Beaver Plastics

DYNAFLEX®

Compressible Protection Against Subgrade Uplift

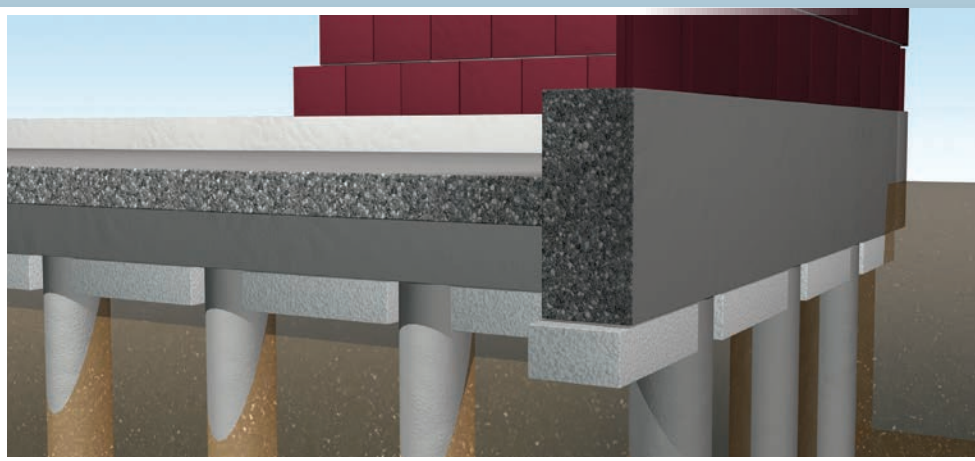
PRODUCT DESCRIPTION

Dynaflex Void Form is manufactured from inert closed cell expanded polystyrene (EPS), used for protecting concrete grade beams, pile caps and other concrete structures from subgrade uplift. Its function is compensate for frost lensing and swelling of underlying soils that might otherwise lift or fracture concrete structures. Dynaflex will not soften or collapse due to water absorption and, as a 'solid' void material, tends to resist soil movement into underlying spaces. Dynaflex has excellent resistance to freeze/thaw, is not biodegradable and has no pest nutrient value.

Available In Standard, Md-2 & Hd-4 Grades

DYNAFLEX Standard will protect many grade beams or other concrete loads up to 1.5 meters in height with minor deflection at time of pour. Beaver also produces two stronger versions, for use when higher concrete placing loads will cause high initial loss of original thickness and therefore less capacity for absorbing soil swell.

All polystyrene products are thermoplastics and consequently will creep under load, losing compressive resistance over time. Using our maximum load recommendations will result in less than 10% loss of thickness due to short term concrete placing loads.



Specifying the thickness of a void form product.

Common practice may be to double the amount of anticipated soil swell in specifying the thickness of a compressible void form under grade beams. However, the following calculation using a project's specific conditions will more accurately determine the required Dynaflex version and thickness.

1. Select the Dynaflex version to be used (Standard, Medium or High Density) determined by RECOMMENDED MAXIMUM CONCRETE PLACING LOADS (overleaf).
2. Establish the uplift resistance of the superstructure and foundation. This will be the total weight of the entire superstructure plus the mass and uplift friction resistance of the piles themselves over the area supported by the Dynaflex, expressed as the Structure's Uplift Resistance (SUR), in kPa.
3. Find the resulting maximum product deformation from either the chart or graph overleaf, using the SUR.
4. Divide maximum anticipated soil swell (mm) as determined by a soils investigation by the maximum deformation (%) to produce the needed thickness (mm) of that particular Dynaflex version.

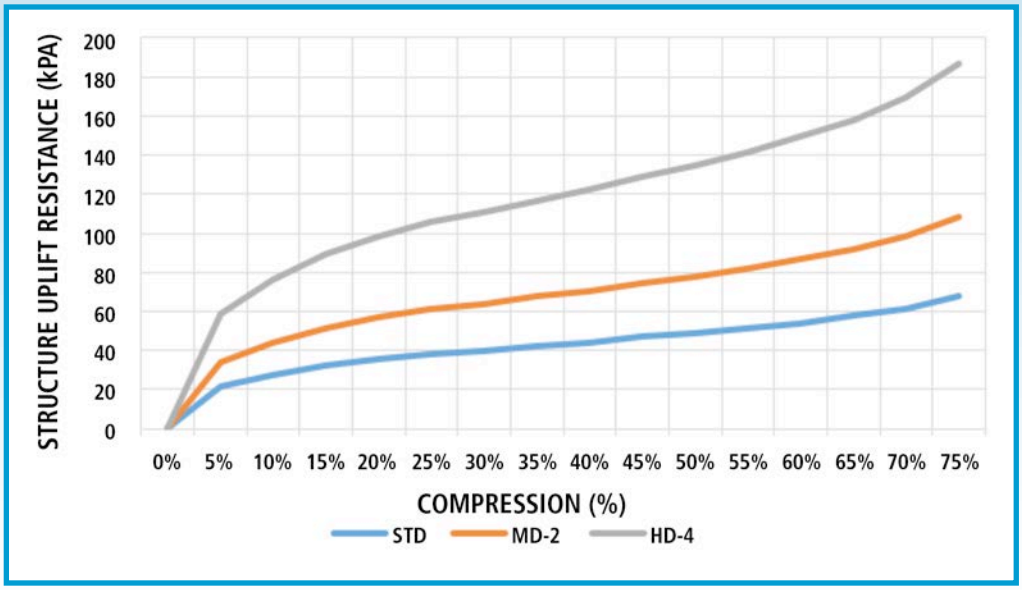
   E.g.: If the superstructure, slab, and piling mass and friction resistance produced an uplift resistance of 50 kPa, then Dynaflex Standard could be compressed up to 50% of its original thickness before exceeding the resistance of the structure to uplift. Dynaflex 100 mm thick would therefore absorb 50 mm of soil swell in this situation.

RECOMMENDED MAXIMUM CONCRETE PLACING LOADS:

DYNAFLEX High Density
Maximum 95 kPa
(4.0m concrete thickness)

DYNAFLEX Medium Density
Maximum 60 kPa
(2.5m concrete thickness)

DYNAFLEX Standard Density
Maximum 35 kPa
(1.5m concrete thickness)



DYNAFLEX LONG TERM UPWARD PRESSURE AT VARIOUS RATES OF COMPRESSION (kPA)

Version	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%
STD	21.4	27.6	32.5	35.9	38.3	40.2	42.4	44.3	46.9	49.1	51.3	54.2	57.6	61.5	67.9
MD-2	34.2	44.1	52.0	57.3	61.2	64.3	67.8	70.9	75.0	78.4	82.1	86.8	92.0	98.4	108.6
HD-4	58.8	75.8	89.4	98.6	105.3	110.5	116.6	121.9	128.9	134.8	141.2	149.1	157.9	169.1	186.6

UNDERSTANDING THE PERFORMANCE OF EPS IN GEOTECHNICAL APPLICATIONS

The physical strength of foam plastic products is most often expressed as compressive resistance in kPa or PSI at 10% deformation. However, standard compressive testing provides comparative results only; the test parameters do not relate to most geotechnical situations. Thermoplastic creep and relaxation are not accounted for in the standard test, but are the most important factors influencing the way foamed polystyrene compensates for expanding clay soils and frost uplift. Beaver Plastics has developed test methods that measure the response of polystyrene foam plastics to relatively slow-moving earth forces. These test results are used to calculate the suitability of void products for geotechnical applications.

Where a calculation shows that a "solid" void product is not appropriate for a given situation, Beaver's FROST CUSHION or DYNAVOID may be a better choice. Consult Beaver's Technical Services to review alternatives.

STANDARD SIZES/PACKAGING

Thickness	Width	Length	PCS/BDLE
100mm	200mm	2440mm	36
100mm	250mm	2440mm	24
100mm	300mm	2440mm	24
100mm	1220mm	2440mm	6
150mm	200mm	2440mm	24
150mm	250mm	2440mm	16
150mm	300mm	2440mm	16
150mm	1220mm	2440mm	4

Beaver Plastics

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