previous version in format, with some major changes in technical content. In the last Fusion (Feb 2018) we presented some of the most significant differences between the 2017 and the previous version of the standard, explaining the rationale behind the changes and providing some practical guidance on how they are to be dealt with. This article (Part 2 in our series) focuses on **Clause 8, Range of Qualification**, of the standard and highlights some of the major differences between the current and previous version of the standard.

Clause 8 Range of Qualification

8.2 Related to the manufacturer

The main difference relates to the wording of the clause and now states that welding is valid by a manufacturer in workshops or sites when the manufacturer who performed the welding procedure test retains complete responsibility for all welding carried out on it.

8.3 Related to the parent material

8.3.1 Parent material grouping

8.3.1.1 General

Whereas the previous version referred to CR ISO 15608, the current version refers to ISO/TR 15608. Also, the following documents are listed: ISO/TR 20172, ISO/TR 20173 and ISO/TR 20174. When the parent material to be tested is listed in these documents, the group number assigned is to be used instead of ISO/TR 15608.

8.3.1.2 Steels

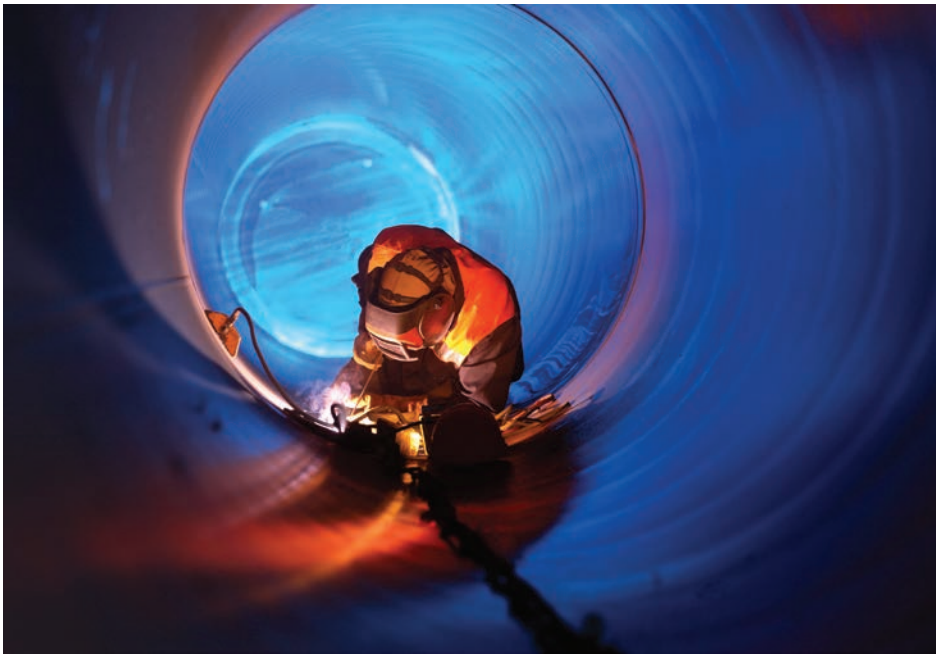
The range of qualification, now listed in Table 5 (Table 3 for previous edition) is much more comprehensive.

8.3.1.3 Nickel Alloys

The range of qualification, now listed in Table 6 (Table 4 for previous edition) is much more comprehensive.

8.3.1.4 Dissimilar joints between steels and nickel alloys

The levels of dissimilar combinations are much more comprehensive than in the previous edition as well as introducing combinations of qualification for nickel alloys to Group 8 and 11 steels.



8.3.2 Material thickness

8.3.2.2 Range of qualification for butt joints, T-joints, branch connections and fillet welds

The main difference is the separate treatment of range of qualified thickness according levels 1 and 2. Also for butt welds the deposited weld thickness (s) is introduced and treated separately from the material thickness (t). Ranges of approval for the thickness of the test piece have changed with respect to the previous version of the standard. The current qualification range for butt welds is listed in Table 7 – it was listed in Table 5 for the previous version.

For fillet welds, range of qualification is only listed for level 2 in Table 8 (previous version Table 6), as for level 1 “Any butt weld or fillet weld tests qualify all fillet sizes and material thickness”.

8.3.3 Diameter of pipes and branch connections

A significant change in diameter qualified, for level 2, is found in Table 9 (Table 7 of previous edition). It states “Range is ≥ 0.5D for all diameters”. For level 1 the diameter is not an essential variable.

8.4 Common to all welding procedures

8.4.2 Welding positions

The wording for this sub-clause has been revised. In essence the principles are the same as the previous edition except that two test pieces are required except when a fixed pipe is used for the qualification to satisfy both hardness and impact requirements. Also, additional examples of high and low heat input positions are provided.

8.4.3 Type of joint/weld

New clauses have been added of which two of the most significant for level 2 qualification for new PQR's are

- Build-up qualified by butt weld
- Buttering shall be performed by a separate test piece in combination with the butt weld (to allow mechanical testing).

These two clauses make it a requirement to qualify a welding procedure, by means of a butt weld test, when repair welding by means of build-up, with or without a buttering layer, is considered by a manufacturer.

8.4.7 Heat input (arc energy)

Heat input (HI) can be replaced by the term 'arc energy'. Whereas the guideline for determining HI was provided by EN 1011-1, arc energy is to be determined by following ISO/TR 18491 Welding and allied processes – Guidelines for measurement of welding energies. ±25% qualified range stays the same as per the previous edition.

8.4.8 Preheat temperature

The single biggest change is the introduction of lowering of the preheat temperature by no more than 50°C, when certain conditions are satisfied (ISO/TR 17671-2: Welding – Recommendations for welding of metallic materials – Part 2: Arc welding of ferritic steels.

8.4.9 Interpass temperature

An increase of no more than 50°C in the maximum interpass temperature is allowed. For level 2 qualification this is not applicable to welding procedure test for material groups 8, 10 and 41 to 48, as the upper limit of the qualification is still the highest interpass temperature that is permitted.

8.4.11 Heat-treatment

Four different heat-treatment conditions have been added. For each of the conditions, a separate procedure qualification is required. This is to differentiate between heat-treatments that might be utilised by the manufacturer that will lead to significant changes on the properties of the welded joint, ie. Stress relieving, Normalizing and Quench and Tempering.

8.5 Specific to process

8.5.2 Gas-shielded metal arc welding (process 13)

8.5.2.3 Transfer mode

8.5.2.3.1 General

A new clause has been added that handles the transfer mode. Pulsed mode has also been added leading to qualification using spray, pulse or globular transfer qualifies spray, pulse and globular transfer.

8.5.2.3.2, 8.5.2.3.3 and 8.5.2.3.4 – Waveform controlled welding

These three sub-clauses have been added to define ranges of approval when using or not using waveform control, with or with pulsed mode.

The sections above are by no means the only changes that came into effect with the use of the new standard, but is an attempt to identify some of the biggest changes to this 2017 version of ISO 15614-1.

FOR MORE INFORMATION PLEASE CONTACT RIAAN LOOTS ON riaan.loots@saiw.co.za

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Online Student Management System

SAIW's quest to use technology to make life easier

Register for a Course

They say change is as good as a holiday, well in that case, look forward to an extended 2018 holiday!

As part of SAIW's 70 years anniversary, both SAIW and SAIW Certification have decided to embrace the digital age and implement an Online Student Management system (OSMS). This forms part of a long-term strategy to provide an innovative, contemporary, paperless, industry-focussed Training (SAIW) and Qualification / Certification (SAIW Certification) digital platform.

Phase 1 of this ambitious long-term project, kicked off in April 2018 with an invitation to all current students to log onto the system and confirm their personal information and upload any pertinent information such as ID's, secondary and tertiary qualifications, CV's, photographs etc. that might be required during course bookings; students are prompted by the system as to which records to upload when.

Initial access for students already with student numbers requires that you enter your student number as username (top block) followed by your ID number (second block) which is your default password; no spaces to be used in either of these parameters.

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What it's all about!

To be at an SAIW Certification Awards Dinner is always an emotional experience. One is witness to people young and old changing their lives for the better. It is the ultimate justification of the effort that all the SAIW and SAIW Certification staff members and stakeholders make in order to ensure the best possible results for our most important assets – our students! Well done to you all.

INTERNATIONAL WELDING INSPECTION PERSONNEL – BASIC

INTERNATIONAL WELDING INSPECTOR STANDARD & SEN

INTERNATIONAL WELDING INSPECTOR STANDARD & INTERNATIONAL WELDING TECHNOLOGIST

IOR WELDING INSPECTOR LEVEL 2

SENIOR WELDING INSPECTOR LEVEL 2

INTERNATIONAL WELDING SPECIALIST & SENIOR WELDING INSPECTOR LEVEL 2

WELDING INSPECTOR LEVEL 1

Qualification and Certification

CONGRATULATIONS TO THE PEOPLE BELOW WHO RECENTLY ACHIEVED QUALIFICATION AND CERTIFICATION

COMPETENT PERSON- PRESSURE VESSEL

Chetty JR
Kilian B
Nkosi LL
Thorpe DB
Van Tonder GR

Competent Person Boilers

Bopape BC
Rabie JP

Inspector of Pressure Equipment

Janse Van Vuuren RP
Swart P

MT 1

Bezuidenhout JJ
Fortune AC
Geldenhuys A
Haarhoff PJ
Hlatshwayo NP
Khoza LT
Khumalo VX
Mabunda TJ
Makongoza K
Ngwenya NZ
Nyawo NN
Sebatjana S
Shandu V
Simelane MT
Zungu WS

MT 2

Baccus A
Birkholtz J
Cain KC
Dindikazi SC
Duwe MZ
Lefeea TG
Losper MR
Mahlo VT
Mahoungou SF
Mantsoe KP
Matshela KT
Mattwasa SE
Maughan DG
Motebejane MWA
Motsaalore KP
Msimang SNS
Naidu LS
Rakolota LL
Seabi JT
Vetter TVH

PT 1

Adeyemo AO
Birkholtz J
Dindikazi SC
Duma MG
Khoza LT
Madlala Z
Maramanyane D
Mota DK
Shandu VV
Zungu WS

PT 2

Cain KC
Duwe MZ
Esterhuizen W
Esterhuizen W
Lefeea TG
Losper MR
Mantsoe KP
Maseko NB
Maughan DG
Mjwara BP
Mkhwanazi BIM
Rakolota LL
Vetter TVH

UT1

Maramanyane D
Mlotshwa MF
Mocumi L

UT 2

De Vries JF
Jiyane KD
Keys EP
Mnisi T
Nxumalo TB
Randera S
Setlhaleho KI

UT WALL THICKNESS

Duwe MZ
Khombelayo LE
Lukhele NXF
Mabula BM
Mahlangu A
Maunatlala ML
Mofokeng TK
Nongeawula I
Pitso OD
Sema LS
Sunduzwayo MY
Thafeli B
Valashiya XN

PAINTING INSPECTORS

Botha A
Geel BN
Groenewald LJ
Janse Van Rensburg PH
Mafunda NF
Morkel-Brink I
Ndhlovu S
Ndlovu C
Nghondzweni NE
Pillay FN
Roodt R
Trichardt N
Tseke CM

ASME

Brierly S
Durman MB
Manikkam NJ
Roman PAS
Van Niekerk C

IWIP- BASICS

Akaloo N
Auret IAH
Bakoura M
Bela L
Botha J
Bowler JE
Carrol CT
Choenyane SS
Chuma SM
De Wet WC
Dladla ZI
Enslin JHM
Erasmus NME
Follwell T
Garnier CP
Govender AS
Govender S
Gregory KJ
Hattingh T
Hlatswayo NC
James BQ
Jasmin BL
Jonker K
Jordaan M
Kawara N
Kekana MR
Khumalo TT
Le Roux GJ
Lepheana KE
Maabane MM
Maharaj I
Mahlare MLM
Mahlaula NR
Malinga MG
Maloyi L
Marais SW
Maselesele M
Mathebula RJ
Mavukane FE
Mgidi ES
Mgwenya NL
Mkhabela BC
Mokoena MM
Mokoena S
Mokoena TB
Moloi GL
Mota MA
Motsoeneng MA
Mpebe KJB
Msiza JJ
Mthombeni TA
Muller HF
Muller S
Myeni NS
Namwinga T
Ndwamato K
Ngutshana MT
Ngwane TT
Nkabinde SSH
Nzotho MB
Otto V
Padayachee R
Perumal Y
Pienaar L
Pillay N
Pizani W
Plaatjies EM
Ramdass DR
Ramjas N
Rapulana MA
Ronne TR
Ruba S
Sibiya NN
Singh P
Skhosana BI
Smuts CJJ
Steyn AJ
Strydom C
Tanui AK
Thulo TG
Thwala JN
Toerien SM
Tomlinson MG
Tshabalala MN
Tshabalala MT
Tshabalala WBS
Tsotetsi NJ
Vahed AI
Van Der Merwe LO
Van Rooyen OJ
Van Staden FJ
Vezasie MA
Werner SRL

Basics of Welding Control

Botha AW
Castens L
Ceres RN
Dladlama MMS
Hadebe NN
Hleko KP
Jardim R
Kekana RK
Khohlooa TA
Knoesen J
Kruger WJ
Leoto MA
Letsela NT
Mahlangu TS
Mampuru K
Masinga NN
Mbhalati G
Mohan S
Msiya FS
Mushwana XR
Naicker KN
Raffan RM
Reddy KS
Roodt FD
Simelane MMM
Stuit TS
Tshabalala WBS
Tsotetsi RA
Van Rensburg WH
Van Schalkwyk SD
Voget T

RT 1

Dupper M
Mashigo PJB
Mulaudzi E
Ntuli ZE

RT 2

Ramphele CS
Visual Testing
Birkholtz J
Dindikazi SC
Du Plooy KO
Duma MG
Haarhoff JC
Hlatshwayo NP
Khumalo VX
Madlala Z
Motsaloore KP
Msimang SNS
Nagel R
Ngwenya NZ
Nyawo NN
Shandu VV
Simelane MT
Zungu WS

RT Interpreters

Van Den Berg TJ

Online Student Management System

SAIW's quest to use technology to make life easier *Continued from page 7*

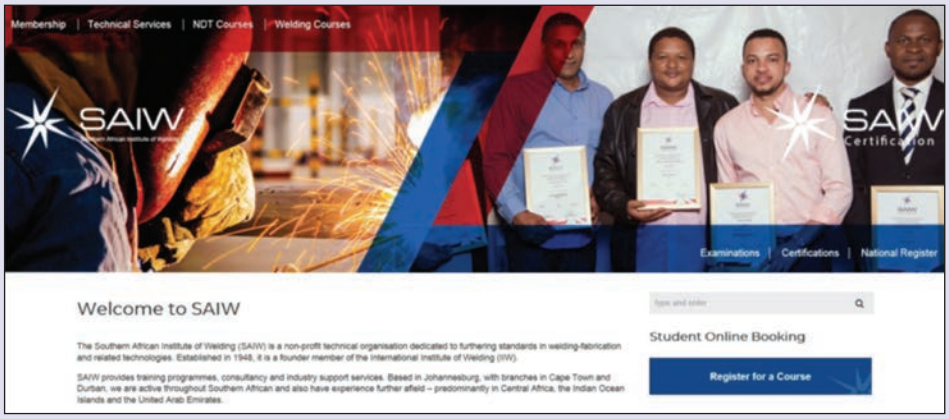
New students are encouraged to register via the quick registration process which is easy to follow; just keep your cell phone or email account close-by since confirmation messages and links requiring validation shall be issued as you make progress.

Tired of losing records, last minute rush to complete your experience logbook, not receiving your confirmation, proof of training record or examination results?

The OSMS intends to resolve all of these issues by:

1) Placing the student in control of the primary communication channel i.e. the student shall be able to modify his / her email address, cell phone number or postal address to ensure that communication, in this sequence, is possible and maintained. Therefore communication shall primarily be limited to emails and SMS's, with pdf documents issued via emails and SMS messages referring the student to the relevant email, sent at pre-determined intervals following completion of the various processes.

2) The student portal shall serve as your record repository meaning that not only the uploaded information, but also the deliverables produced as part of the training, examination or certification shall be stored in this portal, indefinitely. Access to any of the documents at any time shall therefore be possible, should the individual have the relevant student number, password or ID number. So it is critical that individuals record these credentials when initially registering as students. Historic records, prior to 2018, shall initially be entered as part of the recertification process, with records of non-certified courses initially only available upon request.



3) Deliverables and delivery time is strictly controlled and managed via this system and any delays are immediately communicated to the relevant manager to address the issue. Issue of training documents, examination results and certification should therefore be predetermined and monitored.

4) Later phases shall introduce surveillance activities which include online logbooks that should be completed at regular intervals, vision acuity records that have to be updated annually and even changes in personal detail. Students shall receive reminders to address annual surveillance issues as well as reminders for certification / renewal / recertification as stipulated in the relevant reference documents.

During phase 1, students will be able to upload personal details apply and book for training and initial examinations, and receive deliverables upon completion of the relevant process, for example, proof of training document shall be automatically issued once training is successfully completed, followed by the examination results upon completion of the relevant qualification examination. Please keep in mind that deliverables shall only be issued once proof of payment is received and confirmed. The use of order numbers shall allow the student access to training, examination of certification, but all deliverables shall be restricted until actual payment is received and confirmed.

Company training officers / appointed Level 3 personnel or other responsible personnel shall be registered, during a later phase, as 'super-users' and shall be granted access to (pending students permission) all employed student's / candidate's portals linked to a specific company. This should facilitate the management of pertinent deliverables such as proof of training documents, examination results and certificates issued which are required by the company as part of their quality management system or written practice.

Students or companies not having access to digital devices or the internet, need not worry, since the system still facilitates manual bookings and the issue of any deliverables as per the current route. The normal process of booking shall be followed with the relevant administrator booking you onto the system and managing any interaction within the OSMS on your behalf.

'With great change comes great opportunity'

Students are encouraged to participate during each phase and to send their suggestions, comments, complaints or compliments to the following address: Quality@SAIW.co.za. These inputs shall be used to continuously improve the system and to make the interaction even more satisfying to you, our most valued customer.

PLEASE NOTE: Since the online platform is governed by the Protection of Personal Information (POPI) Act, both access and uploaded records are controlled and the content is handled with absolute confidentiality.

Manufacturer Certification process to ISO 3834

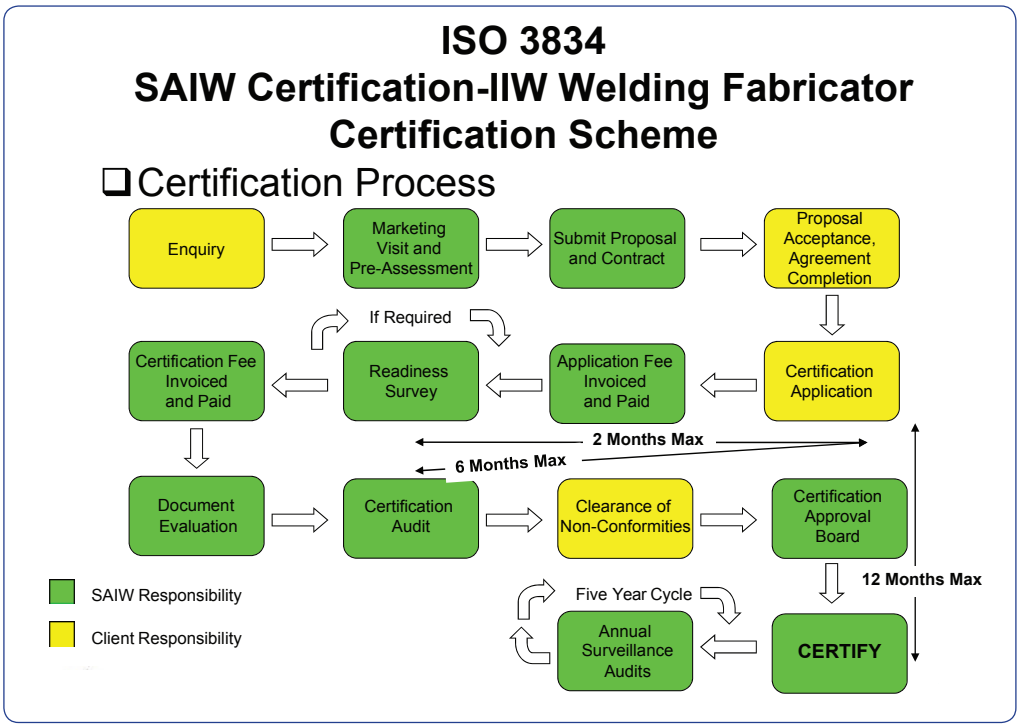
Quality Requirements for Fusion Welding of Metallic Materials

With the increase in demand and mandatory requirements of certain industrial manufacturers and changes in national legislation, an increase in requests regarding ISO 3834 certification and the process involved, has been received by SAIW Certification.

As these requirements stated above are covering the manufacturing/ maintenance industry on a broad base and internationally in many instances , it requires a thorough understanding and knowledge of what the ISO 3834 certification entails by companies with either little or no knowledge about the certification process and relevant requirements.

The process that has to be followed during the certification as an ISO 3834 certified company will be as follows: (See flow diagram below as illustration)

- **Enquiry** – Company contact SAIW Certification with regard to ISO/SANS 3834 certification
- **Marketing Visit** (if required) – Visit to the applicant company explaining the requirements of certification to ISO 3834
- **Submission of Proposal and Contract** – Application documentation to be sent to applicant company in order to:
  1. Establish the size of the company (small, medium or large and welding coordination personnel employed by the company)
  2. Establish the scope of certification that has been applied for by verifying the product manufactured/maintained
  3. Acceptance of basic "Terms and Conditions" as per contract
- **Proposal Acceptance** – Submission of agreement and signed contract to SAIW Certification
- **Application** – Proof of payment to be submitted to SAIW Certification
- **Readiness Survey (Stage 1) audit** – Gap analysis to establish compliance with the requirements of the relevant part of ISO 3834
- **Certification Application** – Submission of proof of payment of certification fee after a date has been finalised for certification
- **Certification Audit (Stage 2) audit** – After all areas identified during the "Gap Analysis" have been addressed and the applicant company is confident that all minimum requirements have been met
- **Clearance of Non-Conformances** – Proof of all non-conformances raised has to be sent to SAIW Certification for acceptance/approval
- **Certification Board Approval** – Certification recommendation report to be submitted to the Approvals Board for acceptance
- **Certification** – After final approval the certificate will be issued to the applicant company that will be valid for three (3) years where re-certification will be done in the third year with surveillance audits that shall be done annually in between



JOHANNESBURG (HEAD OFFICE)
Membership Services Secretary: Fiona Weimers
Southern African Institute of Welding
52 Western Boulevard off Main Reef Road
City West, Johannesburg
P O Box 527, Crown Mines, 2025
Tel: +27 (0)11 298 2110
Fax: +27 (0)11 836 4132
E-mail: fiona.weimers@saiw.co.za

CAPE TOWN
Western Cape Representative: Liz Berry
Unit 38 Milpark Centre, Ixia Street
Milnerton
PO Box 179, Table View, 7439
Tel: +27 (0)21 555 2535
Fax: +27 (0)21 555 2517
Mobile: +27 (0)84 446 0629
E-mail: liz.berry@saiw.co.za

DURBAN
40 Essex Terrace
Westville, Durban
Tel: +27 (0)87 351 6568
E-mail: elizabeth.shole@saiw.co.za