

Series R Technical informations

BRETER

industrial
controls

ALTERNATING CURRENT (IEC / EN 60947-3)

		Series	14	13
Rated operational voltage U_e	IEC-EN / UL-CSA	V	440	690/600
Rated isolation voltage U_i	IEC / UL-CSA	V	440	690/600
Rated impulse withstand voltage U_{imp}	IEC	kV	4	6
Dielectric test voltage for 1 min. corresponding to U_i		kV	2,5	2,5
Rated frequency		Hz	50/60	50/60
Conventional free air thermal current I_{th}		A	16	25
Conventional enclosed thermal current I_{the}		A	16	25
Power loss by 1 pole at I_{the}		W	0,34	0,3
Rated operational current I_e	690 V			
AC-1 Non inductive or slightly inductive loads		A	16 (400V)	25
AC-21A Switching of resistive loads with slight overload				
Rated power P_e				
AC-23A Frequent switching of motors or other highly inductive load	230 V	kW	4	5,5
	400 V	kW	5,5	7,5
	690 V	kW	-	11
AC-3 Squirrel - cage motors: starting and stopping of running motors	230 V	kW	2,2	4
	400 V	kW	3	5,5
	690 V	kW	-	7,5
AC-4 Squirrel - cage motor starting, reversing, electric breaking, inching	230 V	kW	-	2,2
	400 V	kW	-	3
	500 V	kW	-	3
Rated breaking capacity (AC-23A)				
$\cos \varphi$ 0,45 per $I_e \leq 100A$	230 V	A	120	176
$\cos \varphi$ 0,35 per $I_e > 100A$	400 V	A	90,4	176
	690 V	A	-	100
Short circuit characteristic				
Conditional rated short-circuit current	400/415 V	kA	5	5
Max. fuse rated current (fuse type gG/gL)		A	16	25
Rated short-time withstand current I_{sw} (1s)		kA	0,32	0,4
Rated short-circuit making capacity I_{cm}		kA	-	1,5
AC-15 Control of AC electromagnetic loads			A300	

DIRECT CURRENT (IEC / EN 60947-3)

DC-20A Rated operational current I_e		A	20
Rated operational current I_e		A	10
DC-1 Non inductive or slightly inductive loads			
DC-21A Switching of resistive loads with slight overloads		V max per pole	60
Rated power	24 V	kW	0,3 ①
DC-23A Control of high inductive loads series and shunt motors	48 V	kW	0,4 ②
	60 V	kW	0,6 ③
	110 V	kW	0,8 ④
	220 V	kW	1,2 ④
Rated operational current I_e	24 V	A	10
DC-13 Control of electromagnets	48 V	A	5
L/R = 40 ms	60 V	A	3
	110 V	A	1,3
	220 V	A	0,5
	380 V	A	0,3
	500 V	A	0,2
DC-13 Control of DC electromagnetic loads			Q300

① The rounded values correspond to the numbers of poles to connect in series



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1	R32	R40	R50	R80	R125	R250	R400	R630
690/600	690/600	690/600	690/600	690/600	690/600	690/600	690/600	690/600
690/600	690/600	690 [#] /600	690 [#] /600	690 [#] /600	690/600	690/600	690/600	690/600
6	8	8 [#]	8 [#]	8 [#]	8	8	8	8
2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
50/60	50/60	50 [#] /60 [#]	50/60	50/60	50/60	50/60	50/60	50/60
25	32	45 [#]	50 [#]	80 [#]	125	250	400	630
25	32	45 [#]	50 [#]	75 [#]	120	200	315	500
0,6	0,8	1,4	1,5	2,8	5,3	10	13,6	25,5
25	32	40 [#]	50 [#]	75 [#]	120	200	250	315
7,5	11	11 [#]	15 [#]	18,5 [#]	30	37		
11	18,5	22 [#]	22 [#]	30 [#]	45	55		
15	22	22 [#]	30 [#]	37 [#]	55	75		
5,5	7,5	7,5 [#]	11 [#]	15 [#]	22	30		
7,5	15	18,5 [#]	18,5 [#]	22 [#]	30	37		
11	18,5	18,5 [#]	22 [#]	30 [#]	37	45		
2,2	5,5	5,5	7,5	11	15	18,5		
4	7,5	7,5 [#]	11	15	22	30		
4	7,5	11	15	18,5	30	37		
204	296	296 [#]	400 [#]	484 [#]	780	936		
172	280	336 [#]	336 [#]	544 [#]	656	804		
136	196	196 [#]	260 [#]	316 [#]	456	616		
5	5	5 [#]	5 [#]	5 [#]	6	8	12	15
25	35	40 [#]	50 [#]	63 [#]	100	160	250	315
0,5	0,8	0,8	1 [#]	1,5 [#]	2,4	4	5	6,5
1,5	2	2	2,5 [#]	3 [#]	5	7	10	15
25	32	40	50	75	120	200		
16	25	25	40	63	100	200		
60	60	60	60	60	48	42		
0,3 (1)	0,3 (1)	0,3 (1)	0,7 (1)	1 (1)				
0,5 (2)	0,5 (2)	0,5 (2)	1,4 (2)	2 (2)				
1 (2)	1 (2)	1 (2)	2 (2)	2,7 (2)				
2 (3)	2 (3)	2 (3)	3 (3)	4 (3)				
2,2 (5)	2,2 (5)	2,2 (5)	6 (6)	8 (6)				
14	16	16						
7	8	8						
4,2	4,8	4,8						
1,8	2	2						
0,5	0,6	0,6						
0,4	0,4	0,4						
0,3	0,3	0,3						

[#] Values approved by IMQ

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UL / CSA		Series	14	13	1 ①
General use	1 phase/2 poles, 3 phase/3 poles				
Rated current	600 V	A		20	16
Heavy Pilot Duty (AC)	Code designation			A 600	
Standard Duty (DC)	Code designation			P 600	
Rated operational power					
Across the line AC motor starting					
DOL-Rating	120 V	HP		1,5	
1 phase 2 poles	240 V	HP		3	3
	480 V	HP		5	6 ②
	600 V	HP		5	7,5
3 phases 3 poles	120 V	HP		2	
	240 V	HP		5	6
	480 V	HP		10	12 ②
	600 V	HP		10	15

ENVIRONMENTAL DATA

Ambient temperature:	Operation:	-25°C a +60°C
	Storage:	-40°C a +80°C

MECHANICAL DATA

Protection class according to IEC/EN 60529

Actuators	IP40	IP40..IP55	IP40..IP55	
Switch bodies	IP00	IP00	IP00	
Mechanical life	Million of operations	1	2	1.5

Terminal sizes according to IEC/EN 60947-1 gauge form

Min./max. wire cross section		A2	A3	A3
Fine strands	mm²	0,75/2,5	1/2,5	1/2,5
Solid or stranded	mm²	0,75/2,5	1/4	1/4
Max. wire gauges according to UL/CSA (solid/stranded)	AWG	14/14	10/12	10/12
Terminals	Type	screw	screw	screw
	Thread	M3	M3,5	M4
	Screw driver size	2/1	3/2	3/2
	recommended torque (Nm)	0,6	1,2	1,8

APPROVALS

CE-confirmal	•	•	•
CSA (Canada)		•	•
IMQ (Italy)			•
UL-Listed (USA)			
UR (USA)		•	

• Approved as a result of test passed

① Only CSA approval

② For CSA 220V e 440V ③ Only UL approval



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R32	R40	R50	R80	R125	R250	R400	R630
32	40	50	63	115	200	250 (315A at 480V)	315

2	2	3	5 ③	7,5	10		
5	5	7,5	10 ②	15	20		
7,5	10	15	20 ②	30	40		
10	15	20	25	35	50		
5	5	7,5	10 ③	15	25		
7,5	10	15	20 ②	30	50		
20	25	30	40 ②	60	75		
20	25	40	50	75	100		

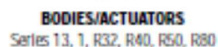
Operation: -25°C a +60°C

Storage: -40°C a +80°C

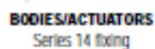
IP66 IP20	IP66 IP20	IP66 IP00	IP66 IP00	IP66 IP00	IP66 IP00	IP66 IP00	IP66 IP00
1	1	1	1	1	1	0,5	0,5
A5	A5	A5	A5	B7			
2,5/6	2,5/6	2,5/6	2,5/16	1,5/35			
2,5/10	2,5/10	2,5/10	2,5/25	1,5/50			
8/10	8/10	8/10	4/6	1/2			
screw	screw	screw	screw	screw	embedded hexagon	embedded hexagon	embedded hexagon
M4	M4	M5	2xM4	2xM6	M10	M12	M14
3/2	3/2	3/2	3/2	4/-	hexagon 8 mm	hexagon 10 mm	hexagon 12 mm
1,8	1,8	2	1,2	2	10	14	19

•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
	•	•	•				
•	•						
		•	•	•	•	•	•

Series	L no. of banks								A (gross area)	B	C	D	E	F	G	H max
	1	2	3	4	5	6	7	8								
14	-	32	-	54	-	-	-	-	48	23,5	Ø 35					1,5
13	37	50	62	75	87	100	112	125	54 or 72	28 or 32	Ø 47	72	38			
1	35	48	60	73	85	98	110	123	72	32	Ø 59					
R32	41	58,5	76	93,5	111	128,5	146	163,5	64	28	Ø 61	67	34			4
R40																
R50	51	69	87	105	123	141	159	177	88	45	Ø 80	90	49			
R80	60	87	114	141	168	195	222	249								
R125	83	113	143	173	203	233	263	293	130	55	118x102	135	-	120	70	
R250											118x191					
R400	113	173	233	293	353	413	473	533			118x180					
R530	143	233	323	413	503	593	683	773								

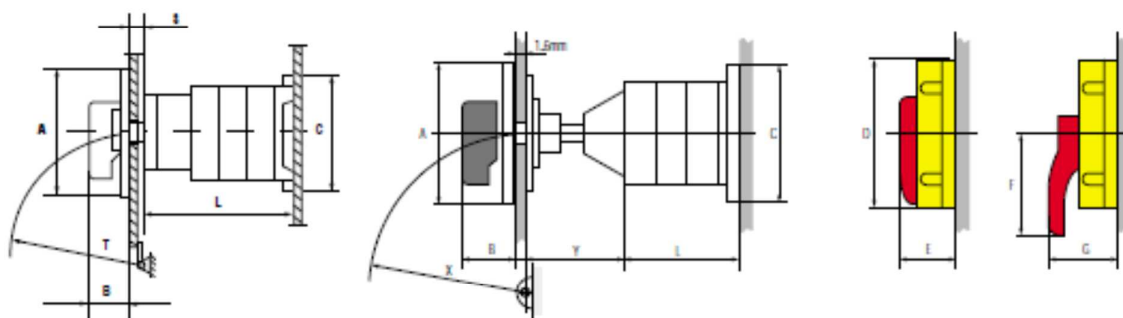


Series	A	B	C
13	9,5	32	3,2
1		33	
R32			
R40			
R50	12	46	5,3
R80			

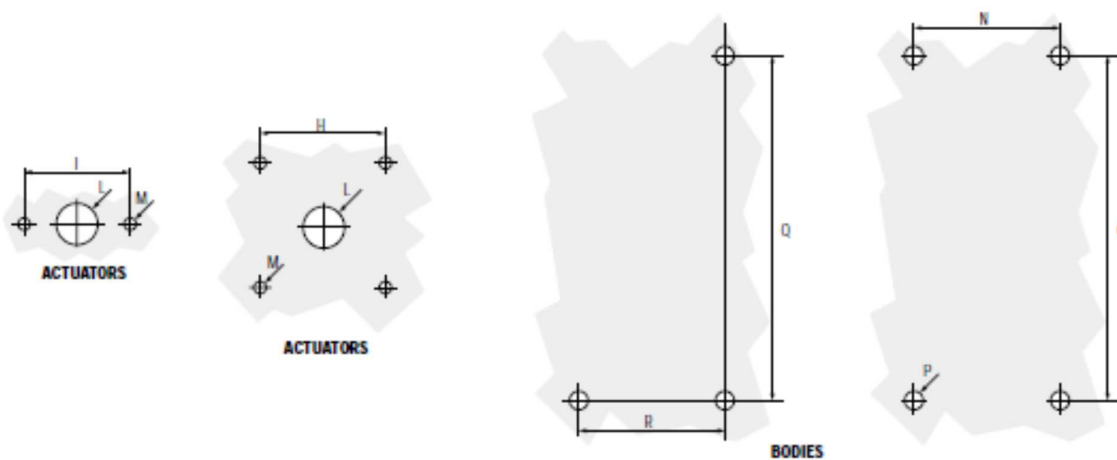


Series	L N° of banks								A	B	C
	1	2	3	4	5	6	7	8			
13	69	82	94	107	119	132	144	157	36	26	Ø 47
R32	86	103,5	121	138,5	156	173,5	191	208,5	41	28	Ø 61
R40											

Base mounting

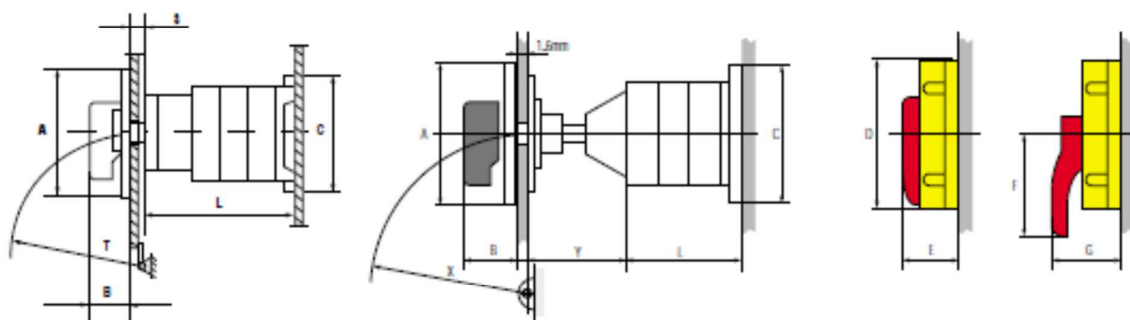


Series	L no. of banks				if Y min	then X	if Y max	then X	if S MIN.	then T	if S MIN.	then T
	1	2	3	4		≥		≥				
13	43	56	68	81	29	150	29	150				
1	42	55	67	80	75		75					
R32	42,5	60	77,5	95	-	-	-	-	2,5	150	9,5	90
R40												
R50	59	77	95	113	75	150	78	150				
R80	68	95	122	149								
R125	-	123	153	183	71,5	220	77,5	220				
R250	-											
R400	-								183	-	-	
R630	-	243	-	-								

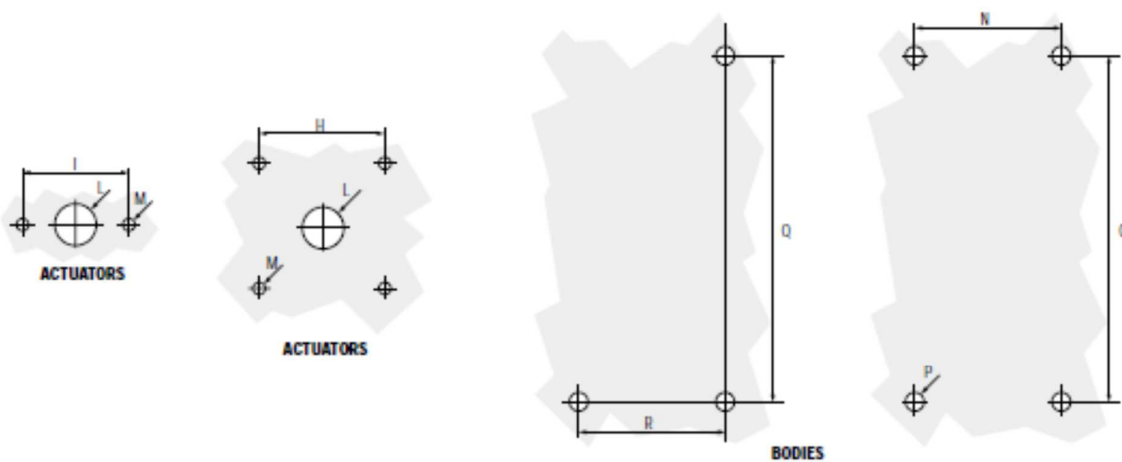


Series	A	B	C	D	E	F	G	ACTUATORS				BODIES				
	(mm x mm)							H	I	L	M	N	O	P	Q	R
13	54 o 72	28	51x51	72	38			58	32	9,5		36	36			
1	72	32	78x55	67	34	-	-	36 o 48	33	17	3,2	-	-	M4	70	15
R32	64	28														
R40								68	-	12	5,3	85	85	M5		
R50	88	45	102x102	92	49											
R80																
R125	130	55	57x148	135	-	120	70			20						
R250																
R400																
R630																

Base mounting



Series	L no. of banks				if Y min	then X	if Y max	then X	IF S MIN.	then T	IF S MIN.	then
	1	2	3	4		≥		≥				
13	43	56	68	81	29	150	29	150				
1	42	55	67	80	75		75					
R32	42,5	60	77,5	95	-	-	-	-	2,5	150	9,5	90
R40												
R50	59	77	95	113	75	150	78	150				
R80	68	95	122	149								
R125	-	123	153	183	71,5	220	77,5	220				
R250	-											
R400	-											
R630	-	183	-	-								



Series	A	B	C	D	E	F	G	ACTUATORS				BODIES				
	(mm x mm)							H	I	L	M	N	O	P	Q	R
13	54 o 72	28	51x51	72	38	-	-	58	32	9,5	3,2	36	36	M4	70	15
1	72	32	78x55						67			34	33			
R32	64	28		102x102	92			49		36 o 48	17		-	-	85	85
R40																
R50	88	45								135	-		120	70	68	-
R80																
R125																
R250																
R400	130	55	57x148	135	-	120	70	68	-	20	5,3	37	132	M5		
R630																