WELLSUN INDUSTRIES

An ISO 9001:2015 Certified Company

# Specialist in Heat-treatment

CitectSCADA

Schneider Electric

**Process is control by Fully Auto-matic Schneider Scada System**


**Company Address** : **UNIT 1-** Survey No 162 , Plot No 9 , SIDC Main Road Sumangal Forging Road, Veraval (Shapar)

: **UNIT 2** - Survey No 171/1 , Plot No 38 , Nr Marshal Technocast Opp Atul Auto Ltd , Veraval Shapar

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## About Company

### Wellsun Industries Unit : 1

### Welllsun Industries Unit : 2

## Quality and Vision

**Well sun Industries** is prominent organization contributing all our resources to offer well organized and effective service such as **Heat-Treatment Process.** Our company is growing immensely in the market as rendering Heat-Treatment Services. We provide Heat-treatment service by Salt bath hardening and tempering for stress reliving.

These are rendered in a systematic manner employing latest techniques and technology. The heat treatment services, we provide are applauded for their promptness, use of **a** grade raw material and customer friendly approaches. Moreover, our emphasize on R&D activities to adopt innovative services, execution techniques have enabled us to stand ahead of our counterparts.

Our motto is providing best quality and service to the customer. By utilizing skills of our expert professionals and creative workers, we are engaged in offering an extensive range of **Heat Treatment Services**. These services are rendered under the vigilance of our adept professionals who maintain all quality standards prescribed by leading industry. From start to finish, we maintain a high level of heat treating quality in a commercial heat treating shop that controls the processing of work.

Ensuring top quality to our customers is our highest priority. With many components being used in critical assemblies our quality standards must always be second to none. Each order we receive is evaluated for best possible process requirements and, strict supervision ensures that individual's attention is maintained throughout processing.

Our policy is to continue to give you "the customer" a fast, efficient and competitive service, we are aware of the trust you place upon us and our aim will always be to give you complete satisfaction. The need of our customers will continue to be paramount.

It is our policy to continually invest in plant, processes, quality assurance and comprehensive training of personnel - all of which are continually assessed to ISO 9001:2015.

The plant is operational 24×7 in order to ensure fast turnaround at competitive prices.

## About Service

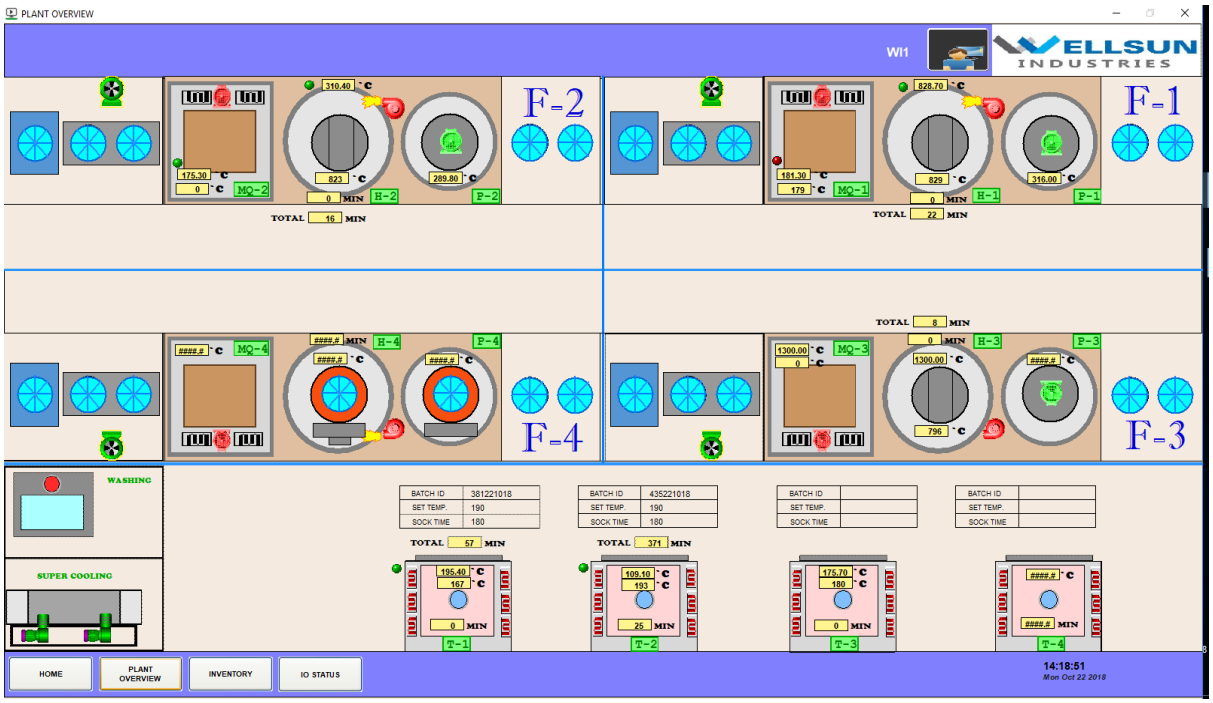
- **Incoming Inspection Making Reciepe in SCADA system**

Incoming inspection is necessary for ring. We measure all the dimension of part and select the proper method of heat treatment by its material and dimensions.

After Inspection of material we generate Proper Recipe from our validate data Sheet (Temperature , Time for all processes ) and fill it to our scada system .

- **Use Of Scada System in Furnace**

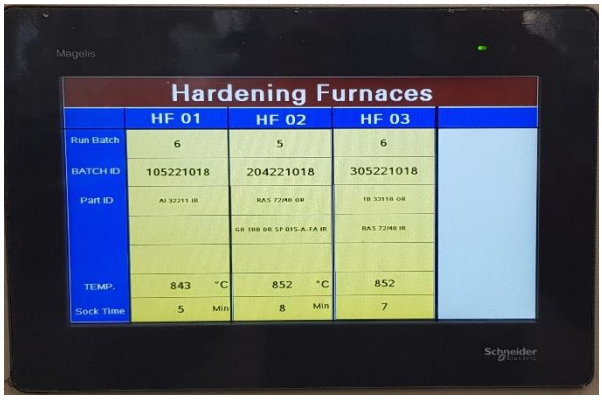
**Supervisory Control and Data Aquisition System** provides users with advanced furnace functionality, monitoring, reporting and analysis. A SCADA system allows users to capture and trend data, as well as provides the ability to log process data for future review. The system monitors vacuum levels and temperature, and it displays up to five main screens and their associated submenus, giving operators the ability to monitor and control several pieces of equipment at once.
The SCADA system's intuitive design maximizes operator control using a user-friendly graphical interface and a highly advanced intelligence core to create a full-scale solution center. End users can view, alter and measure furnace data, as well as manage operational settings of multiple furnaces at once



- **SCADA controlled Hardening in Saltbath Furnace**


Preheating Furnace is provided with centrifugal air circulating fan for uniform preheating of material before immersed to saltbath.
Salt bath furnace is running on Natural Gas (PNG) With Important Burner. Salt Bath Hardening can offer advantages over alternative hardening and tempering methods. Molten salt is often considered the ‘ideal' heat treating medium. When parts are immersed in the salt bath, heat is transferred by direct contact to the surface, air cannot contact the work piece and scaling, oxidation and decarburisation are avoided.

**With Scada based furnace We use HMI For Controlling our furnace . In HMI operator select only part code of Material then after All Recipe which made earlier is AUTOMATIC SET in Furnace Parameter .So All mankind mistake is eliminate .**




For Quenching we have Mar quenching Furnace that control by controller.
Cleaning of saltbath is essential process. We clean the bath regularly for better quality.

- **Washing machine with two zone – washing , rinsing**


After the salt-bath heattreatment process washing is necessary of cleaning of material . we introduce Double chamber Conveyor type Automatic washing machine for this purpose instead of conventional washing method . High pressure water nozzles 120 NOS is fitted in chamber of machine that remove salt or any dirt from the material and its groove .

After Washing In first zone material reach to rinsing zone. At which rinsing is done by Fresh water so finally we insure proper washing.

## ▪ Hardness Testing


Hardness testing is heart of heat treatment process . We are using Saroj Made Rockwell hardness tester . We measure hardness of 10% of material at each batch of hardening . also hardness tester is calibrated by master block daily in time interval . We also send hardness report to the customer per batch .

## ▪ Ovality resolve

Ovality resolve is one important process in heattreatment . Ovality came in the ring due to heat treatment process . We resolve ovality of 100% material in definite range by bolt-nut method and tight it to opposite of deviation and put it to tempering furnace it is resolve.

- **Super cooling Process**

A Certain amount of retained Austenite may always be found in hardened steel. Retained Austenite reduces the hardness, wear resistance and thermal conductivity of steel and makes its dimensions unstable.

A Super cooling Treatment has been devised to reduce the retained Austenite in hardened steel. It consists in cooling the metal to Super cooling Temperature. This treatment is suitable only when the temperature at which the Martensite transformation is completed (Mf) is below Zero.

Cooling to Mf transforms the retained austenite into Martensite. This increases the hardness of the part and its dimensions will become more stable. There is no purpose in cooling below Mf since no additional transformation of retained austenite occurs below this temperature.

Super cooling Treatment is usually conducted in the defined temperature below 2˚c and holding time at this temperature from 0.5 to 1 hrs.

- **Scada controlled Tempering**

Tempering is a process of heat treating, which is used to increase the toughness . Tempering is usually performed after hardening, to reduce some of the excess hardness, and is done by heating the metal to some temperature below the critical point for a certain period of time, then allowing it to cool in still air. The exact temperature determines the amount of hardness removed, and depends on both the specific composition of the alloy and on the desired properties in the finished product.


The tempering process re-heats the steel to between 200 and 600 °C (400–1100 °F). Tempering the as-quenched martensite precipitates fine carbides, which are designated transition carbides. Nucleation of these carbides relieves micro-stresses in the martensite matrix and prevents cracking.

We provide tempering by electric resistance heating for uniform distribution of temperature with specific time . Our tempering furnace capacity up to 450˚c

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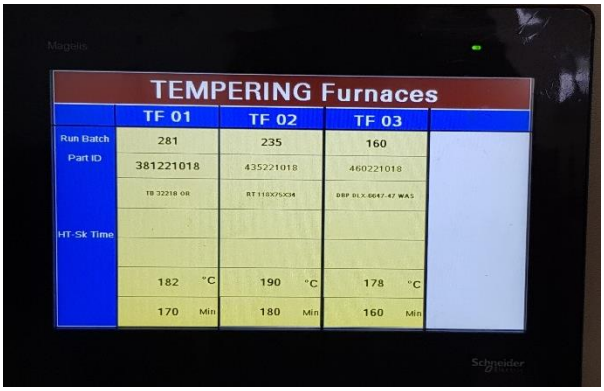

## Testing Equipments

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- **Hot Mouting Press**

After cutting the specimen, the next step is mounting. The aim of mounting is to handle small or odd shaped specimens and to protect fragile materials, thin layers or coating during preparation as well as to provide good edge retention. Mounting produces specimens with uniform size so that it is easier to handle in automatic holders for further preparation steps. In hot mounting, the specimen is mounted under heat and pressure with a hot mounting press.


- **Examine Microstructure**

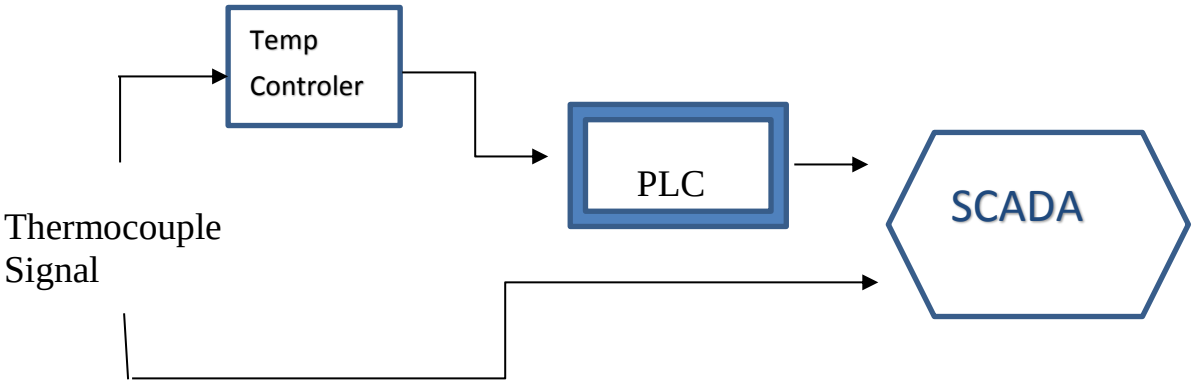
Heat treatment service quality is assured by microstructure of metal .

Microscope is the most important instrument for Heat Treatment Service provider. Olympus (JAPAN) make inverted microscope is our prime instruments. Digital camera is attached with the microscope for digital photography. Microstructure is analyse by metallurgy regularly. Microstructure report also provided to customer.

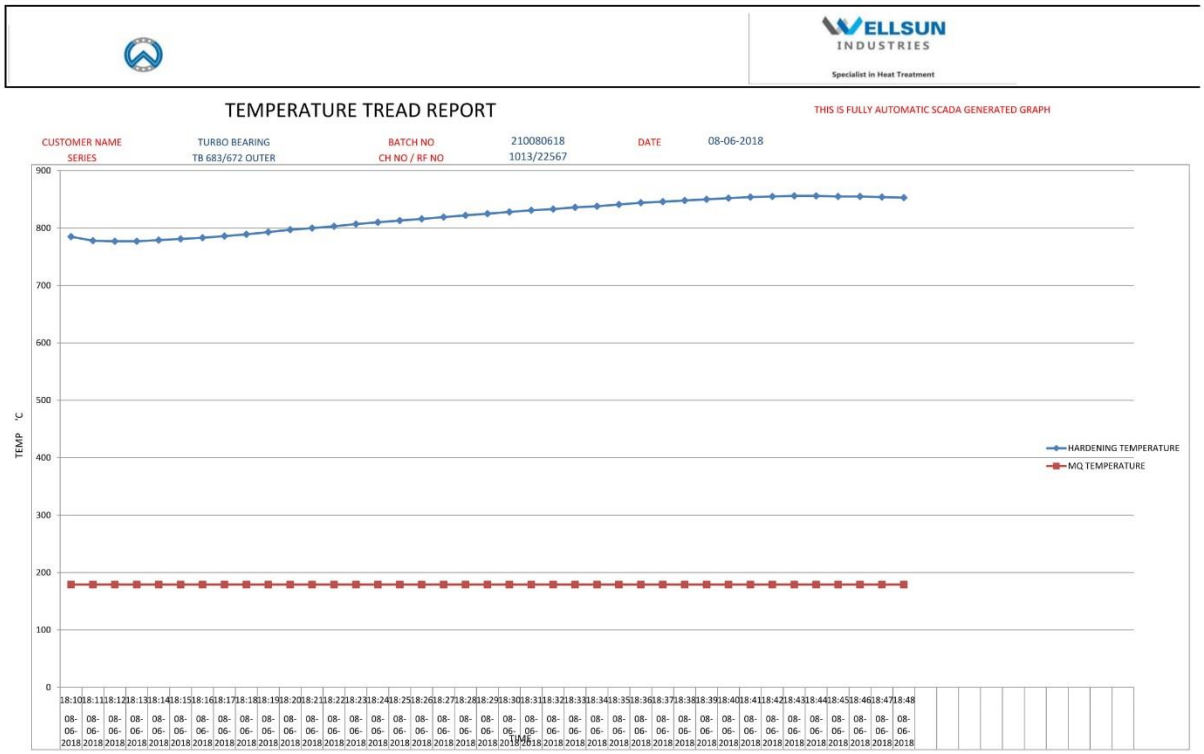
- **Temperature Data logger in SCADA System**

All furnace station has duplex type Thermocouple , In which two signal of temperature is generate. One is connected to temperature controller through plc And other safety controller is direct connect to PLC system . Scada Continuously Check difference between two signal . So Failure of thermocouple can be eliminate easily.

All Channel Temperature data is save in scada system with unique Batch ID No.




Temperatue trend Diagram also generated in SCADA system



- **Oiling**

Oiling is one of the important process for heat treatment to the finish good. We provide oiling machine to oil the material with standard oil .
Oil is necessary to prevent scale on material also protect material fro environment effect .

- **Traceability System**

**SCADA system have UNIQ batch ID for each and every batch of furnace . So we can trace all data with material at any time .**

## Plant Overview

**Plant Capacity –500 MT per month**
**Plant Area – 26000 sq Ft**
**Working Area – 16500 sq Ft**
**Furnace Facility**

| | |
|---|---|
| Preheating Chamber | 5 No's |
| Salt bath Hardening Furnace | 5 No's |
| Mar Quenching Furnace | 5 No's |
| Washing Machine | 2 No's |
| Tempering Furnace | 6 No's |
| Super cooling Chamber | 2 No's |
| Oil tank | 5 No's |

# Testing Instruments

Olympus GX-41 Inverted Microscope With Digital Camera
Rockwell Hardness Tester
Cutting Machine
Polishing Machine
Hot Mouting Press

# System Facility

All Controllers Are Calibrated by External Agency
Hardness Tester Is Calibrated by External Agency
Master Thermocouple Is Available with Us
Dial Gauges for Ovality Checking and Bucking Are Available
Spare Thermocouples and Controllers Are Available

## Our Valuable Customer

- TURBO BEARING PVT LTD
- ROLEX RINGS PVT LTD
- KASUMA BEARING PVT LTD
- GALAXY BEARINGS LTD
- MARS BEARING PVT LTD
- MARC BEAING PVT LTD
- DELUX BEARING PVT LTD Unit-1
- RAS BEARING PVT LTD
- AKSHAY BEARING PVT LTD
- RUDRA STEEL INDUSTRIES
- TURNO TECH AUTO ENGINEERING
- DELUX BEARING PVT LTD Unit-2
- JVROULEMENT INTERNATIONAL
- AYUSHI ENGINEERING COMAPNY.
- KANSARA ENGINEERS PVT LTD
- KCI BEARINGS (INDIA) PVT LTD
- UMA SPRINGS PVT LTD
- VAISHALI AUTO INDUSTRIES
- POWER MASTER INDUSTRIES
- CONTACT BEARINGS CO. PVT LTD
- GUJARAT LATHE MFG CO PVT LTD.