

nVent ERIFLEX Flexbus System

800 mm² Conductor



Introduction



The nVent ERIFLEX Flexbus System is an Easy-to-Install Flexible Power Connection Solution. It's an innovative and patented connection method between two electrical equipment installations, such as transformers, switchboards, generators or large uninterruptible power supplies (UPS). Due to its unique concept, nVent ERIFLEX Flexbus is an alternative power connection solution for up to 50% quicker installation and 20% reduction in total installed cost at a minimum.

The new 800 mm² Flexbus conductor is compatible with all existing accessories suitable for the 960, 1280 and 1810 mm² Flexbus conductors:

- Flexbus supports / Bracing system
- Palm extenders for switchboard side
- IP55 conductors entry and IP66 upgrade kits
- Fire barrier system
- IP2X Cover / Boots
- HCBC Clamps and Plates

The new 800 mm² Flexbus conductor has similar dimensions compared with the 960 mm² conductor. The main difference is that the 800 mm² conductor has a thinner palm and is more flexible. Beyond that they have the same width and ready to use palm size. The main advantage of the 800 mm² conductor is that it's 16% lighter than the 960 mm² conductor and easier to install.

At an ambient temperature of 30°C, the 800 mm² conductor can be used for:

- 1000 kVA transformer (1400 A @ 410 V), that is currently using a 1x960 mm² Flexbus conductor which can carry 1761 A. This is 361 A above the transformer nominal current. By switching to the 1x800 mm² Flexbus conductor the nominal current capacity is reduced to 1533 A
- 2000 kVA transformer (2816 A @ 410 V), that is currently using a 2x960 mm² Flexbus conductor which can carry 3522 A. This is 706 A above the transformer nominal current. By switching to the 2x800 mm² Flexbus conductor the nominal current capacity is reduced to 3066 A


Switching from a 960 mm² Flexbus conductor to a 800 mm² Flexbus conductor offers an approximate 15% reduction in price.

The new 800 mm² Flexbus conductor offers a more economical option for the two transformer sizes when operating in an environment with an ambient temperature of 30°C.

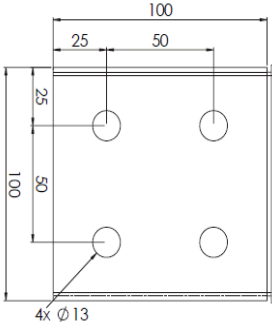


Conductors

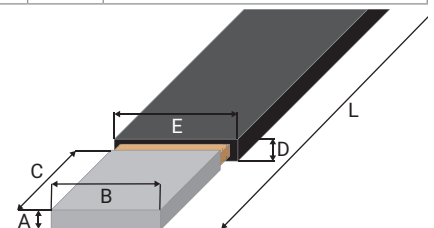
PART NUMBER, WEIGHT AND PACKING UNIT

	Part Number	Global Part Number	Description	Packing Unit pc	Weight kg
	508330	FLEXCOND800L2	FleXbus Conductor 800 mm ² , 2 Meters Long	1	7.44
	508331	FLEXCOND800L3	FleXbus Conductor 800 mm ² , 3 Meters Long	1	11.16
	508332	FLEXCOND800L4	FleXbus Conductor 800 mm ² , 4 Meters Long	1	14.88
	508333	FLEXCOND800L5	FleXbus Conductor 800 mm ² , 5 Meters Long	1	18.6
	508334	FLEXCOND800L6	FleXbus Conductor 800 mm ² , 6 Meters Long	1	22.32
	508335	FLEXCOND800L7	FleXbus Conductor 800 mm ² , 7 Meters Long	1	26.04
	508336	FLEXCOND800L8	FleXbus Conductor 800 mm ² , 8 Meters Long	1	29.76
	508337	FLEXCOND800L9	FleXbus Conductor 800 mm ² , 9 Meters Long	1	33.48
	508338	FLEXCOND800L10	FleXbus Conductor 800 mm ² , 10 Meters Long	1	37.2
	508339	FLEXCOND800L11	FleXbus Conductor 800 mm ² , 11 Meters Long	1	40.92
	508340	FLEXCOND800L12	FleXbus Conductor 800 mm ² , 12 Meters Long	1	44.64
	508341	FLEXCOND800L13	FleXbus Conductor 800 mm ² , 13 Meters Long	1	48.36
	508342	FLEXCOND800L14	FleXbus Conductor 800 mm ² , 14 Meters Long	1	52.08
	508343	FLEXCOND800L15	FleXbus Conductor 800 mm ² , 15 Meters Long	1	55.8
	508344	FLEXCOND800L16	FleXbus Conductor 800 mm ² , 16 Meters Long	1	59.52
	508345	FLEXCOND800L17	FleXbus Conductor 800 mm ² , 17 Meters Long	1	63.24
	508346	FLEXCOND800L18	FleXbus Conductor 800 mm ² , 18 Meters Long	1	66.96
	508347	FLEXCOND800L19	FleXbus Conductor 800 mm ² , 19 Meters Long	1	70.68
	508348	FLEXCOND800L20	FleXbus Conductor 800 mm ² , 20 Meters Long	1	74.4
	508349	FLEXCOND800L21	FleXbus Conductor 800 mm ² , 21 Meters Long	1	78.12
	508350	FLEXCOND800L22	FleXbus Conductor 800 mm ² , 22 Meters Long	1	81.84
	508351	FLEXCOND800L23	FleXbus Conductor 800 mm ² , 23 Meters Long	1	85.56
	508352	FLEXCOND800L24	FleXbus Conductor 800 mm ² , 24 Meters Long	1	89.28
	508353	FLEXCOND800L25	FleXbus Conductor 800 mm ² , 25 Meters Long	1	93

DIMENSIONS

Part Number	Global Part Number	Cross Section mm ²	L mm	A mm	B mm	C mm	D mm	E mm	Palm Dimension
508330	FLEXCOND800L2	800	2000	13	100	100	28	108	
508331	FLEXCOND800L3		3000						
508332	FLEXCOND800L4		4000						
508333	FLEXCOND800L5		5000						
508334	FLEXCOND800L6		6000						
508335	FLEXCOND800L7		7000						
508336	FLEXCOND800L8		8000						
508337	FLEXCOND800L9		9000						
508338	FLEXCOND800L10		10000						
508339	FLEXCOND800L11		11000						
508340	FLEXCOND800L12		12000						
508341	FLEXCOND800L13		13000						
508342	FLEXCOND800L14		14000						
508343	FLEXCOND800L15		15000						
508344	FLEXCOND800L16		16000						
508345	FLEXCOND800L17		17000						
508346	FLEXCOND800L18		18000						
508347	FLEXCOND800L19		19000						
508348	FLEXCOND800L20		20000						
508349	FLEXCOND800L21		21000						
508350	FLEXCOND800L22		22000						
508351	FLEXCOND800L23		23000						
508352	FLEXCOND800L24		24000						
508353	FLEXCOND800L25		25000						

Note: Same as the 960 mm², except value A (thickness of the palm/crimped tube).



Conductors

CURRENT / AMPACITY

Flexbus Conductor Type	Cross Section mm ²	Maximum Current Ratings**										Current Coefficient with 2 conductors per phase and with conductor arrangement respected*	Current Coefficient with 2 conductors per phase and with conductor arrangement not respected*	Current Coefficient with 3 conductors per phase and with conductor arrangement respected*	Current Coefficient with 3 conductors per phase and with conductor arrangement not respected*						
		ΔT 30 K (Coef & A)		ΔT 40 K (Coef & A)		ΔT 45 K (Coef & A)		ΔT 50 K (Coef & A)		ΔT 55 K (Coef & A)						ΔT 60 K (Coef & A)		ΔT 65 K (Coef & A)		ΔT 70 K (Coef & A)	
		60°C Ambient 90°C at Conductor	50°C Ambient 90°C at Conductor	45°C Ambient 90°C at Conductor	40°C Ambient 90°C at Conductor	35°C Ambient 90°C at Conductor	30°C Ambient 90°C at Conductor	25°C Ambient 90°C at Conductor	20°C Ambient 90°C at Conductor	60°C Ambient 90°C at Conductor	50°C Ambient 90°C at Conductor					45°C Ambient 90°C at Conductor	40°C Ambient 90°C at Conductor	35°C Ambient 90°C at Conductor	30°C Ambient 90°C at Conductor	25°C Ambient 90°C at Conductor	20°C Ambient 90°C at Conductor
FLEXCOND220	220	473 A	546 A	579 A	606 A	639 A	666 A	693 A	719 A	2	1.56	2.85	1.95								
FLEXCOND360	360	640 A	739 A	784 A	820 A	865 A	901 A	937 A	973 A	2	1.52	2.80	1.87								
FLEXCOND545	545	800 A	924 A	980 A	1026 A	1082 A	1127 A	1172 A	1217 A	2	1.51	2.77	1.81								
FLEXCOND640	640	875 A	1011 A	1073 A	1122 A	1184 A	1233 A	1282 A	1332 A	2	1.51	2.75	1.8								
FLEXCOND800	800	1088 A	1257 A	1333 A	1395 A	1471 A	1533 A	1594 A	1656 A	2	1.46	2.71	1.72								
FLEXCOND960	960	1250 A	1444 A	1532 A	1603 A	1691 A	1761 A	1831 A	1902 A	2	1.48	2.71	1.72								
FLEXCOND1280	1280	1409 A	1627 A	1726 A	1805 A	1905 A	1984 A	2063 A	2143 A	2	1.48	2.70	1.7								
FLEXCOND1810	1810	1673 A	1932 A	2050 A	2144 A	2262 A	2356 A	2450 A	2544 A	2	1.48	2.70	1.64								

* In DC current, there is no derating to be applied due to the skin effect. The total current in the phase is equal to the current in one conductor multiplied by the number of conductors.


** Correction factor for ambient air temperatures other than 30°C to be applied to the current-carrying capacities for cables in the air.

** For Conductors installed either directly in the soil or in ducts in the ground: 20°C.

** The current and derating factor applies to conductors positioned either Flat or on Edge.

For Applications according to the IEC 60364 (Low Voltage Installations)

RECOMMENDATION FOR TRANSFORMER CONNECTIONS

Transformer Power	Transformer LV Current In (A) at 410V at secondary*	Recommended Flexbus conductors per phase (Qty and Cross section)			
		30°C Ambient	40°C Ambient	50°C Ambient	
	400 kVA	560	1x220 mm ²	1x220 mm ²	1x360 mm ²
	500 kVA	704	1x360 mm ²	1x360 mm ²	1x360 mm ²
	630 kVA	900	1x360 mm ²	1x545 mm ²	1x545 mm ²
	800 kVA	1120	1x545 mm ²	1x640 mm ²	1x800 mm² or 2x360 mm²
	1000 kVA	1400	1x800 mm² or 2x360 mm²	1x960 mm ² or 2x360 mm ²	1x960 mm ² or 2x360 mm ²
	1250 kVA	1760	1x960 mm ² or 2x360 mm ²	1x1280 mm ² or 2x545 mm ²	1x1810 mm ² or 2x545 mm ²
	1600 kVA	2253	1x1810 mm ² or 2x545 mm ²	2x800 mm² or 3x360 mm²	2x800 mm² or 3x545 mm²
	2000 kVA	2816	2x800 mm² or 3x545 mm²	2x960 mm ² or 3x545 mm ²	2x960 mm ²
	2500 kVA	3520	2x960 mm ²	2x1280 mm² or 3x800 mm²	2x1810 mm ² or 3x960 mm ²
	3150 kVA	4435	2x1810 mm ² or 3x960 mm ²	3x1280 mm ²	*
	3600 kVA	5069	3x1280 mm ²	3x1810 mm ²	*
	4000 kVA	5632	3x1810 mm ²	3x1810 mm ²	*
	4500 kVA	6336	3x1810 mm ²	*	*

Note: The IEC standard for power transformers is IEC 60076.

Note: This table is valid for 30°C, 40°C and 50°C Ambient temperatures and 90°C at the conductor.

Note: This table is valid if the recommended conductors arrangement is respected with 2 or 3 conductors per phase.

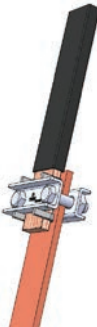
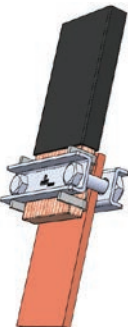
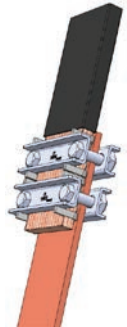
* Please contact your nVent ERIFLEX representative.

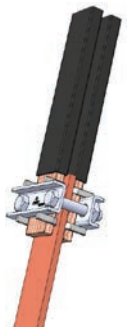
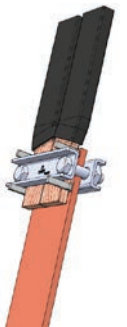
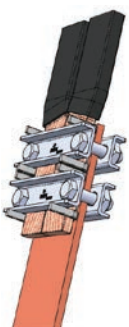
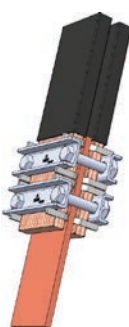
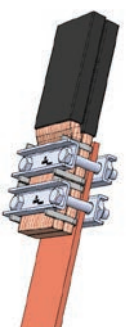
SKIN EFFECT AND FREQUENCY

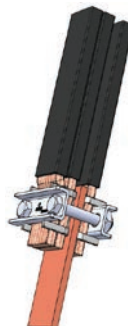
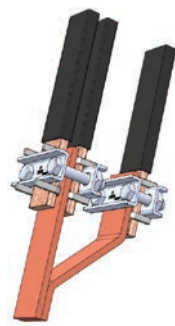
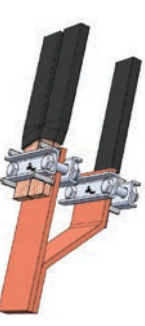
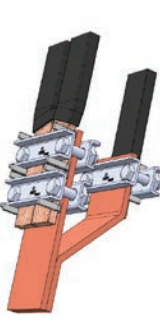
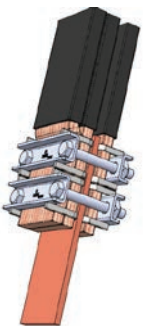
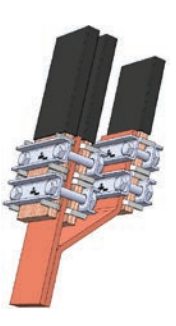
Flexbus conductor type	Cross Section (mm ²)	De-Rating Coefficient (K)									
		DC Current and up to 60 Hz	Frequency (Hz)								
			100 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	6000 Hz	8000 Hz	10 000 Hz	
FLEXCOND220	220	1.0	1.0	1.0	1.1	1.3	1.5	1.7	1.8	1.9	
FLEXCOND360	360	1.0	1.0	1.2	1.4	1.7	2.0	2.2	2.3	2.5	
FLEXCOND545	545	1.0	1.0	1.4	1.7	2.0	2.4	2.7	2.9	3.0	
FLEXCOND640	640	1.0	1.0	1.6	1.8	2.2	2.6	2.9	3.1	3.3	
FLEXCOND800	800	1.0	1.1	1.6	1.9	2.2	2.6	2.9	3.2	3.3	
FLEXCOND960	960	1.0	1.1	1.6	1.9	2.2	2.6	2.9	3.2	3.3	
FLEXCOND1280	1280	1.0	1.1	1.6	1.9	2.3	2.7	3.0	3.3	3.4	
FLEXCOND1810	1810	1.0	1.3	1.9	2.3	2.8	3.3	3.6	3.9	4.1	

Conductors

HCBC CLAMP AND PLATE - MOUNTING

1 Flexbus Conductor per phase		
Flexbus conductor 220, 360, 545 and 640 mm ²	Flexbus conductor 800, 960 and 1280 mm ²	Flexbus conductor 1810 mm ²
1 x HCBC Clamp	1 x HCBC Clamp ≥ 100	2 x HCBC Clamp ≥ 100
1 x HCBC Plate 50	1 x HCBC Plate 100	2 x HCBC Plate 100
		


2 Flexbus Conductors per phase				
Flexbus conductor 220, 360, 545 and 640 mm ²	Flexbus conductor 220 and 360 mm ²	Flexbus conductor 545 and 640 mm ²	Flexbus conductor 800, 960, 1280 and 1810 mm ²	Flexbus conductor 800 and 960 mm ²
2 x HCBC Clamp 63	1 x HCBC Clamp ≥ 100	2 x HCBC Clamp ≥ 100	2 x HCBC Clamp ≥ 100	2 x HCBC Clamp ≥ 100
2 x HCBC Plate 50	1 x HCBC Plate 100	2 x HCBC Plate 100	4 x HCBC Plate 100	2 x HCBC Plate 100
				

3 Flexbus Conductors per phase					
Flexbus conductor 220 and 360 mm ²	Flexbus conductor 220, 360, 545 and 640 mm ²	Flexbus conductor 220 and 360 mm ²	Flexbus conductor 545 and 640 mm ²	Flexbus conductor 800 and 960 mm ²	Flexbus conductor 800, 960, 1280 and 1810 mm ²
1 x HCBC Clamp 63	2 x HCBC Clamp 63	1 x HCBC Clamp ≥ 100 1 x HCBC Clamp ≥ 63	2 x HCBC Clamp ≥ 100 1 x HCBC Clamp ≥ 63	2 x HCBC Clamp ≥ 100	4 x HCBC Clamp ≥ 100
2 x HCBC Plate 50	3 x HCBC Plate 50	1 x HCBC Plate 100 1 x HCBC Plate 50	2 x HCBC Plate 100 1 x HCBC Plate 50	4 x HCBC Plate 100	6 x HCBC Plate 100
					

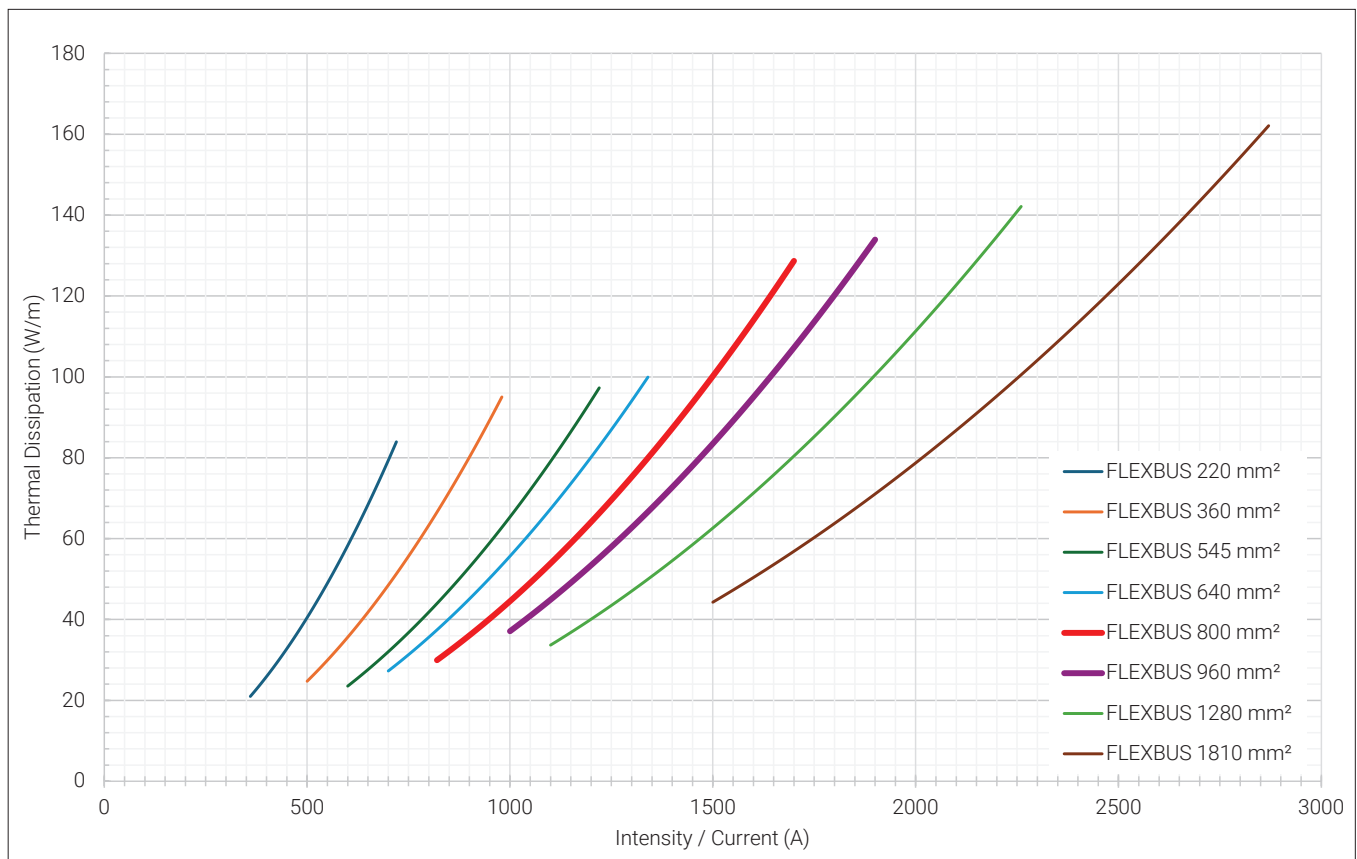
Transformer palms or rigid bars cross section to be determined in function of the current to carry and ambient temperature.

Conductors

THERMAL DISSIPATION

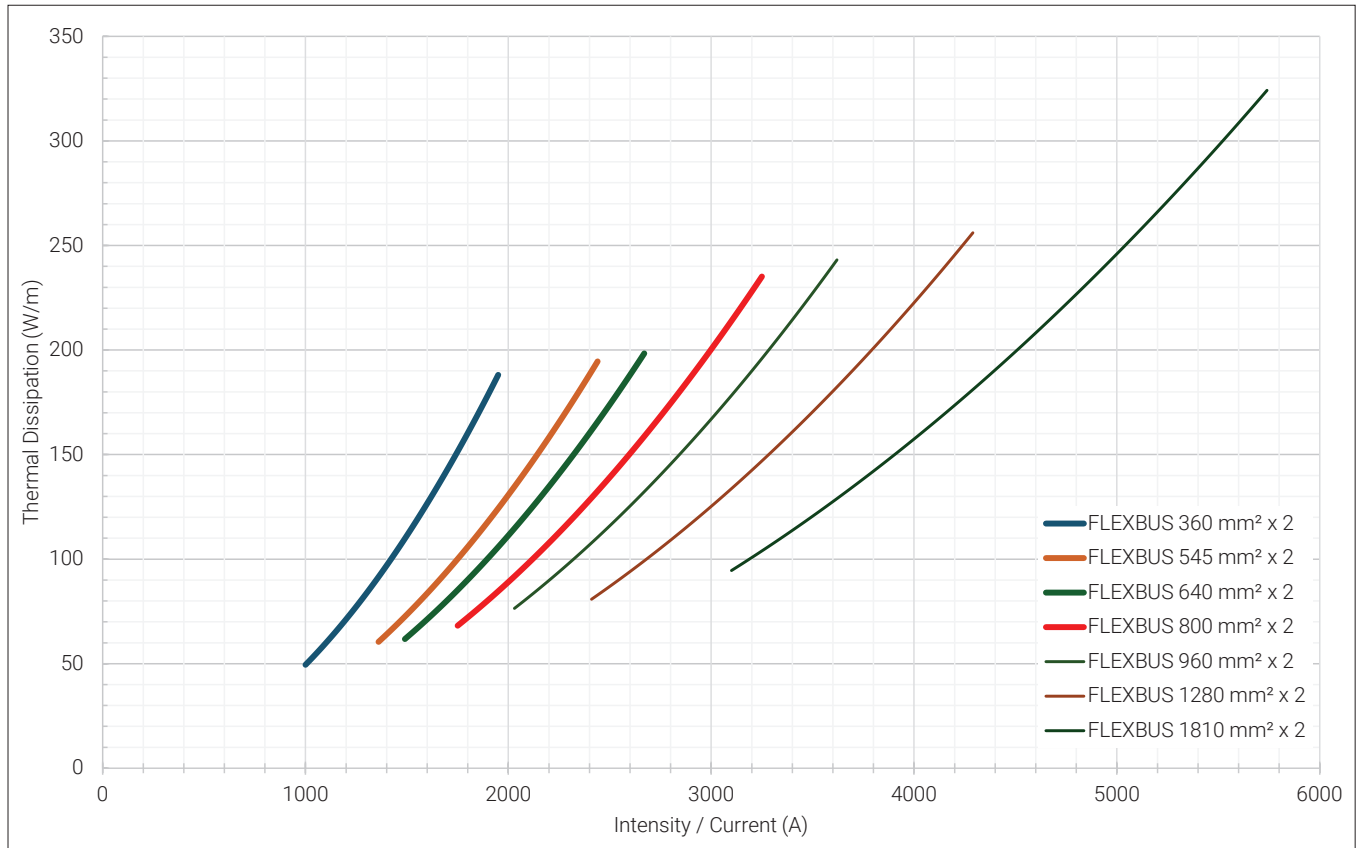
Transformer Power	Transformer LV Current In (A) at 410V at secondary	Typical Downstream Circuit Breaker Current rating (A)	Flexbus conductor / phase	Thermal dissipation at Typical Downstream Circuit Breaker Current Rating (W/phase) @ 90°C											
				Flexbus Conductor Length (m)											
				2	3	4	5	6	7	8	9	10	15	25	
	400 kVA	560	500	1x220 mm ² █	81	121	162	202	243	283	324	364	405	607	1012
	500 kVA	704	630	1x360 mm ² █	79	118	157	196	236	275	314	353	393	589	982
	630 kVA	900	800	1x545 mm ² █	84	125	167	209	251	293	335	376	418	627	1046
	800 kVA	1120	1000	1x640 mm ² █	111	167	223	278	334	390	445	501	557	835	1391
	1000 kVA	1400	1250	1x800 mm² █	139	209	278	348	417	487	557	626	696	1044	1739
	1000 kVA	1400	1250	1x960 mm ² █	116	174	232	290	348	406	464	522	580	870	1449
	1250 kVA	1760	1600	1x1280 mm ² █	142	214	285	356	427	499	570	641	712	1069	
	1600 kVA	2253	2000	1x1810 mm ² █	157	236	315	394	472	551	630	708	787	1181	
	2000 kVA	2816	2500	2x800 mm² █	278	417	557	696	835	974	1113	1252	1391	2087	3478
	2000 kVA	2816	2500	2x960 mm ² █	232	348	464	580	696	812	928	1044	1159	1739	2899
	2500 kVA	3520	3000	2x1280 mm ² █	250	376	501	626	751	877	1002	1127	1252	1878	
	3150 kVA	4435	4000	2x1810 mm ² █	315	472	630	787	945	1102	1259	1417	1574	2361	
	2500 kVA	3520	3000	3x800 mm² █	267	401	534	668	801	935	1069	1202	1336	2004	3339
	3150 kVA	4435	4000	3x960 mm ² █	396	594	792	989	1187	1385	1583	1781	1979	2968	4947
	3600 kVA	5069	5000	3x1280 mm ² █	464	696	928	1159	1391	1623	1855	2087	2319	3478	
	4500 kVA	6336	6300	3x1810 mm ² █	521	781	1041	1302	1562	1822	2083	2343	2603	3905	

One Flexbus Conductor Per Phase Thermal Dissipation (W/m)

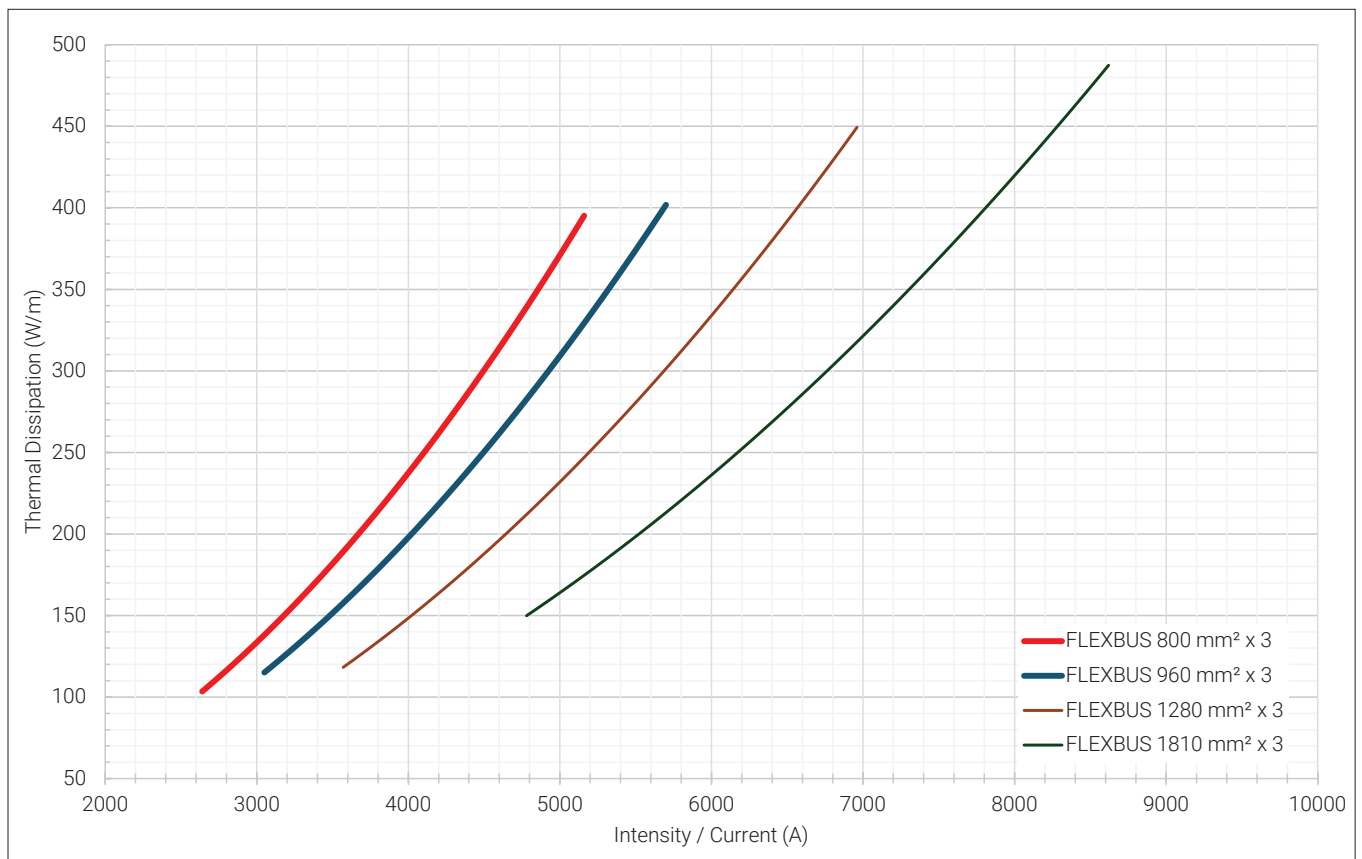


Conductors

Two FleXbus Conductors Per Phase Thermal Dissipation (W/m)



Three FleXbus Conductors Per Phase Thermal Dissipation (W/m)




Conductors

SHORT-CIRCUIT – INSULATION THERMAL RESISTANCE

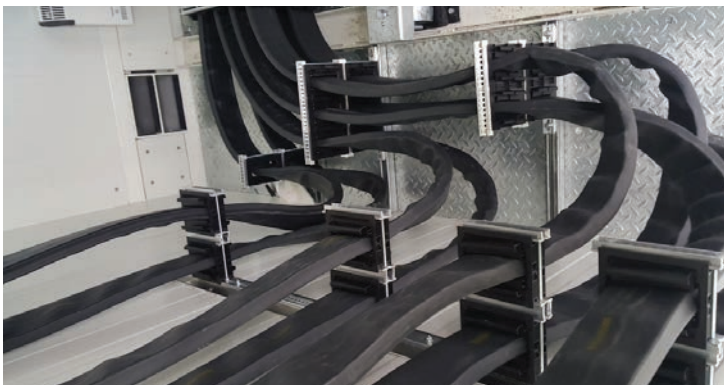
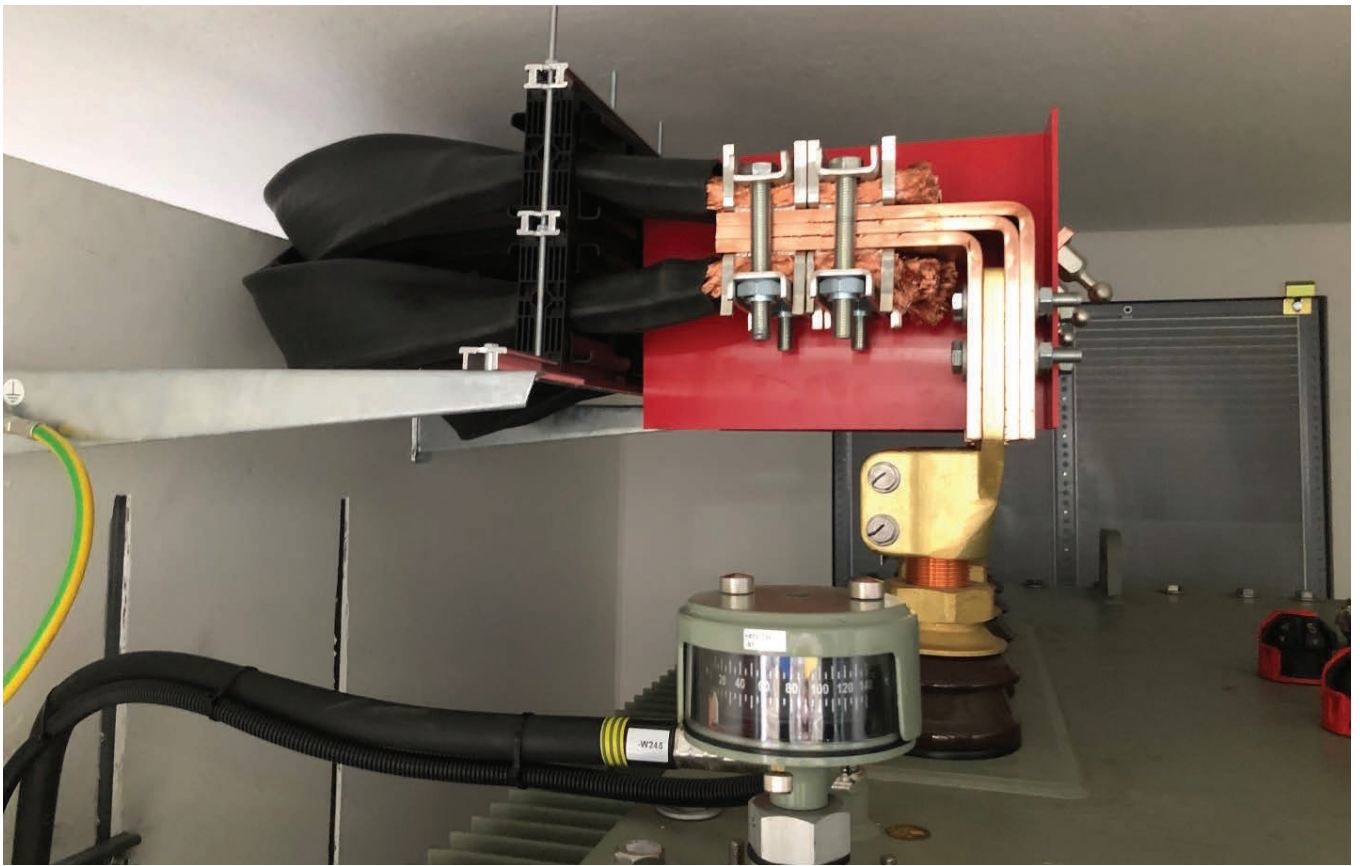
Flexbus conductor type	Cross Section mm ²		Thermal short-circuit strength (I _{cw})			
			kA (0,2 second)	kA (0,5 second)	kA (0,8 second)	kA (1 second)
FLEXCOND220	1x220 mm ²	□	32.5	20.5	16.2	14.5
FLEXCOND360	1x360 mm ²	□	45.9	29.0	22.9	20.5
FLEXCOND545	1x545 mm ²	□	69.5	43.9	34.7	31.1
FLEXCOND640	1x640 mm ²	□	81.6	51.6	40.8	36.5
FLEXCOND800	1x800 mm²	□	102.0	64.5	51.0	45.6
FLEXCOND960	1x960 mm ²	□	122.4	77.4	61.2	54.7
FLEXCOND1280	1x1280 mm ²	□	163.1	103.2	81.6	73.0
FLEXCOND1810	1x1810 mm ²	□	230.7	145.9	115.3	103.2
FLEXCOND220 x2	2x220 mm ²	□□	56.1	35.5	28.0	25.1
FLEXCOND360 x2	2x360 mm ²	□□	91.8	58.0	45.9	41.0
FLEXCOND545 x2	2x545 mm ²	□□	138.9	87.9	69.5	62.1
FLEXCOND640 x2	2x640 mm ²	□□	163.1	103.2	81.6	73.0
FLEXCOND800 x2	2x800 mm²	□□	203.9	129.0	102.0	91.2
FLEXCOND960 x2	2x960 mm ²	□□	244.7	154.8	122.4	109.4
FLEXCOND1280 x2	2x1280 mm ²	□□	326.3	206.4	163.1	145.9
FLEXCOND1810 x2	2x1810 mm ²	□□	461.4	291.8	230.7	206.3
FLEXCOND800 x3	3x800 mm²	□□□	305.9	193.5	152.9	136.8
FLEXCOND960 x3	3x960 mm ²	□□□	367.1	232.2	183.5	164.2
FLEXCOND1280 x3	3x1280 mm ²	□□□	489.4	309.5	244.7	218.9
FLEXCOND1810 x3	3x1810 mm ²	□□□	692.1	437.7	346.0	309.5

SHORT-CIRCUIT FIXING AND SECURING

Oil Transformer Power	Typical I _{cc} Short circuit (kA rms)	Typical I _{cc} Short circuit (kA peak)	Recommended Flexbus conductors per phase @30°C Ambient and 90°C at the conductor	Max Distance Between Supports (mm)				
				1 conductor per phase	2 conductors per phase / Symmetrical Laying	2 conductors per phase / Non-Symmetrical Laying	3 conductors per phase / Symmetrical Laying	
	400 kVA	13.8	27.6	1x220 mm ²	1000			
	500 kVA	17.2	34.4	1x360 mm ²	1000			
	630 kVA	21.5	45.2	1x360 mm ²	1000			
	800 kVA	18.3	36.6	1x545 mm ²	1000			
	1000 kVA	22.7	47.7	1x800 mm²	1000			
				2x360 mm ²		1000	1000	
	1250 kVA	28.2	59.2	1x960 mm ²	850			
				2x360 mm ²		1000	1000	
	1600 kVA	35.7	75	1x1810 mm ²	530			
				2x545 mm ²		1000	1000	
	2000 kVA	44	92.4	2x800 mm²		1000	940	
				3x545 mm ²				1000
	2500 kVA	54.2	119.2	2x960 mm ²		1000	560	
				2x1810 mm ²		680	370	
3150 kVA	66.9	147.2	3x960 mm ²				1000	
			3x1280 mm ²				970	
4000 kVA	82	180	3x1810 mm ²				830	
4500 kVA	95	209	3x1810 mm ²				620	

Note: I_{cc} values are given for 500 MVA upstream network and for oil transformers. For other applications, please check with device manufacturer.

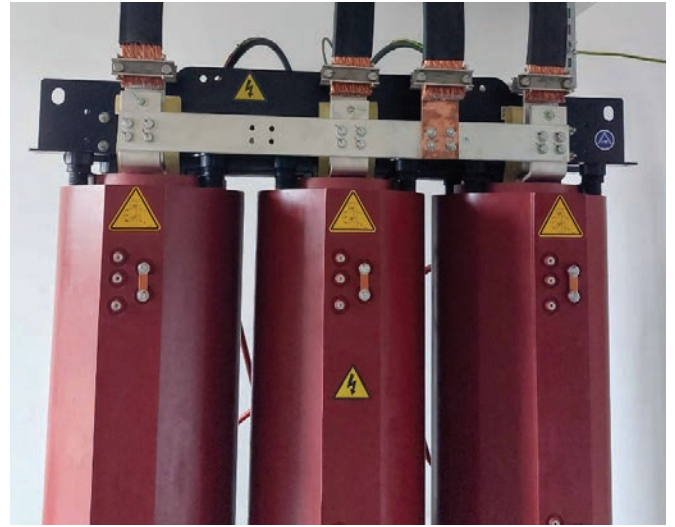
Application Pictures



Application Pictures



Application Pictures



More Technical Information

All other technical data is consistent across the entire Flexbus conductor range.
Please download our comprehensive nVent ERIFLEX Flexbus Catalogue and Technical Guide:

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