MOREK

Creating a better future for You



MOFLEX

Insulated copper flexibars

2019

Insulated copper flexibars Moflex

Insulated copper flexibars Moflex are manufactured out of highly flexible copper strips either in bare or tinned version. They are insulated with high quality mechanical, electrical and self-extinguishing PVC.

Technical details

Electrolytic copper Cu-ETP 99,90%
Available in plain or tin plated copper

Insulation

Self extinguishing UL 94 V-0 black PVC insulation
Elongation: > 200 %
Tensile strength: > 15 N/mm²

Electrical characteristics

Nominal voltage 1000 V AC – 1500 V DC
Dielectric strength of the insulation: > 20 KV/mm
Operating temperature: -40° C* up to 105° C*
** not during dynamic pressure*

5 year
warranty



Due to skin effect,
on average

45 %

smaller cross-section
compared to regular
copper cable

Copper cable
150 mm²

1 x Moflex
24 x 1 x 2
48 mm²



320 A
68 %
smaller

Copper cables
2 x 150 mm²
300 mm²

1 x Moflex
32 x 1 x 5
160 mm²



630 A
47 %
smaller

Copper cables
3 x 240 mm²
720 mm²

1 x Moflex
80 x 1 x 6
480 mm²



1250 A
33 %
smaller

In all examples above, intensities of Moflex and regular cable are calculated using the temperature rise value of 50° C.

Remarks about the tables

Description of the product code
E.g., MMC0801001
MM – Moflex
C – red copper
(T - in case of tinned copper)
080 – width
10 – number of sheets

* Products with the length of 3 meters can be ordered separately

** Reduction factor for the use of flexibars in parallel (see table on page 55)

When you use the Moflex flexibars parallel for the same phase, you need to use the reduction factoras shown in the following example.

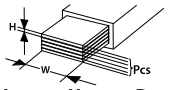
MMC0500401 Moflex 50x1x4, 200mm², 732A at ΔT=50
2 flexibars in parallel: 732 x1,72 = 1259A
3 flexibars in parallel: 732 x2,25 = 1647A

The table on the page 55 indicates the temperature rise produced by chosen current in the given cross section. This calculation does not take into account the heat dissipation from the switchboard.

Technical specification (based on width)

W (mm)	Red copper Product code	Tinned copper Product code	W x H x Pcs	Length*	Package (pcs)	Copper weight per meter (kg)
9	MMC0090201	MMT0090201	**9 x 0,8 x 2**	2 m	10	0,128
	MMC0090301	MMT0090301	**9 x 0,8 x 3**	2 m	10	0,193
	MMC0090401	MMT0090401	**9 x 0,8 x 4**	2 m	10	0,256
	MMC0090501	MMT0090501	**9 x 0,8 x 5**	2 m	10	0,321
	MMC0090601	MMT0090601	**9 x 0,8 x 6**	2 m	10	0,385
15,5	MMC0160201	MMT0160201	**15,5 x 0,8 x 2**	2 m	10	0,214
	MMC0160401	MMT0160401	**15,5 x 0.8 x 4**	2 m	10	0,428
	MMC0160601	MMT0160601	**15,5 x 0,8 x 6**	2 m	10	0,642
	MMC0161001	MMT0161001	**15,5 x 0,8 x 10**	2 m	10	1,071
20	MMC0200201	MMT0200201	**20 x 1 x 2**	2 m	5	0,357
	MMC0200301	MMT0200301	**20 x 1 x 3**	2 m	5	0,535
	MMC0200401	MMT0200401	**20 x 1 x 4**	2 m	5	0,714
	MMC0200501	MMT0200501	**20 x 1 x 5**	2 m	5	0,892
	MMC0200601	MMT0200601	**20 x 1 x 6**	2 m	5	1,071
	MMC0201001	MMT0201001	**20 x 1 x 10**	2 m	5	1,784
24	MMC0240201	MMT0240201	**24 x 1 x 2**	2 m	5	0,428
	MMC0240301	MMT0240301	**24 x 1 x 3**	2 m	5	0,642
	MMC0240401	MMT0240401	**24 x 1 x 4**	2 m	5	0,857
	MMC0240501	MMT0240501	**24 x 1 x 5**	2 m	5	1,071
	MMC0240601	MMT0240601	**24 x 1 x 6**	2 m	5	1,285
	MMC0240801	MMT0240801	**24 x 1 x 8**	2 m	5	1,713
	MMC0241001	MMT0241001	**24 x 1 x 10**	2 m	5	2,142
32	MMC0320201	MMT0320201	**32 x 1 x 2**	2 m	5	0,571
	MMC0320301	MMT0320301	**32 x 1 x 3**	2 m	5	0,857
	MMC0320401	MMT0320401	**32 x 1 x 4**	2 m	5	1,142
	MMC0320501	MMT0320501	**32 x 1 x 5**	2 m	5	1,428
	MMC0320601	MMT0320601	**32 x 1 x 6**	2 m	5	1,713
	MMC0320801	MMT0320801	**32 x 1 x 8**	2 m	5	2,284
	MMC0321001	MMT0321001	**32 x 1 x 10**	2 m	5	2,851
40	MMC0400201	MMT0400201	**40 x 1 x 2**	2 m	5	0,714
	MMC0400301	MMT0400301	**40 x 1 x 3**	2 m	5	1,071
	MMC0400401	MMT0400401	**40 x 1 x 4**	2 m	5	1,428
	MMC0400501	MMT0400501	**40 x 1 x 5**	2 m	5	1,784
	MMC0400601	MMT0400601	**40 x 1 x 6**	2 m	5	2,141
	MMC0400801	MMT0400801	**40 x 1 x 8**	2 m	5	2,855
	MMC0401001	MMT0401001	**40 x 1 x 10**	2 m	5	3,569
50	MMC0500301	MMT0500301	**50 x 1 x 3**	2 m	2	1,338
	MMC0500401	MMT0500401	**50 x 1 x 4**	2 m	2	1,784
	MMC0500501	MMT0500501	**50 x 1 x 5**	2 m	2	2,231
	MMC0500601	MMT0500601	**50 x 1 x 6**	2 m	2	2,677
	MMC0500801	MMT0500801	**50 x 1 x 8**	2 m	2	3,569
	MMC0501001	MMT0501001	**50 x 1 x 10**	2 m	2	4,461
63	MMC0630301	MMT0630301	**63 x 1 x 3**	2 m	2	1,686
	MMC0630401	MMT0630401	**63 x 1 x 4**	2 m	2	2,248
	MMC0630501	MMT0630501	**63 x 1 x 5**	2 m	2	2,811
	MMC0630601	MMT0630601	**63 x 1 x 6**	2 m	2	3,373
	MMC0630801	MMT0630801	**63 x 1 x 8**	2 m	2	4,497
	MMC0631001	MMT0631001	**63 x 1 x 10**	2 m	2	5,621
80	MMC0800301	MMT0800301	**80 x 1 x 3**	2 m	2	2,141
	MMC0800401	MMT0800401	**80 x 1 x 4**	2 m	2	2,851
	MMC0800501	MMT0800501	**80 x 1 x 5**	2 m	2	3,569
	MMC0800601	MMT0800601	**80 x 1 x 6**	2 m	2	4,283
	MMC0800801	MMT0800801	**80 x 1 x 8**	2 m	2	5,710
	MMC0801001	MMT0801001	**80 x 1 x 10**	2 m	2	7,138
100	MMC1000401	MMT1000401	**100 x 1 x 4**	2 m	2	3,569
	MMC1000501	MMT1000501	**100 x 1 x 5**	2 m	2	4,461
	MMC1000601	MMT1000601	**100 x 1 x 6**	2 m	2	5,353
	MMC1000801	MMT1000801	**100 x 1 x 8**	2 m	2	7,138
	MMC1001001	MMT1001001	**100 x 1 x 10**	2 m	2	8,922

Technical specification (based on amperage)

Amperage (A)	Red copper Part no.	Tinned copper Part no.	 W x H x Pcs	Copper weight per meter (kg)	Cu cross section (mm²)	Ampacity at rise of temperature from 35° C to: 105 °C ΔT=70	95 °C ΔT=60	85 °C ΔT=50	75 °C ΔT=40	65 °C ΔT=30	Reduction factor**	
> 80	MMC0090201	MMT0090201	9 x 0,8 x 2	0,128	14	113	105	**96**	86	74	1,72	2,25
> 125	MMC0090301	MMT0090301	9 x 0,8 x 3	0,193	21,6	160	149	**136**	121	104	1,72	2,25
> 160	MMC0090401	MMT0090401	9 x 0,8 x 4	0,256	29	204	189	**173**	155	133	1,72	2,25
	MMC0090501	MMT0090501	9 x 0,8 x 5	0,321	36	272	253	**231**	206	177	1,72	2,25
	MMC0160201	MMT0160201	15,5 x 0,8 x 2	0,214	24,8	197	183	**167**	149	128	1,72	2,25
> 250	MMC0090601	MMT0090601	9 x 0,8 x 6	0,385	43,2	340	316	**289**	258	221	1,72	2,25
	MMC0200201	MMT0200201	20 x 1 x 2	0,357	40	329	306	**280**	250	215	1,72	2,25
> 320	MMC0160401	MMT0160401	15,5 x 0,8 x 4	0,428	49,6	379	353	**322**	288	247	1,72	2,25
	MMC0200301	MMT0200301	20 x 1 x 3	0,535	60	427	397	**363**	324	278	1,72	2,25
	MMC0240201	MMT0240201	24 x 1 x 2	0,428	48	451	419	**384**	342	294	1,72	2,25
> 400	MMC0160601	MMT0160601	15,5 x 0,8 x 6	0,642	74,4	489	455	**416**	371	319	1,72	2,25
	MMC0161001	MMT0161001	15,5 x 0,8 x 10	1,071	124	539	501	**458**	409	351	1,72	2,25
	MMC0200401	MMT0200401	20 x 1 x 4	0,714	80	478	444	**406**	363	311	1,72	2,25
	MMC0200501	MMT0200501	20 x 1 x 5	0,892	100	497	463	**423**	378	324	1,72	2,25
	MMC0200601	MMT0200601	20 x 1 x 6	1,071	120	547	509	**465**	415	356	1,72	2,25
	MMC0240301	MMT0240301	24 x 1 x 3	0,642	72	491	457	**418**	373	320	1,72	2,25
	MMC0240401	MMT0240401	24 x 1 x 4	0,857	96	553	514	**470**	420	360	1,72	2,25
	MMC0320201	MMT0320201	32 x 1 x 2	0,571	64	483	450	**411**	367	315	1,72	2,25
	MMC0320301	MMT0320301	32 x 1 x 3	0,857	96	569	529	**484**	432	371	1,72	2,25
	MMC0400201	MMT0400201	40 x 1 x 2	0,714	80	535	498	**455**	406	349	1,72	2,25
> 500	MMC0240501	MMT0240501	24 x 1 x 5	1,071	120	610	568	**519**	463	398	1,72	2,25
	MMC0240601	MMT0240601	24 x 1 x 6	1,285	144	674	626	**573**	511	439	1,72	2,25
	MMC0320401	MMT0320401	32 x 1 x 4	1,142	128	652	606	**554**	495	425	1,72	2,25
	MMC0400301	MMT0400301	40 x 1 x 3	1,071	120	618	575	**525**	469	403	1,72	2,25
	MMC0400401	MMT0400401	40 x 1 x 4	1,428	160	727	676	**618**	552	474	1,72	2,25
	MMC0500301	MMT0500301	50 x 1 x 3	1,338	150	701	652	**597**	532	457	1,72	2,25
> 630	MMC0201001	MMT0201001	20 x 1 x 10	1,784	200	763	709	**649**	579	497	1,72	2,25
	MMC0240801	MMT0240801	24 x 1 x 8	1,713	192	800	744	**681**	607	522	1,72	2,25
	MMC0241001	MMT0241001	24 x 1 x 10	2,142	240	875	814	**744**	664	570	1,72	2,25
	MMC0320501	MMT0320501	32 x 1 x 5	1,428	160	762	708	**648**	578	496	1,72	2,25
	MMC0320601	MMT0320601	32 x 1 x 6	1,713	192	850	790	**723**	645	554	1,72	2,25
	MMC0400501	MMT0400501	40 x 1 x 5	1,784	200	903	840	**768**	686	589	1,72	2,25
	MMC0500401	MMT0500401	50 x 1 x 4	1,784	200	861	801	**732**	654	561	1,72	2,25
	MMC0630301	MMT0630301	63 x 1 x 3	1,686	189	802	746	**683**	609	523	1,65	2,12
> 800	MMC0320801	MMT0320801	32 x 1 x 8	2,284	256	1023	951	**870**	777	667	1,72	2,25
	MMC0400601	MMT0400601	40 x 1 x 6	2,141	240	1018	947	**866**	773	663	1,72	2,25
	MMC0500501	MMT0500501	50 x 1 x 5	2,231	250	1098	1021	**934**	834	716	1,72	2,25
	MMC0630401	MMT0630401	63 x 1 x 4	2,248	252	1013	942	**861**	769	660	1,65	2,12
	MMC0800301	MMT0800301	80 x 1 x 3	2,141	240	977	909	**831**	742	637	1,65	2,12
> 1000	MMC0321001	MMT0321001	32 x 1 x 10	2,851	320	1233	1147	**1049**	936	804	1,72	2,25
	MMC0400801	MMT0400801	40 x 1 x 8	2,855	320	1233	1146	**1048**	936	803	1,72	2,25
	MMC0401001	MMT0401001	40 x 1 x 10	3,569	400	1397	1300	**1189**	1061	911	1,65	2,12
	MMC0500601	MMT0500601	50 x 1 x 6	2,677	300	1226	1140	**1043**	931	799	1,65	2,12
	MMC0500801	MMT0500801	50 x 1 x 8	3,569	400	1392	1295	**1184**	1057	907	1,65	2,12
	MMC0630501	MMT0630501	63 x 1 x 5	2,811	315	1223	1137	**1040**	928	797	1,65	2,12
	MMC0630601	MMT0630601	63 x 1 x 6	3,373	378	1442	1341	**1226**	1095	940	1,65	2,12
	MMC0800401	MMT0800401	80 x 1 x 4	2,851	320	1202	1118	**1022**	912	783	1,65	2,12
	MMC0800501	MMT0800501	80 x 1 x 5	3,569	400	1395	1298	**1187**	1059	909	1,65	2,12
	MMC1000401	MMT1000401	100 x 1 x 4	3,569	400	1449	1348	**1233**	1100	945	1,6	2,02
> 1250	MMC0501001	MMT0501001	50 x 1 x 10	4,461	500	1651	1535	**1404**	1253	1076	1,65	2,12
	MMC0630801	MMT0630801	63 x 1 x 8	4,497	504	1656	1540	**1409**	1257	1079	1,65	2,12
	MMC0800601	MMT0800601	80 x 1 x 6	4,283	480	1630	1516	**1387**	1238	1063	1,65	2,12
	MMC1000501	MMT1000501	100 x 1 x 5	4,461	500	1638	1523	**1393**	1243	1067	1,6	2,02
	MMC1000601	MMT1000601	100 x 1 x 6	5,353	600	1845	1715	**1569**	1400	1202	1,6	2,02
> 1600	MMC0631001	MMT0631001	63 x 1 x 10	5,621	630	1901	1768	**1617**	1443	1239	1,65	2,12
	MMC0800801	MMT0800801	80 x 1 x 8	5,71	640	1902	1769	**1618**	1444	1240	1,65	2,12
	MMC0801001	MMT0801001	80 x 1 x 10	7,138	800	2106	1958	**1791**	1599	1372	1,65	2,12
	MMC1000801	MMT1000801	100 x 1 x 8	7,138	800	2152	2001	**1830**	1634	1402	1,6	2,02
> 2000	MMC1001001	MMT1001001	100 x 1 x 10	8,922	1000	2353	2188	**2001**	1786	1533	1,6	2,02

Selection of Moflex

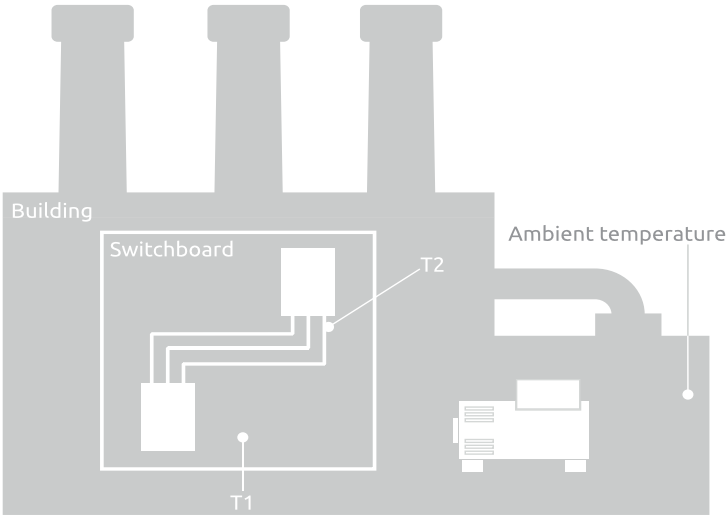
ΔT = temperature rise of the Moflex conductor (°C)
T1 = internal temperature of the switchboard (°C)
T2 = temperature of the Moflex conductor (°C)

For example In=1000A connection

Step 1: T1 = 35°C and T2 = 85°C
ΔT = T2-T1
ΔT = 85°C-35°C
ΔT = 50°C

Step 2: Please find from the page 55 table on the column ΔT = 50 the closest value of the 1000A.
MMC0321001 Moflex 32x1x10, 320 mm², 1049A
or
MMC0630501 Moflex 63x1x5, 315 mm², 1040A.

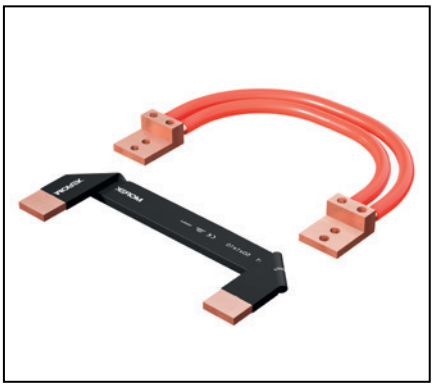
Step 3: Select the Moflex flexibar according to the equipment terminal width.



Moflex saves you time and money



Does not require additional connection parts and saves the time of installation

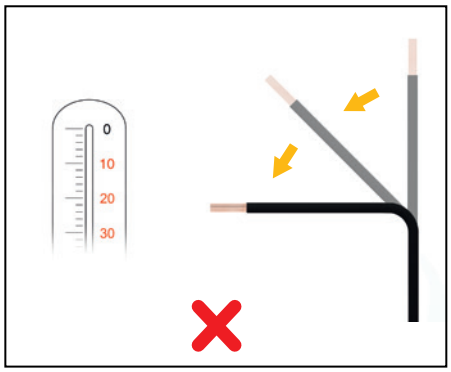


Makes direct connection without additional connectors, enables you to save space in the panel

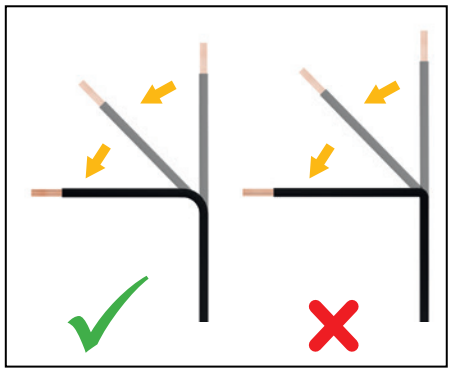


Gives additional flexibility comparing to standard rigid bar and it is easily adapted to unexpected project change

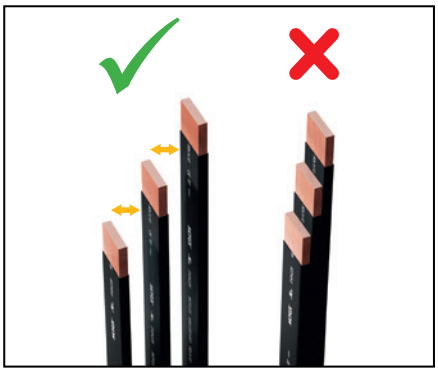
Assembly instructions



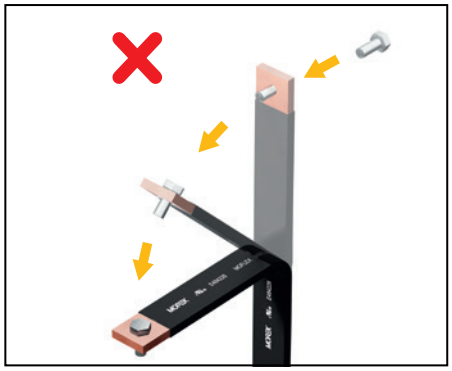
No bending at low temperatures (< 0°C or < 30F)
Elongation of the coating before breakage is reduced at low temperatures. Recommended is bending at room temperature.



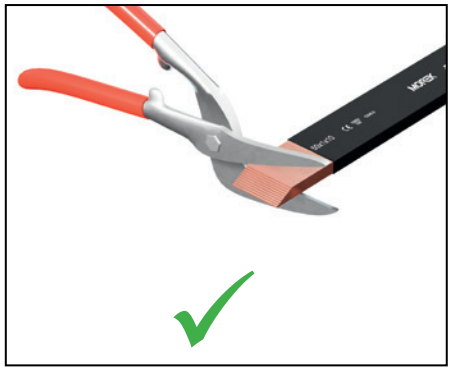
No sharp-edged bending
Recommend inner radius for bending:
busbar thickness 1 - 5 mm: radius 5 mm
busbar thickness 6 - 10 mm: radius = thickness



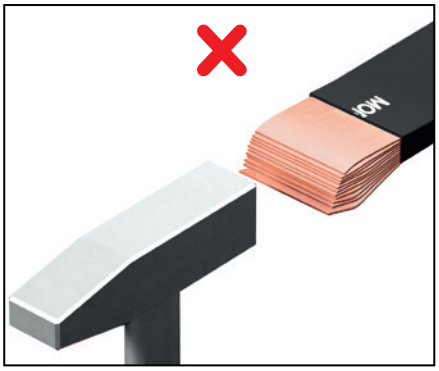
Parallel assembly has influence to heat radiation
Recommend distance between bars = min. 1 x bar width. Please pay attention to correction factors for parallel assembly!



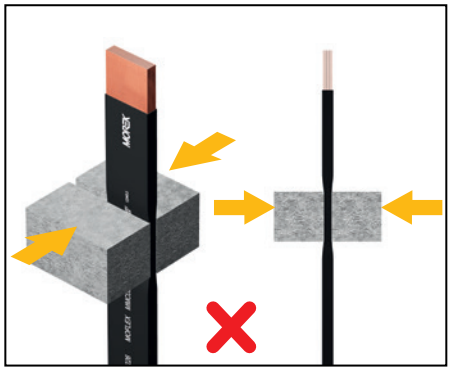
Copper files slide when bending to compensate the different length of inner and outer file
No fixation before bending! It hinders the slide and may lead to burst of PVC-coating.



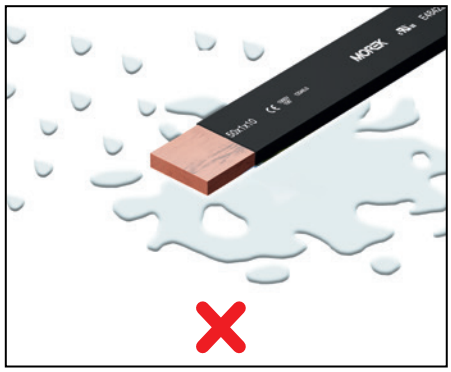
Bars must be cut if copper slides emerge after bending



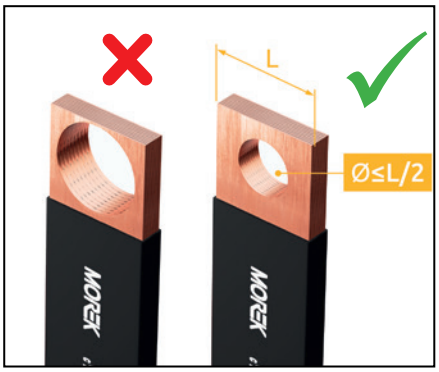
Heavy push back of copper files may cause deformation with resulting damage of PVC-coating



Please avoid crushing of the PVC coating
Damage of coating or reduced wall thickness endangers function of isolation.



Do not expose to dirt, water and humidity
Humidity may invade by the open ends of the busbars. This causes copper oxidation and endangers operating safety.



Do not drill holes exceeding half of the width of the bar

MOREK

Creating a better future for You



MOREK OY
Finland, Järvenpää

MOREK IT OÜ
Estonia, Saue

MOREK SIA
Latvia, Riga

MOREK UAB
Lithuania, Vilnius

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