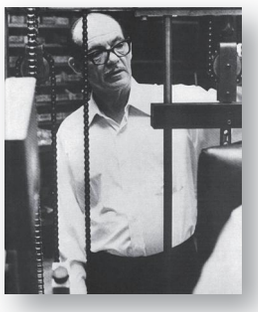
Dr. Gottlob **Testing**

New NAUTILUS ONE Line Equipment Test

In the wake of the successful market launch of *Nautilus'* ONE line and its strong presentation at FIBO, our institute has been commissioned by FITNESS TRIBUNE to carry out a test of these 14 innovative machines. First impression: This is one of the most harmoniously co-ordinated equipment lines to have entered the market over the past few years. Before we look at the equipment in detail though, let's first showcase the manufacturer.

NAUTILUS! A name full of tradition in the fitness industry! Everybody who has worked for a while in our sector comes to view this name as a brand of superlatives: Complex training gear; ingenious inventor; isolating excenter machines; high intensity training.

At the end of the 1950s, a passionate animal film maker, pilot and engineer had the idea, while visiting a body building gym, of making training machines. A little over 10 years later, at an American Bodybuilding Championship in 1970, **Arthur Jones** presented his first training machines to expert circles. Monstrous blue steel structures, they were the counterpart of the flashy chrome plated machines found in the *Jack LaLane* and *Vic Tanny* gyms. Following Jones' principle, *"function dictates design",* new forms of exercise were offered and as a peculiarity in those times, transmission of the resistance by means of a chain pulley system was achieved using a cam disc, or **cam** for short, rather than by an eccentric. This cam, embodying an all important unique selling point and optically resembling the "Nautilus" living in tropical oceans, has become an equipment range and the company's name for the new equipment generation.



Arthur Jones († 2007)

> Using a cam for load transmission means that the lever arm loads change during movement, and so does the torque. This means that the exercising person must overcome a variable rather than a constant resistance during training. Now, by means of the shape of the cam, the resistance can be adjusted such that it decreases at the point where the person training weakens.

Over the next few years *Jones* developed a whole series of machines, maintained his own research department and published numerous treatises on his ideas of intense targeted resistance training. In 1979, when my father and I visited *Nautilus* in DeLand, Florida, and met with *Arthur Jones*, the company was at its peak, becoming the undisputed market leader. Those were the days when in a gym in the USA, *Nautilus* machines were expected as a matter of course. There were many *Nautilus Clubs,* and any larger centre that was worth its salt offered a complete *Nautilus* line.

Page 47 ➤

Born in 1960, **Dr. Axel Gottlob** studied physics and law before graduating from the University of Stuttgart with a degree in mechanical engineering (majoring in biomedical technology and applied computer science). After working in the areas of ergonomics and occupational physiology at the Fraunhofer Institute, he went on to specialise in biomechanics. In 2002, Gottlob graduated magna cum laude from the University of Heidelberg with a doctorate degree in sports science (Dr. phil.). Having practically grown up in gyms (his father, Peter Gottlob, opened his first gym in 1959) he worked in the fitness industry as his main profession for 30 years and for many years as successful fitness trainer and gym manager. After 7 years in performance sports he became German Bodybuilding Champion in 1982; he won both his class and the overall title and at 22 years of age became the youngest ever title-holder in the men's rankings. Today he is still a regular sportsman with strength training and running as his primary activities.

Since 1982, Gottlob has been involved in the research and development of professional training machines (he has four patents in his name and is the inventor of multimotion technology) and differentiated exercise kinematics. Until the sale of his family business Galaxy Sport in 1992, Gottlob was one of the market leaders in the field of professional training equipment in Europe and Japan. Since 1997 he has been holding the position of associate professor at the Institute of Sports Sciences of the University of Heidelberg. Textbook author, columnist for trade magazine Fitness Tribune and tester of professional training equipment, he writes regular highly regarded articles for the fitness industry and for the therapy sector. With his specialist knowledge, critical questioning and new approaches he is now considered one of the leading strength training and back experts in Germany.

After several years as sales and general manager, studies in psychology in the United States and a one-year EU management training course in Japan, he then specialised, alongside strength training, in motivational training as well as customer-oriented company management. Over recent years his expert knowledge in these areas has become sought after too. Since 1993 he has been training trainers and therapists on the highest level at his Dr. Gottlob INSTITUT. He acts as consultant to companies, fitness centres, associations and therapeutic establishments. Furthermore, he advises elite athletes, managers, physical therapy groups and patients with back and other joint problems. For over 15 years he has become known at both national and international conventions as a highly motivating speaker and recognised expert in his field.

Holder of the internationally recognised Strenflex GOLD fitness test badge

Dr. Gottlob Institut

Abdominal machine

Lower back extension machine

Machine / Type	***Nautilus One*** Abdominal crunch machine, S6AB	***Nautilus One*** Lower back, S6LB
Ergonomics & comfort		
Anthropometric contact points	✿✿✿ Cushion contact excellent	✿✿✿
Weights and weight increments	Beginners ✿✿✿ Advanced users ✿✿✿ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg]	Beginners ✿✿✿ Advanced users ✿✿✿ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg; but extra block hardly necessary]
Suitable for both smaller/larger users	✿✿ Very good continuous hydraulic seat height adjustment Somewhat limited for very tall users	✿✿✿
Adjustment mechanism ergonomics	✿✿✿ Good	✿✿
Adjustable from seat (exercise position)	Weight settings can easily be adjusted from the seat. Seat position when standing in front of the machine, seat position can also be lowered whilst seated	All settings for resistance, footplate and seat height can be made from the seated position; footplate a little tight.
Test weighting 25%	Very good (1.3)	Very good (1.3)
Biomechanics		
Movement kinematics	The exercise is a 2 axis jack knife movement and is therefore conceived as a abdominal- / hipflexor musclechain exercise. Although a certain risk of lordosis exists at the beginning of movement due to the position of the pivot axis, the movement path during the bending phase can be evaluated as very positive. The lateral abdominal muscle groups can be accentuated from a ROM prospective through an oblique sitting position for this the pelvis should be rotated to the left or right. In a second design variant the exercise can also be carried out very effectively even without the leg roll pulley; here, instead of the additional movement in the hip joint, the lumbar spine flexes further; i.e. the abdominal muscle ROM increases slightly and lordosis at the beginning is no longer possible.	Various compartments of the erector spinae muscles (whole of the lumbar spine, part of the lower thoracic spine) can be trained in a highly isolated and effective manner. A slight wandering of the pivot axis cannot be avoided due to its not quite ideal horizontal alignment. Select a pre-angled pelvis position so that a full ROM is possible and constrained posture is avoided. At the highest resistance settings however, proper stabilisation is no longer possible.
Pivot axis	✿✿ The lower pivot axis is well positioned, the upper pivot axis on the other hand, lies somewhat to the rear at the beginning of the movement; the position improves when bending.	✿✿ Adjustable to the mid/lower lumbar spine level; it was not possible to position the lower lumbar spine level for small to mid-sized people on the machine under test. The horizontal position of the pivot axis is not quite ideal. Caution: Red mark does not correspond with the pivot axis!
ROM [Range of motion]	✿✿✿	✿✿✿
Risk of constrained posture	✿✿ No real constrained posture, but at the start point the pivot axes are not congruent with the body axis; this means that a pull is possible due to slight hyperlordosis.	✿✿
Load dissipation	✿✿✿ Via leg rolls and armrests	✿✿ Can be dissipated well via the knee and hip muscle group; for greater loads a pelvic belt or similar form of stabilisation would be helpful to essential.
Target muscles (incl. lateral abdominal muscles)	✿✿✿ Lateral abdominal muscles, upper rectus abdominis compartments and the hip flexor musculature. Exercising without using the leg roll means that the hip flexors can be isolated and priority placed on the lower rectus abdominis compartments in addition.	✿✿ For the mid and upper sections of the lumbar erector spinae muscles. Due to an obvious error in the assembly of the machine under test the lower lumbar regions could not be dynamically engaged.
Required adjustments	✿✿✿ Possible; arm rest adjustment not necessary because they swivel ideally and always return to the start position by a return spring; a start angle adjustment would be desirable.	✿✿ Seat height and footrest adjustment good; a start angle adjustment would be desirable and pelvic stabilisation would be advantageous.
Resistance curve	✿✿✿ Practically constant	✿✿
Inertial resistance	✿✿✿ Excellent	✿✿✿
Friction coefficient minimisation	✿✿✿ Excellent	✿✿✿
Test weighting 75%	Good (2.0); version with leg roll pulley Gut (1.6); version without leg roll pulley	Good (1.9)
Overall rating Biomechanics/ ergonomics/ comfort	**Good (1.8) to very good (1.5) [see above]**	**Good (1.7)**
Safety features [1, 2]		
Pinch, cut, trip or impact hazards	None; there could just be a potential pinch risk on the outside edge of the seat for training partners that are holding on here.	No objections
Technical data [1]		
Dimensions (LxWxH) [3] [cm]	137 x 142 x 150	132 x 127 x 124
Gross weight [3] [kg]	395	382
Price [3] [Euro exc. VAT]	5,795.00 (CHF 8,791.00 exc. VAT)	5,795.00 (CHF 8,791.00 exc. VAT)

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Strength Equipment Test©
Manufacturer: Nautilus
Product: Nautilus One Lat Pulldown, S6LATP
Test score: VERY GOOD (1.4)
FITNESS TRIBUNE
Conferred by: fitnesstribune.com & dr-gottlob-institut.de
Test result valid until: 10/2010

Lat pulldown machine

Strength Equipment Test©
Manufacturer: Nautilus
Product: Nautilus One Mid Row, S6MR
Test score: GOOD (1.9)
FITNESS TRIBUNE
Conferred by: fitnesstribune.com & dr-gottlob-institut.de
Test result valid until: 10/2010

Mid row machine

Machine / Type	***Nautilus One*** Lat pulldown machine, S6LATP	***Nautilus One*** Rowing machine, S6MR
Ergonomics & comfort		
Anthropometric contact points	☼☼☼	☼☼
Grips	Grip position and movement very good; just the grip diameter is a little too large for a pulling machine.	The diameter of the pull grips is a little too great; in contrast, their relative movement and swivelling action is good.
Weights and weight increments	Beginners ☼☼☼ Advanced users ☼☼☼ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg]	Beginners ☼☼☼ Advanced users ☼☼☼ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg]
Suitable for both smaller/larger users	☼☼☼	☼☼
Adjustment mechanism ergonomics	☼☼☼ Seat height is continuously adjustable via a hydraulic mechanism, thigh pad can be effectively adjusted, but the locking mechanism was rather tight on the test machine.	☼☼☼
Adjustable from seat (exercise position)	All adjustments are very easily made	All settings can be adjusted from the seated position
Test weighting 25%	Very good (1.3)	Very good (1.5)
Biomechanics		
Movement kinematics	Very well controlled largely linear lat pulldown movement where the grips can be pulled directly along the longitudinal axis of the body. The grips, which can be moved and swivelled in opposition to one another, allow freedom of movement, the levers however, remain permanently coupled.	Good, controlled rowing exercise with torso support. The permanently coupled grips, which can still however be moved independently and swivelled in opposition to one another, allow a complete back extension exercise.
Pivot axis	☼☼	☼☼☼
ROM [Range of motion]	☼☼☼	☼☼☼
Risk of constrained posture	N/A	☼☼☼
Load dissipation	☼☼☼ Good, via thigh roll pad	☼☼ Via chest cushion; this is consequently very soft, but would be better if it was somewhat larger. Contact pressure is unpleasant at higher loads. The well positioned footrests would be good here, but when using these the correct back position becomes essential.
Required adjustments	☼☼☼ Available	☼☼☼
Resistance curve	☼☼☼	☼☼
Inertia	☼☼☼ Minimal	☼☼ As usual very low. At low resistances however the relatively heavy lever arms become noticeable.
Friction coefficient minimisation	☼☼☼ Excellent	☼☼☼ Excellent
Test weighting 75%	Very good (1.5)	Good (2.0)
Overall rating		
Biomechanics/ ergonomics/ comfort	Very good (1.4)	Good (1.9)
Safety features [1, 2]		
Pinch, cut, trip or impact hazards	No objections	No objections; the machine should however be positioned in the training room such that no one can walk into the moving grip carriages.
Technical data [1]		
Dimensions (LxWxH) [3] [cm]	196 x 130 x 224	170 x 124 x 127
Gross weight [3] [kg]	384	371
Price [3] [Euro exc. VAT]	5,795.00 (CHF 8,791.00 exc. VAT)	5,795.00 (CHF 8,791.00 exc. VAT)

Strength Equipment Test©	Strength Equipment Test©	Strength Equipment Test©
Manufacturer: Nautilus Product: Nautilus One Chest Press, S6CP Test score: GOOD (1.7) FITNESS TRIBUNE Conferred by: fitnesstribune.com & dr-gottlob-institut.de Test result valid until: 10/2010	Manufacturer: Nautilus Product: Nautilus One Pec Fly, S6PF Test score: GOOD (2.3) FITNESS TRIBUNE Conferred by: fitnesstribune.com dr-gottlob-institu Test result valid until: 10/2010	Manufacturer: Nautilus Product: Nautilus One Shoulder Press, S6SP Test score: GOOD (2.1) FITNESS TRIBUNE Conferred by: fitnesstribune.com dr-gottlob-institu Test result valid until: 10/2010
Chest press	**Butterfly**	**Shoulder press**
		
Nautilus One Chest press, S6CP	***Nautilus One*** Pec fly machine, S6PF	***Nautilus One*** Shoulder press, S6SP

✿✿✿ On the test machine however the backrest deviates slightly from the central axis.	✿✿ Seat and backrest very good; arm rolls good	✿✿✿
Large diameter grips provide a good hand contact	✿✿	✿✿
Beginners ✿✿✿ Advanced users ✿✿✿ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg]	Beginners ✿✿✿ Advanced users ✿✿✿ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg]	Beginners ✿✿ Advanced users ✿✿✿ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg]
✿✿	✿✿✿	✿✿✿
✿✿✿	✿✿✿	✿✿✿
Seat adjustment and resistance selection pleasant and the backrest position for the start angle can also be easily set from the seated position.	All settings can again be very easily adjusted from the seated position	Yes
Very good (1.4)	Good (1.8)	Very good (1.4)

This is a good chest press exercise with permanently coupled arms and a grip path that converges to the front	The butterfly exercise is carried out on the pec fly machine having a backrest angled at 30° and permanently coupled arms. The exercise form detailed in the handbook shows the classic version using the hand grips and requires a position with the shoulders turned outwards; one that causes significantly greater strain. In a second, rather more preferable variant of this exercise the padded rolls are placed in the crook of the arms with the arms in a neutral shoulder position. The benefits are less strain on the shoulders and no risk of constrained posture on entry/exit.	Permanently coupled pressurised lever system with converging grip path 2 grip positions are available
✿✿	✿✿	✿✿
✿✿✿ An entry aid would perfect the ROM, but the adjustable backrest and easy entry to the machine provide an almost complete ROM	✿✿ In a neutral shoulder position the ROM is slightly restricted	✿✿✿
✿✿✿	✿✿ An entry aid would be a valuable addition	✿✿✿
✿✿✿	✿✿✿	✿✿
✿✿✿	✿✿	✿✿ An entry aid and backrest adjustment would be a valuable addition
✿✿✿	✿✿	✿✿✿
✿✿ The extremely low inertial resistance is unfortunately somewhat eclipsed by the rather high inertia arm arrangement	✿✿	✿ Low inertial resistance is cancelled out by a very complicated lever arm system
✿✿✿	✿✿✿	✿✿✿
Gut (1,8)	Good (2.4); Satisfactory (3.0) when the exercise is carried out with the shoulders turned outwards and hand grips	Good (2.3)
Gut (1,7)	Good (2.3); Satisfactory (2.7) [when using the hand grips]	Good (2.1)

No objections	No objections	No objections

152 x 152 x 191	137 x 163 x 135	160 x 163 x 160
418	412	403
5,795.00 (CHF 8,791.00 exc. VAT)	5,795.00 (CHF 8,791.00 exc. VAT)	5,795.00 (CHF 8,791.00 exc. VAT)

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Strength Equipment Test©
Manufacturer: Nautilus
Product: Nautilus One Lateral Raise, S6LR
Test score: VERY GOOD (1.5)
Conferred by: fitnesstribune.com & dr-gottlob-institut.de
Test result valid until: 10/2010

Lateral raise machine

Strength Equipment Test©
Manufacturer: Nautilus
Product: Nautilus One Biceps Curl, S6BC
Test score: GOOD (2.5)
Conferred by: fitnesstribune.com & dr-gottlob-institut.de
Test result valid until: 10/2010

Biceps curl machine

Machine / Type	***Nautilus One*** Lateral raise, S6LR	***Nautilus One*** Biceps curl, S6BC
Ergonomics & comfort		
Anthropometric contact points	☼☼	☼☼
Grips	☼☼	☼☼
Weights and weight increments	Beginners ☼☼☼ Advanced users ☼☼☼ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg, however not required]	Beginners ☼☼☼ Advanced users ☼☼☼ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg, however not required]
Suitable for both smaller/larger users	☼☼	☼ It's more difficult for small people to place their arms onto the upper arm cushion and still be in-line with the pivot axis
Adjustment mechanism ergonomics	☼☼☼	☼☼☼
Adjustable from seat (exercise position)	Yes	Yes
Test weighting 25%	Very good (1.4)	Good (2.0)
Biomechanics		
Movement kinematics	Very good lateral raise exercise machine. These independently suspended arms provide a well controlled movement for a machine, which is always more limiting in its movement. The construction of the functional unit is very high which means that small to mid-sized users' feet do not touch the ground.	A very satisfactory arm curl exercise with independent suspension. However, this pairing of hand grip and pivot axis does not allow a clean, full amplitude arm curl exercise for both arms. Some development work is still required before this pairing is perfected. Very good, preferred execution of the exercise with a single arm and over partial amplitude
Pivot axis (axes)	☼☼☼	☼
Movement path	N/A	☼
ROM [Range of motion	☼☼☼	☼☼
Risk of constrained posture	☼☼☼	☼☼☼
Load dissipation	☼☼☼	☼☼
Required adjustments	☼☼☼	☼☼
Resistance curve	☼☼☼	☼☼☼
Inertial resistance	☼☼	☼☼☼
Friction coefficient minimisation	☼☼☼	☼☼☼
Test weighting 75%	Good (1.6)	Satisfactory (2.6)
Overall rating Biomechanics/ ergonomics/ comfort	Very good (1.5)	Good (2.5)
Safety features [1, 2]		
Pinch, cut, trip or impact hazards	No objections	No objections
Technical data [1]		
Dimensions (LxWxH) [3] [cm]	119 x 137 x 155	122 x 155 x 137
Gross weight [3] [kg]	385	392
Price [3] [Euro exc. VAT]	5,795.00 (CHF 8,791.00 exc. VAT)	5,795.00 (CHF 8,791.00 exc. VAT)

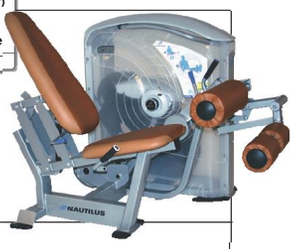
Ratings: ☼☼☼ very good, ☼☼ good, ☼ satisfactory, ✹ unsatisfactory, ✹✹ poor

The categories, with the percentage score stated, are incorporated into the calculation of the overall score.

[1] Evaluations/results were not used in calculating the overall score.

[2] In terms of safety, only problems that could be visually detected by users were taken into consideration. Equipment was for example, not tested for load capacity, nor was compliance with binding European Standard EN 957, concerning the safety of stationary training equipment, checked.

[3] According to manufacturer's information

Strength Equipment Test©	Strength Equipment Test©	Strength Equipment Test©
Manufacturer: Nautilus Product: Nautilus One Triceps Extension, S6TE Test score: SATISFACTORY (2.6) Conferred by: fitnesstribun dr-gottlob-in Test result valid until: 10/	Manufacturer: Nautilus Product: Nautilus One Leg Extension, S6LE Test score: GOOD (1.9) Conferred by: fitnesstribune.c dr-gottlob-instit Test result valid until: 10/2010	Manufacturer: Nautilus Product: Nautilus One Seated Leg Curl, S6LC Test score: SATISFACTORY (2.7) Conferred by: fitnesstribune.com & dr-gottlob-institut.de Test result valid until: 10/2010
Triceps extension machine	**Leg extension machine**	**Seated leg curl machine**
		
Nautilus One Seated triceps extension machine, S6TE	***Nautilus One*** Leg extension machine, S6LE	***Nautilus One*** Seated leg curl machine, S6LC

☼☼☼	☼ Top leg roll design Thigh pad somewhat angular at the hollow of the knee and the width is too narrow as a result of the curvature	☼☼ Leg rolls excellent, but despite an excellent shin roll an increased contact pressure on the shin occurs at higher resistances
☼	N/E	N/E
Beginners ☼☼☼ Advanced users ☼☼☼ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg]	Beginners ☼☼☼ Advanced users ☼☼☼ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg]	Beginners ☼☼☼ Advanced users ☼☼☼ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg]
☼☼	☼☼	☼☼
☼☼☼	☼☼☼	☼☼☼
Yes	Yes	All settings can easily be adjusted from the seat
Good (2.0)	Good (2.2)	Good (2.0)

Stabilising the arms and maintaining pivot axis congruence are extremely difficult parameters to fulfil when it comes to seated triceps extension machines. In principle this machine offers a very good lever arm movement for the extension exercise. At higher weights and for smaller users it is recommended that the arm extension exercise be executed primarily with one arm.	Very good leg extension exercise with horizontal adjustment of the pivot axis via an easily adjustable backrest. Load dissipation is unfortunately not in the same league as that of the *Nitro* variant due to the less than ideal positioning of the thigh support Single leg work can be executed very well and in the case of two legs the thighs must be placed so they are very close together (possibly retrofit a seat cushion that is wider at the front).	The leg curl exercise can unfortunately only be recommended for low to medium resistances. Increased knee joint loads, pivot axis incongruence and pressure on the shin are the consequences. A form of pelvic stabilisation would result in an improvement in the stability of the pivot axis.
☼	☼☼	☼ Can no longer be stabilised at higher resistances
☼	N/A.	N/A.
☼☼☼	☼☼	☼☼
☼☼☼	☼☼☼	☼☼☼
☼	☼	✹ Load dissipation via the shin is counter productive at higher resistances
☼ A pelvic belt and entry aid or similar assistance systems would be valuable improvements	☼☼ No start angle setting	☼ No start angle limit; foot roll adjustment has only 3 settings
☼☼	☼☼	☼☼
☼☼☼	☼☼☼	☼☼☼
☼☼☼	☼☼☼	☼☼☼
Satisfactory (2.8)	Good (1.8)	Satisfactory (3.0)
Satisfactory (2.6)	Good (1.9)	Satisfactory (2.7)

No objections	No objections	No objections

124 x 147 x 137	135 x 132 x 127	147 x 132 x 127
399	379	383
5,795.00 (CHF 8,791.00 exc. VAT)	5,795.00 (CHF 8,791.00 exc. VAT)	5,795.00 (CHF 8,791.00 exc. VAT)

All machine tests were carried out impartially and in good faith, however no guarantees of any type are given or implied.

Abbreviations:

N/A	Not applicable
N/E	Not evaluated

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Strength Equipment Test©
Manufacturer: Nautilus
Product: Nautilus One Leg Press, S6LP
Test score: GOOD (1.9)
Conferred by: fitnesstribune.com dr-gottlob-institut.
Test result valid until: 10/2010

Leg press machine

Strength Equipment Test©
Manufacturer: Nautilus
Product: Nautilus One Hip Abd/Add, S6AA
Test score: GOOD (1.6)
Conferred by: fitnesstribune.com & dr-gottlob-institut.de
Test result valid until: 10/2010

Hip abduction/ adduction machine

Machine / Type	***Nautilus One*** Leg press, S6LP	***Nautilus One*** Hip abduction/adduction, S6AA
Ergonomics & comfort		
Anthropometric contact points	☼☼	☼☼ Somewhat limited for smaller users
Weights and weight increments	Beginners ☼☼☼ Advanced users ☼☼☼ 20 to 210kg in 2.5kg increments (very fine adjustment)	Beginners ☼☼☼ Advanced users ☼☼☼ 5 to 127.5kg in 2.5kg increments (very fine adjustment) [upgradable up to 187.5kg]
Suitable for both smaller/larger users	☼☼ Slightly limited for very tall users with the backrest flat and when utilising the full ROM	☼☼ With small users the small thigh underlay pad can press uncomfortably against the lower leg (in particular during adduction)
Adjustment mechanism ergonomics	☼ Backrest and seat carriage adjustment sometimes cumbersome depending upon the application	☼☼☼
Adjustable from seat (exercise position)	☼☼ Yes – except for the backrest	Yes – but weight adjustment slightly too far to the front
Test weighting 25%	Good (2.2)	Good (1.8)
Biomechanics		
Movement kinematics	The user pushes forward a foot plate suspended on multiple bearings. This suspension allows the plate to move downwards thereby changing the angle of inclination by 20°, which means that the ROM of all the utilised hip muscles is expanded whilst the angular distance of the knee remains constant. A backrest that is adjustable over a range of 35 to 60° offers the athlete a range of different hip flexion angles which result in various stress profiles for the knee/ hip extension muscles.	Combo machine for hip abduction/adduction exercises. For the abduction/adduction exercise it is possible to work primarily with either the thigh pad or the footplates.
Pivot axis (axes)	N/A	☼☼☼
Movement path	☼☼ The footplate is pushed slightly downwards and forwards. The footplate rights itself during the pushing action from a position angled 20° forwards to the vertical	N/A
ROM [Range of motion]	☼☼☼	☼☼☼ Yes - via start angle setting, the natural ROM limitation of seated abduction machines has not been evaluated negatively.
Risk of constrained posture	☼☼☼	☼☼☼ Yes - at start angle setting
Load dissipation	☼☼ Due to the relatively complicated shape of the lordosis cushion it is rather difficult for the user to press his/her pelvis onto the back cushion in the starting position as would be desirable for proper physiological load dissipation.	☼☼☼
Footplate area	☼☼☼ 72cm x 46cm offers the user a range of good foot position options. Rubberised, anti-slip push surface.	N/A
Target muscles	☼☼☼ Overall knee/hip extension muscles	N/A
Required adjustments	☼☼☼ Entry aid or steps are missing	☼☼☼
Resistance curve	☼☼	☼☼☼
Inertial resistance	☼☼☼	☼☼☼
Friction coefficient minimisation	☼☼☼	☼☼☼
Test weighting 75%	Good (1.8)	Very good (1.5)
Overall rating Biomechanics/ ergonomics/ comfort	Good (1.9)	Good (1.6)
Safety features [1,2]		
Pinch, cut, trip or impact hazards	No objections	No objections
Technical data [1]		
Dimensions (LxWxH) [3] [cm]	165 x 130 x 145	102 x 178 x 135
Gross weight [3] [kg]	636	383
Price [3] [Euro exc. VAT]	6,995.00 (CHF 10,991.00 exc. VAT)	5,795.00 (CHF 8,791.00 exc. VAT)

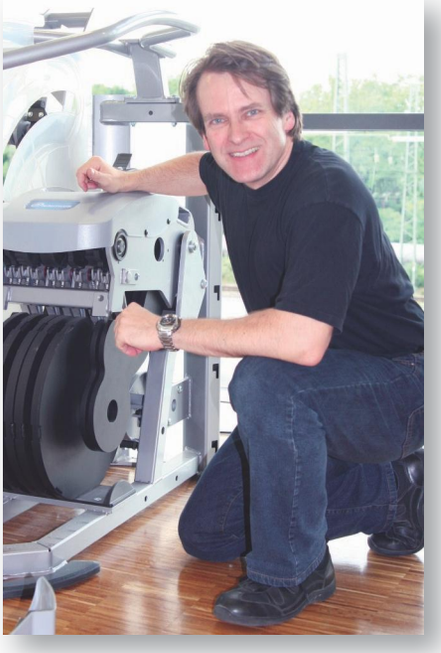
In 1986, *Arthur Jones* sold his life's work to *Ward International*, Texas. However, neither ex *Nautilus* representative *Travis Ward*, nor the successive company buyers were able to fill the resulting gap, which is why the newly created business empire failed to achieve the success of the earlier years. Not before a further 10 years had passed was *Nautilus* able to land a big hit again thanks to their 2ST equipment generation. *Nautilus*, recently taken over by **DirectFocus**, was now set to build on this regained reputation with their next machine generation, *Nitro*. Following company acquisitions of the well-known brands *StairMaster* and *SchwinnFitness* and a logical change of company name, **Nautilus** has been presenting itself since 2002 as a fitness group and major international player covering all sectors, achieving a turnover in excess of 500m US Dollars in 2007 and employing more than 1,200 people. Today *Nautilus* offers 6 different strength equipment lines plus a whole arsenal of the most diverse cardio machines.

The test

In order to carry out the actual equipment test, the German *Nautilus* office recommended a reference gym in Southern Germany. We were able to put the complete *Nautilus* ONE range to the acid test in the new 3,500m² fitness park owned by *Werner Pfitzenmeier in* Mannheim-Neckarau that had only opened at the end of May 2008. This fitness park is part of a well known local gym chain in the Rhine-Neckar area, comprising more than 12 large exclusive fitness centres and with over 42,000 members. Ample space, lavish sanitary and wellness facilities, a high degree of attention to detail, one of the widest ranges of courses and excellent training facilities are just some of the impressive features of this fitness park. I'd like to take this opportunity to thank *Haki Kadria* and the trainer and staff team of *Jochen van Recum, Claudia Hofer, Hici Sivri, Thomas Michel, Anna Chumakova* and *Anja Manka* once again for their hospitality and their on-site support during the three days of the test. Following the test, the findings, kinematics information and ergonomic data were interpreted, analysed and evaluated at our institute.

Technical details

The degree of **homogeneity** that distinguishes the complete *Nautilus ONE* line has not been achieved by any other manufacturer to-date.



Whether leg press, rowing or abdominal machine – the presentation of a wide array of machines of the most diverse technology in such a highly consistent way is unique indeed. The training machine is delivered in the form of two distinct elements – a functional unit and the weight tower – and is assembled on-site via docking stations using three high-strength threaded bolts each; a stability axis and a rotary shaft link-up for load transmission. All 14 training machines possess an identical weight tower with an impressive low build height of only 1.2m. Resistance adjustment of this weight tower is conveniently achieved from the seat during each exercise. Due to a relatively high dead weight and the rubber-clad multi-point support all machines in the *ONE* range exhibit very high structural safety, are anti-slip and vibration-proof. The clear lines of the machines' design and the low build height give them an inviting air despite bulky profiles and lend any training room a look of generous transparence.

Resistance selection

Nautilus has equipped the *ONE* machines across the board with a revolutionary resistance selecting concept. Pegging the weight plates is mechanically controlled. All the user has to do is select the desired resistance using the dial. The **power centre** inside the weight tower is then activated. Depending on the selected weights, the required grippers start turning, hooking the weight plates necessary for the selected resistance. These machines feature a distinctly advanced mechanism as opposed to the conventional mechanical in-line sliding stack weight plates.

This principle which was initially introduced in 2004 on the *Nautilus* SelectTech dumbbell offers both the user as well as the gym operator a number of significant benefits. The user can always adjust the resistance from the same spot by simply turning the dial. Bending down or incorrectly selecting weight pins due to reading the weight plate identification numbers from an angle are things of the past. The main feature that must be highlighted however is the absence of linear guides. As the weight plates only rotate around an axis rather than forming a stack that slides up and down guide rails, both dynamic and static friction are considerably reduced. Furthermore, the stroke distance travelled by the weights is significantly shorter which means that the kinetic energy and inertia during exercise are largely reduced. The training feel is "softer", the peak load on joint structures at the movement reversal points is reduced. Less maintenance is one of the resulting benefits for the operator. No cleaning or lubrication of guide rails is a further advantage and lost or bent selector pins are a thing of the past too.

As a standard, each weight tower offers resistance selection from 5 to 127.5kg in 2.5kg increments. The resulting 50 adjustment steps provide all users, whether beginners or advanced, with a broad range of weight selection and weight increase possibilities. Which means that progressive physiological training control can be satisfactorily achieved.

Contd. on page 50

Contd. from page 47

If this fine tuning alone leaves nothing to be desired in practically all cases, then the optional special equipment providing 0.5kg resistance increments and 240 fine adjustment possibilities is truly amazing indeed. The weight option of 200kg offered by *Nautilus* will be less of a requirement in the fitness sector and is more targeted at highly performance-focussed centres and clubs.

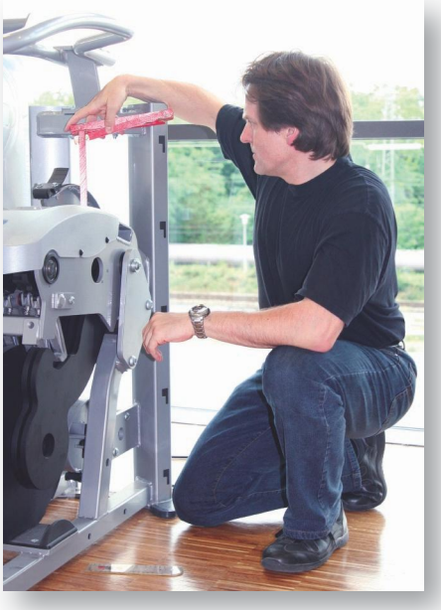
The selected resistance can be read off the selector dial, whereas the actual weight lifted is as such no longer identifiable. This is good for those who until now felt a little self-conscious about selecting a lower resistance with a wider audience there to see. However, users who felt additionally motivated through open identification of the lifted weight may now be somewhat limited.

Force transmission

Depending upon resistance and transmission, 25 and 32mm flat Kevlar/urethane belts are used that have a tensile strength of 1.7t and 2.9t respectively, and this is surely of sufficient strength. This flat belt technology with wide take-up rollers also offers excellent fatigue strength characteristics under reversed bending stress, making it a perfect transmission medium. Some points of belt reversal on a limited number of machines also feature “military grade” quality cables with a tensile strength of 1.6t. Together with the large rotary shafts, force transmission on the ONE machines can be rated as outstanding overall. The test machines exhibited elongated belts and must be urgently re-tensioned in order to avoid loss of ROM.

Minimising the friction coefficient

As detailed above, the auto-selecting weight system provides an absolute minimum of friction. This applies equally to the lifelong lubricated, maintenance-free bearings of the rotating weights, cam disks and pulleys which deliver outstanding coefficients of friction. Here too, the ONE line achieves absolutely impressive top ratings.



Dr. Axel Gottlob measuring the resistance curve

Surface finish

Following a 6 step wash and cleaning process the surfaces of all metal parts is then powder coated in accordance with the customer’s colour requirements. The manufacturer declares this 3mm thick finish to be highly resistant to scratches and other environmental influences. During testing the surface of all machines was found to remain impeccable.

Upholstery fabrics

Nautilus chose visually attractive formed cushion pads for its ONE line. These cushions show their full strength through the material used, a marine grade padding conceived for hard-wearing use in the great outdoors. Come rain or shine, or indeed all sorts of other liquids such as sweat, these cushions seem able to withstand anything that is thrown at them. At the same time the finish is soft and fluffy The density of the polyurethane layer underneath offers the user truly anthropometric contact points. Therefore, seemingly contradictory properties such as “long life”, “physiological comfort for training” and “design” are all perfectly fulfilled, catapulting the ONE line's cushions into the leading position.

Adjustments

Adjustment of all seats and back rests is continuously variable using an easy to use hydraulic system. The extraordinarily high load capacity of 1.6t ensures the safety that is required for the many hundreds of thousands of load cycles that take place over the course of the gym’s hard everyday life. In order to avoid constrained postures and to achieve an optimised ROM, most machines have integrated start angle settings. They are implemented using snap pin technology, hydraulic springs or mechanical locking bolts. Regrettably such a range limiter is absent on the 3 machines: leg extension, seated leg curl and lower back . Levers and snap pins required for adjustment purposes are generally blue coded while the rotating axis for single joint machines is coded red. In addition, all settings possess an easily readable scale, making orientation on the equipment much easier. Overall, the ONE range’s adjustment system is rated “very good” to “good” with only few machines rated “good” and just one “satisfactory”.

User Instructions

Based on the well-known fact that users hardly ever read the instructions and that information can be communicated quicker and easier by visual means than orally, the ONE range employs a mere 3 illustrations for guidance. Illustration 1 depicts the required machine adjustment. Illustration 2 shows the user the position at the beginning of the movement while a change in the line of vision leads to illustration 3, depicting the end of movement position.
A simple muscle display underlines this information. The use of large and relatively unambiguous pictograms is welcome and this accelerates the user's ability to grasp the machine's functions. Whilst in most cases they are perfectly sufficient, an additional text description would doubtlessly have been beneficial.

User instructions: one line of vision

User instructions: other line of vision

Accessories

All ONE weight towers are equipped with a handhold facilitating entry onto the machine. In addition, two shelves are integrated into the wide cover of the weight tower; a drinks holder as well as a recess for training plans, clip boards etc. Useful accessories that make for easy handling and tidy floors.

The individual machines in detail

The complete ONE line currently consists of the following 14 machines which will be discussed in detail below:

Abdominal crunch machine

Lower back machine

Lat pulldown machine

Rowing machine

Chest press

Pec Fly (Butterfly)

Shoulder press

Lateral raise

Biceps-curl

Seated triceps extension

Leg extension

Seated leg curl machine

Leg press

Hip abductor/adductor

Abdominal crunch machine:

With this 2 axis jack knife design Nautilus has equipped its ONE line with an abdominal-hipflexor musclechain exercise machine. Although a certain risk of lordosis exists at the beginning of movement due to the hyperextended position, the movement path during the bending phase can be evaluated as very positive. Without using leg rollers, the exercise can be carried out even more effectively by stretching the legs and pushing the pelvis forward when pressing down the arm support. This also dynamically activates the lower abdominal muscle compartment. The pivoting arm support with return spring is a clever enhancement of the arm support technology. It helps to considerably reduce the direct pulling motion of the arm via the grips, achieving load transmission mainly via the arm pads. This means that the lat pull down can be reduced which in turn promotes more effective abdominal muscle control.

The well thought-out oversized grips are not pulled apart but are pressed together against each other, benefiting the pressure on the arm pads. A positive contribution in two designs, which achieve a narrow “very good” and “good” exercise ranking respectively.

Lower back machine:

The seated back extension machine offers the user a very good pelvis position and pivot axis adjustment via a vertically adjustable seat. This promotes dynamic isolation back extension exercises for various lumbar regions. The pelvis cushion on the test machine was mounted somewhat too low meaning that the upper seating positions were not adjustable and the lower lumbar regions not dynamically trainable. The add-ons recommended in FT100 with regard to the comparable Nitro machine would also be the way to perfect this equipment: Firstly, stabilisation of the body, since the reaction forces generated at higher resistances tend to pry the user out of the seat, and secondly a start angle limiter. Overall though, this is an excellent back extension machine reaching a rating of “good” (1.7).

Lat pulldown machine:

The ONE linear lat pulldown machine is an excellent counterpart to the completely free pulley machines or chin-ups. Individually adjustable seating and thigh pads mean perfect start conditions for every user.

Pull grips that are permanently coupled but can still be moved in opposition to one another offer the user a movement path that is adjusted to his/her body size. The somewhat thick grips which hinder the pulling motion hardly reduce the overall positive impression. An exclusive “very good” is the score achieved by this machine.

Rowing machine:

On the rowing machine too, the user can carry out an ideal, individually tailored horizontal pulling action thanks to the diverging grips. Again praise is due for the padded fabric, however the dimensions of the chest cushion are relatively small. Adjustment of the chest cushions isn’t quite up to the normal ONE standard and the grips are a little too thick for a pulley machine. Overall however Nautilus delivers an enriching machine firmly holding its ground with a rating of “good” (1.9).

Chest press:

The motion levers of the ONE chest press are suspended at an angle, offering the user a distinct motion advantage thanks to the larger ROM that results. Unfortunately Nautilus has not devised an independent suspension system here, which means that identical left/right training stimuli are not really practicable. This is compensated for by a safer motion feeling for beginners. The oversized grips fit the palm well; there are 2 grip variants. The rigid grip layout limits the co-ordinative challenge to some extent, however it also helps to avoid any unfavourable stress on the wrists from the start. Thanks to the very good path of motion and excellent ergonomics, Nautilus’ ONE line chest press achieves a very high overall “good” rating. (1.7).

Pec Fly:

Due to the 30° tilted seat-backrest design and the horizontal arm support guides, the classic butterfly motion is achieved in a mainly reduced abducted shoulder-arm position. The supports are permanently coupled leading to the same results as with the chest press. Unfortunately the twin-bearing grip/arm roller lever system produces an increased inertia which is particularly noticeable when training at lower resistances. The exercise can be carried out in two variants.

There is the classic, outward-rotating arm position using the hand grips and the rather more preferable neutral arm position in which the arm rolls are taken in the crooks of the arms and the hand grips are not used. Here, the reduced stress placed on the joints compensates by far for the slight loss in ROM. The exercise variant employing the hand grips only achieves a “satisfactory” rating and maximum start angles are to be avoided here where at all possible. In the second exercise form the machine is only just able to make it into the “good” category.

Shoulder press:

Shoulder press exercises are carried out here using an angled pressurised lever arm which describes a converging path of motion. Here too, the levers are permanently coupled; the user can choose from two grip alternatives. A mighty lever/rod system including assorted counter weights unfortunately increases the machine's inertia quite considerably, making the exercise less easy. The grips fit well in the palm of the hand, however a back rest adjustment would be desirable here. A fair shoulder press machine which from an exercise point of view however, does not quite come up to the standards of the chest press.

Lateral raise:

In general, lateral raise exercises on single axis machines should not be carried out at abduction angles exceeding approx. 80°. Otherwise the shoulder blade would twist and this in turn would lead to a shift in the pivot axis that cannot be compensated for by the machine. In contrast to the depiction in the user instructions, the upward movement should be completed before reaching the horizontal position when using this machine. Provided this requirement is met then this member of the ONE line is indeed a very good lateral raise machine, scoring a well-earned rating of “very good”.

Biceps curl:

For both arm machines in the ONE series, Nautilus has chosen an arrangement which involves a high degree of difficulty in relation to stabilisation and axis congruence. In both cases the exercises can be fairly well executed. The core problem with this arrangement could however not be solved in a satisfactory way for these two machines either.

The vertical positioning of the pivot axis of the biceps curl machine is neatly achieved using the comfortable seat adjustment. The angled axis alignment and the upper arm cushions do however require a certain body width. This means that not all users will be able to align their arms sufficiently with the axis. In such cases it is recommended that the exercise be carried out using one arm only, by positioning oneself closer to the respective side being worked. A score of only just “good” is awarded for this performance.

Seated triceps extension:

Neither can smaller people achieve good pivot axis congruence on the seated triceps extension machine. What’s more, when higher weights are used, due to the absence of leg stabilisation, body stabilisation is more difficult as well resulting in a complete absence of axis congruence. Here too, it is recommended to consider single-arm execution of exercises for higher weights. Taking the absence of body stabilisation into account, a rating of “satisfactory” is awarded for this machine.

Leg extension:

A very good leg extension exercise machine featuring an excellent leg roll and a comfortable backrest adjustment. Unfortunately, the seat cushion suffers from a not inconsiderable drawback compared to its equally very good Nitro sister machine. In the essential anterior area of the back of the knee the pad width is significantly reduced due to the shape of the curvature. Furthermore, the front edge of the cushion lacks the otherwise excellent pad thickness found elsewhere in the range. Following adequate rework in the upholstery department, taking heed from Nitro, the quality of this machine could be enhanced and its score increased accordingly. Also, as already critically mentioned in the report on the Nitro range, a start angle adjustment is missing here too. Perhaps not a must, but certainly a beneficial feature with regard to the range of use of this machine. It scores a solid “good”, and following certain rework, would reach the “very good” category.

Seated leg curl:

While seat position as well as adjustability are well conceived and user friendly on this machine, it does however suffer from an irreconcilable weakness in respect of stabilisation and load dissipation. As already mentioned in FT 101 over two years ago, such methods of dissipation through the active system via the shin and shin roll is unfortunately always doomed to fail. Higher weight loads simply cannot be managed in this way. Using a different form of stabilisation, its rating of “satisfactory” could quickly be improved.

The ONE Power house

Leg press:

On the ONE line leg press the user can push the sled forwards and downwards with large hip joint angles, thereby benefiting from an enlarged amplitude of his/her hip flexor musculature. The adjustable angle of inclination of the backrest provides further stress profiles that can be further varied by different foot positions on the large pressure plate. The lumbar support integrated into the back padding initially hampers the important pelvis/cushion contact. The user must therefore consciously press his pelvis against the cushion. Adjusting the backrest and carriage could benefit in a more smoothly running mechanism and an entry aid would be desirable too. Otherwise the leg press movement is "good" which matches the rating awarded.

Hip abductor/adductor:

The combined hip abduction/adduction machine fulfils practically all requirements for these two exercise forms. Pivot axis conformity, very smooth running, low inertia, load dissipation possible via both thigh pads and via the foot rests. If the weight tower was positioned a little closer or even at the side so that the weight could be set more

ONE Line

comfortably, and if the only slightly padded metal rotary plate for the thigh cushions was better cushioned, the machine would have been a successful candidate for the top league. For the time being however it scores a still excellent “good” (1.6).

Conclusion

The ONE line from Nautilus is a very respectable new range of equipment. The revolutionary resistance system, excellent cushioning, outstanding adjustability, transparent design, low maintenance and good exercise kinematics deserve particular mention. ONE is ideally suited for use in an equipment circuit with features to match such as quick adjustment, clear arrangement, ability to withstand high permanent loading, superfast weight change, easy to understand layout (also for beginners) completely transparent and consistent concept together with coverage of all muscle groups. ONE also performs very well as a line-up of machines or workout islands. Achieving an average rating of GOOD (1.95), it is in the top equipment league and if the above additional pointers could be put into practice users will be able to benefit even more from it. Save for a couple of negative points, Nautilus again demonstrates a high degree of engineering perfection, once more underlining its excellent reputation.

All of the test results were arrived at in good faith, however no responsibility is accepted for the correctness of this information.

Dr.Axel Gottlob

Dr. Gottlob INSTITUT

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Test criteria

What differentiates a good piece of fitness equipment from a lesser one? The machine’s function is by far the primary factor here. A piece of fitness equipment must deliver the type of training for which it was created. It can be of top quality construction, it can be beautiful, it can be comfortable and it can exceed the most stringent safety standards. But if it doesn’t provide the training function for which it is intended then the other advantages are of little value! A car may well have a large boot, comfortable seats, air conditioning and a classy design. However, if the brakes are not powerful enough, the engine starts unreliably or if the car becomes uncontrollable on a wet road surface, then all of the other qualities are of little interest. If you find this comparison between fitness machines and cars a little far fetched please remember that, in terms of functionality, the quality of fitness machines nowhere near approaches that of cars. As far as the equipment world is concerned then, this comparison between cars and fitness equipment is fully justified.

It is sometimes said that the performance of various machines is almost identical. The reason for this frequently stems simply from ignorance or sometimes company policy which reduces points for comparing the machine’s functionality to a limited set of points such as the basic movement, range of possible adjustments or to the eccentric. A serious mistake! It’s only the total score of approximately 40 parameters the most important of which are listed in the tables, that can provide an adequate assessment of the performance and functionality of a particular piece of equipment. The core criteria here are ergonomics and biomechanical considerations.

With light weights, many machines exhibit very good performance. The biomechanical properties of the more sophisticated models only become apparent however, when higher weights are applied. When an athlete needs to call on his or her full reserves of energy to overcome the load then he or she is no longer in a position to cope with awkward axes, adverse resistance behaviour and generally poor positioning of the machine. In the case of smaller training loads, it requires great experience in movement analysis in order to detect biomechanical weaknesses. At higher weights, far more athletes and instructors will be able to recognise the machine’s limitations.

Aside from functionality the following points were also taken into account as important evaluation criteria: Safety, comfort in use, ease of maintenance, durability, design, quality of construction and materials and, of course, price.

Evaluation scale

1.0 − 1.5	very good
1.6 − 2.5	good
2.6 − 3.5	satisfactory
3.6 − 4.5	unsatisfactory
4.6 −	poor

Functionality

In the first instance the machine must exhibit proper movement kinematics. This means the actual movement must complement the user’s joint movement. For example, during the course of controlled strength training movements under load, if a joint is being exercised that is only intended to flex or extend, then that joint should not be subjected to thrusting action or rotational forces. The position of the machine’s pivot points and/or the movement tracks of the levers/carriages is very important.

The muscle that is being trained should be correctly exercised and no unphysiological strains should be exerted. This means that joints that are not being exercised should either not be subjected to forces or they should be stabilised. The stabilised system should correctly channel away the forces generated in the body. Effective muscle training often requires a high degree of joint isolation and of course, a properly co-ordinated training program/cycle.

Ideally, muscles should be trained across their full contractile range in order to avoid issues such as muscle shortening, reduced joint protection and only partial strengthening of the articular cartilage. This range is expressed as ROM (range of motion). There is a risk that physical constraints may limit the maximum available ROM which may occur if joints or tendomuscular structures are subjected to unphysiological peak forces.

Various independent studies carried out during the 1990s indicated that a resistance curve artificially set by a machine and intended to simulate the body’s own performance curve for the purpose of muscle development, is not automatically the most effective. A resistance curve does however makes sense if it enables peak forces to be reduced in relation to the movement path or position of the joint.

During strength training weights aren’t just simply lifted and then lowered again, they also move at different speeds over the machine’s range. Aside from the lifting effort alone kinetic energy is therefore also expended because pulleys, cams, and levers are also being moved. The more weights that are being moved and the faster they travel, the greater the inertia of the system. When the inertia of a system increases then the peak forces required for each repeated movement and for each training session are also correspondingly greater. High inertial resistance limits the machine’s spectrum of use and reduces the range of resistances available for training.

The following equipment comparison tables set out a number of important criteria that are significant in terms of effectiveness and comparability. For space reasons it has not been possible to list all of the aspects taken into consideration during the tests.

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NAUTILUS – company profile

	NAUTILUS	
Brief company history	1970	Following several years of development work, *Arthur Jones* presents his first *Arthur Jones Productions* strength training machines at an American Bodybuilding Championship. Later, the company will be renamed *Nautilus*. The idea for the name stems from the visual resemblance of his cams with the outlines of the legendary Nautilus submarine.
	1979	*Nautilus* becomes the leading American provider of strength training equipment; more than 9,000 centres in the US are already equipped with *Nautilus*.
	1986	*Arthur Jones* sells his company shares to Ward Int.; up to that date, 400,000 machines had been sold worldwide; annual sales are approx. US$100m. Foundation of *Bowflex of America Inc.* in California in the same year.
	1999	*Bowflex Inc.*, having been renamed *Direct Focus Inc.*, buys *Nautilus Human Performance Systems Inc.* and is listed at the NASDAQ.
	2000	Market launch of *Nitro* equipment line
	2001	*Direct Focus Inc.* buys fitness department from *Schwinn*
	2002	*Direct Focus Inc.* buys *StairMaster*, changes name to *The Nautilus Group* and is listed at the New York Stock Exchange (NYSE: NLS).
	2004	Launch of "SelectTech" weight adjustable dumbbells, forming the basis for the ONE series resistance technology.
	2005	Official company name *Nautilus Inc.* under which the big brands *Nautilus, SchwinnFitness, StairMaster* and *Bowflex* are marketed.
	Aug. 2007	*Arthur Jones* dies in Florida, USA, at age 80.
	Sept. 2007	Launch of the new compact strength training equipment series ***Nautilus One*** consisting of 14 machines
Main office	Vancouver, WA USA	
Production location	Independence, VA USA	
Key data	1,260 employees worldwide; 2007: annual sales in excess of US$500m; Equipment has to-date been sold to more than 140 countries.	
Strength training range	- Latest range: Nautilus One - Nitro - Nitro Plus - Studio - New Free Weights - XP Load	
Contact address	D+A: Nautilus Deutschland GmbH, Albin-Köbis-Str. 4, D-51147 Cologne, +49 2203 2020 0, www.nautilus.com CH: Nautilus Switzerland SA, Rue Jean-Prouvé 6, 1762 Givisiez, +41 26 460 77 66, www.nautilus.com	
Guarantee	- 12 years on frame - 3 years on mechanical components - 6 months warranty on wearing parts such as cushions	
Certification	EN-957 certified Manufacturing certified to ISO 20957-1:2005 and ISO 20957-2:2005	
Delivery	Machines are packaged in special film and delivered in 2 parts, bolted on wooden pallets; door ways can easily be negotiated. The service team is responsible for assembly of the 2 parts on the on-site premises, using 3 bolted studs each on 2 docking stations.	
Lead time	12 weeks max. Delivery from Duisburg, Germany	

All details according to manufacturers' or company representatives' statements, media reports & websites

Dr. Gottlob **Testing**

Fitness Tribune regularly commissions the Dr. Gottlob INSTITUT to carry out equipment test (first test was published in FT100).

There has always been a wide range of tests available in the fitness industry but these have never really delved into greater depth than listings of catalogue information and the obvious technical details. Our requirement stipulates a “true comparison” that includes all the components of a real test, i.e. assessment criteria, further neutral information, points of criticism, assistance in making purchasing decisions and most importantly, a test rating.

These requirements do however conceal two rather tricky issues. First, a true and honest test means that there are bound to be losers. The problem here is that we risk alienating potential advertisers in the case of an “unfavourable” result. Second is the question of the right “tester”. The qualities we are looking for here include a reputation for integrity and commercial impartiality together with a combination of expert knowledge in a wide range of specialist subject areas

We are pleased to have found a partner for this highly challenging task in Dr. Axel Gottlob; one of Germany’s leading strength training experts for many years now. Dr Gottlob’s reputation and straightforwardness is well known in many circles and as a qualified mechanical engineer, graduate sports scientist and biomechanics expert he is certainly the best person to whom we can entrust this complex subject with all of its wide-ranging facets. He was not only a successful strength training athlete himself (German Champion, 1982) and gym owner, but is also a much quoted author of specialist books (reference book “Differentiated Strength Training”) and since 1997 associate professor of biomechanics and strength training at the University of Heidelberg. In his family business “Galaxy Sport” he spent over 12 years developing strength training equipment together with his father, Peter Gottlob. The firm patented several designs and had become market leader in Germany by the time it was sold in 1992. Last but not least, we should highlight the training offered at his Dr. Gottlob INSTITUT whose courses such as the MASTER fitness trainer education program rate among the absolute top for instructors and therapists.

Jean-Pierre L. Schupp

Information on the **equipment test** for the **Quality Mark and** on **nomination for** the **"Equipment Award"**

The Dr. Gottlob Institut and specialist fitness magazine Fitness Tribune continue to provide "superlative equipment tests" for all professional strength, rehabilitation, medical and cardio equipment.

The tested equipment is awarded a corresponding "Quality Mark" which serves not just to show potential clients the standard achieved by a particular machine. It also automatically qualifies machines evaluated as very good to be nominated for an Equipment Award. One machine in each respective category will then become test winner for 2008.

Companies that wish to submit a complete range of equipment for professional and intensive testing and that would like more information on costs and procedures should please contact:

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