Loads

Hollow-ceiling anchor FHY

Permissible loads[1] for multiple use of redundant non-structural applications* in pre-stressed hollow-core concrete slabs of strength class ≥ C45/55.
For the design the complete current assessment ETA-21/0857 of 30.08.2022 has to be considered.

						Pre-stressed hollow-core concrete slabs		
						Permissible load (F_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads		
Type	Material/ surface	Screw material[2]	Bottom flange thickness d_b [mm]	Installation torque T_{inst} [Nm]	Required edge distance (with one edge) for max. load c_{cr} [mm]	F_{perm}[3] [kN]	s_{min}[4] [mm]	c_{min}[4] [mm]
FHY M6	gvz	8.8	25 - 29	8	100	2.4	70	100
	gvz	8.8	30 - 39	8	100	2.4	70	100
	gvz	8.8	≥ 40	8	100	2.4	70	100
FHY M8	gvz	4.6	25 - 29	10	100	3.3	70	100
	gvz	4.6	30 - 39	10	100	3.3	70	100
	gvz	4.6	≥ 40	10	105	3.3	70	100
FHY M10	gvz	4.6	25 - 29	20	100	3.8	80	100
	gvz	4.6	30 - 39	20	100	4.8	80	100
	gvz	4.6	≥ 40	20	120	4.8	80	100
FHY M12	gvz	4.6	25 - 29	30	150	4.3	80	150
	gvz	4.6	30 - 39	30	150	4.3	80	150
	gvz	4.6	≥ 40	30	150	4.8	80	150
FHY M6 R	R	≥ A4-70	25 - 29	15	100	2.4	70	100
	R	≥ A4-70	30 - 39	15	100	2.4	70	100
	R	≥ A4-70	≥ 40	15	100	2.4	70	100
FHY M8 R	R	≥ A4-70	25 - 29	20	100	3.3	70	100
	R	≥ A4-70	30 - 39	20	100	3.3	70	100
	R	≥ A4-70	≥ 40	20	105	3.3	70	100
FHY M10 R	R	≥ A4-70	25 - 29	40	100	3.8	80	100
	R	≥ A4-70	30 - 39	40	100	4.8	80	100
	R	≥ A4-70	≥ 40	40	120	4.8	80	100
FHY M12 R	R	≥ A4-70	25 - 29	50	150	4.3	80	150
	R	≥ A4-70	30 - 39	50	150	4.3	80	150
	R	≥ A4-70	≥ 40	50	150	4.8	80	150

* In addition to the load table above, the following must be considered for multiple fastening of non-structural redundant systems:
A multiple fixing (redundant system) according to EN 1992-4 and CEN/TR 17079 is defined by
- at least 3 fixing points (per attached element) with at least one anchor at each fixing point and a permissible load per fixing point of 1.4 kN
- or by at least 4 fixing points with at least one anchor each fixing point and a permissible load per fixing point of 2.1 kN
- Additionally, it has to be proven that the stiffness of the attached element shall be large enough to ensure that in case of excessive slip or failure of a fastener the load on this fastener or fixing point can be transferred to neighbouring fixing points without significantly violating the requirements on the attached element in the serviceability and ultimate limit state.

For further details see EN 1992-4 section 7.3 and CEN/TR 17079.

[1] The partial safety factors for material resistance as regulated in the ETA as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered.
[2] Further steel grades, versions and technical data see ETA.
[3] Maximum load for char. spacing and edge distances. Valid for tensile load, shear load and oblique load under any angle. In the case of shear loads with lever arm (bending) as well as reduced/minimum spacing or edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete technical permit.
[4] Minimum possible axial spacings resp. edge distance while reducing the permissible load.