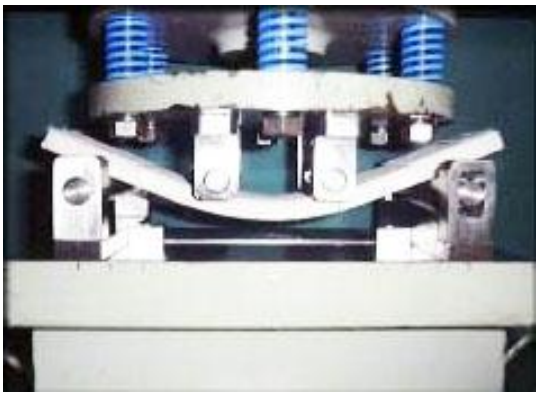
ULTRA HIGH PERFORMANCE CONCRETE KALMATRON®

Concrete mix design by Mr. Andrzej Sulima, Eng. Architect

"KALMATRON POLSKA" LLC

DESIGN OF ULTRA HIGH PERFORMANCE CONCRETE		
Materials	**Kg**	**m^3**
Cement III/A 42.5	300	0.0947
Sand 0/2	599	0.2287
Gravel 2/16	1334	0.5648
K^{100}®-ULTRA	5.68	0.0031
Water, W/C=0.48	145	0.14515
Total:	2384	1.036



Flexibility of concrete with K^{100}® -ULTRA

PROPERTIES OF ULTRA HIGH PERFORMANCE CONCRETE		
Symbol	Measurement	Description
R_{cs}	100 MPa (14,000 PSI)	Compressive strength
R_{fs}	9 MPa (1,260 PSI)	Flexural strength
R_{ts}	6 ÷8 MPa (1,250 PSI)	Tensile strength
S_{st}	22 x 10^3 MPa (3 x 10^6 PSI)	Shear strain
D_{st}	0.03 x 10^{-5} micro strain	Drying shrinkage
ρ	2200 [kg/m^3] (135 Lb/CF)	Density
α	9.0 x10^{-6} [m/m°C]	Coefficient of thermal expansion
C_p	0.75 kJ/kg K (0.18 Btu/lb_m °F)	Specific heat capacity
λ	1.73 [W/m °C]	Coefficient of thermal conductivity
Tτ	- 5 °C; 23 °F	Minimal temperature on a site
E	55 x 10^4 MPa	Young modulus
v	0.107967	Poisson ratio
W	1 x 10^{-19} cm/sec	Water permeability
P_w	W14	Water impermeability
F	350 cycles	Freeze-Thaw Resistance
R_w	1.3 mm (1.3 gram/cm^2)	Wearing
R_{ad}	>4 N/mm^2	Adhesion to concrete
R_e	15 ÷35 kΩ	Resistance EN 61340-4-1
CL^-	< 5% (5 mm)	Chlorides penetration
C_{dif}	1.5 ÷ 1.9 x 10^{-14}	Coefficient of ions diffusion

HP Concrete after abrasion test

Concrete with K^{100}® -ULTRA after abrasion test