TEST REPORT

EN ISO 20957-1:2024 Stationary training quipment - Part 1: General safety requirements and test methods

EN ISO 20957-2-2024 Stationary training equipment - Part 2: Strength training equipment, additional specific safety requirements and test methods

Report reference No. ..... :	**TASH-231020453-R01**
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Date of issue ..... :	2025-05-30
Testing Laboratory name ..... :	TÜV AUSTRIA (SHANGHAI) CO.,LTD
Address ..... :	Room 12D, Orient Century Building, No.345 Xian Xia Road, Shanghai, P/C 200336, P.R. China.
Testing location ..... :	Anhui Kangqi Instrument Technology Co., Ltd.
Address ..... :	No. 441, Weifu Road, Yingzhou District, Fuyang City, Anhui, China
Applicant's name ..... :	Shanghai Eastern YANRE FITNESS Equipment Co.,Ltd.
Address	No.581, Xinjinqiao Road, Pudong New Area, Shanghai, China
Factory	Anhui Kangqi Instrument Technology Co., Ltd.
Address ..... :	No. 441, Weifu Road, Yingzhou District, Fuyang City, Anhui, China
Test specification:	
Standard ..... :	EN ISO 20957-1:2024 EN ISO 20957-2-2024
Test procedure ..... :	NA
Non-standard test method ..... :	NA
Test Report Form No. ..... :	TTRF_EN ISO 20957_1&2B
TRF originator. ..... :	TÜV AUSTRIA (SHANGHAI) CO.,LTD
Master TRF ..... :	Dated 2025-05
Test item description ..... :	Fitness equipment (Strength Training Machine)
Trade Mark ..... :	N/A
Model and/or type reference ..... :	61A01, 61A01A, 61A02, 61A03, 61A04, 61A04A, 61A07, 61A09, 61A10, 61A11, 61A12, 61A13, 61A14, 61A15, 61A15A, 61A16, 61A16A, 61A17, 61A18, 61A18A, 61A19, 61A20, 61A21, 61A21A, 61A22, 61A23, 61A24, 61A25, 61A25A, 61A26, 61A28, 61A28A, 61A30, 61A31, 61A32, 61A32B, 61A37, 61A39, 61A55, 61A60 5502, 5504, 5506, 5508, 5509, 5511 (total 46 models)
Rating(s) ..... :	See on page 3-4

Possible test case verdicts:

- test case does not apply to the test object ..... : N/A
- test object does meet the requirement ..... : P(ass)
- test object does not meet the requirement ..... : F(ail)

Testing:

Date of receipt of test item ..... : 26.02.2024

Date (s) of performance of tests ..... : 26-29.02.2024 / 13.05.2025

General Remarks:

"(see Remark #)" refers to a Remark appended to the report.
"(see appended table)" refers to a table appended to the report.
Throughout this report a comma is used as the decimal separator.
The test results presented in this report relate only to the object tested.
This report shall not be reproduced except in full without the written approval of the testing laboratory.
Determination of the test result include consideration of measurement uncertainty from the test equipment and methods.

Additional Remark:

All 46 models have same max. user weight 160kg.
43 models have the same stacked weight guarding, except the height of the guarding. Model 61A37, 61A39 & 61A55 have additional barbell / dumbbell for training without guarding.
The stacked weight guarding is all sides enclosure, only a gap for weight pin with width max. 75mm
All 46 models are for commercial use (Class S), they are not foldable, free-standing use (not fixed to the ground).
Annex 1: Tested products list

Summary of testing:

All tests are carried out in according to the EN ISO 20957-1: 2024 & EN ISO 20957-2: 2024 and the test results meet the requirements specified in the above-mentioned standards.

General conclusion: PASS

No.	Model	Name	Max. training weight (kg)	Max. user weight (kg)	Dimension (cm)	New weight (kg)
1	61A01	Shoulder Press	70	160	146x133,5x162	214
2	61A01A	Shoulder Press Converging	70	160	146x146x162	224
3	61A02	Pull Up Shoulder	70	160	117x120x162	200
4	61A03	Lateral Raise	60	160	121x72x162	189
5	61A04	Chest Press	80	160	118x136x162	209
6	61A04A	Chest Press Converging	80	160	115,5x150x162	218
7	61A07	Pectoral Butterfly	80	160	130x122x162	215
8	61A09	Pectoral Fly/Rear Deltoid	80	160	145x125x200	215
9	61A10	Biceps Curl	60	160	127x103x162	176
10	61A11	Triceps Dip	80	160	126x102x162	204
11	61A12	Triceps Extension	80	160	126x102x162	204
12	61A13	Low Row	80	160	216x72x162	184
13	61A14	Mid Row	80	160	183x72x162	191
14	61A15	Lat Pull Down	90	160	121,5x118x219	199
15	61A15A	Lat Pull Down Diverging	90	160	160x112x206	236
16	61A16	Standing Assisted Chin/Dip	80	160	170x120x242	263
17	61A16A	Assisted Chin/Dip	80	160	120x105x225	223
18	61A17	Back Extension	70	160	106x110x162	184
19	61A18	Upper/Mid Abdominal Trainer	70	160	114x98x162	185
20	61A18A	Lower Abdominal Trainer	70	160	143,5x115x162	242
21	61A19	Rotary Torso	70	160	146x72x162	179
22	61A20	Multi Hip	70	160	144x106,5x162	218
23	61A21	Gluteus Maximus Trainer	80	160	227x101,5x162	196
24	61A21A	Gluteus Maximus Trainer	80	160	119,5x104,5x162	198
25	61A22	Adduction	80	160	162x72x162	200
26	61A23	Abduction	80	160	162x72x162	200
27	61A24	Leg Extension	80	160	113x106x162	218
28	61A25	Seated Leg Curl	80	160	134x113x162	229
29	61A25A	Standing leg curl	80	160	113,5x131x162	225
30	61A26	Prone Leg Curl	80	160	147x112x162	194
31	61A28	Seated Leg Press	100	160	134,5x106x162	255
32	61A28A	Linear leg press	100	160	170x104x162	275
33	61A30	Seated Calf	80	160	158,5x71,5x162	188
34	61A31	Standing Calf	100	160	119x72x164	214
35	61A32	Cable Crossover	70x2	160	394x72x241,5	385
36	61A32B	Functional Trainer	70x2	160	168x94x228	338
37	61A37	Biceps Curl Rack	120	160	100x80x95	54
38	61A39	Olympic Flat Bench	150 Storage: 100x2	160	157x152x116	79
39	61A55	Utility Bench	100	160	64x53x106	25
40	61A60	Adduction/Abduction	80	160	162x72x162	206
41	5502	Shoulder / Chest Press	90	160	147,5x72x235	243

42	5504	Biceps/Triceps	60	160	127x112x162	203
43	5506	Lat Pull Down/Low Row	90	160	179x121,5x219	219
44	5508	Ab Crunch/Back Extension	70	160	113x100x162	198
45	5509	Leg Extension/Lying Leg Curl	90	160	168,5x96x162	221
46	5511	Leg Press/Seated Calf	100	160	161x99x162	271

Marking plate (as a representative)

EN ISO 20957-1:2024			
Clause	Requirement - Test	Result - Remark	Verdict
1	**Scope**		-
	This document specifies general safety requirements and test methods for indoor stationary training equipment. Other parts of the ISO 20957 series can modify the requirements contained in this document. This document also covers environmental aspects.	Strength Training Machine	P
	It also specifies a classification system (see Clause 4).		P
	This document is applicable to all stationary training equipment. This includes equipment for use in training areas of organizations such as sport associations, educational establishments, hotels, sport halls, clubs, rehabilitation centres and studios (classes S and I) where access and control is specifically regulated by the owner (person who has the legal responsibility), equipment for domestic use (class H) and other types of equipment including motor driven equipment as defined in 3.1.	To be used for GYM	P
	The requirements of a specific part of ISO 20957 take priority over the corresponding requirements of this general standard.		P
	This document does not apply to stationary training equipment intended for outdoor use. It also does not apply to stationary training equipment intended for use by children under the age of 14 years, unless such stationary training equipment is intended for educational purposes in schools and other pedagogical contexts for children under the supervision of a qualified adult instructor.	Not for children under 14 years	P
4	**Classification**		
4.1	**General**		
	Equipment shall be classified in accordance with accuracy and usage classes as described in 4.2 to 4.3.	Class S	P
	If the intended use of the equipment is for more than one usage class it shall fulfil the requirements of each class.		N/A
4.2	Accuracy classes Accuracy classes only apply to equipment which display training data. NOTE The requirements of accuracy classes are shown in the additional parts of the standard series ISO 20957.	No display equipped	N/A
4.2.1	Class A: high accuracy.		N/A
4.2.2	Class B: medium accuracy.		N/A
4.2.3	Class C: low accuracy.		N/A
4.3	**Usage classes**		
4.3.1	Class S (Studio): professional and/or commercial use. NOTE Such stationary training equipment is intended for use in training areas of organizations such as sport associations, educational establishments, hotels, clubs and studios, where access and control is specifically regulated by the owner (person who has the legal responsibility).	Class S	P
4.3.2	Class H (Home): domestic use.		N/A

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	NOTE Such stationary training equipment is intended for use in private homes where access to the equipment is regulated by the owner (person who has the legal responsibility).		
4.3.3	Class I: professional and/or commercial use provided for inclusive use for people with special needs (e.g. visual, hearing, physical or learning disabilities).		N/A
	Such equipment shall also be in compliance with class S requirements.		N/A
	NOTE Such stationary training equipment is intended for use in training areas of organizations such as sport associations, educational establishments, hotels, clubs, rehabilitation centres and studios, where access and control is specifically regulated by the owner (person who has the legal responsibility).		N/A
5	**Safety requirements**		
5.1	**General** If any of the following safety requirements are applicable, the equipment shall meet the requirements using the test methods described in Clause 6.		P
5.2	**Stability** The stationary training equipment shall be stable in any direction, in training, folding and storage positions. The test shall be in accordance with 6.2.	Stable in any direction, see cl. 6.2	P
5.3	**External construction**		
5.3.1	General Equipment shall be free of burrs. Test shall be in accordance with 6.3.1.	No such risk, see cl. 6.3.1	P
5.3.2	Edges and corners All edges and corners of surfaces supporting bodies shall have a radius r ≥ 2,5 mm. All edges within the accessible hand and foot area shall be rounded or protected. Test shall be in accordance with 6.3.1.		P
5.3.3	**Tube ends**		
	All tube ends within the accessible hand and foot area shall be closed off, for example by parts of the equipment or by plugs.		P
	If plugs are used, they shall remain in position at the end of the endurance load test, as described in the relevant parts of the applicable specific standards. If no endurance test is described in a specific standard the pullout force of the plug shall be ≥ 20 N. Test shall be in accordance with 6.3.2.	Test force >20N	P
5.3.4	**Squeeze and shear points**		
	Squeeze points and/or shear points within the accessible hand and foot area, whether between moving parts, between moving parts and fixed parts, or between a moving part and	No such risk see cl.6.3.3	P

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Clause	Requirement - Test	Result - Remark	Verdict
	the floor, shall be guarded by a protective cover or shall have a minimum clearance of at least 60 mm, with the following exceptions.		
	a) if only the fingers are at risk, the dimension shall be at least 25 mm;		P
	b) if third party access is prevented by the user's body position, and where the user is able to immediately stop the movement, the distance shall be at least 25 mm;		P
	c) If the distance between the moving part and the fixed part, or between two moving parts, does not change during use or setup, the distance shall be greater than 25 mm or less than 9,5 mm		P
	d) if the angle between two adjacent moving parts or between a rigid part and an adjacent moving part is always 50 degrees or greater, it is not considered a shear point.		P
	e) open and obvious stops are excluded; however, if the stop is the part which is moving, then it shall pass no closer than 25 mm from any fixed frame member throughout its range of movement.		P
	f) If the following three requirements are simultaneously met during folding and unfolding, it is not considered a squeeze or shear point. 1) Inadvertent movement is not possible during folding, unfolding, transportation and/or storage. 2) Access to squeeze points and shear points remains at all times in the user's field of vision. 3) The user can stop the motion at any time	Not foldable	N/A
	Test shall be in accordance with 6.3.3.		P
5.3.5	**Weights and resistant means**		
	The range of motion of all weights attached to the stationary training equipment shall be limited to that required to perform the exercise.	See cl.6.3.4	P
	Weights and resistant means with stored energies (e.g. bungee cords, elastic tubes, mechanical springs) shall move freely and return to the starting point.		P
	Weights shall be securely retained during use.		P
	Test shall be in accordance with 6.3.4.		P
5.4	**Entrapment of the user**		
	Users shall be able to exit the equipment when using it according to the user's manual. If necessary, means of escape shall be provided.	See cl. 6.4	P
	Test in accordance with 6.4.		
5.5	**Adjustment components and locking mechanisms**		
	Adjustment components and locking mechanisms on the	Additional barbell	P

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Clause	Requirement - Test	Result - Remark	Verdict
	stationary training equipment shall function securely and be conspicuous, self-evident and safely accessible to the user.	disc could be fixed by spring clip, see also cl.5.5 of EN ISO 20957-2	
	The possibility of unintended movement should be avoided.		P
	Adjustment components and locking mechanisms e.g. knobs and levers shall not interfere with the user's range of movement.		P
	Weight selection pins shall be fitted with a retention device to prevent unintended change or movement during the exercise.		P
	Test in accordance with 6.5.		P
5.6	**Ropes, belts, chains and attachment components**		
5.6.1	**General**		
	Ropes, belts, chains and their attachment components (e.g. snap links, shackles, carabineers, clamps or similar) shall have a safety factor against breakage of 6 times the maximum possible tension that can be developed.	The max. training load is 100kg, test force 100kg * 6 = 600kg applied on the steel wire and hook. No broken after test.	P
	The design of the pulleys and the bending radius shall be in accordance with the applicable requirements of the rope, belt or chain manufacturers.		P
	After the test, the training equipment shall not be broken or have visible signs of fracture or cracking and shall still function as intended by the manufacturer.		P
	Test in accordance with 6.6.		P
5.6.2	**Ropes and belts**		
	Rope and belt ends shall be, as a minimum, flush with the end of the termination means and shall be visible for inspection.		P
	Pressed connections shall not be subjected to bending.		P
	Rope and belt ends and grips shall have no sharp edges or frayed ends.		P
	Test in accordance with 6.6.		P
5.6.3	**Rope and belt guides**		
	A means shall be provided to prevent a rope or a belt becoming unintentionally disengaged during use or set-up.		P
	Test in accordance with 6.7.		P
5.7	**Pull-in points**		
5.7.1	**General** The test finger (see Figure 1) shall not become trapped. Test shall be in accordance with 6.3.5.1. Test in accordance with 6.3.5.		P

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Clause	Requirement - Test	Result - Remark	Verdict
5.7.2	**Pulleys** Pulleys Pull-in points of rope or belt drives up to 1 800 mm height shall be guarded, except a) if the surface pressure is ≤ 90 N/cm^2, or b) when access to the pull-in point is prevented by the user's body during exercising. If a guard is required, the angle between the rope or belt and the guard shall be ≥ 50° in all positions. The guard shall not rotate around the axis of the pulley as the pulley rotates.	No such risk.	P
	Test shall be in accordance with 6.3.5.2.		P
5.7.3	**Chains, gears and sprockets** Pull-in points for chains, gears and sprockets shall be protected in accordance with ISO 12100:2010. Test shall be in accordance with 6.3.5.3.		P
5.8	**Hand grips**		
5.8.1	**Integral handgrips**		
	Gripping positions shall be easily identifiable and designed to reduce slipping (e.g. textured, coated, knurled). Test in accordance with 6.8.		P
5.8.2	**Applied handgrips**		
	Applied handgrips shall not be removed. Applied handgrips shall be equipped with a surface that reduces hand slip. Test shall be in accordance with 6.9		N/A
5.8.3	**Rotating handgrips**		
	Rotating handgrips shall be secured during use and shall be designed to reduce slipping (e.g. textured). Test in accordance with 6.10.		P
5.9	**Endurance test**		
	The training equipment shall withstand for: a) class H: 12 000 cycles; b) class S: 100 000 cycles; After the test, the training equipment shall not be broken or have visible signs of fracture or cracking and shall still function as intended by the manufacturer. Test shall be in accordance with 6.11.	Class S, details see cl.6.11	P
5.10	**Isometric test requirements**		
	Stationary training equipment designed to perform an isometric test shall have the load or force on the user's body displayed with an accuracy of ±10 % in the range of measurement given in the user's manual。 Test in accordance with 6.13.		N/A
5.11	**Heart rate measurement system**		
5.11.1	**Indication**		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	The function of the heart rate measurement system shall be indicated on the display when the equipment is receiving a usable signal from the user, e.g. a blinking heart. Test in accordance with 6.13.		
5.11.2	**Heart rate control mode** For equipment using the heart rate measurement system to control resistance, speed or other effort intensity, the loss of heart rate signal shall result in effort intensity remaining at the same intensity for maximum 60 s and then decrease until the minimum intensity is reached. The rate of decrease shall be at least 10 % in each 20 s time period. Test shall be in accordance with 6.14.		N/A
5.12	**Electrical safety** For electrical and electronic aspects of stationary training equipment, IEC 60335-1:2023 shall be applied. For medical devices, IEC 60601-1:2006 shall be applied.	No electrical component.	N/A
5.13	**Loading**		
	Stationary training equipment that is loaded with the user's body mass, training load, or a combination of body mass and training load shall withstand a test load F_{test} as calculated in accordance with Formula (1): $F_{test} = S(Wp + 1,5Fa)$ (1) where F_{test} - is the total reactionary load to be applied during the test, in newton; S - is the safety factor, which is equal to 2,5; Wp - is the user's body mass portion of the load applied to the part of the equipment being evaluated, either 100 kg or the maximum user body mass as specified by the manufacturer, whichever is greater, in newton; 1,5 - is the dynamic coefficient; Fa - is the load applied to the part of the equipment being evaluated, derived from the maximum specified load while performing exercise, in newton. Formula (1) calculates the magnitude of the test load Ftest, but the determination of how to distribute the test load over the equipment requires an understanding of how the stationary training equipment is loaded during regular use.	Test load based on page 3-4 list. Max. user weight & max. Training weight.	P
	The distribution of the test load Ftest should be applied to the equipment to best simulate the loading distribution applied to the equipment during regular use. If the equipment can be used in multiple ways, then it can be necessary to apply the test load F_{test} to the equipment multiple times in multiple loading distributions to be representative of the most		P

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Clause	Requirement - Test	Result - Remark	Verdict
	onerous loading condition(s).		
	After the test, the training equipment shall not be broken or have visible signs of fracture or cracking and shall still function as intended by the manufacturer.	No obvious deformation detected	P
	Test in accordance with 6.15.		P
5.14	**Care and maintenance**		
	Care and, if applicable, maintenance advice shall be provided with each piece of equipment. The advice shall include at least:	See user manual provided by client	P
	a) a warning notice to the effect that the safety level of the equipment can be maintained only if it is examined regularly for damage and wear, e.g. ropes, pulleys, connection points;		P
	b) an advice to replace defective components immediately and/or keep the equipment out of use until repair;		P
	c) special attention to components most susceptible to wear.		P
	Test in accordance with 6.16.		P
5.15	**Assembly instructions**		
	If the stationary training equipment requires assembly, an assembly manual in the national language shall be available, including at least:		P
	a) warning and precautions for safe handling of the stationary training equipment during the assembly process;		P
	b) clear and accurate assembly instructions;		P
	c) a list of tools needed;		P
	d) a comprehensive parts list including part numbers;		P
	e) the total mass and the total surface area (e.g. footprint) of the equipment;		P
	f) instruction that free-standing equipment shall be installed on a flat, stable and horizontal base;		P
	g) if stationary training equipment is attached or anchored, for example to a wall or to the floor, instructions including the attaching or anchoring operations with the minimum value (force) each attachment shall withstand		P
	Test in accordance with 6.16.		P
5.16	**General instructions for use**		
	An owner's manual shall be available for each stationary training equipment in the national language including at least:	See user manual provided by client	P
	a) customer service contact information (e.g. address, website, etc.);		P
	b) name and full address of the manufacturer or importer.		P
	c) Indication of field of application (e.g. indoor use,		P

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Clause	Requirement - Test	Result - Remark	Verdict
	explanation of the usage class).		
	d) a dedicated figure to illustrate the free area and training area with an indication that: 1) the free area shall be at least 0,6 m greater than the training area in the directions from which the equipment is accessed; 2) the free area shall include the area for emergency dismount; 3) where equipment are positioned adjacent to each other, the free area may be shared.		P
	e) Information on the correct use of the equipment and its features with the emphasis on safe operation, and the importance of keeping unsupervised children away from the equipment.		P
	f) exercise instructions with advice on the correct biomechanical positioning of the user on the stationary training equipment for every major exercise type for which the equipment is designed, including a warning indicating that injuries to health can result from incorrect or excessive training.		P
	g) statement that the owner shall provide the user with all warnings and instructions;.		P
	h) Design illustration.		P
	i) illustrations to accompany texts concerning difficult or complicated manoeuvres;		P
	j) instruction on how to safely use access and escape assist means;		P
	k) setting of the load and equipment further adjustments (e.g. seat adjustments)		P
	l) warning, if applicable, that if any of the adjustment devices are left projecting, they can interfere with the user's movement		P
	m)warning that free standing equipment shall be positioned on a flat, stable and horizontal base;		P
	n) indication of the maximum user body mass;		P
	o) indication of the maximum training load, if applicable;		P
	p) Explanation of the displayed data, if applicable.		P
	q) if a heart rate system exists, a warning with the following content: “WARNING! Heart rate monitoring systems can be inaccurate. If you feel faint, stop exercising immediately”;		P
	r) for accuracy classes B and C, indication that the equipment is not suitable for high accuracy purposes		P
	Test in accordance with 6.16.		P

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5.17	**Marking**		
5.17.1	**Permanent marking**		
	Stationary training equipment shall be permanently marked with the following minimum information:	See marking provided by client	P
	a) name or trademark and full address of the manufacturer, supplier or importer;		P
	b) maximum body mass of user and the maximum training mass for the individual exercise stations (if applicable);		P
	c) usage classes S, H or I and accuracy classes A, B, C, which can be combined (e.g. SA) if both classes are specified in that part of this International Standard;		P
	d) individual code number (which contains information about type and year of manufacture);		P
	e) graphical symbol or written information in the national language(s) instructing the user to read the information supplied by the manufacturer;		P
	f) for class S and I equipment, a conspicuous graphical symbol or written information in the national language(s) shall be applied if the equipment needs attachment/anchoring for safe operation.		P
	It is the responsibility of the manufacturer to display compliance with this International Standard by the additional indication of ISO 20957 in connection with the letter symbol of the designation class(es) (class S, H and I).		P
	Test in accordance with 6.16.		P
5.17.2	**Additional marking**		
	If a heart rate system exists, for classes S and I, a warning with the following content shall be provided: "WARNING — Heart rate monitoring systems can be inaccurate. If you feel faint, stop exercising immediately." The heart rate warning shall be placed in a conspicuous position on or near the console visible during training or the warning shall be shown on the display at any time while the heart rate system is active.		N/A
6	**Test methods**		
6.1	**Test conditions**		
	All testing shall be performed under the following conditions: a) temperature of 23 °C ± 5 °C; b) relative humidity of 55 % to 75%		P
6.2	**Stability test**		

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Clause	Requirement - Test	Result - Remark	Verdict
6.2.1	**Test in training position**		
	Place the equipment on a (10 $^{+1}_{-0}$)° incline surface, in the most onerous position.		P
	Perform exercise(s) that involve(s) the user's mass, with the equipment loaded with a person weighing (100 ± 5) kg, using the minimum as well as the maximum load, over the full range of exercise motion.		P
	In addition, if applicable, perform exercise(s) that does not involve the user's mass, using the minimum as well as the maximum load, over the full range of exercise motion.		P
	The equipment shall not tip over in either test.		P
	The test person shall not lean or try to influence the balance of the machine.		P
6.2.2	**Test in folded/storage position**		
	Place equipment, folded according to the user's manual, on a (10 $^{+1}_{-0}$)° incline surface.		N/A
	The equipment shall not tip over in either test.		N/A
6.3	**External construction**		
6.3.1	**Test of edges and corners** Test by measuring the radius and visual and tactile examination.		P
6.3.2	**Tube ends**		
	A visual inspection of the unit to verify that all tube ends in the accessible hand and foot area are closed off shall be performed. The pull-out test shall be performed using a constant force		P
6.3.3	**Testing of squeeze points and shear points**		
	Perform a dimensional check		P
6.3.4	**Weights and resistant means**		
	A functional test using the maximum and minimum resistance or weights including added resistance or weights (e.g. incremental weights) shall be carried out over the maximum range of movement		P
6.3.5	**Testing of pull-in points**		
6.3.5.1	**General** Apparatus: test finger in accordance with Figure 1. Dimensions in mm		P

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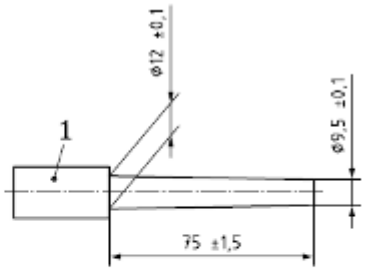
Clause	Requirement - Test	Result - Remark	Verdict
	 Key 1 handle R_a-value ≤ 0,40 µm Surface hardness ≥ HRC 40 (measured in accordance with ISO 6508-1) **Figure 1 — Test finger**		
	Approach the pull-in point with the test finger probe in the most onerous direction to determine whether the test finger can become trapped, while the equipment is in normal operation.	Test finger is not trapped	P
6.3.5.2	**Pulleys** If guarded, measure the angle between the rope or belt and the guard. If unguarded, measure the pressure between the pulley and the rope or belt. The test shall be performed with the maximum load.		P
6.3.5.3	**Chains, gears and sprockets** Perform a visual check that guarding prevents access to chains, gears and sprockets.		P
6.4	**Testing of entrapment** A visual and performance test shall be carried out to determine whether or not the user can become entrapped.		P
6.5	**Adjustment components and locking mechanisms** Perform a visual and functional examination before, during and after every test.		P
6.6	**Tensile test for ropes, belts, chains and attachment components** Measure the tension of the rope, belt or chain as well as the attachment components while statically applying the maximum specified load. Then perform a tensile test, with 6 times the maximum measured tension for the whole functional system.		P
6.7	**Testing of rope and belt guides** Perform a functional test.		P
6.8	**Testing of integral handgrips** Perform a functional test.		P
6.9	**Testing of applied handgrips** Apply a force of 70 N to the handgrip in the most onerous		P

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Clause	Requirement - Test	Result - Remark	Verdict
	direction. The load shall be applied for at least 1 minute.		
6.10	**Testing of rotating handgrips** Perform a functional test		P
6.11	**Testing of endurance load** Carry out the test per the requirements as described in 5.9 as close as possible to normal exercise frequency and free of shocks: a) with maximum load; b) in the direction of the load in accordance with the exercise instructions over 80 % of the possible range of movement; c) with a frequency of movement simulating normal use. If the equipment offers multiple exercise stations, the test shall be done with all stations and functions as described in the user's manual.	Function as specified by the manufacturer after 100,000 cycles test.	P
6.12	**Testing of isometric equipment** Measure the static output force or torque of the body in the position(s) as described in the user's manual and compare this value to the displayed value. Perform the test using the following three values: — minimum; — maximum; — a third random value between these two points.		N/A
6.13	**Testing of indicator of the heart rate measurement system** Perform a visual test by using the heart rate measurement system		N/A
6.14	**Testing of the heart rate control mode**		
	Set the equipment to the heart rate control mode with a target of 120 bpm. Operate the product according to the manufacturer's specifications, then use a heart rate simulator or a person to activate the control mode. Cut off the signal and then check if the resistance or the load reduces according to the requirements shown in 5.11.2. If there are more than one heart rate control system, each system shall be tested.		N/A
6.15	**Load testing**		
	Carry out the test quasi-statically. Consider the following when deciding where to apply and distribute the test load F_{test}. a) Where is the training load typically applied to the product during use? b) Where is the body weight load typically applied to the product during use? c) Does the stationary training equipment have multiple		P

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Clause	Requirement - Test	Result - Remark	Verdict
	configurations for use, and if so, what is the most onerous loading configuration to be tested? d) Can the stationary training equipment be used for multiple exercises, and if so, are there one or more most onerous conditions that should be tested?		
	Apply the test load Ftest to the stationary training equipment in a manner to represent the most onerous position(s) when the equipment is used according to the instructions in the user's manual.		P
	Place the determined load on the stationary training equipment as in normal practice and in a position which imposes greatest strain on the stationary training equipment.		P
	When the load bearing surface is divided, apply the test load to each part in proportion to the total surface area at the same time.		P
	The load should be applied through a load applicator in a way that simulates the situation that occurs when the stationary training equipment is used according to the instructions in the user's manual.		P
	Apply the test load Ftest to the stationary training equipment for at least 1 min.		P
	Examples are given in Annex A		P
6.16	**Testing of care and maintenance, assembly instructions, general instructions for use and marking** Verify the information provided by the manufacturer against the equipment being tested.		P
6.17	**Test report**		
	The test report shall include at least the following information:		P
	a) name and address of the testing facility and location where the test was carried out when different from the address of the reporting facility;		P
	b) unique identification of the report (such as serial number), each page, and total number of pages of the report;		P
	c) name and address of the client;		P
	d) description and identification of the test item;		P
	e) date of receipt of the test item and date(s) of the performance of the test;		P
	f) identification of the test specification or description of the method or procedure;		P
	g) description of the sampling procedure, where relevant;		P
	h) any deviations, additions or exclusions from the test specification, and any other information relevant to a specific test;		P

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Clause	Requirement - Test	Result - Remark	Verdict
	i) measurements, examinations and derived results, supported by tables, graphs, sketches and photographs as appropriate, and any failures identified;		P
	j) statement on the measurement uncertainty (where relevant);		P
	k) signature and title or an equivalent marking of person(s) accepting technical responsibility for the test report and date of issue;		P
	l) statement to the effect that the test results relate only to the items tested.		P

Annex A
(informative)
Examples for carrying out load testing

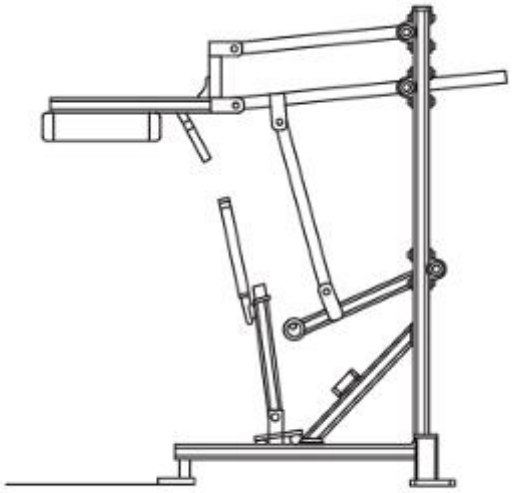
A.1

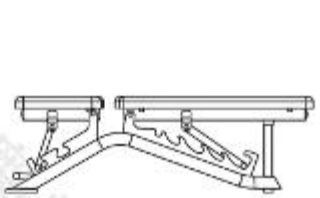
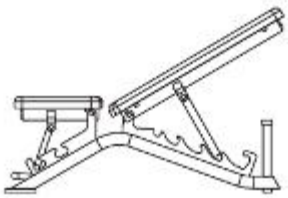
Example 1: stationary bicycle seat – body weight load only
A typical upright stationary exercise bicycle is shown in Figure A.1. A stationary bicycle seat is typically designed to support a user's full body weight, but no training load. In this example, the training load component is equal to zero, and the test load Ftest is equal to the full body weight load multiplied by the safety factor S for this particular stationary training equipment.

Figure A.1 — Upright stationary exercise bicycle

A.2

Example 2: squat exerciser – training load only
A typical squat exercise unit is shown in Figure A.2. The user stands on the floor or on a platform that is supported by the floor, so the full body weight load is supported by the floor. Therefore, the body weight load applied to the stationary training equipment is equal to zero, and the test load Ftest is equal to the training load multiplied by both the safety factor S and the dynamic coefficient of 1,5 for this particular stationary training equipment.

EN ISO 20957-1:2024			
Clause	Requirement - Test	Result - Remark	Verdict
	 **Figure A.2 — Squat exercise unit**		
A.3	**Example 3: multi-adjustable bench – seat back** A multi-adjustable bench has multiple configurations and can also be used in multiple ways. Therefore, some thought should be given to the most onerous loading condition prior to load testing of this type of equipment. Figure A.3 a) shows an example of a multi-adjustable bench with an adjustable seat back position. In the bench's flat position (the seat back's lowest position), when the user is performing a chest press exercise, the seat back experiences 100 % of the training load, applied in the location where the shoulders of the user would typically be positioned. In addition, about 50 % of the body weight load is supported by the seat back in this position. However, when the seat back is positioned in its lowest position, the seat back is fully supported by the frame directly under the location where the training load is applied. Therefore, for this particular stationary exercise equipment, this position is not the most onerous loading condition for the bench. When the seat back is positioned into its second-lowest position as shown in Figure A.3 b), the seat back still experiences the highest training load. In addition, almost 50 % of the body weight load is still supported by the seat back in this position. However, because the seat back is cantilevered and is not supported by the frame directly under the location where the training load is applied, this configuration imposes the greatest strain on the stationary training equipment. Therefore, the configuration as shown in Figure A.3 c) is the most onerous condition for testing the seat back of this particular stationary training equipment for this particular configuration. With the safety factor and dynamic load factor added, the seat back is tested with a test load Ftest made up of a combination of the training load component and the body weight load component. For this configuration, the training load component is 100 % of the training load multiplied by both the safety factor S and the dynamic coefficient of 1,5. The body weight load component is 50 % of the body weight load multiplied by the safety factor S for this particular stationary training equipment.		

EN ISO 20957-1:2024			
Clause	Requirement - Test	Result - Remark	Verdict
	  a) adjustable seat back in the lowest position b) adjustable seat back in the second-lowest position  c) adjustable seat back in the most onerous condition for testing the seat back Figure A.3 — Multi-adjustable bench with adjustable seat back in different positions		
A.4	**Example 4: multi-adjustable bench – seat bottom** When the seat back is in the lowest position as shown in Figure A.3 a), approximately 50 % of the body weight load is supported by the seat back, and approximately 50 % of the body weight load is supported by the seat bottom. However, when the seat back is positioned in its highest position as shown in Figure A.3 c), the seat bottom experiences 100 % of both the training load and 100 % of the body weight load. Therefore, the configuration as shown in Figure A.3 c) is the most onerous condition for testing the seat bottom of this particular stationary training equipment for this particular configuration. With the safety factor and dynamic load factor added, the seat bottom is tested with the full test load Ftest.		
A.5	**Example 5: multi-adjustable bench – head support area** There is yet another way that a user can load the multi-adjustable bench that has not been considered in the previous examples. If a user positions the bench in its flat position, the user may then choose to sit on either end of the multi adjustable bench to perform training exercises. If the user chooses to sit on the seat bottom, the most onerous condition is the one previously discussed, where the seat bottom receives the full test load Ftest. If the user chooses instead to sit on the very end of the seat back as shown in Figure A.3 a) (the head support area of the multi-adjustable bench) to perform their training exercise, the most onerous condition applies the full test load Ftest to the head support area. Therefore, the configuration as shown in Figure A.3 a) is the most onerous condition for testing the head support of this particular stationary training equipment for this particular configuration. With the safety factor and dynamic load factor added, the head support area is tested with the full test load Ftest.		

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Clause	Requirement - Test	Result - Remark	Verdict
1	**Scope**		
	This document specifies safety requirements for stationary strength training equipment, in addition to the general safety requirements of IS0 20957-1. This document is applicable to stationary strength training equipment with stacked weight resistance or alternative means of resistance, such as elastic cords, hydraulic, pneumatic, electrical, magnetic, springs and externally loaded weights (hereinafter referred to as stationary training equipment) with the classes H, S and I according to IS0 20957-1. NOTE Accuracy classes are not applicable to this type of' stationary training equipment as accuracy classes do not affect the safety of this equipment.		P
4	**Classification** The classification given in ISO 20957-1 shall apply	Class S	P
5	**Safety requirements**		
5.1	**Stability**		
5.1.1	**General** After installation and under foreseeable use, the equipment shall be stable in any direction and loading condition in training, folding and storage positions. Test in accordance with the stability test in IS0 20957-1	Stable in any direction.	P
5.1.2	**Externally loaded equipment** The equipment shall be stable when loaded as specified by the manufacturer either symmetrically or asymmetrically. Test in accordance with 6.2.2.	See cl. 6.2.2	P
5.1.3	**Externally loaded equipment** The equipment shall be stable with maximum load selected as provided by the equipment and with its stacked weights at its highest point of the range of travel. Test in accordance with 6.2.3	See cl. 6.2.3	P
5.2	**Loading**		
5.2.1	**Selectorized equipment and alternative resistance training equipment** For equipment classes H, S and I, the intrinsic loading and the extrinsic loading shall be in accordance with ISO 20957-1	After the test, no obvious deformation, the function still as intended by the manufacturer	P
5.2.2	**Externally loaded equipment**		
5.2.2.1	**Weight posts intended for training** For classes S and I, the training weight posts shall withstand a static load of 6 times the maximum load, as specified by the manufacturer for the training weight post being evaluated. For class H, the training weight posts shall withstand a static load of 4 times the maximum load, as specified by the	Test load based on page 3-4 list. Max. user weight & Max. Training weight.	P

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Clause	Requirement - Test	Result - Remark	Verdict
	manufacturer for the training weight post being evaluated. Test in accordance with 6.3.1. After the test, the training equipment shall not be broken and shall still function as intended by the manufacturer		
5.2.2.2	**Weight posts intended for storage** For classes S and I, the storage weight posts shall withstand a single static load of 4 times the maximum load, as specified by the manufacturer for the storage weight post being evaluated. For class H, the storage weight posts shall withstand a single static load of 2,5 times the maximum load as specified by the manufacturer for the storage weight post being evaluated. Test in accordance with 6.3.2. After the test, the training equipment shall not be broken and shall still function as intended by the manufacturer.	Test load based on page 3-4. Max. user weight & Max. Training weight.	P
5.2.2.3	**Extrinsic loading** The equipment shall withstand an extrinsic load F_{test} as calculated in accordance with Formula (1). $F_{test} = S(Wp + 1,5Fa)$ (1) Where F_{test} is the total reactionary load to be applied during the test, in newton; S is the safety factor of 4 for classes S and I, and 2,5 for class H; Wp is the user's body weight portion of the load applied to the part of the equipment being evaluated, of either 100 kg or the maximum user mass as specified by the manufacturer, whichever is greater, in newton; 1,5 is the dynamic coefficient; F_a is the load applied to the part of the equipment being evaluated, derived from the maximum specified load while performing exercise, in newton. Test in accordance with 6.3.3. After the test, the training equipment shall not be broken and shall still function as intended by the manufacturer.	Test load based on page 3-4. Max. user weight & Max. Training weight.	P
5.2.2.4	**Catch mechanisms for guided equipment** For classes S and I, the catch mechanism shall withstand a single static load of 6 times the maximum load as specified by the manufacturer. For class H, the catch mechanism shall withstand a single static load of 4 times the maximum load as specified by the manufacturer. Test in accordance with 6.3.4. After the test, the training equipment shall not be broken and	Test load based on page 3-4. Max. user weight & Max. Training weight.	P

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Clause	Requirement - Test	Result - Remark	Verdict
	shall still function as intended by the manufacturer		
5.3	**Endurance**		
5.3.1	**General** The equipment shall withstand the endurance requirements in accordance with ISO 20957-1 with a load of the maximum user's body mass as specified in the user's manual or 100 kg, whichever is greater, and the maximum training load, considering the following: If the user's body weight is a factor in the loading of the equipment during operation, then the applicable portion of the maximum user's body mass, as specified in the user's manual, or 100 kg, whichever is greater, shall be applied to the user support surface at the point of user contact. Test in accordance with 6.4.1. After the test, the equipment shall not be broken and shall still function as intended by the manufacturer	Function as specified by the manufacturer after 100,000 cycles test.	P
5.3.2	**Additional requirements for externally loaded equipment**		
5.3.2.1	**Work arm actuated equipment** The equipment shall withstand a) one impact for class H, and b) ten impacts for classes S and I of the maximum training load as specified by the manufacturer where the user interfaces with the work arm travels through a distance of (460 ± 5) mm. If this distance is not achievable, the maximum range of motion shall be used. Test in accordance with 6.4.2.1. After the test, the training equipment shall not be broken and shall still function as intended by the manufacturer.		N/A
5.3.2.2	**Catch mechanisms of guided equipment** The catch mechanism shall withstand a) one impact for class H, and b) ten impacts for classes S and I, each time on the same catch mechanism of the maximum training load as specified by the manufacturer. The carriage or barbell shall be dropped (150 +5/−0) mm along the guided path. If this distance is not achievable, the maximum range of motion shall be used. Test in accordance with 6.4.2.2. After the test, the training equipment shall not be broken and shall still function as intended by the manufacturer	Function as specified by the manufacturer after test.	P
5.3.2.3	**Drop stop for guided equipment** The drop stop shall withstand a) one impact for class H, and b) ten impacts for classes S and I	Function as specified by the manufacturer after test.	P

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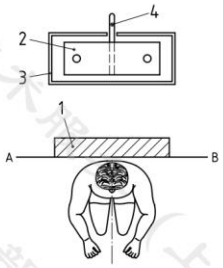
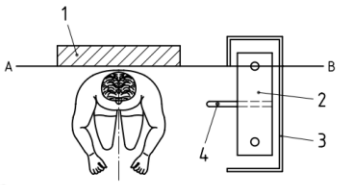
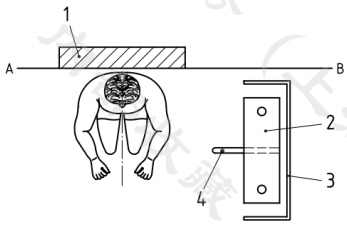
Clause	Requirement - Test	Result - Remark	Verdict
	of the maximum training load as specified by the manufacturer. The carriage or barbell shall be dropped (460 +5/−0) mm along the guided path. If this distance is not achievable, the maximum range of motion shall be used. Test in accordance with 6.4.2.3. After the test, the training equipment shall not be broken and shall still function as intended by the manufacturer		
5.4	**Access to squeeze and/or shear points**		
5.4.1	**Stacked weights or alternative means of resistance**		
5.4.1.1	**General** The requirements in 5.4.2.1 and 5.4.1.3 do not apply to external loaded equipment.	No such risk.	P
5.4.1.2	**Class H** The unintended access by users and/or third parties to squeeze and/or shear points of stacked weights or other means of resistance shall be prevented by either a)being fully surrounded by a guard with the exception of a ≤75 mm wide gap for selection of the stacked weights or other means of resistance, or b) locking, securing or deactivating the stacked weights or other means of resistance of the training equipment to prevent movement when the training equipment is not in use. Test in accordance with 6.1.2 and 6.1.4		N/A
5.4.1.3	**Class S and I**		
5.4.1.3.1.	**Guarding for stacked weights** Where stacked weights are behind the user (see Figure 4, vertical plane A-B) in any exercise position as described in the user's manual, they shall be guarded on all vertical sides. On the side where the weight is selected, a gap of ≤75 mm is allowed. The guarding shall be ≥60 mm higher than the upper edge of the stacked weights in its highest position unless the guarding and the top structure form an enclosure.	Stacked weight gurarding is enclosure, gap max.75mm	P

EN ISO 20957-2 :2024			
Clause	Requirement - Test	Result - Remark	Verdict
	 **Key** 1 head, chest or back support 2 stacked weights 3 guarding 4 pin NOTE 1 A-B is the line drawn laterally from the head, chest or back support in its most onerous position. NOTE 2 The opening for the pin can be on any of the 4 sides. **Figure 4 — Stacked weights behind the user**		P
	If any part of the stacked weights project behind the line A-B, it shall be guarded in accordance with Figure 5  **Key** 1 head, chest or back support 2 stacked weights 3 guarding 4 pin NOTE A-B is the line drawn laterally from the head, chest or back support in its most onerous position. **Figure 5 — Stacked weights partially behind of A-B**		P
	When the totality of the stacked weights is at the side of the user and in front of A-B (see Figure 6), it shall be guarded at least on the 3 sides furthest from the user.  **Key** 1 head, chest or back support 2 stacked weights 3 guarding 4 pin NOTE A-B is the line drawn laterally from the head, chest or back support in its most onerous position. **Figure 6 — Stacked weights in front of A-B** Test in accordance with 6.1.1 and the selection of the stacked weights shall be from the open side.		P
5.4.1.3.2	**No guarding** Where the stacked weights are always in front of the user and		N/A

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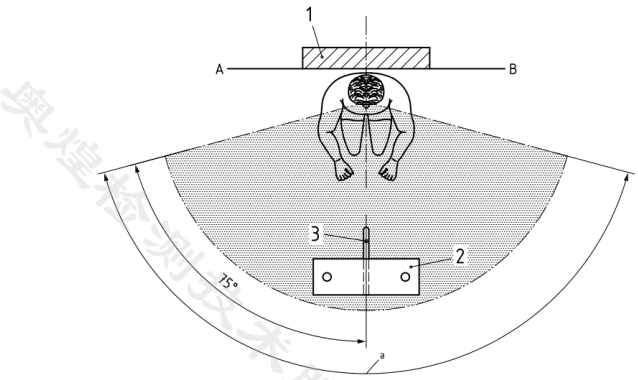
Clause	Requirement - Test	Result - Remark	Verdict
	visible throughout the exercise without any important obstruction (see Figure 7), no guarding is required.  **Key** 1 head, chest or back support 2 stacked weights 3 pin a Field of vision. NOTE A-B is the line drawn laterally from the head, chest or back support in its most onerous position. **Figure 7 — Stacked weights in front of the user** Test in accordance with 6.1.1.		
5.4.1.3.3	**Guarding for multiple stacked weight training equipment** For classes S and I only, multiple stacked weight training equipment does not require guarding on the 3 sides furthest from the user provided there is a framework and/or guard on these sides which prevents unintended access by the user and/or third parties. On the side adjacent to the user, the requirements shall be in accordance with the examples of the guarding shown in Figure 8.		N/A

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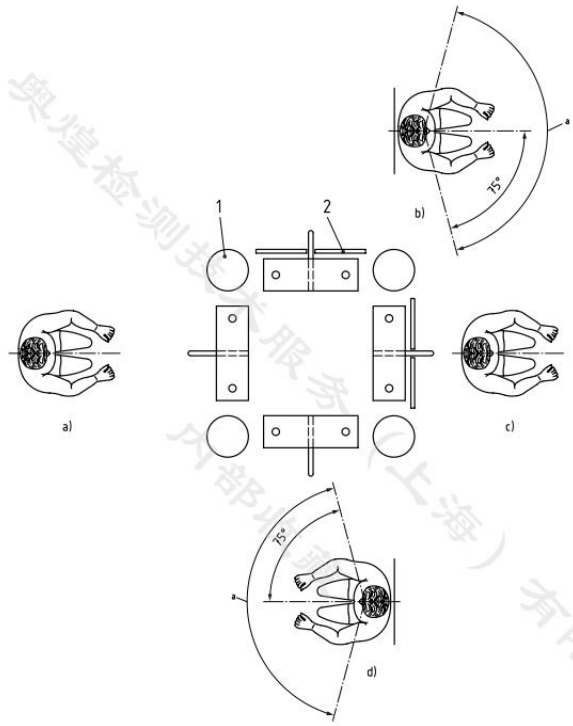
Clause	Requirement - Test	Result - Remark	Verdict
	 **Key** 1 framework and/or guard 2 guarding a Field of vision. NOTE 1 The framework can act as a part of the guarding. NOTE 2 For example a) stacked weights in front of the user; b) stacked weights at the side of the user, outside field of vision; c) stacked weight behind the user; and d) stacked weights at the side of the user, in the field of vision. **Figure 8 — Multiple stacked weight training equipment** Test in accordance with 6.1.1.		
5.4.2	**Weight disc clearance for externally loaded weights** The distance between weight discs and other movable or fixed parts shall be in accordance with ISO 20957-1. This requirement does not apply to weight discs on the same weight post. Test in accordance with 6.1.1 and 6.1.2		P
5.5	**Weight disc retention** All weight posts used for application of the training resistance shall contain a retention means. Acceptable means include, e.g. detent pins, clips or angling of the weight post above horizontal. If angling is used, the weight post shall be angled ≥2° with respect to horizontal throughout the entire range of motion. Test in accordance with 6.1.1, 6.1.2 and 6.1.4	By spring clip.	P
5.6	**Entrapment** In addition to the requirements for entrapment of the user according to ISO 20957-1, all guided equipment shall be provided with a drop stop. Squat-type exercise equipment shall have drop stop positions that set the barbell at a distance of ≥710 mm from the floor. Sled type exercise equipment shall have a permanent stop to		P

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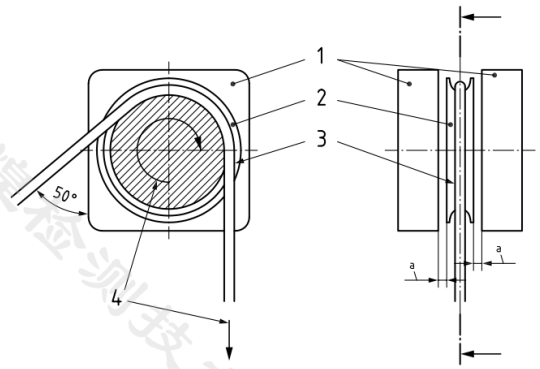
Clause	Requirement - Test	Result - Remark	Verdict
	set a minimum distance of 266 mm between the front edge of the seat and the foot platform. Test in accordance with 6.1.1, 6.1.2 and 6.1.4		
5.7	**Pull-in points** Pull-in points of rope or belt drives present on the equipment shall be protected. If any of the following requirements are met, the area between the pulley groove and the rope or belt is not considered a hazard and does not require additional guarding: a) Potential pull-in points of rope or belt drives present on the equipment at a height of >1 800 mm. b) The surface pressure at considered pull-in point is ≤90 N/cm2. c) Access to the considered pull-in point is prevented by the user's body during exercising. d) The angle between the rope or belt and the guarding and/or pulley is ≥50° in all directions during intended use, see Figure 9. The guarding shall not rotate together with the pulley. e) the risk of finger entrapment shall be minimized. Pull-in points for chains, gears and sprockets shall be protected in accordance with ISO 12100.		P
	 **Key** 1 guarding 2 pulley 3 rope or belt 4 direction of movement [a] Finger probe (9,5 mm) in accordance with ISO 20957-1. **Figure 9 — Pull-in point** Test in accordance with 6.1.1, 6.1.2, 6.1.4 and 6.1.5		P
5.8	**Additional instructions for use** In addition to ISO 20957-1, the following information shall be given in the instructions for use: a) a statement that the owner shall provide the user with all warnings and instructions; b) for classes S and I, that the training equipment shall only be used in areas where access, supervision and control is	See user manual provided by client	P

EN ISO 20957-2 :2024			
Clause	Requirement - Test	Result - Remark	Verdict
	specifically regulated by the owner; c) for classes S and I, where the training equipment is designed to 5.4.1.3.2 (stacked weights unguarded), that the person exercising should face the training equipment at all times during the exercise. The stacked weights should remain within the field of vision of the user throughout the exercise to prevent danger to a third party; d) for classes S and I, short instructions describing the main exercises affixed directly or provided to be affixed on or close to the training equipment (e.g. as graphic symbols); e) for training equipment externally loaded with weight discs/plates, instructions regarding the bore size and dimensional capacity of the weight discs/plates; f) for guided equipment, information on how to pre-set the height of adjustable drop stop(s) to provide sufficient space to avoid crushing injuries; g) information for the function and appropriate set up of all catch mechanisms and drop stops; h) instructions for loading and unloading external weight on the equipment; i) instructions for using weight retention devices on barbells and weight posts; j) information on equipment weight plate size restrictions; k) instructions for special attention to drop stops and catch mechanisms during maintenance checks; l) if pictograms or graphical symbols are used in the marking, an explanation shall be given.		
5.9	**Additional marking** In addition to ISO 20957-1, the following markings shall be included for classes S and I: a) for externally loaded equipment, maximum load capacity for each weight post; b) warning that using the equipment for support during stretching or allowing resistance straps, ropes or other means to be attached to it can result in injury; c) warning that adjustable drop stops shall be positioned and used appropriately for the specific exercise; d) for all squat-type exercise equipment, warning labels shall be affixed to each side of the equipment at a height which maintains a minimum distance between the barbell and the floor or base of 710 mm; NOTE Squat-type exercise equipment are for example Smith Machines, Hack Squat, Squat Racks and Lifting/Power Cages. e) instructions describing the main exercise shall be affixed on	See marking provided by client	P

EN ISO 20957-2 :2024			
Clause	Requirement - Test	Result - Remark	Verdict
	the equipment		
6	**Test methods**		
6.1	**General**		
6.1.1	**Dimensional check** The measurement shall be done with appropriate measurement devices.		P
6.1.2	**Visual examination** The visual examination shall be done under proper lighting		P
6.1.3	**Tactile examination** The tactile examination shall be done without gloves.		P
6.1.4	**Performance testing** The tested mechanism shall be actuated as intended by the manufacturer.		P
6.1.5	**Finger entrapment test** The test probe according to ISO 20957-1 shall not be entrapped.		P
6.2	**Stability testing**		
6.2.1	**General** If the equipment is required by the manufacturer to be anchored, it shall be anchored for the test. All other equipment shall not be anchored for the testing.		P
6.2.2	**Externally loaded equipment** Place the equipment on a (10 +2/−0)° incline surface in the most onerous position. If the equipment is required by the manufacturer to be anchored, it shall be anchored for the test. All other equipment shall not be anchored for the testing. Storage and training posts shall be evaluated separately. Load the storage posts and training posts symmetrically as well as asymmetrically and determine the most onerous position and loading condition. Perform exercise(s) that involve(s) the user's body mass, with the equipment loaded with a test person weighing (100 ± 5) kg over the full range of exercise motion. In addition, if applicable, perform exercise(s) that does not involve the user's mass, using the minimum as well as the maximum load, over the full range of exercise motion. The equipment shall not tip over in either test. The test person shall not lean or try to influence the balance of the device.		P
6.2.3	**User-defined motion equipment** Select the maximum load provided by the equipment. Lift the training load to its highest point of the range of motion		P

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Clause	Requirement - Test	Result - Remark	Verdict
	and lock it in this position. If the equipment utilizes multiple stacked weights, all of them should be lifted and locked in their highest point of the range of motion. Place the equipment on a (10 +2/-0)° incline surface in the most onerous position. The equipment shall not tip over		
6.3	**Loading test**		
6.3.1	**Weight posts intended for training** Attach a load application device to the midpoint of weight posts intended for training. The weight post intended for training may either be pushed or pulled downward with the loading device. Apply the load from 5.3.2.2 to the weight post intended for the training being evaluated. Maintain this load for ≥5 min. Repeat the test for each weight post intended for training	Test accordingly	P
6.3.2	**Weight posts intended for storage** Secure a load application device to the midpoint of the length of the weight post intended for storage. The weight post intended for storage may either be pushed or pulled downward with the loading device. Apply the load from 5.3.2.3 to the weight post intended for storage being evaluated. Maintain this load for ≥5 min. Repeat the test for each weight post intended for storage	Test accordingly	P
6.3.3	**Extrinsic loading test** Calculate the F_{test} in accordance with Formula (1). Determine the maximum user's body mass percentage supported by the equipment. Determine where and in which direction the maximum load is applied to the equipment. Secure and support the load application device to this point on the equipment. Apply F_{test} in the direction of the user applied loading through a plate with the dimensions of 300 mm × 300 mm. Maintain the load for ≥5 min.	Test accordingly	P
6.3.4	**Catch mechanisms for guided equipment loading test** Support the bar or carriage on the catch mechanism with the means provided by the manufacturer. Attach a load application device to the centre of the bar or carriage. The bar or carriage may either be pushed or pulled downward with the loading device. Apply the load in 5.2.2.4 in the direction of movement of the bar or carriage. Maintain this load for ≥1 min.	Test accordingly	P
6.4	**Endurance Test**		
6.4.1	**General** The test shall be conducted in accordance with the testing of endurance load in ISO 20957-1 with the loads in accordance with 5.3.1		P
6.4.2	**Additional requirements for externally loaded equipment**		P
6.4.2.1	**Work arm actuated equipment** Load the work arm with the maximum training load as specified		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	by the manufacturer. Lift the work arm to the distance as specified in 5.3.2.1 from the drop stop. Release the load allowing the work arm to drop onto the drop stop. For class H the test is complete after one drop. Repeat the impact as specified in 5.3.2.1 for classes S and I		
6.4.2.2	**Catch mechanisms of guided equipment** If the catch mechanism is adjustable, set it to the most onerous position still allowing the drop distance as specified in 5.3.2.2. Load the carriage or barbell with the maximum training load as specified by the manufacturer. Lift the carriage or barbell to the distance as specified in 5.3.2.2 from the catch mechanism being evaluated. Release the load allowing the carriage or barbell to drop onto the catch mechanism being evaluated. For class H, the test is complete after one drop. Repeat the impact as specified in 5.3.2.2 for classes S and I.	Test accordingly	P
6.4.2.3	**Drop stops for guided equipment** If the drop stop is adjustable, set it to the most onerous position still allowing the drop distance as specified in 5.3.2.3. Load the carriage or barbell with the maximum training load as specified by the manufacturer. Lift the carriage or barbell to the distance as specified in 5.3.2.3 from the drop stop being evaluated. Release the load allowing the carriage or barbell to drop onto the drop stop being evaluated. For class H, the test is complete after one drop. Repeat the impact as specified in 5.3.2.3 for classes S and I.	Test accordingly	P
7	**Test report**		
	Test report in addition to ISO 20957-1, 6,19, the test report shall include at least a reference to this document, i.e. ISO 20957-2: 2024.		P

End of the report