

# durcrete

durfill® casting compound  
for machine builders



TECHNOLOGY  
PARTNER  
DYCKERHOFF  
NANODUR®



## Advantages of hybrid- and sandwich structures

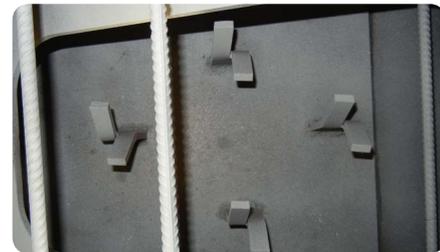
Steel weldments and cast iron machine frames become more rigid and vibration damping when filling them with solid materials. The natural frequency is raised, the sound emission is reduced and the thermal inertia is increased. This enables faster processing speed, high precision and reduced tool wear. Therewith in the construction and montage process, the metal shell is preserved. This is especially important for individual productions and subsequent changes which can be made short-term and smooth. By filling in base elements existing machines can be retrofitted and toughened.

The cement based casting compound durfill has a thermal expansion similar to steel. Thermal influences on the machine bed are therefore minimized.



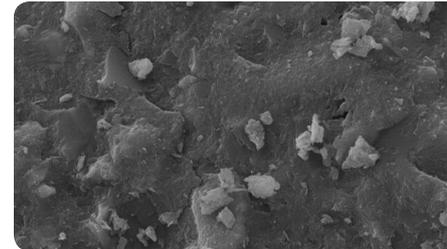
## Application

Durcrete developed the high-strength, self-compacting, pure mineral, non-combustible casting compound durfill. The ready-to-use powder is simply mixed with water and pumped into the steel structure. For this high performance concrete (HPC) durcrete uses a special cement produced by Dyckerhoff GmbH, which is based on the MIKRODUR® technology. The machine bed requires shear connectors on the inside which make a sand blasting of the surface unnecessary. The filling can be done both in the welding shop or at the milling plant. For cleaning is only water and a brush needed. 16 hours after filling, the component can already be transported. After about 14 days a subsequent precision machining and coating can be done.



# Material data

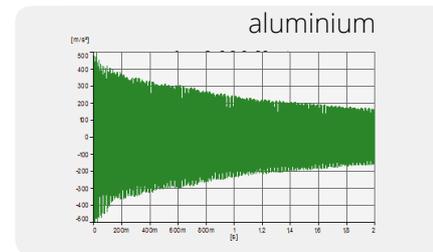
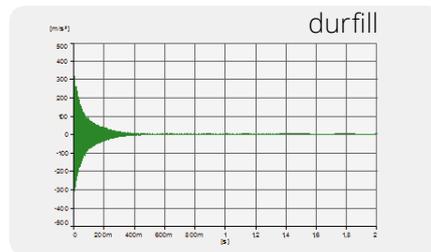
Attribute	durfill
Compressive strength $f_{cm}$	90 MPa
Flexible tensile strength $f_{ctm}$	10 MPa
Static modulus of elasticity $E_c$	32,000 MPa
Dyn. modulus of elasticity $E$	40,000 MPa
Poisson's ratio $\mu$	0.20 [-]
Density of the hardened concrete $\rho_c$	2,300 kg/m <sup>3</sup>
Specific thermal capacity $c_p$	1.0 J/gK
Thermal conductivity $\lambda$	2.7 W/mK
Thermal expansion $\alpha_T$	$12.4 \cdot 10^{-6}$ [1/K]



# Vibration damping

Material	Log. damping decrement $\Lambda$	Damping ratio $D$ [%]
Nanodur concrete E45	0.030	0.50
Nanodur concrete E80	0.021	0.33
durfill	0.035	0.56
Cast iron GG	0.003	0.05
Steel S235	0.001	0.02

Results depend on the specimen's geometry and the procedure of testing.



## - Our services -

Durcrete produces durfill in specialized factories using its own recipe and selling it directly and worldwide.

Durfill has a maximum grain size of 5 mm. The processing time / pot time is 60 minutes. 1 ton of durfill results in 440 liters of liquid casting compound. The material can be supplied both in silo trucks (up to 25 tons) or in paper bags. The minimum order quantity is 1 palette (35 bags with each 40 kg = 1.4 tons). We are able to recommend qualified subcontractors for the casting works. Furthermore, we have a selection of reliable machine companies, which will deliver finished machine-beds based on your drawings.

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Durfill is designed for the use in machinery construction. It doesn't fit the regulations of EN 206 / DIN 1045 or the German Code 'DAfStb Richtlinie zu Vergussbeton und Vergussmörtel'. Therefore it may not be used for construction purposes within Germany. No legal- and patent consulting. Please take note of the diverse patents for concrete applications in the field of mechanical engineering. The data provided are of a general nature and may therefore not be suitable for a specific application. As a result, tests, calculations, and experiments on a case-to-case basis are required prior to use of the products. The data provided in these information sheets do not constitute a guarantee of quality. Defects and claims for restitution and damages are excluded by virtue of this statement. Proprietary rights of third parties must be observed.