

Apparatus for green sand quality control

# Compactability Tester

Molds made by today's molding machines have high compression strength exceeding 2kg/cm<sup>2</sup> (50fx50H TP), and hence certain countermeasures are necessary to prevent casting defects caused by gas formed by combustion of organic materials in shell mold cores and other mold parts. Compactability test is a useful tool for quality control of mulled sand with appropriate density and fluidity for the above purpose.

This is for measuring compactability of molding sand, consisting of an air pressure type tester and a sample holder. Compactability test is a quantitative replacement of a qualitative evaluation of molding sand by the feel of a palm when squeezing sand. Amount of moisture and clay in sand as well as oolitic content and degree of mulling can be evaluated by this test.

The test is simple to perform and useful for quick determination of sand quality in laboratory and on production floor.



## ■ Compactability Tester

Type	NC-CBT-1
Height	680mm
Floor area	330 x 230 mm <sup>2</sup>
Weight	40kg
Compression type	air compression
Nominal compression force	10kg
Read method	memory

## ■ Sample processor

Height	380mm
Floor area	210 x 210 mm
Sieve diameter	150 mm φ
Mesh size	6 mesh

[Attachment] Sample holder 1 piece  
 Tester base: 1 piece  
 Push rod: 1 piece

# Casting Quality Improvement Guide in Relation to Mold Properties

↑ increasing the property value. ↓ decreasing the property value.

defect type mold property	gas/blow	mis-run /coldshot	pin hole	dross /inclusion	displaced sand /scabbing	buckling	veining	hot tear	sand burning	penetration	rough surface	sand sticking	dropped sand /broken mold	shrinkage /expansion
permeability	↑	↑			↑					↓	↓			
strength	↓	↓		↑	↑	↓	↓	↓	↓	↑	↑	↓	↑	↑
hardness	↓	↓		↑	↑	↓	↓	↓	↓	↑	↑	↓	↑	↑
compactability	↓	↓	↓	↑	↑					↓	↓		↑	
density	↓	↓		↑	↑	↓	↓	↓	↓	↑	↑			
moisture	↓	↓	↓	↑	↑	↓		↓	↓	↓	↓	↓		↓
gas production	↓	↓								↑	↑			
grain size index	↓	↓	↑			↓		↓		↑	↓			
combustible	↓	↓	↓					↑	↑	↑	↑			
clay	↓	↓	↓	↑	↑		↑	↓	↓		↑	↑		
temperature			↓		↓	↓	↑				↓	↓	↓	
dry strength				↑	↑			↓	↓					↓
hot strength				↑	↑	↓			↓					
hot collapsibility				↑				↑						
jolt strength				↑	↑		↓	↓	↓				↑	↑
mulling time				↑	↑							↑	↑	↑
				↑ core hardness		↑ hot deformability	↑ hot deformability							
comment														
gate design		○	○								○			
minimize melt oxidation								○						
core collapsibility				○ ↓	○ ↓			○	↑ ○	○ ↓				
gate area				○	○			↓						
pour.temperature							↓			↓	↓			↓
	improving mulling method	higher pour.temperature /faster pour.rate	coarse sand /more new sand /check the material	careful pouring		faster pouring				sieve face sand/ remove block sand /coating	use wetting agent /increase separator /change separator	rigid flask /gas vent /machine adjust /wetting agent		

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