

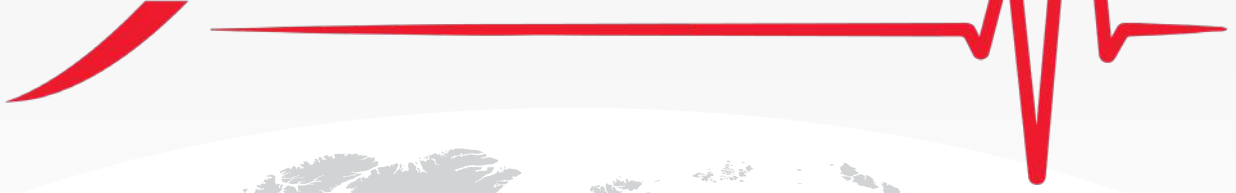
YOUR BEST TESTING PARTNER

CADEX
THE SPECIALIST 

**TESTING LABORATORY
EQUIPMENT**



CADEX



WORLDWIDE STANDARDS REQUIREMENTS

Cadex is the leader in impact systems technology for laboratory testing purposes. Founded in 1994, Cadex has quickly positioned itself as a leader in the research and development of such systems and their underlying technologies.

Based in St-Jean-sur-Richelieu, Quebec, Canada, our team of designers, engineers and technicians respond quickly and efficiently to custom market demands and various engineering projects from anywhere in the world.



CONTENTS

METROLOGY & CALIBRATION SERVICE	05
IMPACT MACHINE	
Monorail impact machine	06
Monorail impact machine (triaxial).....	07
Twinwire impact machine	08
Twinwire impact machine with 1000kg base	09
Twinwire impact machine (triaxial)	10
Mini twinwire impact machine	11
Linear impact testing machine	12
Sports surface testing machine	13
Safety shoes testing machine.....	14
Dual safety shoes testing machine (2 in 1).....	15
Swing set machine.....	16
Laser table.....	17
Horizontal impact attenuation rail system.....	18
ROLL OFF MACHINE	
American roll off	19
European detaching machine	20
Australian static roll off.....	21
Roll off BSI	22
RETENTION MACHINE	
Dynamic retention system ASTM	23
Dynamic retention system BSI.....	24
Static tensile load for retention system.....	25
Dynamic retention system (SNELL)	26
Dynamic strap machine system 2 in 1 (ASTM & EN).....	27
Chinstrap multipurpose machine.....	28
Dynamic retention system, simple machine EN 1080	29
SURFACE/FRICTION MACHINE	
Projection and surface friction (method B)	30
CANNON MACHINE	
Compressed gas gun (high velocity)	31
Cadex sport projectile shooter.....	32
Medium velocity ballistic cannon (table version)	33
Double barreled high & low velocities	34
Non-lethal air cannon	35

CONTENTS

OPTICAL MACHINE

Field of vision gauge kit	36
Goniometer.....	37
Chamber for gases and fine dust particles.....	38
Mechanical resistance of visors jig	39
Optical fogging system.....	40
Sand abrader machine	41
Refractive powers bench	42
Light diffusion bench	43
Spectrophotometer.....	44

CONDITIONING MACHINE

UV conditioning chamber unit.....	45
Rain conditioning machine.....	46
Freezer for cold conditioning.....	47
Oven for hot conditioning.....	47
Radiant heat chamber.....	48

DIELECTRIC MACHINE

Dielectric testing equipment (CSA & ANSI)	49
Dielectric testing equipment (ANSI).....	50

ACCESSORIES

Pen & headform holder	51
NOCSAE conical leg	51
NOCSAE impact flying arm	52
NOCSAE impact rotary neck	52
Twinwire penetrator flying arm.....	53
MEP pad.....	54
Spherical impactor	54
Anvils.....	55
CSA-flat anvil (200x200 mm).....	56
CSA-penetrator anvil.....	56
Penetration headform holder	57
Linear motion holder	58
Linear motion penetrator	58
Split ring clamp	59
Ball arm	59
Balanced monorail penetrator.....	60
Chin bar kit (American).....	61
Chin bar BSI.....	62
Positioning laser kit	63

CONTENTS

HEADFORMS

Cadex ballistic testing headforms.....	64
Full headform magnesium K1A.....	65
Half headform magnesium K1A.....	66
DOT headform magnesium K1A.....	67
J.I.S. headform magnesium K1A.....	68
Solid wood ISO headform.....	68
Urethane full size headform.....	69
Half headform magnesium K1A (mountaineers' helmet testing).....	70
Half headform for American & Canadian industrial.....	71
Penetration half headform for Canadian industrial headwear.....	72
Penetration EN 960/ISO headform.....	73
Penetration DOT headform.....	74
Force transmission ISEA headform (size 7).....	75
CSA Z262.6-14 facially featured headform.....	76
Chinese headforms.....	77
Penetration hard wood BSI headform.....	78
Penetration hard wood EN headform.....	79
Headform according to EN 168.....	80
Modified EN 168 headform for breathing test.....	80
Modified EN 168 headform for photometry.....	81
Alderson headform.....	81
N.I.J. ballistic penetration test headform.....	82
T8131 30° headform (in the event of tumbling and falling down).....	83
Penetration resistance clay tube (in the event of tumbling and falling down).....	83

ELECTRONICS & METROLOGY

Control center system.....	84
Computer.....	84
Acquisition card.....	84
Cadex software.....	85
Uniaxial accelerometer.....	86
Triaxial accelerometer.....	86
Cable for uniaxial accelerometer.....	86
Cable for triaxial accelerometer.....	86
Acquisition kit for rotational impact.....	87
Load cell assembly.....	88
Australian load cell kit.....	89
Body padding load cell kit.....	90
Penetration control box.....	91
Velocimeter display box.....	92

WORLDWIDE SUPPORT	93
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FORMULAS FOR CALCULATION	94
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Metrology & Calibration Service



ALL CADEX TESTING EQUIPMENTS ARE:

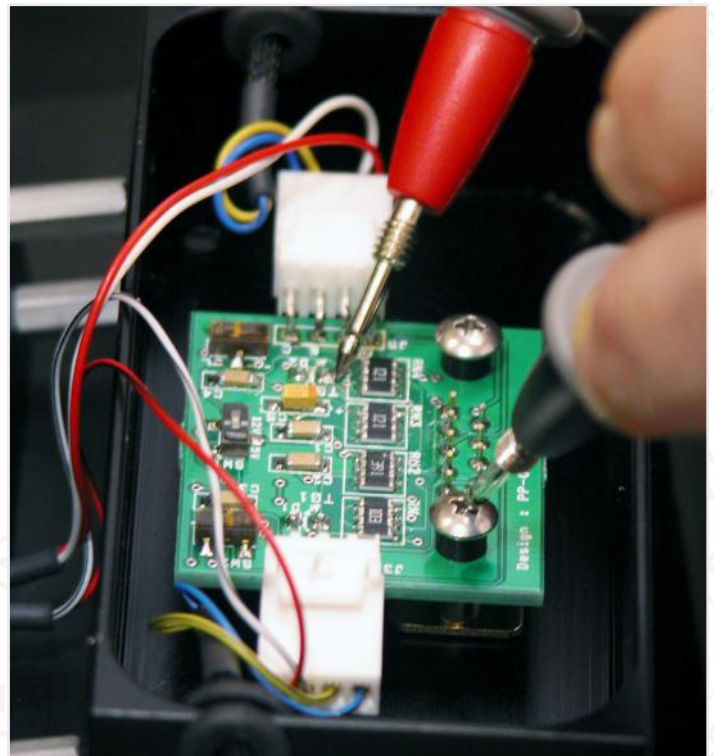
- Supplied with calibration certificates
- Calibrated following strict calibration protocols
- Calibrated by qualified engineers & technicians
- Calibrated using validated measuring instrument
- Traceable to primary measuring instruments throughout the calibration chain

CALIBRATION SERVICES APPLIES TO:

- Acquisition system (amplification and filtering couplers)
- Timegate for impact machine
- Timegate "double gates" for cannon application
- Load cell applications
- All accessories having to meet geometric requirements



Qualified electronic engineers



Calibration of Cadex electronic equipment

IMPACT MACHINE

Monorail Impact Machine

P/N: 1000_01_MRA01 (type: uniaxial setup)

Free fall guided impact machine for impact attenuation evaluation which complies with SNELL, CPSC, DOT, ASTM, ANSI and other standards. The Cadex monorail can be adapted for uniaxial, triaxial and/or rotational type of testing.

DIMENSIONS (APPROX.):

- Length of the base: 34.29 cm / 13.5 in
- Width of the base: 69.85 cm / 27.5 in
- Height: 599.44 cm / 236 in (other heights are available upon request)

FEATURES:

Full motorized system

1. Remote control: sets the height and speed, initiates the test, activates pre-programmed settings and includes the emergency stop
2. Soft release system / Drop carriage
3. Drop follower / Drop pistol
4. Velocimeter (timegate) for speed reading
5. Electronic encoder measuring the drop height
6. Quick and easy interchangeable anvils possibilities

APPLICATIONS:

- Uniaxial impact attenuation testing
- Penetration testing (with additional accessories)

**Manual version also available upon request*



IMPACT MACHINE

Monorail Impact Machine (Triaxial)

P/N: 1000_01_MRA01 (type: triaxial setup)

Free fall guided impact machine for impact attenuation evaluation which complies with ECE 22.06, EN 1077, EN 1078 and other standards. The Cadex monorail can be adapted for uniaxial, triaxial and/or rotational type of testing.

DIMENSIONS (APPROX.):

- Length of the base: 34.29 cm / 13.5 in
- Width of the base: 69.85 cm / 27.5 in
- Height: 599.44 cm / 236 in

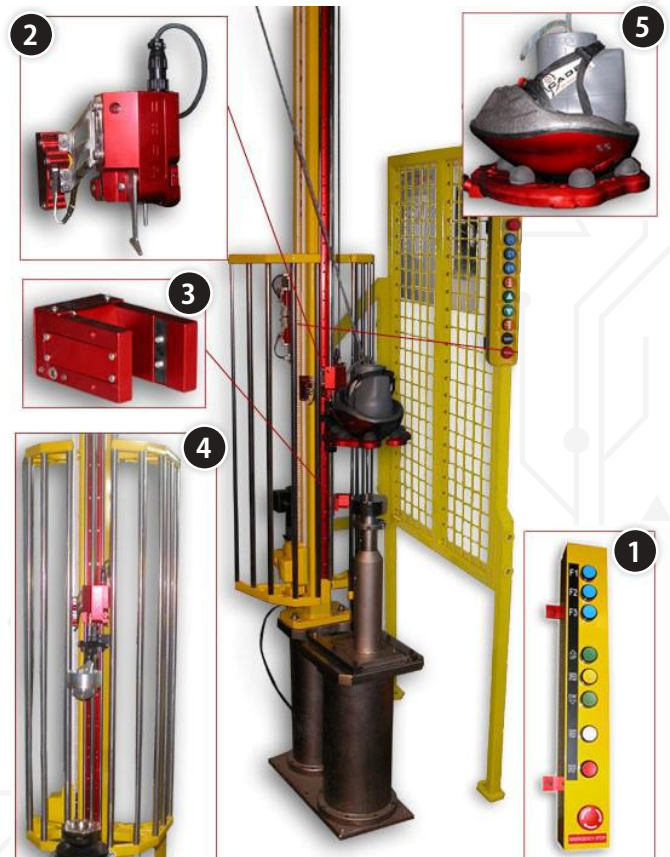
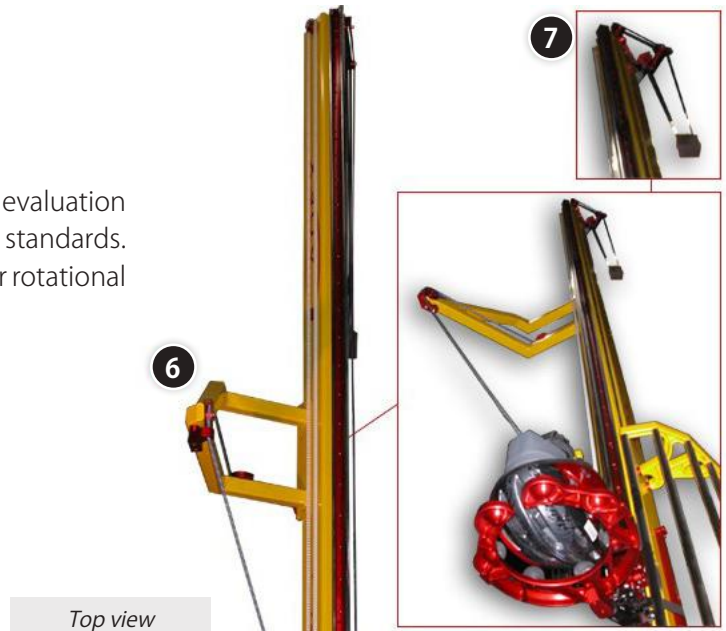
FEATURES:

Full motorized system

1. Remote control: sets the height and speed, initiates the test, activates pre-programmed settings and includes the emergency stop
2. Soft release system / Drop carriage
3. Velocimeter (timegate) for speed reading
4. Protective cage: prevent damage to the machine after the impact
5. Basket: used to support helmets during the free fall impact
6. Auto-retractable system to prevent a second impact
7. Height safety switch

APPLICATION:

- Triaxial impact attenuation testing



IMPACT MACHINE

Twinwire Impact Machine

P/N: 1000_01_TWM01 (type: uniaxial setup)

This model of twinwire guided impact machine is used for impact attenuation evaluation which complies with BSI, SNELL, CPSC, ASTM, AS/NZS, JIS and others standards. The Cadex twinwire can be adapted for uniaxial, triaxial and/or rotational type of testing.

DIMENSIONS (APPROX.):

- Length of the base: 97.79 cm / 38.5 in
- Width of the base: 31.75 cm / 12.5 in
- Height: 544.19 cm / 214.25 in
(other heights are available upon request)

FEATURES:

Full motorized system and self supported

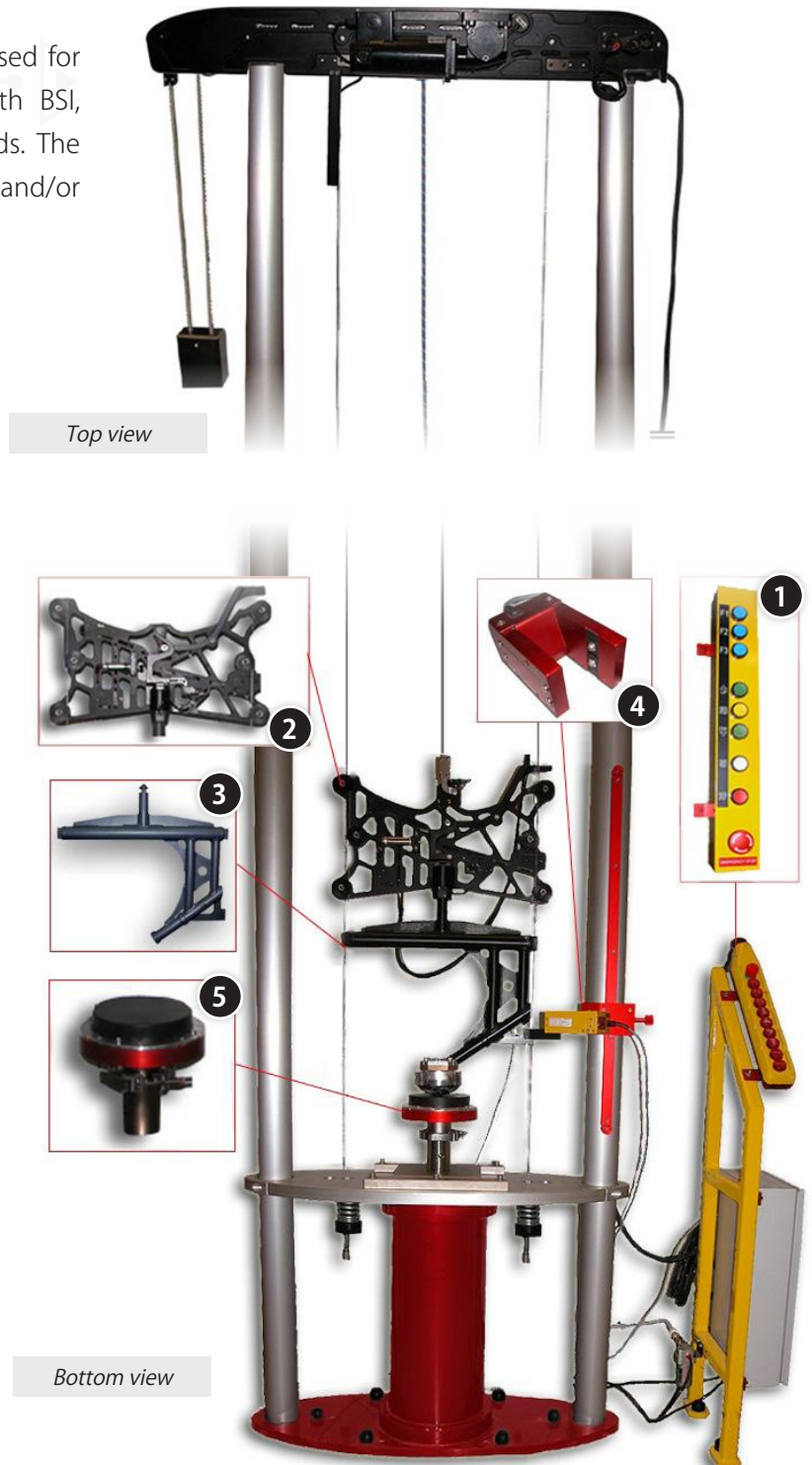
1. Remote control: sets the height and speed, initiates the test, activates pre-programmed settings and includes the emergency stop
2. Soft release system / Drop carriage
3. Flying arm impactor
4. Velocimeter (timegate) for speed reading
5. Quick and easy interchangeable anvils

APPLICATIONS:

- Uniaxial impact attenuation testing
- Penetration testing
(with additional accessories)

OPTIONAL ACCESSORIES:

- Protective cage



IMPACT MACHINE

Twinwire Impact Machine with 1000kg Base

P/N: 1000_01_TWA02 (type: 1000kg base)

This model of twinwire guided machine measures the force distribution on padded body protection which complies with EN 13158, EN 13277, EN 13594, EN 14021, EN 14120, EN 14404, EN 1621-1, EN 1621-2 and other standards.

DIMENSIONS (APPROX.):

- Length of the base: 119.38 cm / 47 in
- Width of the base: 90.17 cm / 35.5 in
- Height: 693.42 cm / 273 in
(other heights are available upon request)
- Base weight: 1000 kg

FEATURES:

Full motorized system and self supported

1. Remote control: sets the height and speed, initiates the test, activates pre-programmed settings and includes the emergency stop
2. Soft release system / Drop carriage
3. Flying arm impactor or basket for triaxial application
4. Velocimeter (timegate) for speed reading
5. Quick and easy interchangeable anvils

APPLICATIONS:

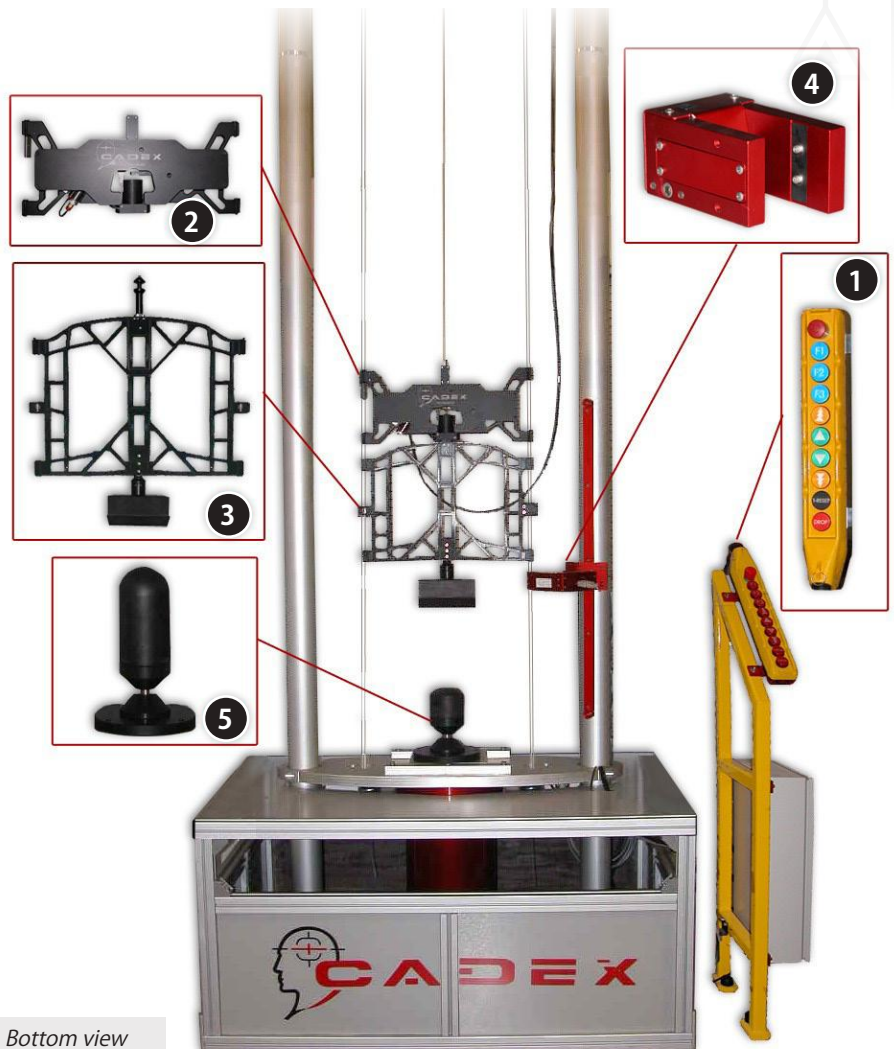
- Force distribution evaluation
- Uniaxial impact attenuation testing
(with additional accessories)
- Penetration testing
(with additional accessories)

OPTIONAL ACCESSORIES:

- Protective cage
- Interchangeable penetrator



Top view



Bottom view

IMPACT MACHINE

Twinwire Impact Machine (Triaxial)

P/N: 1000_01_TWM01 (type: triaxial setup)

This model of twinwire guided impact machine is used for impact attenuation evaluation which complies with ECE 22.06, EN 1077, EN 1078 and other standards. The Cadex twinwire can be adapted for uniaxial, triaxial and/or rotational type of testing.

DIMENSIONS (APPROX.):

- Length of the base: 119.38 cm / 47 in
- Width of the base: 90.17 cm / 35.5 in
- Height: 675.64 cm / 266 in
- Base weight: 500 kg

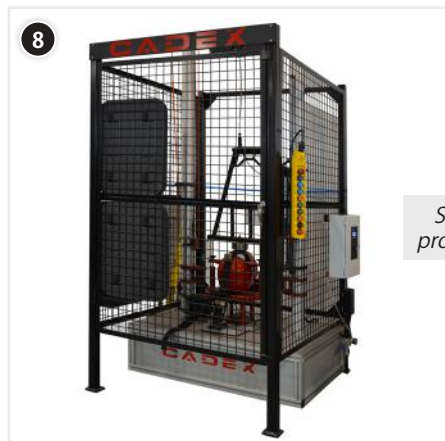
FEATURES:

Full motorized system and self supported

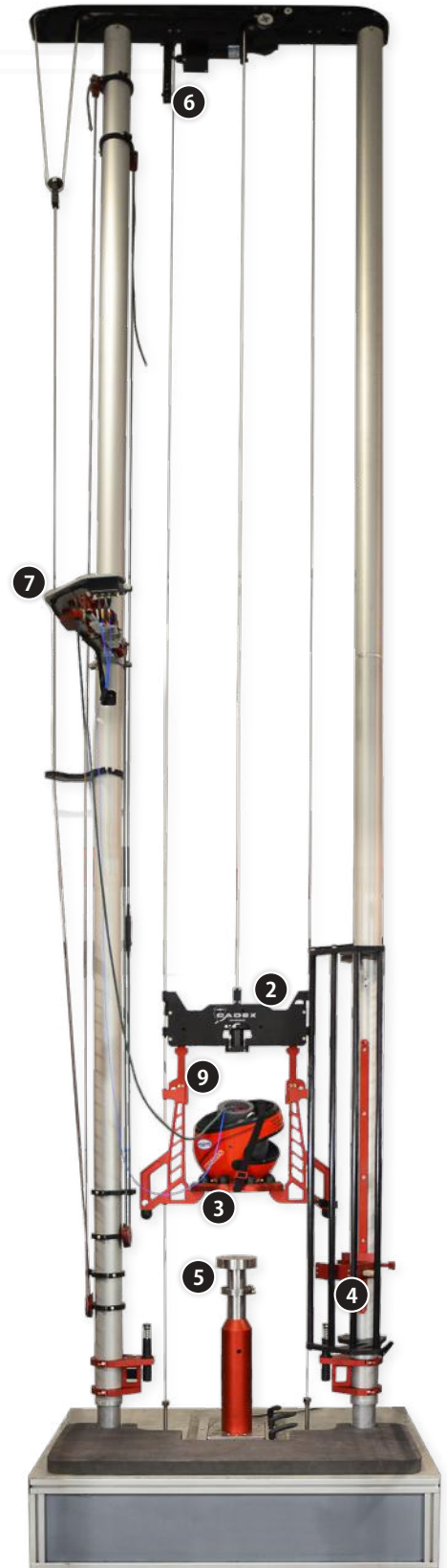
1. Remote control: sets the height and speed, initiates the test, activates pre-programmed settings and includes the emergency stop
2. Soft release system / Drop carriage
3. Basket: used to support helmets during the free fall impact
4. Velocimeter (timegate) for speed reading
5. Quick and easy interchangeable anvils
6. Height safety switch
7. Auto-retractable system to prevent a second impact
8. Protective cage: prevent damage to the machine after the impact
9. Attachment to the drop carriage are quickly interchangeable



Remote control



Shown with protective cage



IMPACT MACHINE

Mini Twinwire Impact Machine

P/N: 1000_01_MTWM1

The mini twinwire is ideal for testing labs with low ceiling height. The modular base design allows users to attach different accessories to perform multiple applications. The equipment can be bolted to massive concrete block below floor level, to comply with base mass requirement.

DIMENSIONS (APPROX.):

- Length of the base: 76.2 cm / 30 in
- Width of the base: 41.91 cm / 16.5 in
- Height: 316.87 cm / 124.75 in

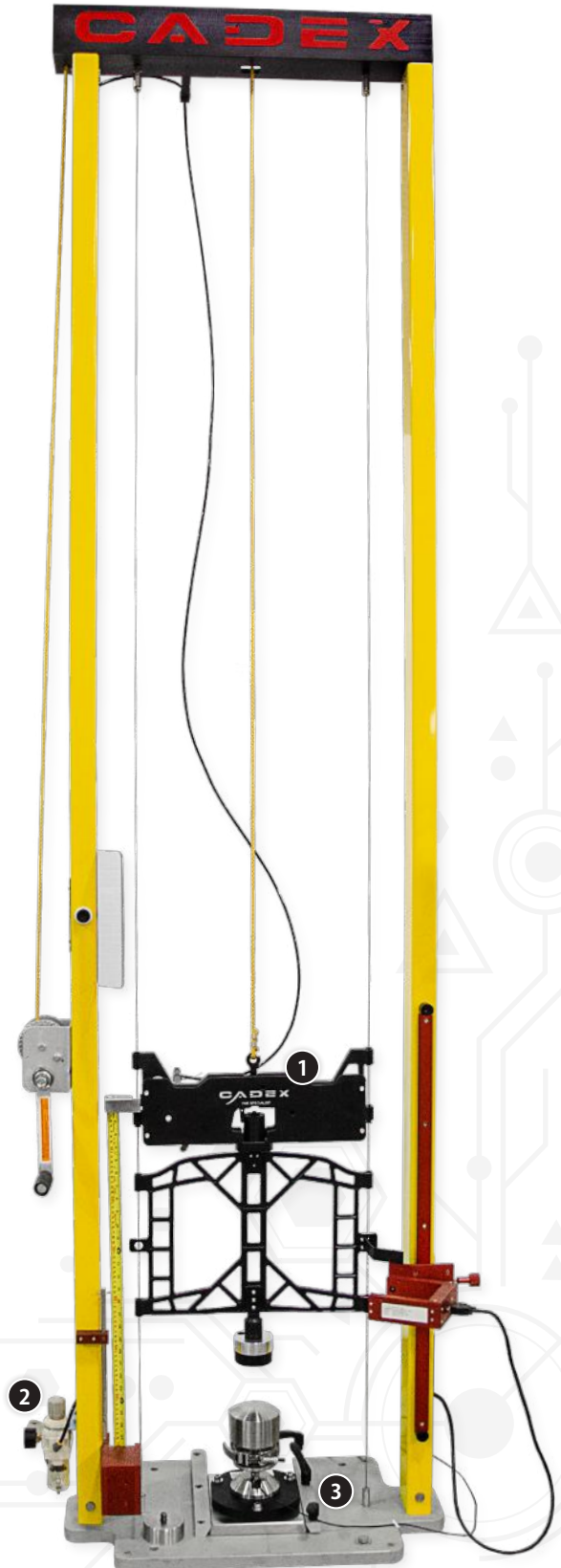
FEATURES:

Full motorized system

1. Low profile falling carriage
2. Electro-pneumatic release system
3. Different testing applications can be attached to the modular base

APPLICATIONS:

- Low energy impact attenuation applications
- Australian load cell applications
- Low energy force distribution applications
- Customized testing applications



IMPACT MACHINE



Linear Impact Testing Machine

P/N: 1000_01_LIT001

Rugged system for linear impact testing on football helmets, boxer face guards and other applications.

DIMENSIONS (APPROX.):

- Length: 422.28 cm / 166.25 in
- Width: 106.68 cm / 42 in
- Height: 193.04 cm / 76 in

APPLICATIONS:

- NOCSAE football testing
- BOXER'S face protector
- The system can be used as a baseball & hockey puck shooter using additional accessories (P/N: 1000_01_LIT002)

FEATURES:

- Touchscreen controller which adjusts the tank pressure, reads velocity and fires the system
- Strong steel structure
- Compressed air tank
- Accelerating range: 12 inches
- "Free flight" range: 6 inches
- Hydraulic break system after impact
- Impact velocity: 1.5 to 12 m/sec
- Interchangeable impacting end pieces



IMPACT MACHINE

Sports Surface Testing Machine

P/N: 1000_01_SST01

To determine impact attenuation of track field, wrestling mats, trampolines and other sports surfaces. This system is powered by laptop's battery via USB connection which allows an outdoor autonomous testing capacity which complies to ASTM F355, F381, F1081 and others applications.

DIMENSIONS (APPROX.):

- Length: 65.1 cm / 25.63 in
- Width: 56.52 cm / 22.25 in
- Height: 125.1 cm / 49.25 in

FEATURES:

1. Drop height adjustment
 2. Soft release handle
 3. Electronic connection control box
 4. Removable velocimeter for periodic calibration
 5. Incorporated level
- Rugged transportation case included
 - Laptop with spill resistant keyboard included



IMPACT MACHINE

Safety Shoes Testing Machine

P/N: 1000_01_DSSM1

The safety shoes testing machine is designed to meet CSA requirements. This machine is used to test the protective reinforcement (toe cap) of footwear protection such as safety shoes or boots.

DIMENSIONS (APPROX.):

- Length of the base: 100.66 cm / 39.63 in
- Width of the base: 73.66 cm / 29 in
- Height: 228.3 cm / 89.88 in

FEATURES:

1. Touchscreen controller
 2. Drop release switch
 3. Locking mechanism
 4. Safety stopper
 5. Manual lifter
 6. Impact weight
 7. Velocimeter (timegate) for speed reading
 8. Impact platform
- Material: steel and aluminum



IMPACT MACHINE

Dual Safety Shoes Testing Machine (2 in 1)

P/N: 1000_01_DSSM2

The dual safety shoes testing machine is designed to meet CSA Z195:2009 & EN ISO 20345/20344 requirements. This machine is used to test the protective reinforcement (toe cap and metatarsal protection) footwear protection such as safety shoes or boots.

DIMENSIONS (APPROX.):

- Length of the base: 100.66 cm / 39.63 in
- Width of the base: 73.66 cm / 29 in
- Height: 228.3 cm / 89.88 in

FEATURES:

1. Touchscreen controller
 2. 2 drop release buttons
 3. Safety stopper
 4. Manual lifter
 5. Velocimeter (timegate) for speed reading
 6. Impactor profile
 7. Electronic height encoder
 8. Rebound catcher
- Material: steel and aluminum



Toe caps test



Metatarsal test

IMPACT MACHINE

Swing Set Machine

P/N: 1000_01_SSM01

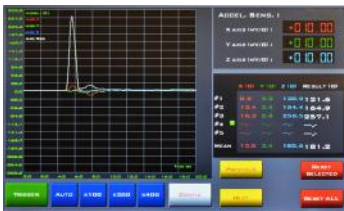
The Cadex's swing set machine complies with ISO 8124-4 safety standard requirements. This equipment is also customizable for many other standards. The swing set machine is fully adjustable using a touchscreen controller.

DIMENSIONS (APPROX.):

- Length: 193.04 cm / 76 in
- Width: 155.27 cm / 61.13 in
- Height: 307.04 cm / 120.88 in

FEATURES:

- Touchscreen controller
- Adjustable impact height
- Customizable chain length & width
- Various type of impactor
- Precise impact angle alignment
- Built-in triaxial accelerometer



Touchscreen controller



Fully adjustable angle preset



IMPACT MACHINE

Laser Table

P/N: 1000_01_TIP01

The Cadex laser table is designed in accordance with ECE R22.05 and EN 1078 regulation. It is used to draw test lines and impact points with guiding lasers.

DIMENSIONS (APPROX.):

- Length: 86.69 cm / 34.13 in
- Width: 96.52 cm / 38 in
- Height: 192.4 cm / 75.75 in

FEATURES:

- Tilt headform stand
- Rotating headform stand
- 5 adjustable lasers (height and angle)



Laser adjustment



Tilt and rotating headform holder



LED illuminated control box



5 guiding lasers included

IMPACT MACHINE



Horizontal Impact Attenuation Rail System

P/N: 1000_01_HIA01

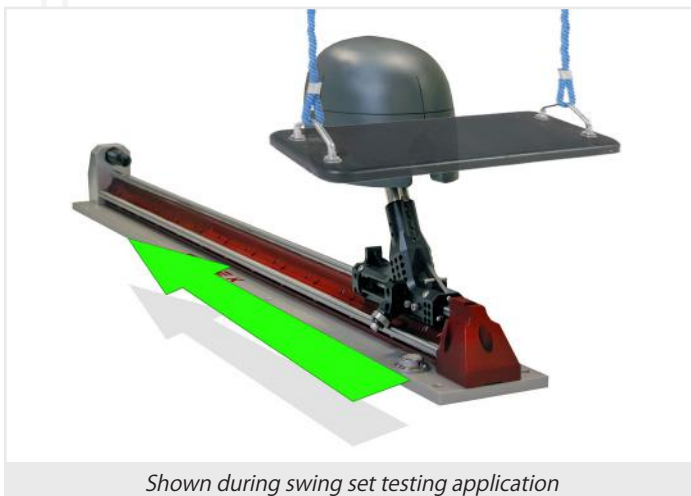
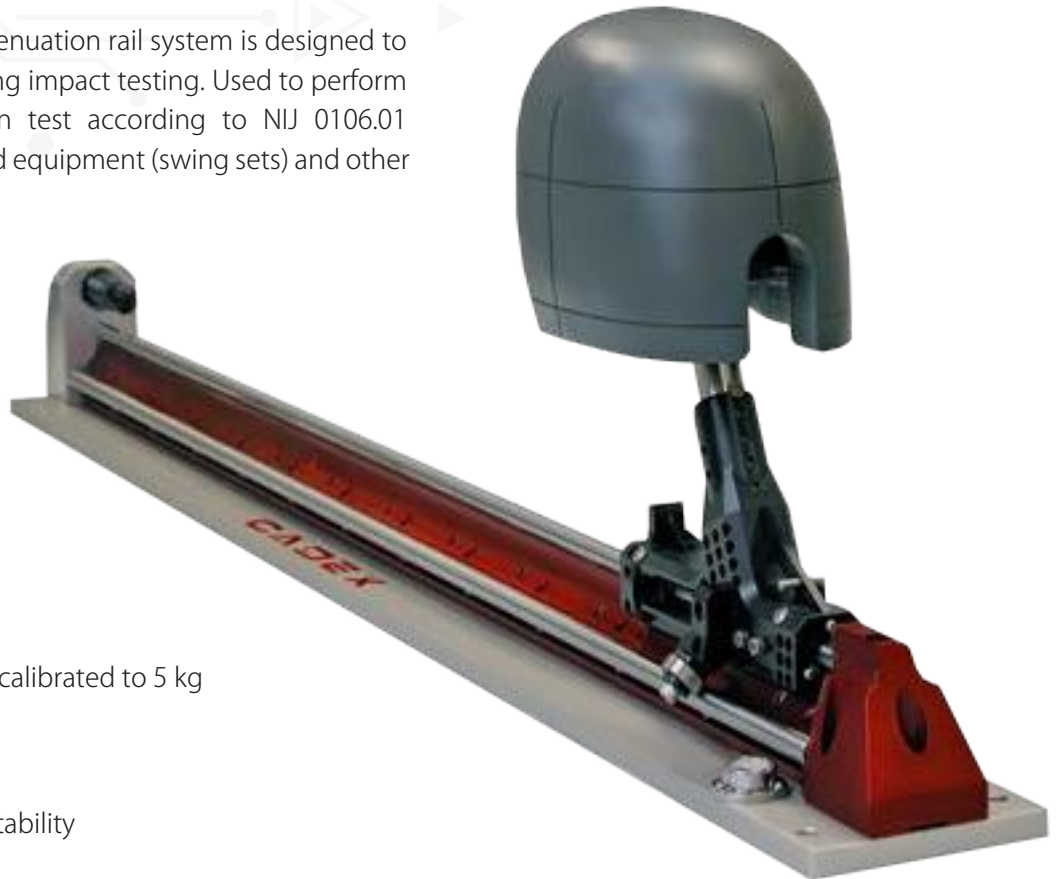
The Cadex horizontal impact attenuation rail system is designed to offer low friction resistance during impact testing. Used to perform the ballistic impact attenuation test according to NIJ 0106.01 standard, 1292 home playground equipment (swing sets) and other standards.

DIMENSIONS (APPROX.):

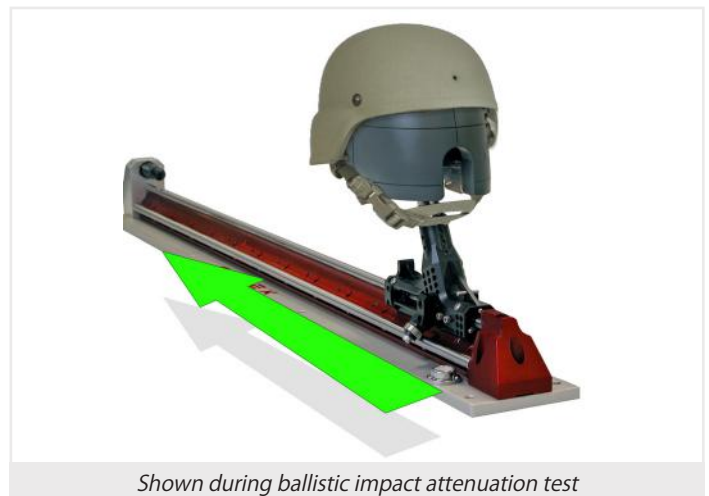
- Length: 135.89 cm / 53.5 in
- Width: 12.7 cm / 5 in
- Height: 17.78 cm / 7 in
(without headform)

FEATURES:

- Low friction system
- Headform assembly size 7¼ calibrated to 5 kg
- Integrated level
- Rear end shock absorber
- Triple rail system for better stability



Shown during swing set testing application



Shown during ballistic impact attenuation test

ROLL OFF MACHINE

American Roll Off

P/N: 1000_02_ROWAT

To determine the positional stability of helmets to comply with SNELL, ASTM, CPSC, NOCSAE Lacrosse and other standards.

DIMENSIONS (APPROX.):

- Length: 81.92 cm / 32.25 in
- Width: 77.47 cm / 30.5 in
- Height: 203.83 cm / 80.25 in

FEATURES:

- 360° rotating headform holder (headform facing up or down)
- Supportive stand available
- Headform sold separately

**Headform not included and sold separately*



Headform facing up (not included)



Headform facing down (not included)

ROLL OFF MACHINE

European Detaching Machine

P/N: 1000_02_ROESV

To determine the effectiveness of helmets retention system according to EN 1077, EN 1078, ECE R22/05 and other standards.

DIMENSIONS (APPROX.):

- Length: 81.92 cm / 32.25 in
- Width: 82.88 cm / 32.63 in
- Height: 201.29 cm / 79.25 in

FEATURES:

- Soft hand release
- Rotating headform stand
- Turning headform holder



ROLL OFF MACHINE

Australian Static Roll Off

P/N: 1000_02_ROSMA

Static stability testing rig in compliance with AS/NZS 2512.7.1 standard. Compact system version, easy to store on a shelf after usage.

DIMENSIONS (APPROX.):

- Length: 48.26 cm / 19 in
- Width: 51.13 cm / 20.13 in
- Height: 59.06 cm / 23.25 in

FEATURES:

- 360° rotating headform holder
- Soft spacer included
- Incorporated level
- Polly adjustable in height to maintain horizontally the pulling strap

**Headforms size A and J with modified neck are not included and sold separately*



Incorporated bubble level



Headforms size A and J with modified neck available separately



360° rotating headform's stand

ROLL OFF MACHINE

Roll Off BSI

P/N: 1000_02_ROBSI

Designed and manufactured for testing chin strap effectiveness. This test simulates a helmet rolling forward on a motorcycle rider's head, when the rider stops suddenly. Meets BSI 6658, Indonesia and other standards requirement.

DIMENSIONS (APPROX.):

- Length: 101.3 cm / 39.88 in
- Width: 55.88 cm / 22 in
- Height: 195.58 cm / 77 in

FEATURES:

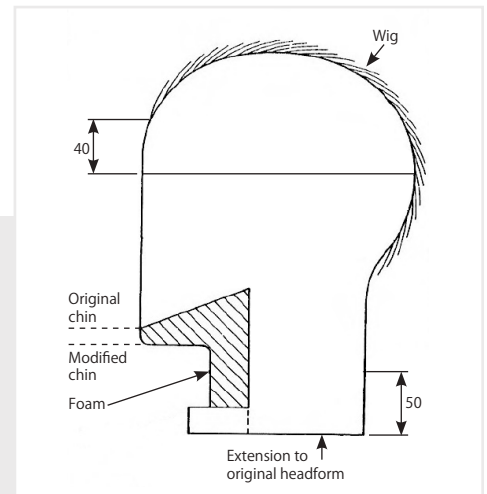
- Manual drop mass release system
- Side reference ruler with adjustable zero in order to provide accurate drop height
- Adjustable drop height with capability to drop from more than 100 cm
- Drop mass connected to the helmet by a hook, attached to a non-extensible nylon strap
- Falling mass of 4 kg
- Headform covered with wig included



Headform covered with wig included

Modified headform:

- Covered by a wig, with acrylic hair of 70 mm long
- Headform diameter: 575 ± 5 mm
- Neck of the test head pattern extended 50 mm
- Throat and under jaw replaced by polyethylene foam density 40 kg/m^3



RETENTION MACHINE

Dynamic Retention System ASTM

P/N: 1000_03_RSMA

Designed and manufactured to test the efficiency of the helmet retention systems in compliance with EN 1078, ASTM, CPSC, AS/NZS, BSI regulations and other standards. Operated by either Cadex software or touchscreen controller.

DIMENSIONS (APPROX.):

- Length: 48.26 cm / 19 in
- Width: 81.28 cm / 32 in
- Height: 176.53 cm / 69.5 in
(minimum height - without headform)

FEATURES:

- Manual system
- Electronic conditioner box reads displacement over time during the test
- Adjustable headform support can be raised or lowered up to 10 inches (25.4 cm)
- Powered by 115VAC/60Hz or 220VAC/50Hz source
- Can be connected to a computer system in order to measure the real time displacement with the Cadex software

**Headform not included and sold separately*



RETENTION MACHINE



Dynamic Retention System BSI

P/N: 1000_03_RSMBS

Designed and manufactured to test the efficiency of the helmet retention systems in compliance with BSI regulations and other standards. Operated by either Cadex software or touchscreen controller.

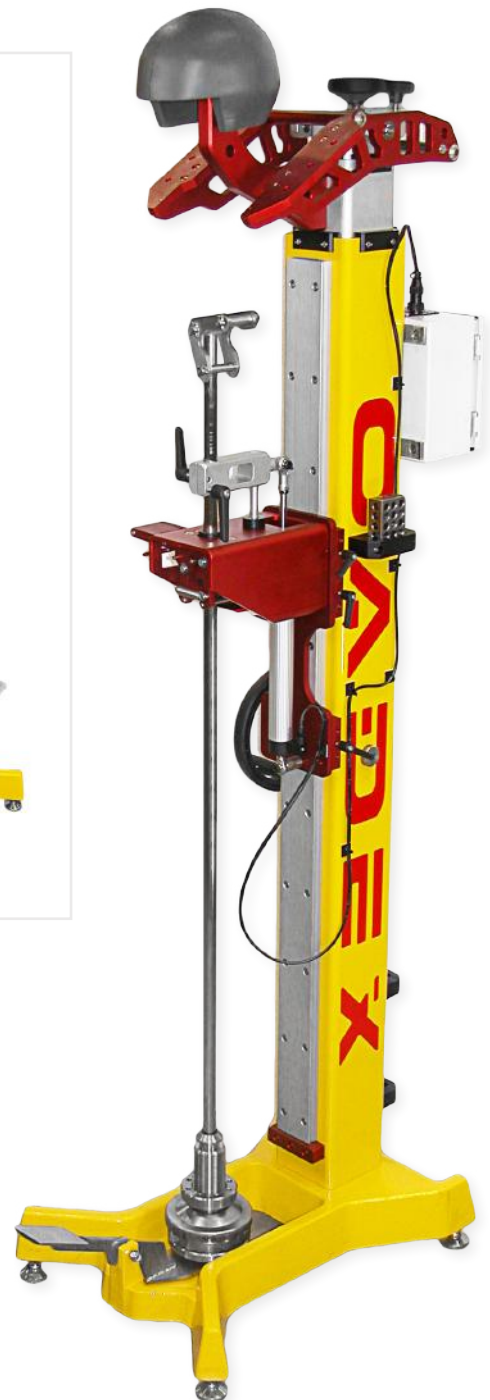
DIMENSIONS (APPROX.):

- Length: 48.26 cm / 19 in
- Width: 81.28 cm / 32 in
- Height: 176.53 cm / 69.5 in
(minimum height - without headform)

FEATURES:

- Manual system
- Electronic conditioner box reads displacement over time during the test
- Adjustable headform support can be raised or lowered up to 10 inches (25.4 cm)
- Powered by 115VAC/60Hz or 220VAC/50Hz source
- Can be connected to a computer system in order to measure the real time displacement with the Cadex software

**Headform not included and sold separately*



Adjustable headform support

RETENTION MACHINE

Static Tensile Load for Retention System

P/N: 1000_03_RMSDT

Designed and manufactured to test the efficiency of the helmets retention system compliance with DOT FMVSS No.218, ACH (Advanced Combat Helmet) and AS/NZS 2512.5.1 standards. Operated by either Cadex software or touchscreen controller.

DIMENSIONS (APPROX.):

- Length: 60.66 cm / 23.88 in
- Width: 67.31 cm / 26.5 in
- Height: 167.64 cm / 66 in
(minimum height - without headform)

FEATURES:

- Motorized system
- Double linear transducers to measure elongation minus helmet's compression
- Incorporated load cell to apply constant static load
- Adjustable headform support can be raised or lowered up to 10 inches (25.4 cm)
- Powered by 115VAC/60Hz or 220VAC/50Hz source
- Can be connected to a computer system in order to measure the real time displacement with the Cadex software

**Headform not included and sold separately*



Motorized system



Top transducer

RETENTION MACHINE

Dynamic Retention System (SNELL)

P/N: 1000_03_RSMS

Designed and manufactured to test the efficiency of the helmets retention system. Compliance with SNELL motorcycle and car racing requirements (SNELL M2010 and SA-K2005). Can be adapted to other standards. Operated by either Cadex software or touchscreen controller.

DIMENSIONS (APPROX.):

- Length: 48.26 cm / 19 in
- Width: 81.28 cm / 32 in
- Height: 176.53 cm / 69.5 in
(minimum height - without headform)

FEATURES:

- Manual system
- Pneumatic drop mass lifting system
- Electronic conditioner box reads displacement over time during the test
- Adjustable headform support can be raised or lowered up to 10 inches (25.4 cm)
- Powered by 115VAC/60Hz or 220VAC/50Hz source
- Can be connected to a computer system in order to measure the real time displacement with the Cadex software

**Headform not included and sold separately*



RETENTION MACHINE

Dynamic Strap Machine System 2 in 1 (ASTM & EN)

P/N: 1000_03_RSM22

Designed and manufactured to test the efficiency of the helmet retention systems compliance with ECE 22, EN 1078, ASTM, CPSC, AS/NZS, SNELL and other regulations and standards. Operated by either Cadex software or touchscreen controller.

DIMENSIONS (APPROX.):

- Length: 48.26 cm / 19 in
- Width: 81.28 cm / 32 in
- Height: 203.2 cm / 80 in
(minimum height - without headform)



FEATURES:

- Manual system
- Electronic conditioner box reads displacement over time during the test
- Adjustable headform support can be raised or lowered up to 10 inches (25.4 cm)
- Powered by 115VAC/60Hz or 220VAC/50Hz source
- Can be connected to a computer system in order to measure the real time displacement with the Cadex software

**Headform not included and sold separately*



RETENTION MACHINE



Chinstrap Multipurpose Machine

P/N: 1000_01_CMM01

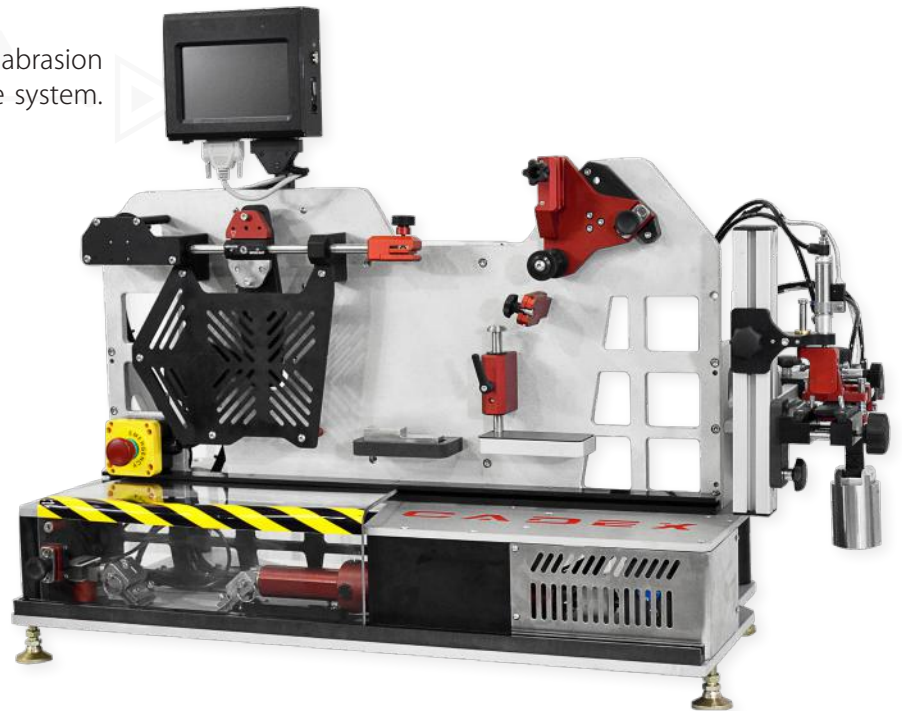
Equipment to test micro-slippage, resistance to abrasion of the chinstrap and durability of quick release system. According to BSI and ECE 22 regulation.

DIMENSIONS (APPROX.):

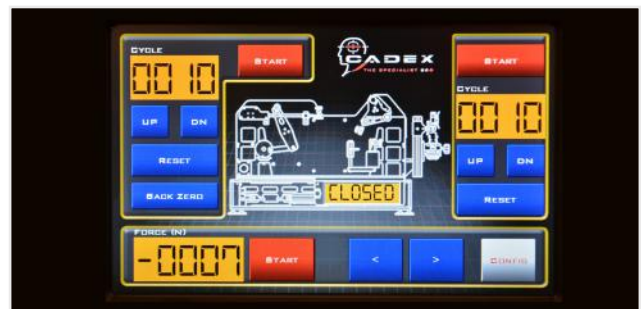
- Length: 111.12 cm / 43.75 in
- Width: 54.61 cm / 21.5 in
- Height: 84.79 cm / 33.38 in

FEATURES:

- Touchscreen controller
- Adjustable speed and cycle frequency
- Load 20 Newton's
- Durability of quick release system on the side
- Micro-slip and abrasion of the chinstrap by interchanging configuration



Resistance to abrasion test



Touchscreen controller



Micro-slip test



Durability of quick release system

RETENTION MACHINE

Dynamic Retention System, Simple Machine EN 1080

P/N: 1000_03_RSM80

Designed and manufactured to test the efficiency of the helmet retention systems compliance with EN 1080 (helmets for young children) regulations and other standards. Operated by either Cadex software or touchscreen controller.

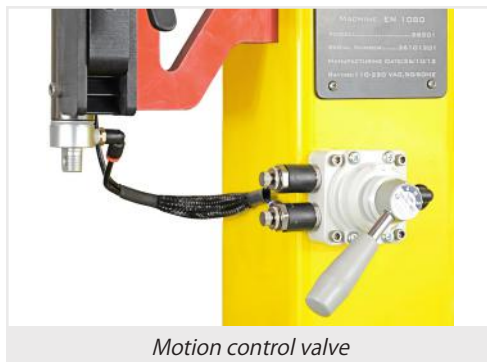
DIMENSIONS (APPROX.):

- Length: 56.85 cm / 22.38 in
- Width: 62.23 cm / 24.5 in
- Height: 163.83 cm / 64.5 in
(minimum height - without headform)

FEATURES:

- Pneumatically operated
- Electronic conditioner box reads displacement over time during the test
- Adjustable headform support can be raised or lowered up to 10 inches (25.4 cm)
- Powered by 115VAC/60Hz or 220VAC/50Hz source and compressed air
- Can be connected to a computer system in order to measure the real time displacement with the Cadex software

**Headform not included and sold separately*



SURFACE/FRICTION MACHINE

Projection and Surface Friction (method B)

P/N: 1000_04_PSF01

Projection and surface friction (method B) testing machine designed according to ECE 22.05 standard. This machine performs both; friction and shear test.

DIMENSIONS (APPROX.):

- Length: 248.92 cm / 98 in (maximum length)
- Width: 77.47 cm / 30.5 in
- Height: 160.99 cm / 63.38 in

FEATURES:

- Pneumatic system to apply force
- Guided drop loading mass
- Soft stopping bumper
- Pressure gauge
- Sliding adjustable table
- Interchangeable abrasive surface
- Load cell with electronic display
- Touchscreen controller
- Integrated timegate to verify the apparatus

**Headform not included and sold separately*



Adjustable helmet height and distance



Touchscreen controller & pressure gauge

CANNON MACHINE

Compressed Gas Gun (high velocity)

P/N: 1000_05_HVC01

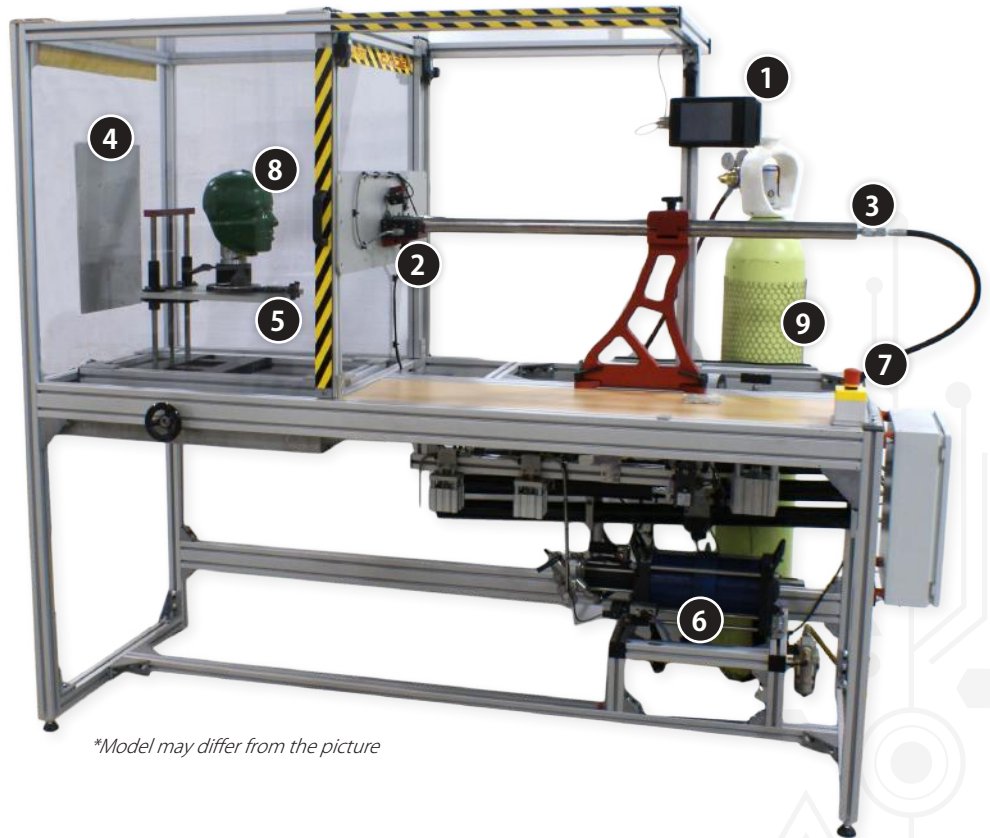
The Cadex compressed gas gun is used to test eyewear protection such as goggles, glasses and others, at high velocity. This system can be modified and re-enforced to perform higher velocities upon request.

DIMENSIONS (APPROX.):

- Length: 220 cm / 86.6 in
- Width: 95 cm / 37.4 in
- Height: 185 cm / 72.8 in

FEATURES:

1. Touchscreen controller which fires the system, controls tank pressure and controls table's motorization
2. Removable velocimeter (timegate) for periodical calibration
3. Interchangeable barrels
4. Exhaust panel
5. Motorized holding table
6. Gas booster
7. Emergency stop button
8. Crosshair laser (headform not included)
9. Uses compressed helium or nitrogen (not included)



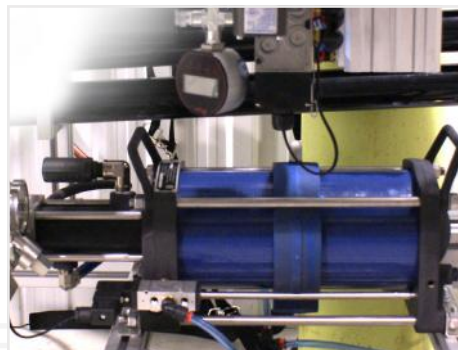
**Model may differ from the picture*

SHOOTING PERFORMANCE

STANDARD	SPEED	PROJECTILE TYPE
MIL-DTL-43511D	550-560 ft/sec	0.22 cal. fragment
MIL-PRF-31013	640-660 ft/sec	0.15 cal. fragment
Custom applications	> 1200 ft/sec	...



Touchscreen controller



Gas booster unit



Interchangeable shooting barrels

CANNON MACHINE

Cadex Sport Projectile Shooter

P/N: 1000_05_PSM01

The Cadex sport projectile shooter is designed to shoot large objects such as hockey pucks, baseball/softball balls and squash/racket balls as well as other custom applications. Complies with CSA, NOCSAE and other testing standards.

DIMENSIONS (APPROX.):

- Length: 208.28 cm / 82 in
- Width: 85.09 cm / 33.5 in
- Height: 197.18 cm / 77.63 in

FEATURES:

1. Touchscreen controller which fires the system, controls tank pressure and controls table's motorization
 2. Interchangeable shooting barrel
 3. Compressed air reserve tank
 4. Motorization control box
 5. Emergency stop button
 6. Motorized holding table
 7. Full opening doors on each side
- Shoots hockey pucks up to 150 mph
 - Connection for triaxial accelerometer and sensors (NOCSAE application)
 - Uses a regular compressed air source
 - Shooting barrels available:
hockey, baseball, softball, lacrosse, cricket, tennis, squash and racquetball



**Model may differ from the picture*



Touchscreen controller



Motorized holding table

CANNON MACHINE

Medium Velocity Ballistic Cannon (table version)

P/N: 1000_05_LVC01

The medium velocity ballistic cannon is designed to test face shields and eyewear protectors. The system complies with SNELL, ANSI Z87, EN 168, AS/NZS and other standards.

DIMENSIONS:

- Length: 203.83 cm / 80.25 in
- Width: 94.95 cm / 37.38 in
- Height: 115.57 cm / 45.5 in

FEATURES:

- Touchscreen controller which fires the system, controls tank pressure and provide speed reading
- Uses a regular compressed air source
- Speed range: 35-105 m/sec (using 6 mm (0.25") diameter steel balls)
- High precision speed gate
- Adjustable table from x, y, z and rotating headform holder
- Aluminum structure
- Cross shape laser for better positioning
- Polycarbonate walls
- Compact table version



**Headform not included and sold separately*



Touchscreen controller



Easy removable timegate for periodical calibration

CANNON MACHINE

Double Barreled High & Low Velocities

P/N: 1000_05_DBC01

The Cadex double barreled high & low velocities is used to test eyewear protection such as goggles, glasses and others. This system is mobile which allows a wider testing flexibility.

DIMENSIONS (APPROX.):

- Length: 191.77 cm / 75.5 in
- Width: 139.4 cm / 54.88 in
- Height: 200.66 cm / 79 in

FEATURES:

- Two touchscreen controllers which fires the system, controls tank pressure and provide speed reading
- Uses compressed helium, nitrogen and compressed air
- Removable velocimeter (timegate) for periodical calibration
- Interchangeable barrels
- Gas booster and air booster systems
- Emergency stop button
- Two cross shape laser kits
- Projective shield panels



SHOOTING PERFORMANCE		
STANDARD	SPEED	PROJECTILE TYPE
MIL-DTL-43511D	550-560 ft/sec	0.22 cal. fragment
MIL-PRF-31013	640-660 ft/sec	0.15 cal. fragment
Custom applications	> 1200 ft/sec	...



CANNON MACHINE

Non-Lethal Air Cannon

P/N: 1000_05_NLG01

The Cadex non-lethal air cannon is used to test body armor for law enforcement and military uses. The shooting barrels are quickly interchangeable to test with multiple projectile types. The unit is portable for laboratory or 'on field' testing.

DIMENSIONS (APPROX.):

- Length: 162.56 cm / 64 in
- Width: 106.68 cm / 42 in
- Height: 116.84 cm / 46 in

FEATURES:

1. Touchscreen controller which fires the system, controls tank pressure and provide speed reading
2. Removable velocimeter (timegate) for periodical calibration
3. Interchangeable barrels
4. Air booster
5. Emergency stop button
6. Cross shape laser
7. High accuracy valve
8. Removable tripod stand
9. Uses compressed air



SHOOTING PERFORMANCE		
STANDARD	SPECIFICATION	PROJECTILE TYPE
Sponge Grenade	40 mm, 27 grs	30 to 150 m/sec
Bean bags	12-ga, 5.8 grs	30 to 150 m/sec
Mini-bomb	12-ga, 3.2 grs	30 to 200 m/sec
Paint ball	12-ga, 3.2 grs	30 to 200 m/sec



Touchscreen controller



Interchangeable shooting barrels

OPTICAL MACHINE

Field of Vision Gauge Kit

P/N: 1000_06_FOV01

The Cadex field of vision gauge kit is designed and manufactured to meet any standard you may be testing with.

DIMENSIONS (APPROX.):

- Length: 40.64 cm / 16 in
- Width: 30.48 cm / 12 in
- Height: 50.8 cm / 20 in

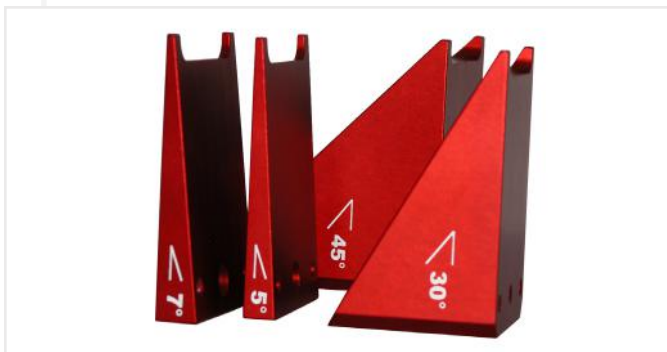
FEATURES:

- Interchangeable gauge blocs
- Material: aluminum/stainless steel
- Adjustable in height
- Adjustable to all headform sizes

**Headform not included and sold separately*



Horizontal field of vision



Other blocs available for all standards



Upward/downward fields of vision

OPTICAL MACHINE



Goniometer

P/N: 1000_06_FOV02

The Cadex goniometer is used to determine the area of coverage of face shield and field of vision according to EN 168, EN 174 and other standards.

DIMENSIONS (APPROX.):

- Length: 107.01 cm / 42.13 in
- Width: 98.43 cm / 38.75 in
- Height: 60.33 cm / 23.75 in

FEATURES:

- Horizontal axes rotation at eyes level
- Vertical axes rotation at eyes level
- Laser included



**Headform EN 168 and Ellipse JIG shape EN 168 - EN 174 are not included with the equipment*



Angle graduation



Laser included



Ellipse and bracket are sold separately

Ellipse and bracket (P/N: 300_07_TE168)

OPTICAL MACHINE

Chamber for Gases and Fine Dust Particles

P/N: 1000_06_GFB01

This chamber is designed to test for protection against gases and fine dust particles, according to the EN 168 standard, testing procedure #14.

DIMENSIONS (APPROX.):

- Length: 92.08 cm / 36.25 in
- Width: 66.04 cm / 26 in
- Height: 72.09 cm / 28.38 in
- Interior dimensions:
55.88 x 55.88 x 55.88 cm / 22 x 22 x 22 in

FEATURES:

- Sealed front door with window
- Stainless steel inlet tube
- 10 liters atomizer bottle



**Need to be connected to an exhaust system in order to evacuate ammoniac gases outside the building after the test - Reactive test papers not included*



10 liters atomizer bottle



Outlet fan to evacuate gases after the test



Fan indicator lights

OPTICAL MACHINE

Mechanical Resistance of Visors Jig

P/N: 300_00_MRVECE

The Cadex mechanical resistance of visors jig is used to test mechanical characteristics of motorcycle visors as per ECE 22, section 7.8.2. Once installed on either a monorail or twinwire machine, a drop hammer of 3 kg falls on the linear punch. Test technician can then take advantage of a guided drop & motorization function of existing standard impact machines.

DIMENSIONS (APPROX.):

- Length: 21.29 cm / 8.5 in
- Width: 39.37 cm / 15.5 in
- Height: 82.55 cm / 32.5 in

FEATURES:

- Light interchangeable jig can be mounted on either monorail or twinwire testing machine
- 300 grams linear punch device
- Adjusting device preventing the penetrator punch to get closer than 5 mm from the surface of the headforms
- Adjusting interface for all headform sizes

**Headform not included and sold separately*



Shown installed on a monorail



Adjustment screw to prevent contact with headform



Adjusting interface to fit all headform sizes

OPTICAL MACHINE

Optical Fogging System

P/N: 1000_06_FOG01

The Cadex optical fogging system is used to test the resistance to condensation of ocular visor and protective lenses according to EN 168 ECE R22/05.

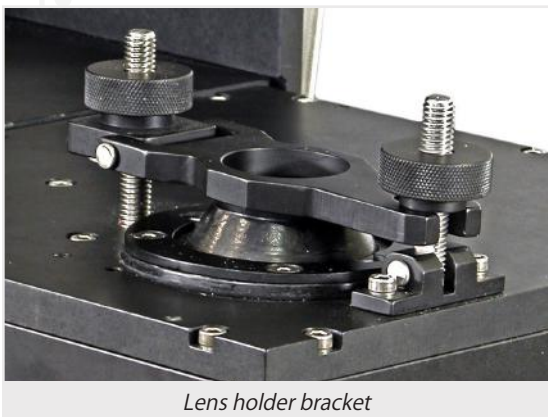
DIMENSIONS (APPROX.):

- Length: 46.35 cm / 18.25 in
- Width: 61.93 cm / 24.38 in
- Height: 186.05 cm / 73.25 in (with table)

FEATURES:

- Protected mirror to prevent water condensation to drop on mirror
- "Easy to find" optical center provided by efficient lens configuration
- Built in flat screen to save working space
- Solid state laser with 10 mm parallel beam expander
- High sensitive 110 sq. mm photodiode detector
- High precision heating system
- Fully automatic cycle operation
- PC included with customized software for fully automatic fogging time calculation

**Verification kit available for this equipment*



Lens holder bracket

OPTICAL MACHINE

Sand Abrader Machine

P/N: 1000_06_SAB01

Sand abrader gravity tube is used for lenses scratch resistance. Designed and manufactured to meet ECE R22/05 and other standards.

DIMENSIONS (APPROX.):

- Length: 58.42 cm / 23 in
- Width: 48.59 cm / 19.13 in
- Height: 228.6 cm / 90 in

FEATURES:

- Stainless steel base chamber
- Base can contain over 3 kg of sand
- Internal tube's diameter: 120 mm
- Sift of 1.6 mm mesh
- Sample rotating base (\varnothing 700 mm) with 45° angle axis to the falling sand direction

**Sand not included*



Rotating base holder for samples



Sift of 1.6 mm mesh



Door makes the container more accessible



OPTICAL MACHINE

Refractive Powers Bench

P/N: 1000_06_RPB5B

Equipment for testing the spherical, prismatic and astigmatism refractive powers of lenses, according to ECE 22/05, EN and BSI standards.

DIMENSIONS (APPROX.):

- Length: 513.08 cm / 202 in
- Width: 52.71 cm / 20.75 in
- Height: 161.29 cm / 63.5 in (if installed as per standard)

FEATURES:

- Touchscreen controller
- High resolution electronic encoder
- Frame made with aluminum profiles
- 26 x 20 telescope included
- Software included for calculation on your PC
- Rotating illuminated target
- Supportive stand or wall attachment bracket options

Shown with visor installed



Shown with visor installed



Telescope equipped with an electronic encoder

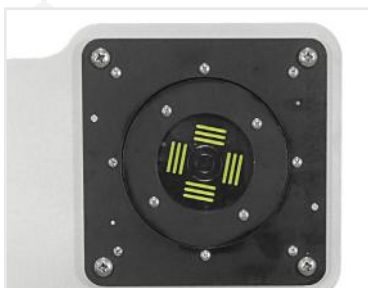


Calibration lenses

+0.25D; -0.25D; +0.12D; -0.12D; +0.06D; -0.06D (available upon request)



Rotating illuminated target remotely controlled



OPTICAL MACHINE

Light Diffusion Bench

P/N: 1000_06_LDBA1

The light diffusion optical bench is designed and manufactured to meet EN 167-168 and ECE reg.22/05 standards using simplified method "C".

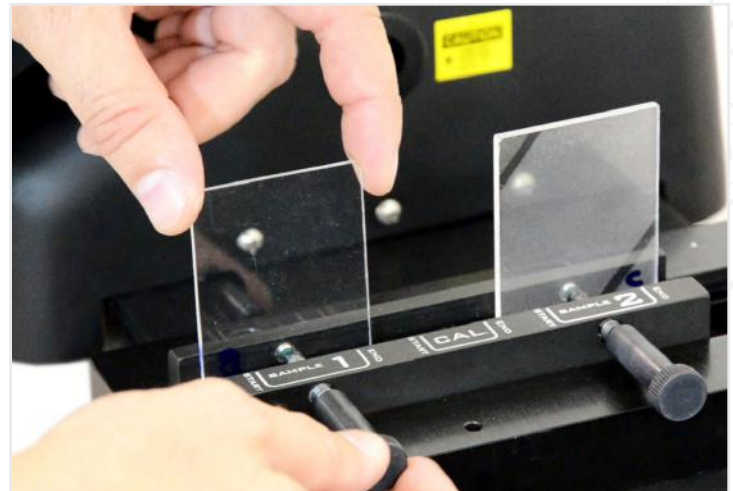


DIMENSIONS (APPROX.):

- Length: 111.12 cm / 43.75 in
- Width: 38.1 cm / 15 in
- Height: 22.86 cm / 9 in

FEATURES:

- Full motorized version
- Automatic calculation
- Software supplied to use with your computer
- 110 sq. mm silicon detector
- 5 mW laser source



Samples holders



*Laser beam
(test must be performed in a dark room)*



*Touchscreen controller for acquisition
and calculation*



*Cadex software included
(to be installed on your computer)*

OPTICAL MACHINE

Spectrophotometer

P/N: 1000_06_SPSB1

For testing the recognition of signal light, spectral transmittance and luminous transmittance of ocular visors and protective lenses according to ECE R22/05 standards.

DIMENSIONS (APPROX.):

- Length: 66.45 cm / 26.16 in
- Width: 49.02 cm / 19.3 in
- Height: 28.96 cm / 11.4 in

FEATURES:

- Optics: single beam
- Scanning any range from 320-1000 Nm
- Calculation executed by software included
- Accept sample of 10 mm width



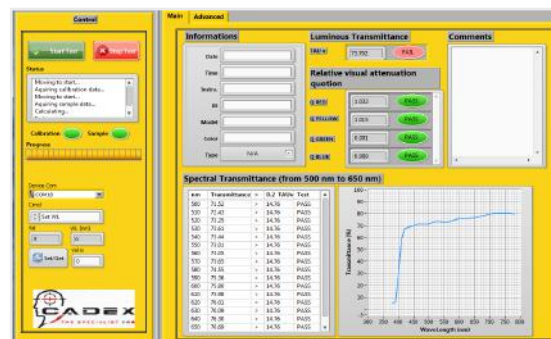
Single beam spectrophotometer

*Computer not included

WAVELENGTH	
Range	320 to 1000 Nm
Resolution	1 Nm
Accuracy	± 2 Nm
Spectral bandwidth	8 Nm

CONCENTRATION	
Range	-300 to 1999
Resolution	0.1 to 1
Units	ppm, mg/l, g/l, M, %, blank
Factor	0 to 199.9, 1000 to 9999

PHOTOMETRIC	
Transmittance	0 to 199.9% T
Absorbency	-0.300 to 1.999 A
Accuracy	± 1% T
Resolution	0.1% T, 0.001 A
Stray light	< 0.5% T
Noise	< 1%
Stability	1%/h after 15 minutes



Software for calculation (to be installed on your computer)

CONDITIONING MACHINE

UV Conditioning Chamber Unit

P/N: 1000_07_UV415

UV conditioning unit is designed and manufactured to meet ECE R22.05 regulation. Touchscreen controller with alarm allows separate time calculation for each conditioning stand.

DIMENSIONS (APPROX.):

- Length: 135.89 cm / 53.5 in
- Width: 95.25 cm / 37.5 in
- Height: 186.69 cm / 73.5 in

FEATURES:

- Touchscreen controller
- 125W Xenon filled quartz lamp
- 4 or 6 Independent rotating stands
- Reflecting interior liner
- Door safety switch



*Xenon filled UV
quartz lamp*

CONDITIONING MACHINE

Rain Conditioning Machine

P/N: 1000_07_CRM04

For rain conditioning according to the ECE R22.05 standard. Touchscreen controller with alarm. Measures separately the conditioning time for each of the for helmet station.

DIMENSIONS (APPROX.):

- Length: 142.24 cm / 56 in
- Width: 85.09 cm / 33.5 in
- Height: 135.89 cm / 53.5 in

FEATURES:

- Touchscreen controller
- Capacity: 4 helmets
- Independent and individual nose holes for each
- Water flow rate of 1 liter/min (adjustable)
- Semi-transparent wall construction to facilitate viewing
- Re-circulating water circuit



Helmet supports (4x)



Adjustable pulverizing nose hole

CONDITIONING MACHINE

Freezer for Cold Conditioning

P/N: 1000_07_CF010

Because cold air is denser than ambient air, this chest freezer model is better at maintaining a cold condition during frequent door opening.

DIMENSIONS (APPROX.):

- Length: 152.4 cm / 60 in
- Width: 74.93 cm / 29.5 in
- Height: 105.41 cm / 41.5 in
- Inner dimensions: 46.75 x 14.75 x 17 in

FEATURES:

- 0 to -35°C temperature range
- +/- 2°C accuracy
- Digital display



**Image and dimensions may vary according to the model available*

Oven for Hot Conditioning

P/N: 1000_07_CO300

DIMENSIONS (APPROX.):

- Length: 120.65 cm / 47.5 in
- Width: 64.14 cm / 25.25 in
- Height: 171.45 cm / 67.5 in

FEATURES:

- 50°C conditioning environment
- Touchscreen controller
- 300 liters capacity (custom dimension available upon request)
- +/- 1°C accuracy
- Stainless steel interior material
- Interior air flow circulating system
- Heat recovering time up to 150°C in 3-4 mins



**Image and dimensions may vary according to the model available*

CONDITIONING MACHINE

Radiant Heat Chamber

P/N: 1000_07_CRHC1

Designed and manufactured to meet EN 443 and/or NFPA 1971 standard. Using touchscreen controller along with an alarm, the radiant heat chamber manages automatically all of the different conditioning steps.

DIMENSIONS (APPROX.):

- Length: 101.6 cm / 40 in
- Width: 81.28 cm / 32 in
- Height: 200.66 cm / 79 in

FEATURES:

Full automatic system

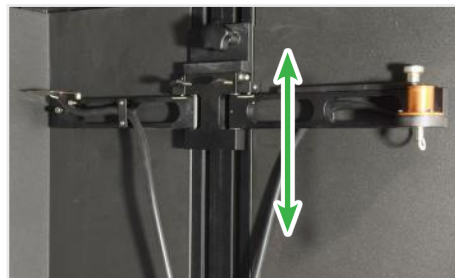
- Touchscreen controller
- Radiant panel with auto self-adjustment power system
- Radiometer and thermocouple adjustable in height
- Doors can be opened or closed to perform either NFPA 1971 or EN433 conditioning procedure



**Model may differ from the picture*



Door shown closed to perform NFPA 1971 conditioning procedure



Radiometer and thermocouple adjustable in height



Emergency button

DIELECTRIC MACHINE



Dielectric Testing Equipment (CSA & ANSI)

P/N: 1000_08_DTM01

This system is used to measure the dielectric properties of a hard hat's shell. The leaking electric current is measured when a high-voltage tension is applied on both sides of the helmet's shell. Designed according to the ANSI/ISEA Z89.1 standard's, electrical insulation testing procedure and CSA-Z941 dielectric strength test.

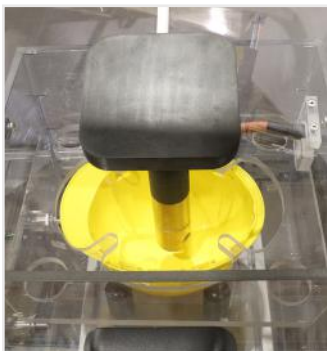
FEATURES:

- System generating up to 35,000 VAC /60Hz
- Analog voltmeter and amperemeter display
- Manual VAC adjustment
- Polycarbonate vessel to contain fresh tap water
- Polycarbonate cage for better view
- High gage electric wiring
- Located on top panel integrated safety switches

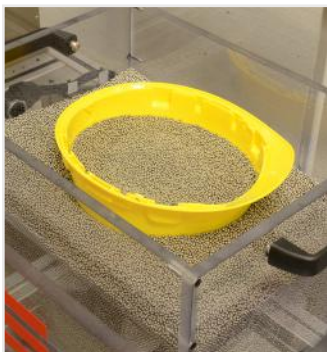
- Side fan for extraction of the zone gases generated during the test (this gas should be vented outside of the testing room and building)

DIMENSIONS (APPROX.):

- Length: 259.08 cm / 102 in
- Width: 60.96 cm / 24 in
- Height: 127 cm / 50 in



Using tap water



Using 3mm solid metal spheres



DIELECTRIC MACHINE



Dielectric Testing Equipment (ANSI)

P/N: 1000_08_DTM02

This system is used to measure the dielectric properties of a hard hat shell. The leaking electric current is measured when a high-voltage tension is applied on both sides of the helmet's shell, under wet conditions. Designed according to the ANSI/ ISEA Z89.1 standards, electrical insulation testing procedure.

FEATURES:

- System generating up to 35,000 VAC /60Hz
- Analog voltmeter and ampere meter display
- Manual VAC adjustment
- High gage electric wiring
- Polycarbonate cage for better view
- Polycarbonate vessel to contain fresh tap water
- Located on top panel integrated safety switches
- Side fan for extraction of the ozone gases generated during the test (this gas should be vented outside of the testing room and building)

DIMENSIONS (APPROX.):

- Length: 152.4 cm / 60 in
- Width: 60.96 cm / 24 in
- Height: 127 cm / 50 inn



High gauge electric wiring



Control panel with emergency stop

ACCESSORIES

Pen & Headform Holder

P/N: 300_08_HHTTL

The pen holder and rotating headform stand is used to trace horizontal test lines. This product is mostly useful for orientation on the laser table.

DIMENSIONS (APPROX.):

- **Pen Holder**
 - Length: 15.24 cm / 6 in
 - Width: 15.24 cm / 6 in
 - Height: 50.8 cm / 20 in
- **Headform Holder**
 - Length: 10.16 cm / 4 in
 - Width: 10.16 cm / 4 in
 - Height: 34.29 cm / 13.5 in



**Pen and headform not included*

**Headform sold separately*



NOCSAE Conical Leg

P/N: 300_12_NCCL

Complies with NOCSAE ND090 to test soccer shin guards. The conical leg comes with a quick release (female) connector in order to facilitate installation on Cadex testing machines.

DIMENSIONS (APPROX.):

- Length: 30.48 cm / 12 in
- Width: 12.07 cm / 4.75 in
- Height: 13.03 cm / 5.13 in
- Material: stainless steel



ACCESSORIES

NOCSAE Impact Flying Arm

P/N: 300_20_TFAHNC

Rugged flying arm to perform NOCSAE's impact attenuation test on baseball, softball & lacrosse helmets. This flying arm is to be used in combination with the NOCSAE rotary neck (P/N: 300_12_NCRNHA).

DIMENSIONS (APPROX.):

- Length: 58.12 cm / 22.88 in
- Width: 3.81 cm / 1.5 in
- Height: 41.91 cm / 16.5 in

FEATURES:

- CNC machined aluminum
- Rugged construction
- Spare accessories available

**Headform, accelerometer and NOCSAE rotary neck not included*



NOCSAE Impact Rotary Neck

P/N: 300_12_NCRNHA

Impact rotary neck device for the NOCSAE flying arm. No tools are required in order to adjust this rotary neck.

DIMENSIONS (APPROX.):

- Length: 7.32 cm / 2.88 in
- Width: 7.32 cm / 2.88 in
- Height: 20.32 cm / 8 in

FEATURES:

- CNC machined aluminum
- Tool-free adjustment device



ACCESSORIES

Twinwire Penetrator Flying Arm

P/N: 300_14_TPFA

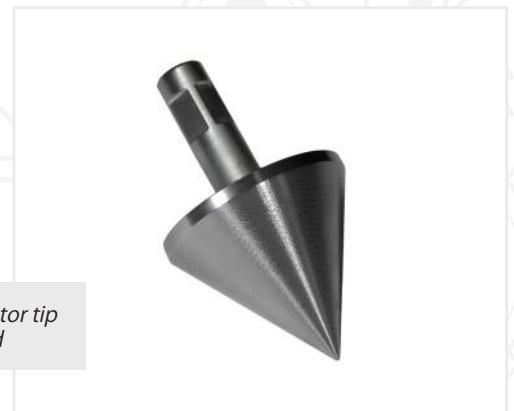
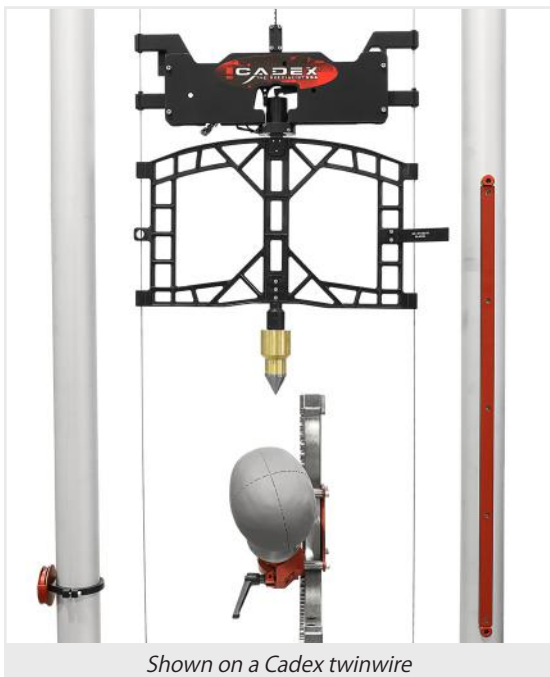
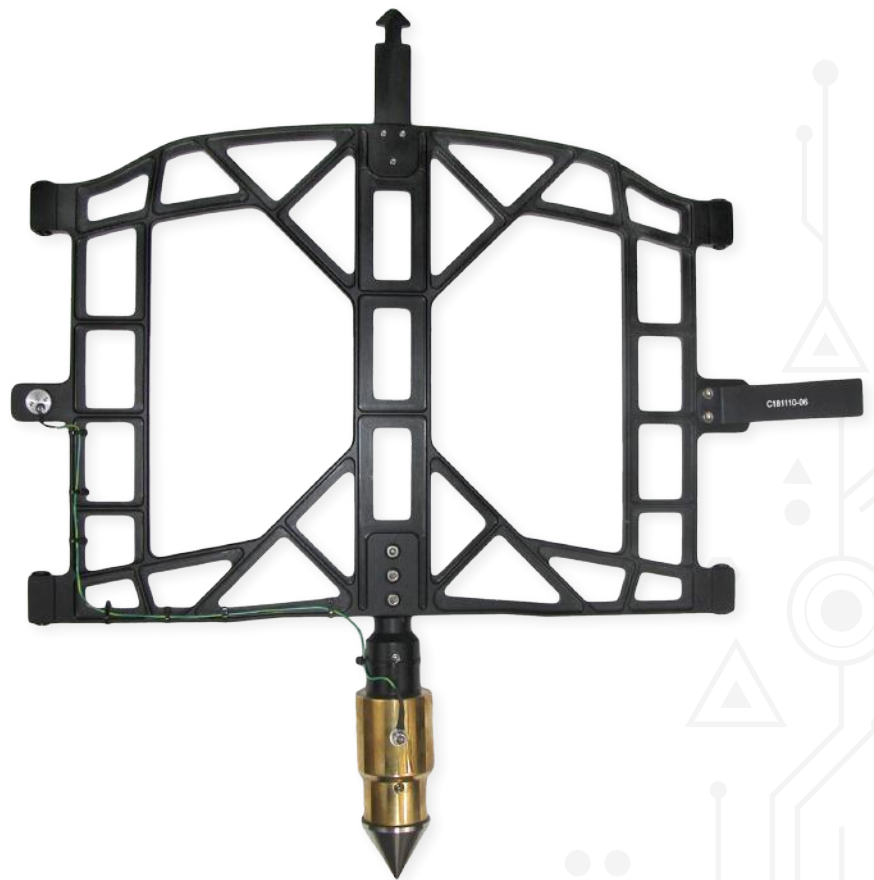
The twinwire penetrator flying arm device is designed to fit the Cadex twinwire equipment. The center of gravity is aligned with the penetrator tip's axis. The mass requirement is met when combined with the falling carriage.

DIMENSIONS (APPROX.):

- Length: 49.53 cm / 19.5 in
- Width: 5.08 cm / 2 in
- Height: 53.34 cm / 21 in

FEATURES:

- Comes with 2 penetration tips
- Comes with a certificate of conformity
- Quick and easy to be mounted on the twinwire carriage
- Center of gravity aligned with the penetrator tip axis



ACCESSORIES

MEP Pad

P/N: 300_11_MP60

The Cadex's MEP pad is used to perform system check's procedures. The MEP complies with SNELL, CPSC, ANSI, DOT, CSA and other standards.

FEATURES:

- Comes with a compliance certificate
- Hardness: 60 +/-2 Shore A
- Thickness: 1 in
- Diameter: 6 in
- Optional aluminum multi-purpose support plate available
- Other sizes available upon request

*Optional multi-purpose support plate
P/N: 300_11_AMRI*



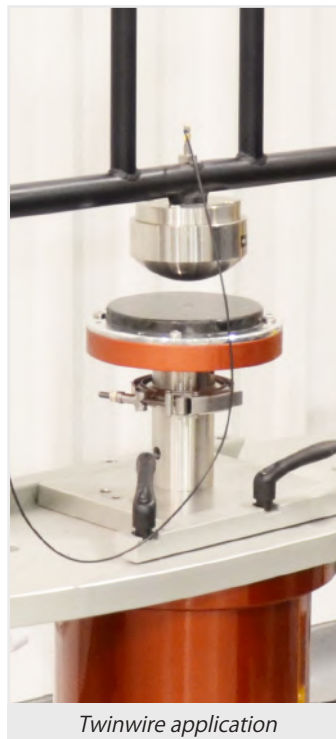
Spherical Impactor

P/N: 210_07_ASIM

To perform uniaxial system check procedure in compliance with ASTM, SNELL, CPSC, ANSI, DOT, CSA and other standards.

FEATURES:

- 73 mm radius (2.87 in)
- Stainless steel



Twinwire application



Monorail application

Spherical impactor impacting a MEP pad to perform a system check

ACCESSORIES

Anvils

Multitude of models available

Cadex manufactures a multitude of anvils in accordance with existing standards. The quick release system (exclusive Cadex feature) allows test technicians to quickly interchange impact setups.

FEATURES:

- Each anvil comes with a compliance certificate
- Each anvil comes with a quick release female part
- Male part and clamp are sold separately
- Made with stainless steel
- 360° positioning of the anvils
- More than 20 different models available



 <p>Hemispherical - P/N: 300_01_AH48</p>	<p>(SNELL / CPS / ASTM)</p>  <p>Curbstone - P/N: 300_01_ACPSC</p>	<p>(ECE R22)</p>  <p>Curbstone - P/N: 300_01_AC22</p>
 <p>Catcher Helmet - P/N: 300_01_ACHND</p>	 <p>Triangular Hazard - P/N: 300_01_ATH1</p>	 <p>Edge - P/N: 300_01_AEQR</p>
 <p>Oblique 45° - P/N: 300_01_AO45</p> <p>Come with an abrasive paper</p> 	 <p>Flat - P/N: 300_01_AF130</p>	<p>Ø50mm and Ø100mm also available</p>  <p>Cylindrical Ø75mm - P/N: 300_01_AC75</p>

ACCESSORIES

CSA-Flat Anvil (200x200 mm)

P/N: 300_01_AFCSA

CSA-Flat anvil plated steel (200x200 mm) is designed to perform impact attenuation test on industrial hat as per CSA Z94.1.

DIMENSIONS (APPROX.):

- Length: 21.59 cm / 8.5 in
- Width: 20.32 cm / 8 in
- Height: 20.65 cm / 8.13 in

FEATURES:

- Modular system
- Impacting surface:
200x200 mm
- Comes with a certificate of conformity



Shown on a Cadex monorail



CSA-Penetrator Anvil

P/N: 300_01_APCSA94

CSA-Penetrator anvil plated steel is designed to perform penetration test on industrial hat as per CSA Z94.1.

DIMENSIONS (APPROX.):

- Length: 8.89 cm / 3.5 in
- Width: 8.89 cm / 3.5 in
- Height: 11.43 cm / 4.5 in

FEATURES:

- Quickly interchangeable
- Quick release female part included
- Comes with a certificate of conformity



Shown on a Cadex monorail

ACCESSORIES

Penetration Headform Holder

P/N: 300_14_PHBC

The penetration headform holder offers a solid multi positioning capability.

FEATURES:

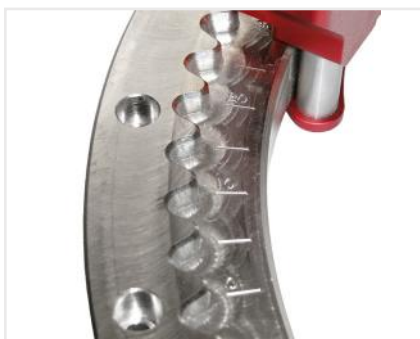
- Vertically angle positioning every 5° from 0° to 90°
- 360° rotation on the Z axis
- Can be installed on monorail or twinwire
- Compatible with conductive headforms (not included)

DIMENSIONS (APPROX.):

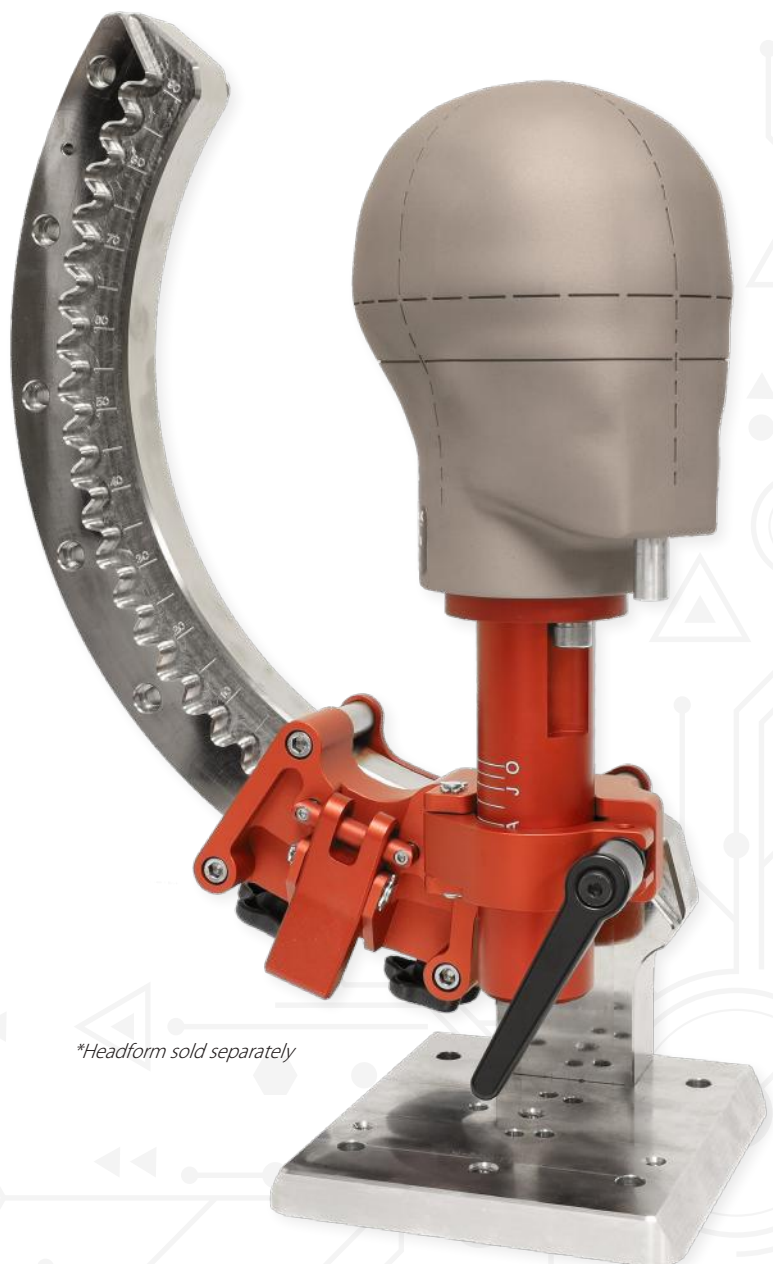
- Length: 41.91 cm / 16.5 in
- Width: 22.86 cm / 9 in
- Height: 58.42 cm / 23 in



Compatible with conductive headforms



Angle positioning every 5° from 0° to 90°



*Headform sold separately

ACCESSORIES

Linear Motion Holder

P/N: 300_10_LMH1

The linear motion holder is used for impact attenuation tests on safety helmets. Complies with ANSI Z89.1 and EN 397.

FEATURES:

- Incorporated rebound catcher
- Easily interchangeable with penetrator device using same linear bearing holder
- Designed to be used with the Cadex monorail



Linear Motion Penetrator

P/N: 300_10_LMP2

The linear motion penetrator is used for penetration tests on safety helmets. Complies with ANSI Z89.1 and EN 397.

FEATURES:

- Incorporated rebound catcher
- Easily interchangeable with linear impactor device using same linear bearing holder
- Designed to be used with the Cadex monorail
- Comes with 2 tips



ACCESSORIES

Split Ring Clamp

P/N: 300_02_SRCH

The split ring clamp is used to lock the headform in a particular position and hold it during the impact test. The clamp's weight is customized to your testing setup to help you reach the required total mass assembly required by certain standards.

FEATURES:

- The weight can be customized from 180 grams up to 1200 grams (± 5 grams)
- Made of magnesium, aluminum and brass alloy



Ball Arm

P/N: 300_02_BA

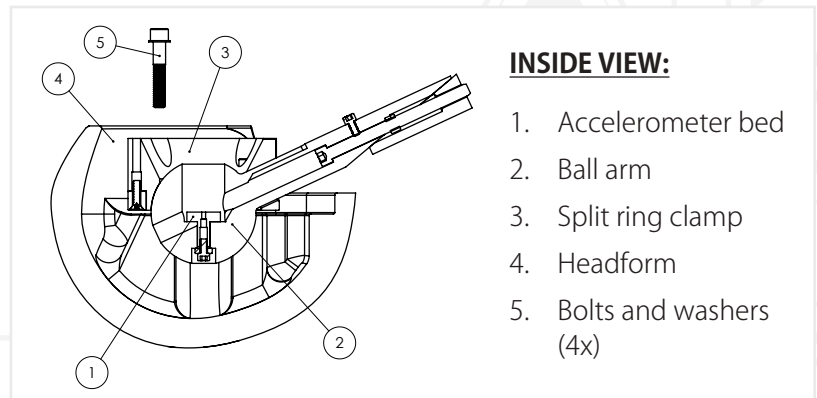
The Cadex ball arm holds the accelerometer and allows the headform to rotate.

FEATURES:

- Available in magnesium, aluminum or stainless steel
- Coming in 20°, 25°, 30° or 35° angles



Ball arm assembled with a split ring clamp



ACCESSORIES

Balanced Monorail Penetrator

P/N: 300_14_BPM2

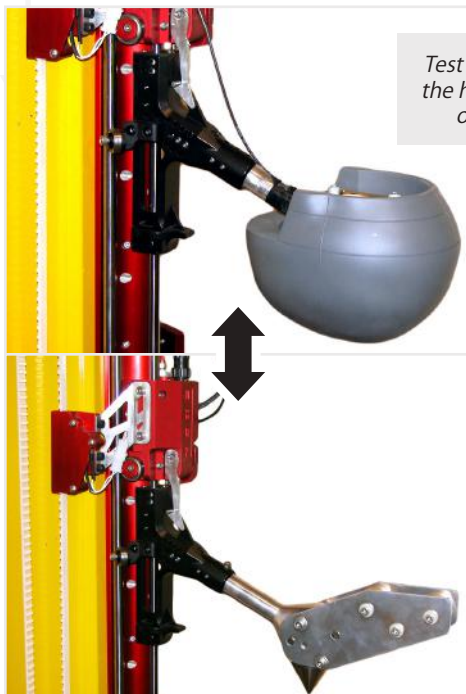
The balanced monorail penetrator's center of gravity is aligned with the penetrator tip's axis. The mass requirement is met when combined with the drop carriage.

DIMENSIONS (APPROX.):

- Length: 33.99 cm / 13.38 in
- Width: 6.05 cm / 2.38 in
- Height: 12.4 cm / 4.88 in
(without penetration tip)

FEATURES:

- Comes with a spare penetration tip
- Comes with a certificate of conformity
- Quick and easy to be mounted on the monorail carriage
- Center of gravity aligned with the penetrator tip axis



Quickly interchangeable

Test technicians simply have to interchange the headforms with the penetrator device in order to prepare the penetration test



Center of gravity aligned with the penetrator tip when installed on Cadex carriage



Shown on a Cadex monorail

ACCESSORIES

Chin Bar Kit (American)

P/N: 300_00_CBKA

The American chin bar kit is to be used with Cadex monorail. The basket & the metallic bar maintain helmet stability during the impact. A measuring device measures the deflection of the helmet's chin bar. The information is sent to the Cadex software via the acquisition box. This kit can be used as an accessory or on a dedicated machine for chin bar tests. Complies with SNELL, ASTM and other standards.

FEATURES:

1. Soft release system (used on monorail dedicated to chin bar test)
 2. Interchangeable impacting device
 3. Strap to hold the helmet in place during impact
 4. Acquisition box measuring the deflection
- Compatible with Cadex software application
 - Can be used on existing monorail machine
 - Also available in twinwire configuration



The helmet basket is used to support the helmet.

The metallic bar is used to further secure the helmet into place and restrict any movement during the impact.



ACCESSORIES

Chin Bar BSI

P/N: 300_00_CBKB

The BSI chin bar test is the deceleration of a striker hitting the chin guard of a helmet. According to BSI standard, Indonesian and other standards.

DIMENSIONS (APPROX.):

- Length: 20.32 cm / 8 in
- Width: 47.32 cm / 18.63 in
- Height: 52.07 cm / 20.5 in

FEATURES:

- Light interchangeable jig can be mounted on either monorail or twinwire testing machine
- MEP pad support adjustable in height
- Adjusting interface for all headform sizes

**Headform sold separately*



Headform not included



Shown installed on a Cadex twinwire impact machine

ACCESSORIES

Positioning Laser Kit

P/N: 300_08_PLK1

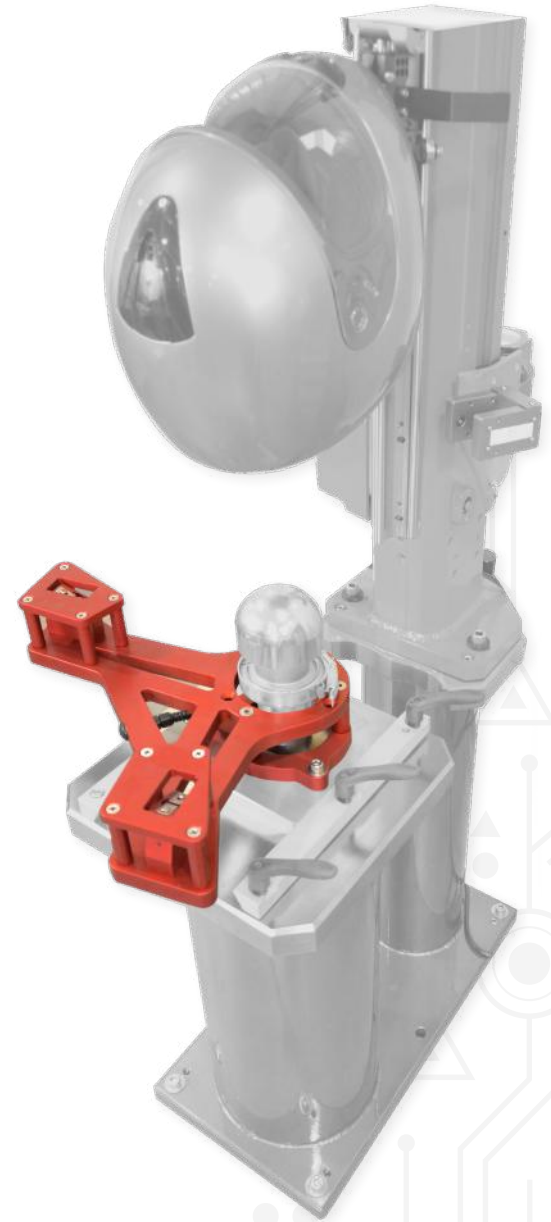
The laser positioning device can be installed easily on your Cadex twinwire or monorail. This kit helps the technician to confirm the impact location as the helmet is rising up to the drop height location. This system is used to perform testing procedures as per SNELL methodology and other standards in order to confirm the impact location prior the drop test.

DIMENSIONS (APPROX.):

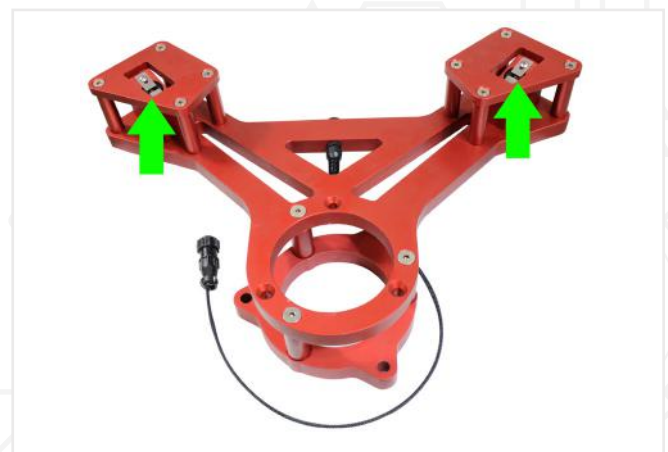
- Length: 49.23 cm / 19.38 in
- Width: 34.29 cm / 13.5 in
- Height: 14.94 cm / 5.88 in

FEATURES:

- Anvil can be easily interchanged while using the laser kit
- Built in application in Cadex software to operate the laser kit
- ON/OFF with wall inlet available for none Cadex software applications users



Pre-aligned laser system for the actual point of impact



HEADFORMS

Cadex Ballistic Testing Headforms

P/N: 100_04_HFA

The 2022 military ballistic headforms is used for ballistic penetration test. These specific headforms have a cavity to be filled up with clay (not included).

FEATURES:

- Not polished to prevent light reflection
- Made from aluminum
- 100% CNC machined
- Ballistic plate (AR500 steel) to protect aluminum headform
- Technical data sheet included
- Size: medium



LEFT SIDE CUT-OUT
(100_04_HFAL)



BACK SIDE CUT-OUT
(100_04_HFAB)



**HALF HEAD CUT-OUT
WITH INSERT** (100_04_HFAH)



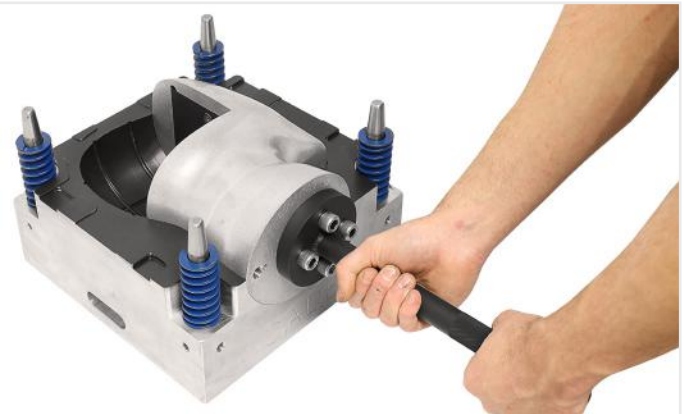
FRONT SIDE CUT-OUT
(100_04_HFAF)



RIGHT SIDE CUT-OUT
(100_04_HFAR)



Cadex ballistic mold with handle, around 0.003 in of a gap.
Available separately - P/N: 300_08_CBHMC



Optional Cadex ballistic mold with handle
shown with the back side cut-out headform (100_04_HFAB)

HEADFORMS

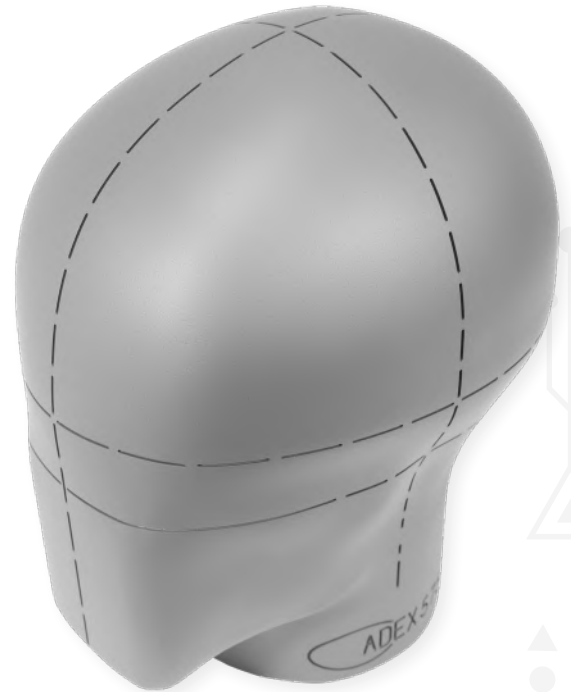
Full Headform Magnesium K1A

P/N: 100_01_HFM

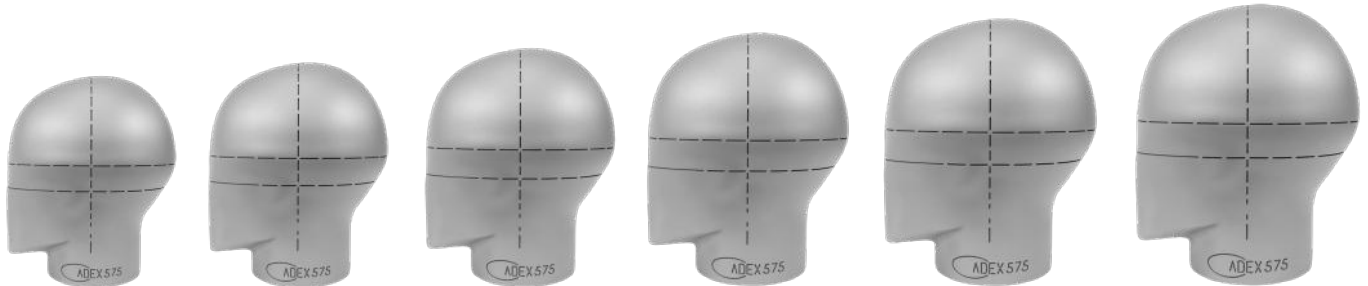
The full headform magnesium K1A is used for triaxial (X, Y, Z direction) impact attenuation testing on helmets. Headforms are shipped with a serial number and a technical data sheet. The headform has been designed and created to meet the ISO/DIS 6220 & EN 960 and EN 960:2006 standards.

FEATURES:

- Material: magnesium K1A allow
- 100% CNC machined
- Testing lines are CNC grooved
- Complies with EN 960 and EN 960:2006 requirements
- Only one accelerometer is needed to fit into a complete set of headforms
- A single cone attachment is needed to fit into a complete set of headforms
- All sizes available



The cone attachment is used to mount the accelerometer to the headform's center of gravity.



All standard sizes available

HEADFORMS

Half Headform Magnesium K1A

P/N: 100_01_HHM

The half magnesium K1A headforms are used for uniaxial impact attenuation testing. The headform has been designed and manufactured to meet the ISO/DIS 6220 and the EN 960 standards.

FEATURES:

- Material: magnesium K1A alloy
- 100% CNC machined
- Testing lines are CNC grooved
- Technical data sheet included
- Complies with ISO/DIS 6220 and EN 960 standards
- Headform for the EN 960:2006 standard is also available
- Letter sizes available:
A - C - D - E - G - J - K - M - O
- Number sizes available:
495 - 515 - 535 - 575 - 605 - 625



Also available with CNC grooved testing lines - Not included



Inside view

HEADFORMS

DOT Headform Magnesium K1A

P/N: 100_01_DOT

The magnesium K1A DOT headforms are used for uniaxial impact helmet testing. The headform has been designed and manufactured to meet the DOT FMVSS-218 and ACH (Advance Combat Helmet) standards.

FEATURES:

- Material: magnesium K1A alloy
- 100% CNC machined
- Testing lines are CNC grooved
- Technical data sheet included
- Complies with DOT and ACH (Advance Combat Helmet) standards
- Sizes available: A - B - C - D



*ANSI Z90.1 modified headform
also available (with ear cup region)*



Inside view



A - B - C - D sizes available

HEADFORMS

J.I.S. Headform Magnesium K1A

P/N: 100_01_HML_JIS

The J.I.S. magnesium K1A headforms are used for uniaxial impact attenuation testing on helmets. The headform has been designed and manufactured to meet the J.I.S. requirements.

FEATURES:

- Material: magnesium K1A alloy
- 100% CNC machined
- Testing lines are CNC grooved
- Technical data sheet included
- Sizes available: small - standard - large



Solid Wood ISO Headform

P/N: 100_05_HFW

The solid wood ISO headforms are designed to achieve special test such as oblique impact testing (BSI 6685) or projection and surface friction testing (ECE No.22).

FEATURES:

- Material: hard processed wood
- 100% CNC machined
- Testing lines are CNC grooved
- Technical data sheet included



HEADFORMS

Urethane Full Size Headform

P/N: 100_02_HFUR

The full urethane headforms are used for measurement, roll off, field of vision, fit test, EN retention chinstrap testing as well as other tests. Headforms are shipped with a serial number and a technical data sheet. The headforms are designed and manufactured according to ISO/DIS 6220 and EN 960 requirements.

FEATURES:

- Material: urethane
- 100% CNC machined
- Testing lines are CNC grooved
- Technical data sheet included
- Complies with EN 960 requirements
- All sizes available



Identification lines for:

- Reference plane
- Basic plane
- Transversal plane
- Longitudinal plane



Bottom plate



All sizes available

HEADFORMS

Half Headform Magnesium K1A (mountaineers' helmet testing)

P/N: 100_01_HHM_C

The half magnesium K1A headforms with cuts for load distribution application such as EN 12492 for mountaineers' helmet testing. Geometry complies with EN 960 standards.

FEATURES:

- Load distribution application
- Material: magnesium K1A alloy
- 100% CNC machined
- Testing lines are CNC grooved
- Technical data sheet included
- Headform for the EN 960:2006 standard is also available
- All sizes available



Inside view



To be mounted on load cell with clamp - Available separately (P/N: 200_06_LCA3_22)

HEADFORMS

Half Headform for American & Canadian Industrial

P/N: 100_02_HHU_STL

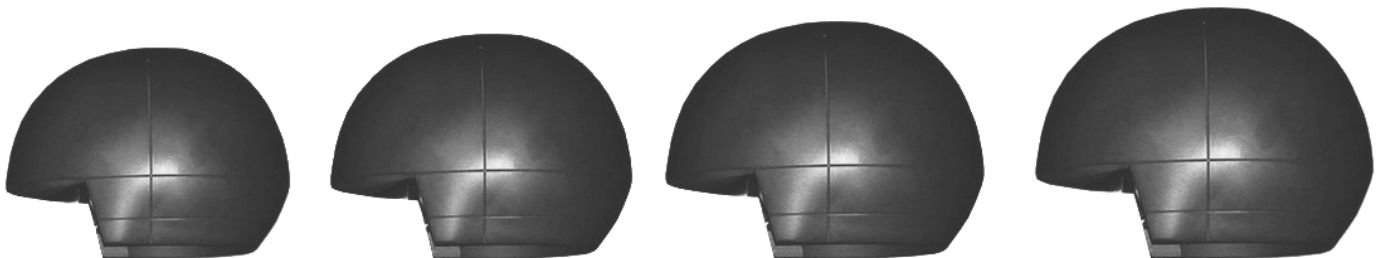
The half urethane headforms are used for impact attenuation testing. It is designed and manufactured to meet ANSI Z89.1 and CSA Z94.1 safety helmets standards. The headforms are shaped as per ISO/DIS 6220 standards.

FEATURES:

- Material: cast urethane
- Hardness: 60 +/- 6 Shore D
- Shaped as per ISO/DIS 6220 standards
- Sizes available: A - E - J - M



Inside view



Sizes A, E, J & M available

HEADFORMS

Penetration Half Headform for Canadian Industrial Headwear

P/N: 100_03_HHU

The half urethane headforms with conductive paint are used to achieve the penetration testing procedure as per CSA-Z94.1 standard. The headforms are designed to fall on a penetrator anvil.

FEATURES:

- Hard urethane covered with conductive paint
- Shaped as per ISO/DIS 6220 standards
- Hardness: 60+1-6 Shore D
- Complies to ISEA geometry requirements
- Sizes available: E - J - M



Sizes E, J & M available

HEADFORMS

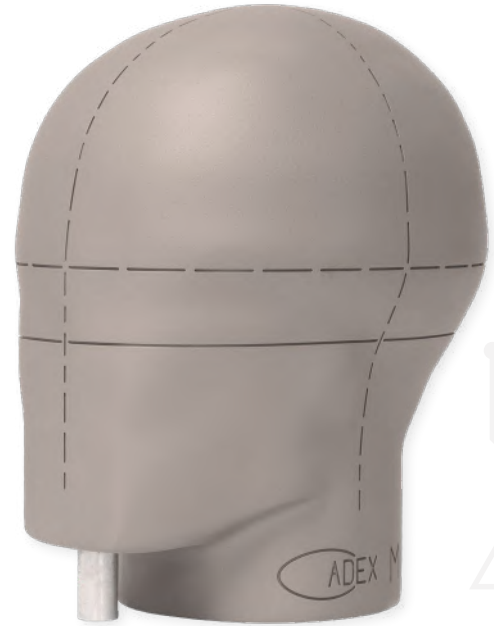
Penetration EN 960/ISO Headform

P/N: 100_02_HFU

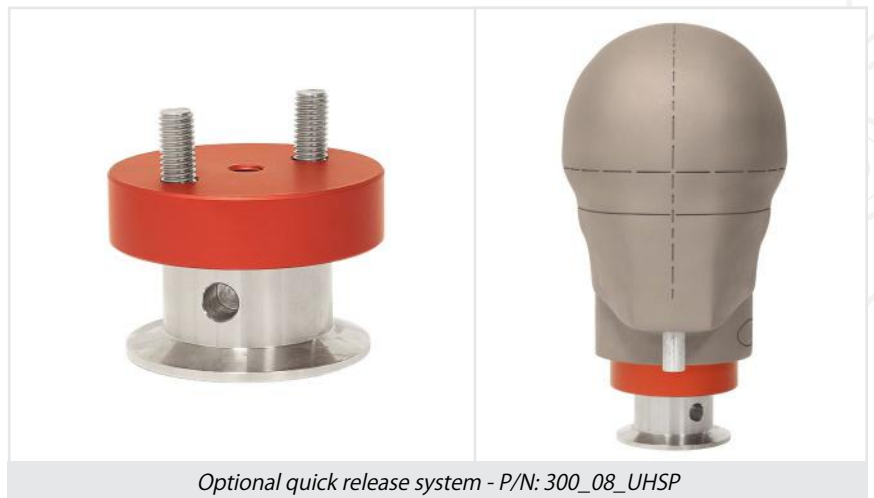
The full urethane headforms with conductive paint are made for electrical contact detection. The headform has been designed and manufactured according to ISO/DIS 6220 & EN 960 standards.

FEATURES:

- Material: hard urethane covered with conductive paint
- 100% CNC machined
- Complies with EN960 requirements, all sizes available
- Comes with a repair kit to restore the surface if damaged
- Technical data sheet included
- Can be mounted using the quick release system or on the rotary angle system



Shown installed on optional penetration headform holder - P/N: 300_14_PHBC



Optional quick release system - P/N: 300_08_UHSP



All sizes available: A, C, D, E, G, J, K, M, O

HEADFORMS

Penetration DOT Headform

P/N: 100_05_DOT

The penetration DOT headforms are designed to perform the penetration testing as per FMVSS 218 and other standards requirements.

FEATURES:

- Material: hard processed wood covered with conductive paint
- 100% CNC machined
- Technical data sheet included
- Sizes available: small - medium - large



*Shown installed on optional rotary angle system
P/N: 320_00_ADHS*



Small, medium and large sizes available

HEADFORMS

Force Transmission ISEA Headform (size 7)

P/N: 100_04_ISEA

This headform is used to perform force transmission testing on hard hats, according to ANSI Z89.1 requirements. It is designed to be mounted on a load cell assembly. The headform's geometry and mass meets ISEA requirements.

FEATURES:

- Material: aluminum
- Technical data sheet included
- CNC machined
- Complies to ISEA geometry and mass requirements
- Only size 7 available



Shown installed on monorail



HEADFORMS



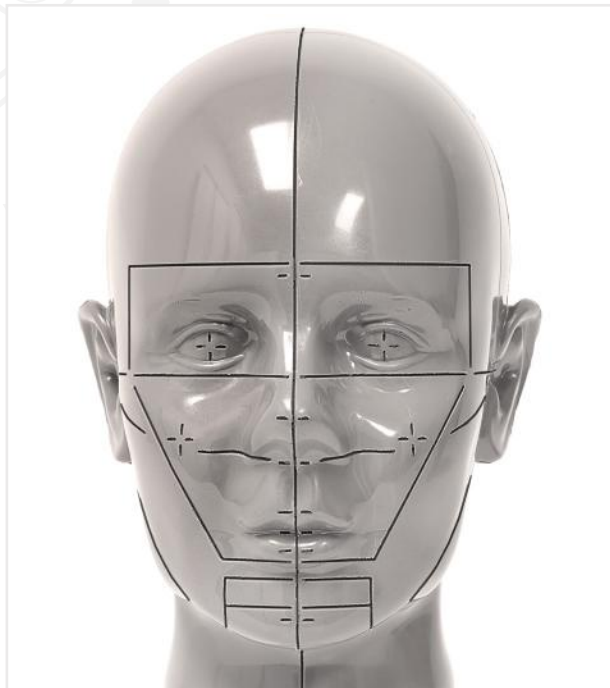
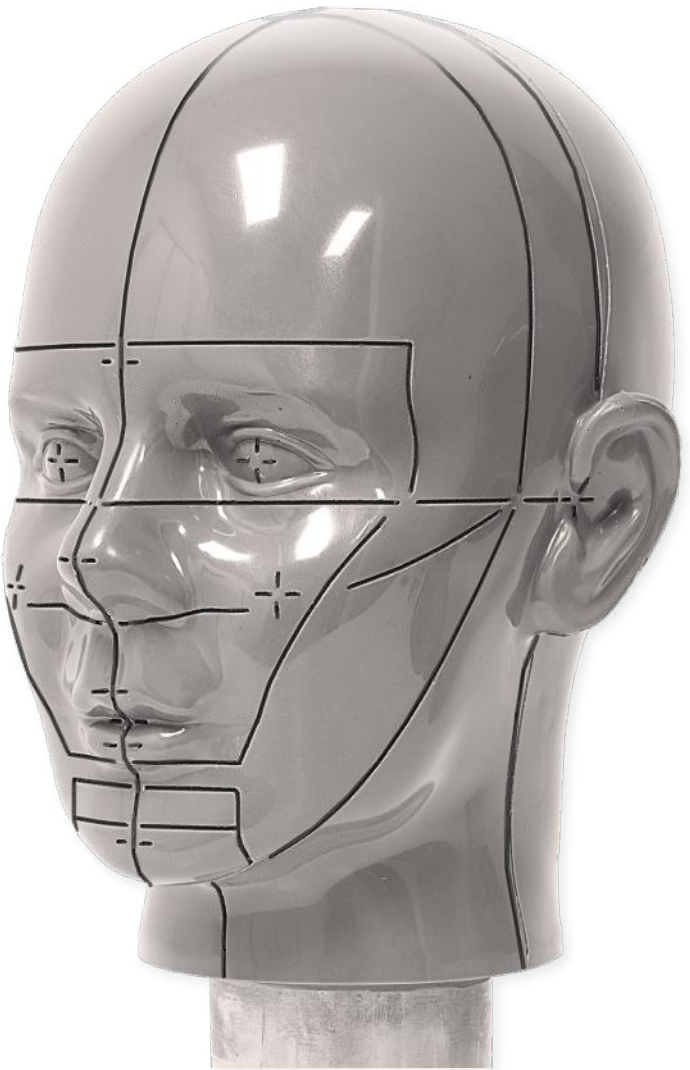
CSA Z262.6-14 Facially featured Headform

P/N: 100_02_CSA

The facially features headform is manufacture in order to meet the CSA Z262.6-14 requirements. The headform is used to perform the impact tests on face protectors for use in hockey (CSA Z262.2-14) as well as industrial eye and face protectors (CSA Z94.3).

FEATURES:

- Material: urethane
(available in 50 shore A or 70 shore A)
- Comes with certificate of conformity
- Come with CNC traced test lines



***CNC TRACED TEST LINES
(Z262.2-15 Face protectors for use in hockey):***

- Protected area for full-face protector
- No contact zones area
- Minimum load-bearing area

4 SIZES AVAILABLE:

- Juvenile male /Adult female (535)
- Adult male, 50th percentile (605)
- Adult male, 90th percentile (575)
- Child (515)

HEADFORMS

Chinese Headforms

P/N: 100_04_HCA1 (size 1) & 100_04_HCA2 (size 2)

These headform are used to perform force transmission and resistance to penetration on hard hats, according to GB2811 requirement. It is designed to be mounted on a load cell assembly. The headform's geometry and mass meet the requirements of the Chinese standard. Same design of headform is also used to perform penetration procedure.

FEATURES:

- Material: aluminum
- Technical data sheet included
- CNC machined
- Complies with GB2811 geometry and mass requirements
- Two sizes available: size 1 and size 2



Shown performing resistance to penetration testing procedure

Headform's inside view



HEADFORMS

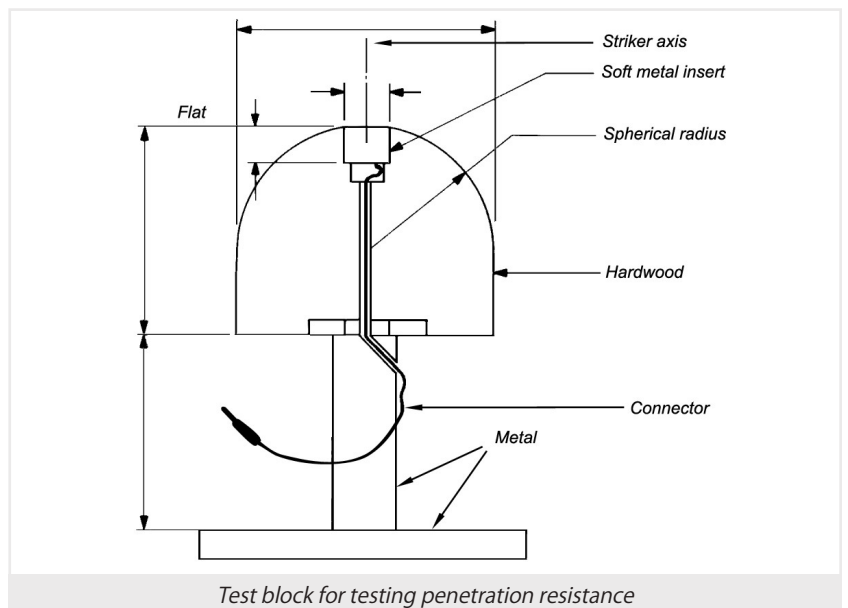
Penetration Hard Wood BSI Headform

P/N: 100_05_HWBSI

The penetration hard wood headforms (test blocks) are designed and manufactured according to BSI, SNI (Indonesia) requirements as well as other standards.

FEATURES:

- Material: hard processed wood
- Technical data sheet included
- Soft metal conductive top part
- Customized radius available
- Quick release system for fast installation



HEADFORMS

Penetration Hard Wood EN Headform

P/N: 100_05_HW1077

The penetration hard wood headforms (test blocks) are designed and manufacture according to EN 1077, EN 13087-3 requirements as well as other standards.

FEATURES:

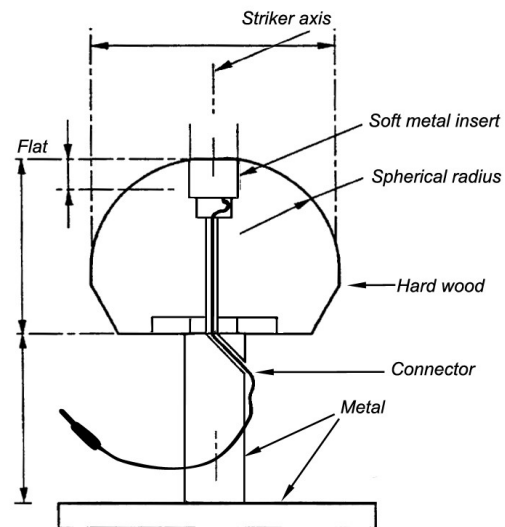
- Material: hard processed wood
- Technical data sheet included
- Soft metal conductive top part
- Customized radius available
- Quick release system for fast installation



Soft metal conductive top part



Shown installed on a Cadex machine



Test block for testing penetration resistance

HEADFORMS



Headform according to EN 168

P/N: 100_02_HFUB

EN 168 headforms are designed for different tests such as personal eye protection test, ballistic test and referencing.

FEATURES:

- Material: urethane with internal core
- Technical data sheet included
- Sizes available: small and medium



Modified EN 168 Headform for Breathing Test

P/N: 100_02_HFUBM_BT

Headform designed to test respiratory protective equipment according to NFPA 1972, EN 12941, EN 14594 and other standards.

FEATURES:

- Material: urethane
- Technical data sheet included
- Sizes available: small and medium
- Breathing tube specification can be modified upon request



Breathing tube can be connected behind the headform or below the neck



HEADFORMS

Modified EN 168 Headform for Photometry

P/N: 100_02_HFUM_PT

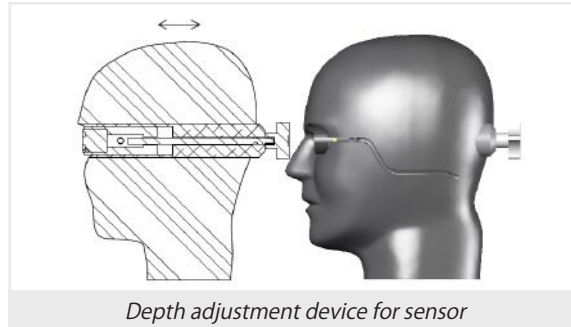
Modified EN 168 headform system to measure solar rating for non-prescription eyewear, sunglasses, fashion eyewear and other application.

FEATURES:

- Material: urethane
- Technical data sheet included
- Optional UV light meter available upon request
(can be adjusted in depth)



Gage plate to adjust sensor location



Depth adjustment device for sensor



Optional UV light meter

Alderson Headform

P/N: 100_02_ALDER

The Alderson headform, which has facial features, is mainly used for eyewear testing and for air cannon testing.

FEATURES:

- Material: urethane
- Only one size available



HEADFORMS

N.I.J. Ballistic Penetration Test Headform

P/N: 100_02_HNME

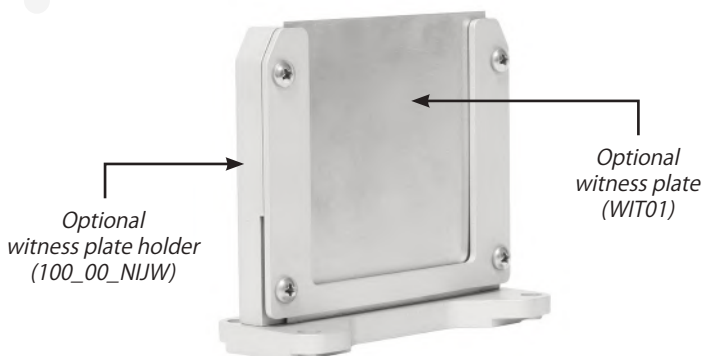
Manufactured according to the N.I.J. 0106.01 (National Institute of Justice) standard for ballistic penetration tests. Designed for Sagittal & Coronal penetration applications. These specific headforms have a cavity to be filled up with clay (not included).

FEATURES:

- Mat finish to prevent light reflection
- Made from aluminum, 100% CNC machined
- Technical data sheet included
- Size: medium



This headform can also be bought with an optional witness plate holder and witness plates.



HEADFORMS

T8131 30° Headform

(in the event of tumbling and falling down)

P/N: 100_05_ROJIS

This headform is designed to achieve the impact absorption test as per the Japanese T8131 – Annex 2 (for protection at the time of tumbling and falling down). Comes with quick release (female) connector to reduce set up time.

FEATURES:

- Material: layered hard wood
- Technical data sheet included
- Comes with quick release (female) connector



Penetration resistance clay tube

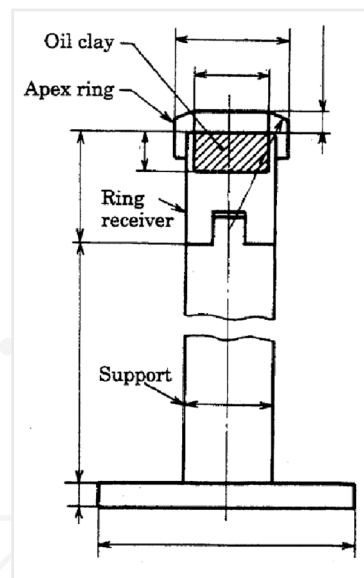
(in the event of tumbling and falling down)

P/N: 300_00_PRCT

This clay tube is designed to achieve the shell penetration resistance test as per the Japanese T8131 – Annex 2 (for protection at the time of tumbling and falling down). Comes with quick release (female) connector to reduce set up time.

FEATURES:

- Material: aluminum
- Technical data sheet included
- Comes with quick release (female) connector



ELECTRONICS & METROLOGY

Control Center System

P/N: 200_03_CCSB

The CCS collects test results and transfers data to the computer.

FEATURES:

- Calibration certificate included
- Measurement Range: $\pm 500g$
- Complies with SAE J211 and ISO 6487 requirements



Computer

P/N: 200_04_DCCS

FEATURES:

- Intel i5 x64 processor
- SSD 240GB
- 8GB RAM
- 22 inches flat screen, key board, mouse
- Licensed Microsoft Windows 10/11
- Includes labour time to install DAC card, softwares and validation



Please note that these are the minimum specifications required to operate the Cadex software. Computers are sold with the current market components.

Acquisition Card

P/N: 200_04_ACQC

FEATURES:

- To be connected into computer's PCI port
- Provides relevant acquisition frequency
- PCI 6320E computer acquisition card for DAQ communication



ELECTRONICS & METROLOGY

Cadex Software

P/N: 200_04_CSOF

Using Windows 10/11, the Cadex software assists the technician by managing results obtained from the vast majority of our equipments. A machine's motorization can be controlled via virtual keypad. The software can be used to control the equipment motorization via a virtual keypad.

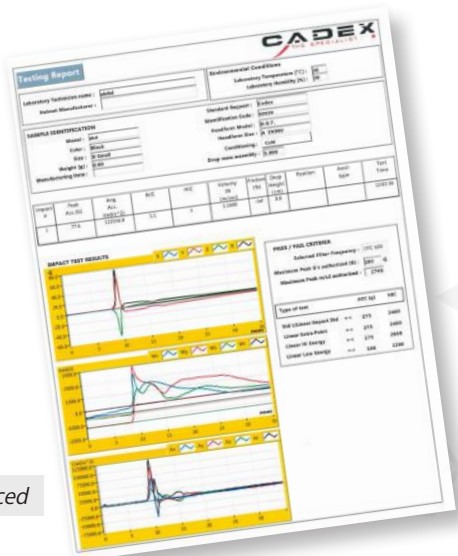
FEATURES:

- Over 27 years of continued improvement
- Friendly user interface
- Customizable applications
- Produces easy to read reports
- Includes virtual remote control
- Lab view data platform
- Easy data extraction to Microsoft Excel

APPLICATIONS:

- Uniaxial impact test machines
- Triaxial impact test machines
- Rotation impact test machines
- Chin strap machines
- Chin bar machines
- Penetration machines
- Velocimeter products
- Force distribution (load cell)

Integrated customizable tools



Uniaxial Accelerometer

P/N: 200_01_AUAX

The uniaxial accelerometer which measures the impact attenuation can be installed in the headform center of gravity.

FEATURES:

- Calibration certificate included
- ± 500 Gs reading range
- Capacity to withstand up to 5000 Gs without damage



Triaxial Accelerometer

P/N: 200_01_ATAX

The triaxial accelerometer which measures the impact attenuation can be installed in the headform center of gravity.

FEATURES:

- Calibration certificate included
- ± 500 Gs reading range
- Capacity to withstand up to 5000 Gs without damage



Cable for Uniaxial Accelerometer

P/N: 200_02_ACUA

Low noise coaxial cable with 90° connector for uniaxial accelerometer.

FEATURES:

- Two lengths available:
 - 3 meters/10 feet
 - 6 meters/20 feet
- One end: 10-32, 2 wires connector
- Other end: regular connector



Cable for Triaxial Accelerometer

P/N: 200_02_ACTA

Low noise coaxial cable for the triaxial accelerometer.

FEATURES:

- Two lengths available:
 - 3 meters/10 feet
 - 6 meters/20 feet
- One end: 10-32, 4 wires connector
- Other end: 3 BNC regular connectors



Acquisition Kit for Rotational Impact

P/N: 200_04_RTAQ

The Cadex rotational wireless system has been developed in accordance with the ECE-22.06 standard.

DIMENSIONS OF THE CASE (APPROX.):

- Length: 40.13 cm / 15.8 in
- Width: 30.7 cm / 12.1 in
- Height: 17.3 cm / 6.8 in

DESIGNED TO FIT THE FOLLOWING HEADFORMS:

- ISO/DIS 6220
- EN 960
- Headforms are sold separately

FEATURES:

- No USB key transfer
- Hard case with cut-out foam
- Tools
- Charger
- Programmer
- WIFI router
- Software updated for rotational testing
- 6 channel amplification built-in
- Lithium battery built-in
- Calibration certificate
- Cone assembly (accelerometer DTS 6DX PRO, integrated miniaturized acquisition system in real time)



**Headform not included and sold separately*



Bottom view of the system



Inside of the hard case

Load Cell Assembly

P/N: 200_06_LCA3_22

The Cadex load cell allows to calculate the pressure at the time of an impact for load distribution testing. It complies with ANSI Z89.1 and EN 397.

DIMENSIONS (APPROX.):

- Length: 19.05 cm / 7.5 in
- Width: 19.05 cm / 7.5 in
- Height: 8.59 cm / 3.38 in

FEATURES:

- Combination of three load cells equally distanced to avoid any lost of reading
- Compatible with the Cadex software



**Headform not included and sold separately*

INSIDE VIEW
Assembly of three load cells equally distanced for better accuracy



Shown installed on impact monorail with impactor



Mountaineer's headform installed on load cell assembly

Australian Load Cell Kit

P/N: 200_06_LCSA

The Cadex Australian load cell kit is used to determine the ability of a protective helmet to distribute the force of an impact as per AS/NZS 2512.9.

DIMENSIONS (APPROX.):

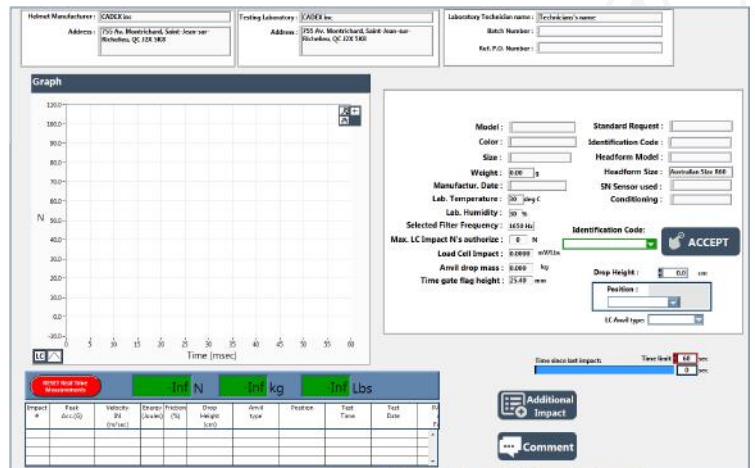
- Length: 20.32 cm / 8 in
- Width: 27.94 cm / 11 in
- Height: 22.86 cm / 9 in (without headform)

FEATURES:

- Two headforms (radius 60 & 70 mm) with built-in load cell included
- Dedicated falling anvil included
- Mini MEP pad included (to perform "repeatability" system check)
- Compatible with the Cadex software



Shown installed on twinwire machine



Compatible with the Cadex software

Body Padding Load Cell Kit

Many options available

The Cadex body padding load cell kit is designed for load distribution testing. It complies to many body padding standards requirements such as:

- **EN 1621** (motorcyclists protective clothing)
- **EN 14120** (protective clothing for users of roller sports)
- **EN 13277** (martial arts)
- **EN 14021** (off-road motorcycling)
- Other standards are also available upon request

FEATURES:

- Compatible with the Cadex software
- Can be used with twinwire or monorail
- Additional anvil available
- Quick interchangeable anvils (quick detach bracket)
- Interchangeable modular kits



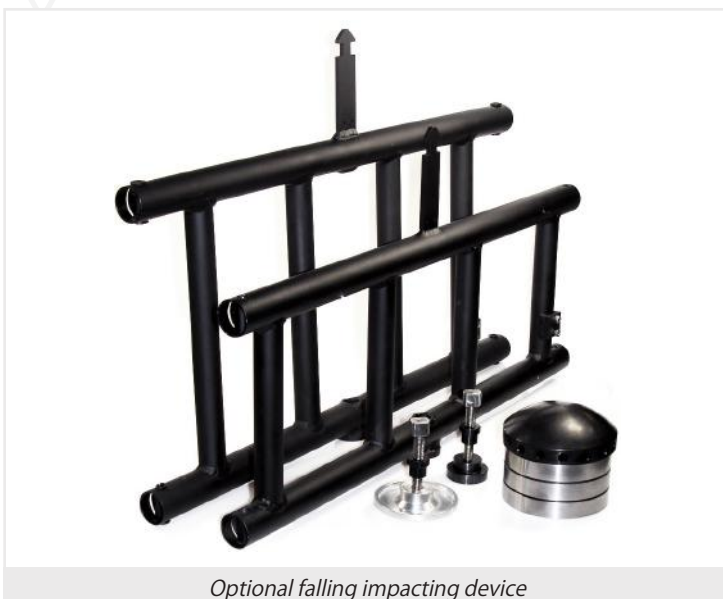
EN 1621 - Motorcyclist clothing



EN 13277 - Martial art kit



EN 13546 - Field hockey



Optional falling impacting device

Penetration Control Box

P/N: 200_05_PCBX

The penetration control box is a contact detector device. Used in combination with a conductive headform, the penetration box provides a detection signal in case of penetration.

DIMENSIONS (APPROX.):

- Length: 6.98 cm / 2.75 in
- Width: 2.54 cm / 1 in
- Height: 13.3 cm / 5.25 in

FEATURES:

- Visible and audible contact detection indicators
- Uses a regular 9 VDC battery
- Lights indicator with reset button
- ON/OFF switch



Lights indicator with reset button



Connecting wire with crocodile clips included

Velocimeter Display Box

P/N: 200_07_TGDBX

The velocimeter (timegate) display box is a convenient alternative for any testing application which required a speed reading, when the Cadex software is not accessible. The display reads the time from which an object takes to cut the light beam of the velocimeter (timegate). This system can be use with every Cadex velocimeter (timegate) models.

DIMENSIONS (APPROX.):

- Length: 20 cm / 7.87 in
- Width: 6 cm / 2.36 in
- Height: 16.5 cm / 6.5 in
(without bracket)

FEATURES:

- Touchscreen display
- Can be used with either single beam or double beam Cadex velocimeter (timegate) models
- Provides speed reading in m/s, km/h, feet/s and miles/h
- Supplies staple power to velocimeter (timegate)
- Input to read TTL signal (0-5 volts)
- DB9 and BNC connectors input option



Example of Cadex velocimeters (sold separately)



Side view with connectors and bracket details

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WORLDWIDE SUPPORT

For any questions or purchase, please feel free to contact us.

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FORMULAS FOR CALCULATION

$$V_{(th)} = \sqrt{2gH}$$

$$H = \frac{V^2}{2g}$$

$$E = mgH$$

$$e = \frac{mV^2}{2}$$

$$v = \frac{d}{t}$$

$$F = ma$$

$$\text{System friction (\%)} = \frac{V_{(th)} - V_{(pr)}}{V_{(th)}}$$

RESPECTIVELY WHERE:

a = acceleration (m/sec²)

H = drop height (m)

e = energy (joules)

V_(pr) = practical velocity (m/sec)

m = mass (kg)

V_(th) = theoretical velocity (m/sec)

F = force (Newton)

d = distance (mm)

g = 9.8068 m/sec²

t = time (millisecond)

(universal gravity constant)



YOUR BEST TESTING PARTNER



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