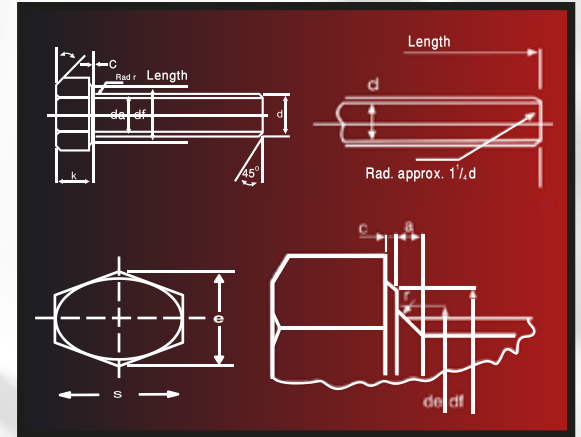


# Pre - Load Fastener Assemblies HR BS EN 14399-4

## Hexagon Bolt

## Drwaing

BS EN 14399-4		HR Bolt Dimension Classes 10.9															
Nominal Size and Thread Diameter $d$	Pitch of Thread $p$	Diameter of Unthreaded Shank $d_a$		Width Across Flats $s$		Width Across Corners $e$		Diameter of Washer Face $d_f$		Depth of Washer Face $c$		Radius Under Head $r$		Transition Diameter $d_e$		Thickness of Head $k$	
		max	min	max	min	min	min	min	max	min	min	max	max	min			
M12	1.75	12.7 <sub>0</sub>	11.30	22.0 <sub>0</sub>	21.1 <sub>6</sub>	23.91	20.10	0.6	0.4	1.2	15.20	8.45	7.55				
M16	2.00	16.7 <sub>0</sub>	15.30	27.0 <sub>0</sub>	26.1 <sub>6</sub>	29.56	24.90	0.6	0.4	1.2	19.20	10.7 <sub>5</sub>	9.25				
M20	2.50	20.8 <sub>4</sub>	19.16	32.0 <sub>0</sub>	31.0 <sub>0</sub>	35.03	29.50	0.8	0.4	1.5	24.00	13.9 <sub>0</sub>	12.1 <sub>0</sub>				
M22	2.50	22.8 <sub>4</sub>	21.16	36.0 <sub>0</sub>	35.0 <sub>0</sub>	39.55	33.50	0.8	0.4	1.5	26.00	14.9 <sub>0</sub>	13.1 <sub>0</sub>				
M24	3.00	24.8 <sub>4</sub>	23.16	41.0 <sub>0</sub>	40.0 <sub>0</sub>	45.20	38.00	0.8	0.4	1.5	28.00	15.9 <sub>0</sub>	14.1 <sub>0</sub>				
M27	3.00	27.8 <sub>4</sub>	26.16	46.0 <sub>0</sub>	45.0 <sub>0</sub>	50.85	42.80	0.8	0.4	2.0	32.00	17.9 <sub>0</sub>	16.1 <sub>0</sub>				
M30	3.50	30.8 <sub>4</sub>	29.16	50.0 <sub>0</sub>	49.0 <sub>0</sub>	55.37	46.60	0.8	0.4	2.0	35.00	20.0 <sub>5</sub>	17.9 <sub>5</sub>				
M36	4.00	37.0 <sub>0</sub>	35.00	60.0 <sub>0</sub>	58.8 <sub>0</sub>	66.44	55.90	0.8	0.4	2.0	41.00	24.0 <sub>5</sub>	21.9 <sub>5</sub>				



Bolt / Nut / Washer Assembly Systems HV	
General Requirement	BS EN 14399-1
Materials & Manufacture	BS EN 14399-4
Marking	HV
Property Classes	10.9/10
Washer (s)	EN 14399-5 Or EN 14399-6
Marking	H
Suitable Test for Preloading	EN 14399-2

Product Characteristic	Standard	
Material	Steel	
General Requirements	EN 14399-1	
Thread	Tolerance	6g <sup>a</sup>
	International Standard	ISO 261, ISO 965-2
Mechanical Properties	Property Class	10.9
	European Standard	EN ISO 898-1
Impact strength	Value	K V.min = 27 J at - 20 ° C
	Test Piece <sup>d</sup>	ISO 148
	Test	EN 10045-1
Tolerances	Product Grade	C except: dimensions $c$ and $r$ . +IT 17 Tolerance for lengths $\geq 155$ mm 1/2 IT 17
	International Standard	EN ISO 4759-1
Surface Finish	Normal	As processed <sup>e</sup>
	Hot Dip Galvanized	EN ISO 10684 <sup>d</sup>
	Others	To be agreed <sup>e</sup>
Surface Discontinuities	Limits for surface discontinuities as specified in EN 26157-1	
Acceptability	For acceptance procedure, see EN ISO 3269	
<p>a. The tolerance class specified supplies before hot dip galvanizing bolts are intended for assembly with oversize tapped nuts.</p> <p>b. The location of the Charpy V-notch test pieces in the bolt shall be as specified in EN ISO 898-1</p> <p>c. Attention is drawn to the need to consider the risk of hydrogen embrittlement in the case of bolts of property class 10.9, when selection an appropriate surface treatment process (eg. Cleaning and coating.)</p> <p>d. <sup>d</sup>As processed<sup>d</sup> means the normal finish resulting from manufacture with a light coating of oil.</p> <p>e. Other coating may be negotiated between the purchaser and the manufacturer provided they do not impair the mechanical properties or the functional characteristics. <b>Coating of cadmium or cadmium alloys are not permitted.</b></p>		

## Marking

