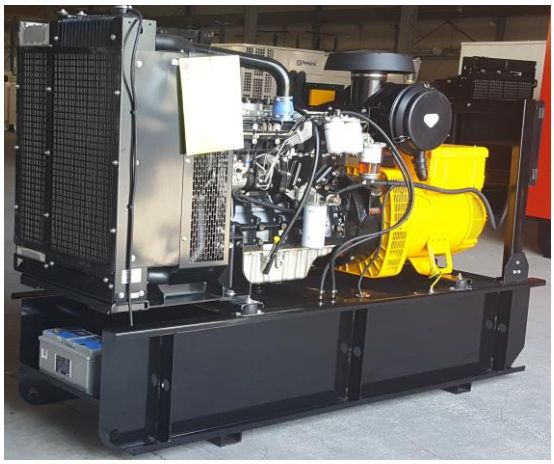
DESERT MACHINERY
آليات الصحراء

PERKINS GENERATOR

169 KVA (135 KW)

(UK)



1100 Series 1106A-70TAG2 Diesel Engine – ElectropaK

164 kWm net power @ 1800 rpm

Building upon Perkins proven reputation within the power generation industry, the 1100 Series range of ElectropaK engines now fit even closer to customers needs.

In the world of power generation success is only gained by providing more for less. With the 1106A-70TAG Perkins has engineered even higher levels of reliability, yet lowered the cost of ownership.

1100A units are designed for territories that do not require compliance to EPA or EU emissions legislation. These engines are assembled around optimal, efficient manufactuing processes with state-of-the-art technology. They are built to provide the exact power solution for customers who sell their applications into lesser regulated countries.

Focusing on our common platform theme, changes to engine envelope dimensions and connection points have been kept to a minimum.

Specification		
Number of cylinders	6 vertical in-line	
Bore and stroke	105 x 135 mm	4.13 x 5.31 in
Displacement	7.01 litres	428 in^3
Aspiration	Turbocharged aftercooled	
Cycle	4 stroke	
Combustion system	Direct injection	
Compression ratio	16:1	
Rotation	Anti-clockwise, viewed on flywheel	
Total lubricating capacity	16.5 litres	4.36 US gal
Cooling system	Liquid	
Total coolant capacity	21 litres	5.5 US gal

www.perkins.com

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Perkins®

THE HEART OF EVERY GREAT MACHINE

1100 Series 1106A-70TAG2 Diesel Engine – ElectropaK

164 kWm net power @ 1800 rpm

Features and benefits

Dependable power

- The Perkins® 1106A-70TAG2 delivers up to 165 kVA standby at 50 Hz and 150 kWe standby at 60 Hz, providing greater productivity through an improved power to weight ratio
- This world-class power density has been achieved in a 7 litre engine, using a mechanical fuel injection system; making this engine robust for all markets, with the ability to cope with the variation of fuel qualities around the world

  The 1106A has been designed for excellent load acceptance to ensure your facility is powered quickly at all conditions

Low operating costs

- Service intervals are set at 500 hours as standard
- Warranties and Service Contracts

  We provide one-year warranties for constant speed engines and two-year warranties for variable speed models, as standard. These are supported by multilevel Extended Service Contracts that can be bought additionally
  Discover more: www.perkins.esc
- Low usage warranty package is also available

World class product support

- Through an experienced global network of distributors and dealers, fully trained engine experts deliver total service support around the clock, 365 days a year. They have a comprehensive suite of web based tools at their finger tips, covering technical information, parts identification and ordering systems, all dedicated to maximising the productivity of your engine
- Perkins actively pursues product support excellence by insisting our distribution network invest in their territory to provide you with a consistent quality of support across the globe
- Throughout the entire life of a Perkins engine, we provide access to genuine OE specification parts giving 100% reassurance that you receive the very best in terms of quality for lowest possible cost… wherever your Perkins powered machine is operating in the world
- To find your local distributor: www.perkins.com/distributor

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THE HEART OF EVERY GREAT MACHINE

1100 Series 1106A-70TAG2 Diesel Engine – ElectropaK

164 kWm net power @ 1800 rpm

Technical information

- Tropical radiator pipes and guards
- Flywheel housing
- Flywheel and starter ring
- Oil filters
- Starter motor
- Air cleaners and brackets
- Lubricating oil sump
- Alternator
- Induction manifolds
- Exhaust manifolds
- Fuel filter
- Cold start aid
- Engine mountings

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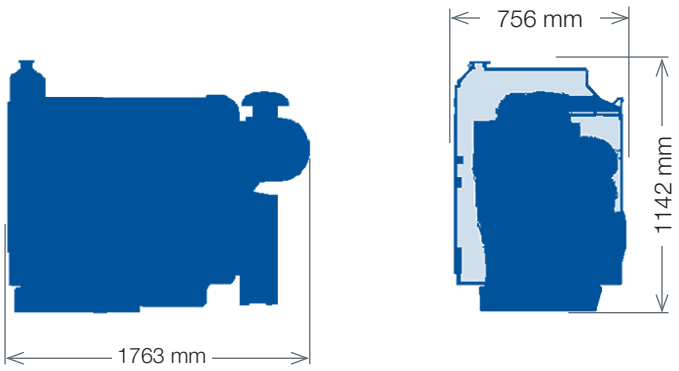

Engine package weights and dimensions		
Length with air cleaner	1763 mm	69.4 in
Width	756 mm	29.8 in
Height	1142 mm	145 in
Weight (dry)	788 kg	1737 lb

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1100 Series 1106A-70TAG2 Diesel Engine – ElectropaK

164 kWm net power @ 1800 rpm

Speed rpm	Type of operation	Typical generator output (Net)		Engine power			
				Gross		Net	
		kVA	kWe	kWm	hp	kWm	hp
1800	Prime power	169	135	155.0	207.9	147.0	197.1
	Standby (maximum)	188	150	176.0	236.0	164.0	218.6

Percent of prime power	Fuel consumption at 1800 rpm g/kWh	Fuel consumption at 1800 rpm l/hr
110%	203.1	41.7
Prime power	205.1	38.2
75%	208.4	29.1
50%	202.1	19.1
25%	232.9	11.0

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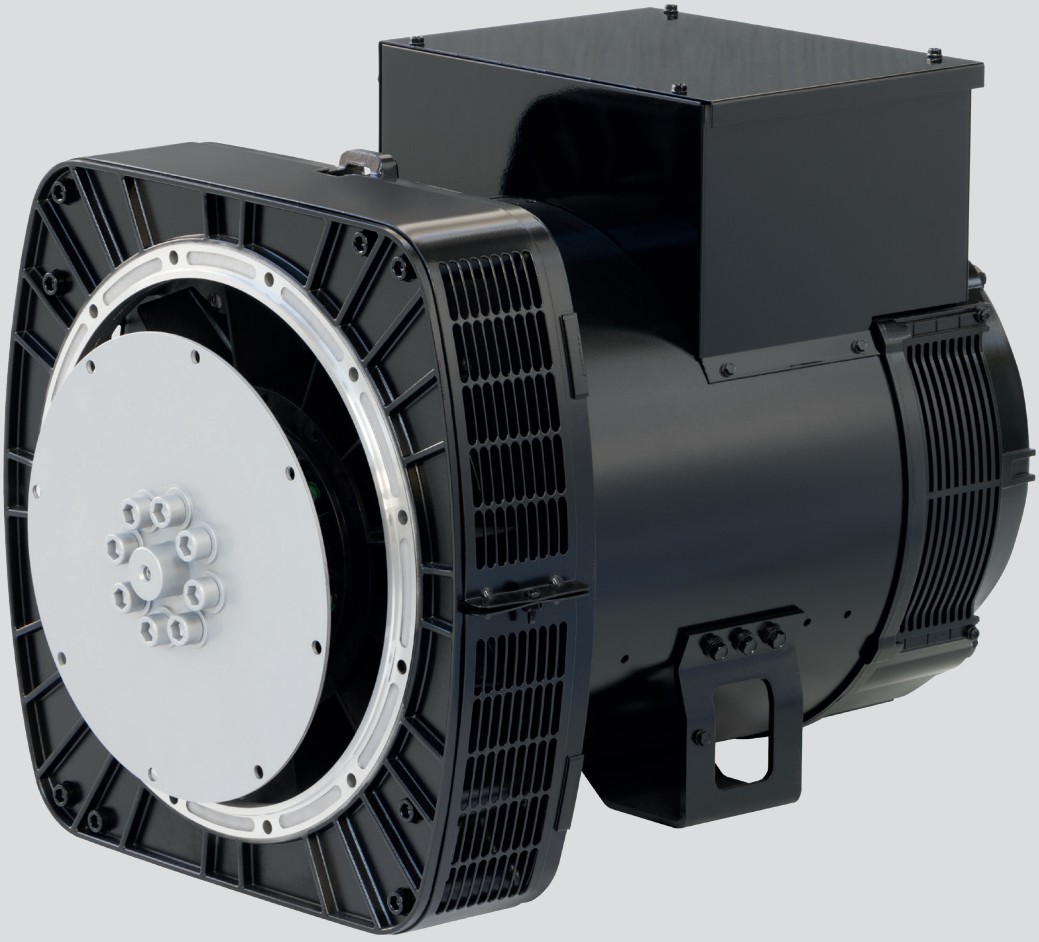


TAL 044

Low Voltage Alternator - 4 pole

Three-phase 70 to 165 kVA - 50 Hz / 88 to 206 kVA - 60 Hz
Dedicated single-phase 57 to 82 kVA - 50 Hz / 80 to 125 kVA - 60 Hz
Electrical and mechanical data

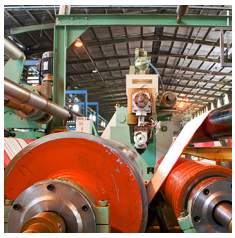
LEROY-SOMER™

Nidec
All for dreams

Adapted to needs

The TAL alternator range is designed to meet the needs of general applications such as prime power and stand-by.





Compliant with international standards

The TAL range complies with international standards and regulations: IEC 60034 and derivative.
The range is designed, manufactured and marketed in an ISO 9001 and 14001 environment.

Electrical design

- Class H insulation
- Shunt excitation
- Low voltage winding:
  Three-phase 50 Hz: 380V - 400V - 415V - 440V / 220V - 230V - 240V
  60 Hz: 380V - 416V - 440V - 480V / 220V - 208V - 240V
  Single-phase 50 Hz: 230V
  60 Hz: 240V
- 4-terminal plates in 6-wire version
- Optimized performance

Robust design

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

Excitation and regulation system suited to the application

	Excitation system				Regulation options		
	AVR	**Shunt**	**AREP**	**PMG**	**$UL_{C/US}$**	**Remote voltage potentiometer**	**C.T. for paralleling**
Three-phase 6-wire	**R120**	Standard					
	R150	Option				√	
	R180		Standard	Standard		√	√
	R438		Option	Option	√	√	√
Three-phase 12-wire	**R120**	Standard					
	R250	Option			√	√	
	R180		Standard	Standard		√	√
	R438		Option	Option	√	√	√
Single-phase	**R121**	Standard				√	
	R250	Option			√	√	

√ : Possible option

Compact terminal box

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

Environment and protection

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

Available options

- Three-phase 12-wire with 8-terminal plates
- AREP or PMG excitation
- ULc/us
- Customized painting (machine not painted as standard)
- Space heaters
- Flying leads
- Droop kit for alternator paralleling
- Dedicated single-phase
- Stator sensors
- Winding 8 optimized for three-phase 380V / 416V - 60Hz
- Winding protection for harsh environments and relative humidity greater than 95% (system 2 - 4 without derating): for TAL 044 K apply a derating coefficient of 0.97

TAL 044 - Three-phase 70 to 165 kVA - 50 Hz / 88 to 206 kVA - 60 Hz

General characteristics

Insulation class	H	Excitation system 6-wire	SHUNT / AREP
Winding pitch	2/3 (wind.6S - 6-wire / wind.6 - 12-wire)	AVR type	R120 / R180
Number of wires	6-wire (12-wire option)	Excitation system 12-wire (option)	SHUNT / AREP
Protection	IP 23	AVR type	R120 / R180
Altitude	≤ 1000 m	Voltage regulation (*)	± 1 %
Overspeed	2250 R.P.M.	Total Harmonic Distortion THD (**) in no-load	< 2 %
Air flow 50 Hz (m³/s)	0.25	Total Harmonic Distortion THD (**) in linear load	< 5 %
Air flow 60 Hz (m³/s)	0.30	Waveform: NEMA = TIF (**)	< 50
AREP Short-circuit current = 2.7 In : 5 second		Waveform: I.E.C. = FHT (**)	< 2%

(*) 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 (*)					220V					220V					220V					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*	*53*	*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*	*68*	*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*	*94*	*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*	*102*	*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*	*100*	*64*	*140*	*140*	*140*	*120*	*74*	*145*	*145*	*145*	*126*	*78*

(*) 12-wire option

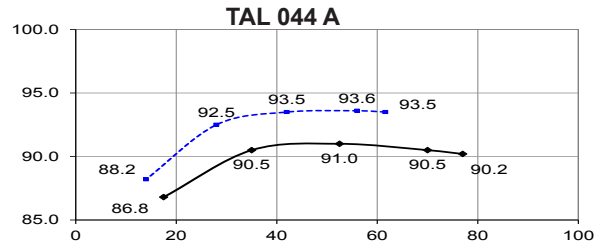
Ratings 60 Hz - 1800 R.P.M.

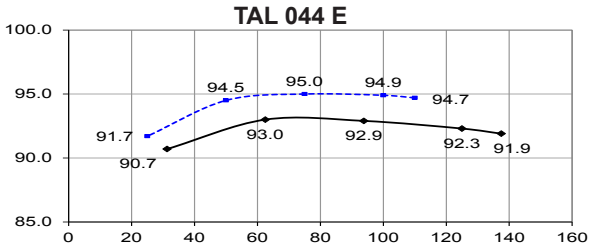
kVA / kW - P.F. = 0.8

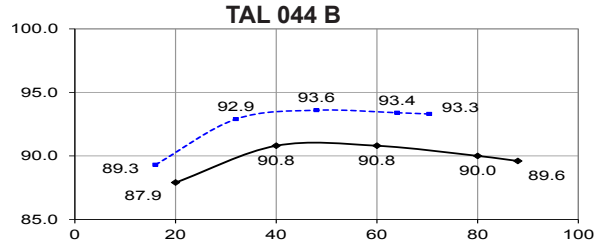
Duty / T° C		Continuous / 40 °C					Continuous / 40 °C					Stand-by / 40 °C					Stand-by / 27 °C				
Class / T° K		H / 125° K					F / 105° K					H / 150° K					H / 163° K				
Phase		3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.
Y		380V	416V	440V	480V		380V	416V	440V	480V		380V	416V	440V	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*	*33.6*	*58*	*65*	*68*	*74*	*39.2*	*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*	*37.6*	*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*	*118*	*130*	*138*	*150*	*77*	*138*	*152*	*160*	*174*	*89*	*143*	*158*	*166*	*182*	*93*

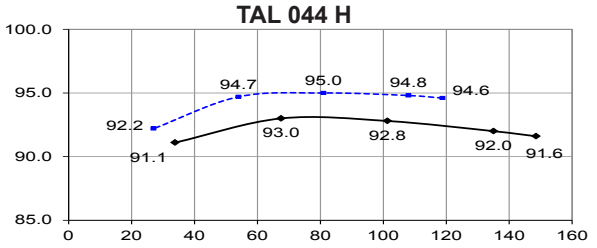
(*) 12-wire option

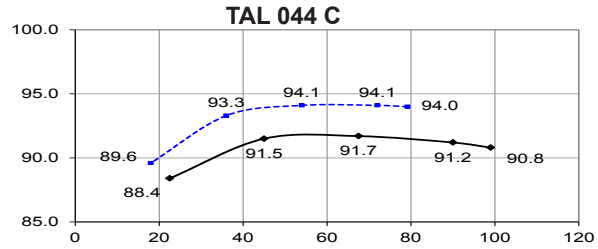
Efficiencies 400 V - 50 Hz (— P.F.: 0.8) (····· P.F.: 1)

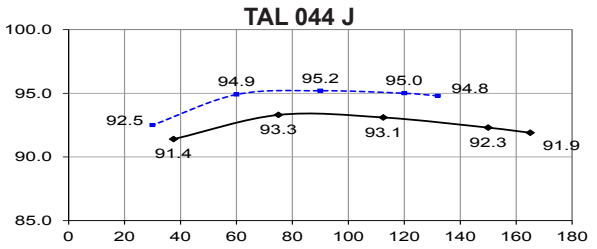


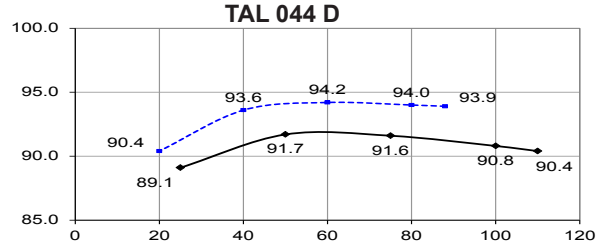


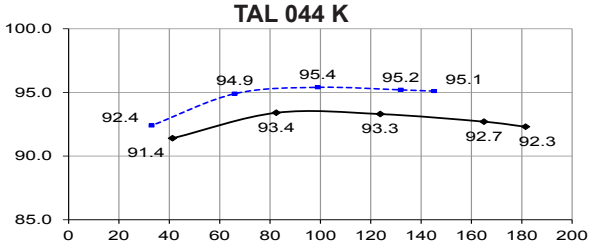












Reactances (%). Time constants (ms) - Class H / 400 V

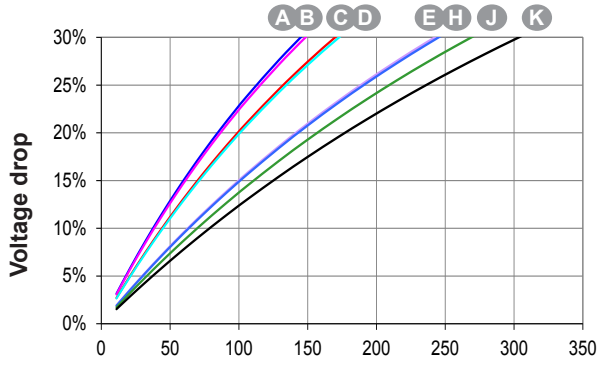
		A	B	C	D	E	H	J	K
Kcc	Short-circuit ratio	0.57	0.5	0.53	0.48	0.43	0.4	0.4	0.42
Xd	Direct-axis synchro. reactance unsaturated	294	336	307	341	334	361	359	343
Xq	Quadrature-axis synchro. reactance unsaturated	150	171	156	174	170	184	183	175
T'do	No-load transient time constant	2475	2475	2308	2308	2154	2154	2112	2077
X'd	Direct-axis transient reactance saturated	11.9	13.6	13.3	14.7	15.5	16.7	17	16.5
T'd	Short-circuit transient time constant	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
T"d	Subtransient time constant	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
Xo	Zero sequence reactance	0.49	0.56	0.55	0.61	0.64	0.69	0.7	0.68
X2	Negative sequence reactance saturated	11.62	13.28	12.53	13.92	14.12	15.25	15.31	14.74
Ta	Armature time constant	15	15	15	15	15	15	15	15

Other class H / 400 V data

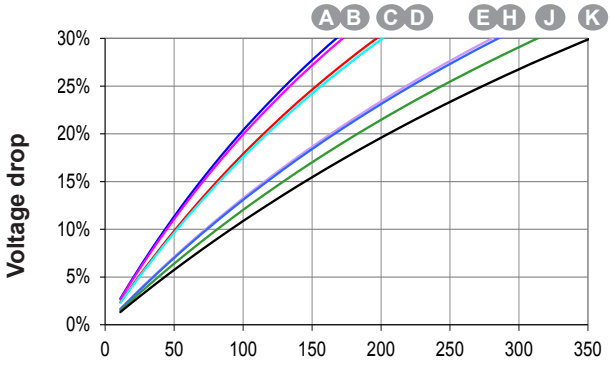
io (A)	No-load excitation current SHUNT and AREP	0.84/1.08	0.84/1.08	0.8/1.03	0.8/1.03	0.67/0.87	0.67/0.87	0.66/0.85	0.68/0.88
ic (A)	On-load excitation current SHUNT and AREP	2.6/3.35	2.95/3.8	2.75/3.54	3.08/3.96	2.57/3.31	2.78/3.59	2.79/3.6	2.82/3.63
uc (V)	On-load excitation voltage SHUNT and AREP	28.9/23.2	32.5/26.1	30.1/24.1	33.2/26.7	31.9/25.6	34.3/27.5	34.1/27.4	34.1/27.4
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT*	124.4	123.9	143.1	143.2	204	204.8	224.9	253.8
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP*	149.2	149.4	171.4	171.2	246.2	245.1	269.1	296.2
%	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
%	Transient ΔU (on-load 4/4) AREP - P.F.: 0.8 $_{LAG}$	15.2	16.6	16.4	17.6	16.1	16.9	17.1	16.7
W	No-load losses	1943	1943	2142	2142	2292	2292	2450	2755
W	Heat dissipation	5845	7033	6927	8059	8323	9340	9913	10366

* P.F. = 0.6

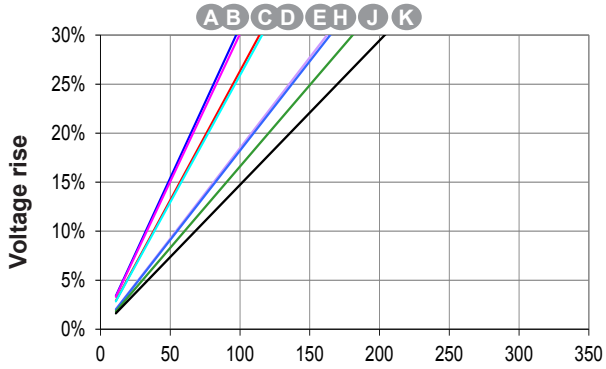
Transient voltage variation 400V - 50 Hz



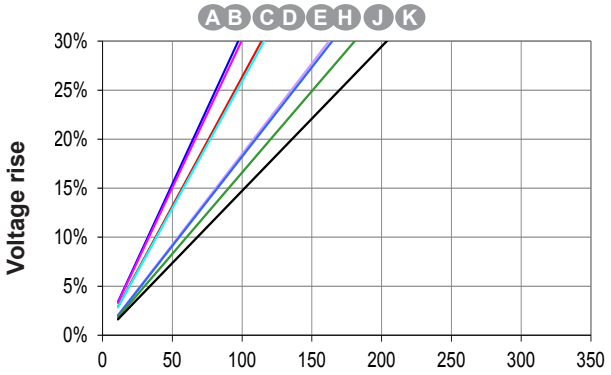
Phase loading (SHUNT) - kVA at P.F. = 0.8



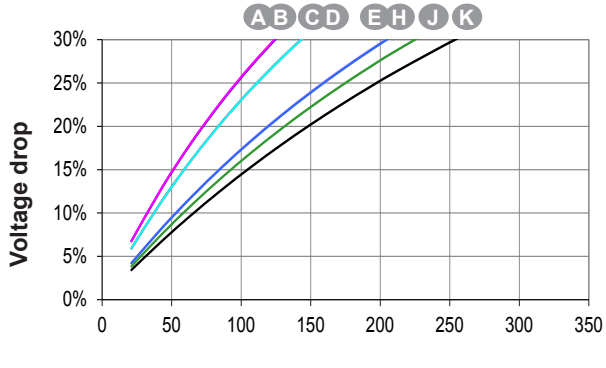
Phase loading (AREP) - kVA at P.F. = 0.8



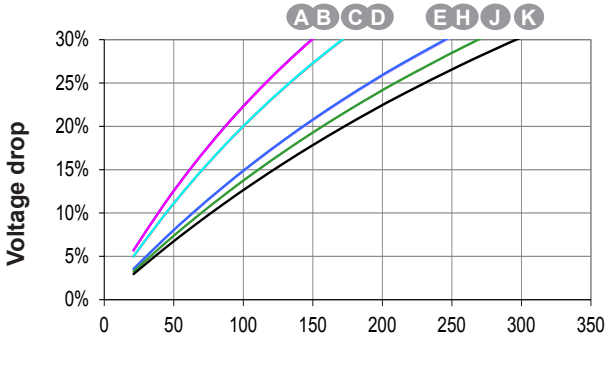
Load shedding (SHUNT) - kVA at P.F. = 0.8



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



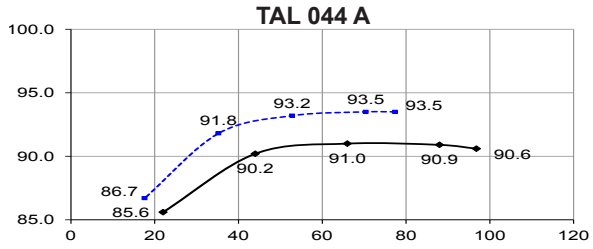
Motor starting (SHUNT)
Locked rotor kVA at P.F. = 0.6

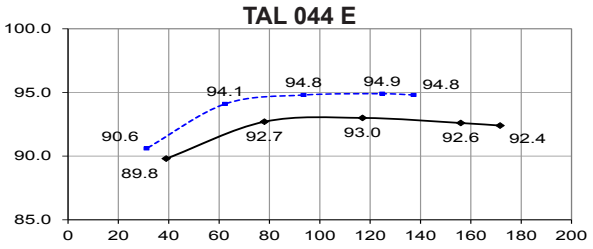


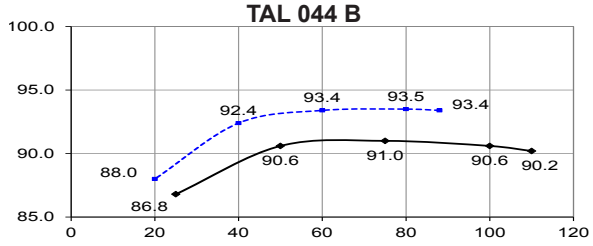
Motor starting (AREP)
Locked rotor kVA at P.F. = 0.6

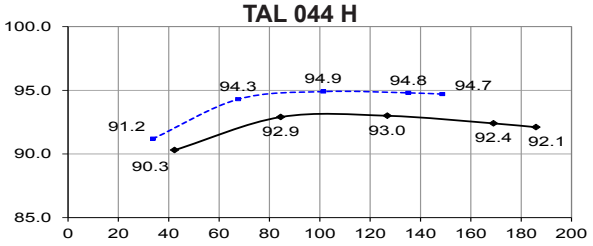
1) For a starting P.F. other than 0.6, the starting kVA must be multiplied by K = Sine P.F. / 0.8
2) For voltages other than 400V (Y), 230V (Δ) at 50 Hz, then kVA must be multiplied by $(400/U)^2$ or $(230/U)^2$.

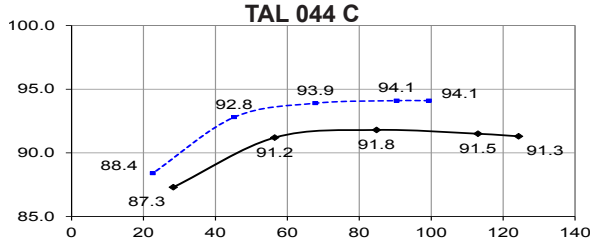
Efficiencies 480 V - 60 Hz (— P.F.: 0.8) (····· P.F.: 1)

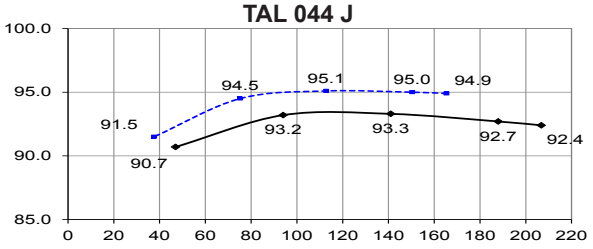


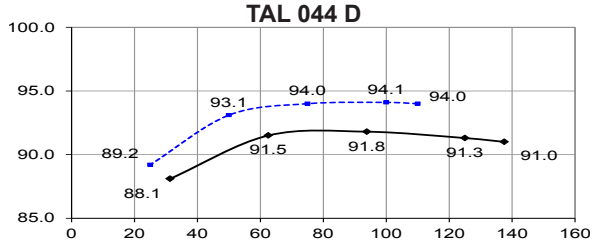


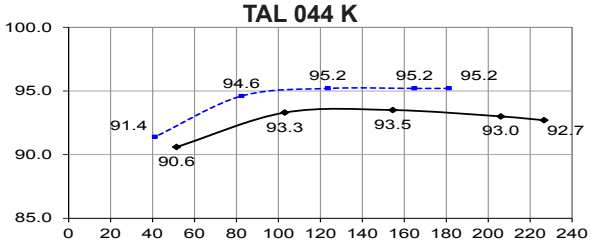












Reactances (%). Time constants (ms) - Class H / 480 V

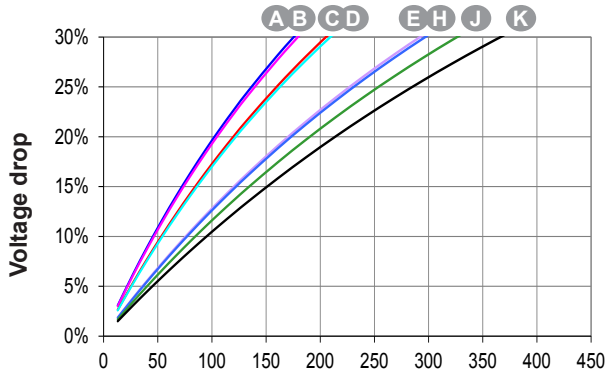
		A	B	C	D	E	H	J	K
Kcc	Short-circuit ratio	0.55	0.48	0.5	0.46	0.41	0.38	0.38	0.41
Xd	Direct-axis synchro. reactance unsaturated	308	350	321	355	348	377	375	356
Xq	Quadrature-axis synchro. reactance unsaturated	157	178	164	181	177	192	191	182
T'do	No-load transient time constant	2475	2475	2308	2308	2154	2154	2112	2077
X'd	Direct-axis transient reactance saturated	12.4	14.1	13.9	15.4	16.1	17.5	17.7	17.1
T'd	Short-circuit transient time constant	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
T"d	Subtransient time constant	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
Xo	Zero sequence reactance	0.51	0.59	0.58	0.64	0.67	0.72	0.74	0.71
X2	Negative sequence reactance saturated	12.17	13.83	13.1	14.49	14.69	15.91	15.99	15.34
Ta	Armature time constant	15	15	15	15	15	15	15	15

Other class H / 480 V data

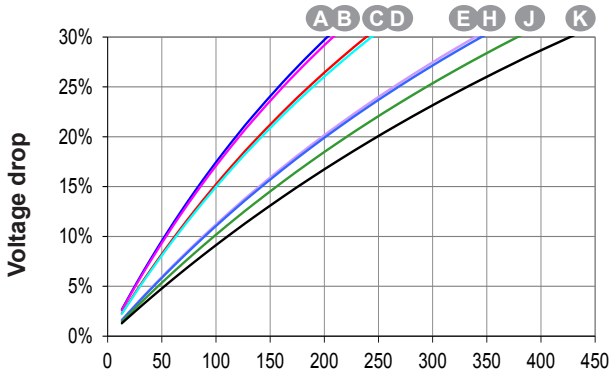
io (A)	No-load excitation current SHUNT and AREP	0.84/1.08	0.84/1.08	0.79/1.02	0.79/1.02	0.67/0.87	0.67/0.87	0.66/0.85	0.68/0.87
ic (A)	On-load excitation current SHUNT and AREP	2.6/3.34	2.91/3.76	2.72/3.51	3.01/3.88	2.58/3.32	2.79/3.59	2.79/3.6	2.79/3.59
uc (V)	On-load excitation voltage SHUNT and AREP	29.3/23.5	32.6/26.2	30.3/24.4	33.3/26.7	32.4/26	34.8/28	34.7/27.8	34.4/27.6
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT*	149.1	149.5	171.6	171.8	246.2	245.6	269.7	304.1
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP*	178.7	179	205.3	206.5	294.8	295.6	322.4	366.4
%	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
%	Transient ΔU (on-load 4/4) AREP - P.F.: 0.8 $_{LAG}$	15.7	17.1	16.9	18.1	16.5	17.4	17.6	17.2
W	No-load losses	2868	2868	3156	3156	3387	3387	3611	4040
W	Heat dissipation	7047	8289	8303	9490	9876	11039	11750	12269

* P.F. = 0.6

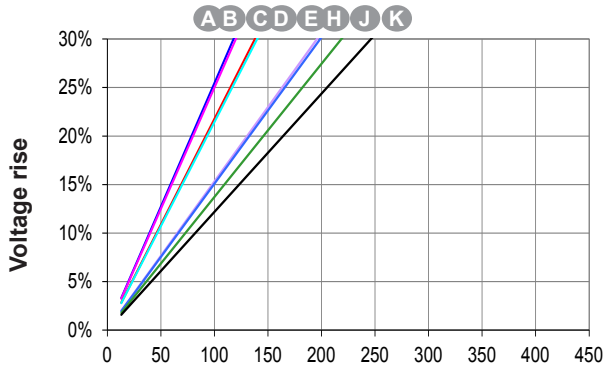
Transient voltage variation 480V - 60 Hz



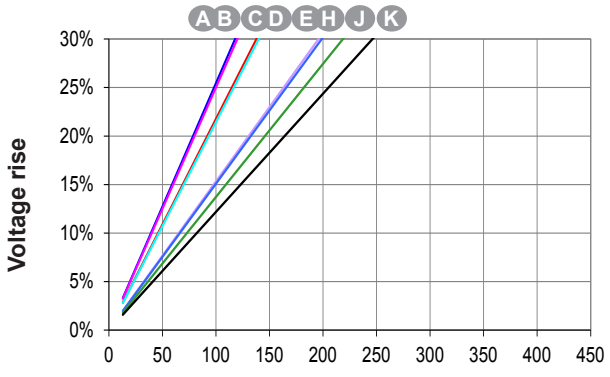
Phase loading (SHUNT) - kVA at P.F. = 0.8



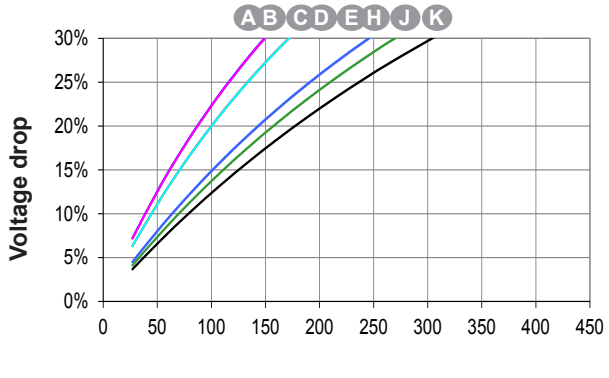
Phase loading (AREP) - kVA at P.F. = 0.8



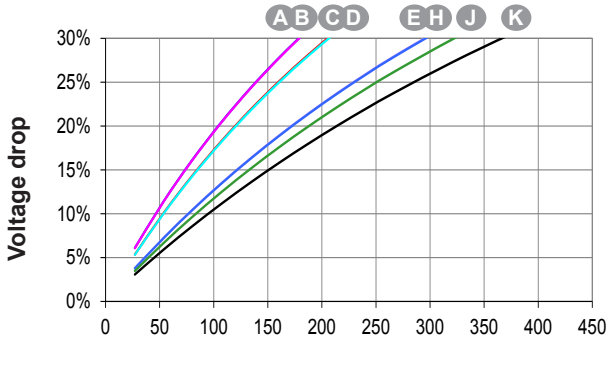
Load shedding (SHUNT) - kVA at P.F. = 0.8



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



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



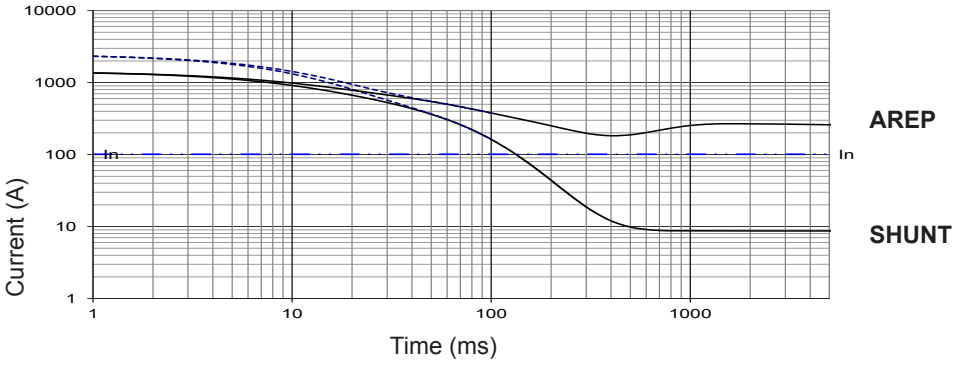
Motor starting (AREP)
Locked rotor kVA at P.F. = 0.6

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 $(240/U)^2$.

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

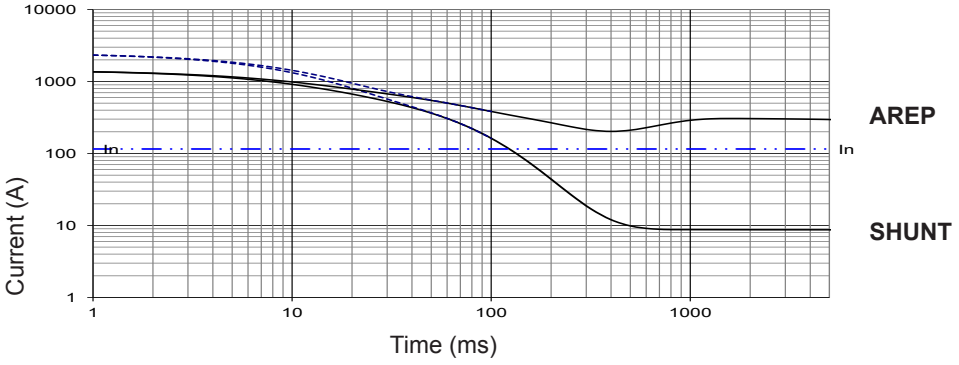
TAL 044 A

Symmetrical ——
Asymmetrical - - -



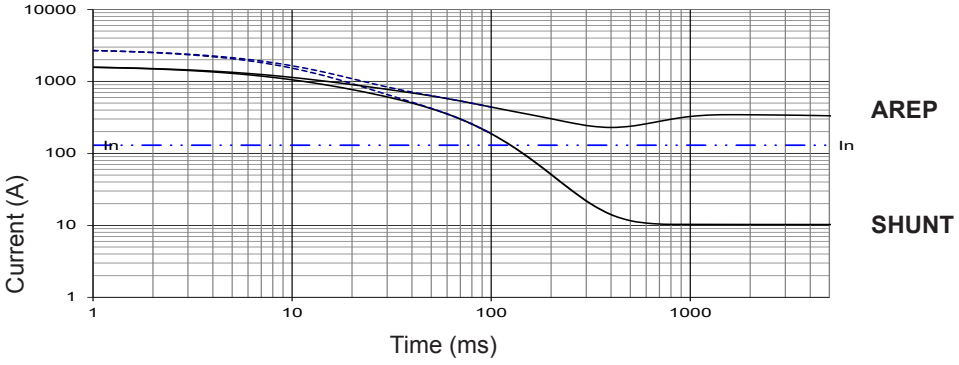
TAL 044 B

Symmetrical ——
Asymmetrical - - -



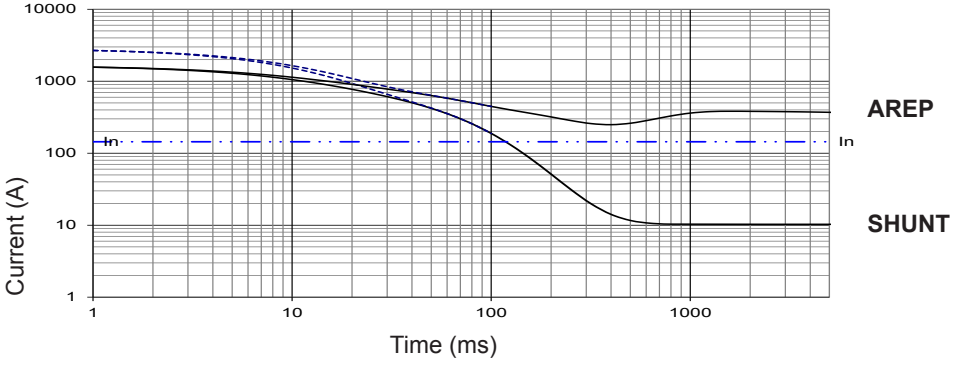
TAL 044 C

Symmetrical ——
Asymmetrical - - -



TAL 044 D

Symmetrical ——
Asymmetrical - - -

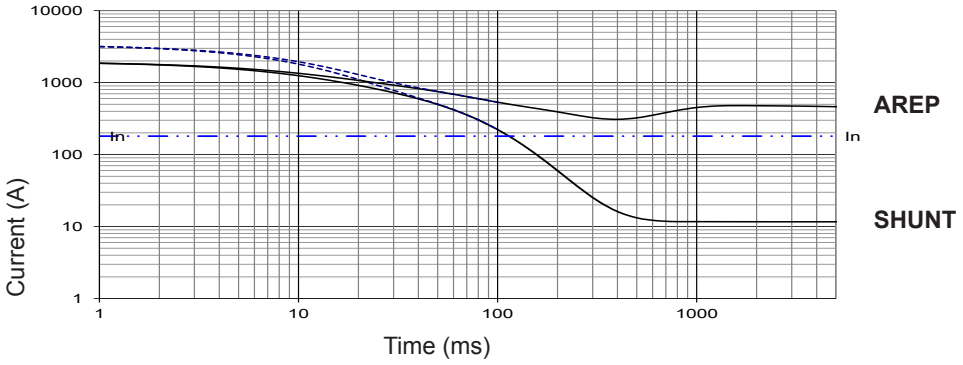


Influence due to connection
For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

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

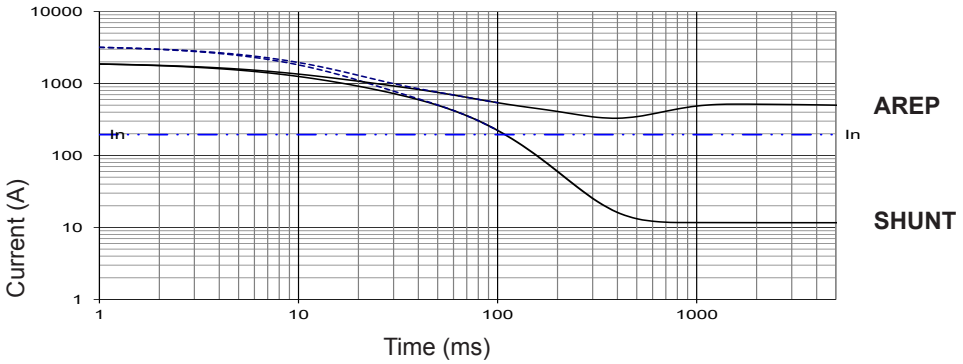
TAL 044 E

Symmetrical ——
Asymmetrical - - -



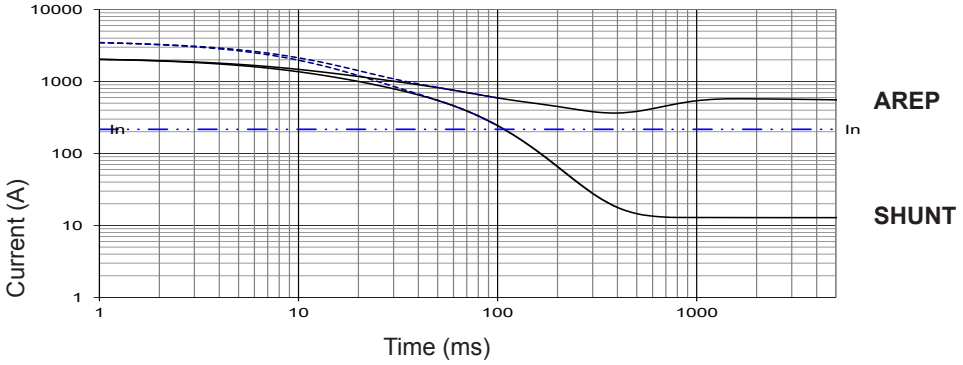
TAL 044 H

Symmetrical ——
Asymmetrical - - -



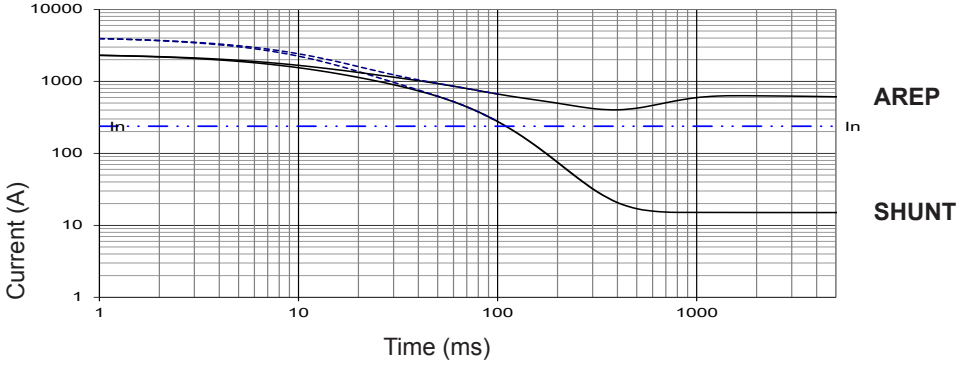
TAL 044 J

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	

General characteristics

Insulation class	H	Excitation system	SHUNT
Winding pitch	2/3 (wind. M 50Hz, M1 60Hz)	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 (m^3/s)	**50 Hz:** 0.25 - **60 Hz:** 0.30	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		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	-	-	-	-	-	-

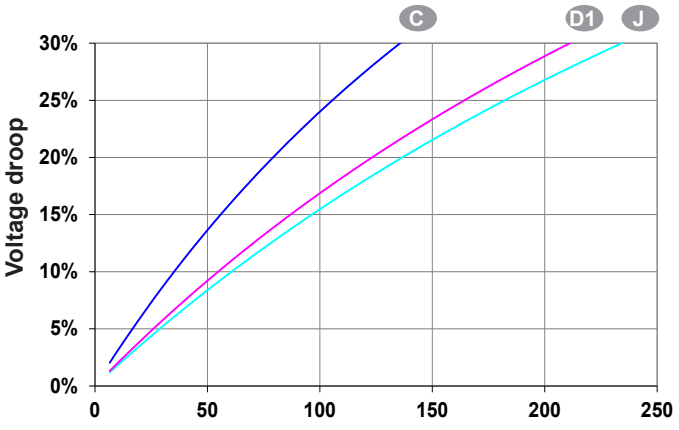
(*) For P.F. 0.8: derating 15%

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

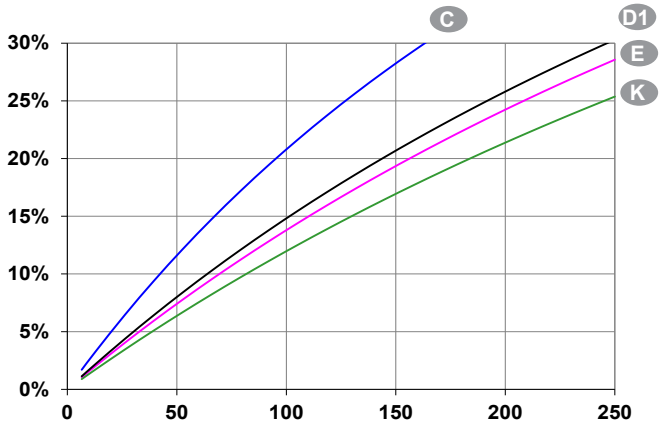
kVA / kW - P.F. = 1(*)						
Duty / T° C	Continuous / 40 °C		Continuous / 40 °C	Stand-by / 40 °C	Stand-by / 27 °C	
Class / T° K	H / 125° K		F / 105° K	H / 150° K	H / 163° K	
Serie (SE)	240 V	η %	240 V	240 V	240V	η %
TAL 044 C	80	90	73	85	88	89.7
TAL 044 D1	100	90	91	106	110	89.7
TAL 044 E	115	90.7	105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

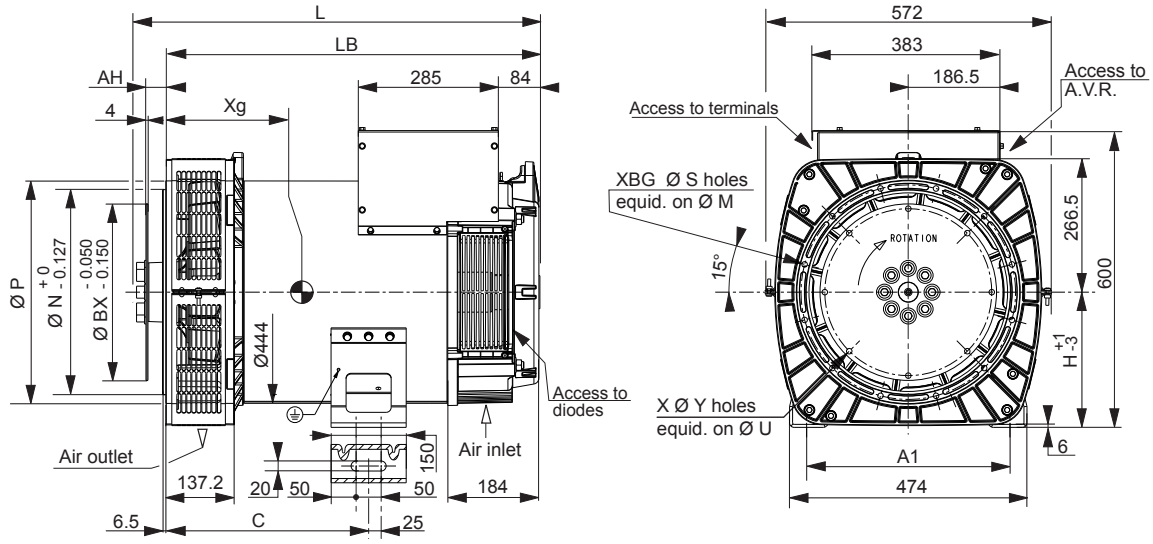


Starting motor 240V - 60Hz



Locked rotor kVA at PF : 0.9

Single bearing general arrangement



Dimensions (mm) and weight				
Type	L maxi	LB	Xg	Weight/kg
TAL 044 A	750	677	293	262
TAL 044 B	750	677	293	262
TAL 044 C	750	677	313	295
TAL 044 D	750	677	313	295
TAL 044 D1	750	677	313	295
TAL 044 E	820	747	353	368
TAL 044 H	820	747	353	368
TAL 044 J	820	747	365	398
TAL 044 K	860	787	383	433

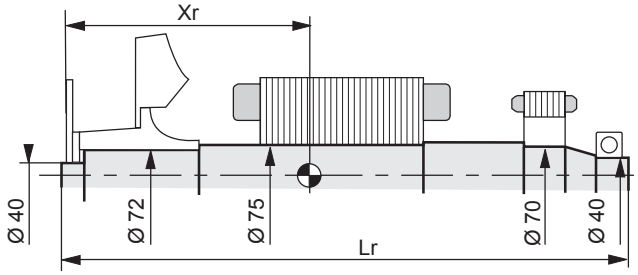
Shaft height (mm)		
	Standard	Option
H	**270**	225
	Feet length	
C	405	332.5
A1	406	356

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

Flange (mm)					
S.A.E.	P	N	M	S	XBG
3	445	409.58	428.62	11	12
2	485	447.68	466.72	11	12
1	560.5	511.18	530.23	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 data



Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm²): (4J = MD²)								
Flex plate	Flex plate S.A.E. 10				Flex plate S.A.E. 11 1/2			
Type	Xr	Lr	M	J	Xr	Lr	M	J
TAL 044 A	344.7	704	107.2	0.770	332.1	704	106.8	0.769
TAL 044 B	344.7	704	107.2	0.770	332.1	704	106.8	0.769
TAL 044 C	355.2	704	121	0.894	342.4	704	120.6	0.893
TAL 044 D	355.2	704	121	0.894	342.4	704	120.6	0.893
TAL 044 D1	376.1	704	139.1	1.051	363.2	704	138.7	1.050
TAL 044 E	400.2	774	153.7	1.167	387.2	774	153.3	1.166
TAL 044 H	400.2	774	153.7	1.167	387.2	774	153.3	1.166
TAL 044 J	411.0	774	165.5	1.274	398.0	774	165.1	1.273
TAL 044 K	431.0	814	180.6	1.409	417.9	814	180.2	1.408

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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InteliLite[NT] AMF 9

SINGLE SET GEN-SET CONTROLLER

InteliLite[NT] AMF 9 supports J1939 for all major brands:

- Caterpillar
- Cummins
- Detroit Diesel
- Deutz
- GM
- Isuzu
- Iveco
- John Deere
- MAN
- MTU
- Perkins
- Scania
- Sisu
- VM Motori
- Volvo Penta and others

ComAp is a member of AMPS (The Association of Manufacturers of Power generating Systems).

ComAp products meet the highest standards, with every stage of production undertaken in accordance with the ISO certification obtained in 1998.

Description

The InteliLite[NT] AMF 9 is integrated controller for gen-sets operating in single standby mode.

The controller meets all requirements for Auto Mains Failure (AMF) applications including remote communication and internet control, user configuration and complete gen-set monitoring and protection.

InteliLite[NT] AMF 9 is easy to use with a simple intuitive user interface and graphic display. Unit is designed for quick and cost saving commissioning and bring seamless integration with the latest breed of EFI diesel engines from all major manufacturers. This offers a higher level of functionality with users able to display a comprehensive range of values from the EFI engine on standard analog gauges and true RMS measurement of electric values.

Benefits

- Less wiring and components
- Less engineering and programming
- Cost saving commissioning
- Remote monitoring reduced call-out costs of service engineers
- History 100+ records based on running hours
- Hybrid binary inputs and outputs module – simple way of extension the unit performance
- SMS on alarm/event
- Direct communication with EFI engines
- Perfect price/performance ratio

Features

3 phase AMF function
- Over/Under frequency
- Over/Under voltage

3 phase generator protections
- Over/Under frequency
- Over/Under voltage
- Over current

True RMS Voltage measurement
- 3 phase generator voltages:
  - Phase to neutral
    L1 – N, L2 – N, L3 – N
  - Phase to phase
    L1 – L2, L2 – L3, L3 – L1
- 3 phase mains voltages
- Voltage range 277 V p-n, 480 V p-p
- Maximal measured voltage 300 V p-n

True RMS current measurements
- 3 generator phase currents
- Current range 5 A
- Maximal measured current 10 A
- Ready for generators with
  3 ph 4 wires / 3 ph 3 wires
  / Split ph / Mono ph

Event and performance log
- Gen-set text alarm log
- Engine hours history log
- ECU text alarm log
- Test Run scheduler

Power measurements
- Apparent power per phase
- Total apparent power

User interface
- Graphic 128 × 64 pixels display
- 2 languages, user changeable from PC
- Setpoints adjustable via
  controller buttons or PC
- Buttons with mechanical feedback

Inputs and outputs
- 3 fully configurable analog inputs
- 4 binary inputs; 6 binary outputs
- D+ preexcitation terminal
- Optional 8 hybrid binary inputs/outputs
- Optional 8 analog gauge drive outputs,
  compatible with VDO, Datcon gauges

EFI engine support
- Cummins Modbus
- Engine specific J1939 for all major
  manufacturers (see table on page 1)
- Diagnostic messages in plain text

Engine protections
- Oil pressure protection
- Coolant temperature
- Fuel level

Active calls
- 1 channel
- SMS alarm
- Event SMS

Miscellaneous features
- Operation mode
  – AMF/MRS application switch
- Maintenance – service time counter
- Engine hours counter

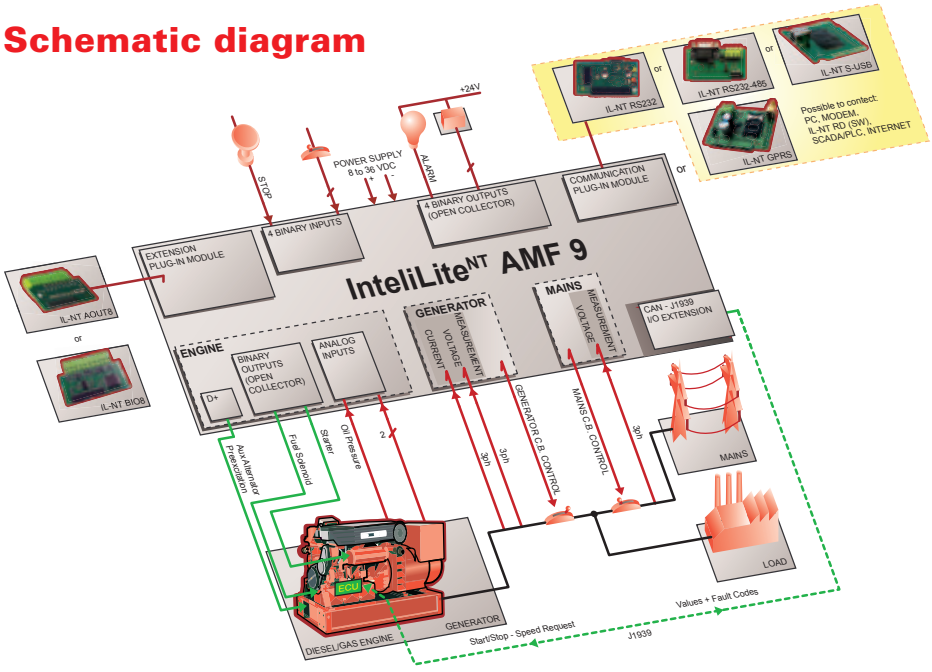
Communication interfaces
- Optional RS232, RS485
  (including Modem support)
  or USB plug-in interface
- Optional GSM modem via IL-NT GPRS

Mechanical and operation parameters
- Unit dimension 120 × 180 mm
- Sealed front face rated for IP65
- Hard plexiglass LCD cover
- Operation temperature:
  - -20 °C to +70 °C standard version
  - -40 °C to +70 °C low temperature ver.
- Power supply voltage 8–36 V
- Voltage drops shorter than
  50 ms do not affect operation

ANSI code	Protection
59	Overvoltage
27	Undervoltage
81H	Overfrequency
81L	Underfrequency
50+51	Overcurrent*
47	Phase rotation**
71	Gas (Fuel) level

** Shortcurrent only / ** Fixed setting*

Schematic diagram



Accessories and PC tools

- **IL-NT AOUT8** – Analog Outputs for PWM Gauges Module
- **IL-NT BIO8** – Binary Input/ Output (PWM) Module
- **IL-NT RD (SW)** – Remote Display Software for InteliLite^{NT} Controllers
- **IG-IB** – InternetBridge support
- **IL-NT GPRS** – GSM Modem/ Wireless Internet Module
- **IL-NT RS232** – RS232 Extension Board
- **IL-NT RS232-485** – Dual Port Extension Board
- **IL-NT S-USB** – Service USB Module
- **InteliMonitor** – PC Monitoring Tool
- **WinScope** – Special Graphical Controllers' Monitoring Software
- **LiteEdit** – PC Configuration and Monitoring Tool

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