M5 Flow-Drilling Screws Dimensions

M5 Flow-Drilling Screws dimensions to Trade series (flow-drilling screws): coarse thread pitch 0.8 mm, clearance hole (ISO 273 medium) 5.5 mm, tapping drill 4.2 mm. Tighten to approximately 5.9 Nm at property class 8.8 in a dry, as-supplied condition.

Coarse thread pitch

0.8 mm

Clearance hole (ISO 273 medium)

5.5 mm

Tapping drill

4.2 mm

Tightening torque (class 8.8)

5.9 Nm

Figures are nominal values from the governing standard. Confirm against the tolerance class for your application before machining or ordering.



M5 Flow-Drilling Screws are manufactured to Trade series (flow-drilling screws) with a coarse thread pitch of 0.8 mm. This page lists the controlling dimensions for the M5 size — head geometry, width across flats, matching spanner size — together with the clearance hole, tapping drill and tightening torque used at assembly.

M5 Dimensional Row (Trade series (flow-drilling screws))

Thread size	Clearance-hole diameter (mm)	Steel sheet range (mm)	Aluminum sheet ra
M5	6.7~7.4	0.3~1.8	0.8~5.0

Spanner & Drive for M5 Flow-Drilling Screws

Drive geometry for M5 Flow-Drilling Screws is given by the row above; match the tool to the listed values.

Hole Sizes for M5

Coarse-thread pitch (ISO 724)	0.8 mm
Through-hole / clearance (ISO 273 medium)	5.5 mm
Tapping drill, coarse thread	4.2 mm

Tightening Torque for M5

Class 8.8 (dry, ~μ 0.125)	≈ 5.9 Nm
Class 10.9 (dry, ~μ 0.125)	≈ 8.7 Nm
Class 12.9 (dry, ~μ 0.125)	≈ 10 Nm

Indicative dry-joint values. Lubrication can lower the required torque by 15–25%. Always confirm against the joint design, especially when going up a strength class.

Proof Load & Strength for M5

Tensile stress area As (ISO 724)	14.2 mm²
Proof load, class 8.8	8.2 kN
Proof load, class 10.9	12 kN
Proof load, class 12.9	14 kN
Min. ultimate tensile load, class 8.8	11 kN

Proof load = tensile stress area × the proof stress Sp of the class, per ISO 898-1 — Sp is a lower figure than the yield stress Rp0.2 and the two are not interchangeable. The stress area is computed from this size's own diameter and pitch, so a fine-pitch designation gives the fine-pitch figure. Design the joint so the working preload stays below the proof load of the class selected.

Mating Parts for M5

For M5, pair with a M5 hex nut (ISO 4032 / DIN 934) and, where used, a M5 flat washer (ISO 7089 / DIN 125A) under the head and under the nut.

When to Step Up or Down from M5

When the joint preload approaches the proof load of M5 class 8.8, step up to M6 class 8.8 (or move to M5 class 10.9). When the joint is over-specified, M4 often saves weight

and cost without losing the safety margin.

Custom manufacturing · Made to drawing

Need flow-drilling screws in a size this table does not list?

This page covers M5 flow-drilling screws. Where the standard stops, the drawing takes over: fine pitches, left-hand threads, partial threading, and property classes above the catalogued grade where material and heat treatment allow. Made by cold heading or warm forging.

Minimum order from 2,000 pieces; samples within 7 days of drawing approval.

Custom screw manufacturing (https://engineeringhardware.com/custom/screws/)

Send a drawing (https://engineeringhardware.com/custom/screws/#rfq)

Technical Drawing

Customize the parameters below — every spec field is editable, and the drawing redraws to match the values you choose. Changing the size will snap the other fields to that size's standard values; you can then override any individual value.

Dimensioned line drawing of M5 Flow-Drilling Screws to Trade series (flow-drilling screws). Side view and top view, drawn to the dimensions in the table below and redrawn for any size selected.

Sends the selected values to the quote form below.

Request a Quote

The form below follows the current technical drawing configuration. Change the drawing values above and the request details update automatically.

Dimensions & Specifications (Trade series (flow-drilling screws))

Thread size	Clearance-hole diameter (mm)	Steel sheet range (mm)	Aluminum sheet ra
M3	3.6~4.0	0.3~1.8	0.8~5.0
M3.5	4.3~4.8	0.3~1.8	0.8~5.0
M4	5.1~5.7	0.3~1.8	0.8~5.0
M5	6.7~7.4	0.3~1.8	0.8~5.0
M6	8.2~9.1	0.3~1.8	0.8~5.0

Product catalog

Related Flow-Drilling Screws products



(https://engineeringhardware.com/product/self-drilling-roofing-screws-with-epdm-4-2-16mm/)

Self-Drilling & Tek Screws

Self Drilling Roofing Screws with EPDM 4.2*16mm

(https://engineeringhardware.com/product/self-drilling-roofing-screws-with-epdm-4-2-16mm/)

Hexagon Head · GB

US$1,800 – 1,836 MOQ 2 tons



(https://engineeringhardware.com/product/din7504n-stainless-steel-410-304-316-st4-2x50-4-2-diameter-phillips-rounded-pan-head/)

Self-Drilling & Tek Screws

DIN7504n Stainless Steel 410 304 316 St4.2X50 4.2 Diameter Phillips Rounded & Pan Head Inch/Metric Self Drilling Screw for Metal
(https://engineeringhardware.com/product/din7504n-stainless-steel-410-304-316-st4-2x50-4-2-diameter-phillips-rounded-pan-head/)
(https://engineeringhardware.com/product/din7504n-stainless-steel-410-304-316-st4-2x50-4-2-diameter-phillips-rounded-pan-head/)

Pan Head · DIN, GB, ANSI

US$0.048 – 0.084 MOQ 1,000 pieces



(https://engineeringhardware.com/product/enpro-sstainless-steel-carbon-steel-ruspert-surface-phillips-csk-countersunk-flat/)

Self-Drilling & Tek Screws

Enpro Sstainless Steel Carbon Steel Ruspert Surface Phillips Csk Countersunk Flat Head Fine Thread Self Drilling Screws
(https://engineeringhardware.com/product/enpro-sstainless-steel-carbon-steel-ruspert-surface-phillips-csk-countersunk-flat/)
(https://engineeringhardware.com/product/enpro-sstainless-steel-carbon-steel-ruspert-surface-phillips-csk-countersunk-flat/)

Carbon Steel · 6-100mm

US$0.006 – 0.0132 MOQ 1 piece



(https://engineeringhardware.com/product/dacromet-surface-hex-flange-head-self-drilling-screw/)

Self-Drilling & Tek Screws

Dacromet Surface Hex Flange Head Self Drilling Screw

(https://engineeringhardware.com/product/dacromet-surface-hex-flange-head-self-drilling-screw/)

Hexagon Head With Flange · DIN, GB, ANSI, BSW, JIS, GOST

US$0.0024 – 0.006MOQ 200,000 pieces



(https://engineeringhardware.com/product/din-7504-pan-head-phillip-drive-self-drilling-screw/)

Self-Drilling & Tek Screws

DIN 7504 Pan Head Phillip Drive Self Drilling Screw

(https://engineeringhardware.com/product/din-7504-pan-head-phillip-drive-self-

drilling-screw/)

American Srandard · Stainless Steel

US$0.03 – 0.06MOQ 1,000 pieces



(https://engineeringhardware.com/product/colorful-hex-head-self-drilling-screws-galvanized-indented-bi-hex-flange-head-self/)

Self-Drilling & Tek Screws

Colorful Hex Head Self Drilling Screws Galvanized Indented Bi-hex Flange Head Self-Drilling Roofing Tek Screw With Rubber Washer (https://engineeringhardware.com/product/colorful-hex-head-self-drilling-screws-galvanized-indented-bi-hex-flange-head-self/)

INCH,Metric · HEX

US$0.012 – 0.036 MOQ 1,000 pieces

View all Self-Drilling & Tek Screws → (https://engineeringhardware.com/fastener-products/screws/self-drilling-tek-screws/)

Full product catalog (https://engineeringhardware.com/products/)

Materials & Grades

Select a material class to see the grades we supply it in. Each designation is listed with its ISO/EN, AISI/SAE, JIS and GB equivalents.

Stainless Steel

Carbon Steel 66

Alloy Steel 41

Bearing Steel 5

Spring Steel 25

Aluminum and Aluminum Alloys 21

Brass 17

Bronze 11

Copper 8

Titanium and Titanium Alloys 18

Nickel and Nickel Alloys 22

Iron-Nickel and High-Temperature Alloys 10

Tool Steel and Specialty Hardened Steel 9

Structural and Construction Steel 9

Stainless Steel

Austenitic Stainless Steel

A1
AISI 303 · SAE 303 · SUS303 · EN 1.4305 · X8CrNiS18-9

A2
AISI 304 · SAE 304 · SUS304 · EN 1.4301 · X5CrNi18-10 · 06Cr19Ni10

304L
AISI 304L · SUS304L · EN 1.4307 · X2CrNi18-9 · 022Cr19Ni10

302
AISI 302 · SUS302 · EN 1.4310

305
AISI 305 · SUS305 · EN 1.4303

A4
AISI 316 · SAE 316 · SUS316 · EN 1.4401 · X5CrNiMo17-12-2 · 06Cr17Ni12Mo2

316L
AISI 316L · SUS316L · EN 1.4404 · X2CrNiMo17-12-2 · 022Cr17Ni12Mo2

321
AISI 321 · SUS321 · EN 1.4541 · X6CrNiTi18-10

310 / 310S
AISI 310 · AISI 310S · SUS310S · EN 1.4845

302HQ
AISI 302HQ

A3

A5

347
AISI 347 · SUS347 · EN 1.4550 · X6CrNiNb18-10

309 / 309S
AISI 309 · AISI 309S · SUS309S

Martensitic Stainless Steel

AISI 410
SUS410 · EN 1.4006 · X12Cr13 · 12Cr13

AISI 420
SUS420J1 · SUS420J2 · EN 1.4021 · EN 1.4028 · 20Cr13 · 30Cr13

AISI 431
SUS431 · EN 1.4057 · X17CrNi16-2

C1

C3

C4

AISI 440A

AISI 440B

AISI 440C
SUS440C · EN 1.4125

Ferritic Stainless Steel

AISI 430
SUS430 · EN 1.4016 · X6Cr17 · 10Cr17

F1

AISI 434

AISI 444

Precipitation-Hardening Stainless Steel

17-4 PH
AISI 630 · UNS S17400 · SUS630 · EN 1.4542 · X5CrNiCuNb16-4

15-5 PH
UNS S15500

17-7 PH
UNS S17700

Duplex and Super Duplex Stainless Steel

Duplex 2205
UNS S31803 · UNS S32205 · EN 1.4462

Super Duplex 2507
UNS S32750 · EN 1.4410

D2

D4

D6

D8

Lean Duplex 2101
UNS S32101

Super Duplex S32760
UNS S32760 · EN 1.4501

Carbon Steel

Low-Carbon Steel

- SAE 1006
- SAE 1008
- SAE 1010
- SAE 1018
- SAE 1020
- Q195
- Q235
- SAE 1012
- SAE 1015
- Q215
- ML08
- ML08Al
- ML10
- ML15
- ML20
- SWRCH6A
- SWRCH8A
- SWRCH10A
- SWRCH12A
- SWRCH15A
- SWRCH18A

Medium-Carbon Steel

- SAE 1035

SAE 1045
S45C
C45
SAE 1030
SAE 1040
SAE 1050
30
35
40
45
50
S35C
S40C
S50C
C35
C40

High-Carbon Steel

SAE 1060
SAE 1070
65Mn
SAE 1065
SAE 1075
SAE 1080
SAE 1085
SAE 1090
SAE 1095
60

65
70
75
80
85

Cold-Heading Steel

SWRCH22A
10B21
SWRCH22K
SWRCH25K
SWRCH30K
SWRCH35K
SWRCH40K
ML20Mn
ML25
ML30
ML35
ML40
15B25

Alloy Steel

Chromium Steel

40Cr
45Cr
AISI 5140

SAE 5140
AISI 5120
SAE 5120
SCr420
SCr440

Chromium-Molybdenum Steel

35CrMo
42CrMo
AISI 4140
SCM435
SCM440
42CrMo4
30CrMo
AISI 4130
SAE 4130
SAE 4140
AISI 4142
AISI 4145
SCM415
SCM420
SCM445
EN 1.7220
EN 1.7225
25CrMo4
34CrMo4

Nickel-Chromium-Molybdenum Steel

AISI 4340
SAE 4340
40CrNiMo
SNCM439
EN 1.6511
36CrNiMo4

Boron Alloy Steel

10B22
10B21
15B21
15B25
20MnTiB
20Mn2B
35VB
40MnB

Bearing Steel

Bearing Steel

GCr15
AISI 52100 SAE 52100 · UNS G52986
SUJ2
100Cr6 EN 1.3505
GCr15SiMn

Spring Steel

Carbon Spring Steel

SAE 1065
SAE 1070
SAE 1075
SAE 1080
SAE 1095
65
70
75
80
65Mn

Silicon-Manganese Spring Steel

60Si2Mn
60Si2MnA
SUP6
SUP7

Chromium-Vanadium Spring Steel

50CrVA
SAE 6150
AISI 6150
SUP10

Stainless Spring Steel

AISI 301

SUS301
EN 1.4310
AISI 302
AISI 304
AISI 316
17-7 PH

Aluminum and Aluminum Alloys

Commercially Pure Aluminum

1050
1060
1070
1100

2xxx Series Aluminum

2024
2011
2014
2017

5xxx Series Aluminum

5052
5083
5754

6xxx Series Aluminum

6061

6061-T6
6063
6082
6082-T6

7xxx Series Aluminum

7075
7075-T6
7005
7050
7075-T73

Brass

Free-Cutting Brass

C36000
H62
HPb59-1
C3601
C3602
C3604
CuZn36Pb3
CuZn39Pb3
EN CW614N
EN CW617N
H65

Lead-Free Brass

- **C69300**
- **C27450**
- **CW510L**
- **CW511L**

Naval Brass

- **C46400**
- **CuZn39Sn1**

Bronze

Silicon Bronze

- **C65500**
- **C65100**
- **C65600**

Phosphor Bronze

- **C51000**
- **C52100**
- **CuSn6**
- **CuSn8**

Aluminum Bronze

- **C95400**
- **C95500**
- **C63000**

CuAl10Ni5Fe4

Copper

Copper

C11000
T2
C10100
C10200
C12200
T1
TU1
TU2

Titanium and Titanium Alloys

Commercially Pure Titanium

Grade 2
Grade 1
Grade 3
Grade 4
TA1
TA2
TA3

Alpha-Beta Titanium Alloys

Grade 5

Ti-6Al-4V

TC4

UNS R56400

Low-Interstitial Grade

Grade 23

Ti-6Al-4V ELI

UNS R56407

Other Titanium Fastener Alloys

Ti-6Al-6V-2Sn

Ti-6Al-2Sn-4Zr-2Mo

Beta-C titanium

Ti-10V-2Fe-3Al

Nickel and Nickel Alloys

Commercially Pure Nickel

Nickel 200

UNS N02200

Nickel 201

UNS N02201

Inconel Alloys

Inconel 625
UNS N06625

Inconel 718
UNS N07718

Inconel 600
UNS N06600

Inconel 601
UNS N06601

Inconel 686
UNS N06686

Inconel X-750
UNS N07750

Monel Alloys

Monel 400
UNS N04400

Monel K-500
UNS N05500

Hastelloy Alloys

Hastelloy C-276
UNS N10276

Hastelloy C-22
UNS N06022

Hastelloy B-2
UNS N10665

Hastelloy B-3
UNS N10675

Hastelloy X
UNS N06002

Other Nickel Alloys

Alloy 20
UNS N08020

Alloy 625

Alloy 718

Alloy 825
UNS N08825

Alloy 925
UNS N09925

Iron-Nickel and High-Temperature Alloys

A286

A-286

UNS S66286

EN 1.4980

Invar

Invar 36

Alloy 36

UNS K93600

FeNi36

Alloy 42

Alloy 42

UNS K94100

FeNi42

Tool Steel and Specialty Hardened Steel

Tool Steel and Specialty Hardened Steel

AISI D2

AISI H13

SKD11
Cr12MoV
AISI O1
AISI A2
AISI S7
SKD61
9CrSi

Structural and Construction Steel

Structural and Construction Steel
ASTM A36
Q235B
Q355B
S355JR
Q235C
Q355C
S235JR
S275JR
S355J2

Applications & Industries for M5 Flow-Drilling Screws

What Flow-Drilling Screws are specified for, industry by industry. Stocked from M3 to M6.

Industries that specify Flow-Drilling Screws

Magnesium housings **One-side fastening avoids a loose nut inside a closed section.**

Industrial panels **The clearance and sheet ranges define the process window.**

Automotive body structures **Flow-drilling screws create a threaded boss through one-side sheet access.**

Aluminum fabrication **The process joins aluminum sheet without a separate pre-drilled thread.**

Machine building & OEM **The default fastener on production equipment: covers, brackets, motor mounts and sub-assemblies tightened to a specified torque.**

Automotive & transport **Chassis, driveline and body fixings that see vibration and are assembled to a controlled preload.**

Typical applications

- **selecting the process for the sheet thickness**
- **using the specified drive and head for the assembly tool**
- **flow-drilling a thread into steel, aluminum or magnesium**
- **matching the clearance-hole range to the screw size**
- **assemblies that are dismantled for service and re-torqued**
- **joints where the property class is stated on the drawing**

Service conditions to specify against

Marine and coastal

Available in A4 (316) stainless for chloride exposure — coastal structures, pool halls, water treatment and deck hardware, where A2 will eventually pit.

High load

Supplied in ISO 898-1 property classes, so the joint can be designed to a stated proof load and tightened to a calculated torque rather than by feel.

Torque and preload

The joint is designed around bolt tension, so lubrication, coating and the friction coefficient all change the torque figure — state them together.

Where to use something else

- **Do not use a flow-drilling screw outside its material or sheet-thickness window; heat and thread formation are process-dependent.**
- **Do not use a machine thread into unthreaded sheet or timber; use a tapping screw, rivet nut or insert made for that parent material.**

Full application guide: where Flow-Drilling Screws are used, how to specify them, and the cases they are wrong for (https://engineeringhardware.com/applications/flow-drilling-screws/)

Inside the plant

Manufactured in our own plant

This part is cold-formed, threaded, heat-treated and finished in-house. The stages below are where its class and finish are actually decided.



01

Cold heading

Wire rod is drawn to size and cold-formed into blanks. Forming rather than cutting keeps the grain flow continuous around the head, which is where a bolt is most likely to fail.

Head dimensions and under-head radius checked at set-up and per shift.



02

Thread rolling

Threads are rolled between hardened dies rather than cut. Rolled threads are stronger in fatigue than cut threads and hold pitch and flank angle far more consistently across a batch.

Go / no-go ring gauges to ISO 965 tolerance class 6g.



03

Heat treatment

Quench-and-temper brings carbon and alloy steel to the property class ordered — 8.8, 10.9 or 12.9 — with the furnace charge tracked so a finished lot can be traced back to it.

Core hardness and tensile tested per lot to ISO 898-1.



04

Surface treatment

Zinc, zinc-nickel, hot-dip galvanizing, black oxide, phosphate and Dacromet, selected against the service environment rather than against the price list.

Coating thickness and neutral salt spray hours to ISO 9227.

Frequently Asked Questions

What clearance and tapping drill suit M5?

Use a 5.5 mm clearance hole (ISO 273 medium) for through-fixing, or a 4.2 mm tapping drill for a coarse M5 thread.

Is M5 Flow-Drilling Screws suitable for electronics and small mechanisms?

M5 Flow-Drilling Screws is in the micro range and is widely used in electronics, instrument enclosures and small precision mechanisms. Watch the over-torque margin — micro joints strip easily.

What's the typical proof load behavior of M5 class 8.8?

Micro-thread joints are sensitive to plastic deformation in the first turn under load — use a torque-limiting driver and check the bearing surface deformation on softer mating materials.

What is the coarse-thread pitch of M5 for Flow-Drilling Screws?

For M5 the standard coarse pitch is 0.8 mm — this is the value used for Flow-Drilling Screws.

How do I request a quotation?

Use the technical drawing on this page to pick the exact configuration, then submit it with the quote form. We respond within one business day.

Related Pages

View the full Flow-Drilling Screws page (https://engineeringhardware.com/fastener/flow-drilling-screws/)

More Flow-Drilling Screws Guides

- **M3 Flow-Drilling Screws (https://engineeringhardware.com/guide/size/m3-flow-drilling-screws/)**
- **M3.5 Flow-Drilling Screws (https://engineeringhardware.com/guide/size/m3-5-flow-drilling-screws/)**
- **M4 Flow-Drilling Screws (https://engineeringhardware.com/guide/size/m4-flow-drilling-screws/)**
- **M6 Flow-Drilling Screws (https://engineeringhardware.com/guide/size/m6-flow-drilling-screws/)**