

VARIABLE SPEED DRIVE

SD700

Kompakt Series



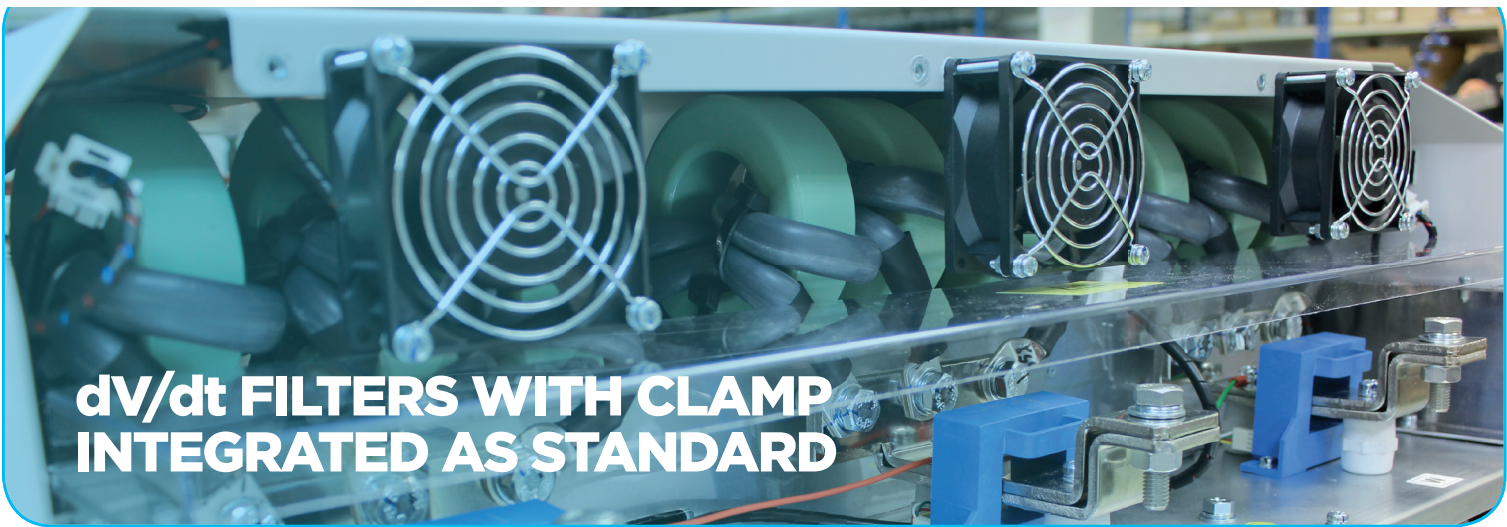
When space saving is a must, the SD700 Kompakt series with a power density up to 800kW/m³ is your suitable solution. The drive keeps the advanced family features reducing up to 2.5 times the size. This product is suitable for professional project engineers to get freedom and competitiveness to their own electrical projects. Inspired by the contactors wiring concept, it has a top input power and a bottom output motor cable.

The drive unit and the input chokes are delivered together with a IP00 degree of protection. The customer following Power Electronics' recommendation will easily install the components in a dedicated cabinet or technical room.



- IP00 without dust filters
- 50°C operation without power derating
- (FFA) Full frontal access
- External harmonic filter and built-in RFI filter
- Built-in dV/dt filter 500V/μs-800V/μs (unshielded cable up to 150m)
- Modularity
- Conformally coated electronics with military and aerospace technology





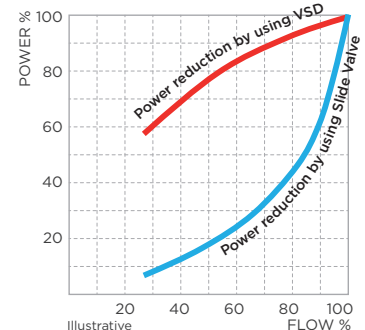
dV/dt FILTERS WITH CLAMP INTEGRATED AS STANDARD



The SD700 offers improved efficiency due to innovative control system and generates the maximum savings for pumps, fans, compressors, conveyors, mills, extruders... by means of its accurate speed control.

Energy savings depend on multiple parameters such as the torque and power response of the load, the process and motor sizing, running hours per year, etc. Nevertheless Power Electronics can tell you the expected savings on your new and retrofit projects.

TYPICAL PUMP ENERGY SAVINGS

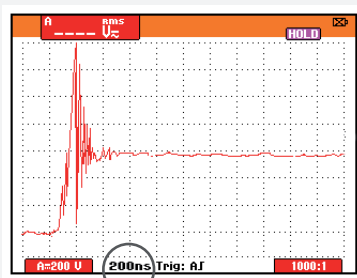


SD700 includes built-in as standard dV/dt filter that reduces the dV/dt value to 500V/μs-800V/μs depending on the drive size and rated voltage, minimizing the voltage peaks at the motor winding. Additionally SD700 has a unique CLAMP electronic system that smartly absorbs high frequency currents caused by the reflection phenomena in long motor cables.

These features reduce the transferred Electromagnetic Energy and the voltage peaks seen by the first turn of the winding. Consequently SD700 low voltage drive portfolio can be installed following Power Electronics recommendations with:

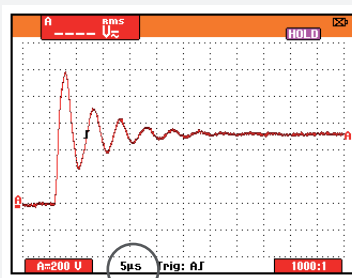
- greater cable distances (unshielded cable up to 300m)
- standard unshielded cable
- non isolated bearings
- no special motor insulation

NO dV/dt FILTER



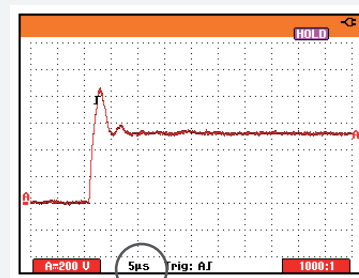
200ns
Peak voltage: 3.6xV_{LINE}
Frequency_{CMC}: 12.5MHz

dV/dt FILTER (500-800V/μs)



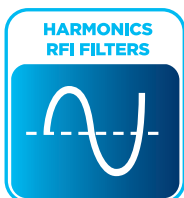
5μs
Peak voltage: 2.6xV_{LINE}
Frequency_{CMC}: 200kHz

dV/dt FILTER + CLAMP



5μs
Peak voltage: 2.1xV_{LINE}
Frequency_{CMC}: negligible

NOTE: 200m Motor cable, 400 VAC



High input impedance given by the input chokes 3% protects the drive against any grid anomaly and enhances its THDi performance in weak grids.



PowerCOMMS. The PowerCOMMS tool offers real performance information about motor and drive status.



Powerful and Accurate control Power Electronics' success is measured by our customer's satisfaction so the motor control systems developed by Power Electronics have been designed to meet the most demanding features in any sector.

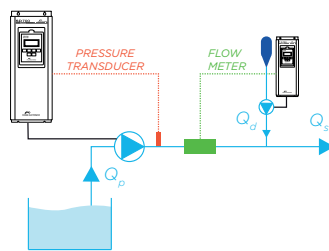


PowerPLC. The PowerPLC tool will enhance SD700 performance implementing multiple functions without additional hardware.

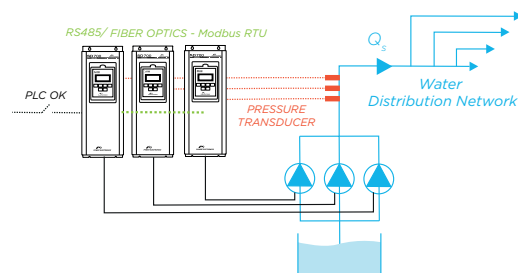


- Accurate direct and reverse action of the PID control regulation of pressure, flow, level.
- Sleep and wake up functionality for extra energy saving depending on pressure and flow.
- Water Hammer control to prevent catastrophic breakdowns.
- Direct programming in engineering units (l/s, m³/s, %, °C, ...).
- Operation in manual or automatic mode is up to you.
- Several Pump alternation modes for homogeneous ageing.
- Visualization of working time per pump and number of starts.
- Under-pressure and Over-pressure compensation.
- Head or pressure compensation depending on flow rate.
- Pipe fill function.
- Out of service Motor monitoring.
- Pulse measurement of the flow.
- Pump safety protections: cavitation with reset activation time, minimum pressure detection, over-pressure control, zero-flow detection...

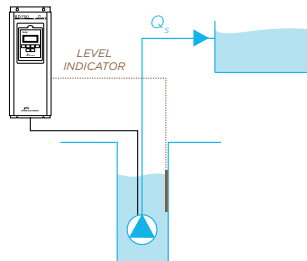
PRESSURE & FLOW PID CONTROL



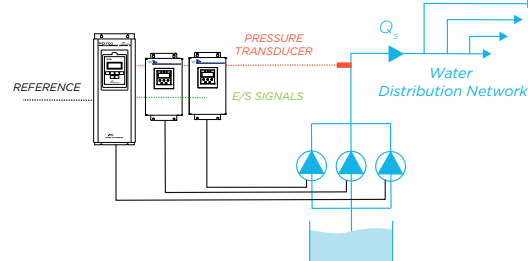
MULTI-MASTER CONTROL



LEVEL PID CONTROL

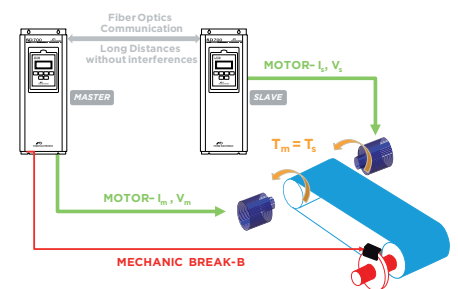


MULTIPUMP CONTROL WITH V5 SOFT STARTERS



- Precise and high starting torque features dedicated to loaded lifting systems.
- PMC-OLTQ (Power Motor Control-Open Loop Torque Control) over fibre optics communications provides unique master-slave performance in the most demanding applications, and guaranties a perfect torque distribution.
- Fast commissioning and invariable control response due to motor or belt parameters variation.
- Thanks to the MBC (Mechanical Brake Control), the Pre-Magnetization and Delay off IGBT, the loaded process will have a smooth start and stop.
- PMC factory settings and motor nameplate parameters ensure perfect performance without enabling the auto tuning function during commissioning.

PMC-OLTQ CONTROL



PERFECT TORQUE DISTRIBUTION WITHOUT ENCODER

TECHNICAL CHARACTERISTICS

INPUT	Power range	63kW - 800 kW ^[1]
	Voltage power	230Vac, 380-500Vac, 525Vac, 690Vac , 3 phases (±10%)
	Multipulse	6, 12
	Input frequency	50Hz/60Hz ± 6%
	Input rectifier technology	Thyristor-Diode
	DPF=cos ϕ / Power factor	≥ 0.98 / ≥ 0.91
	EMC input filter	Second environment (Industrial): (C3 Standard) First environment (Domestic): C2 (Optional). C1 consult with Power Electronics
	Current THDi (%) / Harmonics Filter	≤ 40% / Choke coils 3% impedance
OUTPUT	Regenerative	NO
	Output frequency ^[2]	0...200Hz
	Overload capacity	Constant torque/heavy duty: 150% during 60 sec at 50°C Variable torque/normal duty: 120% during 60 sec at 40°C
	Efficiency (at rated current and rated voltage)	≥98%
	Switching frequency	4 to 8kHz - PEWave
	Output dv/dt filter	500 to 800V/μs
ENVIRONMENTAL CONDITIONS	Output cable length ^[3]	USC 150m, SC 75m
	Operation temp. / Storage	-20°C to +50°C / -40°C to +70°C
	Altitude/Power altitude derating ^[1]	1000m / >1000m, 1% PN(kW) per 100m; 3000m maximum
	Ambient humidity	<95%, non-condensing
INPUTS / OUTPUTS	Degree of protection	IP00 / IP20
	Digital inputs	6 programmable active high (24Vdc), Isolated power supply, 1 PTC input
	Digital outputs	3 Programmable changeover relays (250Vac, 8A or 30Vdc, 8A)
	Analogue input	2 Programmable differential inputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc. (Optically isolated)
	Analogue outputs	2 Isolated programmable outputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc
	Encoder inputs (optional)	Two differential encoders input. Voltages inputs from 5 to 24Vdc
	User power supply	+24Vdc user power supply (Max 180mA) regulated and short-circuit protected +10Vdc user power supply (Max 2 potentiometers R= 1 kΩ) regulated and short-circuit protected
	I/O Extension board (optional)	4 Digital Inputs: Programmable inputs and active high (24Vdc). Optically isolated. 1 Analogue Input: Programmable and differential input. 5 Digital Outputs: Programmable multi-function relays. 1 Analogue Output: Programmable outputs in voltage / current.
COMMUNICATION	External power supply (optional)	24V External Power Supply, Fault Relay integrated
	Standard protocol	Modbus-RTU
REGULATIONS	Optional protocol	Profibus-DP, DeviceNet, Ethernet (Modbus TCP), Ethernet IP, CAN Open, N2 Metasys Gateway
	Certifications	CE, cTick, UL ^[4] , cUL ^[4]
	Electromagnetic compatibility	EMC Directive (2004/108/CE), IEC/EN 61800-3
	Design and construction	LVD Directive (2006/95/CE), IEC/EN 61800-2, IEC/EN 61800-5-1, IEC/EN 60146-1-1, IEC60068-2-6, IEC/EN 61800-5-2(STO) Tüv Rheinland Certified

NOTES

[1] Other configuration, consult Power Electronics.
[2]: For operation frequencies higher than 100Hz consult Power Electronics.

[3] SC: Shielded cable, USC: Unshielded Cable. Follow Power Electronics installation recommendations. For greater cable lengths and first environment (C2) consult Power Electronics.

[4] On certification process.



CONFIGURATION TABLE

SD700 Series	Model		Output Current ^[1]		Input Voltage		Degree of protection		Pulses number		EMC Filter		Floating Earth		Input Frequency	
SD7	K	SD700 Kompakt	0210	210A	2	230Vac	0	IP00	-	6 pulses	-	Second Environment	-	Without Floating Earth	-	50Hz
			0330	330A	5	380-500Vac	2	IP20	12	12 pulses	F	First Environment ^[2]	T	With Floating Earth	6	60Hz ^[3]
			7	525Vac					M	Optional IT Filter				
			0990	990A	6	690Vac										

NOTES [1] Verify the rated current of the motor nameplate to guarantee the compatibility with the selected drive.
[2] Floating earth drive not available with first environment filter.

[3] Consult availability. For more ordering info contact our sales representative.

ACCESSORIES

CODE	ACCESSORIES DESCRIPTION
SD7PD	Profibus Communication Board
SD7ET	Ethernet Communication Board
SD7DN	DeviceNet Communication Board
SD7CO	CAN Open Communication Board
(*)	N2 Metasys Communication Gateway
SD7EC	Encoder Board
SD7IO	Inputs / Outputs Expansion Board Additional 4DI, 5DO, 1AI and 1 AO
SD7FO	Fiber Optics board
SD7STO	Safe Torque Off (STO) board. Allows to implement in the drive the safe torque off function according to IEC/EN 61800-5-2
SD7KES011	External 24Vdc Power Supply - FrameS 1, 2, 3 and 5. Interior assembly.
V11	Display Extender Kit (3 meters)
V12	Display Extender Kit (5 meters)
B150.2	Dynamic brake 230VAC
B150	Dynamic brake 380VAC, 500VAC
B150.6	Dynamic brake 690VAC
SD7KEB1	Connection box frame 1
SD7KEB2	Connection box frame 2
SD7KEB3	Connection box frame 3
SD7KEB4	Connection box frame 4

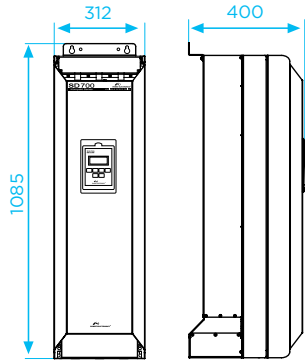
* Consult availability



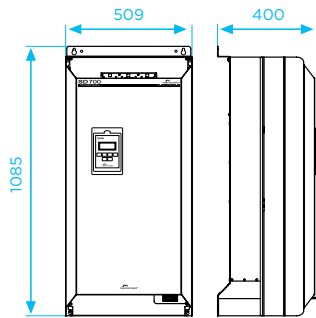
SD700 KOMPACT Connection box



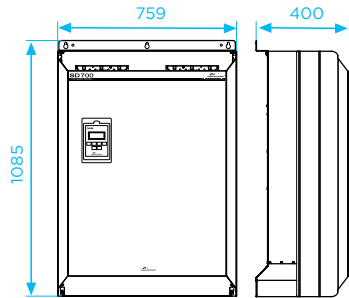
STANDARD RATINGS



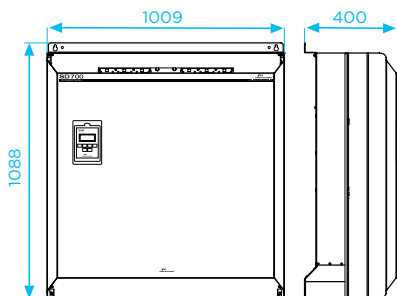
FRAME	WEIGHT (kg)
1	78.2



FRAME	WEIGHT (kg)
2	148



FRAME	WEIGHT (kg)
3	200



FRAME	WEIGHT (kg)
4	280

230Vac - 6 PULSES

FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 230VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 230VAC	120% Overload (A)
1	SD7K0210 2	210	63	315	263	75	315
	SD7K0250 2	250	75	375	313	86	375
	SD7K0275 2	275	86	413	344	100	413
2	SD7K0330 2	330	100	495	413	110	495
	SD7K0370 2	370	110	555	463	140	555
	SD7K0460 2	460	140	690	575	185	690
3	SD7K0580 2	580	185	870	725	200	870
	SD7K0650 2	650	200	975	813	220	975
	SD7K0720 2	720	220	1080	900	250	1080

400Vac - 6 PULSES

FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 400VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 400VAC	120% Overload (A)
1	SD7K0210 5	210	110	315	263	132	315
	SD7K0250 5	250	132	375	313	160	375
	SD7K0275 5	275	150	413	344	200	413
2	SD7K0330 5	330	160	495	413	220	495
	SD7K0370 5	370	200	555	463	250	555
	SD7K0460 5	460	250	690	575	315	690
3	SD7K0580 5	580	315	870	725	400	870
	SD7K0650 5	650	355	975	813	450	975
	SD7K0720 5	720	400	1080	900	500	1080
4	SD7K0840 5	840	450	1260	1050	560	1260
	SD7K0925 5	925	500	1388	1156	630	1388
	SD7K0990 5	990	560	1485	1238	710	1485

525Vac - 6 PULSES

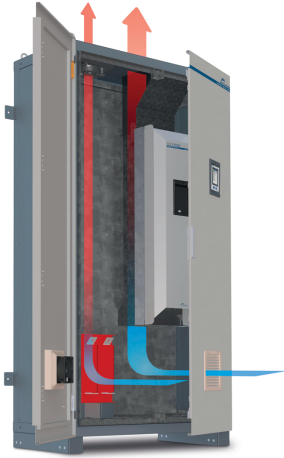
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 525VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 525VAC	120% Overload (A)
1	SD7K0180 7	180	132	270	222	150	270
	SD7K0205 7	205	150	308	254	185	308
2	SD7K0270 7	270	200	405	334	250	405
	SD7K0295 7	295	220	443	360	280	443
	SD7K0340 7	340	250	510	417	315	510
3	SD7K0425 7	425	315	638	526	400	638
	SD7K0470 7	470	355	705	586	450	705
	SD7K0535 7	535	400	803	666	500	803
4	SD7K0660 7	660	500	990	824	600	990
	SD7K0750 7	750	560	1125	936	700	1125

690Vac - 6 PULSES

FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 690VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 690VAC	120% Overload (A)
1	SD7K0130 6	130	110	195	163	132	195
	SD7K0150 6	150	132	225	188	160	225
	SD7K0170 6	170	160	255	213	200	255
2	SD7K0210 6	210	200	315	263	250	315
	SD7K0260 6	260	250	390	325	315	390
	SD7K0320 6	320	315	480	400	400	480
3	SD7K0385 6	385	355	578	481	450	578
	SD7K0460 6	460	450	690	575	560	690
4	SD7K0550 6	550	500	825	688	630	825
	SD7K0660 6	660	630	990	825	800	990

NOTE [1] 12 pulses drives available. Consult your sales representative.

INPUT INDUCTANCES



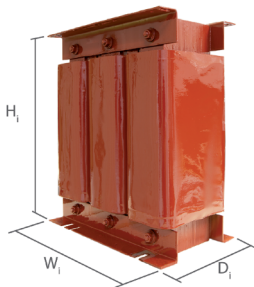
INPUT VOLTAGE 230Vac					
DRIVE		INDUCTANCE			
FRAME	REFERENCE	REFERENCE	QUANTITY	I (A)	WEIGHT (kg)
1	SD7K0210 2	P246B	1	250	33
	SD7K0250 2				
	SD7K0275 2				
2	SD7K0330 2	P256A	1	370	65
	SD7K0370 2				
	SD7K0460 2				
3	SD7K0580 2	P297A	2	2X290	2X48
	SD7K0650 2				
	SD7K0720 2				

INPUT VOLTAGE 380VAC - 500VAC					
DRIVE		INDUCTANCE			
FRAME	REFERENCE	REFERENCE	QUANTITY	I (A)	WEIGHT (kg)
1	SD7K0210 5	P246B	1	250	33
	SD7K0250 5				
	SD7K0275 5				
2	SD7K0330 5	P256A	1	370	65
	SD7K0370 5				
	SD7K0460 5				
3	SD7K0580 5	P297A	2	2X290	2X48
	SD7K0650 5				
	SD7K0720 5				
4	SD7K0840 5	P233A	2	2X500	2X53
	SD7K0925 5				
	SD7K0990 5				

INPUT VOLTAGE 525VAC					
DRIVE		INDUCTANCE			
FRAME	REFERENCE	REFERENCE	QUANTITY	I (A)	WEIGHT (kg)
1	SD7K0180 7	P317B	1	210	40
	SD7K0205 7				
	SD7K0270 7				
2	SD7K0295 7	P233A	1	500	53
	SD7K0340 7				
	SD7K0425 7				
3	SD7K0470 7	P297A	2	2X290	2X48
	SD7K0535 7				
	SD7K0660 7				
4	SD7K0750 7	P233A	2	2X500	2X53
	SD7K0750 7				

INPUT VOLTAGE 690VAC					
DRIVE		INDUCTANCE			
FRAME	REFERENCE	REFERENCE	QUANTITY	I (A)	WEIGHT (kg)
1	SD7K0130 6	P316B	1	170	33
	SD7K0150 6				
	SD7K0170 6				
2	SD7K0210 6	P317B	1	210	40
	SD7K0260 6				
	SD7K0320 6				
3	SD7K0385 6	P319B	2	2X230	2X42
	SD7K0460 6				
	SD7K0550 6				
4	SD7K0660 6	P318A	2	2X330	2X62
	SD7K0660 6				

DIMENSIONS AND WEIGHT



INDUCTANCES DIMENSIONS AND WEIGHT					
REFERENCE	Wi (mm)	Di (mm)	Hi (mm)	WEIGHT (kg)	I (A)
P233A	300	255	350	53	500
P246B	300	170	350	33	250
P256A	300	245	355	65	370
P297A	300	210	360	48	290
P298A	300	200	360	43	360
P316B	300	170	350	33	170
P317B	300	200	360	40	210
P318A	300	245	355	62	330
P319B	300	200	360	42	230



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