

# 1.4 Technical Data of Series S-N Contactors

## 1.4.1 Ratings and Characteristics

Contactor	Type	S/SD-									
		S-N10	N11, N12	S-N18	S-N20	N21	S-N25	N35	N50	S/SD- N65	
Rated insulation voltage	V	690	690	690	690	690	690	690	690	690	690
Conventional free air thermal current	Ith	A	20	20	25	32	32	50	60	80	100
Rated capacity for resistive loads											
3-ph, Category AC-1											
	220-240V	kW(A)	7.5(20)	7.5(20)	9.5(25)	12(32)	12(32)	18(50)	20(60)	30(80)	35(100)
	380-440V	kW(A)	7(11)	8.5(13)	13(20)	20(32)	20(32)	30(50)	35(60)	50(80)	65(100)
	500V	kW(A)	7(8)	9.5(11)	13(16)	25(32)	25(32)	40(50)	50(60)	65(80)	85(100)
	690V	kW(A)	7(6)	8(8)	11(10)	30(32)	30(32)	50(50)	60(60)	80(80)	100(100)
Rated operational current											
3-ph, Category AC-3											
	220-240V	A	11	13	18	22	22	30	40	55	65
	380-440V	A	9	12	16	22	22	30	40	50	65
	500V	A	7	9	13	17	17	24	32	38	60
	690V	A	5	7	9	9	9	12	17	26	38
Rated capacity for jogging of AC motors											
3-ph, category AC-4											
	220-240V	kW	0.75	1.1	1.5	2.2	2.2	3	3.7	5.5	7.5
Electrical life is ca. 200,000 operations											
	380-440V	kW	1.1	1.5	2.2	3.7	3.7	5.5	5.5	7.5	11
	500V	kW	1.1	1.5	2.2	3.7	3.7	5.5	5.5	7.5	11
	690V	kW	1.1	1.5	2.2	3.7	3.7	5.5	5.5	7.5	11
Max. current for AC-4 duty at 440V		A	6	9	9	13	13	17	24	32	47
Rated current for DC non-inductive loads											
Category DC-1											
	48V	A	10	12	12	20	20	25	35	50	65
	110V	A	8	12	12	20	20	25	35	50	65
	500,000 operations	A	8	12	12	20	20	22	30	40	50
Rated Current for DC motors											
Category DC-3 & DC-5											
	48V	A	6	10	10	20	20	25	30	35	40
	110V	A	4	8	8	15	15	20	20	30	35
	500,000operations	A	2	4	4	8	8	10	10	12	15
Rated capacity for 3-ph, capacitors <sup>4</sup>											
120 operations/hour max.											
	220-240V	kvar	2.2	3	4	5.5	5.5	8.5	12	20	20
Electrical durability at maximum load: 100,000 operations (ambient temperature 40°C)											
	380-440V	kvar	3.3	4	6	10	10	14	20	40	40
	550V	kvar	4	5	6	10	10	14	20	30	35
	690V	kvar	3.3	4.5	5.5	10	10	14	20	30	40
Rated insulation voltage		V	690	690	690	690	690	690	690	690	690
Making & breaking											
3-ph, cosφ=0.35											
	Making current	A	110/110	130/120	180/180	220/220	220/220	300/300	400/400	550/460	650/620
	Breaking current	A	100/72	120/100	180/130	220/220	220/220	300/240	400/320	550/460	650/620
Switching frequency											
	Category AC-1	operations/hour	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,200	1,200
	Category AC2 & AC-3	operations/hour	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,200	1,200
	Category AC-4	operations/hour	660	660	600	600	600	600	600	600	600
Operating time (at rated coil voltage)											
AC operated											
	Closing	ms	15	15	15	15	15	15	15	25	25
	Opening	ms	10	10	10	10	10	10	10	53	53
DC operated											
	Closing	ms	—	45	—	—	33	—	50	57	57
	Opening	ms	—	10	—	—	12	—	13	15	15
Coil consumption (at rated coil voltage)											
AC operated											
	Inrush	VA	60	60	60	90	90	110	110	132	132
	Sealed	VA	10	10	10	15	15	13	13	17	17
	Watts	W	3.5	3.5	3.5	5.3	5.3	5.3	5.3	2.8	2.8
DC operated											
	Inrush	VA	—	7	—	—	16	—	18	24	24
	Sealed	VA	—	7	—	—	16	—	18	24	24
Coil voltage tolerance		0.85 to 1.1 times rated coil voltage									
Mechanical endurance (make/break operations)		million	10	10	10	10	10	10	10	5	5
Permissible ambient temperature		°C	-25 to +55								
Vibration (10-55 Hertz)		m/s <sup>2</sup>	19.6								
Shock (10 ms half sine wave)		m/s <sup>2</sup>	49								
Conductor size		mm <sup>2</sup>	1-2.5	1-2.5	1-6	1-6	1-6	2-16	2-16	2-25	2-25
Main terminal (contactor)											
	mm <sup>2</sup>		1-2.5	1-2.5	1-6	1-6	1-6	2-16	2-16	2-25	2-25
Main terminal (overload relay)											
	mm <sup>2</sup>		1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5
Control terminal											
	mm		—	—	—	—	—	—	—	—	—
Busbar width		mm	—	—	—	—	—	—	—	—	—

Notes: 1. 660A at ambient temperature 40-55°C. 2. 800A at ambient temperature 40-55°C.  
 3. Conductor size in parentheses indicate compression terminal style not for bare clamping.  
 4. The peak value of inrush current should be less than 2000% of the effective value for rated current of capacitors.  
 The selection is invalid for the circuit of parallel capacitors which are controlled individually.

Table 1.4.1 (1)

S/SD- N80	S/SD- N95	S/SD- N125	S/SD- N150	S- N180	S/SD- N220	S/SD- N300	S/SD- N400	S/SD- N600	S/SD- N800
690	690	690	690	1000	1000	1000	1000	1000	1000
135	150	150	200	260	260	350	450	800 <sup>1</sup>	1000 <sup>2</sup>
50(135)	55(150)	55(150)	75(200)	95(260)	95(260)	130(350)	170(450)	250(660)	300(800)
85(135)	90(150)	90(150)	130(200)	170(260)	170(260)	230(350)	290(450)	430(660)	530(800)
110(135)	120(150)	120(150)	170(200)	220(260)	220(260)	300(350)	380(450)	570(660)	700(800)
135(135)	150(150)	150(150)	200(200)	260(260)	260(260)	350(350)	450(450)	660(660)	900(800)
85	105	125	150	180	250	300	400	630	800
85	105	120	150	180	250	300	400	630	800
75	85	90	140	180	200	250	350	500	720
52	65	70	100	120	150	220	300	420	630
7.5	11	15	18.5	22	22	37	45	65	75
15	18.5	22	30	37	45	60	75	110	130
15	18.5	22	37	45	55	60	90	130	150
15	18.5	22	30	50	55	75	90	130	150
62	75	90	110	150	180	220	300	400	630
80	93	120	150	180	220	300	400	630	800
80	93	100	150	180	220	300	400	630	800
60	70	80	150	180	220	300	300	630	800
60	90	90	130	180	220	280	280	630	630
50	80	80	120	150	150	200	200	630	630
20	50	50	80	100	100	150	150	630	630
35	35	38	50	60	60	95	115	190	190
60	60	65	80	120	120	150	200	350	350
48	60	65	80	150	150	200	250	350	350
50	60	65	80	150	150	200	200	400	400
690	690	690	690	1,000	1,000	1,000	1,000	1,000	1,000
850/850	1050/1050	1250/1250	1500/1500	1800/1800	2500/2500	3000/3000	4000/4000	6500/6500	8000/8000
800/750	930/930	1000/1000	1200/1200	1450/1450	2000/2000	2400/2400	3200/3200	5040/5040	6400/6400
1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
600	300	300	300	300	300	300	300	300	300
27	27	25	27	30	30	35	35	65	65
75	75	85	85	100	100	120	120	75	75
75	75	125	135	—	145	175	175	105	105
18	18	22	37	—	40	55	55	80	80
225	225	320	320	480	480	480	480	800	800
22	22	26	26	44	44	54	54	100	100
3.3	3.3	3.5	3.5	5	5	7.3	7.3	15	15
27	27	31	31	—	41	55	55	600	600
27	27	31	31	—	41	55	55	75	75
0.85 to 1.1 times rated coil voltage									
5	5	5	5	5	5	5	5	5	5
-25 to +55									
19.6									
49									
2-50	2-50								
	(2-60) <sup>3</sup>	(6-70) <sup>3</sup>	(6-95) <sup>3</sup>	(10-120) <sup>3</sup>	(10-150) <sup>3</sup>	(25-240) <sup>3</sup>	(25-240) <sup>3</sup>	(70-325) <sup>3</sup>	(70-325) <sup>3</sup>
2-50	2-50	(6-70) <sup>3</sup>	(6-95) <sup>3</sup>	(10-120) <sup>3</sup>	(10-150) <sup>3</sup>	(25-240) <sup>3</sup>	(25-240) <sup>3</sup>	—	—
1-2.5									