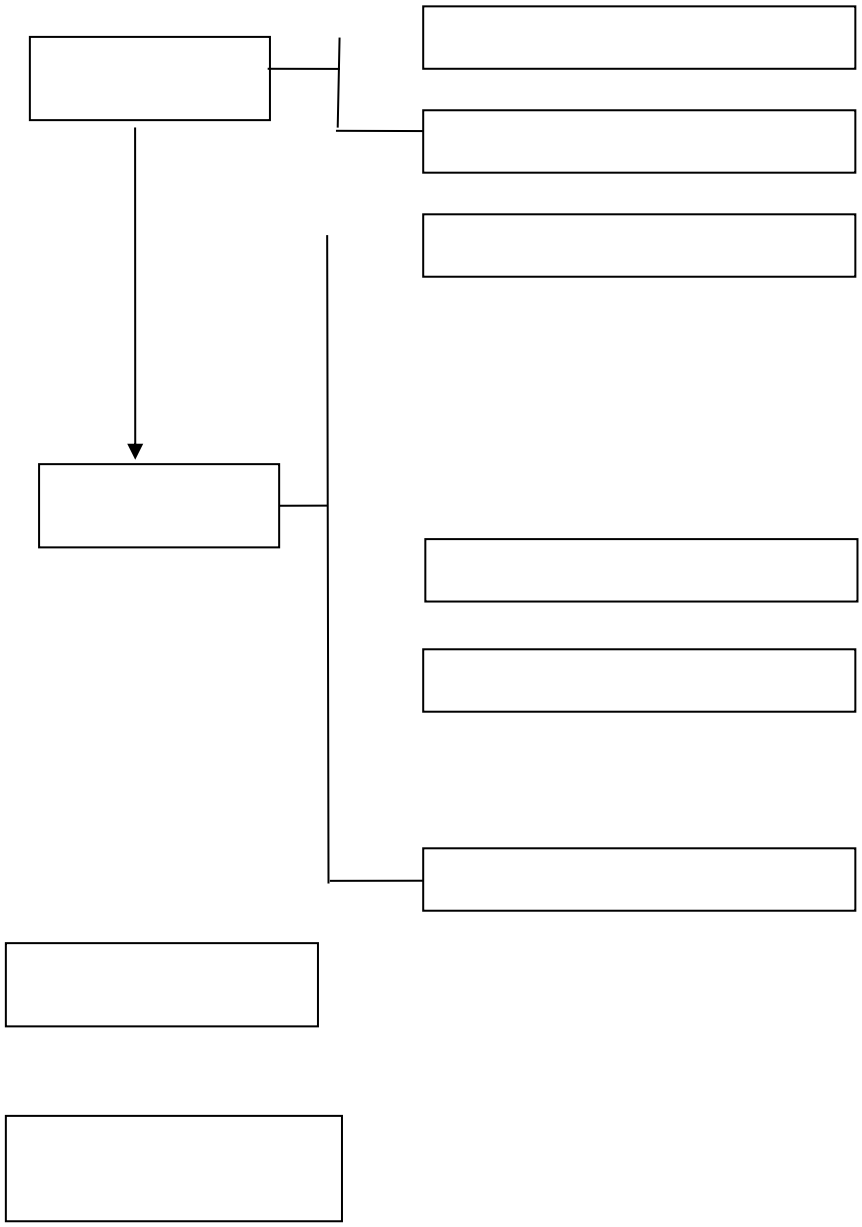
“ ” 2024 12 14

<

>

√



2024

[2020]38

[2024]86

[2020]636

/

m	m
100	3729
100	576
100	676
100	2830

900m³

2.4-1 2.4-1

				m	m	
			2018 5.2.1	-	6.33	
			2018 4.2.12	50	50.29	

				m	m	
			2018 4.2.12	22.5	48.14	
		900m³	2018 4.2.12	20	37.59	

4Ω

1

DCS

DCS

HAZOP SIL

SILA DCS

9L/ ·min 1.2 1.4

8 2.02L/s 3

13.2L/s

7.2 1.03L/s 2

13.2L/s

MFZ/ABC8 2

2.6-1

( )

1

		[MPa(G)]				
	( )					kg
1	8	3	4.5	600X1780	316L	400

5-1

1

2

189 3

1

2

3 2.0m

D.0.2

531m 162m

D.0.3

GB 36894-2018

D.0.4

26.7m

32.28m 20.93m

18.57m

87%

42%

3

102.22kpa

4

1

,

2

3

4

L}

Ä5$Y

p = Y -37Y7 $Np= ý ý ,´

2

1 FT-201

FT-201 8Nm3/h

2

3

4

5 2018 GB50160-2008

5.2.1

6

7

3

1

2

3 A AT-3201 B AT-3202

25PPm XV-103

AT-3203 25ppm

XV-201

4 5%

4

1

2

3

5

1

2

: 2 2

3

4

4

1 ( )

2

3

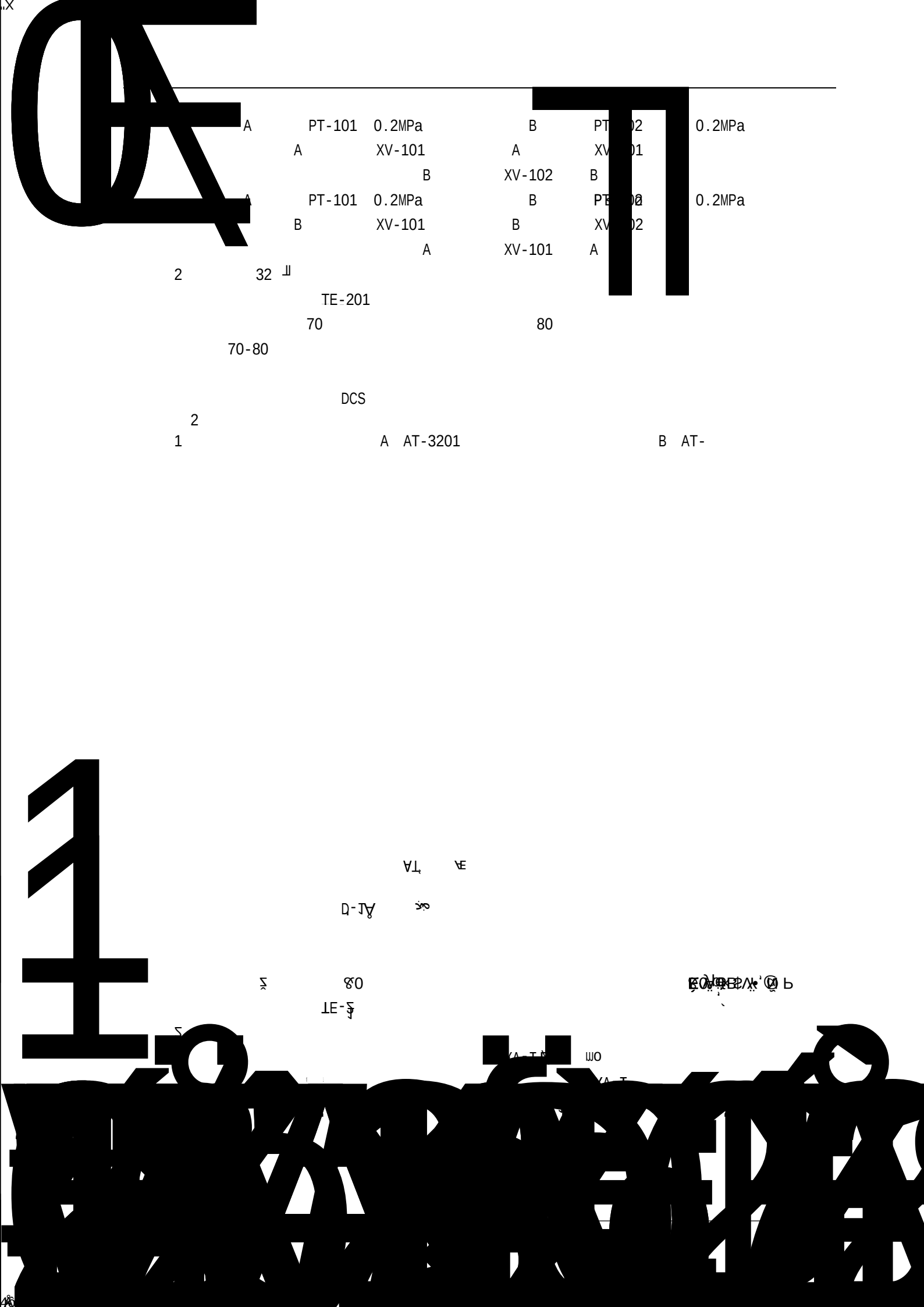
4

1

2

3

1.2	**2.** 1 DCS 1 A XV-101 B XV-102 A PT-101 0.2MPa B PT-102 0.2MPa XV-101 XV-102 A XV-101 B XV-102 A


A PT-101 0.2MPa
A XV-101
B XV-102
B PT-102 0.2MPa
A XV-101
A PT-101 0.2MPa
B XV-101
B PT-102 0.2MPa
A XV-101
2 32
TE-201
70
80
70-80
DCS
2
1
A AT-3201
B AT-

1 FV-201
FT-201
FT-201 8Nm3/h
2
3
4 TICSA43524,
5 PSV-101

	C30 200mm 150mm	
3.1	**1.** TSG 21-2016 GB/T150 GB/T151 NB/T47041 NB/T47042 2008 GB50316-2000 TSG D0001-2017 GB/T20801-2020 2008 GB 50316-2000 SH/T3059-2012 — TSGD0001-2017 GB/T20801-2020 GB50517-2010 2023	
3.2	**2.** 1 Q235B 80 Q235B S31603 50 0.1MPa S31603 50 0.09MPa S31603 S30408 80 S30408 2 GB/T8163-2018 GB/T14976-2012 طی 3	

1

2 SH3011-2011

3

4

5 ( ) T ≥ 50

( ) T 50

6

7

SH3501-2021

GB

4mm

2022 ÅGB50650-2011

3

GB50343-2012

4 (: -)

100mm

20m 100mm

5

5

20Ω

6 Ê

2022 GB50650-2011

7

3 1 2 20

21 EXdIIBT4

1.

DCS GDS

UPS UPS 6KVA 30min

5.1 10 3μm

10mg/m³ 0.6MPa G

8Nm³/h 0

0

3

2.

DCS

DCS SIS

DCS

DCS

DCS DCS

1

DCS

DCS DCS

2 SIS

5.2 HAZOP SIL SILA

SIS DCS

3

1 TIAS-201

2 TIAS-202

3 TIA-203 8 “

C S

13 AIAS-3203

4

Exd BT4 IP55

IP65

IP65 Exd BT4

4 20mADC HË

	12 /h	
7.1	**1.** 1 2 (GB50453-2008) 2024 GB/T50011-2010 7 0.10g	
7.2	**2.** 1 1 ( ) 2 3 2 GBZ158-2003 “ ” 30cm GB7231-2003 GB2893-2008 (SH/T 3043-2014) 3 4 GB30077-2023	

7.1	**1.** 1 (GB/T29639-2020) 2016 88 2019 2 1 2 3 4 5 6 7 8 9 2 3 SAJ125-100-250B 2 1 216m³/h 60m 1 4000m³ 3 GB30077-2023	
7.2	**2.** GB/T50483-2019	

V= V1+V2-V3 max+V4+V5

V—— m3

V1 9m³

V2 15m³

V3 0m³

V4 0m³

V5 1m³ 625mm

60

25m³ 5000m³

50m 2 Q=90m³/h

H=60m

1.8

120m³/h

3.

[2010] 186

1

1

“ ”

7.3

2

(2022 136)

8

2

2%

2

15%

1

2

3

4

1

2

3

4

1

2

3

4

5

6

7

“ ”

8

9

1

2

DCS DCS

“ ”

7.2-2

		/		
1				

1

2

3

2015 11 28 19 56 2

3

8 390

2

2

7.3-1

1				1 2 3 4 5 6 7 8
2				1 2

1

2

3

4

5

1

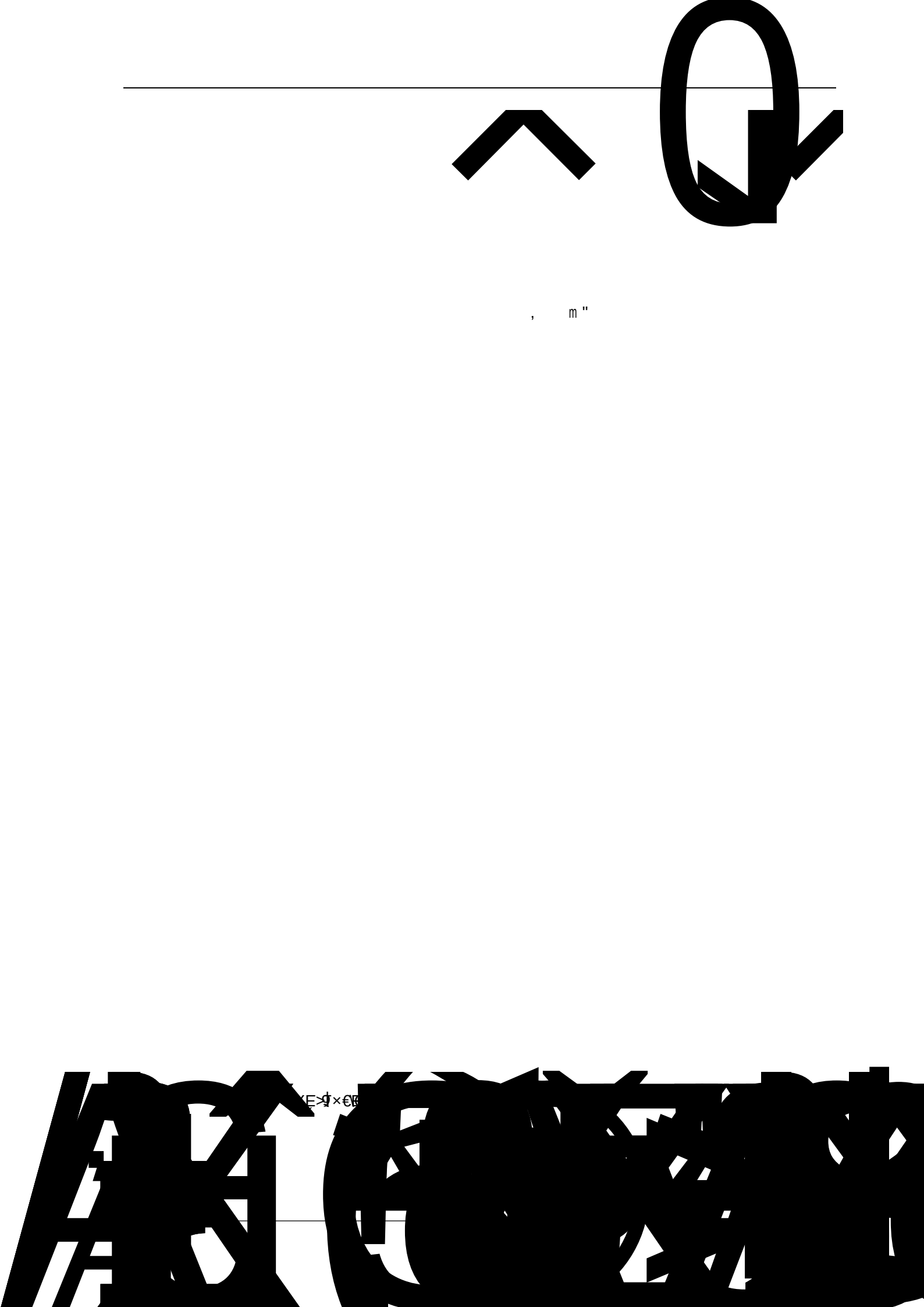
“ ”

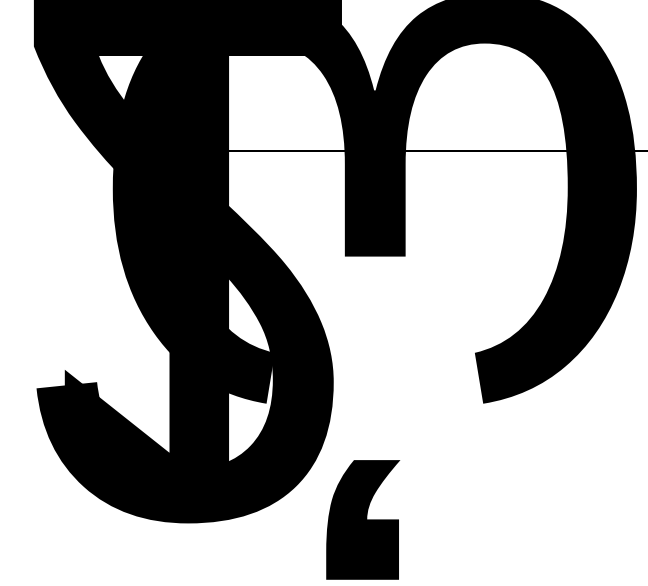
2

3

ק

2.2-2 Ä





3

10

4

“ ”

1

2

3

4

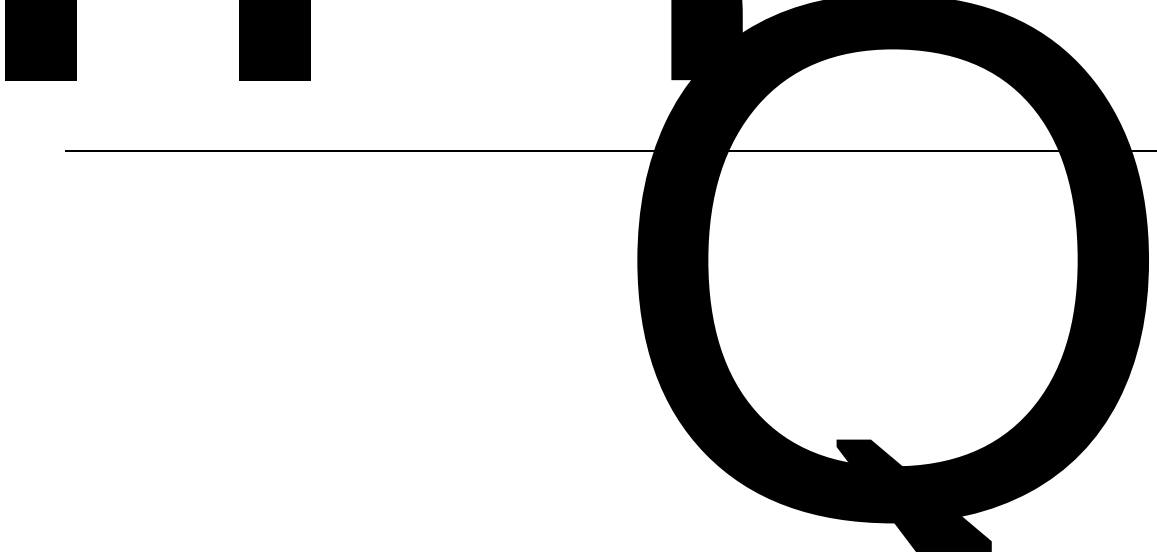
5

6

7

8

9



2m 2m

×

Ē

$$R \qquad \frac{q}{Q} \qquad \frac{q}{Q} \qquad {}_{n}\frac{q_{n}}{Q_{n}}$$

	R
	$R\geq$
	$>R\geq$
	$>R\geq$
	$R<$

		Q	q	q/Q	S
	-	10	3.2	0.32	0.32<1

4

1.

5

/

8 o ب ŧ

13				
14				
15				
16	1. 2. 1 2 3	2011 93 2.1		
17	1. 2. 3.	2011 93 2.1		
18		2018 74		

1 ٧١٨

19

2

3

30

3

31

2013 88

32

2013 88

1.

33

2013 88

2.

34

8

42

1. نص كتي

43

9	1 2 3 4 5 6	3.0.1		
10		3.0.2		
11	GB 50489			

11

D.0.1-3

1		2018 5.1.1		
2		2018 5.1.2	DCS	
3		2018 5.2.8		

4 2

2018

100㎡ 1 5.2.25

5

150 Í

16

5.1.3

17

4.2.1

18

4.2.2

19

3

4.1.2

2m

900mm

2m 20m

20

3

1050mm

20m

5.2

1200mm

21

100mm

10mm

3

100mm

10mm

5.6.1

£

22

81177

3.1.11

29

3.1.22

30

3.1.32

31

6.1.2

32

7.1.4.2

2m

33

7.3.2.1

34 ’

’ 15m 5.1.6 15m

35 ’

6.2.3

36 GBZ/T 203 6.2.8

1

4.1.1

2

9		3.4.7		
10		5.1.9		
11		6.3.1		
12	4mm	2018 9.2.2		
13		2018 9.3.1		
14	1 2 3	2018 9.3.3		
15	, 1 ( ) 2 , 3 18m 4 18m 5 6	4.2.6		

1

16

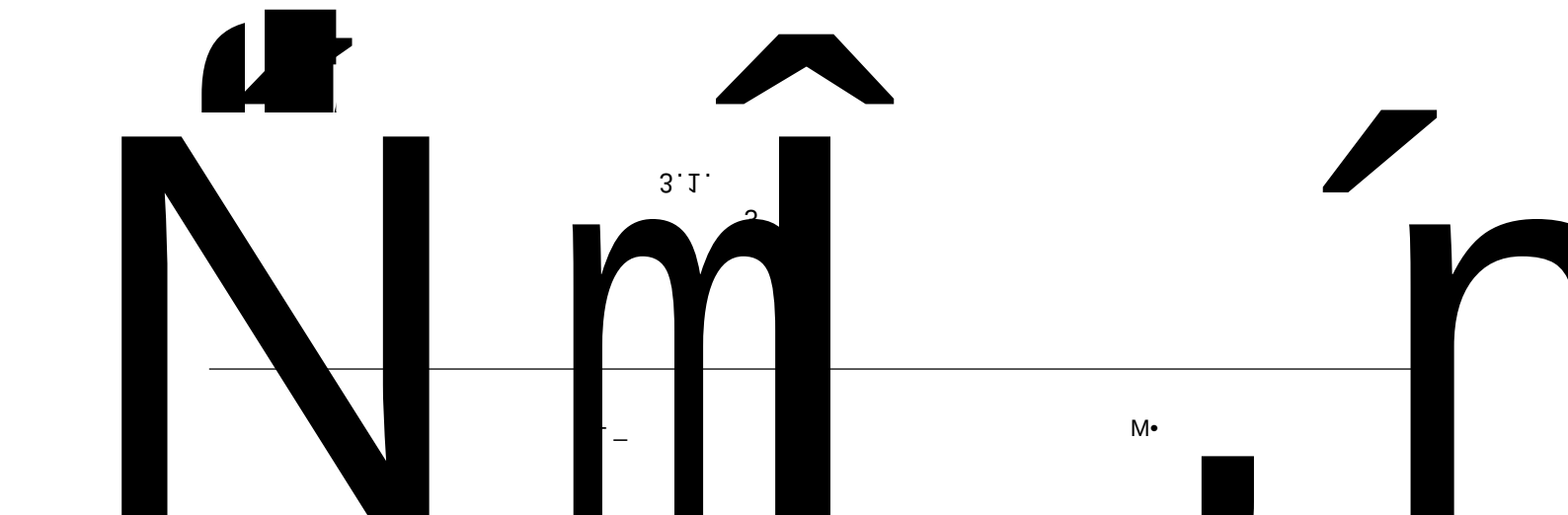
DCS

DCS

22

3.1.1

23



24h

32

300.3

33

39

10m

4m

4.2.1

4m

40

5m

2m

4.2.2

2m

41

2

0.5m

6.1.1

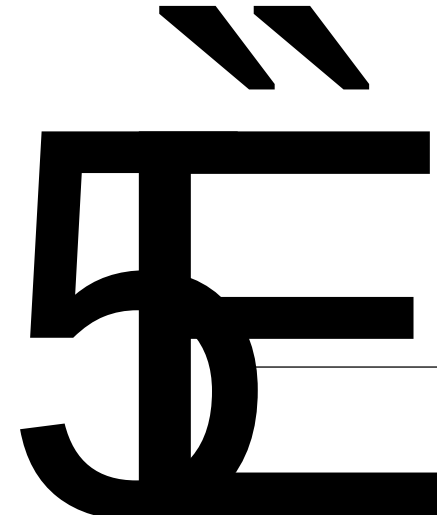
0.5m

42

2.0m

6.1.2 2.0m

43



48 12 12 /h
/h 6.4.3

49 6.4.4

20m
20m
50 6.4.5
6m 0

20m

Ę +6ɔ03+2 0:

51 6.4.6

52 6.4.7 ‘

53 4.2.10 ⅄ p ,

120m 2018

8.5.6 120m

59 201

1

2

“ ”

3

4

5

8

6

7

8

h 12

14		UPS	
15			
16			
17			
18			
19			
20			

20 7

13

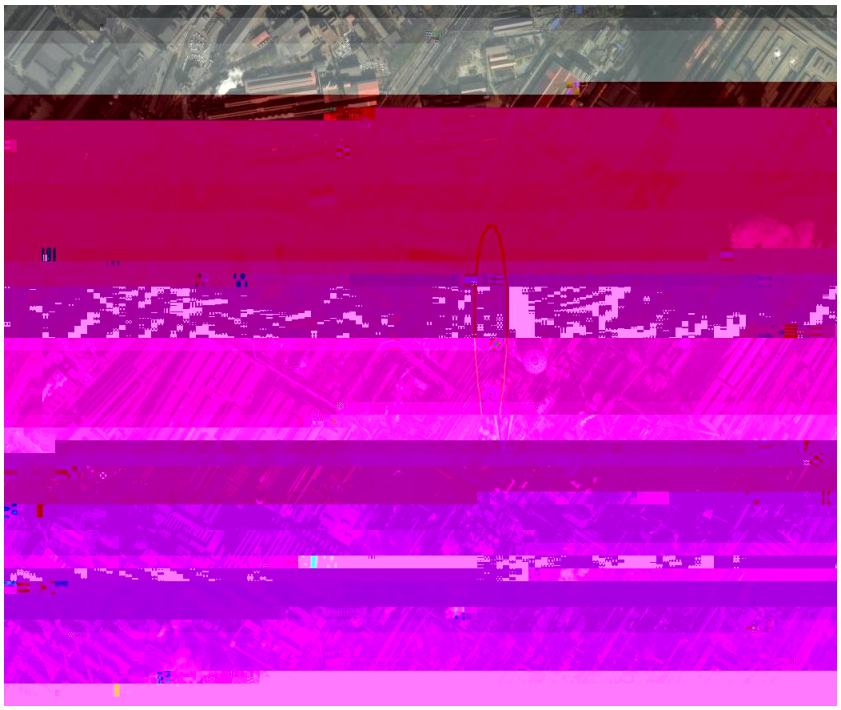
(
(

1

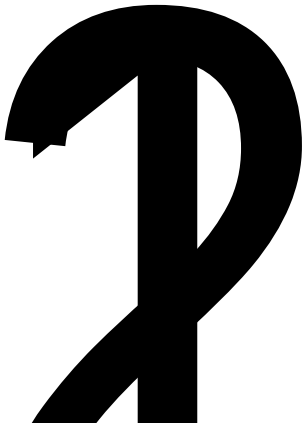
	4			
11	30		30	
12				
13	5m			
14	( ) GB 50057		GB 50057	

“ ” 14

	45	45	0	0
	11	11	0	0
	36	36	0	0
	63	60	0	3
	20	13	7	0
“ ”	14	14	0	0
	186			



m



GB 36894-2018

D.0.3-1

/ /

≤

غم آ

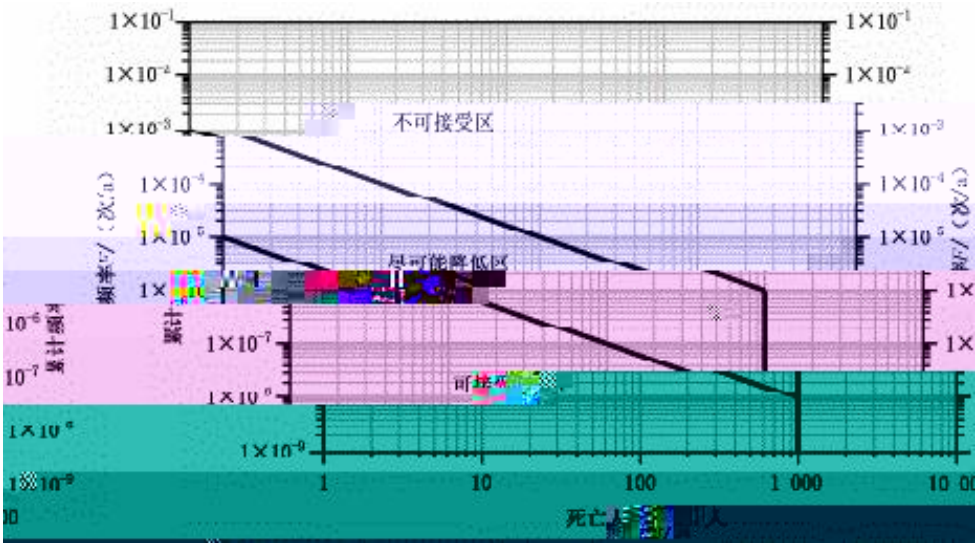
ALARP 3

A P

2

3

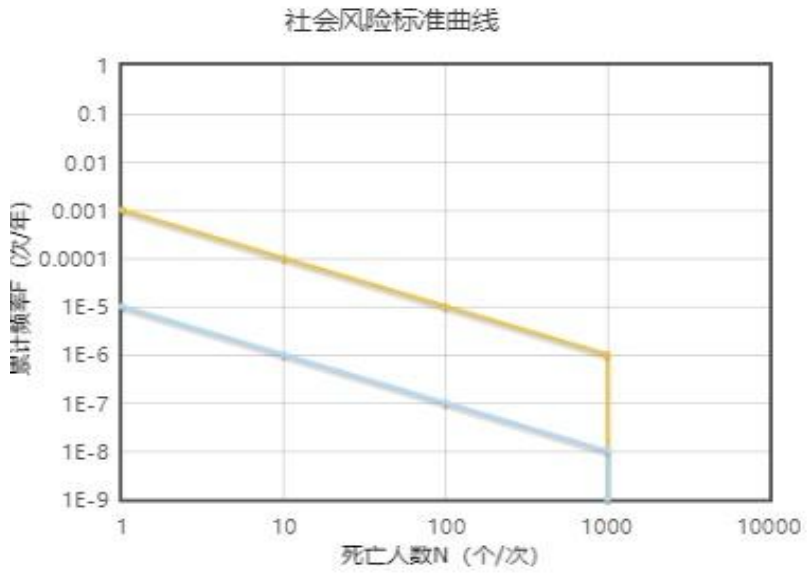
D.0.3-1



	0.00001	
	0.000003	
	0.0000003	

GB 36894-2018

D.0.3-2



D.0.3-3

pa	
m/s	
kg/m^3	
K	

				m
				26.70
				32.28
				20.93
				18.57
				3.92
				4.71
				3.14
				2.86

26.7m 32.28m

20.93m

18.57m

1 88 2021

9 1

2 81 2021 4

29

3 9 2015

1 1 8

4 57 2016 1

7

5 24 2018 12

29

6 2018

10 26

10 1

12 714 2019 4 23

13 708 2019 4 1

14 687 2017 10 7

15 586 136 2011 1 1

16 591 645 2013 12 7

17 593

1

（2024—2026 ） [2024]1 2024 1 23

2

2020 3 2020 2 26

3 2015

2015 5 2015 5 1

4 2015

2015 80 2015 8 19

5

1 4

15 29 80 20

1

12

[2007]255 2008 1 1

13

[2011]95 2011 6 21

14

2013 12 2013 2 5

15

[2009] 116 2009 6 12

16

[2013]15

17

[2013]76 2013

6 20

18

[2011]142

21 2024

7 2024 2 1

22 2015

2015 75 2015 7 17

23

2016 İ

[2014]116 2014 11 13

32

[2012]87 2012 7 1

33 < ( )

> [2015]113 2015 12 14

34

[2014]94 2014 8 29

35

[2016]62 2016 6 3

36

2021 4 14

42

2021 41 2021 11 30

43 57

2022 5 26

44 <

> 2022 59 2023

36 2023 5

53 <

> 2016 24

2016 12 1

54

[2010]30 2010 3 30

55

341 2021 5 18

56

2020 1 2020 3 23

57

2024 66 2024 2 18

58

2024 [2024]9 2024

11 26

1 2018 GB50160-2008

2 2018 GB50016-2014

3 GB55037-2022

4 GB50984-2014

5 GB50489-2009

6 GB50187-2012

7 GB36894-2018

8

GB/T37243-2019

9 GB/T15382-2021

10 TSG23-2021

11 1 TSG 23-2021/XG1-2024

12 GB17916-2013

13 GB/T50493-2019

14 GB50169-2016

15 GB50453-2008

16 2024 GB/T50011-2010

17 2022 GB50650-2011

18 GB7231-2003

19 2008 GB50316-2000

20 HG/T20581-2020

21 GBZ158-2003

22 GB18218-2018

23 GB/T12801-2008

24 GB5083-2023

25 IP GB/T4208-2017

26 IP 124 GB/T 4208-2017/XG1-2024

27 GB/T6441-1986

28 GB/T1381 ≤

GBZ2.1-2019

30 1 :

1 GBZ 2.1-2019/XG1-2022

31 1 :

2 GBZ 2.1-2019/XG2-2024

32 2

GBZ2.2-2007

33 GB12268-2025

34 GB6944-2025

35

GB/T8196-2018

36 GB/T3608-2008

37 GBZ1-2010

38 GBZ 158-2003

39 GBZ/T230-2010

40 GB/T50770-2013

41 HG/T20509-2014

42 SH/T3164-2021

43 HG/T20514-2014

44 HG/T20510-2014

45 HG/T20512-2014

46 HG/T20513-2014

47 SH/T3019-2016

48 SH/T3081-2019

49 GB

12 024

50

GB50257-2014

51 GB/T 9-201

52 GB50055-2011

53 GB50052-2009

54 GB50054-2011

55 GB12158-2024

56 GB/T50115-2019, P

57 GB50395-2007

58 GB/T15408-2011

59 GB50582-2010

60 GB50013-2018

61 GB50014-2021

62 GB55036-2022

63 GB15630-1995

64 GB50974-2014

65 2

GB4053.2-2009

66 א غي 3

GB4053.3-20-0530 5 .36 3

93	AQ3009-2007
94	AQ/T3034-2022
95	YJ/T 3052-2015
96	YJ/T9007-2019
97	YJ/T9009-2015
98	AQ6111-2023
99	AQ/T3033-2022
100	AQ8001-2007

1

2

3

4

5