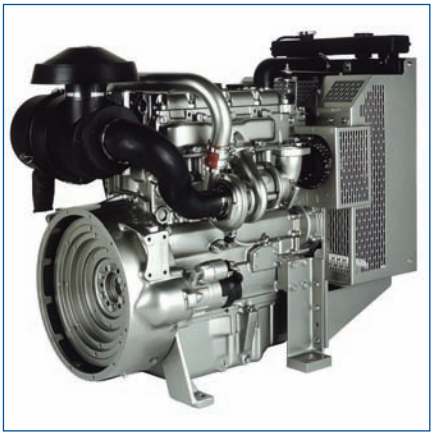
DESERT MACHINERY
آليات الصحراء

PERKINS GENERATOR

68 KVA (54 KW)

(UK)



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 1103A-33TG2 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 units are able to meet TA luft legislation.

1100 Series

1103A-33TG2

Diesel Engine - ElectropaK

59.3 kWm at 1500 rpm
67.5 kWm at 1800 rpm

Compact, Efficient Power

- 1100 Series is the result of an intensive period of customer research that has guided the development of the range.
- The new 3.3 litre cylinder block ensures bore roundness is maintained under the pressures of operation. It also ensures combustion and mechanical noise is lowered.
- A new cylinder head has re-established Perkins mastery of air control.

Quality by Design

- Product design and Class A manufacturing improvements enhance product reliability while maintaining Perkins legendary reputation for durability.

Cost Effective Power

- Compact size and low noise.
- Lower fuel consumption and oil use.
- 500 hour service intervals.
- 2 year warranty.

Product Support

- Perkins actively pursues product support excellence by ensuring our distribution network invest in their territory - strengthening relationships and providing more value to you, our customer
- 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 fingertips covering technical information, parts identification and ordering systems, all dedicated to maximising the productivity of your engine
- Throughout the entire life of a Perkins engine, we provide access to genuine OE specification parts and service. We give 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

Engine speed rev/min	Type of Operation	Typical Generator Output (Net)		Engine Power			
				Gross		Net	
		kVA	kWe	kW	bhp	kW	bhp
1500	Prime Power	60	48	55	73.8	53.8	72.1
	Standby Power	66	52.8	60.5	81.1	59.3	79.5
1800	Prime Power	68.1	54.5	63.3	84.9	61.2	82.1
	Standby Power	75.1	60.1	69.6	93.3	67.5	90.5

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS5514/1
Derating may be required for conditions outside these; consult Perkins Engines Company Limited

Generator powers are typical and are based on an average alternator efficiency and a power factor (cos. q) of 0.8
Fuel specification: BS 2869: Part 2 1998 Class A2 or DIN EN 590
Lubricating oil: 15W40 to API CG4

Rating Definitions
Prime power: Variable load. Unlimited hours usage with an average load factor of 80% of the published prime power over each 24 hour period. A 10% overload is available for 1 hour in every 12 hours of operation.
Standby power: Variable load. Limited to 500 hours annual usage, up to 300 hours of which may be continuous running. No overload is permitted.

Publication No.1782/11/08 Produced in England

1100 Series
1103A-33TG2

Standard ElectropaK Specification

Air inlet
- Mounted air filter

Fuel system
- Rotary type pump
- Ecoplus fuel filter

Lubrication system
- Wet sump with filler and dipstick
- Spin-on oil filter

Cooling system
- Thermostatically controlled system with gear-driven circulation pump and belt-driven pusher fan
- Mounted radiator and piping

Electrical equipment
- 12 volt starter motor and 12 volt 65 amp alternator with DC output
- 12 volt shutdown solenoid energised to run

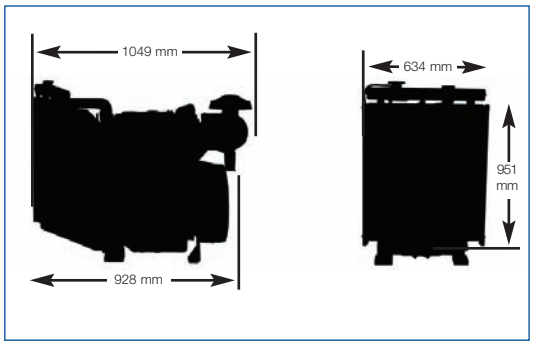
Flywheel and housing
- High inertia flywheel to SAE J620 Size 10/11½
- SAE 3 flywheel housing

Mountings
- Front engine mounting bracket

Literature
- User's Handbook

Optional equipment
- Woodward electronic governor (LCG2)
- Workshop manual
- Parts book

Option Groups
A selection of optional items is available to enable the customer to prepare a specification precisely matched to the needs.



Fuel Consumption				
Engine Speed	1500 rev/min		1800 rev/min	
	UK g/hr	l/hr	UK g/hr	l/hr
Standby power	3.3	15.4	4.0	18.2
Prime power	3.0	13.9	3.6	16.6
75% of prime power	2.2	10.4	2.7	12.5
50% of prime power	1.5	7.2	1.9	8.8

General Data

Number of cylinders	3 vertical in-line
Bore and stroke	105 x 127 mm
Displacement	3.3 litres
Aspiration	Turbocharged
Cycle	4 stroke
Combustion system	Direct injection
Compression ratio	17.25:1
Rotation	Anti-clockwise viewed from flywheel
Cooling system	Water-cooled
Total lubrication system capacity	7.9 litres
Total coolant capacity	10.2 litres
Dimensions	Length 1049 mm Width 634 mm Height 951 mm
Dry weight (approx)	420 kg

Final weight and dimensions will depend on completed specification.

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Distributed by

TAL 042

Low Voltage Alternator - 4 pole

Three-phase 25 to 60 kVA - 50 Hz / 31.5 to 75 kVA - 60 Hz
Dedicated single-phase 18 to 42 kVA - 50 Hz / 23 to 53 kVA - 60 Hz
Electrical and mechanical data

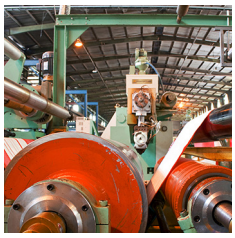
LEROY-SOMER™

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: 115V - 230V
  60 Hz: 120V - 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**
Three-phase 6-wire	**R120**	Standard				
	R150	Option				√
	R180		Standard	Standard		√
	R438		Option	Option	√	√
Three-phase 12-wire	**R120**	Standard				
	R220	Option			√	√
	R180		Standard	Standard		√
	R438		Option	Option	√	√
Single-phase	**R121**	Standard				√
	R221	Option			√	√

√ : Possible option

Compact terminal box

- Easy access to AVR and terminals

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
- Dedicated single-phase
- Winding 8 optimized for three-phase 380V / 416V - 60Hz
- Winding protection for harsh environments and relative humidity greater than 95% (system 2 - 4): derating according to the following table

	50 Hz			60 Hz
Type	380 V	400 V	415 V	All voltages
TAL 042	0.97	1 except 0.97 for TAL 042 G & H	1 except 0.97 for TAL 042 G & H	1 except 0.97 for TAL 042 G & H

TAL 042 - Three-phase 25 to 60 kVA - 50 Hz / 31.5 to 75 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)	0.10	Total Harmonic Distortion THD (**) in linear load	< 5 %
Air flow 60 Hz (m³/s)	0.13	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 042 A	kVA	25	**25**	25	24.5	15	23	**23**	23	22.5	13.5	26.5	**26.5**	26.5	26	16	27.5	**27.5**	27.5	27	16.5
	kW	*20*	*20*	*20*	*19.5*	*12*	*18.5*	*18.5*	*18.5*	*18*	*11*	*21*	*21*	*21*	*21*	*13*	*22*	*22*	*22*	*21.5*	*13*
TAL 042 B	kVA	27	**27**	27	26	16	24.5	**24.5**	24.5	23.5	14.5	28.5	**28.5**	28.5	27.5	17	30	**30**	30	28.5	17.5
	kW	*21.5*	*21.5*	*21.5*	*21*	*13*	*19.5*	*19.5*	*19.5*	*19*	*11.5*	*23*	*23*	*23*	*22*	*13.5*	*24*	*24*	*24*	*23*	*14*
TAL 042 C	kVA	31	**32**	32	30	19	28	**29**	29	27.5	17.5	33	**34**	34	32	20	34	**35**	35	33	21
	kW	*25*	*25.5*	*25.5*	*24*	*15*	*22.5*	*23*	*23*	*22*	*14*	*26.5*	*27*	*27*	*25.5*	*16*	*27*	*28*	*28*	*26.5*	*17*
TAL 042 D	kVA	35	**35**	35	30.5	22	32	**32**	32	28	20	37	**37**	37	32.5	23.5	38.5	**38.5**	38.5	33.5	24
	kW	*28*	*28*	*28*	*24.5*	*17.5*	*25.5*	*25.5*	*25.5*	*22.5*	*16*	*29.5*	*29.5*	*29.5*	*26*	*19*	*31*	*31*	*31*	*27*	*19*
TAL 042 E	kVA	39.5	**40**	40	35	25	36	**36.5**	36.5	32	23	42	**42.5**	42.5	37	26.5	43.5	**45**	45	38.5	27.5
	kW	*31.5*	*32*	*32*	*28*	*20*	*29*	*29*	*29*	*25.5*	*18.5*	*33.5*	*34*	*34*	*29.5*	*21*	*35*	*36*	*36*	*31*	*22*
TAL 042 F	kVA	43	**45**	45	39	27	39	**41**	41	35.5	24.5	45.5	**47.5**	47.5	41.5	28.5	47.5	**50**	50	43	29.5
	kW	*34.5*	*36*	*36*	*31*	*21.5*	*31*	*33*	*33*	*28.5*	*19.5*	*36.5*	*38*	*38*	*33*	*23*	*38*	*40*	*40*	*34.5*	*23.5*
TAL 042 G	kVA	47.5	**50**	50	43	30	43	**45.5**	45.5	39	27.5	50	**53**	53	45.5	32	52	**55**	55	47.5	33
	kW	*38*	*40*	*40*	*34.5*	*24*	*34.5*	*36.5*	*36.5*	*31*	*22*	*40*	*42*	*42*	*36.5*	*25.5*	*42*	*44*	*44*	*38*	*26.5*
TAL 042 H	kVA	58	**60**	60	52	36	53	**55**	55	47	33	61	**64**	64	55	38	64	**66**	66	57	39.5
	kW	*46*	*48*	*48*	*42*	*29*	*42*	*44*	*44*	*37.5*	*26.5*	*49*	*51*	*51*	*44*	*30.5*	*51*	*53*	*53*	*46*	*31.5*

(*) 12-wire option

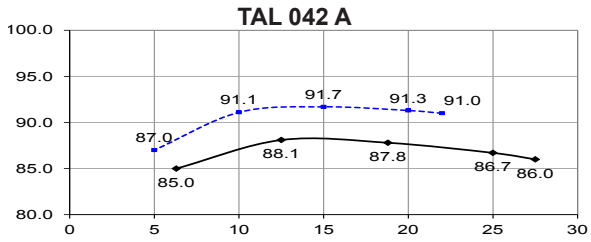
Ratings 60 Hz - 1800 R.P.M.

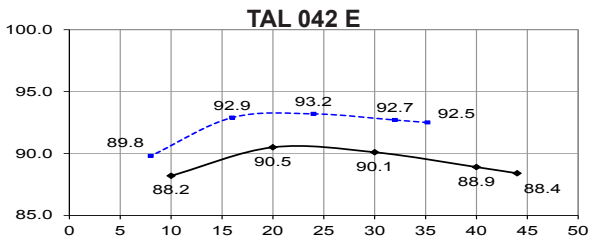
kVA / kW - P.F. = 0.8

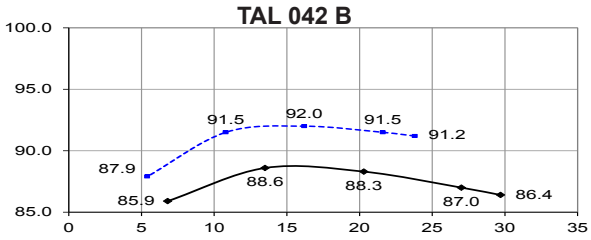
Duty / T° C		Continuous / 40 °C					Continuous / 40 °C					Stand-by / 40 °C					Stand-by / 27 °C				
Class / T° K		H / 125° K					F / 105° K					H / 150° K					H / 163° K				
Phase		3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.	3 ph.				1 ph.
Y		380V	416V	440V	480V		380V	416V	440V	480V		380V	416V	440V	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 042 A	kVA	29	31.5	31.5	**31.5**	18.9	26.5	28.5	28.5	**28.5**	17	30.5	33.5	33.5	**33.5**	20	32	34.5	34.5	**34.5**	20.8
	kW	*23*	*25*	*25*	*25*	*15*	*21*	*23*	*23*	*23*	*13.5*	*24.5*	*27*	*27*	*27*	*16*	*25.5*	*27.5*	*27.5*	*27.5*	*16.5*
TAL 042 B	kVA	30	32	34	**34**	19.2	27.5	29	31	**31**	17.5	32	34	36	**36**	20.5	33	35	37.5	**37.5**	21.1
	kW	*24*	*25.5*	*27*	*27*	*15.5*	*22*	*23*	*25*	*25*	*14*	*25.5*	*27*	*29*	*29*	*16.5*	*26.5*	*28*	*30*	*30*	*17*
TAL 042 C	kVA	33.5	37	39	**40**	23	30.5	33.5	35.5	**36.5**	21	35.5	39	41.5	**42.5**	24.5	37	40.5	43	**44**	25.5
	kW	*27*	*29.5*	*31*	*32*	*18.5*	*24.5*	*27*	*28.5*	*29*	*17*	*28.5*	*31*	*33*	*34*	*19.5*	*29.5*	*32.5*	*34.5*	*35*	*20.5*
TAL 042 D	kVA	37.5	40.5	43	**44**	24	34	37	39	**40**	22	40	43	45.5	**46.5**	25.5	41.5	44.3	47.5	**48.5**	26.5
	kW	*30*	*32.5*	*34.5*	*35*	*19*	*27*	*29.5*	*31*	*32*	*17.5*	*32*	*34.5*	*36.5*	*37*	*20.5*	*33*	*35.5*	*38*	*39*	*21*
TAL 042 E	kVA	41.5	45.5	48.5	**50**	27.5	38	41.5	44	**45.5**	25	44	48	51	**53**	29	45.5	50	53.5	**55**	30.5
	Kw	*33*	*36.5*	*39*	*40*	*22*	*30.5*	*33*	*35*	*36.5*	*20*	*35*	*38.5*	*41*	*42*	*23*	*36.5*	*40*	*43*	*44*	*24.5*
TAL 042 F	kVA	44	48	51	**56.5**	30	40	43.5	46.5	**51**	27.5	46.5	51	54	**60**	32	48.5	53	56	**62**	33
	kW	*35*	*38.5*	*41*	*45*	*24*	*32*	*35*	*37*	*41*	*22*	*37*	*41*	*43*	*48*	*25.5*	*39*	*42*	*45*	*50*	*26.5*
TAL 042 G	kVA	49	53.5	56.5	**62.5**	34	44.5	48.5	51	**57**	31	52	57	60	**66.5**	36	54	59	62	**69**	37.5
	kW	*39*	*43*	*45*	*50*	*27*	*35.5*	*39*	*41*	*46*	*25*	*42*	*46*	*48*	*53*	*29*	*43*	*47*	*50*	*55*	*30*
TAL 042 H	kVA	57	63	66.5	**75**	39	52	57	61	**68**	35.5	60	67	70	**80**	41.5	62.5	69	73	**82.5**	43
	kW	*46*	*50*	*53*	*60*	*31*	*42*	*46*	*49*	*54*	*28.5*	*48*	*54*	*56*	*64*	*33*	*50*	*55*	*58*	*66*	*34.5*

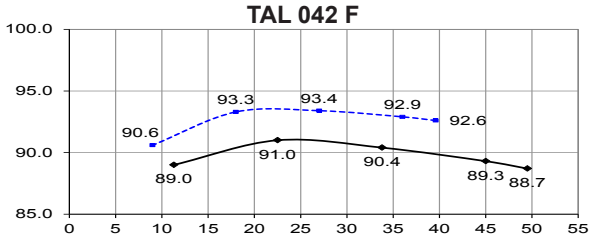
(*) 12-wire option

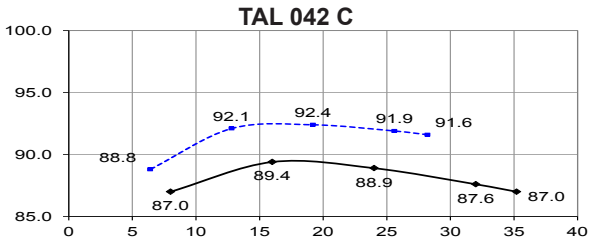
Efficiencies 400 V - 50 Hz (— P.F.: 0.8) (····· P.F.: 1)

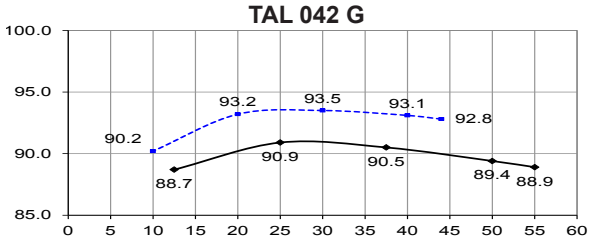


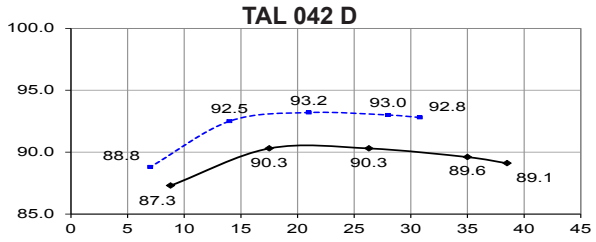


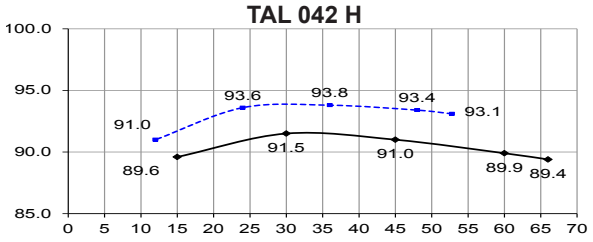












Reactances (%). Time constants (ms) - Class H / 400 V

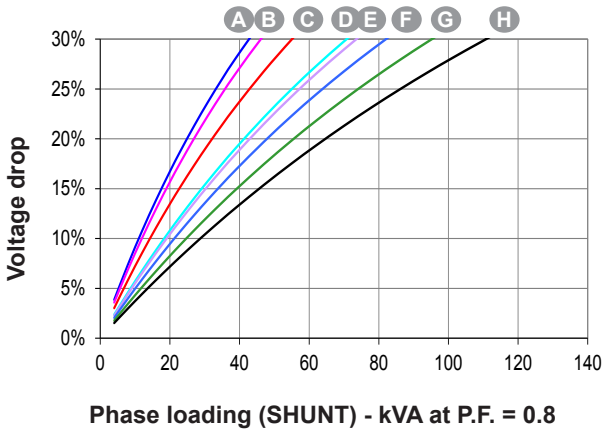
		A	B	C	D	E	F	G	H
Kcc	Short-circuit ratio	0.49	0.46	0.44	0.49	0.42	0.4	0.43	0.4
Xd	Direct-axis synchro. reactance unsaturated	257	267	279	246	281	294	283	303
Xq	Quadrature-axis synchro. reactance unsaturated	131	136	142	125	143	150	144	154
T'do	No-load transient time constant	786	813	861	944	944	980	998	1031
X'd	Direct-axis transient reactance saturated	16.3	16.4	16.2	13	14.8	15	14.1	14.7
T'd	Short-circuit transient time constant	50	50	50	50	50	50	50	50
X"d	Direct-axis subtransient reactance saturated	8.1	8.2	8.1	6.5	7.4	7.5	7	7.3
T"d	Subtransient time constant	5	5	5	5	5	5	5	5
X"q	Quadrature-axis subtransient reactance saturated	11.5	11.6	11.5	9.2	10.6	10.7	10.1	10.5
Xo	Zero sequence reactance	0.68	0.68	0.67	0.54	0.62	0.62	0.59	0.61
X2	Negative sequence reactance saturated	9.88	9.91	9.82	7.89	9.02	9.12	8.61	8.93
Ta	Armature time constant	8	8	8	8	8	8	8	8

Other class H / 400 V data

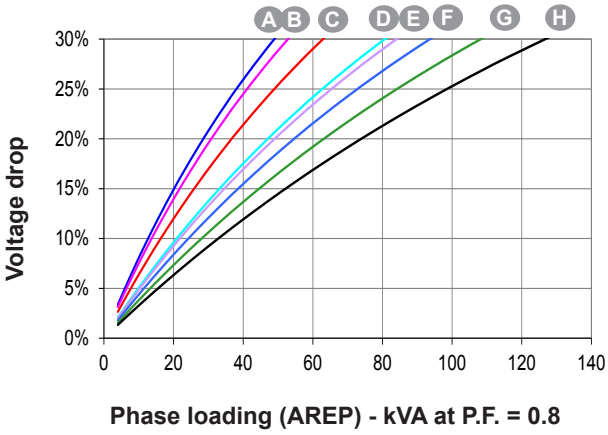
io (A)	No-load excitation current SHUNT and AREP (*)	0.63	0.6	0.59	0.56	0.56	0.54	0.58	0.50 / 0.74
ic (A)	On-load excitation current SHUNT and AREP (*)	2.14	2.13	2.21	1.92	2.19	2.23	2.38	2.11 / 3.24
uc (V)	On-load excitation voltage SHUNT and AREP (*)	32.2	32	32.8	28.5	32.1	32.3	33.9	33.5 / 21.4
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500	500	500
kVA (**)	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT	37.4	40.3	48.2	65.6	65.9	73.4	86.4	99.5
kVA (**)	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP	44.7	48.1	58	78.8	78.9	88	103.6	119.2
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 $_{LAG}$	20.1	20.1	20	17.5	19	19.1	18.4	18.9
%	Transient ΔU (on-load 4/4) AREP - P.F.: 0.8 $_{LAG}$	18	18	17.9	15.7	17	17.1	16.5	16.9
W	No-load losses	739	733	785	888	888	908	1063	1152
W	Heat dissipation	3067	3209	3593	3248	3955	4307	4694	5364

(*) SHUNT / AREP : H - (**) P.F. = 0.6

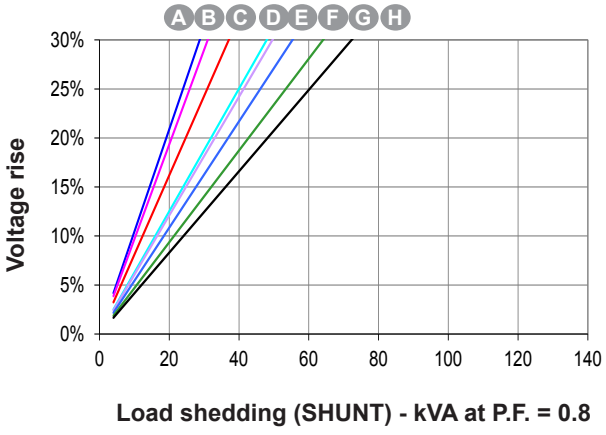
Transient voltage variation 400V - 50 Hz



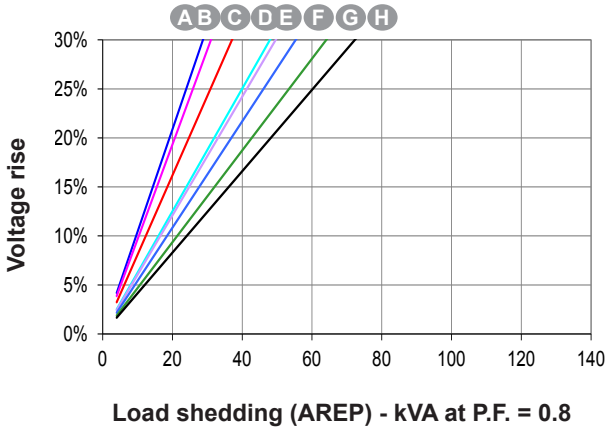
Phase loading (SHUNT) - kVA at P.F. = 0.8



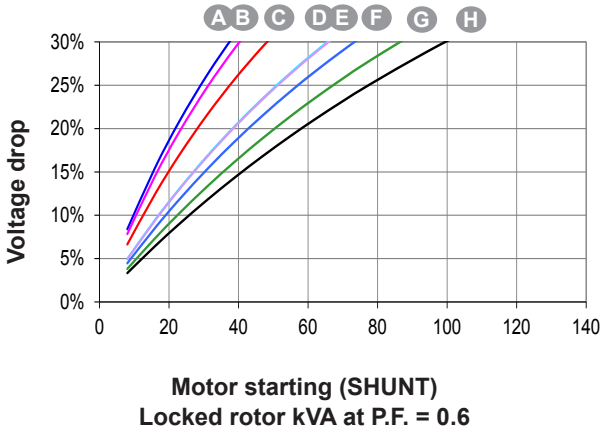
Phase loading (AREP) - kVA at P.F. = 0.8



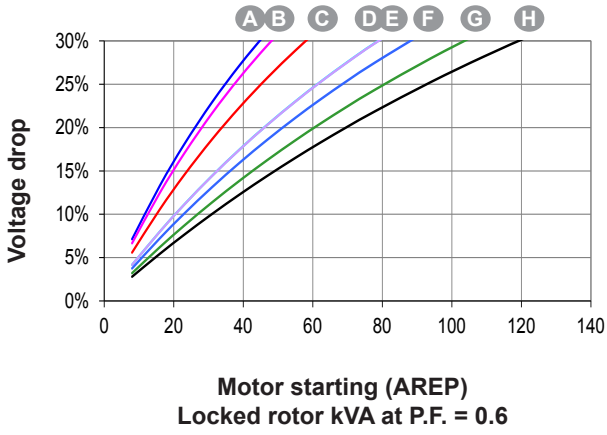
Load shedding (SHUNT) - kVA at P.F. = 0.8



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



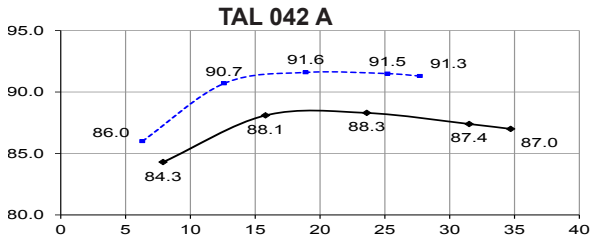
Motor starting (SHUNT)
Locked rotor kVA at P.F. = 0.6

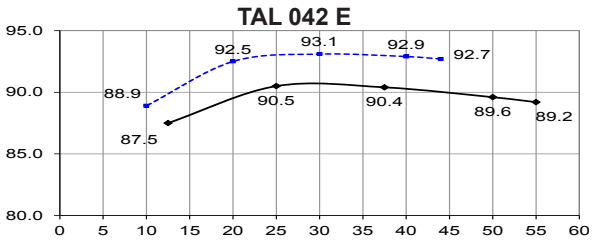


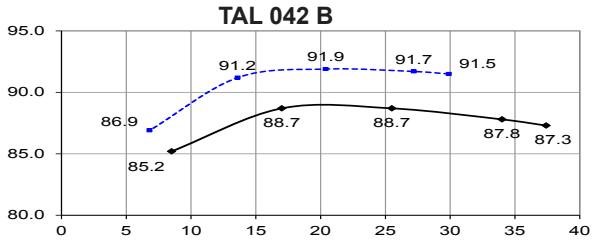
Motor starting (AREP)
Locked rotor kVA at P.F. = 0.6

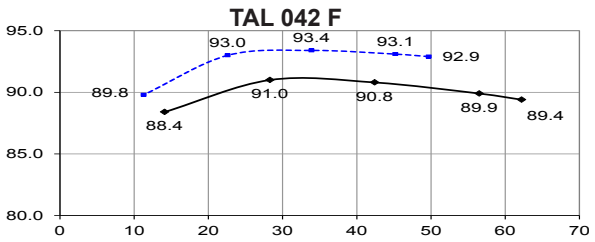
1) For a starting P.F. other than 0.6, the starting kVA must be multiplied by K = Sine P.F. / 0.8
2) For voltages other than 400V (Y), 230V (Δ) at 50 Hz, then kVA must be multiplied by $(400/U)^2$ or $(230/U)^2$.

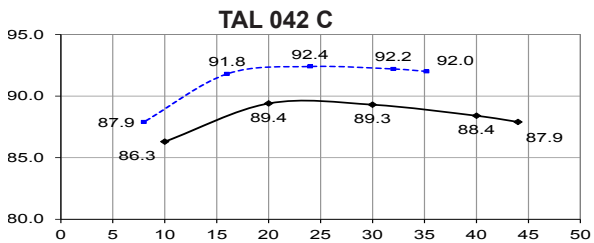
Efficiencies 480 V - 60 Hz (— P.F.: 0.8) (····· P.F.: 1)

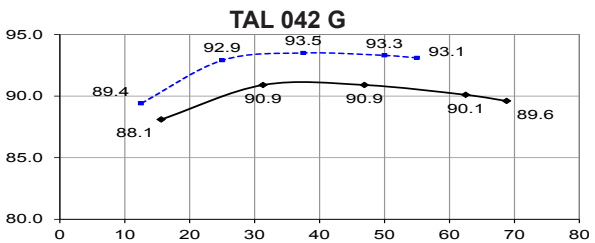


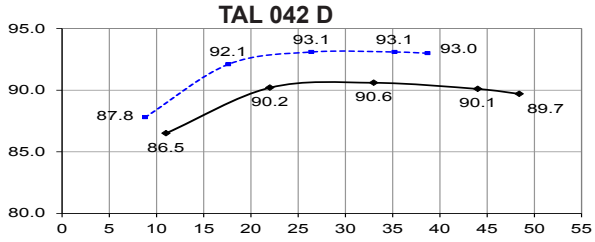


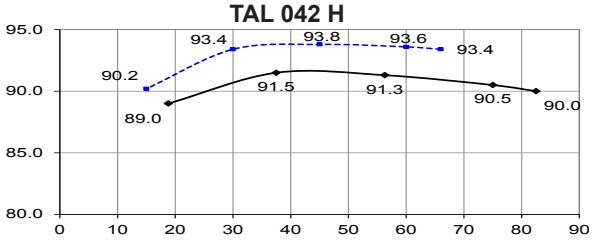












Reactances (%). Time constants (ms) - Class H / 480 V

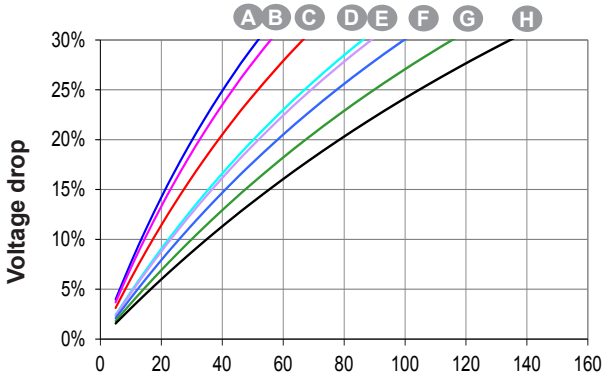
		A	B	C	D	E	F	G	H
Kcc	Short-circuit ratio	0.47	0.44	0.42	0.46	0.41	0.38	0.41	0.38
Xd	Direct-axis synchro. reactance unsaturated	270	280	292	257	292	308	295	316
Xq	Quadrature-axis synchro. reactance unsaturated	138	143	148	131	149	157	150	161
T'do	No-load transient time constant	786	813	861	944	944	980	998	1031
X'd	Direct-axis transient reactance saturated	17.2	17.2	16.9	13.6	15.5	15.7	14.7	15.3
T'd	Short-circuit transient time constant	50	50	50	50	50	50	50	50
X"d	Direct-axis subtransient reactance saturated	8.6	8.6	8.4	6.8	7.7	7.8	7.3	7.6
T"d	Subtransient time constant	5	5	5	5	5	5	5	5
X"q	Quadrature-axis subtransient reactance saturated	12.1	12.1	12	9.7	11	11.2	10.5	10.9
Xo	Zero sequence reactance	0.71	0.71	0.7	0.56	0.64	0.65	0.61	0.63
X2	Negative sequence reactance saturated	10.37	10.4	10.24	8.27	9.39	9.55	8.97	9.3
Ta	Armature time constant	8	8	8	8	8	8	8	8

Other class H / 480 V data

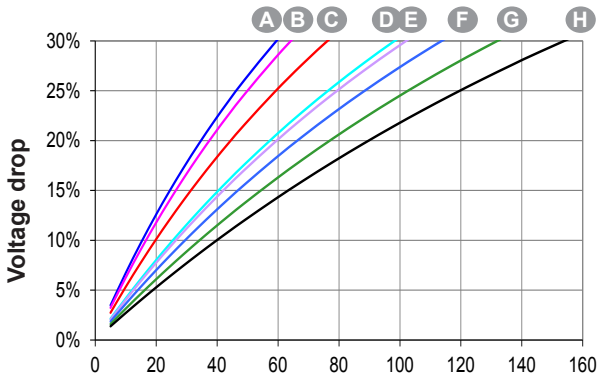
io (A)	No-load excitation current SHUNT and AREP (*)	0.63	0.6	0.59	0.56	0.56	0.54	0.58	0.48 / 0.74
ic (A)	On-load excitation current SHUNT and AREP (*)	2.16	2.15	2.21	1.92	2.17	2.21	2.32	2.05 / 3.14
uc (V)	On-load excitation voltage SHUNT and AREP (*)	32.8	32.6	33.3	29	32.4	32.7	34.1	33.6 / 21.5
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500	500	500
kVA(**)	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT	44.8	48.4	57.7	78.7	78.9	88.1	103.6	119.2
kVA(**)	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP	53.6	57.7	69.4	94.3	94.5	105.4	124.1	142.7
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 $_{LAG}$	20.7	20.7	20.5	18	19.4	19.6	18.9	19.3
%	Transient ΔU (on-load 4/4) AREP - P.F.: 0.8 $_{LAG}$	18.5	18.6	18.4	16.2	17.4	17.6	16.9	17.3
W	No-load losses	1051	1047	1121	1270	1270	1300	1513	1642
W	Heat dissipation	3603	3764	4184	3867	4620	5061	5489	6277

(*) SHUNT / AREP : H - (**) P.F. = 0.6

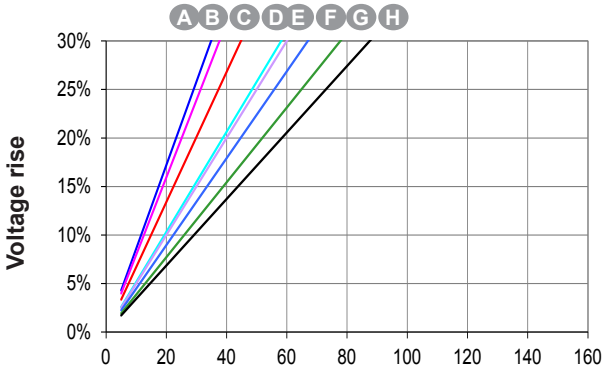
Transient voltage variation 480V - 60 Hz



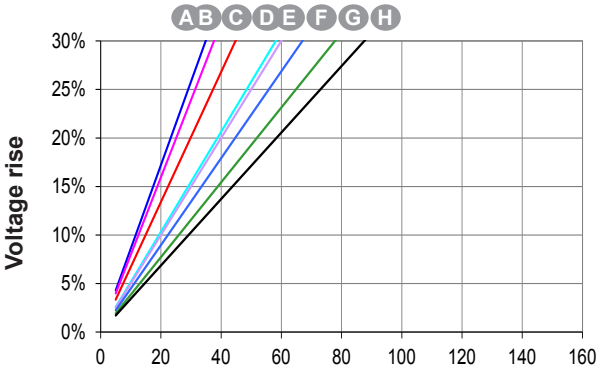
Phase loading (SHUNT) - kVA at P.F. = 0.8



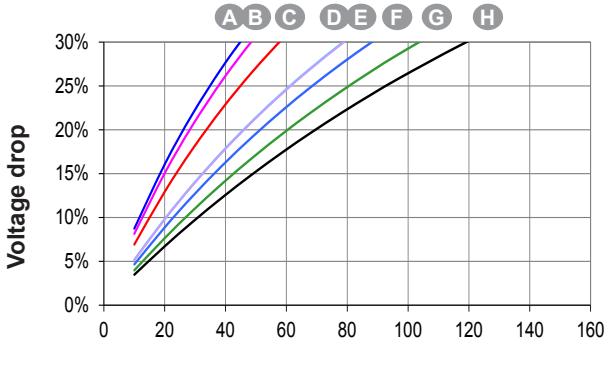
Phase loading (AREP) - kVA at P.F. = 0.8



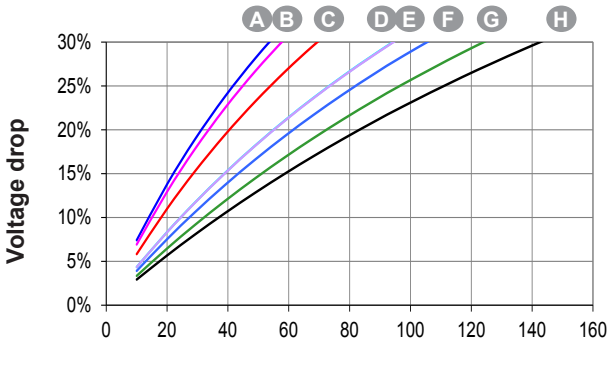
Load shedding (SHUNT) - kVA at P.F. = 0.8



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



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



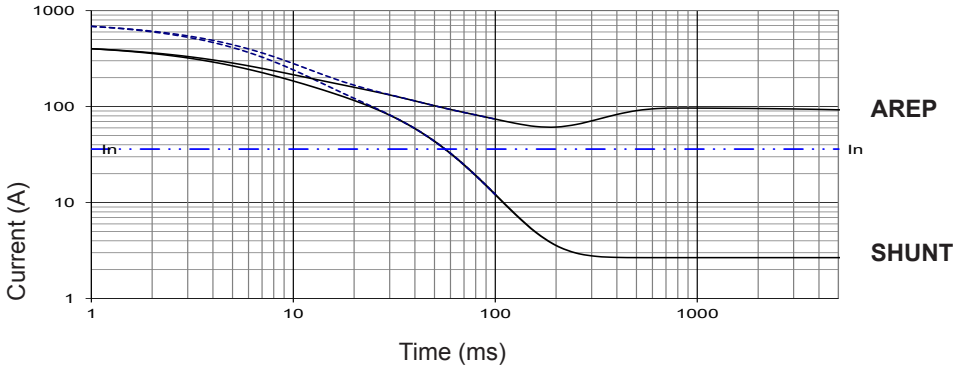
Motor starting (AREP)
Locked rotor kVA at P.F. = 0.6

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)

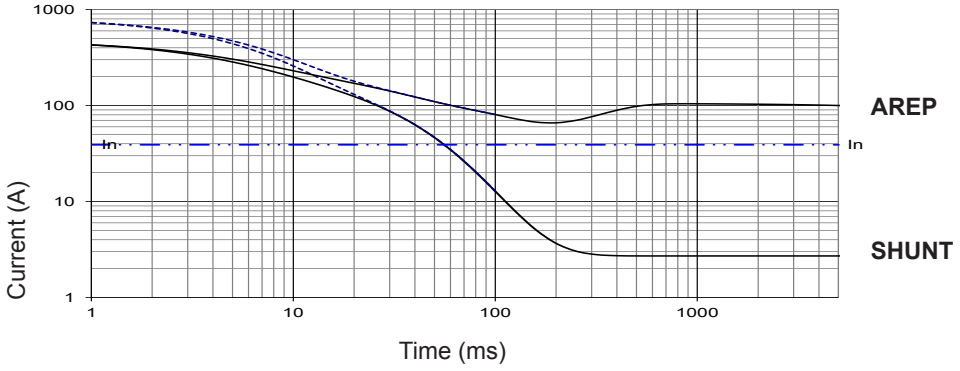
TAL 042 A

Symmetrical ——
Asymmetrical - - -



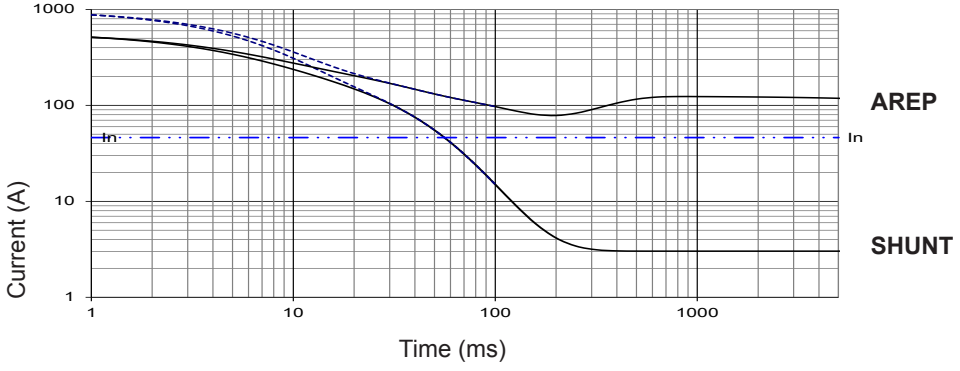
TAL 042 B

Symmetrical ——
Asymmetrical - - -



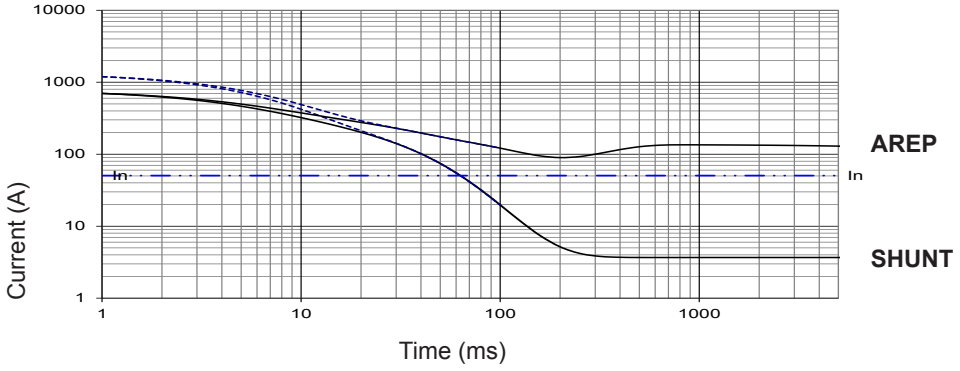
TAL 042 C

Symmetrical ——
Asymmetrical - - -



TAL 042 D

Symmetrical ——
Asymmetrical - - -

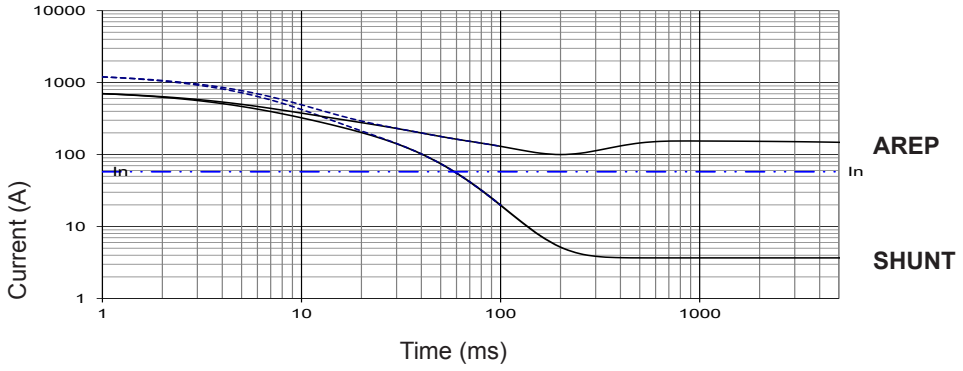


Influence due to connection
For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

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

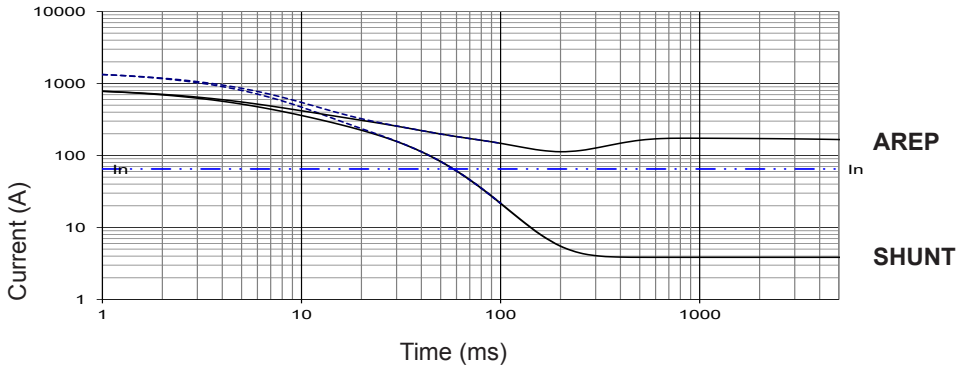
TAL 042 E

Symmetrical ——
Asymmetrical - - -



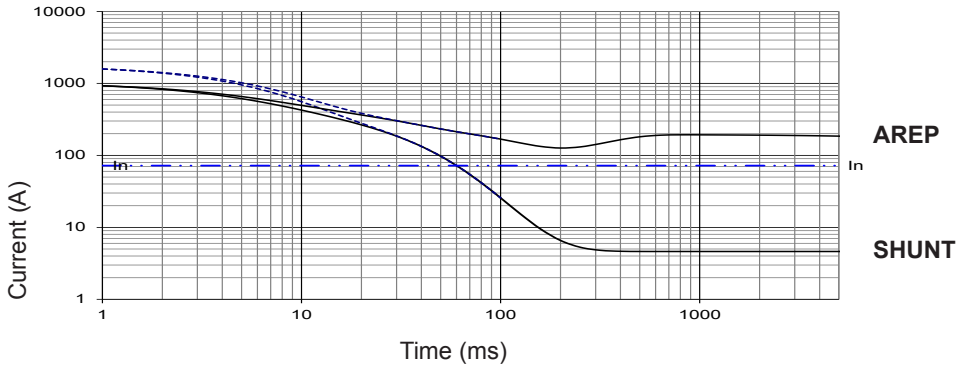
TAL 042 F

Symmetrical ——
Asymmetrical - - -



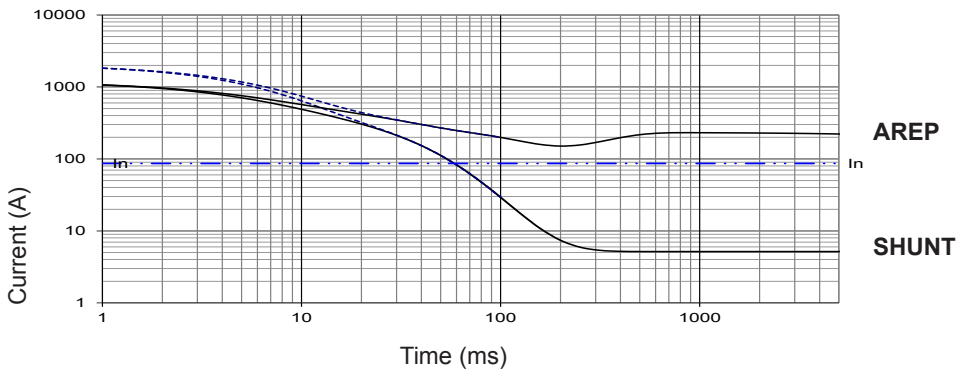
TAL 042 G

Symmetrical ——
Asymmetrical - - -



TAL 042 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	1	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 (m^3/s)	**50 Hz:** 0.10 - **60 Hz:** 0.13	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 (P.F. 0.8 : derating 15%)

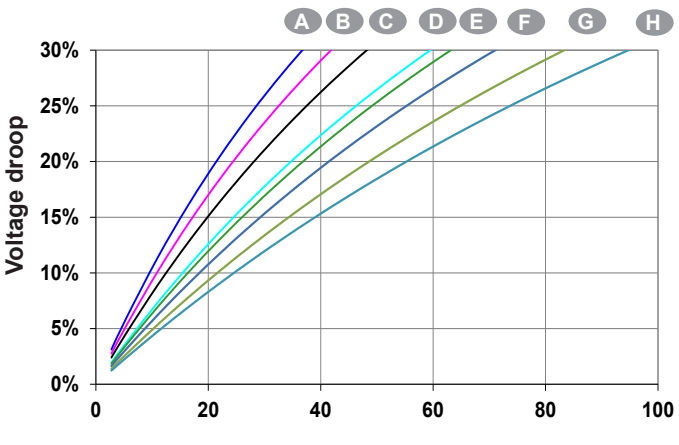
Duty / T° C	Continuous / 40 °C		Continuous / 40 °C	Stand-by / 40 °C	Stand-by / 27 °C	
Class / T° K	H / 125° K		F / 105° K	H / 150° K	H / 163° K	
Serie (SE)	230 V	η %	230 V	230 V	230V	η %
Parallel (PA)	115 V	η %	115 V	115 V	115 V	η %
TAL 042 A	18	88.1	16.5	19	20	87.4
TAL 042 B	20.5	88.1	18.5	21.5	22.5	87.4
TAL 042 C	22.5	89	20.5	24	25	88.4
TAL 042 D	25	90.6	23	26.5	27.5	90.2
TAL 042 E	28	90.1	25.5	29.5	31	89.6
TAL 042 F	31.5	90.3	28.5	33.5	34.5	89.8
TAL 042 G	35	90.4	32	37	38.5	89.9
TAL 042 H	42	90.5	38	44.5	46	90

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

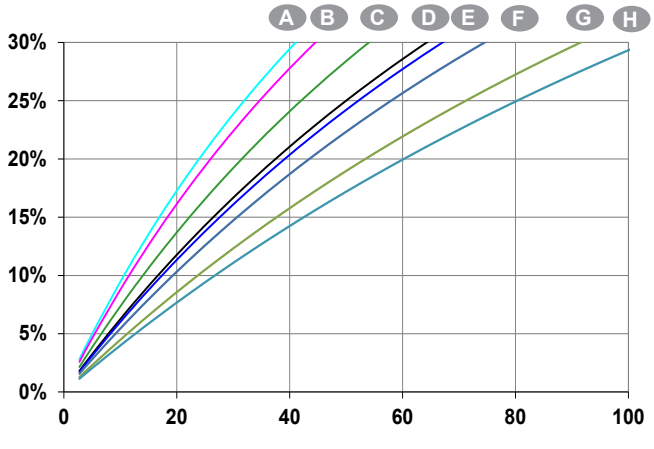
kVA / kW - P.F. = 1 (P.F. 0.8 : derating 15%)

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 %
Parallel (PA)	120 V	η %	120 V	120 V	120 V	η %
TAL 042 A	23	88.3	21	24.5	25.5	87.7
TAL 042 B	26	88.3	23.5	27.5	28.5	87.6
TAL 042 C	29	89	26	30.5	32	88.5
TAL 042 D	31.5	90.4	28.5	33.5	34.5	90
TAL 042 E	36	89.8	33	38	39.5	89.2
TAL 042 F	40	90	36.5	42.5	44	89.5
TAL 042 G	47	90	43	50	51	89.5
TAL 042 H	53	90.5	48	56	58	90

Starting motor 230V - 50Hz

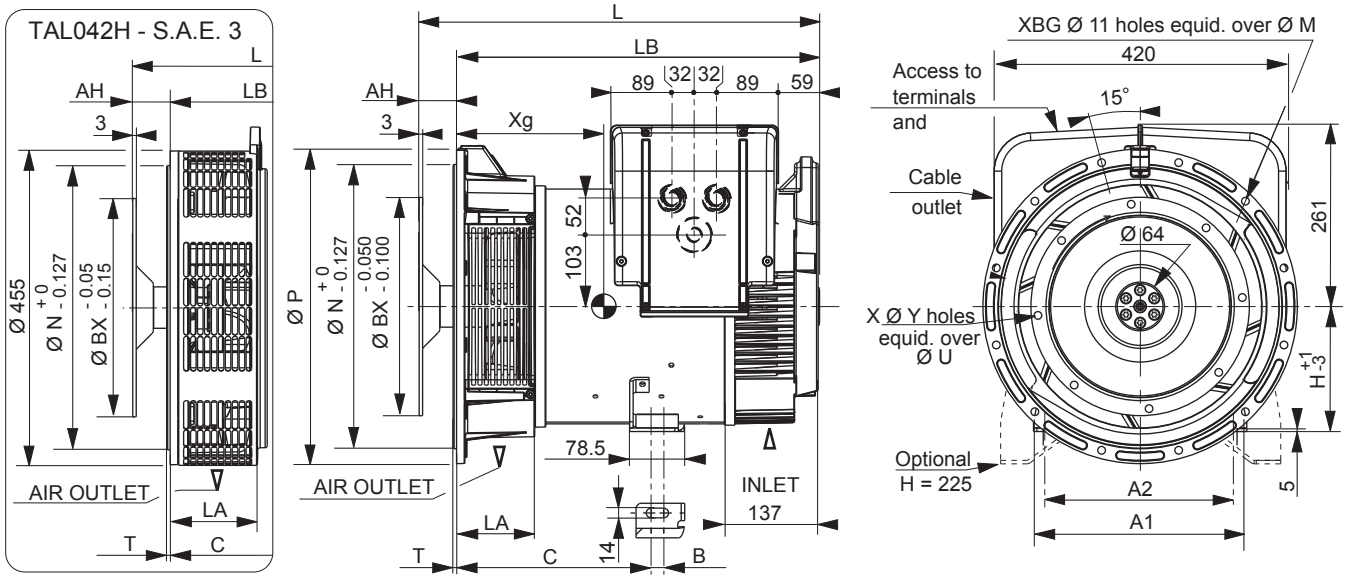


Starting motor 240V - 60Hz



Locked rotor kVA at PF : 0.9

Single bearing general arrangement



Dimensions (mm) and weight (kg)				
Type	L maxi	LB	Xg	Weight (kg)
TAL 042 A	565	503	237	117
TAL 042 B	565	503	242	122
TAL 042 C	565	503	252	133
TAL 042 D	610	548	275	165
TAL 042 E	610	548	275	165
TAL 042 F	650	588	287	181
TAL 042 G	650	588	295	186
TAL 042 H	680	618	310	187

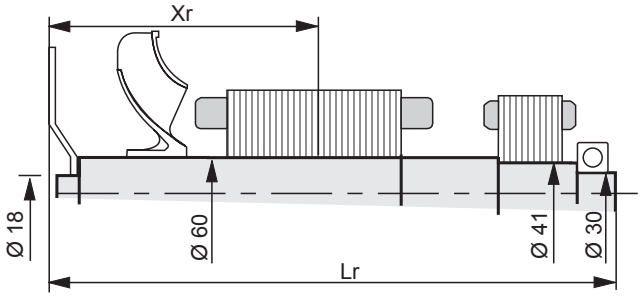
Shaft height (mm)		
	Standard	Option
H	**180**	225
Feet length		
C	260	299 (A, B, C) / 312.5
B	18	23
A1	307	400
A2	279	356

Coupling		
Flange	**3**	**4**
Flex plate		
11 1/2	x	-
10	x	x
8	-	x
7 1/2	-	x

Flange (mm)						
S.A.E.	P	N	M	XBG	T	LA
4	406	361.95	381	12	6	122
3	452	409.58	428.62	12	5	105.3
-	-	-	-	-	-	-

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
8	263.52	244.48	6	11	62
7 1/2	241.3	222.25	8	9	30.2

Torsional data



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

	Flex plate S.A.E. 7 1/2				Flex plate S.A.E. 8				Flex plate S.A.E. 10				Flex plate S.A.E. 11 1/2			
Type	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J
TAL 042 A	279	526.2	44.1	0.216	277	558	44.4	0.220	274	549.8	44.9	0.211	272	535.6	45.4	0.244
TAL 042 B	282	526.2	46.1	0.229	280	558	46.4	0.233	277	549.8	46.9	0.224	274	535.6	47.4	0.257
TAL 042 C	287	526.2	50.1	0.255	286	558	50.5	0.258	283	549.8	50.9	0.249	281	535.6	51.4	0.282
TAL 042 D	310	571.2	60.2	0.312	308	603	60.6	0.316	306	594.8	61	0.307	304	580.6	61.5	0.340
TAL 042 E	310	571.2	60.2	0.312	308	603	60.6	0.316	306	594.8	61	0.307	304	580.6	61.5	0.340
TAL 042 F	325	611.2	66.2	0.344	323	643	66.5	0.348	321	634.8	66.9	0.339	319	620.6	67.4	0.372
TAL 042 G	330	611.2	69.2	0.364	328	643	69.5	0.367	326	634.8	69.9	0.358	324	620.6	70.4	0.391
TAL 042 H	344	641.2	77.5	0.414	342	673	77.8	0.418	340	664.8	78.2	0.430	338	650.6	78.8	0.442

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

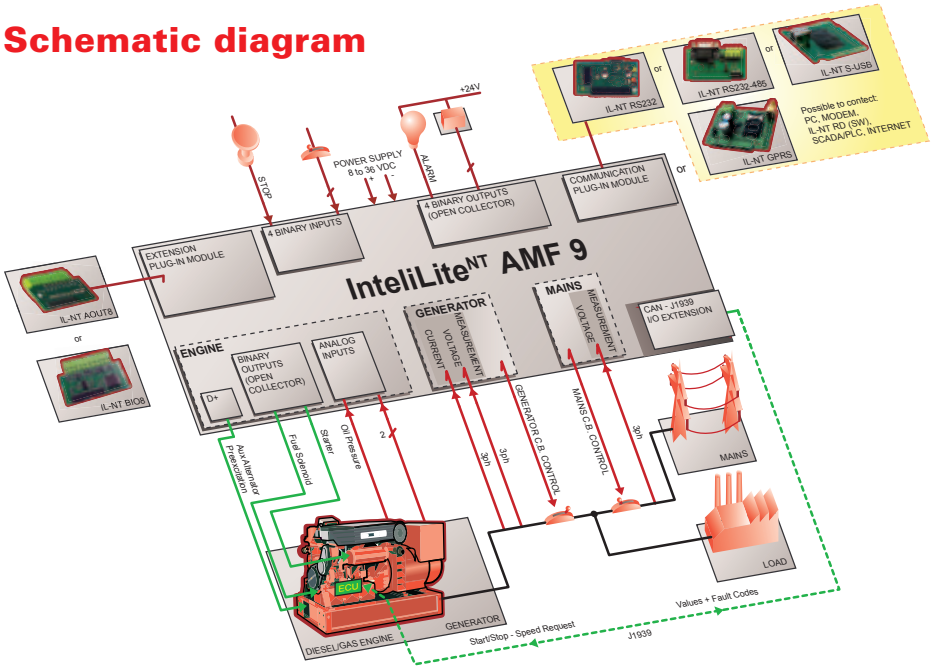
Communication interfaces
- Optional RS232, RS485
  (including Modem support)
  or USB plug-in interface
- Optional GSM modem via IL-NT GPRS

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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