The Blueprint of Mastery

Official Manual & Invitation: Golden Hand Cup 2026

Asian Welding Skills Competition
May 14–17, 2026 | Hanoi, Vietnam

Document Classification: Official Technical Dossier.

A Call to Excellence: The 2026 Golden Hand Cup

We are honored to invite your delegation to Hanoi. This competition establishes a premier platform to exchange advanced skills, drive digital transformation, and honor the finest craftsmen in Asian manufacturing.

Manual Arc Welding: Mastering SMAW, TIG, and MAG on Carbon Steel.

Virtual Precision: AR/VR simulation scoring arc stability and kinematics.

Human-Machine Collaboration: Programming and operating Collaborative Robots.

DIN Altenate: The Critical Path: Deadlines & Event Schedule

Track A: Pre-Event Submissions

April 15, 2026
Abstract & Bio Submission Deadline.

April 25, 2026
Notification of Acceptance.

April 30, 2026
Final slide deck submission & Registration lock.

Track B: The Golden Hand Cup (May 14-17)

May 14
Opening Ceremony & Day 1 Competition (Manual).

May 15
Day 2 Competition (Virtual & Cobot) + Welder Awards.

May 16-17
Technology Forums & Industry Tours.

Three Paradigms of Evaluation

	Manual Welding	Virtual Welding	Cobot Welding
Process	SMAW, TIG, MAG	TIG, MAG	MAG-Ro
Equipment	A36/A106 Steel	Soldamatic & Welducation	FANUC CRX-10iA/L & Fronius
Time Limit	120 Minutes	15 Minutes	30 Minutes
Assessment	VT, PT, UT Diagnostics	Auto-Scoring Algorithm	Programming Skill, VT, PT

Maximum 100 points per discipline.

Universal Competitor Pre-Flight Checklist

- [ ]  **Identity & Clearances:** Must present official contestant card or citizen ID. Name must match the approved Organizing Committee roster.
- [ ]  **PPE & Uniforms:** Must wear comprehensive safety gear (shoes, gloves, helmet).
  Bonus Point Notice: Competitors wearing their official unit's uniform will receive extra points.
- [ ]  **Autonomous Verification:** Competitors must self-check dimensions, jigs, and tack welds before the clock starts.
- [ ]  **Material Finality:** No replacement workpieces will be issued once tack welding is completed.

TEST 01

Test 1: Manual Torch Mastery

Low Carbon Steel Structure Integration

Time & Process

120 Minutes Total Time.
Processes authorized:
SMAW (111), TIG (141),
MAG (135).

Material Bill

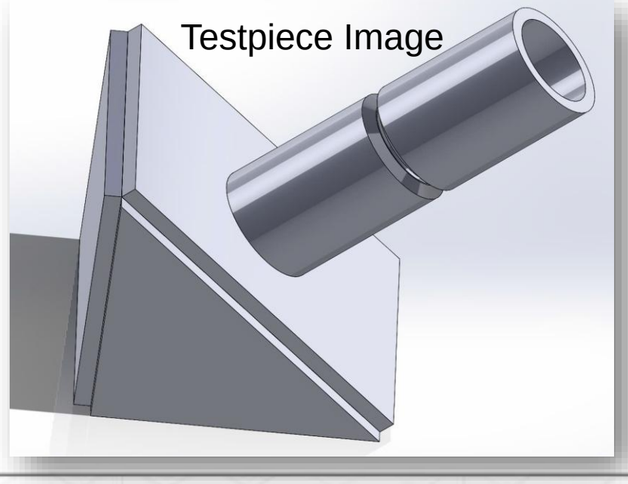
Plates A/B/C: A36 or SS400 Steel (12mm thickness).

Pipe D: A106 Gr. B or equivalent (Ø90×125×10mm).

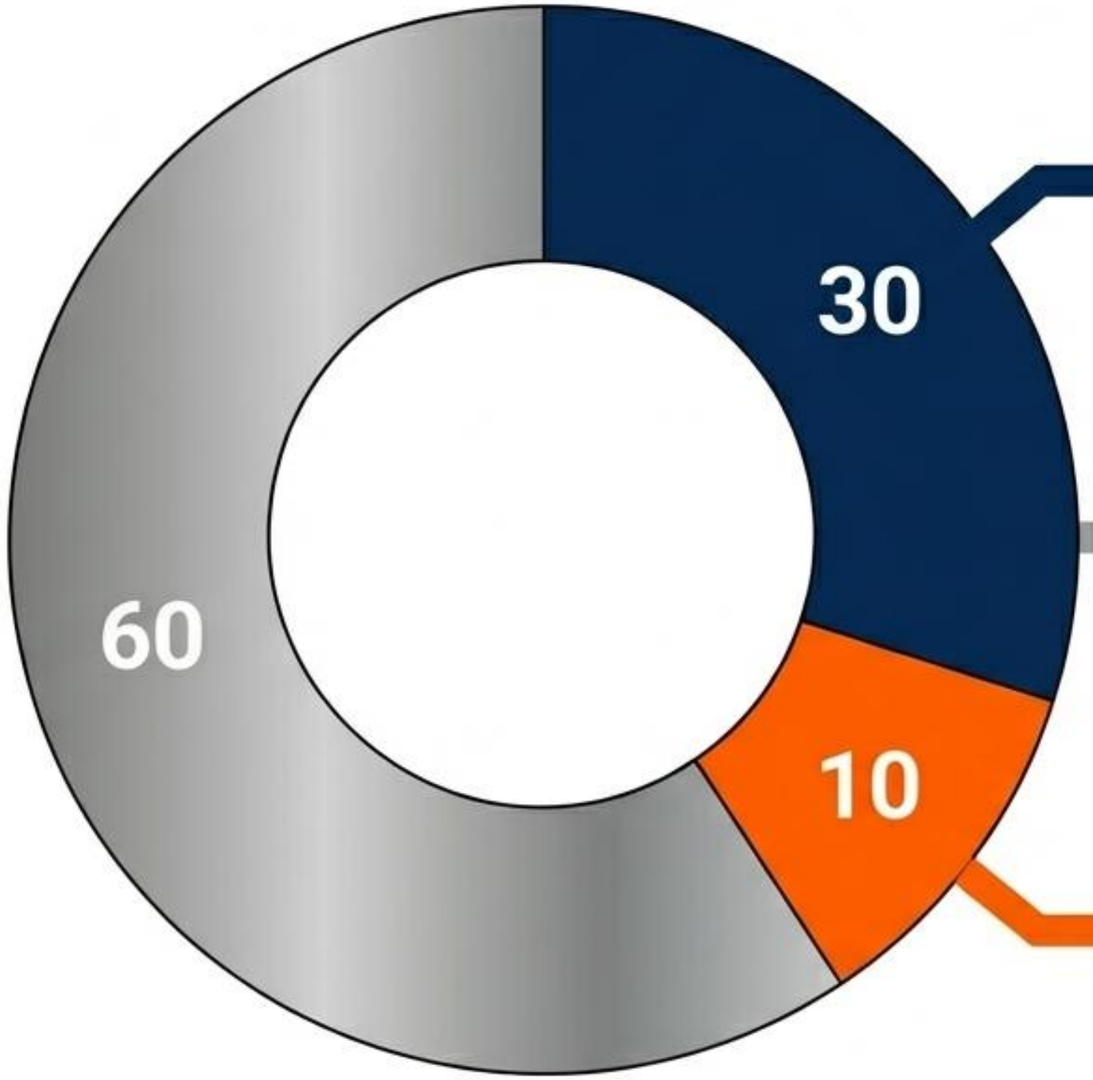
Tack Weld Constraints

Tack welds must be placed directly on the joint, forming part of the final weld.

Strict length requirement: 10 mm to 20 mm.



Test 1: The 100-Point Evaluation Rubric



30 Pts: Regulatory Compliance

Correct PPE, accurate dimensions, optimal tack lengths, pristine post-weld cleanup, and adherence to the 120-minute limit.

60 Pts: VT & PT Inspection

Straightness, uniformity. Zero surface cracks, lack of fusion, or overlap. Slag inclusions strictly ≤ 2.0mm height / ≤ 6mm length. Undercut ≤ 0.5mm.

10 Pts: Ultrasonic (UT) Diagnostics

Complete internal structural integrity. 10 points awarded for zero detected discontinuities in the pipe weld.

Test 2: Virtual Precision

Algorithmic Simulation in Hard Mode

Time Constraint:
15 Minutes per joint (Includes fit-up, parameter setting, and execution).

Authorized Hardware Stack:

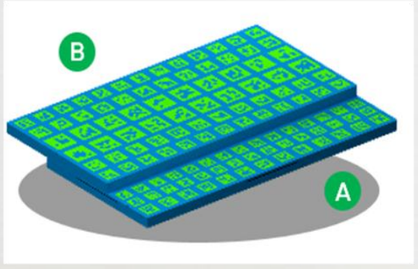
- **Platform 1:** Soldamatic by Seabery (Utilized for TIG processes).
- **Platform 2:** Welducation Simulator by Fronius (Utilized for MAG processes).

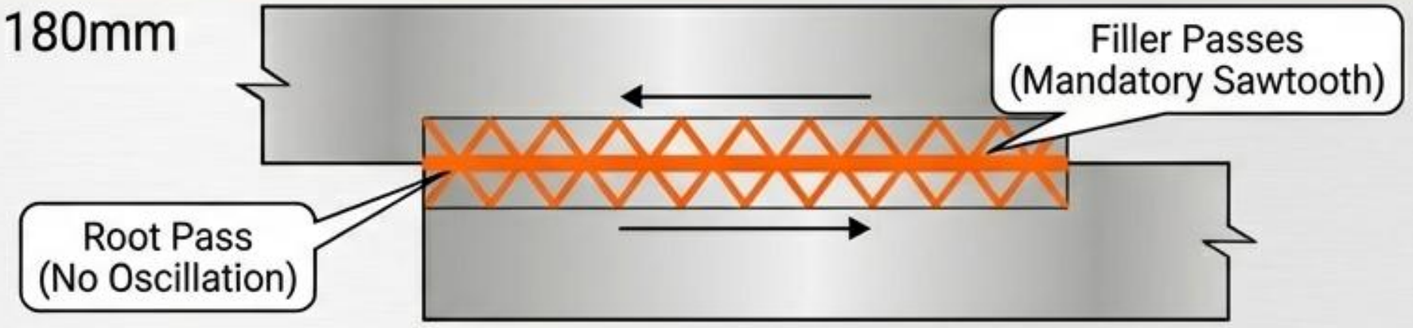
Simulation Environment:
10mm Carbon Steel Plates.

Test 2: Joint Kinematics & Trajectories

The Overlap Joint

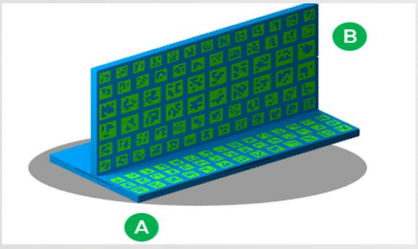
TIG Process | Position: 2F/PB | Length: 180mm

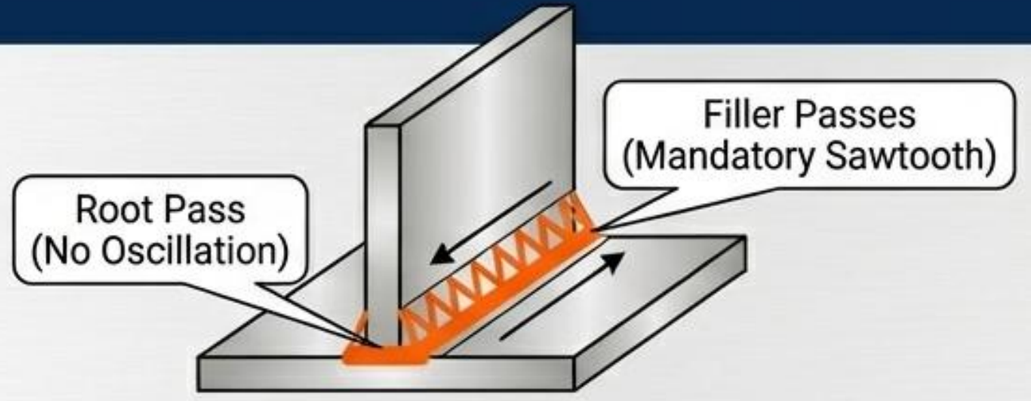




The T-Joint

MAG Process | Position: 2F/PB | Length: 180mm





The Interruption Rule: Exactly one arc interruption in the middle of each pass, followed by re-ignition.

Test 2: Algorithmic Assessment

< 60 Points: **FAIL**	60 – 74 Points: **PASS**	75 – 89 Points: **GOOD**	90 – 100 Points: **EXCELLENT**

Note: The final comparison score is the absolute total displayed natively on the simulator screen.

TEST 03

Test 3: Cobot Command

Autonomous MAG-Ro Integration

Time Constraint: 30 Minutes Total (Includes Cobot programming, fit-up, and welding).

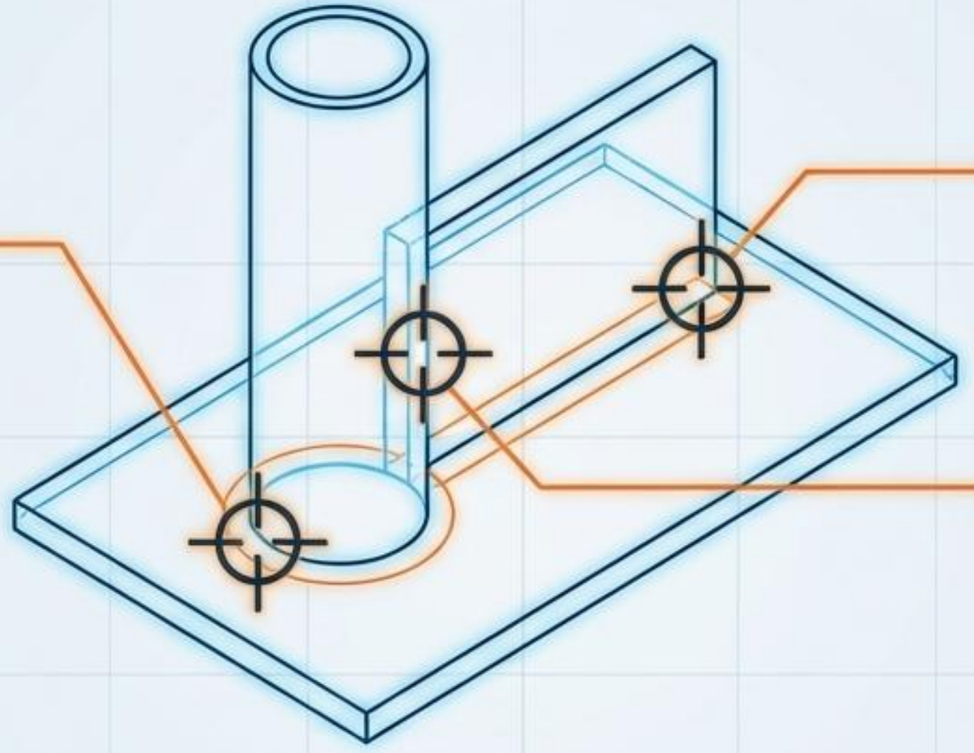
The Hardware Stack:

- Cobot Arm: FANUC CRX-10iA/L
- Welding Engine: Fronius TPS-320i

Material Bill: A36 Plates (320x180x10mm, 180x150x10mm) and A106 Pipe (Ø90x160x10mm). Tack welds (10-20mm) may be performed manually or via Cobot.

Test 3: Programmed Trajectories

Weld 1: The Closed Circle
Detail 1 to Detail 3. Position: 2F/PB.



Weld 2: The Base Straight
Detail 1 to Detail 2. Position: 2F/PB. Single side only.

Weld 3: The Vertical Straight
Detail 2 to Detail 3. Position: 3Fu/PF. Single side only.

Programming Constraints: Minimum 2 passes per bead. Root pass: no oscillation. Filler/Cap pass: oscillation required (type at competitor's discretion). Both straight welds on Detail 2 must be on the same side.

Test 3: The 100-Point Evaluation Rubric

25 Pts: Compliance

Safe setup, accurate fixturing, strict adherence to the 30-minute programming and execution window.

30 Pts: Technological Fluency

Mastery of setting current/voltage/wire speed. Proficient use of the FANUC control panel. Flawless programming logic for the 3 required welds.

45 Pts: NDT Diagnostics

Smooth arc starts/stops (no end crater pipes).
Zero surface cracks.
Fillet leg equality (z = 7-9mm).
Convexity ≤ 3mm.

Universal NDT Diagnostic Tolerances

Visual Testing (VT) Absolute Limits

- Undercut Depth (h) ≤ 0.5 mm
- Incompletely Filled Groove (h) ≤ 0.5 mm
- Face/Root Convexity (e) ≤ 3 mm
- Fillet Leg Equality (z) = 7 mm to 9 mm
- Pipe Butt Weld Width (b) = 17 mm to 20 mm

Penetrant Testing (PT) Zero-Tolerance

Absolutely no surface cracks, lack of fusion, or overlap permitted. Slag inclusions capped at 2.0mm height / 6.0mm length.

Ultrasonic Testing (UT)

Requires zero internal discontinuities for maximum points.

Secure Your Place in Hanoi

The thousand-year-old capital of culture awaits the finest minds in manufacturing.

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