

KLR™ Series

Three Phase Reactors

PRODUCT SPECIFICATIONS

- LIFETIME WARRANTY
- PERFORMANCE GUARANTEE
- K-RATED, UL/JLC-Recognized;
- 3 Phase, 600V Class
- Gapped Iron Core Inductor
- All Copper Windings
- 40°C Ambient Temp.
- Available with Terminal Options and in NEMA 1
- High quality BOBBIN CONSTRUCTION, units 80A and below.
- DISTRIBUTED GAP™ Technology, units 110A and above
- Can tolerate 200% rated I, for at least 3 minutes
- UNIVERSAL FOOTPRINT



Applications

TCI KLR™ series three phase AC reactors are intended for use as input filters for adjustable speed DC drives and as input or output filters for AC-PWM variable frequency drives. Drive performance is significantly improved, the drives input rectifier is protected from failure or damage, and drive harmonic demands are tamed with the addition of a K-rated reactor. KLR™ reactors act as interface buffers between solid state power circuits and the line or the motor. (Not unlike the surge protector for your desk-top PC). All drives, in any application, will benefit when applied with KLR™ series reactors.

Before KLR™

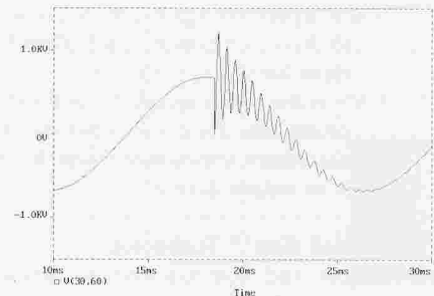
Drives are susceptible to problems caused at their interface to the line or motor. Some of these issues include AC voltage waveform line notching or cross-talk, DC bus overvoltage trips, inverter overcurrent and overvoltage, and poor total power factor. Since all drives demand nonlinear current and voltage, drives demand currents rich in harmonics.

After KLR™

KLR™ reactors provide additional circuit inductance which slows rapid changes in current that are the heart of the problems listed above.

1.) Voltage line notching, or commutation notching, is caused by SCR phase-controlled rectifiers. KLR™ reactors provide a voltage-dividing impedance which reduces the depth and rounds the edges of the notches, thereby eliminating drive cross-talk, interference, and equipment damage.

2.) Transient voltages (See Figure 1) on the AC power lines can cause inrush currents to an AC-PWM drive, resulting in an overvoltage condition of the DC bus.



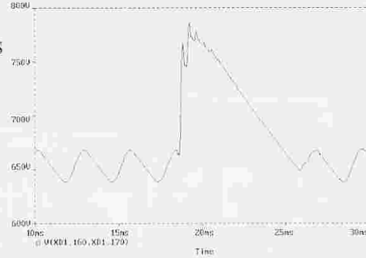
These transient voltage conditions are often caused by utility capacitor switching and will cause VFDs to shut down without warning. The addition of a KLR™ reactor



After KLR™ (cont.)

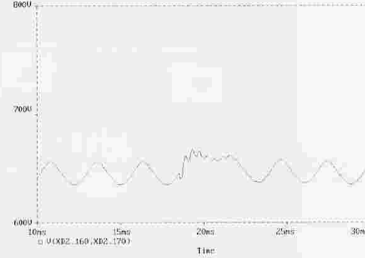
will limit the magnitude of inrush current, preventing trips and component failures. (See Figure 2.)

3.) When used as output filters, KLR™ reactors prevent inverter instantaneous overcurrent trips because they provide needed inductance when the load on an inverter has an abnormally high capacitance. For example, if a single inverter is powering multiple motors, the load may look capacitive, causing inverter shutdown.

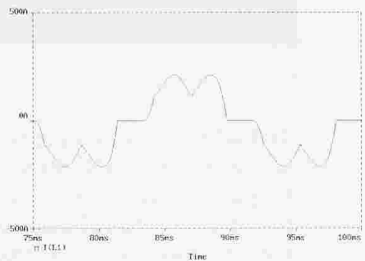
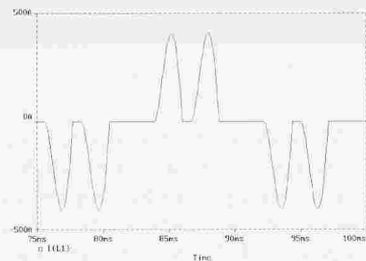


may cause “flat-topping” of the voltage waveform. Reducing those peak currents also reduces total harmonic voltage distortion. (See Figure 3.)

5.) The addition of a KLR™ reactor reduces total RMS current without affecting the work being done. Therefore, total power factor is improved.

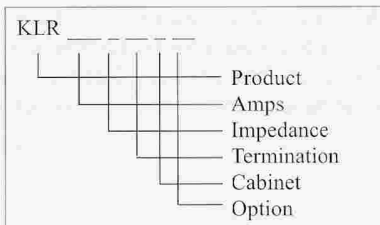


4.) The addition of a KLR™ reactor limits inrush current to the rectifier, rounding the waveform, reducing peak currents, and lowering harmonic current distortion. High peak currents



Application Instructions

Line reactors are current-rated devices. Therefore, in order to apply one, you simply need to know the full load AMPs of the drive with which it will be used and the amount of impedance that is necessary in the application. (See NEC Table 430-150 for HP/Current calculations).



Recommended impedance levels:

- 2.4 to 3% eliminates bus overvoltage tripping
- 5 to 6% protects against physical damage to drive components and offers the most harmonic reduction.
- 1.5% is the recommended input minimum to protect the drive and is the recommended maximum impedance when the filter is used as an output device.

Distributed Gap™ Technology

As reactors, and their required air-gaps get bigger, flux fringing and eddy currents can cause heating and insulation breakdown. TCI KLR™ reactors above 80Amps/5% utilize Distributed Gap™ technology - a construction technique that subdivides a large gap into

two or more smaller gaps. A KLR™ reactor built with this technique will run cooler and last longer than the competitions cheaper single gap products.

Universal Footprint/Termination Options

KLR reactors are available with customer specified mounting hole spacing (for OEMs) or vertical/horizontal DIN rail mounting (for Integrators). Termination options make handling and connection easier. See part number tables for details on both options.

Drawings/Specifications

AutoCad compatible *.dxf drawings and Sample Bidding Specifications of all KLR™ units are available at www.transcoil.com or by calling (800) 824-8282.

Manufacturers Warranty

KLR™ reactors are warranted against manufacturer's defect for the life of the drive they are installed with.

Performance Guarantee

Properly sized for the application, a KLR™ reactor is guaranteed to end an AC Drive overvoltage tripping problem. If you install a KLR™ reactor and a tripping problem remains, TCI will take back the reactor and pay shipping both ways. (Offer valid for 60 days from date of purchase.)

The information contained in this brochure is subject to update without notice.

480V, 3% Z
575V, 2.4% Z
240V, 6% Z

Part Number (Cab)	480V HP†	Connection Type	Termination Options	Watts Loss	Inductance (uH)	Dimensions (in.)			Weight
						Height	Width	Depth	
KLR2ATB (1)	1	#12 Max	QD/FL/ST	8	11026	4	4.25	3	3
KLR3ATB (1)	1.5	#12 Max	QD/FL/ST	9	7351	4	4.25	3	3
KLR4ATB (1)	2	#12 Max	QD/FL/ST	15	5513	4	4.25	3	3
KLR6ATB (1)	3	#12 Max	QD/FL/ST	17	3675	4	4.25	3	3
KLR8ATB (1)	5	#12 Max	QD/FL/ST	27	2757	4	5	4	3
KLR12ATB (1)	7.5	#12 Max	QD/FL/ST	31	1838	5	7	5	6
KLR16ATB (1)	10	#4 - #18	FL/RL	38	1376	5	6	4	7
KLR18ATB (2)	12	#4 - #18	FL/RL	40	1225	5.75	8	5	11
KLR21ATB (2)	15	#4 - #18	FL/RL	45	1050	5.75	8	5	11
KLR25ATB (2)	15	#4 - #18	FL/RL	48	882	5.75	8	5	11
KLR27ATB (2)	20	#4 - #18	FL/RL	58	817	5.75	8	5	11
KLR35ATB (2)	20-25	#4 - #18	FL/RL	70	630	5.75	8	5	14
KLR45ATB (2)	30	#4 - #18	FL/RL	74	490	5.75	8	5	14
KLR55ATB (3)	40	#4 - #18	FL/RL	113	401	7	9	6	22
KLR80ATB (4)	50-60	#4 - #18	FL/RL	129	276	9	11	6	31
KLR110ACB (4)	75	.28" hole	PT	152	200	9	11	7	39
KLR130ACB (4)	100	.28" hole	PT	148	170	9	11	8	48
KLR160ACB (4)	125	.34" hole	PT	165	130	9	11	8	50
KLR200ACB (5)	150	.38" hole	PT	222	110	11.38	14	8	86
KLR250ACB (5)	200	.44" hole	PT	261	88	11.38	14	8	91
KLR300ACB (5)	250	.44" hole	PT	291	74	11.38	14	8	101
KLR360ACB (5)	300	.56" hole	PT	380	61	11.38	14	8	90
KLR420ACB (5)	350	.53" hole	PT	400	53	11.38	14	8	100
KLR480ACB (5)	400	.53" hole	PT	392	46	11.38	15	11	115
KLR600ACB (5)	450	.53" hole	PT	493	37	11.38	15	13	151
KLR750ACB (7)	500	.53" hole	PT	515	29	17.25	16.94	10.25	283
KLR850ACB (7)	750	.53" hole	PT	569	26	17.25	16.94	10.25	290
KLR950ACB (7)	800	.53" hole	PT	686	23	17.25	16.94	10.25	295

480V, 1.5% Z
240V, 3% Z

Part Number (Cab)	480V HP†	Connection Type	Termination Options	Watts Loss	Inductance (uH)	Dimensions (in.)			Weight
						Height	Width	Depth	
KLR2BTB (1)	1	#12 Max	QD/FL/ST	4	5513	4	5	4	3
KLR3BTB (1)	1.5	#12 Max	QD/FL/ST	5	3667	4	5	4	3
KLR4BTB (1)	2	#12 Max	QD/FL/ST	9	2757	4	5	4	3
KLR6BTB (1)	3	#12 Max	QD/FL/ST	9	1836	4	5	4	3
KLR8BTB (1)	5	#12 Max	QD/FL/ST	14	1378	4	5	4	3
KLR12BTB (1)	7.5	#12 Max	QD/FL/ST	20	919	4	5	4	3
KLR16BTB (1)	10	#4 - #18	FL/RL	20	689	5	6	4	7
KLR18BTB (2)	12	#4 - #18	FL/RL	27	613	6	7	4	8
KLR21BTB (2)	15	#4 - #18	FL/RL	30	525	6	7	4	8
KLR25BTB (2)	15	#4 - #18	FL/RL	36	441	6	7	4	8
KLR27BTB (2)	20	#4 - #18	FL/RL	43	408	6	7	4	8
KLR35BTB (2)	20-25	#4 - #18	FL/RL	55	315	6	7	4	8
KLR45BTB (2)	30	#4 - #18	FL/RL	59	245	6	7	4	8
KLR55BTB (2)	40	#4 - #18	FL/RL	70	200	5.75	8	5	11
KLR80BTB (3)	50-60	#4 - #18	FL/RL	105	138	7	9	6	22
KLR110BCB (4)	75	.28" hole	PT	95	100	7	10	7	26
KLR130BCB (4)	100	.28" hole	PT	117	85	9	11	7	33
KLR160BCB (4)	125	.34" hole	PT	127	69	9	11	7	47
KLR200BCB (4)	150	.38" hole	PT	135	55	9	11	7	53
KLR250BCB (4)	200	.44" hole	PT	161	44	9	11	7	48
KLR300BCB (5)	250	.44" hole	PT	216	37	9	11	9	54
KLR360BCB (5)	300	.56" hole	PT	221	31	9	11	9	65
KLR420BCB (5)	350	.53" hole	PT	275	26	11.38	14	8	85
KLR480BCB (5)	400	.53" hole	PT	267	23	11.38	14	8	90
KLR600BCB (5)	450	.53" hole	PT	338	18	11.38	14	8	96
KLR750BCB (7)	500	.53" hole	PT	372	15	12.38	13.44	10.25	147
KLR850BCB (7)	750	.53" hole	PT	389	13	12.38	13.44	10.25	150
KLR950BCB (7)	800	.53" hole	PT	479	12	12.38	13.44	10.25	156



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www.transcoil.com

480V, 5% Z

Part Number (Cab)	480V HP†	Connection Type	Termination Options	Watts Loss	Inductance (uH)	Dimensions (in.)			Weight
						Height	Width	Depth	
KLR2CTB (1)	1	#12 Max	QD/FL/ST	11	18377	4	5	4	3
KLR3CTB (1)	1.5	#12 Max	QD/FL/ST	14	12251	4	5	4	3
KLR4CTB (1)	2	#12 Max	QD/FL/ST	23	9189	4	5	4	3
KLR6CTB (1)	3	#12 Max	QD/FL/ST	22	6126	5	7	5	6
KLR8CTB (1)	5	#12 Max	QD/FL/ST	34	4594	5	7	5	6
KLR12CTB(1)	7.5	#12 Max	QD/FL/ST	54	3063	5	7	5	6
KLR16CTB (2)	10	#4 - #18	FL/RL	58	2297	5.75	8	5	12
KLR18CTB (2)	12	#4 - #18	FL/RL	75	2042	5.75	8	5	12
KLR21CTB (2)	15	#4 - #18	FL/RL	59	1750	5.75	8	5	14
KLR25CTB (2)	15	#4 - #18	FL/RL	67	1470	5.75	8	5	14
KLR27CTB (2)	20	#4 - #18	FL/RL	80	1361	5.75	8	5	14
KLR35CTB (3)	20-25	#4 - #18	FL/RL	97	1050	7	9	6	22
KLR45CTB (3)	30	#4 - #18	FL/RL	118	817	7	9	6	24
KLR55CTB (4)	40	#4 - #18	FL/RL	150	668	9	11	6	32
KLR80CTB (4)	50-60	#4 - #18	FL/RL	154	459	9	11	7	48
KLR110CCB (4)	75	.28" hole	PT	191	334	9	11	8	50
KLR130CCB (5)	100	.28" hole	PT	239	283	11.38	14	8	81
KLR160CCB (5)	125	.34" hole	PT	254	230	11.38	14	8	84
KLR200CCB (5)	150	.38" hole	PT	337	184	11.38	14	8	110
KLR250CCB (5)	200	.44" hole	PT	353	147	11.38	14	10	91
KLR300CCB (5)	250	.44" hole	PT	443	123	11.38	15	11	122
KLR360CCB (5)	300	.56" hole	PT	406	102	11.38	15	11	156
KLR420CCB (5)	350	.53" hole	PT	500	88	11.38	15	13	160
KLR480CCB (5)	400	.53" hole	PT	522	77	11.38	15	13	175
KLR600CCB (7)	450	.53" hole	PT	650	61	17.25	16.94	10.25	275
KLR750CCB (7)	500	.53" hole	PT	732	49	17.25	16.94	10.25	295
KLR850CCB (7)	750	.53" hole	PT	850	43	17.25	16.94	10.25	300
KLR950CCB (7)	800	.53" hole	PT	978	39	17.25	16.94	10.25	305

575V, 3% Z

Part Number (Cab)	575V HP†	Connection Type	Termination Options	Watts Loss	Inductance (uH)	Dimensions (in.)			Weight
						Height	Width	Depth	
KLR2DTB (1)	1	#12 Max	QD/FL/ST	9	13784	4	5	4	4
KLR3DTB (1)	1.5-2	#12 Max	QD/FL/ST	12	9189	4	5	4	4
KLR4DTB (1)	3	#12 Max	QD/FL/ST	18	6892	4	4.25	3	4
KLR6DTB (1)	3	#12 Max	QD/FL/ST	22	4595	4	5	4	5
KLR8DTB (1)	5	#12 Max	QD/FL/ST	28	3446	5	7	5	7
KLR12DTB (1)	7.5	#12 Max	QD/FL/ST	44	2297	5	7	5	7
KLR16DTB (1)	10	#4 - #18	FL/RL	52	1723	5	6	4	8
KLR18DTB (2)	15	#4 - #18	FL/RL	44	1532	5.75	8	5	12
KLR21DTB (2)	15	#4 - #18	FL/RL	51	1313	5.75	8	5	13
KLR25DTB (2)	20	#4 - #18	FL/RL	72	1103	5.75	8	5	13
KLR27DTB (2)	25	#4 - #18	FL/RL	62	1021	5.75	8	5	13
KLR35DTB (2)	30	#4 - #18	FL/RL	79	788	5.75	8	5	16
KLR45DTB (3)	40	#4 - #18	FL/RL	90	613	7	9	6	26
KLR55DTB (3)	50	#4 - #18	FL/RL	90	501	7	9	6	24
KLR80DTB (4)	60-75	#4 - #18	FL/RL	116	345	9	11	7	49
KLR110DCB (4)	100	.28" hole	PT	217	251	9.5	10.56	8.25	49
KLR130DCB (4)	125	.28" hole	PT	242	212	9.5	10.56	8.25	47
KLR160DCB (4)	150	.34" hole	PT	261	172	9	11	7	47
KLR200DCB (5)	200	.38" hole	PT	270	138	12.38	13.44	9	86
KLR250DCB (5)	250	.44" hole	PT	316	110	12.38	13.44	9	91
KLR300DCB (5)	300	.44" hole	PT	335	92	12.38	13.44	9	101
KLR360DCB (5)	350	.56" hole	PT	420	77	12.38	13.44	9	98
KLR420DCB (5)	400	.53" hole	PT	435	66	12.38	13.44	9	100
KLR480DCB (5)	500	.53" hole	PT	395	57	12.38	13.44	10.25	175
KLR600DCB (5)	600	.53" hole	PT	580	46	12.38	13.44	10.25	151
KLR750DCB (7)	700	.53" hole	PT	604	37				
KLR850DCB (7)	800	.53" hole	PT	703	32				
KLR950DCB (7)	900	.53" hole	PT	773	29				



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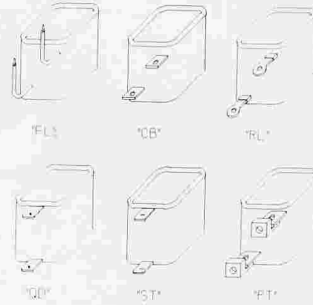
www.transcoil.com

575V, 5% Z

Part Number (Cab)	575V HP†	Connection Type	Termination Options	Watts Loss	Inductance (uH)	Dimensions (in.)			Weight
						Height	Width	Depth	
KLR2ETB (1)	1	#12 Max	QD/FL/ST	13	22973	4	5	4	4
KLR3ETB (1)	1.5-2	#12 Max	QD/FL/ST	17	15315	4	5	4	5
KLR4ETB (1)	3	#12 Max	QD/FL/ST	27	11486	4	5	4	5
KLR6ETB (1)	3	#12 Max	QD/FL/ST	28	7658	5	7	5	7
KLR8ETB (1)	5	#12 Max	QD/FL/ST	48	5743	5	7	5	7
KLR12ETB (2)	7.5	#12 Max	FL/RL	56	3829	5.75	8	5	8
KLR16ETB (2)	10	#4 - #18	FL/RL	67	2872	5.75	8	5	13
KLR18ETB (2)	15	#4 - #18	FL/RL	73	2553	5.6	6.94	3.44	12
KLR21ETB (2)	15	#4 - #18	FL/RL	69	2188	5.75	8	5	17
KLR25ETB (2)	20	#4 - #18	FL/RL	92	1838	7	9	6	17
KLR27ETB (2)	25	#4 - #18	FL/RL	94	1702	7	9	6	17
KLR35ETB (3)	30	#4 - #18	FL/RL	125	1313	7	9	6	23
KLR45ETB (3)	40	#4 - #18	FL/RL	146	1021	7	9	7	26
KLR55ETB (4)	50	#4 - #18	FL/RL	132	835	7	10	7	33
KLR80ETB (4)	60-75	#4 - #18	FL/RL	178	574	9	11	7	49
KLR110ECB (5)	100	.28" hole	PT	259	418	8.5	14	8	53
KLR130ECB (5)	125	.28" hole	PT	287	353	11.38	14	8	88
KLR160ECB (5)	150	.34" hole	PT	299	287	11.38	14	8	95
KLR200ECB (5)	200	.38" hole	PT	349	230	11.38	14	9	110
KLR250ECB (5)	250	.44" hole	PT	375	184	11.38	14	9	115
KLR300ECB (5)	300	.44" hole	PT	422	153	11.38	15	11	122
KLR360ECB (5)	350	.56" hole	PT	463	128	11.38	15	11	156
KLR420ECB (5)	400	.53" hole	PT	532	109	11.38	15	11	160
KLR480ECB (5)	500	.53" hole	PT	576	96	11.38	15	11	175
KLR600ECB (7)	600	.53" hole	PT	782	77	17.25	16.94	10.25	275
KLR750ECB (7)	700	.62" hole	PT	929	61				
KLR850ECB (7)	800	.62" hole	PT	1007	54				
KLR950ECB (7)	900	.62" hole	PT	1100	48				

Termination Options

Termination Options	Type	AMP Range	Connection Type
TB	Terminal Block	2-80 (std.)	#4-#18
QD	Quick Disconnect	2-12	1/4" Female Faston
ST	Screw Terminal	2-12	#6 (Supplied)
FL	Flying Lead	2-80	2' Std; 2-18# Leads
RL	Ring Lugs	16-80	.25 - .38 Bolt
CB	Copper Bus	110-950 (std)	.25 - .50 Bolt
PT	Pressure Terminal	110-950	.25 - .50 Bolt*

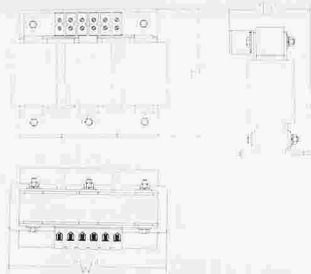


*1, 2 or 3 conductors per phase.

KLR Enclosures

Cab Part Number	KLR P/N Adder*	Dimensions (in.)			Weight
		Height	Width	Depth	
C1	1	6.5	8	6	4
C2	2	7.5	10	7	6
C3	3	9	12	8	12
C4	4	15.5	15	13	35
C5	5	18.5	20	16	50
C7	7	36	28.5	30.25	160

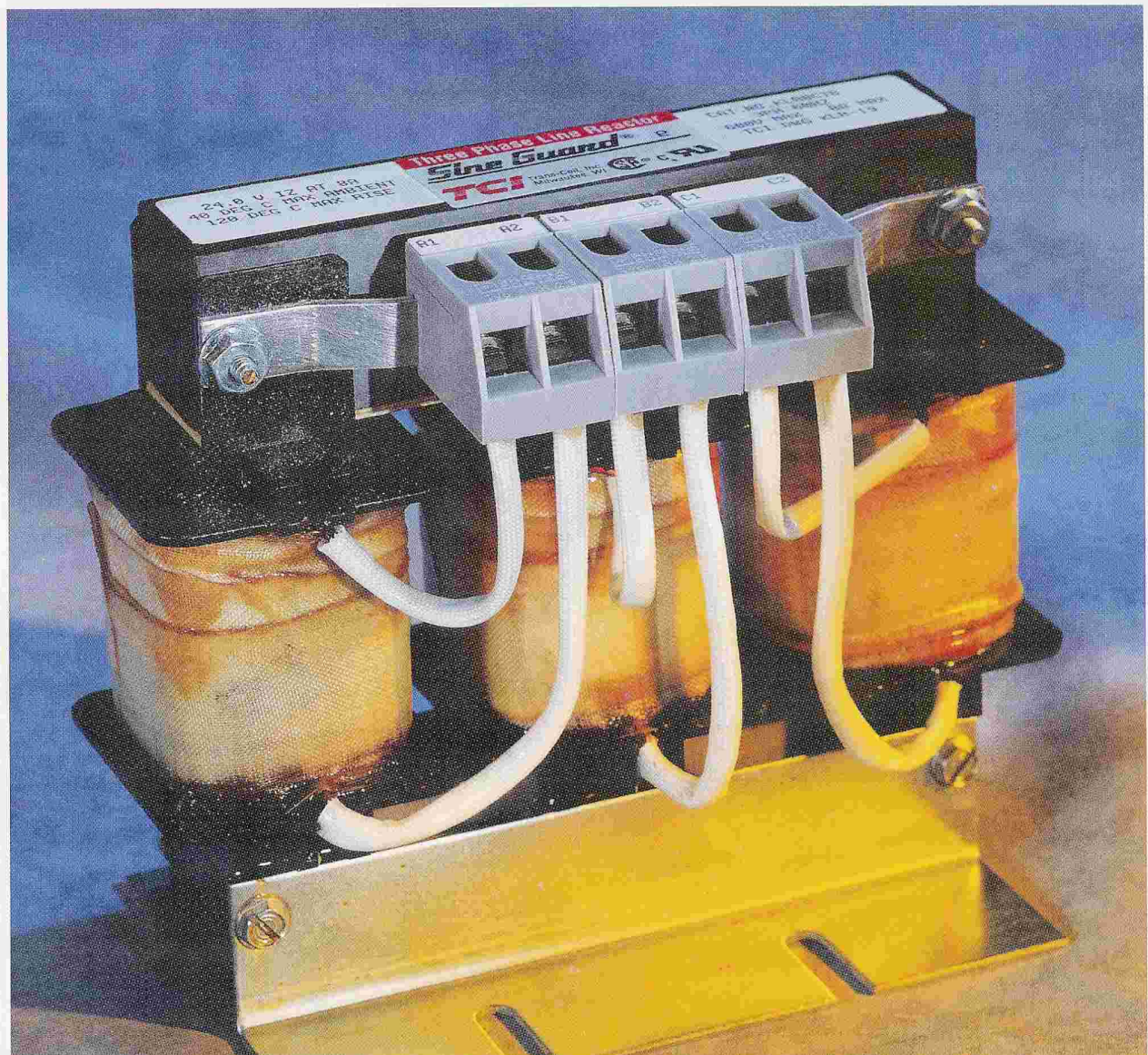
* Use this number at the end of a KLR part number to identify enclosed reactors.



Cabinet representation - C1,C2



Cabinet representation - C3 through C5



Ventilated powder-coat NEMA 1 wallmount or floormount • Exclusive Distributed Gap™ technology (110A and above) • OPS™ Software designed for perfect impedance • E-Z READ installation instructions on label • Vertical or horizontal mounting • The only K-Rated reactor • Five termination options • Immediate availability • Rust-proof plated base • All copper wound • UL, CUL • Selection Charts •

No-rock platform • Lifetime Warranty • Universal Footprint • Toll-free support • Performance Guarantee • CAD drawings on the net • 180 degree insulation system • Quick-Slotted base (for one-handed Bobbin wound design (80A environmentally safe epoxy impregnation



turn specials available • installs) • Efficient and below) • 100% solids,