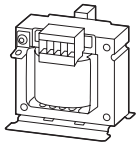


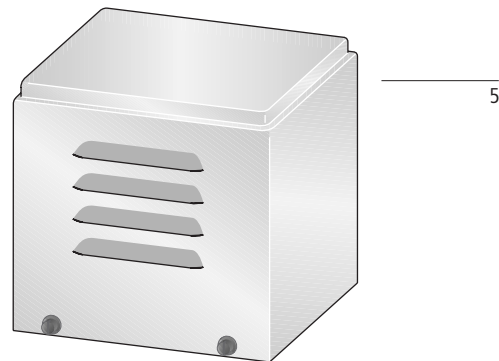
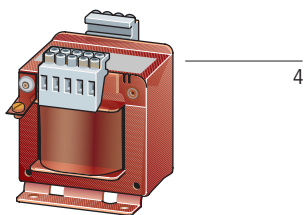
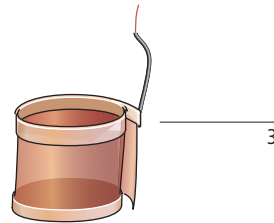
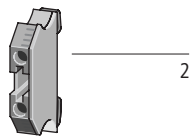
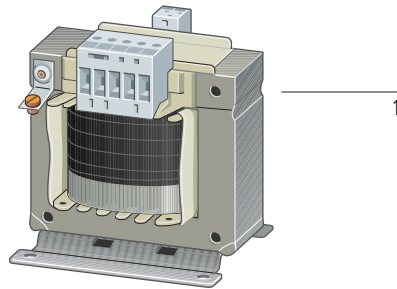
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**Transformers**



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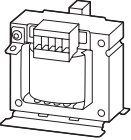




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Transformers standard types	Transformer features
<b>Control transformers, Safety transformers, Isolating transformers</b> 1 STI and STZ single-phase transformers Primary tapplings ± 5 % Built and tested to VDE 0550 Part 1, VDE 0550 Part 3, IEC/EN 61558, UL 506, CSA 22.2 No. 66	<b>Springloaded terminals</b> 1 Accessories for STZ single-phase transformers STN control transformers → 13/11
→ 13/6	<b>Additional tapplings</b> 2 Primary, secondary Also available as a version with split windings → 13/10
<b>STN control transformers</b> Built and tested to VDE 0550 Part 1, VDE 0550 Part 3	<b>Additional windings</b> Primary, secondary → 13/11
→ 13/4	<b>Screen winding</b> 3
	<b>Special version with enhanced climatic proofing</b> 4
	<b>Sheet-steel enclosure, IP23 degree of protection</b> 5 Enclosure for enhanced degree of protection
	Selection of features → ordering details of the respective transformers



VA rating	Short-time rating	Standard voltage 400/230 V		Standard voltage 400/24 V		Standard voltage 230/24 V		Std. pack	Cu factor
		Type Article no.	Price See Price List	Type Article no.	Price See Price List	Type Article no.	Price See Price List		
kVA	kVA								
<b>STN single-phase control transformers</b> to IEC/EN 6155822 VDE 0570 Part 2-2 UL 506, CSA 22.2 No. 66									
									
0.06	0.095	STN0,06(400/230) 204936		STN0,06(400/24) 204937		STN0,06(230/24) 204935		1 off	0.20
0.1	0.16	STN0,1(400/230) 204942		STN0,1(400/24) 204943		STN0,1(230/24) 204941			0.32
0.16	0.32	STN0,16(400/230) 204948		STN0,16(400/24) 204949		STN0,16(230/24) 204947			0.38
0.2	0.38	STN0,2(400/230) 204977		STN0,2(400/24) 204978		STN0,2(230/24) 204976			0.45
0.25	0.44	STN0,25(400/230) 204980		STN0,25(400/24) 221509		STN0,25(230/24) 221508			0.60
0.315	0.6	STN0,315(400/230) 204982		STN0,315(400/24) 221511		STN0,315(230/24) 221510			0.80
0.4	0.62	STN0,4(400/230) 204984		STN0,4(400/24) 221514		STN0,4(230/24) 221513			1.00
0.5	0.88	STN0,5(400/230) 204986		STN0,5(400/24) 221516		STN0,5(230/24) 221515			1.10
0.63	1.51	STN0,63(400/230) 204988		STN0,63(400/24) 221518		STN0,63(230/24) 221517			1.20
0.8	2.25	STN0,8(400/230) 204990		STN0,8(400/24) 221520		STN0,8(230/24) 221519			1.80
1	3.28	STN1,0(400/230) 204992		STN1,0(400/24) 221522		STN1,0(230/24) 221521			1.90

**Notes**

**Ordering example**

The article number is a combination of the type and the standard voltages:

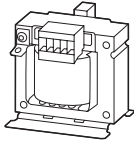
- Desired type: STN0,1
- Desired standard voltage: 400/230 V

→ Article number: 204942

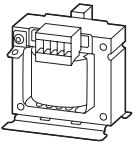


STN single-phase control transformers

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VA rating kVA	Short-time rating kVA	Rated input voltage V	Rated output voltage V	Type Article no.	Price See Price List	Std. pack	Cu factor	Notes
<b>STN single-phase control transformers</b>								
to IEC/EN 6155822 VDE 0570 Part 2-2 UL 506, CSA 22.2 No. 66								
								
0.06	0.095	100–690 ± 5 %	12 – 250	<b>STN0,06(*/*)</b> 204938		1 off	0.20	<ul style="list-style-type: none"> <li>The STN transformers are suitable for use in control circuits to VDE 0113 or IEC/EN 60204.</li> <li>UL/CSA only up to primary and secondary 600 V (incl. tappings).</li> <li>When ordering, the type reference must include the following details: <b>STN0,1(*/*)</b> 1st asterisk <math>\triangle</math> nominal input voltage 2nd asterisk <math>\triangle</math> nominal output voltage</li> </ul>
0.1	0.16			<b>STN0,1(*/*)</b> 204939	0.32			
0.16	0.32			<b>STN0,16(*/*)</b> 204944	0.38			
0.2	0.38			<b>STN0,2(*/*)</b> 204950	0.45			
0.25	0.44			<b>STN0,25(*/*)</b> 204979	0.60			
0.315	0.6			<b>STN0,315(*/*)</b> 204981	0.80			
0.4	0.62			<b>STN0,4(*/*)</b> 204983	1.00			
0.5	0.88			<b>STN0,5(*/*)</b> 204985	1.10			
0.63	1.51			<b>STN0,63(*/*)</b> 204987	1.20			
0.8	2.25			<b>STN0,8(*/*)</b> 204989	1.80			
1	3.28			<b>STN1,0(*/*)</b> 204991	1.90			
<p><b>Ordering example</b></p> <ul style="list-style-type: none"> <li>Desired type STN0,1</li> <li>Desired rated input voltage 200 V</li> <li>Desired rated output voltage 18.5 V</li> </ul> <p>The correct type reference is <b>STN0,1(200/18,5)</b></p> <p>Transformer-protective circuit-breaker → 8/10 Springloaded terminals → 13/11</p>								



VA rating	Short-time rating	Standard voltage	Standard voltage	Standard voltage	Standard voltage	Price	Std. pack	Cu factor
		400/230 V	400/24 V	230/230 V	230/24 V			
kVA	kVA	Type Article no.	Type Article no.	Type Article no.	Type Article no.	See Price List		
<b>STI Single-phase control transformers with standard voltages</b>								
to VDE 0550, VDE 0550 Part 1 IEC/EN 61558-2-2, VDE 0570 Part 2-2, VDE 0570 Part 2-6 (safety transformer), VDE 0570 Part 2-4 (isolating transformer), UL 506, CSA 22.2 No. 66, ÖVE								
								
0.06	0.13	STI0,06(400/230) 029975	STI0,06(400/24) 029971	STI0,06(230/230) 029968	STI0,06(230/24) 029977		1 off	0.50
0.1	0.24	STI0,1(400/230) 046630	STI0,1(400/24) 046631	STI0,1(230/230) 029976	STI0,1(230/24) 046629			0.60
0.16	0.36	STI0,16(400/230) 046633	STI0,16(400/24) 046634	STI0,16(230/230) 035247	STI0,16(230/24) 046632			0.60
0.2	0.44	STI0,2(400/230) 046636	STI0,2(400/24) 046637	STI0,2(230/230) 035248	STI0,2(230/24) 046635			1.00
0.25	0.6	STI0,25(400/230) 046638	STI0,25(400/24) 035249	STI0,25(230/230) 036400	STI0,25(230/24) 035262			1.00
0.315	0.75	STI0,315(400/230) 046639	STI0,315(400/24) 035250	STI0,315(230/230) 040641	STI0,315(230/24) 036392			1.30
0.4	1.1	STI0,4(400/230) 046640	STI0,4(400/24) 035251	STI0,4(230/230) 040642	STI0,4(230/24) 036393			1.30
0.5	1.6	STI0,5(400/230) 046641	STI0,5(400/24) 035252	STI0,5(230/230) 040643	STI0,5(230/24) 036394			1.50
0.63	1.7	STI0,63(400/230) 046883	STI0,63(400/24) 035253	STI0,63(230/230) 040644	STI0,63(230/24) 036395			2.00
0.8	2	STI0,8(400/230) 046889	STI0,8(400/24) 035254	STI0,8(230/230) 026641	STI0,8(230/24) 036396			2.30
1	2.8	STI1,0(400/230) 046895	STI1,0(400/24) 035255	STI1,0(230/230) 026642	STI1,0(230/24) 036397			3.00

## Notes

## Ordering example

The article number is a combination of the type and the standard voltages:

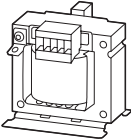
- Desired type: STI0,63
- Desired standard voltage: 400/24 V

→ Article number: 035253



STI single-phase control transformers

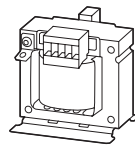
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VA rating kVA	Short-time rating kVA	Rated input voltage V	Rated output voltage V	Type Article no.	Price See Price List	Std. pack	Cu factor	Notes
<b>STI single-phase transformers</b>								
to VDE 0550, VDE 0550 Part 1 IEC/EN 61558-2-2, VDE 0570 Part 2-2, VDE 0570 Part 2-6 (safety transformer), VDE 0570 Part 2-4 (isolating transformer), UL 506, CSA 22.2 No. 66, ÖVE								
								
0.06	0.13	230 ± 5 % 400 ± 5 %	12 24	<b>STI0,06(*/*)</b> 908162		1 off	0.50	<ul style="list-style-type: none"> <li>Transformers with the rated output voltages 12 V to 42 V can be used as safety transformers to IEC/EN 61558.</li> <li>UL/CSA only up to primary of 600 V.</li> </ul> <p>When ordering, the type reference must include the following details:</p> <p><b>STI0,06(*/*)</b> 1st asterisk <math>\triangle</math> nominal input voltage 2nd asterisk <math>\triangle</math> nominal output voltage</p> <p><b>Ordering example</b></p> <ul style="list-style-type: none"> <li>Desired type: STI0,06</li> <li>Desired rated input voltage 230 V</li> <li>Desired rated output voltage 12 V</li> </ul> <p>The correct type reference is <b>STI0,06(230/12)</b></p> <p>Motor-protective circuit-breaker selection → engineering notes</p>
0.1	0.24	415 ± 5 % 440 ± 5 %	42 110	<b>STI0,1(*/*)</b> 954516			0.60	
0.16	0.36	500 ± 5 % 690 ± 5 %	230	<b>STI0,16(*/*)</b> 954517			0.60	
0.2	0.44			<b>STI0,2(*/*)</b> 954518			1.00	
0.25	0.6			<b>STI0,25(*/*)</b> 954519			1.00	
0.315	0.75			<b>STI0,315(*/*)</b> 954520			1.30	
0.4	1.1			<b>STI0,4(*/*)</b> 954521			1.30	
0.5	1.6			<b>STI0,5(*/*)</b> 954522			1.50	
0.63	1.7			<b>STI0,63(*/*)</b> 954523			2.00	
0.8	2			<b>STI0,8(*/*)</b> 954524			2.30	
1	2.8			<b>STI1,0(*/*)</b> 954525			3.00	

Transformers



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Rated power	Short-time rating	Rated input voltage	Rated output voltage	Price <sup>1)</sup> for current up to	Cu factor	Type Article no.	Price <sup>1)</sup> See Price List		
kVA	kVA	V	V	A					
<b>Single-phase control transformers, safety transformers, STZ isolating transformers</b>									
to VDE 0550, VDE 0550 Part 1, IEC/EN 61558-2-2, VDE 0570 Part 2-2, VDE 0570 Part 2-6 (safety transformer), VDE 0570 Part 2-4 (isolating transformers), UL 506, CSA 22.2 No. 66 (approval without enclosure only), ÖVE									
	0.06	0.13	50 – 950 ± 5 %	12 – 1000	16	0.50	STZ0,06(*/*) 914761		
	0.1	0.24					0.60	STZ0,1(*/*) 914762	
	0.16	0.36					0.60	STZ0,16(*/*) 914763	
	0.2	0.44					1.00	STZ0,2(*/*) 914764	
	0.25	0.6					1.00	STZ0,25(*/*) 914765	
	0.315	0.75					1.30	STZ0,315(*/*) 914766	
	0.4	1.1					1.30	STZ0,4(*/*) 914767	
	0.5	1.6					1.50	STZ0,5(*/*) 914768	
	0.63	1.7					25	2.00	STZ0,63(*/*) 914769
	0.8	2					2.30	STZ0,8(*/*) 914770	
	1	2.8	3.00	STZ1,0(*/*) 914771					

Notes  
<sup>1)</sup> → extra charge for higher current  
<sup>2)</sup> Enclosure can be used with primary or secondary voltages >110 V, for lower voltages, please enquire.

	Basic price of the transformer for current up to A	Type suffix Article no. When ordering with basic unit	Extra charge See Price List	Std. pack
<b>Extra charge for higher currents</b>				
Larger terminal version for STZ transformers				
Enhanced current rating up to 25 A	16	+STR16/25 205383		1 off
Enhanced current rating up to 63 A	16	+STR16/63 205384		
	25	+STR25/63 205391		

Notes  
 When selecting a transformer, the input voltage, output voltage and the desired rating must be taken into consideration. The **basic price** of the selected transformer always refers to a particular current (see ordering details, column headed "Price for currents up to"). If, due to the selected rating and voltage, the actual current exceeds the current on which the basic price is based, you must calculate an additional cost.

**Ordering examples**

- Selected transformer STZ1,0(400/230), max. current: 25 A; 1000 kVA:  
230 V ( $\cdot\sqrt{3}$ ) = 17.4 A < 25 A no extra charge, as the current is in the admissible range
- Selected transformer STZ1,0(400/110), max. current: 25 A; 1000 kVA:  
110 V ( $\cdot\sqrt{3}$ ) = 36.4 A < 25 A enhanced version required
- Select in table: enhanced version up to 63 A: type suffix + STR25/63, extra charge

(\* ) For three-phase current

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IP23 enclosure <sup>2)</sup>		Screen winding		Enhanced climatic proofing		Std. pack	Notes
Type suffix Article no.	Extra charge See Price List	Type suffix Article no.	Extra charge See Price List	Type suffix Article no.	Extra charge See Price List		
+IP23/01 200618		+W1,8 082270		+TA0,2 069769		1 off	<ul style="list-style-type: none"> <li>Transformers with the rated output voltages <math>\leq 50</math> V can be used as safety transformers to IEC/EN 61558.</li> <li>For the version with enhanced climatic proofing the transformer features a special insulating varnish.</li> <li>UL/CSA only up to primary and secondary 600 V (incl. tapping).</li> </ul> When ordering, the type reference must include the following details: <b>STZ0,06(*/*)</b> 1st asterisk $\Delta$ nominal input voltage 2nd asterisk $\Delta$ nominal output voltage <b>Ordering example</b> • Desired type STZ0,06 • Desired rated input voltage 230 V • Desired rated output voltage 12 V The correct type reference is <b>STZ0,06(230/12)</b> Additional tapping → 13/10 Springloaded terminals → 13/11
+IP23/02 200623				+TA1,4 070082			
+IP23/03 200624							

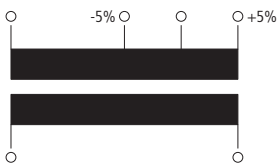
Primary current $I_N$	For use with	Type Article no. for individual order	Type suffix Article no. when ordering with the basic unit	Price See Price List	Std. pack	Notes
A						
<b>Inrush current limiters</b>						
For single-phase transformers						
1	STI STZ ET	<b>EEB1</b> 226102	<b>+EEB1</b> 226101		1 off	Primary current: from the transformer rating plate or by calculation  Single-phase: $I_N = S_N / (U_{Nprim} \times \eta)$  Three-phase: $I_N = S_N / (\sqrt{3} U_{Nprim} \times \eta)$  $S_N$ = rating of the transformer $U_{Nprim}$ = primary rating of the transformer $\eta$ = efficiency (from the technical data table)
2		<b>EEB2</b> 226104	<b>+EEB2</b> 226103			
3		<b>EEB3</b> 226106	<b>+EEB3</b> 226105			
5		<b>EEB5</b> 226108	<b>+EEB5</b> 226107			
7		<b>EEB7</b> 226110	<b>+EEB7</b> 226109			
10		<b>EEB10</b> 226112	<b>+EEB10</b> 226111			
15		<b>EEB15</b> 226114	<b>+EEB15</b> 226113			
18		<b>EEB18</b> 226116	<b>+EEB18</b> 226115			
20		<b>EEB20</b> 226118	<b>+EEB20</b> 226117			
30		<b>EEB30</b> 226120	<b>+EEB30</b> 226119			

Current range	For use with	Primary Type suffix Article no. when ordering with the basic unit	Secondary Type suffix Article no. when ordering with the basic unit	Price See Price List	Std. pack	Notes
A						
<b>Additional tappings</b>						
For single-phase transformers						
< 16	STZ ET	<b>+ZA16P(*)</b> 931897	<b>+ZA16S(*)</b> 931895		1 off	Selection of the appropriate tapping for single-phase transformers. <b>Ordering example:</b> <ul style="list-style-type: none"> <li>Selected transformer STZ0.25(400/24)</li> <li>Desired voltage of additional tapping 22 V</li> <li>Calculate the current for selection of the tapping as follows:</li> </ul> $I = S/U$ I = current S = apparent power U = voltage of the tapping  $I = 250/22 = 11.4 \text{ A} \rightarrow +ZA16$ The correct type for the secondary tapping is: <b>+ZA16S(22)</b> Proceed in the same way to determine an additional primary tapping.  For deviations of the rated input voltage or rated output voltage of more than $\pm 10\%$ : <ul style="list-style-type: none"> <li>Query the size of the transformer.</li> <li>Specify also the distribution of the power to the tapping.</li> </ul>
16 – 25		<b>+ZA25P(*)</b> 931894	<b>+ZA25S(*)</b> 931893			
25 – 63		<b>+ZA63P(*)</b> 931892	<b>+ZA63S(*)</b> 931891			
63 – 100		<b>+ZA100P(*)</b> 931896	<b>+ZA100S(*)</b> 931890			



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Current range	For use with	Primary Type suffix Article no. when ordering with the basic unit	Secondary Type suffix Article no. when ordering with the basic unit	Price See Price List	Std. pack	Notes
A						
<b>Additional windings</b>						
For single-phase transformers						
< 16	STZ ET	1)	+ZW16S(*V*VA) 279276		1 off	<b>Ordering example:</b> Transformer STZ...(400 V/200 V) with 1000 VA and a secondary additional tapping for 100 V and 200 VA. A required rating of 1200 VA results. The type selected is: <b>STZ1,3(400/200)</b>  The current is calculated as follows for the pricing of the additional winding:  $I = S/U$  I = current S = apparent power of the additional winding U = voltage of the additional winding  $I = 200/100 = 2 \text{ A} \rightarrow +\text{ZW16}$  The correct type for the secondary winding is: <b>+ZW16S(100V200VA)</b> A maximum of 5 additional windings can be ordered for the primary and/or secondary side. 1) On request
16 – 25			+ZW25S(*V*VA) 279277			
25 – 63			+ZW63S(*V*VA) 279278			
63 – 100			+ZW100S(*V*VA) 279279			
100 – 200			+ZW200S(*V*VA) 279290			
200 – 320			+ZW320S(*V*VA) 279291			
320 – 400			+ZW400S(*V*VA) 279292			
400 – 630			+ZW630S(*V*VA) 279293			

For use with	Type suffix Article no. when ordering with the basic unit	Price See Price List	Std. pack	Notes
<b>Springloaded terminals</b>				
For primary currents up to 20 A or 4 mm <sup>2</sup>				
STZ, STN, ET	+C4 232205		1 off	Springloaded terminals are possible on the primary and secondary side. STNs with springloaded terminals are not available ex-stock.  <b>Ordering example</b> STN0,5(400/230)  Determination of the current: $I_{\text{prim}} = S_N / U_{\text{prim}} \times \eta$ $I_{\text{sec}} = S_N / U_{\text{sec}}$  S <sub>N</sub> = rating of the transformer U <sub>prim</sub> = primary voltage U <sub>sec</sub> = secondary voltage η = efficiency (see the technical data table)  $I_{\text{prim}} = 500 \text{ VA} / 400 \text{ V} \times 0.93 = 1.34 \text{ A} < 20 \text{ A}$ $I_{\text{sec}} = 500 \text{ VA} / 230 \text{ V} = 2.17 \text{ A} < 20 \text{ A}$
				
				Number corresponding to the terminal count: 2 on the secondary side 4 on the primary side  Order types: 1 off STN0,5(400/230) 6 off +C4



### Control transformer size selection

#### Determination of the continuous rating

The control transformer must be rated in size so that the voltage drop remains within the permissible tolerance range even under unfavourable conditions. The determination of the transformer rating is performed by addition of all the sealing powers of all loads which are to be connected simultaneously as well as addition of the inrush power of the largest load, and multiplying the result by a factor of 0.8. If the ratings of the loads are very similar, the sum of all inrush powers of the simultaneously connected loads is added to the sum of all the sealing powers and the result is multiplied by a factor of 0.8.

#### Determination of the short-time rating

If the primary requirement is to switch large contactors, it is recommended that the control transformer is selected on the basis of the short-time rating. In most cases, this will mean that the transformer rating is reduced. It is important to ensure that the sealing power does not exceed the continuous rating.

### Protection of control transformers

#### Operational conditions

The protective devices listed on 13/12 must be connected upstream of the primary. The overload release of the circuit-breaker must be set to the stated current. The current to be set must also be stated on the rating plate of the transformer. If a short-circuit release is present, it must be set to the maximum value. The setting values of the circuit-breaker apply up to 1.06 times the rated voltage. For a higher mains voltage the +5 % terminal is to be used. In the case of transformers > 2.0 kVA (DT... > 4.0 kVA) it is possible for the circuit-breaker to trip under certain mains supply conditions ( $I_k > 6$  kA) and with unfavourable starting torque. In such cases we recommend the use of an inrush current limiter. The inrush current limiter can be ordered as an accessory. Ordering details → 13/10

Setting range of the motor-protective circuit-breaker as a function of the STI and STZ transformer rated power (VA)

Type	200 V		230 V		400 V		415 V		440 V		500 V		690 V	
	Protective device	Setting A	Protective device	Setting A	Protective device	Setting A	Protective device	Setting A	Protective device	Setting A	Protective device	Setting A	Protective device	Setting A
ST...0,06	–	–	PKZM0-0,4	0.3	PKZM0-0,25	0.2	PKZM0-0,25	0.2	PKZM0-0,25	0.2	PKZM0-0,16	0.2	PKZM0-0,16	0.1
ST...0,1	–	–	PKZM0-0,63	0.5	PKZM0-0,4	0.3	PKZM0-0,4	0.3	PKZM0-0,4	0.3	PKZM0-0,25	0.2	PKZM0-0,25	0.2
ST...0,16	–	–	PKZM0-1	0.8	PKZM0-0,63	0.5	PKZM0-0,63	0.5	PKZM0-0,63	0.4	PKZM0-4	0.4	PKZM0-0,4	0.3
ST...0,2	–	–	PKZM0-1,6	1.0	PKZM0-0,63	0.6	PKZM0-0,63	0.6	PKZM0-0,63	0.5	PKZM0-0,63	0.5	PKZM0-0,4	0.3
ST...0,25	–	–	PKZM0-1,6	1.3	PKZM0-1	0.7	PKZM0-1	0.7	PKZM0-1	0.7	PKZM0-0,63	0.6	PKZM0-0,63	0.4
ST...0,315	–	–	PKZM0-1,6	1.5	PKZM0-1	0.9	PKZM0-1	0.9	PKZM0-1	0.8	PKZM0-1	0.7	PKZM0-0,63	0.5
ST...0,4	–	–	PKZM0-2,5	2.0	PKZM0-1,6	1.1	PKZM0-1,6	1.1	PKZM0-1,6	1.0	PKZM0-1	0.9	PKZM0-1	0.7
ST...0,5	–	–	PKZM0-2,5	2.4	PKZM0-1,6	1.4	PKZM0-1,6	1.3	PKZM0-1,6	1.2	PKZM0-1,6	1.1	PKZM0-1	0.8
ST...0,63	–	–	PKZM0-4	3.0	PKZM0-2,5	1.7	PKZM0-2,5	1.7	PKZM0-1,6	1.6	PKZM0-1,6	1.4	PKZM0-1,6	1.0
ST...0,8	–	–	PKZM0-4	3.8	PKZM0-2,5	2.2	PKZM0-2,5	2.1	PKZM0-2,5	2.0	PKZM0-2,5	1.7	PKZM0-1,6	1.3
ST...1,0	–	–	PKZM0-6,3	4.7	PKZM0-4	2.7	PKZM0-4	2.6	PKZM0-4	2.5	PKZM0-2,5	2.2	PKZM0-1,6	1.6

Notes See also PKZM0-...-T transformer-protective circuit-breaker use → 8/10

Moeller HPL0211-2004/2005

Company:	Date:
Contact:	Tel.:
Quantity	Fax:

Fill out/check boxes

	STI/STZ	Single-phase control transformer to VDE 0550 Part 3, IEC/EN 61558-2-2, VDE 0532		DTI/DTZ	Three-phase control transformer to VDE 0550 Part 3, IEC/EN 61558-2-2, VDE 0532
	STI/STZ	Single-phase safety transformer to IEC/EN 61558-2-6		DTI/DTZ	Three-phase safety transformer to IEC/EN 61558-2-6
	STI/STZ	Single-phase isolating transformer to IEC/EN 61558-2-4		DTI/DTZ	Three-phase isolating transformer to IEC/EN 61558-2-4
	STN	Single-phase control transformer to VDE 0550 Part 3, IEC/EN 61558-2-2, VDE 0532			
	ET	Single-phase transformer to VDE 0550, VDE 0532		DT(F)	Three-phase transformer to VDE 0550, VDE 0532
	ETSP	Single-phase autotransformer to VDE 0550, VDE 0532		DT(F)SP	Three-phase autotransformer to VDE 0550, VDE 0532
	ET-MED	Single-phase transformer for medical applications to VDE 0107, IEC/EN 61558-2-17		DT-MED	Three-phase transformer for medical applications to VDE 0107, IEC/EN 61558-2-17
				DTA	Three-phase starting transformer to VDE 0550, VDE 0532

**Primary**

Rated voltage (V)  
(phase-to-phase voltage with three-phase transformer)

<input type="text"/> V	<input type="text"/> V	<input type="text"/> V	<input type="text"/> V	<input type="text"/> V	<input type="text"/> V	<input type="text"/> V
------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------

Screen winding

No	<input type="checkbox"/>
to ground	<input type="checkbox"/>
to terminal	<input type="checkbox"/>

**Secondary**

Load voltage (V)  
(phase-to-phase voltage with three-phase transformer)

<input type="text"/> V	<input type="text"/> V	<input type="text"/> V	<input type="text"/> V	<input type="text"/> V	<input type="text"/> V	<input type="text"/> V
<input type="text"/> VA	<input type="text"/> VA	<input type="text"/> VA	<input type="text"/> VA	<input type="text"/> VA	<input type="text"/> VA	<input type="text"/> VA

Rating (VA)

Simultaneous loading (Yes/No)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Frequency	50/60 HZ	<input type="checkbox"/>	divergent	<input type="checkbox"/>
Ambient temperature	40°	<input type="checkbox"/>	divergent (°C)	<input type="checkbox"/>
Insulation material class	B	<input type="checkbox"/>	divergent (A, F, H)	<input type="checkbox"/>
Enhanced climatic proofing (.../TA)	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>
Temperature monitoring	No	<input type="checkbox"/>	Bimetallic	<input type="checkbox"/>
	PT 100	<input type="checkbox"/>	Type:	<input type="checkbox"/>
Degree of protection	IP00	<input type="checkbox"/>	IP23	<input type="checkbox"/>
	divergent	<input type="checkbox"/>	IP54	<input type="checkbox"/>
Fuse	No	<input type="checkbox"/>	Primary, type	<input type="checkbox"/>
		<input type="checkbox"/>	Secondary, type	<input type="checkbox"/>
Control mode	S1-uninterrupted operation	<input type="checkbox"/>	divergent (%DF)	<input type="checkbox"/>
Cooling	Self-cooling (AN)	<input type="checkbox"/>	Forced cooling (m³/s)	<input type="checkbox"/>
Special fixings	No	<input type="checkbox"/>	divergent	<input type="checkbox"/>
Special dimensions	No	<input type="checkbox"/>	divergent	<input type="checkbox"/>
Approval required	No	<input type="checkbox"/>	ÖVE or ENEC	<input type="checkbox"/>

**Only with three-phase transformers:**

Transformer connection configuration	<input type="text"/>	<input type="checkbox"/>
Star-point brought-out	Primary (Yes/No)	Secondary (Yes/No)

Type	<input type="text"/>	Price	<input type="text"/>
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		Control transformers	
		STI STZ	STN
<b>General</b>			
Standards			
Built and tested to		IEC/EN 61558-2-2, VDE 0570 Part 2-2+6+4, UL 506, CSA 22.2 No. 66, ÖVE	VDE 0550 Part 1 + 3, IEC/EN 61558
Suitable for use to		IEC/EN 60204-1, VDE 0113, ÖVE-EN 13, VDE 0100 Part 410	IEC/EN 60204-1, VDE 0113
Ambient temperature	°C	-25/40	-25/40
<b>Characteristics</b>			
Terminals		● (< 63 A)	● (< 135 A)
Connection lugs		● (> 63 A)	● (> 135 A)
Insulation material class		B	B
Rated frequency	Hz	50 – 60	50 – 60
Primary tapping		± 5 %	± 5 %
Degree of protection		IP00	IP00
Separate windings		●	●
Completely vacuum-impregnated		●	●
Reinforced insulation		●	–
Rated duty factor	% DF	100	100

	Total weight	No-load losses	Load losses (copper losses)	Short-circuit voltage	Efficiency		Total weight	No-load losses	Load losses (copper losses)	Short-circuit voltage	Efficiency
	kg	W	W	%			kg	W	W	%	
<b>Single-phase, control, isolating and ST safety transformers<sup>1)</sup></b>						<b>Three-phase, control, isolating and DT safety transformers<sup>1)</sup></b>					
ST...0,06	1.5	6	5	7.8	0.85	DT...0,1	1.9	5	28	15	0.75
ST...0,1	2	7	8	6.9	0.87	DT...0,16	2.5	8	20	9.5	0.85
ST...0,16	2.3	9	12	6.6	0.88	DT...0,25	3.6	11	25	8.5	0.88
ST...0,2	3	11	17	6.6	0.88	DT...0,4	5.1	15	40	8	0.88
ST...0,25	3.8	13	14	5.1	0.9	DT...0,5	6.1	20	35	6	0.9
ST...0,315	4.3	10	18	5.5	0.92	DT...0,63	8.9	25	50	5.5	0.9
ST...0,4	5.2	17	18	4.4	0.92	DT...1,0	12.9	35	50	4	0.92
ST...0,5	6.8	15	24	3.9	0.93	DT...1,6	18.5	55	60	3	0.93
ST...0,63	7.7	15	27	4.1	0.94	DT...2,0	22.4	60	75	3.5	0.94
ST...0,8	9.6	17	25	3.2	0.95	DT...2,5	29.3	80	85	2.5	0.94
ST...1,0	13.4	27	29	2.9	0.95						
<b>STN single-phase control transformers<sup>1)</sup></b>											
STN0,06	0.8	6.5	8.2	9.3	0.83						
STN0,1	1.5	7	12	8.1	0.86						
STN0,16	2	11	13	5.7	0.9						
STN0,2	2.3	9	10	4.9	0.91						
STN0,25	3	9	17	5.5	0.91						
STN0,315	3.8	11	17	4.6	0.93						
STN0,4	4.3	12	22	4.6	0.93						
STN0,5	5.2	15	21	3.8	0.93						
STN0,63	6.8	21	26	3	0.94						
STN0,8	7.7	25	20	3.3	0.94						
STN1,0	9.6	33	32	2.8	0.94						

**Notes** <sup>1)</sup> The following applies for the no-load loss, short-circuit loss (copper losses), short-circuit voltage and efficiency values: all details relate to a temperature of 20 °C