

Competition History

Skill 38

Refrigeration and Air Conditioning
1995 – 2024

By Noel Munkman

Contents

Introduction.....	2
1995 Lyon	3
1997 St Gallen.....	5
1999 Montreal.....	7
2001 Seoul	9
2003 St Gallen.....	11
2005 Helsinki.....	13
2007 Shizuoka.....	15
2009 Calgary.....	17
2011 London.....	19
2013 Leipzig.....	21
2015 São Paulo.....	23
2017 Abu Dhabi.....	25
2019 Kazan.....	27
2022 Special Edition - Nuremberg.....	29
2024 Lyon.....	31

Introduction

This document was produced to provide a record of the WorldSkills International's Skill 38 Refrigeration and Air Conditioning competitions.

Skill 38 Refrigeration Technique was first conducted as an official trade demonstration competition at the 33rd WorldSkills Competition at the Euroexpo in Lyon, France from 5 to 18 October 1995. The following eight (8) members (countries) participated: Australia, Canada, France, Netherlands, South Africa, Switzerland, United Kingdom, USA.

Skill 38 competitions have been an official competition and held at every international competition since then, that is 14 times and it has grown from eight (8) members to twenty-eight (28) members participating from around the world at Kazan 2019. The 46th WorldSkills Competition 2022 -Special Edition which was held in Nuremberg at the international Chillventa refrigeration and air conditioning exhibition on 10-13th October 2022 with only sixteen (16) members due delays caused by the COVID. The 47th WorldSkills Competition returned to the Euroexpo in Lyon, France on 10-15th September 2024 with 24 competitors.

The gold medal winners have been from the eleven (11) members below with the number of gold medals: Australia – 4, Brazil – 4, Canada – 1, China – 1, Chinese Taipei – 2, France – 1, Germany – 1, Ireland – 1, Korea – 4, Russia – 1, USA – 1.

The Chief Experts have been from eight (8) members listed below with the number of times: Australia – 4, Canada – 2, France – 1, Germany – 3, Korea – 1, Malaysia – 1, Switzerland – 1, United Kingdom – 2.

The Refrigeration and Air Conditioning competition requires an extensive range and quantity of equipment, materials, tools and consumables, so a huge thank you all WorldSkills Global Partners, Sponsors and suppliers as their support has enabled the size and standard of the competition to grow into a world class event.

A huge thank you also to all the members, their Workshop Masters, Experts and Competitors who have supported this competition over the last 29 years by giving their time and expertise to ensure the competition is open, fair, valid and world class.

On the following pages are the details of each Skill 38 Refrigeration and Air Conditioning international WorldSkills competition from 1995 to 2024.



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Proud to be a WorldSkills volunteer

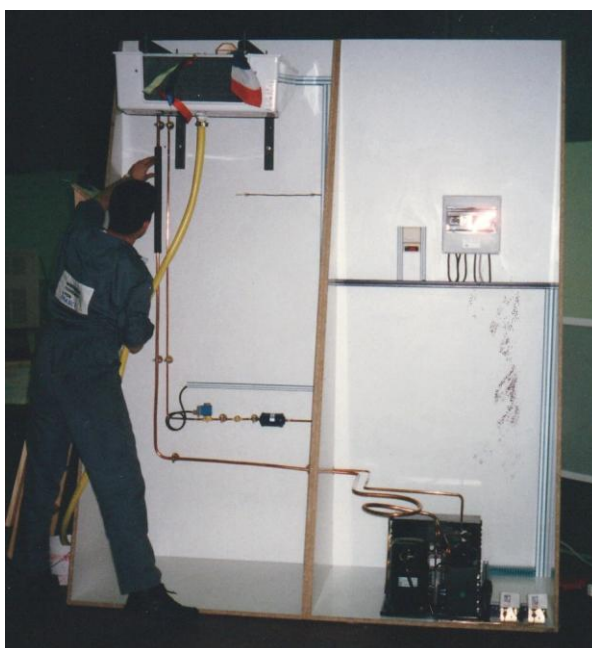


1995 Lyon

The 33rd WorldSkills Competition took place at the Euroexpo in Lyon, France from 5 October 1995 to 18 October 1995.

Test Project – 22 hrs

Refrigeration system installation - France



Skill Management Team

Position	Name	Member
Jury President	Andre Vermeulem	South Africa
Chief Expert		France
Workshop Manager	Max Peter	Switzerland

Experts

Name	Member	Name	Member
Brian Stapleton	Australia	Daniel Marsolais	Canada
Roel Van Geffen	Netherlands	Werner Grossenbacher	Switzerland
Johannes Reiner Damhuis	South Africa	Ian Lochray	United Kingdom
Everett Buckner	USA		

Competitors (8), Experts, Interpreters, Workshop Master and Assistants



Results



promouvoir la formation professionnelle
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tion professionnelle destinés à la jeunesse

promotion of vocational training ...
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Secretary-General: Daniel Sommer, Im Zentrum 11, CH - 8604 Volketswil, Phone: 41-1 - 945 26 77; Fax: 41-1 - 945 26 85

38 Kältetechnik, Refrigeration technic, Réfrigération technique

Final results

1	530	Gold	F	Broisin	Sebastien	
2	514	Silver	CH	Bühler	David	
2	513	Silver	CDN	Fortier	Yannick	
4	506	Diploma	SA	Pretorius	Marthinus Johannes	
4	506	Diploma	AUS	Pemberton	Paul	
4	504	Diploma	USA	Providenti	John	
7	498		UK	Beattie	Colin	
8	428		NL	Ter Haar	Cees	

Total 8 Competitors

21.10.1995

Medal Winners





1997 St. Gallen

The 34th WorldSkills Competition took place at OLMA exhibition halls in St. Gallen, Switzerland, from 27 June 1997 to 10 July 1997.

Test Project – 22 Hrs

- A. Brazing
- B. Fabrication
- C. Installation
- D. Commissioning
- E. Fault finding
- F. Work Practices
- G. Refrigerant recovery

Skill Management Team

Position	Name	Member
Jury President	Andre Vermeulem	South Africa
Chief Expert	Werner Grossenbacher	Switzerland
Workshop Manager	Max Peter	Switzerland

Experts

Name	Member	Name	Member
Noel Munkman	Australia	Valmir Silva Andrade	Brazil
Daniel Marsolais	Canada	Alain Tixier	France
John Yuen-leung Ngan	Hong Kong	Byung Ha Kang	Korea
Othman Sulong	Malaysia	Roel Van Geffen	Netherlands
Forthunato Dilao	Philippines	Johannes Reiner Damhuis	South Africa
Ian Lochray	United Kingdom	Everett Buckner	USA

Competitors (12) and an Assistant



St. Gallen 1997

BIC ©

Results Competitors per Competition

38 Refrigeration Technology

Kältetechnik

Réfrigération Technique

Competitors: 12 Male: 12 Female: 0

Member	Competitor	Sex	BIC	Award
Australia	René Ellen	M	554	Gold Medal
Switzerland	Filippo Prospero	M	545	Silver Medal
Canada	Alain Meunier	M	530	Bronze Medal
Philippines	Bienvenido Balbin	M	523	Diploma Of Excellence
Netherlands	Edu Van Het Schut	M	499	Certificate Of Participation
France	Nicolas Larreguy	M	496	Certificate Of Participation
Brazil	Pedro Santos	M	491	Certificate Of Participation
United States Of America	James Runkle	M	484	Certificate Of Participation
Hong Kong	Wai-ho Wong	M	480	Certificate Of Participation
Malaysia	Mohamad Oyub	M	478	Certificate Of Participation
Korea	Younghak Lee	M	460	Certificate Of Participation
United Kingdom	David Archer	M	460	Certificate Of Participation

Gold Medal Winner - Renee Ellen AU



1999 Montreal

The 35th WorldSkills Competition took place at the Olympic Stadium in Montreal, Canada, from 3 November 1999 to 17 November 1999.

Test Project – 22 Hrs

- A. Fabricate a copper manifold
- B. Recover and recharge refrigerant
- C. Fault find an upright freezer cabinet
- D. Fault find an air conditioning unit
- E. Install and commission a complete cold room system.

Skill Management Team

Position	Name	Member
Jury President	Andre Vermeulem	South Africa
Chief Expert	Daniel Marsolais	Canada
Deputy Chief Expert	Noel Munkman	Australia
Workshop Manager	Albert Brousseau	Canada

Experts

Name	Member	Name	Member
Airton Alves de Araulo	Brazil	Ching (Frank) Sung Chuo	Chinese Taipei
Gerard Chancel	France	John Yuen-leung Ngan	Hong Kong
Ahmad Mojarrad	Iran	Byung Ha Kang	Korea
Mostafa El Akry	Morocco	Ton Vissers	Netherlands
Louis Slabbert	South Africa	Lars Nordell	Sweden
Max Peter	Switzerland	Arnon Simakulthorn	Thailand
Ian Lochray	United Kingdom	Larry Roberts	USA





38



Refrigeration technic, Kältetechnik, Réfrigération technique

Final Results

	Rank	Points	Name	First Name	Member
	1	547	Klein	Richard	United States of America
	1	545	McDonald	Chris	Australia
	3	530	Voisin	Cédric	France
	4	520	Vugts	Freek	The Netherlands
	4	519	Martin	Frédéric	Canada
	6	508	Rebsamen	Stefan	Switzerland
	7	499	Bouwer	Burt	South Africa
	8	492	Kong	Siu-kei	Hong Kong
	8	490	Johansson	Niklas	Sweden
	10	487	Phuangtong	Chamnan	Thailand
	10	487	Currie	Chris	United Kingdom
	12	480	Kim	Ho young	Korea
	13	460	Pereira	Gutenberg Da Silva	Brazil
	14	436	Kassaoui	Mohamed	Morocco

Competitors (14)

One of the Gold Medal Winners – Chris MacDonald AU





2001 Seoul

The 36th WorldSkills Competition took place at COEX in Seoul, Korea from 12 to 19 September 2001.

Test Project – 22 Hrs

A. Heat Exchanger Fabrication	11 Marks	Time allowed 2 hrs.
B. Refrigeration Fault Finding & Repair	11 Marks	Time allowed 1 hr.
C. Electrical Fault Finding & Repair	11 Marks	Time allowed 1hr.
D. Retrofit a HCFC System	12 Marks	Time allowed 3 hrs
E. Split Air Conditioning System Installation	22 Marks	Time allowed 6 hrs
F. Refrigerated Cabinet System Installation	33 Marks	Time allowed 9hrs

Skill Management Team

Position	Name	Member
Jury President	Gavin Bowden	New Zealand
Chief Expert	Noel Munkman	Australia
Workshop Manager	Byung Ok Cho	Korea

Experts

Name	Member	Name	Member
Airton Alves de Araulo	Brazil	Shane McCarthy	Canada
Ching (Frank) Sung Chuo	Chinese Taipei	Gerard Chancel	France
Rolf Huhren	Germany	John Yuen-leung Ngan	Hong Kong
Byung Ha Kang	Korea	Harun Hahmod	Malaysia
Mostafa El Akry	Morocco	Roel Van Geffen	Netherlands
Fortunato C. Dilao	Philippines	Max Peter	Switzerland
Hans Hakansson	Sweden	Arnon Simakulthorn	Thailand
Ian Lochray	United Kingdom	Larry Roberts	USA

Refrigeration Experts





Seoul

Korea

2001



38



Refrigeration technic, Kältetechnik, Réfrigération technique

Final results

1	G		537	AU	Bugg	Stephanie
1	G		535	DE	Reinhard	Nicolas
3	B		528	TW	Lin	Chien-Yu
3	B		526	KR	Park	Jang Ho
5			523	US	Johnson	Brett
5			521	TH	Lowiran	Songpone
7			509	BR	Silva	Jair Ozi
7			508	MY	Mohamad Bakror	Mohamad Fairuz
7			507	CA	Dugre	Jean-Philippe
10			503	HK	Lai	Yu Hang
11			493	CH	Dellenbach	Matthias
12			490	SE	Edlund	Fredric
12			488	FR	Pierry	Romain
14			480	PH	Esgana	Celrestie
15			469	MA	Es-Salek	Younes
15			469	UK	Durant	Mark
17			414	IR	Hosseininezhad	Kianoush

Refrigeration Competitors (17) and the Gold Medal Winners





2003 St Gallen

The 37th WorldSkills Competition took place at OLMA Messen in St Gallen, Switzerland from 18 to 25 June 2003.

Test Project – 22 Hrs

A. Component Fabrication and Brazing	8 Marks	Time allowed 2 hrs.
B. Refrigeration Fault Finding & Repair	10.5 Marks	Time allowed 2 hrs.
C. Electrical Fault Finding & Repair	9.5 Marks	Time allowed 1hr.
D. Retrofit a HCFC System	10 Marks	Time allowed 3 hrs
E. Air Conditioning System Installation	24 Marks	Time allowed 5 hrs
F. Refrigeration System Installation	38 Marks	Time allowed 9 hrs

Skill Management Team

Position	Name	Member
Jury President	Andre Vermeulem	South Africa
Chief Expert	Noel Munkman	Australia
Deputy Chief Expert	Larry Roberts	USA
Workshop Manager	Max Peter	Switzerland

Experts

Name	Member	Name	Member
Jose Rodrigues	Brazil	Shane McCarthy	Canada
Ching (Frank) Sung Chuo	Chinese Taipei	Kari Ilmola	Finland
Gerard Chancel	France	Rolf Huhren	Germany
Byung Ha Kang	Korea	Harun Hahmod	Malaysia
Ton Vissers	Netherlands	Max Peter	Switzerland
Ulf Noren	Sweden	Arnon Simakulthorn	Thailand
Hamidi Fernjani	Tunisia	Othman Mubarak	United Arab Emirates
Mike Carman	United Kingdom		





St. Gallen

Switzerland

2003



38



Refrigeration , Kältetechnik, Réfrigération

Final results

1	G		529	KR	Jung	Mong Chi
1	G		529	BR	Resende	Wertson da Silva
1	G		528	AU	Kues-Sales	Matthew
4			525	TH	Kluansuntia	Sakon
4			525	FR	Serre	Anthony
6			519	DE	Bauer	Bernhard
7			509	US	Dort	Craig
7			508	NL	Lam	Peter 't
7			507	FI	Parviainen	Mika
10			500	TW	Lin	Chi-Te
11			496	UK	Holmes	David
11			495	CA	Henry	Stéphane
13			490	TN	Dammak	Walid
14			465	SE	Netz	Tobias
15			455	MY	Mohd Asmay	bin Salehuddin
16			418	AE	Shahdad	Ali

Refrigeration Competitors (16)

Medal Presentation



2005 Helsinki

The 38th WorldSkills Competition took place at the Helsinki Fair Centre, Helsinki, Finland from 25 May to 1 June 2005.

Test Project – 22 Hrs

A. Component Fabrication and Brazing	8 Marks	Time allowed 2 hrs
B. Refrigeration Fault Finding & Repair	10.5 Marks	Time allowed 2 hrs.
C. Electrical Fault Finding & Repair	9.5 Marks	Time allowed 1hr.
D. Retrofit a HCFC System	10 Marks	Time allowed 3 hrs
E. Air Conditioning System Installation	24 Marks	Time allowed 5 hrs
F. Refrigeration System Installation	38 Marks	Time allowed 9 hrs

Skill Management Team

Position	Name	Member
Jury President	Joseph Nigsch	Liechtenstein
Chief Expert	Shane McCarthy	Canada
Deputy Chief Expert	Rolf Huhren	Germany
Workshop Manager	Jari Haavisto	Finland

Experts

Name	Member	Name	Member
John Kuilart	Australia	Marc Gaugain	Belgium
Jose Rodrigues	Brazil	Ching (Frank) Sung Chuo	Chinese Taipei
Kari Ilmola	Finland	Gerard Chancel	France
Garrett Kennaghan	Ireland	Byung Ha Kang	Korea
Sharom Bin Ghazali	Malaysia	Mustafa El Akry	Morocco
Ton Vissers	Netherlands	Jose Costa	Portugal
Simon Mashilo	South Africa	Per-Olof Nilsson	Sweden
Arnon Simakulthorn	Thailand	Hamadi Ferjani	Tunisia
Mike Carman	United Kingdom	Larry Roberts	USA



38 Refrigeration

Member	Result	Medals
Ireland	542	GOLD
Brazil	532	SILVER
Thailand	528	Medallion of Excellence
Germany	523	Medallion of Excellence
Canada	521	Medallion of Excellence
Korea	514	Medallion of Excellence
Sweden	514	Medallion of Excellence
Chinese Taipei	511	Medallion of Excellence
Australia	510	Medallion of Excellence
Finland	501	
France	494	
Portugal	492	
Tunisia	492	
Netherlands	489	
United States of America	469	
South Africa	441	
Belgium	426	

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Some of the Competitors (17)



2007 Shizuoka

The 39th WorldSkills Competition took place at Shin-giri Halls - Global Skills Village in Shizuoka, Japan from 14 to 21 November 2007.

Test Project – 20 Hrs

A. Component Fabrication and Brazing	10 Marks	Time Allowed 3.0 Hrs.
B. Equipment Positioning & Installation	38 Marks	Time Allowed 7.5 Hrs.
C. Refrigeration & Electrical Fault Finding & Repair	22 Marks	Time Allowed 4.5 Hrs
D. Commissioning & Adjustment	10 Marks	Time Allowed 2.0 Hrs
E. Air Conditioning System Commissioning	20 Marks	Time Allowed 3.0 Hrs

Skill Management Team

Position	Name	Member
Jury President	Dr. Seung-Jik Suh	Korea
Chief Expert	John Kuilart	Australia
Deputy Chief Expert	Garrett Keenaghan	Ireland
Workshop Master	Yukihiro Hashimoto	Japan

Experts

Name	Member	Name	Member
Marc Gaugain	Belgium	José Rodrigues Fonseca Segundo	Brazil
Shane Mccarthy	Canada	Ching (Frank) Sung Chuo	Chinese Taipei
Kari Ilmola	Finland	Hervé Leleu	France
John Yuen-leung Ngan	Hong Kong	Maziyar Moosavi Kholerd	Iran
Hideki Okuzono	Japan	Cho Byung Ok	Korea
Haron Mahmud	Malaysia	Hans van Aar	Netherlands
Jose Costa	Portugal	Gunnar Sellin	Sweden
Apichit Lumlertpongpana	Thailand	Ferjani Hammadi	Tunisia
Mike Carman	United Kingdom		

Some of the Experts



WSC2007 Shizuoka

38. Refrigeration

Country	Name	Result	Medal
Brazil	Lucas Gonçalves	548	GOLD
Thailand	NUTTAPONG PUNYASRI	545	SILVER
Ireland	John Fanning	541	BRONZE
Chinese Taipei	Chia Wen Cheng	535	Medallion For Excellence
Hong Kong	Wun-hung WONG	524	Medallion For Excellence
Canada	Pier-Olivier Armstrong	523	Medallion For Excellence
Australia	Lachlan Thomas	522	Medallion For Excellence
Portugal	António Nabais	519	Medallion For Excellence
Korea	Tae Hyun Kim	510	Medallion For Excellence
France	Damien DEUDON	503	Medallion For Excellence
Japan	Yuhei Konagai	497	
Sweden	Jonas Josefsson	494	
Iran	SADEGH HOSSEIN POUR FINI	486	
United Kingdom	Matthew Lander	485	
Tunisia	Kheireddine Akacha	481	
Finland	Olli Saarela	480	
Netherlands	Danny Leerintveld	476	
United States of America	Douglas Lavin	473	
Malaysia	Mohd Hanafi Ismail	463	
South Africa	Ivan Theron	459	
Belgium	Mathieu Meys	436	

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Medal Winners



2009 Calgary

The 40th WorldSkills Competition took place at Stampede Park in Calgary, Canada from 1 to 7 September 2009.

Test Project – 20 Hrs

A. Component Fabrication and Brazing	10 Marks	Time Allowed 3.0 Hrs.
B. Equipment Positioning & Installation	38 Marks	Time Allowed 7.5 Hrs.
C. Refrigeration & Electrical Fault Finding & Repair	22 Marks	Time Allowed 4.5 Hrs
D. Commissioning & Adjustment	10 Marks	Time Allowed 2.0 Hrs
E. Air Conditioning System Commissioning	20 Marks	Time Allowed 3.0 Hrs

Skill Management Team

Position	Name	Member
Jury President	Hannu Immonen	Finland
Chief Expert	John Kuilart	Australia
Deputy Chief Expert	Hervé Leleu	France
Workshop Manager	Didier Gaudron	Canada

Experts

Name	Member	Name	Member
Marc Gaugain	Belgium	José Rodrigues Fonseca Segundo	Brazil
Shane Mccarthy	Canada	Ching (Frank) Sung Chuo	Chinese Taipei
John Yuen-leung Ngan	Hong Kong	David O Riordan	Ireland
Hoosain Sadeghi	Iran	Hideki Okuzono	Japan
Byung-Ha Kang	Korea	Jose Manuel Noriega	Mexico
Mostafa EL Akry	Morocco	Hans van Aar	Netherlands
Jose Costa	Portugal	Bozidar Vuletic	South Africa
Gunnar Sellin	Sweden	Apichit Lumlertpongpana	Thailand

Competitors



38 Refrigeration, Kältetechnik, Réfrigération

Member	Competitor	Result	Medals
Brazil	Santos Mackson	549	GOLD
Iran	Paresh Hamidreza	532	SILVER
Thailand	Boonla Prawit	529	BRONZE
Chinese Taipei	MAO CHIA-MING	529	BRONZE
Canada	Boily Mathieu	524	Medallion of Excellence
Ireland	Sheehy Thomas	524	Medallion of Excellence
France	VALADE Laurent	523	Medallion of Excellence
Australia	Mason Nash	517	Medallion of Excellence
Sweden	Palgan Robin	513	Medallion of Excellence
Japan	Saito Shinya	510	Medallion of Excellence
Netherlands	van Run Cor	509	Medallion of Excellence
Hong Kong, China	CHAN Chun-man	505	Medallion of Excellence
Korea	Cha Young Seok	501	Medallion of Excellence
Portugal	Roberdo Andre	499	
Vietnam	Anh Nguyen Hoang	484	
South Africa	Barkhuizen Nicolaas	475	
Tunisia	BESSEROUR Zakaria	472	

United States of America	Rutherford Ryan	465	
Morocco	GHAZZAOUI Noureddine	448	
Mexico	Alvarado Osorio Fabian	447	
Belgium	Arrouj Mohamed	446	

Silver and Bronze Medal Winners



2011 London

The 41st WorldSkills Competition was held at the London Excel in London, United Kingdom from 5 to 8 October 2011.

Test Project – 20 Hrs

A. Refrigeration System Installation & Commissioning	48 Marks	Time Allowed 12 Hrs
B. Air Conditioning System Installation & Commissioning	25 Marks	Time Allowed 4 Hrs
C. Electrical Fault Finding & Repair	7 Marks	Time Allowed 1 Hrs
D. Mechanical Component Replacement	20 Marks	Time Allowed 3 Hrs

Skill Management Team

Position	Name	Member
Jury President	Khalid Al Hadhrami	Oman
	Franz Schropp	Germany
Chief Expert	Mark Forsyth	United Kingdom
Deputy Chief Expert	David O Riordan	Ireland
Workshop Manager	Ian Giles	United Kingdom

Experts

Name	Member	Name	Member
Chris Macdonald	Australia	Wertson Resende	Brazil
Didier Gaudron	Canada	Kwok Ho Chan	China
Ching (Frank) Sung Chuo	Chinese Taipei	Hervé Leleu	France
Karsten Beermann	Germany	Ahad Abbasiyanpirniya	Iran
Hideki Okuzono	Japan	Hyunju Mun	Korea
Kamarul Bahar Abdul Rahim	Malaysia	Kamarul Bahar Abdul Rahim	Malaysia
Abdelhadi Sououdi	Morocco		
Ronald Nvdal	Norway		

Competitors (25)



Name	Member	Result	Award
SOUSA, WILLIAN	Brazil	544	GOLD
Janetzki, Liam	Australia	540	SILVER
Chang, Min Ki	Korea	530	BRONZE
Dorresteijn, Geert	Netherlands	529	BRONZE
Millar, Stuart	United Kingdom	529	BRONZE
Fushimi, Eiichi	Japan	529	BRONZE
LEE, PO-HAN	Chinese Taipei	528	BRONZE
Mak, Lok Him	Hong Kong, China	527	Medallion for Excellence
Vui Chien, Ng	Malaysia	526	Medallion for Excellence
Sullivan, Vinnie	Ireland	523	Medallion for Excellence
Cristini, Etienne	Switzerland	518	Medallion for Excellence
Donnan, Sean	Canada	506	Medallion for Excellence
Thipyod, Jaroon	Thailand	503	Medallion for Excellence
Dung, Nguyen Thanh	Vietnam	497	
Lambardt, Georg	Germany	493	
Huhn, John	United States of America	491	
Strømme, Joachim	Norway	478	
Britz, DE Wet	South Africa	478	
LAFON, Julien	France	476	

Name	Member	Result	Award
Lahoz, Mario	Spain	475	
Vicente, Paulo	Portugal	469	
SEBRI, Mohamed	Tunisia	457	
Huerta, Pedro	Mexico	455	
EL BAOUCHI, Mohammed	Morocco	451	
Al Aghbari, Younis	Oman	446	

Medal Winners



2013 Leipzig



The 42nd WorldSkills Competition took place at the Leipziger Messe in Leipzig, Germany from 2 to 7 July 2013.

Test Project – 20 hrs

A. Refrigeration System Installation & Commissioning	60 Marks	Time Allowed 16 Hrs
B. Air Conditioning System Fault Find, Repair & Commissioning	25 Marks	Time Allowed 3 Hrs
C. Electrical Fault Finding & Repair	15 Marks	Time Allowed 1 Hr

Skill Management Team

Position	Name	Member
Jury President	José Luis Leitão	Brazil
Chief Expert	Karsten Beermann	Germany
Deputy Chief Expert	Chris Macdonald	Australia
Workshop Manager	Nicolas Reinhard	Germany

Experts

Name	Member	Name	Member
Didier Doutrepoint	Belgium	Wertson Resende	Brazil
Todd Matsuba	Canada	Huazeng Gao	China
Ching (Frank) Sung Chuo	Chinese Taipei	Dario Fernando Del Castillo Uribe	Colombia
Damien Deudon	France	David O Riordan	Ireland
Hideki Okuzono	Japan	Hyun Ju Moon	Korea
Omar Alkandari	Kuwait	Mohd Zaki Mohamed	Malaysia
Abdelhadi Sououdi	Morocco	Hans van Aar	Netherlands
Stig Rath	Norway	Amin Al Shraideh	Oman
Paulo Riço	Portugal	Zulkifli Bin Mohd Zain	Singapore
Bozidar Vuletic	South Africa	Mark Forsyth	United Kingdom
Larry Roberts	USA	Nguyen Thanh Hao	Vietnam

Competitors (23) and Experts



Rank	Medal	Result	Competitor	Member
1.	Gold	535	Michael Scheideman	Canada
1.	Gold	535	Woo Yule Kim	Korea
3.	Bronze	532	Yi-Chan Hsieh	Chinese Taipei
3.	Bronze	531	Felipe Benicio	Brazil
3.	Bronze	530	Xingwen Xian	China
6.	Medallion for Excellence	525	Loic Jouay	Belgium
7.	Medallion for Excellence	520	Kevin FOGELGESANG	France
7.	Medallion for Excellence	518	Julian Walz	Germany
9.	Medallion for Excellence	515	Kazuki Shimizu	Japan
9.	Medallion for Excellence	514	Diogo Almeida	Portugal
9.	Medallion for Excellence	513	Padraic Fennessy	Ireland
12.	Medallion for Excellence	512	Muhammad Aizat Saari	Malaysia
13.	Medallion for Excellence	507	Steven Burge	United Kingdom
13.	Medallion for Excellence	506	Mitchell Barron	Australia
15.	Medallion for Excellence	501	Stefan Wiltink	Netherlands
16.		485	Tran Van Thong	Vietnam
17.		477	Christopher Kuhn	United States of America
18.		473	Dylan Le Maitre	South Africa
18.		471	Hilal Al-Riyami	Oman
20.		464	Sindre Gruben Olsen	Norway
21.		461	Abdelhaq Mansouri	Morocco
22.		450	Edwar Alejandro Lozada Rodriguez	Colombia
23.		425	Hasan Halawah	Kuwait

Medal Winners



2015 São Paulo

The 43rd WorldSkills Competition took place at Anhembi Parque, São Paulo, Brazil from 11 to 16 August 2015.

Test Project – 20 Hrs

A. Component Fabrication	13.5 Marks	Time Allowed 3 Hrs
B. Refrigeration System Installation and Commissioning	49 Marks	Time Allowed 13 Hrs
C. Air Conditioning System Fault Find, Repair and Commissioning	37.5 Marks	Time Allowed 4 Hrs

Skill Management Team

Position	Name	Member
Jury President	Tõnis Arvisto	Estonia
	Dyah Kartiningdyah	Indonesia
Chief Expert	Karsten Beermann	Germany
Deputy Chief Expert	Chris Macdonald	Australia
Workshop Manager	Samuel Siqueira	Brazil

Experts

Name	Member	Name	Member
Didier Doutrepont	Belgium	Wertson Resende	Brazil
Didier Gaudron	Canada	Huazeng Gao	China
Ching (Frank) Sung Chuo	Chinese Taipei	Dario Fernando Del Castillo Uribe	Colombia
Timo Toivanen	Finland	Damien Deudon	France
Ahad Abbasiyanpirimiya	Iran	Hideki Okuzono	Japan
Hyunju Mun	Korea	Mohd Zaki Mohamed	Malaysia
Pedro Arcibar Valdez	Mexico	Abdelhadi Sououdi	Morocco

Competitors (26) and Experts



Name	Member	Result	Award
JUAN, PEI-HAO	Chinese Taipei	537	GOLD
Zhong, Jianwei	China	534	SILVER
Baillie, Christopher	United Kingdom	532	SILVER
Miesner, Brock	United States of America	530	BRONZE
Bettez, Marc-Antoine	Canada	530	BRONZE
Vui Yee, Ng	Malaysia	523	Medallion for Excellence
Park, Joo Hyeong	Korea	523	Medallion for Excellence
Kupris, Beau	Australia	522	Medallion for Excellence
Sripimam, Panachai	Thailand	522	Medallion for Excellence
Afshar Aghajari, Alireza	Iran	519	Medallion for Excellence
DALET, Rémy	France	517	Medallion for Excellence
Yamaguchi, Tomoya	Japan	513	Medallion for Excellence
Sousa, Wilker	Brazil	513	Medallion for Excellence
Solberg, Jørgen	Norway	509	Medallion for Excellence
Venmans, Antwan	Netherlands	503	Medallion for Excellence
Lötzsch, Benaja	Germany	501	Medallion for Excellence
Hietamies, Juuso	Finland	499	
Leite, Tiago	Portugal	486	
Ibañez Duque, Daniel José	Colombia	476	

Name	Member	Result	Award
MONTESINOS, Pablo	Spain	472	
Aamak, Yassin	Morocco	469	
Combrinck, Marko	South Africa	469	
Nabatov, Aleksandr	Russia	468	
Aguilar, Jean	Belgium	468	
Chávez Pérez, Jaime	Mexico	434	
AL-Habsi, Abdullah	Oman	430	

Medal Winners



2017 Abu Dhabi

The 44th WorldSkills Competition took place at the Abu Dhabi National Exhibition Centre, Abu Dhabi, United Arab Emirates in October 2017.

Test Project – 20 Hrs

A. Component Fabrication	13.5 Marks	Time Allowed 3 Hrs
B. Refrigeration System Installation and Commissioning	59 Marks	Time Allowed 14 Hrs
C. Air Conditioning System Fault Find, Repair and Commissioning 2	7.5 Marks	Time Allowed 3 Hrs

Skill Management Team

Position	Name	Member
Jury President	Olga Dekhtiarenko	Belarus
	Maggie Hui	Hong Kong
Chief Expert	Karsten Beermann	Germany
Deputy Chief Expert	Didier Gaudron	Canada
Workshop Manager	Chris Wishart	United Arab Emirates

Experts

Name	Member	Name	Member
Carl Balke	Australia	Sergio Machado	Brazil
Chuan Li	China	Ching (Frank) Sung Chuo	Chinese Taipei
Jonathan Diaz Ortiz	Colombia	Po Chung Au	Hong Kong
Shahram Khosravinejad	Iran	Brian O'Flaherty	Ireland
Yasunori Okumura	Japan	Vitaliy Kireyev	Kazakhstan
Hyunju Mun	Korea	Mohd Zaki Mohamed	Malaysia
Abdelhadi Sououdi	Morocco	Hans van Aar	Netherlands
Roy Holmen	Norway	Paulo Riço	Portugal
Andrey Pivinskiy	Russia	Bozidar Vuletic	South Africa
Joaquín Lafuente	Spain	Vichai Akkaramongkolchai	Thailand
Ahmad Aboud	United Arab Emirates	Larry Roberts	USA

Competitors (23) and Experts



38 Refrigeration and Air Conditioning

WorldSkills Scale Results

WorldSkills Abu Dhabi 2017

Name	Member	Result	Award
SEUNGWOO CHAE	Korea	739	Gold
Vadim Poliakov	Russia	737	Gold
Zhiqing Wu	China	735	Bronze
Wisley Pereira	Brazil	723	Medallion for Excellence
Ryan Matsuba	Canada	721	Medallion for Excellence
MOHAMMAD AFIZ RUSLAN	Malaysia	721	Medallion for Excellence
Nathan McHugh	Australia	718	Medallion for Excellence
Andrés Felipe Arias Gómez	Colombia	716	Medallion for Excellence
krzysztof Zamajtyś	United States of America	716	Medallion for Excellence
JUI-HUNG TSAI	Chinese Taipei	711	Medallion for Excellence
Piyanan Chaoplayna	Thailand	703	Medallion for Excellence
Emanuel BUDEANU	Spain	700	Medallion for Excellence
CHI CHING LAU	Hong Kong, China	697	
Bruno Dias	Portugal	695	
Olve Lyngstad Skjerve	Norway	691	
ABDELKBIR KADDOURI	Morocco	688	
Robin Smets	Netherlands	687	
Yoshiki Suganuma	Japan	680	
Tim Schuster	Germany	676	
Iman Alirezanejad	Iran	658	
Tyrone Claude Bunce	South Africa	656	
Roudha Bin Bahr	United Arab Emirates	625	
Vadim Kuzmenko	Kazakhstan	556	

Medal Winners



2019 Kazan

The 45th WorldSkills Competition was held at the KAZAN EXPO International Exhibition Centre in Kazan, Russia in August 2019.

Test Project – 23 Hrs

A. Component Fabrication	13.5 Marks Time Allowed	3 Hrs
B. Refrigeration System Installation and Commissioning	50 Marks Time Allowed	16 Hrs
C. Air Conditioning System Electrical Fault Finding	12 Marks Time Allowed	1 Hr
D. Air Conditioning System Refrigeration Fault Finding	10 Marks Time Allowed	1 Hr
E. Air Conditioning System Refrigerant Recovery and Repair	14.5 Marks Time Allowed	2 Hrs

Skill Management Team

Position	Name	Member
Skill Competition Manager	Noel Munkman	
Chief Expert	Mohd Zaki Mohamed	Malaysia
Deputy Chief Expert	Andrey Pivinskiy	Russia
Workshop Manager	Dmitrii Emelianov	Russia

Experts

Name	Member	Name	Member
Rupert Danninger	Austria	Carl Balke	Australia
Sergio Machado	Brazil	Brian Nicholl	Canada
Chuan Li	China	Ching (Frank) Sung Chuo	Chinese Taipei
Jonathan Diaz Ortiz	Colombia	Alexander López Agüero	Costa Rica
Rémy Dalet	France	Karsten Beermann	Germany

Competitors (28) and Experts



38 Refrigeration and Air Conditioning

WorldSkills Scale Results

WorldSkills Kazan 2019

Name	Member	Result	Award
ALEKSANDR LEUSHIN	Russia	747	Gold
JuHwan Go	Korea	745	Gold
Patrick Brennan	Australia	739	Bronze
BING-RU WU	Chinese Taipei	734	Medallion for Excellence
Andreas Keplinger	Austria	729	Medallion for Excellence
Thomas JOUBERT	France	728	Medallion for Excellence
Zihao Yang	China	728	Medallion for Excellence
Warakorn Butjan	Thailand	713	Medallion for Excellence
Ítalo Cruz	Brazil	710	Medallion for Excellence
Chun Ming Kwok	Hong Kong, China	709	Medallion for Excellence
Lukas Brenne	Germany	704	Medallion for Excellence
Zachary William Walsh	Canada	702	Medallion for Excellence
Haziq Fauzi Abdul Jalil	Malaysia	702	Medallion for Excellence
Francisco Campos	Portugal	700	Medallion for Excellence
Orlando James Rawlings	United Kingdom	700	Medallion for Excellence
Rahul Jangra	India	695	
Leonido Lomoljo	Philippines	691	
David La Grange	South Africa	689	
Orley Alejandro Gomez Yali	Colombia	685	
Izan Elias BARRETTO	Spain	683	
Misuzu Kitazawa	Japan	680	
Nguyen Van Hung	Vietnam	680	
Abdul Rahman Al-Aboudi	Oman	677	
Ammar Alzarooni	United Arab Emirates	675	
ANASS TAHIRI	Morocco	670	
Alexandr Minayev	Kazakhstan	663	
Andreas Shigwedha	Namibia	654	
Mohammed Alazmi	Kuwait	652	

Medal Winners





2022 Special Edition

From September to November 2022, the WorldSkills global network hosted skill competitions in a variety of countries and regions. These skill competitions were collectively known as WorldSkills Competition 2022 Special Edition.

The Refrigeration and Air Conditioning competition was held in Nuremberg at the international Chillventa refrigeration and air conditioning exhibition on 10-13th October 2022.

Test Project – 18 Hrs

A. Component Fabrication	13 Marks	Time Allowed 2 Hrs
B. Refrigeration System Installation and Commissioning	62 Marks	Time Allowed 14 Hrs
C. Refrigeration System Electrical Fault Finding	14 Marks	Time Allowed 1 Hr
D. Refrigeration System Refrigeration Fault Finding	11 Marks	Time Allowed 1 Hr

Skill Management Team

Position	Name	Member
Skill Competition Manager	Noel Munkman	
	Mark Forsyth	
Chief Expert	Hyunju Mun	Korea
Deputy Chief Expert	Karsten Beermann	Germany
Workshop Manager	Nicolas Reinhard	Germany

Experts

Name	Member	Name	Member
Rupert Danninger	Austria	Carl Balke	Australia
Brian Nicholl	Canada	Chien-Yu Lin	Chinese Taipei
Simon Lor Saw	France	Chi Yuen Chan	Hong Kong
Yushi Chizuwa	Japan	Dinesh Mohgaonkar	India
Mazyar Moosavi Kholerdi	Iran	Sagaria Karamata	Nambia

Competitors (16) and Experts



38 Refrigeration and Air Conditioning

WorldSkills Scale Results

WorldSkills 2022 Special Edition

Name	Member	Result	Award
CHIA-CHENG TIEN	Chinese Taipei	751	Gold
Hugo Geraldo	Portugal	732	Silver
Patrick Danninger	Austria	732	Silver
Wonyeong Seo	Korea	732	Silver
Chun Chung CHI	Hong Kong, China	728	Medallion for Excellence
Frederik Stiegen	Germany	727	Medallion for Excellence
Clément LAMBERT	France	709	Medallion for Excellence
Yuki Kondo	Japan	702	Medallion for Excellence
Mohammad Reza Sardari Amidabadi	Iran	698	
Thomas Clancy	Australia	696	
Tanner Harbin	Canada	689	
Enrique LÓPEZ	Spain	689	
Anuraj .	India	685	
Mogamat Fisher	South Africa	680	
MARTY BASTASA	Philippines	679	
Sakaria Hofni	Namibia	666	

Medal Winners and Compatriot Experts



2024 Lyon

The 47th WorldSkills Competition was held at the Eurexpo Lyon, France on 10-15th September 2024.

This was the first time that the Skill 38 Refrigeration and Conditioning competition was conducted in two shifts for the competitors to make it more sustainable by reducing the number of competitor work stations and tool kits.

Test Project – 16 Hrs

Module A - Refrigeration System Installation and Commissioning	Time allowed 12 hours
Module B - Air Conditioning System Electrical Fault Finding	Time allowed 1 hour
Module C - Component Fabrication and Brazing	Time allowed 1.5 hours
Module D - Air Conditioning System Refrigeration Fault Finding and Repair	Time allowed 1.5 hours

Skill Management Team

Position	Name	Member
Skill Competition Manager	Noel Munkman	
Chief Expert	Mark Forsyth	United Kingdom
Expert Lead	Rupert Danninger	Austria
Expert Lead	Carl Balke	Australia
Workshop Manager	Jérémy THEVENET	France
Workshop Manager Assistant	Samuel FAZILLEAU	France

Experts

Name	Member	Name	Member
Leandro Wagner	Brazil	Brian Nicholl	Canada
Chuan Li	China	Chien-Yu Lin	Chinese Taipei
Arvell Webster Flashy	Costa Rica	Simon Lor Saw	France
Karsten Beermann	Germany	Benson Lam	Hong Kong
Dinesh Mohgaonkar	India	Sri Hardono	Indonesia
Hadi Khojasteh	Iran	Satoru Kimoto	Japan
Seunwoo Chae	Korea	Burhanuddin Bin Bahrum	Malaysia

Experts and Interpreters



38 Refrigeration and Air Conditioning *

WorldSkills Scale Results

WorldSkills Lyon 2024

Name	Member	Result	Award
Kang Ruan	China	743	Gold
SZ-YUAN CHEN	Chinese Taipei	739	Gold
Luke Haile	United Kingdom	737	Silver
NAOYA ENDO	Japan	726	Medallion for Excellence
Kennedi Alves dos Santos	Brazil	719	Medallion for Excellence
Simon Warschenhofer	Austria	719	Medallion for Excellence
Bailey Loenneker	Australia	716	Medallion for Excellence
AMIRMOHAMMAD ABOUEI MEHRIZI	Iran	715	Medallion for Excellence
Jack Butler	New Zealand	709	Medallion for Excellence
Ricardo Silva	Portugal	702	Medallion for Excellence
Kreyton Wunsch	Germany	698	
Emilien CHÂLONS	France	693	
Muhammad Habibullah Bin Mohd. Yusuff	Malaysia	689	
Aakash .	India	687	
Hatsanai Boonkaewkong	Thailand	683	
Álex Caro Tello	Spain	681	
Tyler Cherkowski	Canada	679	
Risky Syarif Pamungkas	Indonesia	676	
Philippus Saayman	South Africa	676	
Luca Hubmann	Switzerland	673	

* Official Results updated on 01.11.24. Note: medal for UK is now silver and TW remains as presented at the CC. For more information contact the Secretariat.

Name	Member	Result	Award
Gamenandje Kalunduka	Namibia	645	
Gerald Vallecillo Tenorio	Costa Rica	631	
Tsz Yeung CHUNG	Hong Kong, China	514	
Wonwoo Jung	Korea	514	

Medal Winners

