

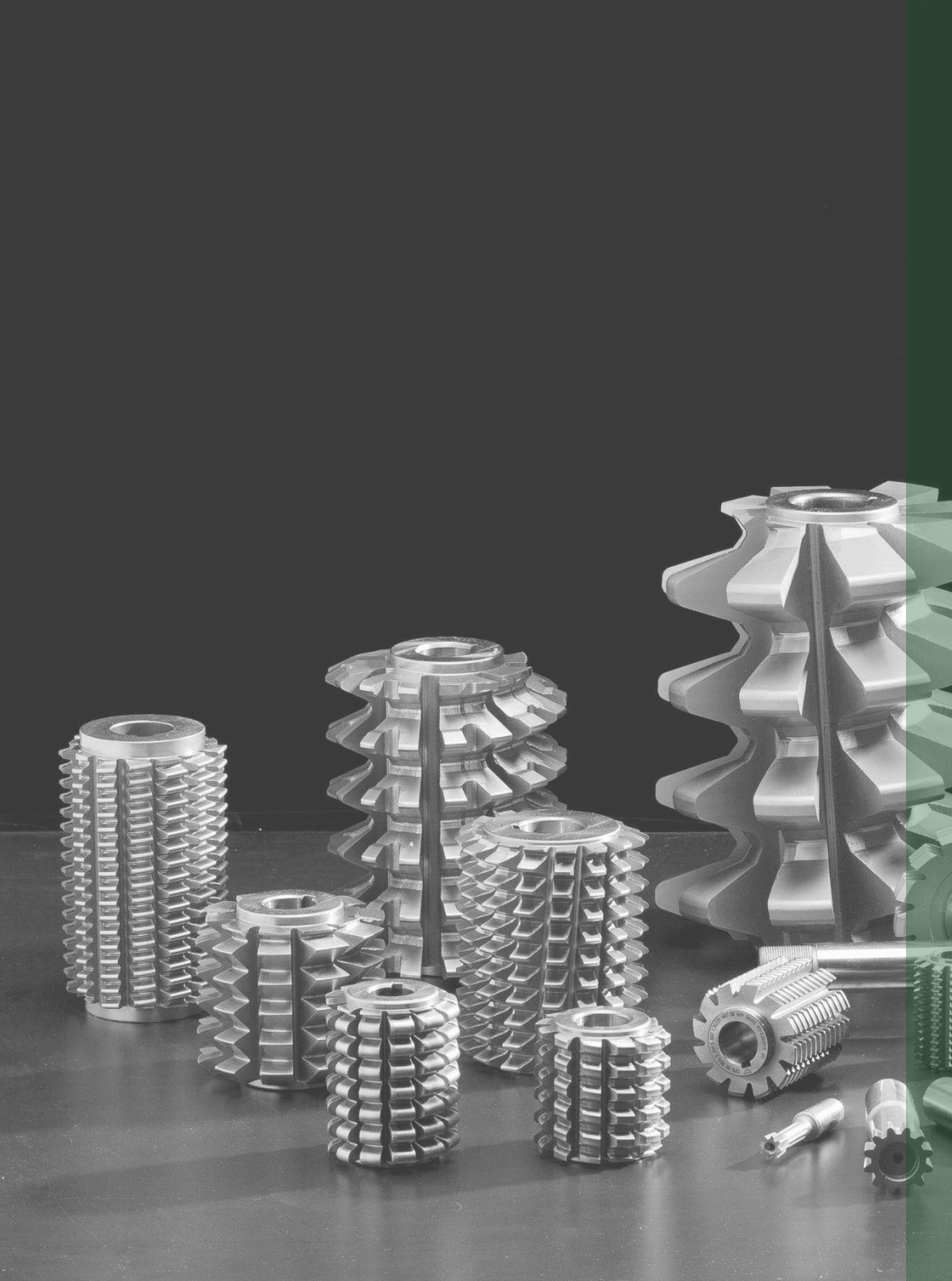


CENTURY PRECISION CO., LTD

ZERO DEFECT

Endless challenge to Zero Defect-





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PRODUCTION

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1. Company

ESTABLISHMENT

ESTABLISHMENT 1996

OWNER

CEO Shin, Tae-Gi

EMPLOYEES

EMPLOYEES 65

AREA

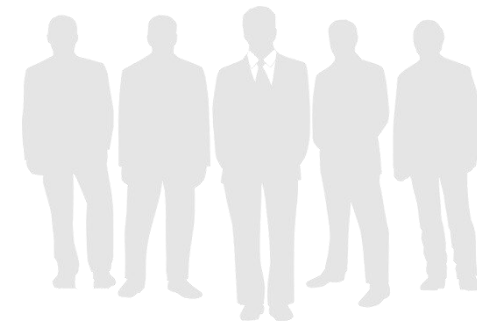
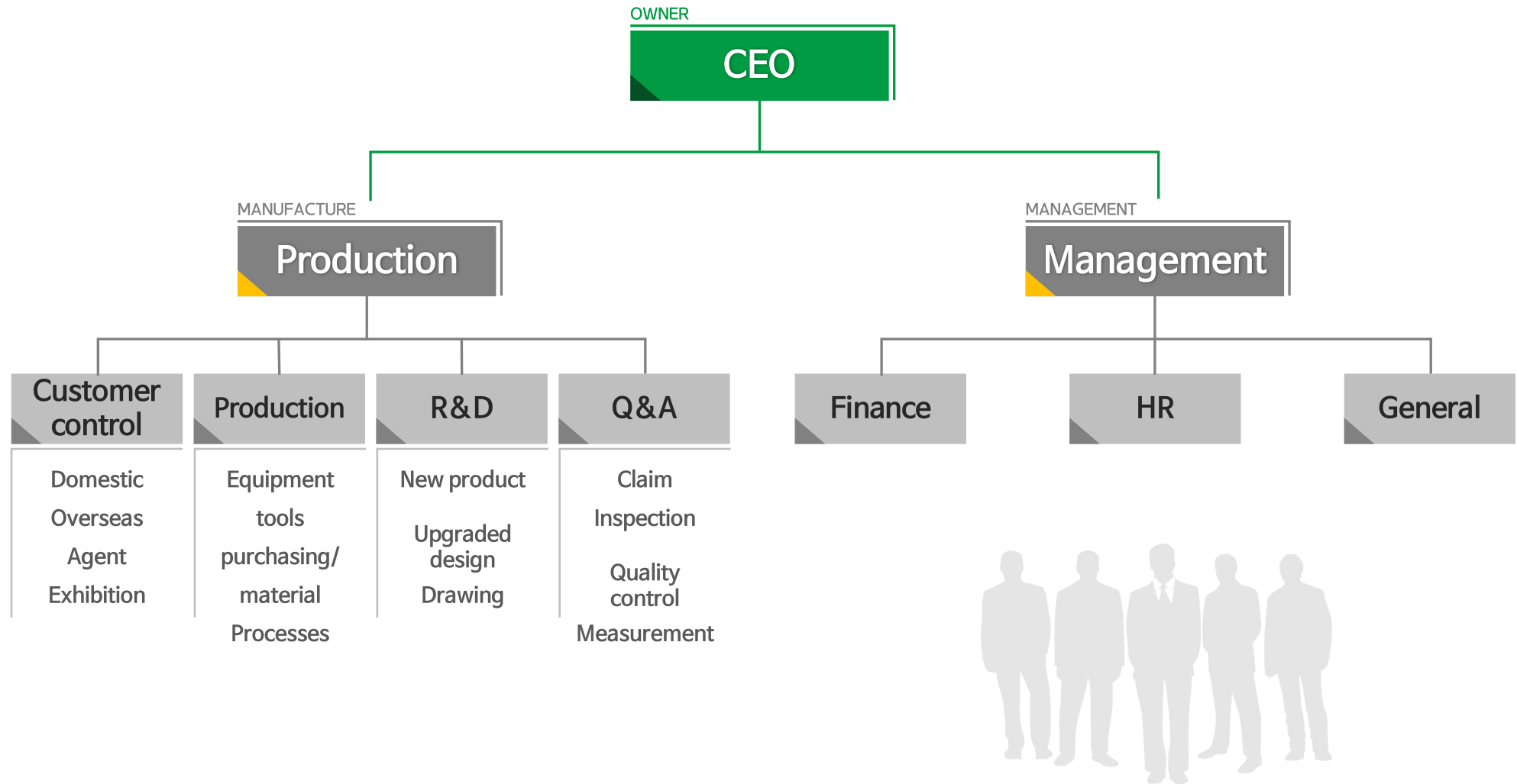
FACTORY 7,906 SQUARE YARDS (6,000m²)

MAJOR PRODUCTS


Major product Gear cutting tools (Hob, Shaper Cutter, Milling Cutter)



2. Organization



3. Company history



1996 Started Hob, Shaper Cutter Production

2000 ~2005

- 2000 _ Installed CNC Hob Sharpening Machines
- 2001 _ Approved by ISO9001, UKAS
- 2002 _ Started export to Taiwan, Japan
- 2003 _ Introduced CNC Hob Relieving, CNC Profile Grinding, CNC Shaper Cutter Grinding from Germany
- 2004 _ Introduced CNC Shaper Cutter processing machine from Japan Achieved Gold partnership with Volvo Construction Equipment Company . Produced Helical Shaper Cutter for the first time in Korea

2006 ~2010

- 2006 _ Exported to USA (GM), China (Gwangjou Honda, Beijing Hyundai, jangchun) Introduced Shaper Cutter CNC Sharpening machine from France. Started to export Helical Shaper Cutter
- 2008 _ Introduced PVD Coating Machine, started own coating process
- 2010 _ Developed new hobs for 8-Step automatic transmission
Awarded Million Dollar Export Prize by the Korea Trade Association

2011 ~2015

- 2011 _ Constructed moisture and temperature controlled CNC GRINDING MACHINE ROOM
- 2013 _ Awarded Visionary Enterprise by Korean Industrial Bank
- 2014 _ R&D Laboratory is established

2016 Installed new CNC Shaper Cutter Grinding Machines (Swiss)
Produced Master Gear, GCC cutter, Tungsten carbide Hob, Power skiving Tool

4. Product

Tungsten Carbide Hob

Standard



Master Gear



GCC Cutter



Rob Cutter



Hob

Dry cutting Type



Shank type



Spline



Chain Sprocket



Timing Pulley



Ratchet



Shaper cutter (spur or helical)

Disk type



Bell type



Shank type



5. Certificate



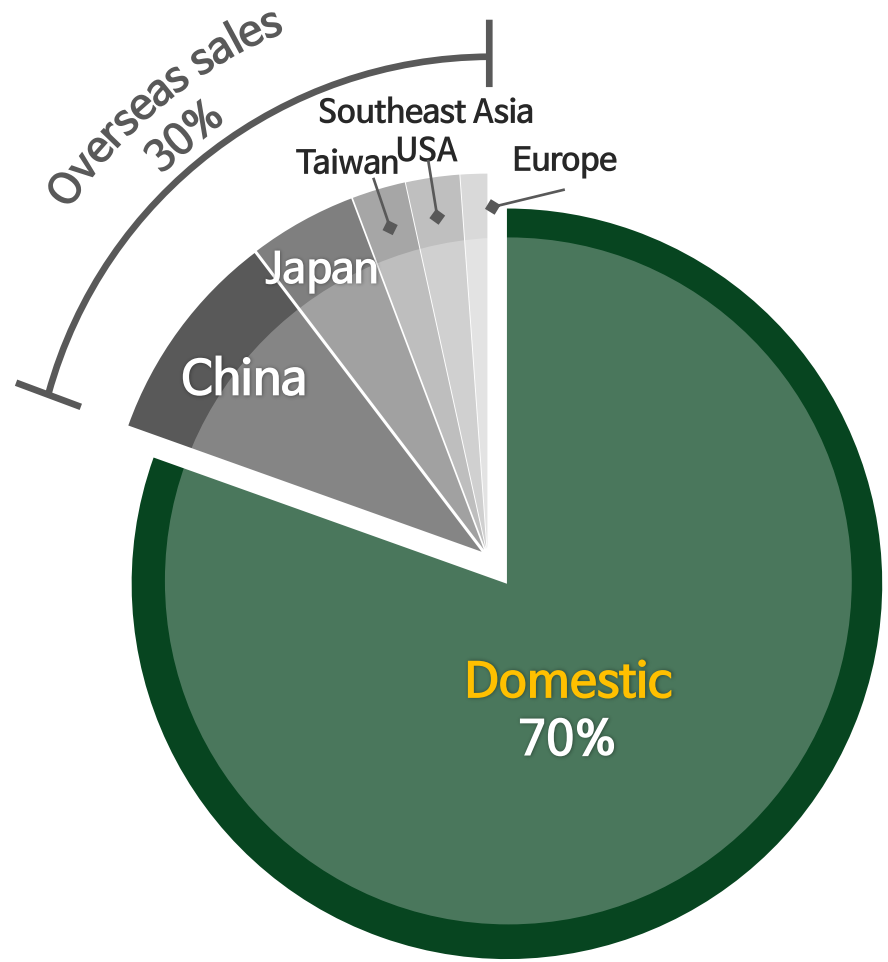
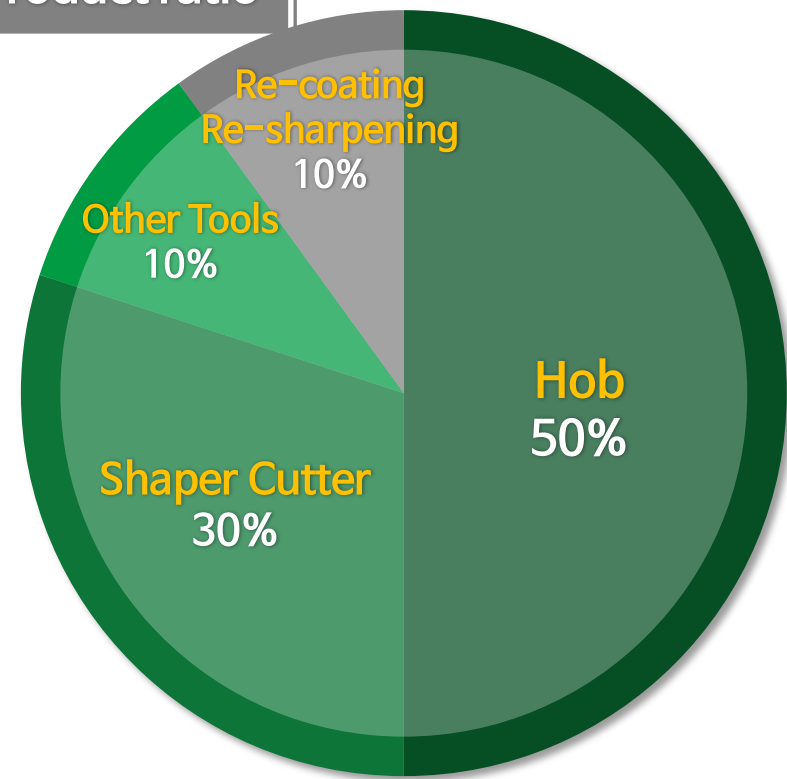
6. Sales record

2016 SALES RATE

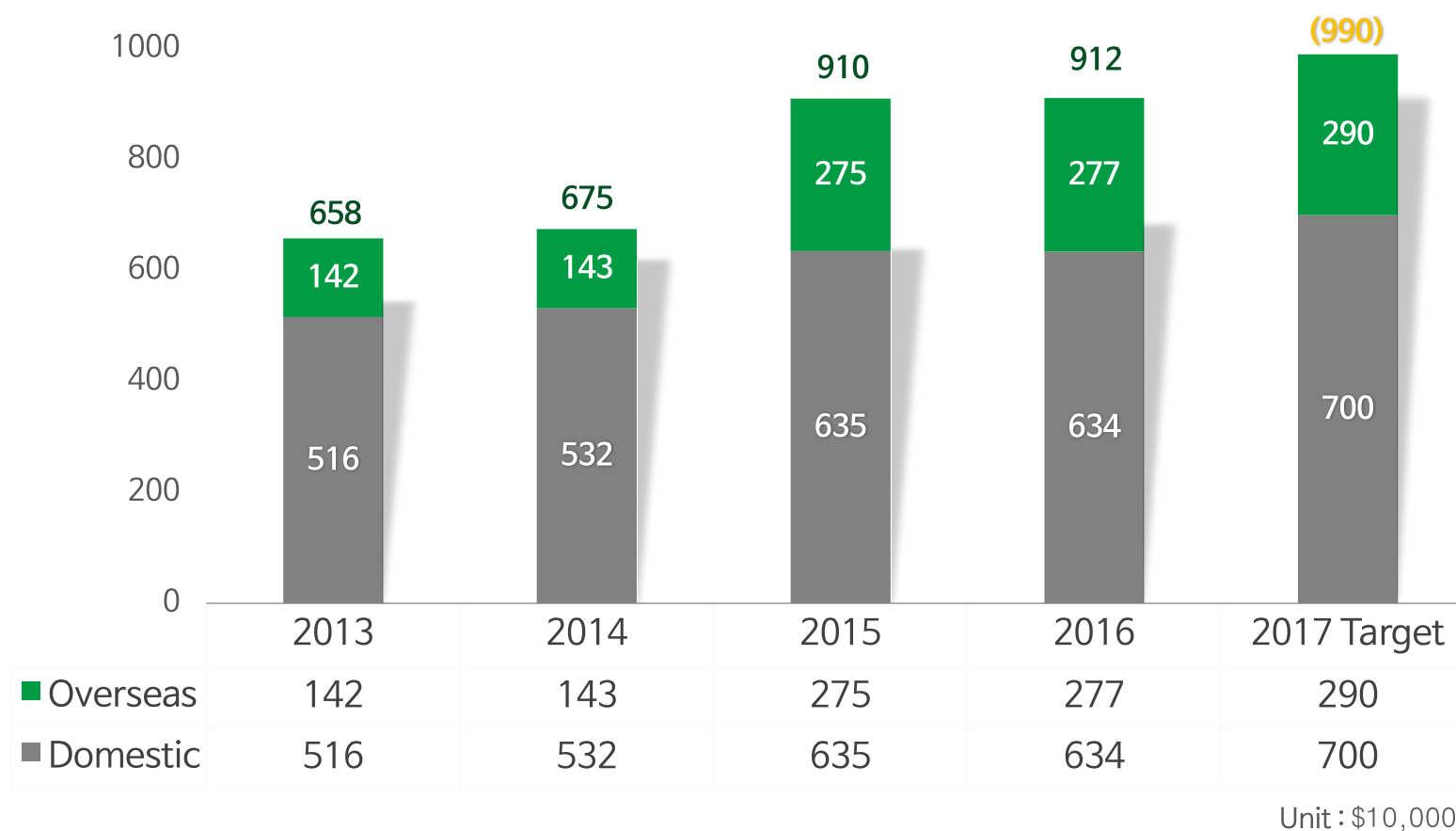
2016 Sales record

PRODUCT RATE

Product ratio



7. Sales revenue



8. Customers

	Automotive field	Heavy Duty Equipment field	Aerospace, Automation field
Domestic	    	   	  
Overseas	     	 <p>For Earth, For Life</p>    	     

1. Capability

HOB		
Max capacity	50 EA/Day	1520 EA/Month

SHAPER CUTTER		
Max capacity	20 EA/Day	600 EA/Mouth

2. Equipment(1)

CNC Relieving & Turning Machines



Installed	2003, 2005 , 2012(5 machines)
Origin	Germany
Utility	Medium Hob grinding
Features	<ul style="list-style-type: none">▪ Latest drive and control system installed▪ Max 15 stoke/sec, optimized for grinding▪ Prompt setting time
Capacity	Average 6-8 EA / Day (1 machine)

2. Equipment(2)

CNC Thread profile Hob Grinding Machines



Installed	2003, 2006, 2009, 2012 (6 machines)
Origin	Germany
Utility	Grinding small and medium size hobs
Features	<ul style="list-style-type: none">▪ Grinding hob's profile Single/Multi number of times▪ Capable of generating special profile▪ Customized for the environment of out production line
Capacity	Average 7 EA / Day (1 machine)

2. Equipment(3)

CNC Shaper cutter Grinding Machines



Installed	2003, 2006, 2013 (4 machines)
Origin	Japan
Utility	Grinding profile of shaper cutters
Features	<ul style="list-style-type: none">▪ High precision small S/C with DIN “AA”▪ Helical type processing▪ Multi starts S/C grinding▪ New CNC grinding equipment, first time in the world
Capacity	Average 4 EA / Day (1 machine)

2. Equipment(4)

CNC Shaper cutter Grinding Machines



Installed	2016 (1 machine)
Origin	Swiss
Utility	Shaper cutter teeth grinding
Features	<ul style="list-style-type: none">▪ High precision small S/C Process DIN “AA”▪ Helical type processing▪ Multi starts S/C grinding▪ Grinding for tools of high precise aerospace part▪ 6 axes cutting blade grinding simultaneously
Capacity	Average 5 EA / Day

2. Equipment(5)

CNC Sharpening Machines for shaper cutters



Installed	2006 (1 machine)
Origin	France
Utility	Helical Shaper cutter sharpening
Features	<ul style="list-style-type: none">▪ Capable of producing helical typed shaper cutter▪ Capable of grinding in high level of precision by using CBN (Diamond dresser)▪ Keeping temperature of grinding wheel under control
Capacity	Average 4 EA / Day

2. Equipment(6)

CNC Hob Sharpening Machines



Installed	2000, 2009, 2012 (3 machines)
Origin	Germany
Utility	Hob Sharpening
Feature	<ul style="list-style-type: none">▪ Short set-up time▪ Closure control application▪ Capable of helical and straight gashes▪ Capable of producing high level of precision DIN “AA”
Capacity	Average 10 EA / Day (1 machine)

2. Equipment(7)

CNC Hob Sharpening Machines



Installed	2014 (1 machine) includes 6 machines
Origin	Japan
Utility	Sharpening hobs
Features	<ul style="list-style-type: none">▪ Short set-up time▪ Closure control application▪ Capable of helical and straight gashes▪ Capable of producing high level of precision DIN “AA”
Capacity	Average 10 EA / Day (1 machine)

2. Equipment(8)

Measuring Machines

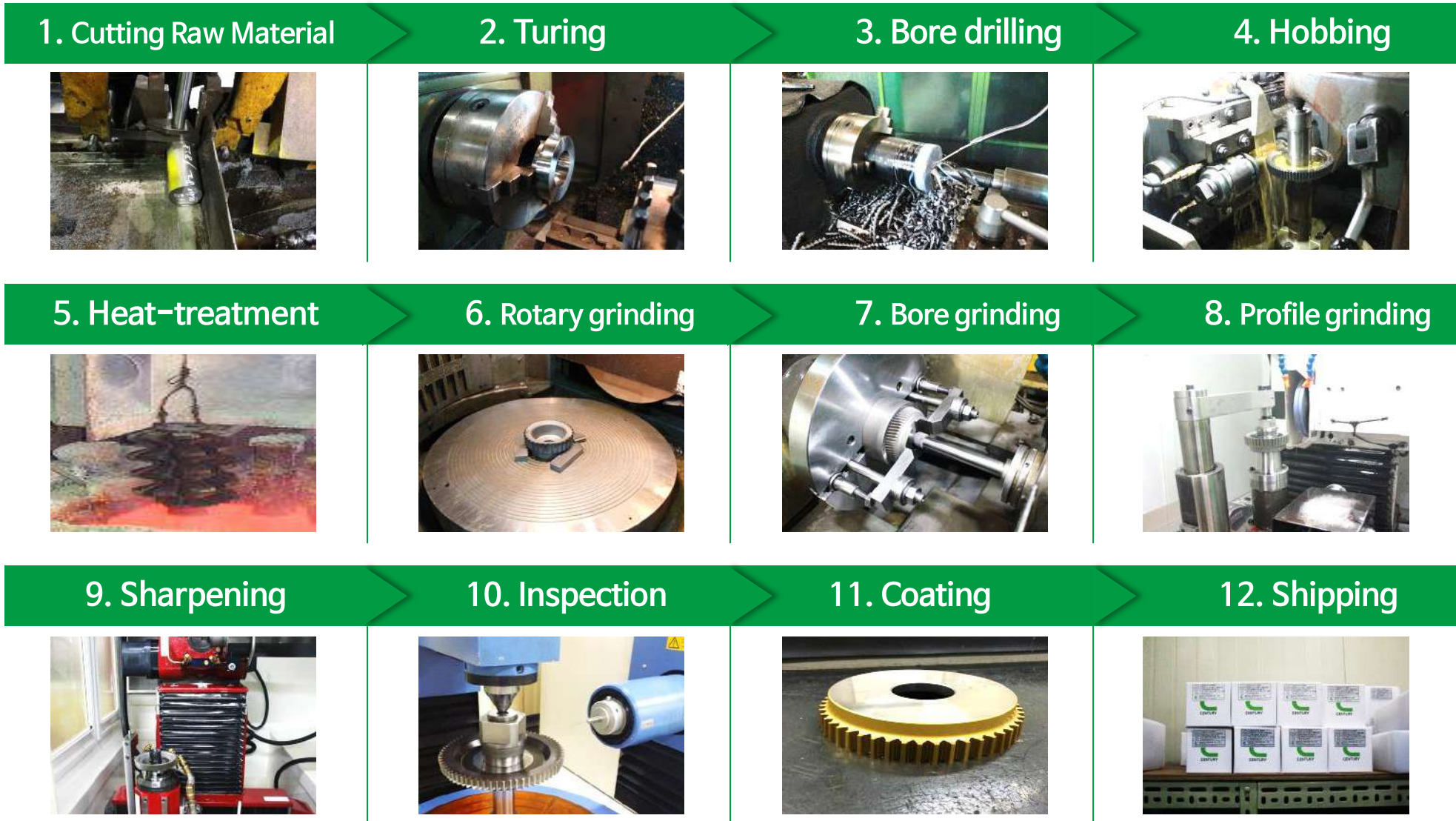


Installed	2003, 2009 (2 machines)
Origin	Germany
Utility	Measuring (Pitch error, Tooth spacing, Tooth index, Tooth profile, etc)
Features	<ul style="list-style-type: none">▪ Capable of measuring hobs, shaper cutters, gears▪ Hob of large size can be measured▪ Can measure helix angle from 0 to 90▪ Full Automatic

3. Workflow(1) – Hob line



3. Workflow (2) - Shaper cutter line



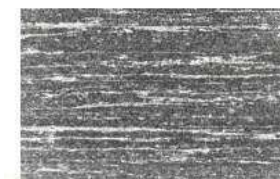
4. Material

KIND OF MATERIAL / FEATURE

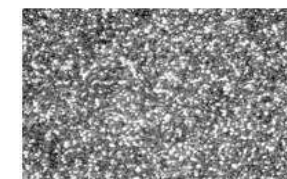
Name & Feature

Name	Name of another standard	C	Cr	Mo	W	Co	V	HRC	Characteristics
M35	SKH55	0.93	4.2	5	6.4	4.8	1.8	65~66	High speed steel
Bimax M42	SKH59	1.08	3.08	9.4	15	8.0	1.8	66~67.5	High speed steel
ASP2030	HS-6-5-3-8	1.28	4.2	5.0	6.4	8.5	3.1	66~67	Powder metal
ASP2052	HS-10-2-5-8	1.6	4.8	2.0	10.5	8.0	5.0	66~67	Powder metal
ASP2060	HS 6-7-6-10	2.30	4.2	7.0	6.5	10.5	6.5	67~68	Powder metal
ASP2080	HS-11-5-6-16	2.45	4.0	5.0	11.0	16.0	6.3	69~70	Powder metal

■ Sweden, Germany, France origin



HSS



ASP

5. Coating type

KIND OF COATING / FEATURE

Coating type and features

Separation	TiN	TiCN	TiAlN	AlCrN
Hardness 「Hv.0.05」	2300	3000	3300	3200
Coefficient of friction	0.4	0.4	0.3-0.4	0.3-0.4
Coating thickness (μm)	4-6	3-5	6-8	3.5-5.5
Highest temp. allowed (°C)	600	400	900	1100
Color	Gold	Blue-Gray	Dark-Violet	Blue-Gray

5. Coating process

COATING PROCESS

Coating process

CLEANING

1. 1st washing (Ultra sonic)



REMOVING BURR BY AIR

2. Removing Burr (air)



CLEANING

3. 2nd washing



ENTER CLAMPING & LOADING

4. Clamping



SETTING

5. Setting



COATING

6. Coating



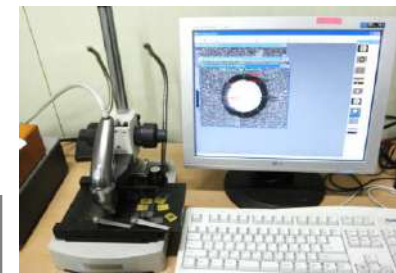
UNLOADING

7. Unloading



INSPECTION

8. Inspection



THANK YOU

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CONTACT US

E-mail : sales@cty.co.kr

Tel : 82-32-819-5051

Fax : 82-32-819-5055

