

DC MCBs Ex9BP

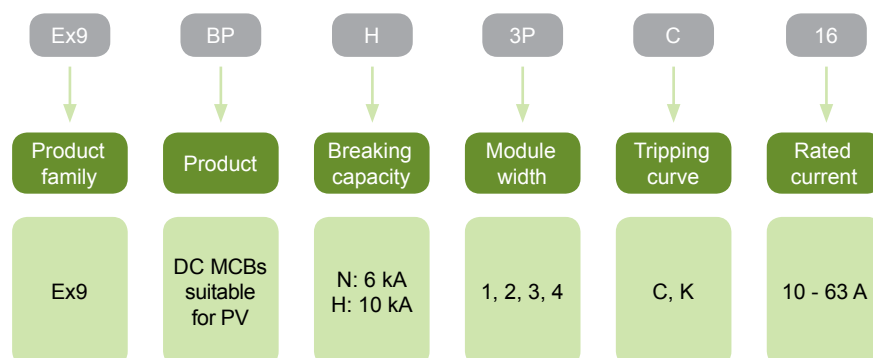


- DC Miniature Circuit Breakers
- Non-polarized, suitable for photovoltaic applications
- Tested according to IEC / EN 60947-2
- Rated short circuit breaking capacity I_{cu} 10 kA for Ex9BP-H, 6 kA for Ex9BP-N
- Rated operating voltage U_o 250 V DC per pole
- Width 1 up to 4 modules
- Tripping characteristics C, K
- Rated current up to 63 A
- Wide range of accessories

DC miniature circuit breakers Ex9BP are designed for direct current applications. Thanks to their polarity independency are suitable for photovoltaic applications.

It can be combined with wide range of accessories including auxiliary and signal contacts, shunt trip release and undervoltage release. It is possible to create diversified combination of accessories. These combinations are only limited by total number, not by the type of accessories - all components fit together. It can be used up to three units of auxiliary or alarm contacts plus up to two units for release units.

Type Key



Certification marks



DC MCBs Ex9BP

Accessories



Aux. or signal contacts
AX, AL, AXL
Up to 3 units

Voltage or trip releases
SHT, UVT
Up to 2 units

MCB
Ex9BP
1, 2, 3, 4-module width

Auxiliary contacts AX3111, AX3122

Alarm contact AL3111

Auxiliary and alarm contact AXL31

Shunt trip releases SHT31, SHT3111

Undervoltage releases UVT31, UVT3101, UVT3110

All accessories are mounted to the MCBs Ex9BP from the left. The undervoltage release UVT in PV system is intended e.g. for safe remote disconnection of DC part from installation.

DC MCBs Ex9BP-H, 10 kA

C-Characteristic, 1-pole, 250 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	1 MU	C	101686	Ex9BP-H 1P C 10A	1/12/144
13 A	1 MU	C	102364	Ex9BP-H 1P C 13A	1/12/144
16 A	1 MU	C	101687	Ex9BP-H 1P C 16A	1/12/144
20 A	1 MU	C	101688	Ex9BP-H 1P C 20A	1/12/144
25 A	1 MU	C	101689	Ex9BP-H 1P C 25A	1/12/144
32 A	1 MU	C	101690	Ex9BP-H 1P C 32A	1/12/144
40 A	1 MU	C	101691	Ex9BP-H 1P C 40A	1/12/144
50 A	1 MU	C	101692	Ex9BP-H 1P C 50A	1/12/144
63 A	1 MU	C	101693	Ex9BP-H 1P C 63A	1/12/144

C-Characteristic, 2-pole, 500 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	2 MU	C	101694	Ex9BP-H 2P C 10A	1/6/72
13 A	2 MU	C	102365	Ex9BP-H 2P C 13A	1/6/72
16 A	2 MU	C	101695	Ex9BP-H 2P C 16A	1/6/72
20 A	2 MU	C	101696	Ex9BP-H 2P C 20A	1/6/72
25 A	2 MU	C	101697	Ex9BP-H 2P C 25A	1/6/72
32 A	2 MU	C	101698	Ex9BP-H 2P C 32A	1/6/72
40 A	2 MU	C	101699	Ex9BP-H 2P C 40A	1/6/72
50 A	2 MU	C	101700	Ex9BP-H 2P C 50A	1/6/72
63 A	2 MU	C	101701	Ex9BP-H 2P C 63A	1/6/72

C-Characteristic, 3-module, 750 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	3 MU	C	101702	Ex9BP-H 3P C 10A	1/4/48
13 A	3 MU	C	102366	Ex9BP-H 3P C 13A	1/4/48
16 A	3 MU	C	101703	Ex9BP-H 3P C 16A	1/4/48
20 A	3 MU	C	101704	Ex9BP-H 3P C 20A	1/4/48
25 A	3 MU	C	101705	Ex9BP-H 3P C 25A	1/4/48
32 A	3 MU	C	101706	Ex9BP-H 3P C 32A	1/4/48
40 A	3 MU	C	101707	Ex9BP-H 3P C 40A	1/4/48
50 A	3 MU	C	101708	Ex9BP-H 3P C 50A	1/4/48
63 A	3 MU	C	101709	Ex9BP-H 3P C 63A	1/4/48

C-Characteristic, 4-module, 1000 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	4 MU	C	101710	Ex9BP-H 4P C 10A	1/3/36
13 A	4 MU	C	102367	Ex9BP-H 4P C 13A	1/3/36
16 A	4 MU	C	101711	Ex9BP-H 4P C 16A	1/3/36
20 A	4 MU	C	101712	Ex9BP-H 4P C 20A	1/3/36
25 A	4 MU	C	101713	Ex9BP-H 4P C 25A	1/3/36
32 A	4 MU	C	101714	Ex9BP-H 4P C 32A	1/3/36
40 A	4 MU	C	101715	Ex9BP-H 4P C 40A	1/3/36
50 A	4 MU	C	101716	Ex9BP-H 4P C 50A	1/3/36
63 A	4 MU	C	101717	Ex9BP-H 4P C 63A	1/3/36

DC MCBs Ex9BP-H, 10 kA

K-Characteristic, 1-pole, 250 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	1 MU	K	101718	Ex9BP-H 1P K 10A	1/12/144
13 A	1 MU	K	102368	Ex9BP-H 1P K 13A	1/12/144
16 A	1 MU	K	101719	Ex9BP-H 1P K 16A	1/12/144
20 A	1 MU	K	101720	Ex9BP-H 1P K 20A	1/12/144
25 A	1 MU	K	101721	Ex9BP-H 1P K 25A	1/12/144
32 A	1 MU	K	101722	Ex9BP-H 1P K 32A	1/12/144
40 A	1 MU	K	101723	Ex9BP-H 1P K 40A	1/12/144
50 A	1 MU	K	101724	Ex9BP-H 1P K 50A	1/12/144
63 A	1 MU	K	101725	Ex9BP-H 1P K 63A	1/12/144

K-Characteristic, 2-pole, 500 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	2 MU	K	101726	Ex9BP-H 2P K 10A	1/6/72
13 A	2 MU	K	102369	Ex9BP-H 2P K 13A	1/6/72
16 A	2 MU	K	101727	Ex9BP-H 2P K 16A	1/6/72
20 A	2 MU	K	101728	Ex9BP-H 2P K 20A	1/6/72
25 A	2 MU	K	101729	Ex9BP-H 2P K 25A	1/6/72
32 A	2 MU	K	101730	Ex9BP-H 2P K 32A	1/6/72
40 A	2 MU	K	101731	Ex9BP-H 2P K 40A	1/6/72
50 A	2 MU	K	101732	Ex9BP-H 2P K 50A	1/6/72
63 A	2 MU	K	101733	Ex9BP-H 2P K 63A	1/6/72

K-Characteristic, 3-module, 750 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	3 MU	K	101734	Ex9BP-H 3P K 10A	1/4/48
13 A	3 MU	K	102370	Ex9BP-H 3P K 13A	1/4/48
16 A	3 MU	K	101735	Ex9BP-H 3P K 16A	1/4/48
20 A	3 MU	K	101736	Ex9BP-H 3P K 20A	1/4/48
25 A	3 MU	K	101737	Ex9BP-H 3P K 25A	1/4/48
32 A	3 MU	K	101738	Ex9BP-H 3P K 32A	1/4/48
40 A	3 MU	K	101739	Ex9BP-H 3P K 40A	1/4/48
50 A	3 MU	K	101740	Ex9BP-H 3P K 50A	1/4/48
63 A	3 MU	K	101741	Ex9BP-H 3P K 63A	1/4/48

K-Characteristic, 4-module, 1000 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	4 MU	K	101742	Ex9BP-H 4P K 10A	1/3/36
13 A	4 MU	K	102371	Ex9BP-H 4P K 13A	1/3/36
16 A	4 MU	K	101743	Ex9BP-H 4P K 16A	1/3/36
20 A	4 MU	K	101744	Ex9BP-H 4P K 20A	1/3/36
25 A	4 MU	K	101745	Ex9BP-H 4P K 25A	1/3/36
32 A	4 MU	K	101746	Ex9BP-H 4P K 32A	1/3/36
40 A	4 MU	K	101747	Ex9BP-H 4P K 40A	1/3/36
50 A	4 MU	K	101748	Ex9BP-H 4P K 50A	1/3/36
63 A	4 MU	K	101749	Ex9BP-H 4P K 63A	1/3/36

DC MCBs Ex9BP-N, 6 kA

C-Characteristic, 1-pole, 250 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	1 MU	C	101622	Ex9BP-N 1P C 10A	1/12/144
13 A	1 MU	C	102356	Ex9BP-N 1P C 13A	1/12/144
16 A	1 MU	C	101623	Ex9BP-N 1P C 16A	1/12/144
20 A	1 MU	C	101624	Ex9BP-N 1P C 20A	1/12/144
25 A	1 MU	C	101625	Ex9BP-N 1P C 25A	1/12/144
32 A	1 MU	C	101626	Ex9BP-N 1P C 32A	1/12/144
40 A	1 MU	C	101627	Ex9BP-N 1P C 40A	1/12/144
50 A	1 MU	C	101628	Ex9BP-N 1P C 50A	1/12/144
63 A	1 MU	C	101629	Ex9BP-N 1P C 63A	1/12/144

C-Characteristic, 2-pole, 500 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	2 MU	C	101630	Ex9BP-N 2P C 10A	1/6/72
13 A	2 MU	C	102357	Ex9BP-N 2P C 13A	1/6/72
16 A	2 MU	C	101631	Ex9BP-N 2P C 16A	1/6/72
20 A	2 MU	C	101632	Ex9BP-N 2P C 20A	1/6/72
25 A	2 MU	C	101633	Ex9BP-N 2P C 25A	1/6/72
32 A	2 MU	C	101634	Ex9BP-N 2P C 32A	1/6/72
40 A	2 MU	C	101635	Ex9BP-N 2P C 40A	1/6/72
50 A	2 MU	C	101636	Ex9BP-N 2P C 50A	1/6/72
63 A	2 MU	C	101637	Ex9BP-N 2P C 63A	1/6/72

C-Characteristic, 3-module, 750 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	3 MU	C	101638	Ex9BP-N 3P C 10A	1/4/48
13 A	3 MU	C	102358	Ex9BP-N 3P C 13A	1/4/48
16 A	3 MU	C	101639	Ex9BP-N 3P C 16A	1/4/48
20 A	3 MU	C	101640	Ex9BP-N 3P C 20A	1/4/48
25 A	3 MU	C	101641	Ex9BP-N 3P C 25A	1/4/48
32 A	3 MU	C	101642	Ex9BP-N 3P C 32A	1/4/48
40 A	3 MU	C	101643	Ex9BP-N 3P C 40A	1/4/48
50 A	3 MU	C	101644	Ex9BP-N 3P C 50A	1/4/48
63 A	3 MU	C	101645	Ex9BP-N 3P C 63A	1/4/48

C-Characteristic, 4-module, 1000 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	4 MU	C	101646	Ex9BP-N 4P C 10A	1/3/36
13 A	4 MU	C	102359	Ex9BP-N 4P C 13A	1/3/36
16 A	4 MU	C	101647	Ex9BP-N 4P C 16A	1/3/36
20 A	4 MU	C	101648	Ex9BP-N 4P C 20A	1/3/36
25 A	4 MU	C	101649	Ex9BP-N 4P C 25A	1/3/36
32 A	4 MU	C	101650	Ex9BP-N 4P C 32A	1/3/36
40 A	4 MU	C	101651	Ex9BP-N 4P C 40A	1/3/36
50 A	4 MU	C	101652	Ex9BP-N 4P C 50A	1/3/36
63 A	4 MU	C	101653	Ex9BP-N 4P C 63A	1/3/36

DC MCBs Ex9BP-N, 6 kA

K-Characteristic, 1-pole, 250 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	1 MU	K	101654	Ex9BP-N 1P K 10A	1/12/144
13 A	1 MU	K	102360	Ex9BP-N 1P K 13A	1/12/144
16 A	1 MU	K	101655	Ex9BP-N 1P K 16A	1/12/144
20 A	1 MU	K	101656	Ex9BP-N 1P K 20A	1/12/144
25 A	1 MU	K	101657	Ex9BP-N 1P K 25A	1/12/144
32 A	1 MU	K	101658	Ex9BP-N 1P K 32A	1/12/144
40 A	1 MU	K	101659	Ex9BP-N 1P K 40A	1/12/144
50 A	1 MU	K	101660	Ex9BP-N 1P K 50A	1/12/144
63 A	1 MU	K	101661	Ex9BP-N 1P K 63A	1/12/144

K-Characteristic, 2-pole, 500 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	2 MU	K	101662	Ex9BP-N 2P K 10A	1/6/72
13 A	2 MU	K	102361	Ex9BP-N 2P K 13A	1/6/72
16 A	2 MU	K	101663	Ex9BP-N 2P K 16A	1/6/72
20 A	2 MU	K	101664	Ex9BP-N 2P K 20A	1/6/72
25 A	2 MU	K	101665	Ex9BP-N 2P K 25A	1/6/72
32 A	2 MU	K	101666	Ex9BP-N 2P K 32A	1/6/72
40 A	2 MU	K	101667	Ex9BP-N 2P K 40A	1/6/72
50 A	2 MU	K	101668	Ex9BP-N 2P K 50A	1/6/72
63 A	2 MU	K	101669	Ex9BP-N 2P K 63A	1/6/72

K-Characteristic, 3-module, 750 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	3 MU	K	101670	Ex9BP-N 3P K 10A	1/4/48
13 A	3 MU	K	102362	Ex9BP-N 3P K 13A	1/4/48
16 A	3 MU	K	101671	Ex9BP-N 3P K 16A	1/4/48
20 A	3 MU	K	101672	Ex9BP-N 3P K 20A	1/4/48
25 A	3 MU	K	101673	Ex9BP-N 3P K 25A	1/4/48
32 A	3 MU	K	101674	Ex9BP-N 3P K 32A	1/4/48
40 A	3 MU	K	101675	Ex9BP-N 3P K 40A	1/4/48
50 A	3 MU	K	101676	Ex9BP-N 3P K 50A	1/4/48
63 A	3 MU	K	101677	Ex9BP-N 3P K 63A	1/4/48

K-Characteristic, 4-module, 1000 V DC



Rated current	Width	Char.	Article No.	Type	Packing
10 A	4 MU	K	101678	Ex9BP-N 4P K 10A	1/3/36
13 A	4 MU	K	102363	Ex9BP-N 4P K 13A	1/3/36
16 A	4 MU	K	101679	Ex9BP-N 4P K 16A	1/3/36
20 A	4 MU	K	101680	Ex9BP-N 4P K 20A	1/3/36
25 A	4 MU	K	101681	Ex9BP-N 4P K 25A	1/3/36
32 A	4 MU	K	101682	Ex9BP-N 4P K 32A	1/3/36
40 A	4 MU	K	101683	Ex9BP-N 4P K 40A	1/3/36
50 A	4 MU	K	101684	Ex9BP-N 4P K 50A	1/3/36
63 A	4 MU	K	101685	Ex9BP-N 4P K 63A	1/3/36

Technical Data Ex9BP

DC Miniature Circuit Breakers up to 63 A

General parameters

Non-polarized, suitable for general DC as well as Photovoltaic applications

Accessories

Auxiliary contacts	AX3111, AX3122	100540, 100542
Alarm contact	AL3111	100541
Auxiliary and alarm contact	AXL31	100543
Shunt trip releases	SHT31, SHT3111	100544-100546, 100547-100549
Undervoltage releases	UVT31, UVT3101, UVT3110	100550-100551, 100552-100553, 100554-100555
Max. number of installed accessories is 3 pcs of one contact units (AX3111, AL3111) or 2 pcs of two contact units (AX3122, AXL31) and 2 pcs of releases (SHT31, UVT31)		

Electrical parameters

Tested according to	IEC / EN 60947-2
Rated op. voltage U_e	250 (1P), 500 (2P), 750 (3P), 1000 V DC (4P)
Rated breaking capacity I_{cu}	6 kA (Ex9BP-N), 10 kA (Ex9BP-H)
Rated current I_n	10 — 63 A
Tripping characteristics	C, K
Rated impulse withstand voltage U_{imp}	4 kV
Rated insulation voltage U_i	1000 V DC
Mechanical service life	20 000 operation cycles
Electrical service life	10 000 operation cycles
Selectivity class	3
Line voltage connection	arbitrary above or below

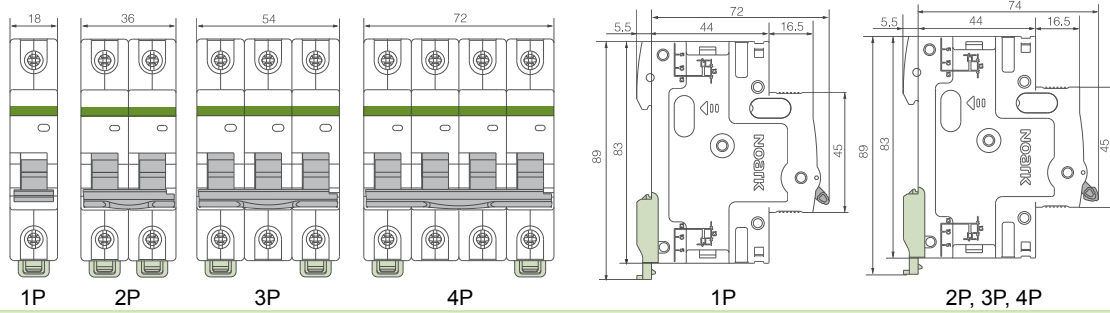
Mechanical parameters

Device width	18 mm (per pole/module)
Device height	83 mm (89 mm including rail clip)
Frame size	45 mm
Mounting	easy fastening onto 35 mm device rail (DIN)
Degree of protection	IP40, IP20 terminals
Terminals	combined lift + open mouthed
Terminal capacity	1 — 35 mm ²
Fastening torque of terminals	2 — 3.5 Nm
Busbar thickness	0.8 — 2 mm
Ambient temperature	-20 — +70 °C
Altitude	≤ 5000 m
Relative humidity	≤ 95 %
Resistance to humidity and heat	class 2
Pollution degree	3
Installation class	III
Weight	0.12 kg (per pole/module)

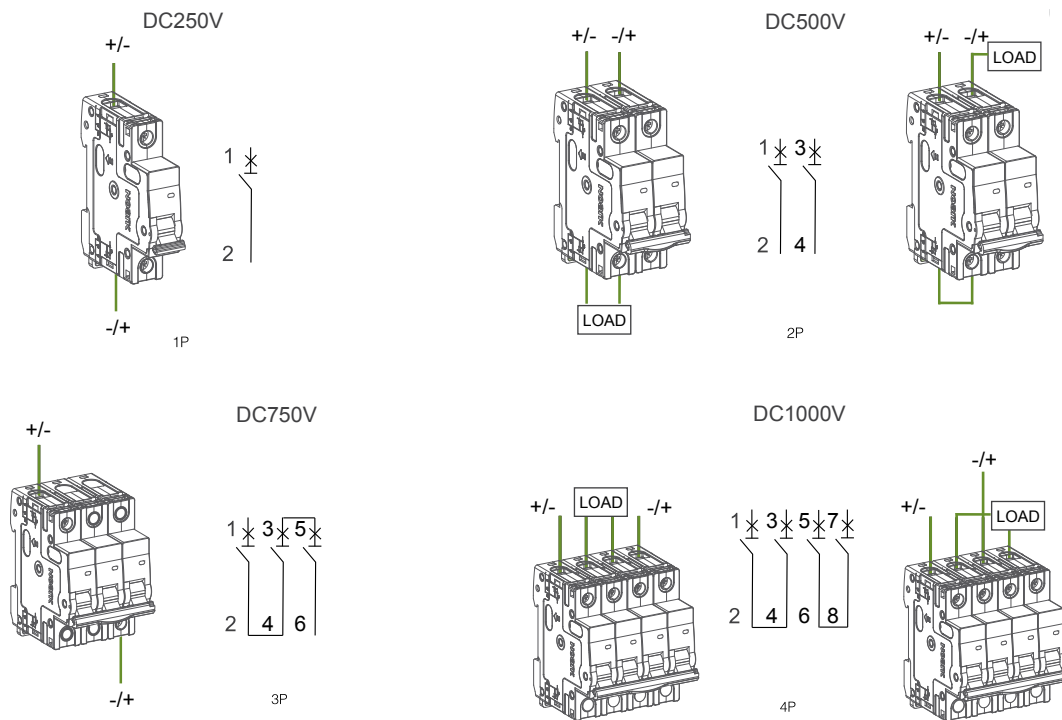
Technical Data Ex9BP

DC Miniature Circuit Breakers up to 63 A

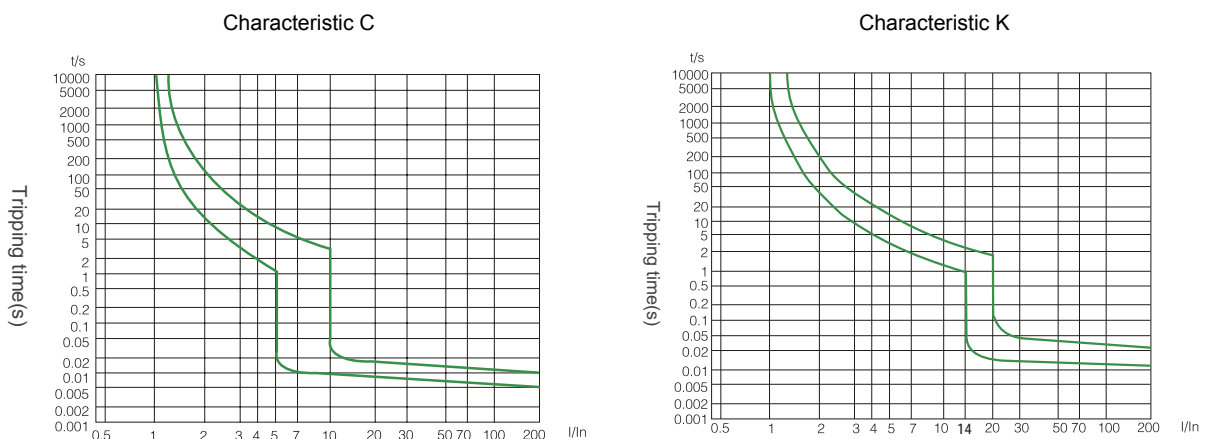
Dimensions



Wiring diagrams



Tripping characteristics



Ordering data p. 7

Technical Data Ex9BP

DC Miniature Circuit Breakers up to 63 A

Dependence of Tripping Characteristics on Ambient Temperature

T [°C]	10 A	13 A	16 A	20 A	25 A	32 A	40 A	50 A	63 A
-20	13.5	17	20	24.5	29.8	39.5	50.5	60	77.5
-15	13.3	16.8	19.8	24.3	29.7	39.3	50.4	59.8	76.3
-10	13	16.5	19.5	24	29.5	39	50.2	59.5	75
-5	12.7	16.1	19.2	23.8	29.3	38.8	50	59.2	73
0	12.5	15.8	19.1	23.7	29.2	38.6	48.8	59	71.8
5	12.3	15.5	18.8	23.5	29	38.4	48.6	58.8	70.6
10	12.1	15.2	18.6	23.3	28.8	38.2	48.4	56.5	69
15	12	14.9	18.5	23.1	28.6	38	48.1	55	67.5
20	11.8	14.7	18.3	22.8	28.4	37.8	47.8	54.5	66.2
25	11.5	14.1	18	22.6	28.2	37.5	47	52.5	64.5
30	10	13	16	20	25	32	40	50	63
35	9.9	12.8	15.7	19.7	24.6	31.5	39.2	48.8	61.5
40	9.8	12.5	15.4	19.3	24.3	31.1	38.8	47	58.7
45	9.8	12.2	15.1	18.8	24	30.8	38.3	45.5	55.8
50	9.6	11.7	14.9	18.5	23.8	30.1	38	44	53.5
55	9.5	11.5	14.7	18.2	23.5	29.5	36.5	42.5	51.7
60	9	11.2	14.5	17.8	23	28.5	35	41.5	49.2
65	8.6	11	14	17.5	22	27.5	34	40.5	47.9
70	8	10.8	13.8	17.3	21.5	27	32.5	38	46.8