CONTENTS

This document describes the “specification for manufacture” for the

ABB Automation Products GmbH – Division Drives

1. Range of operating conditions

The operating conditions are described in the product documentation (specification), for details see “Environmental conditions” **(see Appendix 1)**

Some important data are given in “Environmental conditions” directly, for further data EC-Standards are referred to.

2. Design and performance specifications

Drawings, data, calculations:

- The general product documentation includes all principal drawings and data
- The order documentation includes drawings and partlists of the single drive cabinets and the line ups.
- The technical order specification of every drive cabinet will be calculated with the dimensioning-tool “DC Drive Size” **(see Appendix 2)**

The general product documentation for internal ABB-Divisions is provided in the ABB database DC News. This database is the basis for the customer documentation

3. Standards and design justification

The applied EU-standards are listed in the product documentation (specification), for details see “Environmental conditions” **(see Appendix 1)**

For design justification see certificates acc. to product standards

- Certificate “Document of Conformity” (DoC), acc. to EC-Directives and
- “CE label” in cabinet

The product family DCS800 is type tested acc. to EC-Directives:

- Low Voltage : EC-Standard EN 61800-1
- Machinary : EC-Standard EN 60204-1
- EMC : EC-Standard EN 61800-3

4. Fabrication procedures

- Procedures are laid down acc. To quality system EN ISO 9001 **(see Appendix 3)**
- The quality system is certified by DEKRA-ITS **(see Appendix 3.1)**

Order planning principle:

- Technical order specification
- Engineering (planning of documentation of part lists and drawings)
- Production (part ordering with SAP-system / manufactre acc. to engineered documentation and general instructions)
- Test (acc. to test instruction / result is a **test report**) **(see Appendix 5)**
  The test instruction is an internal document. If the customer wants more information, then there is a special **test specification** **(see Appendix 4)**

  Information to the test documentation:
  The whole test documentation set consist of test reports, DoC, Installation instructions, Installation rules EMC, Safety and operating instructions

  Scope of standard test: Visual and mechanical inspection / Mechanical function test / Insulation test / Electrical function test / Documents / Information on used EN-Standards

- "Factory acceptance test" can be carried out if the customer requires this
- Delivery (with order documentation)

Generally we have an "Environmental management system" acc. to EN ISO 14001 certified by DEKRA-ITS. **(see Appendix 3.1)**

Generally we have an "Occupational and health management system" acc. to OHSAS 14001 certified by DEKRA_ITS. **(see Appendix 7)**

5. Quality plan

- Procedures are laid down acc. to quality system EN ISO 9001 **(see Appendix 3)**
- The quality system is certified by DEKRA-ITS **(see Appendix 3.1)**

Appendices:

1. Environmental conditions
2. Dimensioning with DC DriveSize – Tool (Example)
3. Quality system EN ISO 9001

3.1 - 1 Certificate EN ISO 9001 and Certificate EN ISO 14001

4. Routine Test Report
5. Routine Test report (Example)
6. Test report
7. Certificate OHSAS 18001

Appendix 1 Environmental Conditions

Environmental Conditions

System connection

Voltage, 3-phase:	230 to ≤1000 V acc. to IEC 60038
Voltage deviation:	±10% continuous; ±15% short-time *
Rated frequency:	50 Hz or 60 Hz
Static frequency deviation:	50 Hz ±2 %; 60 Hz ±2 %
Dynamic: frequency range:	50 Hz: ±5 Hz; 60 Hz: ± 5 Hz
df/dt:	17 % / s

* = 0.5 to 30 cycles.

Please note: Special consideration must be taken for voltage deviation in regenerative mode.

Degree of protection

Converter Module and options (line chokes, fuse holder, field supply unit, etc.):	IP 00 / NEMA TYPE OPEN
Enclosed converters:	IP 20/21/31/41

Paint finish

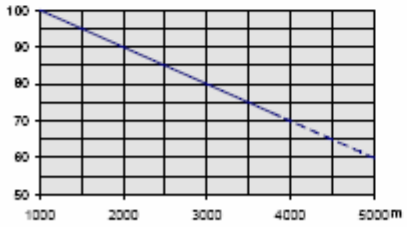
Converter module:	light grey RAL 9002
Enclosed converter:	light grey RAL 7035

Environmental limit values

Permissible cooling air temp.	
- at converter module air inlet:	0 to +55°C
with rated DC current:	0 to +40°C
w. different DC curr. acc. Fig. below:	+30 to +55°C
- Options:	0 to +40°C
Relative humidity (at 5...+40°C):	5 to 95%, no condensation
Relative humidity (at 0...+5°C):	5 to 50%, no condensation
Change of the ambient temp.:	< 0.5°C / minute
Storage temperature:	-40 to +55°C
Transport temperature:	-40 to +70°C
Pollution degree (IEC 60664-1, IEC 60439-1):	2
Vibration class (IEC-60721-3-3)	3M3 - D1...D4 3M1 - D5...D7
Site elevation	
<1000 m above M.S.L.:	100%, without current reduction
>1000 m above M.S.L.:	with curr. reduct., see Fig. below

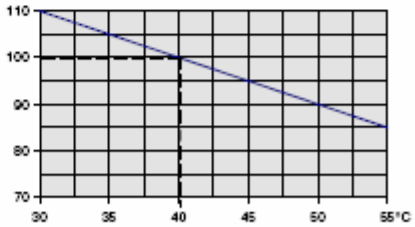
Size	Sound pressure level L_p (1 m distance)		Vibration	Shock	Transport in original Package	**Short circuit withstand rating** The DCS800 is suitable for use in a circuit capable of delivering not more than:
	as module	enclosed conv.	as module			
D1	55 dBA	54 dBA	1.5 mm, 2...9 Hz 0.5 g, 9...200 Hz	7 g / 22 ms	1.2 m	65 kA rms symmetrical amps at maximum 600 VAC
D2	55 dBA	55 dBA				
D3	60 dBA	73 dBA			1.0 m	
D4	66...70 dBA, depending on fan	77 dBA				
D5	73 dBA	78 dBA	0.3 mm, 2...9 Hz 0.1 g, 9...200 Hz	4 g / 22 ms	0.25 m Shock monitor	100 kA rms symmetrical amps at maximum 600 VAC
D6	75 dBA	73 dBA				
D7	82 dBA	80 dBA				

Effect of the site elevation above sea level on the converter's load capacity



Current reduction to (%)

Effect of the ambient temperature on the converter module load capacity



Current reduction to (%) for converter modules

Technical data

3ADW000194R0501 DCS800 Hardware Manual e e

Regulatory Compliance

The converter module and enclosed converter components are designed for use in industrial environments. In EEA countries, the components fulfil the requirements of the EU directives, see table below.

European Union Directive	Manufacturer's Assurance	Harmonized Standards	
		Converter module	Enclosed converter
Machinery Directive			
98/37/EEC 93/68/EEC	Declaration of Incorporation	EN 60204-1 [IEC 60204-1]	EN 60204-1 [IEC 60204-1]
Low Voltage Directive			
73/23/EEC 93/68/EEC	Declaration of Conformity	EN 61800-1 [IEC 61800-1] EN 60204-1 [IEC 60204-1]	EN 61800-1 [IEC 61800-1] EN 60204-1 [IEC 60204-1]
EMC Directive			
89/336/EEC 93/68/EEC	Declaration of Conformity (Provided that all installation instructions concerning cable selection, cabling and EMC filters or dedicated transformer are followed.)	EN 61800-3 ① [IEC 61800-3]	EN 61800-3 ① [IEC 61800-3]
		① In accordance with 3ADW 000 032	① In accordance with 3ADW 000 032/3ADW 000 091

North American Standards

In North America the system components fulfil the requirements of the table below.

Rated supply voltage	Standards	
	Converter module	Enclosed converter
to 600 V	• see UL Listing-www.ul.com / certificate no. E196914 Approval: $_cUL_{us}$ The spacings in the modules were evaluated to table 36.1 of UL 508 C. Spacings also comply with table 6 and table 40 of C22.2 No. 14-05. • or on request	UL types: on request
>600 V to 990 V	EN / IEC xxxxx see table above. Available for converter modules including field exciter units.	EN / IEC types: on request (for details see table above)

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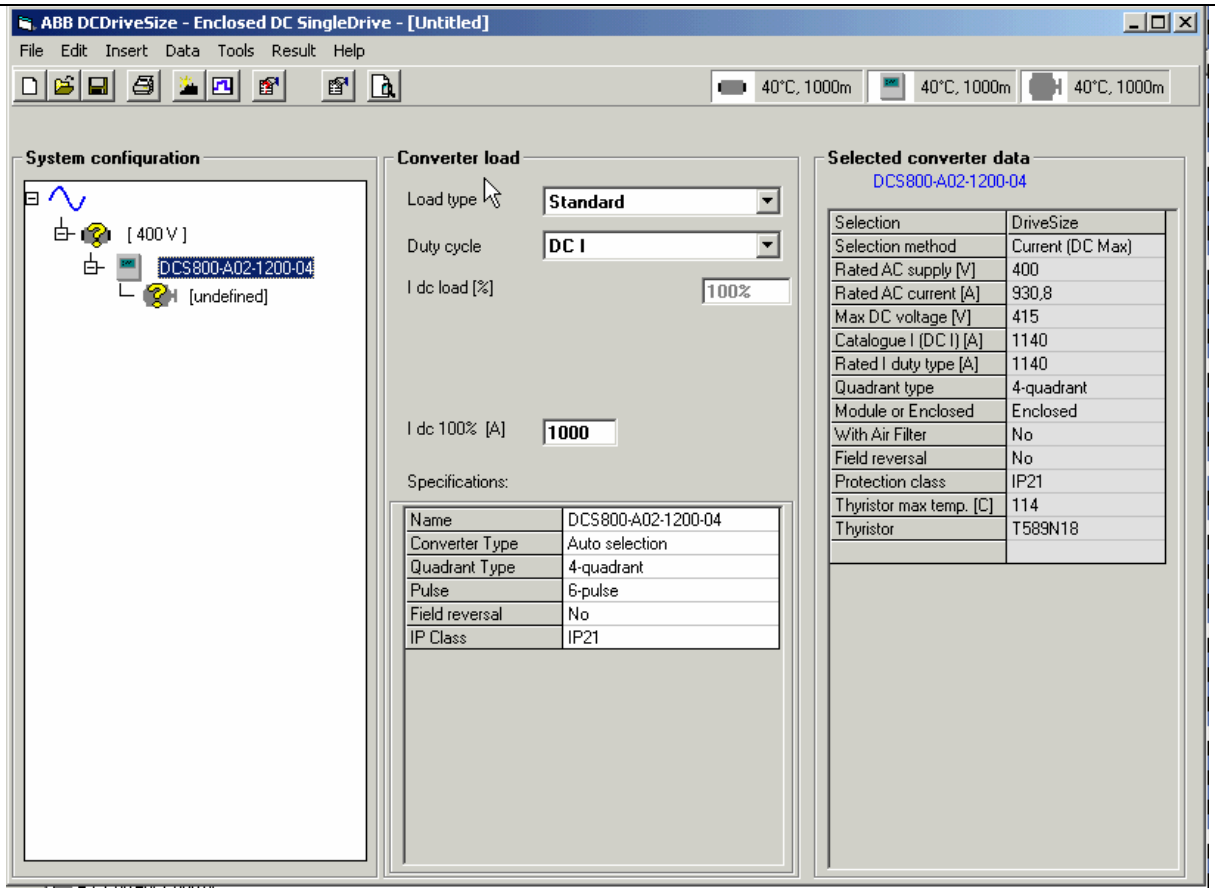
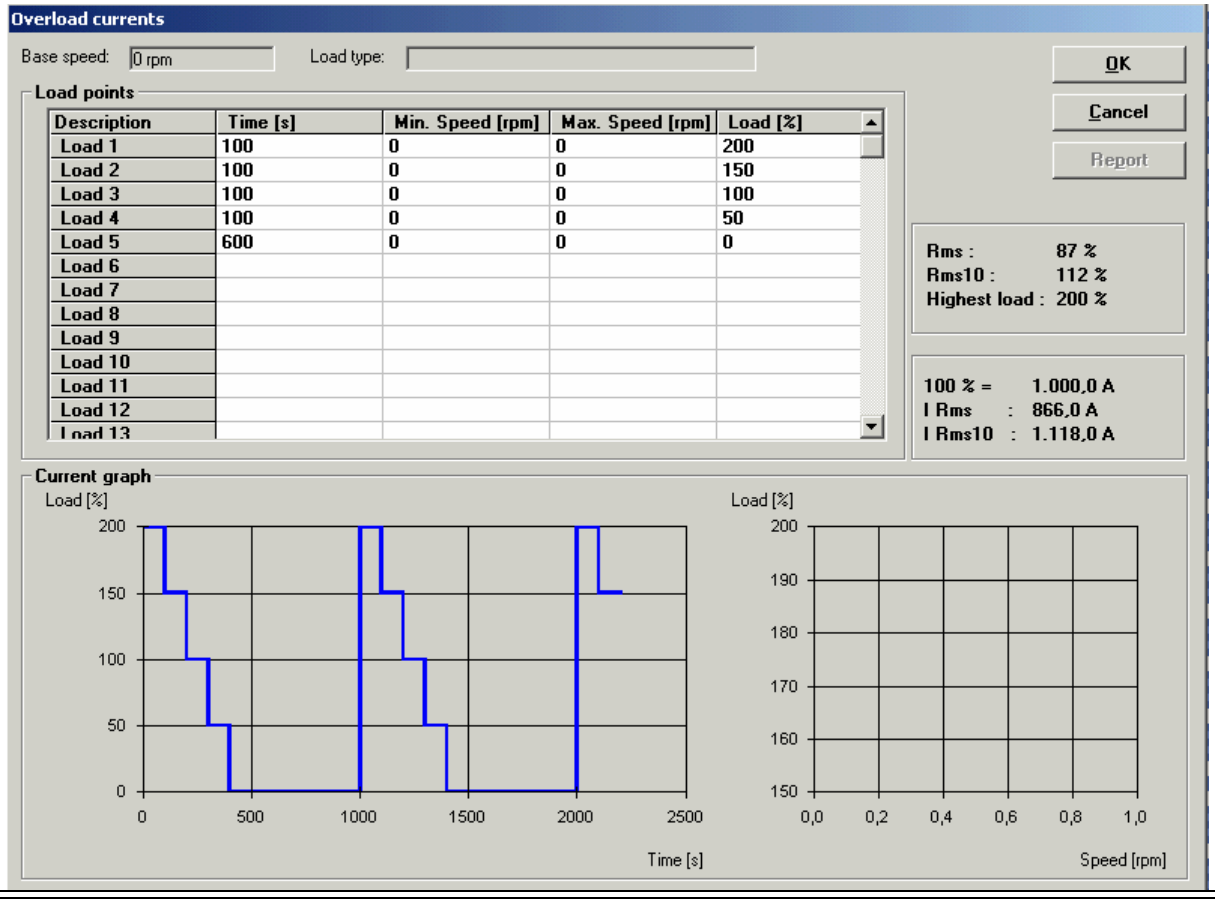
Publication no.: 3ADW000318R0101
Rev: A

Appendix 2 Dimensioning with DriveSize - Tool (Example)





Appendix 3 Quality system EN ISO 9001

EN ISO 9001:2000 December 2000

Quality systems – Model for quality assurance in design / development, production, installation and servicing.

Contents of EN ISO 9001

Appendix 3.1 - 1 **Certificate EN ISO 9001**

CERTIFICATE

ISO 9001:2000
ISO 14001:2004

DEKRA Certification

hereby certifies that the company

ABB Automation Products GmbH
Wallstadter Straße 59 * 68526 Ladenburg
(further locations see annex)

business field:
Development, project engineering, planning, manufacturing,
service and sales of products and services of the instrumentation,
motors & drives and low-voltage switchgear systems.

has successfully implemented the above mentioned quality management system and environmental management system according to the standards and applies it effectively. The conformity was inspected during the certification audit documented in audit report no. A0605250. This certificate is only valid in connection with the successful performance of the surveillance audits.

Date of the first certification:	29.08.2000	Date of the last recertification:	06.10.2006
This certificate is valid until:	05.10.2009	Certificate registration no.:	UM: 171005192/1 QM: 509031017/1
Last audit day:	18.09.2006		duplicate

DEKRA Certification GmbH
Stuttgart, 06.10.2006

DEKRA Certification GmbH · Handwerkstraße 15 · D-70565 Stuttgart · www.dekra-certification.com

QMS-TGA-ZM-05-91-00
UMS-TGA-ZM-05-91-60

DEKRA Certification

Annex to the certificate no. UM: 171005192/1; QM: 509031017/1
from 06.10.2006 valid until 10.10.2006

The following locations belong to the certificate above:

	Subsidiaries/ Sales offices	Street	Country Postcode	Location
1.	Zentrale	Wallstadter Straße 59	D-68526	Ladenburg
2.	Ladenburg	Wallstadter Straße 59	D-68526	Ladenburg
3.	Alzenau	Borsigstraße 2	D-63755	Alzenau
4.	Minden	Schillerstraße 72	D-32425	Minden
5.	Göttingen	Dransfelder Straße 2	D-37079	Göttingen
6.	Ratingen	Oberhausener Straße 33	D-40472	Ratingen
7.	Cottbus	Gaglower Straße 17/18	D-03046	Cottbus

List written on 06.10.2006

DEKRA Certification GmbH

Stamp / Signature

DEKRA Certification GmbH · Handwerkstraße 15 · D-70565 Stuttgart · www.dekra-certification.com

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Appendix 4 Test description for DC Converter

ABB | Test Description for DC Converter | Drives

Standard Test for DC-Converter

The standard test is the final quality control procedure during the manufacture of a DC converter DCS800-A, DCS800-E.

Each DC-Converter is subjected to a final test.

Test report

A formal test report of the standard tests is included with the delivery.

Scope of standard test

- **Visual and mechanical inspection**
  - General inspection and inspection of components
  - Inspection of clearance and creepage distances
  - Checking of protection against access and protective earthing
- **Mechanical function test**
  Checking of fuses, doors, etc.
- **Insulation test**
  - Main circuit and auxiliary circuits
    - Insulation resistance
    - High voltage test
- **Electrical function test**
  - Pretest for components (only DCS800 Converter module and ACB if included)
  - Functional tests for drive sections
    - Nominal voltage
    - Nominal current (only DCS800 Converter module)
  - Checking of communication
  - Checking of measurement
  - Current balancing for hard-parallel drives

  Electrical function test for 12 puls systems (on request)
  - communication between master drive and follower drive
  - test with 3-phase transformer (T-reactor) and motor (reduced power)
- **Documents**
  Checking of completeness

Appendix 5 Routine Test Report (Example)

ABB
Automation Products GmbH

ROUTINE TEST REPORT
DC CONVERTER MODUL

15.05.2008

CUSTOMER	**84 GROUP INC.**
REFERENCE NUMBER	**00457144.0090 0001647**

Product type	Serial number
DCS800-S02-0680-05	**0001647A** XXX

PARTS	**CODE & VERSION**	**SERIAL NUMBER**
SDCS-CON4	3ADT313900R0001	T3139000001W551B0181
DDCS Communication 1, COM-81 , 1	3ADT314900R1002	T3149001002B624C0032
Panel-DCS800	3ADT220129R0001	T2201290001W609Q0173
SDCS-PIN4	3ADT314100R1001	T3141001001T619F0007
Standard Software		80.130

			APPROVED
1.	**VISUAL INSPECTION**		
	Inspection of material and components		OK
	Inspection of clearance and creepage distance		OK
	Inspection of terminals, boards an conections		OK
2.	**INSULATION TEST**		
	Fan	1.5 kVAC 1 min	OK
	Main circuit	2.0 kVAC 1 min	OK
	Auxiliary circuits	1.5 kVAC 1 min	OK
3.	**FUNCTIONAL PRETESTS**		
	Checking of fan		OK
	Checking of the temperatur measurement		OK
	Low current test		OK
	Checking of snubber circuits		OK
4.	**FUNCTIONAL TESTS**		
	Main circuit :		
	A. Nominal voltage test		OK
	B. rated current test		OK

Inspected by	Date	Time
XXX	29.06.06	08:20

ABB Automation Products GmbH
Wallstadter Str.59
D-68526 Ladenburg, Germany

Appendix 6 Test Report

ABB	Test Report / Prüfprotokoll	3ADU xxxxxx Txxxx

Product Family : Produkt-Familie :	DCS 800 MultiDrive	Test Instruction No.: Prüfanweisungs Nr :	3ADV xxxxxx Pxxxx

Customer : Kunde :		Customer Order No.: Kunden-Bestell Nr. :	XXXXXX
Project Name : Projektname :		APR/DA-Order-No. : APR/DA- Bestell-Nr. :	XXXXXX
Plant Designation : Anlagenbezeichnung :		Plant unit Ident. No. : Anlagenteil Ident-Nr. :	3ADU xxxxxx Rxxxx

Equipment / Geräte

Type / Typ	Code	Serial No. / Serien-Nr.	Software version

Routine Test of plant unit / Anlagenteil-Stückprüfung

Tests / Prüfungen	**passed** / bestanden (X)
1. Visual inspection Sichtprüfung	X
2. Mechanical function test Mechanische Funktionsprüfung	X
3. Insulations test Isolationsprüfung	X
4. Electrical function test Elektrische Funktionsprüfung	X
5. Documents Dokumentation	X

Equipment tested according to main part list of the tested plant unit (see above)
Anlagenteile überprüft nach Hauptstückliste des getesteten Anlagenteils (siehe oben).

Remarks / Bemerkungen :

Checked by / Geprüft von :

Name / Name : . . . . . .

Date / Datum : . . . . . .

ABB Automation Products GmbH
APR/AW/PC
Wallstadter Str. 59
D-68526 Ladenburg

Phone: +49 (0) 62 03/71-0
Fax: +49 (0) 62 03/71-7591

Doc.-Nr.: IND/AF - Fri960801H
Revision: Fri-060322

File: Testrep_DCS800_blanco.doc

Appendix 7 Certificate OHSAS 18001

CERTIFICATE

OHSAS 18001

DEKRA Certification

hereby certifies that the company

ABB

ABB Automation Products GmbH
Wallstadter Straße 59 * 68526 Ladenburg
(further locations see annex)

Business field:
Development, project engineering, planning, manufacturing, service and sales of products and services of the instrumentation, motors & drives and low-voltage switchgear systems.

has implemented and maintains an occupational health and safety management system according to the above mentioned standard. Proof of conformity is documented in the certification audit report no. A0605250. This certificate is only valid in connection with the successful performance of the surveillance audits.

Date of the first certification:	08.10.2004	Date of the last recertification:	06.10.2006
This certificate is valid until:	05.10.2009	Certificate registration no.:	271004016/1 Duplicate

DEKRA Certification GmbH
Stuttgart, 06.10.2006

DEKRA Certification GmbH · Handwerkstraße 15 · D-70565 Stuttgart · www.dekra-certification.com

DEKRA Certification

Annex to the certificate no.271004016/1
from 06.10.2006 valid until 05.10.2009

The following locations belong to the certificate above:

	Subsidiaries/ Sales offices	Street	Country Postcode	Location
1.	Zentrale	Wallstadter Straße 59	D-68526	Ladenburg
2.	Ladenburg	Wallstadter Straße 59	D-68526	Ladenburg
3.	Alzenau	Borsigstraße 2	D-63755	Alzenau
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List written on 06.10.2006

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Stamp / Signature

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