



SUGINO

SPIRIT of JAPAN

Bicycle Parts Lineup

ROAD CYCLING

Ver. 1.0

English

**SUGINO
ENGINEERING
CORPORATION**

OX



All-round chainwheel set for various riding situations. Unique system Compact Plus+ enables the use of super small inner rings. IDS24 axle, further evolved to be more "precise" and "durable", enhances functionality of high performance crank.



OX2-901D
OX2-901D Classic

OX2-901D AIR
Racing model with "AIR"

Axle Type	IDS24 (ϕ 24mm axle)	
B.B.	MB-608 (BSA) STEEL included *Other options, see below. (Sold separately)	
P.C.D.	110 - 110mm or 74mm	110mm
Combinations	52-36T 50-36T , 50-34T 48-36T , 48-34T , 48-32T 46-36T , 46-34T , 46-32T , 46-30T 44-32T , 44-30T *CY5-SHC (P.3-4) sold separately.	52-36T 50-36T , 50-34T *Compact Plus+ not available.
Crank Length	160 , 165 , 167.5 , 170 , 172.5 , 175mm	
Crank Material	Hard forged aluminum alloy	
Chain Line	43.5mm	
Q-Factor	145mm	
Compatibility	SHIMANO 11 speed , 10 speed	
Color	<input type="radio"/> Silver , <input checked="" type="radio"/> Black	<input checked="" type="radio"/> Black

Classic

Classic logo matches Cr-Mo steel frames. Other details are the same as standard version.



AIR

PCD110mm aerodynamic design, precisely machined recesses provide good balance between weight-saving and rigidity and give sporty appearance.

B.B. *For details, refer to P.5-8

B.B. CONVERTER

It enables to install a crank with ϕ 24mm axle to various frame standards, superior dust & waterproof quality and durability to ensure a crank run in smooth rotation.

Line up

- BSA
- PF BB86
- BB386EVO
- PF30
- PF30A
- BB30
- BB30A



B.B. CONVERTER POWER SLEEVE

BB with special Creak-free structure, left & right cups integrated, smooth rotation, dust & waterproof quality and rigidity guaranteed, and re-useable.

Line up

- BB386EVO
- PF30
- PF30A
- BB30
- BB30A



TREK B.B.

BB series for TREK frames, lightweight, high precision, extremely durable. The advanced seals protect ceramic bearings from dust & water to ensure smooth rotation.

• T47



• BB90

Compact Plus+

The greatest feature of OX is Dual-PCD design, inner ring can either be a 110mm or 74mm PCD. This mounting pattern called "Compact Plus+", enables the use of super small inner ring and ensures a wide range of effective gearing ratios. OX shifts precisely and promises performance gain in various riding conditions.

Compact Plus+

Dual-PCD design is Sugino original mounting pattern, enables the use of super small inner ring such as 30T and 32T, and offer advanced performance at hill climbing, cyclocross and grandondo where stamina is required.



P.C.D.110mm
52-36T
50-36T / 50-34T
48-36T / 48-34T
46-36T / 46-34T

P.C.D.110-74mm
48-32T
46-32T / 46-30T
44-32T / 44-30T

*CY5-SHC (P.3-4) available in 27T & 30T.



P.C.D.110-74mm
46-30T / 46-27T
44-30T / 44-27T

New IDS24 Axle



New IDS24 Axle

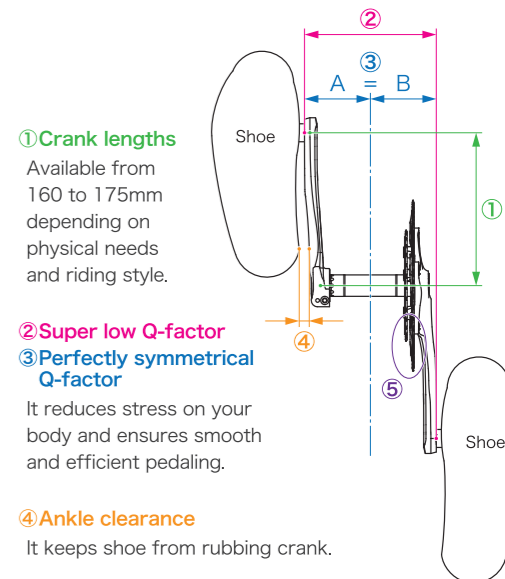
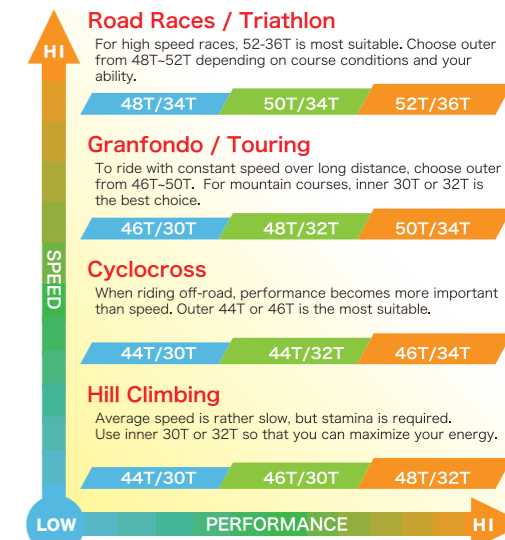
High level of strength and corrosion resistance are achieved. It is designed to provide optimal stress distribution, and manufactured in ultra-high precision, with beautiful gold finish.

Adjustable Pressure

Special design for OX2 for fine pressure adjustment to create perfect fit, which ensures utmost performance of high precision bearing.



Adjustable Bolt (M18)



①Crank lengths

Available from 160 to 175mm depending on physical needs and riding style.

②Super low Q-factor

③Perfectly symmetrical Q-factor
It reduces stress on your body and ensures smooth and efficient pedaling.

④Ankle clearance

It keeps shoe from rubbing crank.

⑤Shifting performance

Perfect shifting, no chain troubles such as chain drop.

Small Parts



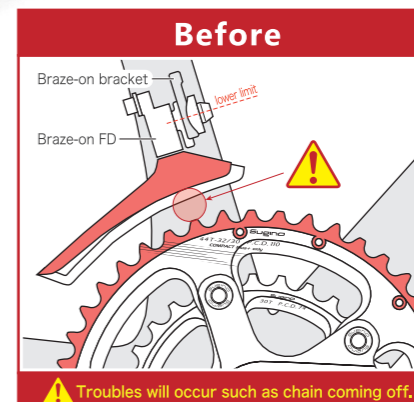
*For details, refer to P.12



MT-OX is an adapter to mount braze-on FD low enough to accommodate 50T and smaller outer ring. If FD is not correctly positioned, it can malfunction and may cause dangerous situation. MT-OX eliminates such problems.

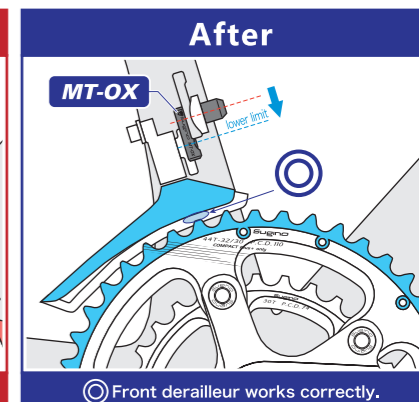
*For Shimano FD (11 speed) . *FD = Front Derailleur.

*Before use, please check "Front derailleur position for installing chainwheel" in page 11.



⚠ Troubles will occur such as chain coming off.

If FD is too high above the chainring, it can malfunction and may cause damage to other parts, even result in serious accidents.



⊙ Front derailleur works correctly.

By using MT-OX, FD can be mounted in ideal position and shift smoothly, which ensures safe and comfortable ride.

CYCLOID SHC



Non-circular high-performance inner chainring developed uniquely by Sugino, special design, ultra-light, super-small, perfect for hill climb, available in two types, for Shimano crank and Sugino crank.



Shimano
DURA-ACE
×
CY4-SHC

32T, 34T



Sugino
OX2-901D
×
CY5-SHC
27T, 30T



Shape properties

Competitors	CYCLOID
<ul style="list-style-type: none"> • Need to find an optimum shape for your specific case • Need adjustment of mounting position <p>Optimum shape, relative difference and ovality must be determined among the various options. Pedaling analysis is necessary to set mounting position.</p>	<ul style="list-style-type: none"> • Autofocus mechanism • Adjustment of mounting position is NOT required <p>Thanks to "Autofocus mechanism" CY4-SHC can perform multiple functions without pedaling analysis and initial setups required for other ovals.</p>

Shifting performance

Competitors	CYCLOID
<ul style="list-style-type: none"> • Poor shifting • Tendency to drop the chain <p>Due to poor shifting, shifting gears requires a lot of practices. The chain falls off more frequently.</p>	<ul style="list-style-type: none"> • Perfect shifting performance • No chain-drop <p>Special tooth profile provides perfect shifting and prevents chain-drop.</p>

① CYCLOID II mechanism

Cycloid II is a non-circular chainring developed uniquely by Sugino. Autofocus mechanism incorporating special teeth design enhances features of the non-circular ring.

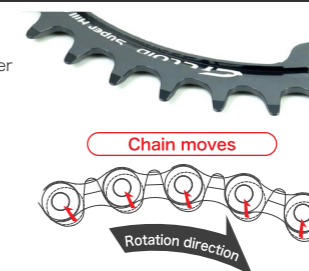
Non-circular ring has different features and appearance from circular ring. It increases the diameter during the power phase, while the diameter is minimized at the top and bottom dead points to allow quick spinning. It provides more efficient pedal rotation.



Autofocus mechanism

When force is applied to pedal, chain moves outward and runs higher on the ring. You feel the ring increases the diameter. As amount of moving fluctuates by the force applied, it maximizes the benefits of non-circular ring and assists your pedal stroke to remain efficient.

- No need of pedal stroke analysis to identify peak point and mounting position.
- Perfect shifting and no chain drop.
- Smooth and efficient pedaling are ensured at all time.



Teeth design

Long narrow teeth profile realizes Autofocus mechanism and other special functions.



② Super Hill Climb

Special mechanism & ultra-lightweight, perfect for hill climb and long ride. Precision CNC machined from ultra-rigid aluminum alloy, both lightweight and high rigidity are realized.

CY4-SHC

We offer super small inner ring 32T, not available from Shimano. Both 32T and 34T are lighter than DURA-ACE.



32T ⇒ **30.5g**
34T ⇒ **30.8g**

*Including special bolts (#804 for SHIMANO).

CY5-SHC

Super small 27T newly available, which gives you gearing 44/27T, lowest in "Compact plus+" (P.2), and helps you to ride up steep slopes.



③ No need of Chainwatcher

Perfect shifting and no chain drop, a chainwatcher is not necessary, which can trim your bike weight.

CYCLOID SHC Super Hill Climb



CY4-SHC

CYCLOID-SHC for Shimano crank

CY5-SHC

CYCLOID-SHC for Sugino OX crank (P.1-2)

Type	Double (Inner)	Double (Inner)
P.C.D.	110mm (Shimano)	74mm
Teeth	32, 34T	27, 30T
Compatible Cranks	Shimano FC-R9100 / 9000 (DURA-ACE) FC-R8000 / 6800 (ULTEGRA) FC-R7000 / 5800 (105)	Sugino OX2-901D / OX2-901D Classic (P.1-2) OX901D / OX901D Classic *OX901D has been discontinued.
Color	●Red, ●Dark gray	●Red, ●Dark gray

50-34T
50-32T

46-30T
46-27T
44-30T
44-27T

*Shimano crank and outer chainring are not included.

*For genuine Shimano 50T outer ring.

*For Shimano 11 speed chain.

*A 50-32T configuration numerically exceeds front derailleur capacity. However, the chain is being shifted when the inner ring is equivalent to 34T. So, the derailleur function and shifting performance won't be diminished.

*Compatible with power meter cranks (not included).

Pioneer power meter
SGY-PM930H, SGY-PM910Z [34T compatible, 32T not compatible]

Shimano power meter
FC-R9100P [34T compatible, 32T not compatible]

*FC-RS510 similar model to 105, but different in shape, not compatible with CY4-SHC.

*Crank and outer chainring sold separately.

*For "Compact plus+" system only, use with CP110S (P.11) 44T or 46T outer ring.

Small Parts



Replacing bolts with Special alloy bolts for CY4-SHC to save more weight.

*For details, refer to P.12

B.B. CONVERTER

BB CONVERTER series enables to install a crank with $\phi 24$ mm axle to various frame standards, offers smooth rotation, superior dust & waterproof quality and durability, for Sugino IDS24 and Shimano Hollowtech II cranks.



③ Lightweight

Left and right cups separated, joining the cups with a plastic sleeve, optimized design for light weighting.



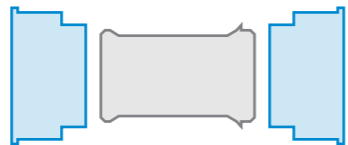
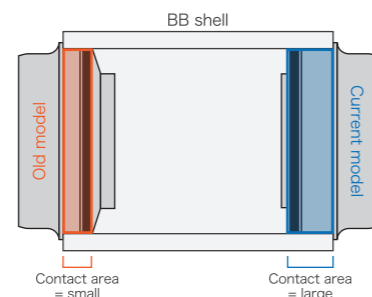
Slim sleeve design allows room for Di2 wires.

Separate type

The BB consists of a left and right cups with a plastic sleeve joining the cups. It will enhance overall characteristics of the frame and maximize performance.

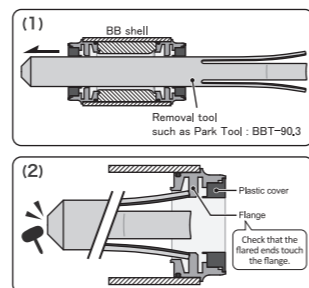
④ Stability

BB is designed to enlarge the contact area between cups and shell so that the BB will remain stable in the frame.



⑤ Easy removal

Press Fit type BB can be removed by a hammer type tool, as it has a flange on the inner wall of the cup, where the tool is snagged on, which allows you to remove the BB with less force and minimal amount of damage to the BB and frame.



*Please read the service manual carefully, as it contains important information which you should be aware of when removing the BB.

① Rotation and Dust & Water Protection

The BB series known for smooth and long-lasting rotation also offers impressive performance in terms of durability. The advanced seal provides great protection against dust and water without impairing rotation performance. So, it guarantees to deliver both smooth rotation and durability. These features are also incorporated into POWER SLEEVE series (P.6) and TREK BB (P.7).

② Stiffness and Rotation

The stiffness of the cup is increased, so the cup is less deformable when press-fitted to the frame. The bearing will operate with less friction and torque, which allows you to enjoy utmost performance of the high precision bearing.

Aluminum Shim Tape

For press-fit BB, it compensates for gaps and imperfection within frame shell, and secures BB on the frame.



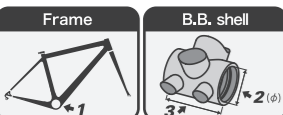
*The shim tape cannot be used for POWER SLEEVE (P.6).

Set contents : 2 x Black (thick) & 2 x Grey (thin)

B.B. converter List

	SUPER CERAMIC						
CERAMIC	BB BSA IDS24	BB SHPF IDS24	BB 386EVO IDS24 CONVERTER	BB PF30 IDS24 CONVERTER	BB PF30A IDS24 CONVERTER	BB 30 IDS24 CONVERTER	BB 30A IDS24 CONVERTER
MB-608 (BSA) SUPER CERAMIC	SHPF (BB86) SUPER CERAMIC	BB386EVO-IDS24 SUPER CERAMIC CONVERTER	PF30-IDS24 SUPER CERAMIC CONVERTER	PF30A-IDS24 SUPER CERAMIC CONVERTER	BB30-IDS24 SUPER CERAMIC CONVERTER	BB30A-IDS24 SUPER CERAMIC CONVERTER	
STEEL BEARING	BB BSA IDS24	BB SHPF IDS24	BB 386EVO IDS24 CONVERTER	BB PF30 IDS24 CONVERTER	BB PF30A IDS24 CONVERTER	BB 30 IDS24 CONVERTER	BB 30A IDS24 CONVERTER
MB-608 (BSA) STEEL	SHPF (BB86) STEEL	BB386EVO-IDS24 STEEL CONVERTER	PF30-IDS24 STEEL CONVERTER	PF30A-IDS24 STEEL CONVERTER	BB30-IDS24 STEEL CONVERTER	BB30A-IDS24 STEEL CONVERTER	

	Threaded						Press Fit						
1	BSA	PF BB86	BB386EVO	PF30	PF30A	BB30	BB30A						
2	BC1.37x24T	41mm	46mm	46mm	46mm	42mm	42mm						
3	68mm	86.5mm	86.5mm	68mm	73mm	68mm	73mm						



Crank compatibility

- Sugino : IDS24
- SHIMANO : Hollowtech II ($\phi 24$ mm axle)

BB30-IDS24

OVERSIZED BB SYSTEMS

B.B. CONVERTER POWER SLEEVE

BB with special Creak-free structure, left & right cups integrated, smooth rotation, dust & waterproof quality and rigidity guaranteed, and re-useable, for Sugino IDS24 and Shimano Hollowtech II cranks.



① Unique left & right integrated structure

Thanks to thread-in structure and gasket-ring, it compensates for imperfection and wear-out within frame shell, and fits perfectly in the frame. Thus, it eliminates problems that other companies' BB have (such as too tight to fit, creaking noise).

② Rotation and Dust & Water Protection

Using technology successfully incorporated into BB CONVERTER (P.5), smooth rotation and dust & waterproof quality are guaranteed.

③ Reusable

The special structure allows easy installation & removal, which reduces risk of damage to frame and BB, facilitates maintenance of internal cables, and enables reuse of BB after removal.

④ Creak-Free

Cause of Creaking noise

Creaking noise is caused by a gap between BB and frame which is created if either the frame or BB is out of tolerance or deformed due to long term use. Also, it can be caused by contaminants in the bearing.

POWER SLEEVE

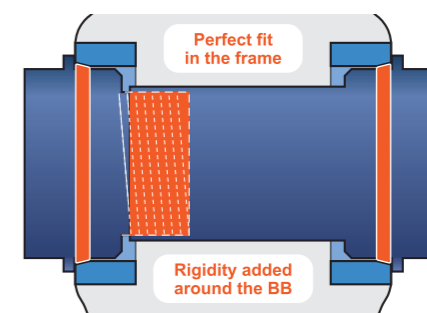
CNC machined with ultra-high precision, featuring **thread-in structure** and **gasket-rings**, this unique structure solves noise issues. Also, **special seal** keeps dust & water out of bearing.

Thread-in structure

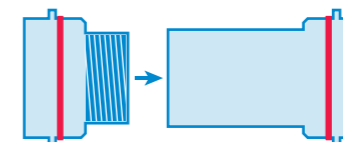
Left & right cups are integrated by thread-in structure and sandwiching shell between them to prevent motion. Gasket-ring helps maintain secure fitting during many rides. Added rigidity around BB area ensures power transmission.

Gasket-ring

Original system for secure fitting, Power Sleeve has optimum clearance between cup and shell. Gasket-rings fill the clearance and provide secure fitting.



Left & right cups integrated

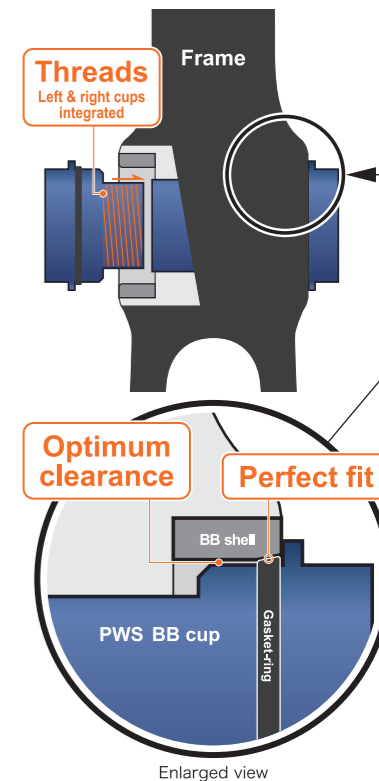


Thread-in structure

Gasket-ring

Special seal

Creaking issues are eliminated



PWS Gasket-ring set

Replacement gasket rings. If gasket-ring is damaged or worn, replace it with a new one.



PWS Gasket-ring set for BB30/BB30A

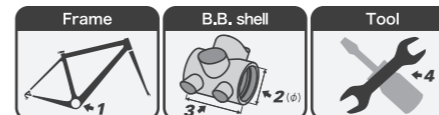
PWS Gasket-ring set for PF30/PF30A/BB386 EVO

Set contains : 2 x gasket rings

POWER SLEEVE List

	SUPER CERAMIC				
	BB 386EVO IDS24 CONVERTER	BB PF30 IDS24 CONVERTER	BB PF30A IDS24 CONVERTER	BB 30 IDS24 CONVERTER	BB 30A IDS24 CONVERTER
	BB386EVO-IDS24 PWS SUPER CERAMIC CONVERTER	PF30-IDS24 PWS SUPER CERAMIC CONVERTER	PF30A-IDS24 PWS SUPER CERAMIC CONVERTER	BB30-IDS24 PWS SUPER CERAMIC CONVERTER	BB30A-IDS24 PWS SUPER CERAMIC CONVERTER

	Press Fit				
1	BB386EVO	PF30	PF30A	BB30	BB30A
2	46mm	46mm	46mm	42mm	42mm
3	86.5mm	68mm	73mm	68mm	73mm
4	TL-PWS BB wrench set TL-PWS 86 tool set			TL-PWS BB wrench set	



Crank compatibility

- Sugino : IDS24
- SHIMANO : Hollowtech II ($\phi 24$ mm axle)

OVERSIZED BB SYSTEMS

TOOL



TL-PWS BB wrench set



TL-PWS 86 tool set

*Dedicated tools are required for installation and removal.

TREK B.B.

BB series for TREK frames, lightweight, high precision, high durability, special dust & waterproof structure to provide smooth rotation and longevity of ceramic bearings. For Sugino IDS24 and Shimano Hollowtech II cranks.

Sugino T47 SUPER CERAMIC



① T47 standard adopted by TREK

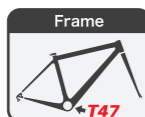
Trek adopted the treaded T47 standard on both carbon and alloy frames of the 2020 version of its select bikes. Sugino T47 BB can be used on both carbon and alloy frames.

② Easy installation and removal

Due to thin flanges on T47 cups, a wrench may slip off and damage BB and frame. The special tool TL-PWS 86* which matches the cup perfectly, makes installation and removal easy, and facilitates maintenance of internal cable.



*Dedicated tools are required for installation and removal.



If gasket-ring is damaged or worn, replace it with a new one.
Set contents : 2 x gasket rings

Sugino BB90 SUPER CERAMIC Ver.2

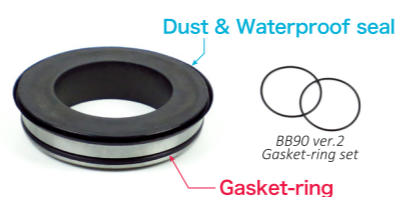


① Superior dust & waterproof quality

BB90 on the market are not well sealed, wear out fast and need maintenance so often. Sugino BB90, thanks to its advanced seal, can exhibit its high performance for a longer period. Also, due to less BB replacing frequency, risk of damage to the frame will be reduced.

② Upgraded to Version 2

By adopting new structure with gasket rings, waterproofness is further improved. It provides secure fitting and less damage to the frame.

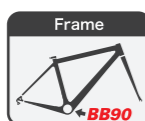


Sugino BB90

- Advanced seal keeps out dust & water.
- Smooth rotation & high durability.
- Longer life of high precision ceramic bearing.
- New design with Gasket-ring gives performance boost.

Other companies' BB90

- Poorly sealed, subject to dust and water.
- Contaminants can cause corrosion, seizure and reduce rotation stability.
- Needs replacing so often, which may cause damage to frame.

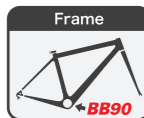


Sugino BB90-GXP SUPER CERAMIC Ver.2

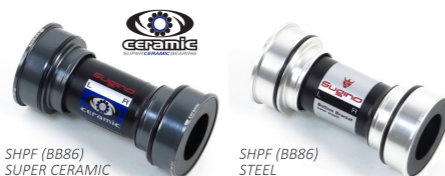


Sugino BB90 for SRAM GXP crank, performs same functions as Sugino BB90 SUPER CERAMIC ver.2.

*For SRAM GXP crank only.

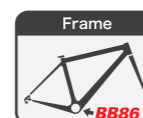


SHPF (BB86) SUPER CERAMIC / STEEL



A number of TREK bikes uses BB86 standard. For those frames, BB CONVERTER - SHPF (BB86) can be used.

*For details, refer to P.5



B.B. CONVERTER POWER SLEEVE TREK B.B.

Sugino's B.B.



Made-in-Japan highest grade, high precision, ceramic bearing is used. The extremely low friction feature ensures super smooth rotation. Cyclists need to adjust power and cadence, so the ceramic bearing is most effective as less energy is required to turn pedals. It offers remarkable performance gain in competitions requiring high power output.

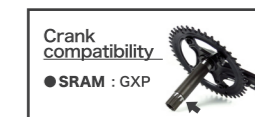
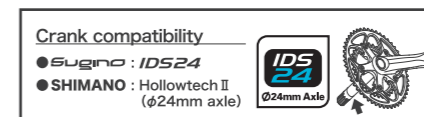


Friction-free seal structure offers great protection against dust and water without impairing rotation performance. Gasket-rings fill the clearance between surfaces, keep out water effectively, and help prevent troubles of internal cables of electric components. Sugino BB is superior in both rotation and waterproof performances to others.

Crank compatibility guide

BB CONVERTER (P.5), POWER SLEEVE (P.6), TREK BB (P.7) are for crank with $\phi 24$ mm axle, namely Sugino IDS24 and Shimano Hollowtech II cranks.

Sugino BB90-GXP SUPER CERAMIC is for SRAM GXP cranks only.



Sugino IDS24



SHIMANO Hollowtech II



SRAM GXP

B.B. compatibility guide

TREK

TREK standard	Sugino BB	Page
T47 threaded	Sugino T47	7
BB90	Sugino BB90	7
Shimano PressFit		
Shimano BB86.5	SHPF (BB86)	5

Cannondale

Cannondale standard	Sugino BB	Page
PressFit30	BB30-IDS24	
BB30a	BB30A-IDS24	
BB30	PF30-IDS24	5, 6
PF30	PF30A-IDS24	
etc.		*Depending on standard used.

GIANT

GIANT standard	Sugino BB	Page
Press Fit (BB86)	SHPF (BB86)	5
Press Fit (BB86.5)		
Road and Cyclocross models all follow the BB86 standard.		

*The above data is based on the information on website of each brand, as of Jan 2020.

CAUTIONS !!

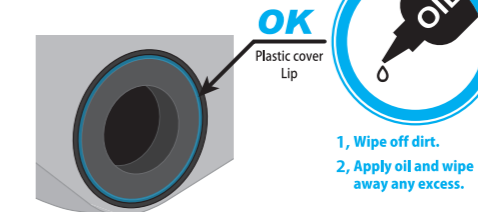
Sugino BB converter series includes excellent water & dust protection mechanism. However, overhauling the cup unit will impair its functions and result in permanent failure and damage. So, don't disassemble the BB. Any additional lubrication is not required.

Do Not Disassemble

Never remove plastic cover. Never disassemble. Otherwise, it may result in permanent failure.



Do Not Disassemble



Due to special sealing mechanism, maintenance of the interior of the bearing is not necessary.

Never remove the plastic cover. If once it is removed, it cannot be restored. This will result in permanent failure and void the warranty.

Abnormalities caused by mishandling, such as water contamination in the bearing, grease flown out of bearing and damaged seal will shorten the bearing life drastically. As such is not covered by warranty. — refer to the left illustration.

Please conduct maintenance on the lip of the plastic cover periodically. — refer to the left illustration.

EXP



Pro-race model with large ϕ 30mm axle (PF30/BB30), high rigidity, aerodynamic design, suitable for triathlon and time trial races where the biggest obstacle is air resistance.



EXP110 AIR *AIR* and special graphic model
EXP130 ZEN STRADA PCD130mm big ring model
EXP110 - 901D Model with various gearing options
EXP110 - 601D Entry-level model

Axle Type	IDS30 (ϕ 30mm axle)			
B.B.	Choose from ①~④	Choose from ①~④	Choose from ①~④	Choose from ② or ④
P.C.D.	110mm	130mm	110mm	110mm
Combinations	52-36T 50-36T, 50-34T	54-42T 53-42T	52-36T 50-36T, 50-34T 48-36T, 48-34T 46-36T, 46-34T	52-36T 50-36T, 50-34T 48-36T, 48-34T 46-36T, 46-34T
Crank Length	165, 167.5 170, 172.5, 175mm	165, 167.5 170, 172.5mm	165, 167.5 170, 172.5, 175mm	165, 167.5 170, 172.5, 175mm
Crank Material	Hard forged aluminum alloy			
Chain Line	43.5mm			
Q-Factor	145mm			
Compatibility	SHIMANO 11 speed, 10 speed			
Color	●Black	●Black	●Black	○Silver, ●Black

Spider arms

Super Aero
The spider arms are invisible when viewed from the front of the bike, which maximizes aerodynamic effect.

Direct Drive
As the spider arms are flat, and lie in the same plane as the chainring, the pedal power is directly transmitted to the drive.

Super High-rigid

Rigidity comparison data of high-end chainwheels

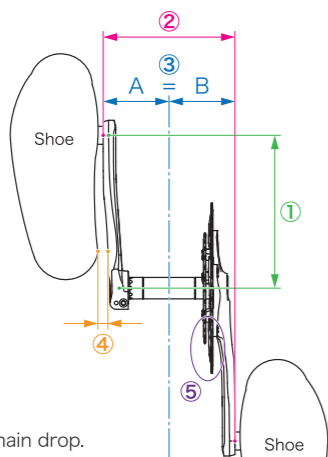
AIR

PCD110mm aerodynamic design, precisely machined recesses provide good balance between weight-saving and rigidity and give sporty appearance.

ZEN STRADA

PCD130mm aero-shape chainring, only road model in ZEN series, big and extremely rigid, yet lightweight, no wobbling.

- ① **Crank lengths**
Available from 165 to 175mm depending on physical needs and riding style.
- ② **Super low Q-factor**
- ③ **Perfectly symmetrical Q-factor**
It reduces stress on your body and ensures smooth and efficient pedaling.
- ④ **Ankle clearance**
It keeps shoe from rubbing crank.
- ⑤ **Shifting performance**
Perfect shifting, no chain troubles such as chain drop.



Small Parts



*For details, refer to P.12

B.B.

	PF30	BB30
①		
②		
③		
④		

Mighty



Classic style, square taper chainwheel set, for 11 speed, excellent in shifting, incorporating latest technologies.



Mighty Tour - 901D Standard model
Mighty Mignon - 901D Super short crank model

Axle Type	4-Taper (JIS)	
B.B.	CBBAL-110 *Sold separately	
P.C.D.	110mm	
Combinations	52-36T 50-36T, 50-34T 48-36T, 48-34T 46-36T, 46-34T	
Crank Length	160, 165, 167.5 170, 172.5, 175mm	140, 145, 150, 155mm
Crank Material	Forged aluminum alloy	
Chain Line	43.5mm	
Compatibility	SHIMANO 11 speed, 10 speed	
Color	○Silver, ●Black *Black = Silver Crank & Black Chainring	

Sugino MIGHTY

The classic style unaltered through time, succeeded the name.

Mighty series have been popular since 1960s for its classic, slim design and beautiful finish, and make your bike more gorgeous, for longtime bike lovers.

Mighty series are 11 speed & 10 speed compatible and work with many of the current Shimano components.

Short Crank
140-155mm

Super short cranks available in 140 to 155mm, for shorter riders.

XD



XD3BX - 701D
9 speed compatible

Axle Type	4-Taper (JIS)	
B.B.	CBBF-110 *Sold separately	
P.C.D.	110mm	
Combinations	50-36T, 50-34T 48-36T, 48-34T 46-36T, 46-34T	
Crank Length	160, 165, 167.5 172.5, 175mm	
Crank Material	Forged aluminum alloy	
Chain Line	43.5mm	
Compatibility	SHIMANO 10, 9 speed	
Color	○Silver, ●Black	

ALPINA



ALPINA2 Triple
Triple model for long distance ride

Axle Type	4-Taper (JIS)	
B.B.	CBBAL-113 *Sold separately	
P.C.D.	110 - 110 - 74mm	
Combinations	48-36-26T 46-36-26T	
Crank Length	165, 170, 175mm	
Crank Material	Forged aluminum alloy	
Chain Line	45mm	
Compatibility	SHIMANO 10 speed	
Color	○Silver	

B.B.



Axle Type	4-Taper (JIS)	
Cup Thread	BC1.37 x 24T	
Shell Width	68mm	
Axle Width	103, 110, 113, 116mm	103, 110, 113, 119mm
Cup Material	Aluminum alloy	Steel

*Italian (ITA) is available in CBBAL series.
Cup Thread : M36 x 24T, B.B. Width : 70mm, Axle Width : 110mm

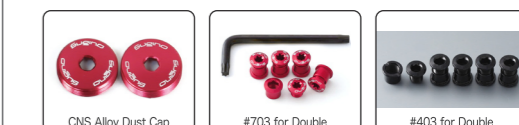
Tool



Extractor #202, #203B
Square taper crank removal tool.

TL-CBB
Installation and removal Tool for cartridge BB. (CBB series)

Small Parts



*For details, refer to P.12

11
SPEED

10
SPEED

SHIMANO
11, 10 speed



CP110S, CP74S
For Compact Plus+



EV110S
Conventional Double chainring



AIR
Aero-chainring for race



ZEN STRADA
PCD130mm big aero-chainring

Type	Double (for Compact Plus+)		Double	Double	Double
P.C.D.	110mm	74mm	110mm	110mm	130mm
Outer	44, 46, 48T	-	46, 48, 50, 52T	50, 52T	53, 54, 55T
Inner	-	30, 32T	34, 36T	- (EV110S)	42T
Color	●Black, ○Polish		●Black, ○Polish	●Black	●Black

CYCLOID SHEET



*For CY4-SHC & CY5-SHC, refer to P.3-4

11 speed chainring



The chainring is precision CNC machined. Both front and back sides are precisely machined. The high rigid shifting pins ensure excellent shifting performance. Weight reduction is also achieved by providing recesses without impairing rigidity and strength.

AIR

Precisely machined recesses provide good balance between weight-saving and rigidity and give sporty appearance.

Only road model in ZEN series, big and extremely rigid, yet lightweight, no wobbling.

ZEN STRADA

Aero-design chainrings are suitable for triathlon, time trial races where the biggest obstacle is air resistance.

10
SPEED

9
SPEED

SHIMANO
10, 9 speed



POE110S (D) set



POE110S (T) set



Type	Double	Triple
P.C.D.	110 - 110mm	110 - 110 - 74mm
Combination	50-36T, 50-34T 48-36T, 48-34T 46-36T, 46-34T	48-36-26T 46-36-26T
Color	○Silver, ●Black	○Silver

8
SPEED

7
SPEED



130J



110J



74J



110J & 74J set



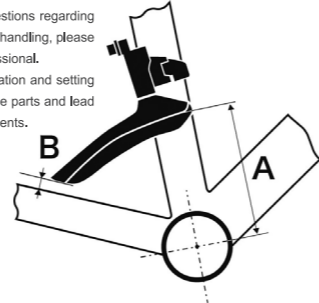
Type	Double	Double / Triple	Triple (inner)	Triple
P.C.D.	130mm	110mm	74mm	110 - 110 - 74mm
Outer	46, 48, 50, 52, 53, 54, 56T	46, 48, 50, 52, 53, 54T	-	Combination 48-38-28T 48-36-26T 48-36-24T
Center	-	34, 36, 38, 40, 42, 44T	-	○Silver
Inner	38, 39, 40, 42, 44T	*Double inner / Triple center	24, 26, 28, 30, 32T	
Color	○Silver		○Silver	○Silver

Front Derailleur Position for installing Chainwheel

Before installation, please measure the A and B dimensions as shown in the illustration and check them to make sure that they meet dimensional requirements in the table below.

	Teeth number of outer chainring							
	56T	54T	53T	52T	50T	48T	46T	44T
A dimension (from center of BB to front end of FD)	117 mm	113 mm	111 mm	109 mm	105 mm	101 mm	97 mm	93 mm
B dimension (from chain stay to rear end of FD)	2mm or more							

If you have questions regarding installation and handling, please contact a professional. Incorrect installation and setting may damage the parts and lead to serious accidents.



*When replacing chainring, refer to the above drawing.

CHAINRING FIXING BOLTS & NUTS

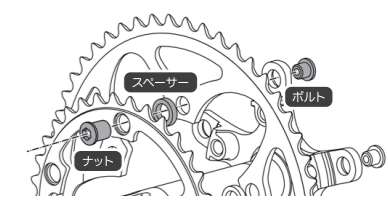
Model	Material	Color	Bolt	Nut	Applicable
#801	Aluminum alloy	● Silver ● Black ● Blue ● Red ● Gold ● Pink ● Green	Torx 30	Hexagon 6	OX series
#803	Aluminum alloy	● Silver ● Black ● Blue ● Red ● Gold ● Pink ● Green	Torx 30	Normal Nut	OX series
#804	Aluminum alloy	● Silver ● Black ● Blue ● Red ● Gold ● Pink ● Green	Torx 30	Hexagon 6	Shimano (CY4-SHC)
#703	Aluminum alloy	● Silver ● Black ● Blue ● Red ● Gold ● Pink ● Green	Torx 30	Hexagon 6	EXP series Mighty series XD3BX ALPINA2
#403 for Triple Inner	Steel	● CP ● BCP ● CP	Hexagon 5	Normal Nut	ALPINA2

Aluminum alloy

The high-strength aluminum alloy torx bolt is much more durable compared with a standard alloy bolt. It is lightweight, strong and beautifully colored.



#801 for OX Compact
For OX series PCD110mm



#803 for OX Compact Plus+
For OX series PCD110mm - 74mm (Compact Plus+)



#804 for SHIMANO
For CY4-SHC (P.3-4)



#703 for Double



#403 for Double



#403 for Triple Inner



CHAINRING SPACER

Model	Contents
Chainring Spacer set 15 x 10 x 0.5mm	φ15 x φ10mm t0.5mm 5 pieces set
Chainring Spacer set 15 x 10 x 3.4mm	φ15 x φ10mm t3.4mm 5 pieces set

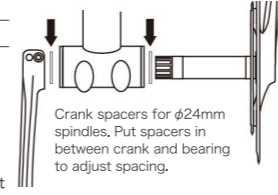
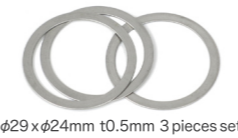
Put spacers in between outer ring and inner ring to adjust spacing between the rings.



CRANK SPACER

Model	Contents
2 piece Crank Adjust Spacer set	φ29 x φ24mm t0.5mm 3 pieces set

IDS24



PRESSURE BOLT

Model	Contents
M15 Pressure Bolt	
Adjustable Bolt (M18)	*For New IDS24 Axle

IDS24



FD MOUNT

Model	Contents
MT-OX Adjustable FD MOUNT	

*For details, refer to P.2

BB AXLE BOLTS

Model	Tool	Material	Reference
KPB	Hexagon 8		
14BK	Box 14	Cr-Mo steel	M8 x 1.0
15CP	Box 15		



CRANK DUST CAP

Model	Tool	Material
CNS Alloy Dust Cap	Hexagon 5	Aluminum alloy

The ultra-lightweight alloy cap and axle bolt set for square taper crank. The wide range of colors allows you to choose the most suitable one for your bike.



SEATPOST CLAMP BOLT

Model	Size	Tool	Material
Seatpost Clamp Bolt	17mm 19mm 22mm 25mm	Hexagon 5	Cr-Mo steel



*Fully closed