F2 X-TREM for wildland firefighting and for technical rescues

MSA is the undisputed market leader for firefighting helmets with the following two types of helmets designed and manufactured in France – the Gallet F1 XF structural firefighting helmet and the ***F2 X-TREM*** helmet for wildland firefighting and for technical rescues. MSA has almost 30 years of expertise in and experience of the concerns and requirements for these applications: The original F2 was introduced in 1987 and was followed over the years by several subsequent generations.

Before the new standards:

For many years, there were no European harmonised standards covering helmets for wildland firefighting and technical applications. Manufacturers were forced to offer helmets with CE approvals based on a combination of standards that were already available. Typically, the following standards were used on the market:

- EN 12492 (helmets for mountaineers), providing requirements for top and side impact, penetration, retention and ventilation (when needed)
- EN 397 (industrial helmets) providing requirements for top impact, penetration, electrical insulation (when needed), basic flame resistance, compression
- EN 443 (1997 edition) providing requirements for flame resistance

Background to the new standards:

The CEN (European Committee for Standardization) with the involvement of manufacturers, laboratories and firefighters published two new dedicated and focused standards to cover technical rescue and wildland firefighting applications: **EN 16471 (helmets for wildland firefighting)** and **EN 16473 (helmets for technical rescues)**. These standards were developed to fill the gap that had created much confusion regarding the type of helmet which should be used for these highly specific missions. More than 80% of firefighting interventions are not related to structural firefighting which explains the need to standardise helmets used by firefighters for other applications.

Scope of the new standards:

The scope of the **Wildland Firefighting (EN 16471)** standard covers protection of the upper head, mainly against the effects of impact, penetration, heat, flame and burning embers, while conducting firefighting and associated activities (e.g. wood cutting) in wildland environments.

The scope of the **Technical Rescue (EN 16473)** standard covers the protection of the upper head, mainly against the effects of mechanical hazards such as impact and penetration, flame, electrical and chemical hazards, during operations such as but not limited to:

- Road traffic collisions, railway incidents (e.g. extrication)
- Working in and around collapsed structures
- Natural disasters (flood, earthquakes etc.)
- Accidents with hazardous materials (e.g. for use under a chemical protective suit)
- First aid/ambulance operations, law enforcement
- High angle / mountain rescue

Testing & requirements versus application

Requirements are more stringent in EN 16473 and EN 16471 than in the current standards used, particularly with respect to vertical, lateral, front & side impacts but also regarding penetration.

All parties involved in drawing up these standards (manufacturers, users, laboratories) agreed that it made sense to keep a large proportion of the requirements (impact, penetration) common between the two new

standards and to add specific requirements for the application to each standard: High speed particles, compression, contact with liquids, chemicals and electrical properties for technical rescue and radiant heat or flame resistance for wildland firefighting.

This would enable safety helmets to be certified to both standards and be versatile enough to be used in both fields.

It means that helmets approved in accordance with EN 16473 also fully comply with the requirements for technical rescue (road traffic collisions, USAR, high angle rescue, railway incidents, collapsed structures, etc.). It also means that helmets approved in accordance with EN 16471 are fully adapted to cover the requirements for wildland firefighting (bush fires, forest fires).

Compliance with EN 12492 is not required for these applications as all requirements (identical or equivalent) are already covered by the two standards listed above including the effectiveness of the retention system. This testing is intended to consider the risk of the helmet catching on an obstacle and being unintentionally pulled off the wearer's head which is a typical risk of high angle rescue.

The new generation of the *F2 X-TREM* is approved in accordance with the new standards:

The ***F2 X-TREM*** is also available in a new enhanced version in line with these new standards EN 16471 / EN 16473. Other important news is that the ***F2 X-TREM*** is available in either a vented or unvented version. The new standards allow for both options. Wearers will also notice the new 3-point chin strap with simpler adjustment and a release loop to avoid the risk of strangulation during a fall, for instance. The ***F2 X-TREM*** is at the heart of a real system of head protection with many options and accessories available, such as hearing protection, eye protection, face protection, high visibility stickers, lamp bracket & lamp, neck protection and communications accessories.

A global success

Several hundred thousand firefighters rely on protection from the ***F2 X-TREM*** helmet for their toughest operations, including the Singapore Fire & Rescue Brigade, London Fire Brigade, UK USAR teams, Generalitat de Catalunya, Civil Protection Portugal, all fire brigades in southern France with wildland fire responsibilities (SDIS11, 34, 30, 13, 84, 83...), Paris Fire Brigade (BSPP)… and many others…