1.

1.1

1.2

1.2.1.

1 2021 9 1

2 2021 4 29

3 591 2013 12 7

645

4 708 2019 4 1

5 2025

14 34 2025 5 28

6 103

2022 11 9

7 3 2015

5 29 80 2015 7 1

8

16 2008 2 1

9 2 2019 9 1

10

30 2015 5 29 80 2015 7 1

11 44 2015 5

29 80 2015 7 1

12 55

2015 3 23 79 2015 7 1

13 44 2025 6 1

14

2015 80 2015 8 19

23

2020 1 2020 5 30

24

2011 95 2011 7 1

25

2011 142 2011 7 1

26

2016 8 2016 2 5

27

2019 107

2019 10 28

28 341 2021

5 18

29

2017 45 2017 12 23

30 <

> 2017 47 2017 12 28

31

2012 144 2012 8 30

32 < >

2017 22 2017 11 28

33 <

> 2017 5 2017 9 13

34

2016 11 2016 7 6

35

2018 21

2018 8 31

36 <

> <

> 2017 121 2017 11 13

37 324 2018 11

26

1.2.2.

1 GB 50156-2021

2 GB 6944-2025

3 GB 12268-2025

4 GB 18218-2018

5 GB 17914-2013

6 GB 55036-2022

7 GB 50058-2014

8 AQ 3009-2007

9 GB/T 6441-1986

10 GB/T 13861-2022

11 GB 50016-2014 2018

12 GB 50140-2005

13 GB 55037-2022

14 GB 50057-2010

15 GB 12158-2024

16 GB/T 50610-2010

17 GB 20952-2020

18 GB 50395-2007

19 GB/T 29639-2020

20 GB/T 12801-2008

21 GB 5083-2023

1.4-1

2.

4076m^2 SF 4 1 1

4

4 2 30m^3 2 30m^3

90m^3 GB50156-2021

3.0.9

2.1

H=7m

16m 19m 1

H=7m

2 41.5m 42m 54m

42m 12m

54%

3

101.6Kpa

4

658mm

5

4.6m/s

25.7m/s

6

23.4d

7

15.0cm

1.17m

8

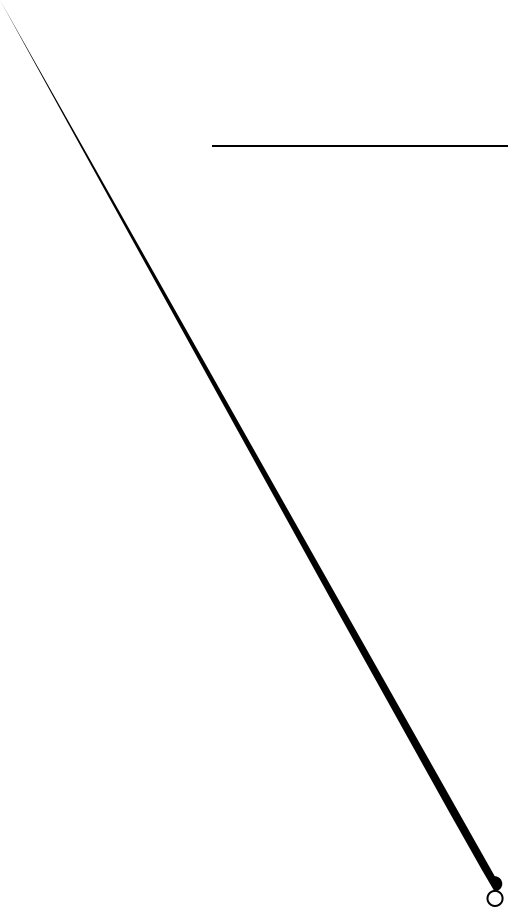
8

0.20g

2.3

2.3-1

2.3-1 2.3-2



2.3-1 m

				m	
	H=7m			5	34
				5.5	39
	1			10.5	41.5
	H=7m			5	42
				10.5	54
	2			10.5	42
			-	-	-
				5.5	34
	H=7m			5	16
				5	19
	1			10.5	41.5
	H=7m			5	41.5
				10.5	68
	2			10.5	59
			-	-	-
				5	25
	H=7m			5	40
				5	45
	1			10.5	50
	H=7m			5	49
				10.5	62
	2			10.5	49
			-	-	-
				5	32.5

	H=7m			5	34
				3	39
	1			9	46
	H=7m			5	48
				9	60
	2			9	48
			-	-	-
				3	28.5
	H=7m			5	16
				3	19
	1			9	51
	H=7m			5	51
				9	79
	2			9	70
			-	-	-
				3	12
	H=7m			5	40
				3	45
	1			9	50
	H=7m			5	49
				9	62
	2			9	49
			-	-	-
				3	32.5

2.3-2 m

0.5	0.5	0.5	0.5	-	-	-	-	-	-	-	-	-	-
0.5	0.5	0.5	0.5	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	3	7
-	-	-	-	-	-	-	-	-	-	-	-	2	7
4	9.5	3	15	4									

2.4

2.4-1

2.4-1

1			144m^2			
2			144m^2			H=6m

2.4-2

2.4-2

1.		2	30m^3	-	SF
2.		2	30m^3	-	SF
3.		2	CS30J2223G		
4.		2	CS30J2223G		
5.		1	TLS-4		1
6.		1	UZK-SA-LD		
7.		12	-	-	4 6 4m 2 3m
8.		1	DWE-15C		20kW

2.5

2 1

2.6

1

5min

2

3

1

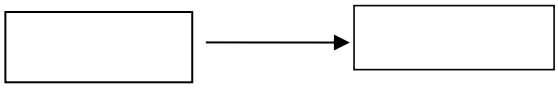
2

1.0 1.2

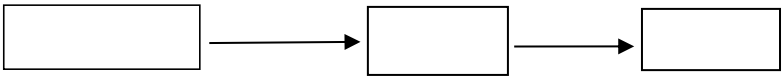
2.6-1 2.6-2 2.6-3 2.6-4

2.6-1

2.6-2



2.6-3



2.6-4

2.7

2.7.1

1

912103817367323355

2022 12 12

2

[2023]100065

2023 04 14 2026 04 13

3

6

6 8kg 1

8kg 4 5kg CO_2 5 35kg

2 8kg 2 $2m^3$

7

ă ᵔ

12 4

6 4m 2 3m

ɔɯ ‥ ≕

3.

3.1

3.1.1

GB18218-2018

1

2

3.1.2

1

2

$$S=q_1/Q_1+q_2/Q_2\ldots\ldots+q_n/Q_n\geq 1$$

S——

q_1 q_2...q_n—— t

Q_1 Q_2...Q_n—— t

3

3.1.3

3.1-1

3.1-1

1		200t
2		5000t

60m^3 0.75

45t 60m^3 0.89 53.4t

S=45/200+53.4/5000=0.23568<1

3.2

3.2.1

A 1

-18 =1 0.87 0.9

282-338

0.6%~7.2%

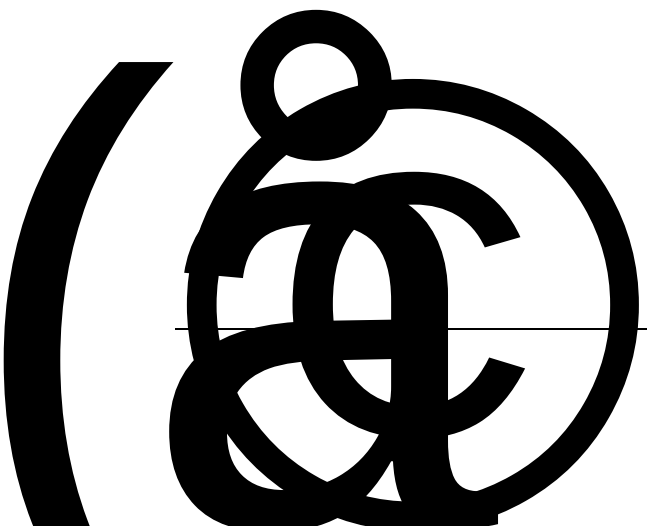
5 0 -10 60 -20

50 -35 -50 45

15min

10

3.2.2



3.3-1

3.3.2

1

2

3

3.3.3

3.3.4

3.3.5

3.3.6

3.3.7

1

2

4.

4.1

8

1

2

3

4

5

6

7

8 20

4.2

5.

8

5-1~9

5-1

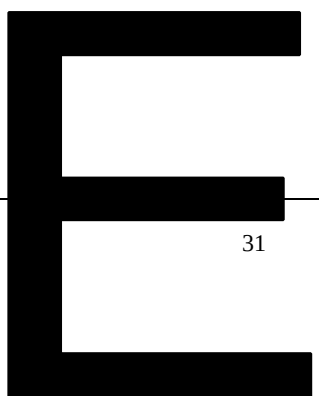
	1		
	2		
	3		
	4		
	5		

5-2

	1		
	2		
	3		
	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		

4÷ 2025 1 17 ı 5F



3.0.4

2

GB50156-2021

GB 50966 3.0.5

3

2

	10	GB50156-2021 5.0.11		
	11 2.2m 4.0.4 1.5 25m 4.0.4	GB50156-2021 5.0.12	2.3-1	
	12 GB50156 5.0.13	GB50156-2021 5.0.13	2.3-2	
	13 5.0.13-1 5.0.11 A	GB50156-2021 5.0.15		
	14 C	GB50156-2021 5.0.16		

24 20

4

5-4

	1	GB50156-2021 6.1.1		
	2			

GB50156-2021

6.1.2

3

SF

GB 50156-2021

6.1.3

4

6.1.4 SF

GB50156-2021

0.08MPa 6.1.4

5 -

GB50156-2021

6.2.2

3

GB50156-2021

6.2.3

4

GB50156-2021

6.2.4

5

GB50156-2021

6.2.5

ь Ӊ ˝ ´

	1.0 1.2 25mm		25mm	
	8 50mm 100mm 45° T 150mm 200mm	GB50156-2021 6.3.8	100mm 45° 150mm	
	9 4m 2m	GB50156-2021 6.3.9	4m	
	10 50mm	GB50156-2021 6.3.10	50mm	
	11 2kPa~3kPa 1.5kPa~2kPa	GB50156-2021 6.3.11		
	12			

6.3.12

GB50156-2021

1. 2.8m/s 6.3.19
2.

20

GB50156-2021

6.3.20

GB/T21447

GB/T21447

21

SF

GB50156-2021

6.5.1

22

GB 50108

SF

200mm GB50156-2021

500mm 6.5.2

23

mm

30m

24

25

6.3

G÷

2

1 35kg 2m^3 6

15m

5

2m^3 2

2m^3

8kg

4

2 5kg CO_2

GB50140 5

GB50156-2021

12.1.2

13.1.5

6

5 ? Ʊ m "

GB50156-2021

13.1.6

GB50156-2021
13.2.8

7 380/220V TN-S
380V TN-C-S

GB50156-2021
13.2.9

8

30Ω

GB50156-2021
13.2.10

9

GB50156-2021
13.2.11

10

5

GB50156-2021
13.2.12

11

GB50156-2021
13.2.13

12

GB50156-2021
13.2.14

13

2m

14.2.3 0.6m

0.6m

100mm

0.5m

4

GB 50016 GB50156-2021

14.2.4

5

GB50156-2021

14.2.7

6

GB50156-2021

14.2.9

7

8 300m^2 GB50156-2021 300m^2

14.2.10

8

		GB50156-2021 14.2.15		
	13	GB50156-2021 14.2.16		
	1	GB50156-2021 14.3.1		

17

10 7

20

5-8 20

“ ”

5-9

	5	5	0	0
	31	31	0	0
	24	20	0	4
	53	40	0	13
	8	8	0	0
	28	27	0	1
	17	10	0	7
	20	10	0	10
	186	151	0	35

5-9

186 35 151

1

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

6.

1

6 “ ” “
”

7

8

9

10

11

2018 74

12

7.

GB50156-2021

1.

GB50058-2014

1 0

2 1

3 2

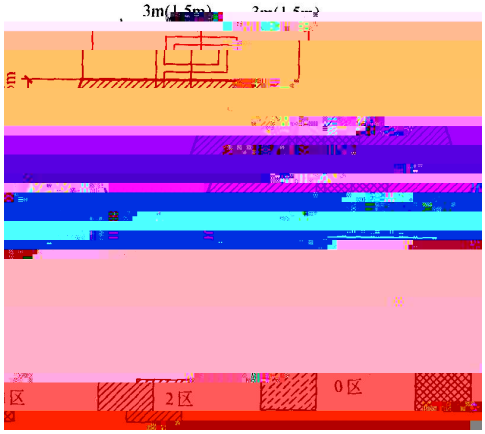
2. 1

3. 1

1 1

2 4.5m

0.15m 3m 2



1

4. 2

1 0

2 1.5m 0.5m

1

3 3m

1.5m 2