

- ***EPC Storage Tanks***
- ***Commissioning And Maintenance***
- ***Mechanical Pipe Fabrication And Erection Works***
- ***Mechanical Equipment & Module Works, Assembly & Erection***
- ***Structural Steel Works***
- ***Fire Proofing, Carbolite (USA) Products***



## Group Structure



Potchanat  
Ngamlomyoung  
Managing Director



William Koh  
Director



The Companion  
Corporation Co  
Ltd (TCC)

- Mechanical Works
- Structural Steel Works
- Equipment & Module Erection
- Fire Proofing, Carboline



Cital SRL, Italy



KPW  
Singapore  
Pte Ltd



Marco Menini  
Managing Director



Potchanat  
Ngamlomyoung  
Director



William Koh  
Director

- Storage Tank, EPC

## Alliance Partners, Italy, Thailand & Singapore



Cital SRL, Italy



The Companion  
Corporation Co  
Ltd (TCC),  
Thailand



The Companion  
Maintenance  
Company  
Limited (TCM),  
Thailand



Attitude Company  
Limited (ATD),  
Thailand



Cital SG Pte Ltd,  
Singapore

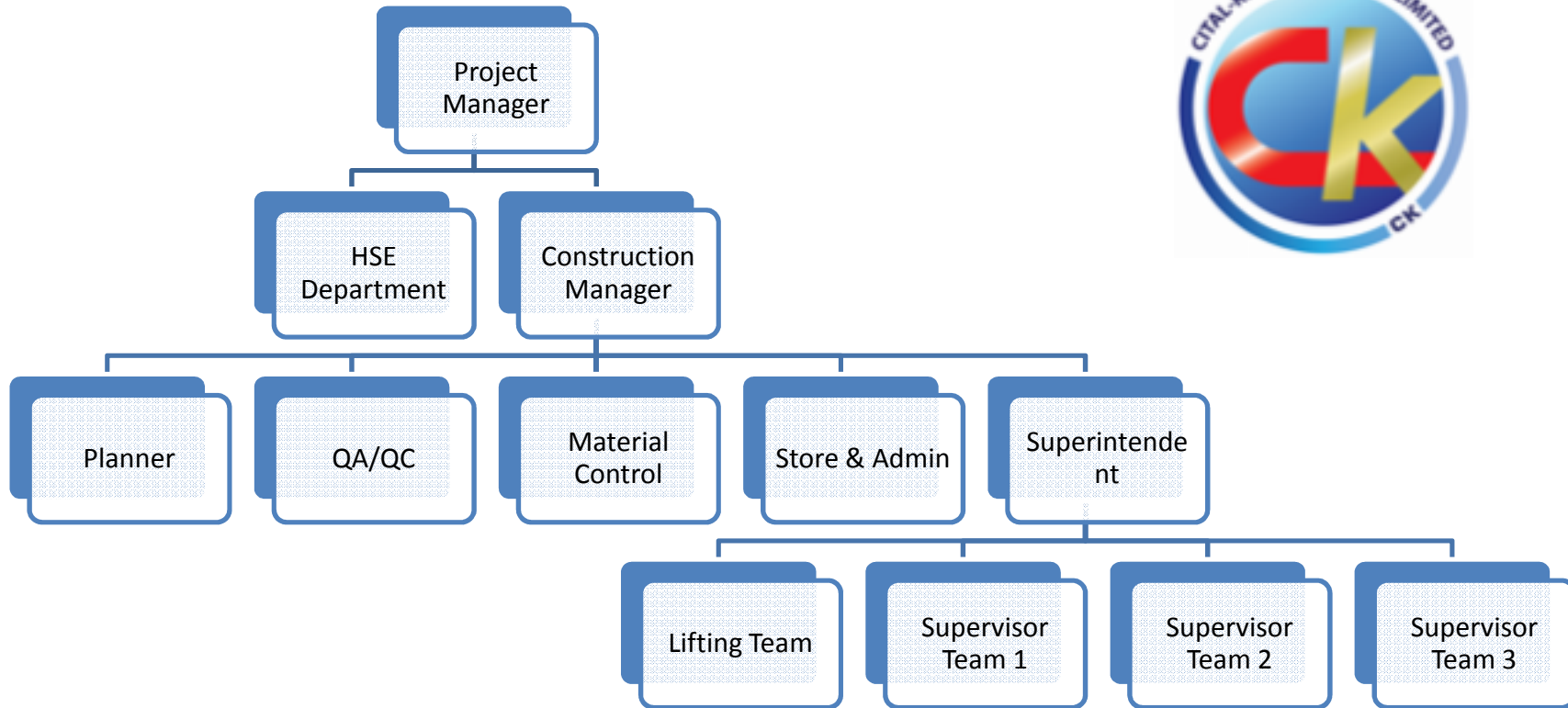


KPW Singapore  
Pte Ltd



Cital-KPW SEA  
Pte Ltd, South  
East Asia

# Organization chart Tankage



## ***Main Areas of Business*** ***Process Industries Sectors - Tuas and Jurong Island***

### ***Process Mechanical Works*** (Process & Utilities) Including:

- **Design, Engineering, Supply, Construction & Testing of Storage Tanks**
- **Piping Works, Fabrication & Installation**
- **Equipment, Cooling Tower And Module, Assembly & Erection**
- **Plant Maintenance & Shutdown**
- **Structural & General Steel, Fabrication & Installation**
- **Fire Proofing, Carboline Products**

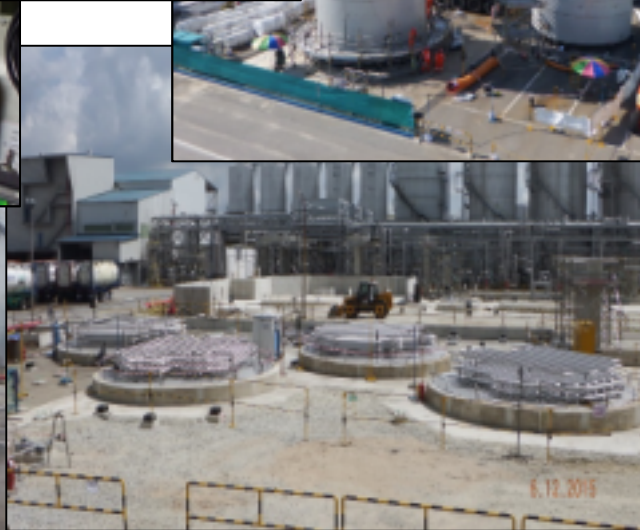
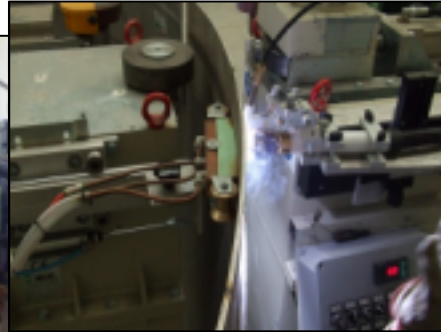
### Serving ***Process Industry Clients & Plants*** In

- Chemical
- Pharmaceutical & Bio-Medical
- Petrochemical & Refinery
- Food Processing
- Environmental



# *We cover.. The EPC*

- **Storage Tanks**
- Off-site 4-tanks concurrent erection, top-down construction method
- Safe working height maintain at 2m from the ground
- Automatic lazer welding synchronised plasma cutting
- 55-60% reduction in manpower
- Costs saving



# *We also cover. The “C” in EPC*

- Piping Fabrication and Erection
- Equipment Installation
- Prefabricated Module Installation
- Structural Steel Fabrication and Erection
- Fire Proofing, Carbolite (USA) Products



## *At A Glance*



### *Our Plans*

- *Innovation and Automation For To Achieve Utmost Safety, Quality and Productivity*
- *Increase Turnover to S\$20 mil*
- *Maintain The Good Safety Records*
- *To Integrate Our Platform With Our Alliance Partners*
- *To Expand Our Clients And Industries Base*
- *To Expand Regionally In South East Asia*



# Automation Vs Conventional

## Automation, Coil/Plates with Crane

- 
- 
- ✓ Fast erection; top-down and 4 concurrent complete tanks erection
  - ✓ Automatic lazer welding synchronised plasma cutting and final brushdown at butt joint (eliminate conventional cut and bevelling);
  - ✓ Good quality with proven good mechanical tests results
  - ✓ Safe work height maintains at 2m throughout the erection
  - ✓ 50% to 60% workforce reduction
  - ✓ Costs saving. Stainless steel tanks eliminate painting and scaffolding and reduce long term maintenance costs
  - ✓ Independent planning from civil works

## Automation, Coil with hydraulic jacks

- ✓ Best solution for space constrained site
- ✓ Good solution for tank with thickness > 15 mm
- ✓ Same advantages as Automated, Coil/Plates with Crane option

## Conventional, Plates with Crane

- ✓ Best solution for space constrained site
- ✓ Manual Weldings
- ✓ Labour intensive works
- ✓ More safety related issue due to more manpower
- ✓ Less productive
- ✓ Quality of works are dependent on prevailing skills of welders
- ✓ Slower construction period
- ✓ Carbon steel tanks will incur more costs in painting, scaffolding and craneage





## Safety, Quality, Productivites And Costs Savings

1 Continuous Roll Out, Plasma Beveling And Auto Welding Method			
1	Constructibility And Maximum Perimeter/Congifuration		
1.01	Maximum Size of the Tank	22	m dia
1.02	Maximum Height	NO LIMITATION	m
1.03	Maximum Thickness(Tank Wall)	12	mm (25mm in development)
1.04	Usage of Tank	Wide range from food to high valued chemical medium	
1.041	Controlled Weld Joints	1	horizontal joint per ring
1.042	Controlled Weld Joints	1	vertical joint(ring to ring)
1.05	Joint Preparation and Weld Joints	Plasma Welding (no beveling required)	



3 EXAMPLE OF CONSTRUCTION METHODOLOGY COMPARISON			
3.01 Comparison With Conventional Tank Construction			
3.02	No of Tank	25	no
3.03	Average Thickness	5.8	mm
3.04	Average Size	6.85	m Dia
3.05	Average Height	13.8	m

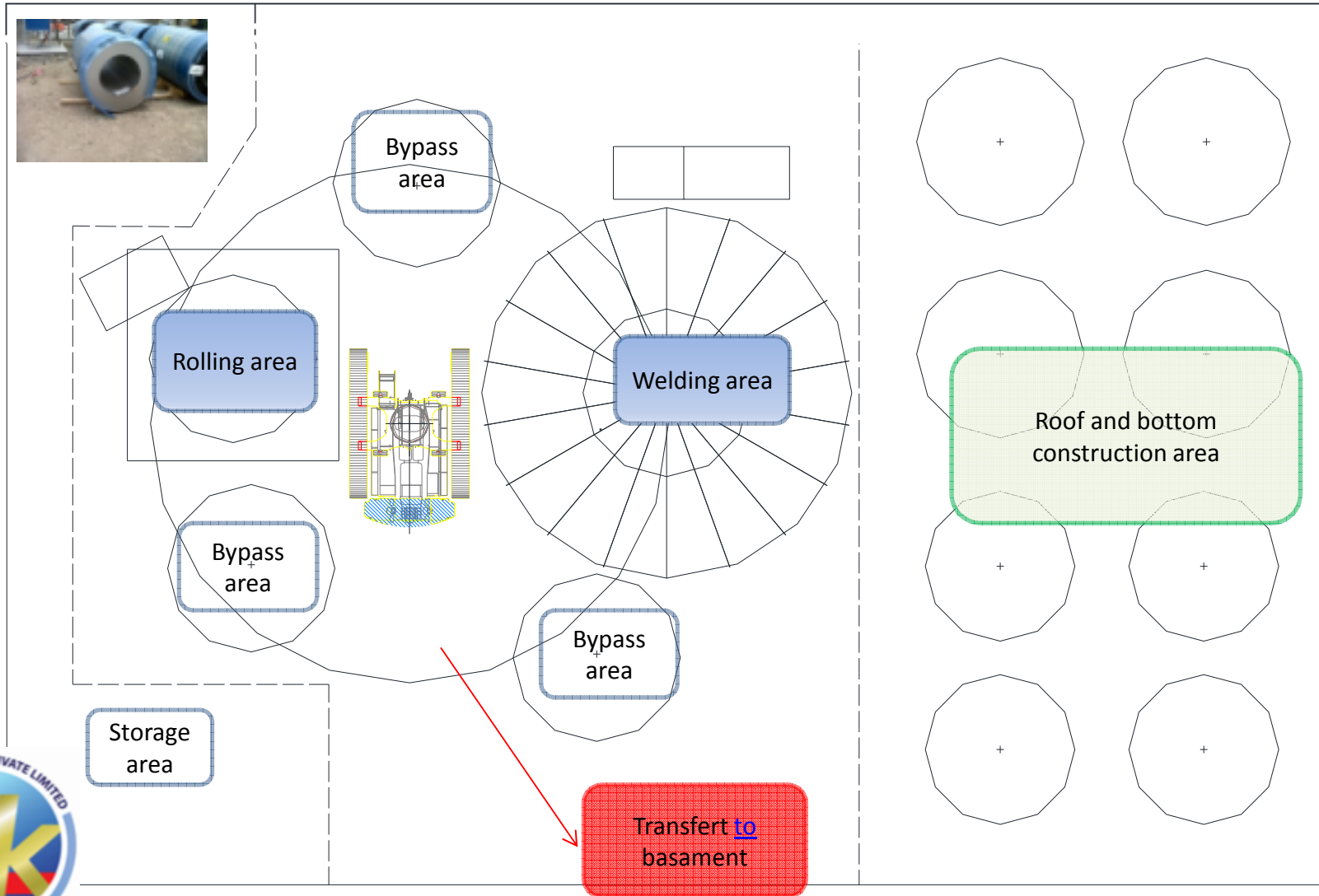
		Continuous Roll Out, Plasma Beveling And Auto Welding Method	Conventional Plate-By-By Manual Beveling and Welding
3.11	Headers	API650	API650
3.111	Code	Stainless Steel	Carbon Steel
3.112	Material	Single Continuous Plate Per Ring	6m Length Per Piece, Conventional Rolled Out, More than one plate To Form One Ring
3.113	Plates	1.2 to 2m from the Ground (Always At Low Level)	13.8 m (top level) Follow The Height Of Construction
3.114	Safety-Working Height	Top Down Construction (Minimize Working At Height)	Bottom Up Construction (Exposure To Working At Height Risks)
3.115	Safety-Construction Method	1 Concurrent Automation (beveling and lazer weld)	5 Manual beveling and manual welding
3.116	QA/QC-Horizontal Weld (Ring to Ring)	1 Double Sided Weld (tandem welding)	1 Single Sided Weld
3.117	QA/QC-Vertical Weld Per Ring	Better and Consistent Weld Quality	Conventional Quality Depend On Skill Of Welder
3.118	QA/QC-Weld Quality	4 to 5 Tanks Concurrently ("Conveyor Belt System"), Better QA/QC	1 At A Time, Highly Dependent Of Workers Skill And Source
3.119	QA/QC-Concurrent Multiple Tank Construction	Built Off Site/At Temporary Laydown Area/Yards	At Final Tank location. If base foundation are not ready erection cannot start.
3.12	QA/QC-Locality of Tank Construction	More Focus and Better Quality	Tight Schedule Works, More Risks In QA/QC
3.121	QA/QC-Civil and Other Associated Works	Concurrent Activites for Tankage, Civil and Other Associated Works, Shorter Period	Tight Schedule Works, Bottle Neck And Possible Delays
3.122	Productivity-Construction Schedule	70 to 80 Workforce	250 to 300 Workforce
3.123	Productivity-Manpower	Less Manpower, Less MYE, Less Levies, Less Accomodation, Transportation And Welfare For Workers	More Costs and More HR Issues
3.124	Cost Savings - Less Costs, HR And Social Issues	Reduced height of working and standing time of the scaffolding, less costs	Conventional Full Height Scaffolding And Standing Time, More Costs
3.125	Cost Savings - Scaffolding	Top Down Construction Reduce Requirement of Massive Scaffolding Requirements and Coordination	Bottom Up Construction, More Scaffoldings And Height Requirement and Coordination
3.126	Cost Savings-Painting And Repainting	Stainless Steel Tanks Requires Much Lesser Maintenance And Costs Thereof	Carbon Steel Requires More Routine Maintenance, Repainting And Costs Thereof. If Compare With Stainless Steel Conventional Method, Costs of Conventional Method Are Much More
3.127	Cost Savings-Painting And Repainting	Stainless Steel Tanks Requires Much Lesser Maintenance And Costs Thereof	Carbon Steel Requires More Routine Maintenance, Repainting And Costs Thereof. If Compare With Stainless Steel Conventional Method, Costs of Conventional Method
3.128	Maintenance		

# TOP to BOTTOM No 4 TANKS



18.11.2015

# Typical layout of the working area



Base material.	Diam.	Height.	Av. thick.	Erection time
type	mm.	mm.	mm.	weeks
316L	8.000	16.000	5.3	12



Rolling Machine & vertical welding & assembling

circumferential autowelding

by pass

SS coils storage



18.11.

# MATERIALS

## Stainless Steel

- 304L,
- 316L,
- 316Ti,
- SAF2205,
- SAF2507,
- 904L,
- C276,
- LDX2101 – this material has a high tensile stress so it is possible to recover a lot of weight into construction on large SS tanks



# ROLLING & ASSEMBLING STATION



29.10.2015

# ROLLING & ASSEMBLING STATION



24. 2. 2016

22. 2. 2016

23. 2. 2016

# ROLLING & ASSEMBLING STATION



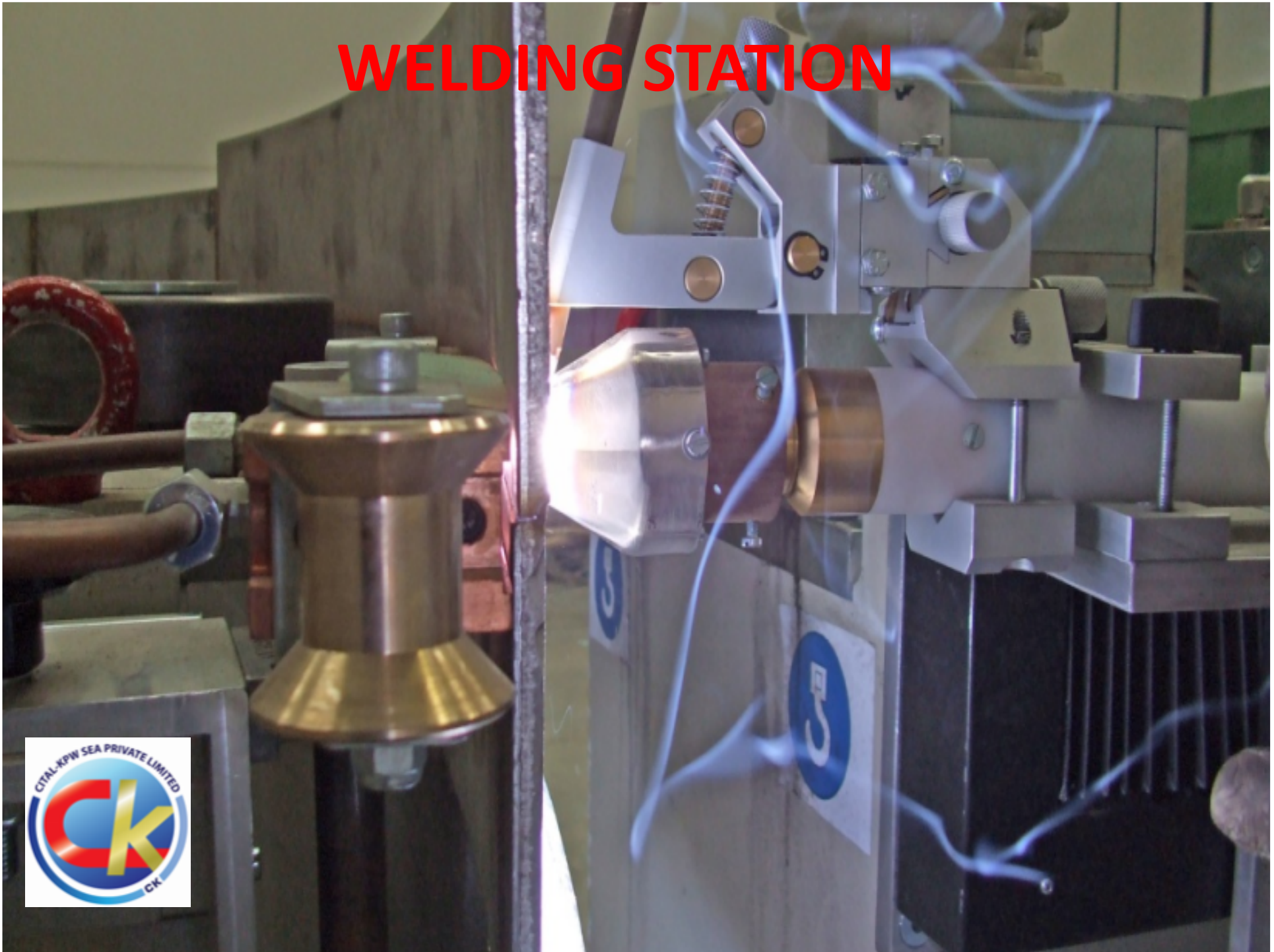


# WELDING STATION



29.10.2015

# WELDING STATION



# WELDING STATION



# BOTTOM PLATE & ACCESSORIES



# BOTTOM PLATE & ACCESSORIES



6.12.2015

# OTHER ACCESSORIES



# OTHER ACCESSORIES



# TANK TRANSPORTATION





# TANK TRANSPORTATION



# TANK TRANSPORTATION



6.10.2015

# TANK TRANSPORTATION



10.12.2

# TANK TRANSPORTATION



11.12.2015

# PAINTING & INSULATION



24. 2. 2016

# FINAL RESULT

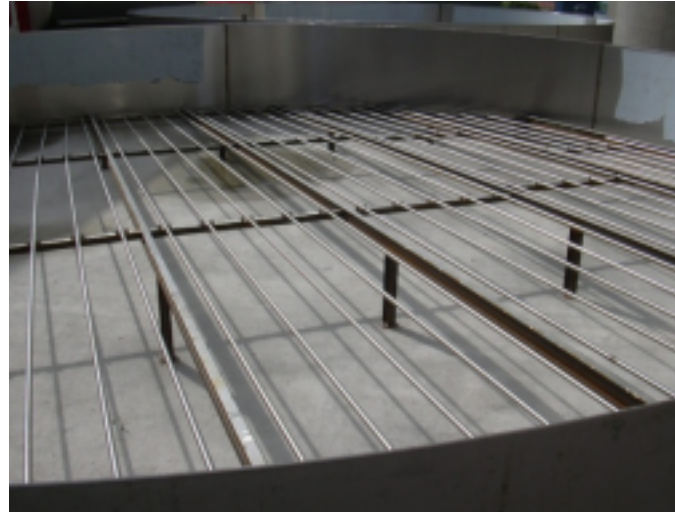


24. 2. 2016

# SOLUTION FOR HEATING COIL

## Solid plates and coiling

External coil  
External half-pipe



## Dimple type plates

Shell plates  
Internal baffles

