

BUILT TO CONNECT. ENGINEERED TO PERFORM.

FASTENER SOLUTIONS FOR **EVERY** INDUSTRY AND **EVERY** APPLICATION



YOUR RELIABLE FASTENER
MANUFACTURING PARTNER



PRODUCTION

The wires that have been purchased by our purchasing department according to our customers requested quality and size specifications, are transferred to our multi station BOLT-NUT-COLD FORMING and SECOND OPERATION machines for production.

In addition to the production that have been made according to DIN-TSE-ISO-ANS standards, special productions have been made according to customers specifications and standards. In each phase of production, sizing, inspection and tests are made under supervision of our operators. Production quality guaranteed and documented by Statistical Period Control (SPC) that has been made during production which starts with sampling control and sampling confirmation. Production phases are constantly under quality control with periodic controls by qualified quality control personnel.

Our company is always among the leader names in this industry as the innovator and as the foremost company which strive to give perfect service to our solution partners.

OUR MISSION



To produce and protect all ethical values while producing and to work harder in order to carry our customers, employees and sector to higher levels.

OUR VISION



Customer orientation personnel participation continuous improvement realistic approach in decision-making supplier relations based on mutual benefit honesty, leadership and perfection.



RAW MATERIALS

- ALLOY STEEL
- STAINLESS STEEL
- ALUMINUM
- BRASS
- COPPER



COATINGS

- STANDARD COATINGS
- CR+3 SERIES
- DACROMET®
- GEOMET®
- LOCTITE®
- ZINC AND PRECOAT
- AUTOMOTIVE-HOME APPLIANCE AND COATINGS
- COMPATIBLE WITH ALL OTHER INDUSTRY SPECIFICATIONS AND COLORFUL COATING FOR ART.



SIZE and PRODUCT RANGE

- Ø2 mm to Ø12 mm
- L3 mm to L220 mm
- Adjustment screws
- Thread forming screws
- Specific fastening solutions
- Miniature screws
- Turned Parts
- SPECIAL STUDS AND FASTENER SYSTEMS Etc... AND COATINGS COMPATIBLE WITH ALL OTHER INDUSTRY SPECIFICATIONS AND COLORFUL COATING FOR ART.



QUALITY STUDIES AND IT'S DOCUMENTATIONS

- For ISO 9001:2015
- For IATF 16949
- PPAP – FMEA – Synoptics – Control Plan
- ZERO DEFECT MACHINE
- CUTTING MACHINE
- SALT SPRAY TEST MACHINE
- TENSILE MACHINE
- MEASUREMENTS AGENTS



HARDNESS RANGE

- 4.6 / 5.8 / 6.8 / 8.8 / 10.9 / 12.9



SHIPMENTS AND LOGISTICS

- EX WORK
- FOB
- CFR
- CIF
- CPT
- CIP
- DAP
- DDP



CERTIFICATES

- MATERIAL CERTIFICATES EN 10204 3.1 / 3.2
- ROHS COMPLIANT
- REACH COMPLIANT



TESTS AND INSPECTIONS

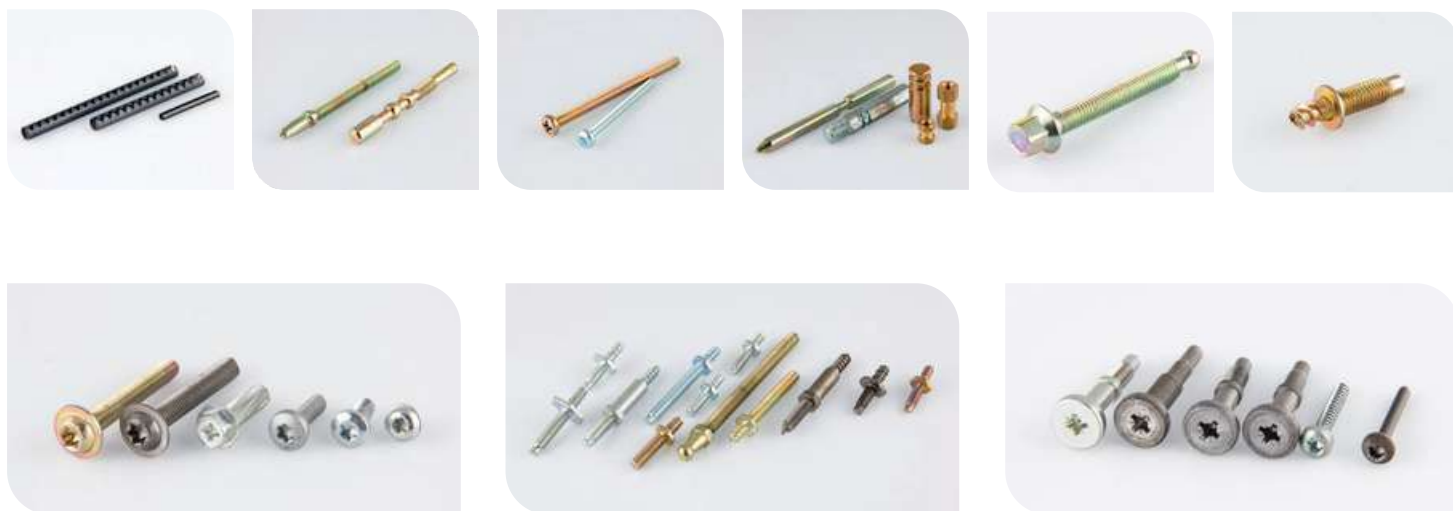
- DIMENSIONAL CONTROL
- MECHANICAL TESTS
- CHEMICAL ANALYSIS
- HARDNESS TEST
- SALT SPRAY TEST
- COATING THICKNESS
- TORQUE TEST
- FULL TRACEABILITY



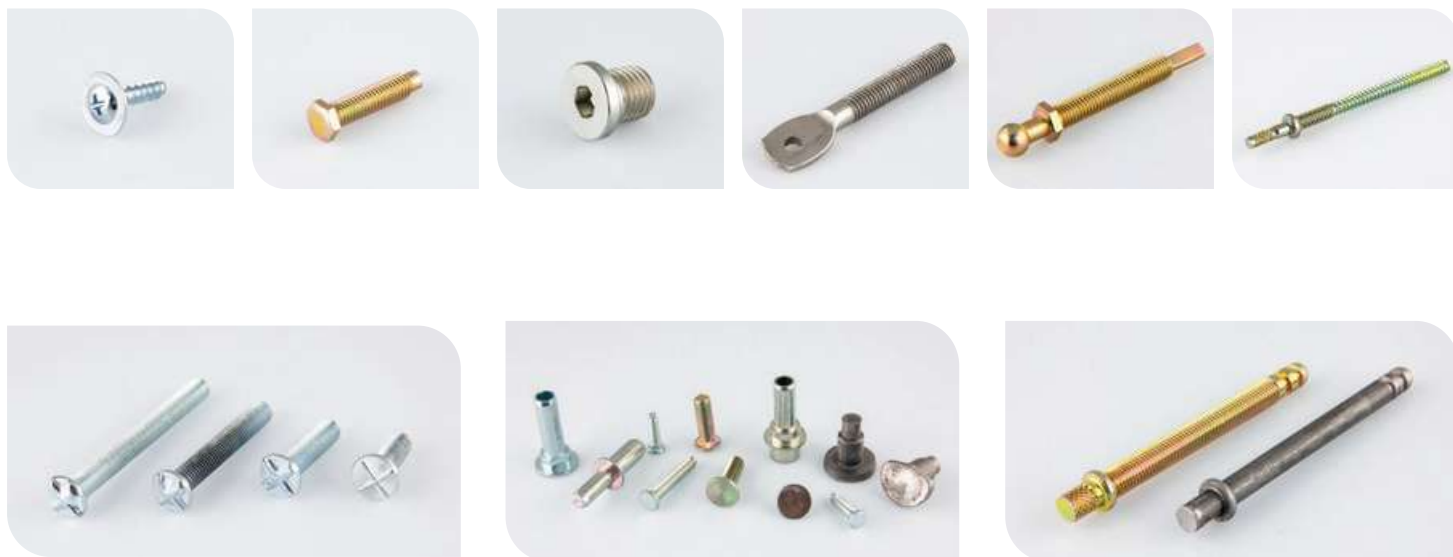
QUALITY, RELIABILITY AND CUSTOMER SATISFACTION ARE OUR PRIORITIES.

We continuously improve our processes to provide the best fastening solutions for your needs.

CHAPTER 1



CHAPTER 2



CHAPTER 3



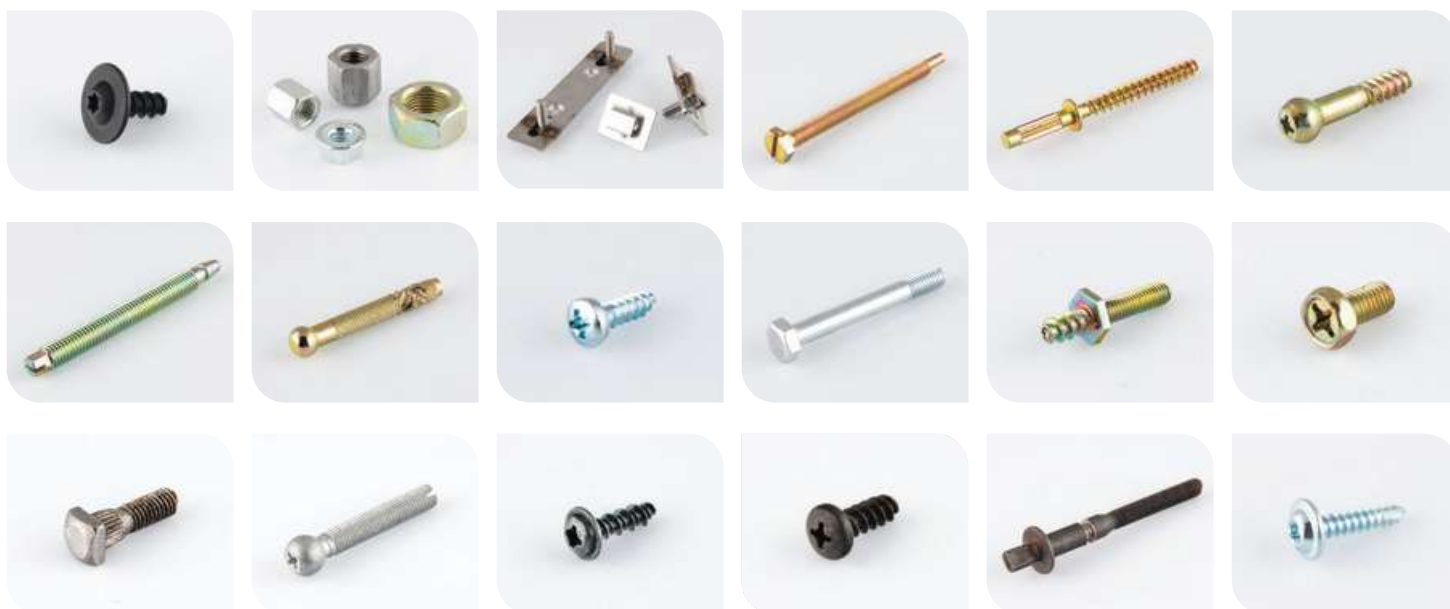
CHAPTER 4



CHAPTER 5



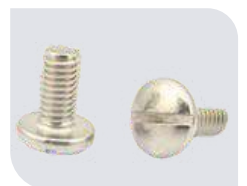
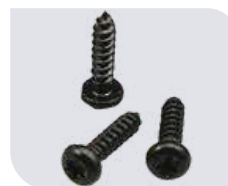
CHAPTER 6



CHAPTER 7



CHAPTER 8



CHAPTER 9



CHAPTER 10



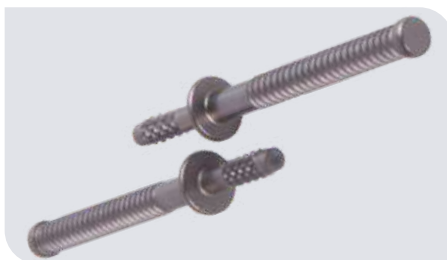
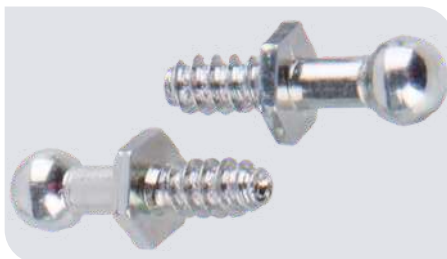
CHAPTER 11



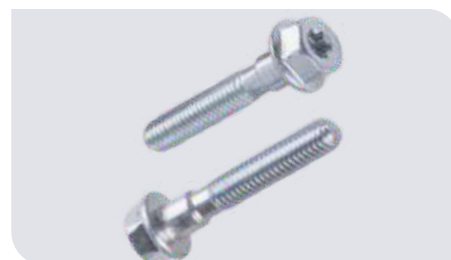
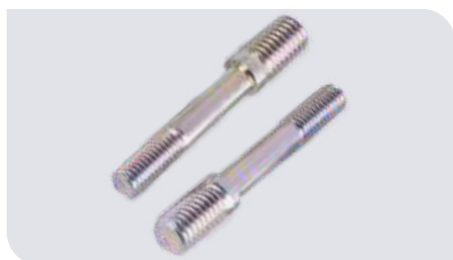
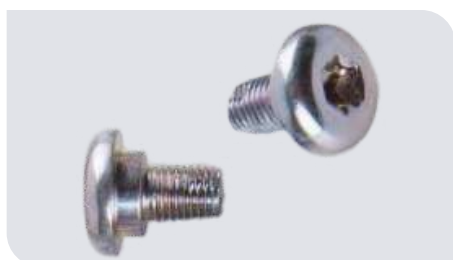
CHAPTER 12



CHAPTER 13



CHAPTER 14



CHAPTER 15



CHAPTER 16



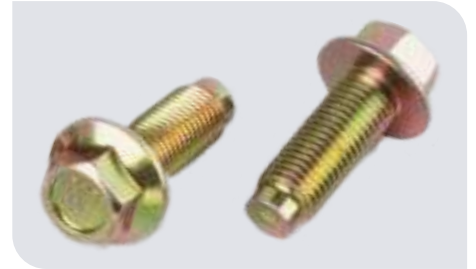
CHAPTER 17



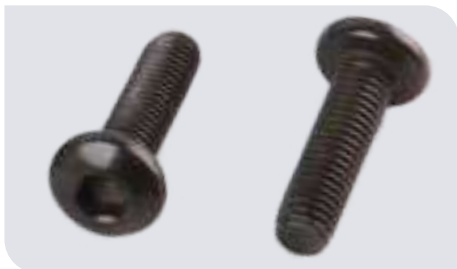
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CHAPTER 19



CHAPTER 20



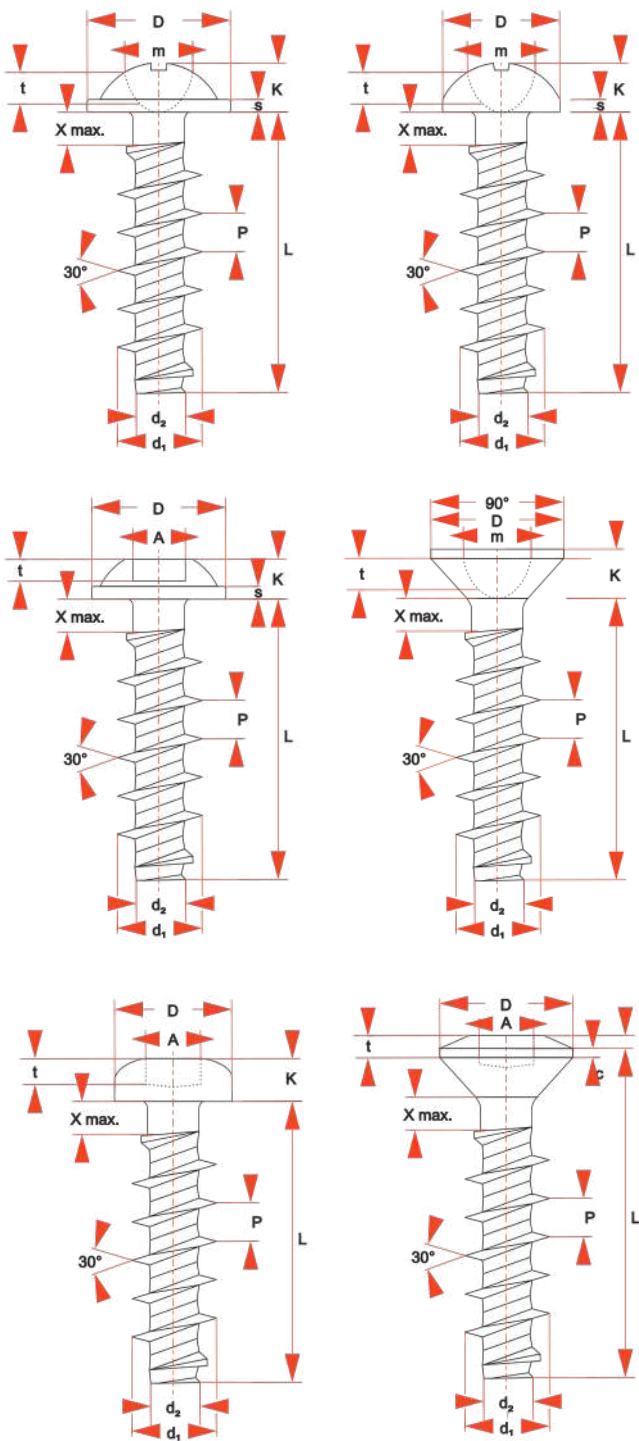
CHAPTER 21



CHAPTER 22



THERMOPLASTIC SCREWS ARE SCREWS WITH A 45° THREAD FLANK ANGLE. THEY PROVIDE LOWER ASSEMBLY COSTS AND HIGHER QUALITY. VARIOUS THREAD FORMS AND COATINGS CAN BE MANUFACTURED UPON REQUEST.



SLOTTED PHILLIPS PAN HEAD	NOMINAL SIZE								
			3	3.5	4	5	6	7	
	Head Diameter (D)		6.00	7.00	8.00	10.00	12.00	14.00	
	External Thread (d)		2.10	2.60	2.60	3.30	3.90	4.50	
	Head Height (K)		1.46	1.91	1.97	2.68	3.19	3.70	
	Phillips Drive No. (P)		1	2	2	2	3	3	
	Drill Point Type, Standard L=3		1.00	1.20	1.20	1.60	1.60	1.80	
	Thread Run-Out, Max. Allowable		1.91	1.80	2.00	2.67	2.67	3.57	
	Drilling / Penetration Depth								
	1	From Point / Thin Material Penetration Depth	min.	2.91	3.67	4.12	4.84	6.43	7.80
		max.	3.01	4.27	4.72	5.44	7.03	8.40	
2	From Two Points / Thick Material Penetration Depth	min.	2.31	3.07	3.52	4.24	5.83	7.20	
		max.	2.41	3.67	4.12	4.84	6.43	7.80	
	Drilling Depth	max.	1.91	1.94	1.96	2.27	2.73	3.37	
PHILLIPS PAN HEAD	NOMINAL SIZE								
			3	3.5	4	5	6	7	
	Head Diameter (D)		5.60	7.00	8.00	10.00	12.00	14.00	
	Head Height (K)		2.60	2.50	2.70	3.40	4.00	4.50	
	External Thread (d)		2.91	3.67	4.12	4.84	6.43	7.80	
	Phillips Drive No. (P)		1	2	2	2	3	3	
	Drilling / Penetration Depth								
	1	From Point / Thin Material Penetration Depth	min.	2.91	3.67	4.12	4.84	6.43	7.80
			max.	3.01	4.27	4.72	5.44	7.03	8.40
	2	From Two Points / Thick Material Penetration Depth	min.	1.46	1.84	2.14	2.74	3.61	4.20
		max.	1.56	2.44	2.74	3.34	4.21	4.80	
	Drilling Depth	max.	1.91	1.12	1.96	2.27	2.12	3.61	
PHILLIPS COUNTERSUNK HEAD	NOMINAL SIZE								
			3	3.5	4	5	6	7	
	Head Diameter (D)		6.60	8.30	9.50	11.00	13.50	14.00	
	Head Height (K)		2.10	2.60	2.90	3.60	4.30	5.10	
	External Thread (d)		2.91	3.67	4.12	4.84	6.43	7.80	
	Phillips Drive No. (P)		1	2	2	2	3	3	
	Drilling / Penetration Depth								
	1	From Point / Thin Material Penetration Depth	min.	2.91	3.67	4.12	4.84	6.43	7.80
			max.	3.01	4.27	4.72	5.44	7.03	8.40
	2	From Two Points / Thick Material Penetration Depth	min.	2.71	3.67	4.12	4.84	6.43	7.80
		max.	2.81	4.27	4.72	5.44	7.03	8.40	
	Drilling Depth	max.	1.91	1.94	1.96	2.27	2.73	3.37	
HEX HEAD	NOMINAL SIZE								
	Head Height (K)		3	3.5	4	5	6	7	
			5.60	5.90	7.00	8.80	10.00	10.00	
HEX NUT & WASHER	NOMINAL SIZE								
			3	3.5	4	5	6	7	
	Hex Nut Height (K)		5.60	5.90	5.90	7.00	8.00	8.00	
	Hex Size Across Flats		8.00	8.00	10.00	12.00	14.00	14.00	
	Washer Outer Diameter (D)		16.00	16.00	19.00	22.00	25.00	26.00	
	Washer Thickness		2.00	2.00	2.00	2.00	2.00	2.00	
ROUND HEAD (INTERNAL HEX)	NOMINAL SIZE								
			3	3.5	4	5	6	7	
	Head Diameter (D)		6.00	7.00	8.00	10.00	12.00	14.00	
	Head Height (K)		2.10	2.60	2.60	3.30	3.90	4.50	
	Hex Socket Size (R)		0.16	0.16	0.20	0.20	0.20	0.20	
	Phillips Drive No. (P)		1	2	2	2	3	3	
	Drilling (Through / In Skin)		max.	2.91	3.67	4.12	4.84	6.43	7.80
	Penetration Depth		max.	1.20	1.40	1.70	1.88	2.00	2.40
	Washer Thickness		max.	1.20	1.40	1.70	1.88	2.00	2.40
	OVAL HEAD (INTERNAL HEX)	NOMINAL SIZE							
		3	3.5	4	5	6	7		
Hex Socket Size (R)		0.16	0.16	0.20	0.20	0.20	0.20		
Drillips Drive No. (P)		1	2	2	2	3	3		
Drilling (Through / In Skin)		max.	2.91	3.67	4.12	4.84	6.43	7.80	
Penetration Depth		max.	1.20	1.40	1.70	1.88	2.00	2.40	
ROUND TRUSS HEAD (INTERNAL HEX)	NOMINAL SIZE								
			3	3.5	4	5	6	7	
	Hex Socket Size (R)		0.16	0.16	0.20	0.20	0.20	0.20	
	Drilllips Drive No. (P)		1	2	2	2	3	3	
	Drilling (Through / In Skin)		max.	2.91	3.67	4.12	4.84	6.43	7.80
	Penetration Depth		max.	1.60	1.90	1.70	1.98	2.20	2.70

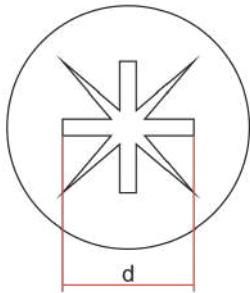
- D = Head Diameter
- d = External Thread Diameter
- K = Head Height
- P = Phillips Drive Number
- L = Screw Length
- R = Hex Socket Size
- A = Drive Diameter
- t = Head Thickness
- X max. = Maximum Head Clearance
- dk = Head Underside Diameter

min. = Minimum Value
max. = Maximum Value

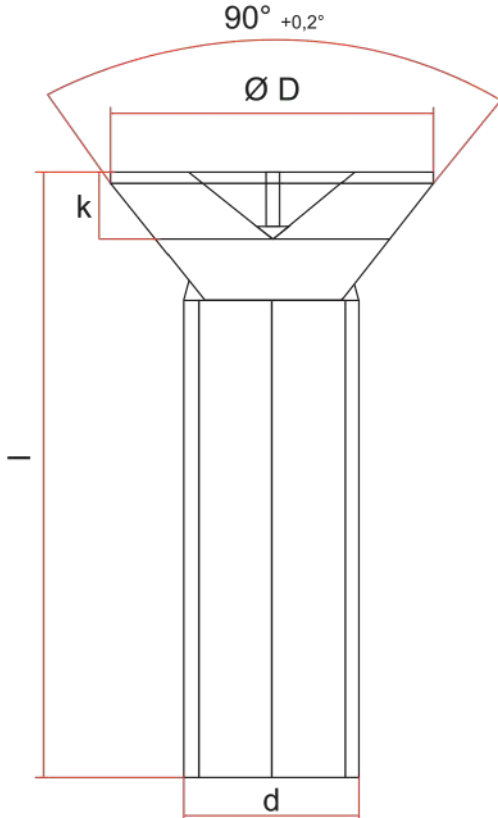
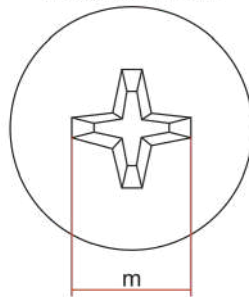
All dimensions are in millimeters (mm).
Dimensions may vary according to the
manufacturer's tolerance.

ISO 7046/DIN 965 : METRIC SCREWS WITH A 60° THREAD FLANK ANGLE. MANUFACTURED IN PROPERTY CLASSES 4.8, 5.8, 6.8, AND 8.8, DEPENDING ON THE REQUIRED STRENGTH.

Z BİÇİMİ / FROM Z



H BİÇİMİ / FROM H



DESCRIPTION	UNIT	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Head Diameter (D)	min.	3.70	4.70	5.30	6.64	7.64	9.14	11.57	15.57
	max.	4.00	5.00	5.60	7.00	8.00	9.50	12.00	16.00
Head Height (K)	min.	1.46	1.66	2.26	2.46	2.92	3.52	4.30	5.70
	max.	1.80	2.10	2.40	2.60	3.10	3.70	4.60	6.00
Screwdriver Size	—	0	1	1	2	2	3	3	4
Cross Width (m)	min.	1.90	2.70	3.00	3.90	4.40	4.90	6.90	9.00
Slot Length (H)	max.	1.20	1.55	1.80	1.90	2.40	2.90	3.60	4.60
Slot Depth (Z)	max.	1.42	1.50	1.75	1.93	2.34	2.74	3.46	4.50
External Thread (d)	min.	1.98	2.38	2.87	3.35	3.83	4.82	5.79	7.76
	max.	2.24	2.64	3.07	3.47	3.97	4.97	5.97	7.97
Thread Pitch (P)		0.40	0.45	0.50	0.60	0.70	0.80	1.00	1.25

LENGTH (mm)	MIN.	MAX.	APPROX. WEIGHT / 1000 PIECES (kg)							
			M2	M2.5	M3	M3.5	M4	M5	M6	M8
3	2.8	3.2	0.178	0.336	—	—	—	—	—	—
4	3.76	4.24	0.196	0.336	0.544	—	—	—	—	—
5	4.76	5.24	0.215	0.396	0.588	0.891	—	—	—	—
6	5.76	6.24	0.233	0.426	0.632	0.951	1.30	—	—	—
8	7.71	8.29	0.270	0.486	0.720	1.07	1.53	2.57	4.37	—
10	9.71	10.29	0.307	0.546	0.806	1.19	1.69	2.81	4.72	9.96
12	11.65	12.35	0.344	0.606	0.896	1.31	1.84	3.06	5.07	10.60
(14)	13.65	14.35	0.381	0.666	0.984	1.43	2.00	3.31	5.42	11.20
16	15.65	16.35	0.418	0.726	1.07	1.55	2.15	3.56	5.78	11.90
20	19.58	20.42	0.492	0.848	1.25	1.79	2.46	4.05	6.48	13.20
25	24.58	25.42	—	0.996	1.47	2.09	2.85	4.67	7.36	14.80
30	29.58	30.42	—	—	1.69	2.39	3.23	5.29	8.24	16.40
35	34.5	35.5	—	—	1.91	2.68	3.62	5.91	9.12	18.00
40	39.5	40.5	—	—	2.13	2.97	4.01	6.52	10.00	19.60
45	44.5	45.5	—	—	—	—	4.40	7.14	10.90	21.20
50	49.5	50.5	—	—	—	—	4.79	7.73	11.80	22.80

THE DIFFERENCES BETWEEN DIN AND ISO

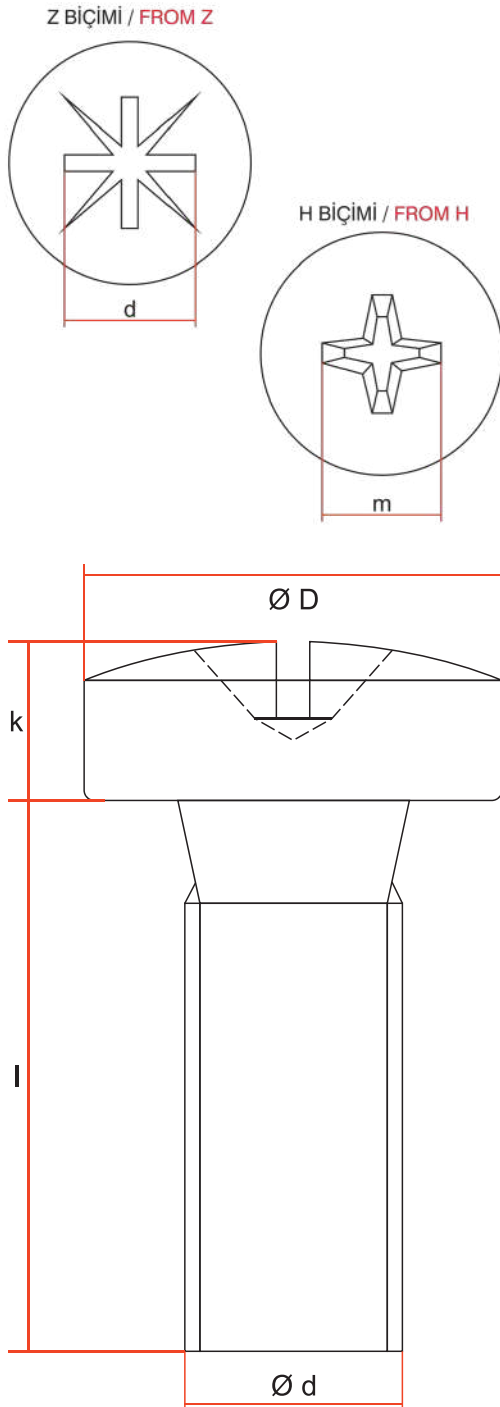
MEASUREMENT	STANDARD	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Cross Recess (D max.)	DIN EN ISO 7045	4	5	5.6	7	8	9.5	12	16
	DIN 7985	4	5	6	7	8	10	12	16
Hex Socket (K max.)	DIN EN ISO 7045	1.6	2.1	2.4	2.6	3.1	3.7	4.6	6
	DIN 7985	1.6	2	2.4	2.7	3.1	3.8	4.6	6

D = Head Diameter
d = External Thread Diameter
K = Head Height
P = Phillips Drive Number
L = Screw Length
R = Hex Socket Size
A = Drive Diameter (Slot Length)
t = Head Thickness
X max. = Maximum Head Clearance
dk = Head Underside Diameter

min. = Minimum Value
max. = Maximum Value

All dimensions are in millimeters (mm).
Dimensions may vary according to the
manufacturer's tolerance.

ISO 7045/DIN 7985: METRIC SCREWS WITH A 60° THREAD FLANK ANGLE. MANUFACTURED IN PROPERTY CLASSES 4.8, 5.8, 6.8, AND 8.8, DEPENDING ON THE REQUIRED STRENGTH.



DIMENSION	UNIT	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Head Diameter (D)	min.	3.70	4.70	5.30	6.64	7.64	9.14	11.57	15.57
	max.	4.00	5.00	5.60	7.00	8.00	9.50	12.00	16.00
Head Height (K)	min.	1.46	1.66	2.26	2.46	2.92	3.52	4.30	5.70
	max.	1.80	2.10	2.40	2.60	3.10	3.70	4.60	6.00
Screwdriver Size	–	0	1	1	2	2	3	3	4
Cross Width (m)	min.	1.90	2.70	3.00	3.90	4.40	4.90	6.90	9.00
Slot Length (H)	max.	1.20	1.55	1.80	1.90	2.40	2.90	3.60	4.60
Slot Depth (Z)	max.	1.42	1.50	1.75	1.93	2.34	2.74	3.46	4.50
External Thread (d)	min.	1.98	2.38	2.87	3.35	3.83	4.82	5.79	7.76
	max.	2.24	2.64	3.07	3.47	3.97	4.97	5.97	7.97
Thread Pitch (P)		0.40	0.45	0.50	0.60	0.70	0.80	1.00	1.25

LENGTH (mm)	MIN.	MAX.	APPROX. WEIGHT / 1000 PIECES (kg)							
			M2	M2.5	M3	M3.5	M4	M5	M6	M8
3	2.8	3.2	0.178	0.336	–	–	–	–	–	–
4	3.76	4.24	0.196	0.336	0.544	–	–	–	–	–
5	4.76	5.24	0.215	0.396	0.588	0.891	–	–	–	–
6	5.76	6.24	0.233	0.426	0.632	0.951	1.30	–	–	–
8	7.71	8.29	0.270	0.486	0.720	1.07	1.53	2.57	4.37	–
10	9.71	10.29	0.307	0.546	0.806	1.19	1.69	2.81	4.72	9.96
12	11.65	12.35	0.344	0.606	0.896	1.31	1.84	3.06	5.07	10.60
(14)	13.65	14.35	0.381	0.666	0.984	1.43	2.00	3.31	5.42	11.20
16	15.65	16.35	0.418	0.726	1.07	1.55	2.15	3.56	5.78	11.90
20	19.58	20.42	0.492	0.848	1.25	1.79	2.46	4.05	6.48	13.20
25	24.58	25.42	–	0.996	1.47	2.09	2.85	4.67	7.36	14.80
30	29.58	30.42	–	–	1.69	2.39	3.23	5.29	8.24	16.40
35	34.5	35.5	–	–	1.91	2.68	3.62	5.91	9.12	18.00
40	39.5	40.5	–	–	2.13	2.97	4.01	6.52	10.00	19.60
45	44.5	45.5	–	–	–	–	4.40	7.14	10.90	21.20
50	49.5	50.5	–	–	–	–	4.79	7.73	11.80	22.80

DIFFERENCES BETWEEN DIN AND ISO STANDARDS

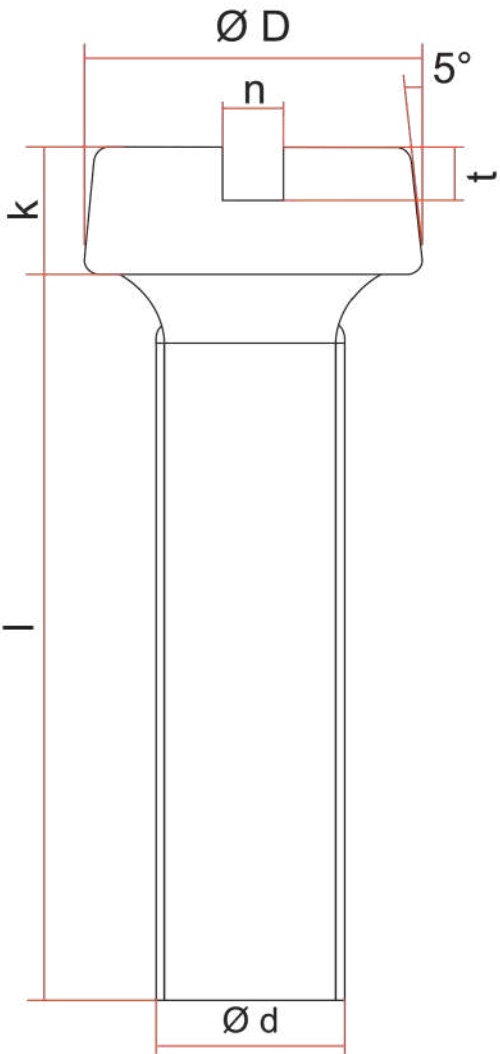
MEASUREMENT	STANDARD	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Cross Recess (D max.)	DIN EN ISO 7045	4	5	5.6	7	8	9.5	12	16
	DIN 7985	4	5	6	7	8	10	12	16
Hex Socket (K max.)	DIN EN ISO 7045	1.6	2.1	2.4	2.6	3.1	3.7	4.6	6
	DIN 7985	1.6	2	2.4	2.7	3.1	3.8	4.6	6

D = Head Diameter
 d = External Thread Diameter
 K = Head Height
 P = Thread Pitch
 m = Cross Width
 H = Slot Length
 Z = Slot Depth

min. = Minimum Value
 max. = Maximum Value

All dimensions are in millimeters (mm).
 Dimensions may vary according to the
 manufacturer's tolerance.

ISO 1207/DIN 84 : METRIC SCREWS WITH A 60° THREAD FLANK ANGLE. MANUFACTURED IN PROPERTY CLASSES 4.8, 5.8, 6.8, AND 8.8, DEPENDING ON THE REQUIRED STRENGTH.



DIMENSION	UNIT	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Head Diameter (D)	min.	3.62	4.32	5.32	5.82	6.78	8.28	9.78	12.73
	max.	3.80	4.50	5.50	6.00	7.00	8.50	10.00	13.00
Head Height (K)	min.	1.26	1.66	1.86	2.26	2.46	3.12	3.60	4.70
	max.	1.40	1.80	2.00	2.40	2.60	3.30	3.90	5.00
Depth (t)	min.	0.60	0.70	0.85	1.00	1.10	1.30	1.60	2.00
Driver Slot (n)	min.	0.56	0.66	0.86	1.06	1.26	1.26	1.66	2.06
	max.	0.70	0.80	1.00	1.20	1.51	1.51	1.91	2.31
External Thread ϕg (d)	min.	1.88	2.38	2.87	3.35	3.83	4.82	5.79	7.76
	max.	1.98	2.48	2.98	3.47	3.97	4.97	5.97	7.97
Thread Pitch (P)		0.40	0.45	0.50	0.60	0.70	0.80	1.00	1.25

LENGTH (mm)	MIN.	MAX.	APPROX. WEIGHT / 1000 PIECES (kg)							
			M2	M2.5	M3	M3.5	M4	M5	M6	M8
2	1.8	2.2	–	–	–	–	–	–	–	–
3	2.8	3.2	0.160	0.272	–	–	–	–	–	–
4	3.76	4.24	0.179	0.302	0.515	–	–	–	–	–
5	4.76	5.24	0.198	0.332	0.560	0.786	1.09	–	–	–
6	5.76	6.24	0.217	0.362	0.604	0.845	1.17	2.06	–	–
8	7.71	8.29	0.334	0.422	0.692	0.9638	1.33	2.30	3.56	–
10	9.71	10.29	0.291	0.482	0.780	1.08	1.47	2.55	3.92	7.85
12	11.65	12.35	0.329	0.542	0.868	1.20	1.43	2.80	4.27	8.79
(14)	13.65	14.35	0.365	0.602	0.956	1.32	1.79	3.05	4.62	9.13
16	15.65	16.35	0.402	0.662	1.04	1.44	1.95	3.30	4.98	9.77
20	19.58	20.42	0.478	0.782	1.22	1.68	2.25	3.78	5.69	11.00
25	24.58	25.42	–	0.932	1.44	1.98	2.64	4.40	6.56	12.60
30	29.58	30.42	–	–	1.66	2.28	3.02	5.05	7.45	14.20
35	34.5	35.5	–	–	1.88	2.57	3.41	5.62	8.25	15.80
40	39.5	40.5	–	–	2.10	2.86	3.80	6.25	9.20	17.40
45	44.5	45.5	–	–	–	–	4.19	6.88	10.00	18.90
50	49.5	50.5	–	–	–	–	4.58	7.50	10.90	20.60
(55)	54.5	55.95	–	–	–	–	4.97	8.12	11.80	22.10

DIFFERENCES BETWEEN DIN AND ISO STANDARDS

MEASUREMENT	STANDARD	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Head Diameter (D max.)	DIN EN ISO 1207	1.40	1.80	2.00	2.40	2.60	3.30	3.90	5.00
	DIN 84	1.30	1.60	2.00	2.40	2.60	3.30	3.90	5.00
Depth (t max.)	DIN EN ISO 1207	0.50	0.70	0.75	1.00	1.10	1.30	1.60	2.00
	DIN 84	0.36	0.56	0.76	0.96	1.06	1.52	1.60	2.20

- D = Head Diameter
- d = External Thread Diameter
- K = Head Height
- P = Thread Pitch
- t = Depth
- n = Driver Slot
- ϕg = External Thread ϕg

- min. = Minimum Value
- max. = Maximum Value

All dimensions are in millimeters (mm).
Dimensions may vary according to the manufacturer's tolerance.

ISO 1580/DIN 85 : METRIC SCREWS WITH A 60° THREAD FLANK ANGLE. MANUFACTURED IN PROPERTY CLASSES 4.8, 5.8, 6.8, AND 8.8, DEPENDING ON THE REQUIRED STRENGTH.

SCREW DIMENSIONS

DIMENSION	UNIT	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Head Diameter (D)	min.	3.62	4.32	5.32	5.82	6.78	8.28	9.78	12.73
	max.	3.80	4.50	5.50	6.00	7.00	8.50	10.00	13.00
Head Height (K)	min.	1.26	1.66	1.86	2.26	2.46	3.12	3.60	4.70
	max.	1.40	1.80	2.00	2.40	2.60	3.30	3.90	5.00
Depth (t)	min.	0.60	0.70	0.85	1.00	1.10	1.30	1.60	2.00
Driver Slot (n)	min.	0.56	0.66	0.86	1.06	1.26	1.26	1.66	2.06
	max.	0.70	0.80	1.00	1.20	1.51	1.51	1.91	2.31
External Thread 6g (d)	min.	1.88	2.38	2.87	3.35	3.83	4.82	5.79	7.76
	max.	1.98	2.48	2.98	3.47	3.97	4.97	5.97	7.97
Thread Pitch (P)		0.40	0.45	0.50	0.60	0.70	0.80	1.00	1.25

LENGTH AND APPROX. WEIGHT

LENGTH (mm)	MIN.	MAX.	APPROX. WEIGHT / 1000 PIECES (kg)							
			M2	M2.5	M3	M3.5	M4	M5	M6	M8
2	1.8	2.2	–	–	–	–	–	–	–	–
3	2.8	3.2	0.160	0.272	–	–	–	–	–	–
4	3.76	4.24	0.179	0.302	0.515	–	–	–	–	–
5	4.76	5.24	0.198	0.332	0.560	0.786	1.09	–	–	–
6	5.76	6.24	0.217	0.362	0.604	0.845	1.17	2.06	–	–
8	7.71	8.29	0.254	0.422	0.692	0.9636	1.33	2.30	3.56	–
10	9.71	10.29	0.291	0.482	0.780	1.08	1.47	2.55	3.92	7.85
12	11.65	12.35	0.329	0.542	0.868	1.20	1.63	2.80	4.27	8.79
(14)	13.65	14.35	0.365	0.602	0.956	1.32	1.79	3.05	4.62	9.13
16	15.65	16.35	0.402	0.662	1.04	1.44	1.95	3.30	4.98	9.77
20	19.58	20.42	0.478	0.782	1.22	1.68	2.25	3.78	5.69	11.00
25	24.58	25.42	–	0.932	1.44	1.98	2.64	4.40	6.56	12.60
30	29.58	30.42	–	–	1.66	2.28	3.02	5.05	7.45	14.20
35	34.5	35.5	–	–	1.88	2.57	3.41	5.62	8.25	15.80
40	39.5	40.5	–	–	2.10	2.86	3.80	6.25	9.20	17.40
45	44.5	45.5	–	–	–	–	4.19	6.88	10.00	18.90
50	49.5	50.5	–	–	–	–	4.58	7.50	10.90	20.60
(55)	54.5	55.95	–	–	–	–	4.97	8.12	11.80	22.10

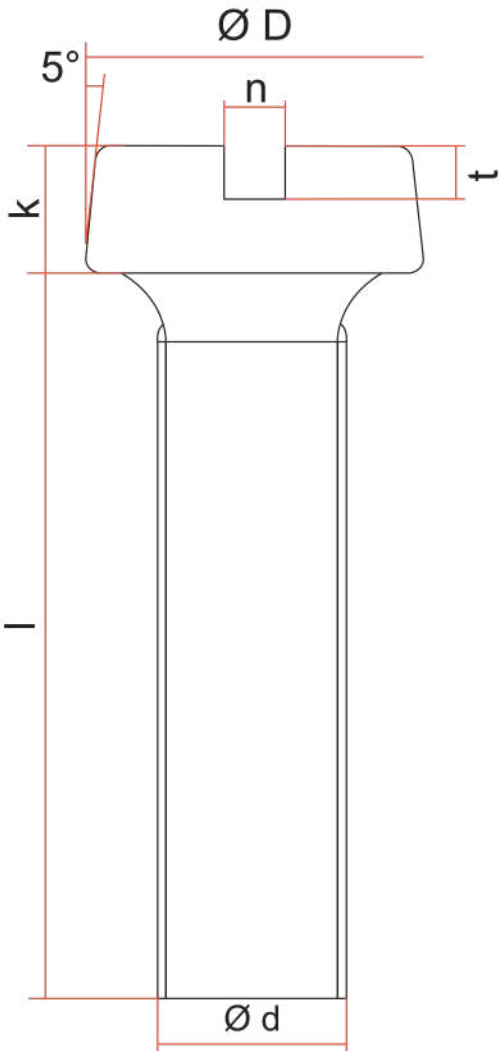
DIFFERENCES BETWEEN DIN AND ISO STANDARDS

MEASUREMENT	STANDARD	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Head Diameter (D max.)	DIN EN ISO 1207	1.40	1.80	2.00	2.40	2.60	3.30	3.90	5.00
	DIN 84	1.30	1.60	2.00	2.40	2.60	3.30	3.90	5.00
Depth (t max.)	DIN EN ISO 1207	0.50	0.70	0.75	1.00	1.10	1.30	1.60	2.00
	DIN 84	0.36	0.56	0.76	0.96	1.06	1.52	1.60	2.20

D = Head Diameter
d = External Thread 6g
K = Head Height
P = Thread Pitch
t = Depth
n = Driver Slot

min. = Minimum Value
max. = Maximum Value

All dimensions are in millimeters (mm).
Dimensions may vary according to the
manufacturer's tolerance.



ISO 2009/DIN 963 : METRIC SCREWS WITH A 60° THREAD FLANK ANGLE. MANUFACTURED IN PROPERTY CLASSES 4.8, 5.8, 6.8, AND 8.8, DEPENDING ON THE REQUIRED STRENGTH.

SCREW DIMENSIONS

DIMENSION	UNIT	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Head Diameter (D)	min.	3.50	4.40	5.20	6.94	8.04	8.94	10.87	15.37
	max.	3.80	4.70	5.50	7.30	8.40	9.30	11.30	15.80
Head Height (K)	min.	1.20	1.50	1.65	2.35	2.70	2.70	3.30	4.65
	max.	–	–	–	–	–	–	–	–
Depth (t)	min.	0.40	0.50	0.60	0.90	1.00	1.10	1.20	1.80
	max.	0.60	0.75	0.85	1.20	1.30	1.40	1.60	2.30
Driver Slot (n)	min.	0.56	0.66	0.86	1.06	1.26	1.26	1.66	2.06
	max.	0.70	0.80	1.00	1.20	1.51	1.51	1.91	2.31
External Thread 6g (d)	min.	1.88	2.38	2.87	3.35	3.83	4.82	5.79	7.76
	max.	1.98	2.48	2.98	3.47	3.97	4.97	5.97	7.97
Thread Pitch (P)		0.40	0.45	0.50	0.60	0.70	0.80	1.00	1.25

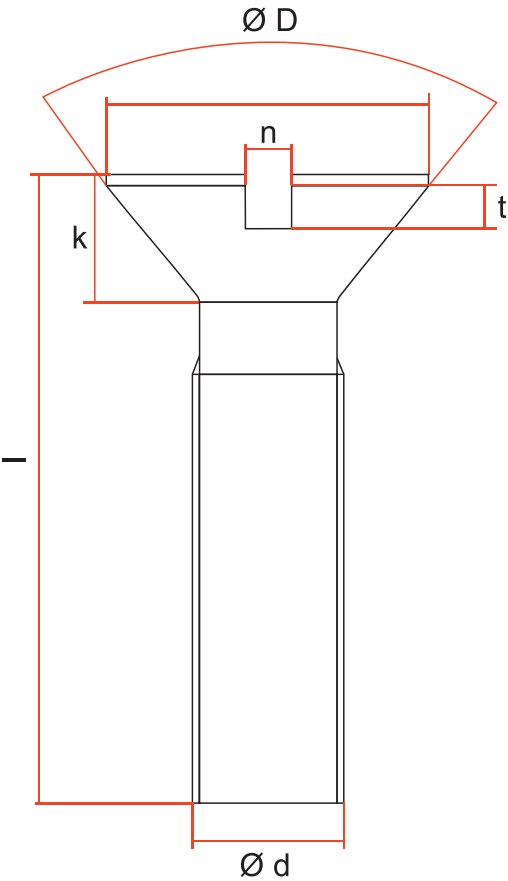
LENGTH AND APPROX. WEIGHT

LENGTH (mm)	MIN.	MAX.	APPROX. WEIGHT / 1000 PIECES (kg)							
			M2	M2.5	M3	M3.5	M4	M5	M6	M8
2.5	2.3	2.7	–	–	–	–	–	–	–	–
3	2.8	3.2	0.101	–	–	–	–	–	–	–
4	3.76	4.24	0.119	0.206	–	–	–	–	–	–
5	4.76	5.24	0.137	0.236	0.335	–	–	–	–	–
6	5.76	6.24	0.152	0.286	0.379	0.663	0.903	–	–	–
8	7.71	8.29	0.193	0.326	0.467	0.753	1.03	1.48	2.38	–
10	9.71	10.29	0.231	0.386	0.555	0.87	1.22	1.72	2.73	5.68
12	11.65	12.35	0.263	0.445	0.643	0.993	1.37	1.96	3.08	6.32
(14)	13.65	14.35	0.306	0.507	0.731	1.11	1.53	2.20	3.43	6.96
16	15.65	16.35	0.343	0.567	0.820	1.23	1.68	2.44	3.78	7.60
20	19.58	20.42	0.417	0.687	0.996	1.47	2.00	2.92	4.48	8.88
25	24.58	25.42	–	0.837	1.22	1.77	2.39	3.52	5.36	10.50
30	29.58	30.42	–	–	1.44	2.07	2.79	4.12	6.23	12.10
35	34.5	35.5	–	–	1.65	2.37	3.17	4.72	7.11	13.70
40	39.5	40.5	–	–	1.88	2.67	3.56	5.32	7.98	15.30
45	44.5	45.5	–	–	–	–	3.95	5.92	8.86	16.90
50	49.5	50.5	–	–	–	–	4.34	6.52	9.76	18.50
(55)	54.5	55.95	–	–	–	–	4.73	7.12	10.60	20.10

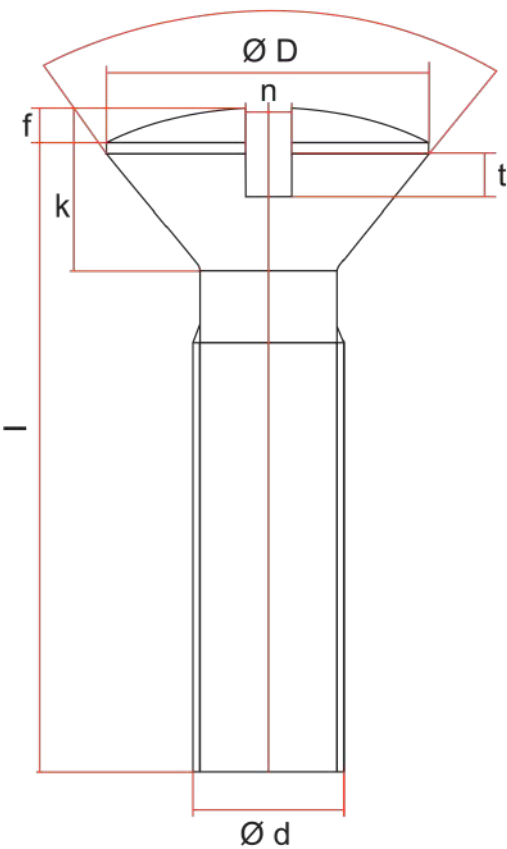
D = Head Diameter
K = Head Height
t = Depth
n = Driver Slot
d = External Thread 6g
P = Thread Pitch

min. = Minimum Value
max. = Maximum Value

All dimensions are in millimeters (mm).
Dimensions may vary according to the
manufacturer's tolerance.



ISO 2010/DIN 964 : METRIC SCREWS WITH A 60° THREAD FLANK ANGLE. MANUFACTURED IN PROPERTY CLASSES 4.8, 5.8, 6.8, AND 8.8, DEPENDING ON THE REQUIRED STRENGTH.



SCREW DIMENSIONS

DIMENSION	UNIT	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Head Diameter (D)	min.	3.50	4.40	5.20	6.94	8.04	8.94	10.87	15.37
	max.	3.80	4.70	5.50	7.30	8.40	9.30	11.30	15.80
Head Height (K)	min.	1.20	1.50	1.65	2.35	2.70	2.70	3.30	4.65
	max.	–	–	–	–	–	–	–	–
Depth (t)	min.	0.40	0.50	0.60	0.90	1.00	1.10	1.20	1.80
	max.	0.60	0.75	0.85	1.20	1.30	1.40	1.60	2.30
Driver Slot (n)	min.	0.56	0.66	0.86	1.06	1.26	1.26	1.66	2.06
	max.	0.70	0.80	1.00	1.20	1.51	1.51	1.91	2.31
External Thread 6g (d)	min.	1.88	2.38	2.87	3.35	3.83	4.82	5.79	7.76
	max.	1.98	2.48	2.98	3.47	3.97	4.97	5.97	7.97
Thread Pitch (P)		0.40	0.45	0.50	0.60	0.70	0.80	1.00	1.25

LENGTH AND APPROX. WEIGHT (1000 PIECES)

LENGTH (mm)	MIN.	MAX.	APPROX. WEIGHT / 1000 PIECES (kg)							
			M2	M2.5	M3	M3.5	M4	M5	M6	M8
2.5	2.3	2.7	–	–	–	–	–	–	–	–
3	2.8	3.2	0.111	–	–	–	–	–	–	–
4	3.78	4.24	0.138	0.242	–	–	–	–	–	–
5	4.78	5.24	0.154	0.272	0.399	–	–	–	–	–
6	5.78	6.24	0.178	0.302	0.439	0.729	1.07	–	–	–
8	7.71	8.29	0.212	0.362	0.527	0.848	1.20	1.73	–	–
10	9.71	10.29	0.248	0.422	0.615	0.987	1.36	1.97	3.09	6.09
12	11.65	12.35	0.287	0.482	0.703	1.06	1.54	2.21	3.50	7.20
(14)	13.65	14.35	0.325	0.542	0.791	1.17	1.70	2.45	3.87	8.17
16	15.65	16.35	0.362	0.602	0.879	1.30	1.90	2.68	4.23	8.81
20	19.58	20.42	0.436	0.725	1.06	1.57	2.17	3.17	5.16	10.10
25	24.58	25.42	–	0.874	1.28	1.87	2.56	3.77	6.10	11.70
30	29.58	30.42	–	–	1.50	2.17	2.96	4.37	7.20	13.20
35	34.5	35.5	–	–	1.72	2.42	3.36	4.94	8.00	14.60
40	39.5	40.5	–	–	1.94	2.77	3.75	5.57	8.67	16.00
45	44.5	45.5	–	–	–	–	4.12	6.16	9.50	18.10
50	49.5	50.5	–	–	–	–	4.51	6.76	10.40	19.70
(55)	54.5	55.95	–	–	–	–	4.90	7.36	11.30	21.20

DIFFERENCES BETWEEN DIN AND ISO STANDARDS

MEASUREMENT	STANDARD	M2	M2.5	M3	M3.5	M4	M5	M6	M8
Head Diameter (D max.)	DIN EN ISO 2009	2.8	4.3	5.5	7.3	8.4	9.3	11.3	15.8
	DIN 964	2.8	4.7	6.0	7.5	8.6	9.7	11.6	16.2
Head Height (K max.)	DIN EN ISO 2009	1.20	1.50	1.65	2.35	2.70	2.70	3.30	4.65
	DIN 964	1.20	1.50	1.65	1.90	2.20	3.00	4.00	4.80

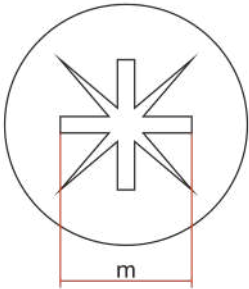
D = Head Diameter
K = Head Height
t = Depth
n = Driver Slot
6g = External Thread 6g
P = Thread Pitch

min. = Minimum Value
max. = Maximum Value

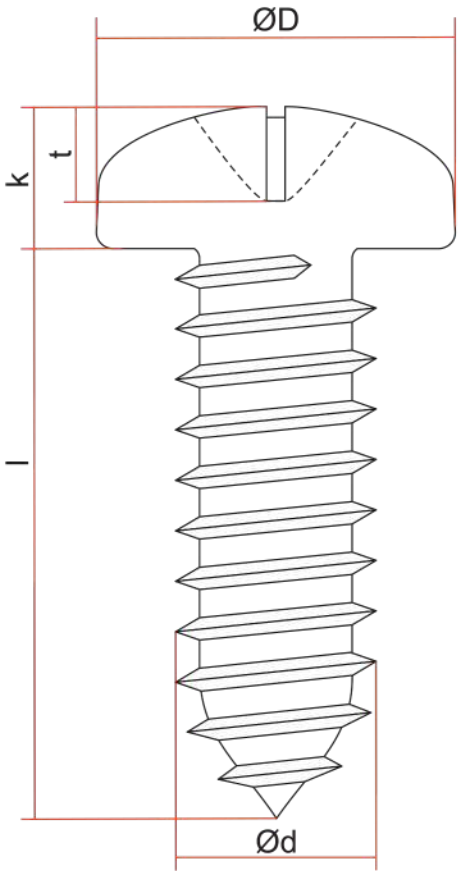
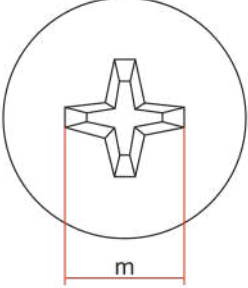
All dimensions are in millimeters (mm).
Dimensions may vary according to the manufacturer's tolerance.

ISO 7049/DIN 7981 : SHEET METAL SCREWS WITH A 45° THREAD FLANK ANGLE. MANUFACTURED WITH EITHER A SHARP POINT OR A BLUNT POINT, DEPENDING ON THE APPLICATION.

Z Biçimi / FROM Z



H Biçimi / FROM H



SCREW DIMENSIONS

DIMENSION	UNIT	2.2	2.9	3.8	4.2	4.8	5.5	6.3
Head Diameter (D)	min.	3.70	5.30	6.64	7.64	9.17	10.57	11.57
	max.	4.00	5.60	7.00	8.00	9.50	11.00	12.00
Head Height (K)	min.	1.40	2.15	2.35	2.80	3.40	3.70	4.30
	max.	1.60	2.10	2.40	2.60	3.10	3.70	4.60
Screwdriver Slot	-	0	1	2	2	2	3	3
Cross Width (m)	min.	1.90	3.00	3.90	4.40	4.90	6.40	6.90
Slot Length (H)	max.	1.20	1.80	1.90	2.40	2.90	3.10	3.60
Slot Depth (Z)	max.	1.20	1.75	1.90	2.35	2.75	3.00	3.50
External Thread ϕg (d)	min.	2.10	2.76	3.35	4.04	4.62	5.28	6.03
	max.	2.24	2.90	3.53	4.22	4.80	5.46	6.25
Minimum Tensile Strength (Min. Torsional Strength)	N·m	0.45	1.50	2.70	4.40	6.30	10.00	18.00

LENGTH AND APPROX. WEIGHT (1000 PIECES)

LENGTH (mm)	MIN.	MAX.	APPROX. WEIGHT / 1000 PIECES (kg)						
			2.2	2.9	3.8	4.2	4.8	5.5	6.3
2.5	2.3	2.7	-	-	-	-	-	-	-
3	2.8	3.2	0.119	-	-	-	-	-	-
4	3.76	4.24	0.138	0.242	-	-	-	-	-
5	4.76	5.24	0.158	0.272	0.395	-	-	-	-
6	5.76	6.24	0.175	0.302	0.439	0.729	1.07	-	-
8	7.71	8.29	0.212	0.362	0.527	0.849	1.23	1.73	-
10	9.71	10.29	0.249	0.422	0.615	0.97	1.39	1.97	6.89
12	11.65	12.35	0.287	0.482	0.703	1.09	1.54	2.21	7.53
(14)	13.65	14.35	0.325	0.543	0.791	1.21	1.70	2.45	8.17
16	15.65	16.35	0.362	0.603	0.879	1.33	1.85	2.69	8.81
20	19.58	20.42	0.436	0.723	1.06	1.57	2.17	3.17	10.10
25	24.58	25.42	-	0.874	1.28	1.87	2.56	3.77	11.70
30	29.58	30.42	-	-	1.50	2.17	2.95	4.37	13.30
35	34.5	35.5	-	-	1.72	2.47	3.34	4.97	14.90
40	39.5	40.5	-	-	1.94	2.77	3.73	5.57	16.50
45	44.5	45.5	-	-	-	-	4.12	6.16	18.10
50	49.5	50.5	-	-	-	-	4.51	6.76	19.70
(55)	54.05	55.95	-	-	-	-	4.90	7.36	21.30

DIFFERENCES BETWEEN DIN AND ISO STANDARDS

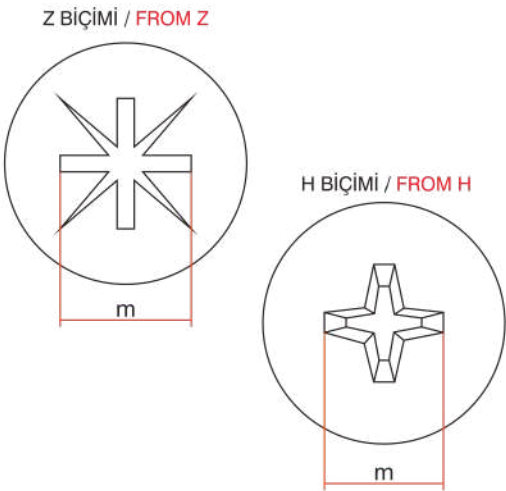
MEASUREMENT	STANDARD	2.2	2.9	3.8	4.2	4.8	5.5	6.3
Head Diameter (D max.)	DIN EN ISO 2010	3.8	4.7	5.5	7.3	8.4	9.3	11.3
	DIN 964	3.8	4.7	5.6	6.5	7.5	9.2	11.0
Head Height (K max.)	DIN EN ISO 2010	1.20	1.50	1.65	2.35	2.70	3.30	4.65
	DIN 964	1.20	1.50	1.65	1.93	2.20	2.50	3.00

D = Head Diameter
K = Head Height
t = Depth
n = Screwdriver Slot
d ϕg = External Thread ϕg
P = Thread Pitch

min. = Minimum Value
max. = Maximum Value

All dimensions are in millimeters (mm).
Dimensions may vary according to the manufacturer's tolerance.

ISO 7050/DIN 7982 : SHEET METAL SCREWS WITH A 45° THREAD FLANK ANGLE. MANUFACTURED WITH EITHER A SHARP POINT OR A BLUNT POINT, DEPENDING ON THE APPLICATION.



HEAD DIMENSIONS

DIMENSION	UNIT	2.2	2.9	3.8	4.2	4.8	5.5	6.3
Head Diameter (D)	min.	3.50	5.20	6.90	8.90	9.90	9.90	10.90
	max.	3.80	5.50	7.30	8.40	9.30	10.30	11.30
Head Height (k)	min.	1.10	1.70	2.35	2.60	2.80	3.00	3.15
	max.	1.40	2.00	2.50	2.80	3.00	3.20	3.50
Screwdriver Slot	-	0	1	2	2	2	3	3
Cross Width (m)	min.	1.90	3.20	4.40	4.60	5.20	6.60	6.80
Slot Length (H)	max.	1.20	2.10	2.40	2.60	3.20	3.30	3.50
Slot Depth (Z)	max.	1.20	2.00	2.20	2.60	2.60	3.20	3.50
External Thread 6g (d)	min.	2.10	2.76	3.35	4.04	4.62	5.28	6.03
	max.	2.24	2.90	3.53	4.22	4.80	5.46	6.25
Min. Torsional Strength	N·m	0.45	1.50	2.70	4.40	6.30	10.00	18.00

LENGTH AND APPROX. WEIGHT (1000 PIECES)

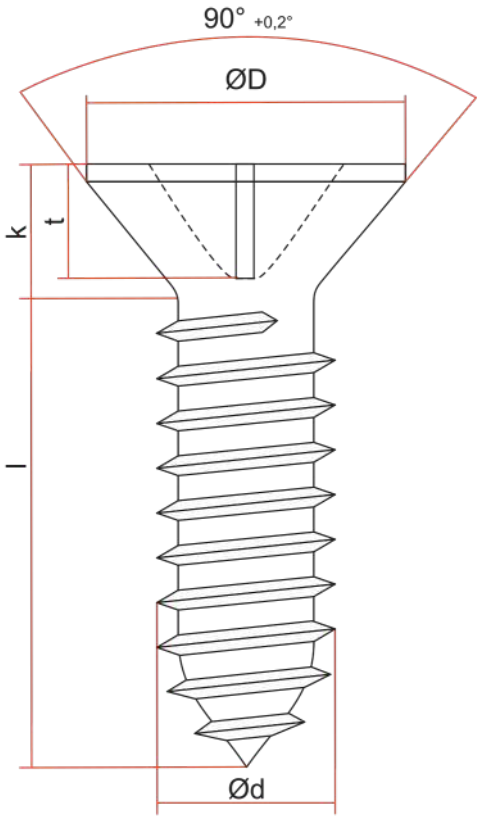
LENGTH (mm)	MIN.	MAX.	APPROX. WEIGHT / 1000 PIECES (kg)						
			2.2	2.9	3.8	4.2	4.8	5.5	6.3
4.5	3.7	5.3	0.100	-	-	-	-	-	-
6.5	5.7	7.3	0.140	0.280	-	-	-	-	-
9.5	8.7	10.3	0.200	0.350	0.540	0.77	1.10	-	-
13	12.2	13.8	-	-	0.270	0.476	0.72	1.02	1.45
16	15.2	16.8	2.11	-	2.53	-	0.330	0.584	0.871
19	18.2	19.8	1.23	1.75	2.49	3.07	-	0.692	1.02
22	21.2	22.8	1.44	2.05	2.87	3.61	-	0.800	1.17
25	24.2	25.8	1.65	2.35	3.26	4.15	-	0.908	1.32
32	30.7	33.3	1.86	2.65	3.65	4.89	-	-	1.67
38	36.7	39.3	2.35	3.35	4.56	5.95	-	-	-
45	43.7	46.3	2.77	3.95	5.43	7.03	-	-	-
50	48.7	51.3	-	4.65	6.34	8.29	-	-	-

DIFFERENCES BETWEEN DIN AND ISO STANDARDS

MEASUREMENT	STANDARD	ST 2.2	ST 2.9	ST 3.5	ST 4.2	ST 4.8	ST 5.5	ST 6.3
Head Diameter (D) max.	DIN EN ISO 7049	3.8	5.5	7.3	8.4	9.3	10.3	11.3
	DIN 7981	4.3	5.5	6.8	8.1	9.5	10.8	12.4
Head Height (k) max)	DIN EN ISO 7049	1.1	1.7	2.35	2.6	2.8	3.0	3.15
	DIN 7981	1.3	1.7	2.1	2.5	2.3	3.4	3.8

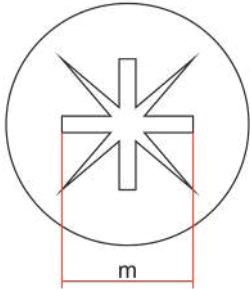
D = Head Diameter
K = Head Height
t = Depth
n = Screwdriver Slot
d6g = External Thread 6g
P = Thread Pitch

min. = Minimum Value
max. = Maximum Value
All dimensions are in millimeters (mm).
Dimensions may vary according to the manufacturer's tolerance.

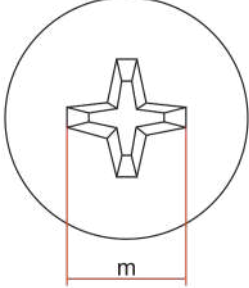


ISO 7051/DIN 7983 : SHEET METAL SCREWS WITH A 45° THREAD FLANK ANGLE. MANUFACTURED WITH EITHER A SHARP POINT OR A BLUNT POINT, DEPENDING ON THE APPLICATION.

Z Biçimi / FROM Z



H Biçimi / FROM H



HEAD DIMENSIONS

DIMENSION	UNIT	2.2	2.9	3.5	4.2	4.8	5.5	6.3
Head Diameter (D)	min.	3.50	5.20	6.90	8.00	8.90	9.90	10.90
	max.	3.80	5.50	7.30	8.40	9.30	10.30	11.30
Head Height (K)	min.	1.10	1.70	2.35	2.60	2.80	3.00	3.15
	max.	1.40	2.10	2.50	2.80	3.00	3.20	3.50
Screwdriver Slot	—	0	1	2	2	2	3	3
Cross Width (m)	min.	1.90	3.20	4.40	4.60	5.20	6.60	6.80
Slot Length (H)	max.	1.20	2.10	2.40	2.60	3.20	3.30	3.50
Slot Depth (Z)	max.	1.20	2.00	2.20	2.60	2.60	3.20	3.50
External Thread 6g (d)	min.	2.10	2.76	3.35	4.04	4.62	5.28	6.03
	max.	2.24	2.90	3.53	4.22	4.80	5.46	6.25
Min. Torsional Strength	N·m	0.45	1.50	2.70	4.40	6.30	10.00	18.00

LENGTH AND APPROX. WEIGHT (1000 PIECES)

Approx. Weight 100 Sheet Bolts in kg.

LENGTH (mm)	UNIT	FROM C		FROM F		2.2	2.9	3.5	4.2	4.8	5.5	6.3
		MIN.	MAX.	MIN.	MAX.							
4.5	mm	3.7	5.3	3.7	4.5	0.140	—	—	—	—	—	—
6.5	mm	5.7	7.3	5.7	6.5	0.180	0.332	—	—	—	—	—
9.5	mm	8.7	10.3	8.7	9.5	0.240	0.440	0.720	1.07	—	—	—
13	mm	12.2	13.8	12.2	13	—	—	0.310	0.566	0.900	1.53	—
16	mm	15.2	16.8	15.2	16	2.64	—	3.46	—	0.370	1.320	1.880
19	mm	18.2	19.8	18.2	19	1.53	2.18	3.12	4.00	—	0.674	1.05
22	mm	21.2	22.8	20.7	22	1.74	2.48	3.50	4.54	—	0.782	1.20
25	mm	24.2	25.8	23.7	25	1.95	2.78	3.89	5.08	—	0.880	1.35
32	mm	30.7	33.3	30.7	32	2.16	3.08	4.28	5.62	—	0.996	1.50
38	mm	36.7	39.3	36.7	38	2.65	3.79	4.19	6.88	—	—	1.85
45	mm	43.7	46.3	43.5	45	3.07	5.18	5.97	7.96	—	—	—
50	mm	48.7	51.3	48.5	50	—	5.80	6.88	9.22	—	—	—

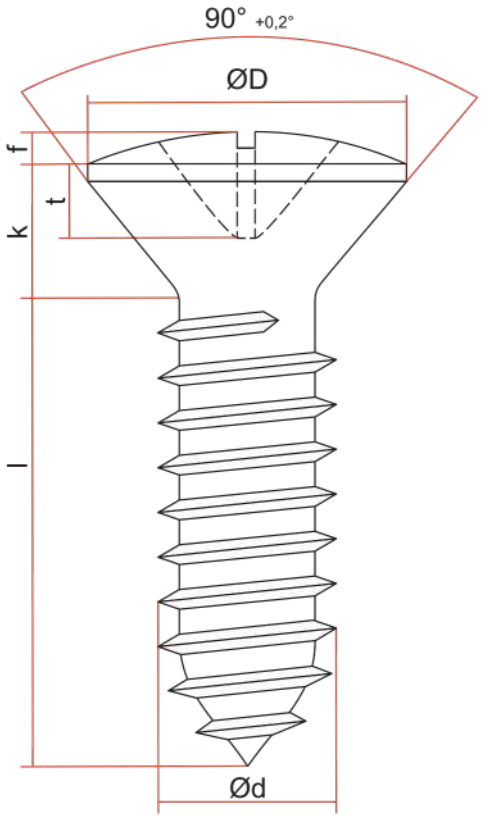
DIFFERENCES BETWEEN DIN AND ISO STANDARDS

MEASUREMENT	STANDARD	ST 2.2	ST 2.9	ST 3.5	ST 4.2	ST 4.8	ST 5.5	ST 6.3
Head Diameter (D max.)	DIN EN ISO 7049	3.8	5.5	7.3	8.4	9.3	10.3	11.3
	DIN 7981	4.3	5.5	6.8	8.1	9.5	10.8	12.4
Head Height (K max.)	DIN EN ISO 7049	1.1	1.7	2.35	2.6	2.8	3.0	3.15
	DIN 7981	1.3	1.7	2.1	2.5	2.3	3.4	3.8

D = Head Diameter
K = Head Height
t = Depth
n = Screwdriver Slot
d6g = External Thread 6g
P = Thread Pitch

min. = Minimum Value
max. = Maximum Value

All dimensions are in millimeters (mm).
Dimensions may vary according to the
manufacturer's tolerance.





HEX HEAD BOLTS

HEX HEAD METRIC BOLTS – PARTIALLY THREADED (DIN 931)

d	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
P (Thread Pitch)	0,8	1	1,25	1,5	1,75	2	2	2,5	2,5	2,5	3	3	3,5
b1	16	18	22	26	30	34	38	42	46	50	54	60	66
b2	22	24	28	32	36	40	44	48	52	56	60	66	72
k	3,5	4	5,5	7	8	9	10	12	13	14	15	17	19
s	8	10	13	17	19	22	24	27	30	32	36	41	46



HEX HEAD METRIC BOLTS – FULLY THREADED (DIN 933)

d	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
P (Thread Pitch)	0,8	1	1,25	1,5	1,75	2	2	2,5	2,5	2,5	3	3	3,5
k	3,5	4	5,5	7	8	9	10	12	13	14	15	17	19
s	8	10	13	17	19	22	24	27	30	32	36	41	46



HEX FLANGE BOLTS (DIN 6921)

d	M5	M6	M8	M10	M12	M14	M16	M20
P (Thread Pitch)	0,8	1	1,25	1,5	1,75	2	2	2,5
b	16	18	22	26	30	34	38	46
k	5,4	6,6	8,1	9,2	11,5	12,8	14,4	17,1
s	8	10	13	15	16	18	21	27
d2 (Flange Diameter)	11,8	14,2	18	22,3	26,6	30,5	35	43



HEX STRUCTURAL STEEL BOLTS (DIN 7990)

d	M12	M16	M20	M24
P (Thread Pitch)	1,75	2	2,5	3
b	17,75	21	23,5	26
k	8	10	13	15
m	10	13	16	19
s	19	24	30	36



HIGH-STRENGTH HEX STRUCTURAL BOLTS (DIN 6914)

d1	M12	M16	M20	M22	M24	M27	M30	M36
b1 (L ≤)	21(40)	26(70)	31(85)	32(85)	34(85)	37(95)	40(95)	48(95)
b2 (L >)	23(40)	28(70)	33(85)	34(85)	37(85)	39(95)	42(95)	50(95)
k	8	10	13	14	15	17	19	23
e	23,91	29,56	35,03	39,55	45,2	50,85	55,37	66,44
s	22	27	32	36	41	46	50	60



Dimensions are specified in accordance with DIN / ISO standards.
All values are in millimetres (mm).

HEX SOCKET (ALLEN) BOLTS

BUTTON HEAD HEX SOCKET BOLTS ISO 7380

d	M2	M2.5	M3	M4	M5	M6	M8	M10	M12
P (Thread Pitch)	0,4	0,45	0,5	0,7	0,8	1	1,25	1,5	1,75
dk	3,5	4,5	5,7	7,6	9,5	10,5	14	17,5	21
k	1,3	1,5	1,65	2,2	2,75	3,3	4,4	5,5	6,6
s	1,27	1,5	2	2,5	3	4	5	6	8
t	0,6	0,8	1,04	1,3	1,56	2,08	2,6	3,12	4,16



HEX SOCKET HEAD CAP SCREWS DIN 912

d	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22
dk	7	8,5	10	13	16	18	21	24	27	30	33
ds	4	5	6	8	10	12	14	16	18	20	22
e min	3,44	4,58	5,72	6,86	9,15	11,43	13,72	16	16	19,44	19,4
k	4	5	6	8	10	12	14	16	18	20	22
t min	2	2,5	3	4	5	7	8	9	10,7	10,7	11,3



LOW HEAD HEX SOCKET CAP SCREWS DIN 7984

d	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
P (Thread Pitch)	0,5	0,7	0,8	1	1,25	1,5	1,75	2	2,5	3
dk	5,5	7	8,5	10	13	16	18	24	30	36
ds	3	4	5	6	8	10	12	16	20	24
k	2	2,8	3,5	4	5	6	7	9	11	13
s	2	2,5	3	4	5	7	8	12	14	17
t	1,5	2,3	2,7	3	3,8	4,5	5	6,5	7,5	8



COUNTERSUNK HEAD HEX SOCKET BOLTS DIN 7991

d	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
dk	max	6	8	10	12	16	20	24	27	30	33
	min	5,7	7,64	9,64	11,57	15,57	19,48	23,5	26,5	29,48	32,4
k	max	1,7	2,3	2,8	3,3	4,4	5,5	6,5	7,5	8	8,5
	min	1,45	2,05	2,55	3	5	5,2	6,14	6,44	7,14	7,64
s		2	2,5	3,1	4,12	5,14	6,14	6,18	10	10,18	12
t		1,2	1,8	2,3	2,5	3,5	4,4	4,6	4,8	5,3	5,9



NUTS

HEX NUTS DIN 934

d	M3	M4	M5	M6	M7	M8	M10	M12	M14	M16	M18	M20	M22
P (Thread Pitch)	0,5	0,7	0,8	1	1	1,25	1,5	1,75	2	2	2,5	2,5	2,5
m	2,4	3,2	4	5	5,5	6,5	8	10	11	13	15	16	18
s	5	7	8	10	11	13	17	19	22	24	27	30	32
e	6,08	7,7	8,9	11,1	12,1	14,4	18,9	21,1	24,5	26,8	30,1	33,5	35,7



HEX NYLOC NUTS DIN 985

d	M3	M4	M5	M6	M7	M8	M10	M12	M14	M16	M18	M20	M22
P (Thread Pitch)	0,5	0,7	0,8	1	1	1,25	1,5	1,75	2	2	2,5	2,5	2,5
s	5,5	7	8	10	11	13	17	19	22	24	27	30	32
h	4	5	5	6	7,5	8	10	12	14	16	18,5	20	22



SQUARE NUTS DIN 928

d	M4	M5	M6	M8	M10	M12	M14	M16
P (Thread Pitch)	0,7	0,8	1	1,25	1,5	1,75	2	2
m	3,5	4,2	5	6,5	8	9,5	11,4	13
s	7	9	10	14	17	19	22	24
b	0,8	1	1,2	1,5	1,8	2	2,5	2,5
e	9	12	13	18	22	25	28	32
h	0,6	0,8	0,8	1	1,2	1,4	1,4	1,6



HEX WELD NUTS DIN 929

d	M3	M4	M5	M6	M8	M10	M12	M14	M16
P (Thread Pitch)	0,5	0,7	0,8	1	1,25	1,5	1,75	2	2
m	3	3,5	4	5	6,5	8	10	11	13
s	7,5	9	10	11	14	17	19	22	24
d2	4,5	6	7	8	10,5	12,5	14,8	16,8	18,8
h1	0,55	0,7	0,7	0,75	0,9	1,15	1,4	1,8	1,8
h2	0,25	0,4	0,4	0,4	0,5	0,65	0,8	1	1



SLOTTED NUTS DIN 935

d	M5	M6	M7	M8	M10	M12	M14	M16	M18	M20	M22	M24
P (Thread Pitch)	0,8	1	1	1,25	1,5	1,75	2	2	2,5	2,5	2,5	3
m	6	7,5	8	9,5	12	15	16	19	21	22	26	27
s	8	10	11	13	17	19	22	24	27	30	32	36
n	1,4	2	2	2,5	2,8	3,5	3,5	4,5	4,5	4,5	5,5	5,5
w	4	5	—	6,5	8	10	11	13	15	16	18	19



NUTS

COUNTER NUTS DIN 936

d	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27
e	14,4	19	21	24,5	26,8	29,6	33	35	39,6	45,2
m	5	5	6	7	8	9	10	11	12	13,5
s	13	17	19	22	24	27	30	32	36	41



HEX FLANGE NUTS DIN 6923

d	M3	M4	M5	M6	M8	M10	M12	M14	M16
P (Thread Pitch)	0,8	1	1,3	1,5	1,75	2	2	2,5	3
h	5	6	8	10	12	14	16	20	24
s	8	10	13	15	18	21	24	30	36
dc	11,8	14	18	21,8	26	29,9	34,5	42,8	51



ACORN NUTS DIN 1587

d	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22
P (Thread Pitch)	0,7	0,8	1	1,25	1,5	1,75	2	2	2,5	2,5	2,5
m	3,2	4	5	6,5	8	10	11	13	15	16	18
s	7	8	10	13	17	19	22	24	27	30	32
h	8	10	12	15	18	22	25	28	32	34	39
dk	6,5	7,5	9,5	12,5	16	18	21	23	26	28	31
t	5,5	7,5	8	11	13	16	18	21	25	26	29



WING NUTS (STEEL / SHEET METAL) DIN 315

d	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24
P (Thread Pitch)	0,5	0,7	0,8	1	1,25	1,5	1,75	2	2	2,5	3
m	2,9	3,2	4	5	6,5	8	10	11,2	13	16	20
e	17,6	20	26	33	39	51	65	73	90	110	
h	8,6	11	13	17	20	25	33,5	33,5	37,5	46,5	56,5
d2	8	11	13	16	20	23	29	35	44		



HEX STRUCTURAL NUTS DIN 6915

d	M12	M16	M20	M24	M27	M33	M36
P (Thread Pitch)	1,75	2	2,5	2,5	3	3,5	4
m	10	13	16	18	19	24	29
s	22	27	32	36	41	50	60
e	23,9	30	35	39,6	45,2	50,4	66,4



All dimensions are in millimetres (mm).
Dimensions may vary according to the manufacturer's tolerance.

ANCHORS



SLEEVE ANCHOR

Size	M6x45	M6x65	M8x55	M8x75	M10x70	M10x95	M12x90	M12x110
Fixture Thickness	6-30 mm	6-45 mm	10-35 mm	10-55 mm	12-45 mm	12-62 mm	13-62 mm	16-75 mm



WEDGE ANCHOR

Size	M6x40	M8x75	M10x90	M12x110	M16x145	M20x200
Diameter	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm



DROP-IN ANCHOR

Size	M6	M8	M10	M12	M16
Thread Length	10 mm	12 mm	16 mm	16 mm	24 mm



HEAVY DUTY ANCHOR

Size	M6	M8	M10	M12	M16	M20
Fixture Thickness	10-30 mm	13-40 mm	15-45 mm	14-50 mm	22-60 mm	25-80 mm

SHIELD ANCHOR

Size	M6	M8	M10	M12	M16	M20
Fixture Thickness	6-30 mm	10-32 mm	12-40 mm	15-50 mm	20-60 mm	25-80 mm



THREADED ROD ANCHOR

Size	M6x65	M8x75	M10x85	M12x60	M16x120	M20x140
Fixture Thickness	10-45 mm	13-45 mm	16-60 mm	17-60 mm	22-75 mm	26-90 mm



PLASTIC ANCHOR

Size	M5	M7	M8	M10	M12	M14
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CASING ANCHOR

Size	M10x80	M10x80	M10x100	M10x150
Diameter	10 mm	10 mm	10 mm	10 mm

GAS CONCRETE ANCHOR

Size	M6	M10
Fixture Thickness	8-50 mm	10-55 mm



All dimensions are in millimetres (mm).
Fixture thickness values are recommended installation ranges.

RETAINING RINGS



DIN 471
A 3 - A 1000



DIN 472
J 8 - J 1000



V-Ring
AV 10 - AV 100



V-Ring
JV 10 - JV 100



DIN 983 External
AK 16 - AK 140



DIN 984 External
JK 16 - JK 170



Thrust Washer
G 1.5 - G 30



Internal Tooth
Lock Washer
KS 1.5 - KS 10



DIN 6799
RA 1.2 - RA 24



E-Type Retaining Ring
H 3 - H 55



External Retaining Ring
SB 7 - SB 440



External Retaining Ring
SW 4 - SW 460



DIN 7980
RB 7 - RB 125



DIN 7980
RW 4 - RW 125



DIN 988
SS 3 - SS 170



Toothed Lock Washer
DIN 6798

WASHERS



Flat Washer
Metric DIN 125



Spring Washer
Metric DIN 127



A-B Type
Curved Washer
DIN 137



Washer for
Hex Socket Screws



Square Washer
DIN 434



A Type Toothed
Lock Washer
DIN 6798



J Type Toothed
Lock Washer
DIN 6798



V Type Toothed
Lock Washer
DIN 6798



Cup Washer
DIN 7090



Countersunk
Washer
DIN 9021



Square Plate
Washer
DIN 435



Metric
Laminated Washer
DIN 988



Sealing Washer
Metric DIN 2093



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