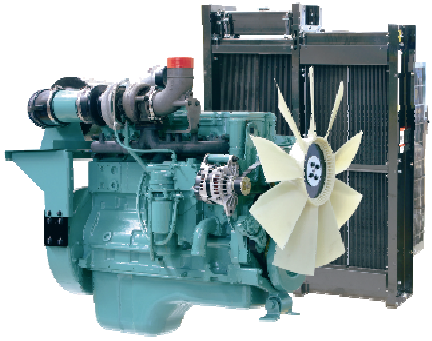
DESERT MACHINERY
آليات الصحراء

CUMMINS GENERATOR

344 KVA (275 KW)

QSL9-G5



> Specification sheet

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Description

Cummins QSL engines are built to deliver heavy-duty performance. Full-authority electronic engine controls combine with the high-pressure fuel system, 24-valve design and centred injectors for one of the highest power-to-weight ratios in its class. At the same time, the QSL delivers better fuel economy, has better cold starting capability and is up to 50% quieter in operation than its predecessors.

CE	This engine has been built to comply with CE certification.
ISO 9001	This engine has been designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO9002.

Features

Common Rail Fuel System and Controls - Bosch high pressure common rail (HPCR) - Optimize engine performance to provide seamless integration and advanced diagnostics and programming options.

Holset HX40 Turbo charging - Optimizes transient response.

Integrated Block Design - Integrated fluid circuits replace hoses and eliminate potential leaks.

24-Valve Cylinder Head – Four valves per cylinder for increased power with faster response and fuel economy.

Coolpac Integrated Design - Products are supplied complete with cooling package and air cleaner kit for a complete power package. Each component has been specifically developed and rigorously tested for G-Drive products, ensuring high performance, durability and reliability.

Service and Support - G-Drive products are backed by an uncompromising level of technical support and after sales service, delivered through a world class service network.

1500 rpm (50 Hz Ratings)

Gross Engine Output			Net Engine Output			Typical Generator Set Output					
Standby	Prime	Base	Standby	Prime	Base	Standby (ESP)		Prime (PRP)		Base (COP)	
kWm/BHP			kWm/BHP			kWe	kVA	kWe	kVA	kWe	kVA
310/415	268/359	228/305	297/398	258/345	218/292	264	330	240	300	203	254

1800 rpm (60 Hz Ratings)

Gross Engine Output			Net Engine Output			Typical Generator Set Output					
Standby	Prime	Base	Standby	Prime	Base	Standby (ESP)		Prime (PRP)		Base (COP)	
kWm/BHP			kWm/BHP			kWe	kVA	kWe	kVA	kWe	kVA
355/476	307/412	261/350	337/451	293/392	247/331	300	375	275	344	230	288

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(07/09) (GDSS124)

General Engine Data

Type	4 cycle, in-line, Turbo Charged, Air-cooled
Bore mm	114 mm (4.5in.)
Stroke mm	145 mm (5.7in.)
Displacement Litre	8.9 litre (543 $in.^3$)
Cylinder Block	Cast iron, 6 cylinder
Battery Charging Alternator	70 amps
Starting Voltage	24 volt, negative ground
Fuel System	Direct injection
Fuel Filter	Spin-on fuel filters with water separator
Lube Oil Filter Type(s)	Spin-on full flow filter
Lube Oil Capacity (l)	26.5
Flywheel Dimensions	SAE1

Coolpac Performance Data

Cooling System Design	Air-Air Charge Cooled
Coolant Ratio	50% ethylene glycol; 50% water
Coolant Capacity (l)	15.0
Limiting Ambient Temp.** (°C)	50 (50Hz); 55 (60Hz)
Fan Power (kWm)	10 (50Hz); 11 (60Hz)
Cooling System Air Flow (m^3/s)**	7.9 (50Hz); 8 (60Hz)
Air Cleaner Type	Light duty dry replaceable element with restriction indicator

** @ 13 mm $H^2$0

Ratings Definitions

Emergency Standby Power (ESP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

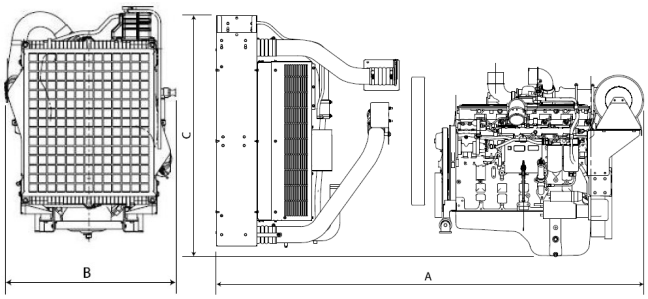
Limited-Time Running Power (LTP):
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN6271 and BS 5514.

Weight & Dimensions

Length	Width	Height	Weight (dry)
mm	mm	mm	kg
1624	1064	1463	861



Fuel Consumption 1500 (50 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	310	415	75	19.8
Prime Power				
100	268	359	63	16.6
75	201	269	46	12.1
50	134	180	31	8.2
25	67	90	17	4.4
Continuous Power				
100	228	305	53	13.9

Fuel Consumption 1800 (60 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	355	476	89	23.6
Prime Power				
100	307	412	75	19.9
75	231	309	55	14.4
50	154	206	36	9.6
25	77	103	20	5.3
Continuous Power				
100	261	350	63	16.5

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(07/09) (GDSS124)

TAL 046

Low Voltage Alternator - 4 pole

180 to 365 kVA - 50 Hz / 225 to 438 kVA - 60 Hz
Electrical and mechanical data

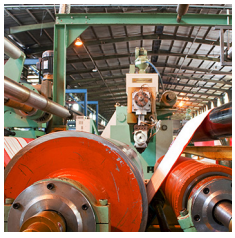
LEROY-SOMER™

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 dérivative.
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
- 6-terminal plates in 6-wire version or suitable for 12-wire option
- Optimized performance

Robust design

- Compact and rugged assembly to withstand engine vibrations
- Steel frame
- Cast iron flanges and shields
- Single bearing design to be suitable with most diesel engines
- Sealed for life 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	**R150**	Standard				√	
	R180		Standard	Standard		√	√
	R450		Option	Option	√	√	√
Three-phase 12-wire*	**R250**	Standard			√	√	
	R180		Standard	Standard		√	√
	R450		Option	Option	√	√	√

√ : Possible option *with larger terminal box

Compact terminal box

- Easy access to AVR and terminals
- Standard terminal box with possibility of mounting measurement CTs
- Possibility of current transformer for parallel operation

Environment and protection

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

Available options

- Three-phase 12-wire with 9-terminal plates
- AREP or PMG excitation
- ULc/us
- Customized painting
- Space heaters
- Droop kit for alternator paralleling
- Stator sensors
- Winding 8 optimized for three-phase 380V - 416 V / 60 Hz
- Winding protection for harsh environments and relative humidity greater than 95% (system 2 - 4): for TAL 046 H apply a derating coefficient of 0.97

General characteristics

Insulation class	H
Winding pitch	2/3 (wind.6S - 6-wire / wind.6 - 12-wire)
Number of wires	6-wire (12-wire option)
Protection	IP 23
Altitude	≤ 1000 m
Overspeed	2250 R.P.M.
Air flow (m^3/s)	0.48
Air flow (m^3/s)	0.58
AREP Short-circuit current = 2.7 In: 5 second	

Excitation system 6-wire	SHUNT	AREP / PMG
AVR type	R150	R180
Excitation system 12-wire (option)	SHUNT	AREP / PMG
AVR type	R250	R180
Voltage regulation (*)	± 1 %	
Total Harmonic Distortion THD (**) in no-load	< 2.5 %	
Total Harmonic Distortion THD (**) in linear load	< 5 %	
Waveform: NEMA = TIF (**)	< 50	
Waveform: I.E.C. = THF (**)	< 2%	

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

Ratings 50 Hz - 1500 R.P.M.

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 046 A	kVA	180	**180**	180	171	108	164	**164**	164	156	98	191	**191**	191	181	114	200	**200**	200	188	119
	kW	*144*	*144*	*144*	*137*	*86*	*131*	*131*	*131*	*125*	*78*	*153*	*153*	*153*	*145*	*91*	*160*	*160*	*160*	*150*	*95*
TAL 046 B	kVA	200	**200**	200	190	120	182	**182**	182	173	109	212	**212**	212	201	127	220	**220**	220	209	132
	kW	*160*	*160*	*160*	*152*	*96*	*146*	*146*	*146*	*138*	*87*	*170*	*170*	*170*	*161*	*102*	*176*	*176*	*176*	*167*	*106*
TAL 046 C	kVA	230	**230**	230	219	138	209	**209**	209	199	126	244	**244**	244	232	146	253	**253**	253	241	152
	kW	*184*	*184*	*184*	*175*	*110*	*167*	*167*	*167*	*159*	*101*	*195*	*195*	*195*	*186*	*117*	*202*	*202*	*202*	*193*	*122*
TAL 046 D	kVA	240	**250**	250	238	150	218	**228**	228	217	137	254	**265**	265	252	159	264	**275**	275	262	165
	kW	*192*	*200*	*200*	*190*	*120*	*175*	*182*	*182*	*174*	*110*	*204*	*212*	*212*	*202*	*127*	*211*	*220*	*220*	*210*	*132*
TAL 046 E	kVA	275	**275**	275	261	165	250	**250**	250	238	150	292	**292**	292	277	175	303	**303**	303	287	182
	kW	*220*	*220*	*220*	*209*	*132*	*200*	*200*	*200*	*190*	*120*	*234*	*234*	*234*	*222*	*140*	*242*	*242*	*242*	*230*	*146*
TAL 046 F	kVA	290	**300**	300	285	180	264	**273**	273	259	164	307	**318**	318	302	191	319	**330**	330	314	198
	kW	*232*	*240*	*240*	*228*	*144*	*211*	*218*	*218*	*207*	*131*	*246*	*254*	*254*	*242*	*153*	*255*	*264*	*264*	*251*	*158*
TAL 046 G	kVA	325	**325**	325	309	195	296	**296**	296	281	177	345	**345**	345	328	207	360	**360**	360	340	215
	kW	*260*	*260*	*260*	*247*	*156*	*237*	*237*	*237*	*225*	*142*	*276*	*276*	*276*	*262*	*166*	*288*	*288*	*288*	*272*	*172*
TAL 046 H	kVA	350	**365**	365	347	210	318	**332**	332	316	191	371	**387**	387	368	223	385	**400**	400	382	231
	kW	*280*	*292*	*292*	*278*	*168*	*255*	*266*	*266*	*253*	*153*	*297*	*310*	*310*	*294*	*178*	*308*	*320*	*320*	*306*	*185*

(*) 12-wire option

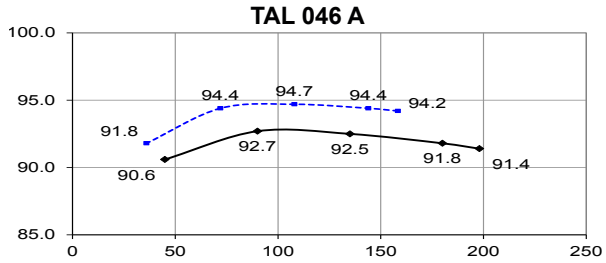
Ratings 60 Hz - 1800 R.P.M.

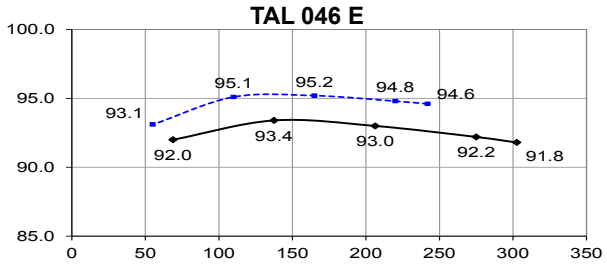
kVA / kW - P.F. = 0.8

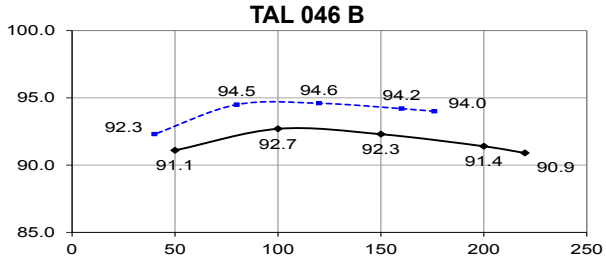
Duty / T° C		Continuous / 40 °C					Continuous / 40 °C					Stand-by / 40 °C					Stand-by / 27 °C				
Class / T° K		H / 125° K					F / 105° K					H / 150° K					H / 163° K				
Phase		**3 ph.**				**1 ph.**	**3 ph.**				**1 ph.**	**3 ph.**				**1 ph.**	**3 ph.**				**1 ph.**
Y		380V	416V	440V	480V		380V	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 046 A	kVA	180	195	210	**225**	120	164	177	191	**205**	109	191	207	223	**239**	127	200	215	230	**250**	132
	kW	*144*	*156*	*168*	*180*	*96*	*131*	*142*	*153*	*164*	*87*	*153*	*166*	*178*	*191*	*102*	*160*	*172*	*184*	*200*	*106*
TAL 046 B	kVA	200	215	230	**250**	132	182	196	209	**228**	120	212	228	244	**265**	140	220	237	253	**275**	145
	kW	*160*	*172*	*184*	*200*	*106*	*146*	*157*	*167*	*182*	*96*	*170*	*182*	*195*	*212*	*112*	*176*	*190*	*202*	*220*	*116*
TAL 046 C	kVA	226	250	262	**288**	152	206	228	238	**262**	138	240	265	278	**305**	161	250	275	288	**316**	167
	kW	*181*	*200*	*210*	*230*	*122*	*165*	*182*	*190*	*210*	*110*	*192*	*212*	*222*	*244*	*129*	*200*	*220*	*230*	*253*	*134*
TAL 046 D	kVA	245	265	280	**313**	165	223	241	255	**285**	150	260	281	297	**332**	175	270	292	308	**344**	182
	kW	*196*	*212*	*224*	*250*	*132*	*178*	*193*	*204*	*228*	*120*	*208*	*225*	*238*	*266*	*140*	*216*	*234*	*246*	*275*	*146*
TAL 046 E	kVA	275	300	315	**344**	182	250	273	287	**313**	166	292	318	334	**365**	193	303	330	347	**378**	200
	kW	*220*	*240*	*252*	*275*	*146*	*200*	*218*	*230*	*250*	*133*	*234*	*254*	*267*	*292*	*154*	*242*	*264*	*278*	*302*	*160*
TAL 046 F	kVA	290	315	340	**360**	200	264	287	309	**328**	182	307	334	360	**382**	212	320	347	374	**400**	220
	kW	*232*	*252*	*272*	*288*	*160*	*211*	*230*	*247*	*262*	*146*	*246*	*267*	*288*	*306*	*170*	*256*	*278*	*299*	*320*	*176*
TAL 046 G	kVA	315	345	365	**406**	215	287	314	332	**369**	196	334	366	387	**430**	228	347	380	402	**447**	237
	kW	*252*	*276*	*292*	*325*	*172*	*230*	*251*	*266*	*295*	*157*	*267*	*293*	*310*	*344*	*182*	*278*	*304*	*322*	*358*	*190*
TAL 046 H	kVA	345	375	400	**438**	231	314	341	364	**399**	210	366	398	424	**464**	245	380	413	440	**480**	254
	kW	*276*	*300*	*320*	*350*	*185*	*251*	*273*	*291*	*319*	*168*	*293*	*318*	*339*	*371*	*196*	*304*	*330*	*352*	*384*	*203*

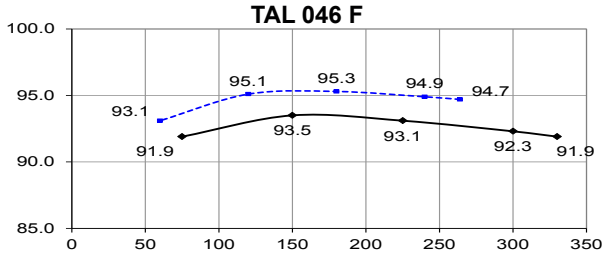
(*) 12-wire option

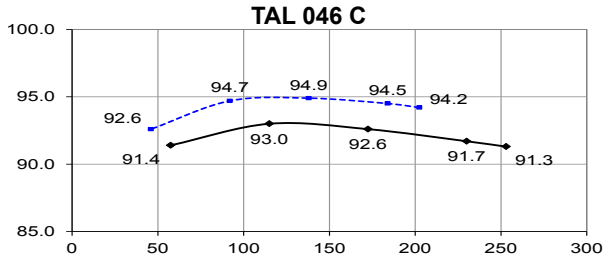
Efficiencies 400 V - 50 Hz (— P.F.: 0.8) (····· P.F.: 1)

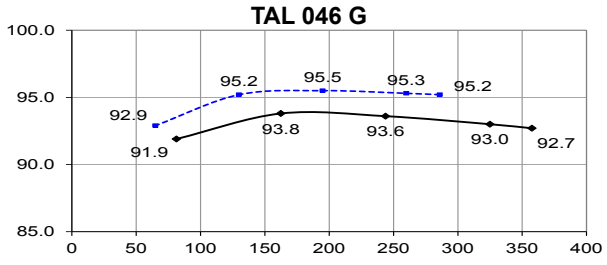


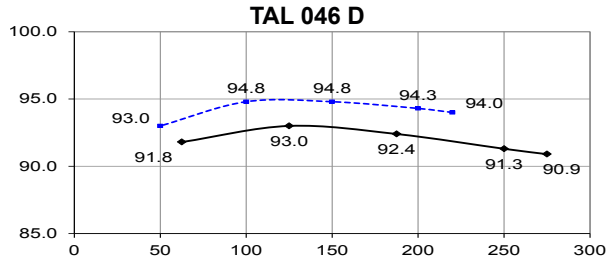


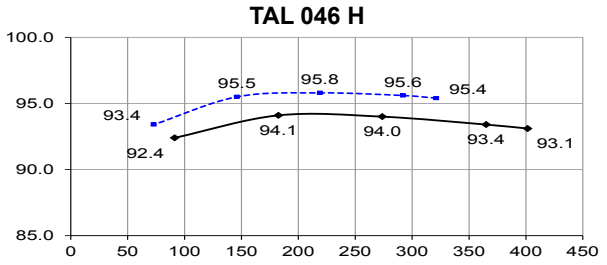












Reactances (%). Time constants (ms) - Class H / 400 V

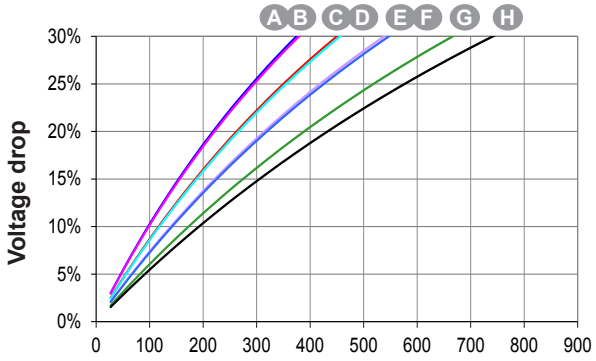
		A	B	C	D	E	F	G	H
Kcc	Short-circuit ratio	0.39	0.35	0.37	0.34	0.37	0.4	0.45	0.43
Xd	Direct-axis synchro. reactance unsaturated	313	348	340	370	347	335	297	303
Xq	Quadrature-axis synchro. reactance unsaturated	159	177	173	188	177	171	151	154
T'do	No-load transient time constant	1956	1956	1983	1983	2018	2033	2072	2093
X'd	Direct-axis transient reactance saturated	16	17.7	17.1	18.6	17.1	16.5	14.3	14.5
T'd	Short-circuit transient time constant	100	100	100	100	100	100	100	100
X"d	Direct-axis subtransient reactance saturated	12.8	14.2	13.7	14.9	13.7	13.2	11.4	11.6
T"d	Subtransient time constant	10	10	10	10	10	10	10	10
X"q	Quadrature-axis subtransient reactance saturated	16.4	18.2	17.4	18.9	17.2	16.4	14.1	14.2
Xo	Zero sequence reactance	0.66	0.74	0.71	0.77	0.71	0.68	0.59	0.6
X2	Negative sequence reactance saturated	14.6	16.2	15.6	16.9	15.5	14.8	12.8	12.9
Ta	Armature time constant	15	15	15	15	15	15	15	15

Other class H / 400 V data

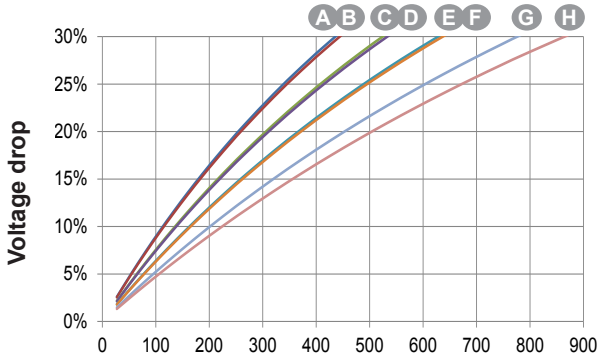
io (A)	No-load excitation current SHUNT/AREP	0.95	0.95	1.01	1.01	1.1	1.1	1.06	1.06
ic (A)	On-load excitation current SHUNT/AREP	3.4	3.72	3.84	4.14	3.99	3.64	3.63	3.63
uc (V)	On-load excitation voltage SHUNT/AREP	48	52.4	37.4	40.2	55.6	46.2	42.1	41.9
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT*	311	311	372	371	444	445	556	618
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP*	374	376	446	447	533	534	667	741
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 $_{LAG}$	17.1	18.4	18	19.1	18	19.1	17.4	17.4
%	Transient ΔU (on-load 4/4) AREP - P.F.: 0.8 $_{LAG}$	15.1	16.2	15.8	16.8	16.2	17.2	17.3	15.4
W	No-load losses	2977	2977	3297	3297	3625	4013	4541	4750
W	Heat dissipation	12841	15040	16562	18869	18504	19800	19303	20484

* P.F. = 0.6

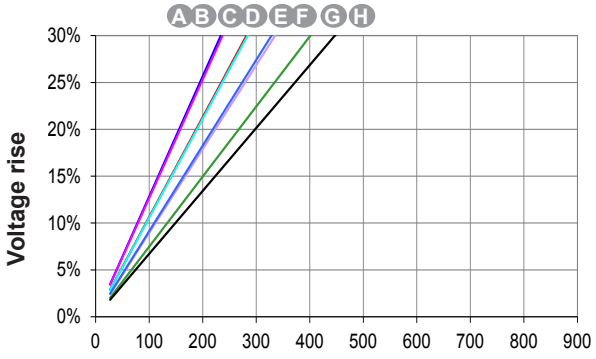
Transient voltage variation 400 V - 50 Hz



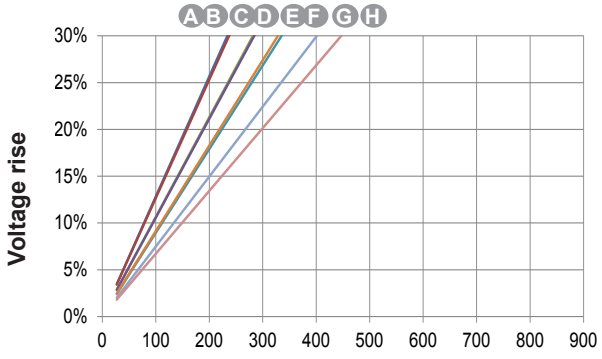
Phase loading (SHUNT) - kVA at P.F. = 0.8



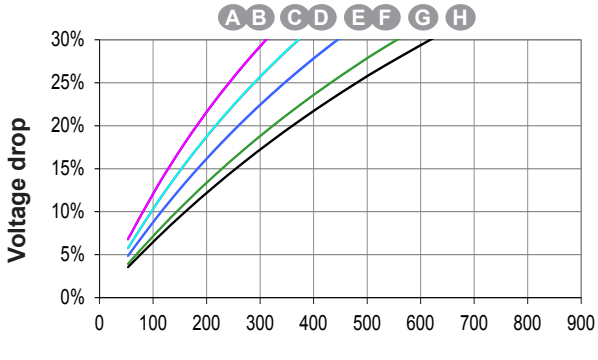
Phase loading (AREP) - kVA at P.F. = 0.8



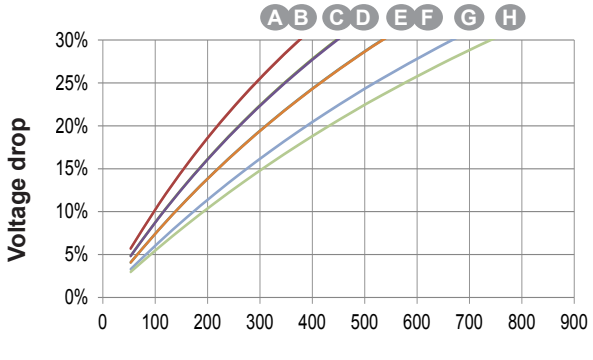
Load shedding (SHUNT) - kVA at P.F. = 0.8



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



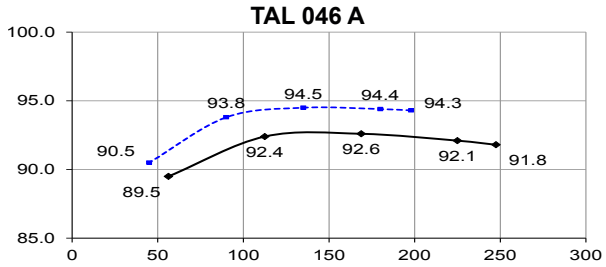
Motor starting (SHUNT)
Locked rotor kVA at P.F. = 0.6

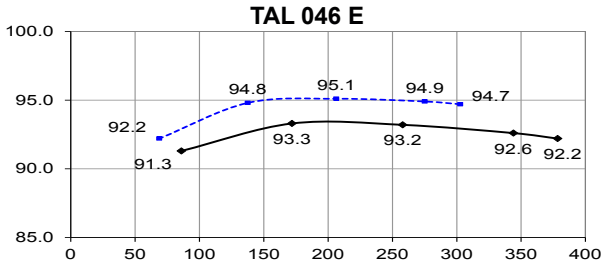


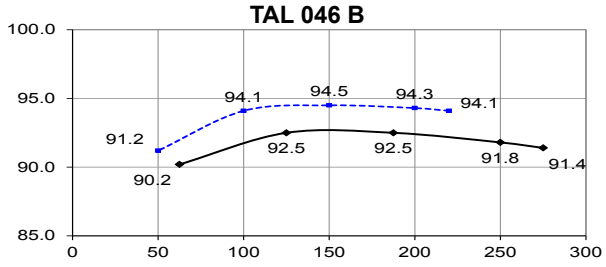
Motor starting (AREP)
Locked rotor kVA at P.F. = 0.6

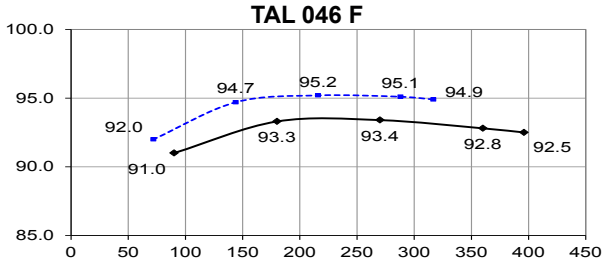
1) For a starting P.F. other than 0.6, the starting kVA must be multiplied by K = Sine P.F. / 0.8
2) For voltages other than 400V (Y), 230V (Δ) at 50 Hz, then kVA must be multiplied by $(400/U)^2$ or $(230/U)^2$.

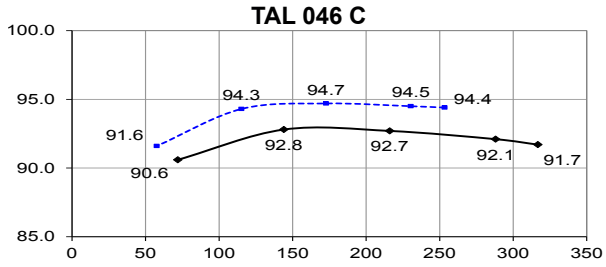
Efficiencies 480 V - 60 Hz (— P.F.: 0.8) (····· P.F.: 1)

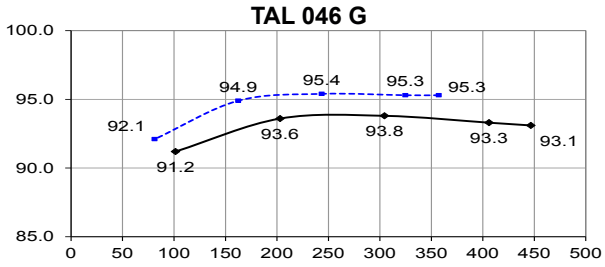


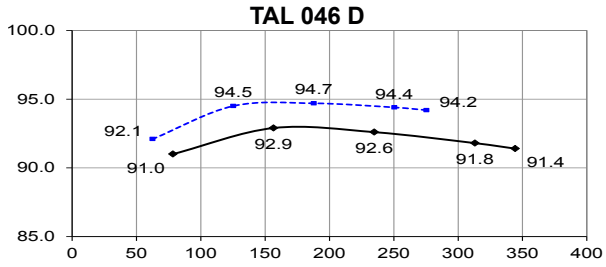


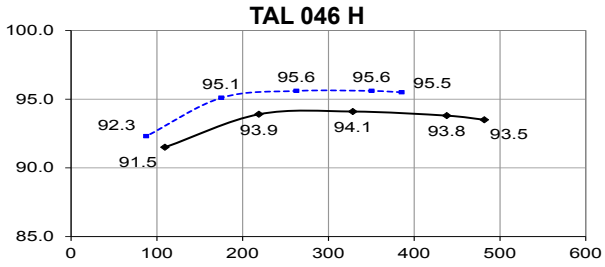












Reactances (%). Time constants (ms) - Class H / 480 V

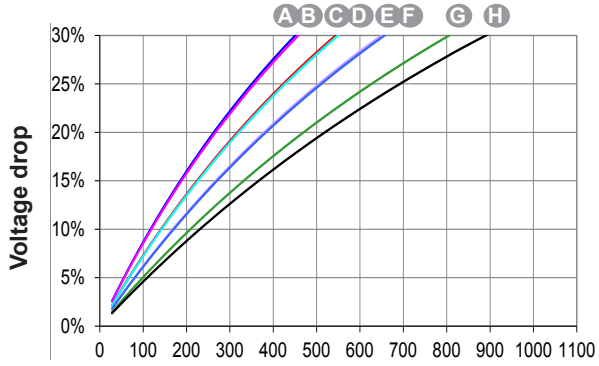
		A	B	C	D	E	F	G	H
Kcc	Short-circuit ratio	0.37	0.34	0.36	0.33	0.35	0.4	0.43	0.43
Xd	Direct-axis synchro. reactance unsaturated	326	362	355	386	361	335	309	303
Xq	Quadrature-axis synchro. reactance unsaturated	166	185	181	197	184	171	157	154
T'do	No-load transient time constant	1956	1956	1983	1983	2018	2033	2072	2093
X'd	Direct-axis transient reactance saturated	16.6	18.5	17.9	19.4	17.9	16.5	14.9	14.5
T'd	Short-circuit transient time constant	100	100	100	100	100	100	100	100
X"d	Direct-axis subtransient reactance saturated	13.3	14.8	14.3	15.5	14.3	13.2	11.9	11.6
T"d	Subtransient time constant	10	10	10	10	10	10	10	10
X"q	Quadrature-axis subtransient reactance saturated	17	18.9	18.1	19.7	18	16.4	14.7	14.2
Xo	Zero sequence reactance	0.69	0.77	0.74	0.81	0.74	0.68	0.62	0.6
X2	Negative sequence reactance saturated	15.2	16.9	16.2	17.6	16.2	14.8	13.3	12.9
Ta	Armature time constant	15	15	15	15	15	15	15	15

Other class H / 480 V data

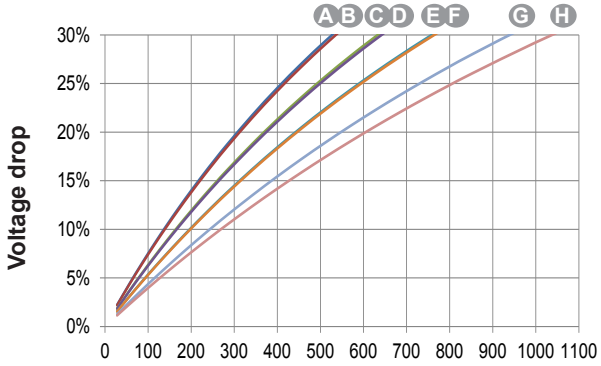
io (A)	No-load excitation current SHUNT/AREP	0.94	0.94	1.01	1.01	1.03	1.1	1.1	1.06
ic (A)	On-load excitation current SHUNT/AREP	3.46	3.79	3.91	4.21	4.03	3.91	3.69	3.56
uc (V)	On-load excitation voltage SHUNT/AREP	49	53.6	38.3	41.1	56.7	45.5	42.9	41.3
ms	Response time (ΔU = 20% transient)	500	500	500	500	500	500	500	500
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) SHUNT*	376	376	446	448	532	534	665	742
kVA	Start (ΔU = 20% cont. or ΔU = 30% trans.) AREP*	450	450	537	536	639	640	798	889
%	Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 $_{LAG}$	17.6	19	18.5	19.6	18.5	19.1	17.8	17.4
%	Transient ΔU (on-load 4/4) AREP - P.F.: 0.8 $_{LAG}$	15.5	16.7	16.3	17.3	16.7	17.2	16	15.7
W	No-load losses	4522	4522	4958	4958	5412	5935	6673	6978
W	Heat dissipation	15376	17830	19674	22244	21910	22085	23012	23141

* P.F. = 0.6

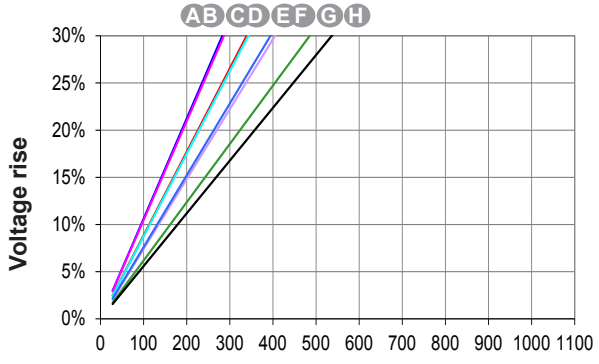
Transient voltage variation 480 V - 60 Hz



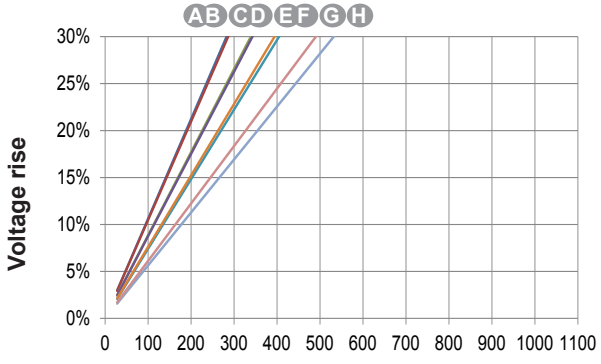
Phase loading (SHUNT) - kVA at P.F. = 0.8



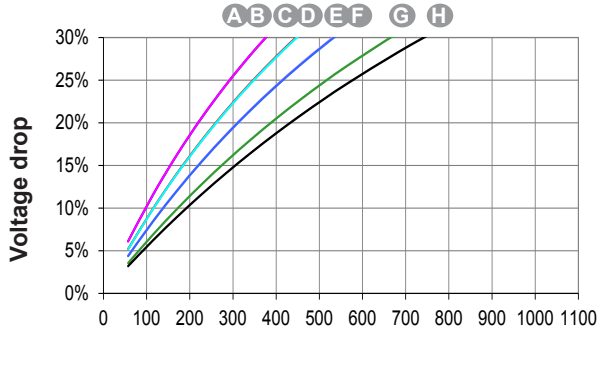
Phase loading (AREP) - kVA at P.F. = 0.8



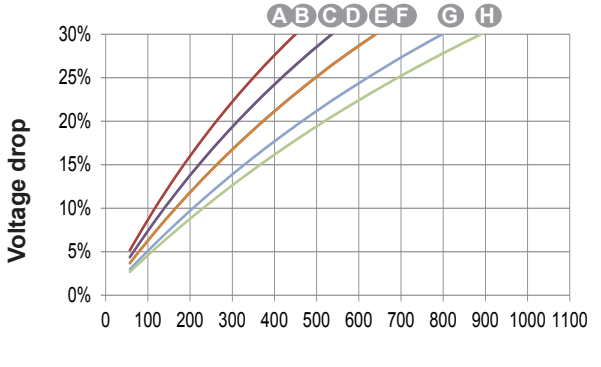
Load shedding (SHUNT) - kVA at P.F. = 0.8



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



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



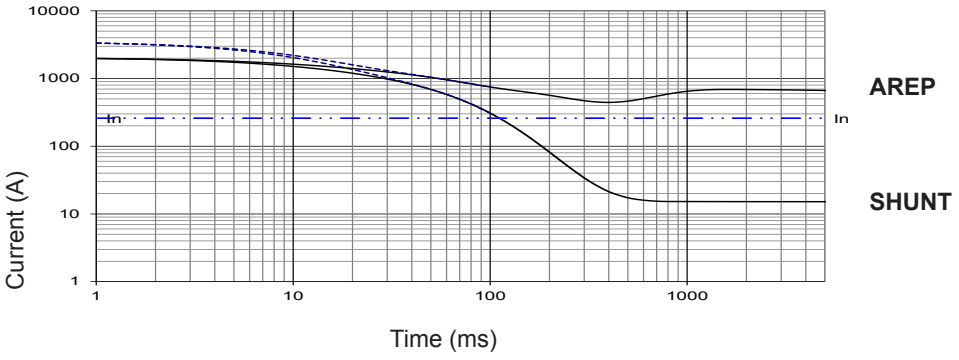
Motor starting (AREP)
Locked rotor kVA at P.F. = 0.6

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)

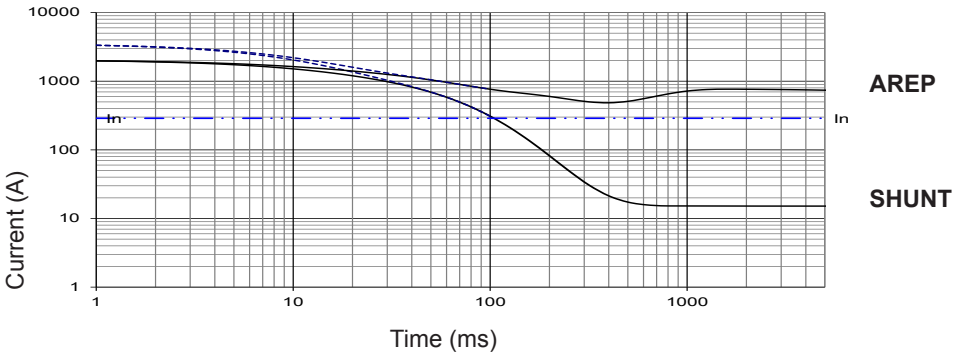
TAL 046 A

Symmetrical ——
Asymmetrical - - -



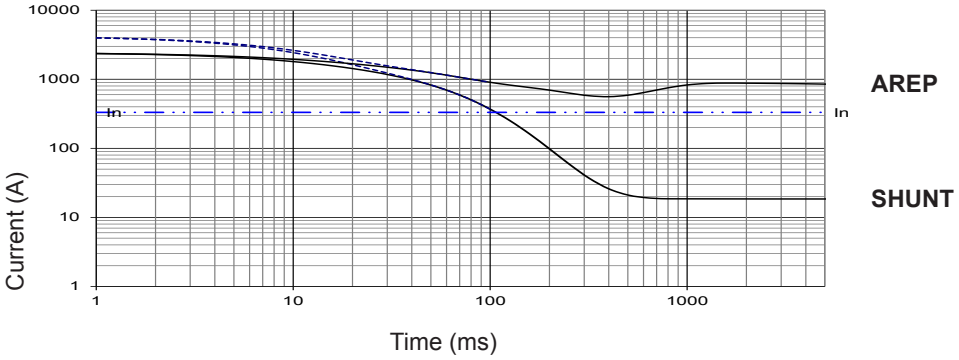
TAL 046 B

Symmetrical ——
Asymmetrical - - -



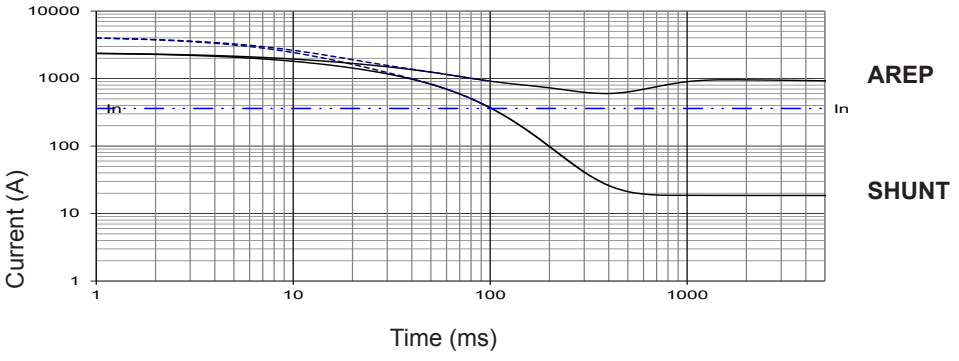
TAL 046 C

Symmetrical ——
Asymmetrical - - -



TAL 046 D

Symmetrical ——
Asymmetrical - - -

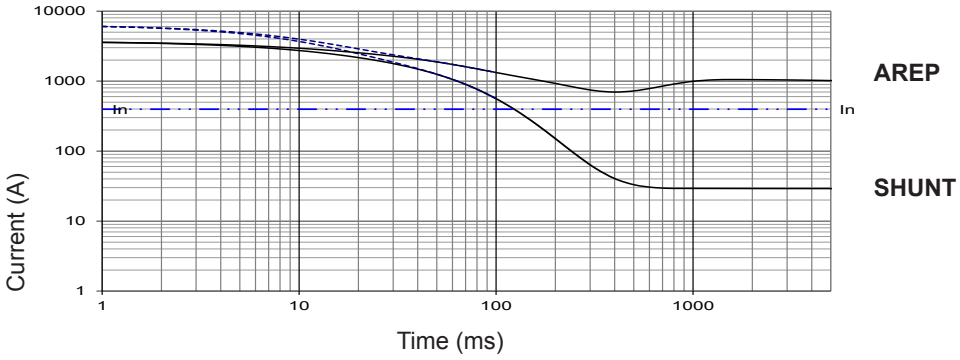


Influence due to connection
For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

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

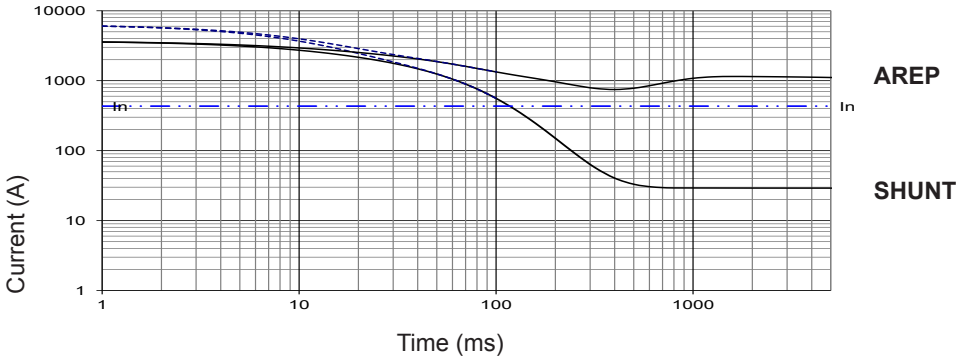
TAL 046 E

Symmetrical ——
Asymmetrical - - -



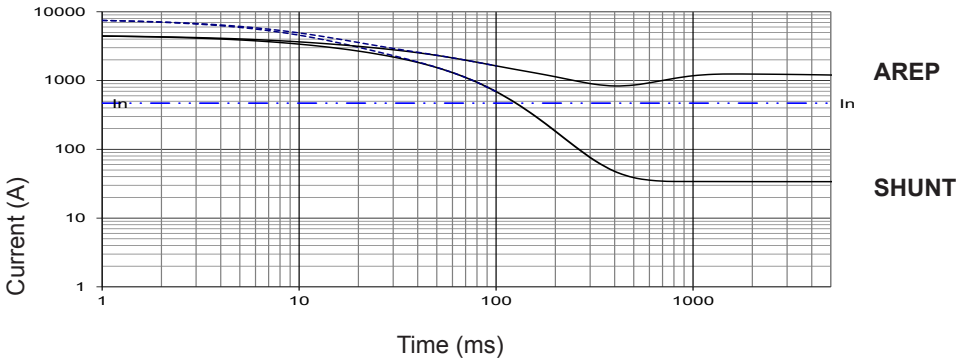
TAL 046 F

Symmetrical ——
Asymmetrical - - -



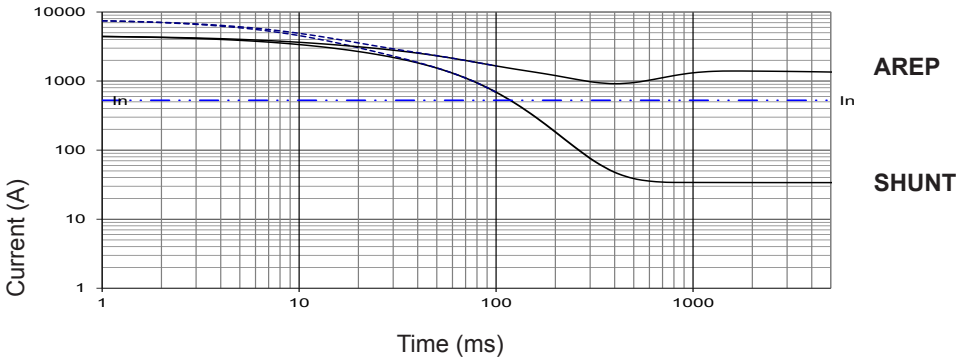
TAL 046 G

Symmetrical ——
Asymmetrical - - -



TAL 046 H

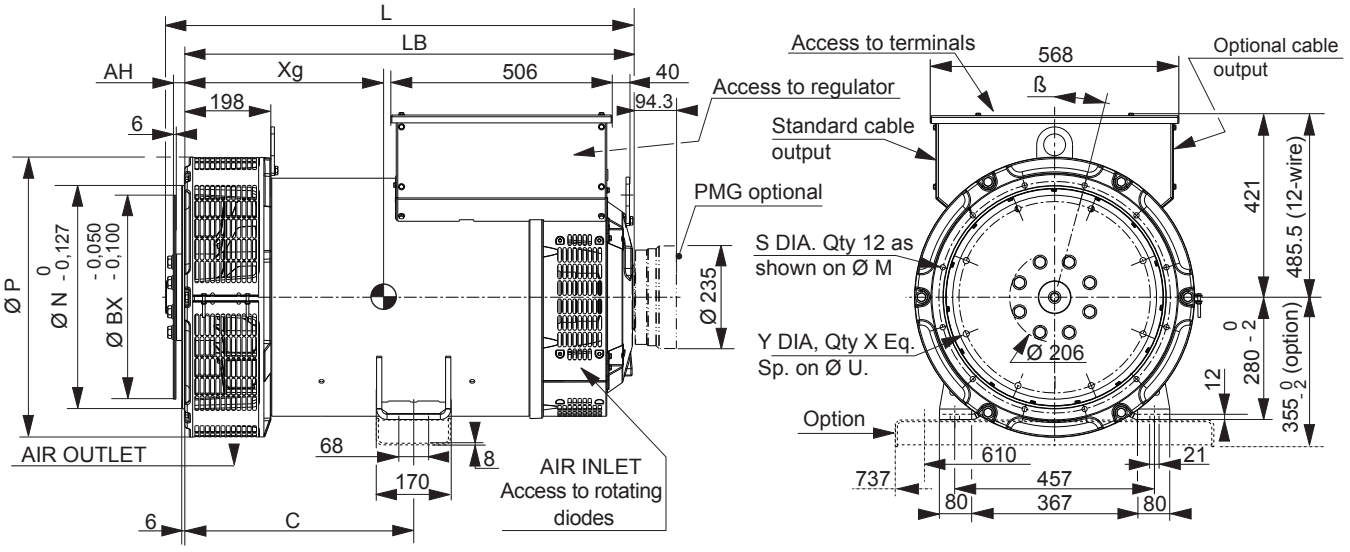
Symmetrical ——
Asymmetrical - - -



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		1.5	

Single bearing general arrangement



Dimensions (mm) and weight					
Type	L without PMG	LB	Xg	C	Weight (kg)
TAL 046 A	944**/935	892	408	429	569
TAL 046 B	944**/935	892	414	429	599
TAL 046 C	944**/935	892	423	429	674
TAL 046 D	944**/935	892	423	429	682
TAL 046 E	989**/980	937	445	429	754
TAL 046 F	989**/980	937	445	429	754
TAL 046 G*	1084**/1075	1032	493	525	888
TAL 046 H*	1084**/1075	1032	493	525	888

Coupling			
Flex plate	11 1/2	14	18
Flange S.A.E 3	X		
Flange S.A.E 2	X		
Flange S.A.E 1	X	X	
Flange S.A.E 1/2		X	
Flange S.A.E 0		X	X

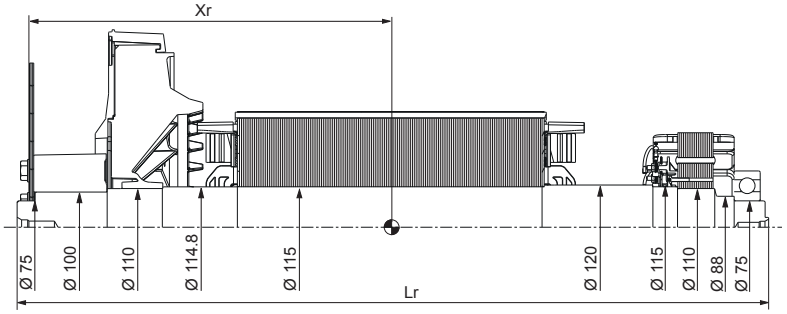
* Shaft height = 355 mm optional
** Dimensions with SAE 11 1/2

Flange (mm)					
S.A.E.	P	N	M	S	ß °
3	641	409.575	428.625	11	15°
2	641	447.675	466.725	11	15°
1	641	511.175	530.225	12	15°
1/2	713	584.2	619.125	14	15°
0	713	647.7	679.45	14	11° 15'

Flex plate (mm)					
S.A.E.	BX	U	X	Y	AH
11 1/2	352.42	333.38	8	11	39.6
14	466.72	438.15	8	14	25.4
18* **	571.5	542.92	6	17	15.7

*** Option

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. 11 ½				Flex plate S.A.E. 14			
Type	Xr	Lr	M	J	Xr	Lr	M	J
TAL 046 A	413	923	243	2.46	401	923	244	2.62
TAL 046 B	413	923	243	2.46	401	923	244	2.62
TAL 046 C	420	923	255	2.64	408	923	256	2.8
TAL 046 D	420	923	255	2.64	408	923	256	2.8
TAL 046 E	460	968	304	3.28	448	968	305	3.44
TAL 046 F	460	968	304	3.28	448	968	305	3.44
TAL 046 G	508	1063	358	3.97	497	1063	359	4.13
TAL 046 H	508	1063	358	3.97	497	1063	359	4.13

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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Capital social : 65 800 512 €, RCS Angoulême 338 567 258.

5675 en - 2018.04 / b

DSEGenset

DSE

DSE7310/20

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES

The DSE7310 is an Auto Start Control Module and the DSE7320 is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single, diesel or gas, gen-set applications.

Monitoring an extensive number of engine parameters, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs, remote PC and via SMS text alerts (with external modem).

The DSE7320 will also monitor the mains (utility) supply. The modules include USB, RS232 and RS485 ports as well as dedicated DSENet® terminals for system expansion.

Both modules are compatible with electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engines and offer an extensive number of flexible inputs, outputs and extensive engine protections so the system can be easily adapted to meet the most demanding industry requirements.

The extensive list of features includes enhanced event and performance monitoring, remote communications, PLC functionality and dual mutual standby (DSE7310 only) to reduce engine wear.

The modules can be easily configured using the DSE Configuration Suite PC software. Selected front panel editing is also available.

ENVIRONMENTAL TESTING STANDARDS

ELECTRO-MAGNETIC COMPATIBILITY
BS EN 61000-6-2
EMC Generic Immunity Standard for the Industrial Environment
BS EN 61000-6-4
EMC Generic Emission Standard for the Industrial Environment

ELECTRICAL SAFETY
BS EN 60950
Safety of Information Technology Equipment, including Electrical Business Equipment

TEMPERATURE
BS EN 60068-2-1
Ab/Ae Cold Test -30 °C
BS EN 60068-2-2
Bb/Be Dry Heat +70 °C

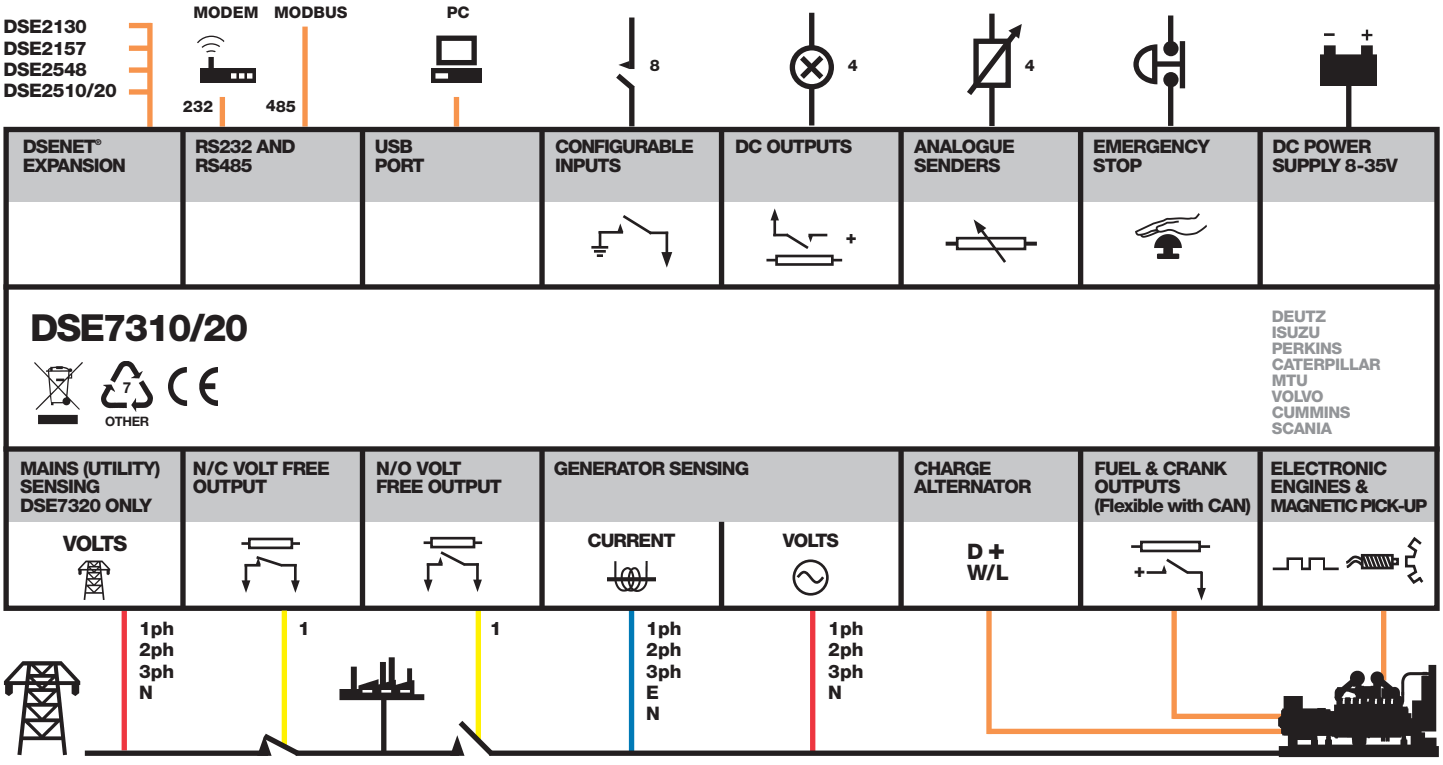
VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz @ +/-7.5 mm,
8 Hz to 500 Hz @ 2 gn

HUMIDITY
BS EN 60068-2-30
Db Damp Heat Cyclic 20/55 °C @ 95% RH 48 Hours
BS EN 60068-2-78
Cab Damp Heat Static 40 °C @ 93% RH 48 Hours

SHOCK
BS EN 60068-2-27
Three shocks in each of three major axes
15 gn in 11 mS

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES
BS EN 60529
IP65 - Front of module when installed into the control panel with the supplied sealing gasket.

COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF GEN-SET APPLICATIONS



ISSUE 6

DSEGenset

DSE7310/20

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES

DSE7310

DSE7320

KEY FEATURES

- 4-Line back-lit LCD text display
- Five key menu navigation
- Front panel editing with PIN protection
- Customisable status screens
- Power save mode
- Support for up to three remote display units
- 9 configurable inputs
- 8 configurable outputs
- Flexible sender inputs
- Configurable timers and alarms
- 3 configurable maintenance alarms
- Multiple date and time scheduler
- Configurable event log (250)
- Tier 4 CAN engine support
- Integral PLC editor
- Easy access diagnostic page
- CAN and Magnetic Pick-up/Alt. sensing
- Fuel usage monitor and low fuel alarms
- Charge alternator failure alarm
- Manual speed control (on compatible CAN engines)
- Manual fuel pump control
- Engine exerciser
- “Protections disabled” feature
- kW & kV Ar protection
- Reverse power (kW & kV Ar) protection
- LED and LCD alarm indication
- Power monitoring (kW h, kV Ar, kV A h, kV Ar h)
- Load switching (load shedding and dummy load outputs)
- Automatic load transfer (DSE7320)
- Unbalanced load protection
- Independent Earth Fault trip
- True dual mutual standby with load balancing timer (DSE7310 only)
- USB connectivity
- Backed up real time clock
- Fully configurable via DSE Configuration Suite PC software
- Configurable display languages
- Remote SCADA monitoring via DSE Configuration Suite PC software
- User selectable RS232 and RS485 communications
- Configurable Gencomm pages
- Advanced SMS messaging (additional external modem required)
- Start & stop capability via SMS messaging
- Additional display screens to help with modem diagnostics
- Idle control for starting & stopping.
- DSENet® expansion compatible

KEY BENEFITS

- 132 x 64 pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Multiple date and time scheduler
- Set maintenance periods can be configured to maintain optimum engine performance
- Ethernet communications (via DSE860/865 modules), provides advanced remote monitoring at low cost
- Modules can be integrated into building management systems (BMS)
- Increased input and output expansion capability via DSENet®
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- PLC editor allows user configurable functions to meet specific application requirements

SPECIFICATION

DC SUPPLY

CONTINUOUS VOLTAGE RATING
8 V to 35 V Continuous

CRANKING DROPOUTS
Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs and backlight will not be maintained during cranking.

MAXIMUM OPERATING CURRENT
340 mA at 12 V, 160 mA at 24 V

MAXIMUM STANDBY CURRENT
160 mA at 12 V, 80 mA at 24 V

CHARGE FAIL/EXCITATION RANGE
0 V to 35 V

MAINS (UTILITY) DSE7320 ONLY

VOLTAGE RANGE
15 V - 333 V AC (L-N)

FREQUENCY RANGE
3.5 Hz to 75 Hz

OUTPUTS

OUTPUT A (FUEL)
15 A DC at supply voltage

OUTPUT B (START)
15 A DC at supply voltage

OUTPUTS C & D
8 A 250 V (Volt free)

AUXILIARY OUTPUTS E,F,G,H
2 A DC at supply voltage

GENERATOR

VOLTAGE RANGE
15 V - 333 V AC (L-N)

FREQUENCY RANGE
3.5 Hz to 75 Hz

MAGNETIC PICK UP

VOLTAGE RANGE
+/- 0.5 V to 70 V

FREQUENCY RANGE
10,000 Hz (max)

DIMENSIONS

OVERALL
240 mm x 181 mm x 42 mm
9.4” x 7.1” x 1.6”

PANEL CUT-OUT
220 mm x 160 mm
8.7” x 6.3”

MAXIMUM PANEL THICKNESS
8 mm
0.3”

RELATED MATERIALS

TITLE	PART NO’S
DSE7310 Installation Instructions	053-028
DSE7320 Installation Instructions	053-029
DSE7200/7300 Quick Start Guide	057-101
DSE7200/7300 Operator Manual	057-074
DSE7200/7300 Configuration Suite PC Manual	057-077

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055-051/10/11 (11) US