2015 1674 ≤ 60

2022 8 2023 1 1

1674

2023 5 13

3

1. 1
1.1 1
1.2 1
1.3 5
1.4 5
2. 7
2.1 7
2.2 7
2.3

1.

1.1

1.2

1.2.1.

1 2021 9 1

2 2024 11 1

3 591 2013 12 7
645

4 708 2019 4 1

5 2025
14 34 2025 5 28

6 2024
23 2024 10 1

7 3 2015
5 29 80 2015 7 1

22

2020 1 2020 5 30

23 2015

2015 80 2015 8 19

24

2011 95 2011 7 1

25

2011 142 2011 7 1

26 <

> <

> 2017 121 2017 11 13

27 < > <

> 2019 78

28

2019 62 2019 12 26

29 341 2021

5 18

30

2017 45 2017 12 23

31

2012 144 2012 8 30

32 < >

2017 22 2017 11 28

33

2018 21

2018 8 31

.2.

1 GB50156-2021

2 GB 6944-2025

3 GB 12268-2025

4 GB 18218-2018

5 GB 17914 2013

6 GB 50058-2014

7 AQ 3009-2007

8 GB/T 6441-1986

9 GB/T 38[illegible]-2022

10 GB 50140-2005

11 GB 50057-2010

12 GB 12158-2024

13 - SH/T 3178-2015

14 GB 50395-2007

15 GB/T 29639-2020

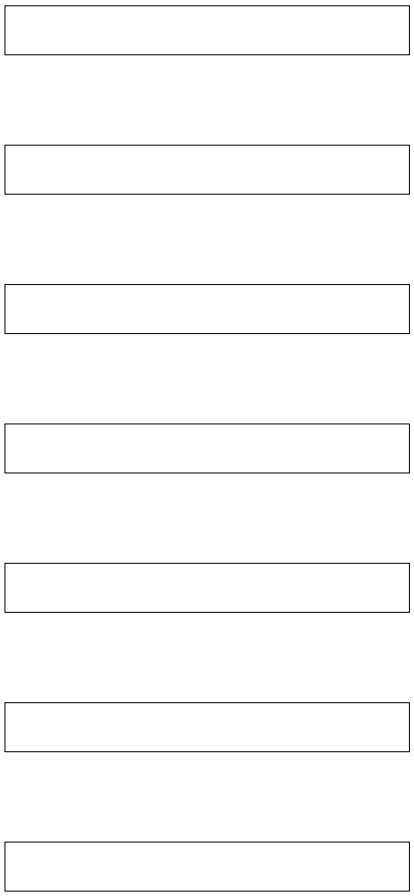
16 YJ/T 9007-2019

17 AQ 3010-2022

18 GB30871-2022

19 XF/T 3004-2020

20 GB55036-2022



1-1

2.

813m^2 SF 4 1 1

4

4 2 20m^3 2 20m^3

60m^3 GB 50156-2021

3.0.9 60m^3

2023 9

2.1

H=10m 7.5m 15m

15m 304 7m

25m 11m

2.2

1

7.7

7 25.2

1 -12.7

38.3

-30.6

8.3

6.9

2

69%

67%

7 78%

1 61%

3

101.2kPa

103.9kPa

96.9kPa

4

755.4mm

997.3mm

520.5mm

178.8mm

42.6mm

5

250.0mm

6

3.2m/s

23m/s

7

28.3d

42d

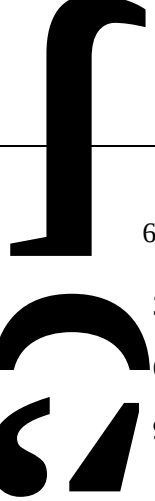
8

6

1.40m

2-1 m

			m
			m
		7	7.5
	H=10m	6.5	14
304		5.5	21
		7	33
		10.5	24
		10.5	13
		7	10
	H=10m	6.5	24
304		5	26
		7	33
		10.5	25
		10.5	11
		7	22
	H=10m	6.5	22
304		5	13.5
		7	15
		10.5	38
		10.5	16
		6	10
	H=10m	6.5	15
304		3	13
		6	33
		9	31
		10.5	16
		6	10.5



H=10m

		6.5	24
304		3	26
		6	33
		9	25

ň "

2-2 m

	0.5	0.5	0.5	0.5	-	-	-	-	-	-	-	-	-	-
	0.5	0.5	0.5	0.5	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	3	3
	-	-	-	-	-	-	-	-	-	-	-	-	2	3.5
	4	8	3	10	4	8.5	3.5	8	5	8	4	14.5	5	11.5
	2	5	2	7.5	2	3	2	3	-	-	-	-	-	-

2.4

2-3

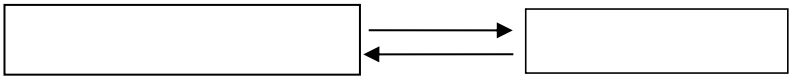
2-3

1			157.2m^2			-
2			580m^2			H=6m

2-4

2-4

2-2 2-3 2-4 2-5 2-6



2-2

2-3

2-4

2-5

2-6

2.7

2.7.1

1

91210181573497632C

2023 7 18

2

[2023]000531

2023 5 13

3

1062017024 [2026]00569

2026 9 18

4

2.7.2

1

2

a. 5

b.

c.

3

4

380/220V

UPS

2h

5

5

4Ω

6

5 35kg 1 5kg 13

2kg 2 2m^3

7

Ø 4

3.

3.1

3.1.1

GB18218-2018

1

2

3.1.2

1

2

$S=q_1/Q_1+ q_2/Q_2……+ q_n/Q_n≥1$

S——

q_1 q_2… q_n—— t

Q_1 Q_2… Q_n t

3

3.1.3

23 ≤ 60 3-1

3-1

1		200t
2		5000t

$40m^3$ 0.75 30t

$40m^3$ 0.89 35.6t

30/200+35.6/5000=0.15712<1

3.2

3.2.1

2* 1B 2

1 - 2 - 2

1630

92 95 98 3 =1 0.72 0.775

=1 3 4 -46 1.4 7.6%

5

1 30

2

3

1000m^3

1

2

0.5m^3

100mm

3

4

GB7231

5

15min

5 0 -10 60 -20

50 -35 -50 45

15min

3.2.2

3.3

70m

6 46

2

1987 2 4

1986 5 2

3

4

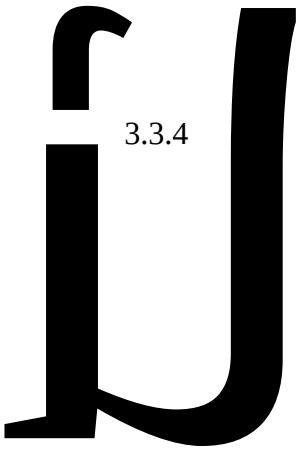
3.3.2

1

2

3

3.3.3



3.3.4

3.3.7

1

2

4.

4.1

8

1

2

3

4

5

6

7

8

4.2

5.

8

5-1

5-1

	1		
	2		
	3		
	4		
	5		

5-2

1
2
3
4
5
1
2
3
4
5
6
7

	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	1		
	2		
	3		
	1		
	1		
	2 GB/T29639-2020		
	3		
	1		
	2		
	3		

2024 4 15

5-3

	1 GB50156 3.0.9	GB50156-2021 3.0.9	20m^3	
	2	GB50156-2021 3.0.25		
	3	GB50156-2021 3.0.27	10	
	1	GB50156-2021 4.0.1		
	2	GB50156-2021 4.0.2		
	3 GB50156 4.0.4	GB50156-2021 4.0.4	4.0.4	

4

GB50156-2021

4.0.12

5

5-4

	1	GB50156-2021 6.1.1		
	2	GB50156-2021 6.1.2		
	3	GB50156-2021 6.1.3	SF	
	4 1 AQ3020 6.1.4 0.08MPa	GB50156-2021 6.1.4	SF	
	5 - - SH/T3178	GB50156-2021 6.1.5	SF	
	6 $10^9\Omega$ $10^9\Omega$	GB50156-2021 6.1.7	SF	

6.1.7

$A=0.04V_t$ 6.1.7

A——

m^2

Vt—— m^3

7

SF

GB50156-2021

11.2

6.1.8

8

GB50156-2021

	0.3m			
	12	GB50156-2021 6.1.13		
	13	GB50156-2021 6.1.14		
	14 90% 95%	GB50156-2021 6.1.15		
	15	GB50156-2021 6.1.16		
	16 SH/T 3022	GB50156-2021 6.1.17	SF	
	1	GB50156-2021 6.2.1		
	2 50L/min	GB50156-2021 6.2.2	5-50L/min	
	3	GB50156-2021 6.2.3		

	7 1 50mm 1.0 1.2 25mm	GB50156-2021 6.3.7	50mm 25mm	
	8 50mm 100mm 45° T 150mm 200mm 200mm	GB 50156-2021 6.3.8	100mm 45° 150mm	
	9 4m 2m	GB50156-2021 6.3.9	4m	

2‰ 6.3.15 2‰

1%

1%

16

6.3.15

GB50156-2021

6.3.16

1%

17

0.4m

0.5m

0.2m

GB50156-2021

100mm

6.3.17

0.3m 0.2m

18

3

200mm

500mm

23 › =Â ∅

7

100mm

4mm

200mm

5mm

0.25m

0.25m

2

	1	GB50156-2021 13.1.1		
	2 380/220V	GB50156-2021 13.1.2	380/22 0V	
	3 90min	GB50156-2021 13.1.3	90m in	
	4 4.5m 5m 4.5m 3m	GB50156-2021 13.1.4		
	5	GB50156-2021 13.1.5		
	6 LPG LNG CNG	GB50156-2021 13.1.6		
	7 GB50058	GB50156-2021 13.1.7		
	8 IP44	GB50156-2021 13.1.8	IP44	
	1 2	GB50156-2021 13.2.1	SF 2	

2

10

5 GB50156-2021
13.2.12

11

GB50156-2021
13.2.13

12

	3	GB50395-2007 5.0.8		
	1	GB50156-2021 13.5.1		
	2	GB50156-2021 13.5.2		
	3	GB50156-2021 13.5.4		

5-7

	1 140kW 2m	GB50156-2021 14.1.3		
	2 12	GB50156-2021 14.1.4		

5

300cm^2/m^2 2

3

GB50156-2021
14.1.5

1

GB50156-2021
14.2.1

2

4.5m

2m

GB50156-2021
14.2.7

5

GB50156-2021
14.2.9

6

300m^2

GB50156-2021
14.2.10

7

B

GB50156-2021

GB50016

14.2.11

8

GB50156-2021

3h

14.2.12

9

		GB50156-2021 14.3.1		

	8			
	9			
	10			
	11			
	12			
	13			
	14		UPS	
	15			

16

17

18

19

20

5-9

	5	5	0	0
	33	33	0	0
	21	18	0	3
	47	41	0	6
	9	8	0	1
	28	27	0	1
	16	10	0	6
	20	11	0	9
	179	153	0	26

5-9

179 26 153

1		5kg	4	8
2		35kg	1	1
			$2m^3$	$2m^3$
			5	5
		5kg	-	2
3		5kg	-	3
		2kg CO_2	-	2

6.

1

6 “ ”

7

8

9

7.

GB50156-2021

1.

GB50058-2014

1 0

2 1

3 2

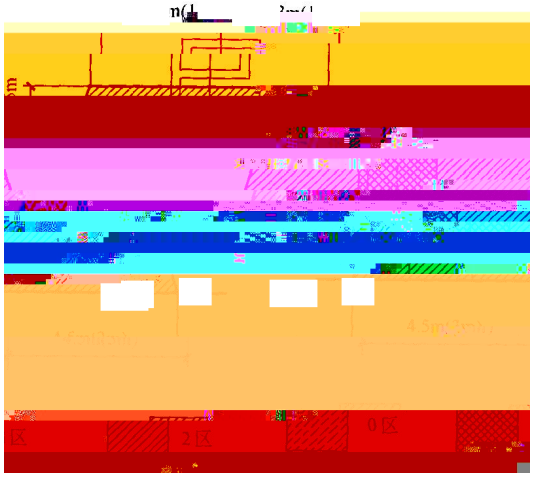
2. 1

3. 1

1 1

2 3m

0.15m 1.5m 2



4. 2

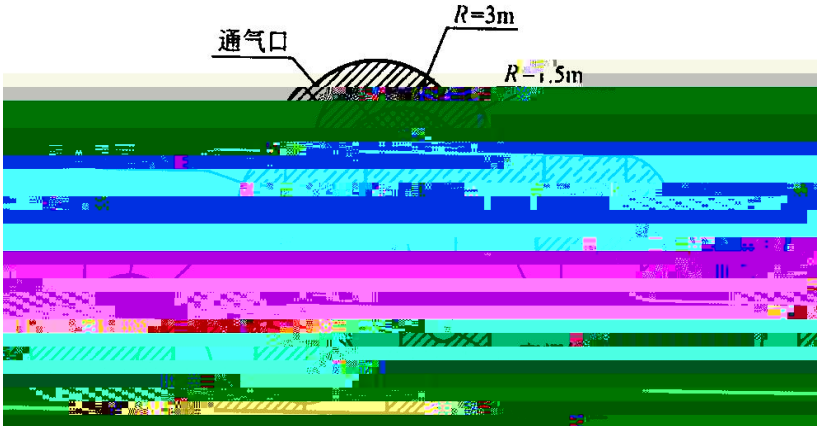
1 0

2 1.5m 0.5m

1

3 3m

1.5m 2



5. 3

1 0

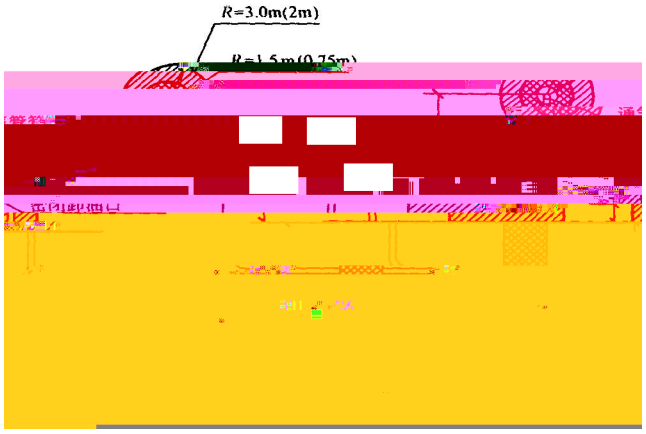
2 , m " 0.75m

0.5m 1

3 ş 1.5m 1m

2m 1.5m

2



1

2

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4

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10

11