

Why Crash Buffers?

According to the latest RID regulations, existing wagons transporting dangerous goods must be able to absorb min. 500 kJ per wagon end, while newly built wagons must be able to absorb min. 800 kJ per wagon end.

The INNOVA Crash Buffer 400 kJ

The INNOVA crash buffer 400 kJ (code IST-04.00.00), developed by INNOVA Systems & Technologies and manufactured by AZOMA, stores in excess of 400 kJ per buffer, which translates into over 800 kJ per wagon end. Official tests have recorded an unmatched **478 kJ per buffer**.

The INNOVA crash buffer 400 kJ is equally suited to equip existing wagons, and new ones. IT fully complies with all conditions imposed by UIC 526-1 ed. 3/2008, UIC 573 ed. 7/2007 and EN15551:2009.

In addition to the compulsory conditions to be met, the buffer also corresponds to:

- tests with forces F3 and F4 as per EN15551:2009, pt. 5.4 and Annex B (identical with UIC 526-1, ed. 3/2004, pt. 3, and Annex D and E);
- all conditions set with regard to the buffer housing's resistance in the area where it is fixed upon the frontal transverse of the wagon, as per UIC 526-1, ed. 3/2008, pt. 3.3 and Annex J2.

The buffer is executed in a welded construction, with a removable plate.

Its standard variant includes a plate of steel type S355J2+N EN10025-2:2004, 450 mm in length. Upon request, the following extras are available:

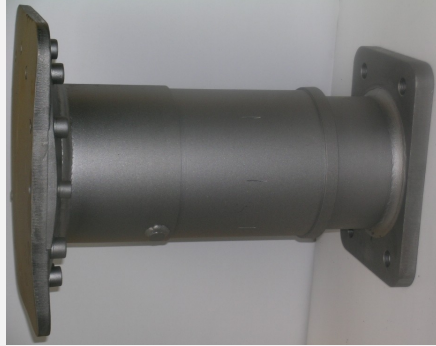
- additional manganese steel wearing plate;
- extra long buffer plate, 550 mm.

The INNOVA crash buffers 470 kJ are equipped with A cat. thermoplastic shock absorbers (i.e. MINER TecSPak).

The buffer deformation comprises two phases:

- elastic deformation, observed at impact speeds under 12 km/h and forces not exceeding 1.5 MN;
- elastic + plastic deformation occurring at speeds exceeding 12 km/h and forces over 1.5 MN.

Drawing 1 illustrates a crash buffer in its initial state. Drawing 2 illustrates a crash buffer following elastic and a partial plastic deformation. Drawing 3 illustrates a crash buffer following an elastic and plastic deformation at its nominal value.



Drawing 1

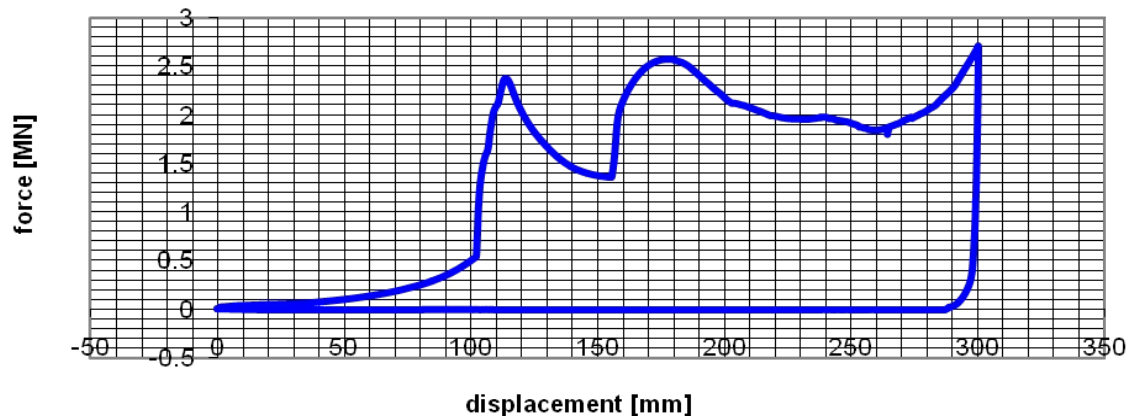


Drawing 2



Drawing 3

Drawing 4 represents the typical static diagram recorded through elastic + plastic deformation of the buffer.



Drawing 4