SHIMANO

2015-2016

Products Technical Information

- Frame Requirement
- Product Information
- Electronic Product Information
- E-BIKE components
- Compatibility
- Technical Notes

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Word definitions

Line D	Line D goes thru bottom bracket center and freehub center. In case of rear suspension type, line D should be determined by riding height such as 1G sag.		
BB	Bottom bracket	**GM**	Grommet
BC	Brake cable	**HB**	Front hub
BCC	Battery cable	**HP**	Head parts
BCR	Battery charger	**HRB**	Hub roller brake
BH	Disc brake hose	**I-spec**	Integration mounting system of brake and shift lever
BL	Brake lever	**ID**	CI-DECK
BM	Battery mount	**JC**	Junction
BR	Brake caliper	**LP**	Light
BTC	Battery case	**MF**	Multiple freewheel
BTH	Battery holder	**MU**	Motor unit
BTR	Battery	**O.L.D.**	Over locknut dimension
CB	Coaster brake	**P.C.D.**	Pich circle diameter
CG	Chain guard	**PD**	Pedal
CJ	Cassette joint	**PM**	Power modulater
CN	Chain	**QR**	Quick release
CP	Spoke protector	**RD**	Rear derailleur
CR	Chainring	**RT**	Disc brake rotor
CS	Cassette sprocket	**RTAD**	Disc brake rotor adapter
CT	Chain tensioner	**SB**	Revo shifter integrated with brake lever
DH	Hub dynamo	**SC**	Cycle computer
DU	Drive unit	**SF**	Single free
EC	Battery charger	**SG**	Internal geared hub
EW	Electric wire	**SL**	Shift lever
EWC	Cord cover	**SPD**	Shimano pedaling dynamics
EWEX	Di2 adapter	**SPD-SL**	Shimano pedaling dynamics-SL
EWW	Wireless unit	**ST**	Dual control lever / Shift lever integrated with brake lever
FC	Crankset	**SW**	Switch
FD	Front derailleur	**WH**	Wheel
FH	Freehub		

Frame Requirement

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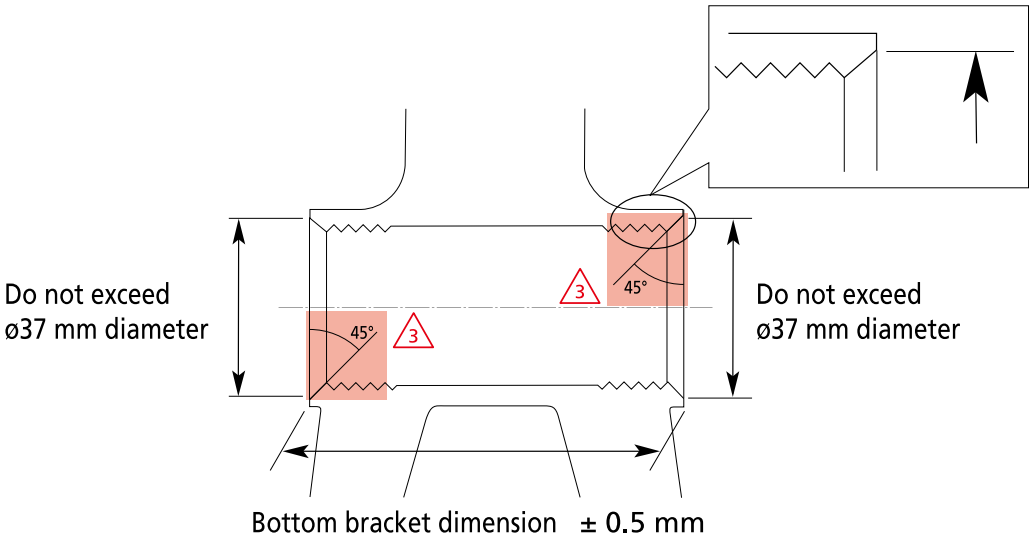
Bottom bracket C-001

Sealed cartridge type C-002

The inside diameter of the bottom bracket face chamfer should not be over 37 mm for Shimano sealed cartridge type bottom brackets. If this dimension is exceeded, there is a possibility that the bottom bracket cartridge may over-insert and skew the chain line.



Press-Fit type C-003

2

CAUTION

- Due to variations in material properties and the structure of bicycle bottom bracket (BB) shells, Shimano cannot provide a specific BB shell diameter bore and tolerance. Instead of this, Shimano will provide technical information and the dimensions of Shimano products. For frame related information, please follow the recommendation of individual bike manufacturers. For further information, contact your local Shimano sales office.
- Please contact to Shimano sales office before using this option.
- 2 Please take special care for X4, Y4 dimension of the crankset dimensions (refer to C-115) to avoid interference between inner ring chainring and outer side of the BB shell of the frame.

NOTE

If the frame has openings inside the bottom bracket shell, it should be installed with the inner cover sleeve to prevent possible contamination.

Installation of the Press-Fit bottom bracket adapter C-004

Installation

When installing, use the tool TL-BB12 correctly.

1. Insert the bottom bracket (BB) into the hanger.
   Note: Spacers may be necessary depending on the hanger width.
2. Insert the installation tool TL-BB12 into the BB.
3. Press-Fit the BB by tightening with a wrench.
   *Press-Fit the BB by tightening with a wrench while making sure that the rim of the BB stays parallel to the rim of the hanger.
4. Check to confirm that there is no gap between the BB and the hanger.

Removal

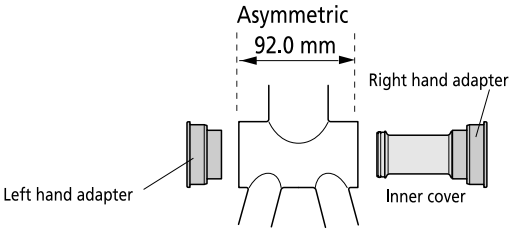
When removing, use the tool TL-BB13 correctly.

1. Insert the removal tool TL-BB13 into the bottom bracket (BB).
2. While holding open the three flaps at the end of the removal tool, push the tool in from the other side until it locks in place.
3. Tap the removal tool with a plastic mallet until the end of the BB is ejected.
4. Tap out the other end of the BB in the same way.
   Note: Do not reuse the adapters as they can be damaged during removal.

Press-Fit type Assembly example [MTB] C-005

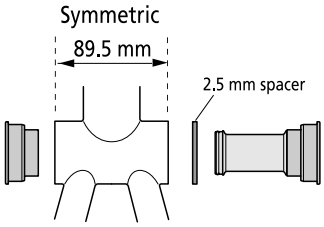
SM-BB94-41A / BB-MT800-PA / SM-BB91-41A / SM-BB71-41A / BB-MT500-PA

The 2.5 mm spacer is not needed.
Inner cover can be installed.



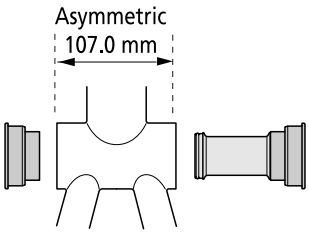
SM-BB94-41A / BB-MT800-PA / SM-BB91-41A / SM-BB71-41A / BB-MT500-PA

Insert the 2.5 mm spacer into the right hand side (between the frame and the right hand adapter).
Inner cover can be installed.



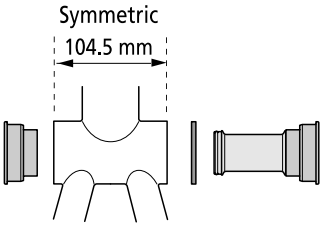
SM-BB71-41C

The 2.5 mm spacer is not needed.
Inner cover can be installed.



SM-BB71-41C

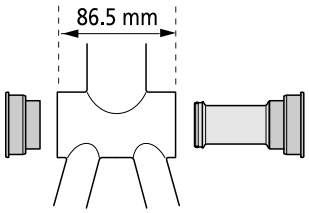
Insert the 2.5 mm spacer into the right hand side (between the frame and the right hand adapter).
Inner cover can be installed.



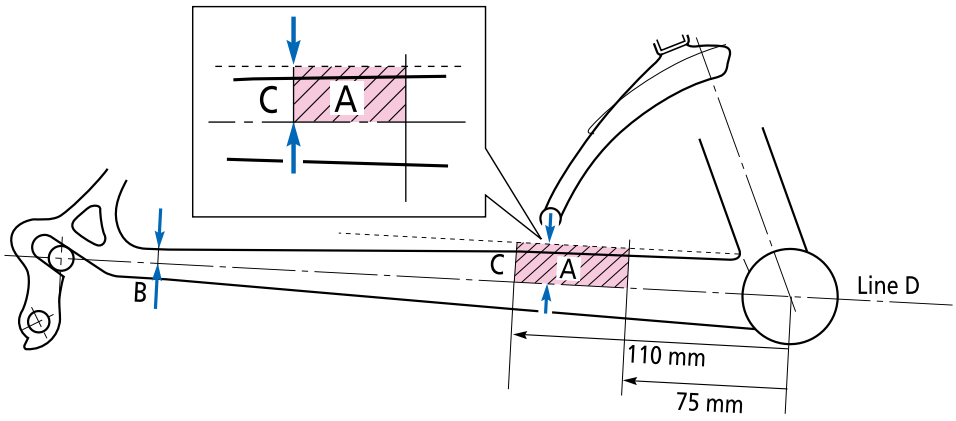
Press-Fit type Assembly example [Road] C-006

SM-BB92-41B / SM-BB91-41B / SM-BB71-41B / SM-BB72-41B / BB-RS500-PB

No spacer is needed.
Use the SM-BB9000 / SM-BB72-41B/ BB-RS500-PBinner cover.
Inner cover can be installed.



Chainstay dimensions C-008



Dimension B C-009

B ≤ 7 mm

In order to keep the chainstay from interfering with the chain, design the frame so that dimension B (the area that the chain comes closest to the chainstay) is 7 mm or less.

Dimension C [ROAD] C-010

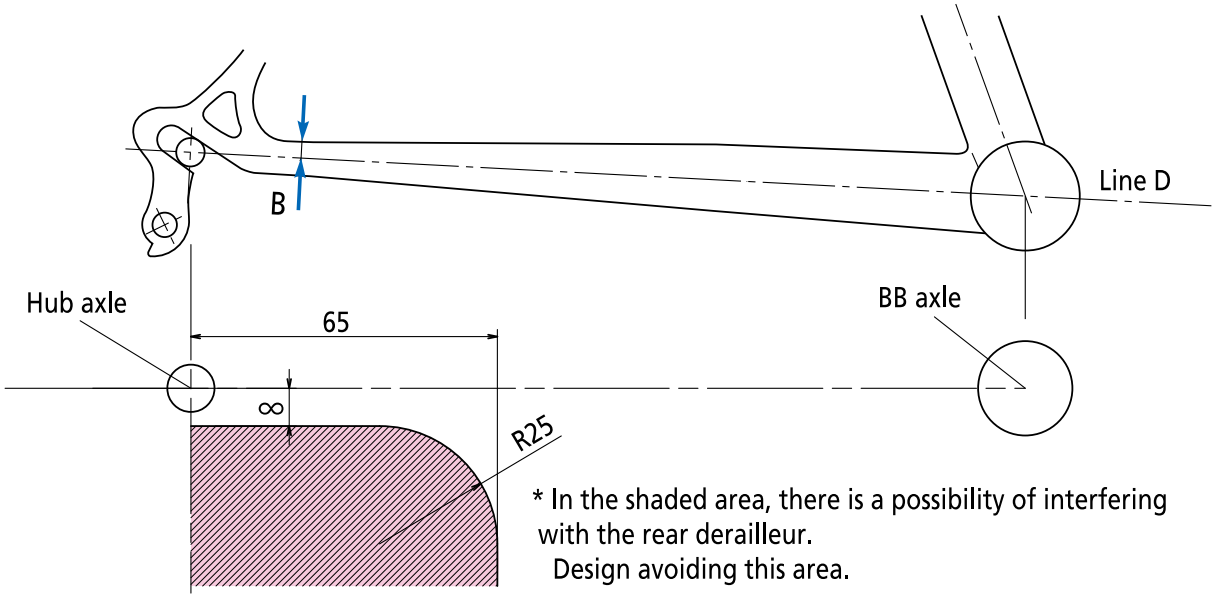
C ≤ 15 mm

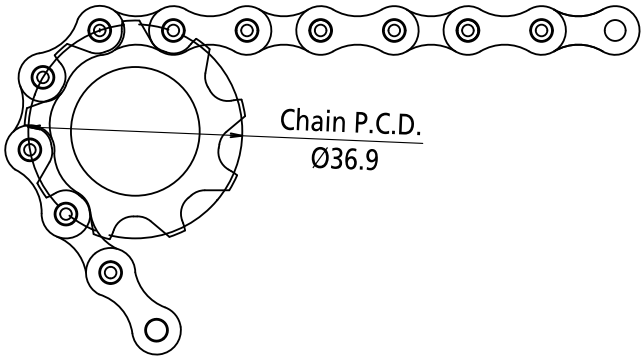
In order to keep the front derailleur plate from touching the chainstay, design the frame at area A (cross hatched section in diagram) so that the dimension C (distance from line D to top edge of the chainstay) is 15 mm or less.

Dimension C [MTB] C-011

Please refer to C-053, C-054, C-055, C-056.

Chainstay dimensions [Capreo]





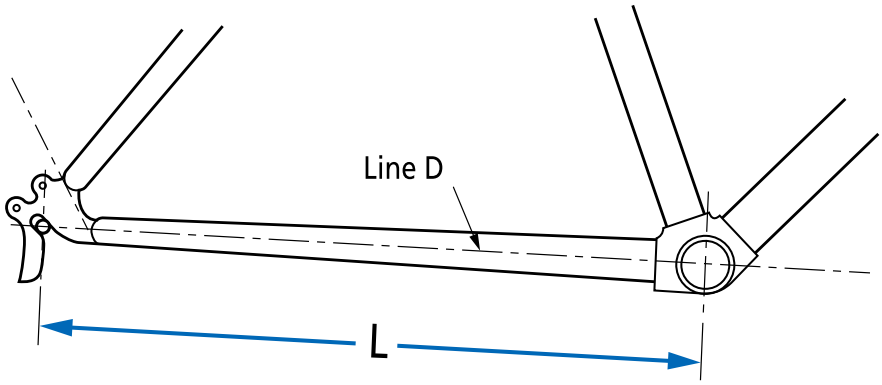
B ≤ 7 mm

In order to keep the chainstay from interfering with the chain, design the frame so that dimension B (the area that the chain comes closest to the chainstay) is 7 mm or less.

Since the top gear of the cassette sprockets of Capreo component group is 9T (front 45T), design the form of chainstay using examples from the listed above figures. Furthermore, the chain Pitch Circle Dimension (P.C.D) of the 9T sprocket is **36.9 mm**.

Chainstay length

The Shimano shifting system is designed on the chainstay dimensions given below. (when using frames that do not meet these dimensions, be sure to confirm that the system operates without problems.)



L: The length from bottom bracket center to rear hub center.

NOTE

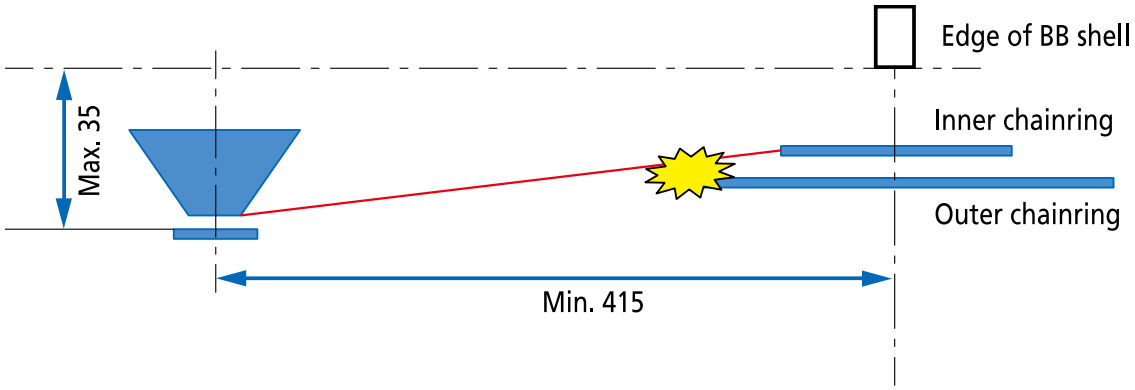
It is recommended that chainstay dimension "L" when using road 2x, 3x drivetrain products with 135 mm O.L.D. frames be greater than or equal to 415 mm. Please be sure to follow these recommendations.

Drivetrain component type	Rear speed	Dimension (mm)
MTB	11,10, 9, 8, 7, 6-speed	L ≥ 420
Tourney	Triple (Front speeds)	L ≥ 430
Tourney	Single	L ≥ 405
Trekking	10, 9, 8, 7, 6-speed	L ≥ 450
Road	11, 10, 9, 8, 7-speed	L ≥ 405
Cyclocross	11, 10-speed	L ≥ 425
Capreo	9-speed	L ≥ 390

FC-M670 (48T) is included in Trekking component type.

Inner/Top C-014

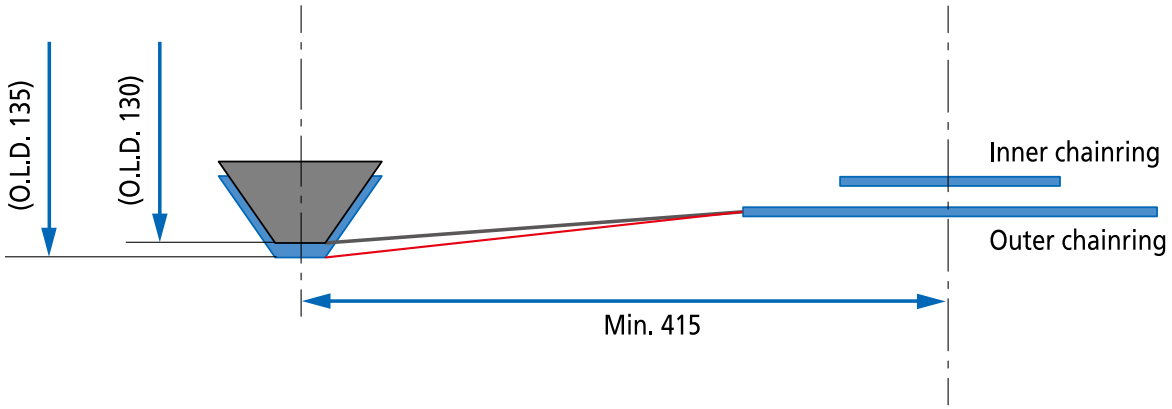
It is related O.L.D.135mm road and cyclocross, set the dimensions max. 35mm from edge of BB shell to edge of rear end. When the chain is on the FC inner x CS top position, reduced clearance between chain and leading teeth might cause chain to spontaneously shift to outer chainring, which may lead to loss of control of bicycle.



	BB width (mm)	OFFSET (mm) ((MAX)
BC	68	35
ITALIAN	70	34
Press-Fit	86.5	25.75

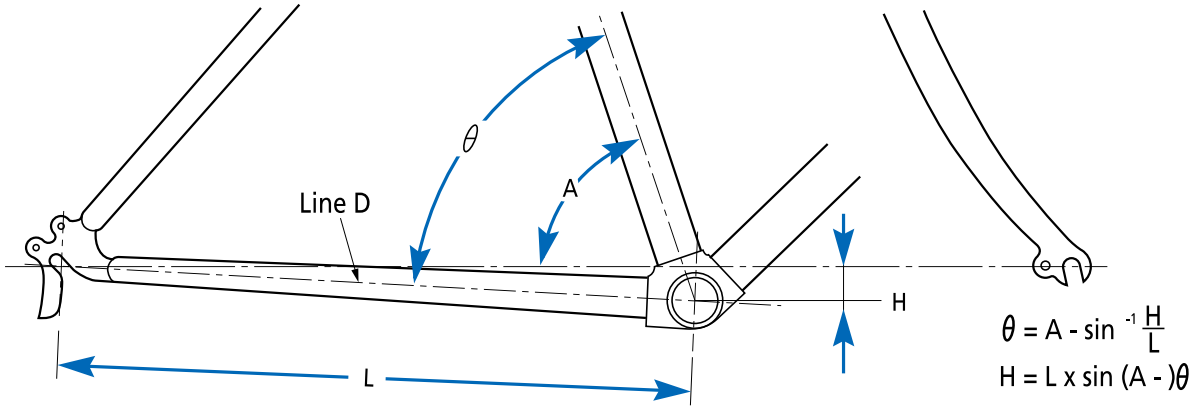
Outer/Top C-015

With the chain on the FC outer x CS Top position. Test to make sure chain does not drop from outer chainring by physically testing.
(Increased chain angle might cause the chain to drop off of the outer chainring under very high pedaling loads, which may lead to loss of control of bicycle.)



Chainstay angle

In order for the front SIS shifting system to function properly, set the chainstay angle θ within the range supported by the front derailleur.



θ: Chainstay angle (FD mount angle)
A: Seat tube angle
H: Hanger drop

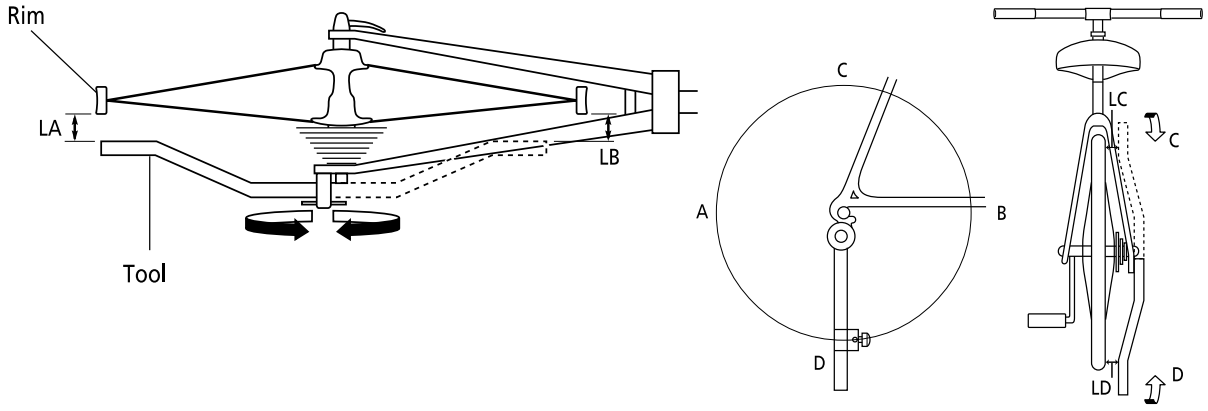
NOTE

Please refer to Spec Hand Book for chainstay angle information.
In the case of full-suspension bikes, in the SAG position, set the angle θ within the recommended range.

Dropout dimensions

C-018

Rear dropout alignment is set in relation to the frame centerline. To check alignment of the dropout, use the tool. Attach the rear dropout so that the absolute value of l LA-LB l is less than 10 mm.

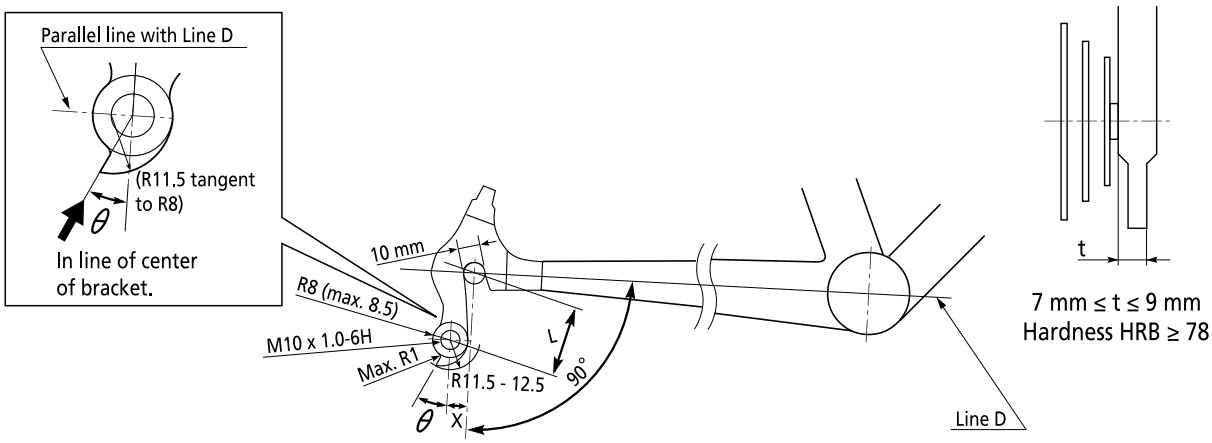


Adjust the dropout so that
l LA-LB l and l LC-LD l ≤ 10 mm
l LA-LB l and l LC-LD l = 0 mm is optimum setting

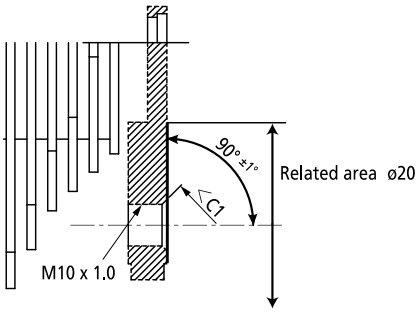
Dropout dimensions [MTB]

Rear dropouts (with derailleur hanger) C-020

In order to maintain optimum SIS shifting performance, set dimensions as shown below.



Dropout type	L (mm)	X (mm)	Angle θ
MTB recommendation	28 to 30	6 to 10	25° to 30°
Capreo recommendation	28	6 to 10	25° to 30°
	30	7.5 to 10	25° to 30°



This information also applies all dropouts.

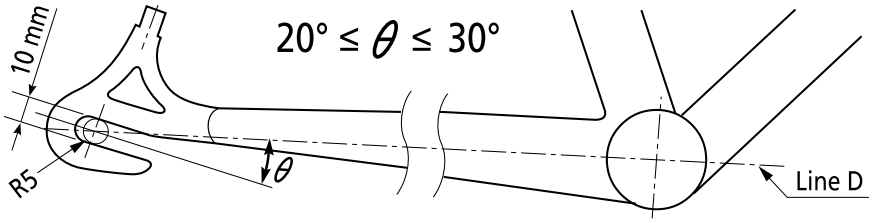
NOTE

If a dropout that does not conform to the dimensions above is used, optimum SIS shifting performance may not be obtained.

Rear dropouts (without derailleur hanger) C-021

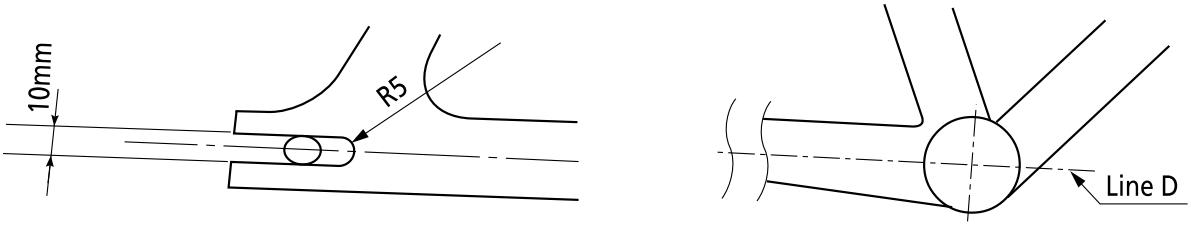
In order to maintain optimum SIS shifting performance, Set dimensions as shown in below.

Normal (Road) type dropout



Thickness: 4mm<t<5mm
Hardness (Over locknut contact portion): HRB≥65

Reversed (BMX, Track) type dropout



Thickness: 4mm<t<5mm
Hardness (Over locknut contact portion): HRB≥65

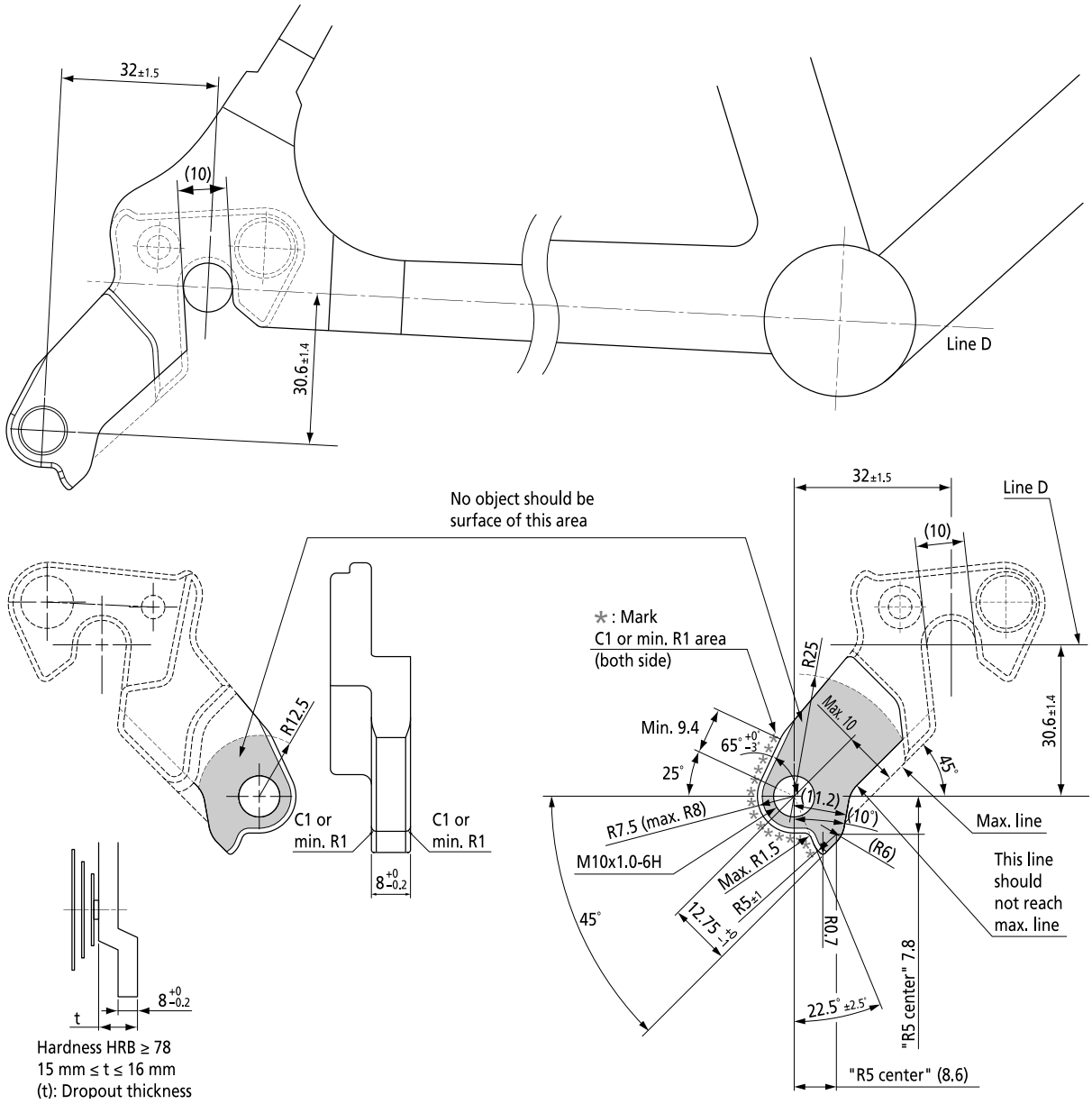
Make sure dropout should not be deformed during assembly and transportation. Less stiff dropout may deform and cause bad shifting performance.

Direct mount dropout dimensions

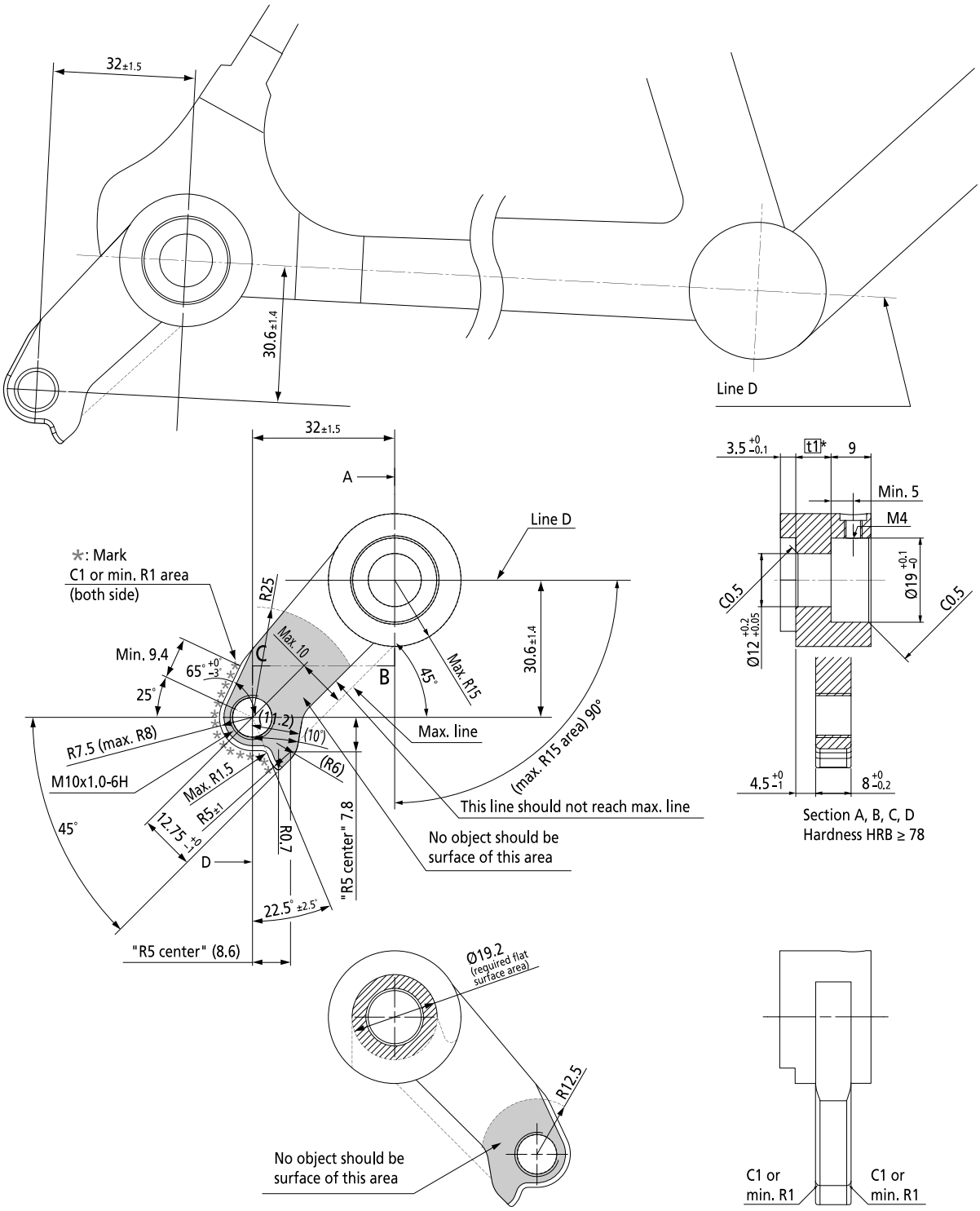
Dimensions for wide ratio cassette sprocket (bigger than 11-32T) C-023

RD-M9000 / RD-M9050 / RD-M986 / RD-M981 / RD-M820 / RD-M8000 / RD-M786 / RD-M781 / RD-M675 / RD-M670 / RD-M640 / RD-M615 / RD-M610 / RD-M4000 / RD-M3000

QR type



E-thru type (O.L.D. 142 mm)



* Please refer to C-025 for more rear E-thru system information.

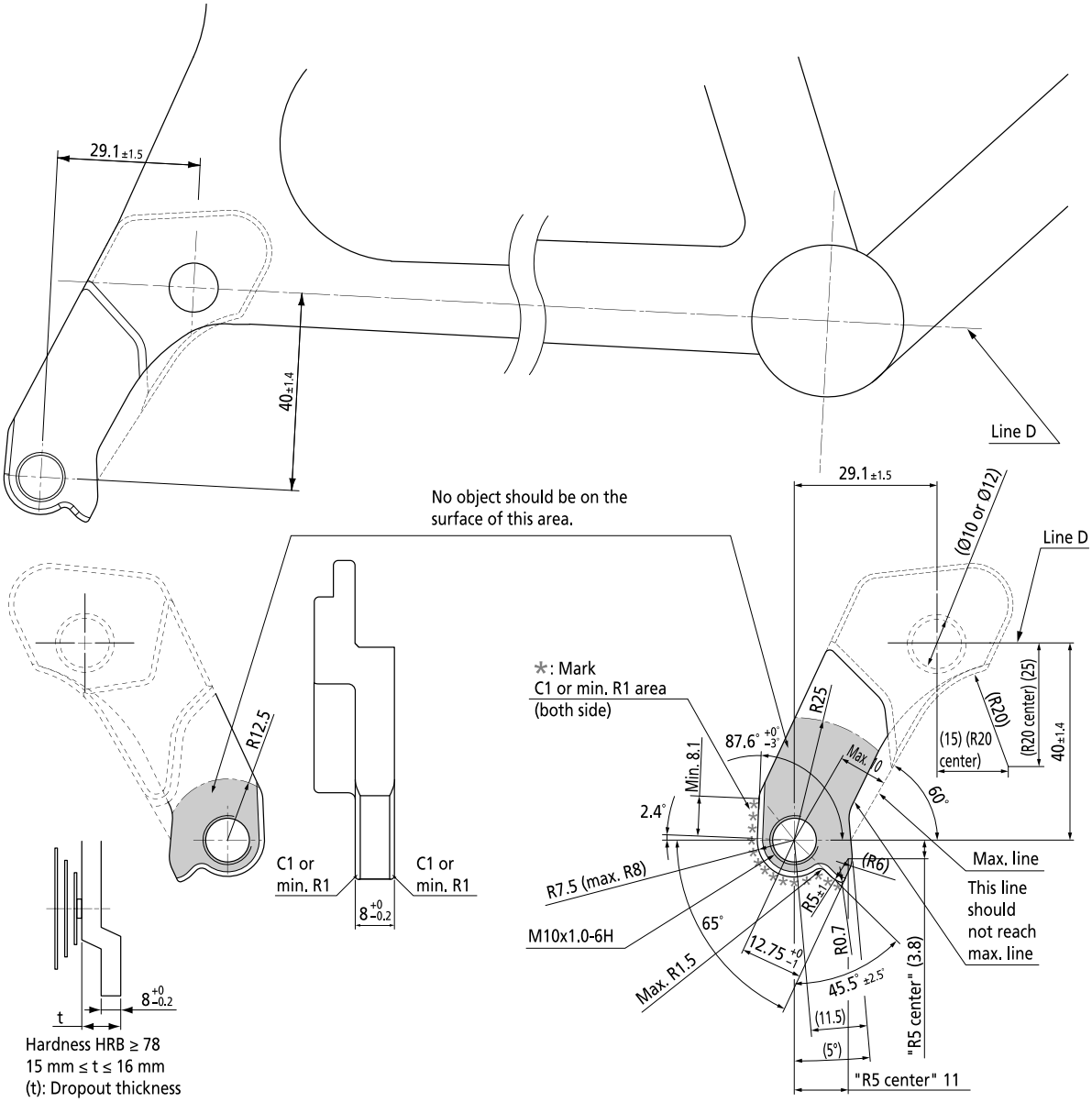
Dimensions for close ratio cassette sprocket (smaller than 11-28T) C-024

RD-M820 / M640

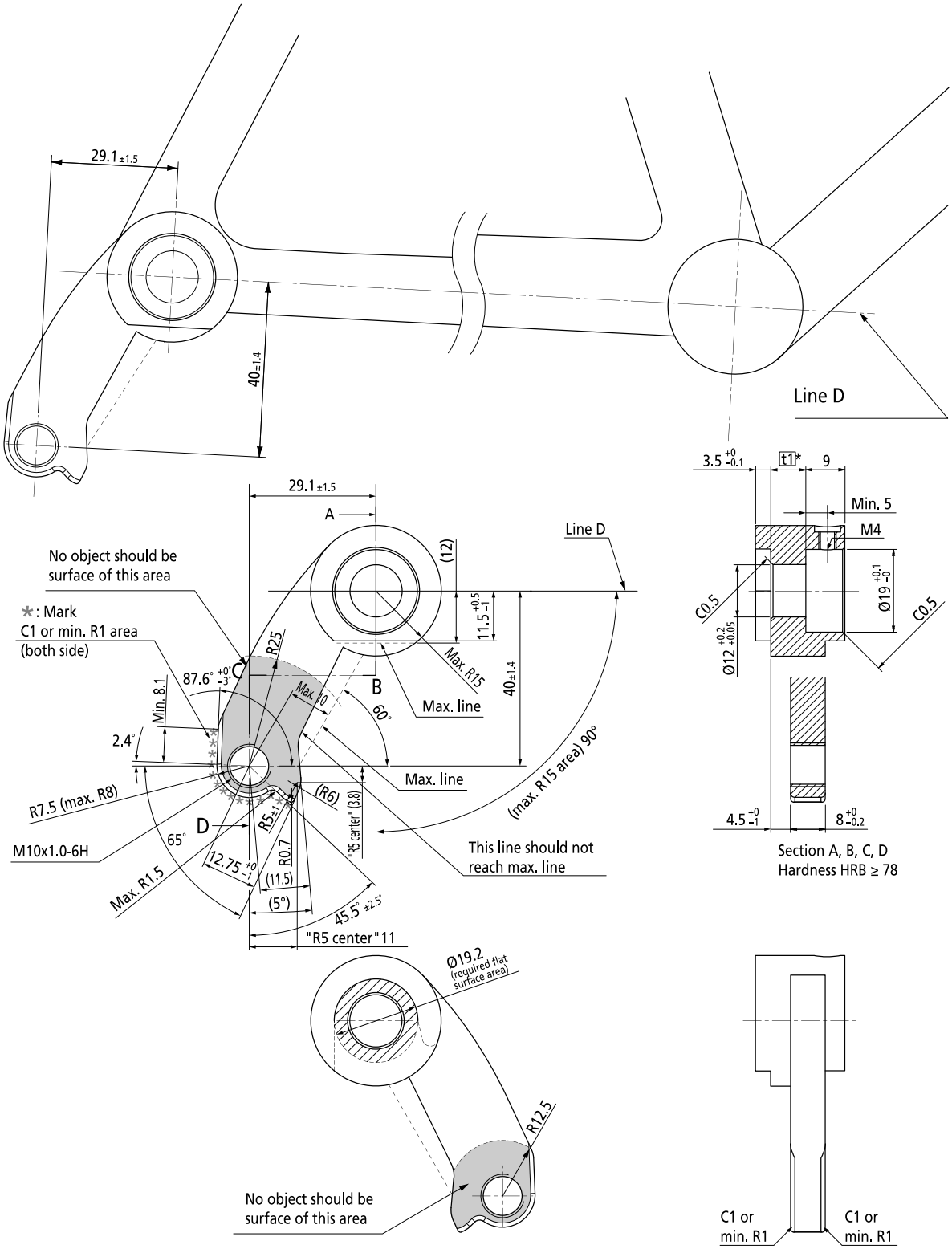
Please refer to C-175 for more information.

> **NOTE**
> This dimensions for close ratio cassette sprocket (downhill spec.) is different from it for wide gear ratio cassette sprocket (freeride spec.)

Thru axle type (O.L.D. 135 / 150 mm)



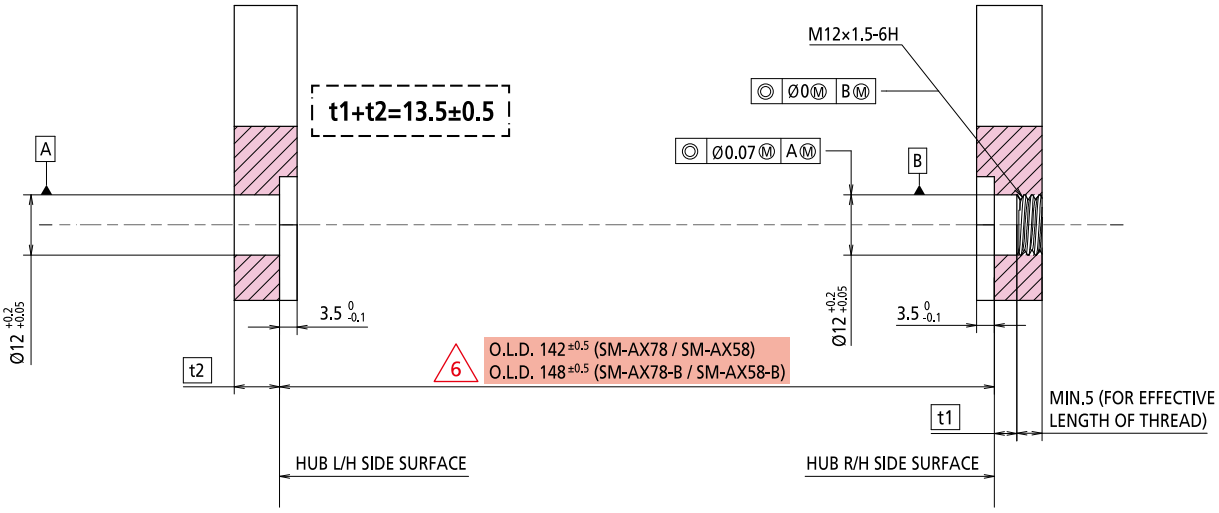
Thru axle type (O.L.D. 142 mm)



* Please refer to C-025 for more rear E-thru system information.

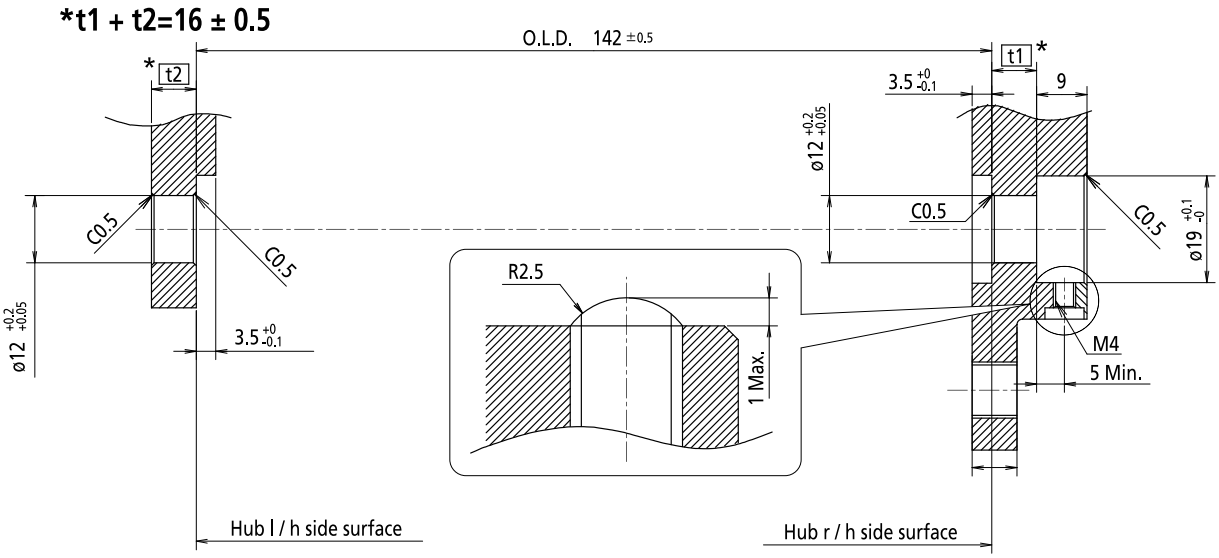
Rear E-thru system C-025

SM-AX78 / SM-AX58(O.L.D. 142mm, I-type)
SM-AX78-B / SM-AX58-B(O.L.D. 148mm, I-type)



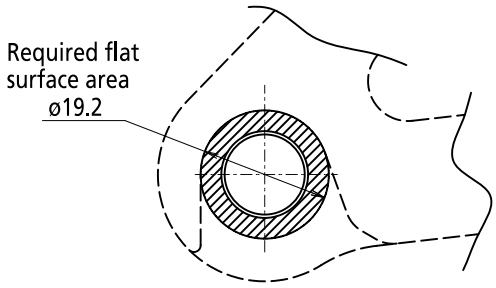
- Total dropout thickness t1 + t2 should be in 13.5 ± 0.5 mm.
- Upper drawing shows an example of dropout.
  Please design and consider for dropout as a whole by your frame design .
- SM-AX78 / SM-AX58 (refer to C-265) total axle length is 163 mm specification only .

SM-AX76 / SM-AX75 / SM-AX65 / SM-AX56



- Total dropout thickness t1 + t2 should be in 16 ± 0.5 mm.
- SM-AX76 / SM-AX75 / SM-AX65 / SM-AX56 specification is lever axle with adjust nut set.
- SM-AX76 / SM-AX75 / SM-AX65 / SM-AX56 total axle length is 171 mm specification only.
- Upper drawing shows an example of dropout and nut keeper.
- Please design and consider for dropout and nut keeper as a whole by your frame design.
- Please design nut keeper section which doesn't give side force to adjust nut.
- If adjust nut is given unnecessary side force, SM-AX76 / SM-AX75 / SM-AX65 / SM-AX56 screwing and rescrewing operation will be heavy.

Required flat surface area



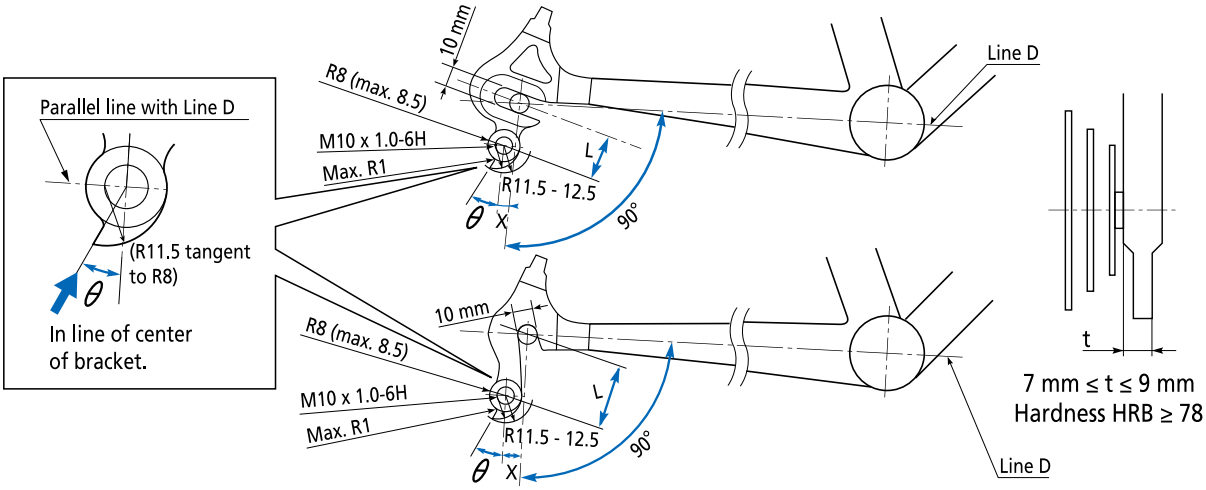
Other information about 12 mm rear E-thru / Thru axle freehub
(SM-AX78 / SM-AX76 / SM-AX75 / SM-AX65 / SM-AX58 / SM-AX56 are not recommended for downhill usage with SAINT and ZEE hubs.)

- About clearance between the smallest sprocket (top gear) and dropout is explained at C-037.
- Dropout configuration and SHIMANO SHADOW RD dropout dimension are explained at C-024.
- There are variety of frame design as well as tire width, so when deciding frame dimensions, please be put attention of rear wheel install and removal operation.

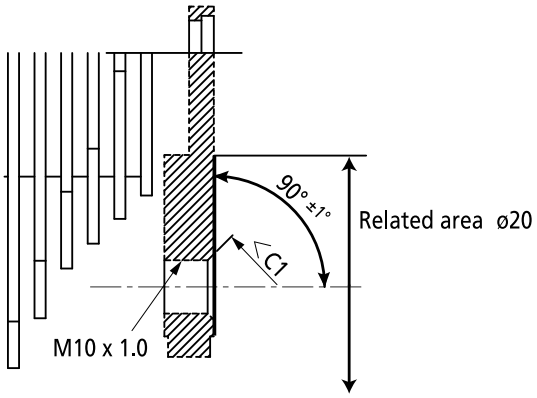
Dropout dimensions [Road]

Rear dropouts (with derailleur hanger) C-028

In order to maintain optimum SIS shifting performance, set dimensions as shown below.



Dropout type	L (mm)	X (mm)	Angle θ
Road bike recommendation	24 to 28	7 to 10	30° to 35°



This information also applies all dropouts.

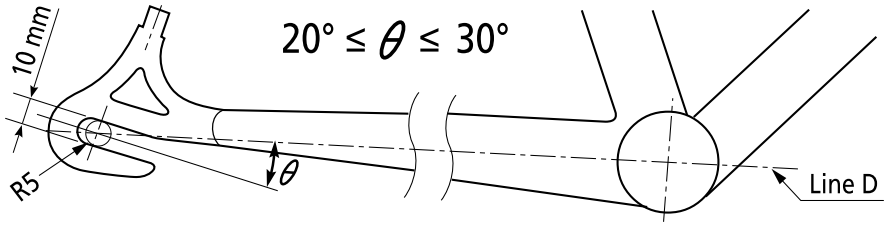
NOTE

If a dropout that does not conform to the dimensions above is used, optimum SIS shifting performance may not be obtained.

Rear dropouts (without derailleur hanger) C-029

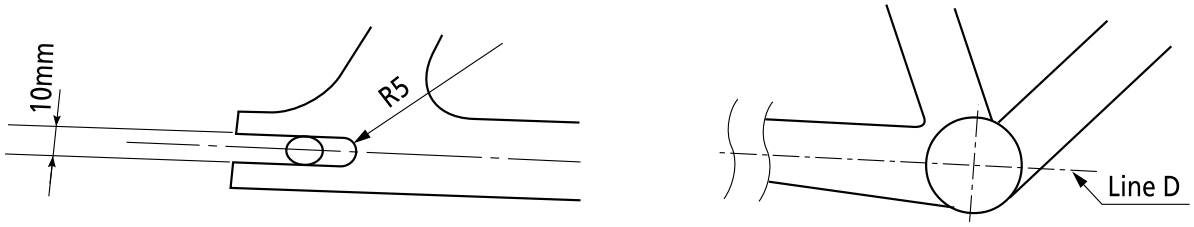
In order to maintain optimum SIS shifting performance, Set dimensions as shown in below.

Normal (Road) type dropout



Thickness: 4mm<t<5mm
Hardness (Over locknut contact portion): HRB≥65

Reversed (BMX, Track) type dropout

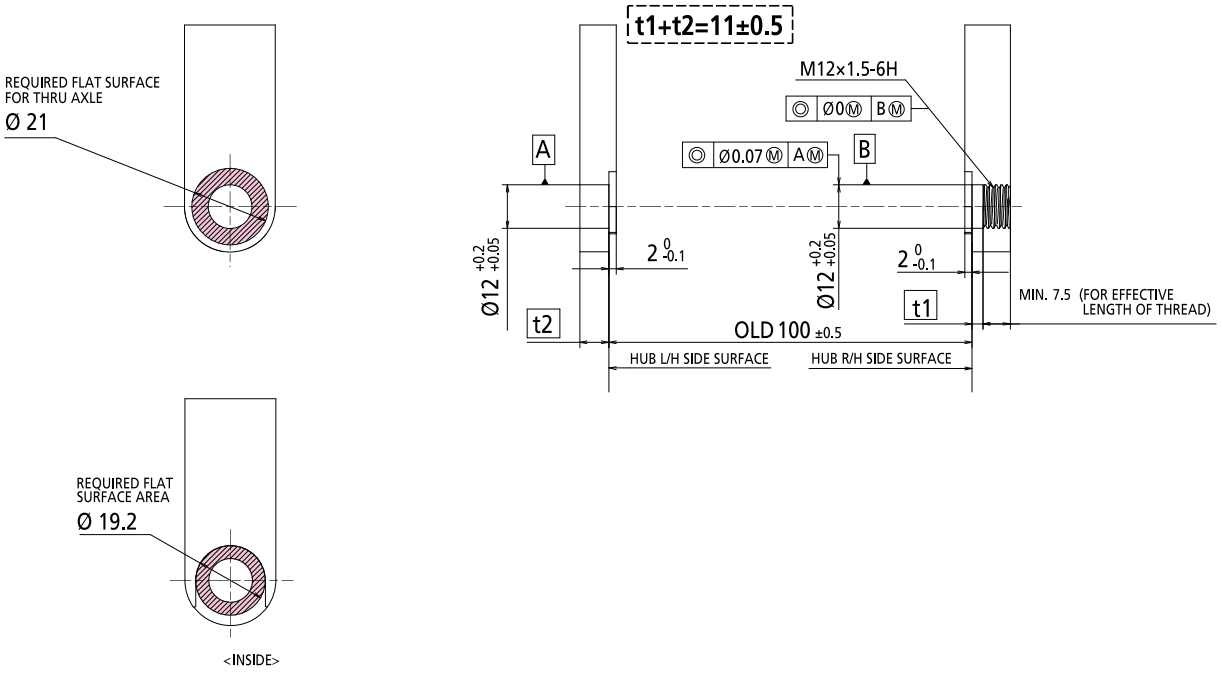


Thickness: 4mm<t<5mm
Hardness (Over locknut contact portion): HRB≥65

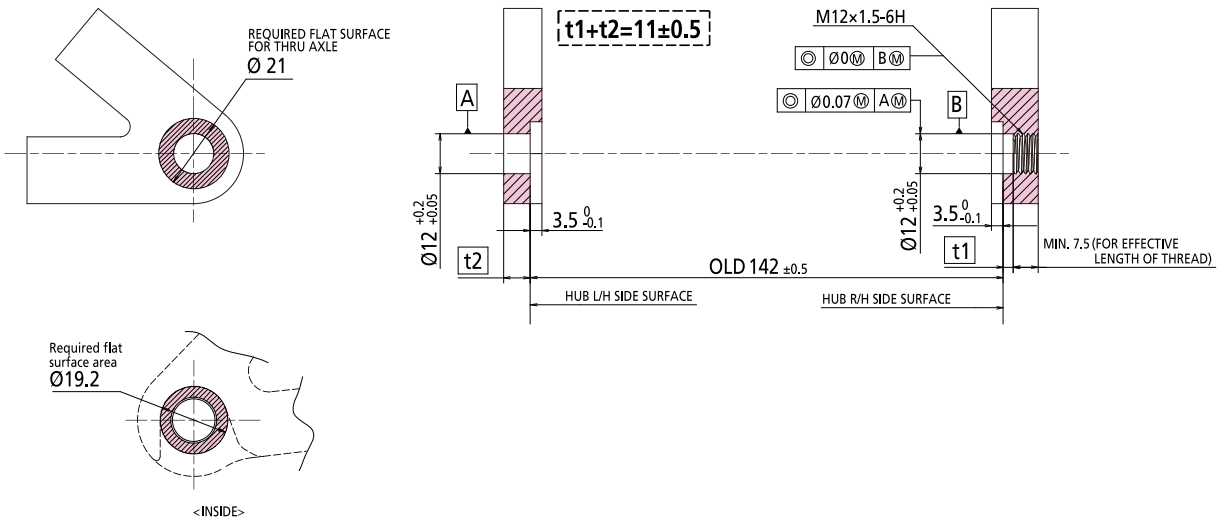
Make sure dropout should not be deformed during assembly and transportation. Less stiff dropout may deform and cause bad shifting performance.

E-thru system for road disc brake

F12 Front E-thru system C-482



R12 Rear E-thru system C-483



Dropout dimensions [COMFORT]

Capreo C-031

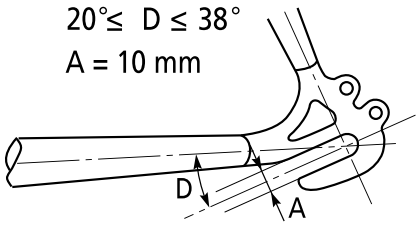
Adjust the dropout so that
l LA-LB l and l LC-LD l ≤ 5 mm
l LA-LB l and l LC-LD l = 0 mm is optimum setting

> **NOTE**
> In case measure Normal(Road) Type Dropout and Reversed(BMX, Track) Type Dropout, use exclusive adapter.
> (Please contact sales office if you need this adapter.)

COMFORT C-032

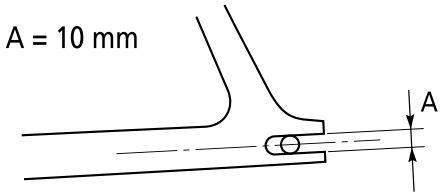
Shimano internal geared hub is designed to be compatible with the following shapes of dropout.

Standard dropout C-033



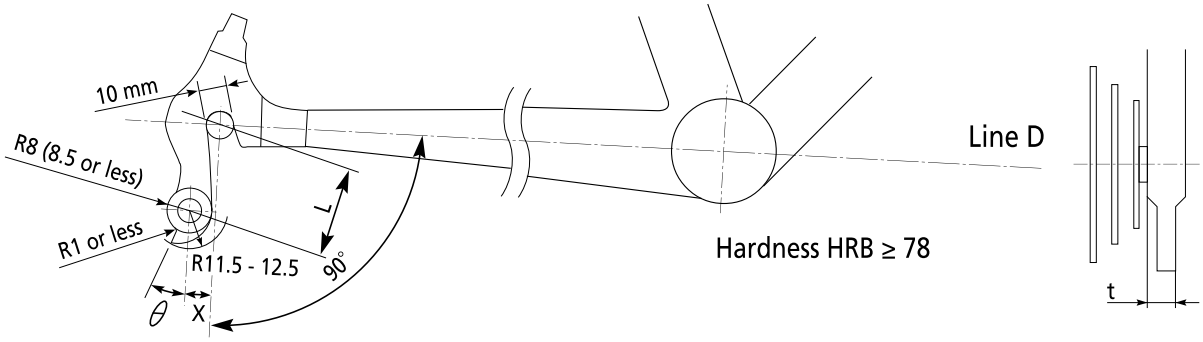
4 mm ≤ t ≤ 7.5 mm
(t): Dropout thickness

Reversed dropout(use with the chain puller.) C-034



4 mm ≤ t ≤ 7.5 mm
(t): Dropout thickness

The CT-S500 is compatible with dropouts of the following sizes.



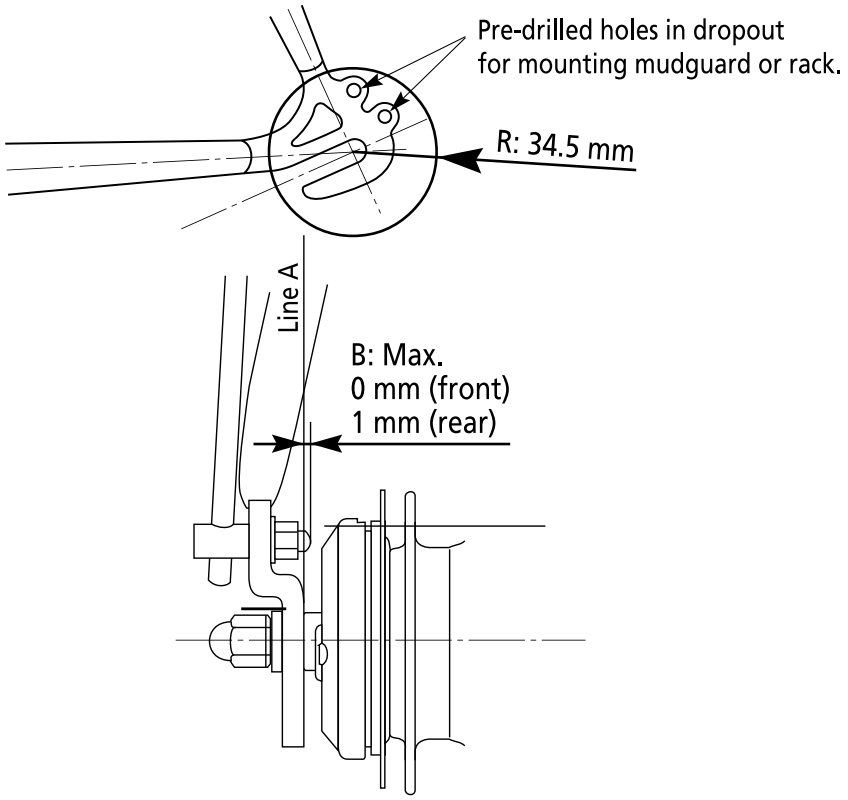
5 mm ≤ t ≤ 9 mm
(t): Dropout thickness

Dropout	L (mm)	X (mm)	θ
Recommended for CT-S500	24	4-10	30° - 35°
	26	6-10	30° - 35°

Cautionary points for installing mudguards and carrier racks [COMFORT]

C-035

Verify the dimensions shown in the diagrams below when installing mudguards or carrier racks.
If the pedestal of carrier racks is within R:34.5 mm, please confirm the length of bolt jutted shown as B.



NOTE
Also please confirm that mount bolt will not contact brake body after screwing it.

Dropout width / QR skewer length

C-036

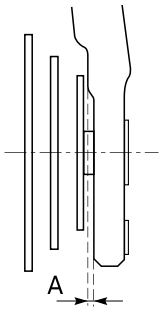
Rear freehub QR skewer length adaptation with dropout specification.

		O.L.D. (mm)	Dropout thickness (mm) (width of left hand dropout + righthand dropout)	QR skewer length (mm)	
				Alloy QR lever	Steel QR lever
Rear	MTB	135	12 - 16	168	166
		135	16 - 20	173	170
		130	12 - 16	-	161
	Road Cyclocross	135	12 - 16	168	166
		135	16 - 20	173	170
		130	12 - 16	163	161
		130	16 - 20	168	-
Front	MTB Road Cyclocross	100	8 - 12	129	129
			12 - 16	133	133
			15 - 19	136	136

Clearance between the smallest sprocket and dropout

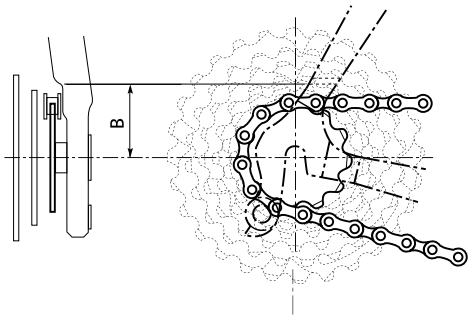
Set the distance between the smallest sprocket (top gear) and the rear dropout as explained below.

The top gear position of Shimano 11, 10, 9-speed cassette sprocket is the same as 8-speed HG cassette sprockets.



Speed	Dimension “A” (mm)
11, 10, 9, 8-speed	1.3 (max.)
7, 6-speed	2.2 (max.)

These dimensions must be maintained to prevent contact between the seat stay, and the chainstay and the chain when the chain is on the smallest sprocket. (the dimensions will differ depending on the number of teeth on the smallest sprocket.)

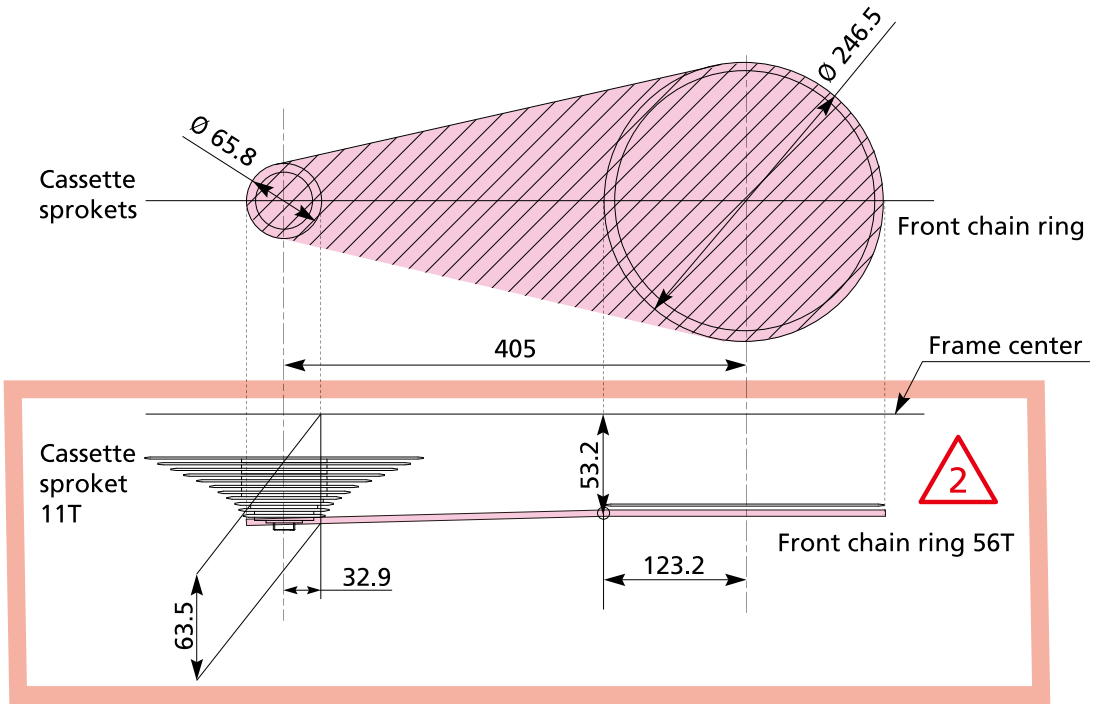


Teeth	Dimension “B” (mm)
9T*	26 (min.)
11, 12T	30 (min.)
13T	32 (min.)
14T	34 (min.)
15T	36 (min.)
16T	38 (min.)

9T*: For Capreo

Interference area of the frame (for T T or Triathlon) for 11-speed with the maximum chain line (56 - 11T) C-038

Please make sure that there is no interference with the frame.

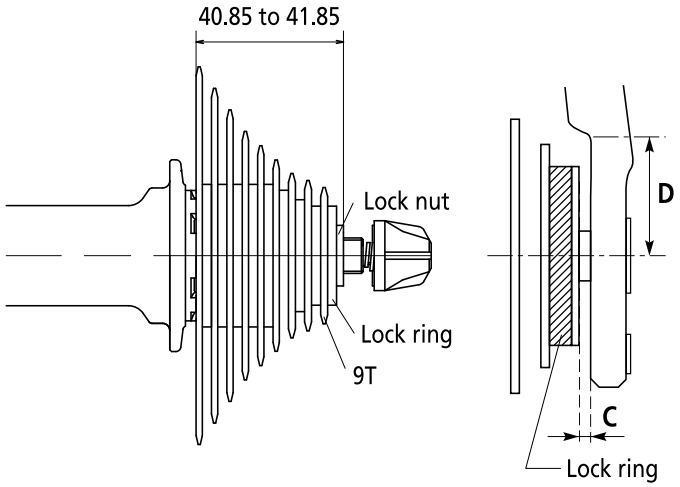


NOTE

Interference area does not include the margin of clearance and includes 11-speed chain dimension.

Capreo C-039

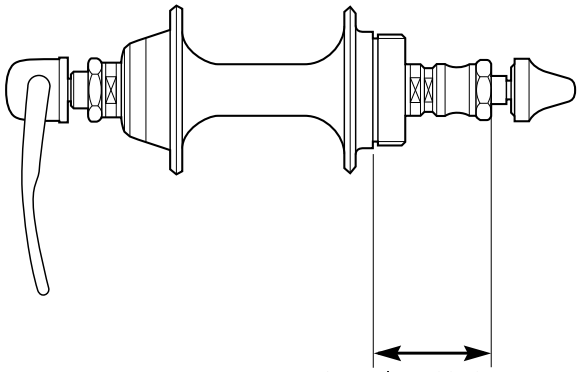
Set the distance between lock ring and the rear dropout as explained below.



Dimension “C” (mm)	Dimension “D” (mm)
1.25 (min.)	15.0 (min.)

Rear hub dimensions [MTB]

Be sure to observe the dimensions shown in the illustration when assembling 7, 6-speed multiple freewheels.

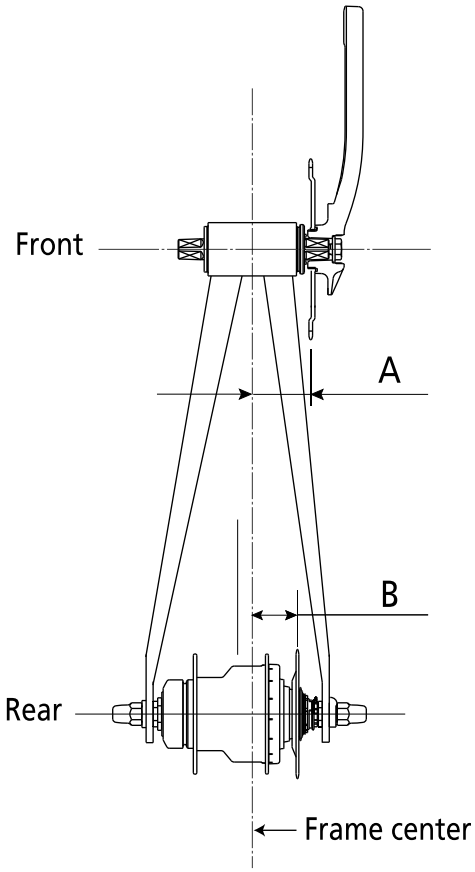


Chain line for internal geared hub

C-042

| A - B | ≤ 5 mm
In case of small wheel bicycle; | A - B | ≤ 3 mm

A: Actual front chain line
B: Actual rear chain line



NOTE

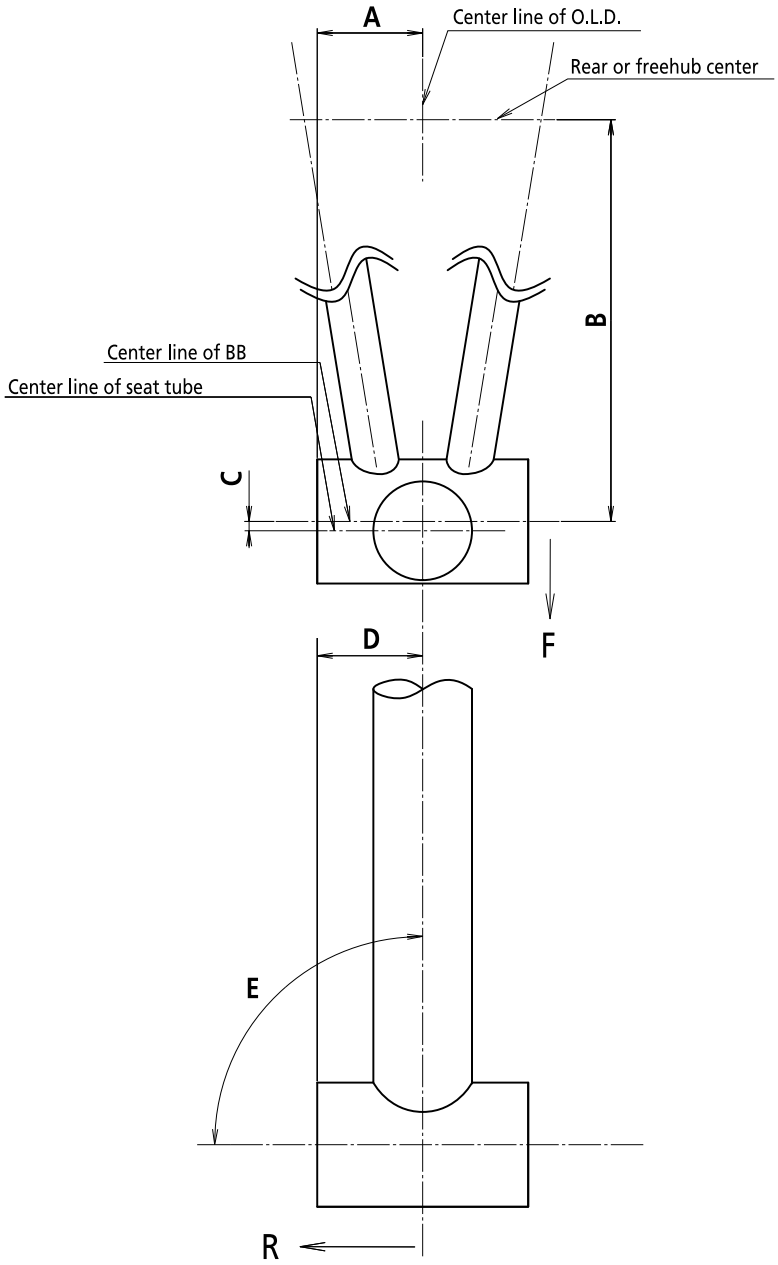
Without following spec.
Double guard spec crankset (FC-S501) with chain tensioner (CT-S500 or CT-S510) and sproket with chain guard (CS-S500).

Band type [MTB, ROAD]

C-044

Recommended seat tube diameter

S: ø28.3 - ø28.8
M: ø31.5 - ø32.0
L: ø34.6 - ø35.1

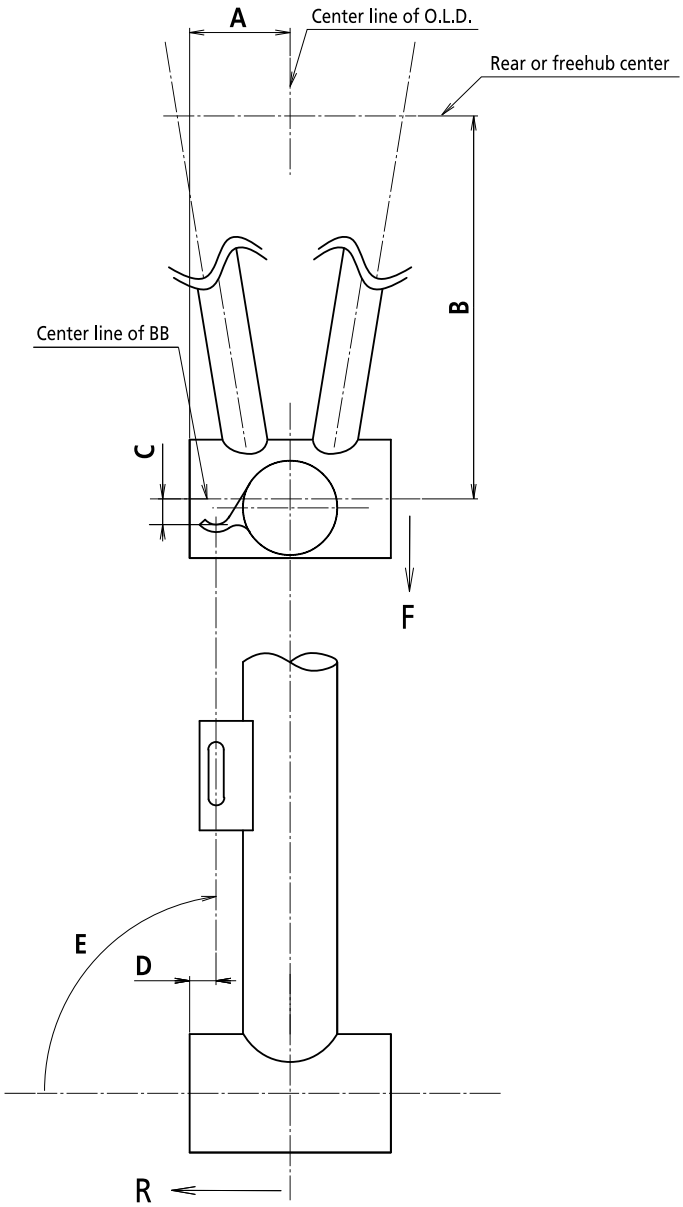


A: Dimension for right surface of BB shell and center of O.L.D.
B: Dimension for BB center and freehub center (chainstay length)
C: Dimension for brazed-on boss / seat tube center and BB center
D: Dimension for brazed-on boss / seat tube center and right surface of BB shell
E : Angle between brazed-on boss / seat tube center and BB center

		BB width (mm)	A ± 1.5 (mm)	B min. (mm)	C ± 0.5 (mm)	D ± 0.5 (mm)	E ± 0.2	Remarks
MTB	BC68	68.0	34.0	420	0	34.0	90°	
	BC73	73.0	36.5	420	0	36.5	90°	
	BC83	83.0	41.5	420	0	41.5	90°	
	Press-Fit 92	92.0	47.25	420	0	47.25	90°	SM-BB94-41A SM-BB91-41A SM-BB71-41A BB-MT800-PA BB-MT500-PA
	Press-Fit 89.5	89.5	44.75	420	0	44.75	90°	SM-BB94-41A SM-BB91-41A SM-BB71-41A BB-MT800-PA BB-MT500-PA
ROAD	BC	68.0	34.0	405	0	34.0	90°	
	ITALIAN	70.0	35.0	405	0	35.0	90°	
	Press-Fit 86.5	86.5	43.25	405	0	43.25	90°	SM-BB92-41B SM-BB91-41B SM-BB71-41B SM-BB72-41B BB-RS500-PB

Brazed-on type [ROAD]

Recommended seat tube diameter
S: ø28.3 - ø28.8
M: ø31.5 - ø32.0
L: ø34.6 - ø35.1



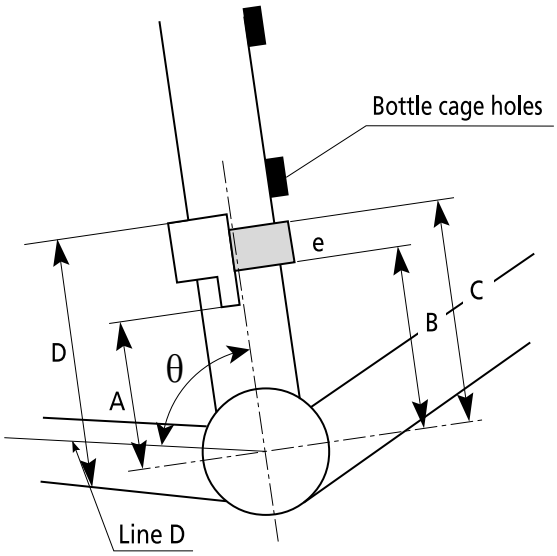
A: Dimension for right surface of BB shell and center of O.L.D.
B: Dimension for BB center and freehub center (chainstay length)
C: Dimension for brazed-on boss / Seat tube center and BB center
D: Dimension for brazed-on boss / Seat tube center and right surface of BB shell
E: Angle between brazed-on boss / Seat tube center and BB center

	BB width (mm)	A ± 1.5 (mm)	B min. (mm)	C ± 0.5 (mm)	D ± 0.5 (mm)	E ± 0.2	Remarks
BC	68.0	34.0	405	8.7	9.0	90°	
ITALIAN	70.0	35.0	405	8.7	10.0	90°	
Press-Fit 86.5	86.5	43.25	405	8.7	18.25	90°	SM-BB92-41B SM-BB91-41B SM-BB71-41B SM-BB72-41B BB-RS500-PB

Band type [MTB]

The clamp band for the front derailleur is secured on the seat tube at the location marked “e”.

Make sure that the seat tube at “e” where the band is secured is circular. Do not place tapered or bended seat tube, the bottle cage holes, etc. in this vicinity “e” where they may interfere with the clamp band.



A: From BB center to bottom of rear clamp band.
B: From BB center to bottom of clamp band.
C: From BB center to top of clamp band.
D: From BB center to top of rear clamp band.

Recommended seat tube diameter

	Min. (mm)	Max. (mm)
S	28.3	28.8
M	31.5	32.0
L	34.6	35.1

Low clamp type / top swing C-048

Speed	Model No.	θ(deg.)	Crankset	A (mm)	B (mm)	C (mm)	D (mm)
11	FD-M9000-L FD-M8000-L	66-69	40T	68	68	90	90
	FD-M9050-L		40T	68	68	90	91
	FD-M9020-L FD-M8020-L		34T	60	60	82	82
			36T	64	64	86	86
			38T	68	68	90	90
	FD-M9025-L FD-M8025-L		34T	60	60	83	85
			36T	64	64	87	89
			38T	68	68	91	93
	FD-M9070-L		34T	60	60	82	83
			36T	64	64	86	87
			38T	68	68	90	91
10	FD-M980		42T	60	60	83	85
	FD-M780-A FD-M670-A FD-M610		40T	57	58	81	82
			42T	61	62	85	86
	FD-M672-L FD-M612-L		40T	68	68	90	90
			42T	72	72	94	94
	FD-M985 FD-M785 FD-M675 FD-M615		38T	60	60	83	85
			40T	64	64	87	89
			42T	68	68	91	93
			44T	72	72	95	99
	FD-M677-L FD-M617-L		36T	64	64	86	86
			38T	68	68	90	90
	FD-M618-L		36T	64	64	87	89
			38T	68	68	91	93
	FD-T780-6 FD-T670-6 FD-T610-6		44T	58	60	83	84
			48T	66	68	91	92
	FD-T780-3 FD-T670-3 FD-T610-3	63-66	44T	58	60	83	84
			48T	66	68	91	92

Speed	Model No.	θ(deg.)	Crankset	A (mm)	B (mm)	C (mm)	D (mm)
9	FD-M4000-TS3 FD-M4000-TS6	-3 / -TS3: 63-66 -6 / -TS6: 66-69	40T	52	55	78	79
	FD-T4000-TS3 FD-T4000-TS6		44T	60	63	86	89
			48T	68	71	94	97
	FD-M3000-TS3 FD-M3000-TS6		40T	52	55	78	79
	FD-T3000-TS3 FD-T3000-TS6		44T	52	52	75	76
			48T	60	60	83	84
	FD-M390-3 FD-M370-3 FD-M390-6 FD-M370-6		44T	52	52	75	76
			48T	60	60	83	84
8,7	FD-M360-3 FD-M360-6 FD-M310-3 FD-M310-6		42T	48	48	71	72
			48T	60	60	83	84
	FD-TX800-TS3 FD-TX800-TS6		42T	48	48	71	72
			48T	60	60	83	84
	FD-M190-3 FD-M190A-6		42T	48	48	70	72
	FD-M191-3 FD-M191-6		48T	60	60	82	84
7, 6	FD-TX50-3 FD-TX50-6		42T	48	48	70	72
	FD-TX51-3 FD-TX51-6		48T	60	60	82	84

High clamp type / down swing C-049

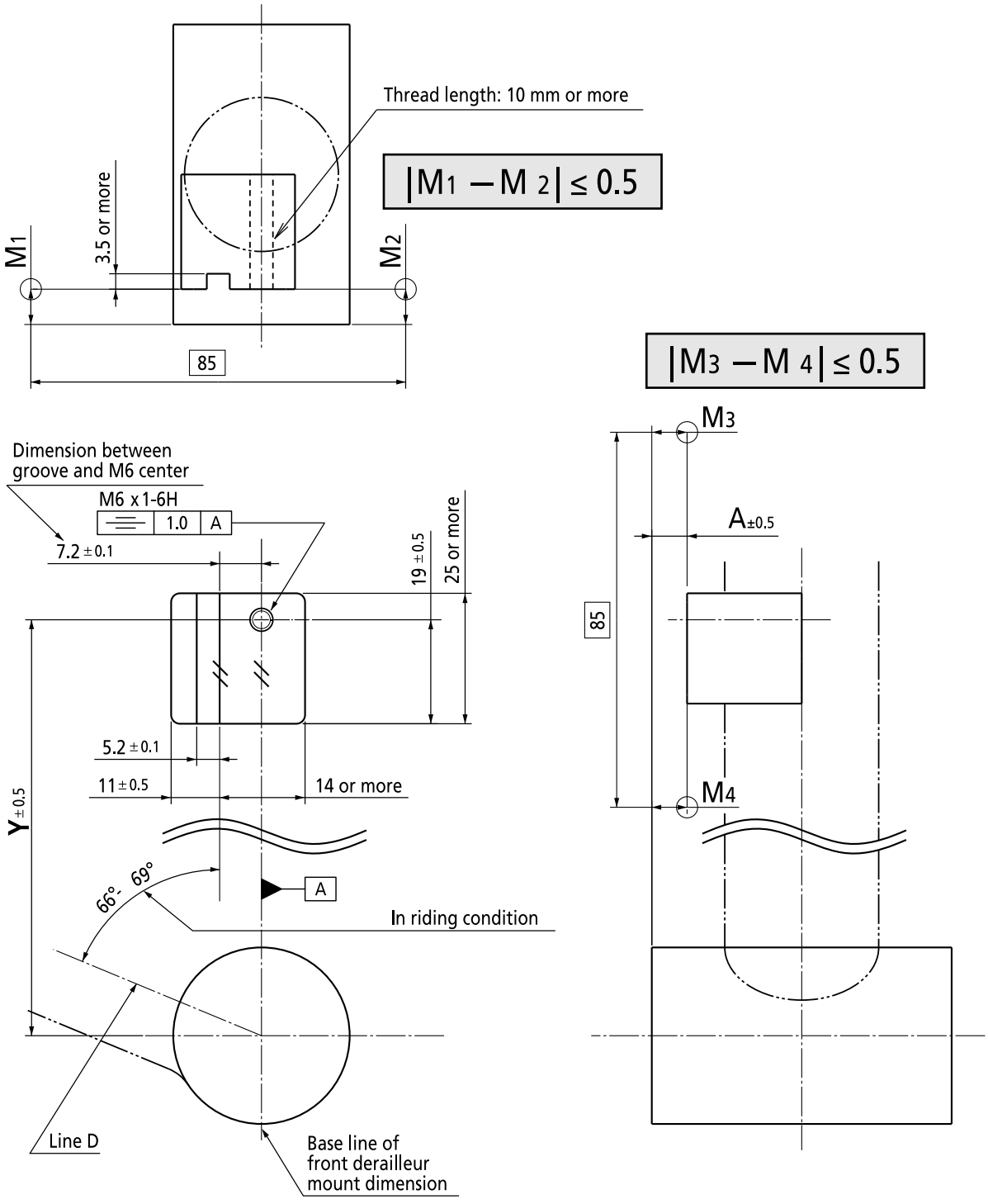
Speed	Model No.	θ (deg.)	Crankset	A (mm)	B (mm)	C (mm)	D (mm)
11	FD-M9000-H FD-M8000-H	66-69	40T	128	128	151	151
	FD-M9050-H		40T	128	128	151	151
	FD-M9020-H FD-M8020-H		34T	120	120	143	143
			36T	124	124	147	147
			38T	128	128	151	151
	FD-M9025-H FD-M8025-H		34T	120	120	143	143
			36T	124	124	147	147
			38T	128	128	151	151
	FD-M9070-H		34T	120	120	143	143
			36T	124	124	147	147
			38T	128	128	151	151
10	FD-M981		42T	124	124	147	147
	FD-M781-A FD-M671-A FD-M611		40T	120	120	143	144
			42T	124	124	147	148
	FD-M672-H FD-M612-H		40T	128	128	151	151
			42T	132	132	155	155
	FD-M986 FD-M786 FD-M676 FD-M616		38T	120	120	143	143
			40T	124	124	147	147
			42T	128	128	151	151
			44T	132	132	155	155
	FD-M677-H FD-M617-H		36T	124	124	147	147
			38T	128	128	151	151
	FD-M618-H		36T	124	124	147	147
			38T	128	128	151	151
	FD-T781-3 FD-T671-3 FD-T611-3	63-66	44T	131	131	154	155
			48T	139	139	162	163

Speed	Model No.	θ (deg.)	Crankset	A (mm)	B (mm)	C (mm)	D (mm)
9	FD-M773	63-66	44T	129	133	157	
	FD-M4000-DS3 FD-M4000-DS6	-3 / -DS3: 63-66 -6 / -DS6: 66-69	40T	128	128	152	152
	FD-T4000-DS3		44T	123	127	150	152
			48T	131	135	158	160
	FD-M371-3 FD-M371-6		44T	125	128	150	153
			48T	133	136	158	161
8,7	FD-M313-3 FD-M313-6		42T	116	116	138	148
			48T	128	128	150	160
7,6	FD-TY10 FD-TZ30	66-69	42T	108	116	135	135
	FD-TZ31		48T	115	122	140	140

Direct mount type [MTB]

Frame requirement and compatibility [MTB] C-051

Please refer to Shimano recommended MTB direct mount part on seat tube below.



BB type	BB shell width (mm)	A dimension (mm)
Threaded	68.0	8.0
	73.0	10.5
	83.0	8.0
Press-Fit	89.5 (symmetric)	18.75
	92.0 (asymmetric)	21.25

Chain line 3mm outboard spec.

BB type	BB shell width (mm)	A dimension (mm)
Threaded	68.0	5.0
	73.0	7.5
	83.0	5.0
Press-Fit	89.5 (symmetric)	15.75
	92.0 (asymmetric)	18.25

5

NOTE

*Please refer to technical information of crankset dimension which is 3mm outboard spec.
*It also requires new dimension of frame which cassette position is 3mm outboard

FD type	Mount (Y)	Speed	Gear	Model No.
				FD-M9025-D
Down swing	155.5 mm	11	38-28T	X
			36-26T	X
			34-24T	X
	159.5 mm	11	38-28T	X
			36-26T	X
			34-24T	–

FD type	Mount (Y)	Speed	Gear	Model No.			
				FD-M981-D (3x10-speed)	FD-M781-A-D FD-M671-A-D FD-M611-D (3x10-speed)	3 FD-M618-D (New 2x10-speed)	FD-M986-D FD-M786-D FD-M676-D FD-M616-D (2x10-speed)
Down swing	155.5 mm	10	40-30-22T	–	X	–	–
			42-32-24T	X	X	–	–
			36-22T	–	–	X	–
			38-24T	–	–	X	–
						–	X
			38-26T	–	–	–	X
			40-28T	–	–	–	X
			42-30T	–	–	–	X
			44-30T	–	–	–	–
	159.5 mm	10	40-30-22T	–	–	–	–
			42-32-24T	X	X	–	–
			36-22T	–	–	X	–
			38-24T	–	–	X	–
			38-26T	–	–	–	–
			40-28T	–	–	–	X
			42-30T	–	–	–	X
			44-30T	–	–	–	X
	2 155.5mm	9	40-30-22T	–	–	–	–

FD type	Mount (Y)	Speed	Gear	Model No.	
				FD-M9000-D FD-M8000-D	FD-M9020-D FD-M8020-D
Side swing	155.5 mm	11	40-30-22T	X	–
			34-24T	–	X
			36-26T	–	X
			38-28T	–	X
	159.5 mm	11	40-30-22T	X	–
			38-28T	–	X
			36-26T	–	X
			34-24T	–	–

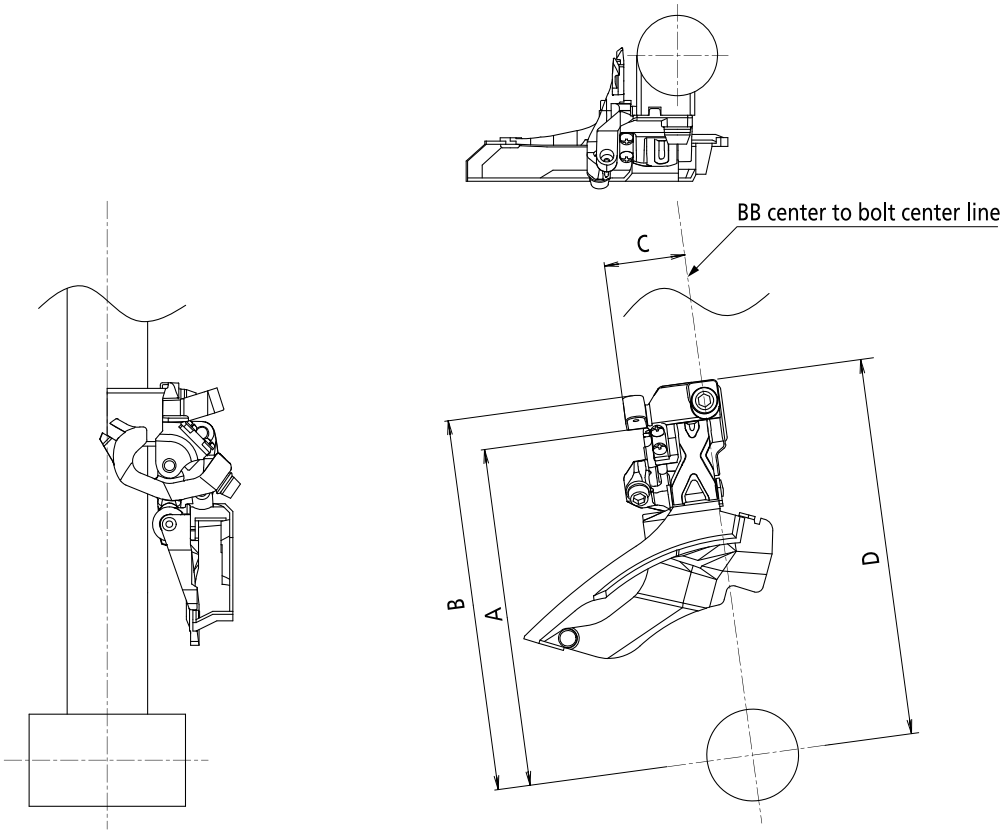
2

FD type	Mount (Y)	Speed	Gear	Model No.	
				FD-M672-D FD-M612-D	FD-M677-D FD-M617-D
Side swing	155.5 mm	10	40-30-22T	X	–
			42-32-24T	–	–
			38-24T	–	X
			36-22T	–	X
	159.5 mm	10	40-30-22T	X	–
			42-32-24T	X	–
			38-24T	–	X
			36-22T	–	X

FD type	Mount (Y)	Speed	Gear	Model No.	
				FD-M9050 + SM-FD905-D	FD-M9070 + SM-FD905-D
Di2	155.5 mm	11	40-30-22T	X	-
			34-24T	-	X
			36-26T	-	X
			38-28T	-	X
	159.5 mm	11	40-30-22T	X	-
			38-28T	-	X
			36-26T	-	X
			34-24T	-	-

CAUTION

155.5 mm dimension is compatible with 10,9-speed, except for 10-speed 44-30T.
159.5 mm dimension is compatible with 10-speed only, except for 10-speed 40-30-22T, 38-26T, 38-24T.
Please contact to Shimano sales office before using this option.

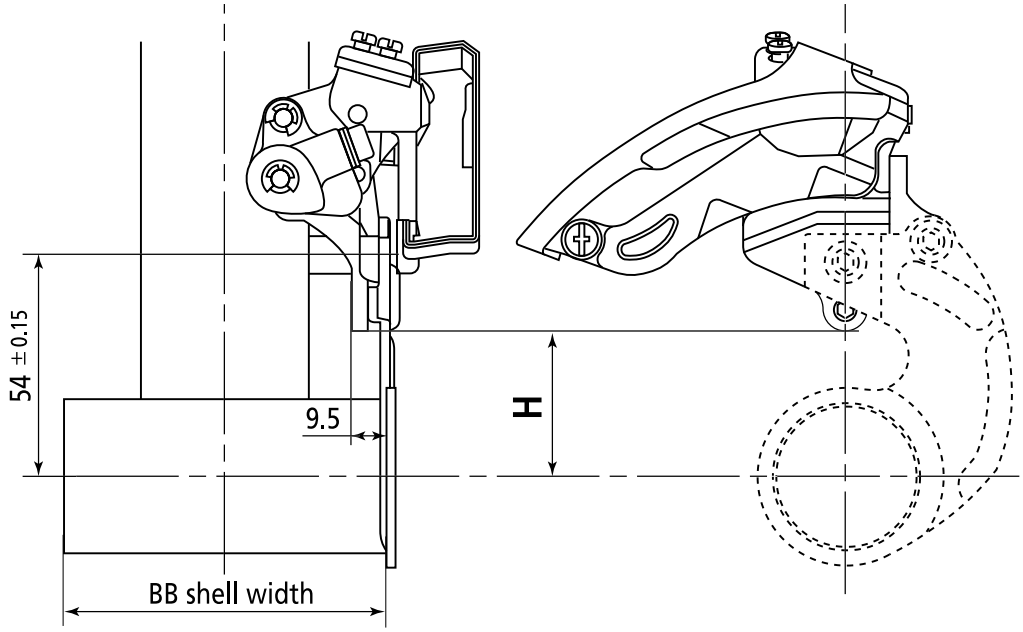


Please refer to C-054 for other dimensions.

FD type	Speed	Model No.	Gear	A(mm)	B (mm)	C (mm)	D(mm)
Down swing (dual pull)	11	FD-M9025-D FD-M8025-D	34T	136	155	35	166
			36T	140	159	35	170
			38T	144	163	35	174
	10	FD-M981-D	42T	141	158	36	171
		FD-M611-D FD-M671-A-D FD-M781-A-D	40T	137	154	36	167
			42T	141	158	36	171
		FD-M786-D FD-M986-D	38T	137	154	36	167
			40T	141	158	36	171
			42T	145	162	36	175
			44T*	149	166	36	179
		FD-M618-D	36T	140	159	35	170
			38T	144	163	35	174

Bottom bracket mount type [MTB]

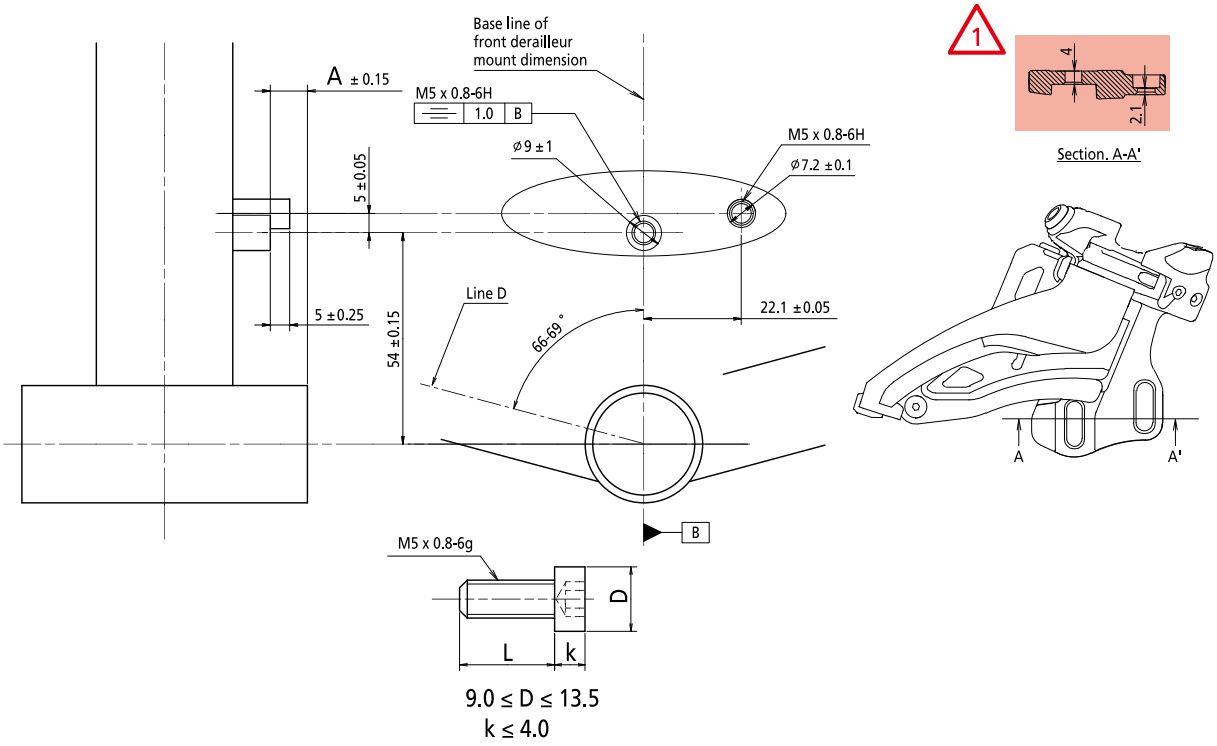
The dimensions are as shown below. Please make sure that there is no interference with the frame.



FD type	Speed	Model No.	Outer chainring teeth	Dimension H (mm)	BB shell width (mm)
Side swing	11	FD-M9000-E FD-M8000-E	40T	46	68,73
		FD-M9020-E FD-M8020-E	34T	38	
			36T	42	
			38T	46	
Top swing (down pull only)		FD-M9025-E FD-M8025-E	34T	38	
			36T	42	
			38T	46	
Di2		FD-M9050-E	40T	46	
		FD-M9070-E	34T	38	
			36T	42	
			38T	46	
Side swing	10	FD-M672-E FD-M612-E	40T	46	
			42T	-	
		FD-M677-E FD-M617-E	36T	42	
			38T	46	
Top swing		FD-M980-E	42T	42	
		FD-M780-A-E FD-M670-A-E FD-M610-E	40T	42	
			42T	46	
		FD-M985-E	40T	38	
			42T	42	
			44T	46	
		FD-M985-E2 FD-M785-E2 FD-M675-E2 FD-M615-E2	38T	42	
			40T	46	
Top swing (down pull only)		FD-M618-E	36T	42	
			38T	46	

Without BB plate

If you use w / o BB-plate E-type, the frame should be kept as following dimensions.



BB type	BB shell width (mm)	A dimension (mm)
Threaded	68.0	7.0
	73.0	9.5
	83.0	7.0
Press-Fit	89.5 (symmetric)	17.75
	92.0 (asymmetric)	20.25

Please set proper "L" length based on the material and surface treatment of the thread.
There are no damages to the bolt after tightening by the following torque. Tightening torque: 5.0 - 7.0 N·m (44 - 60 in.lbs.)
* Shimano do not provide this fitting bolt, so please use the bolt like this size.

CAUTION

Please contact to Shimano sales office before using this option.

Chain line 3mm outboard spec.

BB type	BB shell width (mm)	A dimension (mm)
Threaded	68.0	4.0
	73.0	6.5
	83.0	4.0
Press-Fit	89.5 (symmetric)	14.75
	92.0 (asymmetric)	17.25

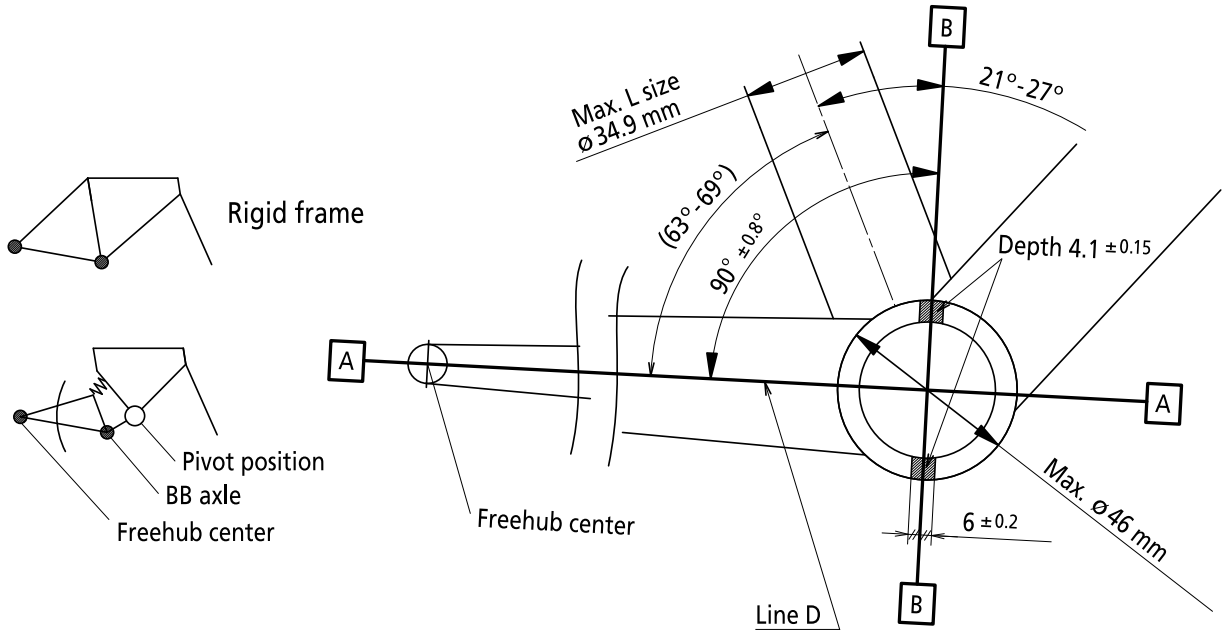
NOTE

*Please refer to technical information of crankset dimension which is 3mm outboard spec.
*It also requires new dimension of frame which cassette position is 3mm outboard

Frame dimensions for FD-M410-E

The FD-M410-E is a front derailleur which is designed according to new specifications. This front derailleur can be used with frames that have the dimensions listed below.

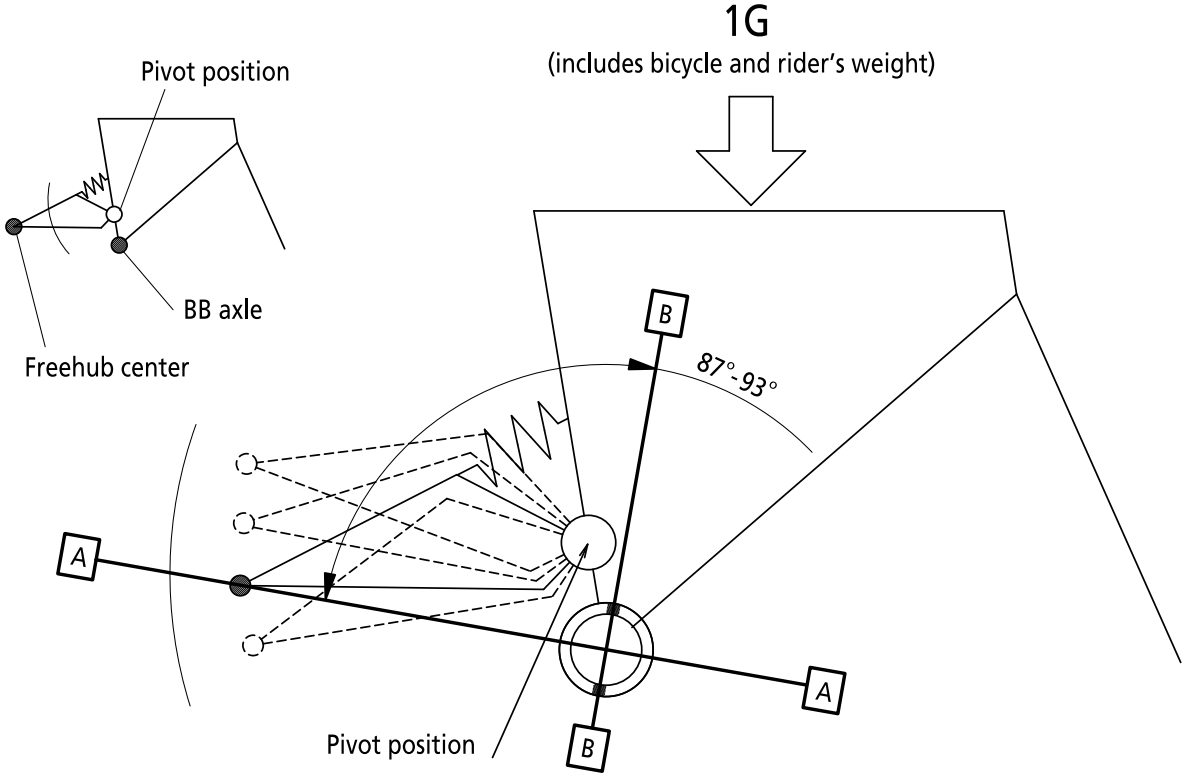
Due to new installation system adopted, slits are required on the right side edge of BB shell as following (fig. 1).
A new BB mount system can allow one specification of front derailleur to fit various frame design as well as it achieves precise shifting.



Line A: The straight line that joins the BB and freehub axes.
Line B: The straight line that joins the upper and lower BB slits.

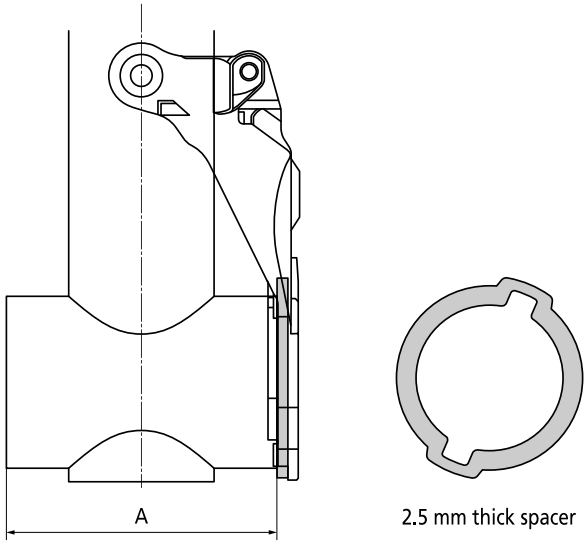
With this type, the straight line that joins the BB and freehub axes is not affected by the movement of the rear suspension (like a rigid bike and this diagram).

The angle between the seat tube and line B should be 21° to 27°.



With this type, the straight line that joins the BB and freehub axes is affected by the movement of the rear suspension (like this diagram). Provide slits, as shown in the diagram, so that the angle between the line A and line B is between 87° and 93° even if the suspension moves when riding. Also, bearing in mind the situation when riding, adjust the front derailleur within a range of 87° and 93°.
If road conditions cause the suspension to move greatly, the chain and front derailleur might touch.

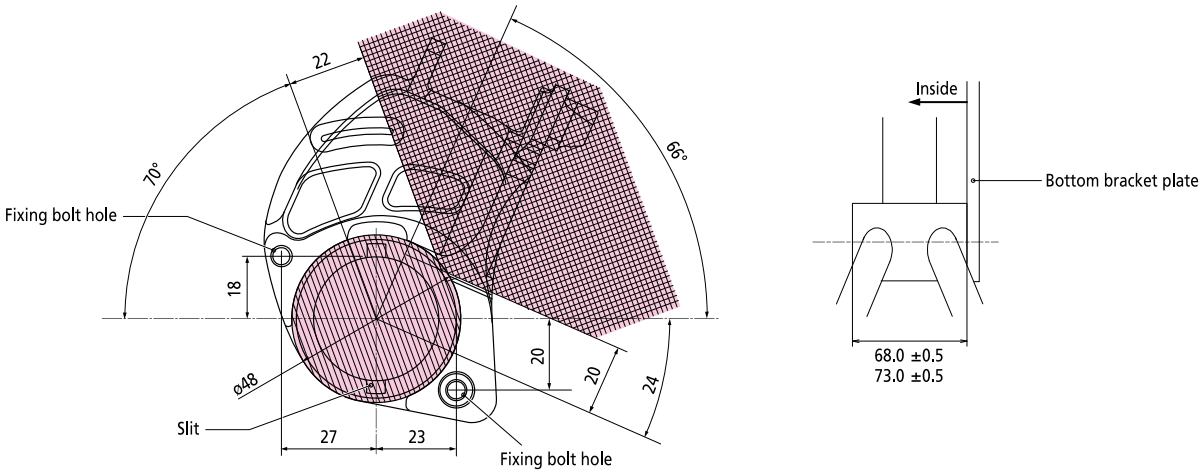
Combinations



A	2.5 mm thick spacer
68 ± 0.5 mm	x
73 ± 0.5 mm	-

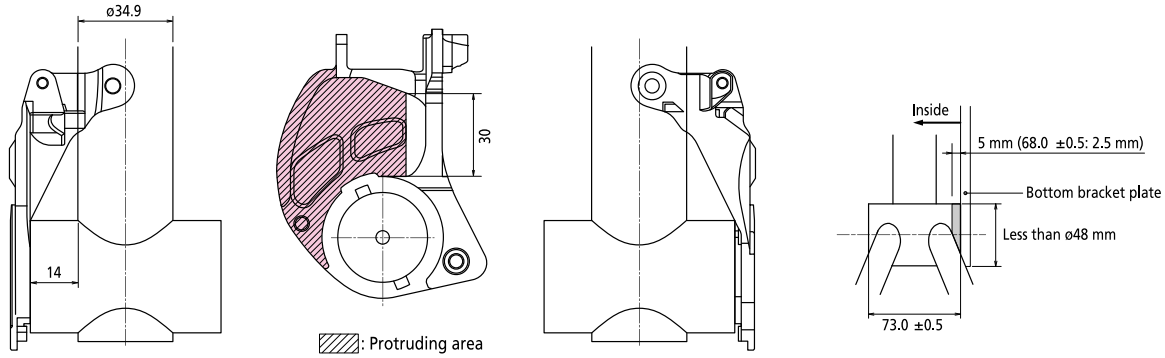
X: Yes

When using with a chain case



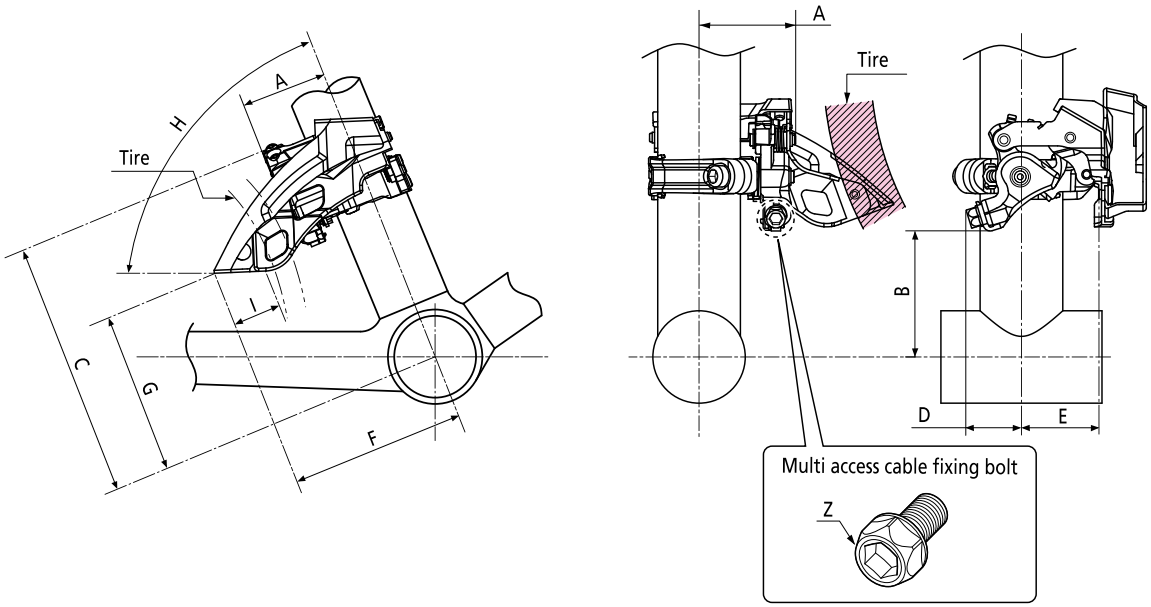
- Ensure that there are no protruding parts in the hatching area to avoid interference with the front derailleur or bottom bracket.
- The chain case needs to be fixed onto the frame or the bottom bracket plate using the fixing bolt holes.
- The chain case must not be placed in between the bottom bracket shell and the slit of the bottom bracket plate.
- The chain case must be inside the edge of the bottom bracket shell to avoid touching the bottom bracket plate of the front derailleur.

Interference dimensions



Ensure that there are no protruding parts in the hatching area to avoid interference with the bottom bracket plate.

Top swing [MTB]



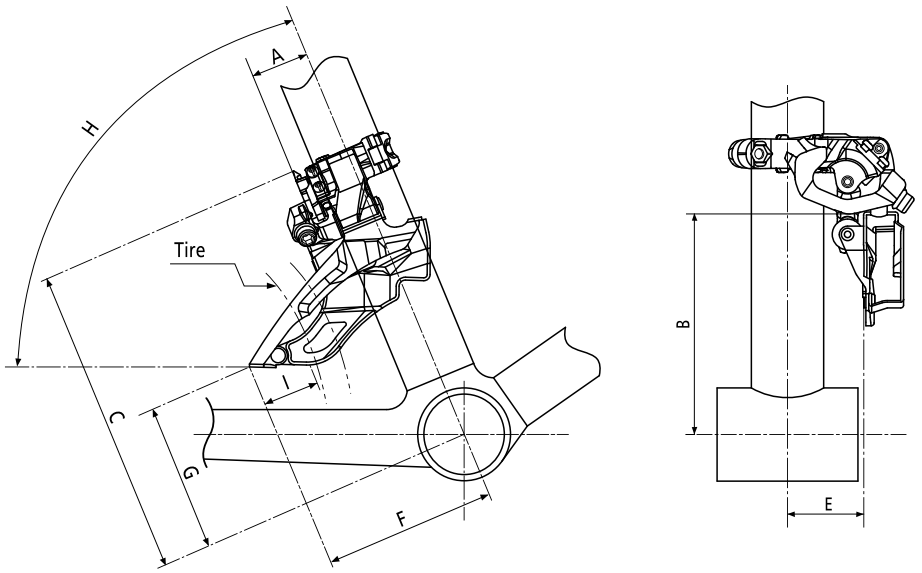
A: From seat tube center to inner link head.
B: From BB center to inner link head lowest position during movement.
C: From BB center to most critical point for interference with tire,mud guard.
D: From BB center to inner link head most left position during movement.
E: From BB center to back side of the cage most critical point for interference with tire.
F,G: From BB center to edge of cage for interference with chainstay.
H,I: Dimension of bottom side of cage for interference with chainstay.

Dimension of E-type is same as band type of its model.
X: Yes

FD type	Speed	Model No.	Crankset	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (deg.)	I (mm)	Z
Top swing (dual pull)	11	FD-M9025(-L/E) FD-M8025 (-L/E) (down pull only)	34T	41	58	114	12	32	70	52	72.6	19	-
			36T	41	62	118	12	32	70	56	72.6	19	
			38T	41	66	122	12	32	70	60	72.6	19	
	10	FD-M980 (-E)	42T	41	47	110	32	27	86	55	70	24	X
		FD-M780-A (-E) FD-M670-A (-E) FD-M610 (-E)	40T	41	42	106	32	30	84	54	70	25	
			42T	41	46	110	32	30	84	58	70	25	
		FD-T780-6 FD-T670-6 FD-T610-6	44T	41	46	110	32	31	91	57	70	28	
			48T	41	54	118	32	31	91	65	70	28	
		FD-T780-3 FD-T670-3 FD-T610-3	44T	41	46	110	32	31	91	57	67	28	
			48T	41	54	118	32	31	91	65	67	28	
		FD-M985 (-E2) FD-M785 (-E2) FD-M675 (-E2) FD-M615 (-E2)	38T	41	47	112	31	28	74	57	70	24	
			40T	41	53	116	32	30	74	61	70	24	
		FD-M985 (-E)	40T	41	53	116	32	30	74	61	70	24	
			42T	41	57	120	32	30	74	65	70	24	
			44T	41	61	124	32	30	74	69	70	24	
		FD-M618(-L/E) (down pull only)	36T	41	62	118	12	32	70	56	72.6	19	-
			38T	41	66	122	12	32	70	60	72.6	19	
	9	FD-M4000-TS3 FD-M4000-TS6 FD-M3000-TS3 FD-M3000-TS6	40T	37	39	92	28	30	73	56	63	17	-
		FD-T4000-TS3 FD-T3000-TS3	44T	44	52	106	29	29	84	61	63	16	
			48T	44	60	114	29	29	84	69	63	16	
		FD-T4000-TS6 FD-T3000-TS6	44T	44	52	106	29	29	87	57	66	17	
			48T	44	60	114	29	29	87	65	66	17	
		FD-M390-3 FD-M370-3	44T	44	51	106	29	29	84	61	63	16	
			48T	44	59	114	29	29	84	69	63	16	
		FD-M390-6 FD-M370-6	44T	44	51	106	29	29	87	57	66	17	
			48T	44	59	114	29	29	87	65	66	17	

FD type	Speed	Model No.	Crankset	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (deg.)	I (mm)	Z
Top swing (dual pull)	8, 7	FD-M360-3 FD-M360-6 FD-M310-3 FD-M310-6	42T	46	47	99	28	27	82	56	63	10	-
			48T	46	57	111	28	24	82	66	63	10	
		FD-TX800-TS3 FD-TX800-TS6	42T	46	47	99	28	27	82	56	63	10	
			48T	46	57	111	28	24	82	66	63	10	
		FD-M190-3 FD-M191-3	42T	44	47	98	28	25	81	55	63	14	
			48T	44	59	110	28	25	81	67	63	14	
		FD-M190A-6 FD-M191-6	42T	44	47	98	28	25	83	52	66	15	
			48T	44	59	110	28	25	83	64	66	15	
	7,6	FD-TX50-3 FD-TX51-3	42T	44	47	98	28	25	81	55	63	14	
			48T	44	59	110	28	25	81	67	63	14	
		FD-TX50-6 FD-TX51-6	42T	44	47	98	28	25	83	52	66	15	
			48T	44	59	110	28	25	83	64	66	15	

Down swing type [MTB]



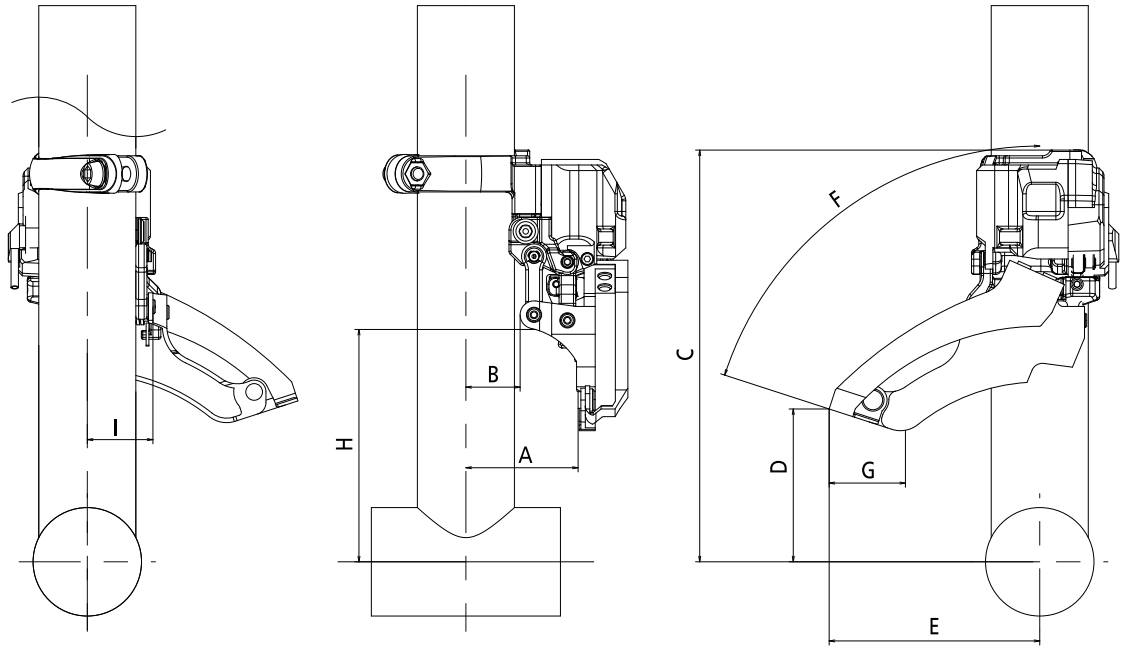
A: From seat tube center to inner link head.
B: From BB center to inner link head lowest position during movement.
C: From BB center to most critical point for interference with tire,mud guard.
D: From BB center to inner link head most left position during movement.
E: From BB center to back side of the cage most critical point for interference with tire.
F,G: From BB center to edge of cage for interference with chainstay.
H,I: Dimension of bottom side of cage for interference with chainstay.

Dimension of D-type is same as band type of its model.
X: Yes

FD type	Speed	Model No.	Crankset	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (deg.)	I (mm)
Down swing (dual Pull)	11	FD-M9025(-H/D) FD-M8025 (-H/D)	34T	30	100	137	-	32	70	52	72.6	18
			36T	30	104	141	-	32	70	56	72.6	18
			38T	30	108	145	-	32	70	60	72.6	18
	10	FD-M981 (-D)	42T	30	104	148	-	31	89	59	66	27
		FD-M781-A (-D) FD-M671-A (-D) FD-M611 (-D)	40T	30	100	145	-	30	85	58	66	27
			42T	30	104	149	-	30	85	62	66	27
		FD-M986 (-D)	38T	30	99	146	-	31	75	57	72	31
			40T	30	103	150	-	31	75	61	72	31
			42T	30	107	154	-	31	75	65	72	31
			44T	30	111	158	-	31	75	69	72	31
		FD-M786 (-D)	38T	30	99	146	-	31	77	57	72	33
			40T	30	103	150	-	31	77	61	72	33
			42T	30	107	154	-	31	77	65	72	33
			44T	30	111	158	-	31	77	69	72	33
		FD-M618(-H/D)	36T	30	104	141	-	32	70	56	72.6	18
			38T	30	108	145	-	32	70	60	72.6	18
		FD-T781-3 FD-T671-3 FD-T611-3	44T	30	111	155	-	31	89	66	63	31
			48T	30	119	163	-	31	89	74	63	31

FD type	Speed	Model No.	Crankset	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (deg)	I (mm)
Down swing (dual pull)	9	FD-M773	44T	30	114	165	-	26	88	67	61	13
		FD-M591-6	44T	30	110	160	-	29	88	67	62	13
			48T	30	118	168	-	29	88	71	62	13
		FD-M4000-DS3 FD-M4000-DS6	40T	26	102	137	-	30	73	55	63	21
		FD-T4000-DS3	44T	31	108	155	-	30	77	63	63	10
			48T	31	116	163	-	30	85	71	63	10
		FD-M371-3	44T	31	111	153	-	30	77	63	63	10
			48T	31	119	161	-	30	85	71	63	10
		FD-M371-6	44T	31	111	153	-	30	82	59	66	21
			48T	31	119	161	-	30	90	67	66	21
	8, 7	FD-M313-3	42T	31	107	149	-	28	84	60	62.7	12
			48T	31	119	163	-	26	96	72	62.7	12
		FD-M313-6	42T	31	107	149	-	28	88	56	65.7	12
			48T	31	119	163	-	26	88	68	65.7	12
Down swing	7, 6	FD-TY10 FD-TZ30	42T	32	89	164	-	top pull: 32 down pull: 24	81	51	66	14
		FD-TZ31	48T	32	104	168	-		94	60	-	10

Down swing type SEIS spec.[MTB]

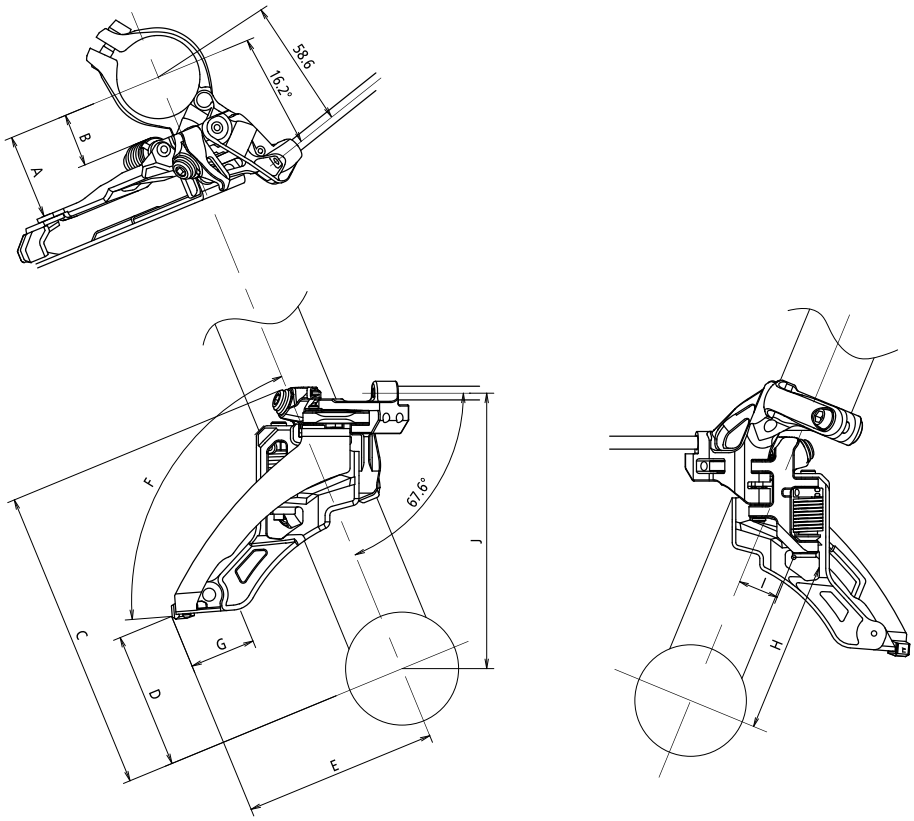


A: From BB center to back side of the cage most critical point for interference with tire.
B: From BB center to cage most inside position during movement.
C: From BB center to motor unit highest position.
D,E: From BB center to edge of cage for interference with chainstay.
F,G: Dimension of bottom side of cage for interference with chainstay.
H: From BB center to lowest position of inner link.
I: From BB center to outline of the cage.

FD type	Speed	Model No.	Crankset	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (deg.)	G (mm)	H (mm)	I (mm)
Di2	11	FD-M9050	40T	31	11	151	55	77	72.1	29	83	23
		FD-M9070	34T	33	13	143	54	66	72.6	22	74	23
			36T	33	13	147	58	66	72.6	22	78	23
			38T	33	13	151	62	66	72.6	22	82	23

Side swing type [MTB]

There are variety of frame design as well as tire width, so when deciding frame dimension please be put attention of following figure to have enough clearance from tire and frame (suspension link).

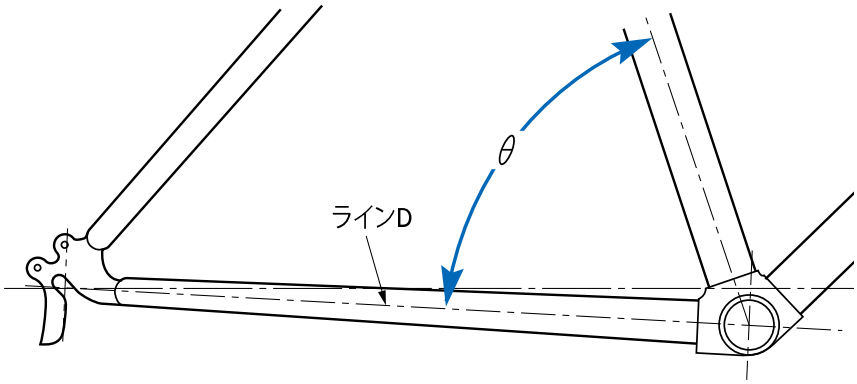


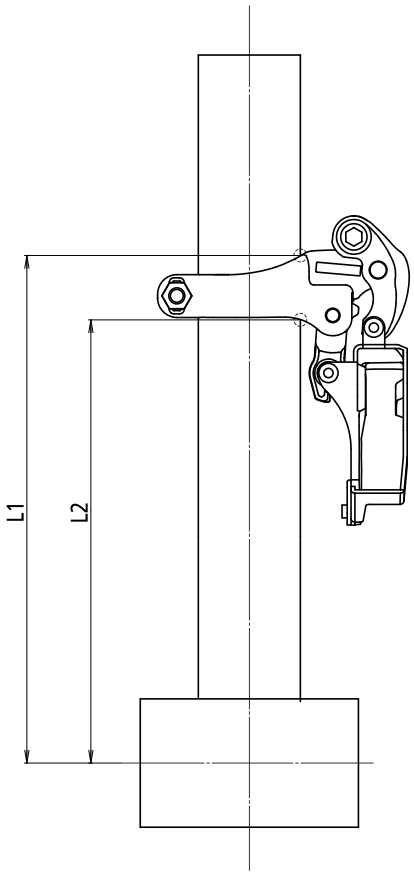
A: From BB center to back side of the cage most critical point for interference with tire.
B: From BB center to spring most inside position during movement.
C: From BB center to cable fixing part highest position during movement. (E,L spec only)
D,E: From BB center to edge of cage for interference with chainstay.
F,G: Dimension of bottom side of cage for interference with chainstay.
H,I: From BB center to lowest position of inner link.

FD type	Speed	Model No.	Crank set	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (deg.)	G (mm)	H (mm)	I (mm)	J (mm)
Side swing	11	FD-M9000-H/L/D/E FD-M8000-H/L/D/E	40T	31	18	129	52	83	72.0	26	75	15	115
		FD-M9020-H/L/D/E FD-M8020-H/L/D/E	34T	33	22	122	52	70	72.6	18	67	18	108
			36T	33	22	126	56	70	72.6	18	71	18	111
			38T	33	22	130	60	70	72.6	18	75	18	115
	10	FD-M672-H/L/D/E FD-M612-H/L/D/E	40T	32	18	129	54	83	72.0	26	76	15	115
			42T	32	18	133	58	83	72.0	26	80	15	119
		FD-M677-H/L/D/E FD-M617-H/L/D/E	36T	33	22	126	56	70	72.6	18	71	18	111
			38T	33	22	130	60	70	72.6	18	75	18	115

Band type [ROAD]

Avoid attaching anything that causes interference with the clamp band, please refer to dimensions in the area between L1 and L2.





For front double C-058

Gear teeth #		46T	48T	50T	52T	53T	54T	55T	56T	Chain stay angle θ (deg.)
FD-9000	L1 (mm)	-	-	151	155	157	159	161	-	61-66 *63-66
	L2 (mm)	-	-	130	134	136	138	140	-	
FD-9070 +SM-AD90L, M	L1 (mm)	-	-	155	159	161	163	165	-	
	L2 (mm)	-	-	127	131	133	135	137	-	
FD-6800 FD-5800 FD-4700	L1 (mm)	*145	*149	153	157	159	-	-	-	
	L2 (mm)	*123	*127	131	135	137	-	-	-	
FD-6870	L1 (mm)	*152	*156	160	164	166	-	-	-	
	L2 (mm)	*122	*126	130	134	136	-	-	-	
FD-CX70-T	L1 (mm)	*151	*155	159	163	-	-	-	-	
	L2 (mm)	*129	*133	137	141	-	-	-	-	
FD-CX70-D FD-4600 FD-3500 FD-2400	L1 (mm)	*148	*152	156	160	-	-	-	-	
	L2 (mm)	*126	*130	134	138	-	-	-	-	
FD-A070-A	L1 (mm)	-	-	154	-	-	-	-	-	
	L2 (mm)	-	-	130	-	-	-	-	-	
FD-A050	L1 (mm)	-	-	147	151	-	-	-	-	
	L2 (mm)	-	-	118	122	-	-	-	-	

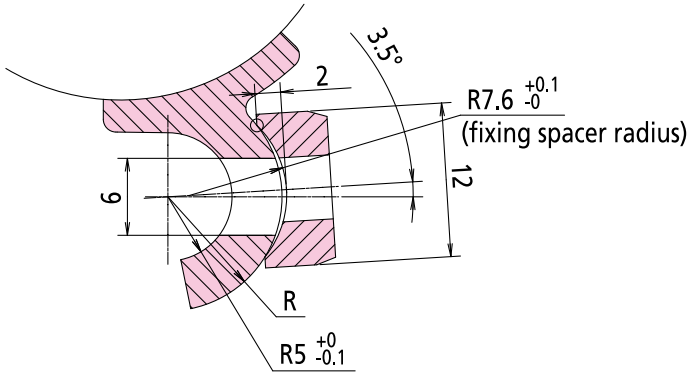
For front triple C-059

Gear teeth #		50T	52T	53T	Chain stay angle θ (deg.)
FD-5703	L1 (mm)	160	-	-	63-66
	L2 (mm)	138	-	-	
FD-4703	L1 (mm)	162	-	-	
	L2 (mm)	139	-	-	
FD-4603	L1 (mm)	160	-	-	
	L2 (mm)	138	-	-	
FD-503 FD-353	L1 (mm)	160	-	-	
	L2 (mm)	138	-	-	
FD-2403	L1 (mm)	160	-	-	
	L2 (mm)	138	-	-	
FD-A073	L1 (mm)	160	-	-	
	L2 (mm)	138	-	-	

NOTE

For models marked with an asterisk (*), the recommended chain stay angle is between 63° and 66°.

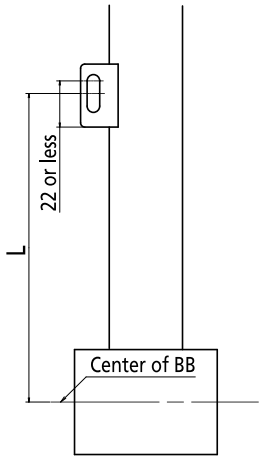
Brazed-on type [ROAD]



Model No.	R (mm)
FD-9000	7.6 - 8.9
FD-9070	
FD-6870	
FD-6800	
FD-5800	
FD-4700	
FD-CX70	7.6 - 8.4
FD-5703	
FD-4703	
FD-4600	
FD-4603	
FD-R770	
FD-R773	
FD-R443	
FD-3500	7.6 - 7.9
FD-3503	
FD-2400	
FD-2403	

Position of front derailleur (Brazed-on type) C-477

The position of a brazed-on front derailleur mounting boss has a significant effect on shifting performance. Please refer to the points shown below with regard to the correct positioning of the front derailleur mounting boss.

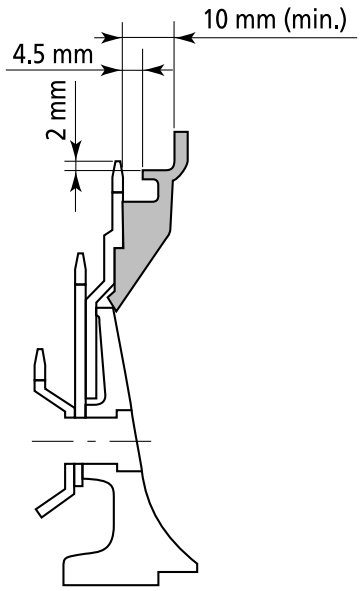


L: refer to the table of optimum dimension below.

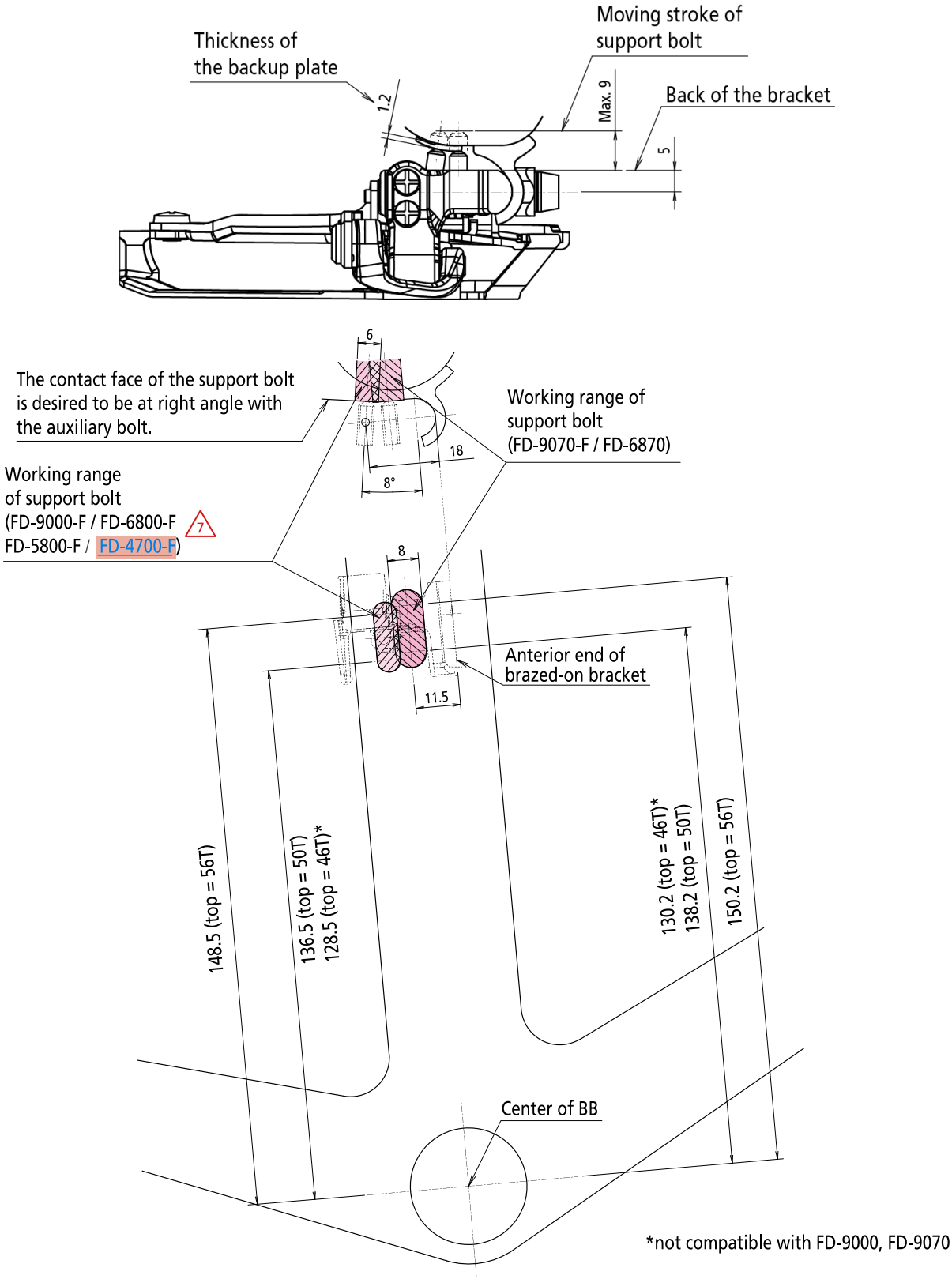
		Optimum dimension L (mm)							
For front double	Gear teeth #	46T	48T	50T	52T	53T	54T	55T	56T
	FD-9000 FD-9070	-	-	141	145	147	149	151	-
	FD-6800 FD-6870 FD-5800 FD-4700	133	137	141	145	147	-	-	-
	FD-CX70-T	138	142	146	150	-	-	-	-
	FD-CX70-D FD-4600	135	139	143	147	-	-	-	-
	FD-3500	135	139	143	147	-	-	-	-
	FD-2400	135	139	143	147	-	-	-	-
For front triple		-	-	148	148	-	-	-	-

Chain guard

When using a non-Shimano chain guard in combination with a Shimano front derailleur, make sure that the chain guard meets the specifications shown below in order to avoid interference with the derailleur operation.



Dimensions for support bolt [ROAD]



Installation with seat tube [ROAD]

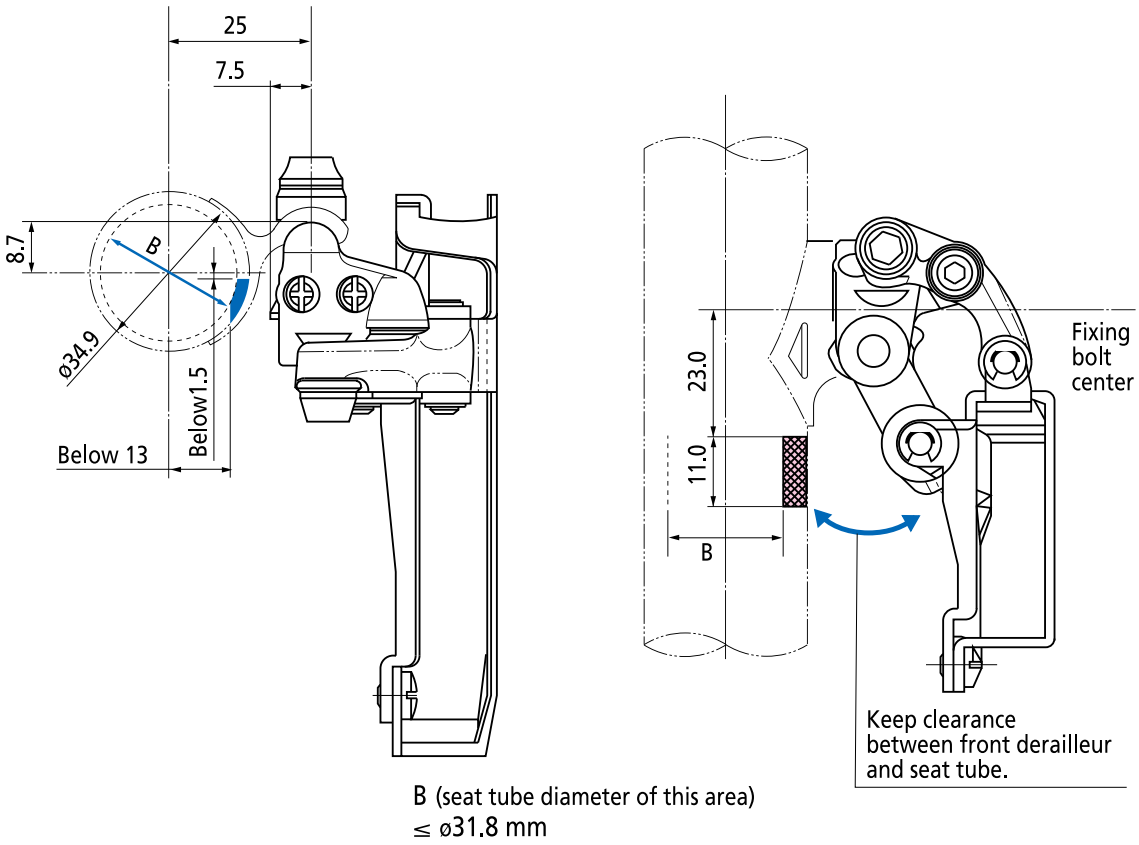
FD	Model No.	Dimension (mm)	Band type	Brazed-on type	Brazed-on + SM-AD11	Brazed-on + SM-AD15	Brazed-on + SM-AD90	Brazed-on + SM-AD67
Double	FD-9000 FD-6800 FD-CX70-T FD-CX70-D FD-5800 FD-4700 FD-4600 FD-3500 FD-2400	S (ø28.6)	X*	X	-	-	X*	X*
		M (ø31.8)	X	X	X	-	X	X
		L (ø34.9)	X	X	-	X	X	X
	FD-9070 FD-6870	S (ø28.6)	-	X	-	-	X*	X*
		M (ø31.8)	-	X	-	-	X	X
		L (ø34.9)	-	X	-	-	X	X
	FD-A070-A	S (ø28.6)	X*	-	-	-	-	-
		M (ø31.8)	X*	-	-	-	-	-
		L (ø34.9)	X	-	-	-	-	-
	FD-A050	S (ø28.6)	X	-	-	-	-	-
		M (ø31.8)	X	-	-	-	-	-
		L (ø34.9)	-	-	-	-	-	-
Triple	FD-5703 FD-4703 FD-4603 FD-3503 FD-2403	S (ø28.6)	X*	X	-	-	X*	X*
		M (ø31.8)	X	X	X	-	X	X
		L (ø34.9)	X	X	-	X	X	X
	FD-A073	S (ø28.6)	X*	-	-	-	-	-
		M (ø31.8)	X*	-	-	-	-	-
		L (ø34.9)	X	-	-	-	-	-

X: Yes

* Need adapter S or adapter M

NOTE

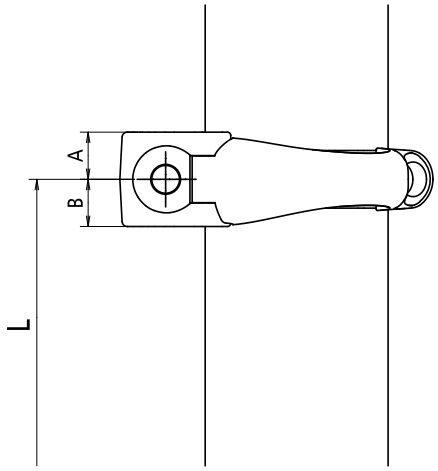
When using a brazed on front derailleur FD-2303 / R443A with a seat tube diameter of more than ø31.8 mm, refer to the bellow dimensions to prevent interference with front derailleur.



B (seat tube diameter of this area)
≤ ø31.8 mm

Adapter dimensions [ROAD]

C-064



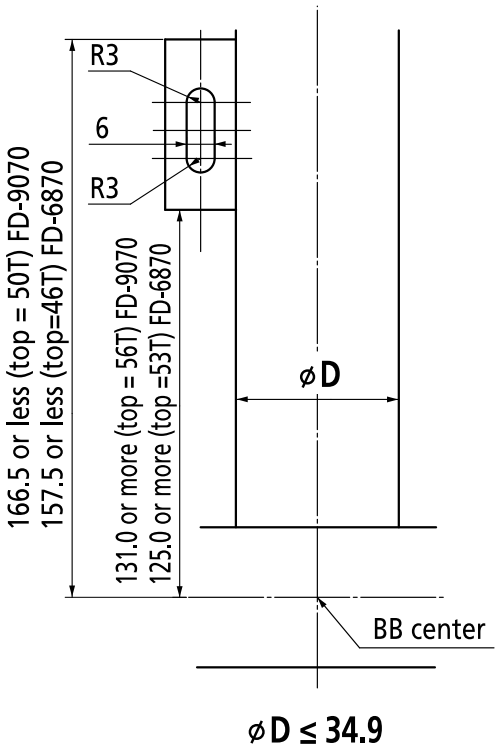
L: refer to the table of optimum dimension [C-060].

Brazed-on + SM-AD**	A (mm)	B (mm)
SM-AD90-L SM-AD90-M	9.0	9.0
SM-AD67-L SM-AD67-M	19.5	11.0
SM-AD11	20.0	12.0
SM-AD15	17.5	11.0

Dimensions for brazed-on boss interference

C-065

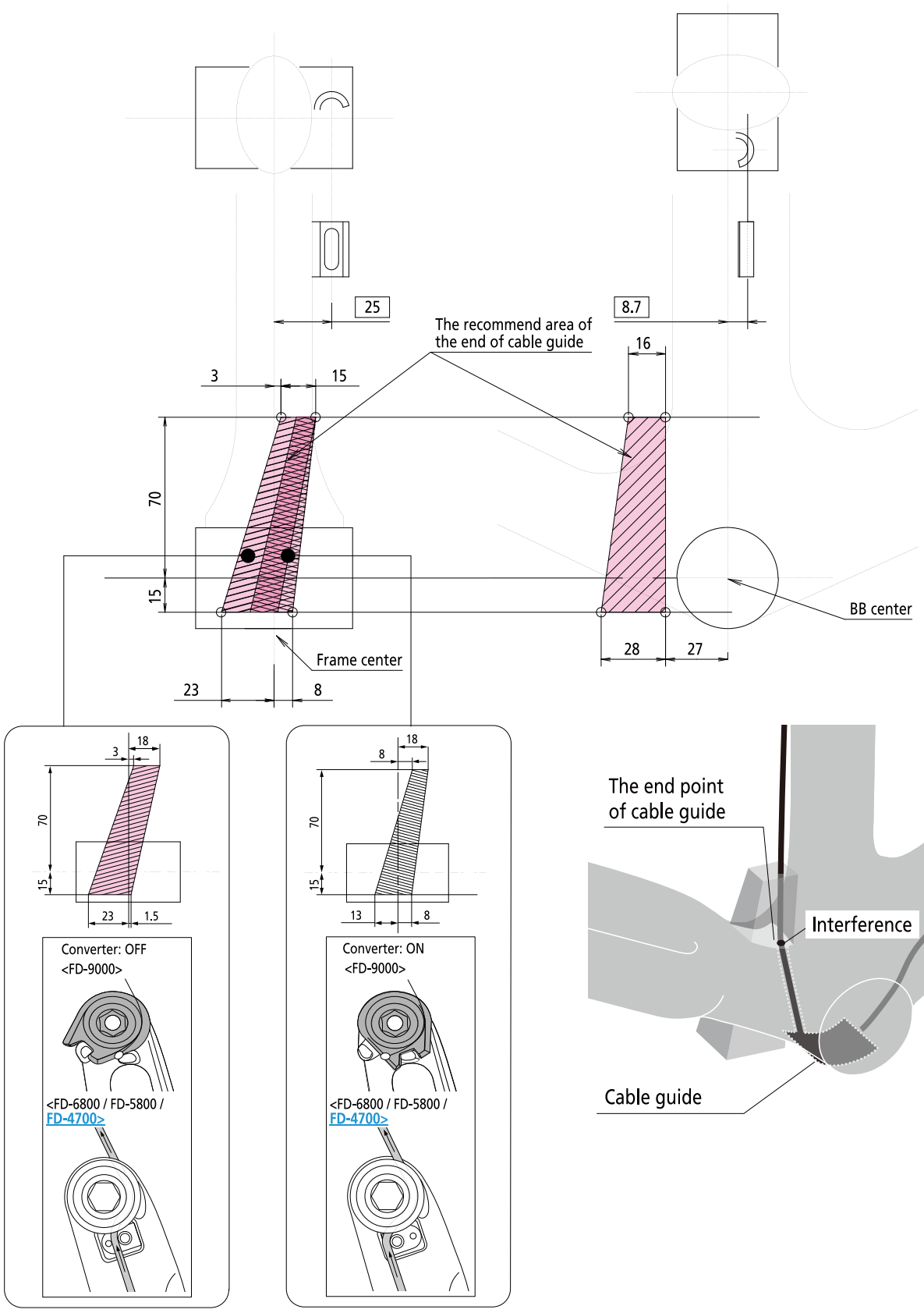
FD-9070 / FD-6870



ø D ≤ 34.9

Cable routing

FD-9000 / FD-6800 / FD-5800 / FD-4700



According to positions of the cable guide at indicated area.
Choose converter: OFF or converter: ON to get proper cable route.

NOTE

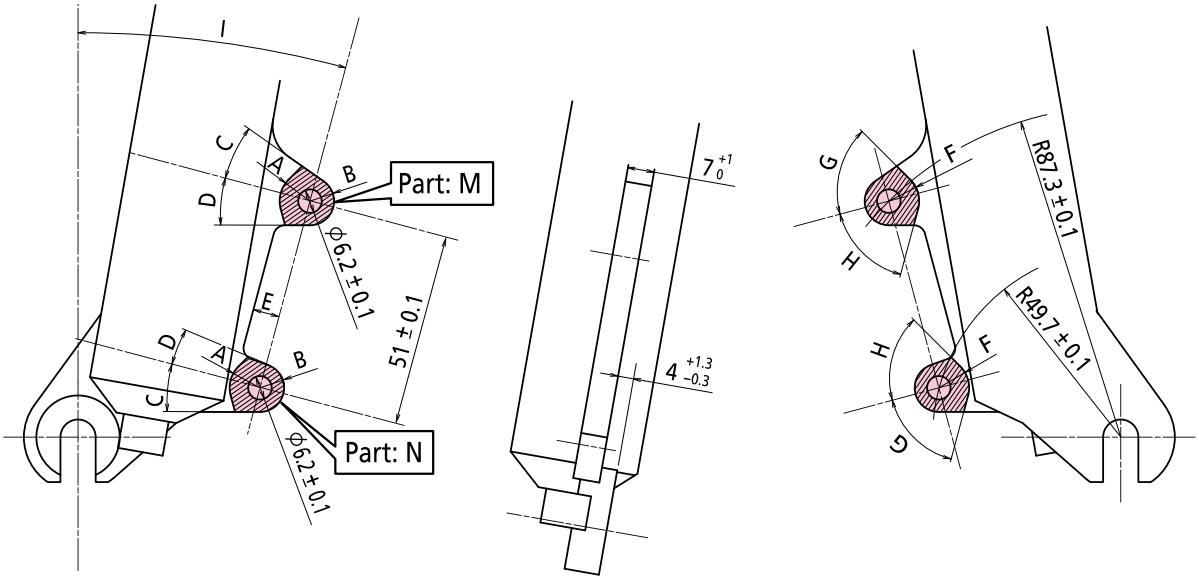
- In case of interfere cable with hole of the frame, recommend cable area becomes hole area of the frame, not the end of cable guide.
- If interfere cable with hole of the frame, pulling efficiency of the cable becomes worse.

Front disc brake mount dimensions C-068

Shimano disc brakes are designed to fit the frame and front fork as shown below. (the dimensions shown below are same as the international standard disc brake mount.) The following mount dimensions (A - H) are recommended for each model.

QR type C-069

For international standard mount

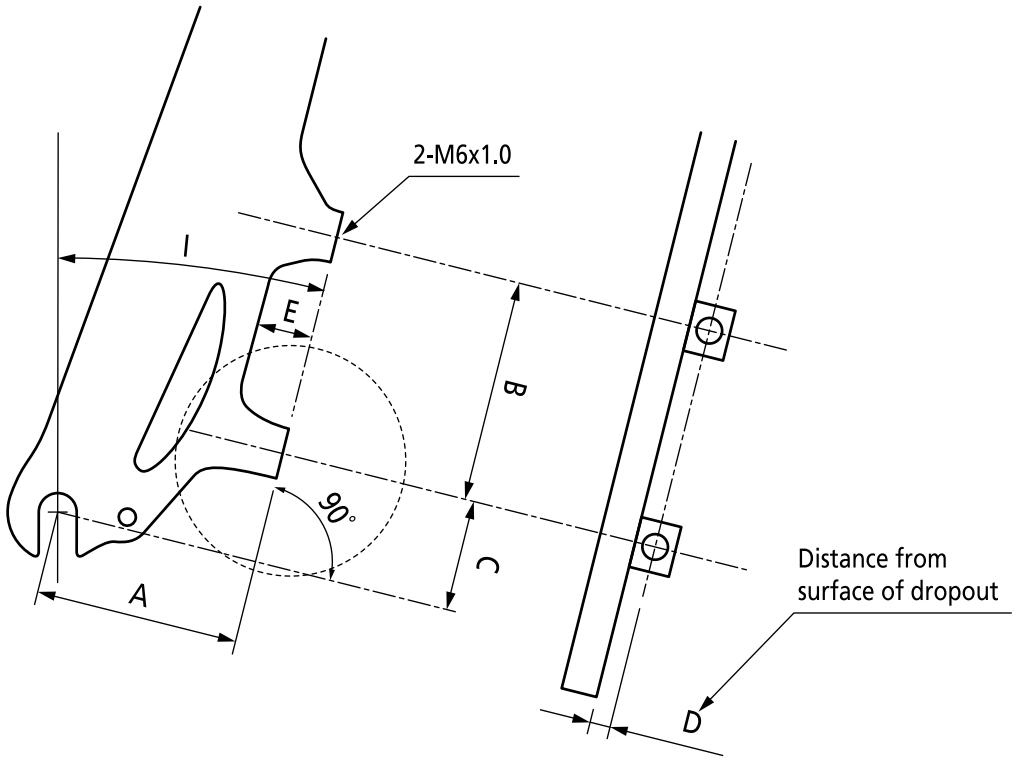


NOTE

- Part M and N need to be flat surface.
- Please refer to C-077 for angle I.

	Model No.	Dimension							
		Min. A (mm)	Max. B (mm)	Max. C	Max. D	Min. E (mm)	Min. F (mm)	Min. G	Min. H
Wiring type	BR-M9000 BR-M9020	8.0	Part M: 6.5 Part N: 8.0	45°	45°	0	6.0	90°	95°
Cap type	BR-M820					2.0			
	BR-M8000					0.0			
	BR-M785 BR-M675					0			
	BR-T675					1.0			
	BR-M640					2.0			
	BR-M615					0			
	BR-T615 BR-M4050 BR-M3050 BR-M447					1.0			
	BR-M446					0			
	BR-M416A BR-M395					1.0			
	BR-M375					1.5			
	BR-M355					1.0			
	BR-TX805					1.5			
	BR-S700 BR-RS785 BR-R785					0			
	BR-CX77 BR-R517 BR-R317					1.5			

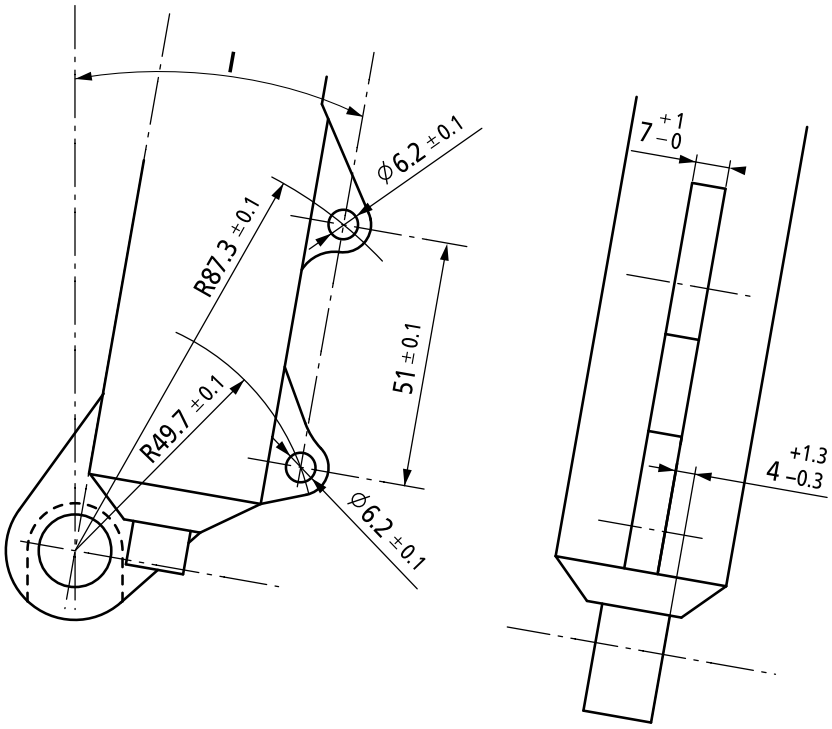
For post mount



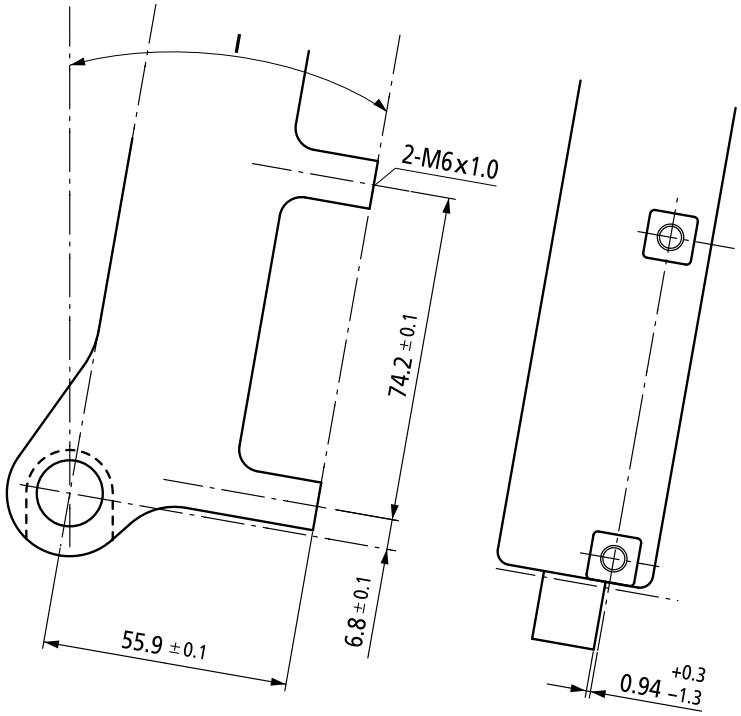
	Model No.	Dimension				
		A (mm)	B (mm)	C (mm)	D (mm)	Min. E (mm)
Wiring type	BR-M9000	140 mm (SS): 47.5 ± 0.1 160 mm (S): 55.9 ± 0.1 180 mm (M) 64.0 ± 0.1 203mm (L) 73.9 ± 0.1	140 mm (SS): 74.2 ± 0.1 160 mm (S): 74.2 ± 0.1 180 mm (M) 74.2 ± 0.1 203mm (L) 74.2 ± 0.1	140 mm (SS): 1.7 ± 0.1 160 mm (S): 6.8 ± 0.1 180 mm (M) 12.4 ± 0.1 203mm (L) 18.8 ± 0.1	140 mm (SS): 0.94+0.3 - 1.3 160 mm (S): 0.94+0.3 - 1.3 180 mm (M) 0.94+0.3 - 1.3 203mm (L) 0.94+0.3 - 1.3	10.0
	BR-M9020					11.0
	BR-M8000					10.0
Cap type	BR-M820					11.5
	BR-M785					10.0
	BR-M675					10.0
	BR-T675					11.5
	BR-M640					11.5
	BR-M615					10.0
	BR-T615					11.5
	BR-M4050					11.5
	BR-M3050					11.5
	BR-M447					11.5
	BR-M446					11.5
	BR-M416A					11.0
	BR-M395					11.5
	BR-M375					11.0
	BR-M355					11.5
	BR-TX805					11.0
	BR-S700					10.0
	BR-RS785					10.0
	BR-R785					10.0
	BR-CX77					11.0
	BR-R517					11.0
	BR-R317					11.0

15 mm E-Thru type C-070

For international standard mount



For post mount

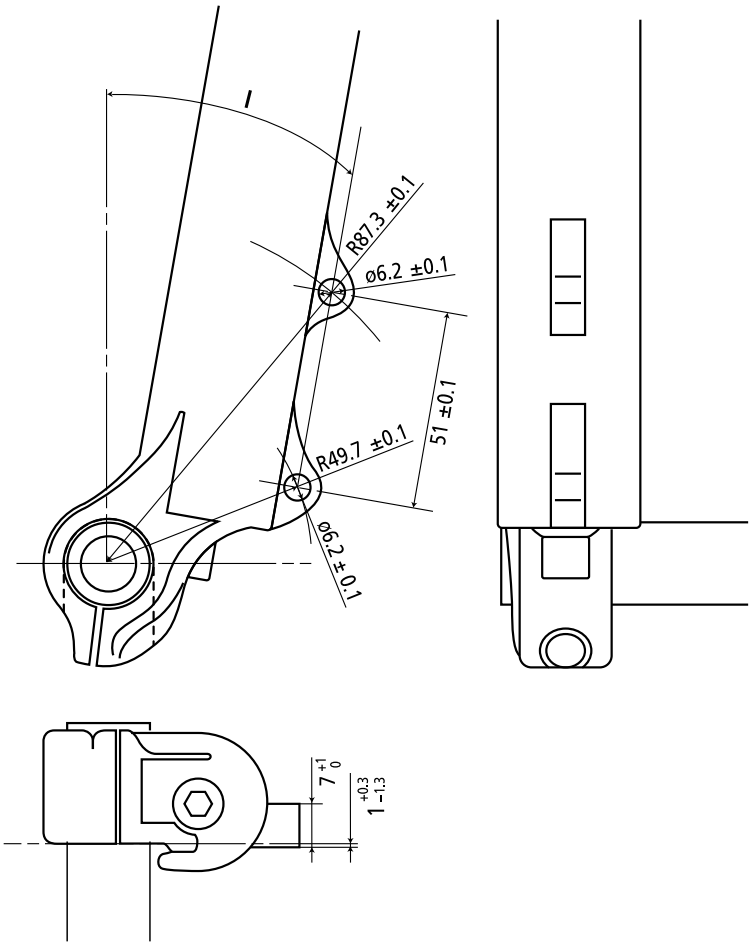


NOTE

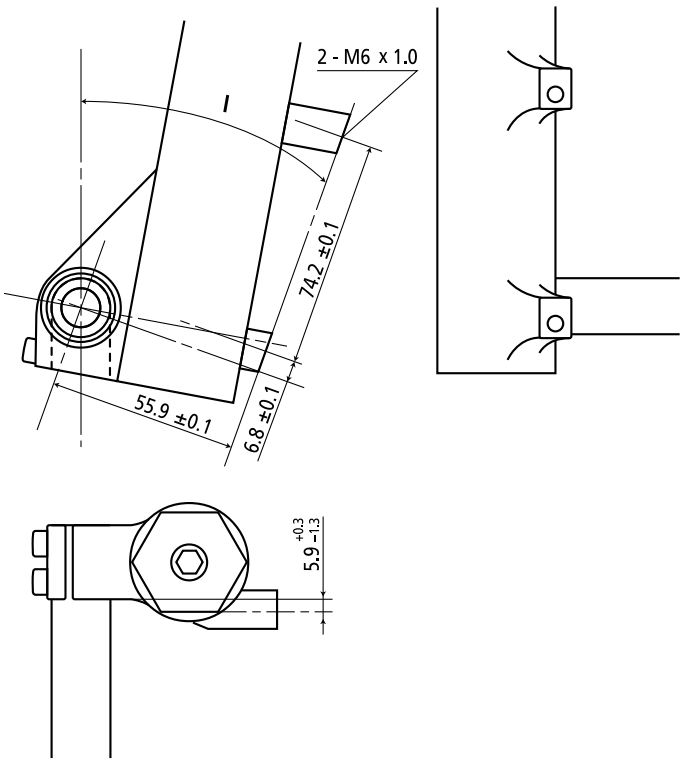
Please refer to C-077 for angle I.

20 mm thru axle type C-071

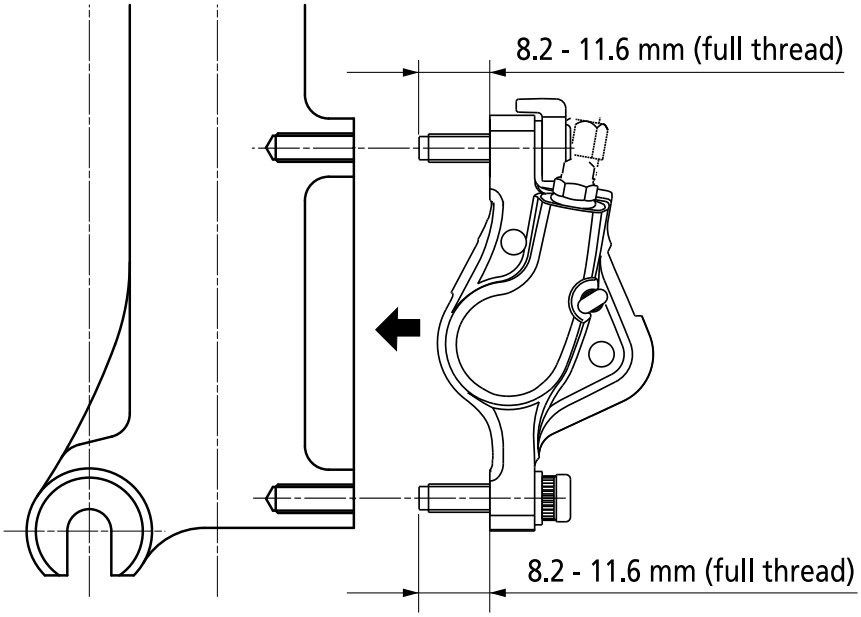
For international standard mount



For post mount



Fixing bolt length for post mount

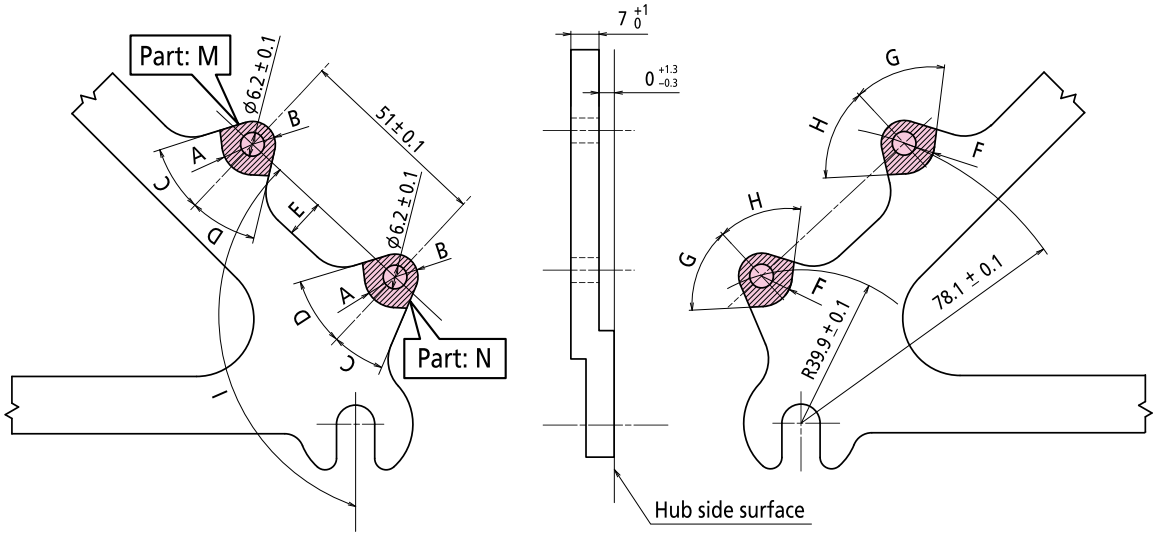


Rear disc brake mount dimensions

Shimano disc brakes are designed to fit the frame as shown below. (the dimensions shown below are same as the international standard disc brake mount.) The following mount dimensions (A - I) are recommended for each model.

For international standard mount C-074

Seat stay type

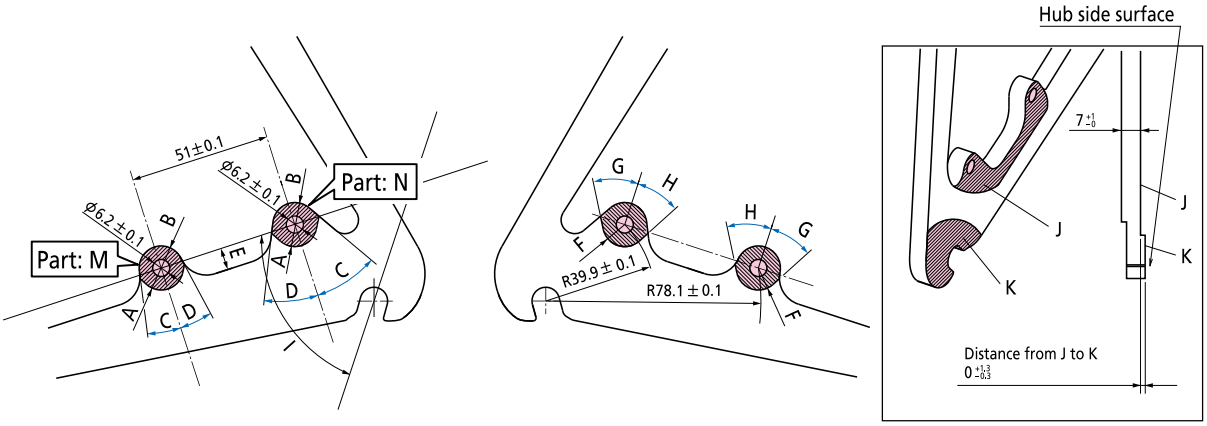


NOTE

- Part M and N need to be flat surface.
- Please refer to C-077 for angle I.

	Model No.	Dimension							
		Min. A (mm)	Max. B (mm)	Max. C	Max. D	Min. E (mm)	Min. F (mm)	Min. G	Min. H
Wiring type	BR-M9000 BR-M9020	8.0	Part M: 6.5 Part N: 8.0	45°	45°	-5.0	6.0	90°	95°
						-0.5			
Cap type	BR-M820					-3.0			
	BR-M8000					-5.0			
	BR-M785 BR-M675					-5.0			
	BR-T675					-4.0			
	BR-M640					-3.0			
	BR-M615					-6.5			
	BR-T615 BR-M4050 BR-M3050 BR-M447 BR-M446					-4.0			
	BR-M416A					-3.5			
	BR-M395					-4.0			
	BR-M375					-3.5			
	BR-M355					-4.0			
	BR-TX805					-3.5			
	BR-S700 BR-RS785 BR-R785					-5.0			
	BR-CX77 BR-R517 BR-R317					-3.5			

Chainstay type



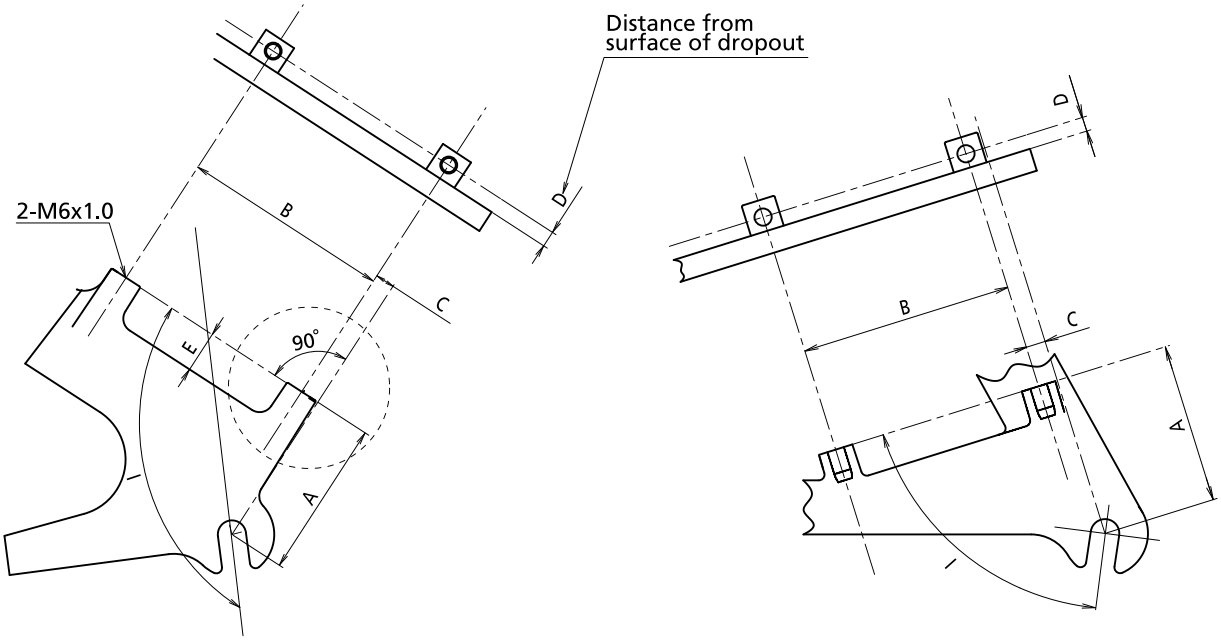
NOTE

- Part M and N need to be flat surface.
- Please refer to C-077 for angle I.

	Model No.	Dimension							
		Min. A (mm)	Max. B (mm)	Max. C	Max. D	Min. E (mm)	Min. F (mm)	Min. G	Min. H
Wiring type	BR-M9000	8.0	Part M: 6.5 Part N: 8.0	45°	45°	-5.0	6.0	90°	95°
	BR-M9020					-0.5			
Cap type	BR-M820					-3.0			
	BR-M8000					-5.0			
	BR-M785 BR-M675					-5.0			
	BR-T675					-4.0			
	BR-M640					-3.0			
	BR-M615					-6.5			
	BR-T615 BR-M4050 BR-M3050 BR-M447 BR-M446					-4.0			
	BR-M416A					-3.5			
	BR-M395					-4.0			
	BR-M375					-3.5			
	BR-M355					-4.0			
	BR-TX805					-3.5			
	BR-S700 BR-RS785 BR-R785					-5.0			
	BR-CX77 BR-R517 BR-R317					-3.5			

For post mount C-075

Seat stay type without adapter



NOTE

Please refer to C-077 for angle I.

Dimensions of rear post mount of disc brake caliper

	Model No.	Dimension					
		A (mm)	B (mm)	C (mm)	D (mm) O.L.D. 135, 150 mm straight and BMX type	D (mm) O.L.D. 142 mm E-thru type	Min. E (mm)
Wiring type	BR-M9000	140 mm (SS): 47.5 ± 0.1 160 mm (S): 55.9 ± 0.1 180 mm (M): 64.0 ± 0.1 203mm (L): 73.9 ± 0.1	140 mm (SS): 74.2 ± 0.1 160 mm (S): 74.2 ± 0.1 180 mm (M): 74.2 ± 0.1 203mm (L): 74.2 ± 0.1	140 mm (SS): 1.7 ± 0.1 160 mm (S): 6.8 ± 0.1 180 mm (M): 12.4 ± 0.1 203mm (L): 18.8 ± 0.1	140 mm (SS): 5.7 +0.3 - 1.3 160 mm (S): 5.7 +0.3 - 1.3 180 mm (M): 5.7 +0.3 - 1.3 203mm (L): 5.7 +0.3 - 1.3	140 mm (SS): 9.2 +0.3 - 1.3 160 mm (S): 9.2 +0.3 - 1.3 180 mm (M): 9.2 +0.3 - 1.3 203mm (L): 9.2 +0.3 - 1.3	10.0
	BR-M9020						11.0
Cap type	BR-M820						11.5
	BR-M8000						10.0
	BR-M785						10.0
	BR-M675						10.0
	BR-T675						11.5
	BR-M640						11.5
	BR-M615						9.0
	BR-T615						11.5
	BR-M4050						11.5
	BR-M3050						11.5
	BR-M447						11.5
	BR-M446						11.5
	BR-M416A						11.0
	BR-M395						11.5
	BR-M375						11.0
	BR-M355						11.5
	BR-TX805						11.0
	BR-S700						10.0
	BR-RS785						10.0
	BR-R785						10.0
	BR-CX77						11.0
	BR-R517						11.0
	BR-R317						11.0

Dimensions of disc brake rotor

The dimensions of Shimano disc brake rotor are shown below.
There are three types (A, B, C) depend on each combinations hub spec and rotor spec.
Please verify that fork dimensions will not cause interference with rotor and hub.

Dimension type		A-type (mm)		B-type (mm)	C-type (mm)
		QR	8 mm E-thru	15 mm E-thru	20 mm thru
Hub / Fork spec.	Axle diameter	QR (9)	8	15	20
	Thru axle	-	X	X	X
	O.L.D.	100	100	100	110
Rotor spec. (fixation)	Rotor w / 6-bolt	X	X	X	X
	Rotor w / Center lock ring	X	X	-	-
	Rotor w / 15 / 20 mm center lock ring	-	-	X	X

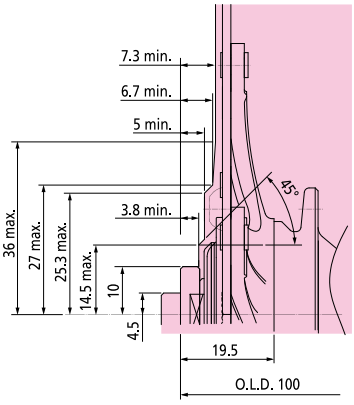
X: Yes

NOTE

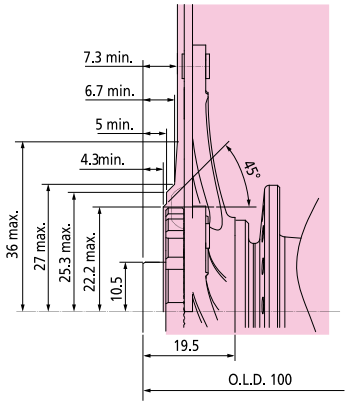
The position of rotor for 20 mm front hub fork is 5.25 mm further to fork from the center of front hub than that of QR / E-thru fork.

: Rotor / hub product area from hub fixing position

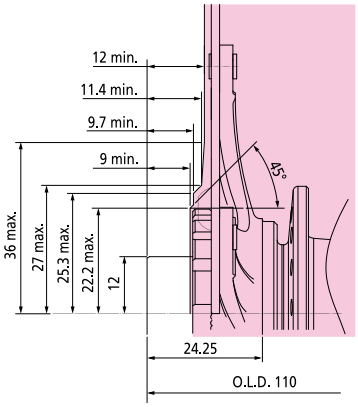
A-type



B-type

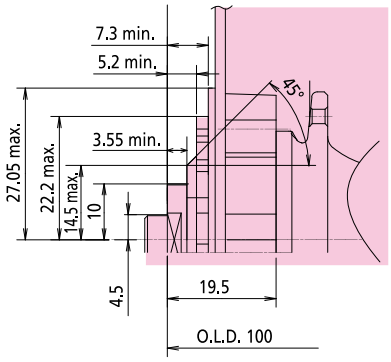


C-type

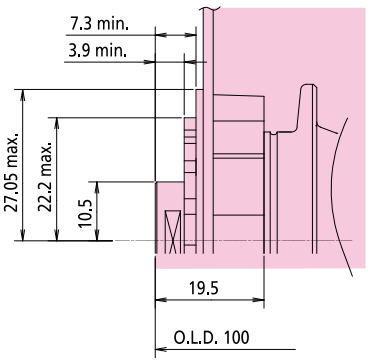


SM-RTAD05

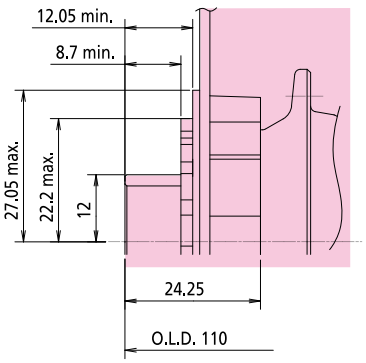
A-type



B-type



C-type



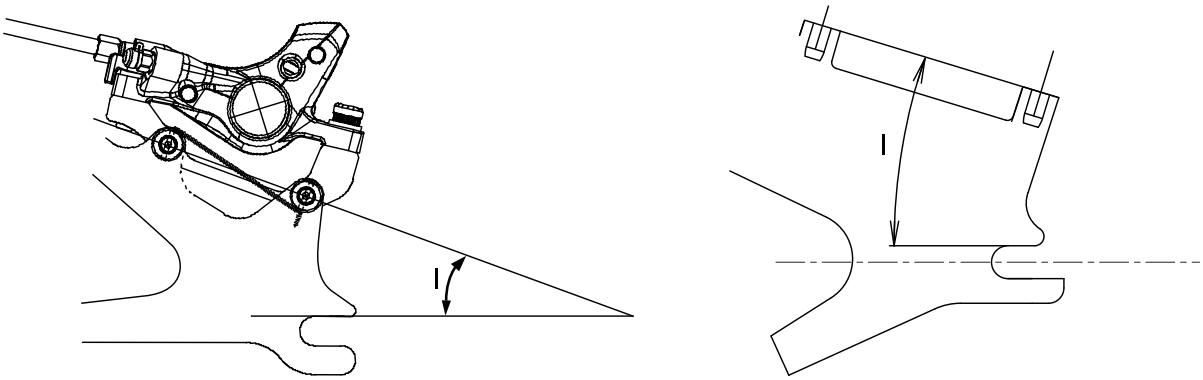
Angle of fork end and dropout (angle I)

Please refer to C-068, C-069, C-070, C-071, C-072, C-073, C-074, C-075 for definition of angle I.

	Mount Type	Rotor Size	Min. Angle I		Max. Angle I	
			International standard mount	Post mount	International standard mount	Post mount
Front	-	140 - 203 mm	-	-	24° *	17°
Rear	Seat stay type		-	-	201°	197°
	Chainstay type		56°	49°	- **	- **
	BMX dropout ***	160 - 203 mm	-	-	24°	17°
		140 mm	-	-	21°	

* Not compatible with 140 mm roter
** For chainstay type, the max. side does not need to be considered.
*** Angle of BMX dropout

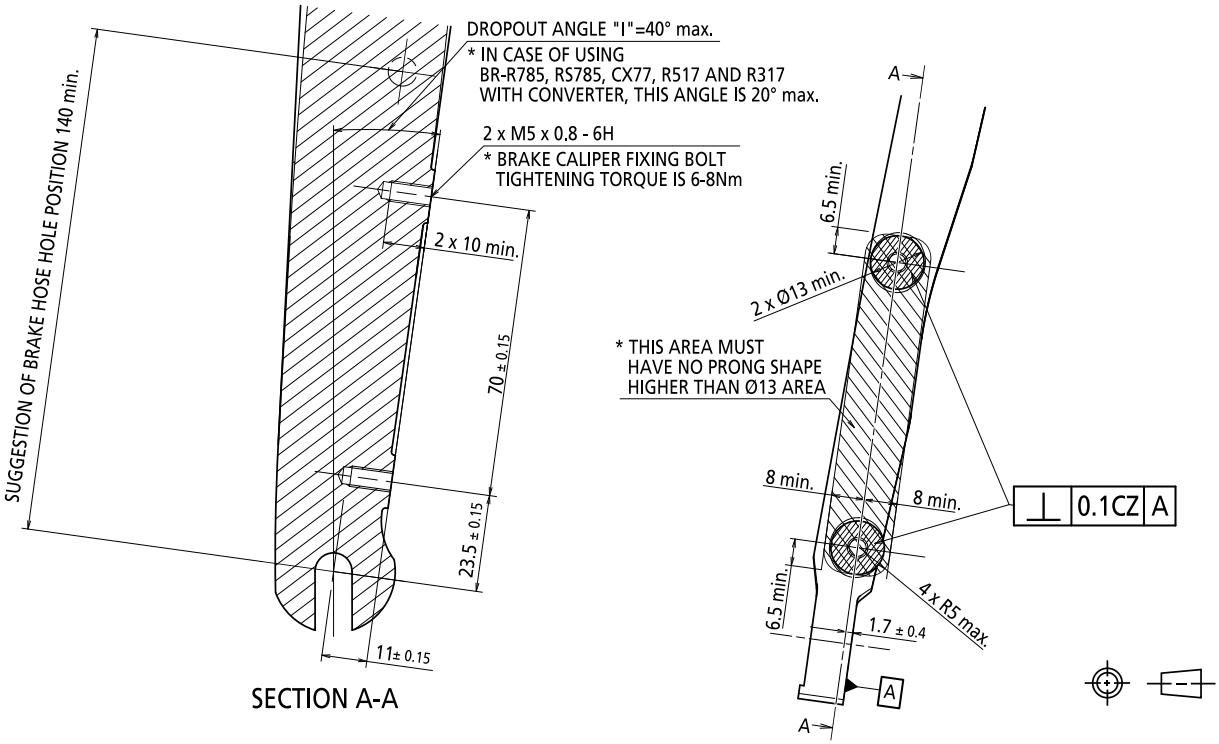
BMX dropout



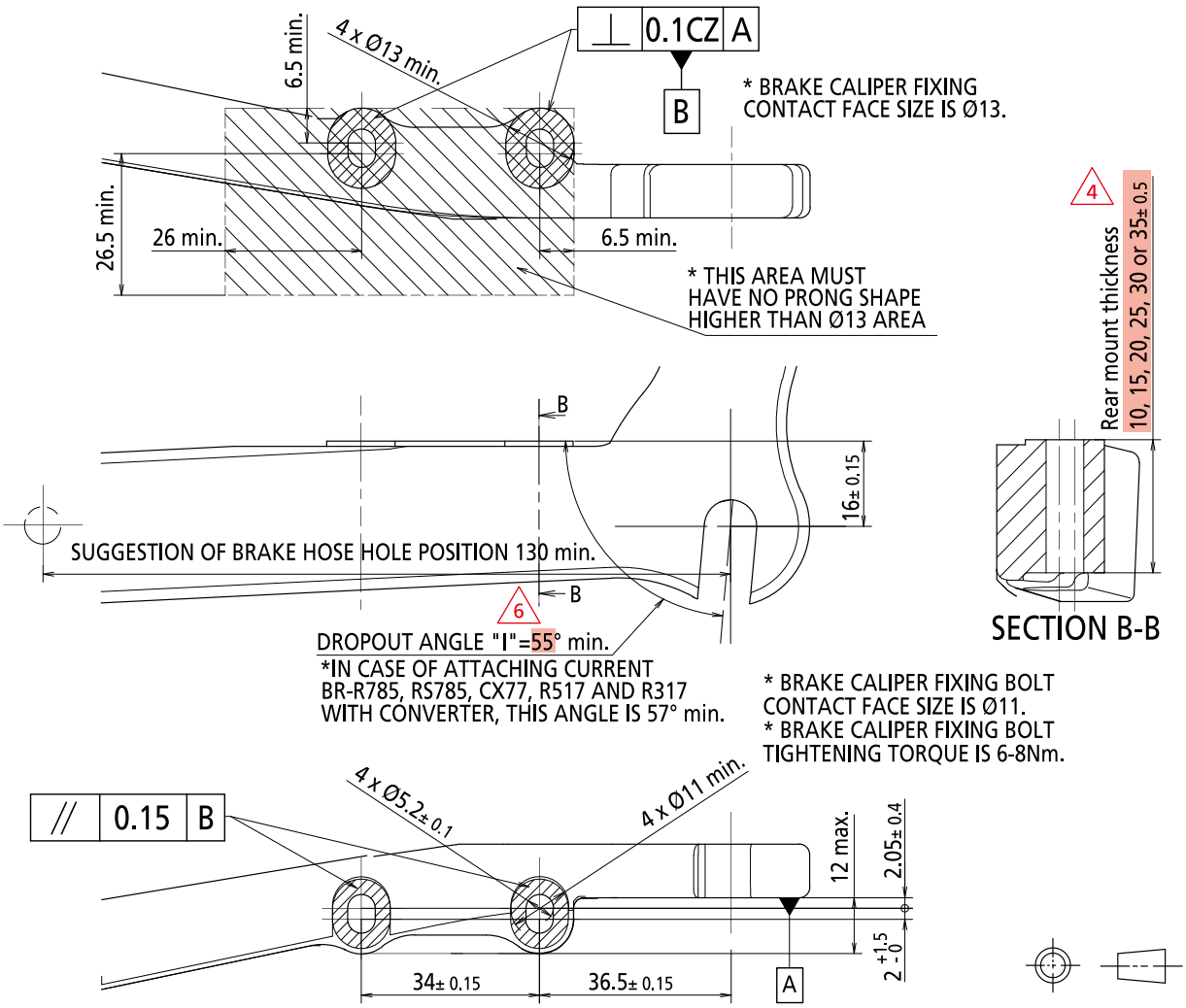
Flat mount

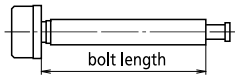
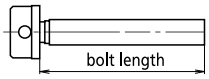
FRONT MOUNT for ø140 and ø160 rotor (for bracket of flat mount caliper)

C-079



REAR MOUNT for ø140 rotor (ø160 rotor compatible w/adapter) C-080



Rear mount thickness		10 (mm)	15 (mm)	20 (mm)	25 (mm)	30 (mm)	35 (mm)
Fixing bolt length	Flat mount fixing bolt length (mm) 	19.3	24.3	29.3	34.3	39.3	44.3
	Converter fixing bolt length (mm) 	16.8	21.8	26.8	31.8	36.8	41.8

4

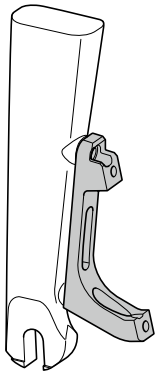
9

NOTE

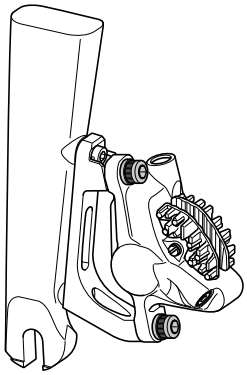
Please check in advance with the bicycle manufacturer or supplier in regards to the influence of heat generated by the disc brake on performance and quality, such as the strength of the frame, under actual usage conditions.
The heat generated when braking differs depending on the brake, brake boss, and other factors; however, in tests carried out under conditions set by SHIMANO, it has been confirmed that the temperature of the frame mount reaches up to 120°C.

Installation of the converter for flat mount

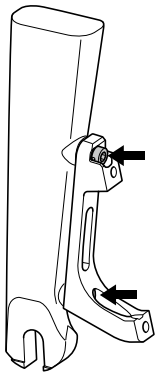
FRONT MOUNT for ø140 and ø160 rotor C-082



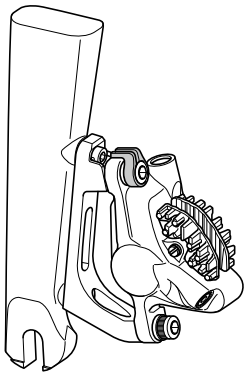
Installation of the converter.



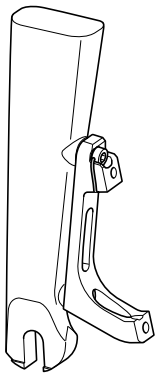
Adjustment of the alignment of the brake caliper to the disc brake rotor, and securing the brake caliper.



Securing the converter.

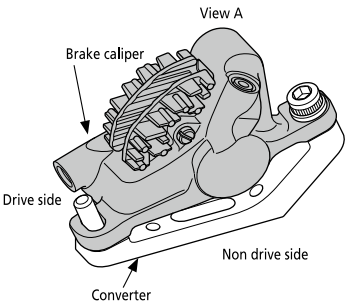


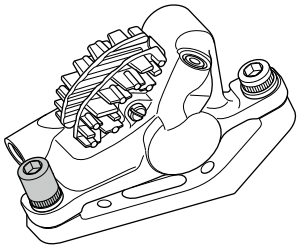
Securing the snap retainers.



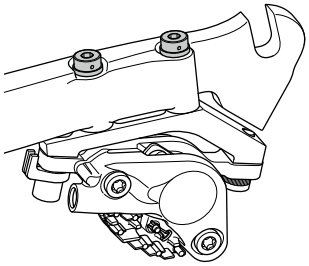
Installation of the wire.

REAR MOUNT for ø140 rotor C-083

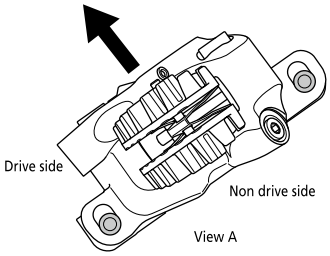




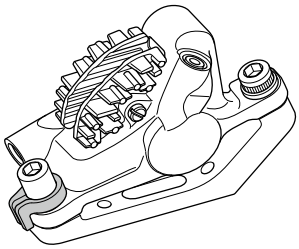
Installation of the brake caliper fixing nut



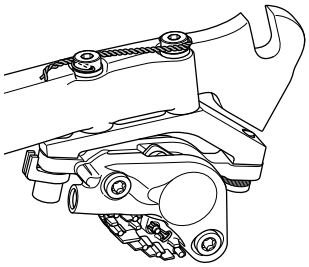
Adjustment of the alignment of the brake caliper to the disc brake rotor, and securing the brake caliper.



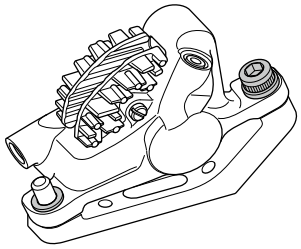
Installation of the brake caliper and converter
Bring the brake caliper to the drive side.



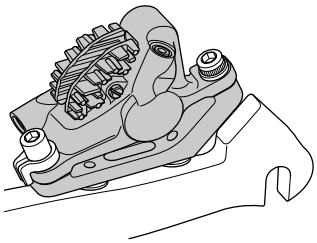
Installation of the snap retainer



Installation of the wire

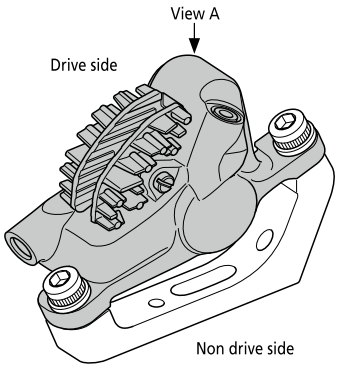


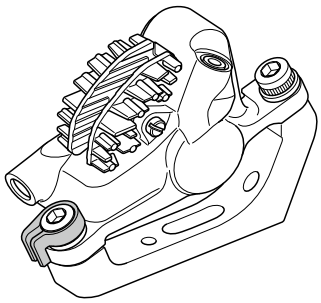
Installation of the brake caliper fixing bolt and washers



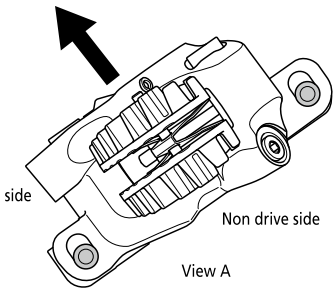
Installation of the brake caliper

REAR MOUNT for ø160 rotor C-084

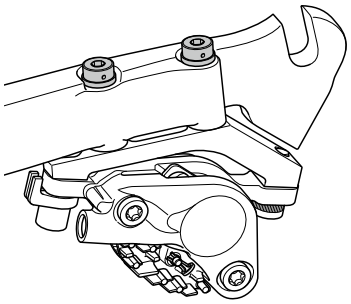




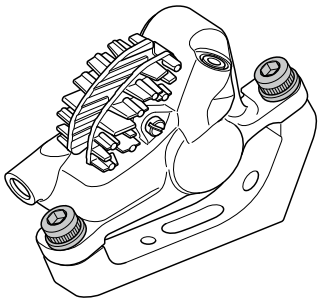
Installation of the snap retainer



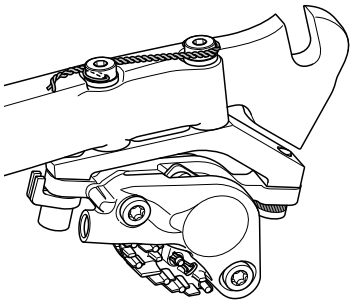
Installation of the brake caliper
and converter
Bring the brake caliper to the drive side.



Adjustment of the alignment of the
brake caliper to the disc brake rotor,
and securing the brake caliper.



Installation of the brake
caliper fixing bolts



Installation of the wire

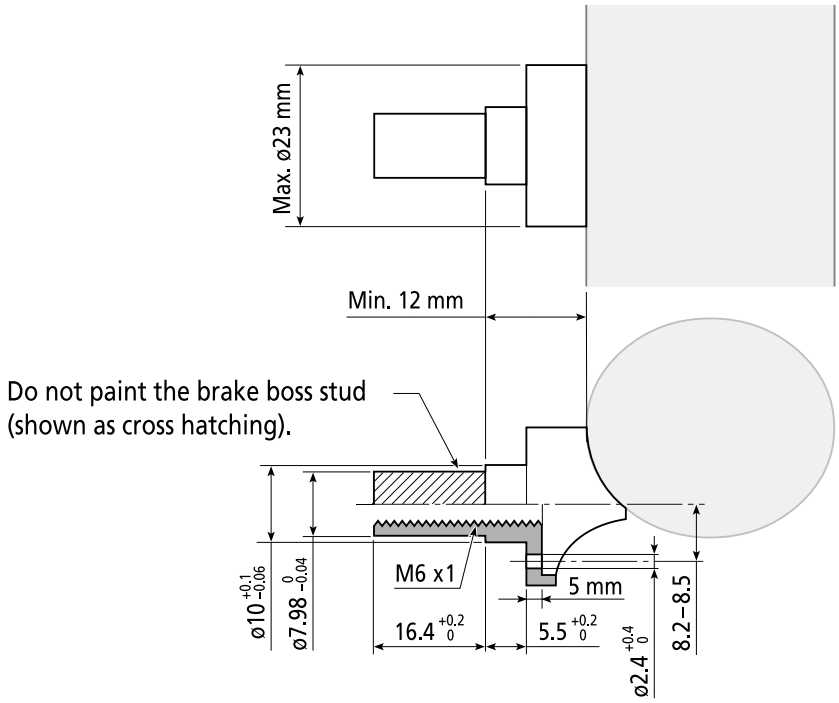
Compatibility between brake caliper and caliper mount C-476

	Current Brake Caliper	Brake Caliper for flat mount
Post mount	X	–
Flat mount	X (with converter)	X

X: compatible

Boss dimensions C-086

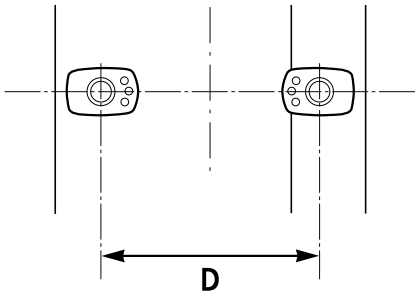
The Shimano brakes (V-BRAKE and cantilever brake) are designed for use with brake bosses having the dimensions shown below.
If Shimano brakes are used with bosses that do not meet to the dimensions given below, the braking performance may be adversely affected.



Distance between brake bosses C-087

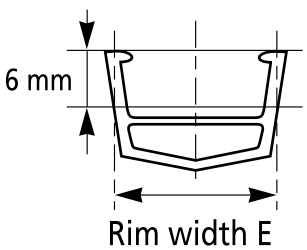
Boss distance C-088

Dimension D between brake bosses may change depending on rim width.



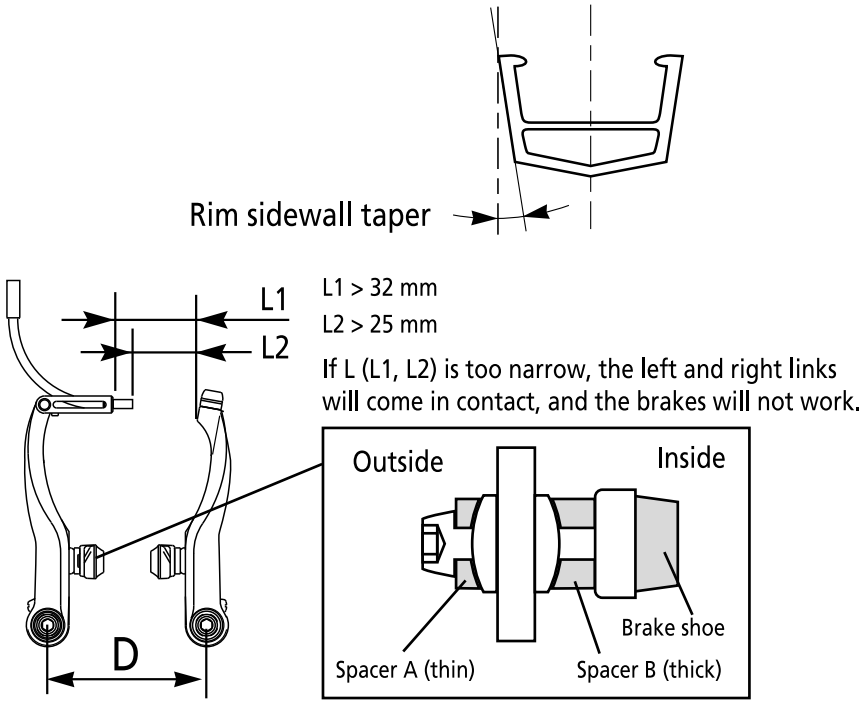
Rim width C-089

The width at a point 6 mm from the top of the rim.

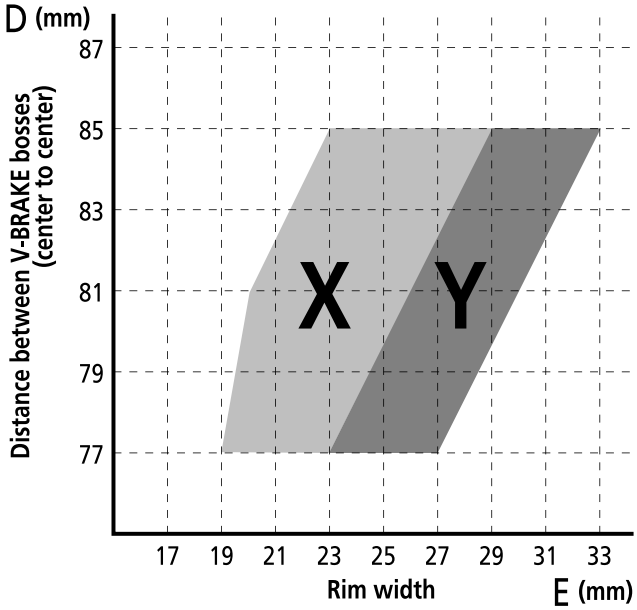


Rim sidewall taper C-090

Shimano brakes are designed for rims having a sidewall taper of from -3 to +9 degrees.



If L (L1, L2) is too narrow, the left and right links will come in contact, and the brakes will not work.



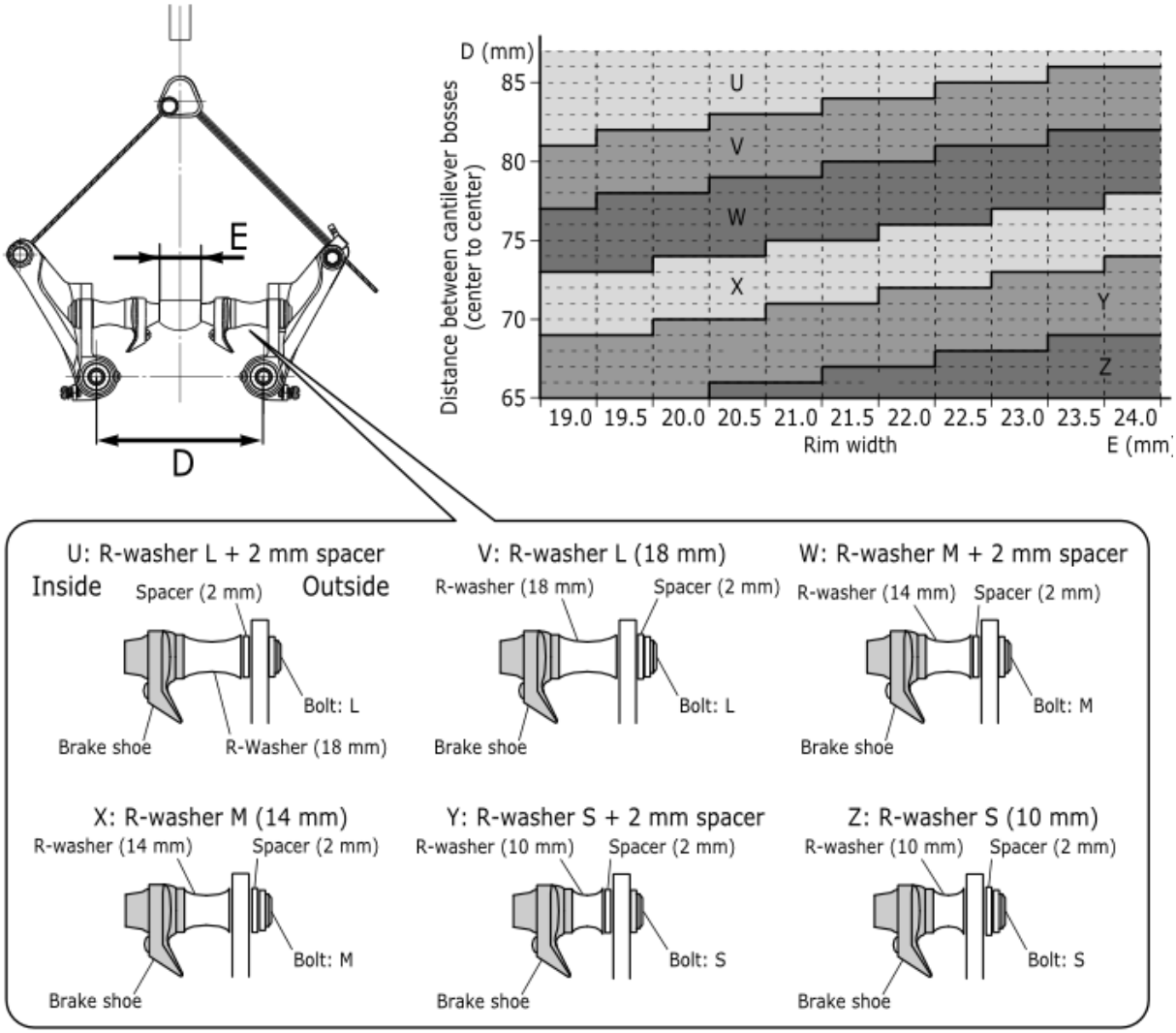
Spacer A position	Spacer B position	Graph area
Outside	Inside	X area
Inside	Outside	Y area

NOTE

- As with normal cantilever brakes, the Shimano V-BRAKE is designed for installation on frames with a 80 mm distance between bosses (center to center). Please refer to the graph for suitable rim width and boss distance combinations. If the brakes are used in conditions outside what is recommended, the brake performance may be adversely affected.
- Some rim width and boss combinations may require the reversal of A and B spacers in order to obtain the required L1 and L2 dimensions.
- If the L dimensions of the frame are too large, interference may be created between the riders legs and the brakes.
- To specify optimum set up and obtain the required minimum dimension L, refer to the graph above and the table below relating to boss distance, rim width, and spacer positioning.

BR-CX70 / BR-CX50

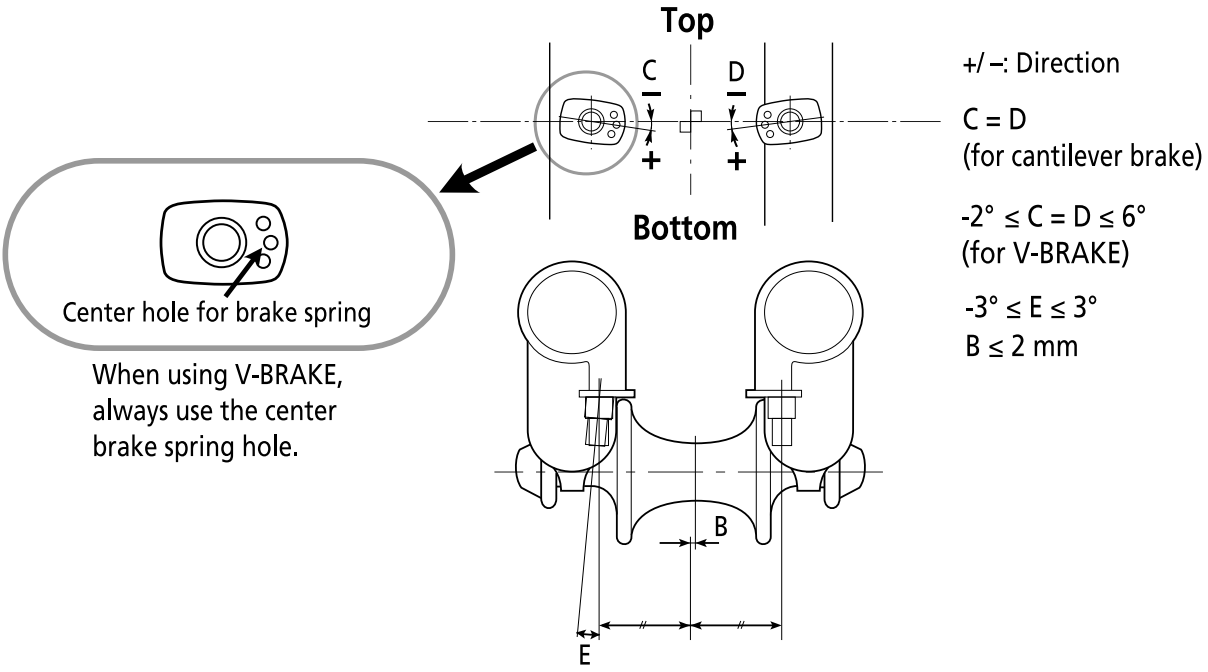
Please refer to the graph for suitable rim width and boss distance combinations. If the brakes are used in conditions outside what is recommended, the brake performance may be adversely affected.



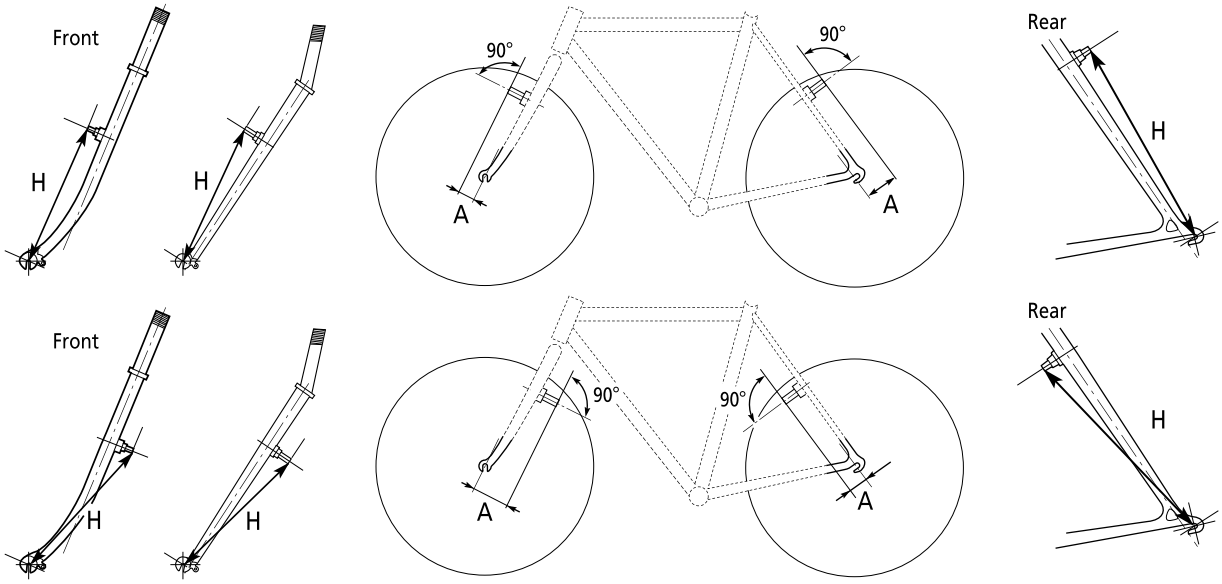
Boss positioning

Brake bosses for use with Shimano brakes should be positioned within the ranges shown in the diagrams below.
Notice that there is a slight difference in installation between normal cantilever brakes and V-BRAKES.

Brake boss positions C-092



Frame mounting height for brake bosses C-093



H: the distance between hub axle center and brake boss center.
A: the height of the brake boss measured from hub axle center.

V-BRAKE

	H	A
ISO 5775 #559 (old marking 26 inch)	253.5 ± 1 mm	-8 mm ≤ A ≤ 70 mm
ISO 5775 #584 (for 650B)	264 ± 1 mm	-8 mm ≤ A ≤ 70 mm
ISO 5775 #622 (old marking 700C, 28 inch)	283 ± 1 mm	-8 mm ≤ A ≤ 70 mm
ISO 5775 #630 (old marking 27 inch)	286 ± 1 mm	-8 mm ≤ A ≤ 70 mm

Cantilever brake

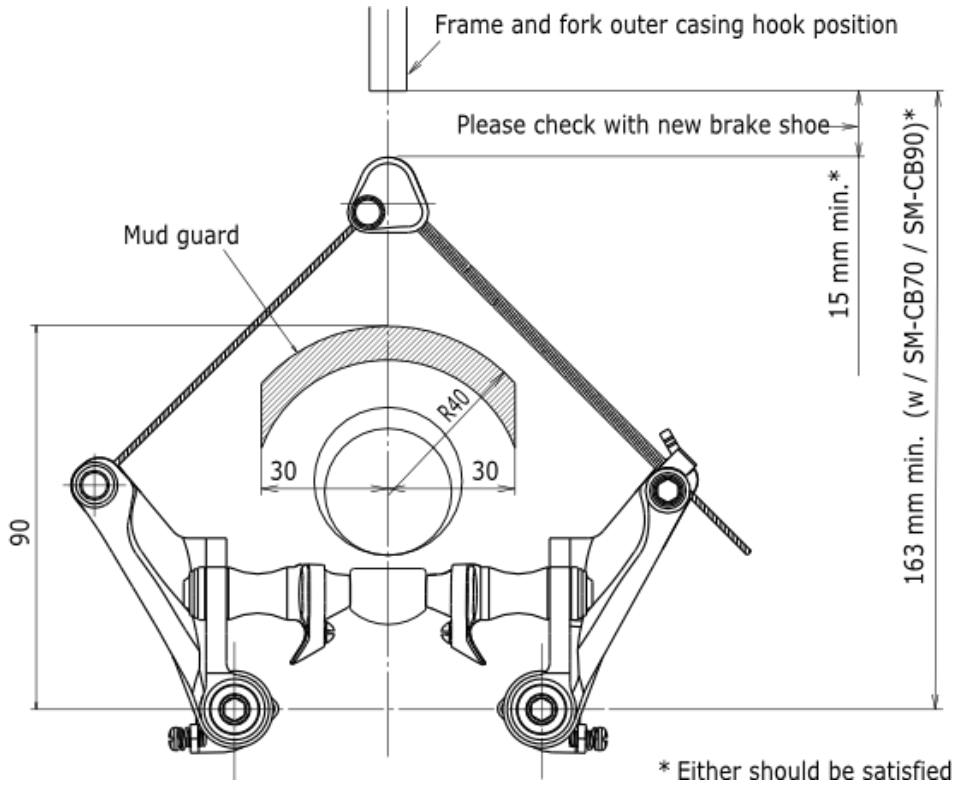
	H	A
ISO 5775 #559 (old marking 26 inch)	253.5 ± 1 mm	-8 mm ≤ A ≤ 70 mm
ISO 5775 #571 (for 650C)	258 ± 1 mm	-8 mm ≤ A ≤ 70 mm
ISO 5775 #622 (O.L.D. marking 700C, 28 inch)	283 ± 1 mm	-8 mm ≤ A ≤ 70 mm
ISO 5775 #630 (old marking 27 inch)	286 ± 1 mm	-8 mm ≤ A ≤ 70 mm

NOTE

- Be careful about the cable routing to prevent inner lead interfering with the frame when steering the handle bar.
- Be careful about the direction of the brake shoe in case cartridge shoe is used.

Frame and fork outer casing hook position C-094

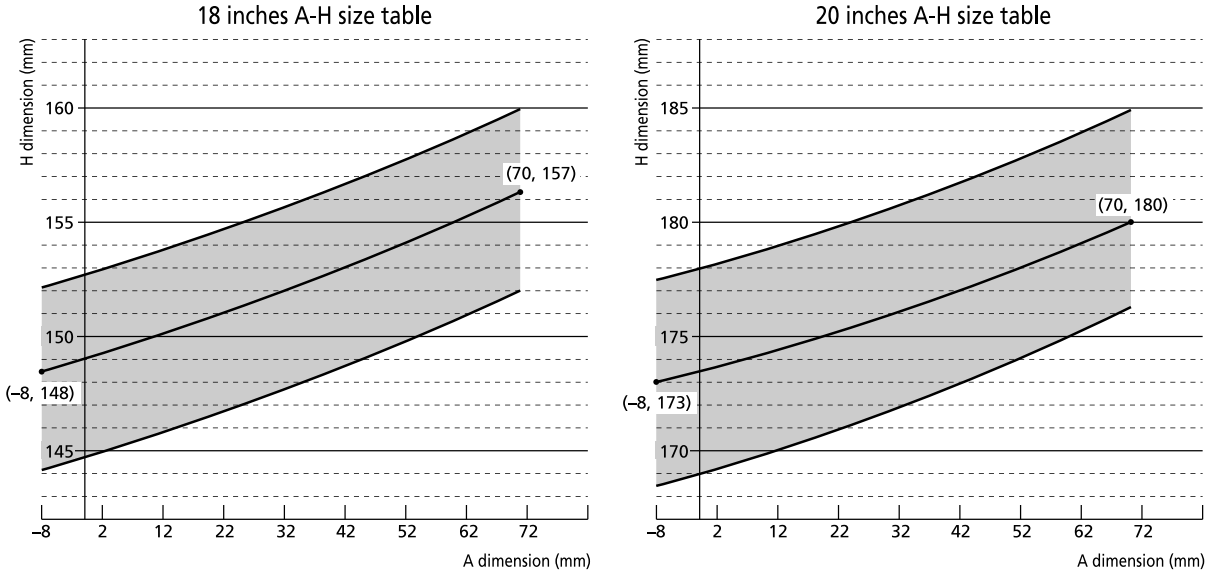
BR-CX70 / BR-CX50



Recommendation

Rim width 19 - 22 mm
Tire width 19C - 35C
Mud guard - 30C (tire)
Distance between brake boss 65 - 85 mm

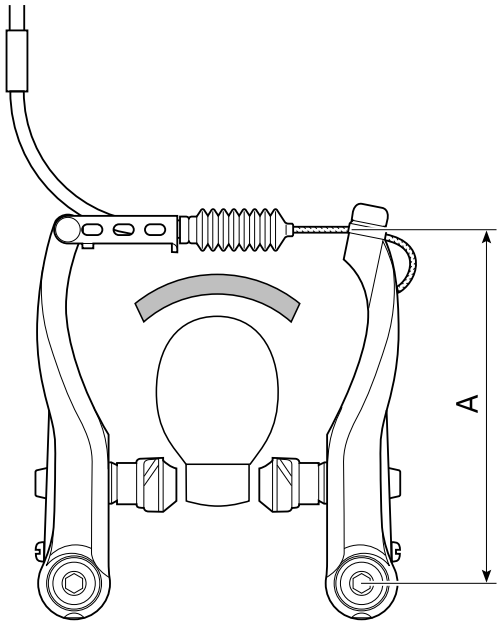
For Capreo C-095



–8 mm ≤ A ≤ 70 mm

Length of V-BRAKE arch

The length of the brake link for the model below has been increased from 103 mm to 107 mm in order to reduce interference with the mudguard, light and carrier stay.
The result of this is that the part is 4 mm higher than previous parts, so take care to ensure that it does not interfere with other parts.



Model No.	Arch length A (mm)
BR-T780	103
BR-T670	107
BR-T611	107
BR-T610	107
BR-T4010	107
BR-T4000	107
BR-MX70	103
BR-F800	107
BR-R573	90
BR-R353	90

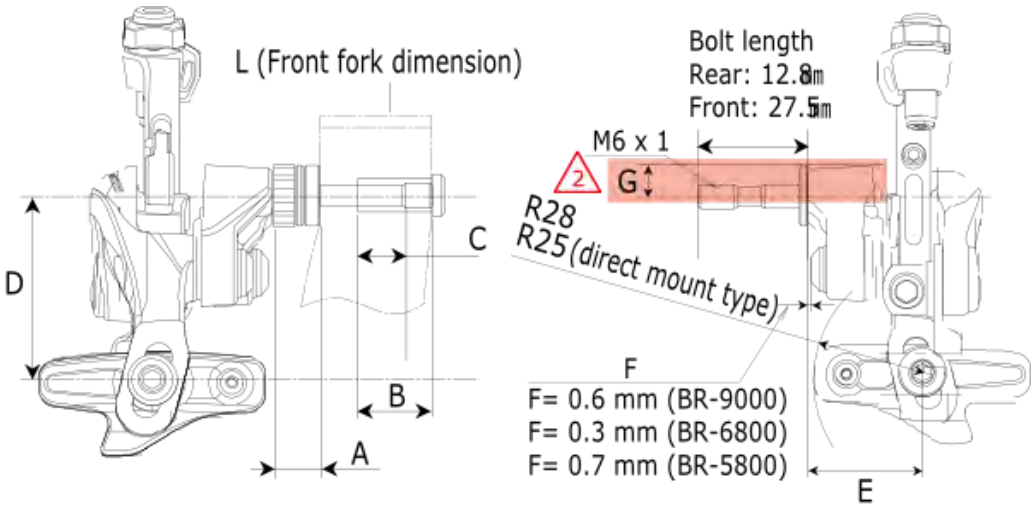
Caliper brake dimensions

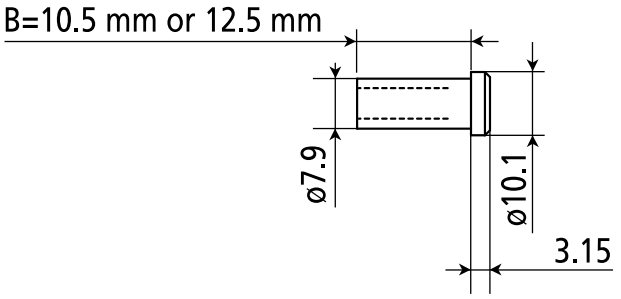
C-098

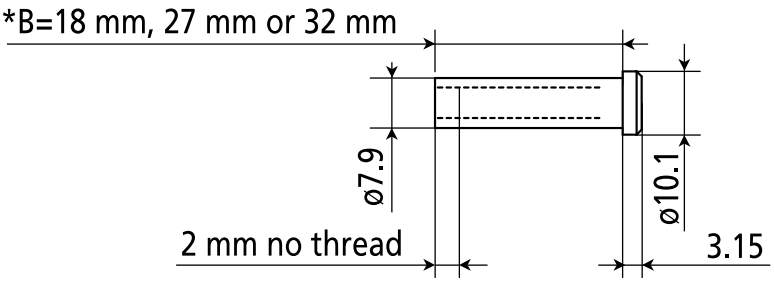
Securely tighten the caliper brake mounting nuts to the specified tightening torque.

- Use lock nuts with nylon inserts (self-locking nuts) for nut type brakes.
- For sunken nut type brakes, use sunken nuts of the appropriate length (C) which can be turned 5 times or more
  (over 5 mm); when re-installing, apply sealant (locking adhesive) to the nut threads.

If the nuts become loose and brakes fall off, they may get caught up in the bicycle and the bicycle may fall over.
Particularly if this happens with the front wheel, the bicycle may be thrown forward and serious injury could result.







Model No.	Washer (A)	Dimension B (mm)		D (mm)	E (mm)	2 G (mm)
		Front	Rear			
BR-9000	F:1.8 mm R:1.8 mm	10.5 12.5 18.0* 27.0* 32.0*	10.5	39 - 49	27 - 29.7	7.7
BR-9010-F	–	Note		25-34 Note	14.2 - 15.4	–
BR-9010-R				26-34 Note	27.1	
BR-6800	F: 2.0 mm R: 2.0 mm	10.5 12.5 18.0* 27.0* 32.0*	10.5	41 - 51	26.8 - 29.5	8.6
BR-5800						11.2
BR-4700	–				25.4 - 28.0	9.4
BR-6810-F	–	Note		25-34 Note	14.2-15.4	–
BR-6810-R				26-34 Note	27.1	
BR-5810-F				25-34 Note	14.2-15.4	
BR-5810-R				26-34 Note	29, w/o ADAPTER : 27.3	
BR-R561	F: 2.0 mm R: 2.0 mm	10.5 12.5 18.0* 27.0* 32.0*	10.5	39 - 49	26.3-29	9.4
					24.5-27.2	
BR-3500 BR-2400	–	10.5 12.5 18.0* 27.0*				
BR-R650	F: 2.0 mm R: 2.0 mm	10.5 12.5 18.0* 27.0*		47 - 57	26.8-29.5	11.3
BR-R451	–					

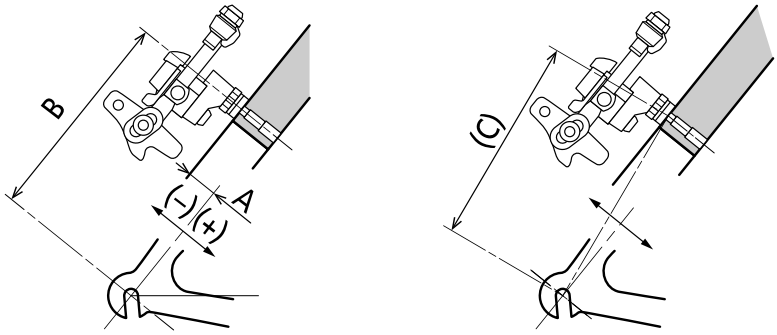
Nut length B (mm)	Front fork dimension L (mm)	
	Min.	Max.
10.5	28.8	29.2
12.5	29.2	30.8
18.0	29.7	34.1
27.0	38.3	43.0
32.0	43.3	48.0

NOTE

Please refer to C-102, C-103, C-104, C-105.

Caliper brake location

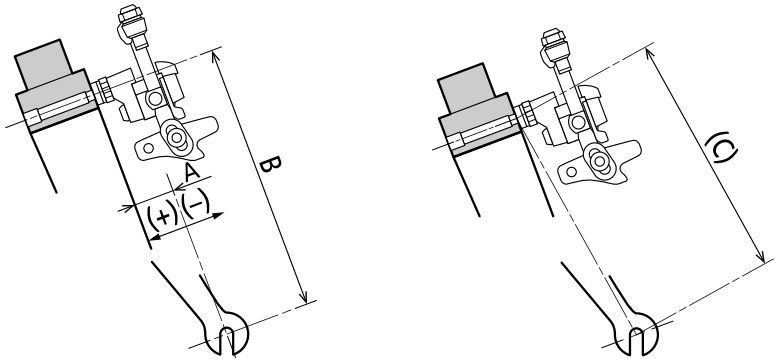
Rear brake C-100



A	*B + 3.0 / -1.0	C (reference)
-30	348.9	350.2
-20	350.7	351.3
-10	352.3	352.4
0	353.4	353.4
10	354.3	354.4
20	354.8	355.4
30	355.0	356.3
40	354.9	357.1
50	354.4	357.9

* In case of BR-9000: B ± 1.0

Front brake C-101



A	*B + 3.0 / -1.0	C (reference)
-30	348.9	350.2
-20	350.7	351.3
-10	352.3	352.4
0	353.4	353.4
10	354.3	354.4
20	354.8	355.4
30	355.0	356.3
40	354.9	357.1
50	354.4	357.9

* In case of BR-9000: B ± 1.0

NOTE

B,C dimension changes by size of BR or wheel.
49 type BR W / 650C rim (ISO xx-571)
B and C on the table should be taken off 27.6 mm.

57 type BR W / 700C rim (ISO xx-622) B and C on the table should be added with 8.0 mm.

57 type BR W / 650C rim (ISO xx-571) B and C on the table should be taken off 17.6 mm.

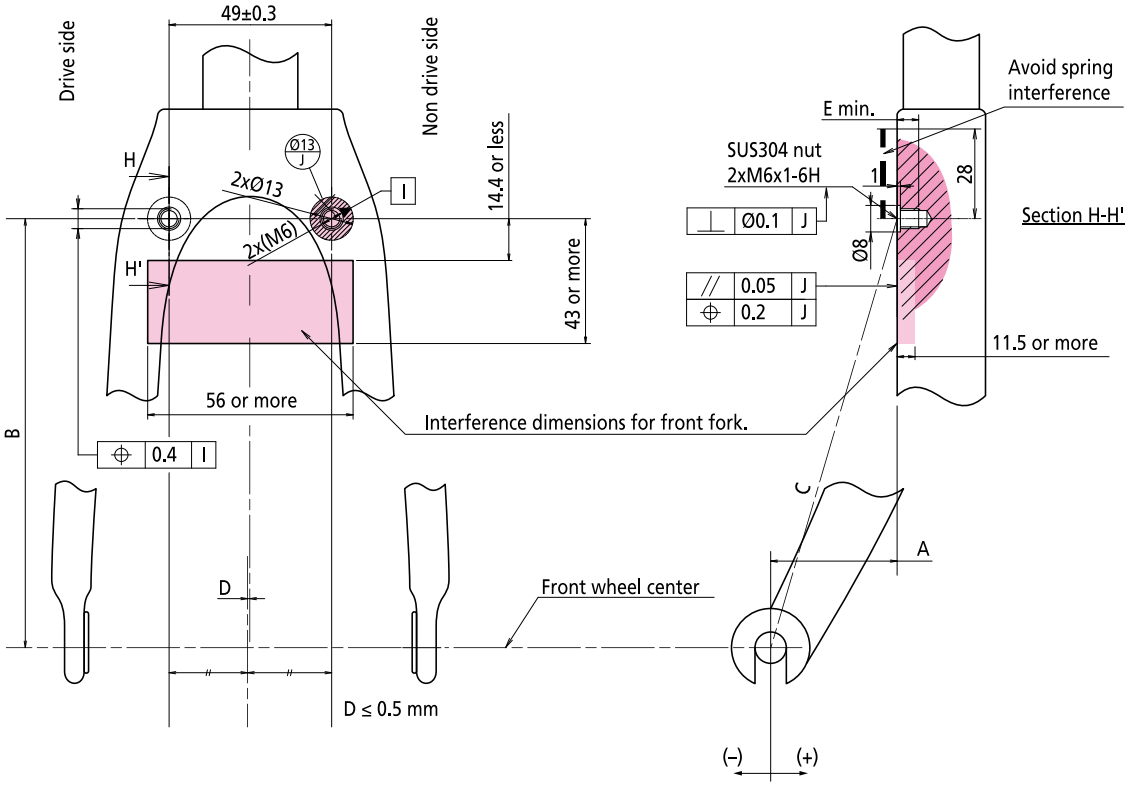
Direct mount type brake caliper

Mounting location		Model No.
For front	Front fork	BR-9010-F BR-6810-F BR-5810-F
For rear	Under bottom bracket	BR-9010-R BR-6810-R BR-5810-R
	Seat stay	BR-9010-RS * BR-6810-RS * BR-5810-RS *

* Only for back side of rear seat stay.
-Do not install at under bottom bracket or at front side of seat stay.

Front fork mount type C-103

BR-9010-F / BR-6810-F / BR-5810-F



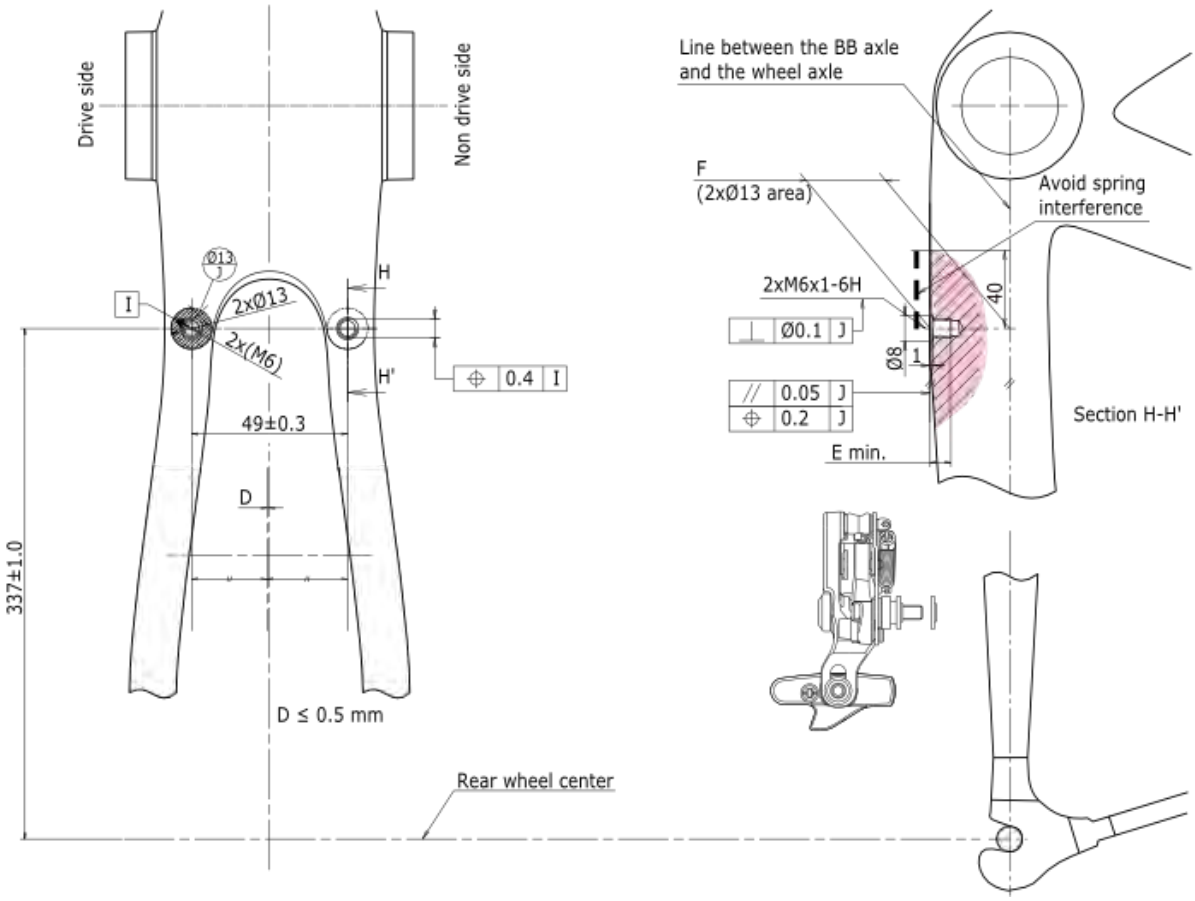
Direct mount for 700C		
Front		
A (mm)	B ±1 (mm)	C (mm)
-30	333.3	334.7
-20	334.7	335.3
-10	335.8	335.9
0	336.5	336.5
10	336.9	337.1
20	337.0	337.6
30	336.7	338.1
40	336.2	338.5
50	335.3	339.0

Model No.	For SUS304 nut	For aluminum nut
	E min. (mm)	
	7.5	9.2
BR-9010-F	X	-
BR-6810-F	X	-
BR-5810-F	X	-

X: Yes

Under bottom bracket mount type for rear brake C-104

BR-9010-R / BR-6810-R / BR-5810-R



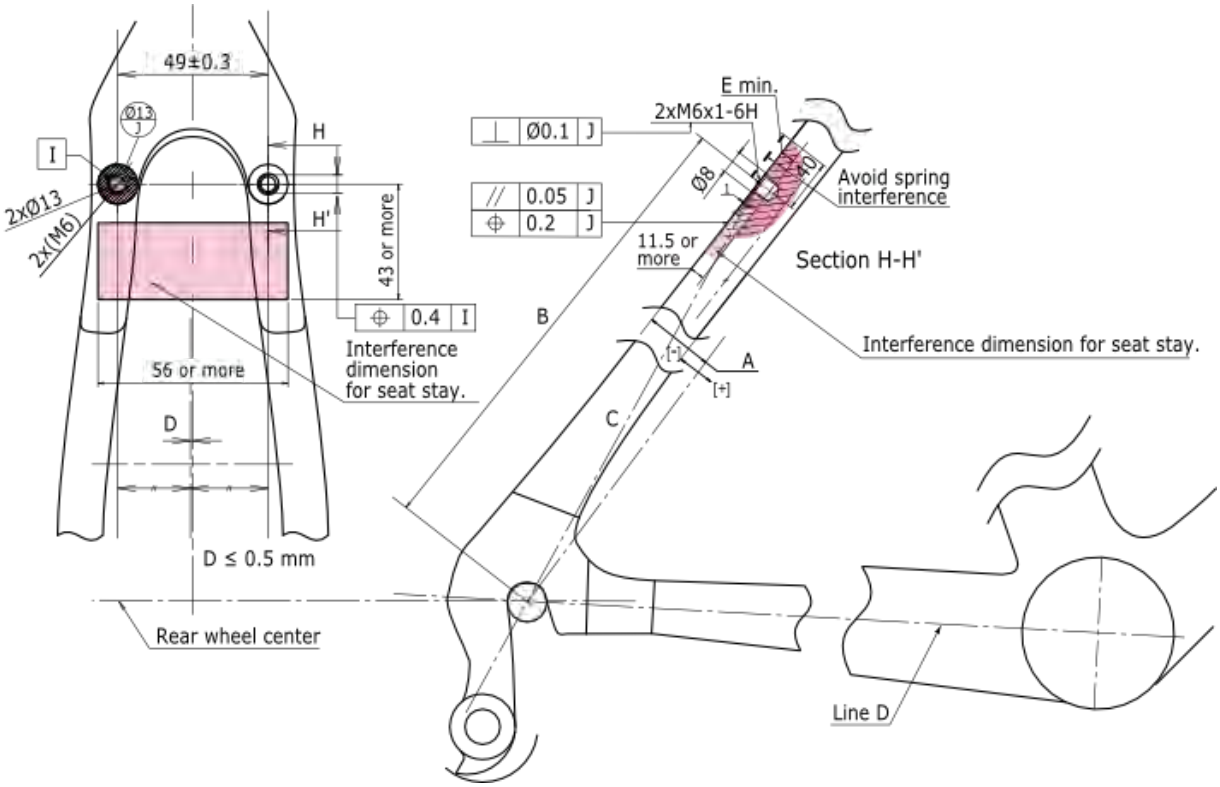
Model No.	Dim. F
BR-9010-R	25 +1/-5
BR-6810-R	25 +1/-5
BR-5810-R (with washer)	25 +1/-5
BR-5810-R (without washer)	25 +2.7/-5

Model No.	For SUS304 nut	For aluminum nut
	E min. (mm)	
	7.5	9.2
BR-9010-R	X	-
BR-6810-R	X	-
BR-5810-R	X (with washer)	X (without washer)

X: Yes

Rear seat stay mount type C-105

BR-9010-RS / BR-6810-RS / BR-5810-RS



Direct mount for 700C		
Rear		
A (mm)	B ±1 (mm)	C (mm)
-30	333.3	334.7
-20	334.7	335.3
-10	335.8	335.9
0	336.5	336.5
10	336.9	337.1
20	337.0	337.6
30	336.7	338.1
40	336.2	338.5
50	335.3	339.0

Model No.	For SUS304 nut	For aluminum nut
	E min. (mm)	
	7.5	9.2
BR-9010-RS	-	X
BR-6810-RS	-	X
BR-5810-RS	X (with washer)	X (without washer)

X: Yes

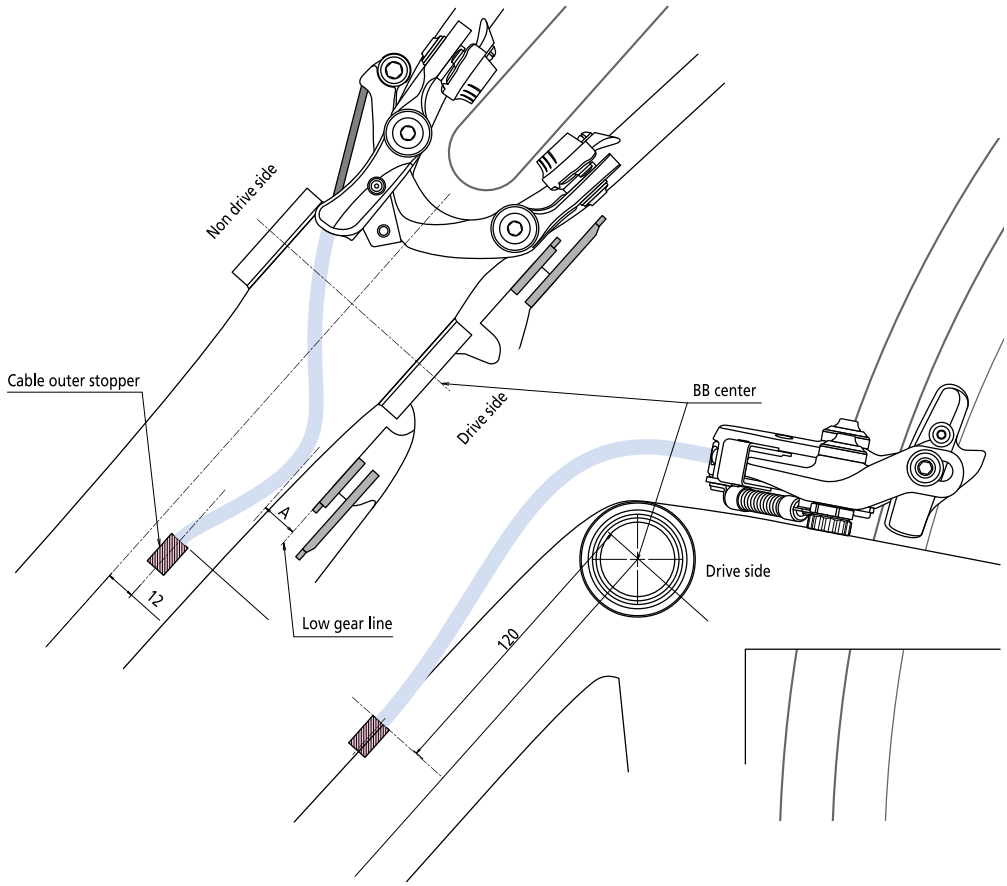
NOTE

Please check with bicycle / frame maker on brake mounting strength and accuracy.

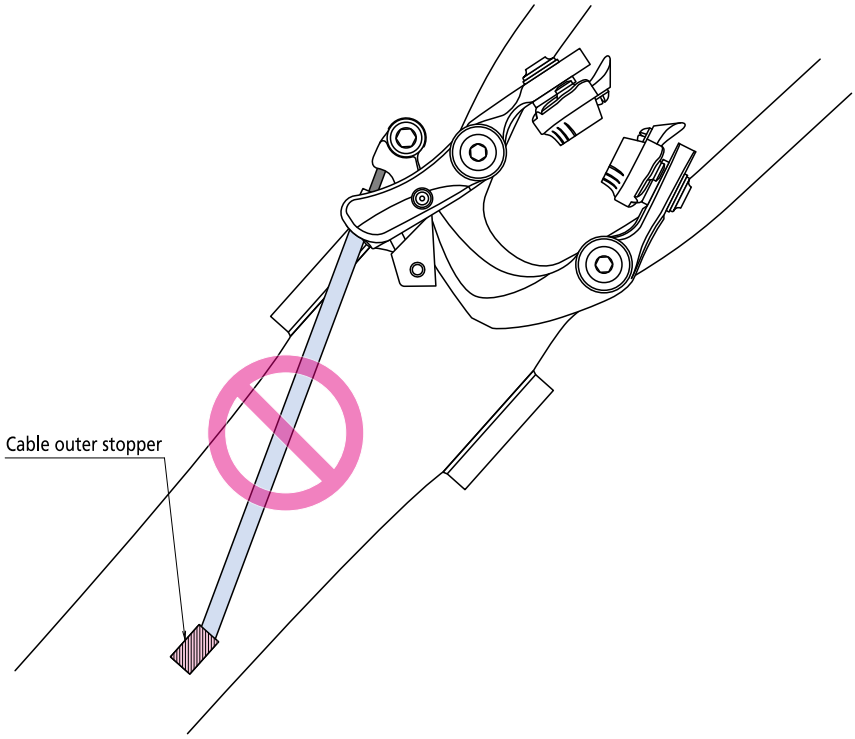
Cable outer stopper positions for direct mount type rear brake caliper and proper outer cable length C-106

BR-9010-R / BR-6810-R / BR-5810-R

When brake caliper fully open ... A ≥ 15mm



When brake caliper fully close



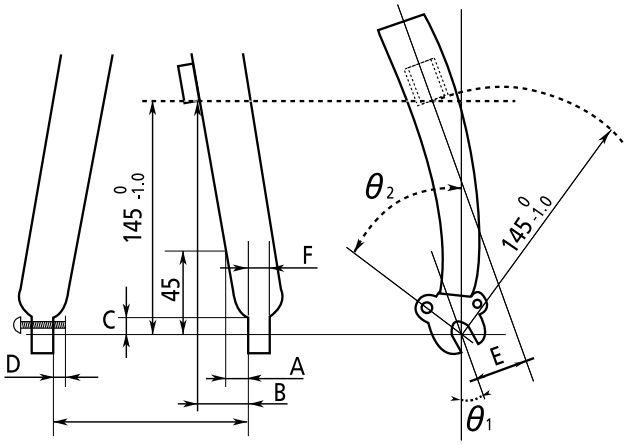
When caliper is fully closed without rear wheel, the length of brake outer cable should be long enough between cable outer stopper and caliper.

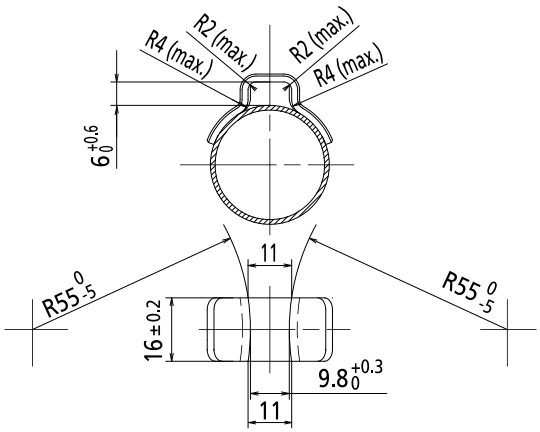
Fork dimensions

C-108

This brake basically attaches to the front fork in the same way as the conventional left side direct-connect hub brake. However, caution is required, so please refer to the diagrams below with regard to frame design.

Nut type C-109

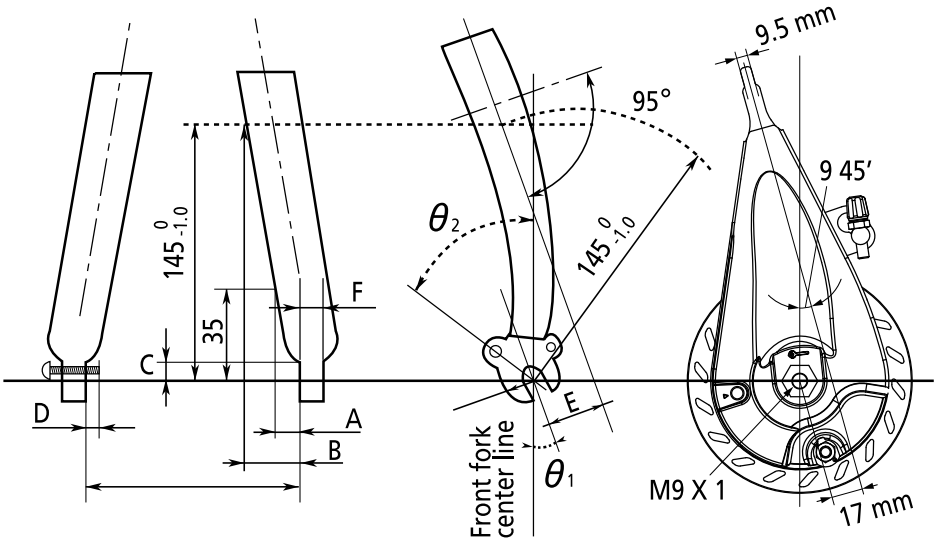




Recommended dimensions for the direct-connect hook

QR type C-110

The brake arm anchor boss (which is brazed on the fork) must be able to withstand a force of more than 3,700 N (370 kgf).



A ≤ 6.7

11 ≤ B ≤ 14.5

C ≥ 16: C is the straight section of fork dropout.

D: Mudguard and / or rack fasteners should not protrude beyond the inside face of the fork end.

E = 17, 6 30′ ≤ θ1 ≤ 13: The θ1 angle should be within the range given on the left. The basic dimensions of the brake are shown in the diagram at upper right. While the θ1 angle is recommended to be within the above range, there may be cases where the E dimension and this θ1 angle may have to be different from that shown above. In this case, establish the E and θ1 specifications according to your requirements but as close as possible to the dimensions given above.

θ2 < 45: θ2 is the mudguard screw position.

F > 4: "F" is the fork end thickness. When the fork end thickness "F" is 4 mm to 6.5 mm, please use the quick release with 129 mm length. When "F" is 5 mm to 8.5 mm, please use 133 mm.

CAUTION

- The cross hatching area (shown as X) denotes the part of the brake body that is recessed in order to prevent interference with the fork. Use the fork center line (shown in the diagram above) as the reference point from which to establish the position of this recessed area.
- Use a fork that has axle retention tabs on the outside of fork ends.
- When using the hub roller brake with suspension forks, read C-111.

Precautions when using front roller brake system with a suspension fork

C-111

Roller brake systems are hub brakes, and therefore apply a different type of braking stress to front forks than rim
brakes. Be aware of the precautions listed below if you are using a roller brake system with suspension front forks.

NOTE

- Braking forces are absorbed by the left side of the forks only.
  The position where the stress are applied is at L = 150 mm.
  (L is location of the mounting boss shown on the fig.(145 mm) plus an additional 5 mm.)
  The maximum braking load is 3700N.
- Long down hill braking will transfer brake generated heat directly to the fork leg.
  The hub lock nut can heat up form 70 to 90 °C above ambient temperature.
- The hub braking action will cause suspension forks to twist.
- Brake stresses are concentrated at the brake arm mounting point.
- Brake heat will be transferred to the oil of oil type suspension forks.
- Select a fork that is compatible with DIN standard hub brakes (EN norm).
- Be sure to mount the brake arm that receives the braking force securely so that it does not separate from the braze-on or band type anchor boss.
- Be sure to confirm the specification of the bicycle, confirm the purpose for which it will be used, perform the required quality assurance tests, and perform the necessary preliminary work before installation.

Fork strength C-112

The hub roller brake was designed to be used with a fork that conforms to EN norm. Always verify that the fork you plan to use conforms to this standard.

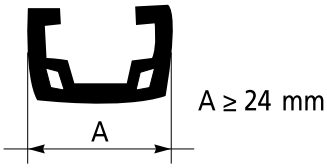
Spoke lacing C-113

Use a wheel with 3x or 4x spoke lacing. Wheels with radial lacing cannot be used because the spokes and the wheel can be damaged when applying the brakes and brake noise can be generated.

Rims used with the hub roller brake C-114

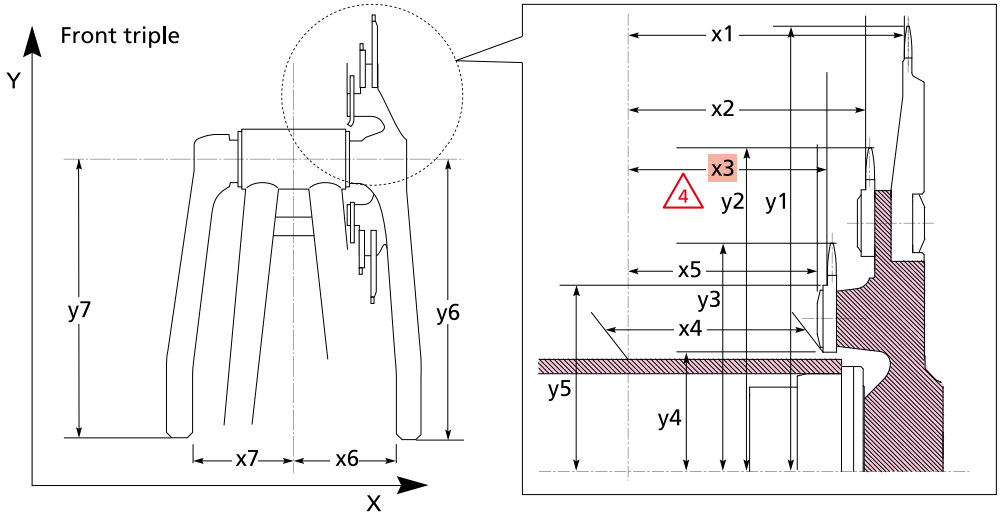
This brake applies braking force at the hub section, so compared to rim brakes, rim strength is required. Use the recommended rim types in the table below.

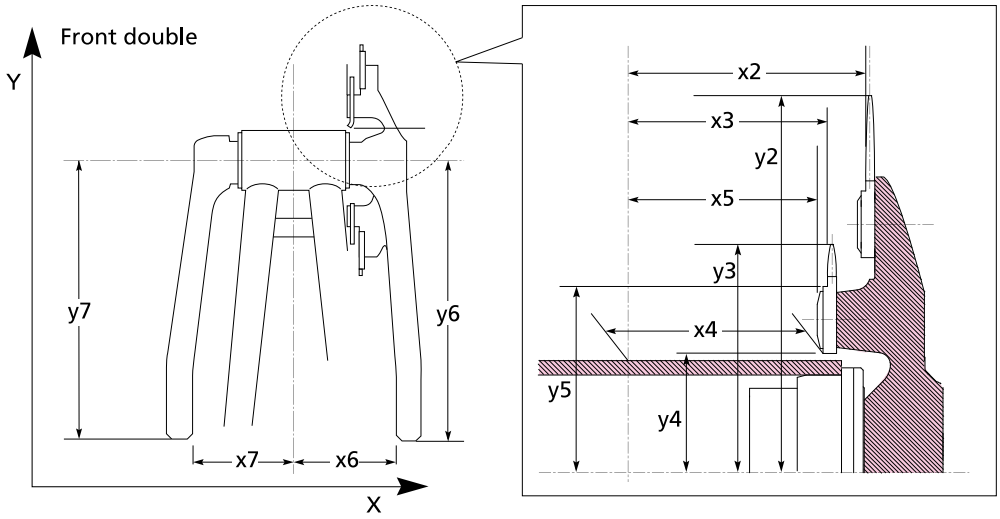
- Stainless rim and steel rim --- No requirement
- Aluminum 26-inch Rim --- No requirement
- Aluminum 27-inch and 700C (28 x 1-5/8 x 1-1/4) --- As below A

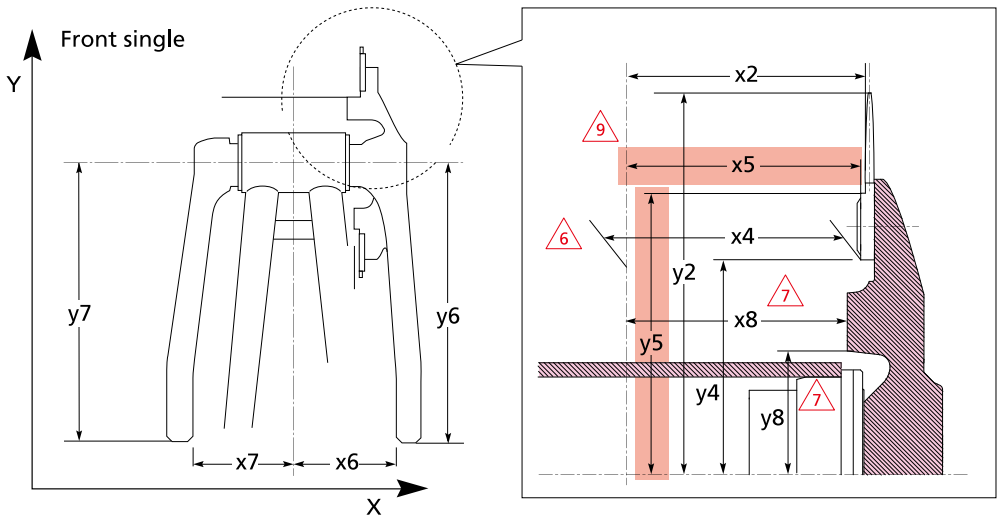


Crankset dimensions [MTB]

Below are the dimensions for the Shimano chainwheels.
Design the frame while referring to these dimensions to ensure no interference.







NOTE

When using pressfit BB, please take special care for X4, Y4 dimension of the crankset to avoid interference between inner ring chainring and the outer side of the BB shell of the frame.

Y dimensions C-117

6 7 8

Speed	Model No.	Gear	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)	y8 (mm)
11	FC-M9020-3	40-30-22T	83.6	63.6	48.1	24.5	40.5	192.8	192.8	-
	FC-M8000-3	40-30-22T	83.6	63.6	48.1	24.5	38.5	196.9	196.9	-
	FC-M9000-2	38-28T	-	79.3	59.4	24.5	44.9	192.7	192.7	-
		36-26T	-	75.3	55.4	24.5	44.9			-
		34-24T	-	71.2	51.3	24.5	44.9			-
	FC-M9020-2	38-28T	-	79.3	59.4	24.5	44.9	192.8	192.8	-
		36-26T	-	75.3	55.4	24.5	44.9			-
		34-24T	-	71.2	51.3	24.5	44.9			-
	FC-M8000-2	38-28T	-	79.3	59.4	24.5	38.5	196.9	196.9	-
		36-26T	-	75.3	55.4	24.5	38.5			-
		34-24T	-	71.2	51.3	24.5	38.5			-
	FC-MT700	36-26T	-	75.3	55.4	24.5	38.5	191.8	191.8	-
	FC-M9000-1	36T	-	76.6	-	-	-	192.7	192.7	24.7
		34T	-	72.5	-	-	-			
		32T	-	68.5	-	-	-			
		30T	-	64.4	-	-	-			
	FC-M9020-1	36T	-	76.6	-	-	-	197.8	197.8	24.7
		34T	-	72.5	-	-	-			
		32T	-	68.5	-	-	-			
		30T	-	64.4	-	-	-			
	FC-M8000-1	34T	-	72.5	-	-	-	196.9	196.9	24.8
		32T	-	68.5	-	-	-			
		30T	-	64.4	-	-	-			

Speed	Model No.	Gear	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)
10	FC-M980	42-32-24T	87.7	67.7	52.3	24.5	38.5	196.6	196.6
		38-26T	–	79.6	55.4	24.5	38.5		
	FC-T780	48-36-26T	99.8	75.2	56.2	24.0	38.5	196.8	196.8
	FC-T781	48-36-26T	99.8	75.2	56.2	24.0	38.5		
		44-32-24T	91.7	67.7	52.3	24.5	38.5		
	FC-T671	48-36-26T	99.8	75.2	56.2	24.0	38.5	192.7	192.7
		44-32-24T	91.7	67.7	52.3	25.0	38.5		
	FC-M670	48-36-26T	99.8	75.2	56.2	24.0	38.5	191.8	191.8
		42-32-24T	87.7	67.7	52.3	25.0	38.5		
	FC-T611	48-36-26T	99.8	75.2	56.2	24.0	38.2	192.3	192.3
		44-32-24T	91.7	67.7	52.3	25.0	38.2		
	FC-T551	48-36-26T	99.8	75.2	56.2	24.0	38.2	192.6	192.6
		44-32-24T	91.7	67.7	52.3	25.0	38.2		
	FC-T521	48-36-26T	99.8	75.2	56.3	19.9	38.2	191.6	191.6
		44-32-24T	91.8	67.7	52.4	19.9	38.2		
	FC-M610	48-36-26T	99.8	75.2	56.2	24.0	38.2	192.6	192.6
		42-32-24T	87.7	67.7	52.3	25.0	38.2		
	FC-M780	42-32-24T	87.7	67.7	52.3	24.5	38.5	196.8	196.8
	FC-M552	42-32-24T	87.7	67.7	52.3	25.0	38.2	192.6	192.6
	FC-M522	42-32-24T	87.7	67.7	52.4	19.9	38.2	191.6	191.6
	FC-M782	40-30-22T	83.6	63.6	48.3	24.5	38.5	196.8	196.8
	FC-M672	40-30-22T	83.6	63.6	48.3	25.0	38.5	191.8	191.8
	FC-M622	40-30-22T	83.6	63.6	48.3	24.5	38.2	192.6	192.6
	FC-M612	40-30-22T	83.6	63.6	48.3	24.5	38.2	192.6	192.6
	FC-M523	40-30-22T	83.7	63.7	48.3	19.9	38.2	191.6	191.6
	FC-M985	44-30T	–	91.7	63.6	35.4	50.6	196.6	196.6
		42-30T	–	87.7	63.6	35.4	50.6		
		40-28T	–	83.6	59.5	35.4	50.6		
	FC-M785	40-28T	–	83.6	59.4	24.5	38.5	196.8	196.8
		38-26T	–	79.6	55.4	24.5	38.5		
		38-24T	–	79.6	51.3	24.5	38.5		
	FC-M615	40-28T	–	83.6	59.4	25.0	38.2	192.6	192.6
		38-26T	–	79.6	55.4	25.0	38.2		
		38-24T	–	79.6	51.3	25.0	38.2		
	FC-M677	38-24T	–	79.6	51.3	25.0	38.2	191.8	191.8
		36-22T	–	75.3	48.3	25.0	38.2		
	FC-M627	38-24T	–	79.6	51.3	25.0	38.2	192.6	192.6
		36-22T	–	75.3	48.3	25.0	38.2		
	FC-M617	38-24T	–	79.6	51.3	25.0	38.2		
		36-22T	–	75.3	48.3	25.0	38.2		
	FC-M820 FC-M825	38T	–	80.4	–	–	–	192.5	192.5
		36T	–	76.4	–	–	–		
		34T	–	72.4	–	–	–		
	FC-M640	38T	–	80.4	–	–	–	192.6	192.6
		36T	–	76.4	–	–	–		
		34T	–	72.4	–	–	–		
	FC-M645	38T	–	80.4	–	–	–		
		36T	–	76.4	–	–	–		
		34T	–	72.4	–	–	–		

Speed	Model No.	Gear	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)
9	FC-M4060	48-36-26T	99.8	75.1	56.2	24.0	38.2	191.8	191.8
	FC-M4050	40-30-22T	83.6	63.6	48.3	24.5	38.2		
	FC-T4060	44-32-22T	91.7	67.0	48.1	24.5	38.2	191.3	191.3
		48-36-26T	99.8	75.1	56.2	24.0	38.2		
	FC-M4000	40-30-22T	83.7	63.7	48.3	19.9	38.2	193	193
	FC-T4010	44-32-22T	91.8	67.0	48.2	19.9	38.2		
		48-36-26T	99.8	75.1	56.3	19.9	38.2		
	FC-M3000-8	40-30-22T	83.7	63.7	48.3	19.9	38.2	192.6	192.6
	FC-M3000	40-30-22T	83.7	63.7	48.3	19.9	38.2	192.7	192.7
	FC-T3010-8	44-32-22T	91.8	67.0	48.2	19.9	38.2	193.1	193.1
		48-36-26T	99.8	75.1	56.3	19.9	38.2		
	FC-T3000	44-32-22T	91.8	67.0	48.2	19.9	38.2		
		48-36-26T	99.8	75.1	56.3	19.9	38.2		
	FC-M371	44-32-22T	91.8	67.1	48.3	19.8	–	192	192
		48-36-26T	99.9	75.2	56.4	21.3	–		
	FC-M351	44-32-22T	91.8	67.1	48.3	19.8	–	192.3	192.3
8, 7	FC-M361	42-32-22T	87.7	68.2	47.2	20.0	38.2	192.6	192.6
		48-38-28T	100.3	80.1	60.3	20.0	38.2		
	FC-M311	42-32-22T	87.7	68.2	47.2	20.0	–	192.1	192.1
		48-38-28T	100.2	79.3	59.3	25.5	–		
	FC-M311-8	42-32-22T	87.7	68.2	47.1	20.0	–	192	192
	FC-TX801	42-32-22T	87.8	68.1	47.3	19.8	–	192.3	192.3
		48-38-28T	100.3	79.4	59.5	25.2	–		
8, 7, 6	FC-TY701	42-34-24T	88.4	72.2	51.8	21.2	–	192.1	192.1
		48-38-28T	100.5	79.2	59.1	25.2	–		
	FC-M131 FC-M171	42-34-24T	88.4	72.2	51.8	21.0	–	187	187
		48-38-28T	100.5	79.4	59.4	25.0	–	192	192
	FC-M171-A	48-38-28T	100.5	79.4	59.4	25.0	–	192	192
1	FC-MX71	34T	–	–	72.2	**(37.5)	–	197.5	197.5
		38T	–	–	80.3	**(37.5)	–		
		41T	–	–	86.3	**(37.5)	–		
		42T	–	–	88.3	**(37.5)	–		
		43T	–	–	90.4	**(37.5)	–		
		44T	–	–	92.4	**(37.5)	–		
		46T	–	–	96.4	**(37.5)	–		

Chain line 3mm outboard spec. Y dimensions C-119

Speed	Model No.	Gear	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)	y8 (mm)
11	FC-M9020-B1	32T	-	68.5	-	-	-	197.8	197.8	24.7
		30T	-	64.4	-	-	-			
	FC-M8000-B2	36-26T	-	75.3	55.4	24.5	38.5	196.9	196.9	-
	FC-M8000-B1	32T	-	68.5	-	-	-	196.9	196.9	24.8
10	FC-M627-B	36-26T	75.3	48.3	-	25.0	38.2	192.6	192.6	-

NOTE

*Please refer to technical information of crankset dimension which is 3mm outboard spec.
*It also requires new dimension of frame which cassette position is 3mm outboard

X dimensions C-118

6 7 8

Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)	x8 (mm)
11	FC-M9020-3	40-30-22T	50.0	56.7	49.2	41.5	42.5	41.5	68.5	68.5	-
	FC-M8000-3	40-30-22T	50.0	56.7	49.2	41.5	40.8	39.6	72.2	72.2	-
	FC-M9000-2	38-28T	48.8	-	50.2	42.8	42.5	43.6	63.5	63.5	-
		36-26T	48.8	-	50.2	42.8	42.5	43.6			
		34-24T	48.8	-	50.2	42.8	42.5	43.6			
	FC-M9020-2	38-28T	48.8	-	50.2	42.8	42.5	43.6	68.5	68.5	-
		36-26T	48.8	-	50.2	42.8	42.5	43.6			
		34-24T	48.8	-	50.2	42.8	42.5	43.6			
	FC-M8000-2	38-28T	48.8	-	50.2	42.8	42.1	40.9	72.2	72.2	-
		36-26T	48.8	-	50.2	42.8	42.1	40.9			
		34-24T	48.8	-	50.2	42.8	42.1	40.9			
	FC-MT700	36-26T	48.8	-	50.2	42.8	42.1	40.9	72	72	-
	FC-M9000-1	36T	50.4	-	47.8	-	-	-	63.5	63.5	46.7
		34T	50.4	-	47.8	-	-	-			
		32T	50.4	-	47.8	-	-	-			
		30T	50.4	-	47.8	-	-	-			
	FC-M9020-1	36T	50.4	-	47.8	-	-	-	68.5	68.5	46.7
		34T	50.4	-	47.8	-	-	-			
		32T	50.4	-	47.8	-	-	-			
		30T	50.4	-	47.8	-	-	-			
	FC-M8000-1	34T	50.4	-	47.8	-	-	-	72.2	72.2	45.3
		32T	50.4	-	47.8	-	-	-			
		30T	50.4	-	47.8	-	-	-			

Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)
10	FC-M980	42-32-24T	50.0	55.8	48.3	40.6	40.4	40.0	69.0	69.0
		38-26T	46.8	-	48.3	40.3	40.3	40.0		
	FC-T780	48-36-26T	50.0	55.7	48.2	40.4	39.4	38.0	72.2	72.2
	FC-T781	48-36-26T	50.0	55.7	48.2	40.4	39.4	38.0	78.7	72.2
		44-32-24T	50.0	55.7	48.2	40.6	39.4	38.0	78.7	72.2
	FC-T671	48-36-26T	50.0	55.7	48.2	40.3	40.3	38.2	78.6	72.2
		44-32-24T	50.0	55.7	48.2	40.6	40.3	38.2	78.6	72.2
	FC-T611	48-36-26T	50.0	55.7	48.2	40.3	40.3	38.3	78.4	71.4
		44-32-24T	50.0	55.7	48.2	40.6	40.4	38.4	78.4	71.4
	FC-T551	48-36-26T	50.0	55.7	48.2	40.3	40.3	38.3	78.1	72.0
		44-32-24T	50.0	55.7	48.2	40.6	40.4	38.4	78.1	72.0
	FC-T521	48-36-26T	50.0	55.5	47.9	40.0	38.3	37.8	80.0	75.0
		44-32-24T	50.0	55.5	47.9	40.3	38.3	38.3	80.0	75.0
	FC-M670	48-36-26T	50.0	55.7	48.2	40.3	40.3	38.2	72.2	72.2
		42-32-24T	50.0	55.7	48.2	40.6	40.3	38.2	72.2	72.2
	FC-M610	48-36-26T	50.0	55.7	48.2	40.3	40.3	38.3	72.2	72.2
		42-32-24T	50.0	55.7	48.2	40.6	40.3	38.3	72.2	72.2
	FC-M780	42-32-24T	50.0	55.7	48.2	40.6	39.4	38.0	72.2	72.2
	FC-M552	42-32-24T	50.0	55.7	48.2	40.6	40.3	38.3	71.9	72.2
	FC-M522	42-32-24T	50.0	55.5	47.9	40.3	38.3	38.3	73.5	73.5
	FC-M782	40-30-22T	50.0	55.7	48.3	40.5	39.7	38.3	72.2	72.2
	FC-M672	40-30-22T	50.0	55.7	48.3	40.7	40.7	35.5	72.2	72.2
	FC-M622	40-30-22T	50.0	55.7	48.2	40.4	40.4	38.3	72.2	72.2
	FC-M612	40-30-22T	50.0	55.7	48.2	40.4	40.4	38.3	72.2	72.2
	FC-M523	40-30-22T	50.0	55.5	48.0	40.4	38.4	38.6	76.0	76.0
	FC-M985	44-30T	48.8	-	50.5	42.3	41.4	40.8	66.0	66.0
		42-30T			50.3					
		40-28T								
	FC-M785	40-28T	48.8	-	50.2	42.3	41.4	40.0	72.2	72.2
		38-26T								
		38-24T	48.8	-	50.4	42.3	41.4	40.0	72.2	72.2
	FC-M615	40-28T	48.8	-	50.2	42.3	42.3	40.3	72.2	72.2
		38-26T	48.8	-	50.2	42.3	42.3	40.3	72.2	72.2
		38-24T	48.8	-	50.4	42.3	42.3	40.3	72.2	72.2
	FC-M677	38-24T	48.8	-	50.3	42.8	42.8	40.3	72.2	72.2
		36-22T	48.8	-	50.3	42.8	42.8	40.3	72.2	72.2
	FC-M627	38-24T	48.8	-	50.3	42.9	42.9	41.1	73.0	72.4
		36-22T	48.8	-	50.3	42.9	42.9	41.1	73.0	72.4
	FC-M617	38-24T	48.8	-	50.3	42.9	42.9	41.1	73.0	72.4
		36-22T	48.8	-	50.3	42.9	42.9	41.1	73.0	72.4
	FC-M820	34,36,38T	50.4	-	47.8	-	-	-	71.0	71.0
	FC-M825	34,36,38T	57.9	-	55.3	-	-	-	78.5	78.5
	FC-M640	34,36,38T	50.4	-	47.8	-	-	-	70.9	71.2
	FC-M645	34,36,38T	57.9	-	55.3	-	-	-	78.4	78.7

Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)
9	FC-M4060	48-36-26T	50.0	55.7	48.2	40.3	40.3	38.2	71.9	72.3
	FC-T4060	48-36-26T	50.0	55.7	48.2	40.3	40.3	38.2	78.6	71.6
		44-32-22T	50.0	55.7	48.2	40.3	40.3	38.2	78.6	71.6
	FC-T4010	48-36-26T	50.0	55.2	47.6	39.8	37.8	38.0	81.3	76.3
		44-32-22T								
	FC-T3010-8	48-36-26T	50.0	55.2	47.6	39.8	37.8	38.0	79.6	75.0
		44-32-22T								
	FC-T3000	48-36-26T	50.0	55.2	47.6	39.8	37.8	38.0	79.7	75.1
		44-32-22T								
	FC-M371	48-36-26T	50.0	55.5	48.0	40.1	38.0	–	76.5	72.0
		44-32-22T								
	FC-M351	44-32-22T	50.0	55.5	48.0	40.1	38.0	–	79.5	74.9
	FC-M4050	40-30-22T	50.0	55.7	48.2	40.3	40.3	38.2	71.9	72.3
	FC-M4000	40-30-22T	50.0	55.5	48.0	40.1	38.1	38.3	74.8	74.8
	FC-M3000-8	40-30-22T	50.0	55.5	48.0	40.1	38.1	38.3	73.9	73.2
	FC-M3000	40-30-22T	50.0	55.5	48.0	40.1	38.1	38.3	74.0	73.3
8, 7	FC-M361	48-38-28T	50.0	55.5	47.7	39.9	37.9	35.9	79.2	75.5
		42-32-22T								
	FC-M311	48-38-28T	50.0	55.5	47.7	39.9	38.6	–	80.9	74.5
		42-32-22T								
	FC-TX801	48-38-28T	50.0	55.0	47.4	39.5	37.8	–	80.4	74.3
		42-32-22T								
	FC-M311-8	42-32-22T	50.0	55.5	47.7	39.9	38.6	–	81.8	76.8
8, 7, 6	FC-M171-A	48-38-28T	47.5	52.1	44.6	36.2	34.2	–	74.9	73.4
			47.5+t	52.1+t	44.6+t	36.2+t	34.2+t	–	74.9+t	73.4-t
	FC-TY701	48-38-28T	47.5+t	53.5	45.8	37.5	36	–	79.3+t	77.8-t
		42-34-24T	47.5+t	52.0	44.7	36.5	35.7	–	79.3+t	77.8-t
	FC-M131 FC-M171	48-38-28T	47.5	52.1	44.6	36.2	34.2	–	74.9	73.4
			47.5+t	52.1+t	44.6+t	36.2+t	34.2+t	–	74.9+t	73.4-t
		42-34-24T	47.5	51.8	44.7	36.5	35.2	–	74.9	73.4
			47.5+t	51.8+t	44.7+t	36.5+t	35.2+t	–	74.9+t	73.4-t
1	FC-MX71	34,38,41,42, 43,44,46T	44.0	–	–	41.4	40.1	–	70.1	70.1

* t = chain case stay thickness should be 1.8 ± 0.3 mm

Chain line 3mm outboard spec. X dimensions C-120

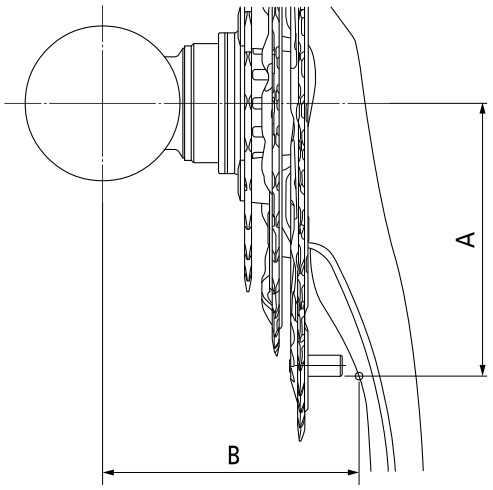
Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)	x8 (mm)
11	FC-M9020-B1	32T	53.4	-	50.8	-	-	-	71.5	71.5	49.7
		30T	53.4	-	50.8	-	-	-			
	FC-M8000-B2	36-26T	51.8	-	53.2	45.8	45.8	43.9	72.2	72.2	-
	FC-M8000-B1	32T	53.4	-	50.8	-	-	-	72.2	72.2	48.3
10	FC-M627-B	36-26T	51.8	-	53.2	45.8	45.8	44.1	73.0	72.4	-

NOTE

*Please refer to technical information of crankset dimension which is 3mm outboard spec.
*It also requires new dimension of frame which cassette position is 3mm outboard

Position of stopper pin [MTB]

Dimension from crank center to outer side of the pin which concerns the interference with chain case.



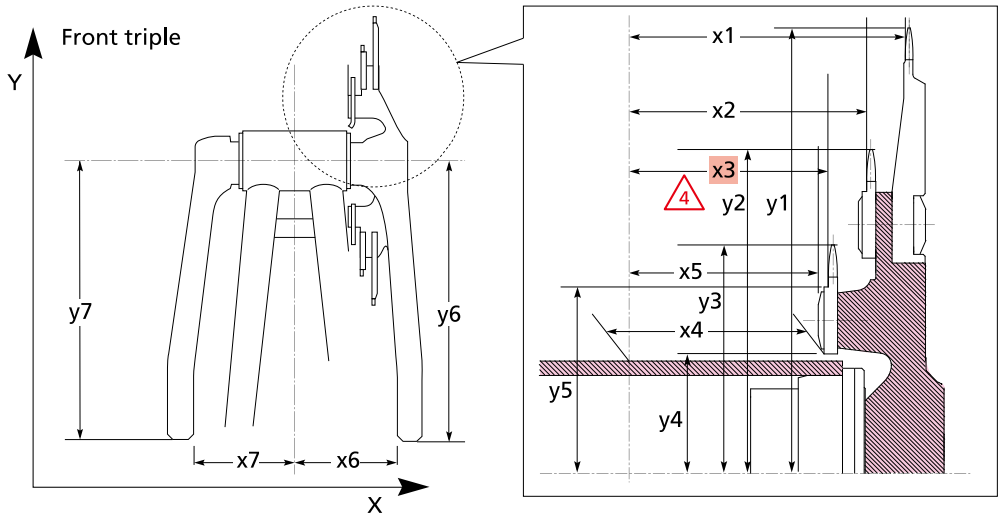
A: BB center - edge of the stopper pin
B: Frame center - contact point of extension of straight line from edge of the stopper pin toward back side surface of crank arm

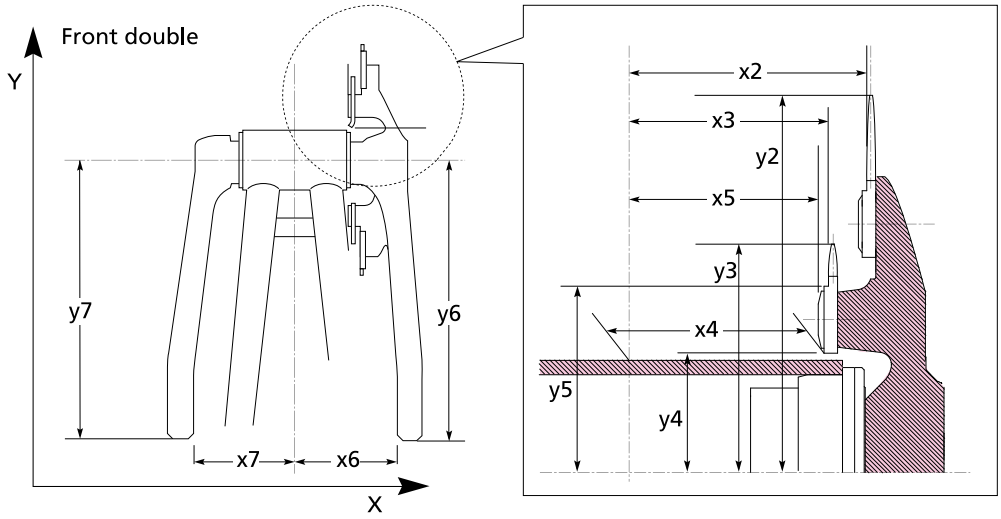
Speed	Model No.	Top gear	Pin position distance	Back side of crank arm
			Normal (A) (mm)	Normal (B) (mm)
10	FC-T781	44T	81.0	76.4
		48T	79.0	76.2
	FC-T671	44T	81.0	75.5
		48T	81.0	75.5
	FC-T611	44T	81.0	74.0
		48T	79.0	73.7
	FC-T551	44T	81.0	77.1
		48T	79.0	76.8
	FC-T521	44T	81.0	77.0
		48T	79.0	76.7
9	FC-T4060	44T	65.0	74.5
		48T	77.0	76.2
	FC-T4010	44T	65.0	76.5
		48T	77.0	79.0
	FC-T3010-8	44T	65.0	73.2
		48T	77.0	75.9
	FC-T3010	44T	65.0	76.4
		48T	77.0	78.7
	FC-M371	44T	62.0	71.2
		48T	75.0	73.9
	FC-M351	44T	62.0	71.3
8, 7	FC-M361	42T	78.0	74.9
		48T	88.0	77.2
	FC-M311-8 FC-M311	42T	78.0	81.3
	FC-M311	48T	81.8	81.9
	FC-TX801	42T	78.0	74.9
		48T	81.8	75.7
8, 7, 6	FC-TY701	42T	78.9	79.7
		48T	81.8	80.0
	FC-M131 FC-M171	42T	69.9	73.9
		48T	76.6	75.4
	FC-M171-A	48T	76.6	75.4

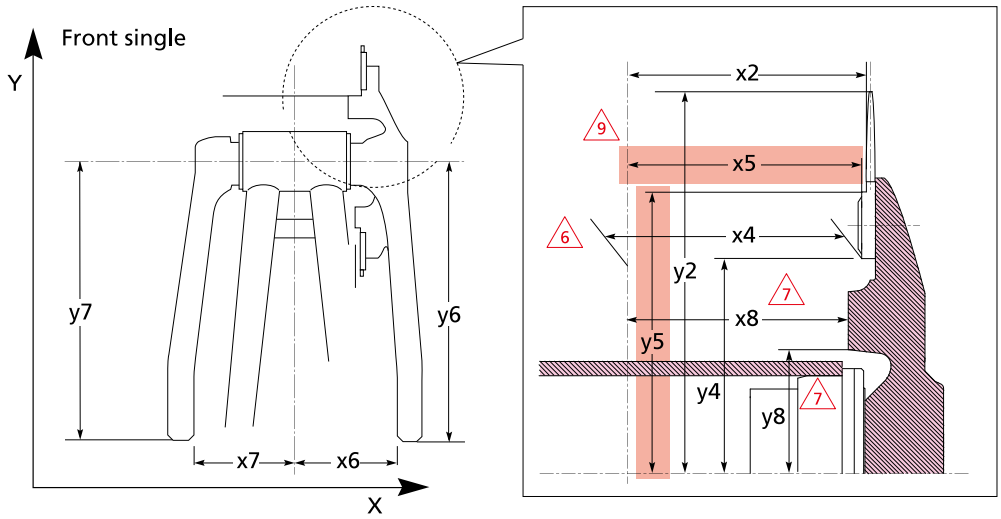
Crankset dimensions [ROAD]

The dimensions of the new chainrings shown in the table below. Check these dimensions when designing the frame in order to avoid interference between the chainring and chainstay.

2







NOTE

When using pressfit BB, please take special care for X4, Y4 dimension of the crankset to avoid interference between inner ring chainring and the outer side of the BB shell of the frame.

Y dimensions C-123

Speed	Model No.	Gear	Chain line (mm)	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)
11	FC-9000	55-42T	43.5	-	113.1	88.2	-	-	196.1	196.1
		54-42T	43.5	-	111.1	88.2	-	-		
		53-39T	43.5	-	109.1	82.2	-	-		
		52-38T	43.5	-	107.1	80.1	-	-		
		52-36T	43.5	-	107.1	76.1	-	-		
		50-34T	43.5	-	103.0	72.1	-	-		
	FC-6800	53-39T	43.5	-	109.1	82.2	-	-	191.9	191.9
		52-36T	43.5	-	107.1	76.1	-	-		
		50-34T	43.5	-	103.0	72.1	-	-		
		46-36T	43.5	-	95.8	76.1	-	-		
	FC-5800	53-39T	43.5	-	109.1	82.2	-	-	192.7	192.7
		52-36T	43.5	-	107.1	76.1	-	-		
		50-34T	43.5	-	103.0	72.1	-	-		
	FC-RS500	52-36T	43.5	-	107.1	76.1	-	-	192.8	192.8
		50-34T	43.5	-	103.0	72.1	-	-		
		46-36T	43.5	-	95.8	76.1	-	-		

Speed	Model No.	Gear	Chain line (mm)	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)
10	FC-6703G	52-39-30T	45.0	107.9	81.6	64.1	26.9	52.6	192.7	192.7
	FC-5703	50-39-30T	45.0	103.8	81.6	64.2	26.9	43.6	192.8	192.8
	FC-4703	50-39-30T	45.0	103.8	81.6	64.2	26.9	52.6	193.6	193.6
	FC-R563	50-39-30T	45.0	103.8	81.6	64.2	26.9	52.6	193.3	193.3
	FC-4700	52-36T	43.5	-	107.3	76.1	-	-	193.6	193.6
	FC-4700	50-34T	43.5	-	103.8	70.8	-	-		
	FC-R460	48-34T	43.5	-	99.2	70.8	-	-	192.7	192.7
		46-34T	43.5	-	95.7	70.8	-	-		
	FC-CX50	46-36T	43.5	-	95.8	75.1	-	-	192.8	192.8

Speed	Model No.	Gear	Chain line (mm)	y1 (mm)	y2 (mm)	y3 (mm)	y4 (mm)	y5 (mm)	y6 (mm)	y7 (mm)
9	FC-R453	50-39-30T	45.0	103.8	81.7	63.5	23.4	43.6	191.6	191.6
	FC-3503	50-39-30T	45.0	103.8	81.6	63.4	26.9	43.6	193	193
	FC-R350	52-39T	43.5	-	107.9	82.2	-	-	193.3	193.3
	FC-3550	50-34T	43.5	-	103.8	70.8	-	-	192.7	192.7
		46-34T	43.5	-	95.7	70.8	-	-		
	FC-R345	50-34T	43.5	-	103.9	70.8	-	-	192.1	192.1
8	FC-2403	50-39-30T	45.0	103.8	81.7	63.5	23.4	43.6	193.3	193.3
	FC-A073	50-39-30T	45.0	103.9	81.8	63.6	23.4	41.7	187	187
	FC-2450	50-34T	43.5	-	103.9	70.8	-	-	193.9	193.9
		46-34T	43.5	-	95.8	70.8	-	-		
	FC-RS200	50-34T	43.5	-	103.9	70.8	-	-	192.1	192.1
	FC-A070	50-34T	43.5	-	103.9	70.8	-	-	187	187
TRACK	FC-7710 (1/2"×1/8" gear)	-	42.5	-	114.7	-	-	-	193.0	193.0
	FC-7710 (1/2"×3/32" gear)	-	42.5	-	114.7	-	-	-		

X dimensions C-124

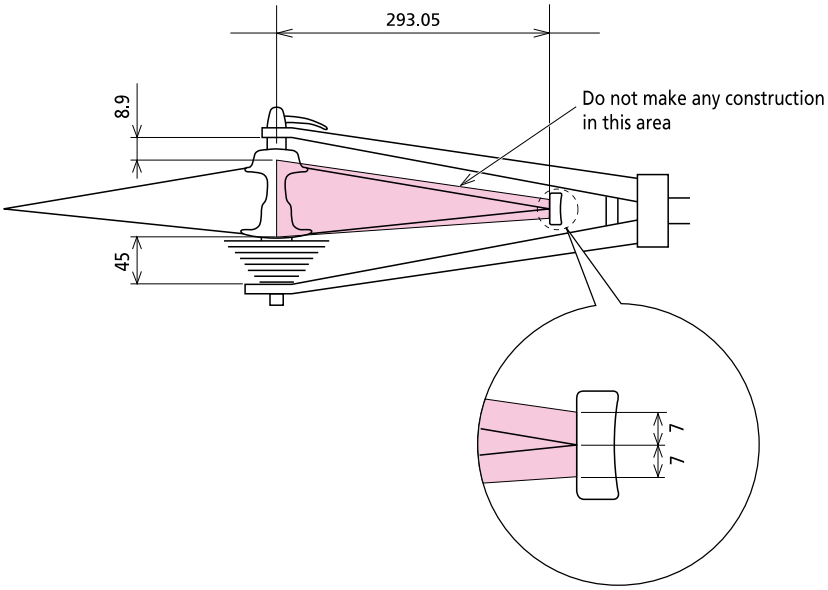
Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)
11	FC-9000	55-42T	43.5	-	46.1	38.2	-	-	57.4	57.4
		54-42T	43.5	-	46.1	38.2	-	-	57.4	57.4
		53-39T	43.5	-	46.0	38.1	-	-	57.4	57.4
		52-38T	43.5	-	46.1	38.2	-	-	57.4	57.4
		52-36T	43.5	-	46.1	38.2	-	-	57.4	57.4
		50-34T	43.5	-	46.1	38.2	-	-	57.4	57.4
	FC-6800	53-39T	43.5	-	46.0	38.1	-	-	57.7	57.7
		52-36T	43.5	-	46.0	38.1	-	-	57.7	57.7
		50-34T	43.5	-	46.0	38.1	-	-	57.7	57.7
		46-36T	43.5	-	46.0	38.1	-	-	57.7	57.7
	FC-5800	53-39T	43.5	-	46.0	38.1	-	-	57.0	57.8
		52-36T	43.5	-	46.0	38.1	-	-	57.0	57.8
		50-34T	43.5	-	46.0	38.1	-	-	57.0	57.8
	FC-RS500	52-36T	43.5	-	45.9	38.0	-	-	58.6	60.2
		50-34T	43.5	-	45.9	38.0	-	-	58.6	60.2
		46-36T	43.5	-	45.9	38.0	-	-	58.6	60.2

Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)
10	FC-6703G	52-39-30T	45.0	51.4	44.2	36.1	36.1	34.9	64.0	61.0
	FC-5703	50-39-30T	45.0	51.2	44.1	36.0	36.9	34.9	63.3	60.8
	FC-4703	50-39-30T	45.0	51.2	44.1	36.0	36.9	34.9	65.0	63.2
	FC-R563	50-39-30T	45.0	51.2	44.1	36.0	36.9	34.9	65.2	63.4
	FC-4700	52-36T	43.5	-	45.9	38.0	-	-	59.2	60.2
	FC-4700	50-34T	43.5	-	45.9	38.1	-	-	59.2	60.2
	FC-R460	48-34T	43.5	-	45.9	38.1	-	-	59.3	60.2
		46-34T	43.5	-	45.9	38.1	-	-	59.3	60.2
	FC-CX50	46-36T	43.5	-	45.8	37.9	-	-	59.4	60.4

Speed	Model No.	Gear	Chain line (mm)	x1 (mm)	x2 (mm)	x3 (mm)	x4 (mm)	x5 (mm)	x6 (mm)	x7 (mm)
9	FC-R453	50-39-30T	45.0	51.5	43.9	35.9	35.9	34.1	64.2	60.9
	FC-3550	46-34T	43.5	-	45.8	38.1	-	-	59.7	60.2
		50-34T	43.5	-	45.8	38.1	-	-	59.7	60.2
	FC-3503	50-39-30T	45.0	51.8	44.2	36.1	36.1	34.1	65.7	63.4
	FC-R350	52-39T	43.5	-	45.8	38.1	-	-	59.7	60.4
	FC-R345	50-34T	43.5	-	45.5	37.8	-	-	61.0	59.4
8	FC-2450	46-34T	43.5	-	45.9	38.3	-	-	59.8	60.5
		50-34T	43.5	-	45.9	38.3	-	-	59.8	60.5
	FC-2403	50-39-30T	45.0	51.7	44.0	36.0	36.1	34.1	64.0	62.5
	FC-RS200	50-34T	43.5	-	45.9	38.3	-	-	61.4	61.0
	FC-A070	50-34T	43.5	-	45.9	38.3	-	-	67.7	69.7
	FC-A073	50-39-30T	45.0	51.5	43.9	35.9	35.9	34.9	70.0	69.3
TRACK	FC-7710 (1/2"×1/8" gear)	-	42.5	-	39.4	-	-	-	52.5	52.5
	FC-7710 (1/2"×3/32" gear)	-	42.5	-	39.9	-	-	-	52.5	52.5

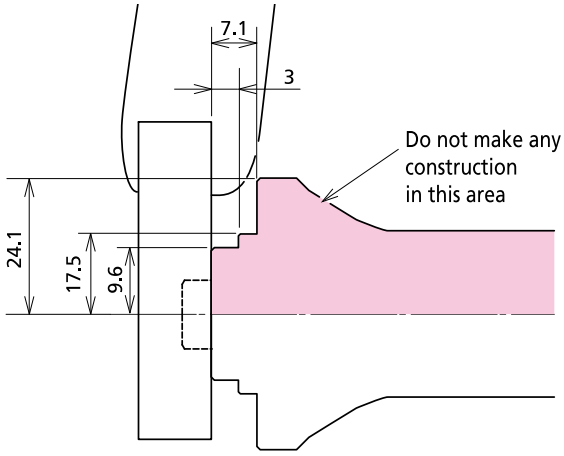
Dimensions for chainstay [ROAD] C-126

Shimano wheel (rim brake type) C-127



Dimensions for front fork [ROAD] C-128

Shimano wheel (rim brake type) C-129



Bottom bracket cable guide

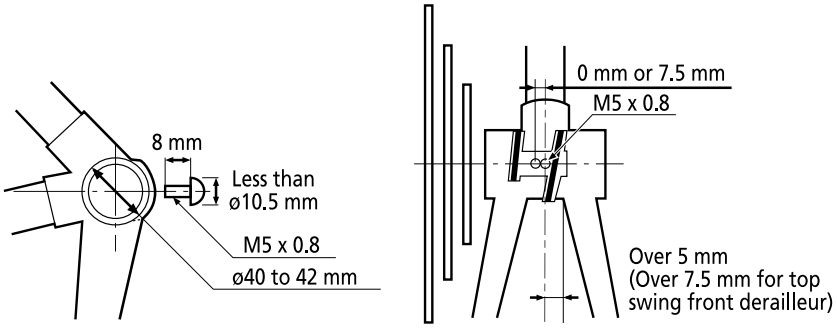
C-131

Bottom bracket cable guide installation C-132

And to keep this performance,

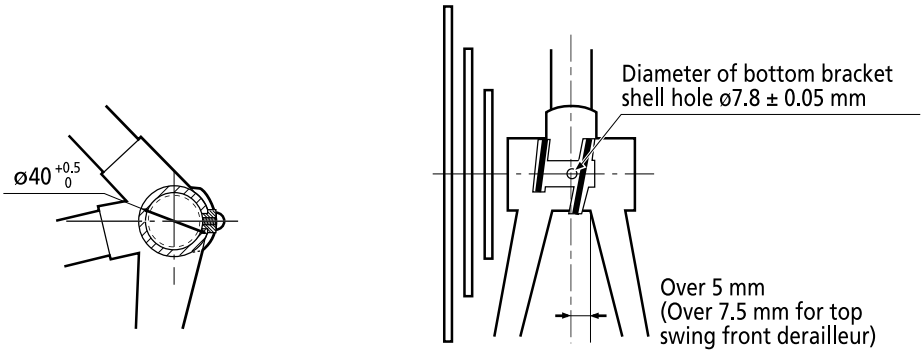
- Assemble BB guide on frame with no clearance.
- Don't make inner cable touch with frame.

SM-SP17M, SP18M (screw on type)

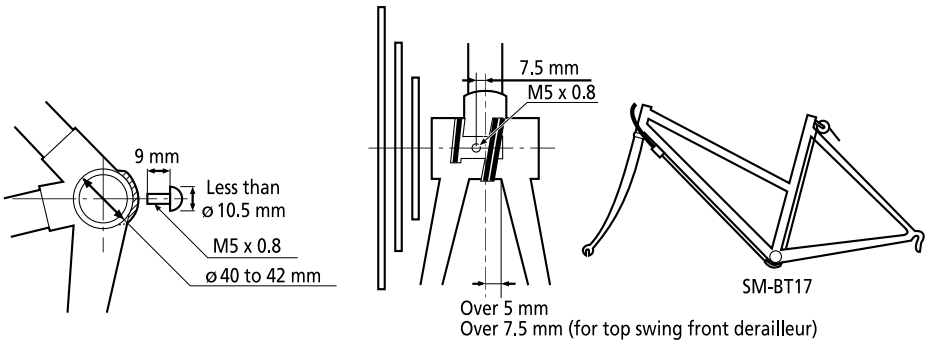


SM-SP17, SP18T (snap on type)

(Requires ø7.8 mm hole in BB shell.)

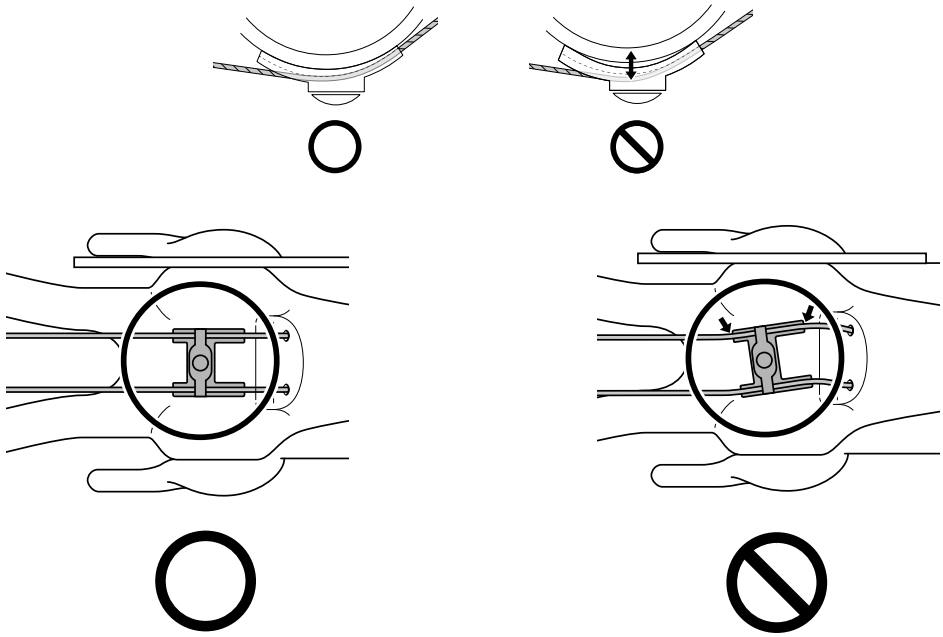


SM-BT17, BT18 (screw on type for mixte frames)

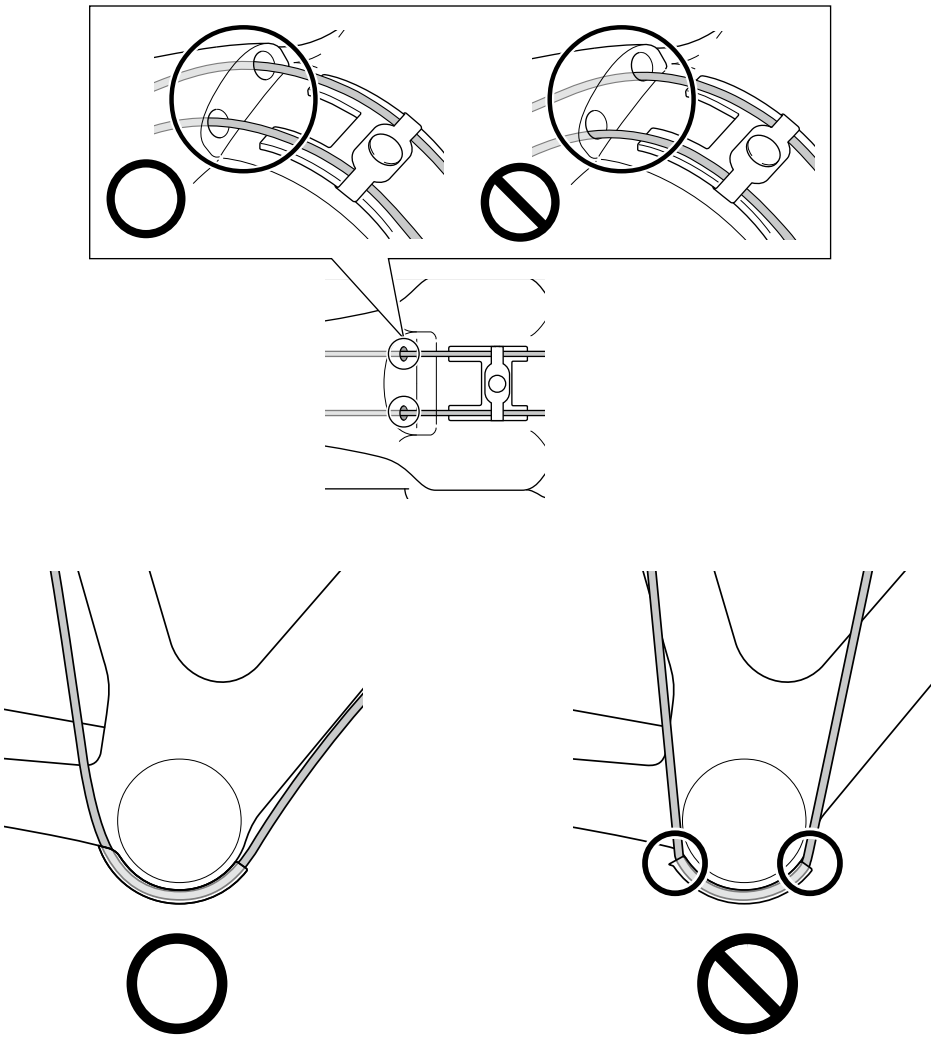


Fixing of cable guide C-133

Gap between hanger shell and cable guide



Interference with frame C-134



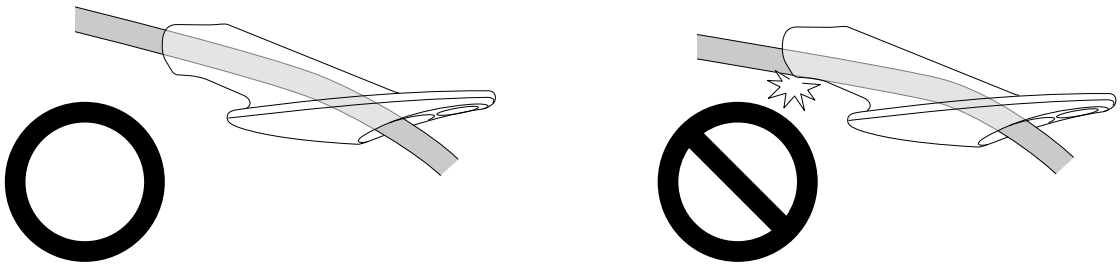
Outer casing

Full outer casing C-136

When using a full outer casing as the outer casing, the following factors may affect the gear shifting performance, so make sure that you check the proper gear shifting performance can be obtained before normal use.
In addition, check to be sure that the outer casing does not touch moving parts such as the tires and crank arms during riding.

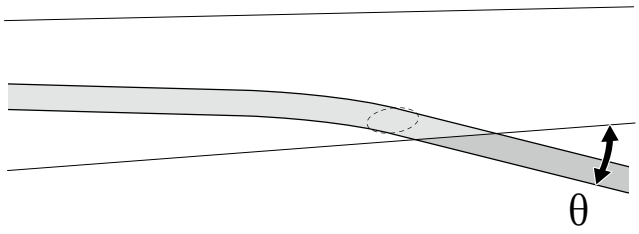
1. Cable routing method.
   * Curvature
   * Enough slack for suspension and handle bar operation
2. Method of securing the cable to the frame.
3. Relationship between the length of cable from the rear derailleur to the securing location and the cable securing position.
   * If the values are greatly different from those which are recommended, problems with gear shifting performance may occur.

Internal cable routing C-137



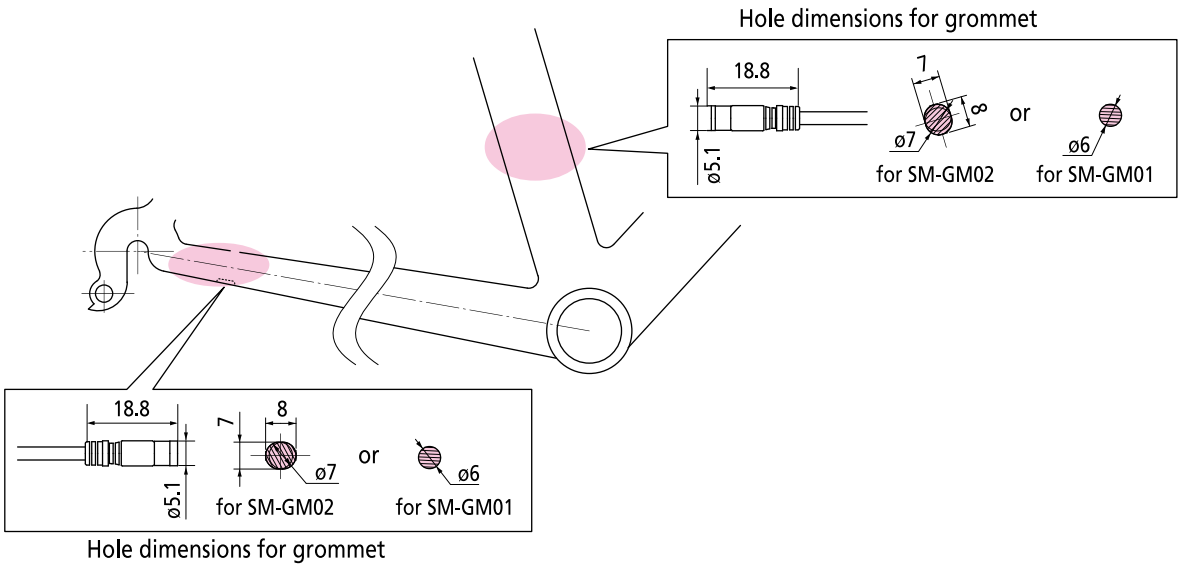
Angle of outer casing C-138

The route of the cable should be as straight as possible as shown in the diagram, smaller θ is better.



Seat tube / chainstay hole dimensions

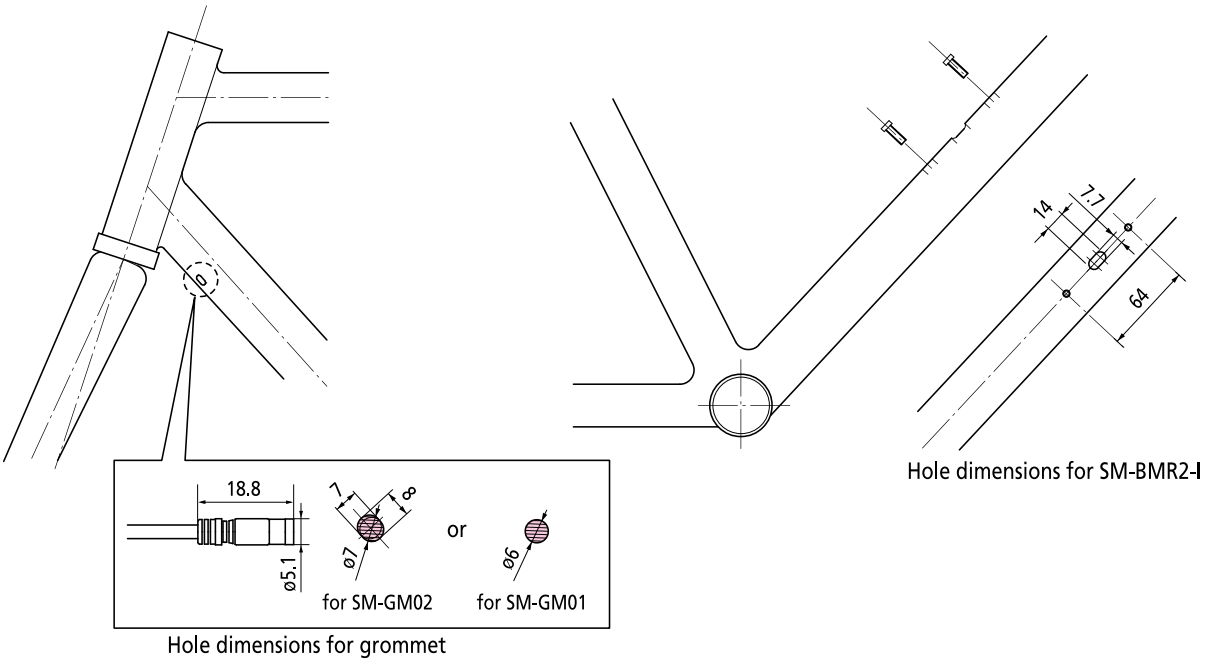
C-140



Optimum hole position should be decided depends on the frame design.
Mind touching chain guide.

Down tube hole dimensions

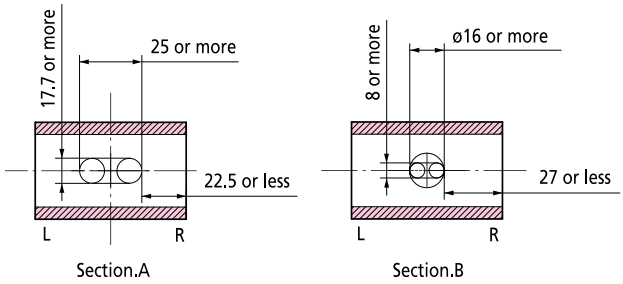
C-141



NOTE

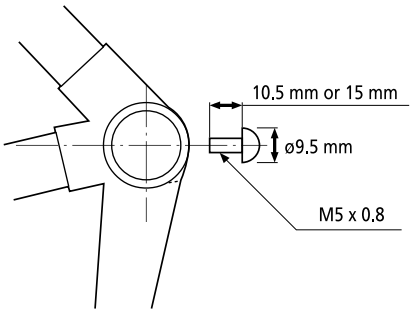
Please check to fit battery cable cover hole and down tube hole on the frame.

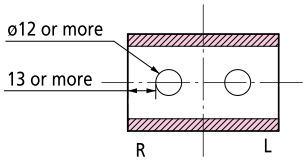
Bottom bracket hole dimensions



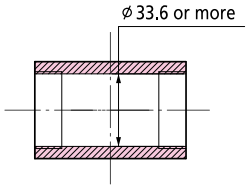
Section.A

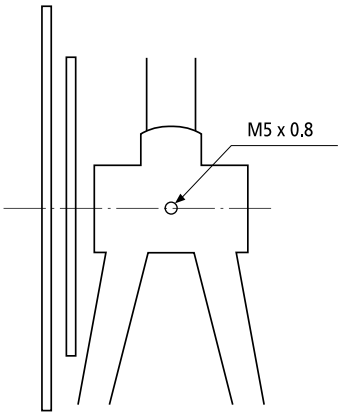
Section.B

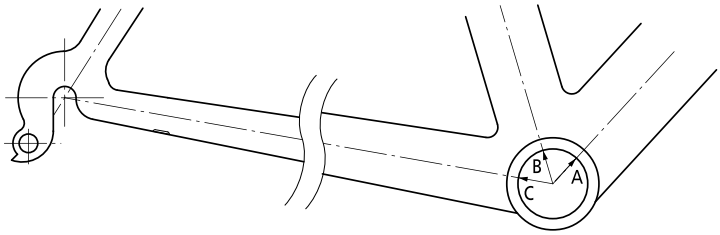




Section.C



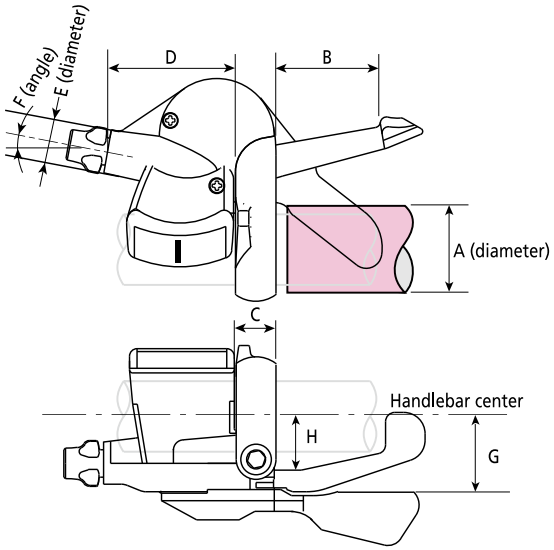




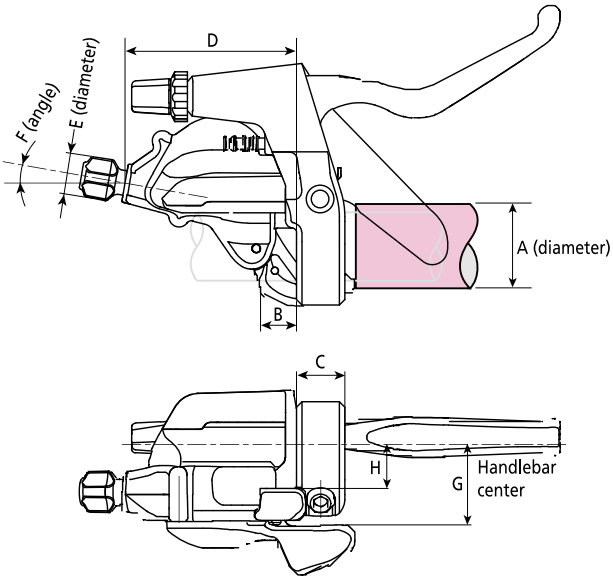
RAPIDFIRE Plus shift lever

C-144

RAPIDFIRE Plus C-145



Tapfire Plus C-146



CAUTION

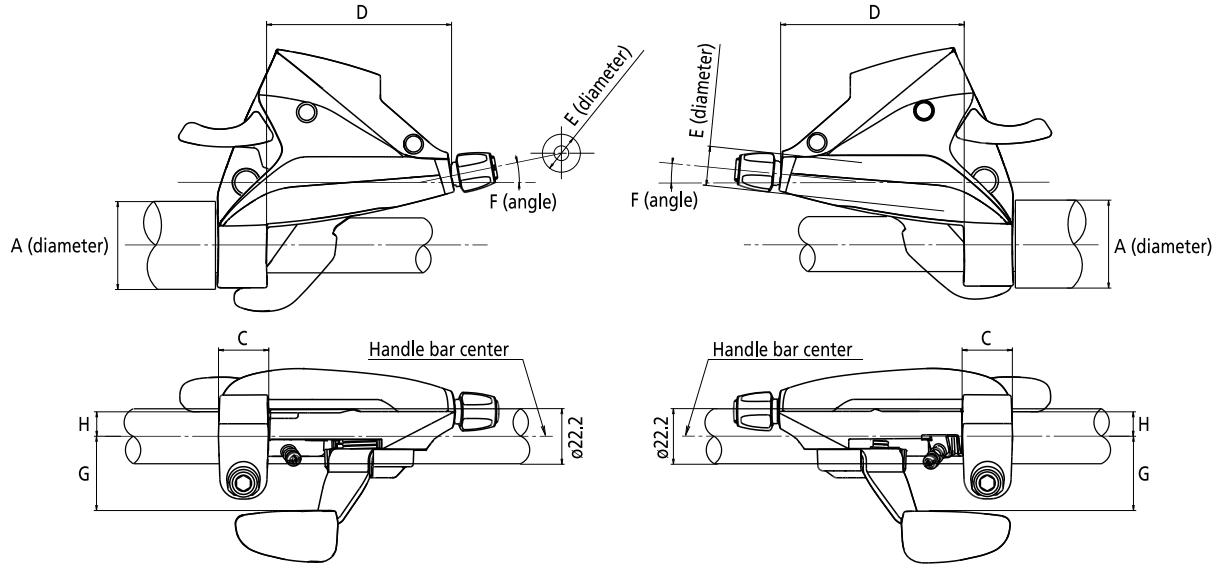
Some brake lever designs may interfere with the shift lever and should not be used. You may also want to check that the brake lever has adequate clearance not to injure an index finger that is placed on the release trigger.

Model No.	Max. A (mm)	B (mm) Front / Rear	C (mm)	D (mm) Front / Rear	E (mm)	F	G (mm)	H (mm) Front / Rear
SL-M9000	ø32	22.0	10.0	32.1 / 45.4	ø15	15°	29.6	23.0
SL-M8000	ø32	22.0	10.0	32.1 / 45.4	ø15	15°	29.6	23.0
SL-M820	ø36	26.6	13.0	- / 34.9	ø15	15°	27.9	23.0
SL-M780	ø32	19.0	13.0	29.1 / 34.9	ø15	15°	29.8	23.0
SL-T780	ø32	19.0	13.0	29.1 / 34.9	ø15	15°	29.8	23.0
SL-M670	ø36	19.0	13.0	35.8 / 37.1	ø15	15°	29.8	25.4
SL-M640	ø36	19.0	13.0	- / 37.1	ø15	15°	29.8	25.4
SL-T670	ø36	19.0	13.0	35.8 / 37.1	ø15	15°	29.8	25.4
SL-M610	ø36	19.0	13.0	35.8 / 37.1	ø15	15°	29.8	25.4
SL-T610	ø36	19.0	13.0	35.8 / 37.1	ø15	15°	29.8	25.4
SL-M4000	ø36	31.0	13.0	40.3 / 40.0	ø15	10°	25.4	22.8
SL-M3000	ø36	28.5	13.0	40.3 / 40.0	ø15	10°	25.2	22.8
SL-M360	ø32	31.0	14.6	39.3 / 39.7	ø15	10°	26.7	23.0
SL-M370	ø36	29.0	13.0	40.0 / 40.0	ø15	10°	25.9	23.0
SL-M310	ø36	29.0	13.0	40.0 / 40.0	ø15	10°	26.7	23.0

RAPIDFIRE Plus, Tapfire Plus shift / Brake lever set

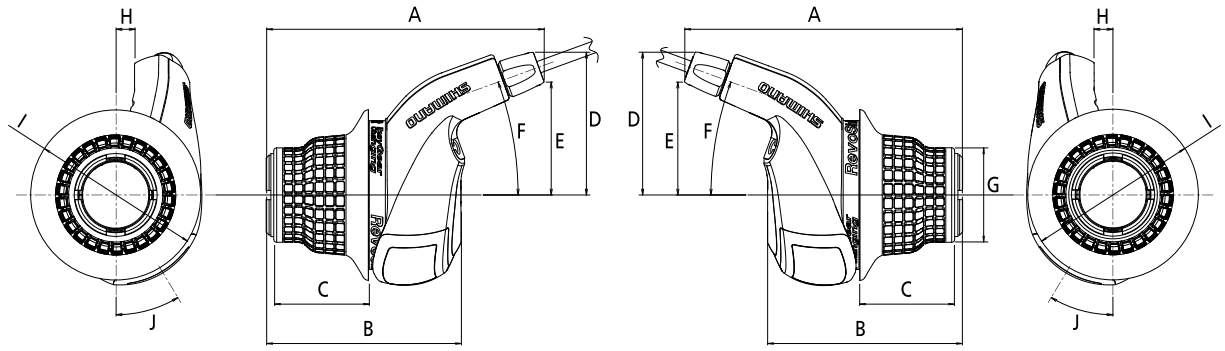
Model No.	Max. A (mm)	B (mm)	C (mm)	D (mm) Front / Rear	E (mm)	F	G (mm)	H (mm)
ST-M4050	ø36	15.6	16.0	53.2 / 52.6	ø15	10°	25.4	22.8
ST-M4000	ø36	5.0	16.5	63.5	ø15	10°	25.4	22.8
ST-T4000	ø36	13.0	17.5	61.4	ø15	10°	29.2	16.0
ST-M3050	ø36	15.6	16.0	53.2/52.6	ø15	10°	25.4	22.8
ST-T3000	ø36	13.0	15.8	63.4	ø15	10°	29.2	16.0
ST-M370	ø36	7.0	23.8	49.6 / 49.2	ø15	10°	25.5	23.3
ST-M310	ø36	9.0	23.8	49.4 / 49.0	ø15	10°	26.7	23.0

EZ FIRE Plus shift lever C-147



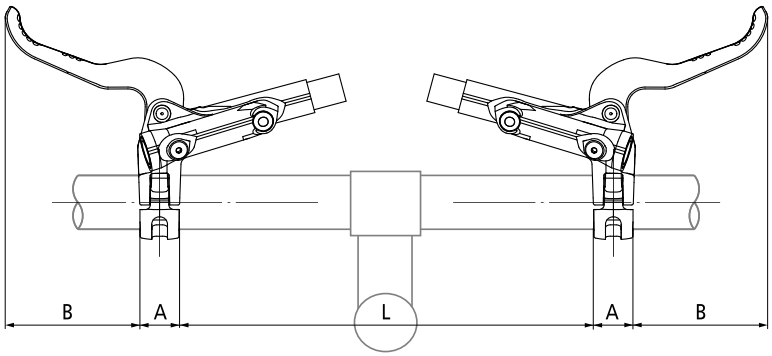
Model No.	Max. A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F	G (mm)	H (mm)
ST-EF65	ø32	-	18.2	66.6	ø14.4	L=10° R=5°	27.3	9.7
ST-EF51-A	ø32	-	16.0	L=64.6 R=63.5	L=ø15.0 R=ø11.03	L=34° R=20°	25.9	9.8
ST-EF51	ø32	-	16.0	L=64.6 R=63.5	L=ø15.0 R=ø11.03	L=34° R=20°	25.9	9.8
ST-TX800	ø32	-	24.8	L=50.5 R=48.9	L=ø15.0 R=ø13.1	15°	30.4	9.4
ST-EF41	ø32	-	24.8	L=50.5 R=48.9	L=ø15.0 R=ø13.1	15°	30.4	9.4

REVOSHIFT C-148



Model No.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F	G (mm)	H (mm)	I (mm)	J
SL-RS47-L / R	94.1	66.0	32.1	48.4	38.2	20°	ø32	6.4	ø57	31°
SL-RS45-L / R	94.1	66.0	32.1	48.4	38.2	20°	ø32	6.4	ø57	31°
SL-RS36-L	94.1	66.0	35.4	48.4	38.2	20°	ø32	6.4	ø58	31°
SL-RS36-R	81.8	66.0	35.4	43.5	34.5	20°	ø32	6.4	ø58	31°
SL-RS35-L	87.3	68.3	38.2	58.0	47.7	20°	ø32	8.0	ø58	31°
SL-RS35-R	76.1	68.3	38.2	52.8	44.5	20°	ø32	8.0	ø58	31°

Hydraulic brake lever on handlebar C-149



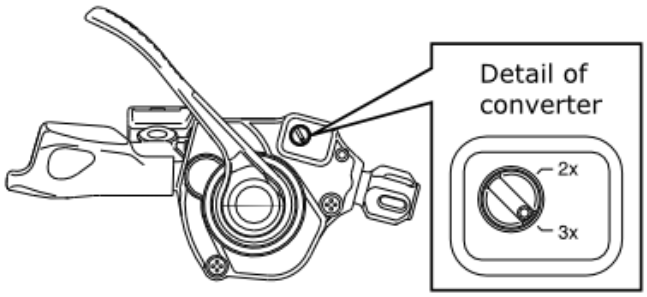
Model No.	A (mm)	B (mm)	L (mm)
BL-M9000	12.0	56.0	≥186
BL-M9020	12.0	56.0	≥186
BL-M820-B	17.0	54.0	≥180
BL-M8000	12.0	56.0	≥186
BL-M785-B	21.1	53.0	≥180
BL-T785-B	21.1	93.7	≥180
BL-M675-B	21.1	53.0	≥180
BL-T675-B	21.1	93.7	≥180
BL-M640-B	21.1	53.0	≥180
BL-M615	21.1	53.0	≥180
BL-T615	21.1	93.7	≥180
BL-M506	21.1	53.0	≥180
ST-M4050	16.0	78.3	≥200
ST-M3050	16.0	78.3	≥200
BL-T445	16.0	83.5	≥200
BL-M445	16.0	76.7	≥200
BL-M425	16.0	71.7	≥200
BL-M396	16.0	71.7	≥200
BL-M355	16.0	86.6	≥200

The dimensions are measured at the factory set ‘start’ position

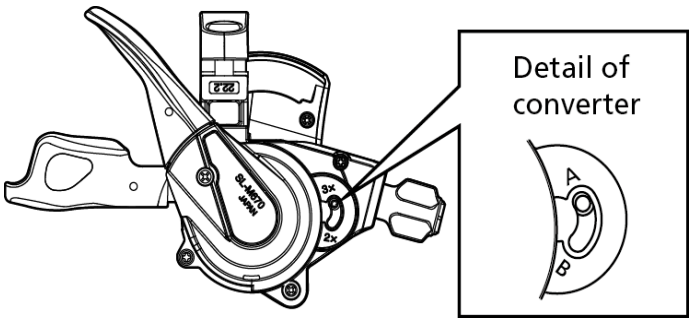
Mode converter

Front shifters with function of 2x / 3x mode converter are compatible with double and triple front system. Installing cable and setting shifter of front derailleur is different depending on double or triple front chainring.

XTR / DEORE XT series C-151



SLX / DEORE series C-152



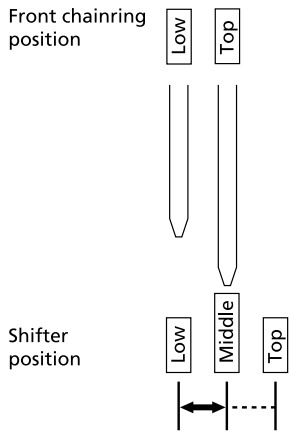
Speed	Model No.	2x / 3x mode converter
11	SL-M9000-L / SL-M9000-IL	-
	SL-M8000-L / SL-M8000-IL	
10	SL-M780-L / SL-M780-BIL	X
	SL-M670-L / SL-M670-BIL	
	SL-M610-L / SL-M610-IL	

X: Yes

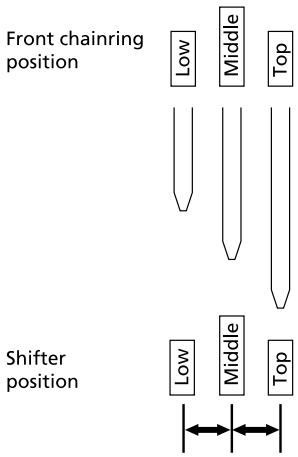
Front chainring and Shifter position

11-speed C-154

Double



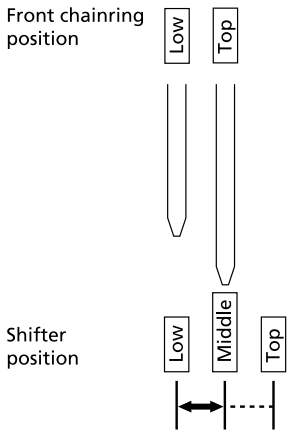
Triple



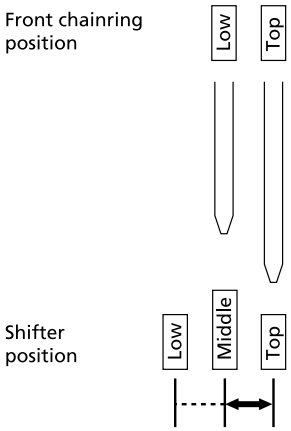
10-speed C-155

New Double (FC-M677 / FC-M627 / FC-M617 with FD-M677 / FD-M617 / FD-M618).

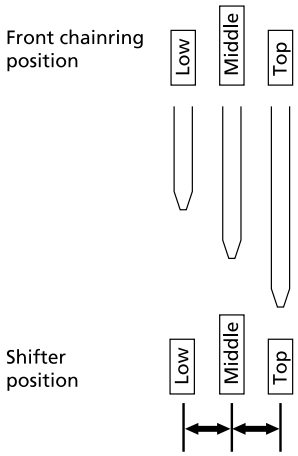
Please use front shifters with 3x mode, in case of FC-M677 / FC-M627 / FC-M617 with FD-M677 / FD-M617 / FD-M618.



Double



Triple



I-spec

Clamp band type shifter can be compatible as I-spec when you change upper body with integration unit.

Compatibility of I-spec shifter and brake lever C-157

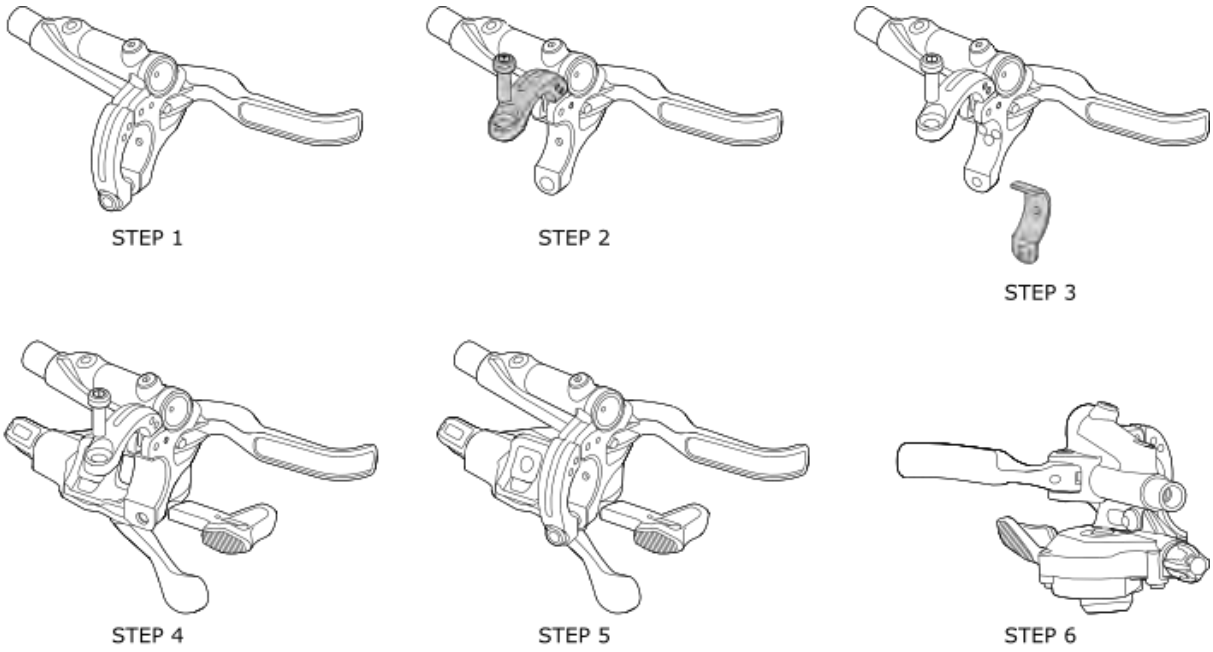
Model No.	I-spec II shifter	
	SL-M9000-I	SL-M8000-I
BL-M9000	X	X
BL-M9020	X	X
BL-M8000	X	X
BL-M987	-	-
BL-M988-B	-	-
BL-M820-B	-	-
BL-M640-B	-	-
BL-T785-B	-	-
BL-T780-B	-	-
BL-M675-B	-	-
BL-T675-B	-	-
BL-T670-B	-	-
BL-M615	-	-
BL-T615	-	-
BL-T610	-	-
BL-M506	-	-
BL-S700-B	-	-

Model No.	I-spec shifter					
	SL-M980-B-I, SL-M980-A (with SM-SL98-B)	SL-M8000-B-I	SL-M780-B-I, SL-M780 (with SM-SL78-B)	SL-M820-B-I, SL-M820 (with SM-SL82-B)	SL-M670-B-I	SL-M610-I
BL-M9000	-	-	-	-	-	-
BL-M9020	-	-	-	-	-	-
BL-M8000	-	-	-	-	-	-
BL-M987	X	X	X	X	X	X
BL-M988-B	X	X	X	X	X	X
BL-M820-B	X	X	X	X	X	X
BL-M640-B	X	X	X	X	X	X
BL-T785-B	X	X	X	X	X	X
BL-T780-B	X	X	X	X	X	X
BL-M675-B	X	X	X	X	X	X
BL-T675-B	X	X	X	X	X	X
BL-T670-B	X	X	X	X	X	X
BL-M615	X	X	X	X	X	X
BL-T615	X	X	X	X	X	X
BL-T610	X	X	X	X	X	X
BL-M506	X	X	X	X	X	X
BL-S700-B	X	X	X	X	X	X

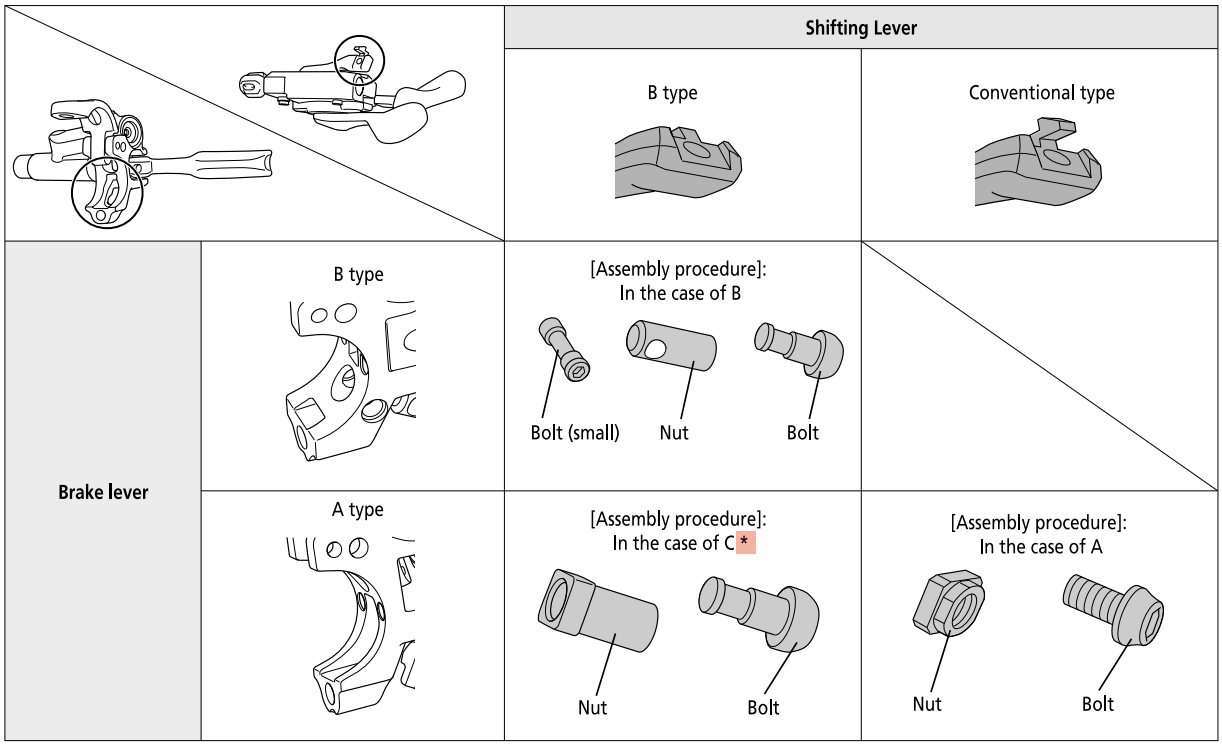
X: Yes

Installation of I-spec shifter with brake lever

I-spec II C-159



I-spec C-160

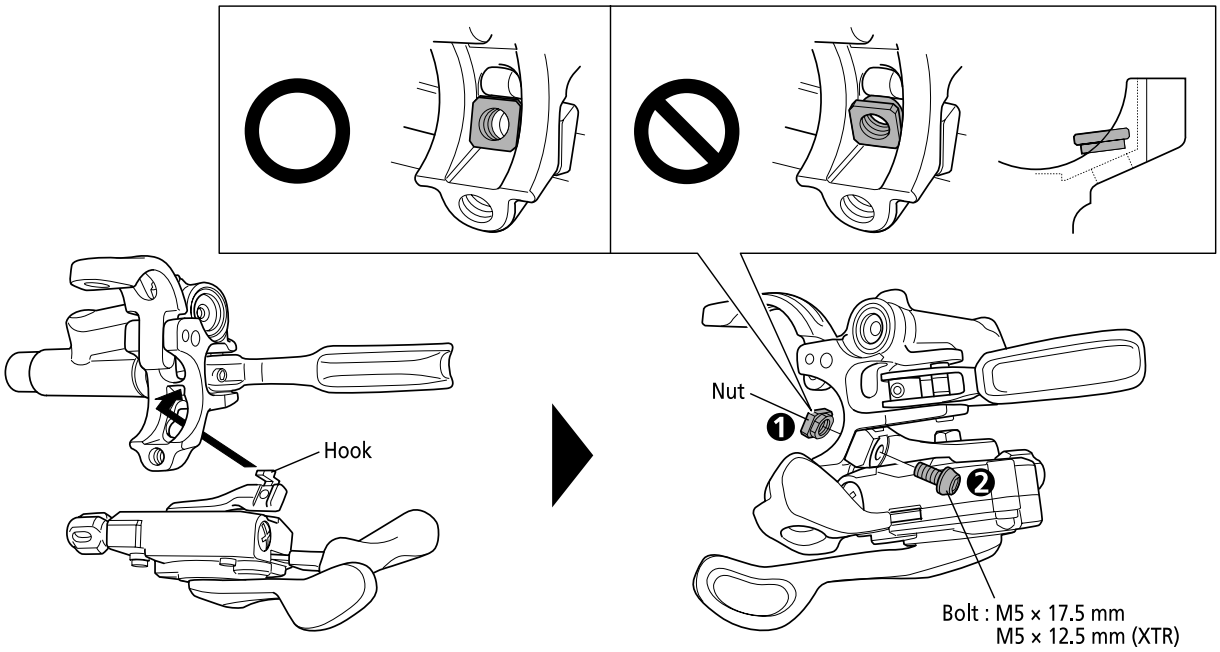


2

* Compatible grip diameter Max. ϕ32

In the case of A

Insert the hook of the shifting lever bracket into the hole in the brake lever bracket, and then provisionally tighten the special nut and special bolt to install it to the handle bar.

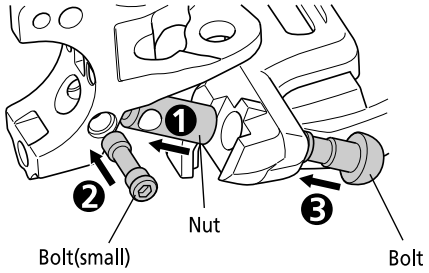


NOTE

Do not install the nut upside-down.
If it is installed upside-down, it will not be possible to secure the brake lever to the handle bars, and damage may occur.

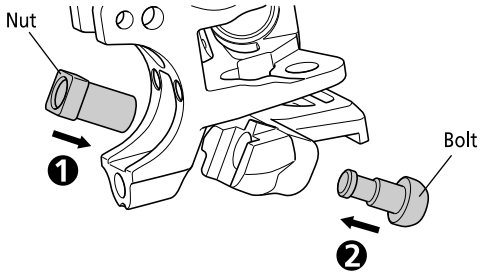
In the case of B

Insert (1) into the hole in the brake lever bracket, pass (2) through from the side into the nut hole of (1) , and tighten it using a 2 mm Allen key.



In the case of C

Attach it with the dedicated nut and bolt.

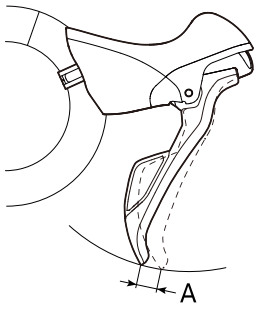


Reach adjustment range

C-162

By using screw type of adjustment or different kind of the adjustment block, you can adjust the distance between handle bar and shifting lever as shown below.

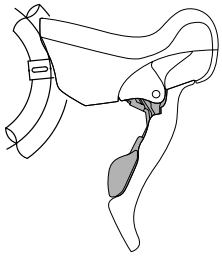
Screw type C-163

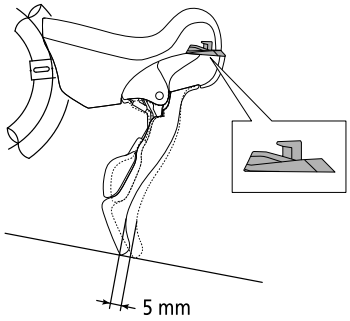


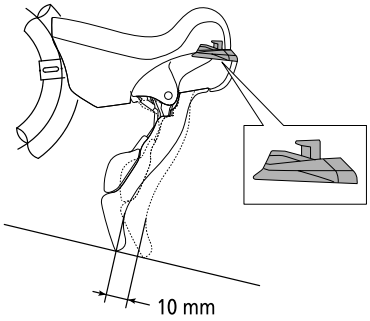
Model No.	Screw type adjustment range A (mm)
ST-9001	13.5
ST-9070	15.0
ST-6800	13.5
ST-6870	15.0
ST-5800	13.5
ST-4700	13.5
ST-4703	13.5
ST-R785	30.0
ST-RS685	10.0
ST-RS505	TBD
ST-S705	15.0
ST-A070	13.0
ST-A073	13.0

Adjustment block type C-164

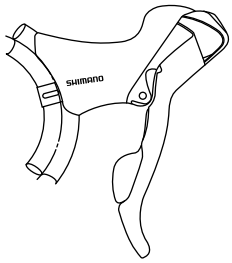
ST-6700 / ST-6703 / ST-5700 / ST-5703

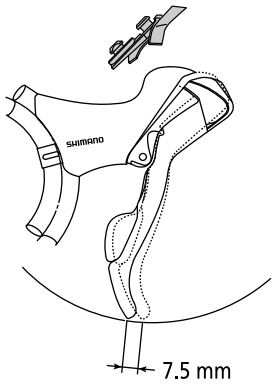


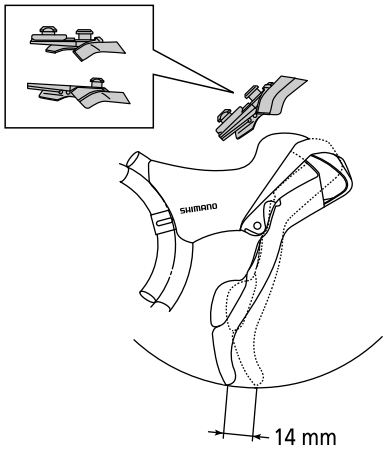




ST-4600 / ST-4603 / ST-3500 / ST-3503 / ST-2400 / ST-2403

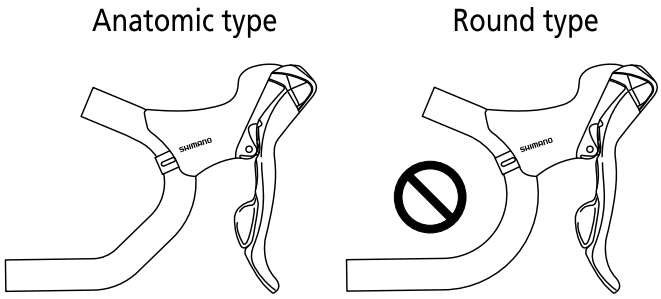




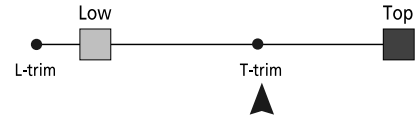
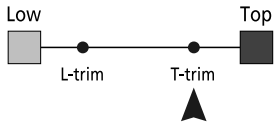
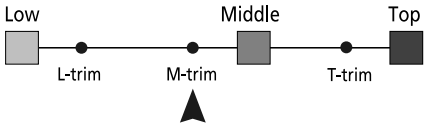


NOTE

Note when using the ST-4600 / ST-4603 / ST-3500 / ST-2400:
When installing the 8-degree adjustment block, use an anatomic type handle bar. If a round type handle bar is used, the cable stroke may become too short and this can result in insufficient braking force.



Inner cable tension adjustment

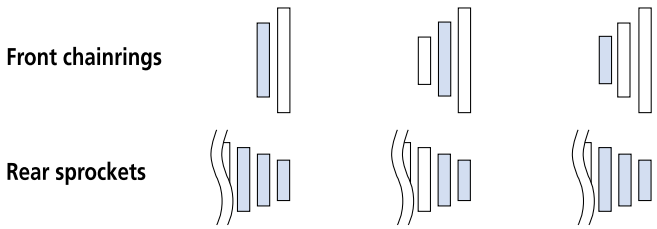
Speed	STI lever	Inner cable tension adjustment position	Chain position during adjustment	Comments
2x11	ST-9001 ST-6800 ST-5800 ST-RS505 ST-RS685		Front: Top Rear: Low	The tension adjustment position is the gear when trimming is carried out from the top position and released to T-trim position.
2x10	ST-4700 SL-4700			
	ST-4600 SL-R780 SL-4600		Front: Top Rear: Low	The tension adjustment position is the gear when trimming is carried out from the top position and released to T-trim position.
2x9	ST-3500 SL-3500			The tension adjustment position is the gear when trimming is carried out from the middle position and released to M-trim position.
2x8	ST-2400 SL-2400 ST-R240			The tension adjustment position is the gear when trimming is carried out from the top position and released to T-trim position.
2x7	ST-A070			
3x10	ST-6703 ST-5703 ST-4603 ST-4703 SL-R783 SL-4703 SL-4603		Front: Middle Rear: Low	The tension adjustment position is the gear when a full stroke is carried out from the top position and released to M-trim position.
3x9	ST-3503 SL-3503			
3x8	ST-2403 SL-2403 ST-R243			
3x7	ST-A073			

NOTE

This chart shows trim position of levers.

Contact between front chainrings / Front derailleur and chain

When the chain is in the position shown in the illustration, the chain may contact the front chainrings or front derailleur and generate noise.
If the noise is a problem, shift the chain onto the next-largest rear sprocket or the one after.



NOTE

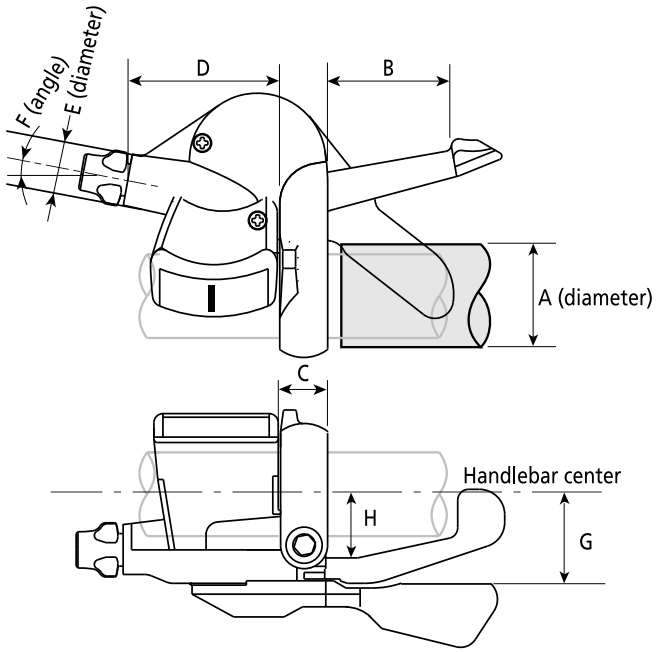
Road bike with 135 mm O.L.D.

- When specifying the 135 mm O.L.D. hubs with any road crankset be aware of the following conditions.
- When the chain is in the position shown in the illustration, the chain may inadvertently contact the chainring pick-up ramps and / or the front derailleur. To alleviate this situation it's recommended that user shift the chain to the next-largest sprocket or the one after.
- It is recommended that the chainstay dimension for the above specification must be greater than 415 mm.

Dimensions

C-168

Please refer to the following dimensions to choose the handle bar and brake lever for RAPIDFIRE Plus and EZ FIRE Plus.



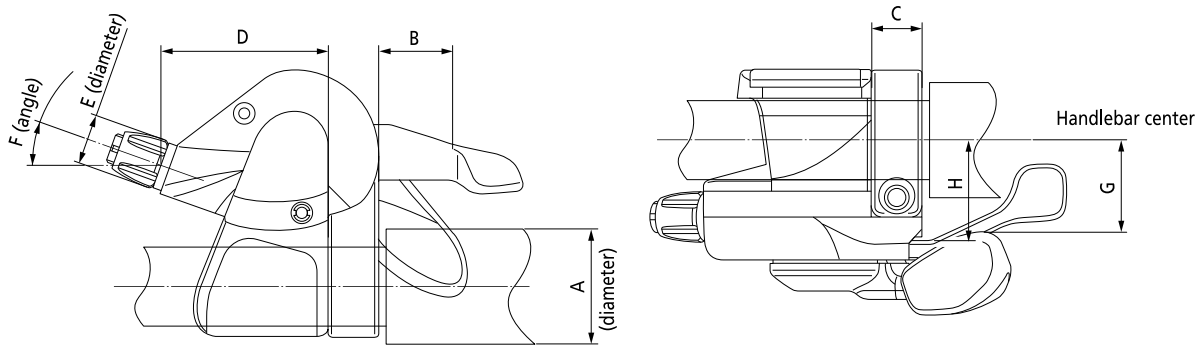
Model No.	Max. A (mm)	B (mm) Front / Rear	C (mm)	D (mm) Front / Rear	E (mm)	F	G (mm)	H (mm) Front / Rear
SL-RS700	ø32	22.0	10.0	32.1 / 45.4	ø15	15°	29.6	23.0
SL-4700 SL-4703 SL-4600 SL-4603	ø36	28.0 / 26.7	13.5	39.0 / 36.6	ø15	16°	30.4	23.4
SL-3500 SL-3503 SL-R350 SL-R353	ø36	28.7	13.0	40.3	ø15	10°	25.3	22.6
SL-2400 SL-2403	ø36	28.7	13.0	40.3	ø15	10°	25.3	22.6
ST-R240 ST-R243	ø36	5.0	16.0	63.0	ø15	10°	26.0	22.6
SL-R780 SL-R783	ø32	28.0 / 26.7	13.5	39.0 / 36.6	ø15	16°	30.4	23.4

CAUTION

Some brake lever designs may interfere with the shift lever and should not be used. You may also want to check that the brake lever has adequate clearance not to injure an index finger that is placed on the release trigger.

RAPIDFIRE Plus shifter for ALFINE / Nexus

C-170

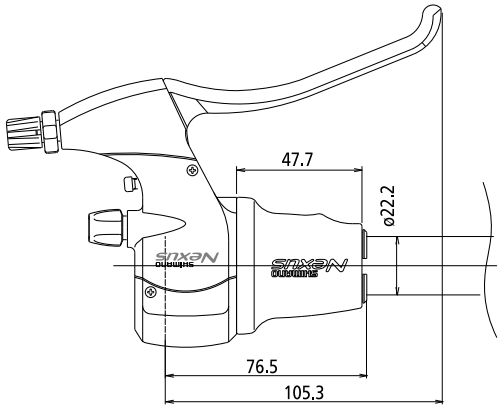


Model No.	Max. A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F	G (mm)	H (mm)
SL-S700	ø34	33.7	12	52.7	ø14	20.0°	32.3	21.15
SL-S7000-8 SL-S503 SL-7S50 SL-5S50	ø32	24.5	14	46.6	ø14	19.67°	32.7	28.1

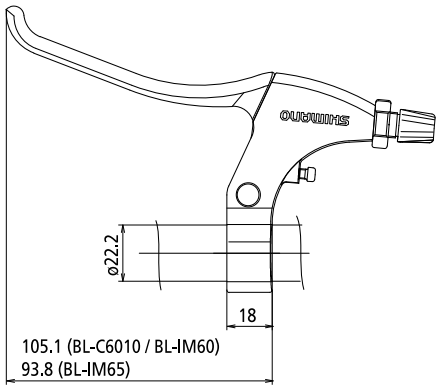
REVOSHIFT / Brake lever

C-171

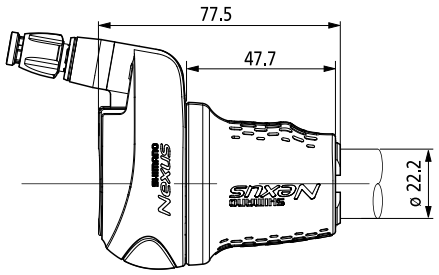
SB-8S20



BL-C6010 / BL-IM60 / BL-IM65

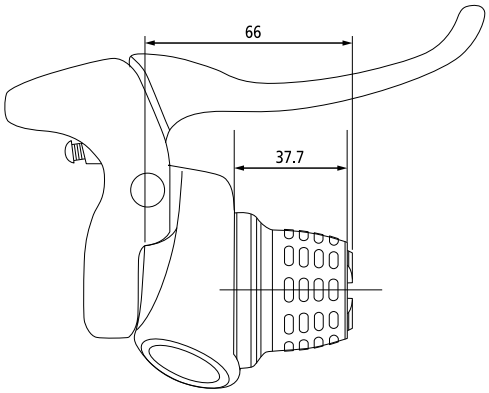


SL-8S31 / SL-7S31

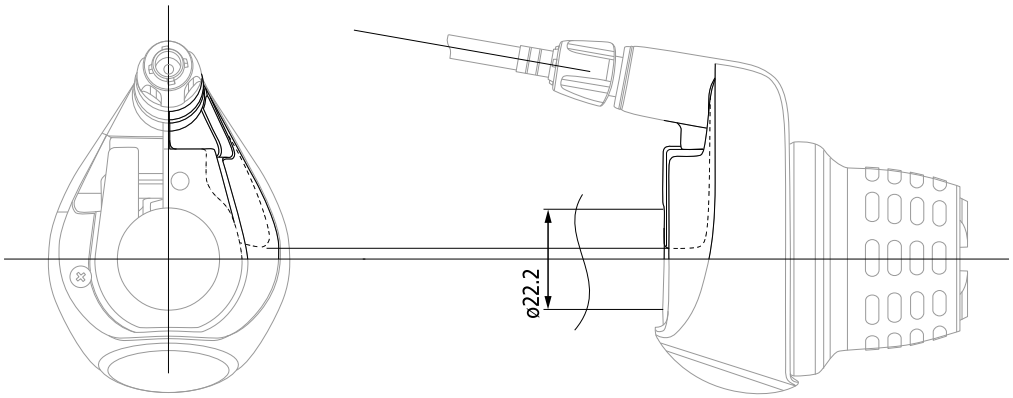


SL-5S30 / 5S30-A

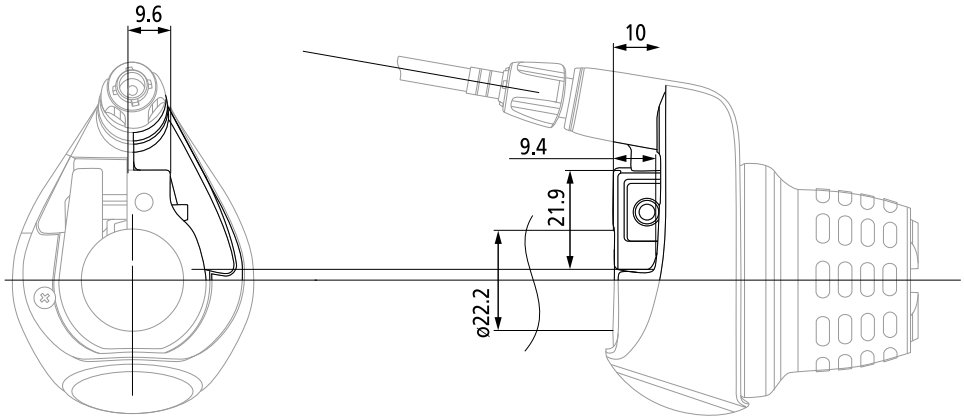
SL-5S30 and SL-5S30-A differ in cover shape as follows.



SL-5S30



SL-5S30-A

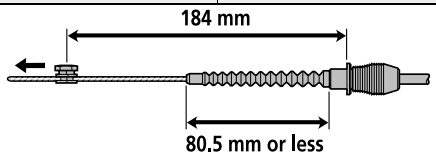
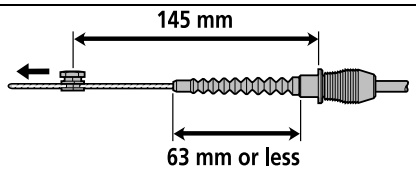
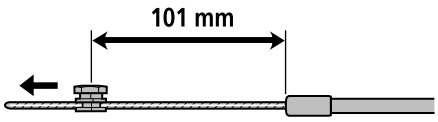
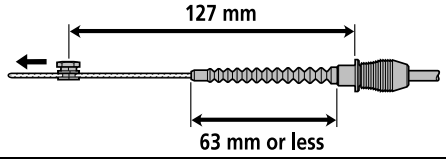
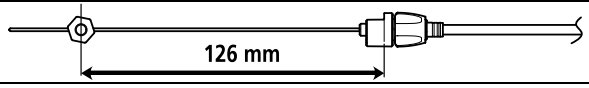


Tool variations for assembly on handle bar

Series	Speed	Model No.	Screw size for clamp band	Screw head shape and size
ALFINE	11	SL-S700	M6 X 14.8	Hexagon socket 4 mm
	8	SL-S7000-8	M6 X 17.5	
Nexus	8	SL-8S31	M4 X 18.7	Hexagon socket 3 mm
		SB-8S20	M6 X 14.8	Hexagon socket 5 mm
		ST-8S20		
	7	SL-7S50	M6 X 17.5	
		SB-7S45	M6 X 14.8	
		SL-7S31	M4 X 18.7	Hexagon socket 3 mm
	5	SL-5S50	M6 X 17.5	Hexagon socket 5 mm
		SL-5S30	M4 X 18.7	Hexagon socket 3 mm
	3	SL-3S41E	M4 X 23.5	
		SL-3S42E		
		SL-3S43J		
		SL-3S58J		
		SL-3S35E	M4 X 16.0	Hexagon socket 4 mm
		SL-3S90	M5 X 20.0	Cross recess No.2
		SL-3S91J		

Protruded lengths of the inner cable

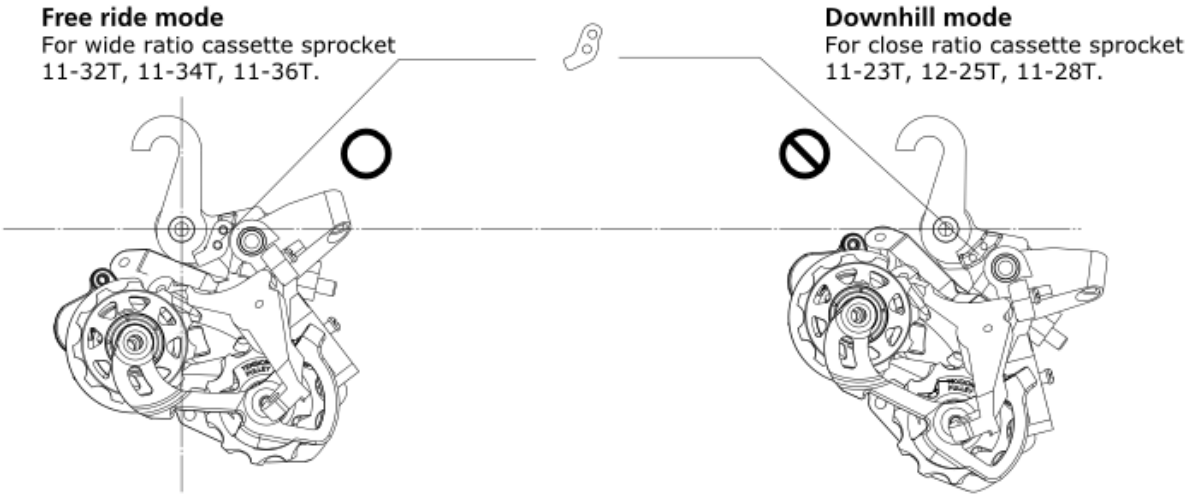
Length between Inner cable fixing bolt and nut unit and outer casing

Model No.	Standard	DX	Tool
SL-S700			TL-S700-B
SL-S7000-8			
SL-8S31 SB-8S20 ST-8S20 SB-7S45 SL-7S31 SL-5S50 SL-5S30			TL-CJ40
SL-3S58J SL-3S43J (SG-3R75 spec.)			

Free ride / Downhill mode converter

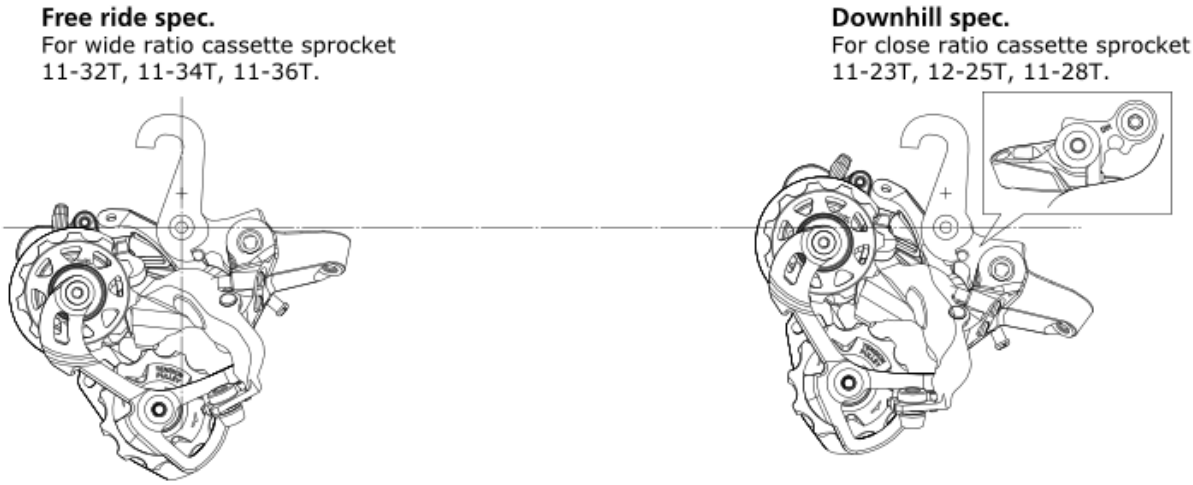
RD-M820

Mode converter setting



RD-M640

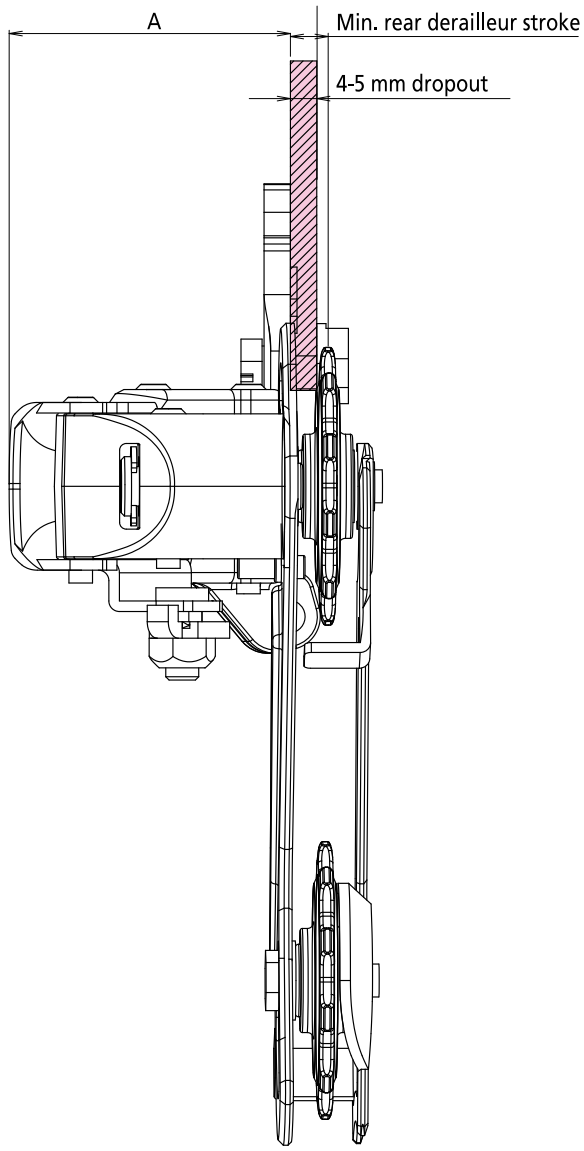
2 spec. available
*RD-M640 does not have mode converter.



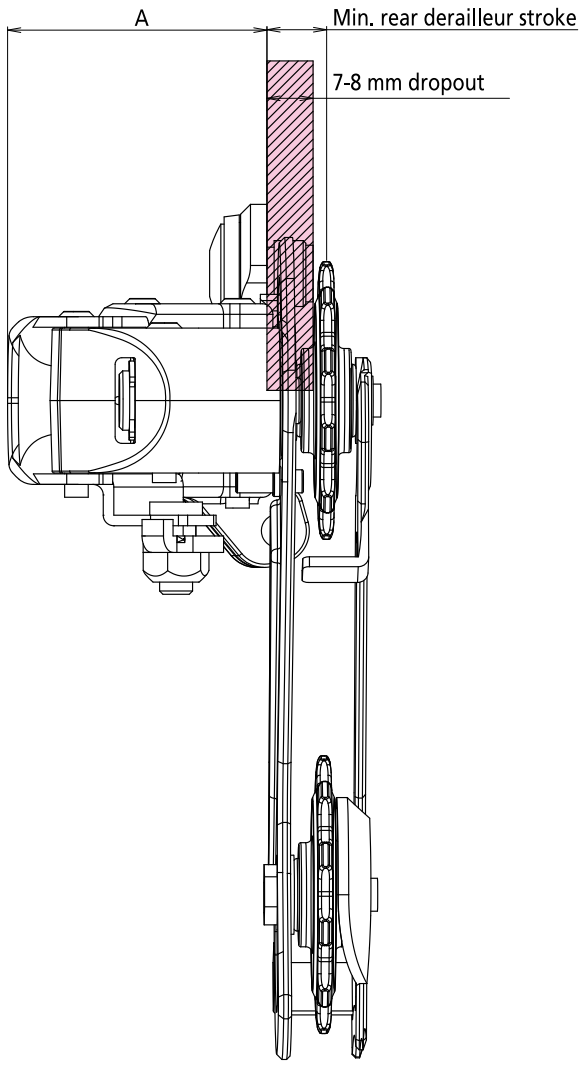
Recommended clearance for outer link protrusion

RD-TY21-A

With Normal and Reverse adapter (4 mm end)



Direct attachment (7 mm end)



Front view of the bicycle

Model No.	Adapter type	Dimension A
RD-TY21-A	With normal and reverse adapter (4 mm end)	43 mm
	Direct attachment (7 mm end)	40 mm

NOTE

- Please make sure of clearance A dimension to have enough clearance from other parts.
- Actual condition could be vary depends on frame and dropout design.
- Please check the interference with screw driver for H / L adjustment bolt by using actual sample.

Dropout and Rear derailleur [MTB]

Rear dropout (with derailleur hanger)	Direct mount drop out	RD type	XTR	SAINT	DEORE XT	SLX	Deore LX	ZEE	DEORE	ALIVIO	ACERA
X	X (without bracket)	11-speed Shadow RD +	RD-M9000 RD-M9050	-	RD-M8000	-	-	-	-	-	-
X	-	10-speed Shadow RD	RD-M980	-			-	-	-	-	-
X	X (without bracket)	Direct mount compatible 10-speed Shadow RD	RD-M981	-	RD-M781	RD-M670	-	-	RD-M610	-	-
X	X (without bracket)	Direct mount compatible 10-speed Shadow RD+	RD-M986	RD-M820	RD-M786	RD-M675	-	RD-M640	RD-M615	-	-
X	X (without bracket)	Direct mount compatible 9-speed Shadow RD	-	-	-	-	-	-	-	RD-M4000	RD-M3000
X	-	9-speed Shadow RD	RD-M972	-	RD-M772	-	-	-	RD-M592	-	-
X	-	9-speed W-servo RD	-	-	-	-	RD-T660	-	-	RD-T4000	RD-T3000
X	-	10-speed W-servo RD	-	-	RD-T780	-	RD-T670-A	-	RD-T610	-	-

NOTE

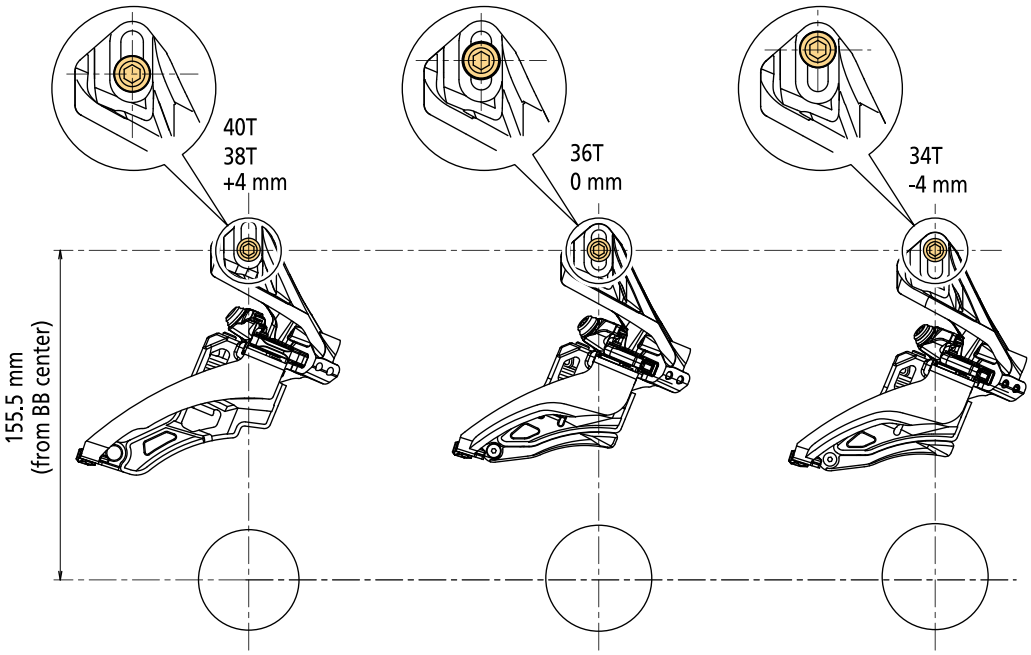
- With use bracket mount, Shadow RD and Shadow RD+ can install to standard drop out.
- Without bracket mount, Shadow RD and Shadow RD+ can install to new direct mount drop out.
- Direct mount dropout for RD-M820 downhill mode, RD-M640 downhill spec require difference dimension, please refer to C-024, C-175.

D mount position [MTB]

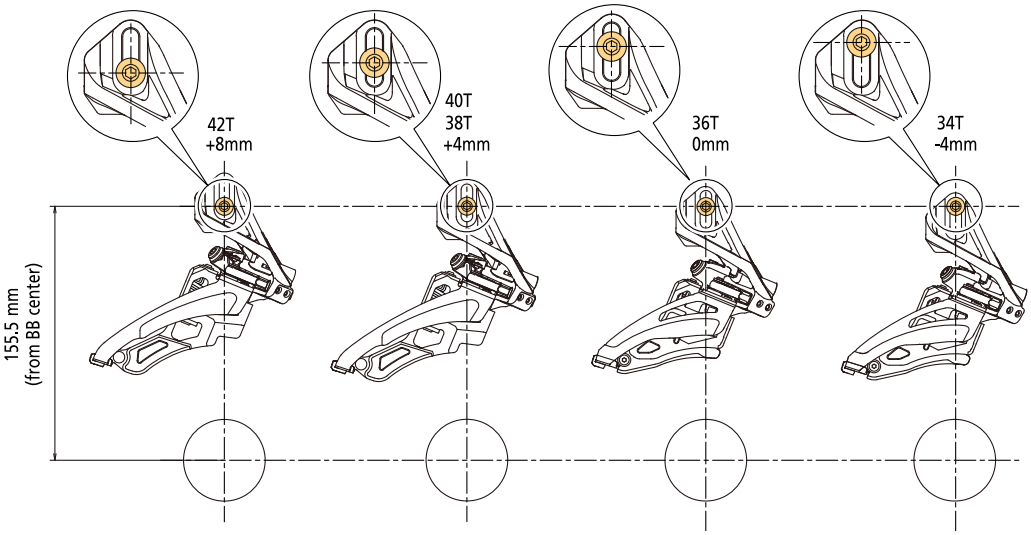
C-179

155.5 mm C-180

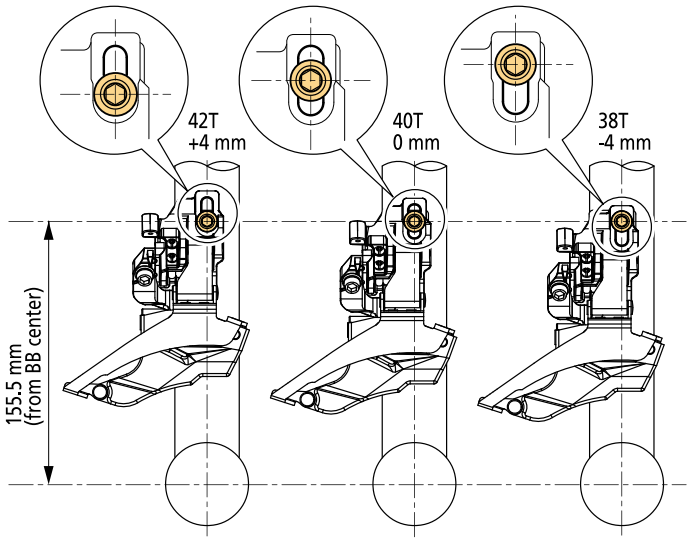
FD-M9000-D / FD-M9020-D / FD-M9025-D
FD-M9050-D / FD-M9070-D
FD-M618-D



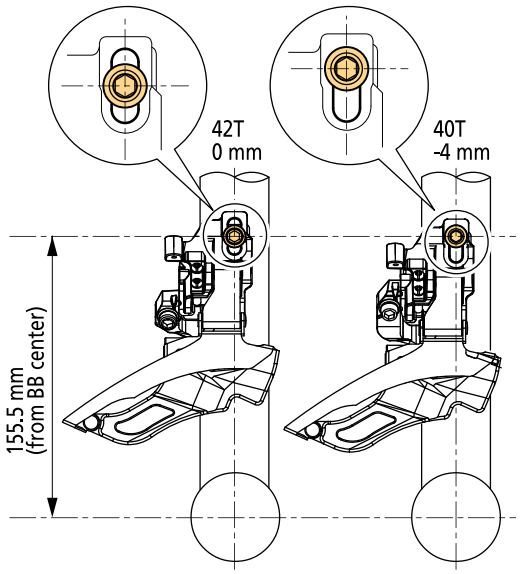
7
FD-M8000-D / FD-M8020-D
FD-M677-D / FD-M672-D
FD-M617-D / FD-M612-D



FD-M986-D / FD-M786-D

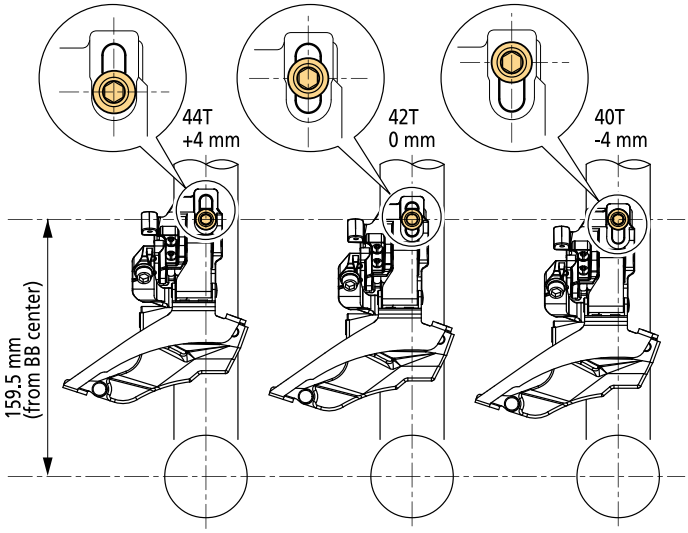


FD-M981-D (not compatible with 40T) / FD-M781-A-D / FD-M671-A-D / FD-M611-D

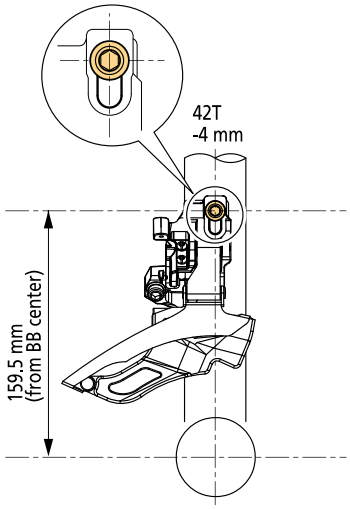


159.5 mm C-181

FD-M986-D / FD-M786-D / FD-M676-D / FD-M616-D

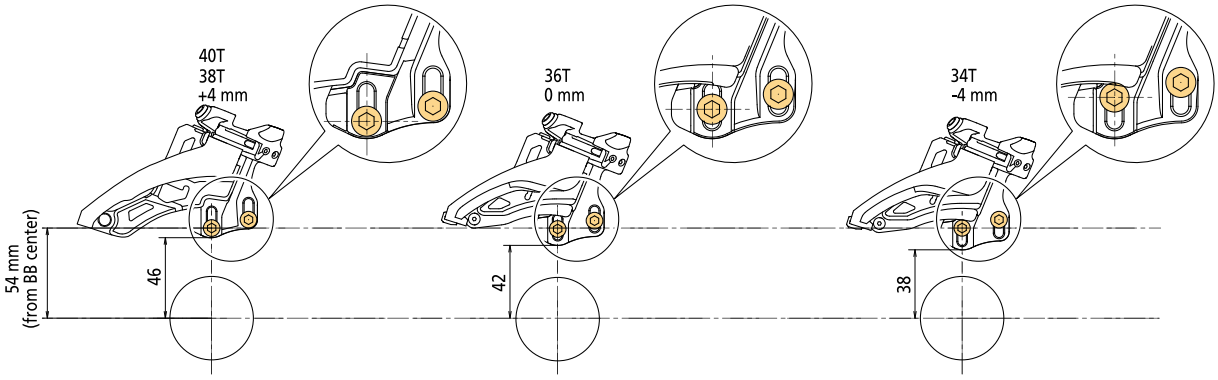


FD-M981-D / FD-M781-A-D / FD-M671-A-D / FD-M611-D

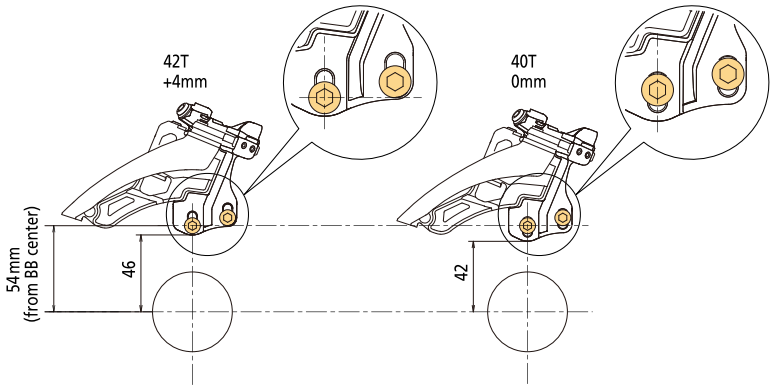


E mount position [MTB]

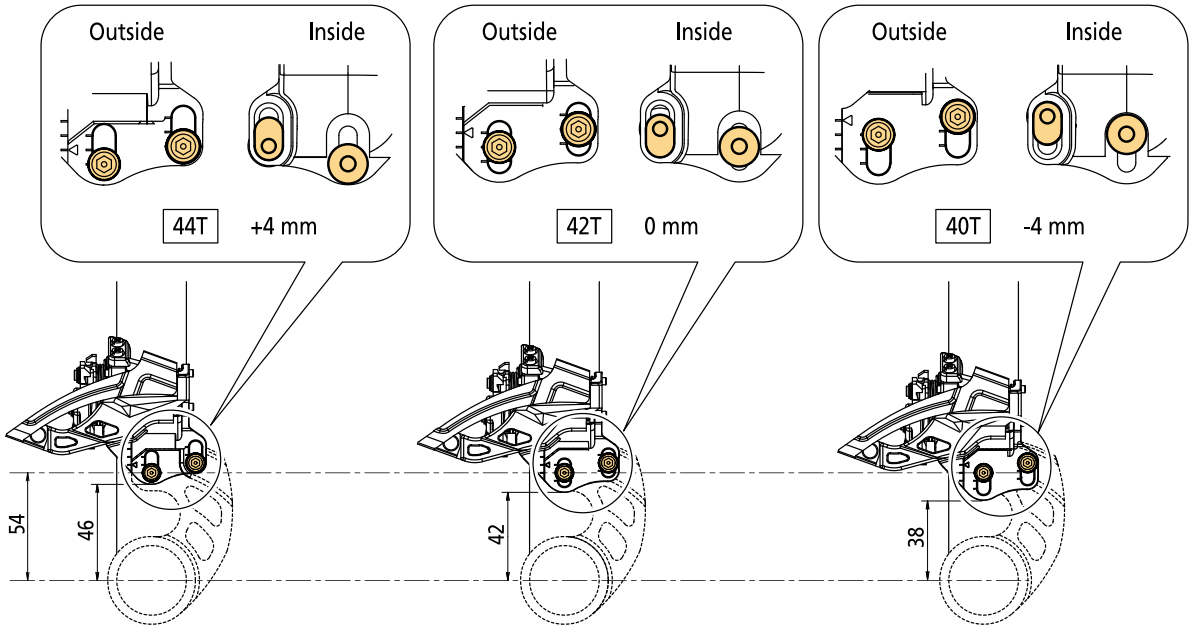
FD-M9000-E / FD-M9020-E / FD-M9025-E
FD-M9050 / FD-M9070
FD-M8000-E / FD-M8020-E / FD-M8025-E
FD-M677-E / FD-M617-E / FD-M618-E



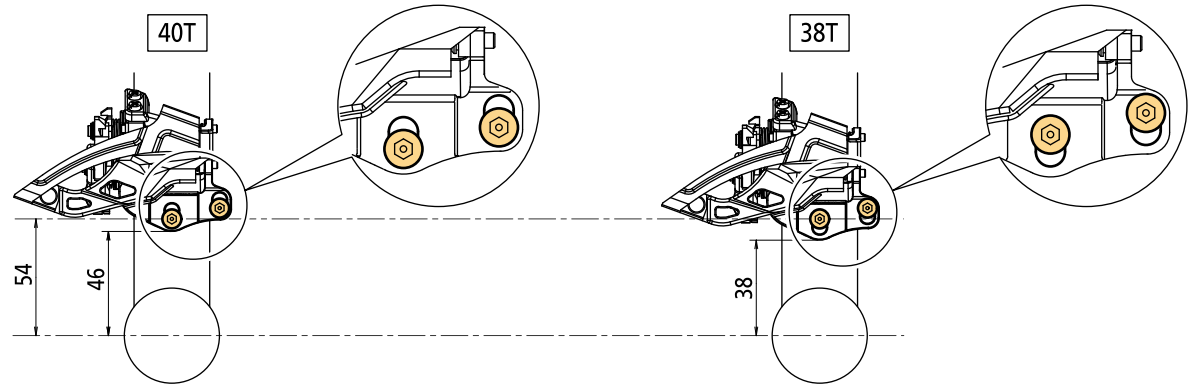
7
FD-M672-E
FD-M612-E



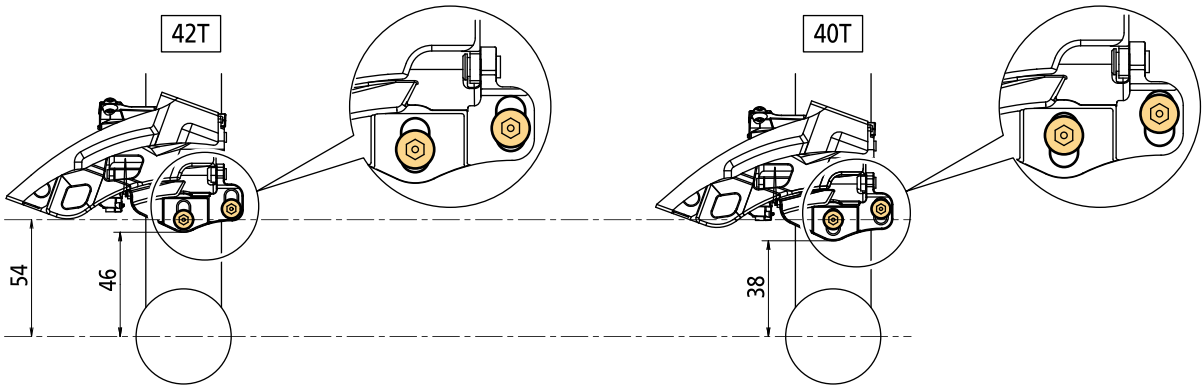
FD-M985-E (w / o BB plate is also available)



FD-M985-E2 / FD-M785-E2 / FD-M675-E2 / FD-M615-E2 (w/o BB plate only)



FD-M780-A-E / FD-M670-A-E / FD-M610-E

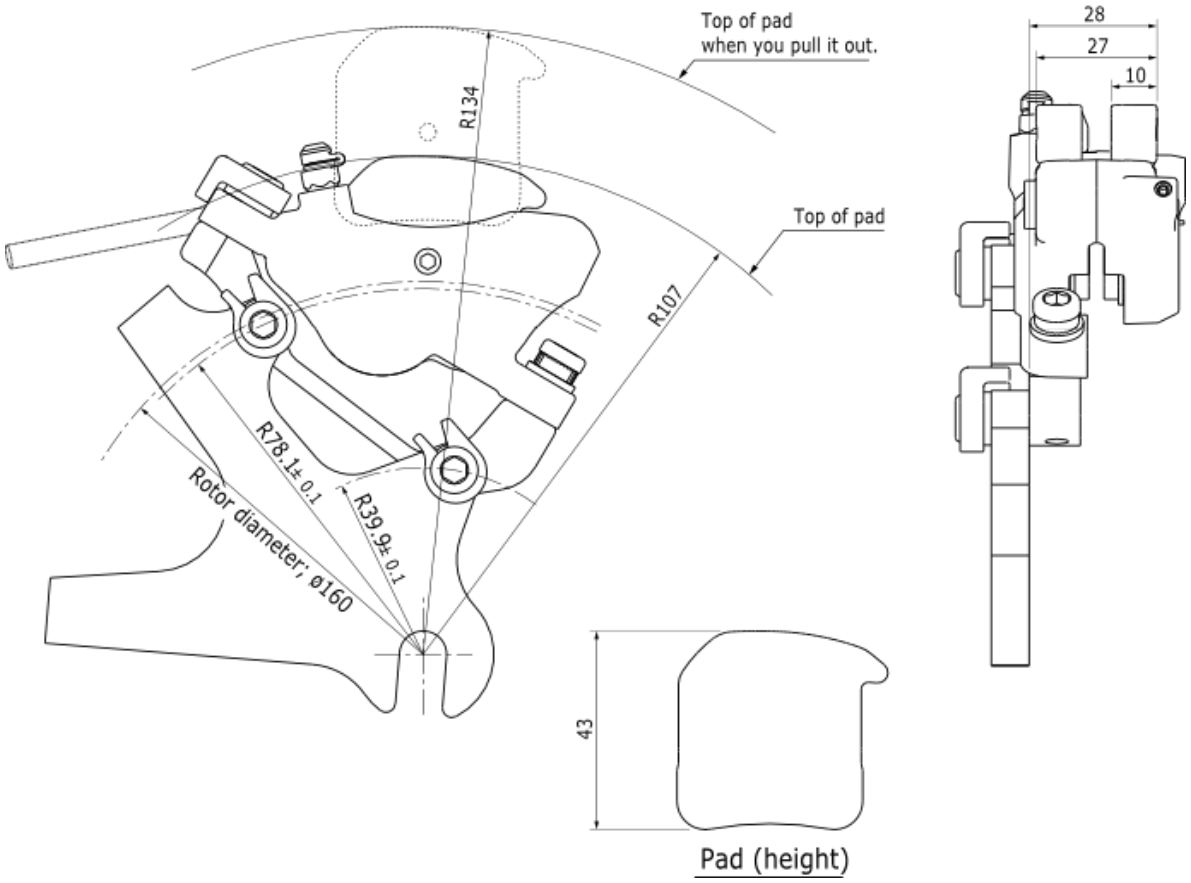


Front derailleur and seat tube adapter

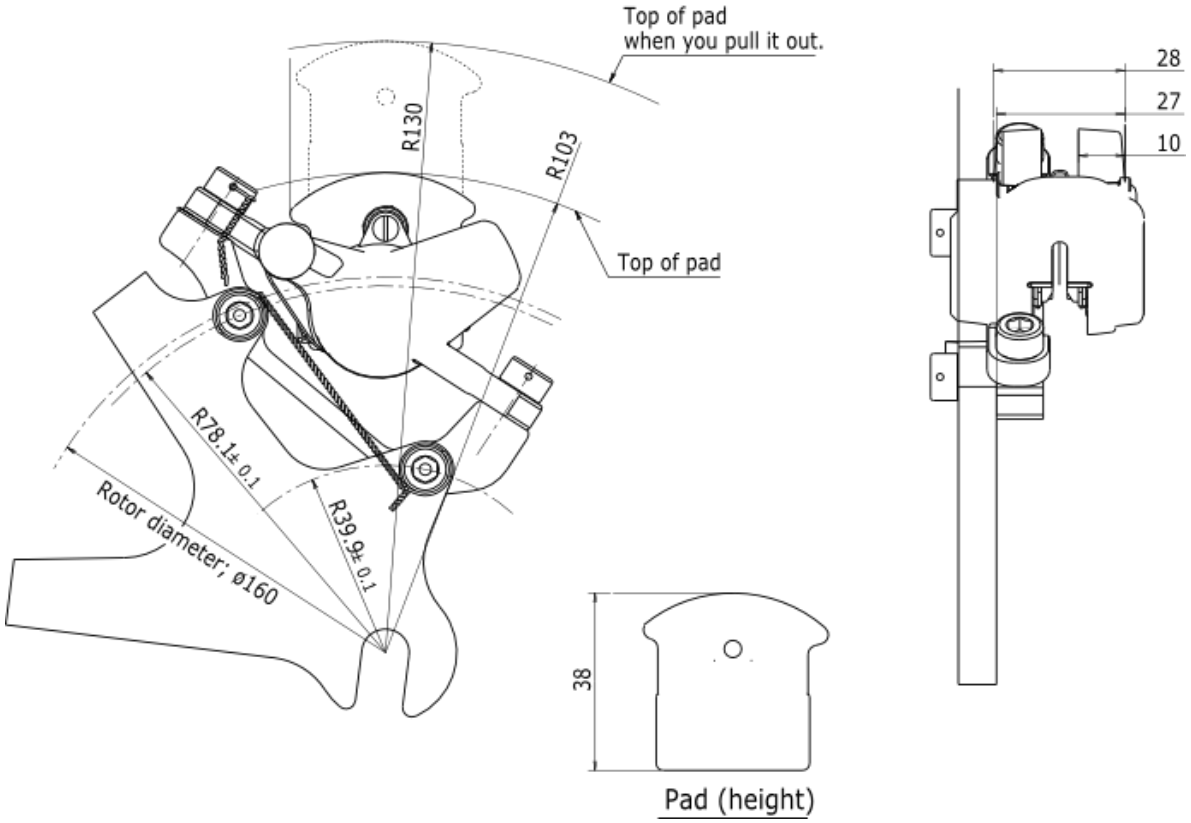
Speed	Model No.	Size	
		28.6 mm	31.8 mm
11	FD-M9000-H	KSMAD17S	KSMAD17M
	FD-M9000-L		
	FD-M9020-H		
	FD-M9020-L		
	FD-M9025-H		
	FD-M9025-L		
	SM-FD905-H for FD-M9050 / FD-M9070		
	SM-FD905-L for FD-M9050 / FD-M9070		
	FD-M8000-H		
	FD-M8000-L		
	FD-M8020-H		
	FD-M8020-L		
	FD-M8025-H		
	FD-M8025-L		
10	FD-M980		
	FD-M981		
	FD-M985		
	FD-M986		
	FD-M780		
	FD-M781		
	FD-M785		
	FD-M786		
	FD-T780		
	FD-T781		
	FD-M671		
	FD-M677-H		
	FD-M677-L		
	FD-M672-H		
	FD-M672-L		
	FD-T670		
	FD-T671		
	FD-M610		
	FD-M611		
	FD-M617-H		
	FD-M617-L		
	FD-M618-H		
	FD-M618-L		
	FD-M612-H		
	FD-M612-L		
	FD-T610		
	FD-T611		
9	FD-M4000-TS	ASMFDSTABS16	ASMFDSTABM16
	FD-M4000-DS	ASMFDSTABS17	ASMFDSTABM17
	FD-T4000-TS	ASMFDSTABS16	ASMFDSTABM16
	FD-T4000-DS		
	FD-M3000-TS	ASMFDSTABS17	ASMFDSTABM17
	FD-T3000-TS	ASMFDSTABS17	ASMFDSTABM17
	FD-M370		
	FD-M371	ASMFDSTABS16	ASMFDSTABM16
7/8	FD-M310	ASMFDSTABS17	ASMFDSTABS17
	FD-M313	ASMFDSTABS16	ASMFDSTABM16
	FD-TX800-TS	ASMFDSTABS17	ASMFDSTABM17
	FD-M190		
	FD-M191		

Dimensions for brake pad

BR-M820 / BR-M640



BR-M9000 / BR-M9020 / BR-M8000 /BR-M785 / BR-RS785 / BR-R785/ BR-M675 / BR-M615



Compatibility between hydraulic disc brake hose

		SM-BH90-SBM *4	SM-BH90-SBLS *1	SM-BH90-SBS *2	SM-BH90-SB *3	SM-BH90-SS
Connection		Straight - Banjo	Straight - Banjo	Straight - Banjo	Straight - Banjo	Straight - Straight
Rigidity		High power	High power	High power	High power	High power
BL-M9000	BR-M9000	X	–	–	–	–
BL-M9020	BR-M9020	X	–	–	X	–
BL-M987	BR-M987	X	–	–	–	–
BL-M988	BR-M985	X	–	–	X	–
BL-M820	BR-M820	–	X	–	–	–
BL-M8000	BR-M8000	X	–	–	X	–
BL-M785	BR-M785	X	–	–	X	–
BL-T785	BR-T785	X	–	–	X	–
BL-M675	BR-M675	X	–	–	X	–
BL-T675	BR-T675	–	–	–	–	X
BL-M640	BR-M640	–	X	X	–	–
BL-M615	BR-M615	–	–	–	–	X
BL-T615	BR-T615	–	–	–	–	–
ST-M4050	BR-M4050	–	–	–	–	–
ST-M3050	BR-M3050	–	–	–	–	–
BL-M506 BL-M505 BL-M445	BR-M447	–	–	–	–	–
BL-T445	BR-M446	–	–	–	–	–
BL-M425 BL-M396	BR-M395	–	–	–	–	–
BL-M355	BR-M355	–	–	–	–	–
BL-S700	BR-S700	X	–	–	X	–
ST-R785	BR-RS805	–	–	–	–	–
ST-R785	BR-RS785	–	–	–	–	–
ST-R785	BR-R785	–	–	–	–	–
ST-RS685	BR-RS805	–	–	–	–	–
ST-RS685	BR-RS785	–	–	–	–	–
ST-RS685	BR-R785	–	–	–	–	–
ST-RS505	BR-RS785	–	–	–	–	–
ST-RS505	BR-RS505	–	–	–	–	–

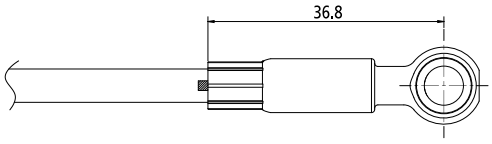
		SM-BH59-J-SS	SM-BH59-JK-SS (MTB)	SM-BH59-JK-SS (Road)	SM-BH59-SB*3	SM-BH59-SB-J*3
Connection		Straight - Straight	Straight - Straight	Straight - Straight	Straight - Banjo	Straight - Banjo
Rigidity		Standard	Standard	Standard	Standard	Standard
BL-M9000	BR-M9000	–	–	–	–	–
BL-M9020	BR-M9020	–	–	–	–	–
BL-M987	BR-M987	–	–	–	–	–
BL-M988	BR-M985	–	–	–	–	–
BL-M820	BR-M820	–	–	–	–	–
BL-M8000	BR-M8000	–	–	–	–	–
BL-M785	BR-M785	–	–	–	–	–
BL-T785	BR-T785	–	–	–	–	–
BL-M675	BR-M675	–	–	–	–	–
BL-T675	BR-T675	–	–	–	–	–
BL-M640	BR-M640	–	–	–	–	–
BL-M615	BR-M615	–	–	–	–	–
BL-T615	BR-T615	–	X	X	–	–
ST-M4050	BR-M4050	–	X	X	–	–
ST-M3050	BR-M3050	–	X	X	–	–
BL-M506 BL-M505 BL-M445	BR-M447	–	X	X	–	–
BL-T445	BR-M446	–	X	X	–	–
BL-M396	BR-M395	–	X	X	–	–
BL-M355	BR-M355	–	X	X	–	–
BL-S700	BR-S700	–	–	–	–	–
ST-R785	BR-RS805	X	–	–	–	–
ST-R785	BR-RS785	X	–	–	–	–
ST-R785	BR-R785	–	–	–	X	X
ST-RS685	BR-RS805	X	–	X	–	–
ST-RS685	BR-RS785	X	–	X	–	–
ST-RS685	BR-R785	–	–	X	X	X
ST-RS505	BR-RS785	X	–	X	–	–
ST-RS505	BR-RS505	X	–	X	–	–

Level of compatibility

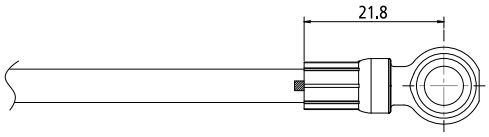
X: Compatible
*: Refer Service Instruction of SM-BH80, SM-BH59 (brake hose 10 m coil) for assembling / disassembling banjo unit
-: Impossible to use

*1: Banjo (long), Banjo bolt (short)
*2: Banjo (normal), Banjo bolt (short)
*3: Banjo (normal), Banjo bolt (normal)
*4: Banjo (special), Banjo bolt (special)

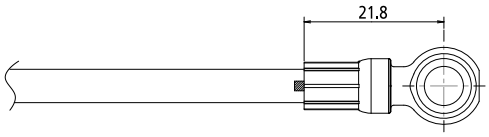
Banjo C-187



long

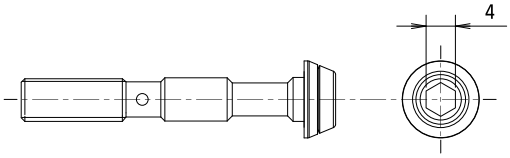


normal, special coating

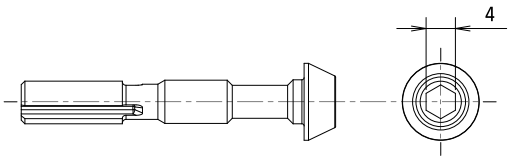


normal

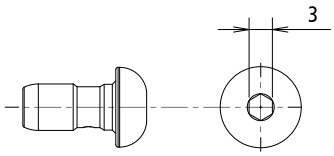
Banjo bolt C-188



special



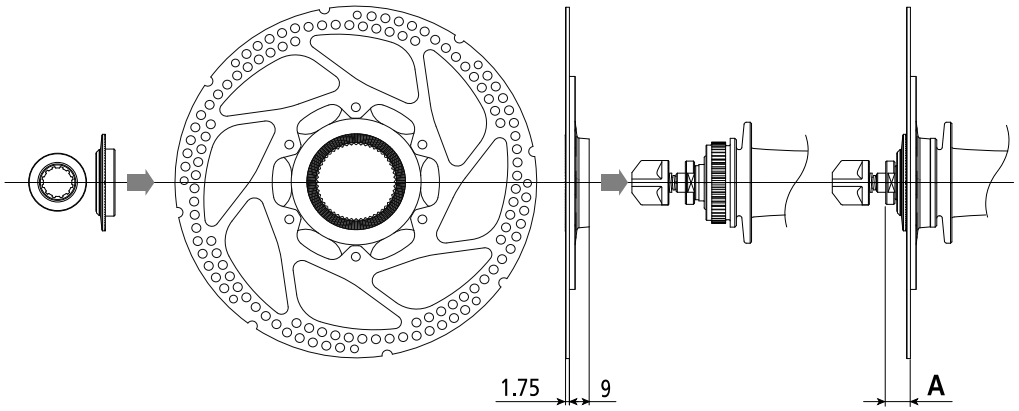
normal



short

Rotor and hub dimensions

Center lock type C-190

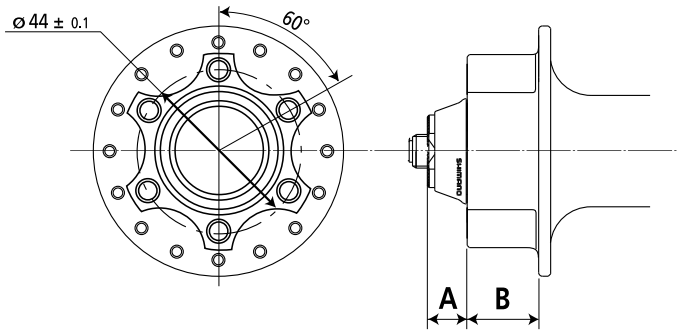


Combination of rotor and hub dimensions

	Rotor size (ø)	Disc hub	Dimension A (mm)
Front	140 mm (SS, for on Road)	QR, 8 mm / 15 mm E-thru	10.5
	160 mm (S)		
	180 mm (M)	20 mm thru axle	15.25
	203 mm (L)		
Rear	140 mm (SS)	QR, 10 mm / 12 mm thru axle	15.25
	160 mm (S)		
	180 mm (M)	142x12 mm thru axle	18.75
	203 mm (L)		

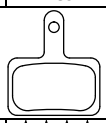
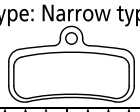
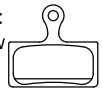
6-bolt type C-191

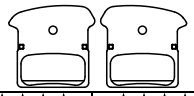
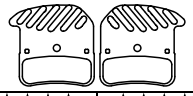
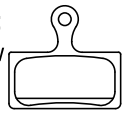
Shimano disc is able to mount to the hubs with following dimensions. Following required dimensions are the 6 bolt standard.

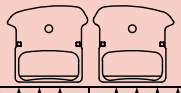
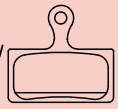
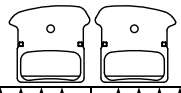


	Dimension A (mm)	Dimension B (mm)
		M756 / M529 / M525 / M475
Front	10.5	15.3
Rear	15.25	16.9

Brake pad line-up

Model No.	Type	B01S	M08	D02S	D01S	G01A	G01S	G03S	G03Ti
		Resin	Resin	Metal	Resin	Resin	Resin	Metal	Metal
Pad Shape Type		B-type: Wide type 		D-type: Narrow type 			G-type: Narrow type 		
Characteristics	Modulation	★★★★★	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★★	★★★★☆	★★★★☆
	Power	★★★★☆	★★★★☆	★★★★★	★★★★☆	★★★★☆	★★★★☆	★★★★★	★★★★★
	Durability	★★★★☆	★★★☆☆	★★★★★	★★★★☆	★★★★☆	★★★★☆	★★★★★	★★★★★
	Anti-fading	★★★☆☆	★★★☆☆	★★★★★	★★★☆☆	★★★☆☆	★★★☆☆	★★★★★	★★★★★
	Silence	★★★★★	★★★★★	★★★☆☆	★★★★★	★★★★★	★★★★★	★★★☆☆	★★★☆☆
Pad Radiator fin		–	–	–	–	–	–	–	–
High heat insulation		–	–	–	–	–	–	–	–
Pad Back plate	Titanium	–	–	–	–	–	–	–	X
	Aluminum	–	–	–	–	X	–	–	–
	Stainless steel/ Aluminum	–	–	–	–	–	–	–	–
	Stainless steel	X	X	X	X	–	X	X	–
BR-M9000	Hydraulic	–	–	–	–	–	–	–	–
BR-M9020	Hydraulic	–	–	–	–	–	–	–	–
BR-M820	Hydraulic	–	–	Option	Option	–	–	–	–
BR-M8000	Hydraulic	–				–	–	–	–
BR-M785	Hydraulic	–	–	–	–	Standard*	–	Option*	–
BR-M675	Hydraulic	–	–	–	–	–	Standard*	Option*	–
BR-T675	Hydraulic	Standard	–	–	–	–	–	–	–
BR-RS805	Hydraulic	–	–	–	–	–	–	–	–
BR-R785	Hydraulic	–	–	–	–	Option	–	Option	–
BR-RS785	Hydraulic	–	–	–	–	–	–	Option	–
BR-RS505	Hydraulic	–	–	–	–	–	–	–	–
BR-M640	Hydraulic	–	–	Standard	Standard	–	–	–	–
BR-M615	Hydraulic	–	–	–	–	–	Standard*	Option*	–
BR-T615	Hydraulic	Standard	–	–	–	–	–	–	–
BR-M4050	Hydraulic	Standard	–	–	–	–	–	–	–
BR-M3050	Hydraulic	Standard	–	–	–	–	–	–	–
BR-M447	Hydraulic	Standard	–	–	–	–	–	–	–
BR-M446	Hydraulic	Standard	–	–	–	–	–	–	–
BR-M395	Hydraulic	Standard	–	–	–	–	–	–	–
BR-M355	Hydraulic	Standard	–	–	–	–	–	–	–
BR-CX77	Mechanical	–	–	–	–	Standard	–	–	Option
BR-R517	Mechanical	–	–	–	–	–	Standard	Option	–
BR-R317	Mechanical	–	–	–	–	–	Standard	–	–
BR-M375	Mechanical	Standard	–	–	–	–	–	–	–
BR-TX805	Mechanical	Standard	–	–	–	–	–	–	–

Model No.	Type	F01A	F03C	H01A	H03C	G02A	G04Ti
		Resin	Metal	Resin	Metal	Resin	Metal
Pad Shape Type		F-type: Narrow type 		H-type: Narrow type 		G-type: Narrow type 	
Characteristics	Modulation	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★☆
	Power	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★★
	Durability	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★★
	Anti-fading	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★☆☆	★★★★★
	Silence	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★☆☆
Pad Radiator fin		X	X	X	X	–	–
High heat insulation		–	–	–	–	–	–
Pad Back plate	Titanium	–	–	–	–	–	X
	Aluminum	X	–	X	–	X	–
	Stainless steel/ Aluminum	–	X	–	X	–	–
	Stainless steel	–	–	–	–	–	–
BR-M9000	Hydraulic	–	–	–	–	Standard	Standard
BR-M9020	Hydraulic	–	–	–	–	Option	Option
BR-M820	Hydraulic	–	–	Standard	Standard	–	–
BR-M8000	Hydraulic	–	–	–	–	Standard	–
BR-M785	Hydraulic	Option**	Standard**	–	–	–	–
BR-M675	Hydraulic	Option**	Standard**	–	–	–	–
BR-T675	Hydraulic	–	–	–	–	–	–
BR-RS805	Hydraulic	–	–	–	–	–	–
BR-R785	Hydraulic	Standard	Standard	–	–	–	–
BR-RS785	Hydraulic	–	–	–	–	Option	–
BR-RS505	Hydraulic	–	–	–	–	–	–
BR-M640	Hydraulic	–	–	Option	Option	–	–
BR-M615	Hydraulic	Option**	Option**	–	–	–	–
BR-T615	Hydraulic	–	–	–	–	–	–
BR-M4050	Hydraulic	–	–	–	–	–	–
BR-M3050	Hydraulic	–	–	–	–	–	–
BR-M447	Hydraulic	–	–	–	–	–	–
BR-M446	Hydraulic	–	–	–	–	–	–
BR-M395	Hydraulic	–	–	–	–	–	–
BR-M355	Hydraulic	–	–	–	–	–	–
BR-CX77	Mechanical	–	–	–	–	–	–
BR-R517	Mechanical	–	–	–	–	–	–
BR-R317	Mechanical	–	–	–	–	–	–
BR-M375	Mechanical	–	–	–	–	–	–
BR-TX805	Mechanical	–	–	–	–	–	–

Model No.	Type	L02A	L04C	K02S	K04S	J02A	J04C
		Resin	Metal	Resin	Metal	Resin	Metal
Pad Shape Type		L-type: Narrow type 		K-type: Narrow type 		F-type: Narrow type 	
Characteristics	Modulation	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★☆
	Power	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★★
	Durability	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★★
	Anti-fading	★★★★☆	★★★★★	★★★☆☆	★★★★★	★★★★☆	★★★★★
	Silence	★★★★★	★★★★☆	★★★★★	★★★☆☆	★★★★★	★★★★☆
Pad Radiator fin		X	X	–	–	X	X
High heat insulation		–	–	–	–	X	X
Pad Back plate	Titanium	–	–	–	X	–	–
	Aluminum	X	–	–	–	X	–
	Stainless steel/ Aluminum	–	X	–	–	–	X
	Stainless steel	–	–	X	–	–	–
BR-M9000	Hydraulic	–	–	–	–	Option	Option
BR-M9020	Hydraulic	–	–	–	–	Standard	Standard
BR-M820	Hydraulic	–	–	–	–	–	–
BR-M8000	Hydraulic	–	–	–	–	Standard	Option
BR-M785	Hydraulic	–	–	–	–	–	–
BR-M675	Hydraulic	–	–	–	–	–	–
BR-T675	Hydraulic	–	–	–	–	–	–
BR-RS805	Hydraulic	Standard	Option	Option	Option	–	–
BR-R785	Hydraulic	–	–	–	–	–	–
BR-RS785	Hydraulic	–	–	–	–	Standard	Standard
BR-RS505	Hydraulic	Standard	Option	Option	Option	–	–
BR-M640	Hydraulic	–	–	–	–	–	–
BR-M615	Hydraulic	–	–	–	–	–	–
BR-T615	Hydraulic	–	–	–	–	–	–
BR-M4050	Hydraulic	–	–	–	–	–	–
BR-M3050	Hydraulic	–	–	–	–	–	–
BR-M447	Hydraulic	–	–	–	–	–	–
BR-M446	Hydraulic	–	–	–	–	–	–
BR-M395	Hydraulic	–	–	–	–	–	–
BR-M355	Hydraulic	–	–	–	–	–	–
BR-CX77	Mechanical	–	–	–	–	–	–
BR-R517	Mechanical	–	–	–	–	–	–
BR-R317	Mechanical	–	–	–	–	–	–
BR-M375	Mechanical	–	–	–	–	–	–
BR-TX805	Mechanical	–	–	–	–	–	–

Disc brake mount adapter

How to read Model No. C-194

(1) (2) (3) (4) (5) (6)

SM-MA-F203S/P

(1)	Small parts
(2)	Mount adapter
(3)	F = Front and Rear * R = Rear
(4)	Rotor size **
(5)	Caliper mount type S = International A-standard P = Post
(6)	Suspension / Frame type S = International A-standard P = Post

NOTE

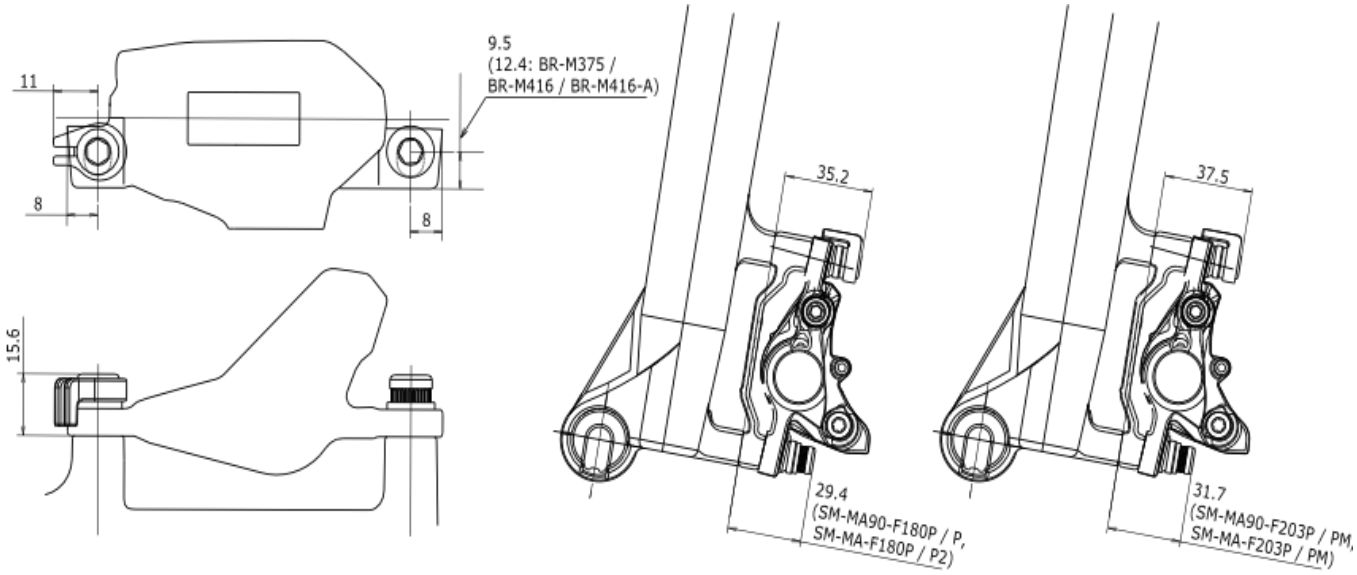
* This part may be used in the rear.
In this case, the rotor size description is also different. Refer to the table below.
** The rotor size description is 160 mm. Direct post mount/International A-standard forks and frames are supported. Refer to the table below for other mount types.

Application table for postmount adapter C-195

Fork and frame mount style			Rotor size			
			140 mm (SS)	160 mm (S)	180 mm (M)	203 mm (L)
Front	Postmount	140 mm direct	Direct mount	SM-MA90-F180P / P SM-MA-F180P / P2 (for R785)	-	-
		160 mm direct	-	Direct mount	SM-MA90-F180P / P SM-MA-F180P / P2	SM-MA-F203P / P
		180 mm direct	-	-	Direct mount	SM-MA90-F203P / PM SM-MA-F203P / PM
		203 mm direct	-	-	-	Direct mount
	International A-standard		-	SM-MA90-F160P / S SM-MA-F160P / S	SM-MA-F180P / S	SM-MA-F203P / S
Rear	Postmount	140 mm direct	Direct mount	SM-MA90-F180P / P SM-MA-F180P / P2	-	-
		160 mm direct	-	Direct mount	SM-MA90-F180P / P SM-MA-F180P / P2	SM-MA-F203P / P
		180 mm direct	-	-	Direct mount	SM-MA90-F203P / PM SM-MA-F203P / PM
		203 mm direct	-	-	-	Direct mount
	International A-standard		SM-MA90-R140P / S	SM-MA90-R160P / S SM-MA-R160P / S	SM-MA90-R180P / S SM-MA-R180P / S	SM-MA-R203P / S

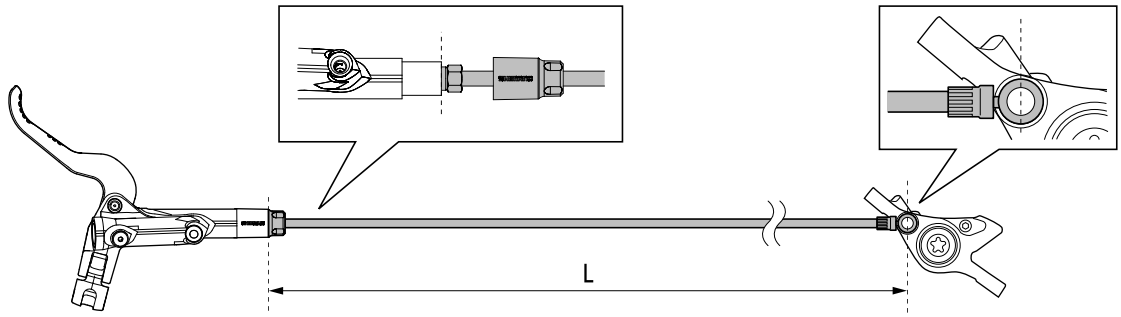
Dimensions of fixing bolt C-196

Dimensions of Shimano disc brake caliper is shown below.
Please verify that frame dimension will not cause interference with caliper and brake mount, especially chainstay post mount.



Brake hose dimensions

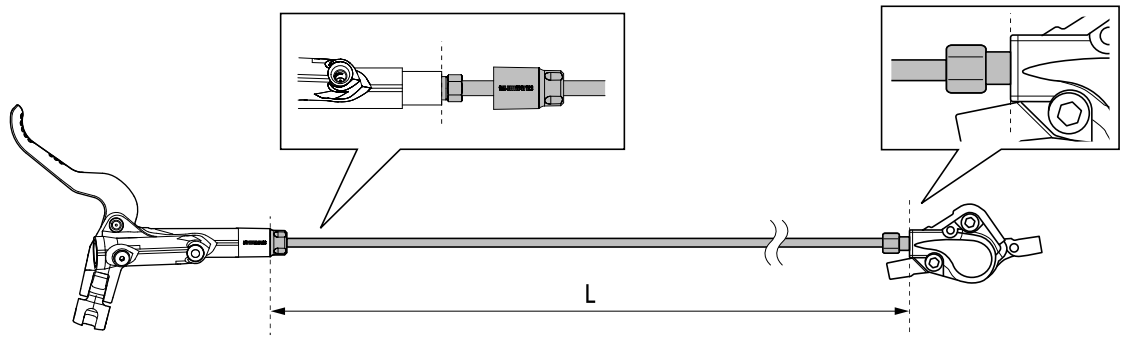
SM-BH90-SBM / SM-BH90-SB



L: Brake hose length

Model No.	Brake Lever	Brake
SM-BH90-SBM / SM-BH90-SB	BL-M9000	BR-M9000
	BL-M9020	BR-M9020
	BL-M820-B (SM-BH90-SBLS)	BR-M820 (SM-BH90-SBLS)
	BL-M8000	BR-M8000
	BLM785-B	BR-M785
	BL-T785-B	
	BL-M640-B (SM-BH90-SBS)	BR-M640 (SM-BH90-SBS)

SM-BH90-SS



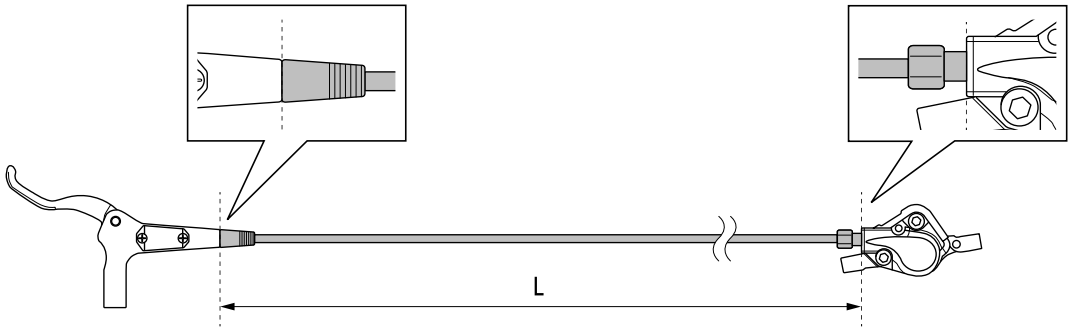
L: Brake hose length

Model No.	Brake Lever	Brake
SM-BH90-SS	BL-M615	BR-M615
	BL-T675-B	BR-T675

NOTE

The length of brake hose is related with product part number.

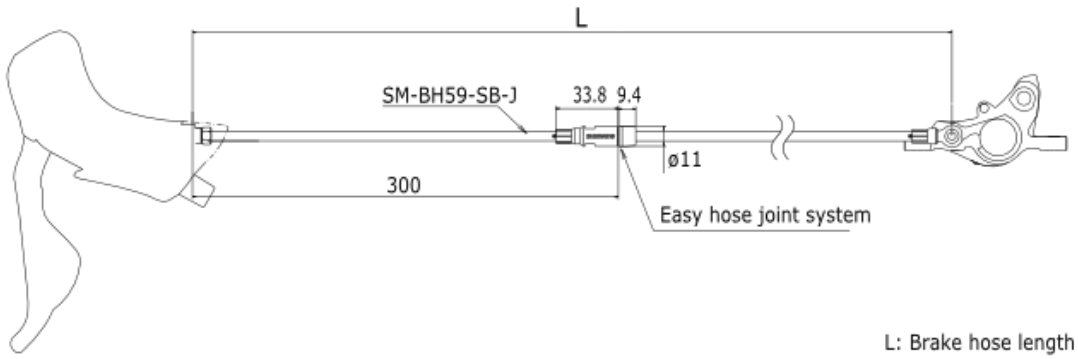
SM-BH59-JK-SS



L: Brake hose length

Model No.	Shift/Brake Lever	Brake
SM-BH59-JK-SS	BL-T615	BR-T615
	BL-M506	BR-M447
	BL-M445	BR-M447
	BL-T445	BR-M446
	ST-M4050	BR-M4050
	BL-M425	BR-M395
	BL-M396	BR-M395
	ST-M3050	BR-M3050
	BL-M355	BR-M355

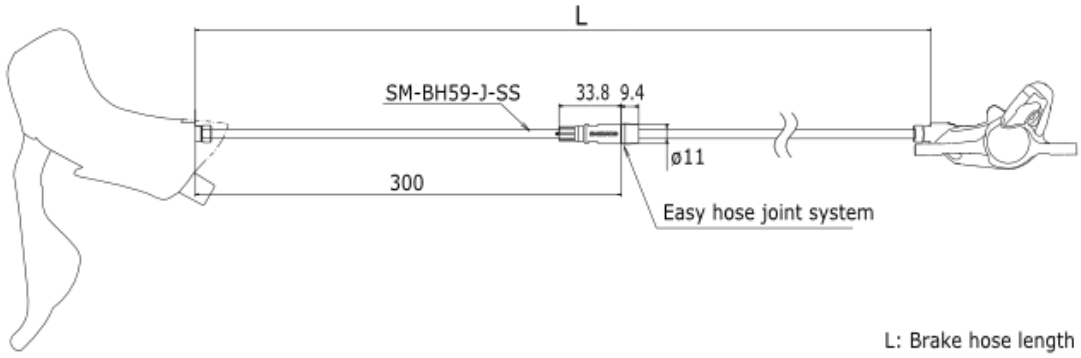
SM-BH59-SB-J



L: Brake hose length

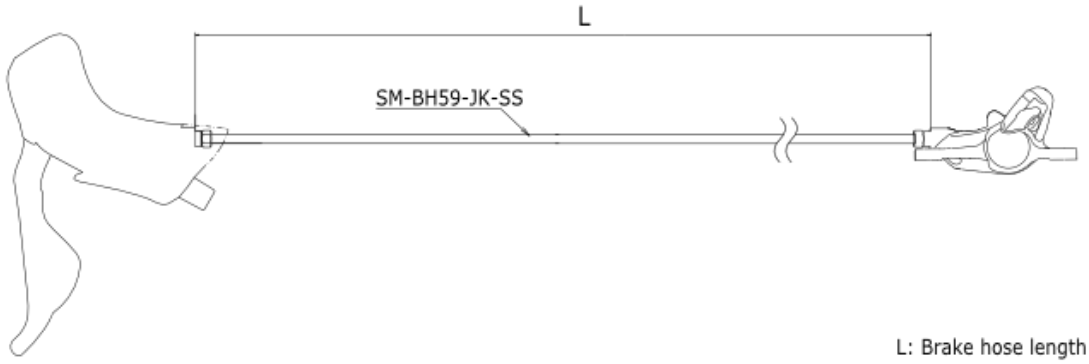
Model No.	Shift/Brake Lever	Brake
SM-BH59-SB-J	ST-R785	BR-R785

SM-BH59-J-SS



L: Brake hose length

Model No.	Shift/Brake Lever	Brake
SM-BH59-J-SS	ST-R785 ST-RS685 ST-RS505	BR-RS805 BR-RS785 BR-RS505

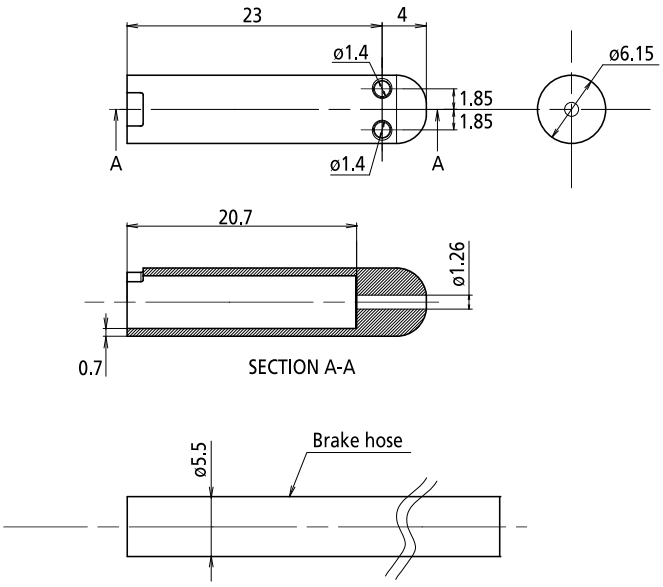


Model No.	Shift/Brake Lever	Brake
SM-BH59-JK-SS	ST-RS685 ST-RS505	BR-RS805 BR-RS785 BR-RS505

Easy hose joint system (J-kit)

C-198

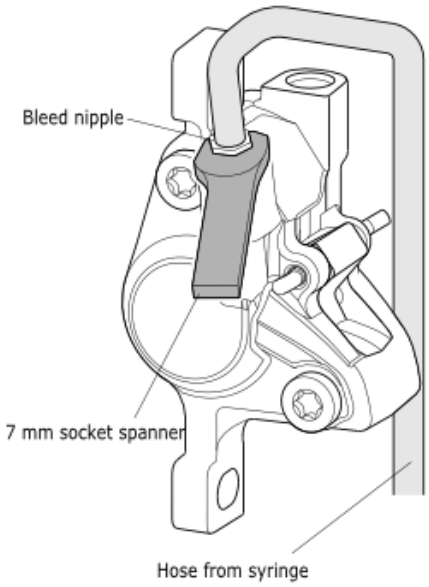
Please consider to prevent scratching the hose when assembling it into frame or when riding the bike.



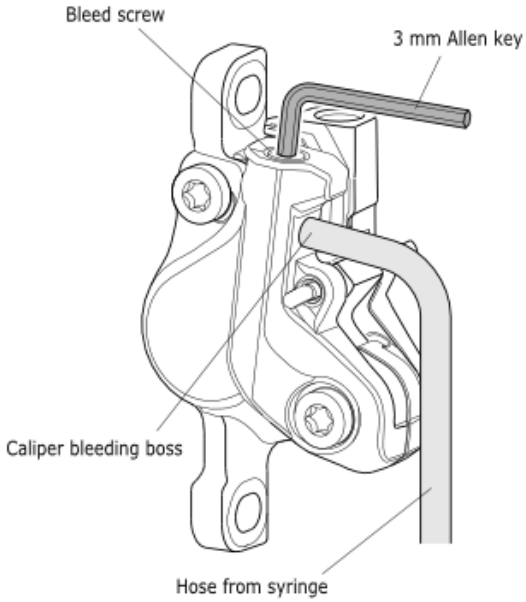
Bleeding method

Please refer to dealer manual for detailed bleeding method.

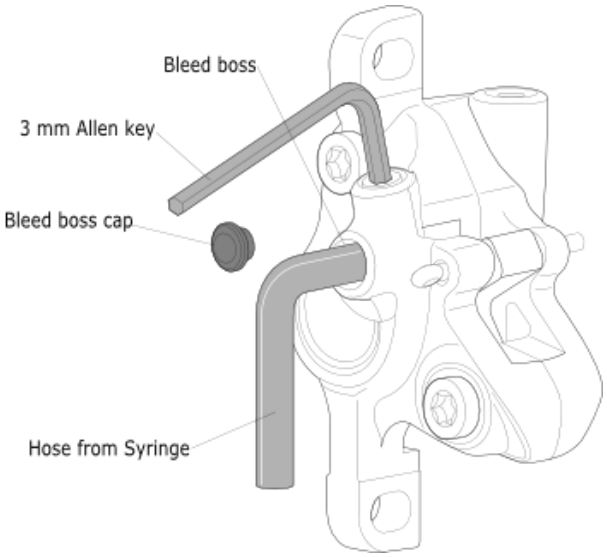
BR-M785 / BR-M446 / BR-R785



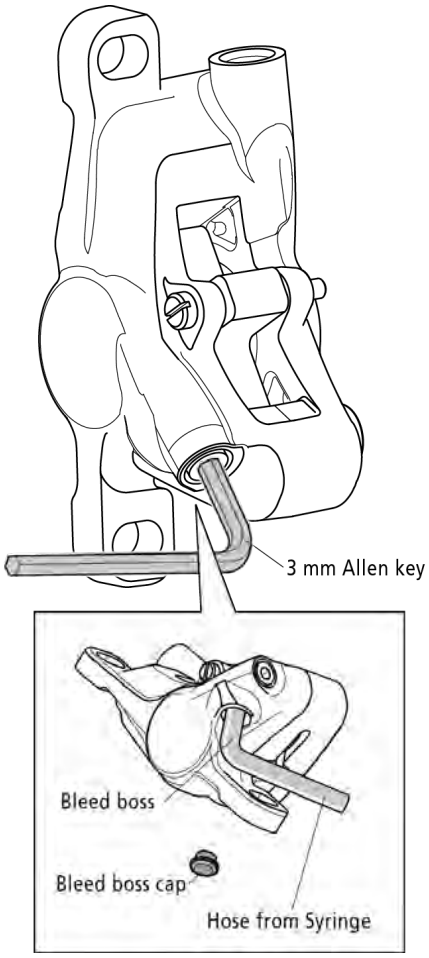
BR-M395, BR-M447, BR-M4050 , BR-M3050



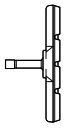
BR-M355

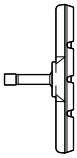


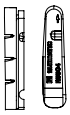
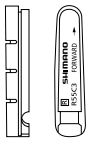
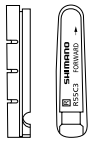
BR-RS785

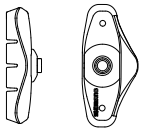


Brake / Shoe line-up

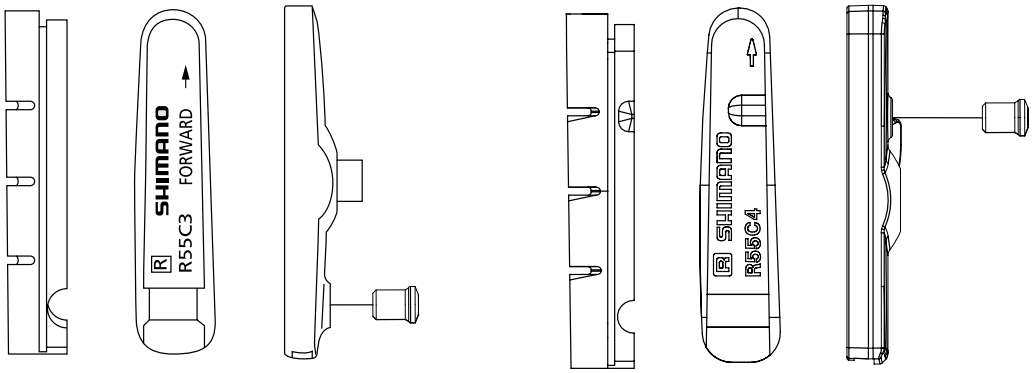
Model No.		M70R2	M70R2 (Severe Condition Shoe)	M70T3	M70T4	M70CT4 (Severe Condition Shoe)
Brake shoe shape						
Cartridge type		×	×	-	-	×
Recommended rim		Aluminum	Aluminum	Alumite only	Aluminum	Aluminum
Characteristis	DRY Power	★★★★★	★★★★★	★★☆☆☆	★★★★☆	★★★★☆
	WET Power	★★☆☆☆	★★☆☆☆	★★★★★	★★★☆☆	★★★☆☆
	Silence	★★☆☆☆	★★☆☆☆	★★★★★	★★★☆☆	★★★☆☆
	Anti-fading	★★★☆☆	★★★☆☆	★☆☆☆☆	★★★☆☆	★★★☆☆
	Durability (on road)	★★★★★	★★★★★	★★★★☆	★★★★☆	★★★★☆
	Durability (muddy condition)	★★★☆☆	★★★★☆	★★☆☆☆	★★★☆☆	★★★★☆
	Anti-rim attack	★★★☆☆	★★★☆☆	★☆☆☆☆	★★★☆☆	★★★☆☆
	BR-T780	-	-	-	-	Standard
	BR-T670	-	-	Option	-	Standard
	BR-T610	-	-	-	Option	Standard
	BR-T4010	Option	-	-	-	-
	BR-T4000	-	-	-	-	-
	BR-MX70	-	-	Option	Option	-
	BR-R550	-	Option	-	-	Option
	BR-R573	Standard	-	-	-	Option
	BR-R353	-	-	-	Option	-

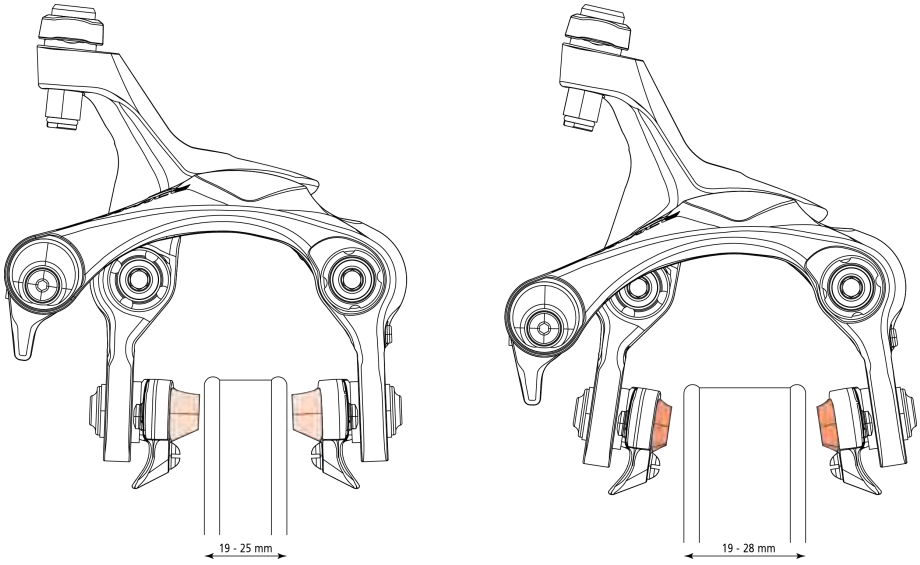
Model No.		M65T3	M65T4	S70C	S70C (Severe Condition Shoe)	S70T	S65T
Brake shoe shape							
Cartridge type		-	-	×	×	-	-
Recommended rim		Alumite only	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Characteristis	DRY Power	★★☆☆☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
	WET Power	★★★★★	★★★☆☆	★★☆☆☆	★★☆☆☆	★★☆☆☆	★★☆☆☆
	Silence	★★★★★	★★★☆☆	★★★☆☆	★★★☆☆	★★★☆☆	★★★☆☆
	Anti-fading	★☆☆☆☆	★★★☆☆	★★★★★	★★★★★	★★★★★	★★★★★
	Durability (on road)	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
	Durability (muddy condition)	★★☆☆☆	★★★☆☆	★★★☆☆	★★★★☆	★★★☆☆	★★★☆☆
	Anti-rim attack	★☆☆☆☆	★★★☆☆	★★★★★	★★★★★	★★★★★	★★★★★
	BR-T780	-	-	Option	-	-	-
	BR-T670	-	-	Option	-	-	-
	BR-T610	-	-	Standard	-	Option	-
	BR-T4010	-	-	Standard	-	-	-
	BR-T4000	Option	Option	-	-	-	Standard
	BR-MX70	-	-	Standard	-	-	-
	BR-R550	-	-	-	Standard	-	-
	BR-R573	-	-	Option	-	-	-
	BR-R353	-	-	-	-	Standard	-

Model No.		R55C4	R55C4 FOR CARBON RIM	R55C4-1 FOR CARBON RIM	R55C2	R55C3
Brake shoe shape						
Cartridge type		×	×	×	×	×
Recommended rim		Aluminum	Carbon	Carbon	Aluminum	Aluminum
Characteristis	DRY Power	★★★★★	★★★★☆	★★★★☆	★★★★★	★★★★★
	WET Power	★★☆☆☆	★★★☆☆	★★★☆☆	★☆☆☆☆	★★☆☆☆
	Silence	★★★★☆	★★★☆☆	★★★☆☆	★★★★☆	★★★★☆
	Anti-fading	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
	Durability (on road)	★★★★★	★★★★★	★★★★☆	★★★★★	★★★★★
	Durability (muddy condition)	★★★★★	★★★★★	★★★★☆	★★★★★	★★★★★
	Anti-rim attack	★★★★☆	★★★★☆	★★★★☆	★★★★★	★★★★☆
	BR-9000	Standard	Option	Option	-	-
	BR-9010	Standard	Option	Option	-	-
	BR-6800	Standard	Option	Option	-	-
	BR-6810	Standard	Option	Option	-	-
	BR-5800	Standard	Option	-	-	-
	BR-5810	Standard	Option	Option	-	-
	BR-4700	-	-	-	-	-
	BR-3500	-	-	-	-	-
	BR-2400	-	-	-	-	-
	BR-CX70	-	Option	-	-	Option
	BR-CX50	-	-	-	-	-
	BR-R650	-	-	-	Standard	-
	BR-R561	-	-	-	-	Standard
	BR-R451	-	-	-	-	-

Model No.		R55C+1	R55CT4	M50T	R50T	R50T2	R50T4	R50T5
Brake shoe shape								
Cartridge type		×	×	-	-	-	-	-
Recommended rim		Aluminum	Aluminium	Aluminum	Aluminum	Aluminum	Aluminum	Aluminium
Characteristis	DRY Power	★★★★☆	★★★★☆	★★★☆☆	★★★★☆	★★★★☆	★★★★☆	★★★★★
	WET Power	★☆☆☆☆	★★★☆☆	★★★★☆	★☆☆☆☆	★☆☆☆☆	★★★☆☆	★★☆☆☆
	Silence	★★★★☆	★★★★☆	★★★★★	★★★★☆	★★★★☆	★★★★☆	★★★★☆
	Anti-fading	★★★★★	★★★☆☆	★★☆☆☆	★★★★★	★★★★★	★★★☆☆	★★★★★
	Durability (on road)	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★★
	Durability (muddy condition)	★★★☆☆	★★★☆☆	★★☆☆☆	★★★☆☆	★★★☆☆	★★★☆☆	★★★★☆
	Anti-rim attack	★★★★★	★★★☆☆	★★☆☆☆	★★★★★	★★★★★	★★★☆☆	★★★★☆
	BR-9000	-	Option	-	-	-	-	-
	BR-9010	-	Option	-	-	-	-	-
	BR-6800	-	Option	-	-	-	-	-
	BR-6810	-	Option	-	-	-	-	-
	BR-5800	-	Option	-	-	-	-	-
	BR-5810	-	Option	-	-	-	-	-
	BR-4700	-	-	-	-	-	Option	Standard
	BR-3500	-	-	-	-	Standard	Option	-
	BR-2400	-	-	-	-	Standard	Option	-
	BR-CX70	Standard	Option	-	-	-	-	-
	BR-CX50	-	-	-	-	Standard	-	-
	BR-R650	-	Option	-	-	-	-	-
	BR-R561	-	Option	-	-	-	-	-
	BR-R451	-	-	-	-	Standard	-	-

Brake shoe recommendation to rim width



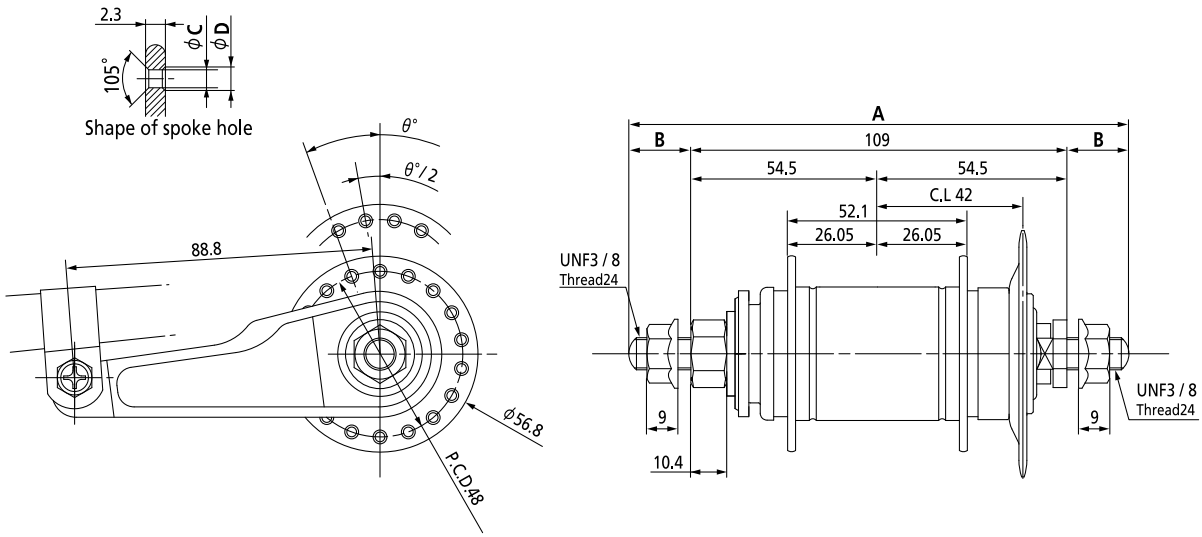


Model No.	Rim width
R55C4 / R55C4 for Carbon rim	19-26 mm
R55C3 / R55C3 for Carbon rim	
R55C4-1 for Carbon rim	19-28 mm

Dimensions

C-204

CB-E110



A (mm)	B (mm)	Spoke hole	θ	C (mm)	D (mm)
145	18.0	20H	36°	2.8	4.0
		28H	25°43′		
		36H	20°		
		24H	30°	2.45	3.5
		36H	20°	3.1	4.3
150	20.5	36H	20°	2.8	4.0
158	24.5	20H	36°	2.8	4.0
		28H	25°43′		
		36H	20°		
		24H	30°	2.45	3.5
		36H	20°	3.1	4.3
165	28.0	20H	36°	2.8	4.0
		28H	25°43′		
		36H	20°		
		24H	30°	2.45	3.5
		28H	25°43′	3.1	4.3
		36H	20°		

Recommended gear ratio

C-205

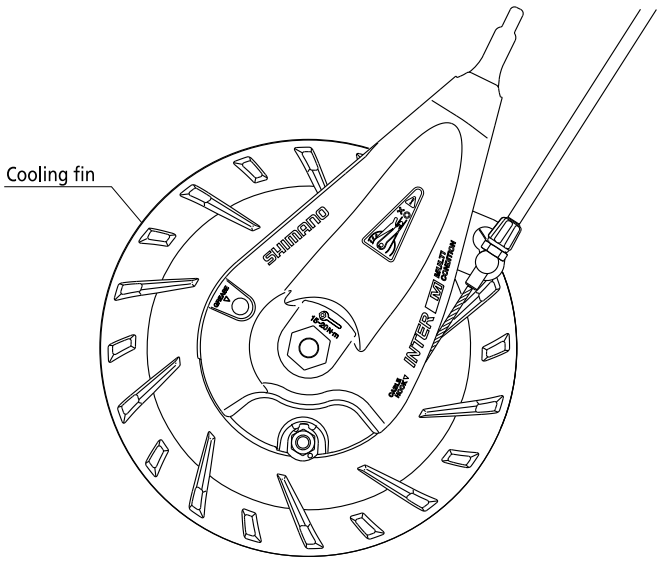
CB-E110

Recommended gear ratio: 2.2-2.4 (number of teeth front / number of teeth rear)

Specifications

C-207

Hub roller brake line-up C-208



Sales area	Model No.			Structure	Cooling fin diameter (mm)	Brake shoe design	Braking power		Heat dissipation	Surface treatment
	Rear	Front					w/BL-IM65,C6000	w/BL-C6010		
		Front fork	Disc brake mount							
All	BR-IM81-R	BR-IM81-F	BR-IM86	Hyper	180	V-shape	1.3	1.3	2.3	1.2
	BR-C6000-R	BR-C6000-F	–	Hyper	150	V-shape		(Front)1.7 (Rear)1.3	1.4	1.2
	BR-C3010-R	BR-C3010-F	–	Normal	140	Flat shape	1	(Front)1.3 (Rear)1.0	1.2	1.2
	BR-C3000-R	BR-C3000-F	–	Normal	122				1.0	1.0
Japan	BR-IM31 (fin)	BR-IM31 (fin)	–	Normal	90	Flat shape	1	1.0	1.0 (front) Less than 1.0 (rear)	0.7
	BR-IM31	BR-IM31	–	Normal	No disc				Less than 1.0	0.7
	BR-IM35-R	BR-IM35-F	–	Normal	160				1.4	0.7

Performance index rating uses BR-C3000 brake unit as a reference value of 1.
Testing conditions
Gradient: 6%
Weight(bicycle and rider): 100kg
Speed: 25km/h
Distance: Approx.10km

Lock nut (washer) variation for hub roller brake system C-209

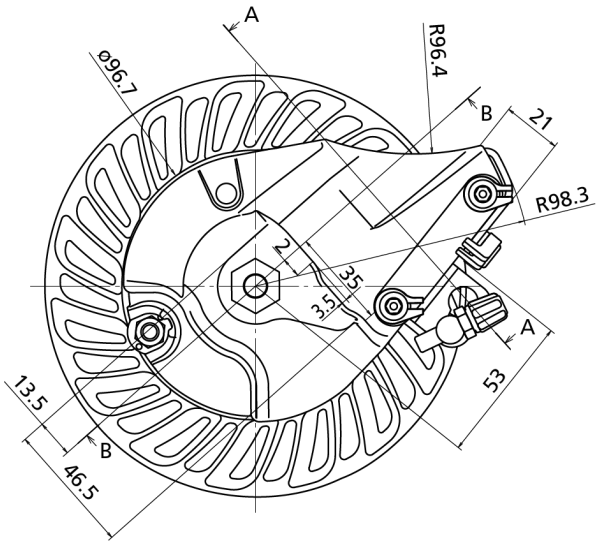
Hub roller brake is delivered including locknut.
There are several variations for locknut depend on width and screw size.

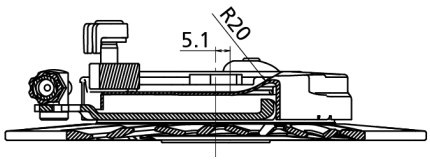
	Usage	Thickness (mm)	Screw size	Resin insert type	
Front	For NUT type of hub	3.5	M9 × 1	-	-
	For QR type of hub	4.0	M10 × 1	-	-
Rear	For INTER-8, INTER-5	7.2	-	X	BR-C3000-R BR-C3010-R BR-C6000-R BR-IM81-R
	For INTER-7, INTER-3	8.2	-	X	
	For FH-IM70 / FH-IM45	8.2	-	X	
	For INTER-8 / For INTER-5	7.2	BC3 / 8	-	-
	For INTER-7, INTER-3	8.2	BC3 / 8	-	-
	For FH-IM70 / FH-IM45	8.2	M10 × 1	-	-
	For INTER-3 O.L.D.: 127 mm spec.	9.7	BC3 / 8	-	-
	For INTER-3, SG-3R75	7.2	BC3 / 8	-	-

X: Yes

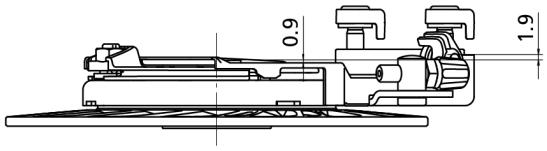
Hub roller brake dimensions

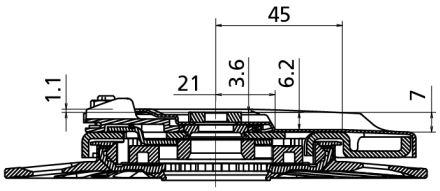
BR-IM86-F





Section. A-A

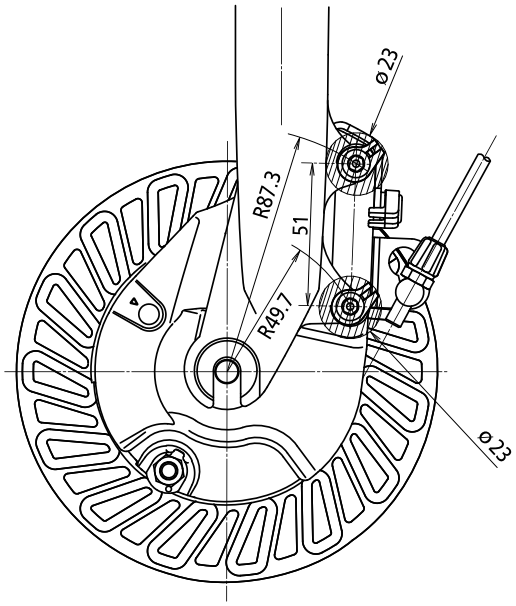




Section. B-B

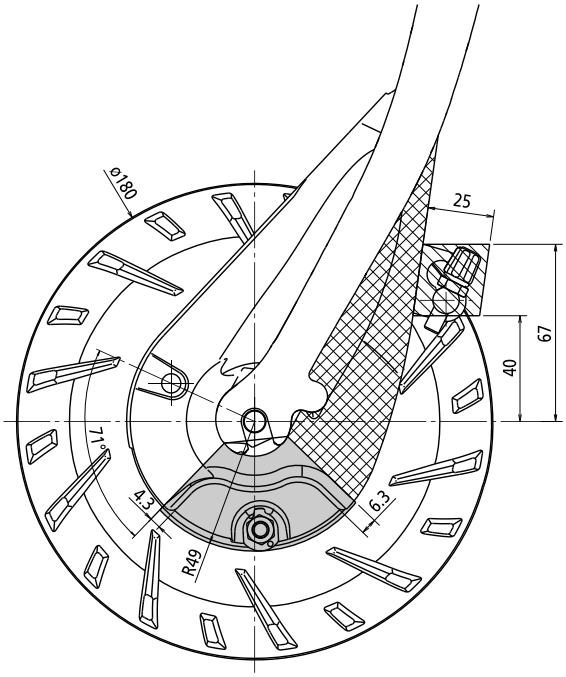
Interference with mudguard

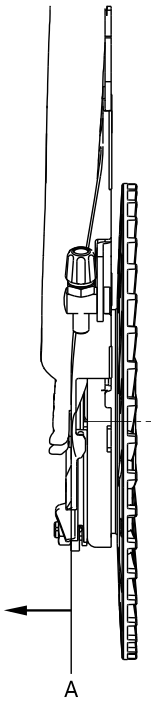
To avoid interference with mudguard, ensure that there is no projecting parts in X-hatching area.



Interference between Front fork and brake

BR-IM81-F

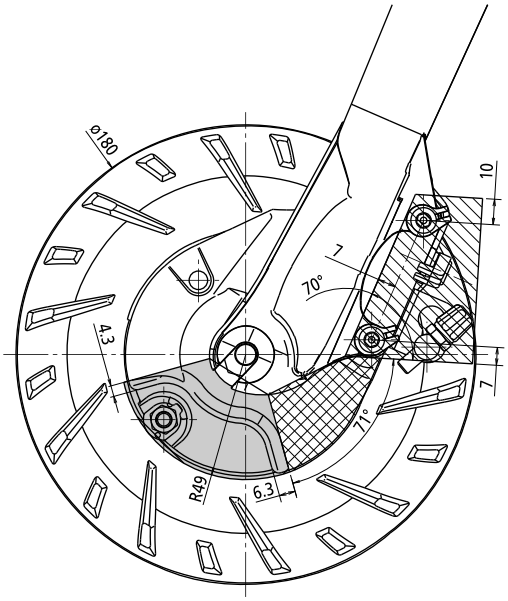


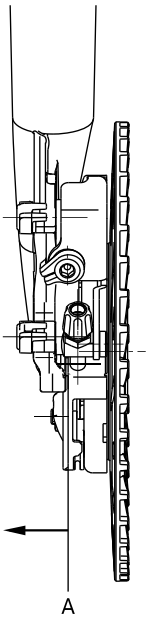


Please refer to the following dimensions as the direction of A side

0 mm or less | 6.5 mm or less | 3 mm or less | Other 2 mm or less

BR-IM86-F





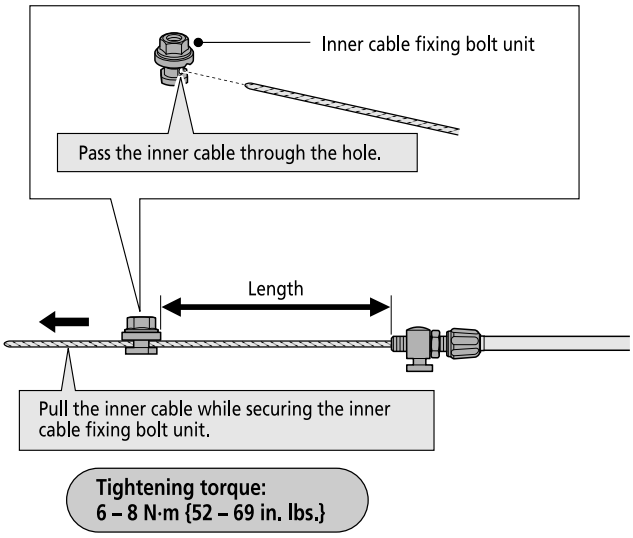
Please refer to the following dimensions as the direction of A side

0 mm or less | 6.5 mm or less | +20 mm or less | Other 2 mm or less

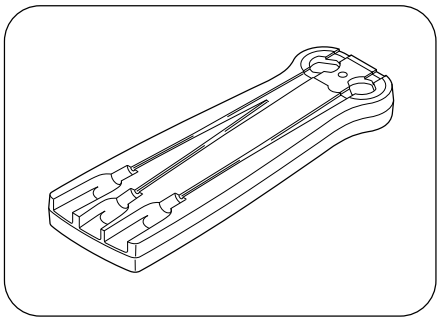
Installing the brake cable

Inner cable fixing bolt C-214

Attach the inner cable fixing bolt unit to the inner cable.



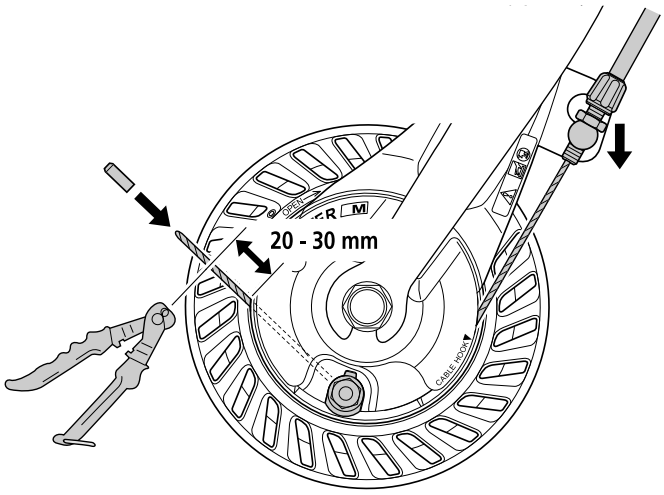
For easy assemble use TL-IM21.



Model No.	Length (mm)
BR-IM86-F	101
BR-IM81-F / BR-C6000-F / BR-C3010-F / BR-C3000-F	109
BR-IM81-R / BR-C6000-R / BR-C3010-R / BR-C3000-R	99

Outer casing holder C-215

Check that the outer casing holder is securely sitting at the bottom of the hooking hole of the brake arm, and then cut off any excess length of inner cable. After this, install the inner end cap.



Note: Set the inner end cap so that it does not touch the link and the spokes.

Brake lever

In order to get the best performance from the Shimano roller brake, be sure to use Shimano brakes cables and brake levers as a set.

The distance of movement for the inner cable must be 16.5 mm or more when the brake lever is depressed. If it is less than 16.5 mm, braking performance will suffer, and the brakes may fail to work.

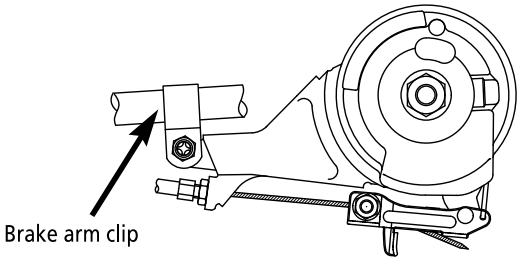
Compatibility between hubs and roller brakes

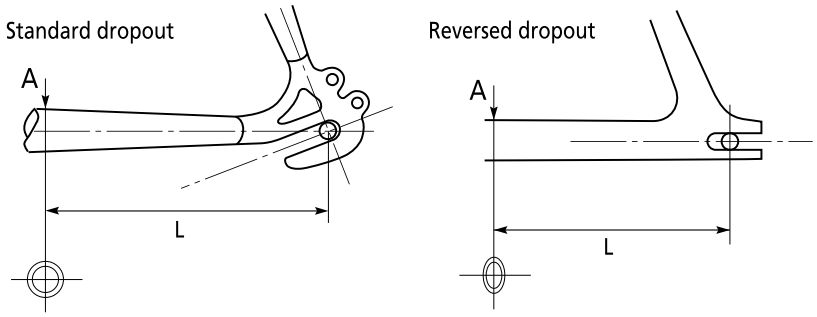
		Hub		Hub Dynamo				
	Model No.	HB-IM70	HB-IM40	DH-C6000-3R / DH-C6000-2R / DH-C6000-1R (NUT type only)				DH-2R30J
	Modulator Level	Hyper	Normal	Hyper		Normal		Normal
Sales Area	Hub type Model No.	QR	NUT	QR	NUT	QR	NUT	NUT
All	BR-IM86-F BR-IM81-F BR-C6000-F	◎	○	◎	◎	○	○	○
	BR-C3010-F	not good	◎	not good	not good	◎	◎	◎
	BR-C3000-F	not good	◎	not good	not good	◎	◎	◎
JPN	BR-IM31-F	not good	◎	-				◎
	BR-IM35-F	not good	◎					◎

◎: Recommended combination
○: Usable

Chainstay dimensions for securing rear brake arm clip

The positions of the rear brake arm clip for the INTER-M Brake and the Chainstay sizes which are compatible with the brake arm clip are shown below.





Model No.	L (mm)
BR-IM81-R BR-C6000-R BR-C3010-R BR-C3000-R	98
BR-IM35-RF BR-IM31-R	111

The following are the available sizes and variations for the brake arm clip at position A.

SIZE	Standard	Coating spec.	Stainless spec.	Black Coating spec.
ø3 / 4	X	X	X	-
ø5 / 8	X	X	X	X
ø11 / 16	-	X	X	X
ø15mm	-	X	X	-
ø19mm	X	-	-	-
ø22mm	X	X	X	X
Small	X	-	-	-
Large	X	-	-	-
Oval	X	-	-	-

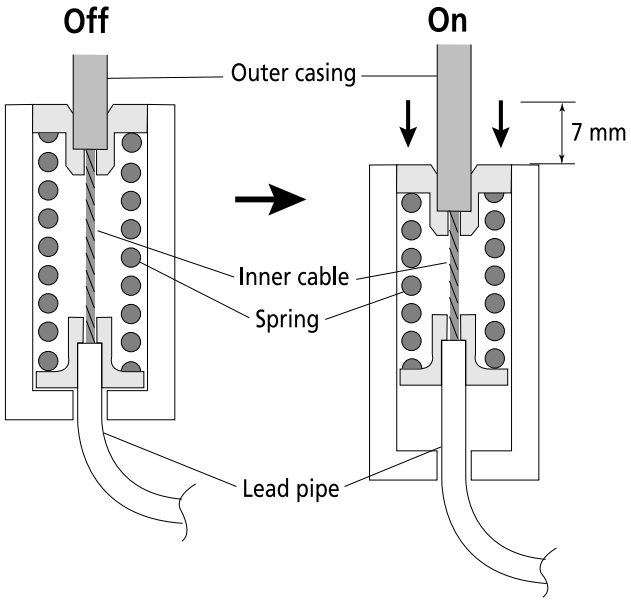
X: Yes

Power modulator for V-BRAKE

C-220

SM-PM40 / SM-PM70

On braking, 7 mm of the lead pipe is drawn into the power modulator. Adjust to make allowance for this length of outer cable.

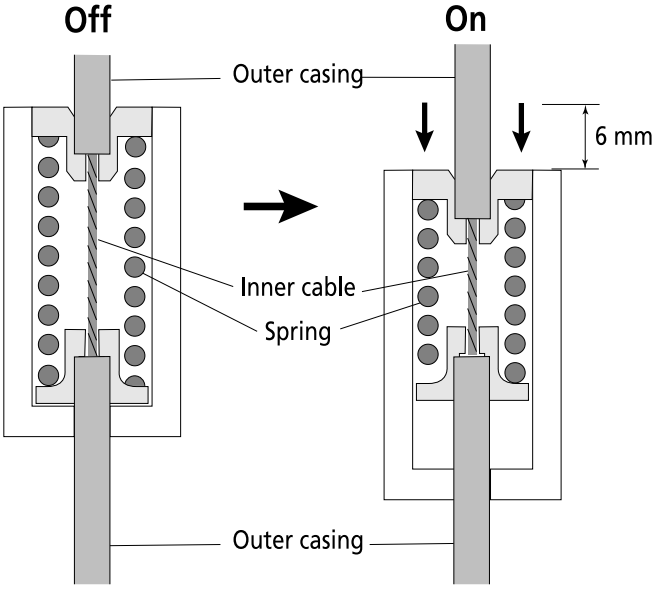


Power modulator for Mechanical Disc brake

C-221

SM-PM50

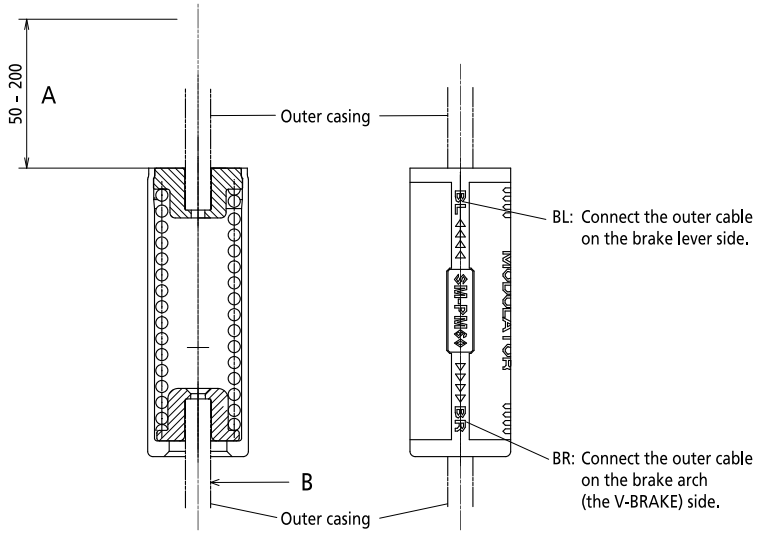
On braking, 6 mm of the outer cable is drawn into the power modulator.
Adjust to make allowance for this length of outer cable.



Power modulator for all V-BRAKE

SM-PM60

On braking 12 mm of the outer cable is drawn into the power modulator.
Adjust to make allowance for this length of outer cable.

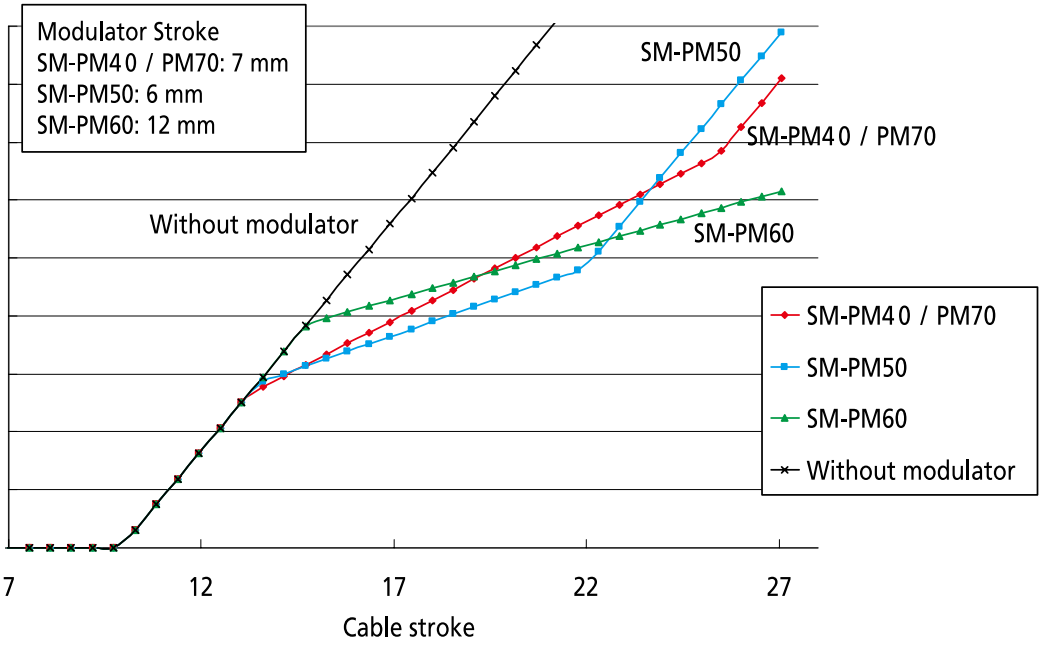


A: Assemble the SM-PM60 in the place 50 to 200 mm away from the brake lever.
B: Give attention to wire the outer cable straight and avoid its touching the frame.

NOTE

Use the outer cable of which length is 26.2 mm shorter than those, which are not with the power modulator.

Braking performance comparison

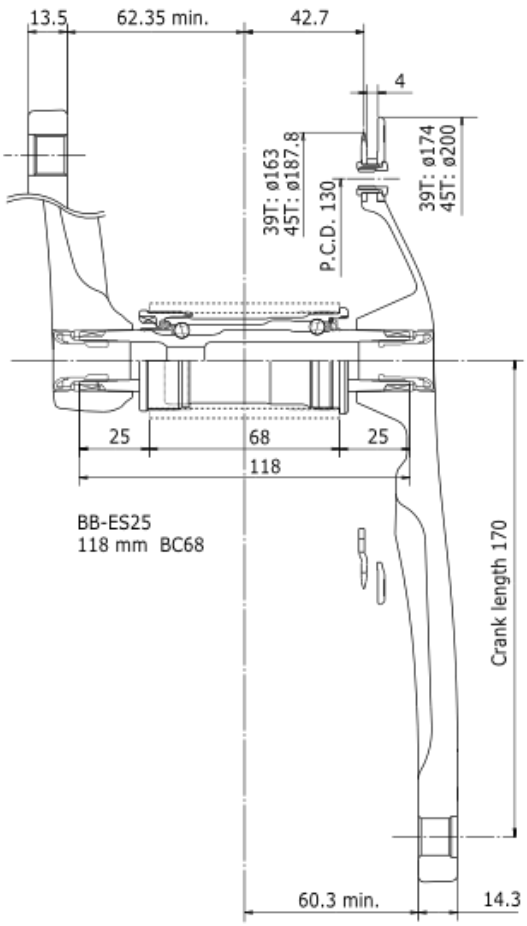


SM-PM40 / SM-PM70: For MTB / Trekking use
SM-PM50: For mechanical disc brake with 3 or 4 finger brake lever
SM-PM60: For city use, compatible with any Shimano V-BRAKE

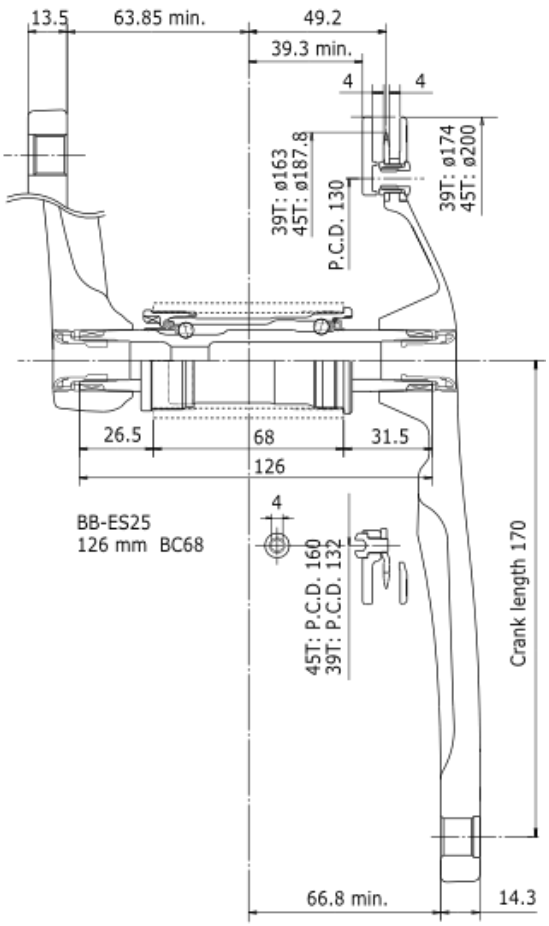
Dimensions

FC-S501

Single chain guard



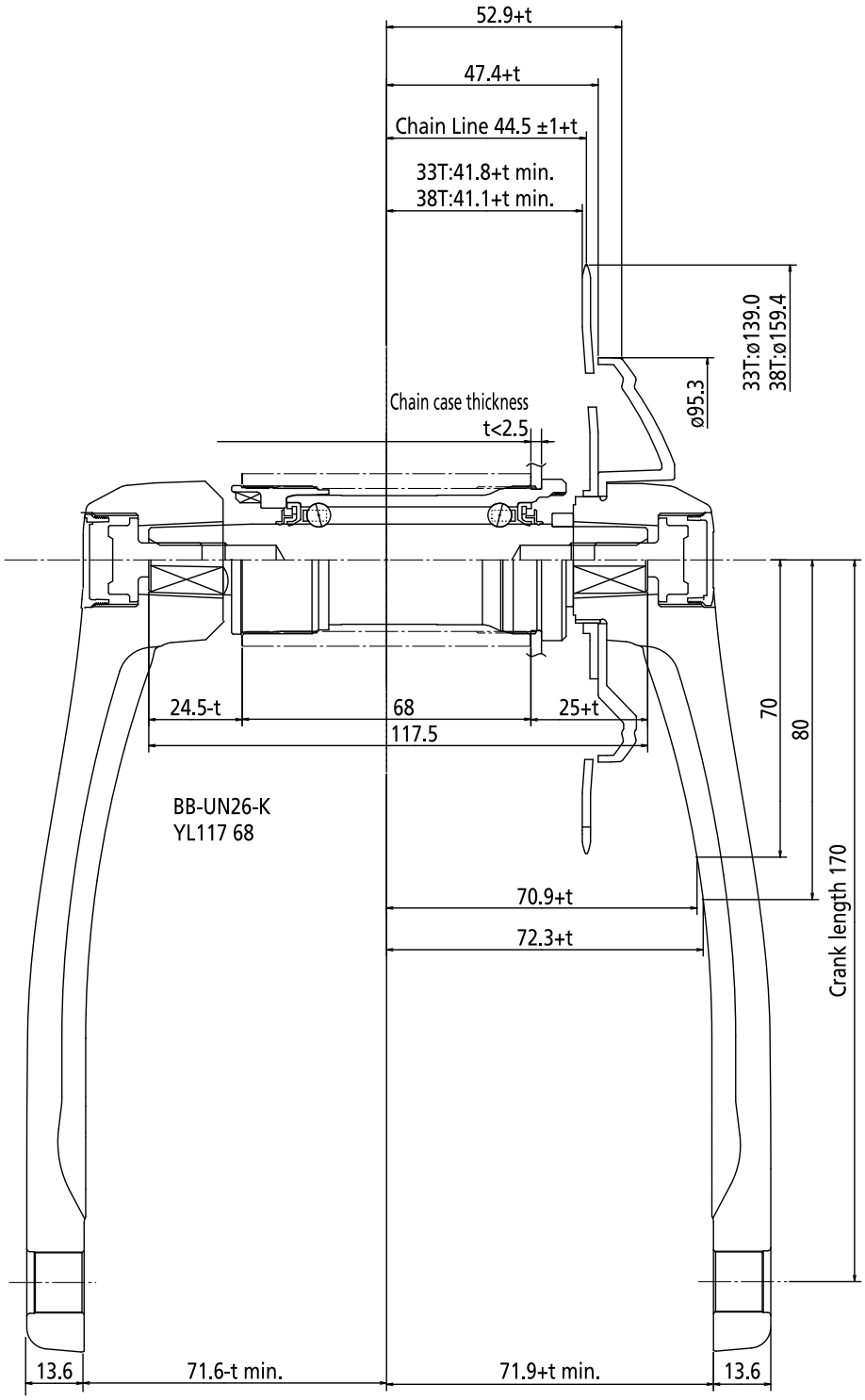
Double chain guard



Chain case dimensions

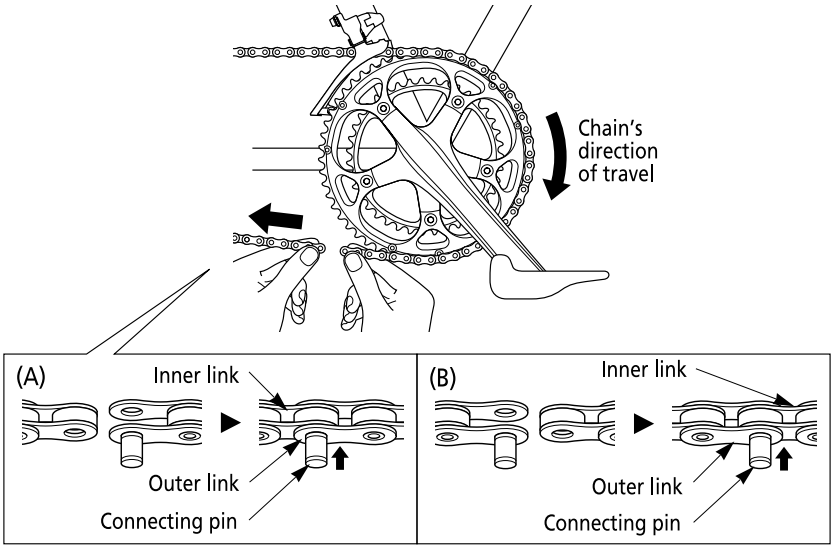
Use the following values as a reference for creating the chain case.

FC-C6000



How to connect chain

C-228



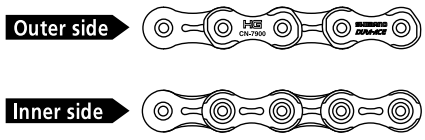
NOTE

As illustrated in Fig (A), we strongly recommend to set the connecting pin in the hole of the outer link on the front side in the direction of travel.
The chain's level of strength is enhanced compared to the method in Fig (B).

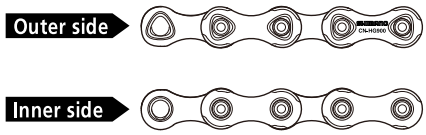
Directional chain C-229

In order to obtain good gear shifting performance, directional chains have a forward side and a reverse side, and the sides are marked so that the chain will face the correct way when installed.

CN-6701



CN-HG900-11 / CN-HG701-11 / CN-HG600-11 / CN-HG95 / CN-HG54

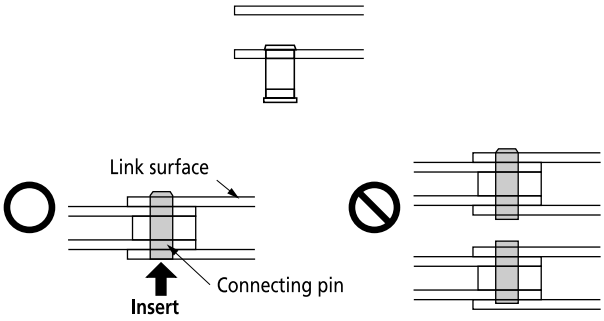


Note on the connecting C-230

11, 10-speed chain (end pin type)

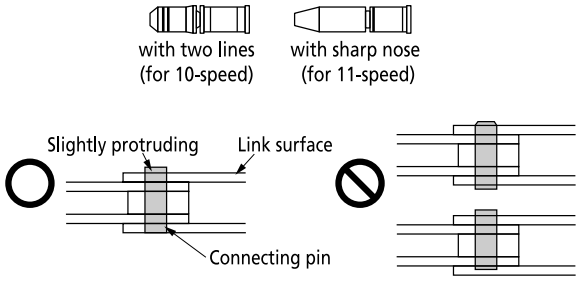
3

It is recommended to use TL-CN26 (air gun type chain connector) for connecting end pin type.
Make sure that the connecting pin is aligned with the outer link surface from the side that the pin is inserted. It should feel smooth and flush when you run your finger over it. The pin will protrude slightly on the backside after the break off pin is removed.



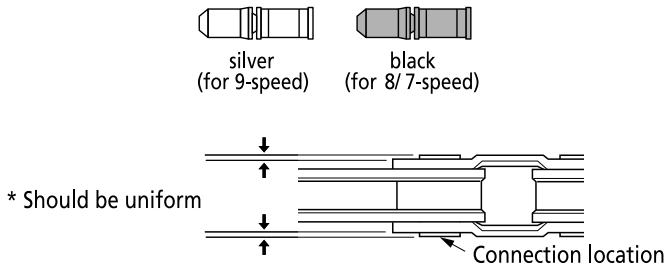
11, 10-speed chain (ampoule pin type)

- Make sure that the connecting pin is aligned with the outer link surface from the side that the pin is inserted. It should feel smooth and flush when you run your finger over it. The pin will protrude slightly on the backside after the break off pin is removed.
- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin.
- When readjusting the length of the chain, be sure to insert the reinforced connecting pin from the same side as the chain cutter was inserted (the same direction as when the chain was cut).



9, 8, 7-speed

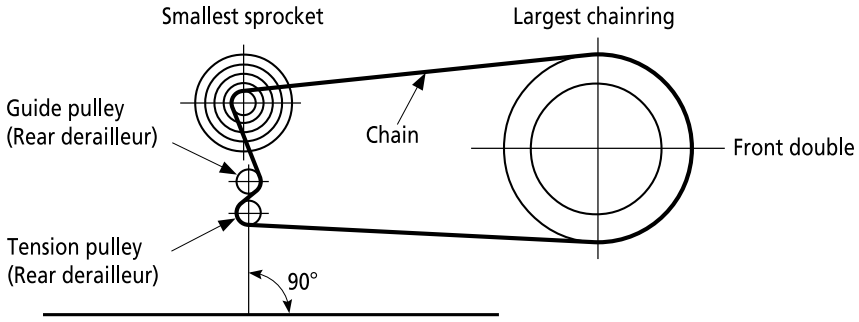
- Be sure to check that the connecting pin protrudes uniformly from both sides of the chain after the chain has been joined.
- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin.
- When readjusting the length of the chain, be sure to insert the reinforced connecting pin from the same side as the chain cutter was inserted (the same direction as when the chain was cut).



Chain length

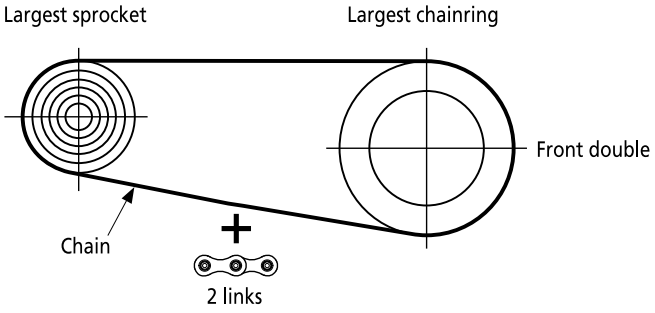
Assemble with sprocket max. 27T and smaller C-232

Right angle to the ground

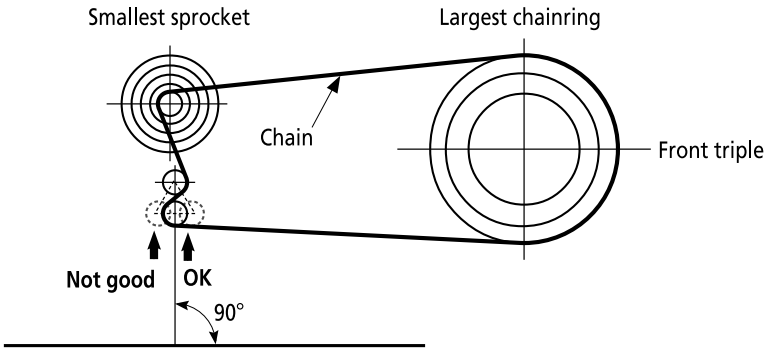


Assemble with sprocket max. 28T or more C-233

Add 2 links (with the chain on both the largest sprocket and the largest chainring)

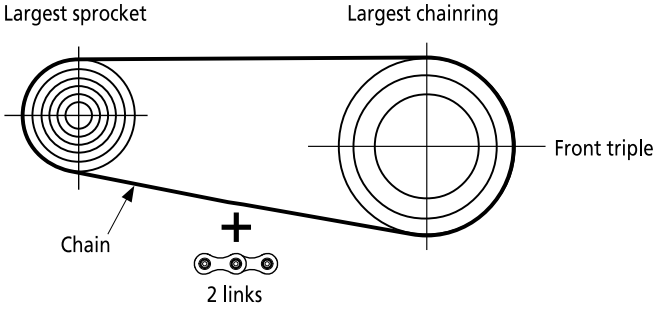


For front triple, assemble with sprocket max. 30T and smaller C-234



For front triple, assemble with sprocket max. 32T or more C-235

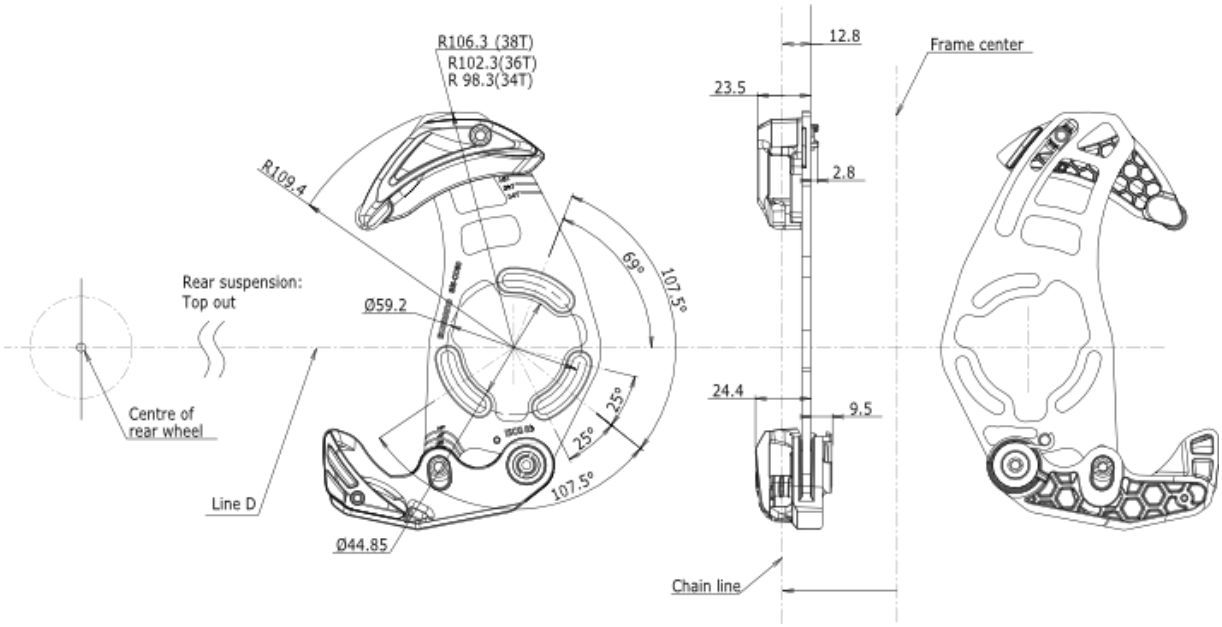
Add 2 links (with the chain on both the largest sprocket and the largest chainring)



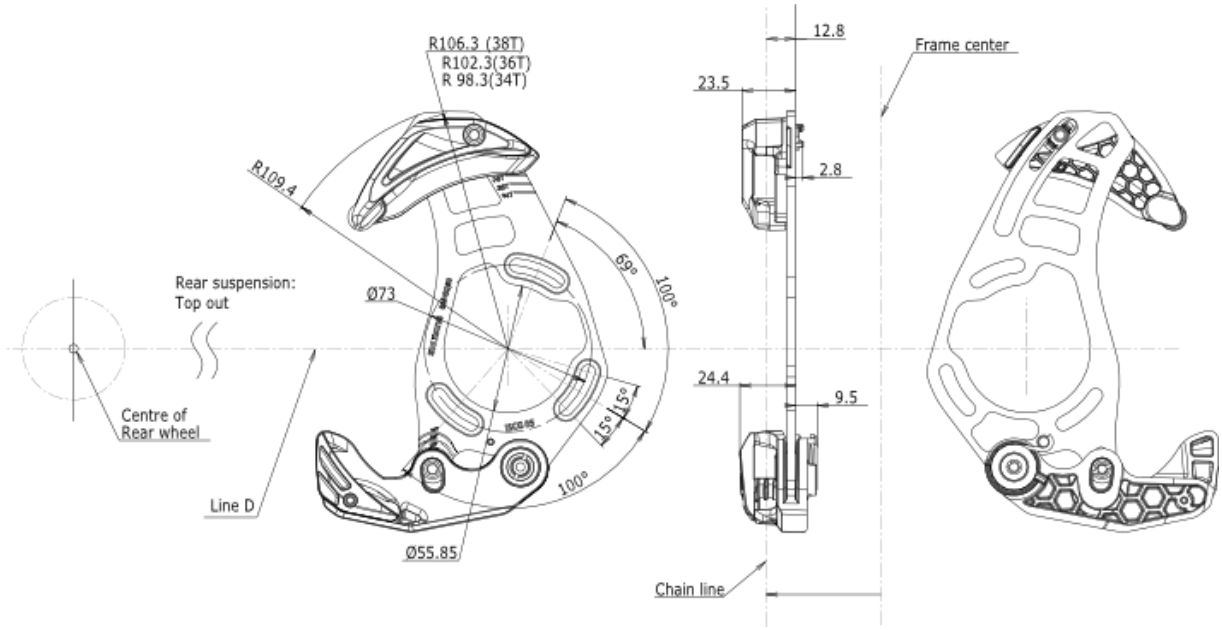
Dimensions

C-237

ISCG03



ISCG05



SM-CD50 compatible crankset C-238

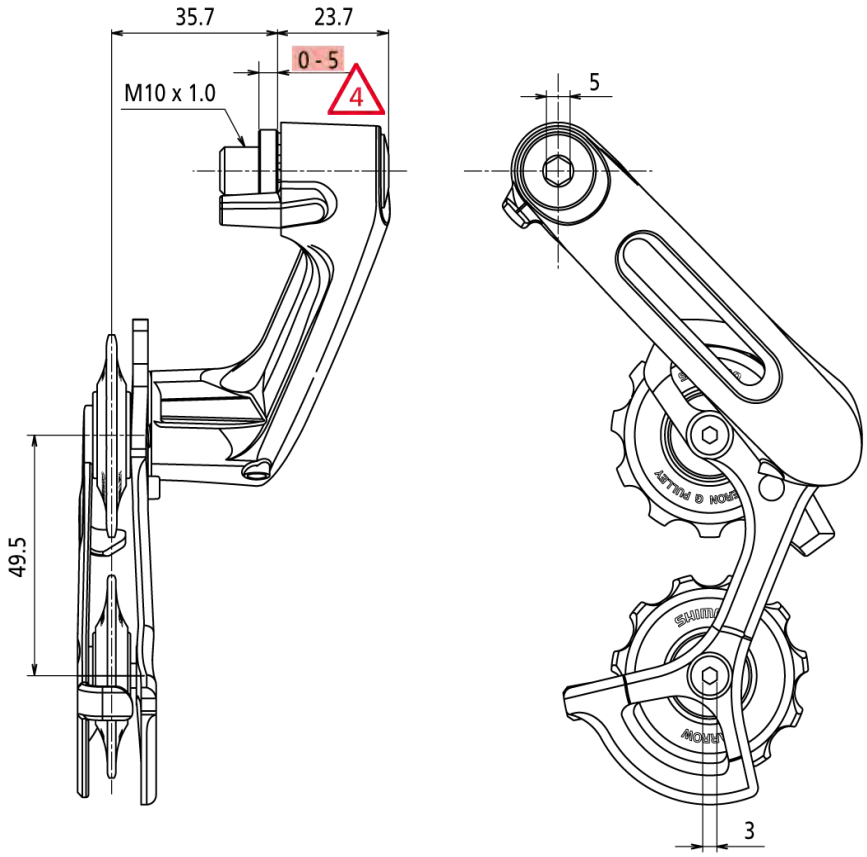
Spec.	Speed	Crank set **
W / guard	9	FC-M810 / FC-M815 / FC-M665* / FC-M545*
	10	FC-M820 / FC-M825 / FC-M640 / FC-M645
W / O guard (guide only)	9	Crank* with SM-CR81 (chainring for single gear)
	10	Crank* with SM-CR82 (chainring for single gear)
	11	FC-M9000-1 / FC-M9020-1/ FC-M8000-1

* When it is used with single gear chainring
** Compatible front chainring teeth 34/36/38T

CT-S500

C-240

Dimensions C-241

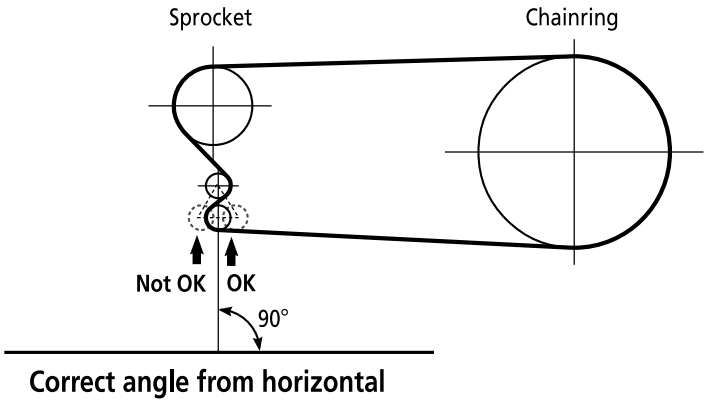


Specifications C-242

Series name		ALFINE
Model No.		CT-S500
Speed		Single
Compatible CS		CS-S500
Max. front difference		12T
Max. rear sprocket		20T
Min. rear sprocket		18T
Dropout		Vertical type (straight) drop end
Direct attachment		–
Structure		Double pulley
Body	Material	Aluminum
	Finish	Painting

Chain length C-243

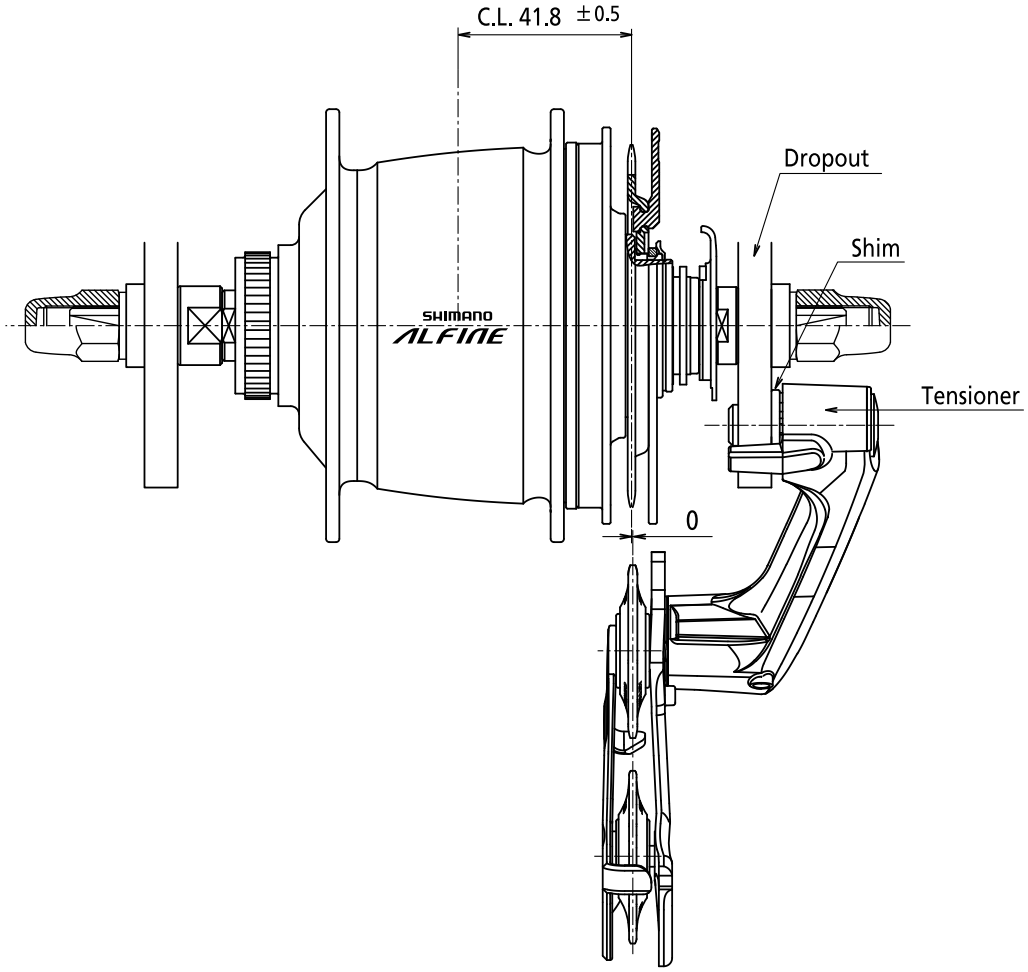
When using the CT-S500, there should be an angle of 90° or less between the geared hub and a line drawn through the guide pulley and tension pulley when the chain is installed to the chainring and sprocket.



Correct angle from horizontal

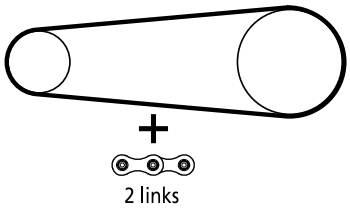
Axial direction adjustment C-244

Alignment of the sprocket and the guide pulley can be adjusted by adding a shim between the dropout and tensioner.



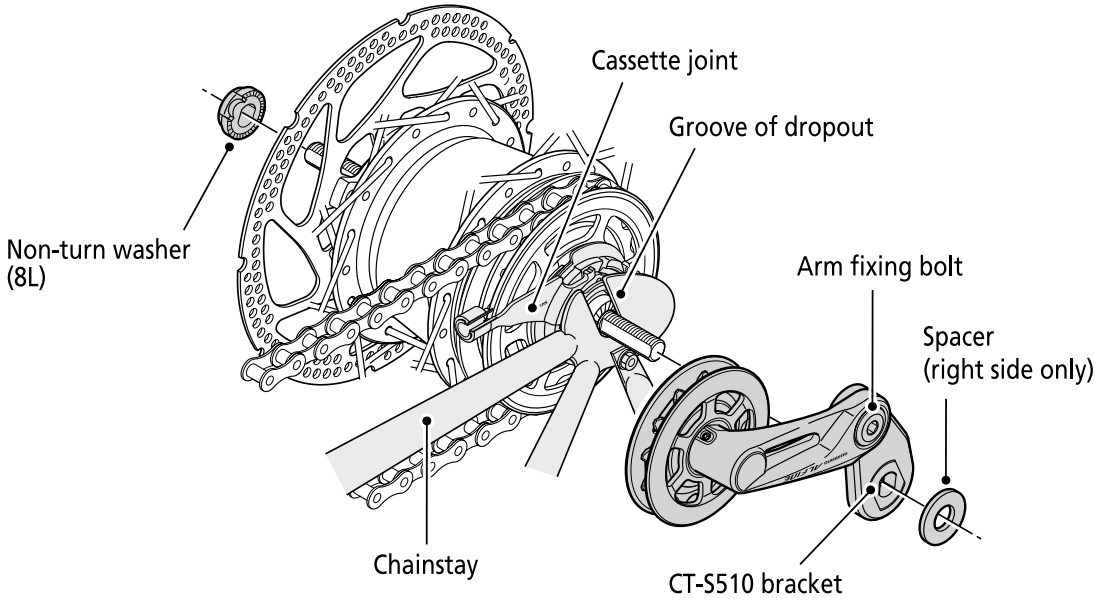
Chain length C-246

Mount the chain onto the chainring and the sprocket, and then adjust the length of the chain by adding two links, or four links at a maximum.



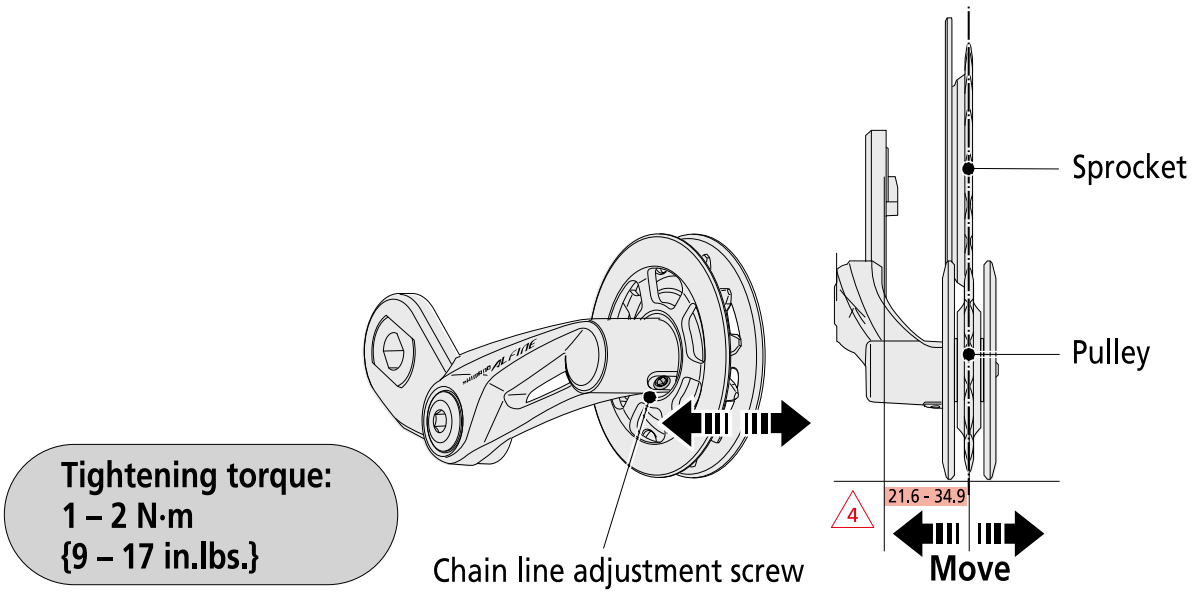
Installation to the frame C-247

1. Mount the chain onto the sprocket, and then set the hub axle into the dropouts.
2. Place the CT-S510 bracket onto the right side of the hub axle, and place the non-turn washer onto the left side of the hub axle. At this time, turn the cassette joint so that the projecting parts of the bracket and non-turn washer fit into the grooves of the dropouts. If this is done, the cassette joint can be installed so that it is almost parallel to the chainstay.
(Loosen the arm fixing bolt at this time so that the pulley does not interfere with other parts such as the frame.)
3. Place the accessory 2 mm spacer onto the right side (outside of the chain tensioner), and then secure the wheel to the frame with the cap nuts. (Recommended tightening torque: 30 - 45 N·m {263 - 393 in. lbs.})



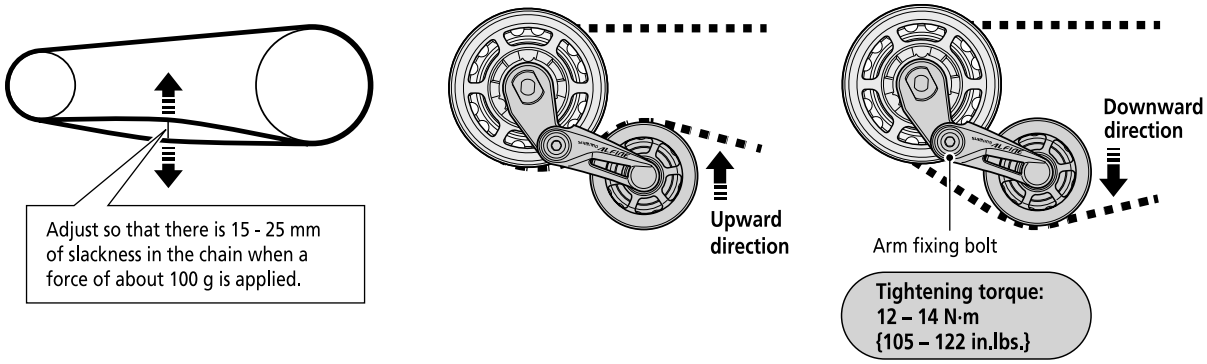
Adjustment of the chain line C-248

1. Loosen the chain line adjustment screw.
2. Move the pulley sideways until the sprocket and pulley are in a straight line.
3. Tighten the chain line adjustment screw to secure the pulley.



Adjustment of the chain tension C-249

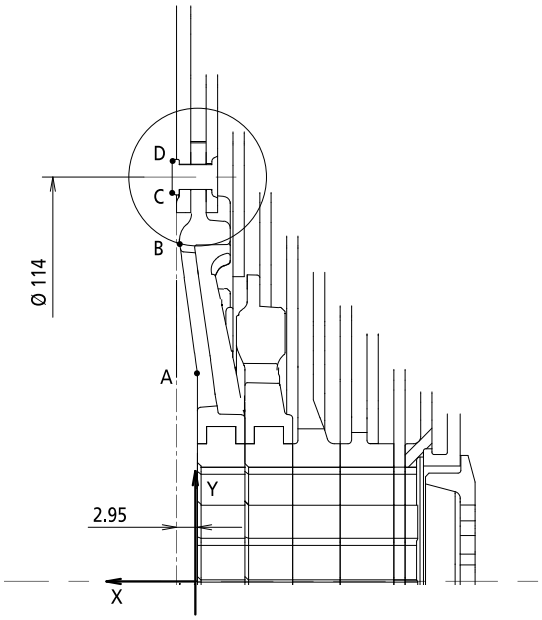
1. Mount the chain onto the pulley, and then turn the arm upward so that there is 15 - 25 mm of slackness in the chain when tension is being vertically applied to the chain. (If tension cannot be applied to the chain in the upward direction, apply the tension in the downward direction instead. If tension cannot be applied in either the upward or downward direction, add two links to the chain and apply the tension in the downward direction.)
2. Tighten the arm fixing bolt to secure the arm.
3. Turn the crank arm and check that the wheel turns smoothly with no abnormal noise.



Cautionary points for installing 11-speed cassette Sprocket C-251

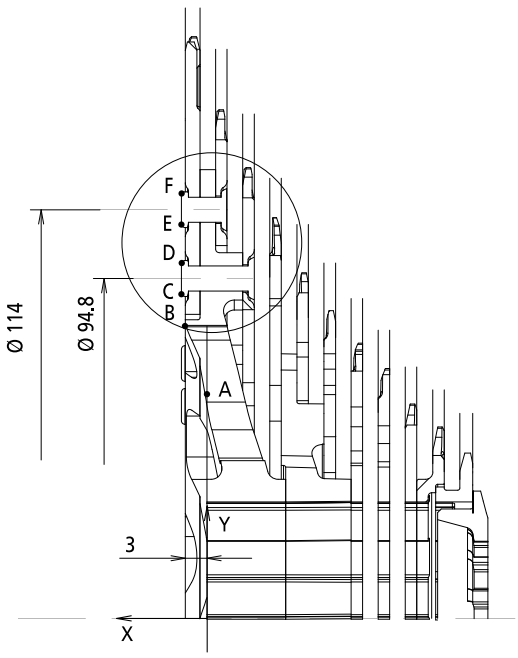
11-speed cassette Sprocket C-252

CS-M9000
6
CS-M9001



	X mm	Y mm (ø)
A	0	60
B	2.55	95
C	3.55	109
D	3.55	119

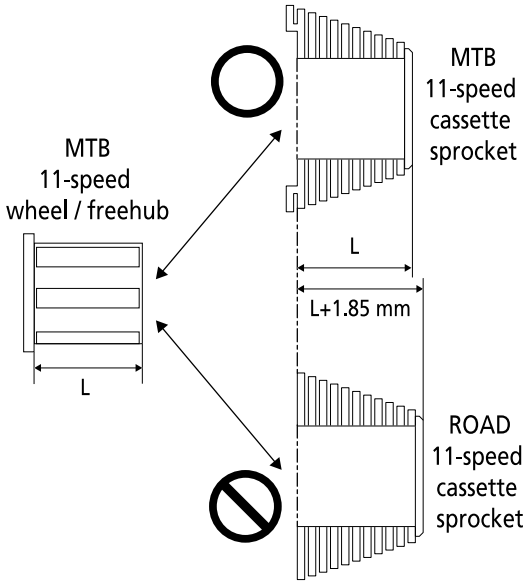
2
CS-M8000



	X mm	Y mm (ø)
A	0	59.4
B	3.00	82.3
C	3.55	89.8
D	3.55	99.8
E	3.55	109.0
F	3.55	119.0

11-speed freehub dimension C-253

MTB 11speed wheel and freehub have same serration with 10, 9-speed freehub.



Compatibility between rear derailleur and cassette sprocket gear teeth [ROAD]

C-254

11-speed C-255

Gear	11-speed					
	RD-9070	RD-9000	RD-6870		RD-6800 / RD-5800	
	SS	SS	SS	GS Front double	SS	GS Front double
11-23T	X	X	X	-	X	-
11-25T	X	X	X	-	X	-
11-28T	X	X	X	X	X	X
11-32T	-	-	-	X	-	X
12-25T	X	X	X	-	X	-
12-28T	X	X	X	X	X	X
14-28T	X	X	X	-	X	-

10-speed C-256

Gear	10-speed					
	RD-4700			RD-4601		
	SS	GS Front double	GS Front triple	SS	GS Front double	GS Front triple
11-25T	X	-	X	X	-	X
11-27T	X	-	X	X	X	X
11-28T	-	X	X	X	X	X
11-32T	-	X	X	-	X	-
11-34T	-	X	-	-	-	-
12-25T	X	-	X	X	-	X
12-27T	X	-	X	X	X	X
12-28T	X	X	X	X	X	X
12-30T	-	X	X	X	X	X
13-25T	X	-	-	X	-	X
14-25T	X	-	-	X	-	X

9-speed C-257

Gear	9-speed	
	RD-3500	
	SS	GS
11-25T	X	X
11-30T	X	X
11-32T	X	X
12-25T	X	X
12-27T	X	X
13-25T	X	X
14-25T	X	X

8-speed C-258

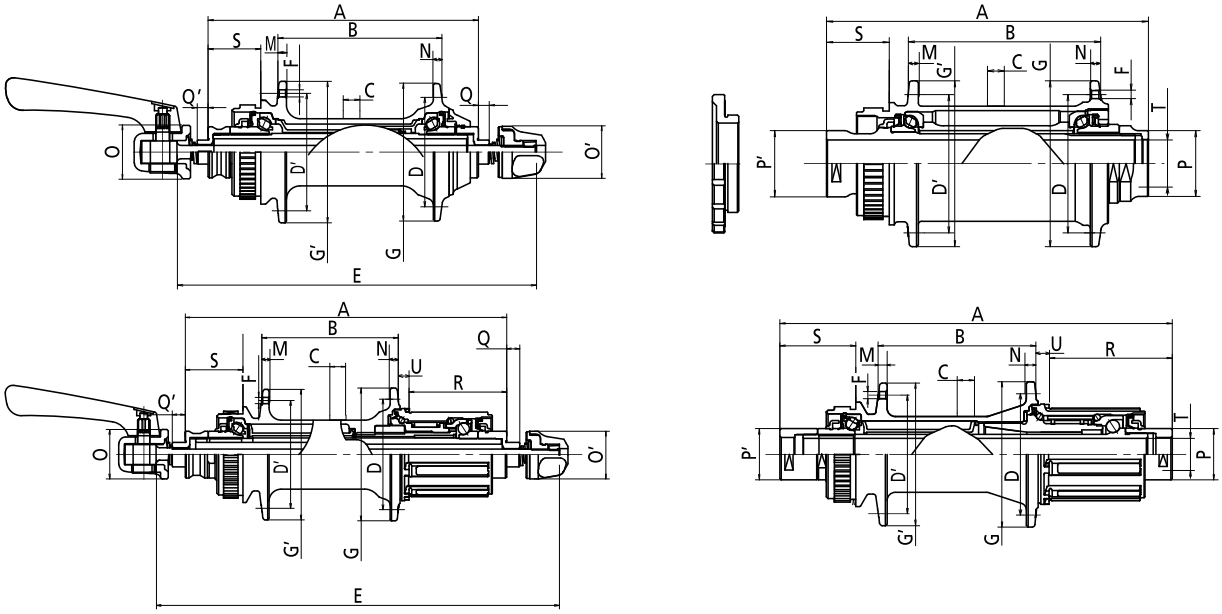
Gear	8-speed	
	RD-2400	
	SS	GS
11-28T	X	X
11-30T	X	X
11-32T	X	X
12-25T	X	X
13-26T	X	X

7-speed C-259

Gear	7-speed
	RD-A070
	SMARTCAGE
11-28T	X
12-28T	X
13-28T	X
14-28T	X

11-speed freehub dimension

C-261

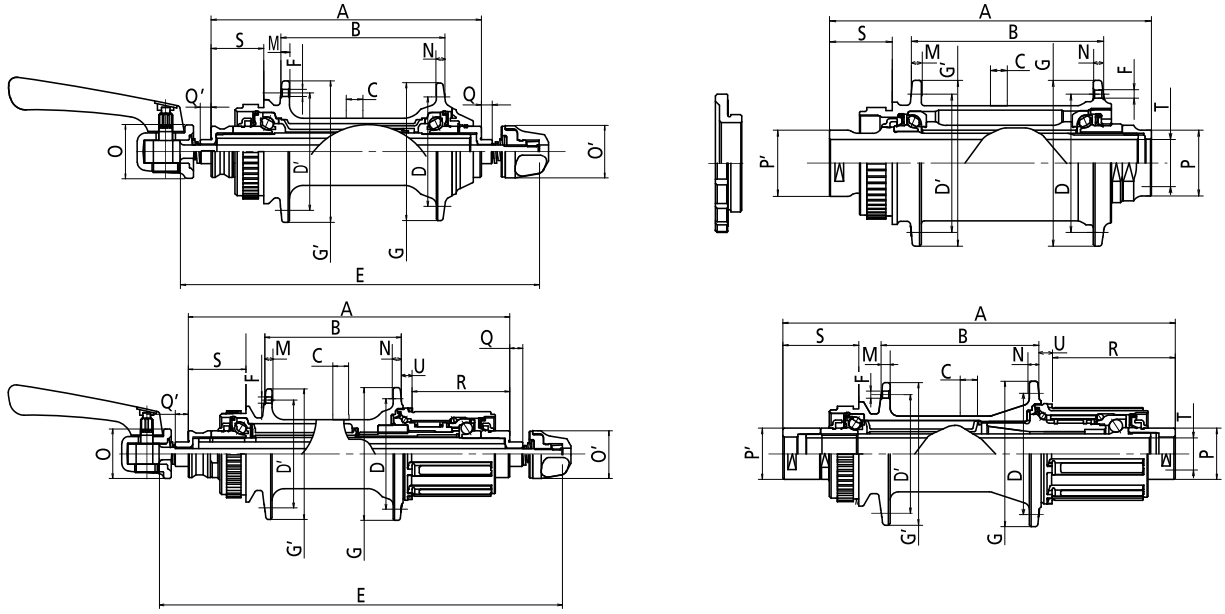


Model No.	Type	Center lock mount type	QR type	A O.L.D.	B Flange distance	C Off set	D P.C.D.1 (FH side)	D' P.C.D.2	E QR	F Spoke hole
HB-M9010	For disc brake	x	-	100	60.2	5.4	44	44	-	ø2.6
FH-M9000			x	135	57.4	6.6	45	44	168(173)	
FH-M9010			-	142					-	
HB-M8000	For disc brake	x	x	100	60.2	6	41	44	133	
HB-M8010			-		60.2	5.4	44	44	-	
FH-M8000			x	135	57.4	6.6	45	44	168(173)	
FH-M8010			-	142		6.4			-	
HB-M785			x	100	60.6	6.0	41	44	133	
FH-M785			x	135	57.4	6.6	45	44	168(173)	
HB-T780	For rim brake	-	x	100	71.6	-	40	40	133	
FH-T780				135	57.4	6.6	45	44	168(173)	
HB-M820	For disc brake	x	-	110	61.55	5.8	50	50	-	
FH-M820				135	57.4	6.4	45	44		
FH-M825				150	72.4					
FH-M828				142	57.4					
HB-M640				110	61.55	5.6	52	52	-	
FH-M640				135	57.4	6.4	45	44		
FH-M645				150	72.4					
FH-M648				142	57.4					
HB-M675			x	100	60.2	5.5	44		133	
HB-M678			-		59.8	5.3	47	47	-	
FH-M675			x	135	57.4	6.6	45	44	168(173)	
FH-M678			-	142		6.4			-	

(mm)
X: Yes

Model No.	Type	Center lock mount type	QR type	A O.L.D.	B Flange distance	C Off set	D P.C.D.1 (FH side)	D' P.C.D.2	E QR	F Spoke hole
HB-T670	For rim brake	-	x	100	71.6	-	38	38	133	ø2.6
HB-T675	For disc brake	x			60.2	5.3	44	44		
FH-T670	For rim brake	-		135	59.2	7.8	45	45	168(173)	
FH-T675	For disc brake	x			57.4	6.6		44		
HB-M615	For disc brake	x		100	60.2	5.6	44		133	
HB-M618			-		59.8	5.3			-	
FH-M615			x	135	57.4	6.6	45	45	168(173)	
FH-M618			-	142		6.4		44	-	
HB-T610	For rim brake	-	x	100	71.6	-	38	38	133	
FH-T610				135	59.2	7.8	45	45	168(173)	
HB-M4050	For disc brake	x	x	100	60.2	5.6	44	44	133	
FH-M4050				135	57.4	6.6	45	45	168(173)	
HB-T4000	For rim brake	-		100	71.6	0	38	38	133	
FH-T4000				135	59.2	7.6	45	45	168(173)	
HB-M3050	For disc brake	x		100	60.2	5.5	44	44	133	
FH-M3050				135	57.4	6.6	45	45	166(170)	
HB-T3000	For rim brake	-		100	71.6	0	38	38	133	
FH-T3000				135	59.2	7.5	45	45	166(170)	
HB-RM35	For disc brake	x		100	60.2	5.5	44	44	133	
FH-RM35				135	57.4	6.6	45	45	166(170)	
HB-RM33				100	60.2	5.3	44	44	129	
FH-RM33				135	57.4	6.8	45	45	166(170)	
HB-TX505	For disc brake	x		100	60.2	5.3	44	44	129	
FH-TX505-8				135	57.4	6.8	45	45	166(170)	
HB-TX800-QR	For rim brake	-		100	71.6	0	38	38	129(133)	
HB-TX800-NT									-	
FH-TX800-QR				135	59.2	7.7	45	45	166(170)	
FH-TX800-NT									-	
FH-RM30-7-QR	For rim brake	-	x	135	59.2	5.5	45	45	166(170)	
FH-RM30-7-NT			-						-	

(mm)
X: Yes



Model No.	G Flange diameter (FH side)	G' Left flange diameter	M / N Flange thickness	O	O'	P	P'	Q	Q'	R	S	T	U Low gear contact face to flange
HB-M9010	52.8	52.8	3.2 / 3.2	-	-	ø21.0	ø21.0	-	-	-	19.5	15	-
FH-M9000	53.8	52.8	3.2 / 3.5	ø20	ø19.5	-	-	5.5	5.5	40.75	24.25	-	4.65
FH-M9010	53.8	52.8	3.2 / 3.5	-	-	ø19.0	ø19.0	-	-	44.25	27.75	12	
HB-M9010	52.8	52.8	3.2 / 3.2	-	-	ø21.0	ø21.0	-	-	-	19.5	15	-
HB-M8000	52.8	52.8	3.2 / 3.2	ø20	ø19.5	-	-	4.0	4.0	-	19.5	-	-
HB-M8010				-	-	ø21.0	ø21.0	-	-			15	
FH-M8000	53.8	52.8	3.2 / 3.5	ø20	ø19.5	-	-	5.5	5.5	40.75	24.25	-	4.7
FH-M8010				-	-	ø19.0	ø19.0	-	-	44.25	27.75	12	
HB-M785	51.4	52.8	3.2 / 3.2	ø20	ø19.5	-	-	4.0	4.0	-	19.5	-	-
FH-M785	53.8		3.2 / 3.5	ø20	ø19.5	-	-	5.5	5.5	40.75	24.25	-	4.7
HB-T780	50.4	50.4	3.2 / 3.2	ø20	ø19.5	-	-	4.0	4.0	-	-	-	-
FH-T780	53.8	52.8	3.2 / 3.5			-	-	5.5	5.5	40.75			4.7
HB-M820	59.6	59.6		-	-	ø24.0	ø24.0	-	-	-	24.25	20	-
FH-M820	53.8	52.8	3.2 / 3.5			ø19.0	ø19.0			40.75		10 / 12	4.7
FH-M825												12	
FH-M828										44.25	27.75		
HB-M640	61.6	61.6	3.2 / 3.2			ø24.0	ø24.0			-	24.25	20	-
FH-M640	53.8	52.8	3.2 / 3.5			ø19.0	ø19.0			40.75		10 / 12	4.7
FH-M645												12	
FH-M648										44.25	27.75		
HB-M675	52.8		3.2 / 3.2	ø20	ø19.5	-	-	4.0	4.0	-	19.5	-	-
HB-M678	55.8	55.8		-	-	ø21.0	ø21.0	-	-			15	
FH-M675	53.8	52.8	3.2 / 3.5	ø20	ø19.5	-	-	5.5	5.5	40.75	24.25	-	4.7
FH-M678				-	-	ø19.0	ø19.0	-	-	44.25	27.75	12	

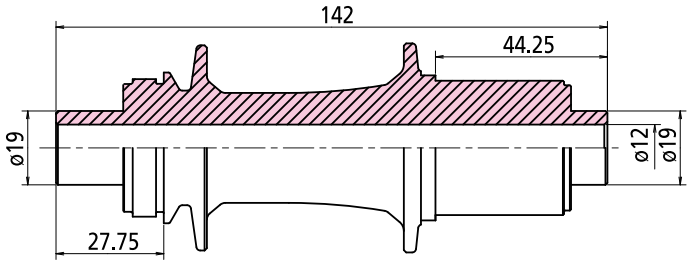
(mm)
X: Yes

Model No.	G Flange diameter (FH side)	G' Left flange diameter	M / N Flange thickness	O	O'	P	P'	Q	Q'	R	S	T	U Low gear contact face to flange
HB-T670	48.4	48.4	3.2 / 3.2	ø20	ø19.5	-	-	4.0	4.0	-	-	-	-
HB-T675	52.8	52.8									19.5		
FH-T670	53.8	53.8	3.2 / 3.5					5.5	5.5	40.75	-		4.7
FH-T675											24.25		
HB-M615	52.8	52.8	3.2 / 3.2	ø20	ø19.5	-	-	4.0	4.0	-	19.5		-
HB-M618				-	-	ø21.0	ø21.0	-	-	-		15	-
FH-M615	53.8	53.8	3.2 / 3.5	ø20	ø19.5	-	-	5.5	5.5	40.75	24.25	-	4.7
FH-M618		52.8		-	-	ø19.0	ø19.0	-	-	44.25	27.75	12	
HB-T610	48.4	48.4	3.2 / 3.2	ø20	ø19.5	-	-	4.0	4.0	-	-	-	-
FH-T610	53.8	53.8	3.2 / 3.5					5.5	5.5	40.75			4.7
HB-M4050	52.8	52.8	3.2 / 3.2	ø20	ø19.5	-	-	4.0	4.0	-	19.5	-	-
FH-M4050	53.8	53.8	3.2 / 3.5					5.5	5.5	40.75	24.25		4.7
HB-T4000	52.8	52.8	3.2 / 3.2					4.0	4.0	-	-		-
FH-T4000	53.8	53.8	3.2 / 3.5					5.5	5.5	40.75	-		4.7
HB-M3050	52.8	52.8	3.2 / 3.2					4.0	4.0	-	19.5		-
FH-M3050	53.8	53.8	3.2 / 3.5					5.5	5.5	40.75	24.25		4.7
HB-T3000	48.4	48.4	3.2 / 3.2					4.0	4.0	-	-		-
FH-T3000	53.8	53.8	3.2 / 3.5					5.5	5.5	40.75	-		4.7
HB-RM35	52.8	52.8	3.2 / 3.2					4.0	4.0	-	19.5		-
FH-RM35	53.8	53.8	3.2 / 3.5					5.5	5.5	40.75	24.25		4.7
HB-RM33	52.8	52.8	3.2 / 3.2					4.0	4.0	-	19.5		-
FH-RM33	53.8	53.8	3.2 / 3.5					5.5	5.5	40.75	24.25		4.7
HB-TX505	52.8	52.8	3.2 / 3.2	ø20	ø19.5			4.0	4.0	-	19.5		-
FH-TX505-8	53.8	53.8	3.2 / 3.5	ø20	ø19.5			5.5	5.5	40.75	24.25		4.7
HB-TX800-QR	46.0	46.0	3.2 / 3.2	ø20	ø19.5			4.0	4.0	-	-		-
HB-TX800-NT				-	-			-	-				
FH-TX800-QR	53.8	53.8	3.2 / 3.5	ø20	ø19.5			5.5	5.5	40.75	-		4.7
FH-TX800-NT				-	-			-	-				
FH-RM30-7-QR	53.8	53.8	3.2 / 3.5	ø20	ø19.6			5.5	5.5	38.1	-		5.3
FH-RM30-7-NT				-	-			-	-		-		

(mm)
X: Yes

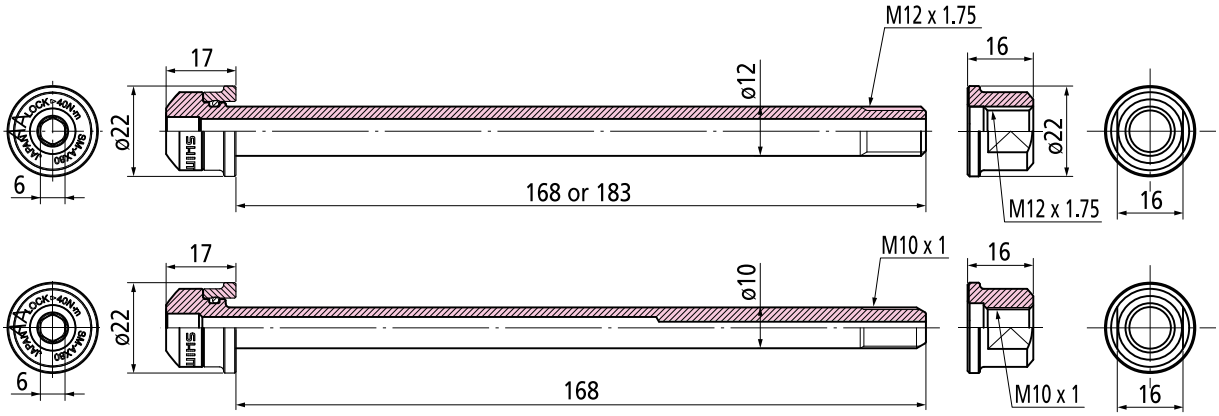
E-Thru hub / E-Thru axle dimensions [MTB]

12mm Rear E-thru C-264

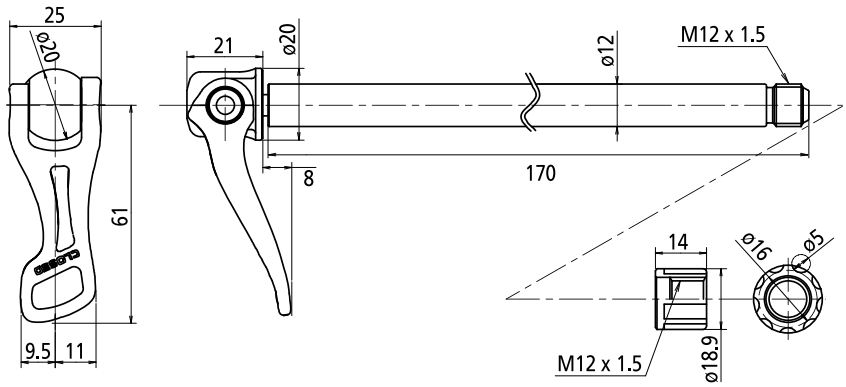


Freehub	Wheel
FH-M8010 FH-M678 FH-M618	WH-M9000-TU-R12-29 WH-M9000-TL-R12-29 WH-M9000-TL-R12-275 WH-M9020-TL-R12-29 WH-M9020-TL-R12-275 WH-M8000-TL-R12-29 WH-M8000-TL-R12-275 WH-M8020-TL-R12-29 WH-M8020-TL-R12-275 WH-M788-R12 WH-M785-R12-275 WH-M785-R12-29 WH-MT68-R12 WH-MT66-R12-29

SM-AX80



SM-AX76 / SM-AX75 / SM-AX65 / SM-AX56

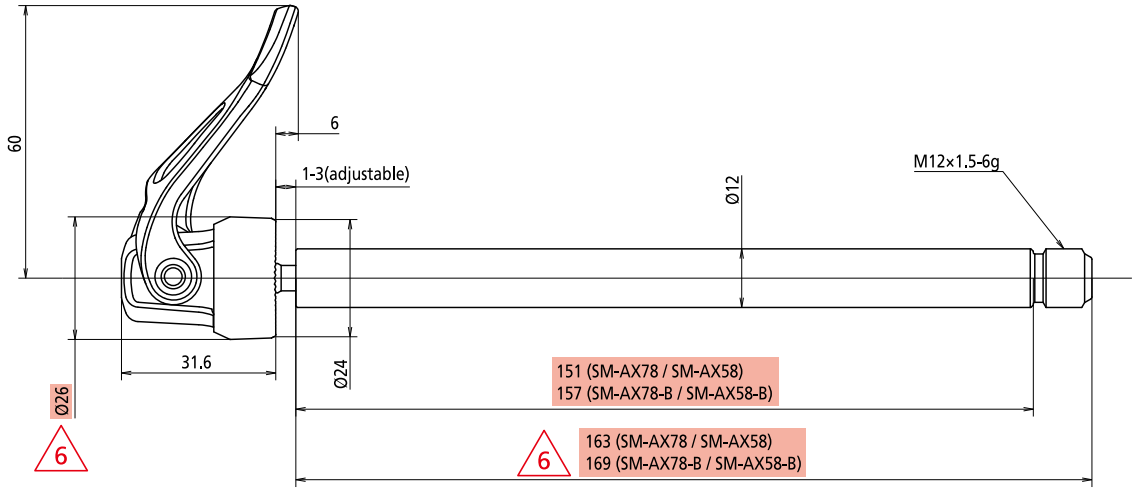


12 mm Rear E-thru I-type C-265

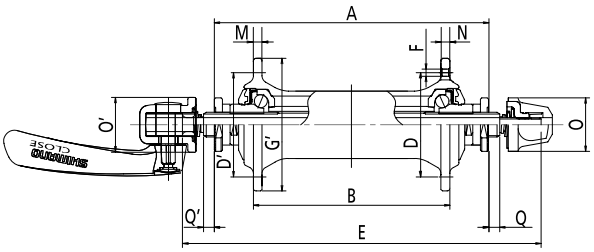
SM-AX78 / SM-AX58 (O.L.D. 142mm)

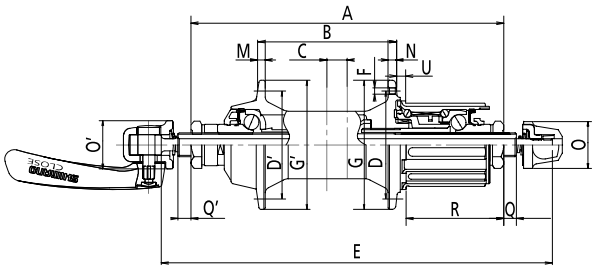
6

SM-AX78-B / SM-AX58-B (O.L.D. 148mm)



Front hub / Freehub dimensions [ROAD]





Model No.	Type	QR type	A O.L.D	B flange distance	C off set	D P.C.D.1 (FH side)	D' P.C.D.2
HB-9000	For rim brake	X	100	74.0	-	38	38
FH-9000 (except for 28H)		X	130	56.9	9.75	45	44
FH-9000 (28H)		X	130	56.5	9.95	45	44
HB-6800		X	100	71.6	-	40	40
FH-6800		X	130	56.9	9.7	45	44
HB-5800		X	100	71.6	-	38	38
FH-5800		X	130	56.9	9.75	45	44
HB-3500		X	100	71.6	-	38	38
FH-3500		X	130	57.9	8.4	45	45
HB-2400		X	100	71.6	-	38	38
FH-2400		X	130	57.9	8.6	45	45
HB-RS400		X	100	71.6	-	38	38
FH-RS400		X	130	56.9	9.75	45	44
HB-CX75	For disc brake	X	100	59.6	6.0	41	44
FH-CX75		X	135	55.7	7.4	45	44
HB-RS505		X	100	59.6	6.1	44	44
FH-RS505		X	135	55.7	7.45	45	44
HB-TX800-QR		X	100	71.6	0	38	38
FH-RM30-7-QR		X	130	59.2	0	45	45

(mm)
X: Yes

Model No.	Type	QR type	E QR	F Spoke hole	G flange diameter (FH side)	G' left flange diameter	M / N flange thickness
HB-9000	For rim brake	X	133	ø2.4	-	48.4	3.2 / 3.2
FH-9000 (except for 28H)		X	163 (168)	ø2.4	53.8	52.8	3.2 / 3.5
FH-9000 (28H)		X	163 (168)	ø2.4	53.8	52.8	3.2 / 3.5
HB-6800		X	133	ø2.6	-	50.4	3.2 / 3.2
FH-6800		X	163 (168)	ø2.6	53.8	52.8	3.2 / 3.5
HB-5800		X	133	ø2.6	-	48.4	3.2 / 3.2
FH-5800		X	163 (168)	ø2.6	53.8	52.8	3.2 / 3.5
HB-3500		X	133	ø2.6	-	48.4	3.2 / 3.2
FH-3500		X	163	ø2.6	53.8	53.8	3.2 / 3.5
HB-2400		X	133	ø2.6	-	48.4	3.2 / 3.2
FH-2400		X	163 (168)	ø2.6	53.8	53.8	3.2 / 3.5
HB-RS400		X	133	ø2.6	-	48.4	3.2 / 3.2
FH-RS400		X	163 (168)	ø2.6	53.8	52.8	3.2 / 3.5
HB-CX75	For disc brake	X	133	ø2.6	51.4	52.8	3.2 / 3.2
FH-CX75		X	168 (173)	ø2.6	53.8	52.8	3.2 / 3.5
HB-RS505		X	133	ø2.6	52.8	52.8	3.2 / 3.2
FH-RS505		X	168 (173)	ø2.6	53.8	52.8	3.2 / 3.5
HB-TX800-QR		X	129 (133)	ø2.6	46.0	46.0	3.2 / 3.2
FH-RM30-7-QR		X	161	ø2.6	53.8	53.8	3.2 / 3.5

(mm)
X: Yes

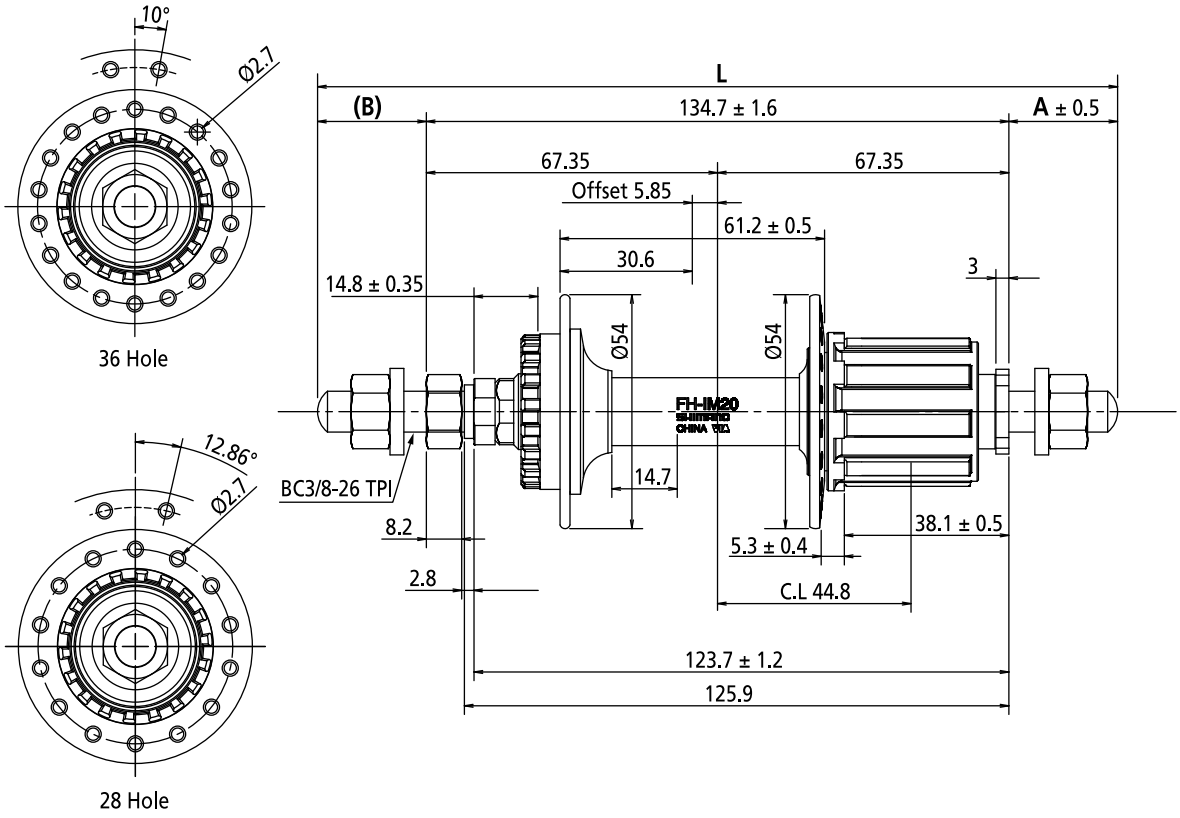
Model No.	Type	O	O'	Q	Q'	R	*S	U low gear contact face to flange
HB-9000	For rim brake	ø19.5	ø20.0	4.0	4.0	-	-	-
FH-9000 (except for 28H)		ø19.5	ø20.0	5.5	5.5	42.4	-	3.9
FH-9000 (28H)		ø19.5	ø20.0	5.5	5.5	42.4	-	4.3
HB-6800		ø19.5	ø20.0	4.0	4.0	-	-	-
FH-6800		ø19.5	ø20.0	5.5	5.5	42.4	-	3.9
HB-5800		ø19.5	ø20.0	4.0	4.0	-	-	-
FH-5800		ø19.5	ø20.0	5.5	5.5	42.4	-	3.9
HB-3500		ø19.5	ø20.0	4.0	4.0	-	-	-
FH-3500		ø19.5	ø20.0	5.5	5.5	40.55	-	3.9
HB-2400		ø19.5	ø20.0	4.0	4.0	-	-	-
FH-2400		ø19.5	ø20.0	5.5	5.5	40.75	-	3.9
HB-RS400		ø19.5	ø20.0	4.0	4.0	-	-	-
FH-RS400		ø19.5	ø20.0	5.5	5.5	42.4	-	3.9
HB-CX75	For disk brake	ø19.5	ø20.0	4.0	4.0	-	19.5	-
FH-CX75		ø19.5	ø20.0	5.5	5.5	42.4	24.25	4.7
HB-RS505		ø19.5	ø20.0	4.0	4.0	-	19.5	-
FH-RS505		ø19.5	ø20.0	5.5	5.5	42.4	24.25	4.7
HB-TX800-QR		ø19.5	ø20.0	4.0	4.0	-	-	-
FH-RM30-7-QR		ø19.6	ø20.0	5.5	5.5	38.1	-	5.3

(mm)
X: Yes

Please refer to C-262 for definition of S dimension.

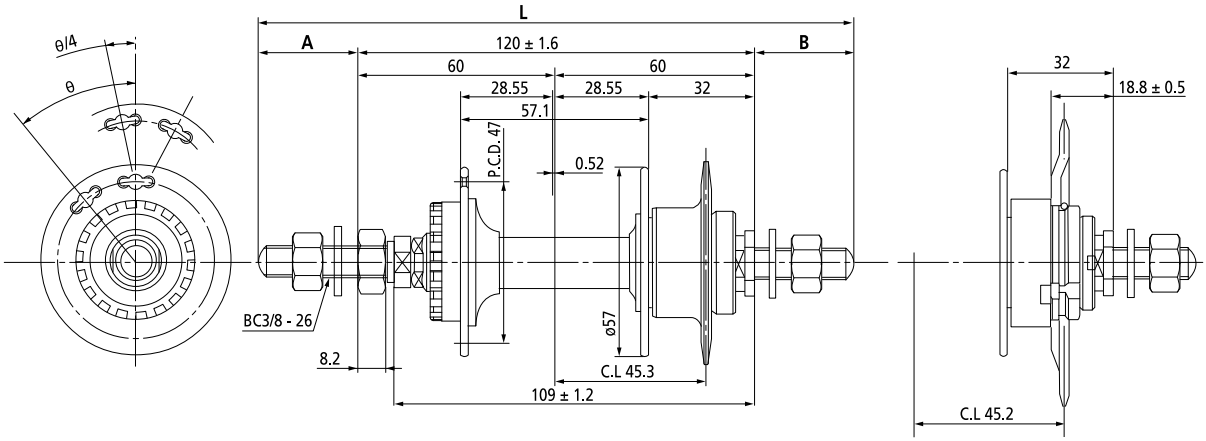
Hub / Freehub dimensions [COMFORT]

FH-IM20
(not for EU-market)



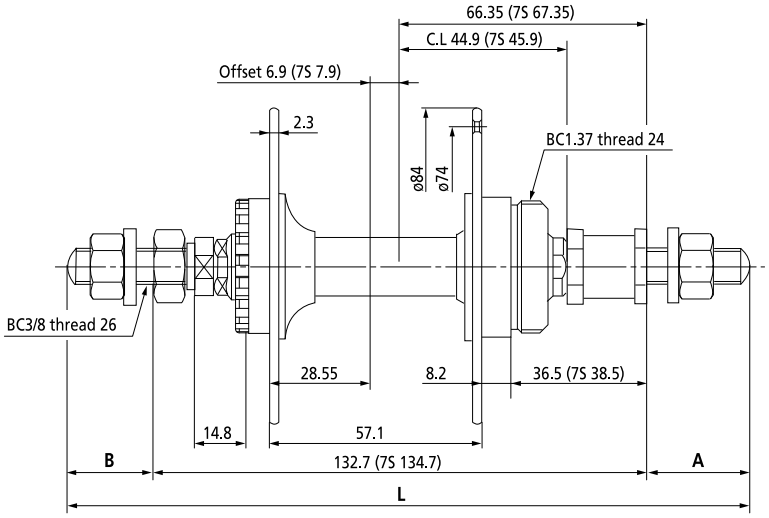
Hole No.	L (mm)	A (mm)	B (mm)
36H,28H	202	36	31.3
	194	32	27.3

FH-IM37
FH-IM35
(not for EU-market)



Hole No.	Sprocket	L (mm)	A (mm)	B (mm)
36H, 28H	14T, 16T	185	32	32
		180	30	30
		192	38	34

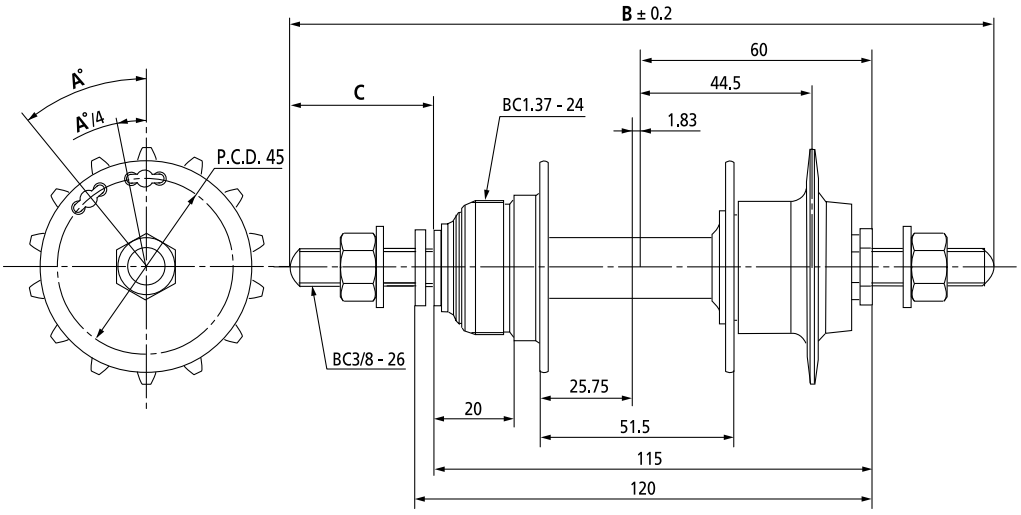
RH-IM11
RH-IM10



4

Model No.	L (mm)	A (mm)	B (mm)	Holes
RH-IM11-6S	204	38.0	33.3	36H
RH-IM11-6S	200	36.0	31.3	36H
RH-IM11-6S	192	29.0	30.3	36H
RH-IM11-6S / RH-IM10-6S	192	32.0	27.3	36H, 28H
RH-IM11-6S / RH-IM10-6S	185	28.5	23.8	36H, 28H
RH-IM11-6S / RH-IM10-6S	180	24.5	22.8	36H, 28H
RH-IM11-7S	200	35.0	30.3	36H
RH-IM11-7S / RH-IM10-7S	192	31.0	26.3	36H, 28H
RH-IM11-7S / RH-IM10-7S	180	23.5	21.8	36H, 28H

FH-S027



Hole No.	A°	B (mm)	C (mm)
28H	360° / 7	180	34.5
		165	28.0
36H	360° / 9	192	41.5
		185	38.0
		180	34.5
		170	33.0
		165	28.0

line-up

C-269

Model No.	Output 6V-**W	BR Compatibility			Nut	QR	Connector design	O.L.D. (mm)	Wheel size	Tire outer diameter (mm)
		V-BRAKE / Caliper brake	HRB (modulator level)	Disc						
DH-T785	3.0W	–	–	X	–	X	E2	100	26”- 28”	646 - 716
DH-T780		X	–	–	–	X				
DH-T785-1D	1.5W	–	–	X	–	X			20”- 28”	492 - 716
DH-T780-1N		X	–	–	–	X				
DH-3D80	3.0W	–	–	X	–	X			26”- 28”	646 - 716
DH-3D72		–	–	X	–	X				
DH-3D32		–	–	X	X	X			16”- 28”	400 - 716
DH-3D37		–	–	X	X	X				
DH-3N80		X	–	–	–	X			26”- 28”	646 - 716
DH-3N72		X	–	–	–	X				
DH-3N31		X	–	–	X	X			16”- 28”	400 - 716
DH-F703-S		X	–	–	–	X		74	16”- 20”	400 - 536
DH-2N80-E	2.4W	X	–	–	–	X		100	26”- 28”	646 - 716
DH-2N72		X	–	–	–	X				
DH-2N35-E		X	–	–	X	X			16”- 28”	400 - 716
DH-T670-2N	2.4W	X	–	–	–	X		100	26”- 28”	646 - 716
DH-T670-3N	3.0W	X	–	–	–	X				
DH-T675		–	–	X	–	X				
DH-S501		–	–	X	–	X				
DH-S701	1.5W	–	–	X	–	X			20”- 28”	492 - 716
DH-F703	3.0W	X	–	–	–	X		74	16”- 20”	400 - 536
DH-C6000-3R	3.0W	–	(hyper / normal) X	–	X	X	E2	100	26”- 28”	646 - 716
DH-C6000-2R	2.4W	–	(hyper / normal) X	–	X	–			26”- 28”	646 - 716
DH-C6000-1R	1.5W	–	(hyper / normal) X	–	X	–			26”- 28”	646 - 716
DH-C6000-1N		X	–	–	X	–			18”- 28”	448 - 716
DH-C3000-1N		X	–	–	X	–				
DH-T4000-1N	1.5W	X	–	–	–	X				
DH-T4000-1D	1.5W	X	–	X	–	X				

For Japan Market C-270

Model No.	Output 6V-**W	BR Compatibility			Nut	QR	Connector design	O.L.D. (mm)	Wheel size	Tire outer diameter (mm)
		V-BRAKE / Caliper brake	HRB (modulator level)	Disc						
DH-C2100-N	0.9W	X	-	-	X	-	J2-A	93	26”- 28”	-
DH-C2100-NC		X	-	-	X	-			20”- 24”	-
DH-2N40-J	2.4W	X	-	-	X	-	J2	93	24"- 28"	-
DH-2N40-JC		X	-	-	X	-			20"- 24"	-
DH-2N40-JW		X	-	-	X	-		100	24"- 28"	-
DH-2N40-JWC		X	-	-	X	-			20"- 24"	-
DH-2R30-J		-	X (normal)	-	X	-			26"- 28"	-
DH-2R30-JC		-	X (normal)	-	X	-			20"- 24"	-

Open output voltage of DH-T785 / T780 / T708 / T675 / 3N80 / 3N72 / 3D80 / 3D72 / 2N80-E / 2N72 / S701 / S501 / T670-2N / T670-3N is higher than other Shimano models. (Reference: Open output voltage: DH-T785 / T780 / T708 / T675 / 3N80 / 3N72 / 3D80 / 3D72 / 2N80-E / 2N72 / S701 / S501 / T670-2N / T670-3N--30km/h (26-inches): 35 Vrms, 140 Vpp, 70km/h (26-inches): 80 Vrms, 320 Vpp.)

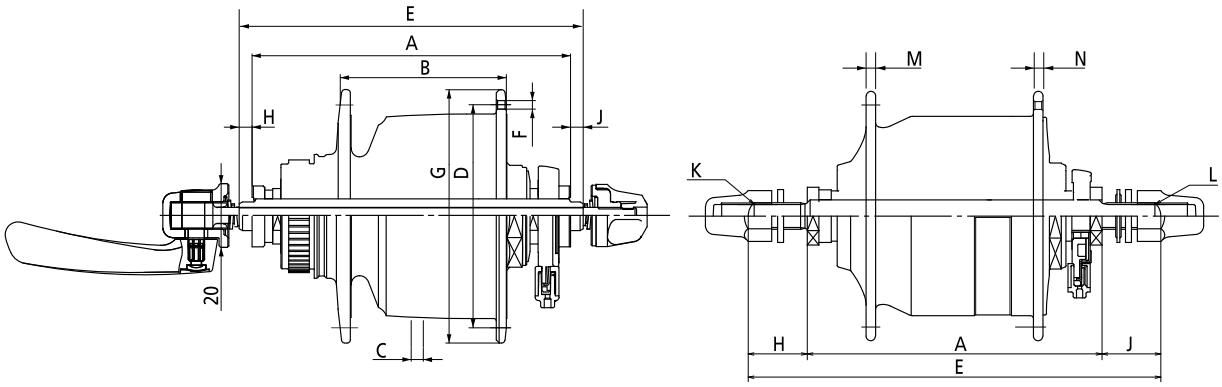
Lights with electrical circuits such as automatic lights may be damaged if the bicycle is ridden at high speeds with DH-T785 / T780 / T708 / T675 / 3N80 / 3N72 / 3D80 / 3D72 / 2N80-E / 2N72 / S701 / S501 / T670-2N / T670-3N.
If the type of light that use an electric circuit is combined with DH-T785 / T780 / T708 / T675 / 3N80 / 3N72 / 3D80 / 3D72 / 2N80-E / 2N72 / S701 / T670-2N / T670-3N, please ask the light supplier whether it will be damaged or not.

- Use the 3.0W light or the 2.4W light + 0.6W rear light with the 3.0W dynamo.
- Use the 2.4W light with the 2.4W dynamo.
- Bulb life becomes shorter when is used for a small wheel bike except using 20”- 24”-inches dynamo.
- Shimano hub dynamo do not meet MTB specification.

NOTE

Use a wheel with 3x or 4x spoke lacing except DH-F703 series. Wheels with radial lacing cannot be used because the spokes and the wheel can be damaged when applying the brakes and brake noise can be generated.
Please check the domestic regulation of the final destination of the bike.

Hub dynamo dimensions

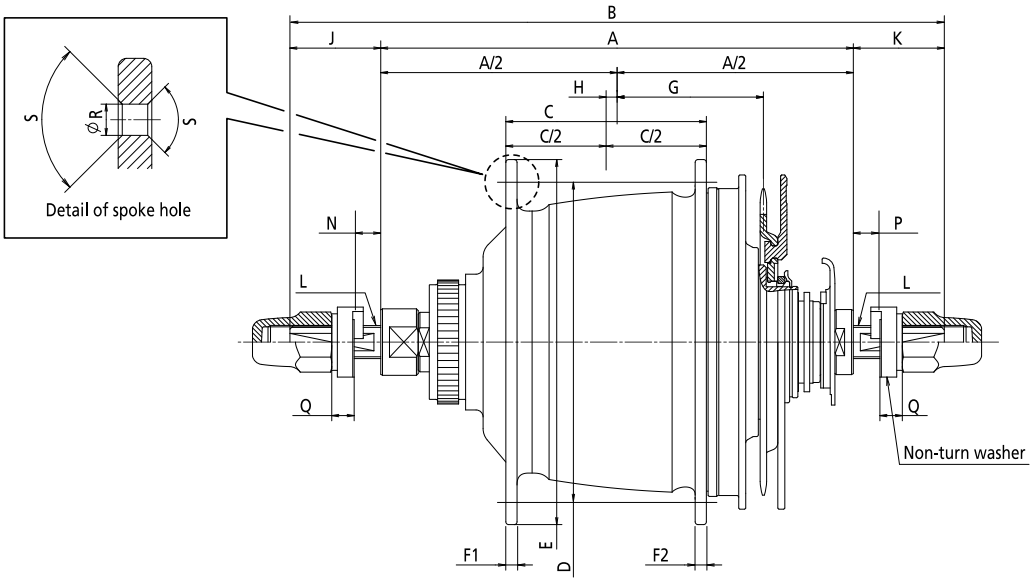


Model No.	Type	Center lock mount type	Voltage	Output (W)	QR type	Nut type	Spoke size
DH-S701	For disc brake	X	6V	1.5	X	-	#14
DH-S501				3.0	X	-	
DH-T785-1D				1.5			
DH-T780-1N	Regular	-		1.5			
DH-T785	For disc brake	X		3.0			
DH-T675				3.0			
DH-3D80				3.0			
DH-3D72				3.0			
DH-3D37-QR				3.0			
DH-3D37-NT				3.0	-	X	
DH-3D32-QR	For disc brake	-		3.0	X	-	
DH-3D32-NT				3.0	-	X	
DH-3N80	Regular	-		3.0	X	-	
DH-2N80E				2.4			
DH-3N72				3.0			
DH-2N72				2.4			
DH-T780				3.0			
DH-T670-2N				2.4			
DH-T670-3N				3.0			
DH-3N31-QR				3.0			
DH-2N35-QR				2.4			
DH-3N31-NT				3.0	-	X	
DH-2N35-NT				2.4			
DH-F703				3.0	X	-	
DH-F703-S				3.0			
DH-C6000-3R(QR)	For hub roller brake	-		3.0	X	-	
DH-C6000-3R(NT)				3.0	-	X	
DH-C6000-1R				1.5			
DH-C6000-2R				2.4			
DH-C6000-1N	Regular	-		1.5	-	X	
DH-C3000-1N	Regular	-		1.5	-	X	
DH-T4000-1N	Regular	-		1.5	X	-	
DH-C2100	Regular	-		0.9	-	X	#13, #14
DH-2N40-J DH-2N40-JC	Regular	-		2.4	-	X	#14
DH-2N40-JW DH-2N40-JWC							
DH-2R30-J DH-2R30-JC	For hub roller brake						

X: Yes

Model No.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H / J (mm)	K / L (mm)	M / N (mm)
DH-S701	100	54.0	3.1	57	108.0	ø2.6	67.4	4.0	ø9	3.2
DH-S501		52.1	3.8	70	108.0		79.6	4.0	ø9	
DH-T785-1D		54.0	3.1	57			67.4			
DH-T780-1N		60.0	0	57			67.4			
DH-T785		52.1	4.0	70			79.6			
DH-T675		52.1	4.0	70			79.6			
DH-3D80		52.1	4.0	70			79.6			
DH-3D72		52.1	3.8	70			79.6			
DH-3D37-QR		51.0	4.0	74	108.0		83.7	4.0	ø9	
DH-3D37-NT			4.0		140.0			20.0	M9X1	
DH-3D32-QR			4.0		108.0			4.0	ø9	
DH-3D32-NT			3.6		140.0			20.0	M9X1	
DH-3N80	100	60.0	0	70	108.0		79.6	4.0	ø9	
DH-2N80E										
DH-3N72										
DH-2N72										
DH-T780										
DH-T670-2N										
DH-T670-3N										
DH-3N31-QR			0.6	74			86.6			
DH-2N35-QR										
DH-3N31-NT			1.0		140.0			20.0	M9X1	
DH-2N35-NT										
DH-F703	74	44.6	0	74	82.0		84.4	4.0	ø9	
DH-F703-S										
DH-C6000-3R(QR)	100	58.1	5.2	76	108.0		88.6	4.0	ø9	
DH-C6000-3R(NT)			4.7		140.0			20.0	M9X1	
DH-C6000-1R										
DH-C6000-2R										
DH-C6000-1N	100	56.0	1.1	67	140.0		79.6	20.0	M9X1	
DH-C3000-1N	100	56.0	1.1	67	140.0		79.6	20.0	M9X1	
DH-T4000-1N	100	56.0	0.6	67	108.0		79.6	4.0	ø9	
DH-T4050-1D	100	51.0	1.9	67	108.0		77.4	4.0	ø9	
DH-C2100	93	58.0	0.5	60	155.0		69.6	31.0	BC5/16	
DH-2N40-J DH-2N40-JC	93	60.0	0	69	150.0		78.7	28.5	BC5 / 16	
DH-2N40-JW DH-2N40-JWC	100		3.0		140.0			20.0	M9X1	
DH-2R30-J DH-2R30-JC		58.1	4.8	74	155.0		86.6	27.5	BC5 / 16	

ALFINE 11, 8 / Nexus INTER-8, 7



	Series	ALFINE		Nexus					
	Model No.	SG-S700	SG-S7000-8	SG-C6010-8R / SG-C6000-8R / SG-C6010-8V / SG-C6000-8V	SG-C6000-8C	SG-C6000-8D	SG-C6000-8CD	SG-C3000-7R	SG-C3000-7C
	Speed	11	8	8	8	8	8	7	7
	Gear ratio: Total	409%	307%	307%	307%	307%	307%	244%	244%
	Spoke size	#13 / #14							
A	Over locknut dim. / O.L.D. (mm)	135	135	132	132.3	135	135	130	127
B	Axle length (mm)	187	187	184	184	187	187	182 / 201	175.5
C	Flange distance (mm)	57.3	57.3	58.3	58.3	57.3	58.3	54.6	56.2
D	Spoke hole P.C.D. (mm)	92.6	92.6	92.6	92.6	92.6	92.6	87	83.5
E	Flange diameter (mm)	104.3	104.3	105.2	105.2	105.2	105.2	99.6	92.5
F	Flange width (mm): F1 (left)	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.7
	Flange width (mm): F2 (right)	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.3
G	Chain line (mm): G1 (outward assembly)	46.8	46.8	47.7	47.85	46.8	46.8	45.3	46.5
	Chain line (mm): G2 (inward assembly)	41.8	41.8	42.7	42.85	41.8	41.8	40.3	41.5
H	Dishing distance (mm)	3.15	3.15	2.7	2.55	3.4	4	3.85	4.6
J	Axle length from hub (left)	26	26	26	25.7	26	26.6	26 / 37	24.5
K	Axle length from hub (right)	26	26	26	26	26	25.4	26 / 34	24
L	Axle size	BC3 / 8 TPI 26							
N	Dropout width (left, includes stay etc.)	5-9	5-9	4-9	4-9	5-9	4-9	4-9 / 15 - 20	4-9
P	Dropout width (right, includes stay etc.)	5-9	5-9	4-9	4-9	5-9	4-9	4-9 / 12-17	4-9
Q	Non-turn washer width	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
R	Spoke hole diameter (mm)	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.7
S	Spoke hole chamfer	90°	90°	90°	90°	90°	90°	90°	105°