

DIN EN ISO 12215-7:2021-03 (E)

Small craft - Hull construction and scantlings - Part 7: Determination of loads for multihulls and of their local scantlings using ISO 12215-5 (ISO 12215-7:2020)

Contents		Page
European foreword		4
Foreword		5
Introduction		6
1	Scope	7
2	Normative references	7
3	Terms and definitions	8
4	Symbols	10
5	Application of this document	12
5.1	Materials	12
5.2	Limitations	12
5.3	Overall procedure for the application of this document	13
6	Main dimensions, data and areas	13
6.1	Dimensions and data	13
6.1.1	General	13
6.1.2	Bottom deadrise of the hulls x and chine beam BC_x of planing multihulls	13
6.1.3	Wet deck bottom	14
6.1.4	Crossbeams	14
6.2	Areas	17
7	Dimensions and pressure for panels and stiffeners under local loads	20
7.1	General	20
7.2	Example of application on multihulls	20
7.2.1	Sections	20
7.2.2	Details on panel assessment and dimensions	22
7.2.3	The constant averaged pressure method	22
7.2.4	Other assessment and dimensioning methods	23
7.2.5	Panels acting as "natural" stiffeners	23
7.3	Other topics on panel or stiffener dimensions	23
8	Local pressure-adjusting factors	23
9	Local design pressures	30
9.1	General	30
9.2	Limits of areas	30
9.3	Tables defining the local design pressures for multihulls	30
9.4	Design pressure for trimaran floats $PTRF_x$	33
9.4.1	Pressure reduction factors	33
9.4.2	Pressure	33
9.5	Design pressure on watertight bulkheads and integral tanks	33
10	Further treatment of structural elements subject to local loads	33
11	Assessment of multihulls rudders, appendages and their wells	34

12.9	Global load case GLC 4: Longitudinal broaching/pitchpoling	40
12.9.1	General	40
12.9.2	Full method of analysis of the buoyancy load when the craft pitchpoles	41
12.10	Global load case GLC 5: Longitudinal force on one hull	42
12.10.1	General	42
12.10.2	Longitudinal force	42
12.11	Global load case GLC 6: Bending of crossbeams connecting hulls for motor catamarans	43
13	Structural arrangement for supporting global loads	44
14	Multihulls used as commercial craft and workboats	44
15	Information to be included in the owner's manual	44
15.1	General	44
15.2	Respect of maximum loaded displacement	44
15.3	Operational guidance	44
15.4	Information to take care of sandwich plating	44
15.5	Information required by Annex J of ISO 12215-5:2019 - for commercial craft and workboat	44
Annex A (informative) Application sheet of ISO 12215-7		45
Annex B (informative) "Established practice" recommendations for global loads assessment using FEM methods and reporting		47
Annex C (informative) "Established practice" details		49
Annex D (informative) Technical background and example of torsional moment analysis with differential deflection of crossbeams		57
Bibliography		64
12	Multihull global loads	34
12.1	General	34
12.2	Typical structural arrangements	34
12.3	Global load assessment	36
12.3.1	General	36
12.3.2	The simplified method	36
12.3.3	The enhanced method	37
12.4	Design stresses under global loads	38
12.5	Global load case GLC1: Diagonal load in quartering sea	38
12.6	Global load case GLC 2: Rig loads	39
12.7	Combination of diagonal load GLC 1 and rig load GLC 2 for sailing multihulls	39
12.8	Global load case GLC 3: Asymmetric broaching loads in sailing multihulls	39