

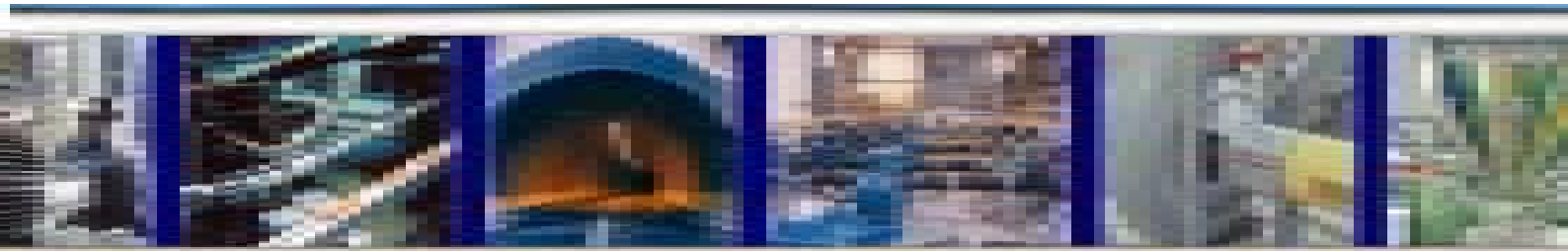
Low Voltage AC Drives

ACS 5X0-07 Technical catalogue



ACS5X0 Cabinet built single drive

ACS5X0-07, to 110 kW



Flexible solutions

The ACS5X0-07 is a cabinet-built single drive designed for industrial applications. It is compact in design and is simple to operate. It is available with IP 21, IP 22, IP 42, IP 54 protection classes.

The ACS5X0-07 offers a wide variety of standardized options to adapt to different application requirements, from line contactor to the starter for auxiliary motor fan.

Plus tailor made accessories through ABB's application engineering. For special requirements, ABB can offer you application engineering design.

Accessories

All the ACS5X0-07's accessories are inbuilt in the cabinet. Typical accessory choices include extended I/O and fieldbus options, line contactor and du/dt filtering, all mountable within the single cabinet.

Standard hardware

- Compact design
- IP 21 protection class
- Inbuilt harmonic filtering choke
- Fuse switch
- Main switch
- Extensive, programmable I/O
- Long lifetime cooling fan and capacitors
- Inputs galvanically isolated I/O terminals
- I/O and fieldbus extension slots inside
- Alphanumeric multilingual control panel with Start-up Assistant feature

Accessories for the ACS5X0-07 :

- Relay output extension modules
- Braking chopper and resistor
- Cabinet heater
- Terminal block
- du/dt filters
- Fieldbus modules
- IP 22, 42 or 54 enclosure classes
- Line contactor with emergency stop push button
- Module-case circuit breaker
- Starter for auxiliary motor fan
- Pulse encoder interface module
- Top entry and exit of cables

Type cod	Normal use		Heavy-duty use		Frame size
	I_{2N} A	P_N kW	I_{2hd} A	P_{hd} kW	
3-phase supply voltage 380~480V					
ACS550-07-03A3/xxxx-4 ¹	3.3	1.1	2.4	0.75	R1
ACS550-07-04A1/xxxx-4 ¹	4.1	1.5	3.3	1.1	R1
ACS550-07-05A4/xxxx-4 ¹	5.4	2.2	4.1	1.5	R1
ACS550-07-06A9/xxxx-4 ¹	6.9	3	5.4	2.2	R1
ACS550-07-08A8/xxxx-4 ¹	8.8	4	6.9	3	R1
ACS550-07-012A/xxxx-4 ¹	11.9	5.5	8.8	4	R1
ACS550-07-015A/xxxx-4 ¹	15.4	7.5	11.9	5.5	R2
ACS550-07-023A/xxxx-4 ¹	23	11	15.4	7.5	R2
ACS550-07-031A-4	31	15	23	11	R3
ACS550-07-038A-4	38	18.5	31	15	R3
ACS550-07-044A-4	44	22	38	18.5	R4
ACS550-07-059A-4	59	30	44	22	R4
ACS550-07-072A-4	72	37	59	30	R4
ACS550-07-096A-4	96	45	77	37	R5
ACS550-07-124A-4	124	55	96	45	R6
ACS550-07-157A-4	157	75	124	55	R6
ACS550-07-180A-4	180	90	156	75	R6
ACS550-07-195A-4	195	110	162	90	R6

Note 1 At best two R1/R2 modules can be installed in the cabinet, xxxx shows the type of the second drive module, for example xxxx=05A4 shows the second module is ACS550-01-05A6-4. If only one module installed in the cabinet, then there is no /xxxx in the type code.

Type code	Normal use		Frame size
	I_{2N} A	P_N kW	
3-phase supply voltage 380~480V			
ACS510-07-03A3/xxxx-4 ¹	3.3	1.1	R1
ACS510-07-04A1/xxxx-4 ¹	4.1	1.5	R1
ACS510-07-05A6/xxxx-4 ¹	5.6	2.2	R1
ACS510-07-07A2/xxxx-4 ¹	7.2	3	R1
ACS510-07-09A4/xxxx-4 ¹	9.4	4	R1
ACS510-07-012A/xxxx-4 ¹	11.9	5.5	R1
ACS510-07-017A/xxxx-4 ¹	17	7.5	R2
ACS510-07-025A/xxxx-4 ¹	25	11	R2
ACS510-07-031A-4	31	15	R3
ACS510-07-038A-4	38	18.5	R3
ACS510-07-045A-4	45	22	R4
ACS510-07-060A-4	60	30	R4
ACS510-07-072A-4	72	37	R4
ACS510-07-096A-4	96	45	R5
ACS510-07-124A-4	124	55	R6
ACS510-07-157A-4	157	75	R6
ACS510-07-180A-4	180	90	R6
ACS510-07-195A-4	195	110	R6

Note 1 At best two R1/R2 modules can be installed in the cabinet, xxxx shows the type of the second drive module, for example xxxx=05A4 shows the second module is ACS510-01-05A6-4. If only one module installed in the cabinet, then there is no /xxxx in the type code.

Enclosure

Degree of Protection:

IP 21 (Standard)

IP 22, IP 42, IP 54, IP54R (Optional)

Paint color:

Light beige RAL 7035 semi-gloss

Frame	Width*)	Height*) IP 21/22/42	Height*) IP 54	Depth)
R1	430	2130	2315	646
R2	430	2130	2315	646
R3	430	2130	2315	646
R4	430	2130	2315	646
R5	630	2130	2315	646
R6	630	2130	2315	646

*)mm

Symbols

Normal use (110%overloading capability)

I_{2N} continuous rms current. 10% overload is allowed for one minute every 10minutes.

P_N typical motor power. The power ratings apply to most IEC 4 motors at the nominal voltage, over loading application (110%overloading capability)

I_{2nd} continuous rms current. 50% overload is allowed for one minute every 5minutes.

P_{hd} typical motor power. The power ratings apply to most IEC 4 motors at the nominal voltage at heavy-duty use.

Sizing

The current ratings are the same regardless of the supply voltage within one voltage range. For achieve the motor's power rating, the rated output current must higher or equal to the motor's rated current. If exceeded, the drive will limit the motor's torque and current automatically. This function protects the overloading of input bridge effectively. For addition,

- The ratings apply in 40 ; ambient temperature.
- Maximum allowable power of motor axes was limited to 1.5 times of P_{hd} .

Symbols

Normal use

I_{2N} continuous rms current.

P_N typical motor power. The power ratings apply to most IEC 4 motors at the nominal voltage.

Sizing

The current ratings are the same regardless of the supply voltage within one voltage range. For achieve the motor's power rating, the rated output current must higher or equal to the motor's rated current. For additional,

- The ratings apply in 40 ; ambient temperature.

Technical specification



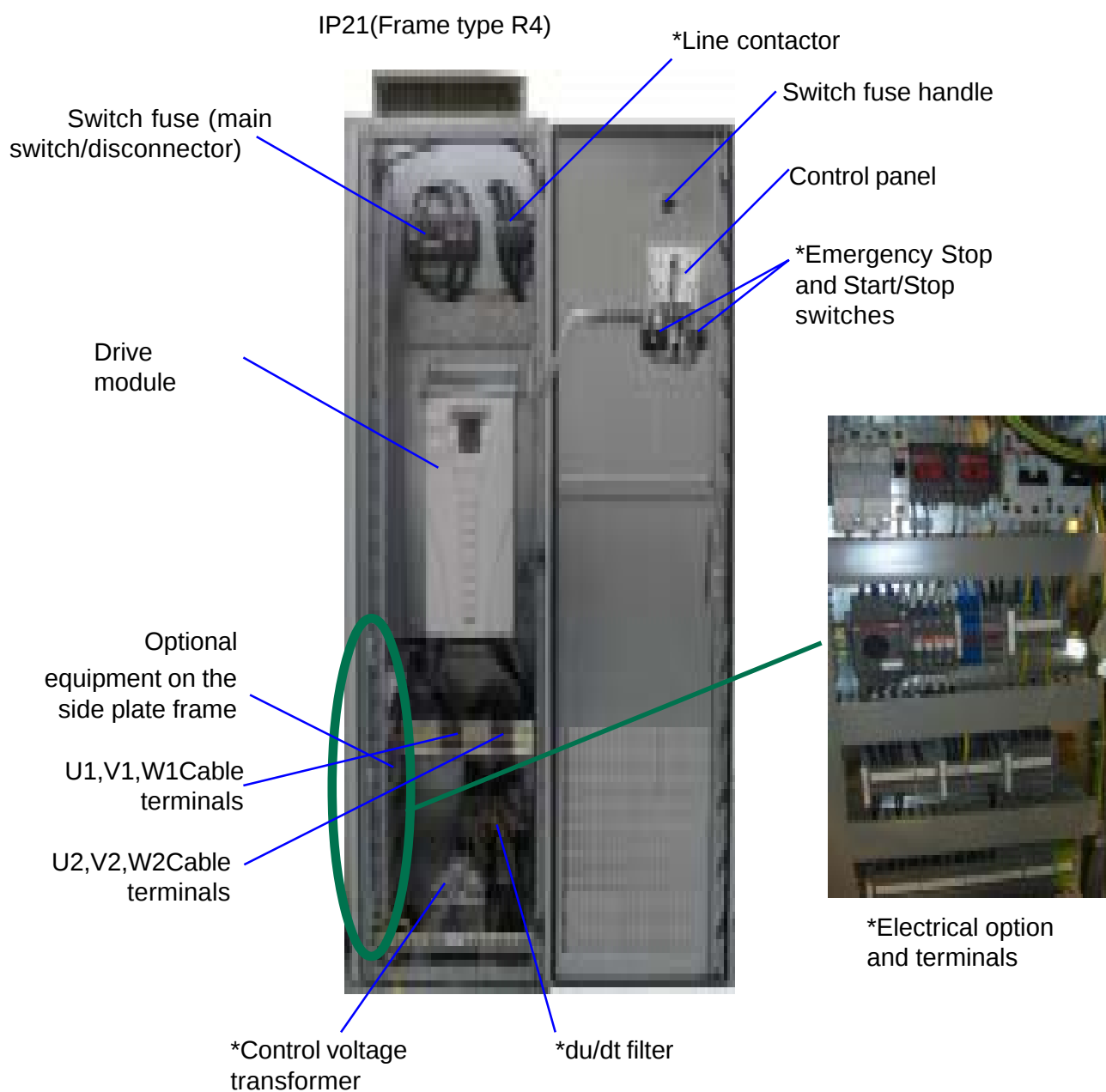
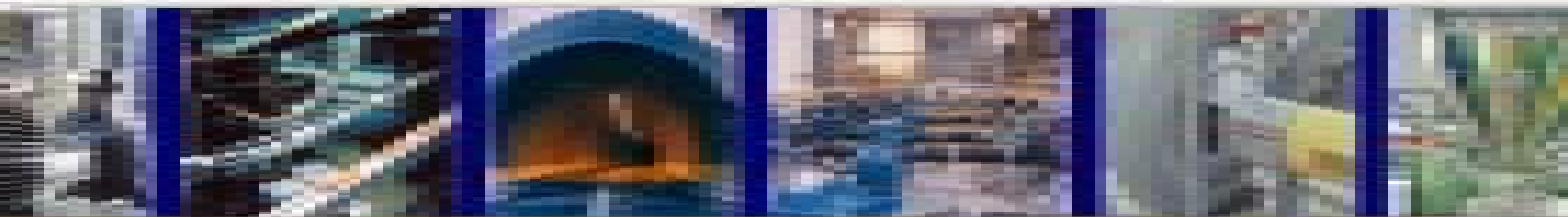
Main supply connection	
Voltage	3-phase, 380-480V, +10%/-15% wide voltage wave range, Auto-identification of input line
Frequency	48 to 63 Hz
Power range	1.1-110kW
Power factor	0.98
Motor connection	
Voltage	3-phase 0 to input voltage
Frequency	0 to 500 Hz
switch frequency	
Standard	Default 4 kHz
Option	1 kHz, 4 kHz, 8 kHz, 12 kHz
Acceleration time	0.1to1800 s shaped
Deceleration time	0.1to1800 s shaped

Technical specification	
Ambient temperature	
-15 to 40°C	No frost allowed
40 to 50°C	Switch frequency 4 kHz, derating please contact supplier
Altitude	
Output current	Rated current available at 0 to 1000 m reduced by 1% per 100 m over 1000 m to 2000 m
Relative humidity	Lower than 95%(without condensation)
Protection class	IP21, IP22, IP42, IP54
Enclosure colour	Light beige RAL 7053 semi-gloss
Contamination levels	No conductive dust allowed.
Transportation	IEC60721-3-1, class1C3(chemical gas), Class 1S3 (solid grain)
Storage	IEC60721-3-2, Class2C3(chemical gas), Class 2S3(solid grain)
Operation	IEC60721-3-3, Class3C3 (chemical gas), Class 3S3(solid grain)

Programable control connections	
Two analog inputs AI1, AI2	
Voltage signal	0(2)to 10 V, $R_{in}=312k\Omega$ single end
Current signal	0(4)to 20 mA, $R_{in}=100\Omega$ single end
Potentiometer reference value	10 V +/-2% Max.10 mA
Maximum delay	12...32 ms
Resolution	0.1%
Precision	+/-1%
Two analog outputs	0(4)to20 mA, loading<500W
Auxiliary voltage	24V DC +/-10%, Maximum250 mA
Six digital inputs DI1-DI6	12 V... 24 V DC with internal or external supply, PNP and NPN
Input impedance	2.4 k Ω
Maximum delay	5 ms +/- 1ms
Three relay outputs RO1-RO3	
Maximum switching voltage	250 V AC/30 V DC
Maximum switching current	6 A/30 V DC; 1500 VA/230 VAC
Maximum continuous current	2 A rms
Serial communication	
RS 485	Modbus protocol

EMC (according to EN61800-3)
1st environment restricted distribution for frame sizes R3, R4 with 75m motor cables and for frame sizes R1, R2, R5, R6 with 100m motor cables.
2nd environment unrestricted distribution with 300m motor cables for frame sizes R1 to R4 and 100m motor cables for frame sizes R5 to R8 as standard.

Cabinet configuration



*Denotes optional equipment not present on all units.

ACS510-07 Type code

1.1 - 110 kW, Cabinet-built

1....6	A C S 5 1 0	Product Series														
7....9	0 0 7	Type														
07=cabinet built(R1-R4:400mm,R5-R6:600mm),IP21,switch fuse with Gg fuses,control panel ACS-CP-D,with power connection I/O/terminals,bottom entry and exit of cables,one set of manuals.																
10....14	0 0 0 0 0	Size (module1)														
<table><tr><td>Size</td><td>R1</td><td>R2</td><td>R3</td><td>R4</td><td>R5</td><td>R6</td></tr><tr><td>400V</td><td>03A3 04A1 05A6 07A2 09A4 012A</td><td>017A 025A</td><td>031A 038A</td><td>045A 060A 072A</td><td>096A</td><td>124A 157A 180A 195A</td></tr></table>			Size	R1	R2	R3	R4	R5	R6	400V	03A3 04A1 05A6 07A2 09A4 012A	017A 025A	031A 038A	045A 060A 072A	096A	124A 157A 180A 195A
Size	R1	R2	R3	R4	R5	R6										
400V	03A3 04A1 05A6 07A2 09A4 012A	017A 025A	031A 038A	045A 060A 072A	096A	124A 157A 180A 195A										
15....19	1 0 0 0 0	Size (Module2)														
<table><tr><td>Size</td><td>R1</td><td>R2</td><td rowspan="2">Choose module 2 only when module 1 is R1/R2, that means only if the module frame size is R1/ R2,the cabinet can install 2 modules.</td></tr><tr><td>400V</td><td>03A3 04A1 05A6 07A2 09A4 012A</td><td>017A 025A</td></tr></table>			Size	R1	R2	Choose module 2 only when module 1 is R1/R2, that means only if the module frame size is R1/ R2,the cabinet can install 2 modules.	400V	03A3 04A1 05A6 07A2 09A4 012A	017A 025A							
Size	R1	R2	Choose module 2 only when module 1 is R1/R2, that means only if the module frame size is R1/ R2,the cabinet can install 2 modules.													
400V	03A3 04A1 05A6 07A2 09A4 012A	017A 025A														
20....21	0 4	Voltage rating														
4=400V																

For example:

1.ACS510-07-072A-4+K454+F250+Q951
+M603, denotes the 37kW transformer and Profibus-DP adapter installed inside the cabinet, input the side-contactor, emergency stop, assistant motor fan starter.

2.ACS510-07-012A/025A-4+K454+F250
+Q951+M603, denotes the 5.5kW and 11kW transformer with Profibus-DP adapter installed inside the cabinet, input the side-contactor, emergency stop, assistant motor fan starter.

Option code

I/O option One slot available for I/O options

☐	L511	Relay output extension	OREL-01
☐	L504	Additional I/O terminals	

Fieldbus One slot available for fieldbus

☐	K451	DeviceNet	RDNA-01
☐	K452	LONWorks	RLON-01
☐	K454	Profibus-DP	RPBA-01
☐	K457	CANOpen	RCAN-01
☐	K462	ControlNet	RCNA-01

Protection class

☐	B053	IP22(When selected, cabinet R3-R6 with connection to air outlet duct)
☐	B054	IP42(When selected, cabinet R3-R6 with connection to air outlet duct)
☐	B055	IP54(When selected, all type of cabinets are with connection to air outlet duct)

Filter

☐	E255	du/dt filter (When selected, cabinet R3-R6 with connection to air outlet duct)
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Resistor braking

☐	D150+D151	Brake chopper +braking resistor	When selected, a 400mm cabinet will be added This option is noneffective for IP54 This option is noneffective for cabinet R1/R2
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Line options

☐	F250+Q951	Line contactor + emergency stop	
☐	F255	MCCB	F255 will instead of the main fuse switch,but the handle is inside the cabinet.

Cabling

☐	H351+H353	Top entry + top exit
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Cabinet options

☐	G300	Cabinet heater (external supply)
☐	G307	Terminals for external control voltage (UPS)
☐	G313	Output for motor heater (external supply)

Language of manual

☐	R700	English document
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Control panel

☐	J404	Basic control panel	ACS-CP-C
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Starter for auxiliary motor fan

☐	M600	1...1,6 A
☐	M601	1,6...2,5 A
☐	M602	2,5...4A
☐	M603	4...6,3 A
☐	M604	6,3...10 A
☐	M605	10...16 A

ACS550-07 Type code

1.1 - 110 kW, Cabinet-built

1....6	A C S 5 5 0	Product Series				
7....9	0 7	Type				
07=cabinet built(R1-R4:400mm,R5-R6:600mm),IP21,switch fuse with Gg fuses,control panel ACS-CP-D,with power connection I/O/terminals,bottom entry and exit of cables,one set of manuals.						
10....14	0 0 0 0 0	Size (module1)				
Size	R1	R2	R3	R4	R5	R6
400V	03A3 04A1 05A4 06A9 08A8 012A	015A 023A	031A 038A	044A 059A 072A	096A	124A 157A 180A 195A
15....19	1 0 0 0 0	Size (Module2)	Choose module 2 only when module 1 is R1/ R2, that means only if the module frame size is R1/R2,the cabinet can install 2 modules.			
Size	R1	R2				
400V	03A3 04A1 05A4 06A9 08A8 012A	015A 023A				
20....21	0 4	Voltage rating	4=400V			

For example:

1.ACS550-07-072A-4+K454+F250+Q951+M603, denotes the 37kW transformer and Profibus-DP adapter installed inside the cabinet, input the side-contactor, emergency stop, assistant motor fan starter.

2.ACS550-07-012A/023A-4+K454+F250+Q951+M603, denotes the 5.5kW and 11kW transformer with Profibus-DP adapter installed inside the cabinet, input the side-contactor, emergency stop, assistant motor fan starter.

Option code

I/O options One slot available for I/O options

☐	L511	Relay output extension	OREL-01
☐	L504	Additional I/O terminals	
☐	L502	Pulse encoder module	OTAC-01

Fieldbus One slot available for fieldbus

☐	K451	DeviceNet	RDNA-01
☐	K452	LONWorks	RLON-01
☐	K454	Profibus-DP	RPBA-01
☐	K457	CANOpen	RCAN-01
☐	K462	ControlNet	RCNA-01

Protection class

☐	B053	IP22(When selected, cabinet R3-R6 with connection to air outlet duct)
☐	B054	IP42(When selected, cabinet R3-R6 with connection to air outlet duct)
☐	B055	IP54(When selected, all type of cabinets are with connection to air outlet duct)

Filter

☐	E205	du/dt filter (When selected, cabinet R3-R6 with connection to air outlet duct)
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Resistor braking

☐	D150+D151	Brake chopper +braking resistor	When selected, a 400mm cabinet will be added This option is noneffective for IP54 This option is noneffective for cabinet R1/R2
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Line options

☐	F250+Q951	Line contactor + emergency stop	
☐	F255	MCCB	F255 will instead of the main fuse switch,but the handle is inside the cabinet.

Cabling

☐	H351+H353	Top entry + top exit
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Cabinet options

☐	G300	Cabinet heater (external supply)
☐	G307	Terminals for external control voltage (UPS)
☐	G313	Output for motor heater (external supply)

Language of manual

☐	R700	English document
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Control panel

☐	J404	Basic control panel	ACS-CP-C
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Starter for auxiliary motor fan

☐	M600	1...1,6 A
☐	M601	1,6...2,5 A
☐	M602	2,5...4A
☐	M603	4...6,3 A
☐	M604	6,3...10 A
☐	M605	10...16 A



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