WIDE RANGE OF PRODUCTS

PRESSED GRATINGS, STAIR TREADS AND GRP GRATINGS

STACO

GRATING TECHNOLOGY

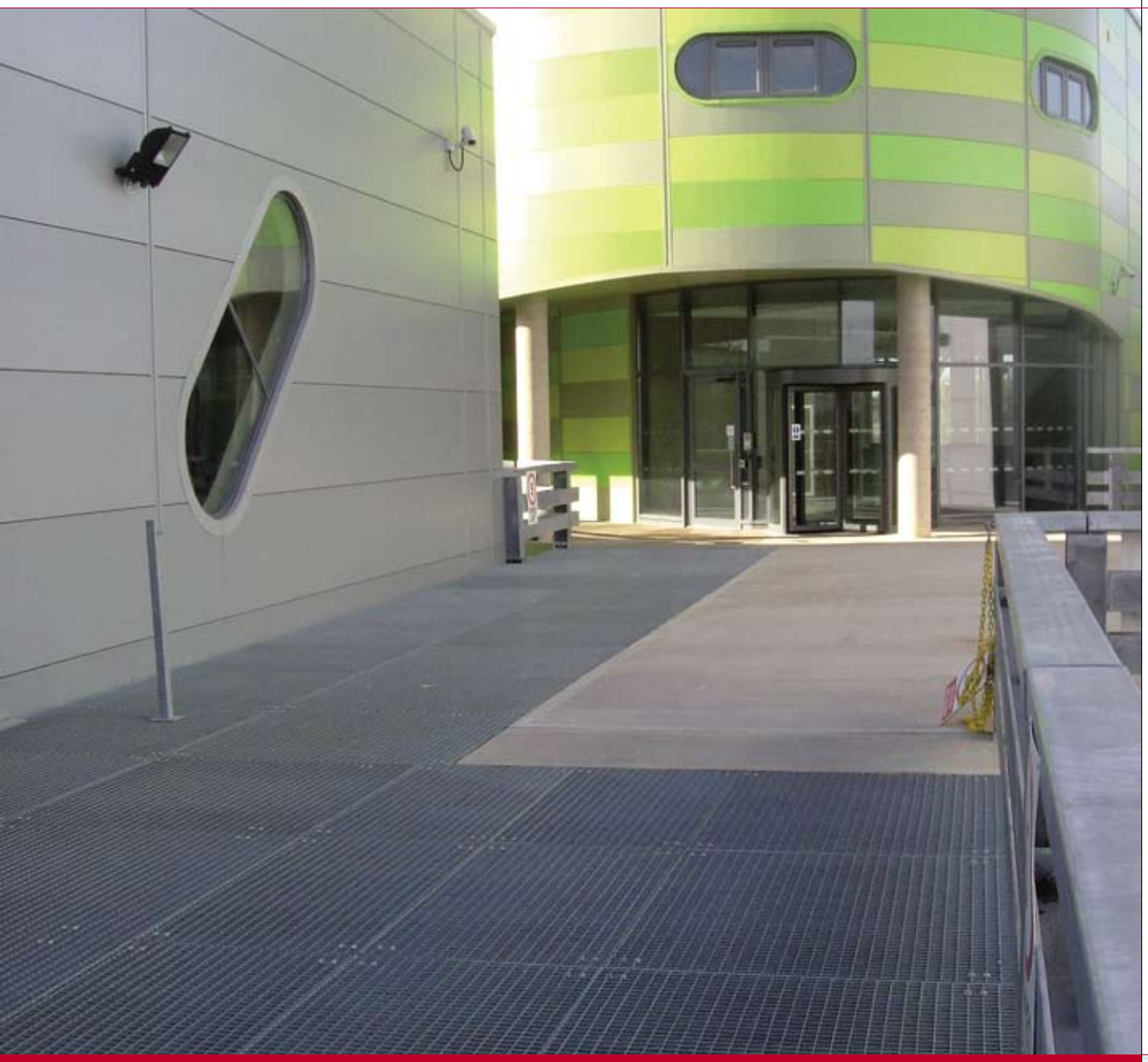
PERFECT IN FORM

STACO. STACO's manufacturing plants provide a complete range of high-quality gratings and treads. In steel, aluminium and stainless steel. STACO provides a solution for every application, from flooring and railings to cladding material. To ensure its products last as long as possible, STACO has its own galvanizing and powder-coating companies.

STACO is synonymous with an attractive price/quality ratio, innovative technology and outstanding service. Its vast range of products is ubiquitous in the non-residential sector, at garages and coachbuilders, in offshore companies, in shipbuilding, in civil engineering and in many other industries. Our gratings, steps and associated products also provide a genuine contribution to the visible architecture of countless buildings.

Nearly all our standard products can be supplied directly from stock. Although STACO's sites all use high-tech machinery, we also consider manual skill to be essential when it comes to manufacturing special custom products and constructional gratings under tight deadlines. Our experts are eager to help you find a suitable solution, giving advice on subjects like material strength, complex grating and flooring layouts and the creation of technical designs. In a nutshell, STACO is a dependable and client-focused partner.

THE POWER OF THE GROUP



A POWERFUL NETWORK

STACO is a ROTO company, a powerful network of companies specializing in expanded metal, steel and steel processing, grating technology and/or surface treatment. ROTO also represents a personal approach at STACO, this means that the client's requirements are key.

STACO

www.staco.eu

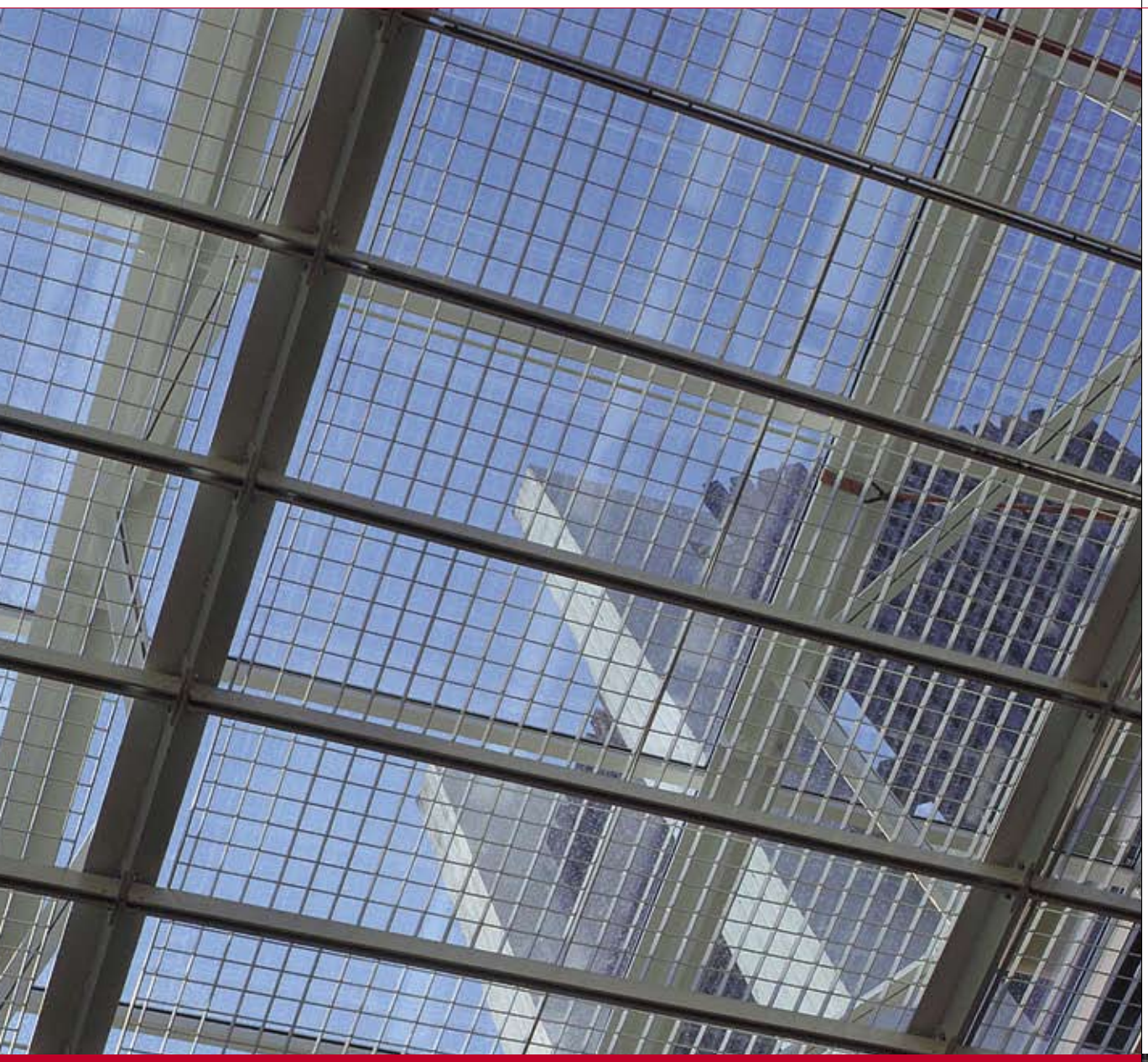
Part of ROTO www.rotogroep.nl

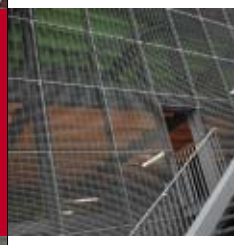
STACO has sites in: **Belgium, France, Germany, The Netherlands, Poland, The United Kingdom**
STACO POLSKA Spółka z o. o.: **PL-32-005 Niepołomice, ul. Fabryczna 8, T (+48) 12 281 35 05, info@staco.pl**

Pressed Gratings, Stair Treads and GRP Gratings

TABLE OF CONTENTS

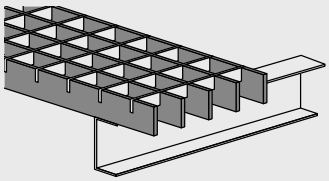
STACO provides a solution for every application. Many of these solutions are described in this brochure. Our website not only provides a great deal of additional information, but also includes current stock and interactive modules for strength and permeability analyses. The website also allows you to request or download our other brochures; "Welded Gratings and Stair Treads", "Perfo Planks and Stair Treads" and "Architectural Gratings". For more information go to **www.staco.pl**





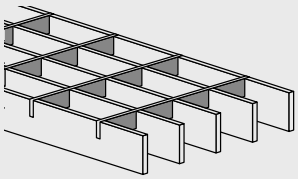
GRATINGS AND TREADS GLOSSARY

Bearing bar



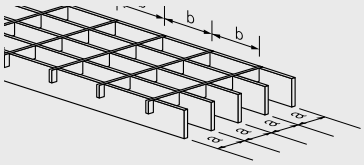
The bars that are required to take the load and should be supported at both ends. This is the first and/or underlined size. The maximal length of bearing bars is 2200 mm.

Cross bar



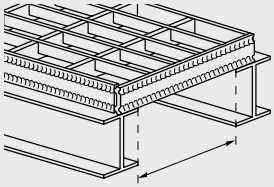
The cross bars are made of flat material. These are the bars that join the bearing bars. The maximal length of cross bars is 2800 mm.

Mesh size



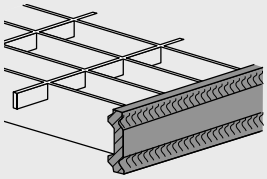
The c.t.c. mesh size is the distance between the bearing bars, followed by the distance between the cross bars.

Span



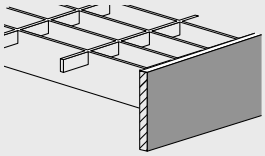
This is the clear width between the two supports. A grating can cover multiple supports.

Edges



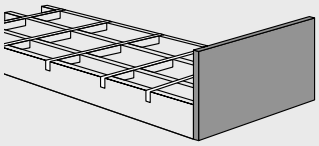
Edging is applied to the grating at the ends of the bearing bars and cross bars (i.e. right round).

Flush edge



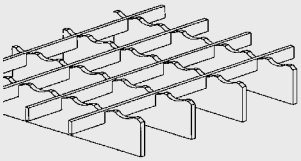
A strip welded to the grating. This strip projects below the grating.

Kicker plate



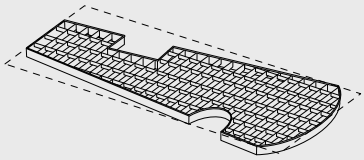
A strip welded to the grating. This strip projects above the grating.

Anti-slip



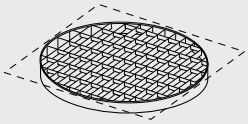
The anti-slip property is accentuated by using serrations. Both bearing bars and cross bars can be given serrated edges.

Recesses



The general term for all holes and cut-outs in the grating.

Gross grating surface area

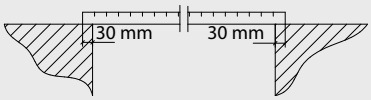


The total grating surface area before it is cut to size and any recesses are created. (see dotted line)

Net grating surface area

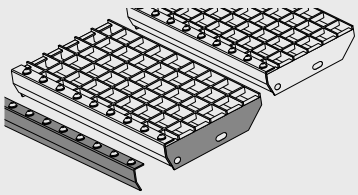
The net surface area remaining after cutting the grating to size, including recesses.

Minimum bearing bar overlap



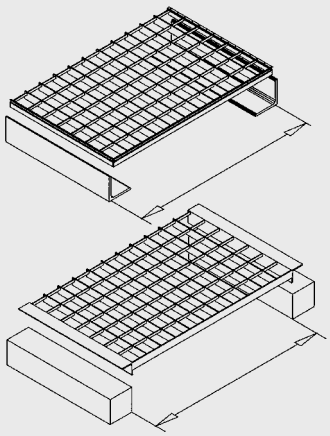
The minimum overlap of the grating = bearing bar height, but not less than 30 mm.

Toe edge nosing + Side plates



An anti-slip toe edge nosing has been fitted to the front of the steps. This creates a clear visual distinction between the separate steps, and also increases load capacity. The steps are fitted with welded side plates for mounting to the stair stringers, which are predrilled with the required mounting holes.

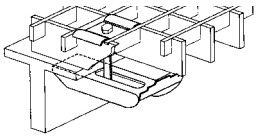
Hole size / Clear width



The net internal dimensions, between the mounting profiles, or the net recess dimensions. The grating size must be 4-8 mm smaller than the hole size.

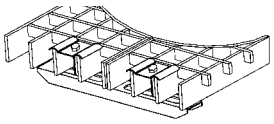
FASTENERS FOR GRATINGS AND TREADS

Fastening set



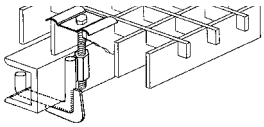
- upper clamp (saddle)
- tap bolt + nut M8
- lower bracket

Coupling set



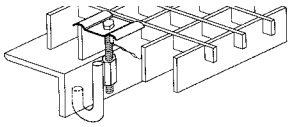
- 2 x upper clamps (saddle)
- 2 x tap bolt + nut M8
- 1 x solid lower bracket (coupling strip)

U-hook set



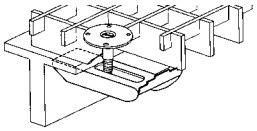
- upper clamp (saddle)
- U-hook, various sizes
- tap bolt M8

J-hook set



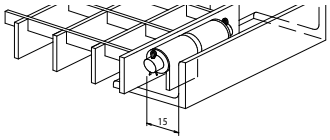
- J-hook set, upper clamp (saddle)
- J-hook, various sizes tap bolt M8

Fastening set with plate



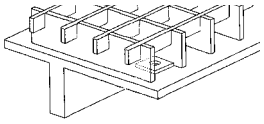
- plate
- bolt + nut M8
- lower bracket

Hinge



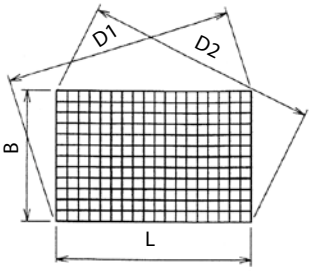
- 2 x bar 20 x 3
- 1 x bolt with ring
- 2 x gasket ring
- 2 x cotter pin

Welded plate



- welded material as in drawing

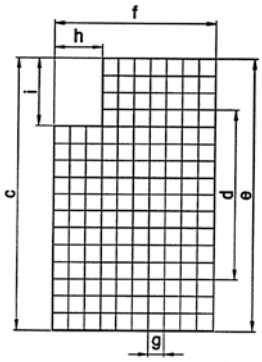
TOLERANCES — TYPES RR, RH, RK



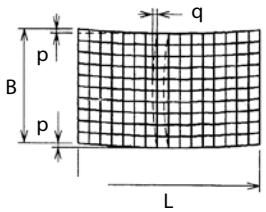
L = ± 0, - 4 mm.
B = ± 0, - 4 mm.
D1 - D2 = max. 0,01 x L

Length of grating (L) = length of bearing bars

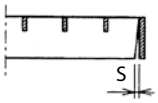
Width of grating (B) = length of cross bars



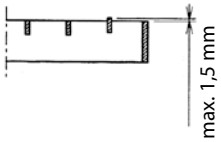
c; e; f = max. $^{+0}_{-4}$ mm
g = max. ± 1,5 mm
d = max. ± 4 mm
h; i = $^{+8}_{-0}$ mm



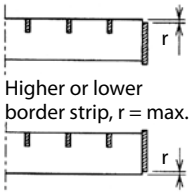
Grating deflection
p = max. 0,0025 x L
q = max. 0,0025 x B



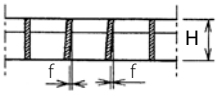
End of bearing bar
S = max. 0,1 x H



Height of protruding cross bar



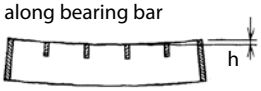
Higher or lower border strip, r = max. 1 mm



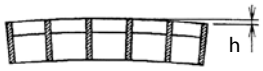
Oblique bearing bars
f = max. 0,1 x H
h = max. ± 3 mm

Concave or spheroid along bearing bar

h = max. 3 mm if L < 600
h=max. 1/200 x L if L > 600 max. 8 mm

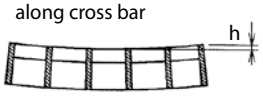


h = max. 3 mm if L < 600
h=max. 1/200 x L if L > 600 max. 8 mm

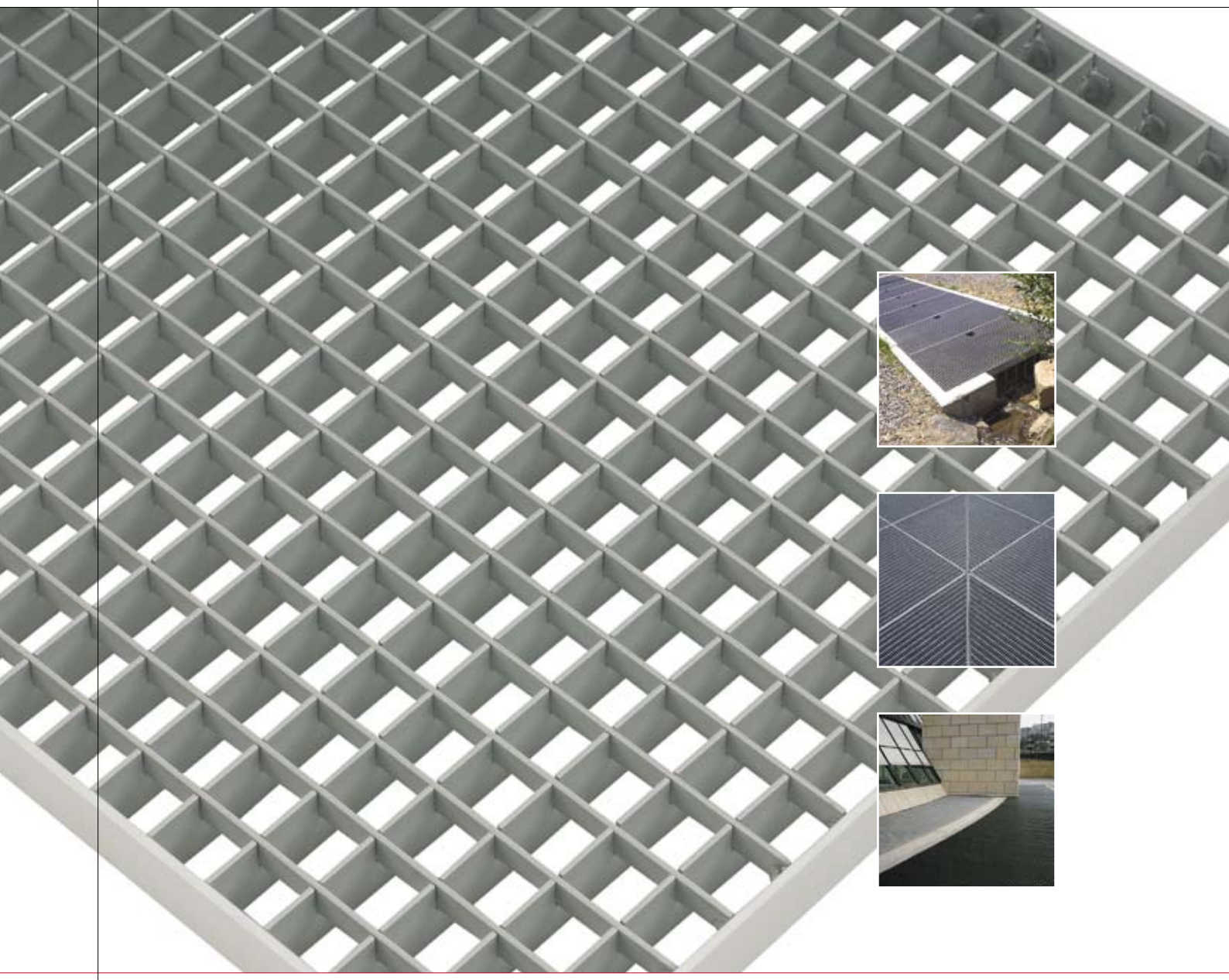


Concave or spheroid along cross bar

h = max. 3 mm if B < 600
h = max. 1/200 x L if B > 600 max. 8 mm



h = max. 3 mm if B < 600
h = max. 1/200 x L if B > 600 max. 8 mm



PRESSED GRATINGS TYPE RR

The pressed gratings are manufactured of solid strip steel bearing bars and cross bars to form a sturdy grid. Dimensioning is very precise thanks to the sophisticated, computerized production process in which the strip steel is unwound, straightened, punched and cut off extremely accurately. The cross bars are automatically pressed into the bearing bars and enclosed by an edge, which guarantees stable joints.

Minimum bearing bar dimension 20 x 2 mm. Maximum bearing bar dimension 70 x 3 mm.

PRESSED GRATINGS TYPE RR

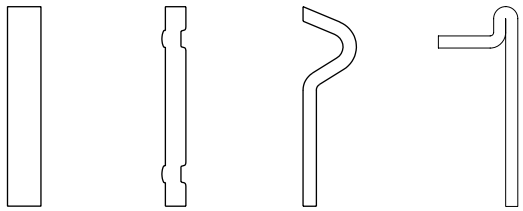
Bearing bars:
20 x 2 – 25 x 2 – 30 x 2 – 35 x 2
40 x 2 – 45 x 2 – 50 x 2 – 60 x 2 mm
20 x 3 – 25 x 3 – 30 x 3 – 35 x 3
40 x 3 – 45 x 3 – 50 x 3 – 60 x 3 – 70 x 3 mm
20 mm high on special request

Cross bars:
10 x 2 – 10 x 3 – 12 x 2 – 12 x 3 mm
(12 x 2 and 12 x 3 for versions with anti-slip cross bars)

Edge bar:
2 mm or 3 mm or upon request

Choice of the following materials:
- steel quality S235JR
- stainless-steel quality AISI 304 (1.4301)
- stainless-steel quality AISI 316L (1.4404)
- aluminium quality AlMg3-G22

Examples of edge bar



Flat edge | Butted edge | Profile edge | T-profile edge

Anti-slip versions for better grip:

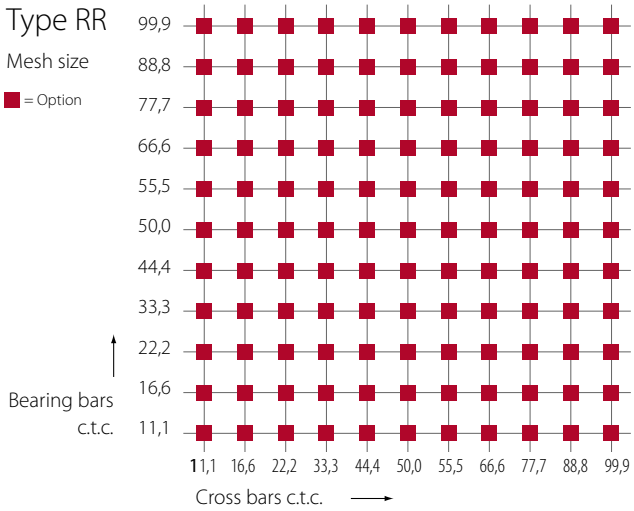
Type RR.AD
Serrated bearing bars.

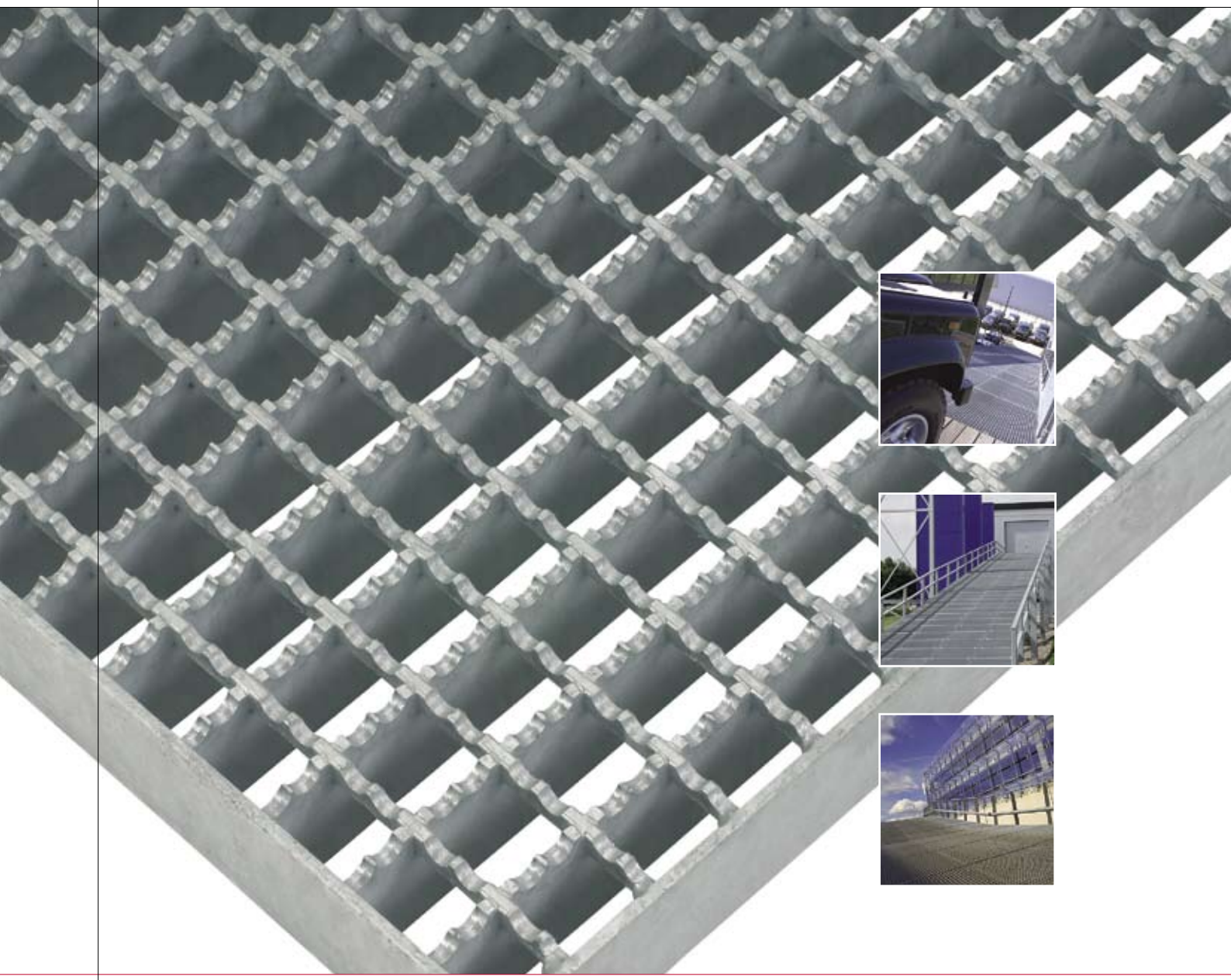
Type RR.AV
Serrated cross bars.

Type RR.ADV
Serrated bearing and cross bars.

For anti-slip classes, go to www.staco.pl
For stock gratings and treads, go to www.staco.pl

The table below illustrates the possible variations in mesh size.





HEAVY-DUTY GRATINGS TYPE RH

This type of grating is exceptionally well suited to extra heavy-duty loads. Heavy-duty material is used in production, seriously increasing load capacity. These gratings are fitted as standard with a flat edging, with the thickness of the edge equalling that of the bearing bars. Furthermore, special versions are available on request. For all types, anti-slip serrations may be applied to both the bearing bars and the cross bars (see photo).

Minimum bearing bar dimension 25 x 4 mm | Maximum bearing bar dimension 150 x 5 mm

HEAVY-DUTY GRATINGS TYPE RH

Bearing bars:
25 x 4 to 150 x 5 mm

Cross bars:
- material steel quality S235JR - 10 x 3 mm, 12 x 3 mm and 12 x 5 mm
- material stainless-steel quality AISI 304 (1.4301) and AISI 316L (1.4404) - 15 x 5 mm
- material aluminium quality AlMg3-G22 - 15 x 5 mm (applies to both 4 and 5 mm bearing bars). From 100 mm bearing bar height, a cross bar size of 20 x 5 mm applies to all materials types.

Edge bar:
Same as bearing bars in flat 4 and 5 mm.
Other options on request.

Choice of the following materials:
- steel quality S235JR
- stainless-steel quality AISI 304 (1.4301)
- stainless-steel quality AISI 316L (1.4404)
- aluminium quality AlMg3-G22

Anti-slip versions for better grip:

Type RH.AD
Serrated bearing bars.

Type RH.AV
Serrated cross bars.

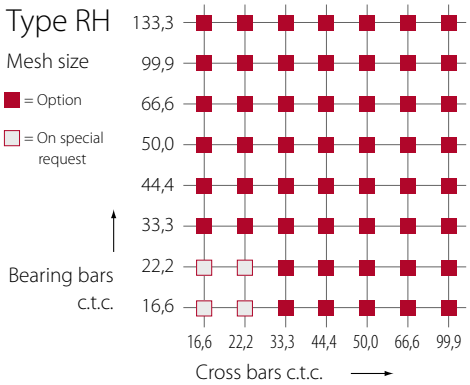
Type RH.ADV
Serrated bearing and cross bars.

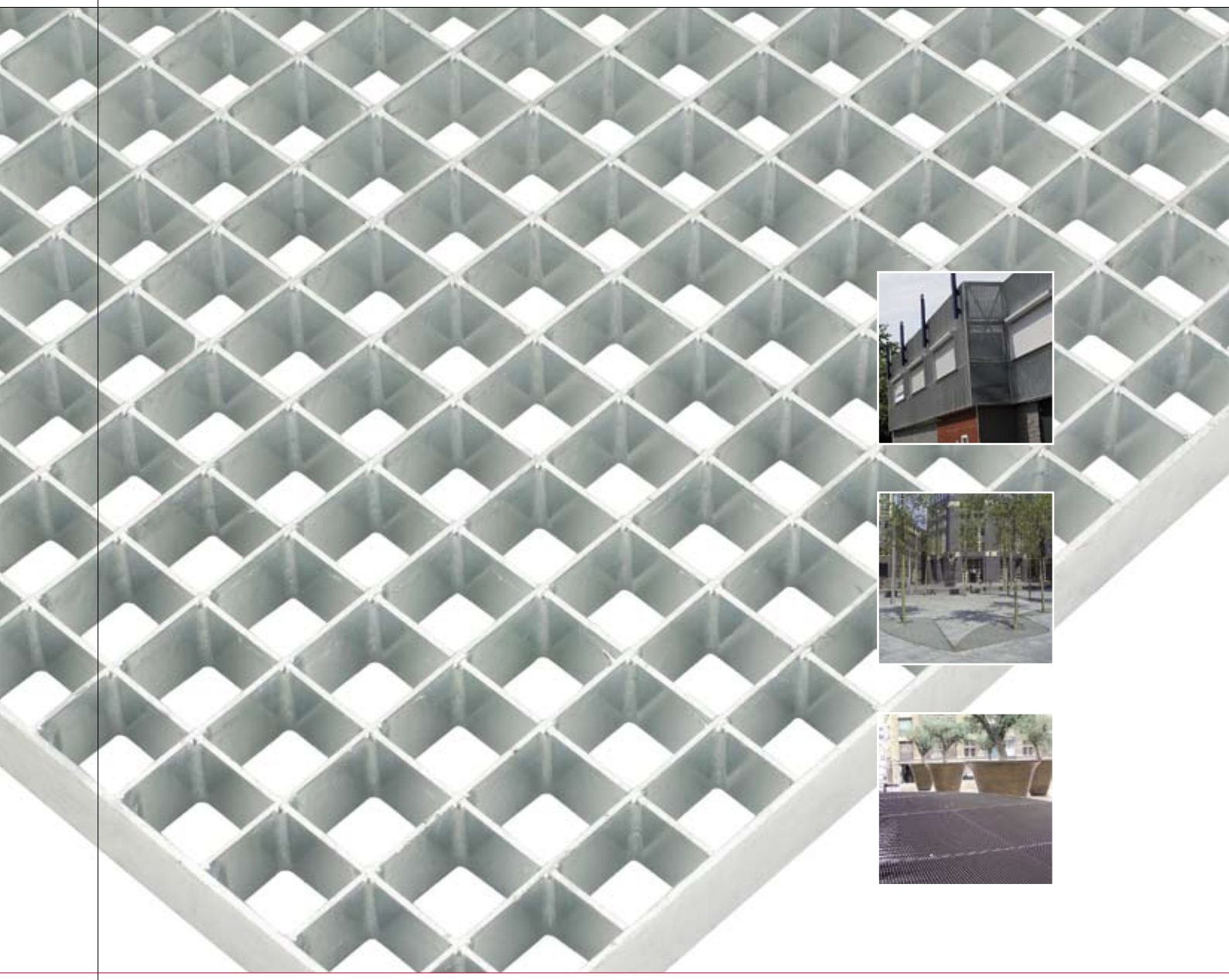
For anti-slip classes, please refer to www.staco.pl

Example of edge bar

Flat edge

The table below illustrates the possible variations in mesh size.





FULL GRATINGS TYPE RK

This type of grating is fitted with identical bars in both directions according to the so-called full grating principle. With their visual uniformity, they offer architects ample scope for exciting and imaginative concepts. They are frequently used as sun blinds and awnings. These gratings can be supplied powder-coated in all standard RAL colours according to the VISEM norms, to form an attractive and intriguing key element in the total concept.

FULL GRATINGS TYPE RK

Bearing bars:
30 x 2 to 50 x 2 mm
30 x 3 to 50 x 3 mm

Edge bar:
- Flat edge,
- Butted edge
Other options on request

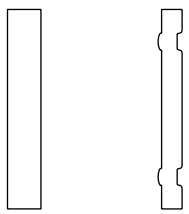
Choice of the following materials:
- steel quality S235JR
- stainless-steel quality AISI 304 (1.4301)
- stainless-steel quality AISI 316L (1.4404)
- aluminium quality AlMg3-G22

Anti-slip versions for better grip:

Type RK.AD
Serrated bearing bars.

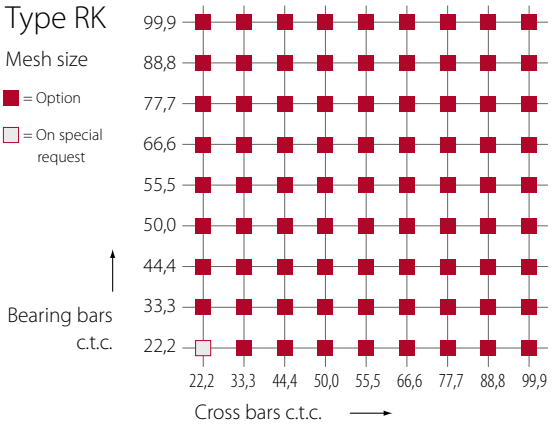
For anti-slip classes, go to www.staco.pl

Examples of edge bar



Flat edge Butted edge

The table below illustrates the possible variations in mesh size.



MATERIAL S235JR, R_D = 235 N/mm², GALVANIZED acc. to EN-ISO 1461

STACO — type RR

Mesh size 33,33 x 33,33 mm c.t.c.

Uniformly distributed load F_v [daN/m²]

bearing bar [mm]		span L [mm]																								grating weight [kg/m²]	paint surface [m²]
		200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500		
20 x 2	F_v	11390	5064	2848	1823	1266	855	573	402	293	220	170	134	107	87	72	60	50	43	37	32	28	24	21	19	16	2,14
	f_v	0,03	0,07	0,12	0,19	0,28	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
20 x 3	F_v	17090	7596	4273	2735	1899	1282	859	603	440	331	255	200	160	130	107	90	75	64	55	48	41	36	32	28	21,5	2,20
	f_v	0,03	0,07	0,12	0,19	0,28	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
25 x 2	F_v	17800	7912	4451	2848	1978	1453	1113	786	573	430	331	261	209	170	140	117	98	84	72	62	54	47	41	37	18,5	2,47
	f_v	0,02	0,06	0,10	0,16	0,22	0,30	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
25 x 3	F_v	26700	11870	6676	4273	2967	2180	1669	1178	859	645	497	391	313	255	210	175	147	125	107	93	81	71	62	55	25,5	2,53
	f_v	0,02	0,06	0,10	0,16	0,22	0,30	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
30 x 2	F_v	25640	11390	6409	4102	2848	2093	1602	1266	990	744	573	451	361	293	242	201	170	144	124	107	93	81	72	63	21,5	2,80
	f_v	0,02	0,05	0,08	0,13	0,19	0,25	0,33	0,42	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
30 x 3	F_v	38450	17090	9614	6153	4273	3139	2403	1899	1485	1115	859	676	541	440	362	302	255	216	186	160	139	122	107	95	29	2,86
	f_v	0,02	0,05	0,08	0,13	0,19	0,25	0,33	0,42	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
35 x 2	F_v	34890	15510	8723	5583	3877	2848	2181	1723	1396	1154	910	715	573	466	384	320	270	229	196	170	148	129	114	101	24	3,13
	f_v	0,02	0,04	0,07	0,11	0,16	0,22	0,28	0,36	0,44	0,54	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
35 x 3	F_v	52340	23260	13090	8375	5816	4273	3271	2585	2094	1730	1364	1073	859	699	576	480	404	344	295	255	221	194	171	151	33	3,18
	f_v	0,02	0,04	0,07	0,11	0,16	0,22	0,28	0,36	0,44	0,54	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
40 x 2	F_v	45580	20260	11390	7292	5064	3720	2848	2251	1823	1507	1266	1068	855	695	573	478	402	342	293	253	220	193	170	150	27	3,46
	f_v	0,02	0,03	0,06	0,10	0,14	0,19	0,25	0,31	0,39	0,47	0,56	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
40 x 3	F_v	68360	30380	17090	10940	7596	5581	4273	3376	2735	2260	1899	1602	1282	1043	859	716	603	513	440	380	331	289	255	225	37	3,51
	f_v	0,02	0,03	0,06	0,10	0,14	0,19	0,25	0,31	0,39	0,47	0,56	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
45 x 2	F_v	57680	25640	14420	9229	6409	4709	3605	2848	2307	1907	1602	1365	1177	990	816	680	573	487	418	361	314	275	242	214	30	3,78
	f_v	0,01	0,03	0,06	0,09	0,12	0,17	0,22	0,28	0,35	0,42	0,50	0,58	0,68	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
45 x 3	F_v	86520	38450	21630	13840	9614	7063	5408	4273	3461	2860	2403	2048	1766	1485	1223	1020	859	731	626	541	471	412	362	321	41	9,90
	f_v	0,01	0,03	0,06	0,09	0,12	0,17	0,22	0,28	0,35	0,42	0,50	0,58	0,68	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
50 x 2	F_v	71210	31650	17800	11390	7912	5813	4451	3517	2848	2354	1978	1685	1453	1266	1113	933	786	668	573	495	430	377	331	293	32,5	4,11
	f_v	0,01	0,03	0,05	0,08	0,11	0,15	0,20	0,25	0,31	0,38	0,45	0,53	0,61	0,70	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
50 x 3	F_v	106800	47470	26700	17090	11870	8720	6676	5275	4273	3531	2967	2528	2180	1899	1669	1399	1178	1002	859	742	645	565	497	440	45	4,17
	f_v	0,01	0,03	0,05	0,08	0,11	0,15	0,20	0,25	0,31	0,38	0,45	0,53	0,61	0,70	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
60 x 2	F_v	102500	45580	25640	16410	11390	8371	6409	5064	4102	3390	2848	2427	2093	1823	1602	1419	1266	1136	990	855	744	651	573	507	38	4,77
	f_v	0,01	0,02	0,04	0,06	0,09	0,13	0,17	0,21	0,26	0,31	0,37	0,44	0,51	0,58	0,66	0,75	0,84	0,94	1,00	1,05	1,10	1,15	1,20	1,25		
60 x 3	F_v	153800	68360	38450	24610	17090	12560	9614	7596	6153	5085	4273	3641	3139	2735	2403	2129	1899	1704	1485	1282	1115	976	859	760	53	4,89
	f_v	0,01	0,02	0,04	0,06	0,09	0,13	0,17	0,21	0,26	0,31	0,37	0,44	0,51	0,58	0,66	0,75	0,84	0,94	1,00	1,05	1,10	1,15	1,20	1,25		

Value of max. load with condition of carries capacity (γ_f = 1,5)

Value of max. load with condition of operational use (γ_f = 1,0)

Legend:

F_v = Load data for uniformly distributed load [daN/m²]

f_v = Deflection in [cm] in case of load F_v

F_p = Load data for point load [daN] on 200x200 mm surface

f_p = Deflection in [cm] in case of load F_p

Overlap = height of bearing bar, but not less than 30 mm

Go to www.staco.pl to calculate the missing parameters automatically using our calculation module.

Load multipliers tabel for meshes (c.t.c.) other than 33,33 x 33,33 mm

mesh size c.t.c. [mm]	multipl. factor (uniformly distributed load)	free passage for 2 mm bearing bars	free passage for 3 mm bearing bars
11,11 x 11,11	3,00	66,8%	59,5%
16,66 x 16,66	2,06	77,0%	71,8%
22,22 x 22,22	1,50	82,4%	78,4%
33,33 x 33,33	1,00	87,9%	85,2%
44,44 x 44,44	0,75	90,8%	88,7%
50,00 x 50,00	0,67	91,8%	89,9%
66,66 x 66,66	0,50	93,7%	92,3%

MATERIAL S235JR, R_D = 235 N/mm², GALVANIZED acc. to EN-ISO 1461

STACO — type RR

Mesh size 33,33 x 33,33 mm c.t.c.

Point load on 200 x 200 mm surface F_p [daN]

bearing bar [mm]		span L [mm]																								grating weight [kg/m²]	paint surface [m²]
		200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500		
20 x 2	F_p	706	353	235	177	141	118	91	72	58	48	40	34	29	25	22	20	18	16	14	13	12	11	10	9	16	2,14
	f_p	0,03	0,07	0,12	0,18	0,25	0,34	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
20 x 3	F_p	1059	530	353	265	212	177	137	108	87	72	60	51	44	38	34	30	26	24	21	19	18	16	15	14	21,5	2,20
	f_p	0,03	0,07	0,12	0,18	0,25	0,34	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
25 x 2	F_p	1094	547	365	274	219	182	156	137	112	92	77	66	57	49	43	38	34	31	28	25	23	21	19	18	18,5	2,47
	f_p	0,02	0,05	0,09	0,14	0,20	0,27	0,35	0,44	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
25 x 3	F_p	1641	821	547	410	328	274	234	205	168	139	116	99	85	74	65	57	51	46	41	38	34	31	29	26	25,5	2,53
	f_p	0,02	0,05	0,09	0,14	0,20	0,27	0,35	0,44	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
30 x 2	F_p	1562	781	521	391	312	260	223	195	174	156	133	113	97	84	74	66	59	52	47	43	39	36	33	30	21,5	2,80
	f_p	0,02	0,05	0,08	0,12	0,17	0,23	0,29	0,37	0,45	0,54	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
30 x 3	F_p	2343	1171	781	586	469	391	335	293	260	234	199	169	146	127	111	98	88	79	71	64	59	54	49	45	29	2,86
	f_p	0,02	0,05	0,08	0,12	0,17	0,23	0,29	0,37	0,45	0,54	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
35x2	F_p	2105	1053	702	526	421	351	301	263	234	211	191	175	153	133	117	103	92	83	74	67	61	56	52	48	24	3,13
	f_p	0,02	0,04	0,07	0,10	0,15	0,20	0,25	0,32	0,39	0,47	0,55	0,64	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
35 x 3	F_p	3158	1579	1053	789	632	526	451	395	351	316	287	263	229	199	175	155	138	124	112	101	92	84	77	71	33	3,18
	f_p	0,02	0,04	0,07	0,10	0,15	0,20	0,25	0,32	0,39	0,47	0,55	0,64	0,70	0,75	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
40 x 2	F_p	2725	1363	909	681	545	454	389	341	303	273	248	227	210	195	173	153	136	122	110	100	91	83	76	70	27	3,46
	f_p	0,02	0,03	0,06	0,09	0,13	0,17	0,22	0,28	0,34	0,41	0,48	0,56	0,65	0,74	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
40 x 3	F_p	4088	2044	1363	1022	818	681	584	511	454	409	372	341	315	292	259	229	204	183	165	150	136	125	115	106	37	3,51
	f_p	0,02	0,03	0,06	0,09	0,13	0,17	0,22	0,28	0,34	0,41	0,48	0,56	0,65	0,74	0,80	0,85	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
45 x 2	F_p	3419	1709	1140	855	684	570	488	427	380	342	311	285	263	244	228	214	192	172	155	141	128	117	108	99	30	3,78
	f_p	0,01	0,03	0,05	0,08	0,11	0,15	0,20	0,25	0,30	0,36	0,43	0,50	0,58	0,66	0,75	0,84	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
45 x 3	F_p	5128	2564	1709	1282	1026	855	733	641	570	513	466	427	395	366	342	321	288	259	233	211	193	176	162	149	41	9,90
	f_p	0,01	0,03	0,05	0,08	0,11	0,15	0,20	0,25	0,30	0,36	0,43	0,50	0,58	0,66	0,75	0,84	0,90	0,95	1,00	1,05	1,10	1,15	1,20	1,25		
50 x 2	F_p	4179	2089	1393	1045	836	696	597	522	464	418	380	348	321	299	279	261	246	232	211	191	174	159	146	135	32,5	4,11
	f_p	0,01	0,03	0,05	0,07	0,10	0,14	0,18	0,22	0,27	0,33	0,39	0,45	0,52	0,59	0,67	0,76	0,85	0,94	1,00	1,05	1,10	1,15	1,20	1,25		
50 x 3	F_p	6268	3134	2089	1567	1254	1045	895	784	696	627	570	522	482	448	418	392	369	348	317	287	261	239	220	202	45	4,17
	f_p	0,01	0,03	0,05	0,07	0,10	0,14	0,18	0,22	0,27	0,33	0,39	0,45	0,52	0,59	0,67	0,76	0,85	0,94	1,00	1,05	1,10	1,15	1,20	1,25		
60 x 2	F_p	5909	2954	1970	1477	1182	985	844	739	657	591	537	492	455	422	394	369	348	328	311	295	281	269	248	229	38	4,77
	f_p	0,01	0,02	0,04	0,06	0,08	0,11	0,15	0,18	0,23	0,27	0,32	0,38	0,43	0,50	0,56	0,63	0,71	0,79	0,87	0,96	1,05	1,14	1,20	1,25		
60 x 3	F_p	8863	4432	2954	2216	1773	1477	1266	1108	985	886	806	739	682	633	591	554	521	492	467	443	422	403	373	343	53	4,89
	f_p	0,01	0,02	0,04	0,06	0,08	0,11	0,15	0,18	0,23	0,27	0,32	0,38	0,43	0,50	0,56	0,63	0,71	0,79	0,87	0,96	1,05	1,14	1,20	1,25		

Value of max. load with condition of carries capacity (γ_f = 1,5)

Value of max. load with condition of operational use (γ_f = 1,0)

Legend:

F_v = Load data for uniformly distributed load [daN/m²]

f_v = Deflection in [cm] in case of load F_v

F_p = Load data for point load [daN] on 200x200 mm surface

f_p = Deflection in [cm] in case of load F_p

Overlap = height of bearing bar, but not less than 30 mm

Go to www.staco.pl to calculate the missing parameters automatically using our calculation module.

Load multipliers tabel for meshes (c.t.c.) other than 33,33 x 33,33 mm

mesh size c.t.c. [mm]	multipl. factor (point load on 200 x 200 mm surface) bearing bar height [mm] ––>							
	20	25	30	35	40	45	50	60
11,11 x 11,11	2,29	2,30	2,31	2,32	2,33	2,35	2,36	2,38
16,66 x 16,66	1,68	1,69	1,70	1,70	1,71	1,72	1,72	1,74
22,22 x 22,22	1,32	1,32	1,33	1,33	1,33	1,34	1,34	1,35
33,33 x 33,33	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
44,44 x 44,44	0,84	0,84	0,84	0,84	0,83	0,83	0,83	0,83
50,00 x 50,00	0,79	0,79	0,78	0,78	0,78	0,78	0,77	0,77
66,66 x 66,66	0,68	0,68	0,67	0,67	0,67	0,66	0,66	0,65

MATERIAL AISI 304 (1.4301), R_D = 185 N/mm²

STACO — type RR

Mesh size 33,33 x 33,33 mm c.t.c.

Uniformly distributed load F_v [daN/m²]

bearing bar [mm]		span L [mm] 200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	grating weight [kg/m²]	paint surface [m²]
20 x 2	F_v	8970	3987	2242	1435	997	732	561	402	293	220	170	134	107	87	72	60	50	43	37	15,2	2,14
	f_v	0,02	0,06	0,10	0,15	0,22	0,30	0,39	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
20 x 3	F_v	13450	5980	3364	2153	1495	1098	841	603	440	331	255	200	160	130	107	90	75	64	55	20,5	2,20
	f_v	0,02	0,06	0,10	0,15	0,22	0,30	0,39	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
25 x 2	F_v	14020	6229	3504	2242	1557	1144	876	692	561	430	331	261	209	170	140	117	98	84	72	17,8	2,47
	f_v	0,02	0,04	0,08	0,12	0,18	0,24	0,31	0,40	0,49	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
25 x 3	F_v	21020	9343	5256	3364	2336	1716	1314	1038	841	645	497	391	313	255	210	175	147	125	107	24,4	2,53
	f_v	0,02	0,04	0,08	0,12	0,18	0,24	0,31	0,40	0,49	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
30 x 2	F_v	20180	8970	5045	3229	2242	1647	1261	997	807	667	561	451	361	293	242	201	170	144	124	20,5	2,80
	f_v	0,02	0,04	0,07	0,10	0,15	0,20	0,26	0,33	0,41	0,49	0,59	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
30 x 3	F_v	30270	13450	7568	4844	3364	2471	1892	1495	1211	1001	841	676	541	440	362	302	255	216	186	28,4	2,86
	f_v	0,02	0,04	0,07	0,10	0,15	0,20	0,26	0,33	0,41	0,49	0,59	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
35 x 2	F_v	27470	12210	6867	4395	3052	2242	1717	1357	1099	908	763	650	561	466	384	320	270	229	196	23,1	3,13
	f_v	0,01	0,03	0,06	0,09	0,13	0,17	0,22	0,28	0,35	0,42	0,50	0,59	0,69	0,75	0,80	0,85	0,90	0,95	1,00		
35 x 3	F_v	41200	18310	10300	6593	4578	3364	2575	2035	1648	1362	1145	975	841	699	576	480	404	344	295	32,3	3,18
	f_v	0,01	0,03	0,06	0,09	0,13	0,17	0,22	0,28	0,35	0,42	0,50	0,59	0,69	0,75	0,80	0,85	0,90	0,95	1,00		
40 x 2	F_v	35880	15950	8970	5741	3987	2929	2242	1772	1435	1186	997	849	732	638	561	478	402	342	293	25,8	3,46
	f_v	0,01	0,03	0,05	0,08	0,11	0,15	0,20	0,25	0,31	0,37	0,44	0,52	0,60	0,69	0,78	0,85	0,90	0,95	1,00		
40 x 3	F_v	53820	23920	13450	8611	5980	4393	3364	2658	2153	1779	1495	1274	1098	957	841	716	603	513	440	36,3	3,51
	f_v	0,01	0,03	0,05	0,08	0,11	0,15	0,20	0,25	0,31	0,37	0,44	0,52	0,60	0,69	0,78	0,85	0,90	0,95	1,00		
50 x 2	F_v	56060	24920	14020	8970	6229	4576	3504	2768	2242	1853	1557	1327	1144	997	876	776	692	621	561	31	4,11
	f_v	0,01	0,02	0,04	0,06	0,09	0,12	0,16	0,20	0,24	0,30	0,35	0,41	0,48	0,55	0,63	0,71	0,79	0,88	0,98		
50 x 3	F_v	84090	37370	21020	13450	9343	6865	5256	4153	3364	2780	2336	1990	1716	1495	1314	1164	1038	932	841	44,2	4,17
	f_v	0,01	0,02	0,04	0,06	0,09	0,12	0,16	0,20	0,24	0,30	0,35	0,41	0,48	0,55	0,63	0,71	0,79	0,88	0,98		

STACO — type RR

Mesh size 33,33 x 33,33 mm c.t.c.

Point load on 200 x 200 mm surface F_p [daN]

bearing bar [mm]		span L [mm] 200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	grating weight [kg/m²]	paint surface [m²]
20 x 2	F_p	556	278	185	139	111	93	79	69	58	48	40	34	29	25	22	20	18	16	14	15,2	2,14
	f_p	0,02	0,05	0,09	0,14	0,20	0,27	0,35	0,44	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
20 x 3	F_p	834	417	278	209	167	139	119	104	87	72	60	51	44	38	34	30	26	24	21	20,5	2,20
	f_p	0,02	0,05	0,09	0,14	0,20	0,27	0,35	0,44	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
25 x 2	F_p	861	431	287	215	172	144	123	108	96	86	77	66	57	49	43	38	34	31	28	17,8	2,47
	f_p	0,02	0,04	0,07	0,11	0,16	0,22	0,28	0,35	0,43	0,51	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
25 x 3	F_p	1292	646	431	323	258	215	185	162	144	129	116	99	85	74	65	57	51	46	41	24,4	2,53
	f_p	0,02	0,04	0,07	0,11	0,16	0,22	0,28	0,35	0,43	0,51	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
30 x 2	F_p	1230	615	410	307	246	205	176	154	137	123	112	103	95	84	74	66	59	52	47	20,5	2,80
	f_p	0,02	0,04	0,06	0,09	0,13	0,18	0,23	0,29	0,36	0,43	0,51	0,59	0,68	0,75	0,80	0,85	0,90	0,95	1,00		
30 x 3	F_p	1844	922	615	461	369	307	264	231	205	184	168	154	142	127	111	98	88	79	71	28,4	2,86
	f_p	0,02	0,04	0,06	0,09	0,13	0,18	0,23	0,29	0,36	0,43	0,51	0,59	0,68	0,75	0,80	0,85	0,90	0,95	1,00		
35 x 2	F_p	1657	829	552	414	331	276	237	207	184	166	151	138	128	118	111	103	92	83	74	23,1	3,13
	f_p	0,01	0,03	0,05	0,08	0,11	0,15	0,20	0,25	0,30	0,37	0,43	0,51	0,58	0,67	0,76	0,85	0,90	0,95	1,00		
35 x 3	F_p	2486	1243	829	621	497	414	355	311	276	249	226	207	191	178	166	155	138	124	112	32,3	3,18
	f_p	0,01	0,03	0,05	0,08	0,11	0,15	0,20	0,25	0,30	0,37	0,43	0,51	0,58	0,67	0,76	0,85	0,90	0,95	1,00		
40 x 2	F_p	2146	1073	715	536	429	358	307	268	238	215	195	179	165	153	143	134	126	119	110	25,8	3,46
	f_p	0,01	0,03	0,05	0,07	0,10	0,13	0,17	0,22	0,27	0,32	0,38	0,44	0,51	0,58	0,66	0,75	0,83	0,93	1,00		
40 x 3	F_p	3218	1609	1073	805	644	536	460	402	358	322	293	268	248	230	215	201	189	179	165	36,3	3,51
	f_p	0,01	0,03	0,05	0,07	0,10	0,13	0,17	0,22	0,27	0,32	0,38	0,44	0,51	0,58	0,66	0,75	0,83	0,93	1,00		
50 x 2	F_p	3290	1645	1097	822	658	548	470	411	366	329	299	274	253	235	219	206	194	183	173	31	4,11
	f_p	0,01	0,02	0,04	0,06	0,08	0,11	0,14	0,17	0,21	0,26	0,30	0,35	0,41	0,47	0,53	0,60	0,67	0,74	0,82		
50 x 3	F_p	4934	2467	1645	1234	987	822	705	617	548	493	449	411	380	352	329	308	290	274	260	44,2	4,17
	f_p	0,01	0,02	0,04	0,06	0,08	0,11	0,14	0,17	0,21	0,26	0,30	0,35	0,41	0,47	0,53	0,60	0,67	0,74	0,82		

Value of max. load with condition of carries capacity (γ_f = 1,5)

Value of max. load with condition of operational use (γ_f = 1,0)

Legend on page 15

MATERIAL ALUMINIUM (AlMg3-G22), R_D = 130 N/mm²

STACO — type RR

Mesh size 33,33 x 33,33 mm c.t.c.

Uniformly distributed load F_v [daN/m²]

bearing bar [mm]		span L [mm] 200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	grating weight [kg/m²]	paint surface [m²]
25 x 2	F_v	9848	4377	2462	1549	897	565	378	266	194	146	112	88	71	57	47	39	33	28	24	6	2,47
	f_v	0,04	0,09	0,16	0,25	0,30	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
25 x 3	F_v	14770	6566	3693	2324	1345	847	567	398	291	218	168	132	106	86	71	59	50	42	36	8,2	2,53
	f_v	0,04	0,09	0,16	0,25	0,30	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
30 x 2	F_v	14180	6303	3545	2269	1549	976	654	459	335	251	194	152	122	99	82	68	57	49	42	6,9	2,80
	f_v	0,03	0,08	0,14	0,21	0,30	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
30 x 3	F_v	21270	9455	5318	3404	2324	1463	980	689	502	377	291	229	183	149	123	102	86	73	63	9,6	2,86
	f_v	0,03	0,08	0,14	0,21	0,30	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
35 x 2	F_v	19300	8579	4826	3088	2145	1549	1038	729	531	399	308	242	194	157	130	108	91	77	66	7,8	3,13
	f_v	0,03	0,07	0,12	0,18	0,26	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
35 x 3	F_v	28950	12870	7239	4633	3217	2324	1557	1093	797	599	461	363	291	236	195	162	137	116	100	10,9	3,18
	fv	0,03	0,07	0,12	0,18	0,26	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
40 x 2	F_v	25210	11210	6303	4034	2801	2058	1549	1088	793	596	459	361	289	235	194	161	136	116	99	8,7	3,46
	fv	0,03	0,06	0,10	0,16	0,23	0,31	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
40 x 3	F_v	37820	16810	9455	6051	4202	3087	2324	1632	1190	894	689	542	434	353	291	242	204	174	149	12,2	3,51
	f_v	0,03	0,06	0,10	0,16	0,23	0,31	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
45 x 2	F_v	31910	14180	7977	5105	3545	2605	1994	1549	1129	849	654	514	412	335	276	230	194	165	141	9,6	3,78
	f_v	0,02	0,05	0,09	0,14	0,20	0,28	0,36	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
45 x 3	F_v	47860	21270	11970	7658	5318	3907	2991	2324	1694	1273	980	771	617	502	414	345	291	247	212	13,5	3,84
	f_v	0,02	0,05	0,09	0,14	0,20	0,28	0,36	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
50 x 2	F_v	39390	17510	9848	6303	4377	3216	2462	1945	1549	1164	897	705	565	459	378	315	266	226	194	10,4	4,11
	f_v	0,02	0,05	0,08	0,13	0,18	0,25	0,33	0,41	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
50 x 3	F_v	59090	26260	14770	9455	6566	4824	3693	2918	2324	1746	1345	1058	847	689	567	473	398	339	291	14,9	4,17
	f_v	0,02	0,05	0,08	0,13	0,18	0,25	0,33	0,41	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		

STACO — type RR

Mesh size 33,33 x 33,33 mm c.t.c.

Point load on 200 x 200 mm surface F_p [daN]

bearing bar [mm]		span L [mm] 200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	grating weight [kg/m²]	paint surface [m²]
25 x 2	F_p	605	303	202	151	109	79	60	47	38	31	26	22	19	17	15	13	12	10	9	6	2,47
	f_p	0,04	0,09	0,15	0,24	0,30	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
25 x 3	F_p	908	454	303	227	163	118	90	71	57	47	39	33	29	25	22	19	17	16	14	8,2	2,53
	f_p	0,04	0,09	0,15	0,24	0,30	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
30 x 2	F_p	864	432	288	216	173	135	103	81	65	53	45	38	33	29	25	22	20	18	16	6,9	2,80
	f_p	0,03	0,07	0,13	0,20	0,28	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
30 x 3	F_p	1296	648	432	324	259	203	154	121	97	80	67	57	49	43	38	33	30	27	24	9,6	2,86
	f_p	0,03	0,07	0,13	0,20	0,28	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
35 x 2	F_p	1165	582	388	291	233	194	161	127	102	84	71	60	52	45	39	35	31	28	25	7,8	3,13
	f_p	0,03	0,06	0,11	0,17	0,24	0,32	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
35 x 3	F_p	1747	873	582	437	349	291	242	190	153	126	106	90	77	67	59	52	47	42	38	10,9	3,18
	f_p	0,03	0,06	0,11	0,17	0,24	0,32	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
40 x 2	F_p	1508	754	503	377	302	251	215	187	151	125	104	89	76	66	58	52	46	41	37	8,7	3,46
	f_p	0,03	0,06	0,10	0,15	0,21	0,28	0,36	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
40 x 3	F_p	2262	1131	754	565	452	377	323	281	227	187	157	133	115	100	88	77	69	62	56	12,2	3,51
	f_p	0,03	0,06	0,10	0,15	0,21	0,28	0,36	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
45 x 2	F_p	1891	946	630	473	378	315	270	236	210	176	147	125	108	94	82	73	65	58	53	9,6	3,78
	f_p	0,02	0,05	0,09	0,13	0,19	0,25	0,32	0,40	0,49	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
45 x 3	F_p	2837	1418	946	709	567	473	405	355	315	264	221	188	162	141	124	109	97	87	79	13,5	3,84
	f_p	0,02	0,05	0,09	0,13	0,19	0,25	0,32	0,40	0,49	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
50 x 2	F_p	2312	1156	771	578	462	385	330	289	257	231	200	170	146	127	112	99	88	79	71	10,4	4,11
	f_p	0,02	0,04	0,08	0,12	0,17	0,22	0,29	0,36	0,44	0,53	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		
50 x 3	F_p	3467	1734	1156	867	694	578	495	433	385	347	300	255	220	191	168	148	132	119	107	14,9	4,17
	f_p	0,02	0,04	0,08	0,12	0,17	0,22	0,29	0,36	0,44	0,53	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00		

Value of max. load with condition of carries capacity (γ_f = 1,5)

Value of max. load with condition of operational use (γ_f = 1,0)

Legend on page 15

MATERIAL S235JR, R_D = 235 N/mm², GALVANIZED acc. to EN-ISO 1461

STACO — typ RH

Mesh size 33,33 x 33,33 mm c.t.c.

Uniformly distributed load F_v [daN/m²]

bearing bar [mm]		span L [mm] 200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	grating weight [kg/m²]
25 x 4	F_v	35610	15820	8902	5697	3956	2907	2225	1571	1145	861	663	521	417	339	280	233	196	167	143	35
	f_v	0,02	0,06	0,10	0,16	0,22	0,30	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	
30 x 4	F_v	51270	22790	12820	8204	5697	4186	3205	2532	1979	1487	1145	901	721	587	483	403	339	289	247	41
	f_v	0,02	0,05	0,08	0,13	0,19	0,25	0,33	0,42	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	
30 x 5	F_v	64090	28480	16020	10250	7121	5232	4006	3165	2474	1859	1432	1126	902	733	604	504	424	361	309	56
	f_v	0,02	0,05	0,08	0,13	0,19	0,25	0,33	0,42	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	
40 x 4	F_v	91150	40510	22790	14580	10130	7441	5697	4501	3646	3013	2532	2136	1710	1390	1145	955	805	684	587	53
	fv	0,02	0,03	0,06	0,10	0,14	0,19	0,25	0,31	0,39	0,47	0,56	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	
40 x 5	F_v	113900	50640	28480	18230	12660	9301	7121	5627	4558	3767	3165	2669	2137	1738	1432	1194	1006	855	733	70
	f_v	0,02	0,03	0,06	0,10	0,14	0,19	0,25	0,31	0,39	0,47	0,56	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	
50 x 4	F_v	142400	63300	35610	22790	15820	11630	8902	7033	5697	4708	3956	3371	2907	2532	2225	1865	1571	1336	1145	63
	f_v	0,01	0,03	0,05	0,08	0,11	0,15	0,20	0,25	0,31	0,38	0,45	0,53	0,61	0,70	0,80	0,85	0,90	0,95	1,00	
50 x 5	F_v	178000	79120	44510	28480	19780	14530	11130	8792	7121	5885	4945	4214	3633	3165	2782	2331	1964	1670	1432	84
	f_v	0,01	0,03	0,05	0,08	0,11	0,15	0,20	0,25	0,31	0,38	0,45	0,53	0,61	0,70	0,80	0,85	0,90	0,95	1,00	
60 x 5	F_v	256400	113900	64090	41020	28480	20930	16020	12660	10250	8475	7121	6068	5232	4558	4006	3548	3165	2841	2474	98
	f_v	0,01	0,02	0,04	0,06	0,09	0,13	0,17	0,21	0,26	0,31	0,37	0,44	0,51	0,58	0,66	0,75	0,84	0,94	1,00	
70 x 5	F_v	348900	155100	87230	55830	38770	28480	21810	17230	13960	11540	9693	8259	7121	6203	5452	4830	4308	3866	3489	112
	f_v	0,01	0,02	0,04	0,06	0,08	0,11	0,14	0,18	0,22	0,27	0,32	0,38	0,44	0,50	0,57	0,64	0,72	0,80	0,89	
80 x 5	F_v	455800	202600	113900	72920	50640	37200	28480	22510	18230	15070	12660	10790	9301	8102	7121	6308	5627	5050	4558	125
	f_v	0,01	0,02	0,03	0,05	0,07	0,10	0,12	0,16	0,19	0,24	0,28	0,33	0,38	0,44	0,50	0,56	0,63	0,70	0,78	
90 x 5	F_v	576800	256400	144200	92290	64090	47090	36050	28480	23070	19070	16020	13650	11770	10250	9013	7984	7121	6391	5768	139
	f_v	0,01	0,02	0,03	0,04	0,06	0,08	0,11	0,14	0,17	0,21	0,25	0,29	0,34	0,39	0,44	0,50	0,56	0,62	0,69	
100 x 5	F_v	712100	316500	178000	113900	79120	58130	44510	35170	28480	23540	19780	16850	14530	12660	11130	9856	8792	7891	7121	163
	f_v	0,01	0,01	0,02	0,04	0,06	0,08	0,10	0,13	0,16	0,19	0,22	0,26	0,30	0,35	0,40	0,45	0,50	0,56	0,62	
110 x 5	F_v	861700	383000	215400	137900	95740	70340	53850	42550	34470	28480	23940	20390	17590	15320	13460	11930	10640	9548	8617	177
	f_v	0,01	0,02	0,03	0,05	0,07	0,09	0,12	0,15	0,19	0,23	0,27	0,32	0,37	0,42	0,48	0,54	0,61	0,68	0,75	
120 x 5	F_v	1025000	455800	256400	164100	113900	83710	64090	50640	41020	33900	28480	24270	20930	18230	16020	14190	12660	11360	10250	191
	f_v	0,01	0,01	0,02	0,03	0,05	0,06	0,08	0,10	0,13	0,16	0,19	0,22	0,25	0,29	0,33	0,37	0,42	0,47	0,52	
130 x 5	F_v	1203000	534900	300900	192600	133700	98240	75220	59430	48140	39780	33430	28480	24560	21400	18800	16660	14860	13340	12030	205
	f_v	0,00	0,01	0,02	0,03	0,04	0,06	0,08	0,10	0,12	0,14	0,17	0,20	0,23	0,27	0,31	0,35	0,39	0,43	0,48	
140 x 5	F_v	1396000	620300	348900	223300	155100	113900	87230	68930	55830	46140	38770	33040	28480	24810	21810	19320	17230	15470	13960	218
	f_v	0,00	0,01	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13	0,16	0,19	0,22	0,25	0,28	0,32	0,36	0,40	0,44	
150 x 5	F_v	1602000	712100	400600	256400	178000	130800	100100	79120	64090	52970	44510	37920	32700	28480	25040	22180	19780	17750	16020	232
	f_v	0,00	0,01	0,02	0,03	0,04	0,05	0,07	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,27	0,30	0,34	0,37	0,41	

Value of max. load with condition of carries capacity (γ_f = 1,5)

Value of max. load with condition of operational use (γ_f = 1,0)

Legend:

F_v = Load data for uniformly distributed load [daN/m²]

f_v = Deflection in [cm] in case of load F_v

F_p = Load data for point load [daN] on 200x200 mm surface

f_p = Deflection in [cm] in case of load F_p

Overlap = height of bearing bar, but not less than 30 mm

Go to www.staco.pl to calculate the missing parameters automatically using our calculation module.

Load multipliers tabel for meshes (c.t.c.) other than 33,33 x 33,33 mm

mesh size c.t.c. [mm]	multipl. factor (uniformly distributed load)	free passage for 4 mm bearing bars	free passage for 5 mm bearing bars
16,66 x 16,66	2,06	61,4%	48,0%
22,22 x 22,22	1,50	66,4%	59,1%
33,33 x 33,33	1,00	76,6%	71,2%
44,44 x 44,44	0,75	82,0%	77,8%
50,00 x 50,00	0,67	83,8%	80,0%
66,66 x 66,66	0,50	87,6%	84,6%

MATERIAL S235JR, R_D = 235 N/mm², GALVANIZED acc. to EN-ISO 1461

STACO — typ RH

Mesh size 33,33 x 33,33 mm c.t.c.

Point load on 200 x 200 mm surface F_p [daN]

bearing bar [mm]		span L [mm]																			grating weight [kg/m²]
		200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	
25 x 4	F_p	2188	1094	729	547	438	365	313	274	224	185	155	132	113	99	87	77	68	61	55	35
	f_p	0,02	0,05	0,09	0,14	0,20	0,27	0,35	0,44	0,50	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	
30 x 4	F_p	3124	1562	1041	781	625	521	446	391	347	312	265	226	194	169	148	131	117	105	95	41
	f_p	0,02	0,05	0,08	0,12	0,17	0,23	0,29	0,37	0,45	0,54	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	
30 x 5	F_p	3905	1952	1302	976	781	651	558	488	434	391	332	282	243	211	185	164	146	131	118	56
	f_p	0,02	0,05	0,08	0,12	0,17	0,23	0,29	0,37	0,45	0,54	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00	
40 x 4	F_p	5451	2725	1817	1363	1090	909	779	681	606	545	496	454	419	389	345	305	272	244	220	53
	f_p	0,02	0,03	0,06	0,09	0,13	0,17	0,22	0,28	0,34	0,41	0,48	0,56	0,65	0,74	0,80	0,85	0,90	0,95	1,00	
40 x 5	F_p	6814	3407	2271	1703	1363	1136	973	852	757	681	619	568	524	487	431	382	340	305	275	70
	f_p	0,02	0,03	0,06	0,09	0,13	0,17	0,22	0,28	0,34	0,41	0,48	0,56	0,65	0,74	0,80	0,85	0,90	0,95	1,00	
50 x 4	F_p	8357	4179	2786	2089	1671	1393	1194	1045	929	836	760	696	643	597	557	522	492	464	422	63
	f_p	0,01	0,03	0,05	0,07	0,10	0,14	0,18	0,22	0,27	0,33	0,39	0,45	0,52	0,59	0,67	0,76	0,85	0,94	1,00	
50 x 5	F_p	10450	5223	3482	2612	2089	1741	1492	1306	1161	1045	950	871	804	746	696	653	615	580	528	84
	f_p	0,01	0,03	0,05	0,07	0,10	0,14	0,18	0,22	0,27	0,33	0,39	0,45	0,52	0,59	0,67	0,76	0,85	0,94	1,00	
60 x 5	F_p	14770	7386	4924	3693	2954	2462	2110	1847	1641	1477	1343	1231	1136	1055	985	923	869	821	778	98
	f_p	0,01	0,02	0,04	0,06	0,08	0,11	0,15	0,18	0,23	0,27	0,32	0,38	0,43	0,50	0,56	0,63	0,71	0,79	0,87	
70 x 5	F_p	19720	9858	6572	4929	3943	3286	2816	2464	2191	1972	1792	1643	1517	1408	1314	1232	1160	1095	1038	112
	f_p	0,01	0,02	0,03	0,05	0,07	0,10	0,13	0,16	0,19	0,23	0,28	0,32	0,37	0,42	0,48	0,54	0,61	0,67	0,74	
80 x 5	F_p	25240	12620	8413	6310	5048	4206	3606	3155	2804	2524	2294	2103	1941	1803	1683	1577	1485	1402	1328	125
	f_p	0,01	0,02	0,03	0,05	0,06	0,09	0,11	0,14	0,17	0,20	0,24	0,28	0,32	0,37	0,42	0,47	0,53	0,59	0,65	
90 x 5	F_p	31330	15670	10440	7833	6267	5222	4476	3917	3482	3133	2849	2611	2410	2238	2089	1958	1843	1741	1649	139
	f_p	0,01	0,02	0,03	0,04	0,06	0,08	0,10	0,12	0,15	0,18	0,21	0,25	0,29	0,33	0,37	0,42	0,47	0,52	0,58	
100x5	F_p	37880	18940	12630	9471	7577	6314	5412	4736	4209	3788	3444	3157	2914	2706	2526	2368	2229	2105	1994	163
	f_p	0,01	0,01	0,02	0,04	0,05	0,07	0,09	0,11	0,14	0,16	0,19	0,23	0,26	0,30	0,34	0,38	0,42	0,47	0,52	
110 x 5	F_p	44870	22440	14960	11220	8975	7479	6411	5609	4986	4487	4079	3739	3452	3205	2992	2805	2640	2493	2362	177
	f_p	0,01	0,01	0,02	0,03	0,05	0,06	0,08	0,10	0,12	0,15	0,18	0,20	0,24	0,27	0,31	0,34	0,39	0,43	0,47	
120x5	F_p	52250	26130	17420	13060	10450	8709	7465	6532	5806	5225	4750	4354	4019	3732	3484	3266	3074	2903	2750	191
	f_p	0,01	0,01	0,02	0,03	0,04	0,06	0,07	0,09	0,11	0,14	0,16	0,19	0,22	0,25	0,28	0,32	0,35	0,39	0,43	
130 x 5	F_p	59970	29990	19990	14990	11990	9996	8568	7497	6664	5997	5452	4998	4613	4284	3998	3748	3528	3332	3157	205
	f_p	0,00	0,01	0,02	0,03	0,04	0,05	0,07	0,09	0,10	0,13	0,15	0,17	0,20	0,23	0,26	0,29	0,33	0,36	0,40	
140 x 5	F_p	67990	34000	22660	17000	13600	11330	9713	8499	7554	6799	6181	5666	5230	4856	4533	4249	3999	3777	3578	218
	f_p	0,00	0,01	0,02	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,16	0,19	0,21	0,24	0,27	0,30	0,34	0,37	
150 x 5	F_p	76250	38130	25420	19060	15250	12710	10890	9532	8472	7625	6932	6354	5866	5447	5083	4766	4485	4236	4013	232
	f_p	0,00	0,01	0,02	0,02	0,03	0,05	0,06	0,07	0,09	0,11	0,13	0,15	0,17	0,20	0,22	0,25	0,28	0,31	0,35	

Value of max. load with condition of carries capacity (γ_f = 1,5)

Value of max. load with condition of operational use (γ_f = 1,0)

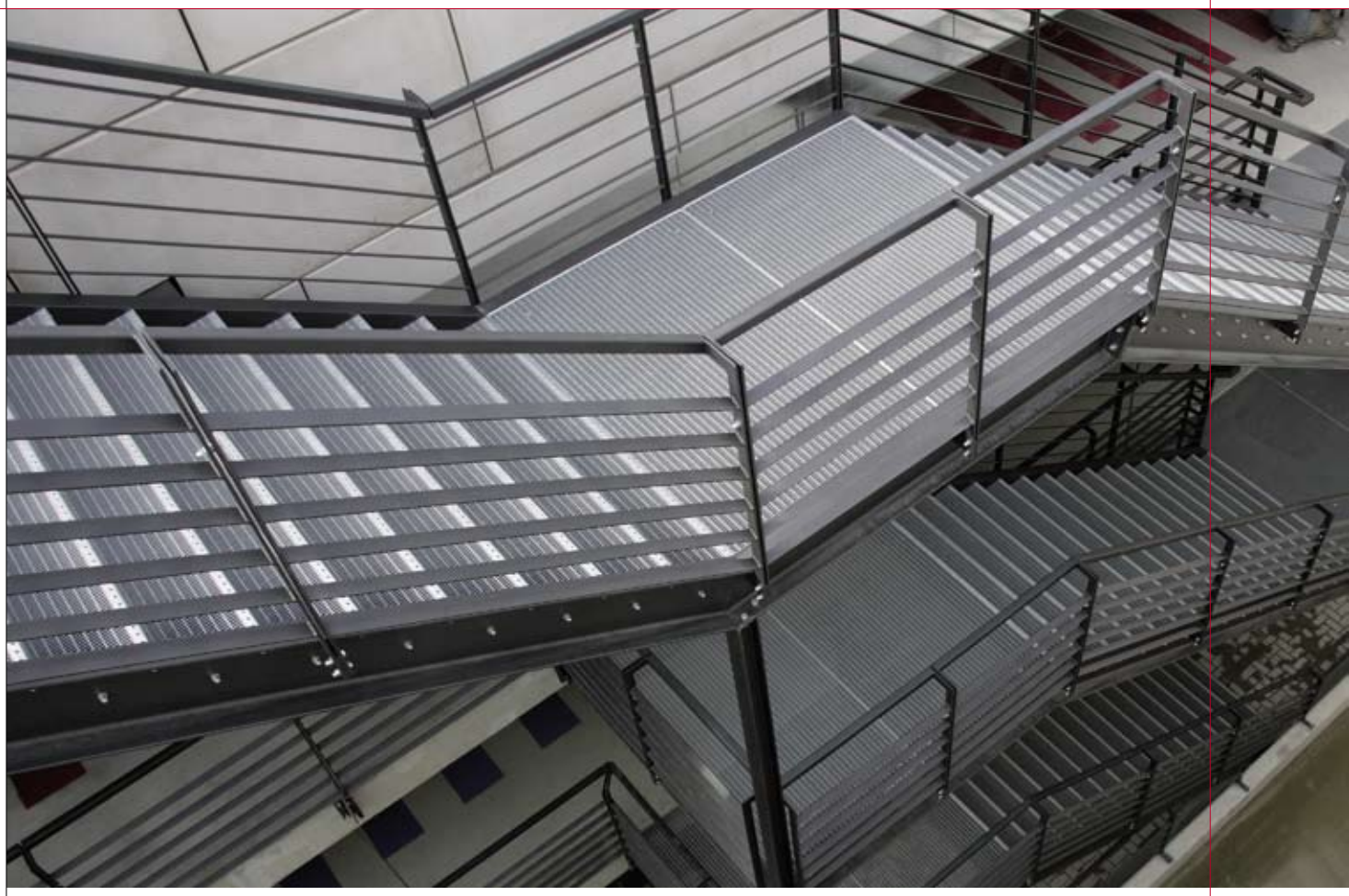
Load multipliers tabel for meshes (c.t.c.) other than 33,33 x 33,33 mm

mesh size c.t.c. [mm]	multipl. factor (point load on 200 x 200 mm surface) bearing bar height [mm] ––>													
	25	30	40	50	60	70	80	90	100	110	120	130	140	150
16,66 x 16,66	1,69	1,70	1,71	1,72	1,74	1,75	1,77	1,78	1,80	1,81	1,83	1,85	1,87	1,89
22,22 x 22,22	1,32	1,33	1,33	1,34	1,35	1,35	1,36	1,37	1,38	1,38	1,39	1,40	1,41	1,42
33,33 x 33,33	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
44,44 x 44,44	0,84	0,84	0,83	0,83	0,83	0,82	0,82	0,82	0,81	0,81	0,80	0,80	0,80	0,79
50,00 x 50,00	0,79	0,78	0,78	0,77	0,77	0,77	0,76	0,76	0,75	0,75	0,74	0,73	0,73	0,72
66,66 x 66,66	0,68	0,67	0,67	0,66	0,65	0,65	0,64	0,63	0,63	0,62	0,61	0,60	0,59	0,58

Maximum load for vehicle passage [daN] (All the factors were calculated in case of direction of passage perpendicular to the bearing bars)

category of bridge class	wheel load [daN]	loading area [mm]	multipl. factor	point load [daN] on 200 x 200 mm surface	
				static	impact factor 1.3
60	10000	200 x 600	2,15	4651	6046
45	7500	200 x 500	1,85	4054	5270
30	5000	200 x 400	1,50	3333	4333
24	4000	200 x 300	1,25	3200	4160
16	5000	200 x 400	1,50	3333	4333
12	4000	200 x 300	1,25	3200	4160
9	3000	200 x 260	1,13	2655	3452
6	2000	200 x 200	1,00	2000	2600
3	1000	200 x 200	1,00	1000	1300

Legend on page 18



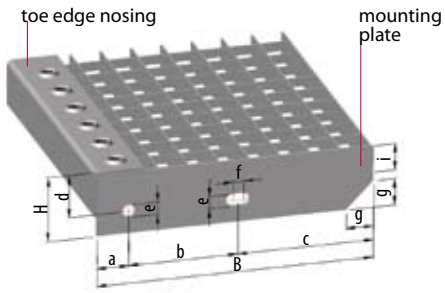
GRATING TREADS TYPE RR/RH

Corresponding gratings treads are available for all RR/RH types. The treads are fitted with a safe toe edge nosing and mounting plates for fastening between the stringers. An example of stock treads TR 3-30/33x33 is given below.

Type TR 3-30/33 x 33

Bearing bars	30 x 3 mm.
Cross bars	10 x 2 mm.
Mesh width	33,33 x 33,33 c.t.c.

Type RR



Anti-slip versions for better grip:

Type TR.AD
Serrated bearing bars.

Type TR.AV
Serrated cross bars.

Type TR.ADV
Serrated bearing and cross bars.

For stock treads, go to www.staco.pl

For anti-slip classes and mounting plate specifications, please refer to www.staco.pl

For dimensions of mounting plate see illustration

tread width B [mm]	a	b	c	d	e	f	g	i	H
	[mm]								
240	35	120	85	55	13	20	30	30	70
270	35	150	85	55	13	20	30	30	70
305	35	180	90	55	13	20	30	30	70

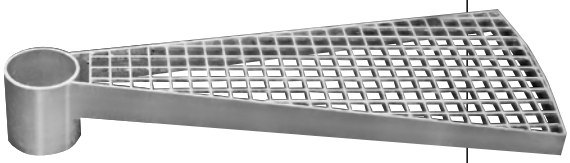
Other dimensions on request.

SPIRAL STAIRS WITH RR TYPE TREADS

STACO offers spiral stairs with treads made up of RR type grating. They are available in various versions of diameter from 1600 mm up to 3000 mm in either clockwise or anti-clockwise turns, also in self colour or galvanized steel. Spiral stairs are a perfect solution when you require a staircase in a confined or limited space where a conventional staircase is not possible and are applying themselves to both indoor and outdoor applications.

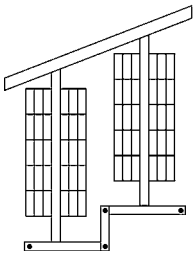
The simplicity of their structure ensures fast and cost effective on site installation. All the elements like tube, treads or railing are tailor made.
To order you must have the following data:
- height (difference between levels)
- outer diameter
- type of railing
- mesh size of grating
- location of entries and exits on the levels

Spiral tread with RR type grating

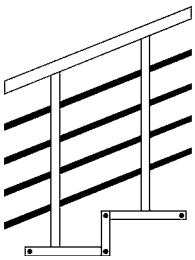


outer diameter D [mm]	N° of treads for one rotation
1600	15,16
1800	15, 16, 18
2000	15, 16, 18
2200	16,18, 20, 22, 24
2400	16,18, 20, 22, 24
2500	16,18, 20, 22
2600	18, 20, 22, 24
2800	18, 20, 22, 24, 26
3000	22, 24, 26, 28

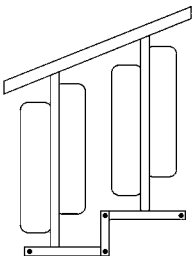
Railings with handrail of tube ∅ 33,7 and ∅ 42



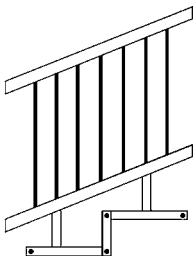
with grating panels



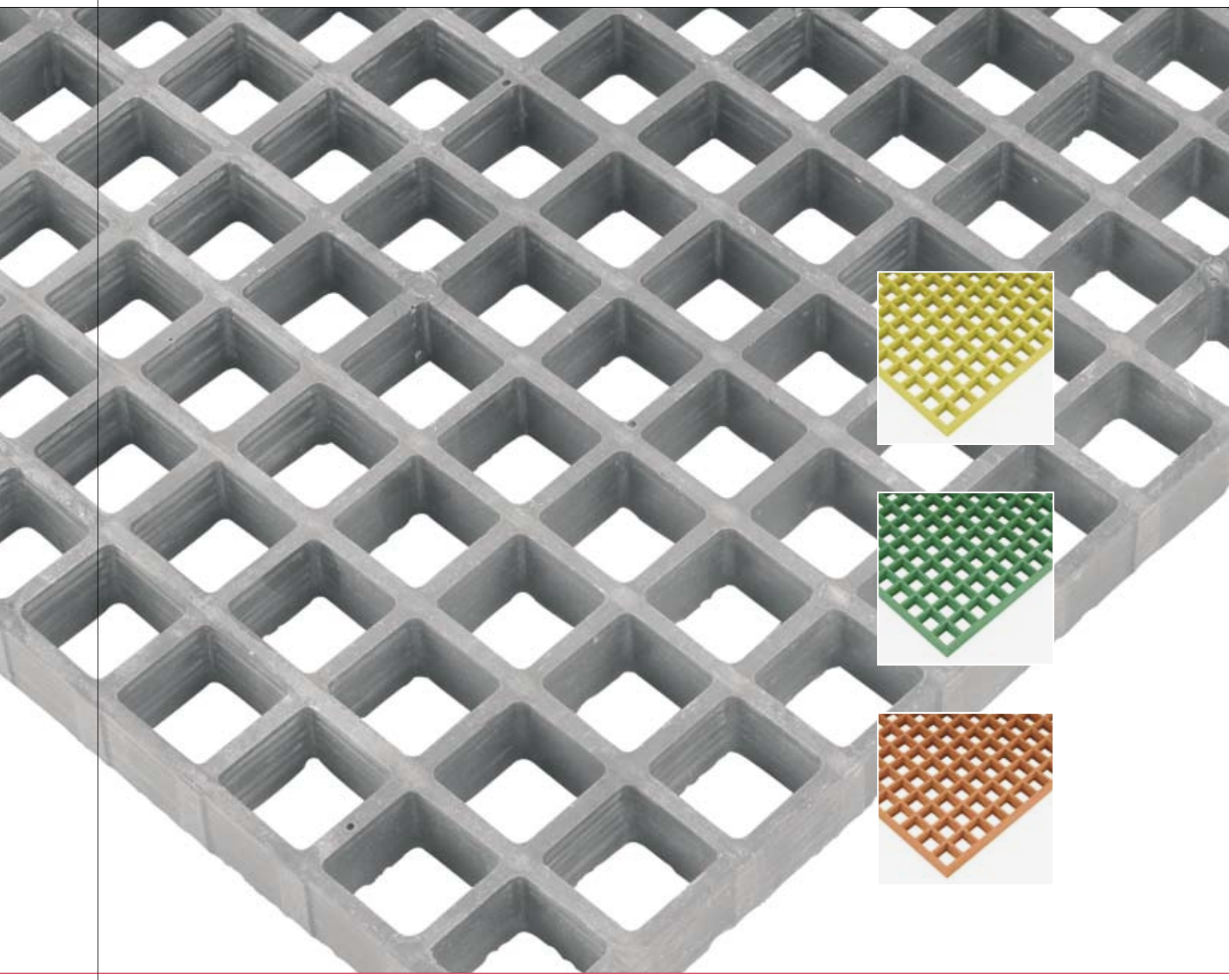
with horizontal bars/tubes



with rod panels



with vertical bars/tubes



PLASTIC GRATINGS TYPE GRP

Fibreglass-reinforced plastic gratings are made up of fibreglass covered in high-grade plastic. This mix is injected into a solid mould, heated and then left to cure. Adding colour pigment to the mix gives the material a consistent colour. After curing, the grating mats can be cut to any required size.

PLASTIC GRATINGS TYPE GRP

Chemical composition:

Fibreglass-reinforced plastic gratings are available in a number of resin types (orthophtalic, isophtalic or vinyl ester). Each type of resin has specific properties. Our sales staff would be happy to advise you on correct application.

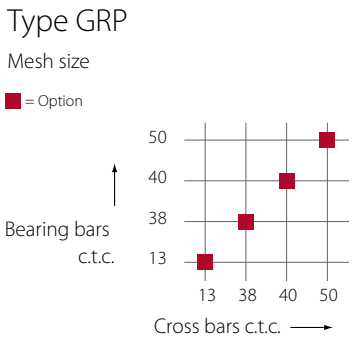
Custom jobs:

Our sales staff would be happy to advise you if you require specific sizes, non-standard versions, colours or areas of application.

Colours:

Fibreglass-reinforced plastic gratings are coloured and are uv-resistent. Plastic gratings are available in grey, yellow, green and red. Any GRP colour is available for bulk orders.

The table below illustrates the possible variations in mesh size.

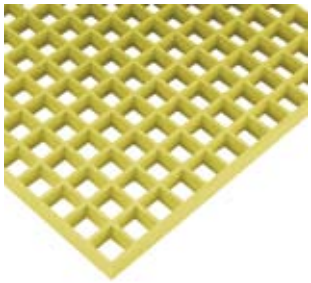


PROPERTIES

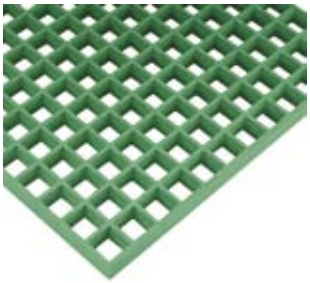
(depending on chemical composition)
- corrosion resistant
- high chemical resistance
- electrically and thermally insulating
- flameproof

Standard sizes:

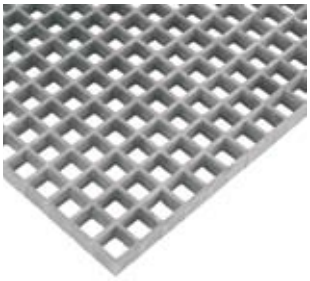
height [mm]	panel dimensions [mm]	mesh size [mm]	weight per m²
12	3660 x 1220	38 x 38	5,6 kg
25	2007 x 1007	40 x 40	12,6 kg
25	3007 x 1007	40 x 40	12,6 kg
25	4047 x 1007	40 x 40	12,6 kg
30	2440 x 1220	38 x 38	15,2 kg
38	3050 x 1525	38 x 38	19 kg
38	3660 x 1220	38 x 38	19 kg
50	3660 x 1220	50 x 50	12 kg
63	3660 x 1220	38 x 38	50 kg
30	3007 x 1007	13 x 13	17,7 kg
28	2007 x 1007	40 x 40	18,6 kg
28	3007 x 1007	40 x 40	18,6 kg
33	2440 x 1220	38 x 38	21,2 kg
41	3660 x 1220	38 x 38	25 kg
covering plate			
3	2000 x 1000		5,4 kg



GRP Plastic grating standard yellow

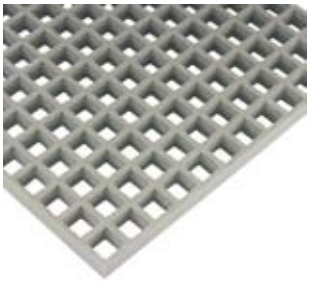


GRP Plastic grating standard green



GRP Plastic grating standard grey

GRP Plastic grating grey safety mesh



GRP Anti-slip Plastic grating sand finish grey

GRP Plastic grating grey diamond plate

PLASTIC GRATINGS TYPE GRP

Production options

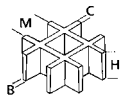


fig. A

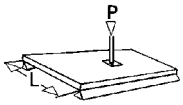


fig. B

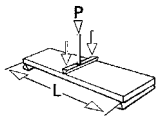
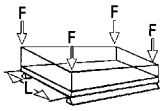


fig. C



load table	span (L) [mm]	ON SURFACE 300 x 300 MM maximum load kN deflection (fig. A)		LINEAR LOAD maximum load kN deflection (fig. B)		UNIFORMLY DISTRIBUTED LOAD maximum load [kN/m²] deflection (fig. C)	
GRP 25		L/100	L/200	L/100	L/200	L/100	L/200
H = 25,0 mm	300	13,6	5,8	4,6	2,1	94,5	44,5
C = 6,7 mm	500	5,1	2,6	1,8	0,9	19,6	9,6
B = 5,0 mm	800	2,3	1,1	0,7	0,4	4,7	2,3
M = 38/38 mm	1000	1,7	0,8	0,4	0,2	2,3	1,2
	1200	1,3	0,6	0,3	0,2	1,4	0,7
GRP 30							
H = 30,0 mm	300	25,9	9,8	9,1	4,3	214,9	73,3
C = 6,7 mm	500	9,3	4,4	6,2	3,1	39,7	19,3
B = 5,0 mm	800	4,1	2,1	1,4	0,7	11,1	5,3
M = 38/38 mm	1000	2,9	1,4	0,9	0,5	5,0	2,6
	1200	2,3	1,2	0,7	0,3	3,3	1,6
	1400	-	-	0,5	0,3	1,8	0,9
	1500	-	-	0,4	0,2	1,7	0,8
GRP 38							
H = 38,0 mm	500	17,3	7,7	6,5	3,2	70,0	32,7
C = 6,7 mm	800	8,4	4,0	2,7	1,4	21,7	9,4
B = 5,0 mm	1000	6,1	3,0	1,9	1,0	9,0	4,5
M = 38/38 mm	1200	4,8	2,4	1,4	0,7	5,9	2,8
	1400	-	-	0,9	0,4	3,4	1,7
	1500	-	-	0,8	0,4	2,7	1,4
GRP 50							
H = 50,0 mm	500	36,9	15,7	12,7	6,2	148,0	67,9
C = 8,0 mm	700	22,0	10,1	6,8	3,4	58,6	38,8
B = 5,0 mm	800	17,0	8,1	4,8	2,4	37,5	19,4
M = 50/50 mm	1000	12,5	6,2	3,6	1,8	16,6	8,4
	1200	9,8	5,0	2,1	1,4	12,2	5,8
	1400	-	-	2,0	1,0	6,6	3,2
	1500	-	-	1,8	0,9	5,3	2,7

HOT-DIP GALVANIZING

Hot-dip galvanizing in accordance with EN ISO 1461:

For permanent protection of its products, the steel gratings, stair treads and fasteners are hot-dip galvanized in STACO's own workshops. For more information on hot-dip galvanizing, go to **www.staco.pl**

Process:

Norm	EN ISO 1461
Degreasing	degreasing bath
Etching	hydrochloric acid solution
Dipping	flux solution
Drying/preheating	approx 100° Celsius
Galvanising	445° Celsius

Thickness of layer in accordance with EN ISO 1461:

Material thickness in mm	Zinc coating thickness in µm
< 1,5	45
> 1,5 – 3	55
> 3 – 6	70
> 6	85

Finishing in accordance with EN ISO 1461:

Any irregularities are manually removed and the material is free from projections such as:

- blisters
- sharp points
- rough spots

Colour differences:

After hot-dip galvanizing, the colour of the zinc coating may change. This is usually caused by zinc iron alloy elements coming through.

Electrostatic powder coating according to VISEM quality requirements

In order to ensure STACO products have an attractive appearance, and are therefore more likely to be used in architectural applications, we equip STACO's galvanized, stainless steel and aluminium products with any required RAL colour. Either in house or with carefully selected powder coating units. STACO supplies in compliance with quality requirements for the industrial application of organic coatings on hot-dip galvanized steel. For more information on electrostatic powder coating, go to **www.staco.pl**

PROCESS

Coating applied in accordance with EN ISO 5254 warrants:

- no irregularities protruding through the coating
- steel splinters removed from visible surfaces
- no obvious irregularities visible from a distance of 3 metres, unless inherent to the hot-dip galvanizing process

Chemical pre-treatment

Drying where necessary

Application of coating

Enamelling

Advice:

In order to ensure the best result, STACO always advises applying a double-layered coating to the products.

Maintenance:

It is important that the coating is cleaned regularly to prevent chlorides from adhering to the coating and shortening its working life.

ELECTROSTATIC POWDER COATING

STACO also publishes
the following brochures

WELDED GRATINGS
AND STAIR TREADS

PERFO PLANKS
AND STAIR TREADS

ARCHITECTURAL
GRATINGS

The content of this brochure might be treated only as a help sheet and no rights may be derived from its content. All technical projects of platforms and trafic arteries must be based on proper strength calculations.

STACO POLSKA Spółka z o.o.

Address
ul. Fabryczna 8
PL-32-005 Niepołomice

T (+48) 12 281 01 01
F (+48) 12 281 11 77
E info@staco.pl
I www.staco.pl

STACO-POL-EN-rr-apr2011