



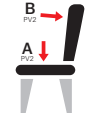
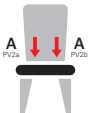
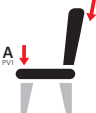
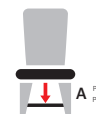
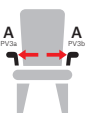
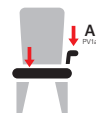
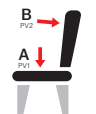
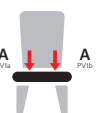
## Tram

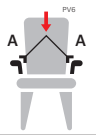
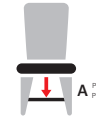
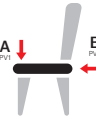
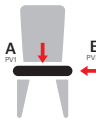

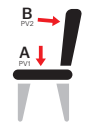



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**Passed (level):** II.  
**Issued on:** 10. 12. 2012  
**Issued by:** Petra Říhová  
**Approved by:** 10. 12. 2012

TON products undergo diligent controls throughout the whole manufacturing process so that they meet and comply with international quality, safety and resistance standards. These tests are performed on special machines

on which chairs repeatedly undergo pre-determined pressures on individual components. Our products are regularly verified according to standards established within the framework of the European as well as BIFMA Norms.

Standard	Test No.	Test (Type)	Load level		Result	Description	Picture
			I.	II.			
EN 1728, 6.4	1.	static load test of seat and backrest	<b>A</b> seat load: 1 600 N <b>B</b> backrest 560 N cycles: 10 x	<b>A</b> seat load: 2 000 N <b>B</b> backrest: 700 N cycles: 10 x	Level II	A set amount of static pressure is exerted on the seat and seat-back.	
EN 1728, 6.5	2.	static load test of the front edge of the seat	<b>A</b> load: 1 300 N cycles: 10 x	<b>A</b> load: 1 600 N cycles: 10 x	Level II	Static loads are alternately exerted on two selected points on the front edge of the chair - as near as possible to the outer edges of the seat.	
EN 1728, 6.6	3.	vertical load on the backrest	<b>A</b> load on the seat: 1 300 N <b>B</b> load: 600 N cycles: 10 x	<b>A</b> load on seat: 1 800 N <b>B</b> load: 900 N cycles: 10 x	Level II	The backrest is tested by a pressure applied from the top to the centre of the upper edge of the backrest.	
EN 1728, 6.8, 6.9	4.	static load test of the footrest	<b>A</b> load: 1 300 N cycles: 10 x	<b>A</b> load: 1 600 N cycles: 10 x	not tested	This test simulates the Static load on footrest in case of using it when getting up from the chair.	
EN 1728, 6.10	5.	lateral static load test of the armrests	<b>A</b> load: 400 N cycles: 10 x	<b>A</b> load: 900 N cycles: 10 x	not tested	This test simulates the Static load on the armrests - laterally from each other.	
EN 1728, 6.11	6.	downwards static load test of the armrests	<b>A</b> load: 400 N cycles: 5 x	<b>A</b> load: 400 N cycles: 5 x	not tested	Static pressure is repeatedly applied to the armrests from the top, on the front edge of the armrests. This test simulates the load exerted on armrest when being used as support mechanisms when getting up from the chair.	
EN 1728, 6.17	7.	durability test of seats and backrest	<b>A</b> load on the seat: 1 000 N <b>B</b> backrest: 300 N cycles: 100 000 x	<b>A</b> load on the seat: 1 000 N <b>B</b> backrest: 300 N cycles: 200 000 x	Level II	A certain long-term pressure is applied to the seat and backrest. This test simulates repetitive load during long-term usage of the chair.	
EN 1728, 6.18	8.	durability test of the front edge of the seat	<b>A</b> load on seat: 800 N cycles: 50 000 x	<b>A</b> load on seat: 800 N cycles: 100 000 x	Level II	Pressure is exerted alternatively on two points located as near as possible to the front edge of the chair; this is a fatigue test.	

Standard	Test No.	Test (Type)	Load level		Result	Description	Picture
			I.	II.			
EN 1728, 6.20	9.	durability test of the armrests	<b>A</b> load: 400 N cycles: 30 000 x	<b>A</b> load: 400 N cycles: 60 000 x	not tested	The armrests are simultaneously exposed to a pressure load of 400 N at an angle of 10°; This is a fatigue test simulating long-term use of the armrests.	
EN 1728, 6.21	10.	durability test of the footrests	<b>A</b> load: 1 000 N cycles: 50 000 x	<b>A</b> load: 1 000 N cycles: 60 000 x	not tested	A pressure of 1000N is repeatedly exerted on the footrests; this is a Fatigue Test that simulates long-term use of the footrests.	
EN 1728, 6.15	11.	static load test of legs in a forward direction	<b>A</b> load on seat: 1 000 N <b>B</b> load: 500 N cycles: 10 x	<b>A</b> load on seat: 1 800 N <b>B</b> load: 320 N cycles: 10 x	Level II	Static pressure is applied to the centre of the rear edge of the seat - in a forward direction. The front legs must be secured so as to ensure no forward movement occurs.	
EN 1728, 6.16	12.	static load test of legs in a lateral direction	<b>A</b> load on seat: 1 000 N <b>B</b> load: 400 N cycles: 10 x	<b>A</b> load on seat: 1 800 N <b>B</b> load: 760 N cycles: 10 x	Level II	Static pressure is applied in a forward direction to the centre of the side edges of the seat. The legs must be secured from the sides so as to ensure no movement occurs.	
EN 1728, 6.271, 6.28	13.	drop test	not used	cycles: 50 x	Level II	The seat is tipped backwards until its equilibrium-point is reached; then released in free fall without any additional force or speed being applied - the same is applied to the chair sides.	
BIFMA	6.	static strength test of backrest		<b>A</b> load on the seat: 1 000 N <b>B</b> load on the backrest: 1 112 N cycles: 10 x	Level II	A certain amount of static pressure is exerted on the seat and backrest.	
BIFMA	18.	lateral static strength test of legs - front leg	<b>B</b> load on the front leg: 334 N cycles: 10 x	<b>B</b> load on the front leg: 512 N cycles: 10 x	Level II	Static pressure is repeatedly exerted laterally on the front leg. Side legs must be secured as to ensure no movement occurs.	
BIFMA	18.	static strength test of legs from the front - front leg	<b>B</b> load on the front leg: 334 N cycles: 10 x	<b>B</b> load on the front leg: 512 N cycles: 10 x	Level II	Static pressure is repeatedly applied to the front leg from the front. Rear legs must be secured so as to ensure no movement occurs.	
BIFMA	8.	crash/impact test		test sack weighing 57 kg is raised 30 mm above the seat and dropped cycles: 100 000 x	not tested	It tests the durability of the product during impacts on the middle of the seat.	

## EN 16139 standard

This European standard determines the safety, strength and durability norms for all types of non-residential furniture used by adults weighing up to 110 kg.

## BIFMA

BIFMA (Business and Institutional Furniture Manufacturers Association) determines standards for safety and durability for seating furniture.

## Testing Methods

Sample seating furniture undergoes safety, strength and durability testing according to the table below:

Level	Type of use	Extent of such use
I.	general use	Places where the seating furniture is usually designed only for short-term use, and where the load is light to heavy-duty. Examples: Public buildings, coffee-shops, restaurants, canteens, banks, bars.
II.	extreme use	Places where seating furniture is sometimes or often exposed to extremely high load due to specific types of use or incorrect use. Examples: Night clubs, police stations, public transport stations, sports changing rooms, prisons, barracks.

We test TON products at both levels, while always endeavouring to attain Level II., i.e. corresponding to Extreme Use.