

## ALTIVAR® KDR series AC Line/Load Reactors



## Description

### AC Line reactors (Line chokes)

A line choke can be used to provide improved protection against overvoltages on the line supply and to reduce harmonic distortion of the current produced by the drive. Line chokes can be used instead of a DC choke.

The use of line chokes is recommended in particular under the following circumstances:

- Close connection of several drives in parallel
  - Line supply with significant disturbance from other equipment (interference, overvoltages)
  - Line supply with voltage imbalance between phases above 1.8% of the nominal voltage
  - Drive supplied by a line with very low impedance (in the vicinity of a power transformer 10 times more powerful than the drive rating)
  - Installation of a large number of frequency converters on the same line
- Reducing overloads on the  $\cos \varphi$  correction capacitors, if the installation includes a power factor correction unit.

### AC Load reactors (Motor chokes)

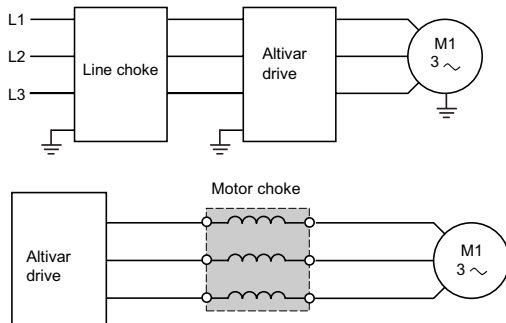
The motor choke enables operation with motor cables above 100m (50m shielded) and/or limits the  $dv/dt$  to 500 V/ $\mu s$  at the motor terminals.

It is also used to:

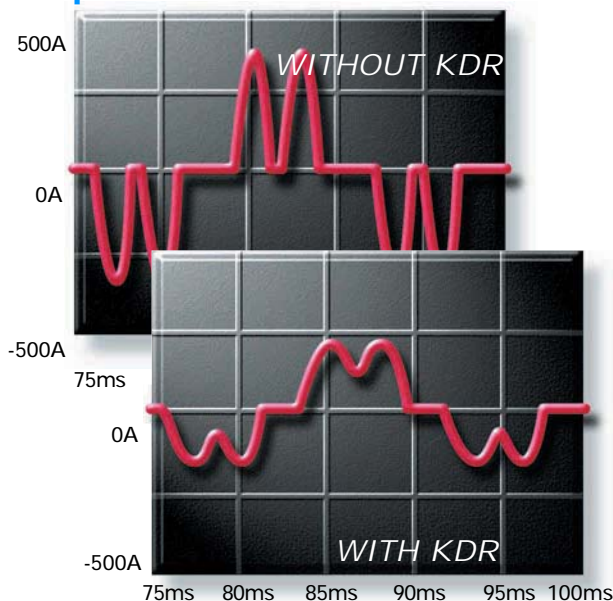
- Limit overvoltages on the motor terminals (1150 V to 460 V rms)
- filter interference caused by opening a contactor placed between the filter and the motor.
- reduce the motor earth leakage current

The choke values are defined for a voltage drop between 3% and 5% of the nominal supply voltage. Values higher than this will cause loss of torque.

## Typical Connection



## Input Line Current



## Characteristics

- Impedance protection: 3% and 5%
- System voltage: 208/240V, 400/480V, 575/600Vac
- Insulation system: Class H (180°C) or Class R (220°C)
- Temperature rise: 115 °C or 115°C
- Ambient temperature: 50°C (122°F) - Open; 40°C (104°F) - Enclosed
- Altitude (Max.): 1,000 m (3,000 ft); derating necessary above 1,000 m.
- Fundamental frequency: 50/60 Hz
- Short term overload rating: tolerate 200% rated I for 3 minutes minimum.
- Approvals: UL/cUL Listed, UL/cUL recognized, CE marked
- Inductance characteristics: 95%L at 110% load ; 80%L at 150% load
- Input and output: available for either the line or load side of a VFD
- Inductance: distributed Gap™ technology
- Enclosures: Open, Nema 1, Nema 3R enclosures available
- Harmonics reduction: on a VFD without internal magnetics (line choke or reactor), the addition of an external KDR reactor can reduce harmonic distortion by more than 30%
- Input voltage unbalance: KDR reactor will help balance the drive input line currents.

## Selection guide

### AC Line/Load reactors



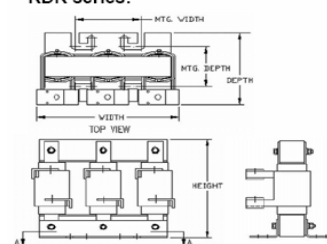
Motor Power (HP)	1 rated (A)	3% (open)	Power Loss (W)	Frame Size	Weight (lbs)	3% (NEMA1)	enclosure Size	5% (open)	Power Loss (W)	Frame Size	Weight (lbs)	5% (NEMA1)	enclosure Size
<b>200... 240V - 3 Phase supply 50/60Hz</b>													
0.5	2.4	KDRA54L	7	R1	4	KDRA54LC1	C1	KDRA54H	14	R1	4	KDRA54HC1	C1
0.75	3.5	KDRA53L	12	R1	4	KDRA53LC1	C1	KDRA53H	16.8	R1	4	KDRA53HC1	C1
1	4.6	KDRA25L	11	R1	4	KDRA25LC1	C1	KDRA25H	23.6	R1	4	KDRA25HC1	C1
1.5	6.6	KDRA26L	18	R1	4	KDRA26LC1	C1	KDRA27H	30.6	R1	4	KDRA27HC1	C1
2	7.5	KDRA27L	21	R1	4	KDRA27LC1	C1	KDRA26H	30.5	R1	4	KDRA26HC1	C1
3	10.6	KDRA28L	29	R1	4	KDRA28LC1	C1	KDRA28H	43.1	R1	4	KDRA28HC1	C1
5	16.7	KDRB22L	38	R2	8	KDRB22LC1	C1	KDRB25H	53.1	R2	8	KDRB25HC1	C1
7.5	24.2	KDRB23L	48	R2	8	KDRB23LC2	C2	KDRB26H	66.5	R2	8	KDRB26HC1	C1
10	30.8	KDRD25L	64	R3	12	KDRD25LC2	C2	KDRD21H	91.8	R3	12	KDRD21HC1	C1
15	46.2	KDRD24L	85	R3	12	KDRD24LC2	C2	KDRD22H	107.8	R3	12	KDRD22HC2	C2
20	59.4	KDRD26L	94	R3	12	KDRD26LC2	C2	KDRD22H	107.8	R3	12	KDRD22HC2	C2
25	74.8	KDRC22L	114	R4	15	KDRC22LC2	C2	KDRF28H	151	R4	30	KDRF28HC3	C3
30	88	KDRF24L	135	R5	30	KDRF24LC4	C4	KDRF25H	179.2	R5	30	KDRF25HC4	C4
40	114	KDRF25L	149	R5	30	KDRF25LC4	C4	KDRF26H	192.8	R5	30	KDRF26HC4	C4
50	143	KDRF26L	154	R5	30	KDRF26LC4	C4	KDRF27H	200.6	R5	30	KDRF27HC4	C4
60	169	KDRH22L	209	R8	45	KDRH22LC4	C4	KDRH23H	220	R8	45	KDRH23HC4	C4
75	211	KDRI23L	294	R8	50	KDRI23LC4	C4	KDRI22H	311.5	R8	50	KDRI22HC4	C4
100	273	KDRI24L	276	R8	50	KDRI24LC4	C4	KDRI21H	296.4	R8	50	KDRI21HC4	C4
125	343	KDRG22L	370	R10	65	KDRG22LC4	C4	KDRG25H	346.5	R10	65	KDRG25HC4	C4
150	396	KDRJ23L	401	R11	70	KDRJ23LC5	C5	KDRJ22H	465.3	R11	70	KDRJ22HC5	C5
200	528	KDRJ24L	442	R11	70	KDRJ24LC5	C5	KDRJ21H	516.2	R11	70	KDRJ21HC5	C5
<b>400... 480V - 3 Phase supply 50/60Hz</b>													
0.5	1.1	KDRA6L	5.6	R1	4	KDRA6LC1	C1	KDRA6H	9	R1	4	KDRA6HC1	C1
0.75	1.6	KDRA7L	10	R1	4	KDRA7LC1	C1	KDRA7H	15	R1	4	KDRA7HC1	C1
1	2.1	KDRA8L	10.4	R1	4	KDRA8LC1	C1	KDRA8H	12	R1	4	KDRA8HC1	C1
1.5	3	KDRA9L	17	R1	4	KDRA9LC1	C1	KDRA9H	23	R1	4	KDRA9HC1	C1
2	3.4	KDRA1L	19	R1	4	KDRA1LC1	C1	KDRA1H	33	R1	4	KDRA1HC1	C1
3	4.8	KDRA2L	23	R1	4	KDRA2LC1	C1	KDRA2H	38	R1	4	KDRA2HC1	C1
5	7.6	KDRA3L	49	R1	4	KDRA3LC1	C1	KDRA3H	80	R1	4	KDRA3HC1	C1
7.5	11	KDRA4L	40	R1	4	KDRA4LC1	C1	KDRA4H	77	R1	5	KDRA4HC1	C1
10	14	KDRA5L	64	R1	5	KDRA5LC1	C1	KDRA5H	111	R1	5	KDRA5HC1	C1
15	21	KDRB2L	65	R2	8	KDRB2LC1	C1	KDRB2H	133	R2	7	KDRB2HC1	C1
20	27	KDRB1L	79	R2	8	KDRB1LC1	C1	KDRB1H	108	R4	15	KDRB1HC2	C2
25	34	KDRD1L	96	R3	10	KDRD1LC2	C2	KDRD1H	112	R4	15	KDRD1HC2	C2
30	40	KDRD2L	105	R3	10	KDRD2LC2	C2	KDRD2H	141	R4	16	KDRD2HC2	C2
40	52	KDRC1L	114	R4	15	KDRC1LC2	C2	KDRF4H	169	R5	25	KDRF4HC3	C3
50	65	KDRF2L	114	R5	25	KDRF2LC3	C3	KDRF1H	191	R5	25	KDRF1HC3	C3
60	77	KDRF4L	169	R5	25	KDRF4LC3	C3	KDRF2H	226	R5	25	KDRF2HC3	C3
75	96	KDRF3L	193	R5	30	KDRF3LC4	C4	KDRH2H	212	R8	45	KDRH2HC4	C4
100	124	KDRH3L	225	R6	40	KDRH3LC4	C4	KDRI2H	362	R8	50	KDRI2HC4	C4
125	156	KDRH2L	254	R8	40	KDRH2LC4	C4	KDRG3H	274	R10	55	KDRG3HC4	C4
150	180	KDRH1L	299	R8	40	KDRH1LC4	C4	KDRG1H	359	R10	55	KDRG1HC4	C4
200	240	KDRG3L	280	R10	65	KDRG3LC4	C4	KDRJ1H	420	R11	70	KDRJ1HC5	C5
250	302	KDRG1L	337	R10	65	KDRG1LC4	C4	KDRL1H	548	R12	110	KDRL1HC5	C5
300	361	KDRG2L	381	R11	65	KDRG2LC4	C4	KDRL2H	786	R12	95	KDRL2HC5	C5
350	414	KDRJ2L	465	R11	70	KDRJ2LC5	C5	KDRL3H	750	R12	100	KDRL3HC5	C5
400	477	KDRJ1L	470	R11	70	KDRJ1LC5	C5	KDRL4H	730	R12	110	KDRL4HC5	C5
450	515	KDRL1L	509	R12	110	KDRL1LC5	C5	KDRL5H	774	R13	120	KDRL5HC5	C5
500	590	KDRL2L	518	R12	110	KDRL2LC5	C5	KDRL6H	697	R13	120	KDRL6HC5	C5
<b>575... 690V - 3 Phase supply (50/60Hz)</b>													
0.5	0.9	KDRA55L	6	R1	4	KDRA55LC1	C1	KDRA55H	8.9	R1	4	KDRA55HC1	C1
0.75	1.3	KDRA56L	9.3	R1	4	KDRA56LC1	C1	KDRA52H	13.3	R1	4	KDRA52HC1	C1
1	1.7	KDRA50L	12	R1	4	KDRA50LC1	C1	KDRA50H	17	R1	4	KDRA50HC1	C1
1.5	2.4	KDRA51L	19	R1	4	KDRA51LC1	C1	KDRA51H	26.3	R1	4	KDRA51HC1	C1
2	2.7	KDRA46L	22	R1	4	KDRA46LC1	C1	KDRA43H	23.6	R1	4	KDRA43HC1	C1
3	3.9	KDRA52L	23.3	R1	4	KDRA52LC1	C1	KDRA44H	34.5	R1	4	KDRA44HC1	C1
5	6.1	KDRA47L	34.7	R1	4	KDRA47LC1	C1	KDRA45H	47.8	R1	4	KDRA45HC1	C1
7.5	9	KDRA48L	42.9	R1	4	KDRA48LC1	C1	KDRB42H	61.1	R2	8	KDRB42HC2	C2
10	11	KDRA49L	43.8	R1	5	KDRA49LC1	C1	KDRB43H	70.7	R2	8	KDRB43HC2	C2
15	17	KDRB45L	66.2	R2	8	KDRB45LC1	C1	KDRB44H	73	R2	8	KDRB44HC2	C2
20	22	KDRB44L	71.2	R2	8	KDRB44LC1	C1	KDRD41H	105.6	R3	12	KDRD41HC2	C2
25	27	KDRB43L	76.7	R2	8	KDRB43LC1	C1	KDRC43H	107.4	R4	15	KDRC43HC2	C2
30	32	KDRD42L	106	R3	12	KDRD42LC2	C2	KDRE42H	140.3	R4	16	KDRE42HC2	C2
40	41	KDRC43L	109	R4	15	KDRC43LC2	C2	KDRF44H	172.2	R5	30	KDRF44HC3	C3
50	52	KDRC44L	123	R4	15	KDRC44LC2	C2	KDRF45H	165.6	R5	30	KDRF45HC3	C3
60	62	KDRF46L	181	R5	30	KDRF46LC3	C3	KDRH43H	205	R7	45	KDRH43HC4	C4
75	77	KDRF47L	194	R5	30	KDRF47LC3	C3	KDRH42H	251	R7	45	KDRH42HC4	C4
100	99	KDRF45L	194	R5	30	KDRF45LC4	C4	KDRI41H	268	R8	50	KDRI41HC4	C4
125	125	KDRH43L	261	R8	45	KDRH43LC4	C4	KDRG44H	381.3	R9	65	KDRG44HC4	C4
150	144	KDRH44L	253	R8	45	KDRH44LC4	C4	KDRG45H	405.9	R10	65	KDRG45HC4	C4
200	192	KDRI42L	342	R8	50	KDRI42LC4	C4	KDRJ41H	466.4	R11	70	KDRJ41HC5	C5
250	242	KDRG47L	394	R10	65	KDRG47LC4	C4	KDRL46H	472.3	R14	110	KDRL46HC5	C5
300	289	KDRG45L	374	R10	65	KDRG45LC4	C4	KDRL47H	490.3	R14	110	KDRL47HC5	C5
350	336	KDRJ45L	474	R11	70	KDRJ45LC5	C5	KDRL48H	539	R14	110	KDRL48HC5	C5
400	382	KDRJ43L	463	R11	70	KDRJ43LC5	C5	KDRL49H	603	R14	110	KDRL49HC5	C5
450	412	KDRJ44L	473	R11	70	KDRJ44LC5	C5	KDRS47H	521	R15	165	KDRS47HC5	C5
500	472	KDRL45L	587	R14	110	KDRL45LC5	C5	KDRS46H	660.5	R15	165	KDRS46HC5	C5

Note:  
- For single phase supply, refer to the 3-phase supply reactor and do not connect the middle leg, impedance shall increase by 0.5%  
- Please consult your Schneider Representative for over configurations, options and details

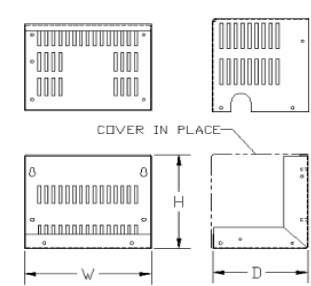
### Dimensions

Reactor Chassis Size	height x width x depth	Enclosure Nema1 Size	in inches
R1	4.00 x 4.18 x 3.75	C1	6.50 x 8.00 x 6.00
R2	5.00 x 6.00 x 4.00	C2	7.50 x 10.00 x 7.00
R3	5.75 x 7.20 x 4.25	C3	9.00 x 12.00 x 8.00
R4	5.75 x 7.20 x 5.00	C4	15.5 x 15.0 x 13.0
R5	7.00 x 9.00 x 6.00	C5	18.5 x 20.0 x 16.0
R6	7.00 x 9.00 x 7.00		
R7	9.00 x 11.00 x 6.00		
R8	9.00 x 11.00 x 7.00		
R9	9.00 x 11.00 x 7.50		
R10	9.00 x 11.00 x 8.00		
R11	9.00 x 11.00 x 9.00		
R12	11.38 x 14.50 x 9.50		
R13	11.38 x 14.50 x 11.00		
R14	11.38 x 15.00 x 11.00		
R15	11.38 x 15.00 x 13.00		

### KDR series:



### Enclosures:



is assumed by Schneider Electric for any consequences arising out of the use of this material.