Advanced Equotip® 3 Impact Devices

Equotip® 3 impact devices D, G, C, E, S consisting of:
Equotip® 3 impact device, impact body, support rings, cleaning brush, cable (4-pole)

Equotip® 3 impact devices DL consisting of:
Equotip® 3 impact device, impact body, support rings, cleaning brush, cable (4-pole), perspex sleeve

Equotip® 3 impact devices DC consisting of:
Equotip® 3 impact device, impact body, support rings, cleaning brush, cable (4-pole), loading stick

Type	Part number	Application area	Impact energy	Indenter
C	353 00 500	Reduced impact energy. For surface-hardened components, coatings, thin or impact-sensitive parts (small indentation).	3 Nmm	Tungsten carbide 3 mm
D	353 00 100	Most widely used probe. For the majority of testing applications.	11 Nmm	Tungsten carbide 3 mm
DC	353 00 110	Short impact device. For applications in re-stricted spaces, e.g. in bores, cylinders or for measurements in assembled machines.	11 Nmm	Tungsten carbide 3 mm
DL	353 00 120	Slim measuring nose. For measurement under extreme space limitations or on the floor of grooves.	11 Nmm	Tungsten carbide 2.8 mm
E	353 00 400	Diamond indenter. For measurements in extreme hardness ranges (above 50 HRC / 650 HV). Tool steels with high carbide content.	11 Nmm	Polycrystalline diamond 3 mm
G	353 00 300	Increased impact energy. Solid components, e.g. heavy-duty casts and forged parts.	90 Nmm	Tungsten carbide 5 mm
S	353 00 200	Ceramic indenter. For measurements in extreme hardness ranges (above 50 HRC / 650 HV). Tool steels with a high carbide content.	11 Nmm	Ceramics 3 mm

equotip® 3

Equotip 3 Measuring Range

Fields of application			D/DC	DL	S	E	G	C
1 Steel and cast steel	Vickers	HV	81-955	80-950	101-964	84-1211		81-1012
	Brinell	HB	81-654	81-646	101-640	83-686	90-646	81-694
	Rockwell	HRB	38-100	37-100			48-100	
		HRC	20-68	21-68	22-70	20-72		20-70
		HRA			61-88	61-88		
	Shore	HS	30-99	31-97	28-104	29-103		30-102
	Rm N/mm²	σ1	275-2194	275-2297	340-2194	283-2195	305-2194	275-2194
		σ2	616-1480	614-1485	615-1480	616-1479	618-1478	615-1479
		σ3	449-847	449-849	450-846	448-849	450-847	450-846
2 Cold work tool steel	Vickers	HV	80-900	80-905	104-924	82-1009		98-942
	Rockwell C	HRC	21-67	21-67	22-68	23-70		20-67
3 Stainless steel	Vickers	HV	85-802		119-934	88-668		
	Brinell	HB	85-655		105-656	87-661		
	Rockwell	HRB	46-102		70-104	49-102		
		HRC	20-62		21-64	20-64		
4 Cast iron lamellar graphite GG	Brinell	HB	90-664				92-326	
	Vickers	HV	90-698					
	Rockwell	HRC	21-59					
5 Cast iron, nodular graphite GGG	Brinell	HB	95-686				127-364	
	Vickers	HV	96-724					
	Rockwell	HRC	21-60				19-37	
6 Cast aluminium alloys	Brinell	HB	19-164	20-187	20-184	23-176	19-168	21-167
	Vickers	HV	22-193	21-191	22-196	22-198		
	Rockwell	HRB	24-85				24-86	23-85
7 Copper/zinc-alloys (brass)	Brinell	HB	40-173					
	Rockwell	HRB	14-95					
8 CuAl/CuSn-alloys (bronze)	Brinell	HB	60-290					
9 Wrought copper alloys, low alloyed	Brinell	HB	45-315					

Test Piece Requirements

	Impact devices D, DC, DL, E, S	C	G
Preparation of the surface			
Roughness class ISO	N7	N5	N9
Max. roughness depth R_t	10 µm / 400 µinch	2.5 µm / 100 µinch	30 µm / 1200 µinch
Centre line average CLA, AA, R_a	2 µm / 80 µinch	0.4 µm / 16 µinch	7 µm / 275 µinch
Min. weight of samples			
of compact shape	5 kg / 11 lbs	1.5 kg / 3.3 lbs	15 kg / 33 lbs
on solid support	2 kg / 4.5 lbs	0.5 kg / 1.1 lbs	5 kg / 11 lbs
coupled on plate	0.05 kg / 0.2 lbs	0.02 kg / 0.045 lbs	0.5 kg / 1.1 lbs
Min. thickness of sample			
uncoupled	25 mm / 0.98 inch	15 mm / 0.59 inch	70 mm / 2.73 inch
coupled	3 mm / 0.12 inch	1 mm / 0.04 inch	10 mm / 0.4 inch
surface layer thickness	0.8 mm / 0.03 inch	0.2 mm / 0.008 inch	

	Impact devices D, DC, DL, E, S	C	G
Indentation size on test surface			
with 300 HV, 30 HRC			
diameter	0.54 mm / 0.021 inch	0.38 mm / 0.015 inch	1.03 mm / 0.04 inch
depth	24 µm / 960 µinch	12 µm / 480 µinch	53 µm / 2120 µinch
with 600 HV, 55 HRC			
diameter	0.45 mm / 0.017 inch	0.32 mm / 0.012 inch	0.9 mm / 0.035
depth	17 µm / 680 µinch	8 µm / 2560 µinch	41 µm / 1640 µinch
with 800 HV, 63 HRC			
diameter	0.35 mm / 0.013	0.30 mm / 0.011 inch	
depth	10 µm / 400 µinch	7 µm / 280 µinch	

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