



## Assembly of screwed fastenings

### High-strength structural boltings – System HV

Unlike, for example, the machinery directive or the pressure equipment directive, the EU directive on construction products 89/106/EWG does not determine any specifications for structures as a whole, but for individual construction products.

In terms of the directive, construction products include all those products which are manufactured in order to be permanently integrated into structures of buildings and groundworks. Also fasteners are affected.

The following changes were made in the area of standardisation:

Standard	Contents	Dimensions	Property class/hardness	Replaced by
DIN 6914	hexagon bolts with large wrench size	M12–M36	10.9	EN 14399-4
DIN 6915	hexagon nuts with large wrench size	M12–M36	10	EN 14399-4
DIN 6916	round washers	13–37	295-350 HV	EN 14399-6
DIN 6917	washer, square, wedge-shaped (for I profiles)	13–37	295-350 HV	remain valid
DIN 6918	washer, square, wedge-shaped (for U profiles)	13-37	295-350 HV	remain valid
DIN 7999	hexagon fit bolts with large wrench size	M12–M30	10.9	EN 14399-8
DIN 18800 - 1	design and construction			EN 1993-1-8*
DIN 18800 - 7	execution an constructor's qualification			EN 1090-2*
Building rules list A	includes products with Ü symbol (German quality approval)			
Building rules list B	includes products with CE symbol (European quality approval)			

\* not yet established in relation to building law in Germany, DIN 18800 shall apply until further notice

Since September 2007, products according to DIN 6914, DIN 6915 and DIN 6916 may no longer be manufactured.

Stocks of these products may continue to be delivered and used without limitation in accordance with Building Rules List B and DIN 18800-7.

The newly standardised **HR system** in DIN EN 14399-3 is not yet established in relation to German building law and may not be used for this reason. Alongside property class 10.9/10, this system also uses property class 8.8/8 and a different thread length identical to ISO 888. Furthermore, the system has a different failure principle. Unlike the **HV system**, which reacts upon stripping the nuts, the screw breaks in the freely loaded thread after ductile expansion in the HR system.

The DAST guideline 021 for bolted fastenings from hot dip galvanized assemblies of sizes M39 to M64 according to DIN 6914, DIN 6915, DIN 6916 has been valid since 2007. These products are to be identified with the Ü symbol.

In DIN 18800-7 (525-Note1), the thread tolerance for hot dip galvanized nuts (system HV) is determined uniformly with 6 AZ (higher limit deviation for the thread) so that the additional "Ü" identification required by ISO 10684 is no longer necessary.

All HV assemblies supplied by Maryland Metrics have batch IDs when requested at time of quotation so that certificate 3.1 in accordance with DIN 18800-7 (527) is no longer required.

#### Significant changes:

In the EN 14399 standard series, the values for impact testing KV min = 27 J are no longer to be carried out at room temperature, but at -20 °C. This promises good ductility even at low application temperatures

For uncoated HV assemblies, the changed tightening torques according to DIN 18800-7 are to be taken into account. Since the introduction of EN 14399 -4, these are identical to those of the hot dip galvanized assemblies.

In the new EU standard, the clamping length between the supporting surface of the screw head and the nut is measured (previously it was determined between the two HV washers). The new clamping table from EN 14399-4 is to be taken into account.

