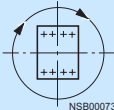
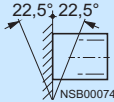
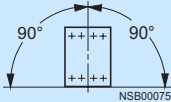
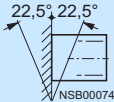



Technical specifications

Contactor	Type	3TH42/3TH43
Permissible mounting positions		
The contactors are designed for operation on a vertical mounting surface.	AC operation	 NSB00073
	DC operation	 NSB00074
Upright mounting position	AC and DC operation	 NSB00075
		 NSB00074
		 NSB00071
		Special version required

Positively-driven operation in contactor relays with 8 and 10 contacts

3TH42/3TH43:

Yes, the contactor relays comply with the conditions for positively-driven operation acc. to:

- ZH 1/457
- EN 60947-5-1, Appendix L
- SUVA

Explanations:

There is positively-driven operation if it is ensured that the NC and NO contacts cannot be closed at the same time.

ZH1/457

Safety rules for control units on power-operated presses in the metal-working industry.

EN 60947-5-1, Appendix L

Low-voltage controlgear, control equipment, and switching elements. Special requirements for positively-driven contacts

SUVA

Accident prevention regulations of the "Schweizer Unfallverhütungsanstalt" (Swiss Institute for Accident Insurance)

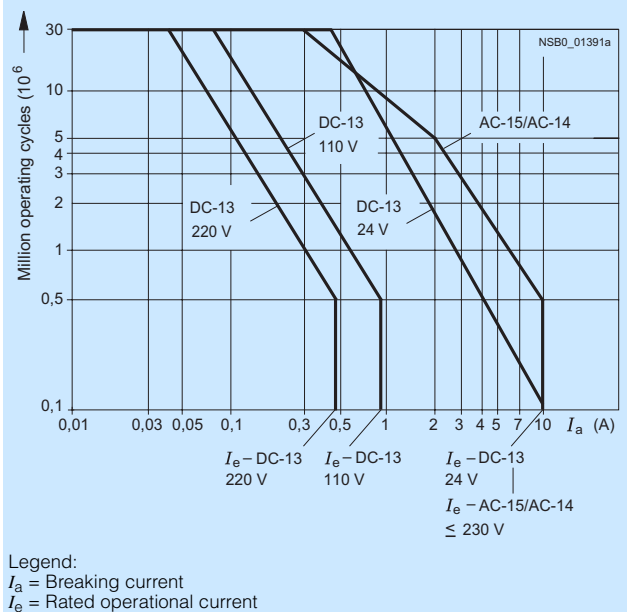
3RH, 3TH Contactor Relays

3TH4 contactor relays, 8- and 10-pole

Contactor	Type	3TH42/3TH43
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Contact endurance for AC-15/AC-14 and DC-13 utilization categories

The contact endurance is mainly dependent on the breaking current. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system. If magnetic circuits other than the contactor coil systems or solenoid valves are present, e.g. magnetic brakes, protective measures for the load circuits are necessary. RC elements and freewheel diodes would be suitable as protective features.



CSA and UL rated data

Basic units	
Rated control supply voltage U_s	Max. 600 V AC, 230 V DC (to UL 240 V DC)
Rated voltage	600 V AC, 600 V DC
Switching capacity	A 600, P 600

General data

Mechanical endurance	Basic units	Operating cycles	30 million
Rated insulation voltage U_i (pollution degree 3)		V	690
Rated impulse withstand voltage U_{imp}		kV	8
Safe isolation		V	Up to 500
Between the coil and the contacts acc. to EN 60947-1, Appendix N			
Permissible ambient temperature	During operation	°C	-25 ... +55
	During storage	°C	-55 ... +80
Degree of protection acc. to EN 60947-1, Appendix C			IP20
Shock resistance			
Rectangular pulse	AC operation	g/ms	7.7/5 and 4.4/10
	DC operation	g/ms	9.3/5 and 5.4/10
Sine pulse	AC operation	g/ms	12/5 and 6.8/10
	DC operation	g/ms	14.7/5 and 8.5/10

Conductor cross-sections

Screw terminal			M3.5
Solid		mm ²	2 x (0.5 ... 1); 2 x (1 ... 2.5); 1 x 4
Finely stranded with end sleeve		mm ²	2 x (0.75 ... 2.5)

Short-circuit protection

(weld-free protection at $I_k \geq 1$ kA)			
• Fuse links, gL/gG operational class	NH Type 3NA	A	16
	DIAZED Type 5SB	A	16
	NEOZED Type 5SE, quick	A	20
• Miniature circuit-breakers	Characteristic C	A	16
	Characteristic B	A	16

3RH, 3TH Contactor Relays

3TH4 contactor relays, 8- and 10-pole

Contactor	Type	3TH42/3TH43	
Control			
Coil operating range			
AC operation			$0.8 \dots 1.1 \times U_s^{1)}$
DC operation (except 24 V)			$0.8 \dots 1.1 \times U_s$
• At 24 V DC			$0.8 \dots 1.2 \times U_s$
Power consumption of the magnetic coils (when coil is cold and $1.0 \times U_s$)			
AC operation, 50 Hz, standard version			
• Closing	VA/p.f.	68 / 0.82	
• Closed	VA/p.f.	10 / 0.29	
AC operation, 50/60 Hz, standard version			
• Closing, 50 Hz	VA/p.f.	77 / 0.81	
• Closed, 50 Hz	VA/p.f.	11 / 0.28	
• Closing, 60 Hz	VA/p.f.	71 / 0.75	
• Closed, 60 Hz	VA/p.f.	9 / 0.27	
AC operation, 50 Hz, USA/Canada			
• Closing	VA/p.f.	68 / 0.82	
• Closed	VA/p.f.	10 / 0.29	
AC operation, 60 Hz, USA/Canada			
• Closing	VA/p.f.	75 / 0.76	
• Closed	VA/p.f.	9.4 / 0.29 ... 0.3	
AC operation, 50 Hz, Japan			
• Closing	VA/p.f.	80 / 0.8	
• Closed	VA/p.f.	10.7 / 0.29	
AC operation, 60 Hz, Japan			
• Closing	VA/p.f.	75 ... 90 / 0.73	
• Closed	VA/p.f.	8.5 ... 10.7 / 0.29 ... 0.3	
DC operation up to 250 V	Closing = Closed	W	6.2
Permissible residual current of the electronics (with 0 signal)			
For AC operation			$\leq 8 \text{ mA} \times (220 \text{ V}/U_s)$
For DC operation			$\leq 1.25 \text{ mA} \times (220 \text{ V}/U_s)$
Operating times²⁾			
Total break time = Opening time + Arcing time (the values apply up to and including 20 % undervoltage, 10 % overvoltage, and with the coil in the cold state and at operating temperature)			
<u>AC operation</u>			
Closing			
• ON-delay NO contact	ms	8 ... 35	
• Opening time NC	ms	6 ... 20	
Opening			
• OFF-delay NO contact	ms	4 ... 18	
• ON-delay NC	ms	5 ... 30	
Arcing time	ms	10	
<u>DC operation</u>			
Closing			
• ON-delay NO contact	ms	20 ... 170	
• OFF-delay NC	ms	18 ... 110	
Opening			
• OFF-delay NO contact	ms	10 ... 25	
• ON-delay NC	ms	15 ... 30	
Arcing time	ms	10	
Operating times²⁾ at $1.0 \times U_s$			
<u>AC operation</u>			
Closing			
• ON-delay NO contact	ms	10 ... 25	
• Opening time NC	ms	7 ... 20	
Opening			
• OFF-delay NO contact	ms	5 ... 18	
• Closing time NC	ms	7 ... 20	
<u>DC operation</u>			
Closing			
• ON-delay NO contact	ms	30 ... 70	
• Opening time NC	ms	28 ... 65	
Opening			
• OFF-delay NO contact	ms	10 ... 20	
• Closing time NC	ms	15 ... 25	

1) Coils for USA, Canada and Japan: $0.85 \dots 1.1 U_s$ at 60 Hz.

2) The opening delay of the NO contact and the closing delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 9 times; diode assemblies 2 to 6 times, varistor +2 to 5 ms).

3RH, 3TH Contactor Relays

3TH4 contactor relays, 8- and 10-pole

Contactor	Type	3TH42/3TH43	
Load side			
Rated operational currents I_e			
AC-12	A	16	
AC-15/AC-14 for rated operational voltage U_e			
	230 V A	10	
	400 V A	6	
	500 V A	4	
	690 V A	2	
DC-12, for rated operational voltage U_e			
• 1 current path	up to 48 V A	10	
	110 V A	2.1	
	220 V A	0.8	
	440 V A	0.6	
	600 V A	0.6	
• 2 current paths in series	up to 48 V A	10	
	110 V A	10	
	220 V A	1.6	
	440 V A	0.8	
	600 V A	0.7	
• 3 current paths in series	up to 48 V A	10	
	110 V A	10	
	220 V A	10	
	440 V A	1.3	
	600 V A	1	
DC-13, for rated operational voltage U_e			
• 1 current path	24 V A	10	
	48 V A	5	
	110 V A	1	
	220 V A	0.45	
	440 V A	0.25	
	600 V A	0.2	
• 2 current paths in series	24 V A	10	
	48 V A	10	
	110 V A	2.5	
	220 V A	0.75	
	440 V A	0.5	
	600 V A	0.4	
• 3 current paths in series	24 V A	10	
	48 V A	10	
	110 V A	10	
	220 V A	2	
	440 V A	0.9	
	600 V A	0.8	
Rated output power of induction motors			
Acc. to utilization category AC-2 and AC-3, 50 Hz			
	230/220 V kW	2.4	
	400/380 V kW	4	
	500 V kW	4	
	690/660 V kW	4	
Operating frequency z^1			
Operating cycles per hour during normal duty for utilization category			
	AC-12/DC-12	h ⁻¹	1000
	AC-2	h ⁻¹	500
	AC-3	h ⁻¹	1000
	AC-15/AC-14	h ⁻¹	3600
	DC-13	h ⁻¹	3600
	No-load operating frequency	h ⁻¹	10000

1) Dependence of the operating frequency z' on the operational current I' and operational voltage U' : $z' = z \cdot I_e/I' \cdot (U_e/U')^{1.5} \cdot 1/h$.