

NKTECH PLANT

Cutting Machine / Phosphate Lubrication

Hydraulic Press / Heat Treatment Furnace

HOT Spinning Machine / Neck Cutter & Hole Punching Machine

Neck Threading Machine / Hvdrostatic Test Machine



Head Office

#1172, Jisa-dong, Gangseo-gu, Busan, Korea
Tel.+82 51 974 7732 Fax.+82 51 974 1317



Reviewed by

Greeting	4
History of company	5
Organization	6
The status of business	7
Manufacturing process for cylinder	8
Products	
Cutting Machine	12
Phosphate Lubrication	13
Hydraulic Press	14
Heat Treatment Furnace	15
HOT Spinning Machine	17
Neck Cutter & Hole Punching Machine	18
Neck Threading Machine	19
Hydrostatic Test Machine	20
Shot-Blasting Machine	21
Painting	22
Filament Winding Machine	22



*With Creative thinking and New technology
Will open the door for the world of high technology*

NKTECH Co., Ltd. has been growing as an acclaimed company of the Plant area for the past 20 years with much effort and know-how.

At the founded in the times of high-technology wasteland in Korea, Namyang Co., Ltd. Production Line kicks off with a great speed. From the fire extinguish for automotives to the large-scale Tube Trailer Container Line, the company grew with various experiences in the area.

Especially our pride in the combination of three main parts of the High Pressure Cylinder PLATE, PIPE, BILLET enables us to challenge even farther for even more highly-developed and detailed technologies.

In the field of 21st century, every member of NKTECH Co., Ltd. strives to achieve the goal of being the company that satisfies customers, company that works for the community, company that grows with the members, dreams and promises to provide the best service and products.



NKTECH Co., Ltd. Managers

NKTECH History

1980s

1984. 12 Nam-yang Co., Ltd.
High Cylinder manufacturing Line
construction for the high Pressure Cylinder.

1990s

1999. 01 NK Co., Ltd.
High Pressure Cylinder Test Center is built

2000s

2001. 01 NK Co., Ltd.
High Pressure Cylinder Test Center is built

2001. 07 NK Co., Ltd.
CNG Cylinder Production Line is built

2002. 10 NK Co., Ltd.
[Noksan Work Site] Extra-large scale
Cylinder Production Line is built

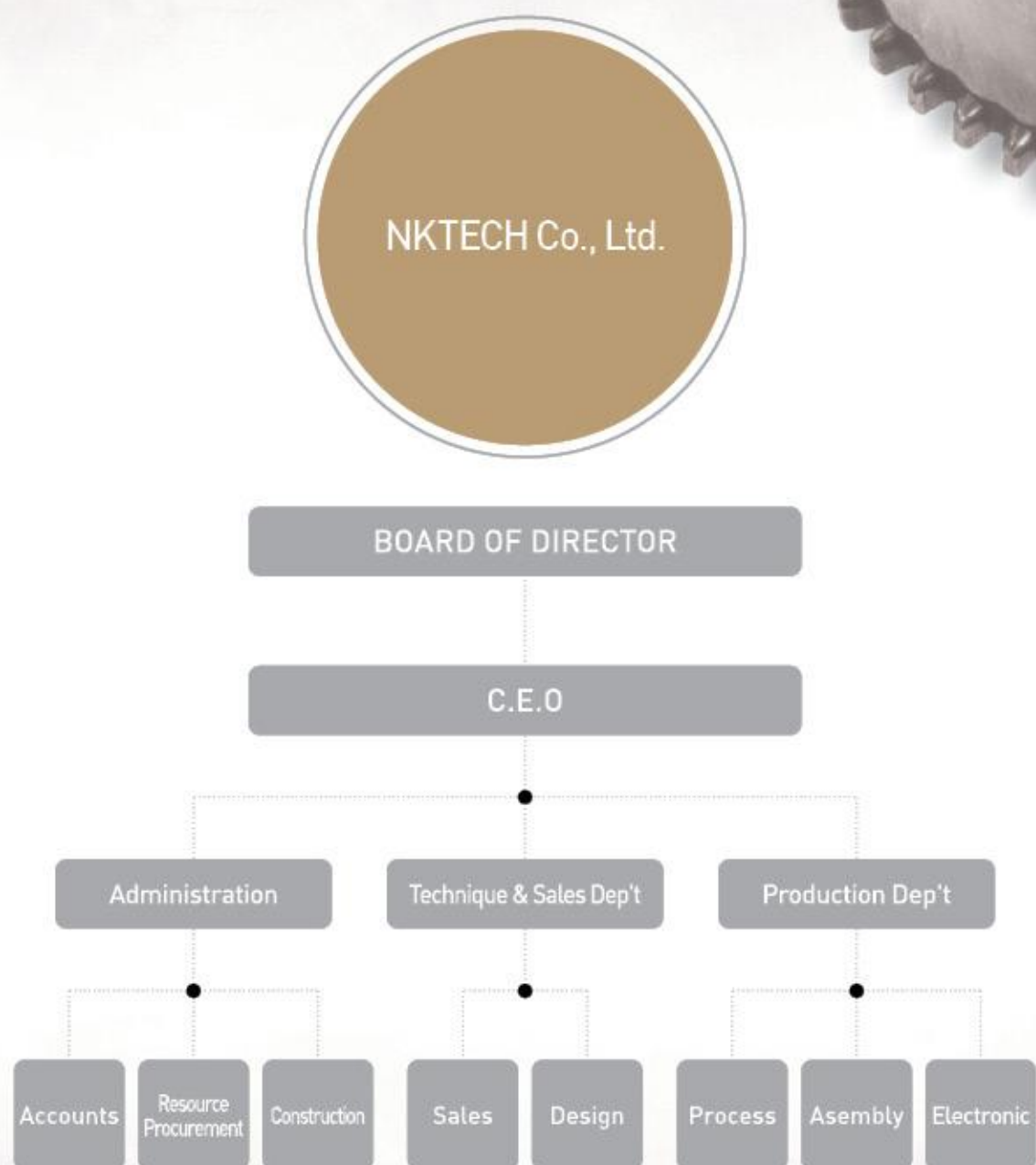
2004. 10 NK Co., Ltd.
Iran cooperative factory CNG Cylinder
Production Line is built

2005. 01 NKCF Co., Ltd.
CNG Cylinder Production Line is built

2008. 04 MLC Co., Ltd
Plant Business Group is founded

2010. 04 NKTECH Co., Ltd
Plant Business Group is founded

Organization



World best class realization of the part about plant for Cylinder

Korea Factory

Raw material Preparation process constructing

ENK in JI-SA
PIPE, PLATE, BILLET, Facilities

NKT in OH-SAN
Retest Center for Cylinder

NK in NOK-SAN
Retest Center
for Jumbo Tubes

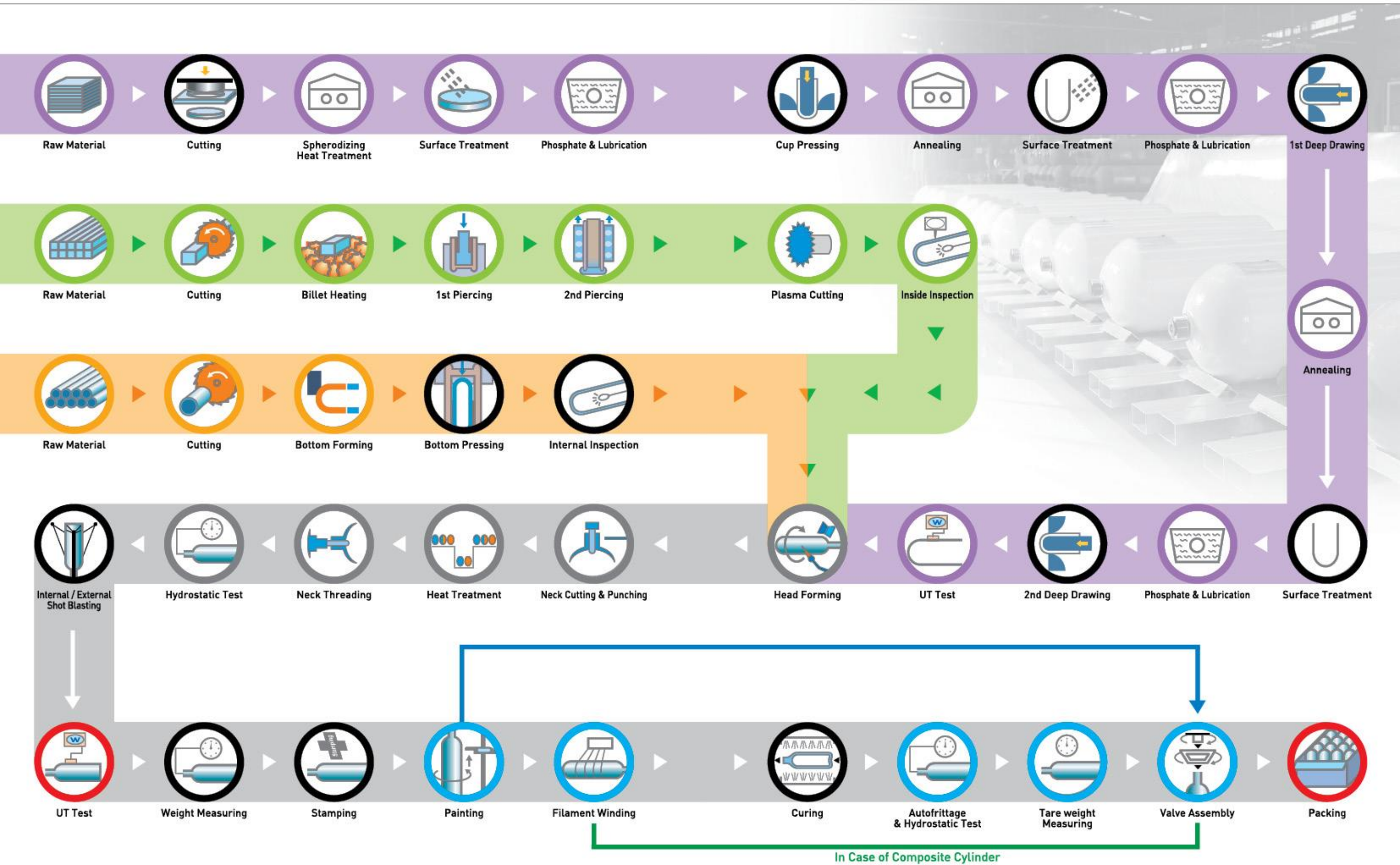
NK in SHIN-PYEONG
CNG Cylinder Facilities

NKTECH

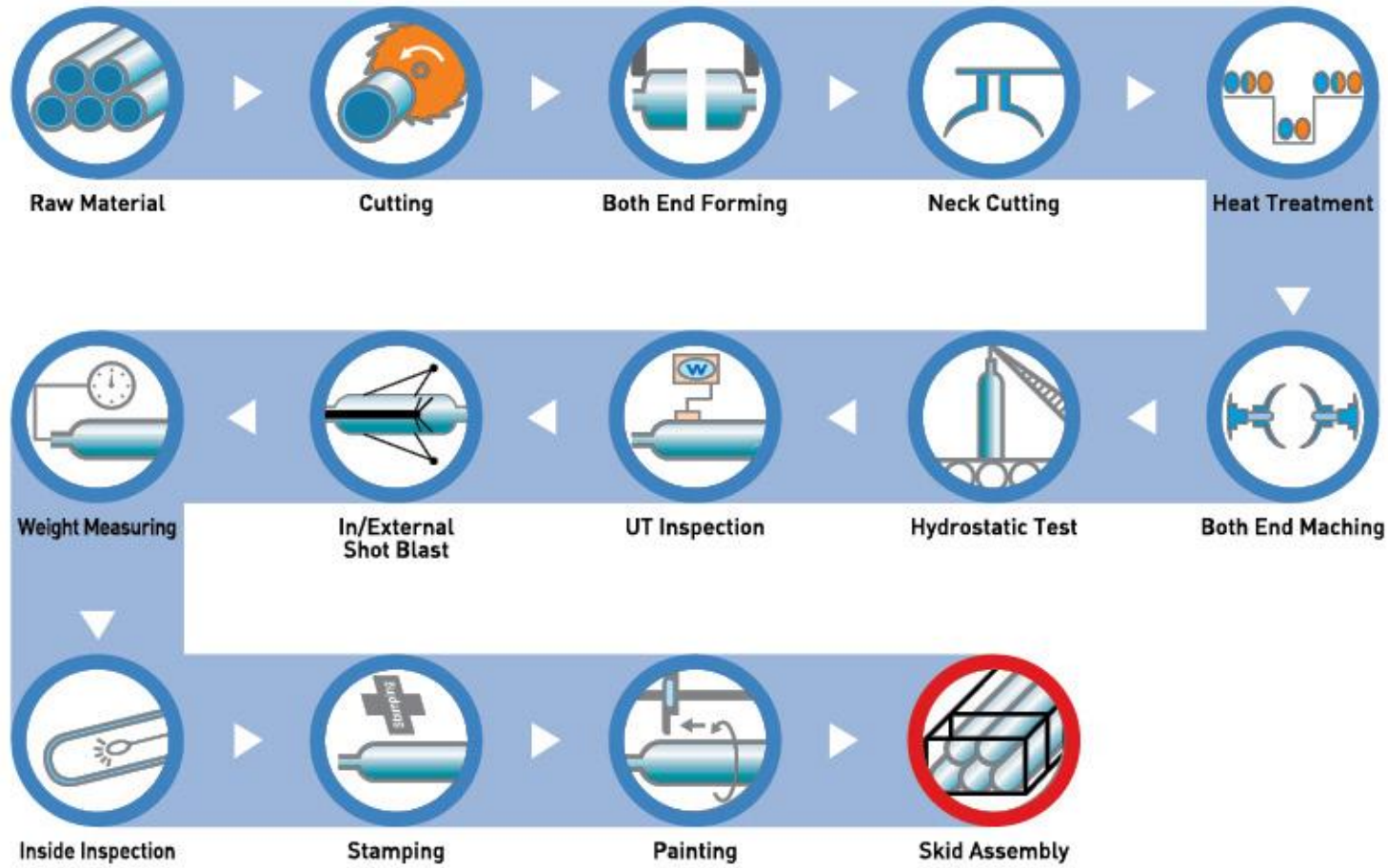
SHANGHAI in CHINA
Jumbo Tube Facilities

SANKA in IRAN
CNG Facilities

Overseas Factory



Manufacturing process for cylinder ▼ Jumbo Tube



NKTECH Products

Cutting Machine

Phosphate Lubrication

Hydraulic Press

Heat Treatment Furnace

HOT Spinning Machine

Neck Cutter & Hole Punching Machine

Neck Threading Machine

Hydrostatic Test Machine

Shot-Blasting Machine

Painting

Filament Winding Machine

Cutting Machine

Pipe Plasma Cutter

This is a pipe cutting system that cuts the pipe into any desired sizes, built to be PLASMA or SAW type depending on the cutting method.

Efficiency-wise PLASMA Cutter is better, yielding superior productivity and is economical. Well above other companies cutting mechanisms, this is presently in the process of patenting.

Superiority of our system shows when the quality of the cutting side of the pipe is emphasized.



Plate Plasma Cutter

Plasma cutter also can be applied to the cutting process of plate(raw material).

In the case of DDI method, raw material needs to be prepared in certain size with plasma cutter.

Size of cutting varies upon NC



● Specification

Model No.	Method	Transfer	Working range (mm)	Size (mm), L×W×H
C M - 4 0 1	Band Saw	Roller / Semi-Auto	Φ165~600	-
C M - 4 0 2	Plasma	Conveyer / Semi-Auto	Φ232~480	13,000×2,420×3,100
C M - 4 0 3	Plasma	Semi-Auto	Plate	-

Phosphate Lubrication



● Specification

Model No.	Productivity(ler/hr)	Type	Working range (mm)		Transfer	Size (mm), L×W×H
			Plate	Cup		
P L - 1 0 1	80	Manual	Φ100~1,600	Φ80~232	Crane	44,000×6,000×6,000
P L - 4 0 1	120	Automatic	Φ100~1,500	Φ80~356	Step by step	44,000×6,000×9,500
P L - 4 0 2	120	Automatic	Φ800~1,600	Φ100~410	Trolley	72,000×3,600×2,500



Hydraulic Press

In the case of BILLET, Big-sized Press is used to sustain the shape of the original source;

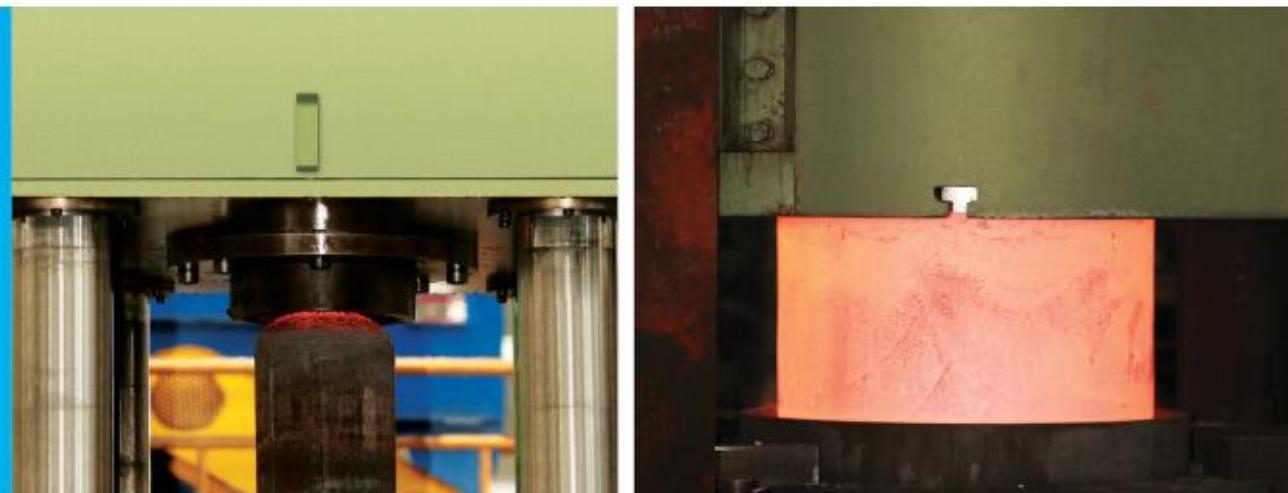
In the case of PLATE, shape is molded through the repeated process.

In the case of the High Pressure Cylinder, the shape forms via SPINNING, for the shaping and the sealing of the lower parts, the specialized press is used, all done by the NKTECH Co., Ltd. Technology.



● Specification

Model No.	Power (ton)	Stroke (mm)	Hydraulic pressure (bar)	Type	Oil type
H P - 401	400	800	205	Vertical	Hydraulic
H P - 402	1,000	5,300	284	Vertical	Hydraulic
H P - 403	1,200	5,800	350	Vertical	Hydraulic
H P - 404	2,000	1,100	210	Vertical	Water
H P - 405	650	4,500	345	Horizontal	Water



Heat Treatment Furnace

Compatible for many characteristics of Special Steel, applied suitable heating and cooling requirements to engineer metal components to best fit the requirement of each product.

Heat Treatment Furnace (Quenching & Tempering)

Heat treatment to enhance the hardness of the CYLINDER; keeps the temperature of the furnace unchanged to apply the same affect to many products and generate fine products.



● Specification

Model No.	Productivity	Max temp' (Q/T) °C	Working range (mm)	Size (mm), L×W×H
HTF - 101	1 ton/hr	900 / 700	Φ100~165	-
HTF - 202	5 ton/hr	920 / 700	Φ165~232	13,000×2,420×3,100
HTF - 303	5 ton/hr	950 / 650	Φ232~273	23,600×5,300×4,200
HTF - 404	5 ton/hr	950 / 650	Φ232~406	23,600×5,300×4,200
HTF - 505	10 ton/hr	800 / 750	Φ356~915	-

Heat Treatment Furnace (Heating)

Prior to the DDI process done to increase the temperature of the furnace, prevents the abrasion of the Press and saves cost-efficient.



● Specification

Model No.	Productivity	Temp' °C (Max)	Working range (mm)	Size (mm), L×W×H
HTF - 402	5 ton/hr	900 (±20°C)	Φ300~800	13,800×2,180×3,800

Heat Treatment

Heat Treatment Furnace (Annealing)

Refers to the press processing that eases the hardened materials to enhance manufacturing, eliminates segregation, equalizes chemical composition, or removes REMAINING STRESS. Annealing temperature and time depend on the purpose, it is important to understand the purpose and the type of such process.



● Specification

Model No.	Productivity	Max temp' (Q/T) °C	Working range (mm)	Size (mm), L×W×H
HTF - 403	5 ton/hr	800 (±20°C)	Φ160~410	10,850×3,600×3,600

Heat Treatment Furnace (Spherodizing)

Among the High pressure Container DDI processes spherodizing the circular iron plate. The configuration of carbon atoms affect the durability and processability, the heating puts the carbon atoms into a spherical shape.



● Specification

Model No.	Productivity	Max temp' (Q/T) °C	Working range (mm)	Size (mm), L×W×H
HTF - 404	60 ton/hr	950 (±20°C)	Φ1,600 Max	24,092×6,232×7,600

HOT Spinning Machine

This is the Direct Heating SPINNING MACHINE, which heats the pipe directly and molds the neck and the bottom parts. It is a mechanism to seam the head/lower parts of the heated container done by the High Frequency Heater, namely the center piece of the High Pressure Cylinder production, which requires highly-developed and detail-oriented technology. It maintains the suitable temperature when working with mixed gas and automatized the LOADING/UNLOADING system for economic and reducing time purposes.



● Specification

Model No.	Capacity	Main spindle speed (rpm)	Application
	Diameter / Length (mm)		
SP - 101	Φ100~165 / 800	Max. 1,000	Head / Bottom
SP - 201	Φ178~232 / 1,200	Max. 1,000	
SP - 301	Φ200~273 / 2,000	Max. 900	
SP - 401	Φ232~406 / 2,000	Max. 700	
SP - 501	Φ356~915 / 12,000	Max. 200	



Neck Cutter & Hole Punching Machine

High Pressure Cylinder's Neck Cutter & Hole Punching machine unmanned & automatic system. The existing system contains the neck cutter and hole punching machine as two separate gears, but NKTECH Co., Ltd. successfully combined two bodies in one, economical, convenient, and yields high productivity. Regardless of the Cylinder type, it is designed for mass production, not only enabling hole punching right after neck cutting, but also enhancing the quality of the products.



● Specification

Model No.	Capacity	Use hyd' pressure (bar)	Total weight (ton)	Size (mm), L×W×H
	Diameter / Length (mm)			
NHP-403	Φ80-406 / 800-2,000	100	3.6	5,000×1,006×1,867

Neck Threading Machine

Neck Threading Machine carves the spiral screw at the neck portion of the cylinder, and the threading can vary upon client's request. Our basic standard applied to the high pressure cylinder is "KS B 6214" For the mass production, we use NC computerized program.



● Specification

Model No.	Swing (mm)	Working range (mm)	Bed size (mm), W×L	Size (mm), L×W×H
NT-101	500	Φ80-178	370×2,240	2,605×1,575×1,419
NT-201	720	Φ80-232	510×4,452	4,880×1,900×1,900
NT-301	720	Φ232-410	510×4,452	4,880×1,900×1,900
NT-401	720	Φ232-410	510×4,452	4,880×1,900×1,900
NT-501	500	Φ356-915	1,570×1,620	18,550×4,080×4,140



Hydrostatic Test Machine

This is a mechanism to check and secure the frequent changes in the Container resulted from the frequent changes in pressure. Worker checks the calculated data of the terminally increased quantity of the Containers, prevents disqualified goods while increasing the safety and credibility of the product and enabling the producers to guarantee the practicality and usefulness.



● Specification

Model No.	Test pressure (bar)	Pump capacity (bar)	Evaporation loss capacity of steam
HST-101	350	500 max.	200 kgf/hr
HST-201	550	700 max.	200 kgf/hr
HST-401	550	700 max.	300 kgf/hr
HST-501	550	700 max.	300 kgf/hr



Shot-Blasting Machine

Used to get rid of raw materials and rust or tarnish on the surface of the High Pressure Cylinder to produce high-quality Containers. When left uncared, it brings decrease in the duration and quality of the product, later could develop into contamination of the production site and problems in surface coloring, and ultimately results in flaws in products and mishaps. Shot-Blasting requires highly-developed technologies. not only has become the specialized company in this area but is endeavoring to globalize such technology.

External Shot-Blasting Machine

Scaling and Surface Treating Automatic System using the Shot-blasting machine



● Specification

Model No.	Working range (mm)	Blasting method	Size (mm), L×W×H
ESB-101	Φ100~167	Impeller shot ball spray	3,000×4,300×2,100
ESB-201	Φ167~232		
ESB-301	Φ232~406		3,000×4,300×2,100
ESB-401	Φ232~406		
ESB-501	Φ356~915		6,500×4,500×5,585

Internal Shot-Blasting Machine

High Pressure cylinder's interior Scaling or Surface Treating Automatic System using the Shot-Blasting Machine



● Specification

Model No.	Working range (mm)	Blasting method	Size (mm), L×W×H
ISB-101	Φ80~180	Air spray Ball spray	3,000×650×950
ISB-201	Φ100~270		3,000×650×950
ISB-301	Φ232~273		2,900×4,550×1,700
ISB-401	Φ232~406		3,100×600×950
ISB-501	Φ356~915		6,500×4,500×5,585

Painting

Painting Equipment uses powder, or liquid paint in order to prevent future external corrosion and oxidation of the cylinders.
Powder Coating Method is environment-friendly. In the case of Liquid Painting Method, we use paint spray to coat the surface of cylinders.



● Specification

Model No.	Working range (mm)	Temperature	Surface clean	Heater (Dry)	Spray type	Transfer
P T - 1 0 1	Φ100~167	150℃~210℃	Airless	Hot Wind	Gun	Trolley
P T - 2 0 1	Φ167~232					
P T - 3 0 1	Φ232~406					
P T - 4 0 1						
P T - 5 0 1	Φ356~915					Porter

Filament Winding Machine

In order to provide significant weight reduction from the previous cylinders, we use winding applications.
Using fiber-glass wrapping around the body portion of the cylinders, we can produce cylinders thinner and with higher pressure capacity. NKTECH's unique specialty reflected in winding machine enables wrapping fiber-glass procedure in much less time period than the others. Moreover, the machine can simultaneously execute winding procedure on 2~4 cylinders. All winding procedure is closely monitored by computer automated sensor. Consequently, NKTECH winding machine maximizes the production efficiency and minimizes the economic cost.



● Specification

Model No.	Capacity	Spindle	Spindle rotation (rpm)	Carriage speed (mm/sec)	Remark
F W - 4 0 1	Max. Φ406×2,000mm	2 axes	120	800	type-2
F W - 4 0 2	Max. Φ406×1,500mm	3 axes	120	800	type-2,3
F W - 4 0 3	Max. Φ350×2,000mm	4 axes	120	800	type-2

Never Ending Challenge

Patent Right

- 1) Plasma cutting machine for a metal tube
- 2) Apparatus for cutting and punching of neck on a tube type metal cylinders
- 3) Automatic quenching machine for high pressure gas container
- 4) Automatic pressure testing system of tube type metal container using a robot
- 5) The cooling device and method for making of high pressure gas cylinder
- 6) Heating equipment for high pressure gas cylinder
- 7) Test equipment for internal pressure of high pressure gas cylinder