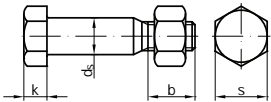
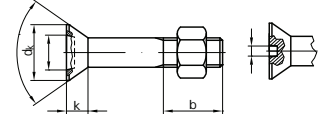




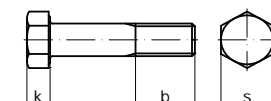
Dimensions for bolts, nuts and accessories for steel constructions

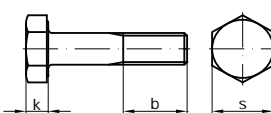
DIN	Dimensions	M 12	M 16	M 20	M 24	M 27	M 30
7968* 	b	20.5	24.5	28.5	33	35.5	38.5
	k	8	10	13	15	17	19
	d _{s min}	12.74	16.74	20.71	24.71	27.71	30.67
	s	18	24	30	36	41	46

*) with nut acc. to ISO 4032 or ISO 4034

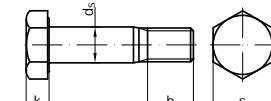
DIN	Dimensions	M 12	M 16	M 20	M 24
7969 1) 	W	75°	75°	60°	60°
	b ₁	22	28	32	38
	b ₂	28	35	40	50
	d _{k max}	21	28	32	38
	k	7	9	11.5	13
	n	2.5	2.5	3	3
	t	3	3	3.5	3.5
	a _{max}	14.7	19.6	22.4	26.6

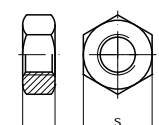
1) with nut acc. to ISO 4032 or ISO 4034
 b₁ for l ≤ 60 with M12 and l ≤ 80 with M12, M24
 b₁ for l ≤ 60 with M12 and l ≤ 80 with M12, M24

DIN	Dimensions	M 12	M 16	M 20	M 24	M 27	M 30
7990 	k	8	10	13	15	17	19
	s	19	24	30	36	41	46
	ISO - s	18	24	30	36	41	46
	b	17.75	21	23.5	26	29	30.5

EN	Dimensions	M 12	M 16	M 20	M 22	M 24	M 27	M 30
14399-4 	k	8	10	13	14	15	17	19
	s	22	27	32	36	41	46	50
	b	23	28	33	34	39	41	44
	Dimensions							
	k	23	25	26	30	35	40	
	s	60	65	70	80	90	100	
	b	52	68	74	82	90	100	

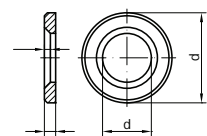
*) acc. to DAST directive 021

EN	Dimensions	M 12	M 16	M 20	M 22	M 24	M 27	M 30	M 36
14399-8 	k	8	10	13	14	15	17	19	23
	d _s	13	17	21	23	25	28	31	37
	b	23	28	33	34	39	41	44	52
	s	22	27	32	36	41	46	50	60

EN	Dimensions	M 12	M 16	M 20	M 22	M 24	M 27	M 30	
14399-4 	m	10	13	16	18	20	22	24	
	s	22	27	32	36	41	46	50	
	Dimensions								
	m	29	31	34	38	45	51		
s	60	65	70	80	90	100			

*) acc. to DAST directive 021

DIN 6917 square taper washers for friction grip bolts	Dimensions see TI-52 (washers/rings – square washers)
DIN 6918 square taper washers for friction grip bolts	

EN	Dimensions	M 12	M 16	M 20	M 22	M 24	M 27	M 30	
14399-6 	d _{1 min}	13	17	21	23	25	28	31	
	d _{2 max}	24	30	37	39	44	50	56	
	h	3	4	4	4	4	5	5	
	c _{min}	1.6	1.6	2	2	2	2.5	2.5	
	Dimensions								
	d _{1 min}	37	40.4	43.4	49.4	58	66		
	d _{2 max}	66	72	78	90.6	103.6	113.6		
	c _{min}	2.5	3	3	3.4	4	4.5		

* acc. to DAST directive 021