

1 - STATEMENT OF CERTIFICATION

This report is to certify production models of the AMVAC™ MA4G1- Power circuit breaker. Tests were performed in accordance with the American National Standard Test Procedure for AC High Voltage Circuit Breaker, C37.09.

The test results thus obtained validate the assignment of the general duty rating (ANSI C37.04, C37.06 and C37.09) pertaining to the circuit breaker described herein.

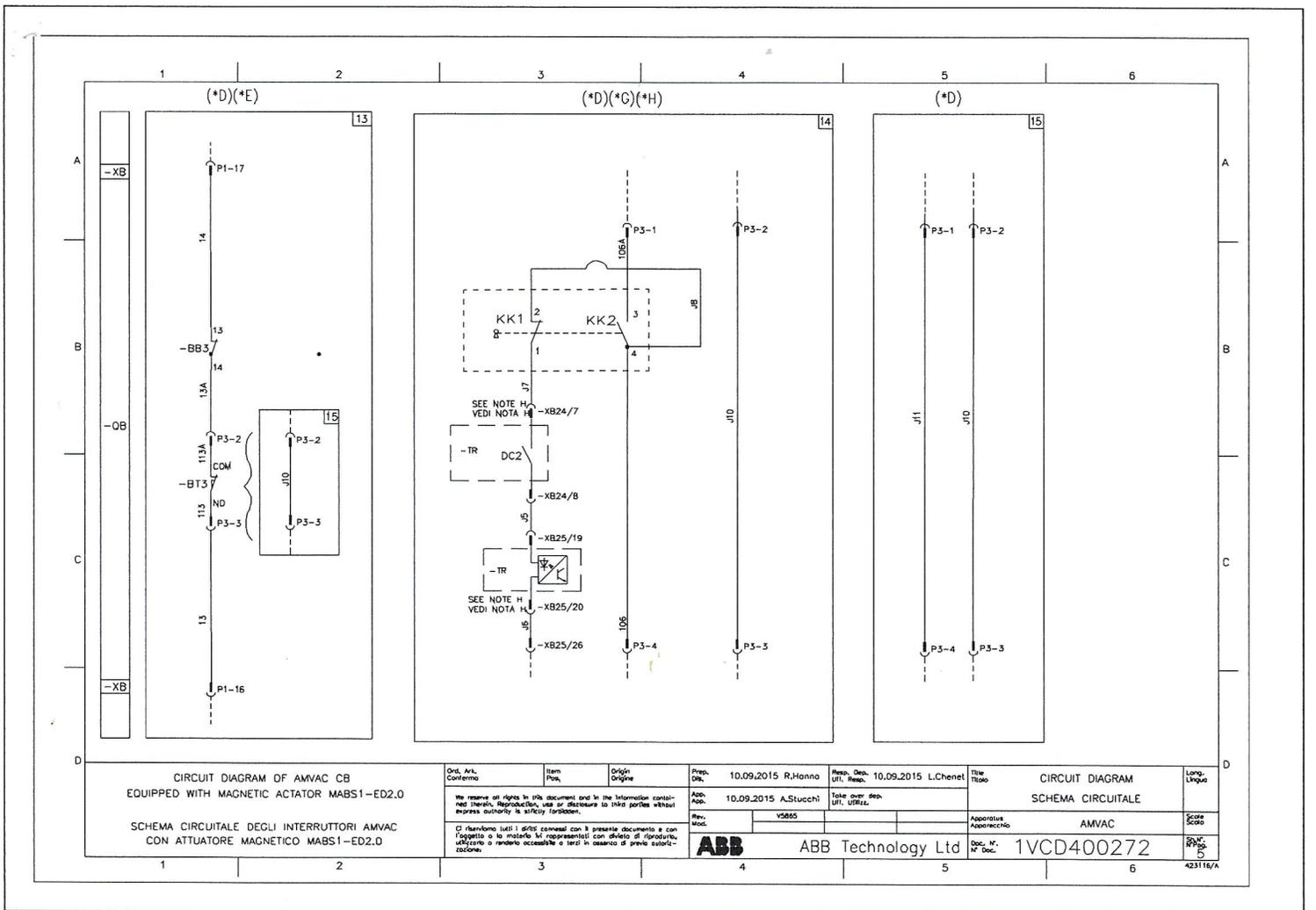
2 - DESCRIPTION OF CIRCUIT BREAKER

Manufacturer	ABB EPMV IT
Circuit Breaker Designation	AMVAC™ MA4G1-
Type of Circuit Breaker	Vacuum
Number of Poles	Three (3)
Operating Mechanism	Magnetic Actuator

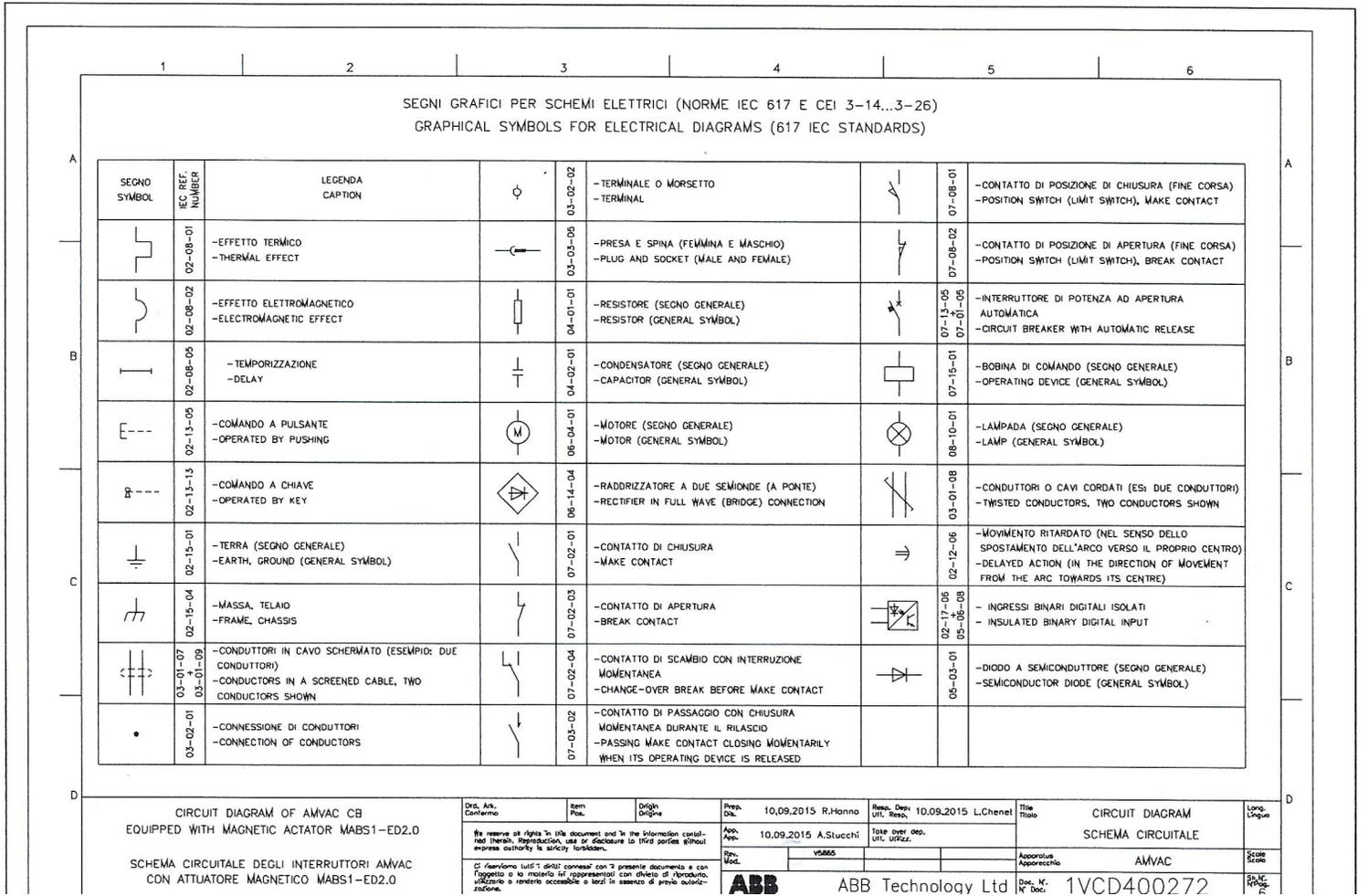
3 - RATING DATA

Rated Maximum Voltage (rms)	15kV
Rated Voltage Range Factor K	1.00
Rated Continuous Current (rms) at 60hz	1200 A
Momentary Short Time Tested	2 Sec
Maximum Symmetrical Interrupting Capability and Rated Short Time Current (rms)	25kA
Closing and Latching Capability (crest)	65kA
Rated Interrupting Time	3 Cycles
Rated Reclosing Sequence	0-.3 sec CO – 3 min CO
Rated Frequency	50/60 Hz
Capacitor Switching Capability	25A Cable Charging Class C1
Dielectric Test Values (Insulation Level)	
Low Frequency 1 Minute Dry (rms)	36 kV
Full Wave Withstand (BIL) (crest)	95 kV
Operating Endurance (No-Load Mechanical)	10,000 Operations

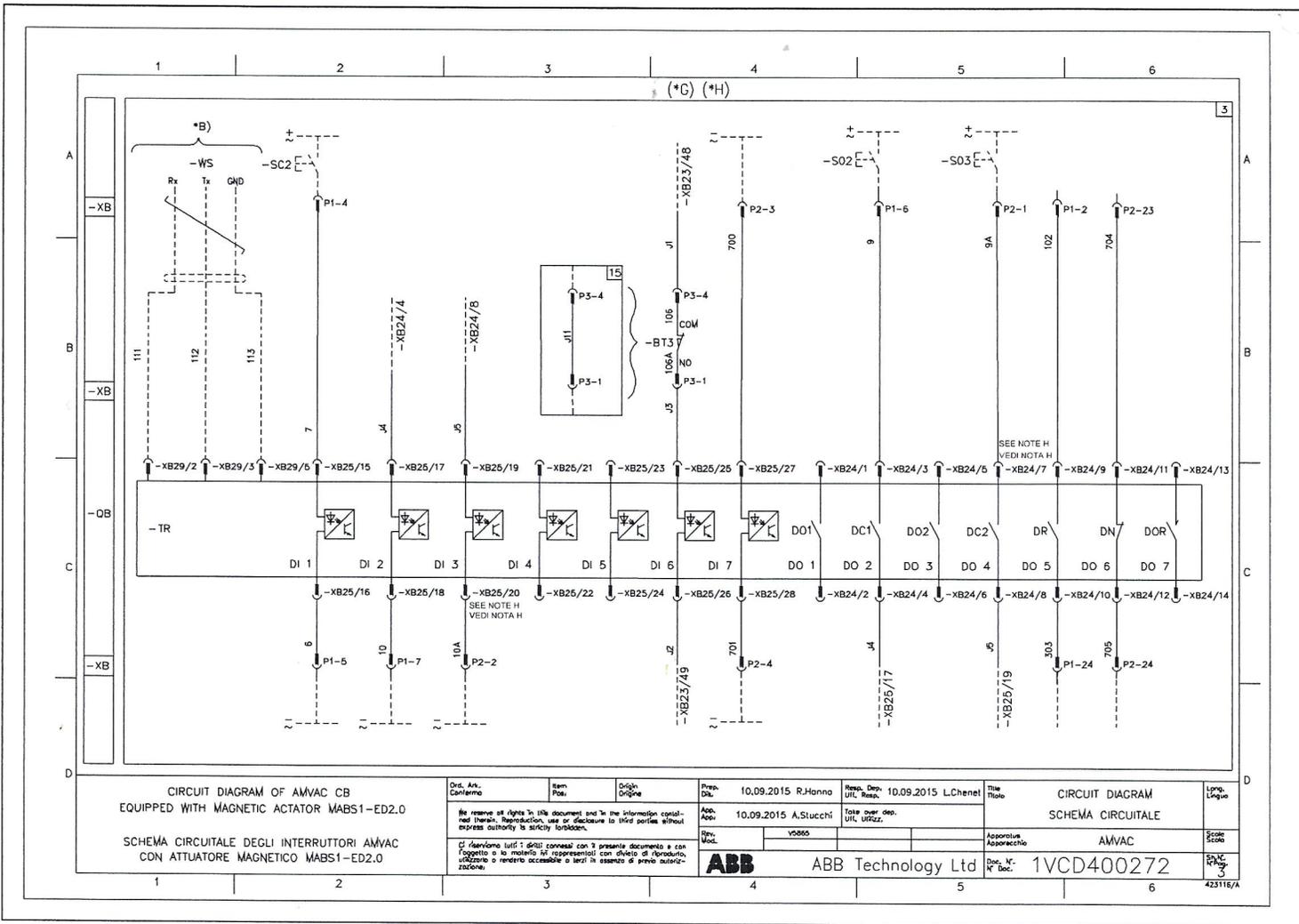
 Michael B. Christian, Product Manager	11/1/16 Date	Design Certification for AMVAC™ MA4G1	
 Luciano Chenet, R&D Manager	7/1/18 Date	Rev 1	Drawing Number Cert 15 kV 1200-25 AMVAC
		ABB S.p.A EPMV Dalmine, IT	

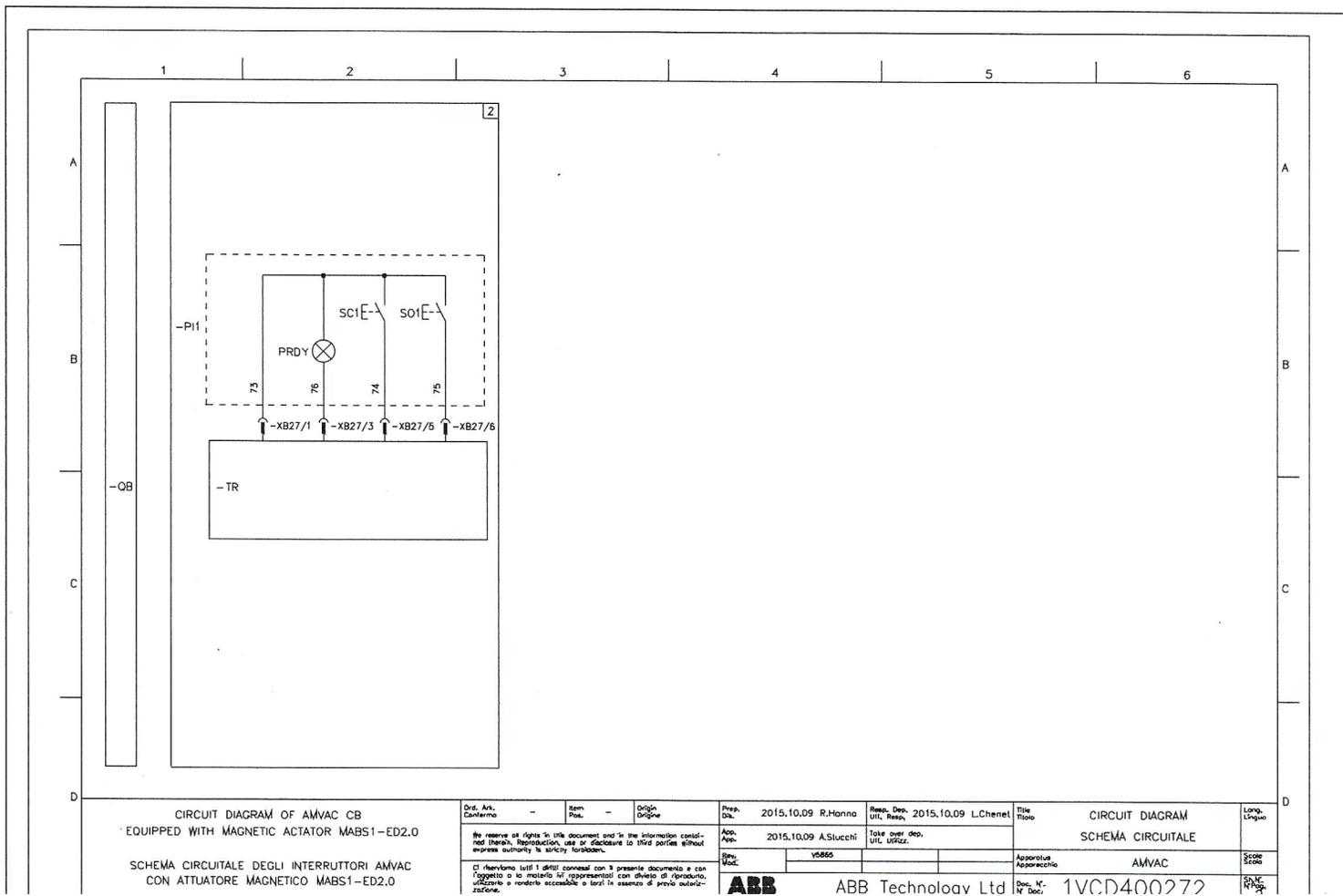
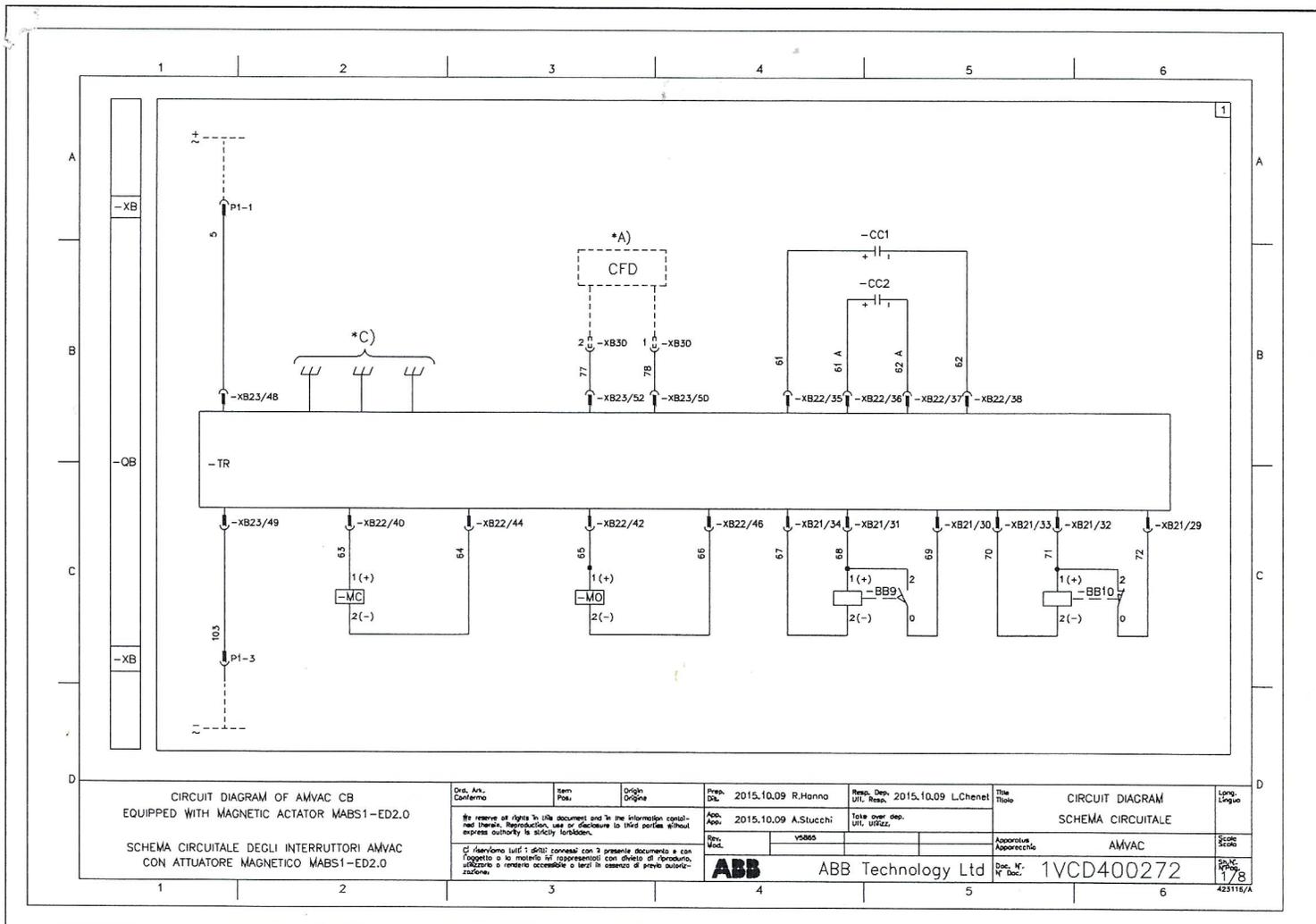


CIRCUIT DIAGRAM OF AMVAC CB EQUIPPED WITH MAGNETIC ACTUATOR MABS1-ED2.0		Ord. Aut. Conferma	Item Pos.	Origin Design	Prep. Dtl.	10.09.2015 R.Hanno	Resp. Des. Util. Resp.	10.09.2015 L.Chenet	Title Titolo	CIRCUIT DIAGRAM SCHEMA CIRCUITALE	Long. Lingua	
SCHEMA CIRCUITALE DEGLI INTERRUTTORI AMVAC CON ATTUATORE MAGNETICO MABS1-ED2.0		We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.			App. App.	10.09.2015 A.Stucchi	Take over dep. Util. Utilizz.		Apparatus Approvvacchio	AMVAC	Scale Scale	
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CONFIRMATION	9181112110	ITEM	000100
CUSTOMER	ABB SPA POWER PRODUCTS DIVISION (PP)		
CUSTOMER ORDER	1180112110	QUANTITY	1
TYPE	AMVAC 15.12.25 DRAWOUT		
STYLE NUMBER	MA4G11700000000		
SERIAL NUMBER	1VC1BL00026767		

Rated Voltage (Ur) kV	15				
Rated insulation voltage (Us) kV	15				
Withstand voltage - 1 min (Ud) kV	36				
Impulse withstand voltage (Up) kV	95				
Rated frequency (Fr) Hz	60				
Rated normal current (40°C) (Ir) A	1200				
Rated breaking capacity (Isc) kA	25				
Rated short time withstand current (Ik) kA	25				
duration of short circuit (tk) s	2				
Making capacity (Ip) kA	65				
Operation sequence	O-0,3S-CO-3MIN-CO				
	Test Result Values				
	Nominal Voltage				
Electronic Device Ed2.0 ANSI	125		DC		
	Individual tests according to ANSI C37.09				
Design and visual check	OK				
5 C-O operations at rated supply voltage	OK				
5 C-O operations at max. supply voltage	OK				
5 C-O operations at min. supply voltage	OK				
5 C-O operating cycles with shunt opening release energized by the main contact closure	OK				
5 sequences O-t-CO	OK				
5 Trip free test at rated voltage	OK				
5 Antipump at rated voltage	OK				
Power frequency voltage withstand test:					
Main circuits kV	36				
Auxiliary circuits kV	1,8				
	A	B	C	Max	
Drop Voltage Measured (with 200A DC) mV	6,3	6,7	6,2	9,2	
Contact resistance uΩ	31.5	33.5	31	46	
	Value	Min		Max	
Closing speed m/sec	1,35	0,8		1,5	
Opening speed m/sec	1,24	1		1,5	
	Value		Max		
Main contacts simultaneity check ms	0,4		2		
Direct envelope comparison	OK		± 2 mm from the standard		
	Min Vn	Vn	Max Vn	Range Vn Min	Range Vn Max
Closing time ms	53	53	53	45	60
Opening time ms	30	30	30	22,9	34

The circuit breaker has passed the tests

Department
OAQ

Date
5/21/2018

Quality Result
Passed