

1. 2013 PTC ASIA

2. 3

3.

4. 30%

5.

6. 2013

7.

8.

9. # CeqR2018

10.

11. CO2

12.

13.

14.

15.

16. 3

17.

- 22.
- 23. 18
- 24. 12%
- 25.
- 26. CIGS
- 27. 2014 ?
- 28.
- 29.
- 30.

- 1. 2013 36.7
- 2.
- 3. 2014
- 4. 2012 < > < >
- 5. 2012
- 6. 2013
- 7.
- 8. ()
- 9. 2014 49GW
- 10. 2013

- 1. Interclima
- 2.
- 3.
- 4. 3 5
- 5. KSB
- 6. 3
- 7. 23XRV

- 8.
- 9.
- 10.
- 11.
- 12.
- 13. .
- 14. V
- 15.
- 16.
- 17.
- 18.
- 19. Edwards
- 20.
- 21.
- 22.

- 23. . Edwards
- 24. Busch 50
- 25.
- 26. IDP-15

- 1. 2013
- 2. : ,
- 3. 2013
- 4. 2013
- 5. : , ---
- 6. : , ---
- 7. : , 2

1 2013 PTC ASIA

PTC ASIA 2013

ComVac ASIA

70000

party

2011

10-20%

2

17

13

4

10 30

17

,

t

,

t

,

t

10

EK

EK

EK

EK

EK

14

315

67

6

2

29

23

8

60

1

10

15

5%

2013 12 7 R S 9

2013 6 8

25

HFCs

HFCs

CFCs HCFCs

HFCs

HFCs

GWP

HFCs

UNEP

CRAA

2013

GWP

HFCs

R134a R410A R404A

HCFC

2013

2013 8

HCFCs

HFCs

HFCs

ODSs

50

GWP

HFCs

CFCs HCFCs

CFCs HCFCs

ODP ≈ 0 GWP

HCFC-123

GWP

GWP

HFC	HCFC
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

R410a R134a

HFO R1234y

R290 R32

R1234y R1234ze

2013

26

R1234y R1234ze

R1234yf	3000
---------	------

R1234yf	4000
---------	------

GWP HFCs

GWP R32

A2L R32 R22

13 GWP

GWP

2013 12 7 R S 9

4 30%

8000 r22

8 r22 r290 1.4

r290

r290

2015

10% 2030

3 30%

r22

http://www.chinahvacr.com/News/Class1/201312/News_3101644.shtml

7 R S 9

5

12 21

10

1000

90

6 -8%

MPPT



2011

40%

65%

‘ _____

2011

2013

349.15

21.79%

35.63

44.79%

887.59

15.03%

75.79

42.13%

2012

2013

1200

<http://news.ehvacr.com/news/2013/1223/89630.html>

7 R S 9

6 2013

2012

2013

2013

2013

2013

2012 11 1

2013

2013

12

5000

1.5

1200

2013 3

12

2013 6 1

75%

85 20 2015 250

200

15 / 30 /

50 /

, , 2015

3—5

9600 210

210

2015

2015 20%

2015 12 31

1000

2013 12 1

2737

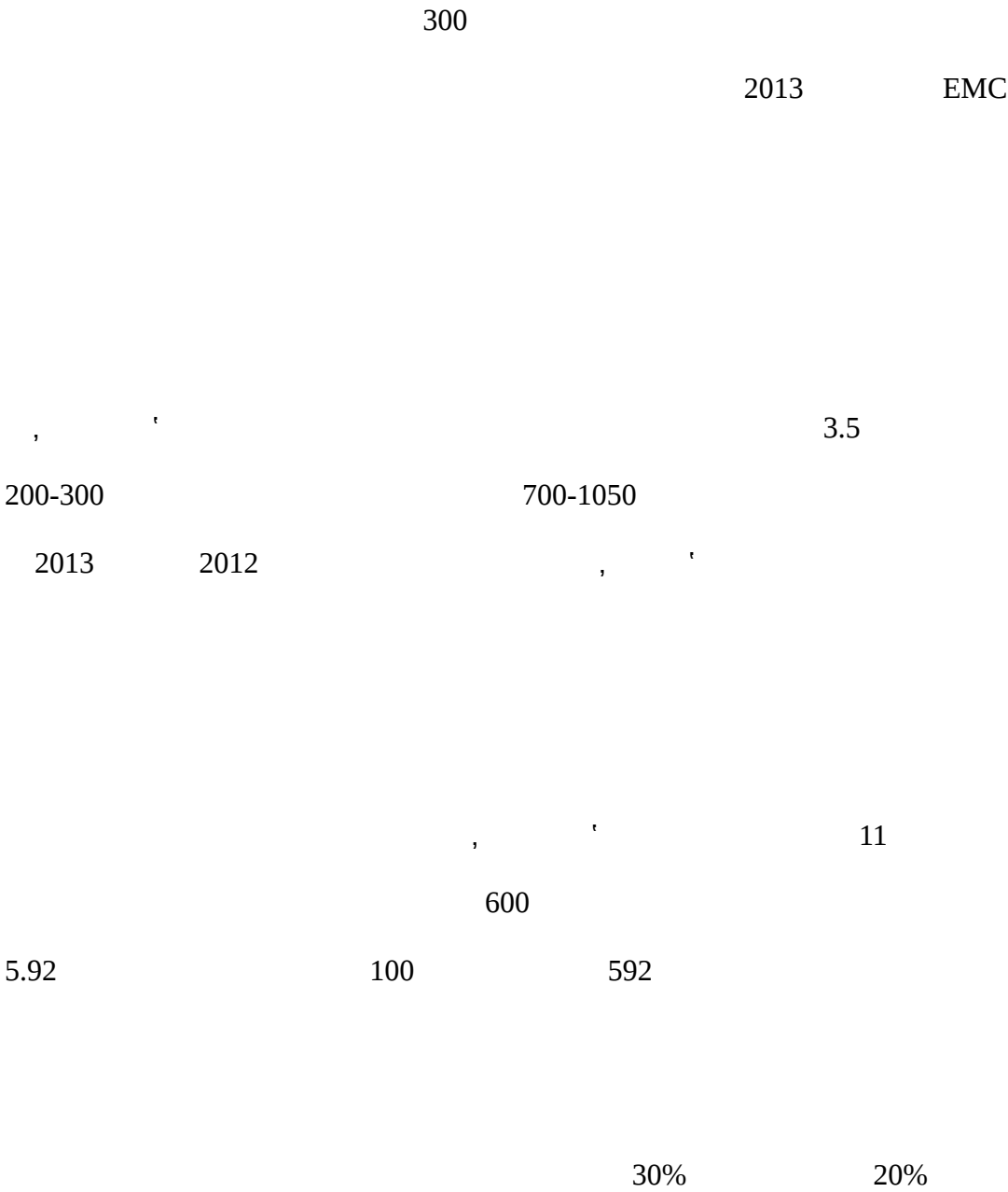
, ,

1000 100 10

2013

, ,





3 1

2.28

102

722

98

56

45

2013

, t

2012

2013

100

TOP50

2013

<http://news.ehvacr.com/news/2013/1226/89704.html>

7 R S 9

7

2004

48%

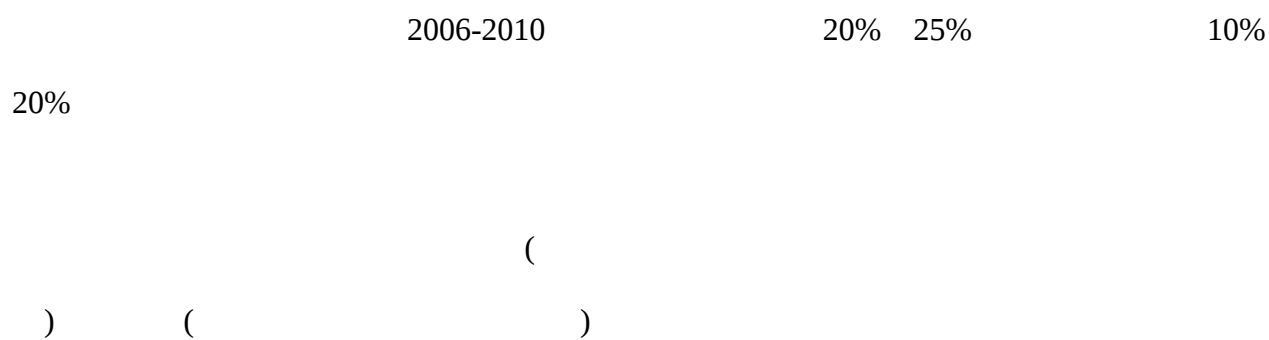
2005 2010

10% 20%

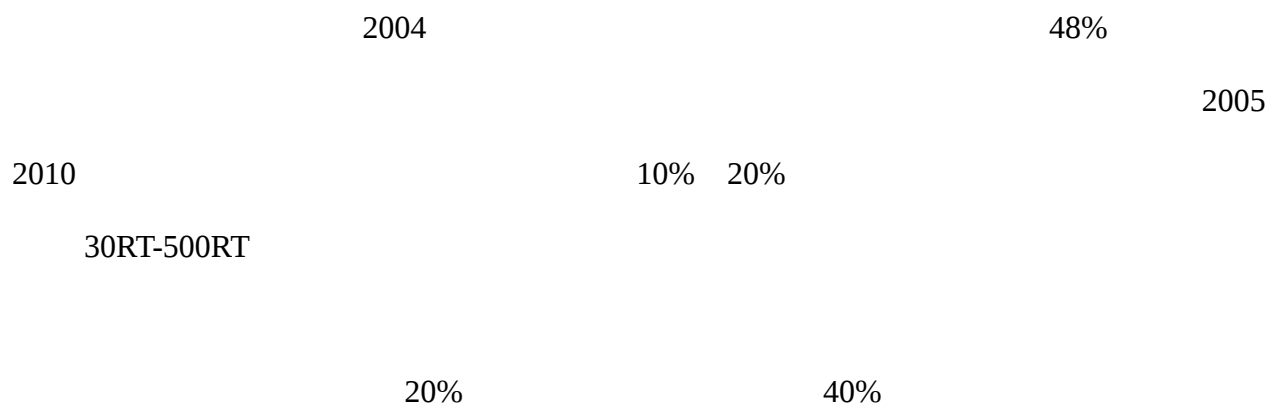
30RT-500RT

20%

40%



24



()
()
24

http://www.chinahvacr.com/News/Class1/201312/News_3101597.shtml 7 R S 9

8

,

t

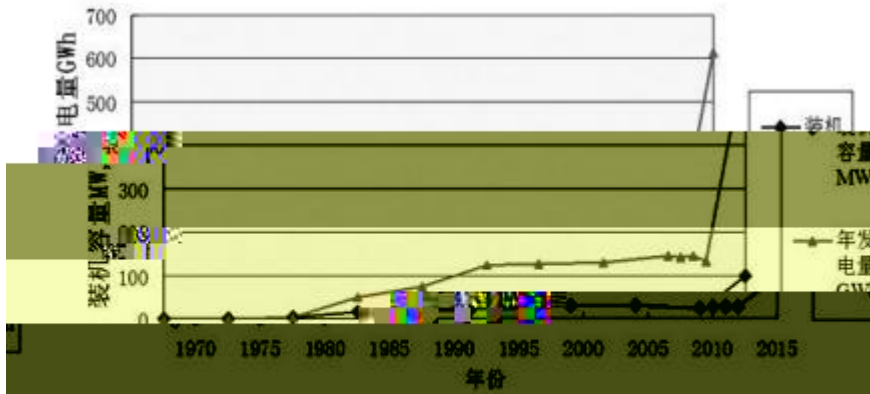


图 1 中国地源热泵应用面积和年利用热量

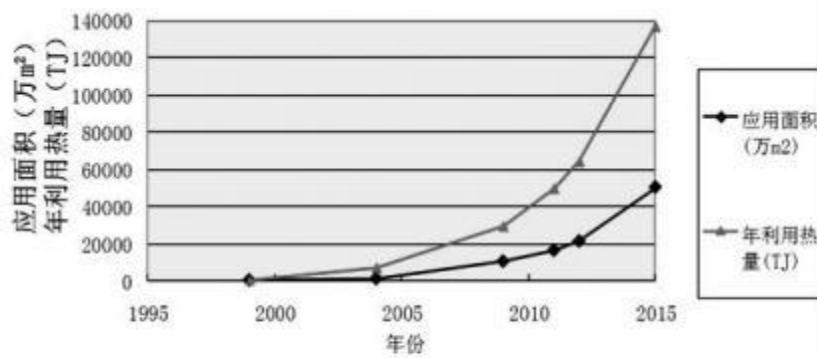


图 2 中国地源热泵应用面积和年利用热量

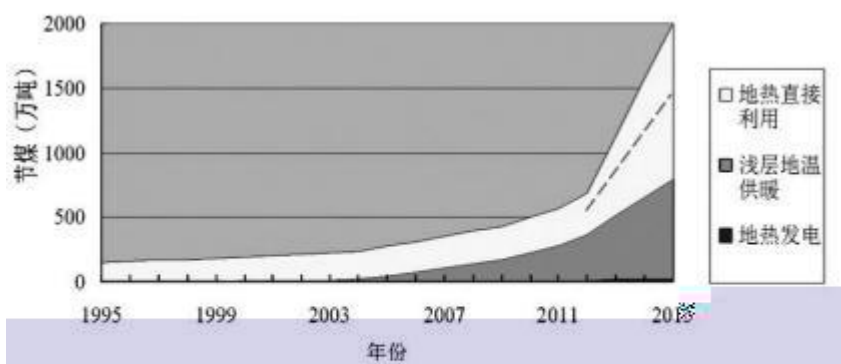
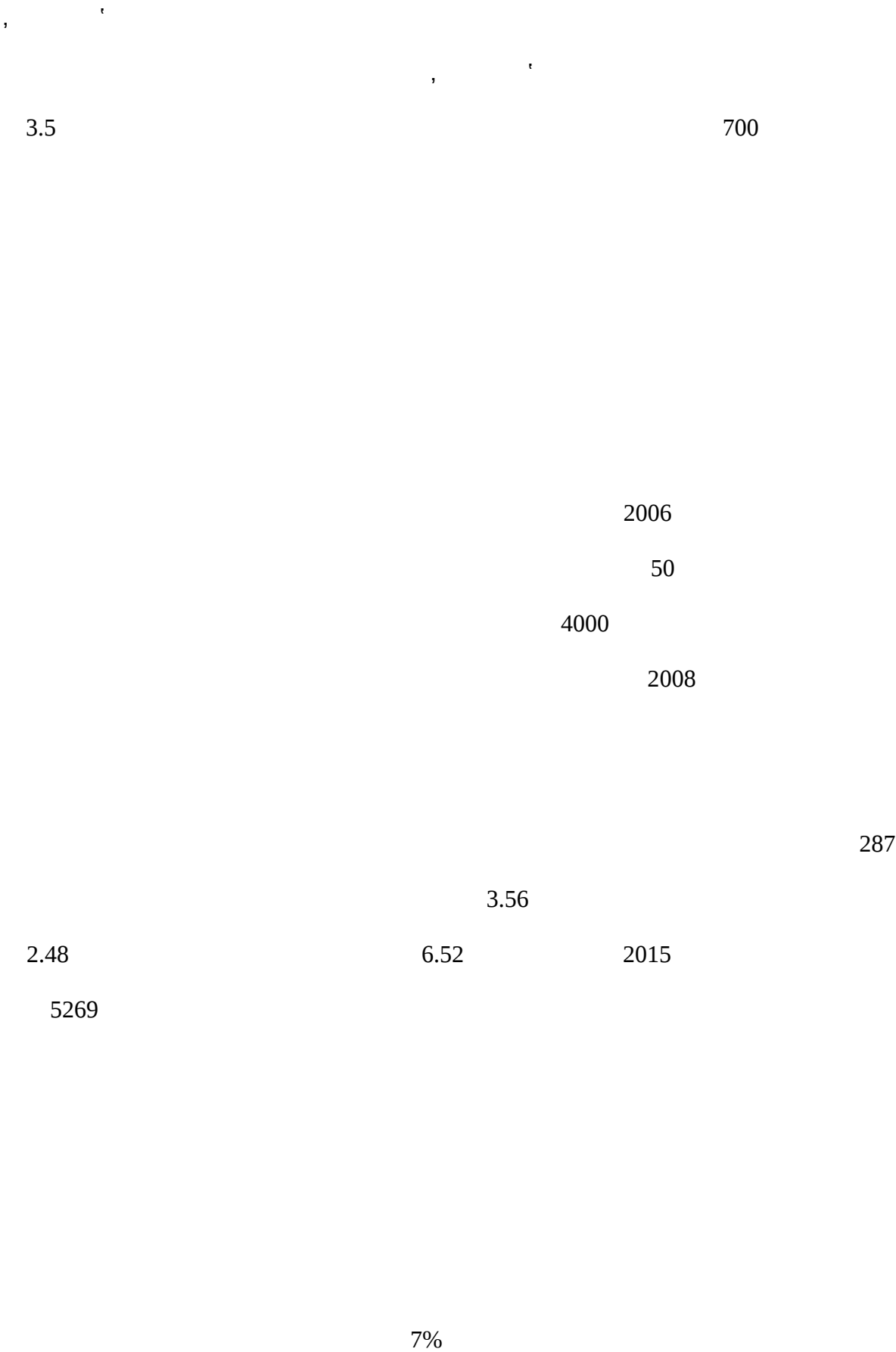


图 3 中国地源热泵节能



,

t

90

30%-60%

8%

2002

400

300

2010

30

30%-80%

5

700

<http://news.ehvacr.com/news/2013/1203/89234.html>

7 R S 9

9

2018

2015

2898

2016 1 1

IGCC

璿 2018 1 1

<http://news.ehvacr.com/news/2013/1204/89252.html> 7 R S 9

10

2007 3

2011

2011

2013 1—9

2013 1—9 18 2012 5.3%

2013 3

50%

2012

2010



62.5%

25%

http://bao.hvacr.cn/201401_2043191.html 7 R S 9

13

1

7

http://bao.hvacr.cn/201401_2043365.html 7 R S 9

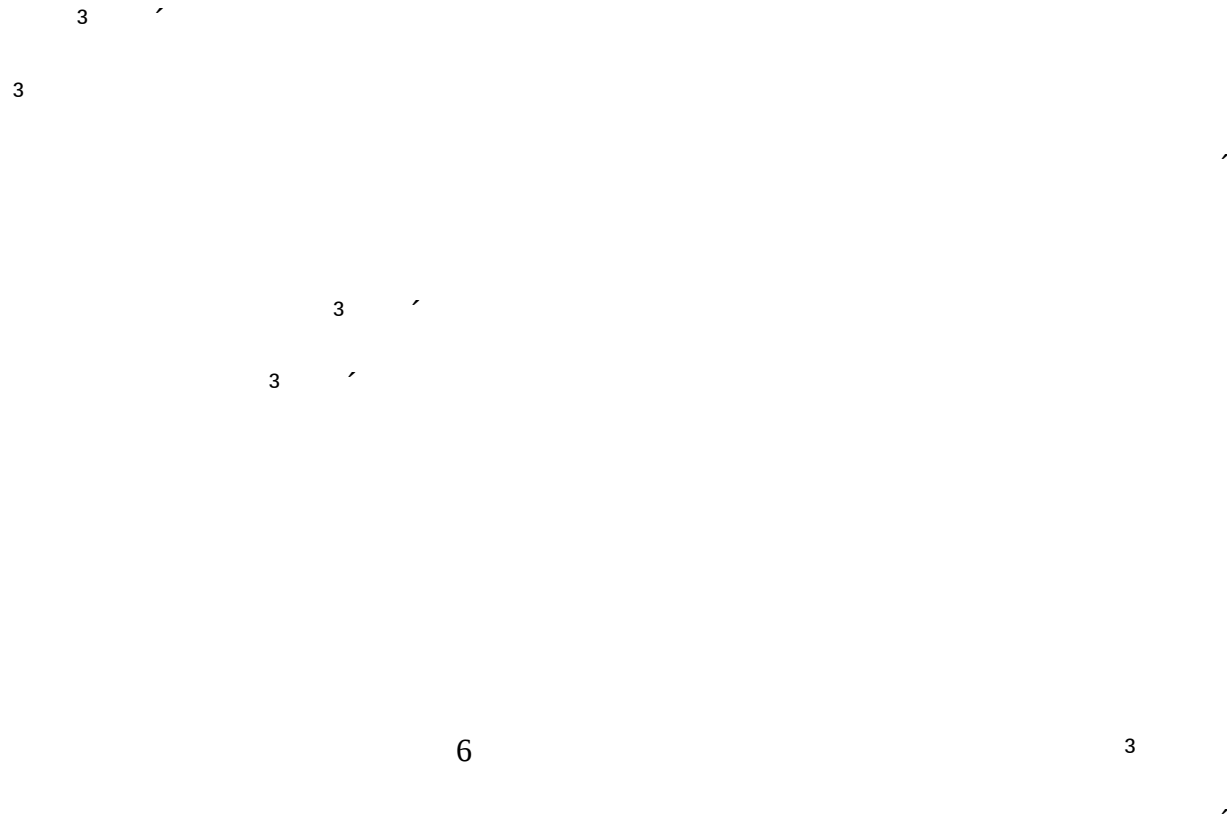
14

3

2014 1 1

2014 1 1

				15
8	25		24	15
	60			
(7.53, -0.18, -2.33%)				
/				
		/		
	/			1/10
		10%		
3		/		
3				
/				
		31.1		
				7.37



http://bao.hvacr.cn/201401_2043217.html 7 R S 9

17

UPS DHL

<http://news.ehvacr.com/news/2013/1121/88971.html>

7 R S 9

19

500

240 / 500 /

2010

240 / 60 /

10000

350

300 /

200 /

<http://news.ehvacr.com/news/2013/1205/89325.html>

7 R S 9

20 2014

8%

2010-2011

28%

2009

400

90%

60

40%;

10%

90

60%

2013

2014

<http://www.compressor.cn/News/hyxx/2013/1214/71316.html>

7 R S 9

21

， ‘ ， PM2.5 ‘ ， 3M ‘ ， ‘ ， ‘ ， ‘

2013

2013

52

13

， ‘

，

‘

，

2013 , , 2014

, 2013

15% 2015

4.5

:

, , ,

, 2015

: 2014 , 2

, 1000 ,

:2015 30.72 / , 28%,

35% ,

2013 12 15 2014

；

；

；

21

4800

40%

400

；

60%

TRT

30

<http://www.compressor.cn/News/hyqx/2013/1218/71340.html>

7 R S 9

22

50HP

；

<http://www.compressor.cn/News/hyqx/2013/1120/70960.html> 7 R S 9

25

20

10

20%~30%

<http://www.zhenkong.info/news/html/Market/10084.html> 7 R S 9

26

CIGS

2014 1 14

2014 46GW 2015

56GW

2013 12 18 2013

10GW 122%

1 13

20 80

CuInSe2 CIS Ga CIS In CuIn_{1-x}Ga_xSe2

CIGS

25-30%

20.3%

15.7%

CIGS

BIPV

70% CIGS

CIGS

CIGS

CIGS

CIGS

CIGS

Cu

In

Ga

Se

CIGS

GIGS

http://www.semi.org.cn/pv/news_show.aspx?ID=13833&classid=12 7 R S 9

27 2014

?

2013 7

53.3% 57%

2.3% 48.7%

2.4% 48.7%

2014	1	20	5
------	---	----	---

3

30%

OCI

2.4%

 μ

१

3

3

3

50%

2013	11	792	27.1%
10%	3	μ	¶
2013	11	2033	
71%;	2365	98%	
		3	μ
¶			
		14.7	/
13.5	/	8.64%	20%

3

25%

6.5

12

2013

35% 3

3

http://www.semi.org.cn/pv/news_show.aspx?ID=13840&classid=12 7 R S 9

28

1 13

100

2010 5

http://www.chinaequip.gov.cn/2014-01/23/c_133067131.htm 7 R S 9

29

2459 252

2403 239

56 13

2013 , 2013

‘ , ‘ ,
‘ 2013

,

‘

<http://news.ehvacr.com/news/2014/0109/89919.html> 7 R S 9

30

09 13

9 12

2

1 4000

1

4000~8000

3

30

18

30

5

300

2700

<http://www.chinesevacuum.com/ShowArticle.aspx?id=42696&pid=39> 7 R S 9

1. 2013

36.7

2013 2013

2013

3000 48 17% 2012 40%

			2013		36.7				
77%	2012	32				14.7%		2013	
	8.2			17.1%	2012	7			
17%			2013		2013	2.7		2012	
1.5				80%					
			1000					2013	
	1000		63			56			
5									
				8				2014	
					2013				
1.2									
			2013		2014				
8128		6790							
http://bao.hvacr.cn/201401_2043452.html				7 R S 9					

2.

		20			2009		19%
		20			40%		
2004	2009			2004	33		
2009		43					
1997		2005					
1997	11	8					

- ()

1998 11 4 3

2002 4 23

2002 12 19

([2002]414)

2005 2 28

33

2006 1 1

2005 11 29

3

3

2006

2006 5 30

(

[2007]371)

3

3

2006 5 31

()

2006 839

2006 7 1

()

35 /

50 /

2006 9 4

(2006 460)

2006 10 11

([2006] 20)

312.3

2007

1800

2010

6500

2006 12

3

3

2010

3

3

« «

.

(109)

([2002]222)

2006 12 28

3

([2006]315)

3

3

2007

2007 4 10

3

([2007]59)
/

2007 5 23 [2007]15
3

2007 7 10 (2007
71) 2007 8 1

2007 8 31
([2007]2174)
3

2010 400
2020 1200

2008 6 2

2008 ([2008]64)

()

2008 10 15 ()

([2008]531),

() 2009 1 1

2008 12 3 (

2008 249)

2009

2009 7 6

([2009]305) (

[2009]306) 5000² 8000

2

2009 60 /

1800

2010

2010 4 2

(2010 25)

.

([2009]305)

([2009]306)

2010 5 7

2010 ([2010]34)

2010 8 4

([2010]455)

2011

2011 3 8

[2011]61

2020

15% 3

2015 25

3000

2001 3 21 2011

([2011]38)

()

/

2011 7 13

3

5

3

2011 11 29

2012

([2011]167)

()

2012

.

2011 4 -2012 3

2012 6 16 3 (2012
19) 15% 2015
4.5 2%
2015
10% 30%
30% 2015
20 50 10
2012 8 3
3 2015 1500
10
5 2013 1 1 [2013]2 3
()
2013
2013 1 1 2013 1
3
10 2015
20% 3
4 5000
1.2
3 10
3.5

3

2 2 ‘

3 ‘

http://bao.hvacr.cn/201401_2043561.html 7 R S 9

3. 2014

2014

2013

1

2

COP

20%-100%

3

65

46%

GDP

1500

0.5kg

15.6%

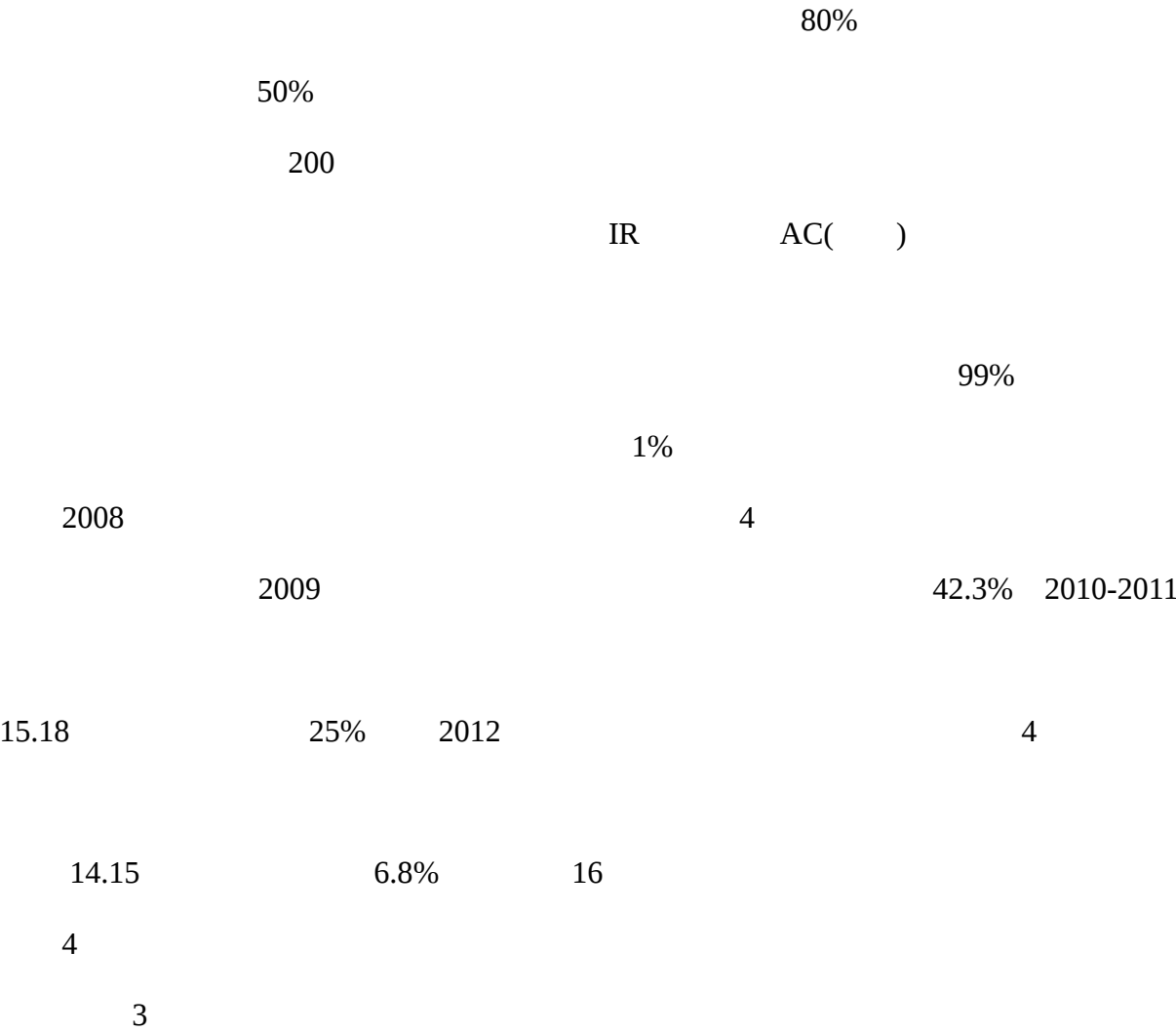
15%

40%

GDP

2015 312
5.2% 20%
34 9.1%

- 3000~15000r/min
 -
 -
 -
 -
 -
 -
- 3



2015

181950

17

3

7

-
-
-
-
-
-
-

99%



2

2007

2008-2010

GB19153-2009

3

2

2

1

2011

80%

2012

4

1500

16.7%

3

CAGR

8.7%

2015

18

20

3

LNG

CAGR9.1% 2015 2000 21

1

2

-

8

1

2

6

5

5

70%

1960



1

1

6

2970	2970r/min		
2970*12=35640	2	5	5
2970 r/min		2970 *5=14850	
35640			

2

3

4

4

2

1/4~1/3

2

90%

10%

1

3

100

3000

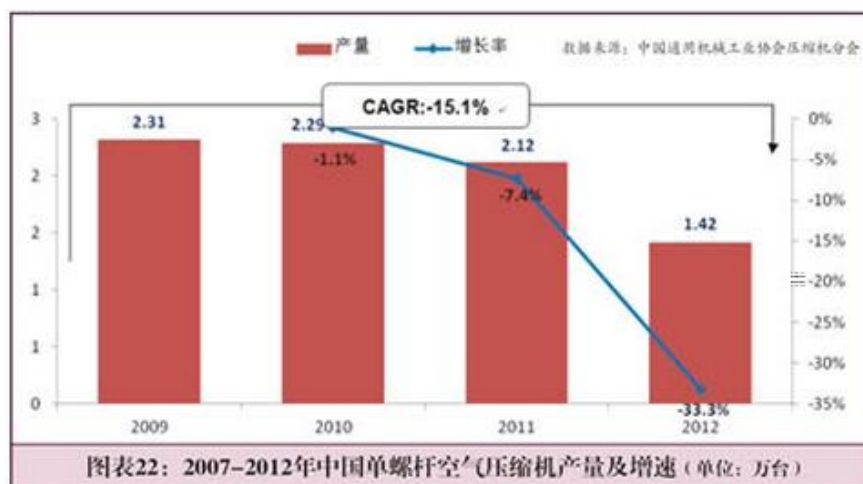
2007-2012

2012

1.42

33.3%

22



3

1974

1976

1984

1986

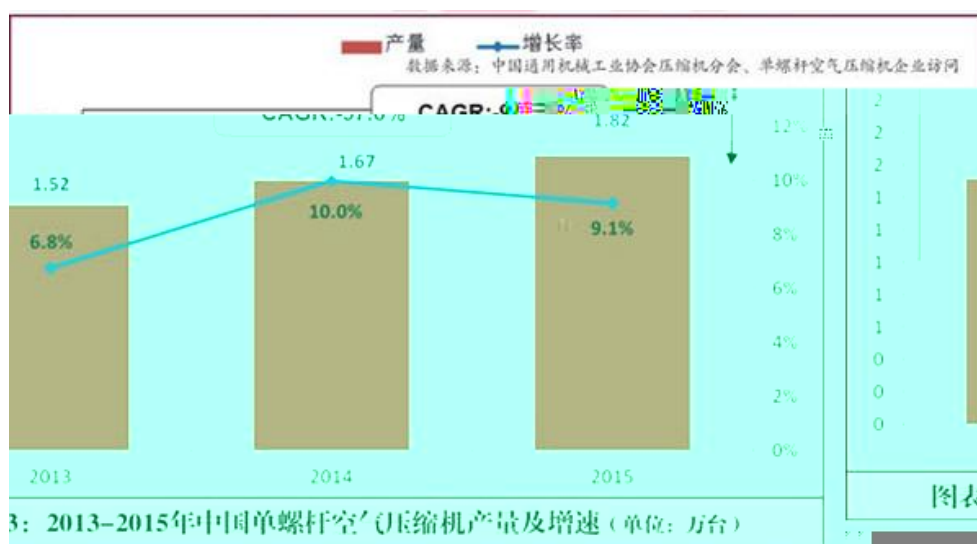
0

3

2015

1.82

23



2		100HP
50kg/cm ²		
3		
4		100%
5		
6		
	Surge	
7		
8		
2		10000KW
	4%	



2008

4

2009-2011

1500

2012

1

2

3

4

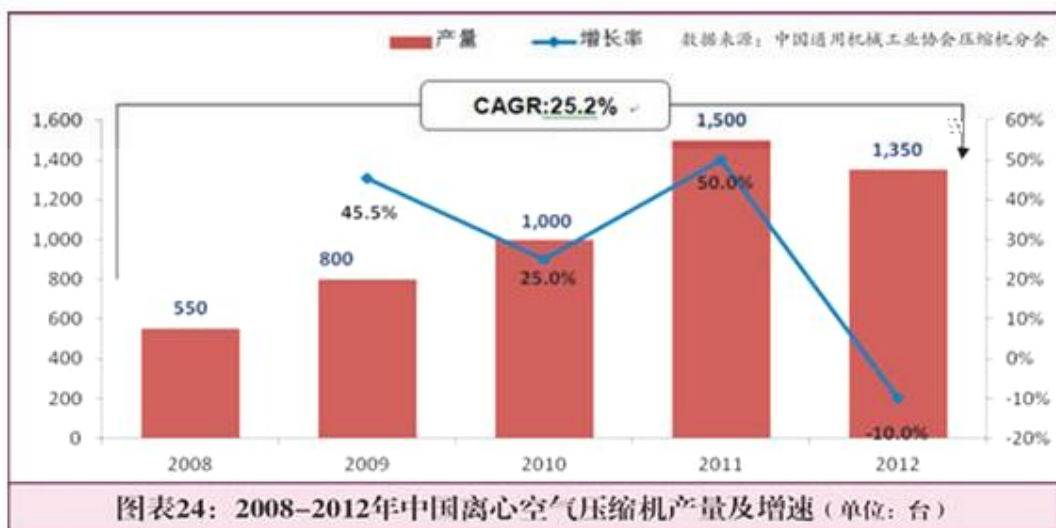
3

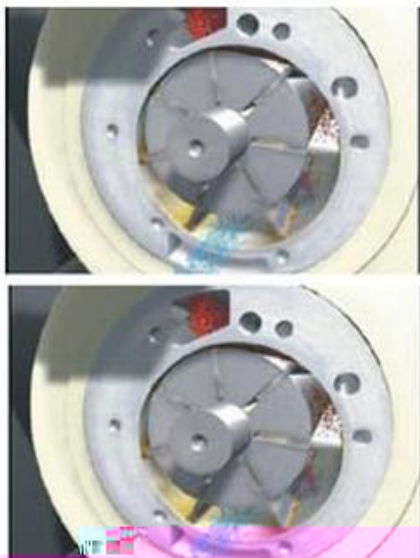
6.9%

2015

1650

24 25





+

$\leq 300r \cdot p \cdot m$

,

t

1

● 1905 Leon Creux

● 70

1972 Arthur D Little

● 80

81

83

87

● 90

Carrier

2

- 90% 40%
- 15%
-
-
-
-
-
-
-
-



4

< >

2013 12 7 R S 9

5. 2012

2012 1749 108

6%

1641

94% 1

2012 169581

10430 6% 1498

1%

157.653

93% 2 3

2012 8182 183

2% 9

7990 98% 4

2012 181204

11.951

7%

8.536

5%

160717

89%

5 6

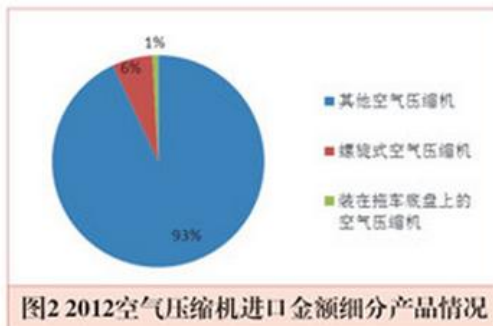


图3 2012空气压缩机进口情况					数据来源：中国海关总署
海关编码	商品名称	2012年进口数量 (台)	2012年进口金额 (万美元)	备注	
84143019	螺旋式空气压缩机	1077295	10430	/	
84144000	装在拖车底盘上的空气压缩机	1,752	1498	/	
84148090	其它空气压缩机	16,409,091	157,653	含无油空气压缩机、螺杆式空气压缩机、离心式空气压缩机及其他空气压缩机	

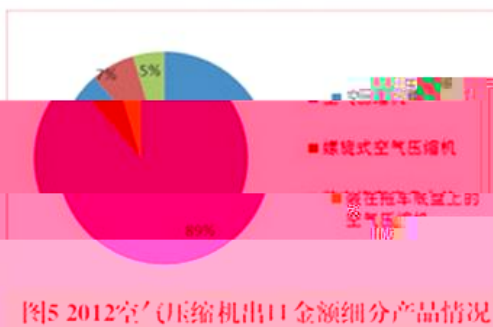
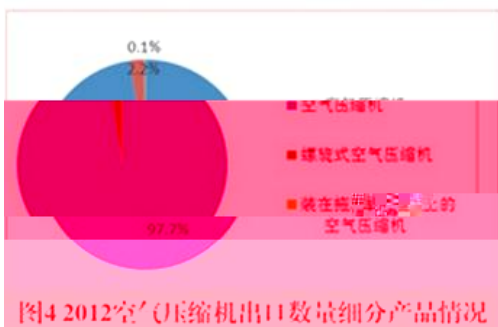


图6 2012空气压缩机出口情况					数据来源：中国海关总署
海关编码	商品名称	2012年出口数量 (台)	2012年出口金额 (万美元)	备注	
84143019	螺旋式空气压缩机	1,828,296	11,951	/	
84144000	装在拖车底盘上的空气压缩机	90,205	8,536	/	
84148090	其它空气压缩机	79,896,397	160,717	含无油空气压缩机、螺杆式空气压缩机、离心式空气压缩机及其他空气压缩机	

2013 12

7 R S 9

6. 2013

2003-2009

2009

2012

113.4

8.9

2012

13,153

553

8.4

8.3

73,654

1.6

56

4.5

1

20

80

; 2 12

2016

78.5

159

<http://www.compressor.cn/News/hyqx/2014/0111/71621.html>

7 R S 9

7.

()

20%

15

30%~60%

;

,

80%

10

;

50%

2009

5% 2010

30%

5

15%

80%

100%~5%;

 $\pm 0.5\%$;

3kV~10kV

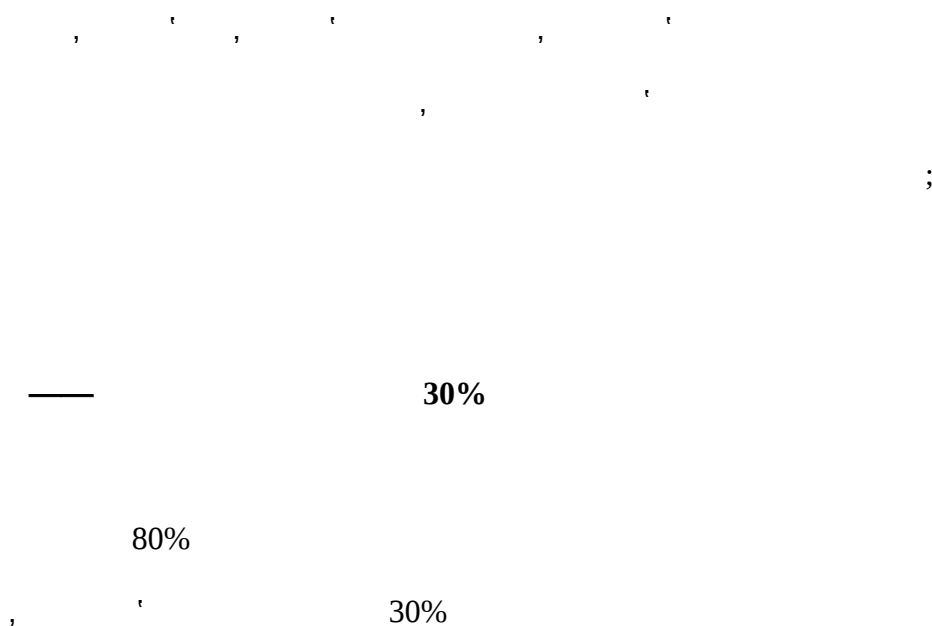
690V

50%;

 V/f

1. *Journal of the American Medical Association*, 1997; 277: 1033-1038.

30%~60%



8. ()

, ' (2009 213)

()

, ' ()

()

()

()

20%

()

()

10%

()

()

30%

()

()

()

()

()

()

()

()

()

()

, ' ,

()

, ' ,

()

()

()

()

()

<http://www.compressor.cn/News/hyqx/2013/1210/71210.html> 7 R S 9

9. 2014

49GW

NPD Solarbuzz PV 2014

2014 45GW 55GW

49GW

Finlay Colville ,

PV

PV

<http://news.ehvacr.com/news/2013/1231/89794.html>

7 R S 9

10.2013

		2013	11		99.7%	2012	0.3%
		2013	11		8 422.99		
0.23%	1	2013	1-11			2012	
					9.8%	2012	
0.3%		165.57		4.23%	2012	0.58%	

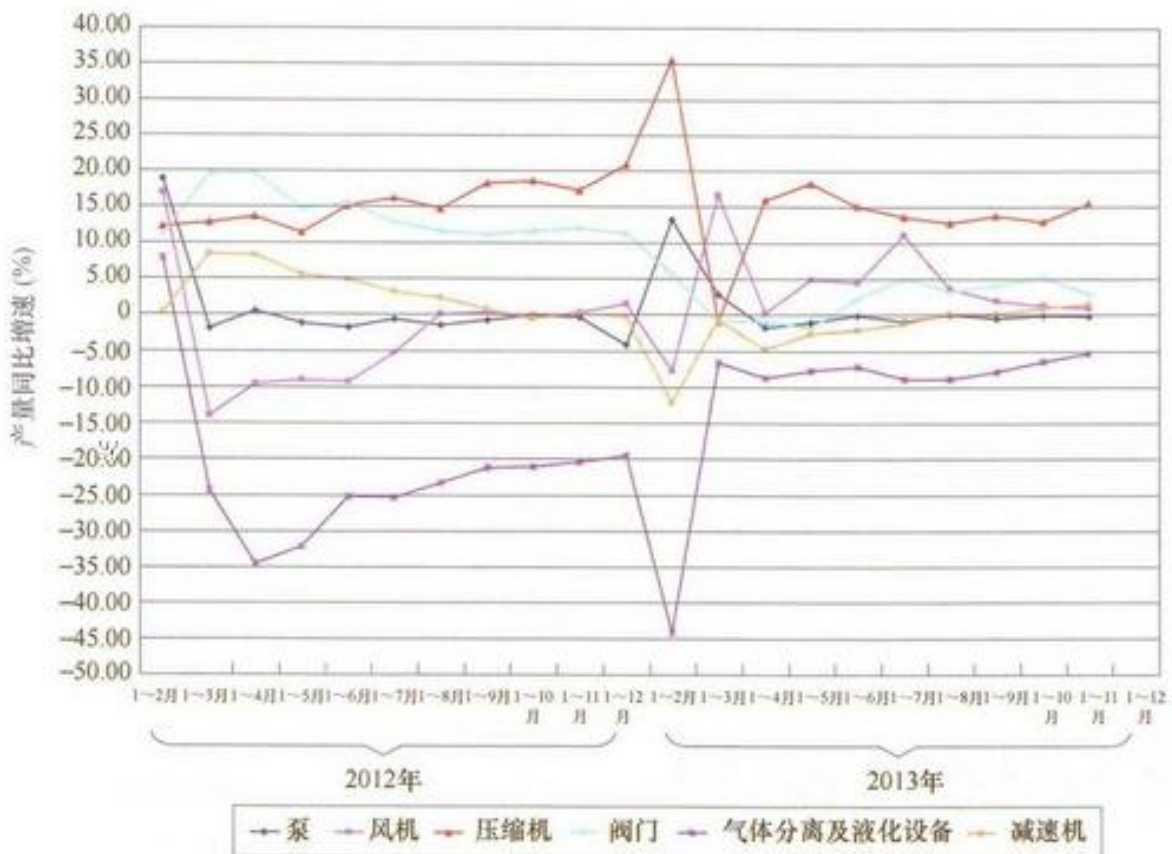


图1 2012年2月~2013年11月通用机械行业主要产品产量同比增速

2012

2012 (2)

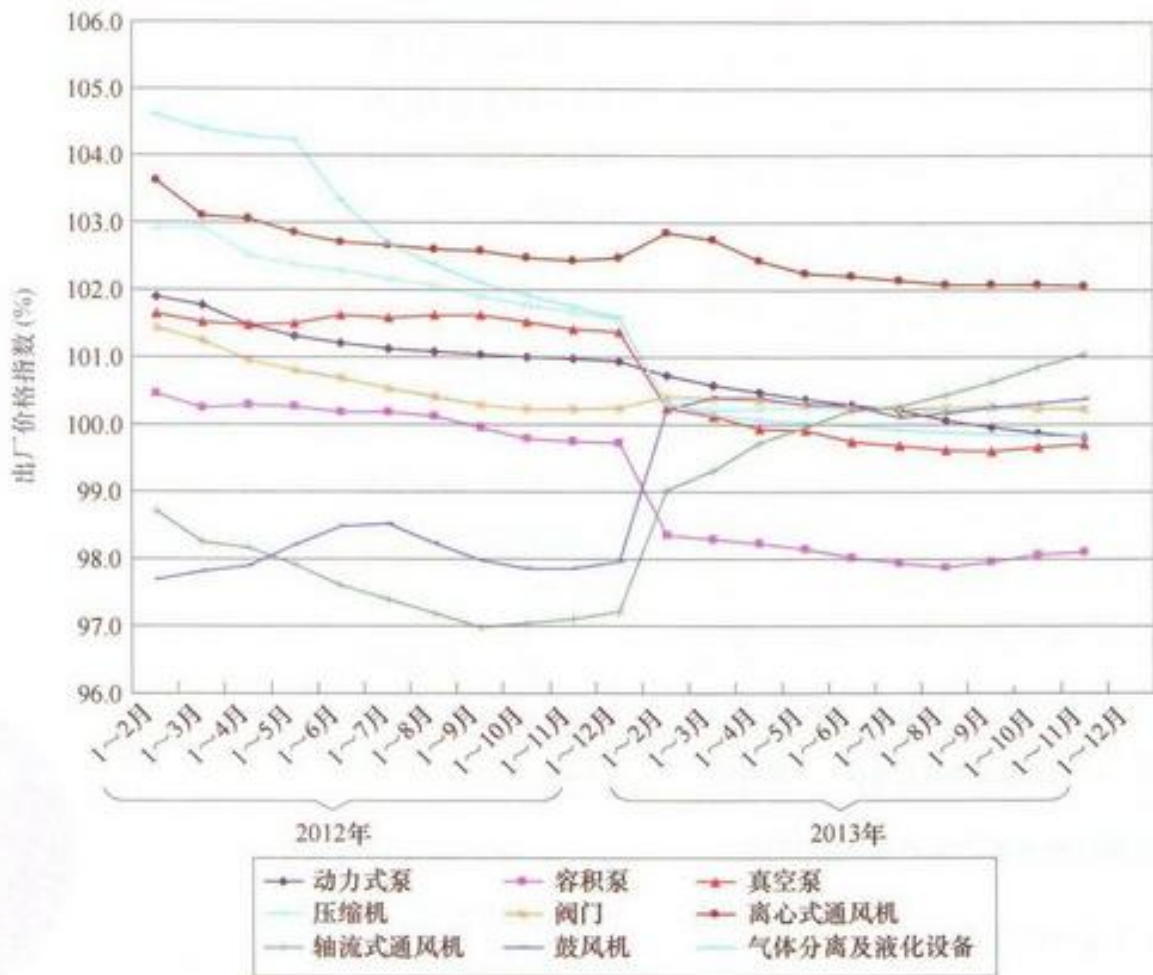


图2 2012年2月~2013年11月通用机械行业产要产品出厂价格指数

2013		4	
2012	11	99.7%	2012 0.3%
2013 10			
10%	2013 1-10	7270.81	
12.38%	2012	1.44%	
12%	468.85	11.02%	2012 0.58%
7%		11%	2012

19.82 0.71% 3



1 577.27 10.82% 2012

3.61% 109.04 14.52% 2012 1.69%

2013 1-10 6.44% 2012 0.8%;

6.95% 2012 0.1%

2014

2014 GDP 7.5%

2013

2014 10%

1.

Interclima

2013 11 4 11 8 Interclima

90

3000

Jean-Pierre Baleyrier 3 1994

2013 Interclima

` % D O H \ G L H U 3 , Q W H U F O L P D 177

3000

40

Interclima

ECOLINE ORBIT 6 ORBIT 8

ECOSTAR CSV

12%

ECOLINE

COP 2 COP 12%

R134a

R404A, R407A, R407C, R407F and R507A

R404A

R22

ECOLINE :

ORBIT 6

50Hz

27

51Kw

20 38

R410A

ORBIT 8

ECOSTAR

ECOSTAR

Modbus

ECOSTAR

ECOSTAR

ECOLINE

ECOLINE

CSV

CSV

ESEER

5

CSV

http://bao.hvacr.cn/201311_2041699.html

7 R S 9

2.

()

CURTIS

ELLIOTT

-65℃

30%

1953

<http://www.etyjx.com/2013/12/03699907137.shtml> 7 R S 9

3.

2013	10	16	,	‘	,	‘
		1,600			13,120	
			‘			‘
			,			,
			‘			6,560
		800			6,560	
3,280						

2013 11 20

2013-068

2013 12 19

, ,

1 , Refcomp '

2

3

4

800

500

300

2013 12 27

4. , R32 ,
60
, R32 ,
2013 12 19 , R32 ,
R32 R22
/
/ R32 R22

2013

ICPF

, KSB

,

KSB

16

KSB

D.-H. Hellmann

KSB

,

, KSB

, KSB

KSB

KSB

FGD

<http://news.ehvacr.com/company/2013/1224/89654.html> 7 R S 9

6.

,

t

,

t

400

—— ,

t

,

t

1987

<http://news.ehvacr.com/company/2013/1224/89649.html> 7 R S 9

7. 23XRV

2013 12 17 — 23XRV 2013

—
23XRV 2010
2110

23XRV

23XRV COP 6.6 IPLV 11.7
HFC-134a

,

,

23XRV

2008 23XRV 2012

<http://news.ehvacr.com/company/2013/1219/89591.html> Top 9

8.

12 12

COP IPLV

2009

2012

2011 11

2625

2013 3

3 21

UL

GB/T18430-2007 COP 7.11W/W 17%

ARI550/590-2011

IPLV

11.62

IPLV

6.7

50%

4,000

800RT

10

<http://news.ehvacr.com/company/2013/1216/89523.html>

7 R S 9

9.

60%

150

700

100

IT

<http://news.ehvacr.com/news/2013/1203/89244.html>

7 R S 9

10.

11 27

(Trane)

BSE

SMARDT

CGAM
R410A CGAM 17
(BSE)
(SMARDT
Turbocor
HCFC
GWP R32 R410A
R32 OEM
R32 GWP

<http://news.ehvacr.com/company/2013/1202/89212.html> 7 R S 9

11.

TM
EVI
TM

25

TM

20%

-25

50

± 0.5

55

TM

DSH

30%

6

Dave Bersaglini

TM

<http://news.ehvacr.com/company/2013/1212/89466.html>

7 R S 9

12.

11 12

40

7

10

(11 1 10)

	kW/h	Kw/h	Kw/h	
KE185	40007	32065		
KE450	90825	72016	178004	684
KSGe469	87211	73923		
		10	684	
22.8		178004		360
	2.24		: 5300	
	ORC			

<http://www.compressor.cn/News/scdt/2013/1205/71162.html> 7 R S 9

13. .

2013	12	20	Wilrijk	4	.
GA VSD+				37kW	50%
			13%		
.		1994		VSD	
.					

35% . GA VSD+

50% GA VSD+ 13%

GA VSD+

Sanjeev Sharma 3

8 VSD+ 18-37kW

GA VSD+ 37kW . 75%

37kW 50hp

7-15kW GA VSD+ 4

“ ”

3 GA VSD+ Elektronikon?

3

50%

<http://news.21-sun.com/detail/2013/12/201312240821087.shtml> 7 R S 9

V

85%

V

70oC

V

160kW

8000

<http://www.etyjx.com/2013/12/23703641689.shtml>

<http://www.compressor.cn/News/hyqx/2013/1220/71371.html>

7 R S 9

16.

TV15

EV18

EV45

2013

2 2

2 2

<http://www.compressor.cn/News/qyzc/2013/1227/71448.html>

7 R S 9

17.

1998

2012

2013 5 23

45

2

2.5

2008

2013

/

3000

GREATALL

HIBON

SAUER

BOGE

LMF

RIX

31

<http://www.compressor.cn/News/qyzc/2013/1229/71452.html>

7 R S 9

18.

<http://www.etyjx.com/2013/11/25697189873.shtml> 7 R S 9

19. Edwards

nXDS

nXDS-R

nXDS

Edwards

David Steele

3

nXDS-R

5

nXDS-R

3

52 (A)

2 2

20

<http://www.chinesevacuum.com/ShowArticle.aspx?id=43136&pid=39> 7 R S 9

20.

”

NEWRI

NTU NEWRI Ng Wun Jern

Ng 3

Lux Research Ng 30

Rod Minett 3

NTU

NEWRI

(NTU) 33500

NTU

NTU

(NEWRI) NTU (ERI@N)

(ACI)

NTU

www.ntu.edu.sg

A)

20600

100

2013

↑

			400	60	Edwards
3200					
Edwards	.				
	.				
3	Edwards				
	.			5 R Q Q L H / H W H Q	
Edwards 2012	5.95	64			
EBITDA	19.1%			10.6%	
	4%				
.	10.50			106	
16	28	4		Edwards	
9.25	2013			1.25	
	2013			EBITDA	
5.875	6.50			EBITDA	1.139 1.45
				Edwards	
	1.25	/			2013
8	16		Edwards 30	8.33	
	11%	26%			
	.				
				Edwards	
			Edwards		Edwards
		2014		Edwards	
84%		.			
Edwards	.				

Busch

Busch

50

<http://www.chinesevacuum.com/ShowArticle.aspx?id=42612&pid=39> 7 R S 9

25.

9

KYKY

KYKY

<http://www.chinesevacuum.com/ShowArticle.aspx?id=42460&pid=39> 7 R S 9

26.

IDP-15

IDP-15

IDP-15

IDP-15 15.4 / 256 /

IDP-15

IDP-15

TriScroll 300

1. 2013

2013-11-08

2013

1994

1996

2000

2007

2007

10

30%

LB

RG

LT

()	-1.78%	0.78%	300	0.69%
-----	--------	-------	-----	-------

3

<http://sc.stock.cnfol.com/131105/123,1764,16309610,00.shtml>

7 R S 9

3. 2013

2013-11-06

2013

3

35

75p 125p

20

3

http://bao.hvacr.cn/201311_2041262.html 7 R S 9

4. 2013

2013-11-07

2013

2013

<http://www.shanghai.gov.cn/shanghai/node2314/node2315/node15343/u21ai808892.html>

7 R S 9

5. : , ---

2013-11-01

: 2013 , 6.21 , 17.65%,

1.12 , 33.08%, 2013

1.23 1.44 , 15% 35%

3.73 ,

6.21 , 17.65%, 1.12 ,

33.08% 35.61%, 3.73 ,

38.93%, , ,

, ,

, ,

(

), , , ,

20% 30% ,

, ,

，

，

（ 30%），

3

2013-2015 EPS 0.58 0.74 0.95 ，

25 20 16 ， 3

；

<http://sc.stock.cnfol.com/131101/123,1764,16286446,00.shtml> 7 R S 9

6. ： ---

2013-11-01

： 2013 ， 6.21 ， 17.65%，

1.12 ， 33.08%， 2013

1.23 1.44 ， 15% 35%

3.73

6.21 ， 17.65%， 1.12 ，

33.08% 35.61%， 3.73 ，

38.93%， ， ，

， ，

，

，

（

）， ， ， ，

20% 30% ，

，

，

， (30%),

3

2013-2015 EPS 0.58 0.74 0.95 ,

25 20 16 , 3

;

<http://sc.stock.cnfol.com/131101/123,1764,16286446,00.shtml> 7 R S 9

7. : , 2

12 20 , , (): , (

) () ; , ()

12 20 , , (): , (

) () ; , ()

， ， 40%

,2013 ,

2013 40% ,

2014 30~40% ,

， 10 , 3

: 2 ,

2014 ,

， / , 10

， (

) , , , , , 10-15%, , 10-15% , , 3 2013~2015 0.58 0.73 0.89 , 25%, PE 28 22 18 ,2013 40%,2014 30~40% ;2014 , , , : 7 R S 9