



TECHNOLOGY
TQMitaca

I N T E G R A T E D S O L U T I O N S F O R M E A S U R I N G

Brake discs – Itageo 6



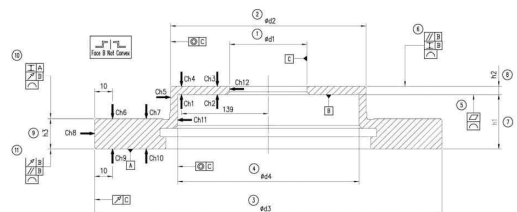
For the control of the brake discs TQM Itaca Technology has developed stations comprehensive of mechanics and software, called Itageo 6[®]. These stations, called [“Shop floor roundness machines”](#), measure the brake discs with the same logic of a laboratory roundness machine, obtaining comparable results with cycle time of about 10 seconds (measuring cycle). The management of more probes at the same time allows to have very complex control plans without influencing the cycle times. It's also provided the automatic management of the verification and of the zero setting of the master for the control of the stability of the gauge. The measuring cycle is completely automatic, also in the version with manual load/unload. The stations can be retooled, and they can be integrated with FRF control (Natural vibration frequencies), marking systems in order to guarantee the traceability at 100%, and the cracks detection with Eddy Current technology. Different configurations of the machinery are available for the insertion of the gauge in every type of production line. The stations can be served by anthropomorphic robot or supplied with a load/unload portal.

The diagram shows the characteristics which can be measured by the gauges Itageo 6[®]



Brake discs – Itageo 6

BRAKE DISK CONTROL	
Document type	Drawing nr.
SPECIFICATIONS	



Ref.	Description	Specification	Remarks
1	\varnothing d1 – Centring bore diameter	62 ^{+0,056} _{+0,01}	
2.1	\varnothing d2 – Outer hat diameter	152 ^{+0,3}	
2.2	\odot Concentricity d1 – d2	0,5 C	
3.1	\varnothing d3 – Outer rotor diameter	273 ^{+0,2}	
3.2	\curvearrowright Runout outer rotor border	0,5 C	
4.1	\varnothing d4 – Internal Hat Diameter	142 ^{+0,3}	
4.2	\odot Concentricity d1 – d4	0,5 C	
5.1	\square Flatness plane B	0,05	Not convex
5.2	\curvearrowleft Circular linearity flange lower plane B	0,03	Waviness required area at least \varnothing 139
6.1	\parallel Flange parallelism	0,1 B	
6.2	\perp Circular FTV	0,04 MAX	
6.3	\curvearrowleft Circular linearity flange upper plane	0,05	
7	h1 – Height between plane B and plane A	43 ^{+0,1} _{-0,15}	
8	h2 – Flange thickness	6 ^{+0,5} _B	
9	h3 – Friction surface thickness	26 ^{+0,1} _{-0,2}	
10.1	\perp Circular DTV of friction surface	0,005 MAX	Before coating
10.2	\perp Radial DTV of friction surface	0,05 MAX	Before coating
10.3	\curvearrowright Runout upper friction surface	0,025 B	Before coating - 10mm from outer border
10.4	\curvearrowleft Circular linearity upper friction surface	0,015	
11.1	\curvearrowright Runout lower friction surface	0,025 B	Before coating - 10mm from outer border
11.2	\parallel Parallelism plane A with plane B	0,1 B	Radial
11.3	\curvearrowleft Circular linearity lower friction surface	0,015	
- \curvearrowleft Circular linearity = \square Flatness on the same circumference (waviness). - DTV / FTV: Disk / Flange thickness variation during a complete rotation.			