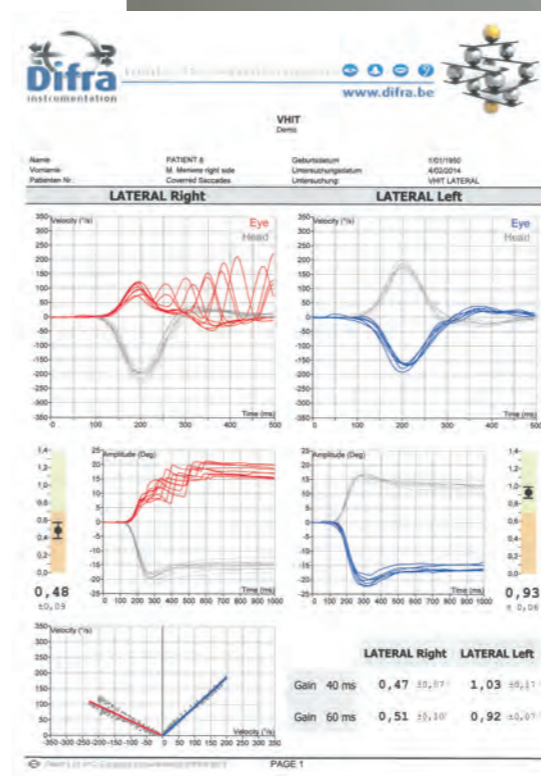
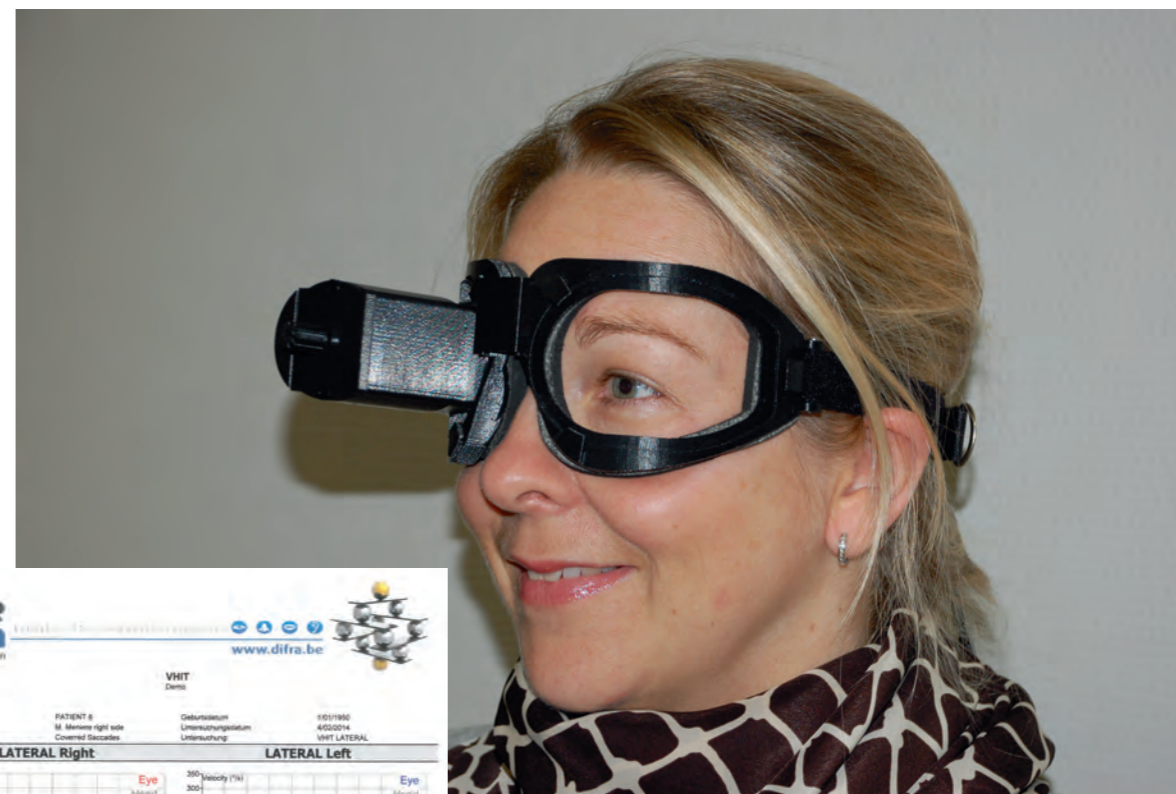


NEW

HeadStar

**Video Nystagmography (VNG) & Video Head Impulse Test (vHIT)
For advance balance disorder evaluation**



The vestibular Ocular reflex (VOR) normally serves to stabilize gaze in space during head movement by generating equal and opposite compensatory eye movement. Since the company's inception, DIFRA is specialized in measuring VOR through such gold standard test as caloric, rotational chair and active head rotation testing.

The newest tool in the DIFRA VOR tool box is Video Head Impulse Testing

With the HeadStar, VNG AND vHIT can be done !

Available test :

With the Basic module, spontaneous nystagmus, positioning and positional nystagmus, gaze nystagmus, caloric nystagmus and VOR nystagmus (rotary chair) can be recorded.

In option, with the Oculography module, calibration, random saccades, smooth pursuit and optokinetic tests can be recorded in horizontal, vertical and for some test in diagonal.

Software :

Our software is the most advance software in vestibulometry. Developed in collaboration with major university around the world, it's the most easiest software to use.

Our data base can be local, in network for collaborative work, it can be connected, in option, to the medical data base of the hospital.

Results :

Results are shown in easy to read graphs, slow phase velocity, cumulative curves, direction of nystagmus, frequency, ...

Caloric : the unilateral weakness (%), Preponderance of the nystagmus (%), fixation index (%), ..

Oculomotor : Lantency, maximum velocity, accuracy, gain; all with normative diagrams

VOR (rotary chair) : Directionnal preponderance (%), fixation index (%), gain, cumulative position, ...

vHIT : Gain at 40 and 60 ms, average gain, 3D view, ...

The HeadStar goggles :

Using a full digital camera (USB 2.0) with a native resolution of **786432** pixels and a very high sensitivity (0.1 lux), the HeadStar I is even able to detect, in option, the torsional eye movement.

Also, using our unique ROI, no mecanical ajustement needs to be done to center the eye in the video. One click and let's go !

Regarding the recording frequency, the HeadStar is able to record eye movement with a frequency of maximum **200Hz** in VNG and **250Hz** in vHIT mode.

Using certified biocompatible cushions foams (phthalate free, hypoallergenic), the HeasStar goggle is the most comfortable one and is adapted for children too.

Specifications :

Weight : 130gr (without cable)

Field of view : 100° Horizontal - 60° Vertical

Material : ABS

Camera resolution : 786432 pixels

Sensitivity : 0.1 lux

Options :

Caloric irrigator : AquaStar, AirStar or CoolStar

Rotary Chair : Swing, MicroTorque, MiniTorque, MegaTorque or GigaTorque

Subjective vertical : VertiStar

and more

Standard :

CE approved / EN 60601-1 / EN 60601-1-2 / EN 13485v203

**Instrumentation DIFRA
33, Industriestrasse
4700 EUPEN
BELGIUM
Tel : +32-87/898080
E-mail : info@difra.be
Web : www.difra.be**



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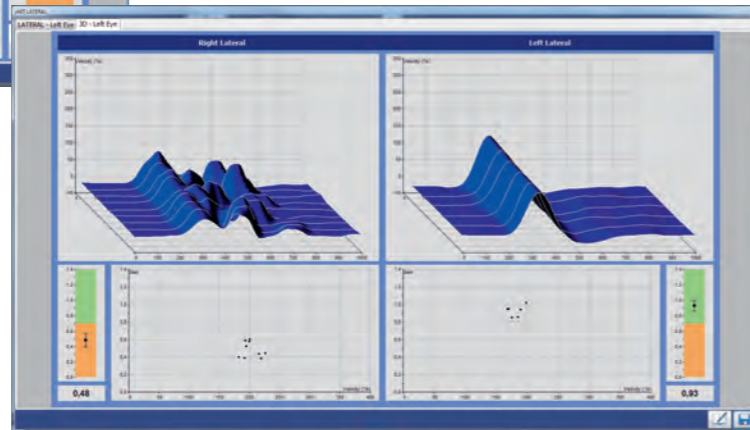


www.difra.be



vHIT Module

The Video Head Impulse Test (vHIT) has been used for years to identify vestibular. Using unpredictable, examiner applied, rapid horizontal head movements while observing compensatory catch up saccades indicative of a vestibular loss in the stimulated semicircular canal.



Today, DIFRA has developed a high speed camera (250Hz) with built-in 3D gyroscope and 3D accelerometer making much easier to measure VOR gain and record corrective saccades.

Camera can be moved on the right or left eye and the software will identify automatically which eye is recorded.

Very light and comfortable, our HeadStar has no sleepage problems, so we have no limitation for the maximum speed of the impulse compared to some competitors.

Optionally, the HeadStar can also be used as a regular monocular VNG system . Thank's to the high resolution camera.

With the built in 3D gyroscope, there is no need to change any parts of the device between horizontal testing and anterior/posterior testing.

An automatic detection of correct head impulses is implemented in the software to help the user during testing. Video recording is possible with a slow motion replay for each impulse.

Assess all six semicircular canals

Head Impulse Test is the only test available to assess all six semicircular canals (lateral, anterior and posterior).

2D/3D analysis and normative data

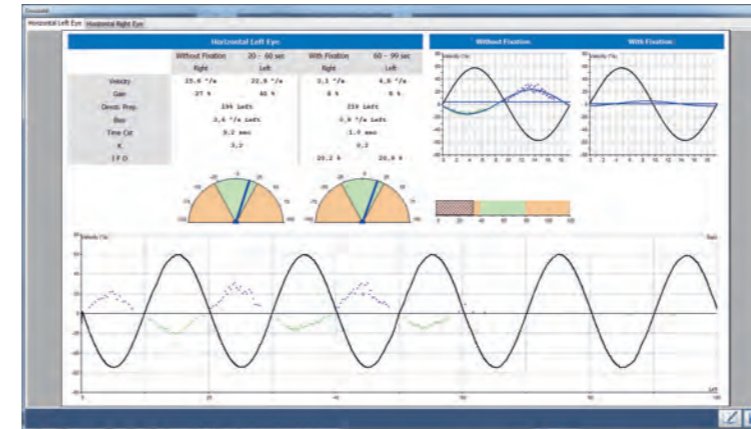
View analysis in 2D or 3D. Both display a gain graph with built-in published normative data. A clear 3D picture facilitates easy identification of saccades. Comparison of test sessions allows for validation of vestibular rehabilitation success.

Due to sophisticated camera, smaller head impulses of only 15 to 20 degrees are used, making the test more pleasant for the patient.

Both overt and covert saccades can be detected allowing for proper diagnosis and rehabilitation recommendations.

VNG module

ENT doctors, audiologists and physiotherapists can investigate the vestibular function by finely analyzing eye movements, especially focusing on involuntary rythmical movements called "nystagmus".



VNG technology.

With easy pre-defined protocols and precise measurement, the NysStar I reduces examination time. Once related to clinical standpoint, it allows conclusion to the most probable balance disorder diagnostic.

Complete set of tests and various valuable tools

The NysStar I offers a wide battery of tests for a full VNG testing including vestibular and ocular-motor tests.

A modular system:

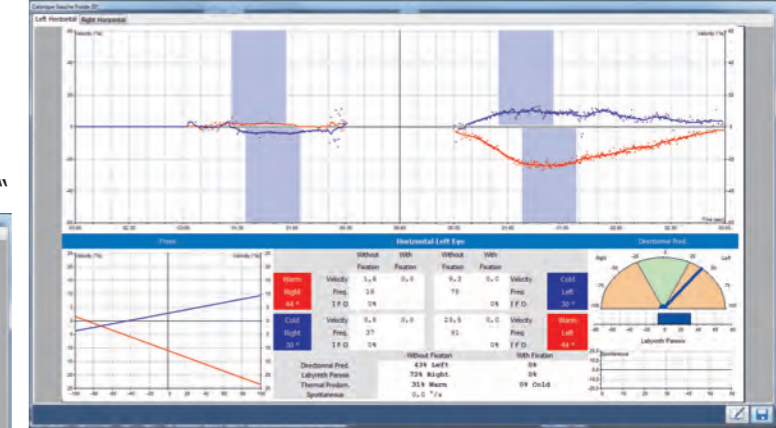
you can create your perfect configuration with a selection of different cameras, tests and options available.

For vestibular testing, such as spontaneous, positional Nystagmus and Caloric test, the ultra lightweight NysStar I goggles provides great comfort for the patient and the user.

For ocular-motor assessment (saccade, smooth pursuit and optokinetic), the visual stimulation is controlled by the software and can be displayed either on a video projector or on a large flat screen with a full HDMI resolution.

The NysStar I goggles set in open-field mode gives a large visual field for the patient and performs a classical monocular analysis.

Advanced analysis with bi-ocular high frequency camera is available with the NysStar II (optional).



nystagmus". Using high resolution and high frequency infrared cameras mounted on goggles, patient's eye is recorded and analyzed by the software.

DIFRA was one of the earliest manufacturers to develop

Quick and easy set-up, smooth operation and clear results



With our unique eye tracking algorithm, the software instantly locks on the pupil without any adjustment required. The NysStar can overcome difficulties such as dark eyelids and allows optimal operations without complex settings. Normative data, extensive selection of results plotting modes (charts,graphs), several languages available and customizable protocol, make the system the most advance and user-friendly system available on the market. Video recording, mono or bi ocular cameras, hand remote control, customizable reporting and many more features will help you get the best informations from your vestibular test.

