



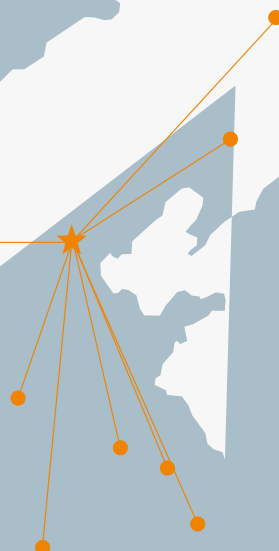
机械科学研究总院

2011 年度报告

Annual Report



机械科学研究总院
China Academy of Machinery Science & Technology



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Message from the President



2011	“ ”	2012	“ ”
“	“ ”	“ ”	“ ”
“	“ ”	“ ”	“ ”
18.39%	32.60%	“ ”	“ ”
39972	“ ”		

2011

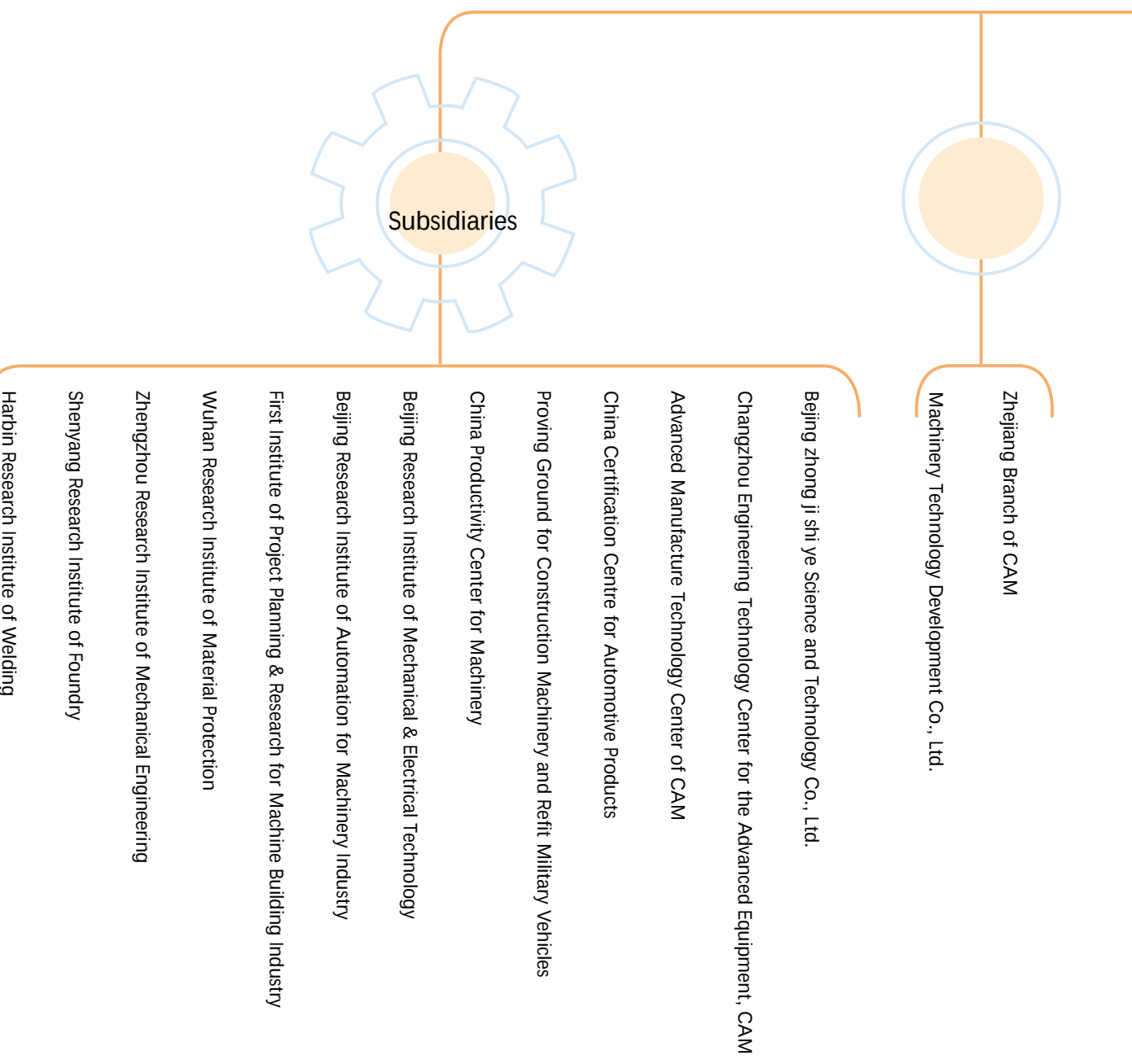
2011

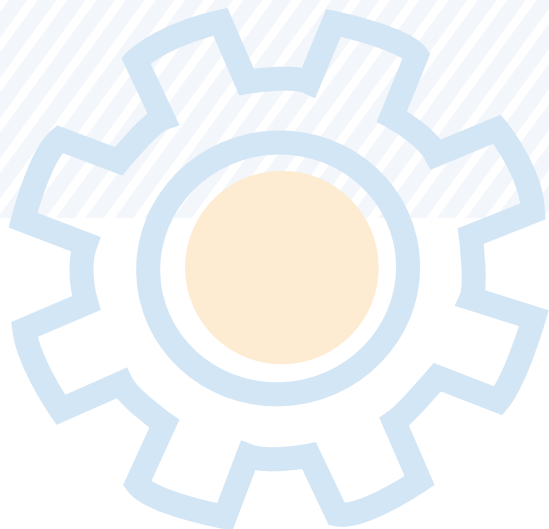
2011 “ ”



China Academy of Machinery Science and Technology (CAM) is a big state-owned enterprise of science and technology, and it is directly under the leadership of State-Owned Assets Supervision and Administration Commission of the State Council (SASAC). CAM was founded in 1956, and it has been dedicated itself to realizing the revitalization of the national manufacturing industry.

CAM has been committed to the research work on the common interest technology in the manufacturing industry for more than 50 years. Through a few of generations' endeavor, CAM has now formed two scopes of business including machinery equipment technology research and service and the related equipment manufacturing. In 2011, the total volume of assets of CAM was 5.105 billions (RMB





Administration and Service Center for Retired People

Beijing Machinery Technology E-Popularity Co., Ltd.

Archives of Machinery Industry

Public Relations Department

Discipline Inspection and Audit and Supervision Department

Capital Management Department

Financial Management Department

Human Resources Department

Planning Management Department

Science and Technology Development Department

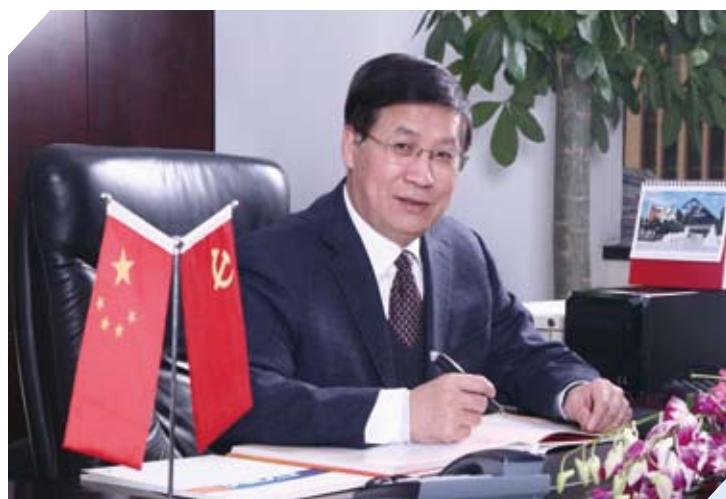
General Affairs Department



The Members of Leading Team



Li Xinya President



Cao Shiqing Vice President



Central Administration

(General Affairs Department):

(Science and Technology Department):

(Planning Management Department):

(Human Resources Department):

(Financial Management Department):

(Capital Management Department):

(Discipline Inspection and Audit and Supervision Department):

(Public Relations Department):

Economics Development



2011

Main Economical Indicators and Fulfillments in 2011

2011 “ ”

35.24 2.46

1 2011

	265200	352430	132.89%	18.39%
	16680	24625	147.63%	32.60%
%	9.36%	13.82%	147.66%	2.09%
	11500	26084	226.82%	29.94%

Economics
Development



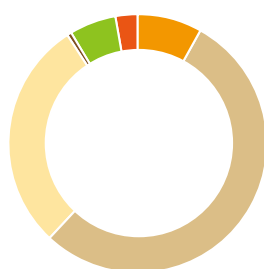
New Contracts

2011 445741 15.52%

2

2

	38068	239039	128608	2829	24879	12318	445741

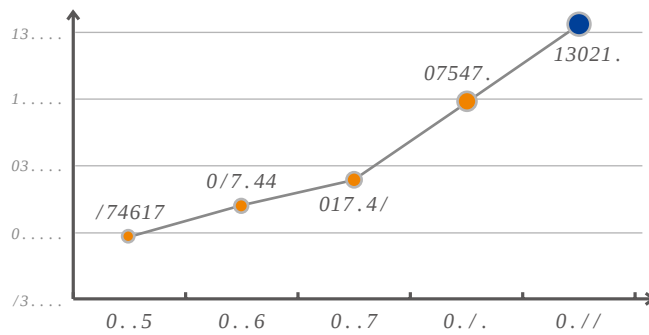


50% 31%
8% 3%
7% 1%

1

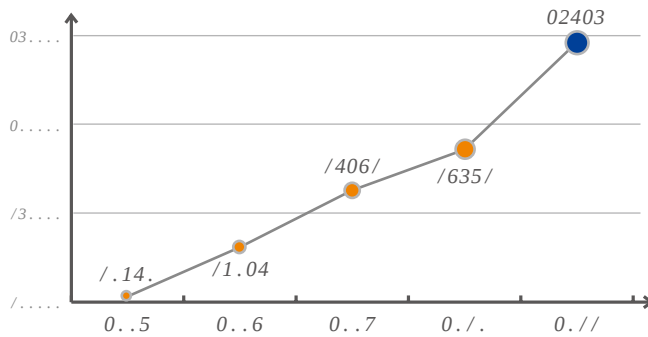


Economical Development in the Recent Five Years



2 2007-2011

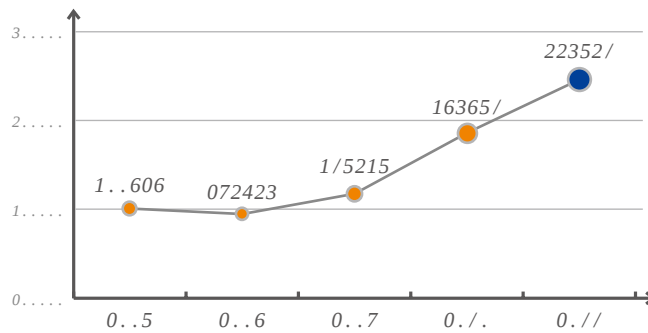
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3 2007-2011



Total New Contracts



4 2007-2011

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Key Laboratories

2011	2	7	3	
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Other Institutions

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Technical
Innovation



Projects under esearching

2011 678 58 14 21 863

8 973 6 20 10 215

326

2011 83 21

68 6 20

124 3 10

107 215

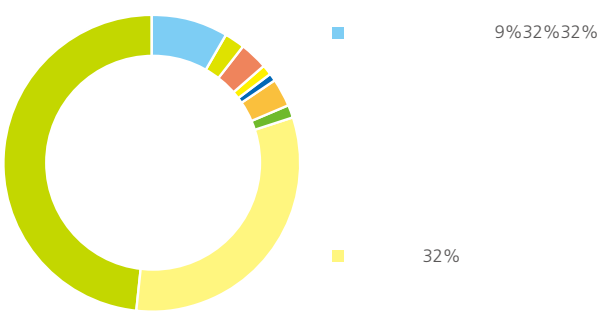
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		14
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	863	8
	973	6
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		326
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		6
		20
		124
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10		215
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Prize-Winning Achievements

2011

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9 2011

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5		2010		
6	PDC	2010		
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16		2011		
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18				
19	2X12MW			
20	5F-A/A/O			
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25				
26	CMW-80			
27	2 MW	2011		
28				
29				
30	2 × 12MW			
31				
32	GB/T19902 —			
33				
34	200910077636.5			

Technical
Innovation

48	DB11/206—2010 DB11/207—2010 DB11/208—2010		
49			
50			
51			
52	GB6514-2008		
53			
54	—		
55	1		
56			
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59	/		
60			
61	GB/T3374.1-2010/ISO1122-1 1998		
62	CECSXXX 2010		
63			
64	ISO9000		
65	II		
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68			
69			
70			
71	GB/Z24636.1 4-2009		
72			
73	GB/T1182-2008 GPS		
74	GB/T3478.1 9-2008		
75			



Patents and the Software Copyrights

2011 163 103 87 30 58 1 15
464 117 75 330 2

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12 2011

1	R-APLIS V1.0			
2	UG NX	CAD	UG	
3	CAIA V5	CAD	CATIA V1.0	
4				
5	—		NSHTWIN V1.0	
6	RS10	V1.0		
7	MMCFORM V1.0			
8	MTD	V1.0		
9	RAMM V1.0			
10	RS10	RS10/OPA V1.0		
11	DCPMonitor 1.0			
12	V1.0			
13	MTD	V1.0		
14	RMPGMEDIT 1.0			
15	“ PIIA ”V2.0			

Technical
Innovation


Science and Technology Organizations

2011

7

19

13

1			150080 0451-86322012	111
2			110022 024-25851598	17
3			450052 0371-67710823	81

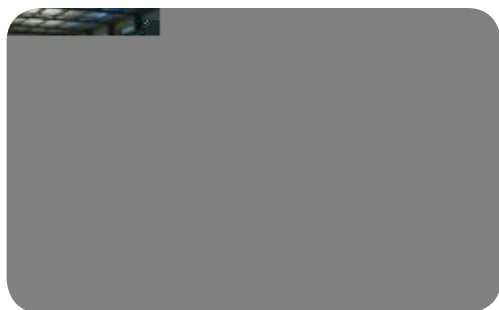
4			126
5			430030
6			027-83640412
7			100011 010-82285785
8			010-82285320
9			010-82285400
10			010-82285774
11			010-82285730
12			100083 010-62920654
13			010-62920613
14			100044 010-88301635 88301130
15			01088301751
16			010-88301236
17			
18			
19			010-88301134

The Main Achievements of R&D



The Advanced Manufacturing Technology

FCF



The Main
Achievements
of R&D

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580mm





High-Tech Mechatronics



12MeV

380mm



New Materials and Engineering Application

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Information Technology of Manufacturing

RMES

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3000km



AGV

AGV

AGV



The Main Achievements of R&D



Modern Service

GB14023-2006

ICP

ESCI

100 μ s - 100s

0.01Hz

± 1 dB



The Main
Achievements
of R&D

Technology Services

2011 275 3.8 8000 5



Technology Services Units

2011 9 12 2 1 4
7 3 14

Productivity Promotion Centers

2011 9 4
14

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Technical Committees of Standardization

2011 2 1 25
ISO/TC1
TC10/SC6 ISO/TC10/SC6 ISO/
2011 163 112

24		ISO/TC107	SAC/TC57	4	5
25		ISO/TC3	SAC/TC3	7	25
26		ISO/TC184	SAC/ TC159	11	0
27			SAC/TC74	3	9
28			SAC/TC75	5	3
29			BJW04	5	3
30			CMIF/ TC25	12	6
31			CMIF/TC7	19	2
				163	112

The Supervision and Testing Centers for the Products Qualities

2011

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Certification Centers

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17

					2011	
1		ISO9000 ISO14000 GB/T28001-OHSAS18000 QS9000	6684	8555	780	845
2		ISO9000 3C	1604	8084	220	386
			8288	16639	1000	1231

Engineering Construction Projects and Services

4

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5

18

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Services Media

Periodicals

2011 19 1 5

20

1		150080 HJZZS@sohu.com	0451-86353779
2			0451-86323218
3			0451-86325919
4	—		0451-86323218
5		110022 jingyingb@chinasrif.com	024-25847830
6	CHINA FOUNDRY		
7		450052 jxcd@chinajournal.net.cn	0371-67710817
8			0371-67710821
9		430030 mp@csec-mp.com	027-83330037
10			027-83638752
11		100120 sunwei@riamb.ac.cn	010-82285770
12		100120 songjq@riamb.ac.cn	010-82285330
13		100083 clrc@163.com	010-82415080
14		100083 sxgcxb@263.net	010-62912592
15		100083 jsrcl@vip.sina.com	010-82415083
16		100083 fst@263.net	010-82415085
17		100044 kfcx@jdcp.sohuvip.net	010-88301744

18		100044 jxgyjcw@163.com	2 010-88301626
19		100044 jdbcdazz@126.com	2 010-88301520
20		102100 syczjzx@sohu.com	55 010-69141178

Internet Webs

2011 50

21

1		www.cam.com.cn	
2		www.hwi.com.cn	
3		www.china-weldnet.com	
4		www.chinaweld.com.cn	
5		www.chinasrif.com	
6		www.foundryworld.com	
7		www.casttech.amadata.net.cn	
8		www.foundrynations.com	
9		www.zrime.com.cn	
10		www.rimp.com.cn	
11		www.csec-mp.com	
12		www.china-piating.com	
13		www.mat-pro.com	
14		www.mat-info.com	
15		www.piatingcentre.com	
16		www.cntribo.org	
17		www.tc57.com	
18		www.bmgc.org	
19	—	www.xpnh.com	
20		www.china-conversion.com	

21		www.riamb.ac.cn	
22		www.yeyanet.com.cn	
23		www.robotschia.com	
24		www.brimet.ac.cn	
25		www.chts.org.cn	
26		www.sxgcxh.org	
27		www.jsrc.chinajournal.net.cn	
28		www.jscl.chinajournal.net.cn	
29		www.DYJE.chinajournal.net.cn	
30		www.sxgxcb.com	
31		www.cmfi.cn/home.asp	
32		www.pcmi.com.cn	
33		www.e-cuc.com	
34		www.kepu.gov.cn	
35		www.cppc.org.cn	
36		www.jcw.com.cn	
37		www.jb.ac.cn	
38		www.standardcn.com	
39		www.cccap.org.cn	
40		www.syc.org.cn	
41		www.sycxfw.cn	
42		www.mtd.com.cn	
43		www.mtdep.com	
44		www.riamt.com	
45		www.cam-zj.cam.cn	
46		www.mach365.com	
47		www.camtc.com.cn	
48		www.mie.gov.cn	
49		www.china-machine.com.cn	
50		www.mia-ias.org	

Other Service Organizations

2011

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22

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2011

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Exchanges and Visits

1 ISO/TC44



International
Cooperation

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Sung-Hoon Ahn

Ahn

Sung-Hoon Ahn

CHINA FOUNDRY



6 2-5



6 18
Green Nick

3/4

IIW
Wolfgang Tillmann

Young

Sik Kim
AMDP 2011 Yun Hae Kim

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8 24-26

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9 1

BT Mr. Mikael
Lvarsson RAYMOND Mr. Alan
Bartels Mr. Shuan Zhao

International
Cooperation

Danaher

Kollmorgen EVS

“ ” 2011



Academicians



1993

(Prof. Xu Xingchu)

Professor Xu Xingchu, the academican of the Chinese Academy of Science, the expert in the field of the design of precise machine tools and process technology, the honorary president of CAM.

He graduated from the Mechanical Engineering Department of Dalian Technology University, and his major is machine tools. In his career in Beijing Research Institute of Machine Tools of the Ministry of Machinery Industry, he successively held the posts of technician, engineer, senior-engineer, professor, director, deputy-chief engineer and the president. And now he is invited as to be the deputy-director of the Committee of Science and Technology, which is belonged to the China Machinery Industry Federation, and has been conferred the academican of the Chinese Academy of Science in 1993. He was selected as to be the commissar of the Seventh, the Eighth and the Ninth National People's Political Consultative Conference.

For a long time, he has been engaged in the research work on R&D of precise metrology and the precise measure instrument, the precise processing and the design and manufacturing for super-precise machine tools, among them a lathe, a mill and a roundness instrument achieved a rotating precision better than 0.02um, and finished surface roughness better than 2.5nm.

He had been in chief in the R&D work in developing the first one-meter longitudinal photoelectric interferometric comparator; the one-meter grating ruling on the basis of laser wavelength and the magnetic grid machine tool in China.

He also developed the technology of the super-precise machine tool and the super-precise processing, and some new products such as the super-precise lathes and milling machines, in the meanwhile, had invented one set of key manufacturing technology with low cost. He was ever awarded the National First-Level Prize of Science and Technology Progress, and was the national eminent young and middle-aged expert.



(Prof. Lin Shangyang)

2005 IIW “ ” 2010 12 “ ” 2009 7
40 20
11 40 2 60
4 400-600MPa
70 CO₂
80
90
2001
(IIW)

Professor Lin Shangyang: the academican of the Chinese Academy of Engineering (CAE), a prominent welding expert, Supervisor for Doctors, Deputy-Chief Engineer of China Academy of Machinery Science & Technology, Chairman of the Technical Committee of Harbin Welding Institute (HWI). After graduation from Harbin Institute of Technology (HIT), Prof. Lin has been working with HWI as a head of research groups, research department, Deputy Chief Engineer of HWI. In 1995, he was granted the academican of the Chinese Academy of Engineering.

In 2005, he was awarded the Permanent Accomplishment Prize for Chinese Welding, which was given by the Welding Society of the Chinese Mechanical Engineering Society; in July 2009, he was awarded Paton Permanent Accomplishment Prize, which was given by IIW; in December 2010, he was granted a nominee of “The national best ten workers of Science and Technology in China”.

He has contributed his knowledge, energy and talent for more than 40 years in the field of R&D and achieved more than 20 key research projects. He has won 11 national and ministerial scientific and technology awards and presented more than 40 research papers and published 2 books. In the 60's, he developed 4 kinds of low alloy SAW and ESW wires for 400-600MPa yield strength steels. These wires have been widely used in practice up to now. In the 70's, Prof. Lin invented a locally drying under water CO₂ semiautomatic welding technique, raising the technology of under water welding in China to the world advanced level. In the 80's, he invented tandem wires narrow gap SAW process, solving the contradiction between quality and efficiency and welding automation in the welding of heavy section structures. In the 90's, he developed automatic welding machines and arc welding robot stations for industries. In 2001, he accomplished a research project on high power Nd:YAG laser welding and cutting technology and approved by the Ministry of Science and Technology.

Prof. Lin also gives his great attention to the professional and social activities. He used to be the Secretary General of Chinese Welding Society, Chairman of the Chinese Committee for International Institute of Welding. He is a part-time professor of HIT and the doctoral supervisor. He is also a doctoral supervisor of the China Academy of Machinery Science and Technology (CAM). Prof. Lin is the Chairman of Science & Technology Association of Harbin City and a standing member of Science & Technology Association of Heilongjiang Province. He is also a special invited member of the Science & Technology Committee of the China Machinery Industry Federation. He is a member of Political Consultative Committee of Heilongjiang Province and Harbin City.



(Prof. Chen Yunbo)

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1991
1999
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863 973 863 “ ”
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Prof. Chen Yunbo, the Academician of China Engineering Academy, Senior staff engineer, Supervisor of Doctors, vice-president of the eighth Chinese Mechanical Engineering Society and the director of advisory committee concurrently, Deputy-Chief Engineer of CAM, Director of Materials Engineering Research Institute, Director of State Key Laboratory of Advanced Forming Technology and Equipment (SKL) Academic Committee, Director of China Heat Treatment Productivity Promotion Center, Vice Chairman of China Energy Society. He was awarded as the National Mid-Youth Experts with outstanding contributions in 1988. And he has enjoyed the Governmental Special Allowance since 1991. In 1999, he granted to be the Academician of China Engineering Academy. In 2009, he was appointed to be “the chief expert in the group of technical supports the economic transformation and upgrading of the equipment manufacturing industry in Hangzhou, Zhejiang province”.

Professor Chen has been for a long time engaged in the work of R&D on materials, material processing, surface engineering, mould and die technology. He has made outstanding contributions in resolving key problems related to manufacturing technology and equipment, and has made a few academic and technical innovations on the key engineering equipment and technologies related, the common interests of the new materials and technologies, surface engineering technologies and resisting force index systems of material environment failure. He has been in charge of the R&D work on the key technological projects of new materials and the advanced manufacturing technologies, which were listed in the national “10th Five-Year” and “11th Five-Year” plans and a few of the national key scientific and technological projects announced by the government such as “863” and “973” plans. He has been awarded more than 10 national or provincial outstanding prizes due to his great contributions on the scientific and technological progress and innovation, and he has been granted 4 invent patents. He has issued 3 sets of technical publications and more than 100 academic papers. Also he had been the supervisor for more than 10 masters or doctors who have already graduated.



Personnel



Trainings

8 24

2011

70



25 2011

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2		510
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		489
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		4181

Human Resources



13 2011



A bar chart comparing the number of respondents by age group and gender. The x-axis represents age groups from 0..0 to 0..6. The y-axis represents the number of respondents, ranging from 0 to 4. For each age group, there are two bars: an orange bar for Male and a blue bar for Female. The exact count for each bar is labeled on top.

Age Group	Male (Orange)	Female (Blue)
0..0	7	22
0..1	10	30
0..2	5	36
0..3	7	14
0..4	2	30
0..5	0	0
0..6	2	30

2011

90

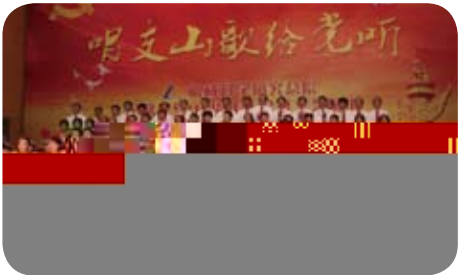


Cultural Activities

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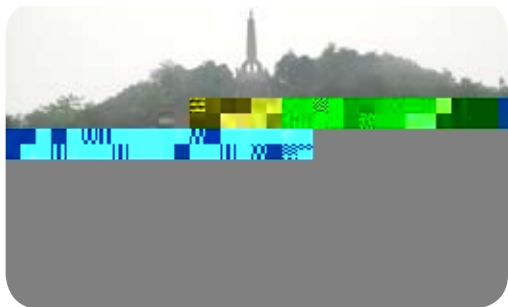




90



90



Enterprise Culture



3 18





Restructuring and New Appointments

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6 28		12 7
6 30		12 7
7 1		12 7
		12 7
7 4		12 21



The Important Meetings

1	12-14	2011	5	11	6	29	90
			“	”			
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Important Events

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10 27-28 2011



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2010 2011



10 12-14
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11 10-11 2011



11 16-17 2011

Important
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Technological Cooperation and Development

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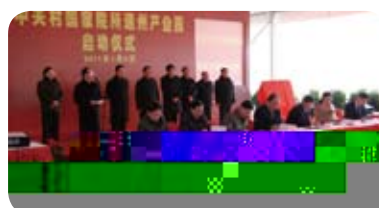
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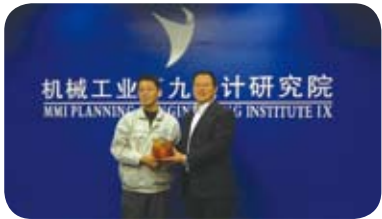
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Important Events

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The Key Scientific and Technological Progresses

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PDC

Important Events



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The Academic Activities

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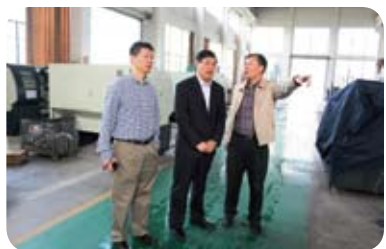


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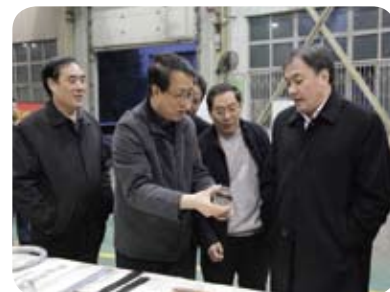


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Regulations and Rules Amended and Formulated in 2011

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