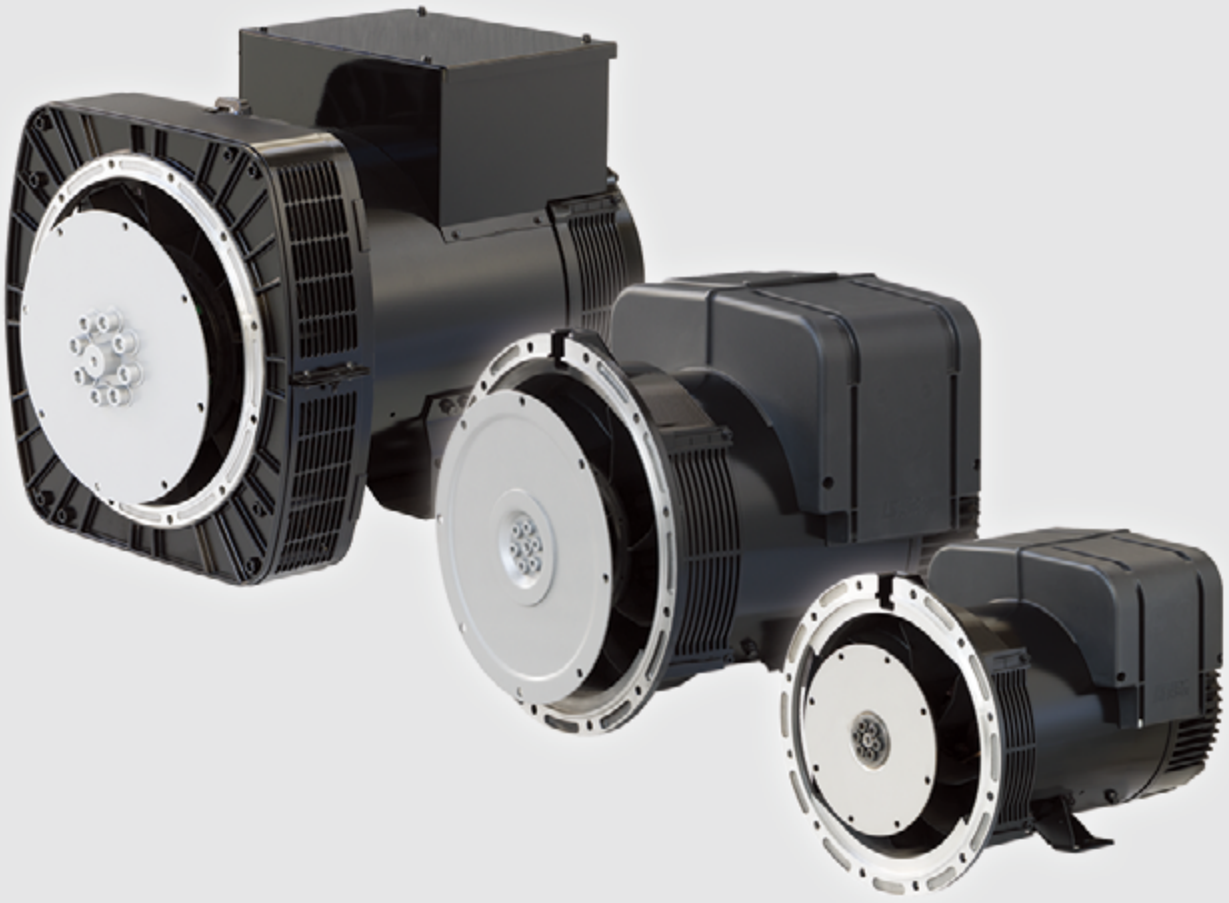


Low Voltage Alternators - 4 pole

TAL A40 - TAL A42- TAL A44

Electrical and mechanical data

13 to 200 kVA - 50 Hz / 15.5 to 250 kVA - 60 Hz

LEROY-SOMER™

Nidec

All for dreams

Product Feature

Features and Benefits

Compact Machine

Global Service

Quick & efficient service
- Global manufacturing facilities for local delivery – short lead time
- Unequalled service organization

Leroy-Somer

TAL A Series

Easy Installation & Maintenance

Easy genset maintenance
- Easy access to cables and diode bridges
- ControlReg option

Easy genset installation
- Optimized coupling with engines
- Interchangeable with LSA
- Flying leads option

Less footprint Cost-effective Reliability

- One of the shortest products
- Low vibration level



Optimized Electrical Performance

Optimized genset power outputs, matching available engines

- Adapted power outputs to reach power nodes with existing engines
- Optimized performance vs Application

Compact Terminal Box

Easy access to regulator

- Simplified design

Optimal Mechanical Design

Low Voltage Alternators - 4 pole

TAL A40 - TAL A42 - TAL A44

Adapted to needs



The TAL alternator range is designed to meet the specific needs of telecommunications, commercial & industrial markets, as well as prime and stand-by power applications.

Compliance with internationally recognized standards

4 Pole Altemators are in compliance to the main international standards and regulations:
-IEC 60034, NEMA MG 1.32-33, BS 5000 Part 99, VDE 0530, ISO 8528/3, UL 1446, UL 1004 on request and depending on voltages, marin regulations, etc. It can be integrated into a CE marked generator.

Alternators are designed, manufactured and marketed in an ISO 9001 and ISO14001 environments.

Electrical design



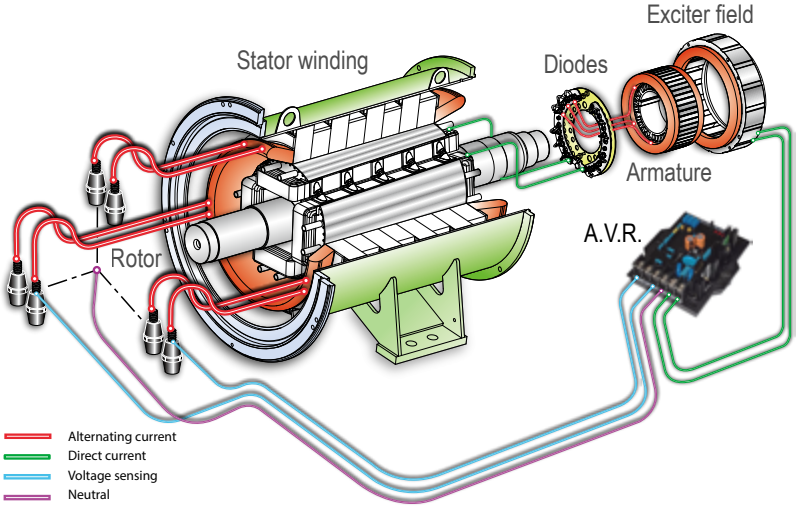
- Class H insulation
- Low voltage winding
- 4-terminal plate
- Optimized performance

Robust design

- Compact and rugged assembly to withstand engine vibrations
- Steel frame
- Aluminum flanges and shields
- Single-bearing design to be suitable with most diesel engines
- Sealed for life bearing
- Direction of rotation: clockwise

Compact terminal box

- Easy access to AVR and terminals



Environment and protection

- The alternators are IP 23
- Standard winding protection for non-harsh environment with relative humidity ≤ 95%

Available options

- AREP & PMG
  (PMG suitable for TAL A42 and above)
- 12-lead (12-lead is standard option for TAL-A40 series)
- Customized painting
- Space heater
- Droop kit for alternator paralleling (AVR upgrade to R150)
- CE mark
- Stator sensors (TAL A44 only)
- Measuring/Protection CT (TAL A44 only, please consult Leroy Somer for CT type)
- Voltage trimmer (AVR upgrade to R150)
- Winding protection for harsh environments and relative humidity greater than 95% (system 2 - 4): de-rating ratio according to 3%

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

General characteristics - 6 & 12-wire

Insulation class	H
Winding pitch	2/3
Number of wires	6 or 12
Protection	IP 23
Altitude	≤ 1000 m
Overspeed	2250 R.P.M.
Air flow 50 Hz (m³/s)	0.25*
Air flow 60 Hz (m³/s)	0.30**
AREP Short-circuit current = 2.7 In: 5 second	

(*) 0.29 for L&M (**) 0.34 for L&M

Excitation system 6 wires	SHUNT	AREP
AVR type	R120	R180
Excitation system 12 wires	SHUNT	AREP
AVR type	R120	R180
Voltage regulation (*)	± 1 %	
Total Harmonic distortion THD (**) in no-load	< 3.5 %	
Total Harmonic distortion THD (**) in linear load	< 5 %	
Waveform: NEMA = TIF (**)	< 50	
Waveform : I.E.C. : THF (**)	< 2%	

(*) Steady state (**) Total harmonic distortion between phases, no-load or on-load (non-distorting)

Ratings 50 Hz - 1500 R.P.M. - 6 & 12-wire

kVA / kW - P.F. = 0.8

Duty/T°C		Continuous/ 40°C					Continuous/ 40°C					Stand-by/ 40°C					Stand-by/ 27°C				
Class/T°K		H:125K					F:105K					H:150K					H:163K				
Phase		3ph.				1ph.	3ph.				1ph.	3ph.				1ph.	3ph.				1ph.
Y		380V	400V	415V	440V		380V	400V	415V	440V		380V	400V	415V	440V		380V	400V	415V	440V	
Δ		220V	230V	240V		230V *	220V	230V	240V		230V *	220V	230V	240V		230V *	220V	230V	240V		230V *
YY		190V	200V	208V	220V		190V	200V	208V	220V		190V	200V	208V	220V		190V	200V	208V	220V	
ΔΔ						230V					230V					230V					230V
TAL A44 C	kVA	81	**85**	85		42	73	**76.5**	76.5		38	85	**89**	89		44	88	**93.5**	93.5		46
	kW	65	***68***	68		*34*	58	**61**	61		*30*	68	**71**	71		*35*	70	**75**	75		*36.8*
TAL A44 D	kVA	100	**100**	95		48	90	**90**	86		43	105	**105**	100		50.5	110	**110**	105		53
	kW	80	***80***	76		*38*	72	**72**	69		*35*	84	**84**	80		*40*	88	**88**	84		*42*
TAL A44 E	kVA	119	**125**	119		60	107	**112.5**	107		54	124	**131**	124		63	130	**137.5**	130		66
	kW	95	***100***	95		*48*	86	**90**	86		*43*	99	**105**	99		*50*	104	**110**	104		*53*
TAL A44 H	kVA	137.5	**137.5**	128		67	124	**125**	115		60	142	**142**	135		70.5	151.5	**151.5**	141		74
	kW	110	***110***	102		*54*	99	**100**	92		*48*	114	**114**	108		*56*	121	**121**	113		*59*
TAL A44 J	kVA	143	**150**	143		73	129	**135**	129		66	150	**158**	150		77	157	**165**	157		80
	kW	114	***120***	114		*58*	103	**108**	103		*53*	120	**126**	120		*61*	126	**132**	126		*64*
TAL A44 K	kVA	161.5	**170**	161.5		80	145	**153**	145		72	170	**179**	170		84	178	**187.5**	178		88
	kW	129	***136***	129		*64*	116	**122**	116		*58*	136	**143**	136		*67*	142	**150**	142		*70*
TAL A44 L	kVA	180	**180**	180	171	90	164	**164**	164	156	82	191	**191**	191	181	95	200	**200**	200	188	99
	kW	144	***144***	144	137	*72*	131	**131**	131	125	*66*	153	**153**	153	145	*76*	160	**160**	160	150	*79*
TAL A44 M	kVA	192	**200**	200	192	100	175	**182**	182	175	91	204	**212**	212	204	106	211	**220**	220	211	110
	kW	154	***160***	160	154	*80*	140	**146**	146	140	*73*	163	**170**	170	163	*85*	169	**176**	176	169	*88*

* L,M Only

Ratings 60 Hz - 1800 R.P.M. - 6 & 12-wire

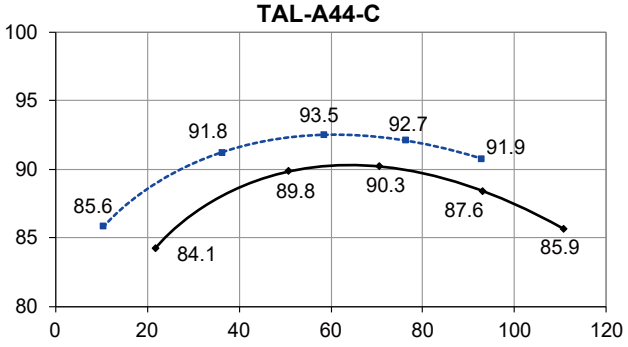
kVA / kW - P.F. = 0.8

Duty / T° C		Continuous/ 40°C					Continuous/ 40°C					Stand-by/ 40°C					Stand-by/ 27°C				
Class / T° K		H:125K					F:105K					H:150K					H:163K				
Phase		3ph.				1ph.	3ph.				1ph.	3ph.				1ph.	3ph.				1ph.
Y		380V	416V	440V	480V		380V	416V	440V	480V		380V	416V	440V	480V		380V	416V	440V	480V	
Δ		220V	240V	254V	277V		220V	240V	254V	277V		220V	240V	254V	277V		220V	240V	254V	277V	
YY		190V	208V	220V	240V		190V	208V	220V	240V		190V	208V	220V	240V		190V	208V	220V	240V	
ΔΔ						240V					240V					240V					240V
TAL A44 C	kVA	81	88	93	**102**	52	72.5	79.5	83.5	**92**	47	85	93	97	**107**	54.6	89	97	102	**112**	57
	kW	*64*	*71*	*74*	*81.6*	*42*	*58*	*64*	*67*	*73*	*37.4*	*68*	*74*	*78*	*86*	*44*	*71*	*78*	*82*	*90*	*45.6*
TAL A44 D	kVA	95	104	109	**120**	65	85	93.5	98	**108**	58.5	100	109	115	**126**	68	104	114	120	**132**	72
	kW	*76*	*83*	*87*	*96*	*52*	*68*	*75*	*79*	*86*	*46.8*	*80*	*87*	*92*	*101*	*55*	*83*	*91*	*96*	*105.6*	*57.6*
TAL A44 E	kVA	119	130	137	**150**	76	107	117	123	**135**	68.4	124	136	143	**158**	80	130	143	150	**165**	83
	kW	*95*	*104*	*109*	*120*	*61*	*85*	*94*	*98*	*108*	*54.7*	*100*	*109*	*115*	*126*	*64*	*104*	*114.3*	*120*	*132*	*66*
TAL A44 H	kVA	130	143	150	**165**	81	117	129	135	**150**	73	137	150	158	**173**	85	143	157	165	**182**	89
	kW	*104*	*114*	*120*	*132*	*65*	*94*	*103*	*108*	*120*	*58*	*109*	*120*	*126*	*139*	*68*	*114.7*	*126*	*132*	*145*	*71*
TAL A44 J	kVA	142	156	164	**180**	95	128	140	147	**162**	85.5	149	164	172	**189**	100	156	171	180	**198**	105
	kW	*114*	*125*	*131*	*144*	*76*	*102*	*112*	*118*	*130*	*68*	*119*	*131*	*138*	*151*	*80*	*125*	*137*	*144*	*158*	*84*
TAL A44 K	kVA	161	177	186	**204**	105	145	159	167	**184**	94.5	169	185	195	**214**	110	177	194	204	**224**	115
	kW	*129*	*141*	*149*	*163*	*84*	*116*	*127*	*134*	*147*	*76*	*135*	*148*	*156*	*171*	*88*	*142*	*155*	*163*	*180*	*92*
TAL A44 L	kVA	180	195	210	**225**	113	164	177	191	**205**	102	191	207	223	**239**	119	200	215	231	**250**	124
	kW	*144*	*156*	*168*	*180*	*90*	*131*	*142*	*153*	*164*	*82*	*153*	*166*	*178*	*191*	*95*	*160*	*172*	*185*	*200*	*99*
TAL A44 M	kVA	200	215	230	**250**	125	182	196	209	**228**	114	212	228	244	**265**	133	220	237	253	**275**	136
	kW	*160*	*172*	*184*	*200*	*100*	*146*	*157*	*167*	*182*	*91*	*170*	*182*	*195*	*212*	*106*	*176*	*190*	*202*	*220*	*109*

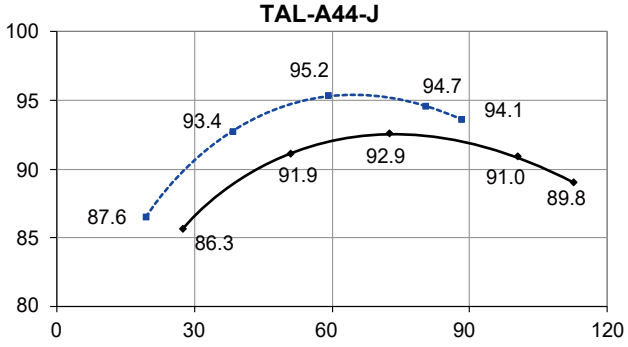
TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

Efficiencies 400 V - 50 Hz (— P.F.: 0.8) (..... P.F.: 1) - 6 & 12-wire

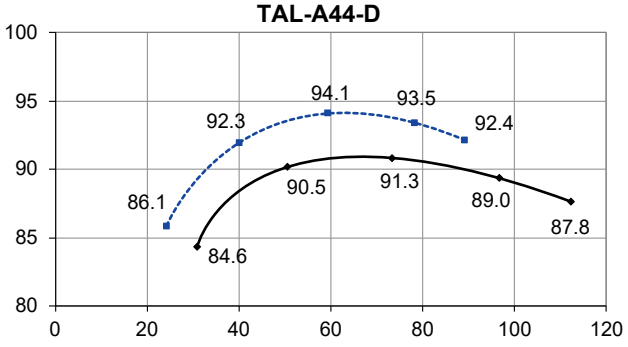
TAL-A44-C



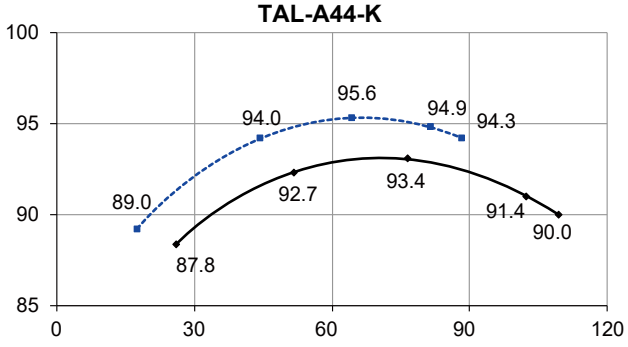
TAL-A44-J



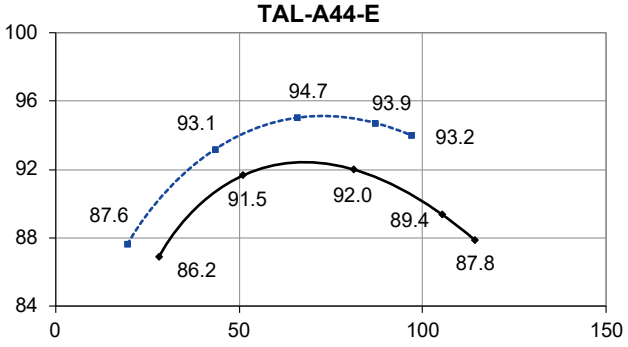
TAL-A44-D



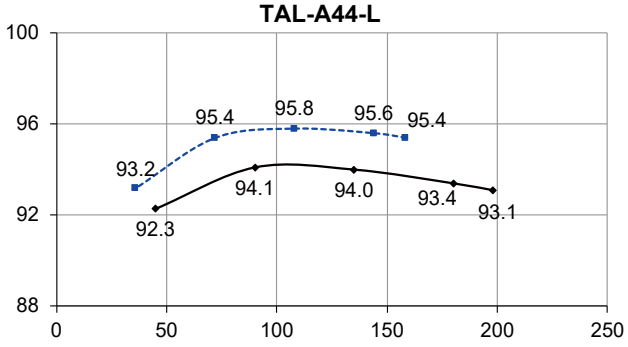
TAL-A44-K



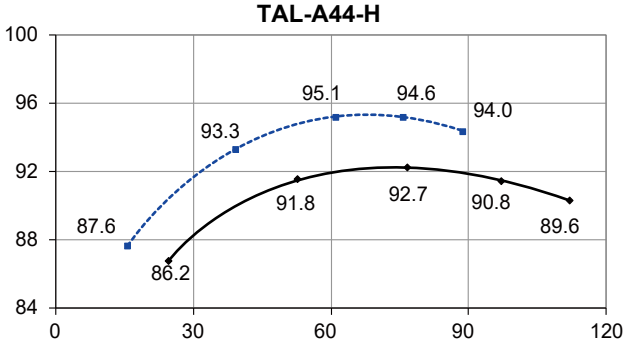
TAL-A44-E



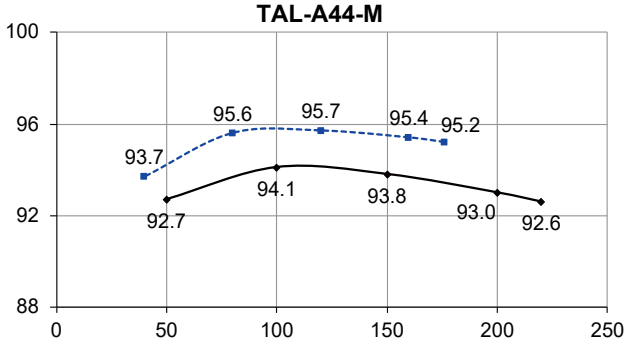
TAL-A44-L



TAL-A44-H



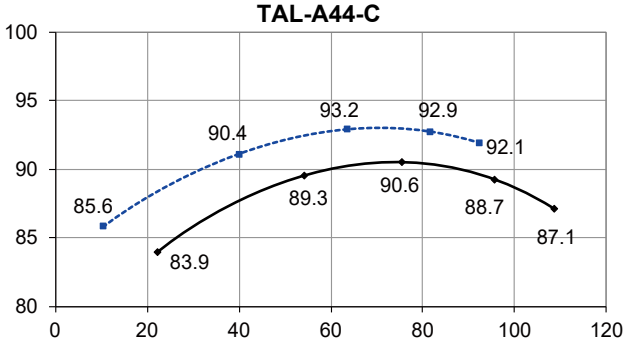
TAL-A44-M



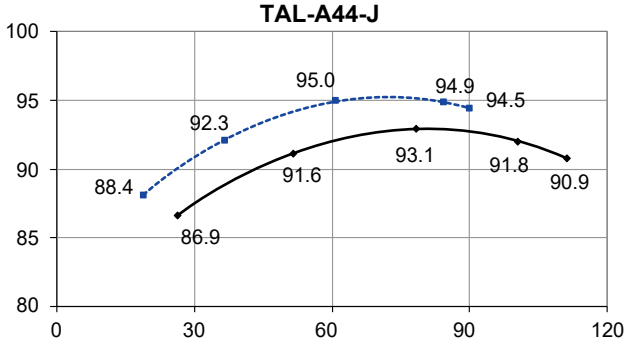
TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

Efficiencies 480 V - 60 Hz (— P.F.: 0.8) (..... P.F.: 1) - 6 & 12-wire

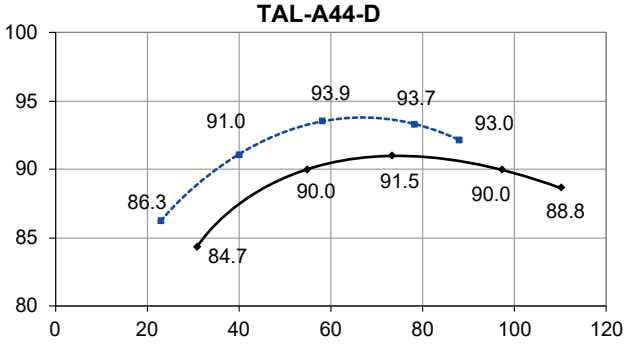
TAL-A44-C



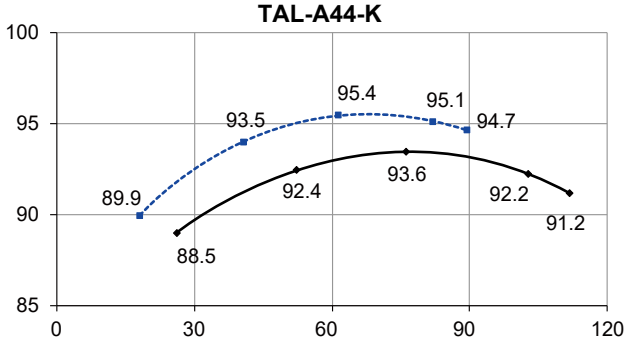
TAL-A44-J



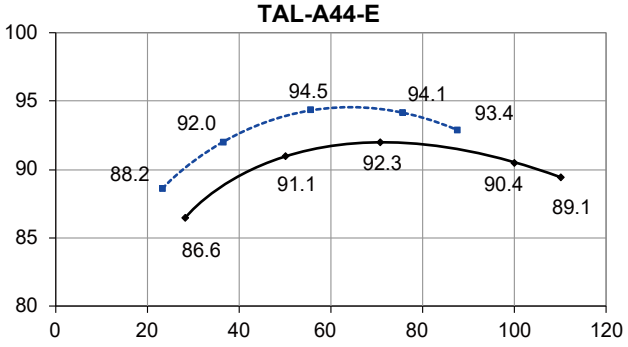
TAL-A44-D



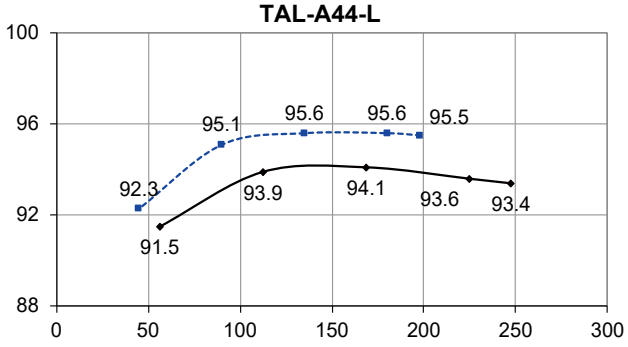
TAL-A44-K



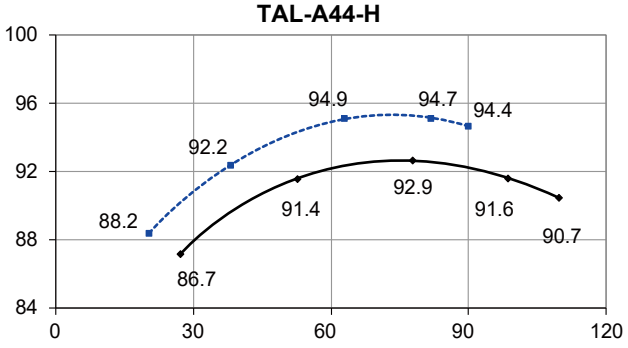
TAL-A44-E



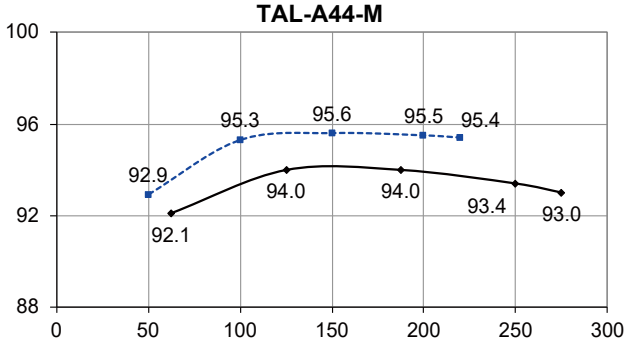
TAL-A44-L



TAL-A44-H



TAL-A44-M



TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

Reactances (%). Time constants (ms) - Class H / 400 V - 6 & 12-wire

		TAL A44 C	TAL A44 D	TAL A44 E	TAL A44 H	TAL A44 J	TAL A44 K	TAL A44 L	TAL A44 M
Kcc	Short-circuit ratio	0.50	0.59	0.62	0.56	0.61	0.37	0.37	0.33
Xd	Direct-axis synchro.reactance unsaturated	321	303	279	307	290	373	373	381
Xq	Quadrature-axis synchro. rectance unsaturated	193	182	167	184	174	224	175	194
T'do	No-load transient time constant	1747	1796	1952	1952	2013	2077	2025	2025
X'd	Direct-axis transient reactance saturated	17.7	17.2	14.6	16.1	15.0	16.6	16.9	18.8
T'd	Short-circuit transient time constant	100	100	100	100	100	100	100	100
X"d	Direct-axis subtransient reactance saturated	10.6	10.3	8.8	9.6	9.0	9.9	10.1	11.3
T"d	Subtransient time constant	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
X"q	Quadrature-axis subtransient reactance saturated	21.0	20.4	17.4	19.1	17.8	19.7	19.7	21.9
Xo	Zero sequence reactance saturated	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.78
X2	Negative sequence reactance saturated	15.8	15.4	13.1	14.4	13.4	14.8	14.95	16.62
Ta	Armature time constant	15	15	15	15	15	15	15	15

Other class H/400V data		TAL A44 C	TAL A44 D	TAL A44 E	TAL A44 H	TAL A44 J	TAL A44 K	TAL A44 L	TAL A44 M
ms	Response time (△U=20%)	500	500	500	500	500	500	500	500
W	No-load losses	1890	2213	2433	2436	2533	2954	2665	2665
W	Heat dissipation	9625	9888	11857	11145	11868	12796	10134	11895

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

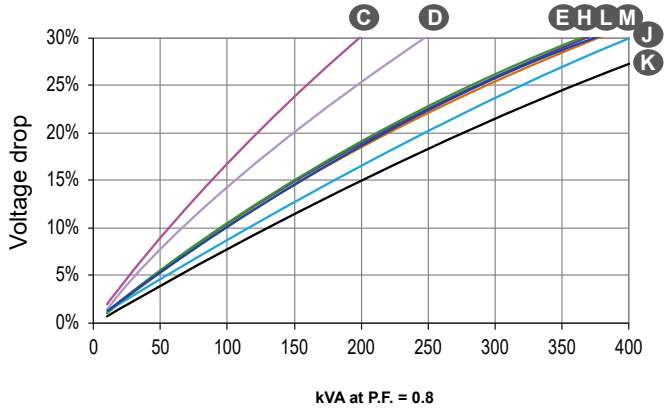
Reactances (%). Time constants (ms) - Class H / 480 V - 6 & 12-wire

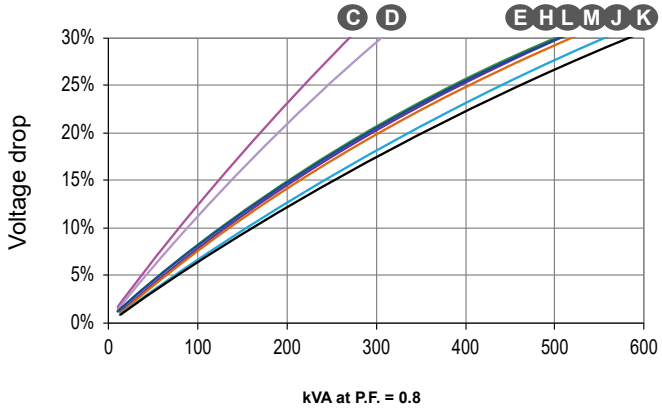
		TAL A44 C	TAL A44 D	TAL A44 E	TAL A44 H	TAL A44 J	TAL A44 K	TAL A44 L	TAL A44 M
Kcc	Short-circuit ratio	0.50	0.59	0.62	0.56	0.61	0.37	0.36	0.32
Xd	Direct-axis synchro.reactance unsaturated	321	303	279	307	290	373	358	397
Xq	Quadrature-axis synchro. rectance unsaturated	193	182	167	184	174	224	182	202
T'do	No-load transient time constant	1747	1796	1952	1952	2013	2077	2025	2025
X'd	Direct-axis transient reactance saturated	17.7	17.2	14.6	16.1	15.0	16.6	17.6	19.6
T'd	Short-circuit transient time constant	100	100	100	100	100	100	100	100
X"d	Direct-axis subtransient reactance saturated	10.6	10.3	8.8	9.6	9.0	9.9	10.6	11.7
T"d	Subtransient time constant	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
X"q	Quadrature-axis subtransient reactance saturated	21.0	20.4	17.4	19.1	17.8	19.7	20.5	22.8
Xo	Zero sequence reactance saturated	0.6	0.6	0.6	0.6	0.6	0.7	0.73	0.81
X2	Negative sequence reactance saturated	15.8	15.4	13.1	14.4	13.4	14.8	15.59	17.32
Ta	Armature time constant	15	15	15	15	15	15	15	15

Other class H/480V data		TAL A44 C	TAL A44 D	TAL A44 E	TAL A44 H	TAL A44 J	TAL A44 K	TAL A44 L	TAL A44 M
ms	Response time (△U=20%)	500	500	500	500	500	500	500	500
W	No-load losses	2722	3187	3503	3508	3647	4253	3923	3923
W	Heat dissipation	10395	10667	12743	12105	12863	13807	12145	14130

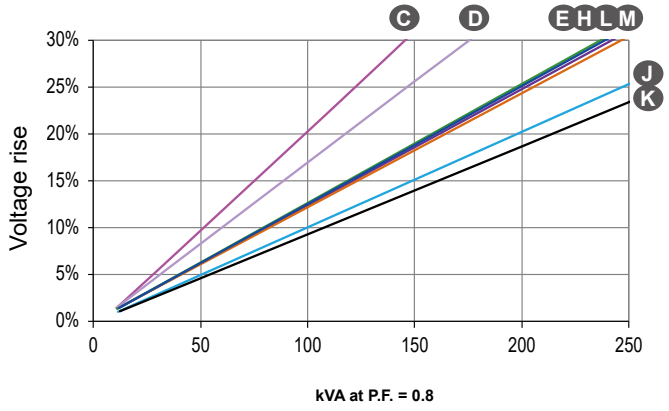
TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

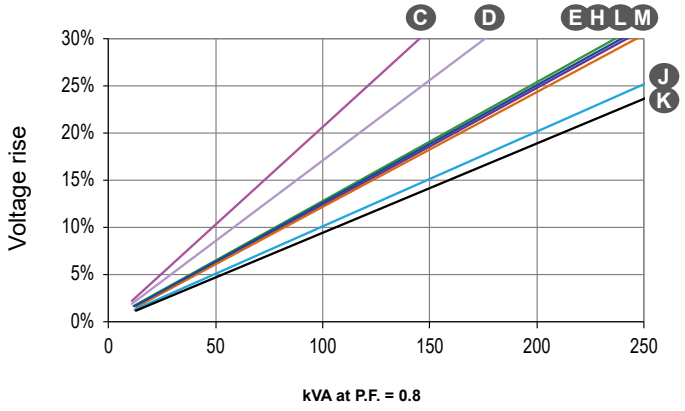
Transient voltage variation 400V - 50 Hz - 12-wire



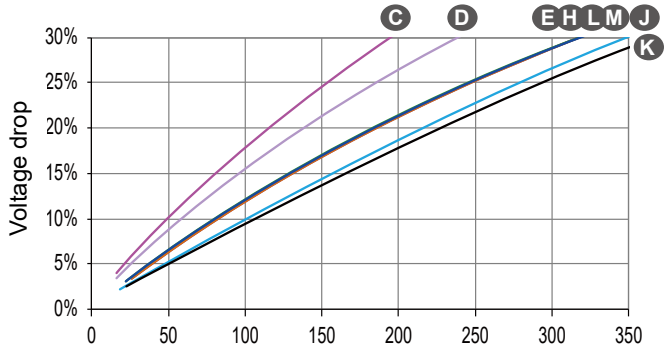


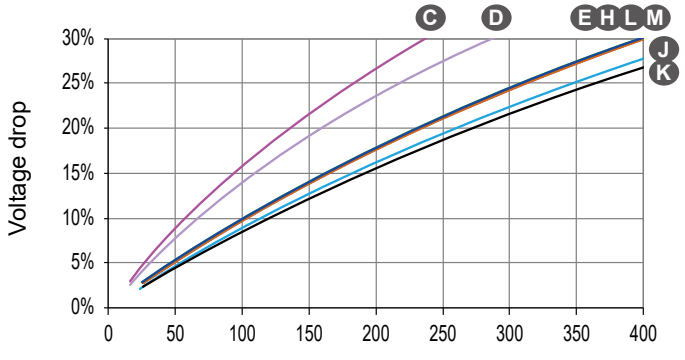
Phase loading (SHUNT/AREP) - kVA at P.F. = 0.8





Load shedding (SHUNT/AREP) - kVA at P.F. = 0.8

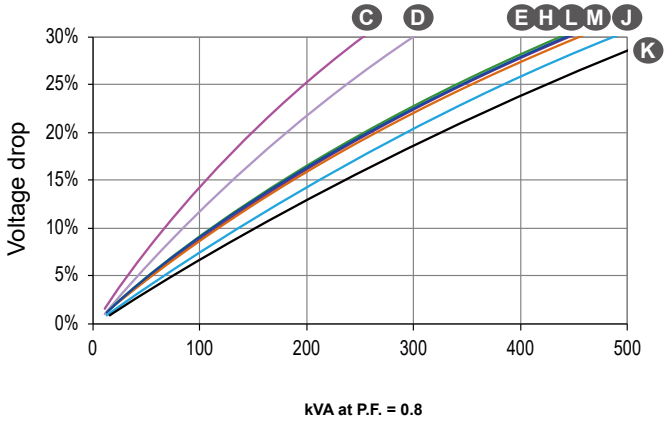


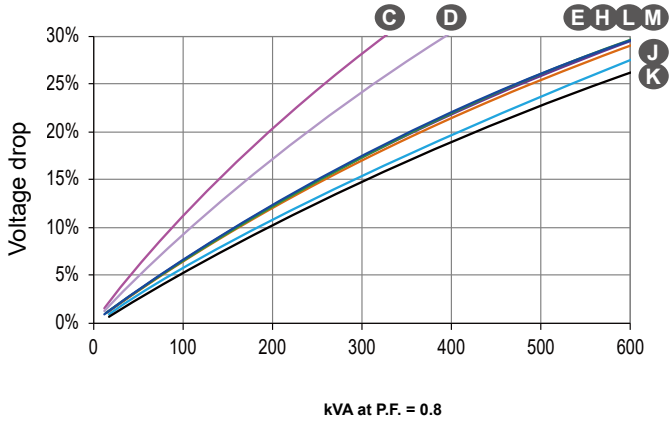


Motor starting (SHUNT/AREP) - locked rotor kVA at P.F. = 0.6

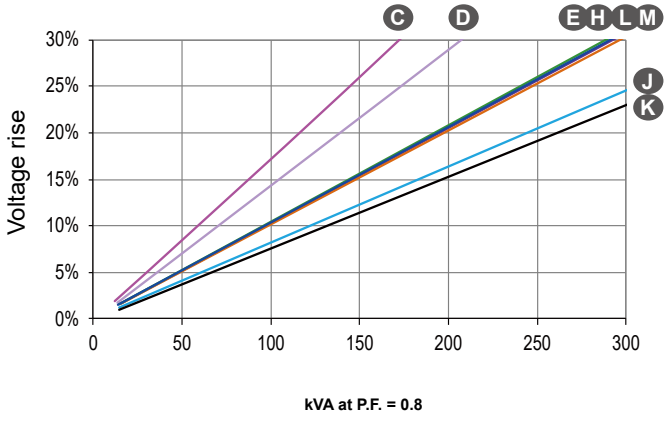
1) For a starting P.F. other than 0.6, the starting kVA must be multiplied by K = Sine P.F. / 0.8
2) For voltages other than 400V (Y), 230V (Δ) at 50 Hz, then kVA must be multiplied by $(400/U)^2$ or $(230/U)^2$.

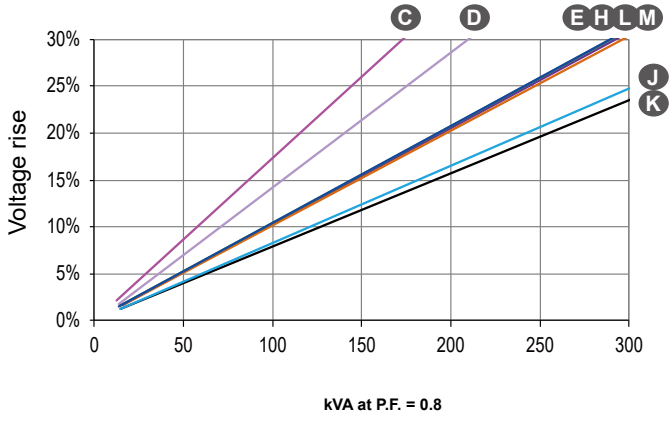
Transient voltage variation 480V - 60 Hz - 6-wire



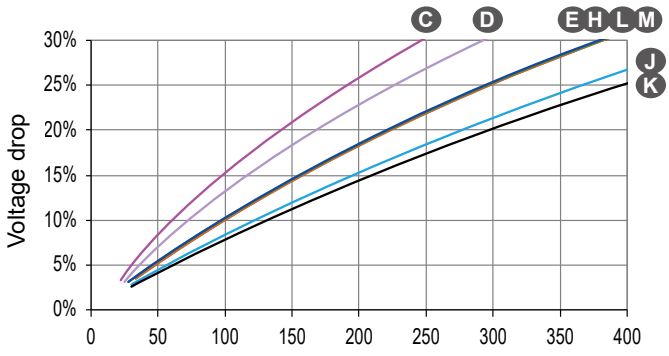


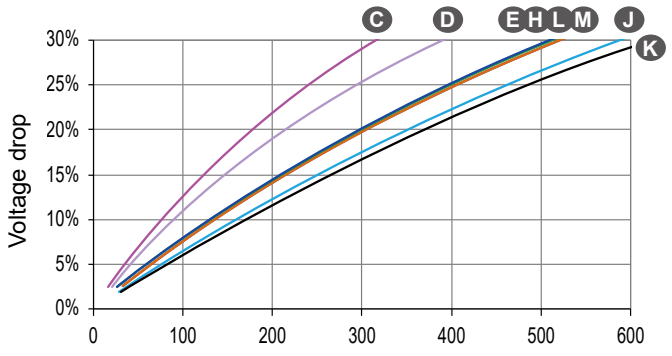
Phase loading (SHUNT/AREP) - kVA at P.F. = 0.8





Load shedding (SHUNT/AREP) - kVA at P.F. = 0.8





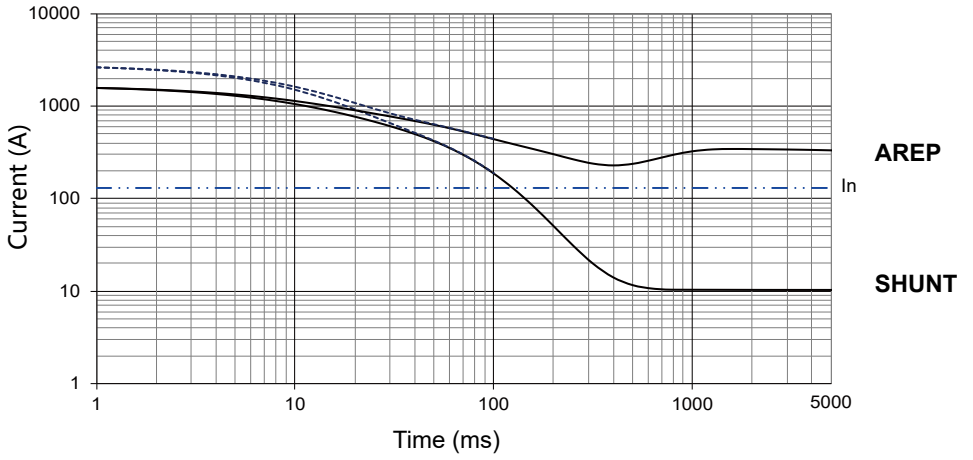
Motor starting (SHUNT/AREP) - locked rotor kVA at P.F. = 0.6

1) For a starting P.F. other than 0.6, the starting kVA must be multiplied by K = Sine P.F. / 0.8
2) For voltages other than 480V (Y), 277V (Δ), 240V (YY) at 60 Hz, then kVA must be multiplied by $(480/U)^2$ or $(277/U)^2$ or $(240/U)^2$.

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

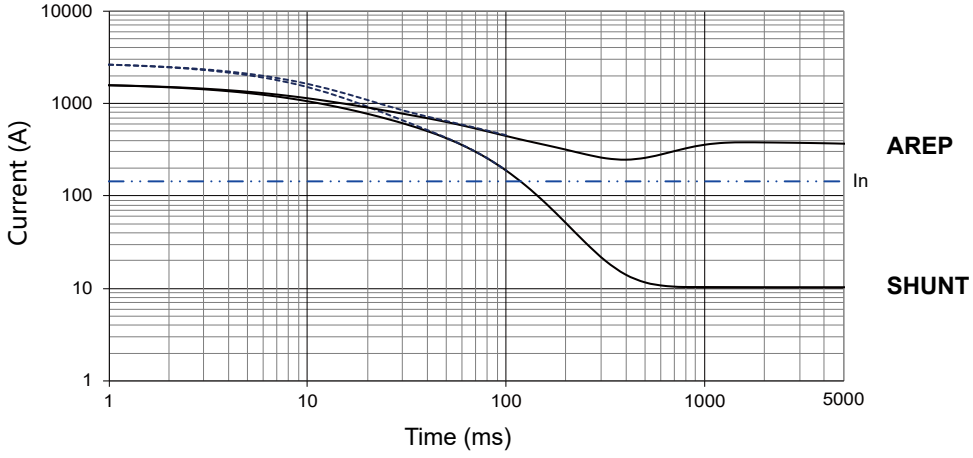
TAL 044 C

Symmetrical --------
Asymmetrical - - -



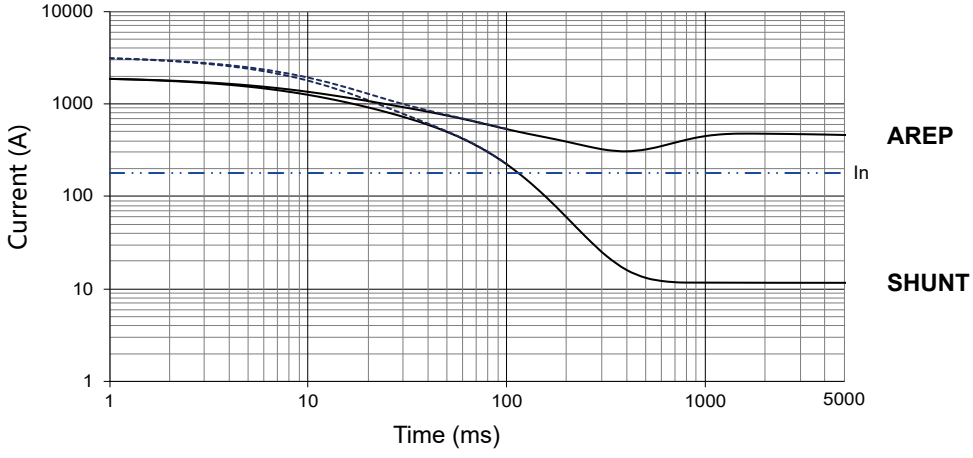
TAL 044 D

Symmetrical --------
Asymmetrical - - -



TAL 044 E

Symmetrical --------
Asymmetrical - - -

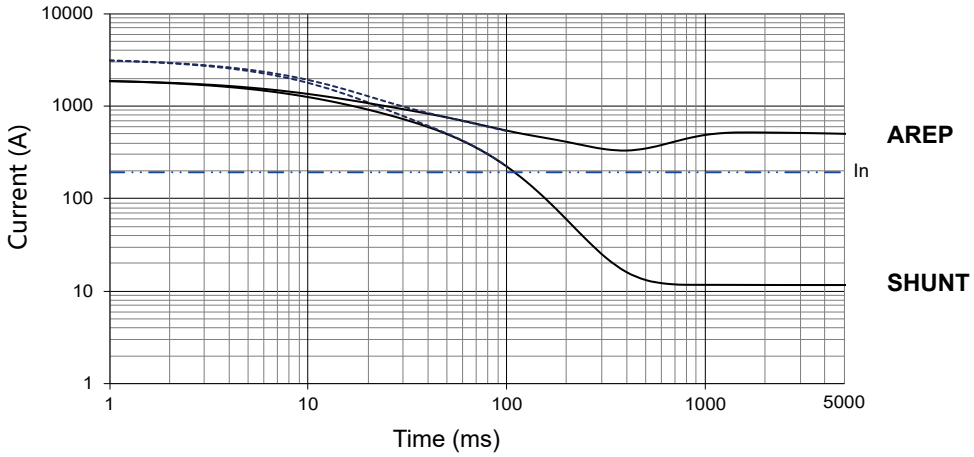


Influence due to connection
For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

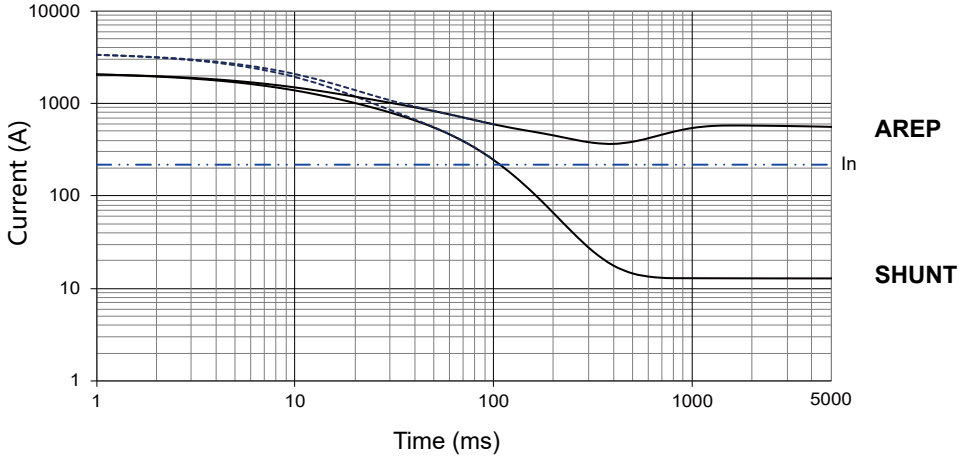
TAL 044 H

Symmetrical --------
Asymmetrical - - -



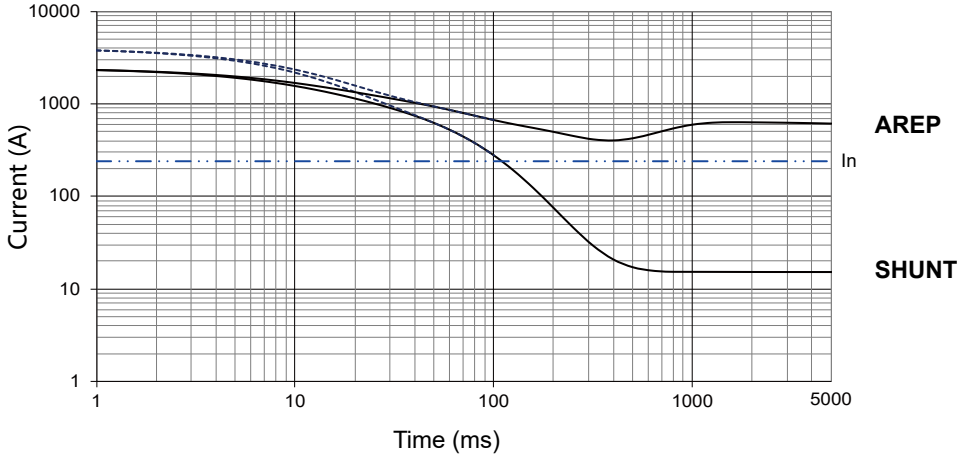
TAL 044 J

Symmetrical --------
Asymmetrical - - -



TAL 044 K

Symmetrical --------
Asymmetrical - - -



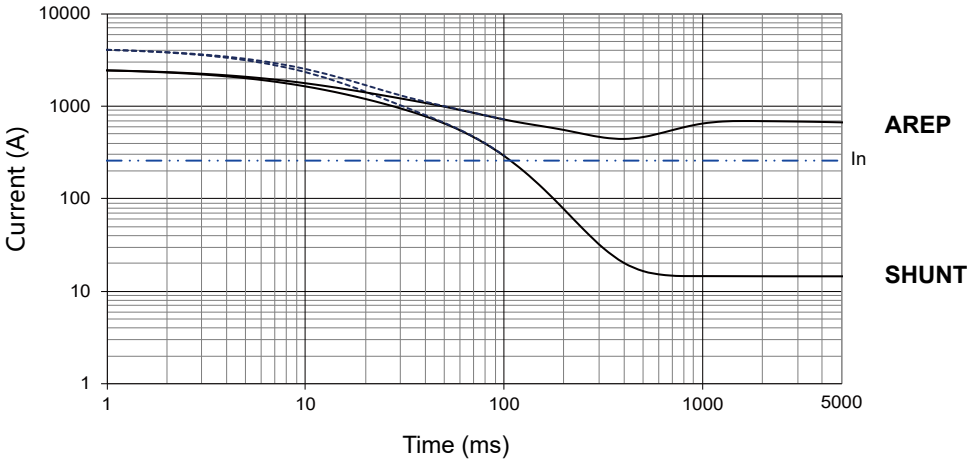
Influence due to short-circuit
Curves are based on a three-phase short-circuit.
For other types of short-circuit,
use the following multiplication factors.

	3 - phase	2 - phase L / L	1 - phase L / N
Instantaneous (max.)	1	0.87	1.3
Continuous	1	1.5	2.2
Maximum duration		1.5	

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

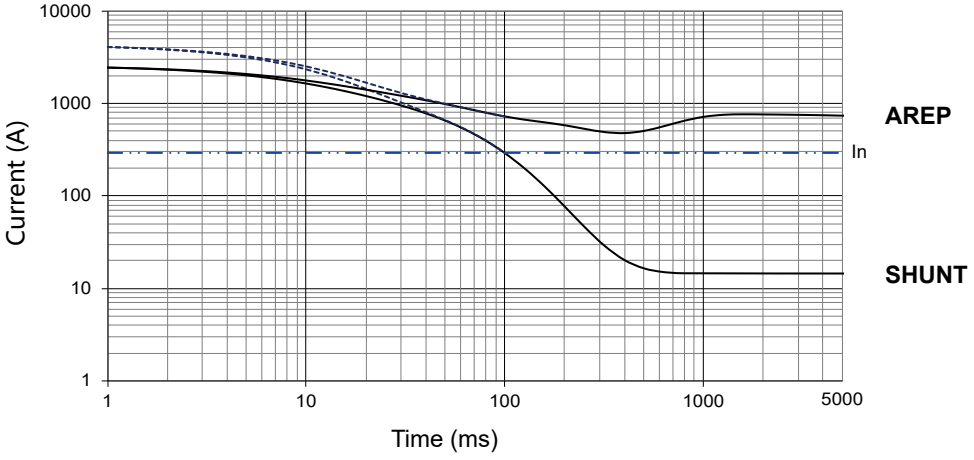
TAL 044 L

Symmetrical --------
Asymmetrical - - -



TAL 044 M

Symmetrical --------
Asymmetrical - - -



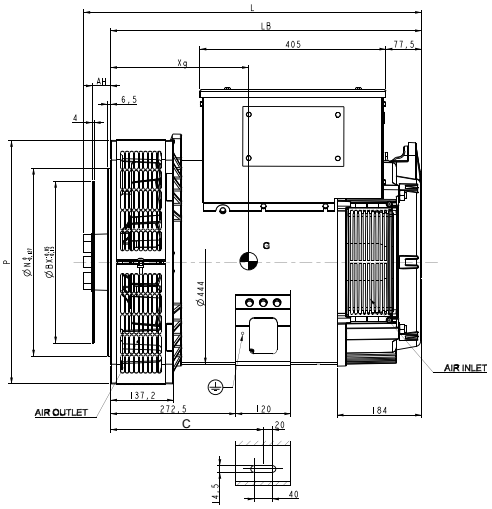
Influence due to connection
For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

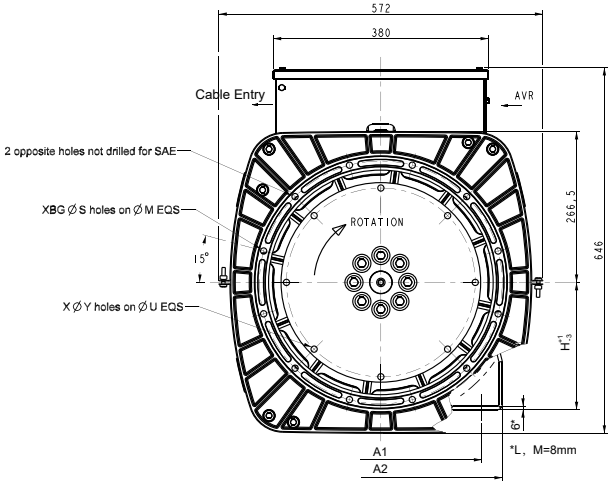
Influence due to short-circuit
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Maximum duration		1.5	

TAL A44 - Three-phase 85 to 200 kVA - 50 Hz / 102 to 250 kVA - 60 Hz

Single bearing general arrangement - 4, 6 & 12-wire





Dimensions (mm) and weight (kg)				
Type	L	LB	Xg	Weight/kg
TAL A44 C	735	677	301	267
TAL A44 D	735	677	313	295
TAL A44 E/H	805	747	353	368
TAL A44 J	805	747	365	398
TAL A44 K	847	787	383	433
TAL A44 L	930	872	416	554
TAL A44 M	930	872	416	554

Shaft Height(mm)			
	standerd	option	
H	225(*)	270(**)	280(**)
	Feet length		
C	332.5	405	429
A1	356	406	457
A2	474	474	541

(*) not available for L and M

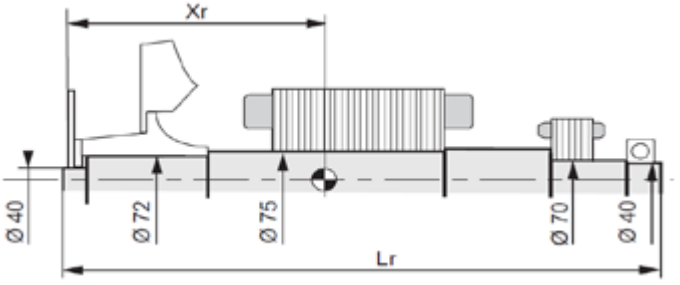
(**) only for L and M

Coupling			
Flange	**1**	**3**	**3**
Flex plate			
11 1/2	x	x	x
10	x	x	x
10	x	x	x
8	-	-	x

Flange (mm)					
S.A.E.	P	N	M	S	XBG
3	445	409.575	428.62	11	12
2	485	447.675	466.725	11	12
1	560.5(*)	511.18	530.22	12	10

Flex plate (mm)					
S.A.E.	BX	U	X	Y	AH
11 1/2	352.42	333.38	8	11	39.6
10	314.32	295.28	8	11	53.8

Torsional analysis data



Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm²): (4J = MD²)

Type	Flex Plate SAE 10				Flex Plate SAE 11 1/2			
	Xr	Lr	M	J	Xr	Lr	M	J
TAL A44 C	341	704	113	0.805	308	704	113	0.821
TAL A44 D	354	704	120	0.867	325	704	120	0.883
TAL A44 E	399	774	153	1.141	389	774	153	1.157
TAL A44 H	399	774	153	1.141	389	774	153	1.157
TAL A44 J	410	774	165	1.248	400	774	164	1.264
TAL A44 K	429	814	180	1.383	420	814	180	1.399
TAL A44 L	465	914	224.1	1.753	450.7	899	223.7	1.769
TAL A44 M	465	914	224.1	1.753	450.7	899	223.7	1.769

NOTE : Dimensions are for information only and may be subject to modifications. Contractual 2D/3D drawings can be downloaded from the Leroy-Somer site. The torsional analysis of the transmission is imperative. All values are available upon request.

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Moteurs Leroy-Somer SAS. Siège : Bd Marcellin Leroy, CS 10015, 16915 Angoulême Cedex 9, France. Capital social : 65 800 512 €, RCS Angoulême 338 567 258.

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