

# MILITARY TECHNOLOGY



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## NATO 'Clothes Show' bares all

The 2008 venue for NATO's Future Soldier exhibition and conference was Prague, hosted by the Czech Republic's National Armaments Director. Dubbed the 'NATO Clothes Show' and held every five years at different locations within the Alliance, the event served both as a showcase for the event's traditional fare - with an inevitable focus on personal protection given deployments to Afghanistan and Iraq - and a window to the broader process of soldier modernisation with several national programmes on display.

VOP-026 developed SMP ensembles for the Czech military.

### Clothing and protection

The location of the event drew a number of regional manufacturers to the event. Highly capable domestic solutions in the region, that would not look out of place in many 'Old NATO' militaries, are developing quickly. A number of subsystems on Slovenia's Warrior of the 21st Century solution are domestically sourced. Slovenia has already fielded its Protective Clothing and Individual Equipment component. This comprises a load carriage system developed jointly by the military domestic firm Arex and UK partners CQC. Slovenia's personal ballistic protection solution is the TFJ SB21 Tactical Fragmentation Vest which weighs 5.5Kg with two protective inserts, providing protection up to the NIJ III standard. Local firm Veplas is supplying the Aramid based, flame retardant helmet with new, EPS-21 glasses also recently being fielded.



Dutch research house TNO is in the final stages of development of its Netherlands MoD funded Integrated Head Protection (IHP) project, which feeds into the country's VOSS Soldier Modernisation Project (SMP). The IHP project designed to integrate the growing array of head mounted equipment, with up to three level of physical protection with enhanced V50 ballistic shell performance and CBRN defence. Significant emphasis has been put into improved weight distribution.

In terms of hearing protection, MSA Sordin offered a range of solutions, with its Supreme Pro solution offering 600 hours of life with just 2 AA batteries enabling noise to be taken down to just 82dba. Also in this arena is Finnish firm Savox who have a long term presence in supplying ancillaries to the police and emergency services and are now emerging into the military market. Their solutions include the C-C450 Waterproof comm.-controls unit a MIL-STD, IP68 proofed, waterproof Wireless PTT solution.

Outside of NATO's borders, Finnish firm FY-Composites offers a range of helmets including the FH-610 which offers a fragment endurance, V50 value of greater than 610m/s. The company's range of helmets is also compatible with the firm's range of visors which cover a variety of roles from mine clearance to riots and can be made compatible with specific night vision gear. The maximum protection these offer rises to a V50 value of 280m/s.

The base material is critical to the ultimate solution. A number of exhibitors in Prague provide only this, supplying other firms to produce the fielded system design. Perhaps foremost amongst them was DSM Dyneema, manufacturers of Dyneema polyethylene fibre. The company is working with BAE Systems on a new grade of its HB26 material for the latter's Protech helmet, designed to meet the requirement of the US Army's Enhanced Combat Helmet. They were joined by fellow Dutch firm

Teijin, manufacturers of Twaron, a woven solution for personal protection.

Revision Eyewear, based in Canada, came to Prague with several key orders in 2008, including significant sales to the Swiss military. Other personal protection firms in Prague included Verseidag and TenCate while equipment protection –via case and containers was provided by Hardigg.

Fuchs Medical had a range of systems, optimised for extreme battle-field threats. These included its CBRN Isolation Pod for rapidly deployable one-man casualty evacuation system, which provides 24 hour protection against gases such as lewisite. The firm's Multipurpose Field Blanket has an obvious purpose, but can also be used to put out flames including Napalm and has protective pockets for hands while doing this.

MSA demonstrated their M2000 NBC Protection System developed with the German Military Sciences Institute. Other CBRN protection systems manufacturers included AirBoss Defence, Blucher the developer of the SARATOGA protective materials and Bruker Daltronic with a range of CBRN detection equipment.

Aiding comfort is WL Gore and Associates, who launched their new line in active cooling products at Prague. The system provides up to 150W of cooling power, with the electric motor running for up to 8.5 hours at full power with the option of doubling endurance at a reduced setting, depending on the duration of the mission. The cooling vest uses a non-burning or melting inner layer and is designed to fit easily under body armour.

Norwegian firm Aclima is currently providing a new range of sweat-transporting and flame retardant underwear to the Norwegian military. The knitted mesh, long-john design is a mix of 85 percent Rhovyl and 15 percent Modal.

**Weapon control attachment on EADS/Sagem Warrior21 ensemble.**



**DSM Dyneema plates.**





**WL Gore's ventilation vest.**

In communications terms Radmor's Personal Role Radio 35010 was on display. VOP-026's work for the Czech MoD on soldier modernisation used Dicom's similar PRR20 radio. In Slovakia the country's PIBS programme opted for a complete C4I solution, sourced from Thales using the SOLAR 400E system, used by current IdZ solutions in recent ten man squad trials.

Prague was the last hurrah for Soldier ISTAR developer Macroswiss however, with investors pulling the plug on the firm in December.

### Off-the Shelf solutions

A range of national SMP solutions were on display, although notable by its absence was the UK's Future Integrated Soldier Techno-

logy, at the time of the event in the midst of trials and assessment for the C4I and ISTAR elements of the programme's first increment.

Germany's new Rheinmetall Defence developed Infanterist der Zukunft Extended System (IdZ-ES) was however on display. The system has recently completed its main systems testing. The next stage will see series production with first deliveries in 2012.

Spain's Combatiente Futuro is an IdZ based solution being led by EADS Defence and Security with support from team members Indra, Ituzzi, Amopack SL, Fedur and GMV. It is due to complete its Design and Development phase in December 2006 following a 36 systems platoon trial. This is scheduled to lead to a first phase order for 3000 units, fielded from late 2010 with a second tranche of 6000 systems planned from 2012.

## C4I

### C4I is integral to all SMP and C4ISTAR solutions had a strong presence

France is continuing plans to begin fielding four regiments with FELIN in 2008, beginning in July subject to the success of validation trials throughout the first half of this year with a FELIN company integrated in a mechanised and airborne regiment with a further platoon in an Alpine regiment.

A number of East and Central European programmes were also present, notably Slovakia, Slovenia and the Czech Republic.

In addition to national solutions, commercial solutions had a significant presence. The Warrior21 Soldier System solution, developed by EADS Defence and Security and Sagem Defense and Sécurité had high visibility in Prague. The approach is a development of the successful solution developed jointly by the two companies for their winning bid on Switzerland's IMESS programme. Under Warrior21, a similar approach has been adopted with Optronics from Sagem and C4I and clothing from EADS. It is described as an open architecture rather than defined set of systems and thus able to integrate legacy, local equipment solutions. The Czech Republic's Soldier 21 requirement is the first target for the system, an RFP for which is expected in the next twelve months for an initial 900 systems due early next decade, to equip two to three battalions. No local partners have been selected for this requirement as yet. On show in Prague, the ensemble showed integration with the existing Czech vz.58 assault rifle.

VOP-026 is undertaking the testing and development of a demonstrator prototype for the Czech MoD to validate the requirement.

Elbit Systems also had a prominent display of its Integrated Infantry Combat Systems (IICS) capability comprising its worn, core Dominator solution and featuring a range of further equipments including the Skylark Mini UAV, VIPeR UGV. The system has been widely demonstrated in Eastern Europe.