

DIN EN ISO 669:2016-07 (E)

Resistance welding - Resistance welding equipment - Mechanical and electrical requirements (ISO 669:2016)

Contents		Page
European foreword		4
Foreword		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	7
3.1	Mechanical parts of spot, projection, and seam welding equipment	7
3.2	Mechanical parts of upset and flash welding equipment	13
3.3	Static mechanical characteristics	16
3.4	Electrical and thermal characteristics	19
3.5	Pneumatic and hydraulic characteristics	21
4	Symbols and abbreviated terms	21
5	Physical environment and operating conditions	23
5.1	General	23
5.2	Ambient air temperature	23
5.3	Liquid cooling medium	23
5.4	Humidity	23
5.5	Altitude	24
5.6	Transportation and storage	24
6	Test conditions	24
6.1	General	24
6.2	Environmental conditions	24
6.3	Measuring instruments	24
7	Rated no load voltage at the output	25
7.1	General	25
7.2	a.c. no load voltage (U ₂₀)	25
7.3	d.c. no load voltage (U _{2d})	25
8	Maximum short circuit current	25
8.1	General	25
8.2	Spot and seam welding equipment	26
8.3	Projection welding equipment	26
8.4	Upset and flash welding equipment	27
9	Thermal rating	28
9.1	General	28
9.2	Thermal test	28
10	Cooling liquid circuit (liquid cooled welding equipment)	28
11	Static mechanical characteristics	29
11.1	General	29
11.2	Spot and projection welding equipment	29
11.2.1	General	29

11.2.2	Eccentricity	30
11.2.3	Angular deflection	31
11.2.4	Radial deflection	31
11.2.5	Axial deflection	32
11.2.6	Machine stiffness	32
11.2.7	Parallelism of top and bottom platen	32
11.2.8	Perpendicularity in platen movement, 4	33
11.3	Seam welding equipment	34
11.3.1	General	34
11.3.2	Eccentricity	34
11.3.3	Angular deflection	35
11.4	Upset welding equipment	35
11.4.1	General	35
11.4.2	Angular deflection	36
12	Rating plate	36
12.1	General	36
12.2	Description	37
12.3	Tolerances	39
13	Instruction manual	39
Annex A (informative) Examples of rating plates		41
Bibliography		43