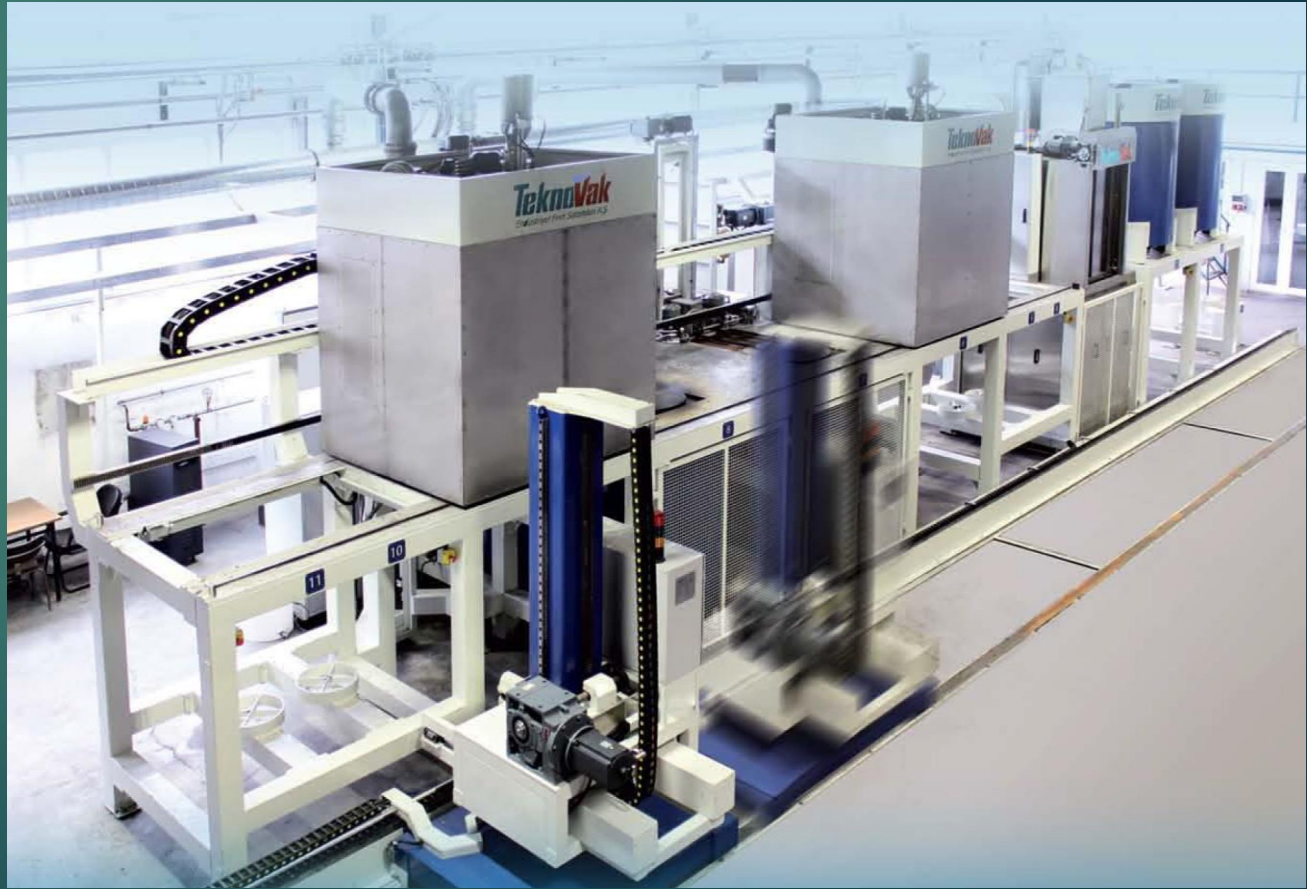




THE TECHNOLOGY AND CAPABILITY



OUTLINE

1. Introduction
2. Capabilities
3. Facilities
4. Products
5. Special Projects
6. Partners
7. Targets
8. Economy



INTRODUCTION

It is an R-D-I based company that develops and manufactures furnaces for the heat treatment applications as demanded by critical products.

It has been serving various sectors effectively and efficiently since 1989, more than 30 years, 4000 m² indoor area in Avcilar/Istanbul/Turkey.

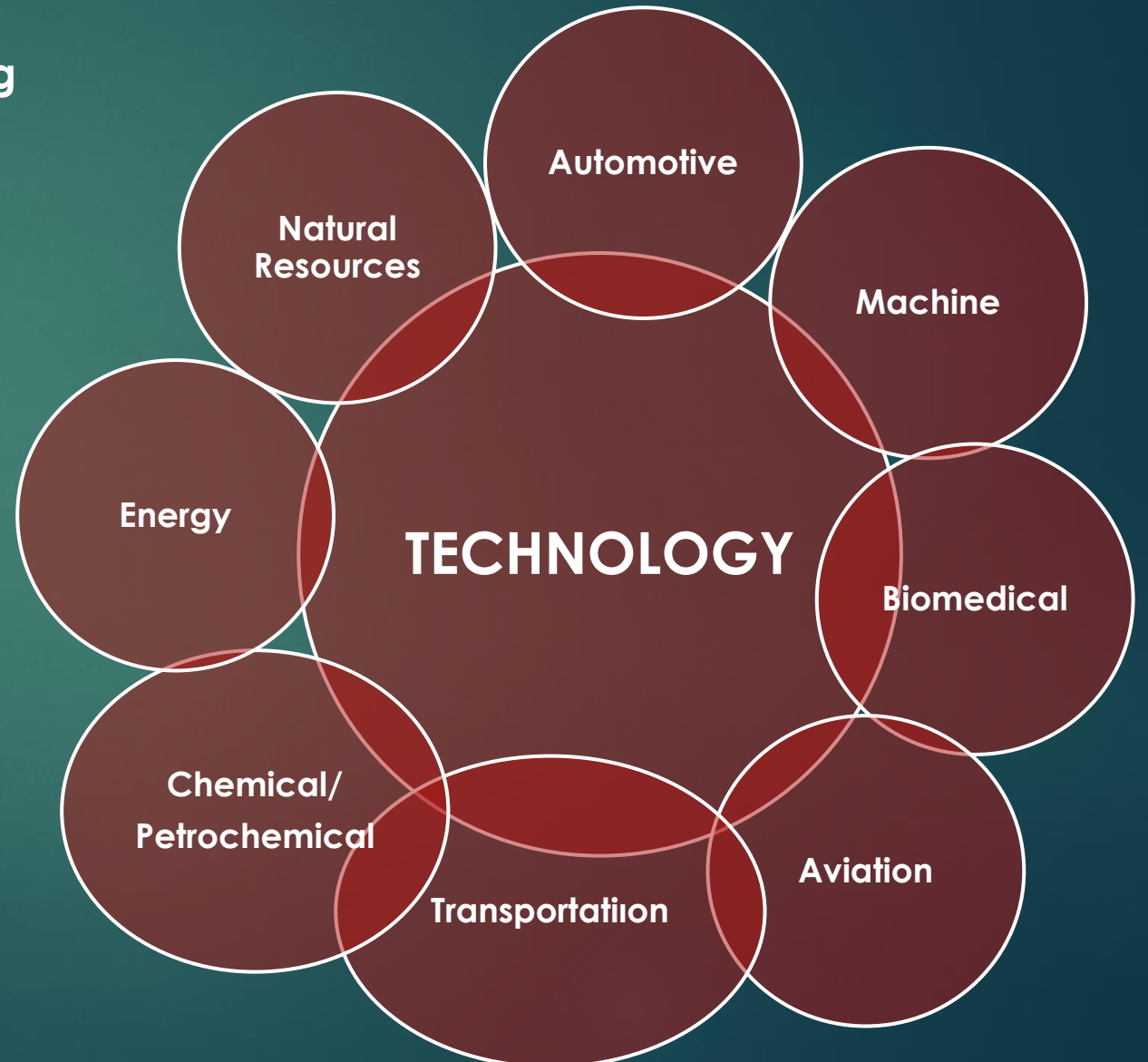
It's spectrum includes:

- Project development
- Assessments
- Planning
- Manufacturing
- Testing
- Services
- R-D-I Activities
- Consultancies
- Partnerships



WE CREATE SPECIAL FURNACES For The CRITICAL PROCESSES

- KN controlled Gas Nitriding and Nitrocarburizing
- Post Oxidation
- Thermal Etching
- Hardening
- Carburizing (Selective)
- Carbonitriding (Selective)
- Austempering
- C-Austempering
- CN-Austempering
- Martempering
- TiAlV4 solid solution (900°C) and Aging
- Tempering
- Aging
- Subzero Cooling
- Cryogenic Cooling
- Aluminum Solute Solutions Furnace
- NH₃ Cracking
- Neutrulization



The PRODUCTS

Gas Nitriding Furnaces

- YGN SERIES
- AGN SERIES
- DGN SERIES

T6 Aluminum Furnaces

- T6 SERIES

Bell Type Atmosphere Controlled Furnaces

- AGS SERIES

Cryogenic And Sub-zero Furnaces

- CRY-SERIES

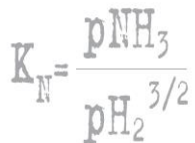
Other Complementary Products

- INCINERATOR For NO_x AND NH₃ EMISSION REDUCING
- NH₃ CRACKERS and VAPORIZERS

Special Process Furnaces

Heated By Electricity Or Gas

YGN Series



Smart Solution

Unique System



Aviation industry, Custom 465
Nitriding Depth: 18 μm ± 2 / 1100 HV

High Speed Heating and Cooling!!!!

Process Time 4 Hours

For Aluminum Extrusion Dies

- ✓ **Multi Process and Missions**
- ✓ **Advanced Technologies**
- ✓ **Remote Control Systems**

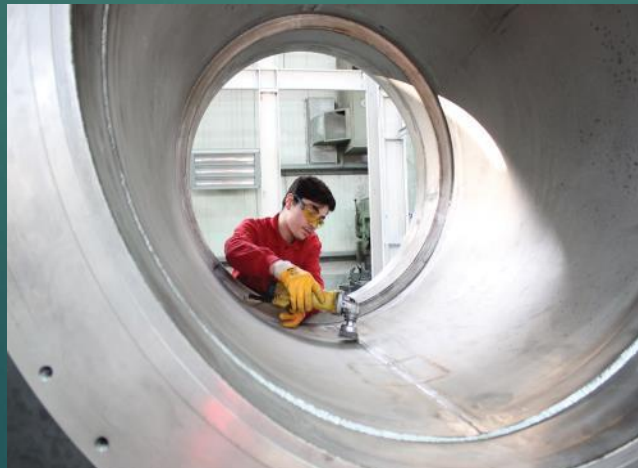
Main Chassis



TIG Welding



Work of Art



Assembly



	Dimensions (WxLxH), (mm)	Capacity (kg)	Max. Capacity(Kg)
YGN-S	600x900x600	800	1000
YGN-M	900x1200x900	2500	3000
YGN-L	1200x1500x1200	4000	5000



Small and Large Series in Konya,

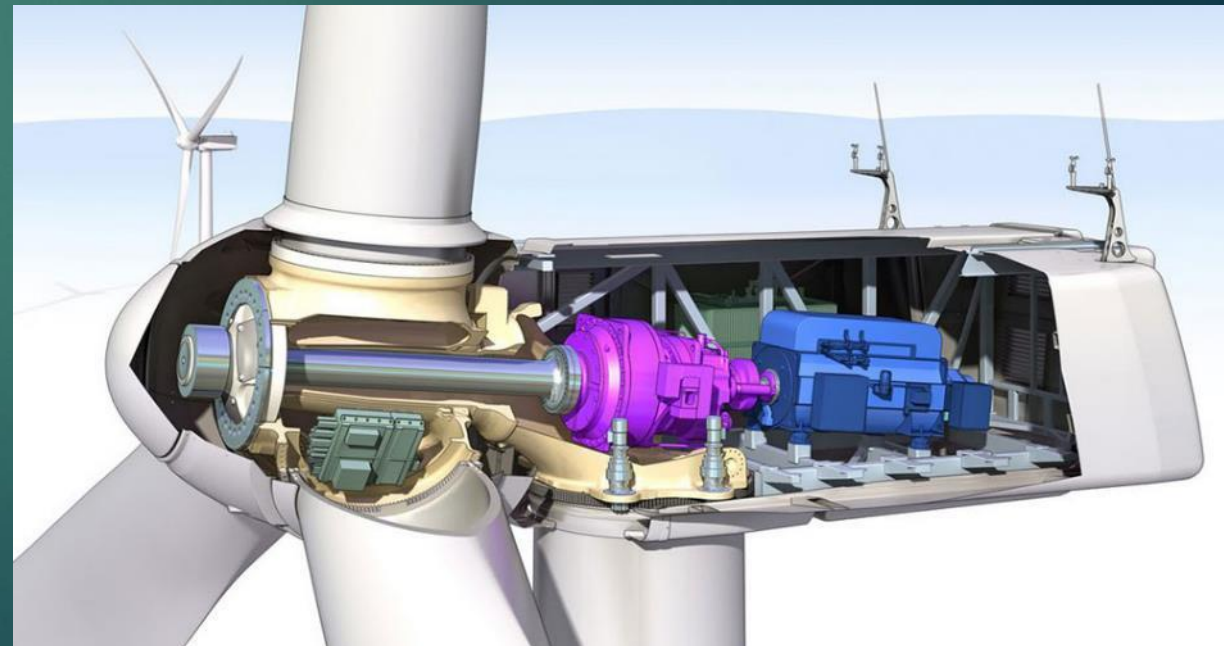


Small Serie in Tekirdag



	Dimensions (Dia.xH), (mm)	Capacity (kg)	Max. Capacity (Kg)
AGN-L	1500x2000	5000	6000
AGN-XL	2000x2000	8000	10000
AGN-XXL	2500x2000	15000	18000

For the wind power gear box system



DGN Series

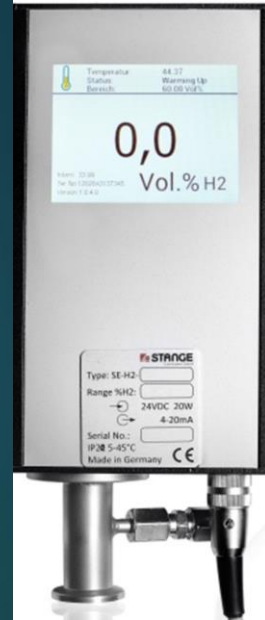
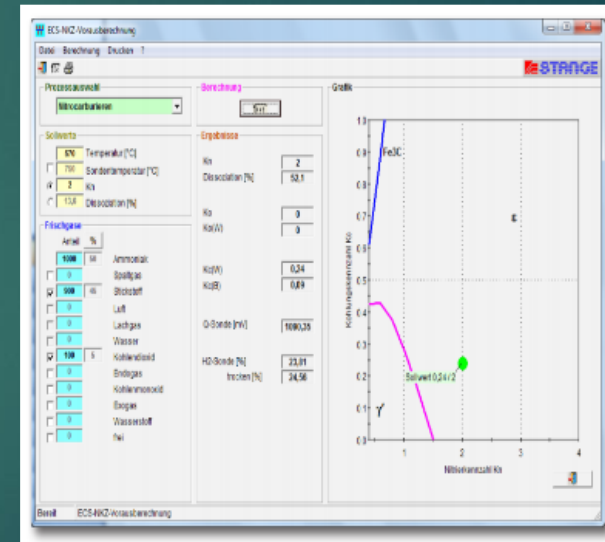


- **Stange-Elektronik** Control and Automation,
- KN Controlling by Smart Stange H₂ Sensor,
- Repeatable Processes for the White Layer and Diffusion,
- Minimum Gas Consumption(Less than 35%),
- ▶ Online Process Watching and Recording System,
- ▶ High Speed Cooling

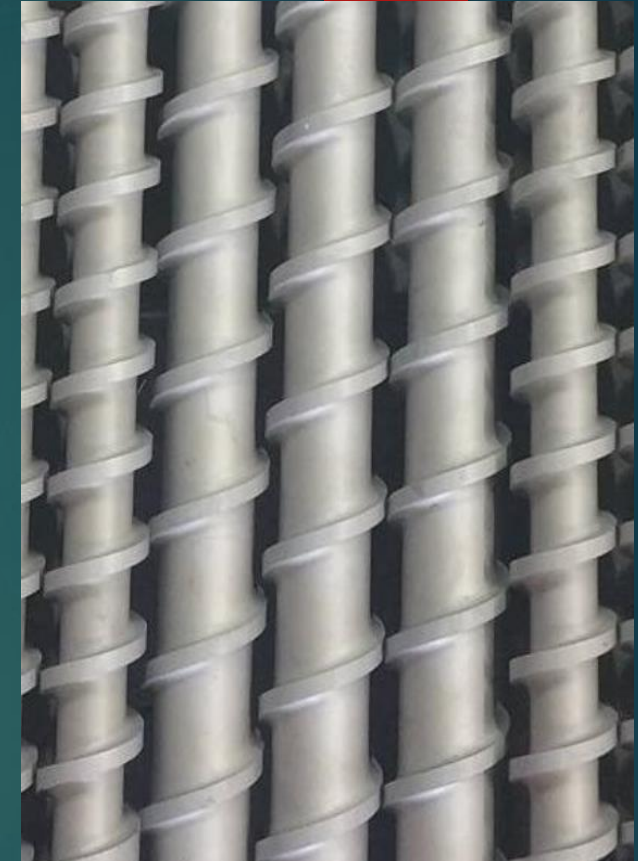


Optional Features:

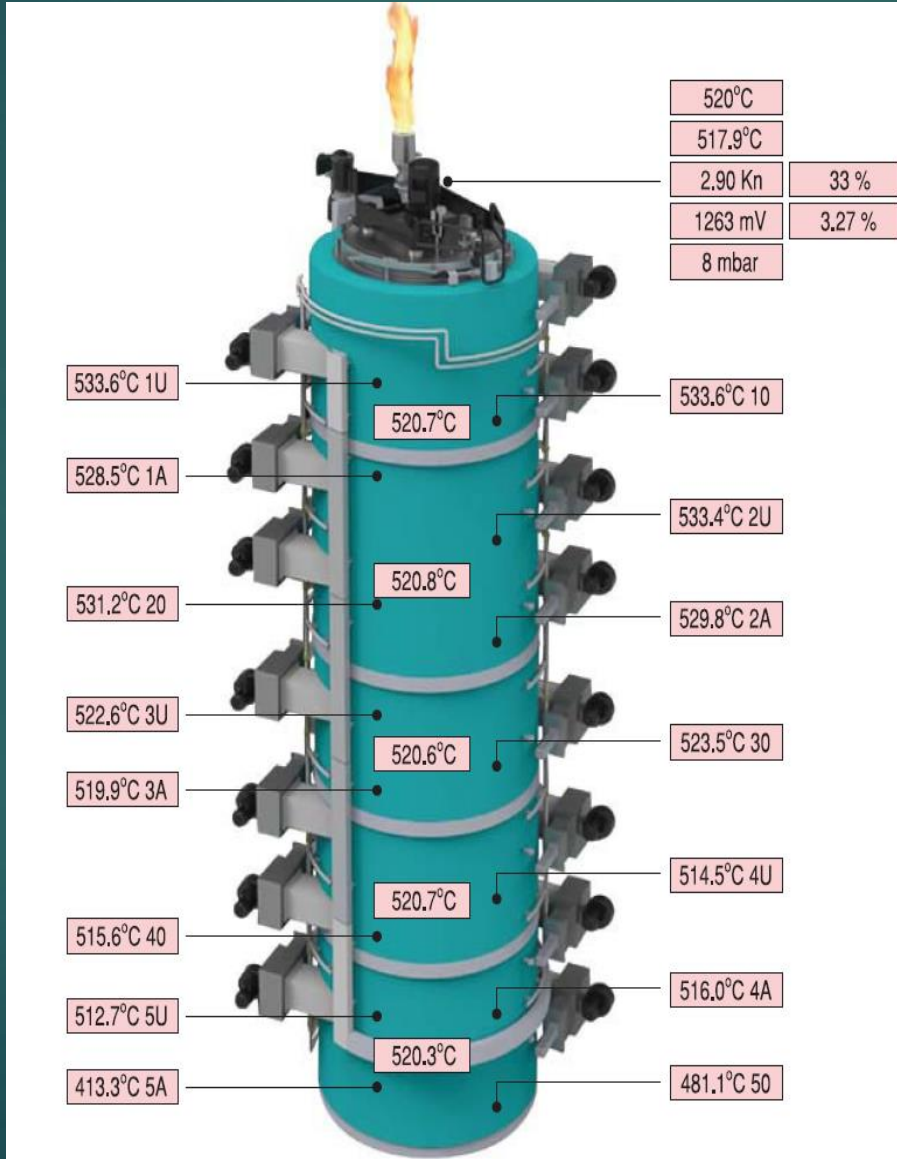
- Integrated Vacuum Pump,
- Ammonia(NH₃) Cracker,
- Chemical Etching System ,
- Ammonia (NH₃) filtration System,
- Post Oxidation by Oxygen Sensor,
- AMS 2759/10 & 2759/12 Compliances,



FURNACE MODELS	Dimensions (Dia.xH), (mm)	Capacity (kg)	Max. Capacity (Kg)
DGN-10	630x1500	1000	1200
DGN-16	800x1800	1600	2000
DGN-35	1200x2000	3500	4000
DGN-50	1500x2000	5000	6000
DGN-100	1200x8200	10000	12000







**0.70 mm
A Diffusion Depth**

and

**1100 HV
Surface Hardness**



- From 1100°C to -150°C
- From Automotive to Aviation

Process Capabilities

Process/Temperature°C	450 - 500	500 - 600	600 - 650	700- 800	800 - 850	850 - 900	900 - 950	950 - 1050
Annealing & Normalizing				✓	✓	✓	✓	✓
Nitriding	✓	✓						
Nitrocarburizing		✓						
Oxidation	✓							
Carburizing							✓	
Carbonitriding						✓		
Austempering					✓	✓	✓	✓
C-Austempering					✓	✓	✓	
Hardening					✓	✓	✓	✓
Soldering	✓	✓	✓	✓				
Brazing					✓	✓	✓	✓
Normalizing				✓	✓	✓	✓	
Boronizing				✓	✓	✓	✓	✓
Solution annealing	✓	✓	✓	✓	✓	✓	✓	✓
Aging	✓	✓	✓					
Salt quenching				✓	✓	✓	✓	✓
Water quenching				✓	✓	✓	✓	✓
Oil quenching				✓	✓	✓	✓	✓
Stress Releasing	✓	✓	✓					

New Process

C-Austempering

for Power

Transmission Units

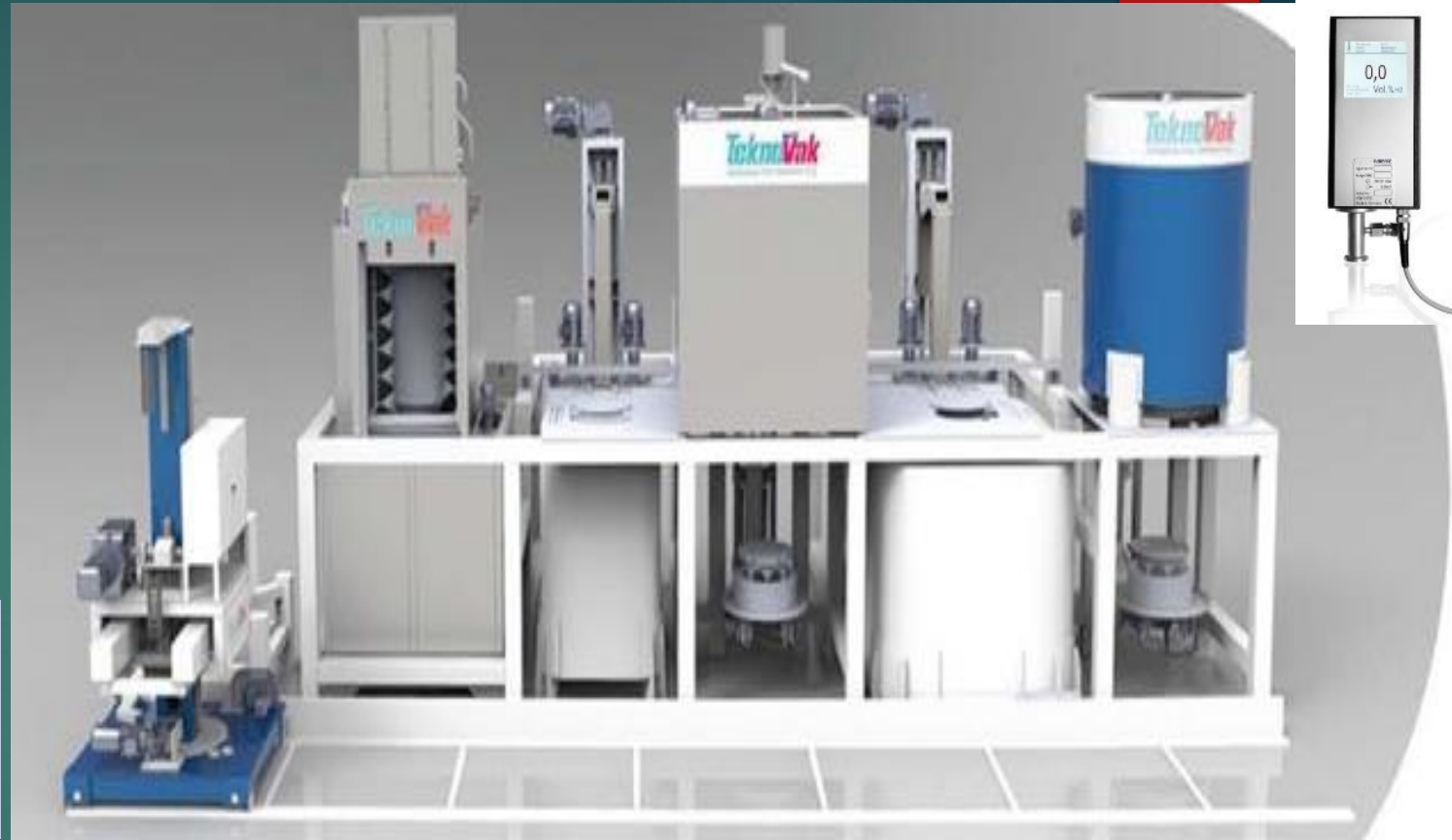


Gas Control Panels and 3-Axial Robot

CAPACITIES	Dimensions (Dia.xH), (mm)	Capacity (kg)	Max. Capacity (Kg)
AGS-S	530x850	250	300
AGS-M	850x1250	1000	1250
AGS-L	2500x2000	2500	3000

AGS For AVIATION

- Hardening
- Carburizing (Selective)
- Carbonitriding (Selective)
- Austempering
- C-Austempering
- Bright Annealing
- Martempering
- TiAlV4 solid solution (900°C)
- Tempering
- Aging
- Nitriding and Post Oxidation
- Super Alloy Heat Treatment
- Soldering



Portable Gas Analyzer from STANGE





	Dimensions(WxLxH),(mm)	Capacity(kg)	Max. Capacity(Kg)
T6-M	900x1200x900	500	750
T6-L	1250x2500x1250	750	1000



From 250°C to -150°C



	Dimensions (Dia.xH), (mm)	Capacity (kg)	Max. Capacity (Kg)
CRYO-S	600x900x600	600	800
CRYO-M	900x1200x900	1000	1200

- 20 TONS CAPACITY
- ARGON and NITROGEN ATMOSPHERE
- HIGH SPEED COOLING
- 20 TERMOCOUPLES for CONTROLLING
- AMS 2750F CLAS 2
- FOR AVIATION
- NO ANY DISCOLORATION



The Partners

- Jumo
- Bürkert
- Brooks
- Krohne
- Khanthal
- SMC
- Schnieder
- Siemens
- Thermal Ceramics
- MKS
- Unifrax

The STRATEGIC PARTNER – STANGE Electronic for;

- Training
- Holding own stock
- Seminar Programs in every year
- Supporting in Europe and Asia market
- Having refurbishment programs in Turkey
- Joint R-D-I studies on nitriding and other topics.

CQI-9 Special Process: Heat Treatment System Assessment

SAE AMS 2750E - PYROMETRY

SAE AS9100

TESTING Infrastructure For Special Processes

- Vacuum Leak Detector
- Gas Analyser
- Data Recorder
- Other Tools and Devices
- LEYBOLD
- STANGE
- PHONEX
- MULTI



