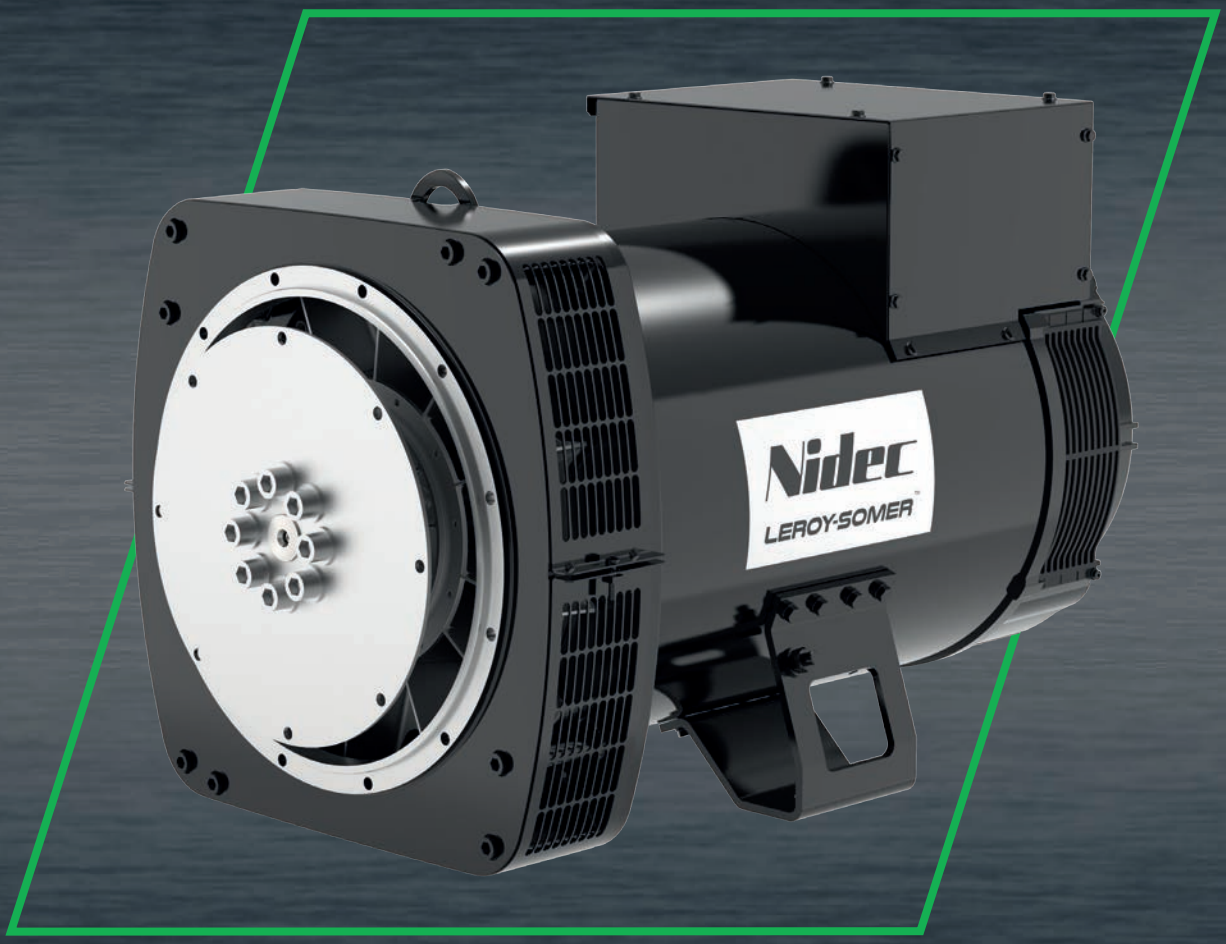
Nidec Power



TAL 044

Low Voltage Alternator - 4 poles

57 to 200 kVA - 50 Hz / 80 to 250 kVA - 60 Hz

Electrical and mechanical data

LEROY-SOMER™

The best of performance

The Leroy-Somer™ TAL 044 alternator has been designed to offer you the best power generation performances. With its meticulous design and optimized architecture, the TAL 044 strikes the perfect balance between compactness, reliability, performance and longevity.
Whatever your application, the Leroy-Somer™ TAL 044 alternator will meet your needs and will adapt to all situations.





Standards

The Leroy-Somer™ TAL 044 alternator meets all key international standards and regulations, including IEC 60034, NEMA MG 1.32-33, ISO 8528-3, CSA C22.2 n°100-14 and UL 1446 (UL 1004 on request).
Also compliant with IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4, VDE 0875G, VDE 0875N and EN 55011, group 1 class A for European zone.
The Leroy-Somer™ TAL 044 alternator can be integrated in EC marked generator set, and bears EC, UKCA and CMIM markings.
It is designed, manufactured and marketed in an ISO 9001 and ISO 14001 quality assurance environment.

Electrical characteristics and performances

- Class H insulation
- Shunt excitation
- Low voltage winding:
  - Three-phase 50 Hz: 220V - 240V and 380V - 415V (440V)
    60 Hz: 208V - 240V and 380V - 480V
  - Single-phase 50 Hz: 230V
    60 Hz: 240V
- 4-terminal plates in 6-wire version
- Optimized performance

Excitation and regulation system

	Excitation system				Regulation options		
	AVR	**SHUNT**	**AREP+** (option)	**PMG** (option)	**ULc/us**	**Remote voltage potentiometer**	**C.T. Current transformer for paralleling**
Three-phase 6-wire	**R120**	Standard					
	R150	Option				√	
	R180		Standard	Standard		√	√
	D350	Option	Option	Option	√	√	√*
Three-phase 12-wire	**R120**	Standard					
	R250	Option			√	√	
	R180		Standard	Standard		√	√
	D350	Option	Option	Option	√	√	√*
Single-phase	**R121**	Standard				√	
	R251	Option			√	√	

*: only with AREP+ or PMG

Protection system and options

- Degree of protection: IP 23
- Complete winding protection for non-harsh environment with relative humidity ≤ 95%
- Options:
  - Three-phase 12-wire with 8-terminal plates
  - AREP+ or PMG excitation
  - ULc/us
  - Customized painting (unpainted machine as standard)
  - Space heater
  - Flying leads
  - Droop kit for alternator paralleling
  - Dedicated single-phase
  - Stator sensors
  - Winding 8 optimized for three-phase 380V / 416V - 60Hz
  - Reinforced winding protection for harsh environments and relative humidity greater than 95% (system 2 - 4): for TAL 044 K apply a derating coefficient of 0.97

Mechanical construction

- Compact and rugged assembly to withstand engine vibrations
- Steel frame
- Aluminum flanges and shields
- Single-bearing design compatible with most diesel engines
- Greased for life bearings
- Direction of rotation: clockwise and counterclockwise without derating

Terminal box design

- Easy access to AVR and terminals
- Possibility of current transformer for parallel operation

General characteristics

Insulation class	H
Winding pitch	2/3 (wind.6S - 6-wire / wind.6 - 12-wire)
Number of wires	6 (12 option)
Protection	IP 23
Altitude	≤ 1000 m
Overspeed	2250 R.P.M.
Air flow 50 Hz	0.29 m³/s
Air flow 60 Hz	0.34 m³/s
AREP+/PMG Short-circuit current = 2.7 In : 5 seconds (*)	

Excitation system 6-wire	SHUNT	AREP+ / PMG
AVR type	R120	R180
Excitation system 12-wire (option)	SHUNT	AREP+ / PMG
AVR type	R120	R180
Voltage regulation (**)	± 1 %	± 0.5 %
Total Harmonic Distortion THD (***) in no-load	< 2 %	
Total Harmonic Distortion THD (***) in linear load	< 5 %	
Waveform: NEMA = TIF (***)	< 50	
Waveform: I.E.C. = FHT (***)	< 2%	

(*) D350: 10 seconds (**) Steady state (***) Total harmonic distortion between phases, no-load or on-load (non-distorting)

Ratings 50 Hz - 1500 R.P.M.

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 / 125° K					F / 105° K					H / 150° K					H / 163° K				
Phase		3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.
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 (*)			**200V**		220V			**200V**		220V			**200V**		220V			**200V**		220V	
ΔΔ (*)						230V					230V					230V					230V
TAL 044 A	kVA	70	**70**	70	63	42	64	**64**	64	57	38	74	**74**	74	67	45	77	**77**	77	69	46
	kW	*56*	***56***	*56*	*50*	*33.5*	*51*	***51***	*51*	*46*	*30.5*	*59*	***59***	*59*	*54*	*36*	*62*	***62***	*62*	*55*	*37*
TAL 044 B	kVA	80	**80**	80	72	48	73	**73**	73	66	44	85	**85**	85	76	51	88	**88**	88	79	53
	kW	*64*	***64***	*64*	*58*	*38.5*	*58*	***58***	*58*	*53*	*35*	*68*	***68***	*68*	*61*	*41*	*70*	***70***	*70*	*63*	*42*
TAL 044 C	kVA	90	**90**	90	81	54	82	**82**	82	74	49	95	**95**	95	86	57	100	**100**	100	89	59
	kW	*72*	***72***	*72*	*65*	*43*	*66*	***66***	*66*	*59*	*39*	*76*	***76***	*76*	*69*	*46*	*80*	***80***	*80*	*71*	*47*
TAL 044 D	kVA	100	**100**	100	90	60	91	**91**	91	82	55	106	**106**	106	95	64	110	**110**	110	99	66
	kW	*80*	***80***	*80*	*72*	*48*	*73*	***73***	*73*	*66*	*44*	*85*	***85***	*85*	*76*	*51*	*88*	***88***	*88*	*79*	*53*
TAL 044 E	kVA	125	**125**	125	113	67	114	**114**	114	103	61	133	**133**	133	120	71	138	**138**	138	124	74
	kW	*100*	***100***	*100*	*90*	*54*	*91*	***91***	*91*	*82*	*49*	*106*	***106***	*106*	*96*	*57*	*110*	***110***	*110*	*99*	*59*
TAL 044 H	kVA	135	**135**	135	122	73	123	**123**	123	111	66	143	**143**	143	129	77	150	**150**	150	134	80
	kW	*108*	***108***	*108*	*98*	*58*	*98*	***98***	*98*	*89*	*53*	*114*	***114***	*114*	*103*	*62*	*120*	***120***	*120*	*107*	*64*
TAL 044 J	kVA	150	**150**	150	135	80	137	**137**	137	123	73	159	**159**	159	143	85	165	**165**	165	149	88
	kW	*120*	***120***	*120*	*108*	*64*	*110*	***110***	*110*	*98*	*58*	*127*	***127***	*127*	*114*	*68*	*132*	***132***	*132*	*119*	*70*
TAL 044 K	kVA	165	**165**	165	138	88	150	**150**	150	126	80	175	**175**	175	150	93	182	**182**	182	157	97
	kW	*132*	***132***	*132*	*110*	*70*	*120*	***120***	*120*	*101*	*64*	*140*	***140***	*140*	*120*	*74*	*146*	***146***	*146*	*126*	*78*
TAL 044 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 044 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*

(*) 12-wire option

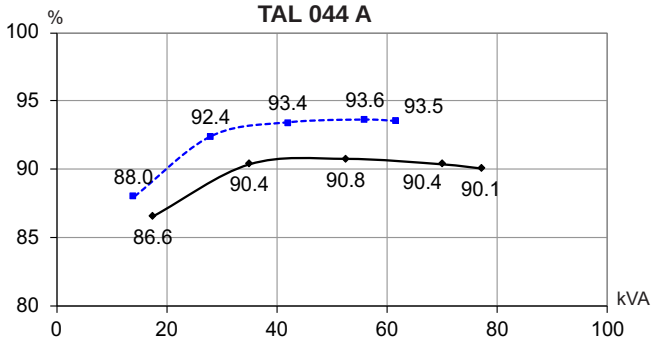
Ratings 60 Hz - 1800 R.P.M.

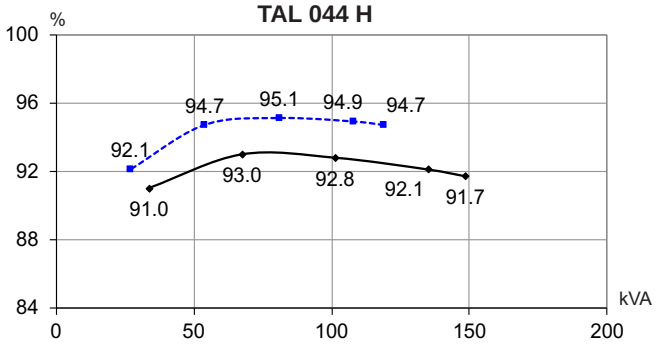
kVA / kW - P.F. = 0.8

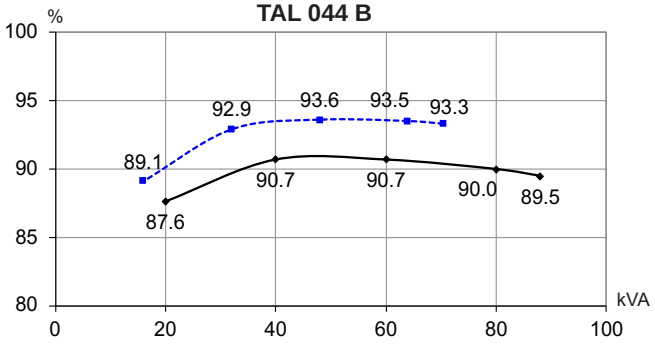
Duty / T° C		Continuous / 40 °C					Continuous / 40 °C					Stand-by / 40 °C					Stand-by / 27 °C				
Class / T° K		H / 125° K					F / 105° K					H / 150° K					H / 163° K				
Phase		3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.
Y		380V	416V	440V	**480V**		380V	416V	440V	**480V**		380V	416V	440V	**480V**		380V	416V	440V	**480V**	
Δ		220V	240V			240V	220V	240V			240V	220V	240V			240V	220V	240V			240V
YY (*)			208V	220V	**240V**			208V	220V	**240V**			208V	220V	**240V**			208V	220V	**240V**	
ΔΔ (*)						240V					240V					240V					240V
TAL 044 A	kVA	69	76	80	**88**	46	63	69	73	**80**	42	73	81	85	**93**	49	76	84	88	**97**	51
	kW	*55*	*61*	*64*	***70***	*37*	*50*	*55*	*58*	***64***	*33.5*	*58*	*65*	*68*	***74***	*39*	*61*	*67*	*70*	***78***	*41*
TAL 044 B	kVA	79	87	92	**100**	52	72	79	84	**91**	47	84	92	98	**106**	55	87	96	101	**110**	57
	kW	*63*	*70*	*74*	***80***	*42*	*58*	*63*	*67*	***73***	*37.5*	*67*	*74*	*78*	***85***	*44*	*70*	*77*	*81*	***88***	*46*
TAL 044 C	kVA	89	98	103	**113**	59	81	89	94	**103**	54	94	104	109	**120**	63	98	108	113	**124**	65
	kW	*71*	*78*	*82*	***90***	*47*	*65*	*71*	*75*	***82***	*43*	*75*	*83*	*87*	***96***	*50*	*78*	*86*	*90*	***99***	*52*
TAL 044 D	kVA	99	108	115	**125**	65	90	98	105	**114**	59	105	114	122	**133**	69	109	119	127	**138**	72
	kW	*79*	*86*	*92*	***100***	*52*	*72*	*78*	*84*	***91***	*47*	*84*	*91*	*98*	***106***	*55*	*87*	*95*	*102*	***110***	*58*
TAL 044 E	kVA	124	135	143	**156**	76	113	123	130	**142**	69	131	143	152	**165**	81	136	149	157	**172**	84
	kW	*99*	*108*	*114*	***125***	*61*	*90*	*98*	*104*	***114***	*55*	*105*	*114*	*122*	***132***	*65*	*109*	*119*	*126*	***138***	*67*
TAL 044 H	kVA	134	146	155	**169**	81	122	133	141	**154**	74	142	155	164	**179**	86	147	161	171	**186**	89
	kW	*107*	*117*	*124*	***135***	*65*	*98*	*106*	*113*	***123***	*59*	*114*	*124*	*131*	***143***	*69*	*118*	*129*	*137*	***149***	*71*
TAL 044 J	kVA	148	163	172	**188**	95	135	148	157	**171**	86	157	173	182	**199**	101	163	179	189	**207**	105
	kW	*118*	*130*	*138*	***150***	*76*	*108*	*118*	*126*	***137***	*69*	*126*	*138*	*146*	***159***	*81*	*130*	*143*	*151*	***166***	*84*
TAL 044 K	kVA	165	179	189	**206**	105	150	163	172	**187**	96	175	190	200	**218**	111	182	197	208	**227**	116
	kW	*132*	*143*	*151*	***165***	*84*	*120*	*130*	*138*	***150***	*77*	*140*	*152*	*160*	***174***	*89*	*146*	*158*	*166*	***182***	*93*
TAL 044 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 044 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*

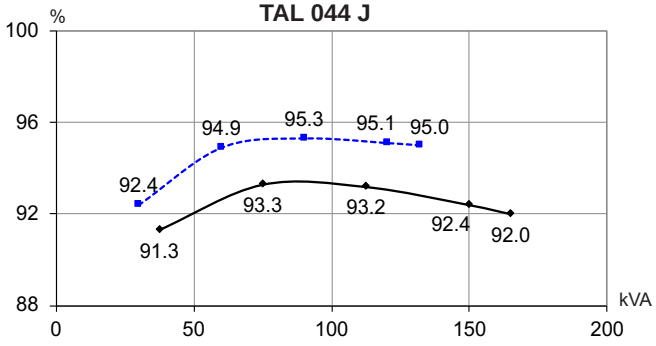
(*) 12-wire option

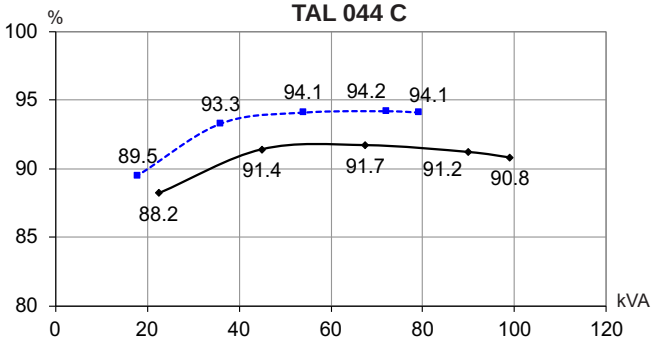
Efficiencies 400 V - 50 Hz (— P.F.: 0.8) (--- P.F.: 1)

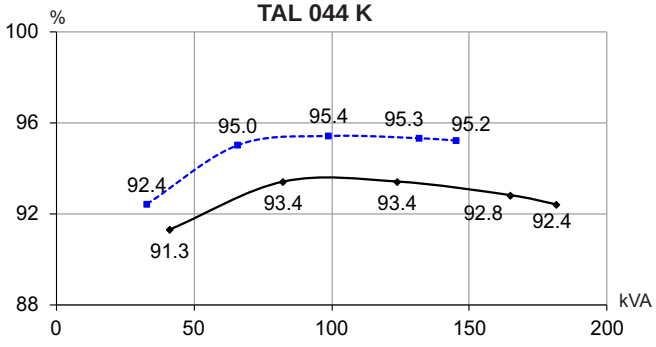


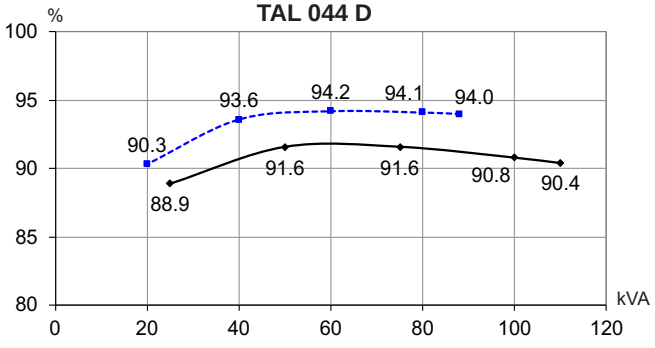


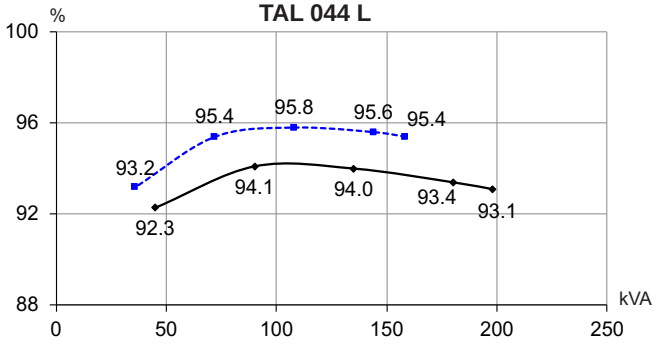


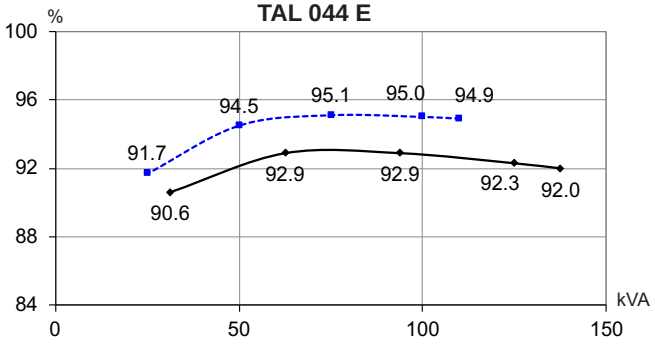


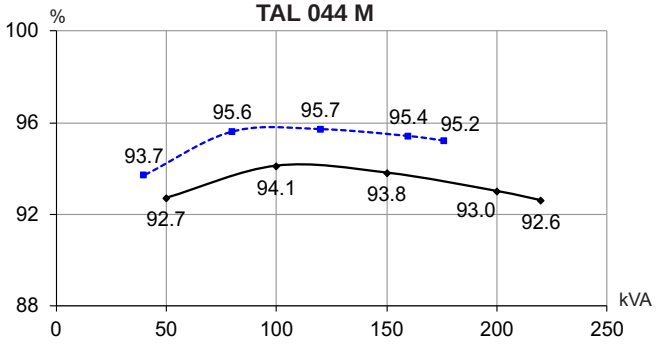




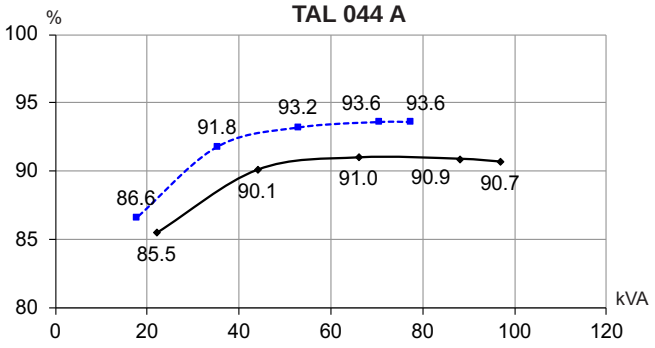


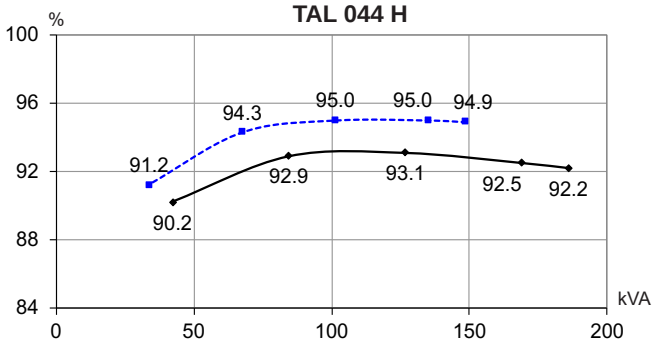


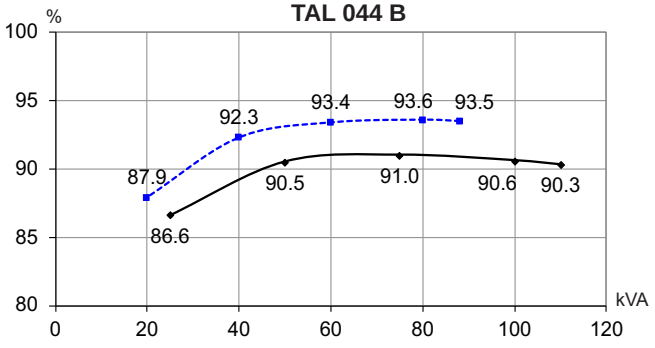


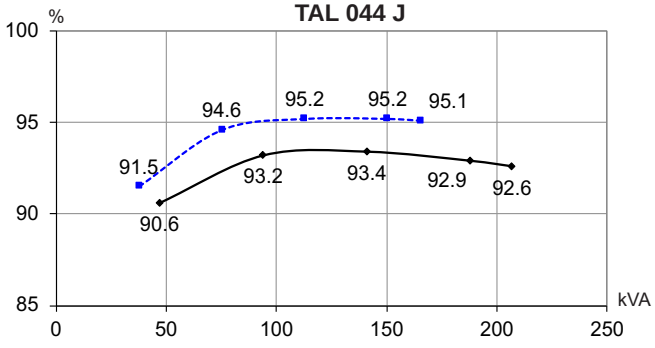


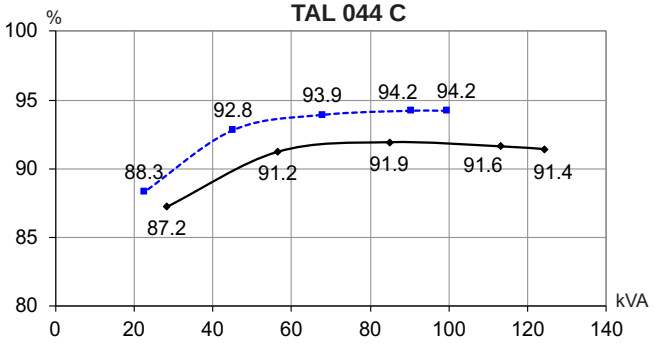
Efficiencies 480 V - 60 Hz (— P.F.: 0.8) (--- P.F.: 1)

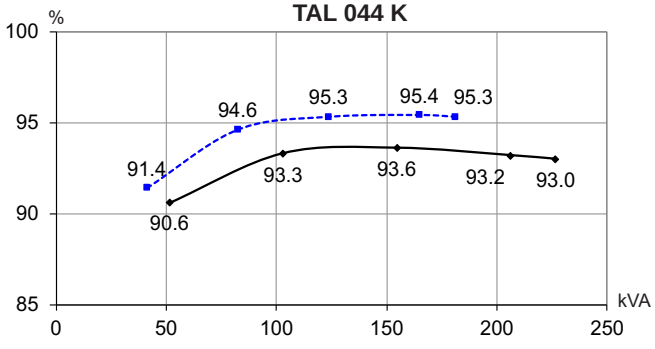


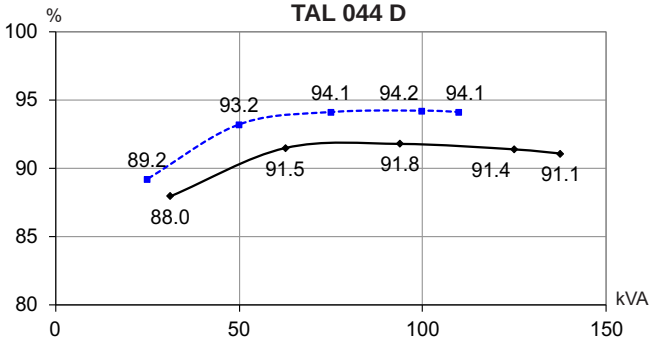


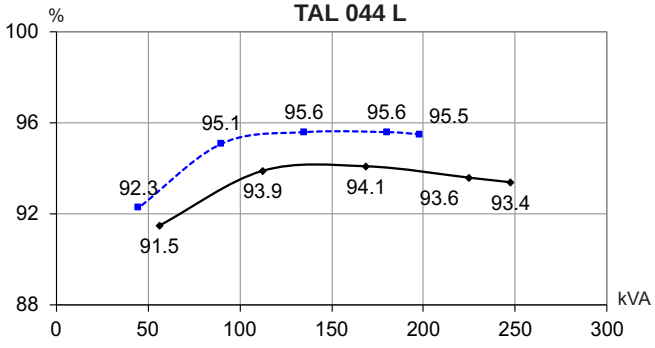


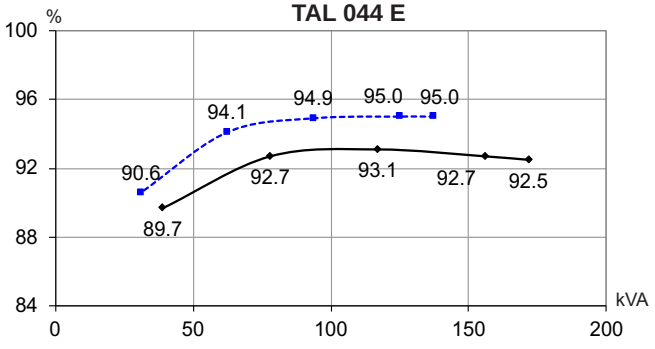


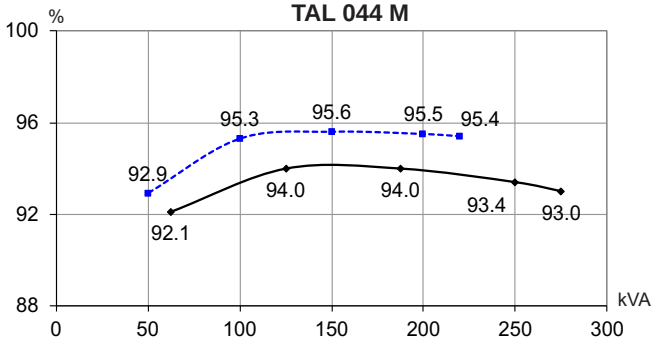












Reactances (%). Time constants (ms) - Class H / 400 V

		A	B	C	D	E	H	J	K	L	M
Kcc	Short-circuit ratio	0.57	0.5	0.53	0.48	0.43	0.4	0.4	0.42	0.37	0.33
Xd	Direct-axis synchronous reactance unsaturated	294	336	307	341	334	361	359	343	343	381
Xq	Quadrature-axis synchronous reactance unsaturated	150	171	156	174	170	184	183	175	175	194
T'do	No-load transient time constant	2475	2475	2308	2308	2154	2154	2112	2077	2025	2025
X'd	Direct-axis transient reactance saturated	11.9	13.6	13.3	14.7	15.5	16.7	17	16.5	16.9	18.8
T'd	Short-circuit transient time constant	100	100	100	100	100	100	100	100	100	100
X"d	Direct-axis subtransient reactance saturated	7.1	8.1	7.9	8.8	9.3	10	10.2	9.9	10.1	11.3
T"d	Subtransient time constant	10	10	10	10	10	10	10	10	10	10
X"q	Quadrature-axis subtransient reactance saturated	16.1	18.3	17	18.9	18.9	20.4	20.4	19.5	19.7	21.9
Xo	Zero sequence reactance	0.49	0.56	0.55	0.61	0.64	0.69	0.7	0.68	0.7	0.78
X2	Negative sequence reactance saturated	11.62	13.28	12.53	13.92	14.12	15.25	15.31	14.74	14.96	16.62
Ta	Armature time constant	15	15	15	15	15	15	15	15	15	15

Other class H / 400 V data

io (A)	No-load excitation current SHUNT	0.84	0.84	0.80	0.80	0.67	0.67	0.66	0.68	0.64	0.64
io (A)	No-load excitation current AREP+	1.08	1.08	1.03	1.03	0.87	0.87	0.85	0.88	0.82	0.82
ic (A)	On-load excitation current SHUNT	2.60	2.95	2.75	3.08	2.57	2.78	2.79	2.82	2.69	3.01
ic (A)	On-load excitation current AREP+	3.35	3.80	3.54	3.96	3.31	3.59	3.60	3.63	3.46	3.88
uc (V)	On-load excitation voltage SHUNT	28.9	32.5	30.1	33.2	31.9	34.3	34.1	34.1	20.1	22.2
uc (V)	On-load excitation voltage AREP+	23.2	26.1	24.1	26.7	25.6	27.5	27.4	27.4	15.8	17.5
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT*	124	124	143	143	204	205	225	254	318	318
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP+*	203	203	233	233	333	334	366	413	542	543
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 $_{LAG}$	17.2	18.8	18.5	19.9	18.2	19.1	19.3	18.9	17.3	18.6
%	Transient ΔU (on-load 4/4) AREP+ - P.F.: 0.8 $_{LAG}$	12.5	13.6	13.4	14.4	13.2	13.8	13.9	13.7	12.2	13
W	No-load losses	1980	1980	2175	2175	2322	2322	2478	2785	2665	2665
W	Heat dissipation	5903	7091	6931	8053	8255	9254	9769	10184	10134	11898

* P.F. = 0.6

Reactances (%). Time constants (ms) - Class H / 480 V

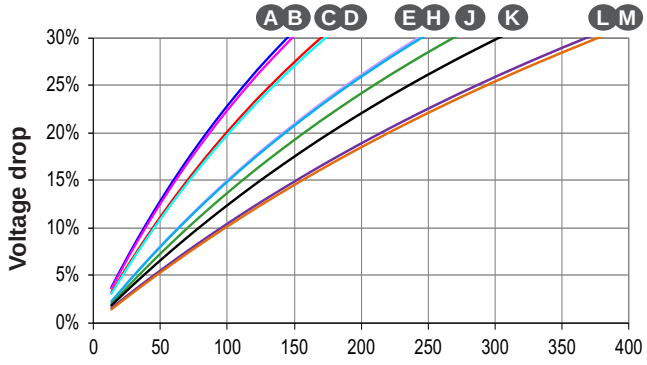
		A	B	C	D	E	H	J	K	L	M
Kcc	Short-circuit ratio	0.55	0.48	0.5	0.46	0.41	0.38	0.38	0.41	0.36	0.32
Xd	Direct-axis synchronous reactance unsaturated	308	350	321	355	348	377	375	356	358	397
Xq	Quadrature-axis synchronous reactance unsaturated	157	178	164	181	177	192	191	182	182	202
T'do	No-load transient time constant	2475	2475	2308	2308	2154	2154	2112	2077	2025	2025
X'd	Direct-axis transient reactance saturated	12.4	14.1	13.9	15.4	16.1	17.5	17.7	17.1	17.6	19.6
T'd	Short-circuit transient time constant	100	100	100	100	100	100	100	100	100	100
X"d	Direct-axis subtransient reactance saturated	7.4	8.5	8.3	9.2	9.7	10.5	10.6	10.3	10.6	11.7
T"d	Subtransient time constant	10	10	10	10	10	10	10	10	10	10
X"q	Quadrature-axis subtransient reactance saturated	16.8	19.1	17.8	19.7	19.6	21.3	21.3	20.3	20.5	22.8
Xo	Zero sequence reactance	0.51	0.59	0.58	0.64	0.67	0.72	0.74	0.71	0.73	0.81
X2	Negative sequence reactance saturated	12.17	13.83	13.1	14.49	14.69	15.91	15.99	15.34	15.59	17.32
Ta	Armature time constant	15	15	15	15	15	15	15	15	15	15

Other class H / 480 V data

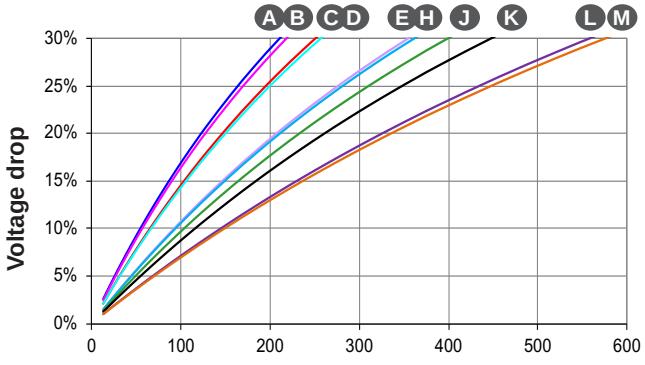
io (A)	No-load excitation current SHUNT	0.84	0.84	0.79	0.79	0.67	0.67	0.66	0.68	0.63	0.63
io (A)	No-load excitation current AREP+	1.08	1.08	1.02	1.02	0.87	0.87	0.85	0.87	0.82	0.82
ic (A)	On-load excitation current SHUNT	2.60	2.91	2.72	3.01	2.58	2.79	2.79	2.79	2.69	3.00
ic (A)	On-load excitation current AREP+	3.34	3.76	3.51	3.88	3.32	3.59	3.60	3.59	3.47	3.87
uc (V)	On-load excitation voltage SHUNT	29.3	32.6	30.3	33.3	32.4	34.8	34.7	34.4	20.4	22.6
uc (V)	On-load excitation voltage AREP+	23.5	26.2	24.4	26.7	26	28	27.8	27.6	16.1	17.8
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT*	149	150	172	172	246	246	270	304	381	381
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP+*	244	244	279	281	401	402	438	498	648	650
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 $_{LAG}$	17.7	19.3	19.1	20.4	18.6	19.7	19.9	19.4	17.8	19.1
%	Transient ΔU (on-load 4/4) AREP+ - P.F.: 0.8 $_{LAG}$	12.9	14	13.8	14.7	13.5	14.2	14.3	14	12.5	13.4
W	No-load losses	2905	2905	3189	3189	3417	3417	3639	4070	3923	3923
W	Heat dissipation	7042	8265	8222	9378	9683	10805	11438	11913	12145	14130

* P.F. = 0.6

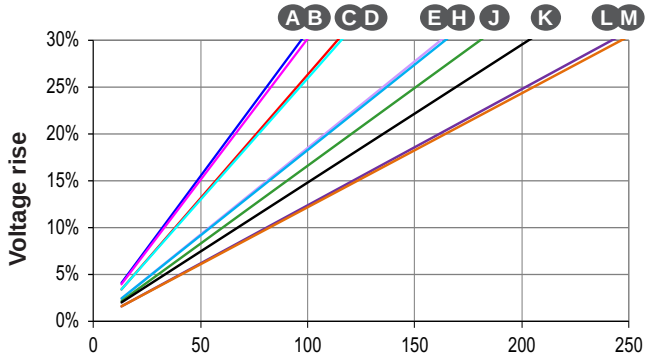
Transient voltage variation 400V - 50 Hz



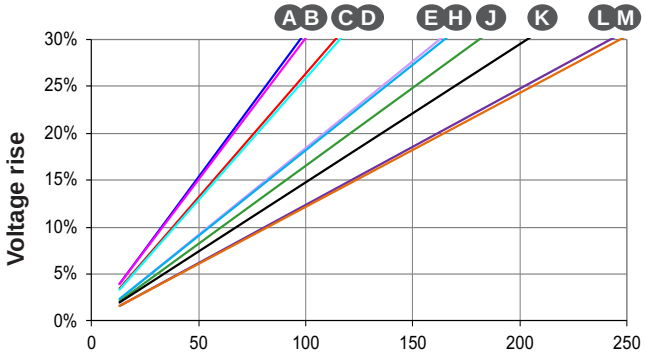
Phase loading (SHUNT) - kVA at P.F. = 0.8



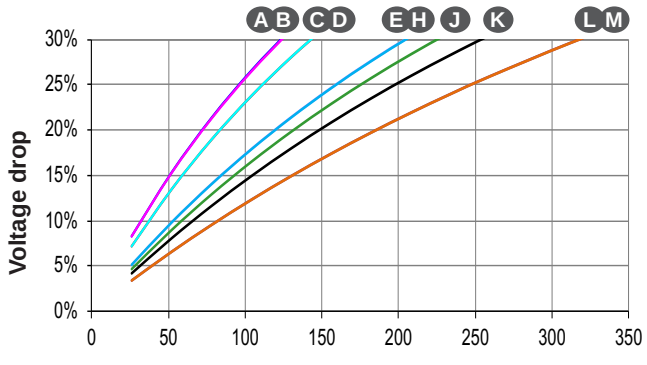
Phase loading (AREP+/PMG) - kVA at P.F. = 0.8



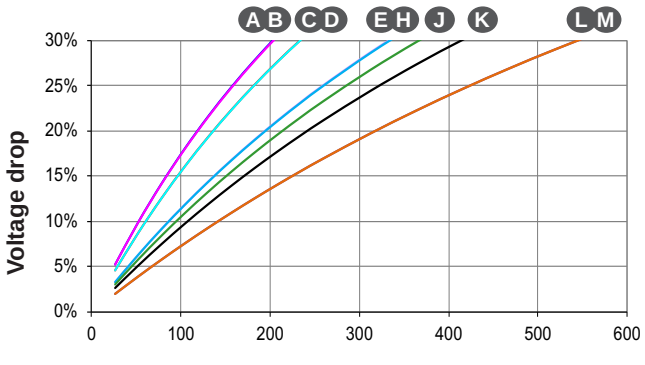
Load shedding (SHUNT) - kVA at P.F. = 0.8



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



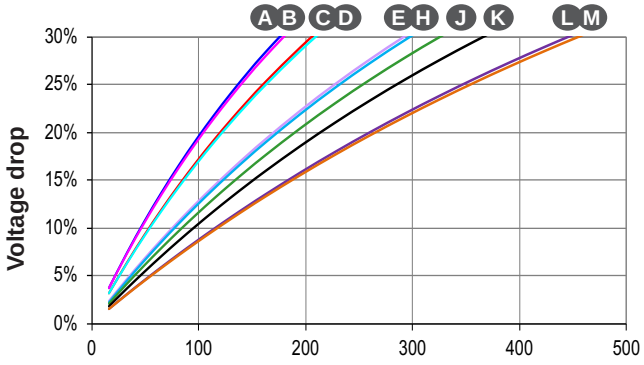
Motor starting (SHUNT)
Locked rotor kVA at P.F. = 0.6



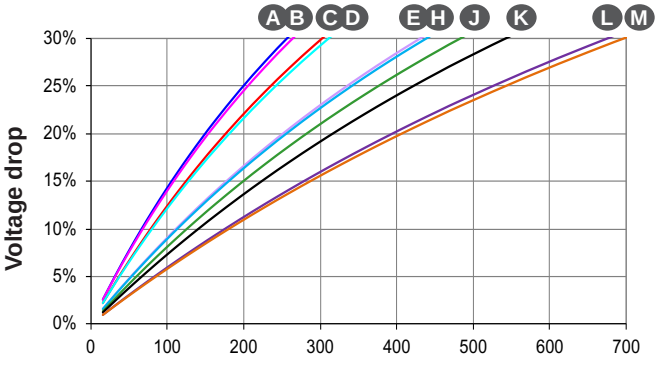
Motor starting (AREP+/PMG)
Locked rotor kVA at P.F. = 0.6

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 $(230/U)^2$.

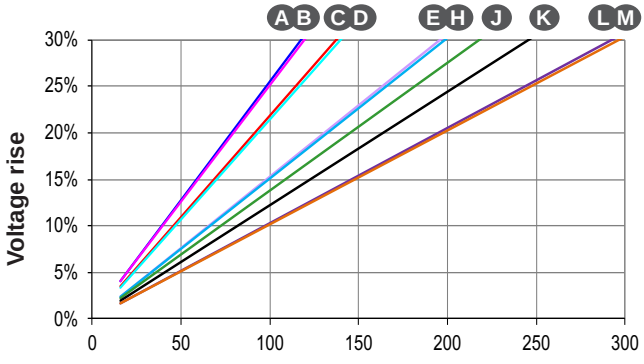
Transient voltage variation 480V - 60 Hz



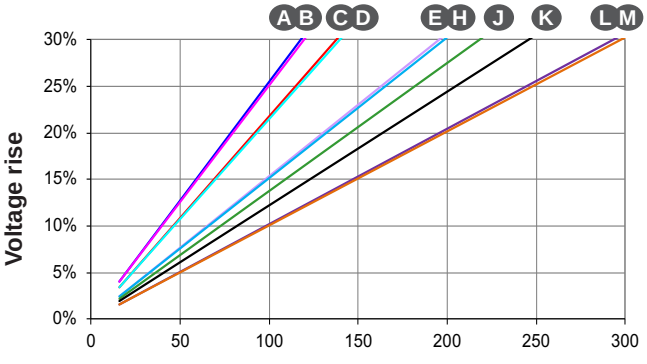
Phase loading (SHUNT) - kVA at P.F. = 0.8



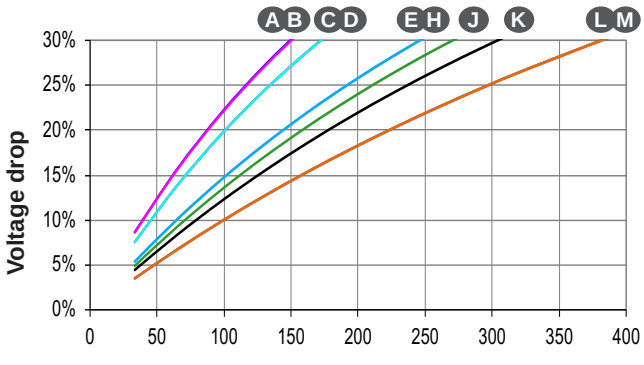
Phase loading (AREP+/PMG) - kVA at P.F. = 0.8



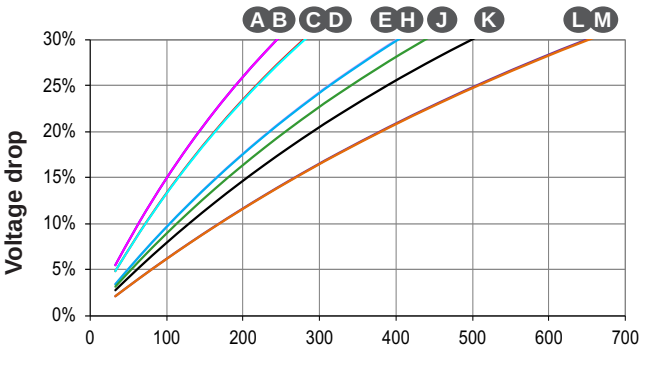
Load shedding (SHUNT) - kVA at P.F. = 0.8



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



Motor starting (SHUNT)
Locked rotor kVA at P.F. = 0.6



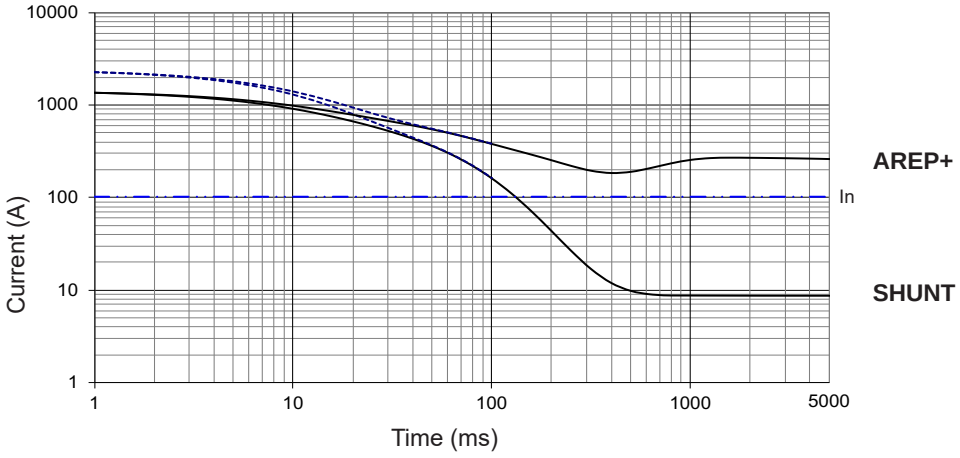
Motor starting (AREP+/PMG)
Locked rotor kVA at P.F. = 0.6

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 $(240/U)^2$.

3-phase short-circuit curves at no load and rated speed (star connection Y)

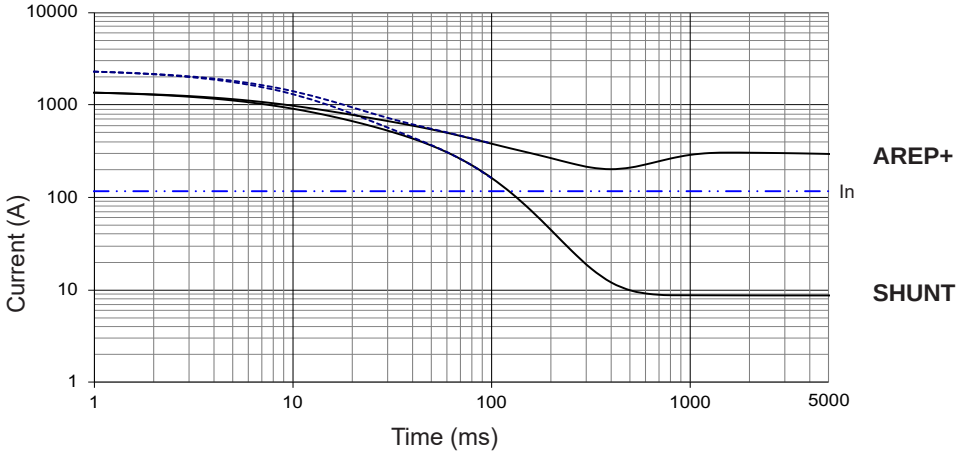
TAL 044 A

Symmetrical ——
Asymmetrical - - -



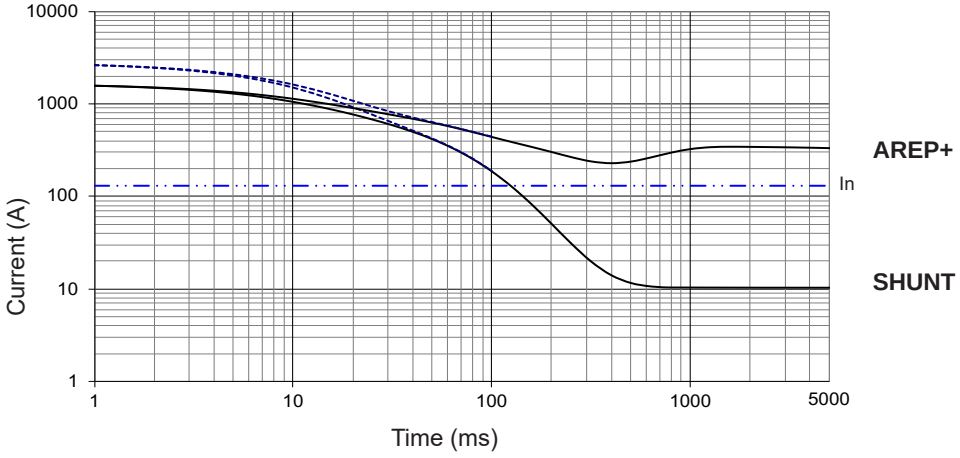
TAL 044 B

Symmetrical ——
Asymmetrical - - -



TAL 044 C

Symmetrical ——
Asymmetrical - - -

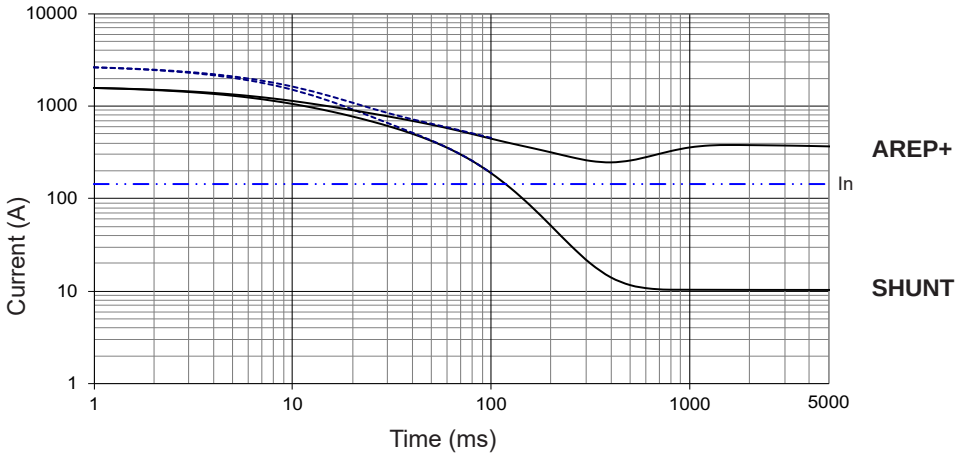


Influence due to connection
For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

3-phase short-circuit curves at no load and rated speed (star connection Y)

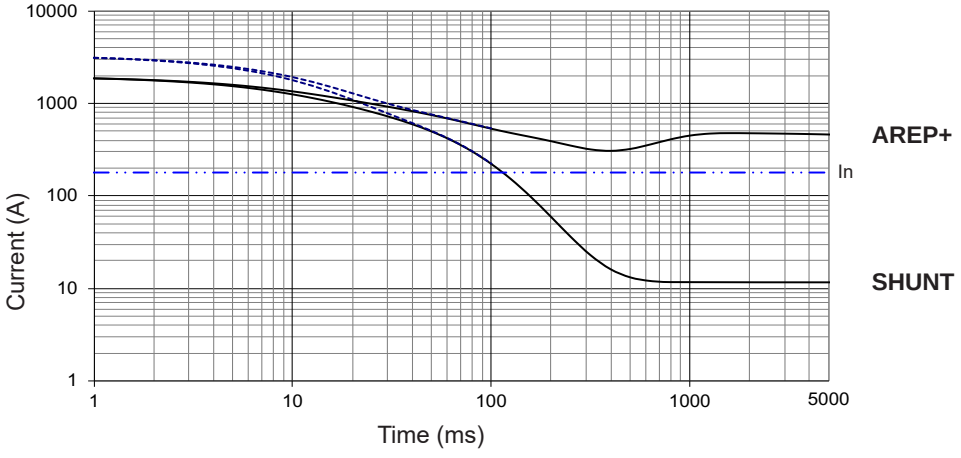
TAL 044 D

Symmetrical ——
Asymmetrical - - -



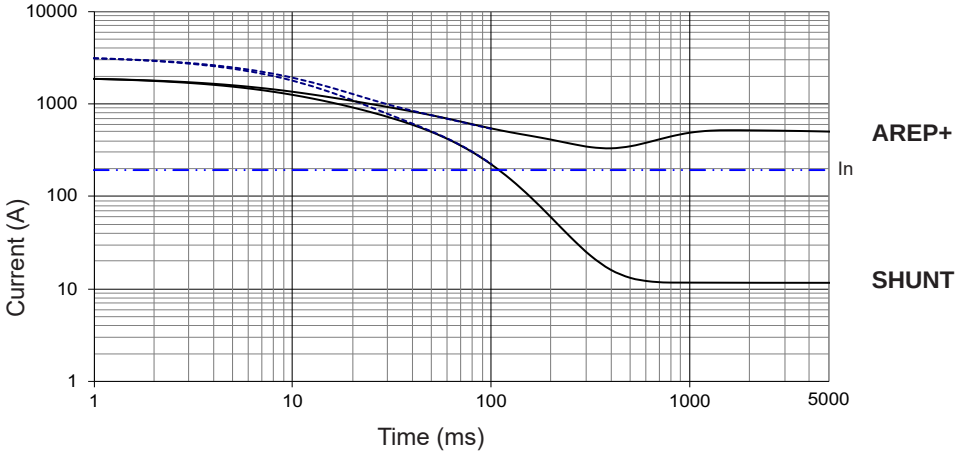
TAL 044 E

Symmetrical ——
Asymmetrical - - -



TAL 044 H

Symmetrical ——
Asymmetrical - - -



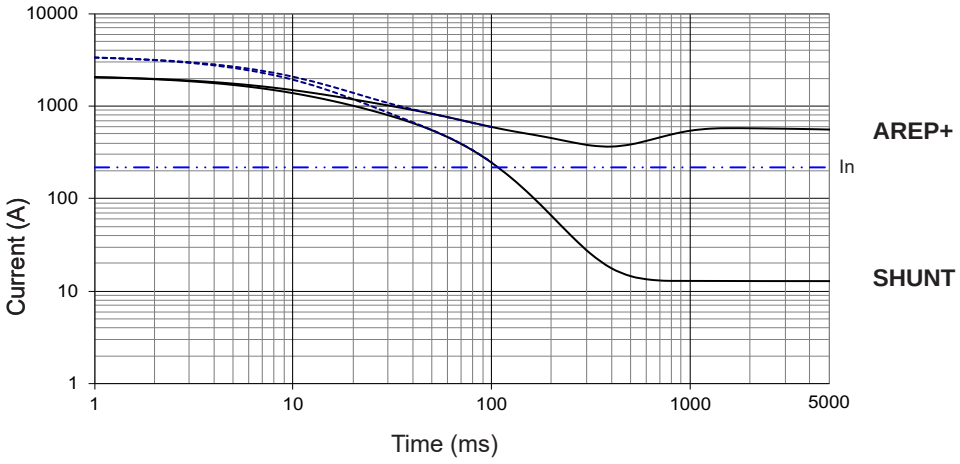
Influence due to short-circuit
Curves are based on a three-phase short-circuit.
For other types of short-circuit,
use the following multiplication factors.

	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 (AREP+/PMG)		1.5	

3-phase short-circuit curves at no load and rated speed (star connection Y)

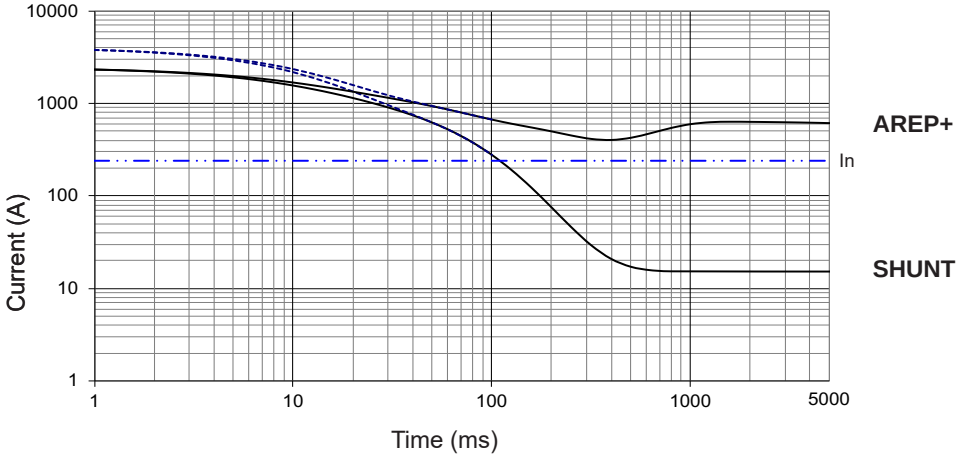
TAL 044 J

Symmetrical ——
Asymmetrical - - -



TAL 044 K

Symmetrical ——
Asymmetrical - - -

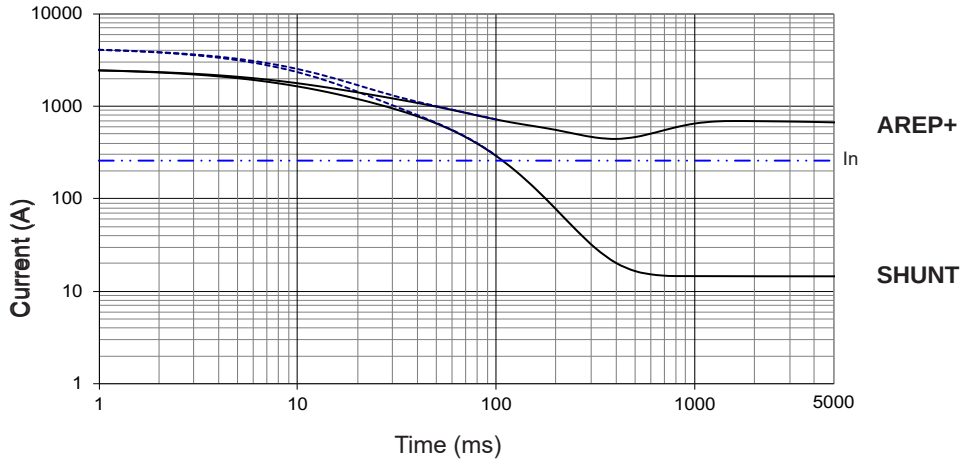


Influence due to connection
For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

3-phase short-circuit curves at no load and rated speed (star connection Y)

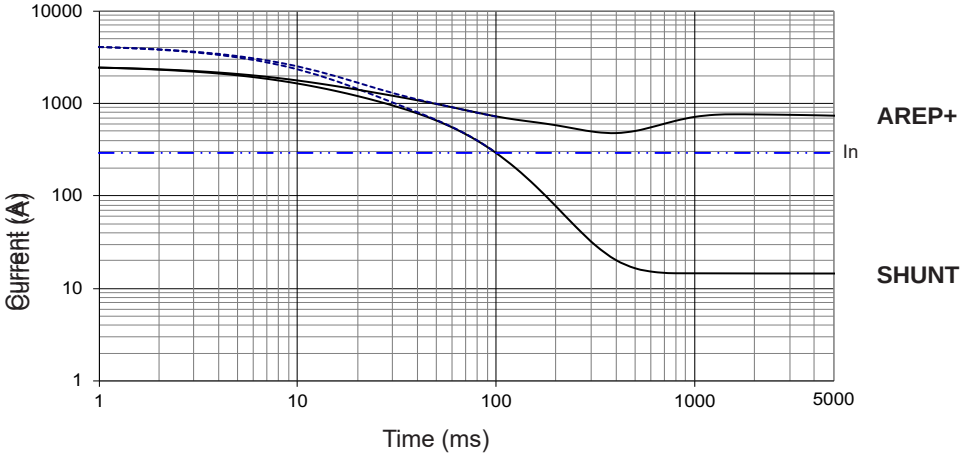
TAL 044 L

Symmetrical ——
Asymmetrical - - -



TAL 044 M

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 (AREP+/PMG)		1.5	

General characteristics

Insulation class	H	Excitation system	SHUNT
Winding pitch	2/3 (wind. M 50 Hz, M1 60 Hz)	AVR type	R121
Number of wires	4	Voltage regulation (*)	± 1 %
Protection	IP 23	Total Harmonic Distortion THD (**) in no-load	< 3.5 %
Altitude	≤ 1000 m	Total Harmonic Distortion THD (**) in linear load	< 5 %
Overspeed	2250 R.P.M.	Waveform: NEMA = TIF (**)	< 100
Air flow	0.25 m³/s (50 Hz) / 0.30 m³/s (60 Hz)	Waveform: I.E.C. = FHT (**)	< 2 %

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

Ratings / Efficiencies 50 Hz - 1500 R.P.M. - Winding M

kVA / kW - P.F. = 1(*)						
Duty / T° C	Continuous / 40 °C			Stand-by / 40 °C	Stand-by / 27 °C	
Class / T° K	H / 125° K		F / 105° K	H / 150° K	H / 163° K	
Serie (SE)	230 V	η %	230 V	230 V	230V	η %
TAL 044 C	**57**	**91**	52	60	63	90.7
TAL 044 D1	**69**	**91.5**	63	73	76	91.1
TAL 044 E	-	-	-	-	-	-
TAL 044 J	**82**	**92.3**	75	87	90	92
TAL 044 K	-	-	-	-	-	-

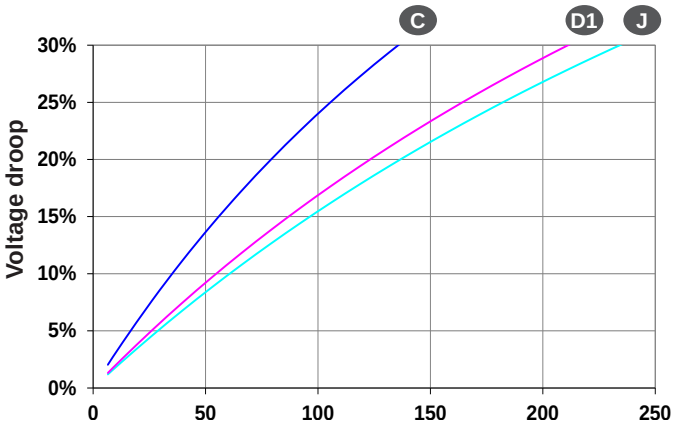
(*) For P.F. 0.8: derating 15%

Ratings / Efficiencies 60 Hz - 1800 R.P.M. - Winding M1

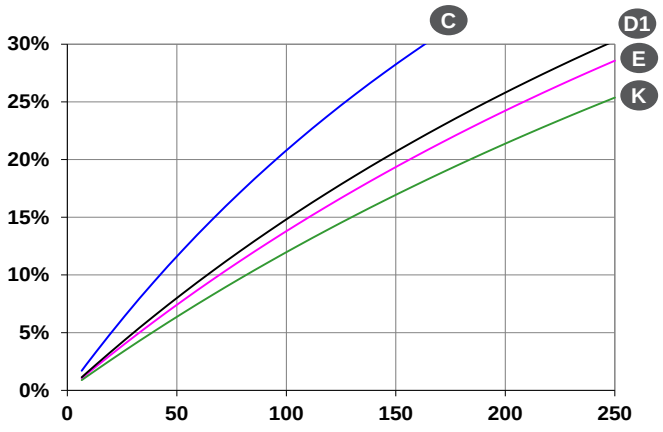
kVA / kW - P.F. = 1(*)						
Duty / T° C	Continuous / 40 °C			Stand-by / 40 °C	Stand-by / 27 °C	
Class / T° K	H / 125° K		F / 105° K	H / 150° K	H / 163° K	
Serie (SE)	240 V	η %	240 V	240 V	240V	η %
TAL 044 C	**80**	**90**	73	85	88	89.7
TAL 044 D1	**100**	**90**	91	106	110	89.7
TAL 044 E	**115**	**90.7**	105	122	127	90.2
TAL 044 J	-	-	-	-	-	-
TAL 044 K	**125**	**91.7**	114	133	138	91.4

(*) For P.F. 0.8: derating 15%

Starting motor 230V - 50Hz

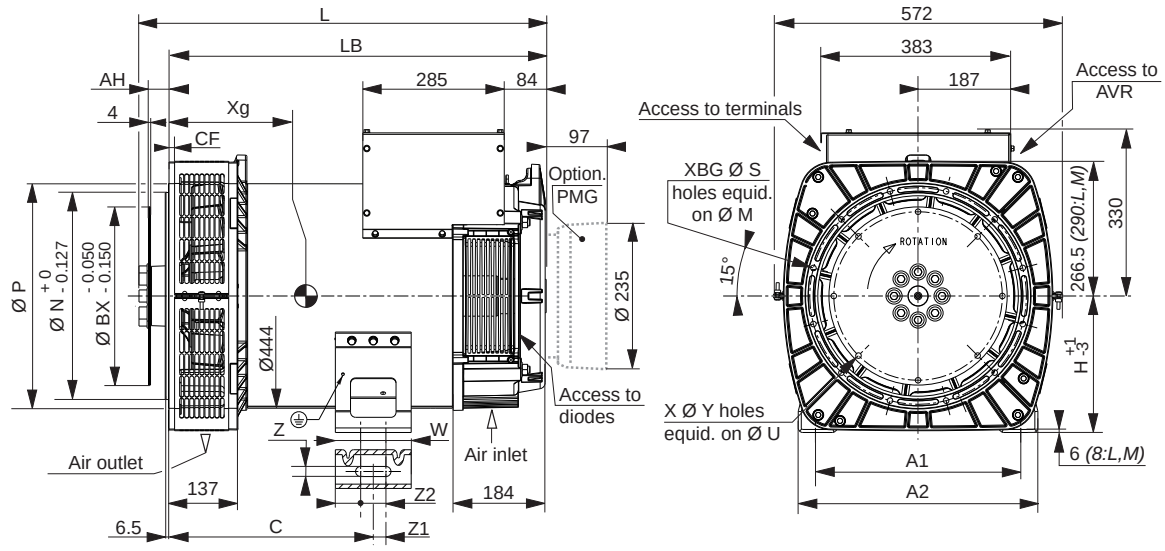


Starting motor 240V - 60Hz



Locked rotor kVA at PF : 0.9

Single-bearing dimensions



Dimensions (mm) and weight				
Type	L maxi *	LB	Xg	Weight (kg)
TAL 044 A	758	677	293	247
TAL 044 B	758	677	293	247
TAL 044 C	758	677	313	280
TAL 044 D	758	677	313	280
TAL 044 D1	758	677	313	280
TAL 044 E	828	747	353	353
TAL 044 H	828	747	353	353
TAL 044 J	828	747	365	383
TAL 044 K	868	787	383	418
TAL 044 L	953	872	416	539
TAL 044 M	953	872	416	539

* L maxi = LB + AH maxi + 19

Shaft height (mm)			
	Standard	*Option*	
H	**270**	*225**	*280***
	Feet length		
C	405	*332.5*	*429*
A1	406	*356*	*457*
A2	474	*430*	*541*
Z	20	*14.5*	*20*
Z1	25	*20*	*25*
Z2	50	*40*	*50*
W	150	*120*	*150*

* Not available for L and M
** Available only for L and M

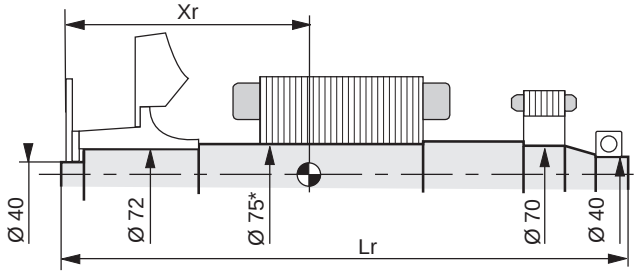
Coupling				
Flange	**1**	**2**	**3**	**4**
Flex plate				
14	x	-	-	-
11 ½	x	x	x	-
10	x	x	x	x
8	-	-	x	x

Flange (mm)						
S.A.E.	P	N	M	S	XBG	CF
4	400	361.95	381	11	12	16
3	445	409.58	428.62	11	12	16
2	485	447.68	466.72	11	12	16
1	560.5/581*	511.18	530.23	12	10	4.5/10*

* Specific dimension TAL 044 L and M

Flex plate (mm)					
S.A.E.	BX	U	X	Y	AH
14	466.72	438.15	8	14	25.4
11 ½	352.42	333.38	8	11	39.6
10	314.32	295.28	8	11	53.8
8	263.52	244.48	6	11	62

Torsional analysis data



*L, M = Ø 85 mm

Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm²): (4J = MD²)																
Flex plate	S.A.E. 8				S.A.E. 10				S.A.E. 11 ½				S.A.E. 14			
Type	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J
TAL 044 A	352.4	727	107.1	0.739	362.4	719	107.2	0.753	349.3	704	106.8	0.769	298.6	711	113.8	0.899
TAL 044 B	352.4	727	107.1	0.739	362.4	719	107.2	0.753	349.3	704	106.8	0.769	298.6	711	113.8	0.899
TAL 044 C	362.5	727	120.9	0.863	353.2	719	121.0	0.877	340.3	704	120.6	0.893	310.0	711	127.6	1.023
TAL 044 D	362.5	727	120.9	0.863	353.2	719	121.0	0.877	340.3	704	120.6	0.893	310.0	711	127.6	1.023
TAL 044 D1	362.5	727	120.9	0.863	353.2	719	121.0	0.877	340.3	704	120.6	0.893	310.0	711	127.6	1.023
TAL 044 E	408.5	797	153.6	1.137	398.5	789	153.7	1.151	385.4	774	153.3	1.167	357.3	781	160.2	1.297
TAL 044 H	408.5	797	153.6	1.137	398.5	789	153.7	1.151	385.4	774	153.3	1.167	357.3	781	160.2	1.297
TAL 044 J	419.4	797	165.4	1.244	409.3	789	165.5	1.258	396.2	774	165.1	1.274	368.8	781	172.0	1.404
TAL 044 K	439.4	837	180.7	1.379	429.2	829	180.8	1.393	416.0	814	180.4	1.409	389.2	821	187.4	1.539
TAL 044 L	480.9	922	221.1	1.713	471.3	914	221.2	1.727	458.3	899	220.8	1.743	449.6	906	227.8	1.873
TAL 044 M	480.9	922	221.1	1.713	471.3	914	221.2	1.727	458.3	899	220.8	1.743	449.6	906	227.8	1.873

NOTE : Dimensions are for information only and may be subject to modifications. The torsional analysis of the transmission is imperative. All values are available upon request.

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Moteurs Leroy-Somer SAS. Headquarters: Bd Marcellin Leroy, CS 10015, 16915 Angoulême Cedex 9, France. Share Capital: 32,239,235 €, RCS Angoulême 338 567 258.

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TAL A44
81– 204 kVA

DATA SHEET

Leroy-Somer is a leading global supplier of alternators for emergency power. Our new TAL low voltage alternators, with optimal performance for commercial and industrial applications, are a simple, efficient solution for your onsite power requirements.

Leroy-Somer's TAL alternators are specially designed to meet the power needs of telecom towers and commercial and industrial buildings. TAL is compatible with most engine brands.

Common Data

Insulation Class	H	**Excitation System**	SHUNT
Winding Pitch	2/3 (Winding 6S)	**A.V.R. Model**	R120
Leads	6	**Voltage Regulation (*)**	± 1 %
Drip Proof	IP 23	**Total Harmonic THD (**) in no-load ....:**	< 3.5 % according to C.E.I.
Altitude	≤ 1000 m	**Total Harmonic THD (**) in linear load:**	< 5 % according to C.E.I.
Overspeed	2250 R.P.M.	**Waveform NEMA = TIF (**)**	< 50
(*) Steady state duty. (**) Total harmonic content line to line, at no loads of full rated linear and balanced loads.		**Waveform I.E.C. = THF (**)**	< 2%

Ratings (50 Hz – 1500 r.pm and 60 Hz – 1800 r.p.m.)

kVA / kW - P.F. = 0.8

TAL A44	50 Hz - 1500 R.P.M.								60 Hz - 1800 R.P.M.							
Duty/T°C	Continuous / 40°C			St. By/ 27°C			Reactance		Continuous / 40°C				St. By/ 27°C			
Class/T°K	H / 125°K			H / 163°K					H / 125°K				H / 163°K			
	Rating kVA			Rating kVA					Rating kVA				Rating kVA			
Phase	3 ph.			3 ph.					3 ph.				3 ph.			
Y	380V	400V	415V	380V	400V	415V			380V	416V	440V	480V	380V	416V	440V	480V
Δ	220V	230V	240V	220V	230V	240V	x'd	x"d	220V	240V	254V	277V	220V	240V	254V	277V
TAL-A44-C	81	**85**	85	88	**93.5**	93.5	**15.7**	**9.8**	81	88	93	**102**	89	97	102	**112**
TAL-A44-D	100	**100**	95	110	**110**	105	**15.1**	**9.4**	95	104	109	**120**	104	114	120	**132**
TAL-A44-E	119	**125**	119	130	**137.5**	130	**14.8**	**9.3**	119	130	137	**150**	130	143	150	**165**
TAL-A44-H	137.5	**137.5**	128	151.5	**151.5**	141	**14.1**	**8.8**	130	143	150	**165**	143	157	165	**182**
TAL-A44-J	143	**150**	143	157	**165**	157	**13.1**	**8.2**	142	156	164	**180**	156	171	180	**198**
TAL-A44-K	161.5	**170**	161.5	178	**187.5**	178	**12.4**	**7.8**	161	177	186	**204**	177	194	204	**224**

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Efficiencies (%)

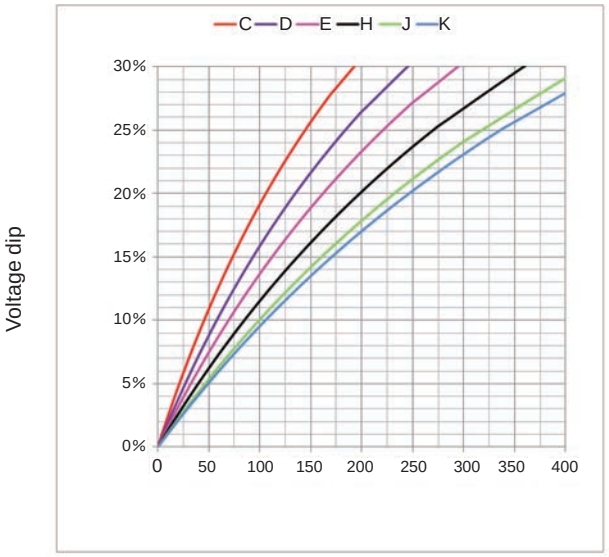
Class H / 40 ° C

	Three Phase: 400 V - 50 Hz									
	P.F. = 0.8					P.F. = 1				
	1/4	2/4	3/4	4/4	St.By	1/4	2/4	3/4	4/4	St.By
TAL-A44-C	84.1	89.8	90.3	87.6	85.9	85.6	91.8	93.5	92.7	91.9
TAL-A44-D	84.6	90.5	91.3	89.0	87.8	86.1	92.3	94.1	93.5	92.4
TAL-A44-E	86.2	91.5	92.0	89.4	87.8	87.6	93.1	94.7	93.9	93.2
TAL-A44-H	86.2	91.8	92.7	90.8	89.6	87.6	93.3	95.1	94.6	94.0
TAL-A44-J	86.3	91.9	92.9	91.0	89.8	87.6	93.4	95.2	94.7	94.1
TAL-A44-K	87.8	92.7	93.4	91.4	90.0	89.0	94.0	95.6	94.9	94.3

	Three Phase: 480 V - 60 Hz									
	P.F. = 0.8					P.F. = 1				
	1/4	2/4	3/4	4/4	St.By	1/4	2/4	3/4	4/4	St.By
TAL-A44-C	83.9	89.3	90.6	88.7	87.1	85.6	90.4	93.2	92.9	92.1
TAL-A44-D	84.7	90.0	91.5	90.0	88.8	86.3	91.0	93.9	93.7	93.0
TAL-A44-E	86.6	91.1	92.3	90.4	89.1	88.2	92.0	94.5	94.1	93.4
TAL-A44-H	86.7	91.4	92.9	91.6	90.7	88.2	92.2	94.9	94.7	94.4
TAL-A44-J	86.9	91.6	93.1	91.8	90.9	88.4	92.3	95.0	94.9	94.5
TAL-A44-K	88.5	92.4	93.6	92.2	91.2	89.9	93.5	95.4	95.1	94.7

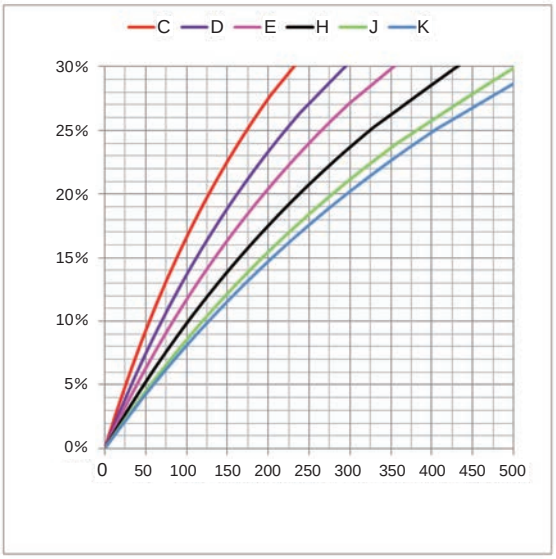
Transient Voltage Variation – Motor Starting

400V - 50 Hz



KVA at P.F=0.6

480V - 60 Hz



KVA at P.F=0.6

Locked Rotor – kVA at Ø 0.6 Power Factor

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