

No.1
in screw
fastening
failure
improvement*

*The results are based on our own research.



Patented HIOS screw

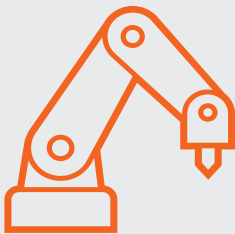
INTRTORQUE PAT.



SUSTAINABLE
DEVELOPMENT
GOALS



EcoPro Awards

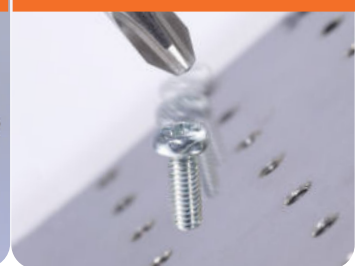


Automation quality depends
on “screw itself”.
Toward automation that
never fails or stops.

Cracked (foreign matter mixing)
and worn bit



Falling of screws



Workpiece misalignment



Screw tipping/Traverse
fastening/Slanting



HIOS PAT. Screw General Catalog 23B
Patented HIOS screw

innovative technology
for Turning The World

HIOS®

Patented HIOS screw

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<https://hios.com>

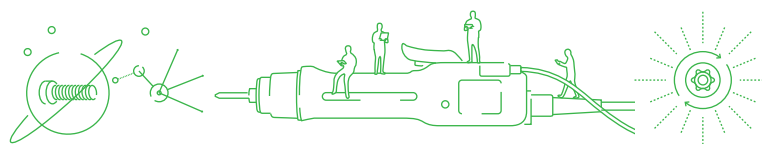
We are committed to developing innovative screw fastening solutions that build a sustainable future.

Since our establishment in 1970, we have been engaged in comprehensive research and development of products related to screw fastening and have been devoted to solve screw fastening failures. The HIOS PAT. Screw is an innovative product designed to solve various shortcomings of screws. This screw focuses not only on stable and reliable screw fastening by humans and robots, but also on loosening, and can be easily disassembled and reassembled for recycling. Through our screws, we pursue achievement of sustainable development goals and disseminate their value widely.



HIOS fastening system won the EcoPro Award.

Our "Screw Fastening System" won the "Encouragement Award" at the "5th EcoPro Awards" (sponsored by the Ministry of Finance, Ministry of Agriculture, Forestry and Fisheries, Ministry of Economy, Trade and Industry, Ministry of Land, Infrastructure, Transport and Tourism, and Ministry of the Environment) organized by the Sustainable Management Promotion Organization (SuMPO).

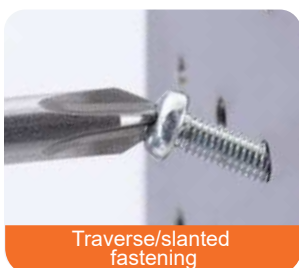
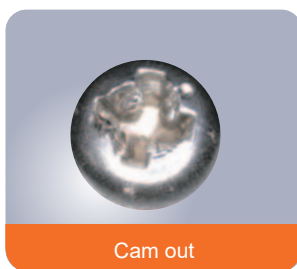
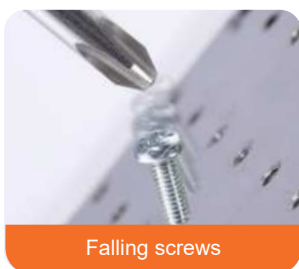


HIOS PAT. Screws lead to zero failure in screw fastening without limit and realize automation that never stops.



No.1 in screw fastening failure improvement*

Reliable screws that support automation. As the partner of choice in the industrial world, we solve a variety of problems.



* The results are based on our own research.

Features of HIOS PAT. Screws

Patented HIOS screw



High quality
Quality with high reliability and stability



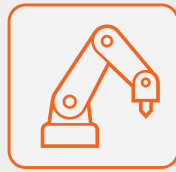
Recommended for beginners
Designed for ease of use by beginners



Short-time breakdown prevention
Prevents short stops due to faulty screw fastening



Screw tipping prevention
Resistant to misalignment of screw holes and preventing screw tipping



Automation recommended
Supports difficult traverse and diagonal fastening



No thrust required
No need for thrust with cam out prevention

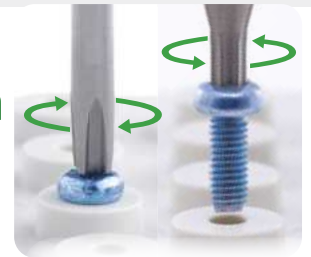


High durability bit
High durability with low bit wear



Burr prevention
Prevents burrs due to cam out

The 3Rs are promoted with a new design that ensures “fastening” and “loosening”.



Reduce

Reduction of waste generation

Reliable and stable screw fastening minimizes damage to products and components and reduces losses.

Reuse

Reuse

Easy to maintain and repair, promotes product reuse, and supports efficient use of resources.

Recycle

Recycling

Easy product disassembly and efficient separation of parts and materials facilitate recycling.

HIOS PAT. Screws can be unfastened even if they are rusted



HIOS PAT. Screws



Intrtorque®

Screw that promotes automation (wobble prevention)

6-7



Totupla® Screw

Screw that promotes automation (cam out prevention)

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HIOS Clover®

Tamper-proof screw

9

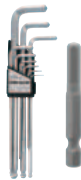
HIOS PAT. Tools



Chucking bit for Totupla® Screws

For screws that cannot be magnetized or air-suctioned

10



INTR-HEX® (Hex Bit/Hex Wrench)

Tools designed for ultimate work speed and functionality

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Mirror Bit®

Mirror-finish bits to prevent scratches and damage

12



Spike Bit® (for M1.2-M2.0)

Rescues difficult-to-remove precision screws

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Screw Specification Charts

Intrtorque® Specifications

- Pan head/Flat head (P.14) ● Truss/Bind (P.15) ● Ultra-low head TY/Slim head TY (P.16)
- Flange bolt/Micro TY (P.17) ● Bit list (P.18)

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Totupla® Screw Specifications

- Pan head/Flat head (P.19) ● Truss/Bind (P.20) ● Ultra-low head (P.21) ● Bit list (P.22)

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HIOS Clover® Specifications

- Pan head/Flat head (P.23) ● Truss/Bind (P.24)

23-24

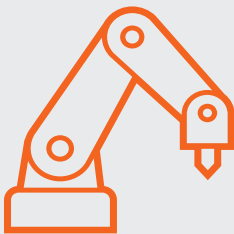
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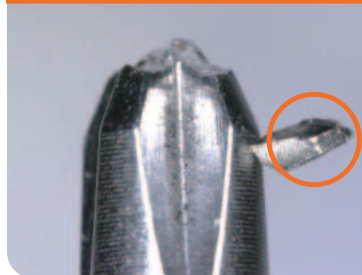
Patented HIOS screw

INTRTORQUE^{PAT.}



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Cracked (foreign matter mixing)
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Falling of screws



Workpiece misalignment



Screw tipping/Traverse
fastening/Slanting



Automation
Alliance
Partners



Robot
manufacturers

Robot trading
companies

System
Integrators

Screw trading
companies

We work with robot manufacturers, robot trading companies, Slers, and screw trading companies to solve your problems. If you encounter challenges or have any questions about screw fastening or automation, please feel free to contact us

Access to details:





INTRTORQUE® PAT.

Screw that promotes automation (wobble prevention)



EcoPro Awards



1. No thrust is required, reducing energy loss

Elimination of cam out risks and efficient fastening reduce energy consumption.

2. Success of difficult screw fastening in automation

Provides innovative automation that supports reliable screw fastening even for traverse and diagonal positions and for workpieces with the misaligned holes.

3. Digitally schedules bit replacement

Unparalleled bit durability enables accurate prediction of bit replacement timing.

4. Reduces screw fastening failures to improve cost efficiency

Reliable fastening minimizes screw fastening errors. Significantly reduces operating cost in the long run.

5. Facilitates recycle

Products are easy to be disassembled and parts and materials can be efficiently separated.

6. Contributes to recycle-oriented society

Supports a sustainable product cycle with reliable fastening and loosening.

Comparison chart

Comparison item	Fitting	Wobble prevention	Cam out prevention (no thrust)	Burr prevention	Durability of bit (frequency of replacement)	Traverse/diagonal fastening	Part alignment	Recyclability	Torque transmission	Workability	Automation suitability
Intrtorque® PAT.	◎	◎	○	○	◎	◎	◎	○	○	◎	◎
Hexalobular	△	×	○	×	△	×	×	○	○	×	×

(Based on internal evaluation)

Shape comparison

	Hexalobular	Intrtorque® PAT.
Bit tip shape	<p>Plane shape</p>	<p>New design Lock Guide</p>
Fitting process	<p>When fitting, the bit slips in the screw head (recess), making it difficult to fit, and the screw head is easily damaged.</p>	<p>When rotational force is applied, the bit automatically slides toward the head (recess) for quick fitting.</p>
Stability	<p>Wobbles when fitting.</p>	<p>Maintains stability by preventing wobble during fitting.</p>



Totupla[®] Screw PAT.

Screw that promotes automation (cam out prevention)



EcoPro Awards



1. High fitting performance prevents cam out

Eliminates the risk of stripping screw hole to reduce operator stress.

2. Compatible with cross head screws

Cross bits can be used for maintenance and recycling.

3. Quick fastening without loss

Prevents screws from falling out of bits and bits from slipping off screw heads.

4. High durability bit

Increased fitting area reduces bit wear and frequency of bit replacement.

5. Highly stable and suitable with automation

Superior fitting accuracy prevents wobble to ensure reliable screw fastening.

6. Thrust-free and damage-free

Fastening is possible only by rotational force, preventing damage to the workpiece.

Comparison chart

Comparison	Fitting	Wobble prevention	Cam out prevention (no thrust)	Burr prevention	Durability of bit (frequency of replacement)	Traverse/diagonal fastening	Part alignment	Recyclability	Torque transmission	Workability	Automation suitability
Totupla [®] Screw PAT.	○	◎	◎	○	◎	◎	◎	○	◎	◎	◎
Cross head screw	△	△	×	×	×	×	×	△	△	△	△

(Based on internal evaluation)

Shape comparison

	Cross head screw	Totupla [®] Screw PAT.
Bit tip shape	<p>Tapered shape</p>	<p>New design Straight shape</p> <p>Fitting area (about twice of conventional screw)</p>
Drivability	<p>The bit tends to float (cam out), so the screw must be fastened by applying thrust from above.</p>	<p>The bit doesn't float, so the screw can be fastened by rotational force alone.</p>
Stability	<p>Wobbles when fitting.</p>	<p>Maintains stability by preventing wobble during fitting.</p>



HIOS Clover[®] PAT.

Tamper-proof screw



EcoPro Awards



1. High fitting performance prevents cam out

Eliminates the risk of screw hole stripping to reduce operator stress.

2. No thrust required

Stable fastening without bit lifting due to cam out.

3. Bit tip guide enables quick fitting

Unique sloped guide that quickly guides the bit to the center of the screw.

4. High durability bit

Increased fitting area reduces bit wear and the frequency of bit replacement.

5. Highly stable and suitable with automation

Superior fitting accuracy prevents wobble to ensure reliable screw fastening.

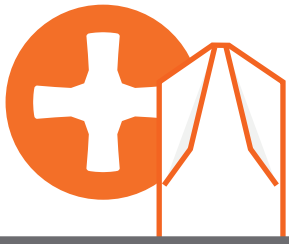
Comparison chart

Comparison item	Fitting	Wobble prevention	Cam out prevention (no thrust)	Burr prevention	Durability of bit (frequency of replacement)	Traverse/diagonal fastening	Part alignment	Recyclability	Torque transmission	Workability	Automation suitability
HIOS Clover [®] PAT.	○	◎	◎	○	◎	◎	◎	○	◎	◎	◎
Competitor's product	△	△	×	×	×	×	×	△	△	△	△

(Based on internal evaluation)

Shape comparison

	Competitor's product	HIOS Clover [®] PAT.
Bit tip shape	<p>Tapered shape</p>	<p>New design Straight shape</p> <p>Fitting area (about x2 of conventional screw)</p>
Driveability	<p>The bit tends to float, so the screw must be fastened by applying thrust from above.</p>	<p>The bit doesn't float, so the screw can be fastened by rotational force alone.</p>
Stability	<p>Wobbles when fitting.</p>	<p>Maintains stability by preventing wobble during fitting.</p>



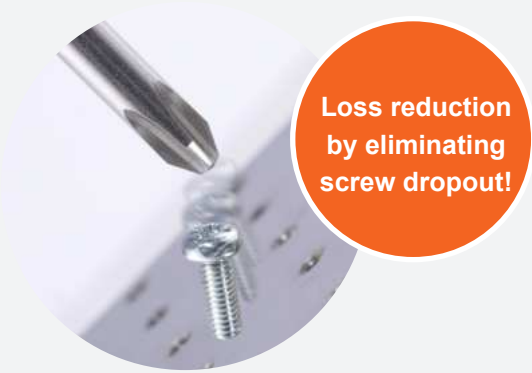
Chucking Bit PAT.

For screws that cannot be magnetized/air-suctioned

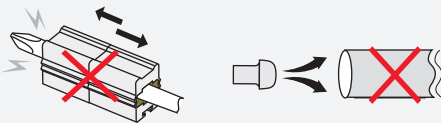
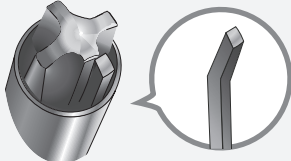
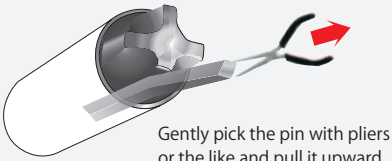
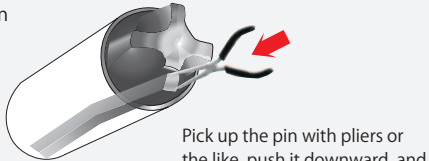
For Totupla® Screws

For fastening non-ferrous screws such as ones made of stainless steel and brass that cannot be magnetically sucked or screws in places where air suction is not allowed: this bit quickly picks up screws to greatly improve work efficiency.

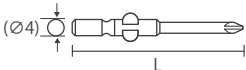
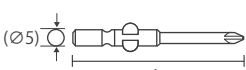
- The screw doesn't fall off the bit and is guided to the fastening position. This improves work efficiency.
- Ideal for deep hole fastening, traverse and diagonal fastening.
- Supported screw sizes: M2.0 to 4.0. (Please consult us for other sizes.)

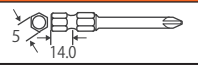
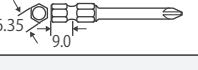


Specifications

Applications	Screws that cannot be magnetized or air-suctioned  <ul style="list-style-type: none"> ● Non-metal: Steel, stainless steel, etc. ● Non-ferrous metals: aluminum, copper, titanium, etc. 	
Mechanism of the chucking pin	Make a slit in one of the four blades to make a chucking pin that is like a leaf spring. Then make use of it to reliably pick up screws.	 <p>Regular replacement of chucking pin We recommend to regularly replace the pin to maintain chucking force longer. Replacement chucking pins can be purchased as parts.</p>
How to replace the pin	<p>Removal</p>  <p>Gently pick the pin with pliers or the like and pull it upward.</p>	<p>Insertion</p>  <p>Pick up the pin with pliers or the like, push it downward, and insert it firmly to the back.</p>

Specifications

Bit drive	HIOS shank type	Screw dia. (φ)	Total length (mm)	Part No.
H4		2.0	60	THSC4-20-60
			80	THSC4-20-80
		2.6	60	THSC4-26-60
			80	THSC4-26-80
3.0		60	THSC4-30-60	
		80	THSC4-30-80	
H5		3.0	60	THSC5-30-60
			80	THSC5-30-80
		4.0	60	THSC5-40-60
			80	THSC5-40-80

Bit drive	Hex Shank type	Screw dia. (φ)	Total length (mm)	Part No.
5HEX		3.0	75	THSC5X-30-75
		4.0	75	THSC5X-40-75
1/4HEX		3.0	75	THSC6XW-30-75
		4.0	75	THSC6XW-40-75



INTR-HEX[®] PAT.

Tools designed for speedy work and functionality

Hex socket head bit

By attaching a conical guide to the tip of the bit, it quickly and reliably fits with a screw, and will not strip the screw head hole. Even beginners can perform high-quality fastening with these tools.

- Reliable stability prevents wobble and makes work more efficient.
- Compatibility with commercially available hex screws allows use of the bit alone.
- The ball point attached enables traversal and temporary fastening. (L-shaped wrench type)
- The easy-to-grip and easy-to-apply-force design realizes outstanding stability. (L-shaped wrench type)

30% improvement in work efficiency

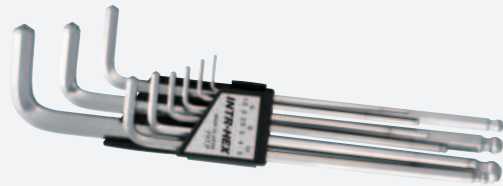
Hex bit



Specifications

Shank shape	Across flats	Total length	Part No.
1/4HEX 	3.0	70	IH6X-30-70
	4.0	70	IH6X-40-70
	4.0	100	IH6X-40-100
	4.0	120	IH6X-40-120
	4.0	150	IH6X-40-150
	5.0	50	IH6X-50-50
	5.0	70	IH6X-50-70
	5.0	100	IH6X-50-100
	5.0	120	IH6X-50-120
	5.0	150	IH6X-50-150
	5.0	200	IH6X-50-200
	6.0	70	IH6X-60-70
	6.0	100	IH6X-60-100
	6.0	120	IH6X-60-120
	6.0	150	IH6X-60-150
	8.0	70	IH6X-80-70
	8.0	100	IH6X-80-100

L-shaped wrench type (9 pcs per set)

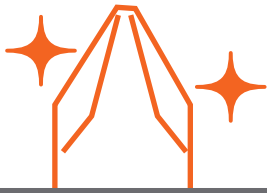


Specifications

Across flats	L (mm)	l (mm)	Hexagon socket head cap screw	Hexagon socket head cap bolt
1.5	90	16	M3	M1.6/M2
2	100	17	M4	M2.5
2.5	112	18	M5	M3
3	127	20	M6	M4
4	150	25	M8	M5
5	165	28	M10	M6
6	185	32	M12	M8
8	200	36	M16	M10
10	225	40	M20	M12
Material	Highest grade special alloy steel			

Shape comparison

	Competitor's product	INTR-HEX [®] PAT.
Fitting process	<p>Plane contact</p> <p>Plane shape</p> <p>When fitting, the bit slips in the screw head (recess), making it difficult to fit, and the screw head is easily damaged.</p>	<p>Linear contact</p> <p>New design 3D shape (conical guide)</p> <p>When rotational force is applied, the bit automatically slides toward the head (recess) for speedy fitting.</p>
		<p>L-shaped wrench type</p> <p>Fastening can be done even in tight spaces</p> <p>Can be rotated at an angle of approx. 25°</p>



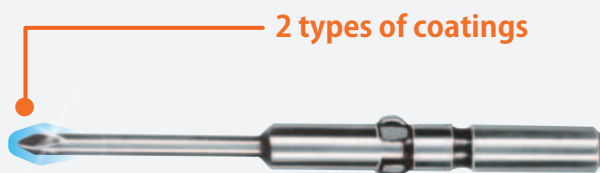
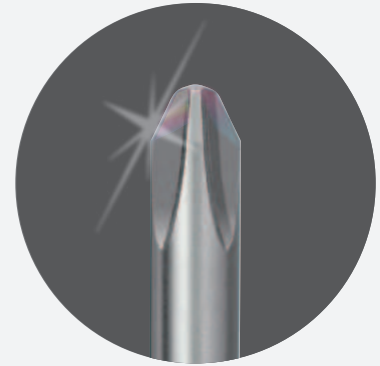
Mirror Bit®

Mirror finish to prevent scratches and damage

Compatible with all bits

Mirror finish on the tip of the bit and smooth edges reduce occurrence of peeling of screw plating, scratches, color peeling of colored screws and decorative screws during fastening. Ideal for exterior fastening.

- Smooth contact surface with the screw prevents scratching or damage to the screw head.
- Reduces contamination that occurs when using screw feeders.
- High functionality at a low price.



Single

Single coating
(mirror finish)

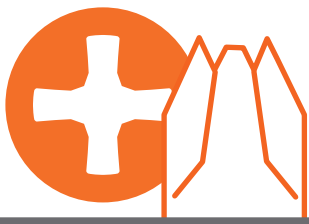
Double

Double coating for even better effect
(mirror finish + special coating)

Specifications

Screw diameter	Shank shape (screwdriver slot)		Blade	Tip dia.	Total length	Part No.
M1.4 - M2.6	For HIOS Shank		#0	φ 1.5	40mm	BP4015040M
			#0	φ 1.7	40mm	BP4017040M
			#0	φ 2.0	40mm	BP4020040M
			#0	φ 1.5	60mm	BP4015060M
			#0	φ 1.7	60mm	BP4017060M
			#0	φ 2.0	60mm	BP4020060M

It is also possible to convert bits currently in use to mirror bits. Please consult with us.



Spike Bit®

Rescuing difficult-to-remove precision screws

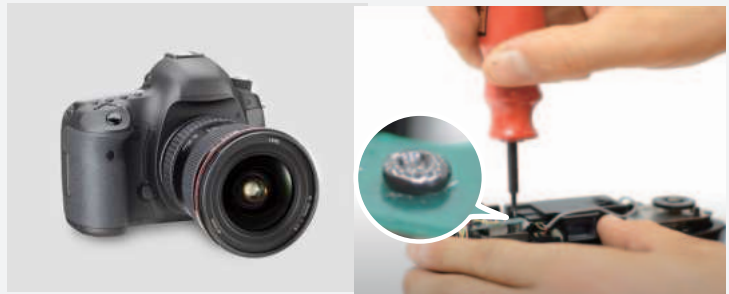
For cross head screws

Do you have a screw problem where the screw head hole is completely stripped and cannot be removed?

Spike Bit is a special tool developed to solve such problem.

It ensures reliable screw removal and dramatically improves work efficiency.

- The spike-shaped tip bites into the cross slot for reliable screw removal.
- Ideal for removing screws from precision equipment such as optical instruments, measuring instruments, and cameras.
- It is also possible to remove screws with screw locks or adhesives.
- Supports screws from M1.2 to M2.0.



Mechanism of Spike Bit			<p>Sharply clawed (spike-shaped) Four sharp spikes bite into the stripped cross hole for easy hooking.</p>
How it workd			<p>Find the hooking position (concavity) by twisting and lightly pushing down the bit to align it with the stripped cross hole. After confirming the catch position (concavity), remove the screw by turning the bit while pushing it vertically.</p>

Specifications

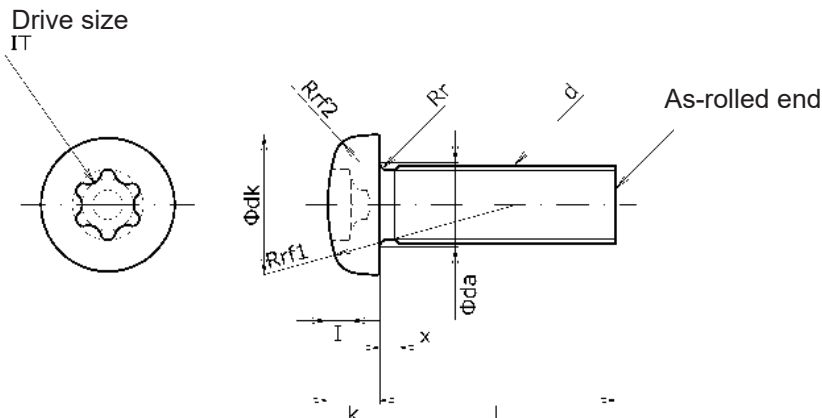
Supported screw	Grip color	Part No. (single color, 1 pc)	Part No. (3 colors, 3 pcs)
M1.2-M1.4	Yellow	SPK-1214	SPK-SET01
M1.4-M1.7	Blue	SPK-1417	
M1.7-M2.0	Red	SPK-1720	



Patented HIOS screw

INTRTORQUE PAT. Intrtorque

Pan head small screws M2-M8



Unit: mm

Nominal diameter d	Pitch P	Drive size IT	d k		k		rf1	rf2	I	r	da
			Nominal dimension	Tolerance	Nominal dimension	Tolerance	approx.	approx.	Min.	Min.	Max.
M 2	0.4	6	3.5	0	1.3	± 0.1	4.5	0.6	0.5	0.1	2.6
M 2.5	0.45	8	4.5	-0.4	1.7		6	0.8	0.7	0.1	3.1
M 3	0.5	10	5.5	0	2	± 0.15	7	1.0	0.85	0.1	3.6
M 4	0.7	20	7	-0.5	2.6		9	1.3	1.2	0.2	4.7
M 5	0.8	25	9	0	3.3		12	1.6	1.4	0.2	5.7
M 6	1	30	10.5	0	3.9	± 0.2	14	1.9	1.65	0.25	6.8
M 8	1.25	40	14	0	5.2		18	2.6	2.35	0.4	9.2

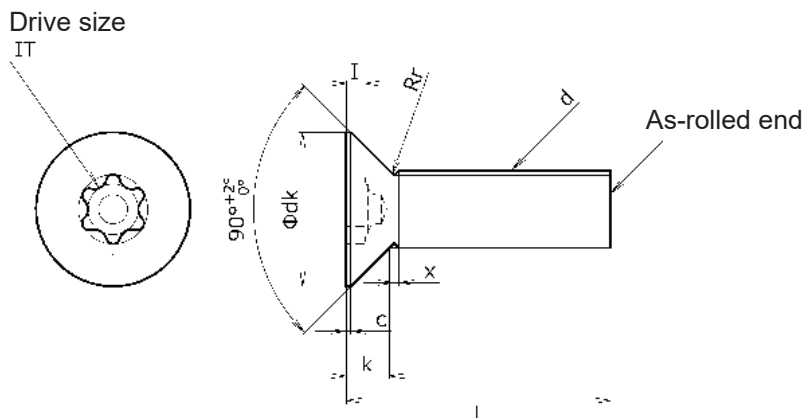
x = approx. 2 threads



Patented HIOS screw

INTRTORQUE PAT. Intrtorque

Flat head small screws M2-M8



Unit: mm

Nominal diameter d	Pitch P	Drive size IT	d k		k		c	I	r
			Nominal dimension	Tolerance	Nominal dimension	Tolerance	approx.	Min.	approx.
M 2	0.4	6	4	0	1.2	0	0.2	0.5	0.2
M 2.5	0.45	8	5	-0.4	1.45	-0.2	0.2	0.65	0.25
M 3	0.5	10	6	0	1.75	0	0.25	0.7	0.3
M 4	0.7	20	8	-0.5	2.3	-0.3	0.3	1.05	0.4
M 5	0.8	25	10	0	2.8		0.3	1.4	0.5
M 6	1	30	12	0	3.4	0	0.4	1.65	0.6
M 8	1.25	40	16	0	4.4	-0.4	0.4	2.35	0.8

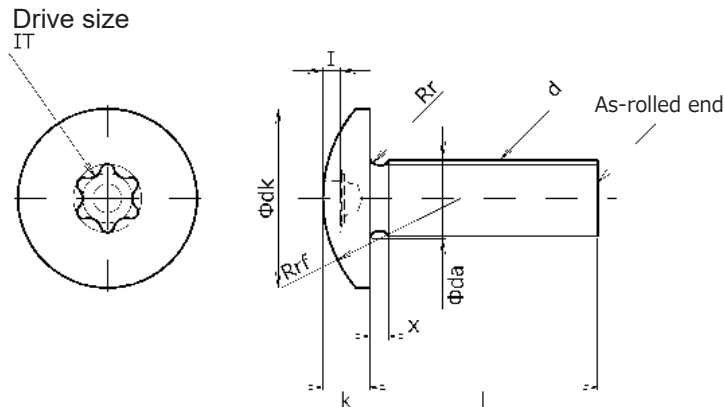
x = approx. 2 threads



Patented HIOS screw
INTRTORQUE PAT.

Intrtorque

Truss small screws M2-M8



Unit: mm

Nominal diameter d	Pitch P	Drive size IT	d k		k		r f	I	r	da
			Nominal dimension	Tolerance	Nominal dimension	Tolerance	approx.	Min.	Min.	Max.
M 2	0.4	6	4.5	0	1.2	±0.1	3	0.5	0.1	2.6
M 2.5	0.45	8	5.7	-0.4	1.5		3.7	0.7	0.1	3.1
M 3	0.5	10	6.9	0	1.9	±0.15	4.6	0.85	0.1	3.6
M 4	0.7	20	9.4	-0.5	2.5		6.1	1.2	0.2	4.7
M 5	0.8	25	11.8	0	3.1		7.7	1.4	0.2	5.7
M 6	1	30	14	0	3.7	±0.2	9.1	1.65	0.25	6.8
M 8	1.25	40	17.8	0	4.8		11.7	2.35	0.4	9.2
				-0.8						

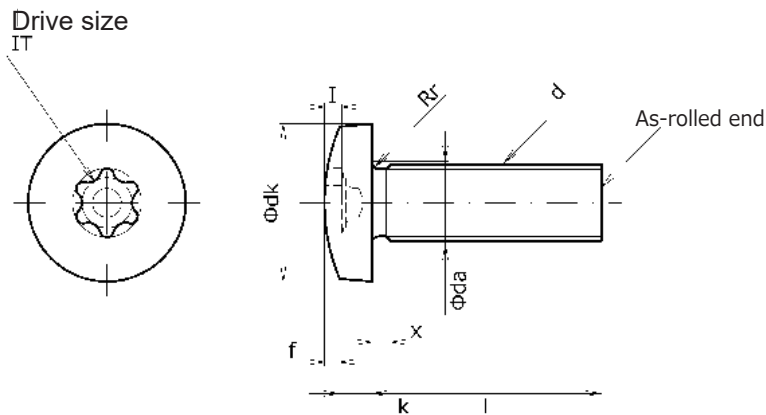
x = approx. 2 threads



Patented HIOS screw
INTRTORQUE PAT.

Intrtorque

Bind small screws M2-M8



Unit: mm

d	P	IT	Nominal dimension	Tolerance	approx.	Nominal dimension	Tolerance	Nominal dimension	Tolerance	Min.	Min.	Max.
M 2	0.4	6	4.3	0	0.85	0.35	±0.1	1.2	±0.15	0.5	0.1	2.6
M 2.5	0.45	8	5.3	-0.4	1	0.5		1.5		0.7	0.1	3.1
M 3	0.5	10	6.3	0	1.3	0.6		1.9		0.85	0.1	3.6
M 4	0.7	20	8.3	-0.5	1.7	0.8	±0.15	2.5	±0.2	1.2	0.2	4.7
M 5	0.8	25	10.3	0	2.1	1		3.1		1.4	0.2	5.7
M 6	1	30	12.4	0	2.4	1.3		3.7		1.65	0.25	6.8
M 8	1.25	40	16.4	0	3.1	1.7	±0.2	4.8	±0.3	2.35	0.4	9.2
				-0.8								

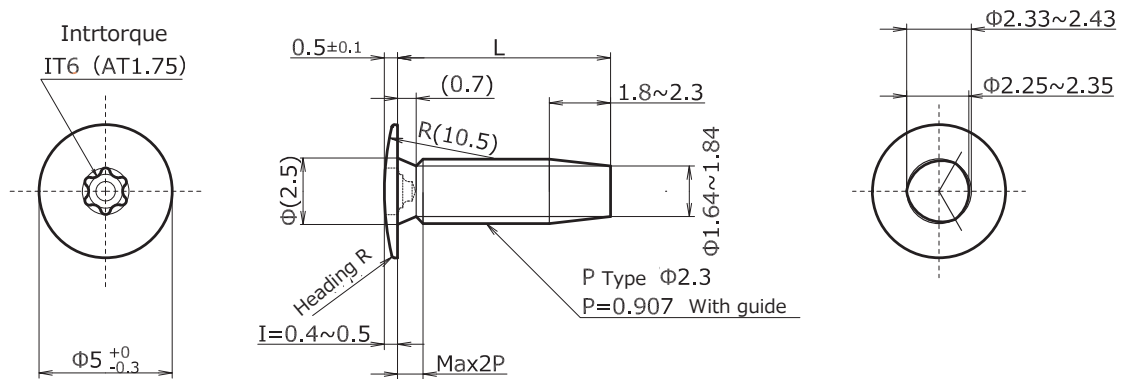
x = approx. 2 threads



Patented HIOS screw
INTRTORQUE PAT.

Intrtorque

Ultra-low head P type ϕ 2.3



Original specifications

Unit: mm

Nominal diameter d	D		H		L		I	AT	Dimension under head		Material	Surface treatment	Intrtorque bit part No.
	Nominal dimension	Tolerance	Nominal dimension	Tolerance	Nominal dimension	Tolerance			a	ϕE			
2.3	5.0	0.1/-0.3	0.5	± 0.1	5.0~10.0	0/-0.8	0.4~0.5	(1.75)	(0.7)	(2.5)	Fe	Trivalent chromate, etc.	ITH4-IT6S



Patented HIOS screw
INTRTORQUE PAT.

Intrtorque

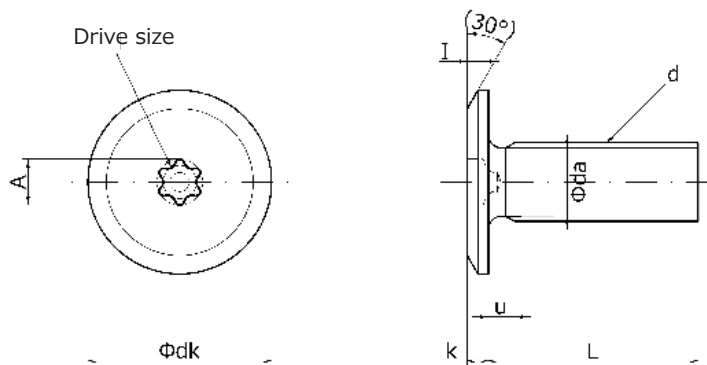
Slim head small screws M3/M4

[Specifications]

Material: SWCH

Intensity: 4.8 equivalent

Surface treatment: Trivalent white



Unit: mm

Nominal diameter d	Pitch P	Drive size	A	da	dk		k		I		u
			(Ref.)	Max	Nominal dimension	Tolerance	Nominal dimension	Tolerance	Max	Min	Max
M 3	0.5	IT6	1.75	3.6	7.0	+0	0.8	± 0.1	0.5	0.4	1.0
M 4	0.7	IT8	2.39	4.7	8.0	-0.5	0.9		0.7	0.6	1.4



Patented HIOS screw
INTRTORQUE PAT.

Intrtorque

Flange bolts M3-M8

Screw Specification Chart
Intrtorque

Screw Specification Chart
Totupla Screw

Screw Specification Chart
HIOS Clover

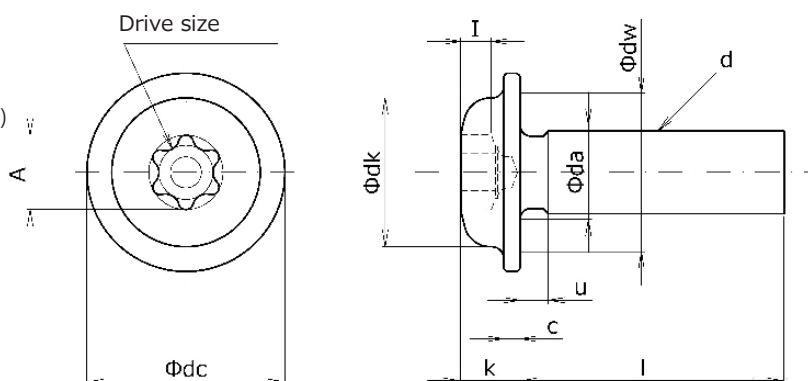
[Specifications]

Material: SCM435

Hardness: HRC32-39

Surface treatment: Black oxide film (plating available)

The end face of the flange outside diameter may be a natural shape by heading



Unit: mm

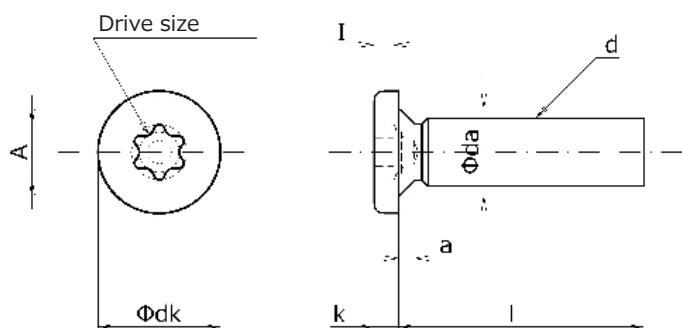
Nominal diameter d	Pitch	Drive size	A		dc		dk		k		c		da	u	I		dw Seating planar section Min
			Ref.	Ref. dimension	Tolerance	Ref. dimension	Tolerance	Ref. dimension	Tolerance	Ref. dimension	Tolerance	Ref.			Tolerance	Max	
M 3	0.5	IT10	2.82	8	+0 -0.5	5.5	+0 -0.5	2.2	+0 -0.2	0.7	±0.15	3.6	1	1.05	0.7	6.4	
M 4	0.7	IT20	3.94	10		7		2.9	+0 -0.3	0.8		4.7	1.4	1.4	1.05	8	
M 5	0.8	IT25	4.52	12	+0 -0.6	9	+0 -0.6	3.6		1		5.7	1.6	1.6	1.25	9.6	
M 6	1.0	IT30	5.61	14		10.5	+0 -0.7	4.3	+0 -0.4	1.2	±0.2	6.8	2	1.9	1.5	11.2	
M 8	1.25	IT40	6.76	18	+0 -0.7	14	+0 -0.8	5.6		1.4		9.2	2.5	2.6	2.2	14.4	



Patented HIOS screw
INTRTORQUE PAT.

Intrtorque

Micro Intrtorque small screws M1.4-M1.7



Unit: mm

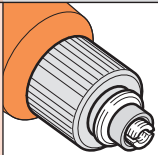
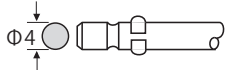
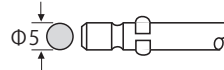
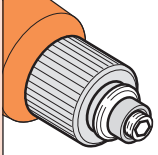
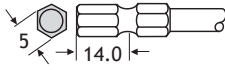

Nominal diameter d	Pitch	Drive size	A		Φdk		k		Φda	a	I
			approx.	Nominal dimension	Tolerance	Nominal dimension	Tolerance	approx.	approx.	Min	
1.4	0.3	IT 3	1.19	2.5	+0.05 -0.1	0.5	+0.1 -0	1.8	0.45	0.35	
1.7	0.35	IT4	1.35	3	+0.05 -0.1	0.6		2.1	0.5	0.4	



About bits

HIOS shank shape (H4 or H5) and hexagonal shank shape (5HEX or 1/4HEX) bit drives are available.

Unit:mm

Bit drive	Type	
	H4	H5
HIOS shank shape (H4 or H5) 		
Hexagonal shank shape (5HEX or 1/4HEX) 	5HEX (Commercially available) 	1/4HEX 

Shank shape (bit drive)	Drive size	Total length	Part No.
H4 For HIOS screwdrivers	3	60	ITH4-IT3S-60K-S20
		80	ITH4-IT3S-80K-S20
	4	60	ITH4-IT4S-60K-S20
		80	ITH4-IT4S-80K-S20
	6	60	ITH4-IT6S-60K-S20
		80	ITH4-IT6S-80K-S20
	7	60	ITH4-IT7S-60K-S20
		80	ITH4-IT7S-80K-S20
	8	60	ITH4-IT8S-60K-S20
		80	ITH4-IT8S-80K-S20
10	60	ITH4-IT10S-60K-S20	
	80	ITH4-IT10S-80K-S20	

H5 For HIOS screwdrivers	8	60	ITH5-IT8S-60K-S20
		80	ITH5-IT8S-80K-S20
	10	60	ITH5-IT10S-60K-S20
		80	ITH5-IT10S-80K-S20
	20	60	ITH5-IT20S-60K-S20
		80	ITH5-IT20S-80K-S20

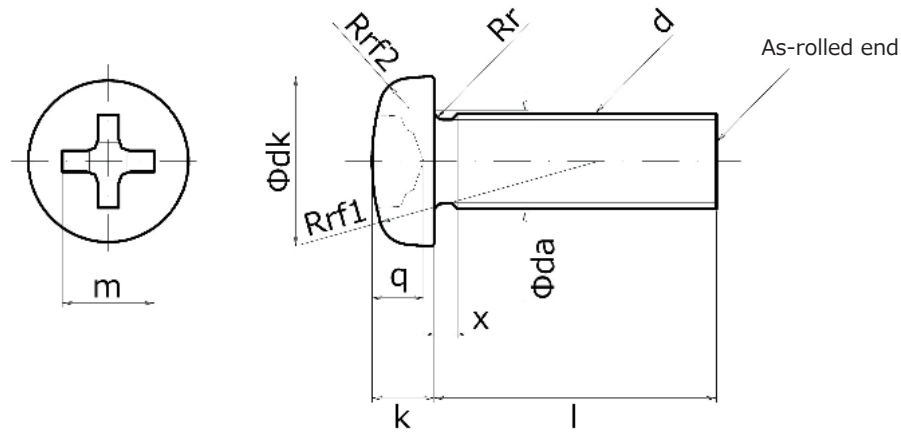
1/4HEX (6.35 mm across flats, hexagonal W-groove)	6	75	IT6XW-IT6S-75K-S20
	8	75	IT6XW-IT8S-75K-S20
	10	75	IT6XW-IT10S-75K-S20
	20	75	IT6XW-IT20S-75K-S20
	25	75	IT6XW-IT25S-75K-S20
	30	75	IT6XW-IT30S-75K-S20



Patented HIOS screw

TOTSUPLA PAT. Totupla Screw

Pan head small screws M2-M8



Unit: mm

Nominal diameter d	Pitch P	Totupla cross-hole No.	d k		k		rf1	rf2	m	q		r		da
			Nominal dimension	Tolerance	Nominal dimension	Tolerance	approx.	approx.	Ref.	Max.	Min.	Min.	Max.	
M 2	0.4	20	3.5	0	1.3	±0.1	4.5	0.6	2.2	1.01	0.60	0.1	2.6	
M 2.5	0.45	25	4.5	-0.4	1.7		6	0.8	2.6	1.42	1.00	0.1	3.1	
M 3	0.5	30	5.5	0	2	±0.15	7	1.0	3.6	1.43	0.86	0.1	3.6	
M 4	0.7	40	7	-0.5	2.6		9	1.3	4.2	2.03	1.45	0.2	4.7	
M 5	0.8	50	9	0	3.3		12	1.6	4.9	2.73	2.14	0.2	5.7	
M 6	1	60	10.5	0	3.9	±0.2	14	1.9	6.3	2.86	2.26	0.25	6.8	
				-0.7										

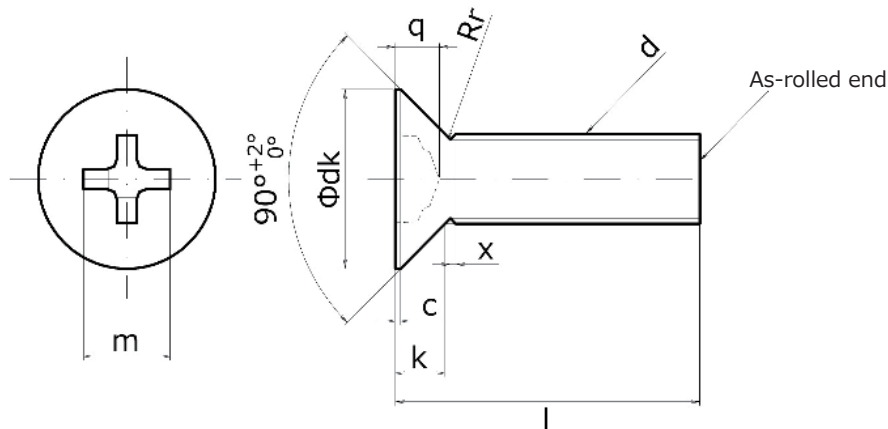
x = approx. 2 threads q = gauge sink depth



Patented HIOS screw

TOTSUPLA PAT. Totupla Screw

Truss small screws M2-M8



Unit: mm

Nominal diameter d	Pitch P	Totupla cross-head No.	d k		k		c	m	q		r
			Nominal dimension	Tolerance	Nominal dimension	Tolerance	approx.	Ref.	Max.	Min.	approx.
M 2	0.4	20	4	0	1.2	0	0.2	2.2	1.01	0.65	0.2
M 2.5	0.45	25	5	-0.4	1.45	-0.2	0.2	2.6	1.42	1.05	0.25
M 3	0.5	30	6	0	1.75	0	0.25	3.6	1.43	0.91	0.3
M 4	0.7	40	8	-0.5	2.3	-0.3	0.3	4.5	2.33	1.79	0.4
M 5	0.8	50	10	0	2.8		0.3	5.1	2.93	2.38	0.5
M 6	1	60	12	0	3.4	0	0.4	6.7	3.26	2.70	0.6
				-0.7		-0.4					

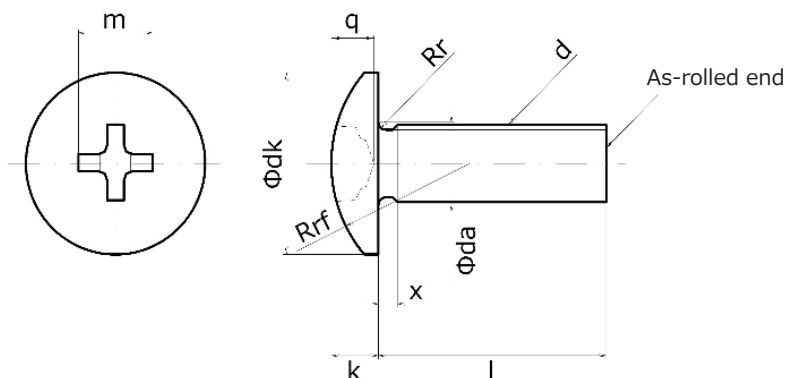
x = approx. 2 threads q = gauge sink depth



Patented HIOS screw

TOTSUPLA PAT. Totupla Screw

Truss small screws M2-M8



Unit: mm

Nominal diameter d	Pitch P	Totupla cross-head No.	d k		k		r f	m	q		r	da
			Nominal dimension	Tolerance	Nominal dimension	Tolerance	approx.	Ref.	Max.	Min.	Min.	Max.
M 2	0.4	20	4.5	0	1.2	±0.1	3	2.2	1.01	0.65	0.1	2.6
M 2.5	0.45	25	5.7	-0.4	1.5	±0.15	3.7	2.5	1.32	0.95	0.1	3.1
M 3	0.5	30	6.9	0	1.9		4.6	2.9	1.72	1.34	0.1	3.6
M 4	0.7	40	9.4	-0.5	2.5		6.1	4.3	2.13	1.60	0.2	4.7
M 5	0.8	50	11.8	0	3.1	±0.2	7.7	5.0	2.83	2.29	0.2	5.7
M 6	1	60	14	0	3.7		9.1	6.3	2.86	2.31	0.25	6.8
M 8	1.25	80	17.8	0	4.8	±0.2	11.7	7.8	4.36	3.78	0.4	9.2
				-0.8								

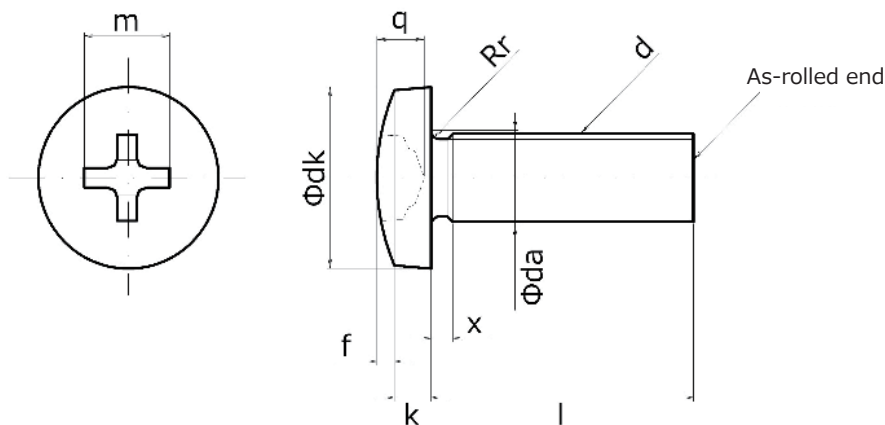
x = approx. 2 threads q = gauge sink depth



Patented HIOS screw

TOTSUPLA PAT. Totupla Screw

Bind small screws M2-M8



Unit: mm

Nominal diameter d	Pitch P	Totupla cross-head No.	d k		k	f		k+f		m	q		r	da
			Nominal dimension	Tolerance	approx.	Nominal dimension	Tolerance	Nominal dimension	Tolerance	Ref.	Max.	Min.	Min.	Max.
M 2	0.4	20	4.3	0	0.85	0.35	±0.1	1.2	±0.15	2.2	1.01	0.65	0.1	2.6
M 2.5	0.45	25	5.3	-0.4	1	0.5	±0.15	1.5	±0.2	2.5	1.32	0.95	0.1	3.1
M 3	0.5	30	6.3	0	1.3	0.6		1.9		3.7	1.53	1.01	0.1	3.6
M 4	0.7	40	8.3	-0.5	1.7	0.8		2.5		4.3	2.13	1.60	0.2	4.7
M 5	0.8	50	10.3	0	2.1	1	±0.2	3.1	±0.3	5.0	2.83	2.29	0.2	5.7
M 6	1	60	12.4	0	2.4	1.3		3.7		6.3	2.86	2.31	0.25	6.8
M 8	1.25	80	16.4	0	3.1	1.7	±0.2	4.8	7.8	4.36	3.78	0.4	9.2	
				-0.8										

x = approx. 2 threads q = gauge sink depth



Patented HIOS screw

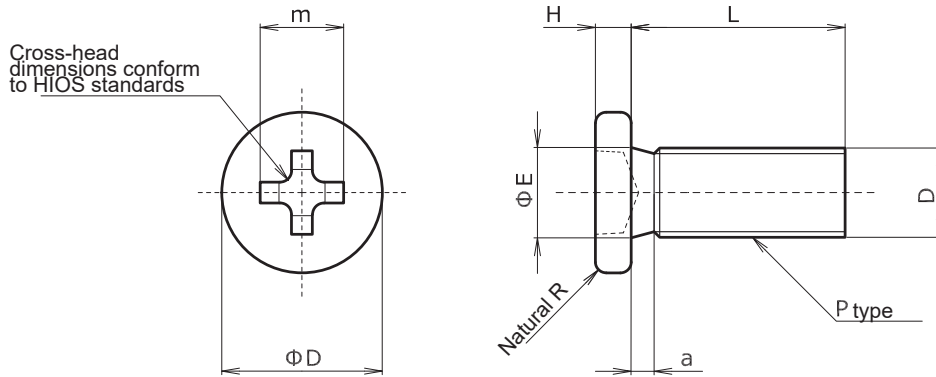
TOTSUPLA PAT. Totupla Screw

Ultra-low head small screws M2.3/M3.0

Screw Specification Chart
Intorque

Screw Specification Chart
Totupla Screw

Screw Specification Chart
HIOS Clover



■ Original specifications

Unit: mm

Nominal diameter d	D		H		L		q	m	Dimensions under head		Material	Surface treatment	Totupla Bit* Part No.
	Basic dimension	Tolerance	Basic dimension	Tolerance	Basic dimension	Tolerance			a	(ΦE)			
M 2.3	3.2	0	0.8	±0.1	4.0~10.0	-0.8	0.65~1.01	(2.2)	/	/	Fe	Trivalent chromate, etc.	THS4-20-60K
	4.0	-0.4	0.7						(0.5)	(2.5)			
	5.0		0.6						(0.5)	(2.5)			
M 3	5.5	0	0.7	±0.15	6.0~12.0				/	/			
	6.0	-0.5	0.7						/	/			

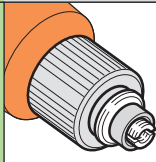
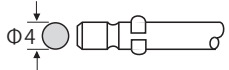
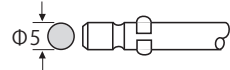
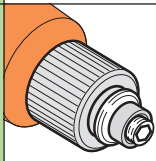


*Bit JIS#1 can also be used.



About bits

HIOS shank shape (H4 or H5) and hexagonal shank shape (5HEX or 1/4HEX) bit drives are available.

Unit:mm

Bit drive	Type	
	H4	H5
HIOS shank shape (H4 or H5) 		
Hexagonal shank shape (5HEX or 1/4HEX) 	5HEX (commercially available) 	1/4HEX 

Shank shape (bit drive)	Totupla cross-head No.	Total length	Part No.
H4 For HIOS screwdrivers	2.0	60	THS4-20-60
		80	THS4-20-80
	2.6	60	THS4-26-60
		80	THS4-26-80
	3.0	60	THS4-30-60
		80	THS4-30-80

H5 For HIOS screwdrivers	2.0	60	THS5-20-60
		80	THS5-20-80
	2.6	60	THS5-26-60
		80	THS5-26-80
	3.0	60	THS5-30-60
		80	THS5-30-80
	4.0	60	THS5-40-60
		80	THS5-40-80
	5.0	60	THS5-50-60

5HEX (Across flats 5mm)	2.0	75	THS5X-20-75
	2.6	75	THS5X-26-75
	3.0	75	THS5X-30-75
	4.0	75	THS5X-40-75
	5.0	75	THS5X-50-75

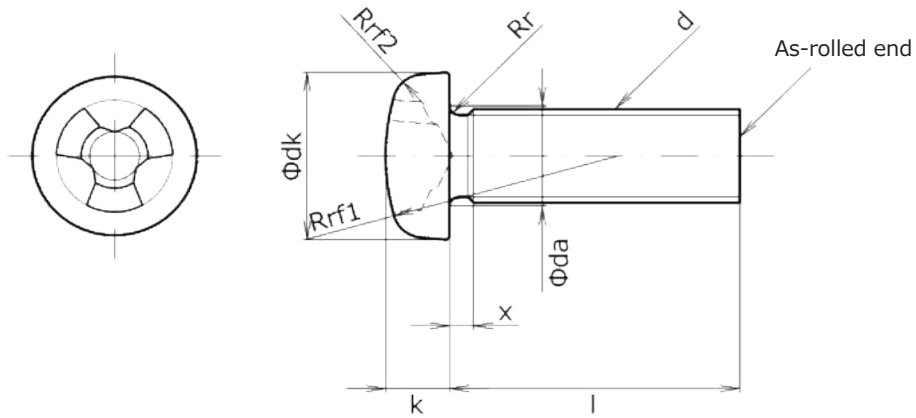
1/4HEX (Across flats 6.35mm)	2.0	75	THS6XW-20-75
	2.6	75	THS6XW-26-75
	3.0	75	THS6XW-30-75
	4.0	75	THS6XW-40-75
	5.0	75	THS6XW-50-75
	6.0	75	THS6XW-60-75



Patented HIOS screw
HIOS CLOVER PAT.

HIOS Clover

Pan head small screw M2-M8



Unit: mm

Nominal diameter d	Pitch P	Drive size	d k		k		rf1	rf2	r	da
			Nominal dimension	Tolerance	Nominal dimension	Tolerance	approx.	approx.	Min.	Max.
M 2	0.4	20	3.5	0	1.3	±0.1	4.5	0.6	0.1	2.6
M 2.5	0.45	25	4.5	-0.4	1.7		6	0.8	0.1	3.1
M 3	0.5	30	5.5	0	2	±0.15	7	1.0	0.1	3.6
M 4	0.7	40	7	-0.5	2.6		9	1.3	0.2	4.7
M 5	0.8	50	9	0	3.3		12	1.6	0.2	5.7
M 6	1	60	10.5	0	3.9	±0.2	14	1.9	0.25	6.8
M 8	1.25	80	14	0	5.2		18	2.6	0.4	9.2
				-0.8						

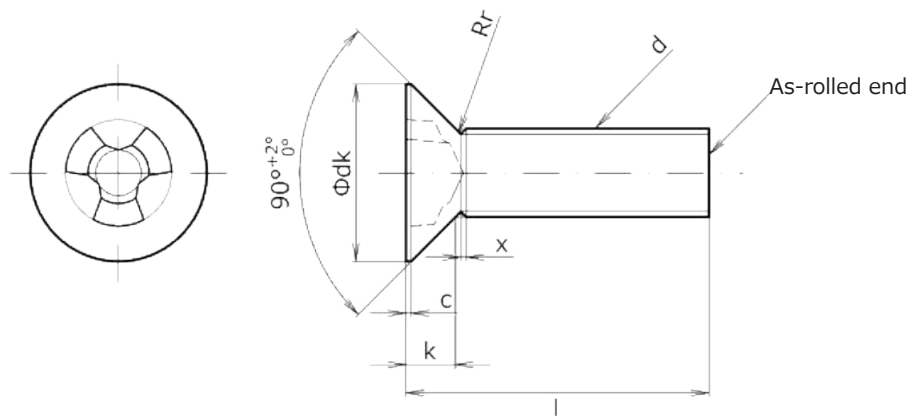
x = approx. 2 threads



Patented HIOS screw
HIOS CLOVER PAT.

HIOS Clover

Flat head small screws M2-M8



Unit: mm

Nominal diameter d	Pitch P	Drive size	d k		k		c	r
			Nominal dimension	Tolerance	Nominal dimension	Tolerance	approx.	Max.
M 2	0.4	20	4	0	1.2	0	0.2	0.2
M 2.5	0.45	25	5	-0.4	1.45	-0.2	0.2	0.25
M 3	0.5	30	6	0	1.75	0	0.25	0.3
M 4	0.7	40	8	-0.5	2.3	-0.3	0.3	0.4
M 5	0.8	50	10	0	2.8		0.3	0.5
M 6	1	60	12	0	3.4	0	0.4	0.6
M 8	1.25	80	16	0	4.4	-0.4	0.4	0.8
				-0.8				

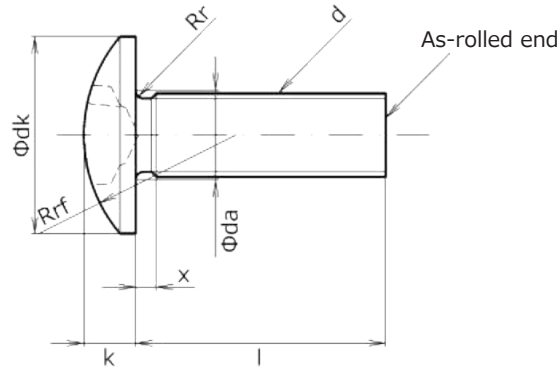
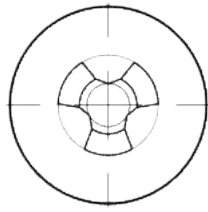
x = approx. 2 threads



Patented HIOS screw
HIOS CLOVER PAT.

HIOS Clover

Truss small screws M2-M8



Unit: mm

Nominal diameter d	Pitch P	Drive size	d k		k		r f	r	da
			Nominal dimension	Tolerance	Nominal dimension	Tolerance	approx.	Min.	Max.
M 2	0.4	20	4.5	0	1.2	±0.1	3	0.1	2.6
M 2.5	0.45	25	5.7	-0.4	1.5		3.7	0.1	3.1
M 3	0.5	30	6.9	0	1.9	±0.15	4.6	0.1	3.6
M 4	0.7	40	9.4	-0.5	2.5		6.1	0.2	4.7
M 5	0.8	50	11.8	0	3.1		7.7	0.2	5.7
M 6	1	60	14	0	3.7	±0.2	9.1	0.25	6.8
M 8	1.25	80	17.8	0	4.8		11.7	0.4	9.2

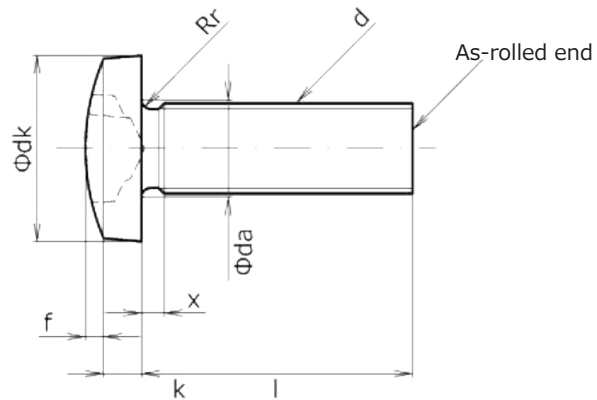
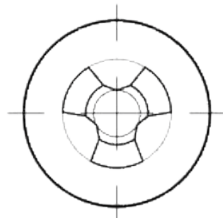
x = approx. 2 threads



Patented HIOS screw
HIOS CLOVER PAT.

HIOS Clover

Bind small screws M2-M8



Unit: mm

Nominal diameter d	Pitch P	Drive size	d k		k	f		k+f		r	da
			Nominal dimension	Tolerance	approx.	Nominal dimension	Tolerance	Nominal dimension	Tolerance	Min.	Max.
M 2	0.4	20	4.3	0	0.85	0.35	±0.1	1.2	±0.15	0.1	2.6
M 2.5	0.45	25	5.3	-0.4	1.0	0.5		1.5		0.1	3.1
M 3	0.5	30	6.3	0	1.3	0.6		1.9		0.1	3.6
M 4	0.7	40	8.3	-0.5	1.7	0.8	±0.15	2.5	±0.2	0.2	4.7
M 5	0.8	50	10.3	0	2.1	1		3.1		0.2	5.7
M 6	1	60	12.4	0	2.4	1.3		3.7		0.25	6.8
M 8	1.25	80	16.4	0	3.1	1.7	±0.2	4.8	±0.3	0.4	9.2

x = approx. 2 threads

No.1
in screw
fastening
failure
improvement*

Automation
Alliance Partners

*The results are based on our own research



There are many concerns about the introduction of automated screw fastening. So, let us help you. We will solve your problems by leveraging our partnership with robot manufacturers, robot trading companies, Slers (system integrators) and screw trading companies.

Access to details:



Professionals solve your problems.

- We don't know what robots can do.
- We don't know the cost benefit.
- We don't know who to consult.
- We don't want to spend too much time for review and deployment.
- We don't have the human resources for adjustment, inspection and maintenance of robots after deployment.
- We are not sure if we will be able to operate robots by ourselves after deployment.

ロボット (50音順)

株式会社 アイエイアイ

小型産業用ロボットの専業メーカーとして業界をリードするアイエイアイ。ロボットの生産性を高める機構・電装品、そして使いやすさを求めるソフトウェアにおいて、常に革新的な新技術を導入し、高品質な製品を生み出しています。

ABB株式会社

産業用ロボットのバイオニアの社。4種のハイスペック関節ロボットを含む品揃え。エンジニアを駆するロボットからフレキシブルな腕と関節/クワのものをかし、スペース、タクト、仕上げ品質、2階建機や複数台連携など、もう一歩先の自動化や習熟も必ずお客様に、アイデアと総合実装を提供しています。

川崎重工株式会社

川崎重工は昭和44年(1969年)に高度化の産業用ロボットの生産・製造を開始しました。以来、リーディング・メーカーカンパニーとして自動車産業をはじめ内外の主要な産業に貢献してきています。また、その際以上の歴史の中で、お客様と共に技術と経験に基づき、常に高品質・高性能のロボット及び、付随的な高パフォーマンスサービスを提供してお客様に提供しております。

株式会社 アイエイアイ

IoT時代の自動化設備はJANOMEエシオ部品製造の自社設備開発から始まったJANOMEの産業機器。常に生産現場の最前線の声を取り入れ、開発進化を遂げ、世界の産業機器製造メーカーとして、幅広い分野で活躍しています。【車上ロボット/搬入ロボット/スカーロボット】

THKインテックス株式会社

さまざまな産業でワークを最適かつ精密に位置決めするロボット。その使用性の高い産業用ロボットだけでなく、人間の動作に近似した動きができる多関節型ロボット。これらの関節には高い信頼性をもつもの。このこと、絶対に停止してはならない高い信頼性が求められ、THK独自の製品が最も小さいサイズでこの要求にお答えしています。

株式会社 ナチ

産業用ロボットの分野で常に業界をリードし、進化を遂げるものづくりの現場を支えてきた不二越。自動車生産ラインで培った自動車のノウハウを駆使し、進化を続ける製品開発をコアとする最先端のロボットを安心とともにお提供しています。

ファナック株式会社

あらゆる製造分野でおい頂ける豊富なラインナップを取り揃えています。ファナックのロボットにはロボットの柔軟性を最大限に活かす様々な機能が搭載されています。ファナックは、お客様の工場に自動化・ロボット化を実現し、生産性向上のサポートもさせていただきます。

三菱電機株式会社

先進のテクノロジーを駆使した、FAのための信頼、高速・高精度な品質性能と知能化ソフト。これらは、Smart Robotにより、業界最高性能の自動化を実現し、また、ソフトウェアをはじめとするFA領域での高い信頼性で構築したソリューションを提供しています。

ユニバーサルロボット

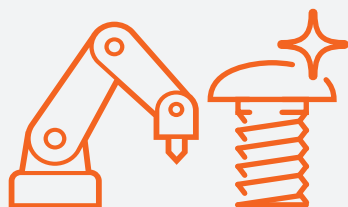
協働ロボットのバイオニアであり、リーディングカンパニー。会社制度にかかわらず、あらゆる製造現場でのタスクによる自動化を実現することを目標に設立された Universal Robots。今では、世界50,000を超える生産現場で採用されています。

No.1
in screw
fastening
failure
improvement*

Achieve cutting-edge
automation with
customers

Automatic Screwdrivers

PGF X INTRTORQUE



We have conducted comprehensive research and development of screws, electric screwdrivers, and measuring instruments, which are essential for manufacturing, and have led many successful automation projects with our customers. From an electric screwdriver to a single screw, we offer the latest screw fastening automation solutions that are ideal for your manufacturing site.

Access to details:



Screw fastening data management is
also automated.

Screwdriver equipped with high-precision
pass/fail judgment function

*

PGF Series



Patented HIOS screw

INTRTORQUE^{PAT.}



No.1
in screw
fastening
failure
improvement*

Digital screwdrivers
that promote DX
on-site

Screwdrivers for
manual operation

*The results are based on our own research.



Equipped with screw counter/pulse system
BLG-BC2 Series



IoT Alliance
Partners



If you are considering implementation of real-time visibility, analysis, and remote management of your IoT solutions, please feel free to consult us. We will introduce you to our partners.



Conventionally, determining whether a screw is fastened properly depends on the experience and intuition of operators. From now on, how about automating data management as well as detection of screw fastening errors? JUKUREN will solve all the anxieties of screw fastening.

Access to details:



Be free from anxiety. Everyone can be a skilled worker.

- I have no experience in screw fastening, is it okay?
- What should I do if I miss fastening a screw?
- It is difficult to know if the screw is fastened properly.
- I don't know what kind of fastening conditions can cause problems.
- What if I change the setting by mistake?
- What if a wrong screw is mixed by mistake?

Automatic detection of screw fastening failure

